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Draft 2009 Data Evaluation Report

Ely Copper Mine Superfund Site
Vershire, Vermont

Remedial Investigation / Feasibility Study
EPA Task Order No. 0024-RI-CO-017L

REMEDIAL ACTION CONTRACT
No. EP-S1-06-03

FOR

U.S. Environmental Protection Agency
Region 1

BY

Nobis Engineering, Inc.

Nobis Project No. 80024

May 2010

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SDMS DocID 473838

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1.0 INTRODUCTION

This Section describes the workscope and objectives of the Remedial Investigation/Feasibility Study, the stakeholders and participants, and the primary references and general organization of this Data Summary Report for the 2009 field season.

1.1 Work Scope and Objective

This Data Summary Report was prepared by Nobis Engineering, Inc. (Nobis) for the United States Environmental Protection Agency (EPA) under Contract Number EP-S1-06-03, Task Order Number 0024-RI-CO-017L (Task Order). The work was performed in accordance with the EPA Statements of Work (SOW) as amended on September 11, 2008 and May 12, 2009. The Task Order SOW includes the completion of a Remedial Investigation/Feasibility Study (RI/FS) at the Ely Copper Mine Superfund Site (the Site) located in Vershire, Vermont. The goal of the RI/FS is to develop the minimum amount of data necessary to support the selection of a remedy that eliminates, reduces, or controls risks to human health and the environment and can be used to prepare a well-supported Record of Decision (ROD).

The objectives of this Data Summary Report are to:

- provide a compilation of the results of sampling and analysis from investigations completed during 2009 at the Site;
- summarize preliminary observations of the Site hydrogeology, waste source characteristics, and contaminant migration mechanisms and transport pathways based on the 2009 data set;
- present an updated Preliminary Conceptual Site Model that summarizes the current understanding of Site conditions, and describes fluxes and reservoirs of contaminants at and from the Site; and
- identify data gaps that must be addressed in order to complete the RI/FS.

1.2 Report Organization

The Data Summary Report is organized as follows:

- Section 1.0, Introduction, provides an overview of task objectives, SOW, and Site background.

- Section 2.0, 2009 Field Investigation Sampling, provides an overview of the specific field activities implemented during the 2009 field season.

- Section 3.0, Data Quality Assessment and Limitations, includes a summary of the results of data review and validation of the laboratory data.

- Section 4.0, Hydrogeology, includes a brief overview of the Site geology and groundwater hydrogeology based on results from the 2009 investigations.

- Section 5.0, X-ray Fluorescence Field Screening Results, describes the field analytical program used to characterize the nature and extent of metals in Site waste areas, soil and sediment.

- Section 6.0, Laboratory Analytical Results, presents a preliminary overview of results from the various analytical parameters and media investigated during 2009.

- Section 7.0, Preliminary Conceptual Site Model, presents the current understanding of Site conditions, describes migration pathways, fluxes and reservoirs of contaminants at and from the Site.

- Section 8.0, References, lists the principal references used for preliminary comparison of Site data in this report.

1.3 Site Background

This Section provides a brief description of the Site, its general surroundings, pertinent historical facts regarding the mining history, and an overview of the areal geology and hydrology as a context for subsequent sections discussing Site details.

1.3.1 Site Description and Setting

The Ely Copper Mine Superfund Site is located approximately 4 miles southeast of the village of Vershire Center, and approximately 1.5 miles northwest of the village of West Fairlee in Vershire, Orange County, Vermont (Figure 1-1). The Site encompasses approximately 350 acres along the south slope of Dwight Hill, to the north of Schoolhouse Brook and South Vershire Road. The Site includes features such as intact and collapsed adits, shafts, reservoirs, over 3,000 linear feet of underground workings (largely flooded) and remnant foundations of former mine operation buildings. Waste areas are sparsely vegetated and include former ore roast beds, waste rock and tailings piles, a former smelter area, and a slag pile (Figure 1-2; Piatak, and others, 2004a; URS, 2004; PAL Inc, 2005). No buildings exist on the site. The locations of the former Main Shaft Hoist, the Westinghouse Hoist House, smelter buildings, a World War I-era ore flotation separation plant and other structures associated with historic mining operations have been documented at the Site (PAL Inc, 2005).

The Site landscape is a combination of barren open areas and patches of birch and evergreen trees. The south slope of Dwight Hill, which contains most of the waste rock associated with the mines, lies within the watershed of a small stream, Ely Brook, which flows south to join Schoolhouse Brook on the south side of South Vershire Road. Schoolhouse Brook borders the southern margin of the Site and flows eastward approximately 1.75 miles to its confluence with the East Branch of the Ompompanoosuc River. Schoolhouse Brook and the E. Branch of the Ompompanoosuc River are used for recreational purposes and contain fisheries.

1.3.2 Site History

The Ely Cooper Mine lies between the Elizabeth and Pike Hill mines and is located on the south side of Dwight Hill in the Town of Vershire, Vermont. The ore body was discovered in 1813 and explored in the 1830s. Significant mine activities began in 1853 and lasted until 1905. Mineralogy of the ore body was similar to that of the Elizabeth and Pike Hill mines with ore

consisting primarily of pyrrhotite, chalcopyrite and minor pyrite and sphalerite. Prior to 1867, ore was shipped to smelters along the east coast for processing. On-site smelting operations began in 1867 and were expanded over time to include a large 24-furnace smelter plant which was among the top ten copper producing operations for a period of its history, with an average annual production of 1 million pounds of ingot copper and an estimated total copper production of 20,000 tons. It was the only copper mine in Vermont that successfully produced refined ingot copper on a large scale (Kierstead, 2001). During World War I, a flotation separation mill was constructed and operated for a short period. During World War II, some waste ore material at the Site was scavenged for milling at the Elizabeth Mine.

1.3.3 Site Investigations

A considerable amount of existing data has been generated as the result of previous investigations conducted at the Site by EPA, the U.S. Army Corps of Engineers (USACE), the U.S. Geological Society (USGS), the State of Vermont, and others. The results from the 2009 field investigation will be used to supplement these existing data as necessary to complete the RI/FS. A brief overview of some of these studies follows.

A compilation of the geology and geochemistry of the massive sulfide ores in the Vermont Copper Belt, including results from a variety of geochemical studies of select samples of ore and host rocks, was used as a basis to evaluate the origin of the deposits and identify comparable analogues (Slack and others, 2001). The USACE in cooperation with the USGS completed a study of spring runoff from the Site to characterize the geochemical diversity of water sources in the Ely Brook Watershed which included sampling from seeps from mine waste areas, Ely Brook and tributaries, Schoolhouse Brook, and Ompompanoosuc Brook. This study documented highly acidic and highly metal laden runoff from the mine areas (Holmes et. al., 2002). In 2004 and 2007, the USGS completed a series of studies of mine wastes at the Site which included sampling and analysis of the various solid mine waste materials and sediment to characterize the materials, assess their acid-generating potential, and potential for leaching metals, with a comparison the Elizabeth Mine wastes (Piatak et. al., 2004a; 2007). A separate study of the geochemistry of the slag material deposited along South Vershire Road was also completed by the USGS in 2004 in comparison to slags at other mine sites in North America (Piatak et. al. 2004b). This study included an evaluation of secondary minerals formed on the slag and the potential leachability of metals from the slag. From 2005 through 2008,

URS in conjunction with the USACE and EPA completed preliminary field sampling investigations in support of the Site RI/FS. Work included a habitat characterization study of the Site and surrounding area which describes the terrestrial habitats, potential wetland areas, and potential terrestrial receptors at the Site (URS, 2005). Information from this report was used as a basis to determine additional sampling in support of the terrestrial Baseline Ecological Risk Assessment (BERA) at the Site. In addition field sampling investigations were completed which included test pits and boring in waste areas, monitoring well installation, collection of surface water, sediment, surface and subsurface soil, and groundwater samples from the Site. In addition, one off-site residential groundwater sample was collected (URS, 2009). These data are anticipated to be incorporated directly into the analytical database for the RI/FS for use in completing risk assessments. In 2007, the Vermont Department of Environmental Conservation (VTDEC) completed an aquatic life use attainment assessment of Ely Brook, Schoolhouse Brook, and the Ompompanoosuc River in conjunction with ongoing USGS studies. The VTDEC assessment included evaluation of fish and macroinvertebrate data which indicated impairment for portions of Schoolhouse Brook and Ely Brook likely related to runoff from the Ely Mine Site (VTDEC, 2007). In 2006 and 2007, USGS in conjunction with EPA collected data to support ongoing work on the aquatic BERA for the Site. The study includes a detailed characterization of surface water and sediment quality, and evaluation of fish and macroinvertebrate communities, and the toxicity of surface water, sediment and porewater. Preliminary results indicate significant toxicity of sediments from Ely Brook and Schoolhouse Brook, but not from the Ompompanoosuc River (USGS, Unpublished 2008).

2.0 2009 FIELD INVESTIGATION SAMPLING

The following sections describe sampling tasks performed at the Site in 2009. The basis and rationale for the 2009 field investigation was presented in the Final Conceptual Site Model Technical Memorandum (Nobis, 2009a). All field tasks were performed in accordance with the procedures described in the Final Quality Assurance Project Plan (QAPP) dated July 8, 2009 (Nobis, 2009b). Refer to Sections 8 and 9 of the QAPP for task-specific sampling design rationale and procedure requirements. Sample results are summarized in Sections 5.0 and 6.0 of this report.

2.1 Soil Sampling

Soil sampling was conducted during several phases of Site investigation activities including surface soil transects for x-ray fluorescence (XRF) field screening and laboratory analysis to assess the limits of waste areas. Additional surface soil samples were collected from selected locations within the transitional zones bordering unvegetated waste areas to assess the potential impact beyond the waste area footprints. Surface and subsurface soil samples were also collected from soil boring and monitoring well locations to assess the characteristics of waste materials and underlying natural soils.

2.1.1 Surface Soil Laboratory Analytical Samples

In August and September 2009, 51 surface soil samples (including duplicates) were collected from 39 locations as shown in Figure 2-1. Sample intervals ranged from 0 to 0.2 feet (ft) below ground surface (bgs) to 0 to 2 ft bgs. In several locations, multiple samples were collected at consecutive depths. With the exception of two samples, all surface soil samples were submitted for Contract Laboratory Program (CLP) laboratory analysis of target analyte list (TAL) metals. Select samples were also submitted for acid-base accounting (ABA), paste pH, paste conductivity, total organic carbon (TOC), synthetic precipitate leachate procedure (SPLP) metals, and cation exchange capacity (CEC). Surface soil sample details, including sample intervals and laboratory analyses, are summarized in Table 2-2a.

2.1.2 Subsurface Soil Laboratory Analytical Samples

In August and July 2009, soil borings were advanced at 8 locations as shown in Figure 2-2. Seven of the soil borings were completed as overburden well installations and one soil boring (SB-09) was completed without a well installation. Table 4-2 lists the monitoring well construction details. During boring advancement, multiple soil samples were collected at discrete intervals in each location. A total of 25 samples were collected (approximately 3 from each boring) and submitted for Contract Laboratory Program (CLP) and Delivery of Analytical Services (DAS) laboratory analysis of TAL metals, ABA, paste pH, and paste conductivity. In addition, 6 samples were submitted for SPLP metals analysis. Subsurface soil sampling details are summarized in Table 2-2b.

2.1.3 Soil XRF Field Screening Samples

In August and September 2009, 277 surface soil samples (including duplicates) were collected along 25 transects at the locations shown in Figure 2-3. The sample intervals ranged from 0 to 0.5 ft bgs to 2.5 to 4 ft bgs. The samples were submitted to the EPA's Office of Environmental Measurement and Evaluation (OEME) on-site mobile laboratory and screened for select metals using XRF. Based on the results of the XRF screening, 32 of the samples were submitted for CLP laboratory analysis of TAL metals. Select samples were also submitted for DAS analysis of ABA, paste pH, and paste conductivity. Soil XRF field screening sample details, including sample intervals and laboratory analyses, are summarized in Table 5-1.

In addition to the transect samples, 28 of the 51 surface soil samples collected (as described in Section 2.1.1) and samples from hand augured soil borings SB-A and SB-B (shown in Figure 2-3) were XRF field screened by the OEME mobile lab prior to submission to off-site laboratories.

2.1.4 Soil Geotechnical Parameter Samples

In November of 2009, 12 bulk soil samples from waste piles were collected at the locations shown in Figure 2-4. The samples were submitted for off-site DAS laboratory analysis of grain size (12 samples), specific gravity (3 samples), and Standard Proctor (compaction) Tests (6 samples). Additionally, in order to assess the stability of slopes that may be created during waste consolidation, direct shear tests were performed on 6 samples. Geotechnical soil sampling details are summarized in Table 2-2c.

Bulk soil samples were taken from areas of open cut using a shovel. A field density test was performed on all samples prior to laboratory submission using a nuclear densometer in order to obtain the existing in-situ density of the loose unconsolidated materials.

2.2 Vernal Pool Sampling

In August 2009, 5 vernal pool samples (including duplicates) were collected from 4 locations as shown in Figure 2-5. Surface water samples were collected at each location and submitted for laboratory analysis of TAL metals (total and dissolved), pH, conductivity, alkalinity, sulfate,

chloride, and nitrate. These parameters will provide the basis for an assessment of impacts from Site sources. Vernal pool sampling details are summarized in Table 2-2d.

2.3 Surface Water Sampling

Two surface water sampling events occurred in 2009, as described below.

2.3.1 July 2009 Surface Water Monitoring Event

In July 2009, 35 surface water samples (including duplicates) were collected from 33 locations as shown in Figure 2-7. The samples were submitted for laboratory analysis of TAL Metals (total and dissolved), chloride, sulfate, carbonate, bicarbonate, hydroxide, sulfide, nitrate/nitrite, nitrogen, total acidity, alkalinity, total cyanide, total suspended solids (TSS), total dissolved solids (TDS), and hardness. Surface water sampling details are summarized in Table 2-2d.

Additionally, directly following sampling, surface water at each corresponding location was field screened for temperature, pH, conductivity, dissolved oxygen (DO), oxidation reduction potential (ORP), and turbidity with the applicable meters. Table 6-5 and Figure 6-5 display the results of the July geochemical monitoring.

2.3.2 November 2009 Surface Water Monitoring Event

In November, 35 surface water samples (including duplicates) were collected from 33 locations as shown in Figure 2-7. The samples were submitted for laboratory analysis of TAL Metals (total and dissolved), chloride, sulfate, carbonate, bicarbonate, hydroxide, sulfide, nitrate/nitrite, nitrogen, total acidity, alkalinity, total cyanide, TSS, TDS, and hardness. Surface water sampling details are summarized in Table 2-2d.

Additionally, directly following sampling, surface water at each corresponding location was field screened for temperature, pH, conductivity, dissolved oxygen (DO), oxidation reduction potential (ORP), and turbidity with the applicable meters. Table 6-5 and Figure 6-5 display the results of the November geochemical monitoring.

2.4 Sediment Sampling

In August 2009, 17 sediment samples (including duplicates) were collected from 16 locations as shown in Figure 2-6. The samples were submitted for laboratory analysis of TAL metals, ABA, paste pH, paste conductivity, TOC, and grain size. In addition, one sediment sample collected was submitted for laboratory analysis of SPLP metals. Sediment sampling details are summarized in Table 2-2e.

2.5 Aquifer and Bedrock Characterization

Bedrock aquifer characterization activities included hydraulic conductivity testing and geophysical borehole logging, as described below.

2.5.1 Hydraulic Conductivity Testing

In August, falling head slug tests were performed on seven shallow overburden (MW-14A, 17A, 18A, 19A, 20A, 21A, & 23A) and four shallow bedrock monitoring wells (MW-14C, 19C, 20C, and 21C). Head information gathered during the slug testing was subsequently used to estimate hydraulic conductivities and groundwater velocities of the surrounding formation(s) via the Bouwer-Rice analytical method and was compared to literature values of similar formations for validation. During slug testing, head data was recorded and stored using an In-Situ® Level Troll pressure transducer.

Falling head slug tests were performed by adding a slug to the wells with a funnel and known quantity of water and observing water levels fall back to static conditions. Following addition of the slug, a linear step test was performed with the pressure transducer for which water levels were recorded over a 30 minute period every second for the first 5 minutes, every 30 seconds for the next 15 minutes, and then every minute for the final 15 minutes. All falling head data was analyzed via the Bouwer-Rice slug test method. Results of the hydraulic conductivity testing are presented in Section 4.4.

2.5.2 Bedrock Borehole Logging

Following the completion of the three 5-inch diameter deep bedrock boreholes (MW-14D, MW-19D, and MW-20D), a series of borehole geophysical logging suites (“logs”) was completed.

Geophysical logs were used to measure subsurface electrical properties, radiation, density, conductivity, temperature, sound waves, and optical images of the subsurface. These geophysical logs provided important bedrock characterization data and hydrogeologic information.

The following geophysical logs were collected and generally completed in the following sequence:

- Acoustic Televiewer - Acoustic televiewer uses acoustic waves to image the borehole wall to determine the location and attitude of fractures exposed in each bedrock borehole.

- Optical Televiewer - Optical televiewer provides an actual picture image of the borehole wall to determine the location and attitude of fractures exposed in each bedrock borehole.

- Fluid Temperature and Fluid Resistivity - Fluid temperature and fluid resistivity logging are used to determine fluid flow characteristics within the borehole and qualitatively evaluate fluid resistivity or conductivity.

- Caliper - Caliper data will be used to measure the diameter of the borehole. Deviations in borehole diameter indicate the presence of fractures leaving breakouts in the borehole wall. Caliper data will also be used to locate packer intervals that will allow for a proper seal of the packer sampling bladders.

- Natural Gamma - Natural gamma logs measure gamma radiation. Gamma logs are useful in defining overburden stratigraphy and lithology channels outside of the casing.

- Single-point Resistance and Spontaneous Potential - Single-point resistance and spontaneous potential indicate the presence of hydraulically active fractures and possible changes in lithology. They may also indicate shale content and water quality.

- Heat-pulse Flowmeter (non-pumping and pumping conditions) - Heat-pulse flowmeter logging is typically used to determine the presence of water bearing fractures in

fractured bedrock. Heat-pulse logging is used as one of the selection criteria to identify zones for packer sampling of groundwater in fractures.

Logs for each of the geophysical datasets described above were collected from the bottom of the borehole casings (installed approximately 5 feet into the surface of the bedrock) to the borehole bottom located at 150 feet below the ground surface. Results of the geophysical logging were used to select potential water bearing zones for packer testing. Logging results are discussed in Section 4.4 and included in Appendix D.

2.6 Groundwater Sampling

2.6.1 August 2009 Groundwater Monitoring Event

Groundwater and porewater sampling conducted in August 2009 is described below.

2.6.1.1 Low-Flow Groundwater Sampling

In August 2009, 42 overburden and shallow bedrock groundwater samples (including duplicates) were collected via EPA low-flow sampling protocol from 40 monitoring wells (overburden and shallow bedrock) at the locations shown in Figure 2-8. The samples were submitted for laboratory analysis of TAL metals (total and dissolved), total cyanide, sulfate, and hardness. In addition, 21 samples (50 %) were submitted for chloride, carbonate, bicarbonate, hydroxide, sulfide, nitrate/nitrite, nitrogen, total acidity, alkalinity, total cyanide, total suspended solids (TSS), and total dissolved solids (TDS). Groundwater sampling details are summarized in Table 2-2f.

Additionally, as part of the low-flow sampling protocol, geochemical parameters were recorded for temperature, pH, conductivity, DO, ORP, and turbidity with the applicable meters. Table 6-7 and Figure 6-8 display the results of the final geochemical parameter reading prior to sample collection.

2.6.1.2 Porewater Sampling

In August 2009, 8 porewater samples (including duplicates) were collected at 7 locations along a portion of the upper reach of Ely Brook shown in Figure 2-5. The samples were submitted for

laboratory analysis of TAL Metals (total and dissolved), chloride, sulfate, sulfide, nitrate/nitrite, nitrogen, alkalinity, and total cyanide. Surface water sampling details are summarized in Table 2-2d. The porewater sampling was performed in accordance with the Mini-Piezometer Porewater Sampling SOP ENV-023 (QAPP, Appendix B, 2009 [Nobis, 2009b]). Data from porewater sampling will be used to assess the potential impact of groundwater on Ely Brook.

2.6.1.3 Bedrock Groundwater Packer Sampling

In September 2009, 12 groundwater samples (including duplicates) were collected from 7 intervals in 3 deep bedrock wells during packer testing. Deep bedrock well locations are displayed in Figure 2-8. The samples were submitted for CLP laboratory analysis of TAL Metals (total and dissolved). Bedrock groundwater packer sampling details are summarized in Table 2-2f.

2.6.2 November 2009 Groundwater Monitoring Event

Groundwater sampling conducted in November 2009 is described below.

2.6.2.1 Low-Flow Groundwater Sampling

In November 2009, 46 overburden and bedrock (shallow and deep bedrock) groundwater samples (including duplicates) were collected via EPA low-flow sampling protocol from 43 monitoring wells at the locations shown in Figure 2-8. The samples were submitted for laboratory analysis of TAL metals (total and dissolved), total cyanide, and sulfate. In addition, 11 samples were submitted for analysis of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, and poly-chlorinated biphenyls (PCBs). Groundwater sampling details are summarized in Table 2-2f.

Additionally, as part of the low-flow sampling protocol, geochemical parameters were recorded for temperature, pH, conductivity, DO, ORP, and turbidity with the applicable meters. Table 6-7 and Figure 6-8 display the results of the final geochemical parameter reading prior to sample collection.

2.6.3 Residential Well Sampling

In December 2009, 7 drinking water samples (including duplicates) were collected from 6 residential locations as shown in Figure 2-9. Samples were collected within a 0.5 mile distance from the Site to assess local groundwater quality relative to the Site and evaluate its potential impact on local drinking water. Drinking water samples were submitted for laboratory analysis of TAL metals (total and dissolved), chloride, sulfate, carbonate, bicarbonate, hydroxide, sulfide, nitrate/nitrite, nitrogen, total acidity, alkalinity, total cyanide, and hardness. These parameters will allow direct comparison with on-site results. Drinking water sampling details are summarized in Table 2-2g.

2.7 Biota Sampling

In September 2009, Avatar Environmental of West Chester, Pennsylvania, performed an ecological risk assessment of the Site. The assessment involved the collection of invertebrate and small mammal samples for laboratory analysis of select parameters. The following sections described the sampling performed at the Site.

2.7.1 Soil Invertebrates

The soil invertebrate sampling consisted of the collection of 8 composite samples via by hand or sweep nets within the exposure areas located on Figure 2-10. Upon sample collection, the weight of the composite sample as wells at notes of its contents were recorded on field sheets (Appendix A). Samples mostly consisted of varying species of crickets, grasshoppers, beetles, caterpillars, and spiders. Of the 8 samples, 6 were selected for off-Site laboratory analysis of TAL metals and percent moisture. Results of the soil invertebrate sampling are presented in Section 6.9.

2.7.2 Small Mammals

The small mammal sampling consisted of the collection of 107 samples via mouse traps along 5 transects at the locations located on Figure 2-10. Upon sample collection, the species, sex, length, weight, and general comments of the mammal were recorded on field sheets (Appendix A). The types of mammals collected consisted of deer mice (24), woodland jumping mice (6), and short tailed shrew (10). Of the 107 samples, 40 were selected for off-Site laboratory

analysis of TAL metals and % lipids. Results of the small mammal biota sampling are presented in Section 6.7.

3.0 DATA QUALITY ASSESSMENT AND LIMITATIONS

In accordance with the QAPP, a data quality assessment was performed to evaluate whether the data acquired during the sampling events were suitable for use in assessing the current nature and extent of contamination at the Site. The assessment consisted of the following:

- Review of the PQOs and the sampling design.
- Review of sample collection logs.
- Review of the data validation criteria (metals and organic data was subjected to Tier II or III level data validation).
- Correlation of data results to expected values and comparison with historical data results.

3.1 Project Quality Objectives and Sample Design

The purpose of the sampling events performed at the Site were to address data gaps identified in the Technical Memorandum (Nobis, 2009a) and to supplement existing data to support the RI/FS at the Site. The laboratory analyses and data are to be used to estimate the nature and extent of Site contamination, estimate the biological impacts resulting from source area contamination, and to refine the conceptual site model.

Surface soils, subsurface soils, and sediment samples were collected and analyzed for total metals and soil quality parameters (ABA, paste pH, paste conductivity, SPLP metals, TOC, cation exchange capacity (CEC), and grain size). Vernal pools, surface waters (two rounds), groundwater wells (two rounds), porewaters, and residential wells were collected and analyzed for total and dissolved metals, total cyanide, and water quality parameters (chloride, sulfate, nitrate/nitrite, sulfide, alkalinity, carbonate, bicarbonate, hydroxide, acidity, TDS, TSS). Some groundwater samples were also tested for VOCs, SVOCs, pesticides, and PCBs. Soil invertebrates and small mammals were collected and analyzed for total metals and percent lipids. A detailed listing of parameters by matrix is listed in Table 2-2a through Table 2-2g.

The groundwater sample results and reporting limits were compared to Vermont's Groundwater Protection Rule (GWPR) primary groundwater quality standards. Other action limits for soils, surface water, and sediment established in the QAPP are presented in the tables in Section 6.0 as project action limits (PALs). The sample results for each matrix and parameter are compared with the (PALs) in the tables in Section 6.0. Bold and shaded values in the tables in Section 6.0 exceeded the PALs.

All analytical methods selected were CLP SOWs (SOM01.2 or ILM05.4) or a variety of Delivery of Analytical Services methods that were established in the QAPP and technical specifications. As much as possible, procedures were selected that were performed in the past on the Site or that are established EPA-approved methods. This was done to provide comparable results to historical data. Accuracy and precision calculations and criteria were established based on the SOWs and procedures selected. Although complete evaluation of the precision and accuracy results were not performed during the Tier I data validation for this project for water quality and soil quality parameters, a modified Tier I review was performed to document whether these criteria were met for these parameters. Additionally, all metals and organic data were evaluated for precision and accuracy during Tier II and III data validation. For all Tier I data, no qualification of results were made as a result of precision and accuracy criteria exceedance. However, all data were qualified for Tier II and III validation. Tables in Section 6.0 reflect the results of the Tier II/III validation performed.

3.2 Data Validation

Data validation of the analytical results for this project was conducted following the *Region I EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analyses (Dec. 1996)*, including the November 2008, Part IV Inorganics Data Validation Functional Guidelines.

VOCs, SVOCs, PCBs, and total and dissolved metals underwent Tier II data validation, with ten percent of the data packages being taken to a Tier III level of validation. The DAS data for water quality parameters (chloride, sulfate, sulfide, alkalinity, carbonate, bicarbonate, hydroxide, acidity, nitrate/nitrite, TSS, TDS, pH, specific conductance) and for soil quality parameters (ABA, paste pH, paste conductivity, grain size, TOC, CEC, SPLP metals, grain size) underwent Tier I data validation with modification to evaluate QC sample compliance only. A Tier I data

validation review consists of checking for data completeness (CSF Audit – Tier I), including the complete set of analytical results with supporting information and performance evaluation sample results, where applicable. Additionally, the contamination levels of the method blanks and field blanks, the precision of the field duplicates and laboratory duplicates, and the accuracy of the laboratory control samples (LCS) and matrix spikes (MS and MSD) were evaluated and documented. As specified in the Tier I data validation guidelines, no qualifications are made to the laboratory-reported values to account for field or laboratory QA/QC issues (i.e., holding times, instrument calibrations, blank contamination, matrix spikes, recoveries, etc.). Low concentrations of common laboratory or field contaminants could result in false positive values. Qualification of data based on high or low bias is not performed.

All of the metals data and organics data were validated to a Tier II level (ten percent was taken to a Tier III level) using the criteria in the Quality Assurance Project Plan for the Ely Copper Mine Superfund Site (Nobis, 2009b), the ILM05.4 and SOM01.2 criteria, and the *Region I, EPA-NE Data Validation Functional Guidelines for Environmental Analyses, December 1996* procedures. The Tier II and III level of validation does include a full evaluation of results based on QA/QC issues and ultimately results in final qualification of data.

All validated data were acceptable or estimated. Data that were rejected are noted below and details of the rejected data are included below. Data validation memos for rejected data are provided in Appendix B.

- Lead results for soil samples at MW-18A due to non-compliant interference check sample results.

- Sodium results for soil samples at SB-09, MW-17A, TP-15X, TP-16X, and MW-18A due to non-compliant interference check sample results.

- Beryllium results for sediment samples at SD-59, SD-60, SD-63, SD-64 due to non-compliant interference check sample results.

- Sodium results for sediment samples at SD-58 through SD-73 due to non-compliant interference check sample results.

- Arsenic results for soil samples at MW-22A, SS-30, SS-33, SS-04, TE, and TF due to low matrix spike recoveries.

- Beryllium result for soil sample at TE due to non-compliant interference check sample results.

- Sodium results for soil samples at MW-22A, SS-04 through SS-06, SS-28 through SS-30, SS-26, SS-32, SS-33, TE, and TF due to non-compliant interference check sample results.

- VOCs, acetone and 2-butanone, in groundwater samples MW-02A, MW-21A, MW-22A, MW-19A, MW-05A, MW-11A, MW-20A, MW-09A, MW-20D, and MW-19D due to non-compliant calibration results.

- VOC, styrene, in groundwater samples MW-02A, MW-21A, MW-22A, MW-19A, MW-05A, MW-11A, MW-20A, MW-09A, MW-20D, and MW-19D due to failed PE score.

- SVOC, 4-nitrophenol, in groundwater sample MW-02A due to low matrix spike recoveries.

- SVOCs, 2-nitroaniline, 3-nitroaniline, 4-nitroaniline, 2,4-dinitrophenol, 4-nitrophenol, and 4,6-dinitrophenol, in groundwater sample MW-20D due to low surrogate recoveries.

- SVOCs, atrazine, in groundwater samples MW-02A, MW-21A, MW-22A, MW-19A, MW-05A, MW-11A, MW-20A, MW-09A, MW-20D, and MW-19D due to non-compliant calibration results.

Rejected data are removed from the data tables and are indicated with a “R” flag. These data are not included in the data set and are not used in the final project goals.

3.3 Data Quality Assessment

Based on as assessment of the data, it was determined that the data, as reported by the laboratory, are complete and usable for this and subsequent reports except the data that were noted as rejected in Section 3.2 above. These data have been removed from the data tables.

Tier I, II, or III Data Validation Memoranda for each Sample Data Group (SDG) were produced under separate cover letters and have been submitted to EPA.

3.4 Data Limitations

A review of field sampling techniques, sample preparation and handling methods and the analytical results has been completed.

Field duplicates were taken at a rate of one per twenty per matrix type and event. The relative percent difference performance criteria of 30 percent for organics and metals in aqueous samples and for 50 percent for metals in solids were met for all analytes in all duplicate pairs except for the following:

- Copper in soil sample at MW-21A.
- Iron, manganese, and strontium in vernal pool sample, VP-3.
- Aluminum, chromium, copper, potassium, and zinc in sediment sample, SD-61.
- Iron in groundwater sample, MW-05B.
- All ICP-AES results for groundwater sample, MW-21A.
- Calcium in soil sample at TE.
- Iron in groundwater sample, MW-19D.

Associated sample results were qualified as estimated and indicate variability in sampling and/or laboratory procedures or non-homogeneity on solid samples.

Equipment blanks (EBs) were collected at a rate of five percent when dedicated equipment was not possible or the sampling methods warranted. The following detections in equipment blanks resulted in qualification of metals data:

- Iron and manganese in EB sampled August 3, 2009 with soil samples.
- Magnesium, calcium, potassium, and strontium in EB sampled August 7, 2009 with sediment samples.
- Nickel in EB sampled August 13, 2009 with groundwater samples.
- Zinc in EB sampled August 18, 2009 with groundwater samples.
- Calcium, copper, nickel, sodium, and zinc in EB sampled September 16, 2009 with groundwater samples.
- Manganese and nickel in EB sampled October 1, 2009 with groundwater samples.

Affected samples were qualified as undetected (U), flagged EB, or no action was necessary, depending on level of concentration in the sample relative to the EB level.

A review of total versus dissolved metals results suggests that the total metals are approximately equivalent to the dissolved metals and results compare well.

One trip blank was collected for volatile organics analysis. The trip blank collected on November 30, 2009 had detections of acetone, 2-butanone, and trace levels of ethylbenzene and xylenes. Associated samples were non-detect for these analytes.

PQO sample design limitations include:

- Data set is limited to the extent the sampling points represent the Site and meet the objectives of filling the data gaps of the previous rounds.
- Rejected data from validation process will require assessment if needed for end purposes.
- Further review of PALs compliance is discussed in Section 6.0.

No other significant data limitations have been identified through data validation process for the data evaluated in this report. As discussed, these limitations do not limit the usability or completeness of the obtained data.

4.0 HYDROGEOLOGY

Results from 2009 field investigations were used to supplement observations from prior investigations to refine the hydrogeologic characterization of the Site. The following summary outlines preliminary observations during the 2009 field season.

4.1 Geology

Subsurface investigations conducted during the 2009 field effort included a limited number of soil borings, hand auger borings, and well installations in overburden and bedrock to supplement previous work. Boring logs are provided in Appendix C. In addition, borehole geophysical logging and packer testing and sampling was performed at three deep bedrock well locations which are discussed in Section 4.5. Geophysical logs from the bedrock borehole analysis are provided in Appendix D. The surface soil of the Site includes a series of mine waste piles and former process areas with materials of varying characteristics. Due to historical activities at the Site, essentially all of the surface soil has been disturbed at one time. Investigations are focused on waste areas and the underlying overburden and bedrock geology to better characterize the nature, extent of the waste materials along with the contaminant transport mechanisms and potential migration pathways.

4.1.1 Overburden Geology

The undisturbed overburden encountered in the upper portions of the Ely Brook valley at the Site consists of glacial till overlying bedrock. In the lowermost portion of the valley, a sandy alluvial deposit overlies the glacial till locally. Soil overlying the till in the upper portion of the valley is typically reworked glacial or fluvial material locally mixed with waste rock. In waste areas, waste rock piles or partially processed ore or tailings comprise the uppermost portion of the overburden.

4.1.1.1 Glacial Till

The glacial till encountered at the site is highly variable in thickness and typically a gray to olive brown, moderately dense, fine to medium sand with silt and gravel. The glacial till was observed up to 6 feet thick in the Upper Waste Pile Area, up to 12.5 feet thick in the tailings area, up to 5 feet thick in the Lower Waste Pile Area, and up to 4.5 feet thick beneath the Ore

Roast Beds. In the lower portion of the valley in the vicinity of well MW-14C, bedrock was encountered at a shallow depth with 4 feet of alluvium overlain by 6 feet of fill/waste, with no dense till observed. In the lowermost portion of the valley beneath the slag pile, glacial till up to 49 feet thick was reported (URS, 2009).

4.1.1.2 Alluvium

In the lower portion of the valley, a thin alluvial deposit up to 4 feet thick was encountered at Location MW-14A overlain by approximately 6 feet of fill/waste material. The alluvium is a soft, gray-brown fine to medium sand with some silt and gravel which was immediately overlying bedrock. This deposit appears to be laterally discontinuous and likely represents channel deposits carved into the glacial till by postglacial streams.

4.1.1.3 Waste Rock, Partially Processed Ore, Tailings, Development Rock, and Slag

Waste rock is distributed over large areas of the site which are described based on their relative position in the Ely Brook valley and the type of waste present as shown on Figure 1-2. This material consists of poorly sorted partially hand-cobbed ore material from sand to cobble size with varying amounts of weathered ore cobbles intermixed. The Upper piles appear to contain a considerable amount of boulder sized material as evidenced by a pile of boulders along the western margin of this area reportedly segregated during a brief ore reclamation effort in the early 1940s (PAL Inc, 2005). The waste rock material weathers readily to release sulfate and metals that form salt encrustations and clay minerals which play an important role in the interaction between surface water in the form of snow melt, precipitation, and seeps that results in downstream environmental impacts.

The largest areas of waste rock material comprise the Upper Waste Pile Area and the Lower Waste Pile Area. The conical waste rock piles in the upper area are up to 22 feet thick (URS,2009). Waste rock in the flatter, lower area is generally less than 10 feet thick. In the Upper portion of the valley, in close proximity and typically downslope of mine openings, piles of large boulders of country rock are present and are generally barren, with low concentrations of sulfide mineralization compared to the ore rock. These piles do not typically contain the high volume of finer sand to gravel size material found in the waste rock piles. A good

example is the pile immediately south and downslope of the Lower Adit and directly northwest of Pond 5 and MW-08a.

A relatively small area of fine flotation tailings are located immediately southwest and downslope of the Former Flotation Mill with a thickness between 4 to 8 feet. Importantly, due to its finer grain size and higher clay content, the tailings are less permeable than the waste rock material which results in less oxidation below the surface. Although the tailings represent a small area, they contain significantly higher copper concentrations and generally higher acid generating potential as a result of the higher pyrrhotite content resulting from the flotation process in comparison to waste rock.

The Ore Roast Bed Area is located along the east-central margin of the Site, consisting of a 700 foot long strip of red, hematite-rich fine to medium grained soil up to 10 feet in thickness. The roasting process has significantly reduced the sulfur content of these soils, which in turn reduced the acid-generating potential of this material. In the Smelter/Slag Pile Area, fill mixed with debris, and slag up to 18 feet thick was observed on the south side of South Vershire Road (URS, 2009). The massive deposit of glassy slag material appears similar to a volcanic lava flow, with hemispherical outlines of the slag pots used to deposit the slag in a semi-molten state resulting in a fused mass of slag built up along the bank of Schoolhouse Brook.

4.1.2 Bedrock Geology

During 2009, four new shallow bedrock wells and three new deep bedrock wells were installed at the Site. Observations from cuttings during drilling were consistent with the lithology present in outcrops throughout the Site. Bedrock underlying the Site consists of the Gile Mountain Formation, a dark gray to black, muscovite-feldspar-quartz rich schist with generally low concentrations of disseminated sulfides and aluminous metamorphic minerals garnet and kyanite. Thin layers of amphibolite are common in outcrop although none were described from observation of cuttings. The primary structural fabric in the rock is a predominant foliation generally trending northwest, dipping 20-30 degrees to the northeast. A limited number of fractures were encountered in the bedrock boreholes as documented in the geophysical logs. The fractures encountered in the shallow bedrock tended to have the higher relative groundwater yield, although none of the wells intercepted water bearing fractures exceeding approximately 2 to 3 of gallons per minute. At locations MW-14 and MW-19, slabs of bedrock

were encountered up to 5 feet thick near the base of the overburden. The uppermost 20 feet of the bedrock exhibited a fracture density significantly higher than the underlying deeper bedrock. Water bearing fractures encountered did not display a consistent spacing although most were oriented subparallel or orthogonal to the predominant foliation. The bedrock foliation fabric influenced the borehole orientation likely as a result of poor control of down pressure during drilling as indicated by moderate inclinations from the vertical at depth. Invariably the deviation was directed toward the orientation of the foliation, which is the anticipated weaker direction of rock strength.

4.2 Surface Water Hydrology

Ely Brook is the primary drainage pathway from the Site. The main stem of Ely Brook originates within the uppermost portion of the valley at an elevation above 1,350 feet and flows south along the southern slope of Dwight Hill. The gradient of the brook drops over 380 feet from the headwater to its confluence with Schoolhouse Brook at an elevation of 970 ft. Ely Brook is fed on the east by three significant tributary streams as shown on Figure 1-2. The three tributaries are referred to as the upper, middle, and lower tributaries based on their relative position along the valley. The upper and middle tributaries divide the brook into three segments referred to as the upper, middle, and lower reaches in later sections of this report. The upper reach of Ely Brook is characterized by a steep gradient with little sediment deposition, and essentially no impact from Site sources. The middle reach has a moderate gradient and relatively low sediment deposition below the confluence with the upper tributary. The lower reach of Ely Brook characteristically includes a relatively low gradient, with significant sediment depositional areas and a significantly broader floodplain area than the upper reaches. The lowermost portion of the Ely Brook channel in the Smelter Area is partially bermed down to South Vershire Road.

The upper tributary drains a relatively limited area extending from Shaft No. 4 and the transition zone along the western portion of the Upper Waste Pile Area. The middle tributary is the largest of the three tributaries with a watershed area encompassing essentially all of the Upper and Lower waste Piles, including the Tailings Area, and a series of interconnecting ponds (Ponds 1 through 5) along the northeast margin of the Site. There are two significant branches to the middle tributary, a northern branch and an eastern branch. The northern branch drains the Upper Waste Pile Area and Tailings Area, while the eastern branch captures drainage from the

Lower Adit, the ponds, and the central portion of the Lower Waste Pile Area. These branches merge a short distance upstream of the confluence with Ely Brook. The lower tributary drains an area along the eastern margin of the Site including the Ore Roast Bed Area, the access road, and a forested area south of the Lower Waste Pile Area. Ely Brook joins Schoolhouse Brook at the base of the valley along the south side of South Vershire Road. Below the confluence, Schoolhouse Brook forms the southern margin of the Slag Pile Area. A summary of estimated surface water flows based on observations during 2009 is provided in Table 4-1. The conceptual model of surface water flow at the Site and the relative impact of each tributary on Ely Brook and Schoolhouse Brook are discussed further in Section 7.2.2.3.

4.3 Groundwater Flow

The monitoring well network at the Site consists of a series of shallow and deep overburden wells paired with shallow bedrock wells, with a limited number (three) of deep bedrock wells at select triplet well locations. A summary of monitoring well specifications is provided in Table 4-2. Two rounds of groundwater levels were recorded during the summer and fall of 2009. A summary of water level observations is provided in Table 4-3. Potentiometric surface maps were generated for the overburden and shallow bedrock flow units (Figure 4-1a, Figure 4-1b, Figure 4-2a, and Figure 4-2b). Due to the limited number of deep overburden and deep bedrock wells, flow maps were not presented for these flow units.

4.3.1 Shallow Overburden

Result from summer and fall 2009 water level rounds in overburden wells illustrate a consistent pattern of groundwater flow mimicking the trend of the Ely Brook valley. Contours in large part mimic the topographic contours, such that the flow is directed toward the tributary branches and main stem of Ely Brook (Figures 4-1a and 4-1b). The average hydraulic gradient in the overburden ranged between approximately 0.07 to 0.3 to the south. The saturated thickness of overburden at the Site is highly variable ranging from less than 10 feet up to 55 feet and in general increases with decreasing elevation reflecting the increasing overburden thicknesses observed at lower elevations (URS, 2009). The greatest thickness of saturated overburden lies beneath the Smelter/Slag Pile Area in the vicinity of the Ely Brook confluence with Schoolhouse Brook. In general, vertical gradients in the shallow overburden tend to be directed downward especially in the lower elevations of the valley. There were two locations where upward gradients in the shallow overburden were observed MW-7A, MW-10B, and MW-5A likely due to

the steep topography and relatively less permeable glacial till or bedrock underlying the shallow soil at these locations. Well MW-7A is located in a headwater wetland area where shallow bedrock groundwater is discharging into the thin overburden. MW-10B is screened in glacial till near the bottom of a steep slope. Location MW-5A is located in a permeable rework till/waste rock soil near a tributary branch draining the Upper Waste Rock Pile Area, underlain by an undisturbed glacial till layer.

4.3.2 Deep Overburden

The deep overburden at the Site is defined by the glacial till unit where it is overlain by a more permeable reworked till, alluvium and/or waste rock, slag, roasted ore, or tailings. Wells screened in this unit are designated with the letter “B” and are generally located within the lower portion of the valley where the overburden is thickest up to 69 feet and locally overlain by up to 9 feet of alluvial deposits. Significant thicknesses of glacial till also occur in the higher valley elevation in the vicinity of well MW-5 and MW-19 where it forms a laterally discontinuous hydraulic barrier between the shallow bedrock and the shallow overburden groundwater. In some waste areas in the lower elevations, this unit may significantly limit the downward migration of waste-related contamination in groundwater. In most areas of the Site, the vertical groundwater flow gradients between the overburden and shallow bedrock are downward indicating bedrock recharge from the overburden. The exception to this is in the headwater area of well MW-7C and in the lowermost portion of the Ely Brook Valley in the Smelter/Slag Pile Area where 3 of the 5 shallow bedrock wells exhibit upward gradients indicating a relatively widespread area of upward groundwater migration from shallow bedrock into the deep overburden toward Schoolhouse Brook.

4.3.3 Shallow Bedrock

Fifteen shallow bedrock wells exist at the Site including three new wells installed during 2009 and screened within the uppermost 15-20 feet of the bedrock. Two of the shallow bedrock wells previously installed by URS in the Slag Pile Area extend approximately 50 ft into bedrock. In general, the yields of the shallow bedrock wells are relatively low indicating generally low fracture densities in the shallow bedrock of the Site. Very little evidence of alteration of the rock was observed in the shallow bedrock zone. This may reflect the competent nature of the relatively silica rich bedrock. The horizontal gradients and direction of flow in the shallow bedrock strongly mimic that of the overburden flow units (Figures 4-2a and 4-2b). As previously

discussed, the observed vertical gradients are typically downward with the exception of the local discharge areas in the Ely Brook headwater at MW-7C and at the bottom of the Ely Brook Valley at its confluence with Schoolhouse Brook. The lack of upward gradients between shallow bedrock and overburden along the Ely Brook Valley suggests that the brook is fed primarily from overburden discharge proximal to the stream. It is possible that other areas of localized upward shallow bedrock gradients exist beyond the monitoring network such as the vicinity of the uppermost beaver ponds.

4.3.4 Deep Bedrock

Three deep bedrock open hole wells were drilled during the 2009 field effort. Borehole geophysical logs were obtained from these wells including a full suite of parameters as discussed in detail in Section 4.4. In general, the deep bedrock at the Site was found to be very competent, with few relatively isolated water-bearing fractures encountered. Typically, these fractures yielded less than 2 gpm. The dominant lithology encountered is consistent with surface outcrops of the Gile Mountain Formation, consisting of a foliated kyanite-garnet-muscovite-feldspar-quartz schist, with little variation observed in cuttings. Fresh, disseminated iron sulfide (pyrite) or thin stringers of sulfide mineralization was commonly observed over wide borehole intervals. No significant mineralized zones were encountered. Observations from the boreholes indicate relatively low yield and low fracture density with orientations subparallel and perpendicular to the foliation in the rock. The groundwater elevation data from the three well triplets show variation in the vertical hydraulic gradients along the axis of the Ely Brook Valley. At well location MW-19D near the head of the valley, a relatively strong upward gradient is observed between the deep bedrock and the shallow bedrock which is likely the result of the large area of recharge and steep topography of the upper portions of Dwight Hill. At location MW-20D in the central portion of the valley below the Lower Waster Rock Piles, a strong downward vertical gradient exists between the shallow bedrock and deep bedrock likely the result of the relatively low fracture density of the bedrock and limited hydraulic connection between the shallow and deep bedrock zones. There is also a relatively strong downward gradient between the shallow overburden and shallow bedrock at this location, which along with the thin saturated overburden thickness in this area suggests that shallow groundwater may be “perched” relative to the deep bedrock. At location MW-14D, a moderate upward hydraulic gradient is observed between the shallow and deep bedrock zones which is attributable to the location in the lowermost portion of the valley where deeper groundwater flow is directed

upward toward the discharge area in the vicinity of the Ely Brook confluence with Schoolhouse Brook. Observations at this location are consistent with the upward gradients observed in shallow bedrock wells along Schoolhouse Brook (MW-1C and MW-2C) which exhibit upward gradients with respect to the paired overburden wells.

4.4 Hydraulic Conductivity

Slug tests were performed on new overburden and shallow bedrock wells to estimate hydraulic conductivity values for these flow units. Results are summarized in Table 4-4. The average hydraulic conductivity observed for overburden wells was 2.15 x 10^{-4} cm/sec. The average hydraulic conductivity for the shallow bedrock was observed to be 1.42 x 10^{-4} cm/sec. The shallow bedrock wells showed a wide range of hydraulic conductivities resulting from the greater variability of the number and yield of water bearing fractures between locations. Based on horizontal gradients observed at the Site and hydraulic conductivity values estimated from the new wells, average seepage velocities range from 0.002 to 0.16 ft/day in shallow overburden to 4.19 x 10^{-4} to 0.5 ft/day in shallow bedrock with higher values in the uppermost, steeper portions of the valley and lower values in the lower elevations where slopes are generally flatter.

4.5 Borehole Geophysics and Packer testing

In order to adequately characterize the bedrock at the Site, borehole geophysical logging was completed in the three 150 foot deep bedrock wells MW-14D, MW-19D, and MW-20D. The geophysical logging suite included acoustic televiewer (ATV), optical televiewer (OTV), fluid temperature and resistivity, caliper, natural gamma, single-point resistance (SPR) and spontaneous potential (SP), and heat-pulse flowmeter (HPFM) under pumping and non-pumping conditions. A brief summary of borehole observations is provided in Table 4-5. Complete borehole geophysical logs are included in Appendix D. In addition to characterizing the intrinsic and hydraulic properties of the rock, results from these surveys were used to identify specific fracture intervals for further hydraulic testing and sampling to assess groundwater quality via packer testing. A summary of observations from packer tests are included in Table 4-6.

Results from Well MW-14D located in the lower portion of the valley show one isolated transmissive fracture at 102 feet bgs which is most evident in the caliper and SPR, as well as the optical and acoustic televiewer logs. Additional potentially water bearing fractures were

observed at 53, 73, and 88 ft bgs with generally weak signatures on the logs. Results from packer testing in these zones showed measurable yield (estimated between 2.5 to 3 gpm) only from the interval that included the fracture at 102 ft bgs, with the remaining zones purged dry at a rates less than 2 gpm. Structural information from the televiewer log indicates that the dominant foliation in the rock strikes approximately north-south with an easterly dip between 30 and 40 degrees. The water bearing fracture and the majority of potential water bearing fractures observed are oriented N65W, 50SW. Water quality results of groundwater from the three zones tested did not detect copper.

The borehole logs from Well MW-19D located near the top of the Upper Waste Piles identified two transmissive zones at 43 and 75 ft bgs which are clearly noted on the caliper and ATV/OTV logs. Results from the HPFM testing showed that the fracture at 43 feet bgs was responsible for the majority of flow during pumping although the fracture at 75 feet appears more significant on the ATV/OTV/caliper due to its steep dip orientation resulting in a longer intercept interval in the borehole. Four zones were hydraulically tested and sampled during packer testing including the two zones described above. The zone at 43 feet had an estimated yield of approximately 2 gpm while the estimated yield of the fracture at 75 ft bgs was close to 1 gpm. The other two intervals tested purged dry during testing. Structural data from the ATV/OTV log indicates that the dominant foliation is oriented approximately N25W, 25NE with a significant degree of variation likely due to broad folding this fabric. The fractures at 43 and 75 ft bgs have estimated orientations of N75W, 45SW and N48E, 82NW, respectively. Water quality results of groundwater from the fracture at 43 ft bgs detected a copper concentration of 8,380 ppb while the test interval at 75 ft bgs detected 1,050 ppb copper. It is uncertain whether the lower interval test result was influenced by leakage from the packer, but the high concentration detected from 43 feet suggests a connection between this fracture and the shallow overburden/shallow bedrock groundwater which also contains high copper concentrations as a result of the overlying waste rock material in this area. The orientation of these fractures and their limited yield suggests that the water quality observed in MW-19D is not influenced by the mine pool present in the underground workings.

Results from Well MW-20 located between the Lower Waste Pile Area and the Ore Roast Bed Area in the middle portion of the valley two potentially transmissive fractures. The upper fracture was at 38 ft bgs at a shallow depth below the casing. The lower fracture was at 89 ft bgs as indicated most clearly by the caliper log. Additional relatively minor fractures were

observed at depths of 54 and 105 ft bgs as noted on the logs. Measurable groundwater flow was observed from the fracture at 89 ft bgs by the HPFM testing during pumping conditions. These results are weakly mimicked by a subtle variation in the SPR signature. Five zones were hydraulically tested which were all pumped dry at rates less than 2 gpm. The upper zone at 38 ft did not appear to have a measurable yield. The Lower fracture at 89 ft has an estimated yield of about 2 gpm. Structural data from the ATV/OTV log indicates that the dominant foliation in the bedrock at this location is oriented approximately N15E, 30SE. The fractures observed at 38 and 89 ft bgs are oriented N42W,50SW and N32W,22SW, respectively. Water quality tests of groundwater from the 38 and 89 ft bgs intervals did not detect copper.

In general, results from geophysical logging and packer testing of the deep bedrock indicate a very limited frequency of water bearing fractures. The few fractures encountered were of very low yield. Only one location showed an impact from the overlying waste material, MW-19D, which occurs at a shallow depth. The fractures observed to have measurable yields were typically oriented at a high angle to the dominant foliation in the bedrock, whether northeast or northwest trending. The lack of water bearing fractures oriented subparallel to the dominant bedrock foliation is likely the result of the pervasive nature and relatively low angle of dip of this fabric.

5.0 XRF FIELD SCREENING RESULTS

The following section presents the results of XRF field screening for soils and sediment.

5.1 Soils

As part of this investigation, a soil sampling program was designed to further evaluate impacts to Site soils from historic mining operations. The sampling program included transects extending out from the edges of known waste areas to determine the lateral extent of impact to soils at the Site and to evaluate the vertical extent of mine waste material present in Ely Brook downstream from the waste piles. Onsite XRF analyses were performed by the EPA mobile laboratory to achieve real time data results during the investigation. The onsite XRF analysis targeted the compounds copper, iron, lead, sulfur, selenium, and zinc. The results from the soil sampling transects are discussed in the sections below and presented in Table 5-1. Transects, and portions of transects, which consisted of surface soil samples are discussed in Section

5.1.1. Transects which included stream bed profiling of waste material are discussed in Section 5.1.2. The locations of the soil transects are identified on Figure 2-3.

5.1.1 Surface Soils

Surface soil sampling was conducted in transects at the Site to evaluate the lateral extent of waste material. Samples for each transect were collected along straight lines at either 25 or 50 foot spacing intervals and ranged in depth from 0 to 2 ft bgs. Results from each transect are discussed below. The XRF transect copper concentration results are illustrated on Figure 5-1.

Based on the similarity of the Site waste materials with those at the Elizabeth Mine Superfund Site, the Elizabeth Mine site-specific metals criteria were used for comparison of XRF field-screening data (EPA, 2006). These criteria are shown in Table 5-1 and referred to herein as the Elizabeth Mine Project Action Limit (EMPAL). Laboratory analytical metals results for soil and sediment samples discussed in Sections 6.0 and 7.0 are compared to more conservative Project Action Limits (PALs) defined in the project QAPP.

Transect TA – Samples were collected from fifteen locations along transect TA during this investigation, which trended in a westerly direction away from Ely Brook near the southern portion of the Site at 25 foot spacing intervals. Based on the XRF results, concentrations of copper detected in samples collected from transect TA ranged from 51 mg/kg to 1558 mg/kg, identified in samples TA-10 and TA-02, respectively. Two sample locations exceeded the applicable EMPAL of 625 mg/kg for copper which included TA-02 and TA-03 at 1558 mg/kg and 957 mg/kg, respectively. Laboratory analytical results for all other samples submitted for onsite XRF analysis identified concentrations of copper below the applicable EMPAL. Laboratory analytical results also identified the compound lead in sample TA-02 at a concentration of 450 mg/kg which exceeds the applicable EMPAL of 400 mg/kg. No other compounds were identified above their applicable EMPAL.

Transect TB – Transect TB trended in a northeast direction away from the former smelter area at 25 foot spacing intervals. Samples were collected from eight locations along transect TB during this investigation. Based on the XRF results the compounds copper, lead, and selenium were each identified above their applicable EMPAL in at least one sample. The highest concentrations of all compounds observed in transect TB were identified in sample TB-01.

Concentrations of copper detected in samples ranged from approximately 122 mg/kg to 804 mg/kg, identified in samples TB-07 and TB-01 respectively. Concentrations of lead detected in samples ranged from 11 mg/kg to 410,000 mg/kg, identified in samples TB-03 and TB-01, respectively. Concentrations of selenium detected in samples ranged from below laboratory detection limits to 26 mg/kg in sample TB-01.

Transect TC – Transect TC trended in an eastern direction at 25 foot spacing intervals away from the former smoke flue chimney where lead anomalies have been historically observed. Samples were collected from seven locations along transect TC during this investigation. Based on the XRF results, the compounds lead and selenium were detected above their applicable EMPAL in the samples collected from location TC-01. Concentrations of lead and selenium were detected at 1153 mg/kg and 390 mg/kg, respectively, at this location. All other samples collected trending away from the former chimney location exhibited concentrations well below the applicable EMPAL for each compound.

Transect TD – Transect TD trended in an east to west direction from the Site access road across Ely Brook at 25 foot spacing intervals. The surface soil portion of transect TD consisted of eight surface soil locations. Based on the XRF results for those samples, the compounds copper and selenium were detected above their applicable EMPALs in at least one sample. The highest concentrations of copper were observed in sample TD-09 at 764 mg/kg, located on the eastern side of Ely Brook. The highest concentrations of selenium were observed in samples TD-07 and TD-09 at concentrations of 27 mg/kg and 25 mg/kg, respectively. Both of these sample locations are located on the eastern side of Ely Brook. All other samples submitted to the onsite lab exhibited concentrations below the applicable EMPALs.

Transect TE – Transect TE was located approximately 480 ft north of transect TD and trended in an east to west direction from the access road across Ely Brook at 25 foot spacing intervals. The surface soil portion of transect TE consisted of thirteen sample locations. Based on the XRF results for samples collected from transect TE, the compound lead was detected above the applicable EMPAL in one sample and the compound selenium was detected above the applicable EMPAL at three sample locations. The highest concentrations of these compounds were detected to the east of Ely Brook, where lead was detected at 675 mg/kg at sample TE-08 and selenium was detected at 8 mg/kg, 30 mg/kg, and 25 mg/kg in samples TE-01, TE-07, and TE-09, respectively.

Transect TF – Transect TF was located approximately 300 ft north of transect TE and trended in an east to west direction from the access road across Ely Brook at 25 foot spacing intervals. The surface soil portion of transect TF consisted of 17 sample locations. Based on the XRF results for samples collected from the transect, the compounds copper, selenium, zinc were each detected above their applicable EMPAL in at least one sample. Concentrations of copper ranged from approximately 31 mg/kg to 4771 mg/kg, identified in samples TF-22 and TF-07, respectively. Concentrations of selenium ranged from below laboratory detection limits to approximately 40 mg/kg, identified in sample TF-08. Concentrations of zinc ranged from approximately 41 mg/kg to 1950 mg/kg, identified in samples TF-09A and TF-16B, respectively. The highest concentrations of these compounds were detected adjacent to the stream bed for Ely Brook.

Transect TG – Transect TG was located east of the ore roast beds and included eight sample locations at 25 foot spacing intervals. Based on the XRF results, the compound copper exceeded its applicable EMPAL in the sample collected at TG-01 at a concentration of 1,545 mg/kg. This sample is located directly adjacent to the ore roast bed. No other compounds were detected above their applicable EMPALs.

Transect TH – Transect TH was located to the south of the Lower Waste Pile Area between the ore roast bed and Ely Brook. The transect included eight sample locations at 25 foot spacing intervals. Based on the XRF results, the compounds copper and selenium were detected above their applicable EMPALs in at least one sample. Concentrations of copper ranged from approximately 142 mg/kg to 1,045 mg/kg, identified in samples TH-04 and TH-01, respectively. Concentrations of selenium ranged from below laboratory detection limits to approximately 43 mg/kg, identified in samples TH-08. The highest concentrations of both compounds were detected adjacent to the Lower Waste Pile Area and at the end of the transect, near the MW-20 well cluster.

Transect TI – Transect TI was located west of the Lower Waste Pile Area and consisted of nine sample locations at 25 foot spacing intervals. Based on the XRF results, the compound selenium exceeded its applicable EMPAL in one sample. Concentrations of selenium ranged from below laboratory detection limits to approximately 37 mg/kg, identified in sample TI-01. This sample was collected from a location adjacent to the Lower Waste Pile Area.

Transect TJ – Transect TJ was located to the east of the Lower Waste Pile Area and south of MW-17A. The transect included eight sample locations at 25 foot spacing intervals. Based on the XRF results, the compounds copper and selenium exceeded their applicable EMPALs in at least one sample. Concentrations of copper ranged from approximately 23 mg/kg to 2,306 mg/kg, identified in samples TJ-08 and TJ-01, respectively. Concentrations of selenium ranged from below laboratory detection limits to approximately 28 mg/kg, identified in sample TJ-01. The highest concentrations of these contaminants were observed within 50 ft of the waste piles.

Transect TK – Transect TK was located north of the Lower Waste Pile Area and west of the former flotation mill. The transect included eight sample locations at 25 foot spacing intervals. Based on the XRF results, the compound copper exceeded its applicable EMPAL in one sample. The sample collected at TK-04 exhibited the elevated concentration of copper at 679 mg/kg.

Transect TL – Transect TL was located northeast of the former flotation mill and included seven sample locations at 25 foot spacing intervals. Based on the XRF results, the compounds copper and selenium exceeded their applicable EMPAL in at least one sample. Concentrations of copper ranged from approximately 29 mg/kg to 1435 mg/kg, identified in samples TL-06 and TL-03, respectively. Concentrations of selenium ranged from below laboratory detection limits to approximately 8 mg/kg, identified in sample TL-03. The three sample locations at which copper and selenium concentrations exceeded the EMPAL were located within 50 ft of the waste material.

Transect TM – Transect TM was located west of Pond 1 and included five sample locations at 25 foot spacing intervals. Based on the XRF results, no compounds were observed above their applicable EMPALs along this transect.

Transect TN – Transect TN was located south of the eastern portion of the Upper Waste Pile Area and included eleven sample locations at 25 foot spacing intervals. Based on the XRF results, no compounds were observed above their applicable EMPALs along this transect.

Transect TO – Transect TO was located west of the former flotation mill area and trended in a southwest direction away from the access road. The transect included eight sample locations at

25 foot spacing intervals. Based on the XRF results the compounds copper and selenium were identified at concentrations above their applicable EMPAL in at least one sample. Copper was identified above the EMPAL at sample location TO-05 at a concentration of 1,080 mg/kg and selenium was identified above the EMPAL at sample locations TO-01, TO-02, TO-03, and TO-05 at 7 mg/kg, 8 mg/kg, 8 mg/kg, and 16 mg/kg, respectively. Sample TO-05 exhibited the highest concentrations of both copper and selenium.

Transect TP – Transect TP was located south of the Upper Waste Pile Area trending in a southerly direction. The transect included 15 sample locations at 25 foot spacing intervals. Based on the XRF results, the compounds copper, selenium, and zinc were identified at concentrations above their applicable EMPALs in one sample location. Concentrations of copper ranged from approximately 54 mg/kg to 942 mg/kg, identified in samples TP-08 and TP-01, respectively. Concentrations of selenium ranged from below laboratory detection limits to approximately 14 mg/kg, identified in sample TP-01. Concentrations of zinc ranged from approximately 51 mg/kg to 663 mg/kg, identified in samples TP-07 and TP-01, respectively. The sample location at which the elevated concentrations of these compounds were identified was collected adjacent to the Upper Waste Piles.

Transect TQ – The transect TQ was located west of the lower portion of the Upper Waste Pile Area and trended in a southwest direction. The transect included sixteen sample locations collected at 25 foot spacing intervals. Based on the XRF results, selenium was the only compound identified above the EMPAL in samples collected from the transect. Concentrations of selenium ranged from below laboratory detection limits to approximately 35 mg/kg, identified in sample TQ-01. The highest concentrations of selenium were observed in samples collected adjacent to the waste area and the exceedances extended 175 ft away from the waste area.

Transect R – Transect R was located near the former chimney for the smoke flue and was used to further delineate the extent of lead contamination near sample TC-01. The transect consisted of four sample locations around TC-01 at 25 foot spacing to the northwest, northeast, southeast, and southwest and included samples collected from 0-0.5 ft and 0.5 to 2.0 ft below ground surface. Based on the XRF results selenium was the only compound detected above it applicable EMPAL, observed at location RA at a concentration of 8 mg/kg and 6 mg/kg, in the samples collected from 0-0.5 ft bgs and 0.5 to 2.0 ft bgs, respectively. The compound lead was not identified at elevated levels in any of the samples collected as part of this transect.

Transect TS – The transect TS was located near the smelter area of the Site in a perpendicular direction across the start of transect TB where a lead anomaly was observed. The transect included four sample locations collected in 25 foot spacing intervals. Based on the XRF results the compound selenium was detected at concentrations above the EMPAL in all four samples, and the compound copper was detected at concentrations above the EMPAL in three of the samples. Concentrations of selenium ranged from approximately 5 mg/kg to 52 mg/kg, identified in samples TS-01 and TS-03, respectively. Concentrations of copper ranged from approximately 178 mg/kg to 690 mg/kg, identified in samples TS-04 and TS-02, respectively. The compound lead was not observed above the EMPAL in any of the samples.

Transect TT – The transect TT was located west of the northern most extent of the Upper Waste Pile Area and conducted in a westerly direction. The transect included three sample locations collected at 50 foot spacing intervals. Based on the XRF results, no compounds were identified above their applicable EMPALs in any of the samples collected from this transect.

Transect TU – The transect TU was located east of the main adit and conducted in an easterly direction. The transect included three sample locations collected at 50 foot spacing intervals. Based on the XRF results, no compounds were identified above their applicable EMPALs in any of the samples collected from this transect.

Transect TV – Transect TV was located east of the Upper Waste Pile Area and was conducted in a easterly direction. The transect included three sample locations collected at 50 foot spacing intervals. Based on the XRF results, the compounds copper and selenium were each detected above the applicable EMPAL in the sample collected adjacent to the waste area. Concentrations of copper ranged from approximately 45 mg/kg to 950 mg/kg, identified in samples TV-03 and TV-01, respectively. Concentrations of selenium ranged from below laboratory detection limits to approximately 12 mg/kg, identified in sample TV-01. Neither of the other two samples collected exhibited concentrations of compounds above the applicable EMPALs.

Transect TW – Transect TW was located at the former flotation mill area and was conducted in a west to east direction. The transect included four sample locations collected at 50 foot spacing intervals and a sample collected from the black pyrrhotite rich layer identified in

previous investigations performed at the Site. Based on the XRF results, the compounds copper, selenium and zinc were each identified above their applicable EMPALs in at least one sample. The sample collected directly from the black pyrrhotite rich interval identified the presence of copper at 42,679 mg/kg, selenium at 79 mg/kg and zinc at 4,236 mg/kg.

Transect TX – Transect TX was located west of the access road to the Upper Waste Piles and was conducted in an east to west direction. The transect included three sample locations collected at 50 foot spacing intervals. Based on the XRF results, no compounds were identified at concentrations above their applicable EMPAL in this transect.

Transect TY – Transect TY was located along the southern end of the ore roast bed and was conducted in a north to south direction. The transect included seven sample locations collected at 50 foot spacing intervals. Based on the XRF results, the compounds copper, selenium, and zinc were identified above their applicable EMPAL in at least one sample collected from the transect. Concentrations of copper ranged from approximately 292 mg/kg to 1,969 mg/kg, identified in samples TY-07 and TY-03, respectively. Concentrations of selenium ranged from below laboratory detection limits to approximately 46 mg/kg, identified in sample TY-01. Concentrations of zinc ranged from approximately 64 mg/kg to 679 mg/kg, identified in samples TY-01 and TY-03, respectively. Concentrations generally decreased to the south along the transect.

Transect TZ – Transect TZ was located east of the access road in the southern portion of the Site and was conducted in an west to east direction. The transect included three sample locations collected at 50 foot spacing intervals. Based on the XRF results, no compounds were identified above the applicable EMPALs in the samples collected from this transect.

5.1.2 Subsurface Soils and Sediments

Subsurface samples submitted to the onsite mobile laboratory included sediment collected from three stream bed profiles and soil collected from two soil borings. The three stream bed profiles were conducted using hand auger tools along Transects TD, TE, and TF to evaluate the thickness of waste material in the Ely Brook Stream channel. The two soil borings were also advanced using hand auger tools in the middle of the stream channel to evaluate the thickness

of waste materials. The results from the subsurface soil samples submitted to the onsite mobile laboratory are included in Table 5-1 and are discussed below.

Stream Profile TD – The stream profile along TD consisted of six hand auger borings to depths ranging from 0 to 6 ft below ground surface. Based on the XRF results, the compounds copper and selenium were detected above their applicable EMPALs in at least one sample and the thickness of impacted material within the stream bed channel ranged from 3 to 6 ft thick. Copper concentrations ranged from approximately 162 mg/kg to 6,175 mg/kg and selenium concentrations ranged from below laboratory detection limits to approximately 62 mg/kg. The thickest area of waste material along profile TD was observed at location TD-06, located along the eastern edge of the stream channel. The thinnest area of waste material was present in the flood plain area to the west of the stream.

Stream Profile TE – The stream profile along transect TE consisted of six hand auger borings to depths ranging from 3 to 6 ft bgs. Based on the XRF results, the compounds copper, selenium, and zinc were detected above their applicable EMPAL in at least one sample submitted and the thickness of waste material in the stream bed ranged from approximately 0.5 ft to 5 ft thick. Copper concentrations ranged from approximately 115 mg/kg to 4,835 mg/kg, selenium concentrations ranged from below the laboratory detection limits to approximately 116 mg/kg, and concentrations of zinc ranged from 62 mg/kg to 867 mg/kg. The highest concentrations of all three contaminants were detected in samples collected from TE-10 which also exhibited the thickest volume of waste material.

Stream Profile TF – The stream profile along transect TF consisted of six hand auger borings to depths ranging from 1.5 to 5 ft below ground surface. Based on the XRF results, the compounds copper, selenium, and zinc each exceeded their applicable EMPAL in at least one sample submitted and the thickness of waste material in the stream bed ranged from approximately 1.5 ft to 4.5 ft in depth. Copper concentrations ranged from approximately 109 mg/kg to 20,227 mg/kg, concentrations of selenium ranged from below laboratory detection limits to approximately 43 mg/kg, and concentrations of zinc ranged from approximately 60 mg/kg to 1,950 mg/kg. The area with the thickest volume of waste material was observed along the eastern edge of the stream bed channel profile, however, the area of the channel which exhibited the highest concentrations of metals was the point bar of waste material accumulated in the center of the stream profile.

Soil Boring A – Soil boring A was advanced within the Ely Brook stream bed channel approximately 100 ft north of South Vershire Road. The hand auger was advanced to a depth of refusal at approximately 1.5 ft below ground surface. Based on the XRF results, the compounds copper and selenium each exceeded their applicable EMPAL in at least one sample interval with waste material being observed at the depth of refusal. Concentrations of copper ranged from approximately 464 mg/kg to 2,255 mg/kg and concentrations of selenium ranged from approximately 6 mg/kg to 39 mg/kg.

Soil Boring B – Soil boring B was advanced within the Ely Brook stream bed channel approximately 200 ft upstream from transect TD. The boring was advanced to a depth of refusal at approximately 5 ft bgs. Based on the XRF results, the compounds copper, selenium, and zinc were each detected at concentrations which exceeded their applicable EMPAL in at least one sample. Concentrations of copper ranged from 1,487 mg/kg to 7,102 mg/kg, concentrations of selenium ranged from below laboratory detection limits to 26 mg/kg, and concentrations of zinc ranged from 202 mg/kg to 1,410 mg/kg.

5.1.3 Fixed Laboratory Samples

During the field XRF program, 10% of the XRF samples were split and submitted to a fixed laboratory to evaluate the accuracy of the onsite XRF lab results. Based on the initial sampling program and number of samples submitted to the onsite mobile laboratory, approximately 45 samples were submitted for offsite analysis of TAL metals to compare analytical results. Results from the offsite analysis were compared to the onsite XRF analysis by creating a scatter plot of the results and performing a regression analysis of the data. Copies of the scatter plots and regression data are included in Appendix E of this submittal.

Based on the scatter plot of copper concentration results, a strong correlation occurs between the analyses when the concentrations are lower than 600 mg/kg. For the values less than 600 mg/kg, a correlation coefficient R^2 of 0.89 exists between the data points with a y-intercept of 9.68 mg/kg when qualified outliers are eliminated from the data set. The correlation coefficient drops to 0.56 when values over 600 mg/kg are included in the regression analysis.

Based on the scatter plot of selenium concentration results, a strong correlation occurs throughout the entire data set when qualified outliers are eliminated. The regression analysis indicates a correlation coefficient R^2 of 0.93 and a y-intercept of 0.48 mg/kg. The correlation coefficient decreases to 0.79 with outliers included.

The regression analysis of these results indicates that field XRF was an adequate tool for evaluating concentrations of metals in soils at the Ely Mine Site.

6.0 LABORATORY ANALYTICAL RESULTS

Laboratory results for the soil, sediment, surface water, porewater, groundwater (overburden and bedrock), organic compounds, residential wells, and biota (small mammals and invertebrates) are discussed below.

6.1 Soils

Soil samples were collected from several locations throughout the Site to further define the nature and extent of mine waste material throughout the Site and evaluate its impact both on and off the Site. Soils samples collected as part of this investigation included subsurface soil, surface soil, and sediment. Samples were submitted for TAL metals, SPLP metals, and mine waste characteristics analyses including ABA, paste pH, and paste conductivity.

The TAL metals analyses included ICP-AES and ICP-MS and were performed to identify concentrations of previously identified contaminants of concern at the Site. The analysis of samples for SPLP metals included mercury to evaluate the leaching properties of metals from mine waste piles to groundwater and surface water at the Site. To evaluate specific characteristics of mine wastes throughout the Site, samples were collected for laboratory analysis of ABA, paste pH, and paste conductivity. These parameters are utilized to evaluate the potential for mine waste to generate acid mine drainage in areas throughout the site. There are no PALs for these parameters. ABA measures the balance between acid generation and acid neutralization of a mine waste material which in turn provides the neutralization potential (NP) of the material. The paste pH and paste conductivity analyses involve mixing deionized water with a sample aliquot and using a probe to measure the pH and conductivity of the resulting mixture.

The results for all soil samples collected as part of this investigation are discussed in this section and presented in Table 6-1, Table 6-2, and Table 6-3. The laboratory analytical data packages for soil samples are included in Appendix F.

6.1.1 Subsurface Soil

Subsurface soil samples were collected from known historic waste areas at the Ely Mine Site to evaluate the vertical extent of impact from historic mining activities. For this investigation, subsurface soils are defined as those samples that were collected from depths greater than 2 feet bgs. The locations of each sample collected as part of this investigation are illustrated on Figure 2-2.

6.1.1.1 TAL Metals

Twenty-three subsurface soil samples for TAL metals were collected during this investigation from 8 soil boring locations and two test pit locations at depths ranging from 2 to 10 ft bgs. Laboratory analytical results for the ICP-MS and ICP-AES metals analyses identified the presence of aluminum, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, potassium, selenium, silver, sodium, strontium, thallium, vanadium, and zinc above the laboratory detection limits in at least one sample. Of the compounds detected in the subsurface soil samples, aluminum, cadmium, chromium, cobalt, manganese, molybdenum, nickel, selenium, silver, thallium, and vanadium were detected at concentrations that exceeded the applicable PAL in at least one sample, and the compounds copper, iron, and zinc were detected at concentrations greater than 100 times the applicable PAL in at least one sample. The compounds aluminum, copper, iron, and vanadium exceeded the applicable PALs in all subsurface soil samples submitted for laboratory analysis as part of this investigation. The potential contaminants of concern (PCOCs) at the Ely Mine Site include cadmium, copper, iron, lead, selenium, and zinc. The range of detections for each of these compounds is discussed below.

Cadmium – Concentrations of cadmium detected in subsurface soils ranged from below laboratory detection limits to 30.4 mg/kg. The highest concentrations of cadmium were detected in sample SB-09X-073009AX, collected from an area in the northern portion of the Lower Waste Pile Area, and at a depth of 2.2 to 3.0 ft bgs.

Copper - Concentrations of copper in subsurface soils ranged from approximately 84.7 mg/kg to 19,300 mg/kg, identified in samples MW-17A-073009BX and SB-09X-073009AX, respectively. Sample MW-17A-073009BX was collected from the area east of the former flotation mill and south of the beaver pond, and was collected from a depth of 2 to 2.6 ft bgs. Sample SB-09X-073009AX was collected from an area in the northern most part of the Lower Waste Pile Area, and was collected from a depth of 2.2 to 3.0 ft bgs.

Iron - Concentrations of iron detected in subsurface soils ranged from approximately 18,400 mg/kg to 191,000 mg/kg, indentified in samples MW-21A-072809CD and MW-21A-072809AX, respectively. MW-21A is located in the middle of the Lower Waste Pile Area. MW-21A-072809CD was collected from a depth of 6 to 10 ft bgs and MW-21A-072809AX was collected from a depth of 2 to 4 ft bgs.

Lead - Concentrations of lead detected in subsurface soils ranged from 3.1 mg/kg to 52.3 mg/kg, identified in samples MW-21A-072809CD and MW-21A-072809AX, respectively. MW-21A-072809CD was collected from a depth of 6 to 10 ft bgs and MW-21A-072809AX was collected from a depth of 2 to 4 ft bgs.

Selenium - Concentrations of selenium detected in subsurface soil samples ranged from below laboratory detection limits to 50.9 mg/kg. The highest concentration of selenium was detected in sample MW-21A-072809AX, collected from a depth of 2 to 4 ft bgs.

Zinc - Concentrations of zinc in subsurface soils ranged from approximately 3.7 mg/kg to 5,040 mg/kg, identified in samples MW-19A-072109BX and SB-09X-073009BX, respectively. MW-19A-072109BX was collected from the Upper Waste Pile Area at a depth of 6 to 8 ft bgs and SB-09X-073009BX was collected from the Lower Waste Pile Area at a depth of 3 to 6 ft bgs.

Table 6-1 and Figure 6-1b summarizes the laboratory analytical results for subsurface soil samples submitted for TAL metals analyses.

6.1.1.2 Mine Waste Characteristics (ABA, Paste pH, Paste Conductivity)

Subsurface soil samples for ABA, paste pH, and paste conductivity were collected from approximately twenty seven sample intervals at 8 soil boring and two test pit locations. Laboratory analytical results for ABA indicated that concentrations across the Site ranged from approximately (-251) $CaCO_3$/1000t to 53 $CaCO_3$/1000t. These analytical results were observed in samples SB-09X-073009BX and MW-19A-072109CX, respectively. Sample SB-09X-073009BX, located in the northern part of the Lower Waste Pile Area, was collected from a depth of 3 to 6 ft bgs and MW-19A-072109CX, located in the Upper Waste Pile Area, was collected from a depth of 8 to 12.9 ft bgs.

Laboratory analytical results for paste pH analysis of subsurface soils indicated that concentrations across the Site ranged from approximately 2.55 to 6.57 units. These results were observed in samples MW-21A-072809AX and MW-19A-072109CX, respectively. Sample MW-21A-072809AX, located in the Lower Waste Pile Area, was collected from a depth of approximately 2 to 4 ft bgs.

Laboratory analytical results for paste conductivity analysis of subsurface soils indicated that concentrations across the Site ranged from approximately 0.39 mmhos/cm to 10.50 mmhos/cm. These results were observed in samples MW-20A-072909CX and MW-21A-072809AX, respectively. Sample MW-20A-072909CX, located west of the ore roast bed area and south of the lower waste piles, was collected from a depth of approximately 4 to 5.5 ft bgs.

Table 6-2 and Figure 6-2a summarizes the laboratory analytical results for all of the subsurface soil samples submitted for mine waste characteristic analyses.

6.1.1.3 SPLP

Subsurface soil samples for SPLP Metals analysis were collected from 3 locations previously identified as waste areas. The compounds aluminum, arsenic, barium, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, selenium, silver, thallium, vanadium, and zinc were each detected above the laboratory detection limits in at least one sample. Of these compounds detected, aluminum, barium, cadmium, cobalt, copper, iron, lead, manganese, selenium, silver, and zinc were detected above the PAL in at least one sample submitted for

laboratory analysis. With the exception of manganese, the highest concentrations of all compounds were detected in the sample SB-09X-073009AX, collected from an area in the northern portion of the Lower Waste Pile Area, and at a depth of 2.2 to 3.0 ft bgs. The compounds cadmium, cobalt, and copper were all detected in SB-09X-073009AX at concentrations greater than 100 times the PAL.

Table 6-3 summarizes the laboratory analytical results for subsurface soil samples submitted for SPLP Metals analysis.

6.1.2 Surface Soil

Surface soil samples were collected from several locations to evaluate the horizontal extent of impact to the Site from historic mining activities. For this investigation, surface soil samples include samples collected from 0 to 2 feet bgs. The locations of surface soil samples collected as part of this investigation are illustrated on Figure 2-1 and Figure 2-3.

6.1.2.1 TAL Metals

Fifty-four surface soil samples were collected from 43 locations as part of this investigation and submitted for TAL Metals analysis. Laboratory analytical results from the samples collected identified the presence of aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, potassium, selenium, silver, sodium, strontium, thallium, vanadium, and zinc above the laboratory detection limits in at least one sample. Of the compounds detected, aluminum, antimony, cadmium, chromium, cobalt, copper, iron, lead, manganese, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc were detected above their applicable project action limit in at least one sample. Based on previous investigations conducted at the Site, cadmium, copper, iron, lead, selenium, and zinc have been identified as PCOCs. The ranges of concentrations detected for each of these compounds are discussed below.

Cadmium – Concentrations of cadmium detected in surface soil collected from the Site ranged from below laboratory detection limits to 7.2 mg/kg, with the highest concentrations being identified in sample SS-13. Sample SS-13 was collected from an area located just south of the ore roast bed area of the Site.

Copper – Concentrations of copper detected in surface soils ranged from approximately 23.5 mg/kg to 1,400 mg/kg in samples SS-07 and SS-30, respectively. Sample SS-07 was collected from an area north of the smoke flue chimney, and sample SS-30 was collected from the former flotation mill area.

Iron – Concentrations of iron detected in surface soils ranged from approximately 3,400 mg/kg to 181,000 mg/kg in samples SS-15 and SS-30, respectively. Sample SS-15 was collected from an area east of the ore roast beds.

Lead – Concentrations of lead detected in surface soils ranged from approximately 3.3 mg/kg to 295 mg/kg in samples MW-23A and SS-01, respectively. Sample MW-23A was collected from the ore roast beds and sample SS-01 was collected from an area to the north of the former smelter area.

Selenium – Concentrations of selenium detected in surface soils ranged from below the laboratory detection limits to approximately 18.4 mg/kg, with the highest concentrations identified in sample TP-15. Sample TP-15 was collected from an area southwest of the upper waste pile.

Zinc – Concentrations of zinc detected in surface soils ranged from 22.1 mg/kg to 443 mg/kg in samples SS-38 and SS-32, respectively. Sample SS-38 was collected from an area to the west of the upper waste piles and sample SS-32 was collected from an area 150 feet west of Pond 1.

Table 6-2 and Figure 6-1a summarize the laboratory analytical results for all of the surface soil samples submitted for TAL metals analyses.

6.1.2.2 Mine Waste Characteristics (ABA, Paste pH, Paste Conductivity)

Surface soil samples to evaluate mine waste characteristics were collected from approximately 27 locations throughout the Site. Of the 27 surface soil samples collected, 12 samples were submitted for laboratory analysis of ABA, paste pH, and paste conductivity, 14 were submitted for paste pH and paste conductivity analyses, and one sample was submitted for ABA and paste pH analyses.

Laboratory analytical results for ABA indicated that concentrations in surface soils across the Site ranged from approximately (-68) $CaCO_3$/1000t to 5 $CaCO_3$/1000t. These analytical results were observed in samples MW-21A-083109AX and MW-17A-073009AX, respectively. Sample MW-21A-083109AX was collected in the middle of the Lower Waste Pile Area and MW-17A-073009AX was collected from an area to the east of the former flotation mill and south of the beaver ponds. Samples were collected from the MW-17A area to provide a reference for background concentrations at the Site.

Laboratory analytical results for paste pH analysis of surface soils indicated that concentrations across the Site ranged from approximately 2.23 to 6.42 units. These results were observed in samples SS-37-082609AX and SS-27-082609AX, respectively. Sample SS-37-082609AX was collected from the Upper Waste Pile Area, just south of the opening to the main mine shaft. Sample SS-27-082609AX was collected from an area east of the lower waste piles and south of the beaver ponds.

Laboratory analytical results for paste conductivity analysis of surface soils indicated that concentrations across the Site ranged from approximately 0.13 mmhos/cm to 3.313 mmhos/cm. These results were observed in samples MW-17A-073009AX and SS-38X-082609AX, respectively. Sample SS-38X-082609AX was collected just west of the Upper Waste Pile Area.

Table 6-2 and Figure 6-2a summarize the laboratory analytical results for surface soil samples submitted for mine waste characteristic analyses.

6.1.2.3 SPLP Metals

Surface soil samples for SPLP Metals analysis were collected from 3 locations previously identified as waste areas. The compounds aluminum, arsenic, barium, cadmium, cobalt, copper, iron, lead, manganese, selenium, thallium, and zinc were each detected above the laboratory detection limits in at least one sample. Of these compounds detected, barium, cobalt, copper, manganese, and selenium were detected above the PAL in sample MW-23A-070809AX. No compounds were identified above the PALs in either of the other two surface soil samples submitted for laboratory analysis.

Table 6-3 summarizes the laboratory analytical results for surface soil samples submitted for SPLP Metals analysis.

6.1.2.4 Geotechnical Parameters

Twelve surface soil samples were collected in November 2009 for laboratory analysis of geotechnical parameters. The parameters included analysis of grain size, specific gravity, standard proctor test, and shear tests. Based on the laboratory analytical results grain size for the mine waste material consisted primarily of sand, lesser amounts of silt and clay, and lesser amounts of gravel sized particles. Laboratory analytical results indicated that the percent of sand size particles ranged from approximately 47.8% to 73.7%, percentages of silt and clay sized particles ranged from 7.2% to 44.7%, and percentages of gravel size particles ranged from 0.4% to 33.4% in the samples submitted.

Three samples were collected for specific gravity analysis from areas identified as containing mine waste. The samples included the Upper Waste Pile Area, the Lower Waste Pile Area, and within Ely Brook downstream from the Lower Waste Pile Area. Laboratory analytical results ranged from approximately 2.75 to 2.79 in the three samples collected.

The locations of all geotechnical samples collected as part of this investigation are illustrated on Figure 2-4. Table 6-4 summarizes the laboratory analytical results for surface soil samples submitted for geotechnical parameters.

6.2 Sediment

Surface water sediment samples were collected from 16 locations at the Site in August 2009 to evaluate the potential impacts to Ely Brook, School House Brook, and the beaver ponds from historic mining activities. For this investigation, sediment samples included samples from the stream bed beneath from 0 to 0.5 feet below the stream bed surface. The locations of sediment samples collected as part of this investigation are illustrated on Figure 2-6.

6.2.1 TAL Metals

Seventeen sediment samples for TAL metals were collected during this investigation from 16 locations. Laboratory analytical results for ICP-MS and ICP-AES Metals analyses identified the

presence of the compounds aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, potassium, selenium, silver, sodium, strontium, thallium vanadium and zinc above the laboratory reporting limits in at least one sample collected from the Site. Of these compounds, arsenic, barium, cadmium, chromium, cobalt, iron, lead, manganese, nickel, selenium, silver, vanadium, and zinc were detected at concentrations above their applicable PAL in at least one sample, and the compound copper was detected at concentrations greater than 100 times the PAL in at least one sample. Based on previous investigations conducted at the Site, cadmium, copper, iron, lead, selenium, and zinc have been identified as PCOCs. The ranges of concentrations detected for each of these compounds are discussed below.

Cadmium – Concentrations of cadmium detected in sediment collected from Site surface water bodies ranged from 0.075 mg/kg to 1.5 mg/kg, identified in sample SD-58 and SD-71, respectively. Sample SD-58 was collected from School House Brook down gradient from the Site and sample SD-71 was collected from a surface water body located to the north of Pond 3 and Pond 4.

Copper – Concentrations of copper detected in sediment ranged from approximately 47.6 mg/kg to 11,000 mg/kg, identified in samples SD-69 and SD-63, respectively. Sample SD-69 was collected from the southern edge of Pond 3 and sample SD-63 was collected from Ely Brook at the southern edge of the Lower Waste Pile Area.

Iron – Concentrations of iron detected in sediment ranged from approximately 8,760 mg/kg to 137,000 mg/kg, identified in samples SD-58 and SD-63, respectively. Sample SD-58 was collected from School House Brook downgradient from the Site and sample SD-63 was collected from Ely Brook at the southern edge of the Lower Waste Pile Area.

Lead – Concentrations of lead detected in sediment ranged from approximately 2.5 mg/kg to 54.6 mg/kg, identified in samples SD-58 and SD-63, respectively. Sample SD-58 was collected from School House Brook downgradient from the Site and sample SD-63 was collected from Ely Brook at the southern edge of the Lower Waste Pile Area.

Selenium – Concentrations of selenium detected in sediment ranged from approximately 0.35 mg/kg to 26.2 mg/kg, identified in samples SD-69 and SD-63, respectively. Sample SD-69 was

collected from the southern edge of Pond 3 and sample SD-63 was collected from Ely Brook at the southern edge of the Lower Waste Pile Area.

Zinc – Concentrations of zinc detected in sediment ranged from approximately 21.8 mg/kg to 226 mg/kg, identified in samples SD-58 and SD-71, respectively. Sample SD-58 was collected from School House Brook down gradient from the Site and sample SD-71 was collected from a surface water body located to the north of Pond 3 and Pond 4.

Table 6-1 summarizes the laboratory analytical results for all of the sediment samples submitted for TAL metals analyses. A summary of the analytical results for TAL metals analyses is illustrated on Figure 6-3.

6.2.2 Mine Waste Characteristics (ABA, Paste pH, Paste Conductivity)

Laboratory analytical results for ABA indicated that concentrations in sediments across the Site ranged from approximately (-66) $CaCO_3$/1000t to 21 $CaCO_3$/1000t. These analytical results were observed in samples SD-63X-080709AX and SD-59X-080709AX, respectively. Sample SD-63X-080709AX was collected from Ely Brook, just downstream from the Lower Waste Pile Area and SD-59X-080709AX was collected from School House Brook, just downstream from the confluence with Ely Brook.

Laboratory analytical results for paste pH analysis of sediment indicated that concentrations across the Site ranged from approximately 2.94 to 7.50 units. These results were observed in samples SD-62-080709AX and SD-59X-080709AX, respectively. Sample SD-62-080709AX was collected downstream of the Lower Waste Pile Area and downstream from location SD-63.

Laboratory analytical results for paste conductivity analysis of sediment indicated that concentrations across the Site ranged from approximately 0.11 mmhos/cm to 1.50 mmhos/cm. These results were observed in samples SD-67X-080609AX and SD-71X-080609AX, respectively. Sample SD-67X-080609AX was collected downstream from Pond 5 and sample SD-71X-080609AX was collected from the surface water sediment located to the northwest of Pond 3.

Table 6-2 summarizes the laboratory analytical results for all of the sediment samples submitted for mine waste characteristic analyses. A summary of the laboratory analytical results for mine waste characteristics is illustrated on Figure 6-4.

6.2.3 SPLP Metals

Sediment samples for SPLP Metals analysis were collected from one location identified as a potential mine waste area. The compounds aluminum, barium, cadmium, cobalt, copper, iron, manganese, and zinc were detected in sample SD-73-080609AX at concentrations below the applicable PALs.

Table 6-3 includes a summary of the laboratory analytical results for sediment samples submitted for SPLP Metals analysis.

6.3 Surface Water Sampling

Surface water samples were collected from 33 locations, including surface water bodies, streams, and groundwater seeps, during two rounds at the Site in July and November 2009 to evaluate the potential impacts to Ely Brook, School House Brook, and the beaver ponds from historic mining activities. Surface water samples were submitted for several geochemical parameters and TAL metals. The locations of surface water samples collected as part of this investigation are illustrated on Figure 2-7.

6.3.1 Stream and Seep Sampling Geochemical Parameters

Geochemical parameters included as part of this investigation included the field parameters pH, specific conductivity, dissolved oxygen (DO), oxidation reduction potential (ORP), turbidity and temperature, and the laboratory analyzed parameters alkalinity, total dissolved solids (TDS), total suspended solids (TSS), chloride, sulfate, total acidity, nitrite/nitrate nitrogen, and sulfide. The laboratory analytical results for these parameters are summarized in Table 6-5 and are shown in Figure 6-5. A discussion of the geochemical parameter results from each round is included below.

6.3.1.1 July 2009 Surface Water Monitoring

During the July 2009 surface water sampling event field water quality readings were collected using a YSI 600XL. Based on the field measurements collected, the pH of surface water samples collected across the Site ranged from approximately 2.23 to 8.2, identified in samples SW-81 and SW-4, respectively. Specific conductivity values across the Site ranged from approximately 0.055 mS/m to 1.369 mS/m, identified in samples SW-35 and SW-47, respectively. The acidity of surface water ranged from less than 10 mg/l to 270 mg/L with the maximum value detected in the upper reach of the tributary draining across the Upper Waste Pile Area (SW-47). Alkalinity (as $CaCO^3$) values ranged from less than 5 mg/L to 65 mg/L with the highest detected values from Schoolhouse Brook. Sulfate concentrations ranged from less than 10 mg/L to 370 mg/L with the highest value detected coincided with the Upper Waste Pile tributary.

6.3.1.2 November 2009 Surface Water Monitoring

Water quality parameters were also collected during the November 2009 surface water sampling event. Based on the field measurements collected, the pH of surface water samples across the Site ranged from approximately 2.67 to 7.17, identified in samples SW-47 and SW-4, respectively. Specific conductivity values across the Site ranged from approximately 0.053 mS/m to 1.397 mS/m, identified in samples SW-35 and SW-47, respectively. The acidity of surface water ranged from less than 10 mg/l to 400 mg/L with the maximum value detected at the same location as the July 2009 sample result in the upper reach of the tributary draining across the Upper Waste Pile Area (SW-47). Alkalinity (as $CaCO^3$) values ranged from less than 5 mg/L to 64 mg/L with the highest detected values as in the July round from Schoolhouse Brook. Sulfate concentrations ranged from less than 10 mg/L to 1300 mg/L with the highest value detected coincided with the Upper Waste Pile tributary draining toward the Lower Adit. In general, geochemical parameter results were similar for the July and November sampling events.

6.3.2 Stream and Seep Sample TAL Metals

Each sample from the surface water locations was submitted for laboratory analysis of TAL metals including ICP-AES and ICP-MS metals both total and dissolved. Laboratory analytical results for each analysis are included in Table 6-6a and Table 6-6b.

6.3.2.1 July 2009 Surface Water Monitoring

Surface water samples were collected from 33 locations during the Summer 2009 sampling event. Based on the laboratory analytical results for total metal concentrations, the compounds aluminum, barium, beryllium, cadmium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium, selenium, silver, sodium, strontium, thallium, vanadium, and zinc were all detected above the laboratory reporting limits in at least one sample. Of the compounds identified, barium, cadmium, chromium, copper, iron, manganese, nickel, and zinc were each detected above their applicable PALs in at least one sample. The compound barium was detected above its applicable PAL of 3.9 µg/L in all samples submitted for total TAL metals analysis ranging from approximately 8.8 µg/L to approximately 46.1 µg/L, identified in samples SW-45 and SW-48, respectively. Copper was detected at more than 100 times its applicable PAL, 9 µg/L, in twenty one of the sample locations submitted for total TAL metals analysis. Concentrations of total copper ranged from below the laboratory detection limits to approximately 19,500 µg/L, identified in samples SW-38 and SW-78, respectively.

Based on the laboratory analytical results for dissolved metal concentrations, the compounds aluminum, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium, selenium, silver, sodium, strontium, vanadium, and zinc were all identified at concentrations above the laboratory reporting limits. Of these compounds, barium, cadmium, chromium, copper, iron, manganese, nickel, and zinc were each detected above their applicable PAL in at least one sample. The compound barium was detected above its applicable PAL of 3.9 µg/L in all samples submitted for dissolved TAL metals analysis ranging from approximately 6.4 µg/L to 43.9 µg/L, identified in samples SW-47 and SW-77, respectively. Dissolved copper was detected at more than 100 times its applicable PAL, 9 µg/L, in twenty one of the sample locations submitted for dissolved TAL metals analysis. Concentrations of dissolved copper ranged from below laboratory detection limits to 19,300 µg/L, identified is samples SW-72 and SW-78, respectively.

The laboratory analytical results for the July 2009 sampling event for both total and dissolved TAL metals are presented in Table 6-6a. Figure 6-6a summarizes and illustrates the results of total and dissolved TAL metals analyses at the Site for the July 2009 event.

6.3.2.2 November 2009 Surface Water Monitoring

Surface water samples were collected from approximately 32 locations during the Fall 2009 sampling event. Based on the laboratory analytical results for total metal concentrations, the compounds aluminum, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, cyanide, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, potassium, selenium, silver, sodium, strontium, thallium, vanadium, and zinc were each identified above the laboratory reporting limits in at least one sample. Of the 25 compounds identified, arsenic, barium, cadmium, chromium, copper, iron, lead, manganese, nickel, selenium, silver, and zinc were detected above their applicable PAL in at least one sample. The compound barium was detected at concentrations which exceed its applicable PAL in all surface water samples collected. Concentrations of total barium ranged from approximately 8.6 µg/L to 55.8 µg/L, detected in samples SW-36 and SW-43 respectively. Total copper concentrations were detected above the applicable PAL in 29 of the surface water samples collected, and at concentrations greater than 100 times the applicable PAL in 18 of the 32 samples collected. Concentrations of total copper ranged from approximately 0.21 µg/L to approximately 33,178 µg/L, identified in samples SW-38 and SW-43, respectfully.

Based on the laboratory analytical results for dissolved TAL metals analysis, the compounds aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, silver, sodium, strontium, thallium, vanadium, and zinc were each detected at concentrations above the laboratory reporting limits in at least one sample. Of these compounds, arsenic, barium, cadmium, copper, iron, manganese, nickel, selenium, and zinc were all detected above their applicable PAL in at least one sample. Dissolved barium was detected above the applicable PAL in 30 of 32 samples collected, at concentrations ranging from 2.9 µg/L to 41.5 µg/L, identified in samples SW-43 and SW-48, respectively. Dissolved copper was detected above the applicable PAL in 27 of the surface water samples collected and at more than 100 times the PAL in 19 samples collected at concentrations ranging from 0.66 µg/L to 32,841 µg/L. These concentrations were identified in samples SW-38 and SW-43, respectively.

The laboratory analytical results for the November 2009 sampling event for both total and dissolved TAL metals are presented in Table 6-6b. Figure 6-6b summarizes and illustrates the results of total and dissolved TAL metals analyses at the Site for the November 2009 event.

6.3.3 Vernal Pools

Surface water samples were collected from 4 vernal pool locations in July 2009. The locations of the vernal pool samples are illustrated on Figure 2-5.

6.3.3.1 Geochemical Parameters

Vernal pool samples were submitted for geochemical parameter analyses which included alkalinity, specific conductivity, chloride, sulfate, total acidity, nitrate, and nitrite. The laboratory analytical results for the vernal pool geochemical parameters are included in Appendix F.

6.3.3.2 TAL Metals

Surface water samples from four vernal pools identified at the Site were analyzed for total and dissolved TAL metals. Results are listed in Table 6-6a. Metals detected above the PALs are shown on Figure 6-7, which include barium, cadmium, copper, iron, and manganese. Twelve additional metals were detected below the PAL concentrations. Total copper concentrations ranged from 0.26J µg/L to 5.7 µg/L in vernal pools VP-02 , -03, and -04. Copper concentrations only exceeded the PAL in the sample from VP-01 with a maximum total copper concentration of 171 µg/L. Dissolved copper concentrations were slightly lower. Barium and manganese were the two metals most commonly detected above the PALs in the vernal pool samples with concentration ranges from 12.4J µg/L to 24J µg/L for barium and 9.8J µg/L to188J µg/L for manganese.

6.4 Porewater Sampling

Porewater samples were collected from seven locations within Ely Brook during the August 2009 groundwater sampling event. Porewater samples were submitted for laboratory analysis of alkalinity, chloride, sulfate, total acidity, nitrite/nitrate, sulfide, ICP AES both total and dissolve metals, and ICP-MS both total and dissolved metals. The locations of the porewater samples are illustrated on Figure 2-5. The results of the geochemical analyses are included in Appendix F of this submittal. A discussion of TAL metals analysis is included below.

6.4.1 TAL Metals

Laboratory analytical results for the porewater samples collected for total metals analysis identified the presence of aluminum, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, magnesium, manganese, nickel, potassium, sodium, strontium, and zinc above the laboratory reporting limits in the results from at least one sample. Of these compound detected, copper and manganese were detected above their applicable PALs in at least one sample. Total copper concentrations ranged from approximately 13.3 µg/L to 3,160 µg/L, identified in samples PW-02 and PW-07, respectively. Total copper concentrations exceeded the applicable PAL in samples collected from PW-05 and PW-07. Total manganese concentrations ranged from approximately 3.2 µg/L to 710 µg/L, identified in samples collected from PW-03 and PW-07, respectively. Total manganese concentrations exceeded the applicable PAL in samples collected from PW-04, PW-05, and PW-07.

Laboratory analytical results for the porewater samples collected for dissolved metals analysis identified the presence of aluminum, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, magnesium, manganese, nickel, potassium, sodium, strontium, and zinc above the laboratory reporting limits in the results from at least one sample. Of the compounds detected, copper and manganese were detected above their applicable PALs in at least one sample. Dissolved copper concentrations ranged from approximately 1.5 µg/L to 3,180 µg/L, identified in samples PW-04 and PW-07, respectively. Dissolved copper concentrations exceeded the applicable PAL in samples collected from PW-05 and PW-07. Dissolved manganese concentrations ranged from approximately 2.4 µg/L to 704 µg/L, identified in samples collected from PW-03 and PW-07, respectively. Dissolved manganese concentrations exceeded the applicable PAL in samples collected from PW-04, PW-05, and PW-07.

Table 6-8a and Figure 6-7 includes a summary of the laboratory analytical data for porewater samples collected during the August 2009 groundwater sampling event.

6.5 Overburden Groundwater

Groundwater samples were collected from the onsite overburden monitoring well network during two sampling events in August and November 2009 to evaluate potential impacts to the overburden aquifer beneath the Site from historic mining operations. Groundwater samples were collected for geochemical parameters, total and dissolved TAL metals, and a select

number of wells were sampled for organic parameters in the November 2009 sampling event. Figure 2-8 illustrates the locations of the onsite monitoring well network. A discussion of the analytical results is included below.

6.5.1 Geochemical Parameters

Geochemical parameters included as part of this investigation consisted of laboratory analysis for alkalinity, chloride, sulfate, total acidity, nitrite/nitrate, and sulfide. Geochemical parameters were also measured in the field using a YSI 600XL water quality meter and turbidity meter capable of measuring pH, specific conductivity, dissolved oxygen, oxidation reduction potential, temperature, and turbidity. The laboratory analytical results for these parameters are summarized in Table 6-7 and included in Appendix F. Field results are shown on Figure 6-8. A discussion of the field parameters collected during the sampling event is included below.

6.5.1.1 August 2009 Low-Flow Sample Results

During the August 2009 groundwater water sampling event, water quality parameters were documented using a YSI 600XL and a Lamotte 20/20 turbidity meter and by laboratory analyses. Based on the field measurements collected, the pH of overburden groundwater collected across the Site ranged from approximately 1.71 to 7.14, identified in samples MW-21A and MW-1B, respectively. Specific conductance values across the Site ranged from approximately 0.042 mS/m to 0.973 mS/m, identified in samples MW-7A and MW-21A, respectively. Laboratory geochemical parameter results indicate a range of acidity from less than 10 mg/L to 230 mg/L with the maximum observed in a sample from Well MW-21A within the Lower Waste Pile Area. Alkalinity values ranged from less than 5 mg/L to 140 mg/L with the highest values observed in wells screened below or outside of waste areas including bedrock wells. Sulfate concentrations in groundwater ranged from less than 1 mg/L to 660 mg/L with the highest values detected in several shallow overburden within or downgradient of the Upper and Lower Waste Pile Areas.

6.5.1.2 November 2009 Low-Flow Sample Results

During the November 2009 groundwater water sampling event, water quality parameters were documented using a YSI 600XL and a Lamotte 20/20 turbidity meter and by laboratory analyses. Based on the field measurements collected, the pH of overburden groundwater

collected across the Site ranged from approximately 3.68 to 10.11, identified in samples MW-4A and MW-2B, respectively. Specific conductance values across the Site ranged from approximately 0.048 mS/m to 0.856 mS/m, identified in samples MW-10B and MW-5B, respectively. During the November 2009 sampling, only sulfate was analyzed by the off-site laboratory. Sulfate concentrations in groundwater ranged from less than 1 mg/L to 930 mg/L with the highest values detected in several shallow overburden downgradient of waste areas with values similar to the summer round results.

6.5.2 TAL Metals

Each groundwater sample collected from overburden monitoring wells was submitted for laboratory analysis of TAL metals including ICP-AES and ICP-MS metals both total and dissolved. Laboratory analytical results for each analysis are included in Table 6-8a and Table 6-8b. A discussion of the laboratory analytical results for each sampling event is included below.

6.5.2.1 August 2009 Low-Flow Sample Results

Groundwater samples were collected from 24 overburden monitoring wells during the August 2009 sampling event. Based on the laboratory analytical results for total metals, the compounds aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, molybdenum, nickel, potassium, selenium, silver, sodium, strontium, thallium, vanadium, and zinc were each detected above the laboratory reporting limits in at least one sample. Of the compounds detected, cadmium, copper, manganese, and nickel were each detected above their applicable PAL in at least one sample. Total cadmium concentrations ranged from below the laboratory detection limits to approximately 17.2 µg/L, identified in MW-21A. Total copper concentrations ranged from below the laboratory detection limits to approximately 20,700 µg/L, identified in MW-18A. Total manganese concentrations ranged from approximately 3.5 µg/L to 3,020 µg/L, identified in MW-13A and MW-11A, respectively. Total nickel concentrations ranged from below laboratory detection limits to approximately 129 µg/L, identified in MW-18A.

Laboratory analytical results for dissolved metals analyses identified the presence of aluminum, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, magnesium, manganese, molybdenum, nickel, potassium, selenium, silver, sodium, strontium, thallium,

vanadium, and zinc above the laboratory reporting limits in at least one sample. Of the compounds detected, cadmium, copper, manganese, and nickel were each detected above their applicable PAL in at least one sample. Dissolved cadmium concentrations ranged from below the laboratory detection limits to approximately 22.4 µg/L, identified in MW-21A. Dissolved copper concentrations ranged from below the laboratory detection limits to approximately 19,200 µg/L, identified in MW-18A. Dissolved manganese concentrations ranged from approximately 2.0 µg/L to 2,860 µg/L, identified in MW-06A and MW-11A, respectively. Dissolved nickel concentrations ranged from below laboratory detection limits to approximately 122 µg/L, identified in MW-18A.

Figure 6-9a summarizes and illustrates the results of overburden groundwater samples submitted for total and dissolved TAL metals analyses for the August 2009 event.

6.5.2.2 November 2009 Low-Flow Sample Results

Groundwater samples were collected from 23 overburden monitoring wells during the November 2009 sampling event. The laboratory analytical results for total metals identified the presence of aluminum, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, molybdenum, nickel, potassium, silver, sodium, strontium, thallium, vanadium, and zinc above the laboratory reporting limits in at least one sample. Of the compounds detected, cadmium, copper, manganese, and nickel were each detected above their applicable PAL in at least one sample. Total cadmium concentrations ranged from below the laboratory detection limits to approximately 36.5 µg/L, identified in MW-18A. Total copper concentrations ranged from below the laboratory detection limits to approximately 49,581 µg/L, identified in MW-18A. Total manganese concentrations ranged from below laboratory detection limits to approximately 3,503 µg/L, identified in MW-18A. Total nickel concentrations ranged from below laboratory detection limits to approximately 214 µg/L, identified in MW-18A.

Laboratory analytical results for dissolved metals analyses identified the presence of aluminum, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, molybdenum, nickel, potassium, sodium, strontium, thallium, vanadium, and zinc above the laboratory reporting limits in at least one sample. Of the compounds detected, cadmium, copper, manganese, and nickel were each detected above their applicable PAL in at least one sample. Dissolved cadmium concentrations ranged from below the laboratory

detection limits to approximately 36.8 µg/L, identified in MW-18A. Dissolved copper concentrations ranged from below the laboratory detection limits to approximately 49,117 µg/L, identified in MW-18A. Dissolved manganese concentrations ranged from below laboratory detection limits to approximately 3,461 µg/L, identified in MW-18A. Dissolved nickel concentrations ranged from below laboratory detection limits to approximately 214 µg/L, identified in MW-18A.

Figure 6-9b summarizes and illustrates the results of overburden groundwater samples submitted for total and dissolved TAL metals analyses for the November 2009 event.

6.6 Bedrock Groundwater

Groundwater samples were collected from the onsite bedrock monitoring well network during the August, September (packer sampling), and November 2009 to evaluate potential impacts to the shallow and deep bedrock aquifer beneath the Site from historic mining operations. Groundwater samples were collected for geochemical parameters, total and dissolved TAL metals, and a select number of wells were sampled for organic parameters during the November 2009 sampling event. Figure 2-8 illustrates the locations of the onsite monitoring well network. A discussion of the analytical results is included below.

6.6.1 Geochemical Parameters

Geochemical parameters included as part of this investigation consisted of laboratory analysis for alkalinity, chloride, sulfate, total acidity, nitrite/nitrate, and sulfide. Geochemical parameters were also measured in the field using a YSI 600XL water quality meter and turbidity meter capable of measuring pH, specific conductivity, dissolved oxygen, oxidation reduction potential, temperature, and turbidity. The laboratory analytical results for these geochemical parameters are included in Table 6-7 and Appendix F. Field parameter readings are shown on Figure 6-10. A discussion of the geochemical parameters analyzed during the two groundwater sampling events is included below.

6.6.1.1 August 2009 Low-Flow Sample Results

During the August 2009 groundwater water sampling event, water quality readings were collected using a YSI 600XL and a Lamotte 20/20 turbidity meter and analyzed by the

laboratory. Based on the field measurements collected, the pH of bedrock groundwater across the Site ranged from approximately 2.13 to 7.9, identified in samples MW-21C and MW-9C, respectively. Specific conductivity values across the Site ranged from approximately 0.047 mS/m to 1.026 mS/m, identified in samples MW-7C and MW-21C, respectively. Acidity values in bedrock wells were generally less than 10 mg/L with the exception of the well pair at location MW-19C/D having values of 57 and 19.7 mg/L, respectively. Alkalinity values for bedrock wells were generally higher than overburden wells and ranged from less than 5 mg/L to 100 mg/L. Sulfate concentrations ranged from less than 5 mg/L to 360 mg/L with the highest values detected in wells within or immediately downgradient of the Upper Waste Pile Area.

6.6.1.2 September 2009 Packer Sample Results

Groundwater samples were collected from the three deep bedrock monitoring wells using a wireline straddle packer assembly to isolate intervals and fractures identified during the borehole geophysics program. The samples were submitted for laboratory analysis of alkalinity, chloride, sulfate, total acidity, nitrite/nitrate, and sulfide. The results of the geochemical analyses are included in Appendix F of this submittal.

6.6.1.3 November 2009 Low-Flow Sample Results

During the November 2009 groundwater water sampling event, water quality parameters were documented using a YSI 600XL, a Lamotte 20/20 turbidity meter, and laboratory analysis of sulfate. Based on the field measurements collected, the pH of bedrock groundwater across the Site ranged from approximately 3.75 to 8.56, identified in samples MW-21C and MW-1C, respectively. Specific conductivity values across the Site ranged from approximately 0.052 mS/m to 1.035 mS/m, identified in samples MW-7C and MW-21C, respectively. Sulfate was the only parameter analyzed by the laboratory for the fall round. Sulfate concentrations ranged from less than 5 mg/L to 390 mg/L with a similar distribution to the August 2009 round.

6.6.2 TAL Metals

Each groundwater sample collected from the bedrock monitoring well network was submitted for laboratory analysis of TAL metals including ICP-AES and ICP-MS metals both total and dissolved. Laboratory analytical results for each analysis are included in Table 6-8a and

Table 6-8b. A discussion of the laboratory analytical results for each sampling event is included below.

6.6.2.1 August 2009 Low-Flow Sample Results

Groundwater samples were collected from 16 bedrock monitoring wells during the August 2009 sampling event. The laboratory analytical results for total metals identified the presence of aluminum, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, molybdenum, nickel, potassium, silver, sodium, strontium, thallium, vanadium, and zinc above the laboratory reporting limits in at least one sample. Of the compounds detected, cadmium, copper, and manganese were each detected above their applicable PAL in at least one sample. Total cadmium concentrations ranged from below the laboratory detection limits to approximately 12.7 µg/L, identified in MW-21C. Total copper concentrations ranged from approximately 1.1 µg/L to 10,600 µg/L, identified in samples MW-04C and MW-19C, respectively. Total manganese concentrations ranged from below laboratory detection limits to approximately 3,000 µg/L, identified in MW-21C.

Laboratory analytical results for dissolved metals analyses identified the presence of aluminum, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, magnesium, manganese, molybdenum, nickel, potassium, sodium, strontium, thallium, vanadium, and zinc above the laboratory reporting limits in at least one sample. Of the compounds detected, cadmium, copper, and manganese were each detected above their applicable PAL in at least one sample. Dissolved cadmium concentrations ranged from below the laboratory detection limits to approximately 15 µg/L, identified in MW-21C. Dissolved copper concentrations ranged from below the laboratory detection limits to approximately 10,000 µg/L, identified in MW-19C. Dissolved manganese concentrations ranged from below laboratory detection limits to approximately 2,470 µg/L, identified in MW-21C.

Figure 6-11a summarizes and illustrates the results of bedrock groundwater samples submitted for total and dissolved TAL metals analyses for the August 2009 sampling event.

6.6.2.2 September 2009 Packer Sample Results

Packer testing was conducted on up to three zones in each of the deep bedrock monitoring wells in September 2009. The laboratory analytical results identified the presence of total

aluminum, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium, sodium, vanadium, and zinc above laboratory reporting limits in at least one sample. Of these compounds, cadmium, chromium, copper, and manganese were detected above the applicable PALs in at least one sample. Concentrations of total cadmium ranged from below laboratory detection limits to approximately 6.6 µg/L, identified in sample MW-19D from 36 to 46 ft bgs. Concentrations of total chromium ranged from approximately 0.7 µg/L to 132 µg/L, identified in samples MW-20D from 85 to 95 ft bgs and MW-14D from 52 to 62 ft bgs, respectively. Concentrations of total copper ranged from below laboratory detection limits to approximately 8,910 µg/L, identified in sample MW-19D from 36 to 46 ft bgs. Concentrations of total manganese ranged from below laboratory detection limits to approximately 1,290 µg/L, identified in sample MW-19D from 36 to 46 ft bgs.

The laboratory analytical results identified the presence of dissolved aluminum, barium, beryllium, cadmium, calcium, cobalt, copper iron, magnesium, manganese, nickel, potassium, sodium, strontium, and zinc above the laboratory reporting limits in at least one sample. Of these compounds, total cadmium, copper, and manganese were identified above their applicable PALs in at least one interval within monitoring well MW-19D located in the Upper Waste Pile Area. Monitoring well MW-19D was the only well with concentrations identified above the PALs. Dissolved cadmium concentrations ranged from approximately 2.2 µg/L to 6.6 µg/L, dissolved copper concentrations ranged from approximately 1,040 µg/L to 8,380 µg/L, and dissolved manganese concentrations ranged from approximately 581 µg/L to 1,240 µg/L in MW-19D. The interval between 36 and 46 ft bgs yielded the highest concentrations of each compound detected. Concentrations of these three compounds were below the laboratory detection limits in all intervals in MW-14D and MW-20D.

Table 6-9 includes the laboratory analytical results from the bedrock packer sampling. Figure 6-12 summarizes and illustrates the results of the packer testing.

6.6.2.3 November 2009 Low-Flow Sample Results

Groundwater samples were collected from 19 bedrock monitoring wells during the November 2009 sampling event. The laboratory analytical results for total metals identified the presence of aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, molybdenum, nickel, potassium, selenium, silver, sodium,

strontium, thallium, vanadium, and zinc above the laboratory reporting limits in at least one sample. Of the compounds detected, cadmium, copper, and manganese were each detected above their applicable PAL in at least one sample. Total cadmium concentrations ranged from below the laboratory detection limits to approximately 13 µg/L, identified in MW-21C. Total copper concentrations ranged from below laboratory detection limits to approximately 9,713 µg/L, identified in sample MW-19C. Total manganese concentrations ranged from below laboratory detection limits to approximately 2,381 µg/L, identified in MW-21C.

Laboratory analytical results for dissolved metals analyses identified the presence of aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, molybdenum, nickel, potassium, selenium, sodium, strontium, thallium, vanadium, and zinc above the laboratory reporting limits in at least one sample. Of the compounds detected, cadmium, copper, and manganese were each detected above their applicable PAL in at least one sample. Dissolved cadmium concentrations ranged from below the laboratory detection limits to approximately 12.2 µg/L, identified in MW-21C. Dissolved copper concentrations ranged from below the laboratory detection limits to approximately 9,461 µg/L, identified in MW-19C. Dissolved manganese concentrations ranged from below laboratory detection limits to approximately 2,274 µg/L, identified in MW-21C.

Figure 6-11b summarizes and illustrates the results of bedrock groundwater samples submitted for total and dissolved TAL metals analyses for the November 2009 sampling event.

6.7 Groundwater Organic Compounds

Laboratory analysis of organic compounds was completed on groundwater samples from 10 monitor wells at the Site during the November 2009 sampling round, including eight shallow overburden wells and two deep bedrock wells. Analyses included volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, and polychlorinated biphenyl compounds (PCBs). Wells were included from the various waste areas where higher metal concentrations had been previously reported, to assess whether organic constituents were associated with any of the waste areas and/or historical activities associated with processing ore at the Site. Sample locations included one well from the Slag Pile Area (MW-02); one well from the Smelter Area (MW-11A); three wells from the Upper Waste Pile Area ((MW-05A, MW-19A, MW-19D); two wells from the Lower Waste Pile/Tailings Area (MW-21A, MW-22A); and a

well pair from the area downgradient of the Ore Roast Bed Area (MW-20A, MW-20D). Results are summarized in Table 6-11.

VOCs were not detected in any of the wells tested. The SVOC bis(2-ethyhexyl)phthalate was detected at a low concentration in wells MW-22A and MW-19D from widely separate areas and was the only organic compound detected in these wells. This compound is commonly associated with oils and plastics and is also a common contaminant associated with surgical gloves used by the field team, although a site-related source cannot be ruled out.

Low concentrations of three pesticide compounds and one PCB (Aroclor-1248) were detected in the sample from deep bedrock well MW-20D. The detected PCB concentration is below the PAL for this compound. Pesticides and PCBs are not typically mobile in groundwater. A review of the sample field parameters indicates an elevated turbidity in the sample which indicates the sample may not be representative of bedrock groundwater. These compounds were not detected in the shallow overburden groundwater sample from the same location, which suggests that these compounds could have been introduced from a particulate surface source and not related to groundwater.

6.8 Residential Wells

Residential well sampling was conducted in December 2009 to evaluate for impacts to local drinking water supply wells from the historic mining operations at the Site. Figure 2-9 illustrates the locations of the residential wells targeted as part of this investigation. A discussion of the analytical results is included below.

6.8.1 TAL Metals

Drinking water samples were collected from six residential properties as part of this investigation for TAL metals analysis including ICP-MS and ICP-AES both total and dissolved. Based on the laboratory analytical results for total metals, the compounds aluminum, antimony, barium, calcium, copper cyanide, iron, lead, magnesium, manganese, molybdenum, nickel, potassium, silver, sodium, strontium, vanadium, and zinc were all identified above the laboratory reporting limits in at least one sample. Total lead was the only analyte detected above its applicable PAL at concentrations of 32.4 µg/L and 16 µg/L, identified in sample M11LT065 in the primary and duplicate samples, respectively.

Based on the laboratory analytical results for dissolved metals, the compounds aluminum, arsenic, barium, calcium, copper, lead, magnesium, manganese, molybdenum, nickel, potassium, sodium, strontium, thallium, vanadium, and zinc were all detected above the laboratory reporting limits in at least one sample. However, none of the compounds identified were detected above their applicable PALs.

The laboratory analytical results for the residential well sampling are presented in Table 6-10.

6.8.2 Other Inorganic Compounds

Laboratory analysis of other inorganic compounds was also included at each residential water supply well, including alkalinity, chloride, sulfate, total acidity, nitrate, nitrite, and sulfide. All results for these analyses are included in Appendix F of this submittal.

6.9 Biota Sampling

Biota sampling of soil invertebrates and small mammals was performed in September 2009 to support the Site terrestrial ecological risk assessment. The following sections summarize the results of these sampling activities. Sample results are shown in Table 6-12 for TAL metals and Tables 6-13 to 6-16 to present analytical result summary statistics.

6.9.1 Soil Invertebrates Percent Moisture and TAL Metals

The soil invertebrate data was summarized by Exposure Area (EA), see Table 6-13. Because there are no ecological benchmarks available for soil invertebrates, this discussion is focused on concentration comparisons between Exposure Area 1 (Upper Waste Piles), Exposure Area 2 (Lower Waste Piles and Roast Bed), and Exposure Area 3 (Smelter/Slag Area) and the Reference Area (Ref). The following discussion is limited to detected metals (and percent moisture) and does not include a discussion of concentrations of essential elements like calcium, iron, magnesium and sodium.

Seven metals (aluminum, cadmium, chromium, copper, manganese, silver, and zinc) were detected in soil invertebrate samples collected in one or more of the Exposure Areas (see Table 6-16).

- Aluminum was detected in Exposure Areas 1, 2 and 3. Aluminum was detected in five of seven samples and the highest detected concentration (240 mg/kg) was found in Exposure Area 3.

- Cadmium was detected in Exposure Areas 2 and 3. Cadmium was detected in two of seven samples and the highest detected concentration (1.1 mg/kg) was found in Exposure Area 3.

- Chromium was only detected in Exposure Area 3. Chromium was detected in two of seven samples and the highest detected concentration was 2.9 mg/kg.

- Copper was detected in Exposure Areas 1, 2, 3 and the Ref. Copper was detected in all seven samples and the highest detected concentration (43 mg/kg) was found in Exposure Area 3.

- Manganese was detected in Exposure Areas 1, 2, 3 and the Ref. Manganese was detected in all seven samples and the highest detected concentration (34 mg/kg) was found in Exposure Area 1.

- Silver was only detected in Exposure Area 2. Silver was detected in one of seven samples and the highest detected concentration was 1.0 mg/kg.

- Zinc was detected in Exposure Areas 1, 2, 3 and the Ref. Zinc was detected in all seven samples and the highest detected concentration (95 mg/kg) was found in Exposure Area 3.

- Percent moisture was determined in all seven samples and ranged from 6.75 to 7.29%.

6.9.2 Small Mammals Percent Lipids and TAL Metals

The small mammal data was summarized by species (deer mouse, woodland jumping mouse and short-tailed shrew) and Exposure Area, see Table 6-14, Table 6-15, and Table 6-16. Species-specific ecology impacts bioaccumulation potential; therefore, it is important that

comparisons are limited to within species. Because there are no ecological benchmarks available for small mammals, this discussion is focused on concentration comparisons between Exposure Areas 1-3 and the Reference Area (Ref). The following discussion is limited to detected metals (and lipids) within a species and does not include a discussion of concentrations of essential elements like calcium, iron, magnesium and sodium.

6.9.2.1 Deer Mouse

Deer mouse samples were collected from all three exposure areas and the Ref. Six metals (aluminum, arsenic, chromium, copper, manganese and zinc) were detected in deer mouse samples collected in one or more of the Exposure Areas (see Table 6-14).

- Aluminum was detected in Exposure Areas 1, 3 and the Ref. Aluminum was detected in four of twenty-four samples and the highest detected concentration (28 mg/kg) was found in the only detected sample in Exposure Area 1.

- Arsenic was detected in Exposure Areas 1 and 2. Arsenic was detected in four of twenty-four samples and the highest detected concentration (1.2 mg/kg) was detected in samples from Exposure Areas 1 and 2.

- Chromium was only detected in Exposure Area 2. Chromium was detected in two of twenty-four samples and the highest detected concentration was 1.4 mg/kg.

- Copper was detected in Exposure Areas 1, 2, 3 and the Ref. Copper was detected in all twenty-four samples and the highest detected concentration (12 mg/kg) was found in Exposure Area 1.

- Manganese was detected in Exposure Areas 1, 2, 3 and the Ref. Manganese was detected in all twenty-four samples and the highest detected concentration (18 mg/kg) was found in Exposure Area 3.

- Zinc was detected in Exposure Areas 1, 2, 3 and the Ref. Zinc was detected in all twenty-four samples and the highest detected concentration (38 mg/kg) was found in Exposure Area 1.

- Lipids was determined in all twenty-four samples and ranged from 3.14 to 7.34 %).

6.9.2.2 Woodland Jumping Mouse

Woodland jumping mouse samples were collected from Exposure Area 2 and the Ref. Six metals (aluminum, arsenic, chromium, copper, manganese and zinc) were detected in woodland jumping mouse samples collected in one or more of the Exposure Areas (see Table 6-15).

- Aluminum was detected in Exposure Areas 2 and the Ref. Aluminum was detected in four of six samples and the highest detected concentration (37 mg/kg) was found Exposure Area 2.

- Arsenic was detected in Exposure Area 2. Arsenic was detected in two of six samples and the highest detected concentration was 1.6 mg/kg.

- Chromium was detected in Exposure Areas 2 and the Ref. Chromium was detected in two of six samples and the highest detected concentration (3.7 mg/kg) was found in Exposure Area 2.

- Copper was detected in Exposure Areas 2 and the Ref. Copper was detected in all six samples and the highest detected concentration (5.9 mg/kg) was found in the Ref.

- Manganese was detected in Exposure Areas 2 and the Ref. Manganese was detected five of six all twenty-four and the highest detected concentration (11 mg/kg) was found in both Exposure Area 2 and the Ref.

- Zinc was detected in Exposure Areas 2 and the Ref. Zinc was detected in all six samples and highest detected concentration (36 mg/kg) was found in the Ref.

- Lipids were determined in all six samples and ranged from 6.52 to 18.1 %.

6.9.2.3 Short-Tailed Shrew

Short-tailed shrew samples were collected from Exposure Areas 1 and 3 and the Ref. Seven metals (aluminum, arsenic, cadmium, chromium, copper, manganese and zinc) were detected in shrew mouse samples collected in one or more of the Exposure Areas (see Table 6-16).

- Aluminum was detected in Exposure Areas 1, 3 and the Ref. Aluminum was detected in four of ten samples and the highest detected concentration (77 mg/kg) was found Exposure Area 1.

- Arsenic was detected in Exposure Area 1. Arsenic was detected in two of ten samples and the highest detected concentration was 1.2 mg/kg.

- Cadmium was only detected in Exposure Area 3. Cadmium was detected in one of ten samples and the highest detected concentration was 1.2 mg/kg.

- Chromium was only detected in the Ref. Chromium was detected in one of ten samples and the highest detected concentration was 1.4 mg/kg.

- Copper was detected in Exposure Areas 1, 3 and the Ref. Copper was detected in all ten samples and the highest detected concentration (6.8 mg/kg) was found in Exposure Area 1.

- Manganese was detected in Exposure Areas 1, 3 and the Ref. Manganese was detected seven of ten samples and the highest detected concentration (34 mg/kg) was found in Exposure Area 3.

- Zinc was detected in Exposure Areas 1, 3 and the Ref. Zinc was detected in all ten samples and the highest detected concentration (46 mg/kg) was found in Exposure Area 3.

- Lipids were determined in all ten samples and ranged from 3.13 to 5.18 %.

7.0 PRELIMINARY CONCEPTUAL SITE MODEL

The current understanding of Site sources, release mechanisms, migration pathways, and conceptual model of groundwater flow at the Site are summarized based on existing data.

7.1 Site Contaminant Sources

Historical mining operations at the Site have resulted in the deposition of piles of waste rock, tailings, roasted ore, and slag with an estimated volume of the order of 180,000 CY, that are the source of acid rock drainage (ARD) from the Site. The following sections describe the current understanding of Site sources and a Preliminary Conceptual Site Model of the relationship between these sources and Site media.

The Site consists of a series of mine waste areas extending from North to South along the central part of the valley along the southern slope of Dwight Hill (Figure 1-2). In addition, mine openings along the upper portions of the valley lead to underground workings extending approximately 3,000 feet northeast of surface waste areas, extending beneath the northern slope of Dwight Hill. Remnant historical and archaeological mine features (e.g. former building and equipment foundations and stone walls) are present around mine openings and within the mine waste areas. Variations in the ore processing resulted in some variation in characteristics of wastes that are currently found on the site. The use of flotation separation techniques produced tailings piles which are generally distinguished from ore and waste rock due to their finer and more homogenous sand-sized grain size. Hand processing of ore resulted in generally cobble to boulder sized materials mixed with finer waste rock which comprises the majority of the upper waste rock piles at the Site. Ore roasting generated hematite-rich, oxidized soils in an area downslope of the waste rock piles. At the bottom of the valley, the former smelter area is underlain in part by smelter wastes and slag. The slag heap associated with the former smelter lies partly beneath South Vershire Road and extends along the north bank of Schoolhouse Brook.

Previous work by USACE, USGS, VTANR, and others have characterized significant impacts to Ely Brook and Schoolhouse Brook and biological impairments related to ARD emanating from the mining areas. Groundwater comprising the mine pool of the flooded underground workings may also impact groundwater in the vicinity of the mines in addition to acid mine drainage at the surface, although direct surface discharge from the underground workings appears to be limited.

Results from prior sampling of the waste rock and tailings piles, indicates that the majority of the waste materials are similar in character to waste materials at the Elizabeth and Pike Hill Mines, having been derived from ore deposits of very similar composition. Based on composite sample results from waste source areas at the Site, the waste materials appear to have similar acid-generating potential and typically contain copper concentrations above preliminary remediation goals (PRGs, residential). Some of the unoxidized flotation tailings at the Site tend to contain relatively higher concentrations of copper as a result of the higher concentration of sulfides in this material. In addition, these tailings may be more reactive than waste rock due to higher pyrrhotite concentrations.

For the purpose of describing the distribution of Site sources and evaluating the recent results of field investigations, the waste source areas at the Site have been defined based on the type of waste and their relative position with respect to the locations of former processing areas. These are consistent with waste source areas described in previous reports.

7.1.1 Upper Waste Rock Piles

A series of overlapping waste rock piles are located along the steeper upper portion of the south slope of Dwight Hill extending downslope from the Main Shaft down to the Burleigh Shaft. These waste rock piles are referred to as the Upper Waste Rock Piles and generally include a mixture of barren country rock from development of the mine openings and ore-bearing rock which has undergone varying degrees of crushing, cobbing and separation to remove the majority of the ore prior to transport downslope for more processing. As a result, material remaining in these piles contain some small percentage of residual ore material, or what otherwise would be considered low-grade ore and barren rock. The material is generally poorly sorted and includes a broad range of particle sizes from sand and silt up to boulder-size material. An initial estimate of the volume of waste rock within the Upper Waste Rock Pile Area is approximately 60,000 cubic yards (cy), assuming an average thickness of 12 feet over the area based on observations to date.

Observations from two wells (MW-18A and MW-19A) installed in this area indicate minimum waste thickness range from 4.5 to 8 feet. Maximum thickness is likely to be considerably greater on the outer portion of the pile terraces. Glacial till thicknesses of 3.5 (MW-18A) and 6

feet (MW-19A) were observed at these locations. A limited number of subsurface soil samples were collected from the two borings and surface soil samples were analyzed from several locations within the uppermost portion of the Upper Waste Pile Area to supplement previous work by USGS and URS. Copper concentrations in the subsurface waste rock material ranged from 500 ppm up to 4,250 ppm with significantly lower metal concentrations in native soil underlying the waste rock material. Paste pH is generally less than 4 units and acid-base accounting (ABA) results are typically less than zero indicating the acid-generating potential of this material. Surface soil samples collected from remnant waste rock piles surrounding several of the mine openings in the area upslope from well MW-19 contained copper concentrations less than 655 ppm. Copper concentrations appear to correlate well with paste pH and ABA results in those waste rock samples exceeding approximately300 ppm copper, demonstrating the acid-generating potential of these wastes. Results for glacial till samples appears to be more variable as this unit tends to have distinctly higher acid neutralizing capacity despite locally elevated copper concentrations. Results from SPLP testing of subsurface soil confirm that moderately high levels of metals are leached from the Upper Waste Rock Pile samples.

Results from multiple surface soil transects analyzed using XRF confirmed the relative concentrations of metals in the transition zone bordering the waste rock piles. Results indicate there is an area extending southwest from the upper piles to the tributary draining Shaft 4 and south to the access road which contains a thin veneer of generally fine waste material with copper concentrations less than 500 ppm, suggesting a low level of impact. This impact is likely related to erosion of the piles upslope of this area. SPLP results from the subsurface soil in this area also indicate a relatively low level of impact from surface deposition of waste material. On the southeast margin of the Upper Waste Pile Area, where only a remnant amount of the former waste piles remain, results from transects extending downslope toward the Beaver Ponds indicate copper concentration less than 100 ppm.

Water levels measured in shallow overburden well MW-19A within the Upper Waste Pile Area showed a groundwater fluctuation of 3.5 ft from summer to fall suggesting that the lowermost 1 foot of the waste rock pile in this area is periodically saturated with groundwater. Conversely, at well MW-18A, the thinner fill layer appears to be above the observed level of groundwater saturation.

7.1.2 Lower Waste Rock and Tailings Piles

An area of waste rock and tailings piles located downslope of and including the former flotation mill is identified as the Lower Waste Rock and Tailing Pile Area. This area is northwest of the Ore Roast Bed Area. The area is divided by the existing access road which extends north-south up the valley and branches to the east and west just south of the former mill location. The area extending south from the former mill and west of the access road is underlain by flotation tailings. This material is distinctly more fine-grained (sand to silt-sized) than the waste rock pile material. Two borings were investigated in this area and a shallow overburden monitoring well (MW-22A) was installed below the access road. Tailing and waste rock thickness observed in the borings ranged from 4 to 7.5 feet with up to 12.5 feet of glacial till underlying the tailings. Based on observations from location MW-22A there does not appear to be a significant overlap between the tailings material deposit and the waste rock pile area to the south. An estimated volume of tailings based on an average thickness of 6 feet is on the order of 3,000 cy. Copper concentrations in the tailings ranged from 4,530 ppm to 19,300 ppm, while concentrations in the underlying till ranged from 250 ppm to 355 ppm. The results of tailings paste pH, paste conductivity, and ABA analyses were among the most extreme observed at the Site indicating a relatively high acid-generating potential. Observations from well MW-22A indicate that as much as 3.5 feet of the tailings material is saturated with groundwater with only minor water table fluctuation between summer and fall of 2009. SPLP results from shallow subsurface tailing samples indicate that copper is leachable from these materials at an order of magnitude higher than any of the other waste materials at the Site.

Immediately upslope from the tailings area, XRF analyses from surface soils in the vicinity of the Former Flotation Mill resulted in copper concentrations in the range of 700 ppm to 1,020 ppm, compared to 42,679 ppm from the black unoxidized tailings. A laboratory sample of the soil remaining in the ore bin of the mill yielded a copper concentration of 1,400 ppm.

A former ore wash house was reportedly located southwest of the existing access road intersection, south of MW-22A. The largest portion of the Lower Waste Pile Area extends south from wash house foundation and east of the access road, and west along a tributary to Ely Brook. The tributary draining the Beaver Ponds bisects this area. This area, like much of the rest of the Site waste areas, is largely devoid of vegetation. The topography of this area is not that of a typical pile, but rather forms a uniform, gentle slope between the access road and Ely

Brook that has subsequently been dissected by shallow erosion gullies. The southern limit of this waste area is defined by an area of slightly higher elevation than the adjacent waste area with a dense growth of coniferous trees. In addition, along Ely Brook, the remnants of a stone dam form the lowermost margin separating the Lower Waste Pile Area from Ely Brook. This dam appears to retain at least 6 feet of waste material eroded from the upslope pile areas. Based on observations to date, the estimated volume of waste rock in this area is on the order of 45,000 cy assuming an average thickness of 6 ft over the area.

One overburden/shallow bedrock well pair MW-21A/C was installed in the central portion of the Lower Waste Pile Area immediately upstream of the confluence of the two tributaries that cross the area. Waste rock was observed to have a thickness of 6 feet, underlain by 5 feet of dense glacial till overlying bedrock. Water levels recorded in well MW-21A indicate that at least 4.5 feet of waste rock in this area is saturated with groundwater with little water table fluctuation between summer and fall 2009. The waste rock copper concentration at this location was 6,160 ppm, in comparison to the underlying glacial till with copper concentrations in the range of 150 to 300 ppm. Paste pH and ABA values from waste in this area are comparable to the tailings material, indicating a relatively high acid-generating potential. SPLP results of waste rock material from this location are inconsistent with the high copper and acid-generating potential of this material. Surface soil transects were completed using field XRF across the east, west, and southern margins of the Lower waste Pile Area to assess the extent of the transition zone surrounding this area. Along the western margin the tree line and tributary closely define the limit of waste deposition with copper values in soil between the tributary and Ely Brook less than 100 ppm. Along the eastern margin, elevated copper concentrations in the range of 720 ppm to 2,300 ppm were observed up to 70 feet beyond the tree line at the location of a small tributary. East of the tributary, the copper concentrations are well below 100 ppm. Across the southern margin of the area, field XRF results indicate a low level copper concentrations in the range of 140 ppm to 720 ppm.

7.1.3 Ore Roast Beds

The Ore Roast Bed Area is located in an area approximately 180 feet wide and 900 feet long (north-south) east of the access road, immediately south of the Lower Waste Rock and Tailings Pile Area. The area is bounded on the west by a stone wall, and comprised of barren dark reddish brown hematite-rich soil. The area is generally flat lying and the eastern margin is

delineated by the adjacent forested hillside which slopes upward to the east. Waste material in this area includes remnant piles of partially roasted ore which remain after closure of the mine operation. The partially processed ore which was stockpiled in this area for roasting was typically layered with coarser material toward the bottom and finer material toward the top to enhance the roasting process, which lowered the sulfur content of the ore prior to transport to the smelter (PAL Inc, 2005). Roasting oxidized the ore, increasing the hematite (iron oxide) content of the material and resulting in the dark reddish brown soil color (Piatak et. al., 2004a).

The overburden monitoring well MW-23A was installed in close proximity to the location of an intermittent tributary that transects the area. The observed thickness of the roast bed material was 10 feet, underlain by 4.5 feet of gray glacial till. Water levels observed in this well indicate that the lowermost 1 foot of the roast bed material is saturated with groundwater in this area, with only minor water table fluctuation between summer and fall 2009. Copper concentrations in the roast bed material detected at this location ranged from 156 ppm to 517 ppm with the underlying till having a concentration in the same range at 466 ppm. Field XRF analyses of surface soils along a north-south transect south of MW-23A detected copper at concentrations ranging from 315 ppm to 1,969 ppm. Paste pH, paste conductivity and ABA results from the ore roast bed material were similar to the underlying glacial till, suggesting that the roast bed soils have a relatively low acid generating capacity. Similarly, SPLP results indicate a relatively low leaching potential for metals from this material. XRF analyses of surface soil samples taken along a transect east of the Ore Roast Bed Area resulted in transition zone copper concentrations less than 250 ppm extending approximately 175 feet east of the waste margin. The estimated volume of waste material within the roast bed area is on the order of 12,000 cy based on an average thickness of 5 feet from observations to date.

7.1.4 Smelter Area

The Smelter Area is located immediately north of South Vershire Road and includes a flatlying area containing numerous foundations and footings of the former smelter building and apparatus, including some of the former smelter bases made of stone. The area is bounded on the north by a stone wall and extends west to the Site access road. The former smelter building extended southeast to a point beneath the paved portion of South Vershire road (PAL Inc, 2005). Several small waste piles of oxidized ore, refractory brick and magnesite refractory material exist on the eastern portion of the area. A low berm of soil containing slag extends

approximately 150 feet along the southern margin of the area, limiting access from South Vershire road. Surface soil in the area has copper concentrations up to 2,780 ppm (Piatak et. al., 2004a). Due to the historical significance of the remnant features of the site, subsurface explorations are unlikely in this area. As a result, the vertical extent of potential waste source materials is not known. A portion of the south side of the Smelter Area is believed to be underlain by the slag deposit extending beneath and to the south side of South Vershire Road (PAL Inc, 2005).

No subsurface investigations were made in the Smelter Area. Field XRF analysis of surface soil was completed from a transect along and upslope from the retaining wall to the north of the former smelter building. The samples were collected to investigate potential elevated lead concentrations relating to smelter operation. Copper concentrations were detected in the range from 122 ppm to 804 ppm. Lead concentrations were in the range of 11 ppm to 40 ppm. One anomalous result from a sample immediately adjacent to the access road reported a lead concentration of 41% which is likely the result of a piece of elemental lead in the sample. The source of this is unknown, but does not appear to representative of the remaining soils in that area. Several additional soil samples were analyzed in close proximity to this sample which yielded elevated copper from 636 ppm to 690 ppm, but corresponding lead concentrations were in the range of 23 ppm to 40 ppm.

A limited number of surface soil samples were collected for laboratory analysis in the vicinity of the access road above the retaining wall to the northeast of the former smelter building. Results show copper concentrations in the range of 188 ppm to 699 ppm in this transition zone. Lead concentrations in the upper 1 foot of soil in this area were below 30 ppm. One sample on the downslope side of the road contained 295 ppm lead with distinctly lower concentrations (less than 12 ppm) in subsurface soil (below 6 inch depth). These results indicate that elevated copper and lead concentrations are largely limited to the uppermost surface soil in this area. One surface soil sample was analyzed from the transition zone beyond the southeast margin of the Smelter Area with a copper concentration of 848 ppm. One surface soil sample was analyzed from the transition zone within the floodplain west of Ely Brook with a copper concentration of 605 ppm.

7.1.5 Slag Waste Pile

The Slag Waste Pile is a narrow area between South Vershire Road and Schoolhouse Brook extending from Ely Brook south approximately 750 feet to a retaining wall. The deposit is at least 10 feet thick as evidenced by the exposed portions of the pile along the brook. The slag has a glassy to metallic luster and is purplish brown to gray in color and commonly displays the hemispherical shape of the slag pots that were used to transport the material to this dump site. The slag deposit is believed to extend to the north beneath South Vershire Road likely up to the foundation of the former smelter building (PAL Inc, 2005). It is uncertain whether the deposit extends into or beneath the streambed of Schoolhouse Brook. Based on observations from previous borings in this area (URS, 2009), the estimated volume of slag waste is on the order of 60,000 cy assuming and average thickness of 12 ft over the area extending from the north side of the road to Schoolhouse Brook. The slag material and secondary minerals associated with weathering of the slag are described in detail by Piatak et. al. (2004b), including an evaluation of the potential leachability of the slag. A composite sample of the weathered surficial material in the slag pile contains copper concentrations up to 6,880 ppm (Piatak et. al., 2004a). No additional sampling was performed in this area during 2009. Secondary mineralization of blue and white encrustations on the outcrop face is relatively minor, but indicates that leaching of the slag is occurring. Observations of slag material in the stream bed and freshly exposed slag material along the southernmost portion of the area where the slag pile forms the stream bank indicate that the slag is eroding into Schoolhouse Brook, likely during high flow periods. The exposed portions of the slag pile upstream which are further from the base flow of the brook are less likely to contribute significant volumes of slag to the brook. However, the steep face of the exposure resulting from reported past quarrying activity, has reduced the stability of the outcrop face as evidenced by talus material collecting at the base of the slope. This material is likely to be transported downstream during high flow events.

7.1.6 Smoke Flue

The Smoke Flue is a unique feature of the Site and consists of a linear alignment of two parallel stone walls connected by overlying slabs of stone to form a flue extending approximately 1,500 feet from the former smelter building upslope to the northeast to the top of the ridge. The flue was reportedly used unsuccessfully to try and direct exhaust from the smelter operations away from the valley. An 80 foot high lead-lined, wooden stack once existed at the top of the flue, although no remnants of this have been found. Although there are no known significant

quantities of waste material associated with the flue, based on its intended use, soils in the vicinity of the flue were sampled to determine if they were impacted by smelter exhausts. Two perpendicular surface soil transects were analyzed by field XRF at the top of the smoke flue to assess the potential for lead contamination resulting from historical use of the flue. Copper and lead concentrations were less than 100 ppm with the exception of one anomalous result from a sample collected immediately adjacent to the opening at the end of the flue at the approximate location of the former chimney, which had a lead concentration of 1,153 ppm. The underlying soil below 1 foot depth at this location contained 20 ppm lead. Metal concentrations did not show any obvious trend with distance from the flue. At four locations, metal concentrations in the uppermost 0.5 feet were compared to the underlying soil. While copper concentrations did not show any significant variation, the lead concentration of the underlying soil was approximately ½ that of the uppermost material suggesting a surface source for the lead concentrations detected. Results from three laboratory split samples showed the same trend and correlated well with regard to concentration with field XRF samples.

7.1.7 Upper Ely Brook - Middle Reach Sediment

Two sediment samples were collected from the middle reach of Ely Brook. This reach is defined as the portion of Ely Brook that lies between the two major tributaries which drain ARD/AMD to Ely Brook. Sediment copper concentrations up to 3,820 ppm were detected. Paste pH, paste conductivity, and ABA values indicate this material has no acid generating potential. This is likely a result of the limited amount of waste source material available as sediment upstream along the tributary as sediment to this portion of the brook and dilution of waste sediment by a greater amount of unimpacted sediment from the upper reach of Ely Brook. In general, the volume of sediment contained in the upper and middle reaches of Ely Brook are significantly lower than the lower reach as a result of the significantly higher stream gradient.

7.1.8 Lower Ely Brook Sediment

The lower reach of Ely Brook beginning at the stone dam below the Lower Waste Pile Area and extending to the confluence with Schoolhouse Brook contains significant accumulations of waste material within the stream channel and portions of the floodplain. This reach of Ely Brook is a natural depositional area due to the low stream gradient in comparison to the upper reach

above the dam. This material continues to migrate downstream as additional material is eroded and transported down the valley from the exposed water rock and tailing piles.

In an effort to delineate the vertical and lateral extent of the waste within the lower reach, four transects were completed across the stream and the floodplain area. Three of these transects included hand auguring at closely-spaced intervals within the stream channel to document the profile of the waste sediment layer in the stream bed. Two additional spot hand auger borings were completed along the axis if the stream channel to correlate observations between transects. Sediment and floodplain soil samples were analyzed using field XRF with select samples submitted for laboratory analyses.

The most upstream transect TF confirmed that the extent of waste material to the west of Ely Brook is essentially delineated by the stream channel. Conversely, up to eight inches of waste material was observed in the floodplain approximately 30 feet to the east of the channel. The central portion of the channel contained waste material up to 3.5 feet thick along TF. Sediment copper concentrations in TF ranged up to 20,227 ppm with an average concentration of approximately 4,500 ppm.

In the middle Ely Brook stream profile transect TE, less than 6 inches of waste material mixed with soil was observed in the floodplain/transition zone with relatively low copper concentrations ranging from 126 ppm to 435 ppm. Up to 3 feet of sediment waste material was observed in the channel with copper concentrations up to 4835 ppm.

In the lowermost Ely Brook stream profile transect TD, up to 2 feet of sediment waste was observed in the stream channel. Two to six inches of waste was also observed in a broad floodplain extending 100 feet west of Ely Brook . Copper concentrations up to 6,175 ppm were reported in sediment waste within the channel. Flood plain soil copper concentrations were less than 350 ppm. A vertically exaggerated cross-section along this transect is included as Figure 7-1 to illustrate the relative thickness of waste and overburden deposits observed across the lower portion of Ely Brook.

One soil XRF transect TA was completed in the floodplain area west of Ely Brook in the western portion of the Smelter Area. The stream channel is relatively narrow and appears to be confined by manmade banks in this area. Copper concentrations in floodplain soil within 70 feet

of Ely Brook range from 957 ppm to 1,558 ppm. Beyond this to the west, soil copper concentration range from 51 ppm to 505 ppm, indicating a transition zone extending over 350 feet from Ely Brook in this area.

Laboratory analysis of a limited number of sediment samples from the lower portion of Ely Brook detected copper concentrations from 2,640 ppm to 11,000 ppm. Paste pH, paste conductivity and ABA values were comparable to waste rock material indicating that it is potentially acid-generating. The estimated volume of waste material within the banks of the Lower Ely Brook is on the order of 5,000 cy based on an average thickness of 2 ft.

7.1.9 Beaver Ponds and Tributary Sediment

A limited number of sediment samples were collected from select locations along the tributaries to Ely Brook, the Beaver Ponds, and the middle reach of Ely Brook to fill data gaps in previous sampling efforts and for comparison with previous results. One sediment sample collected from the tributary draining the area between Ely Brook and the Ore Roast Beds has a copper concentration of 2,640 ppm and paste pH, conductivity, and ABA values that indicate a relatively strong acid-generating potential. Data previously discussed from the ore roast bed material shows that potential source to have little or no acid generating potential. As a result, it is likely that the sediment was derived from erosion of waste material that may have been historically used as road fill for the access road to repair periodic washouts and not related to the ore roast bed material. An elevated copper concentration of 5,210 ppm was detected in a small tributary draining the slope east of the Lower Waste Pile Area suggesting some small amount of waste material may have been scattered in this transition zone area as a result of historical processing of the waste piles immediately to the west.

Sediment samples were collected from Ponds 2 through 5 to assess current conditions. These sample results show that Pond 4 has the highest copper concentration at 3,050 ppm. Sediment in Ponds 2 and 3 have relatively low copper concentrations of 47.6 and 80.7 ppm, respectively. Sediment aluminum concentrations in Ponds 4 and 5 are nearly twice that of Pond 3, suggesting these ponds receive the greatest amount of surface water and groundwater impacted by ARD from upslope areas to the northwest. This is consistent with visual observation of a gray flocculation on the bottom of these ponds which is likely to be aluminum rich. The pond sediment samples display paste pH and ABA values that indicate low or-non

acid-generating potential suggesting that direct deposition of waste from upslope areas has not significantly impacted the ponds. The tributary sediment below the ponds has copper and aluminum concentrations consistent with sediment in Ponds 4 and 5.

7.1.10 Schoolhouse Brook Sediment

Two sediment samples were collected from Schoolhouse Brook immediately downstream of the confluence with Ely Brook and further downstream within the reach abutting the slag pile. Sediment copper concentrations were 298 ppm and 207 ppm, respectively, with copper being the only metal exceeding its PAL. Paste pH, paste conductivity, and ABA values are indicative of some acid-neutralizing capacity which suggests that there is not a significant waste component to the sediment and detected copper concentration may be related to materials precipitated from surface water in the sediment.

7.1.11 Underground Workings

The extent of the underground workings of the Ely Mine has been estimated by White and Eric (1944) based on historical records. The locations of the mine openings and related surface features have been mapped by PAL, Inc. as shown on Figure 4-1 (PAL Inc, 2005). The surface projections of the mine workings underlying the 2009 investigation area are estimated on Figure 1-2 based on a cross-section of the ore zone compiled by White and Eric (1944). There are approximately 12 shafts, adit, vents or other openings that have been identified on maps of the site (PAL Inc, 2005). Many of these may not be accessible, or collapsed, and some may have never intersected the mine. The Main Shaft of the mine is the uppermost opening located along the steep slope above the Upper Waste Rock Piles at an elevation of approximately 1,375 feet. From this point, the underground workings that followed the ore body extend approximately 3,000 feet northward and descend some 1,500 feet vertically along a trend of N40E at an inclination averaging about 25 degrees over the length of the mine. A surface projection of the underground workings is shown on Figure 4-1. The mine extends beneath the northeast slope of Dwight Hill such that the workings lie between 500 and 1,500 feet below the ground surface beyond the peak of the ridge. There are no known mine openings north of the Main Shaft. Based on observations from the 1943 survey by the U.S. Bureau of Mines, and anecdotal evidence provided by spelunkers visiting the mine, the flooded level of the mine is estimated at 1,275 feet (White and Eric, 1944; PAL Inc, 2005). Several adits access the mine at points further downslope surrounded by the Upper Waste Rock Piles. At least one of these lower mine

openings may be a source of mine drainage to the surface. Two additional abandoned mine shafts are located southeast of the access road junction in the eastern portion of the Lower Waste Pile Area, and along the eastern margin of the Ore Road Bed Area.

Due to the limited access to the mine, samples of water have not been collected directly from the mine pool. Recent inspection of the mine openings indicates that groundwater cascades into the Upper Adit (Pollard Adit) and drains from this adit, downslope toward the upper waste rock piles. It is likely that this point represents the decant point from the mine which controls the water level in the main shaft of the mine. Water draining this adit was sampled twice (SW-49) during 2009 and contained dissolved copper concentrations from 1,499 ppb to 1,850 ppb copper with a pH ranging from 3.2 to 3.5. Water draining two additional mine openings, Shaft No.4 (SW-77) and the Deep Adit (SW-45), contained maximum dissolved copper concentrations of 811 ppb and 11,200 ppb, respectively within minimum pH values of 3.9 su and 3.3 su, respectively. Considering the location of the Upper Adit, it is likely that discharge from this opening may feed the seep at the base of the Upper Waste Piles at Location SW-46. The lower pH of 3.2 su and significantly higher copper concentration of 8,010 ppb in comparison to the adit sample suggest that the Upper Waste Piles do interact with the adit discharge/groundwater and make a considerable contribution to the metal load and acidity of the surface water downstream. Results from additional seeps draining from and over the Upper Waste Piles suggest that the metal and acid generating character of the adit discharge is less significant than the contribution of the waste rock in the piles.

Conversely, the discharge from the Lower Adit (SW-45) does not significantly interact with waste material, yet has a low pH and high copper concentration. This is likely the result of the adit intercepting groundwater being fed in part by the surface seep at SW-43 which discharges surface and groundwater that has interacted with the Upper Waste Piles, including discharge from the Upper Adit. Discharge from the Lower Adit flows directly into Pond 5 where it mixes with more alkaline water from the upper ponds resulting in significant alteration of the surface water chemistry and the apparent precipitation/remobilization of metals.

The discharge from Shaft No.4 contains considerably lower copper concentrations than the surface water further downstream suggesting that the thin veneer of waste material redistributed from the Upper Waste Piles in this area may have a more significant impact on the surface water quality than the shaft discharge itself.

7.2 Contaminant Migration

The mechanisms of contaminant migration, transport pathways, and media potentially affected by the Site contamination are discussed in the following Sections.

7.2.1 Release Mechanisms

There are four primary mechanisms that can release and transport contaminants at the Site: Overland flow of surface water, leaching into groundwater, discharge of groundwater to surface water, and wind erosion. The primary release mechanism at the Site is surface water runoff which occurs during precipitation events or snow melts when contaminants in the waste rock/tailing piles are released and these constituents or the soil itself are transported to other areas on-site and off-site via surface drainage features. Precipitation, snow melt, surface water, and groundwater which comes into contact with iron sulfide ore minerals, dominantly pyrrhotite, in the waste rock/tailings and bedrock results in weathering (oxidation) and leaching of the ore and host rock through a series of chemical reactions that define the primary mechanism by which acid drainage is generated at the Site (Seal et. al., 2001; Hammarstrom et. al., 2001). The resultant low pH of drainage from these sources carries significant concentrations of elements and base metals that along with high acidity and high sulfate concentrations impact the surface waters downstream from the Site.

Water erosion of surface waste materials is evidenced by deep rills cut into the slopes of the wastes piles at the site and the accumulation of significant volumes of waste rock in the sediment lining the tributaries and Ely Brook. These observations confirm that mass transport of potentially acid- and metal-generating materials is an important and very active release mechanism at this Site.

Based on results from on-site monitoring wells, groundwater impacts are largely restricted to shallow depths including the overburden and locally shallow bedrock. Due to the steep hydraulic gradients at the Site and generally low hydraulic conductivity of the natural overburden materials underlying the Site, deep groundwater recharge is limited in most waste areas of the Site. As a result, groundwater that is impacted by Site sources tends to remain in the shallow overburden and is transported horizontally short distances to the nearest surface water

pathway. This is evidenced by the extensive network of seeps and tributaries that dissect the waste areas that ultimately discharge to Ely Brook.

Groundwater from the Upper Adit, Lower Adit and Shaft No.4 represent direct discharge of groundwater potentially impacted by the interaction between groundwater and the underground mine workings referred to as acid mine drainage (AMD). It is likely that only the Upper Adit is significantly connected to the underground mine pool as a decant point. However the character of this discharge is likely more significantly influence by the overlying groundwater infiltrating the adit, than the water comprising the deep mine pool. The limited yield and number of deep bedrock fractures encountered during recent exploration efforts indicates that significant amounts of contamination are not likely to be released via this pathway.

Due to the barren to poorly-vegetated nature of the surface waste materials, wind transport of fines also has the potential to spread these materials beyond the footprint of the piles. As a result, surface soil, sediment, surface water and groundwater at the Site and proximal to the Site could be impacted by Site sources. Results from soil samples collected in the transition zone proximal to the Site, and the relatively greater scale of the impact from other release mechanisms, suggests that this mechanism not likely to be significant.

7.2.2 Receiving Media and Transport Pathways

As a result of the various release and transport mechanisms, a number of media both on the site and off the site have been affected by Site sources. The on-site media include: soil (surface and subsurface), sediment and surface water in the on-site drainage features, and groundwater. The affected off-site media include: sediment and surface water associated with the surface water pathway including Ely Brook and Schoolhouse Brook.

7.2.2.1 Soil

The overburden at the Site is comprised of glacial till, typically a gray to olive gray to brown, variably dense, poorly sorted, non-stratified deposit comprised of clay to cobble-sized material and of variable thickness generally less than 10 feet thick in the upper potions of the Ely Brook valley. At the bottom of the valley a thicker sequence of overburden soil up to 50 feet thick is characterized by a thick alluvial deposit overlying the glacial till. The natural soils at the Site are also overlain in part by waste rock and tailings piles which are estimated from 5 to 30 feet in

thickness locally and represent a large portion of the overburden at the Site. The waste rock pile materials are derived from processing of the ore and host rock by crushing and hand-cobbing and typically consist of a broad range of grain size from silt to boulder-size material, while tailings tend to be finer, better sorted and more distinct mineralogically due to the more efficient flotation separation technology used to generate them. In comparison to natural soils, waste rock and tailings exhibit a wide range of colors from brownish yellow to red when oxidized to black where anoxic. Shallow soils at the Site have been widely disturbed by mining activities. Beyond the footprint of the identified waste areas, surficial soil many exhibit a generally low concentration of metals in a transition zone characterized by relatively robust vegetation. Based on soil sample analyses, the impact from site sources appears limited to the shallow surface soil within a relatively short distance of the waste source areas. Beneath waste rock/tailing piles, the native overburden soil is typically impacted as a result of leaching of metals and sulfate from the mine waste. The depth of the observed impact is dependent on groundwater flow conditions, but tends to be limited by the low hydraulic conductivity of the glacial till.

7.2.2.2 Bedrock

The bedrock at the Site, exposed at many locations in the upper elevations of Dwight Hill, is composed of the Gile Mountain Formation, a psammitic pelite with minor amounts of mafic metavolcanic rock (amphibolite). These rocks have been deformed during three stages of folding and amphibolite-grade metamorphism during the Acadian Orogeny. The ore zones within the mines are described as being stratiform and stratabound, meaning they follow the same orientation as the layering within the country rock. The ore zone consists of pyrrhotite and chalcopyrite, with minor sphalerite and pyrite and strike approximately N40E with a dip of about 25 degrees to the east (Slack et. al., 2001). The ore was found to occur in overlapping elongate lenses. The location of the ore zone was projected on a cross-section such that the top of the zone lies between 500 and 1500 ft below the ground surface on the north slope of Dwight Hill (White and Eric, 1944). As a result of the deformational history of these rocks, the orientation of layering within the bedrock is anticipated to be locally variable. Bedrock mapping by USGS documented the orientation of cleavage in the bedrock at the Site which is largely subparallel to compositional layering (White and Eric, 1944).

Although bedrock is not typically viewed as a source of contamination, the fact that the Site impacts are directly related to minerals extracted from the bedrock at the Site requires that

consideration be given to remnant or unmined ore, which remains in the bedrock underlying the Site and vicinity. To the extent that the presence of massive sulfide ore at the Site is a naturally occurring condition, the evaluation of the influence of mining at the Site must take this into account; in particular with regard to the potential impact to bedrock groundwater. Significant zones of sulfide mineralization were not observed during drilling of the bedrock wells. However, disseminated sulfides appear to be common throughout the bedrock.

Results from shallow bedrock wells in close proximity to waste sources indicate impact from the overlying contaminated overburden groundwater consistent with the downward hydraulic gradients observed. The exception to this is in the lowermost part of the Ely Brook valley in the Smelter/Slag Pile Area where upward hydraulic gradients between the shallow bedrock and overburden preclude downward migration of groundwater contamination. Analysis of groundwater from three deep bedrock wells installed at the Site showed that impact from surface sources and the mine pool is likely to be limited due to the low fracture density and low yield of fractures encountered at depth. Deep bedrock wells MW-14D and MW-20D located in the lower portions of the Ely Brook valley showed only trace concentrations of copper in groundwater indicating no impact from Site waste sources. Groundwater from MW-19D within the Upper Waste Pile Area did contain significant concentrations of copper. Results from packer testing of isolated fractures in the borehole indicated that the source is likely the overlying waste rock and not the mine pool to the north, since the impacted groundwater appeared limited to the uppermost fractures in the borehole. This is also consistent with the strong upward hydraulic gradient observed at this location between the deep and shallow bedrock wells. The impact of the mine pool on local groundwater conditions will require further investigation since the location of the mine pool and the likely regional groundwater direction in the vicinity of the mine pool are to the north of the current study area.

7.2.2.3 Sediment and Surface Water

The Site is located in a broad but well-defined, moderately sloping valley which forms the headwaters to Ely Brook. As a result, the contribution of flow to Ely Brook from waste areas is considerable and the quality of water in the brook downstream is highly dependent on the composition of the runoff from these areas. An interpretive geologic cross-section along the Ely Brook valley in Figure 7-1 illustrates groundwater flow conditions at the Site. The headwaters of Ely Brook are located at an elevation above and west of the Upper Waste Rock Piles. Due to

the steep topography in the upper elevations of the Site, it is likely that during significant rain/snow melt events, precipitation will move downslope as overland flow and channelize further downslope. A portion of this will infiltrate downward, recharging groundwater in the overburden and bedrock and move laterally and downward toward the discharge areas defined by the seeps and tributary streams in the lower portions of the valley. In general, the natural till soil has a limited storage capacity and low hydraulic conductivity and as a result, the primary flow path of shallow groundwater may be along the bedrock surface or within the shallow portion of the bedrock depending on fracture porosity of the rock. A portion of the precipitation that falls on the waste rock piles in the upper elevations is likely to infiltrate downward into the natural overburden and shallow bedrock. However, the presence of tributary flow from seeps which extend over the top of largely unsaturated waste rock and tailings piles indicates that in some areas, clays and other mineralization by products of weathering have lowered the permeability of the uppermost soil in the waste, limiting water infiltration into the piles. Rapid fluctuations in the flow of Ely Brook were observed during significant Spring rain events with a range of flow up to 36 cfs prior to entering Schoolhouse Brook (Holmes et. al., 2002). This suggests a generally low permeability and/or low storage capacity of the overburden and shallow bedrock resulting in considerable overland flow and rapid discharge of shallow groundwater to the seeps and tributaries, although some flood storage capacity exists in the beaver ponds along the tributary draining the eastern portion of the valley. The ephemeral nature of some of the seeps at the Site also suggests that the base flow observed year round in Ely Brook and its tributaries valleys is derived largely from bedrock groundwater discharging upward through the overburden. The volume of surface discharge from the underground workings is difficult to estimate but appears to be relatively low, with a minimum on the order of 10 gpm, limited to at least two openings within the Upper Waste Rock Pile Area.

Results from surface water samples collected to date from on-site seeps and tributary streams indicate that these waters are significantly impacted by acidification and elevated concentrations of metals, primarily copper, iron, and sulfate, derived from the breakdown of metal sulfide minerals, primarily pyrrhotite, in the waste rock and tailings piles. Copper concentrations in surface water entering Ely Brook from three major tributaries draining the Site range from 1680 ppb to 2410 ppm. The range of pH measured at the confluence of these tributaries with Ely Brook is between 3.6 su to 4.6 su. Values of metal, sulfate and pH vary considerably upstream along the middle tributary in proximity to waste sources with many extreme values buffered by mixing of more alkaline unimpacted surface water draining from the upper ponds which appears

to result in precipitation and remobilization of metals locally. The copper concentration in Ely Brook at the confluence with Schoolhouse Brook was from 1040 ppb to 1067 ppb with a pH from 4.3 su to 5.25 su.

A preliminary review the relative proportion of metal loading from the various tributary branches indicates that the Upper and Lower Waste Pile Areas contribute the majority of the load to Ely Brook via the middle tributary. In comparison, contributions from metal sources such as the discharge from the Main (Upper) Adit and the Ore Roast bed Area are at least an order of magnitude lower. Significantly, the high copper concentration detected below the Lower Adit suggests this is a significant single source of loading to Pond 5. There are several locations where acidic tributaries merge with more alkaline surface water leading to a significant drop in the estimated metal load presumable as a result of metal precipitation. The most prevalent locations where this is observed are as follows: Where the Lower Adit discharge enters Pond 5; below the confluence of Upper Ely Brook and the uppermost tributary; below the confluence of Ely Brook and the middle tributary; and below the confluence of Ely Brook and Schoolhouse Brook.

Sediment in Ely Brook has been impacted by waste rock and tailings transported via the three main tributary networks to the east. In addition, the metal and sulfate loading of tributary waters has also contributed to the stream sediment impacts resulting from precipitation of metals due in part to the interaction of the acidic tributary water with more alkaline groundwater and upgradient surface water as evidenced by ferricrete pavements and extensive staining of the sediment within Ely Brook. These effects are also visible in Schoolhouse Brook extending a short distance downstream of the confluence with Ely Brook. Lower Ely Brook sediment copper concentrations were from 2640 ppm to 11,000 ppm with paste pH, paste conductivity and ABA values comparable to waste rock material. This indicates that it is potentially acid-generating material and should itself be considered a waste material. Results from an SPLP analysis of sediment in an upstream tributary suggest that the potential for leaching of metals from sediment may be low in comparison to the subaerially exposed upland waste material.

The relationship between porewater in the stream sediment and surface water quality was examined at the junction of the upper reach of Ely Brook and the most upstream tributary. A series of porewater samples collected in each branch, and below the confluence, showed relatively close agreement between the copper concentrations in the porewater and the

overlying surface water. This is consistent with the downward to neutral flux observed during sampling. Sediment porewater in the tributary was measured at 2,510 ppb copper while the overlying surface water contained 2,410 ppm. This indicates the surface water is in good communication with sediment porewater. Porewater copper concentrations in Ely Brook upstream and downstream of the tributary confluence are generally very low (less than 20 ppb). This combined with the high sediment copper concentrations below the confluence suggests that copper is not being mobilized from sediment to the porewater in this reach either due to the relatively higher pH of the surface water or perhaps due to groundwater discharge through the sediment. Upgradient overburden groundwater copper concentrations are at background levels. Stream flow estimates of the tributary and Ely Brook support a simple surface water mixing mechanism to account for the observed surface water copper concentrations.

Based on field observations and results of sample analyses that document Site conditions, the primary source of impact to surface water and stream sediment is derived from the interaction of water from snow melt, rain, and groundwater with the waste rock/tailings piles, which subsequently transports low pH, metal-laden water and sediment downgradient into Ely Brook and Schoolhouse Brook. Schoolhouse Brook extends approximately 1.75 miles from the Site to the confluence with the Ompompanoosuc River. Copper concentrations detected in surface water from Schoolhouse Brook immediately downstream of the Ely Brook confluence range up to 71 ppb, exceeding the NRWQC of 9 ppb.

Based on existing data and unpublished results from recent USGS and EPA studies in progress, impacts to surface water quality and potential biological impairment from the Site beyond the confluence with the Ompompanoosuc River are likely within regulatory criteria.

7.2.2.4 Groundwater

Groundwater at the Site is present in overburden and bedrock. To illustrate the Conceptual Site Model for groundwater flow at the Site, the groundwater flow conditions for August 2009 were superimposed on a longitudinal cross-section showing the site geology (previously prepared by URS, 2009) for comparison of flow conditions recorded in April 2008 (Figure 7-2). Due to the moderate slopes at the Site, natural soil overlying bedrock is relatively thin (less than 10 ft) and as such has a limited capacity to store groundwater. The majority of the natural soil overburden in the upper part of the Ely Brook valley is glacial till with a generally low hydraulic conductivity.

The waste materials overlying the till are generally more permeable and only locally saturated with groundwater in the lowermost portions of the piles. A thicker alluvial deposit overlies the till in the lower part of the valley in the Smelter/Slag Pile Area. Groundwater in the bedrock is largely stored in open fractures. The shallow bedrock (upper 20 feet) at the Site appears to have a hydraulic conductivity similar to the overburden and based on sample results is in good hydraulic communication with the overlying soil. Observations from packer tests and geophysical logging of the deep bedrock boreholes suggest that the deeper bedrock has a relatively low density of significant water-bearing fractures. Estimated flows were generally less than 0.5 gpm for individual zones tested. The flooded underground workings form a unique reservoir of groundwater which is an important consideration in interpreting the subsurface hydrology of the northern portion of the Site. Observations from one deep bedrock well (MW-19D), located relatively close to the southern limit of the mine pool, do not indicate any significant direct impact to bedrock ground on the south side of Dwight Hill. However, results from analyses of groundwater discharge from at least two mine openings confirm that water from the underground workings does have an impact on the surface water quality at the Site.

Data from monitoring wells at the Site indicate that impacts from surface sources are limited to the overburden and shallow bedrock. The extent to which the shallow bedrock is affected depends on the thickness of the glacial till underlying waste materials and the local hydraulic gradient between the bedrock and overburden. In the areas underlying the Upper and Lower Waste Rock Piles, the shallow bedrock contains metal concentrations similar to the overburden. While in the Smelter/Slag Pile Area, the concentrations of metals observed in the shallow overburden do not penetrate the glacial till, in part due to the upward hydraulic gradient between the shallow bedrock and overlying till.

Based on results from upgradient shallow overburden monitoring well samples collected beyond the footprint of the waste areas, groundwater in the vicinity of the Site contains very low base metal concentrations generally below reporting limits. Typically, the groundwater contains between 11 ppb and 226 ppb manganese and a pH within the range of 4.5 su and 7.3 su.

Within the Upper Waste Pile Area, copper concentrations in the shallow overburden range from 7280 ppm to 49,117 ppb, with pH values from 2.7 su to 4.2 su. This includes monitoring well MW-18A which had the highest copper concentration in groundwater located in the central portion of the Upper Waste Piles and is screened at the base of the waste material. Copper

concentrations detected in shallow bedrock groundwater range from 17 ppb up to 10,000 ppb, with pH ranges from 3.4 su to 8.3 su. The highest copper concentration is from monitoring well MW-19C located in the uppermost part of the Upper Waste Pile Area where there is a relatively strong downward gradient between the shallow overburden and the shallow bedrock. As a result of the leaching of metals and sulfate to groundwater, discharges of groundwater from this area to downgradient seeps and tributaries have a considerable contribution to the impact on the surface water quality of Ely Brook and Schoolhouse Brook.

In the Tailing Pile Area adjacent to the Former Flotation Mill, copper concentrations observed in shallow overburden groundwater in monitoring well MW-22A range from 74 ppb to 76 ppb with a pH range from 3.5 su to 4.0 su. This result is anomalously low considering the high copper concentrations and strong acid-generating potential of the tailings. This well may not be positioned downgradient from the tailing pile or the contamination may not extend as far to the east as previously interpreted. In the Lower Waste Pile Area, copper concentrations in shallow overburden groundwater range from 7655 ppb to 11,600 ppb with a pH range from 1.7 su to 3.7 su. In shallow bedrock groundwater in this area, copper concentrations range from 2 ppb to 4890 ppb, with a pH range from 2.1 su to 7.2 su. At monitoring well MW-21A, where the highest copper concentrations were observed, a moderately strong downward gradient exists between the overburden and the shallow bedrock. Considering the copper concentrations and low pH observed in the groundwater in this area, and the close proximity of this waste area to Ely Brook, discharge of groundwater from this area will have a significant contribution to the impact on surface water quality of Ely Brook and Schoolhouse Brook.

Groundwater from a shallow overburden monitoring well installed in the Ore Roast Bed Area contained copper concentrations of 178 ppb to 181 ppb with a pH range of 5.1 su to 5.4 su. Groundwater from the shallow overburden monitoring well MW-20A, located downgradient of the Ore Roast Beds and the access road, reported copper concentrations of between 5960 ppb and 9685 ppb with a pH range from 4.0 su to 5.1 su. These results suggest that shallow groundwater from the Ore Roast Bed will have a relatively low impact on surface water downgradient. However, a potential source of the copper observed at monitoring well MW-20A is the waste material that has been historically used as fill to build and maintain the access road. This waste material may have a local detrimental effect on shallow groundwater and surface water quality despite the relatively small volume.

In the Smelter/Slag Pile Area, shallow overburden groundwater from wells screened within the alluvial deposit within the slag pile contain copper concentrations from 502 ppb to 23,199 ppb with a pH range from 1.3 su to 4.1 su. These results indicate that the waste material has a significant impact on shallow groundwater and consequently to Schoolhouse Brook where groundwater discharge from this area is occurring. However, wells screened in the underlying glacial till and shallow bedrock have groundwater copper concentrations between 1 ppb and 10 ppb indicating that the impact is limited to the shallow overburden. This is consistent with the upward hydraulic gradient between bedrock and overburden in this area.

Based on observations during 2009, a longitudinal cross-section parallel to the Ely Brook valley was prepared to illustrate the location of waste materials and the groundwater flow conditions at the Site. The upper slope of Dwight Hill, above the Upper Waste Piles, is an area of groundwater recharge such that precipitation will tend to infiltrate downward through the overburden and into the bedrock. However, during large rain storms and Spring snow melt events, significant volumes of overland flow are directed to the lower portions of the valley, due to the steep topography, thin overburden and limited infiltration capacity of the bedrock in these areas as evidenced by the flashy nature of Ely Brook (Holmes et. al., 2002). In areas overlying the underground workings, groundwater may be intercepted and flow through the open areas of the mine until it reaches the level of the mine pool. Groundwater flow observed from the Upper Adit mine opening is most likely regulating the elevation of the top of the mine pool, such that the hydraulic head of groundwater in bedrock in the vicinity of the mine is maintained at this level. As a result, bedrock groundwater at shallow depths in the vicinity of the mine may migrate toward the mine pool during periods of significant recharge. If the elevation of the mine pool is above the head levels in surrounding bedrock, then water from the mine pool will tend to recharge the surrounding bedrock, which may be more likely with respect to the hydraulic head in deeper portions of the bedrock. These effects relating to the subsurface mine pool are not anticipated to have a significant impact on the hydrogeology on the Ely Brook Valley beyond the discharge from the Upper Adit, since the mine pool is largely on the north side of Dwight Hill. Future investigation of the bedrock is needed to document the hydrogeology in more detail. Deep bedrock groundwater on the south side of Dwight Hill is directed in a more southerly or southeasterly direction as Schoolhouse Brook is approached in response to regional scale discharge areas.

In general, on the south side of Dwight Hill, shallow groundwater flows south and southwest from waste areas, discharging to the surface to form surface seeps and tributary streams leading to Ely Brook. The discharge areas are located in the lower portion of the valley, below the elevation of the Upper Waste Rock Piles extending downslope to Schoolhouse Brook, where slope gradients are somewhat gentler and multiple groundwater seeps occur. The base flow of the seeps, tributary streams, and Ely Brook are being fed by the discharge of groundwater from the shallow overburden, and shallow bedrock groundwater moving through the overburden. Infiltration of snow melt and rainfall during the Spring and periods of intense rainfall may result in short term localized mounding of groundwater in areas of thicker waste/fill material such as the Upper Waste Rock Piles and the Ore Roast Beds due to their presumed higher permeability and storage capacity. During these periods, the lowermost portions of waste rock/tailings piles may be intermittently saturated.

Preliminary interpretation of groundwater data indicates that waste material piles may significantly impact shallow groundwater locally and more directly affect the quality of overland flow in the Ely Brook Valley. The discharge of shallow groundwater and upward bedrock groundwater gradients in the lower portions of the valley preclude the potential impact to deeper groundwater in those areas. Groundwater use in the vicinity of the Site is very limited with a very low density of private drinking water wells in the immediate vicinity and downgradient of the Site. Results from on-site monitoring wells and nearby residential drinking water sources do no indicate any impact to deep bedrock groundwater from surface waste source areas at the Site.

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TABLES

Table 2-2a
Surface Soil Analytical Sample Summary
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location	Sample ID	Sample Date	Top of Sample Interval (ft bgs)	Bottom of Sample Interval (ft bgs)	Sample Type	Acid/ Base Accounting	AES Total Metals	MS Total Metals	Total Organic Carbon	Paste Conductivity	Paste pH	SPLP Metals	SPLP Mercury	Cation Exchange Capacity
SS-01	SS-01X-090209AX	9/2/2009	0	0.5	Field Sample		X	X						
SS-01	SS-01X-090209BX	9/2/2009	0.5	2	Field Sample		X	X						
SS-02	SS-02X-090209AX	9/2/2009	0	0.5	Field Sample		X	X						
SS-02	SS-02X-090209BX	9/2/2009	0.5	1.5	Field Sample		X	X						
SS-03	SS-03X-090209AX	9/2/2009	0	0.5	Field Sample		X	X						
SS-03	SS-03X-090209BX	9/2/2009	0.5	2	Field Sample		X	X						
SS-04	SS-04X-090209AX	9/2/2009	0	0.5	Field Sample		X	X						
SS-04	SS-04X-090209BX	9/2/2009	0.5	2	Field Sample		X	X						
SS-05	SS-05X-090209AX	9/2/2009	0	0.3	Field Sample		X	X						
SS-05	SS-05X-090209BX	9/2/2009	0.3	2	Field Sample		X	X						
SS-06	SS-06X-090209AX	9/2/2009	0	0.5	Field Sample		X	X						
SS-06	SS-06X-090209BX	9/2/2009	0.5	2	Field Sample		X	X						
SS-07	SS-07X-090209AX	9/2/2009	0	0.5	Field Sample		X	X						
SS-07	SS-07X-090209BX	9/2/2009	0.5	2	Field Sample		X	X						
SS-08	SS-08X-090209AD	9/2/2009	0	2	Field Duplicate				X	X	X			X
SS-08	SS-08X-090209AX	9/2/2009	0	1	Field Sample		X	X	X	X	X			X
SS-09	SS-09X-090209AX	9/2/2009	0	1	Field Sample		X	X	X	X	X			X
SS-10	SS-10X-090309AX	9/3/2009	0	0.5	Field Sample	X	X	X		X	X			
SS-11	SS-11X-090309AX	9/3/2009	0	0.5	Field Sample	X	X	X		X	X			
SS-12	SS-12X-090309AX	9/3/2009	0	0.5	Field Sample	X	X	X		X	X			
SS-13	SS-13X-082809AX	8/28/2009	0	0.3	Field Sample		X	X	X	X	X			X
SS-14	SS-14X-083109AX	8/31/2009	0	0.2	Field Sample		X	X	X	X	X			X
SS-15	SS-15X-083109AX	8/31/2009	0	0.2	Field Sample		X	X		X	X			X
SS-16	SS-16X-090309AX	9/3/2009	0	0.5	Field Sample	X	X	X		X	X			X
SS-17	SS-17X-083109AX	8/31/2009	0	0.3	Field Sample		X	X	X	X	X			X
SS-18	SS-18X-082709AX	8/27/2009	0	1	Field Sample		X	X		X	X			X
SS-19	SS-19X-082709AX	8/27/2009	0	1	Field Sample		X	X	X	X	X			X
SS-20	SS-20X-083109AX	8/31/2009	0	0.2	Field Sample		X	X		X	X			X
SS-20	SS-20X-083109BX	8/31/2009	0.2	1.5	Field Sample		X	X						
SS-21	SS-21X-083109AX	8/31/2009	0	0.2	Field Sample		X	X	X	X	X			X
SS-22	SS-22X-082709AX	8/27/2009	0	1	Field Sample		X	X		X	X			X

Table 2-2a
Surface Soil Analytical Sample Summary
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location	Sample ID	Sample Date	Top of Sample Interval (ft bgs)	Bottom of Sample Interval (ft bgs)	Sample Type	Acid/ Base Accounting	AES Total Metals	MS Total Metals	Total Organic Carbon	Paste Conductivity	Paste pH	SPLP Metals	SPLP Mercury	Cation Exchange Capacity
SS-23	SS-23X-082709AX	8/27/2009	0	1	Field Sample		X	X	X	X	X			X
SS-24	SS-24X-083109AX	8/31/2009	0	0.2	Field Sample		X	X		X	X			X
SS-25	SS-25X-082709AX	8/27/2009	0	1	Field Sample		X	X		X	X			X
SS-26	SS-26X-083109AX	8/31/2009	0	0.3	Field Sample		X	X		X	X			X
SS-27	SS-27X-082609AX	8/26/2009	0	1	Field Sample		X	X	X	X	X			X
SS-27	SS-27X-082609BX	8/26/2009	1	2	Field Sample		X	X						
SS-28	SS-28X-083109AX	8/31/2009	0	1	Field Sample		X	X		X	X			X
SS-29	SS-29X-083109AX	8/31/2009	0	0.3	Field Sample		X	X	X	X	X			X
SS-30	SS-30X-083109AD	8/31/2009	0	2	Field Duplicate		X	X						
SS-30	SS-30X-083109AX	8/31/2009	0	2	Field Sample	X	X	X		X	X			
SS-31	SS-31X-083109AX	8/31/2009	0	2	Field Sample	X				X	X			
SS-32	SS-32X-083109AX	8/31/2009	0	2	Field Sample	X	X	X		X	X			
SS-33	SS-33X-083109AX	8/31/2009	0	2	Field Sample	X	X	X		X	X			
SS-34	SS-34X-082609AX	8/26/2009	0	2	Field Sample	X	X	X		X	X			
SS-35	SS-35X-082609AX	8/26/2009	0	2	Field Sample	X	X	X		X	X			
SS-36	SS-36X-082609AX	8/26/2009	0	2	Field Sample	X	X	X		X	X			
SS-37	SS-37X-082609AD	8/26/2009	0	2	Field Duplicate	X	X	X		X	X			
SS-37	SS-37X-082609AX	8/26/2009	0	2	Field Sample	X	X	X		X	X	X	X	
SS-38	SS-38X-082609AX	8/26/2009	0	2	Field Sample	X	X	X		X	X			
SS-39	SS-39X-082609AX	8/26/2009	0	2	Field Sample	X	X	X		X	X			
TA	TA-04X-082409AX	8/24/2009	0	1	Field Sample		X	X						
TA	TA-14X-082409AX	8/24/2009	0	1	Field Sample		X	X						
TC	TC-03X-082609AX	8/26/2009	0	1	Field Sample		X	X						
TD	TD-03X-082809-AX	8/28/2009	0	1	Field Sample		X	X						
TD	TD-05X-082809-DX	8/28/2009	0	1	Field Sample		X	X						
TE	TE-09X-090109AX	9/1/2009	0	2	Field Sample		X	X						
TE	TE-12X-090109BX	9/1/2009	0	2.5	Field Sample		X	X						
TE	TE-15X-090109CX	9/2/2009	2.5	4	Field Sample		X	X						
TF	TF-02X-090109AX	9/1/2009	0	2	Field Sample		X	X						
TF	TF-11X-090209AX	9/2/2009	0	0.5	Field Sample			X						
TF	TF-11X-090909AX	9/2/2009	0	0.5	Field Sample		X							

Table 2-2a
Surface Soil Analytical Sample Summary
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location	Sample ID	Sample Date	Top of Sample Interval (ft bgs)	Bottom of Sample Interval (ft bgs)	Sample Type	Acid/ Base Accounting	AES Total Metals	MS Total Metals	Total Organic Carbon	Paste Conductivity	Paste pH	SPLP Metals	SPLP Mercury	Cation Exchange Capacity
TF	TF-13X-090209BX	9/2/2009	1	3.5	Field Sample			X						
TF	TF-13X-090909BX	9/2/2009	0	0.5	Field Sample		X							
TF	TF-17X-090109AX	9/1/2009	0	2	Field Sample		X	X						
TG	TG-02X-082409AX	8/24/2009	0	1	Field Sample		X	X						
TH	TH-01X-082509AX	8/25/2009	0	1	Field Sample		X	X						
TI	TI-03X-082509AX	8/25/2009	0	1	Field Sample		X	X						
TK	TK-01X-082509AX	8/25/2009	0	1	Field Sample		X	X						
TL	TL-04X-082509AX	8/25/2009	0	1	Field Sample		X	X						
TN	TN-02X-082509AD	8/25/2009	0	1	Field Duplicate		X	X						
TN	TN-02X-082509AX	8/25/2009	0	1	Field Sample		X	X						
TO	TO-05X-082709AX	8/27/2009	0	1	Field Sample		X	X						
TP	TP-10X-082709AX	8/27/2009	0	1	Field Sample		X	X						
TQ	TQ-06X-082609AX	8/26/2009	0	1	Field Sample		X	X						
TQ	TQ-16X-082609AX	8/26/2009	0	1	Field Sample		X	X						

Table 2-2b
Subsurface Soil and Test Pit Analytical Sample Summary
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location	Sample ID	Sample Date	Top of Sample Interval (ft bgs)	Bottom of Sample Interval (ft bgs)	Sample Type	Acid/Base Accounting	AES Total Metals	MS Total Metals	Paste Conductivity	Paste pH	SPLP Metals	SPLP Mercury
MW-17A	MW-17A-073009AX	7/30/2009	0	2	Field Sample	X	X	X	X	X		
MW-17A	MW-17A-073009BX	7/30/2009	2	2.6	Field Sample	X	X	X	X	X		
MW-18A	MW-18A-080309AD	8/3/2009	2	4	Field Duplicate	X			X	X	X	X
MW-18A	MW-18A-080309AX	8/3/2009	2	4	Field Sample	X	X	X	X	X	X	X
MW-18A	MW-18A-080309BD	8/3/2009	4	6	Field Duplicate		X	X				
MW-18A	MW-18A-080309BX	8/3/2009	4	6	Field Sample	X	X	X	X	X		
MW-18A	MW-18A-080309CX	8/3/2009	4	6	Field Sample	X	X	X	X	X		
MW-19A	MW-19A-072109AX	7/21/2009	2	6	Field Sample	X	X	X	X	X		
MW-19A	MW-19A-072109BX	7/21/2009	6	8	Field Sample	X	X	X	X	X		
MW-19A	MW-19A-072109CX	7/21/2009	8	12.9	Field Sample	X	X	X	X	X		
MW-20A	MW-20A-072909AX	7/29/2009	2	2.4	Field Sample	X	X	X	X	X		
MW-20A	MW-20A-072909BX	7/29/2009	2.4	4	Field Sample	X	X	X	X	X		
MW-20A	MW-20A-072909CX	7/29/2009	4	5.5	Field Sample	X	X	X	X	X		
MW-20A	MW-20A-083109AX	8/31/2009	0	2	Field Sample	X	X	X	X	X		
MW-21A	MW-21A-072809AX	7/28/2009	2	4	Field Sample	X	X	X	X	X		
MW-21A	MW-21A-072809BX	7/28/2009	4	6	Field Sample	X	X	X	X	X		
MW-21A	MW-21A-072809CD	7/28/2009	6	10	Field Duplicate	X	X	X	X	X		
MW-21A	MW-21A-072809CX	7/28/2009	6	10	Field Sample	X	X	X	X	X		
MW-21A	MW-21A-083109AX	8/31/2009	0	2	Field Sample	X	X	X	X	X	X	X
MW-22A	MW-22A-072909AX	7/29/2009	2	4	Field Sample	X	X	X	X	X		
MW-22A	MW-22A-072909BX	7/29/2009	7.1	8.2	Field Sample	X	X	X	X	X		
MW-22A	MW-22A-072909CX	7/29/2009	8.2	11.5	Field Sample	X	X	X	X	X		
MW-22A	MW-22A-083109AX	8/31/2009	0	2	Field Sample	X	X	X	X	X		
MW-23A	MW-23A-070809AX	7/8/2009	0	2	Field Sample	X	X	X	X	X	X	X
MW-23A	MW-23A-070809BX	7/8/2009	6	8	Field Sample	X	X	X	X	X		
MW-23A	MW-23A-070809CX	7/8/2009	8	10	Field Sample	X	X	X	X	X		
MW-23A	MW-23A-083109AX	8/31/2009	0	2	Field Sample	X	X	X		X		
SB-09	SB-09X-073009AD	7/30/2009	2.2	3	Field Duplicate						X	X
SB-09	SB-09X-073009AX	7/30/2009	2.2	3	Field Sample	X	X	X	X	X	X	X
SB-09	SB-09X-073009BX	7/30/2009	3	6	Field Sample	X	X	X	X	X		
SB-09	SB-09X-073009CX	7/30/2009	8	10	Field Sample	X	X	X	X	X		

Table 2-2b
Subsurface Soil and Test Pit Analytical Sample Summary
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location	Sample ID	Sample Date	Top of Sample Interval (ft bgs)	Bottom of Sample Interval (ft bgs)	Sample Type	Acid/Base Accounting	AES Total Metals	MS Total Metals	Paste Conductivity	Paste pH	SPLP Metals	SPLP Mercury
TP-15	TP-15X-073009AD	7/30/2009	0	1	Field Duplicate	X	X	X	X	X		
TP-15	TP-15X-073009AX	7/30/2009	0	1	Field Sample	X	X	X	X	X		
TP-15	TP-15X-073009BX	7/30/2009	1	2	Field Sample	X	X	X	X	X	X	X
TP-15	TP-15X-073009BD	7/30/2009	1	2	Field Duplicate						X	X
TP-15	TP-15X-073009CX	7/30/2009	2	3	Field Sample	X	X	X	X	X		
TP-16	TP-16X-080309AX	8/3/2009	0	1	Field Sample	X	X	X	X	X		
TP-16	TP-16X-080309BX	8/3/2009	1	2	Field Sample	X	X	X	X	X		
TP-16	TP-16X-080309CX	8/3/2009	2	5	Field Sample	X	X	X	X	X		

Table 2-2c
Soil Geotechnical Analytical Sample Summary
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location	Sample ID	Sample Date	Top of Sample Interval (ft bgs)	Bottom of Sample Interval (ft bgs)	Sample Type	Acid/Base Accounting	AES Total Metals	MS Total Metals	Paste Conductivity	Paste pH	SPLP Metals	SPLP Mercury
MW-17A	MW-17A-073009AX	7/30/2009	0	2	Field Sample	X	X	X	X	X		
MW-17A	MW-17A-073009BX	7/30/2009	2	2.6	Field Sample	X	X	X	X	X		
MW-18A	MW-18A-080309AD	8/3/2009	2	4	Field Duplicate	X			X	X	X	X
MW-18A	MW-18A-080309AX	8/3/2009	2	4	Field Sample	X	X	X	X	X	X	X
MW-18A	MW-18A-080309BD	8/3/2009	4	6	Field Duplicate		X	X				
MW-18A	MW-18A-080309BX	8/3/2009	4	6	Field Sample	X	X	X	X	X		
MW-18A	MW-18A-080309CX	8/3/2009	4	6	Field Sample	X	X	X	X	X		
MW-19A	MW-19A-072109AX	7/21/2009	2	6	Field Sample	X	X	X	X	X		
MW-19A	MW-19A-072109BX	7/21/2009	6	8	Field Sample	X	X	X	X	X		
MW-19A	MW-19A-072109CX	7/21/2009	8	12.9	Field Sample	X	X	X	X	X		
MW-20A	MW-20A-072909AX	7/29/2009	2	2.4	Field Sample	X	X	X	X	X		
MW-20A	MW-20A-072909BX	7/29/2009	2.4	4	Field Sample	X	X	X	X	X		
MW-20A	MW-20A-072909CX	7/29/2009	4	5.5	Field Sample	X	X	X	X	X		
MW-20A	MW-20A-083109AX	8/31/2009	0	2	Field Sample	X	X	X	X	X		
MW-21A	MW-21A-072809AX	7/28/2009	2	4	Field Sample	X	X	X	X	X		
MW-21A	MW-21A-072809BX	7/28/2009	4	6	Field Sample	X	X	X	X	X		
MW-21A	MW-21A-072809CD	7/28/2009	6	10	Field Duplicate	X	X	X	X	X		
MW-21A	MW-21A-072809CX	7/28/2009	6	10	Field Sample	X	X	X	X	X		
MW-21A	MW-21A-083109AX	8/31/2009	0	2	Field Sample	X	X	X	X	X	X	X
MW-22A	MW-22A-072909AX	7/29/2009	2	4	Field Sample	X	X	X	X	X		
MW-22A	MW-22A-072909BX	7/29/2009	7.1	8.2	Field Sample	X	X	X	X	X		
MW-22A	MW-22A-072909CX	7/29/2009	8.2	11.5	Field Sample	X	X	X	X	X		
MW-22A	MW-22A-083109AX	8/31/2009	0	2	Field Sample	X	X	X	X	X		
MW-23A	MW-23A-070809AX	7/8/2009	0	2	Field Sample	X	X	X	X	X	X	X
MW-23A	MW-23A-070809BX	7/8/2009	6	8	Field Sample	X	X	X	X	X		
MW-23A	MW-23A-070809CX	7/8/2009	8	10	Field Sample	X	X	X	X	X		
MW-23A	MW-23A-083109AX	8/31/2009	0	2	Field Sample	X	X	X		X		
SB-09	SB-09X-073009AD	7/30/2009	2.2	3	Field Duplicate						X	X
SB-09	SB-09X-073009AX	7/30/2009	2.2	3	Field Sample	X	X	X	X	X	X	X
SB-09	SB-09X-073009BX	7/30/2009	3	6	Field Sample	X	X	X	X	X		
SB-09	SB-09X-073009CX	7/30/2009	8	10	Field Sample	X	X	X	X	X		

Table 2-2d
Surface Water and Vernal Pool Analytical Sample Summary
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location	Sample ID	Sample Date	Sample Type	Alkalinity	Specific Conductivity	pH	Total Dissolved Solids	Total Suspended Solids	Chloride, Sulfate	Total Acidity	Nitrite + Nitrate	Sulfide	AES Dissolved Metals	AES Total Metals	MS Dissolved Metals	MS Total Metals
SW-04	SW-04-111909AF	11/19/2009	Field Sample										X		X	
SW-04	SW-04-111909AX	11/18/2009	Field Sample	X			X	X	X	X	X	X		X		X
SW-04	SW-04X-080709AX	8/7/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-09	SW-09-111809AF	11/19/2009	Field Sample										X		X	
SW-09	SW-09-111909AX	11/19/2009	Field Sample	X			X	X	X	X	X	X		X		X
SW-09	SW-09X-080709AX	8/7/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-12	SW-12-111809AF	11/18/2009	Field Sample										X		X	
SW-12	SW-12-111809AX	11/18/2009	Field Sample	X			X	X	X	X	X	X		X		X
SW-12	SW-12X-080609AX	8/6/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-13	SW-13-111809AF	11/18/2009	Field Sample										X		X	
SW-13	SW-13-111809AX	11/18/2009	Field Sample	X			X	X	X	X	X	X		X		X
SW-13	SW-13X-080609AX	8/6/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-17	SW-17-111709AF	11/17/2009	Field Sample										X		X	
SW-17	SW-17-111709AX	11/17/2009	Field Sample	X			X	X	X	X	X	X		X		X
SW-17	SW-17X-080409AX	8/4/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-29	SW-29-111709AF	11/17/2009	Field Sample										X		X	
SW-29	SW-29-111709AX	11/17/2009	Field Sample	X			X	X	X	X	X	X		X		X
SW-29	SW-29X-080409AX	8/4/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-32	SW-32-111809AF	11/18/2009	Field Sample										X		X	
SW-32	SW-32-111809AX	11/18/2009	Field Sample	X			X	X	X	X	X	X		X		X
SW-32	SW-32X-080609AX	8/6/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-34	SW-34-111809AF	11/18/2009	Field Sample										X		X	
SW-34	SW-34-111809AX	11/18/2009	Field Sample	X			X	X	X	X	X	X		X		X
SW-34	SW-34X-080609AX	8/6/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-35	SW-35X-080609AX	8/6/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-36	SW-36-111809AF	11/18/2009	Field Sample										X		X	
SW-36	SW-36-111809AX	11/18/2009	Field Sample	X			X	X	X	X	X	X		X		X
SW-38	SW-38-111909AF	11/19/2009	Field Sample										X		X	
SW-38	SW-38-111909AX	11/19/2009	Field Sample	X			X	X	X	X	X	X		X		X
SW-38	SW-38X-080709AX	8/7/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-40	SW-40-111709AF	11/17/2009	Field Sample										X		X	
SW-40	SW-40-111709AX	11/17/2009	Field Sample	X			X	X	X	X	X	X		X		X

Table 2-2d
Surface Water and Vernal Pool Analytical Sample Summary
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location	Sample ID	Sample Date	Sample Type	Alkalinity	Specific Conductivity	pH	Total Dissolved Solids	Total Suspended Solids	Chloride, Sulfate	Total Acidity	Nitrite + Nitrate	Sulfide	AES Dissolved Metals	AES Total Metals	MS Dissolved Metals	MS Total Metals
SW-40	SW-40X-080409AX	8/4/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-41	SW-41-111709AF	11/17/2009	Field Sample										X		X	
SW-41	SW-41-111709AX	11/17/2009	Field Sample	X			X	X	X	X	X	X		X		X
SW-41	SW-41X-080409AX	8/4/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-42	SW-42-111709AF	11/17/2009	Field Sample										X		X	
SW-42	SW-42-111709AX	11/17/2009	Field Sample	X			X	X	X	X	X	X		X		X
SW-42	SW-42X-080409AX	8/4/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-43	SW-43-120209AF	12/2/2009	Field Sample										X		X	
SW-43	SW-43-120209AX	12/2/2009	Field Sample	X			X	X	X	X	X	X		X		X
SW-43	SW-43X-080509AX	8/5/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-45	SW-45-111709AD	11/17/2009	Field Duplicate	X			X	X	X	X	X	X		X		X
SW-45	SW-45-111709AF	11/17/2009	Field Sample										X		X	
SW-45	SW-45-111709AG	11/17/2009	Field Duplicate										X		X	
SW-45	SW-45-111709AX	11/17/2009	Field Sample	X			X	X	X	X	X	X		X		X
SW-45	SW-45X-080509AX	8/5/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-46	SW-46-111609AF	11/17/2009	Field Sample										X		X	
SW-46	SW-46-111609AX	11/17/2009	Field Sample	X			X	X	X	X	X	X		X		X
SW-46	SW-46X-080509AX	8/5/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-47	SW-47-111609-AF	11/16/2009	Field Sample										X		X	
SW-47	SW-47-111609-AX	11/16/2009	Field Sample	X			X	X	X	X	X	X		X		X
SW-47	SW-47X-080509AX	8/5/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-48	SW-48-111609AF	11/16/2009	Field Sample										X		X	
SW-48	SW-48-111609AX	11/16/2009	Field Sample	X			X	X	X	X	X	X		X		X
SW-48	SW-48X-080509AX	8/5/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-49	SW-49-111609AF	11/16/2009	Field Sample										X		X	
SW-49	SW-49-111609AX	11/16/2009	Field Sample	X			X	X	X	X	X	X		X		X
SW-49	SW-49X-080509AX	8/5/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-51	SW-51-111809AF	11/18/2009	Field Sample										X		X	
SW-51	SW-51-111809AX	11/18/2009	Field Sample	X			X	X	X	X	X	X		X		X
SW-51	SW-51X-080409AX	8/4/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-71	SW-71-111709AF	11/17/2009	Field Sample										X		X	
SW-71	SW-71-111709AX	11/17/2009	Field Sample	X			X	X	X	X	X	X		X		X

Table 2-2d
Surface Water and Vernal Pool Analytical Sample Summary
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location	Sample ID	Sample Date	Sample Type	Alkalinity	Specific Conductivity	pH	Total Dissolved Solids	Total Suspended Solids	Chloride, Sulfate	Total Acidity	Nitrite + Nitrate	Sulfide	AES Dissolved Metals	AES Total Metals	MS Dissolved Metals	MS Total Metals
SW-71	SW-71X-080409AX	8/4/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-72	SW-72-111809AF	11/18/2009	Field Sample										X		X	
SW-72	SW-72-111809AX	11/18/2009	Field Sample	X			X	X	X	X	X	X		X		X
SW-72	SW-72X-080609AX	8/6/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-73	SW-73-111809AF	11/18/2009	Field Sample										X		X	
SW-73	SW-73-111809AX	11/18/2009	Field Sample	X			X	X	X	X	X	X		X		X
SW-73	SW-73X-080409AX	8/4/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-75	SW-75-111609AF	11/16/2009	Field Sample										X		X	
SW-75	SW-75-111609AX	11/16/2009	Field Sample	X			X	X	X	X	X	X		X		X
SW-75	SW-75X-080509AD	8/5/2009	Field Duplicate	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-75	SW-75X-080509AX	8/5/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-76	SW-76X-080509AD	8/5/2009	Field Duplicate										X			
SW-76	SW-76X-080509AX	8/5/2009	Field Sample	X	X	X	X	X	X	X	X	X		X	X	X
SW-77	SW-77-111609AF	11/16/2009	Field Sample										X		X	
SW-77	SW-77-111609AX	11/16/2009	Field Sample	X			X	X	X	X	X	X		X		X
SW-77	SW-77X-080509AX	8/5/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-78	SW-78-111609AF	11/16/2009	Field Sample										X		X	
SW-78	SW-78-111609AX	11/16/2009	Field Sample	X			X	X	X	X	X	X		X		X
SW-78	SW-78X-080509AD	8/5/2009	Field Duplicate	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-78	SW-78X-080509AX	8/5/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-79	SW-79-111609AF	11/16/2009	Field Sample										X		X	
SW-79	SW-79-111609AX	11/16/2009	Field Sample	X			X	X	X	X	X	X		X		X
SW-79	SW-79X-080609AX	8/6/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-80	SW-80-111609AF	11/16/2009	Field Sample										X		X	
SW-80	SW-80-111609AX	11/16/2009	Field Sample	X			X	X	X	X	X	X		X		X
SW-80	SW-80X-080509AX	8/5/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-81	SW-81-111709AF	11/17/2009	Field Sample										X		X	
SW-81	SW-81-111709AX	11/17/2009	Field Sample	X			X	X	X	X	X	X		X		X
SW-81	SW-81X-080509AX	8/5/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-82	SW-82-111709AF	11/17/2009	Field Sample										X		X	
SW-82	SW-82-111709AX	11/17/2009	Field Sample	X			X	X	X	X	X	X		X		X
SW-82	SW-82X-080409AX	8/4/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X

Table 2-2d
Surface Water and Vernal Pool Analytical Sample Summary
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location	Sample ID	Sample Date	Sample Type	Alkalinity	Specific Conductivity	pH	Total Dissolved Solids	Total Suspended Solids	Chloride, Sulfate	Total Acidity	Nitrite + Nitrate	Sulfide	AES Dissolved Metals	AES Total Metals	MS Dissolved Metals	MS Total Metals
SW-83	SW-83-111809AD	11/18/2009	Field Duplicate	X			X	X	X	X	X	X		X		X
SW-83	SW-83-111809AF	11/18/2009	Field Sample										X		X	
SW-83	SW-83-111809AG	11/18/2009	Field Duplicate										X		X	
SW-83	SW-83-111809AX	11/18/2009	Field Sample	X			X	X	X	X	X	X		X		X
SW-83	SW-83X-080609AX	8/6/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-84	SW-84-111809AF	11/18/2009	Field Sample										X		X	
SW-84	SW-84-111809AX	11/18/2009	Field Sample	X			X	X	X	X	X	X		X		X
SW-84	SW-84X-080609AX	8/6/2009	Field Sample	X	X	X	X	X	X	X	X	X	X	X	X	X
VP-1	VP-01X-072909AX	7/29/2009	Field Sample	X	X				X	X	X		X	X	X	X
VP-2	VP-02X-072809AX	7/28/2009	Field Sample	X	X				X	X	X		X	X	X	X
VP-3	VP-03X-072809AD	7/28/2009	Field Duplicate	X	X				X	X	X		X	X	X	X
VP-3	VP-03X-072809AX	7/28/2009	Field Sample	X	X				X	X	X		X	X	X	X
VP-4	VP-04X-072809AX	7/28/2009	Field Sample	X	X				X	X	X		X	X	X	X

Table 2-2e
Sediment Analytical Sample Summary
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location	Sample ID	Sample Date	Sample Type	Acid/Base Accounting	AES Total Metals	MS Total Metals	Total Organic Carbon	Paste Conductivity	Paste pH	SPLP Metals	SPLP Mercury
SD-58	SD-58X-080709AX	8/7/2009	Field Sample	X	X	X	X	X	X		
SD-59	SD-59X-080709AX	8/7/2009	Field Sample	X	X	X	X	X	X		
SD-60	SD-60X-080709AX	8/7/2009	Field Sample	X	X	X	X	X	X		
SD-61	SD-61X-080709AD	8/7/2009	Field Duplicate	X	X	X	X	X	X		
SD-61	SD-61X-080709AX	8/7/2009	Field Sample	X	X	X	X	X	X		
SD-62	SD-62X-080709AX	8/7/2009	Field Sample	X	X	X	X	X	X		
SD-63	SD-63X-080709AX	8/7/2009	Field Sample	X	X	X	X	X	X		
SD-64	SD-64X-080709AX	8/7/2009	Field Sample	X	X	X	X	X	X		
SD-65	SD-65X-080609AX	8/6/2009	Field Sample	X	X	X	X	X	X		
SD-66	SD-66X-080609AX	8/6/2009	Field Sample	X	X	X	X	X	X		
SD-67	SD-67X-080609AX	8/6/2009	Field Sample	X	X	X	X	X	X		
SD-68	SD-68X-080609AX	8/6/2009	Field Sample	X	X	X	X	X	X		
SD-69	SD-69X-080709AX	8/7/2009	Field Sample	X	X	X	X	X	X		
SD-70	SD-70X-080609AX	8/6/2009	Field Sample	X	X	X	X	X	X		
SD-71	SD-71X-080609AX	8/6/2009	Field Sample	X	X	X	X	X	X		
SD-72	SD-72X-080609AX	8/6/2009	Field Sample	X	X	X	X	X	X		
SD-73	SD-73X-080609AX	8/6/2009	Field Sample	X	X	X	X	X	X	X	X

Table 2-2f
Groundwater and Porewater Analytical Sample Summary
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location	Sample ID	Sample Date	Sample Type	Alkalinity	Chloride, Sulfate	Total Acidity	Nitrite + Nitrate	Sulfide	AES Dissolved Metals	AES Total Metals	MS Dissolved Metals	MS Total Metals	PCB Aroclors	SVOCs	Pesticides	Trace VOCs
BM-01	BM-01-120109AF	12/1/2009	Field Sample						X		X					
BM-01	BM-01-120109AX	12/1/2009	Field Sample		X					X		X				
BM-01	BM-01X-081809AX	8/18/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-01A	MW-01A-081009AX	8/10/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-01A	MW-01A-112009AF	11/20/2009	Field Sample						X		X					
MW-01A	MW-01A-112009AX	11/20/2009	Field Sample		X					X		X				
MW-01B	MW-01B-081009AX	8/10/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-01B	MW-01B-112009AF	11/20/2009	Field Sample						X		X					
MW-01B	MW-01B-112009AX	11/20/2009	Field Sample		X					X		X				
MW-01C	MW-01C-081209AX	8/12/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-01C	MW-01C-112309AF	11/23/2009	Field Sample						X		X					
MW-01C	MW-01C-112309AX	11/23/2009	Field Sample		X					X		X				
MW-02A	MW-02A-081009AX	8/10/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-02A	MW-02A-113009AF	11/30/2009	Field Sample						X		X					
MW-02A	MW-02A-113009AX	11/30/2009	Field Sample		X					X		X	X	X	X	X
MW-02B	MW-02B-081009AX	8/10/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-02B	MW-02B-112009AF	11/20/2009	Field Sample						X		X					
MW-02B	MW-02B-112009AX	11/20/2009	Field Sample		X					X		X				
MW-02C	MW-02C-081209AX	8/12/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-02C	MW-02C-112009AF	11/20/2009	Field Sample						X		X					
MW-02C	MW-02C-112009AX	11/20/2009	Field Sample		X					X		X				
MW-03C	MW-03C-081109AX	8/11/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-03C	MW-03C-112309AF	11/23/2009	Field Sample						X		X					
MW-03C	MW-03C-112309AX	11/23/2009	Field Sample		X					X		X				
MW-04A	MW-04A-081209AX	8/13/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-04A	MW-04A-112409AF	11/24/2009	Field Sample						X		X					
MW-04A	MW-04A-112409AX	11/24/2009	Field Sample		X					X		X				
MW-04C	MW-04C-081209AX	8/12/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-04C	MW-04C-112409AF	11/24/2009	Field Sample						X		X					
MW-04C	MW-04C-112409AX	11/24/2009	Field Sample		X					X		X				
MW-05A	MW-05A-081109AX	8/11/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-05A	MW-05A-120109AD	12/1/2009	Field Duplicate		X					X		X	X	X	X	X

Table 2-2f
Groundwater and Porewater Analytical Sample Summary
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location	Sample ID	Sample Date	Sample Type	Alkalinity	Chloride, Sulfate	Total Acidity	Nitrite + Nitrate	Sulfide	AES Dissolved Metals	AES Total Metals	MS Dissolved Metals	MS Total Metals	PCB Aroclors	SVOCs	Pesticides	Trace VOCs
MW-05A	MW-05A-120109AF	12/1/2009	Field Sample						X		X					
MW-05A	MW-05A-120109AG	12/1/2009	Field Duplicate						X		X					
MW-05A	MW-05A-120109AX	12/1/2009	Field Sample		X					X		X	X	X	X	X
MW-05B	MW-05B-081209AD	8/12/2009	Field Duplicate	X	X	X	X	X	X	X	X	X				
MW-05B	MW-05B-081209AX	8/12/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-05B	MW-05B-112409AF	11/24/2009	Field Sample						X		X					
MW-05B	MW-05B-112409AX	11/24/2009	Field Sample		X					X		X				
MW-05C	MW-05C-081309AX	8/13/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-05C	MW-05C-112509AF	11/25/2009	Field Sample						X		X					
MW-05C	MW-05C-112509AX	11/25/2009	Field Sample		X					X		X				
MW-06A	MW-06A-081209AX	8/12/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-06A	MW-06A-112509AF	11/25/2009	Field Sample						X		X					
MW-06A	MW-06A-112509AX	11/25/2009	Field Sample		X					X		X				
MW-06C	MW-06C-081209AX	8/12/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-06C	MW-06C-112509AF	11/25/2009	Field Sample						X		X					
MW-06C	MW-06C-112509AX	11/25/2009	Field Sample		X					X		X				
MW-07A	MW-07A-081209AX	8/12/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-07A	MW-07A-112509AF	11/25/2009	Field Sample						X		X					
MW-07A	MW-07A-112509AX	11/25/2009	Field Sample		X					X		X				
MW-07C	MW-07C-081209AX	8/12/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-07C	MW-07C-112509AF	11/25/2009	Field Sample						X		X					
MW-07C	MW-07C-112509AX	11/25/2009	Field Sample		X					X		X				
MW-08A	MW-08A-081109AX	8/11/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-08A	MW-08A-112409AD	11/24/2009	Field Duplicate		X					X		X				
MW-08A	MW-08A-112409AF	11/24/2009	Field Sample						X		X					
MW-08A	MW-08A-112409AG	11/24/2009	Field Duplicate						X		X					
MW-08A	MW-08A-112409AX	11/24/2009	Field Sample		X					X		X				
MW-09A	MW-09A-081209AX	8/12/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-09A	MW-09A-120209AF	12/2/2009	Field Sample						X		X					
MW-09A	MW-09A-120209AX	12/2/2009	Field Sample		X					X		X	X	X	X	X
MW-09C	MW-09C-081309AX	8/13/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-09C	MW-09C-112409AF	11/24/2009	Field Sample						X		X					

Table 2-2f
Groundwater and Porewater Analytical Sample Summary
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location	Sample ID	Sample Date	Sample Type	Alkalinity	Chloride, Sulfate	Total Acidity	Nitrite + Nitrate	Sulfide	AES Dissolved Metals	AES Total Metals	MS Dissolved Metals	MS Total Metals	PCB Aroclors	SVOCs	Pesticides	Trace VOCs
MW-09C	MW-09C-112409AX	11/24/2009	Field Sample		X					X		X				
MW-10B	MW-10B-081109AX	8/11/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-10B	MW-10B-112309AF	11/23/2009	Field Sample						X		X					
MW-10B	MW-10B-112309AX	11/23/2009	Field Sample		X					X		X				
MW-10C	MW-10C-081109AX	8/11/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-10C	MW-10C-112309AF	11/23/2009	Field Sample						X		X					
MW-10C	MW-10C-112309AX	11/23/2009	Field Sample		X					X		X				
MW-11A	MW-11A-081109AX	8/11/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-11A	MW-11A-120109AF	12/1/2009	Field Sample						X		X					
MW-11A	MW-11A-120109AX	12/1/2009	Field Sample		X					X		X	X	X	X	X
MW-11C	MW-11C-081109AX	8/11/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-11C	MW-11C-112309AF	11/23/2009	Field Sample						X		X					
MW-11C	MW-11C-112309AX	11/23/2009	Field Sample		X					X		X				
MW-12C	MW-12C-081109AX	8/11/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-12C	MW-12C-112409AF	11/24/2009	Field Sample						X		X					
MW-12C	MW-12C-112409AX	11/24/2009	Field Sample		X					X		X				
MW-13A	MW-13A-081209AX	8/12/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-13A	MW-13A-112409AF	11/24/2009	Field Sample						X		X					
MW-13A	MW-13A-112409AX	11/24/2009	Field Sample		X					X		X				
MW-14A	MW-14A-081109AX	8/11/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-14A	MW-14A-112309AF	11/23/2009	Field Sample						X		X					
MW-14A	MW-14A-112309AX	11/23/2009	Field Sample		X					X		X				
MW-14C	MW-14C-081309AX	8/13/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-14C	MW-14C-112309AF	11/23/2009	Field Sample						X		X					
MW-14C	MW-14C-112309AX	11/23/2009	Field Sample		X					X		X				
MW-14D	MW-14D-091709AX	9/17/2009	Field Sample	X	X	X	X	X	X	X	X	X				

Table 2-2f
Groundwater and Porewater Analytical Sample Summary
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location	Sample ID	Sample Date	Sample Type	Alkalinity	Chloride, Sulfate	Total Acidity	Nitrite + Nitrate	Sulfide	AES Dissolved Metals	AES Total Metals	MS Dissolved Metals	MS Total Metals	PCB Aroclors	SVOCs	Pesticides	Trace VOCs
MW-14D	MW-14D-091809AX	9/18/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-14D	MW-14D-091809BX	9/18/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-14D	MW-14D-120109AF	12/1/2009	Field Sample						X		X					
MW-14D	MW-14D-120109AX	12/1/2009	Field Sample		X					X		X				
MW-15A	MW-15A-081309AX	8/13/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-15A	MW-15A-112409AF	11/24/2009	Field Sample						X		X					
MW-15A	MW-15A-112409AX	11/24/2009	Field Sample		X					X		X				
MW-16A	MW-16A-081309AX	8/13/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-16A	MW-16A-112409AF	11/24/2009	Field Sample						X		X					
MW-16A	MW-16A-112409AX	11/24/2009	Field Sample		X					X		X				
MW-17A	MW-17A-081409AX	8/14/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-17A	MW-17A-112409AF	11/24/2009	Field Sample						X		X					
MW-17A	MW-17A-112409AX	11/24/2009	Field Sample		X					X		X				
MW-18A	MW-18A-081409AX	8/14/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-18A	MW-18A-113009AF	12/1/2009	Field Sample						X		X					
MW-18A	MW-18A-120109AX	12/1/2009	Field Sample		X					X		X				
MW-19A	MW-19A-081409AX	8/14/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-19A	MW-19A-113009AF	11/30/2009	Field Sample						X		X					
MW-19A	MW-19A-113009AX	11/30/2009	Field Sample		X					X		X	X	X	X	X
MW-19C	MW-19C-081409AX	8/14/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-19C	MW-19C-112509AF	11/25/2009	Field Sample						X		X					
MW-19C	MW-19C-112509AX	11/25/2009	Field Sample		X					X		X				
MW-19D	MW-19D-091509AD	9/15/2009	Field Duplicate	X	X	X	X	X	X	X	X	X				
MW-19D	MW-19D-091509AX	9/15/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-19D	MW-19D-091509BX	9/15/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-19D	MW-19D-120209AF	12/2/2009	Field Sample						X		X					
MW-19D	MW-19D-120209AX	12/2/2009	Field Sample		X					X		X	X	X	X	X
MW-20A	MW-20A-081409AX	8/14/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-20A	MW-20A-120109AF	12/1/2009	Field Sample						X		X					
MW-20A	MW-20A-120109AX	12/1/2009	Field Sample		X					X		X	X	X	X	X
MW-20C	MW-20C-081309AX	8/13/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-20C	MW-20C-112309AF	11/23/2009	Field Sample						X		X					

Table 2-2f
Groundwater and Porewater Analytical Sample Summary
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location	Sample ID	Sample Date	Sample Type	Alkalinity	Chloride, Sulfate	Total Acidity	Nitrite + Nitrate	Sulfide	AES Dissolved Metals	AES Total Metals	MS Dissolved Metals	MS Total Metals	PCB Aroclors	SVOCs	Pesticides	Trace VOCs
MW-20C	MW-20C-112309AX	11/23/2009	Field Sample		X					X		X				
MW-20D	MW-20D-091609AX	9/16/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-20D	MW-20D-091709AX	9/17/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-20D	MW-20D-120209AF	12/2/2009	Field Sample						X		X					
MW-20D	MW-20D-120209AX	12/2/2009	Field Sample		X					X		X	X	X	X	X
MW-21A	MW-21A-081309AD	8/13/2009	Field Duplicate	X	X	X	X	X	X	X	X	X				
MW-21A	MW-21A-081309AX	8/13/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-21A	MW-21A-113009AD	11/30/2009	Field Duplicate		X					X		X				
MW-21A	MW-21A-113009AF	11/30/2009	Field Sample						X		X					
MW-21A	MW-21A-113009AG	11/30/2009	Field Duplicate						X		X					
MW-21A	MW-21A-113009AX	11/30/2009	Field Sample		X					X		X	X	X	X	X
MW-21C	MW-21C-081409AX	8/14/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-21C	MW-21C-112409AF	11/24/2009	Field Sample						X		X					
MW-21C	MW-21C-112409AX	11/24/2009	Field Sample		X					X		X				
MW-22A	MW-22A-081309AX	8/13/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-22A	MW-22A-113009AF	11/30/2009	Field Sample						X		X					
MW-22A	MW-22A-113009AX	11/30/2009	Field Sample		X					X		X	X	X	X	X
MW-23A	MW-23A-081309AX	8/13/2009	Field Sample	X	X	X	X	X	X	X	X	X				
MW-23A	MW-23A-112309AF	11/23/2009	Field Sample						X		X					
MW-23A	MW-23A-112309AX	11/23/2009	Field Sample		X					X		X				
PW-01	PW-01X-081709AX	8/17/2009	Field Sample	X	X	X	X	X	X	X	X	X				
PW-02	PW-02X-081809AX	8/18/2009	Field Sample	X	X	X	X	X	X	X	X	X				
PW-03	PW-03X-081809AX	8/18/2009	Field Sample	X	X	X	X	X	X	X	X	X				
PW-04	PW-04X-081809AX	8/18/2009	Field Sample	X	X	X	X	X	X	X	X	X				
PW-05	PW-05X-081709AX	8/17/2009	Field Sample	X	X	X	X	X	X	X	X	X				
PW-06	PW-06X-081809AX	8/18/2009	Field Sample	X	X	X	X	X	X	X	X	X				
PW-07	PW-07X-081909AD	8/19/2009	Field Duplicate	X	X	X	X	X	X	X	X	X				
PW-07	PW-07X-081909AX	8/19/2009	Field Sample	X	X	X	X	X	X	X	X	X				

Table 2-2g
Residential Drinking Water Analytical Sample Summary
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location	Sample ID	Sample Date	Sample Type	Alkalinity	Chloride, Sulfate	Total Acidity	Nitrite + Nitrate	Sulfide	AES Dissolved Metals	AES Total Metals	MS Dissolved Metals	MS Total Metals
M11LT064	M11LT064-120709AX	12/7/2009	Field Sample	X	X	X	X	X		X		X
M11LT064	M11LT064-120710AF	12/7/2009	Field Sample						X		X	
M11LT065	M11LT065-1207090AD	12/7/2009	Field Duplicate	X	X	X	X	X		X		X
M11LT065	M11LT065-120709AF	12/7/2009	Field Sample						X		X	
M11LT065	M11LT065-120709AG	12/7/2009	Field Duplicate						X		X	
M11LT065	M11LT065-120709AX	12/7/2009	Field Sample	X	X	X	X	X		X		X
M11LT19.0	M11LT19.0-120809AX	12/8/2009	Field Sample	X	X	X	X	X		X		X
M11LT19.0	M11LT19.0-120810AF	12/8/2009	Field Sample						X		X	
M11LT55.1	M11LT55.1-120709AF	12/7/2009	Field Sample						X		X	
M11LT55.1	M11LT55.1-120709AX	12/7/2009	Field Sample	X	X	X	X	X		X		X
M11LT60.0	M11LT60.0-120709AX	12/7/2009	Field Sample	X	X	X	X	X		X		X
M11LT60.0	M11LT60.0-120710AF	12/7/2009	Field Sample						X		X	
M11LT63.0	M11LT63.0-120709AX	12/7/2009	Field Sample	X	X	X	X	X		X		X
M11LT63.0	M11LT63.0-120710AF	12/7/2009	Field Sample						X		X	

Table 4-1
Surface Water Flow Data
Ely Copper Mine Superfund Site
Vershire, Vermont

Location	Summer (gpm)	Fall (gpm)
SW-4	9124	4488
SW-9	736	240
SW-12	808	150
SW-13	150	120
SW-17	100	60
SW-29	20	8.0
SW-32	673	120
SW-34	5.0	2.0
SW-35	1.3	2.3
SW-38	6689	7742
SW-40	732	70
SW-41	50	60
SW-42	10	2.0
SW-43	1.3	NA
SW-45	2.6	0.79
SW-46	No/low Flow	No/low Flow
SW-47	1.58	0.16
SW-48	1.85	4.0
SW-49	4.0	No/low Flow
SW-51	10	NM
SW-71	No/low Flow	No/low Flow
SW-72	0.26	No/low Flow
SW-73	3.0	1.0
SW-75	9.0	No/low Flow
SW-76	0.26	NS
SW-77	0.26	No/low Flow
SW-78	0.26	0.35
SW-79	No/low Flow	No/low Flow
SW-80	12	6.0
SW-81	60	7.0
SW-82	40	10
SW-83	65	0.52
SW-84	0.53	1.9

Notes:

(gpm) = gallons per minute
NM = not measured
NA = not available
NS = not sampled

Table 4-2
Soil Boring and Monitoring Well Data Summary
Ely Copper Mine Superfund Site
Vershire, Vermont

Monitoring Well Identification	Well Type	Easting	Northing	Construction	Well Depth (feet bgs)	Screen Interval (feet bgs)	Ground Surface Elevation (ft msl)	Reference Elevation (ft msl)
MW-14C	Shallow Bedrock	1696873.43	517638.48	2" Sch 40 PVC, 0.01-slot screen, 00 (or 00N)-Filter Sand	37.5	27.5 - 37.5	985.28	985.83
MW-14D	Deep Bedrock	1696869.59	517657.42	NA	150	Open Borehole	983.08	985.20
MW-17A	Shallow Overburden	1697421.53	519316.16	2" Sch 40 PVC, 0.01-slot screen, 00 (or 00N)-Filter Sand	8	3 - 8	1085.48	1088.31
MW-18A	Shallow Overburden	1697205.64	520169.74	2" Sch 40 PVC, 0.01-slot screen, 00 (or 00N)-Filter Sand	9	4 - 9	1193.28	1195.51
MW-19A	Shallow Overburden	1697068.55	520439.87	2" Sch 40 PVC, 0.01-slot screen, 00 (or 00N)-Filter Sand	16	8 - 16	1244.18	1246.66
MW-19C	Shallow Bedrock	1697081.05	520431.13	2" Sch 40 PVC, 0.01-slot screen, 00 (or 00N)-Filter Sand	36	26 - 36	1244.45	1246.75
MW-19D	Deep Bedrock	1697089.36	520440.28	NA	150	Open Borehole	1245.91	1247.65
MW-20A	Shallow Overburden	1697044.31	518551.70	2" Sch 40 PVC, 0.01-slot screen, 00 (or 00N)-Filter Sand	5.5	3.5 - 5.5	1024.34	1027.12
MW-20C	Shallow Bedrock	1697049.18	518553.38	2" Sch 40 PVC, 0.01-slot screen, 00 (or 00N)-Filter Sand	21	11 - 21	1024.51	1026.94
MW-20D	Deep Bedrock	1697045.74	518557.00	NA	150	Open Borehole	1024.78	1026.23
MW-21A	Shallow Overburden	1697007.88	518958.96	2" Sch 40 PVC, 0.01-slot screen, 00 (or 00N)-Filter Sand	12	5 - 12	1033.34	1035.51
MW-21C	Shallow Bedrock	1697002.21	518955.94	2" Sch 40 PVC, 0.01-slot screen, 00 (or 00N)-Filter Sand	29	19 - 29	1032.38	1034.68
MW-22A	Shallow Overburden	1697050.29	519260.34	2" Sch 40 PVC, 0.01-slot screen, 00 (or 00N)-Filter Sand	19	9 - 19	1060.23	1062.47
MW-23A	Shallow Overburden	1697138.55	518434.51	2" Sch 40 PVC, 0.01-slot screen, 00 (or 00N)-Filter Sand	14.75	4.75 - 14.75	1043.00	1045.58
SB-09	Shallow Bedrock	1697115.60	519305.39	NA	17	NA	NA	NA

Notes:
ft bgs = feet below ground surface
ft msl = feet above mean sea level
NA = not applicable

Table 4-3
2009 Synoptic Water Level Measurements and Elevations
Ely Copper Mine Superfund Site
Vershire, Vermont

Well ID	Reference Elevation (ft msl)	Summer		Fall	
		DTW (feet)	GWSE (ft msl)	DTW (feet)	GWSE (ft msl)
Overburden Monitoring Wells					
MW1A	969.02	17.46	951.56	17.45	951.57
MW1B	968.90	17.45	951.45	18.42	950.48
MW2A	978.54	11.57	966.97	12.09	966.45
MW2B	978.65	14.07	964.58	19.76	958.89
MW4A	1033.29	4.54	1028.75	4.39	1028.90
MW5A	1140.50	11.11	1129.39	12.25	1128.25
MW5B	1141.39	11.33	1130.06	13.01	1128.38
MW6A	1162.19	6.03	1156.16	6.28	1155.91
MW7A	1336.95	3.41	1333.54	2.89	1334.06
MW8	1085.66	4.69	1080.97	5.04	1080.62
MW9A	1165.84	3.77	1162.07	3.70	1162.14
MW10B	999.30	2.95	996.35	3.53	995.77
MW11A	980.50	3.33	977.17	2.02	978.48
MW13A	1112.25	3.65	1108.60	3.88	1108.37
MW14A	984.13	2.03	982.10	2.13	982.00
MW15A	1000.84	0.13	1000.71	1.08	999.76
MW16A	988.09	3.62	984.47	3.65	984.44
MW17A	1088.31	7.10	1081.21	6.32	1081.99
MW18A	1195.51	9.15	1186.36	10.10	1185.41
MW19A	1246.66	9.44	1237.22	12.95	1233.71
MW20A	1027.12	5.59	1021.53	5.29	1021.83
MW21A	1035.51	4.23	1031.28	4.21	1031.30
MW22A	1062.47	5.85	1056.62	5.89	1056.58
MW23A	1045.58	11.32	1034.26	11.58	1034.00
Bedrock Monitoring Wells					
MW1C	968.48	12.39	956.09	12.42	956.06
MW2C	979.05	12.18	966.87	13.05	966.00
MW3C	1018.10	21.71	996.39	22.60	995.50
MW4C	1033.05	9.52	1023.53	9.44	1023.61
MW5C	1141.07	15.20	1125.87	15.82	1125.25
MW6C	1162.98	10.72	1152.26	12.98	1150.00
MW7C	1336.87	2.38	1334.49	1.92	1334.95
MW9C	1166.08	16.05	1150.03	16.95	1149.13
MW10C	998.74	0.81	997.93	2.46	996.28
MW11C	980.71	4.43	976.28	4.11	976.60
MW12C	1097.16	6.94	1090.22	7.07	1090.09
MW14C	985.83	4.65	981.18	4.75	981.08
MW14D	985.20	3.23	981.97	3.18	982.02
MW19C	1246.75	15.14	1231.61	17.49	1229.26
MW19D	1247.65	14.33	1233.32	14.68	1232.97
MW20C	1026.94	6.29	1020.65	6.18	1020.76
MW20D	1026.23	21.23	1005.00	20.45	1005.78
MW21C	1034.68	3.98	1030.70	5.47	1029.21

Notes:

DTW = depth to water, measured in feet below reference elevation

GWSE = groundwater surface elevation

NM = not measured

ft msl = feet above mean sea level

A = shallow overburden; B = deep overburden

C = shallow bedrock; D = deep bedrock

Table 4-4
Site Hydraulic Conductivity
Ely Copper Mine Superfund Site
Vershire, Vermont

Stratagraphic Unit	Location	HYDRAULIC CONDUCTIVITY			
		(ft/sec)	(ft/min)	(ft/day)	(cm/sec)
Shallow Overburden	MW-17A	9.23E-06	5.54E-04	7.98E-01	2.82E-04
	MW-18A	4.71E-06	2.83E-04	4.07E-01	1.44E-04
	MW-19A	5.79E-06	3.48E-04	5.01E-01	1.77E-04
	MW-20A	1.53E-05	9.18E-04	1.32E+00	9.62E-05
	MW-21A	9.41E-07	5.65E-05	8.13E-02	2.87E-05
	MW-22A	1.25E-05	7.48E-04	1.08E+00	3.79E-04
	MW-23A	9.41E-07	5.65E-05	8.13E-02	2.88E-05
	Average Overburden	*7.05E-06*	*4.23E-04*	*6.09E-01*	*1.62E-04*
Shallow Bedrock	MW-14C	3.04E-07	1.83E-05	2.63E-02	9.24E-06
	MW-19C	1.22E-05	7.31E-04	1.05E+00	3.71E-04
	MW-20C	2.21E-06	1.33E-04	1.91E-01	6.73E-05
	MW-21C	3.91E-06	2.35E-04	3.38E-01	1.19E-04
	Average Shallow Bedrock	*4.65E-06*	*2.79E-04*	*4.02E-01*	*1.42E-04*

Notes:
(ft/sec) = feet per second
(ft/min) = feet per minute
(ft/day) = feet per day
(cm/sec) = centimeter per second

Table 4-5
Bedrock Borehole Geophysical Logging Results
Ely Copper Mine Superfund Site
Vershire, Vermont

Borehole ID:	MW-14D	MW-19D	MW-20D
Sample Date:	11/4/2009	11/4/2009	11/4/2009
Parameter			
Total Depth (feet)	151.4	151.4	151.50
Casing Length (feet)	35	32.5	23
Water Level (feet)	3.85	15.7	20.51
Caliper (inches)*	5.76	5.62	5.65
Temperature (^{o}C)*	7.94	8.03	7.85
Flui Resistivity (ohm-meters)*	71	47	19
Single Point Resistance (ohms)*	1015	607	491
Gamma (counts per sencond)*	105	95	100

Note:

1. * result listed is the median value for that borehole.

Table 4-6
2009 Packer Sampling Specific Capacity Testing
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Name	Static Head Annulus (Top of Riser)	Static Head Riser (Top of Riser)	Final Head Annulus (Top of Riser)	Final Head Riser (Top of Riser)	Change in Head Annulus (ft)	Change in Head Riser (ft)	Time Elapsed (min)	Volume Purged (gal)	Avg. Pumping Rate (gpm)	Specific Capacity (gpm/ft)	Comments
MW-14D/52 - 62	4.39	3.58	4.40	52.30	-0.01	-48.72	10	15	1.50	-0.0308	Interval purged dry during testing
MW-14D/75 - 85	3.81	6.25	3.81	71.00	0.00	-64.75	15	20	1.33	-0.0206	Interval purged dry during testing
MW-14D/98 - 108	4.45	5.35	10.35	18.15	-5.90	-12.80	30	80	2.67	-0.2083	
MW-19D/36 - 46	18.36	17.80	18.38	30.14	-0.02	-12.34	31	55	1.77	-0.1438	
MW-19D/48 - 58	--	--	--	--	--	--	--	--	--	--	Interval purged dry during testing; insufficient data collected to perform calculations
MW-19D/68 - 78	17.84	17.80	19.27	53.50	-1.43	-35.70	29	35	1.21	-0.0338	
MW-19D/104 - 114	17.35	14.04	17.72	94.40	-0.37	-80.36	31	45	1.45	-0.0181	Interval purged dry during testing
MW-20D/30 - 40	--	--	--	--	--	--	--	--	--	--	Interval purged dry during testing; insufficient data collected to perform calculations
MW-20D/50 - 60	--	--	--	--	--	--	--	--	--	--	Interval purged dry during testing; insufficient data collected to perform calculations
MW-20D/80 - 85	33.50	26.50	28.80	67.70	4.70	-41.20	31	60	1.94	-0.0470	Interval purged dry during testing
MW-20D/100 - 110	26.72	25.58	25.68	82.55	1.04	-56.97	15	15	1.00	-0.0176	Interval purged dry during testing
MW-20D/110 - 120	17.01	14.38	17.77	89.35	-0.76	-74.97	20	20	1.00	-0.0133	Interval purged dry during testing

Notes:
ft = feet; min = minute; gal = gallons
gpm = gallons per minute
gpm/ft = gallons per minute per foot

Table 5-1
Soil XRF Metals Results
Ely Copper Mine Superfund Site
Vershire, Vermont

Transect ID	Sample Location	Sample ID	Sample Date	Copper (625)	Iron (NA)	Lead (400)	Sulfur (NA)	Selenium (4.37)	Zinc (545)
TA	1	TA-01X-082409AX	8/24/2009	73	25787	25	<1656	<2	77
TA	2	TA-02X-082409AX	8/24/2009	**1558**	36234	**450**	<2132	<3	133
TA	3	TA-03X-082409AX	8/24/2009	**957**	32639	57	<1785	<3	274
TA	4	TA-04X-082409AX	8/24/2009	309	26114	27	<1747	<2	83
TA	5	TA-05X-082409AX	8/24/2009	496	29152	20	<2020	3	91
TA	6	TA-06X-082409AX	8/24/2009	194	27957	17	1865	<3	64
TA	7	TA-07X-082409AX	8/24/2009	208	25194	20	<1886	<3	67
TA	8	TA-08X-082409AX	8/24/2009	303	28686	32	<1916	<3	75
TA	9	TA-09X-082409AX	8/24/2009	75	31814	16	<2025	<3	67
		TA-09X LAB DUP		65	33562	17	<2166	<3	57
TA	10	TA-10X-082409AX	8/24/2009	51	29264	14	<1857	<3	58
TA	11	TA-11X-082409AX	8/24/2009	84	26149	52	<1881	<2	63
TA	12	TA-12X-082409AX	8/24/2009	229	29611	47	<1926	<3	84
TA	13	TA-13X-082409AX	8/24/2009	213	28740	71	<2096	<3	113
TA	14	TA-14X-082409AX	8/24/2009	483	29374	88	<2108	<3	104
TA	15	TA-15X-082409AX	8/24/2009	505	30904	130	<2250	<3	185
TB	1	TB-01X-082409AX	8/24/2009	**804**	>10%	**41%**	15558	**26**	276
TB	2	TB-02X-082409AX	8/24/2009	525	57705	16	4795	4	102
TB	3	TB-03X-082409AX	8/24/2009	145	33365	14	<2322	<3	48
		TB-03X LAB DUP		156	32078	11	<2213	<3	46
TB	4	TB-04X-082409AX	8/24/2009	201	32039	20	<2064	<3	59
TB	5	TB-05X-082409AX	8/24/2009	**801**	46880	24	2486	**5**	97
TB	6	TB-06X-082409AX	8/24/2009	549	43800	24	<2385	<3	130
TB	7	TB-07X-082409AX	8/24/2009	122	36167	14	<2210	<3	70
TB	8	TB-08X-082409AX	8/24/2009	263	39942	21	<2330	<3	75
TC	1	TC-01X-082609AX	8/26/2009	56	22541	**1073**	<2033	**390**	29
		TC-01X LAB DUP		52	22752	**1153**	<2137	**321**	30
TC	2	TC-02X-082609AX	8/26/2009	30	35232	39	<2068	<3	66
TC	3	TC-02X-082609AX	8/26/2009	19	35477	27	<2075	<3	54
TC	4	TC-04X-082609AX	8/26/2009	38	30201	99	<1808	<3	35
TC	5	TC-05X-082609AX	8/26/2009	37	38836	16	<2277	<3	88
TC	6	TC-06X-082609AX	8/26/2009	99	26128	21	<1853	<2	43
		TC-06X LAB DUP		112	25593	24	<1943	<3	41
TC	8	TC-08X-082609AX	8/26/2009	78	32758	16	<1955	<3	107
T3/TC-01	1-2	--		48	44142	20	<3191	7	58
TD	1	TD-01X-082809AX	8/28/2009	**3029**	>100000	75	26201	**46**	159
TD	1	TD-01X-082809BX	8/28/2009	**3029**	>100000	218	28237	**62**	264
TD	1	TD-01X-082809CX	8/28/2009	**3746**	28174	17	3836	4	214
TD	1	TD-01X-082809DX	8/28/2009	**2420**	66379	18	9170	**8**	150
TD	1	TD-01X-082809EX	8/28/2009	621	45125	20	<2816	4	76
TD	2	TD-02X-082809AX	8/28/2009	**2619**	>100000	88	26543	**40**	258
TD	2	TD-02X-082809BX	8/28/2009	**3302**	>100000	107	19170	**41**	363
TD	2	TD-02X-082809CX	8/28/2009	274	37402	12	<2649	<3	122
TD	2	TD-02X-082809DX	8/28/2009	255	54497	16	<3083	<3	103
TD	3	TD-03X-082809AX	8/28/2009	**1318**	>100000	57	23861	**34**	135
		TD-03 LAB DUP		**1365**	>100000	56	22552	**34**	114
TD	3	TD-03X-082809BX	8/28/2009	**6175**	>100000	200	26106	**71**	195
TD	3	TD-03X-082809CX	8/28/2009	**763**	36455	16	6718	<3	341
TD	3	TD-03X-082809DX	8/28/2009	295	34446	14	<2413	<3	59
TD	4	TD-04X-082809AX	8/28/2009	**1224**	>100000	64	19383	**27**	92
		TD-04 LAB DUP		**1116**	>100000	50	19511	**34**	92
TD	4	TD-04X-082809BX	8/28/2009	162	>100000	24	41611	<3	64

Table 5-1
Soil XRF Metals Results
Ely Copper Mine Superfund Site
Vershire, Vermont

Transect ID	Sample Location	Sample ID	Sample Date	Copper (625)	Iron (NA)	Lead (400)	Sulfur (NA)	Selenium (4.37)	Zinc (545)
TD	4	TD-04X-082809CX	8/28/2009	227	65531	15	7168	<3	74
TD	5	TD-05X-082809AX	8/28/2009	**1226**	>100000	60	16411	**32**	100
TD	5	TD-05X-082809BX	8/28/2009	**1130**	65633	21	3399	**10**	86
TD	5	TD-05X-082809CX	8/28/2009	294	63874	11	17296	<3	59
TD	5	TD-05X-082809DX	8/28/2009	422	36456	13	<2383	<3	83
TD	6	TD-06X-082809AX	8/28/2009	**1503**	>100000	64	20221	**41**	132
TD	6	TD-06X-082809BX	8/28/2009	**3876**	>100000	71	19772	**33**	301
TD	6	TD-06X-082809CX	8/28/2009	**1239**	98182	20	7832	**11**	92
		TD-06C LAB DUP		**931**	82409	20	6477	**8**	85
TD	6	TD-06X-082809DX	8/28/2009	**1234**	37425	21	<2611	<3	119
TD	6	TD-06X-082809EX	8/28/2009	**1208**	73102	23	4587	**11**	122
TD	7	TD-07X-082809AX	8/28/2009	206	97927	31	26883	**17**	50
		TD-07A LAB DUP		324	>100000	44	22950	**27**	58
TD	8	TD-08X-082809AX	8/28/2009	193	38852	16	<2419	<3	68
TD	9	TD-09X-082809AX	8/28/2009	**764**	>100000	75	5485	**25**	105
TD	10	TD-10X-082809AX	8/28/2009	131	51108	13	<2592	<3	48
TD	11	TD-11X-082809AX	8/28/2009	341	<100000	297	8529	<7	<29
TD	11	TD-11X-082809BX	8/28/2009	133	59971	23	<2836	<3	80
TD	12	TD-12X-082809AX	8/28/2009	85	40808	12	<2300	<3	54
TD	13	TD-13X-082809AX	8/28/2009	267	45891	17	<2545	<3	87
TD	14	TD-14X-082809AX	8/28/2009	329	47714	28	<2628	<3	103
		TD-14 LAB DUP		332	41445	24	<2397	<3	97
TE	1	TE-01X-090109AX	9/1/2009	604	68199	31	5241	**8**	180
TE	2	TE-02X-090109AX	9/1/2009	85	36282	16	<2119	<3	81
TE	3	TE-03X-090109AX	9/1/2009	312	35359	373	<2149	<3	87
TE	4	TE-04X-090109AX	9/1/2009	152	37099	<7	<2226	<3	66
TE	5	TE-05X-090109AX	9/1/2009	271	37804	20	<2361	3	76
TE	6	TE-06X-090109AX	9/1/2009	435	46066	38	<2484	<3	102
TE	7	TE-07X-090109AX	9/1/2009	320	>100000	37	20991	**30**	43
TE	8	TE-08X-090109AX	9/1/2009	159	39708	**675**	3675	<4	59
TE	9	TE-09X-090109AX	9/1/2009	336	98293	56	33399	**25**	174
TE		TE-09 LAB DUP		373	>100000	58	39034	**28**	145
TE	10A	TE-10X-090209AX	9/2/2009	366	78092	61	41047	**114**	149
TE		TE-10A LAB DUP		399	75240	62	35977	**116**	195
TE	10B	TE-10X-090209BX	9/2/2009	201	71263	15	17666	**5**	69
TE	10C	TE-10X-090209CX	9/2/2009	**3948**	59250	14	31038	**8**	**867**
TE	10D	TE-10X-090209DX	9/2/2009	182	59656	10	<2926	<3	137
TE	11A	TE-11X-090209AX	9/2/2009	344	>10%	21	39379	**12**	63
TE	11B	TE-11X-090209BX	9/2/2009	224	71273	17	7848	**6**	62
TE	11C	TE-11X-090209CX	9/2/2009	178	43235	9	<2788	<3	182
TE	12A	TE-12X-090209AX	9/2/2009	**2418**	>10%	54	13447	**37**	182
TE	12B	TE-12X-090209BX	9/2/2009	176	43811	10	<2515	4	64
TE	12C	TE-12X-090209CX	9/2/2009	136	41656	13	<2557	<3	106
TE	13A	TE-13X-090209AX	9/2/2009	**1429**	>10%	76	16339	**41**	86
TE	13B	TE-13X-090209BX	9/2/2009	184	62243	15	<3294	<4	107
TE	13C	TE-13X-090209CX	9/2/2009	170	41282	14	3375	<3	146
TE	14A	TE-14X-090209AX	9/2/2009	**1475**	>10%	55	18214	**22**	75
TE	14B	TE-14X-090209BX	9/2/2009	486	81249	17	6055	**6**	83
TE	14C	TE-14X-090209CX	9/2/2009	112	38175	13	<2484	<3	102
TE	15A	TE-15X-090209AX	9/2/2009	**4835**	>10%	117	19636	**35**	121
TE	15B	TE-15X-090209BX	9/2/2009	207	60807	14	<3118	<3	92
TE	15C	TE-15X-090209CX	9/2/2009	133	31894	7	2752	<3	93

Table 5-1
Soil XRF Metals Results
Ely Copper Mine Superfund Site
Vershire, Vermont

Transect ID	Sample Location	Sample ID	Sample Date	Copper (625)	Iron (NA)	Lead (400)	Sulfur (NA)	Selenium (4.37)	Zinc (545)
TE	16	TE-16X-090109AX	9/1/2009	168	41870	17	<2773	<3	106
TE	17	TE-17X-090109AX	9/1/2009	171	48934	12	<2804	<3	75
TE	18	TE-18X-090109AX	9/1/2009	148	43773	19	<2522	<3	91
TE	19	TE-019X-090109AX	9/1/2009	126	39985	16	<2524	<3	96
TF	1	TF-01X-090109AX	9/1/2009	518	88606	26	17765	**25**	102
TF	2	TF-02X-090109AX	9/1/2009	**1099**	>100000	47	29405	**31**	227
TF	3	TF-03X-090109AX	9/1/2009	601	62591	22	6381	**10**	101
TF	4	TF-04X-090109AX	9/1/2009	58	34361	11	<2017	<3	42
TF	5	TF-05X-090109AX	9/1/2009	178	31952	14	<1955	<3	51
TF	6	TF-06X-090109AX	9/1/2009	128	35925	18	<2319	<3	69
TF	7	TF-07X-090109AX	9/1/2009	**4771**	58282	27	5423	**10**	423
TF	8	TF-08X-090109AX	9/1/2009	305	>100000	67	23363	**40**	42
TF	9A	TF-09X-090109AX	9/1/2009	496	>100000	35	34070	**18**	41
TF	9B	TF-09X-090109BX	9/1/2009	**731**	44416	23	<2903	<3	67
TF	10A	TF-10X-090309AX	9/3/2009	**888**	5	51	17991	**32**	134
TF	10B	TF-10X-090309BX	9/3/2009	480	41505	11	<3423	4	100
TF	10C	TF-10X-090309CX	9/3/2009	**1284**	33654	9	6387	**6**	171
TF	10D	TF-10X-090309DX	9/3/2009	317	35677	<8	<3234	<3	60
TF	10E	TF-10X-090309EX	9/3/2009	147	34432	10	6520	**5**	122
TF	11A	TF-11X-090309AX	9/3/2009	**4216**	>10%	72	<4898	**43**	129
TF	11B	TF-11X-090309BX	9/3/2009	**4447**	77320	26	7000	**8**	141
TF	11C	TF-11X-090309CX	9/3/2009	**4768**	36419	9	7773	**5**	115
TF	11D	TF-11X-090309DX	9/3/2009	109	33466	8	<3154	<3	62
TF	11E	TF-11X-090309EX	9/3/2009	143	36095	20	<2900	<3	118
TF	12A	TF-12X-090309AX	9/3/2009	329	92068	24	13045	<4	63
TF	12B	TF-12X-090309BX	9/3/2009	**20227**	55653	42	13565	**9**	196
TF	12C	TF-12X-090309CX	9/3/2009	**5250**	33042	13	12160	4	133
TF	12D	TF-12X-090309DX	9/3/2009	221	43944	13	<3598	<3	84
TF	13A	TF-13X-090309AX	9/3/2009	567	>10%	37	10257	**7**	73
TF	13B	TF-13X-090309BX	9/3/2009	**18554**	77677	26	40827	**13**	287
TF	13C	TF-13X-090309CX	9/3/2009	**1078**	37783	<7	<3566	<3	92
TF		TF-013C LAB DUP		**1123**	35632	15	<3203	<3	100
TF	14A	TF-14X-090309AX	9/3/2009	270	94460	33	9254	**20**	74
TF	15A	TF-15X-090309AX	9/3/2009	**2909**	>10%	63	45723	**39**	163
TF	15B	TF-15X-090309BX	9/3/2009	**7895**	17472	14	10576	<3	**1524**
TF	15C	TF-15X-090309CX	9/3/2009	**1292**	44321	11	5441	<3	338
TF	16A	TF-16X-090109AX	9/1/2009	**1423**	>100000	67	13487	**24**	535
TF	16B	TF-16X-090109BX	9/1/2009	**2360**	>100000	59	82081	**25**	**1950**
TF	17	TF-17X-090109AX	9/1/2009	76	47969	12	<2651	<3	82
TF	18	TF-18X-090109AX	9/1/2009	211	39329	36	<2651	<3	82
TF	19	TF-19X-090109AX	9/1/2009	52	38827	14	<2559	<3	59
TF	20	TF-20X-090109AX	9/1/2009	168	33375	23	<2152	<3	68
TF	21	TF-21X-090109AX	9/1/2009	126	33817	20	<2122	<3	59
TF	22	TF-22X-090109AX	9/1/2009	31	32645	11	<2224	<3	47
TF	23	TF-23X-090109AX	9/1/2009	41	31976	15	<2033	<3	54
TG	1	TG-01X-082409AX	8/24/2009	**1545**	80631	<8	15865	4	133
TG	2	TG-02X-082409AX	8/24/2009	180	62422	12	<3089	<3	86
TG	3	TG-03X-082409AX	8/24/2009	216	44700	13	<2288	<3	63
TG	4	TG-04X-082409AX	8/24/2009	158	34483	12	<1920	<3	58
TG	5	TG-05X-082409AX	8/24/2009	94	35866	12	<2362	<3	59
TG	6	TG-06X-082409AX	8/24/2009	200	36360	15	<2115	<3	54
TG	7	TG-07X-082409AX	8/24/2009	256	62167	19	<3037	<3	103

Table 5-1
Soil XRF Metals Results
Ely Copper Mine Superfund Site
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Transect ID	Sample Location	Sample ID	Sample Date	Copper (625)	Iron (NA)	Lead (400)	Sulfur (NA)	Selenium (4.37)	Zinc (545)
TG	8	TG-08X-082409AX	8/24/2009	150	40079	12	<2256	<3	78
TH	1	TH-01X-082509AX	8/25/2009	**1045**	99183	44	18018	**21**	90
TH	2	TH-02X-082509AX	8/25/2009	**776**	>10%	81	40357	**27**	77
TH	3	TH-03X-082509AX	8/25/2009	224	48523	20	<2446	**5**	57
TH	4	TH-04X-082509AX	8/25/2009	142	36450	19	<2218	<2	46
TH	5	TH-05X-082509AX	8/25/2009	419	29498	12	<1957	<3	60
TH	6	TH-06X-082509AX	8/25/2009	208	37177	21	<2358	<3	74
TH	7	TH-07X-082509AX	8/25/2009	317	41631	16	<2350	<3	74
TH	8	TH-08X-082509AX	8/25/2009	**712**	>10%	36	16288	**43**	165
		TH-08X LAB DUP		**719**	>10%	55	18239	**39**	188
TI	1	TI-01X-082509AX	8/25/2009	263	>10%	54	24924	**37**	133
TI	2	TI-02X-082509AX	8/25/2009	32	29489	12	<2090	<3	75
TI	3	TI-03X-082509AX	8/25/2009	77	36291	28	<2249	<3	71
TI	4	TI-04X-082509AX	8/25/2009	85	34712	14	<2144	<3	81
TI	5	TI-05X-082509AX	8/25/2009	77	34660	13	<2227	<3	60
TI	6	TI-06X-082509AX	8/25/2009	123	40484	40	<2232	<3	66
TI	7	TI-07X-082509AX	8/25/2009	103	36314	22	<2140	<3	79
TI	8	TI-08X-082509AX	8/25/2009	61	40427	10	<2267	<3	84
TI	9	TI-09X-082509AX	8/25/2009	74	51641	11	<2692	<3	75
TJ	1	TJ-01X-082409AX	8/24/2009	**1347**	>10%	53	34727	**15**	74
		TJ-01X LAB DUP		**2306**	>10%	44	39476	**28**	111
TJ	2	TJ-02X-082409AX	8/24/2009	467	>10%	79	24242	**24**	93
TJ	3	TJ-03X-082409AX	8/24/2009	**719**	39880	11	<2549	<3	164
TJ	4	TJ-04X-082409AX	8/24/2009	66	19925	12	<1926	<2	35
TJ	5	TJ-05X-082409AX	8/24/2009	111	34127	13	<2472	3	54
TJ	6	TJ-06X-082409AX	8/24/2009	29	31599	17	<2333	<3	52
TJ	7	TJ-07X-082409AX	8/24/2009	43	39284	17	<2416	<3	57
TJ	8	TJ-08X-082409AX	8/24/2009	23	31155	16	<2416	<3	49
TK	1	TK-01X-082509AX	8/25/2009	247	45528	27	<2686	<3	92
TK	2	TK-02X-082509AX	8/25/2009	304	29104	33	<1945	<3	77
TK	3	TK-03X-082509AX	8/25/2009	97	22419	32	<2498	<3	81
TK	4	TK-04X-082509AX	8/25/2009	**679**	39654	204	<2534	<3	381
TK	5	TK-05X-082509AX	8/25/2009	190	35071	40	<2091	<3	146
TK	6	TK-06X-082509AX	8/25/2009	65	35058	21	<1930	<2	61
TK	7	TK-07X-082509AX	8/25/2009	66	35348	27	<2234	<3	57
TK	8	TK-08X-082509AX	8/25/2009	72	50498	15	<2646	<3	102
TL	1	TL-01X-082509AX	8/25/2009	**1054**	60158	15	5605	4	120
TL	2	TL-02X-082509AX	8/25/2009	**738**	51226	11	<2856	<3	99
		TL-02X LAB DUP		**774**	52794	18	<2829	<3	132
TL	3	TL-03X-082509AX	8/25/2009	**1435**	>10%	51	18002	**8**	156
TL	4	TL-04X-082509AX	8/25/2009	66	30601	15	<1974	<3	64
TL	5	TL-05X-082509AX	8/25/2009	48	33154	21	<2214	<3	74
TL	6	TL-06X-082509AX	8/25/2009	29	35796	12	<2238	<3	79
TL	7	TL-07X-082509AX	8/25/2009	55	31807	15	<2026	<3	65
TM	1	TM-01X-082509AX	8/25/2009	71	29614	17	<1931	<3	60
TM	2	TM-02X-082509AX	8/25/2009	60	29986	12	<1794	<2	47
TM	3	TM-03X-082509AX	8/25/2009	54	31405	13	<1756	<3	69
TM	4	TM-04X-082509AX	8/25/2009	73	27089	15	<1751	<3	59
TM	5	TM-05X-082509AX	8/25/2009	41	28133	16	<1928	<3	52
TN	1	TN-01X-082509AX	8/25/2009	90	34595	19	<2168	<3	61
		TN-01X LAB DUP		86	36094	16	<2195	<3	53
TN	2	TN-02X-082509AX	8/25/2009	56	29697	13	<1922	<3	69

Table 5-1
Soil XRF Metals Results
Ely Copper Mine Superfund Site
Vershire, Vermont

Transect ID	Sample Location	Sample ID	Sample Date	Copper (625)	Iron (NA)	Lead (400)	Sulfur (NA)	Selenium (4.37)	Zinc (545)
TN	2	TN-02X-082509AD	8/25/2009	56	29697	13	<1922	<3	69
TN	3	TN-03X-082509AX	8/25/2009	61	30797	20	<2044	<2	67
TN	4	TN-04X-082509AX	8/25/2009	43	33762	8	<2290	<2	50
TN	5	TN-05X-082509AX	8/25/2009	45	32139	11	<2163	<3	68
TN	6	TN-06X-082509AX	8/25/2009	33	31534	15	<2028	<3	74
TN	7	TN-07X-082509AX	8/25/2009	42	32151	13	<2087	4	74
TN	8	TN-08X-082509AX	8/25/2009	66	32140	15	<2213	<3	62
TN	9	TN-09X-082509AX	8/25/2009	59	32809	12	<2190	<3	53
TN	10	TN-10X-082509AX	8/25/2009	61	29646	15	<2114	<3	51
TN	11	TN-011X-082509AX	8/25/2009	62	32573	18	<2264	<3	55
TO	1	TP-01X-082609AX	8/27/2009	305	59619	25	5304	**7**	78
TO	2	TP-02X-082609AX	8/27/2009	309	61463	17	7375	**8**	99
TO	3	TP-03X-082609AX	8/27/2009	287	61687	21	5597	**8**	110
TO	4	TP-04X-082609AX	8/27/2009	240	43960	27	<2415	<3	201
TO	5	TP-05X-082609AX	8/27/2009	**1080**	99912	37	13219	**14**	84
		TO-05X LAB DUP		**960**	99984	32	15477	**16**	110
TO	6	TP-06X-082609AX	8/27/2009	126	64827	26	<3148	<3	62
TO	7	TP-07X-082609AX	8/27/2009	85	34923	18	<2534	<3	76
TO	8	TP-08X-082609AX	8/27/2009	44	42003	15	<2359	<3	84
TP	1	TP-01X-082609AX	8/27/2009	**942**	88318	15	12336	**14**	**663**
		TP-01X LAB DUP		**735**	89293	23	14109	**9**	62
TP	2	TP-02X-082609AX	8/27/2009	195	31507	16	<2116	<3	60
TP	3	TP-03X-082609AX	8/27/2009	121	29636	13	<2048	<3	68
TP	4	TP-04X-082609AX	8/27/2009	146	30718	19	<2221	<3	63
TP	5	TP-05X-082609AX	8/27/2009	152	30744	7	<2114	<3	62
TP	6	TP-06X-082609AX	8/27/2009	110	30176	19	<1907	<3	60
TP	7	TP-07X-082609AX	8/27/2009	100	35523	17	<2144	<3	51
TP	8	TP-08X-082609AX	8/27/2009	54	30357	13	<1906	<3	54
TP	9	TP-09X-082609AX	8/27/2009	174	32370	19	<2080	3	62
TP	10	TP-10X-082609AX	8/27/2009	121	34966	22	<2053	<3	80
TP	11	TP-11X-082609AX	8/27/2009	80	38911	18	<2371	<3	98
TP	12	TP-12X-082609AX	8/27/2009	81	33819	13	<2234	<3	59
TP	13	TP-13X-082609AX	8/27/2009	230	37924	38	<2265	<3	125
		TP-13X LAB DUP		214	35977	23	<2080	<3	123
TP	14	TP-14X-082609AX	8/27/2009	152	27476	29	<2228	<3	109
TP	15	TP-15X-082609AX	8/27/2009	124	28020	26	<2065	<3	65
TQ	1	TQ-01X-082609AX	8/26/2009	521	>10%	57	28000	**35**	56
		TQ-01X LAB DUP		350	>10%	54	27433	**31**	71
TQ	2	TQ-02X-082609AX	8/26/2009	235	56643	14	6773	**6**	58
TQ	3	TQ-03X-082609AX	8/26/2009	211	39921	16	<2399	<3	59
TQ	4	TQ-04X-082609AX	8/26/2009	197	62873	23	4389	**7**	66
TQ	5	TQ-05X-082609AX	8/26/2009	261	>10%	35	20013	**20**	33
TQ	6	TQ-06X-082609AX	8/26/2009	227	94500	15	<3125	<3	31
TQ	7	TQ-07X-082609AX	8/26/2009	330	98597	28	19894	**20**	54
TQ	8	TQ-08X-082609AX	8/26/2009	458	80584	29	10255	**13**	56
TQ	9	TQ-09X-082609AX	8/26/2009	45	13704	15	<1636	<3	49
TQ	10	TQ-10X-082609AX	8/26/2009	89	38133	16	<2192	<3	101
TQ	11	TQ-11X-082609AX	8/26/2009	80	32147	93	<2062	<3	81
TQ	12	TQ-12X-082609AX	8/26/2009	41	24451	9	<1961	<2	34
TQ	13	TQ-13X-082609AX	8/26/2009	82	27737	10	<1967	<3	40
TQ	14	TQ-14X-082609AX	8/26/2009	256	55947	27	<2863	<3	95
TQ	15	TQ-15X-082609AX	8/26/2009	196	25947	31	<2012	<2	67

Table 5-1
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Transect ID	Sample Location	Sample ID	Sample Date	Copper (625)	Iron (NA)	Lead (400)	Sulfur (NA)	Selenium (4.37)	Zinc (545)
TQ	16	TQ-16X-082609AX	8/26/2009	93	31648	13	<2220	<3	73
TS	1	TS-01X-090309AX	9/3/2009	**636**	43651	23	4847	**5**	210
TS	2	TS-02X-090309AX	9/3/2009	**690**	36247	21	4404	**5**	137
TS	3	TS-03X-090309AX	9/3/2009	**648**	>100000	40	22292	**52**	153
TS	4	TS-04X-090309AX	9/3/2009	178	30649	14	<2517	**6**	44
TT	1	TT-01X-090309AX	9/3/2009	545	39909	10	<2535	<2	142
TT	2	TT-02X-090309AX	9/3/2009	467	44777	23	<2951	<3	171
TT	3	TT-03X-090309AX	9/3/2009	103	50562	10	<3118	<3	106
TU	1	TU-01X-090309AX	9/3/2009	552	38832	36	3465	4	59
TU	2	TU-02X-090309AX	9/3/2009	484	40080	48	<2678	<3	94
TU	3	TU-03X-090309AX	9/3/2009	106	32389	16	<2738	<3	51
		TU-03 LAB DUP	9/3/2009	104	30822	14	<2630	<3	59
TV	1	TV-01X-090309AX	9/3/2009	**950**	82060	55	11669	**12**	133
TV	2	TV-021X-090309AX	9/3/2009	544	28428	13	<2322	<2	59
TV	3	TV-03X-090309AX	9/3/2009	45	28739	10	<2413	<3	47
TW	1	TW-01X-090309AX	9/3/2009	**1021**	>100000	98	29300	**15**	23
TW	2	TW-02X-090309AX	9/3/2009	**699**	>100000	119	37016	**67**	233
TW	3	TW-03X-090309AX	9/3/2009	**782**	>100000	63	27314	**25**	93
TW	4	TW-04X-090309AX	9/3/2009	488	>100000	43	27750	**22**	108
TW	5	TW-05X-090309AX	9/3/2009	579	62039	20	<3648	<3	114
TW	A	TW-0AX-090309AX	9/3/2009	73	>100000	48	26867	**37**	202
		TW-A LAB DUP		80	>100000	49	30204	**42**	173
TW	B	TW-0BX-090309AX	9/3/2009	**42679**	>100000	72	>0.1	**79**	**4236**
TX	1	TX-01X-090309AX	9/3/2009	269	35459	73	<2973	<3	52
TX	2	TX-02X-090309AX	9/3/2009	68	27206	13	<2154	<3	54
TX	3	TX-03X-090309AX	9/3/2009	200	32055	15	<2200	<3	47
TY	1	TY-01X-090409AX	9/4/2009	474	>100000	70	44962	**46**	64
TY	2	TY-02X-090409AX	9/4/2009	**1314**	57058	14	22175	<3	178
TY	3	TY-03X-090409AX	9/4/2009	**1969**	48902	9	9462	**5**	**679**
TY	4	TY-04X-090409AX	9/4/2009	**1473**	74988	10	35264	<3	195
TY	5	TY-04X-090409AX	9/4/2009	**1069**	95899	11	13680	<3	100
TY	6	TY-06X-090409AX	9/4/2009	315	48019	17	<3523	<3	87
TY	7	TY-04X-090409AX	9/4/2009	292	39698	8	<2563	<3	68
TZ	1	TZ-01X-090409AX	9/4/2009	269	52873	16	<3597	4	61
TZ	2	TZ-02X-090409AX	9/4/2009	205	40275	20	<2586	<3	56
TZ	3	TZ-03X-090409AX	9/4/2009	75	40310	11	<2641	<3	62
RA	0-0.5	--	9/2/2009	23	25803	25	<1893	**8**	42
RA	0.5-2	--	9/2/2009	34	37013	14	<2267	**6**	56
RB	0-0.5	--	9/2/2009	27	28120	30	<1733	<2	54
RB	0.5-2	--	9/2/2009	<15	34471	12	<2072	<3	57
RC	0-0.5	--	9/2/2009	28	31720	46	<1981	<3	75
RC	0.5-2	--	9/2/2009	18	37051	8	<2010	<3	45
RD	0-0.5	--	9/2/2009	26	34098	18	<1995	<3	54
RD	0.5-1	--	9/2/2009	28	34654	9	<2087	<3	58
SB	A1	SB-A1X-090409AX	9/4/2009	**834**	>100000	60	16227	**30**	193
		SB-A1 LAB DUP		**1049**	>100000	67	22151	**39**	74
SB	A2	SB-A2X-090409AX	9/4/2009	**2255**	>100000	65	13053	**37**	257
SB	A3	SB-A3X-090409AX	9/4/2009	464	93651	20	5036	**6**	51
SB	B1	SB-B1X-090409AX	9/4/2009	**1549**	>100000	58	14724	**26**	202
SB	B2	SB-B2X-090409AX	9/4/2009	**7102**	39605	31	13182	4	**1410**
SB	B3	SB-B3X-090409AX	9/4/2009	**1487**	38114	15	3888	<3	237
SS	1	SS-01X-090309AX	9/3/2009	275	39188	164	<3138	<3	107

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Transect ID	Sample Location	Sample ID	Sample Date	Copper (625)	Iron (NA)	Lead (400)	Sulfur (NA)	Selenium (4.37)	Zinc (545)
SS	1	SS-01X-090309BX	9/3/2009	138	26306	14	<2739	<3	62
SS	2	SS-02X-090309AX	9/3/2009	423	52941	28	5648	<3	87
SS	2	SS-02X-090309BX	9/3/2009	332	35901	12	<2660	<3	54
SS	3	SS-03X-090309AX	9/3/2009	167	39351	17	<2839	<3	70
SS		SB-A1 LAB DUP		156	32429	21	<2661	<8	60
SS	3	SS-03X-090309BX	9/3/2009	217	35673	12	<2681	<3	73
SS	4	SS-04X-090209AX	9/2/2009	107	31479	22	<2434	<3	49
SS	4	SS-04X-090209BX	9/2/2009	47	36873	13	<2762	<2	58
SS	5	SS-05X-090209AX	9/2/2009	27	35523	22	<1993	<3	47
SS	5	SS-05X-090209BX	9/2/2009	30	37524	15	<2779	<3	68
SS	6	SS-06X-090209AX	9/2/2009	33	31297	31	<2227	<3	65
SS	6	SS-06X-090209BX	9/2/2009	23	36984	10	<2712	<3	101
SS	7	SS-07X-090209AX	9/2/2009	27	35595	34	<2478	<3	66
SS	7	SS-07X-090209BX	9/2/2009	27	44193	13	<2819	<3	79
SS	10	SS-10X-090309AX	9/3/2009	618	34692	96	<2525	<3	170
SS	11	SS-11X-090309AX	9/3/2009	261	39269	35	<2919	<3	77
SS	12	SS-12X-090309AX	9/3/2009	248	25839	36	<2169	3	69
SS	13	SS-13X-082809AX	8/28/2009	237	41335	10	<2238	<3	89
SS	14	SS-14X-083109AX	8/31/2009	369	35664	77	<1891	<3	77
SS	15	SS-15X-083109AX	8/31/2009	113	32460	16	<2053	<3	45
SS	16	SS-16X-090309AX	9/3/2009	55	29945	17	<2336	<3	68
SS	16	SS-16X-090309BX	9/3/2009	34	33787	13	<2428	<3	59
SS	17	SS-17X-083109AX	8/31/2009	204	93229	27	19237	24	50
SS	18	SS-18X-082609AX	8/27/2009	358	68415	13	14786	<3	65
SS	19	SS-19X-082609AX	8/27/2009	84	33233	15	<2167	<3	62
SS	20	SS-20X-083109AX	8/31/2009	172	39607	13	2337	<2	54
SS	21	SS-21X-083109AX	8/31/2009	99	49120	9	<2673	<3	64
SS	22	SS-22X-082609AX	8/27/2009	324	33929	12	<2075	4	66
SS	23	SS-23X-082609AX	8/27/2009	321	56902	13	<3203	<3	110
SS	24	SS-24X-083109AX	8/31/2009	43	34582	7	<2218	<3	56
SS	25	SS-25X-082609AX	8/27/2009	97	47933	12	<2965	<3	91
SS	26	SS-26X-083109AX	8/31/2009	47	43306	14	<2353	<3	63
SS	27	SS-27X-082609AX	8/26/2009	**1347**	46502	19	<2697	4	91
SS	28	SS-28X-083109AX	8/31/2009	56	55099	9	<2686	<3	60
SS	29	SS-29X-083109AX	8/31/2009	141	31686	23	<2141	<3	80
SS	30	SS-30X-083109AX	8/31/2009	403	>100000	72	49049	**28**	72

Notes:
All concentrations listed in milligrams per killigrams (mg/kg).
The number below the chemical name is the Elizabeth Mine site-specific Project Action Limit (EMPAL) for that chemical.
Bold and shaded indicates exceedance of PAL

Table 6-1
Soil and Sediment TAL Metals
Ely Copper Mine Superfund Site
Vershire, Vermont

		Sample Location:	MW-17A	MW-17A	MW-18A	MW-18A	MW-18A	MW-18A	MW-19A	MW-19A	MW-19A	MW-20A	MW-20A	MW-20A	MW-20A	MW-21A	MW-21A
		Station ID:	MW-17A-073009AX	MW-17A-073009BX	MW-18A-080309AX	MW-18A-080309BX	MW-18A-080309BD	MW-18A-080309CX	MW-19A-072109AX	MW-19A-072109BX	MW-19A-072109CX	MW-20A-072909AX	MW-20A-072909BX	MW-20A-072909CX	MW-20A-083109AX	MW-21A-072809AX	MW-21A-072809BX
		Sample Date:	7/30/2009	7/30/2009	8/3/2009	8/3/2009	8/3/2009	8/3/2009	7/21/2009	7/21/2009	7/21/2009	7/29/2009	7/29/2009	7/29/2009	8/31/2009	7/28/2009	7/28/2009
		Sample Depth (ft bgs):	0 - 2	2 - 2.6	2 - 4	4 - 6	4 - 6	6 - 8	2 - 6	6 - 8	8 - 12.9	2 - 2.4	2.4 - 4	4 - 5.5	0 - 2	2 - 4	4 - 6
Chemical	**Soil PAL**	**Sed PAL**															
Aluminum	600	73,160	**20700**	**15200**	**13900**	**19400**	**15500**	**22400**	**10500**	**13900**	**14600**	**14000**	**15800**	**9680**	**27900**	**2930**	**14700**
Antimony	0.27	3	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.49 U	0.5 UJ	0.5 UJ
Arsenic	18	9.79	2.4	0.38 J	0.99 U	1 U	0.92 U	1 U	1 U	1 U	0.59 J	1 U	1 U	0.99 U	0.91 J	0.99 U	0.99 U
Barium	330	48	75.4	104	93.4	99	79.2	136	104	101	92	91.8	91.9	63.2	55.9	99.2	132
Beryllium	21	NA	0.61	0.37 J	0.5 U	0.5 U	0.46 U	0.5 U	0.082 J	0.13 J	0.36 J	0.27 J EB	0.27 J EB	0.59 U	0.57	0.5 U	0.17 J EB
Calcium	NA	NA	1400	1600	521	988	947	1190	1270 J	397 J	58800 J	2750	1670	1970	817	229 J	1130
Cadmium	0.36	0.99	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	**1.1 J**	0.077 J	**0.46 J**	0.16 J	0.17 J	0.19 J	0.32 J	**1.7 J**	0.042 J
Chromium	26	43.4	**45.7**	**41.1**	**185**	**229**	**183**	**229**	**56.4 J**	**79.3 J**	**45.3 J**	**44.3**	**58.9**	**32.7**	**61.9**	22.4	**52.2**
Cobalt	13	50	**17.9**	11.9	**27.9**	**37**	**30**	**44.8**	**193 J**	11.5 J	**44.8 J**	**78.3**	**15**	**40.2**	11.5	**67.6**	7.3
Copper	28	31.6	**107**	**84.7**	**498**	**281**	**276**	**267**	**4250**	**703**	**1870**	**2230 J**	**231 J**	**1440 J**	**292**	**6160 J**	**308 J**
Cyanide	1.33	0.1	1.3 U	1.2 U	1.3 U	1.3 U	1.2 U	1.3 U	1.3 U	1.3 U	1.2 U	1.3 UJ	1.3 UJ	1.2 UJ	1.2 U	1.2 UJ	1.3 UJ
Iron	200	20,000	**24800**	**18800**	**72400**	**40400**	**35100**	**49300**	**144000**	**57200**	**25700**	**55100**	**18600**	**32600**	**28100**	**191000**	**26800**
Lead	11	35.8	5.7 J	4.7 J	4.7 J	R	R	R	**12.6 J**	3.8 J	7.8 J	**12.1**	3.3	8.5	**10.7 J**	**52.3**	4.1
Magnesium	NA	NA	10100	7610	6700	9120	7620	9490	6950	9140	10700	8360	8830	5850	7670	1470	11400
Manganese	220	460	**389**	**427**	**338**	**764**	**671**	**595**	175 J	130 J	**1600 J**	**333**	**371**	**241**	**370 J**	50.9	180
Mercury	0.1	0.174	0.094 U	0.097 U	0.13 U	0.099 U	0.098 U	0.092 U	0.031 J	0.099 U	0.097 U	0.031 J	0.1 U	0.097 U	0.053 J	0.1	0.12 U
Molybdenum	0.48	NA	0.5 U	0.5 U	**3.7**	**1.1**	**0.99**	**0.92**	**5**	0.25 J	0.2 J	**0.59 J**	0.42 J	**0.63**	0.84 UJ	**22.9**	**0.79**
Nickel	38	22.7	**55.2**	**39.2**	**63.9**	**81.2**	**63.9**	**86.6**	**49.9**	36.7	**47.9**	**47.1**	36.5	34	**47.4**	9.4	28
Potassium	NA	NA	4480	4820	7820	7850	6200	10900	6760	6160	5450	5400 J	5140 J	3670 J	1680 J	8790 J	5630 J
Selenium	0.52	5	0.25 J	0.38 J	**5.6**	**1.9**	**1.8**	**0.71 J**	**15.7 J**	0.46 J	1.2 U	**0.76 J**	1 UJ	1 UJ	**1.1**	**50.9 J**	0.38 J
Silver	4.2	0.5	0.99 U	0.99 U	1.8	1 U	0.92 U	1 U	3.1	0.8 J	1 U	1.1 J	1 UJ	1 J	0.44 J	**12.2 J**	1 UJ
Sodium	None	NA	R	R	R	R	R	R	192 J	114 J	145 J	197 J	143 J	122 J	56.2 J	462 J	101 J
Strontium	NA	NA	4.4	5.6	3	2.6	2.3	3.9	68.8	64.1	36.6	11.4	7.4	6.6	3.8 J	9.1	5.8
Thallium	0.57	NA	0.38 J	0.3 J	0.37 J	0.34 J	0.34 J	0.48 J	0.26 J	**0.74**	0.35	0.21 J	0.24 J	0.24 J	0.25 U	**0.66 J**	0.22 J
Vanadium	7.8	57	**47.6**	**48**	**90.8**	**87.6**	**69.1**	**58.5**	**205 J**	**61 J**	**134 J**	**42.2**	**38.3**	**29.3**	**59.7**	**81.7**	**50.5**
Zinc	46	121	**65.4**	37.1	**91.7**	**99.5**	**80.3**	**129**	4.8 J	3.7 J	**130 J**	**722**	44.1	**170**	**55.6**	**327**	**52**

Notes:
1. All concentrations listed in milligrams per killigram (mg/kg).
2. U=below detection limit, J=quantitation approximate, EB=flagged due to MS/MSD recovery outside control limits, R=rejected
3. Sample Location: MW=subsurface soil samle collected during monitoring well installation; SB=sub-surface soil sample; SS=surfacesoil sample; T=XRF screened transect surface soil samples with the exception of TP-15 and TP-16 (test pit samples); SD=sediment sample
4. ft bgs = feet below ground surface
5. PAL = Project Action Limit
6. **Bold** and shaded indicates exceedance of PAL
7. NA = not available

Table 6-1
Soil and Sediment TAL Metals
Ely Copper Mine Superfund Site
Vershire, Vermont

		Sample Location:	MW-21A	MW-21A	MW-21A	MW-22A	MW-22A	MW-22A	MW-22A	MW-23A	MW-23A	MW-23A	MW-23A	SB-09	SB-09	SB-09	SS-01	SS-01
		Station ID:	MW-21A-072809CX	MW-21A-072809CD	MW-21A-083109AX	MW-22A-072909AX	MW-22A-072909BX	MW-22A-072909CX	MW-22A-083109AX	MW-23A-070809AX	MW-23A-070809BX	MW-23A-070809CX	MW-23A-083109AX	SB-09X-073009AX	SB-09X-073009BX	SB-09X-073009CX	SS-01X-090209AX	SS-01X-090209BX
		Sample Date:	7/28/2009	7/28/2009	8/31/2009	7/29/2009	7/29/2009	7/29/2009	8/31/2009	7/8/2009	7/8/2009	7/8/2009	8/31/2009	7/30/2009	7/30/2009	7/30/2009	9/2/2009	9/2/2009
		Sample Depth (ft bgs):	6 - 10	6 - 10	0 - 2	2 - 4	7.1 - 8.2	8.2 - 11.5	0 - 2	0 - 2	6 - 8	8 - 10	0 - 2	2.2 - 3	3 - 6	8 - 10	0 - 0.5	0.5 - 2
Chemical	**Soil PAL**	**Sed PAL**																
Aluminum	600	73,160	**11600**	**12400**	**3850**	**11100**	**17700**	**14200**	**4610**	**14500**	**17000**	**13600**	**4020**	**18600**	**13400**	**17200**	**15500**	**11900**
Antimony	0.27	3	0.5 UJ	0.5 UJ	0.49 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	1.1 UJ	0.5 UJ
Arsenic	18	9.79	1 U	1 U	1 U	0.9 U	1 U	0.99 U	R	1 U	1 U	0.99 U	1 UJ	1 U	1 U	1 U	3.1	0.81 EB
Barium	330	48	92.6	83.1	78.4	89.8	59.6	107	89.2	89	141	126	90.2	119	109	128	74.8	88.8
Beryllium	21	NA	0.21 J EB	0.18 J EB	0.5 U	0.56 U	0.3 J EB	0.27 J EB	0.5 U	0.26 J	0.31 J	0.24 J	0.042 J	0.5 U	0.5 U	0.24 J	0.29 J	0.26 J
Calcium	NA	NA	2300	1700	138 J	1490	742	2090	75 J	1430	2070	1590	455 J	1330	2010	1640	2110	1720
Cadmium	0.36	0.99	0.03 J	0.039 J	**0.5 J**	**2.7 J**	**4.8 J**	**1.5 J**	0.14 J	**0.69 J**	**0.4 J**	0.23 J	0.35	**30.4**	**24.6**	**0.7 J**	**0.92 J**	**0.88 J**
Chromium	26	43.4	**37.6**	**44.9**	**35.9**	**51.9**	**46.7**	**42.6**	**29**	**56.1**	**65.9**	**47.3**	**33.4**	**154**	**80.1**	**53**	**46.2**	**39.9**
Cobalt	13	50	13	6.7	7.5	**82**	**252**	11.3	**25.3 J**	**26.7**	**18.4**	**19.9**	2.8 J	**395**	**344**	**23.1**	**14.9**	9.2
Copper	28	31.6	**415 J**	**152 J**	**2240**	**4530 J**	**5160 J**	**355 J**	**866 J**	**517 J**	**156 J**	**466 J**	**309 J**	**19300**	**6750**	**252**	**362**	**172**
Cyanide	1.33	0.1	1.3 UJ	1.2 UJ	1.2 U	1.2 UJ	1.2 UJ	1.2 UJ	1.3 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.3 U	1.3 U	1.3 U	1.2 U	1.2 U
Iron	200	20,000	**22000**	**18400**	**170000**	**85500**	**90000**	**19300**	**136000**	**26400**	**22800**	**20400**	**42100**	**111000**	**175000**	**27600**	**31000**	**17100**
Lead	11	35.8	4.8	3.1	**42.6 J**	**20.2**	10.5	5.4	**34.9 J**	3.3 J	3.4 J	3.2 J	7.7 J	**27.1 J**	**40.8 J**	4 J	**295 J**	6.6 J
Magnesium	NA	NA	6890	7870	2110	6900	4600	8950	2420	7590	10200	8260	1320	10800	6510	9470	7860	6300
Manganese	220	460	149	96.2	61.9 J	**364**	107	**667**	156	**527 J**	**654 J**	**253 J**	31.7 J	**364**	**283 J**	154	200 J	**325 J**
Mercury	0.1	0.174	0.098 U	0.096 U	0.099 U	0.11 U	0.13 U	0.12 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.097 U	0.097 U	0.096 U	0.097 U	0.1 U	0.095 U
Molybdenum	0.48	NA	0.3 J	0.31 J	**8.4 J**	**6.5**	**2.1**	**1.6**	**11**	**1.1 J**	**0.68 J**	**0.89 J**	**1.9**	**5.4**	**17.1**	0.5 U	**1.9 J**	0.83 UJ
Nickel	38	22.7	30.7	27.8	5.3	**41.6**	**91.6**	35.9	9.2	37.7	**56.3**	**45.5**	5.9	**87**	**81.5**	**42**	34.2	27.3
Potassium	NA	NA	4370 J	4530 J	6380 J	7750 J	1740 UJ	5050 J	6990 J	2720	7800	5760	4280	11500	11700	5340	3430	4230
Selenium	0.52	5	1 UJ	1 UJ	**15.6**	**13.9 J**	**14.1 J**	**3.9 J**	**16.9**	0.48 J	0.24 J	0.24 J	**9.4**	**11.3**	**34.3**	**1.5**	**3.3 J**	**1.6 J**
Silver	4.2	0.5	1 UJ	1 UJ	**8.9**	3.3 J	2.5 J	0.99 UJ	**4.5**	1 U	1 U	0.99 U	1.3	3.8	**6**	0.32 J	4	0.5 J
Sodium	None	NA	147 J	155 J	614	119 J	52 J	148 J	R	166 J	214 J	186 J	554	R	R	R	137 JEB	135 JEB
Strontium	NA	NA	8.6	10	18.7 J	3.2	3.1	12	6.3	8.5	7	4.8	23.5	1.7	14.9	11.9	10.6	11.5
Thallium	0.57	NA	0.23 J	0.27 J	0.29 U	0.53 J	0.19 J	0.24 J	0.37	0.33 J	0.34 J	0.26 J	0.25 U	**0.75 J**	0.43 J	0.28 J	0.25 U	0.25 U
Vanadium	7.8	57	**31.1**	**36.1**	**75.7**	**54.2**	**43**	**37**	**70.2**	**49.4**	**52.7**	**41.2**	**36.3**	**126**	**97.5**	**43.2**	**47.6**	**33.4**
Zinc	46	121	**68.1**	**60.6**	**235**	**375**	**939**	43.2	**227**	**111**	**47.2**	**77.4**	23.5	**1350**	**5040**	**171**	**108**	**65**

Notes:
1. All concentrations listed in milligrams per killigram (mg/kg).
2. U=below detection limit, J=quantitation approximate, EB=flagged due to MS/MSD recovery outside control limits, R=rejected
3. Sample Location: MW=subsurface soil samle collected during monitoring well installation; SB=sub-surface soil sample; SS=surfacesoil sample; T=XRF screened transect surface soil samples with the exception of TP-15 and TP-16 (test pit samples); SD=sediment sample
4. ft bgs = feet below ground surface
5. PAL = Project Action Limit
6. **Bold** and shaded indicates exceedance of PAL
7. NA = not available

Table 6-1
Soil and Sediment TAL Metals
Ely Copper Mine Superfund Site
Vershire, Vermont

		Sample Location:	SS-02	SS-02	SS-03	SS-03	SS-04	SS-04	SS-05	SS-05	SS-06	SS-06	SS-07	SS-07	SS-08	SS-09	SS-10	SS-11
		Station ID:	SS-02X-090209AX	SS-02X-090209BX	SS-03X-090209AX	SS-03X-090209BX	SS-04X-090109AX	SS-04X-090209BX	SS-05X-090209AX	SS-05X-090209BX	SS-06X-090209AX	SS-06X-090209BX	SS-07X-090209AX	SS-07X-090209BX	SS-08X-090209AX	SS-09X-090209AX	SS-10X-090309AX	SS-11X-090309AX
		Sample Date:	9/2/2009	9/2/2009	9/2/2009	9/2/2009	9/1/2009	9/2/2009	9/2/2009	9/2/2009	9/2/2009	9/2/2009	9/2/2009	9/2/2009	9/2/2009	9/2/2009	9/3/2009	9/3/2009
		Sample Depth (ft bgs):	0 - 0.5	0.5 - 1.5	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.3	0.3 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 1	0 - 1	0 - 0.5	0 - 0.5
Chemical	**Soil PAL**	**Sed PAL**																
Aluminum	600	73,160	**14200**	**26400**	**20200**	**20900**	**12500**	**24500**	**14800**	**30400**	**21200**	**32700**	**20200**	**27400**	**8560**	**17900**	**12400**	**41900 J**
Antimony	0.27	3	0.5 UJ	0.5 UJ	0.49 UJ	0.5 UJ	0.46 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
Arsenic	18	9.79	3.7	1.3 EB	1.9 EB	0.61 JEB	0.64 J	R	1.1 J	0.75 J	2.1 J	0.98 J	1.5 EB	0.46 JEB	1.1 EB	2.8	2.6	6.5 J
Barium	330	48	81.9	43.2	91.5	82.2	47.5	84.7	44.9	85.6	45.4	76.5	37.6	53.8	62.3	67.1	63.4	122 J
Beryllium	21	NA	0.27 J	0.58	0.41 J	0.46 J	0.23 J	0.54 J	0.31 J	0.66 J	0.5 J	0.99 J	0.48 J	0.7	0.21 J	0.36 J	0.41 J	0.82 J
Calcium	NA	NA	675	531	1420	1410	255 J	755 J	278 J	1240 J	571 J	935 J	651	1190	1680	463 J	4780	2770 J
Cadmium	0.36	0.99	0.35 UJ	0.25 UJ	0.25 UJ	0.37 UJ	0.15 J	0.16 J	0.28 J	0.25 U	0.23 J	0.25 UJ	0.25 UJ	0.25 UJ	**0.54 J**	**0.88 J**	**2.4 J**	**1.4 J**
Chromium	26	43.4	**44.8**	**56.8**	**46.2**	**46.8**	**34**	**59.9**	**34.8**	**66.3**	**42**	**59.3**	**39.4**	**57.9**	**28.4**	**53.2**	21.9	**111 J**
Cobalt	13	50	**16**	6.7	11.4	**13.7**	6.6 J	10.7 J	4.6 J	12.5 J	7.9 J	**14.8 J**	7.1	11.7	**31.6**	**17.1**	10.6	**18.1 J**
Copper	28	31.6	**494**	**418**	**188**	**283**	**122 J**	**62.1 J**	**31.8 J**	**28.8 J**	**44.7 J**	**33.2 J**	26.4	23.5	**848**	**699**	**605**	**897 J**
Cyanide	1.33	0.1	1.2 U	1.2 U	1.2 U	1.2 U	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
Iron	200	20,000	**34000**	**27700**	**25300**	**29600**	**21000**	**29500**	**23500**	**29000**	**23700**	**28800**	**22800**	**31200**	**25900**	**34300**	**20800**	**78700 J**
Lead	11	35.8	**29.7 J**	**11.6 J**	**17.9 J**	10.4 J	**15.3 J**	9.9 J	**17.8 J**	9 J	**37.1 J**	**11.8 J**	**34.9 J**	8.8 J	8.8 J	**22.9 J**	**93.9 J**	**74.9 J**
Magnesium	NA	NA	7110	5880	9380	9410	4690	9120	3590	11500	6230 J	10500	6050	9010	4540	6990	3700	16200 J
Manganese	220	460	116 J	117 J	**222 J**	**237 J**	118	178	116	176	199	**409**	120 J	**236 J**	**441 J**	**256 J**	**360 J**	**306 J**
Mercury	0.1	0.174	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.11 U	0.1 U	0.095 U	0.1 U	0.12 U	0.26
Molybdenum	0.48	NA	**2.4 J**	0.73 UJ	0.63 UJ	0.88 UJ	0.46 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.53 UJ	**1.5 J**	**1.6 J**	**1.1 J**	**2.4 J**
Nickel	38	22.7	31.1	29.5	**40.8**	**41.6**	23.7	**46.2**	17.4	**54.7**	28.7	**46.1**	25.1	37	27.3	29.2	16.7	**66.3 J**
Potassium	NA	NA	3980	1540	5110	4200	2380	4880	581 J	3720	1000	2140	851	1380	2060	2960	529	4520 J
Selenium	0.52	5	**4.2 J**	**1.1 J**	**0.57 J**	**1.2 J**	**0.62 J**	0.36 J	**0.97 J**	0.5 J	**0.95 J**	0.43 J	**0.66 J**	0.48 J	**2.4 J**	**3 J**	**2 J**	**3.3 J**
Silver	4.2	0.5	1.5	0.63 J	0.54 J	0.69 J	0.45 J	0.54 J	0.32 J	0.36 J	0.33 J	0.22 J	1 U	1 U	1.1	1.5	0.86 J	3 J
Sodium	None	NA	197 J	44.9 JEB	101 JEB	85.8 JEB	R	R	R	R	R	R	29.3 JEB	49.4 JEB	65 JEB	58.9 JEB	43 JEB	145 J
Strontium	NA	NA	5.9	2.7	4.5	4.7	1.8	2.7	1.8	4.9	3.4	6.2	2.8	4.5	4.8	2.4	31.5	18.1 J
Thallium	0.57	NA	0.24 U	0.25 U	0.25 U	0.25 U	0.25 U	0.23 J	0.25 U	0.22 J	0.25 U	0.26	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.35 U
Vanadium	7.8	57	**43.2**	**46.8**	**51.1**	**51**	**39.2**	**57.4**	**53.5**	**70.1**	**47.5**	**59.1**	**46.3**	**71.1**	**35.2**	**61.6**	**31.4**	**128 J**
Zinc	46	121	**73.5**	**58.6**	**55.8**	**72.2**	**47.1**	**64.2**	41.6	**62.5**	**56.8**	**75.7**	**55.6**	**72.4**	**54.5**	**97.1**	**129**	**164 J**

Notes:
1. All concentrations listed in milligrams per killigram (mg/kg).
2. U=below detection limit, J=quantitation approximate, EB=flagged due to MS/MSD recovery outside control limits, R=rejected
3. Sample Location: MW=subsurface soil samle collected during monitoring well installation; SB=sub-surface soil sample; SS=surfacesoil sample; T=XRF screened transect surface soil samples with the exception of TP-15 and TP-16 (test pit samples); SD=sediment sample
4. ft bgs = feet below ground surface
5. PAL = Project Action Limit
6. **Bold** and shaded indicates exceedance of PAL
7. NA = not available

Table 6-1
Soil and Sediment TAL Metals
Ely Copper Mine Superfund Site
Vershire, Vermont

		Sample Location:	SS-12	SS-13	SS-14	SS-15	SS-16	SS-17	SS-18	SS-19	SS-20	SS-20	SS-21	SS-22	SS-23	SS-24	SS-25	SS-26
		Station ID:	SS-12X-090309AX	SS-13X-082809AX	SS-14X-083109AX	SS-15X-083109AX	SS-16X-090309AX	SS-17X-083109AX	SS-18X-082709AX	SS-19X-082709AX	SS-20X-083109AX	SS-20X-083109BX	SS-21X-083109AX	SS-22X-082709AX	SS-23X-082709AX	SS-24X-083109AX	SS-25X-082709AX	SS-26X-083109AX
		Sample Date:	9/3/2009	8/28/2009	8/31/2009	8/31/2009	9/3/2009	8/31/2009	8/27/2009	8/27/2009	8/31/2009	8/31/2009	8/31/2009	8/27/2009	8/27/2009	8/31/2009	8/27/2009	8/31/2009
		Sample Depth (ft bgs):	0 - 0.5	0 - 0.3	0 - 0.2	0 - 0.2	0 - 0.5	0 - 0.3	0 - 1	0 - 1	0 - 0.2	0.2 - 1.5	0 - 0.2	0 - 1	0 - 1	0 - 0.2	0 - 1	0 - 0.3
Chemical	**Soil PAL**	**Sed PAL**																
Aluminum	600	73,160	**5910**	**17700 J**	**6050**	**1580 J**	**19500**	**13000**	**3560 J**	**2500**	**7340**	**26000**	**4320**	**7150**	**11300**	**5150**	**4210 J**	**13100**
Antimony	0.27	3	0.5 UJ	0.6 UJ	0.51 UJ	0.5 UJ	0.5 UJ	0.49 U	0.5 UJ	0.5 UJ	0.49 U	0.49 U	**1.8**	0.64 UJ	0.5 UJ	0.49 U	0.5 UJ	0.5 UJ
Arsenic	18	9.79	0.76 JEB	9.4 J	3.5 J	2.6 J	2.3	4.2	1.6 J	1.9 J	2.3	0.7 J	1.4	3.2 J	3.2 J	2.4	3.5 J	3.5 J
Barium	330	48	28.8	220 J	108	102 J	55.2	56.7	203 J	117	34.3	47.4	14.6 J	44.2	75.1	148	177 J	214
Beryllium	21	NA	0.15 J	1.6 J	0.13 J	0.062 J	0.54	0.27 J	0.16 J	0.08 J	0.11 J	0.76	0.068 J	0.12 J	0.3 J	0.11 J	0.3 J	0.32 J
Calcium	NA	NA	2510	9990 J	3360	4710 J	1850	2930	3470 J	5850	558	741	1270	1750	4520	8020	20500 J	7270 J
Cadmium	0.36	0.99	0.37 UJ	**7.2**	**0.79**	**1.5**	0.39 UJ	**0.92 J**	**2.9 J**	**1.4 J**	0.26 U	0.34 J	**0.4 J**	**0.62 J**	**0.87 J**	**2.2 J**	**2.5 J**	**2.9 J**
Chromium	26	43.4	20.6	20 J	21.2	5.3 J	**40.4**	**35.2**	10.7 J	7.8	23.1	**54**	13.5	**26.1**	**30.1**	14.8	14 J	**32.4**
Cobalt	13	50	5.8	**28.9 J**	6.8	4.3 J	**13.7**	9.2	11.3 J	3.9 J	4.4 J	8.4	4.5 J	6.1	**18**	7.3	4.9 J	**13.9 J**
Copper	28	31.6	**149**	**995 J**	**142 J**	**31.4 J**	**80.1**	**265**	**1280 J**	**74 J**	**85.9**	**192**	**50.8**	**149 J**	**103 J**	**45.8**	**231 J**	**64 J**
Cyanide	1.33	0.1	1.2 U	1.2 UJ	1.2 UJ	1.2 UJ	1.2 U	1.2 U	1.2 UJ	1.2 UJ	1.8 U	1.2 U	1.2 U	1.2 UJ	1.2 UJ	1.2 U	1.2 UJ	1.2 UJ
Iron	200	20,000	**9760**	**11800 J**	**18800**	**3400 J**	**26300**	**28700**	**14400 J**	**6120**	**15400**	**33500**	**8560**	**18400**	**17000**	**8870**	**5820 J**	**19600**
Lead	11	35.8	**19.5 J**	**118 J**	**93.9 J**	**63.9 J**	**18.7 J**	**59.8 J**	**39.2 J**	**34.7 J**	**47 J**	**12.2 J**	**26 J**	**78.3 J**	**71.2 J**	**107 J**	**116 J**	**109**
Magnesium	NA	NA	2230	2280 J	2960	1040 J	6330	4880	1420 J	1300	2990	7030	1620	3110	4600	2470	1830 J	6560
Manganese	220	460	139 J	**8380 J**	217 J	50.3 J	**1070 J**	214 J	83.2 J	**452 J**	62.7 J	119 J	70 J	62.3 J	**450 J**	**1160 J**	**991 J**	**2170**
Mercury	0.1	0.174	0.1 U	**0.3**	**0.19**	**0.24**	0.1 U	**0.17**	**0.14**	**0.15**	0.081 J	0.054 J	0.057 J	**0.13**	0.1 U	**0.13**	**0.17**	0.21 U
Molybdenum	0.48	NA	0.5 UJ	**2.7**	**1.7**	0.6 U	0.5 UJ	**2.9 J**	**0.84**	**0.85**	**1.3 J**	0.81 UJ	0.6 UJ	**2**	0.79 U	0.52 UJ	**1.4**	0.81 U
Nickel	38	22.7	10.6	**57.7 J**	15.9	7.4 J	32	25.1	10.5 J	7.2	16.1	**39.5**	8.6	15.8	23.1	13.7	15.6 J	33.2
Potassium	NA	NA	402 J	1060 J	1430	951 J	1310	1750 J	1130 J	754	1000 J	1370 J	401 J	851	962	951 J	1070 J	1870
Selenium	0.52	5	**0.8 J**	**10.4**	**2.9**	**1.5**	0.47 J	**4.4**	**3.3**	**1.4**	**1.6**	1 U	1 U	**4.8**	**1.2**	1 U	**5.9 J**	**0.9 J**
Silver	4.2	0.5	1 U	1 UJ	1.5	0.4 J	1 U	2.4	3.7 J	0.51 J	0.42 J	0.49 J	0.16 J	4	0.41 J	0.51 J	0.77 J	0.36 J
Sodium	None	NA	27.4 JEB	82.8 J	70.4 J	29.7 J	46.2 JEB	53.3 J	60.3 J	28 J	32.3 J	44.3 J	23 J	37.4 J	50.2 J	28.9 J	63.3 J	R
Strontium	NA	NA	11.5	63.6 J	20.8	40.4 J	6.4	9.7 J	26.8 J	40.5	5.5 J	3.5 J	4.8 J	11.3	24.8	35 J	107 J	33.1
Thallium	0.57	NA	0.25 U	**3.2**	0.25 U	0.25 U	0.25 U	0.25 U	0.3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.21 J
Vanadium	7.8	57	**18.3**	**20.6 J**	**38.2**	**12.9 J**	**54.8**	**46.3**	**13.5 J**	**16.1**	**31.1**	**64.1**	**20.3**	**39.2**	**36**	**20.5**	**25.4 J**	**43.2**
Zinc	46	121	37.2	**49.2 J**	**122**	**69.2 J**	**67.5**	**113**	**52.8 J**	**160**	**59.5**	**65.4**	28.8	**103**	**71.7**	**122**	**43.2 J**	**225**

Notes:
1. All concentrations listed in milligrams per killigram (mg/kg).
2. U=below detection limit, J=quantitation approximate, EB=flagged due to MS/MSD recovery outside control limits, R=rejected
3. Sample Location: MW=subsurface soil samle collected during monitoring well installation; SB=sub-surface soil sample; SS=surfacesoil sample; T=XRF screened transect surface soil samples with the exception of TP-15 and TP-16 (test pit samples); SD=sediment sample
4. ft bgs = feet below ground surface
5. PAL = Project Action Limit
6. **Bold** and shaded indicates exceedance of PAL
7. NA = not available

Table 6-1
Soil and Sediment TAL Metals
Ely Copper Mine Superfund Site
Vershire, Vermont

		Sample Location:	SS-27	SS-27	SS-28	SS-29	SS-30	SS-30	SS-32	SS-33	SS-34	SS-35	SS-36	SS-37	SS-37	SS-38	SS-39	TA	TA
		Station ID:	SS-27X-082609AX	SS-27X-082609BX	SS-28X-083109AX	SS-29X-083109AX	SS-30X-083109AD	SS-30X-083109AX	SS-32X-083109AX	SS-33X-083109AX	SS-34X-082609AX	SS-35X-082609AX	SS-36X-082609AX	SS-37X-082609AX	SS-37X-082609DX	SS-38X-082609AX	SS-39X-082609AX	TA-04X-082409AX	TA-14X-082409AX
		Sample Date:	8/26/2009	8/26/2009	8/31/2009	8/31/2009	8/31/2009	8/31/2009	8/31/2009	8/31/2009	8/26/2009	8/26/2009	8/26/2009	8/26/2009	8/26/2009	8/26/2009	8/26/2009	8/24/2009	8/24/2009
		Sample Depth (ft bgs):	0 - 1	1 - 2	0 - 1	0 - 0.3	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 1	0 - 1
Chemical	**Soil PAL**	**Sed PAL**																	
Aluminum	600	73,160	**4140 J**	**28500**	**13000**	**13300**	**3520**	**3270**	**21100**	**24800**	**27800**	**14000**	**22800**	**6600**	**7130**	**4740**	**7620**	**16500**	**18300**
Antimony	0.27	3	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.079 J	0.5 UJ	0.49 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.13 J	0.23 J
Arsenic	18	9.79	2.2 J	2.3 J	2.4 J	1.6 J	R	R	1.1 J	R	1.7	1 U	1 UJ	0.99 UJ	1 UJ	0.99 UJ	1 UJ	1.3	1.1
Barium	330	48	111 J	102	64.3	134	150	168	66.5	65.8	145	57.8	56.5	97.9	104	68.3	127	50.1	90.3
Beryllium	21	NA	0.18 J	0.52	0.23 J	0.23 J	0.5 U	0.5 U	0.53 J	0.49 J	0.63	0.22 J	0.53	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.52	0.61
Calcium	NA	NA	22400 J	5430	1200 J	8030 J	6960 J	3650 J	4360 J	1160 J	3360	641	1120	72.9 J	65.1 J	122 J	65.9 J	**1.1 J**	**1 J**
Cadmium	0.36	0.99	**4.8 J**	0.29 J	0.26 J	**3.5 J**	0.25 U	0.25 U	**0.69 J**	**0.41 J**	0.2 J	0.071 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1460	1980
Chromium	26	43.4	12.1 J	**82.5**	**38.9**	**48.9**	**32.3**	**32.8**	**45**	**86.2**	**67.8**	**66.7**	**48**	**43**	**45.5**	**53.6**	**46.2**	**26.8**	**30.9**
Cobalt	13	50	7.5 J	**26.2**	12.1 J	12.2 J	5.7 J	4.5 J	**18.7 J**	**18.1 J**	**18.4**	11.1	**15.9**	9.2	8.8	7.2	**22.2**	9.8	**15.2**
Copper	28	31.6	**1370 J**	**1180 J**	**95.4 J**	**65.6 J**	**1390 J**	**1400 J**	**327 J**	**79.7 J**	**287**	**313**	**114 J**	**632 J**	**503 J**	**655 J**	**611 J**	**365**	**632**
Cyanide	1.33	0.1	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.2 U	1.2 U	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.2 U	1.2 U
Iron	200	20,000	**8320 J**	**36800**	**22400**	**17700**	**181000**	**166000**	**22400**	**31100**	**32500**	**34100**	**25900**	**103000**	**97500**	**107000**	**126000**	**20900**	**23300**
Lead	11	35.8	**82 J**	**10.2 J**	**55.6 J**	**92.8 J**	**33.2 J**	**36.2 J**	7.9 J	**12.5 J**	**12.6**	**84.5**	10 J	**13.3 J**	**12.2 J**	**13.6 J**	**36.8 J**	**27.6**	**116**
Magnesium	NA	NA	1670 J	13100	5880	7420	898	805	9620	8780	14000	6460	8510	4410	4830	2600	6430	4640	5790
Manganese	220	460	**893 J**	**1170 J**	**450**	**813**	49.7 J	41.5 J	180	**484**	**873**	167	**296 J**	68.9 J	68.1 J	81.9 J	**233 J**	**527**	**717**
Mercury	0.1	0.174	**0.25**	0.098 J	0.1 U	0.23 U	0.1 U	0.1 U	0.1 U	0.1 U	0.034 J	0.024 J	0.02 J	0.095 U	0.09 U	0.1 U	0.1 U	**0.12**	**0.36**
Molybdenum	0.48	NA	**1.2**	**5.8**	0.72 U	0.9 U	**14.4**	**11.5**	0.5 U	0.61 U	**0.69**	**0.99**	0.69 U	**4.8**	**4.7**	**5.2**	**14.7**	**0.95**	**1**
Nickel	38	22.7	27.4 J	**61.5**	32.9	36.2	3 J	3.3 J	**51**	**45.4**	**64.5**	27.2	**44.8**	21.5	22.3	15.3	8.2	19.2	23.6
Potassium	NA	NA	795 J	4840	1650	4750	14000	16000	6090	2430	5720	1960	1490	4970	5810	2360	12800	888	1560
Selenium	0.52	5	**4 J**	**2 J**	**0.7 J**	**1.1**	**16.4**	**15.6**	**1**	0.45 J	0.42 J	**2.3**	0.35 J	**9.4 J**	**9.2 J**	**14.3 J**	**15.9 J**	**1**	**1.4**
Silver	4.2	0.5	1.6 J	0.51 J	0.5 J	0.73 J	**6.2**	**5.1**	0.19 J	0.73 J	1 U	1 U	0.23 J	1.8	1.9	2.4	3	0.29 J	0.35 J
Sodium	None	NA	65.1 J	113 J	R	R	R	R	R	R	200 J	56.6 J	50.8 J	201 J	247 J	122 J	537	62.2 J	65.8 J
Strontium	NA	NA	107 J	22.8	5.4	26	9.6	9.8	23	6	19.3	2.7	5.4	3.8	4.1	2.3	10.9	12.7	18
Thallium	0.57	NA	0.44	0.39	0.25 U	0.15 J	0.46	0.51	**0.61**	0.25 U	0.39	0.17 J	0.25 U	0.25 U	0.26	0.25 U	0.41	0.1 J	0.17 J
Vanadium	7.8	57	**14.4 J**	**67.5**	**58.2**	**42.9**	**116**	**107**	**37.9**	**78.9**	**64.6**	**51.6**	**52.5**	**65.6**	**64**	**72.5**	**91.6**	**31.3**	**34.9**
Zinc	46	121	**99 J**	**85.7**	**60.1**	**195**	**114**	**85**	**443**	**114**	**69.1**	**55.6**	**63.9**	23.5	22.3	22.1	**49.4**	**113**	**136**

Notes:
1. All concentrations listed in milligrams per killigram (mg/kg).
2. U=below detection limit, J=quantitation approximate, EB=flagged due to MS/MSD recovery outside control limits, R=rejected
3. Sample Location: MW=subsurface soil samle collected during monitoring well installation; SB=sub-surface soil sample; SS=surfacesoil sample; T=XRF screened transect surface soil samples with the exception of TP-15 and TP-16 (test pit samples); SD=sediment sample
4. ft bgs = feet below ground surface
5. PAL = Project Action Limit
6. **Bold** and shaded indicates exceedance of PAL
7. NA = not available

Table 6-1
Soil and Sediment TAL Metals
Ely Copper Mine Superfund Site
Vershire, Vermont

		Sample Location:	TC	TD	TD	TE	TE	TE	TF	TF	TF	TF	TG	TH	TI	TK	TL	TN
		Station ID:	TC-03X-082609AX	TD-03X-082809-AX	TD-05X-082809-DX	TE-09X-090109AX	TE-12X-090109BX	TE-15X-090109CX	TF-02X-090109AX	TF-11X-0-90909AX	TF-13X-0-90909BX	TF-17X-090109AX	TG-02X-082409AX	TH-01X-082509AX	TI-03X-082509AX	TK-01X-082509AX	TL-04X-082509AX	TN-02X-082509AX
		Sample Date:	8/26/2009	8/28/2009	8/28/2009	9/1/2009	9/1/2009	9/2/2009	9/1/2009	9/2/2009	9/2/2009	9/1/2009	8/24/2009	8/25/2009	8/25/2009	8/25/2009	8/25/2009	8/25/2009
		Sample Depth (ft bgs):	0 - 1	0 - 1	0 - 1	0 - 2	0 - 2.5	2.5 - 4	0 - 2	0 - 0.5	0 - 0.5	0 - 2	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1
Chemical	**Soil PAL**	**Sed PAL**																
Aluminum	600	73,160	**15400**	**14800**	**17700 J**	**10200**	**13600**	**24600**	**8050**	**13600**	**11300**	**18300**	**10800**	**8460**	**22500**	**14000**	**18100**	**18800**
Antimony	0.27	3	0.068 J	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.49 UJ	0.5 UJ	0.49 UJ	0.5 UJ	0.11 J	0.27 J	0.098 J	0.062 J	0.19 J	0.11 J
Arsenic	18	9.79	0.48 J	1 UJ	9.4 J	R	R	1 J	R	1 U	1 U	R	0.62 J	0.99 U	1	0.97 J	1.9	1.4
Barium	330	48	24.9	58.3	220 J	165	72.9	207	130	99.4	77.7	63.7	32.7	99.3	46	72.5	49.4	33.1
Beryllium	21	NA	0.43 J	0.23 J	1.6 J	0.5 U	0.12 R	0.39 J	0.5 U	0.18 J	0.15 J	0.35 J	0.15 J	0.04 J	0.54	0.41 J	0.4 J	0.54
Calcium	NA	NA	0.13 J	0.25 U	0.27	0.25 U	0.25 U	**0.47 J**	0.35 J	0.31 UJ	**1.9 J**	0.22 J	0.13 J	0.23 J	0.12 J	0.33 J	0.2 J	0.12 J
Cadmium	0.36	0.99	368 J	500 J	9990 J	77.6 J	540 J	7020 J	186 J	130 J	909	3110 J	1420	252 J	942	23900	950	669
Chromium	26	43.4	**32.2**	**57.6**	20 J	**60.8**	**65.2**	**74.2**	**40.9**	**57.8**	**39**	**72.8**	**34.6**	**50.3**	**47.3**	**35.2**	**51.3**	**39.1**
Cobalt	13	50	4.7 J	8.4	**28.9 J**	4.4 J	9 J	**21.7 J**	**13.5 J**	**17.8**	**66.5**	**16.6 J**	10.1	11.1	12.6	8.3	10.2	8.3
Copper	28	31.6	**19.3**	**420 J**	**995 J**	**469 J**	**185 J**	**268 J**	**1350 J**	**5610**	**7850**	**81.7 J**	**182**	**1920**	**61.8**	**110**	**68.6**	**61**
Cyanide	1.33	0.1	1.2 U	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.2 U	1.2 U	1.2 UJ	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
Iron	200	20,000	**21300**	**18800**	**11800 J**	**78200**	**21700**	**29600**	**89000**	**135000**	**30700**	**25000**	**19800**	**96600**	**23600**	**17400**	**20800**	**20300**
Lead	11	35.8	**16.7**	9.5 J	**118 J**	**32.3 J**	3.4 J	9.2 J	**29.5 J**	**46.1 J**	4.8 J	9.6 J	7.7	**29.5**	**22.7**	**26.8**	**15**	**12.1**
Magnesium	NA	NA	3610	7110	2280 J	6240	7450	11100	3130	5420	6670	8480	4160	5070	8030	6640	6390	4660
Manganese	220	460	166	103 J	**8380 J**	176	98	**250**	118	108 J	109 J	**441**	187	139	**322**	**467**	**338**	**315**
Mercury	0.1	0.174	0.049 J	0.096 U	0.094 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.087 U	0.1 U	0.034 J	0.053 J	0.071 J	0.07 J	0.048 J	0.059 J
Molybdenum	0.48	NA	0.33 J	**1.6**	0.5 U	**7.8**	0.5 U	0.82 U	**8.4**	0.5 UJ	0.65 UJ	0.7 U	**0.55**	**7.3**	0.43 J	**0.5**	**0.69**	**0.73**
Nickel	38	22.7	15.6	27.3	**57.7 J**	9.1	28.7	**62.6**	16.3	19.8	36.9	37	29.6	16.6	**42.6**	30.3	29.7	27.8
Potassium	NA	NA	398 J	1830	1060 J	9940	2660	4060	5820 J	3940	3980	2050	1840	5940	2430	2940	2020	512
Selenium	0.52	5	**0.63 J**	**3.8**	**0.58 J**	**22.8**	**1.2**	**2.2**	**17.6**	**33.2 J**	**3.7 J**	**0.64 J**	**0.85 J**	**18.2**	**0.58 J**	0.42 J	**0.69 J**	**0.62 J**
Silver	4.2	0.5	1 U	0.23 J	1 UJ	3.1	0.41 J	0.46 J	**5.3**	7.4	2.4	0.45 J	0.18 J	**5.2**	0.27 J	1 U	0.28 J	0.16 J
Sodium	None	NA	24.8 J	40.2 J	82.8 J	R	R	R	R	79.1 JEB	84.3 JEB	R	81 J	199 J	46.7 J	77.4 J	54.8 J	40 J
Strontium	NA	NA	1.8	3.9	63.6 J	8.4	2.7	30.3	13	2.2	2.8	14.5	3.2	5.2	4.6	13.8	4.6	5.2
Thallium	0.57	NA	0.1 J	0.25 U	0.25 U	0.48	0.15 J	0.38	0.28	0.32 U	0.25 U	0.25 U	0.078 J	0.32	0.18 J	0.18 J	0.17 J	0.1 J
Vanadium	7.8	57	**48.6**	**35.9**	**20.6 J**	**105**	**38.4**	**57.8**	**54.4**	**91.9**	**33.6**	**61.4**	**37.6**	**64.7**	**39.6**	**33.8**	**46**	**37.9**
Zinc	46	121	43.8	**70.5**	**49.2 J**	**69.3**	**51.9**	**116**	**90.2**	**140**	**107**	**53.1**	30.3	**107**	**77.5**	**75.1**	**55.2**	**58.6**

Notes:
1. All concentrations listed in milligrams per killigram (mg/kg).
2. U=below detection limit, J=quantitation approximate, EB=flagged due to MS/MSD recovery outside control limits, R=rejected
3. Sample Location: MW=subsurface soil samle collected during monitoring well installation; SB=sub-surface soil sample; SS=surfacesoil sample; T=XRF screened transect surface soil samples with the exception of TP-15 and TP-16 (test pit samples); SD=sediment sample
4. ft bgs = feet below ground surface
5. PAL = Project Action Limit
6. **Bold** and shaded indicates exceedance of PAL
7. NA = not available

Table 6-1
Soil and Sediment TAL Metals
Ely Copper Mine Superfund Site
Vershire, Vermont

		Sample Location:	TN	TO	TP	TQ	TQ
		Station ID:	TN-02X-082509AD	TO-05X-082709AX	TP-10X-082709AX	TQ-06X-082609AX	TQ-16X-082609AX
		Sample Date:	8/25/2009	8/27/2009	8/27/2009	8/26/2009	8/26/2009
		Sample Depth (ft bgs):	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1
Chemical	**Soil PAL**	**Sed PAL**					
Aluminum	600	73,160	**24600**	**14100**	**19100**	**8850**	**23200**
Antimony	0.27	3	0.13 J	0.5 UJ	0.5 UJ	0.59 UJ	0.056 J
Arsenic	18	9.79	2	1 UJ	1 UJ	1 U	0.62 J
Barium	330	48	41.1	75	43.8	40.1	77.7
Beryllium	21	NA	0.7	0.25 J	0.45 J	0.08 J	0.53
Calcium	NA	NA	0.15 J	0.25 U	0.25 U	0.017 J	0.14 J
Cadmium	0.36	0.99	836	1180	741	95.5 J	845
Chromium	26	43.4	**49.4**	**43.6**	**48.6**	**52.1**	**55.9**
Cobalt	13	50	9.2	**18**	9.7	4.1 J	10.2
Copper	28	31.6	**78.3**	**1100 J**	**135 J**	**288**	**109**
Cyanide	1.33	0.1	1.2 U	1.2 UJ	1.2 UJ	1.2 U	1.2 U
Iron	200	20,000	**25300**	**74000**	**24900**	**73700**	**26100**
Lead	11	35.8	**14.6**	**17.9 J**	**15.9 J**	6.1	8.5
Magnesium	NA	NA	5750	5400	5400	4920	8930
Manganese	220	460	**289**	**383 J**	**263 J**	78.1	**228**
Mercury	0.1	0.174	0.075 J	0.099 U	0.1 U	0.037 J	0.033 J
Molybdenum	0.48	NA	**0.58**	**3.7**	0.62 U	**0.84**	0.33 J
Nickel	38	22.7	34.7	22.7	32.8	23.3	**40.1**
Potassium	NA	NA	637	3290	1320	2840	2640
Selenium	0.52	5	**0.68 J**	**7.7 J**	**0.76 J**	**2.7**	0.46 J
Silver	4.2	0.5	0.17 J	1.4	0.38 J	1.4	0.38 J
Sodium	None	NA	50.2 J	125 J	43.6 J	53.3 J	58.7 J
Strontium	NA	NA	6.9	7.2	4.4	1.2	4.4
Thallium	0.57	NA	0.13 J	0.25 U	0.25 U	0.12 J	0.16 J
Vanadium	7.8	57	**48.3**	**55.2**	**47.5**	**52.8**	**50.5**
Zinc	46	121	**72**	**85.7**	**76.1**	38	**76**

Notes:
1. All concentrations listed in milligrams per killigram (mg/kg).
2. U=below detection limit, J=quantitation approximate, EB=flagged due to MS/MSD recovery outside control limits, R=rejected
3. Sample Location: MW=subsurface soil samle collected during monitoring well installation; SB=sub-surface soil sample; SS=surfacesoil sample; T=XRF screened transect surface soil samples with the exception of TP-15 and TP-16 (test pit samples); SD=sediment sample
4. ft bgs = feet below ground surface
5. PAL = Project Action Limit
6. **Bold** and shaded indicates exceedance of PAL
7. NA = not available

Table 6-2
Soil and Sediment Paste pH, Paste Conductivity, and ABA Results
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:		MW-17A	MW-17A	MW-18A	MW-18A	MW-18A	MW-18A	MW-19A	MW-19A	MW-19A	MW-20A
Station ID:		MW-17A-073009AX	MW-17A-073009BX	MW-18A-080309AX	MW-18A-080309AD	MW-18A-080309BX	MW-18A-080309CX	MW-19A-072109AX	MW-19A-072109BX	MW-19A-072109CX	MW-20A-072909AX
Sample Date:		7/30/2009	7/30/2009	8/3/2009	8/3/2009	8/3/2009	8/3/2009	7/21/2009	7/21/2009	7/21/2009	7/29/2009
Sample Depth (ft bgs):		0 - 2	2 - 2.6	2 - 4	2 - 4	4 - 6	6 - 8	2 - 6	6 - 8	8 - 12.9	2 - 2.4
Parameter	**PAL**										
Paste pH (Sobek 3.2.2 units)	NA	5.43	6.15	3.02	3.24	3.88	4.28	3.69	3.63	6.57	4.15
Paste Conductivity (Sobek 3.2.18 mmhos/cm)	NA	0.131	2.952	1.158	1.204	1.748	1.530	7.850	1.430	2.800	0.660
Acid-Base Accounting (1.3.1 t CaCO3/1000t)	NA	4.61	-2.29	-18.09	-11.24	0.14	2.81	-227.00	-7.00	53.00	0.81

Notes:
1. Blank cell indicates sample was not analyzed for that particular parameter.
2. Sample Location: MW=soil sample collected during monitoring well installation; SB=subsurface soil sample; SD=sediment sample; SS=surface soil sample; TP=test pit sample
3. ft bgs = feet below ground surface
4. PAL = Project Action Limit
5. **Bold** and shaded indicates exceedance of PAL
6. NA = not available

Table 6-2
Soil and Sediment Paste pH, Paste Conductivity, and ABA Results
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:		MW-20A	MW-20A	MW-20A	MW-21A	MW-21A	MW-21A	MW-21A	MW-21A	MW-22A	MW-22A
Station ID:		MW-20A-072909BX	MW-20A-072909CX	MW-20A-083109AX	MW-21A-072809AX	MW-21A-072809BX	MW-21A-072809CX	MW-21A-072809CD	MW-21A-083109AX	MW-22A-072909AX	MW-22A-072909BX
Sample Date:		7/29/2009	7/29/2009	8/31/2009	7/28/2009	7/28/2009	7/28/2009	7/28/2009	8/31/2009	7/29/2009	7/29/2009
Sample Depth (ft bgs):		2.4 - 4	4 - 5.5	0 - 2	2 - 4	4 - 6	6 - 10	6 - 10	0 - 2	2 - 4	7.1 - 8.2
Parameter	**PAL**										
Paste pH (Sobek 3.2.2 units)	NA	4.24	4.51	4.73	2.55	3.69	4.04	4.18	2.41	3.10	3.76
Paste Conductivity (Sobek 3.2.18 mmhos/cm)	NA	0.520	0.390	0.350	10.500	0.810	0.750	0.840	2.240	8.080	4.040
Acid-Base Accounting (1.3.1 t CaCO3/1000t)	NA	4.38	6.00	-1.88	-203.75	4.13	-0.19	3.38	-68.44	-109.19	-168.06

Notes:
1. Blank cell indicates sample was not analyzed for that particular parameter.
2. Sample Location: MW=soil sample collected during monitoring well installation; SB=subsurface soil sample; SD=sediment sample; SS=surface soil sample; TP=test pit sample
3. ft bgs = feet below ground surface
4. PAL = Project Action Limit
5. **Bold** and shaded indicates exceedance of PAL
6. NA = not available

Table 6-2
Soil and Sediment Paste pH, Paste Conductivity, and ABA Results
Ely Copper Mine Superfund Site
Vershire, Vermont

	Sample Location:	MW-22A	MW-22A	MW-23A	MW-23A	MW-23A	MW-23A	SB-09	SB-09	SB-09	SD-58
	Station ID:	MW-22A-072909CX	MW-22A-083109AX	MW-23A-070809AX	MW-23A-070809BX	MW-23A-070809CX	MW-23A-083109AX	SB-09X-073009AX	SB-09X-073009BX	SB-09X-073009CX	SD-58X-080709AX
	Sample Date:	7/29/2009	8/31/2009	7/8/2009	7/8/2009	7/8/2009	8/31/2009	7/30/2009	7/30/2009	7/30/2009	8/7/2009
	Sample Depth (ft bgs):	8.2 - 11.5	0 - 2	0 - 2	6 - 8	8 - 10	0 - 2	2.2 - 3	3 - 6	8 - 10	0 - 2
Parameter	**PAL**										
Paste pH (Sobek 3.2.2 units)	NA	4.45	3.03	4.60	6.04	5.53	3.86	3.79	3.47	3.84	7.44
Paste Conductivity (Sobek 3.2.18 mmhos/cm)	NA	3.320	1.280	0.937	0.782	0.324		5.330	6.390	1.191	0.532
Acid-Base Accounting (1.3.1 t CaCO3/1000t)	NA	-61.25	-51.00	19.58	27.51	35.99	-37.81	-200.24	-251.03	3.91	15.68

Notes:
1. Blank cell indicates sample was not analyzed for that particular parameter.
2. Sample Location: MW=soil sample collected during monitoring well installation; SB=subsurface soil sample; SD=sediment sample; SS=surface soil sample; TP=test pit sample
3. ft bgs = feet below ground surface
4. PAL = Project Action Limit
5. **Bold** and shaded indicates exceedance of PAL
6. NA = not available

Table 6-2
Soil and Sediment Paste pH, Paste Conductivity, and ABA Results
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:		SD-59	SD-60	SD-61	SD-61	SD-62	SD-63	SD-64	SD-65	SD-66	SD-67
Station ID:		SD-59X-080709AX	SD-60X-080709AX	SD-61X-080709AX	SD-61X-080709AD	SD-62X-080709AX	SD-63X-080709AX	SD-64X-080709AX	SD-65X-080609AX	SD-66X-080609AX	SD-67X-080609AX
Sample Date:		8/7/2009	8/7/2009	8/7/2009	8/7/2009	8/7/2009	8/7/2009	8/7/2009	8/6/2009	8/6/2009	8/6/2009
Sample Depth (ft bgs):		0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2
Parameter	**PAL**										
Paste pH (Sobek 3.2.2 units)	NA	7.50	3.76	4.29	4.23	2.94	3.29	6.71	6.52	5.57	6.15
Paste Conductivity (Sobek 3.2.18 mmhos/cm)	NA	0.481	0.681	1.258	0.566	1.418	0.918	0.246	0.151	0.284	0.112
Acid-Base Accounting (1.3.1 t CaCO3/1000t)	NA	21.00	-49.36	-61.49	-38.69	-58.75	-66.01	-9.62	-6.13	-10.38	1.77

Notes:
1. Blank cell indicates sample was not analyzed for that particular parameter.
2. Sample Location: MW=soil sample collected during monitoring well installation; SB=subsurface soil sample; SD=sediment sample; SS=surface soil sample; TP=test pit sample
3. ft bgs = feet below ground surface
4. PAL = Project Action Limit
5. **Bold** and shaded indicates exceedance of PAL
6. NA = not available

Table 6-2
Soil and Sediment Paste pH, Paste Conductivity, and ABA Results
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:		SD-68	SD-69	SD-70	SD-71	SD-72	SD-73	SS-08	SS-08	SS-09	SS-10
Station ID:		SD-68X-080609AX	SD-69-080709AX	SD-70X-080609AX	SD-71X-080609AX	SD-72X-080609AX	SD-73X-080609AX	SS-08X-090209AX	SS-08X-090209AD	SS-09X-090209AX	SS-10X-090309AX
Sample Date:		8/6/2009	8/7/2009	8/6/2009	8/6/2009	8/6/2009	8/6/2009	9/2/2009	9/2/2009	9/2/2009	9/3/2009
Sample Depth (ft bgs):		0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 1	0 - 2	0 - 1	0 - 0.5
Parameter	**PAL**										
Paste pH (Sobek 3.2.2 units)	NA	5.62	6.19	5.37	5.12	6.18	6.47	5.47	5.53	4.77	5.66
Paste Conductivity (Sobek 3.2.18 mmhos/cm)	NA	0.893	0.291	0.688	1.495	0.514	0.172	0.172	0.116	0.116	0.308
Acid-Base Accounting (1.3.1 t CaCO3/1000t)	NA	-0.43	5.93	3.98	-0.64	8.00	-22.67				4.54

Notes:
1. Blank cell indicates sample was not analyzed for that particular parameter.
2. Sample Location: MW=soil sample collected during monitoring well installation; SB=subsurface soil sample; SD=sediment sample; SS=surface soil sample; TP=test pit sample
3. ft bgs = feet below ground surface
4. PAL = Project Action Limit
5. **Bold** and shaded indicates exceedance of PAL
6. NA = not available

Table 6-2
Soil and Sediment Paste pH, Paste Conductivity, and ABA Results
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:		SS-11	SS-12	SS-13	SS-14	SS-15	SS-16	SS-17	SS-18	SS-19	SS-20
Station ID:		SS-11X-090309AX	SS-12X-090309AX	SS-13X-082809AX	SS-14X-083109AX	SS-15X-083109AX	SS-16X-090309AX	SS-17X-083109AX	SS-18X-082709AX	SS-19X-082709AX	SS-20X-083109AX
Sample Date:		9/3/2009	9/3/2009	8/28/2009	8/31/2009	8/31/2009	9/3/2009	8/31/2009	8/27/2009	8/27/2009	8/31/2009
Sample Depth (ft bgs):		0 - 0.5	0 - 0.5	0 - 0.3	0 - 0.2	0 - 0.2	0 - 0.5	0 - 0.3	0 - 1	0 - 1	0 - 0.2
Parameter	**PAL**										
Paste pH (Sobek 3.2.2 units)	NA	4.51	5.47	5.73	4.35	3.84	5.08	4.26	4.26	4.70	3.42
Paste Conductivity (Sobek 3.2.18 mmhos/cm)	NA	0.219	0.750	0.610	0.380	0.430	0.210	0.430	0.550	0.698	0.310
Acid-Base Accounting (1.3.1 t CaCO3/1000t)	NA	1.99	10.44				2.96				

Notes:
1. Blank cell indicates sample was not analyzed for that particular parameter.
2. Sample Location: MW=soil sample collected during monitoring well installation; SB=subsurface soil sample; SD=sediment sample; SS=surface soil sample; TP=test pit sample
3. ft bgs = feet below ground surface
4. PAL = Project Action Limit
5. **Bold** and shaded indicates exceedance of PAL
6. NA = not available

Table 6-2
Soil and Sediment Paste pH, Paste Conductivity, and ABA Results
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:		SS-21	SS-22	SS-23	SS-24	SS-25	SS-26	SS-27	SS-28	SS-29	SS-30
Station ID:		SS-21X-083109AX	SS-22X-082709AX	SS-23X-082709AX	SS-24X-083109AX	SS-25X-082709AX	SS-26X-083109AX	SS-27X-082609AX	SS-28X-083109AX	SS-29X-083109AX	SS-30X-083109AX
Sample Date:		8/31/2009	8/27/2009	8/27/2009	8/31/2009	8/27/2009	8/31/2009	8/26/2009	8/31/2009	8/31/2009	8/31/2009
Sample Depth (ft bgs):		0 - 0.2	0 - 1	0 - 1	0 - 0.2	0 - 1	0 - 0.3	0 - 1	0 - 1	0 - 0.3	0 - 2
Parameter	**PAL**										
Paste pH (Sobek 3.2.2 units)	NA	4.12	4.11	5.11	4.89	5.07	5.28	6.42	4.33	5.18	2.26
Paste Conductivity (Sobek 3.2.18 mmhos/cm)	NA	0.380	0.427	0.463	0.790	0.539	0.584	0.647	0.327	0.950	5.890
Acid-Base Accounting (1.3.1 t CaCO3/1000t)	NA										-111.79

Notes:
1. Blank cell indicates sample was not analyzed for that particular parameter.
2. Sample Location: MW=soil sample collected during monitoring well installation; SB=subsurface soil sample; SD=sediment sample; SS=surface soil sample; TP=test pit sample
3. ft bgs = feet below ground surface
4. PAL = Project Action Limit
5. **Bold** and shaded indicates exceedance of PAL
6. NA = not available

Table 6-2
Soil and Sediment Paste pH, Paste Conductivity, and ABA Results
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:		SS-31	SS-32	SS-33	SS-34	SS-35	SS-36	SS-37	SS-37	SS-38	SS-39
Station ID:		SS-31X-083109AX	SS-32X-083109AX	SS-33X-083109AX	SS-34X-082609AX	SS-35X-082609AX	SS-36X-082609AX	SS-37X-082609AX	SS-37X-082609AD	SS-38X-082609AX	SS-39X-082609AX
Sample Date:		8/31/2009	8/31/2009	8/31/2009	8/26/2009	8/26/2009	8/26/2009	8/26/2009	8/26/2009	8/26/2009	8/26/2009
Sample Depth (ft bgs):		0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2
Parameter	**PAL**										
Paste pH (Sobek 3.2.2 units)	NA	5.64	6.14	5.18	5.78	4.57	5.20	2.41	2.23	2.30	2.46
Paste Conductivity (Sobek 3.2.18 mmhos/cm)	NA	0.420	1.521	0.253	0.194	0.379	0.207	2.820	2.689	3.130	1.920
Acid-Base Accounting (1.3.1 t CaCO3/1000t)	NA	6.00	21.00	1.24	2.65	2.75	-0.48	-28.60	-28.99	-21.19	-57.35

Notes:
1. Blank cell indicates sample was not analyzed for that particular parameter.
2. Sample Location: MW=soil sample collected during monitoring well installation; SB=subsurface soil sample; SD=sediment sample; SS=surface soil sample; TP=test pit sample
3. ft bgs = feet below ground surface
4. PAL = Project Action Limit
5. **Bold** and shaded indicates exceedance of PAL
6. NA = not available

Table 6-2
Soil and Sediment Paste pH, Paste Conductivity, and ABA Results
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:		TP-15X	TP-15X	TP-15X	TP-15X	TP-16X	TP-16X	TP-16X
Station ID:		TP-15X-073009AX	TP-15X-073009AD	TP-15X-073009BX	TP-15X-073009CX	TP-16X-080309AX	TP-16X-080309BX	TP-16X-080309CX
Sample Date:		7/30/2009	7/30/2009	7/30/2009	7/30/2009	8/3/2009	8/3/2009	8/3/2009
Sample Depth (ft bgs):		0 - 1	0 - 1	1 - 2	2 - 3	0 - 1	1 - 2	2 - 5
Parameter	**PAL**							
Paste pH (Sobek 3.2.2 units)	NA	3.60	3.60	3.73	4.33	4.98	5.45	5.86
Paste Conductivity (Sobek 3.2.18 mmhos/cm)	NA	0.264	0.218	0.261	0.306	0.224	0.211	0.224
Acid-Base Accounting (1.3.1 t CaCO3/1000t)	NA	-34.49	-37.11	-9.36	2.38	0.65	6.00	6.00

Notes:
1. Blank cell indicates sample was not analyzed for that particular parameter.
2. Sample Location: MW=soil sample collected during monitoring well installation; SB=subsurface soil sample; SD=sediment sample; SS=surface soil sample; TP=test pit sample
3. ft bgs = feet below ground surface
4. PAL = Project Action Limit
5. **Bold** and shaded indicates exceedance of PAL
6. NA = not available

Table 6-3
Soil and Sediment SPLP Metals
Ely Copper Mine Superfund Site
Vershire, Vermont

		Sample Location:	MW-18A	MW-18A	MW-21A	MW-23A	SB-09	SB-09	SS-37	TP-15	TP-15	SD-73
		Station ID:	MW-18A-080309AX	MW-18A-080309AD	MW-21A-083109AX	MW-23A-070809AX	SB-09X-073009AX	SB-09X-073009AD	SS-37X-082609AX	TP-15X-073009BX	TP-15X-073009BD	SD-73X-080609AX
		Sample Date:	8/3/2009	8/3/2009	8/31/2009	7/8/2009	7/30/2009	7/30/2009	8/26/2009	7/30/2009	7/30/2009	8/6/2009
		Sample Depth (ft bgs):	2 - 4	2 - 4	2 - 4	0 - 2	2.2 - 3	2.2 - 3	0 - 2	1 - 2	1 - 2	0 - 1
Chemical	**Soil PAL**	**Sed PAL**										
Aluminum	87	NA	**185**	**152**	0.46	21.5 J	**2330**	**1840**	0.14	**184**	**209**	0.63
Arsenic	NA	NA	10 U	10 U	0.004 J	10 U	3.3 J	10 U	0.005 J	10 U	10 U	0.01 U
Barium	3.9	NA	**106**	**101**	0.39 J	**117**	**74**	**74.9**	0.33	**169**	**146**	0.016
Cadmium	2.2	NA	1.1 J	1.2 J	0.055	0.655 J	**452**	**395**	0.025	0.171 J	0.129 J	0.04
Chromium	NA	NA	1.5 J	1.9 J	0.01 U	10 U	4.8 J	3.5 J	0.01 U	0.618 J	10 U	0.01 U
Cobalt	3	NA	**26.8 J**	**29.3 J**	0.025	**3.3 J**	**4330**	**4140**	0.024	0.711 J	0.559 J	0.001 J
Copper	9	NA	**1140**	**1030**	2.6	**288**	**65700**	**63100**	0.33	**178**	**161**	0.064
Iron	1000	NA	749	445	0.87	100 U	**6490**	**5720**	0.059	100 U	34.7 J	0.4 E
Lead	2.5	NA	0.944 J	50 U	0.01 U	0.897 J	**37.4 J**	**35.9 J**	0.01 U	50 U	50 U	0.01 U
Manganese	80	NA	**1120**	**1310**	0.047	**103**	62.9	59.6	0.023	32.5	37.1	0.01
Mercury	NA	NA	0.02 NJ	0.2 UN	0.0025 U	0.2 U	0.2 UN	0.2 UN	0.001 U	0.2 UN	0.2 UN	0.001 U
Selenium	5	NA	**5.8 J**	10 U	0.05 U	**7.1 J**	10 U	10 U	0.05 U	10 U	10 U	0.05 U
Silver	0.36	NA	10 U	**0.936 J**	0.01 U	10 U	**3.1 J**	**3 J**	0.01 U	10 U	10 U	0.01 U
Thallium	12	NA	10 U	10 U	0.006 J	10 U	**21.3**	**19.7**	0.05 U	10 U	10 U	0.05 U
Vanadium	19	NA	0.278 J	50 U	0.01 U	50 U	50 U	50 U	0.01 U	50 U	50 U	0.01 U
Zinc	120	NA	**173**	**185**	0.95	24.3 J	**5210**	**4470**	0.88	27.7	58	0.003 J

Notes:

1. All concentrations listed in micrograms per liter (ug/L).
2. U=below detection limit, J=quantitation approximate, E=flagged due to MS/MSD recovery outside control limits, N=Spiked sample recovery not within control limits
3. Sample Location: MW=soil sample collected during monitoring well installation (not necessarily subsurface); SB=subsurface soil sample; SS=surface soil sample; SD=sediment sample; TP=test pit soil sample
4. ft bgs = feet below ground surface
5. PAL = Project Action Limit
6. Bold and shaded indicates exceedance of PAL
7. NA = not available

Table 6-4
Soil Geotechnical Analyses
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:	GT-P04	GT-P07	GT-P07	GT-P08	GT-P08	GT-P09	GT-P11	GT-P11	GT-P12	GT-EBS	GT-FM1	GT-RB1
Station ID:	GT-P04-110409AX	GT-P07-110409AX	GT-P07-110409AX	GT-P08-110409AX	GT-P08-110409BX	GT-P09-110409BX	GT-P11-110409AX	GT-P11-110409BX	GT-P12-110409AX	GT-EBS-110409AX	GT-FM1-110409AX	GT-RB1-110409AX
Sample Date:	11/4/2009	11/4/2009	11/4/2009	11/4/2009	11/4/2009	11/4/2009	11/4/2009	11/4/2009	11/4/2009	11/4/2009	11/4/2009	11/4/2009
Parameter												
Grain Size Analysis:												
	--	--	--	--	--	--	--	--	--	--	--	--
% cobble	5.5	33.4	9.70	19.60	14.00	7.30	22.00	4.70	2.70	19.10	0.4	4.40
% gravel	60.3	47.8	66.50	62.50	55.50	71.10	54.40	70.10	67.30	73.70	54.9	61.30
% sand	34.2	18.8	23.80	17.90	30.50	21.60	23.60	25.20	30.00	7.20	44.7	34.30
% silt & clay												
Specific Gravity	NM	NM	NM	2.75	NM	NM	2.79	NM	NM	2.79	NM	NM
Standard Proctor Test	NM	*	NM	*	*	NM	*	*	NM	*	NM	NM
Shear Tests	NM	*	NM	*	*	NM	*	*	NM	*	NM	NM

Notes:
1. NM = not measured
2. * = see Appendix F for full results.

Table 6-5
Surface Water Geochemical Parameters
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:	**SW-4**		**SW-9**		**SW-12**		**SW-13**		**SW-17**	
	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall
Field Measured Parameter										
pH (SU)	8.3	7.17	5.25	4.3	4.98	4.68	5.38	6.52	5.53	6.17
Specific Conductivity (mS/m)	0.156	0.158	0.177	0.18	0.174	0.17	0.081	0.084	0.059	0.062
Dissolved Oxygen (mg/L)	9.51	13.92	8.32	12.35	8.91	12.3	9.77	12.56	9.32	13.96
Oxidation Reduction Potential (mV)	164.9	-266.9	261.9	92.2	270.1	54.7	314.1	-137.3	218.1	-220.5
Turbidity (NTU)	183.7	0.9	153.1	3.5	133.1	2.78	127.9	1.91	232.5	0.28
Temperature (^{o}C)	16.46	1.17	20.23	3.75	18	5.67	14.93	4.49	16.21	5.82
Laboratory Measured Parameter										
Alkalinity (As CaCO3) (mg/L)	56	58	5 U	5 U	5 U	5 U	13	12	7.5	16
Alkalinity, Bicarbonate (As CaCO3) (mg/L)		58		5 U		5 U		12		16
Alkalinity, Carbonate (As CaCO3) (mg/L)	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Alkalinity, Hydroxide (As CaCO3) (mg/L)	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bicarbonate (mg/L)	56		5 U		5 U		13		7.5	
Specific Conductivity (uMHOS/cm)	150		180		153		70		50	
pH (SU)	7.5 X		3.9 X		4.6 X		7 X		7.1 X	
Total Dissolved Solids (mg/L)	88	71	150	120	120	97	45	41	33	20
Total Suspended Solids (mg/L)	8	5 U	6	4.5 J	7.5	4 J	5 U	5 U	2.7 J	5 U
Chloride (mg/L)	2.9	2.5	0.43	0.4	0.23	0.4	0.22	0.38	0.21	0.4
Sulfate (mg/L)	10	12	75	77	70	71	15	20	5.6	6.8
Acidity, Total (mg/L)	4 J	10 U	60	32	36	19	10 U	10 U	10 U	10 U
Nitrogen, Nitrite + Nitrate (mg/L)	0.036	0.031	0.02 U	0.02 U	0.02 U	0.02 U	0.018 J	0.02 U	0.02 U	0.02 U
Sulfide (mg/L)	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1.3 J	2 U

Notes:
SU = standard units
mS/m = micro siemens per meter
mV = millivolts
mg/L = milligrams per liter
uMHOS/cm = micromhos per centimeter
NTU = nephelometric turbidity units
^{o}C = degrees celcius
U=below detection limit, J=quantitation approximate,
X = Other specific flags may be required to properly define the results
Blank cells indicate sample was not analyzed for that particular parameter
Sample locations denoted with a "D" are a duplicate
NS = not sampled
NM = not measured

Table 6-5
Surface Water Geochemical Parameters
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:	SW-29		SW-32		SW-34		SW-35		SW-38		SW-40	
	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall
Field Measured Parameter												
pH (SU)	4.26	4.63	3.7	3.55	3.78	3.76	5.58	6.14	8.12	6.99	5.29	6.32
Specific Conductivity (mS/m)	0.223	0.257	0.317	0.336	0.173	0.188	0.055	0.053	0.154	0.153	0.084	0.086
Dissolved Oxygen (mg/L)	9.33	13.21	8.25	11.97	9.75	12.99	9.28	12.24	9.48	13.72	9.35	13.94
Oxidation Reduction Potential (mV)	326.9	-2.9	401.4	96.9	427.2	2.9	342.9	-144	216.5	-142	235	-64.7
Turbidity (NTU)	223.2	0.78	133.3	2.85	144.1	10.76	151.5	5.68	162.4	0.59	117.6	5.07
Temperature (^{o}C)	15.57	6.96	20.86	6.55	15.01	3.13	15.61	5.23	15.93	1.72	17.28	5.93
Laboratory Measured Parameter												
Alkalinity (As CaCO3) (mg/L)	5 U	5 U	5 U	5 U	5 U	5 U	5 U	11	65	64	5 U	12
Alkalinity, Bicarbonate (As CaCO3) (mg/L)	5 U	5 U		5 U		5 U		11		64	5 U	12
Alkalinity, Carbonate (As CaCO3) (mg/L)	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Alkalinity, Hydroxide (As CaCO3) (mg/L)	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bicarbonate (mg/L)			5 U		5 U		5 U		65.2			
Specific Conductivity (uMHOS/cm)	200		280		140		45		150		72	
pH (SU)	7		3.7 X		3.8 X		6.9 X		7.7 X		6.7	
Total Dissolved Solids (mg/L)	190	170	200	190	99	120	36	23	87	82	46	34
Total Suspended Solids (mg/L)	5 U	5 U	3.5 J	5.5	5 U	5 U	5 U	2.5 J	2 J	2 J	2 J	5 U
Chloride (mg/L)	0.22	0.36	0.25	0.43	0.25	0.35	0.2	0.4	2.8	2.5	0.22	0.4
Sulfate (mg/L)	101	110	130	130	55	66	6.7	7.8	5.9	6.9	17	21
Acidity, Total (mg/L)	15	38	78	69	19	30	10 U	10 U	7.9 J	10 U	19	10 U
Nitrogen, Nitrite + Nitrate (mg/L)	0.025	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.047	0.033	0.02 U	0.02 U
Sulfide (mg/L)	0.67 J	2 U	0.7 J	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.57 J	2 U

Notes:
SU = standard units
mS/m = micro siemens per meter
mV = millivolts
mg/L = milligrams per liter
uMHOS/cm = micromhos per centimeter
NTU = nephelometric turbidity units
^{o}C = degrees celcius
U=below detection limit, J=quantitation approximate,
X = Other specific flags may be required to properly define the results
Blank cells indicate sample was not analyzed for that particular parameter
Sample locations denoted with a "D" are a duplicate
NS = not sampled
NM = not measured

Table 6-5
Surface Water Geochemical Parameters
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:	**SW-41**		**SW-42**		**SW-43**		**SW-45**		**SW-45D**	**SW-46**		**SW-47**	
	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall	Fall	Summer	Fall	Summer	Fall
Field Measured Parameter													
pH (SU)	7.21	6.34	3.67	4.11	2.96	2.86	3.31	3.92	3.92	3.15	3.5	2.69	2.67
Specific Conductivity (mS/m)	0.103	0.105	0.658	0.631	0.737	1.836	0.78	0.704	0.704	0.693	0.656	1.369	1.397
Dissolved Oxygen (mg/L)	9.46	14	8.38	12.58	8.52	8.90	15.07	10.85	10.85	12.19	11.49	8.42	11.58
Oxidation Reduction Potential (mV)	226.2	-3.3	479.4	-121	524.1	94.5	495.6	-100.2	-100.2	471.3	11.9	500	11.9
Turbidity (NTU)	139.7	3.57	123.7	0.5	184.4	58.8	157.9	1.89	1.89	163.4	0.13	270.1	4.55
Temperature (^{o}C)	18.73	5.39	NM	6.71	24.58	8.58	9.34	7.61	7.61	13.82	4.93	23.57	6.04
Laboratory Measured Parameter													
Alkalinity (As CaCO3) (mg/L)	5 U	4 J	5 U	5 U	5 U	5 U	5 U		5 U	17	5 U	5 U	5 U
Alkalinity, Bicarbonate (As CaCO3) (mg/L)	5 U	4 J	5 U	5 U		5 U			5 U		5 U		5 U
Alkalinity, Carbonate (As CaCO3) (mg/L)	5 U	5 U	5 U	5 U	5 U	5 U	5 U		5 U	5 U	5 U	5 U	5 U
Alkalinity, Hydroxide (As CaCO3) (mg/L)	5 U	5 U	5 U	5 U	5 U	5 U	5 U		5 U	5 U	5 U	5 U	5 U
Bicarbonate (mg/L)					5 U		5 U			17		5 U	
Specific Conductivity (uMHOS/cm)	84		620		650		450			580		1300	
pH (SU)	6.2		3.7		2.9 X		3.5 X			3.3 X		2.8 X	
Total Dissolved Solids (mg/L)	56	51	590	530	450	1800	690	560	580	550	480	910	940
Total Suspended Solids (mg/L)	8.5	8.5	5 U	5 U	12	14	6.5	5 U	5 U	1.5 J	5 U	49	22
Chloride (mg/L)	0.21	0.48	0.3	0.36	0.31	0.37	0.36		0.36	0.36	0.38	0.35	0.34
Sulfate (mg/L)	31	33	370	360	290	1300	440		390	320	330	570	560
Acidity, Total (mg/L)	15	10 U	150	150	160	160	190		160	95	150	270	400
Nitrogen, Nitrite + Nitrate (mg/L)	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.12	0.038	0.08	0.079	0.021	0.17	0.02 U	0.02 U
Sulfide (mg/L)	2 U	2 U	0.47 J	2 U	0.67 J	2 U	0.77 J	2 U	2 U	2 U	2 U	2 U	2 U

Notes:
SU = standard units
mS/m = micro siemens per meter
mV = millivolts
mg/L = milligrams per liter
uMHOS/cm = micromhos per centimeter
NTU = nephelometric turbidity units
^{o}C = degrees celcius
U=below detection limit, J=quantitation approximate,
X = Other specific flags may be required to properly
define the results
Blank cells indicate sample was not analyzed for
that particular parameter
Sample locations denoted with a "D" are a duplicate
NS = not sampled
NM = not measured

Table 6-5
Surface Water Geochemical Parameters
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:	SW-48		SW-49		SW-51		SW-71		SW-72		SW-73	
	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall
Field Measured Parameter												
pH (SU)	4	4.23	3.47	3.2	6.36	6.56	4.57	4.8	5.45	6.1	6.49	6.08
Specific Conductivity (mS/m)	0.131	0.117	0.438	0.533	0.078	0.081	0.18	0.256	0.093	0.074	0.076	0.084
Dissolved Oxygen (mg/L)	8.67	10.22	12.65	12.29	8.33	11.34	8.12	10.87	6.95	5.07	6.35	11.14
Oxidation Reduction Potential (mV)	402.5	83.5	440	-101.4	214.8	-204.1	408.2	1.1	253.5	-240.9	252.7	-200.9
Turbidity (NTU)	169.1	3.57	280.7	19.3	246.3	3.38	138.9	1.54	122	NM	238.1	0.32
Temperature (^{o}C)	15.34	7.86	8.78	4.74	18.05	4.33	21.82	7.83	16.72	3.99	19.51	2.87
Laboratory Measured Parameter												
Alkalinity (As CaCO3) (mg/L)	5 U	5 U	5 U	5 U	5 U	28	5 U	2 J	28	25	9	27
Alkalinity, Bicarbonate (As CaCO3) (mg/L)		5 U		5 U		28	5 U	2 J		25		27
Alkalinity, Carbonate (As CaCO3) (mg/L)	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Alkalinity, Hydroxide (As CaCO3) (mg/L)	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bicarbonate (mg/L)	5 U		5 U		5 U				28		9	
Specific Conductivity (uMHOS/cm)	110		400		65		160		60		67	
pH (SU)	4.2		3.4 X		6.8 X		4.4		6.5 X		6.7 X	
Total Dissolved Solids (mg/L)	97	62	280	320	47	37	120	110	66	34	50	33
Total Suspended Solids (mg/L)	5 U	5 U	3.5 J	5 U	2 J	5 U	2 J	7	3.5 J	51	1.5 J	5 U
Chloride (mg/L)	0.21	0.42	0.34	0.4	0.22	0.33	0.24	0.57	0.21	0.5	0.22	0.34
Sulfate (mg/L)	51	39	156	200	6	8.1	67	70	5.7	5.9	7.7	9.4
Acidity, Total (mg/L)	12	10 U	57	67	10 U	10 U	15	10 U	5.5	10 U	10 U	10 U
Nitrogen, Nitrite + Nitrate (mg/L)	0.017 J	0.02 U	0.02 U	0.058	0.02 U	0.02 U	0.02 U	0.02 U	0.013 J	0.02 U	0.02 U	0.02 U
Sulfide (mg/L)	0.67 J	2 U	0.97 J	2 U	0.67 J	0.43 J	0.93 J	0.53 J	0.6 J	0.53 J	0.47 J	2 U

Notes:
SU = standard units
mS/m = micro siemens per meter
mV = millivolts
mg/L = milligrams per liter
uMHOS/cm = micromhos per centimeter
NTU = nephelometric turbidity units
^{o}C = degrees celcius
U=below detection limit, J=quantitation approximate,
X = Other specific flags may be required to properly
define the results
Blank cells indicate sample was not analyzed for
that particular parameter
Sample locations denoted with a "D" are a duplicate
NS = not sampled
NM = not measured

Table 6-5
Surface Water Geochemical Parameters
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:	SW-75		SW-75D	SW-76		SW-77		SW-78		SW-78D	SW-79	
	Summer	Fall	Summer	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Summer	Fall
Field Measured Parameter												
pH (SU)	2.96	2.9	2.96	3.36	NS	3.88	4.26	3.03	3.28	3.03	3.6	3.5
Specific Conductivity (mS/m)	0.688	0.92	0.688	0.545	NS	0.138	0.106	1.054	0.887	1.054	0.609	0.481
Dissolved Oxygen (mg/L)	11.27	11.6	11.27	10.93	NS	7.49	5.38	9.49	9.89	9.49	7.52	13.6
Oxidation Reduction Potential (mV)	533	129	533	350	NS	372.8	-41.6	461.6	54.9	461.6	433.5	91.8
Turbidity (NTU)	168.5	NM	168.5	268.3	NS	199.9	0.32	283.1	3.97	283.1	160.7	NM
Temperature (^{o}C)	15.23	6.08	15.23	17.73	NS	14.2	10.04	17.88	13.72	17.88	16.88	2.02
Laboratory Measured Parameter												
Alkalinity (As CaCO3) (mg/L)	5 U	5 U	5 U	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Alkalinity, Bicarbonate (As CaCO3) (mg/L)		5 U			NS		5 U		5 U			5 U
Alkalinity, Carbonate (As CaCO3) (mg/L)	5 U	5 U	5 U	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Alkalinity, Hydroxide (As CaCO3) (mg/L)	5 U	5 U	5 U	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bicarbonate (mg/L)	5 U		5 U	5 U	NS	5 U		5 U		5 U	5 U	
Specific Conductivity (uMHOS/cm)	440		870	520	NS	94		970		970	660	
pH (SU)	2.8 X		2.8 X	3.3 X	NS	4.2		3.1 X		3.1 X	3.1 X	
Total Dissolved Solids (mg/L)	450	670	340	380	NS	86	49	820	680	790	420	600
Total Suspended Solids (mg/L)	19	5.5	12	42	NS	2 J	5 U	19	29	3 J	5 U	2.5 J
Chloride (mg/L)	0.32	0.34	0.3	0.34	NS	0.22	0.34	0.33	0.36	0.32	0.27	0.35
Sulfate (mg/L)	270	390	280	250	NS	40	22	500	410	480	300	360
Acidity, Total (mg/L)	160	270	150	82	NS	16	17	190	160	190	120	140
Nitrogen, Nitrite + Nitrate (mg/L)	0.02 U	0.11	0.02 U	0.12	NS	0.02 U	0.056	0.028	0.02 U	0.16	0.02 U	0.02 U
Sulfide (mg/L)	2 U	2 U	2 U	2 U	NS	0.67 J	2 U	0.87 J	2 U	0.57 J	2 U	2 U

Notes:
SU = standard units
mS/m = micro siemens per meter
mV = millivolts
mg/L = milligrams per liter
uMHOS/cm = micromhos per centimeter
NTU = nephelometric turbidity units
^{o}C = degrees celcius
U=below detection limit, J=quantitation approximate,
X = Other specific flags may be required to properly define the results
Blank cells indicate sample was not analyzed for that particular parameter
Sample locations denoted with a "D" are a duplicate
NS = not sampled
NM = not measured

Table 6-5
Surface Water Geochemical Parameters
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:	SW-80		SW-81		SW-82		SW-83		SW-83D	SW-84	
	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall	Fall	Summer	Fall
Field Measured Parameter											
pH (SU)	2.84	4.17	2.23	3.35	2.93	3.46	3.09	3.18	3.18	6.31	5.95
Specific Conductivity (mS/m)	0.272	0.29	1.046	0.836	0.773	0.734	0.825	0.745	0.745	0.061	0.053
Dissolved Oxygen (mg/L)	9.46	11.39	17.16	13.39	0.772	13.21	8.46	13.74	13.74	8.03	11.03
Oxidation Reduction Potential (mV)	688	122.2	538	11.9	471.5	27.1	474.2	-49.9	-49.9	270	-209.6
Turbidity (NTU)	13.3	0.3	165.3	1.19	123	0.89	127.2	5.72	5.72	136.5	3.26
Temperature (^{o}C)	15.59	7.54	14.01	4.78	21.01	6.73	20.61	1.25	1.25	14.98	4.89
Laboratory Measured Parameter											
Alkalinity (As CaCO3) (mg/L)	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20	11
Alkalinity, Bicarbonate (As CaCO3) (mg/L)		5 U		5 U	5 U	5 U		5 U	5 U		11
Alkalinity, Carbonate (As CaCO3) (mg/L)	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Alkalinity, Hydroxide (As CaCO3) (mg/L)	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bicarbonate (mg/L)	5 U		5 U				5 U			20	
Specific Conductivity (uMHOS/cm)	260		860		740		770			45	
pH (SU)	4.1		3 X		3.1		3.1 X			6.4 X	
Total Dissolved Solids (mg/L)	240	190	768	610	520	490	510	520	540	37	21
Total Suspended Solids (mg/L)	2 J	5 U	5 U	2.5 J	8.5	5 U	3.5 J	5 U	5 U	8.5	2.5 J
Chloride (mg/L)	0.23	0.38	0.34	0.38	0.34	0.38	0.36	0.37	0.36	0.9	0.39
Sulfate (mg/L)	130	130	480	410	350	350	390	350	350	3.7	6.6
Acidity, Total (mg/L)	34	110	200	180	140	160	157	170	140	48	10 U
Nitrogen, Nitrite + Nitrate (mg/L)	0.031	0.02 U	0.02 U	0.061	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Sulfide (mg/L)	0.57 J	2 U	2 U	2 U	0.67 J	2 U	2 U	2 U	2 U	2 U	2 U

Notes:
SU = standard units
mS/m = micro siemens per meter
mV = millivolts
mg/L = milligrams per liter
uMHOS/cm = micromhos per centimeter
NTU = nephelometric turbidity units
^{o}C = degrees celcius
U=below detection limit, J=quantitation approximate,
X = Other specific flags may be required to properly define the results
Blank cells indicate sample was not analyzed for that particular parameter
Sample locations denoted with a "D" are a duplicate
NS = not sampled
NM = not measured

Table 6-6a
July 2009 Surface Water and Vernal Pool Total and Dissolved Metals
Ely Copper Mine Superfund Site
Vershire, Vermont

	Sample Location:	SW-04	SW-09	SW-12	SW-13	SW-17	SW-29	SW-32	SW-34	SW-35	SW-38	SW-40	SW-41	SW-42	SW-43	SW-45
	Station ID:	SW-04X-080709AX	SW-09X-080709AX	SW-12X-080609AX	SW-13X-080609AX	SW-17X-080409AX	SW-29X-080409AX	SW-32X-080609AX	SW-34X-080609AX	SW-35X-080609AX	SW-38X-080709AX	SW-40X-080409AX	SW-41X-080409AX	SW-42X-080409AX	SW-43X-080509AX	SW-45X-080509AX
	Sample Date:	8/7/2009	8/7/2009	8/6/2009	8/6/2009	8/4/2009	8/4/2009	8/6/2009	8/6/2009	8/6/2009	8/7/2009	8/4/2009	8/4/2009	8/4/2009	8/5/2009	8/5/2009
Total Metals	**PAL**															
Aluminum	NA	394 U	2270	2670	276 U	200 U	3600	4990	1690	200 U	200 U	481	1220	23400	10900	26000
Antimony	14	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	0.02	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Barium	3.9	**17**	**16.6**	**13.7**	**15.7**	**14.3 J**	**34.5 J**	**13.2**	**34.8**	**11.8**	**15.5**	**16.3 J**	**10.8 J**	**14.1 J**	**28**	**8.8**
Beryllium	5.3	5 U	5 U	5 U	5 U	5 U	0.41 J	0.27 J	5 U	5 U	5 U	5 U	5 U	1.2 J	0.33 J	0.77 J
Cadmium	0.25	1 U	1.1 J	**1.2 J**	0.17 J	0.5 UJ	**2 J**	**2.2 J**	**1.3 J**	0.5 U	0.5 U	**0.26 J**	**0.89 J**	**12.5 J**	**6.9 J**	**12.7 J**
Calcium	NA	25900	14900	15000	9860	7550	18900	19700	8010	6460	26800	9040	9830	49900	26800	59300
Chromium	11	10 U	0.51 J	0.85 J	10 U	10 U	10 U	2.3 J	10 U	10 U	10 U	10 U	10 U	10 U	**12.2**	6.6 J
Cobalt	1500	2 J	32.7 J	32.2 J	4.3 J	50 UJ	59.4 J	57.8	19.5 J	50 U	50 U	7 J	16.5 J	241 J	150	243
Copper	9	**70.6**	**1040**	**1120**	**178**	6.9	**2410**	**2030**	**1680**	**18.5**	2 U	**308**	**630**	**10900**	**7150**	**11200**
Cyanide	700	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Iron	1000	484	**2890**	**2250**	100 U	100 UJ	22.1 J	**5040**	**1450**	155	105 U	30.8 J	122 J	152 J	**18500**	**2220**
Lead	2.5	0.26 J	0.36 J	0.23 J	1 U	1 U	1 U	0.82 J	0.47 J	1 U	1 U	1 U	1 U	0.74 J	1.1	1 U
Magnesium	NA	1510 J	3100 J	3180 J	1240 J	768 J	4330 J	5130	1390 J	922 J	1340 J	1270 J	1950 J	14100	9660	17300
Manganese	80	48	**267**	**276**	36.8	3.9 J	**437 J**	**506**	**146**	20	15.8	**59.6 J**	**156 J**	**1610 J**	**873**	**1570**
Mercury	0.14	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum	370	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nickel	52	40 U	11.8 J	12.7 J	40 U	0.92 J	25.4 J	21.5 J	9 J	40 U	40 U	3.7 J	7.3 J	**97.3**	39.9 J	**92.2**
Potassium	NA	1590 J	2330 J	2090 J	1450 J	747 J	3000 J	2600 J	2870 J	1170 J	1680 J	1220 J	1170 J	4680 J	2630 J	5530
Selenium	5	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 U	5 U	5 U	5 U	5 UJ	5 UJ	1.3 J	5 U	5 U
Silver	0.36	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	1 U	1 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	1 U	1 U
Sodium	NA	3100 J	1910 J	1470 J	1070 J	891 J	1860 J	1790 J	1880 J	1210 J	2960 J	1020 J	1200 J	3290 J	1900 J	3780 J
Strontium	1500	128	52.9	48.9	40.1	32.6	82.1	56	36.4	34	132	39	35.9	126	41.4	126
Thallium	1.7	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vanadium	19	0.86 J	0.26 J	0.39 J	5 UJ	0.34 J	0.3 J	0.87 J	0.43 J	0.3 J	0.34 J	5 U	0.5 J	5 U	1.4 J	5 UJ
Zinc	120	17.3 J	**184**	**185**	25.4 J	9.3 J	**249**	**336**	109	60 U	2.9 J	37.9 J	**135**	**1860**	**812**	**1880**
Dissolved Metals	**PAL**															
Aluminum	NA	200 U	2260	2020	200 U	52.3 J	3700	4470	1760	200 U	200 U	98.6 J	200 U	24200	10900	27700
Antimony	14	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	0.02	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Barium	3.9	**15.5**	**16.4**	**13.9**	**15.6**	**14.1 J**	**33.8 J**	**12.6**	**34.8**	**11.1**	**15**	**16.9 J**	**11.3 J**	**14.3 J**	**25.7**	**9**
Beryllium	5.3	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1.3 J	5 U	0.78 J
Cadmium	0.25	1 U	**1.2**	**1.2**	1 U	0.5 UJ	**2.1 J**	**2.2**	**1.3**	0.5 U	0.5 U	**0.26 J**	**0.91 J**	**12.9 J**	**6.7**	**12.7**
Calcium	NA	25500	15300	14200	9950	7920	19800	18400	8100	6120	27700	9520	10100	52400	25400	58800
Chromium	11	10 U	10 U	10 U	10 U	10 U	0.54 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**12.6**	6.8 J
Cobalt	1500	50 U	34 J	33.8 J	50 U	50 U	61.1	60	20.3 J	50 U	50 U	50 U	17.5 J	249	154	254
Copper	9	**29.9**	**1030**	**1110**	**99**	6.1	**2520**	**2060**	**1720**	**15.3**	0.66 J	**209**	**486**	**10900**	**7300**	**11200**
Iron	1000	100 U	**2670**	**1610**	100 U	100 U	100 U	**3930**	530	100 U	100 U	100 U	100 U	130	**14900**	**1380**
Lead	2.5	1 U	1 U	1 U	1 U	1 U	1 U	0.48 J	0.35 J	1 U	1 U	1 U	1 U	0.71 J	0.74 J	1 U
Magnesium	NA	1520 J	3300 J	3180 J	1260 J	851 J	4470 J	4840 J	1450 J	933 J	1400 J	1350 J	1970 J	14700	9300	17800
Manganese	80	30.6 J	**280 J**	**278 J**	36.8 J	3.4 J	**448 J**	**497 J**	**151 J**	18.8 J	8.5 J	60.4 J	**159 J**	**1700 J**	**851 J**	**1620 J**
Mercury	0.14	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum	370	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nickel	52	1.4 J	12.3 J	12.9 J	3.2 J	40 U	25.6 J	21.6 J	9.1 J	1 J	0.86 J	4 J	7.4 J	**99**	40.8	**96.3**
Potassium	NA	5000 U	2340 J	5000 U	5000 U	5000 U	3450 J	5000 U	2760 J	5000 U	5000 U	1680 J	1500 J	5350	5000 U	5650 J
Selenium	5	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 U	5 U	5 U	5 U	5 UJ	5 UJ	1.5 J	0.73 J	1.4 J
Silver	0.36	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	1 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	1 U	1 U
Sodium	NA	3280 J	2090 J	1550 J	1130 J	875 J	1970 J	1920 J	2500 J	1230 J	3520 J	1030 J	1240 J	3390 J	1890 J	4030 J
Strontium	1500	130	54.7	49.6	42.3	34.1	84.3	56.7	38.4	33	142	40.4	36.9	131	40.6	130
Thallium	1.7	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vanadium	19	5 U	5 U	5 U	5 U	5 UJ	5 UJ	0.35 J	5 U	5 U	5 U	0.27 J	5 UJ	5 UJ	5 U	5 U
Zinc	120	10.4 J	**191**	**196**	23.6 J	5.6 J	**256**	**345**	**130**	3.1 J	2.7 J	36.8 J	**138**	**1910**	**823**	**1970**

Table 6-6a
July 2009 Surface Water and Vernal Pool Total and Dissolved Metals
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:		SW-46	SW-47	SW-48	SW-49	SW-51	SW-71	SW-72	SW-73	SW-75	SW-75	SW-76	SW-77	SW-78	SW-78	SW-79
Station ID:		SW-46X-080509AX	SW-47X-080509AX	SW-48X-080509AX	SW-49X-080509AX	SW-51X-080409AX	SW-71X-080409AX	SW-72X-080609AX	SW-73X-080409AX	SW-75X-080509AX	SW-75X-080509AD	SW-76X-080509AX	SW-77X-080509AX	SW-78X-080509AD	SW-78X-080509AX	SW-79X-080609AX
Sample Date:		8/5/2009	8/5/2009	8/5/2009	8/5/2009	8/4/2009	8/4/2009	8/6/2009	8/4/2009	8/5/2009	8/5/2009	8/5/2009	8/5/2009	8/5/2009	8/5/2009	8/6/2009
Total Metals	**PAL**															
Aluminum	NA	16500	21100	1830	5690	200 U	271	200 U	200 U	10700	10600	9730	1600	21000	20200	10800
Antimony	14	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	0.02	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Barium	3.9	**15.4**	**11.6 J**	**46.1 J**	**14.2 J**	**11.6 J**	**24.7 J**	**12.9**	**14.3 J**	**26.4**	**25.3**	**23.4 J**	**42.5 J**	**11.3 J**	**10.9 J**	**16.8**
Beryllium	5.3	0.58 J	1.4 J	5 U	0.42 J	5 U	5 U	5 U	5 U	0.37 J	0.38 J	0.62 J	5 U	1.4 J	1.4 J	0.89 J
Cadmium	0.25	**7 J**	**9.4 J**	**1.5 J**	**1.6 J**	0.5 UJ	**1.5 J**	0.5 U	0.5 UJ	**6.5 J**	**6.5 J**	**6.3 J**	**0.45 J**	**8.9 J**	**9.2 J**	**3.8 J**
Calcium	NA	43600	64100	7490	22200	9940	18900	10600	12600	26600	26700	43500	6600	71500	68400	37000
Chromium	11	5.7 J	**14.7**	10 U	10 U	10 U	10 U	10 U	10 U	**12.4**	**12**	10 U	10 U	**12.9**	**12.5**	3.6 J
Cobalt	1500	164	365 J	28.5 J	53.4 J	50 UJ	12.7 J	50 U	50 UJ	147	148	114 J	30.2 J	398 J	382 J	175
Copper	9	**8120**	**12300**	**1330**	**1780**	**14.5**	**541**	3.1	**40.2**	**7060**	**6970**	**6130**	**1020**	**19200**	**19500**	**7240**
Cyanide	700	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Iron	1000	**1930**	**24700 J**	35.1 J	**2000 J**	28 J	246 J	225	29.7 J	**21600**	**20300**	**8750 J**	26.2 J	**2410 J**	**2370 J**	**1250**
Lead	2.5	0.54 J	1.5	0.22 J	0.75 J	1 U	1 U	0.71 J	1 U	0.85 J	0.73 J	2.1	0.22 J	0.74 J	0.71 J	0.23 J
Magnesium	NA	13100	19400	2040 J	6190	1130 J	3450 J	1240 J	1220 J	9590	9370	9130	1940 J	20300	19500	10900
Manganese	80	**1360**	**2030 J**	**211 J**	**584 J**	10.6 J	**475 J**	24.7	38.9 J	**856**	**851**	**1300 J**	**161 J**	**2200 J**	**2130 J**	**1200**
Mercury	0.14	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum	370	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nickel	52	**61.4**	**120**	12.1 J	22.3 J	40 U	12.1 J	40 U	40 U	38.9 J	39.1 J	51.6	10.9 J	**140**	**135**	**62**
Potassium	NA	4400 J	7170	1780 J	2900 J	1140 J	2070 J	1450 J	1490 J	2520 J	2510 J	4910 J	1900 J	8280	7820	5720
Selenium	5	5 U	3.9 J	5 UJ	5 UJ	5 UJ	5 UJ	5 U	5 U	5 U	5 U	5 J	5 UJ	3.4 J	3.4 J	5 U
Silver	0.36	1 U	0.24 J	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	1 U	1 U	0.5	0.5 U	0.11 J	0.13 J	1 U
Sodium	NA	2960 J	5260	1370 J	1980 J	1430 J	1520 J	1510 J	1420 J	1820 J	1810 J	2690 J	1500 J	6040	5840	4060 J
Strontium	1500	68.8	173	35.7	48.7	52.8	98.3	57.8	60.1	41	40.3	61.1	31.1	189	180	136
Thallium	1.7	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vanadium	19	0.6 J	3.4 J	5 U	5 U	0.28 J	5 U	0.86 J	5 U	0.97 J	0.27 J	4.3 J	5 U	0.44 J	0.53 J	5 UJ
Zinc	120	**985**	**1220**	**195**	**329**	**7.2 J**	**223**	3.9 J	8.3 J	**794**	**795**	**1040**	56 J	**1010**	**973**	**423**
Dissolved Metals	**PAL**															
Aluminum	NA	16500	21400	2910	5900	48.1 J	296	200 U	59.3 J	11000	11100	9850	1330	21200	20400	11700
Antimony	14	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	0.02	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Barium	3.9	**14.8**	**6.4**	**43.2**	**14.1**	**11.5 J**	**24.1 J**	**10.6**	**12.9 J**	**26**	**25.2**	**14.6**	**43.9**	**10 J**	**10.4**	**16.1**
Beryllium	5.3	5 U	1.6 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.29 J	5 U	5 U	1.7 J	1.5 J	5 U
Cadmium	0.25	**6.6**	**9.4 J**	**1.7 J**	**1.6 J**	0.5 UJ	**1.5 J**	0.5 U	0.5 UJ	**6.8**	**6.7**	**6.3 J**	**0.37 J**	**9.3 J**	**9.3 J**	**3.8**
Calcium	NA	40400	69900	11700	23700	10300	19300	9530	11500	25300	26000	46900	6130	73000	71000	36900
Chromium	11	6.6 J	**12.8**	10 U	10 U	10 U	10 U	10 U	10 U	**12.8**	**12.9**	10 U	10 U	**13.2**	**12.3**	10 U
Cobalt	1500	167	375	44.7 J	55.9	50 U	13.4 J	50 U	50 U	151	153	115	24.8 J	406	388	188
Copper	9	**8010**	**12200**	**2240**	**1850**	**13.3**	**567**	1 U	**36**	**7400**	**7360**	**6080**	**811**	**19300**	**19200**	**7100**
Iron	1000	**1530**	**19800**	100 U	**1890**	100 U	121	100 U	100 U	**19700**	**20200**	407	100 U	**2160**	**2050**	705
Lead	2.5	0.36 J	0.5 J	0.23 J	0.8 J	1 U	1 U	1 U	1 U	0.74 J	0.74 J	1 U	1 U	0.62 J	0.62 J	1 U
Magnesium	NA	12500	21100	2980 J	6700	1150 J	3490 J	1160 J	1130 J	9250	9520	10100	1760 J	20900	20200	11200
Manganese	80	**1330 J**	**2140 J**	**305 J**	**613 J**	10.7 J	**433 J**	1.4 J	5.3 J	**845 J**	**866 J**	**1380 J**	**141 J**	**2290 J**	**2200 J**	**1250 J**
Mercury	0.14	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum	370	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nickel	52	**63.5**	**120**	17.9 J	23.3 J	40 U	12.2 J	0.74 J	40 U	39.8 J	40.1	50.8	9.5 J	**140**	**134**	**66.6**
Potassium	NA	4010 J	7850	2820 J	3880 J	1520 J	2770 J	5000 U	1850 J	5000 U	5000 U	5220	2350 J	8550	8350	5700 J
Selenium	5	0.67 J	2.5 J	5 UJ	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 U	0.64 J	1.5 J	5 UJ	3.1 J	3.3 J	1.6 J
Silver	0.36	1 U	0.063 J	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	1 U	1 U	0.14 J	0.5 UJ	0.5 UJ	0.5 UJ	1 U
Sodium	NA	3060 J	6310	1530 J	2040 J	1410 J	1460 J	2130 J	1710 J	1860 J	1930 J	2650 J	1400 J	6140	5920	4440 J
Strontium	1500	68	178	51.2	50.3	53.5	98.7	55.3	56.4	40.4	41.6	61.9	28.9	186	182	141
Thallium	1.7	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vanadium	19	5 U	0.36 J	5 UJ	0.37 J	0.38 J	5 UJ	0.62 J	5 UJ	5 U	5 U	5 UJ	5 UJ	0.45 J	5 UJ	5 U
Zinc	120	**1010**	**1280**	**214**	**349**	5 J	**219**	3.1 J	6.1 J	**813**	**820**	**1090**	51.2 J	**1030**	**991**	**456**

Table 6-6a
July 2009 Surface Water and Vernal Pool Total and Dissolved Metals
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:		SW-80	SW-81	SW-82	SW-83	SW-84	VP-01	VP-02	VP-03	VP-03	VP-04
Station ID:		SW-80X-080509AX	SW-81X-080509AX	SW-82X-080409AX	SW-83X-080609AX	SW-84X-080609AX	VP-01X-072909AX	VP-02X-072809AX	VP-03X-072809AX	VP-03X-072809AD	VP-04X-072809AX
Sample Date:		8/5/2009	8/5/2009	8/5/2009	8/6/2009	8/6/2009	7/29/2009	7/28/2009	7/28/2009	7/28/2009	7/28/2009
Total Metals	**PAL**										
Aluminum	NA	5340	21300	16100	16900	200 U	200 U	200 U	200 U	200 U	200 U
Antimony	14	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	0.02	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Barium	3.9	**36.7 J**	**10.9**	**16 J**	**14.6**	**12.9**	**24 J**	**12.4 J**	**13.4**	**13.7 J**	**15.9 J**
Beryllium	5.3	0.53 J	0.88 J	0.94 J	0.78 J	5 U	5 U	5 U	5 U	5 U	5 U
Cadmium	0.25	**2.5 J**	**8.9 J**	**7 J**	**7.1 J**	0.5 U	**0.39 J**	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
Calcium	NA	22700	56300	45000	50300	7020	12000	12300	3150 J	9990	9910
Chromium	11	10 U	**12.1**	10 U	6 J	10 U	10 U	0.38 J	10 U	10 U	10 U
Cobalt	1500	83.2 J	267	188 J	200	0.55 J	9.4 J	50 U	50 U	50 U	50 U
Copper	9	**3180**	**9680**	**7790**	**7320**	**10.1**	**171**	5.7	2.5	3.6	0.26 J
Cyanide	700	10 U	10 U	10 U	10 U	10 U					
Iron	1000	100 UJ	**7820**	**5080 J**	**4870**	474	**1070 J**	80.8 J	42.9 J	743 J	477 J
Lead	2.5	1 U	0.61 J	1.2	1	1 U	0.11 J	1 UJ	0.089 J	0.24 J	1 UJ
Magnesium	NA	5450	17700	13600	14900	942 J	1630 J	924 J	647 J	853 J	831 J
Manganese	80	**596 J**	**1750**	**1470 J**	**1570**	35.9	**188 J**	11 J	9.8 J	**88 J**	**97.8 J**
Mercury	0.14	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum	370	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nickel	52	33.1 J	**90.2**	**73.9**	**74.5**	40 U	2.5 J	0.98 J	0.81 J	0.6 J	0.59 J
Potassium	NA	3630 J	4890 J	5210	5550	1140 J	2760 J	971 J	629 J	1310 J	1370 J
Selenium	5	0.65 J	5 U	1.6 J	5 U	5 U	1.7 J	5 UJ	5 UJ	5 UJ	5 UJ
Silver	0.36	0.5 U	1 U	0.12 J	1 U	1 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
Sodium	NA	2220 J	3500 J	3250 J	3390 J	1160 J	1690 J	1290 J	856 J	1350 J	1400 J
Strontium	1500	94.9	102	99.3	107	36.1	55.2 J	67.4 J	13.9 J	38.2 J	38.4 J
Thallium	1.7	1 U	1 U	1 U	1 U	1 U	0.073 J	1 U	1 U	1 U	1 U
Vanadium	19	0.27 J	0.39 J	1.3 J	0.32 J	0.48 J	5 UJ	5 UJ	0.34 J	0.58 J	0.29 J
Zinc	120	**300**	**1330**	**1010**	**1050**	60 U	70.2	3.3 J	10.3 J	6.4 J	4.9 J
Dissolved Metals	**PAL**										
Aluminum	NA	5430	22800	16000	17500	200 U	200 U	200 U	200 U	200 U	200 U
Antimony	14	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	0.02	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Barium	3.9	**36.6**	**10.6**	**14.3 J**	**14.6**	**12.2**	**24.3**	**12.6 J**	**13.8 J**	**13 J**	**16.1 J**
Beryllium	5.3	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cadmium	0.25	**2.7 J**	**8.6**	**7 J**	**6.9**	0.5 U	**0.36 J**	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
Calcium	NA	24100	54700	47300	46500	7090	12400	12500	10600	10700	3360 J
Chromium	11	10 U	**13.9**	10 U	7 J	10 U	10 U	10 U	10 U	10 U	10 U
Cobalt	1500	84	280	194	210	50 U	9.4 J	50 U	50 U	50 U	50 U
Copper	9	**3460**	**9520**	**7640**	**7490**	4.7	**145**	4.7	1.5 J	1.7 J	2 U
Iron	1000	100 U	**8200**	**3600**	**4350**	187	418	45.5 J	177	150	22.2 J
Lead	2.5	0.28 J	0.6 J	1.1	1	1 U	1 U	1 U	1 U	1 U	1 U
Magnesium	NA	5770	18000	14100	14000	1050 J	1630 J	923 J	803 J	853 J	617 J
Manganese	80	**616 J**	**1810 J**	**1520 J**	**1540**	25.2 J	**184**	10.9 J	**114**	84.9	8.6 J
Mercury	0.14	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum	370	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nickel	52	33.3 J	**94.9**	**74.7**	**80.1**	1.2 J	2.3 J	40 U	40 U	40 U	40 U
Potassium	NA	3870 J	4680 J	5340	4980 J	5000 U	2730 J	980 J	1460 J	1290 J	697 J
Selenium	5	0.58 J	1.2 J	1.3 J	0.97 J	5 U	1.7 J	5 U	5 U	5 U	5 U
Silver	0.36	0.5 UJ	1 U	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
Sodium	NA	2310 J	3700 J	3290 J	3540 J	1520 J	1700 J	1300 J	1450 J	1490 J	891 J
Strontium	1500	97.6	105	102	108	37.1	53.9	64.3	37.1	37.5	13.3
Thallium	1.7	1 U	1 U	1 U	1 U	1 U	0.069 J	1 U	1 U	1 U	1 U
Vanadium	19	5 UJ	5 U	5 UJ	0.35 J	5 U	5 UJ	5 UJ	0.29 J	0.36 J	5 UJ
Zinc	120	**299**	**1410**	**1040**	**1070**	5.5 J	77.6	13.6 J	68.9	23.8 J	31.5 J

Notes:
1. All concentrations listed in micrograms per liter (µg/L).
2. U=below detection limit, J=quantitation approximate
3. PAL = Project Action Limit
4. Blank cell indicates sample was not analyzed for that particular parameter.
5. **Bold** and shaded indicates exceedance of PAL

Table 6-6b
November 2009 Surface Water Total and Dissolved Metals
Ely Copper Mine Superfund Site
Vershire, Vermont

	Sample Location:	SW-04	SW-09	SW-12	SW-13	SW-17	SW-29	SW-32	SW-34	SW-36	SW-38	SW-40	SW-41	SW-42	SW-43	SW-45
	Station ID:	SW-04-111909AX	SW-09-111909AX	SW-12-111809AX	SW-13-111809AX	SW-17-111709AX	SW-29-111709AX	SW-32-111809AX	SW-34-111809AX	SW-36-111809AX	SW-38-111909AX	SW-40-111709AX	SW-41-111709AX	SW-42-111709AX	SW-43-120209AX	SW-45-111709AX
	Sample Date:	11/18/2009	11/19/2009	11/18/2009	11/18/2009	11/17/2009	11/17/2009	11/18/2009	11/18/2009	11/18/2009	11/19/2009	11/17/2009	11/17/2009	11/17/2009	12/2/2009	11/17/2009
Total Metals	**PAL**															
Aluminum	NA	289	2992	2774	349	53.2 J	4028	5293	2991	200 U	200 U	544	1239	23634	103590	24086
Antimony	14	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	0.02	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.4 J	1 U
Barium	3.9	**12.9**	**13.1**	**11.8**	**12.9**	**11.1**	**24**	**10.8**	**30.3**	**8.6**	**12.8**	**13.4**	**10.4**	**11.9**	**14.3 J**	**9.1**
Beryllium	5.3	5 U	0.26 J	5 U	5 U	5 U	0.35 J	0.27 J	0.35 J	5 U	5 U	5 U	5 U	1.2 J	1.9 J	1.2 J
Cadmium	0.25	0.061 J	**1.1**	**1**	0.25 J	0.5 U	**2.1**	**1.9**	**1.7**	0.5 U	0.5 U	**0.28 J**	**0.86**	**12.1**	**55.8**	**11.9**
Calcium	NA	24399	14656	14459	9697	7470	22579	18639	9855	5170	25369	9905	10706	51614	109890	58854
Chromium	11	10 U	1.2 J	1 J	10 U	10 U	10 U	1.9 J	10 U	10 U	10 U	10 U	10 U	0.99 J	**125**	2.7 J
Cobalt	1500	2.4 J	33.8 J	30 J	5.7 J	50 U	56.1	54.4	35.4 J	50 U	50 U	7.6 J	15.8 J	217	1174	221
Copper	9	**70.4**	**1067**	**1007**	**202**	5.1	**2208**	**1918**	**2045**	**13.8**	0.21 J	**318**	**545**	**8033**	**33178**	**8990**
Cyanide	700	10 U	10 U	10 U	10 U	10 U	3.4 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Iron	1000	251	**3527**	**2595**	100 U	100 U	100 U	**5447**	154	178	35.7 J	100 U	85.7 J	80.8 J	**20131**	516
Lead	2.5	1 U	0.33 J	0.2 J	1 U	1 U	0.067 J	0.42 J	0.9 J	0.14 J	0.036 J	1 U	1 U	0.45 J	**3.6**	0.085 J
Magnesium	NA	1495 J	3204 J	3158 J	1339 J	803 J	4818 J	4965 J	2163 J	796 J	1382 J	1413 J	2028 J	13603	67619	15758
Manganese	80	26.5	**285**	**284**	47.2	2.4 J	**473**	**528**	**249**	3.7 J	8 J	68.1	**167**	**1606**	**5230**	**1624**
Mercury	0.14	0.1 U	0.1 U	0.1 U	0.027 J	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum	370	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	1.4 J	10 U
Nickel	52	1.3 J	11.2 J	10.9 J	3.4 J			18.2 J	12.2 J	0.75 J	0.61 J	3.9 J	7 J		**308**	
Potassium	NA	1504 J	2127 J	2092 J	1046 J	506 J	3371 J	2585 J	2911 J	1387 J	1122 J	1641 J	1648 J	4575 J	5116	6128
Selenium	5	5 U	0.56 J	5 U	5 U	5 U	5 U	0.68 J	0.93 J	5 U	5 U	5 U	5 U	1.1 J	**9.3 J**	1.3 J
Silver	0.36	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.8**	0.072 J
Sodium	NA	2598 J	1579 J	1464 J	1004 J	533 J	1814 J	1862 J	2204 J	1098 J	2511 J	1054 J	1241 J	3255 J	7970	3972 J
Strontium	1500	122	53.9	50.5	39.7	31.5	94.6	59.2	45	26.2	130	41.6	38.9	138	144	137
Thallium	1.7	1 U	1 U	1 U	1 U	1 U	0.059 J	0.024 J	0.074 J	1 U	1 U	1 U	0.078 J	0.16 J	0.31 J	0.2 J
Vanadium	19	0.43 J	0.35 J	0.55 J	5 U	0.43 J	0.33 J	0.82 J	5 U	0.51 J	0.3 J	0.43 J	0.29 J	0.49 J	6.7	0.27 J
Zinc	120	14.3 J	**178**	**168**	29.9 J	**2.7 J**	**239**	**307**	**167**	60 U	60 U	37.5 J	**121**	**1678**	**8192**	**1758**
Dissolved Metals	**PAL**															
Aluminum	NA	294	2858	2338	60.7 J	200 U	4024	4938	2985	71.9 J	200 U	78.5 J	139 J	23498	98085	23517
Antimony	14	2 U	2 U	2 U	2 U	2 U	2 U	1.7 J	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	0.02	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Barium	3.9	**12.8**	**13.1**	**11.9**	**13.1**	**11.1**	**23.5**	**10.9**	**30.6**	**8.3**	**12.9**	**13.9**	**10.8**	**12.6**	2.9 J	**8.9**
Beryllium	5.3	5 U	5 U	5 U	0.26 J	5 U	5 U	5 U	5 U	0.33 J	5 U	5 U	5 U	0.76 J	1.7 J	5 U
Cadmium	0.25	0.5 U	**1.1**	**1**	0.19 J	0.5 U	**2.1**	**2**	**1.6**	0.5 U	0.5 U	0.22 J	**0.82**	**12.5**	**54.5**	**12.4**
Calcium	NA	23657	14973	13824	9853	7587	23001	18456	9788	5147	24082	9605	10502	51985	101677	58026
Chromium	11	10 U	1.2 J	0.48 J	10 U	10 U	10 U	1.6 J	0.54 J	10 U	10 U	10 U	10 U	1.3 J	**125**	2.7 J
Cobalt	1500	2.8 J	34.8 J	30 J	5.9 J	50 U	57.8	55.1	36.1 J	0.52 J	50 U	8.1 J	16.9 J	218	1146	218
Copper	9	**51.3**	**1036**	**1025**	**137**	5	**2223**	**1970**	**2081**	**13.6**	0.66 J	**225**	**447**	**8201**	**32841**	**8664**
Iron	1000	116	**2514**	**1667**	100 U	100 U	100 U	**4613**	115	46.9 J	100 U	100 U	38.1 J	92.5 J	**9079**	468
Lead	2.5	1 U	0.21 J	0.14 J	1 U	1 U	0.09 J	0.41 J	0.23 J	1 U	1 U	1 U	1 U	0.46 J	0.24 J	0.095 J
Magnesium	NA	1348 J	3082 J	2958 J	1344 J	877 J	5009	4784 J	2007 J	838 J	1294 J	1315 J	1920 J	14029	64062	16106
Manganese	80	25.5	**278**	**272**	46.6	1.9 J	**486**	**522**	**251**	3.4 J	7.6 J	64	**166**	**1625**	**4987**	**1653**
Mercury	0.14	0.1 U	0.1 U	0.1 U	0.1 U	0.036 J	0.037 J	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.045 J	0.1 U	0.04 J
Molybdenum	370	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nickel	52	0.89 J	11.2 J	10.7 J	3.4 J	0.99 J	25.3 J	18 J	12.7 J	0.8 J	40 U	4 J	6.9 J	**88.3**	**302**	**86.5**
Potassium	NA	1862 J	2357 J	2066 J	1947 J	1430 J	3862 J	2832 J	3252 J	1580 J	1430 J	1721 J	2155 J	5307	3563 J	6478
Selenium	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.78 J	5 U	5 U	5 U	5 U	1.3 J	**6.4**	0.87 J
Silver	0.36	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.13 J	0.033 J
Sodium	NA	2617 J	1798 J	1400 J	1046 J	847 J	2151 J	1884 J	2232 J	1129 J	2370 J	1057 J	1200 J	3576 J	7775	4248 J
Strontium	1500	118	53.6	47	39.9	31.9	97.7	56.9	44.4	26.8	120	40.6	37.5	139	134	140
Thallium	1.7	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.07 J	0.18 J	0.1 J
Vanadium	19	0.3 J	0.4 J	0.31 J	5 U	0.42 J	0.68 J	0.78 J	0.44 J	0.44 J	0.26 J	5 U	5 U	0.34 J	2.7 J	0.52 J
Zinc	120	13.7 J	**180**	**162**	30 J	2.8 J	**250**	**304**	**168**	3.6 J	60 U	35.7 J	**123**	**1730**	**7997**	**1756**

Table 6-6b
November 2009 Surface Water Total and Dissolved Metals
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:		SW-45	SW-46	SW-47	SW-48	SW-49	SW-51	SW-72	SW-71	SW-73	SW-75	SW-77	SW-78	SW-79	SW-80	SW-81
Station ID:		SW-45-111709AD	SW-46-111609AX	SW-47-111609AX	SW-48-111609AX	SW-49-111609AX	SW-51-111809AX	SW-72-111809AX	SW-71-111709AX	SW-73-111809AX	SW-75-111609AX	SW-77-111609AX	SW-78-111609AX	SW-79-111609AX	SW-80-111609AX	SW-81-111709AX
Sample Date:		11/17/2009	11/17/2009	11/16/2009	11/16/2009	11/16/2009	11/18/2009	11/18/2009	11/17/2009	11/18/2009	11/16/2009	11/16/2009	11/16/2009	11/16/2009	11/16/2009	11/17/2009
Total Metals	**PAL**															
Aluminum	NA	22619	18397	23345	1442	5513	99.5 J	2352	321	54.8 J	17368	458	19850	16934	5587	23085
Antimony	14	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	0.02	1 U	1 U	1 U	1 U	1 U	1 U	**0.64 J**	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Barium	3.9	**9.2**	**11.9**	**4.2 J**	**41.8**	**13**	**10.6**	**33**	**29**	**10.8**	**26.2**	**42.8**	**14.9**	**11.9**	**26.4**	**11.1**
Beryllium	5.3	1.1 J	0.84 J	1.4 J	5 U	0.73 J	5 U	0.31 J	5 U	5 U	0.61 J	0.32 J	1.2 J	1.2 J	0.66 J	1.2 J
Cadmium	0.25	**12.4**	**6.5**	**9.6**	**1.7**	**1.2**	0.5 U	0.083 J	**0.55**	0.064 J	**9**	**0.3 J**	**8.2**	**4.5**	**2.5**	**8.7**
Calcium	NA	55321	41510	60921	6142	35203	10795	10246	20369	11052	41492	4076 J	63124	56451	24466	55772
Chromium	11	2.5 J	3.4 J	**14.6**	10 U	2.3 J	10 U	4.3 J	10 U	10 U	**11.1**	10 U	5 J	5.4 J	0.43 J	8 J
Cobalt	1500	213	160	329	18.4 J	45 J	50 U	1.6 J	6 J	0.88 J	218	11.2 J	320	206	74.2	225
Copper	9	**8992**	**6795**	**9402**	**921**	**1553**	**15.3**	**30.3**	**72.4**	**38.6**	**12886**	**326**	**12769**	**6955**	**2961**	**6958**
Cyanide	700	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Iron	1000	525	330	**28267**	19.3 J	**1557**	60.3 J	3672	**1287**	59.9 J	**17397**	74.7 J	**2158**	**1018**	100 U	**1661**
Lead	2.5	0.085 J	0.25 J	0.52 J	0.14 J	0.85 J	0.11 J	**3.9**	0.061 J	1 U	0.43 J	0.12 J	2.2	0.49 J	0.087 J	0.6 J
Magnesium	NA	14939	13599	17607	1632 J	9063	1232 J	1828 J	3839 J	1146 J	16000	1102 J	17256	14197	5683	18274
Manganese	80	**1559**	**1611**	**1836**	**192**	**687**	16.1	**127**	**408**	15.5	**1496**	**126**	**1864**	**1594**	**613**	**2036**
Mercury	0.14	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.033 J	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum	370	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nickel	52						0.56 J	4.2 J		0.99 J						
Potassium	NA	5580	3841 J	5068	1347 J	5806	1417 J	1659 J	2463 J	912 J	2253 J	1023 J	8635	6331	3487 J	5099
Selenium	5	1.2 J	1.3 J	2.4 J	5 U	0.6 J	5 U	0.57 J	5 U	5 U	1.4 J	5 U	2.9 J	2 J	0.58 J	1.7 J
Silver	0.36	0.074 J	0.072 J	0.083 J	0.5 U	0.037 J	0.5 U	0.07 J	0.5 U	0.5 U	0.13 J	0.062 J	0.15 J	0.099 J	0.5 U	0.14 J
Sodium	NA	3734 J	3537 J	4584 J	1014 J	2707 J	1284 J	1305 J	1314 J	1208 J	2935 J	958 J	4629 J	3831 J	2079 J	3844 J
Strontium	1500	132	79.4	177	28.2	74.9	53.1	57.3	104	50.6	55.3	21.1	209	205	100	123
Thallium	1.7	0.19 J	0.14 J	0.16 J	0.048 J	0.16 J	1 U	0.057 J	1 U	1 U	0.088 J	0.11 J	0.2 J	0.16 J	0.073 J	0.15 J
Vanadium	19	0.44 J	0.35 J	1.2 J	0.36 J	5 U	0.49 J	11.3	0.54 J	5 U	0.63 J	5 U	2.2 J	0.92 J	5 U	1.1 J
Zinc	120	**1679**	**883**	**1190**	**235**	**288**	3.7 J	9.8 J	**131**	6.5 J	**1244**	40.9 J	**816**	**588**	**304**	**1244**
Dissolved Metals	**PAL**															
Aluminum	NA	23027	18541	23205	1425	5195	68.2 J	76.5 J	253	200 U	16975	459	19047	16846	5395	23768
Antimony	14	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	0.02	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Barium	3.9	**8.7**	**13.9**	3.1 J	**41.5**	**13.1**	**10.3**	**10.4**	**29.5**	**10.9**	**25**	**40.9**	**10.9**	**10.6**	**26.3**	**9.2**
Beryllium	5.3	0.58 J	0.54 J	1 J	5 U	5 U	0.27 J	5 U	5 U	5 U	5 U	5 U	0.81 J	0.53 J	0.36 J	0.53 J
Cadmium	0.25	**11.9**	**6.2**	**9.8**	**1.6**	**1.1**	0.5 U	0.5 U	0.19 J	0.5 U	**8.9**	0.18 J	**8**	**4.6**	**2.5**	**8.6**
Calcium	NA	57380	41948	61475	6097	34073	11104	9385	20225	10995	40976	3993 J	62514	56465	23498	57673
Chromium	11	2.7 J	3.4 J	**14.8**	10 U	2.4 J	10 U	10 U	10 U	10 U	11	10 U	5.1 J	5.3 J	0.58 J	8.2 J
Cobalt	1500	216	161	335	18.1 J	45.4 J	0.46 J	50 U	6.4 J	1.1 J	217	11.1 J	323	209	73	233
Copper	9	**8826**	**6702**	**9305**	**900**	**1499**	**11.3**	2.2	4.7	**36.8**	**12409**	**236**	**12639**	**6902**	**3018**	**7018**
Iron	1000	456	330	**27449**	100 U	**1472**	100 U	49.6 J	**1322**	24.7 J	**16783**	88.9 J	**1454**	481	39.1 J	**1403**
Lead	2.5	0.12 J	0.42 J	0.29 J	0.17 J	0.86 J	1 U	1 U	0.036 J	1 U	0.38 J	0.091 J	1.3	0.24 J	0.11 J	0.28 J
Magnesium	NA	15745	13896	17826	1783 J	8951	1261 J	1079 J	3912 J	1186 J	15822	1106 J	17110	14438	5641	19264
Manganese	80	**1608**	**1620**	**1856**	**193**	**674**	11.9 J	51.2	**407**	16.4	**1479**	**128**	**1859**	**1618**	**596**	**2110**
Mercury	0.14	0.034 J	0.044 J	0.033 J	0.036 J	0.044 J	0.1 U	0.1 U	0.041 J	0.1 U	0.034 J	0.034 J	0.037 J	0.031 J	0.041 J	0.039 J
Molybdenum	370	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nickel	52	**86**	**64.5**	**100**	8.3 J	20.7 J	40 U	40 U	10.3 J	0.87 J	**58.4**	4.8 J	**115**	**75.6**	29.6 J	**90.6**
Potassium	NA	6294	4981 J	5862	2307 J	5807	1719 J	981 J	2892 J	1475 J	3573 J	2066 J	8381	6344	3723 J	5693
Selenium	5	1.1 J	0.87 J	1.8 J	5 U	0.59 J	5 U	5 U	5 U	5 U	1.3 J	5 U	1.6 J	1.5 J	0.65 J	1.1 J
Silver	0.36	0.038 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.069 J	0.5 U	0.5 U	0.5 U	0.5 U	0.032 J
Sodium	NA	4190 J	4015 J	4844 J	1299 J	2915 J	1334 J	1278 J	1618 J	1186 J	3136 J	1235 J	4826 J	4297 J	2359 J	4252 J
Strontium	1500	137	80.1	178	27.8	73.4	53.9	49.3	105	49.5	54.6	20.4	209	210	98.5	126
Thallium	1.7	0.1 J	0.062 J	0.06 J	1 U	0.049 J	1 U	1 U	1 U	1 U	1 U	1 U	0.11 J	0.059 J	1 U	0.057 J
Vanadium	19	0.65 J	0.36 J	0.84 J	1.1 J	5 U	0.43 J	1.1 J	0.77 J	5 U	0.27 J	0.48 J	0.26 J	0.51 J	0.56 J	0.5 J
Zinc	120	**1736**	**917**	**1219**	**231**	**287**	3.8 J	60 U	**124**	8.3 J	**1242**	39.6 J	**822**	**605**	**301**	**1322**

Table 6-6b
November 2009 Surface Water Total and Dissolved Metals
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:		SW-82	SW-83	SW-83	SW-84
Station ID:		SW-82-111709AX	SW-83-111809AX	SW-83-111809AD	SW-84-111809AX
Sample Date:		11/17/2009	11/18/2009	11/18/2009	11/18/2009
Total Metals	**PAL**				
Aluminum	NA	18310	18765	18792	52.2 J
Antimony	14	2 U	2 U	2 U	2 U
Arsenic	0.02	1 U	1 U	1 U	1 U
Barium	3.9	**14.6**	**13.9**	**14**	**8.9**
Beryllium	5.3	0.86 J	0.93 J	0.92 J	5 U
Cadmium	0.25	**6.9**	**6.5**	**6.9**	0.5 U
Calcium	NA	48150	48422	48504	5521
Chromium	11	3.6 J	3.6 J	3.6 J	10 U
Cobalt	1500	177	182	182	0.43 J
Copper	9	**5988**	**6265**	**6039**	4.9
Cyanide	700	10 U	10 U	10 U	10 U
Iron	1000	**1106**	**1648**	**1615**	155
Lead	2.5	0.75 J	0.91 J	0.86 J	1 U
Magnesium	NA	13783	14217	14164	853 J
Manganese	80	**1698**	**1774**	**1776**	11.7 J
Mercury	0.14	0.1 U	0.039 J	0.1 U	0.1 U
Molybdenum	370	10 U	10 U	10 U	10 U
Nickel	52		**74.4**	**74.2**	0.65 J
Potassium	NA	5371	5590	5059	1280 J
Selenium	5	0.89 J	1.6 J	1.2 J	5 U
Silver	0.36	0.5 U	0.5 U	0.5 U	0.5 U
Sodium	NA	3676 J	3822 J	3809 J	1102 J
Strontium	1500	121	124	124	28.2
Thallium	1.7	0.18 J	0.2 J	0.18 J	1 U
Vanadium	19	0.28 J	0.28 J	0.5 J	0.62 J
Zinc	120	**919**	**978**	**981**	60 U
Dissolved Metals	**PAL**				
Aluminum	NA	18783	19205	18685	200 U
Antimony	14	2 U	2 U	2 U	2 U
Arsenic	0.02	1 U	1 U	1 U	1 U
Barium	3.9	**14.6**	**13.6**	**13.8**	**8.8**
Beryllium	5.3	0.96 J	1.2 J	0.82 J	5 U
Cadmium	0.25	**6.9**	**6.7**	**6.8**	0.5 U
Calcium	NA	49909	48678	47759	5365
Chromium	11	3.9 J	4.3 J	3.6 J	10 U
Cobalt	1500	186	183	179	50 U
Copper	9	**6069**	**6285**	**6202**	3.8
Iron	1000	**1120**	**1560**	**1539**	58.2 J
Lead	2.5	0.78 J	0.8 J	0.8 J	1 U
Magnesium	NA	14888	14213	14054	680 J
Manganese	80	**1791**	**1797**	**1781**	5.6 J
Mercury	0.14	0.039 J	0.1 U	0.1 U	0.1 U
Molybdenum	370	10 U	10 U	10 U	10 U
Nickel	52	**75.7**	**73.5**	**72.5**	40 U
Potassium	NA	5968	5872	5658	1418 J
Selenium	5	1 J	1.2 J	0.84 J	5 U
Silver	0.36	0.5 U	0.5 U	0.5 U	0.5 U
Sodium	NA	3972 J	3794 J	3738 J	1115 J
Strontium	1500	129	122	121	27.3
Thallium	1.7	0.086 J	0.14 J	0.13 J	1 U
Vanadium	19	0.45 J	0.3 J	0.39 J	0.28 J
Zinc	120	**1000**	**969**	**950**	60 U

Notes:
1. All concentrations listed in micrograms per liter (µg/L).
2. U=below detection limit, J=quantitation approximate
3. PAL = Project Action Limit
4. **Bold** and shaded indicates exceedance of PAL

Table 6-7
Groundwater Geochemical Parameters
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:	**MW1A**		**MW1B**		**MW1C**		**MW2A**		**MW2B**		**MW2C**		**MW3C**		**MW4A**		**MW4C**	
	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall
Field Measured Parameter																		
pH (SU)	1.26	3.73	7.14	8.38	7.05	8.56	3.49	4.11	4.21	10.11	6.57	7.27	6.68	6.48	3.96	3.68	6.57	7.21
Specific Conductivity (mS/m)	0.55	0.534	0.499	0.516	0.342	0.368	0.433	0.444	0.408	0.437	0.404	0.384	0.066	0.066	0.419	0.501	0.404	0.4
Dissolved Oxygen (mg/L)	6.35	6.17	0.4	0.46	2	2.04	2	6.84	0.61	0.52	0.55	0.35	7.81	8.39	7.84	11.06	0.55	0.71
Oxidation Reduction Potential (mV)	581	123.8	47.3	3	314.5	-27.6	214	188.3	341	-120.7	33.6	-149.8	-63	125.8	165	214.1	33.6	60.6
Turbidity (NTU)	0.77	0.53	18.7	1.02	8.37	0.92	< 1	0.40	51.9	2.62	0.59	9.95	2.12	< 1	8.86	8.11	0.59	0.41
Temperature (^{o}C)	15.93	9.52	15.46	9.12	12.77	8.02	13.9	9.78	14.22	9.59	12.59	10.26	11.21	7.92	16.25	6.75	12.59	8.4
Laboratory Measured Parameter																		
Alkalinity (As CaCO3) (mg/L)	4 J		93		87		5 U		70		100		16		5 U		140	
Alkalinity, Bicarbonate (As CaCO3) (mg/L)	4 J		93		87		5 U		70		100		15		5 U		140	
Alkalinity, Carbonate (As CaCO3) (mg/L)	5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U	
Alkalinity, Hydroxide (As CaCO3) (mg/L)	5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U	
Chloride (mg/L)	51		0.53		0.45		32		0.71		0.46		0.29		0.78 J		0.89 J	
Sulfate (mg/L)	180 X	170	190	180	90	110	160	170	140	140	84	87	5.7	5.7	250	240	72	83
Acidity, Total (mg/L)	10 U		10 U		10 U		50		10 U		10 U		10 U		120		10 U	
Nitrogen, Nitrite + Nitrate (mg/L)	0.21		0.02 U		0.018		0.16		0.02 U		0.02 U		0.019		0.15		0.12	
Sulfide (mg/L)	2 U		2 U		0.4 J		2 U		2 U		0.4 J		0.43 J		0.43 J		0.6 J	

Notes:
SU = standard units
mS/m = micro siemens per meter
mV = millivolts
mg/L = milligrams per liter
NTU = nephelometric turbidity units
^{o}C = degrees celcius
U=below detection limit, J=quantitation approximate,
X = Other specific flags may be required to properly define the results
Blank cells indicate sample was not analyzed for that particular parameter
Sample locations denoted with a "D" are a duplicate

Table 6-7
Groundwater Geochemical Parameters
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:	**MW5A**		**MW5A (D)**	**MW5B**		**MW5B (D)**	**MW5C**		**MW6A**		**MW6C**		**MW7A**		**MW7C**		**MW8A**	
	Summer	Fall	Fall	Summer	Fall	Summer	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall
Field Measured Parameter																		
pH (SU)	2.7	4.07	4.07	7.03	7.08	7.03	4.85	7.66	5.85	6.21	6.93	7.16	4.51	5.96	4.32	6.11	3.88	4.06
Specific Conductivity (mS/m)	0.573	0.621	0.621	0.88	0.856	0.88	0.777	0.787	0.128	0.105	0.509	0.492	0.042	0.053	0.047	0.052	0.61	0.684
Dissolved Oxygen (mg/L)	9.17	8.62	8.62	1.24	2.76	1.24	2.3	2.23	3.68	8.88	2.14	1.92	5.02	9.39	8.21	9.99	9.4	9.06
Oxidation Reduction Potential (mV)	694.4	137.2	137.2	423.2	52.6	423.2	106.8	40.5	-48.6	151.7	-58.4	160	646	-45.7	645.2	-100.1	164	156.5
Turbidity (NTU)	4.5	0.67	0.67	5.8	9.02	5.8	3.76	0.21	5.34	< 1	0.98	< 1	3.7	0.56	9.3	2.12	4.79	0.29
Temperature (^{o}C)	13.89	8.44	8.44	11.6	9.41	11.6	11.21	7.51	12.63	7.35	12.72	7.84	13.6	8.2	13.23	8.2	13.09	8.72
Laboratory Measured Parameter																		
Alkalinity (As CaCO3) (mg/L)	5 U			140		140	69		42		110		13		12		5 U	
Alkalinity, Bicarbonate (As CaCO3) (mg/L)	5 U			140		140	69		42		110		13		12		5 U	
Alkalinity, Carbonate (As CaCO3) (mg/L)	5 U			5 U		5 U	5 U		5 U		5 U		5 U		5 U		5 U	
Alkalinity, Hydroxide (As CaCO3) (mg/L)	5 U			5 U		5 U	5 U		5 U		5 U		5 U		5 U		5 U	
Chloride (mg/L)	0.3			0.36		0.32	0.93 J		0.19 J		0.35		0.76 J		0.77 J		0.32	
Sulfate (mg/L)	380	370	370	320	280	290	350	340	16	25	140	150	3.5	4.8	3.2	4.6	380	390
Acidity, Total (mg/L)	150			10 U		10 U	10 U		10 U		10 U		10 U		10 U		110	
Nitrogen, Nitrite + Nitrate (mg/L)	0.13			0.02 U		0.02 U	0.056		0.02 U		0.024		0.045		0.038		0.02 U	
Sulfide (mg/L)	0.43 J			2 U		1.6 J	0.63 J		2 U		2 U		1 J		0.4 J		2 U	

Notes:
SU = standard units
mS/m = micro siemens per meter
mV = millivolts
mg/L = milligrams per liter
NTU = nephelometric turbidity units
^{o}C = degrees celcius
U=below detection limit, J=quantitation approximate,
X = Other specific flags may be required to properly define the results
Blank cells indicate sample was not analyzed for that particular parameter
Sample locations denoted with a "D" are a duplicate

Table 6-7
Groundwater Geochemical Parameters
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:	**MW8A (D)**	**MW9A**		**MW9C**		**MW10B**		**MW10C**		**MW11A**		**MW11C**		**MW12C**		**MW13A**	
	Fall	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall
Field Measured Parameter																	
pH (SU)	4.06	3.9	4.23	7.9	8.34	4.21	5.83	5.4	7.52	5.5	6.25	5.46	7.54	4.66	4.9	6.38	6.57
Specific Conductivity (mS/m)	0.684	0.42	0.454	0.742	0.853	0.053	0.048	0.168	0.174	0.184	0.143	0.289	0.276	0.37	0.36	0.19	0.191
Dissolved Oxygen (mg/L)	9.06	9.09	9.49	2.36	1.18	9.19	8.66	5.61	4.17	0.32	0.32	0.39	0.87	4.22	6.5	6.21	8.14
Oxidation Reduction Potential (mV)	156.5	589.6	144.2	-50.8	-80.8	399.7	140.2	406.9	128.6	39.1	-70.1	339.7	13.9	117.8	128.1	-36.5	173.3
Turbidity (NTU)	0.29	1.7	0.70	4.37	0.34	1.69	< 1	2.17	1.51	7.5	1.03	7.23	0.44	1.76	0.98	0.16	< 1
Temperature (^{o}C)	8.72	14.73	7.21	11.14	9.15	11.79	7.57	12.4	7.37	15.85	7.46	11.96	8.3	15.42	10.17	13.52	8.95
Laboratory Measured Parameter																	
Alkalinity (As CaCO3) (mg/L)		5 U		30		6		51		45		78		5 U		42	
Alkalinity, Bicarbonate (As CaCO3) (mg/L)		5 U		28		6		51		45		78		5 U		42	
Alkalinity, Carbonate (As CaCO3) (mg/L)		5 U		2		5 U		5 U		5 U		5 U		5 U		5 U	
Alkalinity, Hydroxide (As CaCO3) (mg/L)		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U	
Chloride (mg/L)		0.29		1.1		0.3		0.35		0.39		0.45		0.3		0.29	
Sulfate (mg/L)	380	190	230	360	390	9.8	9.7	17	19	18	27	47	48	180	160	42	43
Acidity, Total (mg/L)		79		10 U		10 U		10 U		18		10 U		14		10 U	
Nitrogen, Nitrite + Nitrate (mg/L)		0.12		0.16		0.014		0.041		0.02 U		0.02 U		0.028		0.025 X	
Sulfide (mg/L)		0.5 J		0.53 J		2 U		0.47 J		0.53 J		2 U		2 U		0.5 J	

Notes:
SU = standard units
mS/m = micro siemens per meter
mV = millivolts
mg/L = milligrams per liter
NTU = nephelometric turbidity units
^{o}C = degrees celcius
U=below detection limit, J=quantitation approximate,
X = Other specific flags may be required to properly define the results
Blank cells indicate sample was not analyzed for that particular parameter
Sample locations denoted with a "D" are a duplicate

Table 6-7
Groundwater Geochemical Parameters
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:	**MW14A**		**MW14C**		**MW14D**		**MW15A**		**MW16A**		**MW17A**		**MW18A**		**MW19A**		**MW19C**	
	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall
Field Measured Parameter																		
pH (SU)	5.46	6.01	7.82	7.58	6.78	8.03	6.37	6.53	7.1	7.31	6.47	6.3	3.98	DRY	2.87	5.85	3.39	5.68
Specific Conductivity (mS/m)	0.057	0.069	0.213	0.195	0.259	0.198	0.12	0.118	0.208	0.192	0.182	0.145	0.713	DRY	0.593	0.681	0.768	0.634
Dissolved Oxygen (mg/L)	5.91	6.46	4.62	4.78	3.52	2.59	0.65	0.8	1.98	1.99	4.93	7.03	9.16	DRY	8.55	8.24	6.61	6.1
Oxidation Reduction Potential (mV)	-28.2	-95.7	378.9	-176.2	208.8	57.9	-46.9	179.8	-49.5	183.9	455.7	-15.8	187	DRY	648.8	161.7	674.5	158.9
Turbidity (NTU)	2.31	0.33	13.3	1.49	27.8	8.01	4.19	1.87	1.79	< 1	4.2	0.15	55.1	DRY	3.7	5.78	9.38	0.1
Temperature (^{o}C)	13.6	7.55	12.42	7.78	10.48	7.60	14.68	7.64	12.62	7.94	15.33	8.09	17.15	DRY	15.44	9.87	13.33	8.94
Laboratory Measured Parameter																		
Alkalinity (As CaCO3) (mg/L)	11		79		68		110		88		77		5 U		5 U		5 U	
Alkalinity, Bicarbonate (As CaCO3) (mg/L)	11		79		68		110		88		77		5 U		5 U		5 U	
Alkalinity, Carbonate (As CaCO3) (mg/L)	5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U	
Alkalinity, Hydroxide (As CaCO3) (mg/L)	5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U	
Chloride (mg/L)	0.31		2.6		0.43		0.79 J		0.88 J		0.28		0.38		0.33		0.44	
Sulfate (mg/L)	9.3	9	18	15	29	27	5	7.5	7	9.2	10	10	460	930	330	350	380	290
Acidity, Total (mg/L)	10 U		10 U		10 U		10 U		10 U		10 U		160		140		57	
Nitrogen, Nitrite + Nitrate (mg/L)	0.019		0.014		0.02 U		0.012		0.12		0.029		0.14 X		0.11		0.056	
Sulfide (mg/L)	0.43 J		2 U		0.81		0.63 J		0.43 J		0.43 J		0.53 J		0.63 J		2 U	

Notes:
SU = standard units
mS/m = micro siemens per meter
mV = millivolts
mg/L = milligrams per liter
NTU = nephelometric turbidity units
^{o}C = degrees celcius
U=below detection limit, J=quantitation approximate,
X = Other specific flags may be required to properly define the results
Blank cells indicate sample was not analyzed for that particular parameter
Sample locations denoted with a "D" are a duplicate

Table 6-7
Groundwater Geochemical Parameters
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:	MW19D		MW20A		MW20C		MW20D		MW21A		MW21A (D)	MW21A	MW21C		MW22A		MW23A	
	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall	Summer	Fall
Field Measured Parameter																		
pH (SU)	3.75	6.33	4.01	5.13	5.99	6.46	10.62	12.07	1.71	3.28	1.71	1.71	2.13	3.75	3.48	4.04	5.07	5.42
Specific Conductivity (mS/m)	0.511	0.436	0.335	0.394	0.466	0.302	0.465	0.270	0.973	0.983	0.973	0.973	1.026	1.035	0.679	0.219	0.048	0.056
Dissolved Oxygen (mg/L)	6.18	4.21	7.62	10.66	7.75	3.55	1.70	0.410	0.8	0.8	0.8	0.8	1.59	0.28	0.28	0.44	1.32	2.62
Oxidation Reduction Potential (mV)	298.8	179.3	176	206.6	98.5	105.1	188.5	-35.0	269.3	270.1	269.3	269.3	242.8	322.7	289.4	201.5	593.6	8.3
Turbidity (NTU)	25.5	151	2.33	0.97	2.04	0.3	12.6	35.8	2.89	0.67	2.89	2.89	57.3	10.27	2.9	0.08	1.4	0.54
Temperature (^{o}C)	11.28	9.01	14.02	4.56	13.07	7.84	9.83	8.26	16.1	8.44	16.1	16.1	14.57	10.49	16.94	7.69	14.98	9.64
Laboratory Measured Parameter																		
Alkalinity (As CaCO3) (mg/L)			5 U		5 U		60		80		5 U		5 U		5 U		5 U	
Alkalinity, Bicarbonate (As CaCO3) (mg/L)	15.2		5 U		5 U		5 U		80		5 U		5 U		5 U		5 U	
Alkalinity, Carbonate (As CaCO3) (mg/L)	5 U		5 U		5 U		17.5		5 U		5 U		5 U		5 U		5 U	
Alkalinity, Hydroxide (As CaCO3) (mg/L)	2.7 J		5 U		5 U		42		5 U		5 U		5 U		5 U		5 U	
Chloride (mg/L)	0.39		0.28		2.3		0.41		0.44		0.44		2.1		0.35		0.77 J	
Sulfate (mg/L)	220	210	180	190	140	60	69	76	660	630	660	620	500	600	410	410	16	11
Acidity, Total (mg/L)	19.7		50		10 U		10 U		230		100		110		130		10 U	
Nitrogen, Nitrite + Nitrate (mg/L)	0.04		0.031		0.036		0.012 J		0.02 U		0.02 U		0.02 U		0.028		0.028	
Sulfide (mg/L)	2 U		0.43 J		0.83 J		2 U		0.53 J		0.02 U		0.43 J		1.2 J		0.83 J	

Notes:
SU = standard units
mS/m = micro siemens per meter
mV = millivolts
mg/L = milligrams per liter
NTU = nephelometric turbidity units
^{o}C = degrees celcius
U=below detection limit, J=quantitation approximate,
X = Other specific flags may be required to properly define the results
Blank cells indicate sample was not analyzed for that particular parameter
Sample locations denoted with a "D" are a duplicate

Table 6-7
Groundwater Geochemical Parameters
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:	**BOM1**	
	Summer	Fall
Field Measured Parameter		
pH (SU)	6.1	6.62
Specific Conductivity (mS/m)	0.077	0.072
Dissolved Oxygen (mg/L)	7.99	10.03
Oxidation Reduction Potential (mV)	66.9	140.1
Turbidity (NTU)	7.11	1.54
Temperature (^{o}C)	11.49	5.81
Laboratory Measured Parameter		
Alkalinity (As CaCO3) (mg/L)	30	
Alkalinity, Bicarbonate (As CaCO3) (mg/L)	30	
Alkalinity, Carbonate (As CaCO3) (mg/L)	5 U	
Alkalinity, Hydroxide (As CaCO3) (mg/L)	5 U	
Chloride (mg/L)	0.85 J	
Sulfate (mg/L)	5.3	8.3
Acidity, Total (mg/L)	10 U	
Nitrogen, Nitrite + Nitrate (mg/L)	0.12	
Sulfide (mg/L)	2 U	

Notes:
SU = standard units
mS/m = micro siemens per meter
mV = millivolts
mg/L = milligrams per liter
NTU = nephelometric turbidity units
^{o}C = degrees celcius
U=below detection limit, J=quantitation approximate,
X = Other specific flags may be required to properly
define the results
Blank cells indicate sample was not analyzed for
that particular parameter
Sample locations denoted with a "D" are a duplicate

Table 6-8a
August 2009 Groundwater and Porewater Total and Dissolved Metals
Ely Copper Mine Superfund Site
Vershire, Vermont

	Sample Location:	MW-01A	MW-01B	MW-01C	MW-02A	MW-02B	MW-02C	MW-03C	MW-04A	MW-04C	MW-05A	MW-05B	MW-05B	MW-05C	MW-06A	MW-06C
	Station ID:	MW-01A-081009AX	MW-01B-081009AX	MW-01C-081209AX	MW-02A-081009AX	MW-02B-081009AX	MW-02C-081209AX	MW-03C-081109AX	MW-04A-081209AX	MW-04C-081209AX	MW-05A-081109AX	MW-05B-081209AX	MW-05B-081209AD	MW-05C-081309AX	MW-06A-081209AX	MW-06C-081209AX
	Sample Date:	8/10/2009	8/10/2009	8/12/2009	8/10/2009	8/10/2009	8/12/2009	8/11/2009	8/12/2009	8/12/2009	8/11/2009	8/12/2009	8/12/2009	8/13/2009	8/12/2009	8/12/2009
Total Metals	**PAL**															
Aluminum	NA	200 U	1030	513	4680	468	3590	200 U	16900	200 U	25500	200 U	200 U	200 U	199 J	70 J
Antimony	6	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	3.2 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Barium	2,000	20.2 J	45 J	23.9 J	25.6 J	43 J	83.6 J	7.5 J	20.6 J	21.6 J	11.5 J	22.3 J	20.7 J	16.3 J	27.5 J	15.8 J
Beryllium	4	1 U	1 U	1 U	0.54 J	1 U	0.15 J	1 U	0.96 J	1 U	1.3	1 U	1 U	1 U	1 U	1 U
Cadmium	5	1.4 J	5 U	5 U	3.5 J	5 U	5 U	5 U	**9.1**	5 U	**13.1**	5 U	5 U	0.25 J	5 U	5 U
Calcium	NA	45600	88900	55400	23800	66500	51900	8640	22200	67100	39600	144000	141000	139000	18800	95200
Chromium	100	10 U	2.9 J	6.4 J	10 U	1.3 J	25.1	10 U	3.9 J	10 U	10 U	10 U	10 U	10 U	0.4 J	10 U
Cobalt	NA	159	1 J	50 U	106	50 U	1 J	50 U	158	50 U	259	0.4 J	50 U	50 U	50 U	50 U
Copper	1,300	520	18 J	5.2 J	**14700**	10.7 J	16.4 J	3.3 J	**12400**	1.1 J	**13500**	1.9 J	25 U	23.3 J	1.4 J	1.7 J
Cyanide	200	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Iron	NA	77.3 J	1310	547	1940	1800	5420	100 U	822	77.3 J	19.7 J	355	619	64.2 J	189	26.1 J
Lead	15	10 U	10 U	10 U	10 U	10 U	8.8 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Magnesium	NA	9050	10600	7150	3550 J	9600	8910	656 J	7010	7110	13200	17500	14400	20000	1860 J	8590
Manganese	300	**707**	29.1	6 J	431	73	60.8	15 U	**742**	253	**1570**	**628**	**1250**	7.1 J	9.3 J	15 U
Mercury	2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Molybdenum	NA	10 U	1.5 J	2 J	10 U	1.5 J	3.3 J	10 U	10 U	1.9 J	10 U	5.1 J	6.8 J	10 U	10 U	10 U
Nickel	100	14.8 J	2.8 J	4.1 J	20.2 J	1.3 J	14.5 J	0.75 J	74.1	4.4 J	**103**	1.3 J	1 J	3.4 J	1.3 J	1.7 J
Potassium	NA	8650	6330	4250 J	6710	5300	5490	1770 J	7580	5520	6640	8260	9270	8120	3670 J	4900 J
Selenium	50	8.7 J	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U
Silver	NA	2.2 J	2.4 J	10 U	2.1 J	2.1 J	10 U	1.3 J	2.6 J	2.9 J	10 U	1.1 J	0.38 J	3.7 J	0.37 J	10 U
Sodium	NA	50500	7550	4070 J	30100	9860	8160	1340 J	3330 J	6640	3440 J	10300	6680	5130	1970 J	2920 J
Strontium	NA	213	418	233	143	414	232	53.5	85.1	226	123	584	561	461	60.5	307
Thallium	2	0.047 J	1 U	1 U	0.12 J	1 U	1 U	1 U	0.37 J	1 U	0.27 J	1 U	1 U	1 U	1 U	1 U
Vanadium	NA	50 U	4 J	4.8 J	50 U	1.5 J	12.9 J	0.86 J	1.6 J	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Zinc	NA	788	5.7 J	6.3 J	884	8.2 J	26.5 J	4.7 J	637	5.8 J	1690	2.9 J	60 U	40.7 J	2.9 J	3.2 J
Dissolved Metals	**PAL**															
Aluminum	NA	120 J	200 U	200 U	4570	200 U	200 U	200 U	13800	200 U	25600	200 U	200 U	200 U	200 U	200 U
Antimony	6	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Barium	2,000	19.6 J	38 J	8.2 J	28.9 J	40.4 J	24.7 J	7.8 J	16.8 J	20.9 J	11.8 J	17.7 J	19.5 J	15.8 J	25.3 J	17.2 J
Beryllium	4	1 U	1 U	1 U	0.44 J	1 U	1 U	1 U	0.68 J	1 U	1.3	1 U	1 U	1 U	1 U	1 U
Cadmium	5	1.4 J	5 U	5 U	3.5 J	5 U	5 U	5 U	**9.2**	5 U	13.3	5 U	5 U	0.22 J	5 U	5 U
Calcium	NA	42000	87300	22000	22900	60000	56700	7700	20700	62500	42700	136000	146000	131000	18700	110000
Chromium	100	10 U	10 U	0.69 J	10 U	10 U	10 U	10 U	2 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Cobalt	NA	153	50 U	0.42 J	106	50 U	50 U	50 U	152	50 U	267	1.3 J	1.6 J	50 U	50 U	50 U
Copper	1,300	502	9.5 J	3.1 J	**14100**	1.3 J	1.5 J	25 U	**11600**	1.9 J	**13900**	25 U	1.7 J	17.3 J	25 U	2.2 J
Iron	NA	43.6 J	100 U	100 U	1830	226	75.8 J	100 U	21 J	18.9 J	100 U	1340	759	100 U	100 U	100 U
Lead	15	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Magnesium	NA	8670	10400	2820 J	3630 J	8920	8650	753 J	6520	7040	13800	12800	14100	19600	1760 J	9550
Manganese	300	**685**	4 J	1.3 J	**433**	48.8	9.6 J	15 U	**707**	246	**1630**	**1550**	**1560**	3.1 J	2 J	15 U
Mercury	2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Molybdenum	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	1.4 J	10 U	7.5 J	7.6 J	10 U	10 U	10 U
Nickel	100	14.2 J	40 U	1.6 J	20.3 J	0.57 J	1.3 J	0.54 J	70.6	4.2 J	**108**	2 J	2.2 J	2.9 J	1.4 J	2.4 J
Potassium	NA	8040	5750	280 J	6400	4550 J	5210	1610 J	7600	5370	7120	9070	9380	7970	3390 J	5490
Selenium	50	12.1 J	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U
Silver	NA	10 U	10 U	10 U	2.8 J	10 U	0.46 J	10 U	10 U	10 U	10 U	0.57 J	0.56 J	10 U	10 U	0.5 J
Sodium	NA	49100	7850	1620 J	30300	9580	8970	1400 J	3300 J	6460	3630 J	5130	5640	5130	2010 J	3190 J
Strontium	NA	199	413	92.3	140	379	241	49.1	79.7	213	134	533	576	440	58.6	345
Thallium	2	1 U	1 U	1 U	0.027 J	1 U	1 U	1 U	0.25 J	1 U	0.25 J	1 U	1 U	1 U	1 U	1 U
Vanadium	NA	50 U	1.5 J	1.8 J	50 U	50 U	1.6 J	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Zinc	NA	773	4.3 J	60 U	900	60 U	60 U	60 U	625	6 J	1720	3.2 J	3.7 J	38.5 J	60 U	3 J

Table 6-8a
August 2009 Groundwater and Porewater Total and Dissolved Metals
Ely Copper Mine Superfund Site
Vershire, Vermont

	Sample Location:	MW-07A	MW-07C	MW-08A	MW-09A	MW-09C	MW-10B	MW-10C	MW-11A	MW-11C	MW-12C	MW-13A	MW-14A	MW-14C	MW-15A	MW-16A
	Station ID:	MW-07A-081209AX	MW-07C-081209AX	MW-08A-081109AX	MW-09A-081209AX	MW-09C-081309AX	MW-10B-081109AX	MW-10C-081109AX	MW-11A-081109AX	MW-11C-081109AX	MW-12C-081109AX	MW-13A-081209AX	MW-14A-081109AX	MW-14C-081309AX	MW-15A-081309AX	MW-16A-081309AX
	Sample Date:	8/12/2009	8/12/2009	8/11/2009	8/12/2009	8/13/2009	8/11/2009	8/11/2009	8/11/2009	8/11/2009	8/11/2009	8/12/2009	8/11/2009	8/13/2009	8/13/2009	8/13/2009
Total Metals	**PAL**															
Aluminum	NA	57.6 J	168 J	19300	12700	200 U	80.8 J	200 U	200 U	168 J	1450	49.8 J	200 U	259	71.4 J	200 U
Antimony	6	0.3 J	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	10	10 U	10 U	10 U	3.2 J	3.1 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	2.5 J	2.6 J	10 U
Barium	2,000	10.7 J	10.6 J	11.7 J	16.5 J	18 J	5.9 J	5 J	27.7 J	20.6 J	22.8 J	20.4 J	5.8 J	9.7 J	25.3 J	13.4 J
Beryllium	4	0.035 J	1 U	0.79 J	1.3	1 U	1 U	1 U	1 U	1 U	0.29 J	1 U	1 U	1 U	1 U	1 U
Cadmium	5	5 U	5 U	**10.3**	**8.9**	5 U	5 U	5 U	5 U	5 U	4.5 J	5 U	5 U	5 U	5 U	5 U
Calcium	NA	5340	6490	58100	27900	125000	4310 J	20400	11500	39400	48000	26400	6570	25200	18200	33600
Chromium	100	10 U	10 U	1.2 J	0.82 J	0.87 J	10 U	10 U	10 U	0.7 J	10 U	10 U	10 U	1.1 J	10 U	10 U
Cobalt	NA	50 U	50 U	213	112	50 U	50 U	50 U	9.3 J	50 U	62.7	50 U	3.5 J	50 U	0.64 J	50 U
Copper	1,300	25 U	1.5 J	**7630**	**7030**	3.9 J	17.2 J	6.2 J	15.8 J	4.6 J	**1840**	1.2 J	40.6	4.5 J	1.4 J	1.8 J
Cyanide	200	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Iron	NA	22.1 J	92.9 J	258	43.7 J	246	46.1 J	101	23900	438	100 U	100 U	32.7 J	324	176	100 U
Lead	15	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Magnesium	NA	745 J	764 J	15400	7780	11900	1030 J	4540 J	2680 J	5380	9610	3940 J	1110 J	4180 J	1270 J	2040 J
Manganese	300	15.1	5.2 J	**1470**	**921**	68.4	5.9 J	3.2 J	**3020**	18.1	**475**	3.5 J	24.6	49.3	164	111
Mercury	2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Molybdenum	NA	10 U	10 U	10 U	10 U	48.1	10 U	6.9 J	7.6 J	10 U	10 U	10 U	10 U	6.1 J	10 U	10 U
Nickel	100	40 U	1.2 J	98.2	58.7	3.5 J	2.3 J	1.1 J	2.6 J	1.7 J	35.6 J	40 U	1.6 J	2.6 J	2.8 J	1.1 J
Potassium	NA	936 J	1080 J	5240	9870	10600	1750 J	3620 J	3840 J	4000 J	5580	4050 J	2210 J	6660	3680 J	3440 J
Selenium	50	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U
Silver	NA	10 U	2.8 J	10 U	10 U	2.6 J	0.53 J	2.4 J	1.7 J	1.6 J	0.41 J	0.97 J	1.4 J	2.6 J	1.8 J	3 J
Sodium	NA	940 J	977 J	3830 J	4040 J	27700	1390 J	2590 J	9320	4920 J	3050 J	2070 J	1540 J	7370	4570 J	2200 J
Strontium	NA	20.9	22.2	129	173	439	22.8	54.5	69.4	186	200	130	52.2	99	66.7	174
Thallium	2	0.12 J	1 U	0.2 J	0.057 J	1 U	1 U	1 U	1 U	1 U	0.035 J	1 U	1 U	1 U	1 U	1 U
Vanadium	NA	0.76 J	50 U	50 U	50 U	1.7 J	50 U	50 U	50 U	1.6 J	50 U	50 U	50 U	2.1 J	50 U	50 U
Zinc	NA	60 U	3.2 J	1460	1090	25.2 J	8.9 J	60 U	5.1 J	4.7 J	627	60 U	4.8 J	4.1 J	47.4 J	60 U
Dissolved Metals	**PAL**															
Aluminum	NA	200 U	200 U	18700	12900	200 U	45.7 J	200 U	200 U	200 U	1260	200 U	200 U	200 U	200 U	200 U
Antimony	6	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	10	10 U	10 U	10 U	3 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Barium	2,000	9.4 J	9.3 J	10.8 J	16.7 J	21.8 J	6.2 J	5.6 J	26.4 J	18.2 J	24.2 J	20 J	5.1 J	8.3 J	26.2 J	14 J
Beryllium	4	1 U	1 U	0.86 J	1.2	1 U	1 U	1 U	1 U	1 U	0.33 J	1 U	1 U	1 U	1 U	1 U
Cadmium	5	5 U	5 U	**10.1**	**8.8**	5 U	5 U	5 U	5 U	5 U	4.4 J	5 U	5 U	5 U	5 U	5 U
Calcium	NA	5010	5670	59700	29700	118000	4710 J	18200	10800	37900	52300	26700	6150	23900	19000	32600
Chromium	100	10 U	10 U	0.43 J	0.8 J	10 U	10 U	10 U	10 U	10 U	0.4 J	10 U	10 U	10 U	10 U	10 U
Cobalt	NA	50 U	50 U	208	114	50 U	50 U	50 U	7.7 J	50 U	63.3	50 U	3 J	50 U	50 U	50 U
Copper	1,300	25 U	25 U	**7510**	**7280**	25 U	17.5 J	25 U	25 U	25 U	**1920**	0.98 J	35.9	25 U	25 U	25 U
Iron	NA	100 U	100 U	20 J	36.1 J	77.5 J	100 U	100 U	22200	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Lead	15	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Magnesium	NA	664 J	743 J	15600	8110	12000	1110 J	4290 J	2590 J	5360	10200	3930 J	1130 J	4050 J	1410 J	2130 J
Manganese	300	11.2 J	15 U	**1460**	**948**	66	6.5 J	2.3 J	**2860**	14.8 J	**493**	3.4 J	21.5	44	179	14.7 J
Mercury	2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Molybdenum	NA	10 U	10 U	10 U	10 U	45	10 U	4.5 J	6.3 J	10 U	10 U	10 U	10 U	7 J	10 U	10 U
Nickel	100	40 U	0.83 J	95.7	59.5	2.9 J	2.7 J	1.1 J	2 J	0.74 J	36 J	0.99 J	1.2 J	2 J	2.3 J	0.75 J
Potassium	NA	765 J	904 J	5280	9990	10300	1810 J	2980 J	3670 J	3940 J	5770	4010 J	1890 J	7000	4040 J	3570 J
Selenium	50	35 U	35 U	35 U	35 U	35 U	35 U	8 J	35 U	35 U	35 U	35 U	35 U	6.3 J	35 U	35 U
Silver	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Sodium	NA	962 J	911 J	3380 J	4580 J	25400	1740 J	2270 J	8540	5040	3290 J	2000 J	1880 J	7970	4780 J	2330 J
Strontium	NA	19.4	19.4	131	181	402	24.1	49.1	65.2	181	212	129	48.9	96.1	69.8	172
Thallium	2	1 U	1 U	0.11 J	0.047 J	1 U	1 U	1 U	1 U	1 U	0.021 J	1 U	1 U	1 U	1 U	1 U
Vanadium	NA	50 U	50 U	50 U	50 U	50 U	50 U	50 U	0.76 J	50 U	50 U	0.85 J	50 U	0.8 J	50 U	50 U
Zinc	NA	60 U	5.8 J	1420	1080	60 U	10.9 J	60 U	10.7 J	60 U	615	60 U	4.1 J	60 U	31.9 J	60 U

Table 6-8a
August 2009 Groundwater and Porewater Total and Dissolved Metals
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:		MW-17A	MW-18A	MW-19A	MW-19C	MW-20A	MW-20C	MW-21A	MW-21A	MW-21C	MW-22A	MW-23A	BM-01	PW-01	PW-02	PW-03
Station ID:		MW-17A-081409AX	MW-18A-081409AX	MW-19A-081409AX	MW-19C-081409AX	MW-20A-081409AX	MW-20C-081309AX	MW-21A-081309AX	MW-21A-081309AD	MW-21C-081409AX	MW-22A-081309AX	MW-23A-081309AX	BM-01X-081809AX	PW-01X-081709AX	PW-02X-081809AX	PW-03X-081809AX
Sample Date:		8/14/2009	8/14/2009	8/14/2009	8/14/2009	8/14/2009	8/13/2009	8/13/2009	8/13/2009	8/14/2009	8/13/2009	8/13/2009	8/18/2009	8/17/2009	8/18/2009	8/18/2009
Total Metals	**PAL**															
Aluminum	NA	292	28500	16800	7680	5050	57.3 J	27300	29200	12400	9070	200 U	109 J	57.7 J	200 U	200 U
Antimony	6	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	10	10 U	4.8 J	4.8 J	3.1 J	2.9 J	10 U	2.6 J	4.5 J	4.7 J	2.6 J	2.6 J	10 U	10 U	10 U	10 U
Barium	2,000	31.1 J	33.1 J	14.4 J	15.5 J	25.1 J	37.2 J	27.7 J	29.8 J	28.4 J	22.2 J	86.1 J	4.1 J	12.9 J	17 J	15.8 J
Beryllium	4	1 U	1.3	1.2	0.63 J	0.42 J	1 U	1.8	1.7	1.2	0.65 J	1 U	1 U	1 U	1 U	1 U
Cadmium	5	5 U	**15.8**	**6.4**	**5.7**	4.3 J	0.52 J	**16.4**	**17.2**	**12.7**	2.9 J	0.21 J	5 U	5 U	5 U	5 U
Calcium	NA	29000	53600	40500	94300	26300	45300	68900	72300	110000	53700	4860 J	10700	10000	8040	8570
Chromium	100	1 J	14	10.4	2.3 J	2.2 J	10 U	8.1 J	8.8 J	3.9 J	2.9 J	10 U	1.2 J	10 U	10 U	10 U
Cobalt	NA	0.49 J	338	241	164	93.8	5.3 J	283	301	220	36.9 J	2.1 J	0.58 J	50 U	50 U	50 U
Copper	1,300	4 J	**20700**	**14500**	**10600**	**5860**	267	**7370**	**7980**	**5490**	76.8	175	3.3 J	15.2 J	13.3 J	18.4 J
Cyanide	200	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ
Iron	NA	420	3660	128	27.3 J	178	100 U	79700	84500	66300	59000	100 U	473	134	49.5 J	29.2 J
Lead	15	10 U	10 U	10 U	10 U	10 U	10 U	5.4 J	6.5 J	5 J	3.3 J	10 U	10 U	10 U	10 U	10 U
Magnesium	NA	2100 J	19500	11400	14900	5110	4160 J	22400	23900	20000	13500	639 J	1130 J	1220 J	843 J	861 J
Manganese	300	51.4	**2380**	**1620**	**1140**	**641**	145	**2470**	**2610**	**3000**	**1760**	21.5	14.1 J	19.8	7.6 J	3.2 J
Mercury	2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 UJ	0.2 UJ
Molybdenum	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nickel	100	0.62 J	**129**	81.8	77.3	39 J	6.8 J	98.3	**105**	92.4	13.9 J	3.5 J	1.9 J	1.1 J	40 U	40 U
Potassium	NA	3310 J	5580	5380	8040	4750 J	4930 J	6690	7310	7040	8180	1090 J	1890 J	1630 J	1220 J	1220 J
Selenium	50	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U
Silver	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	2.8 J	10 U	10 UJ	10 UJ	10 UJ
Sodium	NA	1810 J	3180 J	5460	6970	3820 J	12000	5380	5840	6730	3440 J	1240 J	1200 J	1200 J	1020 J	1000 J
Strontium	NA	129	101	150	289	81	201	182	194	350	149	15	45.3	44.1	36.1	38.3
Thallium	2	0.06 J	0.19 J	0.28 J	0.1 J	0.26 J	0.064 J	0.36 J	0.36 J	0.29 J	0.04 J	1 U	0.027 J	1 U	1 U	1 U
Vanadium	NA	3.4 J	5.6 J	50 U	50 U	1 J	0.82 J	6.4 J	7.4 J	3 J	1.8 J	50 U	1.3 J	50 U	50 U	50 U
Zinc	NA	60 U	1790	622	505	352	17.9 J	2220	2310	1440	350	10.4 J	4.6 J	60 U	60 U	60 U
Dissolved Metals	**PAL**															
Aluminum	NA	200 U	25000	15500	6660	4910	200 U	27300	27800	9410	8720	200 U	200 U	200 U	200 U	200 U
Antimony	6	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	10	10 U	4.6 J	3.9 J	4.3 J	10 U	10 U	10 U	10 U	4.1 J	10 U	10 U	10 U	10 U	10 U	10 U
Barium	2,000	28.1 J	20.5 J	12.6 J	12.5 J	23.2 J	32 J	27.1 J	28.5 J	19.6 J	21.7 J	88.5 J	4.5 J	12.8 J	15.5 J	16.1 J
Beryllium	4	1 U	1.3	1.2	0.72 J	0.44 J	1 U	1.7	1.8	1	0.57 J	1 U	1 U	1 U	1 U	1 U
Cadmium	5	5 U	**16.5**	**7**	**6.1**	4.8 J	0.45 J	**21.4**	**22.4**	**15**	**5.8**	0.21 J	5 U	5 U	5 U	5 U
Calcium	NA	29000	51000	38300	82100	25900	43000	67100	68900	96600	54200	4760 J	10900	10300 J	8320 J	9070 J
Chromium	100	10 U	4.7 J	9.9 J	2.2 J	2.8 J	10 U	8.3 J	8.7 J	1.8 J	2.7 J	10 U	10 U	10 U	10 U	10 U
Cobalt	NA	50 U	329	244	164	95.4	2.8 J	301	315	209	36.8 J	1.5 J	50 U	50 UJ	50 UJ	50 UJ
Copper	1,300	25 U	**19200**	**13800**	**10000**	**5960**	152	**7430**	**7800**	**4890**	75.5	181	2.2 J	10.1 J	9.2 J	15.9 J
Iron	NA	100 U	442	72 J	17.3 J	135	44.5 J	78100	79900	57200	58800	100 U	33.3 J	168	100 U	100 U
Lead	15	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Magnesium	NA	1950 J	18000	10700	13500	5030	3810 J	22000	22500	17100	13500	688 J	1080 J	1170 J	825 J	898 J
Manganese	300	46.5	**2210**	**1570**	**1150**	**654**	82.1	**2430**	**2540**	**2470**	**1810**	22.1	2.4 J	19.5 J	15 UJ	2.4 J
Mercury	2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Molybdenum	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nickel	100	40 U	**122**	82.1	76.4	41.2	4.8 J	**104**	**108**	84.7	15.4 J	3.7 J	1.1 J	1.2 J	40 U	1.1 J
Potassium	NA	3140 J	4260 J	4870 J	6260	4280 J	4150 J	6440	6570	6380	8090	977 J	1350 J	1400 J	996 J	1040 J
Selenium	50	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U
Silver	NA	10 U	4.8 J	3.7 J	3.7 J	10 U	10 U	3 J	3.5 J	3.1 J	10 U	10 U	10 U	10 U	10 U	10 U
Sodium	NA	1800 J	2820 J	5050	5770	3820 J	11600	5650	5770	12700	3670 J	1300 J	1170 J	5000 U	5000 U	5000 U
Strontium	NA	124	89.8	136	236	78.5	190	184	188	313	152	15.3	43.4	41	35.4	38.5
Thallium	2	1 U	1 U	0.093 J	1 U	0.071 J	1 U	0.18 J	0.18 J	0.072 J	1 U	1 U	1 U	1 U	1 U	1 U
Vanadium	NA	1.6 J	50 U	50 U	50 U	50 U	50 U	8.1 J	8.7 J	2.2 J	3 J	50 U	50 U	50 U	50 U	50 U
Zinc	NA	2.7 J	1780	630	521	360	12.9 J	2200	2290	1330	348	10.4 J	4.1 J	15.9 J	5.4 J	8 J

Table 6-8a
August 2009 Groundwater and Porewater Total and Dissolved Metals
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:		PW-04	PW-05	PW-06	PW-07	PW-07
Station ID:		PW-04X-081809AX	PW-05X-081709AX	PW-06X-081809AX	PW-07X-081909AX	PW-07X-081909AD
Sample Date:		8/18/2009	8/17/2009	8/18/2009	8/19/2009	8/19/2009
Total Metals	**PAL**					
Aluminum	NA	200 U	3730	549	4390	4170
Antimony	6	2 U	2 U	2 U	2 U	2 U
Arsenic	10	10 U	10 U	10 U	10 U	10 U
Barium	2,000	24.4 J	39.8 J	27.4 J	44.1 J	42.8 J
Beryllium	4	1 U	0.29 J	1 U	0.41 J	0.43 J
Cadmium	5	0.25 J	2.2 J	0.64 J	3.1 J	3.1 J
Calcium	NA	4390 J	24300	28600	31600	31200
Chromium	100	10 U	5.6 J	0.53 J	1.2 J	0.62 J
Cobalt	NA	9.2 J	66.1	9.9 J	87.5	88
Copper	1,300	32.4	**2530**	128	**3160**	**3120**
Cyanide	200	10 UJ	10 UJ	10 U	10 U	10 U
Iron	NA	2780	1350	461 J	574 J	105 J
Lead	15	10 U	10 U	10 U	10 U	10 U
Magnesium	NA	642 J	5470	4610 J	7000	6840
Manganese	300	**415**	**516**	89.5 J	**710 J**	**699 J**
Mercury	2	0.2 UJ	0.2 UJ	0.2 U	0.2 U	0.2 U
Molybdenum	NA	10 U	10 U	10 U	10 U	10 U
Nickel	100	1.8 J	28.7 J	5.8 J	34.7 J	33.8 J
Potassium	NA	965 J	3810 J	3670 J	4700 J	4630 J
Selenium	50	35 U	35 U	35 U	35 U	35 U
Silver	NA	10 UJ	10 UJ	10 U	10 U	10 U
Sodium	NA	825 J	2330 J	2160 J	2780 J	2760 J
Strontium	NA	23.8	106	120	136	134
Thallium	2	1 U	1 U	1 U	1 U	1 U
Vanadium	NA	50 U	50 U	50 U	50 U	50 U
Zinc	NA	60 U	236	33.2 J	316	315
Dissolved Metals	**PAL**					
Aluminum	NA	200 U	3340	200 U	4090	4170
Antimony	6	2 U	2 U	0.32 U	2 U	2 U
Arsenic	10	10 U	10 U	10 U	10 U	10 U
Barium	2,000	22.8 J	38.7 J	25.1 J	42 J	43.5 J
Beryllium	4	1 U	0.34 J	1 U	0.3 J	0.34 J
Cadmium	5	5 U	2.4 J	0.53 J	3 J	3.1 J
Calcium	NA	4440 J	25700 J	27700	29600	30800
Chromium	100	10 U	10 U	10 U	0.62 J	0.51 J
Cobalt	NA	9 J	70.3	10.2 J	85.3	88.5
Copper	1,300	1.5 J	**2510**	108	**3070**	**3180**
Iron	NA	2660	37 J	100 U	100 U	17.8 J
Lead	15	10 U	10 U	10 U	10 U	10 U
Magnesium	NA	614 J	5570	4450 J	6660	6800
Manganese	300	**408**	**537**	92.2 J	**687 J**	**704 J**
Mercury	2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Molybdenum	NA	10 U	10 U	10 U	10 U	10 U
Nickel	100	2.5 J	29.1 J	6.4 J	33.4 J	34.9 J
Potassium	NA	630 J	3570 J	3530 J	4430 J	4620 J
Selenium	50	35 U	35 U	35 U	35 U	35 U
Silver	NA	10 U	10 U	10 U	10 U	10 U
Sodium	NA	5000 U	2430 J	2130 J	2750 J	2790 J
Strontium	NA	22.8	108	117	130	135
Thallium	2	1 U	1 U	1 U	1 U	1 U
Vanadium	NA	50 U	50 U	50 U	50 U	50 U
Zinc	NA	14.6 J	252	34.3 J	303	314

Notes:
1. All concentrations listed in micrograms per liter (µg/L).
2. MW=monitoring well sample; PW=Ely Brook Porewater sample.
3. U=below detection limit, J=quantitation approximate
4. PAL = Project Action Limit
5. **Bold** and shaded indicates exceedance of PAL

Table 6-8b
November 2009 Groundwater Total and Dissolved Metals
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:		MW-01A	MW-01B	MW-01C	MW-02A	MW-02B	MW-02C	MW-03C	MW-04A	MW-04C	MW-05A	MW-05A	MW-05B	MW-05C	MW-06A	MW-06C	MW-07A
Station ID:		MW-01A-112009AX	MW-01B-112009AX	MW-01C-112309AX	MW-02A-113009AX	MW-02B-112009AX	MW-02C-112009AX	MW-03C-112309AX	MW-04A-112409AX	MW-04C-112409AX	MW-05A-120109AX	MW-05A-120109AD	MW-05B-112409AX	MW-05C-112509AX	MW-06A-112509AX	MW-06C-112509AX	MW-07A-112509AX
Sample Date:		11/20/2009	11/20/2009	11/23/2009	11/30/2009	11/20/2009	11/20/2009	11/23/2009	11/24/2009	11/24/2009	12/1/2009	12/1/2009	11/24/2009	11/25/2009	11/25/2009	11/25/2009	11/25/2009
Total Metals	**PAL**																
Aluminum	NA	428	102 J	46.1 J	3682	76.2 J	124 J	200 U	16336	200 U	25017	25558	200 U	200 U	200 U	200 U	200 U
Antimony	6	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	2.5 J	10 U	10 U	10 U	10 U	10 U	10 U
Barium	2,000	15.2 J	37.9 J	21.1 J	30.7 J	35.7 J	26.2 J	7.1 J	15.3 J	20.7 J	11 J	11.4 J	19.3 J	18 J	18 J	14.6 J	16.2 J
Beryllium	4	0.057 J	1 U	1 U	0.52 J	1 U	1 U	1 U	0.75 J	1 U	1.4	1.3	1 U	1 U	1 U	1 U	1 U
Cadmium	5	1.3 J	5 U	5 U	4.9 J	5 U	5 U	5 U	**9.5**	0.18 J	**14.2**	**14.5**	5 U	5 U	5 U	5 U	5 U
Calcium	NA	34973	84899	59739	21508	59730	53109	7912	29438	62269	45954	47406	143013	123450	13784	83247	5785
Chromium	100	10 U	10 U	0.71 J	10 U	10 U	0.38 J	10 U	1.8 J	10 U	0.51 J	0.4 J	10 U	0.49 J	10 U	10 U	10 U
Cobalt	NA	123	50 U	50 U	212	50 U	50 U	50 U	272	50 U	282	286	50 U	50 U	50 U	50 U	50 U
Copper	1,300	1119	7.4 J	25 U	**27795**	25 U	25 U	3.3 J	**10367**	3.8 J	**13346**	**13432**	4.6 J	22.8 J	3.4 J	3.2 J	3.6 J
Cyanide	200	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Iron	NA	193	81 J	100 U	51.4 J	386	378	100 U	187	100 U	100 U	100 U	168	42 J	67 J	100 U	100 U
Lead	15	10 U	10 U	10 U	3 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Magnesium	NA	6419	9708	7677	3500 J	8559	8103	744 J	13013	6576	14740	14997	15647	18871	1388 J	7429	735 J
Manganese	300	**558**	9.1 J	15 U	**464**	50.1	12.8 J	15 U	**1276**	155	**1838**	**1887**	**381**	11.1 J	6.9 J	15 U	15 U
Mercury	2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Molybdenum	NA	10 U	1.4 J	1.4 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	6.4 J	10 U	10 U	10 U	10 U
Nickel	100	11.3 J	40 U	40 U	31.4 J	40 U	40 U	40 U	**108**	2 J	**113**	**115**	1.1 J	2.8 J	0.54 J	1.7 J	40 U
Potassium	NA	7154	5815	3663 J	9770	4664 J	4446 J	1351 J	5924	5201	5693	6036	8549	7470	1816 J	4022 J	690 J
Selenium	50	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U
Silver	NA	10 U	0.43 J	10 U	10 U	0.48 J	10 U	10 U	10 U	10 U	0.35 J	10 U	10 U	0.5 J	10 U	10 U	10 U
Sodium	NA	35458	7503	4337 J	20243	9543	8488	1284 J	3923 J	4794 J	3623 J	3731 J	6776	7024	1952 J	2842 J	865 J
Strontium	NA	167	399	246	159	372	229	45.6	87.5	213	132	136	542	431	47	276	19.5
Thallium	2	0.14 J	1 U	1 U	0.38 J	1 U	1 U	1 U	0.29 J	1 U	0.3 J	0.31 J	1 U	1 U	1 U	1 U	1 U
Vanadium	NA	50 U	2.2 J	3.4 J	50 U	50 U	2.8 J	0.78 J	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Zinc	NA	661	60 U	60 U	1951	60 U	3 J	60 U	810	6.2 J	1757	1793	60 U	38.5 J	60 U	60 U	60 U
Dissolved Metals	**PAL**																
Aluminum	NA	377	200 U	200 U	3731	200 U	200 U	200 U	16233	97.8 J	25946	25459	200 U	200 U	200 U	200 U	60.6 J
Antimony	6	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	2.6 J	2.5 J	10 U	10 U	10 U	10 U	10 U
Barium	2,000	15.1 J	36.2 J	20.2 J	30.9 J	35.6 J	23 J	9.2 J	15.4 J	20.2 J	12 J	11.2 J	17.3 J	17.6 J	18.1 J	14.9 J	8.9 J
Beryllium	4	0.055 J	1 U	1 U	0.5 J	1 U	1 U	1 U	0.78 J	1 U	1.3	1.3	1 U	1 U	1 U	1 U	1 U
Cadmium	5	1.4 J	5 U	5 U	4.6 J	5 U	5 U	5 U	**9.8**	0.28 J	**15.2**	**14.9**	5 U	0.27 J	0.18 J	5 U	5 U
Calcium	NA	33645	81440	57249	22385	59411	51958	7758	30200	61979	47021	46021	143130	124877	14921	90399	5952
Chromium	100	10 U	10 U	0.63 J	10 U	10 U	10 U	10 U	1.5 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Cobalt	NA	114	50 U	50 U	191	50 U	50 U	50 U	277	50 U	294	287	50 U	50 U	50 U	50 U	50 U
Copper	1,300	1091	3.8 J	25 U	**23199**	25 U	25 U	1.8 J	**10600**	3.4 J	**14032**	**13389**	1.4 J	18.6 J	25 U	1.9 J	1.7 J
Iron	NA	158	100 U	100 U	43.1 J	184	87.5 J	100 U	49.8 J	219	20.7 J	29.5 J	25.1 J	100 U	32.4 J	100 U	100 U
Lead	15	10 U	10 U	10 U	10 U	10 U	10 U	10 U	2.6 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Magnesium	NA	6330	9456	7352	3739 J	8613	8039	728 J	13375	6492	15648	15323	17466	18153	1426 J	7730	754 J
Manganese	300	**534**	2.3 J	15 U	**490**	48.1	8.7 J	15 U	**1301**	148	**1969**	**1937**	42.1	11 J	1.6 J	15 U	15 U
Mercury	2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Molybdenum	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	5.6 J	10 U	10 U	10 U	10 U
Nickel	100	10.8 J	40 U	40 U	27.7 J	40 U	40 U	40 U	**110**	1.8 J	**119**	**117**	1 J	3.1 J	0.61 J	1.9 J	40 U
Potassium	NA	7008	5421	3617 J	9615	4662 J	4635 J	1512 J	6356	5266	6546	6352	7444	7278	2339 J	4299 J	1031 J
Selenium	50	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U
Silver	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Sodium	NA	34839	7138	4227 J	21908	9575	8362	1267 J	4012 J	4648 J	3992 J	3906 J	8029	6611	1847 J	2683 J	813 J
Strontium	NA	164	394	240	158	380	229	45.4	91.7	212	143	140	517	415	47.9	282	19.3
Thallium	2	0.098 J	1 U	1 U	0.28 J	1 U	1 U	1 U	0.29 J	1 U	0.26 J	0.24 J	1 U	1 U	1 U	1 U	1 U
Vanadium	NA	50 U	1.7 J	2.8 J	50 U	50 U	1.3 J	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Zinc	NA	620	60 U	60 U	1724	60 U	3.7 J	60 U	814	5 J	1826	1771	2.8 J	41 J	60 U	60 U	60 U

Table 6-8b
November 2009 Groundwater Total and Dissolved Metals
Ely Copper Mine Superfund Site
Vershire, Vermont

	Sample Location:	MW-07C	MW-08A	MW-08A	MW-09A	MW-09C	MW-10B	MW-10C	MW-11A	MW-11C	MW-12C	MW-13A	MW-14A	MW-14C	MW-14D	MW-15A	MW-16A
	Station ID:	MW-07C-112509AX	MW-08A-112409AX	MW-08A-112409AD	MW-09A-120209AX	MW-09C-112409AX	MW-10B-112309AX	MW-10C-112309AX	MW-11A-120109AX	MW-11C-112309AX	MW-12C-112409AX	MW-13A-112409AX	MW-14A-112309AX	MW-14C-112309AX	MW-14D-120109AX	MW-15A-112409AX	MW-16A-112409AX
	Sample Date:	11/25/2009	11/24/2009	11/24/2009	12/2/2009	11/24/2009	11/23/2009	11/23/2009	12/1/2009	11/23/2009	11/24/2009	11/24/2009	11/23/2009	11/23/2009	12/1/2009	11/24/2009	11/24/2009
Total Metals	**PAL**																
Aluminum	NA	54.1 J	21028	21432	13296	200 U	200 U	200 U	96.4 J	200 U	1108	200 U	47.7 J	83.6 J	193 J	68.9 J	200 U
Antimony	6	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.4 J	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	10	10 U	10 U	10 U	2.7 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Barium	2,000	10.6 J	12.1 J	10.8 J	12.6 J	20.4 J	5.8 J	4.1 J	26.5 J	19.6 J	17.4 J	21.1 J	5.7 J	10 J	5.9 J	23.6 J	14.4 J
Beryllium	4	1 U	0.87 J	0.85 J	1.1	1 U	1 U	1 U	1 U	1 U	0.26 J	1 U	1 U	1 U	0.035 J	1 U	1 U
Cadmium	5	5 U	**11.3**	**11.3**	**8.3**	5 U	5 U	5 U	0.3 J	5 U	3.3 J	5 U	5 U	5 U	5 U	5 U	5 U
Calcium	NA	5343	59970	60837	32912	131810	4498 J	21249	9232	38936	42241	26951	7050	23368	26103	17565	32854
Chromium	100	10 U	0.41 J	0.5 J	0.78 J	10 U	10 U	0.39 J	0.5 J	10 U	10 U	10 U	10 U	0.41 J	1.2 J	10 U	10 U
Cobalt	NA	50 U	222	224	121	0.42 J	50 U	50 U	10.9 J	50 U	47 J	50 U	2.2 J	50 U	1.5 J	50 U	50 U
Copper	1,300	0.92 J	**7998**	**8609**	**6519**	4.4 J	8.2 J	25 U	44.8	1.5 J	**1423**	1.5 J	29.4	25 U	1.1 J	1.1 J	2.9 J
Cyanide	200	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Iron	NA	32.8 J	41.7 J	35.8 J	30.9 J	161	100 U	179	16731	71.3 J	100 U	20.8 J	17.9 J	45.2 J	4275	62.9 J	100 U
Lead	15	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Magnesium	NA	706 J	15721	15996	10871	14925	978 J	4865 J	1902 J	5250	8163	4048 J	1270 J	3910 J	3885 J	1281 J	2121 J
Manganese	300	3.2 J	**1698**	**1731**	**1086**	88.1	2.1 J	1.8 J	**1609**	14.2 J	**358**	2.4 J	21.5	14.9 J	71.1	243	149
Mercury	2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Molybdenum	NA	10 U	10 U	10 U	10 U	34.6	10 U	8 J	2 J	10 U	10 U	10 U	10 U	1.4 J	10 U	10 U	10 U
Nickel	100	0.62 J	98.4	99.7	60.2	3 J	0.66 J	40 U	3.3 J	40 U	27.1 J	40 U	0.81 J	1.3 J	1.6 J	2.1 J	40 U
Potassium	NA	644 J	5197	5317	7151	9749	1143 J	3817 J	2974 J	4028 J	3697 J	3335 J	1957 J	4431 J	3639 J	2868 J	3105 J
Selenium	50	35 U	35 U	35 U	35 U	35 U	35 U	6.5 J	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U
Silver	NA	10 U	0.92 J	0.46 J	10 U	10 U	0.74 J	10 U	10 U	0.52 J	10 U	10 U	10 U	10 U	10 U	10 U	0.64 J
Sodium	NA	860 J	3911 J	3741 J	3804 J	18443	1371 J	2651 J	4172 J	4936 J	2534 J	1925 J	1523 J	4198 J	3108 J	4385 J	2090 J
Strontium	NA	18.6	138	141	154	389	22.7	58.7	52.1	186	169	132	53.9	102	107	67	173
Thallium	2	1 U	0.075 J	0.078 J	0.083 J	1 U	1 U	1 U	1 U	1 U	0.067 J	1 U	1 U	1 U	0.027 J	1 U	1 U
Vanadium	NA	50 U	50 U	50 U	50 U	1.3 J	50 U	50 U	0.87 J	50 U	50 U	50 U	50 U	1.2 J	1.1 J	50 U	50 U
Zinc	NA	60 U	1577	1584	983	60 U	5.1 J	2.8 J	17.1 J	60 U	466	60 U	60 U	60 U	83.7	33.8 J	60 U
Dissolved Metals	**PAL**																
Aluminum	NA	200 U	21201	21189	13821	200 U	200 U	200 U	200 U	200 U	876	200 U	200 U	200 U	200 U	200 U	200 U
Antimony	6	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.29 J	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	10	10 U	10 U	10 U	3.2 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	2.6 J	10 U	10 U
Barium	2,000	8.9 J	11.4 J	11.1 J	13.2 J	19.5 J	5.1 J	3.9 J	26.2 J	18.5 J	16.5 J	19.4 J	5.4 J	8.7 J	3.4 J	22 J	13.8 J
Beryllium	4	1 U	0.86 J	0.92 J	1	1 U	1 U	1 U	1 U	1 U	0.25 J	1 U	1 U	1 U	1 U	1 U	1 U
Cadmium	5	5 U	**11.4**	**11.4**	**9**	5 U	5 U	5 U	0.23 J	5 U	3.2 J	5 U	5 U	5 U	5 U	5 U	5 U
Calcium	NA	5110	60527	60697	35175	134997	4293 J	20430	9352	36646	42689	26991	6595	23265	27204	17102	32213
Chromium	100	10 U	10 U	0.42 J	0.8 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Cobalt	NA	50 U	221	221	129	50 U	50 U	50 U	11 J	50 U	46.3 J	50 U	2.4 J	50 U	1 J	50 U	50 U
Copper	1,300	25 U	**8469**	**8380**	**6820**	25 U	7.4 J	25 U	25 U	25 U	**1383**	25 U	29.5	25 U	4.8 J	25 U	1.4 J
Iron	NA	29.2 J	20.9 J	20.3 J	51 J	159	100 U	100 U	17075	100 U	100 U	31.8 J	100 U	100 U	230	100 U	100 U
Lead	15	10 U	10 U	10 U	2.4 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Magnesium	NA	646 J	15838	15817	11393	14948	949 J	4668 J	2005 J	4909 J	7831	3827 J	1208 J	3870 J	4101 J	1250 J	2077 J
Manganese	300	1.5 J	**1708**	**1700**	**1156**	91.7	1.5 J	15 U	**1671**	12.8 J	**346**	2.4 J	18.5	12 J	59	226	13 J
Mercury	2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Molybdenum	NA	10 U	10 U	10 U	10 U	33.6	10 U	6.9 J	2 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nickel	100	0.56 J	97.8	**105**	65	3.8 J	0.73 J	40 U	3.2 J	40 U	26.4 J	0.66 J	0.83 J	0.96 J	0.62 J	1.6 J	40 U
Potassium	NA	475 J	5428	5582	8133	9844	1426 J	3524 J	3101 J	3836 J	3379 J	3164 J	1430 J	4484 J	4018 J	3046 J	3310 J
Selenium	50	35 U	35 U	35 U	35 U	35 U	35 U	6.3 J	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U
Silver	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Sodium	NA	779 J	3655 J	3721 J	4198 J	17057	1347 J	2593 J	4339 J	4759 J	2314 J	1753 J	1405 J	4207 J	3520 J	4198 J	2089 J
Strontium	NA	17.2	142	140	172	380	22	57	55.9	177	163	125	51.9	103	117	65.5	170
Thallium	2	1 U	0.076 J	0.077 J	0.05 J	1 U	1 U	1 U	1 U	1 U	0.062 J	1 U	1 U	1 U	1 U	1 U	1 U
Vanadium	NA	50 U	50 U	50 U	50 U	0.86 J	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Zinc	NA	60 U	1559	1568	1046	3 J	3 J	60 U	15.7 J	60 U	467	60 U	3.4 J	60 U	10.1 J	32.3 J	60 U

Table 6-8b
November 2009 Groundwater Total and Dissolved Metals
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:		MW-17A	MW-18A	MW-19A	MW-19C	MW-19D	MW-20A	MW-20C	MW-20D	MW-21A	MW-21A	MW-21C	MW-22A	MW-23A	BM-01
Station ID:		MW-17A-112409AX	MW-18A-120109AX	MW-19A-113009AX	MW-19C-112509AX	MW-19D-120209AX	MW-20A-120109AX	MW-20C-112309AX	MW-20D-120209AX	MW-21A-113009AX	MW-21A-113009AD	MW-21C-112409AX	MW-22A-113009AX	MW-23A-112309AX	BM-01-120109AX
Sample Date:		11/24/2009	12/1/2009	11/30/2009	11/25/2009	12/2/2009	12/1/2009	11/23/2009	12/2/2009	11/30/2009	11/30/2009	11/24/2009	11/30/2009	11/23/2009	12/1/2009
Total Metals	**PAL**														
Aluminum	NA	200 U	64456	1781	4145	5694	12505	166 J	137 J	30479	30697	21910	15029	52.3 J	223
Antimony	6	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2.2
Arsenic	10	10 U	5.4 J	10 U	2.5 J	2.6 J	10 U	10 U	10 U	5.9 J	7.6 J	9.3 J	6.1 J	10 U	10 U
Barium	2,000	28.2 J	14.6 J	23.4 J	15.1 J	11.9 J	15.1 J	35.3 J	38.6 J	15.5 J	15.8 J	16.9 J	15.4 J	94.7 J	5.5 J
Beryllium	4	1 U	2.1	0.12 J	0.54 J	0.86 J	0.58 J	1 U	1 U	1.6	1.6	1.8	0.68 J	1 U	1 U
Cadmium	5	5 U	**36.5**	4.8 J	**5.8**	5	**6.2**	0.96 J	5 U	**12.9**	**13**	**13**	1.3 J	0.17 J	5 U
Calcium	NA	22720	104923	122073	82423	47480	29335	39485	54363	60143	61190	86150	46834	4905 J	11777
Chromium	100	10 U	11.9	2.7 J	1.6 J	2.5 J	2 J	10 U	0.73 J	7.6 J	7.7 J	3.7 J	2.9 J	10 U	1.6 J
Cobalt	NA	50 U	668	130	134	141	127	4.6 J	50 U	256	258	267	44 J	1.8 J	0.65 J
Copper	1,300	25 U	**49581**	**2054**	**9713**	**7484**	**9685**	476	5.5 J	**7053**	**7278**	**7936**	74.6	197	3.6 J
Cyanide	200	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Iron	NA	100 U	1572	1100	100 U	16948	166	20.3 J	315	84798	85401	76524	69372	100 U	1468
Lead	15	10 U	6.3 J	10 U	10 U	10 U	10 U	10 U	10 U	3.6 J	10 U	5.2 J	10 U	10 U	2.4 J
Magnesium	NA	1869 J	35401	12956	13294	9504	6041	3720 J	10293	22448	22596	22523	15140	714 J	1195 J
Manganese	300	12.5 J	**3506**	**2388**	**1018**	**1433**	**796**	85	23	**2153**	**2175**	**2381**	**2053**	19	49.7
Mercury	2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Molybdenum	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nickel	100	40 U	**214**	49.9	68.3	87.4	52.1	6.2 J	1.2 J	88.1	88.7	97.6	14.2 J	2.7 J	3.6 J
Potassium	NA	1315 J	5156	8049	7095	5678	3653 J	4625 J	5222	5591	5745	6627	6532	915 J	1468 J
Selenium	50	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U
Silver	NA	0.37 J	10 U	10 U	0.33 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.62 J	10 U
Sodium	NA	1696 J	4764 J	5962	6236	3120 J	3553 J	9433	4139 J	7074	7135	6716	3809 J	1281 J	1164 J
Strontium	NA	112	102	409	285	124	71.5	178	246	169	171	298	128	15.2	46.5
Thallium	2	1 U	0.16 J	0.1 J	0.052 J	0.086 J	0.2 J	1 U	1 U	0.3 J	0.29 J	0.42 J	1 U	0.033 J	1 U
Vanadium	NA	50 U	2.1 J	1.7 J	50 U	50 U	50 U	1.3 J	0.77 J	7.3 J	7.3 J	3 J	1.9 J	50 U	1.2 J
Zinc	NA	60 U	3867	283	491	519	545	32.6 J	4.9 J	1974	1991	1902	396	8.5 J	4.3 J
Dissolved Metals	**PAL**														
Aluminum	NA	200 U	62366	554	2057	2766	11486	58.8 J	200 U	32818	32339	20254	15483	200 U	200 U
Antimony	6	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	10	10 U	4.6 J	10 U	10 U	10 U	10 U	10 U	10 U	7.7 J	8.8 J	7.9 J	6 J	10 U	2.7 J
Barium	2,000	27.1 J	9.1 J	18.5 J	15 J	13.6 J	13.6 J	34.3 J	30.4 J	17.7 J	16.4 J	10.5 J	16 J	87.8 J	4.3 J
Beryllium	4	1 U	2	0.13 J	0.41 J	0.52 J	0.52 J	1 U	1 U	1.6	1.6	1.8	0.62 J	1 U	1 U
Cadmium	5	5 U	**36.8**	**5.8**	**6.2**	4.9 J	**5.8**	1 J	5 U	**14.1**	**13.8**	**12.2**	1.2 J	0.28 J	5 U
Calcium	NA	22173	101397	113193	89242	48033	26464	38873	36238	63284	63141	88779	48618	4686 J	12192
Chromium	100	10 U	7.1 J	1.2 J	1.5 J	1.6 J	1.7 J	10 U	10 U	8.1 J	7.8 J	1.6 J	2.5 J	10 U	10 U
Cobalt	NA	50 U	665	144	139	140	120	5 J	50 U	276	271	261	45.4 J	1.7 J	50 U
Copper	1,300	25 U	**49117**	**4401**	**9461**	**5743**	**9266**	507	1.2 J	**7655**	**7620**	**7285**	74.2	178	2.3 J
Iron	NA	100 U	60.6 J	20.2 J	100 U	4007	30.3 J	100 U	100 U	90678	89659	73679	72225	100 U	24.9 J
Lead	15	10 U	6.5 J	10 U	10 U	10 U	10 U	10 U	10 U	2.8 J	2.9 J	2.7 J	10 U	10 U	10 U
Magnesium	NA	1844 J	34975	13021	13817	9563	5600	3733 J	5631	24264	23819	20866	15837	662 J	1213 J
Manganese	300	9.8 J	**3461**	**2193**	**1034**	**1439**	**743**	97.5	1.9 J	**2333**	**2299**	**2274**	**2166**	18.1	5.4 J
Mercury	2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Molybdenum	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nickel	100	40 U	**214**	58.6	72	88.3	49.2	6.5 J	40 U	94.8	93.4	92.9	14.3 J	2.7 J	1.7 J
Potassium	NA	1428 J	4903 J	8062	7685	5416	3203 J	4690 J	5172	6612	6514	5595	7313	804 J	1592 J
Selenium	50	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U
Silver	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Sodium	NA	1544 J	4866 J	5987	6570	3206 J	3334 J	10451	4352 J	7746	7704	6044	4101 J	1207 J	1370 J
Strontium	NA	111	103	418	303	128	65.8	176	233	181	180	288	137	14.8	51.1
Thallium	2	1 U	0.096 J	0.082 J	0.046 J	0.045 J	0.18 J	1 U	1 U	0.27 J	0.27 J	0.4 J	1 U	0.036 J	1 U
Vanadium	NA	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	7.9 J	8 J	50 U	2 J	50 U	50 U
Zinc	NA	60 U	3797	386	532	495	506	33.3 J	60 U	2126	2085	1920	409	8.2 J	3.1 J

Notes:
1. All concentrations listed in micrograms per liter (µg/L).
2. U=below detection limit, J=quantitation approximate
3. PAL = Project Action Limit
4. **Bold** and shaded indicates exceedance of PAL

Table 6-9
Deep Bedrock Packer Sampling Total and Dissolved Metals
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:		MW-14D	MW-14D	MW-14D	MW-19D	MW-19D	MW-19D	MW-20D	MW-20D
Station ID:		MW-14D-091709AX	MW-14D-091809AX	MW-14D-091809BX	MW-19D-091509AX	MW-19D-091509AD	MW-19D-091509BX	MW-20D-091609AX	MW-20D-091709AX
Sample Date:		9/17/2009	9/18/2009	9/18/2009	9/15/2009	9/15/2009	9/15/2009	9/16/2009	9/17/2009
Sample Interval (ft bgs):		98 - 108	75 - 85	52 - 62	68 - 78	68 - 78	36 - 46	85 - 95	30 - 40
Total Metals	**PAL**								
Aluminum	NA	165 J	605	200 U	3130	2960	6810	171 J	93 J
Antimony	6	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	10	10 U	10 U	2.6 J	10 U	10 U	10 U	10 U	10 U
Barium	2,000	5.4 J	18.4 J	6.1 J	27.6 J	26.7 J	10.9 J	21.7 J	68.1 J
Beryllium	4	1 U	1 U	1 U	0.2 J	0.17 J	0.77 J	1 U	1 U
Cadmium	5	5 U	5 U	5 U	2.5 J	2.7 J	**6.6**	5 U	5 U
Calcium	NA	26100	25200	25000	74100	72700	44400	40800	62700
Chromium	100	1.2 J	2.7 J	**132 J**	5.6 J	6.1 J	2.1 J	0.7 J	0.85 J
Cobalt	NA	50 UJ	4 J	50.00 UJ	49.9 J	51.1 J	153 J	50 UJ	50 UJ
Copper	1,300	25 U	25 U	25 U	**1360**	**1340**	**8910**	25 U	25 U
Cyanide	200	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Iron	NA	1360 J	1550 J	1550 J	4510 J	5030 J	509 J	263 J	169 J
Lead	15	10 U	10 U	10 U	2.3 J	10 U	2.8 J	10 U	10 U
Magnesium	NA	4160 J	4190 J	4100 J	11500	11400	9640	2380 J	2430 J
Manganese	300	35.3 J	287 J	85.4 J	**625 J**	**636 J**	**1290 J**	15 U	15 U
Mercury	2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Molybdenum	NA	10 U	10 U	12	10 U	10 U	10 U	10 U	10 U
Nickel	100	40 U	40 U	40 U	45.4	46.7	86.5	40 U	40 U
Potassium	NA	4670 J	4200 J	6070 J	7040 J	6960 J	6130 J	6450 J	6390 J
Selenium	50	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U
Silver	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Sodium	NA	3700 J	3450 J	4330 J	3390 J	3430 J	3230 J	5610 J	4930 J
Strontium	NA	119	112	117	179	175	122	244	356
Thallium	2	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vanadium	NA	50 U	50 U	50 U	4.6 J	5 J	50 U	3.8 J	50 U
Zinc	NA	44.8 J	95.2	192	699	781	994	38.2 J	39 J
Dissolved Metals	**PAL**								
Aluminum	NA	200 U	200 U	1120	133 J	107 J	6420	47.8 J	200 U
Antimony	6	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Barium	2,000	5 J	3.5 J	19.9 J	15.9 J	15.3 J	10.6 J	16.4 J	63.3 J
Beryllium	4	1 U	1 U	1 U	1 U	1 U	0.84 J	1 U	1 U

Table 6-9
Deep Bedrock Packer Sampling Total and Dissolved Metals
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:		MW-14D	MW-14D	MW-14D	MW-19D	MW-19D	MW-19D	MW-20D	MW-20D
Station ID:		MW-14D-091709AX	MW-14D-091809AX	MW-14D-091809BX	MW-19D-091509AX	MW-19D-091509AD	MW-19D-091509BX	MW-20D-091609AX	MW-20D-091709AX
Sample Date:		9/17/2009	9/18/2009	9/18/2009	9/15/2009	9/15/2009	9/15/2009	9/16/2009	9/17/2009
Sample Interval (ft bgs):		98 - 108	75 - 85	52 - 62	68 - 78	68 - 78	36 - 46	85 - 95	30 - 40
Cadmium	5	5 U	5 U	5 U	2.2 J	2.3 J	**6.6**	5 U	5 U
Calcium	NA	25800	24500	27700	74100	74500	44000	36300	53300
Chromium	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Cobalt	NA	50 U	50 U	50 U	47.9 J	49.6 J	149	50 U	50 U
Copper	1,300	25 U	25 U	20 J	**1040**	**1050**	**8380**	25 U	25 U
Iron	NA	91.7 J	100 UJ	4640 J	1250 J	1890 J	536 J	100 UJ	100 UJ
Lead	15	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Magnesium	NA	4150 J	3940 J	5070	10600	10600	9480	1450 J	1880 J
Manganese	300	29.3 J	22.9 J	247 J	**581 J**	**597 J**	**1240**	15 U	1.3 J
Mercury	2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Molybdenum	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nickel	100	40 U	40 U	5.4 J	37.3 J	38.6 J	84.8	40 U	40 U
Potassium	NA	5070 J	4130 J	7210 J	6540 J	6420 J	6190 J	6430 J	6650 J
Selenium	50	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U
Silver	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Sodium	NA	3890 J	3540 J	4550 J	3420 J	3340 J	3190 J	5490	5040
Strontium	NA	123	115	127	179	177	121	229	348
Thallium	2	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vanadium	NA	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Zinc	NA	60 U	52.1 J	512	673	795	995	60 U	60 U

Notes:

1. All concentrations listed in micrograms per liter (µg/L).
2. U=below detection limit, J=quantitation approximate
3. PAL = Project Action Limit
4. **Bold** and shaded indicates exceedance of PAL
5. ft bgs = feet below ground surface

Table 6-10
Residential Well Groundwater Total and Dissolved Metals
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:		M11LT19.0	M11LT55.1	M11LT60.0	M11LT63.0	M11LT064	M11LT065	M11LT065
Station ID:		M11LT19.0-120809AX	M11LT55.1-120709AX	M11LT60.0-120709AX	M11LT63.0-120709AX	M11LT064-120709AX	M11LT065-120709AX	M11LT065-1207090AD
Sample Date:		12/8/2009	12/7/2009	12/7/2009	12/7/2009	12/7/2009	12/7/2009	12/7/2009
Total Metals	**PAL**							
Aluminum	NA	46.8 J	200 U	200 U	200 U	79.3 J	200 U	79.6 J
Antimony	6	2 U	2 U	2 U	2 U	2 U	0.28 J	2 U
Arsenic	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Barium	2,000	6.1 J	3.7 J	5.7 J	10.4 J	7.5 J	7.5 J	9 J
Beryllium	4	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Cadmium	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Calcium	NA	29604	18686	33516	20848	19505	21012	20066
Chromium	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Cobalt	NA	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Copper	1,300	36.3	3.9 J	26.2	13.5 J	192	244	89.5
Cyanide	200	10 U	10 U	3.2 J	10 U	3.8 J	10 U	10 U
Iron	NA	62.9 J	105	78.5 J	100 U	104	52.9 J	135
Lead	15	2.5 J	10 U	6.8 J	10 U	11.3	**32.4**	**16**
Magnesium	NA	4043 J	4319 J	6127	1110 J	4761 J	5295	5172
Manganese	300	15 U	15 U	34.6	11.5 J	2.4 J	15 U	2.6 J
Mercury	2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Molybdenum	NA	10 U	1.9 J	1.5 J	10 U	10 U	3 J	2.5 J
Nickel	100	1.1 J	40 U	40 U	40 U	0.87 J	0.7 J	40 U
Potassium	NA	3457 J	2748 J	3750 J	1300 J	2671 J	3359 J	3133 J
Selenium	50	35 U	35 U	35 U	35 U	35 U	35 U	35 U
Silver	NA	0.51 J	10 U	0.63 J	10 U	10 U	0.4 J	0.41 J
Sodium	NA	2327 J	3905 J	6979	1450 J	3504 J	2804 J	2691 J
Strontium	NA	105	114	194	106	81.4	83.8	80.1
Thallium	2	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vanadium	NA	50 U	1.7 J	1.6 J	50 U	1 J	0.78 J	1 J
Zinc	NA	45.8 J	9.6 J	11.2 J	10.5 J	153	16.5 J	9.2 J

Table 6-10
Residential Well Groundwater Total and Dissolved Metals
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:		M11LT19.0	M11LT55.1	M11LT60.0	M11LT63.0	M11LT064	M11LT065	M11LT065
Station ID:		M11LT19.0-120809AX	M11LT55.1-120709AX	M11LT60.0-120709AX	M11LT63.0-120709AX	M11LT064-120709AX	M11LT065-120709AX	M11LT065-1207090AD
Sample Date:		12/8/2009	12/7/2009	12/7/2009	12/7/2009	12/7/2009	12/7/2009	12/7/2009
Dissolved Metals	**PAL**							
Aluminum	NA	200 U	200 U	200 U	200 U	200 U	200 U	46.8 J
Antimony	6	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	10	2.7 J	2.6 J	2.6 J	3.1 J	10 U	10 U	10 U
Barium	2,000	6.3 J	3 J	5.2 J	9.2 J	6.7 J	6.8 J	6.8 J
Beryllium	4	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Cadmium	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Calcium	NA	29292	19314	33064	19647	19009	20315	20664
Chromium	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Cobalt	NA	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Copper	1,300	6.8 J	2.1 J	25 U	9.8 J	60.4	35.8	7 J
Iron	NA	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Lead	15	10 U	10 U	10 U	10 U	3.7 J	7.9 J	5.8 J
Magnesium	NA	4042 J	4508 J	5980	1070 J	4684 J	5183	5262
Manganese	300	15 U	15 U	32.6	8.2 J	15 U	15 U	15 U
Mercury	2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Molybdenum	NA	10 U	2 J	10 U	10 U	10 U	3 J	2.8 J
Nickel	100	1 J	40 U	40 U	40 U	40 U	0.67 J	0.56 J
Potassium	NA	3655 J	2800 J	3729 J	1234 J	2693 J	3188 J	3313 J
Selenium	50	35 U	35 U	35 U	35 U	35 U	35 U	35 U
Silver	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Sodium	NA	2408 J	4067 J	6873	1392 J	3410 J	2748 J	2802 J
Strontium	NA	106	119	190	100	81.9	83.3	83.8
Thallium	2	0.085 J	1 U	1 U	1 U	1 U	1 U	1 U
Vanadium	NA	50 U	1.6 J	0.87 J	50 U	50 U	1.1 J	50 U
Zinc	NA	18.4 J	6.1 J	4.5 J	11.6 J	46.2 J	6.1 J	3.3 J

Notes:

1. All concentrations listed in micrograms per liter (µg/L).
2. U=below detection limit, J=quantitation approximate
3. PAL = Project Action Limit
4. **Bold** and shaded indicates exceedance of PAL
5. NA = not available

Table 6-11
November 2009 Groundwater Organic Analyses Summary
Ely Copper Mine Superfund Site
Vershire, Vermont

	Sample Location:	MW-02A	MW-05A	MW-05A	MW-09A	MW-11A	MW-19A	MW-19D	MW-20A	MW-20D	MW-21A	MW-22A
	Station ID:	MW-02A-113009AX	MW-05A-120109AX	MW-05A-120109AD	MW-09A-120209AX	MW-11A-120109AX	MW-19A-113009AX	MW-19D-120209AX	MW-20A-120109AX	MW-20D-120209AX	MW-21A-113009AX	MW-22A-113009AX
	Sample Date:	11/30/2009	12/1/2009	12/1/2009	12/2/2009	12/1/2009	11/30/2009	12/2/2009	12/1/2009	12/2/2009	11/30/2009	11/30/2009
VOCs	**PAL**											
1,1,1-Trichloroethane	200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloro-1,2,2-trifluoroethane	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	70	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	70	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	600	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	600	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	75	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone	4200	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Hexanone	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	700	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	90	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	80	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	10	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon disulfide	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	80	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	30	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,2-Dichloroethene	70	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cyclohexane	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromochloromethane	80	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane	1000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	700	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Isopropylbenzene	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
m,p-Xylene	10000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl acetate	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl tert-butyl ether	40	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylcyclohexane	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylene chloride	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	1000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane	2100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Table 6-11
November 2009 Groundwater Organic Analyses Summary
Ely Copper Mine Superfund Site
Vershire, Vermont

	Sample Location:	MW-02A	MW-05A	MW-05A	MW-09A	MW-11A	MW-19A	MW-19D	MW-20A	MW-20D	MW-21A	MW-22A
	Station ID:	MW-02A-113009AX	MW-05A-120109AX	MW-05A-120109AD	MW-09A-120209AX	MW-11A-120109AX	MW-19A-113009AX	MW-19D-120209AX	MW-20A-120109AX	MW-20D-120209AX	MW-21A-113009AX	MW-22A-113009AX
	Sample Date:	11/30/2009	12/1/2009	12/1/2009	12/2/2009	12/1/2009	11/30/2009	12/2/2009	12/1/2009	12/2/2009	11/30/2009	11/30/2009
SVOCs	**PAL**											
1,1'-Biphenyl	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2,4,5-Tetrachlorobenzene	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,2'-Oxybis(1-chloropropane)	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,3,4,6-Tetrachlorophenol	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4,5-Trichlorophenol	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4,6-Trichlorophenol	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dichlorophenol	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dimethylphenol	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dinitrophenol	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,6-Dinitrotoluene	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Chloronaphthalene	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Chlorophenol	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Methylnaphthalene	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Methylphenol	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Nitroaniline	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
3,3'-Dichlorobenzidine	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
3-Nitroaniline	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4,6-Dinitro-2-methylphenol	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Chloro-3-methylphenol	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Chloroaniline	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Chlorophenyl-phenylether	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methylphenol	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Nitroaniline	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitrophenol	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acenaphthylene	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetophenone	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Anthracene	2100	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Atrazine	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzaldehyde	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(a)anthracene	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(a)pyrene	0.2	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(b)fluoranthene	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(g,h,i)perylene	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(k)fluoranthene	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bis(2-chloroethoxy)methane	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bis(2-chloroethyl)ether	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bis(2-ethylhexyl)phthalate	NA	5 U	5 U	5 U	5 U	5 U	5 U	7.5	5 U	5 U	5 U	2.6 J
Butylbenzylphthalate	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Caprolactam	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbazole	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chrysene	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibenzo(a,h)anthracene	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibenzofuran	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Diethylphthalate	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dimethylphthalate	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Di-n-butylphthalate	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Di-n-octylphthalate	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Fluoranthene	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Fluorene	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

Table 6-11
November 2009 Groundwater Organic Analyses Summary
Ely Copper Mine Superfund Site
Vershire, Vermont

	Sample Location:	MW-02A	MW-05A	MW-05A	MW-09A	MW-11A	MW-19A	MW-19D	MW-20A	MW-20D	MW-21A	MW-22A
	Station ID:	MW-02A-113009AX	MW-05A-120109AX	MW-05A-120109AD	MW-09A-120209AX	MW-11A-120109AX	MW-19A-113009AX	MW-19D-120209AX	MW-20A-120109AX	MW-20D-120209AX	MW-21A-113009AX	MW-22A-113009AX
	Sample Date:	11/30/2009	12/1/2009	12/1/2009	12/2/2009	12/1/2009	11/30/2009	12/2/2009	12/1/2009	12/2/2009	11/30/2009	11/30/2009
SVOCs continued	**PAL**											
Hexachlorobenzene	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorobutadiene	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorocyclopentadiene	50	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachloroethane	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Indeno(1,2,3-cd)pyrene	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Isophorone	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Naphthalene	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Nitrobenzene	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
N-Nitroso-di-n-propylamine	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
N-Nitrosodiphenylamine	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Pentachlorophenol	1	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenanthrene	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Phenol	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Pyrene	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Pesticides	**PAL**											
4,4'-DDD	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.03 J	0.1 U	0.1 U
4,4'-DDE	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.024 J	0.1 U	0.1 U
4,4'-DDT	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.058 J	0.1 U	0.1 U
Aldrin	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
alpha-BHC	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
alpha-Chlordane	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
beta-BHC	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
delta-BHC	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan I	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan II	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan sulfate	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin aldehyde	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin ketone	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
gamma-BHC (Lindane)	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
gamma-Chlordane	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Methoxychlor	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toxaphene	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Aroclors	**PAL**											
Aroclor-1016	0.5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor-1221	0.5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor-1232	0.5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor-1242	0.5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor-1248	0.5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.48 J	1 U	1 U
Aroclor-1254	0.5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor-1260	0.5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor-1262	0.5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor-1268	0.5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

Notes:
1. All concentrations listed in micrograms per liter (µg/L).
2. U=below detection limit, J=quantitation approximate
3. PAL = Project Action Limit
4. **Bold** and shaded indicates exceedance of PAL

Table 6-12
Biota TAL Metals Results
Ely Copper Mine Superfund Site
Vershire, Vermont

	Sample Location:	MA-01	MA-01	MA-01	MA-01	MA-01	MA-01	MA-01	MA-01	MA-01
	Station ID:	MA-01X-091509AX	MA-01X-091509BX	MA-01X-091509CX	MA-01X-091509DX	MA-01X-091509EX	MA-01X-091509FX	MA-01X-091509GX	MA-01X-091509HX	MA-01X-091509jX
	Sample Date:	9/15/2009	9/15/2009	9/15/2009	9/15/2009	9/15/2009	9/15/2009	9/15/2009	9/15/2009	9/15/2009
Chemical	**CRQL**									
Aluminum	20	20 U	20 U	28	20 U	77	20 U	20 U	20 U	20 U
Antimony	6	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ
Arsenic	1	1 U	1 U	1 U	1 U	1.2	1.2	1.2	1 U	1 U
Barium	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Beryllium	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cadmium	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Calcium	250	9200	8100	7000	9000	7200	12000	9800	9500	10000
Chromium	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Cobalt	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Copper	2.5	4.6	4	12	3.5	6.8	3.2	4	3.8	5.5
Iron	10	83 J	130 J	640 J	97 J	190 J	55 J	130 J	87 J	82 J
Lead	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Magnesium	250	390 J	340 J	360 J	340 J	370 J	430 J	360 J	380 J	410 J
Manganese	1.5	12 J	4.6 J	3.9 J	4.3 J	9.6 J	9.8 J	1.5 UJ	4.4 J	8.2 J
Mercury	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Nickel	4	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
Potassium	250	3300	2800	2800	2900	2800	3300	3100	2800	3400
Selenium	3.5	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
Silver	1	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
Sodium	250	1500	1300	1300	1300	1400	1500	1600	1400	1400
Thallium	2.5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Vanadium	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Zinc	6	28	31	26	27	33	38	32	29	37

Notes:

1. All concentrations listed in milligrams per killigram (mg/kg).
2. U=below detection limit, J=quantitation approximate
3. Sample Location: MA= mammal sample; IV = invertebrate sample
4. CRQL = Contract Required Quantitation Limit

Table 6-12
Biota TAL Metals Results
Ely Copper Mine Superfund Site
Vershire, Vermont

	Sample Location:	MA-01	MA-02	MA-02	MA-02	MA-02	MA-02	MA-02	MA-02	MA-02
	Station ID:	MA-01X-091509KX	MA-02X-091509AX	MA-02X-091509BX	MA-02X-091509CX	MA-02X-091509DX	MA-02X-091509EX	MA-02X-091509FX	MA-02X-091509GX	MA-02X-091509HX
	Sample Date:	9/15/2009	9/15/2009	9/15/2009	9/15/2009	9/15/2009	9/15/2009	9/15/2009	9/15/2009	9/15/2009
Chemical	**CRQL**									
Aluminum	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Antimony	6	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ
Arsenic	1	1 U	1.1	1.6	1.2	1 U	1 U	1 U	1	1 U
Barium	20	20 UJ	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Beryllium	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cadmium	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Calcium	250	10000 J	7700	8000	5400	5600	8100	5300	9400	5200
Chromium	1	1 U	1 U	1 U	1 U	1.4	1 U	1 U	1	1 U
Cobalt	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Copper	2.5	8.4	7.7	4	3.3	4.3	3.3	4.9	7.8	3.9
Iron	10	160 J	110 J	83 J	59 J	88 J	58 J	80 J	140 J	65 J
Lead	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Magnesium	250	400	310 J	330 J	280 J	310 J	350 J	290 J	490 J	290 J
Manganese	1.5	17 J	5 J	11 J	10 J	5 J	4.8 J	5 J	11 J	4.2 J
Mercury	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Nickel	4	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
Potassium	250	2700	2700	2500	2800	2900	2800	2600	3200	2800
Selenium	3.5	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
Silver	1	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
Sodium	250	1400	1300	1000	1300	1300	1300	1200	1500	1100
Thallium	2.5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Vanadium	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Zinc	6	31 J	26	29	27	28	30	28	37	28

Notes:

1. All concentrations listed in milligrams per killigram (mg/kg).
2. U=below detection limit, J=quantitation approximate
3. Sample Location: MA= mammal sample; IV = invertebrate sample
4. CRQL = Contract Required Quantitation L

Table 6-12
Biota TAL Metals Results
Ely Copper Mine Superfund Site
Vershire, Vermont

	Sample Location:	MA-02	MA-02	MA-02	MA-03	MA-03	MA-03	MA-03	MA-03	MA-03
	Station ID:	MA-02X-091509JX	MA-02X-091509KX	MA-02X-091509KD	MA-03X-091509AX	MA-03X-091509BX	MA-03X-091509CX	MA-03X-091509DX	MA-03X-091509EX	MA-03X-091509FX
	Sample Date:	9/15/2009	9/15/2009	9/15/2009	9/15/2009	9/15/2009	9/15/2009	9/15/2009	9/15/2009	9/15/2009
Chemical	**CRQL**									
Aluminum	20	37	20 U	24	20 U	20 U	22	20 U	20 U	20 U
Antimony	6	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ
Arsenic	1	1 U	1 U	1	1 U	1 U	1 U	1 U	1 U	1 U
Barium	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Beryllium	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cadmium	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.2	0.5 U	0.5 U	0.5 U
Calcium	250	7700	6300	8700	8800	8300	9700	7700	5700	8400
Chromium	1	1 U	3.7	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Cobalt	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Copper	2.5	4.4	4.6	5.6	5.3	3.4	3.5	3.7	3.6	4.5
Iron	10	120 J	97 J	83 J	96 J	57 J	130 J	140 J	41 J	73 J
Lead	1	1 U	1 U	1 U	1 U	1 U	1 U	1.6	1 U	1 U
Magnesium	250	350 J	270 J	370 J	350 J	390 J	350 J	330 J	350 J	440 J
Manganese	1.5	9.4 J	3.9 J	9.5 J	7.4 J	18 J	34 J	1.5 UJ	4.6 J	14 J
Mercury	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Nickel	4	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
Potassium	250	2500	2000	2500	2900	2800	2600	2700	2900	3100
Selenium	3.5	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
Silver	1	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
Sodium	250	1000	1100	1100	1400	1300	1400	1400	1200	1300
Thallium	2.5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Vanadium	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Zinc	6	35	28	32	31	27	46	32	27	29

Notes:

1. All concentrations listed in milligrams per killigram (mg/kg).
2. U=below detection limit, J=quantitation approximate
3. Sample Location: MA= mammal sample; IV = invertebrate sample
4. CRQL = Contract Required Quantitation L

Table 6-12
Biota TAL Metals Results
Ely Copper Mine Superfund Site
Vershire, Vermont

	Sample Location:	MA-03	MA-03	MA-03	MA-03	MA-REF	MA-REF	MA-REF	MA-REF
	Station ID:	MA-03X-091509GX	MA-03X-091509HX	MA-03X-091509JX	MA-03X-091509KX	MA-REF-091509AX	MA-REF-091509BX	MA-REF-091509CX	MA-REF-091509CD
	Sample Date:	9/15/2009	9/15/2009	9/15/2009	9/15/2009	9/15/2009	9/15/2009	9/15/2009	9/15/2009
Chemical	**CRQL**								
Aluminum	20	20	20 U	27	20 U	34	20 U	20 U	33
Antimony	6	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ
Arsenic	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Barium	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Beryllium	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cadmium	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Calcium	250	8800	9700	8500	7400	6900	7800	4600	7500
Chromium	1	1 U	1 U	1 U	1 U	1.4	1 U	1 U	1 U
Cobalt	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Copper	2.5	7.4	4.6	6.3	4	2.7	3.9	3.4	3.6
Iron	10	80 J	97 J	150 J	83 J	130 J	76 J	92 J	180 J
Lead	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Magnesium	250	490 J	380 J	380 J	350 J	330 J	370 J	260 J	350 J
Manganese	1.5	15 J	11 J	16 J	4.2 J	4.9 J	4 J	1.5 UJ	14 J
Mercury	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Nickel	4	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
Potassium	250	3200	2900	2900	2500	2600	2900	2500	2500
Selenium	3.5	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
Silver	1	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
Sodium	250	1400	1200	1400	1300	1300	1200	1200	1300
Thallium	2.5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Vanadium	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Zinc	6	30	29	29	29	35	27	29	30

Notes:

1. All concentrations listed in milligrams per killigram (mg/kg).
2. U=below detection limit, J=quantitation approximate
3. Sample Location: MA= mammal sample; IV = invertebrate sample
4. CRQL = Contract Required Quantitation L

Table 6-12
Biota TAL Metals Results
Ely Copper Mine Superfund Site
Vershire, Vermont

	Sample Location:	MA-REF	MA-REF	MA-REF	MA-REF	MA-REF	MA-REF	MA-REF	IV-01
	Station ID:	MA-REF-091509DX	MA-REF-091509EX	MA-REF-091509FX	MA-REF-091509GX	MA-REF-091509HX	MA-REF-091509JX	MA-REF-091509KX	IV-01X-091609AX
	Sample Date:	9/15/2009	9/15/2009	9/15/2009	9/15/2009	9/15/2009	9/15/2009	9/15/2009	9/16/2009
Chemical	**CRQL**								
Aluminum	20	33	24	20 U	20 U	20 U	26	20 U	150
Antimony	6	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ
Arsenic	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Barium	20	20 U	20 U	20 U	20 U	20 U	20 U	20 UJ	20 UJ
Beryllium	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cadmium	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Calcium	250	7200	10000	3400	9100	11000	9800	9300 J	3000 J
Chromium	1	1 U	1 U	1 U	1 U	1 U	1.5	1 U	1 U
Cobalt	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Copper	2.5	3.7	3.5	2.7	4.3	4.3	5.9	2.8	20
Iron	10	100 J	90 J	100 J	62 J	140 J	87 J	46 J	220 J
Lead	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Magnesium	250	330 J	430 J	280 J	370 J	410 J	410 J	410	520
Manganese	1.5	1.5 UJ	4.7 J	1.5 UJ	11 J	4.2 J	5.1 J	13 J	34 J
Mercury	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Nickel	4	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
Potassium	250	2300	2600	2600	2600	2800	2800	2700	3300
Selenium	3.5	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
Silver	1	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
Sodium	250	1000	1300	1300	1000	1500	1200	1300	500
Thallium	2.5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Vanadium	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Zinc	6	30	31	30	34	36	36	24 J	54 J

Notes:

1. All concentrations listed in milligrams per killigram (mg/kg).
2. U=below detection limit, J=quantitation approximate
3. Sample Location: MA= mammal sample; IV = invertebrate sample
4. CRQL = Contract Required Quantitation L

Table 6-12
Biota TAL Metals Results
Ely Copper Mine Superfund Site
Vershire, Vermont

Sample Location:		IV-01	IV-02	IV-03	IV-03	IV-REF	IV-REF
Station ID:		IV-01X-091609AX	IV-02X-091709AX	IV-03X-091609AX	IV-03X-091609BX	IV-REF-091609AX	IV-REF-091609AX
Sample Date:		9/17/2009	9/17/2009	9/16/2009	9/16/2009	9/16/2009	9/16/2009
Chemical	**CRQL**						
Aluminum	20	21	42	240	170	20 U	20 U
Antimony	6	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ
Arsenic	1	1 U	1 U	1 U	1 U	1 U	1 U
Barium	20	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ
Beryllium	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cadmium	0.5	0.5 U	0.75	1.1	0.5 U	0.5 U	0.5 U
Calcium	250	1300 J	1500 J	1500 J	740 J	440 J	360 J
Chromium	1	1 U	1 U	2.9	1.7	1 U	1 U
Cobalt	5	5 U	5 U	5 U	5 U	5 U	5 U
Copper	2.5	16	26	35	43	14	15
Iron	10	43 J	350 J	530 J	730 J	22 J	29 J
Lead	1	1 U	1 U	1 U	1 U	1 U	1 U
Magnesium	250	360	250 U	380	390	270	280
Manganese	1.5	21 J	33 J	21 J	20 J	5.4 J	4.8 J
Mercury	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Nickel	4	4 U	4 U	4 U	4 U	4 U	4 U
Potassium	250	3200	3200	2900	3100	3300	3300
Selenium	3.5	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
Silver	1	1 UJ	1 J	1 UJ	1 UJ	1 UJ	1 UJ
Sodium	250	320	460	570	550	270	250
Thallium	2.5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Vanadium	5	5 U	5 U	5 U	5 U	5 U	5 U
Zinc	6	47 J	72 J	95 J	52 J	50 J	51 J

Notes:

1. All concentrations listed in milligrams per killigram (mg/kg).
2. U=below detection limit, J=quantitation approximate
3. Sample Location: MA= mammal sample; IV = invertebrate sample
4. CRQL = Contract Required Quantitation L

Table 6-13
Summary Statistics - Soil Invertebrates
Ely Copper Mine Superfund Site
Vershire, Vermont

Analyte	Frequency of Detection	Units	Range of Detection	Maximum Detect Location	Range of SQLs	Average	Standard Deviation
Exposure Area 1 - Upper Waste Piles							
Aluminum	2 / 2	mg/kg	21.0 - 150.0	IV-01X-091609AX	NA	85.5	91.2
Antimony	0 / 2	mg/kg	ND	-	6.0 - 6.0	6.0	NC
Arsenic	0 / 2	mg/kg	ND	-	1.0 - 1.0	1.0	NC
Barium	0 / 2	mg/kg	ND	-	20.0 - 20.0	20.0	NC
Beryllium	0 / 2	mg/kg	ND	-	0.5 - 0.5	0.5	NC
Cadmium	0 / 2	mg/kg	ND	-	0.5 - 0.5	0.5	NC
Calcium	2 / 2	mg/kg	1,300 - 3,000	IV-01X-091609AX	NA	2,150	1,202
Chromium	0 / 2	mg/kg	ND	-	1.0 - 1.0	1.0	NC
Cobalt	0 / 2	mg/kg	ND	-	5.0 - 5.0	5.0	NC
Copper	2 / 2	mg/kg	16.0 - 20.0	IV-01X-091609AX	NA	18.0	2.8
Iron	2 / 2	mg/kg	43.0 - 220.0	IV-01X-091609AX	NA	131.5	125.2
Lead	0 / 2	mg/kg	ND	-	1.0 - 1.0	1.0	NC
Magnesium	2 / 2	mg/kg	360.0 - 520.0	IV-01X-091609AX	NA	440.0	113.1
Manganese	2 / 2	mg/kg	21.0 - 34.0	IV-01X-091609AX	NA	27.5	9.2
Mercury	0 / 2	mg/kg	ND	-	0.0 - 0.0	0.0	NC
Nickel	0 / 2	mg/kg	ND	-	4.0 - 4.0	4.0	NC
Potassium	2 / 2	mg/kg	3,200 - 3,300	IV-01X-091609AX	NA	3,250	70.7
Selenium	0 / 2	mg/kg	ND	-	3.5 - 3.5	3.5	NC
Silver	0 / 2	mg/kg	ND	-	1.0 - 1.0	1.0	NC
Sodium	2 / 2	mg/kg	320.0 - 500.0	IV-01X-091609AX	NA	410.0	127.3
Thallium	0 / 2	mg/kg	ND	-	2.5 - 2.5	2.5	NC
Vanadium	0 / 2	mg/kg	ND	-	5.0 - 5.0	5.0	NC
Zinc	2 / 2	mg/kg	47.0 - 54.0	IV-01X-091609AX	NA	50.5	4.9
Percent Moisture	2 / 2	%	69.9 - 71.8	IV-01X-091609AX	NA	70.9	1.3
Exposure Area 2 - Lower Waste Piles / Roast Bed							
Aluminum	1 / 1	mg/kg	42.0 - 42.0	IV-02X-091709AX	NA	42.0	NC
Antimony	0 / 1	mg/kg	ND	-	6.0 - 6.0	6.0	NC
Arsenic	0 / 1	mg/kg	ND	-	1.0 - 1.0	1.0	NC
Barium	0 / 1	mg/kg	ND	-	20.0 - 20.0	20.0	NC
Beryllium	0 / 1	mg/kg	ND	-	0.5 - 0.5	0.5	NC
Cadmium	1 / 1	mg/kg	0.8 - 0.8	IV-02X-091709AX	NA	0.75	NC
Calcium	1 / 1	mg/kg	1,500 - 1,500	IV-02X-091709AX	NA	1,500	NC
Chromium	0 / 1	mg/kg	ND	-	1.0 - 1.0	1.0	NC
Cobalt	0 / 1	mg/kg	ND	-	5.0 - 5.0	5.0	NC
Copper	1 / 1	mg/kg	26.0 - 26.0	IV-02X-091709AX	NA	26.0	NC
Iron	1 / 1	mg/kg	350.0 - 350.0	IV-02X-091709AX	NA	350.0	NC
Lead	0 / 1	mg/kg	ND	-	1.0 - 1.0	1.0	NC
Magnesium	0 / 1	mg/kg	ND	-	250.0 - 250.0	250.0	NC
Manganese	1 / 1	mg/kg	33.0 - 33.0	IV-02X-091709AX	NA	33.0	NC
Mercury	0 / 1	mg/kg	ND	-	0.02 - 0.02	0.02	NC
Nickel	0 / 1	mg/kg	ND	-	4.0 - 4.0	4.0	NC
Potassium	1 / 1	mg/kg	3,200 - 3,200	IV-02X-091709AX	NA	3,200	NC
Selenium	0 / 1	mg/kg	ND	-	3.5 - 3.5	3.5	NC
Silver	1 / 1	mg/kg	1.0 - 1.0	IV-02X-091709AX	NA	1.00	NC
Sodium	1 / 1	mg/kg	460.0 - 460.0	IV-02X-091709AX	NA	460.0	NC
Thallium	0 / 1	mg/kg	ND	-	2.5 - 2.5	2.5	NC
Vanadium	0 / 1	mg/kg	ND	-	5.0 - 5.0	5.0	NC
Zinc	1 / 1	mg/kg	72.0 - 72.0	IV-02X-091709AX	NA	72.0	NC
Percent Moisture	1 / 1	%	72.9 - 72.9	IV-02X-091709AX	NA	72.9	NC
Exposure Area 3 - Smelter / Slag							
Aluminum	2 / 2	mg/kg	170.0 - 240.0	IV-03X-091609AX	NA	205.0	49.5
Antimony	0 / 2	mg/kg	ND	-	6.0 - 6.0	6.0	NC
Arsenic	0 / 2	mg/kg	ND	-	1.0 - 1.0	1.0	NC
Barium	0 / 2	mg/kg	ND	-	20.0 - 20.0	20.0	NC
Beryllium	0 / 2	mg/kg	ND	-	0.5 - 0.5	0.5	NC
Cadmium	1 / 2	mg/kg	1.1 - 1.1	IV-03X-091609AX	0.5 - 0.5	0.8	0.4
Calcium	2 / 2	mg/kg	740.0 - 1,500	IV-03X-091609AX	NA	1,120	537.4
Chromium	2 / 2	mg/kg	1.7 - 2.9	IV-03X-091609AX	NA	2.3	0.8

Table 6-13
Summary Statistics - Soil Invertebrates
Ely Copper Mine Superfund Site
Vershire, Vermont

Analyte	Frequency of Detection	Units	Range of Detection	Maximum Detect Location	Range of SQLs	Average	Standard Deviation
Exposure Area 3 - Smelter / Slag (cont.)							
Cobalt	0 / 2	mg/kg	ND	-	5.0 - 5.0	5.0	NC
Copper	2 / 2	mg/kg	35.0 - 43.0	IV-03X-091609BX	NA	39.0	5.7
Iron	2 / 2	mg/kg	530.0 - 730.0	IV-03X-091609BX	NA	630.0	141.4
Lead	0 / 2	mg/kg	ND	-	1.0 - 1.0	1.0	NC
Magnesium	2 / 2	mg/kg	380.0 - 390.0	IV-03X-091609BX	NA	385.0	7.1
Manganese	2 / 2	mg/kg	20.0 - 21.0	IV-03X-091609AX	NA	20.5	0.7
Mercury	0 / 2	mg/kg	ND	-	0.02 - 0.02	0.02	NC
Nickel	0 / 2	mg/kg	ND	-	4.0 - 4.0	4.0	NC
Potassium	2 / 2	mg/kg	2,900 - 3,100	IV-03X-091609BX	NA	3,000	141.4
Selenium	0 / 2	mg/kg	ND	-	3.5 - 3.5	3.5	NC
Silver	0 / 2	mg/kg	ND	-	1.0 - 1.0	1.0	NC
Sodium	2 / 2	mg/kg	550.0 - 570.0	IV-03X-091609AX	NA	560.0	14.1
Thallium	0 / 2	mg/kg	ND	-	2.5 - 2.5	2.5	NC
Vanadium	0 / 2	mg/kg	ND	-	5.0 - 5.0	5.0	NC
Zinc	2 / 2	mg/kg	52.0 - 95.0	IV-03X-091609AX	NA	73.5	30.4
Percent Moisture	2 / 2	%	70.1 - 70.1	IV-02X-091709AX, IV-03X-091609BX	NA	70.1	NC
Reference							
Aluminum	0 / 2	mg/kg	ND	-	20.0 - 20.0	20.0	NC
Antimony	0 / 2	mg/kg	ND	-	6.0 - 6.0	6.0	NC
Arsenic	0 / 2	mg/kg	ND	-	1.0 - 1.0	1.0	NC
Barium	0 / 2	mg/kg	ND	-	20.0 - 20.0	20.0	NC
Beryllium	0 / 2	mg/kg	ND	-	0.5 - 0.5	0.5	NC
Cadmium	0 / 2	mg/kg	ND	-	0.5 - 0.5	0.5	NC
Calcium	2 / 2	mg/kg	360.0 - 440.0	IV-REF-091609AX	NA	400.0	56.6
Chromium	0 / 2	mg/kg	ND	-	1.0 - 1.0	1.0	NC
Cobalt	0 / 2	mg/kg	ND	-	5.0 - 5.0	5.0	NC
Copper	2 / 2	mg/kg	14.0 - 15.0	IV-REF-091609BX	NA	14.5	0.7
Iron	2 / 2	mg/kg	22.0 - 29.0	IV-REF-091609BX	NA	25.5	4.9
Lead	0 / 2	mg/kg	ND	-	1.0 - 1.0	1.0	NC
Magnesium	2 / 2	mg/kg	270.0 - 280.0	IV-REF-091609BX	NA	275.0	7.1
Manganese	2 / 2	mg/kg	4.8 - 5.4	IV-REF-091609AX	NA	5.1	0.4
Mercury	0 / 2	mg/kg	ND	-	0.02 - 0.02	0.02	NC
Nickel	0 / 2	mg/kg	ND	-	4.0 - 4.0	4.0	NC
Potassium	2 / 2	mg/kg	3,300 - 3,300	IV-REF-091609AX, IV-REF-091609BX	NA	3,300	NC
Selenium	0 / 2	mg/kg	ND	-	3.5 - 3.5	3.5	NC
Silver	0 / 2	mg/kg	ND	-	1.0 - 1.0	1.0	NC
Sodium	2 / 2	mg/kg	250.0 - 270.0	IV-REF-091609AX	NA	260.0	14.1
Thallium	0 / 2	mg/kg	ND	-	2.5 - 2.5	2.5	NC
Vanadium	0 / 2	mg/kg	ND	-	5.0 - 5.0	5.0	NC
Zinc	2 / 2	mg/kg	50.0 - 51.0	IV-REF-091609BX	NA	50.5	0.7
Percent Moisture	2 / 2	%	67.5 - 69.3	IV-REF-091609BX	NA	68.4	1.3

Notes:
NA = Not applicable.
NC = Not calculated due to insufficient data variability.
ND = Not detected.
SQL = Sample quantitation limit.

Table 6-14
Summary Statistics - Deer Mouse
Ely Copper Mine Superfund Site
Vershire, Vermont

Analyte	Frequency of Detection	Units	Range of Detection	Maximum Detect Location	Range of SQLs	Average	Standard Deviation
Exposure Area 1 - Upper Waste Piles							
Aluminum	1 / 7	mg/kg	28.0 - 28.0	MA-01X-091509CX	20.0 - 20.0	21.1	3.0
Antimony	0 / 7	mg/kg	ND	-	6.0 - 6.0	6.0	NC
Arsenic	1 / 7	mg/kg	1.2 - 1.2	MA-01X-091509FX	1.00 - 1.00	1.03	0.08
Barium	0 / 7	mg/kg	ND	-	20.0 - 20.0	20.0	NC
Beryllium	0 / 7	mg/kg	ND	-	0.50 - 0.50	0.50	NC
Cadmium	0 / 7	mg/kg	ND	-	0.50 - 0.50	0.50	NC
Calcium	7 / 7	mg/kg	7,000 - 12,000	MA-01X-091509FX	NA	9,529	1,490.8
Chromium	0 / 7	mg/kg	ND	-	1.00 - 1.00	1.00	NC
Cobalt	0 / 7	mg/kg	ND	-	5.0 - 5.0	5.0	NC
Copper	7 / 7	mg/kg	3.2 - 12.0	MA-01X-091509CX	NA	5.9	3.2
Iron	7 / 7	mg/kg	55.0 - 640.0	MA-01X-091509CX	NA	172.0	208.9
Lead	0 / 7	mg/kg	ND	-	1.00 - 1.00	1.00	NC
Magnesium	7 / 7	mg/kg	340.0 - 430.0	MA-01X-091509FX	NA	387.1	30.4
Manganese	7 / 7	mg/kg	3.9 - 17.0	MA-01X-091509KX	NA	8.5	4.9
Mercury	0 / 7	mg/kg	ND	-	0.02 - 0.020	0.020	NC
Nickel	0 / 7	mg/kg	ND	-	4.0 - 4.0	4.0	NC
Potassium	7 / 7	mg/kg	2,700 - 3,400	MA-01X-091509JX	NA	3,029	292.8
Selenium	0 / 7	mg/kg	ND	-	3.5 - 3.5	3.5	NC
Silver	0 / 7	mg/kg	ND	-	1.00 - 1.00	1.00	NC
Sodium	7 / 7	mg/kg	1,300 - 1,500	MA-01X-091509AX, MA-01X-091509FX	NA	1,400	81.6
Thallium	0 / 7	mg/kg	ND	-	2.5 - 2.5	2.5	NC
Vanadium	0 / 7	mg/kg	ND	-	5.0 - 5.0	5.0	NC
Zinc	7 / 7	mg/kg	26.0 - 38.0	MA-01X-091509FX	NA	30.9	4.8
Percent Moisture	7 / 7	%	71.3 - 74.4	MA-01X-091509AX	NA	73.0	1.2
% Lipids	7 / 7	%	3.6 - 5.3	MA-01X-091509CX	NA	4.5	0.7
Exposure Area 2 - Lower Waste Piles / Roast Bed							
Aluminum	0 / 7	mg/kg	ND	-	20.0 - 20.0	20.0	NC
Antimony	0 / 7	mg/kg	ND	-	6.0 - 6.0	6.0	NC
Arsenic	3 / 7	mg/kg	1.00 - 1.2	MA-02X-091509CX	1.00 - 1.00	1.04	0.08
Barium	0 / 7	mg/kg	ND	-	20.0 - 20.0	20.0	NC
Beryllium	0 / 7	mg/kg	ND	-	0.5 - 0.5	0.5	NC
Cadmium	0 / 7	mg/kg	ND	-	0.5 - 0.5	0.5	NC
Calcium	7 / 7	mg/kg	5,200 - 9,400	MA-02X-091509GX	NA	6,671	1,700.7
Chromium	2 / 7	mg/kg	1.00 - 1.4	MA-02X-091509DX	1.00 - 1.00	1.1	0.15
Cobalt	0 / 7	mg/kg	ND	-	5.0 - 5.0	5.0	NC
Copper	7 / 7	mg/kg	3.3 - 7.8	MA-02X-091509GX	NA	5.0	1.9
Iron	7 / 7	mg/kg	58.0 - 140.0	MA-02X-091509GX	NA	85.7	30.2
Lead	0 / 7	mg/kg	ND	-	1.00 - 1.00	1.00	NC
Magnesium	7 / 7	mg/kg	280.0 - 490.0	MA-02X-091509GX	NA	331.4	73.6
Manganese	7 / 7	mg/kg	4.2 - 11.0	MA-02X-091509GX	NA	6.4	2.8
Mercury	0 / 7	mg/kg	ND	-	0.0 - 0.0	0.0	NC
Nickel	0 / 7	mg/kg	ND	-	4.0 - 4.0	4.0	NC
Potassium	7 / 7	mg/kg	2,600 - 3,200	MA-02X-091509GX	NA	2,829	189.0
Selenium	0 / 7	mg/kg	ND	-	3.5 - 3.5	3.5	NC
Silver	0 / 7	mg/kg	ND	-	1.00 - 1.00	1.00	NC
Sodium	7 / 7	mg/kg	1,100 - 1,500	MA-02X-091509GX	NA	1,286	121.5
Thallium	0 / 7	mg/kg	ND	-	2.5 - 2.5	2.5	NC
Vanadium	0 / 7	mg/kg	ND	-	5.0 - 5.0	5.0	NC
Zinc	7 / 7	mg/kg	26.0 - 37.0	MA-02X-091509GX	NA	29.1	3.7
Percent Moisture	7 / 7	%	71.7 - 76.0	MA-02X-091509CX	NA	73.7	1.5
% Lipids	7 / 7	%	3.1 - 4.8	MA-02X-091509FX	NA	3.9	0.6

Table 6-14
Summary Statistics - Deer Mouse
Ely Copper Mine Superfund Site
Vershire, Vermont

Analyte	Frequency of Detection	Units	Range of Detection	Maximum Detect Location	Range of SQLs	Average	Standard Deviation
Exposure Area 3 - Smelter / Slag							
Aluminum	2 / 7	mg/kg	20.0 - 27.0	MA-03X-091509JX	20.0 - 20.0	21.0	2.6
Antimony	0 / 7	mg/kg	ND	-	6.0 - 6.0	6.0	NC
Arsenic	0 / 7	mg/kg	ND	-	1.00 - 1.00	1.00	NC
Barium	0 / 7	mg/kg	ND	-	20.0 - 20.0	20.0	NC
Beryllium	0 / 7	mg/kg	ND	-	0.50 - 0.50	0.50	NC
Cadmium	0 / 7	mg/kg	ND	-	0.50 - 0.50	0.50	NC
Calcium	7 / 7	mg/kg	5,700 - 9,700	MA-03X-091509HX	NA	8,314	1,242.9
Chromium	0 / 7	mg/kg	ND	-	1.00 - 1.00	1.00	NC
Cobalt	0 / 7	mg/kg	ND	-	5.0 - 5.0	5.0	NC
Copper	7 / 7	mg/kg	3.4 - 7.4	MA-03X-091509GX	NA	5.0	1.4
Iron	7 / 7	mg/kg	41.0 - 150.0	MA-03X-091509JX	NA	84.9	35.1
Lead	0 / 7	mg/kg	ND	-	1.00 - 1.00	1.00	NC
Magnesium	7 / 7	mg/kg	350.0 - 490.0	MA-03X-091509GX	NA	397.1	50.9
Manganese	7 / 7	mg/kg	4.6 - 18.0	MA-03X-091509BX	NA	12.3	4.9
Mercury	0 / 7	mg/kg	ND	-	0.02 - 0.02	0.02	NC
Nickel	0 / 7	mg/kg	ND	-	4.0 - 4.0	4.0	NC
Potassium	7 / 7	mg/kg	2,800 - 3,200	MA-03X-091509GX	NA	2,957	139.7
Selenium	0 / 7	mg/kg	ND	-	3.5 - 3.5	3.5	NC
Silver	0 / 7	mg/kg	ND	-	1.00 - 1.00	1.00	NC
Sodium	7 / 7	mg/kg	1,200 - 1,400	MA-03X-091509AX, MA-03X-091509GX, MA-03X-091509JX	NA	1,314	90.0
Thallium	0 / 7	mg/kg	ND	-	2.5 - 2.5	2.5	NC
Vanadium	0 / 7	mg/kg	ND	-	5.0 - 5.0	5.0	NC
Zinc	7 / 7	mg/kg	27.0 - 31.0	MA-03X-091509AX	NA	28.9	1.5
Percent Moisture	7 / 7	%	65.7 - 72.7	MA-03X-091509HX	NA	70.1	2.3
% Lipids	7 / 7	%	4.8 - 7.3	MA-03X-091509GX	NA	6.2	1.1
Reference							
Aluminum	1 / 3	mg/kg	24.0 - 24.0	MA-REF-091509EX	20.0 - 20.0	21.3	2.3
Antimony	0 / 3	mg/kg	ND	-	6.0 - 6.0	6.0	NC
Arsenic	0 / 3	mg/kg	ND	-	1.0 - 1.0	1.0	NC
Barium	0 / 3	mg/kg	ND	-	20.0 - 20.0	20.0	NC
Beryllium	0 / 3	mg/kg	ND	-	0.5 - 0.5	0.5	NC
Cadmium	0 / 3	mg/kg	ND	-	0.5 - 0.5	0.5	NC
Calcium	3 / 3	mg/kg	7,800 - 10,000	MA-REF-091509EX	NA	9,033	1,124
Chromium	0 / 3	mg/kg	ND	-	1.0 - 1.0	1.0	NC
Cobalt	0 / 3	mg/kg	ND	-	5.0 - 5.0	5.0	NC
Copper	3 / 3	mg/kg	2.8 - 3.9	MA-REF-091509BX	NA	3.4	0.6
Iron	3 / 3	mg/kg	46.0 - 90.0	MA-REF-091509EX	NA	70.7	22.5
Lead	0 / 3	mg/kg	ND	-	1.00 - 1.00	1.00	NC
Magnesium	3 / 3	mg/kg	370.0 - 430.0	MA-REF-091509EX	NA	403.3	30.6
Manganese	3 / 3	mg/kg	4.0 - 13.0	MA-REF-091609KX	NA	7.2	5.0
Mercury	0 / 3	mg/kg	ND	-	0.0 - 0.0	0.0	NC
Nickel	0 / 3	mg/kg	ND	-	4.0 - 4.0	4.0	NC
Potassium	3 / 3	mg/kg	2,600 - 2,900	MA-REF-091509BX	NA	2,733	152.8
Selenium	0 / 3	mg/kg	ND	-	3.5 - 3.5	3.5	NC
Silver	0 / 3	mg/kg	ND	-	1.00 - 1.00	1.00	NC
Sodium	3 / 3	mg/kg	1,200 - 1,300	MA-REF-091509EX, MA-REF-091609KX	NA	1,267	57.7
Thallium	0 / 3	mg/kg	ND	-	2.5 - 2.5	2.5	NC
Vanadium	0 / 3	mg/kg	ND	-	5.0 - 5.0	5.0	NC
Zinc	3 / 3	mg/kg	24.0 - 31.0	MA-REF-091509EX	NA	27.3	3.5

Table 6-14
Summary Statistics - Deer Mouse
Ely Copper Mine Superfund Site
Vershire, Vermont

Analyte	Frequency of Detection	Units	Range of Detection			Maximum Detect Location	Range of SQLs	Average	Standard Deviation
Reference (cont.)									
Percent Moisture	3 / 3	%	72.1	-	74.4	MA-REF-091509BX	NA	72.9	1.3
% Lipids	3 / 3	%	4.6	-	5.1	MA-REF-091509EX	NA	4.8	0.2

Notes:
NA = Not applicable.
NC = Not calculated due to insufficient data variability.
ND = Not detected.
SQL = Sample quantitation limit.

Table 6-15
Summary Statistics - Woodland Jumping Mouse
Ely Copper Mine Superfund Site
Vershire, Vermont

Analyte	Frequency of Detection	Units	Range of Detection	Maximum Detect Location	Range of SQLs	Average	Standard Deviation
Exposure Area 2 - Lower Waste Piles / Roast Bed							
Aluminum	2 / 3	mg/kg	24.0 - 37.0	MA-02X-091509JX	20.0 - 20.0	27.0	8.9
Antimony	0 / 3	mg/kg	ND	-	6.0 - 6.0	6.0	NC
Arsenic	2 / 3	mg/kg	1.00 - 1.6	MA-02X-091509BX	1.00 - 1.00	1.2	0.35
Barium	0 / 3	mg/kg	ND	-	20.0 - 20.0	20.0	NC
Beryllium	0 / 3	mg/kg	ND	-	0.50 - 0.50	0.50	NC
Cadmium	0 / 3	mg/kg	ND	-	0.50 - 0.50	0.50	NC
Calcium	3 / 3	mg/kg	6,300 - 8,700	MA-02X-091509KD	NA	7,733	251.7
Chromium	1 / 3	mg/kg	3.7 - 3.7	MA-02X-091509KX	1.0 - 1.0	1.9	1.6
Cobalt	0 / 3	mg/kg	ND	-	5.0 - 5.0	5.0	NC
Copper	3 / 3	mg/kg	4.0 - 5.6	MA-02X-091509KD	NA	4.5	0.6
Iron	3 / 3	mg/kg	83.0 - 120.0	MA-02X-091509JX	NA	97.7	19.7
Lead	0 / 3	mg/kg	ND	-	1.0 - 1.0	1.0	NC
Magnesium	3 / 3	mg/kg	270.0 - 370.0	MA-02X-091509KD	NA	333.3	15.3
Manganese	3 / 3	mg/kg	3.9 - 11.0	MA-02X-091509BX	NA	10.0	0.9
Mercury	0 / 3	mg/kg	ND	-	0.0 - 0.0	0.0	NC
Nickel	0 / 3	mg/kg	ND	-	4.0 - 4.0	4.0	NC
Potassium	3 / 3	mg/kg	2,000 - 2,500	MA-02X-091509BX	NA	2,417	144.3
Selenium	0 / 3	mg/kg	ND	-	3.5 - 3.5	3.5	NC
Silver	0 / 3	mg/kg	ND	-	1.0 - 1.0	1.0	NC
Sodium	3 / 3	mg/kg	1,000 - 1,100	MA-02X-091509KX	NA	1,033	57.7
Thallium	0 / 3	mg/kg	ND	-	2.5 - 2.5	2.5	NC
Vanadium	0 / 3	mg/kg	ND	-	5.0 - 5.0	5.0	NC
Zinc	3 / 3	mg/kg	28.0 - 35.0	MA-02X-091509JX	NA	31.3	3.2
Percent Moisture	3 / 3	%	60.7 - 70.6	MA-02X-091509JX	NA	66.2	5.0
% Lipids	3 / 3	%	7.6 - 17.4	MA-02X-091509BX	NA	11.6	5.1
Reference							
Aluminum	2 / 3	mg/kg	26.0 - 33.0	MA-REF-091509DX	20.0 - 20.0	26.3	6.5
Antimony	0 / 3	mg/kg	ND	-	6.0 - 6.0	6.0	NC
Arsenic	0 / 3	mg/kg	ND	-	1.0 - 1.0	1.0	NC
Barium	0 / 3	mg/kg	ND	-	20.0 - 20.0	20.0	NC
Beryllium	0 / 3	mg/kg	ND	-	0.50 - 0.50	0.50	NC
Cadmium	0 / 3	mg/kg	ND	-	0.50 - 0.50	0.50	NC
Calcium	3 / 3	mg/kg	7,200 - 9,800	MA-REF-091509JX	NA	8,700	1,345
Chromium	1 / 3	mg/kg	1.5 - 1.5	MA-REF-091509JX	1.00 - 1.00	1.17	0.29
Cobalt	0 / 3	mg/kg	ND	-	5.0 - 5.0	5.0	NC
Copper	3 / 3	mg/kg	3.7 - 5.9	MA-REF-091509JX	NA	4.6	1.1
Iron	3 / 3	mg/kg	62.0 - 100.0	MA-REF-091509DX	NA	83.0	19.3
Lead	0 / 3	mg/kg	ND	-	1.0 - 1.0	1.0	NC
Magnesium	3 / 3	mg/kg	330.0 - 410.0	MA-REF-091509JX	NA	370.0	40.0
Manganese	2 / 3	mg/kg	5.1 - 11.0	MA-REF-091509GX	1.5 - 1.5	5.9	4.8
Mercury	0 / 3	mg/kg	ND	-	0.0 - 0.0	0.0	NC
Nickel	0 / 3	mg/kg	ND	-	4.0 - 4.0	4.0	NC
Potassium	3 / 3	mg/kg	2,300 - 2,800	MA-REF-091509JX	NA	2,567	251.7
Selenium	0 / 3	mg/kg	ND	-	3.5 - 3.5	3.5	NC
Silver	0 / 3	mg/kg	ND	-	1.0 - 1.0	1.0	NC
Sodium	3 / 3	mg/kg	1,000 - 1,200	MA-REF-091509JX	NA	1,067	115.5
Thallium	0 / 3	mg/kg	ND	-	2.5 - 2.5	2.5	NC
Vanadium	0 / 3	mg/kg	ND	-	5.0 - 5.0	5.0	NC
Zinc	3 / 3	mg/kg	30.0 - 36.0	MA-REF-091509JX	NA	33.3	3.1
Percent Moisture	3 / 3	%	62.3 - 71.1	MA-REF-091509JX	NA	66.1	4.5
% Lipids	3 / 3	%	6.5 - 18.1	MA-REF-091509DX	NA	12.1	5.8

Notes:

NA = Not applicable.
NC = Not calculated due to insufficient data variability.
ND = Not detected.
SQL = Sample quantitation limit.

Table 6-16
Summary Statistics - Short-Tailed Shrew
Ely Copper Mine Superfund Site
Vershire, Vermont

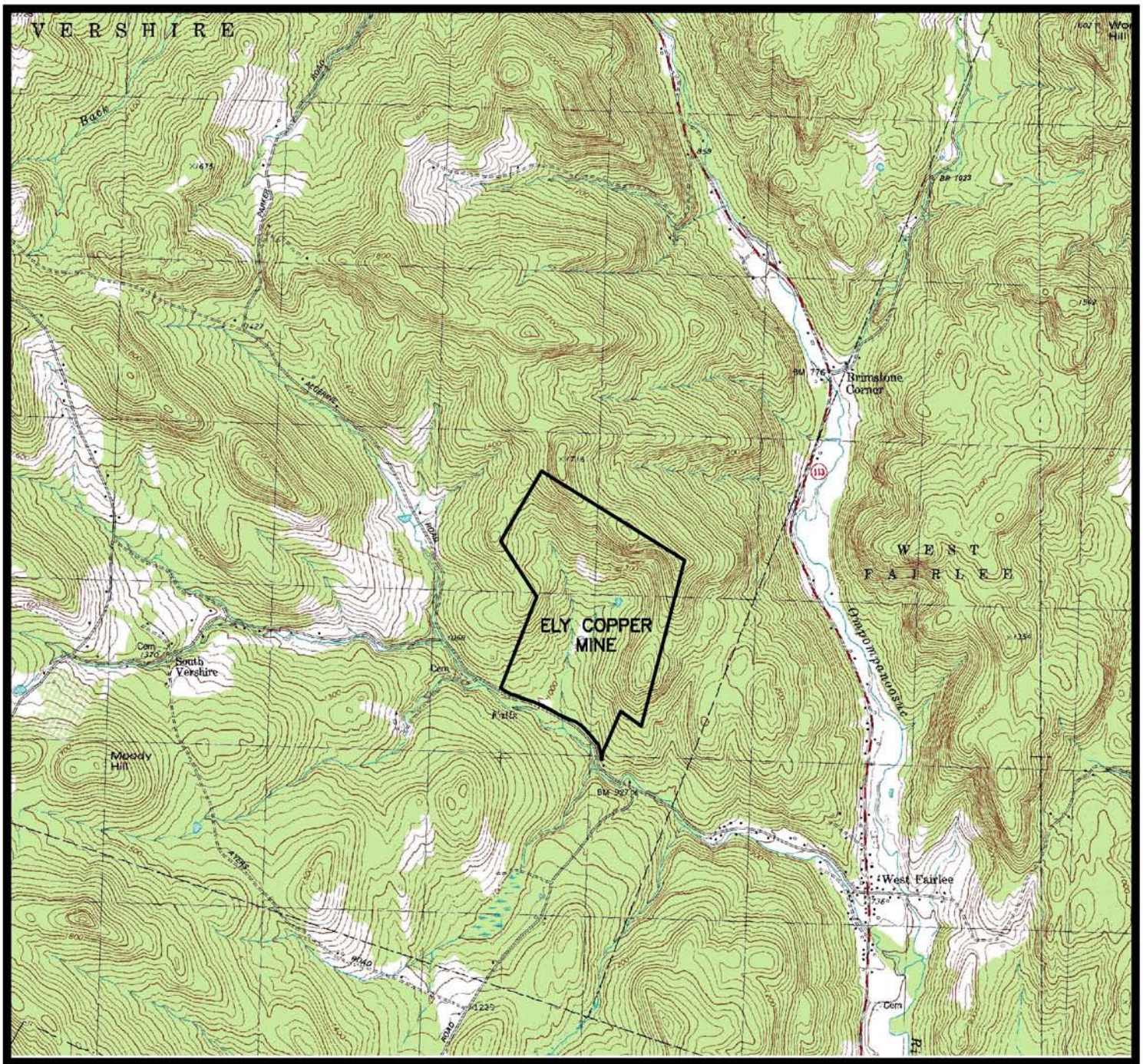
Analyte	Frequency of Detection	Units	Range of Detection	Maximum Detect Location	Range of SQLs	Average	Standard Deviation
Exposure Area 1 - Upper Waste Piles							
Aluminum	1 / 3	mg/kg	77.0 - 77.0	MA-01X-091509EX	20.0 - 20.0	39.0	32.9
Antimony	0 / 3	mg/kg	ND	-	6.0 - 6.0	6.0	NC
Arsenic	2 / 3	mg/kg	1.2 - 1.2	MA-01X-091509EX	1.0 - 1.0	1.1	0.1
Barium	0 / 3	mg/kg	ND	-	20.0 - 20.0	20.0	NC
Beryllium	0 / 3	mg/kg	ND	-	0.5 - 0.5	0.5	NC
Cadmium	0 / 3	mg/kg	ND	-	0.5 - 0.5	0.5	NC
Calcium	3 / 3	mg/kg	7,200 - 9,800	MA-01X-091509GX	NA	8,367	1,320
Chromium	0 / 3	mg/kg	ND	-	1.0 - 1.0	1.0	NC
Cobalt	0 / 3	mg/kg	ND	-	5.0 - 5.0	5.0	NC
Copper	3 / 3	mg/kg	4.0 - 6.8	MA-01X-091509EX	NA	4.9	1.6
Iron	3 / 3	mg/kg	130.0 - 190.0	MA-01X-091509EX	NA	150.0	34.6
Lead	0 / 3	mg/kg	ND	-	1.0 - 1.0	1.0	NC
Magnesium	3 / 3	mg/kg	340.0 - 370.0	MA-01X-091509EX	NA	356.7	15.3
Manganese	2 / 3	mg/kg	4.6 - 9.6	0.0	1.5 - 1.5	5.2	4.1
Mercury	0 / 3	mg/kg	ND	-	0.02 - 0.02	0.02	NC
Nickel	0 / 3	mg/kg	ND	-	4.0 - 4.0	4.0	NC
Potassium	3 / 3	mg/kg	2,800 - 3,100	MA-01X-091509GX	NA	2,900	173.2
Selenium	0 / 3	mg/kg	ND	-	3.5 - 3.5	3.5	NC
Silver	0 / 3	mg/kg	ND	-	1.0 - 1.0	1.0	NC
Sodium	3 / 3	mg/kg	1,300 - 1,600	MA-01X-091509GX	NA	1,433	152.8
Thallium	0 / 3	mg/kg	ND	-	2.5 - 2.5	2.5	NC
Vanadium	0 / 3	mg/kg	ND	-	5.0 - 5.0	5.0	NC
Zinc	3 / 3	mg/kg	31.0 - 33.0	MA-01X-091509EX	NA	32.0	1.00
Percent Moisture	3 / 3	%	71.4 - 75.3	MA-01X-091509GX	NA	73.2	1.97
% Lipids	3 / 3	%	3.1 - 5.1	MA-01X-091509EX	NA	3.8	1.08
Exposure Area 3 - Smelter / Slag							
Aluminum	1 / 3	mg/kg	22.0 - 22.0	MA-03X-091509CX	20.0 - 20.0	20.7	1.2
Antimony	0 / 3	mg/kg	ND	-	6.0 - 6.0	6.0	NC
Arsenic	0 / 3	mg/kg	ND	-	1.0 - 1.0	1.0	NC
Barium	0 / 3	mg/kg	ND	-	20.0 - 20.0	20.0	NC
Beryllium	0 / 3	mg/kg	ND	-	0.5 - 0.5	0.5	NC
Cadmium	1 / 3	mg/kg	1.2 - 1.2	MA-03X-091509CX	0.50 - 0.50	0.73	0.40
Calcium	3 / 3	mg/kg	7,400 - 9,700	MA-03X-091509CX	NA	8,267	1,250
Chromium	0 / 3	mg/kg	ND	-	1.0 - 1.0	1.0	NC
Cobalt	0 / 3	mg/kg	ND	-	5.0 - 5.0	5.0	NC
Copper	3 / 3	mg/kg	3.5 - 4.0	MA-03X-091509KX	NA	3.7	0.25
Iron	3 / 3	mg/kg	83.0 - 140.0	MA-03X-091509DX	NA	117.7	30.4
Lead	1 / 3	mg/kg	1.6 - 1.6	MA-03X-091509DX	1.00 - 1.00	1.20	0.35
Magnesium	3 / 3	mg/kg	330.0 - 350.0	MA-03X-091509CX, MA-03X-091509KX	NA	343.3	11.5
Manganese	2 / 3	mg/kg	4.2 - 34.0	MA-03X-091509CX	1.5 - 1.5	13.2	18.0
Mercury	0 / 3	mg/kg	ND	-	0.0 - 0.0	0.0	NC
Nickel	0 / 3	mg/kg	ND	-	4.0 - 4.0	4.0	NC
Potassium	3 / 3	mg/kg	2,500 - 2,700	MA-03X-091509DX	NA	2,600	100.0
Selenium	0 / 3	mg/kg	ND	-	3.5 - 3.5	3.5	NC
Silver	0 / 3	mg/kg	ND	-	1.0 - 1.0	1.0	NC
Sodium	3 / 3	mg/kg	1,300 - 1,400	MA-03X-091509CX, MA-03X-091509DX	NA	1,367	57.7
Thallium	0 / 3	mg/kg	ND	-	2.5 - 2.5	2.5	NC
Vanadium	0 / 3	mg/kg	ND	-	5.0 - 5.0	5.0	NC
Zinc	3 / 3	mg/kg	29.0 - 46.0	MA-03X-091509CX	NA	35.7	9.1
Percent Moisture	3 / 3	%	71.5 - 72.1	MA-03X-091509DX	NA	71.8	0.31
% Lipids	3 / 3	%	3.2 - 5.1	MA-03X-091509KX	NA	4.4	1.03

Table 6-16
Summary Statistics - Short-Tailed Shrew
Ely Copper Mine Superfund Site
Vershire, Vermont

Analyte	Frequency of Detection	Units	Range of Detection	Maximum Detect Location	Range of SQLs	Average	Standard Deviation
Reference							
Aluminum	2 / 4	mg/kg	33.0 - 34.0	MA-REF-091509AX	20.0 - 20.0	26.8	7.8
Antimony	0 / 4	mg/kg	ND	-	6.0 - 6.0	6.0	NC
Arsenic	0 / 4	mg/kg	ND	-	1.0 - 1.0	1.0	NC
Barium	0 / 4	mg/kg	ND	-	20.0 - 20.0	20.0	NC
Beryllium	0 / 4	mg/kg	ND	-	0.5 - 0.5	0.5	NC
Cadmium	0 / 4	mg/kg	ND	-	0.5 - 0.5	0.5	NC
Calcium	4 / 4	mg/kg	3,400 - 11,000	MA-REF-091509HX	NA	6,838	3,150
Chromium	1 / 4	mg/kg	1.4 - 1.4	MA-REF-091509AX	1.00 - 1.00	1.10	0.20
Cobalt	0 / 4	mg/kg	ND	-	5.0 - 5.0	5.0	NC
Copper	4 / 4	mg/kg	2.7 - 4.3	MA-REF-091509HX	NA	3.3	0.8
Iron	4 / 4	mg/kg	92.0 - 180.0	MA-REF-091509CD	NA	137.5	33.0
Lead	0 / 4	mg/kg	ND	-	1.0 - 1.0	1.0	NC
Magnesium	4 / 4	mg/kg	260.0 - 410.0	MA-REF-091509HX	NA	331.3	56.3
Manganese	3 / 4	mg/kg	4.2 - 14.0	MA-REF-091509CD	1.5 - 1.5	6.2	5.4
Mercury	0 / 4	mg/kg	ND	-	0.0 - 0.0	0.0	NC
Nickel	0 / 4	mg/kg	ND	-	4.0 - 4.0	4.0	NC
Potassium	4 / 4	mg/kg	2,500 - 2,800	MA-REF-091509HX	NA	2,625	125.8
Selenium	0 / 4	mg/kg	ND	-	3.5 - 3.5	3.5	NC
Silver	0 / 4	mg/kg	ND	-	1.0 - 1.0	1.0	NC
Sodium	4 / 4	mg/kg	1,200 - 1,500	MA-REF-091509HX	NA	1,338	110.9
Thallium	0 / 4	mg/kg	ND	-	2.5 - 2.5	2.5	NC
Vanadium	0 / 4	mg/kg	ND	-	5.0 - 5.0	5.0	NC
Zinc	4 / 4	mg/kg	29.0 - 36.0	MA-REF-091509HX	NA	32.6	3.4
Percent Moisture	4 / 4	%	72.2 - 74.4	MA-REF-091509FX	NA	73.2	0.9
% Lipids	4 / 4	%	3.4 - 5.2	MA-REF-091509CD	NA	4.0	0.5

Notes:
NA = Not applicable.
NC = Not calculated due to insufficient data variability.
ND = Not detected.
SQL = Sample quantitation limit.

FIGURES



NORTH

USGS TOPOGRAPHIC MAP

VERSHIRE, VERMONT

1983

APPROXIMATE SCALE
1 INCH = 3,000 FEET

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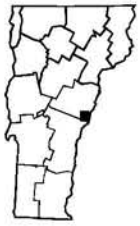


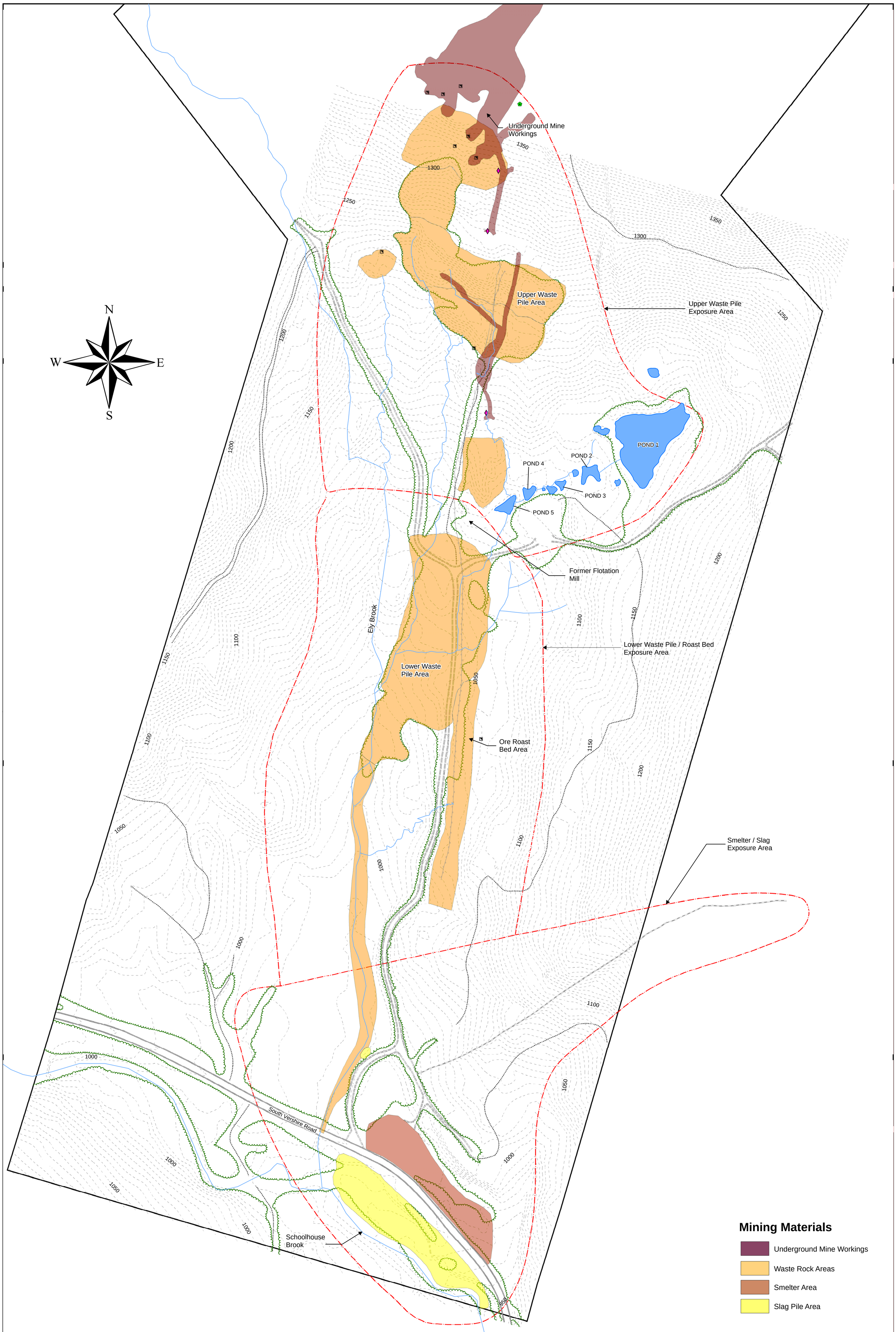
QUADRANGLE LOCATION

FIGURE 1-1

LOCUS PLAN
ELY COPPER MINE
SUPERFUND SITE
VERSHIRE, VERMONT

PROJECT: 80024.00

APRIL 2010



Drawn By: JDF	VD
Filename: Site Sketch.mxd	
Date: 04/26/10	Revision No. 00

APPROXIMATE SCALE
140 70 0 140 280 Feet

Shaft
Adit
Prospect Tunnel
Drill Hole
Smoke Flue
Treeline
Paved Road
Gravel Road
Trail
Parcel Boundary
Exposure Area Boundary
1050 Topographic Contour (ft-msl)
Stream
Railroad

FIGURE 1-2

SITE SKETCH

ELY COPPER MINE
VERSHIRE, VERMONT

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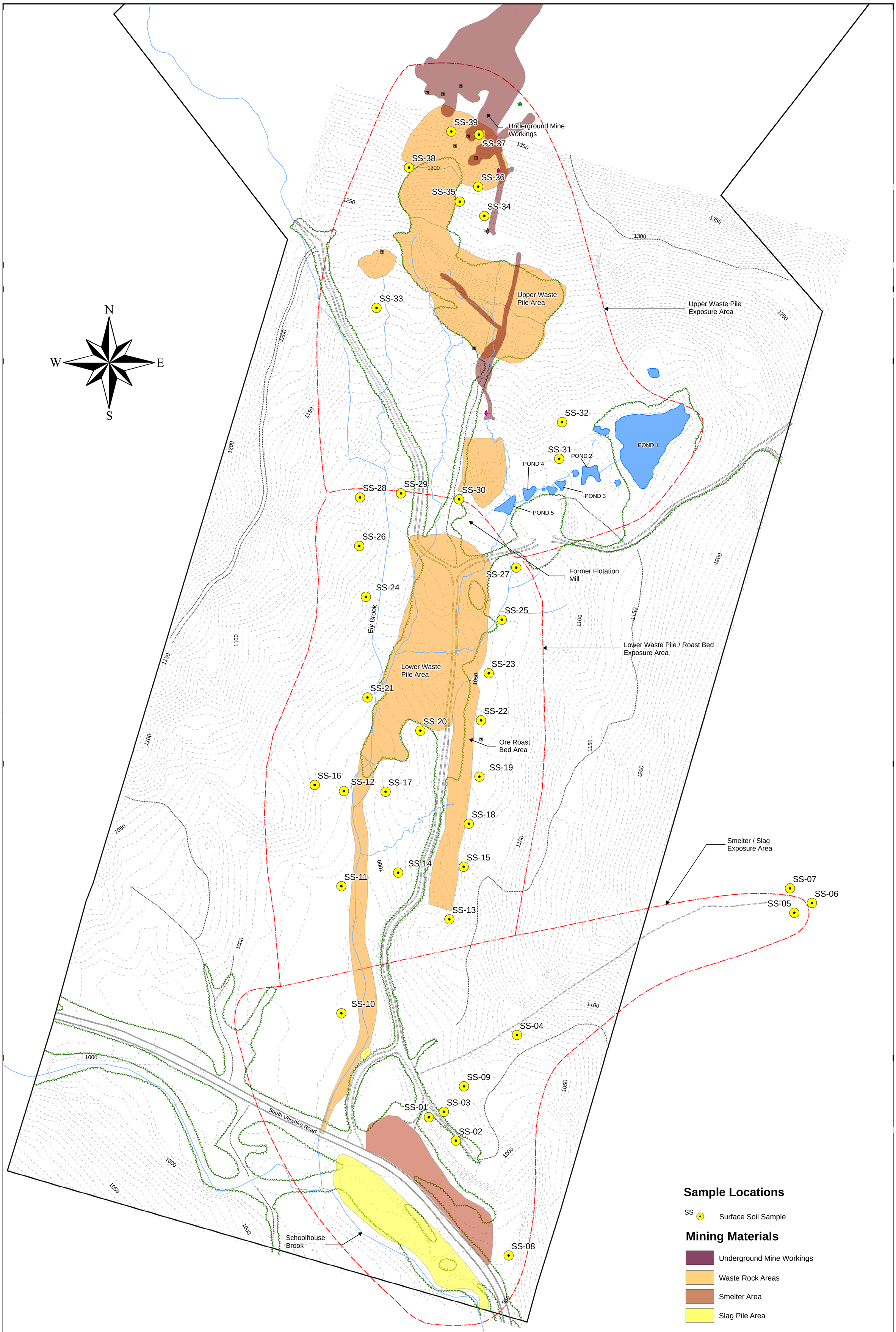

Drawn By: JDF	Checked By: VD
Filename: SS Sample Locs.mxd	
Date: 04/26/10	Revision No. 00

APPROXIMATE SCALE
140 70 0 140 280 Feet

Shaft
Adit
Prospect Tunnel
Drill Hole
Smoke Flue
Treeline
Paved Road
Gravel Road
Trail
Parcel Boundary
Exposure Area Boundary
Topographic Contour (ft-msl) 1050
Stream
Railroad

FIGURE 2-1
2009
SURFACE SOIL SAMPLE LOCATIONS
ELY COPPER MINE
VERSHIRE, VERMONT

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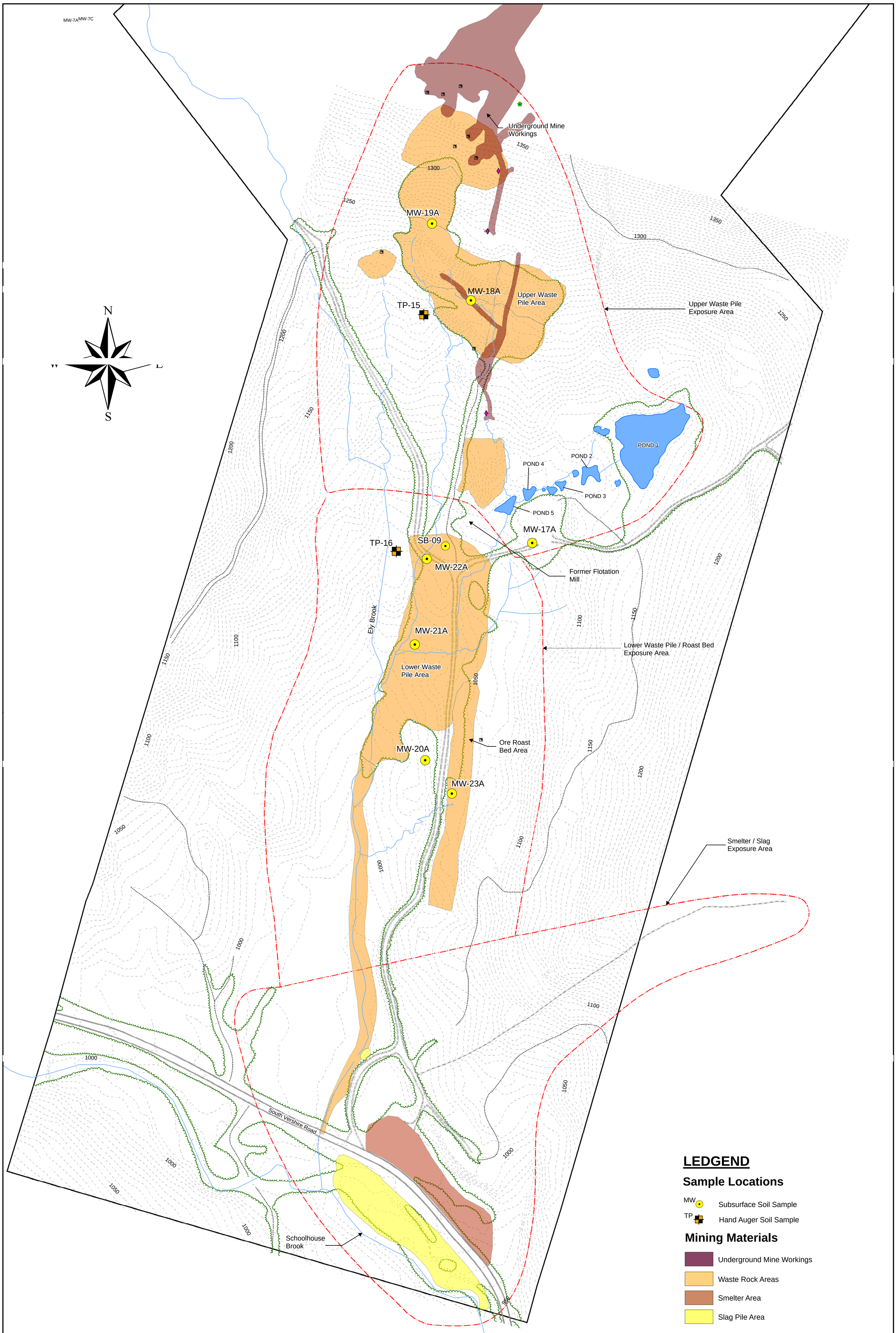

LEDGEND

Sample Locations

MW Subsurface Soil Sample

TP Hand Auger Soil Sample

Mining Materials

Underground Mine Workings

Waste Rock Areas

Smelter Area

Slag Pile Area

Drawn By: JDF	Checked By: VD
Filename: SB Sample Locs.mxd	
Date: 04/26/10	Revision No. 00

APPROXIMATE SCALE

140 70 0 140 280 Feet

Shaft

Adit

Prospect Tunnel

Drill Hole

Smoke Flue

Treeline

Paved Road

Gravel Road

Trail

Parcel Boundary

Exposure Area Boundary

1050 Topographic Contour (ft-msl)

Stream

Railroad

FIGURE 2-2

2009 SUBSURFACE SOIL SAMPLE LOCATIONS ELY COPPER MINE VERSHIRE, VERMONT

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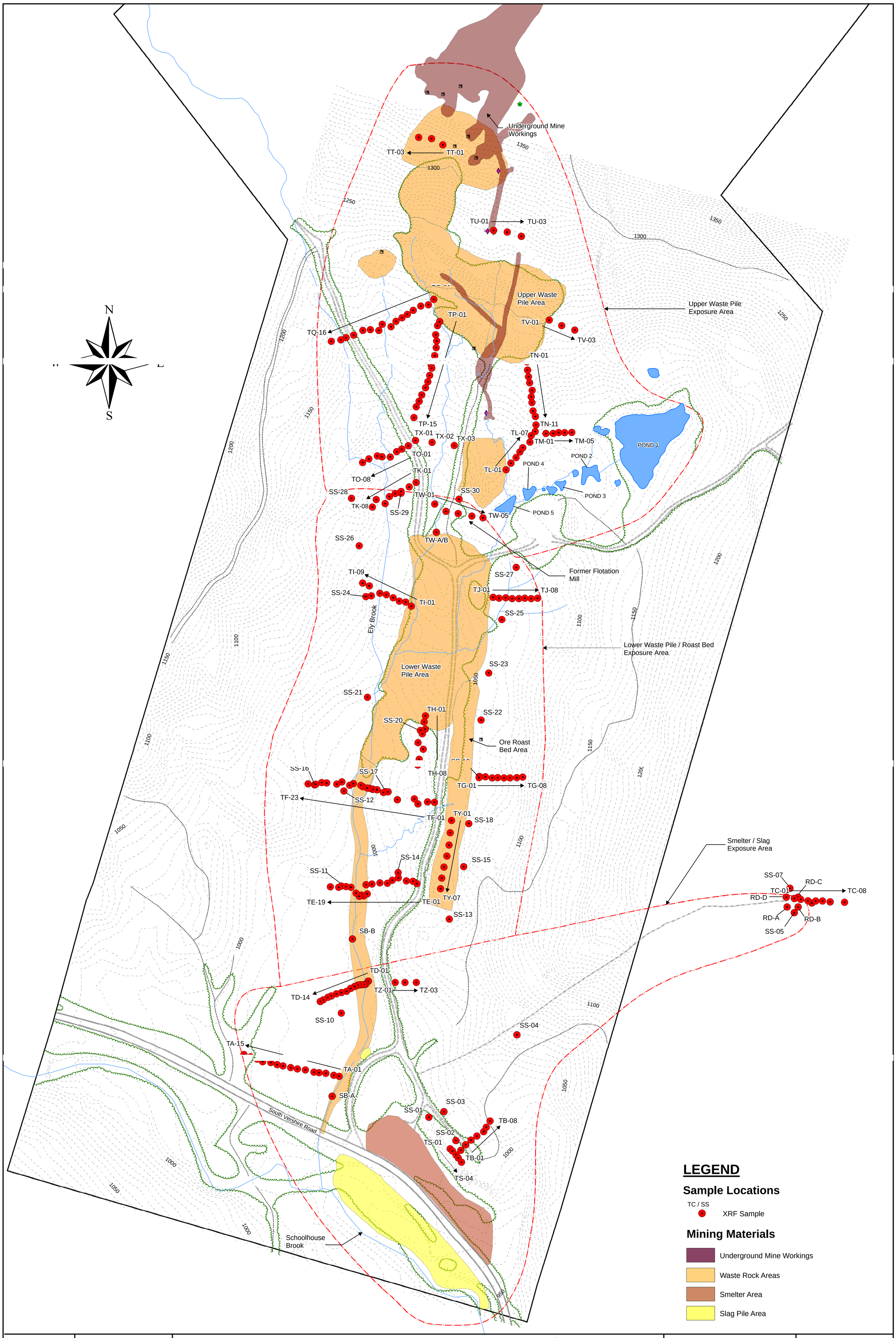

LEGEND

Sample Locations

TC / SS

XRF Sample

Mining Materials

Underground Mine Workings

Waste Rock Areas

Smelter Area

Slag Pile Area

Drawn By: JDF	Checked By: VD
Filename: XRF Sample Locs.mxd	
Date: 04/26/10	Revision No. 00

APPROXIMATE SCALE

140 70 0 140 280 Feet

Shaft

Adit

Prospect Tunnel

Drill Hole

Smoke Flue

Treeline

Paved Road

Gravel Road

Trail

Parcel Boundary

Exposure Area Boundary

1050 Topographic Contour (ft-msl)

Stream

Railroad

FIGURE 2-3

2009

XRF FIELD SCREENING

SOIL SAMPLE LOCATIONS

ELY COPPER MINE

VERSHIRE, VERMONT

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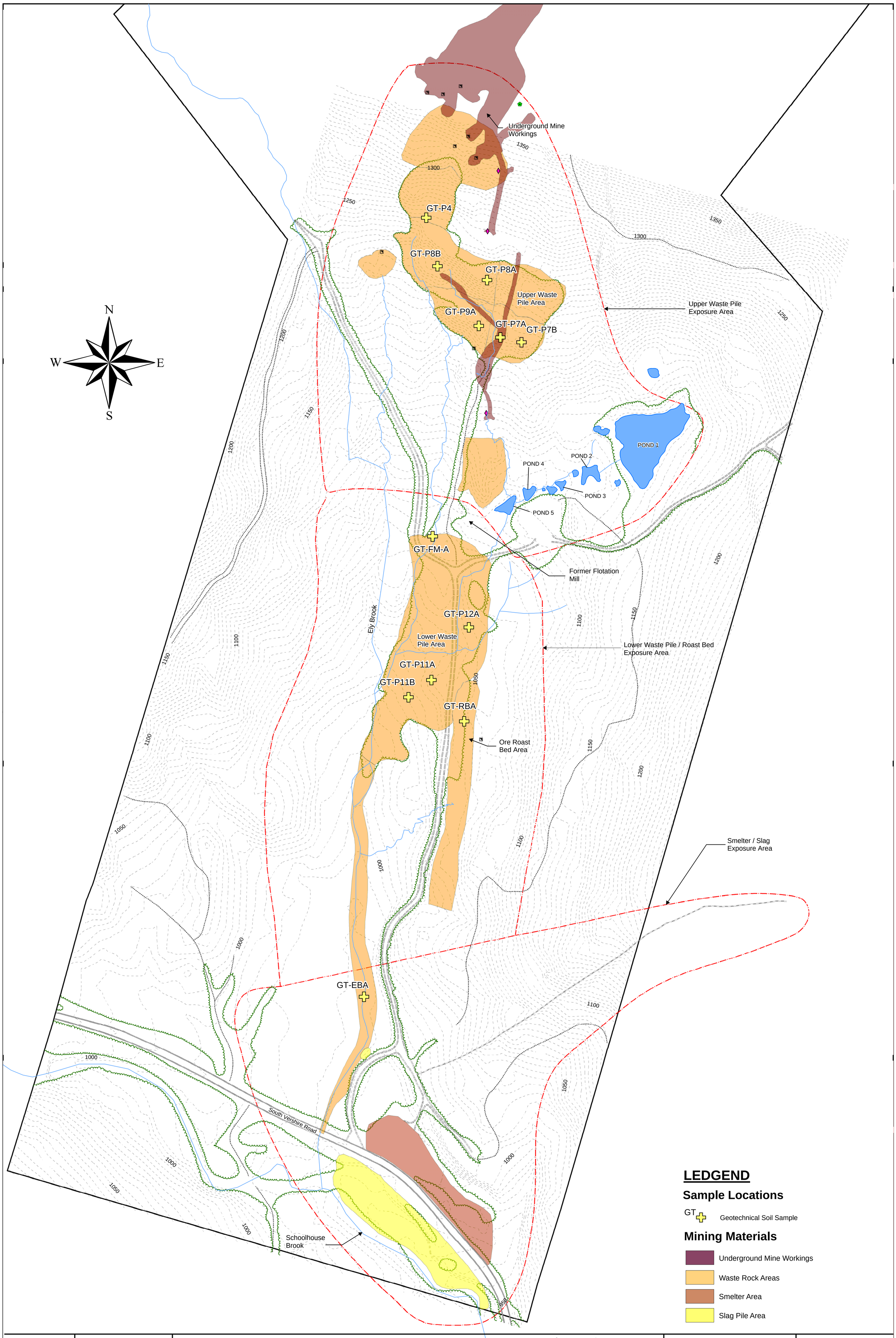

Drawn By: JDF	Checked By: VD
Filename: GT Sample Locs.mxd	
Date: 04/26/10	Revision No. 00

APPROXIMATE SCALE
140 70 0 140 280 Feet

Shaft
Adit
Prospect Tunnel
Drill Hole
Smoke Flue
Treeline
Paved Road
Gravel Road
Trail
Parcel Boundary
Exposure Area Boundary
1050 Topographic Contour (ft-msl)
Stream
Railroad

FIGURE 2-4
2009 GEOTECHNICAL SOIL SAMPLE LOCATIONS
ELY COPPER MINE
VERSHIRE, VERMONT

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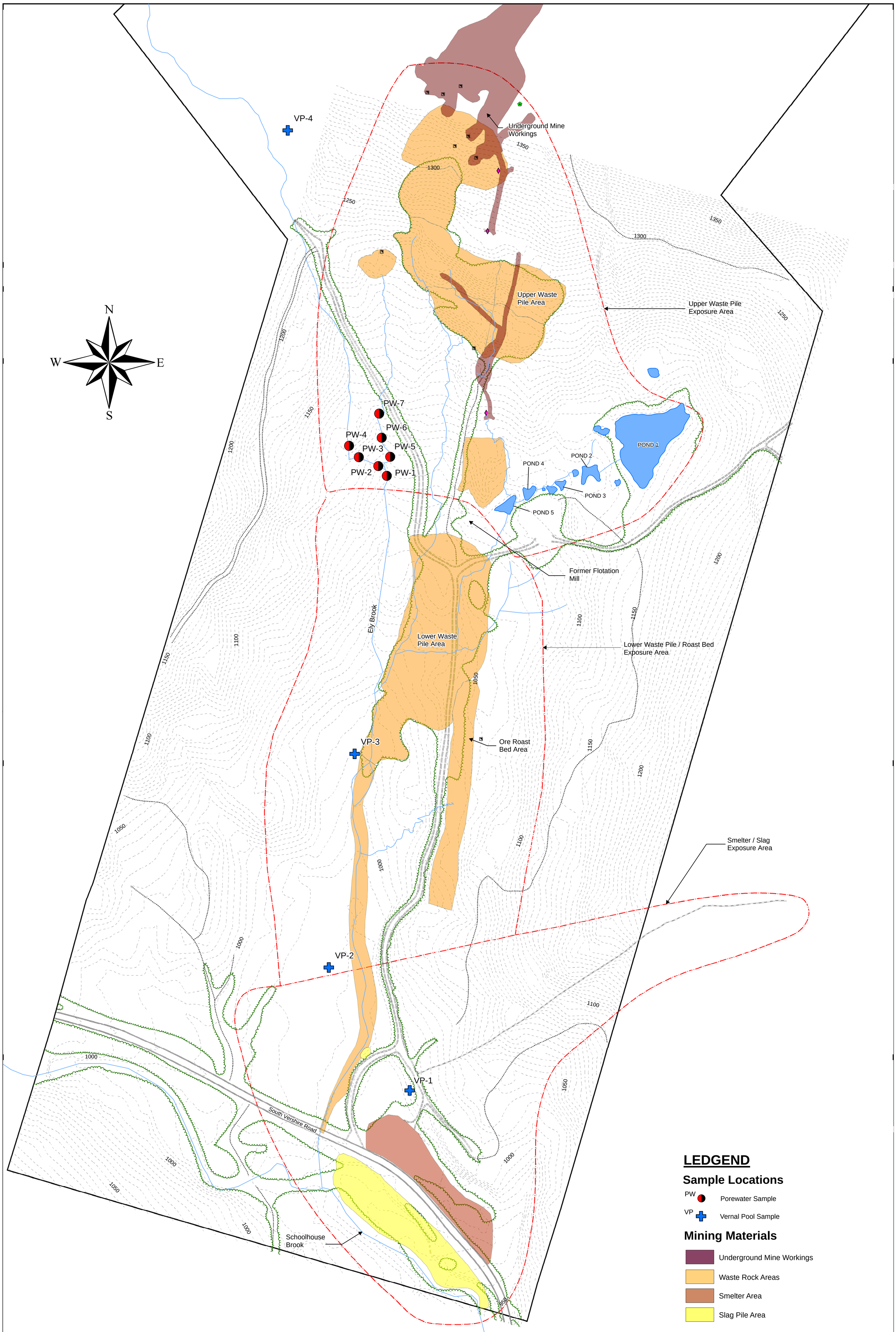

Drawn By: JDF	Checked By: VD
Filename: PW & VP Sample Locs.mxd	
Date: 04/26/10	Revision No. 00

APPROXIMATE SCALE
140 70 0 140 280 Feet

Shaft
Adit
Prospect Tunnel
Drill Hole
Smoke Flue
Treeline
Paved Road
Gravel Road
Trail
Parcel Boundary
Exposure Area Boundary
1050 Topographic Contour (ft-msl)
Stream
Railroad

FIGURE 2-5
2009 POREWATER & VERNAL POOL SAMPLE LOCATIONS
ELY COPPER MINE
VERSHIRE, VERMONT

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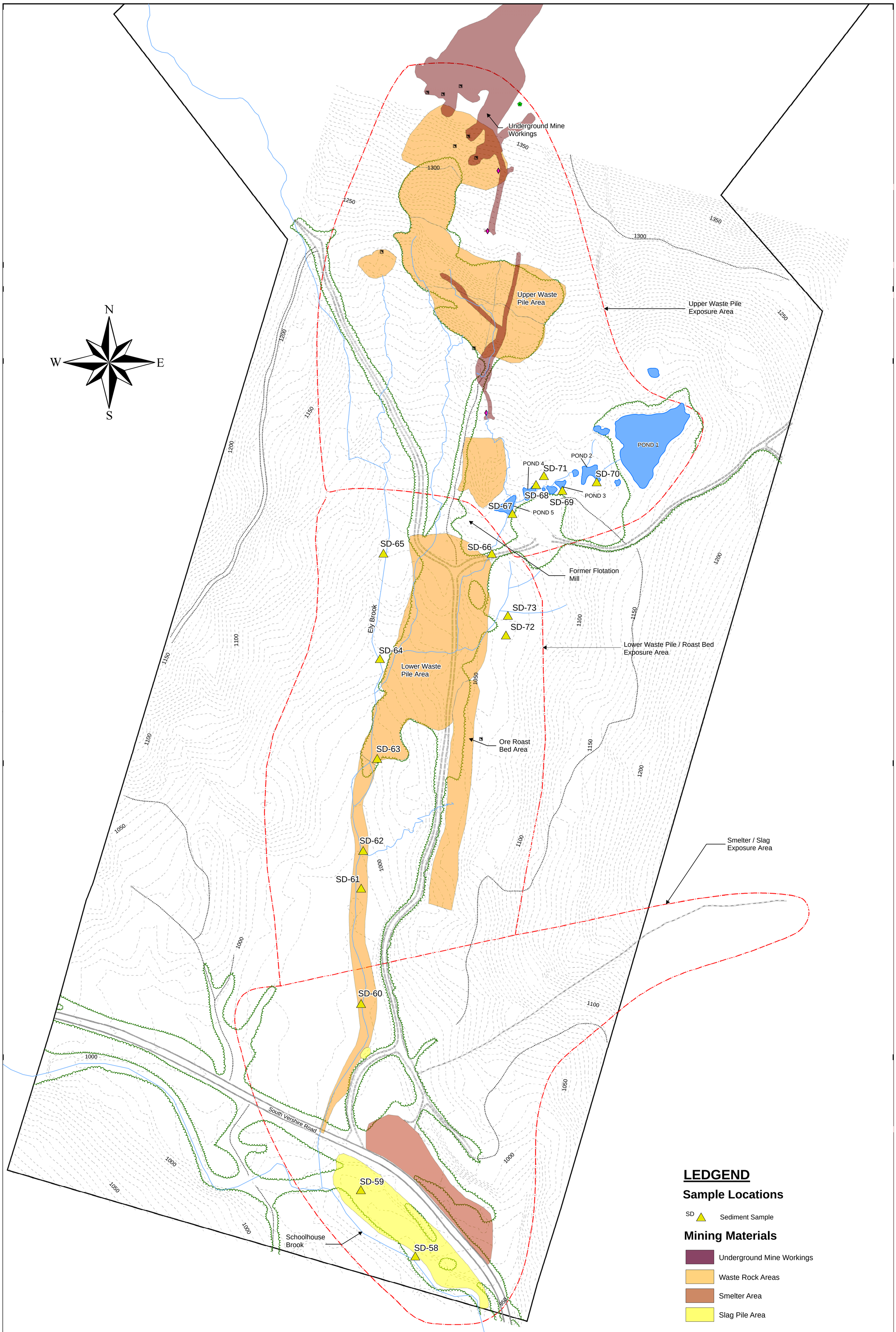

Drawn By: JDF	Checked By: VD
Filename: SD Sample Locs.mxd	
Date: 04/26/10	Revision No. 00

APPROXIMATE SCALE
140 70 0 140 280 Feet

Shaft
Adit
Prospect Tunnel
Drill Hole
Smoke Flue
Treeline
Paved Road
Gravel Road
Trail
Parcel Boundary
Exposure Area Boundary
1050 Topographic Contour (ft-msl)
Stream
Railroad

FIGURE 2-6

2009 SEDIMENT SAMPLE LOCATIONS
ELY COPPER MINE
VERSHIRE, VERMONT

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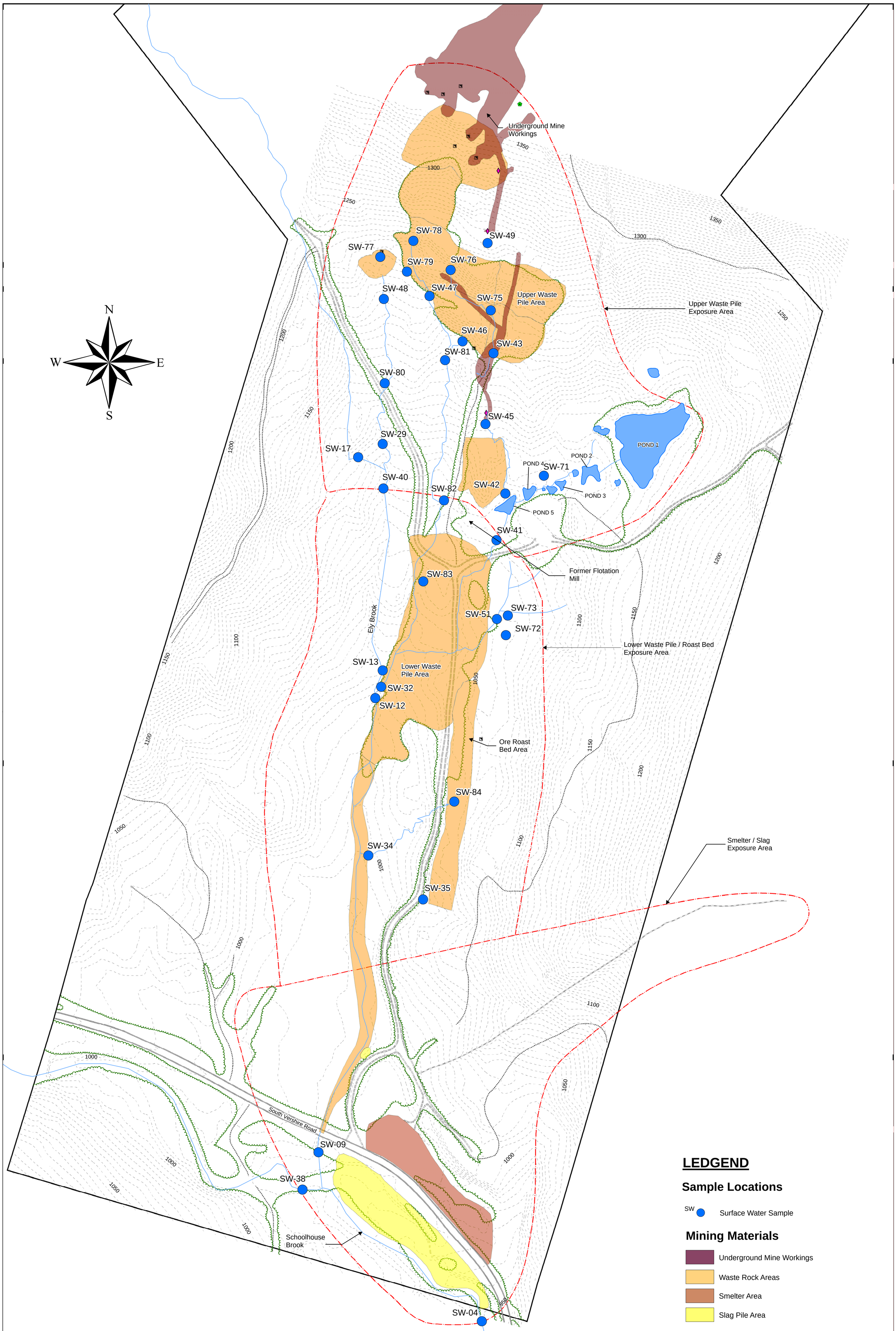

Drawn By: JDF	Checked By: VD
Filename: SW Sample Locs.mxd	
Date: 04/26/10	Revision No. 00

APPROXIMATE SCALE
140 70 0 140 280 Feet

Shaft
Adit
Prospect Tunnel
Drill Hole
Smoke Flue
Treeline
Paved Road
Gravel Road
Trail
Parcel Boundary
Exposure Area Boundary
1050 Topographic Contour (ft-msl)
Stream
Railroad

FIGURE 2-7

2009 SURFACE WATER SAMPLE LOCATIONS
ELY COPPER MINE
VERSHIRE, VERMONT

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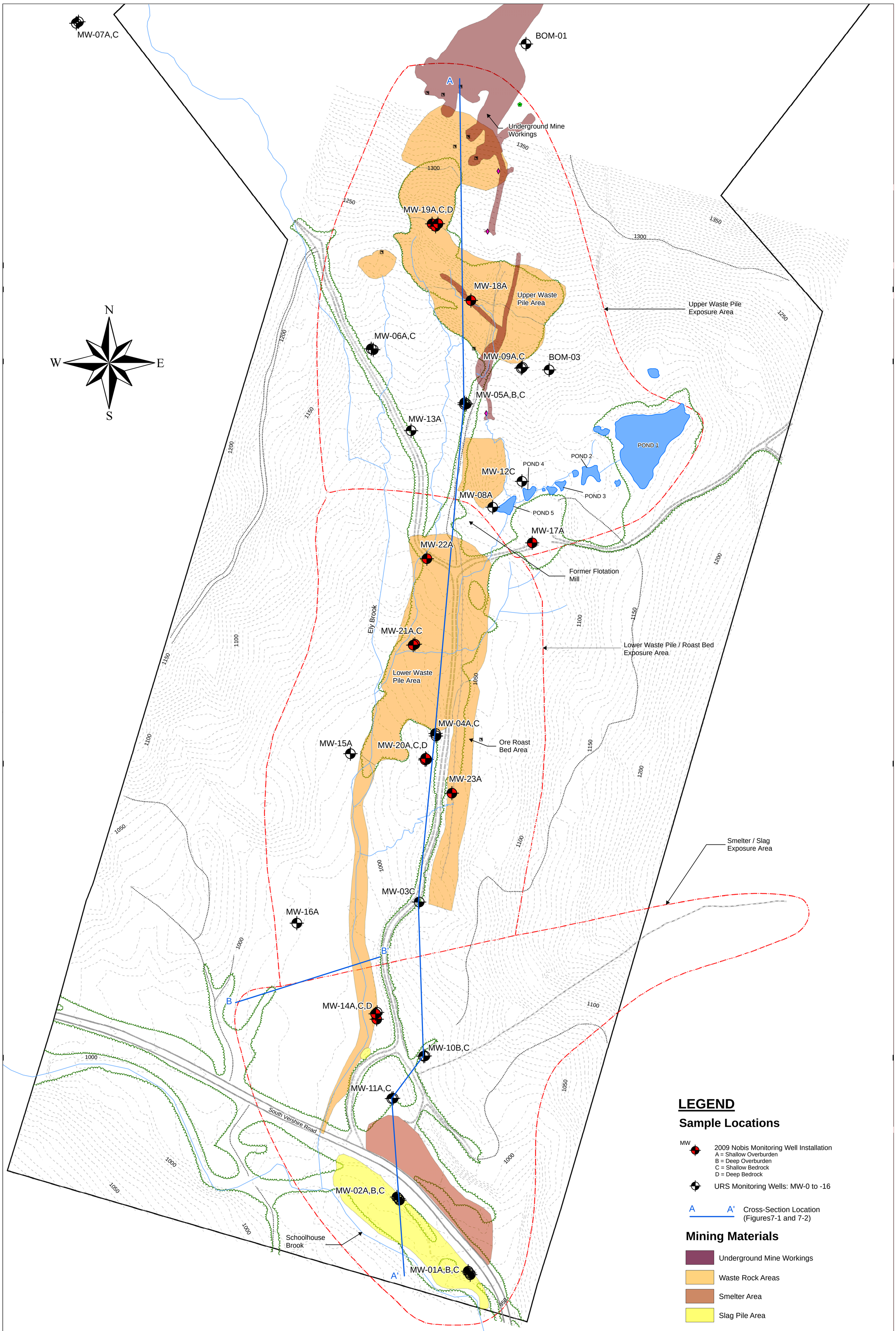

Drawn By: JDF	Checked By: VD
Filename: MW Sample Locs.mxd	
Date: 04/26/10	Revision No. 00

APPROXIMATE SCALE
140 70 0 140 280 Feet

Shaft
Adit
Prospect Tunnel
Drill Hole
Smoke Flue
Treeline
Paved Road
Gravel Road
Trail
Parcel Boundary
Exposure Area Boundary
1050 Topographic Contour (ft-msl)
Stream
Railroad

FIGURE 2-8
2009 MONITORING WELL INSTALLATIONS AND GROUNDWATER SAMPLE LOCATIONS
ELY COPPER MINE
VERSHIRE, VERMONT

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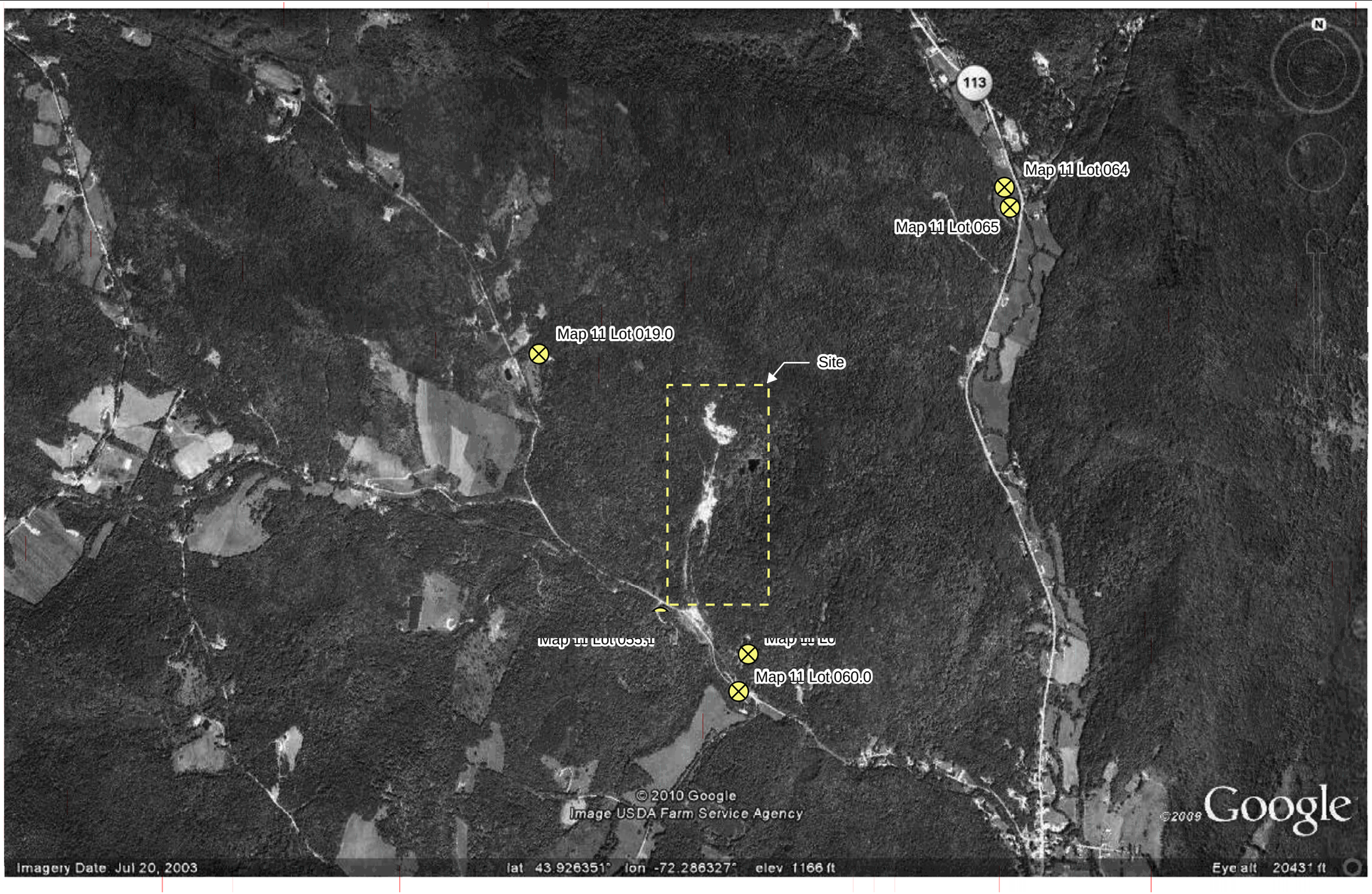

N

Legend

Residential Well Sample Location

APPROXIMATE SCALE

2,170 1,085 0 2,170 Feet

Notes:

1. This map is based on a Google Earth image.

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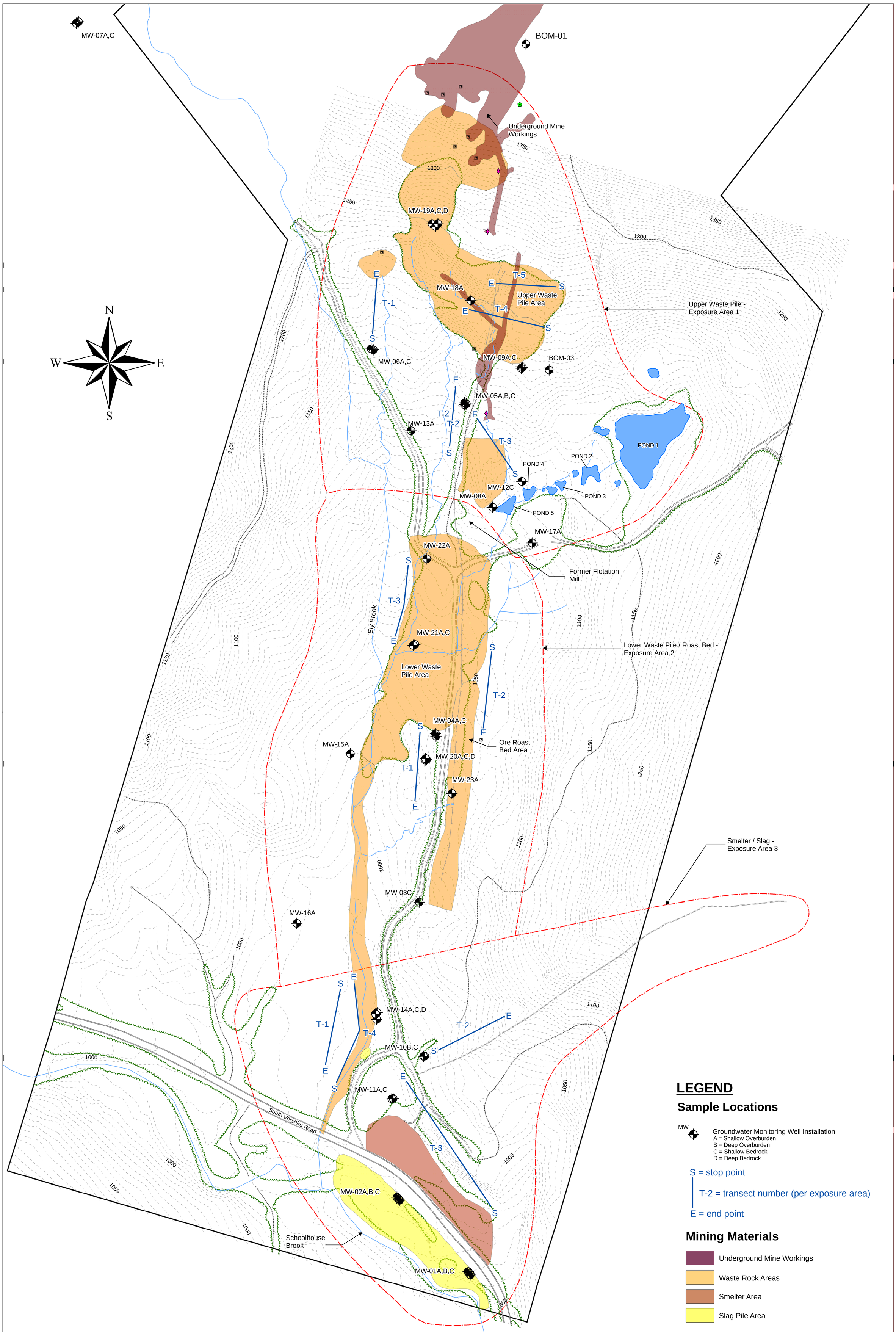
FIGURE 2-9

2009 RESIDENTIAL WELL SAMPLE LOCATIONS
ELY COPPER MINE
VERSHIRE, VERMONT

PREPARED BY: JF	CHECKED BY: AB
PROJECT NO. 80024	DATE: 04/26/10 Rev 00



LEGEND

Sample Locations

MW — Groundwater Monitoring Well Installation
A = Shallow Overburden
B = Deep Overburden
C = Shallow Bedrock
D = Deep Bedrock

S = stop point
T-2 = transect number (per exposure area)
E = end point

Mining Materials

- Underground Mine Workings
- Waste Rock Areas
- Smelter Area
- Slag Pile Area

Drawn By: JDF	Checked By: VD
Filename: Biota Sample Locs.mxd	
Date: 04/26/10	Revision No. 00

APPROXIMATE SCALE
140 70 0 140 280 Feet

Shaft
Adit
Prospect Tunnel
Drill Hole
Smoke Flue
Treeline
Paved Road
Gravel Road
Trail
Parcel Boundary
Exposure Area Boundary
1050 Topographic Contour (ft-msl)
Stream
Railroad

FIGURE 2-10
2009 SMALL MAMMAL BIOTA TRANSECT SAMPLE LOCATIONS
ELY COPPER MINE
VERSHIRE, VERMONT

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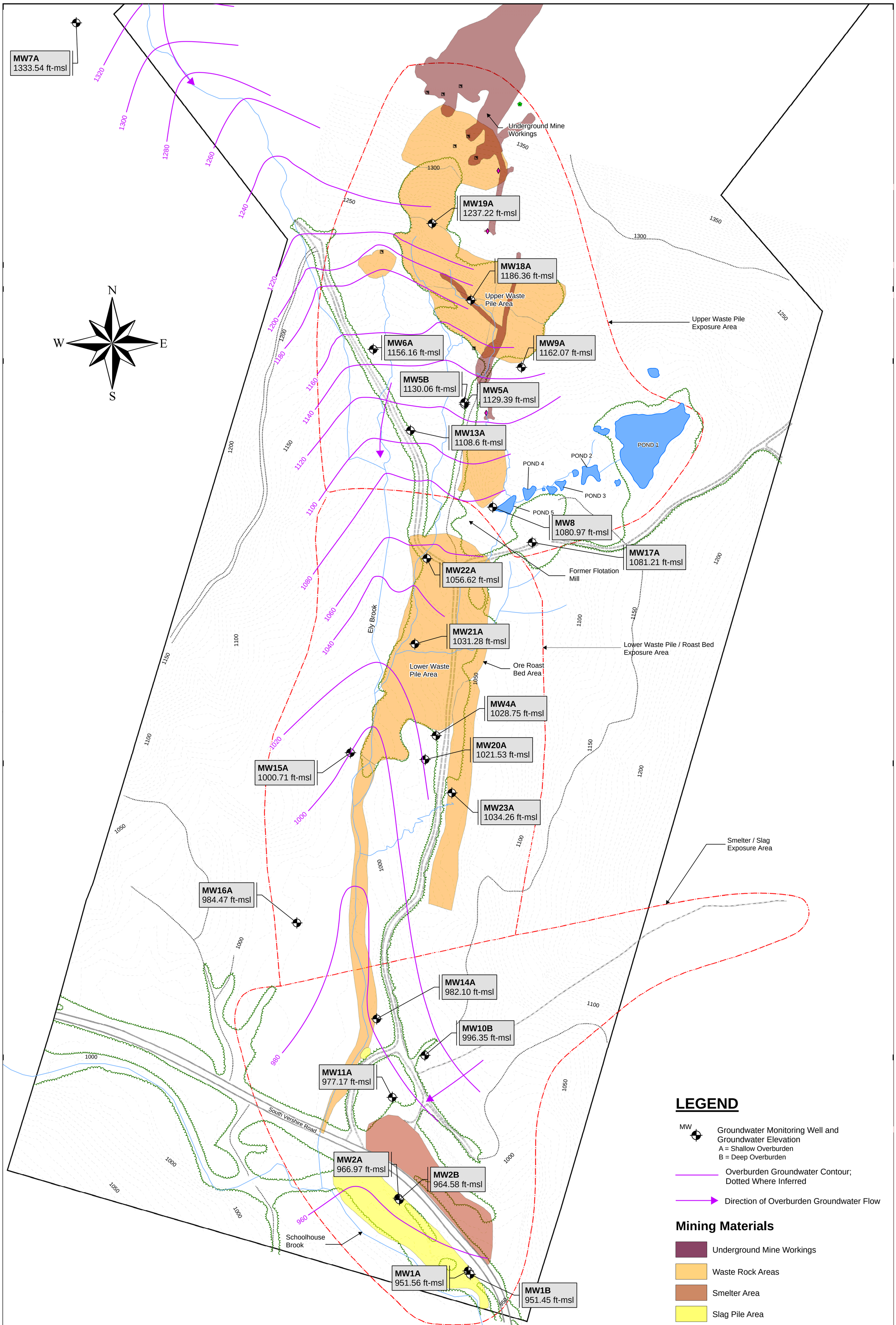

Drawn By: JDF	Checked By: VD
Filename: Summer 09 OB GW.mxd	
Date: 04/26/10	Revision No. 00

APPROXIMATE SCALE
140 70 0 140 280 Feet

Shaft
Adit
Prospect Tunnel
Drill Hole
Smoke Flue
Treeline
Paved Road
Gravel Road
Trail
Parcel Boundary
Exposure Area Boundary
1050 Topographic Contour (ft-msl)
Stream
Railroad

FIGURE 4-1a
SUMMER 2009
OVERBURDEN GROUNDWATER ELEVATIONS & POTENTIOMETRIC SURFACES
ELY COPPER MINE
VERSHIRE, VERMONT

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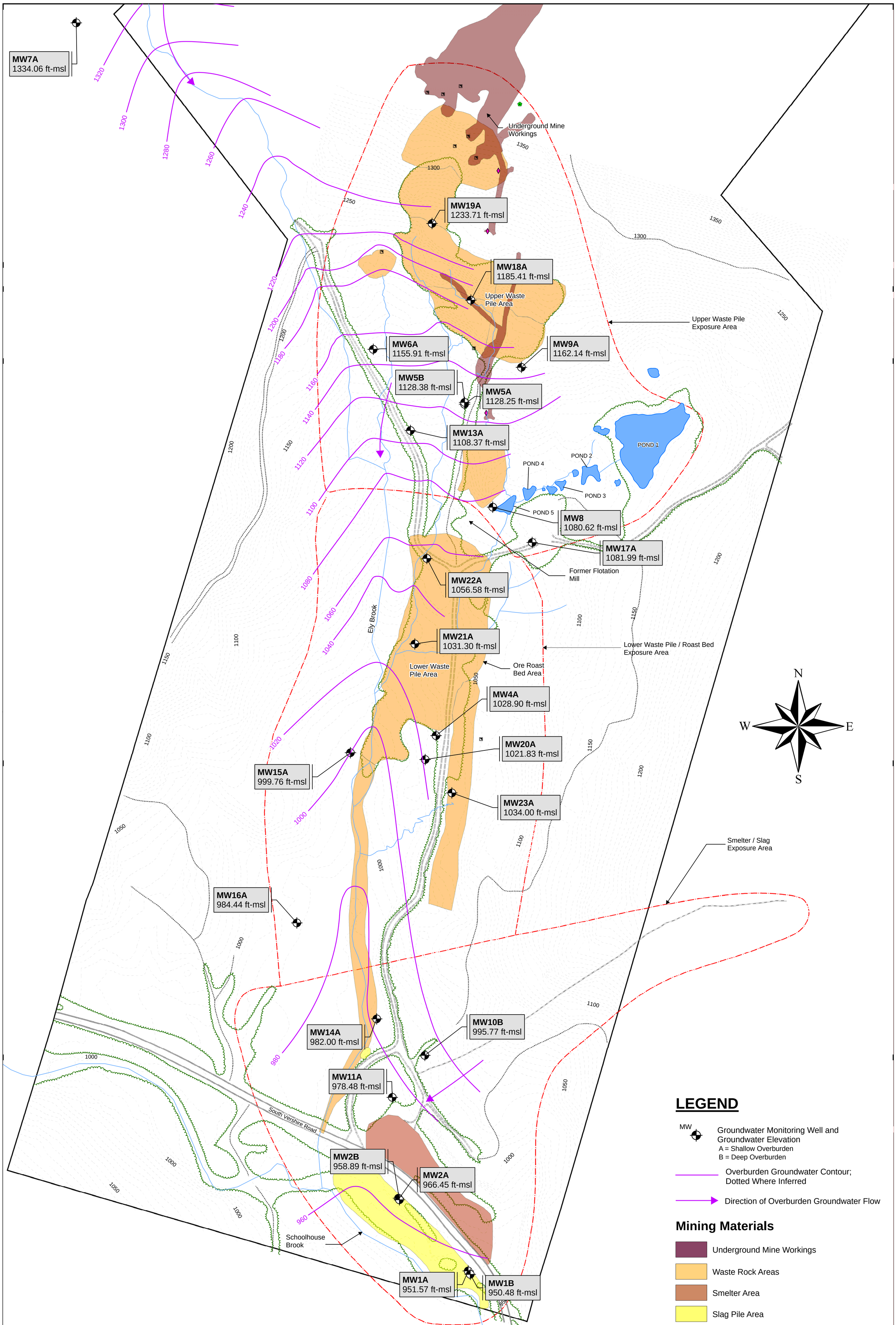

LEGEND

MW — Groundwater Monitoring Well and Groundwater Elevation
A = Shallow Overburden
B = Deep Overburden

Overburden Groundwater Contour; Dotted Where Inferred

Direction of Overburden Groundwater Flow

Mining Materials

- Underground Mine Workings
- Waste Rock Areas
- Smelter Area
- Slag Pile Area

Drawn By: JDF	Checked By: VD
Filename: Fall 09 OB GW.mxd	
Date: 04/26/10	Revision No. 00

APPROXIMATE SCALE
140 70 0 140 280 Feet

Shaft
Adit
Prospect Tunnel
Drill Hole
Smoke Flue
Treeline
Paved Road
Gravel Road
Trail
Parcel Boundary
Exposure Area Boundary
1050 Topographic Contour (ft-msl)
Stream
Railroad

FIGURE 4-1b

FALL 2009
OVERBURDEN GROUNDWATER ELEVATIONS & POTENTIOMETRIC SURFACES
ELY COPPER MINE
VERSHIRE, VERMONT

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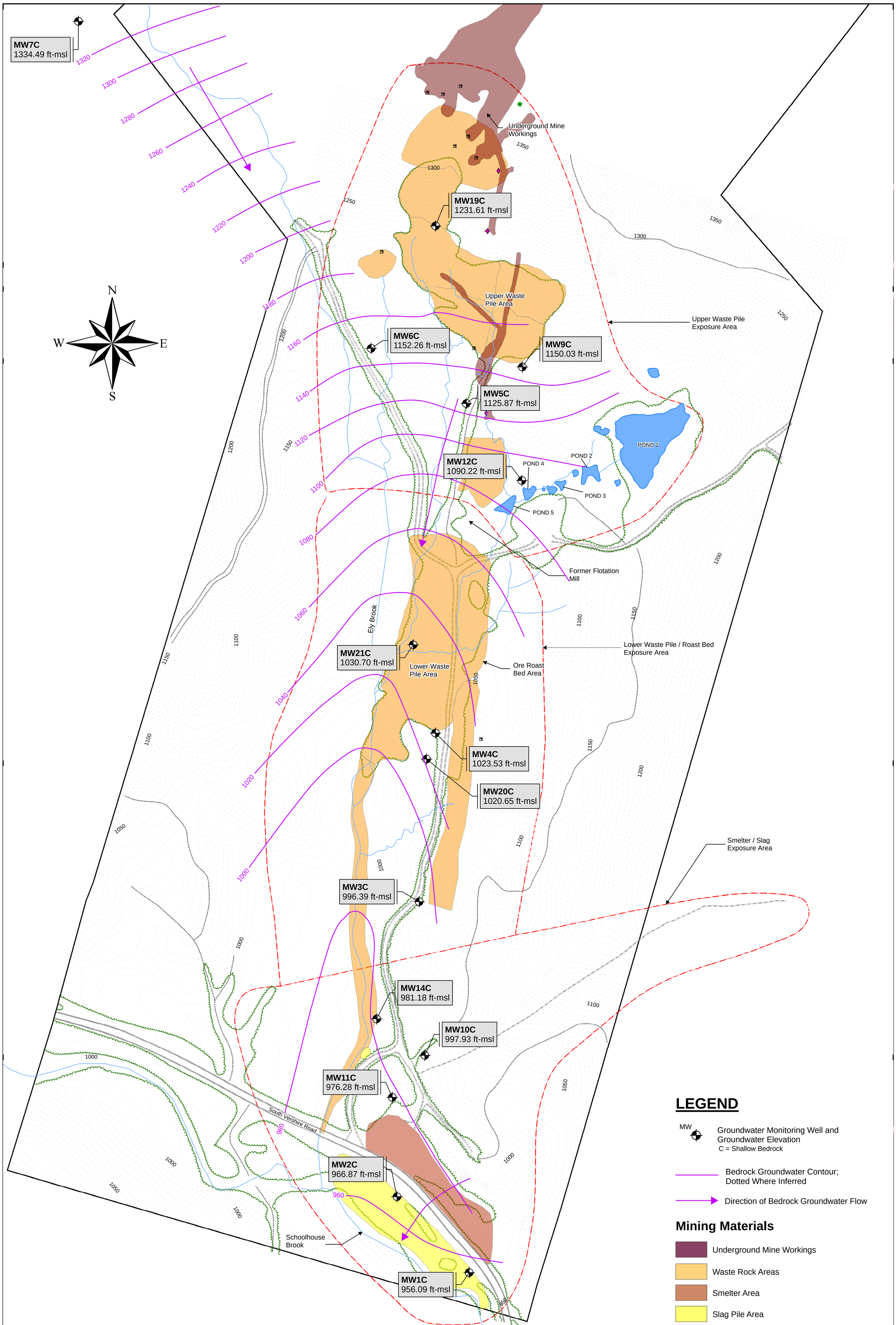

Drawn By: JDF	Checked By: VD
Filename: Summer 09 BR GW.mxd	
Date: 04/26/10	Revision No. 00

APPROXIMATE SCALE
140 70 0 140 280 Feet

Shaft
Adit
Prospect Tunnel
Drill Hole
Smoke Flue
Treeline
Paved Road
Gravel Road
Trail
Parcel Boundary
Exposure Area Boundary
1050 Topographic Contour (ft-msl)
Stream
Railroad

FIGURE 4-2a
SUMMER 2009
SHALLOW BEDROCK GROUNDWATER ELEVATIONS & POTENTIOMETRIC SURFACES
ELY COPPER MINE
VERSHIRE, VERMONT

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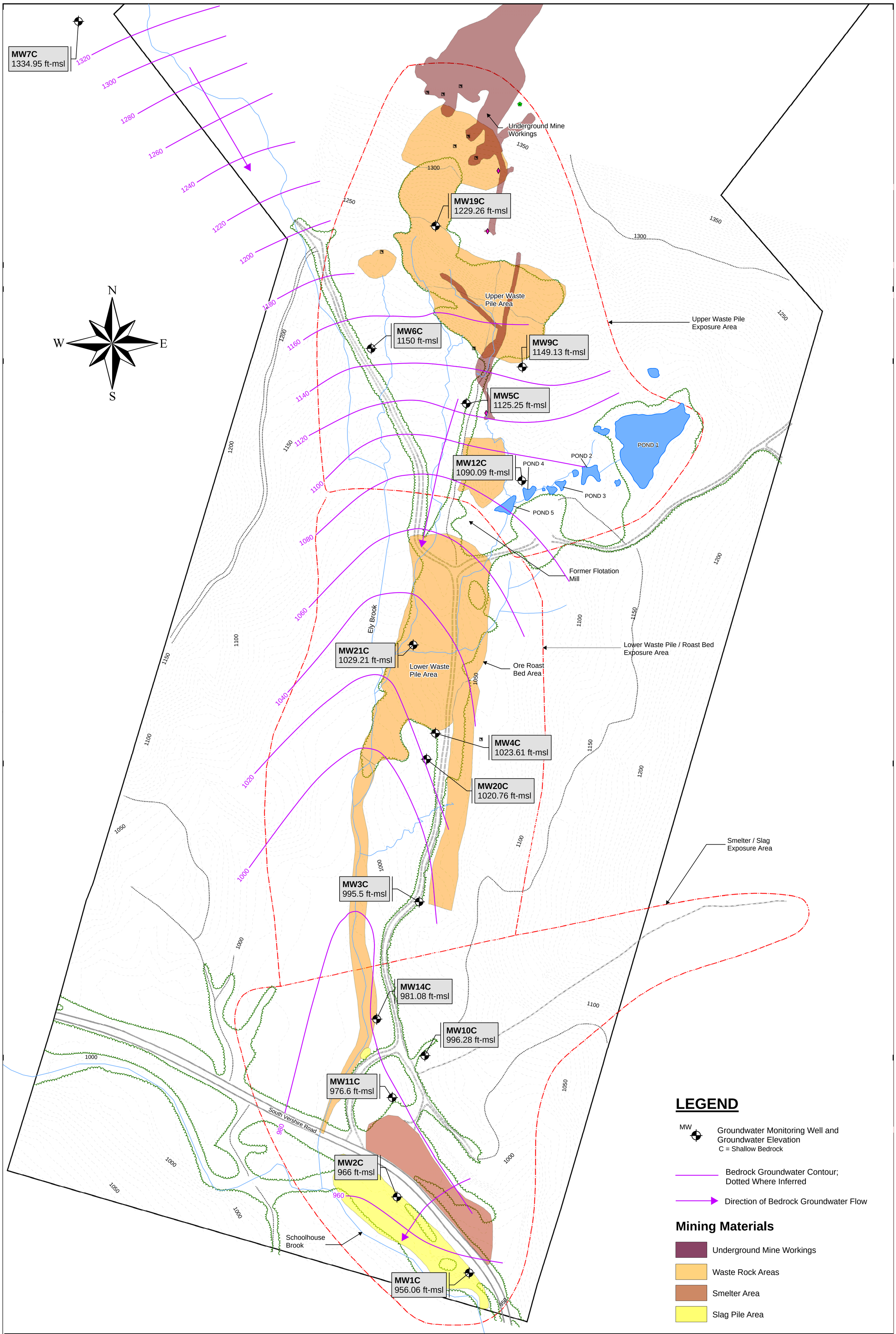

Drawn By: JDF	Checked By: VD
Filename: Fall 09 BR GW.mxd	
Date: 04/26/10	Revision No. 00

APPROXIMATE SCALE
140 70 0 140 280 Feet

Shaft
Adit
Prospect Tunnel
Drill Hole
Smoke Flue
Treeline
Paved Road
Gravel Road
Trail
Parcel Boundary
Exposure Area Boundary
1050 Topographic Contour (ft-msl)
Stream
Railroad

FIGURE 4-2b

FALL 2009
SHALLOW BEDROCK GROUNDWATER ELEVATIONS & POTENTIOMETRIC SURFACES
ELY COPPER MINE
VERSHIRE, VERMONT

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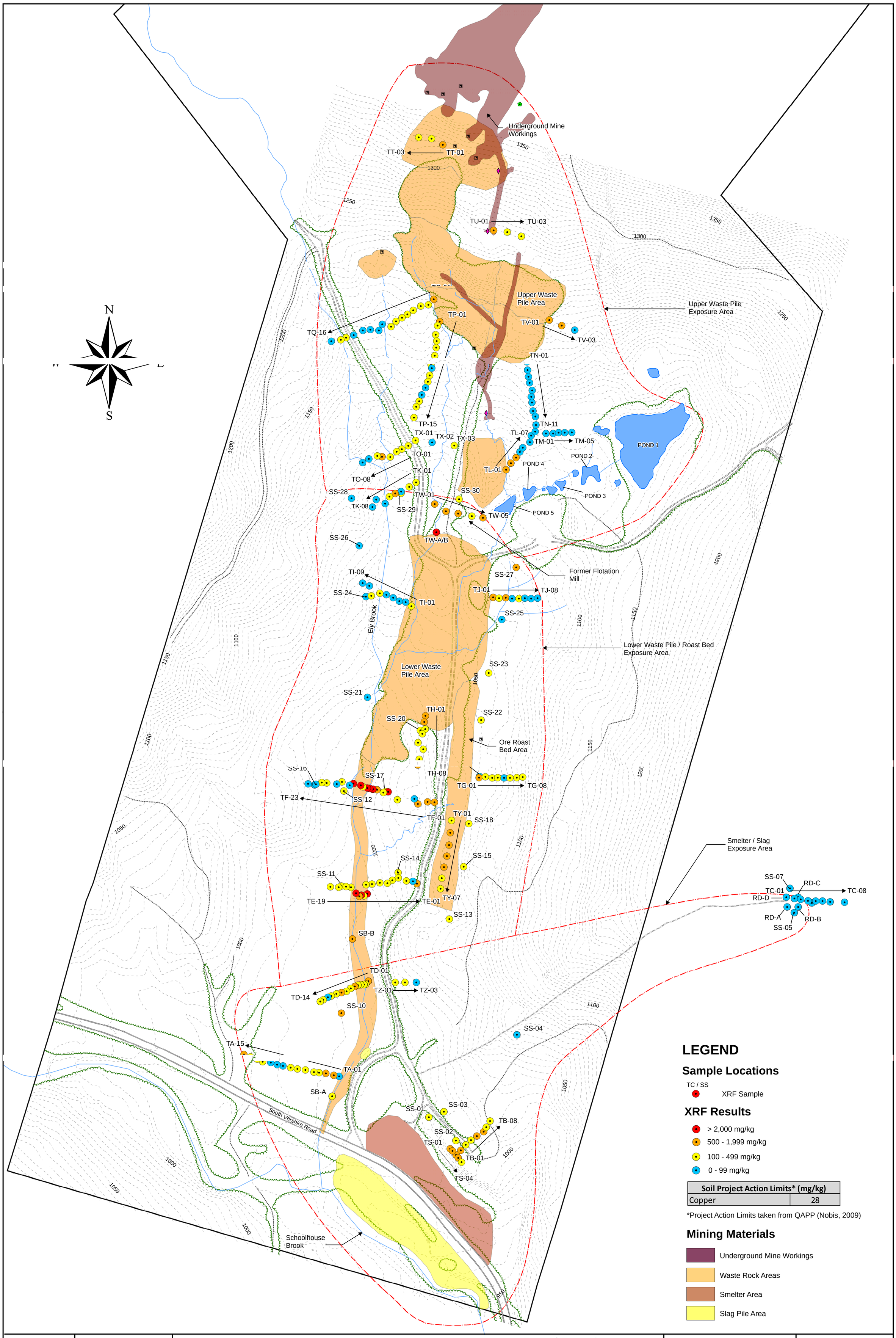

LEGEND

Sample Locations

TC / SS

XRF Sample

XRF Results

- > 2,000 mg/kg
- 500 - 1,999 mg/kg
- 100 - 499 mg/kg
- 0 - 99 mg/kg

Soil Project Action Limits* (mg/kg)	
Copper	28

*Project Action Limits taken from QAPP (Nobis, 2009)

Mining Materials

- Underground Mine Workings
- Waste Rock Areas
- Smelter Area
- Slag Pile Area

Drawn By: JDF	Checked By: VD
Filename: XRF Metals.mxd	
Date: 04/26/10	Revision No. 00

APPROXIMATE SCALE

140 70 0 140 280 Feet

Shaft
Adit
Prospect Tunnel
Drill Hole
Smoke Flue
Treeline
Paved Road
Gravel Road
Trail
Parcel Boundary
Exposure Area Boundary
1050 Topographic Contour (ft-msl)
Stream
Railroad

FIGURE 5-1
2009 SOIL XRF
FIELD SCREENING
COPPER RESULTS
ELY COPPER MINE
VERSHIRE, VERMONT

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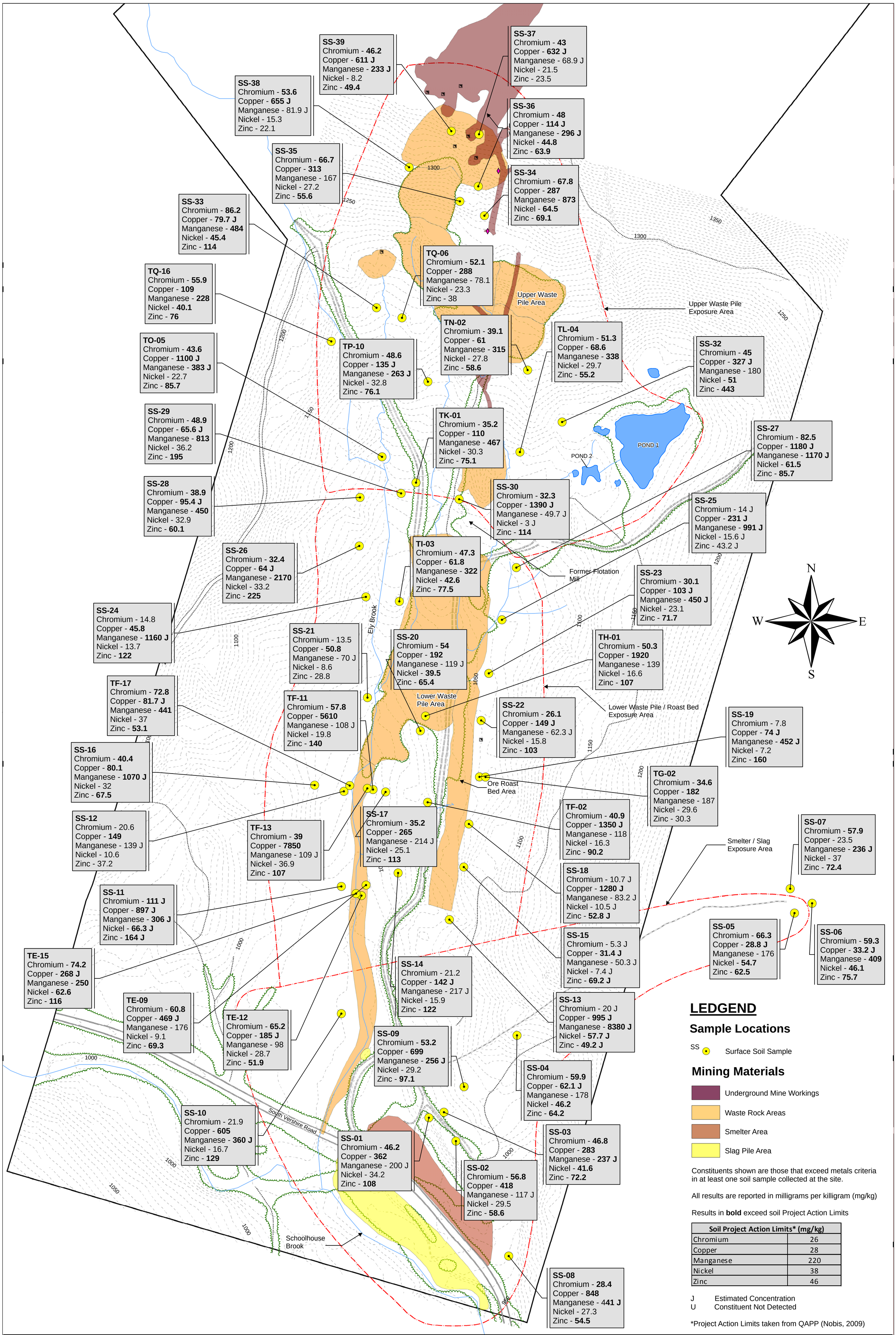


LEDGEND

Sample Locations

SS Surface Soil Sample

Mining Materials

- Underground Mine Workings
- Waste Rock Areas
- Smelter Area
- Slag Pile Area

Constituents shown are those that exceed metals criteria in at least one soil sample collected at the site.

All results are reported in milligrams per killigram (mg/kg)

Results in **bold** exceed soil Project Action Limits

Soil Project Action Limits* (mg/kg)	
Chromium	26
Copper	28
Manganese	220
Nickel	38
Zinc	46

J Estimated Concentration
U Constituent Not Detected

*Project Action Limits taken from QAPP (Nobis, 2009)

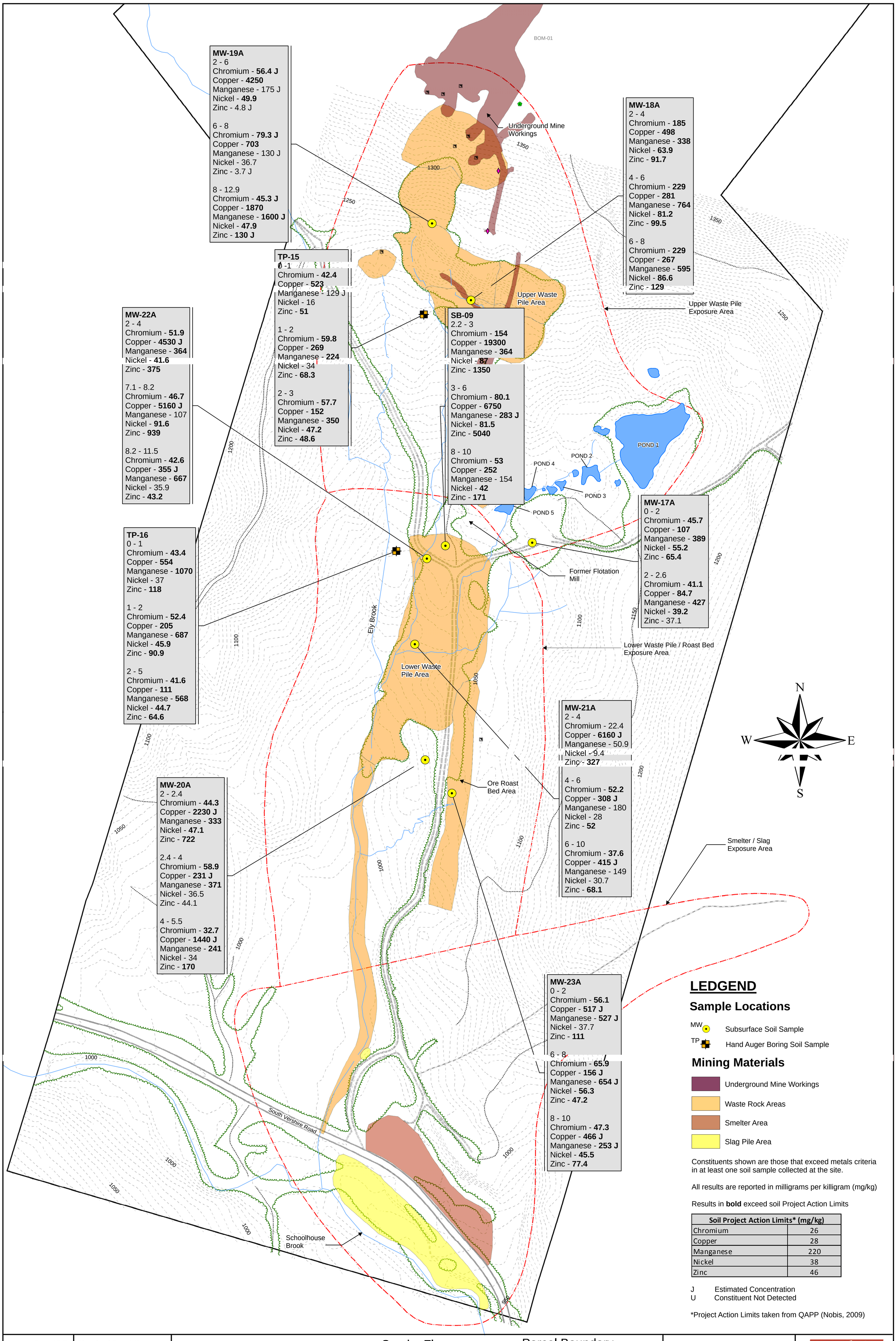
Drawn By: JDF	Checked By: VD
Filename: SS TAL Metals.mxd	
Date: 04/26/10	Revision No. 00

APPROXIMATE SCALE
140 70 0 140 280
Feet

Shaft
Adit
Prospect Tunnel
Drill Hole
Smoke Flue
Treeline
Paved Road
Gravel Road
Trail
Parcel Boundary
Exposure Area Boundary
Topographic Contour (ft-msl) 1050
Stream
Railroad

FIGURE 6-1a
2009
SURFACE SOIL
TAL METALS RESULTS
ELY COPPER MINE
VERSHIRE, VERMONT

Nobis
Nobis Engineering, Inc.
18 Chenell Drive
Concord, NH
tel (603) 224-4182
fax (603) 224-2507
www.nobisengineering.com



Constituents shown are those that exceed metals criteria in at least one soil sample collected at the site.

All results are reported in milligrams per killigram (mg/kg)

Results in **bold** exceed soil Project Action Limits

Soil Project Action Limits* (mg/kg)	
Chromium	26
Copper	28
Manganese	220
Nickel	38
Zinc	46

J Estimated Concentration
U Constituent Not Detected

*Project Action Limits taken from QAPP (Nobis, 2009)

Drawn By: JDF	Checked By: VD
Filename: SB TAL Metals.mxd	
Date: 04/26/10	Revision No. 00

APPROXIMATE SCALE
140 70 0 140 280 Feet

Shaft
Adit
Prospect Tunnel
Drill Hole
Smoke Flue
Treeline
Paved Road
Gravel Road
Trail
Parcel Boundary
Exposure Area Boundary
1050 Topographic Contour (ft-msl)
Stream
Railroad

FIGURE 6-1b
2009
SUBSURFACE SOIL
TAL METALS RESULTS
ELY COPPER MINE
VERSHIRE, VERMONT

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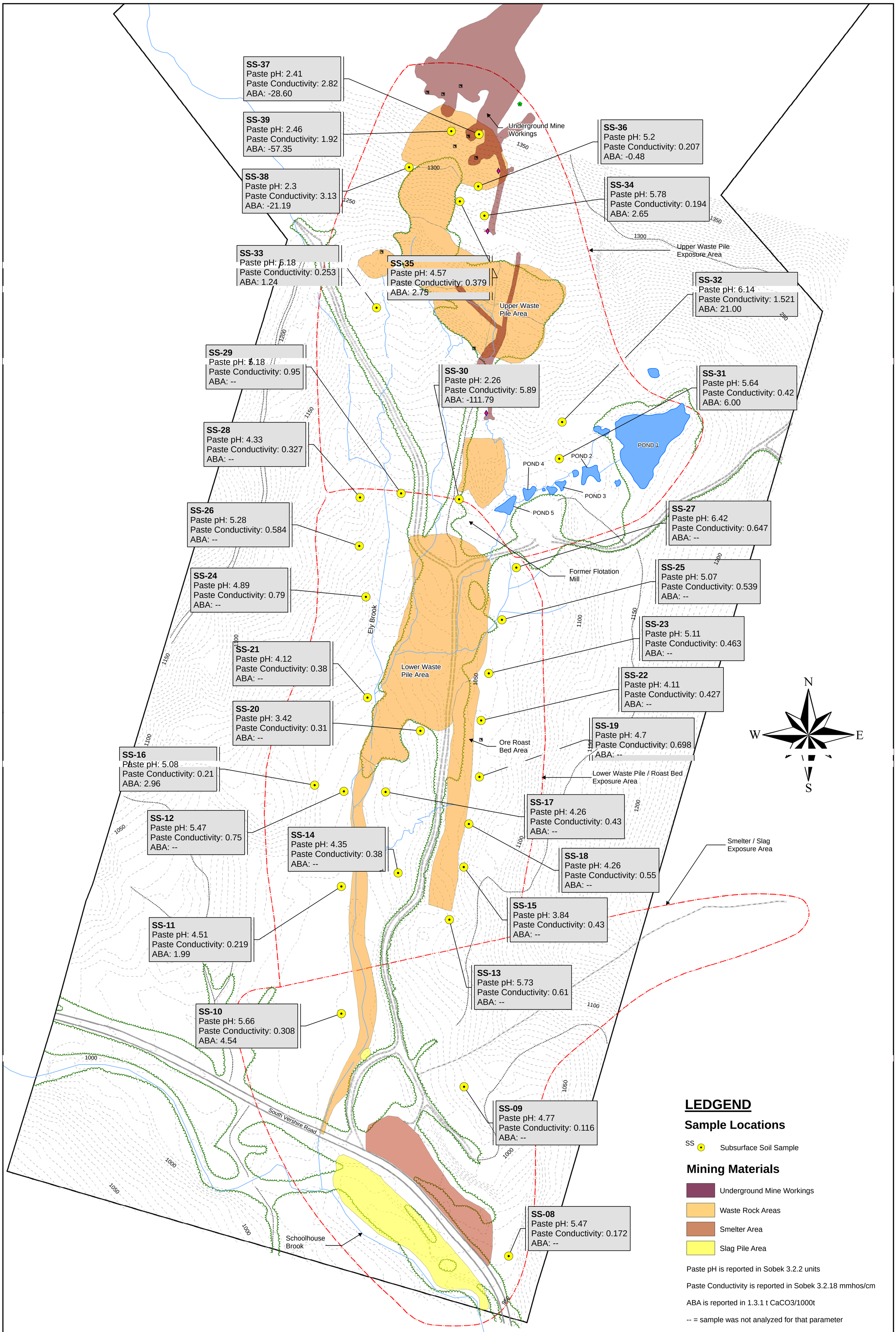

Drawn By: JDF	Checked By: VD
Filename: SS Paste pH etc.mxd	
Date: 04/26/10	Revision No. 00

APPROXIMATE SCALE
140 70 0 140 280 Feet

Shaft
Adit
Prospect Tunnel
Drill Hole
Smoke Flue
Treeline
Paved Road
Gravel Road
Trail
Parcel Boundary
Exposure Area Boundary
Topographic Contour (ft-msl) 1050
Stream
Railroad

FIGURE 6-2a
2009
SURFACE SOIL PASTE pH, PASTE COND., & ABA
ELY COPPER MINE
VERSHIRE, VERMONT

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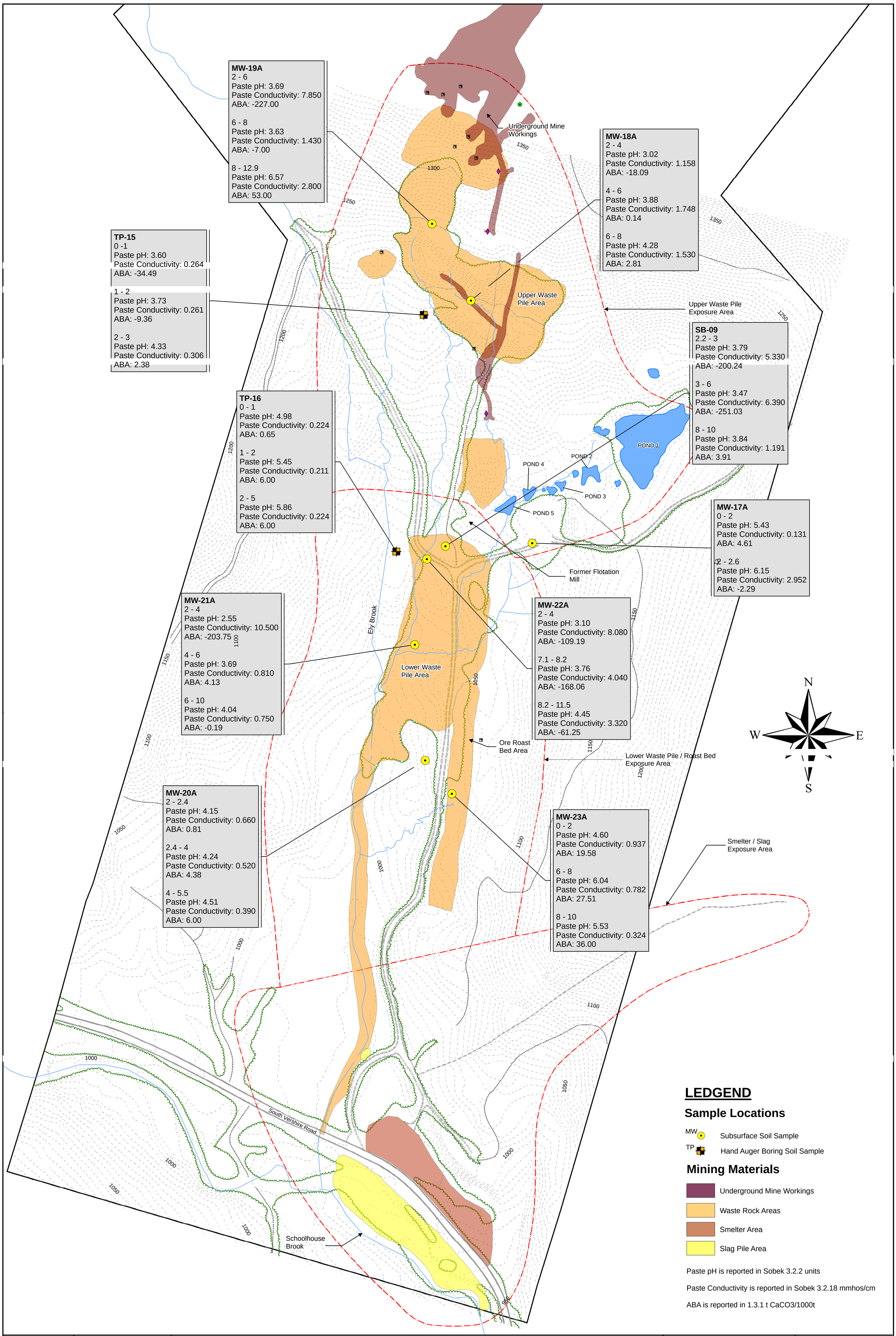

Drawn By: JDF	Checked By: VD
Filename: SB Paste pH etc.mxd	
Date: 04/26/10	Revision No. 00

APPROXIMATE SCALE
140 70 0 140 280 Feet

Shaft
Adit
Prospect Tunnel
Drill Hole
Smoke Flue
Treeline
Paved Road
Gravel Road
Trail
Parcel Boundary
Exposure Area Boundary
1050 Topographic Contour (ft-msl)
Stream
Railroad

FIGURE 6-2b
2009
SUBSURFACE SOIL PASTE pH, PASTE COND., & ABA
ELY COPPER MINE
VERSHIRE, VERMONT

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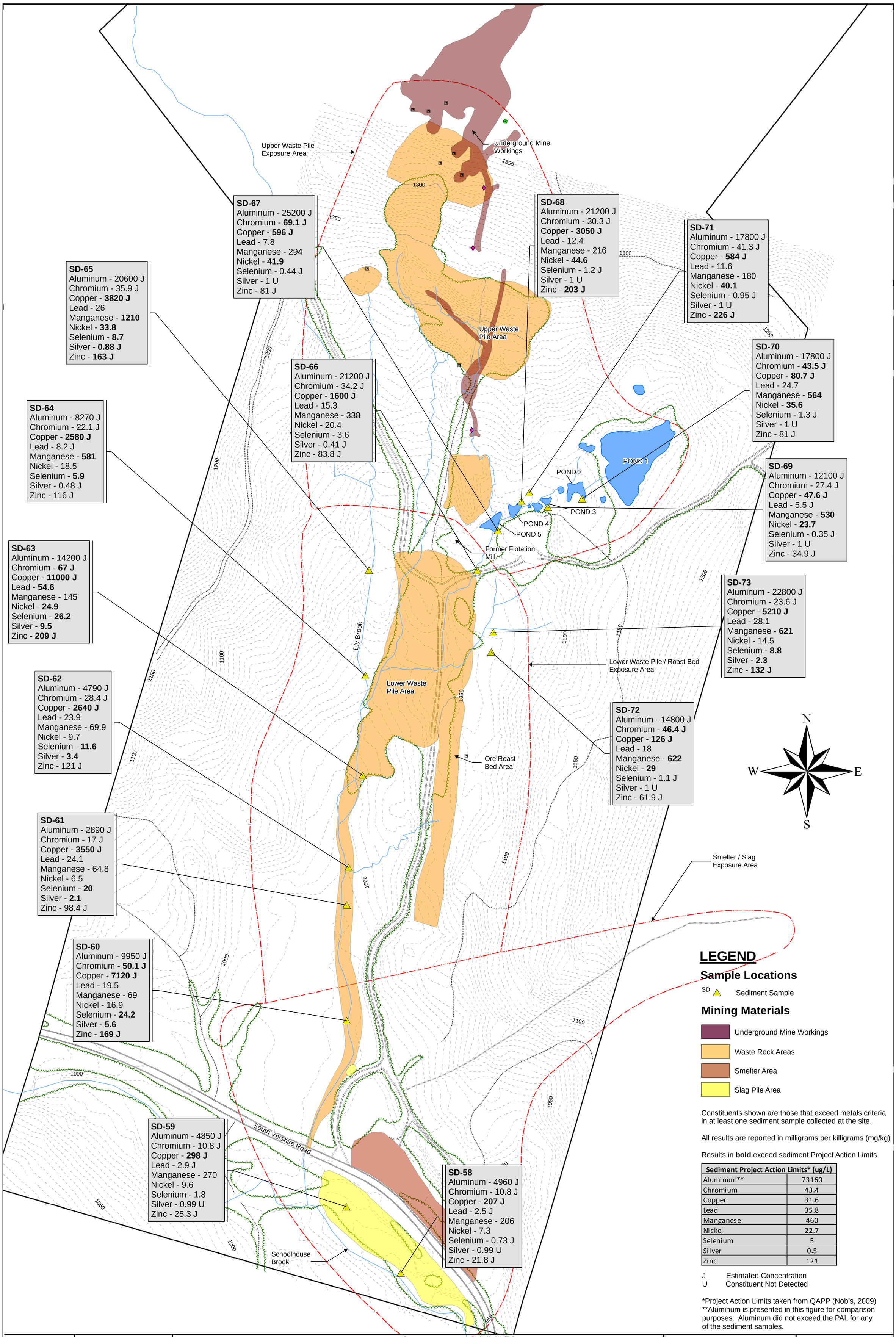

Constituents shown are those that exceed metals criteria in at least one sediment sample collected at the site.

All results are reported in milligrams per killigrams (mg/kg)

Results in **bold** exceed sediment Project Action Limits

Sediment Project Action Limits* (ug/L)	
Aluminum**	73160
Chromium	43.4
Copper	31.6
Lead	35.8
Manganese	460
Nickel	22.7
Selenium	5
Silver	0.5
Zinc	121

J Estimated Concentration
U Constituent Not Detected

*Project Action Limits taken from QAPP (Nobis, 2009)
**Aluminum is presented in this figure for comparison purposes. Aluminum did not exceed the PAL for any of the sediment samples.

Drawn By: JDF | Checked By: VD
Filename: Sediment TAL Metals.mxd
Date: 04/26/10 | Revision No. 00

APPROXIMATE SCALE
140 70 0 140 280 Feet

Shaft
Adit
Prospect Tunnel
Drill Hole
Smoke Flue
Treeline
Paved Road
Gravel Road
Trail
Parcel Boundary
Exposure Area Boundary
Topographic Contour (ft-msl)
Stream
Railroad

FIGURE 6-3
2009 SEDIMENT TAL METALS RESULTS
ELY COPPER MINE
VERSHIRE, VERMONT

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Concord, NH
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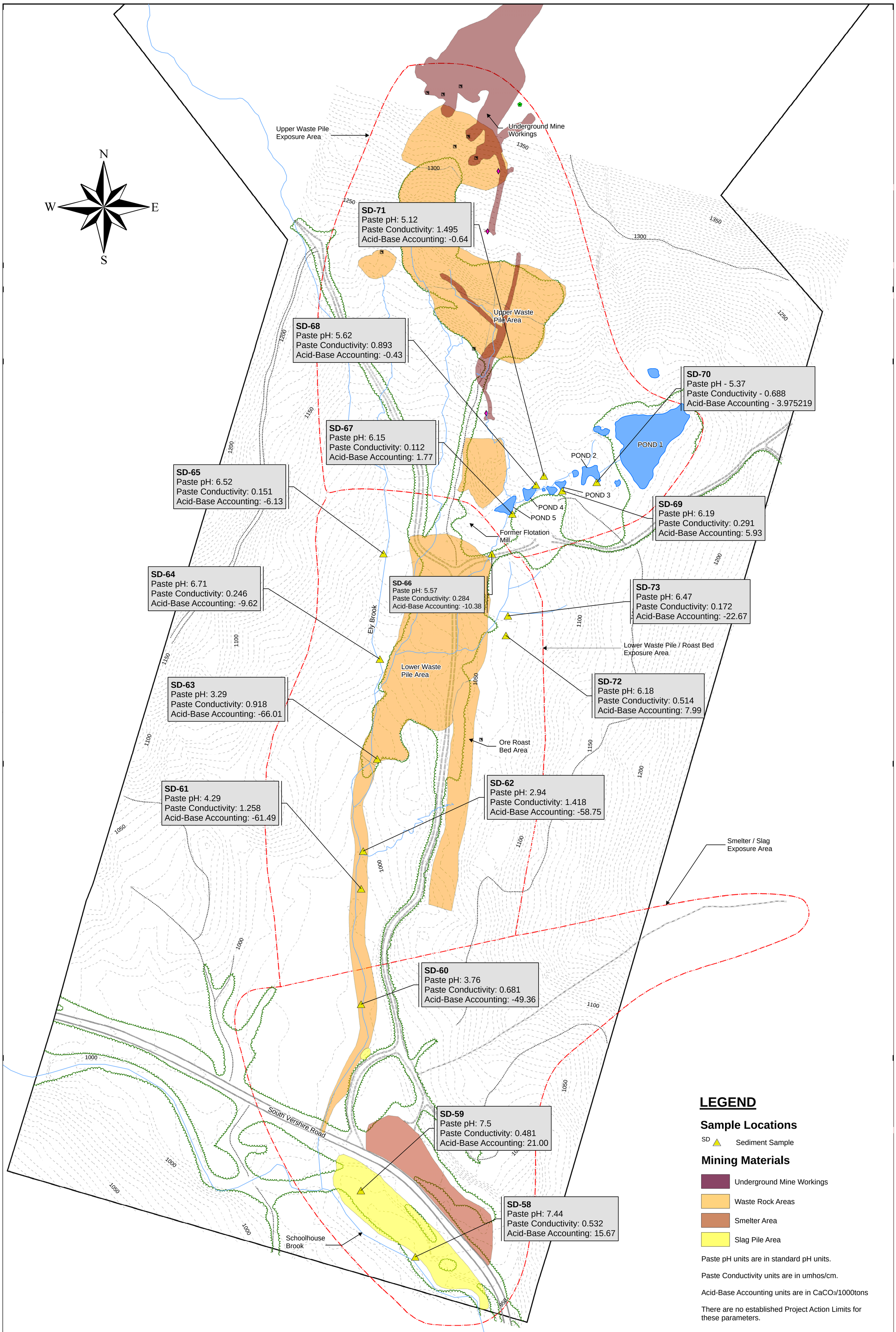

Drawn By: JDF	Checked By: VD
Filename: Sediment Paste pH etc.mxd	
Date: 04/26/10	Revision No. 00

APPROXIMATE SCALE
140 70 0 140 280 Feet

Shaft
Adit
Prospect Tunnel
Drill Hole
Smoke Flue
Treeline
Paved Road
Gravel Road
Trail
Parcel Boundary
Exposure Area Boundary
1050 Topographic Contour (ft-msl)
Stream
Railroad

FIGURE 6-4
2009 SEDIMENT PASTE pH, PASTE CONDUCTIVITY, & ABA
ELY COPPER MINE
VERSHIRE, VERMONT

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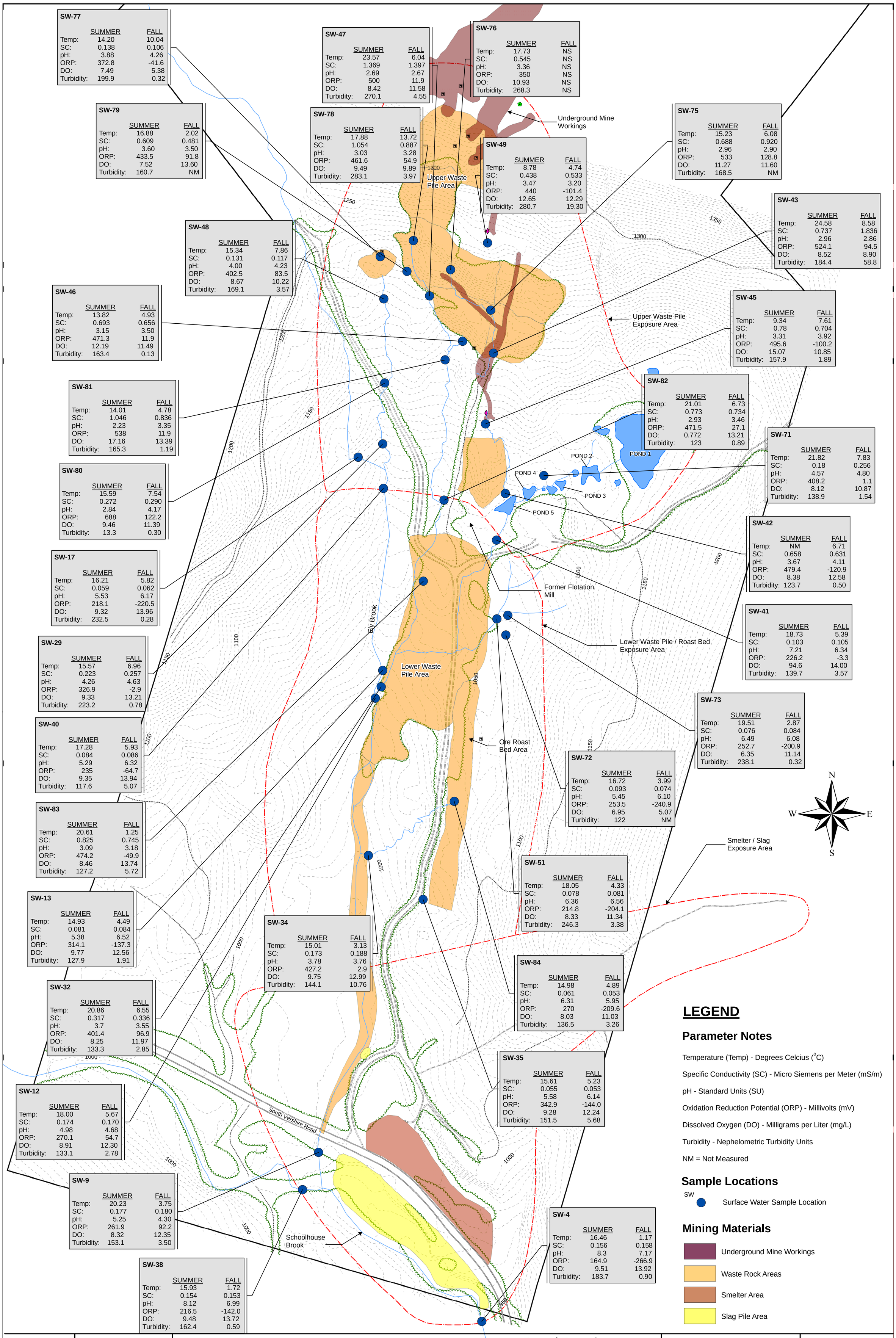

SW-77

	SUMMER	FALL
Temp:	14.20	10.04
SC:	0.138	0.106
pH:	3.88	4.26
ORP:	372.8	-41.6
DO:	7.49	5.38
Turbidity:	199.9	0.32

SW-47

	SUMMER	FALL
Temp:	23.57	6.04
SC:	1.369	1.397
pH:	2.69	2.67
ORP:	500	11.9
DO:	8.42	11.58
Turbidity:	270.1	4.55

SW-76

	SUMMER	FALL
Temp:	17.73	NS
SC:	0.545	NS
pH:	3.36	NS
ORP:	350	NS
DO:	10.93	NS
Turbidity:	268.3	NS

SW-79

	SUMMER	FALL
Temp:	16.88	2.02
SC:	0.609	0.481
pH:	3.60	3.50
ORP:	433.5	91.8
DO:	7.52	13.60
Turbidity:	160.7	NM

SW-78

	SUMMER	FALL
Temp:	17.88	13.72
SC:	1.054	0.887
pH:	3.03	3.28
ORP:	461.6	54.9
DO:	9.49	9.89
Turbidity:	283.1	3.97

SW-49

	SUMMER	FALL
Temp:	8.78	4.74
SC:	0.438	0.533
pH:	3.47	3.20
ORP:	440	-101.4
DO:	12.65	12.29
Turbidity:	280.7	19.30

SW-75

	SUMMER	FALL
Temp:	15.23	6.08
SC:	0.688	0.920
pH:	2.96	2.90
ORP:	533	128.8
DO:	11.27	11.60
Turbidity:	168.5	NM

SW-43

	SUMMER	FALL
Temp:	24.58	8.58
SC:	0.737	1.836
pH:	2.96	2.86
ORP:	524.1	94.5
DO:	8.52	8.90
Turbidity:	184.4	58.8

SW-48

	SUMMER	FALL
Temp:	15.34	7.86
SC:	0.131	0.117
pH:	4.00	4.23
ORP:	402.5	83.5
DO:	8.67	10.22
Turbidity:	169.1	3.57

SW-46

	SUMMER	FALL
Temp:	13.82	4.93
SC:	0.693	0.656
pH:	3.15	3.50
ORP:	471.3	11.9
DO:	12.19	11.49
Turbidity:	163.4	0.13

SW-45

	SUMMER	FALL
Temp:	9.34	7.61
SC:	0.78	0.704
pH:	3.31	3.92
ORP:	495.6	-100.2
DO:	15.07	10.85
Turbidity:	157.9	1.89

SW-81

	SUMMER	FALL
Temp:	14.01	4.78
SC:	1.046	0.836
pH:	2.23	3.35
ORP:	538	11.9
DO:	17.16	13.39
Turbidity:	165.3	1.19

SW-82

	SUMMER	FALL
Temp:	21.01	6.73
SC:	0.773	0.734
pH:	2.93	3.46
ORP:	471.5	27.1
DO:	0.772	13.21
Turbidity:	123	0.89

SW-71

	SUMMER	FALL
Temp:	21.82	7.83
SC:	0.18	0.256
pH:	4.57	4.80
ORP:	408.2	1.1
DO:	8.12	10.87
Turbidity:	138.9	1.54

SW-80

	SUMMER	FALL
Temp:	15.59	7.54
SC:	0.272	0.290
pH:	2.84	4.17
ORP:	688	122.2
DO:	9.46	11.39
Turbidity:	13.3	0.30

SW-42

	SUMMER	FALL
Temp:	NM	6.71
SC:	0.658	0.631
pH:	3.67	4.11
ORP:	479.4	-120.9
DO:	8.38	12.58
Turbidity:	123.7	0.50

SW-17

	SUMMER	FALL
Temp:	16.21	5.82
SC:	0.059	0.062
pH:	5.53	6.17
ORP:	218.1	-220.5
DO:	9.32	13.96
Turbidity:	232.5	0.28

SW-41

	SUMMER	FALL
Temp:	18.73	5.39
SC:	0.103	0.105
pH:	7.21	6.34
ORP:	226.2	-3.3
DO:	94.6	14.00
Turbidity:	139.7	3.57

SW-29

	SUMMER	FALL
Temp:	15.57	6.96
SC:	0.223	0.257
pH:	4.26	4.63
ORP:	326.9	-2.9
DO:	9.33	13.21
Turbidity:	223.2	0.78

SW-73

	SUMMER	FALL
Temp:	19.51	2.87
SC:	0.076	0.084
pH:	6.49	6.08
ORP:	252.7	-200.9
DO:	6.35	11.14
Turbidity:	238.1	0.32

SW-40

	SUMMER	FALL
Temp:	17.28	5.93
SC:	0.084	0.086
pH:	5.29	6.32
ORP:	235	-64.7
DO:	9.35	13.94
Turbidity:	117.6	5.07

SW-72

	SUMMER	FALL
Temp:	16.72	3.99
SC:	0.093	0.074
pH:	5.45	6.10
ORP:	253.5	-240.9
DO:	6.95	5.07
Turbidity:	122	NM

SW-83

	SUMMER	FALL
Temp:	20.61	1.25
SC:	0.825	0.745
pH:	3.09	3.18
ORP:	474.2	-49.9
DO:	8.46	13.74
Turbidity:	127.2	5.72

SW-51

	SUMMER	FALL
Temp:	18.05	4.33
SC:	0.078	0.081
pH:	6.36	6.56
ORP:	214.8	-204.1
DO:	8.33	11.34
Turbidity:	246.3	3.38

SW-13

	SUMMER	FALL
Temp:	14.93	4.49
SC:	0.081	0.084
pH:	5.38	6.52
ORP:	314.1	-137.3
DO:	9.77	12.56
Turbidity:	127.9	1.91

SW-34

	SUMMER	FALL
Temp:	15.01	3.13
SC:	0.173	0.188
pH:	3.78	3.76
ORP:	427.2	2.9
DO:	9.75	12.99
Turbidity:	144.1	10.76

SW-84

	SUMMER	FALL
Temp:	14.98	4.89
SC:	0.061	0.053
pH:	6.31	5.95
ORP:	270	-209.6
DO:	8.03	11.03
Turbidity:	136.5	3.26

SW-32

	SUMMER	FALL
Temp:	20.86	6.55
SC:	0.317	0.336
pH:	3.7	3.55
ORP:	401.4	96.9
DO:	8.25	11.97
Turbidity:	133.3	2.85

SW-35

	SUMMER	FALL
Temp:	15.61	5.23
SC:	0.055	0.053
pH:	5.58	6.14
ORP:	342.9	-144.0
DO:	9.28	12.24
Turbidity:	151.5	5.68

SW-12

	SUMMER	FALL
Temp:	18.00	5.67
SC:	0.174	0.170
pH:	4.98	4.68
ORP:	270.1	54.7
DO:	8.91	12.30
Turbidity:	133.1	2.78

SW-9

	SUMMER	FALL
Temp:	20.23	3.75
SC:	0.177	0.180
pH:	5.25	4.30
ORP:	261.9	92.2
DO:	8.32	12.35
Turbidity:	153.1	3.50

SW-4

	SUMMER	FALL
Temp:	16.46	1.17
SC:	0.156	0.158
pH:	8.3	7.17
ORP:	164.9	-266.9
DO:	9.51	13.92
Turbidity:	183.7	0.90

SW-38

	SUMMER	FALL
Temp:	15.93	1.72
SC:	0.154	0.153
pH:	8.12	6.99
ORP:	216.5	-142.0
DO:	9.48	13.72
Turbidity:	162.4	0.59

LEGEND

Parameter Notes

Temperature (Temp) - Degrees Celcius (°C)

Specific Conductivity (SC) - Micro Siemens per Meter (mS/m)

pH - Standard Units (SU)

Oxidation Reduction Potential (ORP) - Millivolts (mV)

Dissolved Oxygen (DO) - Milligrams per Liter (mg/L)

Turbidity - Nephelometric Turbidity Units

NM = Not Measured

Sample Locations

SW — Surface Water Sample Location

Mining Materials

- Underground Mine Workings
- Waste Rock Areas
- Smelter Area
- Slag Pile Area

Drawn By: JDF | Checked By: VD

Filename: 2009 SW Field Params.mxd

Date: 04/26/10 | Revision No. 00

APPROXIMATE SCALE

140 70 0 140 280 Feet

Shaft
Adit
Prospect Tunnel
Drill Hole
Smoke Flue
Treeline
Paved Road
Gravel Road
Trail
Parcel Boundary
Exposure Area Boundary
1050 Topographic Contour (ft-msl)
Stream
Railroad

FIGURE 6-5

2009 SURFACE WATER FIELD PARAMETERS

ELY COPPER MINE VERSHIRE, VERMONT

Nobis Engineering, Inc.
18 Chenell Drive
Concord, NH
tel (603) 224-4182
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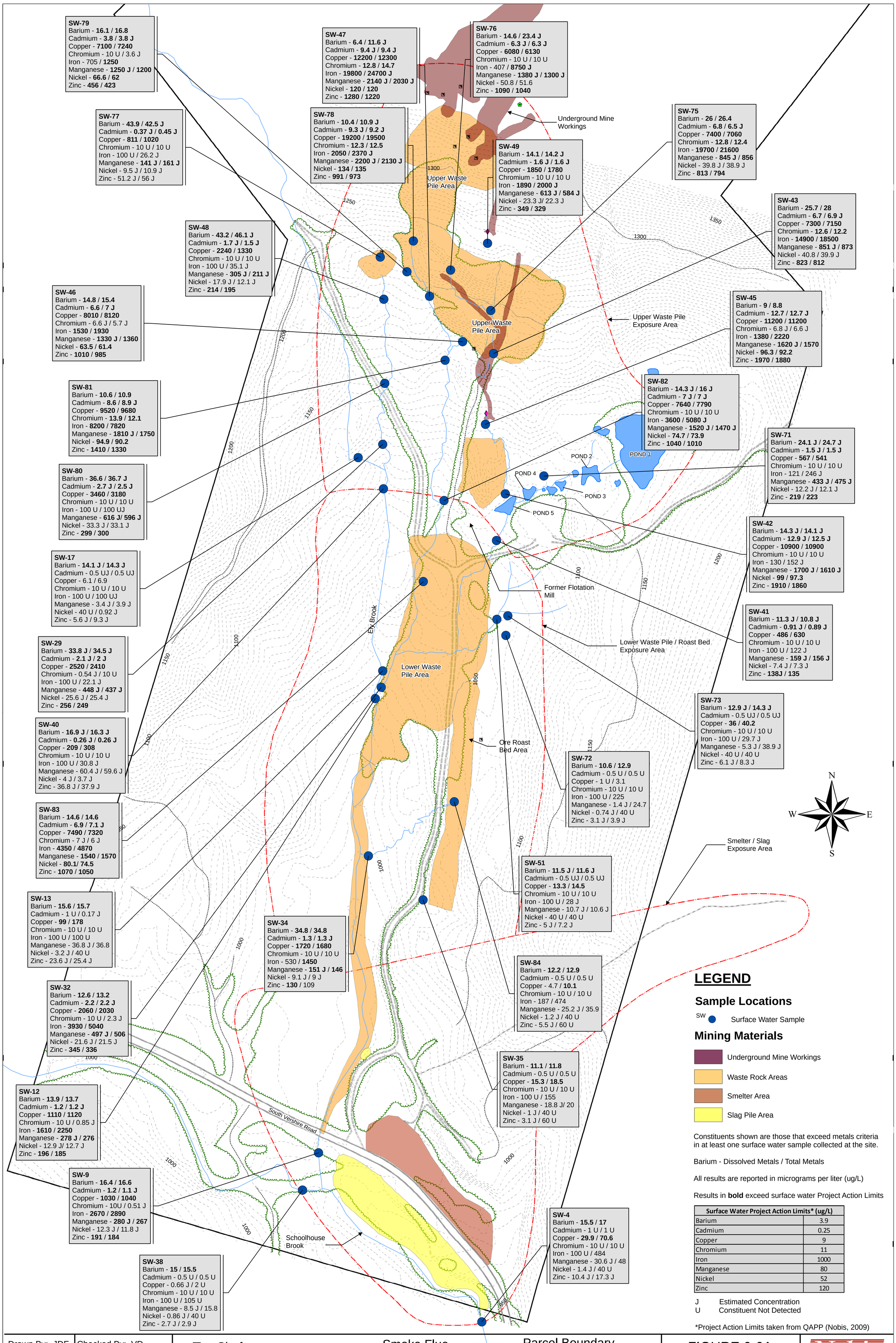
www.nobisengineering.com



Constituents shown are those that exceed metals criteria in at least one surface water sample collected at the site.

Barium - Dissolved Metals / Total Metals

All results are reported in micrograms per liter (ug/L)

Results in **bold** exceed surface water Project Action Limits

Surface Water Project Action Limits* (ug/L)	
Barium	3.9
Cadmium	0.25
Copper	9
Chromium	11
Iron	1000
Manganese	80
Nickel	52
Zinc	120

J Estimated Concentration
U Constituent Not Detected

*Project Action Limits taken from QAPP (Nobis, 2009)

Drawn By: JDF | Checked By: VD
Filename: Summer 2009 SW metals.mxd
Date: 04/26/10 | Revision No. 00

APPROXIMATE SCALE
140 70 0 140 280 Feet

Shaft
Adit
Prospect Tunnel
Drill Hole
Smoke Flue
Treeline
Paved Road
Gravel Road
Trail
Parcel Boundary
Exposure Area Boundary
1050 Topographic Contour (ft-msl)
Stream
Railroad

FIGURE 6-6A
JULY 2009
SURFACE WATER METALS RESULTS
ELY COPPER MINE
VERSHIRE, VERMONT

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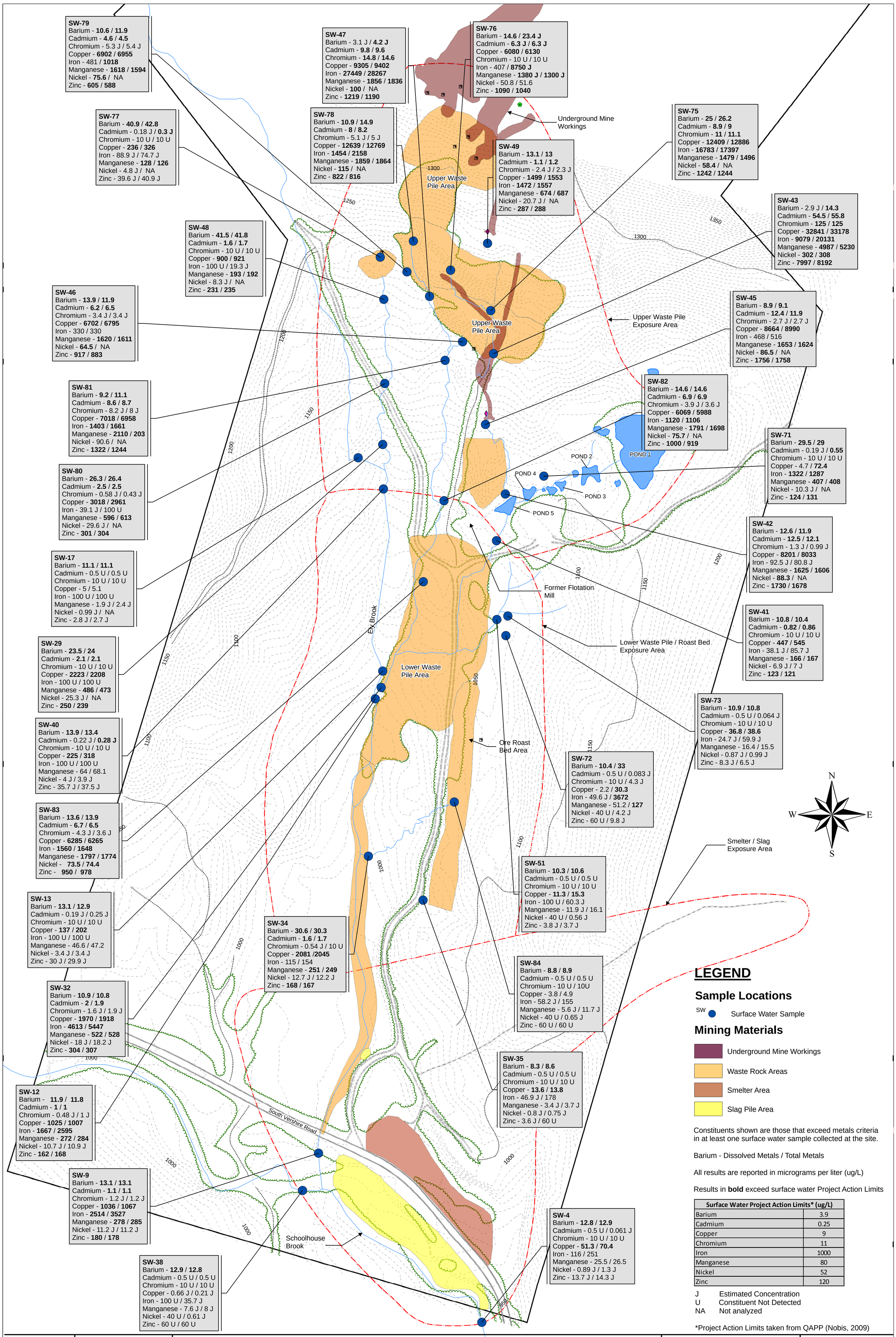
fax (603) 224-2507
www.nobisengineering.com



Constituents shown are those that exceed metals criteria in at least one surface water sample collected at the site.

Barium - Dissolved Metals / Total Metals

All results are reported in micrograms per liter (ug/L)

Results in **bold** exceed surface water Project Action Limits

Surface Water Project Action Limits* (ug/L)	
Barium	3.9
Cadmium	0.25
Copper	9
Chromium	11
Iron	1000
Manganese	80
Nickel	52
Zinc	120

J Estimated Concentration
U Constituent Not Detected
NA Not analyzed

*Project Action Limits taken from QAPP (Nobis, 2009)

Drawn By: JDF | Checked By: VD
Filename: Fall 2009 SW metals.mxd
Date: 04/26/10 | Revision No. 00

APPROXIMATE SCALE
140 70 0 140 280 Feet

Shaft
Adit
Prospect Tunnel
Drill Hole
Smoke Flue
Treeline
Paved Road
Gravel Road
Trail
Parcel Boundary
Exposure Area Boundary
Topographic Contour (ft-msl)
Stream
Railroad

FIGURE 6-6B
NOVEMBER 2009
SURFACE WATER METALS RESULTS
ELY COPPER MINE
VERSHIRE, VERMONT

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fax (603) 224-2507
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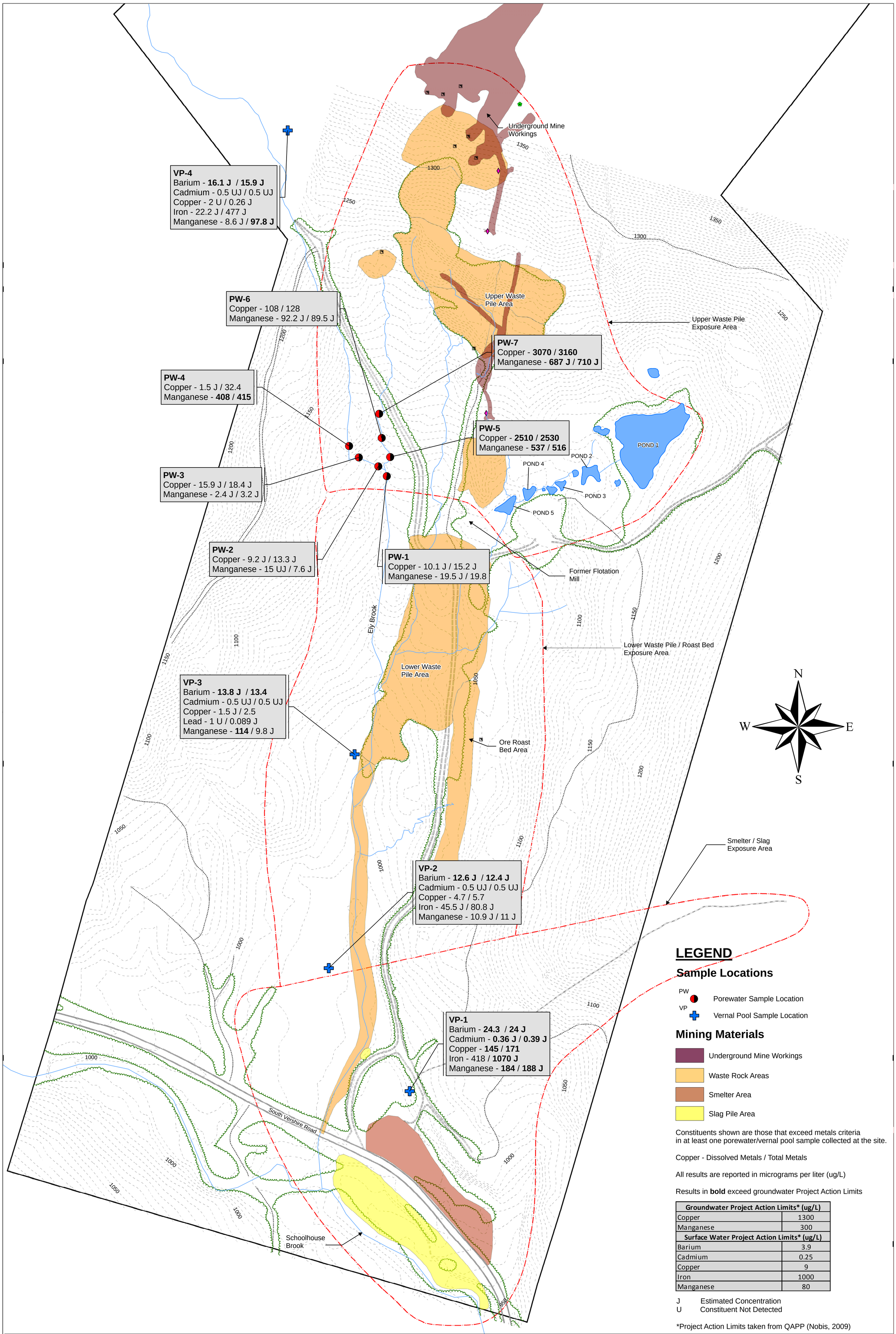

Groundwater Project Action Limits* (ug/L)	
Copper	1300
Manganese	300
Surface Water Project Action Limits* (ug/L)	
Barium	3.9
Cadmium	0.25
Copper	9
Iron	1000
Manganese	80

Drawn By: JDF | Checked By: VD
Filename: GW Metals_0809.mxd
Date: 04/26/10 | Revision No. 00

FIGURE 6-7
SUMMER 2009
POREWATER &
VERNAL POOL
METALS RESULTS
ELY COPPER MINE
VERSHIRE, VERMONT

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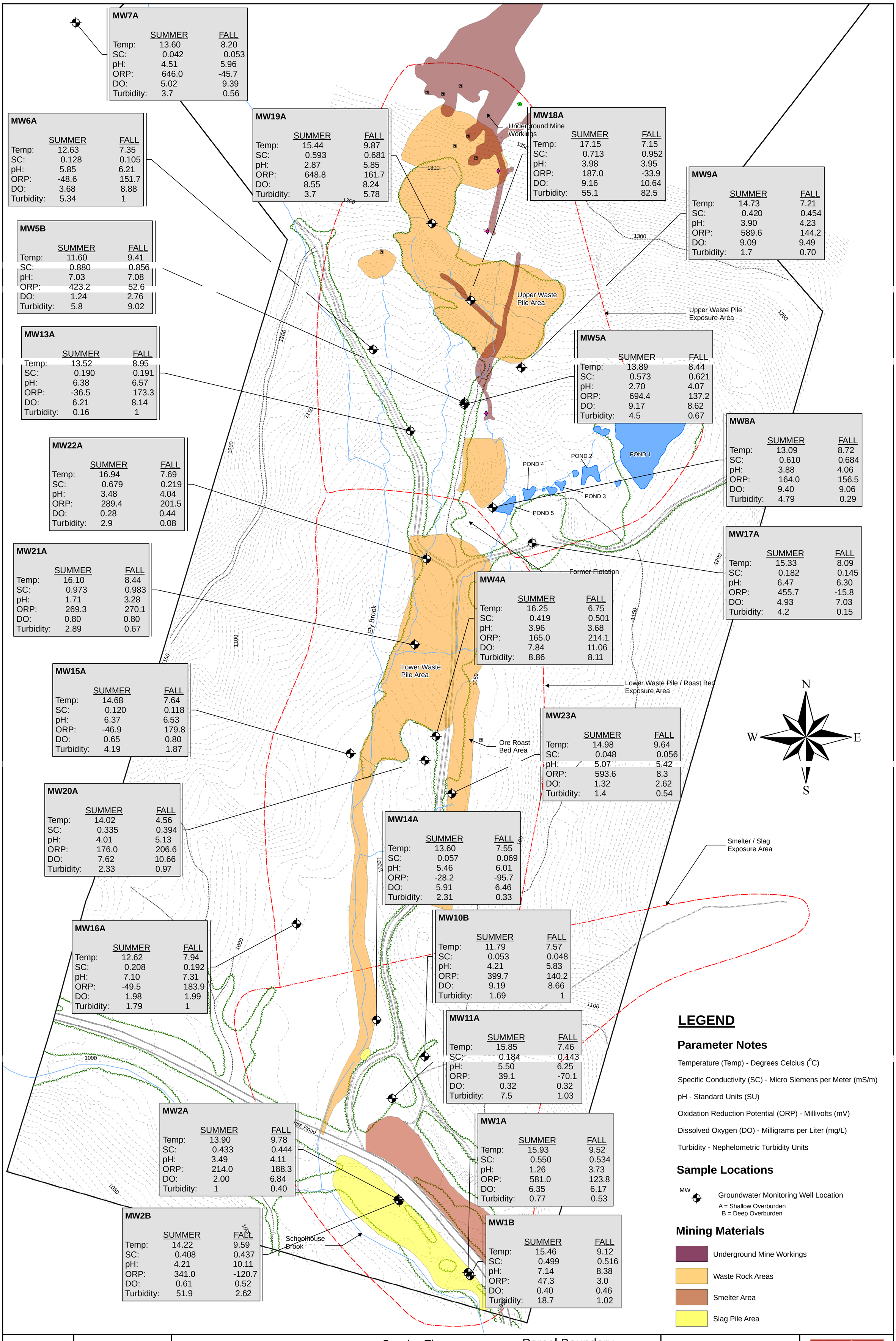

MW7A

	SUMMER	FALL
Temp:	13.60	8.20
SC:	0.042	0.053
pH:	4.51	5.96
ORP:	646.0	-45.7
DO:	5.02	9.39
Turbidity:	3.7	0.56

MW6A

	SUMMER	FALL
Temp:	12.63	7.35
SC:	0.128	0.105
pH:	5.85	6.21
ORP:	-48.6	151.7
DO:	3.68	8.88
Turbidity:	5.34	1

MW5B

	SUMMER	FALL
Temp:	11.60	9.41
SC:	0.880	0.856
pH:	7.03	7.08
ORP:	423.2	52.6
DO:	1.24	2.76
Turbidity:	5.8	9.02

MW13A

	SUMMER	FALL
Temp:	13.52	8.95
SC:	0.190	0.191
pH:	6.38	6.57
ORP:	-36.5	173.3
DO:	6.21	8.14
Turbidity:	0.16	1

MW22A

	SUMMER	FALL
Temp:	16.94	7.69
SC:	0.679	0.219
pH:	3.48	4.04
ORP:	289.4	201.5
DO:	0.28	0.44
Turbidity:	2.9	0.08

MW21A

	SUMMER	FALL
Temp:	16.10	8.44
SC:	0.973	0.983
pH:	1.71	3.28
ORP:	269.3	270.1
DO:	0.80	0.80
Turbidity:	2.89	0.67

MW15A

	SUMMER	FALL
Temp:	14.68	7.64
SC:	0.120	0.118
pH:	6.37	6.53
ORP:	-46.9	179.8
DO:	0.65	0.80
Turbidity:	4.19	1.87

MW20A

	SUMMER	FALL
Temp:	14.02	4.56
SC:	0.335	0.394
pH:	4.01	5.13
ORP:	176.0	206.6
DO:	7.62	10.66
Turbidity:	2.33	0.97

MW16A

	SUMMER	FALL
Temp:	12.62	7.94
SC:	0.208	0.192
pH:	7.10	7.31
ORP:	-49.5	183.9
DO:	1.98	1.99
Turbidity:	1.79	1

MW2A

	SUMMER	FALL
Temp:	13.90	9.78
SC:	0.433	0.444
pH:	3.49	4.11
ORP:	214.0	188.3
DO:	2.00	6.84
Turbidity:	1	0.40

MW2B

	SUMMER	FALL
Temp:	14.22	9.59
SC:	0.408	0.437
pH:	4.21	10.11
ORP:	341.0	-120.7
DO:	0.61	0.52
Turbidity:	51.9	2.62

MW19A

	SUMMER	FALL
Temp:	15.44	9.87
SC:	0.593	0.681
pH:	2.87	5.85
ORP:	648.8	161.7
DO:	8.55	8.24
Turbidity:	3.7	5.78

MW18A

	SUMMER	FALL
Temp:	17.15	7.15
SC:	0.713	0.952
pH:	3.98	3.95
ORP:	187.0	-33.9
DO:	9.16	10.64
Turbidity:	55.1	82.5

MW9A

	SUMMER	FALL
Temp:	14.73	7.21
SC:	0.420	0.454
pH:	3.90	4.23
ORP:	589.6	144.2
DO:	9.09	9.49
Turbidity:	1.7	0.70

MW5A

	SUMMER	FALL
Temp:	13.89	8.44
SC:	0.573	0.621
pH:	2.70	4.07
ORP:	694.4	137.2
DO:	9.17	8.62
Turbidity:	4.5	0.67

MW8A

	SUMMER	FALL
Temp:	13.09	8.72
SC:	0.610	0.684
pH:	3.88	4.06
ORP:	164.0	156.5
DO:	9.40	9.06
Turbidity:	4.79	0.29

MW17A

	SUMMER	FALL
Temp:	15.33	8.09
SC:	0.182	0.145
pH:	6.47	6.30
ORP:	455.7	-15.8
DO:	4.93	7.03
Turbidity:	4.2	0.15

MW4A

	SUMMER	FALL
Temp:	16.25	6.75
SC:	0.419	0.501
pH:	3.96	3.68
ORP:	165.0	214.1
DO:	7.84	11.06
Turbidity:	8.86	8.11

MW23A

	SUMMER	FALL
Temp:	14.98	9.64
SC:	0.048	0.056
pH:	5.07	5.42
ORP:	593.6	8.3
DO:	1.32	2.62
Turbidity:	1.4	0.54

MW14A

	SUMMER	FALL
Temp:	13.60	7.55
SC:	0.057	0.069
pH:	5.46	6.01
ORP:	-28.2	-95.7
DO:	5.91	6.46
Turbidity:	2.31	0.33

MW10B

	SUMMER	FALL
Temp:	11.79	7.57
SC:	0.053	0.048
pH:	4.21	5.83
ORP:	399.7	140.2
DO:	9.19	8.66
Turbidity:	1.69	1

MW11A

	SUMMER	FALL
Temp:	15.85	7.46
SC:	0.184	0.143
pH:	5.50	6.25
ORP:	39.1	-70.1
DO:	0.32	0.32
Turbidity:	7.5	1.03

MW1A

	SUMMER	FALL
Temp:	15.93	9.52
SC:	0.550	0.534
pH:	1.26	3.73
ORP:	581.0	123.8
DO:	6.35	6.17
Turbidity:	0.77	0.53

MW1B

	SUMMER	FALL
Temp:	15.46	9.12
SC:	0.499	0.516
pH:	7.14	8.38
ORP:	47.3	3.0
DO:	0.40	0.46
Turbidity:	18.7	1.02

LEGEND

Parameter Notes

Temperature (Temp) - Degrees Celcius (°C)

Specific Conductivity (SC) - Micro Siemens per Meter (mS/m)

pH - Standard Units (SU)

Oxidation Reduction Potential (ORP) - Millivolts (mV)

Dissolved Oxygen (DO) - Milligrams per Liter (mg/L)

Turbidity - Nephelometric Turbidity Units

Sample Locations

MW — Groundwater Monitoring Well Location
A = Shallow Overburden
B = Deep Overburden

Mining Materials

- Underground Mine Workings
- Waste Rock Areas
- Smelter Area
- Slag Pile Area

- Shaft
- Adit
- Prospect Tunnel
- Drill Hole
- Smoke Flue
- Treeline
- Paved Road
- Gravel Road
- Trail
- Parcel Boundary
- Exposure Area Boundary
- 1050 Topographic Contour (ft-msl)
- Stream
- Railroad

Drawn By: JDF | Checked By: VD
Filename: 2009 OB Field Params.mxd
Date: 04/26/10 | Revision No. 00

APPROXIMATE SCALE
140 70 0 140 280 Feet

FIGURE 6-8
2009 OVERBURDEN GROUNDWATER FIELD PARAMETERS
ELY COPPER MINE
VERSHIRE, VERMONT

Nobis Engineering, Inc.
18 Chenell Drive
Concord, NH
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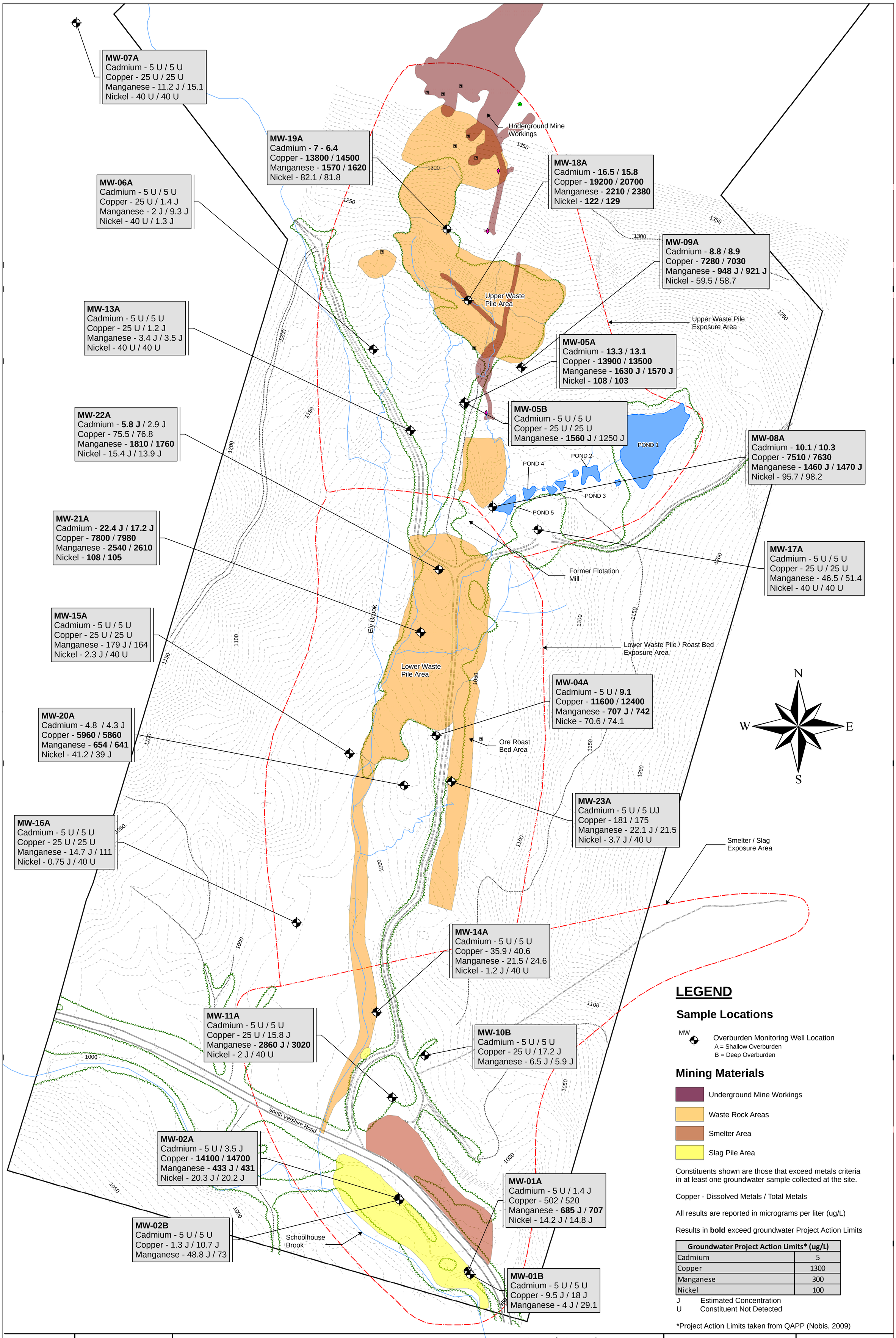
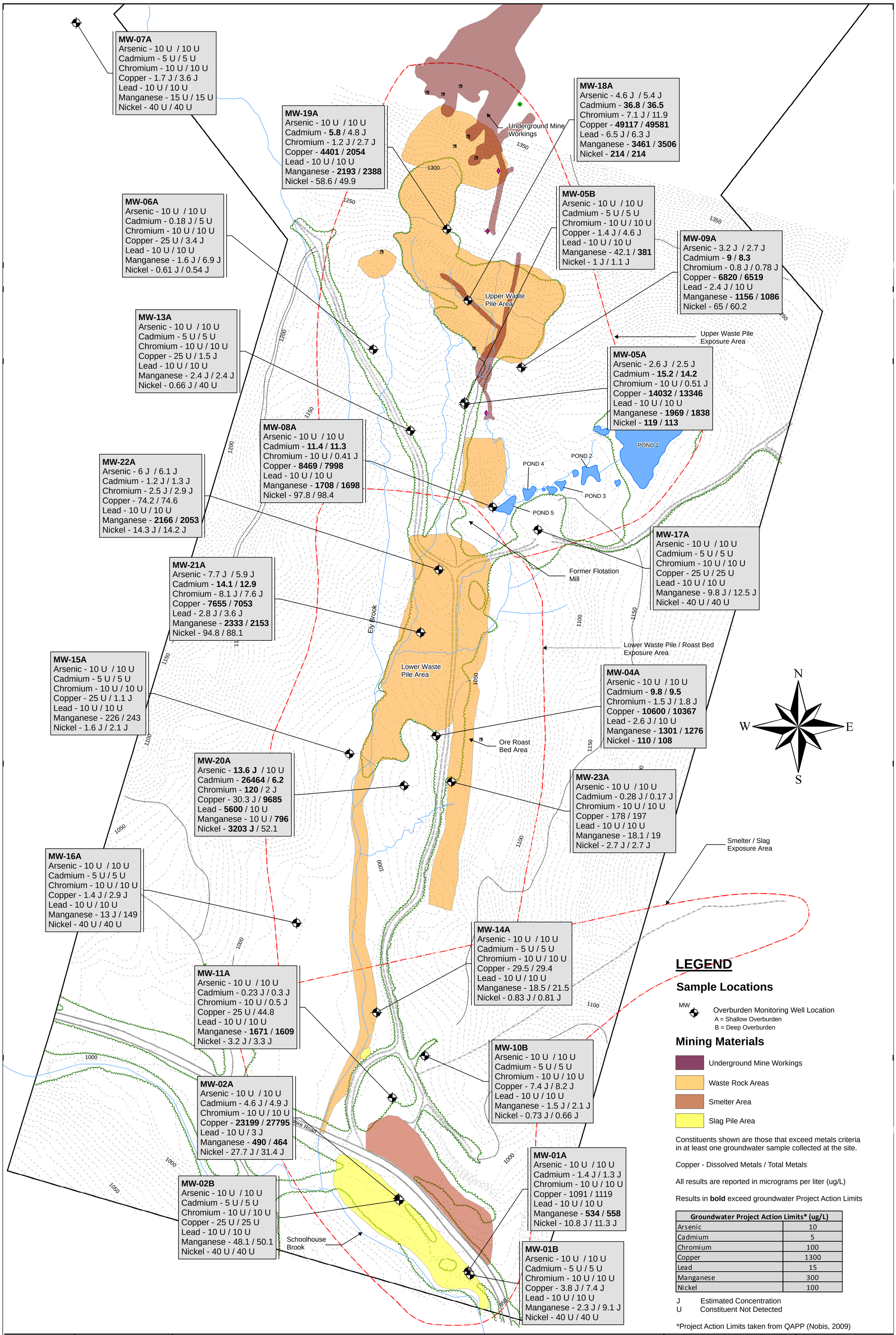
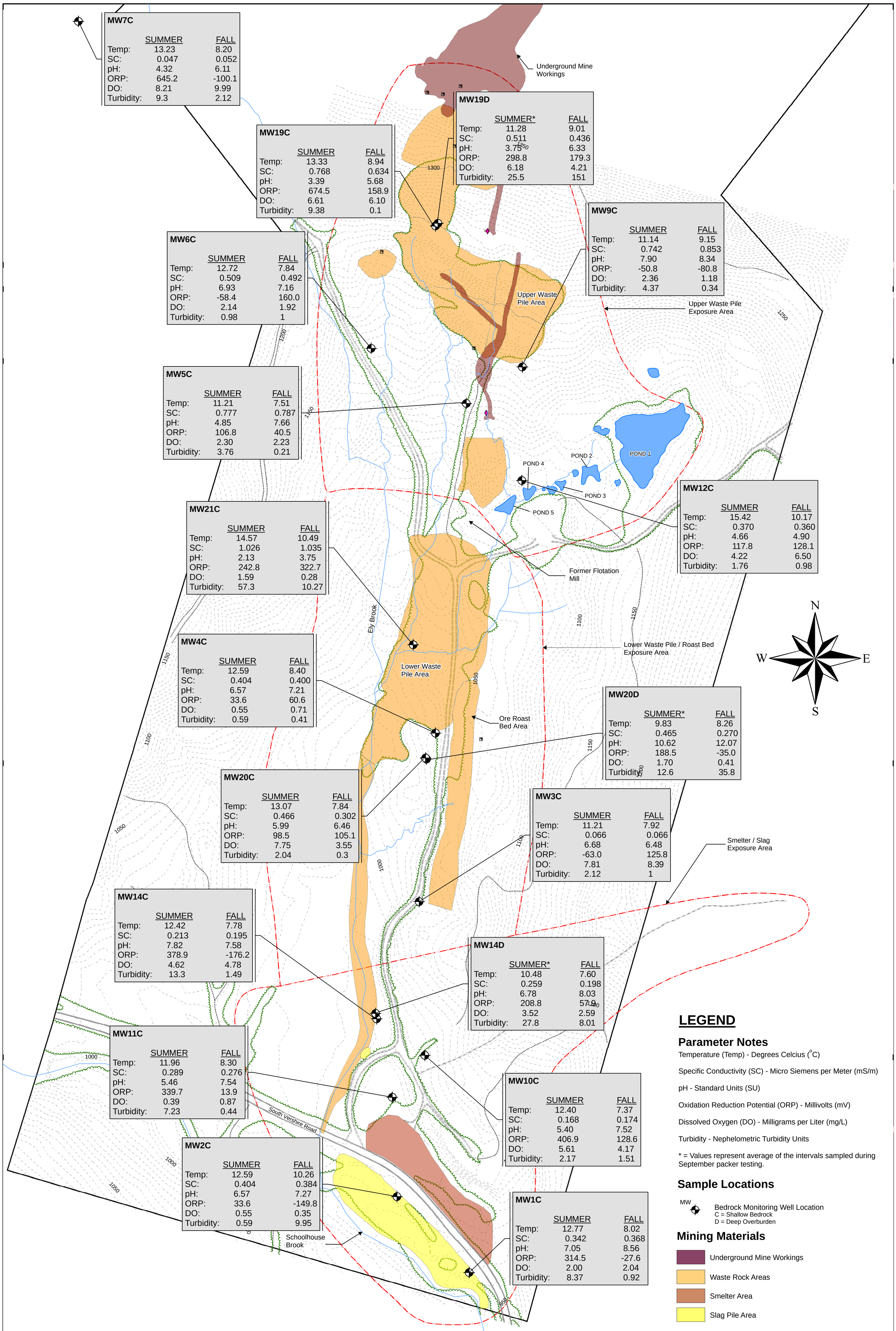

MW-07A
Cadmium - 5 U / 5 U
Copper - 25 U / 25 U
Manganese - 11.2 J / 15.1
Nickel - 40 U / 40 U
MW-19A
Cadmium - 7 - 6.4
Copper - 13800 / 14500
Manganese - 1570 / 1620
Nickel - 82.1 / 81.8
MW-06A
Cadmium - 5 U / 5 U
Copper - 25 U / 1.4 J
Manganese - 2 J / 9.3 J
Nickel - 40 U / 1.3 J
MW-18A
Cadmium - 16.5 / 15.8
Copper - 19200 / 20700
Manganese - 2210 / 2380
Nickel - 122 / 129
MW-09A
Cadmium - 8.8 / 8.9
Copper - 7280 / 7030
Manganese - 948 J / 921 J
Nickel - 59.5 / 58.7
MW-13A
Cadmium - 5 U / 5 U
Copper - 25 U / 1.2 J
Manganese - 3.4 J / 3.5 J
Nickel - 40 U / 40 U
MW-05A
Cadmium - 13.3 / 13.1
Copper - 13900 / 13500
Manganese - 1630 J / 1570 J
Nickel - 108 / 103
MW-05B
Cadmium - 5 U / 5 U
Copper - 25 U / 25 U
Manganese - 1560 J / 1250 J
MW-22A
Cadmium - 5.8 J / 2.9 J
Copper - 75.5 / 76.8
Manganese - 1810 / 1760
Nickel - 15.4 J / 13.9 J
MW-08A
Cadmium - 10.1 / 10.3
Copper - 7510 / 7630
Manganese - 1460 J / 1470 J
Nickel - 95.7 / 98.2
MW-21A
Cadmium - 22.4 J / 17.2 J
Copper - 7800 / 7980
Manganese - 2540 / 2610
Nickel - 108 / 105
MW-17A
Cadmium - 5 U / 5 U
Copper - 25 U / 25 U
Manganese - 46.5 / 51.4
Nickel - 40 U / 40 U
MW-15A
Cadmium - 5 U / 5 U
Copper - 25 U / 25 U
Manganese - 179 J / 164
Nickel - 2.3 J / 40 U
MW-04A
Cadmium - 5 U / 9.1
Copper - 11600 / 12400
Manganese - 707 J / 742
Nicke - 70.6 / 74.1
MW-20A
Cadmium - 4.8 / 4.3 J
Copper - 5960 / 5860
Manganese - 654 / 641
Nickel - 41.2 / 39 J
MW-23A
Cadmium - 5 U / 5 UJ
Copper - 181 / 175
Manganese - 22.1 J / 21.5
Nickel - 3.7 J / 40 U
MW-16A
Cadmium - 5 U / 5 U
Copper - 25 U / 25 U
Manganese - 14.7 J / 111
Nickel - 0.75 J / 40 U
MW-14A
Cadmium - 5 U / 5 U
Copper - 35.9 / 40.6
Manganese - 21.5 / 24.6
Nickel - 1.2 J / 40 U
MW-11A
Cadmium - 5 U / 5 U
Copper - 25 U / 15.8 J
Manganese - 2860 J / 3020
Nickel - 2 J / 40 U
MW-10B
Cadmium - 5 U / 5 U
Copper - 25 U / 17.2 J
Manganese - 6.5 J / 5.9 J
MW-02A
Cadmium - 5 U / 3.5 J
Copper - 14100 / 14700
Manganese - 433 J / 431
Nickel - 20.3 J / 20.2 J
MW-01A
Cadmium - 5 U / 1.4 J
Copper - 502 / 520
Manganese - 685 J / 707
Nickel - 14.2 J / 14.8 J
MW-02B
Cadmium - 5 U / 5 U
Copper - 1.3 J / 10.7 J
Manganese - 48.8 J / 73
MW-01B
Cadmium - 5 U / 5 U
Copper - 9.5 J / 18 J
Manganese - 4 J / 29.1
Underground Mine Workings
Upper Waste Pile Area
Upper Waste Pile Exposure Area
POND 1
POND 2
POND 3
POND 4
POND 5
Former Flotation Mill
Ely Brook
Lower Waste Pile Area
Lower Waste Pile / Roast Bed Exposure Area
Ore Roast Bed Area
Smelter / Slag Exposure Area
South Vershire Road
Schoolhouse Brook
N
W
E
S
LEGEND
Sample Locations
MW
Overburden Monitoring Well Location
A = Shallow Overburden
B = Deep Overburden
Mining Materials
Underground Mine Workings
Waste Rock Areas
Smelter Area
Slag Pile Area
Constituents shown are those that exceed metals criteria in at least one groundwater sample collected at the site.
Copper - Dissolved Metals / Total Metals
All results are reported in micrograms per liter (ug/L)
Results in bold exceed groundwater Project Action Limits
Groundwater Project Action Limits* (ug/L)
Cadmium 5
Copper 1300
Manganese 300
Nickel 100
J Estimated Concentration
U Constituent Not Detected
*Project Action Limits taken from QAPP (Nobis, 2009)
Drawn By: JDF
Checked By: VD
Filename: GW Metals_0809.mxd
Date: 04/26/10
Revision No. 00
APPROXIMATE SCALE
140 70 0 140 280
Feet
Shaft
Adit
Prospect Tunnel
Drill Hole
Smoke Flue
Treeline
Paved Road
Gravel Road
Trail
Parcel Boundary
Exposure Area Boundary
Topographic Contour (ft-msl)
1050
Stream
Railroad
FIGURE 6-9a
AUGUST 2009
OVERBURDEN GROUNDWATER METALS RESULTS
ELY COPPER MINE
VERSHIRE, VERMONT
Nobis
Nobis Engineering, Inc.
18 Chenell Drive
Concord, NH
tel (603) 224-4182
fax (603) 224-2507
www.nobisengineering.com


MW-07A
Arsenic - 10 U / 10 U
Cadmium - 5 U / 5 U
Chromium - 10 U / 10 U
Copper - 1.7 J / 3.6 J
Lead - 10 U / 10 U
Manganese - 15 U / 15 U
Nickel - 40 U / 40 U
MW-19A
Arsenic - 10 U / 10 U
Cadmium - 5.8 / 4.8 J
Chromium - 1.2 J / 2.7 J
Copper - 4401 / 2054
Lead - 10 U / 10 U
Manganese - 2193 / 2388
Nickel - 58.6 / 49.9
MW-18A
Arsenic - 4.6 J / 5.4 J
Cadmium - 36.8 / 36.5
Chromium - 7.1 J / 11.9
Copper - 49117 / 49581
Lead - 6.5 J / 6.3 J
Manganese - 3461 / 3506
Nickel - 214 / 214
Underground Mine Workings
MW-06A
Arsenic - 10 U / 10 U
Cadmium - 0.18 J / 5 U
Chromium - 10 U / 10 U
Copper - 25 U / 3.4 J
Lead - 10 U / 10 U
Manganese - 1.6 J / 6.9 J
Nickel - 0.61 J / 0.54 J
MW-05B
Arsenic - 10 U / 10 U
Cadmium - 5 U / 5 U
Chromium - 10 U / 10 U
Copper - 1.4 J / 4.6 J
Lead - 10 U / 10 U
Manganese - 42.1 / 381
Nickel - 1 J / 1.1 J
MW-09A
Arsenic - 3.2 J / 2.7 J
Cadmium - 9 / 8.3
Chromium - 0.8 J / 0.78 J
Copper - 6820 / 6519
Lead - 2.4 J / 10 U
Manganese - 1156 / 1086
Nickel - 65 / 60.2
Upper Waste Pile Area
MW-13A
Arsenic - 10 U / 10 U
Cadmium - 5 U / 5 U
Chromium - 10 U / 10 U
Copper - 25 U / 1.5 J
Lead - 10 U / 10 U
Manganese - 2.4 J / 2.4 J
Nickel - 0.66 J / 40 U
Upper Waste Pile Exposure Area
MW-05A
Arsenic - 2.6 J / 2.5 J
Cadmium - 15.2 / 14.2
Chromium - 10 U / 0.51 J
Copper - 14032 / 13346
Lead - 10 U / 10 U
Manganese - 1969 / 1838
Nickel - 119 / 113
MW-08A
Arsenic - 10 U / 10 U
Cadmium - 11.4 / 11.3
Chromium - 10 U / 0.41 J
Copper - 8469 / 7998
Lead - 10 U / 10 U
Manganese - 1708 / 1698
Nickel - 97.8 / 98.4
POND 1
POND 2
POND 3
POND 4
POND 5
MW-22A
Arsenic - 6 J / 6.1 J
Cadmium - 1.2 J / 1.3 J
Chromium - 2.5 J / 2.9 J
Copper - 74.2 / 74.6
Lead - 10 U / 10 U
Manganese - 2166 / 2053
Nickel - 14.3 J / 14.2 J
MW-17A
Arsenic - 10 U / 10 U
Cadmium - 5 U / 5 U
Chromium - 10 U / 10 U
Copper - 25 U / 25 U
Lead - 10 U / 10 U
Manganese - 9.8 J / 12.5 J
Nickel - 40 U / 40 U
MW-21A
Arsenic - 7.7 J / 5.9 J
Cadmium - 14.1 / 12.9
Chromium - 8.1 J / 7.6 J
Copper - 7655 / 7053
Lead - 2.8 J / 3.6 J
Manganese - 2333 / 2153
Nickel - 94.8 / 88.1
Former Flotation Mill
Ely Brook
Lower Waste Pile / Roast Bed Exposure Area
MW-15A
Arsenic - 10 U / 10 U
Cadmium - 5 U / 5 U
Chromium - 10 U / 10 U
Copper - 25 U / 1.1 J
Lead - 10 U / 10 U
Manganese - 226 / 243
Nickel - 1.6 J / 2.1 J
Lower Waste Pile Area
MW-04A
Arsenic - 10 U / 10 U
Cadmium - 9.8 / 9.5
Chromium - 1.5 J / 1.8 J
Copper - 10600 / 10367
Lead - 2.6 J / 10 U
Manganese - 1301 / 1276
Nickel - 110 / 108
Ore Roast Bed Area
N
W
E
S
MW-20A
Arsenic - 13.6 J / 10 U
Cadmium - 26464 / 6.2
Chromium - 120 / 2 J
Copper - 30.3 J / 9685
Lead - 5600 / 10 U
Manganese - 10 U / 796
Nickel - 3203 J / 52.1
MW-23A
Arsenic - 10 U / 10 U
Cadmium - 0.28 J / 0.17 J
Chromium - 10 U / 10 U
Copper - 178 / 197
Lead - 10 U / 10 U
Manganese - 18.1 / 19
Nickel - 2.7 J / 2.7 J
Smelter / Slag Exposure Area
MW-16A
Arsenic - 10 U / 10 U
Cadmium - 5 U / 5 U
Chromium - 10 U / 10 U
Copper - 1.4 J / 2.9 J
Lead - 10 U / 10 U
Manganese - 13 J / 149
Nickel - 40 U / 40 U
MW-14A
Arsenic - 10 U / 10 U
Cadmium - 5 U / 5 U
Chromium - 10 U / 10 U
Copper - 29.5 / 29.4
Lead - 10 U / 10 U
Manganese - 18.5 / 21.5
Nickel - 0.83 J / 0.81 J
MW-11A
Arsenic - 10 U / 10 U
Cadmium - 0.23 J / 0.3 J
Chromium - 10 U / 0.5 J
Copper - 25 U / 44.8
Lead - 10 U / 10 U
Manganese - 1671 / 1609
Nickel - 3.2 J / 3.3 J
MW-10B
Arsenic - 10 U / 10 U
Cadmium - 5 U / 5 U
Chromium - 10 U / 10 U
Copper - 7.4 J / 8.2 J
Lead - 10 U / 10 U
Manganese - 1.5 J / 2.1 J
Nickel - 0.73 J / 0.66 J
MW-02A
Arsenic - 10 U / 10 U
Cadmium - 4.6 J / 4.9 J
Chromium - 10 U / 10 U
Copper - 23199 / 27795
Lead - 10 U / 3 J
Manganese - 490 / 464
Nickel - 27.7 J / 31.4 J
MW-01A
Arsenic - 10 U / 10 U
Cadmium - 1.4 J / 1.3 J
Chromium - 10 U / 10 U
Copper - 1091 / 1119
Lead - 10 U / 10 U
Manganese - 534 / 558
Nickel - 10.8 J / 11.3 J
MW-02B
Arsenic - 10 U / 10 U
Cadmium - 5 U / 5 U
Chromium - 10 U / 10 U
Copper - 25 U / 25 U
Lead - 10 U / 10 U
Manganese - 48.1 / 50.1
Nickel - 40 U / 40 U
Schoolhouse Brook
MW-01B
Arsenic - 10 U / 10 U
Cadmium - 5 U / 5 U
Chromium - 10 U / 10 U
Copper - 3.8 J / 7.4 J
Lead - 10 U / 10 U
Manganese - 2.3 J / 9.1 J
Nickel - 40 U / 40 U
LEGEND
Sample Locations
MW
Overburden Monitoring Well Location
A = Shallow Overburden
B = Deep Overburden
Mining Materials
Underground Mine Workings
Waste Rock Areas
Smelter Area
Slag Pile Area
Constituents shown are those that exceed metals criteria in at least one groundwater sample collected at the site.
Copper - Dissolved Metals / Total Metals
All results are reported in micrograms per liter (ug/L)
Results in bold exceed groundwater Project Action Limits
Groundwater Project Action Limits* (ug/L)
Arsenic 10
Cadmium 5
Chromium 100
Copper 1300
Lead 15
Manganese 300
Nickel 100
J Estimated Concentration
U Constituent Not Detected
*Project Action Limits taken from QAPP (Nobis, 2009)
Drawn By: JDF
Checked By: VD
Filename: Fall OB GW Metals.mxd
Date: 04/26/10
Revision No. 00
APPROXIMATE SCALE
140 70 0 140 280
Feet
Shaft
Adit
Prospect Tunnel
Drill Hole
Smoke Flue
Treeline
Paved Road
Gravel Road
Trail
Parcel Boundary
Exposure Area Boundary
Topographic Contour (ft-msl)
Stream
Railroad
FIGURE 6-9B
NOVEMBER 2009
OVERBURDEN GROUNDWATER METALS RESULTS
ELY COPPER MINE
VERSHIRE, VERMONT
Nobis
Nobis Engineering, Inc.
18 Chenell Drive
Concord, NH
tel (603) 224-4182
fax (603) 224-2507
www.nobisengineering.com



MW7C

	SUMMER	FALL
Temp:	13.23	8.20
SC:	0.047	0.052
pH:	4.32	6.11
ORP:	645.2	-100.1
DO:	8.21	9.99
Turbidity:	9.3	2.12

MW19C

	SUMMER	FALL
Temp:	13.33	8.94
SC:	0.768	0.634
pH:	3.39	5.68
ORP:	674.5	158.9
DO:	6.61	6.10
Turbidity:	9.38	0.1

MW19D

	SUMMER*	FALL
Temp:	11.28	9.01
SC:	0.511	0.436
pH:	3.75	6.33
ORP:	298.8	179.3
DO:	6.18	4.21
Turbidity:	25.5	151

MW6C

	SUMMER	FALL
Temp:	12.72	7.84
SC:	0.509	0.492
pH:	6.93	7.16
ORP:	-58.4	160.0
DO:	2.14	1.92
Turbidity:	0.98	1

MW9C

	SUMMER	FALL
Temp:	11.14	9.15
SC:	0.742	0.853
pH:	7.90	8.34
ORP:	-50.8	-80.8
DO:	2.36	1.18
Turbidity:	4.37	0.34

MW5C

	SUMMER	FALL
Temp:	11.21	7.51
SC:	0.777	0.787
pH:	4.85	7.66
ORP:	106.8	40.5
DO:	2.30	2.23
Turbidity:	3.76	0.21

MW12C

	SUMMER	FALL
Temp:	15.42	10.17
SC:	0.370	0.360
pH:	4.66	4.90
ORP:	117.8	128.1
DO:	4.22	6.50
Turbidity:	1.76	0.98

MW21C

	SUMMER	FALL
Temp:	14.57	10.49
SC:	1.026	1.035
pH:	2.13	3.75
ORP:	242.8	322.7
DO:	1.59	0.28
Turbidity:	57.3	10.27

MW4C

	SUMMER	FALL
Temp:	12.59	8.40
SC:	0.404	0.400
pH:	6.57	7.21
ORP:	33.6	60.6
DO:	0.55	0.71
Turbidity:	0.59	0.41

MW20D

	SUMMER*	FALL
Temp:	9.83	8.26
SC:	0.465	0.270
pH:	10.62	12.07
ORP:	188.5	-35.0
DO:	1.70	0.41
Turbidity:	12.6	35.8

MW20C

	SUMMER	FALL
Temp:	13.07	7.84
SC:	0.466	0.302
pH:	5.99	6.46
ORP:	98.5	105.1
DO:	7.75	3.55
Turbidity:	2.04	0.3

MW3C

	SUMMER	FALL
Temp:	11.21	7.92
SC:	0.066	0.066
pH:	6.68	6.48
ORP:	-63.0	125.8
DO:	7.81	8.39
Turbidity:	2.12	1

MW14C

	SUMMER	FALL
Temp:	12.42	7.78
SC:	0.213	0.195
pH:	7.82	7.58
ORP:	378.9	-176.2
DO:	4.62	4.78
Turbidity:	13.3	1.49

MW14D

	SUMMER*	FALL
Temp:	10.48	7.60
SC:	0.259	0.198
pH:	6.78	8.03
ORP:	208.8	57.9
DO:	3.52	2.59
Turbidity:	27.8	8.01

MW11C

	SUMMER	FALL
Temp:	11.96	8.30
SC:	0.289	0.276
pH:	5.46	7.54
ORP:	339.7	13.9
DO:	0.39	0.87
Turbidity:	7.23	0.44

MW10C

	SUMMER	FALL
Temp:	12.40	7.37
SC:	0.168	0.174
pH:	5.40	7.52
ORP:	406.9	128.6
DO:	5.61	4.17
Turbidity:	2.17	1.51

MW2C

	SUMMER	FALL
Temp:	12.59	10.26
SC:	0.404	0.384
pH:	6.57	7.27
ORP:	33.6	-149.8
DO:	0.55	0.35
Turbidity:	0.59	9.95

MW1C

	SUMMER	FALL
Temp:	12.77	8.02
SC:	0.342	0.368
pH:	7.05	8.56
ORP:	314.5	-27.6
DO:	2.00	2.04
Turbidity:	8.37	0.92

LEGEND

Parameter Notes

Temperature (Temp) - Degrees Celcius (°C)

Specific Conductivity (SC) - Micro Siemens per Meter (mS/m)

pH - Standard Units (SU)

Oxidation Reduction Potential (ORP) - Millivolts (mV)

Dissolved Oxygen (DO) - Milligrams per Liter (mg/L)

Turbidity - Nephelometric Turbidity Units

* = Values represent average of the intervals sampled during September packer testing.

Sample Locations

MW — Bedrock Monitoring Well Location
C = Shallow Bedrock
D = Deep Overburden

Mining Materials

- Underground Mine Workings
- Waste Rock Areas
- Smelter Area
- Slag Pile Area

Drawn By: JDF | Checked By: VD
Filename: 2009 BR Field Params.mxd
Date: 04/26/10 | Revision No. 00

APPROXIMATE SCALE
140 70 0 140 280 Feet

Shaft
Adit
Prospect Tunnel
Drill Hole
Smoke Flue
Treeline
Paved Road
Gravel Road
Trail
Parcel Boundary
Exposure Area Boundary
1050 Topographic Contour (ft-msl)
Stream
Railroad

FIGURE 6-10
2009 BEDROCK GROUNDWATER FIELD PARAMETERS
ELY COPPER MINE
VERSHIRE, VERMONT

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fax (603) 224-2507
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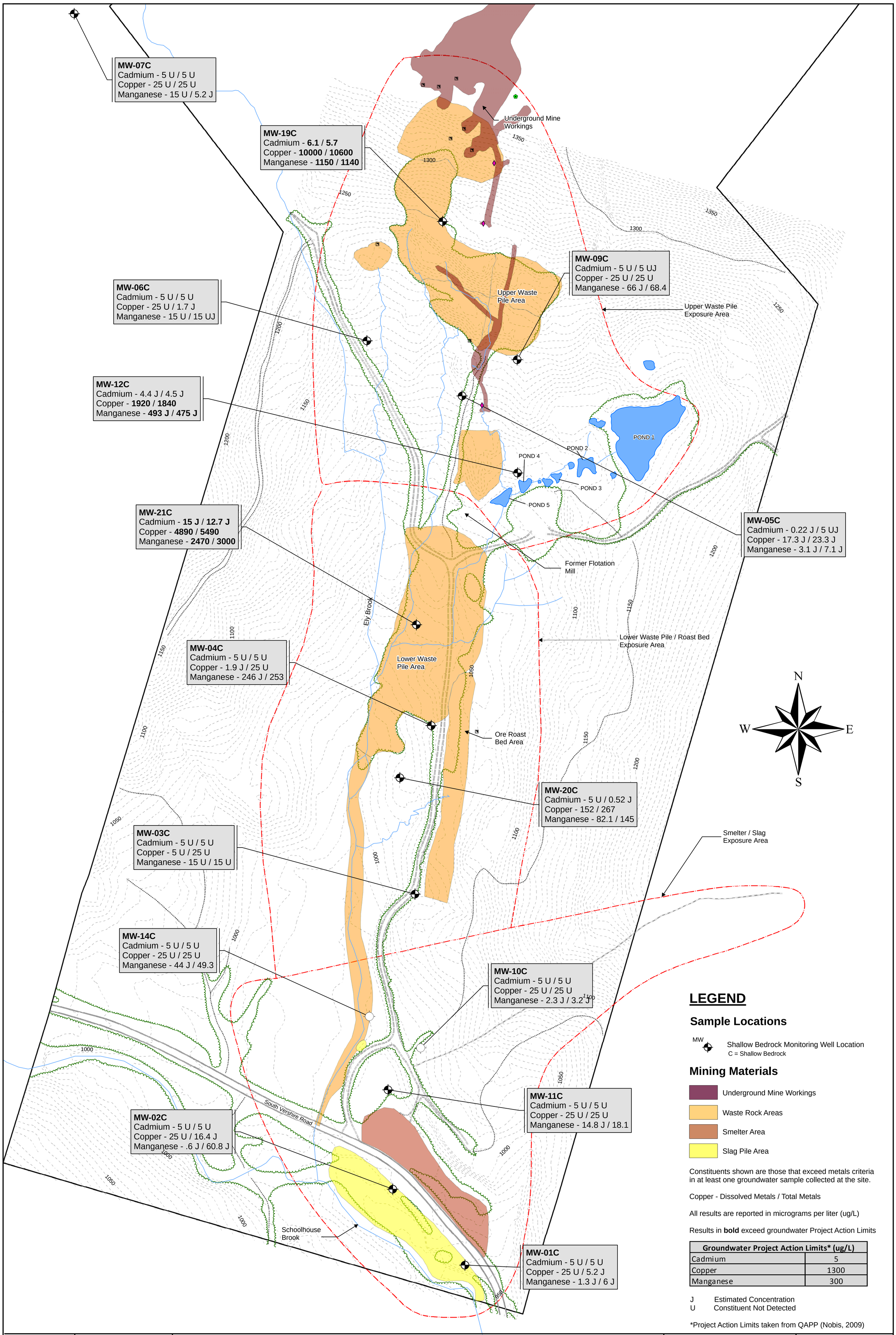

Constituents shown are those that exceed metals criteria in at least one groundwater sample collected at the site.

Copper - Dissolved Metals / Total Metals

All results are reported in micrograms per liter (ug/L)

Results in **bold** exceed groundwater Project Action Limits

Groundwater Project Action Limits* (ug/L)	
Cadmium	5
Copper	1300
Manganese	300

J Estimated Concentration
U Constituent Not Detected

*Project Action Limits taken from QAPP (Nobis, 2009)

Drawn By: JDF	Checked By: VD
Filename: Summer BR GW Metals.mxd	
Date: 04/26/10	Revision No. 00

APPROXIMATE SCALE
140 70 0 140 280
Feet

Shaft
Adit
Prospect Tunnel
Drill Hole
Smoke Flue
Treeline
Paved Road
Gravel Road
Trail
Parcel Boundary
Exposure Area Boundary
1050 Topographic Contour (ft-msl)
Stream
Railroad

FIGURE 6-11a
SUMMER 2009
SHALLOW BEDROCK GROUNDWATER METALS RESULTS
ELY COPPER MINE
VERSHIRE, VERMONT

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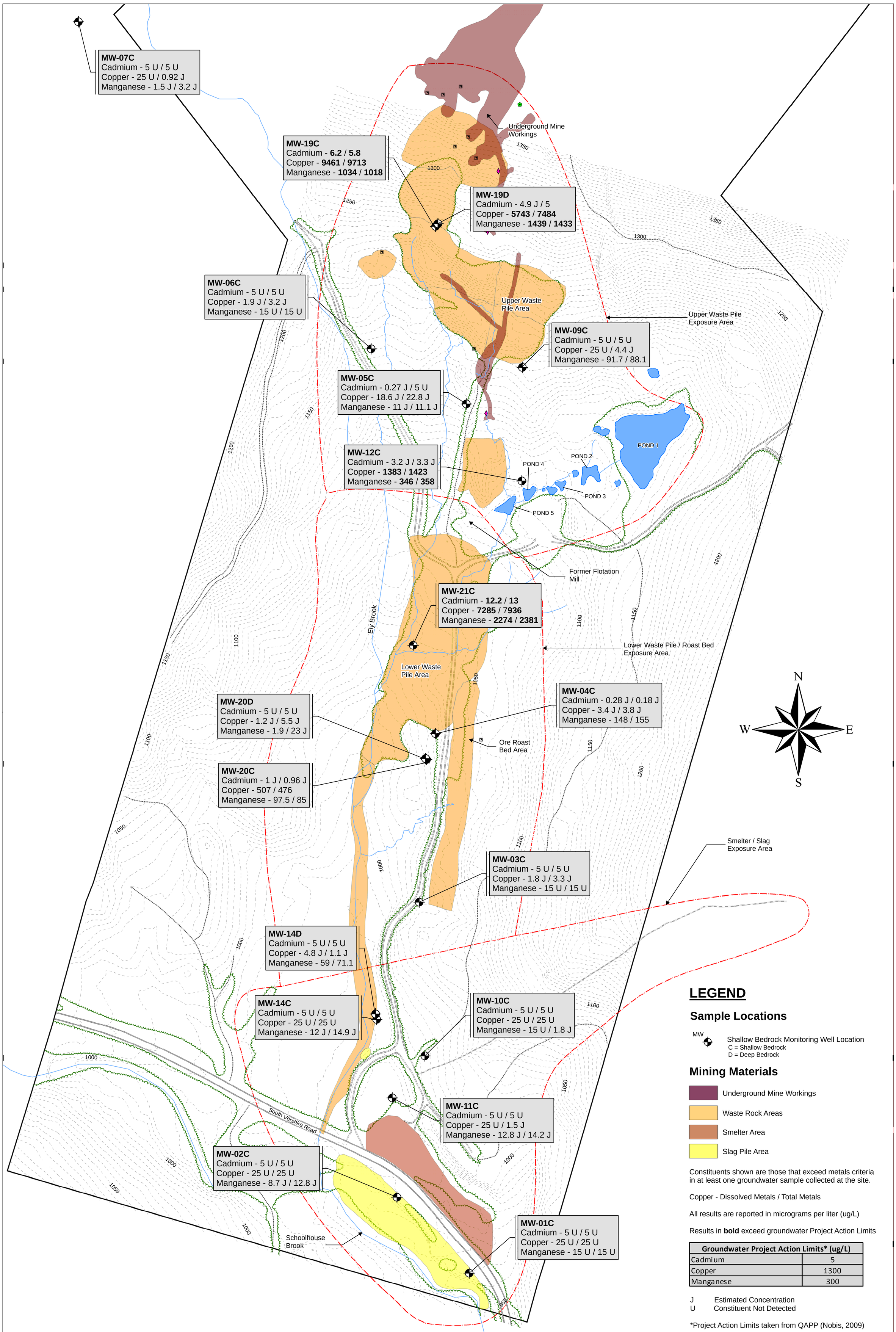

LEGEND

Sample Locations

MW — Shallow Bedrock Monitoring Well Location
C = Shallow Bedrock
D = Deep Bedrock

Mining Materials

- Underground Mine Workings
- Waste Rock Areas
- Smelter Area
- Slag Pile Area

Constituents shown are those that exceed metals criteria in at least one groundwater sample collected at the site.

Copper - Dissolved Metals / Total Metals

All results are reported in micrograms per liter (ug/L)

Results in **bold** exceed groundwater Project Action Limits

Groundwater Project Action Limits* (ug/L)	
Cadmium	5
Copper	1300
Manganese	300

J Estimated Concentration
U Constituent Not Detected

*Project Action Limits taken from QAPP (Nobis, 2009)

Drawn By: JDF	Checked By: VD
Filename: Summer BR GW Metals.mxd	
Date: 04/26/10	Revision No. 00

APPROXIMATE SCALE
140 70 0 140 280 Feet

Shaft
Adit
Prospect Tunnel
Drill Hole
Smoke Flue
Treeline
Paved Road
Gravel Road
Trail
Parcel Boundary
Exposure Area Boundary
1050 Topographic Contour (ft-msl)
Stream
Railroad

FIGURE 6-11b
FALL 2009
BEDROCK
GROUNDWATER
METALS RESULTS
ELY COPPER MINE
VERSHIRE, VERMONT

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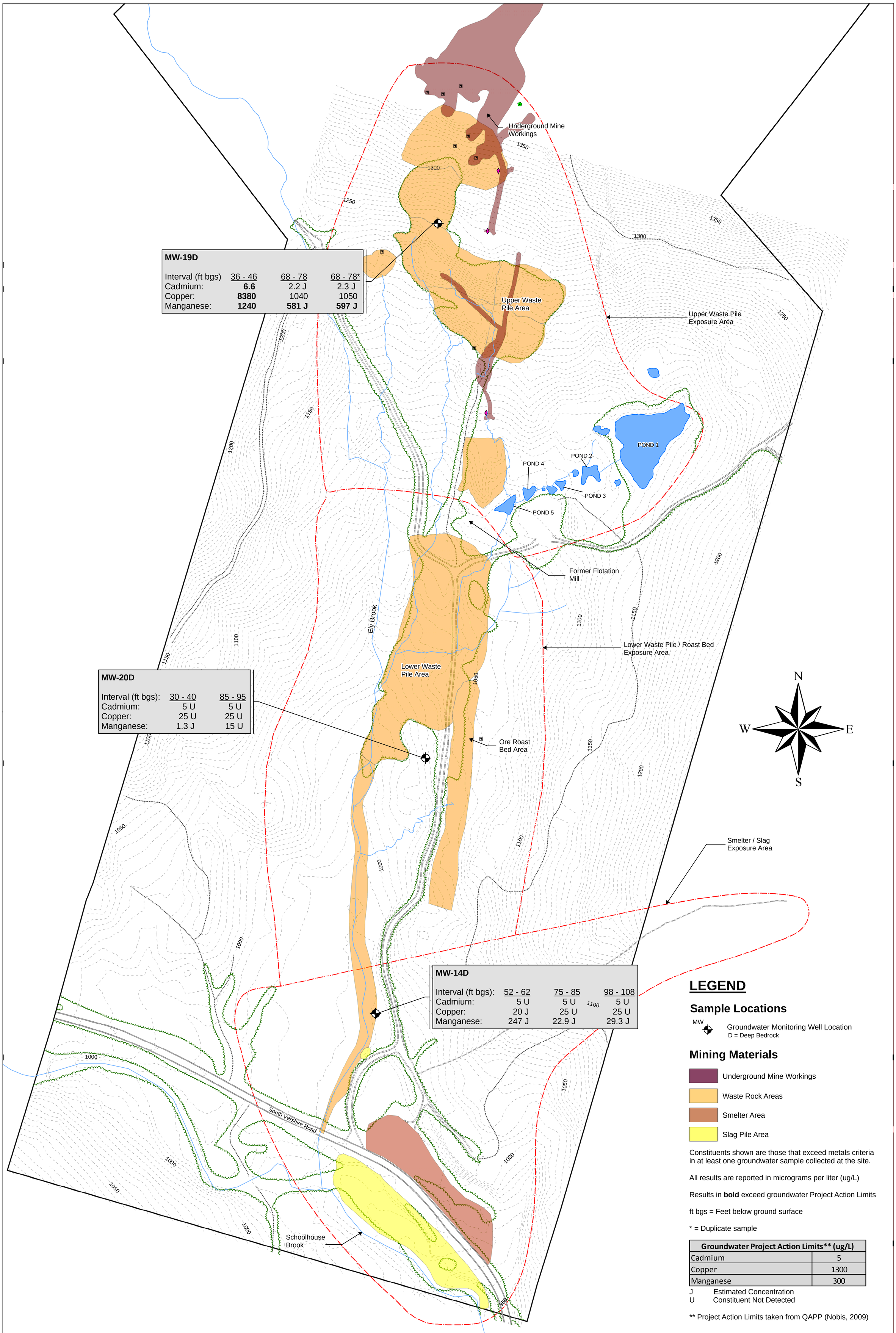

MW-19D

Interval (ft bgs)	36 - 46	68 - 78	68 - 78*
Cadmium:	**6.6**	2.2 J	2.3 J
Copper:	**8380**	1040	1050
Manganese:	**1240**	**581 J**	**597 J**

MW-20D

Interval (ft bgs):	30 - 40	85 - 95
Cadmium:	5 U	5 U
Copper:	25 U	25 U
Manganese:	1.3 J	15 U

MW-14D

Interval (ft bgs):	52 - 62	75 - 85	98 - 108
Cadmium:	5 U	5 U	5 U
Copper:	20 J	25 U	25 U
Manganese:	247 J	22.9 J	29.3 J

LEGEND

Sample Locations

MW — Groundwater Monitoring Well Location
D = Deep Bedrock

Mining Materials

- Underground Mine Workings
- Waste Rock Areas
- Smelter Area
- Slag Pile Area

Constituents shown are those that exceed metals criteria in at least one groundwater sample collected at the site.

All results are reported in micrograms per liter (ug/L)

Results in **bold** exceed groundwater Project Action Limits

ft bgs = Feet below ground surface

* = Duplicate sample

Groundwater Project Action Limits** (ug/L)	
Cadmium	5
Copper	1300
Manganese	300

J Estimated Concentration
U Constituent Not Detected

** Project Action Limits taken from QAPP (Nobis, 2009)

Drawn By: JDF	Checked By: VD
Filename: BR Packer Testing.mxd	
Date: 04/26/10	Revision No. 00

APPROXIMATE SCALE
140 70 0 140 280 Feet

Shaft
Adit
Prospect Tunnel
Drill Hole
Smoke Flue
Treeline
Paved Road
Gravel Road
Trail
Parcel Boundary
Exposure Area Boundary
1050 Topographic Contour (ft-msl)
Stream
Railroad

FIGURE 6-12
SEPTEMBER 2009
GROUNDWATER PACKER TESTING RESULTS - DISSOLVED METALS
ELY COPPER MINE
VERSHIRE, VERMONT

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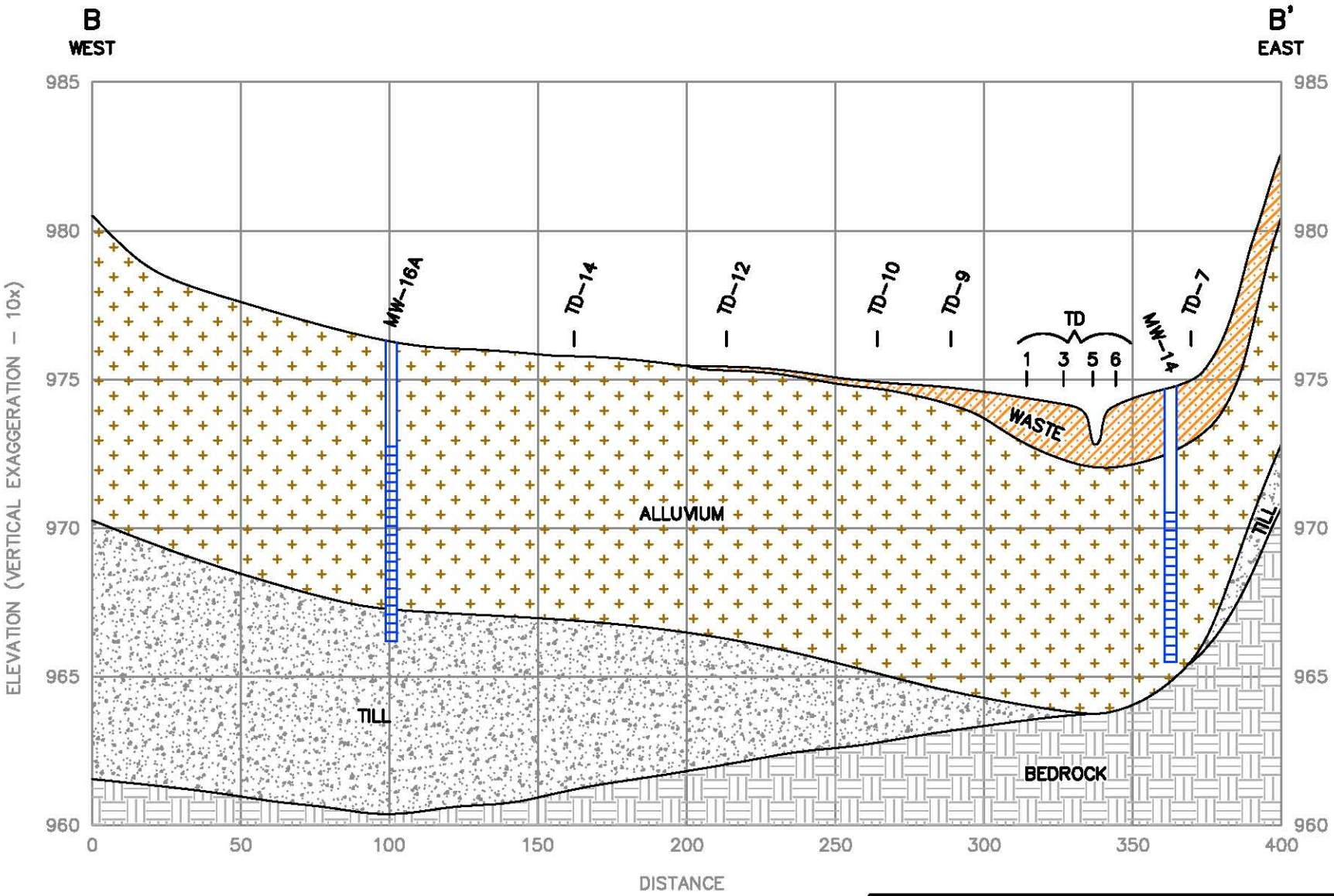
M:\Design\DWG\Ely Mine\Ely Cross section.dwg, Layout1, 4/30/2010 12:54:49 PM, GIRARDEB, 1:1



HORIZONTAL GRAPHIC SCALE

50 25 0 25 50

APPROXIMATE SCALE IN FEET

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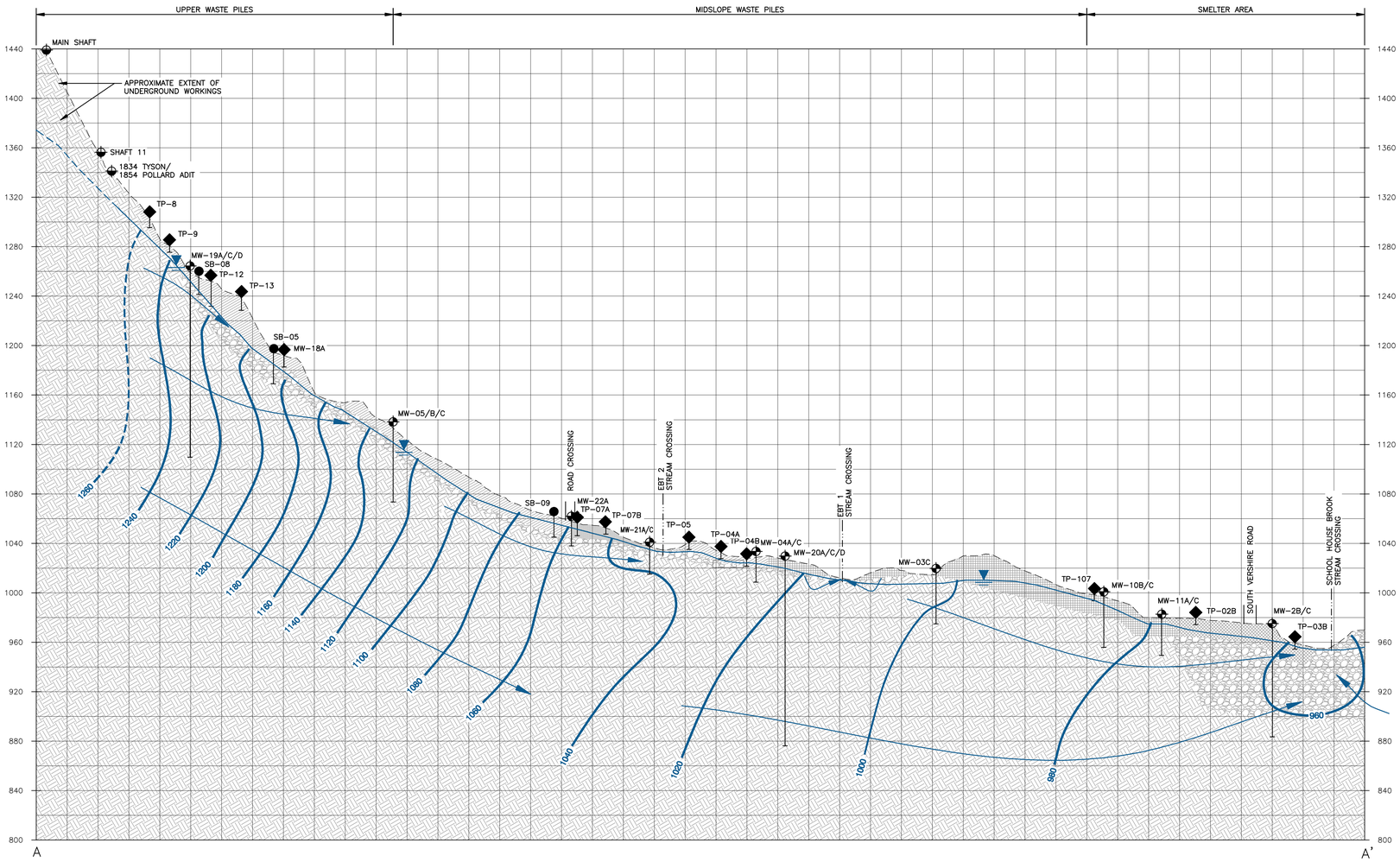
FIGURE 7-1

CROSS SECTION B-B'

ELY COPPER MINE
VERSHIRE, VERMONT

DRAWN BY: BEG	APPROVED BY: AF
PROJECT: 12884.024.006	DATE DRAWN: APR 2010



HORIZ. SCALE: 1"=200'
VERT. SCALE: 1"=40'

NOTE:
BASE CROSS-SECTION TOPOGRAPHY AND GEOLOGY FROM URS, 2009 MODIFIED EQUIPOTENTIAL CONTOURS.

GRAPHIC SCALE
(IN FEET)
1 inch = 200 ft Horiz.
1 inch = 40 ft Vert.

LEGEND

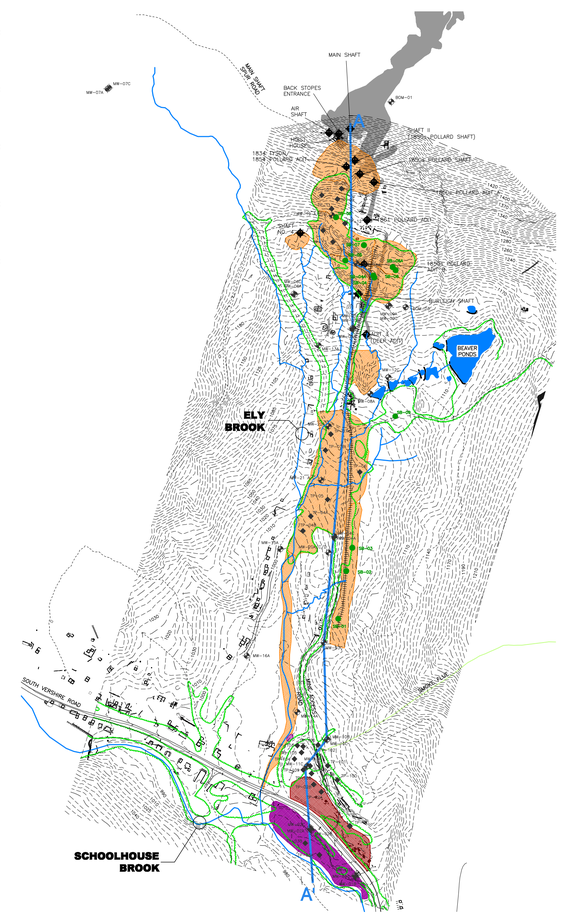
MW-03C	MONITORING WELL
SB-05	TEST BORING
TP-12	TEST PIT
	BEDROCK – GILE MOUNTAIN FORMATION – GRAY, SCHIST, ACCESSORY MINERALS INCLUDE GARNET, MICA, BIOTITE, GRAPHITE, QUARTZ AND CHALCOPYRITE
	GLACIAL TILL – GRAY TO OLIVE GRAY, CLAYEY SILT GRAVELLY SILTY SAND, MEDIUM DENSE TO VERY DENSE, FINE SAND OFTEN CONTAINS FINE TO COARSE ANGULAR TO SUBROUNDED GRAVEL
	SLAG AND/OR SMELTER WASTE – GRAY TO BLACK, GLASSY TO COARSELY CRYSTALLINE W/LUSTER RANGING FROM METALLIC TO MATTE, SLAG IS INTERSPERSED/MIXED WITH WASTE ROCK, DESCRIBED BELOW
	ALLUVIUM – BROWN TO DARK BROWN SILTY SAND WITH ORGANIC MATTER, LOOSE
	WASTE ROCK – YELLOWISH BROWN TO RED MEDIUM TO FINE SAND AND MEDIUM TO FINE ANGULAR TO SUBROUNDED GRAVEL
	FILL – REWORKED TILL AND ALLUVIUM WITH ROCK FRAGMENTS

NOTE: BASED ON WATER LEVEL OBSERVATIONS SUMMER 2009

INTEPRETED GROUNDWATER SURFACE (DASHED WHERE INFERRED)

1000 GROUNDWATER EQUIPOTENTIAL CONTOUR

INFERRED DIRECTION OF GROUNDWATER FLOW



SCALE: 1"=400'

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DESIGN	
DRAFTING	
CHECKED	
APPROVED	

DATE	REVISIONS	BY

ELY MINE
VESHIRE, VERMONT

APRIL 2010

CROSS-SECTION
A-A'

PROJECT NO. 80024.06

FIGURE
7-2

APPENDIX A

Attachment 1

Multi-Parameter Meter Calibration Log Sheet

Nobis	Nobis Engineering, Inc.	MULTI-PARAMETER METER CALIBRATION LOG SHEET	Date: 8/10/09 Page of

Site: Gly Copper Mine	Model: YSI 600XL
Nobis Project No.: 80024.03	Serial No.: 02D0846AB
☑ Calibrate following Manufacturer's Instructions	Condition: Good

Cal Time:	Pre-Cal. Value	Post-Cal. Value	Calibration Standard (Lot No.)	Signature	Comments
Sp. Cond. (mS/cm)	1.439	1.413	7168	[illegible]	
pH = 4.0	3.92	3.99	7149	[illegible]	
pH = 7.0	7.46	7.00	2904342	[illegible]	
pH = 10.0	NA	NA	NA	NA	NA
D.O. (mg/L) %	98.6	99.7	NA	[illegible]	
ORP (mV)	228.5	239.9	1279	[illegible]	
Turbidity (1 NTUs)	0.88	1.0	NA	[illegible]	
Turbidity (10 NTUs)	10.02	10.0	NA	[illegible]	
Temp (°C)					
Salinity (0/00)					

Cal Check Time: 16:00	~~End of Day Pre-Cal. Value~~ Calc	~~Post-Cal. Value~~	Calibration Standard (Lot No.)	Signature	Comments
Sp. Cond. (mS/cm)	1.344		7168	[illegible]	16:00
pH = 4.0	3.73		7149	[illegible]	
pH = 7.0	6.40		2904342	[illegible]	
pH = 10.0	N/A				
D.O. ~~(mg/L)~~ %	103.8		NA	[illegible]	
ORP (mV)	240.0		1279	[illegible]	
Turbidity (1 NTUs)	0.74		NA		
Turbidity (10 NTUs)	9.91		NA		
Temp (°C)					
Salinity 0/00					

Attachment 1

Multi-Parameter Meter Calibration Log Sheet

8/10/09

Nobis	Nobis Engineering, Inc.	MULTI-PARAMETER METER CALIBRATION LOG SHEET	Date: Page 1 of 1
Site: Ely Copper Mine		Model: YSI 600XL	
Nobis Project No.: 80024.03		Serial No.: 13047	
☒ Calibrate following Manufacturer's Instructions		Condition: Good	

Cal Time:	Pre-Cal. Value	Post-Cal. Value	Calibration Standard (Lot No.)	Signature	Comments
Sp. Cond. (mS/cm)	1.430	1.413	1413 7168	[signature]	
pH = 4.0	3.94	4.00	7449	[signature]	
pH = 7.0	6.71	7.00	2904342	[signature]	
pH = 10.0	N/A	N/A	N/A		
D.O. (mg/L) 100%	99.1	96.9	N/A	[signature]	
ORP (mV)	230.6	240.0	1279	[signature]	
Turbidity (1 NTUs)	0.90	1.0	N/A	[signature]	13977
Turbidity (10 NTUs)	9.75	10	N/A	[signature]	
Temp (°C)					
Salinity (0/00)	N/A				

Cal Check Time: 1600	Pre-Cal. Value	Post-Cal. Value	Calibration Standard (Lot No.)	Signature	Comments
Sp. Cond. (mS/cm)	1.397	NA	~~Same~~ SAA	[signature]	
pH = 4.0	4.09			[signature]	
pH = 7.0	6.95			[signature]	
pH = 10.0	N/A				
D.O. (mg/L)					
ORP (mV)	234.6			[signature]	
Turbidity (1 NTUs)	1.02			[signature]	
Turbidity (10 NTUs)	10.2			[signature]	13977
Temp (°C)	14.5			[signature]	
Salinity 0/00	97.9%			[signature]	

SAA = Same as above

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis

LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET

SOP No: SA-003 Page: 1 of
Date: Rev.: 0
Prepared by:
Approved by:

Site Name: ELY MINES
Project Number/Task: 80024.03 (AE)
Sampler(s): Pchavva

Temperature Range: 70°
Precipitation: 40%
Wind Speed/Direction: 5mph

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-1A
Sample Date / Time: 08/10/09/1330

QA/QC Sample (circle): MS / MSD, DUP
QA/QC Sample Time: —
Initial Water Level: 17.5

Equipment Information TOTAL DEPTH -18.94

Pump Type: PERISTALTIC
Pump Name/ID: GEOPOMP / —
Water Level Name/ID: SOLONIST 26279

Multimeter Name/ID: YSI 650 MD S/13047
Turbidity Name/ID: Lamotte 13977

WELL ID: MW-1A

	Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) mS/cm 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
1105	0950	17.5	—							
1110	0955	17.51	—	150	13.86	0.592	3.16	474	8.04	52.0
1115	1000	17.51	—	130	13.06	0.577	2.74	466.9	7.18	12.4
1120	1005	17.51	—	135	13.38	0.572	2.62	484.3	7.06	1.64
1125	1010	17.52	—	135	13.22	0.565	2.40	500.6	6.92	0.87
	1130	17.52	—	135	13.36	0.560	2.12	512.2	6.74	1.55
	1135	17.52	—	135	13.42	0.556	1.77	527.2	6.64	0.42
	1140	17.52	—	135	13.68	0.553	1.47	539.4	6.59	0.46
	1145	17.52	—	135	13.85	0.551	1.27	547.9	6.55	0.47
	1150	17.52	—	135	13.49	0.551	1.04	555.3	6.58	0.51
	1155	17.52	—	135	14.10	0.551	1.16	559.1	6.43	0.52
	1200	17.52	—	135	14.89	0.550	1.39	556.4	6.35	0.89
	1205	17.52	—	135	15.61	0.549	1.52	558.1	6.30	0.82
	1210	17.52	—	135	15.96	0.549	1.33	563.4	6.30	0.87
	1215	17.52	—	135	15.98	0.550	1.26	573.2	6.35	0.80
	1220	17.52	—	135	15.96	0.549	1.26	577.9	6.33	0.75
	1225	17.52	—	135	15.93	0.550	1.26	581.0	6.35	0.77
	1230	← SAMPLE COLLECTED →								

COMMENTS:

Signature: [signature]

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis

LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET

SOP No: SA-003 | Page: 1 of
Date: | Rev.: 0
Prepared by:
Approved by:

Site Name: ELY MINES
Project Number/Task: 80024.03 (AF)
Sampler(s): P Chavva

Temperature Range: 80-95
Precipitation: 20-30 %
Wind Speed/Direction: NE - 10 - 15MPH

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-2B
Sample Date / Time: 08/10/09/1520

QA/QC Sample (circle): MS / MSD, DUP
QA/QC Sample Time: —
Initial Water Level: 14.28

Equipment Information

Pump Type: Peristaltic
Pump Name/ID: GeoPump P / Nold.
Water Level Name/ID: Solinist 2468

Multimeter Name/ID: YSI 650 MDS 13047
Turbidity Name/ID: Lamotte 2020 13977

WELL ID: MW-2B

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) mS/cm 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
1350	14.28	—	140						
1400	16.02	—	140	12.79	0.416	3.33	230.2	0.81	95.8
1405	16.96	—	140	13.08	0.415	3.31	286.5	0.68	93.3
1410	17.66	—	130	13.99	0.413	3.92	332.1	0.71	74.7
1415	18.07	—	130	14.07	0.413	4.23	338.9	0.57	67.8
1420	18.41	—	130	14.09	0.411	4.01	359.2	0.53	66.3
1425	18.70	—	130	14.89	0.410	3.34	427.9	0.61	69.6
1430	19.01	—	130	14.42	0.415	3.57	420.5	0.60	66.2
1435	19.28	—	130	14.49	0.409	3.71	411.4	0.60	63.4
1440	19.44	—	130	14.69	0.409	3.81	404.0	0.61	67.3
1445	19.50	—	130	14.73	0.409	3.49	417.0	0.62	56.6
1450	19.60	—	130	14.39	0.409	3.63	393.6	0.61	50.3
1455	19.66	—	130	14.37	0.408	3.92	368.0	0.60	52.9
1500	19.69	—	130	14.29	0.408	4.09	357.0	0.61	53.2
1505	19.73	—	130	14.18	0.408	4.13	349.6	0.61	51.3
1510	19.75	—	130	14.21	0.408	4.20	343.0	0.61	52.2
1515	19.79	—	130	14.22	0.408	4.21	341.0	0.61	51.9
1520	←	→	SAMPLE COLLECTED						→

COMMENTS:

Signature: C. Tanyer

CO

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis

LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET

SOP No: SA-003 Page: 1 of
Date: Rev.: 0
Prepared by: MW
Approved by:

Site Name: Ely Copper Mine
Project Number/Task: 80024.03
Sampler(s): MW
Temperature Range: 75-80
Precipitation: cloudy
Wind Speed/Direction: 10-15 mph NE

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-1B
Sample Date / Time: 8/10/09 12:15
QA/QC Sample (circle): MS / MSD, DUP
QA/QC Sample Time: N/A
Initial Water Level: 17.52

Equipment Information

Pump Type: Geopump - Peristaltic
Pump Name/ID: 1585
Water Level Name/ID: Solinst 47936
Multimeter Name/ID: YSI - 08865
Turbidity Name/ID: Lamotte 10803

WELL ID: MW-~~08A~~ 1B (AF)

	Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity ~~(mS/cm)~~ µS/cm 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
10:10	~~10:00~~	18.56	—	140	Set up pump, tubing, flow through cell, etc.					
11:15	~~10:05~~	18.56	—	160	14.47	405	7.09	62.5	0.93	32.9
MW 11:20	~~10:10~~	18.56	—	160	14.15	408	7.07	50.5	0.64	39.8
11:25	~~10:15~~	18.60	—	160	14.45	418	7.09	44.8	0.69	25.5
11:30	~~10:20~~	18.62	—	160	14.95	437	7.11	47.8	0.65	19.7
11:35	~~10:25~~	18.62	—	160	15.17	447	7.12	53.8	0.59	21.5
	11:40	18.63	—	160	15.02	462	7.12	51.6	0.60	17.3
	11:45	18.63	—	160	14.76	469	7.12	49.0	0.47	18.2
	11:50	18.63	—	160	14.73	475	7.11	51.7	0.45	18.5
	11:55	18.63	—	160	15.05	477	7.10	52.3	0.45	17.5
	12:00	18.63	—	160	15.07	488	7.16	49.5	0.43	14.9
	12:05	18.63	—	160	15.70	494	7.14	47.8	0.40	16.5
	12:10	18.63	—	160	15.46	499	7.14	47.3	0.40	18.7
	12:15	Samples		Taken						

COMMENTS:

Signature: [signature]

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis	LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET	SOP No: SA-003 Date:	Page: 1 of Rev.: 0
		Prepared by: MW	
		Approved by:	

Site Name: Ely Copper Mine
Project Number/Task: 80024.03
Sampler(s): MW

Temperature Range: 80-85
Precipitation: cloudy
Wind Speed/Direction: 10-15 mph NE

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-02A
Sample Date / Time: 8/10/09 14:45

QA/QC Sample (circle): MS / MSD, DUP
QA/QC Sample Time:
Initial Water Level: 11.68

Equipment Information

Pump Type: Peristaltic
Pump Name/ID: Geopump #1585
Water Level Name/ID: Solinst #3656

Multimeter Name/ID: YSI #3177
Turbidity Name/ID: Lamotte #10803

WELL ID: MW-02A

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) mS/cm 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
MW 1:55 ~~1:50~~	11.68	—	200						
2:00	11.68	—	180	13.13	452	4.48	215.5	1.98	5.44
2:05	11.68	—	170	13.92	446	3.75	193.2	1.62	1.23
2:10	11.68	—	170	14.25	443	3.61	192.2	1.59	0.33
2:15	11.68	—	170	13.72	441	3.55	196.0	1.65	0.33
2:20	11.70	—	180	13.93	437	3.52	199.8	1.73	0.03
2:25	11.70	—	170	14.24	436	3.49	206.1	1.84	0.08
2:30	11.70	—	170	13.80	437	3.49	209.1	1.91	0.46
2:35	11.70	—	170	14.10	433	3.49	213.5	1.95	0.00
2:40	11.70	—	170	13.90	433	3.49	214.0	2.00	0.00
2:45	Samples Taken								

COMMENTS:

Signature: [signature]

Matt Webber

Attachment 1

Multi-Parameter Meter Calibration Log Sheet

Nobis Engineering, Inc.	MULTI-PARAMETER METER CALIBRATION LOG SHEET	Date: 8/11/09 Page 1 of 1
Site: Ely Copper Mine	Model: Lamotte / YSI	
Nobis Project No.: 80024	Serial No.: 10803 / 02D 0846 AB	
☒ Calibrate following Manufacturer's Instructions	Condition: Good	

Cal Time:	Pre-Cal. Value	Post-Cal. Value	Calibration Standard (Lot No.)	~~Signature~~ see bottom	Comments
Sp. Cond. (~~mS~~ µS/cm)	1361	1413	7168		
pH = 4.0	4.07	4.00	7149		
pH = 7.0	6.60	7.00	2904342		
pH = 10.0	N/A				
D.O. ~~(mg/L)~~ %	103.4	99.2	NA		754.2 mmHg
ORP (mV)	254.3	240.1	1279		
Turbidity (1 NTUs)	0.82	1.07	NA		
Turbidity (10 NTUs)	12.0	10.06	NA		
Temp (°C)					
Salinity (0/00)					

Cal Check Time:	Evening Check ~~Pre-Cal. Value~~ 16:00	Post-Cal. Value	Calibration Standard (Lot No.)	~~Signature~~ see bottom	Comments
Sp. Cond. (~~mS~~ µS/cm)	1376		SAA		
pH = 4.0	4.06		↓		
pH = 7.0	6.85				
~~pH = 10.0~~	N/A				
D.O. ~~(mg/L)~~ %	97.5		SAA		
ORP (mV)	227.7		↓		
Turbidity (1 NTUs)	0.96				
Turbidity (10 NTUs)	10.30				
Temp (°C)					
Salinity 0/00					

SAA = Same as above

Matthew Webb

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis	LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET	SOP No: SA-003	Page: 1 of
		Date:	Rev.: 0
		Prepared by: MW	
		Approved by:	

Site Name: Ely Copper Mine
Project Number/Task: 80024.03
Sampler(s): MW

Temperature Range: 50-85
Precipitation: cloudy
Wind Speed/Direction: 0-5 mph NE

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-8A
Sample Date / Time: 8/11/09 1335

QA/QC Sample (circle): MS / MSD , DUP
QA/QC Sample Time: NA
Initial Water Level: 4.86

Equipment Information

Pump Type: Peristaltic
Pump Name/ID: Geopump 1585
Water Level Name/ID: Solinst # A0446

Multimeter Name/ID: YSI 021 0846 AB
Turbidity Name/ID: Lamotte 10803

WELL ID: MW-8A

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
12:55	4.86	—	200	[illegible]					
13:00	5.07	—	180	13.04	600	4.21	151.3	9.18	54.7
13:05	5.08	—	160	13.45	607	4.05	154.9	9.26	29.0
13:10	5.08	—	160	13.00	610	3.96	158.5	9.17	15.5
13:15	5.08	—	160	13.15	608	3.92	160.8	9.24	10.08
13:20	5.08	—	160	13.29	609	3.90	162.5	9.27	9.31
13:25	5.09	—	160	13.24	608	3.88	162.8	9.40	7.79
13:30	5.09	—	170	13.09	610	3.88	164.0	9.40	4.79
13:35	Samples Taken								

COMMENTS:

Signature: [signature]

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis

LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET

SOP No: SA-003 | Page: 1 of
Date: | Rev.: 0

Prepared by: MW

Approved by:

Site Name: Ely Copper Mine
Project Number/Task: 80024.03
Sampler(s): MW

Temperature Range: 80-85
Precipitation: cloudy
Wind Speed/Direction: 05 mph NE

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-12C
Sample Date / Time: 8/11/09 1505

QA/QC Sample (circle): MS / MSD , DUP
QA/QC Sample Time: N/A
Initial Water Level: 7.05

Equipment Information

Pump Type: Peristaltic
Pump Name/ID: Geopump 1585
Water Level Name/ID: Solinst A01146

Multimeter Name/ID: YSI 07J0846 AB
Turbidity Name/ID: Lamotte 10805

WELL ID: MW-12C

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (µS/m) 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
14:25	7.05	\	180	[redacted]					
14:30	7.65	\	160	15.20	382	4.78	106.5	4.26	13.9
14:35	7.65	\	150	15.61	379	4.72	111.0	4.31	7.63
14:40	7.65	\	150	15.62	377	4.71	113.0	4.27	2.88
14:45	7.65	\	150	15.51	369	4.68	115.0	4.20	1.80
14:50	7.65	\	150	15.46	366	4.67	115.8	4.17	1.85
14:55	7.65	\	150	15.57	366	4.67	118.5	4.20	2.87
15:00	7.65	\	150	15.42	370	4.66	117.8	4.22	1.76
15:05	Samples Taken								

COMMENTS:

Signature: [signature]

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis	LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET	SOP No: SA-003	Page: 1 of
		Date:	Rev.: 0
		Prepared by: MW	
		Approved by:	

Site Name: Ely Copper Mine
Project Number/Task: 80024
Sampler(s): MW

Temperature Range: 70-75 °F
Precipitation: Partly Cloudy
Wind Speed/Direction: 0-5 mph NE

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-14A
Sample Date / Time: 08/11/09 9:40

QA/QC Sample (circle): MS / MSD , DUP
QA/QC Sample Time: NA
Initial Water Level: 2.22

Equipment Information

Pump Type: Peristaltic
Pump Name/ID: Geopump 1585
Water Level Name/ID: Solinst # A01146

Multimeter Name/ID: YSI 600XL 02D08416 AB
Turbidity Name/ID: Lamotte 10803

WELL ID: MW-14A

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (µS/m) 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
9:00	2.22	—	170	Set up pump, let pump through cell					
9:05	2.82	—	160	13.85	61	6.09	41.5	5.95	6.34
9:10	2.82	—	160	13.69	60	5.73	-15.5	6.00	5.64
9:15	2.82	—	160	13.66	60	5.62	-22.2	5.96	2.06
9:20	2.83	—	170	13.58	58	5.53	-19.6	5.95	4.34
9:25	2.83	—	160	13.72	57	5.51	-28.5	5.96	2.62
9:30	2.83	—	160	13.55	57	5.49	-28.9	5.94	4.17
9:35	2.83	—	160	13.60	57	5.46	-28.2	5.91	2.31
9:40	Samples Taken								

COMMENTS:

Signature: [signature]

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis

LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET

SOP No: SA-003 Page: 1 of
Date: Rev.: 0
Prepared by: MW
Approved by:

Site Name: Gly Copper Mine
Project Number/Task: 80024
Sampler(s): MW

Temperature Range: 75-80° F
Precipitation: Cloudy
Wind Speed/Direction: 0-5 mph NE

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-03C
Sample Date / Time: 8/11/09 11:30

QA/QC Sample (circle): MS / MSD, DUP
QA/QC Sample Time: NA
Initial Water Level: 22.31

Equipment Information

Pump Type: Peristaltic
Pump Name/ID: Geopump 1585
Water Level Name/ID: Solinst # A01146

Multimeter Name/ID: YSI 02D0846AB
Turbidity Name/ID: Lamotte 20803

WELL ID: MW-03C

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
10:40	22.31	—	160	[illegible]					
10:45	22.48	—	160	11.60	89	9.17	-107.8	8.28	4.86
10:50	22.52	—	160	11.14	76	8.84	-97.6	7.98	4.48
10:55	22.53	—	150	11.11	74	8.40	-88.0	7.68	4.63
11:00	22.53	—	150	11.49	73	7.91	-78.5	7.68	3.23
11:05	22.53	—	150	11.17	71	7.60	-69.5	7.77	4.26
11:10	22.53	—	150	11.30	68	7.11	-63.2	7.71	5.87
11:15	22.56	—	150	11.32	68	6.87	-63.1	7.75	2.95
11:20	22.56	—	150	11.15	67	6.77	-64.5	7.88	3.11
11:25	22.56	—	150	11.21	66	6.68	-63.0	7.81	2.12
11:30	Samples		Taken						

COMMENTS:

Signature: [illegible]

8/11/09

Attachment 1

Multi-Parameter Meter Calibration Log Sheet

Nobis	Nobis Engineering, Inc.	MULTI-PARAMETER METER CALIBRATION LOG SHEET	Date: Page 1 of 1
Site: Ely Copper Mine		Model: YSI 600 XL	Josh Stewart
Nobis Project No.: 80024.03		Serial No.: 04E8624 AB	
☑ Calibrate following Manufacturer's Instructions		Condition: Fair	

Cal Time: 0800	Pre-Cal. Value	Post-Cal. Value	Calibration Standard (Lot No.)	Signature	Comments
Sp. Cond. (mS/cm)	1.432	1.413	7168	[illegible]	
pH = 4.0	3.97	4.00	7149	[illegible]	
pH = 7.0	6.95	7.00	2904342	[illegible]	
~~pH = 10.0~~	N/A				No pH 10 solution.
D.O. ~~(mg/L)~~ 100%	96.5	100.5	N/A	[illegible]	
ORP (mV)	241.5	240.01	1279	[illegible]	
Turbidity ~~(0 NTUs)~~ (7 NTUs)	0.2	0.05	~~N/A~~	[illegible]	
Turbidity ~~(124 NTUs)~~ (20 NTUs)	Not Measured	19.99	~~N/A~~ 8071	[illegible]	
Temp (°C)	20.85°	N/A			
Salinity (0/00)	N/A				

Cal Check Time: 1600	~~Pre-Cal. Value~~ Evening	Post-Cal. Value	Calibration Standard (Lot No.)	Signature	Comments
Sp. Cond. (mS/cm)	1.317	—	7168	Josh S	
pH = 4.0	4.11	—	7149	Josh S	
pH = 7.0	6.93	—	2904342	Josh S	
pH = 10.0	NA				
D.O. (mg/L)	102.2	—	NA	Josh S	
ORP (mV)	230.3	—	1279	Josh S	
Turbidity ~~(0 NTUs)~~ (0 NTUs)	0.2	—	N/A	Josh S	
Turbidity ~~(124 NTUs)~~ (20 NTUs)	17.6	—	N/A	Josh S	
Temp (°C)	29.84				
Salinity 0/00	NA				

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis	LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET	SOP No: SA-003	Page: 1 of
		Date:	Rev.: 0
		Prepared by:	
		Approved by:	

Site Name: E17
Project Number/Task: 90024.03
Sampler(s): Josh Stewart

Temperature Range: 70s
Precipitation: None
Wind Speed/Direction:

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-14A 135B
Sample Date / Time: 8/11/09 1350

QA/QC Sample (circle): MS / MSD , DUP
QA/QC Sample Time:
Initial Water Level: 2.81

Equipment Information

Pump Type: Peristaltic Peristaltic/Geopump
Pump Name/ID: Pine # 7555
Water Level Name/ID: Solinst Pine # 8435

Multimeter Name/ID: YSI Pine # 9772
Turbidity Name/ID: HACH Pine # 12357

WELL ID: MW-14A

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/mg ~~µS/cm~~) 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
				Pertinent Stabilization Criteria					
1330	2.81	—	140	12.08	77	[illegible]	531.2	7.20	12.4
1335	2.84	—	140	13.15	76	7.58	527	7.60	5.6
1340	2.87	—	140	13.56	68	5.69	535	7.46	6.6
1345	2.87	—	140	13.71	64	5.28	562	6.71	6.4
1350	—	—	—	Sample	—	—	—	—	—

COMMENTS: Two more bottles collected (AF)
~~Just Two bottle~~ Collected

Signature: [illegible]

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis	LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET	SOP No: SA-003 Date:	Page: 1 of Rev.: 0
		Prepared by:	
		Approved by:	

Site Name: ELY
Project Number/Task: 800 24.03
Sampler(s): Josh Stewart

Temperature Range: 70's
Precipitation: 0% — 10%
Wind Speed/Direction:

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-5 A MW-5A
Sample Date / Time: 8/11/09 1500

QA/QC Sample (circle): MS / MSD, DUP
QA/QC Sample Time:
Initial Water Level: 12.19

Equipment Information

Pump Type: Peristaltic
Pump Name/ID: Pine # 7555
Water Level Name/ID: Solinst Pine # 8435

Multimeter Name/ID: YSI Pine # 9772
Turbidity Name/ID: HACH Pine # 12357

WELL ID: MW-5 A

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity ~~(mS/cm)~~ uS/cm 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
1425	12.19	—	150	Set up pump, tubing through cell, etc.					
1431	12.64	—	150	13.69	564	3.30	562.3	9.38	14.2
1435	12.85	—	150	14.00	563	3.06	629.9	9.26	13.1
1440	13.02	—	140	14.26	564	2.95	641.5	9.19	8.7
1445	13.14	—	110	14.35	565	2.87	669.6	9.12	3.3
1450	13.22	—	110	14.19	571	2.75	685.9	9.20	2.0
1455	13.37	—	110	13.89	573	2.70	694.4	9.17	4.5
1500	—	—	—	Sample	—	—	—	—	—

COMMENTS:
Tubing installed

Signature: Josh

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis

LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET

SOP No: SA-003 Page: 1 of
Date: Rev.: 0
Prepared by:
Approved by:

Site Name: FIY
Project Number/Task: 80024.03
Sampler(s): Josh Stewart
Temperature Range: 70's Sunny
Precipitation: None
Wind Speed/Direction:

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-11A
Sample Date / Time: 8/11/09 1005 / 1153
QA/QC Sample (circle): MS / MSD , DUP
QA/QC Sample Time:
Initial Water Level: 4.11

Equipment Information

Pump Type: Peristaltic
Pump Name/ID: Pine # 07555
Water Level Name/ID: Solinst Pine # 8435
Multimeter Name/ID: YSI Pine # 9772
Turbidity Name/ID: HACH Pine # 12357

WELL ID: MW-11A

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (~~mS/cm~~ uS/cm) 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
0918	4.11	—	130	[illegible]					
0925	4.45	—	130	14.88	33.2	6.13	-40.9	0.74	17.6
0930	4.45	—	130	14.78	326	6.21	-37.1	0.50	12.9
0935	4.47	—	130	14.82	305	6.22	-32.5	0.34	11.4
0940	4.47	—	130	14.75	294	6.23	-24.2	0.39	8.5
0945	4.48	—	130	14.83	273	6.18	-13.3	0.52	6.7
0950	4.49	—	130	14.79	254	6.12	-8.4	0.40	8.3
0955	4.49	—	130	14.85	242	6.10	-7.2	0.35	7.4
1000	5.00	—	130	14.55	235	6.13	-4.0	0.32	8.1
1005				Sample					
1130	4.43	—	130	14.93	200	6.15	-1.1	0.74	10.9
1135	4.44	—	130	15.29	197	6.00	7.7	0.54	11.1
1140	4.45	—	130	15.48	194	5.95	16.9	0.33	9.7
1145	4.44	—	130	15.69	190	5.73	30.1	0.37	5.2
1150	4.45	—	130	15.95	184	5.50	39.1	0.32	7.5
1150				Sample					

COMMENTS: Replaced tubing had to collect 2 more bottles Temp increase due to sun on YSI Cell

Signature: Josh S

Attachment 1

Multi-Parameter Meter Calibration Log Sheet

Nobis	Nobis Engineering, Inc.	MULTI-PARAMETER METER CALIBRATION LOG SHEET	Date: 08/11/09 Page ___ of ___
Site: Ely Mines		Model: YSI [redacted]	
Nobis Project No.: 80024.00		Serial No.: [redacted] 13047 YSI 650 MDS	
☑ Calibrate following Manufacturer's Instructions		Condition:	

Cal Time:	Pre-Cal. Value	Post-Cal. Value	Calibration Standard (Lot No.)	Signature	Comments
Sp. Cond. (mS/cm)	1.317	1.413	7168	[signature]	
pH = 4.0	4.22	4.00	7149	[signature]	
pH = 7.0	6.90	7.00	2904342	[signature]	
pH = 10.0	—	—	—	[signature]	NA
D.O. (~~mg/L~~) %	95.6	100%	N/A		
ORP (mV)	251.3	240.0	1279		
Turbidity (1 NTUs)	0.97	1.01	8071	[signature]	13977 (0.910)
Turbidity (10 NTUs)	11.8	9.98	8071	[signature]	13977 (9.910)
Temp (°C)	19.39	19.39			
Salinity (0/00)					

Cal Check Time: 1600	Evening ~~Pre-Cal Value~~ check	Post-Cal. Value	Calibration Standard (Lot No.)	Signature	Comments
Sp. Cond. (mS/cm)	1.419	—	SAA	[signature]	
pH = 4.0	4.03	—	↓	[signature]	
pH = 7.0	6.98	—	↓	[signature]	
~~pH = 10.0~~	—	—	—	[signature]	NA
D.O. (mg/L) %	101.2%	—	SAA	[signature]	NA
ORP (mV)	224.7	—	—	[signature]	—
Turbidity (1 NTUs)	0.94	—	SAA	[signature]	
Turbidity (10 NTUs)	10.08	—	—	[signature]	
Temp (°C)	30.56	—	N/A	[signature]	
Salinity 0/00	—	—	—	—	—

SAA = Same as above

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis	LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET	SOP No: SA-003 Date:	Page: 1 of Rev.: 0
		Prepared by:	
		Approved by:	

Site Name: ELY MINES
Project Number/Task: 80024
Sampler(s): Pchavva
Temperature Range: 65°–75°F
Precipitation: 30%
Wind Speed/Direction: –

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-11C
Sample Date / Time: 08/11/09/1003 11240
QA/QC Sample (circle): MS / MSD , DUP
QA/QC Sample Time: –
Initial Water Level: 5.24

Equipment Information

Pump Type: Geopump / Peristaltic
Pump Name/ID: NoID
Water Level Name/ID: SOLONIST 26279
Multimeter Name/ID: YSI 650 MDS 13047
Turbidity Name/ID: Lamotte 13977

WELL ID: MW-11C

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) mS/cm 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
9:10	5.24	–	180	[illegible]					
9:20	6.56	–	140	12.66	0.300	6.05	206.8	0.86	13.6
9:25	7.31	–	140	12.46	0.294	5.62	243.9	0.63	9.49
0930	7.72	–	140	12.30	0.291	5.39	286.7	0.45	8.94
0935	8.02	–	130	11.95	0.290	5.48	300.8	0.40	7.13
0940	8.31	–	140	11.96	0.289	5.51	310.0	0.39	7.94
0945	8.59	–	140	11.93	0.289	5.51	320.2	0.38	6.41
0950	8.70	–	140	11.97	0.289	5.49	331.0	0.38	7.03
0955	8.79	–	140	11.99	0.289	5.47	337.6	0.39	7.31
1000	8.90	–	140	11.96	0.289	5.46	339.7	0.39	7.23
1003	←	SAMPLE	COLLECTED						→
1215	7.61	–	140	12.96	244	6.06	192	1.13	25.3
1220	7.22	–	140	12.89	248	6.05	255	0.88	22.0
1225	7.75	–	140	12.73	251	5.92	360.2	0.61	24.0
1230	8.25	–	140	12.65	251	5.81	419.8	0.54	19.0
1235	8.67	–	140	12.25	251	5.60	471.5	0.47	24.8
1241				Sample					

COMMENTS: OLD TUBING REPLACED WITH NEW ONE.
had to collect two more bottles J.S. (AF)

Signature: [signature]

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis	LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET	SOP No: SA-003 Date:	Page: 1 of 1 Rev.: 0
		Prepared by:	
		Approved by:	

Site Name: Ely Mines
Project Number/Task: 80024
Sampler(s): Pchavva

Temperature Range: 70°F
Precipitation: 20%
Wind Speed/Direction: —

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-10C
Sample Date / Time: 08/11/09 / 1220

QA/QC Sample (circle): MS MSD DUP
QA/QC Sample Time: —
Initial Water Level: 0.81

Equipment Information

Pump Type: Peristaltic Pump
Pump Name/ID: — Geopump
Water Level Name/ID: Solomist 26279

Multimeter Name/ID: YSI 650MDS 13047
Turbidity Name/ID: Lamotte 13977 2020e.

WELL ID: MW-10C

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) mS/cm 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
1111	—		135						
1115	1.15	—	135	13.14	0.206	6.67	225.9	3.78	4.82
1120	1.71	—	135	13.80	0.205	6.67	257.9	3.52	4.46
1125	2.16	—	135	13.35	0.197	6.67	281.8	3.49	2.88
1130	2.45	—	135	13.19	0.192	6.60	298.5	3.87	3.80
1135	2.70	—	135	13.13	0.189	6.56	310.1	4.39	2.17
1140	2.95	—	135	13.24	0.183	6.34	330.1	4.89	2.67
1145	3.04	—	135	13.18	0.182	6.14	345.0	5.04	3.70
1150	3.19	—	135	13.23	0.179	6.03	358.4	5.24	3.43
1155	3.30	—	135	17.65	0.169	5.47	388.7	5.55	4.39
1200	3.41	—	135	12.59	0.169	5.39	395.8	5.57	3.47
1205	3.49	—	135	12.48	0.168	5.39	400.5	5.59	2.31
1210	3.57	—	135	12.42	0.168	5.41	404.7	5.60	2.04
1215	3.61	—	135	12.40	0.168	5.40	406.9	5.61	2.17
1220	← SAMPLE COLLECTED →								

COMMENTS: Bedrock Well. Groundwater measured from top of the Casing.

Signature: [illegible]

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis	LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET	SOP No: SA-003 Date:	Page: 1 of Rev.: 0
		Prepared by:	
		Approved by:	

Site Name: ELY MINES
Project Number/Task: 00024
Sampler(s): PChavva

Temperature Range: 70°F
Precipitation: 20%
Wind Speed/Direction: —

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-10B
Sample Date / Time: 08/11/09/1440

QA/QC Sample (circle): MS / MSD , DUP
QA/QC Sample Time: —
Initial Water Level: 3.74

Equipment Information

Pump Type: Peristaltic Pump
Pump Name/ID: — Geopump
Water Level Name/ID: Solonist 26279

Multimeter Name/ID: YSI 650 MDS 13047
Turbidity Name/ID: Lamotte 13977 2020e

WELL ID: MW-10B

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) mS/cm 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
1345	3.76	—	210	Back up pump, 50 flow [illegible]					
1355	3.84	—	175	12.30	0.052	4.38	258.8	9.70	4.85
1400	3.87	—	175	12.31	0.055	4.50	299.7	9.52	1.64
1405	3.89	—	175	12.27	0.051	4.21	329.2	9.33	3.98
1410	3.91	—	175	12.17	0.054	4.09	355.3	9.28	2.46
1415	3.93	—	175	11.97	0.053	4.07	374.2	9.19	2.28
1420	3.94	—	175	11.85	0.053	4.13	382.0	9.21	1.55
1425	3.94	—	175	11.80	0.053	4.22	389.1	9.18	1.73
1430	3.94	—	175	11.79	0.053	4.23	395.1	9.18	1.54
1435	3.94	—	175	11.79	0.053	4.21	399.7	9.19	1.69
1440	←		SAMPLE COLLECTED						→

COMMENTS:

Signature: [signature]

Attachment 1

Multi-Parameter Meter Calibration Log Sheet

Nobis	Nobis Engineering, Inc.	MULTI-PARAMETER METER CALIBRATION LOG SHEET	Date: 8/12/09 Page ___ of ___
Site: Ely Copper Mine		Model: YSI 600XL	
Nobis Project No.: 80084		Serial No.: 02D0846 AB	
☐ Calibrate following Manufacturer's Instructions		Condition: Good	

Cal Time: 7:20	Pre-Cal. Value	Post-Cal. Value	Calibration Standard (Lot No.)	~~Signature~~ see bottom	Comments
Sp. Cond. (~~µ~~mS/cm)	1377	1413	7168		1413
pH = 4.0	4.04	4.00	7149		
pH = 7.0	6.75	7.00	2904342		
~~pH = 10.0~~	N/A				
D.O. (~~mg/L~~) %	~~99.9~~ 99.0	100.0	N/A		760 mmHg
ORP (mV)	246.6	240.1	1279		240.0 mV
Turbidity (1 NTUs)	0.99	1.00	8071		
Turbidity (10 NTUs)	7.43	10.00	8071		
Temp (°C)					
Salinity (0/00)					

Cal Check Time: 16:30	~~Pre-Cal. Value~~ End of Day calibration	Post-Cal. Value	Calibration Standard (Lot No.)	~~Signature~~ see bottom	Comments
Sp. Cond. (~~µ~~mS/cm)	1460		SAA		
pH = 4.0	4.10				
pH = 7.0	7.07				
~~pH = 10.0~~ N/A					
D.O. (~~mg/L~~) %	100.1				
ORP (mV)	283.1				
Turbidity (1 NTUs)	0.84				
Turbidity (10 NTUs)	10.54				
Temp (°C)					
Salinity 0/00					

SAA = Same as above

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis

LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET

SOP No: SA-003 Page: 1 of
Date: 8/12 Rev.: 0
Prepared by: MW
Approved by:

Site Name: Ely Copper Mine
Project Number/Task: 80024
Sampler(s): MW

Temperature Range: 75-80
Precipitation: Cloudy
Wind Speed/Direction: 5-10 mph N

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-06C
Sample Date / Time: 8/12/09 12:40

QA/QC Sample (circle): MS / MSD , DUP
QA/QC Sample Time:
Initial Water Level: 12.41

Equipment Information

Pump Type: Peristaltic
Pump Name/ID: Geopump #1585
Water Level Name/ID: Solinst A01146

Multimeter Name/ID: YSI 02D0846AB
Turbidity Name/ID: Lamotte 10803

WELL ID: MW-06C

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) µS/cm 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
11:55	12.41	—	130						
12:00	12.55	—	130	11.64	510	6.51	-54.3	2.56	2.07
12:05	13.11	—	120	11.94	505	6.60	-53.2	2.67	1.08
12:10	13.50	—	110	12.42	500	6.67	-54.0	2.69	1.59
12:15	13.80	—	100	13.24	500	6.74	-56.5	2.52	0.80
12:20	14.00	—	100	12.65	511	6.80	-57.5	2.06	1.08
12:25	14.31	—	100	12.59	510	6.85	-57.4	1.81	1.01
12:30	14.50	—	100	12.71	509	6.89	-55.0	1.97	1.12
12:35	14.68	—	100	12.72	508	6.93	-58.4	2.14	0.98
12:40	Samples Taken								

COMMENTS:

Signature: [signature]

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis

LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET

SOP No: SA-003 Page: 1 of
Date: 8/12 Rev.: 0
Prepared by: MW
Approved by:

Site Name: Gly Copper Mine
Project Number/Task: 80024
Sampler(s): MW
Temperature Range: 70-75
Precipitation: cloudy
Wind Speed/Direction: 5-10 mph N

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-6A
Sample Date / Time: 8/12/09 10:50
QA/QC Sample (circle): MS / MSD, DUP
QA/QC Sample Time:
Initial Water Level: 7.07

Equipment Information

Pump Type: Peristaltic
Pump Name/ID: Geopump #1585
Water Level Name/ID: Solinst A01146
Multimeter Name/ID: YSI 02D0846AB
Turbidity Name/ID: Lamotte 10803

WELL ID: MW-06A

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/cm) ~~3%~~ µS/cm	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
10:10	7.07	—	180	[illegible]					
10:15	7.58	—	160	11.88	130	5.79	-43.0	4.00	15.6
10:20	7.64	—	~~150~~ 170	12.14	129	5.70	-36.0	3.93	14.1
10:25	7.75	—	140	12.40	128	5.64	-36.1	3.88	10.56
10:30	7.75	—	140	12.40	128	5.64	-34.8	3.90	9.02
10:35	7.77	—	150	12.54	128	5.67	-37.1	3.87	7.85
10:40	7.79	—	150	12.36	128	5.78	-42.5	3.60	6.51
10:45	7.79	—	140	12.56	128	5.81	-47.9	3.75	5.80
10:50	7.79	—	140	12.63	128	5.85	-48.6	3.68	5.34
10:50	Samples Taken								

COMMENTS:

Signature: [signature]

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis

LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET

SOP No: SA-003 Page: 1 of
Date: 8/12 Rev.: 0
Prepared by: MW
Approved by:

Site Name: Ely Copper Mine
Project Number/Task: 80024
Sampler(s): MW
Temperature Range: 65-70
Precipitation: cloudy
Wind Speed/Direction: 5-10 mph N

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-13A
Sample Date / Time: 8/12/09 9:10
QA/QC Sample (circle): MS / MSD, DUP
QA/QC Sample Time:
Initial Water Level: 4.67

Equipment Information

Pump Type: Peristaltic
Pump Name/ID: Geopump # 1585
Water Level Name/ID: Solinst A01146
Multimeter Name/ID: YSI 02D0846AB
Turbidity Name/ID: Lamotte 10803

WELL ID: MW-~~8A~~ 13A (15)

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
8:30	4.67	—	200	[illegible]					
8:35	5.32	—	170	13.46	218	6.68	130.0	6.04	0.26
8:40	5.35	—	170	13.42	205	6.48	-10.5	5.98	0.32
8:45	5.40	—	160	13.46	197	6.37	-21.5	6.06	0.00
8:50	5.40	—	160	13.42	194	6.34	-23.0	6.10	0.20
8:55	5.40	—	120	13.48	191	6.32	-26.5	6.08	0.23
9:00	5.40	—	130	13.61	190	6.35	-33.0	6.21	0.19
9:05	5.40	—	130	13.52	190	6.38	-36.5	6.21	0.16
9:10	Samples Taken								

COMMENTS:

Signature: [signature]

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis

LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET

SOP No: SA-003 Page: 1 of
Date: 8/12 Rev.: 0
Prepared by: MW
Approved by:

Site Name: Ely Copper Mine
Project Number/Task: 80024
Sampler(s): MW

Temperature Range: 75-80
Precipitation: Partly cloudy
Wind Speed/Direction:

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-04A
Sample Date / Time: 8/12/09 15:00

QA/QC Sample (circle): MS / MSD , DUP
QA/QC Sample Time:
Initial Water Level: 5.26

Equipment Information

Pump Type: Peristaltic
Pump Name/ID: Geopump #1585
Water Level Name/ID: Solinst A01146

Multimeter Name/ID: YSI 02D0846 A B
Turbidity Name/ID: Lamotte 10803

WELL ID: MW-04A

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (µS/m) 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
13:45	5.26	—	160						
13:50	5.89	—	120	14.99	444	4.02	163.5	8.10	120
13:55	5.89	—	120	15.36	444	3.85	165.0	8.10	86.6
14:00	5.89	—	120	15.55	442	3.84	164.1	8.06	63.1
14:05	5.91	—	120	15.49	437	3.84	163.5	8.08	68.6
14:10	5.91	—	120	15.20	428	3.86	163.1	8.06	50.8
14:15	5.91	—	120	15.37	426	3.86	162.9	7.98	49.7
14:20	5.91	—	120	15.43	421	3.89	162.8	7.99	38.1
14:25	5.91	—	120	15.52	417	3.90	161.5	7.94	31.0
14:30	5.91	—	120	15.61	417	3.90	162.5	7.93	28.8
14:35	5.91	—	120	16.20	416	3.93	162.0	7.86	23.3
14:40	~~5.91~~ MW 5.80		110	16.48	416	3.95	161.8	7.87	22.5
14:45	5.80	—	100	16.56	417	3.96	162.5	7.85	19.4
14:50	5.82	—	120	16.30	421	3.97	164.0	7.84	15.7
14:55	5.82	—	110	16.25	419	3.96	165.0	7.84	8.86
15:00	Samples Taken								

COMMENTS:

Signature: [signature]

Attachment 1

Multi-Parameter Meter Calibration Log Sheet

Nobis	Nobis Engineering, Inc.	MULTI-PARAMETER METER CALIBRATION LOG SHEET	Date: Page 1 of 1
Site: ELY MINES		Model: YSI 650MDS	
Nobis Project No.: 80024		Serial No.: 13047	
☒ Calibrate following Manufacturer's Instructions		Condition: Good	

Cal Time: 0720	Pre-Cal. Value	Post-Cal. Value	Calibration Standard (Lot No.)	Signature	Comments
Sp. Cond. (mS/cm)	1.475	1.413	7168	C. Pumpa	
pH = 4.0	4.09	4.00	7149	C. Pumpa	
pH = 7.0	6.99	7.00	290434	C. Pumpa	
~~pH = 10.0~~					N/A
D.O. (mg/L) %	101.5%	100%	—	C. Pumpa	7 bottles Hydrogen Peroxide
ORP (mV)	242.9	240.0	1277	C. Pumpa	
Turbidity (1 NTUs)	0.93	0.99	8071	C. Pumpa	
Turbidity (10 NTUs)	9.32	9.99	8071	C. Pumpa	
Temp (°C)	17.59°C	17.75	—	C. Pumpa	
Salinity (0/00)					

Cal Check Time: 1630	Pre-Cal. Value	Post-Cal. Value	Calibration Standard (Lot No.)	Signature	Comments
Sp. Cond. (mS/cm)	1.310	N/A	SAA		
pH = 4.0	—			C. Pumpa	Problem with the probe
pH = 7.0	—			C. Pumpa	Problem with the probe
~~pH = 10.0~~					
D.O. (mg/L)	102.6			C. Pumpa	
ORP (mV)	228.4			C. Pumpa	
Turbidity (1 NTUs)	0.87			C. Pumpa	
Turbidity (__ NTUs)	10.02			C. Pumpa	
Temp (°C)	28.31			C. Pumpa	
Salinity 0/00	—	—	—	—	—

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis

LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET

SOP No: SA-003 Page: 1 of
Date: Rev.: 0
Prepared by:
Approved by:

Site Name: FLY MINES
Project Number/Task: 80024
Sampler(s): Pahowa
Temperature Range: 60-70
Precipitation: 60%
Wind Speed/Direction: 5mph

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-1C
Sample Date / Time: 08/12/09 / 0940
QA/QC Sample (circle): MS / MSD , DUP
QA/QC Sample Time: —
Initial Water Level: 13.11

Equipment Information

Pump Type: GRUNDFOS 2"
Pump Name/ID: Redi Flo
Water Level Name/ID: SOLONIST 26279
Multimeter Name/ID: YSI 650 MDS 13047
Turbidity Name/ID: Lamotte 2020 13977

WELL ID: MW-1C

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) mS/cm 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
0820	13.11	—	140	[illegible]					
0830	13.26	—	140	13.09	0.293	7.11	242.6	2.35	154
0835	13.27	—	140	13.08	0.294	7.09	250.2	2.33	148
0840	13.27	—	140	13.26	0.295	7.11	259.1	2.34	137
0845	13.27	—	140	13.50	0.296	7.11	264.3	2.35	95.8
0850	13.64	—	150	12.17	0.315	7.03	274.0	2.31	59.5
0855	13.68	—	140	12.28	0.320	6.89	286.8	2.23	51.9
0900	13.61	—	140	12.77	0.323	6.96	289.1	2.30	32.2
0905	13.61	—	140	12.67	0.327	6.99	290.7	2.24	23.1
0910	13.61	—	140	12.63	0.331	7.00	297.5	2.13	15.6
0915	13.61	—	140	12.63	0.333	7.05	295.5	2.14	14.6
0920	13.63	—	140	12.67	0.339	7.05	301.6	2.04	10.8
0925	13.65	—	140	12.73	0.341	7.06	306.1	2.04	9.57
0930	13.65	—	140	12.79	0.342	7.06	310.9	2.01	8.27
0935	13.65	—	140	12.77	0.342	7.05	314.5	2.00	8.37
0940	←	SAMPLE COLLECTED							→

COMMENTS:
AT 81.36 HZ

Signature: [signature]

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis	LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET	SOP No: SA-003 Date:	Page: 1 of 2 Rev.: 0
		Prepared by:	
		Approved by:	

Site Name: ELYMINES
Project Number/Task: 80024
Sampler(s): P Chawla
Temperature Range: 60-70
Precipitation: Gov.
Wind Speed/Direction: Simple

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-2C
Sample Date / Time: 08/12/09/ 1300
QA/QC Sample (circle): MS / MSD, DUP
QA/QC Sample Time: —
Initiall Water Level: 12.60

Equipment Information

Pump Type: GRUNDFUS 2"
Pump Name/ID: — Redi Flow
Water Level Name/ID: SOLONIST 26279
Multimeter Name/ID: YSI 650 MDS 13047
Turbidity Name/ID: LaMotte 2020 13997

WELL ID: MW-2C

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) mS/cm 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
1107	16.0	—	200	[illegible]					
1110	15.96	—	150	13.16	0.370	6.33	186.4	3.13	115
1115	16.00	—	145	13.85	0.369	6.24	217.3	3.17	100.1
1120	15.99	—	145	14.23	0.368	6.17	240.4	2.69	60.3
1125	15.97	—	145	14.41	0.367	6.30	246.7	1.93	92.0
1130	15.97	—	145	14.18	0.368	6.47	83.6	1.90	1453
1135	15.96	—	140	13.93	0.368	6.48	-67.1	1.32	2463
1140	15.96	—	140	14.04	0.368	6.49	-76.7	1.22	2028
1145	15.96	—	140	14.27	0.369	6.48	-87.1	0.91	1797
1150	15.96	—	140	14.53	0.369	6.43	-96.2	0.75	1556
1155	15.96	—	140	14.79	0.369	6.35	-75.3	0.75	1556
1200	15.96	—	140	14.93	0.369	6.25	-58.7	0.67	1368
1205	15.96	—	140	14.86	0.368	6.16	-70.2	0.44	1014
1210	15.96	—	140	14.86	0.368	6.16	-64.0	0.51	1014
1215	15.97	—	140	14.93	0.366	6.03	-46.5	0.57	740
1220	15.97	—	140	14.97	0.367	5.95	-57.6	0.43	231
1225	15.97	—	140	15.21	0.367	6.79	-22.2	0.41	123
1230	15.98	—	140	15.27	0.365	5.68	-9.6	0.41	140
1235	15.97	—	140	15.11	0.363	5.71	-12.9	0.39	954

COMMENTS:

Signature: [signature]

Nobis

LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET

SOP No: SA-003 Page: 2 of 2
Date: Rev.: 0

08/12/09

Well ID: MW-2C

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
1240	15.97	–	140	14.93	0.361	5.69	-2.1	0.26	54.5
1245	15.97	–	140	15.02	0.362	5.69	12.0	0.23	37.4
1250	15.97	–	140	14.99	0.362	5.68	18.3	0.22	42.0
1255	15.97	–	140	14.98	0.362	5.69	24.2	0.22	41.4
1800	← SAMPLE COLLECTED →								

COMMENTS:

Signature: [illegible]

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis

LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET

SOP No: SA-003 Page: 1 of
Date: Rev.: 0
Prepared by:
Approved by:

Site Name: Ely Morris
Project Number/Task: 8002-4
Sampler(s): Pclaus

Temperature Range: 75-85
Precipitation: 20%
Wind Speed/Direction: None

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-4C
Sample Date / Time: 08/12/09 / 1540

QA/QC Sample (circle): MS / MSD, DUP
QA/QC Sample Time: —
Initial Water Level: 10.04

Equipment Information

Pump Type: GeoPump / Peristaltic
Pump Name/ID:
Water Level Name/ID: SOLOMIST 28279

Multimeter Name/ID: YSI 650 / 13047
Turbidity Name/ID: Lamotte 2020e 139777

WELL ID: MW-4C

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) mS/cm 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
1410	10.04	—	180	[illegible]					
1415	11.19	—	150	12.26	0.386	3.03	456.7	1.94	1.98
1420	11.75	—	150	12.21	0.388	1.68	470.7	1.10	2.61
1425	12.17	—	150	11.89	0.388	1.05	467.1	0.99	2.12
1430	12.41	—	140	12.06	0.387	1.07	463.0	0.87	1.90
1435	12.59	—	135	12.20	0.388	0.57	469.4	0.85	2.14
1440	12.85	—	135	12.10	0.388	0.12	474.9	0.80	2.60
1445	—	—	—	—	—	—	—	—	—
1450	CHANGE OF YSI TO 0886Y								
1505	—	—	—	—	µS/cm	—	—	—	—
1510	13.52	—	135	12.73	402	6.17	55.2	2.16	1.23
1515	13.55	—	135	12.62	403	6.25	47.8	0.96	1.25
1520	13.55	—	135	12.70	404	6.34	42.1	0.60	1.57
1525	13.55	—	135	12.63	404	6.42	33.9	0.50	0.56
1530	13.55	—	135	12.62	404	6.54	37.1	0.56	0.56
1535	13.55	—	135	12.59	404	6.57	33.6	0.55	0.59
1540	← Sample collected →								

COMMENTS: YSI CHANGED DUE TO PROBLEM WITH PH PROBE

Signature:

Attachment 1

Multi-Parameter Meter Calibration Log Sheet

8/12/09

Nobis	Nobis Engineering, Inc.	MULTI-PARAMETER METER CALIBRATION LOG SHEET	Date: Page 1 of 1
Site: Ely Copper Mine		Model: YSI 600XL	
Nobis Project No.: 80024		Serial No.: 04E8624 AB	
☒ Calibrate following Manufacturer's Instructions		Condition: Fair	

Cal Time: 0730	Pre-Cal. Value	Post-Cal. Value	Calibration Standard (Lot No.)	Signature	Comments
Sp. Cond. (mS/cm)	1.360	1.413	7168	Andy Fitch	
pH = 4.0	4.05	4.00	7149	Jose	
pH = 7.0	7.13	7.00	2904382	Andy Fitch	
pH = 10.0	No Standard				
D.O. (mg/L) λ°	100.2	100.5	N/A	Andy Fitch	mmHg = 764.1
ORP (mV)	239.9	240.1	1279	Jose	
Turbidity <10 NTUs)	—	0.2	—	Jose	
Turbidity 20 NTUs)	11.6	20.2	—	Jose	
Temp (°C)	18.51				
Salinity (0/00)	N/A				

Cal Check Time: 1600	~~Pre-Cal. Value~~ Evening	Post-Cal. Value	Calibration Standard (Lot No.)	Signature	Comments
Sp. Cond. (mS/cm)	1.375	—	SAA	Jose	
pH = 4.0	4.00	—		Jose	
pH = 7.0	6.97	—		Jose	
pH = 10.0					
D.O. (mg/L) λ°	102.0	—		Jose	
ORP (mV)	230.1	—		Jose	
Turbidity <10 NTUs)	0.4	—		Jose	
Turbidity 20 NTUs)	13.1	—		Jose	
Temp (°C)		—			
Salinity 0/00	N/A				

SAA = Same as above

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis	LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET	SOP No: SA-003 Date: 8/12	Page: 1 of Rev.: 0
		Prepared by:	
		Approved by:	

Site Name: BLY
Project Number/Task: B0024.07
Sampler(s): Josh Stewart

Temperature Range: 70–80
Precipitation: Sunny
Wind Speed/Direction:

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-7A MW-7A
Sample Date / Time: 8/12/09 1505

QA/QC Sample (circle): MS / MSD / DUP
QA/QC Sample Time: 1505
Initial Water Level: 4.55

Equipment Information

Pump Type: Geotech Peristaltic
Pump Name/ID: Pine # 7553
Water Level Name/ID: Solinst Pine # 8435

Multimeter Name/ID: YSI Pine # 9772
Turbidity Name/ID: HACH Pine # 1237

WELL ID: MW-7A

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
1425	4.61	—	135	Set up pump, tubing through bag, etc.					
1430	4.62	—	135	14.21	47	3.99	650.7	7.50	21.1
1435	4.63	—	135	13.79	44	3.72	660.8	6.18	14.0
1440	4.64	—	135	13.86	43	3.64	666.0	5.66	4.2
1445	4.65	—	135	13.81	42	3.64	669.5	5.44	4.3
1450	4.65	—	135	13.53	42	4.02	661.0	5.22	5.2
1455	4.65	—	135	13.51	42	4.37	650.0	5.07	5.7
1500	4.65	—	135	13.60	42	4.51	646.0	5.02	3.7
1505				Sample					

COMMENTS:
Replace tubing

Signature: Josh Stewart

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET

SOP No: SA-003 Page: 1 of
Date: 8/12/09 Rev.: 0
Prepared by:
Approved by:

Site Name: ETY
Project Number/Task: 60024.03
Sampler(s): Josh Stewart
Temperature Range: 70-80
Precipitation: Sunny
Wind Speed/Direction:

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-7C MW-7C
Sample Date / Time: 8/12/09 1340
QA/QC Sample (circle): MS / MSD , DUP
QA/QC Sample Time:
Initial Water Level: 3.60

8/12/09

Equipment Information

Pump Type: Peristaltic Peristaltic
Pump Name/ID: Pump # 7533
Water Level Name/ID: Silver Pump # 8435
Multimeter Name/ID: YSI Pump # 9772
Turbidity Name/ID: HACH Pump # 1257

WELL ID: MW-7C

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/cm) uS/cm 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
1250	3.90	—	140	[illegible]					
1255	3.90	—	140	13.90	110	5.64	576.7	6.65	38.3
1300	3.90	—	140	13.17	107	5.69	583.7	6.59	36.6
1305	3.90	—	140	12.81	93	5.84	585.7	6.82	50.2
1310	3.91	—	140	12.93	80	5.63	591.9	7.64	39.4
1315	3.94	—	140	13.52	68	5.18	613.5	8.15	32.2
1320	3.92	—	140	13.33	56	4.70	631.2	8.48	19.6
1325	3.92	—	140	13.03	49	4.59	635.5	8.61	15.5
1330	3.93	—	140	13.22	48	4.56	635.9	8.62	11.5
1335	3.93	—	140	13.23	47	4.32	645.7	8.71	9.3
1340	—	—	—	—	—	Sample		—	—

COMMENTS:
replaced tubing

Signature: [illegible]

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis

LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET

SOP No: SA-003 Page: 1 of
Date: 8/12 Rev.: 0
Prepared by:
Approved by:

Site Name: ELY
Project Number/Task: 80024.03
Sampler(s): Josh Stewart

Temperature Range: 60-70
Precipitation: Hunt Cloudy
Wind Speed/Direction:

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-09A
Sample Date / Time: 8/21 09 1120

QA/QC Sample (circle): MS / MSD , DUP
QA/QC Sample Time:
Initial Water Level: 3.95

Equipment Information

Pump Type: Peristaltic Peristaltic
Pump Name/ID: Pine # 7355
Water Level Name/ID: Solinist Pine # 6435

Multimeter Name/ID: YSI Pine # 9772
Turbidity Name/ID: HACH Pine # 12357

WELL ID: MW09A (AF)

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity ~~(mS/m)~~ uS/cm 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
1050	4.50	—	130	Set up pump, fill flow through cell, etc.					
1055	4.62	—	130	14.48	431	3.92	565.8	9.26	1.7
1100	4.52	—	130	14.62	424	3.95	566.6	9.25	8.5
1105	4.58	—	130	14.60	422	3.93	578.9	9.19	2.7
1110	4.59	—	130	14.67	421	3.92	578.6	9.18	2.4
1115	4.60	—	130	14.66	422	3.91	584.7	9.17	2.4
1120	4.54	—	130	14.70	420	3.91	582.5	9.11	1.1
1125	4.51	—	130	14.73	420	3.90	589.6	9.09	1.7
1130					Sample				

COMMENTS:

Signature: JSS

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis	LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET	SOP No: SA-003 Date: 8/12	Page: 1 of Rev.: 0
		Prepared by:	
		Approved by:	

Site Name: EIY
Project Number/Task: 80024.03
Sampler(s): Josh Stewart

Temperature Range: 60-70
Precipitation: Mist Cloudy
Wind Speed/Direction:

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-5B
Sample Date / Time: 8/12/09 0920

QA/QC Sample (circle): MS / MSD, DUP
QA/QC Sample Time: 920
Initial Water Level: 12.52

Equipment Information

Pump Type: Peristaltic Peristaltic
Pump Name/ID: Pine # 07555
Water Level Name/ID: Solonist Pine # 8435

Multimeter Name/ID: YSI Pine # 9772
Turbidity Name/ID: HACH Pine # 12357

WELL ID: MW-5B MW-5B

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/cm) uS/cm 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
840	14.45	—	110	Set up pump, fill flow through cell, etc.					
845	14.97	—	110	11.82	898	7.06	286.1	1.36	27.6
850	15.41	—	110	11.97	895	7.04	334.5	1.28	26.9
855	16.00	—	110	11.81	891	7.02	381.3	1.02	12.8
900	16.48	—	110	11.56	887	7.02	406.9	1.00	8.6
905	16.85	—	110	11.61	883	7.02	420.9	1.13	8.3
910	17.18	—	110	11.52	880	7.02	427.5	1.04	9.6
915	17.49	—	110	11.60	880	7.03	423.2	1.24	5.8
920	—	—	—	Sample	—	—	—	—	—

COMMENTS:

Signature: [signature]

Attachment 1

Multi-Parameter Meter Calibration Log Sheet

08/13/09

Nobis	Nobis Engineering, Inc.	MULTI-PARAMETER METER CALIBRATION LOG SHEET	Date: Page 1 of 1
Site: ELY MINES		Model:	
Nobis Project No.: 80024		Serial No.: YSI - 13047	
☐ Calibrate following Manufacturer's Instructions		Condition: Good. Applied Grease to pH Probe	

Cal Time: 0735	Pre-Cal. Value	Post-Cal. Value	Calibration Standard (Lot No.)	Signature	Comments
Sp. Cond. (mS/cm)	1.578	1.413	7168	[illegible]	
pH = 4.0	4.12	4.00	7149	[illegible]	
pH = 7.0	6.39	7.00	2904342	[illegible]	
pH = 10.0	10.40	10.00	~~1012~~	[illegible]	
D.O. (mg/L)	101.3	100.00	N/A	[illegible]	D.O membrane has been change d.
ORP (mV)	236.9	240.1	1279	[illegible]	
Turbidity (1 NTUs)	0.87	1.02	N/A	[illegible]	Lamotte 13977
Turbidity (10 NTUs)	12.2	9.97	N/A	[illegible]	13977
Temp (°C)	18.81	19.82	N/A		
Salinity (0/00)					

Cal Check Time: 1548	Pre-Cal. Value	Post-Cal. Value	Calibration Standard (Lot No.)	Signature	Comments
Sp. Cond. (mS/cm)	1.333	—	SAA	[illegible]	
pH = 4.0	4.04	—		[illegible]	
pH = 7.0	6.67	—		[illegible]	
pH = 10.0	9.85	—		[illegible]	
D.O. (mg/L) %	97.5	—		[illegible]	
ORP (mV)	225.2	—		[illegible]	
Turbidity (1 NTUs)	1.00	—		[illegible]	
Turbidity (10 NTUs)	10.20	—		[illegible]	
Temp (°C)	28.48	—		[illegible]	
Salinity 0/00					

pH → Grease applied to the Probe. but the reading were going down/up to some extent.

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis	LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET	SOP No: SA-003 Date: 8/13	Page: 1 of Rev.: 0
		Prepared by:	
		Approved by:	

Site Name: ELYRIA MES
Project Number/Task: 80024
Sampler(s): Pehawa
Temperature Range: 80-85
Precipitation: –
Wind Speed/Direction: –

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-21A
Sample Date / Time: 08/13/09 1445
QA/QC Sample (circle): MS / MSD , DUP
QA/QC Sample Time:
Initial Water Level: 4.36

Equipment Information

Pump Type: GeoPump / Peristaltic
Pump Name/ID: –
Water Level Name/ID: SOLONIST 26279
Multimeter Name/ID: YSI 60 MOS 13047
Turbidity Name/ID: Lamotte 2020e 13975

WELL ID: MW-21A

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
1350	4.36		170	[illegible]					
1355	4.76	–	180	16.55	0.926	3.45	198.7	1.70	6.13
1400	4.85	–	180	16.82	0.917	2.85	216.1	1.15	5.65
1405	4.86	–	180	16.42	0.922	2.25	239.8	1.04	4.99
1410	4.87	–	180	16.38	0.933	2.02	249.9	0.97	6.86
1415	4.86	–	180	16.38	0.946	1.98	252.7	1.10	6.13
1420	4.86	–	170	16.49	0.957	1.90	257.5	0.89	6.27
1425	4.86	–	170	16.07	0.964	1.78	260.8	0.63	7.29
1430	4.86	–	170	16.05	0.969	1.68	268.0	0.83	6.44
1435	4.86	–	170	16.19	0.971	1.70	269.6	0.81	4.30
1440	4.86	–	170	16.10	0.973	1.71	269.3	0.80	2.89
1445			SAMPLE	COLLECTED					

COMMENTS:

Signature: [signature]

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis	LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET	SOP No: SA-003 Date: 8/13	Page: 1 of Rev.: 0
		Prepared by:	
		Approved by:	

Site Name: ELY MINES
Project Number/Task: 80024
Sampler(s): Pchawa

Temperature Range: 70 – 80
Precipitation: –
Wind Speed/Direction: 10-5mph

SAMPLE INFORMATION

Sampling Round: 1 Summer 09
Sample ID: ~~MW-7H~~ MW-5C
Sample Date / Time: 08/13/09 / 1045

QA/QC Sample (circle): MS / MSD , DUP
QA/QC Sample Time: –
Initial Water Level: 15.18

Equipment Information

Pump Type: Geo Pump / Peristaltic
Pump Name/ID: –
Water Level Name/ID: Solinst 26279

Multimeter Name/ID: YSI 650MD 513047
Turbidity Name/ID: Lamotte 2020e 139777

WELL ID: MW-5C

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) mS/cm 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
0930	.	–	145	Set up pump, fill flow through cell, etc.					
0945	16.76	–	145	11.12	0.796	6.72	16.7	2.87	24.7
0950	17.29	–	140	11.15	0.790	6.34	24.9	2.36	20.1
0955	17.71	–	140	11.16	0.789	6.20	27.6	2.35	16.7
1000	18.03	–	140	11.13	0.787	6.09	33.1	2.15	13.1
1005	18.31	–	135	11.36	0.784	6.01	36.1	2.34	9.74
1010	18.51	–	135	11.32	0.784	5.82	44.9	2.17	7.98
1015	18.74	–	135	11.60	0.782	5.47	64.7	2.20	7.35
1020	18.92	–	130	11.37	0.779	5.15	83.3	2.28	7.25
1025	19.09	–	135	11.20	0.778	4.94	92.1	2.25	5.32
1030	19.20	–	135	11.10	0.777	4.86	98.0	2.31	3.84
1035	19.31	–	135	11.18	0.778	4.88	100.2	2.33	3.33
1040	19.39	–	135	11.21	0.777	4.85	106.8	2.30	3.76
1045	←		SAMPLE COLLECTED						→

COMMENTS:

Signature: [signature]

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis	LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET	SOP No: SA-003 Date: 8/13	Page: 1 of 1 Rev.: 0
		Prepared by:	
		Approved by:	

Site Name: ELY MINES
Project Number/Task: 80024
Sampler(s): P Chowa

Temperature Range: 70-80
Precipitation: —
Wind Speed/Direction: or Sunny

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-9C
Sample Date / Time: 08/13/09 / 1250

QA/QC Sample (circle): MS / MSD , DUP
QA/QC Sample Time:
Initial Water Level: 16.99

Equipment Information

Pump Type: GeoPump P / Peristaltic
Pump Name/ID: —
Water Level Name/ID: SOLONIST 26279

Multimeter Name/ID: YSI GROUP DS 13047
Turbidity Name/ID: Lamotte 2020 e 13977

WELL ID: MW-9C

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) mS/cm 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
1200	17.42	—	140	[illegible]					
1205	18.02	—	140	11.27	0.816	7.19	-22.6	3.07	20.3
1210	18.74	—	140	11.40	0.818	7.13	-19.6	1.88	19.7
1215	19.49	—	140	11.48	0.781	7.54	-39.8	1.62	10.90
1220	20.06	—	135	11.27	0.770	7.91	-51.0	1.56	8.29
1225	20.51	—	135	11.36	0.761	7.87	-51.4	1.70	7.24
1230	21.01	—	135	11.22	0.753	7.88	-48.9	2.31	6.58
1235	21.43	—	135	11.16	0.748	7.91	-48.1	2.38	5.28
1240	21.70	—	135	11.10	0.746	7.89	-47.5	2.39	4.83
1245	21.89	—	135	11.14	0.742	7.90	-50.8	2.36	4.37
1250	←		SAMPLE	COLLECTED					→

COMMENTS: OLD TUBING REMOVED
REPLACED WITH NEW ONE

Signature: [signature]

Attachment 1

8/13/09

Josh Sewards

Multi-Parameter Meter Calibration Log Sheet

Nobis	Nobis Engineering, Inc.	MULTI-PARAMETER METER CALIBRATION LOG SHEET	Date: Page 1 of 1

Site: Ely Copper Mine		Model: YSI 600XL	
Nobis Project No.: 80024		Serial No.: Pine # 9772	
☑ Calibrate following Manufacturer's Instructions		Condition: Poor	

Cal Time: 745	Pre-Cal. Value	Post-Cal. Value	Calibration Standard (Lot No.)	Signature	Comments
Sp. Cond. (mS/cm)	1.379	1.413	7168	[illegible]	
pH = 4.0	4.00	4.00	7149	[illegible]	
pH = 7.0	6.99	6.99	2904342	[illegible]	
pH = 10.0	10.00	10.00	1012	[illegible]	
D.O. ~~(mg/L)~~ %	103.0	100.5	—	[illegible]	745.1 mmHg
ORP (mV)	242.6	240.0	1279	[illegible]	
Turbidity <0.1 NTUs)	0.0	0.3	—	[illegible]	
Turbidity 20 NTUs)	11.4	20.1	—	[illegible]	
Temp (°C)	18.33				
Salinity (0/00)					

Cal Check Time:	~~Pre-Cal. Value~~ Events	Post-Cal. Value	Calibration Standard (Lot No.)	Signature	Comments
Sp. Cond. (mS/cm)	1.405	NA	7168	[illegible]	
pH = 4.0	3.93		7149	[illegible]	
pH = 7.0	6.90		2904342	[illegible]	
pH = 10.0	9.81		1012 1012	[illegible]	
D.O. (~~mg/L~~) %	96.6		—	[illegible]	
ORP (mV)	229.7		1279	[illegible]	
Turbidity <0.1 NTUs)	0.2		—	[illegible]	
Turbidity 20 NTUs)	20.5		—	[illegible]	
Temp (°C)	25.28				
Salinity 0/00					

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis	LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET	SOP No: SA-003 Date: 8/13	Page: 1 of 1 Rev.: 0
		Prepared by:	
		Approved by:	

Site Name: ELY
Project Number/Task: 6150.24.03
Sampler(s): Josh Stewart
Temperature Range: 70—80
Precipitation: Sunny
Wind Speed/Direction: —

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-22A
Sample Date / Time: 8/13/09 1450
QA/QC Sample (circle): MS / MSD, DUP
QA/QC Sample Time:
Initial Water Level: 5.98 5.98

Equipment Information

Pump Type: Peristaltic / Geopump
Pump Name/ID: Pine # 07555
Water Level Name/ID: Solinst Pine # 8435
Multimeter Name/ID: YSI Pine # 9772
Turbidity Name/ID: HACH Pine # 12357

WELL ID: MW-22A

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
1410	6.07	—	150	[illegible]					
1415	6.08	—	150	16.40	678	3.67	290.1	0.55	16.5
1420	6.08	—	150	16.87	678	3.57	284.5	0.49	7.6
1425	6.08	—	150	16.73	681	3.38	296.9	0.35	8.7
1430	6.08	—	150	17.22	684	3.28	304.7	0.44	9.2
1435	6.08	—	150	17.20	686	3.20	306.5	0.34	7.8
1440	6.10	—	150	17.19	681	3.30	297.6	0.30	5.2
1445	6.11	—	150	16.94	679	3.48	289.4	0.28	2.9
1450	—	—	—	—	Sample	—	—	—	—

COMMENTS:

Signature: Josh

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis	LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET	SOP No: SA-003 Date: 8/13	Page: 1 of 2 Rev.: 0
		Prepared by:	
		Approved by:	

Site Name: E17
Project Number/Task: 80024.03
Sampler(s): Josh Stewart
Temperature Range: 70's
Precipitation: —
Wind Speed/Direction: —

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-14C
Sample Date / Time: 8/13/09 1110
QA/QC Sample (circle): MS / MSD , DUP
QA/QC Sample Time:
Initial Water Level: 4.89

Equipment Information

Pump Type: ~~Peristaltic~~ Peristaltic Geopump
Pump Name/ID: Pine # 7555
Water Level Name/ID: Solinst Pine # 8435
Multimeter Name/ID: YSI Pine # 9772
Turbidity Name/ID: HACH Pine # 12357

WELL ID: MW-14C

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/cm) uS/cm 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
930	5.25	—	130	[illegible]					
935	7.18	—	130	11.74	224	7.81	371.9	5.96	24.4
940	8.28	—	150	11.38	219	7.78	391.7	5.83	26.8
945	8.95	—	120	11.74	217	7.76	399.6	5.61	24.3
950	9.56	—	120	11.87	216	7.76	402.2	5.58	26.1
955	10.09	—	120	11.78	215	7.76	396.3	5.37	24.5
1000	10.65	—	120	11.62	214	7.76	392.1	5.35	21.5
1005	11.28	—	120	11.54	214	7.73	392.0	5.19	23.7
1010	11.56	—	100	12.20	212	7.74	389.1	5.11	17.7
1015	11.84	—	100	12.28	213	7.75	388.6	5.13	15.4
1020	12.13	—	100	12.21	213	7.76	388.0	5.06	15.8
1025	12.41	—	100	12.11	212	7.75	388.1	5.04	13.3
1030	12.67	—	100	12.21	212	7.74	386.5	4.91	11.4
1035	12.82	—	100	12.60	211	7.78	384.7	4.84	15.0
1040	12.91	—	100	12.67	212	7.79	384.1	4.76	34.5
1045	12.91	—	100	12.75	212	7.80	383.1	4.74	13.5
1050	12.97	—	100	12.61	217	7.81	381.8	4.76	11.2
1055	13.03	—	100	12.64	217	7.81	380.7	4.70	15.6
1100	13.10	—	100	12.55	217	7.82	379.8	4.69	16.9

COMMENTS:

Signature: JSS

Nobis

LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET

SOP No: SA-003 | Page: 2 of 2
Date: | Rev.: 0

Well ID: MW-14C

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
1105	13.10	—	100	12.42	213	7.82	378.9	4.67	13.3
1110	—	—	—	—	—	Sample	—	—	—

COMMENTS:

Signature: [illegible]

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis	LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET	SOP No: SA-003 Date: 8/13	Page: 1 of Rev.: 0
		Prepared by:	
		Approved by:	

Site Name: EIY
Project Number/Task: 80024.03
Sampler(s): Josh Flewarn

Temperature Range: 70-75
Precipitation: Sunny, Pre-clouds
Wind Speed/Direction: —

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-23A
Sample Date / Time: 8/13/09 1310

QA/QC Sample (circle): MS / MSD , DUP
QA/QC Sample Time:
Initial Water Level: 11.99

Equipment Information

Pump Type: Peristaltic Peristaltic / Grab Pump
Pump Name/ID: Pine #7335
Water Level Name/ID: Solinst Pine # 8435
Multimeter Name/ID: YSI Pine # 9772
Turbidity Name/ID: HACH Pine # 12357

WELL ID: MW-23A

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
1230	12.14	—	160	Set up pump, fill lines, [illegible]					
1235	12.21	—	130	14.65	54	5.43	577.7	1.14	1.1
1240	12.26	—	130	14.94	51	5.31	576.1	0.84	3.3
1245	12.32	—	130	14.66	49	5.23	579.1	0.82	1.2
1250	12.35	—	130	14.69	49	5.19	581.5	0.94	0.8
1255	12.37	—	130	14.92	49	5.17	584.1	1.12	1.9
1300	12.39	—	130	15.00	48	5.10	588.0	1.17	0.5
1305	12.41	—	130	14.98	48	5.07	593.6	1.32	1.4
1310	—	—	130	—	—	Sample	—	—	—

COMMENTS:

Signature: [signature]

Attachment 1

Multi-Parameter Meter Calibration Log Sheet

Nobis	Nobis Engineering, Inc.	MULTI-PARAMETER METER CALIBRATION LOG SHEET	Date: 8/13/09 Page 1 of 1
Site: Ely Copper Mine		Model: YSI 600XL / Lamotte	
Nobis Project No.: 80024		Serial No.: 02170846AB / 10803	
☒ Calibrate following Manufacturer's Instructions		Condition: Good	

Cal Time: 07:45	Pre-Cal. Value	Post-Cal. Value	Calibration Standard (Lot No.)	~~Signature~~ See bottom	Comments
Sp. Cond. (mS/cm)	1398	1413	7168		1413
pH = 4.0	3.88	4.00	7149		
pH = 7.0	7.06	7.00	2904342		
pH = 10.0	10.06	10.01	1012		
D.O. (mg/L) %	101.0	100.0	—		760.0 mmHg
ORP (mV)	237.5	240.0	1279		240.0
Turbidity (1 NTUs)	0.75	1.00	—		
Turbidity (10 NTUs)	10.92	10.00	—		
Temp (°C)	—	—	—		
Salinity (0/00)	—	—	—		

Cal Check Time: 15:45	~~Pre-Cal. Value~~ End of Day Calibration	Post-Cal. Value	Calibration Standard (Lot No.)	~~Signature~~ See bottom	Comments
Sp. Cond. (mS/cm)	1391	N/A	SAA		1413
pH = 4.0	4.10				
pH = 7.0	7.02				
pH = 10.0	10.02				
D.O. (mg/L) 100%	98.7				
ORP (mV)	225.6				
Turbidity (1 NTUs)	0.94				
Turbidity (10 NTUs)	10.99				
Temp (°C)	—	—	—		
Salinity 0/00	—	—	—		

SAA = Same as above

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis	LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET	SOP No: SA-003 Date: 8/13	Page: 1 of Rev.: 0
		Prepared by: MAW	
		Approved by:	

Site Name: Ely Copper Mine
Project Number/Task: 80024
Sampler(s): MAW

Temperature Range: 75-80
Precipitation: Partly Cloudy
Wind Speed/Direction: 0-5 mph South

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-20C
Sample Date / Time: 8/13 14:15

QA/QC Sample (circle): MS / MSD, DUP
QA/QC Sample Time:
Initial Water Level: 6.90

Equipment Information

Pump Type: Peristaltic
Pump Name/ID: Geopump #1585
Water Level Name/ID: Solinst #A01146

Multimeter Name/ID: YSI #02D0846AB
Turbidity Name/ID: Lamotte #10803

WELL ID: MW-20C

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
13:30	6.90		200	Set up pump, flow through cell, etc.					
13:35	8.29		180	11.64	473	6.28	64.0	8.28	3.67
13:40	8.52		150	11.81	472	6.11	80.0	8.10	4.64
13:45	8.96		120	11.98	471	6.02	86.5	8.10	5.01
13:50	9.21		110	12.55	473	6.00	93.0	8.03	4.03
13:55	9.38		100	12.68	474	5.99	96.0	7.98	3.94
14:00	9.51		100	13.19	472	5.99	98.9	7.92	2.85
14:05	9.61		100	13.02	468	5.99	99.7	7.83	2.60
14:10	9.68		100	13.07	466	5.99	98.5	7.75	2.04
14:15	Samples		Taken						

COMMENTS:

Signature: Matt Walker

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis	LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET	SOP No: SA-003 Date: 8/13	Page: 1 of Rev.: 0
		Prepared by: MAW	
		Approved by:	

Site Name: Ely Copper Mine
Project Number/Task: 80024
Sampler(s): MAW

Temperature Range: 65-70
Precipitation: cloudy
Wind Speed/Direction: Calm

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-16A
Sample Date / Time: 10:00 8/18/09

QA/QC Sample (circle): MS / MSD, DUP
QA/QC Sample Time:
Initial Water Level: 3.71'

Equipment Information

Pump Type: Peristaltic
Pump Name/ID: Geopump # 1585
Water Level Name/ID: Solinst # A01146

Multimeter Name/ID: YSI 02D0846AB
Turbidity Name/ID: Lamotte #10803

WELL ID: MW-16A

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) µ 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
9:20	3.71		200						
9:25	4.15		160	12.02	255	7.79	-51.8	1.15	3.56
9:30	4.20		180	12.22	244	7.58	-33.0	1.14	5.71
9:35	4.21		160	12.36	236	7.48	-25.0	1.30	4.33
9:40	4.21		160	12.57	223	7.34	-34.5	1.70	2.26
9:45	4.21		160	12.56	214	7.20	-37.7	1.84	1.52
9:50	4.21		160	12.58	210	7.12	-46.7	1.93	2.17
9:55	4.21		160	12.62	208	7.10	-49.5	1.98	1.79
10:00	Samples Taken								

COMMENTS:
Bottom of well: 11.27'

Signature: Matt Wells

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis

LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET

SOP No: SA-003 Page: 1 of
Date: 8/13 Rev.: 0
Prepared by: MAW
Approved by:

Site Name: Ely Copper Mine
Project Number/Task: 80024
Sampler(s): MAW
Temperature Range: 70-75
Precipitation: Partly Cloudy
Wind Speed/Direction: 0-5 mph South

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-15A
Sample Date / Time: 8/13 11:35
QA/QC Sample (circle): MS / MSD , DUP
QA/QC Sample Time:
Initial Water Level: 0.25

Equipment Information

Pump Type: Peristaltic
Pump Name/ID: Geopump # 1583
Water Level Name/ID: Solinst #A01146
Multimeter Name/ID: YSI #02D0847AB
Turbidity Name/ID: Lamotte #10803

WELL ID: MW-15A

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
10:50	0.25		210						
10:55	1.41		125	16.16	95	6.70	-50.4	2.65	15.5
11:00	1.50		120	15.38	98	6.50	-50.0	1.41	10.03
11:05	1.50		100	15.10	104	6.33	-46.5	0.95	7.33
11:10	1.52		120	14.65	112	6.26	-47.1	0.57	6.35
11:15	1.56		130	14.50	114	6.26	-48.6	0.56	4.55
11:20	1.58		130	14.51	118	6.29	-47.6	0.63	4.45
11:25	1.61		130	14.58	119	6.34	-46.7	0.67	4.80
11:30	1.65		140	14.68	120	6.37	-46.9	0.65	4.19
11:35	Samples		Taken						

COMMENTS: Depth to Bottom: 7.10'

Signature: [signature]

Attachment 1

Multi-Parameter Meter Calibration Log Sheet

Nobis	Nobis Engineering, Inc.	MULTI-PARAMETER METER CALIBRATION LOG SHEET	Date: 08/14/09 Page 1 of 1
Site: ELYRIA LGS		Model: YSI 650 MDS	
Nobis Project No.: 80024		Serial No.: 13047	
☑ Calibrate following Manufacturer's Instructions		Condition:	

Cal Time: 0730	Pre-Cal. Value	Post-Cal. Value	Calibration Standard (Lot No.)	Signature	Comments
Sp. Cond. (mS/cm)	1.350	1.413	7116	C Pryor	
pH = 4.0	4.85	4.00	7149	C Pryor	OUT OF RANGE
pH = 7.0	6.38	7.00	29093412	C Pryor	OUT OF RANGE
pH = 10.0	10.73	10.00	101 L.	C Pryor	
D.O. (mg/L) %	97.5	100%	1		
ORP (mV)	247.2	240.0	1279	C Pryor	
Turbidity (1 NTUs)	0.92	1.00	–	C Pryor	
Turbidity (10 NTUs)	11.10	10.00	–	C Pryor	
Temp (°C)	15.48	16.5	–	C Pryor	
Salinity (0/00)					

Cal Check Time:	Pre-Cal. Value	Post-Cal. Value	Calibration Standard (Lot No.)	Signature	Comments
Sp. Cond. (mS/cm)	1.413	N/A	SAA	[illegible]	
pH = 4.0	3.43			[illegible]	
pH = 7.0	5.78			[illegible]	
pH = 10.0	10.10			[illegible]	
D.O. (mg/L)	100.6%			[illegible]	
ORP (mV)	217.6			[illegible]	
Turbidity (1 NTUs)	0.93			C Pryor	
Turbidity (10 NTUs)	9.89			C Pryor	
Temp (°C)					
Salinity 0/00					

SAA- Same as above

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis	LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET	SOP No: SA-003 Date: 8/14	Page: 1 of 1 Rev.: 0
		Prepared by:	
		Approved by:	

Site Name: Ely Mines
Project Number/Task: 800 24
Sampler(s): Pchowa
Temperature Range: 70°-80°
Precipitation: —
Wind Speed/Direction: —

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-19C
Sample Date / Time: 08/14/09/1205
QA/QC Sample (circle): MS / MSD , DUP
QA/QC Sample Time: —
Initiall Water Level: 15.98

Equipment Information

Pump Type: GeoPump / Peristaltic
Pump Name/ID:
Water Level Name/ID: Solonist 26279
Multimeter Name/ID: YSI 650 XLS 13047
Turbidity Name/ID: Lamotte 2020e 13973

WELL ID: MW-19C

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) µS/cm 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
1100	15.98		130	[redacted]					
1105	16.06	—	130	13.52	1.041	2.81	212.1	5.49	15.1
1110	16.06	—	130	13.65	1.048	1.88	255.7	5.12	8.66
1115	16.08	—	130	13.47	1.041	1.37	279.6	5.05	9.44
1120	16.10	—	135	13.53	1.032	1.18	290.7	5.07	7.89
1125	16.08	—	135	13.48	0.977	1.01	301.4	5.24	9.73
1130	16.09	—	135	13.70	0.904	0.81	314.1	5.50	9.89
1135	CHANGED YSI AS PH HAS GONE LOWER YSI — 9772								
1140	16.10	—	135	13.89	805	3.46	659.5	6.54	10.31
1145	16.10	—	135	13.48	780	3.29	671.3	6.57	9.57
1150	16.10	—	135	13.39	769	3.31	672.9	6.59	9.00
1155	16.10	—	135	13.29	767	3.36	675.3	6.59	9.30
1200	16.10	—	135	13.33	768	3.39	674.5	6.61	9.38
1205			SAMPLE COLLECTED						

COMMENTS:

Signature:

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis	LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET	SOP No: SA-003 Date: 8/14	Page: 1 of 1 Rev.: 0
		Prepared by:	
		Approved by:	

Site Name: Fly Lines
Project Number/Task: 60024
Sampler(s): PChowa
Temperature Range: 78-80
Precipitation: —
Wind Speed/Direction: —

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-21C
Sample Date / Time: 08/4/09 / 1005
QA/QC Sample (circle): MS / MSD, DUP
QA/QC Sample Time: —
Initial Water Level: 4.06

Equipment Information

Pump Type: GeoBorg / Peristaltic
Pump Name/ID: —
Water Level Name/ID: Solonist 26299
Multimeter Name/ID: YSI 650 09051304 7
Turbidity Name/ID: HI Laotte 10 2013977

WELL ID: MW-21C

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) mS/cm 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
0830	4.08	—	140	[illegible]					
0835	5.11	—	140	12.88	1.091	3.86	197.6	1.71	9.75
0840	5.47	—	140	13.04	1.104	3.32	215.2	0.99	8.60
0845	5.91	—	140	13.10	1.105	2.91	231.9	0.76	9.16
0850	6.02	—	140	13.09	1.106	2.56	248.8	0.68	20.18
0855	6.22	—	140	12.97	1.101	2.05	270.9	0.57	77.50
0900	6.42	—	140	13.15	1.080	2.11	267.3	0.64	243.0
0905	6.66	—	140	13.26	1.053	2.33	254.3	0.79	910.0
0910	6.83	—	140	13.43	1.032	2.62	240.5	1.05	910
0915	6.99	—	140	13.51	1.032	2.51	240.1	1.06	741
0920	7.20	—	140	13.53	1.036	2.40	241.7	1.04	332
0925	7.71	—	140	13.76	1.035	2.28	243.5	1.05	309
0930	8.02	—	140	13.95	1.032	2.35	241.6	1.14	247
0935	8.60	—	145	14.00	1.035	2.16	241.4	1.26	195
0940	8.97	—	140	14.27	1.032	2.13	243.0	1.31	132
0945	9.30	—	140	14.39	1.030	2.15	241.8	1.42	102.2
0950	9.56	—	140	14.46	1.029	2.17	240.8	1.50	79.6
0955	9.81	—	140	14.52	1.028	2.18	240.2	1.56	60.5
1000	9.98	—	140	14.57	1.026	2.13	242.8	1.59	57.3

COMMENTS:
1005 – Turbidity not stabilized collected sample after 1½ hr of Purge
Turbidity = 15 NTU after completing the bottles

Signature: [illegible]

Attachment 1

Multi-Parameter Meter Calibration Log Sheet

Matt Walker

Nobis	Nobis Engineering, Inc.	MULTI-PARAMETER METER CALIBRATION LOG SHEET	Date: 8/14 Page 1 of 1

Site: Ely Copper Mine	Model: YSI 600XL
Nobis Project No.: 80024	Serial No.: 02D0846 AB
☑ Calibrate following Manufacturer's Instructions	Condition: Good

Cal Time: 07:45	Pre-Cal. Value	Post-Cal. Value	Calibration Standard (Lot No.)	Signature see below	Comments
Sp. Cond. (mS/cm)	1410	1413	7168		1413
pH = 4.0	3.94	4.00	7149		
pH = 7.0	7.10	7.00	2904342		
pH = 10.0	9.97	10.00	1012		
D.O. (mg/L) %	100.1%	100.0%	NA		760.0 mmHg
ORP (mV)	244.0	240.1	1279		240.0
Turbidity (1 NTUs)	1.03	1.00	NA		
Turbidity (10 NTUs)	10.21	10.00	NA		
Temp (°C)	—	—	—		
Salinity (0/00)	—	—	—		

Cal Check Time: 12:45	~~Pre-Cal. Value~~ End of Day	~~Post-Cal. Value~~	Calibration Standard (Lot No.)	Signature see below	Comments
Sp. Cond. (mS/cm)	1420	N/A	7168		
pH = 4.0	4.18		7149		
pH = 7.0	6.92		2904342		
pH = 10.0	9.75		1012		
D.O. (~~mg/L~~) 100%	99.0				
ORP (mV)	212.0		1279		
Turbidity (1 NTUs)	0.95		N/A		
Turbidity (10 NTUs)	10.17		N/A		
Temp (°C)	—	—	—		
Salinity 0/00	—	—	—		

Matt Walker

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis	LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET	SOP No: SA-003 Date: 8/14	Page: 1 of 1 Rev.: 0
		Prepared by: MAW	
		Approved by: [illegible]	

Site Name: Gly Copper Mine
Project Number/Task: 60004
Sampler(s): MAW
Temperature Range: 80-85
Precipitation: Sunny
Wind Speed/Direction: 0-5mph North

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-18A
Sample Date / Time: 10:55 8/14
QA/QC Sample (circle): MS / MSD , DUP
QA/QC Sample Time:
Initial Water Level: 10.30

Equipment Information

Pump Type: Peristaltic
Pump Name/ID: Geopump #1885
Water Level Name/ID: Solinst A01146
Multimeter Name/ID: YSI 02170846 AB
Turbidity Name/ID: LaMotte #10803

WELL ID: MW-18A

	Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
	10:15	10.30		160						
~~10:30~~	~~10:20~~	Pumped	Well	Dry						
10:30	~~10:25~~	11.02		100	16.09	707	3.90	186.7	9.21	54.2
10:35	~~10:30~~	11.18		100	16.03	711	3.94	185.5	9.18	50.0
10:40	~~10:35~~	11.20		80	17.15	713	3.98	187.0	9.15	55.1
10:45	~~10:40~~	Pumped	Well	Dry						
~~10:50~~	~~10:45~~									
10:55	~~10:50~~	Samples	Taken							

COMMENTS: Depth to Bottom: 11.24

Signature: [illegible]

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis

LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET

SOP No: SA-003 Page: 1 of 1
Date: 8/14/09 Rev.: 0
Prepared by: MAW
Approved by:

Site Name: Ely Copper Mine
Project Number/Task: 80024
Sampler(s): MAW

Temperature Range: 65-70
Precipitation: Partly Cloudy
Wind Speed/Direction: 0-5 mph north

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-20A
Sample Date / Time: 8/14 9:10

QA/QC Sample (circle): MS / MSD , DUP
QA/QC Sample Time:
Initial Water Level: 6.24

Equipment Information

Pump Type: Peristaltic
Pump Name/ID: Geopump # 1585
Water Level Name/ID: Solinst A011140

Multimeter Name/ID: YSI 02D0846 AB
Turbidity Name/ID: Lamotte 108023

WELL ID: MW-20A

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
8:25	6.24		200	Skip pump & take readings					
8:30	6.89		140	13.84	367	4.48	179.5	7.15	3.11
8:35	7.02		110	14.02	363	4.13	181.5	7.12	11.6
8:40	7.13		110	13.96	361	3.98	180.6	7.06	13.5
8:45	7.21		100	13.99	357	3.96	178.5	7.02	11.7
8:50	7.30		100	14.02	352	3.97	176.6	7.22	4.95
8:55	7.32		100	14.01	346	3.97	176.5	7.31	3.90
9:00	7.36		100	14.04	336	4.00	176.3	7.59	3.11
9:05	7.37		100	14.02	335	4.01	176.0	7.62	2.33
9:10	Samples		Taken						

COMMENTS: Depth to Bottom: 8.60

Signature: [signature]

Josh Stewart

Attachment 1

Multi-Parameter Meter Calibration Log Sheet

8/14/09

Nobis	Nobis Engineering, Inc.	MULTI-PARAMETER METER CALIBRATION LOG SHEET	Date: Page 1 of 1
Site: EIY		Model: YSI 600 XL	
Nobis Project No.: 80029.03		Serial No.: Pine # 9772	
☐ Calibrate following Manufacturer's Instructions		Condition: Fair	

Cal Time: 745	Pre-Cal. Value	Post-Cal. Value	Calibration Standard (Lot No.)	Signature	Comments
Sp. Cond. (mS/cm)	1.378	1.413	7168	JSS	
pH = 4.0	3.99	4.00	7149	JSS	
pH = 7.0	7.04	7.00	2904342	JSS	
pH = 10.0	9.94	9.99	1012	JSS	
D.O. (mg/L)	100.3	100.5	—	JSS	764.1 mmHg
ORP (mV)	242.3	240.0	1279	JSS	
Turbidity <0.1 NTUs)	0.2	—	—	JSS	
Turbidity 20 NTUs)	20.8	—	—	JSS	
Temp (°C)	15.33	—	—	—	—
Salinity (0/00)	—	—	—	—	—

Cal Check Time: 1245	Pre-Cal. Value Evening	Post-Cal. Value	Calibration Standard (Lot No.)	Signature	Comments
Sp. Cond. (mS/cm)	1.419	—	—	C. Pierson	
pH = 4.0	3.91	—	—	C. Pierson	
pH = 7.0	6.73	—	—	C. Pierson	
pH = 10.0	9.55	—	—	C. Pierson	
D.O. (mg/L)	100.40	—	—	C. Pierson	
ORP (mV)	219.60	—	—	C. Pierson	
Turbidity <0.1 NTUs)	0.2	—	—	JSS	
Turbidity 20 NTUs)	19.9	—	—	JSS	
Temp (°C)	32.19				
Salinity 0/00					

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis	LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET	SOP No: SA-003	Page: 1 of 1
		Date:	Rev.: 0
		Prepared by:	
		Approved by:	

Site Name: EIY
Project Number/Task: 80024.03
Sampler(s): Josh Stewart

Temperature Range: 60-70
Precipitation: —
Wind Speed/Direction: —

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-17A
Sample Date / Time: 8/14/09 925

QA/QC Sample (circle): MS / MSD , DUP
QA/QC Sample Time:
Initial Water Level: 8.46

Equipment Information

Pump Type: Peristaltic / Peristaltic-Geopump
Pump Name/ID: Fine # 7535
Water Level Name/ID: Solinst Fine # 8435

Multimeter Name/ID: YSI Fine # 9772
Turbidity Name/ID: HACH Fine # 12357

WELL ID: MW-17A

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/cm) uS/cm 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
830	8.52	—	230						
835	8.53	—	230	15.13	214	7.01	127.9	5.51	1.0
840	8.55	—	230	15.08	195	6.70	181.9	5.43	2.0
845	8.57	—	230	15.22	177	6.61	228.9	5.10	1.4
850	8.58	—	230	15.21	181	6.65	253.5	4.80	1.0
855	8.60	—	230	15.23	186	6.70	283.9	4.77	0.5
900	8.62	—	230	15.26	189	6.70	331.7	4.84	0.9
905	8.63	—	230	15.27	188	6.65	362.9	4.88	0.4
910	8.66	—	230	15.29	183	6.56	408.9	4.96	1.3
915	8.68	—	230	15.28	181	6.48	445.8	4.96	4.5
920	8.70	—	230	15.33	182	6.47	455.7	4.93	4.2
925	—	—	—	—	Done	—	—	—	—

COMMENTS:

Signature: Josh

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis

LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET

SOP No: SA-003 Page: 1 of 1
Date: Rev.: 0
Prepared by:
Approved by:

Site Name: ELY
Project Number/Task: Nov 24. 09
Sampler(s): Eric Stewart
Temperature Range: 75 – 85
Precipitation: —
Wind Speed/Direction:

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: MW-19 A
Sample Date / Time: 8/14/09 1105
QA/QC Sample (circle): MS / MSD, DUP
QA/QC Sample Time:
Initial Water Level: 10.75

Equipment Information

Pump Type: Per Stalt - Peristaltic - Geopump
Pump Name/ID: Pump # 7555
Water Level Name/ID: Solinst Pump # 8433
Multimeter Name/ID: YSI Pump # 9772
Turbidity Name/ID: HACH Pump # 12352

WELL ID: MW-19 A

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10	
1025	10.89	—	190	[illegible]						
1030	11.05	—	190	14.73	586	3.07	629.9	8.61	1.4	
1035	11.18	—	190	14.86	591	3.01	636.4	8.62	5.0	
1040	11.24	—	180	15.06	596	2.98	649.9	8.52	3.4	
1045	11.27	—	170	15.40	596	2.94	658.4	8.50	5.5	
1050	11.30	—	170	15.48	596	2.93	656.2	8.49	3.7	JS
1055	11.32	—	170	15.27	597	2.91	638.8	8.60	4.0	
1100	11.34	—	170	15.44	593	2.87	648.8	8.55	3.7	
1105	—	—	—	Sample	—	—	—	—	—	

COMMENTS:

Signature: [illegible]

Attachment 1

656-5401 → [illegible]

Multi-Parameter Meter Calibration Log Sheet

Nobis	Nobis Engineering, Inc.	MULTI-PARAMETER METER CALIBRATION LOG SHEET	Date: 08/17/09 Page 1 of 2
Site: Sky Copper Mine		Model: YSI 600XL	
Nobis Project No.: 80024		Serial No.: 02T0846 AB	
☒ Calibrate following Manufacturer's Instructions		Condition: Good	

Cal Time: 8:30	Pre-Cal. Value	Post-Cal. Value	Calibration Standard (Lot No.)	Signature	Comments
Sp. Cond. (mS/cm)	1453	1413	7168		1413
pH = 4.0	4.01	4.00	7149		
pH = 7.0	7.09	7.00	2904342		
pH = 10.0	9.83	9.97	1012		
D.O. (mg/L) %	99.7	100.0	—		
ORP (mV)	227.3	239.8	1279		240.0
Turbidity (1 NTUs)	0.95	0.99	—		
Turbidity (10 NTUs)	9.85	9.84	—		
Temp (°C)	—	—	—		
Salinity (0/00)	—	—			

Cal Check Time:	Pre-Cal. Value	Post-Cal. Value	Calibration Standard (Lot No.)	Signature	Comments
Sp. Cond. (mS/cm)					
pH = 4.0					
pH = 7.0					
pH = 10.0	See	Page	2		
D.O. (mg/L)					
ORP (mV)					
Turbidity (___ NTUs)					
Turbidity (___NTUs)		—			
Temp (°C)					
Salinity 0/00					

Attachment 1

Multi-Parameter Meter Calibration Log Sheet

Nobis	Nobis Engineering, Inc.	MULTI-PARAMETER METER CALIBRATION LOG SHEET	Date: 6/17 Page 2 of 2
Site: Ely Copper Mine		Model: YSI	
Nobis Project No.: 80024		Serial No.: 02D0846AB	
☑ Calibrate following Manufacturer's Instructions		Condition: Good	

Cal Time:	Pre-Cal. Value	Post-Cal. Value	Calibration Standard (Lot No.)	Signature	Comments
Sp. Cond. (mS/cm)					
pH = 4.0					
pH = 7.0					
pH = 10.0					
D.O. (mg/L)					
ORP (mV)					
Turbidity (___ NTUs)					
Turbidity (___ NTUs)					
Temp (°C)					
Salinity (0/00)					
Cal Check Time: 10:30	~~Pre-Cal. Value~~ Conditions	Post-Cal. Value	Calibration Standard (Lot No.)	~~Signature~~ see below	Comments
Sp. Cond. (~~µS~~/cm)	1325	N/A	See pg 1		
pH = 4.0	4.06				
pH = 7.0	6.95				
pH = 10.0	10.00				
D.O. ~~(mg/L)~~ %	101.4				
ORP (mV)	225.6				
Turbidity (1 NTUs)	1.02				
Turbidity (10 NTUs)	9.97				
Temp (°C)					
Salinity 0/00					

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis

LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET

SOP No: SA-003 Page: 1 of 1
Date: 8/17 Rev.: 0
Prepared by:
Approved by:

Site Name: ELY COPPER MINE
Project Number/Task: 80024
Sampler(s): A. Fuller / M.W. / L.K

Temperature Range: 80-90 F
Precipitation: none
Wind Speed/Direction: none

SAMPLE INFORMATION

Sampling Round: Aug. 2009
Sample ID: PW05X-081709AX
Sample Date / Time: 8/17/09 1630

QA/QC Sample (circle): MS / MSD, DUP
QA/QC Sample Time:
Initial Water Level: NA

Equipment Information

Pump Type: peristaltic / Geopump
Pump Name/ID:
Water Level Name/ID: N/A

Multimeter Name/ID: YSI 600XL / 02D0846AB
Turbidity Name/ID: Lamotte 2020

WELL ID: PW5

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) cm 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
				Set up pump, initial readings, etc.					
									(LK)
SW → 1555	~~pore water~~			16.23	0.272	4.25	194.9	9.29	<1
1600	pore	water		16.97	0.270	4.06	194.3	7.88	<1
1605	↓	↓	↓	16.80	0.268	4.04	192.1	7.55	<1
1610				16.73	0.269	4.02	192.3	7.53	0.69 (LK)
1615				16.60	0.269	3.95	194.5	7.44	<1
1620				16.57	0.269	3.95	195.6	7.41	<1
pump rate 100 mL/min									

COMMENTS:
sediment temp = 16.0°
depth to sed = 1"

Signature:

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis

LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET

SOP No: SA-003 Page: 1 of
Date: 8/17 Rev.: 0
Prepared by:
Approved by:

Site Name: Ely Copper Mine
Project Number/Task: 80024
Sampler(s): AF/MW/LK
Temperature Range: 85-80
Precipitation: Sunny
Wind Speed/Direction:

SAMPLE INFORMATION

Sampling Round: Aug 09
Sample ID: PW-01X-081709AX
Sample Date / Time: 8/17/09 1520
QA/QC Sample (circle): MS / MSD , DUP
QA/QC Sample Time:
Initial Water Level: N/A

Equipment Information

Pump Type: Peristaltic
Pump Name/ID: Geopump II
Water Level Name/ID: N/A
Multimeter Name/ID: YST 600XL
Turbidity Name/ID: Lamotte 2020

WELL ID: PW-1

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
1445	SW	-	N/A	17.15	.100	7.93	101.5	9.55	0.85
1450	N/A	—	100	17.78	.086	6.48	95.7	2.90	1.03
1455		—	100	17.66	.086	5.94	98.8	3.16	0.88
1500		—	100	17.34	.084	5.85	101.8	3.13	1.30
1505		—	100	17.17	0.083	5.80	98.5	3.21	1.61
1510		—	100	17.32	0.083	5.77	99.3	3.36	1.60
1515		—	100	17.43	0.082	5.74	95.2	3.35	1.81
1520	Samples Taken								

COMMENTS: sediment temp = 16.5°
depth to sediment = 2 3/4"
Sed pore water flux neutral

Signature:

Attachment 1

Multi-Parameter Meter Calibration Log Sheet

8/18/09

Nobis	Nobis Engineering, Inc.	MULTI-PARAMETER METER CALIBRATION LOG SHEET	Date: Page 1 of 1
Site: Ely		Model: 600XL Pine # 9772	
Nobis Project No.: 80024.03		Serial No.:	
☐ Calibrate following Manufacturer's Instructions		Condition: fair	

Cal Time: 740	Pre-Cal. Value	Post-Cal. Value	Calibration Standard (Lot No.)	Signature	Comments
Sp. Cond. (mS/cm) 4	1.384	1.413	7168	Tom	
pH = 4.0 ~~5~~ 3.8	~~7.44~~	4.00	7149	Tom	
pH = 7.0	7.44	7.00	2904342	Tom	
pH = 10.0	9.99	10.00	1012	Tom	
D.O. (~~mg/L~~) %	101.0	100.5	—	Tom	764.1 mmHg
ORP (mV)	243.3	240.0	1279	Tom	
Turbidity 0.1 NTUs)	0.2	—	—	Tom	
Turbidity 20 NTUs)	20.4	—	—	Tom	
Temp (°C)	19.52	—	—		
Salinity (0/00)					

Cal Check Time:	~~Pre-Cal. Value~~ End of day	Post-Cal. Value	Calibration Standard (Lot No.)	Signature	Comments
Sp. Cond. (mS/cm)	1.422	N/A	SAA	Tom	
pH = 4.0	4.03	—		Tom	
pH = 7.0	6.99	—		Tom	
pH = 10.0	9.93	—		Tom	
D.O. (mg/L) %	99.3	—	—	Tom	
ORP (mV)	221.5	—		Tom	
Turbidity 0.1 NTUs)	0.3	—		Tom	
Turbidity 20 NTUs)	20.1	—		Tom	
Temp (°C)	32.22	—			
Salinity 0/00	—	—	—		

SAA - same as above

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis

LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET

SOP No: SA-003 Page: 1 of 1
Date: 8/18 Rev.: 0
Prepared by:
Approved by:

Site Name: E17
Project Number/Task: 86024.03
Sampler(s): Josh Stewart
Temperature Range: 80's
Precipitation: —
Wind Speed/Direction: —

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: PW-4 0.3FT Water Sol
Sample Date / Time: 8/18/09 1355
QA/QC Sample (circle): MS / MSD, DUP
QA/QC Sample Time:
~~Initial Water Level~~ 16.00

Equipment Information

Pump Type: ~~Peristaltic~~ Peristaltic / Geopump
Pump Name/ID: Piu # 7555
Water Level Name/ID:
Multimeter Name/ID: YSI P.Inc #8772
Turbidity Name/ID: HACH Piu # 1257

WELL ID:

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
~~1300~~	NA	—	N/A	See to purge 30 min before sampling					
~~1322~~		—	0	~~17.34~~	~~70~~	~~6.97~~		~~7.03~~	~~0.5~~
Initial SW 1325				17.24	76	6.64	220.0	6.97	0.5
1330		—	150	18.79	74	6.05	48.2	1.26	7.8
1335		—	140	17.81	60	5.74	53.1	0.73	6.4
1340		—	130	17.34	58	5.63	59.9	0.46	2.5
1345		—	130	17.46	58	5.56	67.6	0.67	1.4
1350		—	130	17.59	58	5.53	71.8	0.67	1.0
1355					Sample				

COMMENTS: U-bend even with water surface

Signature:

Porewater neutral flux

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis

LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET

SOP No: SA-003 Page: 1 of 1
Date: 8/18 Rev.: 0
Prepared by:
Approved by:

Site Name: BIY
Project Number/Task: 800 24.03
Sampler(s): Josh Slavery
Temperature Range: 70' – 80
Precipitation:
Wind Speed/Direction:

SAMPLE INFORMATION

Sampling Round: A Summer 09
Sample ID: PW-8 3in water to sd
Sample Date / Time: 8/18/09 1622
QA/QC Sample (circle): MS / MSD , DUP
QA/QC Sample Time:
Well Water Levels Temp 15.00

Equipment Information

Pump Type: Peristaltic/Geopump
Pump Name/ID: Pine # 7555
Water Level Name/ID:
Multimeter Name/ID: YSI Pine # 9772
Turbidity Name/ID: HACH Pine # 10357

WELL ID: PW-6

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
				Set up pump, let flow through cell					
SW 1535				15.98	279	4.02	545.3	8.98	8.8
1555			130	15.98	232	5.63	524.5	4.79	10.0
1600			130	16.03	232	5.63	535.7	4.62	6.6
1605			100	16.07	230	5.60	544.9	4.62	8.0
1610			100	16.14	228	5.60	550.8	4.77	4.5
1615			100	16.31	227	5.60	554.2	4.88	2.8
1620					Sample				

COMMENTS: Porewater Flux is neutral!
U-bens
Neutral

Signature:

Attachment 1

Multi-Parameter Meter Calibration Log Sheet

Matt Webber

Nobis	Nobis Engineering, Inc.	MULTI-PARAMETER METER CALIBRATION LOG SHEET	Date: 8/18/09 Page 1 of 1
Site: Ely Copper Mine		Model: YSI	
Nobis Project No.: 80024		Serial No.: 02D0846 AB	
☑ Calibrate following Manufacturer's Instructions		Condition: Good	

Cal Time: 0740	Pre-Cal. Value	Post-Cal. Value	Calibration Standard (Lot No.)	~~Signature~~ See below	Comments
Sp. Cond. (µS/cm)	1700	1413	7168		
pH = 4.0	3.96	4.00	7140		
pH = 7.0	7.00	7.00	2904342		
pH = 10.0	9.97	10.00	1012		
D.O. (mg/L) ✓.	102.2	100.0			760.0
ORP (mV)	243.0	240.0	1279		240.0
Turbidity (1 NTUs)	0.94	1.00			
Turbidity (10 NTUs)	11.5	10.00			
Temp (°C)					
Salinity (0/00)					

Cal Check Time: ~~0450~~ 1630	~~Pre-Cal. Value~~ End of Day	Post-Cal. Value	Calibration Standard (Lot No.)	~~Signature~~ See below	Comments
Sp. Cond. (µS/cm)	1386	NA	7168		
pH = 4.0	4.17		7140		
pH = 7.0	6.96		2904342		
pH = 10.0	9.90		1012		
D.O. (mg/L) ✓.	98.7				
ORP (mV)	222.3		1279		
Turbidity (1 NTUs)	0.48				
Turbidity (10 NTUs)	10.97				
Temp (°C)	—	—	—		
Salinity 0/00	—	—	—		

Matt Webber

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis

LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET

SOP No: SA-003 Page: 1 of 1
Date: 8/18 Rev.: 0
Prepared by: MAW
Approved by:

Site Name: Ely Copper Mine
Project Number/Task: 80024
Sampler(s): MAW
Temperature Range: 85-90
Precipitation: Sunny
Wind Speed/Direction: Calm

SAMPLE INFORMATION

Sampling Round: ~~PW-2~~ Summer 09
Sample ID: PW-02X-081809AX
Sample Date / Time: 15:10 8/18
QA/QC Sample (circle): MS / MSD , DUP
QA/QC Sample Time:
Initial Water Level: N/A

Equipment Information

Pump Type: Peristaltic
Pump Name/ID: Geopump #1585
Water Level Name/ID: N/A
Multimeter Name/ID: YSI 02D0846 AB
Turbidity Name/ID: Lamotte 108803

WELL ID: PW-2

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (~~mS/m~~ µ) 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
~~14:35~~	~~N/A~~	~~N/A~~	~~N~~	[illegible]					
surface H2O → 14:35	N/A	N/A	N/A	18.18	65	6.78	41.7	9.00	0.00
14:40			110	18.78	64	6.54	42.0	4.92	0.20
14:45			110	18.74	64	6.42	48.2	4.87	0.10
14:50			120	18.77	64	6.20	56.6	5.12	0.00
14:55			100	18.85	64	6.16	58.8	5.30	0.00
15:00			100	18.90	63	6.15	59.1	5.43	0.10
15:05			100	18.96	63	6.16	59.3	5.52	0.00
15:10	Samples	Taken							

COMMENTS: 50' up from stream confluence due to stream being rocky and very few areas of sediment loading.

Signature: [illegible]

Depth to Sediment = 2" Sediment Temp = 18.0

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis

LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET

SOP No: SA-003 Page: 1 of 1
Date: 8/18 Rev.: 0
Prepared by: MAW
Approved by:

Site Name: Sky Copper Mine
Project Number/Task: 800214
Sampler(s): MAW
Temperature Range: 85-90
Precipitation: Sunny
Wind Speed/Direction: 0a/m

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: PW-03X-081809AK
Sample Date / Time: 8/18/09 1330
QA/QC Sample (circle): MS / MSD , DUP
QA/QC Sample Time:
Initial Water Level: N/A

Equipment Information

Pump Type: Peristaltic
Pump Name/ID: Geopump # 1585
Water Level Name/ID: N/A
Multimeter Name/ID: YSI 02D0846AB
Turbidity Name/ID: Lamotte 10803

WELL ID: PW-3

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (µS/m) 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
				Calibrate all Equipment prior to use					
surface H_2O -> 12:55	N/A	N/A	N/A	17.83	66	6.94	34.5	8.96	0.05
13:00			120	18.33	66	6.13	56.5	1.27	0.49
13:05			110	18.11	65	5.95	60.6	0.71	0.37
13:10			110	18.08	64	5.92	60.5	0.68	0.29
13:15			100	18.17	65	5.88	59.0	0.70	0.25
13:20			100	18.56	64	5.87	61.0	1.09	0.27
13:25			100	18.50	64	5.88	60.8	0.78	0.00
13:30	Samples		Taken						

COMMENTS:
Sediment temp = 16.8°
Depth to Sediment = 3"
No Plux

Signature: Matthew Wade

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis

LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET

SOP No: SA-003 Page: 1 of 1
Date: 8/18/09 Rev.: 0
Prepared by: MAW
Approved by:

Site Name: Ely Copper Mine
Project Number/Task: 80024
Sampler(s): MAW JS

Temperature Range: 80-85
Precipitation: Sunny
Wind Speed/Direction: 0 m

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: BM-01X-081809AX
Sample Date / Time: 8/18/09 1030

QA/QC Sample (circle): MS / MSD , DUP
QA/QC Sample Time:
Initial Water Level: 44.36

Equipment Information

Pump Type: Bladder Pump
Pump Name/ID: Micropurge 05492
Water Level Name/ID: Solinst 8435

Multimeter Name/ID: YSI 02170846AB
Turbidity Name/ID: Lamotte 10803

WELL ID: BOW-1 BOM-1

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
9:25	44.36	80/7.5/7.5	120	Set up pump, pt form, prepare equipment					
9:30	44.55	80/7.5/7.5	100	14.96	79	6.55	101.7	9.33	3.13
9:35	44.63	80/7.5/7.5	100	12.26	79	6.33	99.9	9.59	9.71
9:40	44.65	80/7.5/7.5	100	11.96	78	6.25	100.5	8.35	10.11
9:45	44.66	80/7.5/7.5	110	11.61	78	6.18	90.1	8.08	6.42
9:50	Tank	out of	air	, change	d tank				
10:05 ~~9:55~~	44.65	80/7.5/7.5	125	11.95	79	6.15	70.5	8.09	8.98
10:10 ~~10:00~~	44.66	80/7.5/7.5	125	11.84	78	6.14	75.0	8.23	13.0
10:15	44.71	80/7.5/7.5	120	11.57	77	6.10	69.9	8.29	7.42
10:20	44.72	80/7.5/7.5	120	11.46	77	6.11	67.4	8.07	7.80
10:25	44.73	80/7.5/7.5	120	11.49	77	6.10	66.9	7.99	7.11
10:30	Samples		Taken						

COMMENTS:

Signature: [signature]

Attachment 3

Low-Flow/Low-Stress Groundwater Sampling Log Sheet

Nobis

LOW-FLOW/ LOW-STRESS GROUNDWATER SAMPLING LOG SHEET

SOP No: SA-003 Page: 1 of 1
Date: 8/19 Rev.: 0
Prepared by: MAW
Approved by:

Site Name: Ely Copper Mine
Project Number/Task: 80084
Sampler(s): MAW
Temperature Range: 70-75
Precipitation: Sunny
Wind Speed/Direction:

SAMPLE INFORMATION

Sampling Round: Summer 09
Sample ID: PW-07X-081909AX
Sample Date / Time: 8/19 9:35
QA/QC Sample (circle): MS / MSD, DUP
QA/QC Sample Time:
~~Initial Water Level~~ Sediment temp 15.65°C

Equipment Information

Pump Type: Peristaltic
Pump Name/ID: Geopump #
Water Level Name/ID: N/A
Multimeter Name/ID: YSI # 3177
Turbidity Name/ID: Hatch # 12357

WELL ID: PW-7

Time	Water Level Reading	Bladder Pressure/ Refill/ Discharge	Purge Rate (mL/min)	Temp (°C) 3%	Specific Conductivity (mS/m) 3%	pH +/-0.1	ORP / Eh3 (mV) +/-10 mV	DO (mg/L) 10%	Turbidity (NTU) 10% or <10
				Set up pump, lower tubing into well					
Surface H_2O → 9:00	N/A	N/A	N/A	16.00	353	3.90	219.8	7.37	6.2
9:10			130	17.10	319	3.98	212.5	6.80	20.2
9:15			120	16.88	318	3.95	210.4	6.53	8.8
9:20			120	16.68	319	3.93	210.6	6.51	7.0
9:25			120	16.93	319	3.93	211.9	6.59	3.1
9:30			120	16.92	320	3.94	210.7	6.61	2.8
9:35	Samples Taken								

COMMENTS: Depth to Sediment = 1"
Location is 15' downstream of map location. Hit refusal at many locations including final location.

Signature: Matt Wall

Negative Flux

Attachment 1

8/19/09

Multi-Parameter Meter Calibration Log Sheet

Nobis	Nobis Engineering, Inc.	MULTI-PARAMETER METER CALIBRATION LOG SHEET	Date: Page 1 of 1
Site: E17 Copper Mine		Model: YSI 600XL	
Nobis Project No.: 9024.03		Serial No.: Pine # 3177	
☑ Calibrate following Manufacturer's Instructions		Condition: Fair	

Cal Time: 750	Pre-Cal. Value	Post-Cal. Value	Calibration Standard (Lot No.)	Signature	Comments
Sp. Cond. (mS/cm)	1.432	1.413	7168	Tom	
pH = 4.0	4.02	4.00	7149	Tom	
pH = 7.0	6.86	7.00	2904342	Tom	
pH = 10.0	10.37	10.06	1012	Tom	
D.O. ~~(mg/L)~~ %	100.5	100.0	—	Tom	
ORP (mV)	241.3	239.9	1279	Tom	
Turbidity (0 NTUs)	0.4		—	Tom	Pine #12357
Turbidity (20 NTUs)	20.2		—	Tom	HACH
Temp (°C)					
Salinity (0/00)					

Cal Check Time: 1115	~~Pre-Cal. Value~~ End of Day	Post-Cal. Value	Calibration Standard (Lot No.)	Signature	Comments
Sp. Cond. (mS/cm)	1367	—	7168	[illegible]	
pH = 4.0	4.11	—	7149	[illegible]	
pH = 7.0	6.91	—	2904342	[illegible]	
pH = 10.0	9.92	—	1012	[illegible]	
D.O. ~~(mg/L)~~ %	100.9	—	#29.7		
ORP (mV)		—	1279	[illegible]	
Turbidity (0 NTUs)	0.3	—	—	Tom	Pine #12357
Turbidity (20 NTUs)	20.3	—	—	Tom	Hach
Temp (°C)					
Salinity 0/00					

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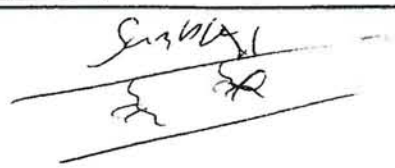
FIELD DATA RECORD - SURFACE WATER SAMPLING

PROJECT	E17 Ely Copper Mine	JOB NUMBER	80024.03	DATE	8/4/09
FIELD SAMPLE ID	SW-42 SW-42	ACTIVITY TIME	START END	SAMPLE TIME	1100
QC SAMPLES	None	ASSOCIATED TRIP BLANK	—		
EQUIPMENT	Peri Pump - YSI				

APPROXIMATE SAMPLE LOCATION SKETCH



WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
				~~10.84~~	~~619.2~~	~~5.7~~		~~4799~~
				~~10.82~~	~~617.2~~	~~5.7~~		5 gal Decon
—	—	0.658	7.67	8.38	479.4	127.7	10 gpm	5299
		0.658	3.67	8.38	479.4	123.7	10 gpm	

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
☐	VOCs				☐
☑	TAL Metals (total)				☑
☑	TAL Metals (dissolved)				☑
☐	SPLP Metals				☐
☐	ABA				☐
☐	Paste pH				☐
☐	Paste Cond.				☐
☐	Paste Cond.				☐
☑	TOC				☑
☐	Grain-size				☐
☐					☐
☐					☐

NOTES/OBSERVATIONS:

SIGNATURE: [signature]

Checked By:

RECEIVED BY:

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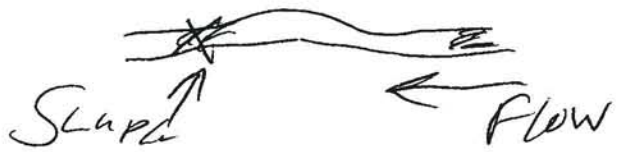
FIELD DATA RECORD - SURFACE WATER SAMPLING

PROJECT	EIT Ely Copper Mine	JOB NUMBER	8000 24.03	DATE	8/4/09
FIELD SAMPLE ID	SW-29 SW-29	ACTIVITY TIME	START END	SAMPLE TIME	1417
QC SAMPLES	None	ASSOCIATED TRIP BLANK	—		
EQUIPMENT	Peri-pump-YSI				

APPROXIMATE SAMPLE LOCATION SKETCH



WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
	15.57	0.223	4.26	9.33	326.9	223.2		Pine # 5249
	15.57	0.223	4.26	9.33	326.9	223.2	20 g/hr	5 gal bucket

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
☐	VOCs				☐
☑	TAL Metals (total)				☑
☑	TAL Metals (dissolved)				☑
☐	SPLP Metals				☐
☐	ABA				☐
☐	Paste pH				☐
☐	Paste Cond.				☐
☐	Paste Cond.				☐
☑	TOC				☑
☐	Grain-size				☐
☐					☐
☐					☐

NOTES/OBSERVATIONS:

SIGNATURE: [signature]

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FIELD DATA RECORD - SURFACE WATER SAMPLING

PROJECT	ELY Ely Copper Mine	JOB NUMBER	80027-07	DATE	8/4/09
FIELD SAMPLE ID	SW-71 SW71	ACTIVITY TIME	START END	SAMPLE TIME	1130
QC SAMPLES	MS/MSD	ASSOCIATED TRIP BLANK	—		
EQUIPMENT	Peri Pump YSI				

APPROXIMATE SAMPLE LOCATION SKETCH

No flow
very small narrow sample

WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
	21.82	0.180	4.57	8.12	408.2	138.9	0	5299
	21.82	0.180	4.57	8.12	408.2	138.9		

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
☐	VOCs				☐
☑	TAL Metals (total)				☑
☑	TAL Metals (dissolved)				☑
☐	SPLP Metals				☐
☐	ABA				☐
☐	Paste pH				☐
☐	Paste Cond.				☐
☐	Paste Cond.				☐
☑	TOC				☑
☐	Grain-size				☐
☐					☐
☐					☐

NOTES/OBSERVATIONS:

SIGNATURE: [signature]

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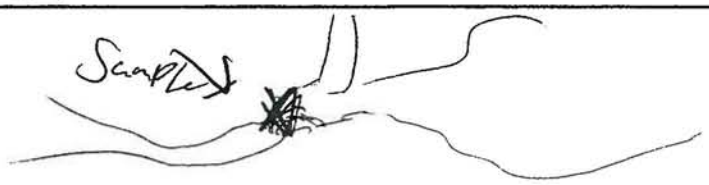
FIELD DATA RECORD - SURFACE WATER SAMPLING

PAGE 1 OF 1

PROJECT	E17 Ely Copper Mine	JOB NUMBER	80024.03	DATE	8/4/09
FIELD SAMPLE ID	SW-82 SW82	ACTIVITY TIME	START END	SAMPLE TIME	1315
QC SAMPLES	None	ASSOCIATED TRIP BLANK	—		
EQUIPMENT	Peri Pump YSI				

APPROXIMATE SAMPLE LOCATION SKETCH



WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
	21.01	0.773	2.93	.772	471.5	123.0		5299 # Pine YSI
	21.01	0.773	2.93	7.72	471.5	123.0	40%/N/A	5 gal Bucket

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
☐	VOCs				☐
☑	TAL Metals (total)				☑
☑	TAL Metals (dissolved)				☑
☐	SPLP Metals				☐
☐	ABA				☐
☐	Paste pH				☐
☐	Paste Cond.				☐
☐	Paste Cond.				☐
☑	TOC				☑
☐	Grain-size				☐
☐					☐
☐					☐

NOTES/OBSERVATIONS:

SIGNATURE: [signature]

Checked By:

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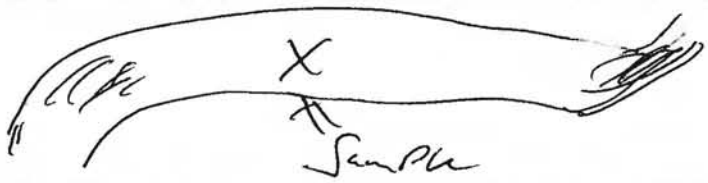
FIELD DATA RECORD - SURFACE WATER SAMPLING

PROJECT	E17 Ely Copper Mine	JOB NUMBER	8002807	DATE	8/4/09
FIELD SAMPLE ID	SW-40 / SW-40	ACTIVITY TIME	START END	SAMPLE TIME	1400
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—		
EQUIPMENT	Per. Pump / YSI				

APPROXIMATE SAMPLE LOCATION SKETCH



WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
								# 5299 YSI
	17.28	0.084	5.29	9.35	235.0	117.6		Pine (8)
	17.28	0.084	5.29	9.35	235.0	117.6		leaf. 5 ft 60 in across
								4.5 ft vs Depth
								2 ft / 2.3 Sec

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
	VOCs				
✓	TAL Metals (total)				✓
✓	TAL Metals (dissolved)				✓
	SPLP Metals				
	ABA				
	Paste pH				
	Paste Cond.				
	Paste Cond.				
✓	TOC				✓
	Grain-size				

60 in X 4.5 in X 24 in / 2.3

NOTES/OBSERVATIONS:

Flow Rate =

60 in X 4.5 in X 24 in / 2.3 sec = 1.63 ft³/sec = 731.6 gpm

SIGNATURE: [signature]

Checked By:

RECEIVED BY:

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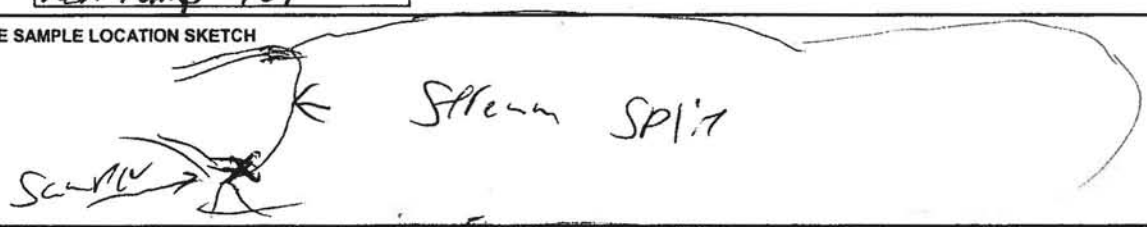
FIELD DATA RECORD - SURFACE WATER SAMPLING

PROJECT	Ely	JOB NUMBER	80024.03	DATE	8/4/09
FIELD SAMPLE ID	W-41 SW-41	ACTIVITY TIME	START END	SAMPLE TIME	1018
QC SAMPLES	None	ASSOCIATED TRIP BLANK	—		
EQUIPMENT	Peri Pump - 451				

APPROXIMATE SAMPLE LOCATION SKETCH



WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
1029	18.73	0.102	7.21	9.46	226.2	139.7		Pine 5299
	18.73	0.103	7.21	9.46	226.2	139.7	5/6	5 gal Bucket
							50/min	50 gal/min

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
☐	VOCs				☐
☑	TAL Metals (total)				☑
☑	TAL Metals (dissolved)				☑
☐	SPLP Metals				☐
☐	ABA				☐
☐	Paste pH				☐
☐	Paste Cond.				☐
☐	Paste Cond.				☐
☑	TOC				☑
☐	Grain-size				☐
☐					☐
☐					☐

NOTES/OBSERVATIONS:

SIGNATURE: [signature]

Checked By:

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FIELD DATA RECORD - SURFACE WATER SAMPLING

PROJECT	ELY Ely Copper Mine	JOB NUMBER	8(029.03)	DATE	8/4/09
FIELD SAMPLE ID	SW-17 SW-17	ACTIVITY TIME	START END	SAMPLE TIME	1447
QC SAMPLES	MS / MSD	ASSOCIATED TRIP BLANK	—		
EQUIPMENT	Peri Pump / YSI				

APPROXIMATE SAMPLE LOCATION SKETCH

WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
	16.21	0.059	5.53	9.32	218.1	232.5	[illegible]	Pine # 5299
	16.21	0.059	5.53	9.32	218.1	232.5	100 gpm	5 gal bucket
							100 gpm	

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
☐	VOCs				☐
☑	TAL Metals (total)				☑
☑	TAL Metals (dissolved)				☑
☐	SPLP Metals				☐
☐	ABA				☐
☐	Paste pH				☐
☐	Paste Cond.				☐
☐	Paste Cond.				☐
☑	TOC				☑
☐	Grain-size				☐
☐					☐
☐					☐

NOTES/OBSERVATIONS:

SIGNATURE: [signature]

Checked By:

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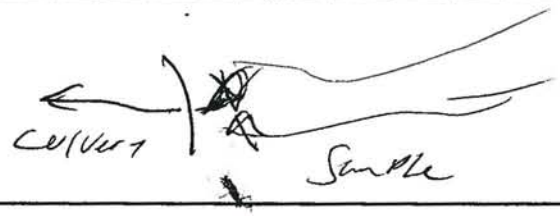
FIELD DATA RECORD - SURFACE WATER SAMPLING

PAGE 1 OF 1

PROJECT	ELY Ely Copper Mine	JOB NUMBER	80024.03	DATE	8/4/09
FIELD SAMPLE ID	JW-51 SW51	ACTIVITY TIME	START END	SAMPLE TIME	1540
QC SAMPLES	None	ASSOCIATED TRIP BLANK	—		
EQUIPMENT	Peri Pump YSI				

APPROXIMATE SAMPLE LOCATION SKETCH



WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
	18.03	0.078	6.36	8.37	214.8	246.3	10 g/min	Phe # 3299
	18.05	0.078	6.36	8.37	214.8	246.3		35 bucket
							10 gpm	

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
☐	VOCs				☐
☑	TAL Metals (total)				☑
☑	TAL Metals (dissolved)				☑
☐	SPLP Metals				☐
☐	ABA				☐
☐	Paste pH				☐
☐	Paste Cond.				☐
☐	Paste Cond.				☐
☑	TOC				☑
☐	Grain-size				☐
☐					☐
☐					☐

NOTES/OBSERVATIONS:

SIGNATURE: [signature]

Checked By:

RECEIVED BY:

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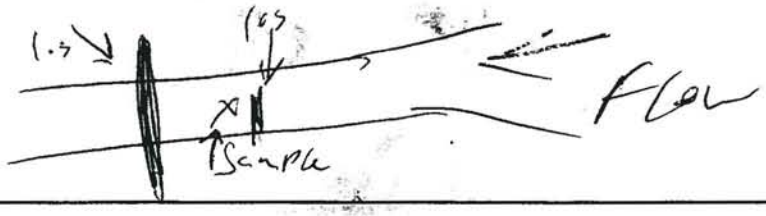
CONCORD, NH - LOWELL, MA

FIELD DATA RECORD - SURFACE WATER SAMPLING

PROJECT	~~ELY~~ Ely Copper Mine	JOB NUMBER	8021.07	DATE	8/4/09
FIELD SAMPLE ID	~~SW-73~~ SW73	ACTIVITY TIME	START END	SAMPLE TIME	1606
QC SAMPLES	None	ASSOCIATED TRIP BLANK			
EQUIPMENT	Peri Pump / YSI				

APPROXIMATE SAMPLE LOCATION SKETCH



WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
	19.51	0.076	6.49	6.35	252.9	238.1		Pump # 3299
	19.51	0.076	6.49	6.35	252.9	238.1	3 3/4	5 gal bucket
							3 gpm	

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
	VOCs				
✓	TAL Metals (total)				✓
✓	TAL Metals (dissolved)				✓
	SPLP Metals				
	ABA				
	Paste pH				
	Paste Cond.				
	Paste Cond.				
✓	TOC				✓
	Grain-size				

NOTES/OBSERVATIONS:

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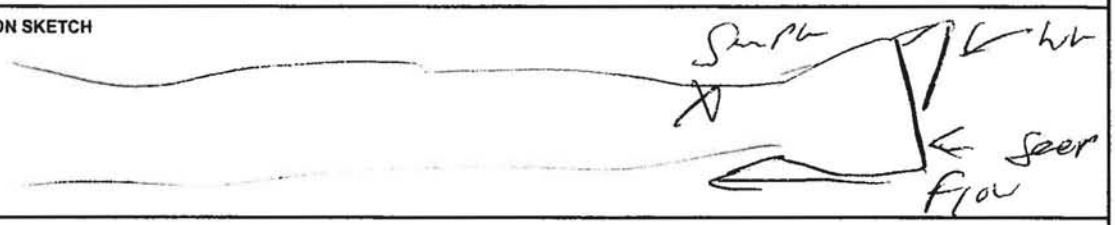
FIELD DATA RECORD - SURFACE WATER SAMPLING

PROJECT	Ely Ely Copper Mine	JOB NUMBER	80-24.03	DATE	9/3/09
FIELD SAMPLE ID	SW-49 SW-49	ACTIVITY TIME	START END	SAMPLE TIME	840
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—		
EQUIPMENT	YSI Peristal Pump				

APPROXIMATE SAMPLE LOCATION SKETCH



WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
	8.78	0.438	3.47	12.65	440	280.7		Pine # 5299
	8.78	0.438	3.47	12.65	440	280.7	15 L/min	1 liter bottle
							4 gpm	

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
	VOCs				
X	TAL Metals (total)		NO_3	1 L	✓
X	TAL Metals (dissolved)		NO_3	1 L	✓
	SPLP Metals				
	ABA				
	Paste pH				
	Paste Cond.				
	Paste Cond.				
X	TOC				✓
	Grain-size				

NOTES/OBSERVATIONS:

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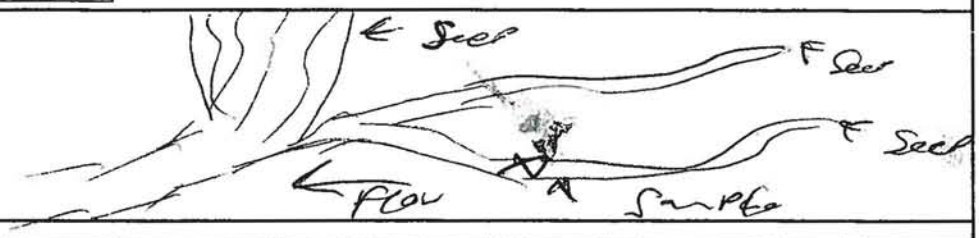
FIELD DATA RECORD - SURFACE WATER SAMPLING

PROJECT	ELY Ely Copper Mine	JOB NUMBER	80024.03	DATE	8/5/09
FIELD SAMPLE ID	SW-78 SW-78	ACTIVITY TIME	START END	SAMPLE TIME	0923
QC SAMPLES	DUP	ASSOCIATED TRIP BLANK	—		
EQUIPMENT	YSI Rediflow Pump				

APPROXIMATE SAMPLE LOCATION SKETCH



WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
	17.88	1.054	3.03	9.49	461.6	283.1		Pine # 5299
	17.88	1.054	3.03	9.49	461.6	283.1	1L/min	1L bottle
							0.26 gpm	

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
☐	VOCs				☐
☒	TAL Metals (total)				☑
☒	TAL Metals (dissolved)				☑
☐	SPLP Metals				☐
☐	ABA				☐
☐	Paste pH				☐
☐	Paste Cond.				☐
☐	Paste Cond.				☐
☒	TOC				☑
☐	Grain-size				☐
☐					☐
☐					☐

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FIELD DATA RECORD - SURFACE WATER SAMPLING

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PROJECT	F17 Ely Copper Mine	JOB NUMBER	80024-07	DATE	8/5/04
FIELD SAMPLE ID	SV-74 SW-74	ACTIVITY TIME	START END	SAMPLE TIME	1002
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—		
EQUIPMENT	YSI Peristaltic Pump				

APPROXIMATE SAMPLE LOCATION SKETCH

DRY

WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
		DRY						Phone # 5299

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
☐	VOCs				☐
☐	TAL Metals (total)				☐
☐	TAL Metals (dissolved)				☐
☐	SPLP Metals				☐
☐	ABA				☐
☐	Paste pH				☐
☐	Paste Cond.				☐
☐	Paste Cond.				☐
☐	TOC				☐
☐	Grain-size				☐
☐					☐
☐					☐

NOTES/OBSERVATIONS:

location DRY

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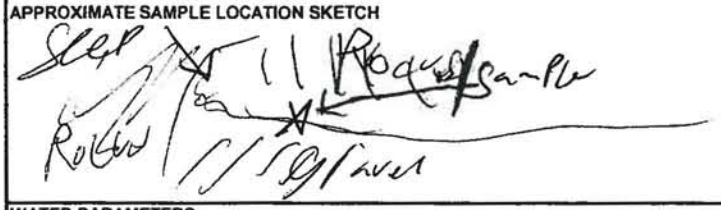
FIELD DATA RECORD - SURFACE WATER SAMPLING

PROJECT	ELY Ely Copper Mine	JOB NUMBER	80029.03	DATE	8/5/09
FIELD SAMPLE ID	SW-76 SW-76	ACTIVITY TIME	START END	SAMPLE TIME	1023
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—		
EQUIPMENT	YSI Peristaltic Pump				

APPROXIMATE SAMPLE LOCATION SKETCH



WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
	17.73	0.595	3.36	10.93	350	268.3		Flow # 5279
	17.73	0.595	3.36	10.93	350	268.3	1L/min	1 liter bottle
							0.26 gpm	

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
	VOCs				
X	TAL Metals (total)				✓
X	TAL Metals (dissolved)				✓
	SPLP Metals				
	ABA				
	Paste pH				
	Paste Cond.				
	Paste Cond.				
✓	TOC				✓
	Grain-size				

NOTES/OBSERVATIONS:

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FIELD DATA RECORD - SURFACE WATER SAMPLING

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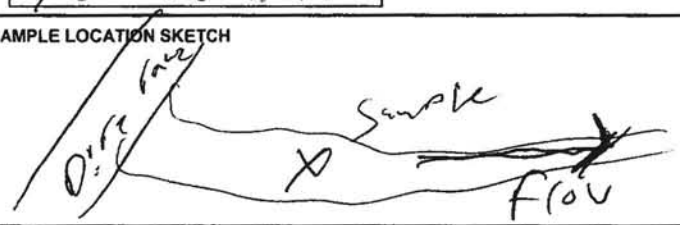
PROJECT	~~ELY~~ Ely Copper Mine	JOB NUMBER	00 28 03	DATE	8/5/07
FIELD SAMPLE ID	SW-47 SW-47	ACTIVITY TIME	START END	SAMPLE TIME	1100
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—		
EQUIPMENT	YSI Peristaltic Pump				

APPROXIMATE SAMPLE LOCATION SKETCH



WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
	23.57	1.367	2.69	8.42	500.0	270.1		Pine # 3299
	23.57	1.369	2.69	8.42	500.0	270.1	6L/min	1 Liter Bottle
							1.58 gpm	

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
	VOCs				
✓	TAL Metals (total)				✓
✓	TAL Metals (dissolved)				✓
	SPLP Metals				
	ABA				
	Paste pH				
	Paste Cond.				
	Paste Cond.				
✓	TOC				✓
	Grain-size				

NOTES/OBSERVATIONS:

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FIELD DATA RECORD - SURFACE WATER SAMPLING

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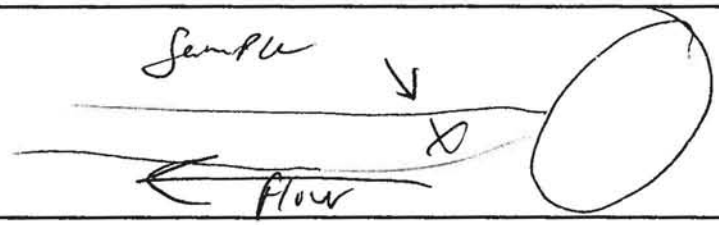
PROJECT	EIS Ely Copper Mine	JOB NUMBER	80024.03	DATE	8/5/09
FIELD SAMPLE ID	SW-77 SW-77	ACTIVITY TIME	START END	SAMPLE TIME	1156
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—		
EQUIPMENT	YSI Peristaltic Pump				

APPROXIMATE SAMPLE LOCATION SKETCH



WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
	14.20	0.138	3.88	7.49	372.8	199.9		Pine # 5299
	14.20	0.138	3.88	7.49	372.8	199.9	1L/min	1 liter bottle
							0.26 gpm	

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
	VOCs				
X	TAL Metals (total)				✓
X	TAL Metals (dissolved)				✓
	SPLP Metals				
	ABA				
	Paste pH				
	Paste Cond.				
	Paste Cond.				
✓	TOC				✓
	Grain-size				

NOTES/OBSERVATIONS:

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FIELD DATA RECORD - SURFACE WATER SAMPLING

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PROJECT	EIY Ely Copper Mine	JOB NUMBER	80024.03	DATE	9/5/09
FIELD SAMPLE ID	SW-48 SW-48	ACTIVITY TIME	START END	SAMPLE TIME	1217
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—		
EQUIPMENT	YSI Arsenic Rod				

APPROXIMATE SAMPLE LOCATION SKETCH

WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
	15.34	0.131	4.00	8.67	402.5	169.1		Phone # 5299
	15.34	0.131	4.00	8.67	402.5	169.1	74/min	1 liter bottle
							1.85 gpm	

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
	VOCs				
X	TAL Metals (total)				✓
X	TAL Metals (dissolved)				✓
	SPLP Metals				
	ABA				
	Paste pH				
	Paste Cond.				
	Paste Cond.				
✓	TOC				✓
	Grain-size				

NOTES/OBSERVATIONS:

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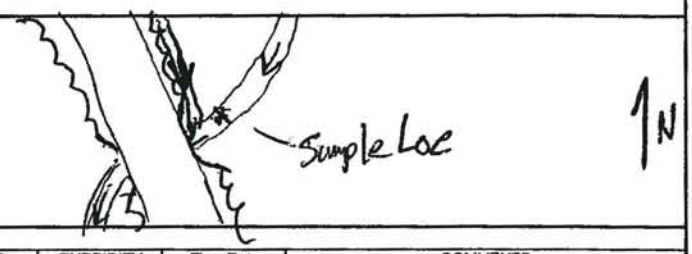
FIELD DATA RECORD - SURFACE WATER SAMPLING

PROJECT	Ely Copper Mine	JOB NUMBER	80024.03	DATE	8/5/09
FIELD SAMPLE ID	SW-80	ACTIVITY TIME	START 1300 END 1325	SAMPLE TIME	1315
QC SAMPLES	None.	ASSOCIATED TRIP BLANK	N/A		
EQUIPMENT	YSI 6920 Peri Pump				

APPROXIMATE SAMPLE LOCATION SKETCH



WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
1320	15.59	.272	2.84*	9.46	6800	13.3	12.GPM	Bucket

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
☐	VOCs				☐
☑	TAL Metals (total)				☑
☑	TAL Metals (dissolved)				☑
☐	SPLP Metals				☐
☐	ABA				☐
☐	Paste pH				☐
☐	Paste Cond.				☐
☐	Paste Cond.				☐
☑	TOC				☑
☐	Grain-size				☐
☑	Other				☑
☐					☐

NOTES/OBSERVATIONS:

None. *pH reading does not seem accurate. Same issues as yesterday. Reading low. Will call Pine tonight/P.M.

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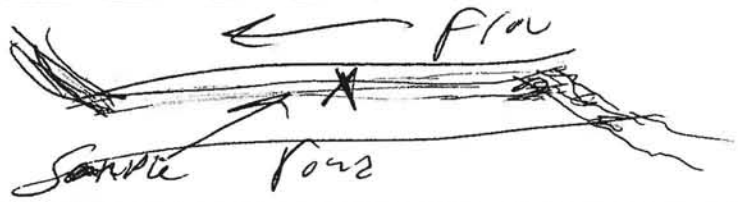
FIELD DATA RECORD - SURFACE WATER SAMPLING

PAGE 1 OF 1

PROJECT	ELY Ely Copper Mine	JOB NUMBER	9U24.03	DATE	9/5/09
FIELD SAMPLE ID	SV-75 SW-75	ACTIVITY TIME	START END	SAMPLE TIME	1355
QC SAMPLES	DUP	ASSOCIATED TRIP BLANK	—		
EQUIPMENT	YSI Peristaltic Pump				

APPROXIMATE SAMPLE LOCATION SKETCH



WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
	15.23	0.688	2.96	11.27	533	168.5		Pine #5299
	15.23	0.688	2.96	11.27	533	168.5	See	leaf / filter
							Note	

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
☐	VOCs				☐
☒	TAL Metals (total)				☑
☒	TAL Metals (dissolved)				☑
☐	SPLP Metals				☐
☐	ABA				☐
☐	Paste pH				☐
☐	Paste Cond.				☐
☐	Paste Cond.				☐
☑	TOC				☑
☐	Grain-size				☐
☐					☐
☐					☐

NOTES/OBSERVATIONS:

1 ft / sec × 9 in W × 0.4 in D = flow rate
= ~~8~~ ~9 gpm

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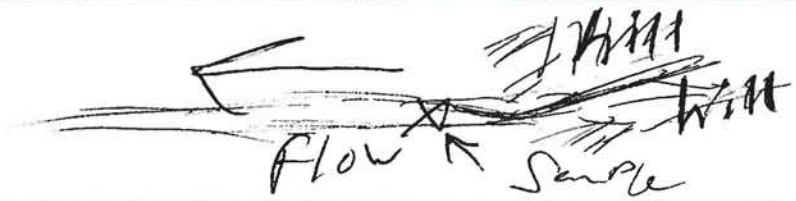
FIELD DATA RECORD - SURFACE WATER SAMPLING

PAGE 1 OF 1

PROJECT	ELY Ely Copper Mine	JOB NUMBER	80024.03	DATE	8/5/09
FIELD SAMPLE ID	SW-43 SW43	ACTIVITY TIME	START END	SAMPLE TIME	1435
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—		
EQUIPMENT	YSI Peristaltic PUMP				

APPROXIMATE SAMPLE LOCATION SKETCH



WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
	24.58	0.737	2.96	8.52	524.1	184.4		Pipe # 5299
	~~24.38~~	0.737	2.96	~~8.82~~	~~324.1~~	184.4	5L/min	1L liter bottle
	24.58			8.52	524.1		5 L/min = 1.32 gpm	

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
	VOCs				
X	TAL Metals (total)				✓
X	TAL Metals (dissolved)				✓
	SPLP Metals				
	ABA				
	Paste pH				
	Paste Cond.				
	Paste Cond.				
✓	TOC				✓
	Grain-size				

NOTES/OBSERVATIONS:

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FIELD DATA RECORD - SURFACE WATER SAMPLING

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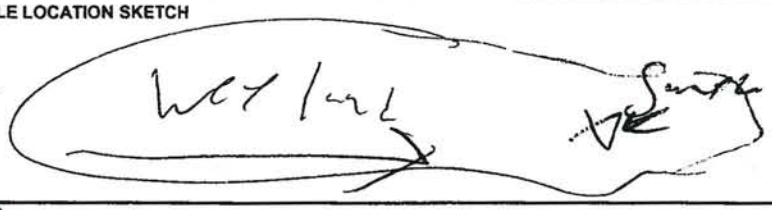
PROJECT	ELY Copper Mine	JOB NUMBER	80029-07	DATE	8/5/09
FIELD SAMPLE ID	SW-46 SW-46	ACTIVITY TIME	START END	SAMPLE TIME	~~[illegible]~~ 1515
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—		
EQUIPMENT	YSI Peristaltic pump				

APPROXIMATE SAMPLE LOCATION SKETCH



WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
	13.82	0.693	3.15	12.19	471.3	163.4	None	Pre-H 5299
	13.82	0.693	3.15	12.19	471.3	163.4		No Flow

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
	VOCs				
X	TAL Metals (total)				✓
X	TAL Metals (dissolved)				✓
	SPLP Metals				
	ABA				
	Paste pH				
	Paste Cond.				
	Paste Cond.				
✓	TOC				✓
	Grain-size				

NOTES/OBSERVATIONS:

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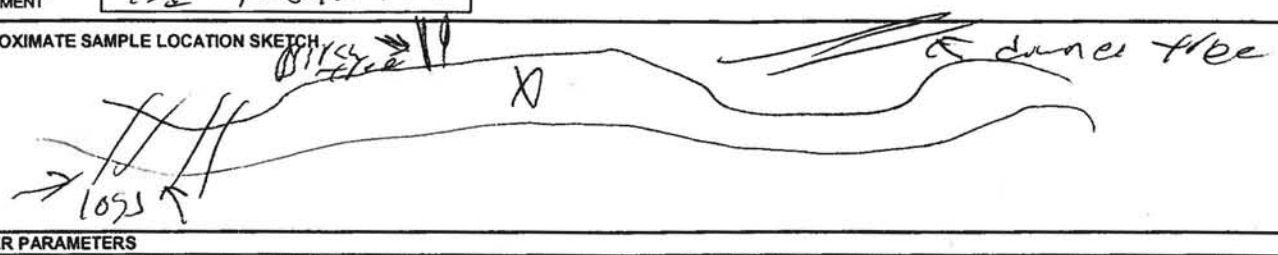
FIELD DATA RECORD - SURFACE WATER SAMPLING

PROJECT	EIY Ely Copper Mine	JOB NUMBER	8...24.03	DATE	8/5/03
FIELD SAMPLE ID	SW-81 SW-81	ACTIVITY TIME START END		SAMPLE TIME	1540
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—		
EQUIPMENT	YSI Persolle Pump				

APPROXIMATE SAMPLE LOCATION SKETCH



WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
	14.01	1.046	2.73	17.16	538	165.3	60 g/min	
	14.01	1.046	2.73	17.16	538	165.3	60 g/min	5 gall buckets

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
	VOCs				
X	TAL Metals (total)				✓
X	TAL Metals (dissolved)				✓
	SPLP Metals				
	ABA				
	Paste pH				
	Paste Cond.				
	Paste Cond.				
✓	TOC				✓
	Grain-size				

NOTES/OBSERVATIONS:

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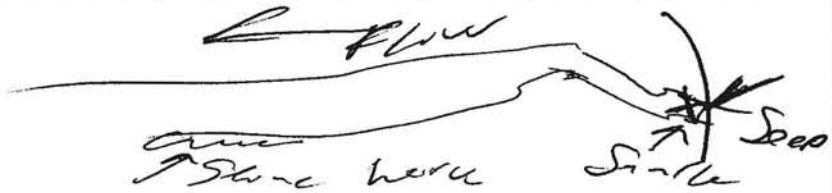
FIELD DATA RECORD - SURFACE WATER SAMPLING

PROJECT	E17 Ely Copper Mine	JOB NUMBER	80024.03	DATE	8/3/09
FIELD SAMPLE ID	SW-45 SW-45	ACTIVITY TIME START	END	SAMPLE TIME	1610
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—		
EQUIPMENT	YSI Peristaltic Pump				

APPROXIMATE SAMPLE LOCATION SKETCH



WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
	9.34	0.780	3.21	15.07	495.6	157.9	10 L/min	Pine # 5299
	9.34	0.780	3.21	15.07	495.6	157.9	10 L/min	1 liter bottle

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
	VOCs				
X	TAL Metals (total)				✓
✓	TAL Metals (dissolved)				✓
	SPLP Metals				
	ABA				
	Paste pH				
	Paste Cond.				
	Paste Cond.				
✓	TOC				✓
	Grain-size				

NOTES/OBSERVATIONS:

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FIELD DATA RECORD - SURFACE WATER SAMPLING

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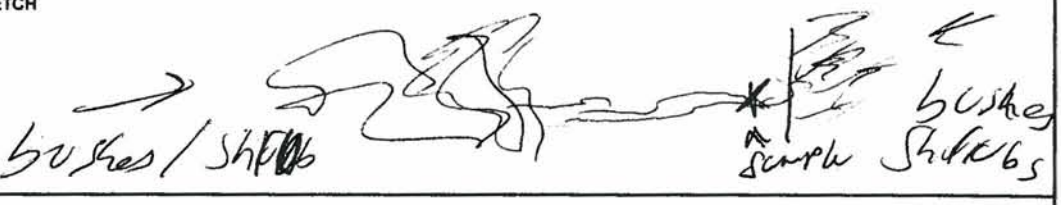
PROJECT	EIN Ely Copper Mine	JOB NUMBER	80024.03	DATE	9/6/09
FIELD SAMPLE ID	SW-79 SW-79	ACTIVITY TIME	START END	SAMPLE TIME	836
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—		
EQUIPMENT	YSI Persistalt				

APPROXIMATE SAMPLE LOCATION SKETCH



WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
	16.88	0.609	3.60	7.52	433.5	160.7		Pic # 5299
	16.88	0.609	3.60	7.52	433.5	160.7	no flow	

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
☐	VOCs				☐
☒	TAL Metals (total)				☑
☒	TAL Metals (dissolved)				☑
☐	SPLP Metals				☐
☐	ABA				☐
☐	Paste pH				☐
☐	Paste Cond.				☐
☑	Paste Cond.				☐
☑	TOC				☑
☐	Grain-size				☐
☐					☐
☐					☐

NOTES/OBSERVATIONS:
2 Pictures

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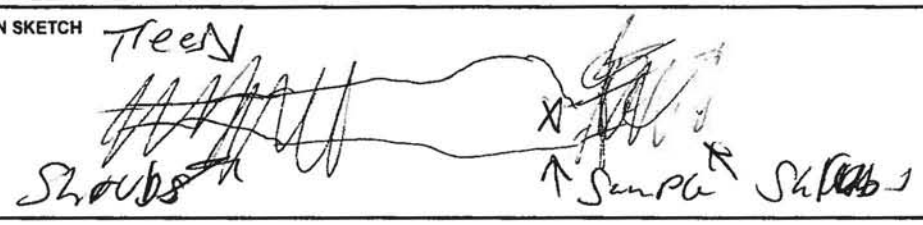
FIELD DATA RECORD - SURFACE WATER SAMPLING

PAGE 1 OF 1

PROJECT	E17 Ely Copper Mine	JOB NUMBER	80024.03	DATE	8/6/09
FIELD SAMPLE ID	SW-34 SW-34	ACTIVITY TIME	START END	SAMPLE TIME	924
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—		
EQUIPMENT	YSI Persistalic Pump				

APPROXIMATE SAMPLE LOCATION SKETCH



WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
	15.01	0.173	3.78	9.75	427.2	144.1	5gpm	Pine # 5299
	15.01	0.173	3.78	9.75	427.2	144.1	5 gal/min	5 gal bucket

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
	VOCs				
X	TAL Metals (total)				✓
X	TAL Metals (dissolved)				✓
	SPLP Metals				
	ABA				
	Paste pH				
	Paste Cond.				
	Paste Cond.				
✓	TOC				✓
	Grain-size				

NOTES/OBSERVATIONS:

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FIELD DATA RECORD - SURFACE WATER SAMPLING

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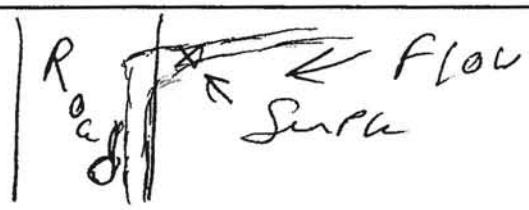
PROJECT	E17 Ely Copper Mine	JOB NUMBER	86024.03	DATE	9/6/09
FIELD SAMPLE ID	SW-35 SW-35	ACTIVITY TIME	START END	SAMPLE TIME	943
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—		
EQUIPMENT	YSI Peristaltic Pump				

APPROXIMATE SAMPLE LOCATION SKETCH



WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
	15.61	0.055	5.58	9.28	342.9	131.5	5 L/min	Pine # 5299
	15.61	0.055	5.58	9.28	342.9	131.5	5L/min	1 liter bottle

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
	VOCs				
X	TAL Metals (total)				
X	TAL Metals (dissolved)				
	SPLP Metals				
	ABA				
	Paste pH				
	Paste Cond.				
	Paste Cond.				
✓	TOC				✓
	Grain-size				

NOTES/OBSERVATIONS: 2 Pictures

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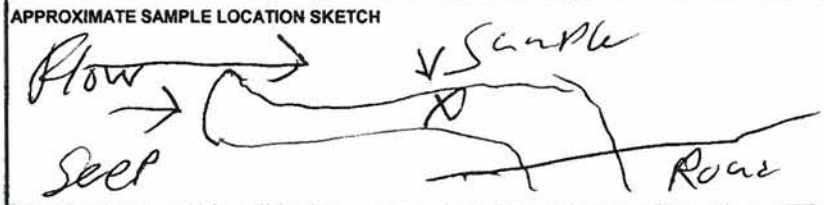
FIELD DATA RECORD - SURFACE WATER SAMPLING

PROJECT: FO Ely Copper Mine
JOB NUMBER: 80024.07
DATE: 8/6/09
FIELD SAMPLE ID: SW-84 SW-84
ACTIVITY TIME: START END
SAMPLE TIME: 1010
QC SAMPLES: —
ASSOCIATED TRIP BLANK: —
EQUIPMENT: YSI Peristaltic Pump

APPROXIMATE SAMPLE LOCATION SKETCH



WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
	14.98	0.061	6.31	8.03	270.0	136.5		Pine # 5299
	14.98	0.061	6.31	8.03	270.0	136.5	2L/min	1 liter bottle

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
	VOCs				
X	TAL Metals (total)				✓
X	TAL Metals (dissolved)				✓
	SPLP Metals				
	ABA				
	Paste pH				
	Paste Cond.				
	Paste Cond.				
✓	TOC				✓
	Grain-size				

NOTES/OBSERVATIONS:
2 Pictures

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FIELD DATA RECORD - SURFACE WATER SAMPLING

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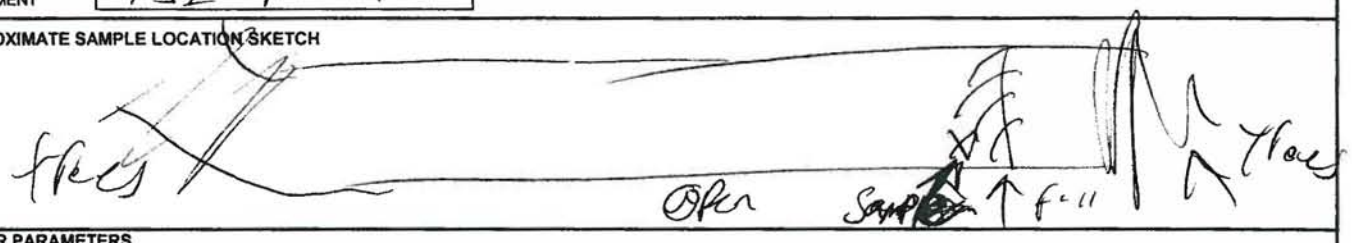
PROJECT	E17 Ely Copper Mine	JOB NUMBER	80024.07	DATE	8/6/09
FIELD SAMPLE ID	SW-12 SW-12	ACTIVITY TIME	START END	SAMPLE TIME	1045
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—		
EQUIPMENT	YSI Peristaltic Pump				

APPROXIMATE SAMPLE LOCATION SKETCH



WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
	18.00	0.174	4.98	8.91	270.1	133.1		Pine H 5299
	18.00	0.174	4.98	8.91	270.1	133.1		Seenow
								leaf

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
	VOCs				
X	TAL Metals (total)				✓
X	TAL Metals (dissolved)				✓
	SPLP Metals				
	ABA				
	Paste pH				
	Paste Cond.				
✓	Paste Cond.				
✓	TOC				✓
	Grain-size				

NOTES/OBSERVATIONS:

2 Pine trees

Flow rate = 4 ft/2.5 sec X 36 in W X 4.5 in D

1.6 ft/s X 3 X 0.375 ft = 1.8 ft³/s = 807.9 gpm

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FIELD DATA RECORD - SURFACE WATER SAMPLING

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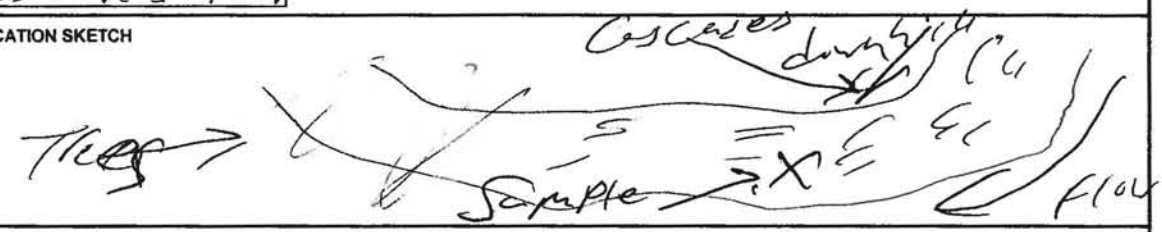
PROJECT	Ely Ely Copper Mine	JOB NUMBER	80024.03	DATE	8/6/09
FIELD SAMPLE ID	SW-32 SW32	ACTIVITY TIME	START END	SAMPLE TIME	1100
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—		
EQUIPMENT	YSI Peristaltic Pump				

APPROXIMATE SAMPLE LOCATION SKETCH



WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
	20.86	0.317	3.70	8.25	401.4	133.3		Pic # 3299
	20.86	0.317	3.70	8.25	401.4	133.3		See Notes
								Text

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
	VOCs				
X	TAL Metals (total)				✓
X	TAL Metals (dissolved)				✓
	SPLP Metals				
	ABA				
	Paste pH				
	Paste Cond.				
	Paste Cond.				
✓	TOC				✓
	Grain-size				

NOTES/OBSERVATIONS:

2 Pictures

Flow Rate

= 4ft/2sec X 36in W X 3in Depth

= 1.5 ft³/sec = 673 gpm

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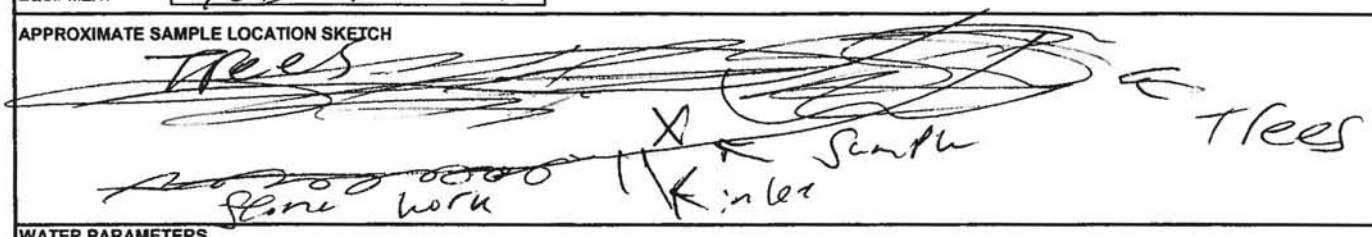
FIELD DATA RECORD - SURFACE WATER SAMPLING

PAGE 1 OF 1

PROJECT	E17 Ely Copper Mine	JOB NUMBER	80024.07	DATE	9/6/09
FIELD SAMPLE ID	SW-13 SW-13	ACTIVITY TIME	START END	SAMPLE TIME	1125
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—		
EQUIPMENT	YSI Peristaltic Pump				

APPROXIMATE SAMPLE LOCATION SKETCH



WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
	14.93	0.081	5.38	9.77	314.1	127.9		Pine # 5299
	14.93	0.081	5.38	9.77	314.1	129.9	150 g/min 150 gpm	5 gal bucket

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
	VOCs				
X	TAL Metals (total)				✓
X	TAL Metals (dissolved)				✓
	SPLP Metals				
	ABA				
	Paste pH				
	Paste Cond.				
✓	Paste Cond.				
✓	TOC				✓
	Grain-size				

NOTES/OBSERVATIONS: 2 Pictures

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FIELD DATA RECORD - SURFACE WATER SAMPLING

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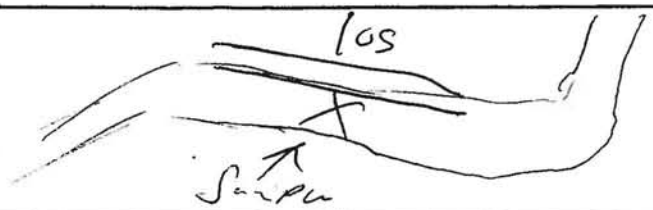
PROJECT	T17 Ely Copper Mine	JOB NUMBER	8.624.03	DATE	8/6/09
FIELD SAMPLE ID	SW-83 SW-83	ACTIVITY TIME	START END	SAMPLE TIME	1155 SS
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—		
EQUIPMENT	YSI Peristaltic Pump				

APPROXIMATE SAMPLE LOCATION SKETCH



WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
	20.61	0.825	3.09	8.46	471.2	127.2		Pump # 3299
	20.61	0.825	3.09	8.46	471.2	127.2		See Note
								Below

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
	VOCs				
X	TAL Metals (total)				✓
X	TAL Metals (dissolved)				✓
	SPLP Metals				
	ABA				
	Paste pH				
	Paste Cond.				
✓	Paste Cond.				
✓	TOC				✓
	Grain-size				

NOTES/OBSERVATIONS:

2 Pumping
Flow Rate
= 2ft/2.3 sec X 12in W X 2 in D SS
= 0.87 ft/sec X 1ft X 0.166ft = 0.145 ft³/sec = 65 gpm

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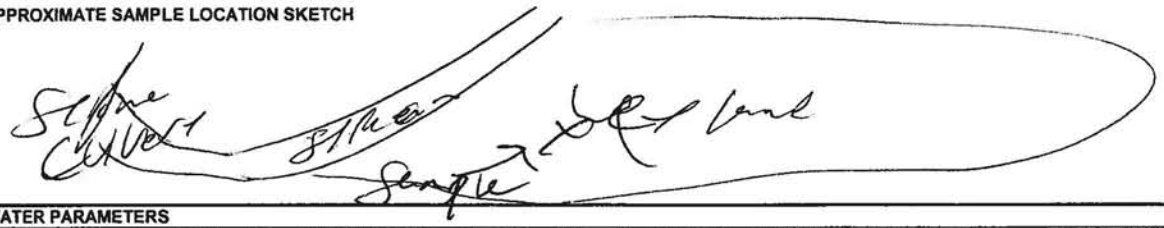
FIELD DATA RECORD - SURFACE WATER SAMPLING

PAGE 1 OF 1

PROJECT	E17 Ely Copper Mine	JOB NUMBER	80024.03	DATE	8/6/09
FIELD SAMPLE ID	SW-72 SW-72	ACTIVITY TIME	START END	SAMPLE TIME	1230
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—		
EQUIPMENT	YSI Peristaltic Pump				

APPROXIMATE SAMPLE LOCATION SKETCH



WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
	16.72	0.093	5.45	6.95	253.5	122.0		Pine # 5299
	16.72	0.093	5.45	6.95	253.5	122.0	1L/m	1 liter bottle

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
☐	VOCs				☐
☒	TAL Metals (total)				✓
☒	TAL Metals (dissolved)				✓
☐	SPLP Metals				☐
☐	ABA				☐
☐	Paste pH				☐
☐	Paste Cond.				☐
☐	Paste Cond.				☐
✓	TOC				✓
☐	Grain-size				☐
☐					☐
☐					☐

NOTES/OBSERVATIONS:
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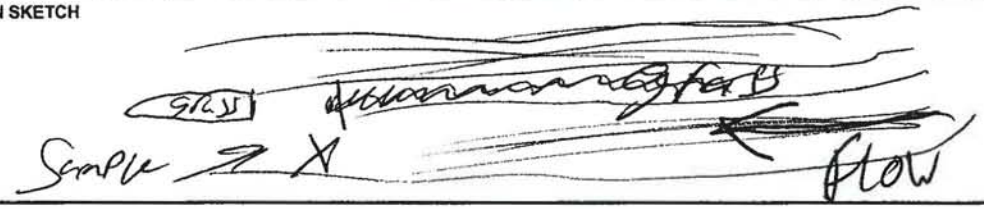
FIELD DATA RECORD - SURFACE WATER SAMPLING

PAGE 1 OF 1

PROJECT	~~ELY~~ Ely Copper Mine	JOB NUMBER	90024.03	DATE	9/7/09
FIELD SAMPLE ID	SW-04 SW04	ACTIVITY TIME	START END	SAMPLE TIME	1240
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—		
EQUIPMENT	YSI Peristaltic Pump				

APPROXIMATE SAMPLE LOCATION SKETCH



WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
	16.46	0.156	8.30	9.51	164.9	183.7		Pine #5299
	16.46	0.156	8.30	9.51	164.9	183.7	300 g/min	→ Gravesmanual

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
	VOCs				
X	TAL Metals (total)				✓
X	TAL Metals (dissolved)				✓
	SPLP Metals				
	ABA				
	Paste pH				
	Paste Cond.				
	Paste Cond.				
X	TOC				✓
	Grain-size				

NOTES/OBSERVATIONS:

2 Pictures Depth $\left[\frac{8''+7''+8.5''+10''+5''+5.5''}{6}\right] \cdot \frac{.44''}{6} = 7.3''$

$= 0.61\,ft \times 20\,ft \times 1.66\,ft/sec = 20.33\,ft^3/sec = 9124\,gpm$

Width = 20 ft

Flow 3.0 seconds to travel 5 ft

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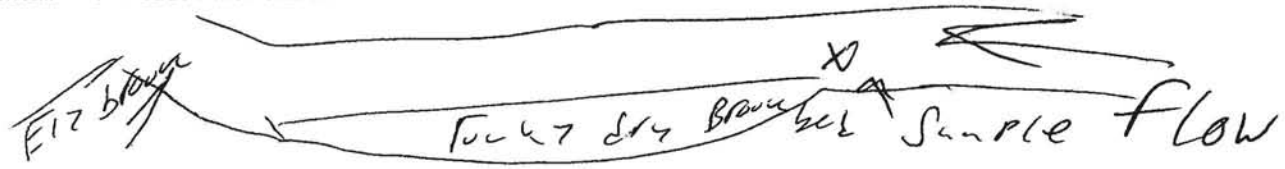
FIELD DATA RECORD - SURFACE WATER SAMPLING

PAGE 1 OF 1

PROJECT	~~Ely~~ Ely Copper Mine	JOB NUMBER	80024.03	DATE	8/7/09
FIELD SAMPLE ID	SW-38 SW-38	ACTIVITY TIME	START END	SAMPLE TIME	1308
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—		
EQUIPMENT	YSI Peristaltic Pump				

APPROXIMATE SAMPLE LOCATION SKETCH



WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
	15.93	0.154	8.12	9.48	216.5	162.4		Pine # 5299
	15.93	0.154	8.12	9.48	216.5	162.4	2000 g/min	estimate

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
	VOCs				
X	TAL Metals (total)			1 L	✓
X	TAL Metals (dissolved)			1 L	✓
	SPLP Metals				
	ABA				
	Paste pH				
	Paste Cond.				
	Paste Cond.				
✓	TOC				✓
	Grain-size				

NOTES/OBSERVATIONS:

2 Pictures Depth = $\left[\frac{4''+5''+5.5''+8''+9''+10''}{6}\right]$ $\frac{41.5''}{6} \approx 7''$

Width = 18 ft

Flow = 3.5 seconds for 5 ft distance

$= 0.58 ft \times 18 ft \times 1.43 \frac{ft}{sec} = 14.9 ft^3/sec = 6689$ gpm

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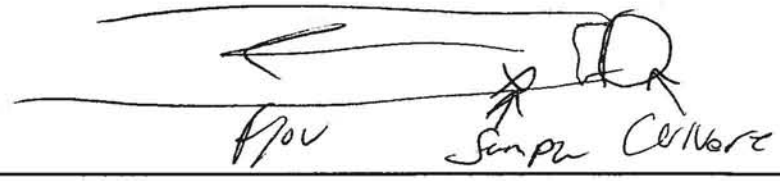
FIELD DATA RECORD - SURFACE WATER SAMPLING

PROJECT: ~~ELY~~ Ely Copper Mine
JOB NUMBER: 03 00 29.03
DATE: 8/7/09
FIELD SAMPLE ID: ~~SW-9~~ SW-9
ACTIVITY TIME: START END
SAMPLE TIME: 1332
QC SAMPLES: —
ASSOCIATED TRIP BLANK: —
EQUIPMENT: YSI Peristaltic Pump

APPROXIMATE SAMPLE LOCATION SKETCH



WATER PARAMETERS

TIME	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	Flow Rate	COMMENTS
	20.23	0.177	5.23	8.32	261.9	1571		Pine # 3299
	20.23	0.177	5.25	8.32	261.9	153.1		
								See Note
								leaf

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
	VOCs				
✓	TAL Metals (total)			1L	✓
✓	TAL Metals (dissolved)			1L	✓
	SPLP Metals				
	ABA				
	Paste pH				
	Paste Cond.				
	Paste Cond.				
✓	TOC				✓
	Grain-size				

NOTES/OBSERVATIONS: 2 Pictures

Flow Rate

3.5 ft / culvert w φ 2.25" D

3.5 ft × 2.5 ft/sec × 0.1875 ft = 1.64 ft³/sec = 736 gpm

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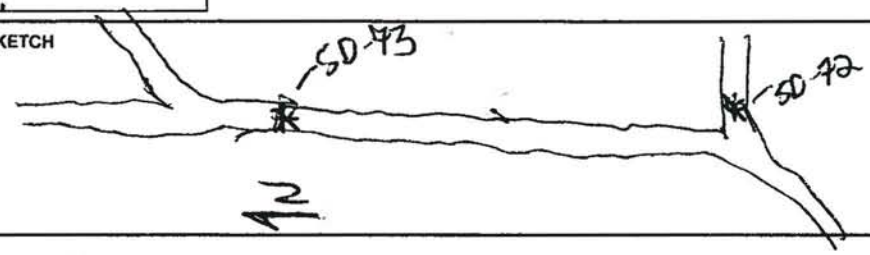
FIELD DATA RECORD - SEDIMENT SAMPLING

PROJECT	Ely Copper Mine	JOB NUMBER	80024.03	DATE	8/6/09
FIELD SAMPLE ID	SD-73	ACTIVITY TIME	START 1315 END 1345	SAMPLE TIME	1345
QC SAMPLES	MS/MSD	ASSOCIATED TRIP BLANK	N/A	WEATHER	75° Sun
EQUIPMENT	Shovel.				

APPROXIMATE SAMPLE LOCATION SKETCH



SAMPLE CHARACTERISTICS

SAMPLE DEPTH	0-1 ft (DEPTH UNIT) Refusal		
ODOR	None	DENSITY/CONSISTENCY	Loose
COLOR	~~Gray~~ Brown w/ orange tinge	LAYERING	None observed
OTHER	Organic material.	OTHER	
(NOTE)		(NOTE)	

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
	VOCs				
✓	TAL Metals			2-8oz	✓
✓	SPLP Metals			2-8oz	✓
	PCBs				
	PEST				
✓	TOC			1-4oz	✓
	COD				
✓	Alkalinity				
✓	Grain-size			1 gal Ziploc	✓
✓	ABA				✓
✓	Paste pH				✓
✓	Paste Cond.				✓

NOTES/OBSERVATIONS:

Take 2 photos @ location. Sediment is VF to C sand deposited before and after small log.

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FIELD DATA RECORD - SEDIMENT SAMPLING

PROJECT	Ely Copper Mine	JOB NUMBER	80024.03	DATE	8/6/09
FIELD SAMPLE ID	SD-72	ACTIVITY TIME	START 1230 END 1300	SAMPLE TIME	1300
QC SAMPLES	None	ASSOCIATED TRIP BLANK	N/A	WEATHER	75° Sun
EQUIPMENT	Sediment Core				

APPROXIMATE SAMPLE LOCATION SKETCH

SAMPLE CHARACTERISTICS

SAMPLE DEPTH	0-2 DEPTH UNIT ~~FT~~ Reserve		
ODOR	No	DENSITY/CONSISTENCY	Malleable
COLOR	VD Brown to Gray brown	LAYERING	VD Brown ~~Black~~ organic fines over Gray/brown F-SND
OTHER		OTHER	
(NOTE)		(NOTE)	

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
☐	VOCs				☐
☑	TAL Metals			1-8oz	☑
☐	SPLP Metals				☐
☐	PCBs				☐
☐	PEST				☐
☑	TOC			1-4oz	☑
☐	COD				☐
☐	Alkalinity				☐
☑	Grain-size				☑
☑	ABA			1gal Ziploc	☑
☑	Paste pH				☑
☑	Paste Cond.				☑
☐					☐

NOTES/OBSERVATIONS:

None

SIGNATURE: [signature]

Checked By:

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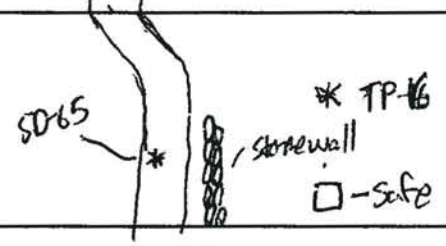
FIELD DATA RECORD - SEDIMENT SAMPLING

PROJECT	Ely Copper Mine	JOB NUMBER	80024.03	DATE	8/6/09
FIELD SAMPLE ID	SD-65	ACTIVITY TIME	START 1100 END 1130	SAMPLE TIME	1130
QC SAMPLES	None	ASSOCIATED TRIP BLANK	N/A	WEATHER	75° Sun
EQUIPMENT	~~Shovel~~ Sed Core				

APPROXIMATE SAMPLE LOCATION SKETCH 2 photos



SAMPLE CHARACTERISTICS

SAMPLE DEPTH	0-1.3 ft Refusal (DEPTH UNIT)		
ODOR	None	DENSITY/CONSISTENCY	loose
COLOR	Grayish brown to orangish brn	LAYERING	Fine SND to C-SND (V-C-SND)
OTHER		OTHER	
(NOTE)		(NOTE)	

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
☐	VOCs				☐
✓	TAL Metals			1-8oz	✓
☐	SPLP Metals				☐
☐	PCBs				☐
☐	PEST				☐
✓	TOC			1-4oz	✓
☐	COD			Same	☐
☐	Alkalinity				☐
✓	Grain-size			1-4oz	✓
✓	ABA			1gal Ziplock	✓
✓	Paste pH				✓
✓	Paste Cond.				✓
☐					☐

NOTES/OBSERVATIONS:

Sample has V-F sand + organic material @ surface and grades to V-C SND and gravel @ bottom. Refusal @ 1.3 ft. Bring sample back to connex to process.

SIGNATURE: [signature]

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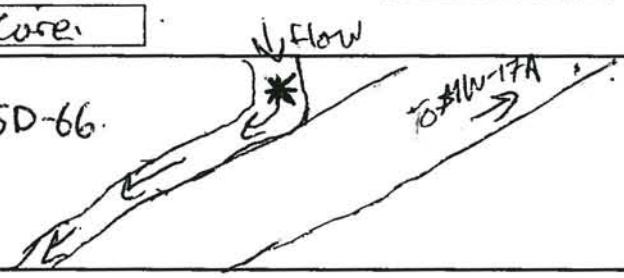
FIELD DATA RECORD - SEDIMENT SAMPLING

PROJECT	Ely Copper Mine	JOB NUMBER	80024.03	DATE	8/6/09
FIELD SAMPLE ID	SD-66	ACTIVITY TIME	START ~~0900~~ 0915 END 0945	SAMPLE TIME	0940
QC SAMPLES	N/A.	ASSOCIATED TRIP BLANK		WEATHER	65° Sun
EQUIPMENT	Sediment Core.				

APPROXIMATE SAMPLE LOCATION SKETCH



SAMPLE CHARACTERISTICS

SAMPLE DEPTH	0-2 ft (DEPTH UNIT) Refusal @0.5ft 4-attempts w/sediment core.		
ODOR	None	DENSITY/CONSISTENCY	Medium to loose.
COLOR	~~Orange~~ Orange brown	LAYERING	None observed.
OTHER		OTHER	
(NOTE)		(NOTE)	

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
☐	VOCs				☐
☑	TAL Metals			1-8oz	☑
☐	SPLP Metals				☐
☐	PCBs				☐
☐	PEST				☐
☑	TOC			1-4oz	☑
☐	COD				☐
☐	Alkalinity			Combine	☐
☑	Grain-size			1-4oz	☑
☑	ABA			One plastic bag	☑
☑	Paste pH				☑
☑	Paste Cond.				☑
☐					☐

NOTES/OBSERVATIONS:

Orangish brown VF to C-Snd and gravel. Fast moving water not allowing for significant deposition of sediment. Sip water off of top in ziplock bag. Take 2 photos. Also organic material present.

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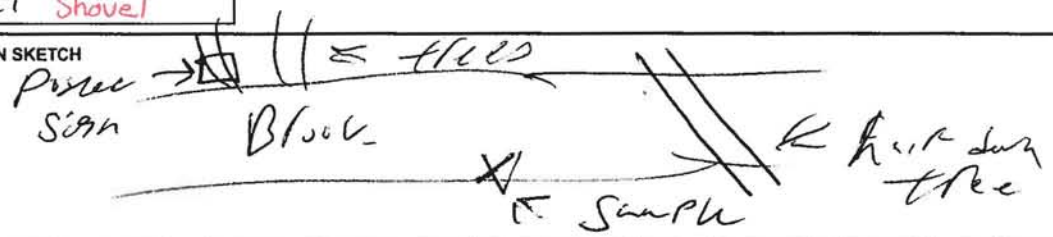
FIELD DATA RECORD - SEDIMENT SAMPLING

PAGE 1 OF 1

PROJECT	Ely Ely Copper Mine	JOB NUMBER	80024.03	DATE	8/7/09
FIELD SAMPLE ID	JD-58 SD-58	ACTIVITY TIME START END		SAMPLE TIME	800
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—	WEATHER	Sunny
EQUIPMENT	Shovel Shovel				

APPROXIMATE SAMPLE LOCATION SKETCH



SAMPLE CHARACTERISTICS

SAMPLE DEPTH	1 DEPTH UNIT ~~ft~~ ft		
ODOR	None	DENSITY/CONSISTENCY	Coarse
COLOR	Br, red	LAYERING	—
OTHER	Coarse Sand, F gravel	OTHER	quartz, pyrite flakes
(NOTE)		(NOTE)	

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
☐	VOCs				☐
☑	TAL Metals				☑
☐	SPLP Metals				☐
☐	PCBs				☐
☐	PEST				☐
☑	TOC				☑
☐	COD				☐
☐	Alkalinity				☐
☑	Grain-size				☑
☑	ABA				☑
☑	Paste pH				☑
☑	Paste Cond.				☑
☐					☐

NOTES/OBSERVATIONS:

1-3 ft running water very coarse
grained sediment and rocky lots of flow
2 pictures

1-3ft running water. Very coarse grained sediment and rocky. Lots of flow.

SIGNATURE: Josh

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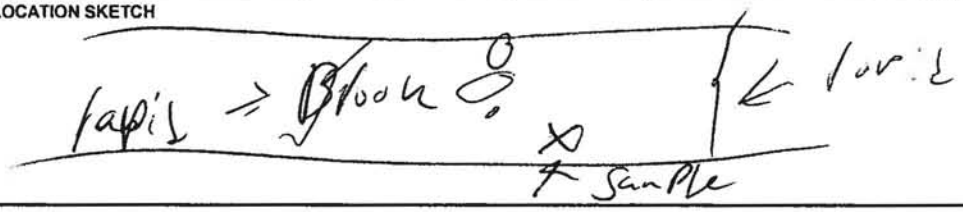
FIELD DATA RECORD - SEDIMENT SAMPLING

PAGE 1 OF 1

PROJECT	ELY Ely Copper Mine	JOB NUMBER	8002803	DATE	8/7/09
FIELD SAMPLE ID	SD-59 SD-59	ACTIVITY TIME START END		SAMPLE TIME	815
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—	WEATHER	Sunny
EQUIPMENT	Shovel				

APPROXIMATE SAMPLE LOCATION SKETCH



SAMPLE CHARACTERISTICS

SAMPLE DEPTH	1 ft (DEPTH UNIT)		
ODOR	None	DENSITY/CONSISTENCY	Coarse
COLOR	Br, red	LAYERING	–
OTHER	Coarse sand, fine gravel	OTHER	quartz, pyrite flakes
(NOTE)		(NOTE)	

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
☐	VOCs				☐
☑	TAL Metals				☑
☐	SPLP Metals				☐
☐	PCBs				☐
☑	PEST				☐
☑	TOC				☑
☐	COD				☐
☐	Alkalinity				☐
☑	Grain-size				☑
☑	ABA				☑
☑	Paste pH				☑
☑	Paste Cond.				☑
☐					☐

NOTES/OBSERVATIONS:

Lots of flow here 1-4ft deep very coarse grained sediment very rocky 2 pictures

Lots of flow ~~here~~ (AB) 1-4ft deep, very coarse grained sediment. Very rocky.

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FIELD DATA RECORD - SEDIMENT SAMPLING

PAGE 1 OF 1

PROJECT	Ely Ely Copper Mine	JOB NUMBER	60028-03	DATE	8/7/03
FIELD SAMPLE ID	SD-60 SD-60	ACTIVITY TIME	START END	SAMPLE TIME	9:45
QC SAMPLES	—	ASSOCIATED TRIP BLANK		WEATHER	Sunny
EQUIPMENT	~~Shovel~~ Sed Core JS				

APPROXIMATE SAMPLE LOCATION SKETCH

SAMPLE CHARACTERISTICS

SAMPLE DEPTH	1	DEPTH UNIT	~~FT~~ ft
ODOR	None	DENSITY/CONSISTENCY	Soft, wet
COLOR	Orange	LAYERING	—
OTHER	F-M sand, w/ orgs	OTHER	—
(NOTE)		(NOTE)	

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
✓	VOCs				
✓	TAL Metals				✓
	SPLP Metals				
	PCBs				
	PEST				
✓	TOC				✓
	COD				
	Alkalinity				
✓	Grain-size				✓
✓	ABA				✓
✓	Paste pH				✓
✓	Paste Cond.				✓

NOTES/OBSERVATIONS:

Flowing 50/50 fines and coarse 2"-6" of water & pictures

Flowing 50/50 fine sand coarse sand 2"-6" of water

SIGNATURE: Josh S

Checked By:

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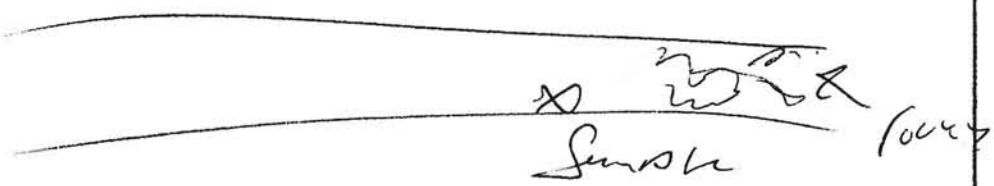
FIELD DATA RECORD - SEDIMENT SAMPLING

PAGE 1 OF 1

PROJECT	E17 Ely Copper Mine	JOB NUMBER	8000 24.07	DATE	8/7/09
FIELD SAMPLE ID	SD-61 SD-61	ACTIVITY TIME	START END	SAMPLE TIME	915
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—	WEATHER	Sunny
EQUIPMENT	Soil Core / Shovel				

APPROXIMATE SAMPLE LOCATION SKETCH



SAMPLE CHARACTERISTICS

SAMPLE DEPTH	1 DEPTH UNIT Ft		
ODOR	None	DENSITY/CONSISTENCY	Coarse, wet
COLOR	Reddish Br	LAYERING	–
OTHER	M-C Sand, F gravel	OTHER	Pyrite flakes/nuggets, muscovite flake
(NOTE)		(NOTE)	

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
☐	VOCs				☐
☑	TAL Metals				☑
☐	SPLP Metals				☐
☐	PCBs				☐
☐	PEST				☐
☑	TOC				☑
☐	COD				☐
☐	Alkalinity				☐
☑	Grain-size				☑
☑	ABA				☑
☑	Paste pH				☑
☑	Paste Cond.				☑
☐					☐

NOTES/OBSERVATIONS:

Water 2"-7" deep flowing fines and coarse sediment 2 Pictures

Water 2" to 7" deep flowing. Fines and coarse sediment.

SIGNATURE: [signature]

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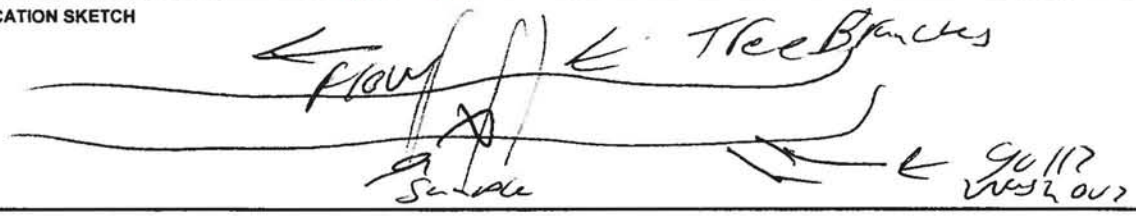
FIELD DATA RECORD - SEDIMENT SAMPLING

PAGE 1 OF 1

PROJECT	E17 Ely Copper Mine	JOB NUMBER	80024.03	DATE	8/7/09
FIELD SAMPLE ID	SD-62 SD-62	ACTIVITY TIME	START END	SAMPLE TIME	952
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—	WEATHER	Sunny
EQUIPMENT	Sed core / Shovel Sed Core/shovel				

APPROXIMATE SAMPLE LOCATION SKETCH



SAMPLE CHARACTERISTICS

SAMPLE DEPTH	1 DEPTH UNIT ~~FT~~ ft		
ODOR	None	DENSITY/CONSISTENCY	Soft, gritty
COLOR	Reddish Br	LAYERING	—
OTHER	f-m Sand, pyrite specs	OTHER	—
(NOTE)		(NOTE)	

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
✓	VOCs				
✓	TAL Metals				✓
	SPLP Metals				
	PCBs				
✓	PEST				
✓	TOC				✓
	COD				
✓	Alkalinity				
✓	Grain-size				✓
✓	ABA				✓
✓	Paste pH				✓
✓	Paste Cond.				✓

NOTES/OBSERVATIONS:

Flowing 1" - 6" Coarse and Fines
2 Pictures
Flowing 1" to 6" Coarse and Fines

SIGNATURE: [signature]

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FIELD DATA RECORD - SEDIMENT SAMPLING

PAGE 1 OF 1

PROJECT	F17 Ely Copper Mine	JOB NUMBER	80024.03	DATE	8/7/09 8/7/09
FIELD SAMPLE ID	SD-63 SD-63	ACTIVITY TIME START END		SAMPLE TIME	1020
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—	WEATHER	Sunny
EQUIPMENT	Sed Corer / Shovel Sed Corer/Shovel				

APPROXIMATE SAMPLE LOCATION SKETCH

SAMPLE CHARACTERISTICS

SAMPLE DEPTH	1	DEPTH UNIT ~~FT~~ ft	
ODOR	None	DENSITY/CONSISTENCY	Soft, gritty
COLOR	Reddish br	LAYERING	–
OTHER	F-M sand, pyrite specs	OTHER	twigs logs (little)
(NOTE)		(NOTE)	

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
✓	VOCs				
✓	TAL Metals				✓
	SPLP Metals				
	PCBs				
✓	PEST				
✓	TOC				✓
	COD				
✓	Alkalinity				
✓	Grain-size				✓
✓	ABA				✓
✓	Paste pH				✓
✓	Paste Cond.				✓

NOTES/OBSERVATIONS:

Flowing lots of fines water 1"–5"

Flowing lots of fines. Water 1"

SIGNATURE: [signature]

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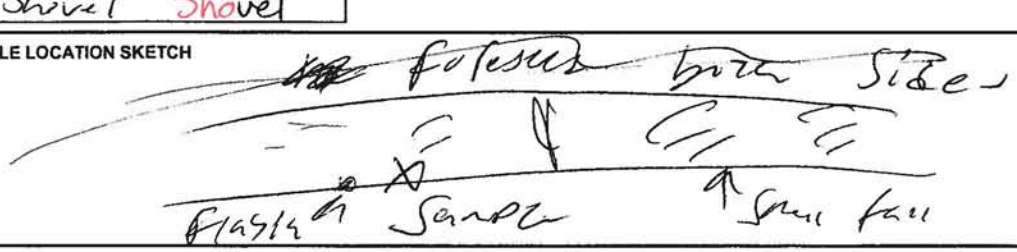
FIELD DATA RECORD - SEDIMENT SAMPLING

PAGE 1 OF

PROJECT	F17 Ely Copper Mine	JOB NUMBER	8W24.-J	DATE	8/7/09
FIELD SAMPLE ID	SD-64 SD-64	ACTIVITY TIME	START END	SAMPLE TIME	1035
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—	WEATHER	Sunny
EQUIPMENT	Shovel Shovel				

APPROXIMATE SAMPLE LOCATION SKETCH



SAMPLE CHARACTERISTICS

SAMPLE DEPTH	1 ~~ft~~ ft (DEPTH UNIT)		
ODOR	None	DENSITY/CONSISTENCY	Coarse, gritty
COLOR	Br, reddish Br	LAYERING	—
OTHER	M-C sand, f gravel	OTHER	pyrite/quartz nuggets; pyrite flakes
(NOTE)		(NOTE)	

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
	VOCs				
✓	TAL Metals				✓
	SPLP Metals				
	PCBs				
	PEST				
✓	TOC				✓
	COD				
	Alkalinity				
✓	Grain-size				✓
✓	ABA				✓
✓	Paste pH				✓
✓	Paste Cond.				✓

NOTES/OBSERVATIONS:

3 Pictures Flowing well little bit of organics some fines and coarse 3" - 2' deep water

3 pictures. Flowing well. Little bit of organics, some fines and coarse. 3" to 2' deep water.

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FIELD DATA RECORD - SEDIMENT SAMPLING

PAGE 1 OF 1

PROJECT	E17 Ely Copper Mine	JOB NUMBER	80024.03	DATE	8/6/09
FIELD SAMPLE ID	SD-67 SD-67	ACTIVITY TIME START END		SAMPLE TIME	1410
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—	WEATHER	Sunny
EQUIPMENT	— Shovel Shovel				

APPROXIMATE SAMPLE LOCATION SKETCH

SAMPLE CHARACTERISTICS

SAMPLE DEPTH	1	DEPTH UNIT	~~FT~~ ft
ODOR		DENSITY/CONSISTENCY	
COLOR		LAYERING	
OTHER		OTHER	
(NOTE)		(NOTE)	

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
	VOCs				
✓	TAL Metals				✓
	SPLP Metals				
	PCBs				
	PEST				
✓	TOC				✓
	COD				
	Alkalinity				
✓	Grain-size				✓
✓	ABA				✓
✓	Paste pH				✓
✓	Paste Cond.				✓

NOTES/OBSERVATIONS:

lots of organic 4 in of leaf litter water level 6-12 in

2 Pictures

Lots of organics. 4 inches of leaf litter. Water level 0.5-1.0 ft

SIGNATURE: [illegible]

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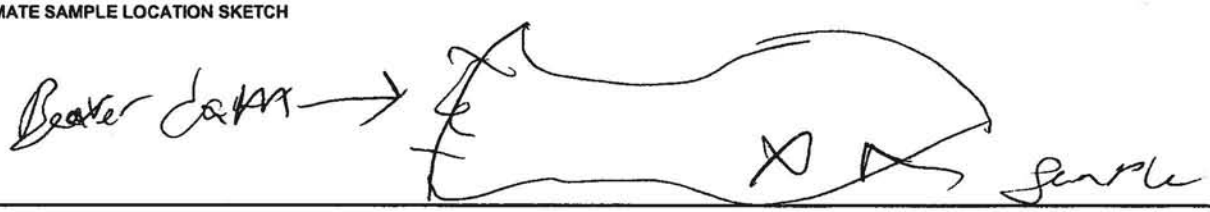
FIELD DATA RECORD - SEDIMENT SAMPLING

PAGE 7 OF 7

PROJECT	EIR Ely Copper Mine	JOB NUMBER	80028-07	DATE	8/6/09
FIELD SAMPLE ID	SD-68 SD-68	ACTIVITY TIME START / END		SAMPLE TIME	1420 1420
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—	WEATHER	Sunny
EQUIPMENT	Shovel				

APPROXIMATE SAMPLE LOCATION SKETCH



SAMPLE CHARACTERISTICS

SAMPLE DEPTH	1	DEPTH UNIT	~~Ft~~ Ft
ODOR	Br/Drk Brown	DENSITY/CONSISTENCY	Soft, wet
COLOR	None	LAYERING	—
OTHER	F Sand w/orgs/peat	OTHER	—
(NOTE)		(NOTE)	

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
	VOCs				
✓	TAL Metals				✓
	SPLP Metals				
	PCBs				
	PEST				
✓	TOC				✓
	COD				
	Alkalinity				
✓	Grain-size				✓
✓	ABA				✓
✓	Paste pH				✓
✓	Paste Cond.				✓

NOTES/OBSERVATIONS:

Water 2-5 ft deep No leaf litter aquatic plants algae ~~blooms~~

Water 2.0 to 5.0 ft deep. No leaf litter. Aquatic plants algae blooms.

SIGNATURE: [signature]

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FIELD DATA RECORD - SEDIMENT SAMPLING

PAGE 1 OF 1

PROJECT	ELY Ely Copper Mine	JOB NUMBER	80029.03	DATE	8/6/09
FIELD SAMPLE ID	SD-69 SD-69	ACTIVITY TIME	START END	SAMPLE TIME	1450
QC SAMPLES	—	ASSOCIATED TRIP BLANK		WEATHER	SUNNY
EQUIPMENT	Shover Shovel				

APPROXIMATE SAMPLE LOCATION SKETCH

SAMPLE CHARACTERISTICS

SAMPLE DEPTH	1 DEPTH UNIT ~~FT~~ ft		
ODOR	None	DENSITY/CONSISTENCY	Soft, v. wet
COLOR	Drk Br	LAYERING	–
OTHER	F SAND, tr orgs	OTHER	–
(NOTE)		(NOTE)	

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
☐	VOCs				✓
✓	TAL Metals				✓
☐	SPLP Metals				☐
☐	PCBs				☐
☐	PEST				☐
✓	TOC				✓
☐	COD				☐
☐	Alkalinity				☐
✓	Grain-size				✓
✓	ABA				✓
✓	Paste pH				✓
✓	Paste Cond.				✓
☐					☐

NOTES/OBSERVATIONS:

Picture # 55, 56 Silty (exposed) mucky
No leaf layer below 0-3 in deep
2 pictures #s 55 and 56 Silty — mucky.
No leaf layer ~~below~~ 0-0.4 ft deep

SIGNATURE: [signature]

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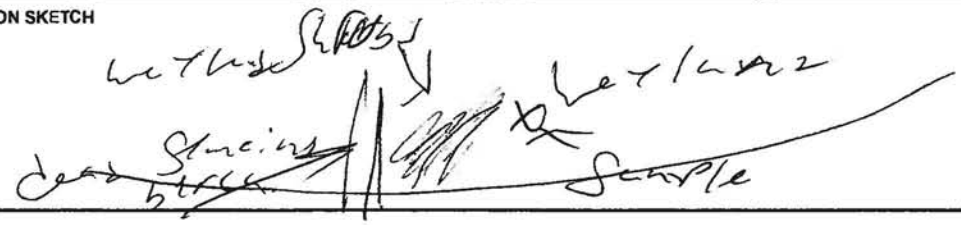
FIELD DATA RECORD - SEDIMENT SAMPLING

PAGE 2 OF 1

PROJECT	~~ELY~~ Ely Copper Mine	JOB NUMBER	80024.03	DATE	8/7/09 8/7
FIELD SAMPLE ID	~~SD-69~~ SD-69	ACTIVITY TIME	START END	SAMPLE TIME	1140
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—	WEATHER	Sunny
EQUIPMENT	Shovel				

APPROXIMATE SAMPLE LOCATION SKETCH



SAMPLE CHARACTERISTICS

SAMPLE DEPTH	1	DEPTH UNIT	~~CF~~ FT
ODOR	None	DENSITY/CONSISTENCY	Soft, v. wet
COLOR	Drk Br	LAYERING	–
OTHER	F sand, tr orgs	OTHER	–
(NOTE)		(NOTE)	

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
☐	VOCs				☐
☑	TAL Metals				☑
☐	SPLP Metals				☐
☐	PCBs				☐
☐	PEST				☐
☑	TOC				☑
☐	COD				☐
☐	Alkalinity				☐
☑	Grain-size				☑
☑	ABA				☑
☑	Paste pH				☑
☑	Paste Cond.				☑
☐					☐

NOTES/OBSERVATIONS:

4" standing water wetland lots of organics

4 inches standing water. Wetlands, lots of organics.

SIGNATURE: Jake S

Checked By:

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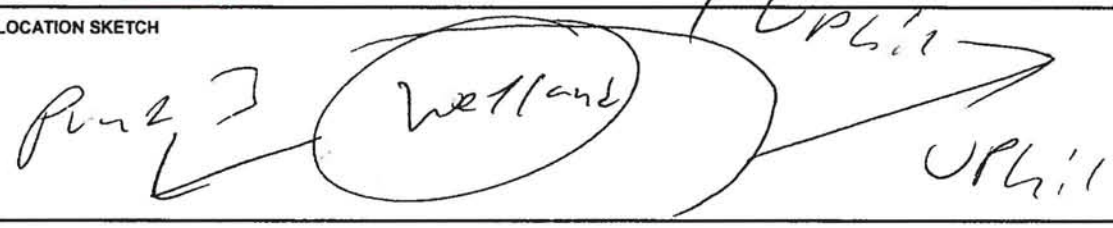
FIELD DATA RECORD - SEDIMENT SAMPLING

PAGE 1 OF 1

PROJECT	E17 Fly Copper Mine	JOB NUMBER	8002403	DATE	6/9/07 8/8/07
FIELD SAMPLE ID	SD-70 SD-70	ACTIVITY TIME	START END	SAMPLE TIME	1315
QC SAMPLES	—	ASSOCIATED TRIP BLANK		WEATHER	Sunny
EQUIPMENT	Dover Shovel				

APPROXIMATE SAMPLE LOCATION SKETCH



SAMPLE CHARACTERISTICS

SAMPLE DEPTH	1	DEPTH UNIT ~~FT~~ ft	
ODOR	Drk Brown	DENSITY/CONSISTENCY	Soft / V. wet
COLOR	None	LAYERING	—
OTHER	Fine Sand; Some orgs	OTHER	—
(NOTE)		(NOTE)	

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
☐	VOCs				☐
✓	TAL Metals				✓
☐	SPLP Metals				☐
☐	PCBs				☐
✓	PEST				☐
✓	TOC				✓
☐	COD				☐
☐	Alkalinity				☐
✓	Grain-size				✓
✓	ABA				✓
✓	Paste pH				✓
✓	Paste Cond.				✓
☐					☐

NOTES/OBSERVATIONS:

Water 0-2 in lots of wetland plants
2 pictures
Water 0-2" deep. lots of wetland plants.

SIGNATURE: Jeff Stream

Checked By:

RECEIVED BY:

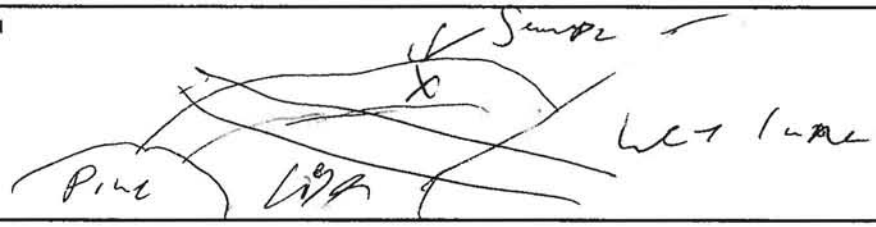
Nobis
CONCORD, NH - LOWELL, MA

FIELD DATA RECORD - SEDIMENT SAMPLING

PAGE 1 OF 1

PROJECT	ELY Ely Copper Mine	JOB NUMBER	90-24-03	DATE	8/6/09
FIELD SAMPLE ID	SD-71 SD-7	ACTIVITY TIME START / END		SAMPLE TIME	1435
QC SAMPLES	—	ASSOCIATED TRIP BLANK	—	WEATHER	Sunny
EQUIPMENT	Shovel				

APPROXIMATE SAMPLE LOCATION SKETCH



SAMPLE CHARACTERISTICS

SAMPLE DEPTH	1	DEPTH UNIT ~~Ft~~ At	
ODOR	None	DENSITY/CONSISTENCY	Soft, v. wet
COLOR	Drk Brown	LAYERING	—
OTHER	F SAND, some orgs	OTHER	—
(NOTE)		(NOTE)	

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
	VOCs				
✓	TAL Metals				✓
	SPLP Metals				
	PCBs				
	PEST				
✓	TOC				✓
	COD				
	Alkalinity				
✓	Grain-size				✓
✓	ABA				✓
✓	Paste pH				✓
✓	Paste Cond.				✓

NOTES/OBSERVATIONS:

Organics 1 in leaf litter

Organics 1" leaf litter

SIGNATURE: Seth Stewart

Checked By:

RECEIVED BY:

APPENDIX B

Nobis Engineering, Inc.
585 Middlesex Street
Lowell, MA 01851
Tel (978) 683-0891
Fax (978) 683-0966
www.nobisengineering.com

November 16, 2009
Nobis File No. 80024

Ms. Christine Clark
Regional Sample Control Coordinator
U.S. Environmental Protection Agency
Region I
11 Technology Drive
No. Chelmsford, MA 01863

Re: Contract No.: EP-S1-06-03
Task Order No. 80024-RI-CO-017L
Case No. 38743; Sample Delivery Group (SDG) No. MA2X08
DataChem Laboratories, Inc., Salt Lake City, UT
Ely Copper Mine Superfund Site
Vershire, Orange County, VT
CERCLIS No.: VTD988366571
Tier II Inorganic Data Validation

Metals: 16/Soil/ MA2X07 through MA2X11, MA2X13 through MA2X17, MA2X19 through MA2X24
1/Aqueous/Equipment Blank/MA2X25
Field Duplicate Pair: MA2X22/MA2X23

Dear Ms. Clark:

Nobis Engineering, Inc. performed a Tier II data validation in accordance with the "Part IV, Inorganic Data Validation Functional Guidelines", November 2008 of the *Region I, EPA New-England Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996"* on the inorganic analytical data for 16 soil samples and one aqueous equipment blank collected by Nobis Engineering, Inc. at the Ely Copper Mine Superfund Site located in Vershire, Orange County, Vermont. The samples were analyzed for total metals, mercury, and cyanide under the Contract Laboratory Program (CLP) Routine Analytical Services (RAS) according to the ILM05.4 Statement of Work (SOW), Modifications 1770.0 (Al, As, Ba, Be, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Ni, K, Ag, Na, V, Zn plus Sr by ICP-AES) and 1773.0 (Sb, Cd, Se, Tl plus Mo by ICP-MS and Hg and CN). Mercury, cyanide, and ICP-MS results are included in SDG MA2X07. The following discussion only addresses findings related to the ICP-AES analysis.

The data were evaluated based on the following parameters:

- Overall Evaluation of Data and Potential Usability Issues
- * Data Completeness
- * Preservation and Technical Holding Times
- NA ICP-MS Tune Analysis
- * Initial and Continuing Calibrations
- * Quantitation Limit Check Standards
- Blanks
- ICP Interference Check Results
- * Matrix Spike Recoveries
- * Laboratory Duplicates
- * Field Duplicates
- * Lab Control Sample Results
- NA Furnace AA Results
- NA Method of Standard Addition (MSA)
- * ICP Serial Dilution Results
- NA ICP-MS Internal Standards
- * Method Detection Limit (MDL) Results
- NA PE Samples/Accuracy Check
- * Sample Quantitation

* All criteria were met for this parameter.

Note: Worksheets, except for Worksheet XIV – Sample Quantitation, are not included for parameters that have met criteria or for criteria that are not applicable (NA) to the method.

<u>The following information was used to generate the Data Validation Memorandum attachments:</u>

Table I: Recommendation Summary Table - Summarizes validation recommendations

Table II: Overall Evaluation of Data - Summarizes site DQOs and potential usability issues

Data Summary Table: Summarizes accepted, qualified, and rejected data

<u>Overall Evaluation of Data and Potential Usability Issues</u>

Following is a summary of the site DQOs:

- To estimate the nature and extent of Site contamination.
- To estimate the biological impacts resulting from source area contamination.
- To refine the conceptual site model.

The data required qualifications resulting from non-compliant blank results and non-compliant ICP interference analyses.

Blanks

Field rinse blank (MA2X25) contained aluminum, calcium, iron, manganese, silver, and sodium at levels less than the CRQLs. However, in examining the associated continuing calibration blanks, it was determined that the presence of aluminum, calcium, silver, and sodium was due to prep and/or instrument contaminations, thus qualified as non-detected (U).

Although iron and manganese were detected in the field rinse blank and its associated soil samples, their concentrations in all soil samples were at least five times those in the field rinse blank. Based on the professional judgment, the iron and manganese results can be used as reported without qualifications.

Various analytes were detected in the various blanks at concentrations less than the CRQLs. The following sample results were qualified as non-detected (U) due to their concentrations less than the blank action levels.

Beryllium – MA2X07, MA2X08, MA2X13, MA2X15, MA2X22, MA2X24
Silver – MA2X14, MA2X22, MA2X23, MA2X24

Analyte	Type of Blank	Date Blank Originated	Max. Conc. (ug/L)	Blank Action Level (ug/L)	Sample CRQL (mg/kg)	Action	Samples Affected
Aluminum	CCB5	8/24/09	-59.74	298.7	20 200 ug/L	None U	MA2X10, MA2X14 MA2X25
Arsenic	CCB1	8/23/09	-2.133	10.7	1	None	MA2X07 – MA2X09
Barium	CCB4 CCB5	8/23/09 8/24/09	1.224 -2.019	6.12 10	20 10 ug/L	None	All
Beryllium	ICB	8/23/09	-0.301	1.51	0.5	U	MA2X07, MA2X08, MA2X13, MA2X15, MA2X22, MA2X24
Beryllium	ICB	8/24/09	-0.369	1.85	0.5 200 ug/L	None	MA2X10, MA2X14, MA2X25
Calcium	PBW	8/23/09	53.9	269.5	5000 ug/L	U	MA2X25
Chromium	CCB2	8/23/09	1.096	5.48	1 10 ug/L	None	All
Cobalt	CCB3	8/23/09	1.059	5.3	5 50 ug/L	None	All
Copper	PBS	8/20/09	5.2	26	2.5 25 ug/L	None	All
Iron	EB	8/23/09	341	-	10 100 ug/L	None	All
Manganese	EB	8/23/09	5.2	-	1.5 15 ug/L	None	All
Potassium	CCB3	8/23/09	488.22	2441.1	500	None	All soils
Potassium	PBS	8/20/09	-1312.5	6562.5	500	None	None; all conc. > action level
Silver	CCB4	8/23/09	-2.753	13.8	1	None	MA2Z07 – MA2X09, MA2X13, MA2X16, MA2X17
Silver	CCB4	8/24/09	2.4	12	1 10 ug/L	U	MA2X14, MA2X22, MA2X23 – MA2X25
Sodium	CCB4	8/23/09	-35.2	175.9	500	None	MA2X07 – MA2X09, MA2X11, MA2X13, MA2X15 – MA2X17, MA2X19 – MA2X24
Sodium	CCB5	8/24/09	55.4	278.4	5000 ug/L	U	MA2X25

Analyte	Type of Blank	Date Blank Originated	Max. Conc. (ug/L)	Blank Action Level (ug/L)	Sample CRQL (mg/kg)	Action	Samples Affected
Vanadium	ICB	8/23/09	-0.947	4.735	5	None	MA2X07 – MA2X09, MA2X11, MA2X13, MA2X15 – MA2X17, MA2X19 – MA2X24
Vanadium	CCB4	8/24/09	0.938	4.69	5 50 ug/L	None	MA2X10, MA2X24, MA2X25
Zinc	PBS	8/20/09	1.5	7.5	6	None	All soils
Strontium	ICB	8/24/09	-0.808	4.04	1 10 ug/L	None	None; all conc. > action level

ICP Interference Check Sample Results

It should be noted that in addition to the required interferents (aluminum, calcium, iron, and magnesium) required by ILM05.4, Interference Check Solution A (ICS A) also contained various concentrations of barium, chromium, cobalt, copper, lead, manganese, nickel, zinc, and strontium.

The results of cobalt and lead were less than the control limits while manganese results slightly exceeded the control limits. No action was required for some sample results because the concentrations contributed by interferent(s) were insignificant. Some affected results were estimated (J) because greater than 10% but less than 90% of the reported concentrations were due to the presence of interferent(s). The presence of lead in samples MA2X22, MA2X23, and MA2X24 were rejected (R) because their concentrations were less than the estimated interference.

Potassium and sodium were not added to ICS A or ICS AB solutions but were present in all solutions. The concentrations of potassium in all soil samples were much greater than the estimated interferences; no qualifications were required. Since the concentrations of sodium in all soil samples were less than the estimated interference, their presence in soil samples was attributed to interference, thus rejected (R).

Performance Evaluation Samples – Accuracy Check

There were no PE samples associated with this sample delivery group.

Please contact Gail DeRuzzo at (978) 703-6021 should you have any questions or comments regarding this information.

Very truly yours,

NOBIS ENGINEERING, INC.

Gail DeRuzzo
Lead Chemist

Yunru Yang
Subcontractor Data Validator
WESTON SOLUTIONS, INC

Tables: Table I: Recommendation Summary Table for Total Metals
Table II: Overall Evaluation of Total Metals Data
Data Summary Table

Enclosures: Data Validation Worksheets
CCS Reports
PE Score Reports
Region Electronic Correspondence
Field Sampling Notes
CSF Audit (DC-2 Form)
DQO Summary

cc: Ed Hathaway, EPA Site Manager (w/o Enclosures)
Don Goodrich USEPA Region VIII (w/ Enclosures)

TABLE I
Recommendation Summary Table for Total Metals
Ely Copper Mine Superfund Site
Case 38743; SDG MA2X08

Element	Matrix	Qualifiers
Aluminum	Soil	A
Arsenic	Soil	A
Barium	Soil	A
Beryllium	Soil	A,
Calcium	Soil	A
Chromium	Soil	A
Cobalt	Soil	A,
Copper	Soil	A
Iron	Soil	A
Lead	Soil	,
Magnesium	Soil	A
Manganese	Soil	A,
Nickel	Soil	A
Potassium	Soil	A
Silver	Soil	A,
Sodium	Soil	
Vanadium	Soil	A
Zinc	Soil	A
Strontium	Soil	A

A - Accept the data.

- The positive results of beryllium and silver were qualified as non-detected (U) in some samples due to blank contaminations.

– The positive cobalt and lead results in some samples were estimated (J) due to non-compliant ICSA results. These results may be biased low.

– The positive manganese results in some samples were estimated (J) due to non-compliant ICSA results. These results may be biased high.

– Positive lead results in some samples were rejected (R) due to non-compliant ICSA results. The presence of lead was attributed to interference caused by high concentrations of iron in these samples.

– Positive sodium results in all samples were rejected (R) due to non-compliant ICSA results. The presence of sodium was attributed to interference caused by high concentrations of iron in these samples.

TABLE II
Overall Evaluation of Total Metals Data
Ely Copper Mine Superfund Site
Case 38743; SDG MA2X08

Metals					
DQO (list all DQOs)	Sampling and/or Analytical Method Appropriate Yes or No	Measurement Error		Sampling Variability**	Potential Usability Issues
		Analytical Error	Sampling Error*		
To generate data necessary to complete a risk assessment and feasibility study that will support the selection of an approach for site remediation that eliminates, reduces, or controls risk to human health and the environment. Use data to generate a well-supported Record of Decision (ROD).	Yes, ILM05.4 analytical methods and sampling procedures according to the requirements of the QAPP are appropriate for all samples.	Refer to qualifi-cations in R/S key: , , , , ,	Refer to qualifi-cations in R/S key:		– Qualify positive beryllium and silver results as non-detected due to blank contamination. – Some positive cobalt and lead results were estimated due to non-compliant ICSA results. Results may be biased low. – Some positive manganese results were estimated due to non-compliant ICSA results. Results may be biased high. – Some positive lead results were rejected due to noncompliant ICS A analyses. The presence of lead was due to iron interference. – All sodium results were rejected due to noncompliant ICS A analyses. The presence of sodium was due to iron interference.

* The evaluation of "sampling error" cannot be completely assessed in data validation.
** Sampling variability is not assessed in data validation.

Nobis Engineering, Inc.
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November 16, 2009
Nobis File No. 80024

Ms. Christine Clark
Regional Sample Control Coordinator
U.S. Environmental Protection Agency
Region I
11 Technology Drive
No. Chelmsford, MA 01863

Re: Contract No.: EP-S1-06-03
Task Order No. 80024-RI-CO-017L
Case No. 38834; Sample Delivery Groups (SDGs) No. MA2X85
DataChem Laboratories, Inc., Salt Lake City, UT
Ely Copper Mine Superfund Site
Vershire, Orange County, VT
CERCLIS No.: VTD988366571
Tier II Inorganic Data Validation

Metals: 17/Sediment/MA2X84, MA2X85, MA2X96, MA2X97, MA2X99, MA2XA0 through MA2XA9, MA2XB0, MA2XB1
1/Rinse Blank/MA2XC0
Field Duplicate Pair: MA2XA0/MA2XA1

Dear Ms. Clark:

Nobis Engineering, Inc. performed a Tier II data validation in accordance with the "Part IV, Inorganic Data Validation Functional Guidelines", November 2008 of the *Region I, EPA New-England Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996"* on the inorganic analytical data for one rinse blank and seventeen sediment samples collected by Nobis Engineering, Inc. at the Ely Copper Mine Site located in Vershire, Orange County, Vermont. The samples were analyzed for total metals, mercury, and cyanide under the Contract Laboratory Program (CLP) Routine Analytical Services (RAS) according to the ILM05.4 Statement of Work (SOW), Modifications 1770.0 (Al, As, Ba, Be, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Ni, K, Ag, Na, V, Zn plus Sr by ICP-AES) and 1773.0 (Sb, Cd, Se, Tl plus Mo by ICP-MS and Hg and CN). Mercury, cyanide, and ICP-MS results are included in SDG SDG MA2X84. The following discussion only addresses findings related to the ICP-AES analysis.

The data were evaluated based on the following parameters:

- Overall Evaluation of Data and Potential Usability Issues
- * Data Completeness
- * Preservation and Technical Holding Times
- NA ICP-MS Tune Analysis
- * Initial and Continuing Calibrations
- * Quantitation Limit Check Standards
- Blanks
- ICP Interference Check Results
- Matrix Spike Recoveries
- Laboratory Duplicates
- Field Duplicates
- * Lab Control Sample Results
- NA Furnace AA Results
- NA Method of Standard Addition (MSA)
- ICP Serial Dilution Results
- NA ICP-MS Internal Standards
- * Sensitivity Check
- * PE Samples/Accuracy Check
- Sample Quantitation

* All criteria were met for this parameter.

Note: Worksheets, except for Worksheet XIII – Sample Quantitation, are not included for parameters that have met criteria or for criteria that are not applicable (NA) to the method.

<u>The following information was used to generate the Data Validation Memorandum attachments:</u>

Table I: Recommendation Summary Table - Summarizes validation recommendations

Table II: Overall Evaluation of Data - Summarizes site DQOs and potential usability issues

Data Summary Table: Summarizes accepted, qualified, and rejected data

<u>Overall Evaluation of Data and Potential Usability Issues</u>

Following is a summary of the site DQOs:

- To estimate the nature and extend of site contamination,
- To estimate the biological impacts resulting from source area contamination, and
- To refine the conceptual site model.

Sample results required qualifications due to blank contamination and non-compliant QCs such as ICP interference analysis, matrix spike recovery, lab duplicate analysis, field duplicate analysis, and ICP serial dilution analysis.

Blank Contamination

Field rinse blank (MA2XC0) contained several metal elements at levels less than the CRQLs. Upon examining the associated water prep blank and continuing calibration blanks, it was determined that the presence of barium, beryllium, copper, and iron was due to prep and/or instrument contaminations, thus qualified as non-detected (U).

Due to their presence in the field rinse blank and its associated sediment samples, a qualifier EB was applied to calcium, potassium, and strontium results reported for all sediment samples. Although magnesium was detected in the field rinse blank and its associated sediment samples, its concentrations in some samples were at least five times that of the field rinse blank. Based on the professional judgment, the magnesium results can be used as reported without qualifications except for MA2X97, MA2XA0, MA2XA2, MA2XA3, and MA2XA9. An EB-flag was applied to these samples because their magnesium concentrations were less than five times that of the field rinse blank.

Various analytes were detected in the various blanks at concentrations less than the CRQLs. Only beryllium result reported for sample MA2XA1 was qualified as non-detected (U) due to its concentration less than the blank action level.

Analyte	Type of Blank	Date Blank Originated	Max. Conc. (ug/L)	Blank Action Level (ug/L)	Sample CRQL (mg/kg)	Action	Samples Affected
Barium	PBW	8/28/09	1.479	7.398	200 ug/L	U	MA2XC0
Beryllium	CCB7	8/28/09	0.242	1.21	0.5 AQ:5 ug/L	U	MA2XA1, MA2XC0
Chromium	CCB7	8/28/09	1.299	6.495	10 ug/L	U	MA2XC0
Copper	CCB2	8/28/09	4.647	23.235	25 ug/L	U	MA2XC0
Magnesium	EB	8/7/09	5010	25050	500	EB	MA2X97, MA2XA0, MA2XA2, MA2XA3, MA2XA9
Calcium	EB	8/7/09	11200	56000	500	EB	All sediments
Potassium	EB	8/7/09	1920	9600	500	EB	All sediments
Strontium	EB	8/7/09	57	285	1	EB	All sediments

PBW – Prep Blank for Water
CCB – Continuing Calibration Blank
EB – Equipment Blank

ICP Interference Check Sample Results

Lead recovery was less than 80% in one Interference Check Solution A (ICSA). Since its recovery in the ICSAB analysis was acceptable, one may suspect that, if detected at a concentration less than 61 ug/L in the raw data, the lead result may be biased low. Therefore, the lead results in MA2XA2, MA2XA3, and MA2XA6 were estimated (J).

Although not constituents, arsenic and beryllium were detected in ICSA analyses. The observed arsenic concentrations were less than two times the method detection limit (MDLs) and the observed beryllium concentrations were greater than two times the MDL. Both arsenic and beryllium recoveries in ICSAB analyses were acceptable. Therefore, if detected at a concentration less than 101 ug/L in the raw data, the arsenic results might be biased low, thus estimated (J, UJ). If detected at a concentration less than 475 ug/L in the raw data, the beryllium

result may be biased high, thus also estimated (J). Some beryllium results were rejected because their presences were entirely due to iron interference.

Potassium and sodium were not constituents of but were detected in ICSA and ICSAB analyses. The observed potassium concentrations in ICSA were less than two times the MDL, and the observed sodium concentrations were greater than two times the MDL. The detections of potassium were estimated (J) in samples MA2X84, MA2X85, MA2X97, MA2XA0 through MA2XA2, MA2XA5, MA2XA8, MA2XA9, MA2XB0, and MA2XB1. The presence of sodium in all samples was due entirely to interference of high concentrations of iron, thus rejected (R).

Matrix Spike Recovery

Zinc recovery was less than 75% in the matrix spike analysis of sample MA2X97. The laboratory performed a post-digest spike yielding acceptable recoveries. The positive and non-detected results for zinc were estimated (J, UJ) in all samples. Results may be biased low.

Laboratory Duplicate

The laboratory duplicate was performed on sample MA2X97. The relative percent difference (RPD) of iron was greater than 35. All iron results were estimated (J, UJ).

Field Duplicate

Incomparable field duplicate results were observed between samples MA2XA0 and MA2XA1. All samples were estimated (J, UJ) for aluminum, chromium, copper, potassium, and zinc. These results were estimated due to their RPDs greater than 50. Magnesium results were also estimated (J) because the field duplicate results varied more than four times the quantitation limit.

ICP Serial Dilution

Cobalt results in MA2X97 and its dilution varied more than 10%. Cobalt results were estimated (J, UJ) in all samples.

Performance Evaluation Samples – Accuracy Check

There was no PE sample associated with this sample delivery group.

Sample Quantitation Limit

Sample MA2XA5 contained less than 30% solid; however, since the lab increased the sample weight in preparation steps, it was decided that qualification was not required based on the professional judgment.

Please contact Gail DeRuzzo at (978) 703-6021 should you have any questions or comments regarding this information.

Very truly yours,

NOBIS ENGINEERING, INC.

Gail DeRuzzo
Lead Chemist

Yunru Yang
Subcontractor Data Validator
WESTON SOLUTIONS, INC

Tables: Table I: Recommendation Summary Table for Total Metals
Table II: Overall Evaluation of Total Metals Data
Data Summary Table

Enclosures: Data Validation Worksheets
CCS Reports
Region Electronic Correspondence
Field Sampling Notes
CSF Audit (DC-2 Form)
DQO Summary

cc: Ed Hathaway, EPA Site Manager (w/o Enclosures)
Don Goodrich USEPA Region VIII (w/ Enclosures)

TABLE I
Recommendation Summary Table for Total Metals
Ely Copper Mine Superfund Site
Case 38834; SDGs MA2X85

Element	Matrix	Qualifiers
Aluminum	Sediment	
Arsenic	Sediment	,
Barium	Sediment	
Beryllium	Sediment	, , R
Calcium	Sediment	EB
Chromium	Sediment	
Cobalt	Sediment	
Copper	Sediment	
Iron	Sediment	
Lead	Sediment	
Magnesium	Sediment	EB,
Manganese	Sediment	
Nickel	Sediment	
Potassium	Sediment	EB,
Silver	Sediment	
Sodium	Sediment	R
Vanadium	Sediment	
Zinc	Sediment	
Strontium	Sediment	EB

EB - The analyte was also detected in the equipment rinse blank.

– The reporting limit of the non-detected analyte was estimated due to non-compliant ICSA results.

- Some positive results were qualified as non-detected (U) due to blank contaminations.

– Some positive results were estimated (J) due to non-compliant ICSA results.

R – Some positive results were rejected due to interference from high concentration of iron.

– All positive zinc results were estimated (J) due to low matrix spike recovery. These results may be biased low.

– Positive results were estimated due to relative percent difference greater than 35 in lab duplicate analysis.

– Positive results were estimated due to incomparable field duplicate results.

– Positive results were estimated due to incomparable ICP serial dilution result.

TABLE II
Overall Evaluation of Total Metals Data
Ely Copper Mine Superfund Site
Case 38834; SDGs MA2X85

Metals					
DQO (list all DQOs)	Sampling and/or Analytical Method Appropriate Yes or No	Measurement Error		Sampling Variability**	Potential Usability Issues
		Analytical Error	Sampling Error*		
• To estimate the nature and extend of site contamination • To estimate the biological impacts resulting from source area contamination • To refine the conceptual site model	Yes, ILM05.4 analytical methods and sampling procedures according to the requirements of the QAAP are appropriate for all samples.	Refer to qualifi-cations in R/S key: EB, R, , , , , , ,	Refer to qualifi-cations in R/S key:		EB – Calcium, magnesium, potassium, strontium were also detected in the equipment rinse blank. R – Some Beryllium and all sodium results were rejected because their presences were due entirely to the high concentration of iron. - Some positive results were qualified as non-detected (U) due to blank contaminations. – Some positive results of arsenic, beryllium, lead, and potassium were estimated (J) due to non-compliant ICSA results. – All zinc results were estimated (J) due to low matrix spike recovery. These results may be biased low. – All iron results were estimated (J) due to incomparable laboratory duplicate results. – Positive results of aluminum, chromium, copper, and magnesium, were estimated (J) due to non-compliant ICSA results. – All cobalt results were estimated (J) due to incomparable ICP serial dilution results. – The arsenic reporting limit was estimated due to non-compliant ICSA result.

* The evaluation of "sampling error" cannot be completely assessed in data validation.
** Sampling variability is not assessed in data validation.

Nobis Engineering, Inc.
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Lowell, MA 01851
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November 23, 2009
Nobis File No. 80024

Ms. Christine Clark
Regional Sample Control Coordinator
U.S. Environmental Protection Agency
Region I
11 Technology Drive
No. Chelmsford, MA 01863

Re: Contract No.: EP-S1-06-03
Task Order No. 80024-RI-CO-017L
Case No. 38908; Sample Delivery Group (SDG) No. MA2XW2
DataChem Laboratories, Inc., Salt Lake City, UT
Ely Copper Mine Superfund Site
Vershire, Orange County, VT
CERCLIS No.: VTD988366571
Tier II Inorganic Data Validation

Metals: 19/Soil/MA2XW2, MA2XW3, MA2XW4, MA2XW5, MA2XW6, MA2XW7, MA2XW8, MA2XW9, MA2XX1, MA2XX2, MA2XX3, MA2XX4, MA2XX5, MA2XX7, MA2XX8, MA2XX9, MA2XY0, MA2XY1, MA2XY2
Field Duplicate Pair: MA2XW4/MA2XW5
No equipment blanks in this SDG

Dear Ms. Clark:

Nobis Engineering, Inc. performed a Tier II data validation in accordance with the "Part IV, Inorganic Data Validation Functional Guidelines", November 2008 of the *Region I, EPA New-England Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996"* on the inorganic analytical data for 19 soil samples collected by Nobis Engineering, Inc. at the Ely Copper Mine Superfund Site in Vershire, Vermont. The samples were analyzed for total metals under the Contract Laboratory Program (CLP) Routine Analytical Services (RAS) according to the ILM05.4 Statement of Work (SOW) with modification 1770.0. This SDG does not include antimony, cadmium, molybdenum, selenium, and thallium results analyzed by ICP-MS, mercury, or cyanide results, which can be found in SDG MA2XW3.

The data were evaluated based on the following parameters:

*	• Overall Evaluation of Data and Potential Usability Issues
*	• Data Completeness
*	• Preservation and Technical Holding Times
NA	• ICP-MS Tune Analysis
*	• Initial and Continuing Calibrations
*	• Quantitation Limit Check Standard (CRI)
	• Blanks
	• ICP Interference Check Results
	• Matrix Spike Recoveries
	• Laboratory Duplicates
	• Field Duplicates
*	• Lab Control Sample Results
NA	• Furnace AA Results
NA	• Method of Standard Addition (MSA)
*	• ICP Serial Dilution Results
NA	• ICP-MS Internal Standards
*	• CRQL/Method Detection Limit (MDL) Results
NA	• PE Samples/Accuracy Check
*	• Sample Quantitation

* All criteria were met for this parameter.

Note: Worksheets, except for Worksheet XIII – Sample Quantitation, are not included for parameters that have met criteria or for criteria that are not applicable (NA) to the method.

<u>The following information was used to generate the Data Validation Memorandum attachments:</u>

Table I: Recommendation Summary Table - Summarizes validation recommendations

Table II: Overall Evaluation of Data - Summarizes site DQOs and potential usability issues

Data Summary Table: Summarizes accepted, qualified, and rejected data

<u>Overall Evaluation of Data and Potential Usability Issues</u>

Following is a summary of the site DQOs:

- To estimate the nature and extent of site contamination.
- To estimate the biological impacts resulting from source area contamination.
- To refine the conceptual site model.

The data required qualifications resulting from blank contamination and ICP-AES Interference Check Sample (ICS AB & ICS A), matrix spike, laboratory duplicate, and field duplicate criteria not being met.

Blanks

The following metals were detected in blanks at varying concentrations: beryllium, calcium, cobalt, copper, iron, vanadium, zinc, and strontium. However, since calcium, cobalt, copper, iron, vanadium, zinc, and strontium were detected in all samples at concentrations greater than the action level; no action was required for these analytes.

Some analytes were also detected in affected samples at concentrations less than the action levels, thus qualified non-detected (U) as follows.

Analyte	Type of Blank	Date Blank Originated	Max. Conc. (ug/L)	Blank Action Level (mg/kg)	Sample CRQL (mg/kg)	Action	Samples Affected
Beryllium	CCB3	9/18/2009	0.231	0.1155	0.5	U	MA2XW7, MA2XX3

CCB = Continuing Calibration Blank

Lead, nickel, and potassium were found in blanks at negative concentrations. However, since lead, nickel, and potassium were detected in all samples at concentrations greater than the action level; no action was required.

ICP Interference Check Sample Results

Lead recoveries in Interference Check Solution AB (ICS AB) were greater than 120% on two occasions. In addition, lead recovery was above acceptance limits in all instances of Interference Check Solution A (ICS A) analyses. Since lead was detected in all samples, the affected analyte result may be biased high. Therefore, the presence of lead was estimated (J) in all samples.

Cobalt recoveries were below the control limits in the ICS A. Since its recoveries in the ICS AB analyses were acceptable, one may suspect that, if detected at concentrations less than 50 mg/kg for cobalt, the affected analyte result may be biased low. Therefore, the presence of cobalt was estimated (J) as follows:

Co – MA2XW2, MA2XW3, MA2XW4, MA2XW6, MA2XW8, MA2XW9, MA2XX1, MA2XX2, MA2XX3, MA2XX4, MA2XX5, MA2XX7, MA2XX8, MA2XY0, MA2XY1, MA2XY2

Manganese recoveries were above the control limits in the ICS A. Since its recoveries in the ICS AB analyses were acceptable, one may suspect that, if detected at concentrations less than 50 mg/kg for cobalt, the affected analyte result may be biased high. Therefore, the presence of manganese was estimated (J) as follows:

Mn – MA2XW4, MA2XW5

In the Interference Check Solution A (ICS A) analyses, the following analyte results were not within control limits: beryllium, potassium, and sodium. Since the interferent concentrations in all samples were greater than 50% of those in the ICS A solutions, all samples were impacted by interferences.

For MA2XX1, MA2XX8, MA2XY0 and MA2XY1, the presence of beryllium may be biased high due to aluminum interference, thus estimated (J).

For MA2XX1, MA2XX8, MA2XY0, MA2XY1, and MA2XY2, the presence of beryllium may be biased high due to iron interference, thus estimated (J).

For MA2XX4, the presence of beryllium is suspect since the estimated iron interference is greater than 90% of the sample result, thus rejected (R).

For MA2XW3, MA2XX3, and MA2XX9, the negative potassium concentrations detected in ICS A analyses may represent a biased low result due to iron interference, thus estimated (J).

For all samples, the presence of sodium is suspect since the estimated aluminum and/or iron interference is greater than 90% of the sample result, thus rejected (R).

Matrix Spike Recoveries

The ICP-AES arsenic recovery was below the 75-125% criteria and less than 30% in the matrix spike analysis of sample MA2XW4. The laboratory performed a post-digest spike which was also not within criteria, therefore, the positive results were estimated (J) with a low bias and the non-detected results were rejected (R).

Laboratory Duplicates

The ICP-AES copper relative percent difference (RPD) was above the criteria of ≤35% in the laboratory duplicate analysis of sample MA2XW4. The positive results were estimated (J) in all samples.

Field Duplicates

The ICP-AES calcium RPD was above the criteria of ≤50% in the field duplicate analysis of samples MA2XW4/MA2XW5. The positive results were estimated (J) in all samples.

PE Samples

There were no PE samples associated with this sample delivery group.

Please contact Gail DeRuzzo at (978) 703-6021 should you have any questions or comments regarding this information.

Very truly yours,

NOBIS ENGINEERING, INC.

Gail DeRuzzo
Lead Chemist

Gloria J. Switalski
Senior Project Scientist
WESTON SOLUTIONS, INC.

Tables: Table I: Recommendation Summary Table for Metals
Table II: Overall Evaluation of Metals Data
Data Summary Table

Enclosures: Data Validation Worksheets
CCS Reports
PE Score Reports
Region Electronic Correspondence
Field Sampling Notes
CSF Audit (DC-2 Form)
DQO Summary

cc: Ed Hathaway, EPA Site Manager (w/o Enclosures)
Don Goodrich USEPA Region VIII (w/ Enclosures)

TABLE I

Recommendation Summary Table for Total Metals
Ely Copper Mine Superfund Site
Case 38908; SDG MA2XW2

Element	Matrix	Qualifiers
Aluminum	Water	A
Arsenic	Water	,
Barium	Water	A
Beryllium	Water	,
Calcium	Water	
Chromium	Water	A
Cobalt	Water	
Copper	Water	
Iron	Water	A
Lead	Water	
Magnesium	Water	A
Manganese	Water	
Nickel	Water	A
Potassium	Water	
Silver	Water	A
Sodium	Water	
Strontium	Water	A
Vanadium	Water	A
Zinc	Water	A

A - Accept the data.

- Positive results in some samples were qualified non-detected due to blank contamination.

-The positive lead results were estimated in all samples due to non-compliant ICS AB and ICS A results. These results may be biased high.

-The positive cobalt results were estimated in some samples due to non-compliant ICS A results. These results may be biased low.

-The positive manganese results were estimated in some samples due to non-compliant ICS A results. These results may be biased high.

- Positive beryllium results were estimated in MA2XX1, MA2XX8, MA2XY0 MA2XY1, and MA2XY2 due to non-compliant ICS A analysis. Theses results might be biased high.

- The positive beryllium result was rejected in MA2XX4 due to non-compliant ICS A analysis. This result is suspected to be a false positive.

- Positive potassium results were estimated in MA2XW3, MA2XX3, and MA2XX9 due to non-compliant ICS A analysis. These results might be biased low.

- The positive sodium results were rejected in all samples due to non-compliant ICS A analysis. These results area suspected to be false positives.

/R [3] – The positive results for arsenic were estimated (J) and the non-detected results were rejected (R) in all samples due to extremely low matrix spike recovery. These results may be biased low.

- Positive copper results were estimated (J) in all samples due to non-compliant laboratory duplicate results. Potential bias could not be determined.

- Positive calcium results were estimated (J) in all samples due to non-compliant field duplicate results. Potential bias could not be determined.

TABLE II
Overall Evaluation of Total Metals Data
Ely Copper Mine Superfund Site
Case 38908; SDG MA2XW2

Metals					
DQO (list all DQOs)	Sampling and/or Analytical Method Appropriate Yes or No	Measurement Error		Sampling Variability**	Potential Usability Issues
		Analytical Error	Sampling Error*		
• To estimate the nature and extend of site contamination • To estimate the biological impacts resulting from source area contamination • To refine the conceptual site model	Yes, ILM05.4 analytical methods and sampling procedures according to the requirements of the QAAP are appropriate for all samples.	Refer to qualifi-cations in R/S key: , , , , , , , , , ,	Refer to qualifi-cations in R/S key:		– Positive beryllium results were qualified non-detected due to blank contamination. - The positive lead results were estimated in some samples due to non-compliant ICS AB and ICS A results. These results may be biased high. -The positive cobalt results were estimated in some samples due to non-compliant ICS A results. These results may be biased low. -The positive manganese results were estimated in some samples due to non-compliant ICS A results. These results may be biased high. - Positive beryllium results were estimated in MA2XX1, MA2XX8, MA2XY0 MA2XY1, and MA2XY2 due to non-compliant ICS A analysis. These results might be biased high. - The positive beryllium result was rejected in MA2XX4 due to non-compliant ICS A analysis. This result is suspected to be a false positive.

					- Positive potassium results were estimated in MA2XW3, MA2XX3, and MA2XX 9 due to non-compliant ICS A analysis. These results might be biased low. - The positive sodium results were rejected in all samples due to non-compliant ICS A analysis. These results are suspected to be false positives. /R [3] – The positive results for arsenic were estimated (J) and the non-detected results were rejected (R) in all samples due to extremely low matrix spike recovery. These results may be biased low. - Positive copper results were estimated (J) in all samples due to non-compliant laboratory duplicate results. Potential bias could not be determined. - Positive calcium results were estimated (J) in all samples due to non-compliant field duplicate results. Potential bias could not be determined.

* The evaluation of “sampling error” cannot be completely assessed in data validation.

** Sampling variability is not assessed in data validation.

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March 29, 2010
Nobis File No. 80024

Ms. Christine Clark
Regional Sample Control Center (RSCC)
U.S. Environmental Protection Agency
Region I
11 Technology Drive
No. Chelmsford, MA 01863

Re: Contract No.: EP-W-08-066
Task Order No. 80024-RI-CO-017L
Case No. 39247; Sample Delivery Group (SDG) No. A2Z67
KAP Technologies, Inc., The Woodlands, TX
Ely Copper Mine Superfund Site
Vershire, Orange County, VT
CERCLIS No.: VTD988366571
Tier III Organic Data Validation

Volatiles/Semivolatiles/Pesticides/PCBs: 11/Aqueous/A2Z67, A2Z70, A2Z74, A2Z76, A2Z82, A2Z84, A2Z88, A2Z94, A2ZA5, A2ZA7, A2ZA9
(Field Duplicate Pair: A2Z82/A2Z84)
Volatiles: 1/Trip Blank/A2Z69
1/Aqueous Volatile PE Sample/A2ZA2 (VT00739)
Semivolatiles: 1/Aqueous PE Sample/A2ZA3 (SV0563)
Pesticides: 1/Aqueous PE Sample/A2ZA1 (AP0380)
Aroclors: 2/Aqueous PE Samples/A2ZA4 (AA0165), A2Z96 (AA0422)

Dear Ms. Clark:

Weston Solutions, Inc. performed a Tier III data validation in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996 Criteria, on the organic analytical data for eleven (11) aqueous samples, one (1) volatile trip blank, and five (5) Performance Evaluation (PEs) samples collected by Nobis Engineering, Inc. at the Ely Copper Mine Superfund Site located in Vershire, Orange County, Vermont. These samples, blanks, and PEs were analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, and PCBs under the Contract Laboratory Program Routine Analytical Services (CLP RAS) program using the CLP SOM01.2 Statement of Work.

The data were evaluated based on the following parameters:

- Overall Evaluation of Data and Potential Usability Issues
- Data Completeness
- * Preservation and Technical Holding Times

*	•	Gas chromatography/mass spectroscopy (GC/MS) Instrument Performance Check (Tuning)
	•	Initial and Continuing Calibrations
*	•	Blanks
	•	Deuterated Monitoring Compounds (DMC)/Surrogate Compounds
*	•	Internal Standards
	•	Matrix Spike/Matrix Spike Duplicate (MS/MSD)
*	•	Field Duplicates
NA	•	Sensitivity Check
	•	Performance Evaluation (PE) Samples/Accuracy Check
*	•	Target Compound Identification
*	•	Compound Quantitation and Reported Quantitation Limits
	•	Tentatively Identified Compounds
*	•	Pesticide/Polychlorinated biphenyl (PCB) Cleanup
*	•	System Performance

* All criteria were met for this parameter.

Note: Worksheets, except for Worksheet XIII – Sample Quantitation, are not included for parameters that have met criteria or for criteria that are not applicable (NA) to the method.

<u>The following information was used to generate the Data Validation Memorandum attachments:</u>

Table I: Recommendation Summary Table - summarizes validation recommendations

Table II: Overall Evaluation of Data - summarizes site data quality objectives (DQO) and potential usability issues

Table III: Tentatively Identified Compounds - summarizes the volatile and semivolatile compounds tentatively identified by GC/MS

Data Summary Tables: Summarize accepted, qualified, and rejected data

<u>Overall Evaluation of Data and Potential Usability Issues</u>

Following is a summary of the site DQOs:

- To estimate the nature and extend of site contamination,
- To estimate the biological impacts resulting from source area contamination, and
- To refine the conceptual site model.

The data required qualifications resulting from VOC and SVOC calibration criteria not being met, VOC and SVOC surrogate recoveries below QC limits, VOC and SVOC MS/MSD recoveries below QC limits, and VOC PE criteria not being met.

VOCs:

The volatile data were qualified as a result of calibration not meeting criteria, surrogate recovery failures, MS/MSD recovery failures, and PE sample failures. The following list summarizes the measurement error associated with analysis:

- Positive acetone and 2-butanone results were estimated (J) and non-detected results were rejected (R) in all samples due to initial and continuing calibration failures.
- The non-detected 1,1,2,2-tetrachloroethane and 1,2-dibromo-3-chloropropane results were estimated (UJ) in samples A2Z67, A2Z69, and A2Z94 due to surrogate recoveries below QC limits. Results may be biased low.
- The non-detected result for 1,1-dichloroethene was estimated (UJ) in sample A2Z67 due to MS/MSD recoveries below QC limits. The result may be biased low.
- The non-detected results for styrene were rejected (R) in all samples since the compound was scored "Action Low" in the PE sample.

Initial and Continuing Calibration

The RRF for acetone and 2-butanone did not meet QC criteria of >0.05 in the initial calibration nor in all associated continuing calibrations. The positive acetone and 2-butanone results were estimated (J) and the non-detected acetone and 2-butanone results were rejected (R) in all samples.

Deuterated Monitoring Compounds

1,1-Dichloroethene-d5 recovered above QC criteria in six samples and chloroethane-d5 recovered above QC criteria in two samples. No action was necessary since no positive results were detected for the associated compounds in these samples.

The following table summarizes the surrogate recoveries that failed the QC limits and resulted in qualifications:

Sample Number	Surrogate Compound	Percent Recovery	QC Limits (%)	Action
A2Z67	1,1,2,2-Tetrachloroethane-d2	72	73-125	(+) –J; ND - UJ
A2Z69	1,1,2,2-Tetrachloroethane-d2	72	73-125	(+) –J; ND - UJ
A2Z94	1,1,2,2-Tetrachloroethane-d2	70	73-125	(+) –J; ND - UJ
Affected Analytes:	1,1,2,2-tetrachloroethane and 1,2-dibromo-3-chloropropane			

The non-detected results for 1,1,2,2-tetrachloroethane and 1,2-dibromo-3-chloropropane were estimated (UJ) in samples A2Z67, A2Z69, and A2Z94 due to surrogate recoveries below QC limits. Results may be biased low.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

The recoveries for 1,1-dichloroethene were below the 61-145% criteria in the MS/MSD analysis of sample A2Z67. The non-detected result for 1,1-dichloroethene was estimated (UJ) in sample A2Z67. The result may be biased low.

Performance Evaluation Results

The PE sample A2Z67 (VT00739) was provided by EPA. Its results were evaluated and found acceptable for 29 of the 30 TCL analytes. Styrene was scored “Action Low”. The non-detected results for styrene were rejected (R) in all samples. The possibility for false negatives exists. 1,1,1,2-Tetrachloroethane was scored “TIC Missed”. The library search identified the TIC as 1,1,1,2-tetrachloroethane, but the laboratory reported it as “Unknown #2”. No further qualifications were applied.

SVOCs:

The semivolatile data were qualified as a result of calibration not meeting criteria, surrogate recovery failures, and MS/MSD recovery failures. The following list summarizes the measurement error associated with analysis:

- Non-detected atrazine results were rejected (R) in all samples due to initial and continuing calibration failures.
- Non-detected results for hexachlorocyclopentadiene were estimated (UJ) in all samples due to initial calibration %RSD criteria not meeting QC criteria (potential bias could not be determined).
- Non-detected results for pentachlorophenol were estimated (UJ) in sample A2Z70 due to continuing calibration %D criteria not meeting QC criteria (potential bias could not be determined).
- The non-detected hexachlorobenzene, phenanthrene, and anthracene results were estimated (UJ) in sample A2ZA5 due to surrogate recovery below QC limits. Results may be biased low.
- The non-detected naphthalene, 2-methylnaphthalane, 2-chloronaphthalene, acenaphthylene, and acenaphthene results were estimated (UJ) in sample A2Z82 due to surrogate recovery below QC limits. Results may be biased low.
- The non-detected benzaldehyde and phenol results were estimated (UJ) in samples A2Z70 and A2Z82 due to surrogate recoveries below QC limits. Results may be biased low.
- The non-detected 2-chlorophenol result was estimated (UJ) in sample A2Z70 due to surrogate recovery below QC limits. Results may be biased low.
- The non-detected 2-nitroaniline, 3-nitroaniline, 4-nitroaniline, 2,4-dinitrophenol, 4-nitrophenol, and 4,6-dinitro-2-methylphenol results were rejected (R) in sample A2ZA7 due to surrogate recoveries below QC limits (<10%). The possibility for false negatives exists.
- The non-detected 2-nitroaniline, 3-nitroaniline, 4-nitroaniline, 2,4-dinitrophenol, and 4-nitrophenol, results were estimated (UJ) in sample A2Z88 due to surrogate recoveries below QC limits. Results may be biased low.
- The non-detected result for 4-nitrophenol was rejected (R) in sample A2Z67 due to MS/MSD recoveries below QC limits (<10%). The possibility for false negatives exists.

Initial and Continuing Calibration

The RRF for atrazine did not meet QC criteria of >0.05 in the initial calibration nor in all associated continuing calibrations. The non-detected atrazine results were rejected (R) in all samples.

The %RSD for hexachlorocyclopentadiene in the initial calibration did not meet QC criteria of <30%. The non-detected hexachlorocyclopentadiene results were estimated (UJ) in all samples (potential bias could not be determined).

The %D for pentachlorophenol in one continuing calibration did not meet QC criteria of <25%. The non-detected pentachlorophenol result was estimated (UJ) in A2Z70 (potential bias could not be determined).

Deuterated Monitoring Compounds

Pyrene-d10 recovered above QC criteria in one sample. No action was necessary since no positive results were detected for the associated compounds in this sample.

The following table summarizes the surrogate recoveries that failed the QC limits:

Sample Number	Surrogate Compound	Percent Recovery	QC Limits (%)	Action
A2Z70	Phenol-d5 (PHL) 2-Chlorophenol-d4 (2-CP)	34 36	39-106 41-106	(+) –J; ND - UJ
A2Z82	Anthracene-d10 (ANC) Phenol-d5 (PHL)	18 34	44-110 39-106	(+) –J; ND - UJ
A2Z88	4-Nitrophenol-d4 (4NP)	29	33-116	(+) –J; ND - UJ
A2ZA5	Acenaphthylene-d8 (ACY)	31	41-107	(+) –J; ND - UJ
A2ZA7	4-Nitrophenol-d4 (4NP) 4,6-Dinitro-2-methylphenol-d2 (NMP)	9 9	33-116 22-104	ND - R
Affected Analytes	PHL = benzaldehyde and phenol 2-CP = 2-chlorophenol ANC = naphthalene, 2-methylnaphthalene, 2-chloronaphthalene, acenaphthylene, and acenaphthene 4-NP = 2-nitroanline, 3-nitroaniline, 4-nitroaniline, 2,4-dinitrophenol, and 4-nitrophenol ACY = hexachlorobenzene, atrazine, phenanthrene, and anthracene NMP = 4,6-dinitro-2-methylphenol			

The non-detected results for benzaldehyde, phenol, and 2-chlorophenol in A2Z70; for naphthalene, 2-methylnaphthalene, 2-chloronaphthalene, acenaphthylene, acenaphthene, benzaldehyde, and phenol in A2Z82; for 2-nitroanline, 3-nitroaniline, 4-nitroaniline, 2,4-dinitrophenol, and 4-nitrophenol in A2Z88; and hexachlorobenzene, atrazine, phenanthrene, and anthracene in A2ZA5 were estimated (UJ) due to surrogate recoveries below QC limits. Results may be biased low.

The non-detected results for 2-nitroanline, 3-nitroaniline, 4-nitroaniline, 2,4-dinitrophenol, 4-nitrophenol, and 4,6-dinitro-2-methylphenol in A2ZA7 were rejected (R) due to extremely low (<10%) surrogate recoveries. The possibility for false negatives exists.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

The recoveries for 4-nitrophenol were below the 10-180% criteria in the MS/MSD analysis of sample A2Z67. The non-detected result for 4-nitrophenol was rejected (R) in sample A2Z67 since the recovery was extremely low (<10%). The possibility for false negatives exists.

Performance Evaluation Results

The PE sample A2ZA3 (SV0563) was provided by EPA. Its results were evaluated and found acceptable.

Pesticides/PCBs:

The pesticide/PCB results were reported without qualification.

Data Completeness

The PCB Form 1 for A2Z70 and the "Instrument Run Log - GC Extractables" for instrument ID A-6890 to include runs A20806-A20828. were not included with the package. The laboratory was contacted on March 15, 2010 and the missing data was submitted on March 16, 2010.

Initial and Continuing Calibration

Some compound results in the initial or continuing calibration on column 2 failed criteria. Since all compound results were reported from column 1, no action was taken.

Performance Evaluation Results

The following PE samples were provided by EPA, pesticide sample A2ZA2 (AP0380) and PCB samples A2Z96 (AA0422) and A2ZA4 (AA0165), and the PE sample results were evaluated and found acceptable.

Please contact Gail DeRuzzo at (978) 703-6021 should you have any questions or comments regarding this information.

Very truly yours,

NOBIS ENGINEERING, INC.

Gail DeRuzzo
Lead Chemist

Gloria J. Switalski, Senior Project Scientist
Subcontractor Data Validator
WESTON SOLUTIONS, INC.

Tables:
- Table I: Recommendation Summary Table
- Table II: Overall Evaluation of Data
- Table III: TIC Summary Tables
- Data Summary Tables

Enclosures:
- Data Validation Worksheets
- CCS Reports
- PE Score Reports
- Region Electronic Correspondence
- Field Sampling Notes
- CSF Audit (DC-2 Form)
- DQO Summary

cc: Darryl Luce, EPA Site Manager (w/o Enclosures)
Ray Flores, USEPA Region VI (w/ Enclosures)

TABLE I

Recommendation Summary Table for Volatiles
Ely Copper Mine Superfund Site
Case 39247; SDG A2Z67

Sample Number	Matrix	Qualifiers
A2Z67	Aqueous	/, , ,
A2Z69	Aqueous	/, ,
A2Z70	Aqueous	/,
A2Z74	Aqueous	/,
A2Z76	Aqueous	/,
A2Z82	Aqueous	/,
A2Z84	Aqueous	/,
A2Z88	Aqueous	/,
A2Z94	Aqueous	/, ,
A2ZA5	Aqueous	/,
A2ZA7	Aqueous	/,
A2ZA9	Aqueous	/,

/- Estimate (J) positive results and reject (R) non-detected results for acetone and 2-butanone due to non-compliant calibration results (potential for false negatives).

- Estimate (UJ) the non-detected results for 1,1,2,2-tetrachloroethane and 1,2-dibromo-3-chloropropane due to surrogate recovery below QC limits (potential low bias).

- Estimate (UJ) the non-detected result for 1,1-dichloroethene in sample A2Z67 due to spike recoveries below QC limits (potential low bias).

- Reject (R) the non-detected results for styrene due to the “Action Low” score in the PE sample (potential for false negatives).

TABLE I

Recommendation Summary Table for Semivolatilies
Ely Copper Mine Superfund Site
Case 39247; SDG A2Z67

Sample Number	Matrix	Qualifiers
A2Z67	Aqueous	, ,
A2Z70	Aqueous	, , ,
A2Z74	Aqueous	,
A2Z76	Aqueous	,
A2Z82	Aqueous	, ,
A2Z84	Aqueous	,
A2Z88	Aqueous	, ,
A2Z94	Aqueous	,
A2ZA5	Aqueous	, ,
A2ZA7	Aqueous	, ,
A2ZA9	Aqueous	,

- Reject (R) non-detected results for atrazine due to non-compliant calibration results (potential for false negatives).

- Estimate (UJ) non-detected results for hexachlorocyclopentadiene due to non-compliant calibration result.

- Estimate (UJ) non-detected result for pentachlorophenol in A2Z70 due to non-compliant calibration result.

- Estimate (UJ) the non-detected results for benzaldehyde, phenol, and 2-chlorophenol in A2Z70 due to surrogate recovery below QC limits (potential low bias).

- Estimate (UJ) the non-detected results for naphthalene, 2-methylnaphthalene, 2-chloronaphthalene, acenaphthylene, acenaphthene, benzaldehyde, and phenol in A2Z82 due to surrogate recovery below QC limits (potential low bias).

- Estimate (UJ) the non-detected results for 2-nitroanline, 3-nitroaniline, 4-nitroaniline, 2,4-dinitrophenol, and 4-nitrophenol in A2Z88 due to surrogate recovery below QC limits (potential low bias).

- Estimate (UJ) the non-detected results for hexachlorobenzene, phenanthrene, and anthracene in A2ZA5 due to surrogate recovery below QC limits (potential low bias).

- Reject (R) the non-detected results for 2-nitroanline, 3-nitroaniline, 4-nitroaniline, 2,4-dinitrophenol, 4-nitrophenol, and 4,6-dinitro-2-methylphenol in A2ZA7 due to extremely low surrogate recoveries (potential for false negatives).

- Reject (R) the non-detected result for 4-nitrophenol in sample A2Z67 due to extremely low (<10%) spike recoveries (potential for false negatives).

TABLE I

Recommendation Summary Table for Pesticides/PCBs
Ely Copper Mine Superfund Site
Case 39247; SDG A2Z67

Sample Number	Matrix	Qualifiers
A2Z67	Aqueous	A
A2Z70	Aqueous	A
A2Z74	Aqueous	A
A2Z76	Aqueous	A
A2Z82	Aqueous	A
A2Z84	Aqueous	A
A2Z88	Aqueous	A
A2Z94	Aqueous	A
A2ZA5	Aqueous	A
A2ZA7	Aqueous	A
A2ZA9	Aqueous	A

A - Accept the data.

TABLE II

Overall Evaluation of Volatile Data
Ely Copper Mine Superfund Site
Case 39247; SDG A2Z67

VOLATILE ORGANICS					
DQO (list all DQOs)	**Sampling and/or Analytical Method Appropriate Yes or No**	**Measurement Error**		**Sampling Variability****	**Potential Usability Issues**
		Analytical Error	**Sampling Error***		
To estimate the nature and extend of site contamination. To estimate the biological impacts resulting from source area contamination. To refine the conceptual site model.	Yes, analytical method CLP SOW SOMO2.1 and sampling procedures according to the requirements of the *QAPP* are appropriate for all samples.	Refer to qualifications In R/S key: /, , ,	Refer to qualifications in R/S key: None		/-Estimate (J) positive results and reject (R) non-detected results for acetone and 2-butanone due to non-compliant calibration results (potential for false negatives). -Estimate (UJ) the non-detected results for 1,1,2,2-tetrachloroethane and 1,2-dibromo-3-chloropropane due to surrogate recovery below QC limits (potential low bias). -Estimate (UJ) the non-detected result for 1,1-dichloroethene in sample A2Z67 due to spike recoveries below QC limits (potential low bias). -Reject (R) non-detected results for styrene due to the "Action Low" score in the PE sample (potential for false negatives).

* The evaluation of "sampling error" cannot be completely assessed in data validation
** Sampling variability is not assessed in data validation.

.**TABLE II**

Overall Evaluation of Semivolatile Data
Ely Copper Mine Superfund Site
Case 39247; SDG A2Z67

SEMIVOLATILE ORGANICS					
DQO (list all DQOs)	**Sampling and/or Analytical Method Appropriate Yes or No**	**Measurement Error**		**Sampling Variability****	**Potential Usability Issues**
		Analytical Error	**Sampling Error***		
To estimate the nature and extend of site contamination. To estimate the biological impacts resulting from source area contamination. To refine the conceptual site model.	Yes, analytical method CLP SOW SOMO2.1 and sampling procedures according to the requirements of the *QAPP* are appropriate for all samples.	Refer to qualifications In R/S key: , , , , , , , ,	Refer to qualifications in R/S key: None		- Reject (R) non-detected results for atrazine due to non-compliant calibration results (potential for false negatives). -Estimate (UJ) non-detected results for hexachlorocyclopentadiene due to non-compliant calibration result. -Estimate (UJ) non-detected result for pentachlorophenol in A2Z70 due to non-compliant calibration result. -Estimate (UJ) the non-detected results for benzaldehyde, phenol, and 2-chlorophenol in A2Z70 due to surrogate recovery below QC limits (potential low bias). -Estimate (UJ) the non-detected results for naphthalene, 2-methylnaphthalene, 2-chloronaphthalene, acenaphthylene, acenaphthene, benzaldehyde, and phenol in A2Z82 due to surrogate recovery below QC limits (potential low bias). -Estimate (UJ) the non-detected results for 2-nitroanline, 3-nitroaniline, 4-nitroaniline, 2,4-dinitrophenol, and 4-nitrophenol in A2Z88 due to surrogate recovery below QC limits (potential low bias). -Estimate (UJ) the non-detected results for hexachlorobenzene, phenanthrene, and anthracene in A2ZA5 due to surrogate recovery below QC limits (potential low bias). -Reject (R) the non-detected results for 2-nitroanline, 3-nitroaniline, 4-nitroaniline, 2,4-dinitrophenol, 4-nitrophenol, and 4,6-dinitro-2-methylphenol in A2ZA7 due to extremely low surrogate recoveries (potential for false negatives). -Reject (R) the non-detected result for 4-nitrophenol in sample A2Z67 due to extremely low (<10%) spike recoveries (potential for false negatives).

* The evaluation of "sampling error" cannot be completely assessed in data validation
** Sampling variability is not assessed in data validation.

TABLE II

Overall Evaluation of Pesticide/PCB Data
Ely Copper Mine Superfund Site
Case 39247; SDG A2Z67

PESTICIDES/PCBs					
DQO (list all DQOs)	**Sampling and/or Analytical Method Appropriate Yes or No**	**Measurement Error**		**Sampling Variability****	**Potential Usability Issues**
		Analytical Error	**Sampling Error***		
To estimate the nature and extend of site contamination. To estimate the biological impacts resulting from source area contamination. To refine the conceptual site model.	Yes, analytical method CLP SOW SOMO2.1 and sampling procedures according to the requirements of the *QAPP* are appropriate for all samples.	Refer to qualifications in R/S key: None	Refer to qualifications in R/S key: None		None

* The evaluation of "sampling error" cannot be completely assessed in data validation
** Sampling variability is not assessed in data validation.

TABLE III

VOLATILE AND SEMIVOLATILE TENTATIVELY IDENTIFIED COMPOUND SUMMARY
Ely Copper Mine Site
Case 39247; SDG A2Z67

No tentatively identified compounds were found in the volatile analyses. See attached table for tentatively identified compounds found in the semivolatile analyses.

APPENDIX C

Nobis Engineering, Inc.

PROJECT	
Ely Copper Mines	
vershire, VT	
Nobis File No:.	80024.03

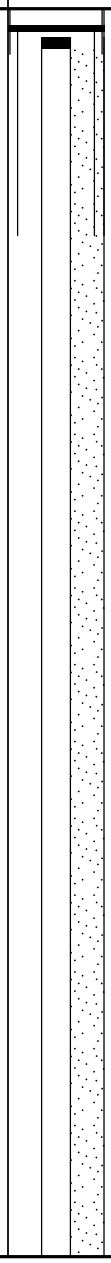
Boring No:.	MW-14C
Boring Location:	
Checked by:	
Date Start:	July 30, 2009
Date Finish:	July 30, 2009

Contractor:	NHB	Rig Type / Model:	ATV/Diedrich D-50	Ground Surface Elev.:	
Driller:	Jay Garside	Hammer Type:	Safety Hammer	Top-of-Riser Elev.:	
Nobis Rep.:	J Brunelle	Hammer Hoist:	Wire Winch	Datum:	

	Drilling Method	Sampler
Type	Casing	Split-Spoon
Size	4	1-3/8 inch ID
Advancement	Drive and wash	140-lb hammer

Groundwater Observations					
Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft)	Blows/ 6 in.	Ground Water	Stratum Log	Stratum Elev./ Desc.	Sample Description (Soil: ASTM D2488 Visual Manual Procedure As Modified by Nobis)	Well Detail	Remarks
-2										
-1										
0										
1	S-1	12	0-2	3 5 12 7				Top 6 inches of light brown, 40% fine sand, 20% medium sand, 40% gravel. Bottom 6 inches of black, 30% fine sand, 20% medium sand, 30% gravel, 20% slag.		
2										
3	S-2	12	2-4	10 7 8 13				Top 6 inches of dark brown, 30% fine sand, 40% medium sand, 10% gravel,10% silt, 10% slag. Bottom 6 inches of dark brown, 30% fine sand, 50% medium sand, 10% gravel, 10% silt.		
4										
5	S-3	18	4-6	15 13 21 21				Brown, 30% fine sand, 40% medium sand, 20% gravel, 10% silt. (quartz, schist, pyrites, copper and gravel)		
6										
7	S-4	20	6-8	24 18 22 24				Grayish brown, 30% fine sand, 40% medium sand, 20% gravel, 10% silt.		
8										
9	S-5	20	8-9.83	25 18 22 100/4"				Grayish brown, 30% fine sand, 20% medium sand, 10% coarse sand, 20% silt, 20% gravel. Weathered rock in the tip of the spoon.		
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										



SAMPLE IDENTIFICATION	REMARKS:
G - Geoprobe S - Split Spoon U - Undisturbed Sample R - Core Run	

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Nobis Engineering, Inc.

PROJECT	
Ely Copper Mines	
vershire, VT	
Nobis File No:.	80024.03

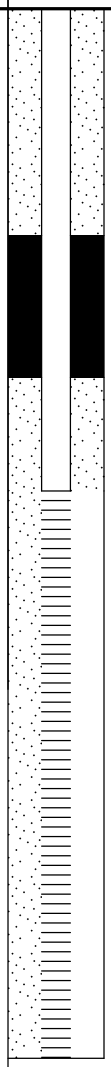
Boring No:.	MW-14C
Boring Location:	
Checked by:	
Date Start:	July 30, 2009
Date Finish:	July 30, 2009

Contractor:	NHB	Rig Type / Model:	ATV/Diedrich D-50	Ground Surface Elev.:	
Driller:	Jay Garside	Hammer Type:	Safety Hammer	Top-of-Riser Elev.:	
Nobis Rep.:	J Brunelle	Hammer Hoist:	Wire Winch	Datum:	

	Drilling Method	Sampler
Type	Casing	Split-Spoon
Size	4	1-3/8 inch ID
Advancement	Drive and wash	140-lb hammer

Groundwater Observations					
Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft)	Blows/ 6 in.	Ground Water	STRATUM Log	Elev./ Desc.	SAMPLE DESCRIPTION (Soil: ASTM D2488 Visual Manual Procedure As Modified by Nobis)	WELL DETAIL	REMARKS
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30								Sand seam goes from 29.2 to 30.5 feet below ground surface.		
31										
32										
33										
34										
35										
36										
37										
38										
39										
40										
41										



SAMPLE IDENTIFICATION
G - Geoprobe
S - Split Spoon
U - Undisturbed Sample
R - Core Run

REMARKS:

Nobis Engineering, Inc.

PROJECT	
Ely Copper Mines	
vershire, VT	
Nobis File No:.	80024.03

Boring No:.	MW-17A
Boring Location:	
Checked by:	
Date Start:	July 30, 2009
Date Finish:	July 30, 2009

Contractor:	NHB	Rig Type / Model:	ATV/Diedrich D-50	Ground Surface Elev.:	
Driller:	Jay Garside	Hammer Type:	Safety Hammer	Top-of-Riser Elev.:	
Nobis Rep.:	J Brunelle	Hammer Hoist:	Wire Winch	Datum:	

	Drilling Method	Sampler
Type	Casing	Split-Spoon
Size	4	1-3/8 inch ID
Advancement	Drive and wash	140-lb hammer

Groundwater Observations					
Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft)	Blows/ 6 in.	Ground Water	STRATUM Log	Elev./ Desc.	SAMPLE DESCRIPTION (Soil: ASTM D2488 Visual Manual Procedure As Modified by Nobis)	REMARKS
	S-1	20	0-2	3				Brown fine SAND, little silt, trace gravel, moist.	
1				39					
				18					
2				16					
	S-2	8	2-2.67	24				Gray rock fragments followed by olive brown, fine SAND, little silt, trace gravel, moist, weathered rock in the tip.	
3				100/2"					
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									

SAMPLE IDENTIFICATION

G - Geoprobe
S - Split Spoon
U - Undisturbed Sample
R - Core Run

REMARKS:

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Nobis Engineering, Inc.

PROJECT	
Ely Copper Mines	
vershire, VT	
Nobis File No:.	80024.03

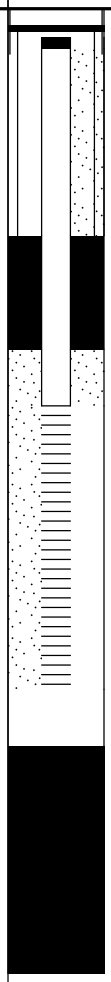
Boring No:.	MW-18A
Boring Location:	
Checked by:	
Date Start:	July 30, 2009
Date Finish:	July 30, 2009

Contractor:	NHB	Rig Type / Model:	ATV/Diedrich D-50	Ground Surface Elev.:	
Driller:	Jay Garside	Hammer Type:	Safety Hammer	Top-of-Riser Elev.:	
Nobis Rep.:	J Brunelle	Hammer Hoist:	Wire Winch	Datum:	

	Drilling Method	Sampler
Type	Casing	Split-Spoon
Size	4	1-3/8 inch ID
Advancement	Drive and wash	140-lb hammer

Groundwater Observations					
Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft)	Blows/ 6 in.	Ground Water	STRATUM Log	Elev./ Desc.	SAMPLE DESCRIPTION (Soil: ASTM D2488 Visual Manual Procedure As Modified by Nobis)	WELL DETAIL	REMARKS
-2										
-1										
0										
1	S-1	18	0-2	1 1				14 inches of loose, moist, fine to medium SAND, some silt. 4 inches of loose, moist, fine to medium SAND, trace fine to medium gravel.		
2				5 6						
3	S-2	21	2-4	10 20				Medium dense, moist, fine to coarse SAND, little silt, trace fine to medium gravel, light brown.		
4				20 16						
5	S-3	15	4-6	16 34				5 inches similar to S-2. Very dense, moist,fine to coarse SAND, some silt, little fine to medium gravel, reddish brown to gray.		
6				39 37						
7	S-4	24	6-8	47 72				5 inches of very dense, dry, fine to medium SAND, some silt, reddish brown. 19 inches of very dense, dry, fine to coarse SAND, little silt, fine to medium gravel, gray.		
8				28 104						
9								Weathered bedrock. Roller bit to 14 feet in bedrock. Bottom of exploration at 14 feet.		
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										



SAMPLE IDENTIFICATION

G - Geoprobe
S - Split Spoon
U - Undisturbed Sample
R - Core Run

REMARKS:

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Nobis Engineering, Inc.

PROJECT	
Ely Copper Mines	
vershire, VT	
Nobis File No:.	80024.03

Boring No:.	MW-19A
Boring Location:	
Checked by:	
Date Start:	July 28, 2009
Date Finish:	July 28, 2009

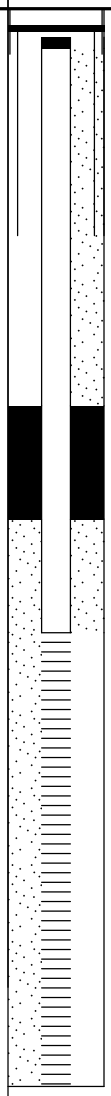
Contractor:	NHB	Rig Type / Model:	ATV/Diedrich D-50	Ground Surface Elev.:	
Driller:	Jay Garside	Hammer Type:	Safety Hammer	Top-of-Riser Elev.:	
Nobis Rep.:	J Brunelle	Hammer Hoist:	Wire Winch	Datum:	

	Drilling Method	Sampler
Type	Casing	Split-Spoon
Size	4	1-3/8 inch ID
Advancement	Drive and wash	140-lb hammer

Groundwater Observations					
Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft)	Blows/ 6 in.	Ground Water	Stratum Log	Stratum Elev./ Desc.	Sample Description (Soil: ASTM D2488 Visual Manual Procedure As Modified by Nobis)	Remarks
-2									
-1									
0									
1	S-1	20	0-2	5 15				17 inches of dense, dry, silty sand (SM), 30% fine sand, 30% medium sand, 20% gravel, 20% silt.	
2				16 11				3 inches of dark brown to black 10% fine sand, 50% medium sand, 10% coarse sad, 30% weathered rock.	
3	S-2	12	2-4	12 18				8 inches of light brown to brown with intermixed black sands, 40% fine sand, 30% medium sand, 10% gravel, 20% silt, dry.	
4				19 16				4 inches of dark brown to black, 20% fine sand, 40% medium sand, 10% coarse sand, 30% gravel. crushed rock core in the tip of the spoon.	
5	S-3	24	4-6	12 19				16 inches of light brown to reddish brown, 40% fine sand, 20% medium sand, 20% gravel, 20% silt, dry.	
6				17 25				8 inches of reddish brown, 40% fine sand, 30% medium sand, 10% gravel, 20% silt, dry.	
7	S-4	18	6-8	27 60				Reddish brown to grayish brown, 40% fine sand, 20% medium sand, 20% silt, 20% gravel, dry.	
8				49 72					
9	S-5	18	8-10	34 30				Gray, 30% fine sand, 20% medium sand, 10% coarse sand, 20% gravel, 20% silt, wet at 9 feet below ground surface.	
10				33 25					
11	S-6	8	10-10.67	67 100/2"				Gray with black seams at bottom 1 inch of spoon. seams are very thin, 40% fine sand, 20% medium sand, 10% gravel, 20% silt, wet.	
12									
13	S-7	10	12-12.83	100 100/4"				Gray, 20% fine sand, 30% medium sand, 10% coarse sand, 20% silt, 20% gravel/rock, wet.	
14									
15	S-8	3	14-14.25	100/3"				Black, 100% weathered bedrock.	
16									
17									
18									
19									

WELL DETAIL



SAMPLE IDENTIFICATION
G - Geoprobe
S - Split Spoon
U - Undisturbed Sample
R - Core Run

REMARKS:

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Nobis Engineering, Inc.

PROJECT	
Ely Copper Mines	
vershire, VT	
Nobis File No:.	80024.03

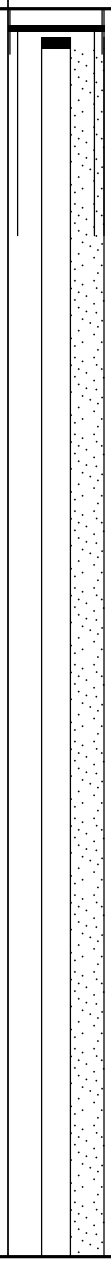
Boring No:.	MW-19C
Boring Location:	
Checked by:	
Date Start:	July 28, 2009
Date Finish:	July 28, 2009

Contractor:	NHB	Rig Type / Model:	ATV/Diedrich D-50	Ground Surface Elev.:	
Driller:	Jay Garside	Hammer Type:	Safety Hammer	Top-of-Riser Elev.:	
Nobis Rep.:	J Brunelle	Hammer Hoist:	Wire Winch	Datum:	

	Drilling Method	Sampler
Type	Casing	Split-Spoon
Size	4	1-3/8 inch ID
Advancement	Drive and wash	140-lb hammer

Groundwater Observations					
Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft)	Blows/ 6 in.	Ground Water	STRATUM Log	Elev./ Desc.	SAMPLE DESCRIPTION (Soil: ASTM D2488 Visual Manual Procedure As Modified by Nobis)	WELL DETAIL	REMARKS
-2										
-1										
0								Refer to MW-19A for the soil classification.		
1										
2										
3										
4										
5										
6										
7										
8										
9								Drove casing to 15.8 feet below ground surface and started NX core. Assumed bedrock at 15.8 feet was a boulder, cored through the boulder and observed till beneath boulder.		
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										



SAMPLE IDENTIFICATION

G - Geoprobe
S - Split Spoon
U - Undisturbed Sample
R - Core Run

REMARKS:

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Nobis Engineering, Inc.

PROJECT	
Ely Copper Mines	
vershire, VT	
Nobis File No:.	80024.03

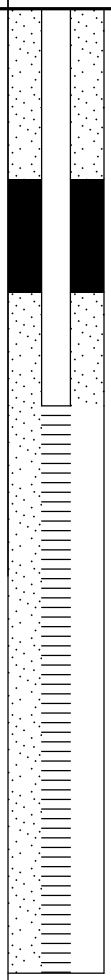
Boring No:.	MW-19C
Boring Location:	
Checked by:	
Date Start:	July 28, 2009
Date Finish:	July 28, 2009

Contractor:	NHB	Rig Type / Model:	ATV/Diedrich D-50	Ground Surface Elev.:	
Driller:	Jay Garside	Hammer Type:	Safety Hammer	Top-of-Riser Elev.:	
Nobis Rep.:	J Brunelle	Hammer Hoist:	Wire Winch	Datum:	

	Drilling Method	Sampler
Type	Casing	Split-Spoon
Size	4	1-3/8 inch ID
Advancement	Drive and wash	140-lb hammer

Groundwater Observations					
Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft)	Blows/ 6 in.	Ground Water	STRATUM: Log	Elev./ Desc.	SAMPLE DESCRIPTION (Soil: ASTM D2488 Visual Manual Procedure As Modified by Nobis)	WELL DETAIL	REMARKS
20								Discontinued coring and rollerbit from 21 feet to 29 feet. Slight fracture at 29 feet and well set up at 29 feet.		
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										
36										
37										
38										
39										
40										
41										



SAMPLE IDENTIFICATION
G - Geoprobe
S - Split Spoon
U - Undisturbed Sample
R - Core Run

REMARKS:

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Nobis Engineering, Inc.

PROJECT

Ely Copper Mines
vershire, VT

Nobis File No:. 80024.03

Boring No:. **MW-20A**
Boring Location: See Plan

Checked by:
Date Start: July 29, 2009
Date Finish: July 29, 2009

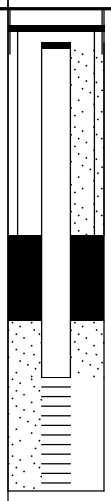
Contractor:	NHB	Rig Type / Model:	ATV/Diedrich D-50	Ground Surface Elev.:	
Driller:	Jay Garside	Hammer Type:	Safety Hammer	Top-of-Riser Elev.:	
Nobis Rep.:	J Brunelle	Hammer Hoist:	Wire Winch	Datum:	

	Drilling Method	Sampler
Type	Casing	Split-Spoon
Size	4	1-3/8 inch ID
Advancement	Drive and wash	140-lb hammer

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft)	Blows/ 6 in.	Ground Water	Stratum Log	Stratum Elev./ Desc.	Sample Description (Soil: ASTM D2488 Visual Manual Procedure As Modified by Nobis)	Well Detail	Remarks
-2										
-1										
0										
1	S-1	20	0-2	2 7				Medium dense, dry to moist, SAND and SILT, trace coarse sand and gravel, roots and organics observed, 1 inch rock fragments observed at the bottom, brown.		
2				4 7						
3	S-2	19	2-4	4 7				Medium dense, very moist, fine SAND, little silt, trace gravel, dark brown.		
4				16 20						
5	S-3	17.5	4-5.5	24 31				Very dense, wet, fine SAND, little silt and little gravel, Olive brown.		
6				50				Crushed bedrock.		
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										



SAMPLE IDENTIFICATION

G - Geoprobe
S - Split Spoon
U - Undisturbed Sample
R - Core Run

REMARKS:

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Nobis Engineering, Inc.

PROJECT

Ely Copper Mines
vershire, VT

Nobis File No:. 80024.03

Boring No:. **MW-20C**
Boring Location: See Plan

Checked by:
Date Start: July 29, 2009
Date Finish: July 29, 2009

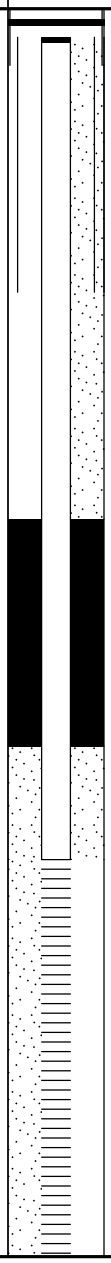
Contractor:	NHB	Rig Type / Model:	ATV/Diedrich D-50	Ground Surface Elev.:	
Driller:	Jay Garside	Hammer Type:	Air Hammer	Top-of-Riser Elev.:	
Nobis Rep.:	J Brunelle	Hammer Hoist:	Wire Winch	Datum:	

	Drilling Method	Sampler
Type	Casing	
Size	4	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft)	Blows/ 6 in.	Ground Water	STRATUM Log	Elev./ Desc.	SAMPLE DESCRIPTION (Soil: ASTM D2488 Visual Manual Procedure As Modified by Nobis)	WELL DETAIL	REMARKS
-3										
-2										
-1										
0										
1								Refer to MW 20A for Soil classification		
2										
3										
4										
5										
6								Bottom of the exploration at 21 feet. Installed well at 21 feet with 10 feet screen.		
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										



SAMPLE IDENTIFICATION

G - Geoprobe
S - Split Spoon
U - Undisturbed Sample
R - Core Run

REMARKS:

BOREHOLE LOG - NOBIS ENGINEERING.GDT - 8/21/09 12:41 - C:\DOCUMENTS AND SETTINGS\PCHAVVA.NOBIS\DESKTOP\ELY MINES.GPJ

Nobis Engineering, Inc.

PROJECT

Ely Copper Mines
vershire, VT

Nobis File No:. 80024.03

Boring No:. **MW-20C**
Boring Location: See Plan

Checked by:
Date Start: July 29, 2009
Date Finish: July 29, 2009

Contractor:	NHB	Rig Type / Model:	ATV/Diedrich D-50	Ground Surface Elev.:	
Driller:	Jay Garside	Hammer Type:	Air Hammer	Top-of-Riser Elev.:	
Nobis Rep.:	J Brunelle	Hammer Hoist:	Wire Winch	Datum:	

	Drilling Method	Sampler
Type	Casing	
Size	4	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft)	Blows/ 6 in.	Ground Water	STRATUM Log	Elev./ Desc.	SAMPLE DESCRIPTION (Soil: ASTM D2488 Visual Manual Procedure As Modified by Nobis)	WELL DETAIL	REMARKS
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										
36										
37										
38										
39										
40										

SAMPLE IDENTIFICATION

G - Geoprobe
S - Split Spoon
U - Undisturbed Sample
R - Core Run

REMARKS:

BOREHOLE LOG - NOBIS ENGINEERING.GDT - 8/21/09 12:41 - C:\DOCUMENTS AND SETTINGS\PCHAVVA.NOBIS\DESKTOP\ELY MINES.GPJ

Nobis Engineering, Inc.

PROJECT	
Ely Copper Mines	
vershire, VT	
Nobis File No:.	80024.03

Boring No:.	**MW-20D**
Boring Location:	See Plan
Checked by:	
Date Start:	July 24, 2009
Date Finish:	July 27, 2009

Contractor:	NHB	Rig Type / Model:	ATV/Diedrich D-50	Ground Surface Elev.:	
Driller:	Jay Garside	Hammer Type:	Air Hammer	Top-of-Riser Elev.:	
Nobis Rep.:	J Brunelle	Hammer Hoist:	Wire Winch	Datum:	

	Drilling Method	Sampler
Type	Casing	
Size	4	
Advancement		

Groundwater Observations					
Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft)	Blows/ 6 in.	Ground Water	STRATUM Log	Elev./ Desc.	SAMPLE DESCRIPTION (Soil: ASTM D2488 Visual Manual Procedure As Modified by Nobis)	REMARKS
1								Refer to MW-20A for Soil Classification.	
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									

SAMPLE IDENTIFICATION

G - Geoprobe
S - Split Spoon
U - Undisturbed Sample
R - Core Run

REMARKS:

BOREHOLE LOG - NOBIS ENGINEERING.GDT - 8/21/09 12:41 - C:\DOCUMENTS AND SETTINGS\PCHAVVA.NOBIS\DESKTOP\ELY MINES.GPJ

Nobis Engineering, Inc.

PROJECT	
Ely Copper Mines	
vershire, VT	
Nobis File No:.	80024.03

Boring No:.	MW-20D
Boring Location:	See Plan
Checked by:	
Date Start:	July 24, 2009
Date Finish:	July 27, 2009

Contractor:	NHB	Rig Type / Model:	ATV/Diedrich D-50	Ground Surface Elev.:	
Driller:	Jay Garside	Hammer Type:	Air Hammer	Top-of-Riser Elev.:	
Nobis Rep.:	J Brunelle	Hammer Hoist:	Wire Winch	Datum:	

	Drilling Method	Sampler
Type	Casing	
Size	4	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft)	Blows/ 6 in.	Ground Water	STRATUM Log	Elev./ Desc.	SAMPLE DESCRIPTION (Soil: ASTM D2488 Visual Manual Procedure As Modified by Nobis)	REMARKS
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									
35									
36									
37								Continue with Air hammer, gray rock fragments and dust.	
38									
39									
40									
41									
42									
43									
44									

SAMPLE IDENTIFICATION

G - Geoprobe
S - Split Spoon
U - Undisturbed Sample
R - Core Run

REMARKS:

BOREHOLE LOG - NOBIS ENGINEERING.GDT - 8/21/09 12:41 - C:\DOCUMENTS AND SETTINGS\PCHAVVA.NOBIS\DESKTOP\ELY MINES.GPJ

Nobis Engineering, Inc.

PROJECT	
Ely Copper Mines	
vershire, VT	
Nobis File No:.	80024.03

Boring No:.	**MW-20D**
Boring Location:	See Plan
Checked by:	
Date Start:	July 24, 2009
Date Finish:	July 27, 2009

Contractor:	NHB	Rig Type / Model:	ATV/Diedrich D-50	Ground Surface Elev.:	
Driller:	Jay Garside	Hammer Type:	Air Hammer	Top-of-Riser Elev.:	
Nobis Rep.:	J Brunelle	Hammer Hoist:	Wire Winch	Datum:	

	Drilling Method	Sampler
Type	Casing	
Size	4	
Advancement		

Groundwater Observations					
Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft)	Blows/ 6 in.	Ground Water	STRATUM Log	Elev./ Desc.	SAMPLE DESCRIPTION (Soil: ASTM D2488 Visual Manual Procedure As Modified by Nobis)	REMARKS
45									
46									
47								6 inches of fracture. Wet fracture at 54 feet	
48									
49									
50									
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									
61									
62									
63									
64									
65									
66									

SAMPLE IDENTIFICATION

G - Geoprobe
S - Split Spoon
U - Undisturbed Sample
R - Core Run

REMARKS:

BOREHOLE LOG - NOBIS ENGINEERING.GDT - 8/21/09 12:41 - C:\DOCUMENTS AND SETTINGS\PCHAVVA.NOBIS\DESKTOP\ELY MINES.GPJ

Nobis Engineering, Inc.

PROJECT	
Ely Copper Mines	
vershire, VT	
Nobis File No:.	80024.03

Boring No:.	MW-20D
Boring Location:	See Plan
Checked by:	
Date Start:	July 24, 2009
Date Finish:	July 27, 2009

Contractor:	NHB	Rig Type / Model:	ATV/Diedrich D-50	Ground Surface Elev.:	
Driller:	Jay Garside	Hammer Type:	Air Hammer	Top-of-Riser Elev.:	
Nobis Rep.:	J Brunelle	Hammer Hoist:	Wire Winch	Datum:	

	Drilling Method	Sampler
Type	Casing	
Size	4	
Advancement		

Groundwater Observations					
Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft)	Blows/ 6 in.	Ground Water	STRATUM Log	Elev./ Desc.	SAMPLE DESCRIPTION (Soil: ASTM D2488 Visual Manual Procedure As Modified by Nobis)	REMARKS
67									
68									
69									
70									
71									
72									
73									
74									
75									
76									
77									
78									
79									
80									
81									
82									
83									
84									
85									
86									
87									
88									

SAMPLE IDENTIFICATION

G - Geoprobe
S - Split Spoon
U - Undisturbed Sample
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REMARKS:

BOREHOLE LOG - NOBIS ENGINEERING.GDT - 8/21/09 12:41 - C:\DOCUMENTS AND SETTINGS\PCHAVVA.NOBIS\DESKTOP\ELY MINES.GPJ

Nobis Engineering, Inc.

PROJECT	
Ely Copper Mines	
vershire, VT	
Nobis File No:.	80024.03

Boring No:.	MW-20D
Boring Location:	See Plan
Checked by:	
Date Start:	July 24, 2009
Date Finish:	July 27, 2009

Contractor:	NHB	Rig Type / Model:	ATV/Diedrich D-50	Ground Surface Elev.:	
Driller:	Jay Garside	Hammer Type:	Air Hammer	Top-of-Riser Elev.:	
Nobis Rep.:	J Brunelle	Hammer Hoist:	Wire Winch	Datum:	

	Drilling Method	Sampler
Type	Casing	
Size	4	
Advancement		

Groundwater Observations					
Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft)	Blows/ 6 in.	Ground Water	STRATUM Log	Elev./ Desc.	SAMPLE DESCRIPTION (Soil: ASTM D2488 Visual Manual Procedure As Modified by Nobis)	REMARKS
89									
90									
91									
92									
93									
94									
95									
96									
97								Wet rock fragments Bottom of exploration at 150 feet below ground surface.	
98									
99									
100									
101									
102									
103									
104									
105									
106									
107									
108									
109									
110									

SAMPLE IDENTIFICATION

G - Geoprobe
S - Split Spoon
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REMARKS:

BOREHOLE LOG - NOBIS ENGINEERING.GDT - 8/21/09 12:41 - C:\DOCUMENTS AND SETTINGS\PCHAVVA.NOBIS\DESKTOP\ELY MINES.GPJ

Nobis Engineering, Inc.

PROJECT

Ely Copper Mines
vershire, VT

Nobis File No:. 80024.03

Boring No:. **MW-20D**
Boring Location: See Plan

Checked by:
Date Start: July 24, 2009
Date Finish: July 27, 2009

Contractor:	NHB	Rig Type / Model:	ATV/Diedrich D-50	Ground Surface Elev.:	
Driller:	Jay Garside	Hammer Type:	Air Hammer	Top-of-Riser Elev.:	
Nobis Rep.:	J Brunelle	Hammer Hoist:	Wire Winch	Datum:	

	Drilling Method	Sampler
Type	Casing	
Size	4	
Advancement		

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft)	Blows/ 6 in.	Ground Water	STRATUM Log	Elev./ Desc.	SAMPLE DESCRIPTION (Soil: ASTM D2488 Visual Manual Procedure As Modified by Nobis)	REMARKS
111									
112									
113									
114									
115									
116									
117									
118									
119									
120									
121									
122									
123									
124									
125									
126									
127									
128									
129									
130									
131									
132									

SAMPLE IDENTIFICATION

G - Geoprobe
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R - Core Run

REMARKS:

BOREHOLE LOG - NOBIS ENGINEERING.GDT - 8/21/09 12:41 - C:\DOCUMENTS AND SETTINGS\PCHAVVA.NOBIS\DESKTOP\ELY MINES.GPJ

Nobis Engineering, Inc.

PROJECT	
Ely Copper Mines	
vershire, VT	
Nobis File No:.	80024.03

Boring No:.	**MW-20D**
Boring Location:	See Plan
Checked by:	
Date Start:	July 24, 2009
Date Finish:	July 27, 2009

Contractor:	NHB	Rig Type / Model:	ATV/Diedrich D-50	Ground Surface Elev.:	
Driller:	Jay Garside	Hammer Type:	Air Hammer	Top-of-Riser Elev.:	
Nobis Rep.:	J Brunelle	Hammer Hoist:	Wire Winch	Datum:	

	Drilling Method	Sampler
Type	Casing	
Size	4	
Advancement		

Groundwater Observations					
Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft)	Blows/ 6 in.	Ground Water	STRATUM Log	Elev./ Desc.	SAMPLE DESCRIPTION (Soil: ASTM D2488 Visual Manual Procedure As Modified by Nobis)	REMARKS
133									
134									
135									
136									
137									
138									
139									
140									
141									
142									
143									
144									
145									
146									
147									
148									
149									
150									
151									
152									
153									
154									

SAMPLE IDENTIFICATION

G - Geoprobe
S - Split Spoon
U - Undisturbed Sample
R - Core Run

REMARKS:

BOREHOLE LOG - NOBIS ENGINEERING.GDT - 8/21/09 12:41 - C:\DOCUMENTS AND SETTINGS\PCHAVVA.NOBIS\DESKTOP\ELY MINES.GPJ

Nobis Engineering, Inc.

PROJECT

Ely Copper Mines
vershire, VT

Nobis File No:. 80024.03

Boring No:. **MW-21A**
Boring Location: See Plan
Checked by:
Date Start: July 28, 2009
Date Finish: July 28, 2009

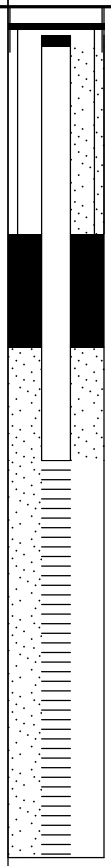
Contractor:	NHB	Rig Type / Model:	ATV/Diedrich D-50	Ground Surface Elev.:	
Driller:	Jay Garside	Hammer Type:	Safety Hammer	Top-of-Riser Elev.:	
Nobis Rep.:	J Brunelle	Hammer Hoist:	Wire Winch	Datum:	

	Drilling Method	Sampler
Type	Casing	Split-Spoon
Size	4	1-3/8 inch ID
Advancement	Drive and wash	140-lb hammer

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft)	Blows/ 6 in.	Ground Water	Log	Elev./ Desc.	SAMPLE DESCRIPTION (Soil: ASTM D2488 Visual Manual Procedure As Modified by Nobis)	WELL DETAIL	REMARKS
-2										
-1										
0										
	S-1	18	0-2	2				Loose, dry, SILT, little medium to fine sand, rock fragments observed, light brown, weathered rock at bottom of spoon observed.		
1				2						
				6						
2				14						
	S-2	13	2-4	21				Very dense, dry, medium to coarse SAND, little silt, black weathered waste rock, brown.		
3				100						
				63						
4				20						
	S-3	15	4-6	19				Dense, moist, fine SAND, trace medium sand, rock fragments and weathered rock in the top 2 inches of spoon, reddish brown.		
5				22						
				24						
6				22						
	S-4	24	6-8	21				Very dense, wet, fine SAND, little gravel/rock fragments, trace silt, olive brown.		
7				26						
				26						
8				35						
	S-5	20	8-10	14				Similar to S-4.		
9				19						
				28						
10				31						
	S-6	12	10-11	27				Similar to S-4 followed by gray silt at the bottom 3 inches.		
11				120				Spoon refusal at 11 feet due to bedrock.		
								Augered to 12 feet.		
12								Bottom of exploration at 12 feet.		
13										
14										
15										
16										
17										
18										
19										



SAMPLE IDENTIFICATION

G - Geoprobe
S - Split Spoon
U - Undisturbed Sample
R - Core Run

REMARKS:

BOREHOLE LOG - NOBIS ENGINEERING.GDT - 8/21/09 12:41 - C:\DOCUMENTS AND SETTINGS\PCHAVVA.NOBIS\DESKTOP\ELY MINES.GPJ

Nobis Engineering, Inc.

PROJECT	
Ely Copper Mines	
vershire, VT	
Nobis File No:.	80024.03

Boring No:.	MW-22A
Boring Location:	
Checked by:	
Date Start:	July 30, 2009
Date Finish:	July 30, 2009

Contractor:	NHB	Rig Type / Model:	ATV/Diedrich D-50	Ground Surface Elev.:	
Driller:	Jay Garside	Hammer Type:	Safety Hammer	Top-of-Riser Elev.:	
Nobis Rep.:	J Brunelle	Hammer Hoist:	Wire Winch	Datum:	

	Drilling Method	Sampler
Type	Casing	Split-Spoon
Size	4	1-3/8 inch ID
Advancement	Drive and wash	140-lb hammer

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft)	Blows/ 6 in.	Ground Water	Log	Elev./ Desc.	SAMPLE DESCRIPTION (Soil: ASTM D2488 Visual Manual Procedure As Modified by Nobis)	WELL DETAIL	REMARKS
-2										
-1										
0										
	S-1	18	0-2	4				Light brown, fine SAND, little silt, trace gravel.		
1				8				Gray rock fragments in tip, medium dense, moist.		
				14						
2				49						
	S-2	18	2-4	49				Gray rock fragments followed by brown fine SAND, trace coarse sand, rock fragments, gray rock fragments,		
3				100						
				65						
4				66						
								Augered to 5 feet.		
5										
	S-3	7	5-7	23				Angular rock fragments		
6				21						
				17						
7				9						
	S-4	21	7-8.75	14						
8				25						
				63						
9				50/3"						
10	S-5	24	9.5-11.5	17				Olive brown to fine SAND, trace silt and gravel, dark brown, fine SAND at 10.5 feet.		
				24						
11				33						
				27						
12										
	S-6	9	12-12.75	69				Olive brown, SILT, trace fine gravel, silt , little medium to fine SAND at tip,		
13				100/3"				Augered to 14.5 feet,		
14										
	S-7	12	14-15.42	31				olive brown, fine SAND, trace silt and gravel, slight and sheen.		
15				85						
				50/5"						
16								Augered to 17 feet.		
17										
	S-8	13	17-18.92	39				Similar to above.		
18				36						
				29						
19				50/5"						

SAMPLE IDENTIFICATION

G - Geoprobe
S - Split Spoon
U - Undisturbed Sample
R - Core Run

REMARKS:

BOREHOLE LOG - NOBIS ENGINEERING.GDT - 8/21/09 12:41 - C:\DOCUMENTS AND SETTINGS\PCHAVVA.NOBIS\DESKTOP\ELY MINES.GPJ

Nobis Engineering, Inc.

PROJECT

Ely Copper Mines
vershire, VT

Nobis File No:. 80024.03

Boring No:. **MW-22A**
Boring Location:
Checked by:
Date Start: July 30, 2009
Date Finish: July 30, 2009

Contractor: NHB
Driller: Jay Garside
Nobis Rep.: J Brunelle

Rig Type / Model: ATV/Diedrich D-50
Hammer Type: Safety Hammer
Hammer Hoist: Wire Winch

Ground Surface Elev.:
Top-of-Riser Elev.:
Datum:

	Drilling Method	Sampler
Type	Casing	Split-Spoon
Size	4	1-3/8 inch ID
Advancement	Drive and wash	140-lb hammer

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft)	Blows/ 6 in.	Ground Water	STRATUM Log	Elev./ Desc.	SAMPLE DESCRIPTION (Soil: ASTM D2488 Visual Manual Procedure As Modified by Nobis)	WELL DETAIL	REMARKS
	S-9	0	19-19.08	100/1"				no recovery.		
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										
36										
37										
38										
39										
40										
41										

SAMPLE IDENTIFICATION

G - Geoprobe
S - Split Spoon
U - Undisturbed Sample
R - Core Run

REMARKS:

BOREHOLE LOG - NOBIS ENGINEERING.GDT - 8/21/09 12:41 - C:\DOCUMENTS AND SETTINGS\PCHAVVA.NOBIS\DESKTOP\ELY MINES.GPJ

Nobis Engineering, Inc.

PROJECT

Ely Copper Mines
vershire, VT

Nobis File No:. 80024.03

Boring No:. **MW-23A**
Boring Location:
Checked by:
Date Start: July 28, 2009
Date Finish: July 28, 2009

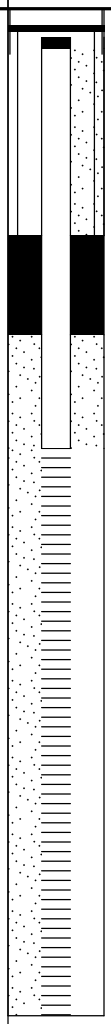
Contractor:	NHB	Rig Type / Model:	ATV/Diedrich D-50	Ground Surface Elev.:	
Driller:	Jay Garside	Hammer Type:	Safety Hammer	Top-of-Riser Elev.:	
Nobis Rep.:	J Brunelle	Hammer Hoist:	Wire Winch	Datum:	

	Drilling Method	Sampler
Type	Casing	Split-Spoon
Size	4	1-3/8 inch ID
Advancement	Drive and wash	140-lb hammer

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft)	Blows/ 6 in.	Ground Water	Stratum Log	Stratum Elev./ Desc.	Sample Description (Soil: ASTM D2488 Visual Manual Procedure As Modified by Nobis)	Well Detail	Remarks
-2										
-1										
0										
1	S-1	12	0-2	4 4 4 3				6 inches of red, 40% fine sand, 50% medium sand, 10% coarse sand, dry. Bottom 6 inches of brown, 30% fine sand, 40% medium sand, 20% coarse sand, 10% gravel, dry.		
2										
3	S-2	13	2-4	3 3 4 4				Top 3 inches of brown, 30% fine sand, 40% medium sand, 20% coarse sand, 10% gravel, dry. Bottom 10 inches of dark brown, 30% fine sand, 40% medium sand, 10% coarse sand, 20% gravel, dry.		
4										
5	S-3	12	4-6	3 2 2 3				Top 2 inches of red layer, 30% fine sand, 40% medium sand, 10% coarse sand, 20% gravel, dry. Bottom 10 inches of dark brown, 40% fine sand, 30% medium sand, 10% coarse sand, 20% gravel, dry.		
6										
7	S-4	9	6-8	2 2 2 2				Gravel at the tip of the spoon poor recovery. 9 inches of dark brown, 30% fine sand, 40% medium sand, 20% gravel, dry.		
8										
9	S-5	19	8-10	26 29 22 40				Top 10 inches of gray, 20% fine sand, 30% medium sand, 20% coarse sand, 30% gravel, dry. Bottom 9 inches of brown, 30% fine sand, 20% medium sand, 10% coarse sand, 40% gravel, dry.		
10										
11	S-6	13	10-12	27 33 33 56				Gray, 30% fine sand, 20% medium sand, 10% coarse sand, 20% gravel. 20% silt, bottom 6 inches wet.		
12										
13	S-7	15	12.5-14.5	25 50 31 53				Augered to small cobble. Gray, 30% fine sand, 10% medium sand, 10% coarse sand, 30% silt, 20% gravel, wet, gravel/weathered rock.		
14										
15								Bottom of exploration at 14.75 feet.		
16										
17										
18										
19										



SAMPLE IDENTIFICATION

G - Geoprobe
S - Split Spoon
U - Undisturbed Sample
R - Core Run

REMARKS:

BOREHOLE LOG - NOBIS ENGINEERING.GDT - 8/21/09 12:41 - C:\DOCUMENTS AND SETTINGS\PCHAVVA.NOBIS\DESKTOP\ELY MINES.GPJ

Nobis Engineering, Inc.

PROJECT	
Ely Copper Mines	
vershire, VT	
Nobis File No:.	80024.03

Boring No:.	SB-09
Boring Location:	
Checked by:	
Date Start:	July 30, 2009
Date Finish:	July 30, 2009

Contractor:	NHB	Rig Type / Model:	ATV/Diedrich D-50	Ground Surface Elev.:	
Driller:	Jay Garside	Hammer Type:	Safety Hammer	Top-of-Riser Elev.:	
Nobis Rep.:	J Brunelle	Hammer Hoist:	Wire Winch	Datum:	

	Drilling Method	Sampler
Type	Casing	Split-Spoon
Size	4	1-3/8 inch ID
Advancement	Drive and wash	140-lb hammer

Groundwater Observations					
Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft)	Blows/ 6 in.	Ground Water	Log	Elev./ Desc.	SAMPLE DESCRIPTION (Soil: ASTM D2488 Visual Manual Procedure As Modified by Nobis)	REMARKS
	S-1	18	0-2	3				12 inches of light brown, fine SAND, trace silt and gravel followed by 6 inches of brown, gray, black silt layers, very loose, moist.	
1				2					
				3					
2				4					
	S-2	18	2-4	6				2 inches similar to S-1. Dark gray, fine SAND to gravel followed by rock fragments, light brown, fine SAND with some silt. gray rock fragments observed.	
3				20					
				67					
4				40					
	S-3	4	4-6	33				Olive brown, fine SAND, trace silt and gravel, medium dense, very moist.	
5				19					
				21					
6				14					
	S-4	7	6-8	7				Olive brown, fine SAND, little coarse to medium sand, trace silt. Dark brown, fine SAND, trace silt with organics. 1 in layer of brown fine SAND.	
7				7					
				9					
8				13					
	S-5	15	8-10	29				Olive brown, fine SAND, little to trace gravel, little silt, rock fragments through out, dense, wet.	
9				38					
				81					
10				33					
	S-6	11	10-11.92	23				Olive brown, fine SANDY silt, little to trace gravel, medium dense, wet.	
11				29					
				28					
12				100/5"					
	S-7	20	12-14	65				Olive brown, fine sandy Silt, silt and gravel, decreasing amounts of rock fragments.	
13				57					
				49					
14				65					
	S-8	6	14-14.92	44				Olive brown, fine SANDY silt, gravel, very dense, wet.	
15				100/5"					
16									
	S-9	9	16-16.75	59				gray silt.	
17				100/3"					
18									
19									
20									
21									
22									

SAMPLE IDENTIFICATION	REMARKS:
G - Geoprobe S - Split Spoon U - Undisturbed Sample R - Core Run	

BOREHOLE LOG - NOBIS ENGINEERING.GDT - 8/21/09 12:41 - C:\DOCUMENTS AND SETTINGS\PCHAVVA.NOBIS\DESKTOP\ELY MINES.GPJ

APPENDIX D

GEOPHYSICAL LOG RESULTS
OF MW-14D, MW-19D AND MW-20D
AT THE ELY COPPER MINE
SUPERFUND SITE
IN VERSHIRE, VERMONT

Northeast Geophysical Services
Bangor, Maine
September, 2009

GEOPHYSICAL LOG RESULTS
OF MW-14D, MW-19D AND MW-20D
AT THE ELY COPPER MINE
SUPERFUND SITE
IN VERSHIRE, VERMONT

Introduction

At the request of the Nobis Engineering, Inc., three bedrock boreholes (MW-14D, MW-19D and MW-20D) located on the Ely Copper Mine Superfund site in Vershire, Vermont were geophysically logged. The boreholes were logged on August 18 through 20, 2009 by Rudy Rawcliffe of NGS, Inc. The purpose of the geophysical logging was to determine the location and orientation of water-bearing fractures in the boreholes. Caliper, temperature, fluid resistivity, single-point resistance (SPR), spontaneous potential (SP), natural gamma, acoustic televiewer (ATV), optical televiewer (OTV) and heat pulse flowmeter were run on the boreholes.

Summary of Results

The geophysical data for each borehole are presented in the Appendix on three graphic plots: A composite geophysical log, a combined geophysical log, and a televiewer/caliper log. The composite geophysical logs show the possible locations of potential fractures in each borehole. The flowmeter results and to a lesser extent, the temperature and fluid resistivity results may provide indications of which of these potential fractures are transmissive. Tadpole plots showing the location and orientation of interpreted planar features (possible fractures) are also plotted on the composite log and on the combined geophysical log for each borehole.

The following table provides a summary for each borehole:

TABLE 1 - Borehole log summary

ITEM	MW-14D	MW-19D	MW-20D
Total Depth (ft)	151.4	151.4	151.5
Casing length (ft)	35.0	32.5	23.0
Water level (ft)	3.85	15.70	20.51
Caliper (inches)	5.76	5.62	5.65
Temperature (°C)	7.94	8.03	7.85
Fluid Resistivity (ohm-meters)	71	47	19
Single Pt Resistance (ohms)	1,015	607	491
Gamma (counts per second)	105	95	100

The depths in Table 1 are measured from the top of casing. The caliper, temperature, fluid resistivity, SPR and gamma measurements are the median values below the casing in each borehole. The most noticeable difference between the boreholes in these measurements is that the fluid resistivity and SPR are lowest on MW-20D and progressively higher on MW-19D and MW-14D. This means the fluid conductivity was highest in MW-20D with a median of 827 uS/cm.

Relying primarily upon the flowmeter measurements and, to a lesser extent on the temperature, fluid resistivity and other logs, the most likely transmissive areas were selected in each borehole. The locations of these likely transmissive fractures are shown as dark black dashed circles on the caliper log of the composite log for each borehole. Other fractures that are considered to be less likely to be transmissive are shown as light gray dashed circles. It is possible that there are other transmissive fractures in the boreholes but these areas indicated on the logs were the most obvious based on the geophysics.

The televiewer/caliper log plots for each borehole are also presented in the Appendix. The interpreted results of the televiewer logs are summarized in tables for each borehole that provide the depth and calculated strike and dip of each identified feature in each borehole. A polar plot of the dip amount and dip direction of all the interpreted planar features for each borehole is also appended.

Figure 1 (on the following page) is a Rose plot of the strike and dip direction of all the interpreted planar features in the three boreholes. This plot shows that the general strike direction in the three boreholes is to the north and the dip is towards the east.

Figure 2 (page 4) is an upper hemisphere polar plot showing the dip amount and dip direction of all the interpreted planar features in the three boreholes. This graph shows again that the planar features generally dip at a shallow angle (median 33º) towards the east. However, the graph also shows that the fractures interpreted to be transmissive have a wide range of orientations with most of them dipping towards the southwest.

Methods and Instrumentation

The borehole was logged with a Mt Sopris Matrix digital logger. Following is a brief description of each parameter that was measured and how that information is used to locate possible bedrock fractures or to distinguish lithology.

Temperature (in degrees Centigrade [ºC]) is measured with the probe going down each hole. Generally, temperature rises smoothly with depth at a rate of about 0.5º to 1.0º C per 100 feet due to the local geothermal gradient. Areas where water may be entering or exiting the borehole are sometimes revealed on the temperature log as abrupt temperature changes or sometimes as temperature gradient changes. Other factors that can affect the temperature log besides transmissive fractures include variations in the thermal resistivity of the rock with depth along the borehole, surface climatic changes, thermal effects of drilling activity, and localized heat sources such as radionuclides in the rock or cement setting outside the casing.

Fluid resistivity measures the resistivity (in ohmmeters) of the water in the borehole. Fluid resistivity can be useful in identifying transmissive fractures because water entering the borehole through fractures sometimes has a different resistivity than the water that is already in the borehole. Unusually low fluid resistivity may indicate the presence of high ion content water.

Caliper measures the borehole diameter. Fractures are often revealed on the caliper log as abrupt widenings of the borehole.

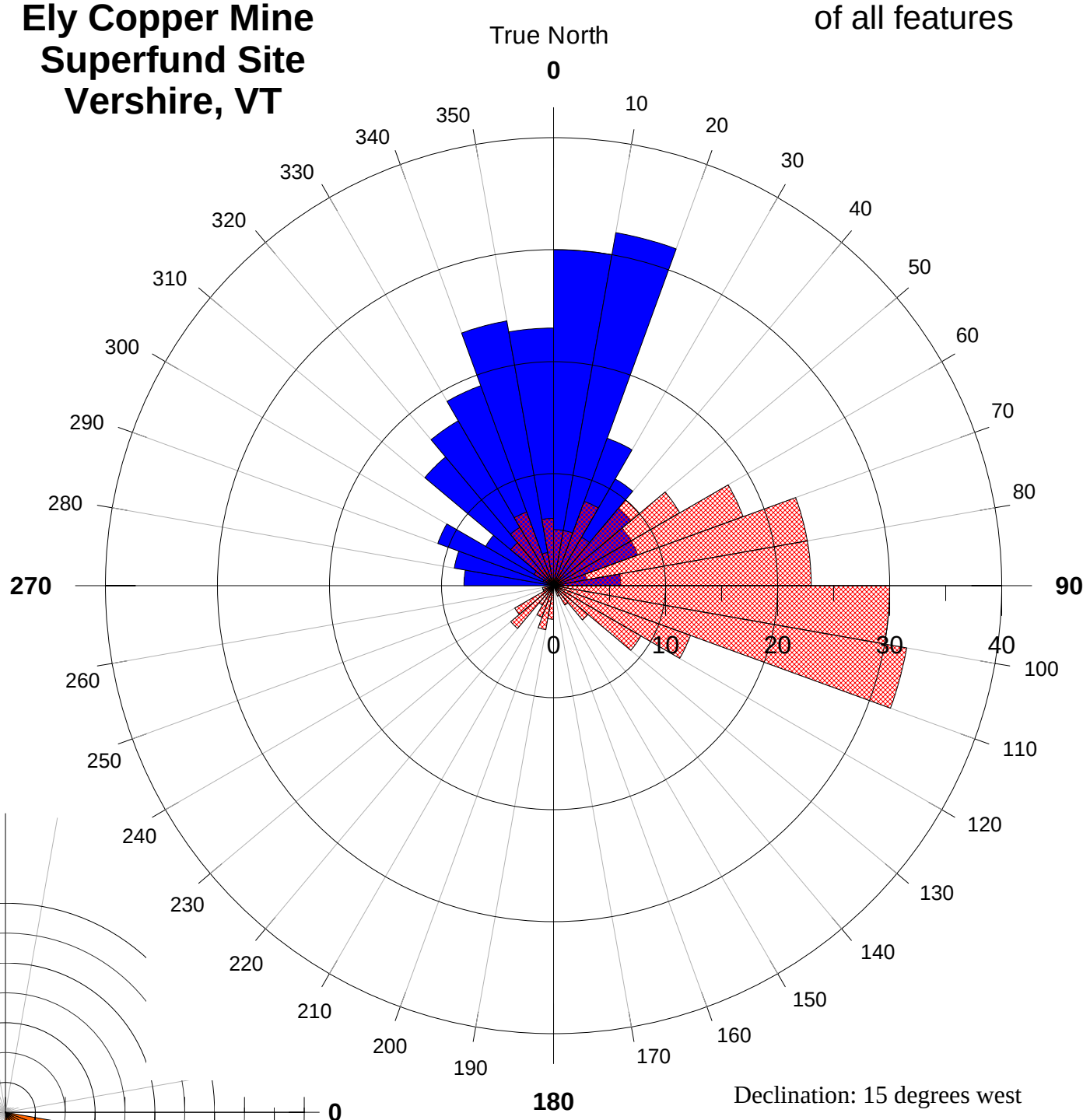
Single-point-resistance (SPR) measures the electrical resistance (in ohms) between the probe and a surface electrode. Water-filled fractures will often appear as abrupt spikes of relatively low resistance on this log.

Spontaneous potential (SP) The SP log measures changes in electrical potential (measured in millivolts) between the electrode in the tool and the surface electrode. The chief source of the

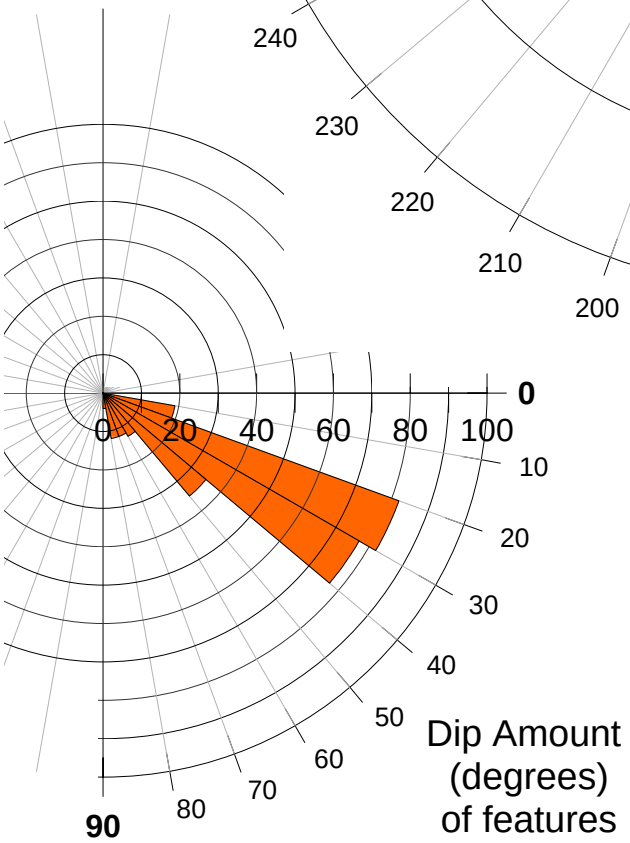
Northeast Geophysical Services

Ely Copper Mine Superfund Site Vershire, VT

FIGURE 1
Strike and Dip Direction of all features



Declination: 15 degrees west



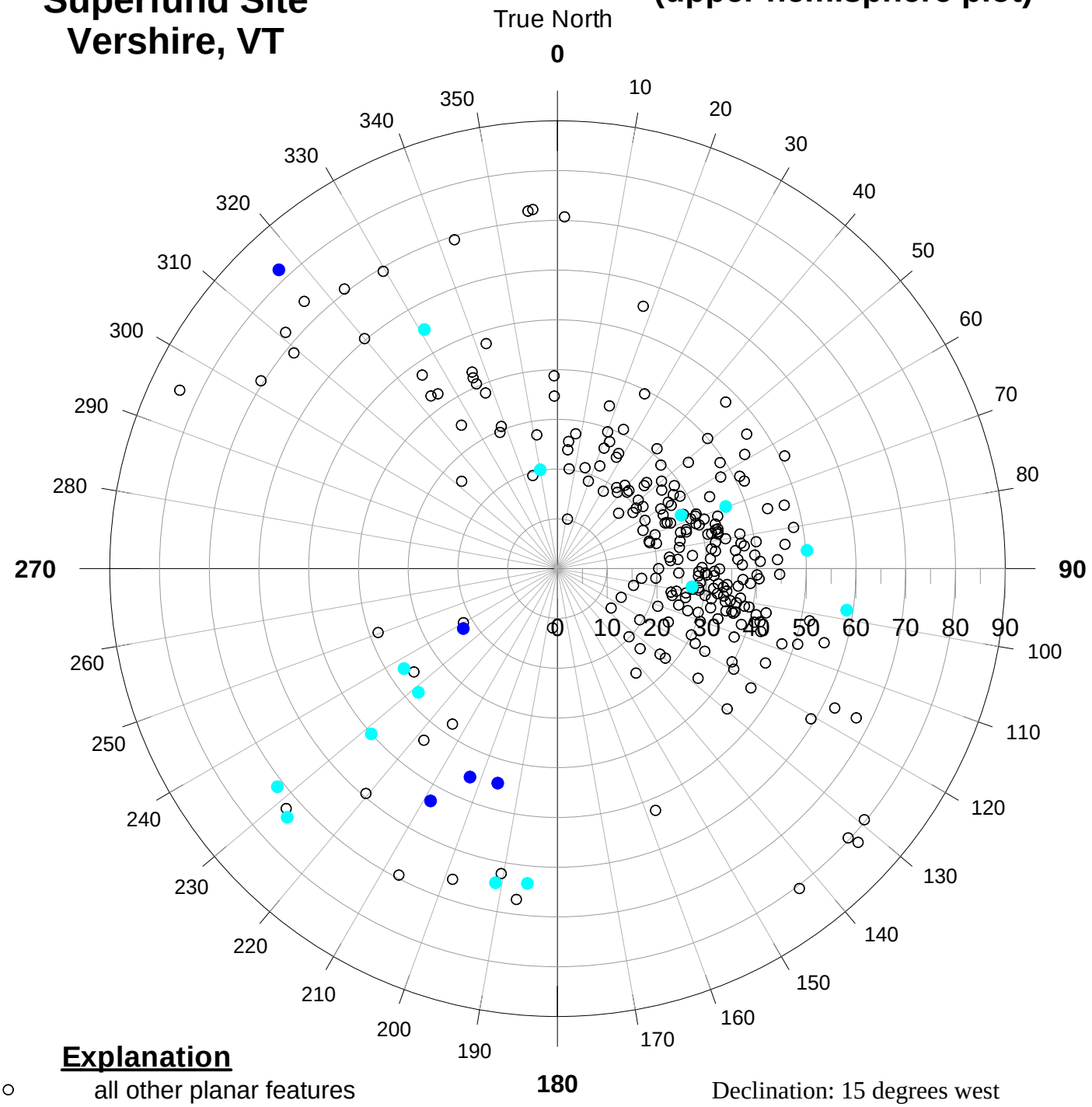
Explanation

- Dip direction of feature
- Strike of feature
- Dip Amount (Tilt)

Based on 254 measurements in three boreholes: MW-14D, MW-19D and MW-20D

FIGURE 2
Dip Amount and Dip Azimuth of planar features (upper hemisphere plot)

Ely Copper Mine Superfund Site Vershire, VT



Explanation

- ○ all other planar features
- ● Likely water bearing
- ● Possibly water bearing

Declination: 15 degrees west

Based on 254 measurements in three boreholes: MW-14D, MW-19D and MW-20D

SP effect in a borehole is electrochemical effects such as changes in fluid salinity. However, the movement of water into or out of the borehole can also cause a SP effect. Thus, SP can sometimes indicate the locations of permeable fractures in the borehole. Typically SP anomalies will appear as spikes to the right on the log and often mirror the SPR log.

Natural gamma log measures the gamma radiation in counts per second (cps) that is being emitted from the materials located next to the tool. Natural gamma is generally used as a way to distinguish between different lithologies or soil types. This is because different materials often have different percentages of radioactive elements (mainly potassium-40 and to a lesser extent uranium-238 and thorium-232). For example, clay soil usually has a higher count rate than sand because of its higher percentage potassium. Similarly, sometimes shale can be distinguished from sandstone or limestone because shale often has a higher content of feldspar or clay minerals. Bedrock fractures or fracture zones are sometimes distinguished by the gamma log because fractures often contain weathered clay minerals which can have higher amounts of potassium or uranium than the unfractured rock.

The optical televiewer (OTV) log provides a digital optical image of the borehole walls. The OTV can identify planar features such as fractures, bedding surfaces, and joints and the strike, dip direction and dip angle acoustic televiewer.

The acoustical televiewer (ATV) log provides an acoustical image of the borehole walls. The ATV works by scanning the borehole wall with an acoustic beam that is produced by a rapidly rotating piezoelectric source. Similar to the optical televiewer, planar features such as fractures, bedding surfaces and joints can be identified with the ATV tool and the strike, dip direction and dip angle of these features can often be determined.

The optical (OTV) and acoustical (ATV) televiewer logs are somewhat duplicative in that they both can provide similar information. However, there are advantages and disadvantages to both tools. The ATV requires the borehole to be water filled and will not provide information above the water level. The OTV can work in air or water but is not effective in cloudy, turbid water whereas the ATV will work fine in cloudy water. The ATV can be better at discerning voids, cracks and fractures whereas the OTV can be better at discerning lithology. Also, sometimes water-bearing fractures are rust stained, which can be seen by the OTV.

The temperature, caliper, SPR, SP, fluid conductivity, ATV and OTV logs were examined and possible bedrock fractures were identified. This information was used to select measurement locations for the flowmeter instrument. Generally, flowmeter measurements were taken in the zone above and below locations where potential fractures might exist in the boreholes.

Flowmeter Measurements

Flowmeter measurements of the vertical water flow were made in the boreholes using a Mount Sopris Heat Pulse Flowmeter. This instrument is capable of measuring flow direction in a borehole (up or down) and has a calibrated measurement range of 1.0 to 0.03 gallons per minute (gpm).

Vertical flow in a borehole is caused when two or more transmissive fractures in the borehole are at hydraulic disequilibrium with one another. When this occurs there is a hydraulic gradient developed and water will flow toward the fracture with the lower hydraulic head. When no vertical flow is measured it can mean that there are less than two transmissive fractures in the borehole or that all the fractures in the borehole are at equilibrium with each other. Flowmeter measurements were made in each borehole under ambient conditions and then the measurements were repeated while stressing the boreholes by pumping with a small pump.

Geophysical Log Results

The geophysical data for each borehole are presented in the Appendix on three graphic plots: A composite geophysical log, a combined geophysical log, and a televiewer/caliper log.

The composite log is an 11 X 17-inch summary log that contains the caliper, flowmeter, temperature, fluid resistivity, SPR, SP, and gamma data. Structural data interpreted from the televiewer logs are presented as a tadpole plot on the far right column. Fractures interpreted to be likely or possibly to be transmissive are indicated on the structure and the caliper plots.

The composite log shows possible bedrock fracture locations in each borehole. One or a combination of anomalous geophysical responses may indicate possible fractures. These include abrupt widenings in the caliper log, planar images on the ATV and OTV logs and deflections or gradient changes in the temperature log and the fluid resistivity log. The flowmeter results are also shown on this log. All of the depths on the log are referenced from the top of the casing.

The combined geophysical log is a larger scale plot that contains all of the geophysical logs except for the flowmeter measurements. This log includes plots of the OTV and ATV images. It also contains a tadpole plot and a structural projection plot of the planar features interpreted from the OTV and ATV logs.

The final log, televiewer & caliper log, contains the OTV and ATV televiewer images along with the caliper log and the structural projection log. These logs are redundant to the logs in the combined log but they are at a larger scale to allow for better resolution of the optical and acoustical images. The ATV and OTV logs provide the strike and dip of planar features that intersect the boreholes. These planar features may be fractures, joints, or may represent cleavage or bedding planes. The results have been color-coded on the logs to provide an interpretative range of the likelihood that the associated feature signifies a transmissive fracture as follows:

- Dark blue symbol (Category 107) - multiple distinct borehole geophysical logging responses indicating borehole enlargement (caliper, SPR, acoustic signal) and evident change in the borehole fluid characteristic (temperature, oxidation, resistivity or quantified vertical flow) that provides the strongest data that the indicated bedrock feature represents a likely transmissive water-bearing fracture. In order of relative importance the flowmeter data were given the most weight in assessing the presence of transmissive fractures. Other criteria such as evidence of oxidation in the OTV log, local temperature inflections and changes in fluid resistivity were given less weight than the flowmeter.
- Light blue symbol (Category 108) - less amount of corroborating geophysical data to support that the indicated feature will transmit groundwater compared to the dark blue symbol. However, the ATV and/or OTV log shows a fairly distinct acoustic signal or perhaps there is a temperature or a resistivity change that, possibly under a higher stress condition (e.g. pumping rate), vertical flow could be induced in the borehole. Less degree of confidence that the feature represents a transmissive feature.
- Black symbol (Category 100) - bedrock feature not interpreted to transmit water; more likely to represent planes of foliation, bedding planes, healed or filled fractures, or mechanical breaks in the rock matrix due to drilling advancement.
- Light gray symbol (Category 103) – quartz or calcite veins.

Also included in the Appendix is a rose plot showing the strike and dip direction of all the interpreted planar features in the borehole and also polar plot of the same data showing the dip amount and dip direction of all the interpreted planar features in the borehole. The interpreted structural data is also presented in a table for each borehole.

Following is a summary of each borehole:

MW-14D:

Total Depth (TOC):	151.40 feet
Casing Depth:	35 feet
Water Level:	3.85 feet

Borehole MW-14D has a median diameter of 5.76 inches, a median temperature of 7.94º C, a median fluid resistivity of 71 ohmmeters, a median SPR of 1,015 ohms and a median gamma count rate of 105 cps.

The flowmeter measurements under ambient conditions show no measurable flow in MW-14D. Flowmeter measurements taken under pumping conditions in MW-14D indicate that almost all of the water enters the borehole through a relatively large fracture (6.63-inch diameter) located at 102.2 feet. This fracture (Features #45 and 46) strikes an average of 296° and dips 49° to the southwest.

The flowmeter measurements did not conclusively identify any other transmissive fractures in MW-14D. It is possible that there are other, less transmissive fractures in the borehole. Based primarily on the ATV and caliper logs the strike and dip these possible transmissive fractures along with the other planar features for borehole MW-14D are shown on the composite log and tabulated in the appendix.

The fluid temperature and resistivity logs for MW-14D show an abrupt change at about 125 feet with a decrease in fluid resistivity and an increase in temperature. However, none of the other logs indicate that a transmissive fracture is in this area. It is thought that this abrupt change may be because the fluid below 125 feet is stagnant water that was not purged from the well during development.

MW-19D:

Total Depth (TOC):	151.40 feet
Casing Depth:	32.5 feet
Water Level:	15.70 feet

Borehole MW-19D has a median diameter of 5.62 inches, a median temperature of 8.03º C, a median fluid resistivity of 47 ohmmeters, a median SPR of 607 ohms and a median gamma count rate of 95 cps.

The flowmeter measurements under ambient conditions show no measurable flow in MW-19D. Flowmeter measurements taken while pumping the borehole at about 0.66 gpm indicate two transmissive zones in the borehole. Most of the water (0.34 gpm) enters the borehole through a fracture (6.95-inch diameter) located at 43.7 feet. This fracture (Feature #12) strikes 286° and dips (45°) to the southwest. Some water (0.07 gpm) enters the borehole through a relatively wide fracture zone (up to 7.43-inch diameter) located between 72 and 78 feet. Within this zone the fracture considered most likely to be transmissive (Feature #49) strikes 47° and dips steeply (82°) to the northwest.

The flowmeter measurements did not conclusively identify any other transmissive fractures in MW-19D. It is possible that there are other, less transmissive fractures in the borehole. Based

primarily on the ATV and caliper logs the strike and dip these possible transmissive fractures along with the other planar features for borehole MW-19D are shown on the composite log and tabulated in the appendix.

Similar to MW-14D, the fluid resistivity log and to a lesser extend the temperature log for MW-19D show an abrupt change at about 123 feet with a decrease in fluid resistivity and a slight increase in temperature. It may be that this abrupt change may be because the fluid below 123 feet is stagnant water that was not purged from the well during development. However, there is a small caliper anomaly and planar feature on the ATV log in this area that may represent a transmissive fracture.

MW-20D:

Total Depth (TOC):	151.50 feet
Casing Depth:	23 feet
Water Level:	20.51 feet

Borehole MW-20D has a median diameter of 5.65 inches, a median temperature of 7.85º C, a median fluid resistivity of 19 ohmmeters, a median SPR of 491 ohms and a median gamma count rate of 100 cps.

The flowmeter measurements under ambient conditions show no measurable flow in MW-20D. Flowmeter measurements taken while pumping the borehole at about 0.5 gpm indicate one main transmissive zone in the borehole. Most of the water (0.26 gpm) enters the borehole through a fracture (6.33-inch diameter) located at 89.3 feet. This fracture (Feature #37) strikes 328° and dips (22°) to the southwest. It is possible that some water enters the borehole through a relatively wide fracture zone located between 32 and 40 feet. Within this zone there is an irregular but near vertical crack or fracture (up to 6.10-inch diameter) from about 32.5 feet to 36 feet. A confident orientation of this feature could not be made. A second, possibly transmissive fracture within this zone (6.15-inch diameter) is at 38.3 feet (Feature #9), which strikes 318° and dips 50° to the southwest.

The flowmeter measurements did not conclusively identify any other transmissive fractures in MW-20D. It is possible that there are other, less transmissive fractures in the borehole. Based primarily on the ATV and caliper logs the strike and dip these possible transmissive fractures along with the other planar features for borehole MW-20D are shown on the composite log and tabulated in the appendix.

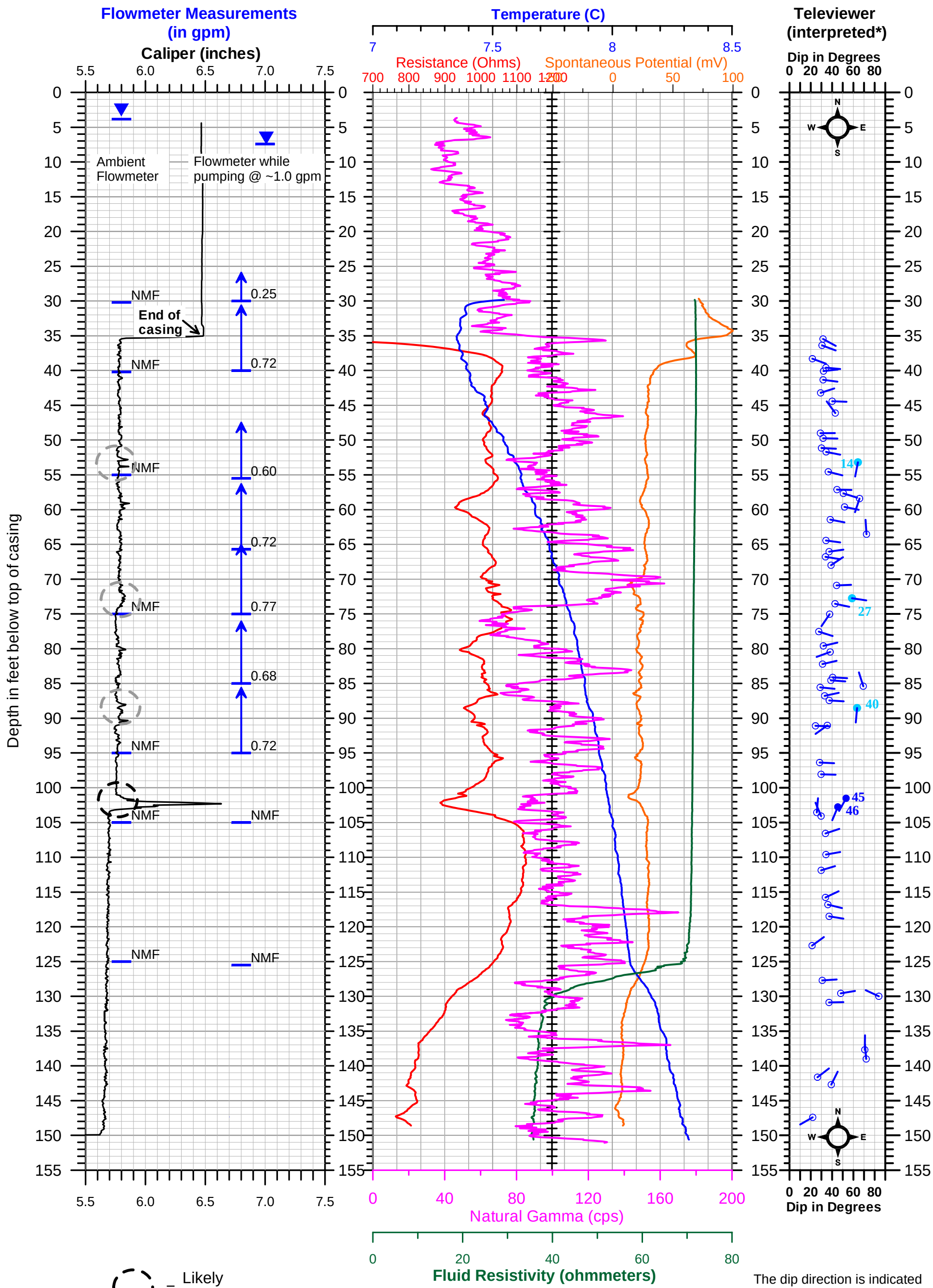
APPENDIX

BOREHOLE GEOPHYSCIAL LOGS
AND TELEVIEWER LOG SUMMARIES

Northeast Geophysical Services

Borehole Geophysical Log
MW-14D
Ely Mine Site - Vershire, VT

Date logged: 8/18/09



= Likely transmissive zone

= possible transmissive zone

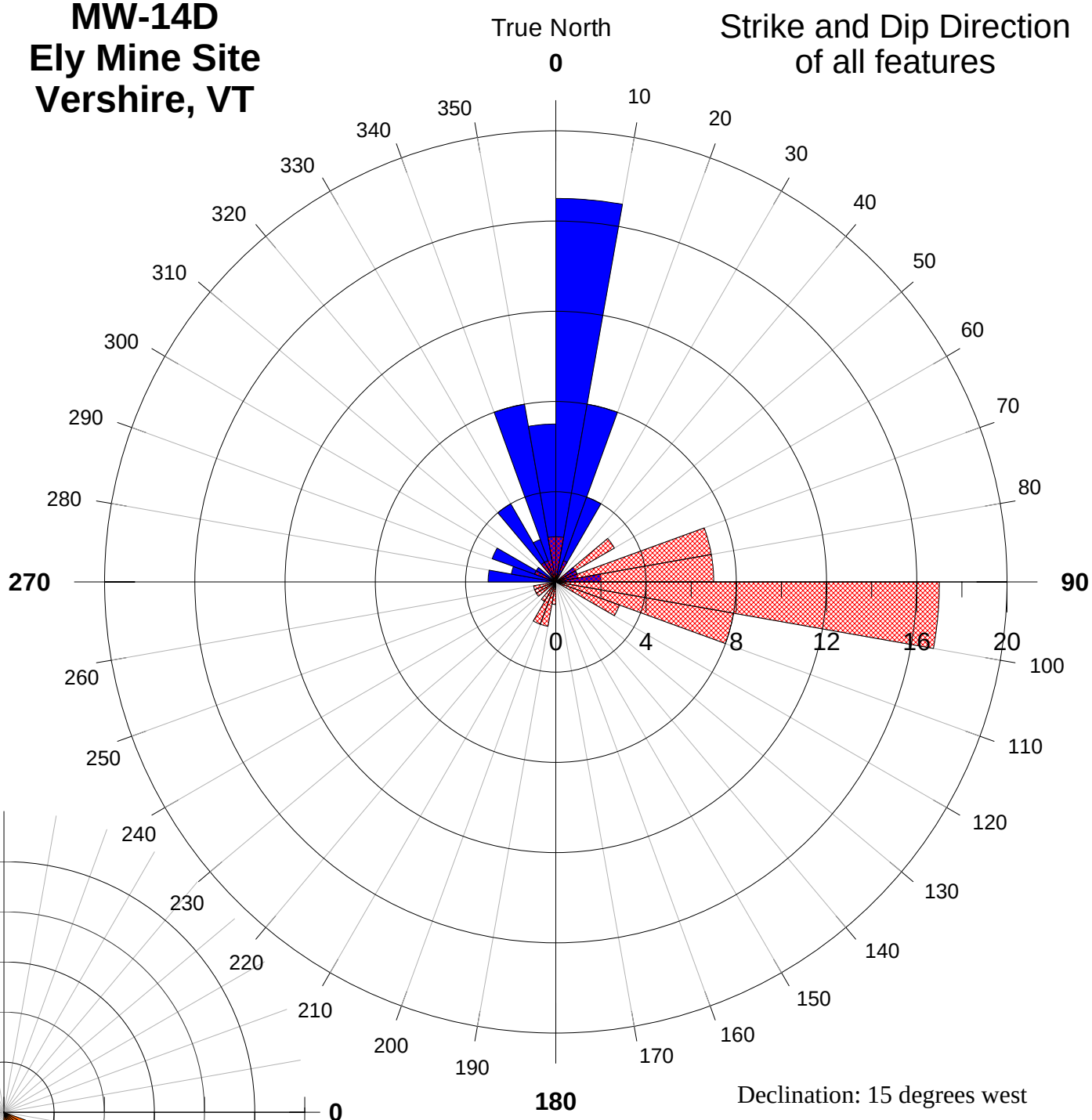
The dip direction is indicated by the line extending from the circle. The strike of the feature is 90 degrees from this.

Borehole Geophysical Log
MW-14D
Ely Mine Site - Vershire, VT

Date logged: 8/18/09

Northeast Geophysical Services

MW-14D
Ely Mine Site
Vershire, VT



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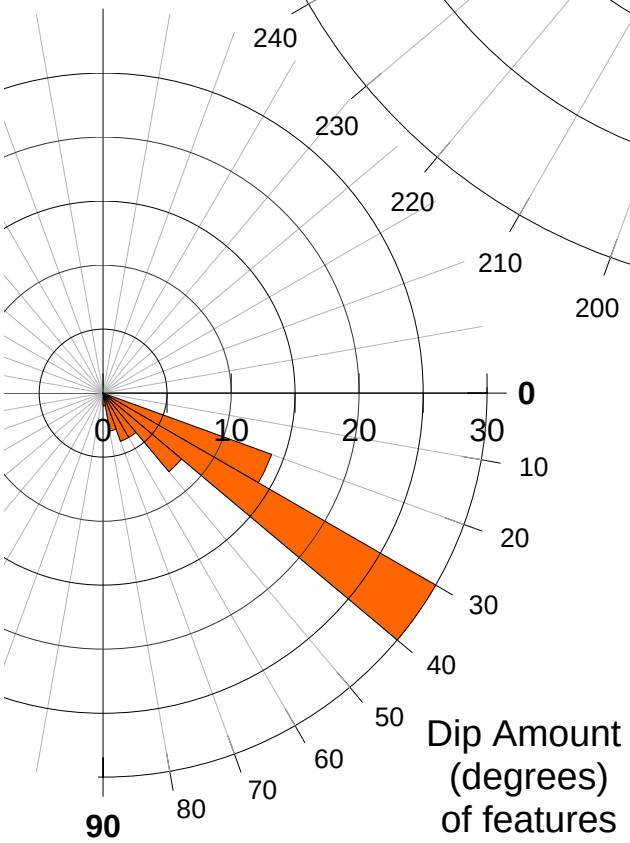


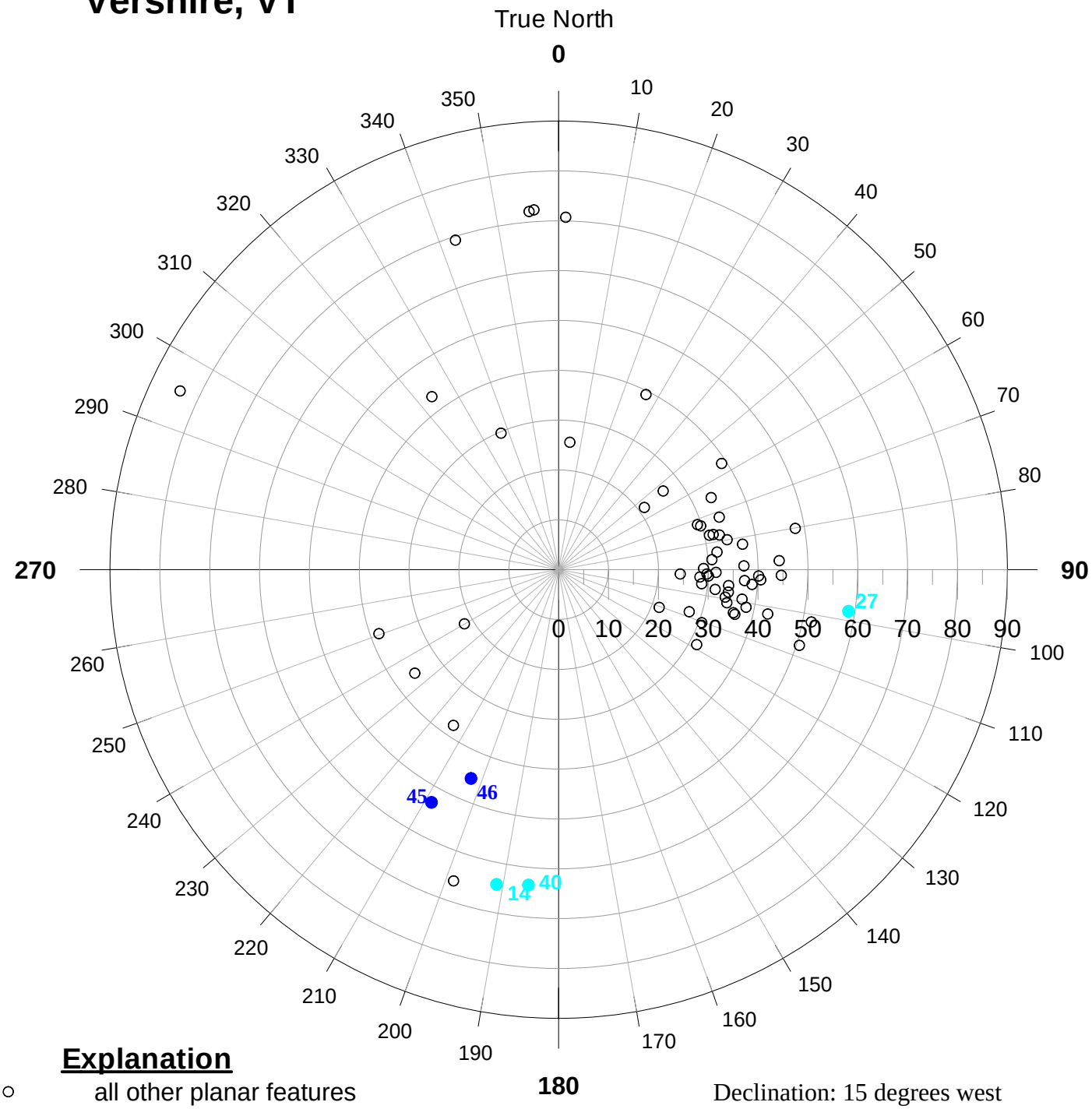
Explanation

- Dip direction of feature
- Strike of feature
- Dip Amount (Tilt)

Based on 64 measurements

MW-14D
Ely Mine Site
Vershire, VT

Dip Amount and Dip Azimuth of planar features (upper hemisphere plot)



Explanation

- ○ all other planar features
- ● Likely water bearing
- ● Possibly water bearing

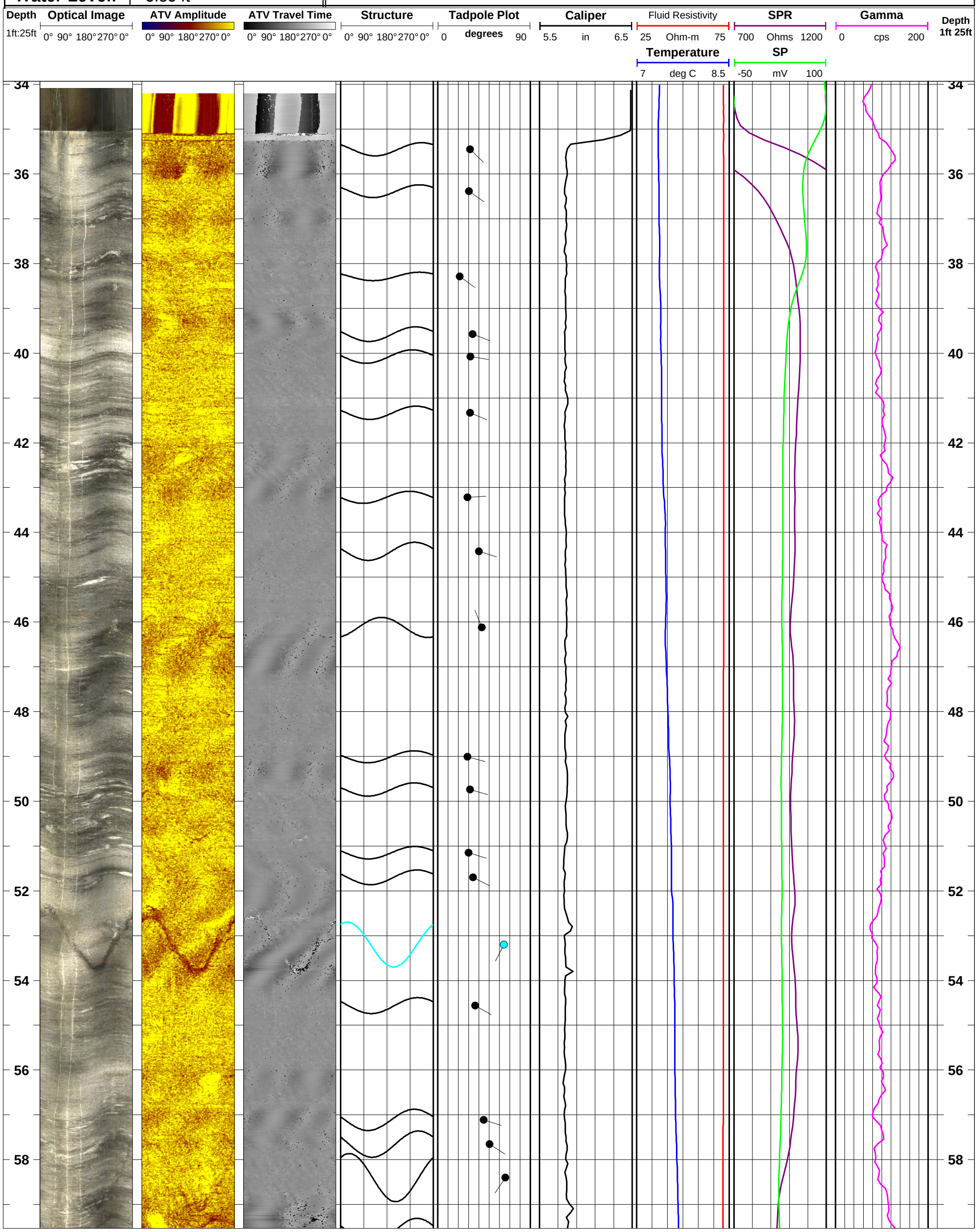
Declination: 15 degrees west

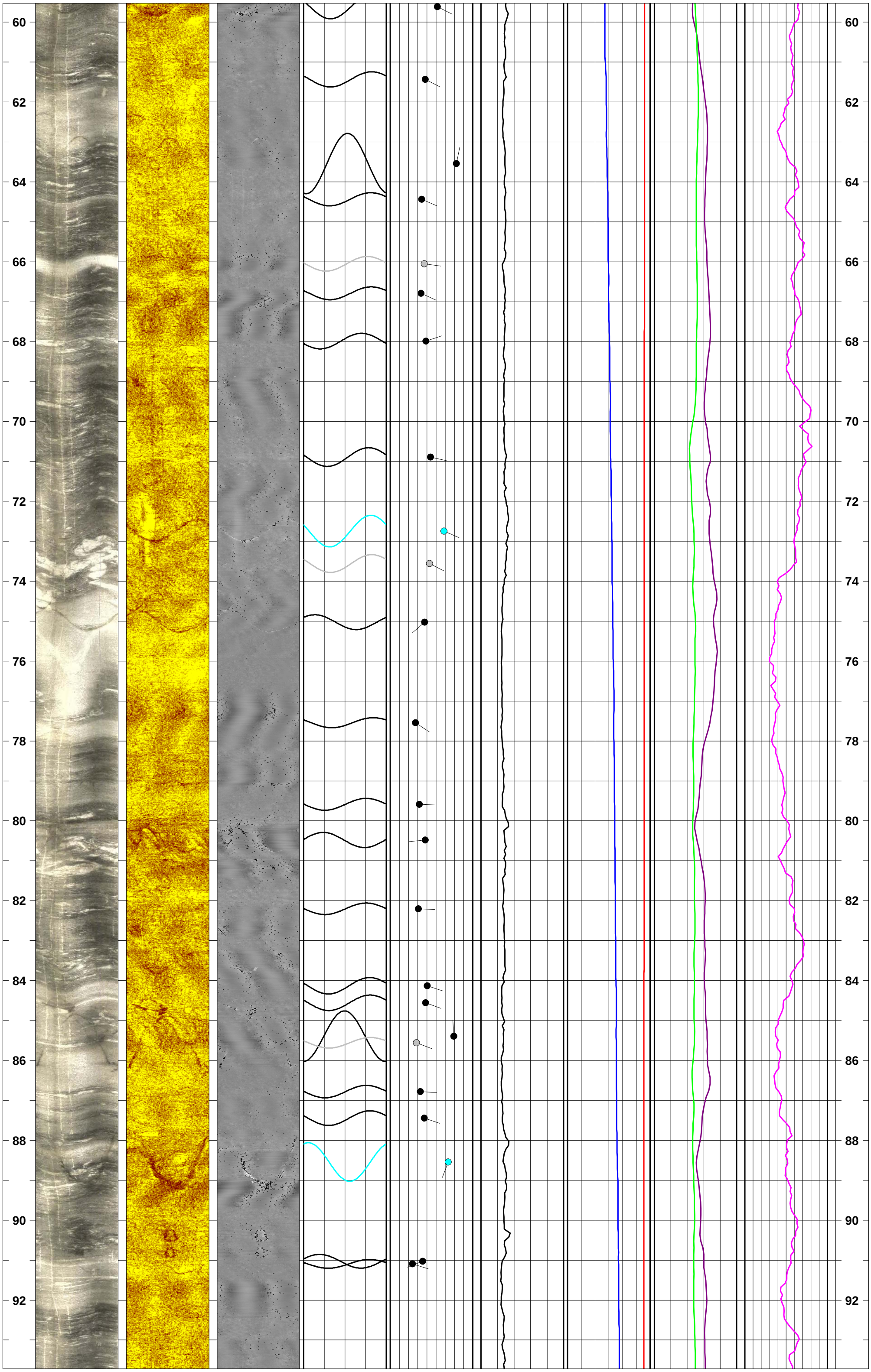
Based on 64 measurements

Northeast Geophysical Services
4 Union Street Bangor, Maine 04401
Tel: 207-942-2700 email: ngsinc@negeophysical.com

Log:	**Combined Geophysical Logs**
Well:	MW-14D
Site:	Ely Copper Mine Superfund Site
Location:	Vershire, Vermont

Date:	8/18/09		
Casing Depth:	35 ft	For:	Nobis Engineering, Inc.
Casing Type:	steel	Logged by:	R Rawcliffe
Boring Depth:	151.40 ft	Orientation:	magnetic north
Meas. From:	top of casing	Comments:	Structure & Tadpole Plots: black = planar features (faults, bedding, foliation, etc.) light gray = quartz or calcite vein light blue = possibly transmissive fracture dark blue = likely transmissive fracture
Stickup:	1.9 ft		
Water Level:	3.85 ft		

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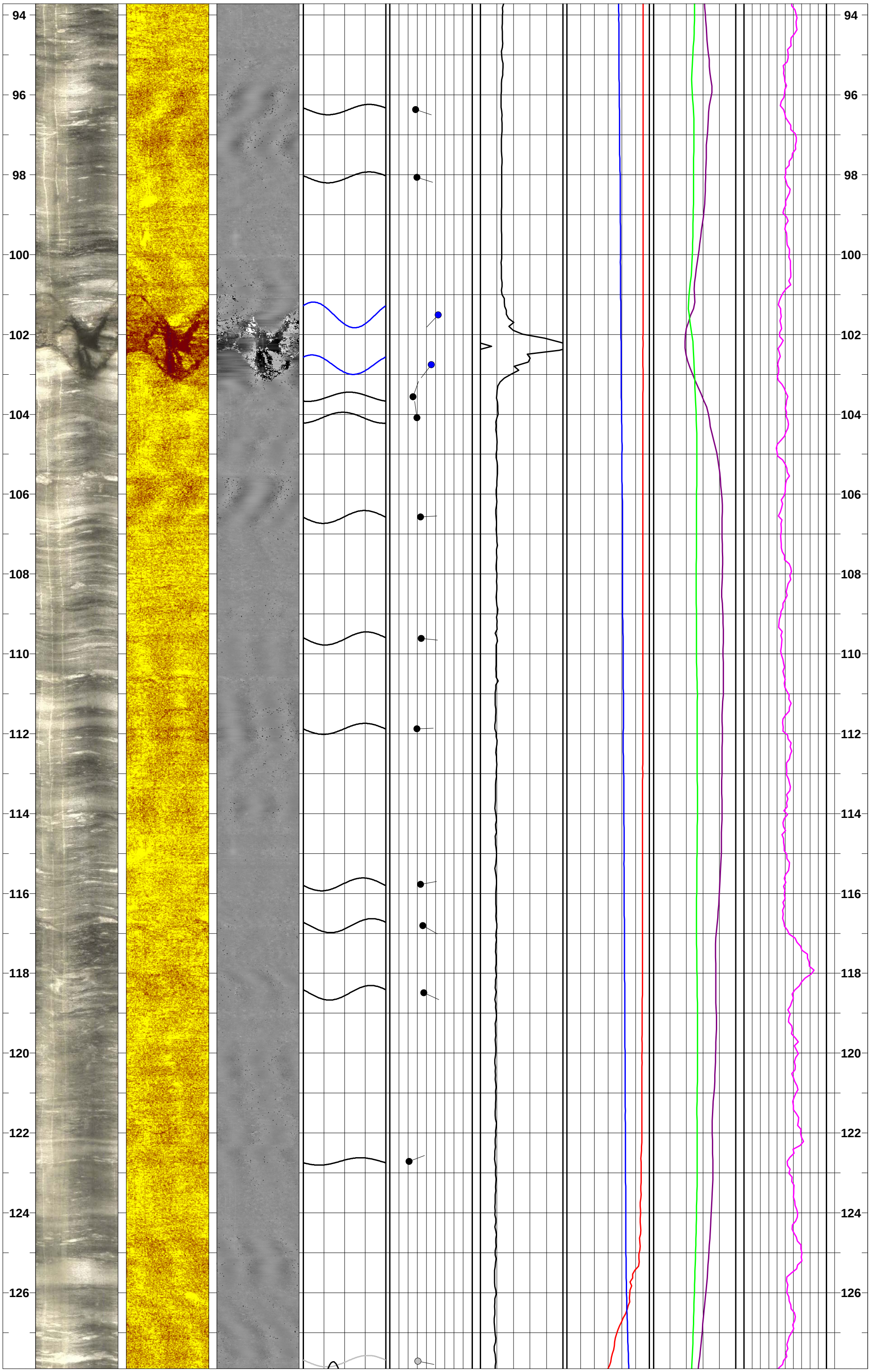
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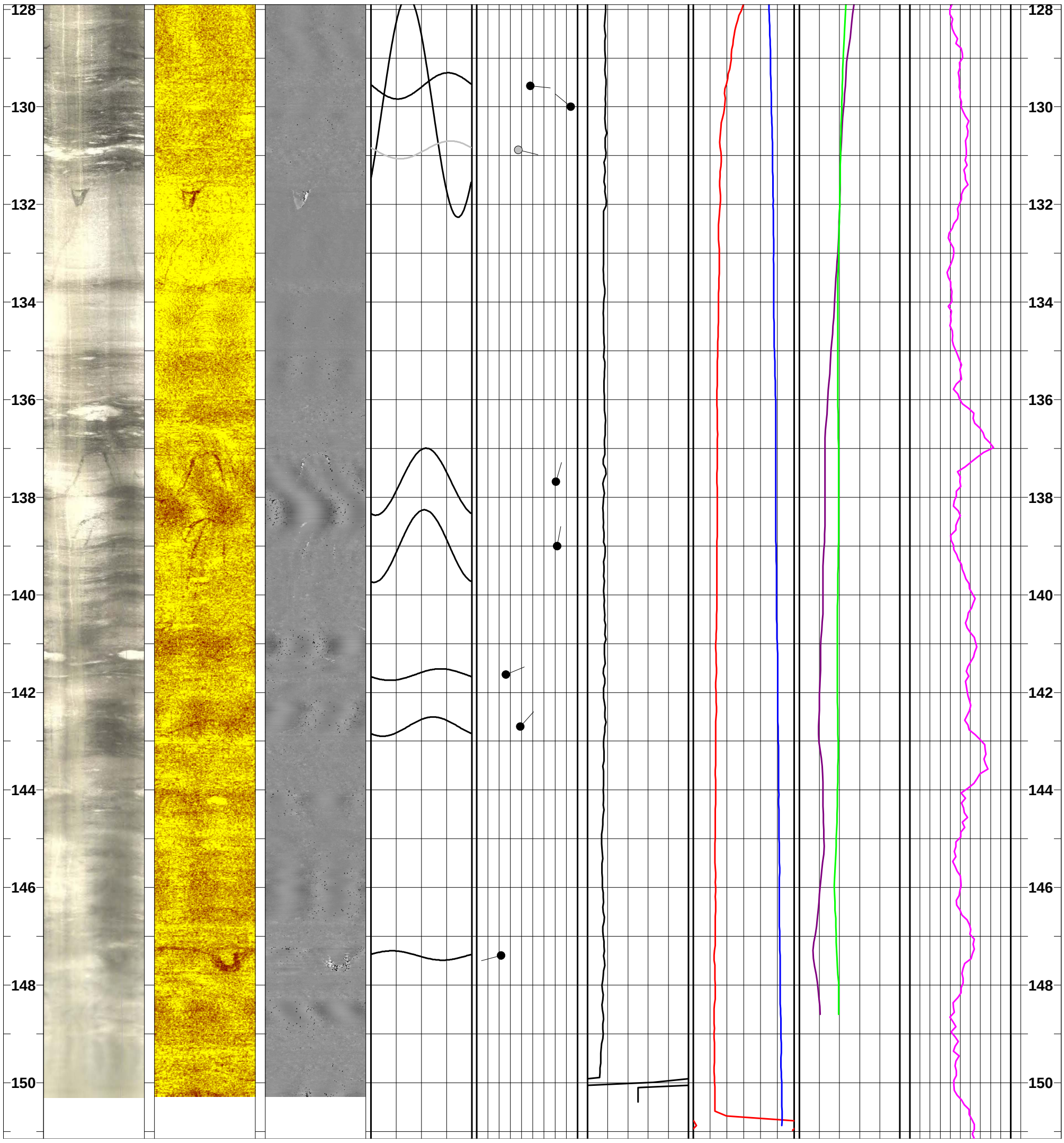
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Northeast Geophysical Services
4 Union Street Bangor, Maine 04401
Tel: 207-942-2700 email: negeophysical.com

Log: Televiewer & Caliper Logs

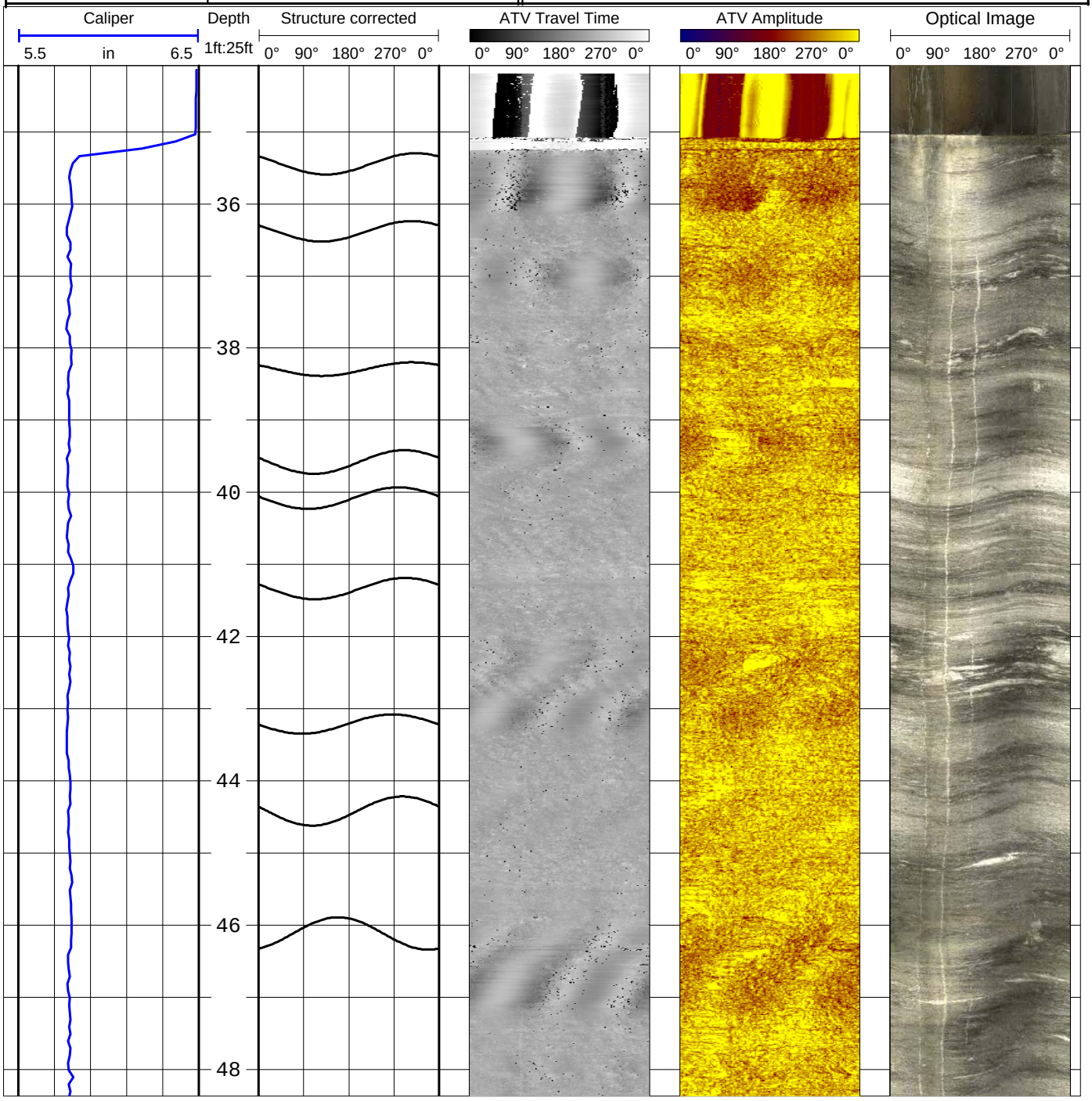
Well: MW-14D

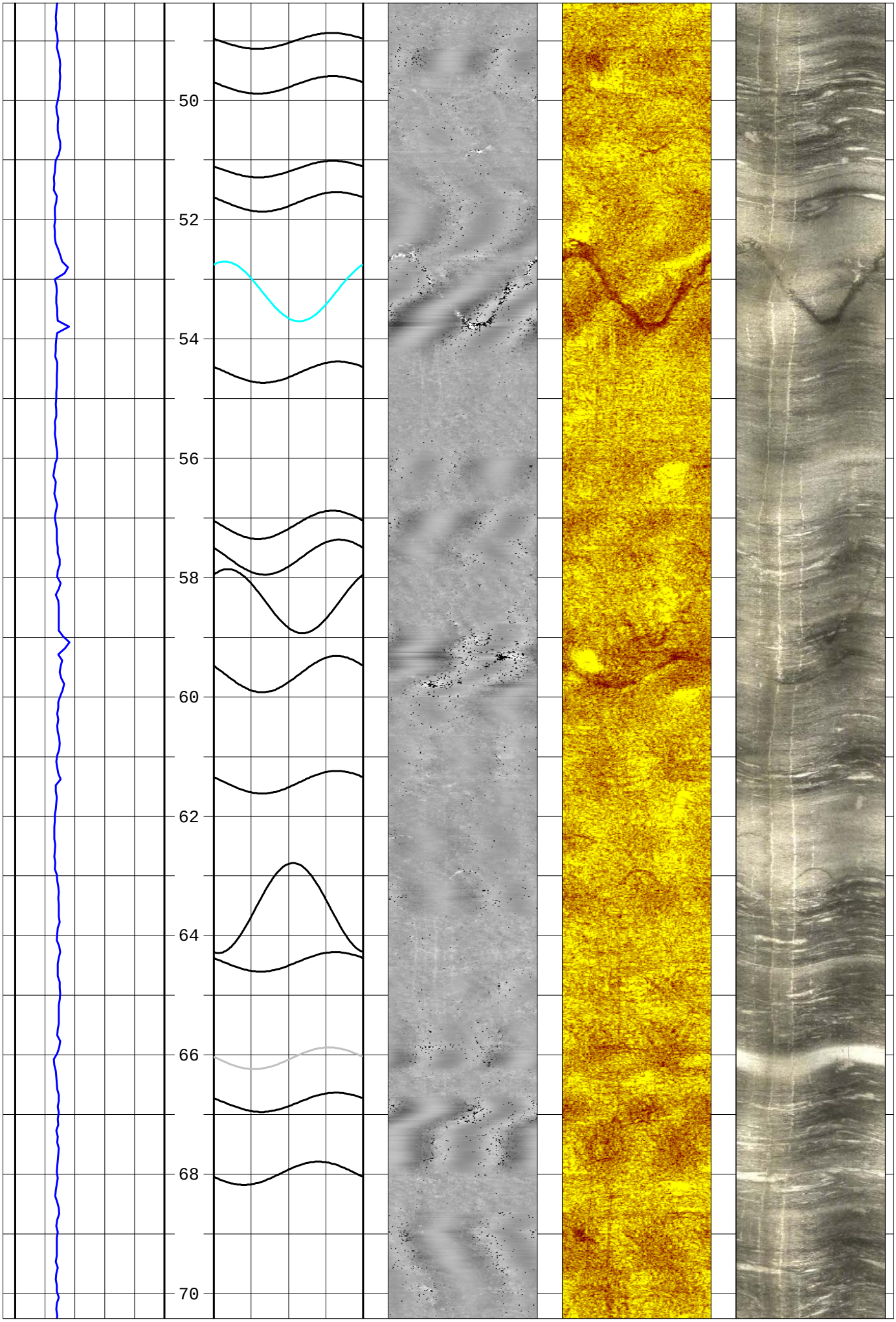
Site: Ely Copper Mine Superfund Site

Location: Vershire, Vermont

Date:	8/19/09	For:	Nobis Engineering
Casing Depth:	35 ft	Logged by:	R Rawcliffe
Casing Type:	steel	Orientation:	magnetic
Boring Depth:	151.40 ft	Structure Plots:	
Meas. From:	top of casing		
Stickup:	1.9 ft		
Water Level:	3.85 ft		

Structure Plots:
black = planar features (faults, foliation, bedding, joints, etc)
light gray = veins of likely either quartz or calcite
light blue = possibly transmissive fracture
dark blue = likely transmissive fracture

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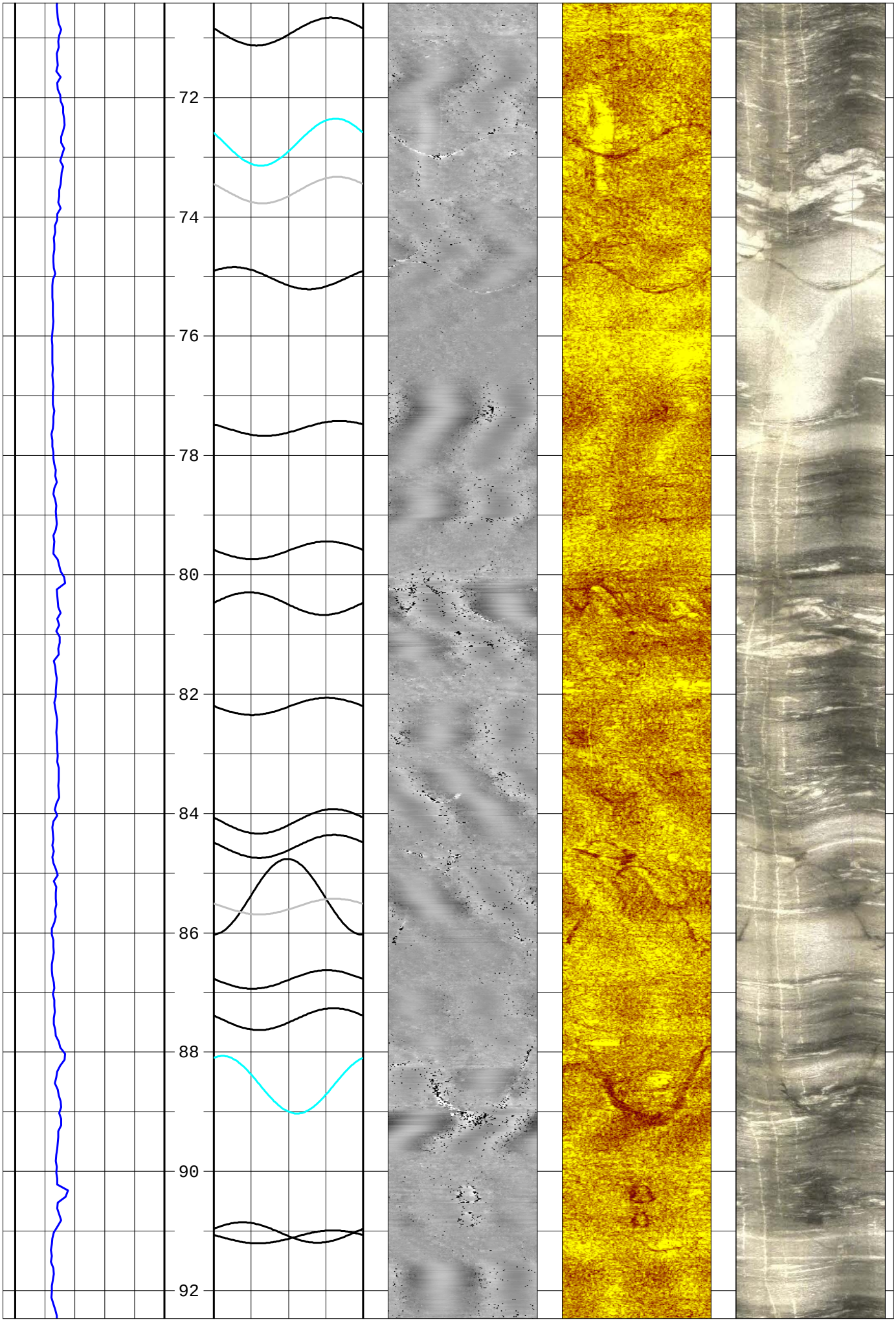
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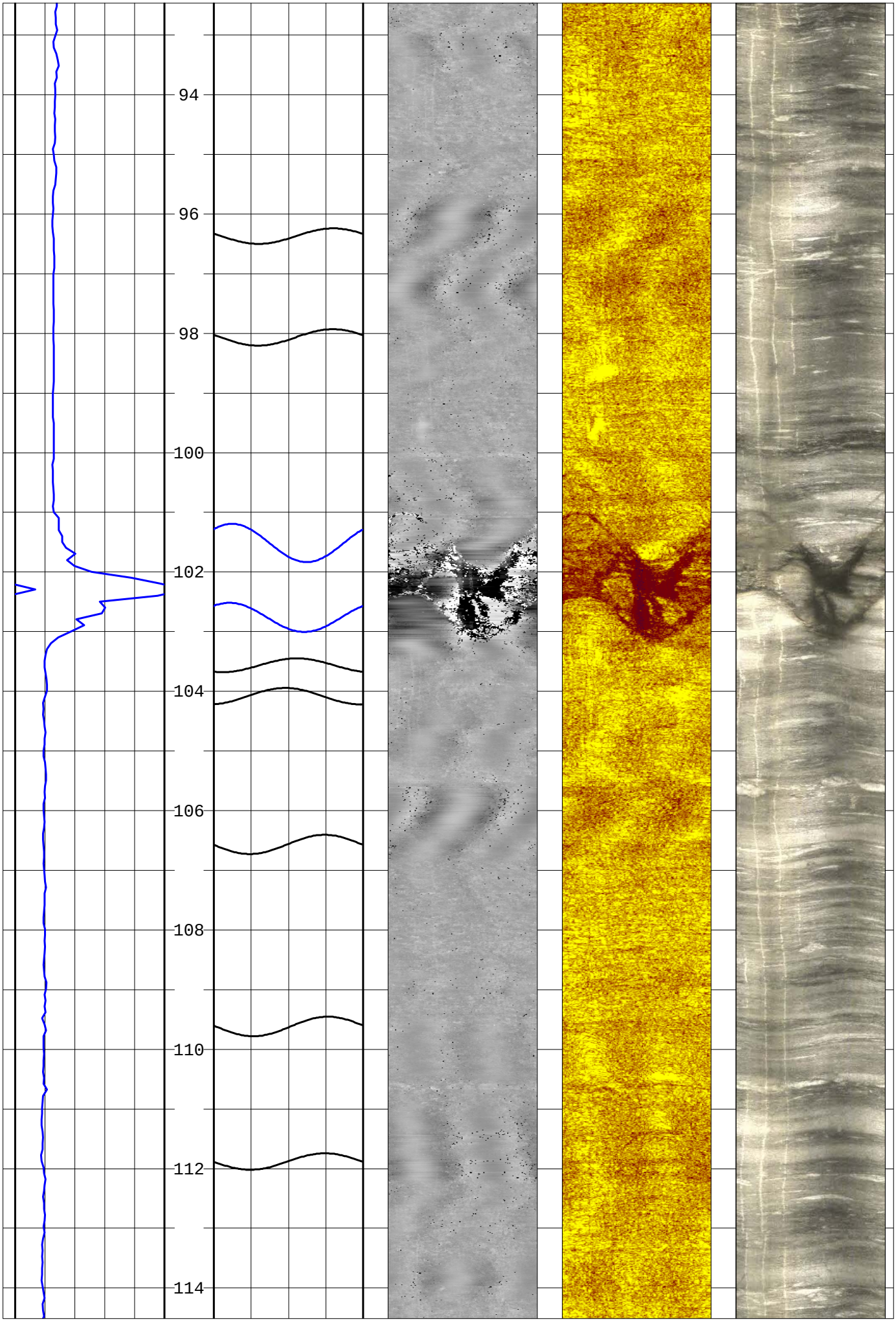
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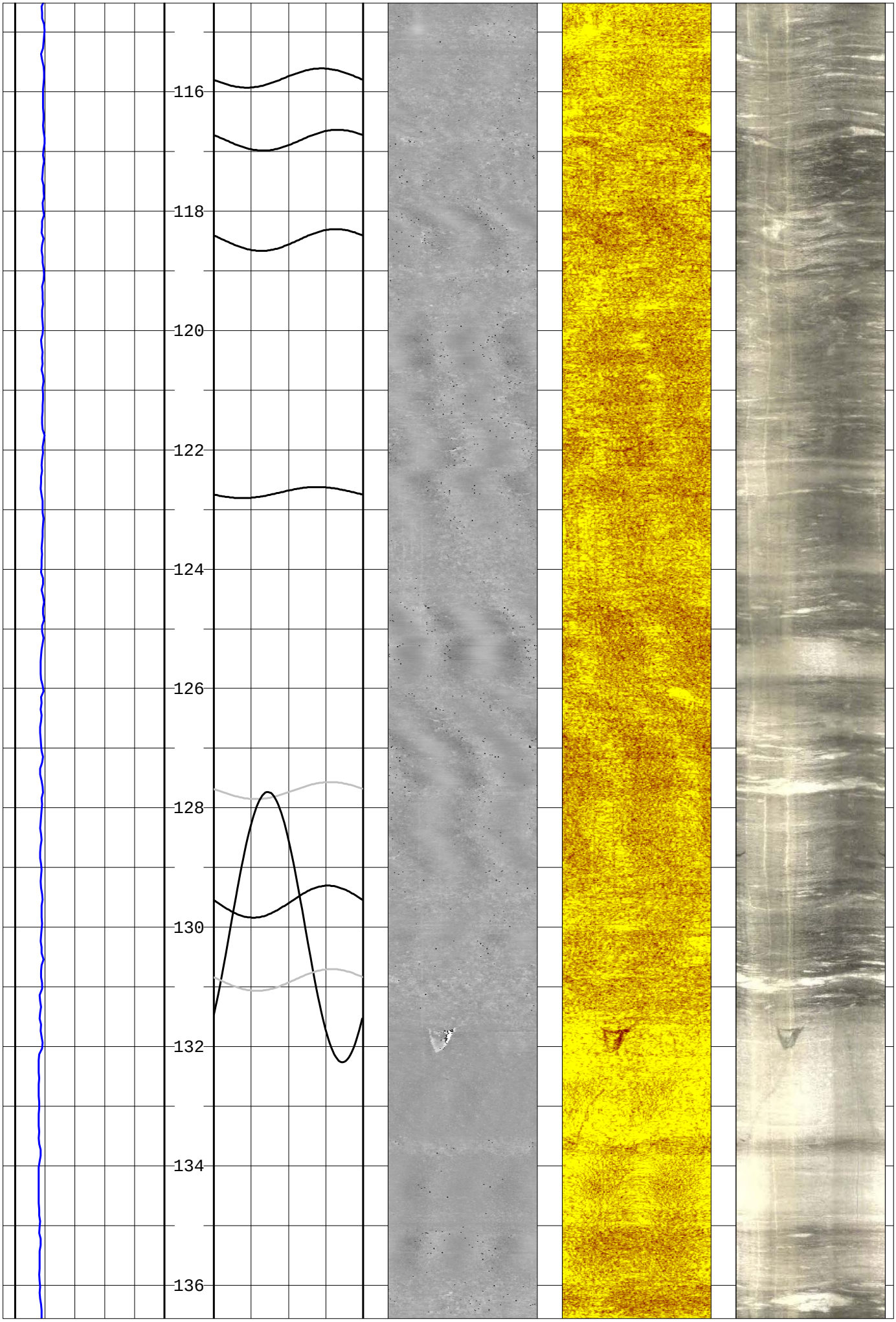
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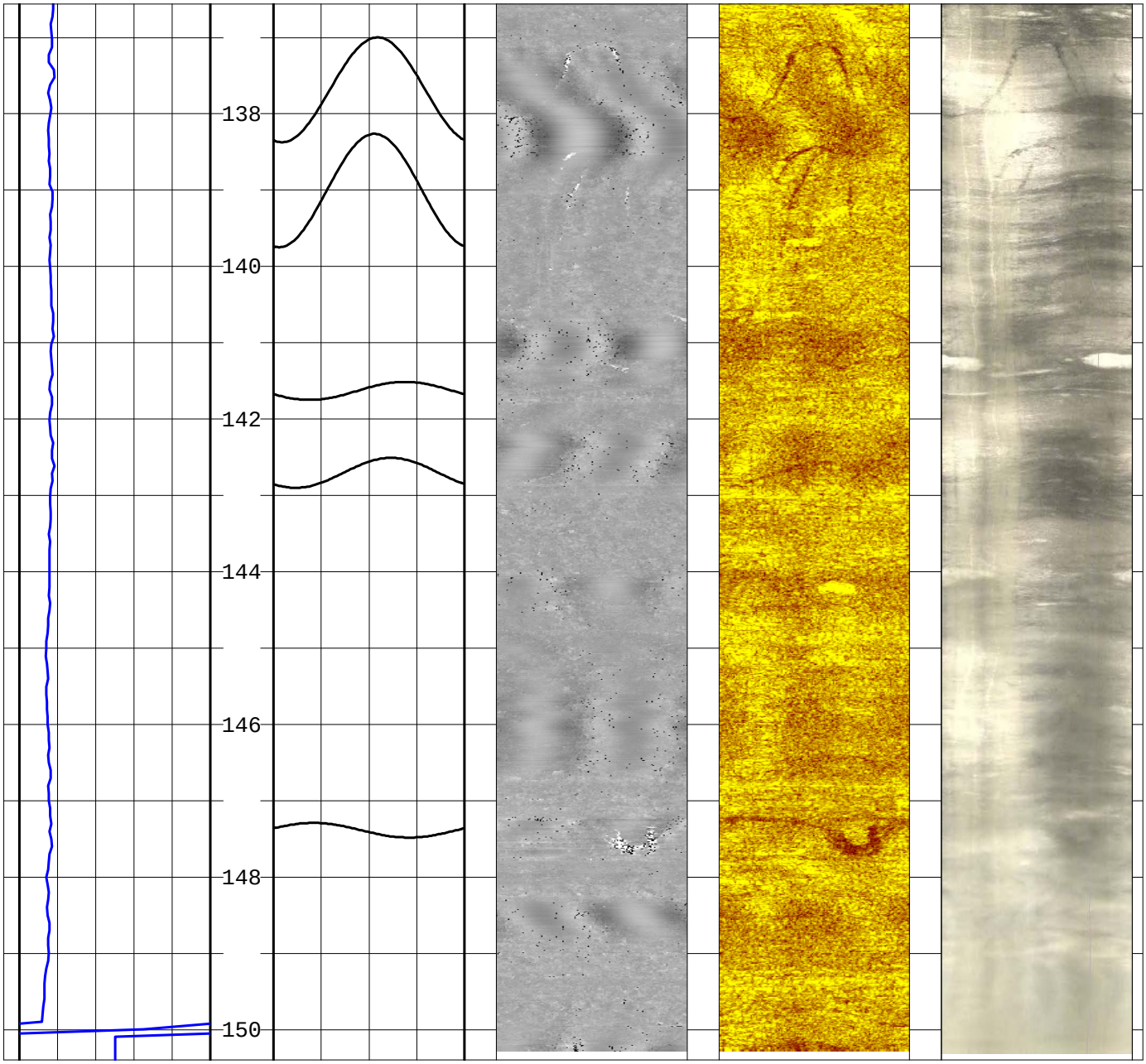
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Planar features interpreted from acoustical and optical televiewers
MW-14D - Ely Copper Mine Superfund Site - Vershire, Vermont **Logged: 08/18/09**

Borehole	Feature # Number	Feature depth Feet	Dip Degrees	Dip Azimuth magnetic	Strike magnetic	Dip Azimuth True	Strike True	Category Type
MW-14D	1	35.5	32	134	44	119	29	100
MW-14D	2	36.4	31	125	35	110	20	100
MW-14D	3	38.3	22	126	36	111	21	100
MW-14D	4	39.6	34	110	20	95	5	100
MW-14D	5	40.1	32	99	9	84	354	100
MW-14D	6	41.3	32	112	22	97	7	100
MW-14D	7	43.2	29	87	357	72	342	100
MW-14D	8	44.4	40	107	17	92	2	100
MW-14D	9	46.1	43	339	69	324	54	100
MW-14D	10	49.0	29	105	15	90	360	100
MW-14D	11	49.7	32	106	16	91	1	100
MW-14D	12	51.2	30	107	17	92	2	100
MW-14D	13	51.7	34	116	26	101	11	100
MW-14D	14	53.2	64	206	296	191	281	108
MW-14D	15	54.6	36	119	29	104	14	100
MW-14D	16	57.1	45	106	16	91	1	100
MW-14D	17	57.7	51	122	32	107	17	100
MW-14D	18	58.4	66	214	304	199	289	100
MW-14D	19	59.6	52	117	27	102	12	100
MW-14D	20	61.4	38	116	26	101	11	100
MW-14D	21	63.5	72	11	281	356	86	100
MW-14D	22	64.4	34	113	23	98	8	100
MW-14D	23	66.1	37	97	7	82	352	103
MW-14D	24	66.8	34	114	24	99	9	100
MW-14D	25	68.0	39	72	342	57	327	100
MW-14D	26	70.9	44	103	13	88	358	100
MW-14D	27	72.8	59	113	23	98	8	108
MW-14D	28	73.6	43	117	27	102	12	103
MW-14D	29	75.0	38	229	319	214	304	100
MW-14D	30	77.5	28	123	33	108	18	100
MW-14D	31	79.6	32	92	2	77	347	100
MW-14D	32	80.5	38	265	355	250	340	100
MW-14D	33	82.2	31	92	2	77	347	100
MW-14D	34	84.1	41	108	18	93	3	100
MW-14D	35	84.6	39	109	19	94	4	100
MW-14D	36	85.4	69	358	88	343	73	100
MW-14D	37	85.6	29	111	21	96	6	103
MW-14D	38	86.8	33	93	3	78	348	100
MW-14D	39	87.5	37	108	18	93	3	100
MW-14D	40	88.5	64	200	290	185	275	108
MW-14D	41	91.0	36	249	339	234	324	100
MW-14D	42	91.1	24	107	17	92	2	100
MW-14D	43	96.4	28	108	18	93	3	100
MW-14D	44	98.1	30	107	17	92	2	100
MW-14D	45	101.5	53	224	314	209	299	107
MW-14D	46	102.8	45	218	308	203	293	107
MW-14D	47	103.6	26	20	290	5	275	100
MW-14D	48	104.1	30	352	82	337	67	100
MW-14D	49	106.6	34	87	357	72	342	100

Planar features interpreted from acoustical and optical televiewers
MW-14D - Ely Copper Mine Superfund Site - Vershire, Vermont **Logged: 08/18/09**

Borehole	Feature # Number	Feature depth Feet	Dip Degrees	Dip Azimuth magnetic	Strike magnetic	Dip Azimuth True	Strike True	Category Type
MW-14D	50	109.6	34	95	5	80	350	100
MW-14D	51	111.9	30	88	358	73	343	100
MW-14D	52	115.8	34	80	350	65	335	100
MW-14D	53	116.8	36	119	29	104	14	100
MW-14D	54	118.5	37	114	24	99	9	100
MW-14D	55	122.7	21	69	339	54	324	100
MW-14D	56	127.7	31	101	11	86	356	103
MW-14D	57	129.6	48	95	5	80	350	100
MW-14D	58	130.0	84	310	40	295	25	100
MW-14D	59	130.9	37	104	14	89	359	103
MW-14D	60	137.7	71	16	286	1	271	100
MW-14D	61	139.0	72	10	280	355	85	100
MW-14D	62	141.6	26	68	338	53	323	100
MW-14D	63	142.7	39	41	311	26	296	100
MW-14D	64	147.4	22	255	345	240	330	100

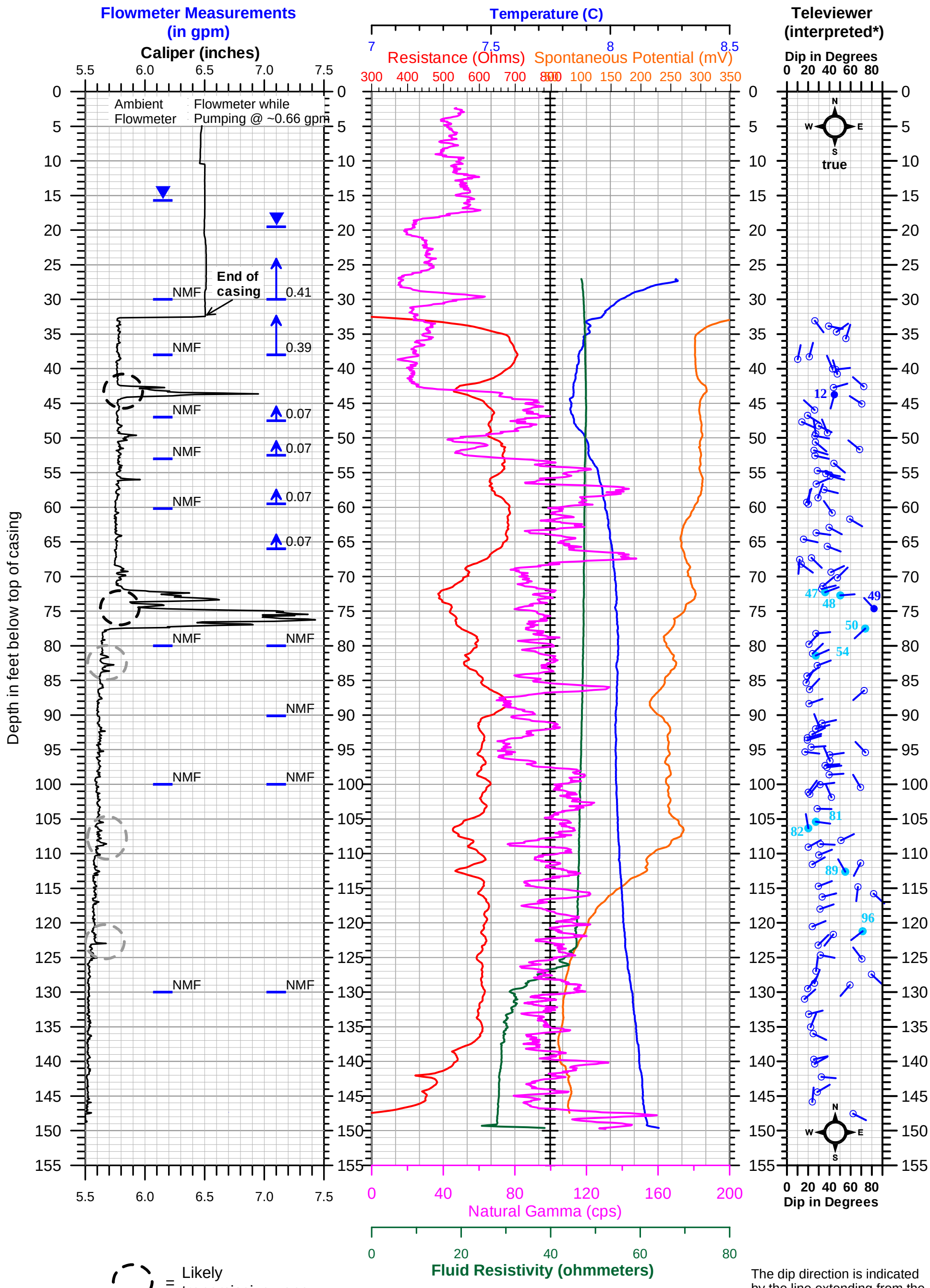
Explanation:

Category 100 = planar feature (possible fracture, joint, foliation, bedding, etc.)
Category 103 = quartz or calcite vein
Category 107 = Likely water bearing feature
Category 108 = Possible water bearing fracture

Northeast Geophysical Services

Borehole Geophysical Log
MW-19D
Ely Mine Site - Vershire, VT

Date logged: 8/19/09



= Likely transmissive zone

= possible transmissive zone

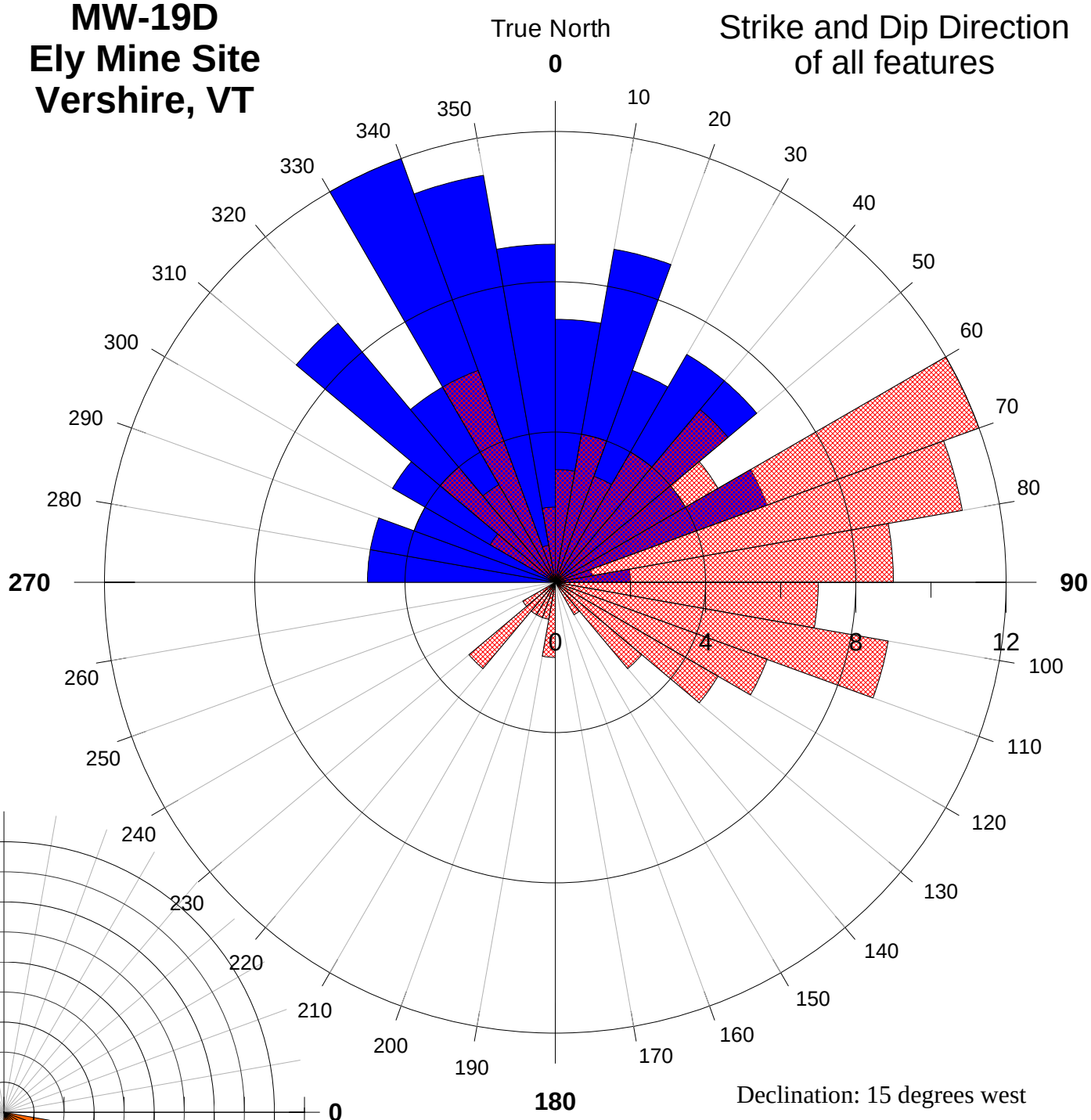
The dip direction is indicated by the line extending from the circle. The strike of the feature is 90 degrees from this.

Borehole Geophysical Log
MW-19D
Ely Mine Site - Vershire, VT

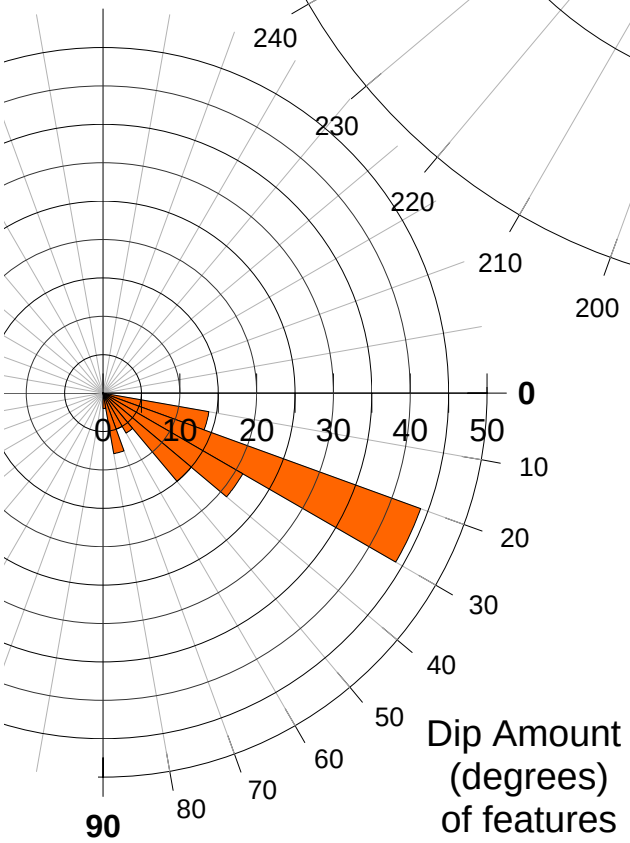
Date logged: 8/19/09

Northeast Geophysical Services

MW-19D
Ely Mine Site
Vershire, VT



Declination: 15 degrees west



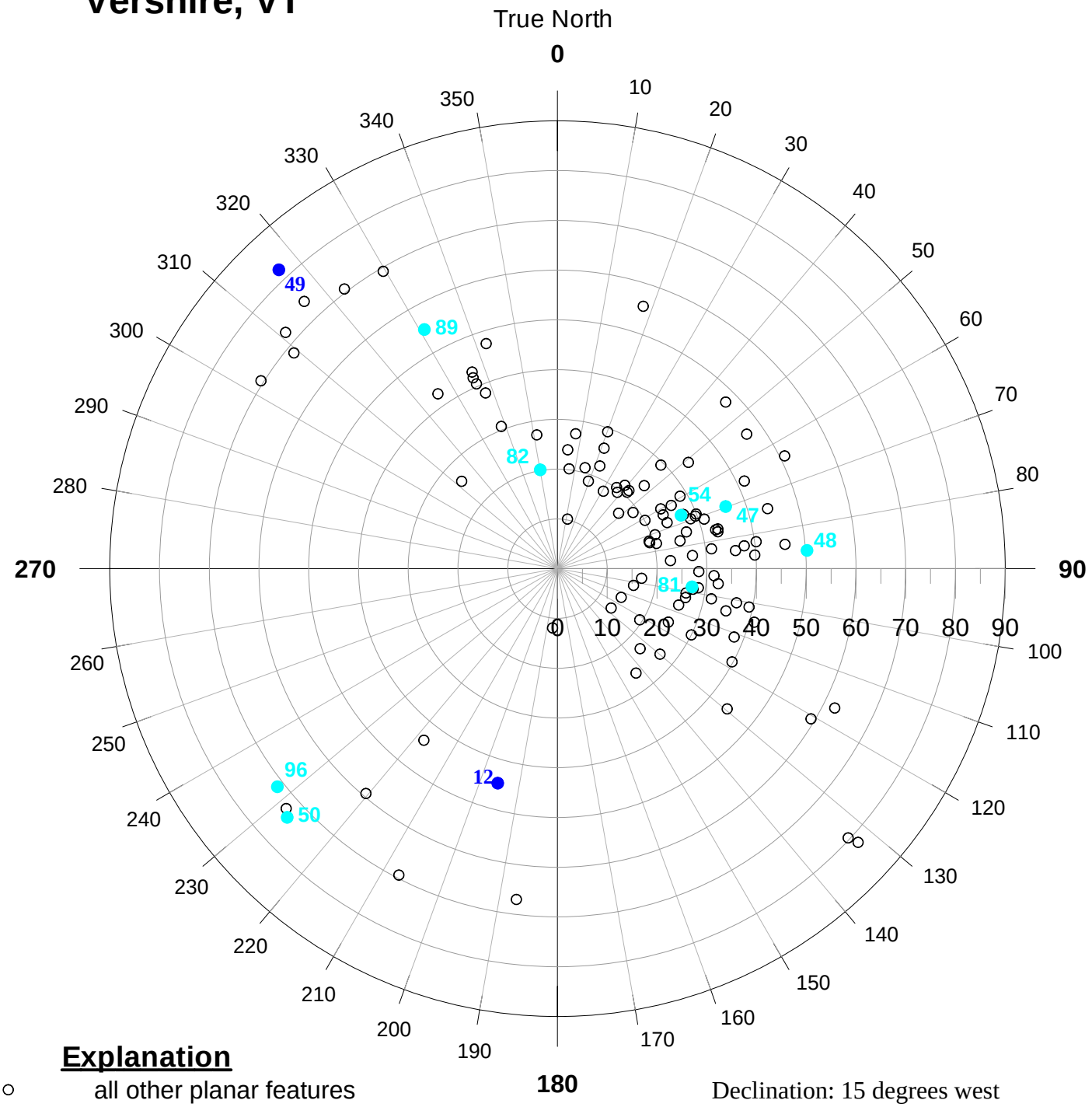
Explanation

- Dip direction of feature
- Strike of feature
- Dip Amount (Tilt)

Based on 115 measurements

MW-19D
Ely Mine Site
Vershire, VT

Dip Amount and Dip Azimuth of planar features (upper hemisphere plot)



Explanation

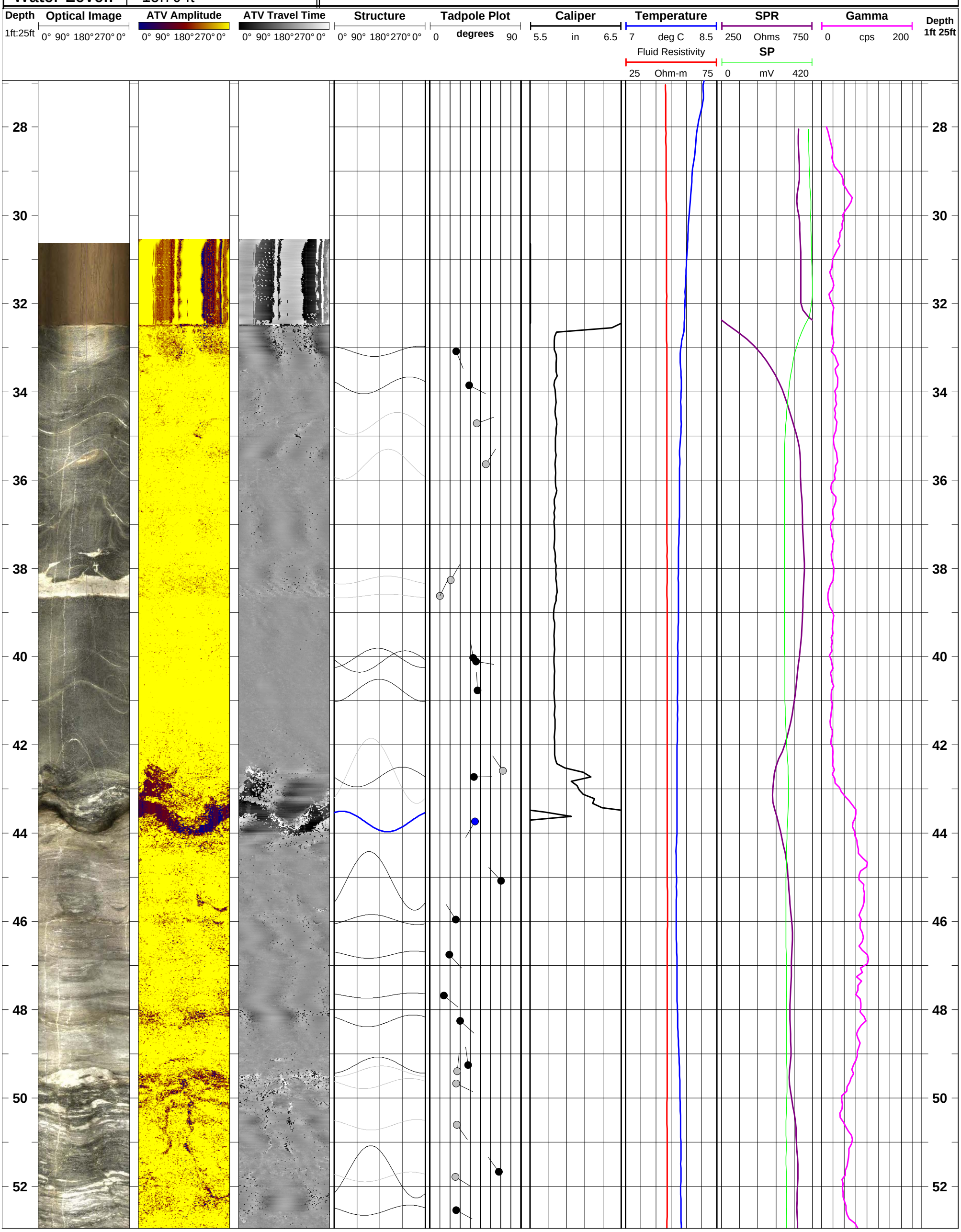
- ○ all other planar features
- ● Likely water bearing
- ● Possibly water bearing

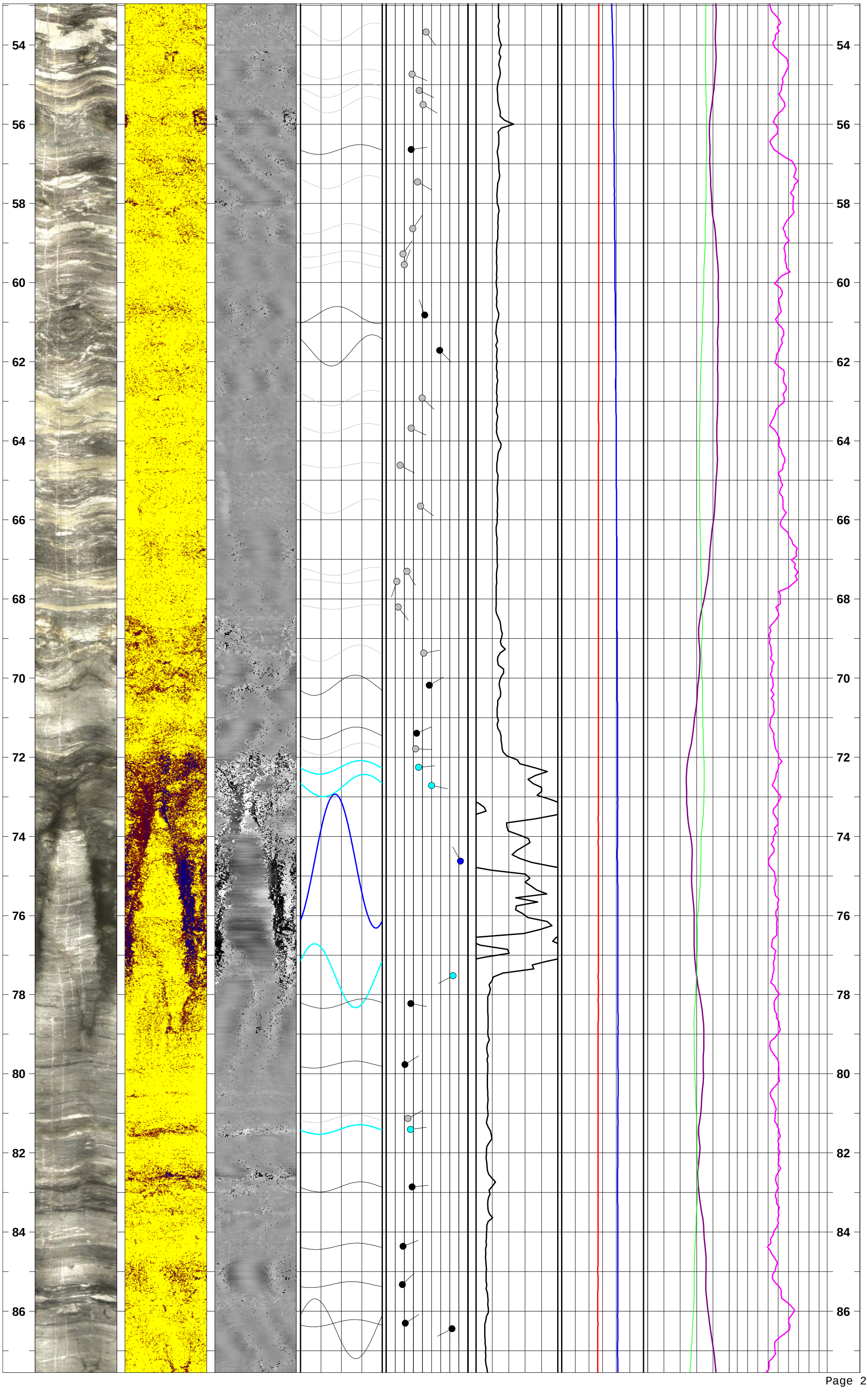
Declination: 15 degrees west

Based on 115 measurements

Northeast Geophysical Services
4 Union Street Bangor, Maine 04401
Tel: 207-942-2700 email: ngsinc@negeophysical.com

Log:	**Combined Geophysical Logs**
Well:	MW-19D
Site:	Ely Copper Mine Superfund Site
Location:	Vershire, Vermont
Date:	8/19/09
Casing Depth:	32.5 ft
Casing Type:	steel
Boring Depth:	151.4 ft
Meas. From:	top of casing
Stickup:	1.4 ft
Water Level:	15.70 ft
For:	Nobis Engineering, Inc.
Logged by:	R Rawcliffe
Orientation:	magnetic
Comments:	Structure & Tadpole Plots: black = planar features (faults, bedding, foliation, etc.) light gray = quartz or calcite vein light blue = possibly transmissive fracture dark blue = likely transmissive fracture

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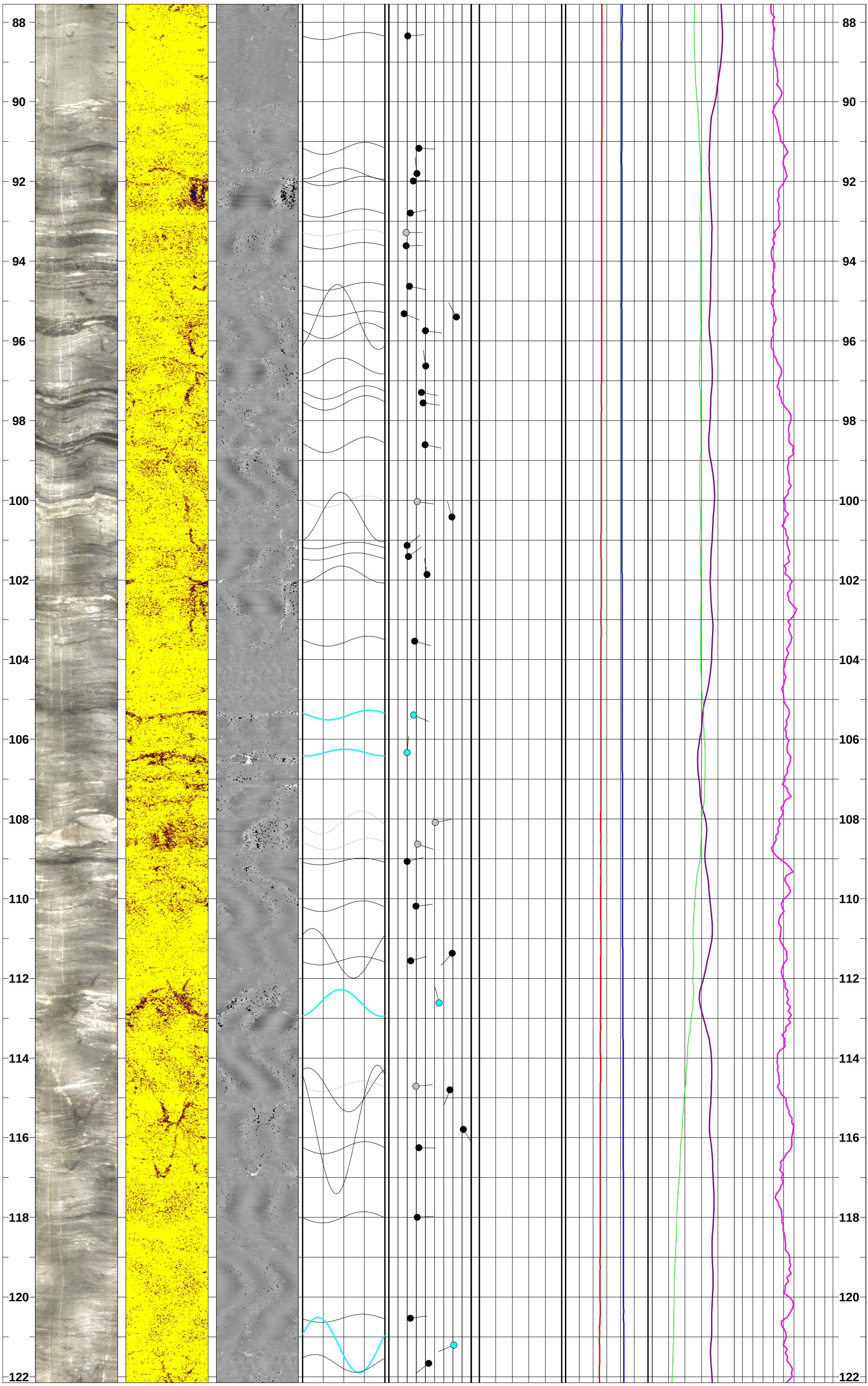
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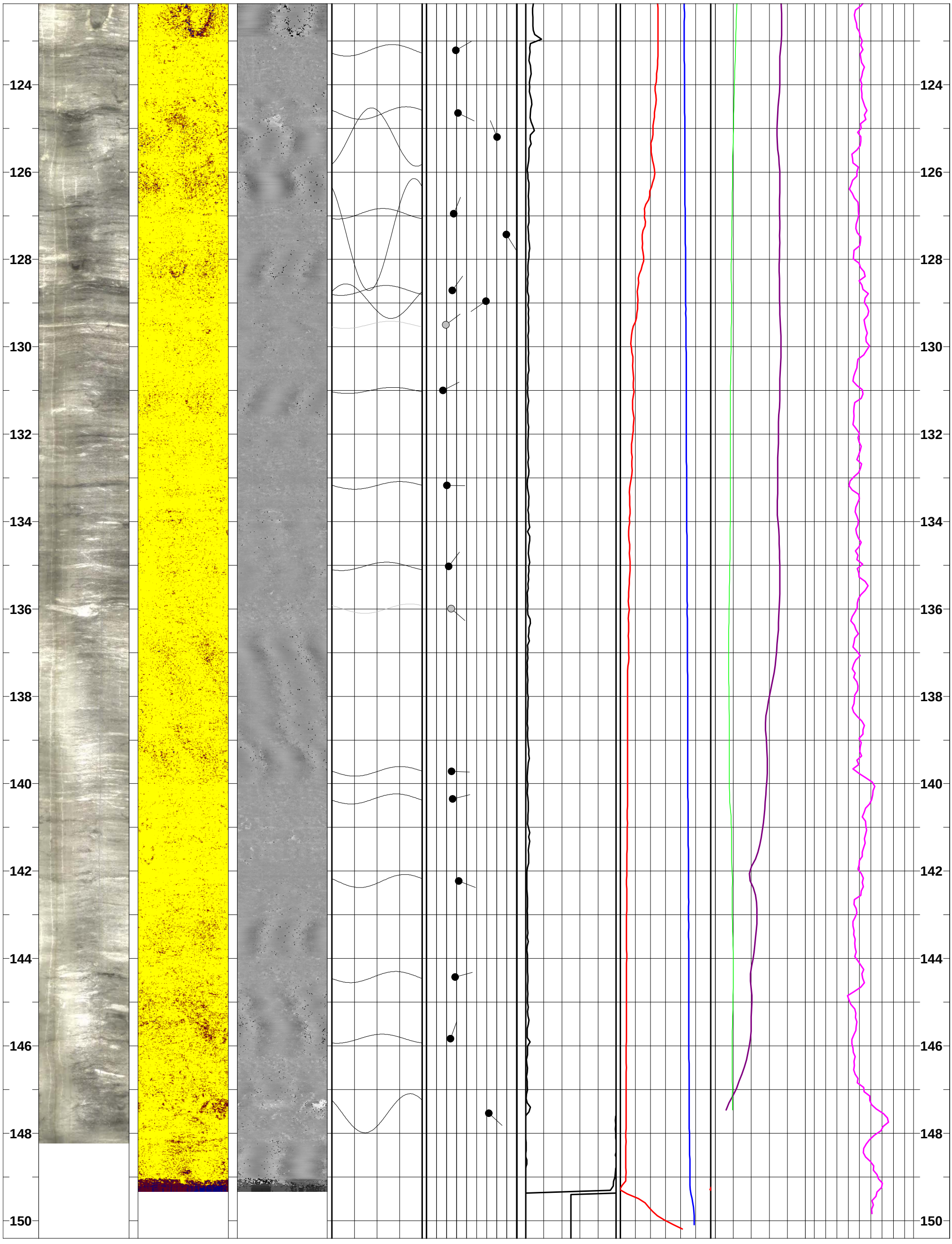
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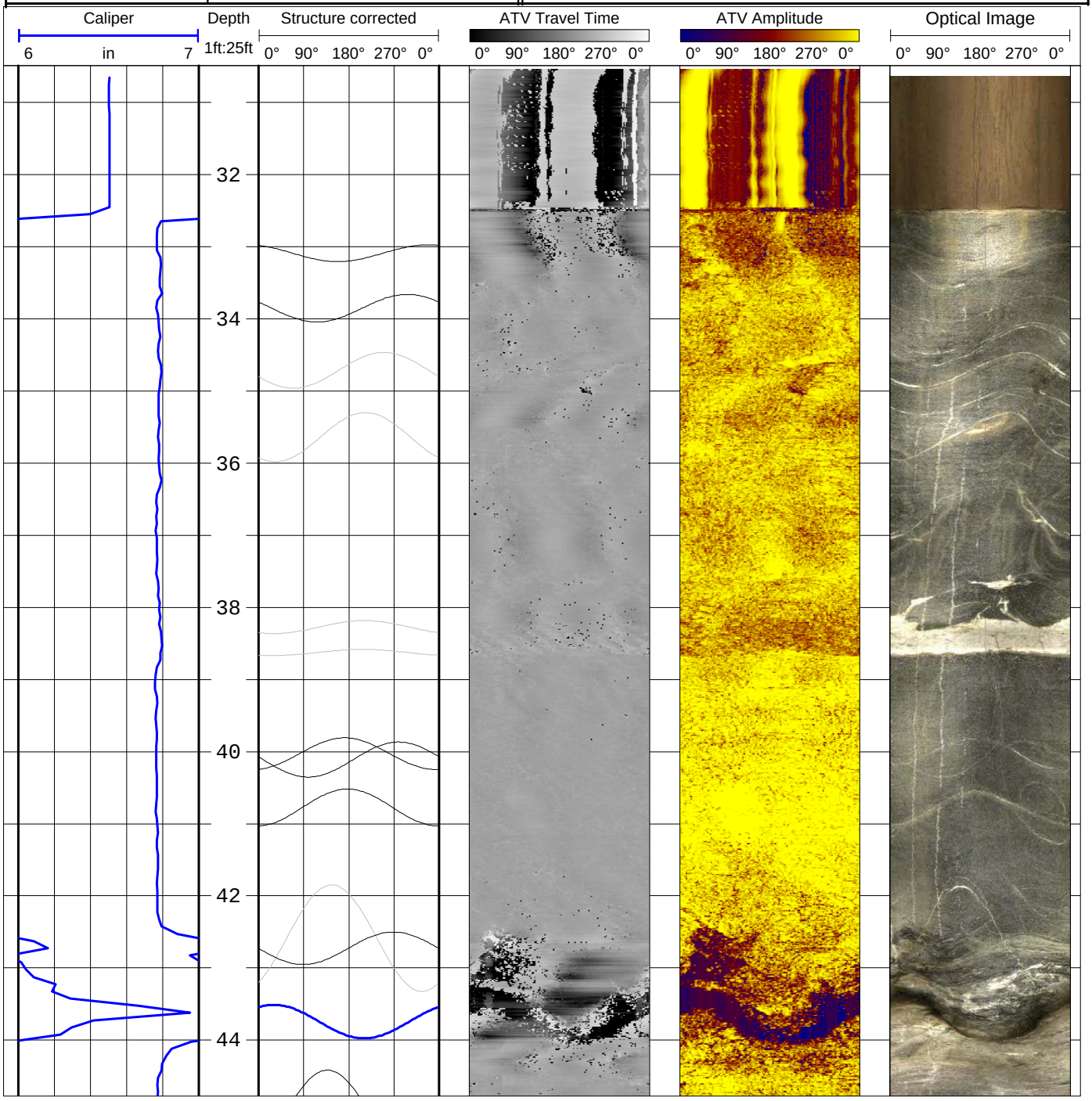
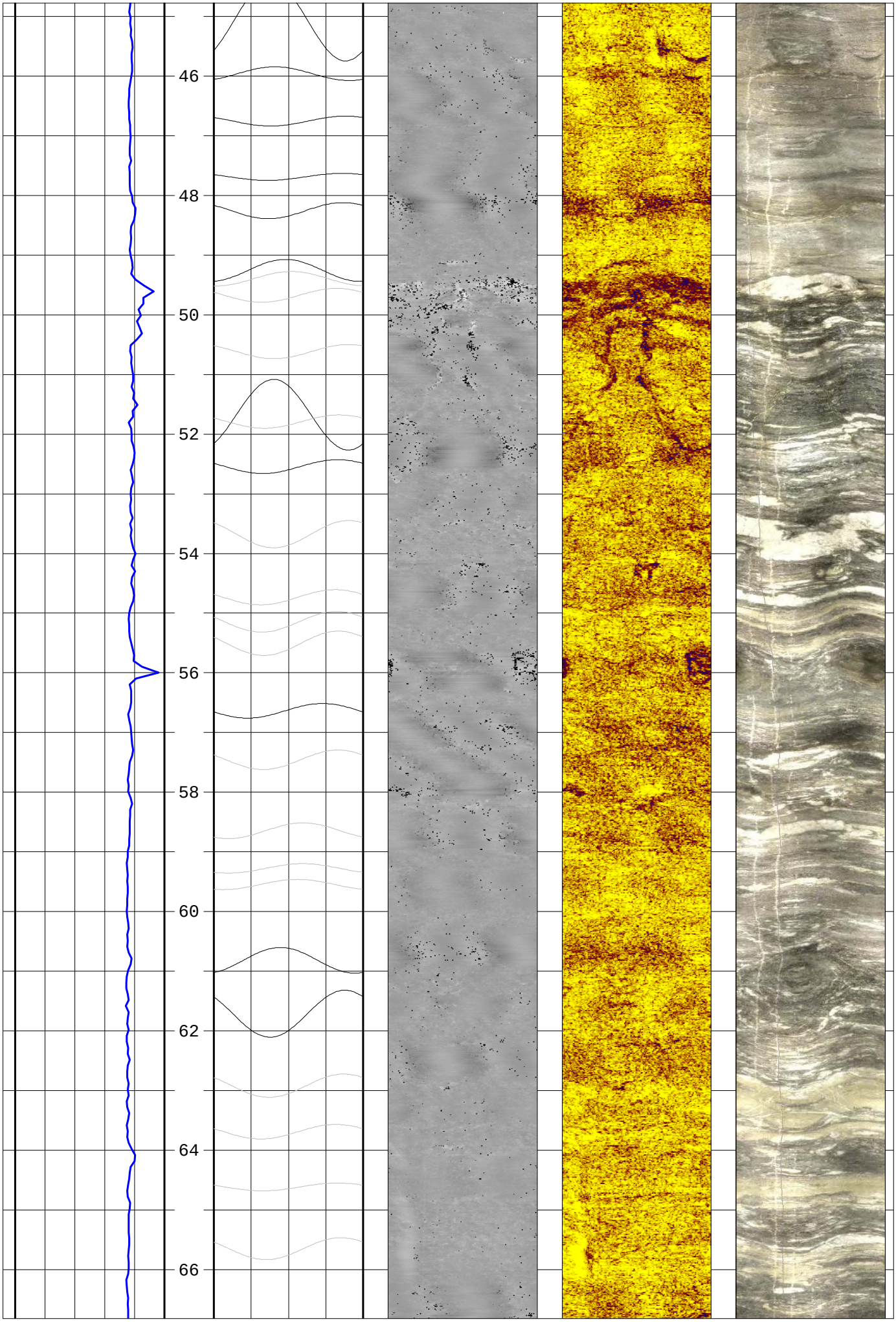
Northeast Geophysical Services
4 Union Street Bangor, Maine 04401
Tel: 207-942-2700 email: negeophysical.com

Log:	**Televiewer & Caliper Logs**
Well:	MW-19D
Site:	Ely Copper Mine Superfund Site
Date:	8/19/09
Location:	Vershire, Vermont
Casing Depth:	32.5 ft
For:	Nobis Engineering
Casing Type:	steel
Logged by:	R Rawcliffe
Boring Depth:	151.4 ft
Orientation:	magnetic
Meas. From:	top of casing
Stickup:	1.4 ft
Water Level:	15.70 ft

Structure Plots:
black = planar features (faults, foliation, bedding, joints, etc)
light gray = veins of likely either quartz or calcite
light blue = possibly transmissive fracture
dark blue = likely transmissive fracture

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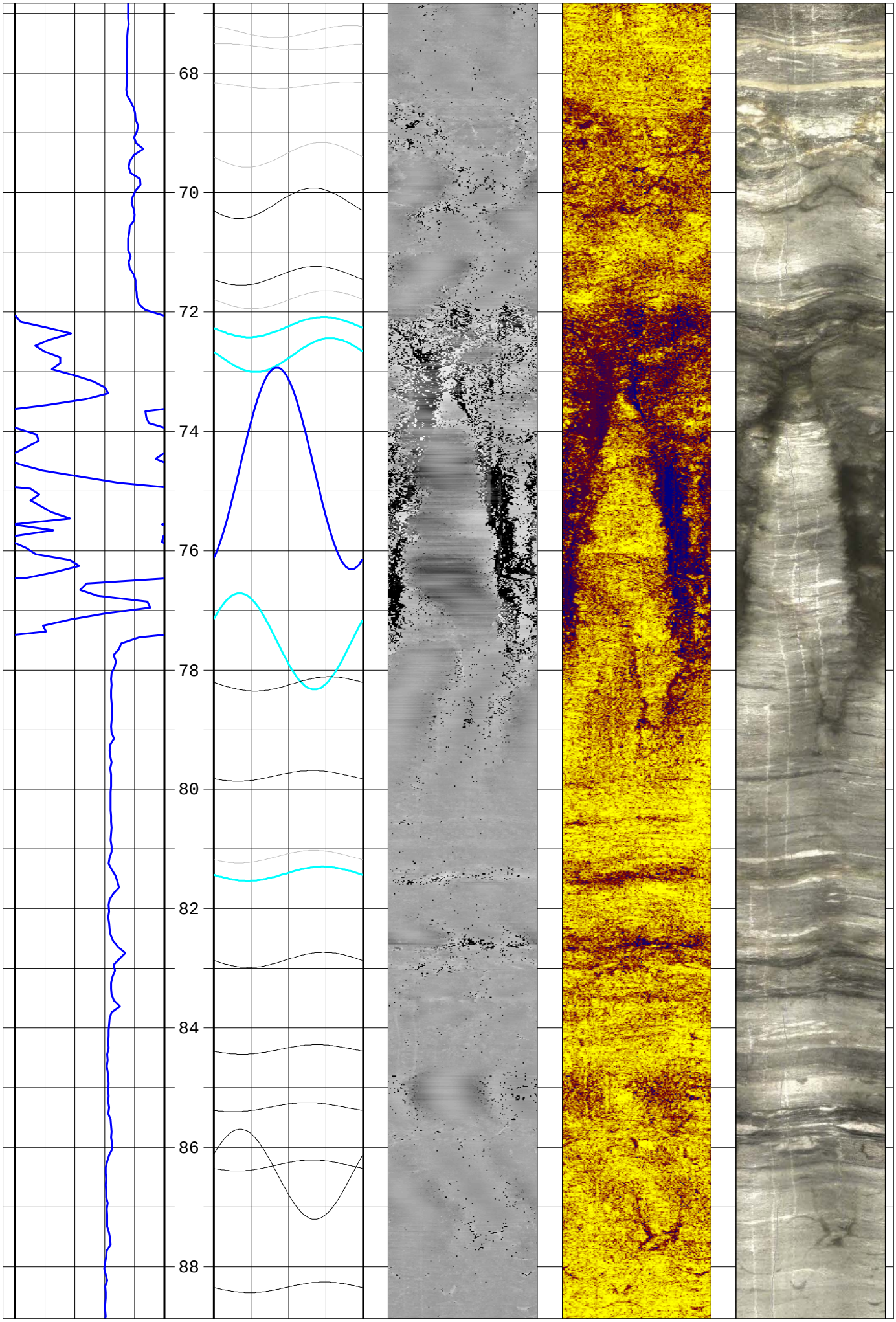
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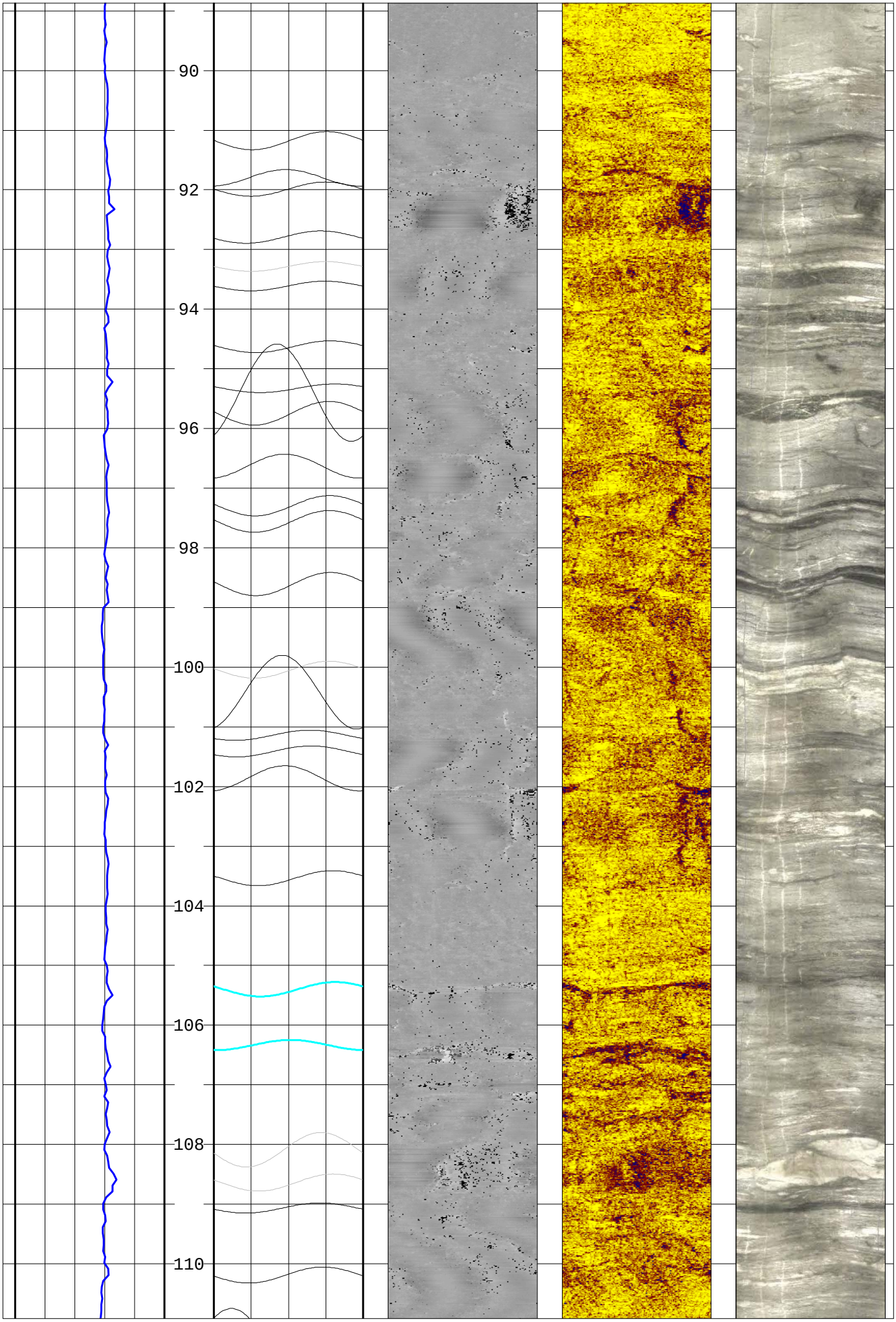
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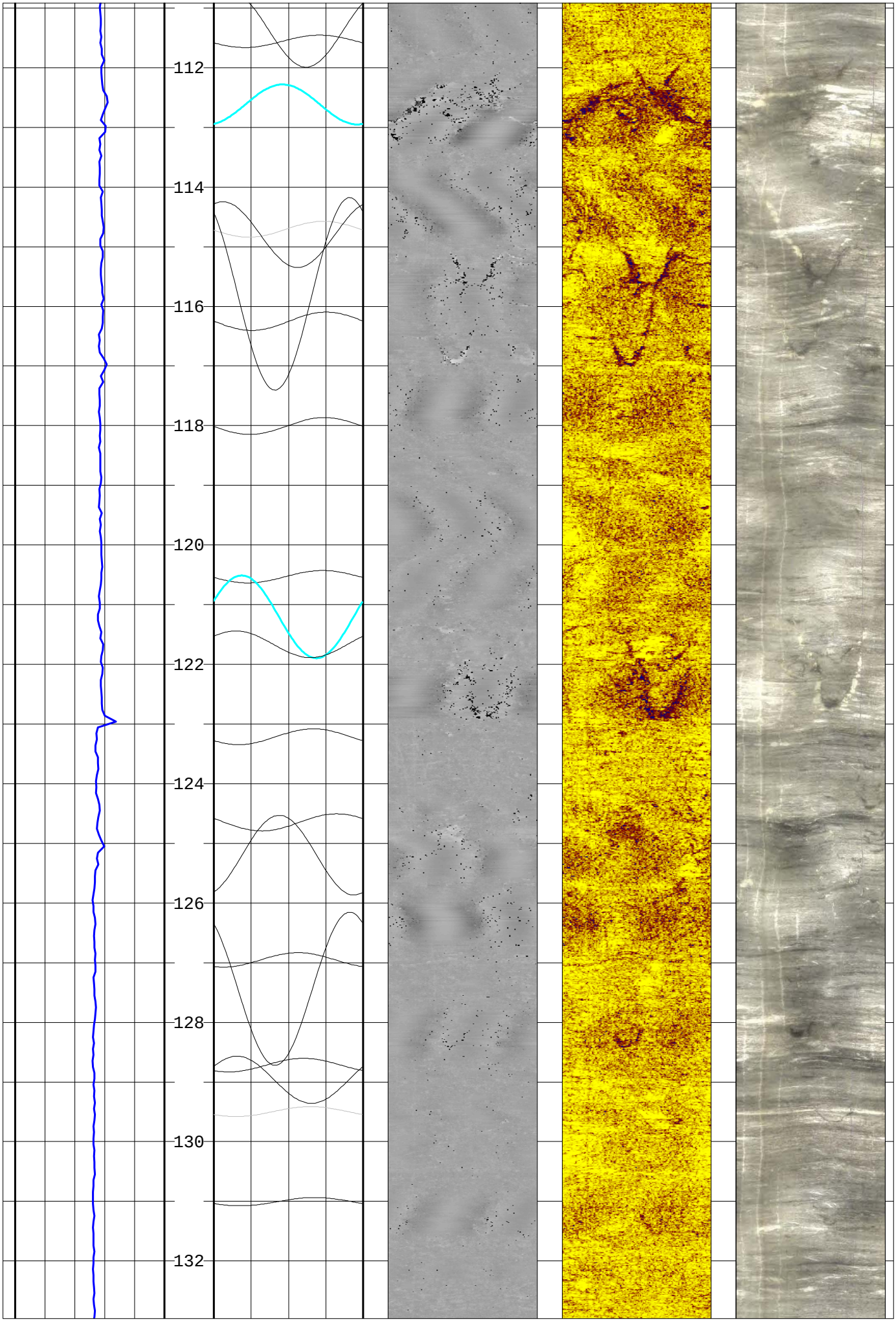
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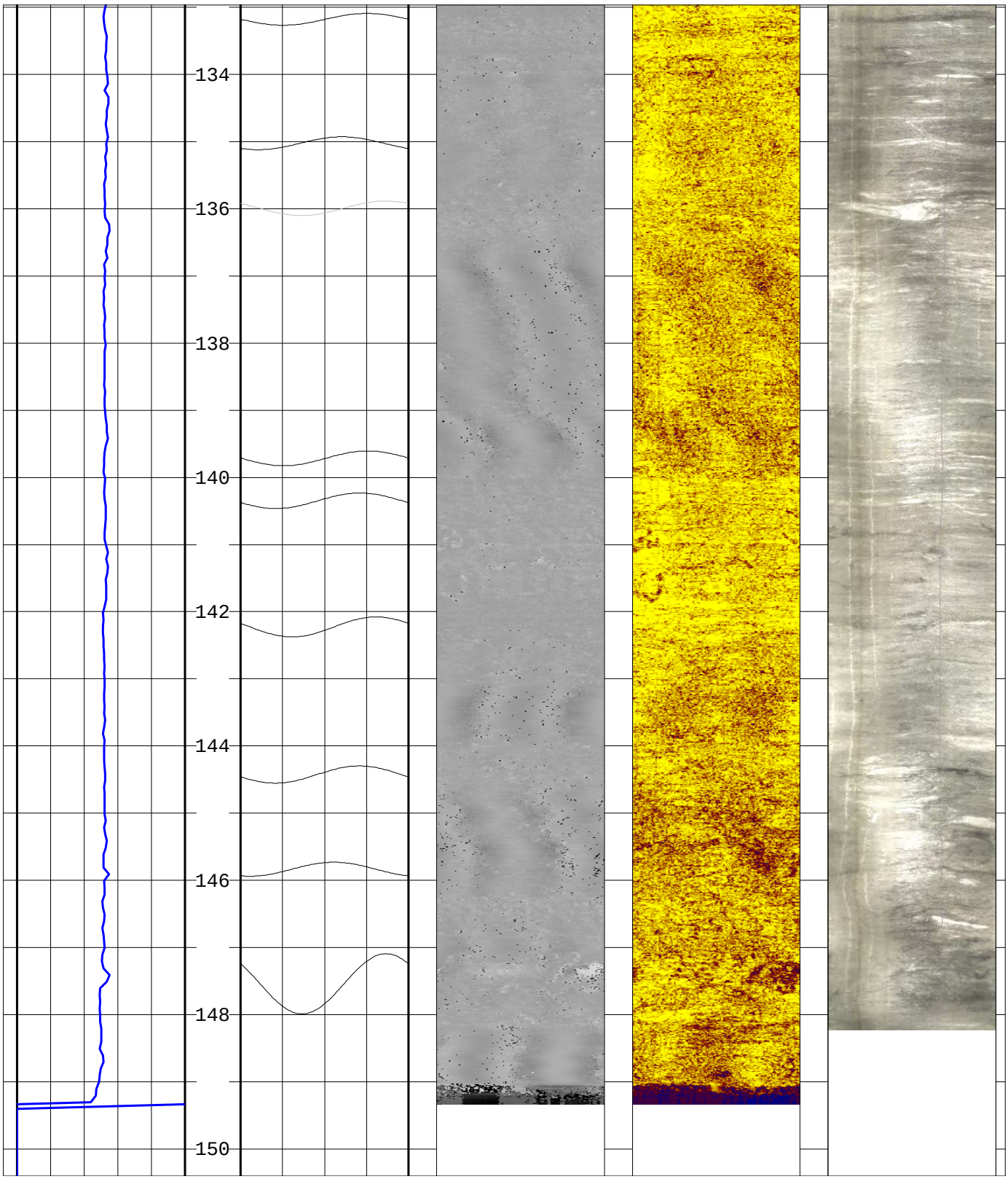
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Planar features interpreted from acoustical and optical televiewers
MW-19D - Ely Copper Mine Superfund Site - Vershire, Vermont **Logged: 08/19/09**

Borehole	Feature # Number	Feature depth Feet	Dip Degrees	Dip Azimuth magnetic	Strike magnetic	Dip Azimuth True	Strike True	Category Type
MW-19D	1	33.1	26	158	68	143	53	100
MW-19D	2	33.9	39	116	26	101	11	100
MW-19D	3	34.7	47	70	340	55	325	103
MW-19D	4	35.6	56	33	303	18	288	103
MW-19D	5	38.3	21	30	300	15	285	103
MW-19D	6	38.6	10	26	296	11	281	103
MW-19D	7	40.0	43	352	82	337	67	100
MW-19D	8	40.1	46	99	9	84	354	100
MW-19D	9	40.8	47	357	87	342	72	100
MW-19D	10	42.6	72	326	56	311	41	103
MW-19D	11	42.7	44	89	359	74	344	100
MW-19D	12	43.7	45	211	301	196	286	107
MW-19D	13	45.1	71	317	47	302	32	100
MW-19D	14	46.0	26	327	57	312	42	100
MW-19D	15	46.8	19	137	47	122	32	100
MW-19D	16	47.7	14	129	39	114	24	100
MW-19D	17	48.3	30	131	41	116	26	100
MW-19D	18	49.3	38	353	83	338	68	100
MW-19D	19	49.4	27	6	276	351	81	103
MW-19D	20	49.7	26	116	26	101	11	103
MW-19D	21	50.6	27	145	55	130	40	103
MW-19D	22	51.7	68	324	54	309	39	100
MW-19D	23	51.8	25	122	32	107	17	103
MW-19D	24	52.6	26	118	28	103	13	100
MW-19D	25	53.7	44	145	55	130	40	103
MW-19D	26	54.7	29	113	23	98	8	103
MW-19D	27	55.2	37	116	26	101	11	103
MW-19D	28	55.5	41	120	30	105	15	103
MW-19D	29	56.6	28	82	352	67	337	100
MW-19D	30	57.5	35	119	29	104	14	103
MW-19D	31	58.6	29	35	305	20	290	103
MW-19D	32	59.3	19	34	304	19	289	103
MW-19D	33	59.6	20	22	292	7	277	103
MW-19D	34	60.8	43	341	71	326	56	100
MW-19D	35	61.7	59	136	46	121	31	100
MW-19D	36	62.9	40	133	43	118	28	103
MW-19D	37	63.7	28	114	24	99	9	103
MW-19D	38	64.6	16	117	27	102	12	103
MW-19D	39	65.7	38	126	36	111	21	103
MW-19D	40	67.3	23	149	59	134	44	103
MW-19D	41	67.6	12	200	290	185	275	103
MW-19D	42	68.2	13	141	51	126	36	103
MW-19D	43	69.4	41	80	350	65	335	103
MW-19D	44	70.2	48	60	330	45	315	100
MW-19D	45	71.4	34	66	336	51	321	100
MW-19D	46	71.8	33	91	1	76	346	103
MW-19D	47	72.3	36	85	355	70	340	108
MW-19D	48	72.7	50	101	11	86	356	108
MW-19D	49	74.6	82	332	62	317	47	107

Planar features interpreted from acoustical and optical televiewers
MW-19D - Ely Copper Mine Superfund Site - Vershire, Vermont **Logged: 08/19/09**

Borehole	Feature # Number	Feature depth Feet	Dip Degrees	Dip Azimuth magnetic	Strike magnetic	Dip Azimuth True	Strike True	Category Type
MW-19D	50	77.5	74	242	332	227	317	108
MW-19D	51	78.2	27	99	9	84	354	100
MW-19D	52	79.8	21	57	327	42	312	100
MW-19D	53	81.1	24	61	331	46	316	103
MW-19D	54	81.4	27	82	352	67	337	108
MW-19D	55	82.9	29	84	354	69	339	100
MW-19D	56	84.4	19	68	338	53	323	100
MW-19D	57	85.3	18	46	316	31	301	100
MW-19D	58	86.3	21	58	328	43	313	100
MW-19D	59	86.5	73	244	334	229	319	100
MW-19D	60	88.4	21	86	356	71	341	100
MW-19D	61	91.2	33	92	2	77	347	100
MW-19D	62	91.8	31	353	83	338	68	100
MW-19D	63	92.0	27	89	359	74	344	100
MW-19D	64	92.8	24	78	348	63	333	100
MW-19D	65	93.3	19	89	359	74	344	103
MW-19D	66	93.6	19	88	358	73	343	100
MW-19D	67	94.6	23	101	11	86	356	100
MW-19D	68	95.3	17	112	22	97	7	100
MW-19D	69	95.4	74	332	62	317	47	100
MW-19D	70	95.8	40	97	7	82	352	100
MW-19D	71	96.6	41	351	81	336	66	100
MW-19D	72	97.3	36	99	9	84	354	100
MW-19D	73	97.6	38	98	8	83	353	100
MW-19D	74	98.6	40	101	11	86	356	100
MW-19D	75	100.0	31	98	8	83	353	103
MW-19D	76	100.4	69	345	75	330	60	100
MW-19D	77	101.1	20	51	321	36	306	100
MW-19D	78	101.4	22	54	324	39	309	100
MW-19D	79	101.9	42	351	81	336	66	100
MW-19D	80	103.5	28	106	16	91	1	100
MW-19D	81	105.4	27	113	23	98	8	108
MW-19D	82	106.3	20	5	275	350	80	108
MW-19D	83	108.1	51	79	349	64	334	103
MW-19D	84	108.6	32	108	18	93	3	103
MW-19D	85	109.1	20	76	346	61	331	100
MW-19D	86	110.2	30	84	354	69	339	100
MW-19D	87	111.4	69	222	312	207	297	100
MW-19D	88	111.6	24	75	345	60	330	100
MW-19D	89	112.6	55	346	76	331	61	108
MW-19D	90	114.7	30	84	354	69	339	103
MW-19D	91	114.8	67	202	292	187	277	100
MW-19D	92	115.8	82	147	57	132	42	100
MW-19D	93	116.3	33	91	1	76	346	100
MW-19D	94	118.0	31	86	356	71	341	100
MW-19D	95	120.5	24	82	352	67	337	100
MW-19D	96	121.2	71	247	337	232	322	108
MW-19D	97	121.7	44	233	323	218	308	100
MW-19D	98	123.2	29	60	330	45	315	100

Planar features interpreted from acoustical and optical televiewers
MW-19D - Ely Copper Mine Superfund Site - Vershire, Vermont **Logged: 08/19/09**

Borehole	Feature # Number	Feature depth Feet	Dip Degrees	Dip Azimuth magnetic	Strike magnetic	Dip Azimuth True	Strike True	Category Type
MW-19D	99	124.7	32	116	26	101	11	100
MW-19D	100	125.2	71	338	68	323	53	100
MW-19D	101	127.0	27	23	293	8	278	100
MW-19D	102	127.4	80	148	58	133	43	100
MW-19D	103	128.7	26	36	306	21	291	100
MW-19D	104	129.0	59	235	325	220	310	100
MW-19D	105	129.5	19	53	323	38	308	103
MW-19D	106	131.0	17	63	333	48	318	100
MW-19D	107	133.2	21	91	1	76	346	100
MW-19D	108	135.0	22	37	307	22	292	100
MW-19D	109	136.0	25	131	41	116	26	103
MW-19D	110	139.7	25	92	2	77	347	100
MW-19D	111	140.4	26	76	346	61	331	100
MW-19D	112	142.2	32	110	20	95	5	100
MW-19D	113	144.4	29	74	344	59	329	100
MW-19D	114	145.8	24	20	290	5	275	100
MW-19D	115	147.5	62	132	42	117	27	100

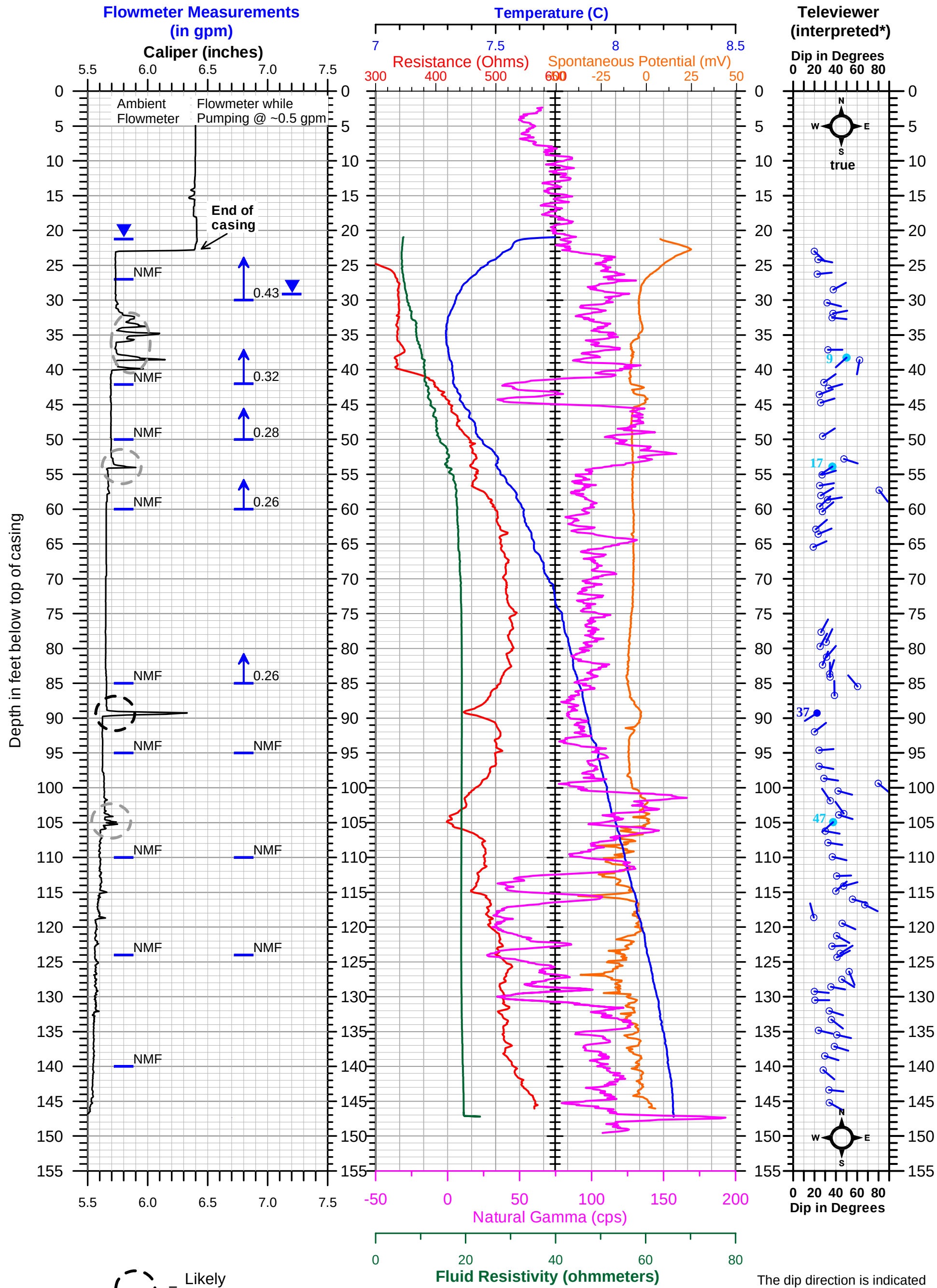
Explanation:

Category 100 = planar feature (possible fracture, joint, foliation, bedding, etc.)
Category 103 = quartz or calcite vein
Category 107 = Likely water bearing feature
Category 108 = Possible water bearing fracture

Northeast Geophysical Services

Borehole Geophysical Log
MW-20D
Ely Mine Site - Vershire, VT

Date logged: 8/19/09



= Likely transmissive zone

= possible transmissive zone

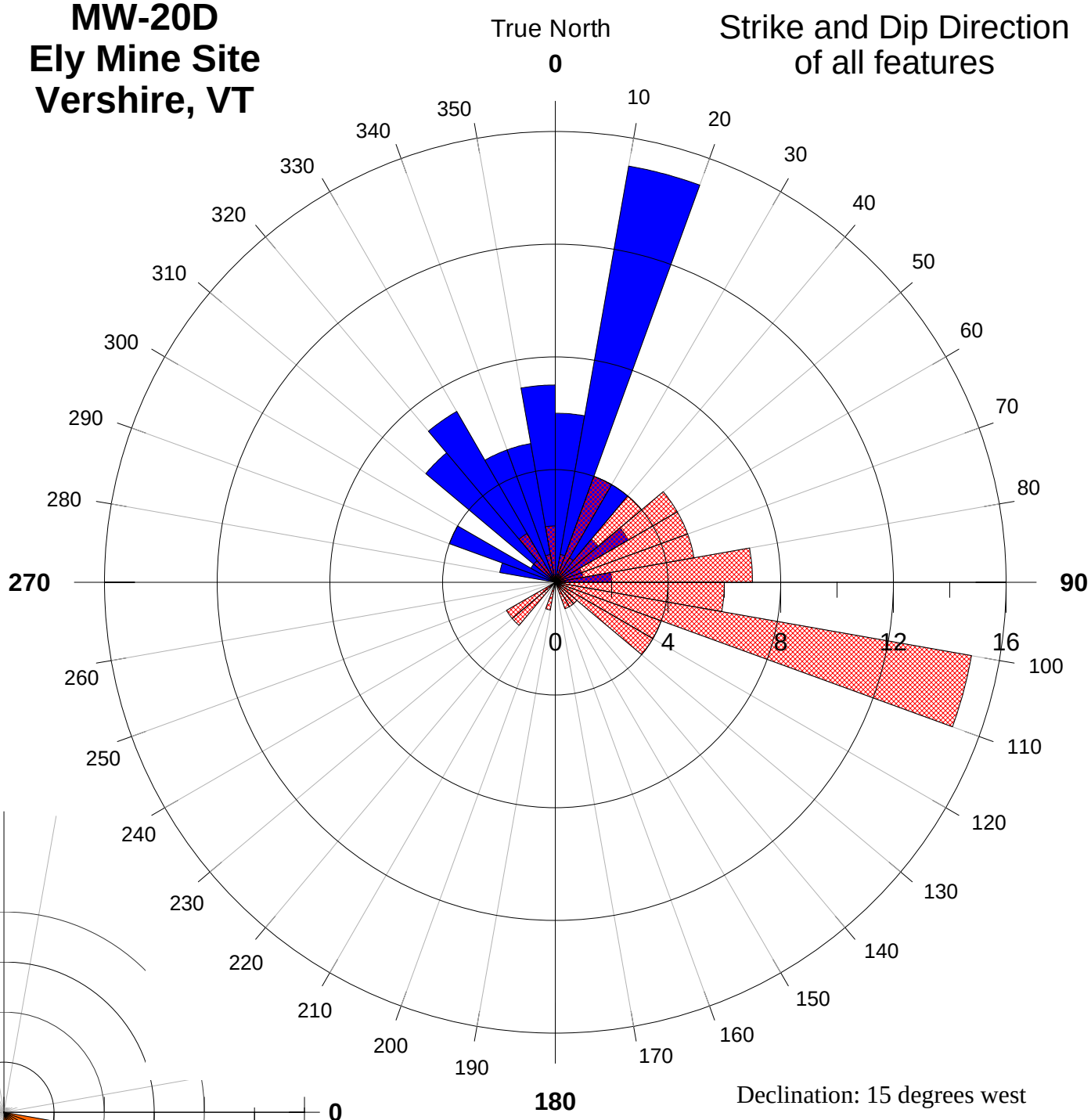
The dip direction is indicated by the line extending from the circle. The strike of the feature is 90 degrees from this.

Borehole Geophysical Log
MW-20D
Ely Mine Site - Vershire, VT

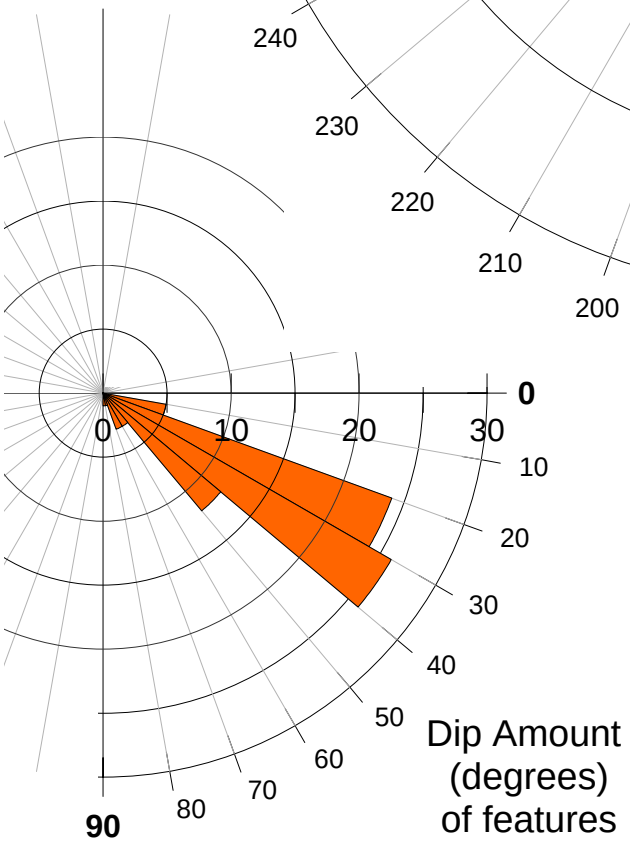
Date logged: 8/19/09

Northeast Geophysical Services

MW-20D
Ely Mine Site
Vershire, VT



Declination: 15 degrees west



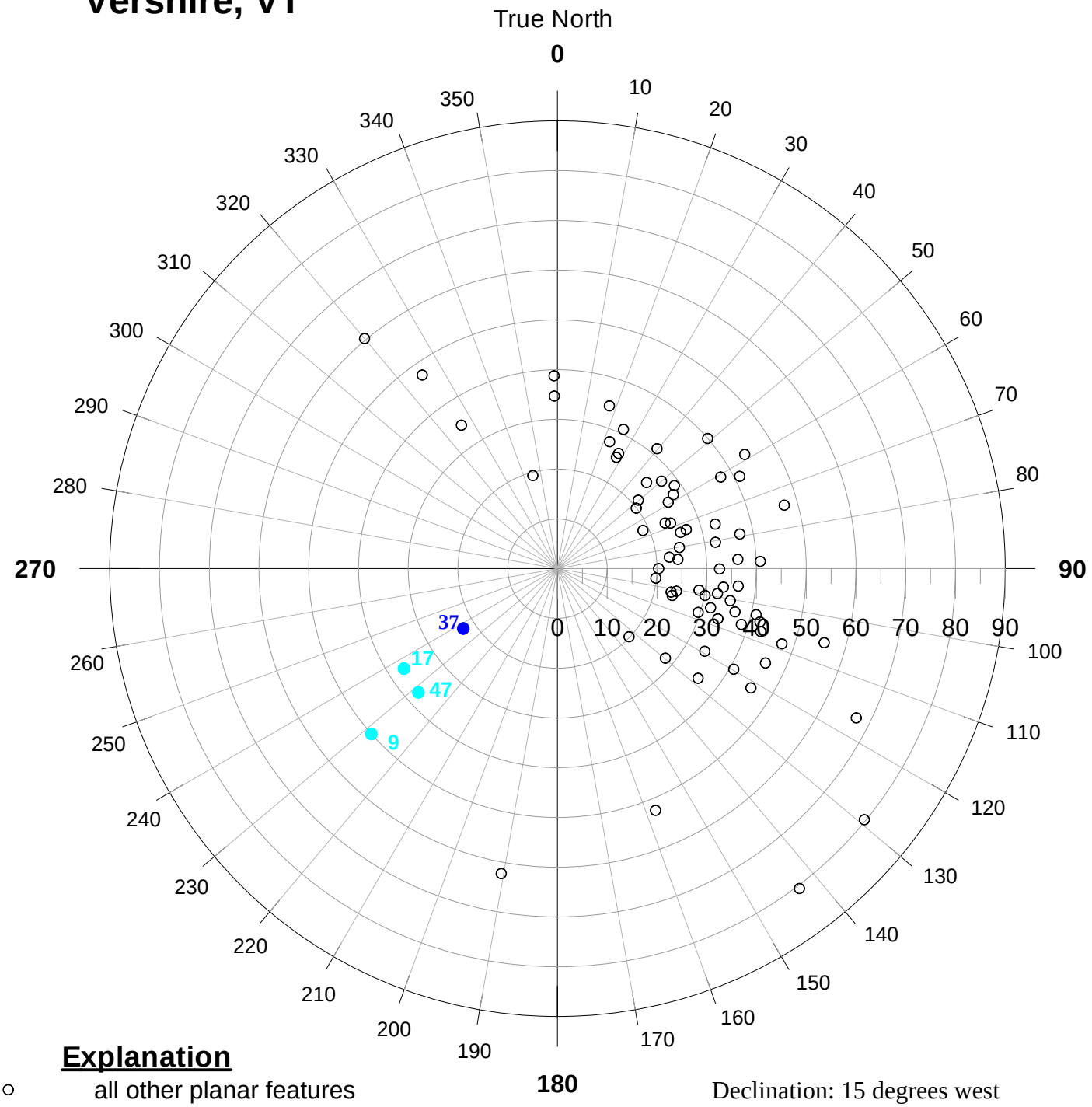
Explanation

- Dip direction of feature
- Strike of feature
- Dip Amount (Tilt)

Based on 75 measurements

MW-20D
Ely Mine Site
Vershire, VT

Dip Amount and Dip Azimuth of planar features (upper hemisphere plot)



Explanation

- ○ all other planar features
- ● Likely water bearing
- ● Possibly water bearing

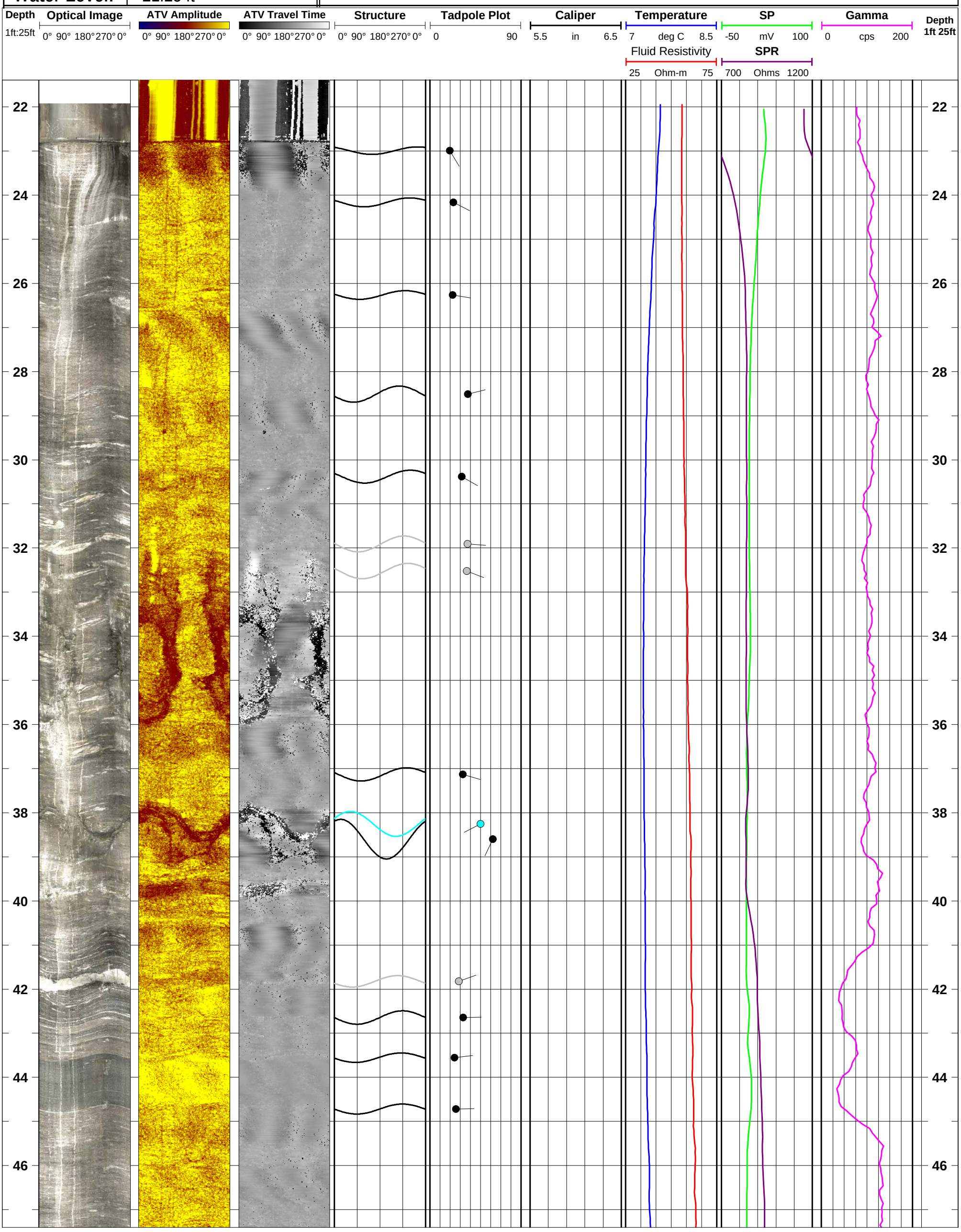
Declination: 15 degrees west

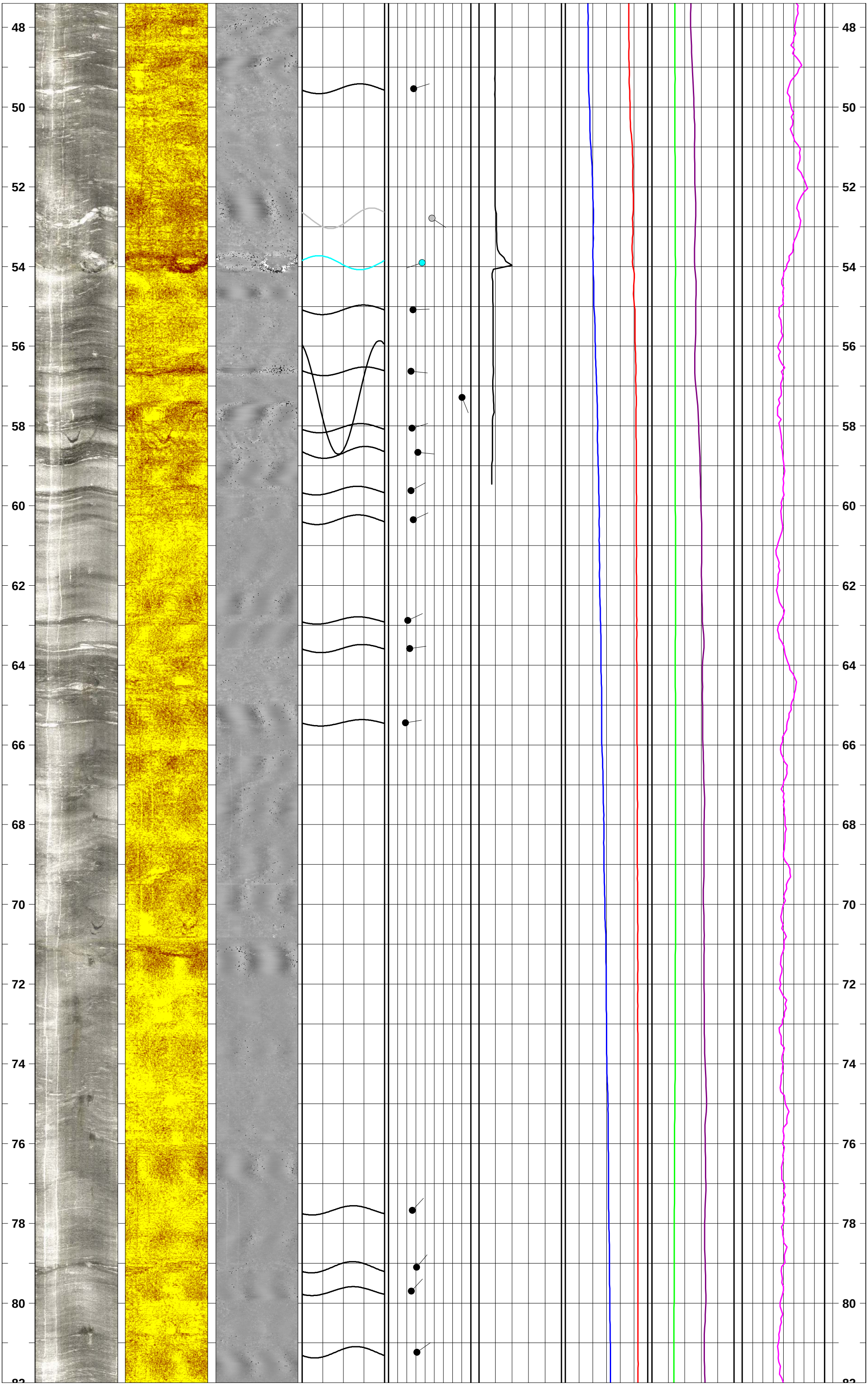
Based on 75 measurements

Northeast Geophysical Services
4 Union Street Bangor, Maine 04401
Tel: 207-942-2700 email: ngsinc@negeophysical.com

Log:	**Combined Geophysical Logs**
Well:	MW-20D
Site:	Ely Copper Mine Superfund Site
Location:	Vershire, Vermont

Date:	8/19/09	For:	Nobis Engineering, Inc.
Casing Depth:	23 ft	Logged by:	R Rawcliffe
Casing Type:	steel	Orientation:	magnetic
Boring Depth:	151.5 ft	Comments:	Structure & Tadpole Plots: black = planar features (faults, bedding, foliation, etc.) light gray = quartz or calcite vein light blue = possibly transmissive fracture dark blue = likely transmissive fracture
Meas. From:	top of casing		
Stickup:	1.4 ft		
Water Level:	21.25 ft		

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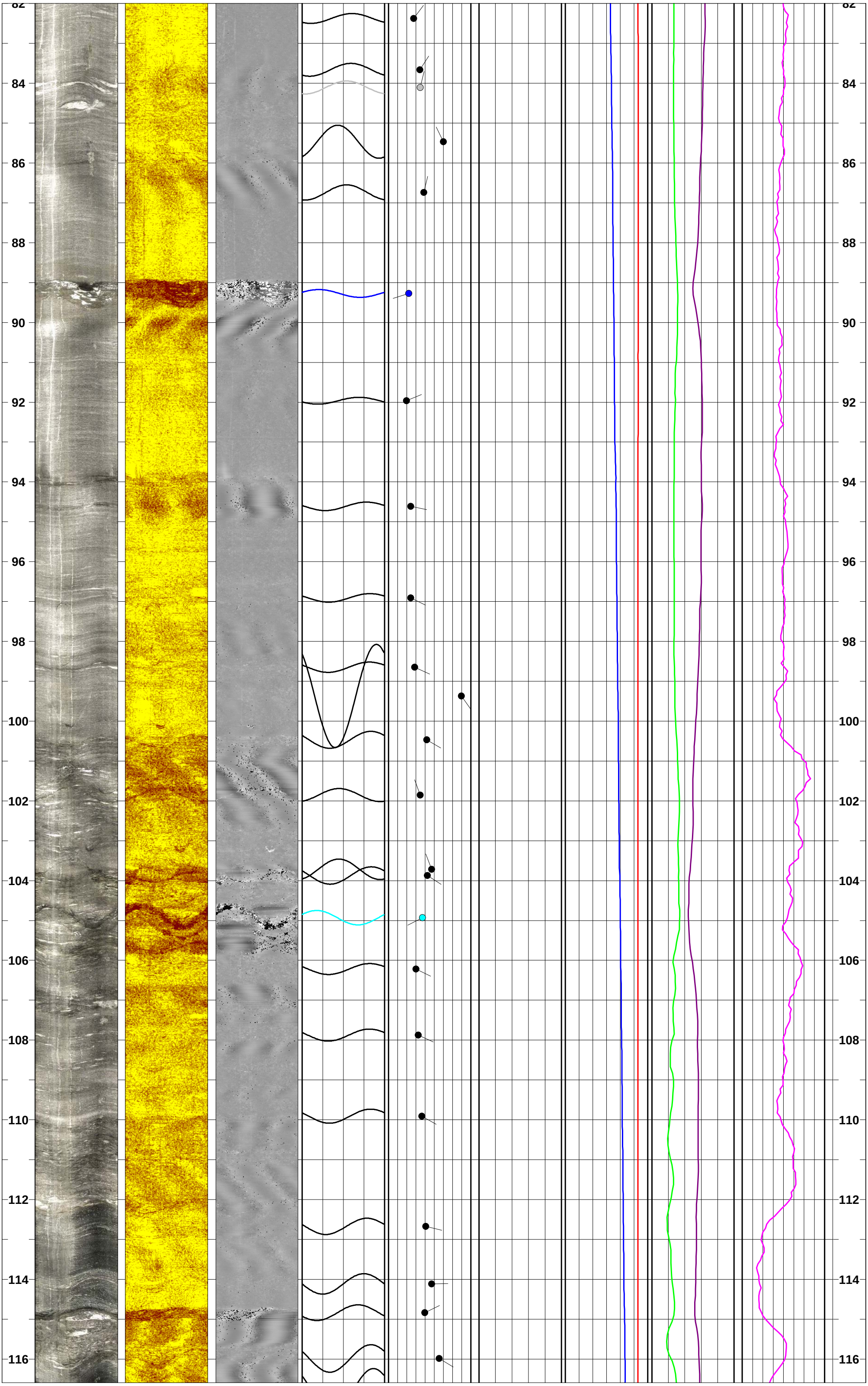
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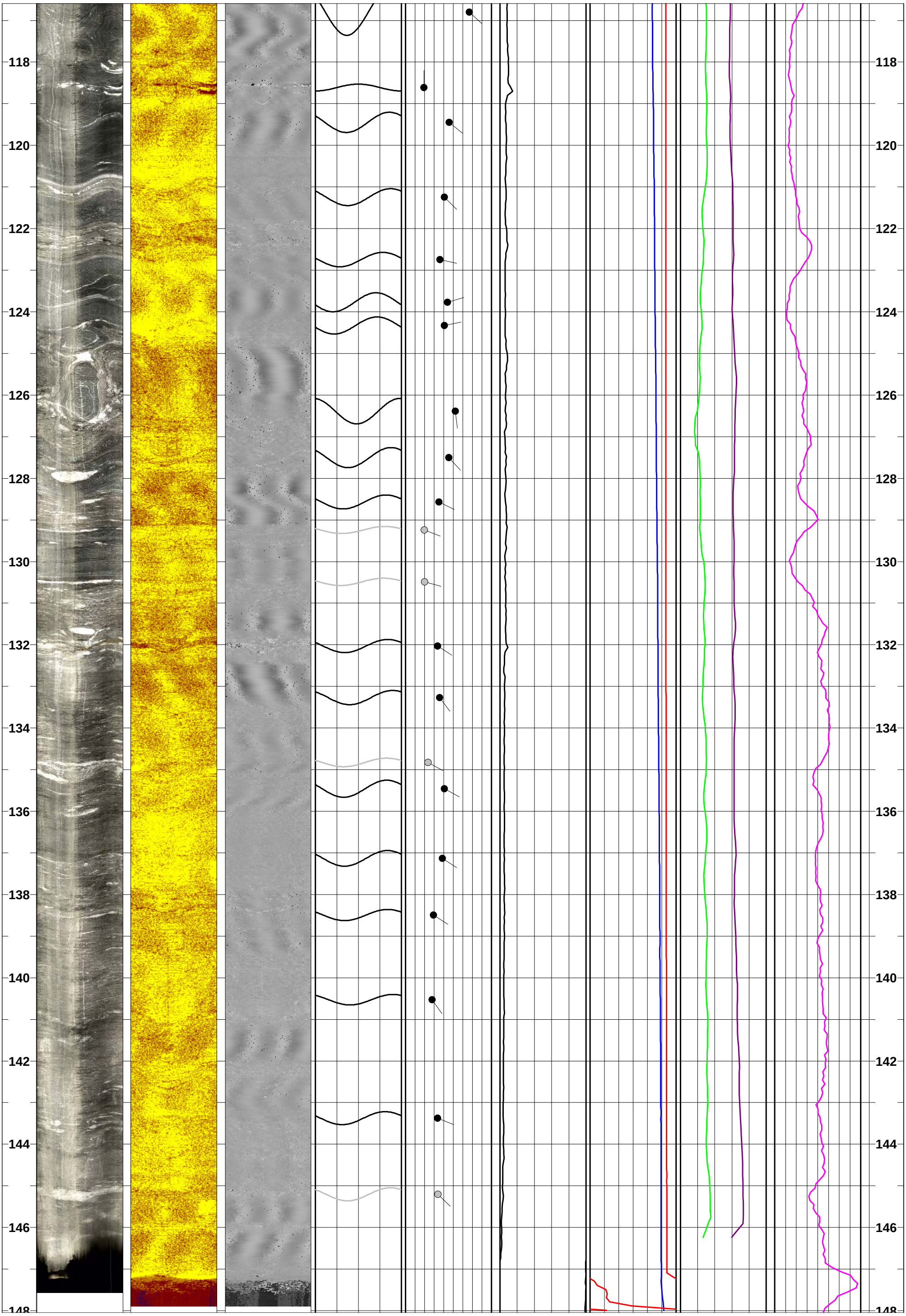
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Northeast Geophysical Services
4 Union Street Bangor, Maine 04401
Tel: 207-942-2700 email: negeophysical.com

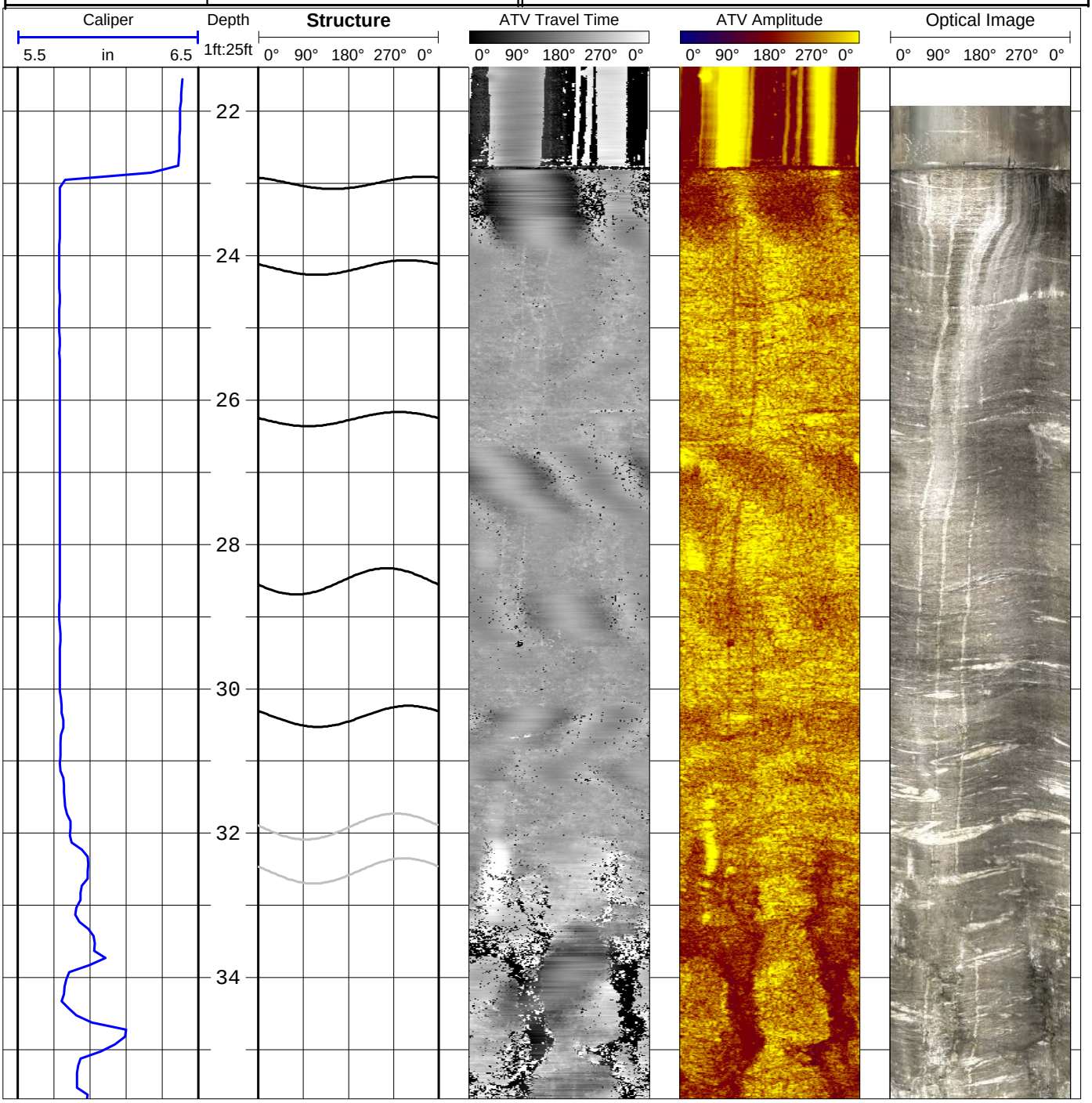
Log: Televiewer & Caliper Logs

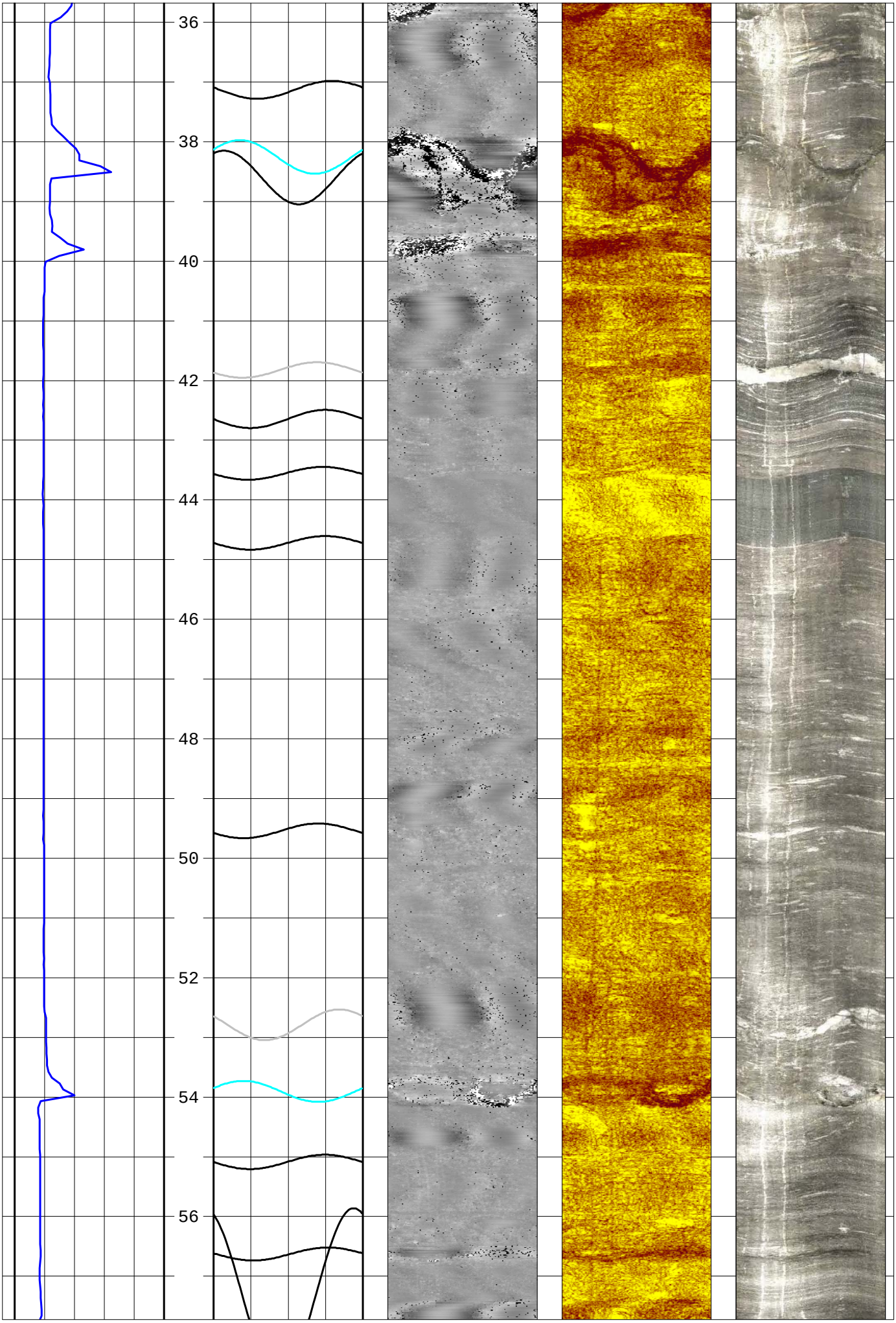
Well: MW-20D

Site: Ely Copper Mine Superfund Site

Location: Vershire, Vermont

Date:	8/19/09	For:	Nobis Engineering
Casing Depth:	23 ft	Logged by:	R Rawcliffe
Casing Type:	steel	Orientation:	magnetic
Boring Depth:	151.5 ft	Structure Plots:	
Meas. From:	top of casing	black = planar features (faults, foliation, bedding, joints, etc)	
Stickup:	1.4 ft	light gray = veins of likely either quartz or calcite	
Water Level:	21.25 ft	light blue = possibly transmissive fracture	
		dark blue = likely transmissive fracture	

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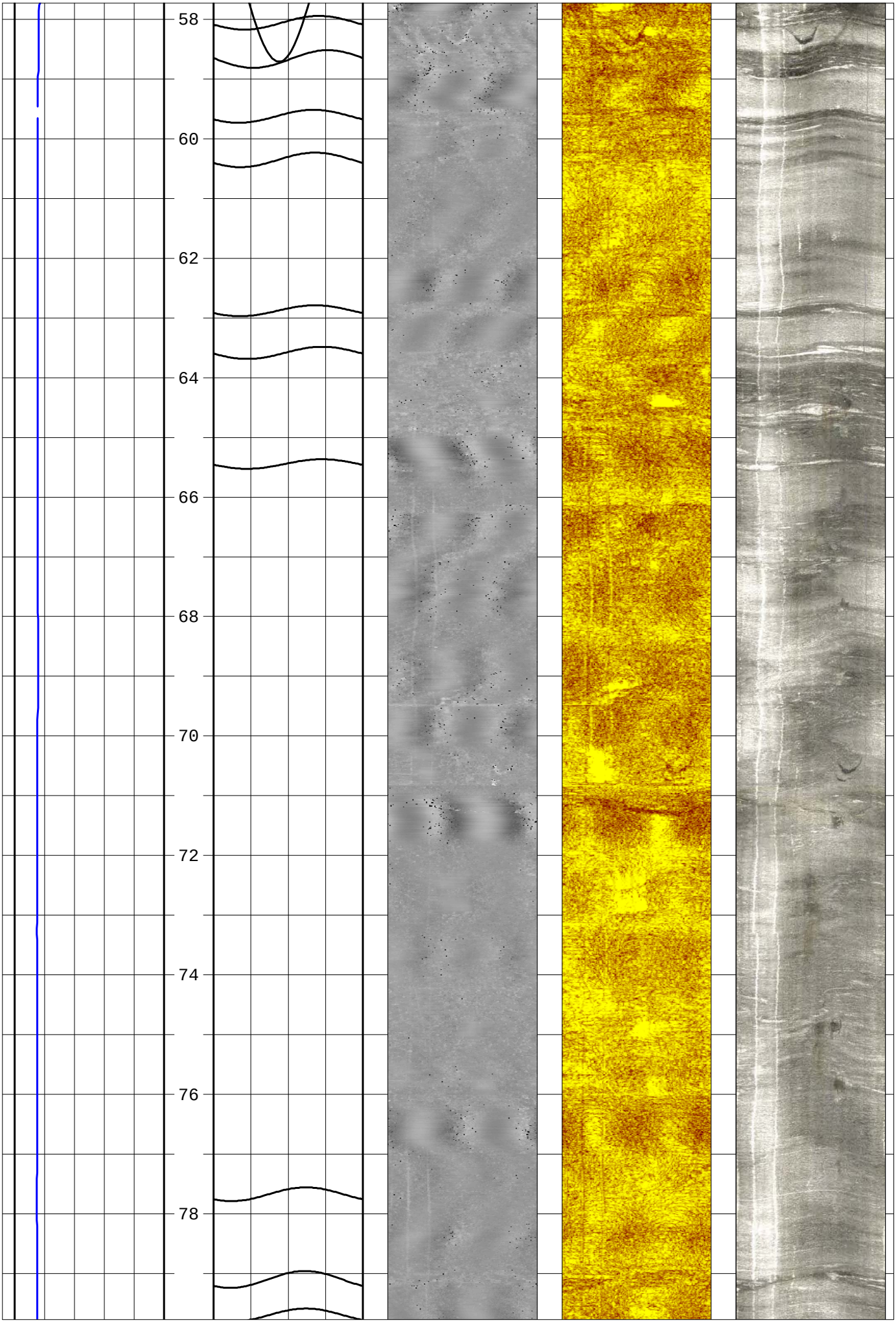
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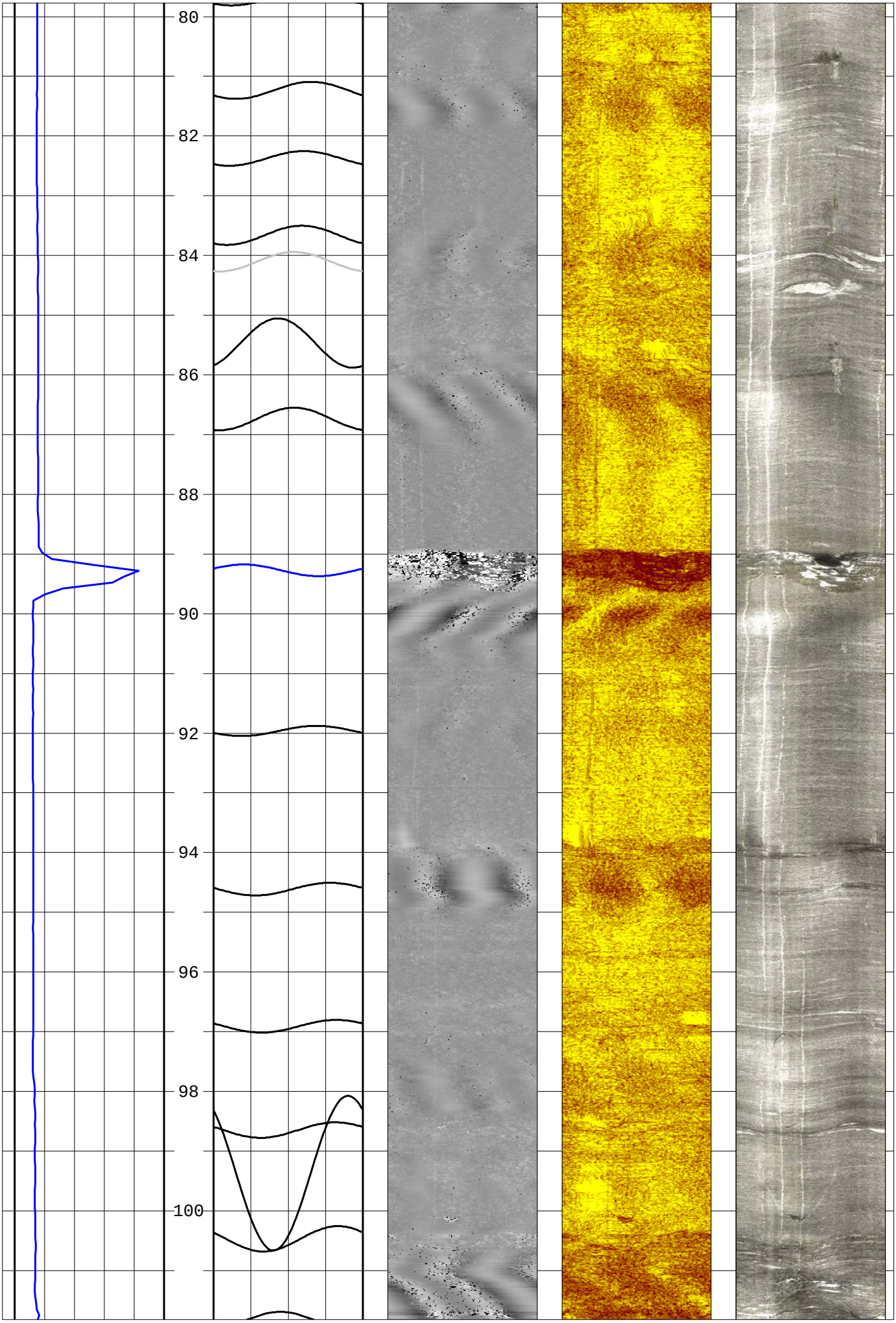
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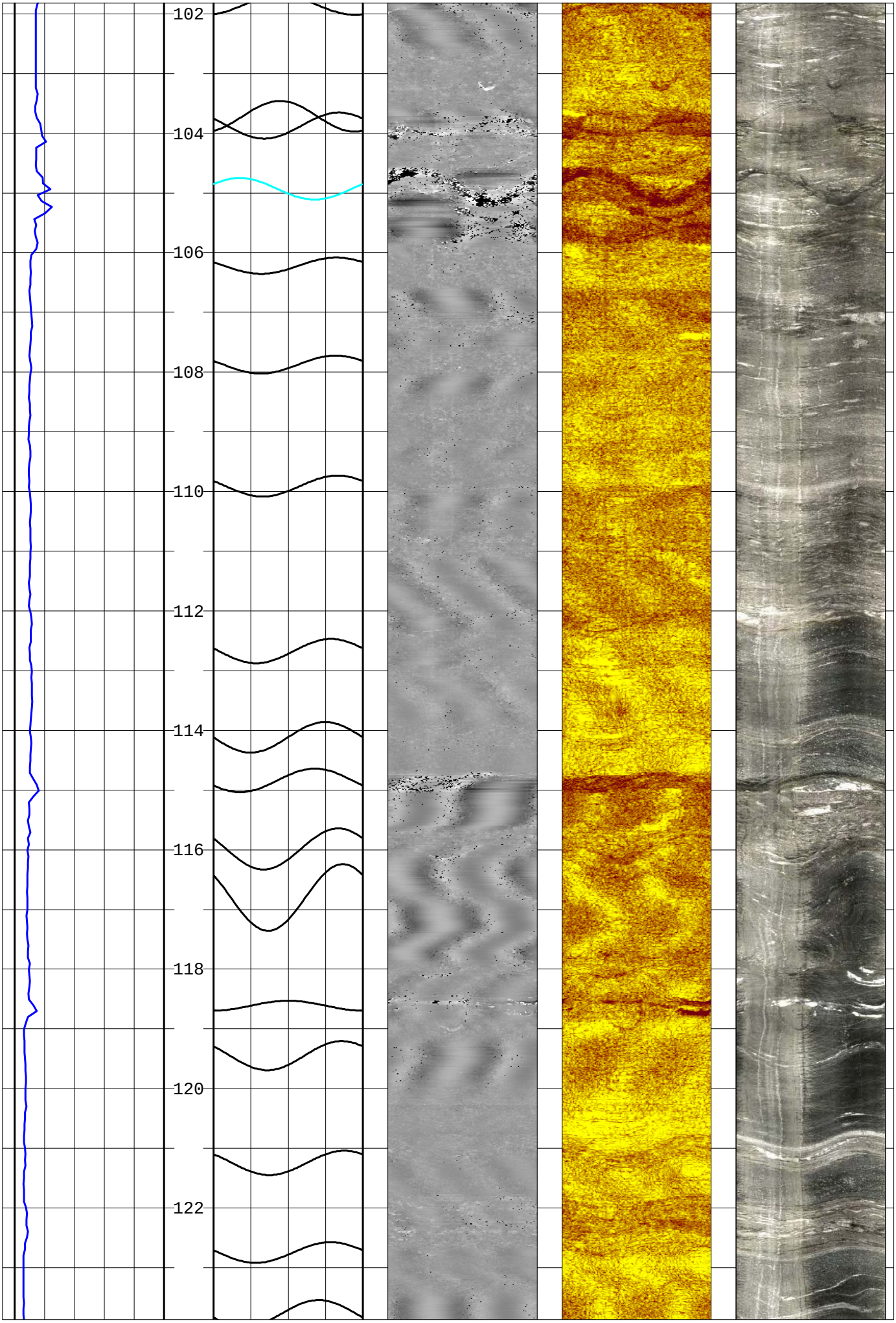
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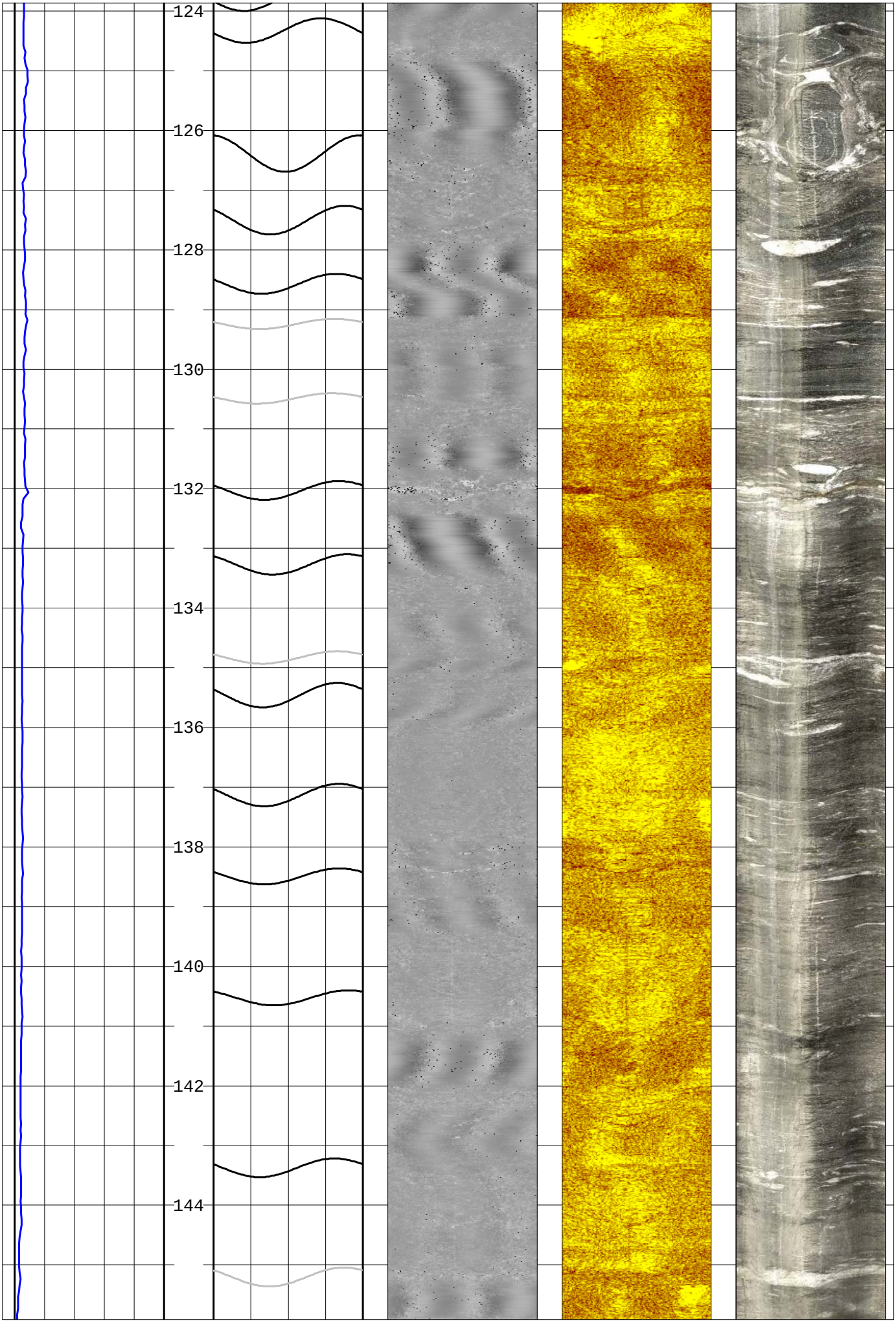
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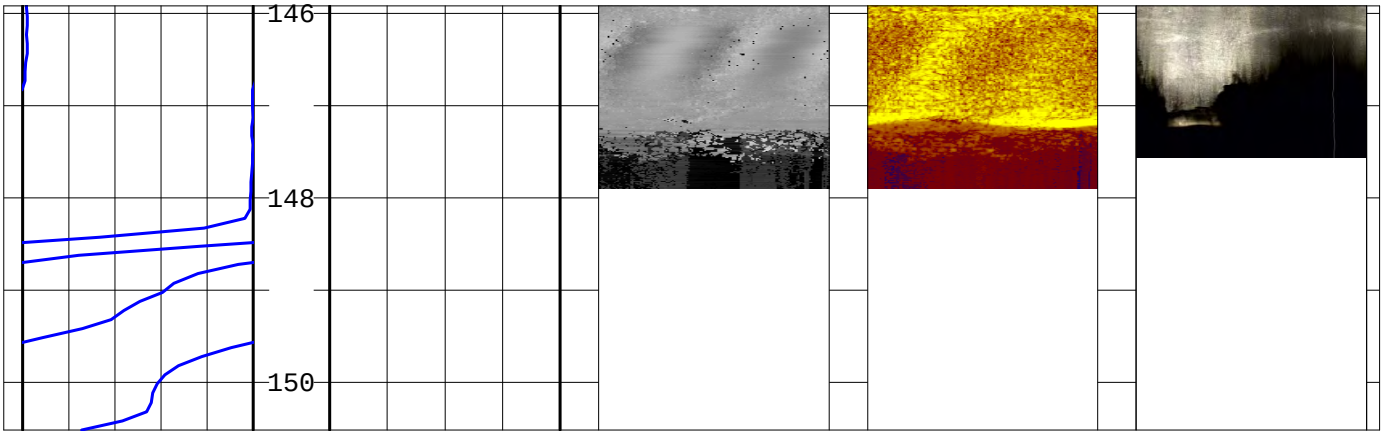
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150

Planar features interpreted from acoustical and optical televiewers
MW-20D - Ely Copper Mine Superfund Site - Vershire, Vermont **Logged: 08/19/09**

Borehole	Feature # Number	Feature depth Feet	Dip Degrees	Dip Azimuth magnetic	Strike magnetic	Dip Azimuth True	Strike True	Category Type
MW-20D	1	23.0	20	149	59	134	44	100
MW-20D	2	24.2	23	117	27	102	12	100
MW-20D	3	26.3	23	99	9	84	354	100
MW-20D	4	28.5	38	76	346	61	331	100
MW-20D	5	30.4	32	119	29	104	14	100
MW-20D	6	31.9	37	94	4	79	349	103
MW-20D	7	32.5	37	111	21	96	6	103
MW-20D	8	37.1	33	105	15	90	0	100
MW-20D	9	38.3	50	243	333	228	318	108
MW-20D	10	38.6	62	205	295	190	280	100
MW-20D	11	41.8	29	70	340	55	325	103
MW-20D	12	42.6	33	89	359	74	344	100
MW-20D	13	43.6	25	83	353	68	338	100
MW-20D	14	44.7	26	89	359	74	344	100
MW-20D	15	49.5	28	72	342	57	327	100
MW-20D	16	52.8	48	124	34	109	19	103
MW-20D	17	53.9	37	252	342	237	327	108
MW-20D	18	55.1	27	88	358	73	343	100
MW-20D	19	56.6	25	95	5	80	350	100
MW-20D	20	57.3	81	158	68	143	53	100
MW-20D	21	58.1	26	74	344	59	329	100
MW-20D	22	58.7	32	96	6	81	351	100
MW-20D	23	59.6	25	61	331	46	316	100
MW-20D	24	60.4	27	65	335	50	320	100
MW-20D	25	62.9	21	65	335	50	320	100
MW-20D	26	63.6	24	82	352	67	337	100
MW-20D	27	65.4	19	81	351	66	336	100
MW-20D	28	77.7	26	43	313	28	298	100
MW-20D	29	79.1	31	40	310	25	295	100
MW-20D	30	79.7	25	43	313	28	298	100
MW-20D	31	81.2	31	55	325	40	310	100
MW-20D	32	82.4	28	37	307	22	292	100
MW-20D	33	83.7	34	33	303	18	288	100
MW-20D	34	84.1	35	14	284	359	89	103
MW-20D	35	85.5	60	335	65	320	50	100
MW-20D	36	86.7	39	14	284	359	89	100
MW-20D	37	89.3	22	253	343	238	328	107
MW-20D	38	92.0	20	67	337	52	322	100
MW-20D	39	94.6	24	101	11	86	356	100
MW-20D	40	96.9	24	116	26	101	11	100
MW-20D	41	98.7	29	114	24	99	9	100
MW-20D	42	99.4	80	144	54	129	39	100
MW-20D	43	100.5	42	120	30	105	15	100
MW-20D	44	101.9	35	341	71	326	56	100
MW-20D	45	103.7	47	340	70	325	55	100
MW-20D	46	103.9	43	122	32	107	17	100
MW-20D	47	104.9	37	243	333	228	318	108
MW-20D	48	106.2	30	115	25	100	10	100
MW-20D	49	107.9	33	114	24	99	9	100

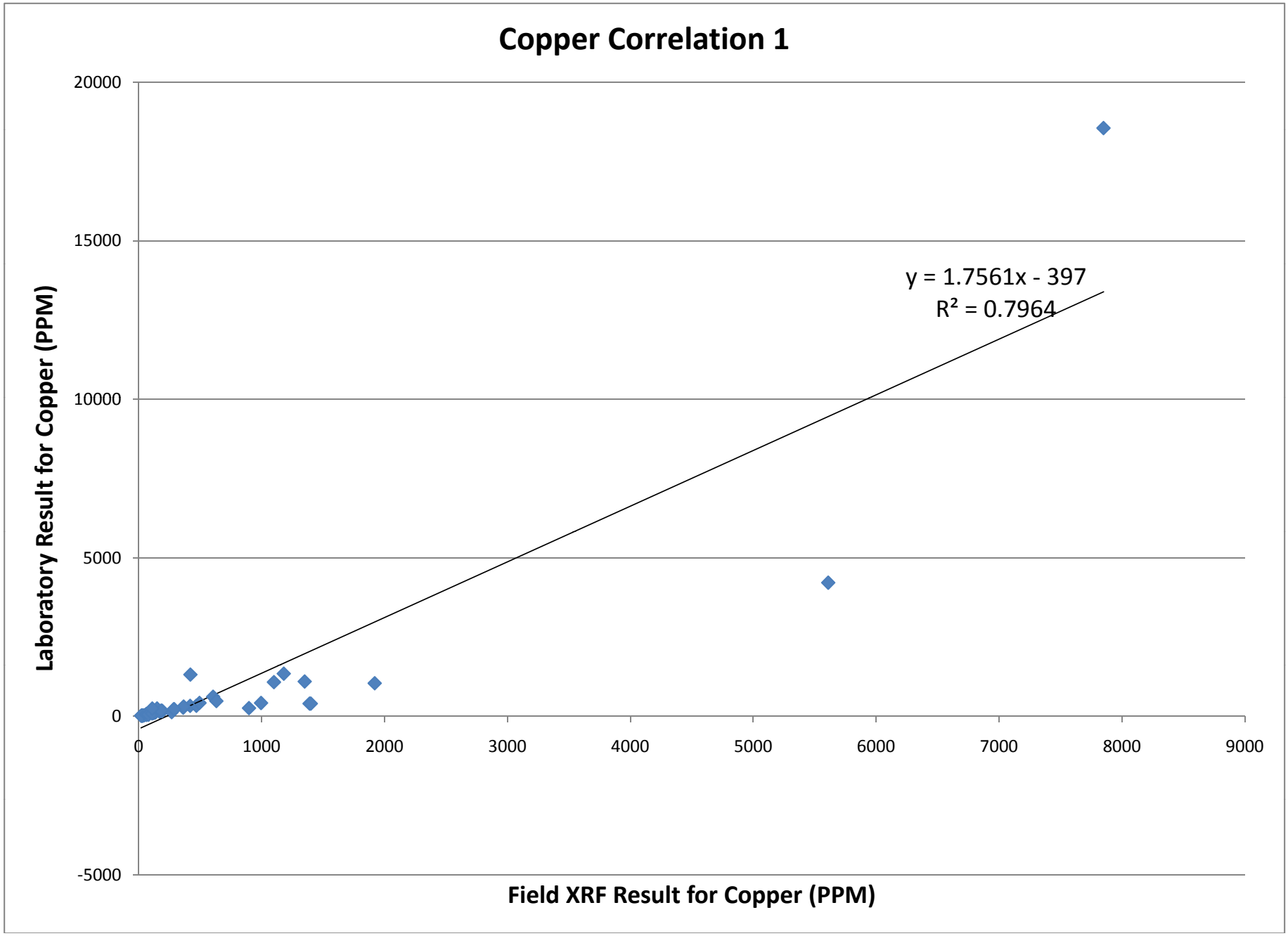
Planar features interpreted from acoustical and optical televiewers
MW-20D - Ely Copper Mine Superfund Site - Vershire, Vermont **Logged: 08/19/09**

Borehole	Feature # Number	Feature depth Feet	Dip Degrees	Dip Azimuth magnetic	Strike magnetic	Dip Azimuth True	Strike True	Category Type
MW-20D	50	109.9	37	119	29	104	14	100
MW-20D	51	112.7	41	103	13	88	358	100
MW-20D	52	114.1	47	89	359	74	344	100
MW-20D	53	114.8	40	64	334	49	319	100
MW-20D	54	116.0	56	121	31	106	16	100
MW-20D	55	116.8	67	132	42	117	27	100
MW-20D	56	118.6	19	0	270	345	75	100
MW-20D	57	119.5	46	129	39	114	24	100
MW-20D	58	121.2	41	135	45	120	30	100
MW-20D	59	122.8	36	102	12	87	357	100
MW-20D	60	123.8	44	74	344	59	329	100
MW-20D	61	124.3	41	78	348	63	333	100
MW-20D	62	126.4	52	173	83	158	68	100
MW-20D	63	127.5	46	137	47	122	32	100
MW-20D	64	128.6	35	116	26	101	11	100
MW-20D	65	129.2	20	111	21	96	6	103
MW-20D	66	130.5	20	105	15	90	360	103
MW-20D	67	132.0	34	122	32	107	17	100
MW-20D	68	133.3	36	143	53	128	38	100
MW-20D	69	134.8	24	118	28	103	13	103
MW-20D	70	135.5	41	118	28	103	13	100
MW-20D	71	137.1	39	122	32	107	17	100
MW-20D	72	138.5	30	122	32	107	17	100
MW-20D	73	140.5	28	145	55	130	40	100
MW-20D	74	143.4	34	111	21	96	6	100
MW-20D	75	145.2	34	134	44	119	29	103

Explanation:

Category 100 = planar feature (possible fracture, joint, foliation, bedding, etc.)
Category 103 = quartz or calcite vein
Category 107 = Likely water bearing feature
Category 108 = Possible water bearing fracture

APPENDIX E


Copper Correlation 1
y = 1.7561x - 397
R² = 0.7964
Laboratory Result for Copper (PPM)
Field XRF Result for Copper (PPM)
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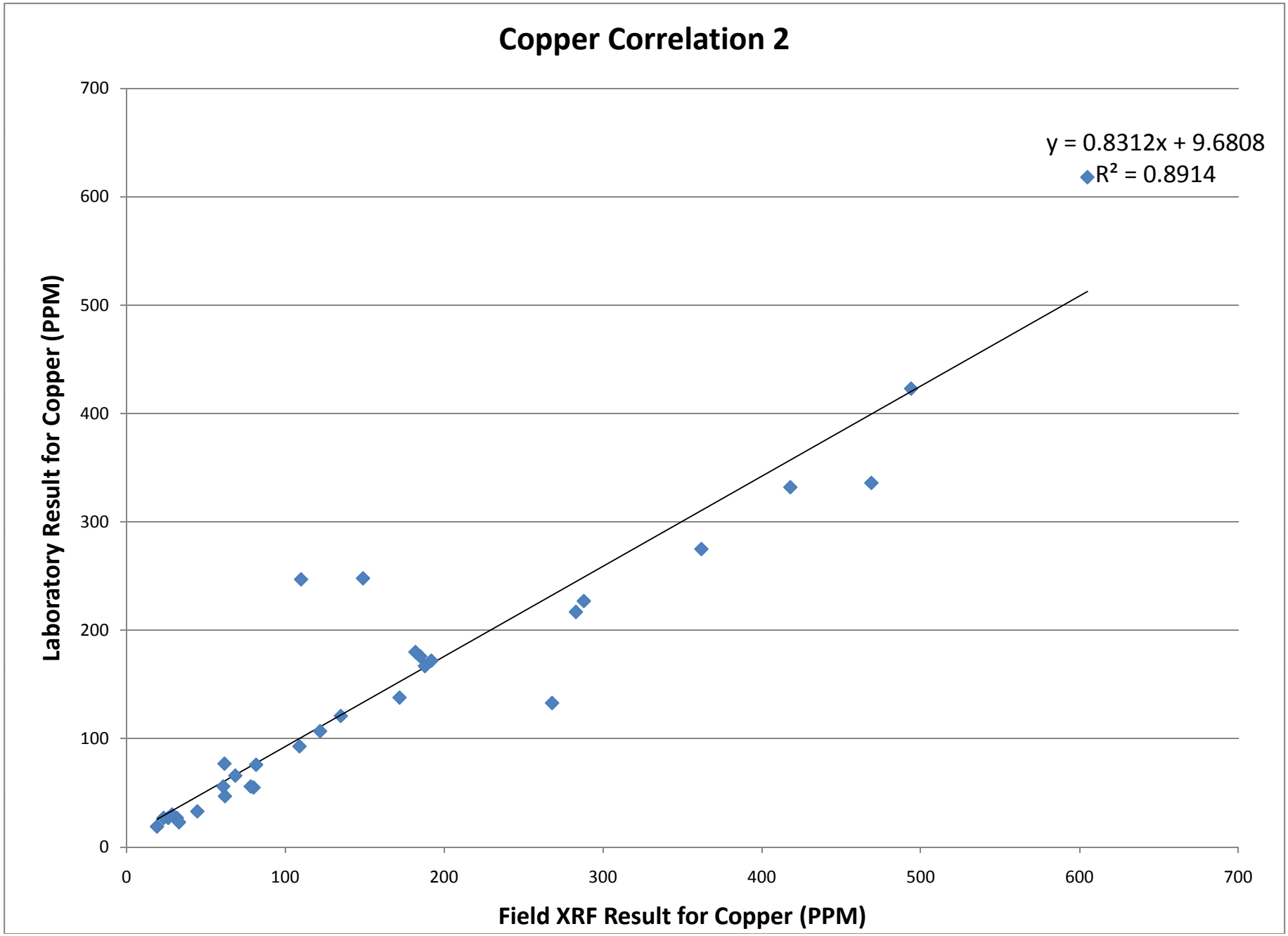
15000
10000
5000
0
-5000
0
1000
2000
3000
4000
5000
6000
7000
8000
9000


Copper Correlation 2
y = 0.8312x + 9.6808
R² = 0.8914
Laboratory Result for Copper (PPM)
Field XRF Result for Copper (PPM)
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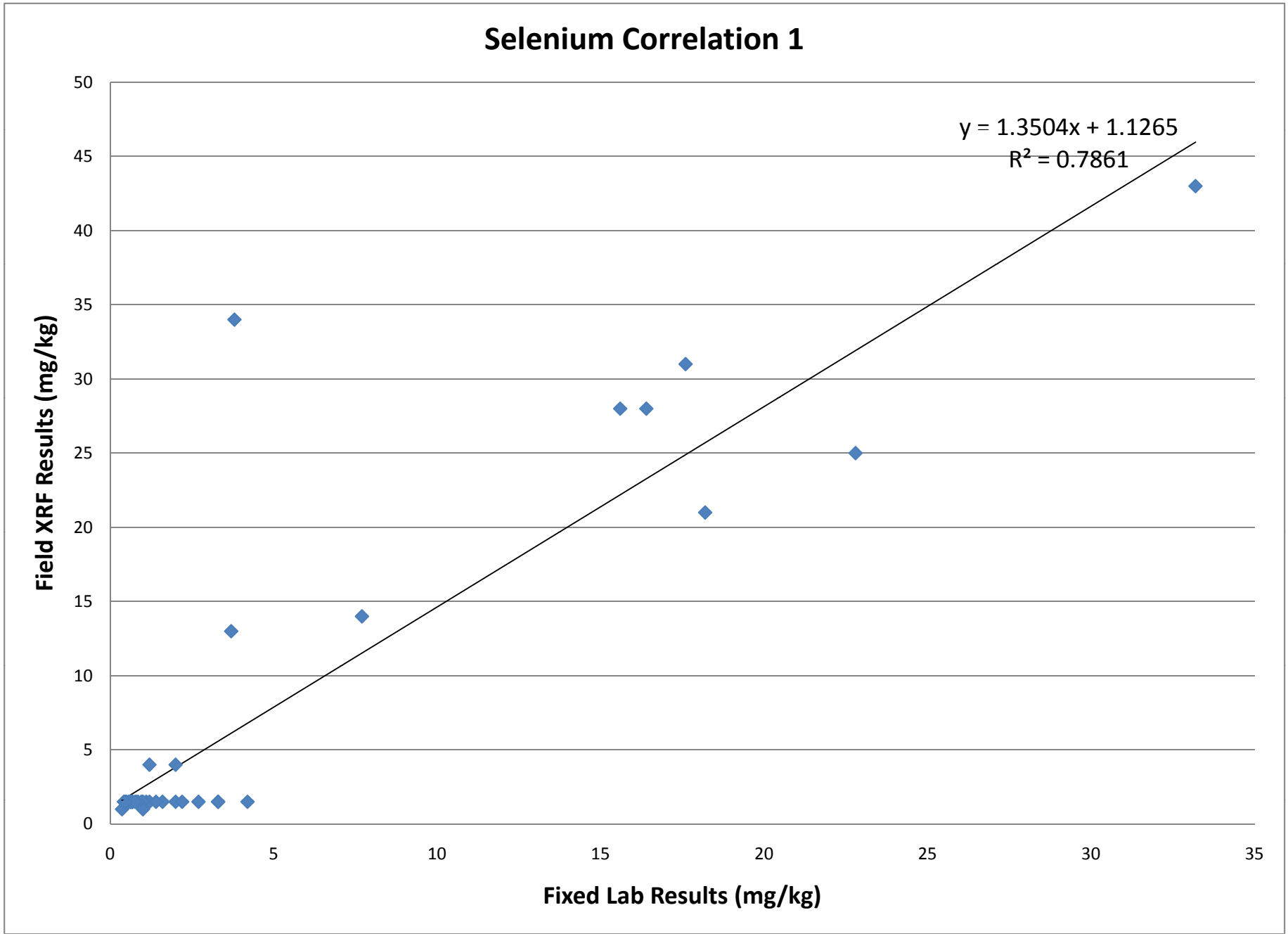
100
200
300
400
500
600
700


Selenium Correlation 1
y = 1.3504x + 1.1265
R² = 0.7861
Field XRF Results (mg/kg)
Fixed Lab Results (mg/kg)
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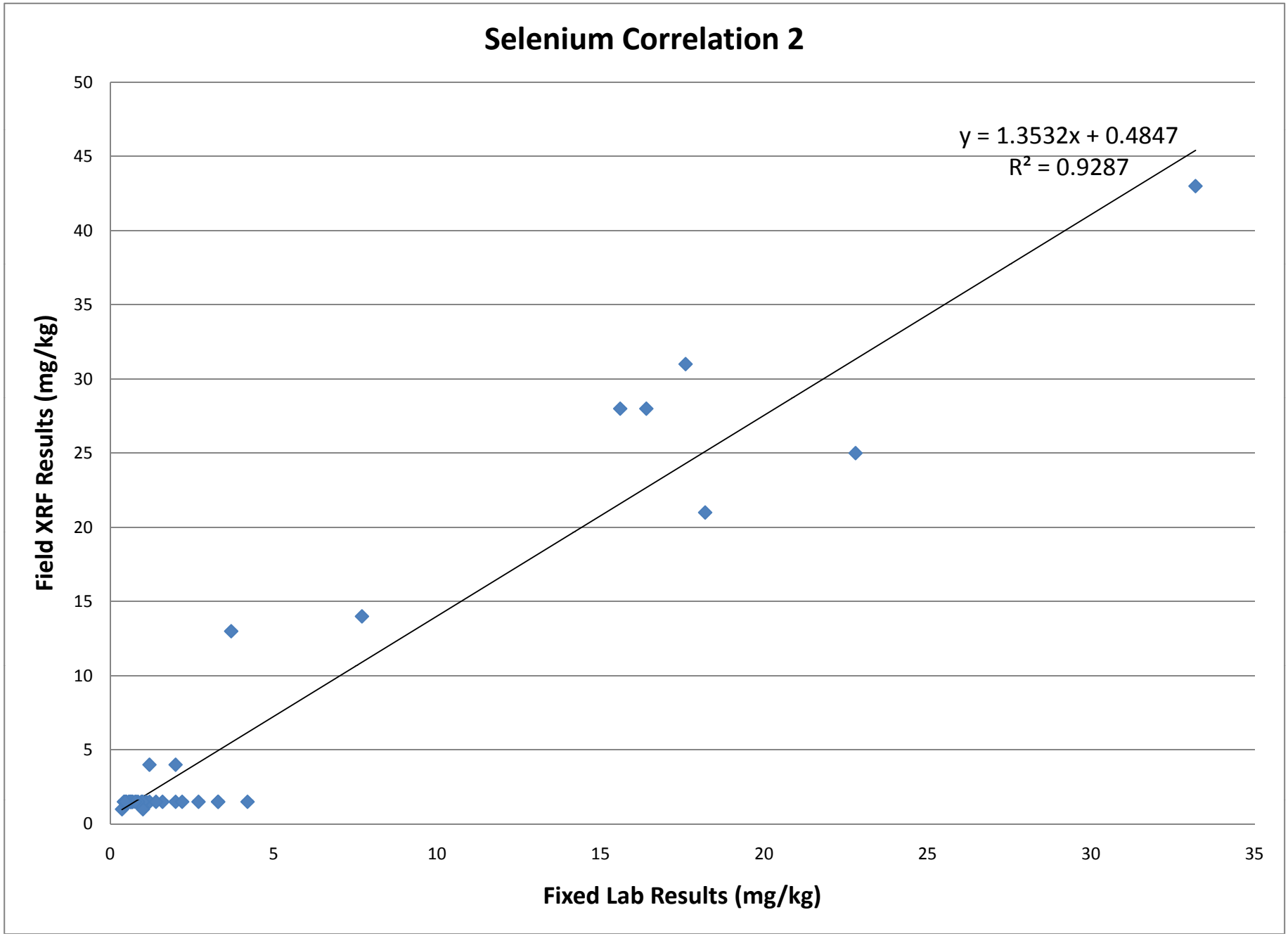
15
20
25
30
35
40
45
50
0
5
10
15
20
25
30
35


Selenium Correlation 2
y = 1.3532x + 0.4847
R² = 0.9287
Field XRF Results (mg/kg)
Fixed Lab Results (mg/kg)
0
5
10
15
20
25
30
35
40
45
50
0
5
10
15
20
25
30
35

APPENDIX F

Ely Copper Mine - Vershire, VT
AES Dissolved Metals - 2009

Sample Name	MA2X02		MA2X03		MA2X04		MA2X05		MA2X06		MA2X18	
Sample Location	VP-1		VP-2		VP-3		VP-3		VP-4		SW-42	
Lab Sample ID	9217053001		9217053004		9217053005		9217053006		9217053007		9217049001	
Station ID	VP-01X-072909AX		VP-02X-072809AX		VP-03X-072809AD		VP-03X-072809AX		VP-04X-072809AX		SW-42X-080409AX	
Sample Date	29 Jul 09		28 Jul 09		28 Jul 09		28 Jul 09		28 Jul 09		04 Aug 09	
Chemical												
ALUMINUM	200	U	200	U	200	U	200	U	200	U	24200	
ARSENIC												
BARIUM												
BERYLLIUM	5	U	5	U	5	U	5	U	5	U	1.3	J
CADMIUM												
CALCIUM	12400		12500		10700		10600		3360	J	52400	
CHROMIUM	10	U	10	U	10	U	10	U	10	U	10	U
COBALT	9.4	J	50	U	50	U	50	U	50	U	249	
COPPER												
IRON	418		45.5	J	150		177		22.2	J	130	
LEAD												
MAGNESIUM	1630	J	923	J	853	J	803	J	617	J	14700	
MANGANESE	184		10.9	J	84.9		114		8.6	J	1700	J
MOLYBDENUM	10	U	10	U	10	U	10	U	10	U	10	U
NICKEL	2.3	J	40	U	40	U	40	U	40	U	99	
POTASSIUM	2730	J	980	J	1290	J	1460	J	697	J	5350	
SELENIUM												
SILVER												
SODIUM	1700	J	1300	J	1490	J	1450	J	891	J	3390	J
STRONTIUM	53.9		64.3		37.5		37.1		13.3		131	
VANADIUM												
ZINC	77.6		13.6	J	23.8	J	68.9		31.5	J	1910	

MA2X27 SW-41 9217049002 SW-41X-080409AX 04 Aug 09		MA2X29 SW-71 9217049003 SW-71X-080409AX 04 Aug 09		MA2X31 SW-82 9217049006 SW-82X-080409AX 04 Aug 09		MA2X33 SW-40 9217049007 SW-40X-080409AX 04 Aug 09		MA2X35 SW-29 9217049008 SW-29X-080409AX 04 Aug 09		MA2X37 SW-17 9218048001 SW-17X-080409AX 04 Aug 09		MA2 SW 92180 SW-73X-0 04 Au
200	U	296		16000		98.6	J	3700		52.3	J	59.3
5	U	5	U	5	U	5	U	5	U	5	U	5
10100		19300		47300		9520		19800		7920		11500
10	U	10	U	10	U	10	U	0.54	J	10	U	10
17.5	J	13.4	J	194		50	U	61.1		50	U	50
100	U	121		3600		100	U	100	U	100	U	100
1970	J	3490	J	14100		1350	J	4470	J	851	J	1130
159	J	433	J	1520	J	60.4	J	448	J	3.4	J	5.3
10	U	10	U	10	U	10	U	10	U	10	U	10
7.4	J	12.2	J	74.7		4	J	25.6	J	40	U	40
1500	J	2770	J	5340		1680	J	3450	J	5000	U	1850
1240	J	1460	J	3290	J	1030	J	1970	J	875	J	1710
36.9		98.7		102		40.4		84.3		34.1		56.4
138		219		1040		36.8	J	256		5.6	J	6.1

X39 -73 48002 080409AX ug 09	MA2X41 SW-51 9218048003 SW-51X-080409AX 04 Aug 09		MA2X43 SW-78 9218048004 SW-78X-080509AD 05 Aug 09		MA2X45 SW-78 9218048005 SW-78X-080509AX 05 Aug 09		MA2X47 SW-49 9218048006 SW-49X-080509AX 05 Aug 09		MA2X49 SW-76 9218048007 SW-76X-080509AD 05 Aug 09		MA2X51 SW-47 9218048008 SW-47X-080509AX 05 Aug 09	
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	10300		73000		71000		23700		46900		69900	
U	10	U	13.2		12.3		10	U	10	U	12.8	
U	50	U	406		388		55.9		115		375	
U	100	U	2160		2050		1890		407		19800	
J	1150	J	20900		20200		6700		10100		21100	
J	10.7	J	2290	J	2200	J	613	J	1380	J	2140	J
U	10	U	10	U	10	U	10	U	10	U	10	U
U	40	U	140		134		23.3	J	50.8		120	
J	1520	J	8550		8350		3880	J	5220		7850	
J	1410	J	6140		5920		2040	J	2650	J	6310	
	53.5		186		182		50.3		61.9		178	
J	5	J	1030		991		349		1090		1280	

MA2X53		MA2X55		MA2X57		MA2X59		MA2X64		MA2X67		MA2
		SW-77		SW-48		SW-80		SW-75		SW-75		SW
9218048009		9218048010		9218048011		9218048012		9220008001		9220008002		92200
EB-01X-080509AX		SW-77X-080509AX		SW-48X-080509AX		SW-80X-080509AX		SW-75X-080509AX		SW-75X-080509AD		SW-45X-0
05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		05 Au
200	U	1330		2910		5430		11000		11100		27700
5	U	5	U	5	U	5	U	5	U	0.29	J	0.78
37.6	J	6130		11700		24100		25300		26000		58800
10	U	10	U	10	U	10	U	12.8		12.9		6.8
50	U	24.8	J	44.7	J	84		151		153		254
17.5	J	100	U	100	U	100	U	19700		20200		1380
5000	U	1760	J	2980	J	5770		9250		9520		17800
15	U	141	J	305	J	616	J	845	J	866	J	1620
10	U	10	U	10	U	10	U	10	U	10	U	10
0.59	J	9.5	J	17.9	J	33.3	J	39.8	J	40.1		96.3
263	J	2350	J	2820	J	3870	J	5000	U	5000	U	5650
5000	U	1400	J	1530	J	2310	J	1860	J	1930	J	4030
10	U	28.9		51.2		97.6		40.4		41.6		130
60	U	51.2	J	214		299		813		820		1970

X69 -45 08003 080509AX ug 09	MA2X71 SW-43 9220008004 SW-43X-080509AX 05 Aug 09		MA2X73 SW-46 9220008005 SW-46X-080509AX 05 Aug 09		MA2X75 SW-81 9220008006 SW-81X-080509AX 05 Aug 09		MA2X77 SW-79 9220008007 SW-79X-080609AX 06 Aug 09		MA2X79 SW-35 9220008008 SW-35X-080609AX 06 Aug 09		MA2X81 SW-84 9220008009 SW-84X-080609AX 06 Aug 09	
	10900		16500		22800		11700		200	U	200	U
J	5	U	5	U	5	U	5	U	5	U	5	U
	25400		40400		54700		36900		6120		7090	
J	12.6		6.6	J	13.9		10	U	10	U	10	U
	154		167		280		188		50	U	50	U
	14900		1530		8200		705		100	U	187	
	9300		12500		18000		11200		933	J	1050	J
J	851	J	1330	J	1810	J	1250	J	18.8	J	25.2	J
U	10	U	10	U	10	U	10	U	10	U	10	U
	40.8		63.5		94.9		66.6		1	J	1.2	J
J	5000	U	4010	J	4680	J	5700	J	5000	U	5000	U
J	1890	J	3060	J	3700	J	4440	J	1230	J	1520	J
	40.6		68		105		141		33		37.1	
	823		1010		1410		456		3.1	J	5.5	J

MA2X83 SW-34 9220008010 SW-34X-080609AX 06 Aug 09		MA2X87 SW-13 9220008011 SW-13X-080609AX 06 Aug 09		MA2X89 SW-83 9220008012 SW-83X-080609AX 06 Aug 09		MA2X91 SW-32 9220008013 SW-32X-080609AX 06 Aug 09		MA2X93 SW-72 9220008014 SW-72X-080609AX 06 Aug 09		MA2X95 SW-12 9220008015 SW-12X-080609AX 06 Aug 09		MA2 SW 92230 SW-04X-0 07 Au
1760		200	U	17500		4470		200	U	2020		200
5	U	5	U	5	U	5	U	5	U	5	U	5
8100		9950		46500		18400		9530		14200		25500
10	U	10	U	7	J	10	U	10	U	10	U	10
20.3	J	50	U	210		60		50	U	33.8	J	50
530		100	U	4350		3930		100	U	1610		100
1450	J	1260	J	14000		4840	J	1160	J	3180	J	1520
151	J	36.8	J	1540		497	J	1.4	J	278	J	30.6
10	U	10	U	10	U	10	U	10	U	10	U	10
9.1	J	3.2	J	80.1		21.6	J	0.74	J	12.9	J	1.4
2760	J	5000	U	4980	J	5000	U	5000	U	5000	U	5000
2500	J	1130	J	3540	J	1920	J	2130	J	1550	J	3280
38.4		42.3		108		56.7		55.3		49.6		130
130		23.6	J	1070		345		3.1	J	196		10.4

XB3 -04 50001)80709AX ug 09	MA2XB5 SW-09 9223050002 SW-09X-080709AX 07 Aug 09		MA2XB7 SW-38 9223050003 SW-38X-080709AX 07 Aug 09		MA2XC2 MW-01A 9226004001 MW-01A-081009AX 10 Aug 09		MA2XC4 MW-01B 9226004002 MW-01B-081009AX 10 Aug 09		MA2XC6 MW-02A 9226004003 MW-02A-081009AX 10 Aug 09		MA2XC8 MW-02B 9226004004 MW-02B-081009AX 10 Aug 09	
U	2260		200	U	200	U	200	U	4570		200	U
					10	U	10	U	10	U	10	U
					19.6	J	38	J	28.9	J	40.4	J
U	5	U	5	U								
					5	U	5	U	5	U	5	U
	15300		27700		42000		87300		22900		60000	
U	10	U	10	U	10	U	10	U	10	U	10	U
U	34	J	50	U	153		50	U	106		50	U
					502		9.5	J	14100		1.3	J
U	2670		100	U	43.6	J	100	U	1830		226	
					10	U	10	U	10	U	10	U
J	3300	J	1400	J	8670		10400		3630	J	8920	
J	280	J	8.5	J	685	J	4	J	433	J	48.8	J
U	10	U	10	U	10	U	10	U	10	U	10	U
J	12.3	J	0.86	J	14.2	J	40	U	20.3	J	0.57	J
U	2340	J	5000	U	8040		5750		6400		4550	J
					12.1	J	35	U	35	U	35	U
					10	U	10	U	2.8	J	10	U
J	2090	J	3520	J	49100	J	7850	J	30300	J	9580	J
	54.7		142		199		413		140		379	
					50	U	1.5	J	50	U	50	U
J	191		2.7	J	773		4.3	J	900		60	U

MA2XD0 MW-14A 9226004005 MW-14A-081109AX 11 Aug 09		MA2XD2 MW-11A 9226004006 MW-11A-081109AX 11 Aug 09		MA2XD4 MW-11C 9226004007 MW-11C-081109AX 11 Aug 09		MA2XD6 MW-03C 9226004008 MW-03C-081109AX 11 Aug 09		MA2XE2 MW-10C 9226004009 MW-10C-081109AX 11 Aug 09		MA2XE4 MW-08A 9226008001 MW-08A-081109AX 11 Aug 09		MA2 MW- 92260 MW-05A-(11 Au
200	U	200	U	200	U	200	U	200	U	18700		25600
10	U	10	U	10	U	10	U	10	U	10	U	10
5.1	J	26.4	J	18.2	J	7.8	J	5.6	J	10.8	J	11.8
5	U	5	U	5	U	5	U	5	U	10.1		13.3
6150		10800		37900		7700		18200		59700		42700
10	U	10	U	10	U	10	U	10	U	0.43	J	10
3	J	7.7	J	50	U	50	U	50	U	208		267
35.9		25	U	25	U	25	U	25	U	7510		13900
100	U	22200		100	U	100	U	100	U	20	J	100
10	U	10	U	10	U	10	U	10	U	10	U	10
1130	J	2590	J	5360		753	J	4290	J	15600		13800
21.5		2860	J	14.8	J	15	U	2.3	J	1460	J	1630
10	U	6.3	J	10	U	10	U	4.5	J	10	U	10
1.2	J	2	J	0.74	J	0.54	J	1.1	J	95.7		108
1890	J	3670	J	3940	J	1610	J	2980	J	5280	J	7120
35	U	35	U	35	U	35	U	8	J	35	U	35
10	U	10	U	10	U	10	U	10	U	10	U	10
1880	J	8540	J	5040	J	1400	J	2270	J	3380	J	3630
48.9		65.2		181		49.1		49.1		131		134
50	U	0.76	J	50	U	50	U	50	U	50	U	50
4.1	J	10.7	J	60	U	60	U	60	U	1420		1720

XE6 -05A 08002 081109AX ug 09	MA2XE8 MW-12C 9226008003 MW-12C-081109AX 11 Aug 09		MA2XF0 MW-10B 9226008004 MW-10B-081109AX 11 Aug 09		MA2XF2 MW-01C 9226008005 MW-01C-081209AX 12 Aug 09		MA2XF4 MW-13A 9226008006 MW-13A-081209AX 12 Aug 09		MA2XF6 MW-06A 9226008007 MW-06A-081209AX 12 Aug 09		MA2XF8 MW-05B 9226008008 MW-05B-081209AX 12 Aug 09	
	1260		200	U	200	U	200	U	200	U	200	U
U	10	U	10	U	10	U	10	U	10	U	10	U
J	24.2	J	6.2	J	8.2	J	20	J	25.3	J	17.7	J
	4.4	J	5	U	5	U	5	U	5	U	5	U
	52300		4710	J	22000		26700		18700		136000	
U	0.4	J	10	U	10	U	10	U	10	U	10	U
	63.3		50	U	50	U	50	U	50	U	50	U
	1920		25	U	25	U	25	U	25	U	25	U
UJ	100	UJ	100	UJ	100	UJ	100	UJ	100	UJ	1340	J
U	10	U	10	U	10	U	10	U	10	U	10	U
	10200		1110	J	2820	J	3930	J	1760	J	12800	
J	493	J	6.5	J	1.3	J	3.4	J	2	J	1550	J
U	10	U	10	U	10	U	10	U	10	U	7.5	J
	36	J	40	U	40	U	40	U	40	U	40	U
J	5770	J	1810	J	5000	U	4010	J	3390	J	9070	J
U	35	U	35	U	35	U	35	U	35	U	35	U
U	10	U	10	U	10	U	10	U	10	U	0.57	J
J	3290	J	1740	J	1620	J	2000	J	2010	J	5130	J
	212		24.1		92.3		129		58.6		533	
U	50	U	50	U	50	U	50	U	50	U	50	U
	615		10.9	J	60	U	60	U	60	U	3.2	J

MA2XG0 MW-05B 9226008011 MW-05B-081209AD 12 Aug 09		MA2XG2 MW-09A 9226008012 MW-09A-081209AX 12 Aug 09		MA2XG4 MW-06C 9226008013 MW-06C-081209AX 12 Aug 09		MA2XG6 MW-02C 9226008014 MW-02C-081209AX 12 Aug 09		MA2XG8 MW-07A 9229006001 MW-07A-081209AX 12 Aug 09		MA2XH0 9226061001 EB-01X-081309AX 13 Aug 09		MA2 MW- 92260 MW-04A-(13 Au
200	U	12900		200	U	200	U	200	U	200	U	13800
10	U	3	J	10	U	10	U	10	U	10	U	10
19.5	J	16.7	J	17.2	J	24.7	J	9.4	J	200	U	16.8
5	U	8.8		5	U	5	U	5	U	5	U	9.2
146000		29700		110000		56700		5010	J	5000	U	20700
10	U	10	U	10	U	10	U	10	U	10	U	10
50	U	114		50	U	50	U	50	UJ	50	U	152
25	U	7280		25	U	25	U	25	U	25	U	11600
759	J	36.1	J	100	UJ	75.8	J	100	U	100	U	21
10	U	10	U	10	U	10	U	10	U	10	U	10
14100		8110		9550		8650		664	J	5000	U	6520
1560	J	948	J	15	U	9.6	J	11.2	J	15	U	707
7.6	J	10	U	10	U	10	U	10	U	10	U	10
40	U	59.5		40	U	40	U	40	U	40	U	70.6
9380	J	9990	J	5490	J	5210	J	765	J	5000	U	7600
35	U	35	U	35	U	35	U	35	U	35	U	35
0.56	J	10	U	0.5	J	0.46	J	10	U	10	U	10
5640	J	4580	J	3190	J	8970	J	5000	U	5000	U	3300
576		181		345		241		19.4		10	U	79.7
50	U	50	U	50	U	50	U	50	U	50	U	50
3.7	J	1080		3	J	60	U	60	U	60	U	625

XH2 ·04A 61002)81209AX ıg 09	MA2XH4 MW-04C 9226061003 MW-04C-081209AX 12 Aug 09		MA2XH6 MW-07C 9226061004 MW-07C-081209AX 12 Aug 09		MA2XH8 MW-15A 9226061005 MW-15A-081309AX 13 Aug 09		MA2XJ0 MW-16A 9226061006 MW-16A-081309AX 13 Aug 09		MA2XJ2 MW-09C 9226061007 MW-09C-081309AX 13 Aug 09		MA2XJ4 MW-14C 9226061008 MW-14C-081309AX 13 Aug 09	
	200	U	200	U	200	U	200	U	200	U	200	U
U	10	U	10	U	10	U	10	U	10	U	10	U
J	20.9	J	9.3	J	26.2	J	14	J	21.8	J	8.3	J
U	5	U	5	U	5	U	5	U	5	U	5	U
	62500		5670		19000		32600		118000		23900	
U	10	U	10	U	10	U	10	U	10	U	10	U
	50	U	50	U	50	U	50	U	50	U	50	U
	1.9	J	25	U	25	U	25	U	25	U	25	U
J	18.9	J	100	U	100	U	100	U	77.5	J	100	U
U	10	U	10	U	10	U	10	U	10	U	10	U
	7040		743	J	1410	J	2130	J	12000		4050	J
J	246	J	15	U	179	J	14.7	J	66	J	44	J
U	10	U	10	U	10	U	10	U	45		7	J
	4.2	J	0.83	J	2.3	J	0.75	J	2.9	J	2	J
	5370		904	J	4040	J	3570	J	10300		7000	
U	35	U	35	U	35	U	35	U	35	U	6.3	J
U	10	U	10	U	10	U	10	U	10	U	10	U
J	6460	J	911	J	4780	J	2330	J	25400	J	7970	J
	213		19.4		69.8		172		402		96.1	
U	50	U	50	U	50	U	50	U	50	U	0.8	J
	6	J	5.8	J	31.9	J	60	U	60	U	60	U

MA2XJ6 MW-05C 9226061009 MW-05C-081309AX 13 Aug 09		MA2XJ8 MW-23A 9226061010 MW-23A-081309AX 13 Aug 09		MA2XK0 MW-22A 9229007001 MW-22A-081309AX 13 Aug 09		MA2XK2 MW-20C 9229007002 MW-20C-081309AX 13 Aug 09		MA2XK4 MW-21A 9229007003 MW-21A-081309AX 13 Aug 09		MA2XK6 MW-21A 9229007004 MW-21A-081309AD 13 Aug 09		MA2 MW- 92290 MW-20A-(14 Au
200	UJ	200	U	8720		200	U	27300		27800		4910
10	U	10	U	10	U	10	U	10	U	10	U	10
15.8	J	88.5	J	21.7	J	32	J	27.1	J	28.5	J	23.2
0.22	J	5	U	5.8	J	5	U	21.4	J	22.4	J	4.8
131000		4760	J	54200	J	43000	J	67100	J	68900	J	25900
10	U	10	U	10	U	10	U	8.3	J	8.7	J	10
50	U	50	U	36.8	J	50	UJ	301		315		95.4
17.3	J	181		75.5		152		7430		7800		5960
100	U	100	U	58800		44.5	J	78100		79900		135
10	U	10	U	10	U	10	U	10	U	10	U	10
19600		688	J	13500		3810	J	22000		22500		5030
3.1	J	22.1	J	1810		82.1		2430		2540		654
10	U	10	U	10	U	10	U	10	U	10	U	10
2.9	J	3.7	J	15.4	J	4.8	J	104		108		41.2
7970		977	J	8090		4150	J	6440	J	6570	J	4280
35	U	35	U	35	U	35	U	35	U	35	U	35
10	U	10	U	10	U	10	U	3	J	3.5	J	10
5130	J	1300	J	3670	J	11600		5650	J	5770	J	3820
440		15.3		152		190		184		188		78.5
50	U	50	U	3	J	50	U	8.1	J	8.7	J	50
38.5	J	10.4	J	348		12.9	J	2200		2290		360

:XL2 ·20A 07005)81409AX ıg 09	MA2XL4 MW-17A 9229007006 MW-17A-081409AX 14 Aug 09		MA2XL6 MW-21C 9229007007 MW-21C-081409AX 14 Aug 09		MA2XL8 MW-19A 9229007008 MW-19A-081409AX 14 Aug 09		MA2XM0 MW-18A 9229007009 MW-18A-081409AX 14 Aug 09		MA2XM2 MW-19C 9229007010 MW-19C-081409AX 14 Aug 09		MA2XM4 PW-01 9231053001 PW-01X-081709AX 17 Aug 09	
	200	U	9410		15500		25000		6660		200	U
U	10	U	10	U	10	U	10	U	10	U	10	U
J	28.1	J	19.6	J	12.6	J	20.5	J	12.5	J	12.8	J
J	5	U	15	J	7		16.5		6.1		5	U
J	29000	J	96600		38300	J	51000	J	82100	J	10300	J
U	10	U	10	U	9.9	J	10	U	10	U	10	U
	50	UJ	209		244		329		164		50	UJ
	25	U	4890		13800		19200		10000		10.1	J
	100	U	57200		72	J	442		17.3	J	168	
U	10	U	10	U	10	U	10	U	10	U	10	U
	1950	J	17100		10700		18000		13500		1170	J
	46.5		2470		1570		2210		1150		19.5	J
U	10	U	10	U	10	U	10	U	10	U	10	U
	40	U	84.7		82.1		122		76.4		1.2	J
J	3140	J	6380		4870	J	4260	J	6260		1400	J
U	35	U	35	U	35	U	35	U	35	U	35	U
U	10	U	3.1	J	3.7	J	4.8	J	3.7	J	10	U
J	1800	J	12700		5050		2820	J	5770		5000	U
	124		313		136		89.8		236		41	
U	1.6	J	2.2	J	50	U	50	U	50	U	50	U
	2.7	J	1330		630		1780		521		15.9	J

MA2XM6 PW-05 9231053002 PW-05X-081709AX 17 Aug 09		MA2XN2 BM-01 9231053003 BM-01X-081809AX 18 Aug 09		MA2XN4 9231053004 EB-01X-081809AX 18 Aug 09		MA2XN6 PW-03 9231053005 PW-03X-081809AX 18 Aug 09		MA2XN8 PW-04 9231053006 PW-04X-081809AX 18 Aug 09		MA2XP0 PW-02 9231053007 PW-02X-081809AX 18 Aug 09		MA2 PW 92320 PW-06X-0 18 Au
3340		200	U	200	U	200	U	200	U	200	U	200
10	U	10	U	10	U	10	U	10	U	10	U	10
38.7	J	200	U	200	U	16.1	J	22.8	J	15.5	J	25.1
2.4	J	5	U	5	U	5	U	5	U	5	U	0.53
25700	J	10900	J	5000	U	9070	J	4440	J	8320	J	27700
10	U	10	U	10	U	10	U	10	U	10	U	10
70.3		50	UJ	50	UJ	50	UJ	9	J	50	UJ	10.2
2510		2.2	J	25	U	15.9	J	1.5	J	9.2	J	108
37	J	33.3	J	100	U	100	U	2660		100	U	100
10	U	10	U	10	U	10	U	10	U	10	U	10
5570		1080	J	5000	U	898	J	614	J	825	J	4450
537		2.4	J	15	UJ	2.4	J	408		15	UJ	92.2
10	U	10	U	10	U	10	U	10	U	10	U	10
29.1	J	1.1	J	40	U	1.1	J	2.5	J	40	U	6.4
3570	J	1350	J	5000	U	1040	J	630	J	996	J	3530
35	U	35	U	35	U	35	U	35	U	35	U	35
10	U	10	U	10	U	10	U	10	U	10	U	10
2430	J	5000	U	5000	U	5000	U	5000	U	5000	U	2130
108		43.4		10	U	38.5		22.8		35.4		117
50	U	50	U	50	U	50	U	50	U	50	U	50
252		4.1	J	60	U	8	J	14.6	J	5.4	J	34.3

XP2 -06 60001 081809AX ug 09	MA2XP4 9232060004 EB-01X-081909AX 19 Aug 09		MA2XP6 PW-07 9232060005 PW-07X-081909AX 19 Aug 09		MA2XP8 PW-07 9232060006 PW-07X-081909AD 19 Aug 09		MA2Y05 MW-19D 9261007001 MW-19D-091509AX 15 Sep 09		MA2Y07 MW-19D 9261007002 MW-19D-091509AD 15 Sep 09		MA2Y09 MW-19D 9261007005 MW-19D-091509BX 15 Sep 09	
U	200	U	4090		4170		133	J	107	J	6420	
U	10	U	10	U	10	U	10	U	10	U	10	U
J	200	U	42	J	43.5	J	15.9	J	15.3	J	10.6	J
J	5	U	3	J	3.1	J	2.2	J	2.3	J	6.6	
	28.3	J	29600		30800		74100		74500		44000	
U	10	U	0.62	J	0.51	J	10	U	10	U	10	U
J	50	U	85.3		88.5		47.9	J	49.6	J	149	
	25	U	3070		3180		1040		1050		8380	
U	100	U	100	U	17.8	J	1250	J	1890	J	536	J
U	10	U	10	U	10	U	10	U	10	U	10	U
J	5000	U	6660		6800		10600		10600		9480	
J	15	U	687	J	704	J	581	J	597	J	1240	
U	10	U	10	U	10	U	10	U	10	U	10	U
J	1.1	J	33.4	J	34.9	J	37.3	J	38.6	J	84.8	
J	5000	U	4430	J	4620	J	6540	J	6420	J	6190	J
U	35	U	35	U	35	U	35	U	35	U	35	U
U	10	U	10	U	10	U	10	U	10	U	10	U
J	35	J	2750	J	2790	J	3420	J	3340	J	3190	J
	10	U	130		135		179		177		121	
U	50	U	50	U	50	U	50	U	50	U	50	U
J	60	U	303		314		673		795		995	

MA2Y11		MA2Y17		MA2Y19		MA2Y21		MA2Y23		MA2Y25		MA2
		MW-20D		MW-20D		MW-14D		MW-14D		MW-14D		SW
9261012001		9261012002		9261064001		9261064002		9262022001		9262022002		93230
EB-01X-091609AX		MW-20D-091609AX		MW-20D-091709AX		MW-14D-091709AX		MW-14D-091809AX		MW-14D-091809BX		SW-49-1
16 Sep 09		16 Sep 09		17 Sep 09		17 Sep 09		18 Sep 09		18 Sep 09		16 No
200	U	47.8	J	200	U	200	U	200	U	1120		5200
10	U	10	U	10	U	10	U	10	U	10	U	
200	U	16.4	J	63.3	J	5	J	3.5	J	19.9	J	
												5
5	U	5	U	5	U	5	U	5	U	5	U	
114	J	36300		53300		25800		24500		27700		34100
10	U	10	U	10	U	10	U	10	U	10	U	10
50	U	50	U	50	U	50	U	50	U	50	U	45.4
2.8	J	25	U	25	U	25	U	25	U	20	J	
100	UJ	100	UJ	100	UJ	91.7	J	100	UJ	4640	J	1470
10	U	10	U	10	U	10	U	10	U	10	U	
5000	U	1450	J	1880	J	4150	J	3940	J	5070		8950
15	U	15	U	1.3	J	29.3	J	22.9	J	247	J	674
10	U	10	U	10	U	10	U	10	U	10	U	10
0.9	J	40	U	40	U	40	U	40	U	5.4	J	20.7
5000	UJ	6430	J	6650	J	5070	J	4130	J	7210	J	5810
35	U	35	U	35	U	35	U	35	U	35	U	
10	U	10	U	10	U	10	U	10	U	10	U	
64.4	J	5490		5040		3890	J	3540	J	4550	J	2910
10	U	229		348		123		115		127		73.4
50	U	50	U	50	U	50	U	50	U	50	U	
3.3	J	60	U	60	U	60	U	52.1	J	512		287

Y27 -49 39001 11609AF ov 09	MA2Y29 SW-78 9323039002 SW-78-111609AF 16 Nov 09		MA2Y30 SW-77 9323039003 SW-77-111609AF 16 Nov 09		MA2Y32 SW-79 9323039004 SW-79-111609AF 16 Nov 09		MA2Y35 SW-75 9323039005 SW-75-111609AF 16 Nov 09		MA2Y37 SW-47 9323039006 SW-47-111609-AF 16 Nov 09		MA2Y40 SW-80 9323039007 SW-80-111609AF 16 Nov 09	
	19000		459		16800		17000		23200		5400	
UJ	0.81	J	5	UJ	0.53	J	5	UJ	1	J	0.36	J
	62500		3990	J	56500		41000		61500		23500	
U	10	U	10	U	10	U	11		14.8		10	U
J	323		11.1	J	209		217		335		73	
	1450		88.9	J	481		16800		27400		39.1	J
	17100		1110	J	14400		15800		17800		5640	
	1860		128		1620		1480		1860		596	
U	10	U	10	U	10	U	10	U	10	U	10	U
J	115		4.8	J	75.6		58.4		100		29.6	J
	8380		5000	U	6340		3570	J	5860		3720	J
J	4830	J	1230	J	4300	J	3140	J	4840	J	2360	J
	209		20.4		210		54.6		178		98.5	
	822		39.6	J	605		1240		1220		301	

MA2Y41 SW-48 9323039008 SW-48-111609AF 16 Nov 09		MA2Y43 SW-46 9323039009 SW-46-111609AF 17 Nov 09		MA2Y45 SW-45 9323039010 SW-45-111709AG 17 Nov 09		MA2Y48 SW-81 9323039011 SW-81-111709AF 17 Nov 09		MA2Y51 SW-71 9323039012 SW-71-111709AF 17 Nov 09		MA2Y52 SW-17 9323039013 SW-17-111709AF 17 Nov 09		MA2 SW 93230 SW-42-1 17 N
1430		18500		23000		23800		253	J	200	UJ	23500
5	UJ	0.54	J	0.58	J	0.53	J	5	UJ	5	UJ	0.76
6100		41900		57400		57700		20200		7590		52000
10	U	10	U	10	U	8.2	J	10	U	10	U	10
18.1	J	161		216		233		50	U	50	U	218
100	U	330		456		1400		1320		100	U	92.5
1780	J	13900		15700		19300		3910	J	877	J	14030
193		1620		1610		2110		407		1.9	J	1630
10	U	10	U	10	U	10	U	10	U	10	U	10
8.3	J	64.5		86		90.6		10.3	J	0.99	J	88.3
2310	J	4980	J	6290		5690		2890	J	5000	U	5310
1300	J	4010	J	4190	J	4250	J	1620	J	847	J	3580
27.8		80.1		137		126		105		31.9		139
231		917		1740		1320		124		2.8	J	1730

Y54 -42 39016 11709AF ov 09	MA2Y55 SW-82 9323039017 SW-82-111709AF 17 Nov 09		MA2Y56 SW-45 9323039018 SW-45-111709AF 17 Nov 09		MA2Y58 SW-29 9323039019 SW-29-111709AF 17 Nov 09		MA2Y62 SW-41 9325040001 SW-41-111709AF 17 Nov 09		MA2Y71 SW-83 9325040002 SW-83-111809AF 18 Nov 09		MA2Y73 SW-83 9325040003 SW-83-111809AG 18 Nov 09	
	18800		23500		4020		139	J	19205		18685	
J	0.96	J	5	UJ	5	UJ	5	U	1.2	J	0.82	J
	49900		58000		23000		10502		48678		47759	
U	10	U	10	U	10	U	10	U	4.3	J	3.6	J
	186		218		57.8		16.9	J	183		179	
J	1120		468		100	U	38.1	J	1560		1539	
	14900		16100		5010		1920	J	14213		14054	
	1790		1650		486		166		1797		1781	
U	10	U	10	U	10	U	10	U	10	U	10	U
	75.7		86.5		25.3	J	6.9	J	73.5		72.5	
	5970		6480		3860	J	2155	J	5872		5658	
J	3970	J	4250	J	2150	J	1200	J	3794	J	3738	J
	129		140		97.7		37.5		122		121	
	1000		1760		250		123		969		950	

MA2Y75 SW-73 9325040004 SW-73-111809AF 18 Nov 09		MA2Y77 SW-72 9325040005 SW-72-111809AF 18 Nov 09		MA2Y79 SW-51 9325040006 SW-51-111809AF 18 Nov 09		MA2Y81 SW-40 9325040007 SW-40-111709AF 17 Nov 09		MA2Y83 SW-13 9325040008 SW-13-111809AF 18 Nov 09		MA2Y85 SW-32 9325040009 SW-32-111809AF 18 Nov 09		MA2 SW 93250 SW-12-1 18 N
200	U	76.5	J	68.2	J	78.5	J	60.7	J	4938		2338
5	U	5	U	0.27	J	5	U	0.26	J	5	U	5
10995		9385		11104		9605		9853		18456		13824
10	U	10	U	10	U	10	U	10	U	1.6	J	0.48
1.1	J	50	U	0.46	J	8.1	J	5.9	J	55.1		30
24.7	J	49.6	J	100	U	100	U	100	U	4613		1667
1186	J	1079	J	1261	J	1315	J	1344	J	4784	J	2958
16.4		51.2		11.9	J	64		46.6		522		272
10	U	10	U	10	U	10	U	10	U	10	U	10
0.87	J	40	U	40	U	4	J	3.4	J	18	J	10.7
1475	J	981	J	1719	J	1721	J	1947	J	2832	J	2066
1186	J	1278	J	1334	J	1057	J	1046	J	1884	J	1400
49.5		49.3		53.9		40.6		39.9		56.9		47
8.3	J	60	U	3.8	J	35.7	J	30	J	304		162

Y87 -12 40010 11809AF ov 09	MA2Y89 SW-84 9325040011 SW-84-111809AF 18 Nov 09		MA2Y91 SW-36 9325040012 SW-36-111809AF 18 Nov 09		MA2Y93 SW-34 9325040013 SW-34-111809AF 18 Nov 09		MA2Y95 SW-04 9325040014 SW-04-111909AF 19 Nov 09		MA2Y97 SW-09 9325040015 SW-09-111809AF 19 Nov 09		MA2Y99 SW-38 9325040016 SW-38-111909AF 19 Nov 09	
	200	U	71.9	J	2985		294		2858		200	U
U	5	U	0.33	J	5	U	5	U	5	U	5	U
	5365		5147		9788		23657		14973		24082	
J	10	U	10	U	0.54	J	10	U	1.2	J	10	U
J	50	U	0.52	J	36.1	J	2.8	J	34.8	J	50	U
	58.2	J	46.9	J	115		116		2514		100	U
J	680	J	838	J	2007	J	1348	J	3082	J	1294	J
	5.6	J	3.4	J	251		25.5		278		7.6	J
U	10	U	10	U	10	U	10	U	10	U	10	U
J	40	U	0.8	J	12.7	J	0.89	J	11.2	J	40	U
J	1418	J	1580	J	3252	J	1862	J	2357	J	1430	J
J	1115	J	1129	J	2232	J	2617	J	1798	J	2370	J
	27.3		26.8		44.4		118		53.6		120	
	60	U	3.6	J	168		13.7	J	180		60	U

MA2ZB4 SW-43 9339025002 SW-43-120209AF 02 Dec 09		MA2Z01 MW-01A 9331001001 MW-01A-112009AF 20 Nov 09		MA2Z04 MW-01B 9331001002 MW-01B-112009AF 20 Nov 09		MA2Z06 MW-02B 9331001003 MW-02B-112009AF 20 Nov 09		MA2Z08 MW-02C 9331001004 MW-02C-112009AF 20 Nov 09		MA2Z10 MW-14C 9331001005 MW-14C-112309AF 23 Nov 09		MA2 MW- 93310 MW-10B- 23 No
98085		377		200	U	200	U	200	U	200	U	200
		10	U	10	U	10	U	10	U	10	U	10
		15.1	J	36.2	J	35.6	J	23	J	8.7	J	5.1
1.7	J											
		1.4	J	5	U	5	U	5	U	5	U	5
101677		33645		81440		59411		51958		23265		4293
125		10	U	10	U	10	U	10	U	10	U	10
1146		114	J	50	UJ	50	UJ	50	UJ	50	UJ	50
		1091		3.8	J	25	U	25	U	25	U	7.4
9079		158		100	U	184		87.5	J	100	U	100
		10	U	10	U	10	U	10	U	10	U	10
64062		6330		9456		8613		8039		3870	J	949
4987		534		2.3	J	48.1	J	8.7	J	12	J	1.5
10	U	10	U	10	U	10	U	10	U	10	U	10
302		10.8	J	40	U	40	U	40	U	0.96	J	0.73
3563	J	7008	J	5421	J	4662	J	4635	J	4484	J	1426
		35	U	35	U	35	U	35	U	35	U	35
		10	U	10	U	10	U	10	U	10	U	10
7775		34839	J	7138	J	9575	J	8362	J	4207	J	1347
134		164		394		380		229		103		22
		50	UJ	1.7	J	50	UJ	1.3	J	50	UJ	50
7997		620		60	U	60	U	3.7	J	60	U	3

Z12 -10B 01006 112309AF ov 09	MA2Z14 MW-01C 9331001007 MW-01C-112309AF 23 Nov 09		MA2Z16 MW-10C 9331001008 MW-10C-112309AF 23 Nov 09		MA2Z18 MW-14A 9331001009 MW-14A-112309AF 23 Nov 09		MA2Z20 MW-11C 9331001012 MW-11C-112309AF 23 Nov 09		MA2Z22 MW-23A 9331001013 MW-23A-112309AF 23 Nov 09		MA2Z24 MW-03C 9331001014 MW-03C-112309AF 23 Nov 09	
U	200	U	200	U	200	U	200	U	200	U	200	U
U	10	U	10	U	10	U	10	U	10	U	10	U
J	20.2	J	3.9	J	200	U	18.5	J	87.8	J	9.2	J
U	5	U	5	U	5	U	5	U	0.28	J	5	U
J	57249		20430		6595		36646		4686	J	7758	
U	0.63	J	10	U	10	U	10	U	10	U	10	U
UJ	50	UJ	50	UJ	2.4	J	50	UJ	1.7	J	50	UJ
J	25	U	25	U	29.5		25	U	178		1.8	J
U	100	U	100	U	100	U	100	U	100	U	100	U
U	10	U	10	U	10	U	10	U	10	U	10	U
J	7352		4668	J	1208	J	4909	J	662	J	728	J
J	15	U	15	U	18.5	J	12.8	J	18.1	J	15	U
U	10	U	6.9	J	10	U	10	U	10	U	10	U
J	40	U	40	U	0.83	J	40	U	2.7	J	40	U
J	3617	J	3524	J	1430	J	3836	J	804	J	1512	J
U	35	U	6.3	J	35	U	35	U	35	U	35	U
U	10	U	10	U	10	U	10	U	10	U	10	U
J	4227	J	2593	J	1405	J	4759	J	1207	J	1267	J
	240		57		51.9		177		14.8		45.4	
UJ	2.8	J	50	UJ	50	UJ	50	UJ	50	UJ	50	UJ
J	60	U	60	U	3.4	J	60	U	8.2	J	60	U

MA2Z26 MW-20C 9331001015 MW-20C-112309AF 23 Nov 09		MA2Z32 MW-17A 9331001016 MW-17A-112409AF 24 Nov 09		MA2Z34 MW-15A 9331001017 MW-15A-112409AF 24 Nov 09		MA2Z36 MW-04A 9331001018 MW-04A-112409AF 24 Nov 09		MA2Z38 MW-08A 9331001019 MW-08A-112409AF 24 Nov 09		MA2Z40 MW-08A 9331001020 MW-08A-112409AG 24 Nov 09		MA2 MW- 93310 MW-16A- 24 N
58.8	J	200	U	200	U	16233		21201		21189		200
10	U	10	U	10	U	10	U	10	U	10	U	10
34.3	J	27.1	J	22	J	15.4	J	11.4	J	11.1	J	13.8
1	J	5	U	5	U	9.8		11.4		11.4		5
38873		22173		17102		30200		60527		60697		32213
10	U	10	U	10	U	10	U	10	U	10	U	10
5	J	50	UJ	50	UJ	277	J	221	J	221	J	50
507		25	U	25	U	10600		8469		8380		1.4
100	U	100	U	100	U	49.8	J	20.9	J	20.3	J	100
10	U	10	U	10	U	2.6	J	10	U	10	U	10
3733	J	1844	J	1250	J	13375		15838		15817		2077
97.5	J	9.8	J	226	J	1301		1708		1700		13
10	U	10	U	10	U	10	U	10	U	10	U	10
6.5	J	40	U	1.6	J	110		97.8		105		40
4690	J	1428	J	3046	J	6356	J	5428	J	5582	J	3310
35	U	35	U	35	U	35	U	35	U	35	U	35
10	U	10	U	10	U	10	U	10	U	10	U	10
10451	J	1544	J	4198	J	4012	J	3655	J	3721	J	2089
176		111		65.5		91.7		142		140		170
50	UJ	50	UJ	50	UJ	50	UJ	50	UJ	50	UJ	50
33.3	J	60	U	32.3	J	814		1559		1568		60

:Z42	MA2Z44		MA2Z46		MA2Z48		MA2Z50		MA2Z52		MA2Z54	
·16A	MW-04C		MW-12C		MW-21C		MW-13A		MW-05B		MW-09C	
01021	9331001022		9335024001		9335024002		9335024003		9335024004		9335024005	
112409AF	MW-04C-112409AF		MW-12C-112409AF		MW-21C-112409AF		MW-13A-112409AF		MW-05B-112409AF		MW-09C-112409AF	
ov 09	24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09	
U	97.8	J	876		20254		200	U	200	U	200	U
U	10	U	10	U	7.9	J	10	U	10	U	10	U
J	20.2	J	16.5	J	200	U	19.4	J	17.3	J	19.5	J
U	0.28	J	3.2	J	12.2	J	5	U	5	U	5	U
	61979		42689		88779		26991		143130		134997	
U	10	U	10	U	1.6	J	10	U	10	U	10	U
UJ	50	UJ	46.3	J	261	J	50	UJ	50	UJ	50	UJ
J	3.4	J	1383		7285		25	U	25	U	25	U
U	219		100	U	73679		31.8	J	25.1	J	159	
U	10	U	10	UJ	2.7	J	10	UJ	10	UJ	10	UJ
J	6492		7831		20866		3827	J	17466		14948	
J	148	J	346	J	2274		2.4	J	42.1	J	91.7	J
U	10	U	10	U	10	U	10	U	5.6	J	33.6	
U	1.8	J	26.4	J	92.9		0.66	J	1	J	3.8	J
J	5266	J	3379	J	5595	J	3164	J	7444	J	9844	J
U	35	U	35	U	35	U	35	U	35	U	35	U
U	10	U	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ
J	4648	J	2314	J	6044	J	1753	J	8029	J	17057	J
	212		163		288		125		517		380	
UJ	50	UJ	50	U	50	U	50	U	50	U	0.86	J
U	5	J	467		1920		60	U	2.8	J	3	J

MA2Z56 MW-06A 9335024006 MW-06A-112509AF 25 Nov 09		MA2Z58 MW-05C 9335024007 MW-05C-112509AF 25 Nov 09		MA2Z60 MW-07C 9335024008 MW-07C-112509AF 25 Nov 09		MA2Z62 MW-06C 9335024011 MW-06C-112509AF 25 Nov 09		MA2Z64 MW-07A 9335024012 MW-07A-112509AF 25 Nov 09		MA2Z66 MW-19C 9335024013 MW-19C-112509AF 25 Nov 09		MA2 MW- 93390 MW-02A- 30 N
200	U	200	U	200	U	200	U	60.6	J	2057		3731
10	U	10	U	10	U	10	U	10	U	10	U	10
18.1	J	17.6	J	200	U	14.9	J	200	U	15	J	30.9
0.18	J	0.27	J	5	U	5	U	5	U	6.2	J	4.6
14921		124877		5110		90399		5952		89242		22385
10	U	10	U	10	U	10	U	10	U	1.5	J	10
50	UJ	50	UJ	50	UJ	50	UJ	50	UJ	139	J	191
25	U	18.6	J	25	U	25	U	25	U	9461		23199
32.4	J	100	U	29.2	J	100	U	100	U	100	U	100
10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10
1426	J	18153		646	J	7730		754	J	13817		3739
1.6	J	11	J	1.5	J	15	U	15	U	1034		490
10	U	10	U	10	U	10	U	10	U	10	U	10
0.61	J	3.1	J	0.56	J	1.9	J	40	U	72		27.7
2339	J	7278	J	475	J	4299	J	1031	J	7685	J	9615
35	U	35	U	35	U	35	U	35	U	35	U	35
10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10
1847	J	6611	J	779	J	2683	J	813	J	6570	J	21908
47.9		415		17.2		282		19.3		303		158
50	U	50	U	50	U	50	U	50	U	50	U	50
60	U	41	J	60	U	60	U	60	U	532		1724

:Z68 ·02A 27001 113009AF ɔv 09	MA2Z71 MW-21A 9339027004 MW-21A-113009AF 30 Nov 09		MA2Z73 MW-21A 9339027005 MW-21A-113009AG 30 Nov 09		MA2Z75 MW-22A 9339027006 MW-22A-113009AF 30 Nov 09		MA2Z77 MW-19A 9339027007 MW-19A-113009AF 30 Nov 09		MA2Z83 MW-05A 9339027008 MW-05A-120109AF 01 Dec 09		MA2Z85 MW-05A 9339027009 MW-05A-120109AG 01 Dec 09	
	32818		32339		15483		554		25946		25459	
U	7.7	J	8.8	J	6	J	10	U	2.6	J	2.5	J
J	17.7	J	16.4	J	16	J	18.5	J	12	J	11.2	J
J	14.1	J	13.8	J	1.2	J	5.8	J	15.2	J	14.9	J
	63284		63141		48618		113193		47021		46021	
U	8.1	J	7.8	J	2.5	J	1.2	J	10	U	10	U
J	276	J	271	J	45.4	J	144	J	294	J	287	J
	7655		7620		74.2		4401		14032		13389	
U	90678		89659		72225		100	U	100	U	100	U
U	2.8	J	2.9	J	10	U	10	U	10	U	10	U
J	24264		23819		15837		13021		15648		15323	
J	2333		2299		2166		2193		1969		1937	
U	10	U	10	U	10	U	10	U	10	U	10	U
J	94.8		93.4		14.3	J	58.6		119		117	
J	6612	J	6514	J	7313	J	8062	J	6546	J	6352	J
U	35	U	35	U	35	U	35	U	35	U	35	U
UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ
J	7746	J	7704	J	4101	J	5987	J	3992	J	3906	J
	181		180		137		418		143		140	
U	7.9	J	8	J	50	U	50	U	50	U	50	U
	2126		2085		409		386		1826		1771	

MA2Z87 BM-01 9339027010 BM-01-120109AF 01 Dec 09		MA2Z89 MW-11A 9339027011 MW-11A-120109AF 01 Dec 09		MA2Z91 MW-18A 9339027012 MW-18A-113009AF 01 Dec 09		MA2Z93 MW-14D 9339027013 MW-14D-120109AF 01 Dec 09		MA2Z95 MW-20A 9339027014 MW-20A-120109AF 01 Dec 09		MA2ZA6 MW-09A 9339027015 MW-09A-120209AF 02 Dec 09		MA2 MW- 93390 MW-20D- 02 De
200	U	200	U	62366		200	U	11486		13821		200
2.7	J	10	U	4.6	J	2.6	J	10	U	3.2	J	10
4.3	J	26.2	J	9.1	J	3.4	J	13.6	J	13.2	J	30.4
5	U	0.23	J	36.8	J	5	U	5.8	J	9	J	5
12192		9352		101397		27204		26464		35175		36238
10	U	10	U	7.1	J	10	U	1.7	J	0.8	J	10
50	UJ	11	J	665	J	50	UJ	120	J	129	J	50
2.3	J	25	UJ	49117		4.8	J	9266		6820		1.2
100	U	17075		100	U	230	U	100	U	100	U	100
10	U	10	U	6.5	J	10	U	10	U	2.4	J	10
1213	J	2005	J	34975		4101	J	5600		11393		5631
5.4	J	1671		3461		59	J	743		1156		1.9
10	U	10	U	10	U	10	U	10	U	10	U	10
1.7	J	3.2	J	214		0.62	J	49.2		65		40
1592	J	3101	J	4903	J	4018	J	3203	J	8133	J	5172
35	U	35	U	35	U	35	U	35	U	35	U	35
10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10
1370	J	4339	J	4866	J	3520	J	3334	J	4198	J	4352
51.1		55.9		103		117		65.8		172		233
50	U	50	U	50	U	50	U	50	U	50	U	50
3.1	J	15.7	J	3797		10.1	J	506		1046		60

ZA8	MA2ZB0		MA2ZB6		MA2ZB8		MA2ZC0		MA2ZC2		MA2ZC4		MA2
20D	MW-19D		M11LT19.0		M11LT55.1		M11LT60.0		M11LT63.0		M11LT064		M11L
27016	9339027017		9345004001		9345004002		9345004005		9345004006		9345004007		93450
120209AF	MW-19D-120209AF		M11LT19.0-120810AF		M11LT55.1-120709AF		M11LT60.0-120710AF		M11LT63.0-120710AF		M11LT064-120710AF		M11LT065-
ec 09	02 Dec 09		08 Dec 09		07 Dec 09		07 Dec 09		07 Dec 09		07 Dec 09		07 De
U	2766		200	U	200	U	200	U	200	U	200	U	200
U	10	U	10	U	10	U	10	U	10	U	10	U	10
J	13.6	J	6.3	J	200	U	5.2	J	9.2	J	6.7	J	6.8
U	4.9	J	5	U	5	U	5	U	5	U	5	U	5
	48033		29300		19300		33100		19600		19000		20300
U	1.6	J	10	U	10	U	10	U	10	U	10	U	10
UJ	140	J	50	U	50	U	50	U	50	U	50	U	50
J	5743		25	UJ	25	UJ	25	UJ	25	UJ	60.4		35.8
U	4007		100	U	100	U	100	U	100	U	100	U	100
U	10	U	10	U	10	U	10	U	10	U	3.7	J	7.9
	9563		4040	J	4510	J	5980		1070	J	4680	J	5180
J	1439		15	U	15	U	32.6		8.2	J	15	U	15
U	10	U	10	U	10	U	10	U	10	U	10	U	10
U	88.3		40	U	40	U	40	U	40	U	40	U	40
J	5416	J	3650	J	2800	J	3730	J	1230	J	2690	J	3190
U	35	U	35	U	35	U	35	U	35	U	35	U	35
UJ	10	UJ	10	U	10	U	10	U	10	U	10	U	10
J	3206	J	2410	J	4070	J	6870		1390	J	3410	J	2750
	128		106		119		190		100		81.9		83.3
U	50	U	50	U	50	U	50	U	50	U	50	U	50
U	495		18.4	J	6.1	J	4.5	J	11.6	J	46.2	J	6.1

ZC6 T065 04008 -120709AF ec 09	MA2ZC8 M11LT065 9345004009 M11LT065-120709AG 07 Dec 09	
U	200	U
U	10	U
J	6.8	J
U	5	U
	20700	
U	10	U
U	50	U
	25	UJ
U	100	U
J	5.8	J
	5260	
U	15	U
U	10	U
U	40	U
J	3310	J
U	35	U
U	10	U
J	2800	J
	83.8	
U	50	U
J	3.3	J

Ely Copper Mine - Vershire, VT
AES Total Metals - 2009

Sample Name	MA2WX8		MA2WX9		MA2WY0		MA2WY1		MA2WY2	
Sample Location	MW-23A		MW-23A		MW-23A		MW-19A		MW-19A	
Lab Sample ID	9199003001		9199003002		9199003003		9209048001		9209048002	
Station ID	MW-23A-070809AX		MW-23A-070809BX		MW-23A-070809CX		MW-19A-072109AX		MW-19A-072109BX	
Sample Date	08 Jul 09		08 Jul 09		08 Jul 09		21 Jul 09		21 Jul 09	
Chemical										
ALUMINUM	14500		17000		13600		10500		13900	
ARSENIC	1	U	1	U	0.99	U	1	U	1	U
BARIUM	89		141		126		104		101	
BERYLLIUM	0.26	J	0.31	J	0.24	J	0.082	J	0.13	J
CADMIUM										
CALCIUM	1430		2070		1590		1270	J	397	J
CHROMIUM	56.1		65.9		47.3		56.4	J	79.3	J
COBALT	26.7		18.4		19.9		193	J	11.5	J
COPPER	517	J	156	J	466	J	4250		703	
IRON	26400		22800		20400		144000		57200	
LEAD	3.3	J	3.4	J	3.2	J	12.6	J	3.8	J
MAGNESIUM	7590		10200		8260		6950		9140	
MANGANESE	527	J	654	J	253	J	175	J	130	J
MOLYBDENUM										
NICKEL	37.7		56.3		45.5		49.9		36.7	
POTASSIUM	2720		7800		5760		6760		6160	
SELENIUM										
SILVER	1	U	1	U	0.99	U	3.1		0.8	J
SODIUM	166	J	214	J	186	J	192	J	114	J
STRONTIUM	8.5		7		4.8		4.8	J	3.7	J
VANADIUM	49.4		52.7		41.2		68.8		64.1	
ZINC	111		47.2		77.4		205	J	61	J

MA2WY3 MW-19A 9209048003 MW-19A-072109CX 21 Jul 09		MA2WY6 MW-21A 9213001001 MW-21A-072809AX 28 Jul 09		MA2WY7 MW-21A 9213001002 MW-21A-072809BX 28 Jul 09		MA2WY8 MW-21A 9213001003 MW-21A-072809CX 28 Jul 09		MA2WY9 MW-21A 9213001004 MW-21A-072809CD 28 Jul 09		MA2WZ0 MW-20A 9213001005 MW-20A-072909AX 29 Jul 09	
14600		2930		14700		11600		12400		14000	
0.59	J	0.99	U	0.99	U	1	U	1	U	1	U
92		99.2		132		92.6		83.1		91.8	
0.36	J	0.5	U	0.17	JB	0.21	JB	0.18	JB	0.27	JB
58800	J	229	J	1130		2300		1700		2750	
45.3	J	22.4		52.2		37.6		44.9		44.3	
44.8	J	67.6		7.3		13		6.7		78.3	
1870		6160	J	308	J	415	J	152	J	2230	J
25700		191000		26800		22000		18400		55100	
7.8	J	52.3		4.1		4.8		3.1		12.1	
10700		1470		11400		6890		7870		8360	
1600	J	50.9		180		149		96.2		333	
47.9		9.4		28		30.7		27.8		47.1	
5450		8790	J	5630	J	4370	J	4530	J	5400	J
1	U	12.2	J	1	UJ	1	UJ	1	UJ	1.1	J
145	J	462	J	101	J	147	J	155	J	197	J
130	J	9.1		5.8		8.6		10		11.4	
36.6		81.7		50.5		31.1		36.1		42.2	
134	J	327		52		68.1		60.6		722	

MA2WZ1 VP-1 9217051001 VP-01X-072909AX 29 Jul 09		MA2WZ2 VP-2 9217051004 VP-02X-072809AX 28 Jul 09		MA2WZ3 VP-3 9217051005 VP-03X-072809AD 28 Jul 09		MA2WZ4 VP-3 9217051006 VP-03X-072809AX 28 Jul 09		MA2WZ5 VP-4 9217051007 VP-04X-072809AX 28 Jul 09		MA2WZ6 MW-20A 9213001006 MW-20A-072909BX 29 Jul 09	
200	U	200	U	200	U	200	U	200	U	15800	
										1	U
										91.9	
5	U	5	U	5	U	5	U	5	U	0.27	JB
12000		12300		9990		3150	J	9910		1670	
10	U	0.38	J	10	U	10	U	10	U	58.9	
9.4	J	50	U	50	U	50	U	50	U	15	
										231	J
1070	J	80.8	J	743	J	42.9	J	477	J	18600	
										3.3	
1630	J	924	J	853	J	647	J	831	J	8830	
188	J	11	J	88	J	9.8	J	97.8	J	371	
10	U	10	U	10	U	10	U	10	U		
2.5	J	0.98	J	0.6	J	0.81	J	0.59	J	36.5	
2760	J	971	J	1310	J	629	J	1370	J	5140	J
										1	UJ
1690	J	1290	J	1350	J	856	J	1400	J	143	J
55.2	J	67.4	J	38.2	J	13.9	J	38.4	J	7.4	
										38.3	
70.2		3.3	J	6.4	J	10.3	J	4.9	J	44.1	

MA2WZ7 MW-20A 9213001007 MW-20A-072909CX 29 Jul 09		MA2WZ8 MW-22A 9213001008 MW-22A-072909AX 29 Jul 09		MA2WZ9 MW-22A 9213001009 MW-22A-072909BX 29 Jul 09		MA2X00 MW-22A 9213001010 MW-22A-072909CX 29 Jul 09		MA2X01 9216003001 EB-01X-073009AX 30 Jul 09		MA2X07 SB-09 9217045001 SB-09X-073009AX 30 Jul 09	
9680		11100		17700		14200		200	U	18600	
0.99	U	0.9	U	1	U	0.99	U	10	U	1	U
63.2		89.8		59.6		107		3.5	J	119	
0.59	U	0.56	U	0.3	JB	0.27	JB	0.31	J	0.5	U
1970		1490		742		2090		73.2	J	1330	
32.7		51.9		46.7		42.6		10	U	154	
40.2		82		252		11.3		50	U	395	
1440	J	4530	J	5160	J	355	J	25	U	19300	
32600		85500		90000		19300		39.8	J	111000	
8.5		20.2		10.5		5.4		10	U	27.1	J
5850		6900		4600		8950		5000	U	10800	
241		364		107		667		15	U	364	
34		41.6		91.6		35.9		40	U	87	
3670	J	7750	J	1740	UJ	5050	J	414	J	11500	
1	J	3.3	J	2.5	J	0.99	UJ	10	U	3.8	
122	J	119	J	52	J	148	J	5000	U		R
6.6		3.2		3.1		12		0.5	J	1.7	
29.3		54.2		43		37		50	U	126	
170		375		939		43.2		60	U	1350	

MA2X08 SB-09 9217045002 SB-09X-073009BX 30 Jul 09		MA2X09 SB-09 9217045003 SB-09X-073009CX 30 Jul 09		MA2X10 MW-17A 9217045004 MW-17A-073009AX 30 Jul 09		MA2X11 MW-17A 9217045005 MW-17A-073009BX 30 Jul 09		MA2X12 SW-42 9217047001 SW-42X-080409AX 04 Aug 09		MA2X13 TP-15 9217045006 TP-15X-073009AD 30 Jul 09	
13400		17200		20700		15200		23400		8060	
1	U	1	U	2.4		0.38	J			1	U
109		128		75.4		104				96	
0.5	U	0.24	J	0.61		0.37	J	1.2	J	0.5	U
2010		1640		1400		1600		49900		639	
80.1		53		45.7		41.1		10	U	42.5	
344		23.1		17.9		11.9		241	J	8.4	J
6750		252		107		84.7				462	
175000		27600		24800		18800		152	J	91600	
40.8	J	4	J	5.7	J	4.7	J			14.5	J
6510		9470		10100		7610		14100		3930	
283	J	154		389		427		1610	J	167	J
								10	U		
81.5		42		55.2		39.2		97.3		17	
11700		5340		4480		4820		4680	J	5120	
6		0.32	J	0.99	U	0.99	U			1.8	
	R		R		R		R	3290	J		R
14.9		11.9		4.4		5.6		126		6.6	
97.5		43.2		47.6		48				55.3	
5040		171		65.4		37.1		1860		50.7	

MA2X14 TP-15 9217045007 TP-15X-073009BX 30 Jul 09		MA2X15 TP-15 9217045008 TP-15X-073009CX 30 Jul 09		MA2X16 TP-16 9217045009 TP-16X-080309AX 03 Aug 09		MA2X17 TP-15 9217045010 TP-15X-073009AX 30 Jul 09		MA2X19 TP-16 9217045011 TP-16X-080309BX 03 Aug 09		MA2X20 TP-16 9217045012 TP-16X-080309CX 03 Aug 09	
15400		19900		17800		7370		19300		16000	
1.4		1	U	0.36	J	1	U	0.56	J	0.44	J
101		112		119		115		113		114	
0.26	J	0.5	U	0.36	J	0.5	U	0.44	J	0.39	J
646		1590		1390		171	J	1740		2040	
59.8		57.7		43.4		42.3		52.4		41.6	
9.5	J	9.5		23.1		9.2	J	16.2		13.5	
269		152		554		584		205		111	
51700		27400		30600		111000		25000		21700	
8.7	J	6.2	J	48.7		29.3	J	8.6	J	7.4	J
7900		9640		6640		3780		9410		8030	
224		350		1070		90	J	687		568	
34		47.2		37		15.5		45.9		44.7	
3810		4480		1470		6130		2940		3540	
0.99	U	1	U	0.18	J	2.5		1	U	1	U
	R		R		R		R		R		R
4.6		7.3		6.5		7.3		6.9		8.5	
56.3		46		48.8		63.9		48.4		39.3	
68.3		48.6		118		51.2		90.9		64.6	

MA2X21 MW-18A 9217045015 MW-18A-080309AX 03 Aug 09		MA2X22 MW-18A 9217045016 MW-18A-080309BX 03 Aug 09		MA2X23 MW-18A 9217045017 MW-18A-080309BD 03 Aug 09		MA2X24 MW-18A 9217045018 MW-18A-080309CX 03 Aug 09		MA2X25 9217045019 EB-01X-080309AX 03 Aug 09		MA2X26 SW-41 9217047002 SW-41X-080409AX 04 Aug 09	
13900		19400		15500		22400		200	U	1220	
0.99	U	1	U	0.92	U	1	U	10	U		
93.4		99		79.2		136		200	U		
0.5	U	0.5	U	0.46	U	0.5	U	5	U	5	U
521		988		947		1190		5000	U	9830	
185		229		183		229		10	U	10	U
27.9		37		30		44.8		50	U	16.5	J
498		281		276		267		25	U		
72400		40400		35100		49300		341		122	J
4.7	J		R		R		R	10	U		
6700		9120		7620		9490		5000	U	1950	J
338		764		671		595		5.2	J	156	J
										10	U
63.9		81.2		63.9		86.6		40	U	7.3	J
7820		7850		6200		10900		5000	U	1170	J
1.8		1	U	0.92	U	1	U	10	U		
	R		R		R		R	5000	U	1200	J
3		2.6		2.3		3.9		50	U	35.9	
90.8		87.6		69.1		58.5		60	U		
91.7		99.5		80.3		129		10	U	135	

MA2X28 SW-71 9217047003 SW-71X-080409AX 04 Aug 09		MA2X30 SW-82 9217047006 SW-82X-080409AX 04 Aug 09		MA2X32 SW-40 9217047007 SW-40X-080409AX 04 Aug 09		MA2X34 SW-29 9217047008 SW-29X-080409AX 04 Aug 09		MA2X36 SW-17 9218046001 SW-17X-080409AX 04 Aug 09		MA2X38 SW-73 9218046002 SW-73X-080409AX 04 Aug 09	
271		16100		481		3600		200	U	200	U
5	U	0.94	J	5	U	0.41	J	5	U	5	U
18900		45000		9040		18900		7550		12600	
10	U	10	U	10	U	10	U	10	U	10	U
12.7	J	188	J	7	J	59.4	J	50	UJ	50	UJ
246	J	5080	J	30.8	J	22.1	J	100	UJ	29.7	J
3450	J	13600		1270	J	4330	J	768	J	1220	J
475	J	1470	J	59.6	J	437	J	3.9	J	38.9	J
10	U	10	U	10	U	10	U	10	U	10	U
12.1	J	73.9		3.7	J	25.4	J	0.92	J	40	U
2070	J	5210		1220	J	3000	J	747	J	1490	J
1520	J	3250	J	1020	J	1860	J	891	J	1420	J
98.3		99.3		39		82.1		32.6		60.1	
223		1010		37.9	J	249		9.3	J	8.3	J

MA2X40 SW-51 9218046003 SW-51X-080409AX 04 Aug 09		MA2X42 SW-78 9218046004 SW-78X-080509AD 05 Aug 09		MA2X44 SW-78 9218046005 SW-78X-080509AX 05 Aug 09		MA2X46 SW-49 9218046006 SW-49X-080509AX 05 Aug 09		MA2X48 SW-76 9218046007 SW-76X-080509AX 05 Aug 09		MA2X50 SW-47 9218046008 SW-47X-080509AX 05 Aug 09	
200	U	21000		20200		5690		9730		21100	
5	U	1.4	J	1.4	J	0.42	J	0.62	J	1.4	J
9940		71500		68400		22200		43500		64100	
10	U	12.9		12.5		10	U	10	U	14.7	
50	UJ	398	J	382	J	53.4	J	114	J	365	J
28	J	2410	J	2370	J	2000	J	8750	J	24700	J
1130	J	20300		19500		6190		9130		19400	
10.6	J	2200	J	2130	J	584	J	1300	J	2030	J
10	U	10	U	10	U	10	U	10	U	10	U
40	U	140		135		22.3	J	51.6		120	
1140	J	8280		7820		2900	J	4910	J	7170	
1430	J	6040		5840		1980	J	2690	J	5260	
52.8		189		180		48.7		61.1		173	
7.2	J	1010		973		329		1040		1220	

MA2X52 9218046009 EB-01X-080509AX 05 Aug 09		MA2X54 SW-77 9218046010 SW-77X-080509AX 05 Aug 09		MA2X56 SW-48 9218046011 SW-48X-080509AX 05 Aug 09		MA2X58 SW-80 9218046012 SW-80X-080509AX 05 Aug 09		MA2X63 SW-75 9220002001 SW-75X-080509AX 05 Aug 09		MA2X66 SW-75 9220002002 SW-75X-080509AD 05 Aug 09	
200	U	1600		1830		5340		10700		10600	
5	U	5	U	5	U	0.53	J	0.37	J	0.38	J
5000	U	6600		7490		22700		26600		26700	
10	U	10	U	10	U	10	U	12.4		12	
50	UJ	30.2	J	28.5	J	83.2	J	147		148	
100	UJ	26.2	J	35.1	J	100	UJ	21600		20300	
5000	U	1940	J	2040	J	5450		9590		9370	
15	U	161	J	211	J	596	J	856		851	
10	U	10	U	10	U	10	U	10	U	10	U
40	U	10.9	J	12.1	J	33.1	J	38.9	J	39.1	J
5000	U	1900	J	1780	J	3630	J	2520	J	2510	J
5000	U	1500	J	1370	J	2220	J	1820	J	1810	J
10	U	31.1		35.7		94.9		41		40.3	
60	U	56	J	195		300		794		795	

MA2X68 SW-45 9220002003 SW-45X-080509AX 05 Aug 09		MA2X70 SW-43 9220002004 SW-43X-080509AX 05 Aug 09		MA2X72 SW-46 9220002005 SW-46X-080509AX 05 Aug 09		MA2X74 SW-81 9220002006 SW-81X-080509AX 05 Aug 09		MA2X76 SW-79 9220002007 SW-79X-080609AX 06 Aug 09		MA2X78 SW-35 9220002008 SW-35X-080609AX 06 Aug 09	
26000		10900		16500		21300		10800		200	U
0.77	J	0.33	J	0.58	J	0.88	J	0.89	J	5	U
59300		26800		43600		56300		37000		6460	
6.6	J	12.2		5.7	J	12.1		3.6	J	10	U
243		150		164		267		175		50	U
2220		18500		1930		7820		1250		155	
17300		9660		13100		17700		10900		922	J
1570		873		1360		1750		1200		20	
10	U	10	U	10	U	10	U	10	U	10	U
92.2		39.9	J	61.4		90.2		62		40	U
5530		2630	J	4400	J	4890	J	5720		1170	J
3780	J	1900	J	2960	J	3500	J	4060	J	1210	J
126		41.4		68.8		102		136		34	
1880		812		985		1330		423		60	U

MA2X80 SW-84 9220002009 SW-84X-080609AX 06 Aug 09		MA2X82 SW-34 9220002010 SW-34X-080609AX 06 Aug 09		MA2X84 SD-66 9223061001 SD-66X-080609AX 06 Aug 09		MA2X85 SD-65 9223061002 SD-65X-080609AX 06 Aug 09		MA2X86 SW-13 9220002011 SW-13X-080609AX 06 Aug 09		MA2X88 SW-83 9220002012 SW-83X-080609AX 06 Aug 09	
200	U	1690		21200	J	20600	J	276	U	16900	
				1	UJ	1.5	J				
				41.4		84.5					
5	U	5	U	0.5	J	0.66	J	5	U	0.78	J
7020		8010		1260	EB	1910	EB	9860		50300	
10	U	10	U	34.2	J	35.9	J	10	U	6	J
0.55	J	19.5	J	24.2	J	102	J	4.3	J	200	
				1600	J	3820	J				
474		1450		56300	J	58500	J	100	U	4870	
				15.3		26					
942	J	1390	J	5010	J	6230	J	1240	J	14900	
35.9		146		338		1210		36.8		1570	
10	U	10	U					10	U	10	U
40	U	9	J	20.4		33.8		40	U	74.5	
1140	J	2870	J	2730	EJ	3630	EJ	1450	J	5550	
				0.41	J	0.88	J				
1160	J	1880	J		R		R	1070	J	3390	J
36.1		36.4		4.8	EB	10.5	EB	40.1		107	
				36.1		45.7					
60	U	109		83.8	J	163	J	25.4	J	1050	

MA2X90 SW-32 9220002013 SW-32X-080609AX 06 Aug 09		MA2X92 SW-72 9220002014 SW-72X-080609AX 06 Aug 09		MA2X94 SW-12 9220002015 SW-12X-080609AX 06 Aug 09		MA2X96 SD-72 9223061003 SD-72X-080609AX 06 Aug 09		MA2X97 SD-73 9223061004 SD-73X-080609AX 06 Aug 09		MA2X99 SD-67 9223061007 SD-67X-080609AX 06 Aug 09	
4990		200	U	2670		14800	J	22800	J	25200	J
						1.5	J	1	UJ	0.63	J
						94.8		57.5		58.7	
0.27	J	5	U	5	U	0.34	J	0.7	J	0.45	J
19700		10600		15000		4960	EB	1640	EB	1120	EB
2.3	J	10	U	0.85	J	46.4	J	23.6	J	69.1	J
57.8		50	U	32.2	J	10.5	J	44.8	J	24.7	J
						126	J	5210	J	596	J
5040		225		2250		23500	J	84900	J	22500	J
						18		28.1		7.8	
5130		1240	J	3180	J	6490	J	2480	EJ	9600	J
506		24.7		276		622		621		294	
10	U	10	U	10	U						
21.5	J	40	U	12.7	J	29		14.5		41.9	
2600	J	1450	J	2090	J	2700	EJ	1940	EJ	3030	EJ
						1	U	2.3		1	U
1790	J	1510	J	1470	J		R		R		R
56		57.8		48.9		28	EB	12.3	EB	4.7	EB
						52.5		45.3		51.5	
336		3.9	J	185		61.9	J	132	J	81	J

MA2XA0 SD-61 9223061008 SD-61X-080709AX 07 Aug 09		MA2XA1 SD-61 9223061009 SD-61X-080709AD 07 Aug 09		MA2XA2 SD-59 9223061010 SD-59X-080709AX 07 Aug 09		MA2XA3 SD-58 9223061011 SD-58X-080709AX 07 Aug 09		MA2XA4 SD-71 9223061012 SD-71X-080609AX 06 Aug 09		MA2XA5 SD-70 9223061013 SD-70X-080609AX 06 Aug 09	
2890	J	7810	J	4850	J	4960	J	17800	J	17800	J
1	UJ	0.99	UJ	0.99	UJ	0.99	UJ	2.6	J	1.7	J
36.5		75.4		27.3		23.2		59.1		134	
0.5	U	0.5	U		R	0.15	J	0.63	J	0.51	J
213	JB	489	JB	9670	EB	5770	EB	2720	EB	5810	EB
17	J	39.2	J	10.8	J	10.8	J	41.3	J	43.5	J
16.3	J	7.6	J	3.4	J	3.9	J	14.5	J	15.5	J
3550	J	1800	J	298	J	207	J	584	J	80.7	J
105000	J	72100	J	16200	J	8760	J	19300	J	37800	J
24.1		25.8		2.9	J	2.5	J	11.6		24.7	
1270	EJ	4370	J	2290	EJ	2040	EJ	6280	J	6590	J
64.8		70.2		270		206		180		564	
6.5		21.3		9.6		7.3		40.1		35.6	
2630	EJ	4430	EJ	1050	EJ	914	EJ	1500	EJ	2120	EJ
2.1		0.94	J	0.99	U	0.99	U	1	U	1	U
	R		R		R		R		R		R
3.5	EB	4.4	EB	53.7	EB	40.4	EB	15.6	EB	27	EB
46		55.6		11.9		9.8		42.9		65.5	
98.4	J	38	J	25.3	J	21.8	J	226	J	81	J

MA2XA6 SD-69 9223061014 SD-69X-080709AX 07 Aug 09		MA2XA7 SD-68 9223061015 SD-68X-080609AX 06 Aug 09		MA2XA8 SD-64 9223061016 SD-64X-080709AX 07 Aug 09		MA2XA9 SD-62 9223061017 SD-62X-080709AX 07 Aug 09		MA2XB0 SD-63 9223061018 SD-63X-080709AX 07 Aug 09		MA2XB1 SD-60 9223061019 SD-60X-080709AX 07 Aug 09	
12100	J	21200	J	8270	J	4790	J	14200	J	9950	J
0.83	J	4.4	J	18.5		1	UJ	1	UJ	1	UJ
59.9		54.6		57.7		62.3		175		93.8	
0.33	J	1.1	J		R	0.5	U		R		R
1920	EB	2540	EB	1040	EB	125	JB	166	JB	97.3	JB
27.4	J	30.3	J	22.1	J	28.4	J	67	J	50.1	J
9.5	J	65.5	J	57.3	J	10	J	61.8	J	35	J
47.6	J	3050	J	2580	J	2640	J	11000	J	7120	J
13700	J	17000	J	42500	J	117000	J	137000	J	126000	J
5.5	J	12.4		8.2	J	23.9		54.6		19.5	
5050	J	7120	J	3720	J	2470	EJ	5890	J	3200	J
530		216		581		69.9		145		69	
23.7		44.6		18.5		9.7		24.9		16.9	
1530	EJ	2390	EJ	2610	EJ	4670	EJ	6760	EJ	2820	EJ
1	U	1	U	0.48	J	3.4		9.5		5.6	
	R		R		R		R		R		R
7.1	EB	13.1	EB	7	EB	4.5	EB	7.2	EB	2.8	EB
30		35.6		28		61.5		101		72	
34.9	J	203	J	116	J	121	J	209	J	169	J

MA2XB2 SW-04 9223043001 SW-04X-080709AX 07 Aug 09		MA2XB4 SW-09 9223043002 SW-09X-080709AX 07 Aug 09		MA2XB6 SW-38 9223043003 SW-38X-080709AX 07 Aug 09		MA2XC0 9223061020 EB-01X-080709AX 07 Aug 09		MA2XC1 MW-01A 9226002001 MW-01A-081009AX 10 Aug 09		MA2XC3 MW-01B 9226002002 MW-01B-081009AX 10 Aug 09	
394	U	2270		200	U	200	U	200	UJ	1030	
						10	U	10	U	10	U
						200	U	20.2	J	45	J
5	U	5	U	5	U	5	U				
								1.4	J	5	U
25900		14900		26800		11200		45600		88900	
10	U	0.51	J	10	U	4.7	J	10	U	10	U
2	J	32.7	J	50	U	50	U	159		50	U
						25	U	520		18	J
484		2890		105	U	100	U	77.3	J	1310	
						10	U	10	U	10	U
1510	J	3100	J	1340	J	5010		9050		10600	
48		267		15.8		1.3	J	707		29.1	
10	U	10	U	10	U			10	U	10	U
40	U	11.8	J	40	U	2	J	14.8	J	40	U
1590	J	2330	J	1680	J	1920	J	8650		6330	
								8.7	J	35	U
						10	U	10	U	10	U
3100	J	1910	J	2960	J	12300		50500		7550	
128		52.9		132		57		213		418	
						50	U	50	U	4	J
17.3	J	184		2.9	J	28.4	J	788		60	U

MA2XC5 MW-02A 9226002003 MW-02A-081009AX 10 Aug 09		MA2XC7 MW-02B 9226002004 MW-02B-081009AX 10 Aug 09		MA2XC9 MW-14A 9226002005 MW-14A-081109AX 11 Aug 09		MA2XD1 MW-11A 9226002006 MW-11A-081109AX 11 Aug 09		MA2XD3 MW-11C 9226002007 MW-11C-081109AX 11 Aug 09		MA2XD5 MW-03C 9226002008 MW-03C-081109AX 11 Aug 09		MA2 MW- 92260 MW-10C-(11 Au
4680		468	J	200	UJ	200	UJ	168	J	200	UJ	200
10	U	10	U	10	U	10	U	10	U	10	U	10
25.6	J	43	J	5.8	J	27.7	J	20.6	J	7.5	J	5
3.5	J	5	U	5	U	5	U	5	U	5	U	5
23800		66500		6570		11500		39400		8640		20400
10	U	10	U	10	U	10	U	10	U	10	U	10
106		50	U	50	U	9.3	J	50	U	50	U	50
14700		10.7	J	40.6		15.8	J	25	U	25	U	25
1940		1800		32.7	J	23900		438		100	U	101
10	U	10	U	10	U	10	U	10	U	10	U	10
3550	J	9600		1110	J	2680	J	5380		656	J	4540
431		73		24.6		3020		18.1		15	U	3.2
10	U	10	U	10	U	7.6	J	10	U	10	U	6.9
20.2	J	40	U	40	U	40	U	40	U	40	U	40
6710		5300		2210	J	3840	J	4000	J	1770	J	3620
35	U	35	U	35	U	35	U	35	U	35	U	35
10	U	10	U	10	U	10	U	10	U	10	U	10
30100		9860		1540	J	9320		4920	J	1340	J	2590
143		414		52.2		69.4		186		53.5		54.5
50	U	1.5	J	50	U	50	U	1.6	J	0.86	J	50
884		60	U	60	U	60	U	60	U	60	U	60

XE1 -10C 02010 081109AX ug 09	MA2XE3 MW-08A 9226006001 MW-08A-081109AX 11 Aug 09		MA2XE5 MW-05A 9226006002 MW-05A-081109AX 11 Aug 09		MA2XE7 MW-12C 9226006003 MW-12C-081109AX 11 Aug 09		MA2XE9 MW-10B 9226006004 MW-10B-081109AX 11 Aug 09		MA2XF1 MW-01C 9226006005 MW-01C-081209AX 12 Aug 09		MA2XF3 MW-13A 9226006006 MW-13A-081209AX 12 Aug 09	
UJ	19300		25500		1450		200	U	513		200	U
U	10	U	10	U	10	U	10	U	10	U	10	U
J	11.7	J	11.5	J	22.8	J	5.9	J	23.9	J	20.4	J
U	10.3		13.1		4.5	J	5	U	5	U	5	U
	58100		39600		48000		4310	J	55400		26400	
U	1.2	J	10	U	10	U	10	U	6.4	J	10	U
U	213		259		62.7		50	U	50	U	50	U
U	7630		13500		1840		17.2	J	5.2	J	1.2	J
	258	J	19.7	J	100	UJ	46.1	J	547	J	100	UJ
U	10	U	10	U	10	U	10	U	10	U	10	U
J	15400		13200		9610		1030	J	7150		3940	J
J	1470	J	1570	J	475	J	5.9	J	6	J	3.5	J
J	10	U	10	U	10	U	10	U	10	U	10	U
U	98.2		103		35.6	J	2.3	J	4.1	J	40	U
J	5240	J	6640	J	5580	J	1750	J	4250	J	4050	J
U	35	U	35	U	35	U	35	U	35	U	35	U
U	10	U	10	U	0.41	J	0.53	J	10	U	0.97	J
J	3830	J	3440	J	3050	J	1390	J	4070	J	2070	J
	129		123		200		22.8		233		130	
U	50	U	50	U	50	U	50	U	4.8	J	50	U
U	1460		1690		627		8.9	J	6.3	J	60	U

MA2XF5 MW-06A 9226006007 MW-06A-081209AX 12 Aug 09		MA2XF7 MW-05B 9226006008 MW-05B-081209AX 12 Aug 09		MA2XF9 MW-05B 9226006011 MW-05B-081209AD 12 Aug 09		MA2XG1 MW-09A 9226006012 MW-09A-081209AX 12 Aug 09		MA2XG3 MW-06C 9226006013 MW-06C-081209AX 12 Aug 09		MA2XG5 MW-02C 9226006014 MW-02C-081209AX 12 Aug 09		MA2 MW- 92290 MW-07A-(12 Au
200	U	200	U	200	U	12700		200	U	3590		200
10	U	10	U	10	U	10	U	10	U	10	U	10
27.5	J	22.3	J	20.7	J	16.5	J	15.8	J	83.6	J	10.7
5	U	5	U	5	U	8.9		5	U	5	U	5
18800		144000		141000		27900		95200		51900		5340
0.4	J	10	U	10	U	0.82	J	10	U	25.1		10
50	U	50	U	50	U	112		50	U	50	U	50
1.4	J	1.9	J	25	U	7030		1.7	J	16.4	J	25
189	J	355	J	619	J	43.7	J	26.1	J	5420	J	22.1
10	U	10	U	10	U	10	U	10	U	8.8	J	10
1860	J	17500		14400		7780		8590		8910		745
9.3	J	628	J	1250	J	921	J	15	UJ	60.8	J	15.1
10	U	5.1	J	6.8	J	10	U	10	U	10	U	10
1.3	J	1.3	J	1	J	58.7		1.7	J	14.5	J	40
3670	J	8260	J	9270	J	9870	J	4900	J	5490	J	936
35	U	35	U	35	U	35	U	35	U	35	U	35
0.37	J	1.1	J	0.38	J	10	U	10	U	10	U	10
1970	J	10300		6680		4040	J	2920	J	8160		940
60.5		584		561		173		307		232		20.9
50	U	50	U	50	U	50	U	50	U	12.9	J	50
2.9	J	2.9	J	60	U	1090		3.2	J	26.5	J	60

XG7 ·07A 02001)81209AX ıg 09	MA2XG9 9226059001 EB-01X-081309AX 13 Aug 09		MA2XH1 MW-04A 9226059002 MW-04A-081209AX 13 Aug 09		MA2XH3 MW-04C 9226059003 MW-04C-081209AX 12 Aug 09		MA2XH5 MW-07C 9226059004 MW-07C-081209AX 12 Aug 09		MA2XH7 MW-15A 9226059005 MW-15A-081309AX 13 Aug 09		MA2XH9 MW-16A 9226059006 MW-16A-081309AX 13 Aug 09	
U	200	UJ	16900		200	UJ	168	J	71.4	J	200	UJ
U	10	U	3.2	J	10	U	10	U	2.6	J	10	U
J	200	U	20.6	J	21.6	J	10.6	J	25.3	J	13.4	J
U	5	U	9.1		5	U	5	U	5	U	5	U
	5000	U	22200		67100		6490		18200		33600	
U	10	U	10	U	10	U	10	U	10	U	10	U
U	50	U	158		50	U	50	U	50	U	50	U
U	25	U	12400		25	U	25	U	25	U	25	U
J	100	U	822		77.3	J	92.9	J	176		100	U
UJ	10	U	10	U	10	U	10	U	10	U	10	U
J	5000	U	7010		7110		764	J	1270	J	2040	J
	15	U	742		253		5.2	J	164		111	
U	10	U	10	U	10	U	10	U	10	U	10	U
U	40	U	74.1		4.4	J	40	U	40	U	40	U
J	5000	U	7580		5520		1080	J	3680	J	3440	J
U	35	U	35	U	35	U	35	U	35	U	35	U
UJ	10	U	10	U	10	U	10	U	10	U	10	U
J	5000	U	3330	J	6640		977	J	4570	J	2200	J
	10	U	85.1		226		22.2		66.7		174	
U	50	U	1.6	J	50	U	50	U	50	U	50	U
U	60	U	637		60	U	60	U	60	U	60	U

MA2XJ1 MW-09C 9226059007 MW-09C-081309AX 13 Aug 09		MA2XJ3 MW-14C 9226059008 MW-14C-081309AX 13 Aug 09		MA2XJ5 MW-05C 9226059009 MW-05C-081309AX 13 Aug 09		MA2XJ7 MW-23A 9226059010 MW-23A-081309AX 13 Aug 09		MA2XJ9 MW-22A 9229003001 MW-22A-081309AX 13 Aug 09		MA2XK1 MW-20C 9229003002 MW-20C-081309AX 13 Aug 09		MA2 MW- 92290 MW-21A-(13 Au
200	UJ	259	J	200	UJ	200	UJ	9070		200	U	27300
3.1	J	2.5	J	10	U	2.6	J	2.6	J	10	U	2.6
18	J	9.7	J	16.3	J	86.1	J	22.2	J	37.2	J	27.7
5	UJ	5	U	5	UJ	5	UJ	2.9	J	0.52	J	16.4
125000		25200		139000		4860	J	53700		45300		68900
10	U	10	U	10	U	10	U	2.9	J	10	U	8.1
50	U	50	U	50	U	50	U	36.9	J	5.3	J	283
25	U	25	U	23.3	J	175		76.8		267		7370
246		324		64.2	J	100	U	59000		100	U	79700
10	U	10	U	10	U	10	U	10	UJ	10	UJ	10
11900		4180	J	20000		639	J	13500		4160	J	22400
68.4		49.3		7.1	J	21.5		1760		145		2470
48.1		6.1	J	10	U	10	U	10	U	10	U	10
40	U	40	U	40	U	40	U	13.9	J	6.8	J	98.3
10600		6660		8120		1090	J	8180	J	4930	J	6690
35	U	35	U	35	U	35	U	35	U	35	U	35
10	U	10	U	10	U	10	U	10	UJ	10	UJ	10
27700		7370		5130		1240	J	3440	J	12000		5380
439		99		461		15		149		201		182
1.7	J	2.1	J	50	U	50	U	50	U	50	U	50
60	U	60	U	60	U	60	U	350		17.9	J	2220

XK3 -21A 03003 081309AX ug 09	MA2XK5 MW-21A 9229003004 MW-21A-081309AD 13 Aug 09		MA2XL1 MW-20A 9229003006 MW-20A-081409AX 14 Aug 09		MA2XL3 MW-17A 9229003007 MW-17A-081409AX 14 Aug 09		MA2XL5 MW-21C 9229003008 MW-21C-081409AX 14 Aug 09		MA2XL7 MW-19A 9229003009 MW-19A-081409AX 14 Aug 09		MA2XL9 MW-18A 9229003010 MW-18A-081409AX 14 Aug 09	
	29200		5050		292		12400		16800		28500	
J	4.5	J	2.9	J	10	U	4.7	J	4.8	J	4.8	J
J	29.8	J	25.1	J	31.1	J	28.4	J	14.4	J	33.1	J
J	17.2	J	4.3	J	5	U	12.7	J	6.4		15.8	
	72300		26300		29000		110000		40500		53600	
J	8.8	J	10	U	10	U	10	U	10.4		14	
	301		93.8		50	U	220		241		338	
	7980		5860		25	U	5490		14500		20700	
	84500		178		420		66300		128		3660	
UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ
	23900		5110		2100	J	20000		11400		19500	
	2610		641		51.4		3000		1620		2380	
U	10	U	10	U	10	U	10	U	10	U	10	U
	105		39	J	40	U	92.4		81.8		129	
J	7310	J	4750	J	3310	J	7040	J	5380		5580	
U	35	U	35	U	35	U	35	U	35	U	35	U
UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ
J	5840	J	3820	J	1810	J	6730		5460		3180	J
	194		81		129		350		150		101	
U	50	U	50	U	50	U	50	U	50	U	50	U
	2310		352		60	U	1440		622		1790	

MA2XM1 MW-19C 9229003011 MW-19C-081409AX 14 Aug 09		MA2XM3 PW-01 9231052001 PW-01X-081709AX 17 Aug 09		MA2XM5 PW-05 9231052002 PW-05X-081709AX 17 Aug 09		MA2XN1 BM-01 9231052004 BM-01X-081809AX 18 Aug 09		MA2XN3 9231052005 EB-01X-081809AX 18 Aug 09		MA2XN5 PW-03 9231052006 PW-03X-081809AX 18 Aug 09		MA2 PW 92310 PW-04X-0 18 Au
7680		57.7	J	3730		109	J	200	U	200	U	200
3.1	J	10	U	10	U	10	U	3.2	J	10	U	10
15.5	J	12.9	J	39.8	J	4.1	J	200	U	15.8	J	24.4
5.7		5	U	2.2	J	5	U	5	U	5	U	0.25
94300		10000		24300		10700		57.6	J	8570		4390
10	U	10	U	5.6	J	10	U	10	U	10	U	10
164		50	U	66.1		50	U	50	U	50	U	9.2
10600		15.2	J	2530		25	U	1.1	J	18.4	J	32.4
27.3	J	134		1350		473		100	U	29.2	J	2780
10	UJ	10	U	10	U	10	U	10	U	10	U	10
14900		1220	J	5470		1130	J	5000	U	861	J	642
1140		19.8		516		14.1	J	15	U	3.2	J	415
10	U	10	U	10	U	10	U	10	U	10	U	10
77.3		1.1	J	28.7	J	1.9	J	40	U	40	U	1.8
8040		1630	J	3810	J	1890	J	5000	UJ	1220	J	965
35	U	35	U	35	U	35	U	35	U	35	U	35
10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10
6970		1200	J	2330	J	1200	J	70.7	J	1000	J	825
289		44.1		106		45.3		10	U	38.3		23.8
50	U	50	U	50	U	50	U	50	U	50	U	50
505		60	U	236		60	U	5.3	J	60	U	60

XN7 -04 52007)81809AX ug 09	MA2XN9 PW-02 9231052008 PW-02X-081809AX 18 Aug 09		MA2XP1 PW-06 9232055001 PW-06X-081809AX 18 Aug 09		MA2XP3 9232055004 EB-01X-081909AX 19 Aug 09		MA2XP5 PW-07 9232055005 PW-07X-081909AX 19 Aug 09		MA2XP7 PW-07 9232055006 PW-07X-081909AD 19 Aug 09		MA2XR3 SS-27 9244007001 SS-27X-082609AX 26 Aug 09	
U	200	U	549		200	U	4390		4170		4140	J
U	10	U	10	U	10	U	10	U	10	U	2.2	J
J	17	J	27.4	J	200	U	44.1	J	42.8	J	111	J
											0.18	J
J	5	U	0.64	J	5	U	3.1	J	3.1	J		
J	8040		28600		5000	U	31600		31200		22400	J
U	10	U	0.53	J	10	U	1.2	J	0.62	J	12.1	J
J	50	U	9.9	J	50	U	87.5		88		7.5	J
	13.3	J	128		25	U	3160		3120		1370	J
	49.5	J	461	J	100	UJ	574	J	105	J	8320	J
U	10	U	10	U	10	U	10	U	10	U	82	J
J	843	J	4610	J	5000	U	7000		6840		1670	J
	7.6	J	89.5	J	15	U	710	J	699	J	893	J
U	10	U	10	U	10	U	10	U	10	U		
J	40	U	5.8	J	40	U	34.7	J	33.8	J	27.4	J
J	1220	J	3670	J	5000	U	4700	J	4630	J	795	J
U	35	U	35	U	35	U	35	U	35	U		
UJ	10	UJ	10	U	10	U	10	U	10	U	1.6	J
J	1020	J	2160	J	18.7	J	2780	J	2760	J	65.1	J
	36.1		120		10	U	136		134		107	J
U	50	U	50	U	50	U	50	U	50	U	14.4	J
U	60	U	33.2	J	6.1	J	316		315		99	J

MA2XR4 SS-27 9244007002 SS-27X-082609BX 26 Aug 09		MA2XR5 SS-36 9244007003 SS-36X-082609AX 26 Aug 09		MA2XR6 SS-37 9244007004 SS-37X-082609AX 26 Aug 09		MA2XR7 SS-37 9244007005 SS-37X-082609AD 26 Aug 09		MA2XR8 SS-38 9244007008 SS-38X-082609AX 26 Aug 09		MA2XR9 SS-39 9244007009 SS-39X-082609AX 26 Aug 09		MA2 T 92440 TN-10X-0 27 Au
28500		22800		6600		7130		4740		7620		19100
2.3	J	1	UJ	0.99	UJ	1	UJ	0.99	UJ	1	UJ	1
102		56.5		97.9		104		68.3		127		43.8
0.52		0.53		0.5	UJ	0.5	UJ	0.5	UJ	0.5	U	0.45
5430		1120		72.9	J	65.1	J	122	J	65.9	J	741
82.5		48		43		45.5		53.6		46.2		48.6
26.2		15.9		9.2		8.8		7.2		22.2		9.7
1180	J	114	J	632	J	503	J	655	J	611	J	135
36800		25900		103000		97500		107000		126000		24900
10.2	J	10	J	13.3	J	12.2	J	13.6	J	36.8	J	15.9
13100		8510		4410		4830		2600		6430		5400
1170	J	296	J	68.9	J	68.1	J	81.9	J	233	J	263
61.5		44.8		21.5		22.3		15.3		8.2		32.8
4840		1490		4970		5810		2360		12800		1320
0.51	J	0.23	J	1.8		1.9		2.4		3		0.38
113	J	50.8	J	201	J	247	J	122	J	537		43.6
22.8		5.4		3.8		4.1		2.3		10.9		4.4
67.5		52.5		65.6		64		72.5		91.6		47.5
85.7		63.9		23.5		22.3		22.1		49.4		76.1

XS0 P 07010 82709AX ug 09	MA2XS1 TO 9244007011 TO-05X-082709AX 27 Aug 09		MA2XS2 SS-25 9244007012 SS-25X-082709AX 27 Aug 09		MA2XS3 SS-23 9244007013 SS-23X-082709AX 27 Aug 09		MA2XS4 SS-22 9244007014 SS-22X-082709AX 27 Aug 09		MA2XS5 SS-19 9244007015 SS-19X-082709AX 27 Aug 09		MA2XS6 SS-18 9244007016 SS-18X-082709AX 27 Aug 09	
	14100		4210	J	11300		7150		2500		3560	J
UJ	1	UJ	3.5	J	3.2	J	3.2	J	1.9	J	1.6	J
	75		177	J	75.1		44.2		117		203	J
J	0.25	J	0.3	J	0.3	J	0.12	J	0.08	J	0.16	J
	1180		20500	J	4520		1750		5850		3470	J
	43.6		14	J	30.1		26.1		7.8		10.7	J
	18		4.9	J	18		6.1		3.9	J	11.3	J
J	1100	J	231	J	103	J	149	J	74	J	1280	J
	74000		5820	J	17000		18400		6120		14400	J
J	17.9	J	116	J	71.2	J	78.3	J	34.7	J	39.2	J
	5400		1830	J	4600		3110		1300		1420	J
J	383	J	991	J	450	J	62.3	J	452	J	83.2	J
	22.7		15.6	J	23.1		15.8		7.2		10.5	J
	3290		1070	J	962		851		754		1130	J
J	1.4		0.77	J	0.41	J	4		0.51	J	3.7	J
J	125	J	63.3	J	50.2	J	37.4	J	28	J	60.3	J
	7.2		107	J	24.8		11.3		40.5		26.8	J
	55.2		25.4	J	36		39.2		16.1		13.5	J
	85.7		43.2	J	71.7		103		160		52.8	J

MA2XS7 TD 9244007017 TD-03X-082809-AX 28 Aug 09		MA2XS8 TD 9244007018 TD-05X-082809-DX 28 Aug 09		MA2XS9 SS-13 9244007019 SS-13X-082809AX 28 Aug 09		MA2XT0 MW-23A 9244007020 MW-23A-083109AX 31 Aug 09		MA2XT1 SS-15 9244007021 SS-15X-083109AX 31 Aug 09		MA2XT2 SS-14 9244007022 SS-14X-083109AX 31 Aug 09		MA2 SS- 92440 SS-20X-0 31 Au
4180		14800		17700	J	4020		1580	J	6050		7340
1	UJ	1	UJ	9.4	J	1	UJ	2.6	J	3.5	J	2.3
49.2		58.3		220	J	90.2		102	J	108		34.3
0.5	U	0.23	J	1.6	J	0.042	J	0.062	J	0.13	J	0.11
113	J	500	J	9990	J	455	J	4710	J	3360		558
25.4		57.6		20	J	33.4		5.3	J	21.2		23.1
5.5		8.4		28.9	J	2.8	J	4.3	J	6.8		4.4
2750	J	420	J	995	J	309	J	31.4	J	142	J	85.9
100000		18800		11800	J	42100		3400	J	18800		15400
29	J	9.5	J	118	J	7.7	J	63.9	J	93.9	J	47
2260		7110		2280	J	1320		1040	J	2960		2990
60.3	J	103	J	8380	J	31.7	J	50.3	J	217	J	62.7
11		27.3		57.7	J	5.9		7.4	J	15.9		16.1
3250		1830		1060	J	4280		951	J	1430		1000
2.1		0.23	J	1	UJ	1.3		0.4	J	1.5		0.42
115	J	40.2	J	82.8	J	554		29.7	J	70.4	J	32.3
2.8		3.9		63.6	J	23.5		40.4	J	20.8		5.5
43.8		35.9		20.6	J	36.3		12.9	J	38.2		31.1
184		70.5		49.2	J	23.5		69.2	J	122		59.5

XT3 -20 45001 83109AX ug 09	MA2XT4 SS-20 9244045002 SS-20X-083109BX 31 Aug 09		MA2XT5 SS-17 9244045003 SS-17X-083109AX 31 Aug 09		MA2XT6 MW-20A 9244045004 MW-20A-083109AX 31 Aug 09		MA2XT7 MW-21A 9244045005 MW-21A-083109AX 31 Aug 09		MA2XT8 SS-24 9244045006 SS-24X-083109AX 31 Aug 09		MA2XW0 SS-21 9244045008 SS-21X-083109AX 31 Aug 09	
	26000		13000		27900		3850		5150		4320	
	0.7	J	4.2		0.91	J	1	U	2.4		1.4	
	47.4		56.7		55.9		78.4		148		14.6	J
J	0.76		0.27	J	0.57		0.5	U	0.11	J	0.068	J
	741		2930		817		138	J	8020		1270	
	54		35.2		61.9		35.9		14.8		13.5	
J	8.4		9.2		11.5		7.5		7.3		4.5	J
	192		265		292		2240		45.8		50.8	
	33500		28700		28100		170000		8870		8560	
J	12.2	J	59.8	J	10.7	J	42.6	J	107	J	26	J
	7030		4880		7670		2110		2470		1620	
J	119	J	214	J	370	J	61.9	J	1160	J	70	J
	39.5		25.1		47.4		5.3		13.7		8.6	
J	1370	J	1750	J	1680	J	6380	J	951	J	401	J
J	0.49	J	2.4		0.44	J	8.9		0.51	J	0.16	J
J	44.3	J	53.3	J	56.2	J	614		28.9	J	23	J
J	3.5	J	9.7	J	3.8	J	18.7	J	35	J	4.8	J
	64.1		46.3		59.7		75.7		20.5		20.3	
	65.4		113		55.6		235		122		28.8	

MA2XY3 SS-07 9247054001 SS-07X-090209AX 02 Sep 09		MA2XY4 SS-07 9247054002 SS-07X-090209BX 02 Sep 09		MA2XY5 SS-01 9247054003 SS-01X-090209AX 02 Sep 09		MA2XY6 SS-01 9247054004 SS-01X-090209BX 02 Sep 09		MA2XY7 SS-02 9247054005 SS-02X-090209AX 02 Sep 09		MA2XY8 SS-02 9247054006 SS-02X-090209BX 02 Sep 09		MA2 SS- 92470 SS-03X-0 02 Se
20200		27400		15500		11900		14200		26400		20200
1.5	JEB	0.46	JEB	3.1		0.81	JEB	3.7		1.3	JEB	1.9
37.6		53.8		74.8		88.8		81.9		43.2		91.5
0.48	J	0.7		0.29	J	0.26	J	0.27	J	0.58		0.41
651		1190		2110		1720		675		531		1420
39.4		57.9		46.2		39.9		44.8		56.8		46.2
7.1		11.7		14.9		9.2		16		6.7		11.4
26.4		23.5		362		172		494		418		188
22800		31200		31000		17100		34000		27700		25300
34.9	J	8.8	J	295	J	6.6	J	29.7	J	11.6	J	17.9
6050		9010		7860		6300		7110		5880		9380
120	J	236	J	200	J	325	J	116	J	117	J	222
25.1		37		34.2		27.3		31.1		29.5		40.8
851		1380		3430		4230		3980		1540		5110
1	U	1	U	4		0.5	J	1.5		0.63	J	0.54
29.3	JEB	49.4	JEB	137	JEB	135	JEB	197	J	44.9	JEB	101
2.8		4.5		10.6		11.5		5.9		2.7		4.5
46.3		71.1		47.6		33.4		43.2		46.8		51.1
55.6		72.4		108		65		73.5		58.6		55.8

XY9 -03 54007 90209AX ep 09	MA2XZ0 SS-03 9247054008 SS-03X-090209BX 02 Sep 09		MA2XZ1 SS-08 9247054009 SS-08X-090209AX 02 Sep 09		MA2XZ3 SS-09 9247054010 SS-09X-090209AX 02 Sep 09		MA2XZ4 TF 9247054013 TF-11X-090909AX 02 Sep 09		MA2XZ5 TF 9247054014 TF-13X-090909BX 02 Sep 09		MA2XZ7 9247054016 EB-01X-090309AX 03 Sep 09	
	20900		8560		17900		13600		11300		200	U
JEB	0.61	JEB	1.1	JEB	2.8		1	U	1	U	10	U
	82.2		62.3		67.1		99.4		77.7		200	U
J	0.46	J	0.21	J	0.36	J	0.18	J	0.15	J	5	U
	1410		1680		463	J	130	J	909		62.3	J
	46.8		28.4		53.2		57.8		39		10	U
	13.7		31.6		17.1		17.8		66.5		50	U
	283		848		699		5610		7850		25	U
	29600		25900		34300		135000		30700		100	U
J	10.4	J	8.8	J	22.9	J	46.1	J	4.8	J	10	U
	9410		4540		6990		5420		6670		5000	U
J	237	J	441	J	256	J	108	J	109	J	15	U
	41.6		27.3		29.2		19.8		36.9		40	U
	4200		2060		2960		3940		3980		5000	U
J	0.69	J	1.1		1.5		7.4		2.4		10	U
JEB	85.8	JEB	65	JEB	58.9	JEB	79.1	JEB	84.3	JEB	23.6	J
	4.7		4.8		2.4		2.2		2.8		10	U
	51		35.2		61.6		91.9		33.6		50	U
	72.2		54.5		97.1		140		107		3.4	J

MA2XZ8 9247054017 EB-02X-090309AX 03 Sep 09		MA2XZ9 9247054018 EB-03X-090309AX 03 Sep 09		MA2Y00 SS-10 9247054019 SS-10X-090309AX 03 Sep 09		MA2Y01 SS-11 9247054020 SS-11X-090309AX 03 Sep 09		MA2Y02 SS-12 9247054021 SS-12X-090309AX 03 Sep 09		MA2Y03 SS-16 9247054022 SS-16X-090309AX 03 Sep 09		MA2 MW- 92610 MW-19D-(15 Se
200	U	200	U	12400		41900	J	5910		19500		3130
4.4	J	10	U	2.6		6.5	J	0.76	JEB	2.3		10
200	U	200	U	63.4		122	J	28.8		55.2		27.6
5	U	5	U	0.41	J	0.82	J	0.15	J	0.54		
												2.5
59.9	J	94.6	J	4780		2770	J	2510		1850		74100
10	U	10	U	21.9		111	J	20.6		40.4		5.6
50	U	50	U	10.6		18.1	J	5.8		13.7		49.9
25	U	25	U	605		897	J	149		80.1		1360
100	U	100	U	20800		78700	J	9760		26300		4510
10	U	10	U	93.9	J	74.9	J	19.5	J	18.7	J	2.3
5000	U	5000	U	3700		16200	J	2230		6330		11500
15	U	15	U	360	J	306	J	139	J	1070	J	625
												10
40	U	40	U	16.7		66.3	J	10.6		32		45.4
5000	U	5000	U	529		4520	J	402	J	1310		7040
												35
10	U	10	U	0.86	J	3	J	1	U	1	U	10
5000	U	29.9	J	43	JEB	145	J	27.4	JEB	46.2	JEB	3390
10	U	10	U	31.5		18.1	J	11.5		6.4		179
50	U	50	U	31.4		128	J	18.3		54.8		4.6
60	U	3.9	J	129		164	J	37.2		67.5		699

Y04 19D 06001 091509AX ep 09	MA2Y06 MW-19D 9261006002 MW-19D-091509AD 15 Sep 09		MA2Y08 MW-19D 9261006005 MW-19D-091509BX 15 Sep 09		MA2Y10 9261011001 EB-01X-091609AX 16 Sep 09		MA2Y16 MW-20D 9261011006 MW-20D-091609AX 16 Sep 09		MA2Y18 MW-20D 9261058001 MW-20D-091709AX 17 Sep 09		MA2Y20 MW-14D 9261058002 MW-14D-091709AX 17 Sep 09	
	2960		6810		200	U	171	J	93	J	165	J
U	10	U	10	U	10	U	10	U	10	U	10	U
J	26.7	J	10.9	J	200	U	21.7	J	68.1	J	5.4	J
J	2.7	J	6.6		5	U	5	U	5	U	5	U
	72700		44400		56.9	J	40800		62700		26100	
J	6.1	J	2.1	J	30.8	J	0.7	J	0.85	J	1.2	J
J	51.1	J	153	J	50	UJ	50	UJ	50	UJ	50	UJ
	1340		8910		25	U	25	U	25	U	25	U
J	5030	J	509	J	137	J	263	J	169	J	1360	J
J	10	U	2.8	J	10	U	10	U	10	U	10	U
	11400		9640		5000	U	2380	J	2430	J	4160	J
J	636	J	1290	J	15	U	15	U	15	U	35.3	J
U	10	U	10	U	10	U	10	U	10	U	10	U
	46.7		86.5		40	U	40	U	40	U	40	U
J	6960	J	6130	J	5000	UJ	6450	J	6390	J	4670	J
U	35	U	35	U	35	U	35	U	35	U	35	U
U	10	U	10	U	10	U	10	U	10	U	10	U
J	3430	J	3230	J	5000	UJ	5610	J	4930	J	3700	J
	175		122		10	U	244		356		119	
J	5	J	50	U	50	U	3.8	J	50	U	50	U
	781		994		3.2	J	38.2	J	39	J	44.8	J

MA2Y22 MW-14D 9262021001 MW-14D-091809AX 18 Sep 09		MA2Y24 MW-14D 9262021002 MW-14D-091809BX 18 Sep 09		MA2Y26 SW-49 9323035001 SW-49-111609AX 16 Nov 09		MA2Y28 SW-77 9323035002 SW-77-111609AX 16 Nov 09		MA2Y31 SW-78 9323035003 SW-78-111609AX 16 Nov 09		MA2Y33 SW-79 9323035004 SW-79-111609AX 16 Nov 09		MA2 SW 93230 SW-75-1 16 N
605		200	U	5510		458		19800		16900		17400
10	U	2.6	J									
18.4	J	6.1	J									
				5	U	5	U	1.2	J	1.2	J	5
5	U	5	U									
25200		25000		35200		4080	J	63100		56500		41500
2.7	J	132	J	2.3	J	10	U	5	J	5.4	J	11.1
4	J	50	UJ	45	J	11.2	J	320		206		218
25	U	25	U									
1550	J	1550	J	1560		74.7	J	2160		1020		17400
10	U	10	U									
4190	J	4100	J	9060		1100	J	17300		14200		16000
287	J	85.4	J	687		126		1860		1590		1500
10	U	12		10	U	10	U	10	U	10	U	10
40	U	40	U									
4200	J	6070	J	5810		1020	J	8630		6330		2250
35	U	35	U									
10	U	10	U									
3450	J	4330	J	2710	J	958	J	4630	J	3830	J	2940
112		117		74.9		21.1		209		205		55.3
50	U	50	U									
95.2		192		288		40.9	J	816		588		1240

Y34 -75 35005 11609AX ov 09	MA2Y36 SW-47 9323035006 SW-47-111609-AX 16 Nov 09		MA2Y38 SW-48 9323035007 SW-48-111609AX 16 Nov 09		MA2Y39 SW-80 9323035008 SW-80-111609AX 16 Nov 09		MA2Y42 SW-45 9323035009 SW-45-111709AX 17 Nov 09		MA2Y44 SW-45 9323035010 SW-45-111709AD 17 Nov 09		MA2Y46 SW-46 9323035011 SW-46-111609AX 17 Nov 09	
	23300		1440		5590		24100		22600		18400	
U	1.4	J	5	U	5	U	1.2	J	5	U	5	U
	60900		6140		24500		58900		55300		41500	
	14.6		10	U	0.43	J	2.7	J	2.5	J	3.4	J
	329		18.4	J	74.2		221		213		160	
	28300		19.3	J	100	U	516		525		330	
	17600		1630	J	5680		15800		14900		13600	
	1840		192		613		1620		1560		1610	
U	10	U	10	U	10	U	10	U	10	U	10	U
J	5070		1350	J	3490	J	6130		5580		3840	J
J	4580	J	1010	J	2080	J	3970	J	3730	J	3540	J
	177		28.2		100		137		132		79.4	
	1190		235		304		1760		1680		883	

MA2Y47 SW-81 9323035012 SW-81-111709AX 17 Nov 09		MA2Y49 SW-82 9323035013 SW-82-111709AX 17 Nov 09		MA2Y50 SW-71 9323035014 SW-71-111709AX 17 Nov 09		MA2Y53 SW-42 9323035015 SW-42-111709AX 17 Nov 09		MA2Y57 SW-29 9323035016 SW-29-111709AX 17 Nov 09		MA2Y59 SW-17 9323035017 SW-17-111709AX 17 Nov 09		MA2 SW 93250 SW-41-1 17 N
23100		18300		321	U	23600		4030		200	U	1239
1.2	J	5	U	5	U	1.2	J	5	U	5	U	5
55800		48100		20400		51600		22600		7470		10706
8	J	3.6	J	10	U	0.99	J	10	U	10	U	10
225		177		6	J	217		56.1		50	U	15.8
1660		1110		1290		80.8	J	100	U	100	U	85.7
18300		13800		3840	J	13600		4820	J	803	J	2028
2040		1700		408		1610		473		2.4	J	167
10	U	10	U	10	U	10	U	10	U	10	U	10
												7
5100		5370		2460	J	4570	J	3370	J	506	J	1648
3840	J	3680	J	1310	J	3260	J	1810	J	533	J	1241
123		121		104		138		94.6		31.5		38.9
1240		919		131		1680		239		2.7	J	121

:Y61 -41 39001 11709AX ov 09	MA2Y70 SW-83 9325039006 SW-83-111809AX 18 Nov 09		MA2Y72 SW-83 9325039007 SW-83-111809AD 18 Nov 09		MA2Y74 SW-73 9325039008 SW-73-111809AX 18 Nov 09		MA2Y76 SW-72 9325039009 SW-72-111809AX 18 Nov 09		MA2Y78 SW-51 9325039010 SW-51-111809AX 18 Nov 09		MA2Y80 SW-40 9325039011 SW-40-111709AX 17 Nov 09	
	18765		18792		200	U	2352		200	U	544	
U	5	U	5	U	5	U	5	U	5	U	5	U
	48422		48504		11052		10246		10795		9905	
U	3.6	J	3.6	J	10	U	4.3	J	10	U	10	U
J	182	J	182	J	0.88	J	1.6	J	50	UJ	7.6	J
J	1648		1615		59.9	J	3672		60.3	J	100	U
J	14217		14164		1146	J	1828	J	1232	J	1413	J
J	1774		1776		15.5	J	127	J	16.1	J	68.1	J
U	10	U	10	U	10	U	10	U	10	U	10	U
J	74.4		74.2		0.99	J	4.2	J	0.56	J	3.9	J
J	5590	J	5059	J	912	J	1659	J	1417	J	1641	J
J	3822	J	3809	J	1208	J	1305	J	1284	J	1054	J
	124		124		50.6		57.3		53.1		41.6	
	978		981		6.5	J	9.8	J	3.7	J	37.5	J

MA2Y82 SW-13 9325039012 SW-13-111809AX 18 Nov 09		MA2Y84 SW-32 9325039013 SW-32-111809AX 18 Nov 09		MA2Y86 SW-12 9325039014 SW-12-111809AX 18 Nov 09		MA2Y88 SW-84 9325039015 SW-84-111809AX 18 Nov 09		MA2Y90 SW-36 9325039016 SW-36-111809AX 18 Nov 09		MA2Y92 SW-34 9325039017 SW-34-111809AX 18 Nov 09		MA2 SW 93250 SW-04-1 18 N
349	U	5293		2774		200	U	200	U	2991		289
5	U	5	U	5	U	5	U	5	U	5	U	5
9697		18639		14459		5521		5170		9855		24399
10	U	1.9	J	1	J	10	U	10	U	10	U	10
5.7	J	54.4	J	30	J	0.43	J	50	UJ	35.4	J	2.4
100	U	5447		2595		155		178		154		251
1339	J	4965	J	3158	J	853	J	796	J	2163	J	1495
47.2	J	528		284	J	11.7	J	3.7	J	249	J	26.5
10	U	10	U	10	U	10	U	10	U	10	U	10
3.4	J	18.2	J	10.9	J	0.65	J	0.75	J	12.2	J	1.3
1046	J	2585	J	2092	J	1280	J	1387	J	2911	J	1504
1004	J	1862	J	1464	J	1102	J	1098	J	2204	J	2598
39.7		59.2		50.5		28.2		26.2		45		122
29.9	J	307		168		60	U	60	U	167		14.3

:Y94	MA2Y96		MA2Y98		MA2ZB3		MA2Z02		MA2Z03		MA2
-04	SW-09		SW-38		SW-43		MW-01A		MW-01B		MW-
39018	9325039019		9325039020		9339025001		9331002001		9331002002		93310
11909AX	SW-09-111909AX		SW-38-111909AX		SW-43-120209AX		MW-01A-112009AX		MW-01B-112009AX		MW-02B-1
ov 09	19 Nov 09		19 Nov 09		02 Dec 09		20 Nov 09		20 Nov 09		20 No
U	2992		200	U	103590		428		200	U	200
							10	UJ	10	UJ	10
							15.2	J	37.9	J	35.7
U	5	U	5	U	1.9	J					
							1.3	J	5	U	5
	14656		25369		109890		34973		84899		59730
U	1.2	J	10	U	125		10	U	10	U	10
J	33.8	J	50	UJ	1174		123	J	50	UJ	50
							1119		7.4	J	25
	3527		35.7	J	20131		193		81	J	386
							10	U	10	U	10
J	3204	J	1382	J	67619		6419		9708		8559
J	285	J	8	J	5230		558		9.1	J	50.1
U	10	U	10	U	1.4	J	10	U	10	U	10
J	11.2	J	0.61	J	308		11.3	J	40	U	40
J	2127	J	1122	J	5116		7154	J	5815	J	4664
							35	U	35	U	35
							10	U	0.43	J	0.48
J	1579	J	2511	J	7970		35458	J	7503	J	9543
	53.9		130		144		167		399		372
							50	UJ	2.2	J	50
J	178		60	U	8192		661		60	U	60

:Z05	MA2Z07		MA2Z09		MA2Z11		MA2Z13		MA2Z15		MA2
·02B	MW-02C		MW-14C		MW-10B		MW-01C		MW-10C		MW-
02003	9331002004		9331002005		9331002006		9331002007		9331002008		93310
112009AX	MW-02C-112009AX		MW-14C-112309AX		MW-10B-112309AX		MW-01C-112309AX		MW-10C-112309AX		MW-14A-:
ov 09	20 Nov 09		23 Nov 09		23 Nov 09		23 Nov 09		23 Nov 09		23 No
U	200	U	200	U	200	U	200	U	200	U	200
UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10
J	26.2	J	10	J	5.8	J	21.1	J	4.1	J	5.7
U	5	U	5	U	5	U	5	U	5	U	5
	53109		23368		4498	J	59739		21249		7050
U	0.38	J	0.41	J	10	U	0.71	J	0.39	J	10
UJ	50	UJ	50	UJ	50	UJ	50	UJ	50	UJ	50
UJ	25	UJ	25	UJ	8.2	J	25	UJ	25	UJ	29.4
	378		45.2	J	100	U	100	U	179		17.9
U	10	U	10	U	10	U	10	U	10	U	10
	8103		3910	J	978	J	7677		4865	J	1270
J	12.8	J	14.9	J	2.1	J	15	U	1.8	J	21.5
U	10	U	10	U	10	U	10	U	8	J	10
U	40	U	1.3	J	0.66	J	40	U	40	U	0.81
J	4446	J	4431	J	1143	J	3663	J	3817	J	1957
U	35	U	35	U	35	U	35	U	6.5	J	35
J	10	U	10	U	0.74	J	10	U	10	U	10
J	8488	J	4198	J	1371	J	4337	J	2651	J	1523
	229		102		22.7		246		58.7		53.9
UJ	2.8	J	1.2	J	50	UJ	3.4	J	50	UJ	50
U	3	J	60	U	5.1	J	60	U	2.8	J	60

:Z17	MA2Z19		MA2Z21		MA2Z23		MA2Z25		MA2Z31		MA2
·14A	MW-11C		MW-23A		MW-03C		MW-20C		MW-17A		MW-
02009	9331002012		9331002013		9331002014		9331002015		9331002020		93310
112309AX	MW-11C-112309AX		MW-23A-112309AX		MW-03C-112309AX		MW-20C-112309AX		MW-17A-112409AX		MW-15A-:
ov 09	23 Nov 09		23 Nov 09		23 Nov 09		23 Nov 09		24 Nov 09		24 No
U	200	U	200	U	200	U	200	U	200	U	200
UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10
J	19.6	J	94.7	J	7.1	J	35.3	J	28.2	J	23.6
U	5	U	0.17	J	5	U	0.96	J	5	U	5
	38936		4905	J	7912		39485		22720		17565
U	10	U	10	U	10	U	10	U	10	U	10
UJ	50	UJ	50	UJ	50	UJ	50	UJ	50	UJ	50
	1.5	J	197		3.3	J	476		25	UJ	1.1
J	71.3	J	100	U	100	U	20.3	J	100	U	62.9
U	10	U	10	U	10	U	10	U	10	U	10
J	5250		714	J	744	J	3720	J	1869	J	1281
J	14.2	J	19	J	15	U	85	J	12.5	J	243
U	10	U	10	U	10	U	10	U	10	U	10
J	40	U	2.7	J	40	U	6.2	J	40	U	2.1
J	4028	J	915	J	1351	J	4625	J	1315	J	2868
U	35	U	35	U	35	U	35	U	35	U	35
U	0.52	J	0.62	J	10	U	10	U	0.37	J	10
J	4936	J	1281	J	1284	J	9433	J	1696	J	4385
	186		15.2		45.6		178		112		67
UJ	50	UJ	50	UJ	0.78	J	1.3	J	50	UJ	50
U	60	U	8.5	J	60	U	32.6	J	60	U	33.8

:Z33	MA2Z35		MA2Z37		MA2Z39		MA2Z41		MA2Z43		MA2
·15A	MW-04A		MW-08A		MW-08A		MW-16A		MW-04C		MW-
02021	9331002022		9331002023		9331002024		9331002025		9331002026		93350
112409AX	MW-04A-112409AX		MW-08A-112409AX		MW-08A-112409AD		MW-16A-112409AX		MW-04C-112409AX		MW-12C-:
ov 09	24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 No
U	16336		21028		21432		200	U	200	U	1108
UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10
J	15.3	J	12.1	J	10.8	J	14.4	J	20.7	J	17.4
U	9.5		11.3		11.3		5	U	0.18	J	3.3
	29438		59970		60837		32854		62269		42241
U	10	U	10	U	10	U	10	U	10	U	10
UJ	272	J	222	J	224	J	50	UJ	50	UJ	47
J	10367		7998		8609		2.9	J	3.8	J	1423
J	187		41.7	J	35.8	J	100	U	100	U	100
U	10	U	10	U	10	U	10	U	10	U	10
J	13013		15721		15996		2121	J	6576		8163
J	1276		1698		1731		149	J	155	J	358
U	10	U	10	U	10	U	10	U	10	U	10
J	108		98.4		99.7		40	U	2	J	27.1
J	5924	J	5197	J	5317	J	3105	J	5201	J	3697
U	35	U	35	U	35	U	35	U	35	U	35
U	10	U	0.92	J	0.46	J	0.64	J	10	U	10
J	3923	J	3911	J	3741	J	2090	J	4794	J	2534
	87.5		138		141		173		213		169
UJ	50	UJ	50	UJ	50	UJ	50	UJ	50	UJ	50
J	810		1577		1584		60	U	6.2	J	466

:Z45	MA2Z47		MA2Z49		MA2Z51		MA2Z53		MA2Z55		MA2
·12C	MW-21C		MW-13A		MW-05B		MW-09C		MW-06A		MW-
23001	9335023002		9335023003		9335023004		9335023005		9335023006		93350
112409AX	MW-21C-112409AX		MW-13A-112409AX		MW-05B-112409AX		MW-09C-112409AX		MW-06A-112509AX		MW-05C-:
ov 09	24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		25 No
	21910		200	U	200	U	200	U	200	U	200
U	10	U	10	U	10	U	10	U	10	U	10
J	16.9	J	21.1	J	19.3	J	20.4	J	18	J	18
J	13	J	5	U	5	U	5	U	5	U	5
	86150		26951		143013		131810		13784		123450
U	3.7	J	10	U	10	U	10	U	10	U	0.49
J	267	J	50	UJ	50	UJ	50	UJ	50	UJ	50
	7936		25	U	25	U	25	U	25	U	25
U	76524		20.8	J	168		161		67	J	42
U	5.2	J	10	U	10	U	10	U	10	U	10
	22523		4048	J	15647		14925		1388	J	18871
J	2381		2.4	J	381	J	88.1	J	6.9	J	11.1
U	10	U	10	U	6.4	J	34.6		10	U	10
J	97.6		40	U	1.1	J	3	J	0.54	J	2.8
J	6627	J	3335	J	8549	J	9749	J	1816	J	7470
U	35	U	35	U	35	U	35	U	35	U	35
UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	0.5
J	6716	J	1925	J	6776	J	18443	J	1952	J	7024
	298		132		542		389		47		431
U	3	J	50	U	50	U	50	U	50	U	50
	1902		60	U	60	U	60	U	60	U	38.5

:Z57	MA2Z59		MA2Z61		MA2Z63		MA2Z65		MA2Z67		MA2
·05C	MW-07C		MW-06C		MW-07A		MW-19C		MW-02A		MW-
23007	9335023008		9335023011		9335023012		9335023013		9339026001		93390
112509AX	MW-07C-112509AX		MW-06C-112509AX		MW-07A-112509AX		MW-19C-112509AX		MW-02A-113009AX		MW-21A-:
ov 09	25 Nov 09		25 Nov 09		25 Nov 09		25 Nov 09		30 Nov 09		30 N
U	54.1	J	200	U	200	U	4145		3682		30479
U	10	U	10	U	10	U	10	U	10	U	5.9
J	10.6	J	14.6	J	16.2	J	15.1	J	30.7	J	15.5
U	5	U	5	U	5	U	5.8	J	4.9	J	12.9
	5343		83247		5785		82423		21508		60143
J	10	U	10	U	10	U	1.6	J	10	U	7.6
UJ	50	UJ	50	UJ	50	UJ	134	J	212	J	256
U	25	U	25	U	25	U	9713		27795		7053
J	32.8	J	100	U	100	U	100	U	51.4	J	84798
U	10	U	10	U	10	U	10	U	3	J	3.6
	706	J	7429		735	J	13294		3500	J	22448
J	3.2	J	15	U	15	U	1018		464	J	2153
U	10	U	10	U	10	U	10	U	10	U	10
J	0.62	J	1.7	J	40	U	68.3		31.4	J	88.1
J	644	J	4022	J	690	J	7095	J	9770	J	5591
U	35	U	35	U	35	U	35	U	35	U	35
J	10	UJ	10	UJ	10	UJ	0.33	J	10	UJ	10
J	860	J	2842	J	865	J	6236	J	20243	J	7074
	18.6		276		19.5		285		159		169
U	50	U	50	U	50	U	50	U	50	U	7.3
J	60	U	60	U	60	U	491		1951		1974

:Z70	MA2Z72		MA2Z74		MA2Z76		MA2Z82		MA2Z84		MA2
·21A	MW-21A		MW-22A		MW-19A		MW-05A		MW-05A		BM·
26004	9339026005		9339026006		9339026007		9339026012		9339026013		93390
113009AX	MW-21A-113009AD		MW-22A-113009AX		MW-19A-113009AX		MW-05A-120109AX		MW-05A-120109AD		BM-01-1:
ɔv 09	30 Nov 09		30 Nov 09		30 Nov 09		01 Dec 09		01 Dec 09		01 De
	30697		15029		1781		25017		25558		223
J	7.6	J	6.1	J	10	U	2.5	J	10	U	10
J	15.8	J	15.4	J	23.4	J	11	J	11.4	J	5.5
J	13	J	1.3	J	4.8	J	14.2	J	14.5	J	5
	61190		46834		122073		45954		47406		11777
J	7.7	J	2.9	J	2.7	J	0.51	J	0.4	J	1.6
J	258	J	44	J	130	J	282	J	286	J	0.65
	7278		74.6		2054		13346		13432		50
	85401		69372		1100		100	U	100	U	1468
J	10	U	10	U	10	U	10	U	10	U	2.4
	22596		15140		12956		14740		14997		1195
	2175		2053		2388		1838		1887		49.7
U	10	U	10	U	10	U	10	U	10	U	10
	88.7		14.2	J	49.9		113		115		3.6
J	5745	J	6532	J	8049	J	5693	J	6036	J	1468
U	35	U	35	U	35	U	35	U	35	U	35
UJ	10	UJ	10	UJ	10	UJ	0.35	J	10	UJ	10
J	7135	J	3809	J	5962	J	3623	J	3731	J	1164
	171		128		409		132		136		46.5
J	7.3	J	1.9	J	1.7	J	50	U	50	U	1.2
	1991		396		283		1757		1793		4.3

Z86	MA2Z88		MA2Z90		MA2Z92		MA2Z94		MA2ZA5		MA2
-01	MW-11A		MW-18A		MW-14D		MW-20A		MW-09A		MW-
26014	9339026015		9339026016		9339026017		9339026018		9339026019		93390
20109AX	MW-11A-120109AX		MW-18A-120109AX		MW-14D-120109AX		MW-20A-120109AX		MW-09A-120209AX		MW-20D-
ec 09	01 Dec 09		01 Dec 09		01 Dec 09		01 Dec 09		02 Dec 09		02 De
U	200	U	64456		200	U	12505		13296		200
U	10	U	5.4	J	10	U	10	U	2.7	J	10
J	26.5	J	14.6	J	5.9	J	15.1	J	12.6	J	38.6
U	0.3	J	36.5	J	5	U	6.2	J	8.3	J	5
	9232		104923		26103		29335		32912		54363
J	0.5	J	11.9		1.2	J	2	J	0.78	J	0.73
J	10.9	J	668		1.5	J	127	J	121	J	50
UJ	44.8		49581		1.1	J	9685		6519		5.5
	16731		1572		4275		166		30.9	J	315
J	10	U	6.3	J	10	U	10	U	10	U	10
J	1902	J	35401		3885	J	6041		10871		10293
J	1609		3506		71.1	J	796		1086		23
U	2	J	10	U	10	U	10	U	10	U	10
J	3.3	J	214		1.6	J	52.1		60.2		1.2
J	2974	J	5156	J	3639	J	3653	J	7151	J	5222
U	35	U	35	U	35	U	35	U	35	U	35
UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10
J	4172	J	4764	J	3108	J	3553	J	3804	J	4139
	52.1		102		107		71.5		154		246
J	0.87	J	2.1	J	1.1	J	50	U	50	U	0.77
J	17.1	J	3867		83.7		545		983		4.9

ZA7	MA2ZA9		MA2ZB5		MA2ZB7		MA2ZB9		MA2ZC1		MA2ZC3	
20D	MW-19D		M11LT19.0		M11LT55.1		M11LT60.0		M11LT63.0		M11LT064	
26020	9339026021		9345001001		9345001002		9345001005		9345001006		9345001007	
120209AX	MW-19D-120209AX		M11LT19.0-120809AX		M11LT55.1-120709AX		M11LT60.0-120709AX		M11LT63.0-120709AX		M11LT064-120709AX	
ec 09	02 Dec 09		08 Dec 09		07 Dec 09		07 Dec 09		07 Dec 09		07 Dec 09	
U	5694		46.8	J	200	U	200	U	200	U	79.3	J
U	2.6	J	10	U	10	U	10	U	10	U	10	U
J	11.9	J	6.1	J	3.7	J	5.7	J	10.4	J	7.5	J
U	5	J	5	U	5	U	5	U	5	U	5	U
	47480		29600		18700		33500		20800		19500	
J	2.5	J	10	U	10	U	10	U	10	U	10	U
UJ	141	J	50	U	50	U	50	U	50	U	50	U
J	7484		36.3		3.9	J	26.2		13.5	J	192	
	16948		62.9	J	105		78.5	J	100	U	104	
U	10	U	2.5	J	10	U	6.8	J	10	U	11.3	
	9504		4040	J	4320	J	6130		1110	J	4760	J
J	1433		15	U	15	U	34.6		11.5	J	2.4	J
U	10	U	10	U	10	U	10	U	10	U	10	U
J	87.4		1.1	J	40	U	40	U	40	U	0.87	J
J	5678	J	3460	J	2750	J	3750	J	1300	J	2670	J
U	35	U	35	U	35	U	35	U	35	U	35	U
UJ	10	UJ	0.51	J	10	U	0.63	J	10	U	10	U
J	3120	J	2330	J	3910	J	6980		1450	J	3500	J
	124		105		114		194		106		81.4	
J	50	U	50	U	1.7	J	1.6	J	50	U	1	J
J	519		45.8	J	9.6	J	11.2	J	10.5	J	153	

MA2ZC5 M11LT065 9345001008 M11LT065-120709AX 07 Dec 09		MA2ZC7 M11LT065 9345001009 M11LT065-1207090AD 07 Dec 09	
200	U	79.6	J
10	U	10	U
7.5	J	9	J
5	U	5	U
21000		20100	
10	U	10	U
50	U	50	U
244		89.5	
52.9	J	135	
32.4		16	
5300		5170	
15	U	2.6	J
10	U	10	U
0.7	J	40	U
3360	J	3130	J
35	U	35	U
0.4	J	0.41	J
2800	J	2690	J
83.8		80.1	
0.78	J	1	J
16.5	J	9.2	J

Ely Copper Mine - Vershire, VT
MS Dissolved Metals - 2009

Sample Name	MA2WZ2		MA2WZ3		MA2WZ4		MA2WZ5		MA2WZ6		MA2X18	
Sample Location	VP-1		VP-2		VP-3		VP-3		VP-4		SW-42	
Lab Sample ID	9217052001		9217052004		9217052005		9217052006		9217052007		9217048001	
Station ID	VP-01X-072909AX		VP-02X-072809AX		VP-03X-072809AD		VP-03X-072809AX		VP-04X-072809AX		SW-42X-080409AX	
Sample Date	29 Jul 09		28 Jul 09		28 Jul 09		28 Jul 09		28 Jul 09		04 Aug 09	
Chemical												
ANTIMONY	2	U	2	U	2	U	2	U	2	U	2	U
ARSENIC	1	U	1	U	1	U	1	U	1	U	1	U
BARIUM	24.3		12.6	J	13	J	13.8	J	16.1	J	14.3	J
BERYLLIUM												
CADMIUM	0.36	J	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	12.9	J
COPPER	145		4.7		1.7	J	1.5	J	2	U	10900	
LEAD	1	U	1	U	1	U	1	U	1	U	0.71	J
MERCURY	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
SELENIUM	1.7	J	5	U	5	U	5	U	5	U	1.5	J
SILVER	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ
THALLIUM	0.069	J	1	U	1	U	1	U	1	U	1	U
VANADIUM	5	UJ	5	UJ	0.36	J	0.29	J	5	UJ	5	UJ

MA2X27 SW-41 9217048002 SW-41X-080409AX 04 Aug 09		MA2X29 SW-71 9217048003 SW-71X-080409AX 04 Aug 09		MA2X31 SW-82 9217048006 SW-82X-080409AX 04 Aug 09		MA2X33 SW-40 9217048007 SW-40X-080409AX 04 Aug 09		MA2X35 SW-29 9217048008 SW-29X-080409AX 04 Aug 09		MA2X37 SW-17 9218047001 SW-17X-080409AX 04 Aug 09		MA2 SW 92180 SW-73X-0 04 Au
2	U	2	U	2	U	2	U	2	U	2	U	2
1	U	1	U	1	U	1	U	1	U	1	U	1
11.3	J	24.1	J	14.3	J	16.9	J	33.8	J	14.1	J	12.9
0.91	J	1.5	J	7	J	0.26	J	2.1	J	0.5	UJ	0.5
486		567		7640		209		2520		6.1		36
1	U	1	U	1.1		1	U	1	U	1	U	1
0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1
5	UJ	5	UJ	1.3	J	5	UJ	5	UJ	5	UJ	5
0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5
1	U	1	U	1	U	1	U	1	U	1	U	1
5	UJ	5	UJ	5	UJ	0.27	J	5	UJ	5	UJ	5

X39 -73 47002 080409AX ug 09	MA2X41 SW-51 9218047003 SW-51X-080409AX 04 Aug 09		MA2X43 SW-78 9218047004 SW-78X-080509AD 05 Aug 09		MA2X45 SW-78 9218047005 SW-78X-080509AX 05 Aug 09		MA2X47 SW-49 9218047006 SW-49X-080509AX 05 Aug 09		MA2X49 SW-76 9218047007 SW-76X-080509AX 05 Aug 09		MA2X51 SW-47 9218047008 SW-47X-080509AX 05 Aug 09	
U	2	U	2	U	2	U	2	U	2	U	2	U
U	1	U	1	U	1	U	1	U	1	U	1	U
J	11.5	J	10	J	10.4		14.1		14.6		6.4	
UJ	0.5	UJ	9.3	J	9.3	J	1.6	J	6.3	J	9.4	J
	13.3		19300		19200		1850		6080		12200	
U	1	U	0.62	J	0.62	J	0.8	J	1	U	0.5	J
U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
UJ	5	UJ	3.1	J	3.3	J	5	UJ	1.5	J	2.5	J
UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.14	J	0.063	J
U	1	U	1	U	1	U	1	U	1	U	1	U
UJ	0.38	J	0.45	J	5	UJ	0.37	J	5	UJ	0.36	J

MA2X53		MA2X55		MA2X57		MA2X59		MA2X64		MA2X67		MA2
		SW-77		SW-48		SW-80		SW-75		SW-75		SW
9218047009		9218047010		9218047011		9218047012		9220006001		9220006002		92200
EB-01X-080509AX		SW-77X-080509AX		SW-48X-080509AX		SW-80X-080509AX		SW-75X-080509AX		SW-75X-080509AD		SW-45X-0
05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		05 Au
2	U	2	U	2	U	2	U	2	U	2	U	2
1	U	1	U	1	U	1	U	1	U	1	U	1
5	UJ	43.9		43.2		36.6		26		25.2		9
0.5	UJ	0.37	J	1.7	J	2.7	J	6.8		6.7		12.7
0.3	J	811		2240		3460		7400		7360		11200
1	U	1	U	0.23	J	0.28	J	0.74	J	0.74	J	1
0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1
5	UJ	5	UJ	5	UJ	0.58	J	5	U	0.64	J	1.4
0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	1	U	1	U	1
1	U	1	U	1	U	1	U	1	U	1	U	1
0.35	J	5	UJ	5	UJ	5	UJ	5	U	5	U	5

X69 -45 06003 080509AX ug 09	MA2X71 SW-43 9220006004 SW-43X-080509AX 05 Aug 09		MA2X73 SW-46 9220006005 SW-46X-080509AX 05 Aug 09		MA2X75 SW-81 9220006006 SW-81X-080509AX 05 Aug 09		MA2X77 SW-79 9220006007 SW-79X-080609AX 06 Aug 09		MA2X79 SW-35 9220006008 SW-35X-080609AX 06 Aug 09		MA2X81 SW-84 9220006009 SW-84X-080609AX 06 Aug 09	
U	2	U	2	U	2	U	2	U	2	U	2	U
U	1	U	1	U	1	U	1	U	1	U	1	U
	25.7		14.8		10.6		16.1		11.1		12.2	
	6.7		6.6		8.6		3.8		0.5	U	0.5	U
	7300		8010		9520		7100		15.3		4.7	
U	0.74	J	0.36	J	0.6	J	1	U	1	U	1	U
U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
J	0.73	J	0.67	J	1.2	J	1.6	J	5	U	5	U
U	1	U	1	U	1	U	1	U	1	U	0.5	U
U	1	U	1	U	1	U	1	U	1	U	1	U
U	5	U	5	U	5	U	5	U	5	U	5	U

MA2X83 SW-34 9220006010 SW-34X-080609AX 06 Aug 09		MA2X87 SW-13 9220006011 SW-13X-080609AX 06 Aug 09		MA2X89 SW-83 9220006012 SW-83X-080609AX 06 Aug 09		MA2X91 SW-32 9220006013 SW-32X-080609AX 06 Aug 09		MA2X93 SW-72 9220006014 SW-72X-080609AX 06 Aug 09		MA2X95 SW-12 9220006015 SW-12X-080609AX 06 Aug 09		MA2 SW 92230 SW-04X-0 07 Au
2	U	2	U	2	U	2	U	2	U	2	U	2
1	U	1	U	1	U	1	U	1	U	1	U	1
34.8		15.6		14.6		12.6		10.6		13.9		15.5
1.3		1	U	6.9		2.2		0.5	U	1.2		1
1720		99		7490		2060		1	U	1110		29.9
0.35	J	1	U	1		0.48	J	1	U	1	U	1
0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1
5	U	5	U	0.97	J	5	U	5	U	5	U	5
0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5
1	U	1	U	1	U	1	U	1	U	1	U	1
5	U	5	U	0.35	J	0.35	J	0.62	J	5	U	5

XB3 -04 47001 080709AX ug 09	MA2XB5 SW-09 9223047002 SW-09X-080709AX 07 Aug 09		MA2XB7 SW-38 9223047003 SW-38X-080709AX 07 Aug 09		MA2XC2 MW-01A 9226003001 MW-01A-081009AX 10 Aug 09		MA2XC4 MW-01B 9226003002 MW-01B-081009AX 10 Aug 09		MA2XC6 MW-02A 9226003003 MW-02A-081009AX 10 Aug 09		MA2XC8 MW-02B 9226003004 MW-02B-081009AX 10 Aug 09	
U	2	U	2	U	2	U	2	U	2	U	2	U
U	1	U	1	U								
	16.4		15									
					1	U	1	U	0.44	J	1	U
U	1.2		0.5	U								
	1030		0.66	J								
U	1	U	1	U								
U	0.1	U	0.1	U	0.2	U	0.2	U	0.2	U	0.2	U
U	5	U	5	U								
U	0.5	U	0.5	U								
U	1	U	1	U	1	U	1	U	0.027	J	1	U
U	5	U	5	U								

MA2XD0 MW-14A 9226003005 MW-14A-081109AX 11 Aug 09		MA2XD2 MW-11A 9226003006 MW-11A-081109AX 11 Aug 09		MA2XD4 MW-11C 9226003007 MW-11C-081109AX 11 Aug 09		MA2XD6 MW-03C 9226003008 MW-03C-081109AX 11 Aug 09		MA2XE2 MW-10C 9226003009 MW-10C-081109AX 11 Aug 09		MA2XE4 MW-08A 9226007001 MW-08A-081109AX 11 Aug 09		MA2 MW- 92260 MW-05A-(11 Au
2	U	2	U	2	U	2	U	2	U	2	U	2
1	U	1	U	1	U	1	U	1	U	0.86	J	1.3
0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2
1	U	1	U	1	U	1	U	1	U	1	U	0.25

XE6 -05A 07002 081109AX ug 09	MA2XE8 MW-12C 9226007003 MW-12C-081109AX 11 Aug 09		MA2XF0 MW-10B 9226007004 MW-10B-081109AX 11 Aug 09		MA2XF2 MW-01C 9226007005 MW-01C-081209AX 12 Aug 09		MA2XF4 MW-13A 9226007006 MW-13A-081209AX 12 Aug 09		MA2XF6 MW-06A 9226007007 MW-06A-081209AX 12 Aug 09		MA2XF8 MW-05B 9226007008 MW-05B-081209AX 12 Aug 09	
U	2	U	2	U	2	U	2	U	2	U	2	U
J	0.33	J	1	U	1	U	1	U	1	U	1	U
U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
J	1	U	1	U	1	U	1	U	1	U	1	U

MA2XG0 MW-05B 9226007011 MW-05B-081209AD 12 Aug 09		MA2XG2 MW-09A 9226007012 MW-09A-081209AX 12 Aug 09		MA2XG4 MW-06C 9226007013 MW-06C-081209AX 12 Aug 09		MA2XG6 MW-02C 9226007014 MW-02C-081209AX 12 Aug 09		MA2XG8 MW-07A 9229004001 MW-07A-081209AX 12 Aug 09		MA2XH0 9226060001 EB-01X-081309AX 13 Aug 09		MA2 MW- 92260 MW-04A-(13 Au
2	U	2	U	2	U	2	U	2	U	2	U	2
1	U	1.2	J	1	U	1	U	1	U	1	U	0.68
0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2
1	U	1	U	1	U	1	U	1	U	1	U	0.25

XH2 ·04A 60002)81209AX ıg 09	MA2XH4 MW-04C 9226060003 MW-04C-081209AX 12 Aug 09		MA2XH6 MW-07C 9226060004 MW-07C-081209AX 12 Aug 09		MA2XH8 MW-15A 9226060005 MW-15A-081309AX 13 Aug 09		MA2XJ0 MW-16A 9226060006 MW-16A-081309AX 13 Aug 09		MA2XJ2 MW-09C 9226060007 MW-09C-081309AX 13 Aug 09		MA2XJ4 MW-14C 9226060008 MW-14C-081309AX 13 Aug 09	
U	2	U	2	U	2	U	2	U	2	U	2	U
J	1	U	1	U	1	U	1	U	1	U	1	U
U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
J	1	U	1	U	1	U	1	U	1	U	1	U

MA2XJ6 MW-05C 9226060009 MW-05C-081309AX 13 Aug 09		MA2XJ8 MW-23A 9226060010 MW-23A-081309AX 13 Aug 09		MA2XK0 MW-22A 9229005001 MW-22A-081309AX 13 Aug 09		MA2XK2 MW-20C 9229005002 MW-20C-081309AX 13 Aug 09		MA2XK4 MW-21A 9229005003 MW-21A-081309AX 13 Aug 09		MA2XK6 MW-21A 9229005004 MW-21A-081309AD 13 Aug 09		MA2 MW- 92290 MW-20A-(14 Au
2	U	2	U	2	U	2	U	2	U	2	U	2
1	U	1	U	0.57	J	1	U	1.7		1.8		0.44
0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2
1	U	1	U	1	U	1	U	1	U	1	U	1

XL2 20A 05005 081409AX ug 09	MA2XL4 MW-17A 9229005006 MW-17A-081409AX 14 Aug 09		MA2XL6 MW-21C 9229005007 MW-21C-081409AX 14 Aug 09		MA2XL8 MW-19A 9229005008 MW-19A-081409AX 14 Aug 09		MA2XM0 MW-18A 9229005009 MW-18A-081409AX 14 Aug 09		MA2XM2 MW-19C 9229005010 MW-19C-081409AX 14 Aug 09		MA2XM4 PW-01 9231054001 PW-01X-081709AX 17 Aug 09	
U	2	U	2	U	2	U	2	U	2	U	2	U
J	1	U	1		1.2		1.3		0.72	J	1	U
U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
U	1	U	1	U	1	U	1	U	1	U	1	U

MA2XM6 PW-05 9231054002 PW-05X-081709AX 17 Aug 09		MA2XN2 BM-01 9231054003 BM-01X-081809AX 18 Aug 09		MA2XN4 9231054004 EB-01X-081809AX 18 Aug 09		MA2XN6 PW-03 9231054005 PW-03X-081809AX 18 Aug 09		MA2XN8 PW-04 9231054006 PW-04X-081809AX 18 Aug 09		MA2XP0 PW-02 9231054007 PW-02X-081809AX 18 Aug 09		MA2 PW 92320 PW-06X-0 18 Au
2	U	2	U	2	U	2	U	2	U	2	U	0.32
0.34	J	1	U	1	U	1	U	1	U	1	U	1
0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2
1	U	1	U	1	U	1	U	1	U	1	U	1

XP2 -06 59001 081809AX ug 09	MA2XP4 9232059004 EB-01X-081909AX 19 Aug 09		MA2XP6 PW-07 9232059005 PW-07X-081909AX 19 Aug 09		MA2XP8 PW-07 9232059006 PW-07X-081909AD 19 Aug 09		MA2Y05 MW-19D 9261007001 MW-19D-091509AX 15 Sep 09		MA2Y07 MW-19D 9261007002 MW-19D-091509AD 15 Sep 09		MA2Y09 MW-19D 9261007005 MW-19D-091509BX 15 Sep 09	
U	2	U	2	U	2	U	2	U	2	U	2	U
U	1	U	0.3	J	0.34	J	1	U	1	U	0.84	J
U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
U	1	U	1	U	1	U	1	U	1	U	1	U

MA2Y11 9261012001 EB-01X-091609AX 16 Sep 09		MA2Y17 MW-20D 9261012002 MW-20D-091609AX 16 Sep 09		MA2Y19 MW-20D 9261064001 MW-20D-091709AX 17 Sep 09		MA2Y21 MW-14D 9261064002 MW-14D-091709AX 17 Sep 09		MA2Y23 MW-14D 9262022001 MW-14D-091809AX 18 Sep 09		MA2Y25 MW-14D 9262022002 MW-14D-091809BX 18 Sep 09		MA2 SW 93230 SW-49-1 16 N
2	U	2	U	2	U	2	U	2	U	2	U	2
												1
												13.1
1	U	1	U	1	U	1	U	1	U	1	U	
												1.1
												1500
												0.86
0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.1
												0.59
												0.5
1	U	1	U	1	U	1	U	1	U	1	U	0.049
												5

Y27 -49 39001 11609AF ov 09	MA2Y29 SW-78 9323039002 SW-78-111609AF 16 Nov 09		MA2Y30 SW-77 9323039003 SW-77-111609AF 16 Nov 09		MA2Y32 SW-79 9323039004 SW-79-111609AF 16 Nov 09		MA2Y35 SW-75 9323039005 SW-75-111609AF 16 Nov 09		MA2Y37 SW-47 9323039006 SW-47-111609-AF 16 Nov 09		MA2Y40 SW-80 9323039007 SW-80-111609AF 16 Nov 09	
U		U		U		U		U		U		U
U		U		U		U		U		U		U
J	10.9	J	40.9		10.6	J	25		3.1	J	26.3	
J[2]	8	J[2]	0.5	UJ[2]	4.6	J[2]	8.9	J[2]	9.8	J[2]	2.5	J
[1]	12600	[1]	236	[1]	6900	[1]	12400	[1]	9310	[1]	3020	
J	1.3		0.091	J	0.24	J	0.38	J	0.29	J	0.11	J
U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
J	1.6	J	5	U	1.5	J	1.3	J	1.8	J	0.65	J
U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
J	0.11	J	0.5	UJ	0.059	J	0.5	UJ	0.06	J	0.5	UJ
U	5	U	0.48	J	0.51	J	5	U	0.84	J	0.56	J

MA2Y41 SW-48 9323039008 SW-48-111609AF 16 Nov 09		MA2Y43 SW-46 9323039009 SW-46-111609AF 17 Nov 09		MA2Y45 SW-45 9323039010 SW-45-111709AG 17 Nov 09		MA2Y48 SW-81 9323039011 SW-81-111709AF 17 Nov 09		MA2Y51 SW-71 9323039012 SW-71-111709AF 17 Nov 09		MA2Y52 SW-17 9323039013 SW-17-111709AF 17 Nov 09		MA2 SW 93230 SW-42-1 17 N
2	U		U		U		U		U		U	
1	U		U		U		U		U		U	
41.5		13.9	J	8.7	J	9.2	J	29.5		11.1	J	12.6
1.6	J[2]	6.2	J[2]	11.9	J[2]	8.6	J[2]	0.5	UJ[2]	0.5	UJ[2]	12.5
900	[1]	6700	[1]	8830	[1]	7020	[1]	4.7	[1]	5	[1]	8200
0.17	J	0.42	J	0.12	J	0.28	J	1	UJ	1	UJ	0.46
0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1
5	U	0.87	J	1.1	J	1.1	J	5	U	5	U	1.3
0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5
0.5	UJ	0.062	J	0.1	J	0.057	J	0.5	UJ	0.5	UJ	0.07
1.1	J	5	U	0.65	J	0.5	J	0.77	J	0.42	J	5

Y54 -42 39016 11709AF ov 09	MA2Y55 SW-82 9323039017 SW-82-111709AF 17 Nov 09		MA2Y56 SW-45 9323039018 SW-45-111709AF 17 Nov 09		MA2Y58 SW-29 9323039019 SW-29-111709AF 17 Nov 09		MA2Y62 SW-41 9325040001 SW-41-111709AF 17 Nov 09		MA2Y71 SW-83 9325040002 SW-83-111809AF 18 Nov 09		MA2Y73 SW-83 9325040003 SW-83-111809AG 18 Nov 09	
U		U		U		U		U		U		U
U		U		U		U		U		U		U
J	14.6	J	8.9	J	23.5		10.8		13.6		13.8	
J[2]	6.9	J[2]	12.4	J[2]	2.1	J[2]	0.82	[2]	6.7	[2]	6.8	
[1]	6070	[1]	8660	[1]	2220	[1]	447	[1]	6285	[1]	6202	
J	0.78	J	0.095	J	0.09	J	1	U	0.8	J	0.8	J
U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
J	1	J	0.87	J	5	U	5	UJ	1.2	J	0.84	J
U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
J	0.086	J	0.1	J	0.5	UJ	1	U	0.14	J	0.13	J
U	0.45	J	0.52	J	0.68	J	5	UJ	0.3	J	0.39	J

MA2Y75 SW-73 9325040004 SW-73-111809AF 18 Nov 09		MA2Y77 SW-72 9325040005 SW-72-111809AF 18 Nov 09		MA2Y79 SW-51 9325040006 SW-51-111809AF 18 Nov 09		MA2Y81 SW-40 9325040007 SW-40-111709AF 17 Nov 09		MA2Y83 SW-13 9325040008 SW-13-111809AF 18 Nov 09		MA2Y85 SW-32 9325040009 SW-32-111809AF 18 Nov 09		MA2 SW 93250 SW-12-1 18 N
2	U	2	U	2	U	2	U	2	U	1.7	J	2
1	U	1	U	1	U	1	U	1	U	1	U	1
10.9		10.4		10.3		13.9		13.1		10.9		11.9
0.5	U	0.5	U	0.5	U	0.22	J	0.19	J	2		1
36.8		2.2	U	11.3		225		137		1970		1025
1	U	1	U	1	U	1	U	1	U	0.41	J	0.14
0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1
5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	5
0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5
1	U		U		U		U		U		U	
5	UJ	1.1	J	0.43	J	5	UJ	5	UJ	0.78	J	0.31
	1		1		1		1		1		1	

Y87 -12 40010 11809AF ov 09	MA2Y89 SW-84 9325040011 SW-84-111809AF 18 Nov 09		MA2Y91 SW-36 9325040012 SW-36-111809AF 18 Nov 09		MA2Y93 SW-34 9325040013 SW-34-111809AF 18 Nov 09		MA2Y95 SW-04 9325040014 SW-04-111909AF 19 Nov 09		MA2Y97 SW-09 9325040015 SW-09-111809AF 19 Nov 09		MA2Y99 SW-38 9325040016 SW-38-111909AF 19 Nov 09	
U		U		U		U		U		U		U
U		U		U		U		U		U		U
	8.8		8.3		30.6		12.8		13.1		12.9	
2	0.5	U2	0.5	U2	1.6	2	0.5	U2	1.1	2	0.5	U
1	3.8	1	13.6	1	2081	1	51.3	1	1036	1	2	U
J	1	U	1	U	0.23	J	1	U	0.21	J	1	U
U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
UJ	5	UJ	5	UJ	0.78	J	5	UJ	5	UJ	5	UJ
U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
U		U		U		U		U		U		U
J	0.28	J	0.44	J	0.44	J	0.3	J	0.4	J	0.26	J

1 1 1 1 1 1

MA2ZB4 SW-43 9339025002 SW-43-120209AF 02 Dec 09		MA2Z01 MW-01A 9331001001 MW-01A-112009AF 20 Nov 09		MA2Z04 MW-01B 9331001002 MW-01B-112009AF 20 Nov 09		MA2Z06 MW-02B 9331001003 MW-02B-112009AF 20 Nov 09		MA2Z08 MW-02C 9331001004 MW-02C-112009AF 20 Nov 09		MA2Z10 MW-14C 9331001005 MW-14C-112309AF 23 Nov 09		MA2 MW- 93310 MW-10B- 23 N
2	U		U	2	U	2	U	2	U	2	U	2
1	U											
2.9	J											
		0.055	J	1	U	1	U	1	U	1	U	1
54.5	2											
32841												
0.24	J											
0.1	U	0.2	UJ	0.2	UJ	0.2	UJ	0.2	UJ	0.2	UJ	0.2
6.4	J											
0.13	J											
0.18	J	0.098	J	1	U	1	U	1	U	1	U	1
2.7												

Z12 -10B 01006 112309AF ov 09	MA2Z14 MW-01C 9331001007 MW-01C-112309AF 23 Nov 09		MA2Z16 MW-10C 9331001008 MW-10C-112309AF 23 Nov 09		MA2Z18 MW-14A 9331001009 MW-14A-112309AF 23 Nov 09		MA2Z20 MW-11C 9331001012 MW-11C-112309AF 23 Nov 09		MA2Z22 MW-23A 9331001013 MW-23A-112309AF 23 Nov 09		MA2Z24 MW-03C 9331001014 MW-03C-112309AF 23 Nov 09	
U	2	U	2	U	2	U	2	U	2	U	2	U
U	1	U	1	U	1	U	1	U	1	U	1	U
UJ	0.2	UJ	0.2	UJ	0.2	UJ	0.2	UJ	0.2	UJ	0.2	UJ
U	1	U	1	U	1	U	1	U	0.036	J	1	U

MA2Z26 MW-20C 9331001015 MW-20C-112309AF 23 Nov 09		MA2Z32 MW-17A 9331001016 MW-17A-112409AF 24 Nov 09		MA2Z34 MW-15A 9331001017 MW-15A-112409AF 24 Nov 09		MA2Z36 MW-04A 9331001018 MW-04A-112409AF 24 Nov 09		MA2Z38 MW-08A 9331001019 MW-08A-112409AF 24 Nov 09		MA2Z40 MW-08A 9331001020 MW-08A-112409AG 24 Nov 09		MA2 MW- 93310 MW-16A- 24 N
2	U	2	U	2	U	2	U	2	U	2	U	2
1	U	1	U	1	U	0.78	J	0.86	J	0.92	J	1
0.2	UJ	0.2	UJ	0.2	UJ	0.2	UJ	0.2	UJ	0.2	UJ	0.2
1	U	1	U	1	U	0.29	J	0.076	J	0.077	J	1

:Z42 ·16A 01021 112409AF ov 09	MA2Z44 MW-04C 9331001022 MW-04C-112409AF 24 Nov 09		MA2Z46 MW-12C 9335024001 MW-12C-112409AF 24 Nov 09		MA2Z48 MW-21C 9335024002 MW-21C-112409AF 24 Nov 09		MA2Z50 MW-13A 9335024003 MW-13A-112409AF 24 Nov 09		MA2Z52 MW-05B 9335024004 MW-05B-112409AF 24 Nov 09		MA2Z54 MW-09C 9335024005 MW-09C-112409AF 24 Nov 09	
U	2	U	2	U	2	U	2	U	2	U	2	U
U	1	U	0.25	J	1.8	J	1	U	1	U	1	U
UJ	0.2	UJ	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
U	1	U	1	U	0.4	J	1	U	1	U	1	U

MA2Z56 MW-06A 9335024006 MW-06A-112509AF 25 Nov 09		MA2Z58 MW-05C 9335024007 MW-05C-112509AF 25 Nov 09		MA2Z60 MW-07C 9335024008 MW-07C-112509AF 25 Nov 09		MA2Z62 MW-06C 9335024011 MW-06C-112509AF 25 Nov 09		MA2Z64 MW-07A 9335024012 MW-07A-112509AF 25 Nov 09		MA2Z66 MW-19C 9335024013 MW-19C-112509AF 25 Nov 09		MA2 MW- 93390 MW-02A- 30 N
2	U	2	U	2	U	2	U	2	U	2	U	2
1	U	1	U	1	U	1	U	1	U	0.41	J	0.5
0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2
1	U	1	U	1	U	1	U	1	U	1	U	1

:Z68 ·02A 27001 113009AF ov 09	MA2Z71 MW-21A 9339027004 MW-21A-113009AF 30 Nov 09		MA2Z73 MW-21A 9339027005 MW-21A-113009AG 30 Nov 09		MA2Z75 MW-22A 9339027006 MW-22A-113009AF 30 Nov 09		MA2Z77 MW-19A 9339027007 MW-19A-113009AF 30 Nov 09		MA2Z83 MW-05A 9339027008 MW-05A-120109AF 01 Dec 09		MA2Z85 MW-05A 9339027009 MW-05A-120109AG 01 Dec 09	
U	2	U	2	U	2	U	2	U	2	U	2	U
J	1.6	J	1.6	J	0.62	J	0.13	J	1.3	J	1.3	J
U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
U	1	U	1	U	1	U	1	U	1	U	1	U

MA2Z87 BM-01 9339027010 BM-01-120109AF 01 Dec 09		MA2Z89 MW-11A 9339027011 MW-11A-120109AF 01 Dec 09		MA2Z91 MW-18A 9339027012 MW-18A-113009AF 01 Dec 09		MA2Z93 MW-14D 9339027013 MW-14D-120109AF 01 Dec 09		MA2Z95 MW-20A 9339027014 MW-20A-120109AF 01 Dec 09		MA2ZA6 MW-09A 9339027015 MW-09A-120209AF 02 Dec 09		MA2 MW- 93390 MW-20D- 02 De
2	U	2	U	2	U	2	U	2	U	2	U	2
1	U	1	U	2	J	1	U	0.52	J	1	J	1
0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2
1	U	1	U	1	U	1	U	1	U	1	U	1

ZA8	MA2ZB0		MA2ZB6		MA2ZB8		MA2ZC0		MA2ZC2		MA2ZC4		MA2
20D	MW-19D		M11LT19.0		M11LT55.1		M11LT60.0		M11LT63.0		M11LT064		M11L
27016	9339027017		9345004001		9345004002		9345004005		9345004006		9345004007		93450
120209AF	MW-19D-120209AF		M11LT19.0-120810AF		M11LT55.1-120709AF		M11LT60.0-120710AF		M11LT63.0-120710AF		M11LT064-120710AF		M11LT065-
ec 09	02 Dec 09		08 Dec 09		07 Dec 09		07 Dec 09		07 Dec 09		07 Dec 09		07 De
U	2	U	2	U	2	U	2	U	2	U	2	U	2
U	0.52	J	1	U	1	U	1	U	1	U	1	U	1
U	0.2	U	0.2	UJ	0.2	UJ	0.2	UJ	0.2	UJ	0.2	UJ	0.2
U	1	U	1	U	1	U	1	U	1	U	1	U	1

ZC6	MA2ZC8	
T065	M11LT065	
04008	9345004009	
-120709AF	M11LT065-120709AG	
ec 09	07 Dec 09	
U	2	U
U	1	U
UJ	0.2	UJ
U	1	U

Ely Copper Mine - Vershire, VT
MS Total Metals - 2009

Sample Name	MA2WX8		MA2WX9		MA2WY0		MA2WY1		MA2WY2	
Sample Location	MW-23A		MW-23A		MW-23A		MW-19A		MW-19A	
Lab Sample ID	9199002001		9199002002		9199002003		9205059001		9205059002	
Station ID	MW-23A-070809AX		MW-23A-070809BX		MW-23A-070809CX		MW-19A-072109AX		MW-19A-072109BX	
Sample Date	08 Jul 09		08 Jul 09		08 Jul 09		21 Jul 09		21 Jul 09	
Chemical										
ANTIMONY	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ
ARSENIC										
BARIUM										
BERYLLIUM										
CADMIUM	0.69	J	0.4		0.23	J	1.1	J	0.077	J
COPPER										
CYANIDE	1.2	UJ	1.2	UJ	1.2	UJ	1.3	U	1.3	U
LEAD										
MERCURY	0.1	U	0.1	U	0.1	U	0.031	J	0.099	U
MOLYBDENUM	1.1	J	0.68	J	0.89	J	5		0.25	J
SELENIUM	0.48	J	0.24	J	0.24	J	15.7	J	0.46	J
SILVER										
THALLIUM	0.33	J	0.34	J	0.26	J	0.26	J	0.74	
VANADIUM										

MA2WY3 MW-19A 9205059003 MW-19A-072109CX 21 Jul 09		MA2WY6 MW-21A 9213002001 MW-21A-072809AX 28 Jul 09		MA2WY7 MW-21A 9213002002 MW-21A-072809BX 28 Jul 09		MA2WY8 MW-21A 9213002003 MW-21A-072809CX 28 Jul 09		MA2WY9 MW-21A 9213002004 MW-21A-072809CD 28 Jul 09		MA2WZ0 MW-20A 9213002005 MW-20A-072909AX 29 Jul 09	
0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ
0.46	J	1.7	J	0.042	J	0.03	J	0.039	J	0.16	J
1.2	U	1.2	UJ	1.3	UJ	1.3	UJ	1.2	UJ	1.3	UJ
0.097	U	0.1		0.12	U	0.098	U	0.096	U	0.031	J
0.2	J	22.9		0.79		0.3	J	0.31	J	0.59	J
1.2	U	50.9	J	0.38	J	1	UJ	1	UJ	0.76	J
0.35		0.66	J	0.22	J	0.23	J	0.27	J	0.21	J

MA2WZ1 VP-1 9217050001 VP-01X-072909AX 29 Jul 09		MA2WZ2 VP-2 9217050004 VP-02X-072809AX 28 Jul 09		MA2WZ3 VP-3 9217050005 VP-03X-072809AD 28 Jul 09		MA2WZ4 VP-3 9217050006 VP-03X-072809AX 28 Jul 09		MA2WZ5 VP-4 9217050007 VP-04X-072809AX 28 Jul 09		MA2WZ6 MW-20A 9213002006 MW-20A-072909BX 29 Jul 09	
2	U	2	U	2	U	2	U	2	U	0.5	UJ
1	U	1	U	1	U	1	U	1	U		
24	J	12.4	J	13.7	J	13.4		15.9	J		
0.39	J	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.17	J
171		5.7		3.6		2.5		0.26	J		
										1.3	UJ
0.11	J	1	UJ	0.24	J	0.089	J	1	UJ		
0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
										0.42	J
1.7	J	5	UJ	5	UJ	5	UJ	5	UJ	1	UJ
0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ		
0.073	J	1	U	1	U	1	U	1	U	0.24	J
5	UJ	5	UJ	0.58	J	0.34	J	0.29	J		

MA2WZ7 MW-20A 9213002007 MW-20A-072909CX 29 Jul 09		MA2WZ8 MW-22A 9213002008 MW-22A-072909AX 29 Jul 09		MA2WZ9 MW-22A 9213002009 MW-22A-072909BX 29 Jul 09		MA2X00 MW-22A 9213002010 MW-22A-072909CX 29 Jul 09		MA2X01 9216001001 EB-01X-073009AX 30 Jul 09		MA2X07 SB-09 9217034001 SB-09X-073009AX 30 Jul 09	
0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	2	U	0.5	UJ
								1	U		
								5	U		
0.19	J	2.7	J	4.8	J	1.5	J	0.5	U	30.4	
								2	U		
1.2	UJ	1.2	UJ	1.2	UJ	1.2	UJ			1.3	U
								1	U		
0.097	U	0.11	U	0.13	U	0.12	UJ	0.1	U	0.097	U
0.63		6.5		2.1		1.6				5.4	
1	UJ	13.9	J	14.1	J	3.9	J	5	U	11.3	
								0.5	U		
0.24	J	0.53	J	0.19	J	0.24	J	0.024	J	0.75	J
								5	U		

MA2X08 SB-09 9217034002 SB-09X-073009BX 30 Jul 09		MA2X09 SB-09 9217034003 SB-09X-073009CX 30 Jul 09		MA2X10 MW-17A 9217034004 MW-17A-073009AX 30 Jul 09		MA2X11 MW-17A 9217034005 MW-17A-073009BX 30 Jul 09		MA2X12 SW-42 9217046001 SW-42X-080409AX 04 Aug 09		MA2X13 TP-15 9217034006 TP-15X-073009AD 30 Jul 09	
0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	2	U	0.5	UJ
								1	U		
								14.1	J		
24.6		0.7	J	0.25	UJ	0.25	UJ	12.5	J	0.25	UJ
								10900			
1.3	U	1.3	U	1.3	U	1.2	U	10	U	1.2	U
								0.74	J		
0.096	U	0.097	U	0.094	U	0.097	U	0.1	U	0.099	U
17.1		0.5	U	0.5	U	0.5	U			6.8	
34.3		1.5		0.25	J	0.38	J	1.3	J	18.4	
								0.5	UJ		
0.43	J	0.28	J	0.38	J	0.3	J	1	U	0.27	J
								5	U		

MA2X14 TP-15 9217034007 TP-15X-073009BX 30 Jul 09		MA2X15 TP-15 9217034008 TP-15X-073009CX 30 Jul 09		MA2X16 TP-16 9217034009 TP-16X-080309AX 03 Aug 09		MA2X17 TP-15 9217034010 TP-15X-073009AX 30 Jul 09		MA2X19 TP-16 9217034011 TP-16X-080309BX 03 Aug 09		MA2X20 TP-16 9217034012 TP-16X-080309CX 03 Aug 09	
0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ
0.25	UJ	0.25	UJ	0.7	J	0.25	UJ	0.35	J	0.23	J
1.3	U	1.2	U	1.3	U	1.2	U	1.2	U	1.2	U
0.1	U	0.1	U	0.84		0.1	U	0.097	U	0.094	U
2.9		0.62		1.3		10.2		0.78		0.61	
7		0.87	J	1.3	J	23.7		0.43	J	0.34	J
0.28	J	0.36	J	0.24	J	0.34	J	0.31	J	0.29	J

MA2X21 MW-18A 9217034015 MW-18A-080309AX 03 Aug 09		MA2X22 MW-18A 9217034016 MW-18A-080309BX 03 Aug 09		MA2X23 MW-18A 9217034017 MW-18A-080309BD 03 Aug 09		MA2X24 MW-18A 9217034018 MW-18A-080309CX 03 Aug 09		MA2X25 9217034019 EB-01X-080309AX 03 Aug 09		MA2X26 SW-41 9217046002 SW-41X-080409AX 04 Aug 09	
0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	2	U	2	U
								1	U	1	U
								5	U	10.8	J
0.25	UJ	0.25	UJ	0.25	UJ	0.25	UJ	0.5	U	0.89	J
								2	U	630	
1.3	U	1.3	U	1.2	U	1.3	U			10	U
								1	U	1	U
0.13	U	0.099	U	0.098	U	0.092	U	0.1	U	0.1	U
3.7		1.1		0.99		0.92					
5.6		1.9		1.8		0.71	J	5	U	5	UJ
								0.5	U	0.5	UJ
0.37	J	0.34	J	0.34	J	0.48	J	1	U	1	U
								5	U	0.5	J

MA2X28 SW-71 9217046003 SW-71X-080409AX 04 Aug 09		MA2X30 SW-82 9217046006 SW-82X-080409AX 04 Aug 09		MA2X32 SW-40 9217046007 SW-40X-080409AX 04 Aug 09		MA2X34 SW-29 9217046008 SW-29X-080409AX 04 Aug 09		MA2X36 SW-17 9218044001 SW-17X-080409AX 04 Aug 09		MA2X38 SW-73 9218044002 SW-73X-080409AX 04 Aug 09		MA2 SW 92180 SW-51X-0 04 Au
2	U	2	U	2	U	2	U	2	U	2	U	2
1	U	1	U	1	U	1	U	1	U	1	U	1
24.7	J	16	J	16.3	J	34.5	J	14.3	J	14.3	J	11.6
1.5	J	7	J	0.26	J	2	J	0.5	UJ	0.5	UJ	0.5
541		7790		308		2410		6.9		40.2		14.5
10	U	10	U	10	U	10	U	10	U	10	U	10
1	U	1.2		1	U	1	U	1	U	1	U	1
0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1
5	UJ	1.6	J	5	UJ	5	UJ	5	UJ	5	U	5
0.5	UJ	0.12	J	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5
1	U	1	U	1	U	1	U	1	U	1	UJ	1
5	U	1.3	J	5	U	0.3	J	0.34	J	5	U	0.28

X40 -51 44003 080409AX ug 09	MA2X42 SW-78 9218044004 SW-78X-080509AD 05 Aug 09		MA2X44 SW-78 9218044005 SW-78X-080509AX 05 Aug 09		MA2X46 SW-49 9218044006 SW-49X-080509AX 05 Aug 09		MA2X48 SW-76 9218044007 SW-76X-080509AX 05 Aug 09		MA2X50 SW-47 9218044008 SW-47X-080509AX 05 Aug 09		MA2X52 9218044009 EB-01X-080509AX 05 Aug 09	
U	2	U	2	U	2	U	2	U	2	U	2	U
U	1	U	1	U	1	U	1	U	1	U	1	U
J	11.3	J	10.9	J	14.2	J	23.4	J	11.6	J	5	UJ
UJ	8.9	J	9.2	J	1.6	J	6.3	J	9.4	J	0.5	U
	19200		19500		1780		6130		12300		2	U
U	10	U	10	U	10	U	10	U	10	U	10	U
U	0.74	J	0.71	J	0.75	J	2.1		1.5		1	U
U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
UJ	3.4	J	3.4	J	5	UJ	5	J	3.9	J	5	UJ
UJ	0.11	J	0.13	J	0.5	UJ	0.5		0.24	J	0.5	UJ
U	1	U	1	U	1	U	1	U	1	U	1	U
J	0.44	J	0.53	J	5	U	4.3	J	3.4	J	5	U

MA2X54 SW-77 9218044010 SW-77X-080509AX 05 Aug 09		MA2X56 SW-48 9218044011 SW-48X-080509AX 05 Aug 09		MA2X58 SW-80 9218044012 SW-80X-080509AX 05 Aug 09		MA2X63 SW-75 9220001001 SW-75X-080509AX 05 Aug 09		MA2X66 SW-75 9220001002 SW-75X-080509AD 05 Aug 09		MA2X68 SW-45 9220001003 SW-45X-080509AX 05 Aug 09		MA2 SW 92200 SW-43X-0 05 Au
2	U	2	U	2	U	2	U	2	U	2	U	2
1	U	1	U	1	U	1	U	1	U	1	U	1
42.5	J	46.1	J	36.7	J	26.4		25.3		8.8		28
0.45	J	1.5	J	2.5	J	6.5	J	6.5	J	12.7	J	6.9
1020		1330		3180		7060		6970		11200		7150
10	U	10	U	10	U	10	U	10	U	10	U	10
0.22	J	0.22	J	1	U	0.85	J	0.73	J	1	U	1.1
0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1
5	UJ	5	UJ	0.65	J	5	U	5	U	5	U	5
0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1
1	U	1	U	1	U	1	U	1	U	1	U	1
5	U	5	U	0.27	J	0.97	J	0.27	J	5	UJ	1.4

X70 -43 01004 080509AX ug 09	MA2X72 SW-46 9220001005 SW-46X-080509AX 05 Aug 09		MA2X74 SW-81 9220001006 SW-81X-080509AX 05 Aug 09		MA2X76 SW-79 9220001007 SW-79X-080609AX 06 Aug 09		MA2X78 SW-35 9220001008 SW-35X-080609AX 06 Aug 09		MA2X80 SW-84 9220001009 SW-84X-080609AX 06 Aug 09		MA2X82 SW-34 9220001010 SW-34X-080609AX 06 Aug 09	
U	2	U	2	U	2	U	2	U	2	U	2	U
U	1	U	1	U	1	U	1	U	1	U	1	U
	15.4		10.9		16.8		11.8		12.9		34.8	
J	7	J	8.9	J	3.8	J	0.5	U	0.5	U	1.3	J
	8120		9680		7240		18.5		10.1		1680	
U	10	U	10	U	10	U	10	U	10	U	10	U
	0.54	J	0.61	J	0.23	J	1	U	1	U	0.47	J
U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
U	5	U	5	U	5	U	5	U	5	U	5	U
U	1	U	1	U	1	U	1	U	1	U	1	U
U	1	U	1	U	1	U	1	U	1	U	1	U
J	0.6	J	0.39	J	5	UJ	0.3	J	0.48	J	0.43	J

MA2X84 SD-66 9223057001 SD-66X-080609AX 06 Aug 09		MA2X85 SD-65 9223057002 SD-65X-080609AX 06 Aug 09		MA2X86 SW-13 9220001011 SW-13X-080609AX 06 Aug 09		MA2X88 SW-83 9220001012 SW-83X-080609AX 06 Aug 09		MA2X90 SW-32 9220001013 SW-32X-080609AX 06 Aug 09		MA2X92 SW-72 9220001014 SW-72X-080609AX 06 Aug 09		MA2 SW 92200 SW-12X-0 06 Au
0.13	J	0.11	J	2	U	2	U	2	U	2	U	2
				1	U	1	U	1	U	1	U	1
				15.7		14.6		13.2		12.9		13.7
0.21	J	0.88		0.17	J	7.1	J	2.2	J	0.5	U	1.2
				178		7320		2030		3.1		1120
1.3	U	1.3	U	10	U	10	U	10	U	10	U	10
				1	U	1		0.82	J	0.71	J	0.23
0.027	J	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1
1.8		2.7										
3.6		8.7		5	U	5	U	5	U	5	U	5
				0.5	U	1	U	0.5	U	0.5	U	0.5
0.091	J	0.22	J	1	U	1	U	1	U	1	U	1
				5	UJ	0.32	J	0.87	J	0.86	J	0.39

:X94	MA2X96		MA2X97		MA2X99		MA2XA0		MA2XA1		MA2XA2	
-12	SD-72		SD-73		SD-67		SD-61		SD-61		SD-59	
01015	9223057003		9223057004		9223057007		9223057008		9223057009		9223057010	
)80609AX	SD-72X-080609AX		SD-73X-080609AX		SD-67X-080609AX		SD-61X-080709AX		SD-61X-080709AD		SD-59X-080709AX	
ug 09	06 Aug 09		06 Aug 09		06 Aug 09		07 Aug 09		07 Aug 09		07 Aug 09	
U	0.12	J	0.14	J	0.76	U	0.078	J	0.67	U	0.66	U
U												
J	0.62		0.51		0.18	J	0.18	J	0.2	J	0.09	J
U	1.3	U	1.3	U	1.3	U	1.2	U	1.2	U	1.3	U
J												
U	0.042	J	0.026	J	0.031	J	0.096	U	0.096	U	0.09	U
	0.42	J	4.4		0.57	J	6.1		5.4		0.54	J
U	1.1	J	8.8		0.44	J	20		15.6		1.8	
U												
U	0.19	J	0.13	J	0.12	J	0.11	J	0.15	J	0.021	J
J												

MA2XA3 SD-58 9223057011 SD-58X-080709AX 07 Aug 09		MA2XA4 SD-71 9223057012 SD-71X-080609AX 06 Aug 09		MA2XA5 SD-70 9223057013 SD-70X-080609AX 06 Aug 09		MA2XA6 SD-69 9223057014 SD-69X-080709AX 07 Aug 09		MA2XA7 SD-68 9223057015 SD-68X-080609AX 06 Aug 09		MA2XA8 SD-64 9223057016 SD-64X-080709AX 07 Aug 09		MA2 SD- 92230 SD-62X-0 07 Au
0.62	U	1	U	2.2	U	0.74	U	0.89	U	0.64	U	0.71
0.075	J	1.5		1	J	0.16	J	0.78		0.73		0.23
1.3	U	1.3	U	1.3	U	1.2	U	1.3	U	1.3	U	1.3
0.091	U	0.1		0.1		0.095	U	0.03	J	0.092	U	0.097
0.26	J	1	J	1.4	J	0.35	J	0.44	J	1.7		7
0.73	J	0.95	J	1.3	J	0.35	J	1.2	J	5.9		11.6
0.032	J	0.22	J	0.37	J	0.11	J	0.15	J	0.064	J	0.2

XA9 -62 57017 80709AX ug 09	MA2XB0 SD-63 9223057018 SD-63X-080709AX 07 Aug 09		MA2XB1 SD-60 9223057019 SD-60X-080709AX 07 Aug 09		MA2XB2 SW-04 9223041001 SW-04X-080709AX 07 Aug 09		MA2XB4 SW-09 9223041002 SW-09X-080709AX 07 Aug 09		MA2XB6 SW-38 9223041003 SW-38X-080709AX 07 Aug 09		MA2XC0 9223057022 EB-01X-080709AX 07 Aug 09	
U	0.68	U	0.28	J	2	U	2	U	2	U	2	U
					1	U	1	U	1	U	1	U
					17		16.6		15.5		0.045	J
J	0.57		1.2		1	U	1.1	J	0.5	U	0.5	U
					70.6		1040		2	U	2	U
U	1.3	U	1.2	U	10	U	10	U	10	U		
					0.26	J	0.36	J	1	U	1	U
U	0.031	J	0.038	J	0.1	U	0.1	U	0.1	U	0.1	U
	8		7.9									
	26.2		24.2		5	U	5	U	5	U	5	U
					0.5	U	0.5	U	0.5	U	0.5	U
J	0.48		0.36	J	1	U	1	U	1	U	1	U
					0.86	J	0.26	J	0.34	J	5	U

MA2XC1 MW-01A 9226001001 MW-01A-081009AX 10 Aug 09		MA2XC3 MW-01B 9226001002 MW-01B-081009AX 10 Aug 09		MA2XC5 MW-02A 9226001003 MW-02A-081009AX 10 Aug 09		MA2XC7 MW-02B 9226001004 MW-02B-081009AX 10 Aug 09		MA2XC9 MW-14A 9226001005 MW-14A-081109AX 11 Aug 09		MA2XD1 MW-11A 9226001006 MW-11A-081109AX 11 Aug 09		MA2 MW- 92260 MW-11C-(11 Au
2	U	2	U	2	U	2	U	2	U	2	U	2
1	U	1	U	1	U	1	U	1	U	1	U	1
10	U	10	U	10	U	10	U	10	U	10	U	10
0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2
1	U	1	U	1	U	1	U	1	U	1	U	1

XD3 ·11C 01007)81109AX ıg 09	MA2XD5 MW-03C 9226001008 MW-03C-081109AX 11 Aug 09		MA2XE1 MW-10C 9226001009 MW-10C-081109AX 11 Aug 09		MA2XE3 MW-08A 9226005001 MW-08A-081109AX 11 Aug 09		MA2XE5 MW-05A 9226005002 MW-05A-081109AX 11 Aug 09		MA2XE7 MW-12C 9226005003 MW-12C-081109AX 11 Aug 09		MA2XE9 MW-10B 9226005004 MW-10B-081109AX 11 Aug 09	
U	2	U	2	U	2	U	2	U	2	U	2	U
U	1	U	1	U	0.79	J	1.3	J	0.29	J	1	U
U	10	U	10	U	10	UJ	10	UJ	10	UJ	10	UJ
U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
U	1	U	1	U	0.2	J	0.27	J	0.035	J	1	U

MA2XF1 MW-01C 9226005005 MW-01C-081209AX 12 Aug 09		MA2XF3 MW-13A 9226005006 MW-13A-081209AX 12 Aug 09		MA2XF5 MW-06A 9226005007 MW-06A-081209AX 12 Aug 09		MA2XF7 MW-05B 9226005008 MW-05B-081209AX 12 Aug 09		MA2XF9 MW-05B 9226005011 MW-05B-081209AD 12 Aug 09		MA2XG1 MW-09A 9226005012 MW-09A-081209AX 12 Aug 09		MA2 MW- 92260 MW-06C-(12 Au
2	U	2	U	2	U	2	U	2	U	2	U	2
1	U	1	U	1	U	1	U	1	U	1.3	J	1
10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10
0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2
1	U	1	U	1	U	1	U	1	U	0.057	J	1

XG3 ·06C 05013)81209AX ıg 09	MA2XG5 MW-02C 9226005014 MW-02C-081209AX 12 Aug 09		MA2XG7 MW-07A 9226064001 MW-07A-081209AX 12 Aug 09		MA2XG9 9226058001 EB-01X-081309AX 13 Aug 09		MA2XH1 MW-04A 9226058002 MW-04A-081209AX 13 Aug 09		MA2XH3 MW-04C 9226058003 MW-04C-081209AX 12 Aug 09		MA2XH5 MW-07C 9226058004 MW-07C-081209AX 12 Aug 09	
U	2	U	2	U	2	U	2	U	2	U	2	U
U	0.15	J	0.035	J	1	U	0.96	J	1	U	1	U
UJ	10	UJ	10	UJ	10	U	10	U	10	U	10	U
U	0.2	U	0.2	UJ	0.2	U	0.2	U	0.2	U	0.2	U
U	1	U	1	U	1	U	1	U	1	U	1	U

MA2XH7 MW-15A 9226058005 MW-15A-081309AX 13 Aug 09		MA2XH9 MW-16A 9226058006 MW-16A-081309AX 13 Aug 09		MA2XJ1 MW-09C 9226058007 MW-09C-081309AX 13 Aug 09		MA2XJ3 MW-14C 9226058008 MW-14C-081309AX 13 Aug 09		MA2XJ5 MW-05C 9226058009 MW-05C-081309AX 13 Aug 09		MA2XJ7 MW-23A 9226058010 MW-23A-081309AX 13 Aug 09		MA2 MW- 92290 MW-22A-(13 Au
2	U	2	U	2	U	2	U	2	U	2	U	2
1	U	1	U	1	U	1	U	1	U	1	U	0.65
10	U	10	U	10	U	10	U	10	U	10	U	10
0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2
1	U	1	U	1	U	1	U	1	U	1	U	1

2XJ9 ·22A 01001 081309AX ug 09	MA2XK1 MW-20C 9229001002 MW-20C-081309AX 13 Aug 09		MA2XK3 MW-21A 9229001003 MW-21A-081309AX 13 Aug 09		MA2XK5 MW-21A 9229001004 MW-21A-081309AD 13 Aug 09		MA2XL1 MW-20A 9229001005 MW-20A-081409AX 14 Aug 09		MA2XL3 MW-17A 9229001006 MW-17A-081409AX 14 Aug 09		MA2XL5 MW-21C 9229001007 MW-21C-081409AX 14 Aug 09	
U	2	U	2	U	2	U	2	U	2	U	2	U
J	1	U	1.8	J	1.7	J	0.42	J	1	U	1.2	J
UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ
UJ	0.2	UJ	0.2	UJ	0.2	UJ	0.2	UJ	0.2	UJ	0.2	UJ
U	1	U	1	U	1	U	1	U	1	U	1	U

MA2XL7 MW-19A 9229001008 MW-19A-081409AX 14 Aug 09		MA2XL9 MW-18A 9229001009 MW-18A-081409AX 14 Aug 09		MA2XM1 MW-19C 9229001010 MW-19C-081409AX 14 Aug 09		MA2XM3 PW-01 9231051001 PW-01X-081709AX 17 Aug 09		MA2XM5 PW-05 9231051002 PW-05X-081709AX 17 Aug 09		MA2XN1 BM-01 9231051003 BM-01X-081809AX 18 Aug 09		MA2 92310 EB-01X-0 18 Au
2	U	2	U	2	U	2	U	2	U	2	U	2
1.2	J	1.3	J	0.63	J	1	U	0.29	J	1	U	1
10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10
0.2	UJ	0.2	UJ	0.2	UJ	0.2	UJ	0.2	UJ	0.2	UJ	0.2
1	U	1	U	1	U	1	U	1	U	1	U	1

XN3 51004 81809AX ug 09	MA2XN5 PW-03 9231051005 PW-03X-081809AX 18 Aug 09		MA2XN7 PW-04 9231051006 PW-04X-081809AX 18 Aug 09		MA2XN9 PW-02 9231051007 PW-02X-081809AX 18 Aug 09		MA2XP1 PW-06 9232052001 PW-06X-081809AX 18 Aug 09		MA2XP3 9232052004 EB-01X-081909AX 19 Aug 09		MA2XP5 PW-07 9232052005 PW-07X-081909AX 19 Aug 09	
U	2	U	2	U	2	U	2	U	2	U	2	U
U	1	U	1	U	1	U	1	U	1	U	0.41	J
UJ	10	UJ	10	UJ	10	UJ	10	U	10	U	10	U
UJ	0.2	UJ	0.2	UJ	0.2	UJ	0.2	U	0.2	U	0.2	U
U	1	U	1	U	1	U	1	U	1	U	1	U

MA2XP7 PW-07 9232052006 PW-07X-081909AD 19 Aug 09		MA2Y04 MW-19D 9261006001 MW-19D-091509AX 15 Sep 09		MA2Y06 MW-19D 9261006002 MW-19D-091509AD 15 Sep 09		MA2Y08 MW-19D 9261006005 MW-19D-091509BX 15 Sep 09		MA2Y10 9261011001 EB-01X-091609AX 16 Sep 09		MA2Y16 MW-20D 9261011006 MW-20D-091609AX 16 Sep 09		MA2 MW- 92610 MW-20D-(17 Se
2	U	2	U	2	U	2	U	2	U	2	U	2
0.43	J	0.2	J	0.17	J	0.77	J	1	U	1	U	1
10	U	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10
0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2
1	U	1	U	1	U	1	U	1	U	1	U	1

:Y18 ·20D 58001 091709AX ep 09	MA2Y20 MW-14D 9261058002 MW-14D-091709AX 17 Sep 09		MA2Y22 MW-14D 9262021001 MW-14D-091809AX 18 Sep 09		MA2Y24 MW-14D 9262021002 MW-14D-091809BX 18 Sep 09		MA2Y26 SW-49 9323035001 SW-49-111609AX 16 Nov 09		MA2Y28 SW-77 9323035002 SW-77-111609AX 16 Nov 09		MA2Y31 SW-78 9323035003 SW-78-111609AX 16 Nov 09	
U	2	U	2	U	2	U	2	U	2	U	2	U
							1	U	1	U	1	U
							13		42.8		14.9	
U	1	U	1	U	1	U						
							1.2	J	0.3	J	8.2	J
							1553		326		12769	
UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ
							0.85	J	0.12	J	2.2	
U	0.2	U	0.2	U	0.2	U	0.1	U	0.1	U	0.1	U
							0.6	J	5	U	2.9	J
							0.037	J	0.062	J	0.15	J
U	1	U	1	U	1	U	0.16	J	0.11	J	0.2	J
							5	U	5	U	2.2	J

MA2Y33 SW-79 9323035004 SW-79-111609AX 16 Nov 09		MA2Y34 SW-75 9323035005 SW-75-111609AX 16 Nov 09		MA2Y36 SW-47 9323035006 SW-47-111609-AX 16 Nov 09		MA2Y38 SW-48 9323035007 SW-48-111609AX 16 Nov 09		MA2Y39 SW-80 9323035008 SW-80-111609AX 16 Nov 09		MA2Y42 SW-45 9323035009 SW-45-111709AX 17 Nov 09		MA2 SW 93230 SW-45-1 17 N
2	U	2	U	2	U	2	U	2	U	2	U	2
1	U	1	U	1	U	1	U	1	U	1	U	1
11.9		26.2		4.2	J	41.8		26.4		9.1		9.2
4.5	J	9	J	9.6	J	1.7	J	2.5	J	11.9	J	12.4
6955		12886		9402		921		2961		8990		8992
10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10
0.49	J	0.43	J	0.52	J	0.14	J	0.087	J	0.085	J	0.085
0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1
2	J	1.4	J	2.4	J	5	U	0.58	J	1.3	J	1.2
0.099	J	0.13	J	0.083	J	0.5	U	0.5	U	0.072	J	0.074
0.16	J	0.088	J	0.16	J	0.048	J	0.073	J	0.2	J	0.19
0.92	J	0.63	J	1.2	J	0.36	J	5	U	0.27	J	0.44

Y44 -45 35010 11709AD ov 09	MA2Y46 SW-46 9323035011 SW-46-111609AX 17 Nov 09		MA2Y47 SW-81 9323035012 SW-81-111709AX 17 Nov 09		MA2Y49 SW-82 9323035013 SW-82-111709AX 17 Nov 09		MA2Y50 SW-71 9323035014 SW-71-111709AX 17 Nov 09		MA2Y53 SW-42 9323035015 SW-42-111709AX 17 Nov 09		MA2Y57 SW-29 9323035016 SW-29-111709AX 17 Nov 09	
U	2	U	2	U	2	U	2	U	2	U	2	U
U	1	U	1	U	1	U	1	U	1	U	1	UJ
	11.9		11.1		14.6		29		11.9		24	
J	6.5	J	8.7	J	6.9	J	0.55	J	12.1	J	2.1	J
	6795		6958		5988		72.4		8033		2208	
UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	3.4	J
J	0.25	J	0.6	J	0.75	J	0.061	J	0.45	J	0.067	J
U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
J	1.3	J	1.7	J	0.89	J	5	U	1.1	J	5	U
J	0.072	J	0.14	J	0.5	U	0.5	U	0.5	U	0.5	U
J	0.14	J	0.15	J	0.18	J	1	U	0.16	J	0.059	J
J	0.35	J	1.1	J	0.28	J	0.54	J	0.49	J	0.33	J

MA2Y59 SW-17 9323035017 SW-17-111709AX 17 Nov 09		MA2Y61 SW-41 9325039001 SW-41-111709AX 17 Nov 09		MA2Y70 SW-83 9325039006 SW-83-111809AX 18 Nov 09		MA2Y72 SW-83 9325039007 SW-83-111809AD 18 Nov 09		MA2Y74 SW-73 9325039008 SW-73-111809AX 18 Nov 09		MA2Y76 SW-72 9325039009 SW-72-111809AX 18 Nov 09		MA2 SW 93250 SW-51-1 18 N
2	U	2	U	2	U	2	U	2	U	2	U	2
1	UJ	1	U	1	U	1	U	1	U	0.64	J	1
11.1		10.4	J	13.9	J	14	J	10.8	J	33		10.6
0.5	UJ	0.86	J	6.5	J	6.9	J	0.5	UJ	0.5	UJ	0.5
5.1		545		6265		6039		38.6		30.3		15.3
10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10
1	UJ	1	U	0.91	J	0.86	J	1	U	3.9		0.11
0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1
5	U	5	U	1.6	J	1.2	J	5	U	0.57	J	5
0.5	U	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.07	J	0.5
1	U	0.078	J	0.2	J	0.18	J	1	U	0.057	J	1
0.43	J	0.29	J	0.28	J	0.5	J	5	UJ	11.3		0.49

Y78 -51 39010 11809AX ov 09	MA2Y80 SW-40 9325039011 SW-40-111709AX 17 Nov 09		MA2Y82 SW-13 9325039012 SW-13-111809AX 18 Nov 09		MA2Y84 SW-32 9325039013 SW-32-111809AX 18 Nov 09		MA2Y86 SW-12 9325039014 SW-12-111809AX 18 Nov 09		MA2Y88 SW-84 9325039015 SW-84-111809AX 18 Nov 09		MA2Y90 SW-36 9325039016 SW-36-111809AX 18 Nov 09	
U	2	U	2	U	2	U	2	U	2	U	2	U
U	1	U	1	U	1	U	1	U	1	U	1	U
J	13.4	J	12.9	J	10.8	J	11.8	J	8.9	J	8.6	J
UJ	0.28	J	0.25	J	1.9	J	1		0.5	UJ	0.5	UJ
	318		202		1918		1007		4.9		13.8	
UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ
J	1	U	1	U	0.42	J	0.2	J	1	U	0.14	J
U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
U	5	U	5	U	0.68	J	5	U	5	U	5	U
UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ
U	1	U	1	U	0.024	J	1	U	1	U	1	U
J	0.43	J	5	UJ	0.82	J	0.55	J	0.62	J	0.51	J

MA2Y92 SW-34 9325039017 SW-34-111809AX 18 Nov 09		MA2Y94 SW-04 9325039018 SW-04-111909AX 18 Nov 09		MA2Y96 SW-09 9325039019 SW-09-111909AX 19 Nov 09		MA2Y98 SW-38 9325039020 SW-38-111909AX 19 Nov 09		MA2ZB3 SW-43 9339025001 SW-43-120209AX 02 Dec 09		MA2Z02 MW-01A 9331002001 MW-01A-112009AX 20 Nov 09		MA2 MW- 93310 MW-01B-1 20 No
2	U	2	U	2	U	2	U	2	U	2	U	2
1	U	1	U	1	U	1	U	0.4	J			
30.3		12.9	J	13.1	J	12.8	J	14.3				
										0.057	J	1
1.7	J	0.5	UJ	1.1	J	0.5	UJ	55.8				
2045		70.4		1067		2	U	33178				
10	UJ	10	UJ	10	UJ	10	UJ	10	U	10	UJ	10
0.9	J	1	U	0.33	J	0.036	J	3.6				
0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.2	U	0.2
0.93	J	5	U	0.56	J	5	U	9.3				
0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.8				
0.074	J	1	U	1	U	1	U	0.31	J	0.14	J	1
5	UJ	0.43	J	0.35	J	0.3	J	6.7				

:Z03 ·01B 02002 112009AX ov 09	MA2Z05 MW-02B 9331002003 MW-02B-112009AX 20 Nov 09		MA2Z07 MW-02C 9331002004 MW-02C-112009AX 20 Nov 09		MA2Z09 MW-14C 9331002005 MW-14C-112309AX 23 Nov 09		MA2Z11 MW-10B 9331002006 MW-10B-112309AX 23 Nov 09		MA2Z13 MW-01C 9331002007 MW-01C-112309AX 23 Nov 09		MA2Z15 MW-10C 9331002008 MW-10C-112309AX 23 Nov 09	
U	2	U	2	U	2	U	2	U	2	U	2	U
U	1	U	1	U	1	U	1	U	1	U	1	U
UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ
U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
U	1	U	1	U	1	U	1	U	1	U	1	U

MA2Z17 MW-14A 9331002009 MW-14A-112309AX 23 Nov 09		MA2Z19 MW-11C 9331002012 MW-11C-112309AX 23 Nov 09		MA2Z21 MW-23A 9331002013 MW-23A-112309AX 23 Nov 09		MA2Z23 MW-03C 9331002014 MW-03C-112309AX 23 Nov 09		MA2Z25 MW-20C 9331002015 MW-20C-112309AX 23 Nov 09		MA2Z31 MW-17A 9331002020 MW-17A-112409AX 24 Nov 09		MA2 MW- 93310 MW-15A-1 24 No
2	U	2	U	2	U	2	U	2	U	2	U	2
1	U	1	U	1	U	1	U	1	U	1	U	1
10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10
0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2
1	U	1	U	0.033	J	1	U	1	U	1	U	1

:Z33 ·15A 02021 112409AX ov 09	MA2Z35 MW-04A 9331002022 MW-04A-112409AX 24 Nov 09		MA2Z37 MW-08A 9331002023 MW-08A-112409AX 24 Nov 09		MA2Z39 MW-08A 9331002024 MW-08A-112409AD 24 Nov 09		MA2Z41 MW-16A 9331002025 MW-16A-112409AX 24 Nov 09		MA2Z43 MW-04C 9331002026 MW-04C-112409AX 24 Nov 09		MA2Z45 MW-12C 9335023001 MW-12C-112409AX 24 Nov 09	
U	2	U	2	U	2	U	2	U	2	U	2	U
U	0.75	J	0.87	J	0.85	J	1	U	1	U	0.26	J
UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ
U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
U	0.29	J	0.075	J	0.078	J	1	U	1	U	0.067	J

MA2Z47 MW-21C 9335023002 MW-21C-112409AX 24 Nov 09		MA2Z49 MW-13A 9335023003 MW-13A-112409AX 24 Nov 09		MA2Z51 MW-05B 9335023004 MW-05B-112409AX 24 Nov 09		MA2Z53 MW-09C 9335023005 MW-09C-112409AX 24 Nov 09		MA2Z55 MW-06A 9335023006 MW-06A-112509AX 24 Nov 09		MA2Z57 MW-05C 9335023007 MW-05C-112509AX 25 Nov 09		MA2 MW- 93350 MW-07C-1 25 No
2	U	2	U	2	U	2	U	2	U	2	U	2
1.8	J	1	U	1	U	1	U	1	U	1	U	1
10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10
0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2
0.42	J	1	U	1	U	1	U	1	U	1	U	1

Z59 ·07C 23008 112509AX ov 09	MA2Z61 MW-06C 9335023011 MW-06C-112509AX 25 Nov 09		MA2Z63 MW-07A 9335023012 MW-07A-112509AX 25 Nov 09		MA2Z65 MW-19C 9335023013 MW-19C-112509AX 25 Nov 09		MA2Z67 MW-02A 9339026001 MW-02A-113009AX 30 Nov 09		MA2Z70 MW-21A 9339026004 MW-21A-113009AX 30 Nov 09		MA2Z72 MW-21A 9339026005 MW-21A-113009AD 30 Nov 09	
U	2	U	2	U	2	U	2	U	2	U	2	U
U	1	U	1	U	0.54	J	0.52	J	1.6	J	1.6	J
UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ
U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
U	1	U	1	U	0.052	J	1	U	1	U	1	U

MA2Z74 MW-22A 9339026006 MW-22A-113009AX 30 Nov 09		MA2Z76 MW-19A 9339026007 MW-19A-113009AX 30 Nov 09		MA2Z82 MW-05A 9339026012 MW-05A-120109AX 01 Dec 09		MA2Z84 MW-05A 9339026013 MW-05A-120109AD 01 Dec 09		MA2Z86 BM-01 9339026014 BM-01-120109AX 01 Dec 09		MA2Z88 MW-11A 9339026015 MW-11A-120109AX 01 Dec 09		MA2 MW- 93390 MW-18A- 01 De
2	U	2	U	2	U	2	U	2.2	U	2	U	2
0.68	J	1	U	1.4	J	1.3	J	1	U	1	U	2.1
10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10
0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2
1	U	1	U	1	U	1	U	1	U	1	U	1

:Z90 ·18A 26016 120109AX ec 09	MA2Z92 MW-14D 9339026017 MW-14D-120109AX 01 Dec 09		MA2Z94 MW-20A 9339026018 MW-20A-120109AX 01 Dec 09		MA2ZA5 MW-09A 9339026019 MW-09A-120209AX 02 Dec 09		MA2ZA7 MW-20D 9339026020 MW-20D-120209AX 02 Dec 09		MA2ZA9 MW-19D 9339026021 MW-19D-120209AX 02 Dec 09		MA2ZB5 M11LT19.0 9345001001 M11LT19.0-120809AX 08 Dec 09	
U	2	U	2	U	2	U	2	U	2	U	2	U
J	1	U	0.58	J	1.1	J	1	U	0.86	J	1	U
UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	U
U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
U	1	U	1	U	1	U	1	U	1	J	1	UJ

MA2ZB7 M11LT55.1 9345001002 M11LT55.1-120709AX 07 Dec 09		MA2ZB9 M11LT60.0 9345001005 M11LT60.0-120709AX 07 Dec 09		MA2ZC1 M11LT63.0 9345001006 M11LT63.0-120709AX 07 Dec 09		MA2ZC3 M11LT064 9345001007 M11LT064-120709AX 07 Dec 09		MA2ZC5 M11LT065 9345001008 M11LT065-120709AX 07 Dec 09		MA2ZC7 M11LT065 9345001009 M11LT065-1207090AD 07 Dec 09	
2	U	2	U	2	U	2	U	2	U	2	U
1	U	1	U	1	U	1	U	1	U	1	U
10	U	3.2	J	10	U	10	U	10	U	10	U
0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
1	UJ	1	UJ	1	UJ	1	UJ	1	UJ	1	UJ

DATA SUMMARY TABLE
Tier III Validated Data
Aroclor Analysis
Aqueous - ug/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 39247 SDG NO.: A2Z67

Sample Name:		A2Z67		A2Z70		A2Z74		A2Z76		A2Z82	
Sample Location:		MW-02A		MW-21A		MW-22A		MW-19A		MW-05A	
Lab Sample ID:		S-2816.01		S-2816.03		S-2816.11		S-2816.12		S-2816.04	
Station ID:		MW-02A-113009AX		MW-21A-113009AX		MW-22A-113009AX		MW-19A-113009AX		MW-05A-120109AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		30 Nov 09		30 Nov 09		30 Nov 09		30 Nov 09		01 Dec 09	
Date Analyzed:		14 Dec 09		14 Dec 09		15 Dec 09		15 Dec 09		15 Dec 09	
Chemical	CRQL										
Aroclor-1016	1	1	U	1	U	1	U	1	U	1	U
Aroclor-1221	1	1	U	1	U	1	U	1	U	1	U
Aroclor-1232	1	1	U	1	U	1	U	1	U	1	U
Aroclor-1242	1	1	U	1	U	1	U	1	U	1	U
Aroclor-1248	1	1	U	1	U	1	U	1	U	1	U
Aroclor-1254	1	1	U	1	U	1	U	1	U	1	U
Aroclor-1260	1	1	U	1	U	1	U	1	U	1	U
Aroclor-1262	1	1	U	1	U	1	U	1	U	1	U
Aroclor-1268	1	1	U	1	U	1	U	1	U	1	U

DATA SUMMARY TABLE
Tier III Validated Data
Aroclor Analysis
Aqueous - ug/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 39247 SDG NO.: A2Z67

Sample Name:		A2Z84		A2Z88		A2Z94		A2ZA5		A2ZA7	
Sample Location:		MW-05A		MW-11A		MW-20A		MW-09A		MW-20D	
Lab Sample ID:		S-2816.05		S-2816.06		S-2816.07		S-2816.08		S-2816.09	
Station ID:		MW-05A-120109AD		MW-11A-120109AX		MW-20A-120109AX		MW-09A-120209AX		MW-20D-120209AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		01 Dec 09		01 Dec 09		01 Dec 09		02 Dec 09		02 Dec 09	
Date Analyzed:		15 Dec 09		15 Dec 09		15 Dec 09		15 Dec 09		15 Dec 09	
Chemical	CRQL										
Aroclor-1016	1	1	U	1	U	1	U	1	U	1	U
Aroclor-1221	1	1	U	1	U	1	U	1	U	1	U
Aroclor-1232	1	1	U	1	U	1	U	1	U	1	U
Aroclor-1242	1	1	U	1	U	1	U	1	U	1	U
Aroclor-1248	1	1	U	1	U	1	U	1	U	0.48	J
Aroclor-1254	1	1	U	1	U	1	U	1	U	1	U
Aroclor-1260	1	1	U	1	U	1	U	1	U	1	U
Aroclor-1262	1	1	U	1	U	1	U	1	U	1	U
Aroclor-1268	1	1	U	1	U	1	U	1	U	1	U

DATA SUMMARY TABLE
Tier III Validated Data
Aroclor Analysis
Aqueous - ug/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 39247 SDG NO.: A2Z67

Sample Name:		A2ZA9	
Sample Location:		MW-19D	
Lab Sample ID:		S-2816.10	
Station ID:		MW-19D-120209AX	
Dilution Factor:		1	
Sample Date:		02 Dec 09	
Date Analyzed:		15 Dec 09	
Chemical	CRQL		
Aroclor-1016	1	1	U
Aroclor-1221	1	1	U
Aroclor-1232	1	1	U
Aroclor-1242	1	1	U
Aroclor-1248	1	1	U
Aroclor-1254	1	1	U
Aroclor-1260	1	1	U
Aroclor-1262	1	1	U
Aroclor-1268	1	1	U

DATA SUMMARY TABLE
Tier III Validated Data
Pesticides Analysis
Aqueous - ug/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 39247 SDG NO.: A2Z67

Sample Name:		A2Z67		A2Z70		A2Z74		A2Z76		A2Z82	
Sample Location:		MW-02A		MW-21A		MW-22A		MW-19A		MW-05A	
Lab Sample ID:		S-2816.01		S-2816.03		S-2816.11		S-2816.12		S-2816.04	
Station ID:		MW-02A-113009AX		MW-21A-113009AX		MW-22A-113009AX		MW-19A-113009AX		MW-05A-120109AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		30 Nov 09		30 Nov 09		30 Nov 09		30 Nov 09		01 Dec 09	
Date Analyzed:		18 Dec 09		18 Dec 09		18 Dec 09		18 Dec 09		18 Dec 09	
Chemical	CRQL										
4,4'-DDD	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
4,4'-DDE	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
4,4'-DDT	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Aldrin	0.05	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
alpha-BHC	0.05	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
alpha-Chlordane	0.05	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
beta-BHC	0.05	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
delta-BHC	0.05	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Dieldrin	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Endosulfan I	0.05	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Endosulfan II	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Endosulfan sulfate	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Endrin	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Endrin aldehyde	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Endrin ketone	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
gamma-BHC (Lindane)	0.05	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
gamma-Chlordane	0.05	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Heptachlor	0.05	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Heptachlor epoxide	0.05	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Methoxychlor	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toxaphene	5	5	U	5	U	5	U	5	U	5	U

DATA SUMMARY TABLE
Tier III Validated Data
Pesticides Analysis
Aqueous - ug/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 39247 SDG NO.: A2Z67

Sample Name:		A2Z84		A2Z88		A2Z94		A2ZA5		A2ZA7	
Sample Location:		MW-05A		MW-11A		MW-20A		MW-09A		MW-20D	
Lab Sample ID:		S-2816.05		S-2816.06		S-2816.07		S-2816.08		S-2816.09	
Station ID:		MW-05A-120109AD		MW-11A-120109AX		MW-20A-120109AX		MW-09A-120209AX		MW-20D-120209AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		01 Dec 09		01 Dec 09		01 Dec 09		02 Dec 09		02 Dec 09	
Date Analyzed:		18 Dec 09		18 Dec 09		18 Dec 09		18 Dec 09		18 Dec 09	
Chemical	CRQL										
4,4'-DDD	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.03	J
4,4'-DDE	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.024	J
4,4'-DDT	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.058	J
Aldrin	0.05	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
alpha-BHC	0.05	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
alpha-Chlordane	0.05	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
beta-BHC	0.05	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
delta-BHC	0.05	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Dieldrin	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Endosulfan I	0.05	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Endosulfan II	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Endosulfan sulfate	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Endrin	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Endrin aldehyde	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Endrin ketone	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
gamma-BHC (Lindane)	0.05	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
gamma-Chlordane	0.05	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Heptachlor	0.05	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Heptachlor epoxide	0.05	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Methoxychlor	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toxaphene	5	5	U	5	U	5	U	5	U	5	U

DATA SUMMARY TABLE
Tier III Validated Data
Pesticides Analysis
Aqueous - ug/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 39247 SDG NO.: A2Z67

Sample Name:		A2ZA9	
Sample Location:		MW-19D	
Lab Sample ID:		S-2816.10	
Station ID:		MW-19D-120209AX	
Dilution Factor:		1	
Sample Date:		02 Dec 09	
Date Analyzed:		18 Dec 09	
Chemical	CRQL		
4,4'-DDD	0.1	0.1	U
4,4'-DDE	0.1	0.1	U
4,4'-DDT	0.1	0.1	U
Aldrin	0.05	0.05	U
alpha-BHC	0.05	0.05	U
alpha-Chlordane	0.05	0.05	U
beta-BHC	0.05	0.05	U
delta-BHC	0.05	0.05	U
Dieldrin	0.1	0.1	U
Endosulfan I	0.05	0.05	U
Endosulfan II	0.1	0.1	U
Endosulfan sulfate	0.1	0.1	U
Endrin	0.1	0.1	U
Endrin aldehyde	0.1	0.1	U
Endrin ketone	0.1	0.1	U
gamma-BHC (Lindane)	0.05	0.05	U
gamma-Chlordane	0.05	0.05	U
Heptachlor	0.05	0.05	U
Heptachlor epoxide	0.05	0.05	U
Methoxychlor	0.5	0.5	U
Toxaphene	5	5	U

DATA SUMMARY TABLE
Tier III Validated Data
Semivolatile Organics Analysis
Aqueous - ug/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 39247 SDG NO.: A2Z67

Sample Name:		A2Z67		A2Z70		A2Z74		A2Z76		A2Z82	
Sample Location:		MW-02A		MW-21A		MW-22A		MW-19A		MW-05A	
Lab Sample ID:		S-2816.01		S-2816.03		S-2816.11		S-2816.12		S-2816.04	
Station ID:		MW-02A-113009AX		MW-21A-113009AX		MW-22A-113009AX		MW-19A-113009AX		MW-05A-120109AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		30 Nov 09		30 Nov 09		30 Nov 09		30 Nov 09		01 Dec 09	
Date Analyzed:		12 Dec 09		17 Dec 09		12 Dec 09		12 Dec 09		12 Dec 09	
Chemical	CRQL										
1,1'-Biphenyl	5	5	U	5	U	5	U	5	U	5	U
1,2,4,5-Tetrachlorobenzene	5	5	U	5	U	5	U	5	U	5	U
2,2'-Oxybis(1-chloropropane)	5	5	U	5	U	5	U	5	U	5	U
2,3,4,6-Tetrachlorophenol	5	5	U	5	U	5	U	5	U	5	U
2,4,5-Trichlorophenol	5	5	U	5	U	5	U	5	U	5	U
2,4,6-Trichlorophenol	5	5	U	5	U	5	U	5	U	5	U
2,4-Dichlorophenol	5	5	U	5	U	5	U	5	U	5	U
2,4-Dimethylphenol	5	5	U	5	U	5	U	5	U	5	U
2,4-Dinitrophenol	10	10	U	10	U	10	U	10	U	10	U
2,4-Dinitrotoluene	5	5	U	5	U	5	U	5	U	5	U
2,6-Dinitrotoluene	5	5	U	5	U	5	U	5	U	5	U
2-Chloronaphthalene	5	5	U	5	U	5	U	5	U	5	UJ
2-Chlorophenol	5	5	UJ	5	U	5	U	5	U	5	U
2-Methylnaphthalene	5	5	U	5	U	5	U	5	U	5	UJ
2-Methylphenol	5	5	U	5	U	5	U	5	U	5	U
2-Nitroaniline	10	10	U	10	U	10	U	10	U	10	U
2-Nitrophenol	5	5	U	5	U	5	U	5	U	5	U
3,3'-Dichlorobenzidine	5	5	U	5	U	5	U	5	U	5	U
3-Nitroaniline	10	10	U	10	U	10	U	10	U	10	U
4,6-Dinitro-2-methylphenol	10	10	U	10	U	10	U	10	U	10	U
4-Bromophenyl-phenylether	5	5	U	5	U	5	U	5	U	5	U
4-Chloro-3-methylphenol	5	5	U	5	U	5	U	5	U	5	U
4-Chloroaniline	5	5	U	5	U	5	U	5	U	5	U
4-Chlorophenyl-phenylether	5	5	U	5	U	5	U	5	U	5	U
4-Methylphenol	5	5	U	5	U	5	U	5	U	5	U
4-Nitroaniline	10	10	U	10	U	10	U	10	U	10	U
4-Nitrophenol	10		R	10	U	10	U	10	U	10	U
Acenaphthene	5	5	U	5	U	5	U	5	U	5	UJ
Acenaphthylene	5	5	U	5	U	5	U	5	U	5	UJ
Acetophenone	5	5	U	5	U	5	U	5	U	5	U
Anthracene	5	5	U	5	U	5	U	5	U	5	U
Atrazine	5		R		R		R		R		R
Benzaldehyde	5	5	UJ	5	U	5	U	5	U	5	UJ
Benzo(a)anthracene	5	5	U	5	U	5	U	5	U	5	U
Benzo(a)pyrene	5	5	U	5	U	5	U	5	U	5	U
Benzo(b)fluoranthene	5	5	U	5	U	5	U	5	U	5	U
Benzo(g,h,i)perylene	5	5	U	5	U	5	U	5	U	5	U
Benzo(k)fluoranthene	5	5	U	5	U	5	U	5	U	5	U
Bis(2-chloroethoxy)methane	5	5	U	5	U	5	U	5	U	5	U
Bis(2-chloroethyl)ether	5	5	U	5	U	5	U	5	U	5	U
Bis(2-ethylhexyl)phthalate	5	5	U	5	U	2.6	J	5	U	5	U
Butylbenzylphthalate	5	5	U	5	U	5	U	5	U	5	U
Caprolactam	5	5	U	5	U	5	U	5	U	5	U
Carbazole	5	5	U	5	U	5	U	5	U	5	U
Chrysene	5	5	U	5	U	5	U	5	U	5	U
Dibenzo(a,h)anthracene	5	5	U	5	U	5	U	5	U	5	U
Dibenzofuran	5	5	U	5	U	5	U	5	U	5	U
Diethylphthalate	5	5	U	5	U	5	U	5	U	5	U
Dimethylphthalate	5	5	U	5	U	5	U	5	U	5	U
Di-n-butylphthalate	5	5	U	5	U	5	U	5	U	5	U
Di-n-octylphthalate	5	5	U	5	U	5	U	5	U	5	U
Fluoranthene	5	5	U	5	U	5	U	5	U	5	U
Fluorene	5	5	U	5	U	5	U	5	U	5	U
Hexachlorobenzene	5	5	U	5	U	5	U	5	U	5	U
Hexachlorobutadiene	5	5	U	5	U	5	U	5	U	5	U
Hexachlorocyclopentadiene	5	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ
Hexachloroethane	5	5	U	5	U	5	U	5	U	5	U
Indeno(1,2,3-cd)pyrene	5	5	U	5	U	5	U	5	U	5	U
Isophorone	5	5	U	5	U	5	U	5	U	5	U
Naphthalene	5	5	U	5	U	5	U	5	U	5	UJ
Nitrobenzene	5	5	U	5	U	5	U	5	U	5	U
N-Nitroso-di-n-propylamine	5	5	U	5	U	5	U	5	U	5	U
N-Nitrosodiphenylamine	5	5	U	5	U	5	U	5	U	5	U
Pentachlorophenol	10	10	U	10	UJ	10	U	10	U	10	U
Phenanthrene	5	5	U	5	U	5	U	5	U	5	U
Phenol	5	5	UJ	5	U	5	U	5	U	5	UJ
Pyrene	5	5	U	5	U	5	U	5	U	5	U

DATA SUMMARY TABLE
Tier III Validated Data
Semivolatile Organics Analysis
Aqueous - ug/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 39247 SDG NO.: A2Z67

Sample Name:		A2Z84		A2Z88		A2Z94		A2ZA5		A2ZA7	
Sample Location:		MW-05A		MW-11A		MW-20A		MW-09A		MW-20D	
Lab Sample ID:		S-2816.05		S-2816.06		S-2816.07		S-2816.08		S-2816.09	
Station ID:		MW-05A-120109AD		MW-11A-120109AX		MW-20A-120109AX		MW-09A-120209AX		MW-20D-120209AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		01 Dec 09		01 Dec 09		01 Dec 09		02 Dec 09		02 Dec 09	
Date Analyzed:		12 Dec 09		12 Dec 09		12 Dec 09		12 Dec 09		12 Dec 09	
Chemical	CRQL										
1,1'-Biphenyl	5	5	U	5	U	5	U	5	U	5	U
1,2,4,5-Tetrachlorobenzene	5	5	U	5	U	5	U	5	U	5	U
2,2'-Oxybis(1-chloropropane)	5	5	U	5	U	5	U	5	U	5	U
2,3,4,6-Tetrachlorophenol	5	5	U	5	U	5	U	5	U	5	U
2,4,5-Trichlorophenol	5	5	U	5	U	5	U	5	U	5	U
2,4,6-Trichlorophenol	5	5	U	5	U	5	U	5	U	5	U
2,4-Dichlorophenol	5	5	U	5	U	5	U	5	U	5	U
2,4-Dimethylphenol	5	5	U	5	U	5	U	5	U	5	U
2,4-Dinitrophenol	10	10	U	10	UJ	10	U	10	U		R
2,4-Dinitrotoluene	5	5	U	5	U	5	U	5	U	5	U
2,6-Dinitrotoluene	5	5	U	5	U	5	U	5	U	5	U
2-Chloronaphthalene	5	5	U	5	U	5	U	5	U	5	U
2-Chlorophenol	5	5	U	5	U	5	U	5	U	5	U
2-Methylnaphthalene	5	5	U	5	U	5	U	5	U	5	U
2-Methylphenol	5	5	U	5	U	5	U	5	U	5	U
2-Nitroaniline	10	10	U	10	UJ	10	U	10	U		R
2-Nitrophenol	5	5	U	5	U	5	U	5	U	5	U
3,3'-Dichlorobenzidine	5	5	U	5	U	5	U	5	U	5	U
3-Nitroaniline	10	10	U	10	UJ	10	U	10	U		R
4,6-Dinitro-2-methylphenol	10	10	U	10	U	10	U	10	U		R
4-Bromophenyl-phenylether	5	5	U	5	U	5	U	5	U	5	U
4-Chloro-3-methylphenol	5	5	U	5	U	5	U	5	U	5	U
4-Chloroaniline	5	5	U	5	U	5	U	5	U	5	U
4-Chlorophenyl-phenylether	5	5	U	5	U	5	U	5	U	5	U
4-Methylphenol	5	5	U	5	U	5	U	5	U	5	U
4-Nitroaniline	10	10	U	10	UJ	10	U	10	U		R
4-Nitrophenol	10	10	U	10	UJ	10	U	10	U		R
Acenaphthene	5	5	U	5	U	5	U	5	U	5	U
Acenaphthylene	5	5	U	5	U	5	U	5	U	5	U
Acetophenone	5	5	U	5	U	5	U	5	U	5	U
Anthracene	5	5	U	5	U	5	U	5	UJ	5	U
Atrazine	5		R		R		R		R		R
Benzaldehyde	5	5	U	5	U	5	U	5	U	5	U
Benzo(a)anthracene	5	5	U	5	U	5	U	5	U	5	U
Benzo(a)pyrene	5	5	U	5	U	5	U	5	U	5	U
Benzo(b)fluoranthene	5	5	U	5	U	5	U	5	U	5	U
Benzo(g,h,i)perylene	5	5	U	5	U	5	U	5	U	5	U
Benzo(k)fluoranthene	5	5	U	5	U	5	U	5	U	5	U
Bis(2-chloroethoxy)methane	5	5	U	5	U	5	U	5	U	5	U
Bis(2-chloroethyl)ether	5	5	U	5	U	5	U	5	U	5	U
Bis(2-ethylhexyl)phthalate	5	5	U	5	U	5	U	5	U	5	U
Butylbenzylphthalate	5	5	U	5	U	5	U	5	U	5	U
Caprolactam	5	5	U	5	U	5	U	5	U	5	U
Carbazole	5	5	U	5	U	5	U	5	U	5	U
Chrysene	5	5	U	5	U	5	U	5	U	5	U
Dibenzo(a,h)anthracene	5	5	U	5	U	5	U	5	U	5	U
Dibenzofuran	5	5	U	5	U	5	U	5	U	5	U
Diethylphthalate	5	5	U	5	U	5	U	5	U	5	U
Dimethylphthalate	5	5	U	5	U	5	U	5	U	5	U
Di-n-butylphthalate	5	5	U	5	U	5	U	5	U	5	U
Di-n-octylphthalate	5	5	U	5	U	5	U	5	U	5	U
Fluoranthene	5	5	U	5	U	5	U	5	U	5	U
Fluorene	5	5	U	5	U	5	U	5	U	5	U
Hexachlorobenzene	5	5	U	5	U	5	U	5	UJ	5	U
Hexachlorobutadiene	5	5	U	5	U	5	U	5	U	5	U
Hexachlorocyclopentadiene	5	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ
Hexachloroethane	5	5	U	5	U	5	U	5	U	5	U
Indeno(1,2,3-cd)pyrene	5	5	U	5	U	5	U	5	U	5	U
Isophorone	5	5	U	5	U	5	U	5	U	5	U
Naphthalene	5	5	U	5	U	5	U	5	U	5	U
Nitrobenzene	5	5	U	5	U	5	U	5	U	5	U
N-Nitroso-di-n-propylamine	5	5	U	5	U	5	U	5	U	5	U
N-Nitrosodiphenylamine	5	5	U	5	U	5	U	5	U	5	U
Pentachlorophenol	10	10	U	10	U	10	U	10	U	10	U
Phenanthrene	5	5	U	5	U	5	U	5	UJ	5	U
Phenol	5	5	U	5	U	5	U	5	U	5	U
Pyrene	5	5	U	5	U	5	U	5	U	5	U

DATA SUMMARY TABLE
Tier III Validated Data
Semivolatile Organics Analysis
Aqueous - ug/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 39247 SDG NO.: A2Z67

Sample Name:		A2ZA9	
Sample Location:		MW-19D	
Lab Sample ID:		S-2816.10	
Station ID:		MW-19D-120209AX	
Dilution Factor:		1	
Sample Date:		02 Dec 09	
Date Analyzed:		12 Dec 09	
Chemical	CRQL		
1,1'-Biphenyl	5	5	U
1,2,4,5-Tetrachlorobenzene	5	5	U
2,2'-Oxybis(1-chloropropane)	5	5	U
2,3,4,6-Tetrachlorophenol	5	5	U
2,4,5-Trichlorophenol	5	5	U
2,4,6-Trichlorophenol	5	5	U
2,4-Dichlorophenol	5	5	U
2,4-Dimethylphenol	5	5	U
2,4-Dinitrophenol	10	10	U
2,4-Dinitrotoluene	5	5	U
2,6-Dinitrotoluene	5	5	U
2-Chloronaphthalene	5	5	U
2-Chlorophenol	5	5	U
2-Methylnaphthalene	5	5	U
2-Methylphenol	5	5	U
2-Nitroaniline	10	10	U
2-Nitrophenol	5	5	U
3,3'-Dichlorobenzidine	5	5	U
3-Nitroaniline	10	10	U
4,6-Dinitro-2-methylphenol	10	10	U
4-Bromophenyl-phenylether	5	5	U
4-Chloro-3-methylphenol	5	5	U
4-Chloroaniline	5	5	U
4-Chlorophenyl-phenylether	5	5	U
4-Methylphenol	5	5	U
4-Nitroaniline	10	10	U
4-Nitrophenol	10	10	U
Acenaphthene	5	5	U
Acenaphthylene	5	5	U
Acetophenone	5	5	U
Anthracene	5	5	U
Atrazine	5		R
Benzaldehyde	5	5	U
Benzo(a)anthracene	5	5	U
Benzo(a)pyrene	5	5	U
Benzo(b)fluoranthene	5	5	U
Benzo(g,h,i)perylene	5	5	U
Benzo(k)fluoranthene	5	5	U
Bis(2-chloroethoxy)methane	5	5	U
Bis(2-chloroethyl)ether	5	5	U
Bis(2-ethylhexyl)phthalate	5	7.5	
Butylbenzylphthalate	5	5	U
Caprolactam	5	5	U
Carbazole	5	5	U
Chrysene	5	5	U
Dibenzo(a,h)anthracene	5	5	U
Dibenzofuran	5	5	U
Diethylphthalate	5	5	U
Dimethylphthalate	5	5	U
Di-n-butylphthalate	5	5	U
Di-n-octylphthalate	5	5	U
Fluoranthene	5	5	U
Fluorene	5	5	U
Hexachlorobenzene	5	5	U
Hexachlorobutadiene	5	5	U
Hexachlorocyclopentadiene	5	5	UJ
Hexachloroethane	5	5	U
Indeno(1,2,3-cd)pyrene	5	5	U
Isophorone	5	5	U
Naphthalene	5	5	U
Nitrobenzene	5	5	U
N-Nitroso-di-n-propylamine	5	5	U
N-Nitrosodiphenylamine	5	5	U
Pentachlorophenol	10	10	U
Phenanthrene	5	5	U
Phenol	5	5	U
Pyrene	5	5	U

DATA SUMMARY TABLE
Tier III Validated Data
Volatile Organics Analysis (Trace)
Aqueous - ug/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 39247 SDG NO.: A2Z67

Sample Name:		A2Z67		A2Z69		A2Z70		A2Z74	
Sample Location:		MW-02A				MW-21A		MW-22A	
Lab Sample ID:		S-2816.01		S-2816.02		S-2816.03		S-2816.11	
Station ID:		MW-02A-113009AX		TB-01-113009AX		MW-21A-113009AX		MW-22A-113009AX	
Dilution Factor:		1		1		1		1	
Sample Date:		30 Nov 09		30 Nov 09		30 Nov 09		30 Nov 09	
Date Analyzed:		07 Dec 09		07 Dec 09		07 Dec 09		07 Dec 09	
Chemical	CRQL								
1,1,1-Trichloroethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2,2-Tetrachloroethane	0.5	0.5	UJ	0.5	UJ	0.5	U	0.5	U
1,1,2-Trichloro-1,2,2-trifluoroethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichloroethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	0.5	0.5	UJ	0.5	U	0.5	U	0.5	U
1,2,3-Trichlorobenzene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,2,4-Trichlorobenzene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dibromo-3-chloropropane	0.5	0.5	UJ	0.5	UJ	0.5	U	0.5	U
1,2-Dibromoethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichlorobenzene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloroethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloropropane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,3-Dichlorobenzene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,4-Dichlorobenzene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
2-Butanone	5		R	20	J		R		R
2-Hexanone	5	5	U	5	U	5	U	5	U
4-Methyl-2-pentanone	5	5	U	5	U	5	U	5	U
Acetone	5		R	14	J		R		R
Benzene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Bromochloromethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Bromodichloromethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Bromoform	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Bromomethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Carbon disulfide	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Carbon tetrachloride	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Chlorobenzene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Chloroethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Chloroform	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Chloromethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,3-Dichloropropene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Cyclohexane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Dibromochloromethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Dichlorodifluoromethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	0.5	U	0.33	J	0.5	U	0.5	U
Isopropylbenzene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
m,p-Xylene	0.5	0.5	U	0.47	J	0.5	U	0.5	U
Methyl acetate	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Methyl tert-butyl ether	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Methylcyclohexane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Methylene chloride	0.5	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	0.5	0.5	U	0.47	J	0.5	U	0.5	U
Styrene	0.5		R		R		R		R
Tetrachloroethene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	0.5	0.5	U	0.39	J	0.5	U	0.5	U
trans-1,2-Dichloroethene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
trans-1,3-Dichloropropene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Trichlorofluoromethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	0.5	0.5	U	0.5	U	0.5	U	0.5	U

DATA SUMMARY TABLE
Tier III Validated Data
Volatile Organics Analysis (Trace)
Aqueous - ug/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 39247 SDG NO.: A2Z67

Sample Name:		A2Z76		A2Z82		A2Z84		A2Z88	
Sample Location:		MW-19A		MW-05A		MW-05A		MW-11A	
Lab Sample ID:		S-2816.12		S-2816.04		S-2816.05		S-2816.06	
Station ID:		MW-19A-113009AX		MW-05A-120109AX		MW-05A-120109AD		MW-11A-120109AX	
Dilution Factor:		1		1		1		1	
Sample Date:		30 Nov 09		01 Dec 09		01 Dec 09		01 Dec 09	
Date Analyzed:		07 Dec 09		07 Dec 09		07 Dec 09		07 Dec 09	
Chemical	CRQL								
1,1,1-Trichloroethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2,2-Tetrachloroethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichloro-1,2,2-trifluoroethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichloroethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,2,3-Trichlorobenzene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,2,4-Trichlorobenzene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dibromo-3-chloropropane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dibromoethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichlorobenzene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloroethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloropropane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,3-Dichlorobenzene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,4-Dichlorobenzene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
2-Butanone	5		R		R		R		R
2-Hexanone	5	5	U	5	U	5	U	5	U
4-Methyl-2-pentanone	5	5	U	5	U	5	U	5	U
Acetone	5		R		R		R		R
Benzene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Bromochloromethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Bromodichloromethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Bromoform	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Bromomethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Carbon disulfide	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Carbon tetrachloride	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Chlorobenzene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Chloroethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Chloroform	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Chloromethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,3-Dichloropropene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Cyclohexane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Dibromochloromethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Dichlorodifluoromethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Isopropylbenzene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
m,p-Xylene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Methyl acetate	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Methyl tert-butyl ether	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Methylcyclohexane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Methylene chloride	0.5	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Styrene	0.5		R		R		R		R
Tetrachloroethene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
trans-1,2-Dichloroethene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
trans-1,3-Dichloropropene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Trichlorofluoromethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	0.5	0.5	U	0.5	U	0.5	U	0.5	U

DATA SUMMARY TABLE
Tier III Validated Data
Volatile Organics Analysis (Trace)
Aqueous - ug/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 39247 SDG NO.: A2Z67

Sample Name:		A2Z94		A2ZA5		A2ZA7		A2ZA9	
Sample Location:		MW-20A		MW-09A		MW-20D		MW-19D	
Lab Sample ID:		S-2816.07		S-2816.08		S-2816.09		S-2816.10	
Station ID:		MW-20A-120109AX		MW-09A-120209AX		MW-20D-120209AX		MW-19D-120209AX	
Dilution Factor:		1		1		1		1	
Sample Date:		01 Dec 09		02 Dec 09		02 Dec 09		02 Dec 09	
Date Analyzed:		07 Dec 09		07 Dec 09		07 Dec 09		07 Dec 09	
Chemical	CRQL								
1,1,1-Trichloroethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2,2-Tetrachloroethane	0.5	0.5	UJ	0.5	U	0.5	U	0.5	U
1,1,2-Trichloro-1,2,2-trifluoroethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichloroethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,2,3-Trichlorobenzene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,2,4-Trichlorobenzene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dibromo-3-chloropropane	0.5	0.5	UJ	0.5	U	0.5	U	0.5	U
1,2-Dibromoethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichlorobenzene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloroethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloropropane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,3-Dichlorobenzene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
1,4-Dichlorobenzene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
2-Butanone	5		R		R		R		R
2-Hexanone	5	5	U	5	U	5	U	5	U
4-Methyl-2-pentanone	5	5	U	5	U	5	U	5	U
Acetone	5		R		R		R		R
Benzene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Bromochloromethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Bromodichloromethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Bromoform	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Bromomethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Carbon disulfide	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Carbon tetrachloride	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Chlorobenzene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Chloroethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Chloroform	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Chloromethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,3-Dichloropropene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Cyclohexane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Dibromochloromethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Dichlorodifluoromethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Isopropylbenzene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
m,p-Xylene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Methyl acetate	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Methyl tert-butyl ether	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Methylcyclohexane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Methylene chloride	0.5	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Styrene	0.5		R		R		R		R
Tetrachloroethene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
trans-1,2-Dichloroethene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
trans-1,3-Dichloropropene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Trichlorofluoromethane	0.5	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	0.5	0.5	U	0.5	U	0.5	U	0.5	U

ELY COPPER MINE, VERSHIRE, VT
UNVALIDATED DATA - ANALYSIS SPLP METALS

DAS 0028S SPLP Metals

Sample Name:	D01000		D01023		D01024		D01032		D01033		D01039		D01041		D01151		D01408		D01440	
Station ID:	MW-23A-070809AX		SB-09X-073009AX		SB-09X-073009AD		TP-15X-073009BX		TP-15X-073009BD		MW-18A-080309AX		MW-18A-080309AD		SD-73X-080609AX		SS-37X-082609AX		MW-21A-083109AX	
SDG No.:	D01000 (R0903928)		D01023 (R0904306)		D01023 (R0904306)		D01023 (R0904306)		D01023 (R0904306)		D01023 (R0904306)		D01023 (R0904306)		D01151 (R0904466)		D01408 (R0904958)		D01440 (R0904959)	
Sample Location:	MW-23A		SB-09		SB-09		TP-15		TP-15X		MW-18A		MW-18A		SD-73		SS-37		MW-21A	
Sample Date:	07/08/2009		07/30/2009		07/30/2009		07/30/2009		07/30/2009		08/03/2009		08/03/2009		08/06/2009		08/26/2009		08/31/2009	
Parameter																				
ALUMINUM	21.5	J	2330		1840		184		209		185		152		0.63		0.14		0.46	
ANTIMONY																	0.05	U		
ARSENIC	10	U	3.3	J	10	U	10	U	10	U	10	U	10	U	0.01	U	0.005	J	0.004	J
BARIUM	117		74		74.9		169		146		106		101		0.016		0.33		0.39	J
CADMIUM	0.655	J	452		395		0.171	J	0.129	J	1.1	J	1.2	J	0.04		0.025		0.055	
CHROMIUM	10	U	4.8	J	3.5	J	0.618	J	10	U	1.5	J	1.9	J	0.01	U	0.01	U	0.01	U
COBALT	3.3	J	4330		4140		0.711	J	0.559	J	26.8	J	29.3	J	0.001	J	0.024		0.025	
COPPER	288		65700		63100		178		161		1140		1030		0.064		0.33		2.6	
IRON	100	U	6490		5720		100	U	34.7	J	749		445		0.4	E	0.059		0.87	
LEAD	0.897	J	37.4	J	35.9	J	50	U	50	U	0.944	J	50	U	0.01	U	0.01	U	0.01	U
MANGANESE	103		62.9		59.6		32.5		37.1		1120		1310		0.01		0.023		0.047	
MERCURY	0.2	U	0.2	UN	0.2	UN	0.2	UN	0.2	UN	0.02	NJ	0.2	UN	0.001	U	0.001	U	0.0025	U
SELENIUM	7.1	J	10	U	10	U	10	U	10	U	5.8	J	10	U	0.05	U	0.05	U	0.05	U
SILVER	10	U	3.1	J	3	J	10	U	10	U	10	U	0.936	J	0.01	U	0.01	U	0.01	U
THALLIUM	10	U	21.3		19.7		10	U	10	U	10	U	10	U	0.05	U	0.05	U	0.006	J
VANADIUM	50	U	50	U	50	U	50	U	50	U	0.278	J	50	U	0.01	U	0.01	U	0.01	U
ZINC	24.3	J	5210		4470		27.7		58		173		185		0.003	J	0.88		0.95	

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01013		D01014		D01015		D01016	
Sample Location:		VP-1		VP-2		VP-3		VP-3	
Lab Sample ID:		J0903802-001		J0903802-002		J0903802-003		J0903802-004	
Station ID:		VP-01X-072909AX		VP-02X-072809AX		VP-03X-072809AX		VP-03X-072809AD	
Dilution Factor:		1		1		1		1	
Sample Date:		29 Jul 09		28 Jul 09		28 Jul 09		28 Jul 09	
Date Analyzed:		07 Aug 09		07 Aug 09		07 Aug 09		07 Aug 09	
Chemical	CRQL								
Alkalinity (as CACO3)	5	9.5		35		26		29	
ALKALINITY, BICARBONATE (AS CACO3)	5	9.5		35		26		29	
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U	5	U
BICARBONATE	5								

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01017		D01045		D01048		D01051	
Sample Location:		VP-4		SW-42		SW-41		SW-71	
Lab Sample ID:		J0903802-005		J0903816-001		J0903816-002		J0903816-003	
Station ID:		VP-04X-072809AX		SW-42X-080409AX		SW-41X-080409AX		SW-71X-080409AX	
Dilution Factor:		1		1		1		1	
Sample Date:		28 Jul 09		04 Aug 09		04 Aug 09		04 Aug 09	
Date Analyzed:		07 Aug 09		18 Aug 09		18 Aug 09		18 Aug 09	
Chemical	CRQL								
Alkalinity (as CACO3)	5	5	U	5	U	5	U	5	U
ALKALINITY, BICARBONATE (AS CACO3)	5	5	U	5	U	5	U	5	U
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U	5	U
BICARBONATE	5								

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01054		D01057		D01060		D01063	
Sample Location:		SW-82		SW-40		SW-29		SW-17	
Lab Sample ID:		J0903816-004		J0903816-005		J0903816-006		J0903843-001	
Station ID:		SW-82X-080409AX		SW-40X-080409AX		SW-29X-080409AX		SW-17X-080409AX	
Dilution Factor:		1		1		1		1	
Sample Date:		04 Aug 09		04 Aug 09		04 Aug 09		04 Aug 09	
Date Analyzed:		18 Aug 09		18 Aug 09		18 Aug 09		18 Aug 09	
Chemical	CRQL								
Alkalinity (as CACO3)	5	5	U	5	U	5	U	7.5	
ALKALINITY, BICARBONATE (AS CACO3)	5	5	U	5	U	5	U		
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U	5	U
BICARBONATE	5							7.5	

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01066		D01069		D01072		D01075	
Sample Location:		SW-73		SW-51		SW-78		SW-78	
Lab Sample ID:		J0903843-002		J0903843-003		J0903843-004		J0903843-005	
Station ID:		SW-73X-080409AX		SW-51X-080409AX		SW-78X-080509AD		SW-78X-080509AX	
Dilution Factor:		1		1		1		1	
Sample Date:		04 Aug 09		04 Aug 09		05 Aug 09		05 Aug 09	
Date Analyzed:		18 Aug 09		18 Aug 09		18 Aug 09		18 Aug 09	
Chemical	CRQL								
Alkalinity (as CACO3)	5	9		5	U	5	U	5	U
ALKALINITY, BICARBONATE (AS CACO3)	5								
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U	5	U
BICARBONATE	5	9		5	U	5	U	5	U

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01078		D01081		D01084		D01087	
Sample Location:		SW-49		SW-76		SW-47			
Lab Sample ID:		J0903843-006		J0903842-001		J0903842-002		J0903842-003	
Station ID:		SW-49X-080509AX		SW-76X-080509AX		SW-47X-080509AX		EB-01X-080509AX	
Dilution Factor:		1		1		1		1	
Sample Date:		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09	
Date Analyzed:		18 Aug 09		18 Aug 09		18 Aug 09		18 Aug 09	
Chemical	CRQL								
Alkalinity (as CACO3)	5	5	U	5	U	5	U	5	U
ALKALINITY, BICARBONATE (AS CACO3)	5								
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U	5	U
BICARBONATE	5	5	U	5	U	5	U	5	U

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01090		D01093		D01096		D01099	
Sample Location:		SW-77		SW-48		SW-80		SW-75	
Lab Sample ID:		J0903842-004		J0903842-005		J0903842-006		J0903874-001	
Station ID:		SW-77X-080509AX		SW-48X-080509AX		SW-80X-080509AX		SW-75X-080509AX	
Dilution Factor:		1		1		1		1	
Sample Date:		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09	
Date Analyzed:		18 Aug 09		18 Aug 09		18 Aug 09		18 Aug 09	
Chemical	CRQL								
Alkalinity (as CACO3)	5	5	U	5	U	5	U	5	U
ALKALINITY, BICARBONATE (AS CACO3)	5								
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U	5	U
BICARBONATE	5	5	U	5	U	5	U	5	U

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01102		D01105		D01108		D01111	
Sample Location:		SW-75		SW-45		SW-43		SW-46	
Lab Sample ID:		J0903874-002		J0903874-003		J0903874-004		J0903874-005	
Station ID:		SW-75X-080509AD		SW-45X-080509AX		SW-43X-080509AX		SW-46X-080509AX	
Dilution Factor:		1		1		1		1	
Sample Date:		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09	
Date Analyzed:		18 Aug 09		18 Aug 09		18 Aug 09		18 Aug 09	
Chemical	CRQL								
Alkalinity (as CACO3)	5	5	U	5	U	5	U	17	
ALKALINITY, BICARBONATE (AS CACO3)	5								
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U	5	U
BICARBONATE	5	5	U	5	U	5	U	17	

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01114		D01117		D01120		D01123	
Sample Location:		SW-81		SW-79		SW-35		SW-84	
Lab Sample ID:		J0903874-006		J0903874-007		J0903874-008		J0903874-009	
Station ID:		SW-81X-080509AX		SW-79X-080609AX		SW-35X-080609AX		SW-84X-080609AX	
Dilution Factor:		1		1		1		1	
Sample Date:		05 Aug 09		06 Aug 09		06 Aug 09		06 Aug 09	
Date Analyzed:		18 Aug 09		18 Aug 09		18 Aug 09		18 Aug 09	
Chemical	CRQL								
Alkalinity (as CACO3)	5	5	U	5	U	5	U	20	
ALKALINITY, BICARBONATE (AS CACO3)	5								
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U	5	U
BICARBONATE	5	5	U	5	U	5	U	20	

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01126		D01133		D01136		D01139	
Sample Location:		SW-34		SW-13		SW-83		SW-32	
Lab Sample ID:		J0903874-010		J0903874-011		J0903874-012		J0903874-013	
Station ID:		SW-34X-080609AX		SW-13X-080609AX		SW-83X-080609AX		SW-32X-080609AX	
Dilution Factor:		1		1		1		1	
Sample Date:		06 Aug 09		06 Aug 09		06 Aug 09		06 Aug 09	
Date Analyzed:		18 Aug 09		18 Aug 09		18 Aug 09		18 Aug 09	
Chemical	CRQL								
Alkalinity (as CACO3)	5	5	U	13		5	U	5	U
ALKALINITY, BICARBONATE (AS CACO3)	5								
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U	5	U
BICARBONATE	5	5	U	13		5	U	5	U

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01142		D01145		D01179		D01182	
Sample Location:		SW-72		SW-12		SW-04		SW-09	
Lab Sample ID:		J0903874-014		J0903874-015		J0903913-001		J0903913-002	
Station ID:		SW-72X-080609AX		SW-12X-080609AX		SW-04X-080709AX		SW-09X-080709AX	
Dilution Factor:		1		1		1		1	
Sample Date:		06 Aug 09		06 Aug 09		07 Aug 09		07 Aug 09	
Date Analyzed:		18 Aug 09		18 Aug 09		20 Aug 09		20 Aug 09	
Chemical	CRQL								
Alkalinity (as CACO3)	5	28		5	U	56		5	U
ALKALINITY, BICARBONATE (AS CACO3)	5								
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U	5	U
BICARBONATE	5	28		5	U	56		5	U

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01185		D01190		D01193		D01196	
Sample Location:		SW-38		MW-01A		MW-01B		MW-02A	
Lab Sample ID:		J0903913-003		J0903943-001		J0903943-002		J0903943-003	
Station ID:		SW-38X-080709AX		MW-01A-081009AX		MW-01B-081009AX		MW-02A-081009AX	
Dilution Factor:		1		1		1		1	
Sample Date:		07 Aug 09		10 Aug 09		10 Aug 09		10 Aug 09	
Date Analyzed:		20 Aug 09		20 Aug 09		20 Aug 09		20 Aug 09	
Chemical	CRQL								
Alkalinity (as CACO3)	5	65		4	J	93		5	U
ALKALINITY, BICARBONATE (AS CACO3)	5			4	J	93		5	U
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U	5	U
BICARBONATE	5	65.2							

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01199		D01209		D01212		D01215	
Sample Location:		MW-02B		MW-14A		MW-11A		MW-11C	
Lab Sample ID:		J0903943-004		J0903943-005		J0903943-006		J0903943-007	
Station ID:		MW-02B-081009AX		MW-14A-081109AX		MW-11A-081109AX		MW-11C-081109AX	
Dilution Factor:		1		1		1		1	
Sample Date:		10 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09	
Date Analyzed:		20 Aug 09		20 Aug 09		20 Aug 09		20 Aug 09	
Chemical	CRQL								
Alkalinity (as CACO3)	5	70		11		45		78	
ALKALINITY, BICARBONATE (AS CACO3)	5	70		11		45		78	
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U	5	U
BICARBONATE	5								

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01218		D01222		D01226		D01230	
Sample Location:		MW-03C		MW-10C		MW-08A		MW-05A	
Lab Sample ID:		J0903943-008		J0903943-009		J0903999-001		J0903999-002	
Station ID:		MW-03C-081109AX		MW-10C-081109AX		MW-08A-081109AX		MW-05A-081109AX	
Dilution Factor:		1		1		1		1	
Sample Date:		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09	
Date Analyzed:		20 Aug 09		20 Aug 09		24 Aug 09		24 Aug 09	
Chemical	CRQL								
Alkalinity (as CACO3)	5	16		51		5	U	5	U
ALKALINITY, BICARBONATE (AS CACO3)	5	15		51		5	U	5	U
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U	5	U
BICARBONATE	5								

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01234		D01238		D01242		D01246	
Sample Location:		MW-12C		MW-10B		MW-01C		MW-13A	
Lab Sample ID:		J0903999-003		J0903999-004		J0903999-005		J0903999-006	
Station ID:		MW-12C-081109AX		MW-10B-081109AX		MW-01C-081209AX		MW-13A-081209AX	
Dilution Factor:		1		1		1		1	
Sample Date:		11 Aug 09		11 Aug 09		12 Aug 09		12 Aug 09	
Date Analyzed:		24 Aug 09		24 Aug 09		24 Aug 09		24 Aug 09	
Chemical	CRQL								
Alkalinity (as CACO3)	5	5	U	6		87		42	
ALKALINITY, BICARBONATE (AS CACO3)	5	5	U	6		87		42	
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U	5	U
BICARBONATE	5								

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01250		D01254		D01258		D01262	
Sample Location:		MW-06A		MW-05B		MW-05B		MW-09A	
Lab Sample ID:		J0903999-007		J0903999-008		J0903999-009		J0903999-010	
Station ID:		MW-06A-081209AX		MW-05B-081209AX		MW-05B-081209AD		MW-09A-081209AX	
Dilution Factor:		1		1		1		1	
Sample Date:		12 Aug 09		12 Aug 09		12 Aug 09		12 Aug 09	
Date Analyzed:		24 Aug 09		24 Aug 09		24 Aug 09		24 Aug 09	
Chemical	CRQL								
Alkalinity (as CACO3)	5	42		140		140		5	U
ALKALINITY, BICARBONATE (AS CACO3)	5	42		140		140		5	U
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U	5	U
BICARBONATE	5								

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01266		D01270	
Sample Location:		MW-06C		MW-02C	
Lab Sample ID:		J0903999-011		J0903999-012	
Station ID:		MW-06C-081209AX		MW-02C-081209AX	
Dilution Factor:		1		1	
Sample Date:		12 Aug 09		12 Aug 09	
Date Analyzed:		24 Aug 09		24 Aug 09	
Chemical	CRQL				
Alkalinity (as CACO3)	5	110		100	
ALKALINITY, BICARBONATE (AS CACO3)	5	110		100	
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U
BICARBONATE	5				

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Spec. Conductivity
Aqueous - uMHOS/cm

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01013		D01014		D01015		D01016		D01017	
Sample Location:		VP-1		VP-2		VP-3		VP-3		VP-4	
Lab Sample ID:		J0903802-001		J0903802-002		J0903802-003		J0903802-004		J0903802-005	
Station ID:		VP-01X-072909AX		VP-02X-072809AX		VP-03X-072809AX		VP-03X-072809AD		VP-04X-072809AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		29 Jul 09		28 Jul 09		28 Jul 09		28 Jul 09		28 Jul 09	
Date Analyzed:		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09	
Chemical	CRQL										
Specific Conductivity	5	98		67		62		62		29	

Data tables may
contain data that is
part of a different
SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Spec. Conductivity
Aqueous - uMHOS/cm

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01045		D01048		D01051		D01054		D01057	
Sample Location:		SW-42		SW-41		SW-71		SW-82		SW-40	
Lab Sample ID:		J0903816-001		J0903816-002		J0903816-003		J0903816-004		J0903816-005	
Station ID:		SW-42X-080409AX		SW-41X-080409AX		SW-71X-080409AX		SW-82X-080409AX		SW-40X-080409AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		04 Aug 09		04 Aug 09		04 Aug 09		04 Aug 09		04 Aug 09	
Date Analyzed:		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09	
Chemical	CRQL										
Specific Conductivity	5	620		84		160		740		72	

Data tables may
contain data that is
part of a different
SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Spec. Conductivity
Aqueous - uMHOS/cm

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01060		D01063		D01066		D01069		D01072	
Sample Location:		SW-29		SW-17		SW-73		SW-51		SW-78	
Lab Sample ID:		J0903816-006		J0903843-001		J0903843-002		J0903843-003		J0903843-004	
Station ID:		SW-29X-080409AX		SW-17X-080409AX		SW-73X-080409AX		SW-51X-080409AX		SW-78X-080509AD	
Dilution Factor:		1		1		1		1		1	
Sample Date:		04 Aug 09		04 Aug 09		04 Aug 09		04 Aug 09		05 Aug 09	
Date Analyzed:		11 Aug 09		17 Aug 09		17 Aug 09		17 Aug 09		17 Aug 09	
Chemical	CRQL										
Specific Conductivity	5	200		50		67		65		970	

Data tables may
contain data that is
part of a different
SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Spec. Conductivity
Aqueous - uMHOS/cm

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01075		D01078		D01081		D01084		D01087	
Sample Location:		SW-78		SW-49		SW-76		SW-47			
Lab Sample ID:		J0903843-005		J0903843-006		J0903842-001		J0903842-002		J0903842-003	
Station ID:		SW-78X-080509AX		SW-49X-080509AX		SW-76X-080509AX		SW-47X-080509AX		EB-01X-080509AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09	
Date Analyzed:		17 Aug 09		17 Aug 09		17 Aug 09		17 Aug 09		17 Aug 09	
Chemical	CRQL										
Specific Conductivity	5	970		400		520		1300		9.2	

Data tables may
contain data that is
part of a different
SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Spec. Conductivity
Aqueous - uMHOS/cm

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01090		D01093		D01096		D01099		D01102	
Sample Location:		SW-77		SW-48		SW-80		SW-75		SW-75	
Lab Sample ID:		J0903842-004		J0903842-005		J0903842-006		J0903874-001		J0903874-002	
Station ID:		SW-77X-080509AX		SW-48X-080509AX		SW-80X-080509AX		SW-75X-080509AX		SW-75X-080509AD	
Dilution Factor:		1		1		1		1		1	
Sample Date:		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09	
Date Analyzed:		17 Aug 09		17 Aug 09		17 Aug 09		17 Aug 09		17 Aug 09	
Chemical	CRQL										
Specific Conductivity	5	94		110		260		440		870	

Data tables may
contain data that is
part of a different
SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Spec. Conductivity
Aqueous - uMHOS/cm

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01105		D01108		D01111		D01114		D01117	
Sample Location:		SW-45		SW-43		SW-46		SW-81		SW-79	
Lab Sample ID:		J0903874-003		J0903874-004		J0903874-005		J0903874-006		J0903874-007	
Station ID:		SW-45X-080509AX		SW-43X-080509AX		SW-46X-080509AX		SW-81X-080509AX		SW-79X-080609AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		06 Aug 09	
Date Analyzed:		17 Aug 09		17 Aug 09		17 Aug 09		17 Aug 09		17 Aug 09	
Chemical	CRQL										
Specific Conductivity	5	450		650		580		860		660	

Data tables may
contain data that is
part of a different
SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Spec. Conductivity
Aqueous - uMHOS/cm

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01120		D01123		D01126		D01133		D01136	
Sample Location:		SW-35		SW-84		SW-34		SW-13		SW-83	
Lab Sample ID:		J0903874-008		J0903874-009		J0903874-010		J0903874-011		J0903874-012	
Station ID:		SW-35X-080609AX		SW-84X-080609AX		SW-34X-080609AX		SW-13X-080609AX		SW-83X-080609AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		06 Aug 09		06 Aug 09		06 Aug 09		06 Aug 09		06 Aug 09	
Date Analyzed:		17 Aug 09		17 Aug 09		17 Aug 09		17 Aug 09		17 Aug 09	
Chemical	CRQL										
Specific Conductivity	5	45		45		140		70		770	

Data tables may
contain data that is
part of a different
SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Spec. Conductivity
Aqueous - uMHOS/cm

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01139		D01142		D01145		D01179	
Sample Location:		SW-32		SW-72		SW-12		SW-04	
Lab Sample ID:		J0903874-013		J0903874-014		J0903874-015		J0903913-001	
Station ID:		SW-32X-080609AX		SW-72X-080609AX		SW-12X-080609AX		SW-04X-080709AX	
Dilution Factor:		1		1		1		1	
Sample Date:		06 Aug 09		06 Aug 09		06 Aug 09		07 Aug 09	
Date Analyzed:		17 Aug 09		17 Aug 09		17 Aug 09		21 Aug 09	
Chemical	CRQL								
Specific Conductivity	5	280		60		153		150	

Data tables may
contain data that is
part of a different
SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Spec. Conductivity
Aqueous - uMHOS/cm

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01182		D01185	
Sample Location:		SW-09		SW-38	
Lab Sample ID:		J0903913-002		J0903913-003	
Station ID:		SW-09X-080709AX		SW-38X-080709AX	
Dilution Factor:		1		1	
Sample Date:		07 Aug 09		07 Aug 09	
Date Analyzed:		21 Aug 09		21 Aug 09	
Chemical	CRQL				
Specific Conductivity	5	180		150	

Data tables may
contain data that is
part of a different
SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
pH Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01045		D01048		D01051		D01054		D01057	
Sample Location:		SW-42		SW-41		SW-71		SW-82		SW-40	
Lab Sample ID:		J0903816-001		J0903816-002		J0903816-003		J0903816-004		J0903816-005	
Station ID:		SW-42X-080409AX		SW-41X-080409AX		SW-71X-080409AX		SW-82X-080409AX		SW-40X-080409AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		04 Aug 09		04 Aug 09		04 Aug 09		04 Aug 09		04 Aug 09	
Date Analyzed:		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09	
Chemical	CRQL										
pH		3.7		6.2		4.4		3.1		6.7	

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
pH Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01060		D01063		D01066		D01069		D01072	
Sample Location:		SW-29		SW-17		SW-73		SW-51		SW-78	
Lab Sample ID:		J0903816-006		J0903843-001		J0903843-002		J0903843-003		J0903843-004	
Station ID:		SW-29X-080409AX		SW-17X-080409AX		SW-73X-080409AX		SW-51X-080409AX		SW-78X-080509AD	
Dilution Factor:		1		1		1		1		1	
Sample Date:		04 Aug 09		04 Aug 09		04 Aug 09		04 Aug 09		05 Aug 09	
Date Analyzed:		05 Aug 09		06 Aug 09		06 Aug 09		06 Aug 09		06 Aug 09	
Chemical	CRQL										
pH		7		7.1	X	6.7	X	6.8	X	3.1	X

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
pH Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01075		D01078		D01081		D01084		D01087	
Sample Location:		SW-78		SW-49		SW-76		SW-47			
Lab Sample ID:		J0903843-005		J0903843-006		J0903842-001		J0903842-002		J0903842-003	
Station ID:		SW-78X-080509AX		SW-49X-080509AX		SW-76X-080509AX		SW-47X-080509AX		EB-01X-080509AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09	
Date Analyzed:		06 Aug 09		06 Aug 09		06 Aug 09		06 Aug 09		06 Aug 09	
Chemical	CRQL										
pH		3.1	X	3.4	X	3.3	X	2.8	X	4.8	

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
pH Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01090		D01093		D01096		D01099		D01102	
Sample Location:		SW-77		SW-48		SW-80		SW-75		SW-75	
Lab Sample ID:		J0903842-004		J0903842-005		J0903842-006		J0903874-001		J0903874-002	
Station ID:		SW-77X-080509AX		SW-48X-080509AX		SW-80X-080509AX		SW-75X-080509AX		SW-75X-080509AD	
Dilution Factor:		1		1		1		1		1	
Sample Date:		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09	
Date Analyzed:		06 Aug 09		06 Aug 09		06 Aug 09		07 Aug 09		07 Aug 09	
Chemical	CRQL										
pH		4.2		4.2		4.1		2.8	X	2.8	X

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
pH Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01105		D01108		D01111		D01114		D01117	
Sample Location:		SW-45		SW-43		SW-46		SW-81		SW-79	
Lab Sample ID:		J0903874-003		J0903874-004		J0903874-005		J0903874-006		J0903874-007	
Station ID:		SW-45X-080509AX		SW-43X-080509AX		SW-46X-080509AX		SW-81X-080509AX		SW-79X-080609AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		06 Aug 09	
Date Analyzed:		07 Aug 09		07 Aug 09		07 Aug 09		07 Aug 09		07 Aug 09	
Chemical	CRQL										
pH		3.5	X	2.9	X	3.3	X	3	X	3.1	X

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
pH Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01120		D01123		D01126		D01133		D01136	
Sample Location:		SW-35		SW-84		SW-34		SW-13		SW-83	
Lab Sample ID:		J0903874-008		J0903874-009		J0903874-010		J0903874-011		J0903874-012	
Station ID:		SW-35X-080609AX		SW-84X-080609AX		SW-34X-080609AX		SW-13X-080609AX		SW-83X-080609AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		06 Aug 09		06 Aug 09		06 Aug 09		06 Aug 09		06 Aug 09	
Date Analyzed:		07 Aug 09		07 Aug 09		07 Aug 09		07 Aug 09		07 Aug 09	
Chemical	CRQL										
pH		6.9	X	6.4	X	3.8	X	7	X	3.1	X

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
pH Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01139		D01142		D01145		D01179	
Sample Location:		SW-32		SW-72		SW-12		SW-04	
Lab Sample ID:		J0903874-013		J0903874-014		J0903874-015		J0903913-001	
Station ID:		SW-32X-080609AX		SW-72X-080609AX		SW-12X-080609AX		SW-04X-080709AX	
Dilution Factor:		1		1		1		1	
Sample Date:		06 Aug 09		06 Aug 09		06 Aug 09		07 Aug 09	
Date Analyzed:		07 Aug 09		07 Aug 09		07 Aug 09		11 Aug 09	
Chemical	CRQL								
pH		3.7	X	6.5	X	4.6	X	7.5	X

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
pH Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01182		D01185	
Sample Location:		SW-09		SW-38	
Lab Sample ID:		J0903913-002		J0903913-003	
Station ID:		SW-09X-080709AX		SW-38X-080709AX	
Dilution Factor:		1		1	
Sample Date:		07 Aug 09		07 Aug 09	
Date Analyzed:		11 Aug 09		11 Aug 09	
Chemical	CRQL				
pH		3.9	X	7.7	X

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
TDS Analysis
Aqueous mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01045		D01048		D01051		D01054		D01057	
Sample Location:		SW-42		SW-41		SW-71		SW-82		SW-40	
Lab Sample ID:		J0903816-001		J0903816-002		J0903816-003		J0903816-004		J0903816-005	
Station ID:		SW-42X-080409AX		SW-41X-080409AX		SW-71X-080409AX		SW-82X-080409AX		SW-40X-080409AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		04 Aug 09		04 Aug 09		04 Aug 09		04 Aug 09		04 Aug 09	
Date Analyzed:		10 Aug 09		10 Aug 09		10 Aug 09		10 Aug 09		10 Aug 09	
Chemical	CRQL										
Total Dissolved Solids	10	590		56		120		520		46	

Data tables may
contain data that is
part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
TDS Analysis
Aqueous mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01060		D01063		D01066		D01069		D01072	
Sample Location:		SW-29		SW-17		SW-73		SW-51		SW-78	
Lab Sample ID:		J0903816-006		J0903843-001		J0903843-002		J0903843-003		J0903843-004	
Station ID:		SW-29X-080409AX		SW-17X-080409AX		SW-73X-080409AX		SW-51X-080409AX		SW-78X-080509AD	
Dilution Factor:		1		1		1		1		1	
Sample Date:		04 Aug 09		04 Aug 09		04 Aug 09		04 Aug 09		05 Aug 09	
Date Analyzed:		10 Aug 09		10 Aug 09		10 Aug 09		10 Aug 09		10 Aug 09	
Chemical	CRQL										
Total Dissolved Solids	10	190		33		50		47		790	

Data tables may
contain data that is
part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
TDS Analysis
Aqueous mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01075		D01078		D01081		D01084		D01087	
Sample Location:		SW-78		SW-49		SW-76		SW-47			
Lab Sample ID:		J0903843-005		J0903843-006		J0903842-001		J0903842-002		J0903842-003	
Station ID:		SW-78X-080509AX		SW-49X-080509AX		SW-76X-080509AX		SW-47X-080509AX		EB-01X-080509AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09	
Date Analyzed:		10 Aug 09		10 Aug 09		10 Aug 09		10 Aug 09		10 Aug 09	
Chemical	CRQL										
Total Dissolved Solids	10	820		280		380		910		10	U

Data tables may
contain data that is
part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
TDS Analysis
Aqueous mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01090		D01093		D01096		D01099		D01102	
Sample Location:		SW-77		SW-48		SW-80		SW-75		SW-75	
Lab Sample ID:		J0903842-004		J0903842-005		J0903842-006		J0903874-001		J0903874-002	
Station ID:		SW-77X-080509AX		SW-48X-080509AX		SW-80X-080509AX		SW-75X-080509AX		SW-75X-080509AD	
Dilution Factor:		1		1		1		1		1	
Sample Date:		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09	
Date Analyzed:		10 Aug 09		10 Aug 09		10 Aug 09		11 Aug 09		11 Aug 09	
Chemical	CRQL										
Total Dissolved Solids	10	86		97		240		450		340	

Data tables may
contain data that is
part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
TDS Analysis
Aqueous mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01105		D01108		D01111		D01114		D01117	
Sample Location:		SW-45		SW-43		SW-46		SW-81		SW-79	
Lab Sample ID:		J0903874-003		J0903874-004		J0903874-005		J0903874-006		J0903874-007	
Station ID:		SW-45X-080509AX		SW-43X-080509AX		SW-46X-080509AX		SW-81X-080509AX		SW-79X-080609AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		06 Aug 09	
Date Analyzed:		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09	
Chemical	CRQL										
Total Dissolved Solids	10	690		450		550		768		420	

Data tables may
contain data that is
part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
TDS Analysis
Aqueous mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01120		D01123		D01126		D01133		D01136	
Sample Location:		SW-35		SW-84		SW-34		SW-13		SW-83	
Lab Sample ID:		J0903874-008		J0903874-009		J0903874-010		J0903874-011		J0903874-012	
Station ID:		SW-35X-080609AX		SW-84X-080609AX		SW-34X-080609AX		SW-13X-080609AX		SW-83X-080609AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		06 Aug 09		06 Aug 09		06 Aug 09		06 Aug 09		06 Aug 09	
Date Analyzed:		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09	
Chemical	CRQL										
Total Dissolved Solids	10	36		37		99		45		510	

Data tables may
contain data that is
part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
TDS Analysis
Aqueous mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01139		D01142		D01145		D01179	
Sample Location:		SW-32		SW-72		SW-12		SW-04	
Lab Sample ID:		J0903874-013		J0903874-014		J0903874-015		J0903913-001	
Station ID:		SW-32X-080609AX		SW-72X-080609AX		SW-12X-080609AX		SW-04X-080709AX	
Dilution Factor:		1		1		1		1	
Sample Date:		06 Aug 09		06 Aug 09		06 Aug 09		07 Aug 09	
Date Analyzed:		11 Aug 09		11 Aug 09		11 Aug 09		13 Aug 09	
Chemical	CRQL								
Total Dissolved Solids	10	200		66		120		88	

Data tables may
contain data that is
part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
TDS Analysis
Aqueous mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01182		D01185	
Sample Location:		SW-09		SW-38	
Lab Sample ID:		J0903913-002		J0903913-003	
Station ID:		SW-09X-080709AX		SW-38X-080709AX	
Dilution Factor:		1		1	
Sample Date:		07 Aug 09		07 Aug 09	
Date Analyzed:		13 Aug 09		13 Aug 09	
Chemical	CRQL				
Total Dissolved Solids	10	150		87	

Data tables may
contain data that is
part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
TSS Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01045		D01048		D01051		D01054		D01057	
Sample Location:		SW-42		SW-41		SW-71		SW-82		SW-40	
Lab Sample ID:		J0903816-001		J0903816-002		J0903816-003		J0903816-004		J0903816-005	
Station ID:		SW-42X-080409AX		SW-41X-080409AX		SW-71X-080409AX		SW-82X-080409AX		SW-40X-080409AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		04 Aug 09		04 Aug 09		04 Aug 09		04 Aug 09		04 Aug 09	
Date Analyzed:		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09	
Chemical	CRQL										
Total Suspended Solids	5	5	U	8.5		2	J	8.5		2	J

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
TSS Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01060		D01063		D01066		D01069		D01072	
Sample Location:		SW-29		SW-17		SW-73		SW-51		SW-78	
Lab Sample ID:		J0903816-006		J0903843-001		J0903843-002		J0903843-003		J0903843-004	
Station ID:		SW-29X-080409AX		SW-17X-080409AX		SW-73X-080409AX		SW-51X-080409AX		SW-78X-080509AD	
Dilution Factor:		1		1		1		1		1	
Sample Date:		04 Aug 09		04 Aug 09		04 Aug 09		04 Aug 09		05 Aug 09	
Date Analyzed:		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09	
Chemical	CRQL										
Total Suspended Solids	5	5	U	2.7	J	1.5	J	2	J	3	J

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
TSS Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01075		D01078		D01081		D01084		D01087	
Sample Location:		SW-78		SW-49		SW-76		SW-47			
Lab Sample ID:		J0903843-005		J0903843-006		J0903842-001		J0903842-002		J0903842-003	
Station ID:		SW-78X-080509AX		SW-49X-080509AX		SW-76X-080509AX		SW-47X-080509AX		EB-01X-080509AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09	
Date Analyzed:		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09	
Chemical	CRQL										
Total Suspended Solids	5	19		3.5	J	42		49		5	U

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
TSS Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01090		D01093		D01096		D01099		D01102	
Sample Location:		SW-77		SW-48		SW-80		SW-75		SW-75	
Lab Sample ID:		J0903842-004		J0903842-005		J0903842-006		J0903874-001		J0903874-002	
Station ID:		SW-77X-080509AX		SW-48X-080509AX		SW-80X-080509AX		SW-75X-080509AX		SW-75X-080509AD	
Dilution Factor:		1		1		1		1		1	
Sample Date:		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09	
Date Analyzed:		11 Aug 09		11 Aug 09		11 Aug 09		12 Aug 09		12 Aug 09	
Chemical	CRQL										
Total Suspended Solids	5	2	J	5	U	2	J	19		12	

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
TSS Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01105		D01108		D01111		D01114		D01117	
Sample Location:		SW-45		SW-43		SW-46		SW-81		SW-79	
Lab Sample ID:		J0903874-003		J0903874-004		J0903874-005		J0903874-006		J0903874-007	
Station ID:		SW-45X-080509AX		SW-43X-080509AX		SW-46X-080509AX		SW-81X-080509AX		SW-79X-080609AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		06 Aug 09	
Date Analyzed:		12 Aug 09		12 Aug 09		12 Aug 09		12 Aug 09		13 Aug 09	
Chemical	CRQL										
Total Suspended Solids	5	6.5		12		1.5	J	5	U	5	U

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
TSS Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01120		D01123		D01126		D01133		D01136	
Sample Location:		SW-35		SW-84		SW-34		SW-13		SW-83	
Lab Sample ID:		J0903874-008		J0903874-009		J0903874-010		J0903874-011		J0903874-012	
Station ID:		SW-35X-080609AX		SW-84X-080609AX		SW-34X-080609AX		SW-13X-080609AX		SW-83X-080609AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		06 Aug 09		06 Aug 09		06 Aug 09		06 Aug 09		06 Aug 09	
Date Analyzed:		13 Aug 09		13 Aug 09		13 Aug 09		13 Aug 09		13 Aug 09	
Chemical	CRQL										
Total Suspended Solids	5	5	U	8.5		5	U	5	U	3.5	J

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
TSS Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01139		D01142		D01145		D01179	
Sample Location:		SW-32		SW-72		SW-12		SW-04	
Lab Sample ID:		J0903874-013		J0903874-014		J0903874-015		J0903913-001	
Station ID:		SW-32X-080609AX		SW-72X-080609AX		SW-12X-080609AX		SW-04X-080709AX	
Dilution Factor:		1		1		1		1	
Sample Date:		06 Aug 09		06 Aug 09		06 Aug 09		07 Aug 09	
Date Analyzed:		13 Aug 09		13 Aug 09		13 Aug 09		13 Aug 09	
Chemical	CRQL								
Total Suspended Solids	5	3.5	J	3.5	J	7.5		8	

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
TSS Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01182		D01185	
Sample Location:		SW-09		SW-38	
Lab Sample ID:		J0903913-002		J0903913-003	
Station ID:		SW-09X-080709AX		SW-38X-080709AX	
Dilution Factor:		1		1	
Sample Date:		07 Aug 09		07 Aug 09	
Date Analyzed:		13 Aug 09		13 Aug 09	
Chemical	CRQL				
Total Suspended Solids	5	6		2	J

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01013		D01014		D01015		D01016		D01017	
Sample Location:		VP-1		VP-2		VP-3		VP-3		VP-4	
Lab Sample ID:		J0903802-001		J0903802-002		J0903802-003		J0903802-004		J0903802-005	
Station ID:		VP-01X-072909AX		VP-02X-072809AX		VP-03X-072809AX		VP-03X-072809AD		VP-04X-072809AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		29 Jul 09		28 Jul 09		28 Jul 09		28 Jul 09		28 Jul 09	
Date Analyzed:		12 Aug 09		12 Aug 09		12 Aug 09		12 Aug 09		12 Aug 09	
Chemical	CRQL										
Chloride	0.2	0.34		0.20		0.23		0.23		0.22	
Sulfate	0.4	31		1.8		5.6		5.6		4.3	
Sulfate	0.8										
Sulfate	2										
Sulfate	4										

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01045		D01045		D01048		D01051		D01054	
Sample Location:		SW-42		SW-42		SW-41		SW-71		SW-82	
Lab Sample ID:		J0903816-001		J0903816-001		J0903816-002		J0903816-003		J0903816-004	
Station ID:		SW-42X-080409AX		SW-42X-080409AX		SW-41X-080409AX		SW-71X-080409AX		SW-82X-080409AX	
Dilution Factor:		1		5		1		1		1	
Sample Date:		04 Aug 09		04 Aug 09		04 Aug 09		04 Aug 09		04 Aug 09	
Date Analyzed:		12 Aug 09		17 Aug 09		12 Aug 09		12 Aug 09		12 Aug 09	
Chemical	CRQL										
Chloride	0.2	0.3				0.21		0.24		0.34	
Sulfate	0.4					31		67			
Sulfate	0.8										
Sulfate	2			370							
Sulfate	4										

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01054		D01057		D01060		D01063		D01066	
Sample Location:		SW-82		SW-40		SW-29		SW-17		SW-73	
Lab Sample ID:		J0903816-004		J0903816-005		J0903816-006		J0903843-001		J0903843-002	
Station ID:		SW-82X-080409AX		SW-40X-080409AX		SW-29X-080409AX		SW-17X-080409AX		SW-73X-080409AX	
Dilution Factor:		5		1		1		1		1	
Sample Date:		04 Aug 09		04 Aug 09		04 Aug 09		04 Aug 09		04 Aug 09	
Date Analyzed:		17 Aug 09		12 Aug 09		12 Aug 09		17 Aug 09		17 Aug 09	
Chemical	CRQL										
Chloride	0.2			0.22		0.22		0.21		0.22	
Sulfate	0.4			17		101		5.6		7.7	
Sulfate	0.8										
Sulfate	2	350									
Sulfate	4										

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01069		D01072		D01075		D01078		D01081	
Sample Location:		SW-51		SW-78		SW-78		SW-49		SW-76	
Lab Sample ID:		J0903843-003		J0903843-004		J0903843-005		J0903843-006		J0903842-001	
Station ID:		SW-51X-080409AX		SW-78X-080509AD		SW-78X-080509AX		SW-49X-080509AX		SW-76X-080509AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		04 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09	
Date Analyzed:		17 Aug 09		17 Aug 09		17 Aug 09		17 Aug 09		12 Aug 09	
Chemical	CRQL										
Chloride	0.2	0.22		0.32		0.33		0.34		0.34	
Sulfate	0.4	6						156			
Sulfate	0.8										
Sulfate	2			480		500					
Sulfate	4										

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01081		D01084		D01084		D01087		D01087	
Sample Location:		SW-76		SW-47		SW-47					
Lab Sample ID:		J0903842-001		J0903842-002		J0903842-002		J0903842-003		J0903842-003	
Station ID:		SW-76X-080509AX		SW-47X-080509AX		SW-47X-080509AX		EB-01X-080509AX		EB-01X-080509AX	
Dilution Factor:		5		1		5		1		1	
Sample Date:		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09	
Date Analyzed:		17 Aug 09		12 Aug 09		17 Aug 09		12 Aug 09		17 Aug 09	
Chemical	CRQL										
Chloride	0.2			0.35				0.2	U		
Sulfate	0.4									0.4	U
Sulfate	0.8										
Sulfate	2	250				570					
Sulfate	4										

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01090		D01093		D01096		D01099		D01099	
Sample Location:		SW-77		SW-48		SW-80		SW-75		SW-75	
Lab Sample ID:		J0903842-004		J0903842-005		J0903842-006		J0903874-001		J0903874-001	
Station ID:		SW-77X-080509AX		SW-48X-080509AX		SW-80X-080509AX		SW-75X-080509AX		SW-75X-080509AX	
Dilution Factor:		1		1		1		1		2	
Sample Date:		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09	
Date Analyzed:		12 Aug 09		12 Aug 09		12 Aug 09		18 Aug 09		21 Aug 09	
Chemical	CRQL										
Chloride	0.2	0.22		0.21		0.23		0.32			
Sulfate	0.4	40		51		130					
Sulfate	0.8									270	
Sulfate	2										
Sulfate	4										

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01102		D01102		D01105		D01105		D01108	
Sample Location:		SW-75		SW-75		SW-45		SW-45		SW-43	
Lab Sample ID:		J0903874-002		J0903874-002		J0903874-003		J0903874-003		J0903874-004	
Station ID:		SW-75X-080509AD		SW-75X-080509AD		SW-45X-080509AX		SW-45X-080509AX		SW-43X-080509AX	
Dilution Factor:		1		2		1		5		1	
Sample Date:		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09	
Date Analyzed:		18 Aug 09		21 Aug 09		18 Aug 09		21 Aug 09		18 Aug 09	
Chemical	CRQL										
Chloride	0.2	0.3				0.36				0.31	
Sulfate	0.4										
Sulfate	0.8			280							
Sulfate	2							440			
Sulfate	4										

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01108		D01111		D01111		D01114		D01114	
Sample Location:		SW-43		SW-46		SW-46		SW-81		SW-81	
Lab Sample ID:		J0903874-004		J0903874-005		J0903874-005		J0903874-006		J0903874-006	
Station ID:		SW-43X-080509AX		SW-46X-080509AX		SW-46X-080509AX		SW-81X-080509AX		SW-81X-080509AX	
Dilution Factor:		2		1		2		1		5	
Sample Date:		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09	
Date Analyzed:		21 Aug 09		18 Aug 09		21 Aug 09		18 Aug 09		21 Aug 09	
Chemical	CRQL										
Chloride	0.2			0.36				0.34			
Sulfate	0.4										
Sulfate	0.8	290				320					
Sulfate	2									480	
Sulfate	4										

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01117		D01117		D01120		D01120		D01123	
Sample Location:		SW-79		SW-79		SW-35		SW-35		SW-84	
Lab Sample ID:		J0903874-007		J0903874-007		J0903874-008		J0903874-008		J0903874-009	
Station ID:		SW-79X-080609AX		SW-79X-080609AX		SW-35X-080609AX		SW-35X-080609AX		SW-84X-080609AX	
Dilution Factor:		1		2		1		1		1	
Sample Date:		06 Aug 09		06 Aug 09		06 Aug 09		06 Aug 09		06 Aug 09	
Date Analyzed:		18 Aug 09		21 Aug 09		18 Aug 09		21 Aug 09		18 Aug 09	
Chemical	CRQL										
Chloride	0.2	0.27				0.2				0.9	
Sulfate	0.4							6.7			
Sulfate	0.8			300							
Sulfate	2										
Sulfate	4										

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01123		D01126		D01133		D01136		D01136	
Sample Location:		SW-84		SW-34		SW-13		SW-83		SW-83	
Lab Sample ID:		J0903874-009		J0903874-010		J0903874-011		J0903874-012		J0903874-012	
Station ID:		SW-84X-080609AX		SW-34X-080609AX		SW-13X-080609AX		SW-83X-080609AX		SW-83X-080609AX	
Dilution Factor:		10		1		1		1		10	
Sample Date:		06 Aug 09		06 Aug 09		06 Aug 09		06 Aug 09		06 Aug 09	
Date Analyzed:		26 Aug 09		18 Aug 09		18 Aug 09		18 Aug 09		26 Aug 09	
Chemical	CRQL										
Chloride	0.2			0.25		0.22		0.36			
Sulfate	0.4			55		15					
Sulfate	0.8										
Sulfate	2										
Sulfate	4	3.7								390	

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01139		D01142		D01142		D01145		D01179	
Sample Location:		SW-32		SW-72		SW-72		SW-12		SW-04	
Lab Sample ID:		J0903874-013		J0903874-014		J0903874-014		J0903874-015		J0903913-001	
Station ID:		SW-32X-080609AX		SW-72X-080609AX		SW-72X-080609AX		SW-12X-080609AX		SW-04X-080709AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		06 Aug 09		06 Aug 09		06 Aug 09		06 Aug 09		07 Aug 09	
Date Analyzed:		18 Aug 09		18 Aug 09		21 Aug 09		18 Aug 09		18 Aug 09	
Chemical	CRQL										
Chloride	0.2	0.25		0.21				0.23		2.9	
Sulfate	0.4	130				5.7		70		10	
Sulfate	0.8										
Sulfate	2										
Sulfate	4										

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01182		D01185		D01190		D01193		D01196	
Sample Location:		SW-09		SW-38		MW-01A		MW-01B		MW-02A	
Lab Sample ID:		J0903913-002		J0903913-003		J0903943-001		J0903943-002		J0903943-003	
Station ID:		SW-09X-080709AX		SW-38X-080709AX		MW-01A-081009AX		MW-01B-081009AX		MW-02A-081009AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		07 Aug 09		07 Aug 09		10 Aug 09		10 Aug 09		10 Aug 09	
Date Analyzed:		18 Aug 09		18 Aug 09		21 Aug 09		21 Aug 09		21 Aug 09	
Chemical	CRQL										
Chloride	0.2	0.43		2.8		51		0.53		32	
Sulfate	0.4	75		5.9		180	X	190		160	
Sulfate	0.8										
Sulfate	2										
Sulfate	4										

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01199		D01209		D01212		D01215		D01219	
Sample Location:		MW-02B		MW-14A		MW-11A		MW-11C		MW-03C	
Lab Sample ID:		J0903943-004		J0903943-005		J0903943-006		J0903943-007		J0903943-008	
Station ID:		MW-02B-081009AX		MW-14A-081109AX		MW-11A-081109AX		MW-11C-081109AX		MW-03C-081109AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		10 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09	
Date Analyzed:		21 Aug 09		21 Aug 09		21 Aug 09		21 Aug 09		21 Aug 09	
Chemical	CRQL										
Chloride	0.2	0.71		0.31		0.39		0.45		0.29	
Sulfate	0.4	140		9.3		18		47		5.7	
Sulfate	0.8										
Sulfate	2										
Sulfate	4										

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01223		D01227		D01231		D01235		D01239	
Sample Location:		MW-10C		MW-08A		MW-05A		MW-12C		MW-10B	
Lab Sample ID:		J0903943-009		J0903999-001		J0903999-002		J0903999-003		J0903999-004	
Station ID:		MW-10C-081109AX		MW-08A-081109AX		MW-05A-081109AX		MW-12C-081109AX		MW-10B-081109AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09	
Date Analyzed:		21 Aug 09		27 Aug 09		27 Aug 09		27 Aug 09		27 Aug 09	
Chemical	CRQL										
Chloride	0.2	0.35		0.32		0.3		0.3		0.3	
Sulfate	0.4	17						180		9.8	
Sulfate	0.8										
Sulfate	2										
Sulfate	4			380		380					

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01243		D01247		D01251		D01255		D01255	
Sample Location:		MW-01C		MW-13A		MW-06A		MW-05B		MW-05B	
Lab Sample ID:		J0903999-005		J0903999-006		J0903999-007		J0903999-008		J0903999-008	
Station ID:		MW-01C-081209AX		MW-13A-081209AX		MW-06A-081209AX		MW-05B-081209AX		MW-05B-081209AX	
Dilution Factor:		1		1		1		1		5	
Sample Date:		12 Aug 09		12 Aug 09		12 Aug 09		12 Aug 09		12 Aug 09	
Date Analyzed:		27 Aug 09		27 Aug 09		27 Aug 09		27 Aug 09		28 Aug 09	
Chemical	CRQL										
Chloride	0.2	0.45		0.29		0.19	J	0.36			
Sulfate	0.4	90		42		16					
Sulfate	0.8										
Sulfate	2									320	
Sulfate	4										

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01259		D01259		D01263		D01263		D01267	
Sample Location:		MW-05B		MW-05B		MW-09A		MW-09A		MW-06C	
Lab Sample ID:		J0903999-009		J0903999-009		J0903999-010		J0903999-010		J0903999-011	
Station ID:		MW-05B-081209AD		MW-05B-081209AD		MW-09A-081209AX		MW-09A-081209AX		MW-06C-081209AX	
Dilution Factor:		1		5		1		5		1	
Sample Date:		12 Aug 09		12 Aug 09		12 Aug 09		12 Aug 09		12 Aug 09	
Date Analyzed:		27 Aug 09		28 Aug 09		27 Aug 09		28 Aug 09		27 Aug 09	
Chemical	CRQL										
Chloride	0.2	0.32				0.29				0.35	
Sulfate	0.4										
Sulfate	0.8										
Sulfate	2			290				190			
Sulfate	4										

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01267		D01271	
Sample Location:		MW-06C		MW-02C	
Lab Sample ID:		J0903999-011		J0903999-012	
Station ID:		MW-06C-081209AX		MW-02C-081209AX	
Dilution Factor:		5		1	
Sample Date:		12 Aug 09		12 Aug 09	
Date Analyzed:		28 Aug 09		27 Aug 09	
Chemical	CRQL				
Chloride	0.2			0.46	
Sulfate	0.4			84	
Sulfate	0.8				
Sulfate	2	140			
Sulfate	4				

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Total Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01013		D01014		D01015		D01016		D01017	
Sample Location:		VP-1		VP-2		VP-3		VP-3		VP-4	
Lab Sample ID:		J0903802-001		J0903802-002		J0903802-003		J0903802-004		J0903802-005	
Station ID:		VP-01X-072909AX		VP-02X-072809AX		VP-03X-072809AX		VP-03X-072809AD		VP-04X-072809AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		29 Jul 09		28 Jul 09		28 Jul 09		28 Jul 09		28 Jul 09	
Date Analyzed:		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09	
Chemical	CRQL										
ACIDITY, TOTAL	10	10	U	18		8.7	J	13		9.4	J

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Total Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01045		D01048		D01051		D01054		D01057	
Sample Location:		SW-42		SW-41		SW-71		SW-82		SW-40	
Lab Sample ID:		J0903816-001		J0903816-002		J0903816-003		J0903816-004		J0903816-005	
Station ID:		SW-42X-080409AX		SW-41X-080409AX		SW-71X-080409AX		SW-82X-080409AX		SW-40X-080409AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		04 Aug 09		04 Aug 09		04 Aug 09		04 Aug 09		04 Aug 09	
Date Analyzed:		18 Aug 09		18 Aug 09		18 Aug 09		18 Aug 09		18 Aug 09	
Chemical	CRQL										
ACIDITY, TOTAL	10	150		15		15		140		19	

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Total Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01060		D01063		D01066		D01069		D01072	
Sample Location:		SW-29		SW-17		SW-73		SW-51		SW-78	
Lab Sample ID:		J0903816-006		J0903843-001		J0903843-002		J0903843-003		J0903843-004	
Station ID:		SW-29X-080409AX		SW-17X-080409AX		SW-73X-080409AX		SW-51X-080409AX		SW-78X-080509AD	
Dilution Factor:		1		1		1		1		1	
Sample Date:		04 Aug 09		04 Aug 09		04 Aug 09		04 Aug 09		05 Aug 09	
Date Analyzed:		18 Aug 09		18 Aug 09		18 Aug 09		18 Aug 09		18 Aug 09	
Chemical	CRQL										
ACIDITY, TOTAL	10	15		10	U	10	U	10	U	190	

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Total Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01075		D01078		D01081		D01084		D01087	
Sample Location:		SW-78		SW-49		SW-76		SW-47			
Lab Sample ID:		J0903843-005		J0903843-006		J0903842-001		J0903842-002		J0903842-003	
Station ID:		SW-78X-080509AX		SW-49X-080509AX		SW-76X-080509AX		SW-47X-080509AX		EB-01X-080509AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09	
Date Analyzed:		18 Aug 09		18 Aug 09		18 Aug 09		18 Aug 09		18 Aug 09	
Chemical	CRQL										
ACIDITY, TOTAL	10	190		57		82		270		3.3	

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Total Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01090		D01093		D01096		D01099		D01102	
Sample Location:		SW-77		SW-48		SW-80		SW-75		SW-75	
Lab Sample ID:		J0903842-004		J0903842-005		J0903842-006		J0903874-001		J0903874-002	
Station ID:		SW-77X-080509AX		SW-48X-080509AX		SW-80X-080509AX		SW-75X-080509AX		SW-75X-080509AD	
Dilution Factor:		1		1		1		1		1	
Sample Date:		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09	
Date Analyzed:		18 Aug 09		18 Aug 09		18 Aug 09		19 Aug 09		19 Aug 09	
Chemical	CRQL										
ACIDITY, TOTAL	10	16		12		34		160		150	

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Total Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01105		D01108		D01111		D01114		D01117	
Sample Location:		SW-45		SW-43		SW-46		SW-81		SW-79	
Lab Sample ID:		J0903874-003		J0903874-004		J0903874-005		J0903874-006		J0903874-007	
Station ID:		SW-45X-080509AX		SW-43X-080509AX		SW-46X-080509AX		SW-81X-080509AX		SW-79X-080609AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		06 Aug 09	
Date Analyzed:		19 Aug 09		19 Aug 09		19 Aug 09		19 Aug 09		19 Aug 09	
Chemical	CRQL										
ACIDITY, TOTAL	10	190		160		95		200		120	

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Total Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01120		D01123		D01126		D01133		D01136	
Sample Location:		SW-35		SW-84		SW-34		SW-13		SW-83	
Lab Sample ID:		J0903874-008		J0903874-009		J0903874-010		J0903874-011		J0903874-012	
Station ID:		SW-35X-080609AX		SW-84X-080609AX		SW-34X-080609AX		SW-13X-080609AX		SW-83X-080609AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		06 Aug 09		06 Aug 09		06 Aug 09		06 Aug 09		06 Aug 09	
Date Analyzed:		19 Aug 09		19 Aug 09		19 Aug 09		19 Aug 09		19 Aug 09	
Chemical	CRQL										
ACIDITY, TOTAL	10	10	U	48		19		10	U	157	

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Total Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01139		D01142		D01145		D01179		D01182	
Sample Location:		SW-32		SW-72		SW-12		SW-04		SW-09	
Lab Sample ID:		J0903874-013		J0903874-014		J0903874-015		J0903913-001		J0903913-002	
Station ID:		SW-32X-080609AX		SW-72X-080609AX		SW-12X-080609AX		SW-04X-080709AX		SW-09X-080709AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		06 Aug 09		06 Aug 09		06 Aug 09		07 Aug 09		07 Aug 09	
Date Analyzed:		19 Aug 09		19 Aug 09		19 Aug 09		20 Aug 09		20 Aug 09	
Chemical	CRQL										
ACIDITY, TOTAL	10	78		5.5		36		4	J	60	

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Total Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01185		D01190		D01193		D01196		D01199	
Sample Location:		SW-38		MW-01A		MW-01B		MW-02A		MW-02B	
Lab Sample ID:		J0903913-003		J0903943-001		J0903943-002		J0903943-003		J0903943-004	
Station ID:		SW-38X-080709AX		MW-01A-081009AX		MW-01B-081009AX		MW-02A-081009AX		MW-02B-081009AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		07 Aug 09		10 Aug 09		10 Aug 09		10 Aug 09		10 Aug 09	
Date Analyzed:		20 Aug 09		20 Aug 09		20 Aug 09		20 Aug 09		20 Aug 09	
Chemical	CRQL										
ACIDITY, TOTAL	10	7.9	J	10	U	10	U	50		10	U

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Total Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01209		D01212		D01215		D01218		D01222	
Sample Location:		MW-14A		MW-11A		MW-11C		MW-03C		MW-10C	
Lab Sample ID:		J0903943-005		J0903943-006		J0903943-007		J0903943-008		J0903943-009	
Station ID:		MW-14A-081109AX		MW-11A-081109AX		MW-11C-081109AX		MW-03C-081109AX		MW-10C-081109AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09	
Date Analyzed:		20 Aug 09		20 Aug 09		20 Aug 09		20 Aug 09		20 Aug 09	
Chemical	CRQL										
ACIDITY, TOTAL	10	10	U	18		10	U	10	U	10	U

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Total Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01226		D01230		D01234		D01238		D01242	
Sample Location:		MW-08A		MW-05A		MW-12C		MW-10B		MW-01C	
Lab Sample ID:		J0903999-001		J0903999-002		J0903999-003		J0903999-004		J0903999-005	
Station ID:		MW-08A-081109AX		MW-05A-081109AX		MW-12C-081109AX		MW-10B-081109AX		MW-01C-081209AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09		12 Aug 09	
Date Analyzed:		25 Aug 09		25 Aug 09		25 Aug 09		25 Aug 09		25 Aug 09	
Chemical	CRQL										
ACIDITY, TOTAL	10	110		150		14		10	U	10	U

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Total Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01246		D01250		D01254		D01258		D01262	
Sample Location:		MW-13A		MW-06A		MW-05B		MW-05B		MW-09A	
Lab Sample ID:		J0903999-006		J0903999-007		J0903999-008		J0903999-009		J0903999-010	
Station ID:		MW-13A-081209AX		MW-06A-081209AX		MW-05B-081209AX		MW-05B-081209AD		MW-09A-081209AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		12 Aug 09		12 Aug 09		12 Aug 09		12 Aug 09		12 Aug 09	
Date Analyzed:		25 Aug 09		25 Aug 09		25 Aug 09		25 Aug 09		25 Aug 09	
Chemical	CRQL										
ACIDITY, TOTAL	10	10	U	10	U	10	U	10	U	79	

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Total Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01266		D01270	
Sample Location:		MW-06C		MW-02C	
Lab Sample ID:		J0903999-011		J0903999-012	
Station ID:		MW-06C-081209AX		MW-02C-081209AX	
Dilution Factor:		1		1	
Sample Date:		12 Aug 09		12 Aug 09	
Date Analyzed:		25 Aug 09		25 Aug 09	
Chemical	CRQL				
ACIDITY, TOTAL	10	10	U	10	U

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrite + Nitrate Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01013		D01014		D01015		D01016		D01017	
Sample Location:		VP-1		VP-2		VP-3		VP-3		VP-4	
Lab Sample ID:		J0903802-001		J0903802-002		J0903802-003		J0903802-004		J0903802-005	
Station ID:		VP-01X-072909AX		VP-02X-072809AX		VP-03X-072809AX		VP-03X-072809AD		VP-04X-072809AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		29 Jul 09		28 Jul 09		28 Jul 09		28 Jul 09		28 Jul 09	
Date Analyzed:		10 Aug 09		10 Aug 09		10 Aug 09		10 Aug 09		10 Aug 09	
Chemical	CRQL										
Nitrogen, Nitrite + Nitrate	0.02	0.02	U	0.02	U	0.02	U	0.02	U	0.086	

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrite + Nitrate Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01046		D01049		D01052		D01055		D01058	
Sample Location:		SW-42		SW-41		SW-71		SW-82		SW-40	
Lab Sample ID:		J0903816-001		J0903816-002		J0903816-003		J0903816-004		J0903816-005	
Station ID:		SW-42X-080409AX		SW-41X-080409AX		SW-71X-080409AX		SW-82X-080409AX		SW-40X-080409AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		04 Aug 09		04 Aug 09		04 Aug 09		04 Aug 09		04 Aug 09	
Date Analyzed:		12 Aug 09		12 Aug 09		12 Aug 09		12 Aug 09		12 Aug 09	
Chemical	CRQL										
Nitrogen, Nitrite + Nitrate	0.02	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrite + Nitrate Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01061		D01064		D01067		D01070		D01073	
Sample Location:		SW-29		SW-17		SW-73		SW-51		SW-78	
Lab Sample ID:		J0903816-006		J0903843-001		J0903843-002		J0903843-003		J0903843-004	
Station ID:		SW-29X-080409AX		SW-17X-080409AX		SW-73X-080409AX		SW-51X-080409AX		SW-78X-080509AD	
Dilution Factor:		1		1		1		1		1	
Sample Date:		04 Aug 09		04 Aug 09		04 Aug 09		04 Aug 09		05 Aug 09	
Date Analyzed:		12 Aug 09		24 Aug 09		24 Aug 09		24 Aug 09		24 Aug 09	
Chemical	CRQL										
Nitrogen, Nitrite + Nitrate	0.02	0.025		0.02	U	0.02	U	0.02	U	0.16	

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrite + Nitrate Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01076		D01079		D01082		D01085		D01088	
Sample Location:		SW-78		SW-49		SW-76		SW-47			
Lab Sample ID:		J0903843-005		J0903843-006		J0903842-001		J0903842-002		J0903842-003	
Station ID:		SW-78X-080509AX		SW-49X-080509AX		SW-76X-080509AX		SW-47X-080509AX		EB-01X-080509AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09	
Date Analyzed:		24 Aug 09		24 Aug 09		24 Aug 09		24 Aug 09		24 Aug 09	
Chemical	CRQL										
Nitrogen, Nitrite + Nitrate	0.02	0.028		0.02	U	0.12		0.02	U	0.02	U

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrite + Nitrate Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01091		D01094		D01097		D01100		D01103	
Sample Location:		SW-77		SW-48		SW-80		SW-75		SW-75	
Lab Sample ID:		J0903842-004		J0903842-005		J0903842-006		J0903874-001		J0903874-002	
Station ID:		SW-77X-080509AX		SW-48X-080509AX		SW-80X-080509AX		SW-75X-080509AX		SW-75X-080509AD	
Dilution Factor:		1		1		1		1		1	
Sample Date:		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09	
Date Analyzed:		24 Aug 09		24 Aug 09		24 Aug 09		24 Aug 09		24 Aug 09	
Chemical	CRQL										
Nitrogen, Nitrite + Nitrate	0.02	0.02	U	0.017	J	0.031		0.02	U	0.02	U

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrite + Nitrate Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01106		D01109		D01112		D01115		D01118	
Sample Location:		SW-45		SW-43		SW-46		SW-81		SW-79	
Lab Sample ID:		J0903874-003		J0903874-004		J0903874-005		J0903874-006		J0903874-007	
Station ID:		SW-45X-080509AX		SW-43X-080509AX		SW-46X-080509AX		SW-81X-080509AX		SW-79X-080609AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		06 Aug 09	
Date Analyzed:		24 Aug 09		24 Aug 09		24 Aug 09		24 Aug 09		24 Aug 09	
Chemical	CRQL										
Nitrogen, Nitrite + Nitrate	0.02	0.038		0.02	U	0.021		0.02	U	0.02	U

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrite + Nitrate Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01121		D01124		D01127		D01134		D01137	
Sample Location:		SW-35		SW-84		SW-34		SW-13		SW-83	
Lab Sample ID:		J0903874-008		J0903874-009		J0903874-010		J0903874-011		J0903874-012	
Station ID:		SW-35X-080609AX		SW-84X-080609AX		SW-34X-080609AX		SW-13X-080609AX		SW-83X-080609AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		06 Aug 09		06 Aug 09		06 Aug 09		06 Aug 09		06 Aug 09	
Date Analyzed:		24 Aug 09		24 Aug 09		24 Aug 09		24 Aug 09		24 Aug 09	
Chemical	CRQL										
Nitrogen, Nitrite + Nitrate	0.02	0.02	U	0.02	U	0.02	U	0.018	J	0.02	U

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrite + Nitrate Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01140		D01143		D01146		D01180		D01183	
Sample Location:		SW-32		SW-72		SW-12		SW-04		SW-09	
Lab Sample ID:		J0903874-013		J0903874-014		J0903874-015		J0903913-001		J0903913-002	
Station ID:		SW-32X-080609AX		SW-72X-080609AX		SW-12X-080609AX		SW-04X-080709AX		SW-09X-080709AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		06 Aug 09		06 Aug 09		06 Aug 09		07 Aug 09		07 Aug 09	
Date Analyzed:		24 Aug 09		24 Aug 09		24 Aug 09		24 Aug 09		24 Aug 09	
Chemical	CRQL										
Nitrogen, Nitrite + Nitrate	0.02	0.02	U	0.013	J	0.02	U	0.036		0.02	U

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrite + Nitrate Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01186		D01191		D01194		D01197		D01200	
Sample Location:		SW-38		MW-01A		MW-01B		MW-02A		MW-02B	
Lab Sample ID:		J0903913-003		J0903943-001		J0903943-002		J0903943-003		J0903943-004	
Station ID:		SW-38X-080709AX		MW-01A-081009AX		MW-01B-081009AX		MW-02A-081009AX		MW-02B-081009AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		07 Aug 09		10 Aug 09		10 Aug 09		10 Aug 09		10 Aug 09	
Date Analyzed:		24 Aug 09		01 Sep 09		01 Sep 09		01 Sep 09		01 Sep 09	
Chemical	CRQL										
Nitrogen, Nitrite + Nitrate	0.02	0.047		0.21		0.02	U	0.16		0.02	U

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrite + Nitrate Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01210		D01213		D01216		D01220		D01224	
Sample Location:		MW-14A		MW-11A		MW-11C		MW-03C		MW-10C	
Lab Sample ID:		J0903943-005		J0903943-006		J0903943-007		J0903943-008		J0903943-009	
Station ID:		MW-14A-081109AX		MW-11A-081109AX		MW-11C-081109AX		MW-03C-081109AX		MW-10C-081109AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09	
Date Analyzed:		01 Sep 09		01 Sep 09		01 Sep 09		01 Sep 09		01 Sep 09	
Chemical	CRQL										
Nitrogen, Nitrite + Nitrate	0.02	0.019		0.02	U	0.02	U	0.019		0.041	

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrite + Nitrate Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01228		D01232		D01236		D01240		D01244	
Sample Location:		MW-08A		MW-05A		MW-12C		MW-10B		MW-01C	
Lab Sample ID:		J0903999-001		J0903999-002		J0903999-003		J0903999-004		J0903999-005	
Station ID:		MW-08A-081109AX		MW-05A-081109AX		MW-12C-081109AX		MW-10B-081109AX		MW-01C-081209AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09		12 Aug 09	
Date Analyzed:		01 Sep 09		01 Sep 09		01 Sep 09		01 Sep 09		01 Sep 09	
Chemical	CRQL										
Nitrogen, Nitrite + Nitrate	0.02	0.02	U	0.13		0.028		0.014		0.018	

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrite + Nitrate Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01248		D01252		D01256		D01260		D01264	
Sample Location:		MW-13A		MW-06A		MW-05B		MW-05B		MW-09A	
Lab Sample ID:		J0903999-006		J0903999-007		J0903999-008		J0903999-009		J0903999-010	
Station ID:		MW-13A-081209AX		MW-06A-081209AX		MW-05B-081209AX		MW-05B-081209AD		MW-09A-081209AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		12 Aug 09		12 Aug 09		12 Aug 09		12 Aug 09		12 Aug 09	
Date Analyzed:		01 Sep 09		01 Sep 09		01 Sep 09		01 Sep 09		01 Sep 09	
Chemical	CRQL										
Nitrogen, Nitrite + Nitrate	0.02	0.025	X	0.02	U	0.02	U	0.02	U	0.12	

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrite + Nitrate Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01268		D01272	
Sample Location:		MW-06C		MW-02C	
Lab Sample ID:		J0903999-011		J0903999-012	
Station ID:		MW-06C-081209AX		MW-02C-081209AX	
Dilution Factor:		1		1	
Sample Date:		12 Aug 09		12 Aug 09	
Date Analyzed:		01 Sep 09		01 Sep 09	
Chemical	CRQL				
Nitrogen, Nitrite + Nitrate	0.02	0.024		0.02	U

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Sulfide Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01044		D01047		D01050		D01053		D01056		D01059	
Sample Location:		SW-42		SW-41		SW-71		SW-82		SW-40		SW-29	
Lab Sample ID:		J0903816-001		J0903816-002		J0903816-003		J0903816-004		J0903816-005		J0903816-006	
Station ID:		SW-42X-080409AX		SW-41X-080409AX		SW-71X-080409AX		SW-82X-080409AX		SW-40X-080409AX		SW-29X-080409AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		04 Aug 09		04 Aug 09		04 Aug 09		04 Aug 09		04 Aug 09		04 Aug 09	
Date Analyzed:		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09	
Chemical	CRQL												
Sulfide	2	0.47	J	2	U	0.93	J	0.67	J	0.57	J	0.67	J

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Sulfide Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01062		D01065		D01068		D01071		D01074		D01077	
Sample Location:		SW-17		SW-73		SW-51		SW-78		SW-78		SW-49	
Lab Sample ID:		J0903843-001		J0903843-002		J0903843-003		J0903843-004		J0903843-005		J0903843-006	
Station ID:		SW-17X-080409AX		SW-73X-080409AX		SW-51X-080409AX		SW-78X-080509AD		SW-78X-080509AX		SW-49X-080509AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		04 Aug 09		04 Aug 09		04 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09	
Date Analyzed:		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09	
Chemical	CRQL												
Sulfide	2	1.3	J	0.47	J	0.67	J	0.57	J	0.87	J	0.97	J

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Sulfide Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01080		D01083		D01086		D01089		D01092		D01095	
Sample Location:		SW-76		SW-47				SW-77		SW-48		SW-80	
Lab Sample ID:		J0903842-001		J0903842-002		J0903842-003		J0903842-004		J0903842-005		J0903842-006	
Station ID:		SW-76X-080509AX		SW-47X-080509AX		EB-01X-080509AX		SW-77X-080509AX		SW-48X-080509AX		SW-80X-080509AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09	
Date Analyzed:		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09	
Chemical	CRQL												
Sulfide	2	2	U	2	U	0.57	J	0.67	J	0.67	J	0.57	J

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Sulfide Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01098		D01101		D01104		D01107		D01110		D01113	
Sample Location:		SW-75		SW-75		SW-45		SW-43		SW-46		SW-81	
Lab Sample ID:		J0903874-001		J0903874-002		J0903874-003		J0903874-004		J0903874-005		J0903874-006	
Station ID:		SW-75X-080509AX		SW-75X-080509AD		SW-45X-080509AX		SW-43X-080509AX		SW-46X-080509AX		SW-81X-080509AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09		05 Aug 09	
Date Analyzed:		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09	
Chemical	CRQL												
Sulfide	2	2	U	2	U	0.77	J	0.67	J	2	U	2	U

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Sulfide Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01116		D01119		D01122		D01125		D01132		D01135	
Sample Location:		SW-79		SW-35		SW-84		SW-34		SW-13		SW-83	
Lab Sample ID:		J0903874-007		J0903874-008		J0903874-009		J0903874-010		J0903874-011		J0903874-012	
Station ID:		SW-79X-080609AX		SW-35X-080609AX		SW-84X-080609AX		SW-34X-080609AX		SW-13X-080609AX		SW-83X-080609AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		06 Aug 09		06 Aug 09		06 Aug 09		06 Aug 09		06 Aug 09		06 Aug 09	
Date Analyzed:		13 Aug 09		13 Aug 09		13 Aug 09		13 Aug 09		13 Aug 09		13 Aug 09	
Chemical	CRQL												
Sulfide	2	2	U	2	U	2	U	2	U	2	U	2	U

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Sulfide Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01138		D01141		D01144		D01178		D01181		D01184	
Sample Location:		SW-32		SW-72		SW-12		SW-04		SW-09		SW-38	
Lab Sample ID:		J0903874-013		J0903874-014		J0903874-015		J0903913-001		J0903913-002		J0903913-003	
Station ID:		SW-32X-080609AX		SW-72X-080609AX		SW-12X-080609AX		SW-04X-080709AX		SW-09X-080709AX		SW-38X-080709AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		06 Aug 09		06 Aug 09		06 Aug 09		07 Aug 09		07 Aug 09		07 Aug 09	
Date Analyzed:		13 Aug 09		13 Aug 09		13 Aug 09		13 Aug 09		13 Aug 09		13 Aug 09	
Chemical	CRQL												
Sulfide	2	0.7	J	0.6	J	2	U	2	U	2	U	2	U

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Sulfide Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01189		D01192		D01195		D01198		D01208		D01211	
Sample Location:		MW-01A		MW-01B		MW-02A		MW-02B		MW-14A		MW-11A	
Lab Sample ID:		J0903943-001		J0903943-002		J0903943-003		J0903943-004		J0903943-005		J0903943-006	
Station ID:		MW-01A-081009AX		MW-01B-081009AX		MW-02A-081009AX		MW-02B-081009AX		MW-14A-081109AX		MW-11A-081109AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		10 Aug 09		10 Aug 09		10 Aug 09		10 Aug 09		11 Aug 09		11 Aug 09	
Date Analyzed:		17 Aug 09		17 Aug 09		17 Aug 09		17 Aug 09		18 Aug 09		18 Aug 09	
Chemical	CRQL												
Sulfide	2	2	U	2	U	2	U	2	U	0.43	J	0.53	J

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Sulfide Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01214		D01217		D01221		D01225		D01229		D01233	
Sample Location:		MW-11C		MW-03C		MW-10C		MW-08A		MW-05A		MW-12C	
Lab Sample ID:		J0903943-007		J0903943-008		J0903943-009		J0903999-001		J0903999-002		J0903999-003	
Station ID:		MW-11C-081109AX		MW-03C-081109AX		MW-10C-081109AX		MW-08A-081109AX		MW-05A-081109AX		MW-12C-081109AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09		11 Aug 09	
Date Analyzed:		18 Aug 09		18 Aug 09		18 Aug 09		18 Aug 09		18 Aug 09		18 Aug 09	
Chemical	CRQL												
Sulfide	2	2	U	0.43	J	0.47	J	2	U	0.43	J	2	U

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Sulfide Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01237		D01241		D01245		D01249		D01253		D01257	
Sample Location:		MW-10B		MW-01C		MW-13A		MW-06A		MW-05B		MW-05B	
Lab Sample ID:		J0903999-004		J0903999-005		J0903999-006		J0903999-007		J0903999-008		J0903999-009	
Station ID:		MW-10B-081109AX		MW-01C-081209AX		MW-13A-081209AX		MW-06A-081209AX		MW-05B-081209AX		MW-05B-081209AD	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		11 Aug 09		12 Aug 09		12 Aug 09		12 Aug 09		12 Aug 09		12 Aug 09	
Date Analyzed:		18 Aug 09		19 Aug 09		19 Aug 09		19 Aug 09		19 Aug 09		19 Aug 09	
Chemical	CRQL												
Sulfide	2	2	U	0.4	J	0.5	J	2	U	2	U	1.6	J

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Sulfide Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01261		D01265		D01269	
Sample Location:		MW-09A		MW-06C		MW-02C	
Lab Sample ID:		J0903999-010		J0903999-011		J0903999-012	
Station ID:		MW-09A-081209AX		MW-06C-081209AX		MW-02C-081209AX	
Dilution Factor:		1		1		1	
Sample Date:		12 Aug 09		12 Aug 09		12 Aug 09	
Date Analyzed:		19 Aug 09		19 Aug 09		19 Aug 09	
Chemical	CRQL						
Sulfide	2	0.5	J	2	U	0.4	J

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01274		D01278		D01282	
Sample Location:		MW-07A				MW-04A	
Lab Sample ID:		J0904034-001		J0904034-002		J0904034-003	
Station ID:		MW-07A-081209AX		EB-01X-081309AX		MW-04A-081209AX	
Dilution Factor:		1		1		1	
Sample Date:		12 Aug 09		13 Aug 09		13 Aug 09	
Date Analyzed:		26 Aug 09		26 Aug 09		26 Aug 09	
Chemical Name	CRQL						
Alkalinity (as CACO3)	5	13		5	U	5	U
ALKALINITY, BICARBONATE (AS CACO3)	5	13		5	U	5	U
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U
BICARBONATE	5						

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01286		D01290		D01294	
Sample Location:		MW-04C		MW-07C		MW-15A	
Lab Sample ID:		J0904034-004		J0904034-005		J0904034-006	
Station ID:		MW-04C-081209AX		MW-07C-081209AX		MW-15A-081309AX	
Dilution Factor:		1		1		1	
Sample Date:		12 Aug 09		12 Aug 09		13 Aug 09	
Date Analyzed:		26 Aug 09		26 Aug 09		26 Aug 09	
Chemical Name	CRQL						
Alkalinity (as CACO3)	5	140		12		110	
ALKALINITY, BICARBONATE (AS CACO3)	5	140		12		110	
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U
BICARBONATE	5						

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01298		D01302		D01306	
Sample Location:		MW-16A		MW-09C		MW-14C	
Lab Sample ID:		J0904034-007		J0904034-008		J0904034-009	
Station ID:		MW-16A-081309AX		MW-09C-081309AX		MW-14C-081309AX	
Dilution Factor:		1		1		1	
Sample Date:		13 Aug 09		13 Aug 09		13 Aug 09	
Date Analyzed:		26 Aug 09		26 Aug 09		26 Aug 09	
Chemical Name	CRQL						
Alkalinity (as CACO3)	5	88		30		79	
ALKALINITY, BICARBONATE (AS CACO3)	5	88		28		79	
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	2		5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U
BICARBONATE	5						

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01310		D01314		D01318	
Sample Location:		MW-05C		MW-23A		MW-22A	
Lab Sample ID:		J0904034-010		J0904034-011		J0904064-001	
Station ID:		MW-05C-081309AX		MW-23A-081309AX		MW-22A-081309AX	
Dilution Factor:		1		1		1	
Sample Date:		13 Aug 09		13 Aug 09		13 Aug 09	
Date Analyzed:		26 Aug 09		26 Aug 09		27 Aug 09	
Chemical Name	CRQL						
Alkalinity (as CACO3)	5	69		5	U	5	U
ALKALINITY, BICARBONATE (AS CACO3)	5	69		5	U	5	U
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U
BICARBONATE	5						

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01322		D01326		D01330	
Sample Location:		MW-20C		MW-21A		MW-21A	
Lab Sample ID:		J0904064-002		J0904064-003		J0904064-004	
Station ID:		MW-20C-081309AX		MW-21A-081309AX		MW-21A-081309AD	
Dilution Factor:		1		1		1	
Sample Date:		13 Aug 09		13 Aug 09		13 Aug 09	
Date Analyzed:		27 Aug 09		27 Aug 09		27 Aug 09	
Chemical Name	CRQL						
Alkalinity (as CACO3)	5	5	U	80		5	U
ALKALINITY, BICARBONATE (AS CACO3)	5	5	U	80		5	U
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U
BICARBONATE	5						

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01334		D01338		D01342	
Sample Location:		MW-20A		MW-17A		MW-21C	
Lab Sample ID:		J0904064-005		J0904064-006		J0904064-007	
Station ID:		MW-20A-081409AX		MW-17A-081409AX		MW-21C-081409AX	
Dilution Factor:		1		1		1	
Sample Date:		14 Aug 09		14 Aug 09		14 Aug 09	
Date Analyzed:		27 Aug 09		27 Aug 09		27 Aug 09	
Chemical Name	CRQL						
Alkalinity (as CACO3)	5	5	U	77		5	U
ALKALINITY, BICARBONATE (AS CACO3)	5	5	U	77		5	U
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U
BICARBONATE	5						

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01346		D01350		D01354	
Sample Location:		MW-19A		MW-18A		MW-19C	
Lab Sample ID:		J0904064-008		J0904064-009		J0904064-010	
Station ID:		MW-19A-081409AX		MW-18A-081409AX		MW-19C-081409AX	
Dilution Factor:		1		1		1	
Sample Date:		14 Aug 09		14 Aug 09		14 Aug 09	
Date Analyzed:		27 Aug 09		27 Aug 09		27 Aug 09	
Chemical Name	CRQL						
Alkalinity (as CACO3)	5	5	U	5	U	5	U
ALKALINITY, BICARBONATE (AS CACO3)	5	5	U	5	U	5	U
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U
BICARBONATE	5						

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01358		D01362		D01366	
Sample Location:		PW-01		PW-05		BM-01	
Lab Sample ID:		J0904126-001		J0904126-002		J0904126-003	
Station ID:		PW-01X-081709AX		PW-05X-081709AX		BM-01X-081809AX	
Dilution Factor:		1		1		1	
Sample Date:		17 Aug 09		17 Aug 09		18 Aug 09	
Date Analyzed:		31 Aug 09		31 Aug 09		31 Aug 09	
Chemical Name	CRQL						
Alkalinity (as CACO3)	5	17		5	U	30	
ALKALINITY, BICARBONATE (AS CACO3)	5	17		5	U	30	
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U
BICARBONATE	5						

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01370		D01374		D01378	
Sample Location:				PW-03		PW-04	
Lab Sample ID:		J0904126-004		J0904126-005		J0904126-006	
Station ID:		EB-01X-081809AX		PW-03X-081809AX		PW-04X-081809AX	
Dilution Factor:		1		1		1	
Sample Date:		18 Aug 09		18 Aug 09		18 Aug 09	
Date Analyzed:		31 Aug 09		31 Aug 09		31 Aug 09	
Chemical Name	CRQL						
Alkalinity (as CACO3)	5	5	U	24		5	U
ALKALINITY, BICARBONATE (AS CACO3)	5	5	U	24		5	U
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U
BICARBONATE	5						

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01382		D01386		D01390	
Sample Location:		PW-02		PW-06			
Lab Sample ID:		J0904126-007		J0904147-001		J0904147-002	
Station ID:		PW-02X-081809AX		PW-06X-081809AX		EB-01X-081909AX	
Dilution Factor:		1		1		1	
Sample Date:		18 Aug 09		18 Aug 09		19 Aug 09	
Date Analyzed:		31 Aug 09		01 Sep 09		01 Sep 09	
Chemical Name	CRQL						
Alkalinity (as CACO3)	5	23		33		5	U
ALKALINITY, BICARBONATE (AS CACO3)	5	5	U	33		5	U
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U
BICARBONATE	5						

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01394		D01398		D01465	
Sample Location:		PW-07		PW-07		MW-19D	
Lab Sample ID:		J0904147-003		J0904147-004		J0904583-001	
Station ID:		PW-07X-081909AX		PW-07X-081909AD		MW-19D-091509AX	
Dilution Factor:		1		1		1	
Sample Date:		19 Aug 09		19 Aug 09		15 Sep 09	
Date Analyzed:		01 Sep 09		01 Sep 09		17 Sep 09	
Chemical Name	CRQL						
Alkalinity (as CACO3)	5	5	U	5	U		
ALKALINITY, BICARBONATE (AS CACO3)	5	5	U	5	U	23	
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U
BICARBONATE	5						

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01469		D01473		D01477	
Sample Location:		MW-19D		MW-19D			
Lab Sample ID:		J0904583-002		J0904583-003		J0904625-001	
Station ID:		MW-19D-091509AD		MW-19D-091509BX		EB-01X-091609AX	
Dilution Factor:		1		1		1	
Sample Date:		15 Sep 09		15 Sep 09		16 Sep 09	
Date Analyzed:		17 Sep 09		17 Sep 09		24 Sep 09	
Chemical Name	CRQL						
Alkalinity (as CACO3)	5					5	U
ALKALINITY, BICARBONATE (AS CACO3)	5	20		5	U	5	U
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	3	J	5	U
BICARBONATE	5						

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01481		D01526		D01535	
Sample Location:		MW-20D		MW-20D		MW-14D	
Lab Sample ID:		J0904625-002		J0904643-001		J0904643-002	
Station ID:		MW-20D-091609AX		MW-20D-091709AX		MW-14D-091709AX	
Dilution Factor:		1		1		1	
Sample Date:		16 Sep 09		17 Sep 09		17 Sep 09	
Date Analyzed:		24 Sep 09		29 Sep 09		29 Sep 09	
Chemical Name	CRQL						
Alkalinity (as CACO3)	5	24		95		67	
ALKALINITY, BICARBONATE (AS CACO3)	5	5	U	5	U	67	
ALKALINITY, CARBONATE (AS CACO3)	5	20		15		5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	4		80		5	U
BICARBONATE	5						

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01540		D01545	
Sample Location:		MW-14D		MW-14D	
Lab Sample ID:		J0904655-001		J0904655-002	
Station ID:		MW-14D-091809AX		MW-14D-091809BX	
Dilution Factor:		1		1	
Sample Date:		18 Sep 09		18 Sep 09	
Date Analyzed:		29 Sep 09		29 Sep 09	
Chemical Name	CRQL				
Alkalinity (as CACO3)	5	67		70	
ALKALINITY, BICARBONATE (AS CACO3)	5	67		70	
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U
BICARBONATE	5				

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01275		D01279		D01283		D01287	
Sample Location:		MW-07A				MW-04A		MW-04C	
Lab Sample ID:		J0904034-001		J0904034-002		J0904034-003		J0904034-004	
Station ID:		MW-07A-081209AX		EB-01X-081309AX		MW-04A-081209AX		MW-04C-081209AX	
Dilution Factor:		5		1		5		5	
Sample Date:		12 Aug 09		13 Aug 09		13 Aug 09		12 Aug 09	
Date Analyzed:		01 Sep 09		01 Sep 09		29 Aug 09		29 Aug 09	
Chemical Name	CRQL								
Chloride	0.2			0.2	U				
Chloride	1	0.76	J			0.78	J	0.89	J
Sulfate	0.2								
Sulfate	0.4			0.4	U				
Sulfate	0.8								
Sulfate	2	3.5				250		72	
Sulfate	4								

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01291		D01295		D01299		D01303	
Sample Location:		MW-07C		MW-15A		MW-16A		MW-09C	
Lab Sample ID:		J0904034-005		J0904034-006		J0904034-007		J0904034-008	
Station ID:		MW-07C-081209AX		MW-15A-081309AX		MW-16A-081309AX		MW-09C-081309AX	
Dilution Factor:		5		5		5		5	
Sample Date:		12 Aug 09		13 Aug 09		13 Aug 09		13 Aug 09	
Date Analyzed:		01 Sep 09		01 Sep 09		01 Sep 09		29 Aug 09	
Chemical Name	CRQL								
Chloride	0.2								
Chloride	1	0.77	J	0.79	J	0.88	J	1.1	
Sulfate	0.2								
Sulfate	0.4								
Sulfate	0.8								
Sulfate	2	3.2		5		7		360	
Sulfate	4								

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01307		D01311		D01315		D01319	
Sample Location:		MW-14C		MW-05C		MW-23A		MW-22A	
Lab Sample ID:		J0904034-009		J0904034-010		J0904034-011		J0904064-001	
Station ID:		MW-14C-081309AX		MW-05C-081309AX		MW-23A-081309AX		MW-22A-081309AX	
Dilution Factor:		5		5		5		1	
Sample Date:		13 Aug 09		13 Aug 09		13 Aug 09		13 Aug 09	
Date Analyzed:		01 Sep 09		29 Aug 09		29 Aug 09		28 Aug 09	
Chemical Name	CRQL								
Chloride	0.2							0.35	
Chloride	1	2.6		0.93	J	0.77	J		
Sulfate	0.2								
Sulfate	0.4								
Sulfate	0.8								
Sulfate	2	18		350		16			
Sulfate	4							410	

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01323		D01327		D01331		D01335	
Sample Location:		MW-20C		MW-21A		MW-21A		MW-20A	
Lab Sample ID:		J0904064-002		J0904064-003		J0904064-004		J0904064-005	
Station ID:		MW-20C-081309AX		MW-21A-081309AX		MW-21A-081309AD		MW-20A-081409AX	
Dilution Factor:		1		1		1		1	
Sample Date:		13 Aug 09		13 Aug 09		13 Aug 09		14 Aug 09	
Date Analyzed:		28 Aug 09		28 Aug 09		28 Aug 09		28 Aug 09	
Chemical Name	CRQL								
Chloride	0.2	2.3		0.44		0.44		0.28	
Chloride	1								
Sulfate	0.2								
Sulfate	0.4								
Sulfate	0.8								
Sulfate	2								
Sulfate	4	140		660		660		180	

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01339		D01343		D01347		D01351	
Sample Location:		MW-17A		MW-21C		MW-19A		MW-18A	
Lab Sample ID:		J0904064-006		J0904064-007		J0904064-008		J0904064-009	
Station ID:		MW-17A-081409AX		MW-21C-081409AX		MW-19A-081409AX		MW-18A-081409AX	
Dilution Factor:		1		1		1		1	
Sample Date:		14 Aug 09		14 Aug 09		14 Aug 09		14 Aug 09	
Date Analyzed:		28 Aug 09		28 Aug 09		28 Aug 09		28 Aug 09	
Chemical Name	CRQL								
Chloride	0.2	0.28		2.1		0.33		0.38	
Chloride	1								
Sulfate	0.2								
Sulfate	0.4	10							
Sulfate	0.8								
Sulfate	2								
Sulfate	4			500		330		460	

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01355		D01359		D01363		D01367	
Sample Location:		MW-19C		PW-01		PW-05		BM-01	
Lab Sample ID:		J0904064-010		J0904126-001		J0904126-002		J0904126-003	
Station ID:		MW-19C-081409AX		PW-01X-081709AX		PW-05X-081709AX		BM-01X-081809AX	
Dilution Factor:		1		5		5		5	
Sample Date:		14 Aug 09		17 Aug 09		17 Aug 09		18 Aug 09	
Date Analyzed:		28 Aug 09		01 Sep 09		01 Sep 09		01 Sep 09	
Chemical Name	CRQL								
Chloride	0.2	0.44							
Chloride	1			0.83	J	0.81	J	0.85	J
Sulfate	0.2								
Sulfate	0.4								
Sulfate	0.8								
Sulfate	2			16		48		5.3	
Sulfate	4	380							

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01371		D01375		D01379		D01383	
Sample Location:				PW-03		PW-04		PW-02	
Lab Sample ID:		J0904126-004		J0904126-005		J0904126-006		J0904126-007	
Station ID:		EB-01X-081809AX		PW-03X-081809AX		PW-04X-081809AX		PW-02X-081809AX	
Dilution Factor:		1		5		5		5	
Sample Date:		18 Aug 09		18 Aug 09		18 Aug 09		18 Aug 09	
Date Analyzed:		01 Sep 09		01 Sep 09		01 Sep 09		01 Sep 09	
Chemical Name	CRQL								
Chloride	0.2	0.2	U						
Chloride	1			0.8	J	0.78	J	0.78	J
Sulfate	0.2								
Sulfate	0.4	0.4	U						
Sulfate	0.8								
Sulfate	2			4.6		2.7		4.4	
Sulfate	4								

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01387		D01391		D01395		D01399	
Sample Location:		PW-06				PW-07		PW-07	
Lab Sample ID:		J0904147-001		J0904147-002		J0904147-003		J0904147-004	
Station ID:		PW-06X-081809AX		EB-01X-081909AX		PW-07X-081909AX		PW-07X-081909AD	
Dilution Factor:		5		1		5		5	
Sample Date:		18 Aug 09		19 Aug 09		19 Aug 09		19 Aug 09	
Date Analyzed:		04 Sep 09		04 Sep 09		04 Sep 09		04 Sep 09	
Chemical Name	CRQL								
Chloride	0.2			0.2	U				
Chloride	1	0.86	J			0.81	J	0.82	J
Sulfate	0.2								
Sulfate	0.4			0.4	U				
Sulfate	0.8								
Sulfate	2	58				140		160	
Sulfate	4								

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01467		D01471		D01475		D01479	
Sample Location:		MW-19D		MW-19D		MW-19D			
Lab Sample ID:		J0904583-001		J0904583-002		J0904583-003		J0904625-001	
Station ID:		MW-19D-091509AX		MW-19D-091509AD		MW-19D-091509BX		EB-01X-091609AX	
Dilution Factor:		1		1		1		1	
Sample Date:		15 Sep 09		15 Sep 09		15 Sep 09		16 Sep 09	
Date Analyzed:		24 Sep 09		24 Sep 09		24 Sep 09		24 Sep 09	
Chemical Name	CRQL								
Chloride	0.2	0.38		0.4		0.37		0.2	U
Chloride	1								
Sulfate	0.2								
Sulfate	0.4							0.4	U
Sulfate	0.8								
Sulfate	2								
Sulfate	4	220		220		220			

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01483		D01528		D01537	
Sample Location:		MW-20D		MW-20D		MW-14D	
Lab Sample ID:		J0904625-002		J0904643-001		J0904643-002	
Station ID:		MW-20D-091609AX		MW-20D-091709AX		MW-14D-091709AX	
Dilution Factor:		1		1		1	
Sample Date:		16 Sep 09		17 Sep 09		17 Sep 09	
Date Analyzed:		29 Sep 09		29 Sep 09		29 Sep 09	
Chemical Name	CRQL						
Chloride	0.2	0.4		0.41		0.42	
Chloride	1						
Sulfate	0.2			58		30	
Sulfate	0.4	79					
Sulfate	0.8						
Sulfate	2						
Sulfate	4						

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01542		D01547	
Sample Location:		MW-14D		MW-14D	
Lab Sample ID:		J0904655-001		J0904655-002	
Station ID:		MW-14D-091809AX		MW-14D-091809BX	
Dilution Factor:		1		1	
Sample Date:		18 Sep 09		18 Sep 09	
Date Analyzed:		29 Sep 09		29 Sep 09	
Chemical Name	CRQL				
Chloride	0.2	0.4		0.47	
Chloride	1				
Sulfate	0.2				
Sulfate	0.4	23		34	
Sulfate	0.8				
Sulfate	2				
Sulfate	4				

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Total Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01274		D01278		D01282		D01286	
Sample Location:		MW-07A				MW-04A		MW-04C	
Lab Sample ID:		J0904034-001		J0904034-002		J0904034-003		J0904034-004	
Station ID:		MW-07A-081209AX		EB-01X-081309AX		MW-04A-081209AX		MW-04C-081209AX	
Dilution Factor:		1		1		1		1	
Sample Date:		12 Aug 09		13 Aug 09		13 Aug 09		12 Aug 09	
Date Analyzed:		25 Aug 09		25 Aug 09		25 Aug 09		25 Aug 09	
Chemical Name	CRQL								
ACIDITY, TOTAL	10	10	U	10		120		10	U

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Total Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01290		D01294		D01298		D01302	
Sample Location:		MW-07C		MW-15A		MW-16A		MW-09C	
Lab Sample ID:		J0904034-005		J0904034-006		J0904034-007		J0904034-008	
Station ID:		MW-07C-081209AX		MW-15A-081309AX		MW-16A-081309AX		MW-09C-081309AX	
Dilution Factor:		1		1		1		1	
Sample Date:		12 Aug 09		13 Aug 09		13 Aug 09		13 Aug 09	
Date Analyzed:		25 Aug 09		25 Aug 09		25 Aug 09		25 Aug 09	
Chemical Name	CRQL								
ACIDITY, TOTAL	10	10	U	10	U	10	U	10	U

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Total Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01306		D01310		D01314		D01318	
Sample Location:		MW-14C		MW-05C		MW-23A		MW-22A	
Lab Sample ID:		J0904034-009		J0904034-010		J0904034-011		J0904064-001	
Station ID:		MW-14C-081309AX		MW-05C-081309AX		MW-23A-081309AX		MW-22A-081309AX	
Dilution Factor:		1		1		1		1	
Sample Date:		13 Aug 09		13 Aug 09		13 Aug 09		13 Aug 09	
Date Analyzed:		25 Aug 09		25 Aug 09		25 Aug 09		27 Aug 09	
Chemical Name	CRQL								
ACIDITY, TOTAL	10	10	U	10	U	10	U	130	

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Total Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01322		D01326		D01330		D01334	
Sample Location:		MW-20C		MW-21A		MW-21A		MW-20A	
Lab Sample ID:		J0904064-002		J0904064-003		J0904064-004		J0904064-005	
Station ID:		MW-20C-081309AX		MW-21A-081309AX		MW-21A-081309AD		MW-20A-081409AX	
Dilution Factor:		1		1		1		1	
Sample Date:		13 Aug 09		13 Aug 09		13 Aug 09		14 Aug 09	
Date Analyzed:		27 Aug 09		27 Aug 09		27 Aug 09		27 Aug 09	
Chemical Name	CRQL								
ACIDITY, TOTAL	10	10	U	230		100		50	

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Total Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01338		D01342		D01346		D01350	
Sample Location:		MW-17A		MW-21C		MW-19A		MW-18A	
Lab Sample ID:		J0904064-006		J0904064-007		J0904064-008		J0904064-009	
Station ID:		MW-17A-081409AX		MW-21C-081409AX		MW-19A-081409AX		MW-18A-081409AX	
Dilution Factor:		1		1		1		1	
Sample Date:		14 Aug 09		14 Aug 09		14 Aug 09		14 Aug 09	
Date Analyzed:		27 Aug 09		27 Aug 09		27 Aug 09		27 Aug 09	
Chemical Name	CRQL								
ACIDITY, TOTAL	10	10	U	110		140		160	

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Total Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01354		D01358		D01362		D01366	
Sample Location:		MW-19C		PW-01		PW-05		BM-01	
Lab Sample ID:		J0904064-010		J0904126-001		J0904126-002		J0904126-003	
Station ID:		MW-19C-081409AX		PW-01X-081709AX		PW-05X-081709AX		BM-01X-081809AX	
Dilution Factor:		1		1		1		1	
Sample Date:		14 Aug 09		17 Aug 09		17 Aug 09		18 Aug 09	
Date Analyzed:		27 Aug 09		31 Aug 09		31 Aug 09		31 Aug 09	
Chemical Name	CRQL								
ACIDITY, TOTAL	10	57		10	U	28		10	U

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Total Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01370		D01374		D01378		D01382	
Sample Location:				PW-03		PW-04		PW-02	
Lab Sample ID:		J0904126-004		J0904126-005		J0904126-006		J0904126-007	
Station ID:		EB-01X-081809AX		PW-03X-081809AX		PW-04X-081809AX		PW-02X-081809AX	
Dilution Factor:		1		1		1		1	
Sample Date:		18 Aug 09		18 Aug 09		18 Aug 09		18 Aug 09	
Date Analyzed:		31 Aug 09		31 Aug 09		31 Aug 09		31 Aug 09	
Chemical Name	CRQL								
ACIDITY, TOTAL	10	5.4	J	10	U	10	U	10	U

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Total Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01386		D01390		D01394		D01398	
Sample Location:		PW-06				PW-07		PW-07	
Lab Sample ID:		J0904147-001		J0904147-002		J0904147-003		J0904147-004	
Station ID:		PW-06X-081809AX		EB-01X-081909AX		PW-07X-081909AX		PW-07X-081909AD	
Dilution Factor:		1		1		1		1	
Sample Date:		18 Aug 09		19 Aug 09		19 Aug 09		19 Aug 09	
Date Analyzed:		31 Aug 09		31 Aug 09		31 Aug 09		31 Aug 09	
Chemical Name	CRQL								
ACIDITY, TOTAL	10	10	U	23		23		26	

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Total Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01465		D01469		D01473		D01477	
Sample Location:		MW-19D		MW-19D		MW-19D			
Lab Sample ID:		J0904583-001		J0904583-002		J0904583-003		J0904625-001	
Station ID:		MW-19D-091509AX		MW-19D-091509AD		MW-19D-091509BX		EB-01X-091609AX	
Dilution Factor:		1		1		1		1	
Sample Date:		15 Sep 09		15 Sep 09		15 Sep 09		16 Sep 09	
Date Analyzed:		29 Sep 09		29 Sep 09		29 Sep 09		29 Sep 09	
Chemical Name	CRQL								
ACIDITY, TOTAL	10	10	U	10	U	49		10	U

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Total Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01481		D01526		D01535	
Sample Location:		MW-20D		MW-20D		MW-14D	
Lab Sample ID:		J0904625-002		J0904643-001		J0904643-002	
Station ID:		MW-20D-091609AX		MW-20D-091709AX		MW-14D-091709AX	
Dilution Factor:		1		1		1	
Sample Date:		16 Sep 09		17 Sep 09		17 Sep 09	
Date Analyzed:		29 Sep 09		29 Sep 09		29 Sep 09	
Chemical Name	CRQL						
ACIDITY, TOTAL	10	10	U	10	U	10	U

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Total Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01540		D01545	
Sample Location:		MW-14D		MW-14D	
Lab Sample ID:		J0904655-001		J0904655-002	
Station ID:		MW-14D-091809AX		MW-14D-091809BX	
Dilution Factor:		1		1	
Sample Date:		18 Sep 09		18 Sep 09	
Date Analyzed:		29 Sep 09		29 Sep 09	
Chemical Name	CRQL				
ACIDITY, TOTAL	10	10	U	10	U

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrite + Nitrate Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01276		D01280		D01284		D01288	
Sample Location:		MW-07A				MW-04A		MW-04C	
Lab Sample ID:		J0904034-001		J0904034-002		J0904034-003		J0904034-004	
Station ID:		MW-07A-081209AX		EB-01X-081309AX		MW-04A-081209AX		MW-04C-081209AX	
Dilution Factor:		1		1		1		1	
Sample Date:		12 Aug 09		13 Aug 09		13 Aug 09		12 Aug 09	
Date Analyzed:		01 Sep 09		01 Sep 09		01 Sep 09		01 Sep 09	
Chemical Name	CRQL								
Nitrogen, Nitrite + Nitrate	0.02	0.045		0.02	UX	0.15		0.12	

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrite + Nitrate Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01292		D01296		D01300		D01304	
Sample Location:		MW-07C		MW-15A		MW-16A		MW-09C	
Lab Sample ID:		J0904034-005		J0904034-006		J0904034-007		J0904034-008	
Station ID:		MW-07C-081209AX		MW-15A-081309AX		MW-16A-081309AX		MW-09C-081309AX	
Dilution Factor:		1		1		1		1	
Sample Date:		12 Aug 09		13 Aug 09		13 Aug 09		13 Aug 09	
Date Analyzed:		01 Sep 09		01 Sep 09		01 Sep 09		01 Sep 09	
Chemical Name	CRQL								
Nitrogen, Nitrite + Nitrate	0.02	0.038		0.012		0.12		0.16	

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrite + Nitrate Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01308		D01312		D01316		D01320	
Sample Location:		MW-14C		MW-05C		MW-23A		MW-22A	
Lab Sample ID:		J0904034-009		J0904034-010		J0904034-011		J0904064-001	
Station ID:		MW-14C-081309AX		MW-05C-081309AX		MW-23A-081309AX		MW-22A-081309AX	
Dilution Factor:		1		1		1		1	
Sample Date:		13 Aug 09		13 Aug 09		13 Aug 09		13 Aug 09	
Date Analyzed:		01 Sep 09		01 Sep 09		01 Sep 09		07 Sep 09	
Chemical Name	CRQL								
Nitrogen, Nitrite + Nitrate	0.02	0.014		0.056		0.028		0.028	

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrite + Nitrate Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01324		D01328		D01332		D01336	
Sample Location:		MW-20C		MW-21A		MW-21A		MW-20A	
Lab Sample ID:		J0904064-002		J0904064-003		J0904064-004		J0904064-005	
Station ID:		MW-20C-081309AX		MW-21A-081309AX		MW-21A-081309AD		MW-20A-081409AX	
Dilution Factor:		1		1		1		1	
Sample Date:		13 Aug 09		13 Aug 09		13 Aug 09		14 Aug 09	
Date Analyzed:		07 Sep 09		07 Sep 09		07 Sep 09		07 Sep 09	
Chemical Name	CRQL								
Nitrogen, Nitrite + Nitrate	0.02	0.036		0.02	U	0.02	U	0.031	

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrite + Nitrate Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01340		D01344		D01348		D01352	
Sample Location:		MW-17A		MW-21C		MW-19A		MW-18A	
Lab Sample ID:		J0904064-006		J0904064-007		J0904064-008		J0904064-009	
Station ID:		MW-17A-081409AX		MW-21C-081409AX		MW-19A-081409AX		MW-18A-081409AX	
Dilution Factor:		1		1		1		1	
Sample Date:		14 Aug 09		14 Aug 09		14 Aug 09		14 Aug 09	
Date Analyzed:		07 Sep 09		07 Sep 09		07 Sep 09		07 Sep 09	
Chemical Name	CRQL								
Nitrogen, Nitrite + Nitrate	0.02	0.029		0.02	U	0.11		0.14	X

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrite + Nitrate Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01356		D01360		D01364		D01368	
Sample Location:		MW-19C		PW-01		PW-05		BM-01	
Lab Sample ID:		J0904064-010		J0904126-001		J0904126-002		J0904126-003	
Station ID:		MW-19C-081409AX		PW-01X-081709AX		PW-05X-081709AX		BM-01X-081809AX	
Dilution Factor:		1		1		1		1	
Sample Date:		14 Aug 09		17 Aug 09		17 Aug 09		18 Aug 09	
Date Analyzed:		07 Sep 09		07 Sep 09		07 Sep 09		07 Sep 09	
Chemical Name	CRQL								
Nitrogen, Nitrite + Nitrate	0.02	0.056		0.043		0.02	U	0.12	

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrite + Nitrate Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01372		D01376		D01380		D01384	
Sample Location:				PW-03		PW-04		PW-02	
Lab Sample ID:		J0904126-004		J0904126-005		J0904126-006		J0904126-007	
Station ID:		EB-01X-081809AX		PW-03X-081809AX		PW-04X-081809AX		PW-02X-081809AX	
Dilution Factor:		1		1		1		1	
Sample Date:		18 Aug 09		18 Aug 09		18 Aug 09		18 Aug 09	
Date Analyzed:		07 Sep 09		07 Sep 09		07 Sep 09		07 Sep 09	
Chemical Name	CRQL								
Nitrogen, Nitrite + Nitrate	0.02	0.036		0.049		0.02	U	0.058	

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrite + Nitrate Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01388		D01392		D01396		D01400	
Sample Location:		PW-06				PW-07		PW-07	
Lab Sample ID:		J0904147-001		J0904147-002		J0904147-003		J0904147-004	
Station ID:		PW-06X-081809AX		EB-01X-081909AX		PW-07X-081909AX		PW-07X-081909AD	
Dilution Factor:		1		1		1		1	
Sample Date:		18 Aug 09		19 Aug 09		19 Aug 09		19 Aug 09	
Date Analyzed:		07 Sep 09		07 Sep 09		07 Sep 09		07 Sep 09	
Chemical Name	CRQL								
Nitrogen, Nitrite + Nitrate	0.02	0.02	U	0.021		0.088		0.072	

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrite + Nitrate Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01466		D01470		D01474		D01478	
Sample Location:		MW-19D		MW-19D		MW-19D			
Lab Sample ID:		J0904583-001		J0904583-002		J0904583-003		J0904625-001	
Station ID:		MW-19D-091509AX		MW-19D-091509AD		MW-19D-091509BX		EB-01X-091609AX	
Dilution Factor:		1		1		1		1	
Sample Date:		15 Sep 09		15 Sep 09		15 Sep 09		16 Sep 09	
Date Analyzed:		24 Sep 09		24 Sep 09		24 Sep 09		06 Oct 09	
Chemical Name	CRQL								
Nitrogen, Nitrite + Nitrate	0.02	0.03		0.031	X	0.06		0.02	U

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrite + Nitrate Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01482		D01527		D01536	
Sample Location:		MW-20D		MW-20D		MW-14D	
Lab Sample ID:		J0904625-002		J0904643-001		J0904643-002	
Station ID:		MW-20D-091609AX		MW-20D-091709AX		MW-14D-091709AX	
Dilution Factor:		1		1		1	
Sample Date:		16 Sep 09		17 Sep 09		17 Sep 09	
Date Analyzed:		06 Oct 09		06 Oct 09		06 Oct 09	
Chemical Name	CRQL						
Nitrogen, Nitrite + Nitrate	0.02	0.011	J	0.013	J	0.02	U

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrite + Nitrate Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0029S

Sample Name:		D01541		D01546	
Sample Location:		MW-14D		MW-14D	
Lab Sample ID:		J0904655-001		J0904655-002	
Station ID:		MW-14D-091809AX		MW-14D-091809BX	
Dilution Factor:		1		1	
Sample Date:		18 Sep 09		18 Sep 09	
Date Analyzed:		06 Oct 09		06 Oct 09	
Chemical Name	CRQL				
Nitrogen, Nitrite + Nitrate	0.02	0.02	U	0.02	U

Data tables may contain
data that is part of a
different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Sulfide Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01273		D01277		D01281		D01285	
Sample Location:		MW-07A				MW-04A		MW-04C	
Lab Sample ID:		J0904034-001		J0904034-002		J0904034-003		J0904034-004	
Station ID:		MW-07A-081209AX		EB-01X-081309AX		MW-04A-081209AX		MW-04C-081209AX	
Dilution Factor:		1		1		1		1	
Sample Date:		12 Aug 09		13 Aug 09		13 Aug 09		12 Aug 09	
Date Analyzed:		19 Aug 09		20 Aug 09		20 Aug 09		19 Aug 09	
Chemical Name	CRQL								
Sulfide	2	1	J	0.83	J	0.43	J	0.6	J

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Sulfide Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01289		D01293		D01297		D01301	
Sample Location:		MW-07C		MW-15A		MW-16A		MW-09C	
Lab Sample ID:		J0904034-005		J0904034-006		J0904034-007		J0904034-008	
Station ID:		MW-07C-081209AX		MW-15A-081309AX		MW-16A-081309AX		MW-09C-081309AX	
Dilution Factor:		1		1		1		1	
Sample Date:		12 Aug 09		13 Aug 09		13 Aug 09		13 Aug 09	
Date Analyzed:		19 Aug 09		20 Aug 09		20 Aug 09		20 Aug 09	
Chemical Name	CRQL								
Sulfide	2	0.4	J	0.63	J	0.43	J	0.53	J

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Sulfide Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01305		D01309		D01313		D01317	
Sample Location:		MW-14C		MW-05C		MW-23A		MW-22A	
Lab Sample ID:		J0904034-009		J0904034-010		J0904034-011		J0904064-001	
Station ID:		MW-14C-081309AX		MW-05C-081309AX		MW-23A-081309AX		MW-22A-081309AX	
Dilution Factor:		1		1		1		1	
Sample Date:		13 Aug 09		13 Aug 09		13 Aug 09		13 Aug 09	
Date Analyzed:		20 Aug 09		20 Aug 09		20 Aug 09		20 Aug 09	
Chemical Name	CRQL								
Sulfide	2	2	U	0.63	J	0.83	J	1.2	J

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Sulfide Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01321		D01325		D01329		D01333	
Sample Location:		MW-20C		MW-21A		MW-21A		MW-20A	
Lab Sample ID:		J0904064-002		J0904064-003		J0904064-004		J0904064-005	
Station ID:		MW-20C-081309AX		MW-21A-081309AX		MW-21A-081309AD		MW-20A-081409AX	
Dilution Factor:		1		1		1		1	
Sample Date:		13 Aug 09		13 Aug 09		13 Aug 09		14 Aug 09	
Date Analyzed:		20 Aug 09		20 Aug 09		20 Aug 09		20 Aug 09	
Chemical Name	CRQL								
Sulfide	2	0.83	J	0.53	J	0.73	J	0.43	J

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Sulfide Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01337		D01341		D01345		D01349	
Sample Location:		MW-17A		MW-21C		MW-19A		MW-18A	
Lab Sample ID:		J0904064-006		J0904064-007		J0904064-008		J0904064-009	
Station ID:		MW-17A-081409AX		MW-21C-081409AX		MW-19A-081409AX		MW-18A-081409AX	
Dilution Factor:		1		1		1		1	
Sample Date:		14 Aug 09		14 Aug 09		14 Aug 09		14 Aug 09	
Date Analyzed:		20 Aug 09		20 Aug 09		20 Aug 09		20 Aug 09	
Chemical Name	CRQL								
Sulfide	2	0.43	J	0.43	J	0.63	J	0.53	J

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Sulfide Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01353		D01357		D01361		D01365	
Sample Location:		MW-19C		PW-01		PW-05		BM-01	
Lab Sample ID:		J0904064-010		J0904126-001		J0904126-002		J0904126-003	
Station ID:		MW-19C-081409AX		PW-01X-081709AX		PW-05X-081709AX		BM-01X-081809AX	
Dilution Factor:		1		1		1		1	
Sample Date:		14 Aug 09		17 Aug 09		17 Aug 09		18 Aug 09	
Date Analyzed:		20 Aug 09		24 Aug 09		24 Aug 09		24 Aug 09	
Chemical Name	CRQL								
Sulfide	2	2	U	0.39	J	2	U	2	U

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Sulfide Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01369		D01373		D01377		D01381	
Sample Location:				PW-03		PW-04		PW-02	
Lab Sample ID:		J0904126-004		J0904126-005		J0904126-006		J0904126-007	
Station ID:		EB-01X-081809AX		PW-03X-081809AX		PW-04X-081809AX		PW-02X-081809AX	
Dilution Factor:		1		1		1		1	
Sample Date:		18 Aug 09		18 Aug 09		18 Aug 09		18 Aug 09	
Date Analyzed:		24 Aug 09		24 Aug 09		24 Aug 09		24 Aug 09	
Chemical Name	CRQL								
Sulfide	2	2	U	2	U	0.87	J	2	U

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Sulfide Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01385		D01389		D01393		D01397	
Sample Location:		PW-06				PW-07		PW-07	
Lab Sample ID:		J0904147-001		J0904147-002		J0904147-003		J0904147-004	
Station ID:		PW-06X-081809AX		EB-01X-081909AX		PW-07X-081909AX		PW-07X-081909AD	
Dilution Factor:		1		1		1		1	
Sample Date:		18 Aug 09		19 Aug 09		19 Aug 09		19 Aug 09	
Date Analyzed:		24 Aug 09		24 Aug 09		26 Aug 09		26 Aug 09	
Chemical Name	CRQL								
Sulfide	2	2	U	2	U	2	U	2	U

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Sulfide Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01464		D01468		D01472		D01476	
Sample Location:		MW-19D		MW-19D		MW-19D			
Lab Sample ID:		J0904583-001		J0904583-002		J0904583-003		J0904625-001	
Station ID:		MW-19D-091509AX		MW-19D-091509AD		MW-19D-091509BX		EB-01X-091609AX	
Dilution Factor:		1		1		1		1	
Sample Date:		15 Sep 09		15 Sep 09		15 Sep 09		16 Sep 09	
Date Analyzed:		22 Sep 09		22 Sep 09		22 Sep 09		22 Sep 09	
Chemical Name	CRQL								
Sulfide	2	2	U	2	U	2	U	2	U

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Sulfide Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01480		D01525		D01534	
Sample Location:		MW-20D		MW-20D		MW-14D	
Lab Sample ID:		J0904625-002		J0904643-001		J0904643-002	
Station ID:		MW-20D-091609AX		MW-20D-091709AX		MW-14D-091709AX	
Dilution Factor:		1		1		1	
Sample Date:		16 Sep 09		17 Sep 09		17 Sep 09	
Date Analyzed:		22 Sep 09		22 Sep 09		22 Sep 09	
Chemical Name	CRQL						
Sulfide	2	2	U	2	U	2	U

Data tables may contain data that is part of a different SDG

DATA SUMMARY TABLE
Tier I Unvalidated Data
Sulfide Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0029S

Sample Name:		D01539		D01543	
Sample Location:		MW-14D		MW-14D	
Lab Sample ID:		J0904655-001		J0904655-002	
Station ID:		MW-14D-091809AX		MW-14D-091809BX	
Dilution Factor:		1		1	
Sample Date:		18 Sep 09		18 Sep 09	
Date Analyzed:		25 Sep 09		25 Sep 09	
Chemical Name	CRQL				
Sulfide	2	2	U	0.43	

Data tables may contain data that is part of a different SDG

Tier 4 ACTUAL Sampling Event – Part 2

Field Sampling Contractor/Contract: Nobis Engineering, Inc./EP-S1-06-03		Ship to Lab Date: 8/10/09	Data Package Receipt Date: 9/17/09
DAS Case No.: 0034S		SDG: D01129	Data Turnaround Time: 38 days
Site Name: Ely Copper Mine Superfund Site		Site Location: Vershire, Vermont	CERCLIS #: VTD988366571
Site ID: 017L	Action Code: RI	Operable Unit:01	Purpose Code: RI/FS
Lab Name: GeoTesting Express		Lab Location: Boxborough, MA	Lab Code: GTX
No. of Samples:17 (Total-Including PES & Blanks)		Sample IDs: D01129 – D01177	Case Complete: Yes or No BD 1/28/10 — Total Cost: $3,315

Parameter	Cost per Parameter, Matrix & Sample	Matrix	No. of Samples	Associated PE Sample Numbers	Associated Field Duplicates	Associated Spike/ Duplicates	Associated MS/MSD Samples	Associated Blanks & Type
ASTM D 422 Grain Size	$195	Soil	17		D01155/D01557			

Note: The Chain of Custody and Data Validation Memo must be attached.
List the Parameter and Matrix from the NEST Look-Up Table. If the parameter does not exist in the look-up table, send a copy of the Method or a definition along with this form to the RSCC for entry into NESTS.

USEPA Delivery of Analytical Services
Generic Chain of Custody

Reference Case: 38834
Client No: 0028S

R

Region:	1	Date Shipped:	8/10/2009	Chain of Custody Record	Sampler Signature:
Project Code:		Carrier Name:	FedEx	Relinquished By (Date / Time)	Received By (Date / Time)
Account Code:	80024	Airbill:	8681-3771-5250	1	
CERCLIS ID:	VTD988366571	Shipped to:	Columbia Analytical Services 1 Mustard Street Suite 250 Rochester NY 14609 () -	2	
Spill IO:	7L			3	
Site Name/State:	Ely Copper Mine Superfund Site Case #387			4	
Project Leader:	Andrew Boeckeler				
Action:	Combined RI/FS				
Sampling Co:	Nobis Engineering, Inc.				

SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME		QC Type
D01128	Sediment/ Andrew Fuller	M/G	ABA,pH,Con (21)	D463 (Not preserved) (1)	SD-66X-080609AX	S: 8/6/2009	9:40	--
D01129	Sediment/ Andrew Fuller	M/G	TOC-GS (21)	D464 (Ice Only) (1)	SD-66X-080609AX	S: 8/6/2009	9:40	--
D01130	Sediment/ Andrew Fuller	M/G	ABA,pH,Con (21)	D466 (Not preserved) (1)	SD-65X-080609AX	S: 8/6/2009	11:30	--
D01131	Sediment/ Andrew Fuller	M/G	TOC-GS (21)	D467 (Ice Only) (1)	SD-65X-080609AX	S: 8/6/2009	11:30	--
D01147	Sediment/ Andrew Fuller	M/G	ABA,pH,Con (21)	D494 (Not preserved) (1)	SD-72X-080609AX	S: 8/6/2009	13:00	--
D01148	Sediment/ Andrew Fuller	M/G	TOC-GS (21)	D495 (Ice Only) (1)	SD-72X-080609AX	S: 8/6/2009	13:00	--
D01149	Sediment/ Josh Stewart	M/G	ABA,pH,Con (21)	D503 (Not preserved) (1)	SD-73X-080609AX	S: 8/6/2009	13:45	--
D01150	Sediment/ Josh Stewart	M/G	TOC-GS (21)	D498 (Ice Only) (1)	SD-73X-080609AX	S: 8/6/2009	13:45	--
D01151	Sediment/ Josh Stewart	M/G	SPLP (21)	D496 (Ice Only) (1)	SD-73X-080609AX	S: 8/6/2009	13:45	--
D01152	Sediment/ Andrew Fuller	M/G	ABA,pH,Con (21)	D497 (Not preserved) (1)	SD-67X-080609AX	S: 8/6/2009	14:30	--
D01153	Sediment/ Andrew Fuller	M/G	TOC-GS (21)	D499 (Ice Only) (1)	SD-67X-080609AX	S: 8/6/2009	14:30	--

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC: D01150, D01151	Additional Sampler Signature(s):	Chain of Custody Seal Number:
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced? _____

ABA,pH,Con = ABA and Paste pH, Paste Conductivity, SPLP = SPLP Metals, TOC-GS = Total Organic Carbon & Grain Size

TR Number: 1-153407080-081009-0003

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PR provides preliminary results. Requests for preliminary results will increase analytical costs.

Send Copy to: Sample Management Office, 15000 Conference Center Dr., Chantilly, VA. 20151-3819 Phone 703/818-4200; Fax 703/818-4602

USEPA Delivery of Analytical Services
Generic Chain of Custody

Reference Case: 38834
Client No: 0028S

R

Region:	1	**Date Shipped:**	8/10/2009	**Chain of Custody Record**	**Sampler Signature:**
Project Code:		**Carrier Name:**	FedEx	**Relinquished By (Date / Time)**	**Received By (Date / Time)**
Account Code:	80024	**Airbill:**	8681-3771-5250	1	
CERCLIS ID:	VTD988366571	**Shipped to:**	Columbia Analytical Services 1 Mustard Street Suite 250 Rochester NY 14609 () -	2	
Spill ID:	7L			3	
Site Name/State:	Ely Copper Mine Superfund Site Case #387			4	
Project Leader:	Andrew Boeckeler				
Action:	Combined RI/FS				
Sampling Co:	Nobis Engineering, Inc.				

SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME		QC Type
D01154	Sediment/ Matt Webber	M/G	ABA,pH,Con (21)	D504 (Not preserved) (1)	SD-61X-080709AX	S: 8/7/2009	9:15	Field Dup 01
D01155	Sediment/ Matt Webber	M/G	TOC-GS (21)	D505 (Ice Only) (1)	SD-61X-080709AX	S: 8/7/2009	9:15	Field Dup 01
D01156	Sediment/ Matt Webber	M/G	ABA,pH,Con (21)	D507 (Not preserved) (1)	SD-61X-080709AD	S: 8/7/2009	9:20	Field Dup 01
D01157	Sediment/ Matt Webber	M/G	TOC-GS (21)	D508 (Ice Only) (1)	SD-61X-080709AD	S: 8/7/2009	9:20	Field Dup 01
D01158	Sediment/ Josh Stewart	M/G	ABA,pH,Con (21)	D510 (Not preserved) (1)	SD-59X-080709AX	S: 8/7/2009	8:15	--
D01159	Sediment/ Josh Stewart	M/G	TOC-GS (21)	D511 (Ice Only) (1)	SD-59X-080709AX	S: 8/7/2009	8:15	--
D01160	Sediment/ Josh Stewart	M/G	ABA,pH,Con (21)	D513 (Not preserved) (1)	SD-58X-080709AX	S: 8/7/2009	8:00	--
D01161	Sediment/ Josh Stewart	M/G	TOC-GS (21)	D514 (Ice Only) (1)	SD-58X-080709AX	S: 8/7/2009	8:00	--
D01162	Sediment/ Matt Webber	M/G	ABA,pH,Con (21)	D516 (Not preserved) (1)	SD-71X-080609AX	S: 8/6/2009	14:35	--
D01163	Sediment/ Matt Webber	M/G	TOC-GS (21)	D517 (Ice Only) (1)	SD-71X-080609AX	S: 8/6/2009	14:35	--
D01164	Sediment/ Matt Webber	M/G	ABA,pH,Con (21)	D519 (Not preserved) (1)	SD-70X-080609AX	S: 8/6/2009	14:50	--

Shipment for Case Complete? Y	**Sample(s) to be used for laboratory QC:** D01150, D01151	**Additional Sampler Signature(s):**	**Chain of Custody Seal Number:**
Analysis Key:	**Concentration:** L = Low, M = Low/Medium, H = High	**Type/Designate:** Composite = C, Grab = G	**Shipment Iced?** _____

ABA,pH,Con = ABA and Paste pH, Paste Conductivity, SPLP = SPLP Metals, TOC-GS = Total Organic Carbon & Grain Size

TR Number: **1-153407080-081009-0003**

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USEPA Delivery of Analytical Services
Generic Chain of Custody

Reference Case: 38834
Client No: 0028S

R

Region:	1	Date Shipped:	8/10/2009	Chain of Custody Record	Sampler Signature:
Project Code:		Carrier Name:	FedEx	Relinquished By (Date / Time)	Received By (Date / Time)
Account Code:	80024	Airbill:	8681-3771-5250	1	
CERCLIS ID:	VTD988366571	Shipped to:	Columbia Analytical Services 1 Mustard Street Suite 250 Rochester NY 14609 () -	2	
Spill ID:	7L			3	
Site Name/State:	Ely Copper Mine Superfund Site Case #387			4	
Project Leader:	Andrew Boeckeler				
Action:	Combined RI/FS				
Sampling Co:	Nobis Engineering, Inc.				

SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME		QC Type
D01165	Sediment/ Matt Webber	M/G	TOC-GS (21)	D520 (Ice Only) (1)	SD-70X-080609AX	S: 8/6/2009	14:50	--
D01166	Sediment/ Josh Stewart	M/G	ABA,pH,Con (21)	D528 (Not preserved) (1)	SD-69X-080709AX	S: 8/7/2009	11:40	--
D01167	Sediment/ Josh Stewart	M/G	TOC-GS (21)	D529 (Ice Only) (1)	SD-69X-080709AX	S: 8/7/2009	11:40	--
D01168	Sediment/ Josh Stewart	M/G	ABA,pH,Con (21)	D525 (Not preserved) (1)	SD-68X-080609AX	S: 8/6/2009	14:20	--
D01169	Sediment/ Josh Stewart	M/G	TOC-GS (21)	D526 (Ice Only) (1)	SD-68X-080609AX	S: 8/6/2009	14:20	--
D01170	Sediment/ Josh Stewart	M/G	ABA,pH,Con (21)	D531 (Not preserved) (1)	SD-64X-080709AX	S: 8/7/2009	10:35	--
D01171	Sediment/ Josh Stewart	M/G	TOC-GS (21)	D532 (Ice Only) (1)	SD-64X-080709AX	S: 8/7/2009	10:35	--
D01172	Sediment/ Matt Webber	M/G	ABA,pH,Con (21)	D534 (Not preserved) (1)	SD-62X-080709AX	S: 8/7/2009	9:52	--
D01173	Sediment/ Matt Webber	M/G	TOC-GS (21)	D535 (Ice Only) (1)	SD-62X-080709AX	S: 8/7/2009	9:52	--
D01174	Sediment/ Matt Webber	M/G	ABA,pH,Con (21)	D537 (Not preserved) (1)	SD-63X-080709AX	S: 8/7/2009	10:20	--
D01175	Sediment/ Matt Webber	M/G	TOC-GS (21)	D538 (Ice Only) (1)	SD-63X-080709AX	S: 8/7/2009	10:20	--

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC: D01150, D01151	Additional Sampler Signature(s):	Chain of Custody Seal Number:
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced? _____

ABA,pH,Con = ABA and Paste pH, Paste Conductivity, SPLP = SPLP Metals, TOC-GS = Total Organic Carbon & Grain Size

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USEPA Delivery of Analytical Services
Generic Chain of Custody

Reference Case: 38834
Client No: 0028S

R

Region:	1	**Date Shipped:**	8/10/2009	**Chain of Custody Record**	**Sampler Signature:**
Project Code:		**Carrier Name:**	FedEx	**Relinquished By (Date / Time)**	**Received By (Date / Time)**
Account Code:	80024	**Airbill:**	8681-3771-5250	1	
CERCLIS ID:	VTD988366571	**Shipped to:**	Columbia Analytical Services 1 Mustard Street Suite 250 Rochester NY 14609 () -	2	
Spill IO:	7L			3	
Site Name/State:	Ely Copper Mine Superfund Site Case #387			4	
Project Leader:	Andrew Boeckeler				
Action:	Combined RI/FS				
Sampling Co:	Nobis Engineering, Inc.				

SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME		QC Type
D01176	Sediment/ Josh Stewart	M/G	ABA,pH,Con (21)	D540 (Not preserved) (1)	SD-60X-080709AX	S: 8/7/2009	8:45	--
D01177	Sediment/ Josh Stewart	M/G	TOC-GS (21)	D541 (Ice Only) (1)	SD-60X-080709AX	S: 8/7/2009	8:45	--
D01187	Field QC/ Andrew Fuller	L/G	TOC-GS (21)	D561 (Ice Only) (1)	EB-01X-080709AX	S: 8/7/2009	14:00	Rinsate
D01188	Field QC/ Andrew Fuller	L/G	SPLP (21)	D562 (Ice Only) (1)	EB-01X-080709AX	S: 8/7/2009	14:00	Rinsate

Shipment for Case Complete? Y	**Sample(s) to be used for laboratory QC:** D01150, D01151	**Additional Sampler Signature(s):**	**Chain of Custody Seal Number:**
Analysis Key:	**Concentration:** L = Low, M = Low/Medium, H = High	**Type/Designate:** Composite = C, Grab = G	**Shipment Iced?** _____

ABA,pH,Con = ABA and Paste pH, Paste Conductivity, SPLP = SPLP Metals, TOC-GS = Total Organic Carbon & Grain Size

TR Number: **1-153407080-081009-0003**

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Send Copy to: Sample Management Office, 15000 Conference Center Dr., Chantilly, VA. 20151-3819 Phone 703/818-4200; Fax 703/818-4602

Nobis Engineering, Inc.
18 Chenell Drive
Concord, NH 03301
Tel (603) 224-4182
Fax (603) 224-2507
www.nobisengineering.com

January 7, 2010
Nobis File No. 80024

Ms. Christine Clark
Regional Sample Control Coordinator
U.S. Environmental Protection Agency
Region I
11 Technology Drive
North Chelmsford, MA 01863

Re: Contract No. EP-S1-06-03
Task Order No. 80024-RI-CO-017L
Case No. 0034S; Sample Delivery Group (SDG) No. D01129
GeoTesting Express, Boxborough, MA
Ely Copper Mine Superfund Site
Vershire, Orange County, VT
CERCLIS No.: VTD988366571
Tier I Inorganic Data Validation

Grain Size Analysis:
17/Soil/ D01129, D01131, D01148, D01150, D01153, D01155, D01157, D01159, D01161, D01163, D01165, D01167, D01169, D01171, D01173, D01175, D01177

Dear Ms. Clark:

Nobis Engineering, Inc. performed a Tier I data validation in accordance with "Part IV, Inorganic Data Validation Functional Guidelines", November 2008 of the Region I, EPA New-England Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996 on the analytical data for 17 soil samples for Grain size analysis collected by Nobis Engineering, Inc. at the Ely Copper Mine Superfund Site in Vershire, Vermont. The samples were analyzed under the DAS program according technical specification DAS-RAC2-018 and according to methods cited in the data package. A Tier I data validation was deemed sufficient at this time.

A Tier I data validation is based only on the following parameters:

* • Data Completeness
NA • Performance Evaluation Sample Results

* - All criteria were met for this parameter (see below).

Data Completeness

The data package is complete. No CSF Sheet is required for this SDG.

Data presented in the Summary Tables include qualifiers assigned by the laboratory. Qualifications for these parameters were not assessed under the Tier I validation.

Performance Evaluation Sample Results

No PE samples were performed in this SDG.

Please contact Gail DeRuzzo at (978) 703-6021 should you have any questions or comments regarding this information.

Very truly yours,

NOBIS ENGINEERING, INC.

Gail DeRuzzo
Lead Chemist

Josh Stewart
Staff Scientist

Tables: Laboratory Data

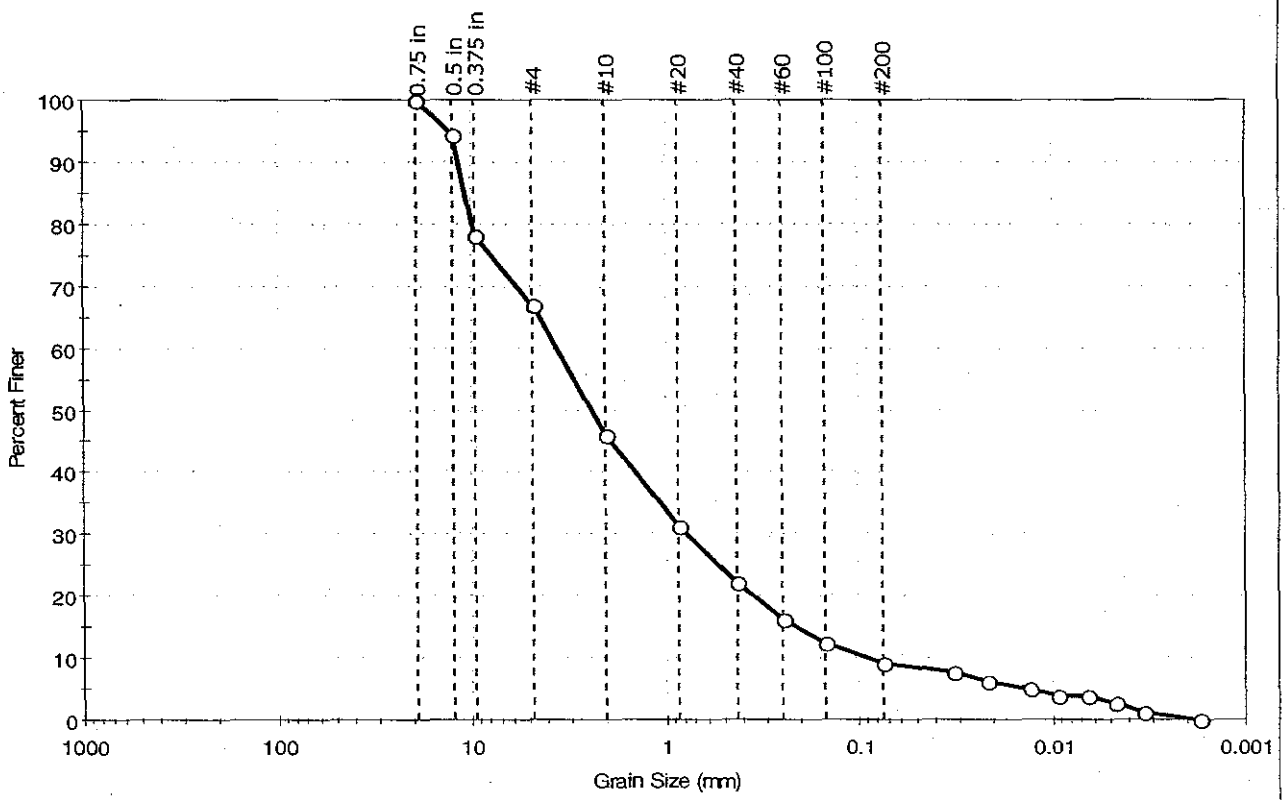
Enclosures: Field Sampling Notes
DQO Summary Form

cc: Ed Hathaway, EPA Site Manager (w/o Enclosures)

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01129	Test Date: 08/18/09	Checked By:	jdt
Depth : ---	Test Id: 160294		
Test Comment:	---		
Sample Description:	Moist, dark olive brown sand with silt and gravel		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	32.9	57.9	9.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	94		
0.375 in	9.50	78		
#4	4.75	67		
#10	2.00	46		
#20	0.85	31		
#40	0.42	22		
#60	0.25	16		
#100	0.15	12		
#200	0.075	9		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0329	8		
---	0.0219	6		
---	0.0132	5		
---	0.0093	4		
---	0.0066	4		
---	0.0047	3		
---	0.0034	1		
---	0.0017	0		

Coefficients

D_{85} = 10.6682 mm	D_{30} = 0.7672 mm
D_{60} = 3.5558 mm	D_{15} = 0.2111 mm
D_{50} = 2.3627 mm	D_{10} = 0.0890 mm
C_u = 39.953	C_c = 1.860

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-a (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

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GeoTesting express
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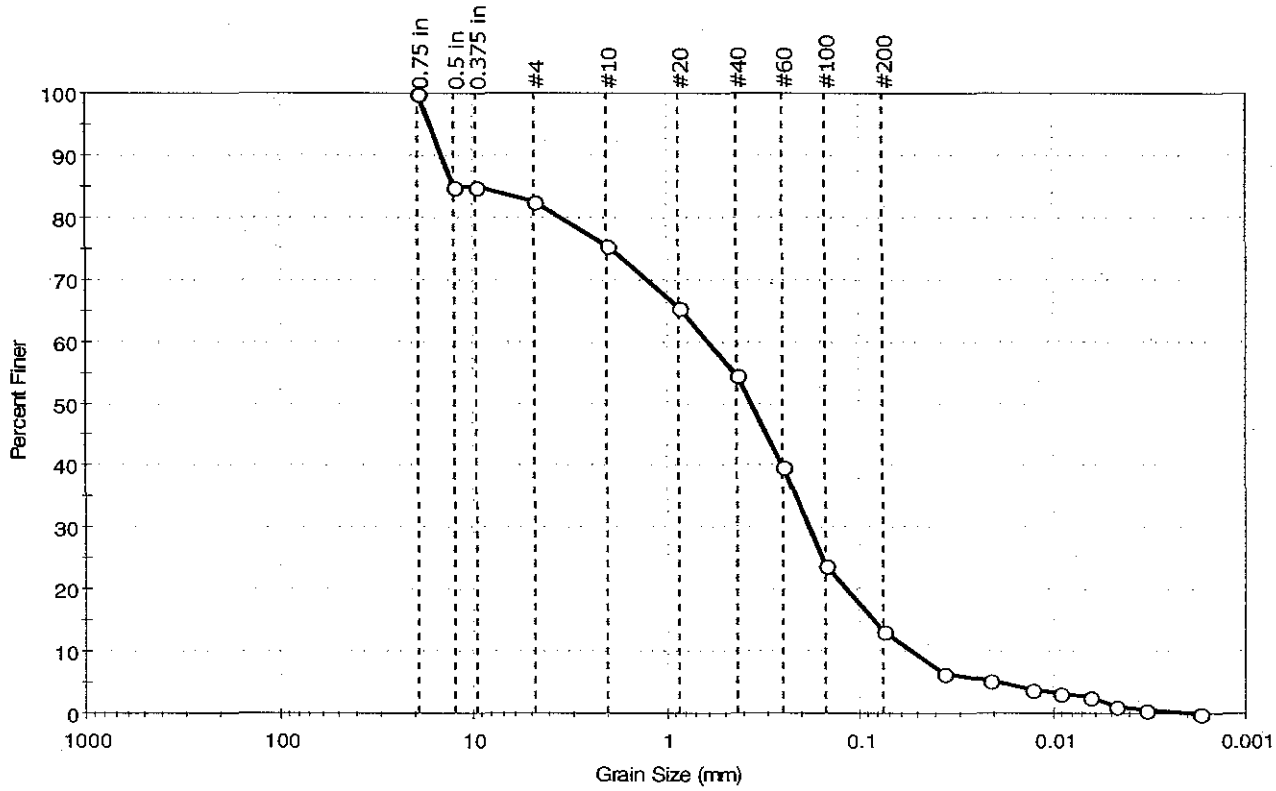
Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01131	Test Date: 08/18/09	Checked By:	jdt
Depth : ---	Test Id: 160295		
Test Comment:	---		
Sample Description:	Moist, dark yellowish brown silty sand with gravel		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	17.3	69.6	13.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	85		
0.375 in	9.50	85		
#4	4.75	83		
#10	2.00	75		
#20	0.85	65		
#40	0.42	55		
#60	0.25	40		
#100	0.15	24		
#200	0.075	13		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0364	6		
---	0.0214	5		
---	0.0128	4		
---	0.0092	3		
---	0.0065	3		
---	0.0047	1		
---	0.0033	1		
---	0.0017	0		

Coefficients

D_{85} = 12.5310 mm	D_{30} = 0.1825 mm
D_{60} = 0.6001 mm	D_{15} = 0.0846 mm
D_{50} = 0.3589 mm	D_{10} = 0.0534 mm
C_u = N/A	C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

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GeoTesting express
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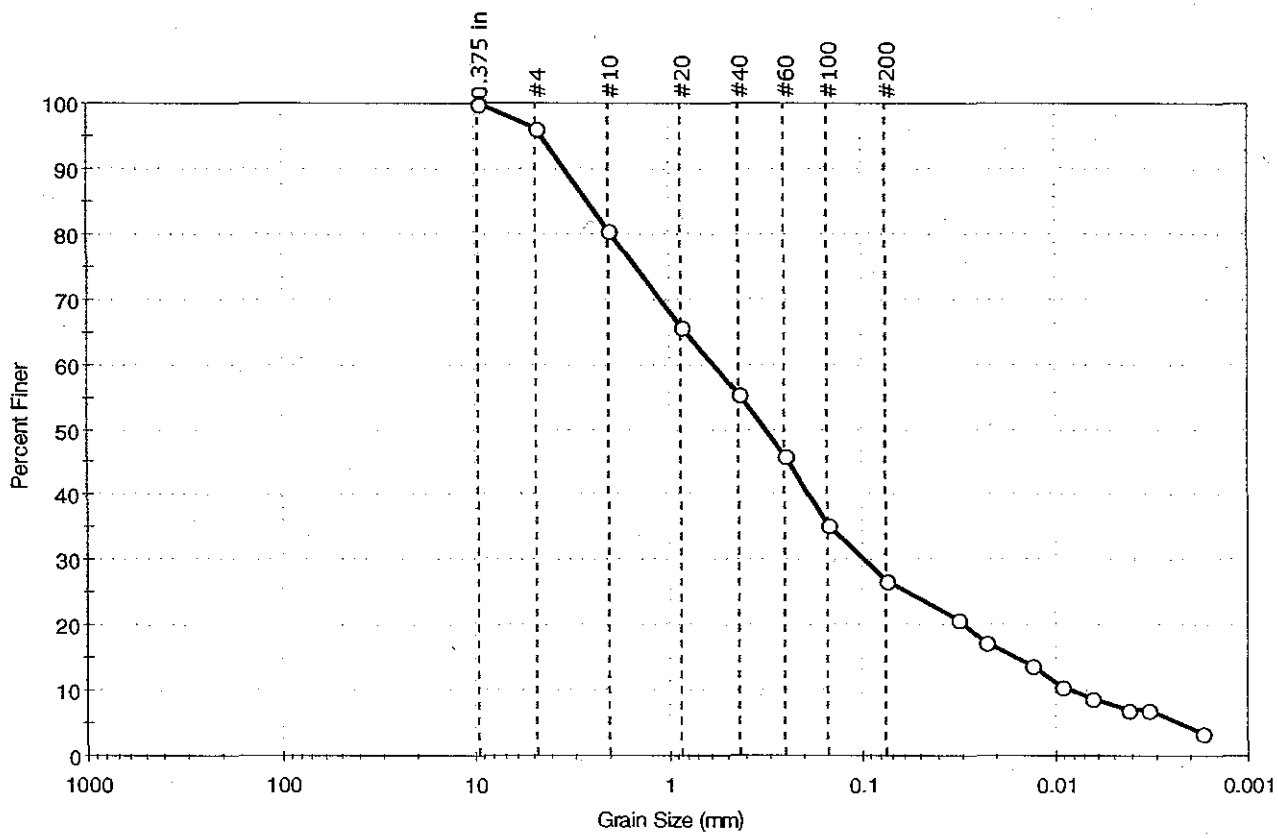
Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01148	Test Date: 08/19/09	Checked By:	jdt
Depth : ---	Test Id: 160296		
Test Comment:	---		
Sample Description:	Moist, very dark gray silty sand		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	3.8	69.3	26.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	96		
#10	2.00	81		
#20	0.85	66		
#40	0.42	56		
#60	0.25	46		
#100	0.15	35		
#200	0.075	27		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0320	21		
---	0.0229	17		
---	0.0131	14		
---	0.0093	10		
---	0.0065	9		
---	0.0041	7		
---	0.0033	7		
---	0.0017	3		

Coefficients

D_{85} = 2.5523 mm D_{30} = 0.0969 mm
D_{60} = 0.5745 mm D_{15} = 0.0154 mm
D_{50} = 0.3137 mm D_{10} = 0.0084 mm
C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

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GeoTesting express
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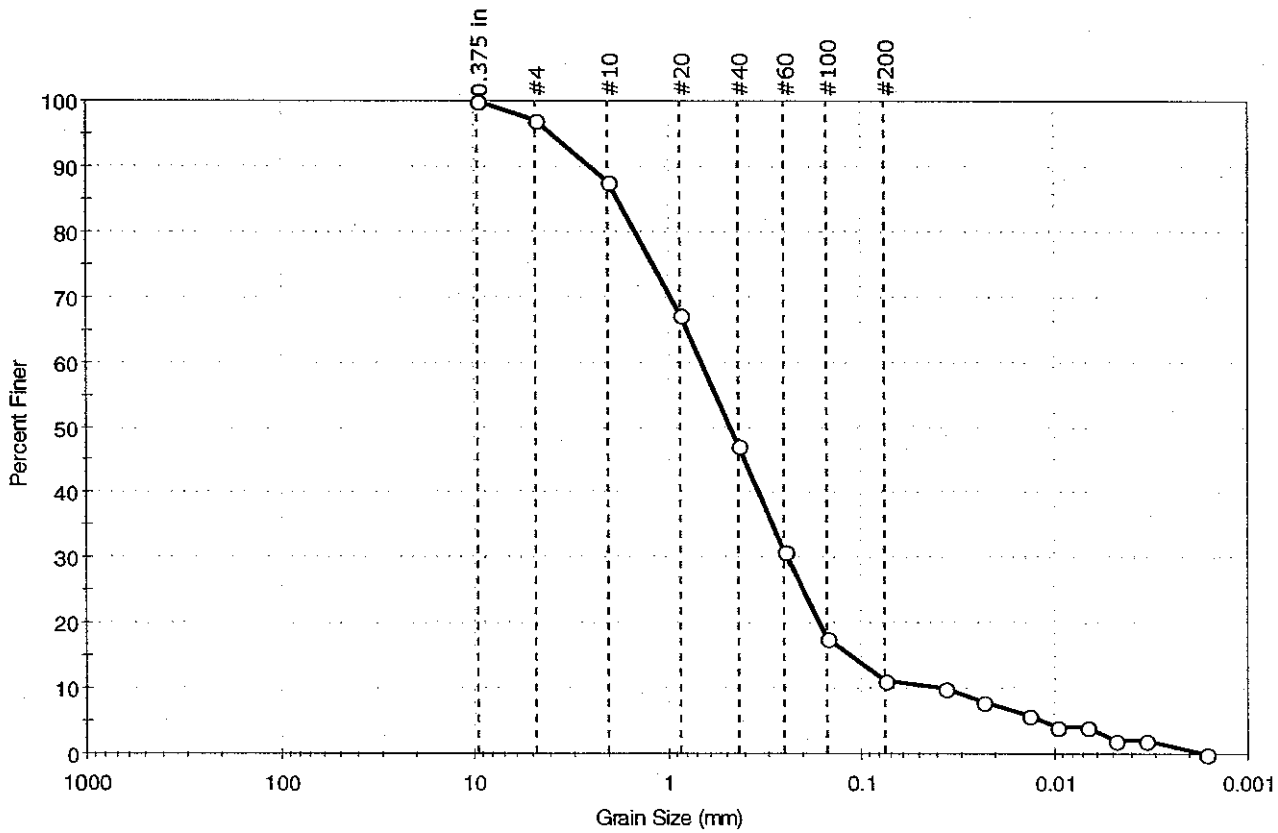
Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01150	Test Date: 08/18/09	Checked By:	jdt
Depth : ---	Test Id: 160297		
Test Comment:	---		
Sample Description:	Moist, dark yellowish brown sand with silt		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	3.0	85.9	11.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	97		
#10	2.00	88		
#20	0.85	67		
#40	0.42	47		
#60	0.25	31		
#100	0.15	18		
#200	0.075	11		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0370	10		
---	0.0235	8		
---	0.0136	6		
---	0.0096	4		
---	0.0068	4		
---	0.0048	2		
---	0.0034	2		
---	0.0017	0		

Coefficients

D_{85} = 1.7961 mm	D_{30} = 0.2418 mm
D_{60} = 0.6634 mm	D_{15} = 0.1135 mm
D_{50} = 0.4689 mm	D_{10} = 0.0372 mm
C_u = 17.833	C_c = 2.369

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

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GeoTesting express
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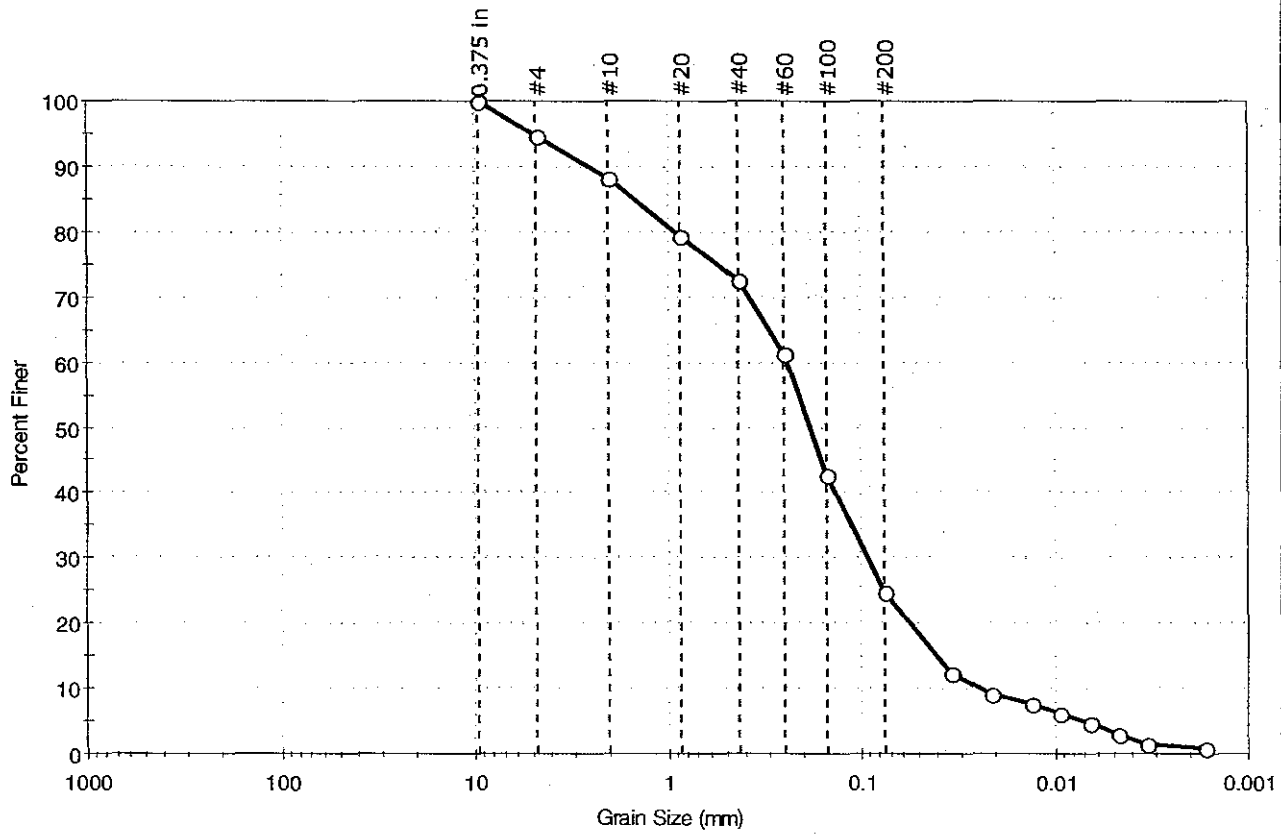
Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01153	Test Date: 08/18/09	Checked By:	jdt
Depth : ---	Test Id: 160298		
Test Comment:	---		
Sample Description:	Moist, dark olive brown silty sand		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
--	5.5	69.8	24.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	95		
#10	2.00	88		
#20	0.85	79		
#40	0.42	73		
#60	0.25	61		
#100	0.15	43		
#200	0.075	25		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0344	12		
---	0.0214	9		
---	0.0131	8		
---	0.0093	6		
---	0.0066	5		
---	0.0047	3		
---	0.0033	2		
---	0.0017	1		

Coefficients

D_{85} = 1.4595 mm D_{30} = 0.0919 mm
D_{60} = 0.2415 mm D_{15} = 0.0406 mm
D_{50} = 0.1835 mm D_{10} = 0.0239 mm
C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

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GeoTesting express
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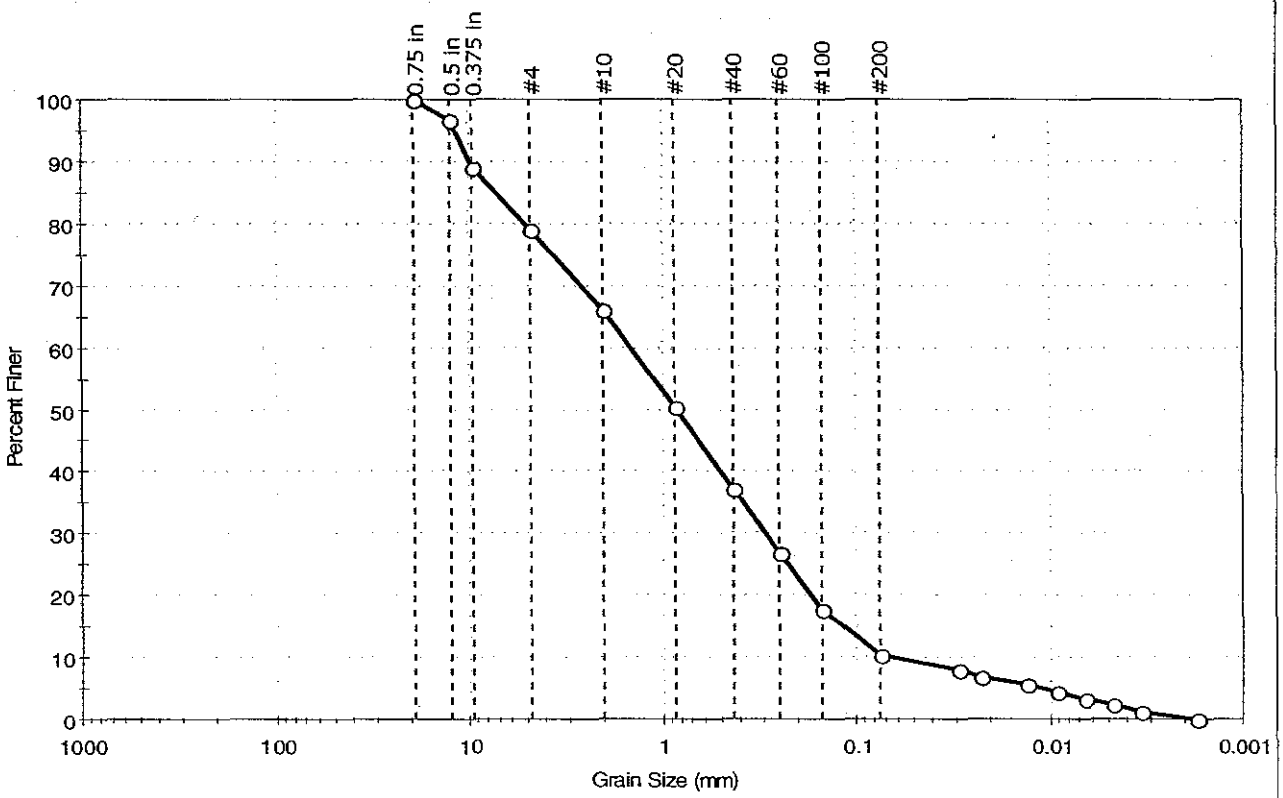
Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01155	Test Date: 08/18/09	Checked By:	jdt
Depth : ---	Test Id: 160299		
Test Comment:	---		
Sample Description:	Moist, dark yelllowish brown sand with silt and gravel		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
---	21.0	68.7	10.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	97		
0.375 in	9.50	89		
#4	4.75	79		
#10	2.00	66		
#20	0.85	50		
#40	0.42	37		
#60	0.25	27		
#100	0.15	18		
#200	0.075	10		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0295	8		
---	0.0230	7		
---	0.0131	6		
---	0.0093	5		
---	0.0066	3		
---	0.0047	2		
---	0.0034	1		
---	0.0017	0		

Coefficients

D_{85} = 7.1522 mm	D_{30} = 0.2947 mm
D_{60} = 1.4339 mm	D_{15} = 0.1174 mm
D_{50} = 0.8338 mm	D_{10} = 0.0664 mm
C_u = 21.595	C_c = 0.912

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

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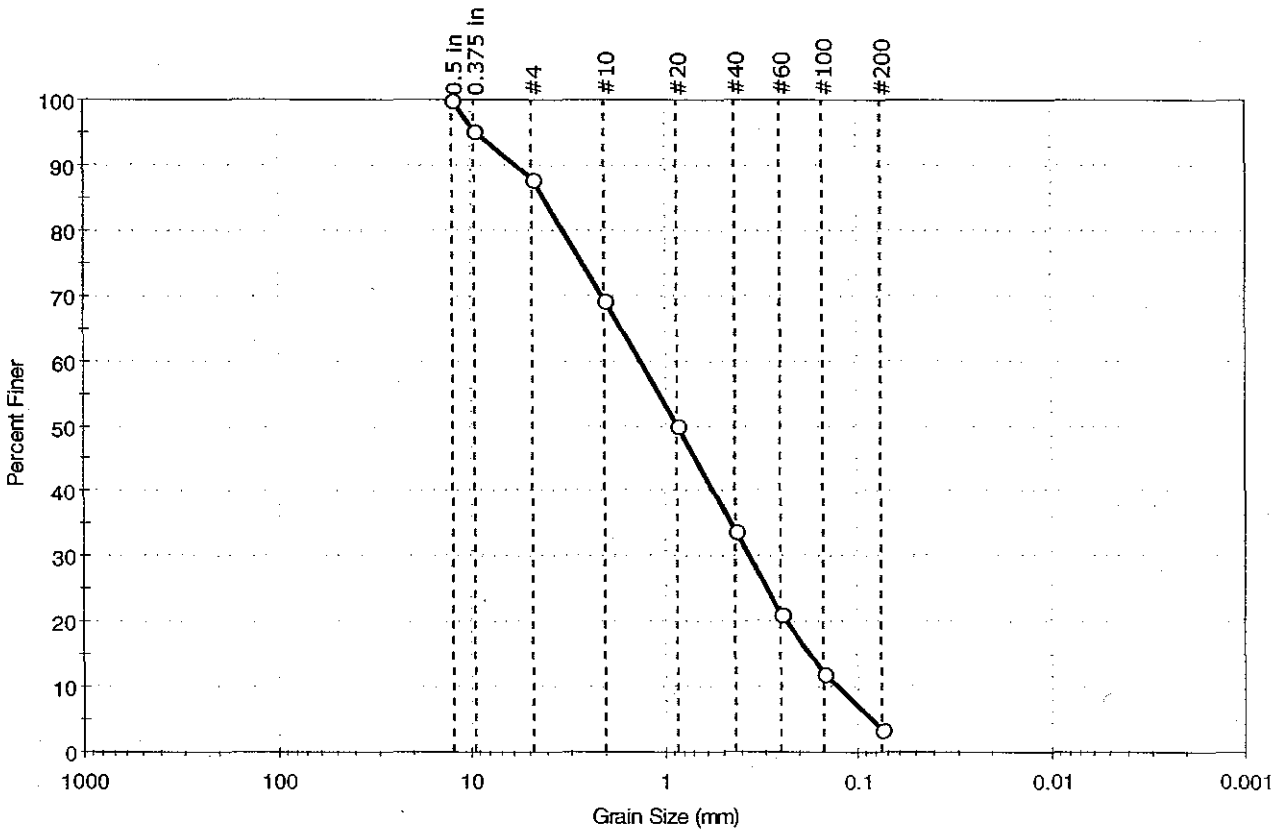
Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01157	Test Date: 08/18/09	Checked By:	jdt
Depth : ---	Test Id: 160310		
Test Comment:	Less than 5% fines, hydrometer not performed.		
Sample Description:	Moist, dark yellowish brown sand		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	12.1	84.5	3.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.5 in	12.50	100		
0.375 in	9.50	95		
#4	4.75	88		
#10	2.00	69		
#20	0.85	50		
#40	0.42	34		
#60	0.25	21		
#100	0.15	12		
#200	0.075	3		

Coefficients

D_{85} = 4.1461 mm	D_{30} = 0.3618 mm
D_{60} = 1.3224 mm	D_{15} = 0.1761 mm
D_{50} = 0.8441 mm	D_{10} = 0.1267 mm
C_u = 10.437	C_c = 0.781

Classification

ASTM Poorly graded sand (SP)

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

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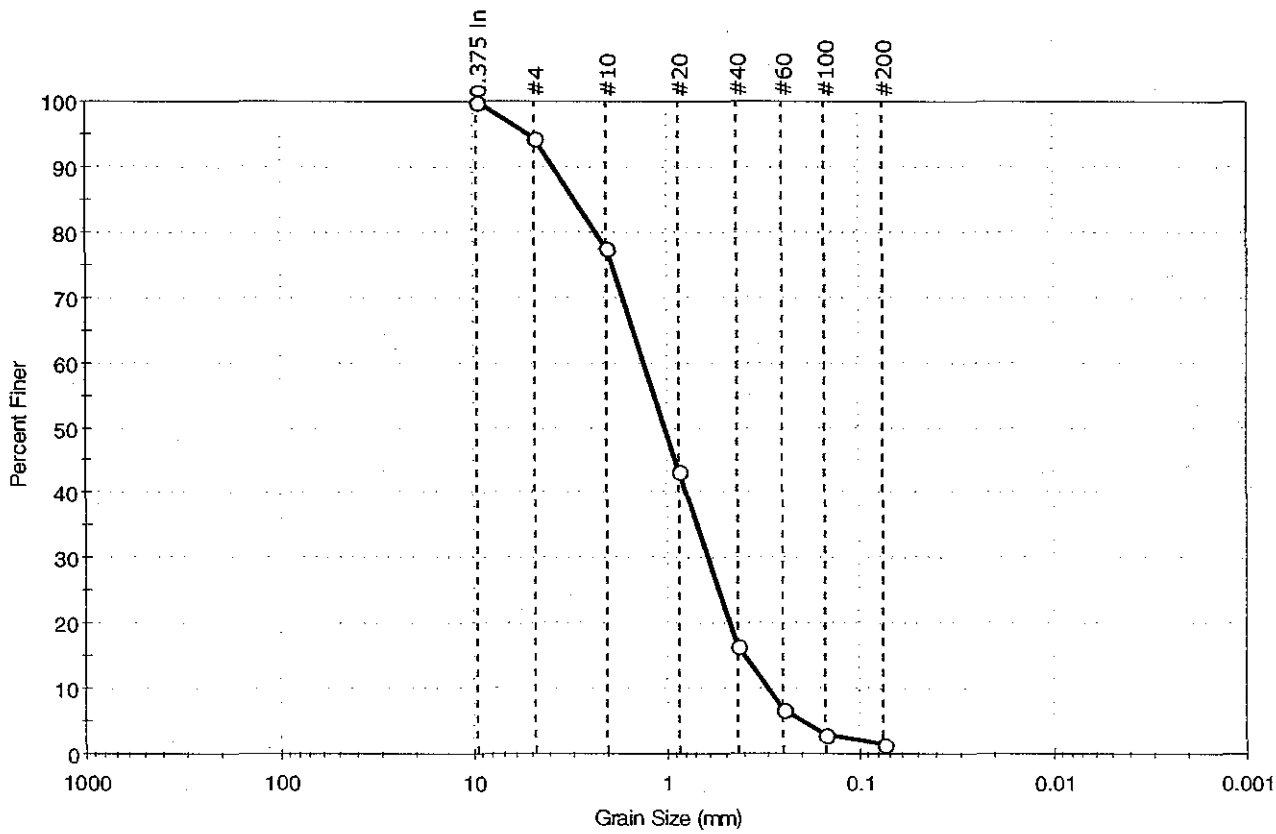
Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01159	Test Date: 08/18/09	Checked By:	jdt
Depth : ---	Test Id: 160300		
Test Comment:	Less than 5% fines, hydrometer not performed.		
Sample Description:	Moist, dark olive brown sand		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	5.5	93.0	1.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	94		
#10	2.00	78		
#20	0.85	43		
#40	0.42	16		
#60	0.25	7		
#100	0.15	3		
#200	0.075	2		

Coefficients

D_{85} = 2.9182 mm D_{30} = 0.6029 mm
D_{60} = 1.2888 mm D_{15} = 0.3914 mm
D_{50} = 1.0048 mm D_{10} = 0.2966 mm
C_u = 4.345 C_c = 0.951

Classification

ASTM Poorly graded sand (SP)

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

Sample/Test Description

Sand/Gravel Particle Shape : ROUNDED

Sand/Gravel Hardness : HARD

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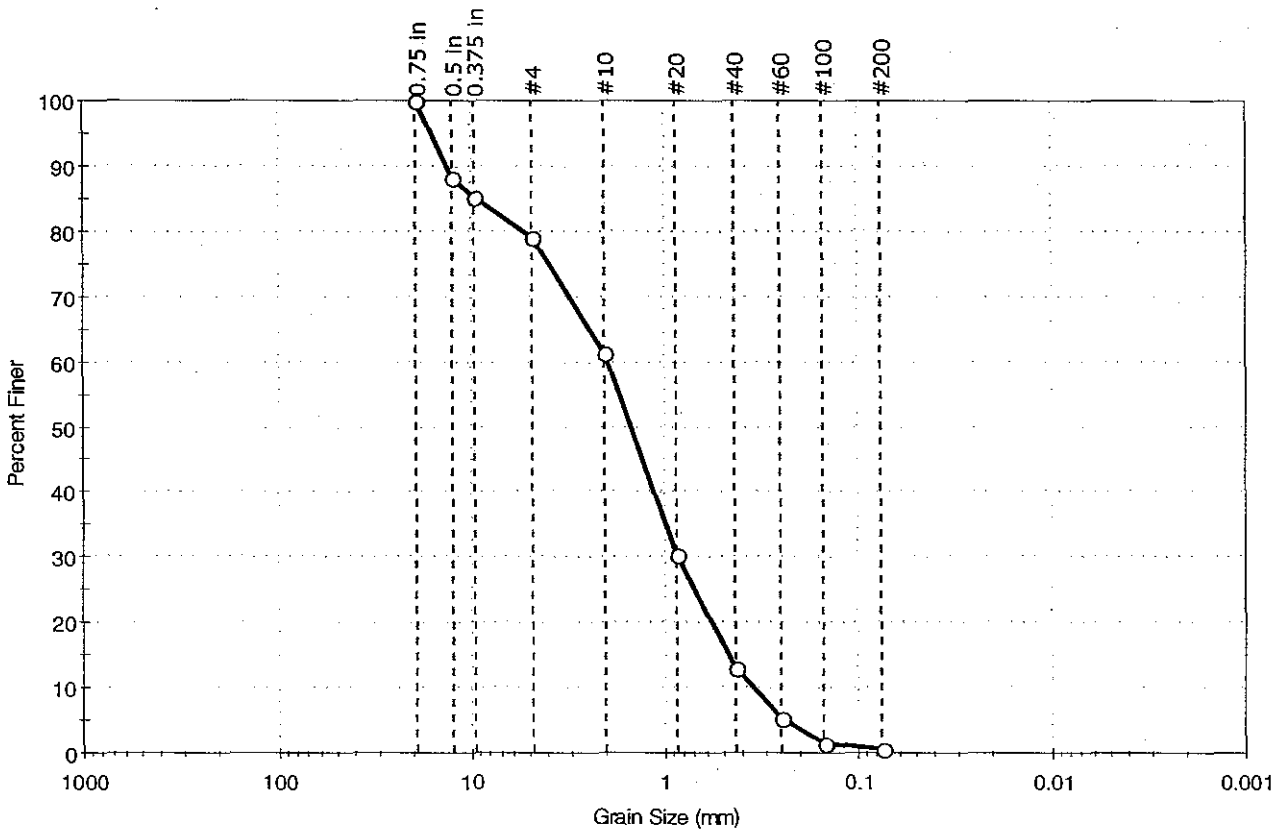
GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01161	Test Date: 08/18/09	Checked By:	jdt
Depth : ---	Test Id: 160301		
Test Comment:	Less than 5% fines, hydrometer not performed.		
Sample Description:	Moist, dark olive gray sand with gravel		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	21.1	78.3	0.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	88		
0.375 in	9.50	85		
#4	4.75	79		
#10	2.00	61		
#20	0.85	30		
#40	0.42	13		
#60	0.25	5		
#100	0.15	1		
#200	0.075	1		

Coefficients

D_{85} = 9.2660 mm D_{30} = 0.8360 mm
D_{60} = 1.9243 mm D_{15} = 0.4627 mm
D_{50} = 1.4598 mm D_{10} = 0.3469 mm
C_u = 5.547 C_c = 1.047

Classification

ASTM Poorly graded sand with gravel (SP)

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

Sample/Test Description

Sand/Gravel Particle Shape : ROUNDED

Sand/Gravel Hardness : HARD

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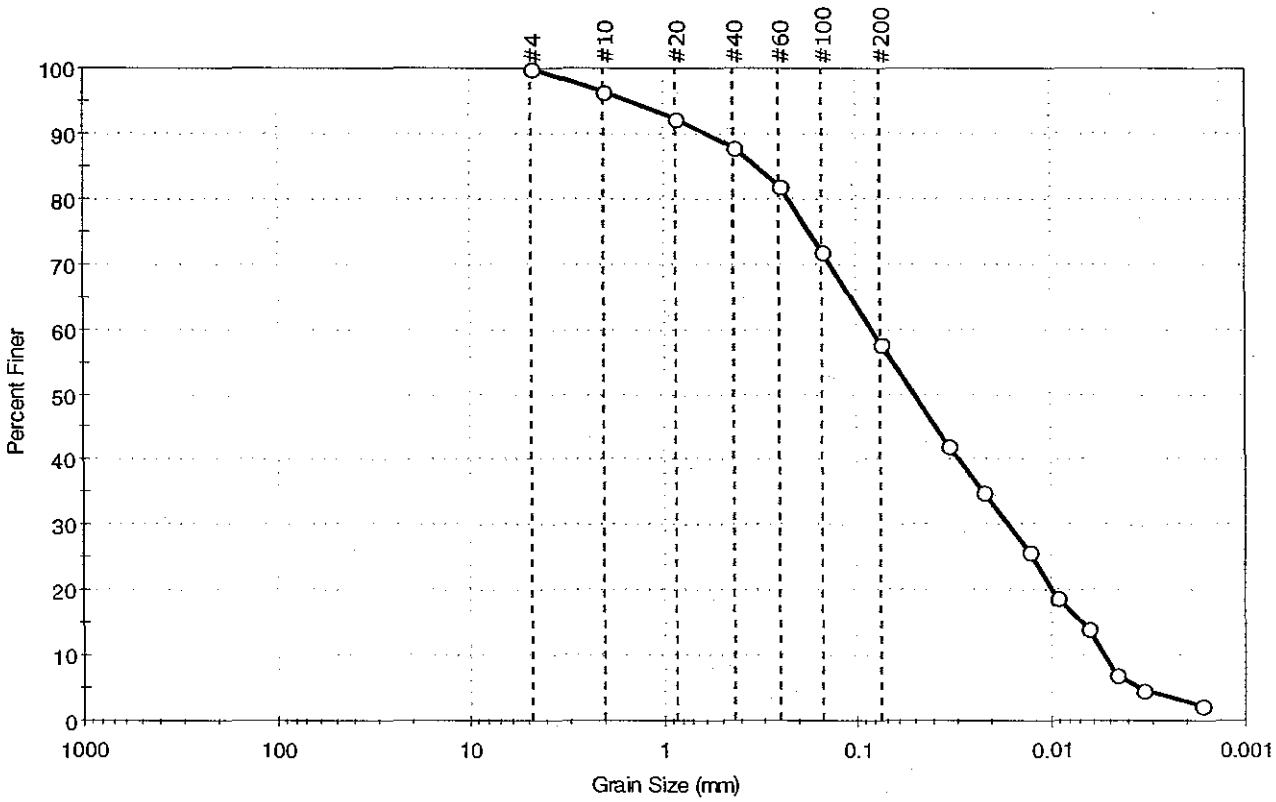
GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01163	Test Date: 08/19/09	Checked By:	jdt
Depth : ---	Test Id: 160302		
Test Comment:	---		
Sample Description:	Moist, very dark gray sandy silt		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	42.3	57.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	97		
#20	0.85	92		
#40	0.42	88		
#60	0.25	82		
#100	0.15	72		
#200	0.075	58		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0330	42		
---	0.0220	35		
---	0.0127	26		
---	0.0091	19		
---	0.0064	14		
---	0.0046	7		
---	0.0033	5		
---	0.0017	2		

Coefficients

D_{85} = 0.3270 mm	D_{30} = 0.0162 mm
D_{60} = 0.0838 mm	D_{15} = 0.0069 mm
D_{50} = 0.0498 mm	D_{10} = 0.0053 mm
C_u = N/A	C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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GeoTesting express
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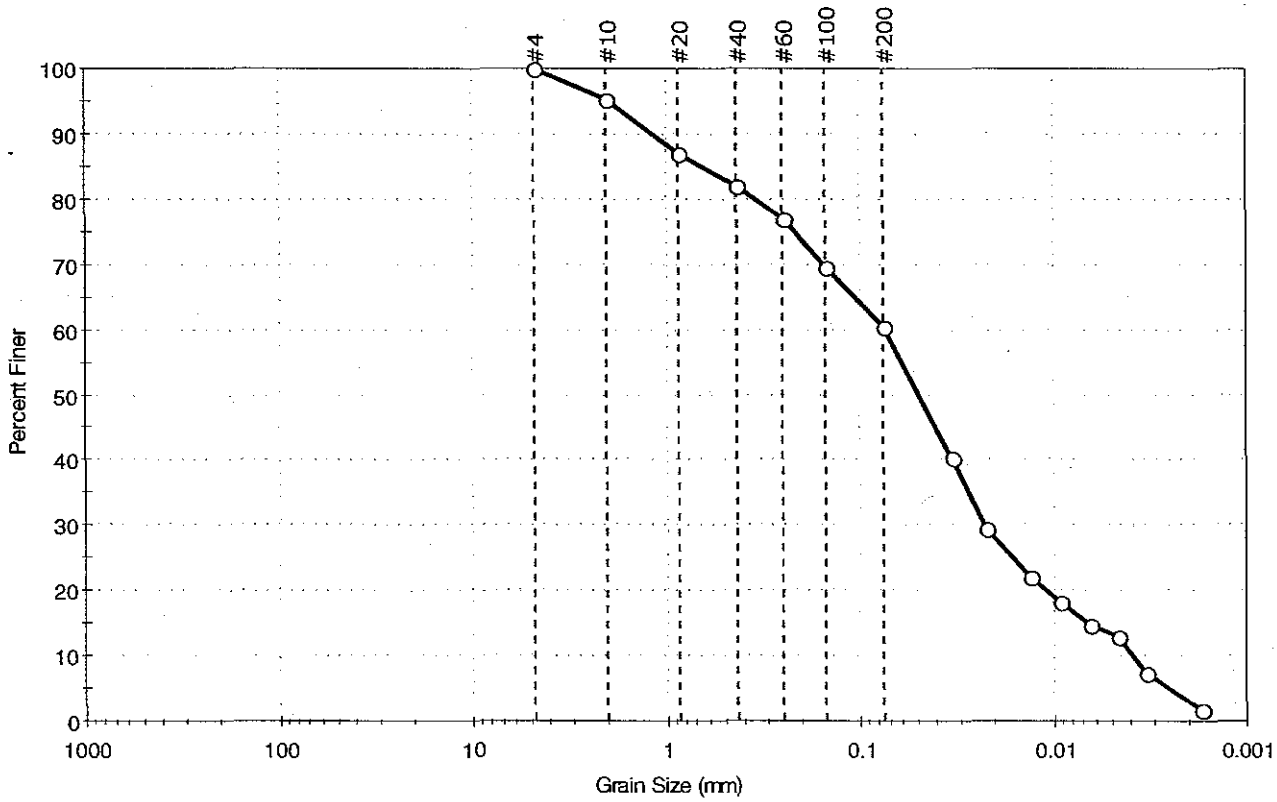
Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01165	Test Date: 08/19/09	Checked By:	jdt
Depth : ---	Test Id: 160303		
Test Comment:	---		
Sample Description:	Moist, very dark gray sandy silt		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
--	0.0	39.4	60.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	95		
#20	0.85	87		
#40	0.42	82		
#60	0.25	77		
#100	0.15	70		
#200	0.075	61		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0335	40		
---	0.0224	29		
---	0.0130	22		
---	0.0092	18		
---	0.0065	15		
---	0.0046	13		
---	0.0033	7		
---	0.0017	2		

Coefficients

D_{85} = 0.6357 mm D_{30} = 0.0228 mm
D_{60} = 0.0733 mm D_{15} = 0.0067 mm
D_{50} = 0.0491 mm D_{10} = 0.0039 mm
C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

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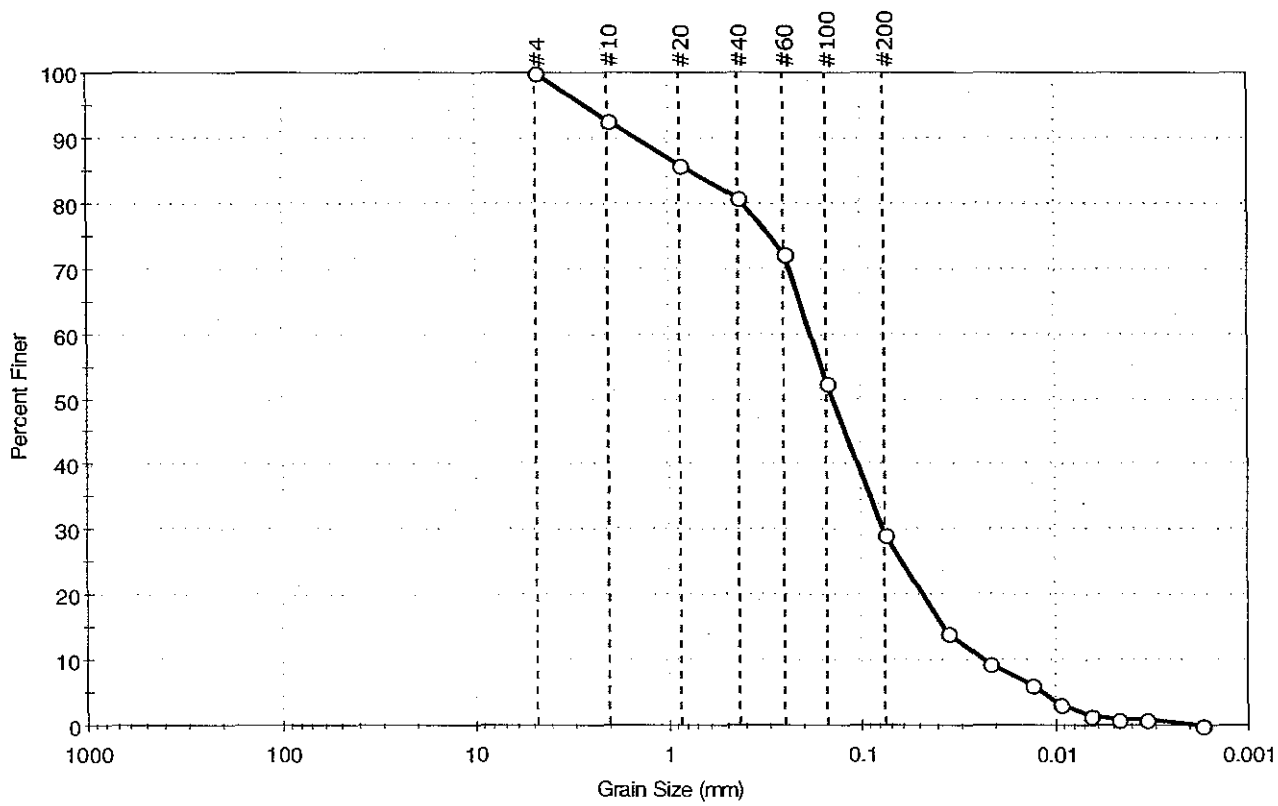
GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01167	Test Date: 08/18/09	Checked By:	jdt
Depth : ---	Test Id: 160304		
Test Comment:	---		
Sample Description:	Moist, very dark gray silty sand		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	70.8	29.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	93		
#20	0.85	86		
#40	0.42	81		
#60	0.25	72		
#100	0.15	52		
#200	0.075	29		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0357	14		
---	0.0219	9		
---	0.0131	6		
---	0.0093	3		
---	0.0066	2		
---	0.0047	1		
---	0.0034	1		
---	0.0017	0		

Coefficients

D_{85} = 0.7640 mm D_{30} = 0.0767 mm
D_{60} = 0.1825 mm D_{15} = 0.0373 mm
D_{50} = 0.1396 mm D_{10} = 0.0233 mm
C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ROUNDED

Sand/Gravel Hardness : HARD

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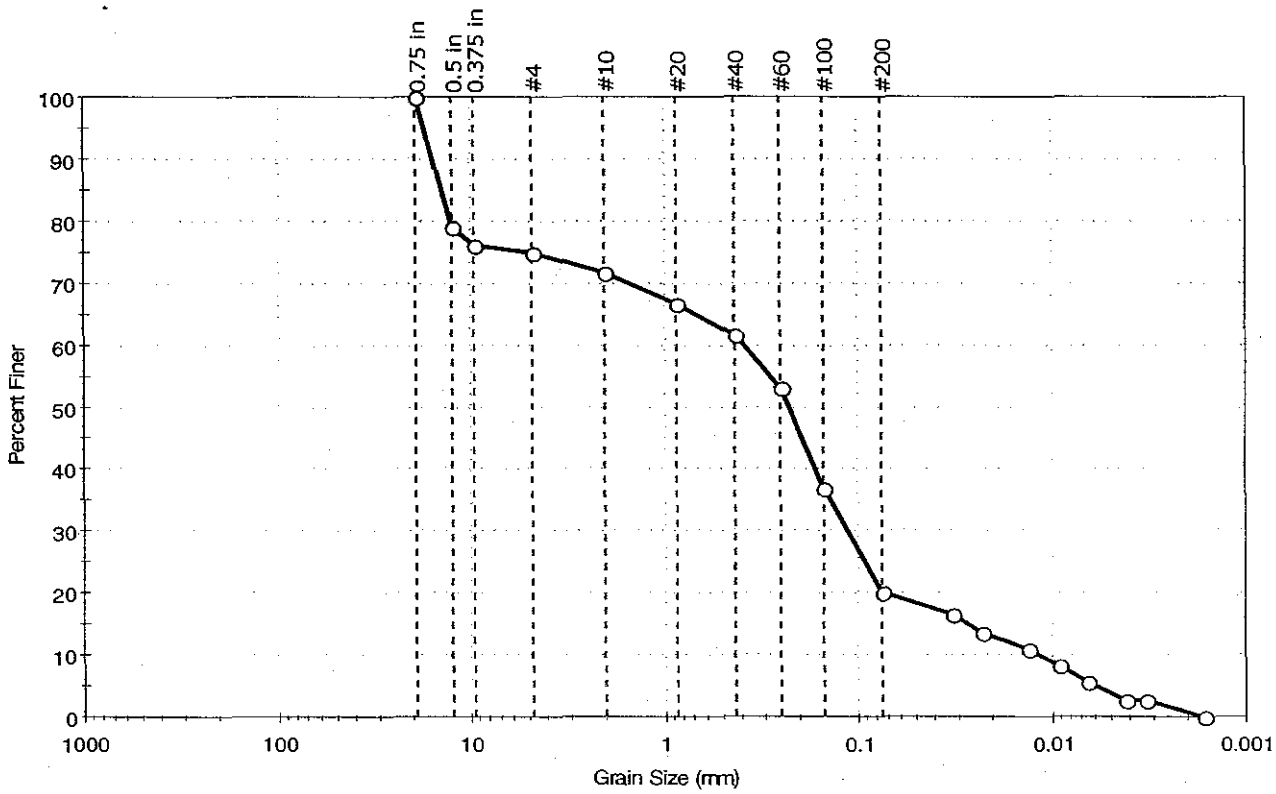
GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01169	Test Date: 08/19/09	Checked By:	jdt
Depth : ---	Test Id: 160305		
Test Comment:	---		
Sample Description:	Moist, very dark gray silty sand with gravel		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	25.2	54.9	19.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	79		
0.375 in	9.50	76		
#4	4.75	75		
#10	2.00	72		
#20	0.85	67		
#40	0.42	62		
#60	0.25	53		
#100	0.15	37		
#200	0.075	20		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0323	16		
---	0.0226	14		
---	0.0131	11		
---	0.0092	8		
---	0.0066	5		
---	0.0041	3		
---	0.0033	3		
---	0.0017	0		

Coefficients

D_{85} = 14.0885 mm	D_{30} = 0.1134 mm
D_{60} = 0.3836 mm	D_{15} = 0.0270 mm
D_{50} = 0.2262 mm	D_{10} = 0.0116 mm
C_u = N/A	C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ROUNDED

Sand/Gravel Hardness : HARD

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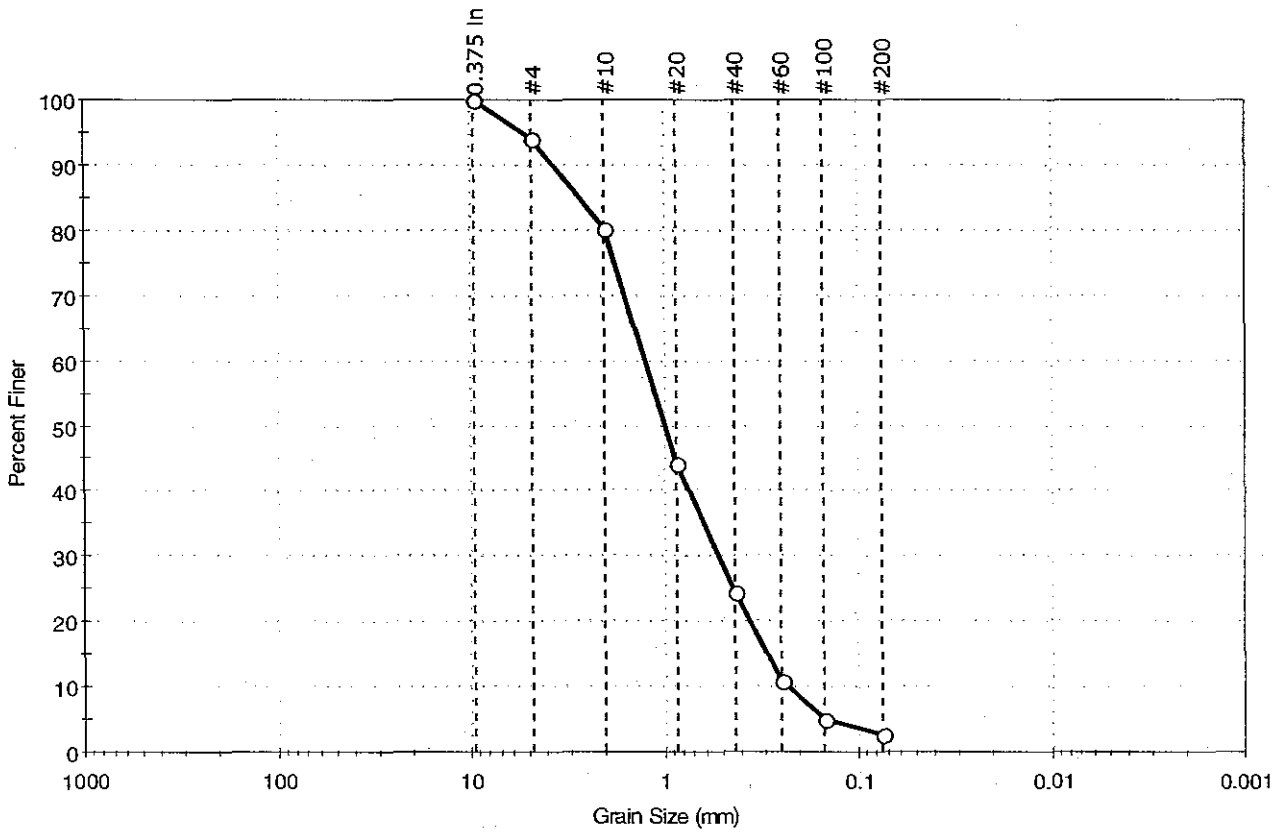
Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01171	Test Date: 08/18/09	Checked By:	jdt
Depth : ---	Test Id: 160306		
Test Comment:	Less than 5% fines, hydrometer not performed.		
Sample Description:	Moist, dark yellowish brown sand		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	5.8	91.6	2.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	94		
#10	2.00	80		
#20	0.85	44		
#40	0.42	24		
#60	0.25	11		
#100	0.15	5		
#200	0.075	3		

Coefficients

D_{85} = 2.6825 mm	D_{30} = 0.5174 mm
D_{60} = 1.2359 mm	D_{15} = 0.2928 mm
D_{50} = 0.9752 mm	D_{10} = 0.2290 mm
C_u = 5.397	C_c = 0.946

Classification

ASTM Poorly graded sand (SP)

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

Sample/Test Description

Sand/Gravel Particle Shape : ROUNDED

Sand/Gravel Hardness : HARD

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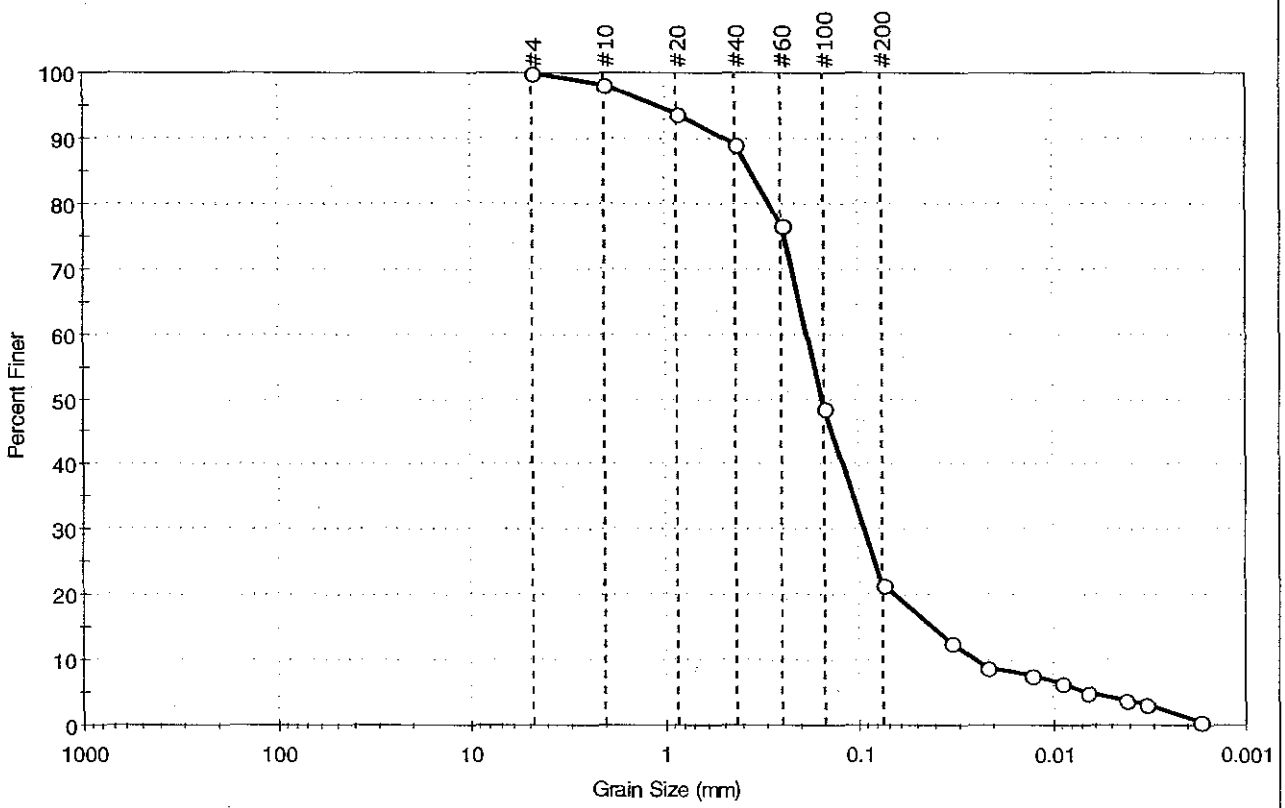
Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01173	Test Date: 08/18/09	Checked By:	jdt
Depth : ---	Test Id: 160307		
Test Comment:	---		
Sample Description:	Moist, yellowish brown silty sand		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	78.5	21.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	98		
#20	0.85	94		
#40	0.42	89		
#60	0.25	77		
#100	0.15	49		
#200	0.075	22		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0336	13		
---	0.0217	9		
---	0.0130	8		
---	0.0091	6		
---	0.0065	5		
---	0.0042	4		
---	0.0033	3		
---	0.0017	1		

Coefficients

D_{85} =0.3561 mm D_{30} =0.0931 mm
D_{60} =0.1841 mm D_{15} =0.0414 mm
D_{50} =0.1534 mm D_{10} =0.0246 mm
C_u =N/A C_c =N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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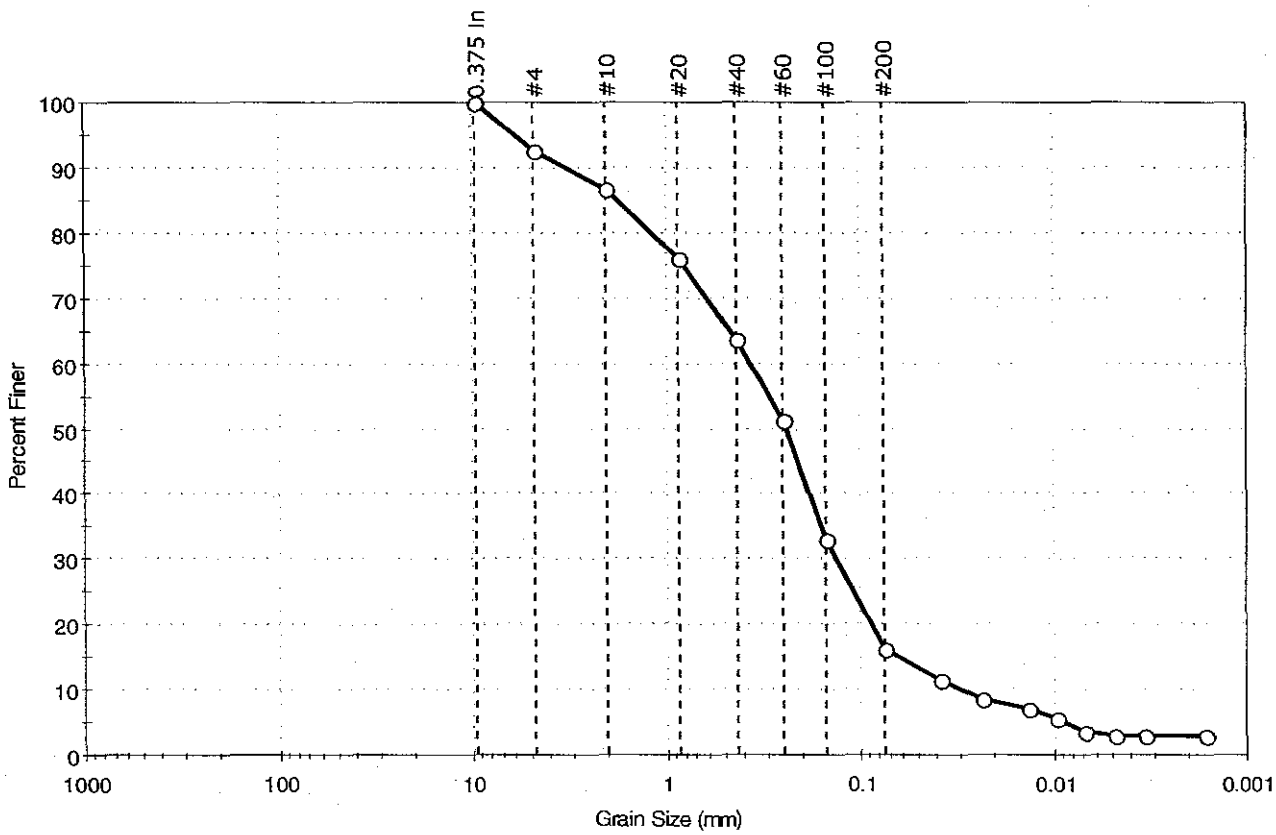
Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01175	Test Date: 08/18/09	Checked By:	jdt
Depth : ---	Test Id: 160308		
Test Comment:	---		
Sample Description:	Moist, dark yellowish brown silty sand		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
--	7.5	76.2	16.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	93		
#10	2.00	87		
#20	0.85	76		
#40	0.42	64		
#60	0.25	51		
#100	0.15	33		
#200	0.075	16		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0381	11		
---	0.0234	9		
---	0.0135	7		
---	0.0095	6		
---	0.0069	4		
---	0.0048	3		
---	0.0034	3		
---	0.0017	3		

Coefficients

D_{85} = 1.7490 mm	D_{30} = 0.1317 mm
D_{60} = 0.3641 mm	D_{15} = 0.0625 mm
D_{50} = 0.2410 mm	D_{10} = 0.0298 mm
C_u = N/A	C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

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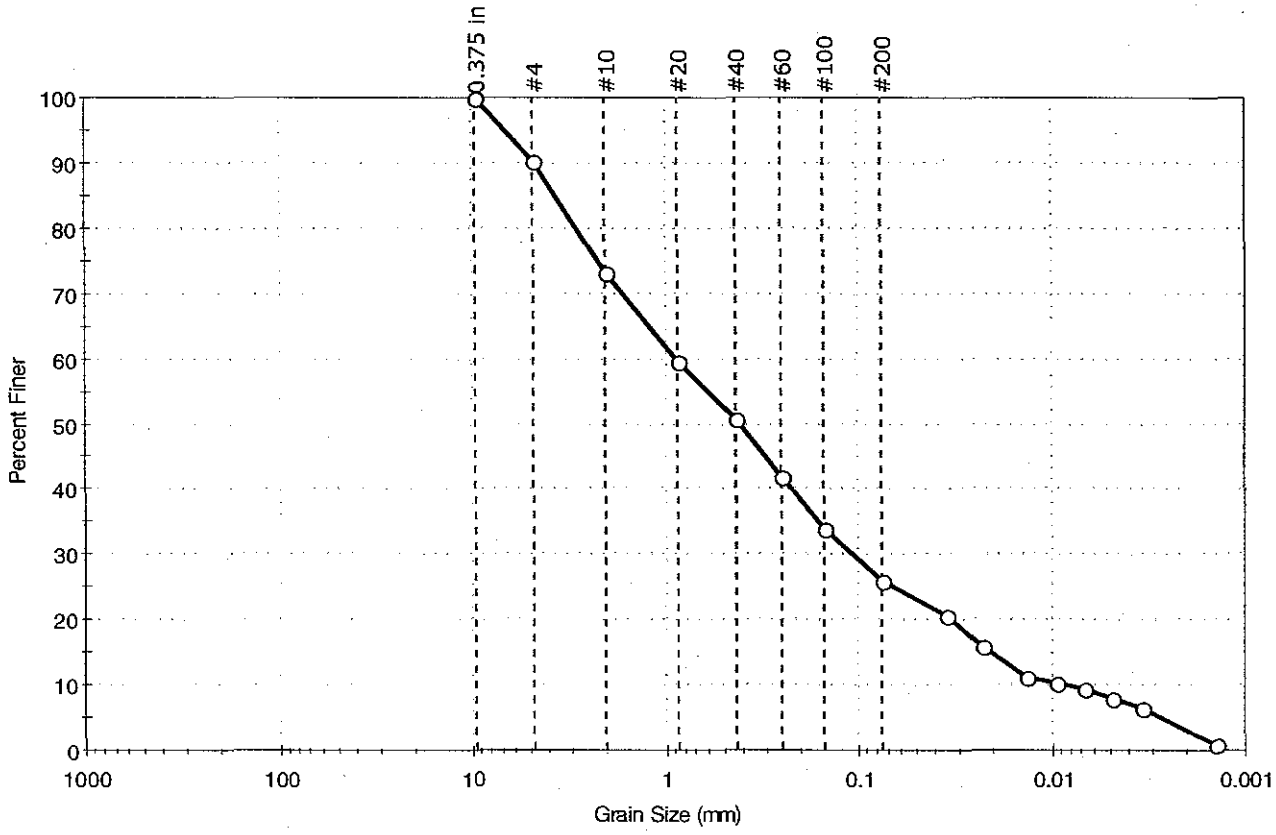
Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01177	Test Date: 08/18/09	Checked By:	jdt
Depth : ---	Test Id: 160309		
Test Comment:	---		
Sample Description:	Moist, dark yellowish brown silty sand		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
--	9.7	64.5	25.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	90		
#10	2.00	73		
#20	0.85	60		
#40	0.42	51		
#60	0.25	42		
#100	0.15	34		
#200	0.075	26		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0351	21		
---	0.0226	16		
---	0.0133	11		
---	0.0094	10		
---	0.0067	10		
---	0.0048	8		
---	0.0034	6		
---	0.0014	1		

Coefficients

D_{85} = 3.6329 mm	D_{30} = 0.1075 mm
D_{60} = 0.8686 mm	D_{15} = 0.0205 mm
D_{50} = 0.4069 mm	D_{10} = 0.0082 mm
C_u = N/A	C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

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GTX-9188

Nobis Engineering, Inc.

U.S. EPA Region 1 Analysis of Soil Samples

Raw Data Package

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Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01129	Test Date: 08/18/09	Checked By:	jdt
Depth : ---	Test Id: 160294		
Test Comment:	---		
Sample Description:	Moist, dark olive brown sand with silt and gravel		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)

ASTM D 422 - Combined Gradation Analysis(160294)	HEADER Data Values
Combined Sieve Supplemental TestID	61143
Combined Hydrometer Supplemental TestIO	61199

Sieve(61143)	HEADER Data Values
Sieve Method	STRAIGHT
Sieve Water Content ID	SAMPLE WC
Sieve TotalDrySoilTare Mass	151.68
Sieve Retained Tare IO	TARE2620
Sieve Retained Tare Mass	111.7
Sieve WashDrySoilTare Mass	148.13
Sieve Particle Shape	ANGULAR
Sieve Particle Hardness	HARD
Sieve Finer200	

FINE Set #	Sieve FineSet Screen ID	Sieve FineSet Retained DrySoilTare
1	SIEVE533 (0.75 in	111.7
2	SIEVE249 (0.5 in	113.99
3	SIEVE324 (0.375 in	120.41
4	SIEVE003 (#4 Sieve)	124.86
5	SIEVE019 (#10 Sieve)	133.32
6	SIEVE076 (#20 Sieve)	139.13
7	SIEVE528 (#40 Sieve)	142.89
8	SIEVE559 (#60 Sieve)	145.16
9	SIEVE505 (#100 Sieve)	146.74
10	SIEVE587 (#200 Sieve)	147.99
11	SIEVE586 (Pan)	148.13

Hydrometer(61199)	HEADER Data Values
Hydrometer IO	741543 (741543)
Hydrometer PercentTotal	9
Hydrometer Tare ID	TARE2620
Hydrometer Tare Mass	111.65
Hydrometer WetSoilTare Mass	164.39
Hydrometer Water Content ID	SAMPLE WC
Hydrometer SpecificGravity	
Hydrometer WashDrySoilTare Mass	148.13

READING Set #	Elapsed Time	Hydrometer Reading	Temperature
1	2.37	9	23
2	5.4	8.5	23
3	14.85	8	23
4	30.05	7.5	23
5	59.88	7.5	22.5
6	120.27	7	22
7	239.85	6.5	21.5
8	960.42	6	20.5

Hydrometer Wet Soil =52.74 grams
Hydrometer Moisture Content =31.73%
Hydrometer Dry Soil =40.03 grams

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Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01131	Test Date: 08/18/09	Checked By:	jdt
Depth : ---	Test Id: 160295		
Test Comment:	---		
Sample Description:	Moist, dark yellowish brown silty sand with gravel		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)

ASTM D 422 - Combined Gradation Analysis(160295)	HEADER Data Values
Combined Sieve Supplemental TestID	61151
Combined Hydrometer Supplemental TestID	61181

Sieve(61151)	HEADER Data Values
Sieve Method	STRAIGHT
Sieve Water Content ID	SAMPLE WC
Sieve TotalDrySoilTare Mass	151.45
Sieve Retained Tare ID	TARE1963
Sieve Retained Tare Mass	113.94
Sieve WashDrySoilTare Mass	149.79
Sieve Particle Shape	ANGULAR
Sieve Particle Hardness	HARD
Sieve Finer200	

FINE Set #	Sieve FineSet Screen ID	Sieve FineSet Retained DrySoilTare
1	SIEVE533 (0.75 in	113.94
2	SIEVE249 (0.5 in	119.6
3	SIEVE324 (0.375 in	119.6
4	SIEVE003 (#4 Sieve)	120.42
5	SIEVE019 (#10 Sieve)	123.16
6	SIEVE076 (#20 Sieve)	126.94
7	SIEVE528 (#40 Sieve)	130.93
8	SIEVE559 (#60 Sieve)	136.47
9	SIEVE505 (#100 Sieve)	142.52
10	SIEVE587 (#200 Sieve)	146.52
11	SIEVE586 (Pan)	146.79

Hydrometer(61181)	HEADER Data Values
Hydrometer ID	741543 (741543)
Hydrometer PercentTotal	12
Hydrometer Tare ID	TARE1963
Hydrometer Tare Mass	113.89
Hydrometer WetSoilTare Mass	173.15
Hydrometer Water Content ID	SAMPLE WC
Hydrometer SpecificGravity	
Hydrometer WashDrySoilTare Mass	149.79

READING Set #	Elapsed Time	Hydrometer Reading	Temperature
1	1.87	10	24
2	5.48	9	24
3	15.37	8	24
4	29.87	7.5	24
5	61	7	24
6	119.97	7	23
7	239.87	6.5	23
8	972.48	6	20

Hydrometer Wet Soil =59.26 grams
Hydrometer Moisture Content =31.12%
Hydrometer Dry Soil =45.20 grams

GeoTesting express
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Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01148	Test Date: 08/19/09	Checked By:	jdt
Depth : ---	Test Id: 160296		
Test Comment:	---		
Sample Description:	Moist, very dark gray silty sand		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)

ASTM D 422 - Combined Gradation Analysis(160296)	HEADER Data Values
Combined Sieve Supplemental TestID	61193
Combined Hydrometer Supplemental TestID	61184

Sieve(61193)	HEADER Data Values
Sieve Method	STRAIGHT
Sieve Water Content ID	SAMPLE WC
Sieve TotalDrySoilTare Mass	123.83
Sieve Retained Tare ID	TARE2763
Sieve Retained Tare Mass	101.58
Sieve WashDrySoilTare Mass	118.04
Sieve Particle Shape	ANGULAR
Sieve Particle Hardness	HARD
Sieve Finer200	

Hydrometer(61184)	HEADER Data Values
Hydrometer ID	741543 (741543)
Hydrometer PercentTotal	26
Hydrometer Tare ID	TARE2763
Hydrometer Tare Mass	101.52
Hydrometer WetSoilTare Mass	140.45
Hydrometer Water Content ID	SAMPLE WC
Hydrometer SpecificGravity	
Hydrometer WashDrySoilTare Mass	118.04

FINE Set #	Sieve FineSet Screen ID	Sieve FineSet Retained DrySoilTare
1	SIEVE324 (0.375 in	101.58
2	SIEVE003 (#4 Sieve)	102.44
3	SIEVE019 (#10 Sieve)	105.89
4	SIEVE076 (#20 Sieve)	109.18
5	SIEVE528 (#40 Sieve)	111.48
6	SIEVE559 (#60 Sieve)	113.62
7	SIEVE505 (#100 Sieve)	115.97
8	SIEVE587 (#200 Sieve)	117.85
9	SIEVE586 (Pan)	118.04

READING Set #	Elapsed Time	Hydrometer Reading	Temperature
1	2.48	8	24
2	4.88	7.5	24
3	14.9	7	24
4	30	6.5	24
5	61.05	6.25	24
6	152.77	7	23
7	245.28	7	23
8	960.72	6.5	20

Hydrometer Wet Soil =38.93 grams

Hydrometer Moisture Content =92.34%

Hydrometer Dry Soil =20.24 grams

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01150	Test Date: 08/18/09	Checked By:	jdt
Depth : ---	Test Id: 160297		
Test Comment:	---		
Sample Description:	Moist, dark yellowish brown sand with silt		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)

ASTM D 422 - Combined Gradation Analysis(160297)	HEADER Data Values
Combined Sieve Supplemental TestID	61148
Combined Hydrometer Supplemental TestID	61186

Sieve(61148)	HEADER Data Values
Sieve Method	STRAIGHT
Sieve Water Content ID	SAMPLE WC
Sieve TotalDrySoilTare Mass	133.78
Sieve Retained Tare ID	SIEVE542
Sieve Retained Tare Mass	109.25
Sieve WashDrySoilTare Mass	131.27
Sieve Particle Shape	ANGULAR
Sieve Particle Hardness	HARD
Sieve Finer200	

Hydrometer(61186)	HEADER Data Values
Hydrometer ID	741543 (741543)
Hydrometer PercentTotal	10
Hydrometer Tare ID	SIEVE542
Hydrometer Tare Mass	109.22
Hydrometer WetSoilTare Mass	152.99
Hydrometer Water Content ID	SAMPLE WC
Hydrometer SpecificGravity	
Hydrometer WashDrySoilTare Mass	131.27

FINE Set #	Sieve FineSet Screen ID	Sieve FineSet Retained DrySoilTare
1	SIEVE324 (0.375 in	109.25
2	SIEVE003 (#4 Sieve)	109.97
3	SIEVE019 (#10 Sieve)	112.3
4	SIEVE076 (#20 Sieve)	117.31
5	SIEVE528 (#40 Sieve)	122.21
6	SIEVE559 (#60 Sieve)	126.21
7	SIEVE505 (#100 Sieve)	129.46
8	SIEVE587 (#200 Sieve)	131.05
9	SIEVE586 (Pan)	131.27

READING Set #	Elapsed Time	Hydrometer Reading	Temperature
1	2	8.5	20.5
2	5	8	20.5
3	15	7.5	20.5
4	30	7	20.5
5	60	7	20.5
6	120	6.5	20.5
7	240	6.5	21
8	1024	6	20

Hydrometer Wet Soil =43.77 grams

Hydrometer Moisture Content =78.25%

Hydrometer Dry Soil =24.56 grams

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01153	Test Date: 08/18/09	Checked By:	jdt
Depth : ---	Test Id: 160298		
Test Comment:	---		
Sample Description:	Moist, dark olive brown silty sand		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)

ASTM D 422 - Combined Gradation Analysis(160298)	HEADER Data Values
Combined Sieve Supplemental TestID	61141
Combined Hydrometer Supplemental TestID	61196

Sieve(61141)	HEADER Data Values
Sieve Method	STRAIGHT
Sieve Water Content ID	SAMPLE WC
Sieve TotalDrySoilTare Mass	147.02
Sieve Retained Tare ID	TARE1906
Sieve Retained Tare Mass	114.08
Sieve WashDrySoilTare Mass	139.92
Sieve Particle Shape	ANGULAR
Sieve Particle Hardness	HARD
Sieve Finer200	

Hydrometer(61196)	HEADER Data Values
Hydrometer ID	741543 (741543)
Hydrometer PercentTotal	22
Hydrometer Tare ID	Tare1906
Hydrometer Tare Mass	114.02
Hydrometer WetSoilTare Mass	163
Hydrometer Water Content ID	SAMPLE WC
Hydrometer SpecificGravity	
Hydrometer WashDrySoilTare Mass	139.92

FINE Set #	Sieve FineSet Screen ID	Sieve FineSet Retained DrySoilTare
1	SIEVE324 (0.375 in	114.08
2	SIEVE003 (#4 Sieve)	115.87
3	SIEVE019 (#10 Sieve)	117.92
4	SIEVE076 (#20 Sieve)	120.91
5	SIEVE528 (#40 Sieve)	123.13
6	SIEVE559 (#60 Sieve)	126.84
7	SIEVE505 (#100 Sieve)	132.97
8	SIEVE587 (#200 Sieve)	138.87
9	SIEVE586 (Pan)	139.92

READING Set #	Elapsed Time	Hydrometer Reading	Temperature
1	2.15	10	23
2	5.58	9	23
3	15.13	8.5	23
4	29.9	8	23
5	59.95	7.5	23
6	121.4	7	22.5
7	243.55	6.5	21.5
8	960.47	6.25	20.5

Hydrometer Wet Soil =48.98 grams

Hydrometer Moisture Content =48.33%

Hydrometer Dry Soil =33.02 grams

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01155	Test Date: 08/18/09	Checked By:	jdt
Depth : ---	Test Id: 160299		
Test Comment:	---		
Sample Description:	Moist, dark yelllowish brown sand with silt and gravel		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)

ASTM D 422 - Combined Gradation Analysis(160299)	HEADER Data Values
Combined Sieve Supplemental TestID	61140
Combined Hydrometer Supplemental TestID	61198

Sieve(61140)	HEADER Data Values
Sieve Method	STRAIGHT
Sieve Water Content ID	SAMPLE WC
Sieve TotalDrySoilTare Mass	156.04
Sieve Retained Tare ID	TARE925
Sieve Retained Tare Mass	109.42
Sieve WashDrySoilTare Mass	151.61
Sieve Particle Shape	ANGULAR
Sieve Particle Hardness	HARD
Sieve Finer200	

FINE Set #	Sieve FineSet Screen ID	Sieve FineSet Retained DrySoilTare
1	SIEVE533 (0.75 in	109.42
2	SIEVE249 (0.5 in	110.96
3	SIEVE324 (0.375 in	114.48
4	SIEVE003 (#4 Sieve)	119.2
S	SIEVE019 (#10 Sieve)	125.21
6	SIEVE076 (#20 Sieve)	132.56
7	SIEVE528 (#40 Sieve)	138.7
8	SIEVE5S9 (#60 Sieve)	143.56
9	SIEVE505 (#100 Sieve)	147.85
10	SIEVE587 (#200 Sieve)	151.23
11	SIEVE586 (Pan)	151.61

Hydrometer(61198)	HEADER Data Values
Hydrometer ID	741543 (741543)
Hydrometer PercentTotal	10
Hydrometer Tare ID	Tare925
Hydrometer Tare Mass	109.38
Hydrometer WetSoilTare Mass	165.24
Hydrometer Water Content ID	SAMPLE WC
Hydrometer SpecificGravity	
Hydrometer WashDrySoilTare Mass	151.61

READING Set #	Elapsed Time	Hydrometer Reading	Temperature
1	2.93	9.5	23
2	4.85	9	23
3	15.03	8.5	23
4	30.28	8	23
5	59.9	7.5	22.5
6	120.02	7	22.5
7	240.15	6.5	21.5
8	960.05	6	20.5

Hydrometer Wet Soil =55.86 grams
Hydrometer Moisture Content =19.67%
Hydrometer Dry Soil =46.68 grams

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Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01157	Test Date: 08/18/09	Checked By:	jdt
Depth : ---	Test Id: 160310		
Test Comment:	Less than 5% fines, hydrometer not performed.		
Sample Description:	Moist, dark yellowish brown sand		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)

ASTM D 422 - Combined Gradation Analysis(160310)	HEADER Data Values
Combined Sieve Supplemental TestID	61149
Combined Hydrometer Supplemental TestID	

Sieve(61149)	HEADER Data Values
Sieve Method	STRAIGHT
Sieve Water Content ID	SAMPLE WC
Sieve TotalDrySoilTare Mass	161.18
Sieve Retained Tare ID	TARE456
Sieve Retained Tare Mass	118.54
Sieve WashDrySoilTare Mass	160.05
Sieve Particle Shape	ANGULAR
Sieve Particle Hardness	HARD
Sieve Finer200	

Hydrometer(0)	HEADER Data Values
Sieve Method	
Sieve Water Content ID	
Hydrometer Tare ID	
Sieve Retained Tare ID	
Hydrometer WetSoilTare Mass	
Sieve WashDrySoilTare Mass	
Sieve Particle Shape	
Sieve Particle Hardness	

FINE Set #	Sieve FineSet Screen ID	Sieve FineSet Retained DrySoilTare
1	SIEVE249 (0.5 in	118.54
2	SIEVE324 (0.375 in	120.56
3	SIEVE003 (#4 Sieve)	123.68
4	SIEVE019 (#10 Sieve)	131.67
5	SIEVE076 (#20 Sieve)	139.79
6	SIEVE528 (#40 Sieve)	146.77
7	SIEVE559 (#60 Sieve)	152.1
8	SIEVE505 (#100 Sieve)	156.01
9	SIEVE587 (#200 Sieve)	159.73
10	SIEVE586 (Pan)	160.05

READING Set #	Elapsed Time	Hydrometer Reading	Temperature
1	2.13	12.5	20.5
2	5.2	11	20.5
3	15.27	9.5	20.5
4	30.77	9.25	20.5
5	60.02	9	20.5
6	119.85	8.5	20.5
7	239.87	8	21
8	1418.55	6.25	20

Hydrometer Wet Soil =41.87 grams

Hydrometer Moisture Content =32.93%

Hydrometer Dry Soil =31.50 grams

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Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01159	Test Date: 08/18/09	Checked By:	jdt
Depth : ---	Test Id: 160300		
Test Comment:	Less than 5% fines, hydrometer not performed.		
Sample Description:	Moist, dark olive brown sand		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)

ASTM D 422 - Combined Gradation Analysis(160300)	HEADER Data Values
Combined Sieve Supplemental TestID	61147
Combined Hydrometer Supplemental TestID	

Sieve(61147)	HEADER Data Values
Sieve Method	STRAIGHT
Sieve Water Content ID	SAMPLE WC
Sieve TotalDrySoilTare Mass	150.22
Sieve Retained Tare ID	TARE2748
Sieve Retained Tare Mass	102.97
Sieve WashDrySoilTare Mass	149.59
Sieve Particle Shape	ROUNDED
Sieve Particle Hardness	HARD
Sieve Finer200	

Hydrometer(0)	HEADER Data Values
Sieve Method	
Sieve Water Content ID	
Hydrometer Tare ID	
Sieve Retained Tare ID	
Hydrometer WetSoilTare Mass	
Sieve WashDrySoilTare Mass	
Sieve Particle Shape	
Sieve Particle Hardness	

FINE Set #	Sieve FineSet Screen ID	Sieve FineSet Retained DrySoilTare
1	SIEVE324 (0.375 in	102.97
2	SIEVE003 (#4 Sieve)	105.58
3	SIEVE019 (#10 Sieve)	113.53
4	SIEVE076 (#20 Sieve)	129.77
5	SIEVE528 (#40 Sieve)	142.43
6	SIEVE559 (#60 Sieve)	146.95
7	SIEVE505 (#100 Sieve)	148.81
8	SIEVE587 (#200 Sieve)	149.5
9	SIEVE586 (Pan)	149.59

READING Set #	Elapsed Time	Hydrometer Reading	Temperature
1	2.93	9.5	23
2	4.85	9	23
3	15.03	8.5	23
4	30.28	8	23
5	59.9	7.5	22.5
6	120.02	7	22.5
7	240.15	6.5	21.5
8	960.05	6	20.5

Hydrometer Wet Soil =55.86 grams

Hydrometer Moisture Content =19.67%

Hydrometer Dry Soil =46.68 grams

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Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01161	Test Date: 08/18/09	Checked By:	jdt
Depth : ---	Test Id: 160301		
Test Comment:	Less than 5% fines, hydrometer not performed.		
Sample Description:	Moist, dark olive gray sand with gravel		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)

ASTM D 422 - Combined Gradation Analysis(160301)	HEADER Data Values
Combined Sieve Supplemental TestID	61150
Combined Hydrometer Supplemental TestID	61225

Sieve(61150)	HEADER Data Values
Sieve Method	STRAIGHT
Sieve Water Content ID	SAMPLE WC
Sieve TotalDrySoilTare Mass	167.88
Sieve Retained Tare ID	TARE1909
Sieve Retained Tare Mass	111.9
Sieve WashDrySoilTare Mass	167.82
Sieve Particle Shape	ROUNDED
Sieve Particle Hardness	HARD
Sieve Finer200	

FINE Set #	Sieve FineSet Screen ID	Sieve FineSet Retained DrySoilTare
1	SIEVE533 (0.75 in	111.9
2	SIEVE249 (0.5 in	118.57
3	SIEVE324 (0.375 in	120.17
4	sieve003 (#4 Sieve)	123.7
5	SIEVE019 (#10 Sieve)	133.51
6	SIEVE076 (#20 Sieve)	150.85
7	SIEVE528 (#40 Sieve)	160.69
8	SIEVE559 (#60 Sieve)	164.85
9	SIEVE505 (#100 Sieve)	167.11
10	SIEVE587 (#200 Sieve)	167.52
11	SIEVE586 (Pan)	167.82

Weight of Soil in Pan minus tare =55.92 grams

Hydrometer(61225)	HEADER Data Values
Hydrometer ID	(Hydrometer Not Found Hydrometer Correction Not Found)
Hydrometer PercentTotal	
Hydrometer Tare ID	
Hydrometer Tare Mass	
Hydrometer WetSoilTare Mass	
Hydrometer Water Content ID	
Hydrometer Specific Gravity	
Hydrometer Moisture Content	

Hydrometer Wet Soil =55.86 grams

Hydrometer Moisture Content =19.67%

Hydrometer Dry Soil =46.68 grams

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Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01163	Test Date: 08/19/09	Checked By:	jdt
Depth : ---	Test Id: 160302		
Test Comment:	---		
Sample Description:	Moist, very dark gray sandy silt		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)

ASTM D 422 - Combined Gradation Analysis(160302)	HEADER Data Values
Combined Sieve Supplemental TestID	61191
Combined Hydrometer Supplemental TestID	61182

Sieve(61191)	HEADER Data Values
Sieve Method	STRAIGHT
Sieve Water Content ID	SAMPLE WC
Sieve TotalDrySoilTare Mass	133.13
Sieve Retained Tare ID	TARE1861
Sieve Retained Tare Mass	111.71
Sieve WashDrySoilTare Mass	121
Sieve Particle Shape	---
Sieve Particle Hardness	---
Sieve Finer200	

Hydrometer(61182)	HEADER Data Values
Hydrometer ID	741543 (741543)
Hydrometer PercentTotal	57
Hydrometer Tare ID	TARE1861
Hydrometer Tare Mass	111.63
Hydrometer WetSoilTare Mass	159.24
Hydrometer Water Content ID	SAMPLE WC
Hydrometer SpecificGravity	
Hydrometer WashDrySoilTare Mass	121

FINE Set #	Sieve FineSet Screen ID	Sieve FineSet Retained DrySoilTare
1	sieve003 (#4 Sieve)	111.71
2	SIEVE019 (#10 Sieve)	112.45
3	SIEVE076 (#20 Sieve)	113.37
4	SIEVE528 (#40 Sieve)	114.32
5	SIEVE559 (#60 Sieve)	115.54
6	SIEVE505 (#100 Sieve)	117.69
7	SIEVE587 (#200 Sieve)	120.77
8	SIEVE586 (Pan)	121

READING Set #	Elapsed Time	Hydrometer Reading	Temperature
1	2.17	14	24
2	4.98	12.5	24
3	15.18	10.5	24
4	30.23	9	24
5	61.22	8	24
6	120.88	7.5	23
7	240.5	7	22
8	969.97	6.5	20

Hydrometer Wet Soil =47.61 grams

Hydrometer Moisture Content =121.25%

Hydrometer Dry Soil =21.52 grams

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Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01165	Test Date: 08/19/09	Checked By:	jdt
Depth : ---	Test Id: 160303		
Test Comment:	---		
Sample Description:	Moist, very dark gray sandy silt		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)

ASTM D 422 - Combined Gradation Analysis(160303)	HEADER Data Values
Combined Sieve Supplemental TestID	61192
Combined Hydrometer Supplemental TestIO	61183

Sieve(61192)	HEADER Data Values
Sieve Method	STRAIGHT
Sieve Water Content ID	SAMPLE WC
Sieve TotalDrySoilTare Mass	124.37
Sieve Retained Tare ID	TARE1904
Sieve Retained Tare Mass	110.67
Sieve WashDrySoilTare Mass	116.2
Sieve Particle Shape	ANGULAR
Sieve Particle Hardness	HARD
Sieve Finer200	

Hydrometer(61183)	HEADER Data Values
Hydrometer ID	741543 (741543)
Hydrometer PercentTotal	60
Hydrometer Tare ID	TARE1904
Hydrometer Tare Mass	110.6
Hydrometer WetSoilTare Mass	147.11
Hydrometer Water Content ID	SAMPLE WC
Hydrometer SpecificGravity	
Hydrometer WashDrySoilTare Mass	116.2

FINE Set #	Sieve FineSet Screen ID	Sieve FineSet Retained DrySoilTare
1	SIEVE003 (#4 Sieve)	110.67
2	SIEVE019 (#10 Sieve)	111.33
3	SIEVE076 (#20 Sieve)	112.44
4	SIEVE528 (#40 Sieve)	113.12
5	SIEVE559 (#60 Sieve)	113.81
6	SIEVE505 (#100 Sieve)	114.83
7	SIEVE587 (#200 Sieve)	116.07
8	SIEVE586 (Pan)	116.2

READING Set #	Elapsed Time	Hydrometer Reading	Temperature
1	2.2	10.5	24
2	5.02	9	24
3	14.97	8	24
4	30.28	7.5	24
5	60.78	7	24
6	119.92	6.75	24
7	240.03	7	23
8	968.73	6.25	20

Hydrometer Wet Soil =36.51 grams

Hydrometer Moisture Content =165.28%

Hydrometer Dry Soil =13.76 grams

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Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01167	Test Date: 08/18/09	Checked By:	jdt
Depth : ---	Test Id: 160304		
Test Comment:	---		
Sample Description:	Moist, very dark gray silty sand		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)

ASTM D 422 - Combined Gradation Analysis(160304)	HEADER Data Values
Combined Sieve Supplemental TestID	61146
Combined Hydrometer Supplemental TestID	61197

Sieve(61146)	HEADER Data Values
Sieve Method	STRAIGHT
Sieve Water Content ID	SAMPLE WC
Sieve TotalDrySoilTare Mass	143.05
Sieve Retained Tare ID	TARE1739
Sieve Retained Tare Mass	110.9
Sieve WashDrySoilTare Mass	134.45
Sieve Particle Shape	ROUNDED
Sieve Particle Hardness	HARD
Sieve Finer200	

Hydrometer(61197)	HEADER Data Values
Hydrometer ID	741543 (741543)
Hydrometer PercentTotal	27
Hydrometer Tare ID	TARE1739
Hydrometer Tare Mass	110.86
Hydrometer WetSoilTare Mass	158.42
Hydrometer Water Content ID	SAMPLE WC
Hydrometer SpecificGravity	
Hydrometer WashDrySoilTare Mass	134.45

FINE Set #	Sieve FineSet Screen ID	Sieve FineSet Retained DrySoilTare
1	SIEVE003 (#4 Sieve)	110.9
2	SIEVE019 (#10 Sieve)	113.24
3	SIEVE076 (#20 Sieve)	115.47
4	SIEVE528 (#40 Sieve)	117.11
5	SIEVE559 (#60 Sieve)	119.85
6	SIEVE505 (#100 Sieve)	126.2
7	SIEVE587 (#200 Sieve)	133.65
8	SIEVE586 (Pan)	134.45

READING Set #	Elapsed Time	Hydrometer Reading	Temperature
1	1.98	10.5	23
2	5.37	9	23
3	15.08	8	23
4	30.05	7	23
5	60.58	6.5	23
6	120.62	6.25	22.5
7	242.97	6.25	21.5
8	960.2	6	20.5

Hydrometer Wet Soil =47.56 grams

Hydrometer Moisture Content =47.57%

Hydrometer Dry Soil =32.23 grams

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Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01169	Test Date: 08/19/09	Checked By:	jdt
Depth : ---	Test Id: 160305		
Test Comment:	---		
Sample Description:	Moist, very dark gray silty sand with gravel		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)

ASTM D 422 - Combined Gradation Analysis(160305)	HEADER Data Values
Combined Sieve Supplemental TestID	61194
Combined Hydrometer Supplemental TestID	61185

Sieve(61194)	HEADER Data Values
Sieve Method	STRAIGHT
Sieve Water Content ID	SAMPLE WC
Sieve TotalDrySoilTare Mass	135.73
Sieve Retained Tare ID	TARE1690
Sieve Retained Tare Mass	111.73
Sieve WashDrySoilTare Mass	131.3
Sieve Particle Shape	ROUNDED
Sieve Particle Hardness	HARD
Sieve Finer200	

FINE Set #	Sieve FineSet Screen ID	Sieve FineSet Retained DrySoilTare
1	SIEVE533 (0.75 in	111.73
2	SIEVE249 (0.5 in	116.77
3	SIEVE324 (0.375 in	117.44
4	SIEVE003 (#4 Sieve)	117.77
5	SIEVE019 (#10 Sieve)	118.56
6	sieve076 (#20 Sieve)	119.72
7	SIEVE528 (#40 Sieve)	120.94
8	SIEVE559 (#60 Sieve)	122.96
9	SIEVE505 (#100 Sieve)	126.89
10	SIEVE587 (#200 Sieve)	130.95
11	SIEVE586 (Pan)	131.3

Hydrometer(61185)	HEADER Data Values
Hydrometer ID	741543 (741543)
Hydrometer PercentTotal	18
Hydrometer Tare ID	TARE1690
Hydrometer Tare Mass	111.69
Hydrometer WetSoilTare Mass	152.33
Hydrometer Water Content ID	SAMPLE WC
Hydrometer SpecificGravity	
Hydrometer WashDrySoilTare Mass	131.3

READING Set #	Elapsed Time	Hydrometer Reading	Temperature
1	2.43	8	24
2	4.98	7.5	24
3	14.98	7	24
4	30.58	6.5	24
5	60	6	24
6	151.98	6	23.75
7	244.22	6	23.75
8	959.88	6	23

Hydrometer Wet Soil =40.64 grams
Hydrometer Moisture Content =77.39%
Hydrometer Dry Soil =22.91 grams

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Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01171	Test Date: 08/18/09	Checked By:	jdt
Depth : ---	Test Id: 160306		
Test Comment:	Less than 5% fines, hydrometer not performed.		
Sample Description:	Moist, dark yellowish brown sand		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)

ASTM D 422 - Combined Gradation Analysis(160306)	HEADER Data Values
Combined Sieve Supplemental TestID	61152
Combined Hydrometer Supplemental TestID	

Sieve(61152)	HEADER Data Values
Sieve Method	STRAIGHT
Sieve Water Content ID	SAMPLE WC
Sieve TotalDrySoilTare Mass	143.01
Sieve Retained Tare ID	EQUIP652
Sieve Retained Tare Mass	109.73
Sieve WashDrySoilTare Mass	142.2
Sieve Particle Shape	ROUNDED
Sieve Particle Hardness	HARD
Sieve Finer200	

Hydrometer(0)	HEADER Data Values
Sieve Method	
Sieve Water Content ID	
Hydrometer Tare ID	
Sieve Retained Tare ID	
Hydrometer WetSoilTare Mass	
Sieve WashDrySoilTare Mass	
Sieve Particle Shape	
Sieve Particle Hardness	

FINE Set #	Sieve FineSet Screen ID	Sieve FineSet Retained DrySoilTare
1	SIEVE324 (0.375 in	109.73
2	SIEVE003 (#4 Sieve)	111.69
3	SIEVE019 (#10 Sieve)	116.28
4	SIEVE076 (#20 Sieve)	128.3
5	SIEVE528 (#40 Sieve)	134.9
6	SIEVE559 (#60 Sieve)	139.34
7	sieve505 (#100 Sieve)	141.33
8	SIEVE587 (#200 Sieve)	142.16
9	SIEVE586 (Pan)	142.2

READING Set #	Elapsed Time	Hydrometer Reading	Temperature
1	2.43	8	24
2	4.98	7.5	24
3	14.98	7	24
4	30.58	6.5	24
5	60	6	24
6	151.98	6	23.75
7	244.22	6	23.75
8	959.88	6	23

Hydrometer Wet Soil =40.64 grams

Hydrometer Moisture Content =77.39%

Hydrometer Dry Soil =22.91 grams

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Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01173	Test Date: 08/18/09	Checked By:	jdt
Depth : ---	Test Id: 160307		
Test Comment:	---		
Sample Description:	Moist, yellowish brown silty sand		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)

ASTM D 422 - Combined Gradation Analysis(160307)	HEADER Data Values
Combined Sieve Supplemental TestID	61145
Combined Hydrometer Supplemental TestID	61187

Sieve(61145)	HEADER Data Values
Sieve Method	STRAIGHT
Sieve Water Content ID	SAMPLE WC
Sieve TotalDrySoilTare Mass	151.34
Sieve Retained Tare ID	TARE4418
Sieve Retained Tare Mass	113.11
Sieve WashDrySoilTare Mass	144.27
Sieve Particle Shape	---
Sieve Particle Hardness	---
Sieve Finer200	

Hydrometer(61187)	HEADER Data Values
Hydrometer ID	741543 (741543)
Hydrometer PercentTotal	18
Hydrometer Tare ID	TARE4418
Hydrometer Tare Mass	113.04
Hydrometer WetSoilTare Mass	165.46
Hydrometer Water Content ID	SAMPLE WC
Hydrometer SpecificGravity	
Hydrometer WashDrySoilTare Mass	144.27

FINE Set #	Sieve FineSet Screen ID	Sieve FineSet Retained DrySoilTare
1	SIEVE003 (#4 Sieve)	113.11
2	SIEVE019 (#10 Sieve)	113.82
3	SIEVE076 (#20 Sieve)	115.5
4	SIEVE528 (#40 Sieve)	117.28
5	SIEVE559 (#60 Sieve)	121.97
6	SIEVE505 (#100 Sieve)	132.7
7	SIEVE587 (#200 Sieve)	143.12
8	SIEVE586 (Pan)	144.27

READING Set #	Elapsed Time	Hydrometer Reading	Temperature
1	2.2	10	24
2	5.38	8.5	24
3	15.07	8	24
4	30.88	7.5	24
5	60.47	7	24
6	145.42	6.5	24
7	242.1	6.25	24
8	960.47	6.25	20

Hydrometer Wet Soil =52.42 grams

Hydrometer Moisture Content =36.79%

Hydrometer Dry Soil =38.32 grams

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Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01175	Test Date: 08/18/09	Checked By:	jdt
Depth : ---	Test Id: 160308		
Test Comment:	---		
Sample Description:	Moist, dark yellowish brown silty sand		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)

ASTM D 422 - Combined Gradation Analysis(160308)	HEADER Data Values
Combined Sieve Supplemental TestID	61142
Combined Hydrometer Supplemental TestID	61215

Sieve(61142)	HEADER Data Values
Sieve Method	STRAIGHT
Sieve Water Content ID	SAMPLE WC
Sieve TotalDrySoilTare Mass	144.85
Sieve Retained Tare ID	EQUIP69S
Sieve Retained Tare Mass	109.24
Sieve WashDrySoilTare Mass	139.6
Sieve Particle Shape	ANGULAR
Sieve Particle Hardness	HARD
Sieve Finer200	

Hydrometer(61215)	HEADER Data Values
Hydrometer ID	741543 (741543)
Hydrometer PercentTotal	15
Hydrometer Tare ID	EQUIP695
Hydrometer Tare Mass	109.18
Hydrometer WetSoilTare Mass	158.06 .
Hydrometer Water Content ID	SAMPLE WC
Hydrometer SpecificGravity	
Hydrometer WashDrySoilTare Mass	139.6

FINE Set #	Sieve FineSet Screen ID	Sieve FineSet Retained DrySoilTare
1	SIEVE324 (0.375 in	109.24
2	SIEVE003 (#4 Sieve)	111.9
3	SIEVE019 (#10 Sieve)	114
4	sieve076 (#20 Sieve)	117.71
5	SIEVE528 (#40 Sieve)	122.21
6	SIEVE559 (#60 Sieve)	126.58
7	SIEVE505 (#100 Sieve)	133.04
8	SIEVE587 (#200 Sieve)	139.04
9	SIEVE586 (Pan)	139.6

READING Set #	Elapsed Time	Hydrometer Reading	Temperature
1	1.88	10	20
2	5.05	9	20
3	15.18	8.5	20
4	30.6	8	20
5	59.9	7.25	20
6	120.28	7	20
7	240	7	21
8	1030	7	20

Hydrometer Wet Soil =48.88 grams

Hydrometer Moisture Content =37.03%

Hydrometer Dry Soil =35.67 grams

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Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: jar	Tested By:	jbr
Sample ID:D01177	Test Date: 08/18/09	Checked By:	jdt
Depth : ---	Test Id: 160309		
Test Comment:	---		
Sample Description:	Moist, dark yellowish brown silty sand		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)

ASTM D 422 - Combined Gradation Analysis(160309)	HEADER Data Values
Combined Sieve Supplemental TestID	61144
Combined Hydrometer Supplemental TestID	61204

Sieve(61144)	HEADER Data Values
Sieve Method	STRAIGHT
Sieve Water Content ID	SAMPLE WC
Sieve TotalDrySoilTare Mass	148.12
Sieve Retained Tare ID	TARE1604
Sieve Retained Tare Mass	116.69
Sieve WashDrySoilTare Mass	140.27
Sieve Particle Shape	ANGULAR
Sieve Particle Hardness	HARD
Sieve Finer200	

Hydrometer(61204)	HEADER Data Values
Hydrometer ID	741543 (741543)
Hydrometer PercentTotal	25
Hydrometer Tare ID	TARE1604
Hydrometer Tare Mass	116.64
Hydrometer WetSoilTare Mass	158.51
Hydrometer Water Content ID	SAMPLE WC
Hydrometer SpecificGravity	
Hydrometer WashDrySoilTare Mass	140.27

FINE Set #	Sieve FineSet Screen ID	Sieve FineSet Retained DrySoilTare
1	SIEVE324 (0.375 in	116.69
2	SIEVE003 (#4 Sieve)	119.74
3	SIEVE019 (#10 Sieve)	125.11
4	SIEVE076 (#20 Sieve)	129.37
5	SIEVE528 (#40 Sieve)	132.18
6	sieve559 (#60 Sieve)	134.92
7	SIEVE505 (#100 Sieve)	137.48
8	sieve587 (#200 Sieve)	140
9	SIEVE586 (Pan)	140.27

READING Set #	Elapsed Time	Hydrometer Reading	Temperature
1	2.13	12.5	20.5
2	5.2	11	20.5
3	15.27	9.5	20.5
4	30.77	9.25	20.5
5	60.02	9	20.5
6	119.85	8.5	20.5
7	239.87	8	21
8	1418.55	6.25	20

Hydrometer Wet Soil =41.87 grams

Hydrometer Moisture Content =32.93%

Hydrometer Dry Soil =31.50 grams

(94) 8/6/09 Thursday

0725-Onsite-A.F., L.K., J.F., J.S. + M.W.
Weather-62° Partly sunny. Forecast is for 70s and cloudy. Chance of rain in the P.M.

Objectives-(1) Continue SW sampling
(2) Start Sediment sampling
(3) Complete Slug tests
(4) ~~AF~~ Start GPS @ locations.

Arrive @ site. Start getting setup for day. Setup tent, table, chairs.
F.W. J.S goes w/ J.F. to get 10-gal of water for slug tests.
0755 J.F. heads up to MW-19 area and MW-18A for final tests.
0800 Calibrate YSI 5299-I.D. Model 6920. mm Hg = 731.6

Cal Std	Temp	Init	Cal to
100%DO	16.27	92.8	96.2
SCon 1.413 mS/cm	16.79	1.396	1.413
ORP 240	15.20	243.9	240.0
pH 7	17.04	7.02	7.00
pH 4	17.35	3.96	4.00
pH 10	16.98	9.97	10.00

0825 Done YSI calibration.

(AF)

8/6/09 Thursday (95)

Yesterday @ some point during the day. the D.O. membrane came off of the YSI probe. All D.O. data from S.W. locations collected yesterday will be qualified.
0830 M.W. and J.S. up to upper waste piles to collect SW-79.
0900-Estimate needing 30 new locks for existing site monitor wells. Head and collect SD-66
1000-J.F. done w/ MW-18A and MW-19S head up hill to get him. J.F. back to MW-17A
1100 Start SD-65. J.F. back to MW-21 area
1115 Sed core SD-65 done. Bring back to convex area to ~~an~~ log and collect sample
1220-J.F. can't cut locks on existing MWs. Need bigger cutters / sledge.
Heads to town w/ list for depot-staples (tapes, labels) and hip boots.
Talk to A.B. Says he needs info from J.F. and that sed cores are not needed if difficult to use. I let him know we should be able to finish SW/SED this week.
Boyd Allen 978-703-6006 Have J.F. call him if A.B. can't get a hold of him by the time he returns.

(AF)

(96) 8/6/09 Thursday.

1400 - Head up w/ MW. and JS. to sample sediments. Show them location SD-67 and show them the method.

1445 - J.F. Back onsite. Starts cutting locks and doing water levels. Says he talked to A.B.

1600 MW. + JS. back from sed sampling near the beaver ponds.

1615 JS. + MW. to stage for ice

1625 Back w/ ice. Pack up all samples for samples

1705 Site locked up and offsite for days

AF

8/7/09 Friday

97

0700 - Onsite - A. Fuller. L. Kummer

Weather - 50° sunny. Forecast of 70° w/ sunny

Objectives
1. Complete SW sampling
2. Complete SED sampling
3. Complete Water level round
4. Collect GPS measurements @ all SW/SED locations.

Arrive @ site. Need to call Gail and ask if SW samples need to be shipped today. Also, need to change sample I.D. for SW-35 to SW-36.

0745 - J.F., J.S. + M.W. onsite.

0730 - J.F. starts w/ water level round. J.S. and M.W. get set up for sediment sampling. Will start w/ SD-58 and work upwards.

L.K sets up staging area + sample management area.

A.F. sets up GPS to collect readings @ SW/SED locations

0855 - SD-62 is actually 20 ft upstream from where GPS location was logged due to tree cover.

0913 Poor accuracy @ SD-64 due to tree cover.

AF

0955 Collect location SW-76 w/ GPS
Seep is dry today.
1015 Back down to Connex. Message from N.B regarding SW-35/36 mixup. Location is actually SW-36.
Call Greil and let her know EIP #s MA2X80 and MA2X81 and DAS # D01122, D01123, and D01124 all need to be changed from SW35 to SW 36.
1100 Head up to collect points around ponds. SD-70 and SD-69 were incorrectly sampled yesterday. SD69 yesterday was actually SD 70. SD 70 was in the wrong location. Relabel SD-69 as SD-70 and collect correct SD-69.
1200 Cannot collect coordinates for SW-84 Satelite PDOP is to high. Will try later this afternoon. MW+JS to collect final SWs
1230 - Locate MW-15A. well is flush mount and one ring. Collect DTW (0.13 ft btoc) and place stake in ground to mark out.
1245 Locate MW-16A - DTW = 3.62.
Cut lock and chain lock w/ zip tie.
1300 Head up to check out ~~BOM~~ BOM-3

AB

DTB @ BOM 3 = 9.1 ft btoc. Well bent over & flooded
1330 Head to Vershire town offices. Only open T, W, + R: 9:30 to 4:00.
1400 Start packing up for day/week.
1410 Collect coordinates @ SW-84. Actual point is 20 ft east of coordinates too much tree cover to get precise location.
1445 Site + Connex locked up. Off site.

AB

A separate Form should be completed for each sampling event. Refer to Attachment A for instructions on completing this form, Attachment B for a complete list of the parameter codes and Attachment C for an example of a completed form.

1.EPA Program: TSCA CERCLA RCRA DW NPDES CAA
Other: CERCLA
Projected Date(s) of Sampling July 2009-December 2009
EPA Site Manager Ed Hathaway
EPA Case Team Members
Christine Clark

Site Name Ely Copper Mine
Site Location Vershire, Vermont
Assigned Site Latitude/Longitude 72°55'36.42" N / 72°18'07.55" W
CERCLA Site/Spill Identifier No. 01H3/OU2 (Include Operable Unit)
Phase: ERA SA/SI pre-RI RI (phase I, etc.) FS RD RA post-RA
(circle one) Other: FS

2.QAPP Title and Revision Date Quality Assurance Project Plan, Ely Copper Mine
Revsion 0, May 2009
Approved by: TBD Date of Approval: TBD
Title of Approving Official: Organization*: EPA
*If other than EPA, record date approval authority was delegated:

EPA Oversight Project (circle one) Y N
Confirmatory Analysis for Field Screening Y N
Are comparability criteria documented? Y N

Type of EPA Oversight (circle one) PRP or FF Other:
If EPA Oversight or Confirmatory: % splits

3.									
a.	Matrix Code[1]	GW	Soil/SD/TP	Biota	GW/DW/SW	GW/DW/SW	Soil/SD/TP	Soil/SD	
b.	Parameter Code[2]	SOM01.2	ILM05.4	ILM05.4	General Chem. Param.	ILM05.4	General Soil Param	Physical Tests	
c.	Preservation Code[3]	1,5	5	5	4,5	2,5,6	5		
d.	Analytical Services Mechanism	RAS	RAS	DAS	DAS	RAS	DAS	DAS	
e.	No. of Sample Locations	6	58	TBD	76-195	168	82	17 ~~TBD~~	
	Field QC:								
f.	Field Duplicate Pairs	1/20	1/20	1/20	1/20	1/20	1/20	1/20	
g.	Equipment Blanks		1/20				1/20 (TOC and SPLP)		
h.	VOA Trip Blanks	1/cooler							
i.	Cooler Temperature Blanks	1/cooler	1/cooler	1/cooler	1/cooler	1/cooler	1/cooler		
j.	Bottle Blanks	0	0	0	0	0	0	0	
k.	Other:								
l.	PES sent to Laboratory	1/20	1/20			1/20			
	Laboratory QC:								
m.	Reagent Blank	1/SDG	1/SDG	1/SDG	1/SDG	1/SDG	1/SDG		
n.	Duplicate		1/SDG	1/SDG	1/SDG	1/SDG	1/SDG		
o.	Matrix Spike	1/SDG	1/SDG	1/SDG	1/SDG	1/SDG	1/SDG (TOC/ SPLP)		
p.	Matrix Spike Duplicate	1/SDG			1/SDG		1/SDG (TOC/ SPLP)		
q.	Other: LCS		1/SDG	1/SDG	1/SDG	1/SDG	1/SDG		

4.Site Information
Site Dimensions_____33.4 acres_____
List all potentially contaminated matrices_____GW , AR_____
Range of Depth to Groundwater___Unknown _____
Soil Types: Surface Subsurface Other:_____surface, subsurface, test pits_____
Sediment Types: Stream Pond Estuary Wetland Other:_____ Expected Soil/Sediment Moisture Content: High Low - LOW

When multiple matrices will be sampled during a sampling event, complete Sections 5-10 for each matrix.

Matrix Code[1]___GW, SW, DW, SD, SO_____

5. Data Use (circle all that apply) Site Investigation/Assessment PRP Determination Removal Actions
Nature and Extent of Contamination **Human and/or Ecological Risk Assessment** Remediation Alternatives
Engineering Design Remedial Action
Post-Remedial Action (quarterly monitoring) Other:_____

6.Summarize DQOs:___ to estimate the nature and extent of Site contamination, estimate the biological impacts resulting from source area contamination, and to refine the conceptual site model.

Complete Table if applicable

COCs	Action Levels		Analytical Method-Quantitation Limits	
See Tables 6-2 through 6-12 in QAPP				

7.Sampling Method (circle technique)Bailer **Low flow pump** (Region I method: **Yes** No) Peristaltic Pump
Positive Displacement Pump Faucet or Spigot Other:___Biota Sampling_____
Split Spoon Dredge Trowel Other:_____

Sampling Procedures (SOP name, No., Rev. #, and date)_____SA-003, Low Flow/Low Stress GW Sampling, Rev 1, Jan. 2009, See Table 9-1 in QAPP_____
List Background Sample Locations_____See Table 8-1 in QAPP_____
Circle: **Grab** or Composite
"Hot spots" sampled: **Yes** No

8.Field Data (circle) **ORP** **pH** **Specific Conductance** **Dissolved O_2** **Temperature** **Turbidity**

Other:_____XRF screening data for metals_____

9.Analytical Methods and Parameters

Method title/SOP name	Method/SOP Identification number	Revision Date	Target Parameters (VOA, SV, Pest/PCB, Metals, etc.)
SOM01.2	SOM01.2	April 2007	VOA, SV. Pest/PCB
ILM05.4	ILM05.4	December 2006	Metals (ICP-AES, ICP-MS, Hg)
SW846 1312 SPLP Metals	SW-846 1312/6010C/7470A	February 2007	SPLP Metals
Nitrate/nitrite	MCAWW 353.2	MCAWW, 1982	NO3/NO2
Total Organic Carbon	SW-846 9060	February 2007	TOC

	Anions by IC	300.0	MCAWW, 1982	Chloride, sulfate
	Titrimetric Procedure for Sulfides	9030/9034	SW-846, 2007	Sulfide
	Alkalinity by Titration	SM 2320B	SM, 1992	Alkalinity
	Acidity	SM2310B	SM, 1992	Acidity
	See QAPP Table 12-1 for remaining methods.			

10.Validation Criteria (circle one)1. Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, **Part II, III or IV**
2. Other Approved Validation Criteria:_____
Validation Tier (circle one) I **II** **III** Partial Tier III: _____Tier I for general chemistry parameters._____
Company/Organization Performing Data Validation_____Nobis Engineering, Inc._____**Prime** or Subcontractor (circle one)

11.Company Name_____Nobis Engineering, Inc._____Contract Number____EP-S1-06-03_____
Contract Name (e.g. START, RACS, etc.)____RAC2_____Work Assignment No.__0024-RI-CO-017L_____
Person Completing Form/Title____Gail DeRuzzo/Lead Chemist_____Date of DQO Summary Form Completion__5/15/09_____

Matrix Codes[1] - Refer to Attachment B, Part I
Parameter Codes[2] - Refer to Attachment B, Part II

Preservation Codes[3]

1.HCl to pH ≤ 2
2.HNO_3
3.$NaHSO_4$
4.H_2SO_4
5.Cool @ 4°C (± 2°)
6.NaOH
7.$K_2Cr_2O_7$
8.Freeze
9.Room Temperature (avoid excessive heat)
10.Other (Specify)
N.Not preserved

* - To supplement Matrix Codes and/or Parameter Codes contact the QA Unit

DATA SUMMARY TABLE
Tier II Validated Data
Percent Lipids Analysis
%

SITE: Ely Copper Mine -
Vershire, VT
CASE NO. 0035S

Sample Name		D01484		D01485		D01486		D01487		D01488		D01489	
Sample Location		MA-01		MA-01		MA-01		MA-01		MA-01		MA-01	
Lab Sample ID		18986-001		18986-002		18986-003		18986-004		18986-005		18986-006	
Station ID		MA-01X-091509AX		MA-01X-091509BX		MA-01X-091509CX		MA-01X-091509DX		MA-01X-091509EX		MA-01X-091509FX	
Sample Date		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09	
Date Analyzed		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09	
Units		%		%		%		%		%		%	
Chemical	CRQL												
% Lipids	0.08	4.31		3.27		5.31		5.29		5.07		3.63	

Bligh-Dyer Method

DATA SUMMARY TABLE
Tier II Validated Data
Percent Lipids Analysis
%

SITE: Ely Copper Mine -
Vershire, VT
CASE NO. 0035S

Sample Name		D01490		D01491		D01492		D01493		D01494		D01495	
Sample Location		MA-01		MA-01		MA-01		MA-02		MA-02		MA-02	
Lab Sample ID		18986-007		18986-008		18986-009		18986-010		18986-011		18986-012	
Station ID		MA-01X-091509GX		MA-01X-091509HX		MA-01X-091509JX		MA-02X-091509AX		MA-02X-091509BX		MA-02X-091509CX	
Sample Date		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09	
Date Analyzed		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09	
Units		%		%		%		%		%		%	
Chemical	CRQL												
% Lipids	0.08	3.13		4.68		4.83		4.35		17.4		3.14	

Bligh-Dyer Method

DATA SUMMARY TABLE
Tier II Validated Data
Percent Lipids Analysis
%

SITE: Ely Copper Mine -
Vershire, VT
CASE NO. 0035S

Sample Name		D01496		D01497		D01498		D01499		D01500		D01501	
Sample Location		MA-02		MA-02		MA-02		MA-02		MA-02		MA-02	
Lab Sample ID		18986-013		18986-014		18986-015		18986-016		18986-017		18986-018	
Station ID		MA-02X-091509DX		MA-02X-091509EX		MA-02X-091509FX		MA-02X-091509GX		MA-02X-091509HX		MA-02X-091509JX	
Sample Date		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09	
Date Analyzed		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09	
Units		%		%		%		%		%		%	
Chemical	CRQL												
% Lipids	0.08	3.78		3.97		4.77		3.26		4.15		7.6	

Bligh-Dyer Method

DATA SUMMARY TABLE
Tier II Validated Data
Percent Lipids Analysis
%

SITE: Ely Copper Mine -
Vershire, VT
CASE NO. 0035S

Sample Name		D01502		D01503		D01504		D01505		D01506		D01507	
Sample Location		MA-02		MA-02		MA-03		MA-03		MA-03		MA-03	
Lab Sample ID		18986-019		18986-020		18986-021		18986-022		18986-023		18986-024	
Station ID		MA-02X-091509KX		MA-02X-091509KD		MA-03X-091509AX		MA-03X-091509BX		MA-03X-091509CX		MA-03X-091509DX	
Sample Date		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		16 Sep 09	
Date Analyzed		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09	
Units		%		%		%		%		%		%	
Chemical	CRQL												
% Lipids	0.08	11.7		7.82		6.83		6.93		4.85		3.22	

Bligh-Dyer Method

DATA SUMMARY TABLE
Tier II Validated Data
Percent Lipids Analysis
%

SITE: Ely Copper Mine -
Vershire, VT
CASE NO. 0035S

Sample Name		D01508		D01509		D01510		D01511		D01512		D01513	
Sample Location		MA-03		MA-03		MA-03		MA-03		MA-03		MA-03	
Lab Sample ID		18986-025		18986-026		18986-027		18986-028		18986-029		18986-030	
Station ID		MA-03X-091509EX		MA-03X-091509FX		MA-03X-091509GX		MA-03X-091509HX		MA-03X-091509JX		MA-03X-091509KX	
Sample Date		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09	
Date Analyzed		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09	
Units		%		%		%		%		%		%	
Chemical	CRQL												
% Lipids	0.08	5.07		7.26		7.34		5.14		4.75		5.13	

Bligh-Dyer Method

DATA SUMMARY TABLE
Tier II Validated Data
Percent Lipids Analysis
%

SITE: Ely Copper Mine -
Vershire, VT
CASE NO. 0035S

Sample Name		D01514		D01515		D01516		D01517		D01518		D01519	
Sample Location		MA-REF		MA-REF		MA-REF		MA-REF		MA-REF		MA-REF	
Lab Sample ID		18986-031		18986-032		18986-033		18986-034		18986-035		18986-036	
Station ID		MA-REF-091509AX		MA-REF-091509BX		MA-REF-091509CX		MA-REF-091509CD		MA-REF-091509DX		MA-REF-091509EX	
Sample Date		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09	
Date Analyzed		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09	
Units		%		%		%		%		%		%	
Chemical	CRQL												
% Lipids	0.08	3.95		4.62		3.59		5.18		18.1		5.06	

Bligh-Dyer Method

DATA SUMMARY TABLE
Tier II Validated Data
Percent Lipids Analysis
%

SITE: Ely Copper Mine -
Vershire, VT
CASE NO. 0035S

Sample Name		D01520		D01521		D01522		D01523		D01524		D01525	
Sample Location		MA-REF		MA-REF		MA-REF		MA-REF		MA-REF		MA-01	
Lab Sample ID		18986-037		18986-038		18986-039		18986-040		18986-041		18986-042	
Station ID		MA-REF-091509FX		MA-REF-091509GX		MA-REF-091509HX		MA-REF-091509JX		MA-REF-091609KX		MA-01X-091509KX	
Sample Date		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09	
Date Analyzed		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09	
Units		%		%		%		%		%		%	
Chemical	CRQL												
% Lipids	0.08	3.37		11.7		4.37		6.52		4.79		3.6	

Bligh-Dyer Method

DATA SUMMARY TABLE
Tier II Validated Data
Percent Moisture Analysis
%

SITE: Ely Copper Mine -
Vershire, VT
CASE NO. 0035S

Sample Name		D01484		D01485		D01486		D01487		D01488		D01489	
Sample Location		MA-01		MA-01		MA-01		MA-01		MA-01		MA-01	
Lab Sample ID		18986-001		18986-002		18986-003		18986-004		18986-005		18986-006	
Station ID		MA-01X-091509AX		MA-01X-091509BX		MA-01X-091509CX		MA-01X-091509DX		MA-01X-091509EX		MA-01X-091509FX	
Sample Date		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09	
Date Analyzed		09 Oct 09		09 Oct 09		09 Oct 09		09 Oct 09		09 Oct 09		09 Oct 09	
Units		%		%		%		%		%		%	
Chemical	CRQL												
Percent Moisture	0.1	74.4		71.4		71.3		74.3		72.9		72.5	

SM 2540B Method

DATA SUMMARY TABLE
Tier II Validated Data
Percent Moisture Analysis
%

SITE: Ely Copper Mine -
Vershire, VT
CASE NO. 0035S

Sample Name		D01490		D01491		D01492		D01493		D01494		D01495	
Sample Location		MA-01		MA-01		MA-01		MA-02		MA-02		MA-02	
Lab Sample ID		18986-007		18986-008		18986-009		18986-010		18986-011		18986-012	
Station ID		MA-01X-091509GX		MA-01X-091509HX		MA-01X-091509JX		MA-02X-091509AX		MA-02X-091509BX		MA-02X-091509CX	
Sample Date		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09	
Date Analyzed		09 Oct 09		09 Oct 09		09 Oct 09		09 Oct 09		09 Oct 09		09 Oct 09	
Units		%		%		%		%		%		%	
Chemical	CRQL												
Percent Moisture	0.1	75.3		72		72.3		74.5		60.7		76	

SM 2540B Method

DATA SUMMARY TABLE
Tier II Validated Data
Percent Moisture Analysis
%

SITE: Ely Copper Mine -
Vershire, VT
CASE NO. 0035S

Sample Name		D01496		D01497		D01498		D01499		D01500		D01501	
Sample Location		MA-02		MA-02		MA-02		MA-02		MA-02		MA-02	
Lab Sample ID		18986-013		18986-014		18986-015		18986-016		18986-017		18986-018	
Station ID		MA-02X-091509DX		MA-02X-091509EX		MA-02X-091509FX		MA-02X-091509GX		MA-02X-091509HX		MA-02X-091509JX	
Sample Date		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09	
Date Analyzed		09 Oct 09		09 Oct 09		09 Oct 09		09 Oct 09		09 Oct 09		09 Oct 09	
Units		%		%		%		%		%		%	
Chemical	CRQL												
Percent Moisture	0.1	74.9		72.8		71.7		72.8		73.4		70.6	

SM 2540B Method

DATA SUMMARY TABLE
Tier II Validated Data
Percent Moisture Analysis
%

SITE: Ely Copper Mine -
Vershire, VT
CASE NO. 0035S

Sample Name		D01502		D01503		D01504		D01505		D01506		D01507	
Sample Location		MA-02		MA-02		MA-03		MA-03		MA-03		MA-03	
Lab Sample ID		18986-019		18986-020		18986-021		18986-022		18986-023		18986-024	
Station ID		MA-02X-091509KX		MA-02X-091509KD		MA-03X-091509AX		MA-03X-091509BX		MA-03X-091509CX		MA-03X-091509DX	
Sample Date		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		16 Sep 09	
Date Analyzed		09 Oct 09		09 Oct 09		09 Oct 09		09 Oct 09		09 Oct 09		09 Oct 09	
Units		%		%		%		%		%		%	
Chemical	CRQL												
Percent Moisture	0.1	67.3		67.3		70.2		70.5		71.9		72.1	

SM 2540B Method

DATA SUMMARY TABLE
Tier II Validated Data
Percent Moisture Analysis
%

SITE: Ely Copper Mine -
Vershire, VT
CASE NO. 0035S

Sample Name		D01508		D01509		D01510		D01511		D01512		D01513	
Sample Location		MA-03		MA-03		MA-03		MA-03		MA-03		MA-03	
Lab Sample ID		18986-025		18986-026		18986-027		18986-028		18986-029		18986-030	
Station ID		MA-03X-091509EX		MA-03X-091509FX		MA-03X-091509GX		MA-03X-091509HX		MA-03X-091509JX		MA-03X-091509KX	
Sample Date		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09	
Date Analyzed		09 Oct 09		09 Oct 09		09 Oct 09		09 Oct 09		09 Oct 09		09 Oct 09	
Units		%		%		%		%		%		%	
Chemical	CRQL												
Percent Moisture	0.1	65.7		69.9		69.5		72.7		72.2		71.5	

SM 2540B Method

DATA SUMMARY TABLE
Tier II Validated Data
Percent Moisture Analysis
%

SITE: Ely Copper Mine -
Vershire, VT
CASE NO. 0035S

Sample Name		D01514		D01515		D01516		D01517		D01518		D01519	
Sample Location		MA-REF		MA-REF		MA-REF		MA-REF		MA-REF		MA-REF	
Lab Sample ID		18986-031		18986-032		18986-033		18986-034		18986-035		18986-036	
Station ID		MA-REF-091509AX		MA-REF-091509BX		MA-REF-091509CX		MA-REF-091509CD		MA-REF-091509DX		MA-REF-091509EX	
Sample Date		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09	
Date Analyzed		09 Oct 09		09 Oct 09		09 Oct 09		09 Oct 09		09 Oct 09		09 Oct 09	
Units		%		%		%		%		%		%	
Chemical	CRQL												
Percent Moisture	0.1	73.1		74.4		72.2		72.2		62.3		72.3	

SM 2540B Method

DATA SUMMARY TABLE
Tier II Validated Data
Percent Moisture Analysis
%

SITE: Ely Copper Mine -
Vershire, VT
CASE NO. 0035S

Sample Name		D01520		D01521		D01522		D01523		D01524		D01525	
Sample Location		MA-REF		MA-REF		MA-REF		MA-REF		MA-REF		MA-01	
Lab Sample ID		18986-037		18986-038		18986-039		18986-040		18986-041		18986-042	
Station ID		MA-REF-091509FX		MA-REF-091509GX		MA-REF-091509HX		MA-REF-091509JX		MA-REF-091609KX		MA-01X-091509KX	
Sample Date		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09	
Date Analyzed		09 Oct 09		09 Oct 09		09 Oct 09		09 Oct 09		09 Oct 09		09 Oct 09	
Units		%		%		%		%		%		%	
Chemical	CRQL												
Percent Moisture	0.1	74.4		64.8		72.9		71.1		72.1		73.9	

SM 2540B Method

DATA SUMMARY TABLE
Tier II Validated Data
Percent Moisture Analysis
%

SITE: Ely Copper Mine -
Vershire, VT
CASE NO. 0035S

Sample Name		D01529		D01530		D01531		D01532		D01533	
Sample Location		IV-01		IV-01		IV-REF		IV-REF		IV-03	
Lab Sample ID		18986-043		18986-044		18986-045		18986-046		18986-047	
Station ID		IV-01X-091609AX		IV-01X-091709AX		IV-REF-091609AX		IV-REF-091609BX		IV-03X-091609AX	
Sample Date		16 Sep 09		17 Sep 09		16 Sep 09		16 Sep 09		16 Sep 09	
Date Analyzed		09 Oct 09		09 Oct 09		09 Oct 09		09 Oct 09		09 Oct 09	
Units		%		%		%		%		%	
Chemical	CRQL										
Percent Moisture	0.1	71.8		69.9		67.5		69.3		70.1	

SM 2540B Method

DATA SUMMARY TABLE
Tier II Validated Data
Percent Moisture Analysis
%

SITE: Ely Copper Mine -
Vershire, VT
CASE NO. 0035S

Sample Name		D01538		D01544	
Sample Location		IV-02		IV-03	
Lab Sample ID		18986-049		18986-048	
Station ID		IV-02X-091709AX		IV-03X-091609BX	
Sample Date		17 Sep 09		16 Sep 09	
Date Analyzed		09 Oct 09		09 Oct 09	
Units		%		%	
Chemical	CRQL				
Percent Moisture	0.1	72.9		70.1	

SM 2540B Method

DATA SUMMARY TABLE
Tier II Validated Data
Metals Analysis
Solid - mg/Kg Wet Weight

SITE: Ely Copper Mine -
Vershire, VT

CASE NO. 0035S

Sample Name		D01484		D01485		D01486		D01487		D01488		D01489		D01490	
Sample Location		MA-01		MA-01		MA-01		MA-01		MA-01		MA-01		MA-01	
Lab Sample ID		18986-001		18986-002		18986-003		18986-004		18986-005		18986-006		18986-007	
Station ID		MA-01X-091509AX		MA-01X-091509BX		MA-01X-091509CX		MA-01X-091509DX		MA-01X-091509EX		MA-01X-091509FX		MA-01X-091509GX	
Sample Date		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09	
Date Analyzed		05 Oct 09		05 Oct 09		05 Oct 09		05 Oct 09		05 Oct 09		05 Oct 09		05 Oct 09	
Date Fe Analyzed		02 Oct 09		02 Oct 09		02 Oct 09		02 Oct 09		02 Oct 09		02 Oct 09		05 Oct 09	
Date Ag Analyzed		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09	
Date Hg Analyzed		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09	
Units		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Chemical	CRQL														
ALUMINUM	20	20	U	20	U	28		20	U	77		20	U	20	U
ANTIMONY	6	6	UJ	6	UJ	6	UJ	6	UJ	6	UJ	6	UJ	6	UJ
ARSENIC	1	1	U	1	U	1	U	1	U	1.2		1.2		1.2	
BARIUM	20	20	U	20	U	20	U	20	U	20	U	20	U	20	U
BERYLLIUM	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CADMIUM	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CALCIUM	250	9200		8100		7000		9000		7200		12000		9800	
CHROMIUM	1	1	U	1	U	1	U	1	U	1	U	1	U	1	U
COBALT	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
COPPER	2.5	4.6		4		12		3.5		6.8		3.2		4	
IRON	10	83	J	130	J	640	J	97	J	190	J	55	J	130	J
LEAD	1	1	U	1	U	1	U	1	U	1	U	1	U	1	U
MAGNESIUM	250	390	J	340	J	360	J	340	J	370	J	430	J	360	J
MANGANESE	1.5	12	J	4.6	J	3.9	J	4.3	J	9.6	J	9.8	J	1.5	UJ
*MERCURY	0.02	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
NICKEL	4	4	U	4	U	4	U	4	U	4	U	4	U	4	U
POTASSIUM	250	3300		2800		2800		2900		2800		3300		3100	
SELENIUM	3.5	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U
SILVER	1	1	UJ	1	UJ	1	UJ	1	UJ	1	UJ	1	UJ	1	UJ
SODIUM	250	1500		1300		1300		1300		1400		1500		1600	
THALLIUM	2.5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
VANADIUM	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
ZINC	6	28		31		26		27		33		38		32	

* EPA Method 245.7 Used For Mercury Results.
All other metals by EPA Method SW6020.

DATA SUMMARY TABLE
Tier II Validated Data
Metals Analysis
Solid - mg/Kg Wet Weight

SITE: Ely Copper Mine -
Vershire, VT

CASE NO. 0035S

Sample Name		D01491		D01492		D01493		D01494		D01495		D01496		D01497	
Sample Location		MA-01		MA-01		MA-02		MA-02		MA-02		MA-02		MA-02	
Lab Sample ID		18986-008		18986-009		18986-010		18986-011		18986-012		18986-013		18986-014	
Station ID		MA-01X-091509HX		MA-01X-091509JX		MA-02X-091509AX		MA-02X-091509BX		MA-02X-091509CX		MA-02X-091509DX		MA-02X-091509EX	
Sample Date		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09	
Date Analyzed		05 Oct 09		10 Oct 09		05 Oct 09		05 Oct 09		05 Oct 09		05 Oct 09		05 Oct 09	
Date Fe Analyzed		02 Oct 09		10 Oct 09		02 Oct 09		02 Oct 09		02 Oct 09		02 Oct 09		02 Oct 09	
Date Ag Analyzed		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09	
Date Hg Analyzed		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09	
Units		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Chemical	CRQL														
ALUMINUM	20	20	U	20	U	20	U	20	U	20	U	20	U	20	U
ANTIMONY	6	6	UJ	6	UJ	6	UJ	6	UJ	6	UJ	6	UJ	6	UJ
ARSENIC	1	1	U	1	U	1.1		1.6		1.2		1	U	1	U
BARIUM	20	20	U	20	U	20	U	20	U	20	U	20	U	20	U
BERYLLIUM	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CADMIUM	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CALCIUM	250	9500		10000		7700		8000		5400		5600		8100	
CHROMIUM	1	1	U	1	U	1	U	1	U	1	U	1.4		1	U
COBALT	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
COPPER	2.5	3.8		5.5		7.7		4		3.3		4.3		3.3	
IRON	10	87	J	82	J	110	J	83	J	59	J	88	J	58	J
LEAD	1	1	U	1	U	1	U	1	U	1	U	1	U	1	U
MAGNESIUM	250	380	J	410	J	310	J	330	J	280	J	310	J	350	J
MANGANESE	1.5	4.4	J	8.2	J	5	J	11	J	10	J	5	J	4.8	J
*MERCURY	0.02	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
NICKEL	4	4	U	4	U	4	U	4	U	4	U	4	U	4	U
POTASSIUM	250	2800		3400		2700		2500		2800		2900		2800	
SELENIUM	3.5	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U
SILVER	1	1	UJ	1	UJ	1	UJ	1	UJ	1	UJ	1	UJ	1	UJ
SODIUM	250	1400		1400		1300		1000		1300		1300		1300	
THALLIUM	2.5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
VANADIUM	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
ZINC	6	29		37		26		29		27		28		30	

* EPA Method 245.7 Used For Mercury Results.
All other metals by EPA Method SW6020.

DATA SUMMARY TABLE
Tier II Validated Data
Metals Analysis
Solid - mg/Kg Wet Weight

SITE: Ely Copper Mine -
Vershire, VT

CASE NO. 0035S

Sample Name		D01498		D01499		D01500		D01501		D01502		D01503		D01504	
Sample Location		MA-02		MA-02		MA-02		MA-02		MA-02		MA-02		MA-03	
Lab Sample ID		18986-015		18986-016		18986-017		18986-018		18986-019		18986-020		18986-021	
Station ID		MA-02X-091509FX		MA-02X-091509GX		MA-02X-091509HX		MA-02X-091509JX		MA-02X-091509KX		MA-02X-091509KD		MA-03X-091509AX	
Sample Date		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09	
Date Analyzed		05 Oct 09		05 Oct 09		05 Oct 09		05 Oct 09		05 Oct 09		05 Oct 09		05 Oct 09	
Date Fe Analyzed		02 Oct 09		02 Oct 09		02 Oct 09		02 Oct 09		02 Oct 09		02 Oct 09		05 Oct 09	
Date Ag Analyzed		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09	
Date Hg Analyzed		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09	
Units		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Chemical	CRQL														
ALUMINUM	20	20	U	20	U	20	U	37		20	U	24		20	U
ANTIMONY	6	6	UJ	6	UJ	6	UJ	6	UJ	6	UJ	6	UJ	6	UJ
ARSENIC	1	1	U	1		1	U	1	U	1	U	1		1	U
BARIUM	20	20	U	20	U	20	U	20	U	20	U	20	U	20	U
BERYLLIUM	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CADMIUM	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CALCIUM	250	5300		9400		5200		7700		6300		8700		8800	
CHROMIUM	1	1	U	1		1	U	1	U	3.7		1	U	1	U
COBALT	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
COPPER	2.5	4.9		7.8		3.9		4.4		4.6		5.6		5.3	
IRON	10	80	J	140	J	65	J	120	J	97	J	83	J	96	J
LEAD	1	1	U	1	U	1	U	1	U	1	U	1	U	1	U
MAGNESIUM	250	290	J	490	J	290	J	350	J	270	J	370	J	350	J
MANGANESE	1.5	5	J	11	J	4.2	J	9.4	J	3.9	J	9.5	J	7.4	J
*MERCURY	0.02	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
NICKEL	4	4	U	4	U	4	U	4	U	4	U	4	U	4	U
POTASSIUM	250	2600		3200		2800		2500		2000		2500		2900	
SELENIUM	3.5	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U
SILVER	1	1	UJ	1	UJ	1	UJ	1	UJ	1	UJ	1	UJ	1	UJ
SODIUM	250	1200		1500		1100		1000		1100		1100		1400	
THALLIUM	2.5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
VANADIUM	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
ZINC	6	28		37		28		35		28		32		31	

* EPA Method 245.7 Used For Mercury Results.
All other metals by EPA Method SW6020.

DATA SUMMARY TABLE
Tier II Validated Data
Metals Analysis
Solid - mg/Kg Wet Weight

SITE: Ely Copper Mine -
Vershire, VT

CASE NO. 0035S

Sample Name		D01505		D01506		D01507		D01508		D01509		D01510		D01511	
Sample Location		MA-03		MA-03		MA-03		MA-03		MA-03		MA-03		MA-03	
Lab Sample ID		18986-022		18986-023		18986-024		18986-025		18986-026		18986-027		18986-028	
Station ID		MA-03X-091509BX		MA-03X-091509CX		MA-03X-091509DX		MA-03X-091509EX		MA-03X-091509FX		MA-03X-091509GX		MA-03X-091509HX	
Sample Date		15 Sep 09		15 Sep 09		16 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09	
Date Analyzed		05 Oct 09		05 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09	
Date Fe Analyzed		05 Oct 09		05 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09	
Date Ag Analyzed		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09	
Date Hg Analyzed		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09	
Units		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Chemical	CRQL														
ALUMINUM	20	20	U	22		20	U	20	U	20	U	20		20	U
ANTIMONY	6	6	UJ	6	UJ	6	UJ	6	UJ	6	UJ	6	UJ	6	UJ
ARSENIC	1	1	U	1	U	1	U	1	U	1	U	1	U	1	U
BARIUM	20	20	U	20	U	20	U	20	U	20	U	20	U	20	U
BERYLLIUM	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CADMIUM	0.5	0.5	U	1.2		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CALCIUM	250	8300		9700		7700		5700		8400		8800		9700	
CHROMIUM	1	1	U	1	U	1	U	1	U	1	U	1	U	1	U
COBALT	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
COPPER	2.5	3.4		3.5		3.7		3.6		4.5		7.4		4.6	
IRON	10	57	J	130	J	140	J	41	J	73	J	80	J	97	J
LEAD	1	1	U	1	U	1.6		1	U	1	U	1	U	1	U
MAGNESIUM	250	390	J	350	J	330	J	350	J	440	J	490	J	380	J
MANGANESE	1.5	18	J	34	J	1.5	UJ	4.6	J	14	J	15	J	11	J
*MERCURY	0.02	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
NICKEL	4	4	U	4	U	4	U	4	U	4	U	4	U	4	U
POTASSIUM	250	2800		2600		2700		2900		3100		3200		2900	
SELENIUM	3.5	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U
SILVER	1	1	UJ	1	UJ	1	UJ	1	UJ	1	UJ	1	UJ	1	UJ
SODIUM	250	1300		1400		1400		1200		1300		1400		1200	
THALLIUM	2.5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
VANADIUM	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
ZINC	6	27		46		32		27		29		30		29	

* EPA Method 245.7 Used For Mercury Results.
All other metals by EPA Method SW6020.

DATA SUMMARY TABLE
Tier II Validated Data
Metals Analysis
Solid - mg/Kg Wet Weight

SITE: Ely Copper Mine -
Vershire, VT

CASE NO. 0035S

Sample Name		D01512		D01513		D01514		D01515		D01516		D01517		D01518	
Sample Location		MA-03		MA-03		MA-REF		MA-REF		MA-REF		MA-REF		MA-REF	
Lab Sample ID		18986-029		18986-030		18986-031		18986-032		18986-033		18986-034		18986-035	
Station ID		MA-03X-091509JX		MA-03X-091509KX		MA-REF-091509AX		MA-REF-091509BX		MA-REF-091509CX		MA-REF-091509CD		MA-REF-091509DX	
Sample Date		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09	
Date Analyzed		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09	
Date Fe Analyzed		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09	
Date Ag Analyzed		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09	
Date Hg Analyzed		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09	
Units		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Chemical	CRQL														
ALUMINUM	20	27		20	U	34		20	U	20	U	33		33	
ANTIMONY	6	6	UJ	6	UJ	6	UJ	6	UJ	6	UJ	6	UJ	6	UJ
ARSENIC	1	1	U	1	U	1	U	1	U	1	U	1	U	1	U
BARIUM	20	20	U	20	U	20	U	20	U	20	U	20	U	20	U
BERYLLIUM	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CADMIUM	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CALCIUM	250	8500		7400		6900		7800		4600		7500		7200	
CHROMIUM	1	1	U	1	U	1.4		1	U	1	U	1	U	1	U
COBALT	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
COPPER	2.5	6.3		4		2.7		3.9		3.4		3.6		3.7	
IRON	10	150	J	83	J	130	J	76	J	92	J	180	J	100	J
LEAD	1	1	U	1	U	1	U	1	U	1	U	1	U	1	U
MAGNESIUM	250	380	J	350	J	330	J	370	J	260	J	350	J	330	J
MANGANESE	1.5	16	J	4.2	J	4.9	J	4	J	1.5	UJ	14	J	1.5	UJ
*MERCURY	0.02	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
NICKEL	4	4	U	4	U	4	U	4	U	4	U	4	U	4	U
POTASSIUM	250	2900		2500		2600		2900		2500		2500		2300	
SELENIUM	3.5	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U
SILVER	1	1	UJ	1	UJ	1	UJ	1	UJ	1	UJ	1	UJ	1	UJ
SODIUM	250	1400		1300		1300		1200		1200		1300		1000	
THALLIUM	2.5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
VANADIUM	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
ZINC	6	29		29		35		27		29		30		30	

* EPA Method 245.7 Used For Mercury Results.
All other metals by EPA Method SW6020.

DATA SUMMARY TABLE
Tier II Validated Data
Metals Analysis
Solid - mg/Kg Wet Weight

SITE: Ely Copper Mine -
Vershire, VT

CASE NO. 0035S

Sample Name		D01519		D01520		D01521		D01522		D01523		D01524		D01525	
Sample Location		MA-REF		MA-REF		MA-REF		MA-REF		MA-REF		MA-REF		MA-01	
Lab Sample ID		18986-036		18986-037		18986-038		18986-039		18986-040		18986-041		18986-042	
Station ID		MA-REF-091509EX		MA-REF-091509FX		MA-REF-091509GX		MA-REF-091509HX		MA-REF-091509JX		MA-REF-091609KX		MA-01X-091509KX	
Sample Date		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09		15 Sep 09	
Date Analyzed		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		05 Oct 09		06 Oct 09		06 Oct 09	
Date Fe Analyzed		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		05 Oct 09		06 Oct 09		06 Oct 09	
Date Ag Analyzed		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09	
Date Hg Analyzed		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09	
Units		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Chemical	CRQL														
ALUMINUM	20	24		20	U	20	U	20	U	26		20	U	20	U
ANTIMONY	6	6	UJ	6	UJ	6	UJ	6	UJ	6	UJ	6	UJ	6	UJ
ARSENIC	1	1	U	1	U	1	U	1	U	1	U	1	U	1	U
BARIUM	20	20	U	20	U	20	U	20	U	20	U	20	UJ	20	UJ
BERYLLIUM	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CADMIUM	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CALCIUM	250	10000		3400		9100		11000		9800		9300	J	10000	J
CHROMIUM	1	1	U	1	U	1	U	1	U	1.5		1	U	1	U
COBALT	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
COPPER	2.5	3.5		2.7		4.3		4.3		5.9		2.8		8.4	
IRON	10	90	J	100	J	62	J	140	J	87	J	46	J	160	J
LEAD	1	1	U	1	U	1	U	1	U	1	U	1	U	1	U
MAGNESIUM	250	430	J	280	J	370	J	410	J	410	J	410		400	
MANGANESE	1.5	4.7	J	1.5	UJ	11	J	4.2	J	5.1	J	13	J	17	J
*MERCURY	0.02	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
NICKEL	4	4	U	4	U	4	U	4	U	4	U	4	U	4	U
POTASSIUM	250	2600		2600		2600		2800		2800		2700		2700	
SELENIUM	3.5	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U
SILVER	1	1	UJ	1	UJ	1	UJ	1	UJ	1	UJ	1	UJ	1	UJ
SODIUM	250	1300		1300		1000		1500		1200		1300		1400	
THALLIUM	2.5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
VANADIUM	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
ZINC	6	31		30		34		36		36		24	J	31	J

* EPA Method 245.7 Used For Mercury Results.
All other metals by EPA Method SW6020.

DATA SUMMARY TABLE
Tier II Validated Data
Metals Analysis
Solid - mg/Kg Wet Weight

SITE: Ely Copper Mine -
Vershire, VT

CASE NO. 0035S

Sample Name		D01529		D01530		D01531		D01532		D01533		D01538		D01544	
Sample Location		IV-01		IV-01		IV-REF		IV-REF		IV-03		IV-02		IV-03	
Lab Sample ID		18986-043		18986-044		18986-045		18986-046		18986-047		18986-049		18986-048	
Station ID		IV-01X-091609AX		IV-01X-091709AX		IV-REF-091609AX		IV-REF-091609BX		IV-03X-091609AX		IV-02X-091709AX		IV-03X-091609BX	
Sample Date		16 Sep 09		17 Sep 09		16 Sep 09		16 Sep 09		16 Sep 09		17 Sep 09		16 Sep 09	
Date Analyzed		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09	
Date Fe Analyzed		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09	
Date Ag Analyzed		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09		06 Oct 09	
Date Hg Analyzed		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09		07 Oct 09	
Units		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Chemical	CRQL														
ALUMINUM	20	150		21		20	U	20	U	240		42		170	
ANTIMONY	6	6	UJ	6	UJ	6	UJ	6	UJ	6	UJ	6	UJ	6	UJ
ARSENIC	1	1	U	1	U	1	U	1	U	1	U	1	U	1	U
BARIUM	20	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
BERYLLIUM	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CADMIUM	0.5	0.5	U	0.5	U	0.5	U	0.5	U	1.1		0.75		0.5	U
CALCIUM	250	3000	J	1300	J	440	J	360	J	1500	J	1500	J	740	J
CHROMIUM	1	1	U	1	U	1	U	1	U	2.9		1	U	1.7	
COBALT	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
COPPER	2.5	20		16		14		15		35		26		43	
IRON	10	220	J	43	J	22	J	29	J	530	J	350	J	730	J
LEAD	1	1	U	1	U	1	U	1	U	1	U	1	U	1	U
MAGNESIUM	250	520		360		270		280		380		250	U	390	
MANGANESE	1.5	34	J	21	J	5.4	J	4.8	J	21	J	33	J	20	J
*MERCURY	0.02	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
NICKEL	4	4	U	4	U	4	U	4	U	4	U	4	U	4	U
POTASSIUM	250	3300		3200		3300		3300		2900		3200		3100	
SELENIUM	3.5	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U
SILVER	1	1	UJ	1	UJ	1	UJ	1	UJ	1	UJ	1	J	1	UJ
SODIUM	250	500		320		270		250		570		460		550	
THALLIUM	2.5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
VANADIUM	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
ZINC	6	54	J	47	J	50	J	51	J	95	J	72	J	52	J

* EPA Method 245.7 Used For Mercury Results.
All other metals by EPA Method SW6020.

Tier 4 ACTUAL Sampling Event – Part 2

Field Sampling Contractor/Contract: Nobis Engineering, Inc./EP-S1-06-03		Ship to Lab Date: 11/5/09	Data Package Receipt Date: 12/9/09
DAS Case No.: 0043S		SDG: D01545	Data Turnaround Time: 34 days
Site Name: Ely Copper Mine Superfund Site		Site Location: Vershire, Vermont	CERCLIS #: VTD988366571
Site ID: 017L	Action Code: RI	Operable Unit:01	Purpose Code: RI/FS
Lab Name: GeoTesting Express		Lab Location: Boxborough, MA	Lab Code: GTX
No. of Samples: 12 (Total-Including PES & Blanks)		Sample IDs: D01545 – D01556	Case Complete: Yes or No GD 1/28/10 — Total Cost: $8,010

Parameter	Cost per Parameter, Matrix & Sample	Matrix	No. of Samples	Associated PE Sample Numbers	Associated Field Duplicates	Associated Spike/ Duplicates	Associated MS/MSD Samples	Associated Blanks & Type
ASTM D 422 Grain Size	$195	Soil	12					
ASTM D 854 Spec. Gravity	$90	Soil	3					
ASTM D 698 St. Proctor	$150	Soil	6					
ASTM D 3080 Shear Test	$750	Soil	6					

Note: The Chain of Custody and Data Validation Memo must be attached.
List the Parameter and Matrix from the NEST Look-Up Table. If the parameter does not exist in the look-up table, send a copy of the Method or a definition along with this form to the RSCC for entry into NESTS.

USEPA Contract Laboratory Program
Generic Chain of Custody

Reference Case: R
Client No: 0043S

Region:	1	Date Shipped:	11/5/2009	**Chain of Custody Record**	Sampler Signature: Carl W. Thunberg
Project Code:		Carrier Name:	Currier	Relinquished By (Date / Time)	Received By (Date / Time)
Account Code:	80024	Airbill:		1 [illegible] 11/6/09 8:30	
CERCLIS ID:		Shipped to:	GeoTesting Express 1145 Massachusetts Ave Boxborough MA 01719 (800) 434-1062	2	
Spill ID:				3	
Site Name/State:	Ely Copper Mine Superfund Site, Vershire,			4	
Project Leader:	Andy Boeckeler				
Action:					
Sampling Co:	Nobis Engineering, Inc.				

SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME		QC Type
D01545	Subsurface Soil (>12")/ Carl Thunberg	/G	Dir Shear (7), Grain Size (7), Proctor (7), Sp Grav (7)	(Not preserved) (4)	GT-EBS-110409-AX	S: 11/4/2009	13:05	--
D01546	Subsurface Soil (>12")/ Carl Thunberg	/G	Grain Size (7)	(Not preserved) (1)	GT-FM1-110409-AX	S: 11/4/2009	12:35	--
D01547	Subsurface Soil (>12")/ Carl Thunberg	/G	Grain Size (7)	(Not preserved) (1)	GT-P04-110409-AX	S: 11/4/2009	10:20	--
D01548	Subsurface Soil (>12")/ Carl Thunberg	/G	Dir Shear (7), Grain Size (7), Proctor (7)	(Not preserved), 106 (Not preserved), 107 (Not preserved) (3)	GT-P07-110409-AX	S: 11/4/2009	11:15	--
D01549	Subsurface Soil (>12")/ Carl Thunberg	/G	Grain Size (7)	(Not preserved) (1)	GT-P07-110409-BX	S: 11/4/2009	11:30	--
D01550	Subsurface Soil (>12")/ Carl Thunberg	/G	Dir Shear (7), Grain Size (7), Proctor (7), Sp Grav (7)	(Not preserved) (4)	GT-P08-110409-AX	S: 11/4/2009	10:00	--
D01551	Subsurface Soil (>12")/ Carl Thunberg	/G	Dir Shear (7), Grain Size (7), Proctor (7)	(Not preserved) (3)	GT-P08-110409-BX	S: 11/4/2009	10:40	--
D01552	Subsurface Soil (>12")/ Carl Thunberg	/G	Grain Size (7)	(Not preserved) (1)	GT-P09-110409-AX	S: 11/4/2009	11:40	--
D01553	Subsurface Soil (>12")/ Carl Thunberg	/G	Dir Shear (7), Grain Size (7), Proctor (7), Sp Grav (7)	(Not preserved) (4)	GT-P11-110409-AX	S: 11/4/2009	11:55	--
D01554	Subsurface Soil (>12")/ Carl Thunberg	/G	Dir Shear (7), Grain Size (7), Proctor (7)	(Not preserved) (3)	GT-P11-110409-BX	S: 11/4/2009	12:15	--

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Chain of Custody Seal Number:
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced? _____

Dir Shear = Direct Shear ASTM D3080, Grain Size = Grain Size Sieve Only ASTM D422, Proctor = Mod Proctor ASTM D1557, Sp Grav = Spec Gravity ASTM D854

TR Number: 1-491288950-110509-0002

REGION COPY

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

Send Copy to: Sample Management Office, 15000 Conference Center Dr., Chantilly, VA. 20151-3819 Phone 703/818-4200; Fax 703/818-4602

USEPA Contract Laboratory Program
Generic Chain of Custody

Reference Case: R
Client No: 0043S

Region:	1	Date Shipped:	11/5/2009	**Chain of Custody Record**	Sampler Signature: Carl W. Thunberg
Project Code:		Carrier Name:	Currier	Relinquished By (Date / Time)	Received By (Date / Time)
Account Code:	80024	Airbill:		1 [illegible] 11/6/09 8:30	
CERCLIS ID:		Shipped to:	GeoTesting Express 1145 Massachusetts Ave Boxborough MA 01719 (800) 434-1062	2	
Spill ID:				3	
Site Name/State:	Ely Copper Mine Superfund Site, Vershire, '			4	
Project Leader:	Andy Boeckeler				
Action:					
Sampling Co:	Nobis Engineering, Inc.				

SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
D01555	Subsurface Soil (>12")/ Carl Thunberg	/G	Grain Size (7)	(Not preserved) (1)	GT-P12-110409-AX	S: 11/4/2009 12:25	--
D01556	Subsurface Soil (>12")/ Carl Thunberg	/G	Grain Size (7)	(Not preserved) (1)	GT-RB1-110409-AX	S: 11/4/2009 12:50	--

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Chain of Custody Seal Number:
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced? _____

Dir Shear = Direct Shear ASTM D3080, Grain Size = Grain Size Sieve Only ASTM D422, Proctor = Mod Proctor ASTM D1557, Sp Grav = Spec Gravity ASTM D854

TR Number: 1-491288950-110509-0002

REGION COPY

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

Send Copy to: Sample Management Office, 15000 Conference Center Dr., Chantilly, VA. 20151-3819 Phone 703/818-4200; Fax 703/818-4602

Nobis Engineering, Inc.
18 Chenell Drive
Concord, NH 03301
Tel (603) 224-4182
Fax (603) 224-2507
www.nobisengineering.com

January 7, 2010
Nobis File No. 80024

Ms. Christine Clark
Regional Sample Control Coordinator
U.S. Environmental Protection Agency
Region I
11 Technology Drive
North Chelmsford, MA 01863

Re: Contract No. EP-S1-06-03
Task Order No. 80024-RI-CO-017L
Case No. 0043S; Sample Delivery Group (SDG) No. D01545
GeoTesting Express, Boxborough, MA
Ely Copper Mine Superfund Site
Vershire, Orange County, VT
CERCLIS No.: VTD988366571
Tier I Inorganic Data Validation

Grain Size Analysis:
12/Soil/ D01545 – D01556
Specific Gravity Tests:
3/Soil/ D01545, D01550, D01553
Standard Proctor Tests:
6/Soil/ D01545, D01548, D01550, D01551, D01553, D01554
Three-Point Direct Shear Test Series:
6/Soil/ D01545, D01548, D01550, D01551, D01553, D01554

Dear Ms. Clark:

Nobis Engineering, Inc. performed a Tier I data validation in accordance with "Part IV, Inorganic Data Validation Functional Guidelines", November 2008 of the Region I, EPA New-England Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996 on the analytical data for 12 soil samples for Grain Size analysis, 3 soil samples for Specific gravity tests, 6 soil samples for Standard Proctor tests, and 6 soils for Three-Point Direct Shear Test Series collected by Nobis Engineering, Inc. at the Ely Copper Mine Superfund Site in Vershire, Vermont. The samples were analyzed under the DAS program according technical specification DAS-RAC2-018 and according to methods cited in the data package. A Tier I data validation was deemed sufficient at this time.

A Tier I data validation is based only on the following parameters:

* • Data Completeness
NA • Performance Evaluation Sample Results

* - All criteria were met for this parameter (see below).

ENGINEERING & CONSTRUCTION SOLUTIONS

Data Completeness

The data package is complete. No CSF sheet is required for this SDG.

Data presented in the Summary Tables include qualifiers assigned by the laboratory. Qualifications for these parameters were not assessed under the Tier I validation.

Performance Evaluation Sample Results

No PE samples were performed in this SDG.

Please contact Gail DeRuzzo at (978) 703-6021 should you have any questions or comments regarding this information.

Very truly yours,

NOBIS ENGINEERING, INC.

Gail DeRuzzo
Lead Chemist

Josh Stewart
Staff Scientist

Tables: Laboratory Data

Enclosures: Field Sampling Notes
DQO Summary Form

cc: Ed Hathaway, EPA Site Manager (w/o Enclosures)

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: ---	Sample Type: ---	Tested By:	ap
Sample ID:---	Test Date: 11/18/09	Checked By:	jdt
Depth : ---	Test Id: 168352		

Specific Gravity of Soils by ASTM D 854-06

Boring ID	Sample ID	Depth	Visual Description	Coarse %	Coarse SG	Fine %	Fine SG	Specific Gravity
GT-EBS 110409AX	D01545	---	Moist, dark yellowish brown sand with silt and gravel	19	2.5	81	2.87	2.79
GT-P08 110409AX	D01550	---	Moist, brownish yellow silty sand with gravel	20	2.56	80	2.81	2.75
GT-P11 110409AX	D01553	---	Moist, reddish brown silty sand with gravel	22	2.55	78	2.87	2.79

Notes: Specific Gravity performed by using method A (oven dried specimens) of ASTM D 854

Moisture Content determined by ASTM D 2216.

coarse fraction > #4 sieve
fine fraction < #4 sieve

GeoTesting express
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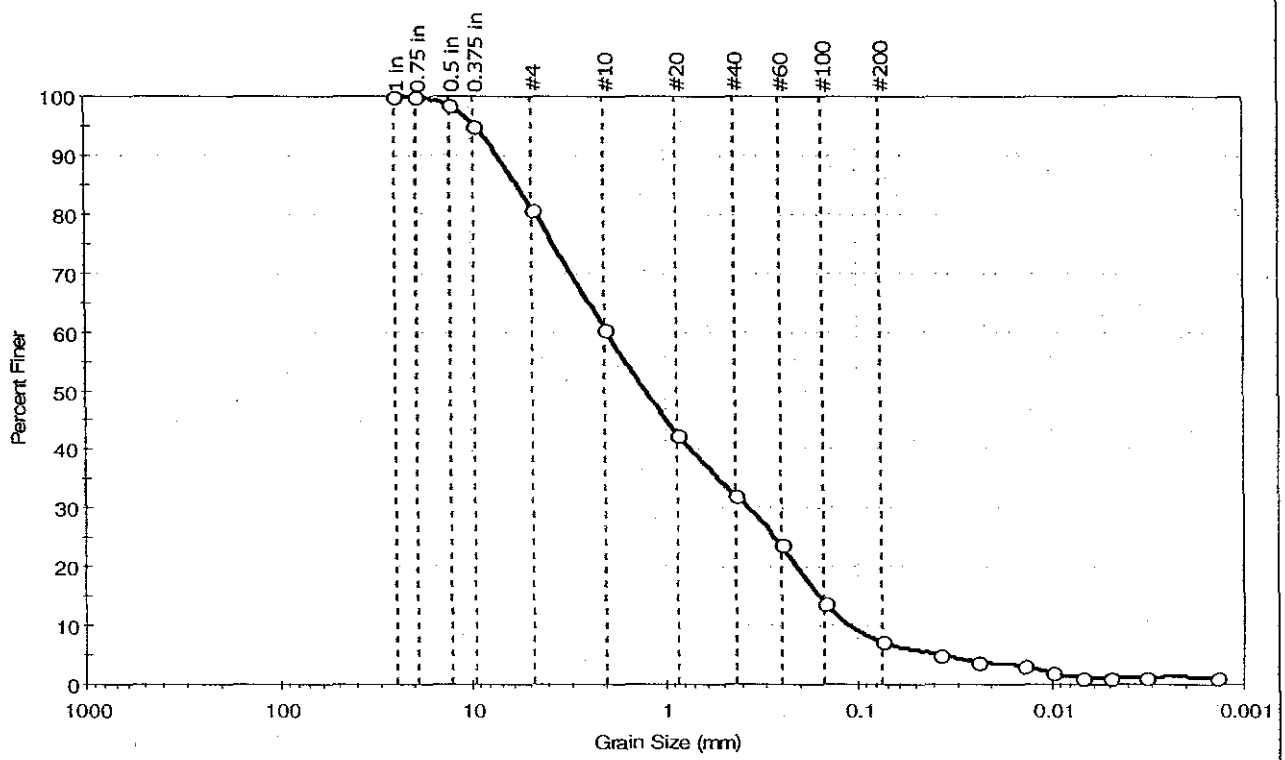
Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: GT-EBS-110409AX	Sample Type: bag	Tested By:	jbr
Sample ID:D01545	Test Date: 11/16/09	Checked By:	jdt
Depth : ---	Test Id: 168338		
Test Comment:	---		
Sample Description:	Moist, dark yellowish brown sand with silt and gravel		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
---	19.1	73.7	7.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	100		
0.5 in	12.70	98		
0.375 in	9.50	95		
#4	4.75	81		
#10	2.00	60		
#20	0.85	43		
#40	0.42	32		
#60	0.25	24		
#100	0.15	14		
#200	0.075	7		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0377	5		
---	0.0237	4		
---	0.0139	3		
---	0.0099	2		
---	0.0070	1		
---	0.0049	1		
---	0.0032	1		
---	0.0014	1		

Coefficients

D_{85} = 5.8007 mm	D_{30} = 0.3708 mm
D_{60} = 1.9542 mm	D_{15} = 0.1580 mm
D_{50} = 1.2109 mm	D_{10} = 0.0995 mm
C_u = 19.640	C_c = 0.707

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

Sample/Test Description

Sand/Gravel Particle Shape : ROUNDED

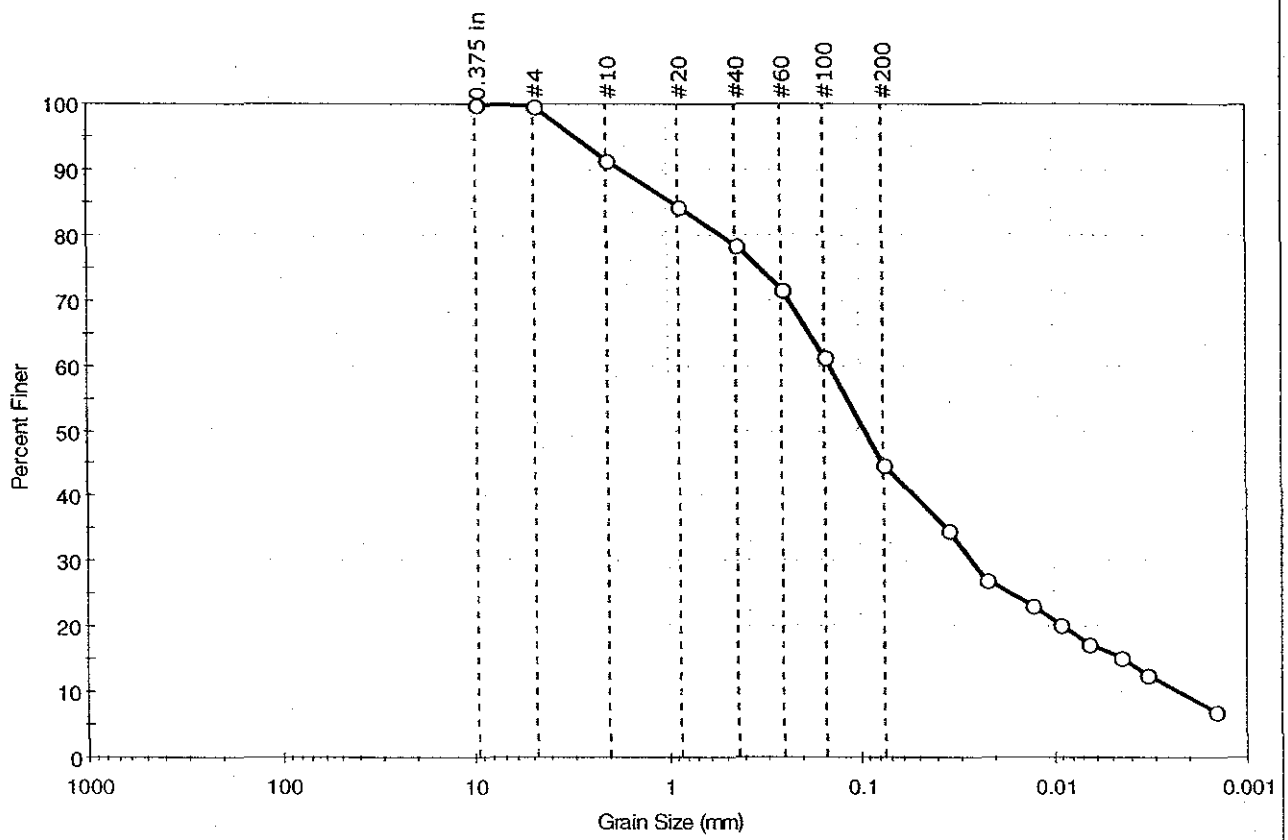
Sand/Gravel Hardness : HARD

printed 11/20/2009 11:00:25 AM

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: GT-FM1-110409AX	Sample Type: bag	Tested By:	jbr
Sample ID:D01546	Test Date: 11/17/09	Checked By:	jdt
Depth : ---	Test Id: 168339		
Test Comment: ---			
Sample Description: Moist, yellowish brown silty sand			
Sample Comment: ---			

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.4	54.9	44.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	100		
#10	2.00	92		
#20	0.85	84		
#40	0.42	79		
#60	0.25	72		
#100	0.15	61		
#200	0.075	45		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0351	35		
---	0.0224	27		
---	0.0129	23		
---	0.0092	20		
---	0.0066	17		
---	0.0045	15		
---	0.0033	13		
---	0.0015	7		

Coefficients

D_{85} =0.9219 mm	D_{30} =0.0266 mm
D_{60} =0.1415 mm	D_{15} =0.0043 mm
D_{50} =0.0934 mm	D_{10} =0.0023 mm
C_u =N/A	C_c =N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ROUNDED

Sand/Gravel Hardness : HARD

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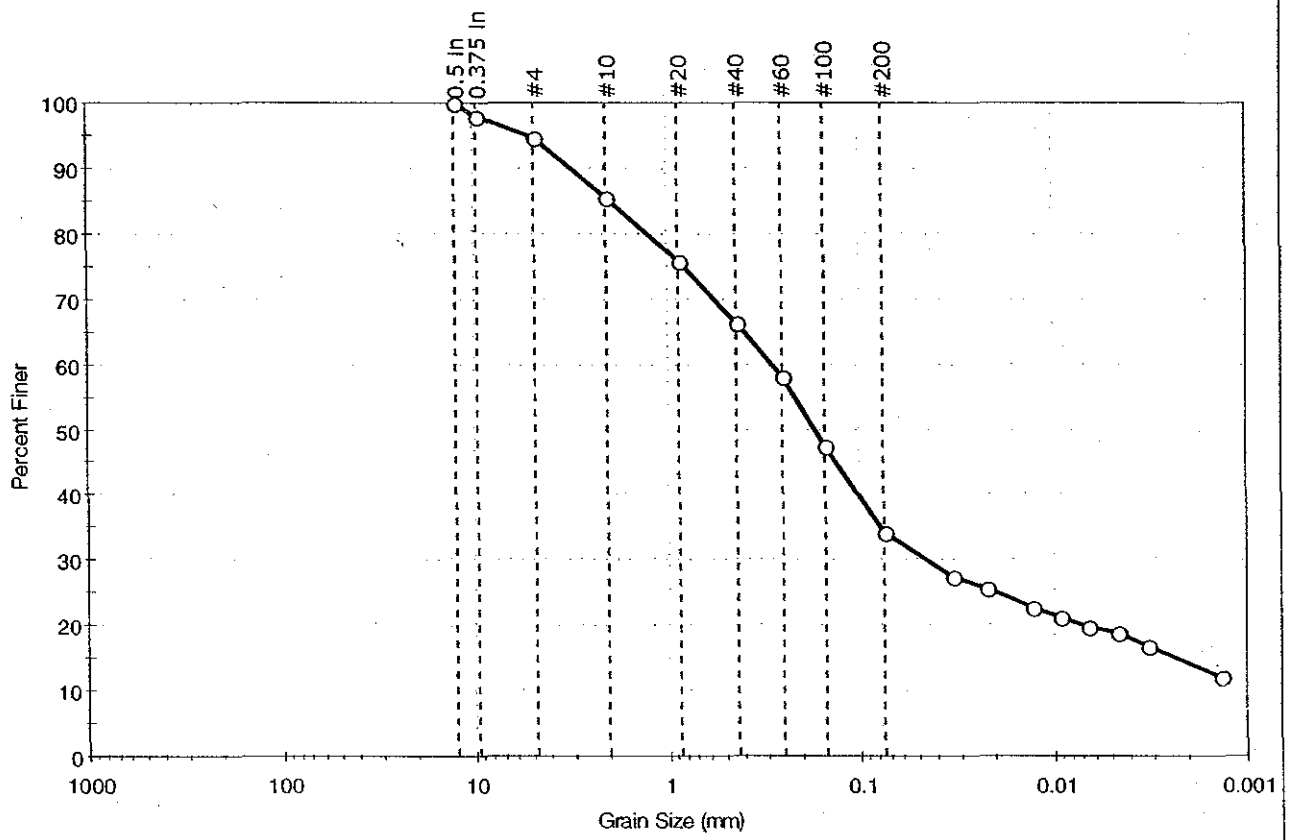
Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: GT-P04-110409AX	Sample Type: bag	Tested By:	jbr
Sample ID:D01547	Test Date: 11/16/09	Checked By:	jdt
Depth : ---	Test Id: 168340		
Test Comment:	---		
Sample Description:	Moist, yellowish brown silty sand		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	5.5	60.3	34.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.5 in	12.50	100		
0.375 in	9.50	98		
#4	4.75	95		
#10	2.00	86		
#20	0.85	76		
#40	0.42	66		
#60	0.25	58		
#100	0.15	47		
#200	0.075	34		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0331	27		
---	0.0223	26		
---	0.0129	23		
---	0.0091	21		
---	0.0065	20		
---	0.0046	19		
---	0.0032	17		
---	0.0014	12		

Coefficients

D_{85} = 1.9076 mm	D_{30} = 0.0455 mm
D_{60} = 0.2839 mm	D_{15} = 0.0023 mm
D_{50} = 0.1697 mm	D_{10} = 0.0009 mm
C_u = N/A	C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ROUNDED

Sand/Gravel Hardness : HARD

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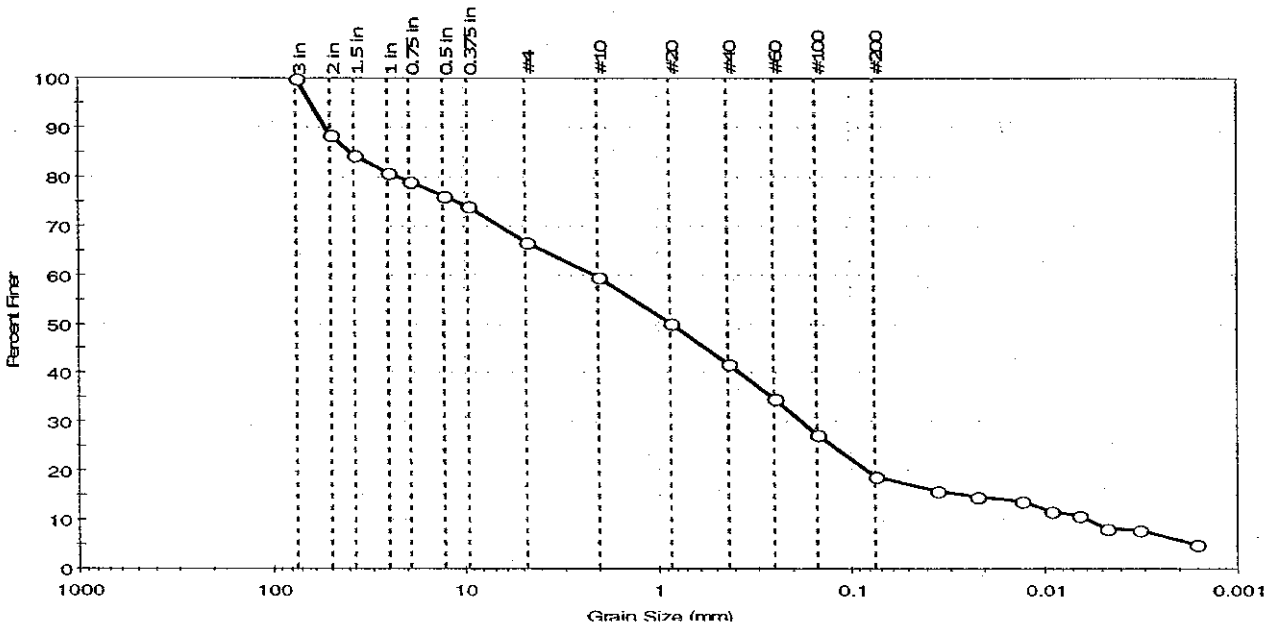
Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: GT-P07-110409AX	Sample Type: bag	Tested By:	jbr
Sample ID:D01548	Test Date: 11/16/09	Checked By:	jdt
Depth : ---	Test Id: 168341		
Test Comment: ---			
Sample Description:	Moist, brownish yellow silty sand with gravel		
Sample Comment: ---			

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	33.4	47.8	18.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
3 in	75.00	100		
2 in	50.00	89		
1.5 in	37.50	84		
1 in	25.00	81		
0.75 in	19.00	79		
0.5 in	12.70	76		
0.375 in	9.50	74		
#4	4.75	67		
#10	2.00	59		
#20	0.85	50		
#40	0.42	42		
#60	0.25	35		
#100	0.15	27		
#200	0.075	19		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0362	16		
---	0.0224	15		
---	0.0130	14		
---	0.0092	12		
---	0.0066	11		
---	0.0047	8		
---	0.0033	8		
---	0.0016	5		

Coefficients

D_{85} = 39.2907 mm	D_{30} = 0.1796 mm
D_{60} = 2.1342 mm	D_{15} = 0.0239 mm
D_{50} = 0.8438 mm	D_{10} = 0.0059 mm
C_u = N/A	C_c = N/A

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

Sample/Test Description

Sand/Gravel Particle Shape : ROUNDED

Sand/Gravel Hardness : HARD

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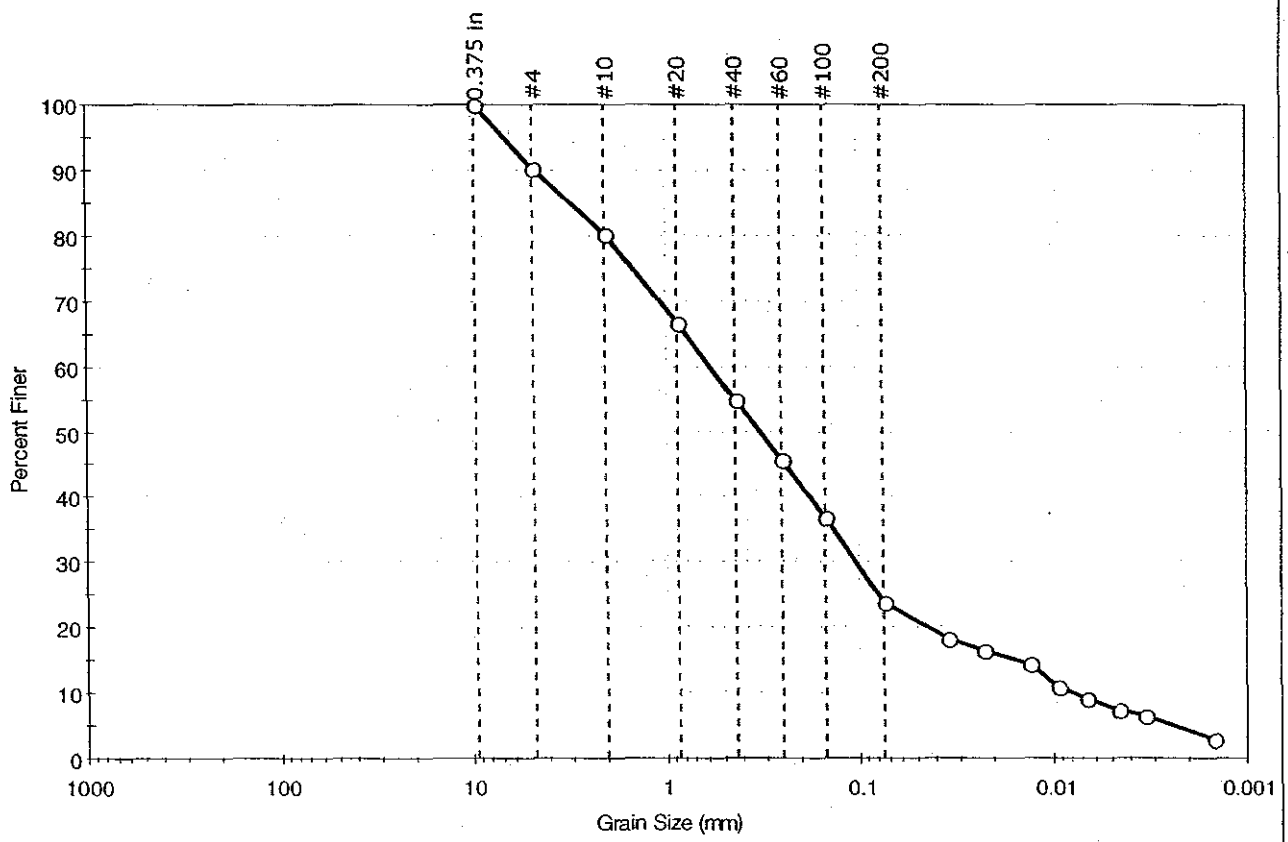
Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: GT-P07-110409AX	Sample Type: bag	Tested By:	jbr
Sample ID:D01549	Test Date: 11/17/09	Checked By:	jdt
Depth : ---	Test Id: 168342		
Test Comment: ---			
Sample Description: Moist, yellowish brown silty sand			
Sample Comment: ---			

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	9.7	66.5	23.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	90		
#10	2.00	80		
#20	0.85	67		
#40	0.42	55		
#60	0.25	46		
#100	0.15	37		
#200	0.075	24		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0347	18		
---	0.0230	16		
---	0.0132	15		
---	0.0094	11		
---	0.0067	9		
---	0.0046	7		
---	0.0034	6		
---	0.0015	3		

Coefficients

D_{85} = 3.0230 mm	D_{30} = 0.1040 mm
D_{60} = 0.5731 mm	D_{15} = 0.0150 mm
D_{50} = 0.3179 mm	D_{10} = 0.0079 mm
C_u = N/A	C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ROUNDED

Sand/Gravel Hardness : HARD

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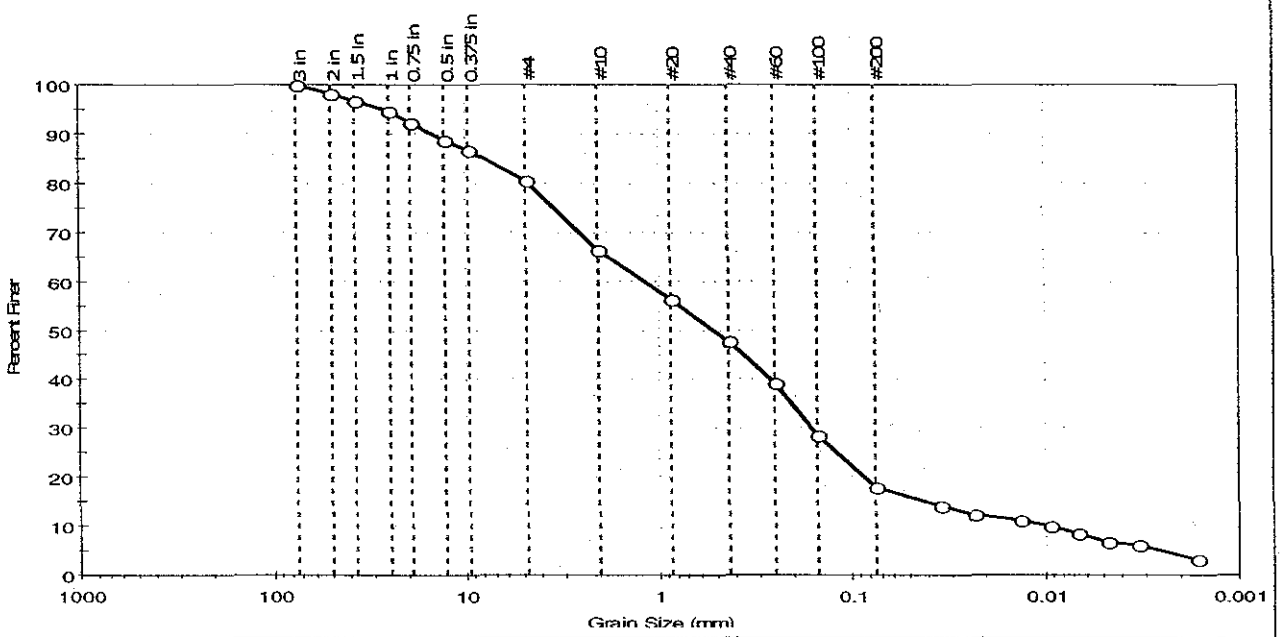
Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: GT-P08-110409AX	Sample Type: bag	Tested By:	jbr
Sample ID:D01550	Test Date: 11/16/09	Checked By:	jdt
Depth : ---	Test Id: 168343		
Test Comment:	---		
Sample Description:	Moist, brownish yellow silty sand with gravel		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
---	19.6	62.5	17.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
3 in	75.00	100		
2 in	50.00	98		
1.5 in	37.50	97		
1 in	25.00	95		
0.75 in	19.00	92		
0.5 in	12.70	89		
0.375 in	9.50	87		
#4	4.75	80		
#10	2.00	66		
#20	0.85	56		
#40	0.42	48		
#60	0.25	39		
#100	0.15	29		
#200	0.075	18		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0353	14		
---	0.0233	12		
---	0.0134	11		
---	0.0093	10		
---	0.0068	9		
---	0.0047	7		
---	0.0033	6		
---	0.0017	3		

Coefficients

D_{85} = 7.9240 mm D_{30} = 0.1607 mm
D_{60} = 1.1656 mm D_{15} = 0.0413 mm
D_{50} = 0.5074 mm D_{10} = 0.0096 mm
C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

Sample/Test Description

Sand/Gravel Particle Shape : ROUNDED

Sand/Gravel Hardness : HARD

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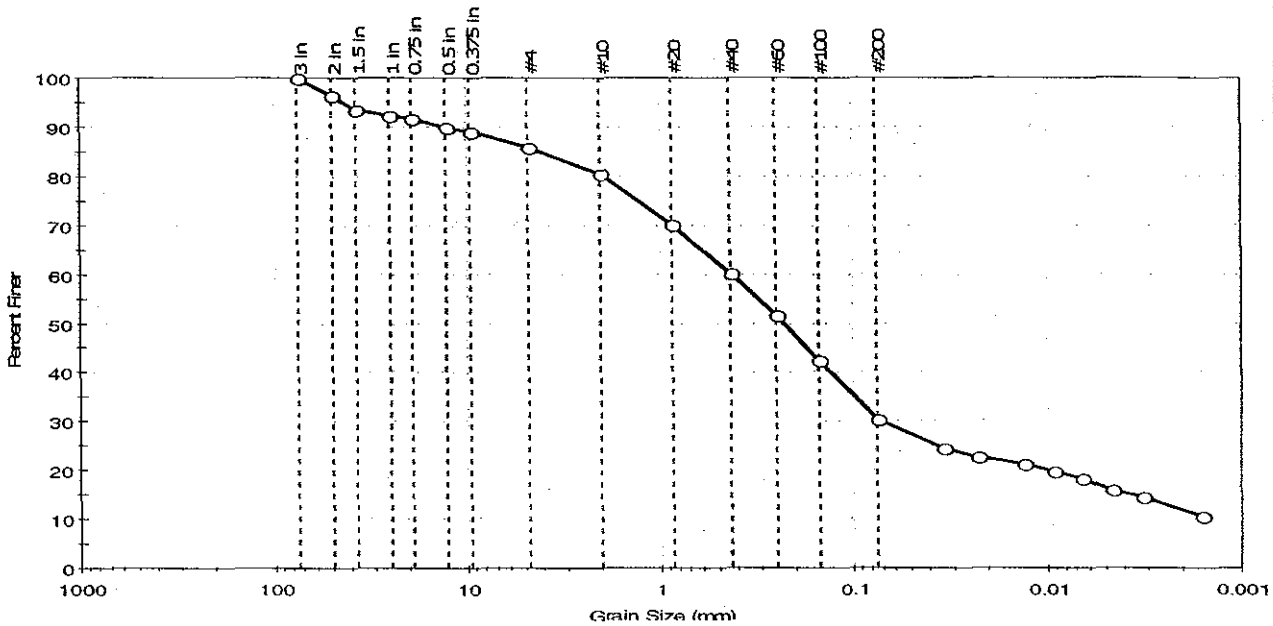
Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: GT-P08-110409BX	Sample Type: bag	Tested By:	jbr
Sample ID:D01551	Test Date: 11/10/09	Checked By:	jdt
Depth : ---	Test Id: 168344		
Test Comment:	---		
Sample Description:	Moist, brown silty sand		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
--	14.0	55.5	30.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
3 in	75.00	100		
2 in	50.00	96		
1.5 in	37.50	94		
1 in	25.00	92		
0.75 in	19.00	92		
0.5 in	12.70	90		
0.375 in	9.50	89		
#4	4.75	86		
#10	2.00	81		
#20	0.85	70		
#40	0.42	60		
#60	0.25	52		
#100	0.15	43		
#200	0.075	30		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0344	24		
---	0.0225	23		
---	0.0130	21		
---	0.0092	20		
---	0.0066	18		
---	0.0046	16		
---	0.0032	14		
---	0.0016	11		

Coefficients

D_{85} =4.0729 mm	D_{30} =0.0707 mm
D_{60} =0.4200 mm	D_{15} =0.0037 mm
D_{50} =0.2279 mm	D_{10} =0.0014 mm
C_u =N/A	C_c =N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ROUNDED

Sand/Gravel Hardness : HARD

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GeoTesting express
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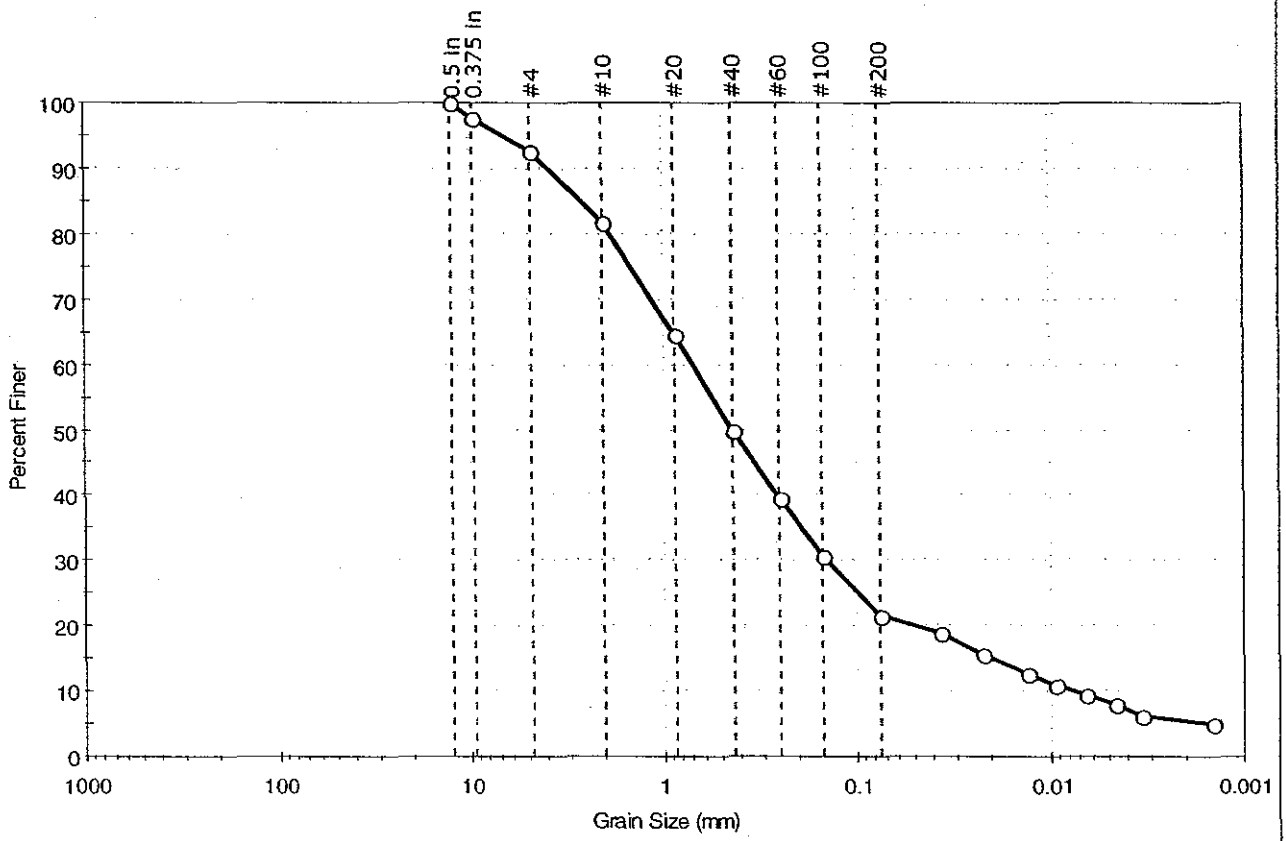
Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: GT-P09-110409AX	Sample Type: bag	Tested By:	jbr
Sample ID:D01552	Test Date: 11/17/09	Checked By:	jdt
Depth : ---	Test Id: 168345		
Test Comment: ---			
Sample Description: Moist, reddish brown silty sand			
Sample Comment: ---			

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	7.3	71.1	21.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.5 in	12.50	100		
0.375 in	9.50	98		
#4	4.75	93		
#10	2.00	82		
#20	0.85	65		
#40	0.42	50		
#60	0.25	39		
#100	0.15	31		
#200	0.075	22		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0364	19		
---	0.0221	16		
---	0.0132	13		
---	0.0094	11		
---	0.0066	9		
---	0.0046	8		
---	0.0033	6		
---	0.0015	5		

Coefficients

D_{85} =2.6027 mm	D_{30} =0.1435 mm
D_{60} =0.6851 mm	D_{15} =0.0197 mm
D_{50} =0.4270 mm	D_{10} =0.0076 mm
C_u =N/A	C_c =N/A

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

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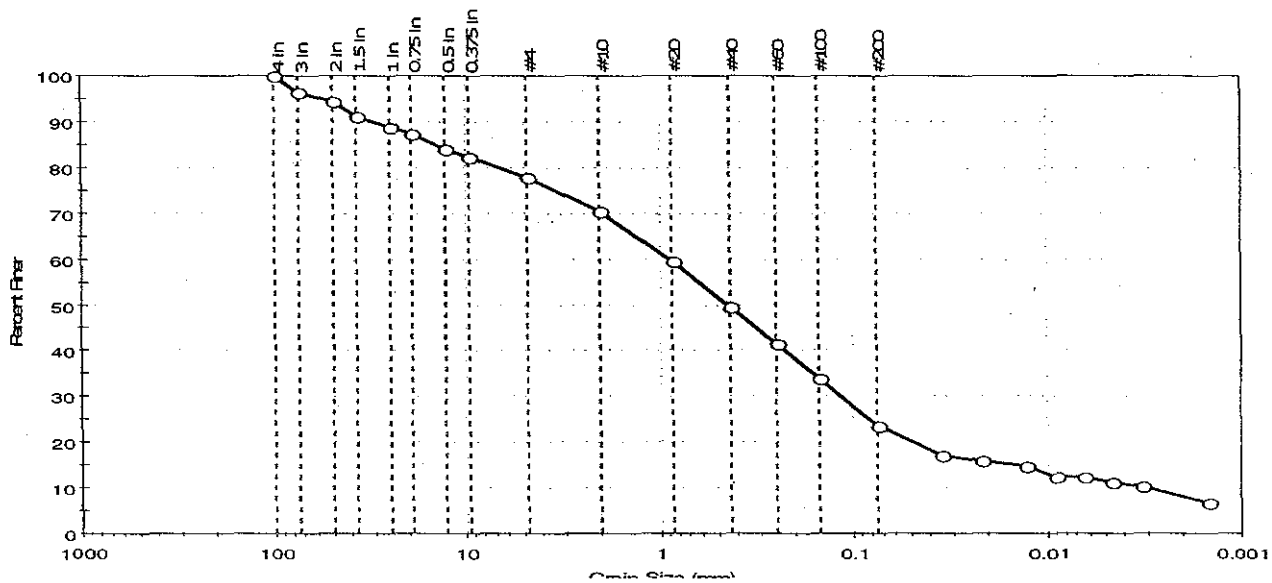
Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: GT-P11-110409AX	Sample Type: bag	Tested By:	jbr
Sample ID:D01553	Test Date: 11/12/09	Checked By:	jdt
Depth : ---	Test Id: 168346		
Test Comment: ---			
Sample Description: Moist, reddish brown silty sand with gravel			
Sample Comment: ---			

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	22.0	54.4	23.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
4 in	100.00	100		
3 in	75.00	97		
2 in	50.00	94		
1.5 in	37.50	91		
1 in	25.00	89		
0.75 in	19.00	87		
0.5 in	12.70	84		
0.375 in	9.50	82		
#4	4.75	78		
#10	2.00	71		
#20	0.85	60		
#40	0.42	50		
#60	0.25	42		
#100	0.15	34		
#200	0.075	24		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0352	17		
---	0.0215	16		
---	0.0128	15		
---	0.0090	12		
---	0.0065	12		
---	0.0046	11		
---	0.0032	10		
---	0.0015	7		

Coefficients

D_{85} = 14.2879 mm	D_{30} = 0.1148 mm
D_{60} = 0.8826 mm	D_{15} = 0.0144 mm
D_{50} = 0.4393 mm	D_{10} = 0.0031 mm
C_u = N/A	C_c = N/A

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

Sample/Test Description

Sand/Gravel Particle Shape : ROUNDED

Sand/Gravel Hardness : HARD

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GeoTesting express
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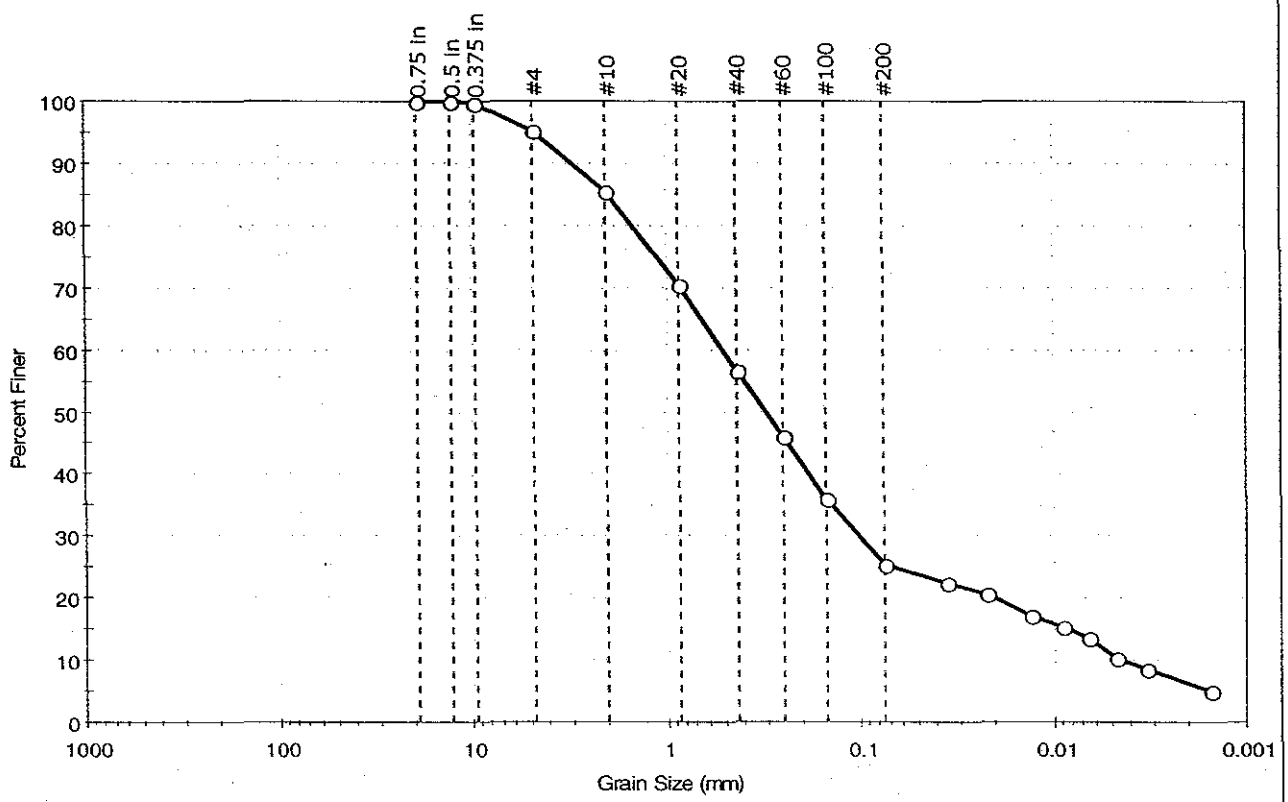
Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: GT-P11-110409BX	Sample Type: bag	Tested By:	jbr
Sample ID:D01554	Test Date: 11/12/09	Checked By:	n/a
Depth : ---	Test Id: 168347		
Test Comment: ---			
Sample Description: Moist, reddish brown red silty sand			
Sample Comment: ---			

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	4.7	70.1	25.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.70	100		
0.375 in	9.50	100		
#4	4.75	95		
#10	2.00	86		
#20	0.85	71		
#40	0.42	57		
#60	0.25	46		
#100	0.15	36		
#200	0.075	25		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0359	22		
---	0.0223	21		
---	0.0131	17		
---	0.0090	15		
---	0.0066	14		
---	0.0047	10		
---	0.0033	9		
---	0.0015	5		

Coefficients

D_{85} = 1.9395 mm	D_{30} = 0.1020 mm
D_{60} = 0.5001 mm	D_{15} = 0.0084 mm
D_{50} = 0.3036 mm	D_{10} = 0.0044 mm
C_u = N/A	C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ROUNDED

Sand/Gravel Hardness : HARD

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GeoTesting express
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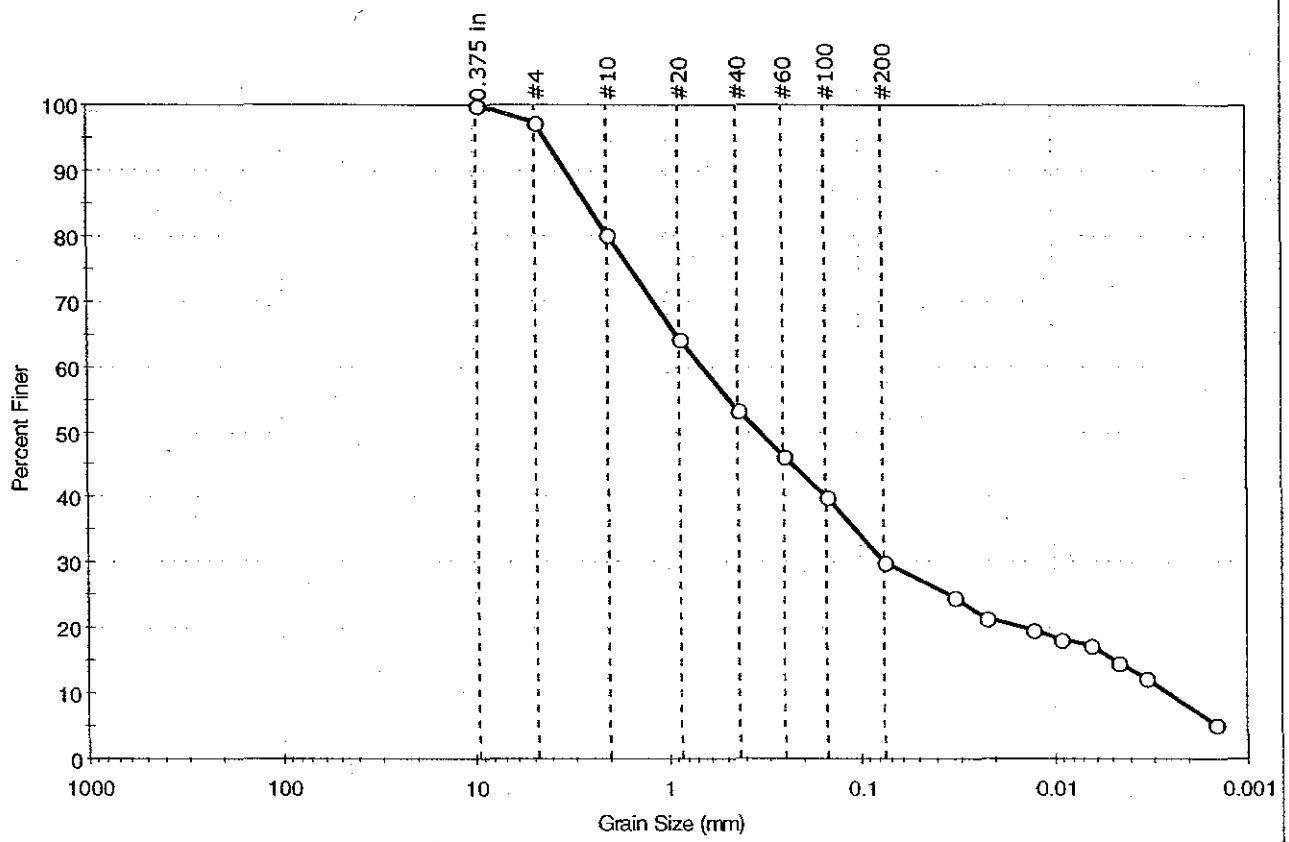
Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: GT-P12-110409AX	Sample Type: bag	Tested By:	jbr
Sample ID:D01556	Test Date: 11/17/09	Checked By:	jdt
Depth : ---	Test Id: 168348		
Test Comment:	---		
Sample Description:	Moist, yellowish brown silty sand		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	2.7	67.3	30.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	97		
#10	2.00	80		
#20	0.85	64		
#40	0.42	53		
#60	0.25	46		
#100	0.15	40		
#200	0.075	30		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0323	25		
---	0.0224	21		
---	0.0129	20		
---	0.0091	18		
---	0.0065	17		
---	0.0046	15		
---	0.0033	12		
---	0.0015	5		

Coefficients

D_{85} = 2.5539 mm D_{30} = 0.0748 mm
D_{60} = 0.6463 mm D_{15} = 0.0046 mm
D_{50} = 0.3285 mm D_{10} = 0.0025 mm
C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ROUNDED

Sand/Gravel Hardness : HARD

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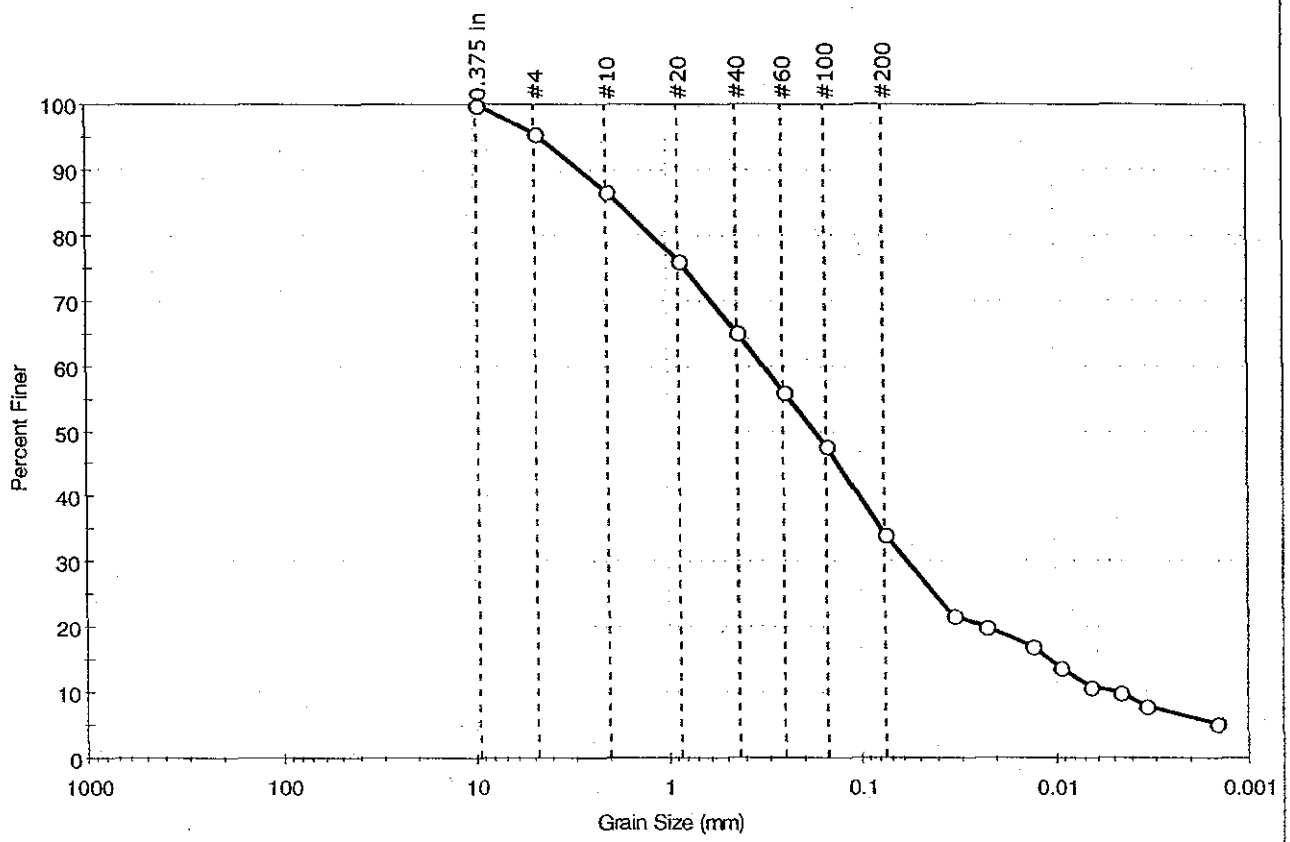
Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: GT-RB1-110409AX	Sample Type: bag	Tested By:	jbr
Sample ID:D01557	Test Date: 11/17/09	Checked By:	jdt
Depth : ---	Test Id: 168349		
Test Comment:	---		
Sample Description:	Moist, reddish brown silty sand		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
--	4.4	61.3	34.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	96		
#10	2.00	87		
#20	0.85	76		
#40	0.42	65		
#60	0.25	56		
#100	0.15	48		
#200	0.075	34		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0336	22		
---	0.0225	20		
---	0.0132	17		
---	0.0093	14		
---	0.0067	11		
---	0.0046	10		
---	0.0034	8		
---	0.0015	5		

Coefficients

D_{85} =1.7365 mm	D_{30} =0.0567 mm
D_{60} =0.3145 mm	D_{15} =0.0105 mm
D_{50} =0.1725 mm	D_{10} =0.0047 mm
C_u =N/A	C_c =N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ROUNDED

Sand/Gravel Hardness : HARD

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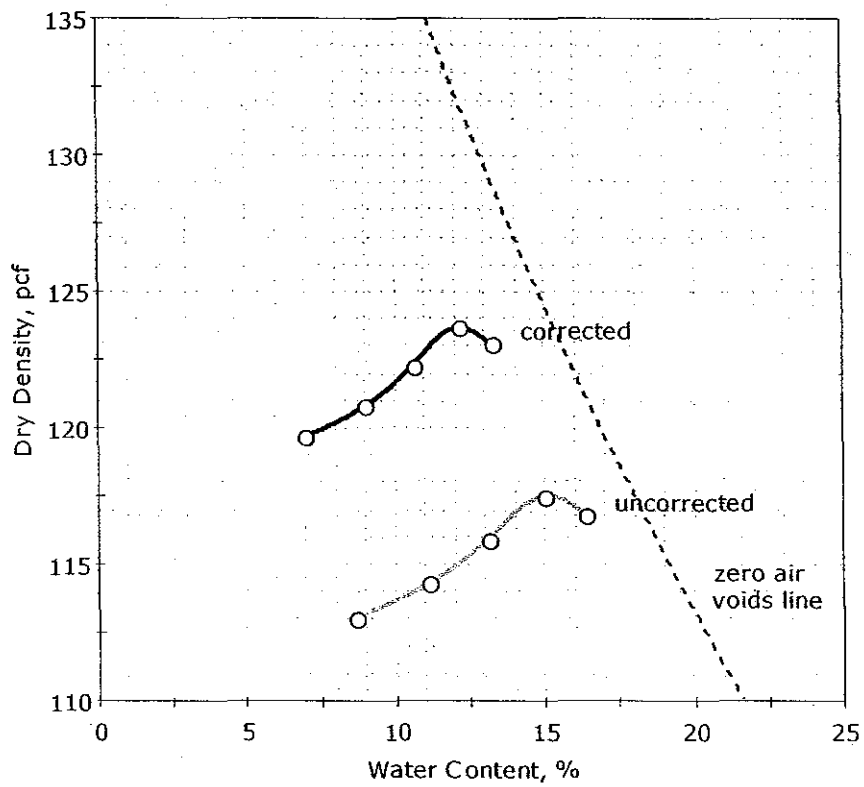
GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: GT-EBS-110409AX	Sample Type: bag	Tested By:	saa
Sample ID:D01545	Test Date: 11/20/09	Checked By:	jdt
Depth : ---	Test Id: 168353		
Test Comment:	---		
Sample Description:	Moist, dark yellowish brown sand with silt and gravel		
Sample Comment:	---		

Compaction Report - ASTM D 698



Data Points	Point 1	Point 2	Point 3	Point 4	Point 5
Dry density, pcf	113.0	114.3	115.9	117.5	116.8
Moisture Content, %	8.6	11.1	13.1	15.0	16.4

Method : A

Preparation : WET

As received Moisture :

Rammer : Manual

Zero voids line based on assumed specific gravity of 2.85

Maximum Dry Density=	117.5 pcf
Optimum Moisture=	15.0 %
Oversize Correction	(19.1% > #4 Sieve)
Corrected Maximum Dry Density=	123.5 pcf
Corrected Optimum Moisture=	12.0 %
Assumed Average Bulk Specific Gravity =	2.55

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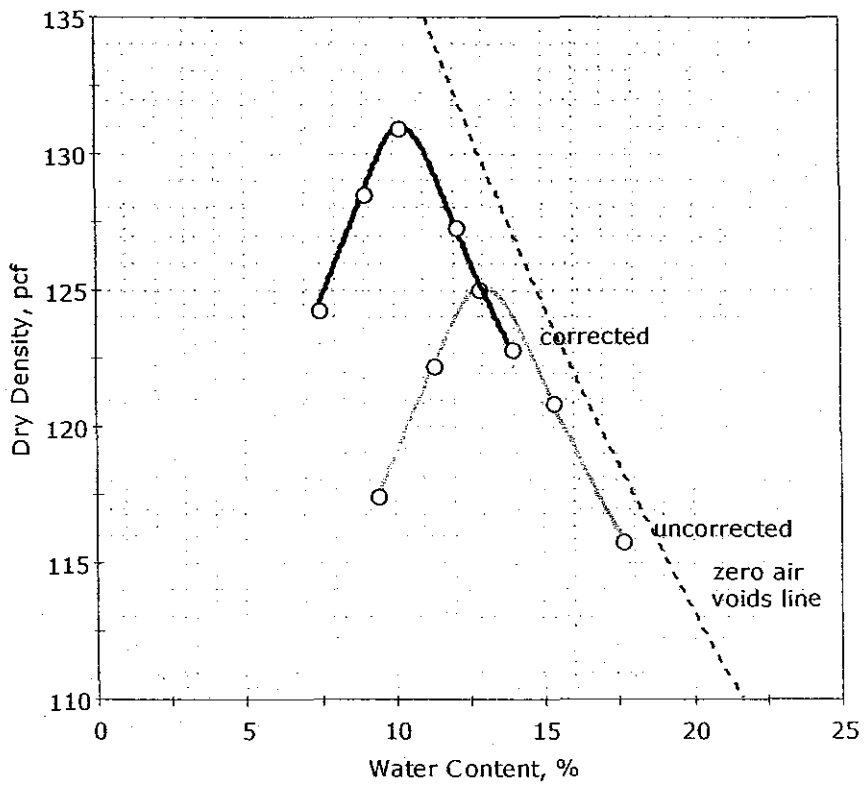
Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: GT-P07-110409AX	Sample Type: bag	Tested By:	saa
Sample ID:D01548	Test Date: 11/11/09	Checked By:	jdt
Depth : ---	Test Id: 168354		
Test Comment: ---			
Sample Description: Moist, brownish yellow silty sand with gravel			
Sample Comment: ---			

Compaction Report - ASTM D 698



Data Points	Point 1	Point 2	Point 3	Point 4	Point 5
Dry density, pcf	117.5	122.3	125.1	120.9	115.9
Moisture Content, %	9.4	11.3	12.8	15.3	17.6

Method : C

Preparation : WET

As received Moisture :

Rammer : Manual

Zero voids line based on assumed specific gravity of 2.85

Maximum Dry Density= 125.0 pcf
Optimum Moisture= 13.0 %

Oversize Correction (21.0% > 3/4 inch Sieve)
Corrected Maximum Dry Density= 131.0 pcf
Corrected Optimum Moisture= 10.0 %
Assumed Average Bulk Specific Gravity = 2.55

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GeoTesting express
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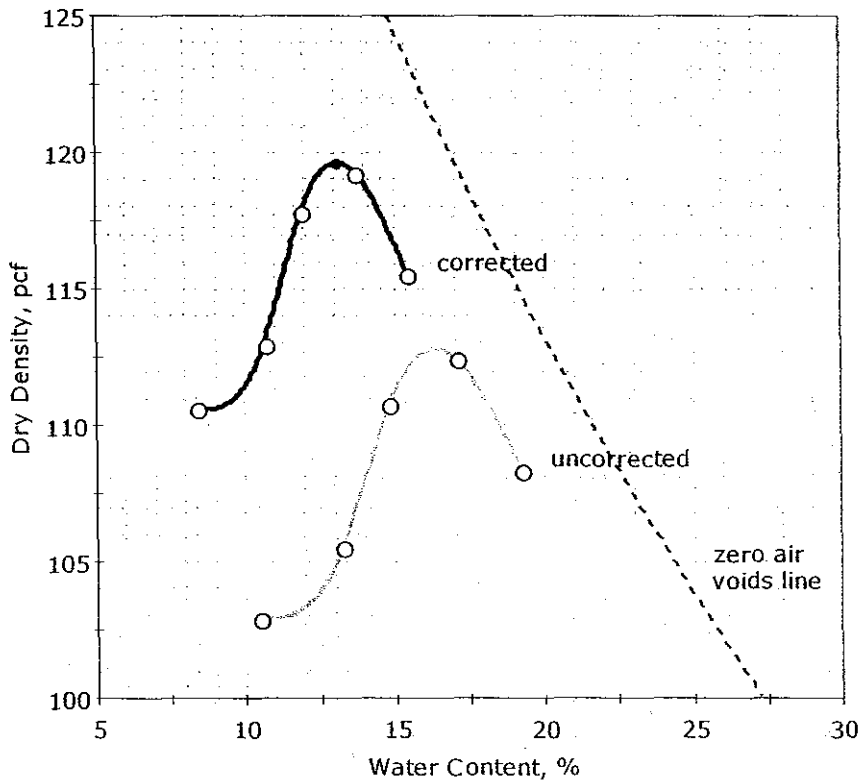
Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: GT-P08-110409AX	Sample Type: bag	Tested By:	saa
Sample ID:D01550	Test Date: 11/11/09	Checked By:	jdt
Depth : ---	Test Id: 168355		
Test Comment:	---		
Sample Description:	Moist, brownish yellow silty sand with gravel		
Sample Comment:	---		

Compaction Report - ASTM D 698



Data Points	Point 1	Point 2	Point 3	Point 4	Point 5
Dry density, pcf	102.9	105.5	110.8	112.4	108.3
Moisture Content, %	10.4	13.2	14.8	17.1	19.2

Method : A

Preparation : WET

As received Moisture :

Rammer : Manual

Zero voids line based on assumed specific gravity of 2.85

Maximum Dry Density=	113.0 pcf
Optimum Moisture=	16.5 %
Oversize Correction	(19.6% > #4 Sieve)
Corrected Maximum Dry Density=	119.5 pcf
Corrected Optimum Moisture=	13.0 %
Assumed Average Bulk Specific Gravity =	2.55

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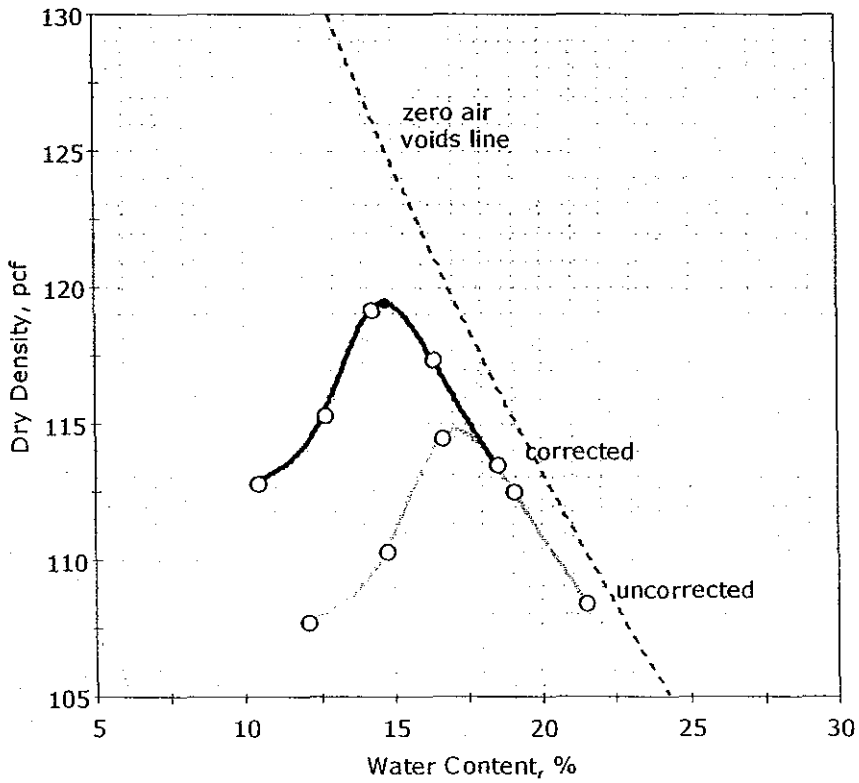
Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: GT-P08-110409BX	Sample Type: bag	Tested By:	saa
Sample ID:D01551	Test Date: 11/10/09	Checked By:	jdt
Depth : ---	Test Id: 168356		
Test Comment: ---			
Sample Description: Moist, brown silty sand			
Sample Comment: ---			

Compaction Report - ASTM D 698



Data Points	Point 1	Point 2	Point 3	Point 4	Point 5
Dry density, pcf	107.8	110.4	114.5	112.6	108.5
Moisture Content, %	12.1	14.7	16.6	19.0	21.4

Method : A

Preparation : WET

As received Moisture :

Rammer : Manual

Zero voids line based on assumed specific gravity of 2.85

Maximum Dry Density= 115.0 pcf
Optimum Moisture= 17.0 %

Oversize Correction (14.0% > #4 Sieve)
Corrected Maximum Dry Density= 119.5 pcf
Corrected Optimum Moisture= 14.5 %
Assumed Average Bulk Specific Gravity = 2.55

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GeoTesting express
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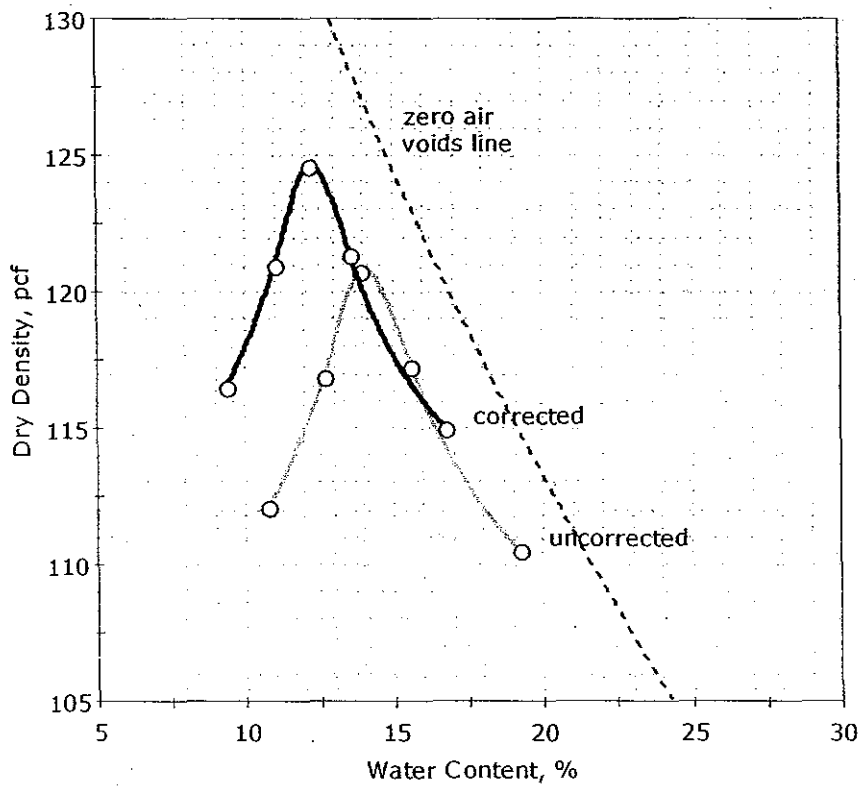
Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: GT-P11-110409AX	Sample Type: bag	Tested By:	saa
Sample ID:D01553	Test Date: 11/12/09	Checked By:	jdt
Depth : ---	Test Id: 168357		
Test Comment:	---		
Sample Description:	Moist, reddish brown silty sand with gravel		
Sample Comment:	---		

Compaction Report - ASTM D 698



Data Points	Point 1	Point 2	Point 3	Point 4	Point 5
Dry density, pcf	112.1	116.9	120.8	117.3	110.5
Moisture Content, %	10.7	12.6	13.9	15.6	19.2

Method : C

Preparation : WET

As received Moisture :

Rammer : Manual

Zero voids line based on assumed specific gravity of 2.85

Maximum Dry Density= 121.0 pcf
Optimum Moisture= 14.0 %

Oversize Correction (12.8% > 3/4 inch Sieve)
Corrected Maximum Dry Density= 124.5 pcf
Corrected Optimum Moisture= 12.5 %
Assumed Average Bulk Specific Gravity = 2.55

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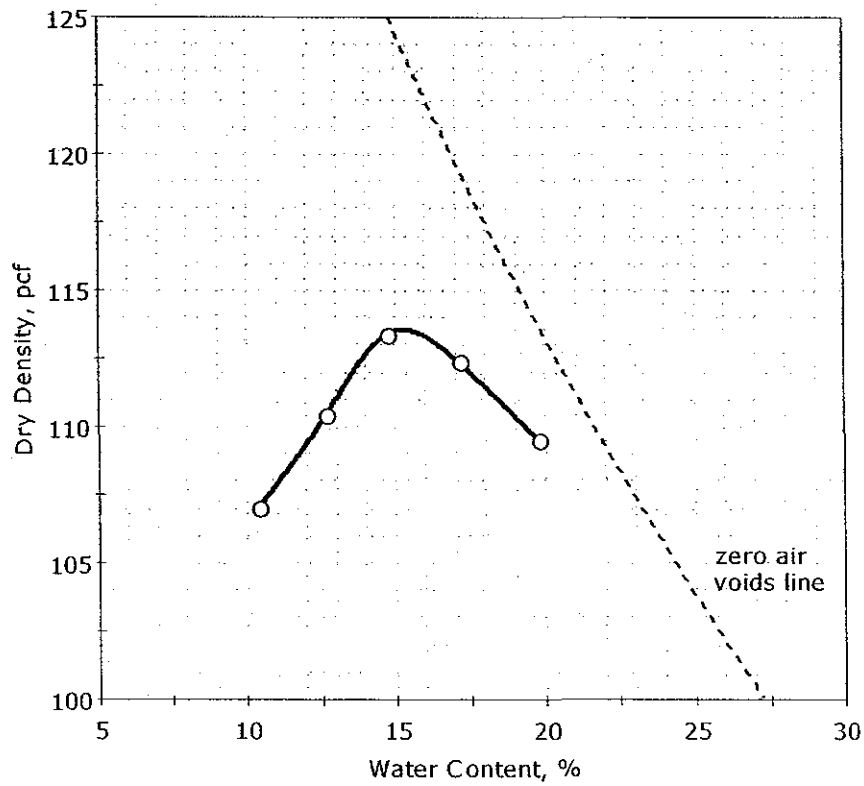
Client:	Nobis Engineering, Inc.		
Project:	U.S. EPA Region 1 Analysis of Soil Samples		
Location:		Project No:	GTX-9188
Boring ID: GT-P11-110409BX	Sample Type: bag	Tested By:	saa
Sample ID:D01554	Test Date: 11/12/09	Checked By:	jdt
Depth : ---	Test Id: 168358		
Test Comment:	---		
Sample Description:	Moist, reddish brown red silty sand		
Sample Comment:	---		

Compaction Report - ASTM D 698



Data Points	Point 1	Point 2	Point 3	Point 4	Point 5
Dry density, pcf	107.0	110.4	113.4	112.4	109.5
Moisture Content, %	10.4	12.7	14.7	17.1	19.8

Method : A

Preparation : WET

As received Moisture :

Rammer : Manual

Zero voids line based on assumed specific gravity of 2.85

Maximum Dry Density= 113.5 pcf
Optimum Moisture= 15.5 %

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Client:	Nobis Engineering, Inc.		
Project Name:	U.S. EPA Region 1 Analysis of Soil Samples		
Project Location:	---		
GTX #:	9188		
Start Date:	11/06/09	Tested By:	bfs
End Date:	11/20/09	Checked By:	rmt
Soil ID:	D01545 (GT-EBS-110409AX)		
Soil Description:	Moist, dark yellowish brown sand with silt and gravel		

Direct Shear Test Series by ASTM D 3080

Soil Preparation:	Target Compaction: 95% of Corrected Maximum Dry Density at the Corrected Optimum Moisture Content		
Compaction Characteristics:	Corrected Maximum Dry Density	123.5 pcf	
	Corrected Optimum Moisture Content	12.0 %	
	Compaction Test Method	ASTM D 698	
Test Equipment:	Top box = 12 in x 12 in; Bottom box = 16 in x 12 in; Load cells and LVDTs connected to data acquisition system for shear force, normal load and horizontal displacement readings; surface area = 144 in^2		
Maximum Particle Size Used, in:	1.5	Horizontal Displacement, in/min:	0.02
Soil Height, in:	3	Test Condition:	inundated
Gap Between Boxes, in:	1		

Parameter	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6
Initial Moisture Content, %	12.3	12.3	12.3	---	---	---
Initial Dry Density, pcf	119	119	119	---	---	---
Percent Compaction, %	96.2	96.2	96.2	---	---	---
Normal Compressive Stress, psf	600	1200	2400	---	---	---
Peak Shear Stress, psf	485	912.3	1747	---	---	---
Post Peak Shear Stress, psf	---	---	---	---	---	---
Final Moisture Content, %	21.9	20.9	20.3	---	---	---

Notes:

Peak Friction Angle:	**35**	**degrees**
Peak Cohesion:	**67**	**psf**
Post Peak Friction Angle:	**---**	**degrees**
Post Peak Cohesion:	**---**	**psf**

Figure a. Shear Force vs. Horizontal Displacement

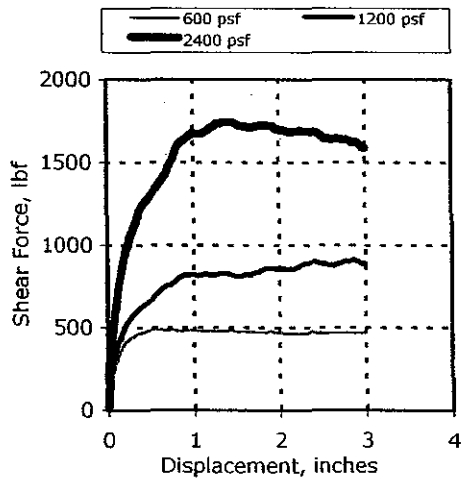
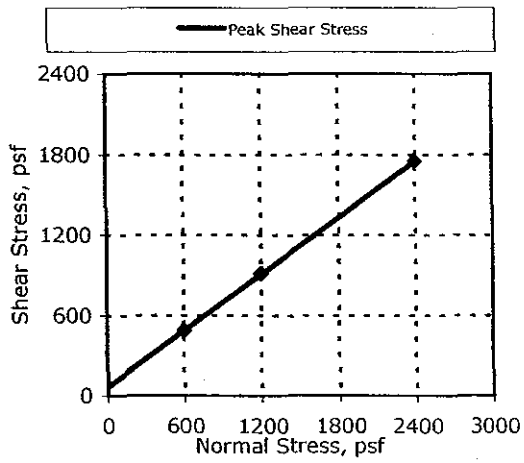


Figure b. Shear Stress vs. Normal Stress



Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material. Values for cohesion and friction angle determined from best-fit straight line to the data for the specific test conditions. Actual strength parameters may vary and should be determined by an engineer for site-specific conditions.

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Client:	Nobis Engineering, Inc.		
Project Name:	U.S. EPA Region 1 Analysis of Soil Samples		
Project Location:	---		
GTX #:	9188		
Start Date:	11/06/09	Tested By:	bfs
End Date:	11/23/09	Checked By:	rmt
Soil ID:	D01548 (GT-P07-110409AX)		
Soil Description:	Moist, brownish yellow silty sand with gravel		

Direct Shear Test Series by ASTM D 3080

Soil Preparation:	Target Compaction: 95% of Corrected Maximum Dry Density at the Corrected Optimum Moisture Content		
Compaction Characteristics:	Corrected Maximum Dry Density	131.0 pcf	
	Corrected Optimum Moisture Content	10.0 %	
	Compaction Test Method	ASTM D 698	
Test Equipment:	Top box = 12 in x 12 in; Bottom box = 16 in x 12 in; Load cells and LVDTs connected to data acquisition system for shear force, normal load and horizontal displacement readings; surface area = 144 in^2		
Maximum Particle Size Used, in:	1.5	Horizontal Displacement, in/min:	0.02
Soil Height, in:	3	Test Condition:	inundated
Gap Between Boxes, in:	1		

Parameter	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6
Initial Moisture Content, %	10.2	10.2	10.2	---	---	---
Initial Dry Density, pcf	125	125	125	---	---	---
Percent Compaction, %	95.4	95.4	95.4	---	---	---
Normal Compressive Stress, psf	600	1200	2400	---	---	---
Peak Shear Stress, psf	488	818.4	1648	---	---	---
Post Peak Shear Stress, psf	---	---	---	---	---	---
Final Moisture Content, %	26.5	25.0	22.1	---	---	---

Notes:

Peak Friction Angle:	**33**	**degrees**
Peak Cohesion:	**74**	**psf**
Post Peak Friction Angle:	**---**	**degrees**
Post Peak Cohesion:	**---**	**psf**

Figure a. Shear Force vs. Horizontal Displacement

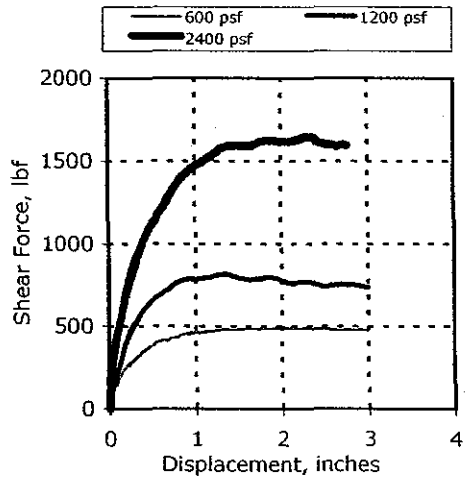
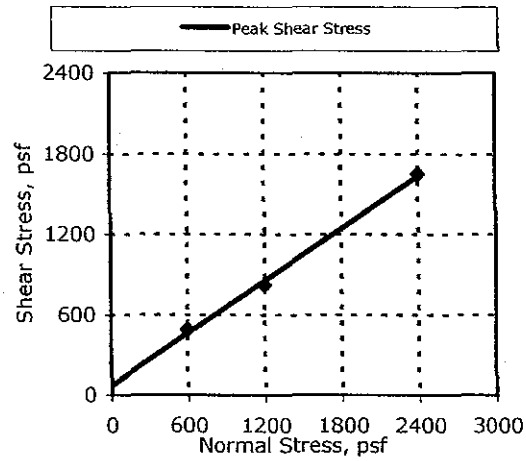


Figure b. Shear Stress vs. Normal Stress



Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material. Values for cohesion and friction angle determined from best-fit straight line to the data for the specific test conditions. Actual strength parameters may vary and should be determined by an engineer for site-specific conditions.

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Client:	Nobis Engineering, Inc.		
Project Name:	U.S. EPA Region 1 Analysis of Soil Samples		
Project Location:	---		
GTX #:	9188		
Start Date:	11/06/09	Tested By:	bfs
End Date:	11/20/09	Checked By:	rmt
Soil ID:	D01550 (GT-P08-110409AX)		
Soil Description:	Moist, brownish yellow silty sand with gravel		

Direct Shear Test Series by ASTM D 3080

Soil Preparation:	Target Compaction: 95% of Corrected Maximum Dry Density at the Corrected Optimum Moisture Content		
Compaction Characteristics:	Corrected Maximum Dry Density	119.5 pcf	
	Corrected Optimum Moisture Content	13.0 %	
	Compaction Test Method	ASTM D 698	
Test Equipment:	Top box = 12 in x 12 in; Bottom box = 16 in x 12 in; Load cells and LVDTs connected to data acquisition system for shear force, normal load and horizontal displacement readings; surface area = 144 in^2		
Maximum Particle Size Used, in:	1.5	Horizontal Displacement, in/min:	0.02
Soil Height, in:	3	Test Condition:	inundated
Gap Between Boxes, in:	1		

Parameter	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6
Initial Moisture Content, %	13.4	13.4	13.4	---	---	---
Initial Dry Density, pcf	113	113	113	---	---	---
Percent Compaction, %	94.9	94.9	94.9	---	---	---
Normal Compressive Stress, psf	600	1200	2400	---	---	---
Peak Shear Stress, psf	496	834.4	1570	---	---	---
Post Peak Shear Stress, psf	---	---	---	---	---	---
Final Moisture Content, %	25.4	23.1	21.3	---	---	---

Notes:

Peak Friction Angle:	**31**	**degrees**
Peak Cohesion:	**128**	**psf**
Post Peak Friction Angle:	**---**	**degrees**
Post Peak Cohesion:	**---**	**psf**

Figure a. Shear Force vs. Horizontal Displacement

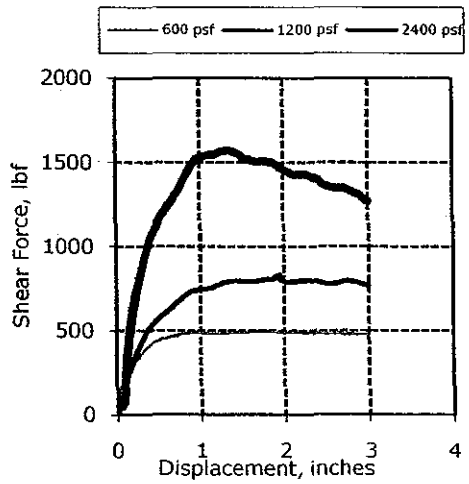
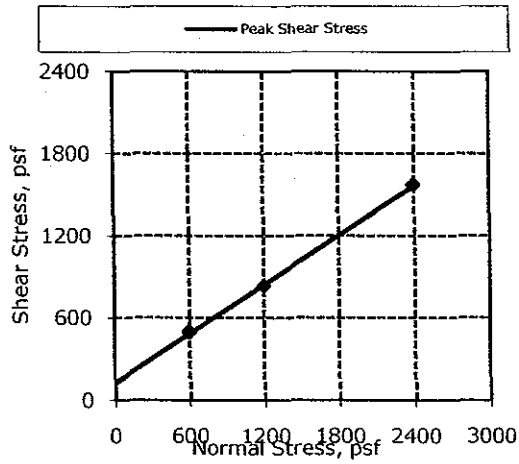


Figure b. Shear Stress vs. Normal Stress



Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material. Values for cohesion and friction angle determined from best-fit straight line to the data for the specific test conditions. Actual strength parameters may vary and should be determined by an engineer for site-specific conditions.

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Client:	Nobis Engineering, Inc.		
Project Name:	U.S. EPA Region 1 Analysis of Soil Samples		
Project Location:	---		
GTX #:	9188		
Start Date:	11/06/09	Tested By:	bfs
End Date:	11/20/09	Checked By:	rmt
Soil ID:	D01551 (GT-P08-110409BX)		
Soil Description:	Moist, brown silty sand		

Direct Shear Test Series by ASTM D 3080

Soil Preparation:	Target Compaction: 95% of Corrected Maximum Dry Density at the Corrected Optimum Moisture Content		
Compaction Characteristics:	Corrected Maximum Dry Density	119.5 pcf	
	Corrected Optimum Moisture Content	14.5 %	
	Compaction Test Method	ASTM D 698	
Test Equipment:	Top box = 12 in x 12 in; Bottom box = 16 in x 12 in; Load cells and LVDTs connected to data acquisition system for shear force, normal load and horizontal displacement readings; surface area = 144 in^2		
Maximum Particle Size Used, in:	1.5	Horizontal Displacement, in/min:	0.02
Soil Height, in:	3	Test Condition:	inundated
Gap Between Boxes, in:	1		

Parameter	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6
Initial Moisture Content, %	14.5	14.5	14.5	---	---	---
Initial Dry Density, pcf	114	114	114	---	---	---
Percent Compaction, %	95.6	95.6	95.6	---	---	---
Normal Compressive Stress, psf	600	1200	2400	---	---	---
Peak Shear Stress, psf	471	896.0	1614	---	---	---
Post Peak Shear Stress, psf	---	---	---	---	---	---
Final Moisture Content, %	27.0	24.1	23.2	---	---	---

Notes:

Peak Friction Angle:	**32**	**degrees**
Peak Cohesion:	**112**	**psf**
Post Peak Friction Angle:	**---**	**degrees**
Post Peak Cohesion:	**---**	**psf**

Figure a. Shear Force vs. Horizontal Displacement

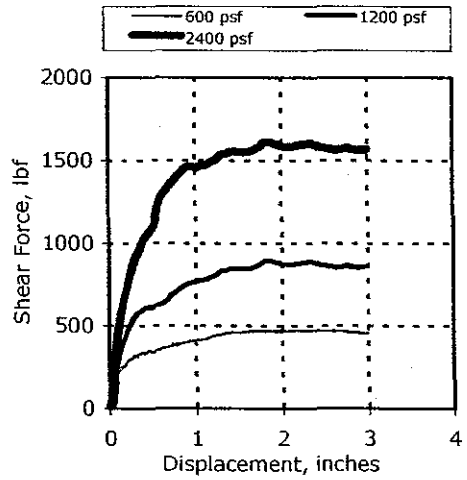
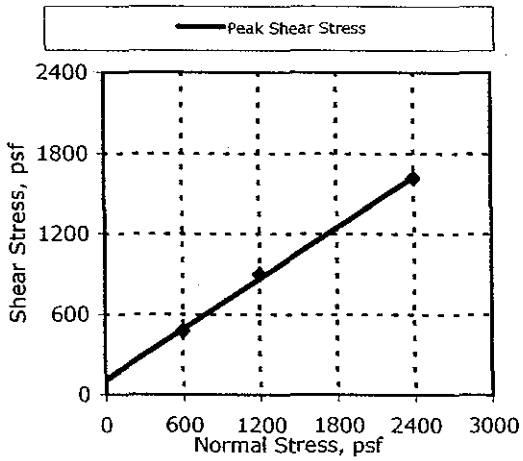


Figure b. Shear Stress vs. Normal Stress



Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material. Values for cohesion and friction angle determined from best-fit straight line to the data for the specific test conditions. Actual strength parameters may vary and should be determined by an engineer for site-specific conditions.

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Client:	Nobis Engineering, Inc.		
Project Name:	U.S. EPA Region 1 Analysis of Soil Samples		
Project Location:	---		
GTX #:	9188		
Start Date:	11/06/09	Tested By:	bfs
End Date:	11/20/09	Checked By:	rmt
Soil ID:	D01553 (GT-P11-110409AX)		
Soil Description:	Moist, reddish brown silty sand with gravel		

Direct Shear Test Series by ASTM D 3080

Soil Preparation:	Target Compaction: 95% of Corrected Maximum Dry Density at the Corrected Optimum Moisture Content		
Compaction Characteristics:	Corrected Maximum Dry Density	124.5 pcf	
	Corrected Optimum Moisture Content	12.5 %	
	Compaction Test Method	ASTM D 698	
Test Equipment:	Top box = 12 in x 12 in; Bottom box = 16 in x 12 in; Load cells and LVDTs connected to data acquisition system for shear force, normal load and horizontal displacement readings; surface area = 144 in^2		
Maximum Particle Size Used, in:	1.5	Horizontal Displacement, in/min:	0.02
Soil Height, in:	3	Test Condition:	inundated
Gap Between Boxes, in:	1		

Parameter	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6
Initial Moisture Content, %	12.8	12.8	12.8	---	---	---
Initial Dry Density, pcf	119	119	119	---	---	---
Percent Compaction, %	95.7	95.7	95.7	---	---	---
Normal Compressive Stress, psf	600	1200	2400	---	---	---
Peak Shear Stress, psf	476	818.4	1622	---	---	---
Post Peak Shear Stress, psf	---	---	---	---	---	---
Final Moisture Content, %	24.0	22.6	20.4	---	---	---

Notes:

Peak Friction Angle:	**33**	**degrees**
Peak Cohesion:	**75**	**psf**
Post Peak Friction Angle:	**---**	**degrees**
Post Peak Cohesion:	**---**	**psf**

Figure a. Shear Force vs. Horizontal Displacement

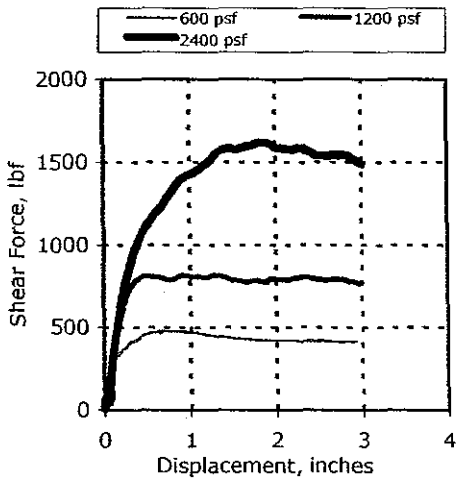
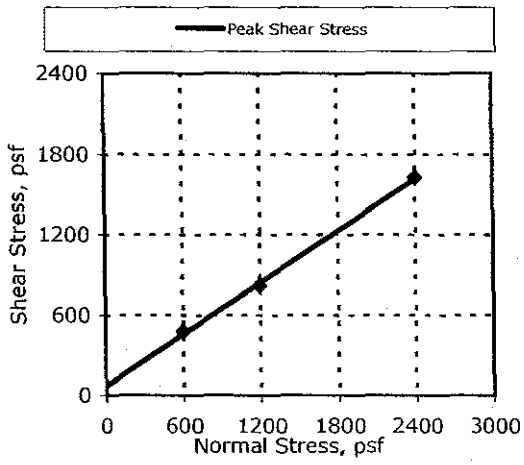


Figure b. Shear Stress vs. Normal Stress



Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material. Values for cohesion and friction angle determined from best-fit straight line to the data for the specific test conditions. Actual strength parameters may vary and should be determined by an engineer for site-specific conditions.

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Client:	Nobis Engineering, Inc.		
Project Name:	U.S. EPA Region 1 Analysis of Soil Samples		
Project Location:	---		
GTX #:	9188		
Start Date:	11/06/09	Tested By:	bfs
End Date:	11/23/09	Checked By:	rmt
Soil ID:	D01554 (GT-P11-110409BX)		
Soil Description:	Moist, reddish brown red silty sand		

Direct Shear Test Series by ASTM D 3080

Soil Preparation:	Target Compaction: 95% of Corrected Maximum Dry Density at the Corrected Optimum Moisture Content		
Compaction Characteristics:	Maximum Dry Density	113.5 pcf	
	Optimum Moisture Content	15.5 %	
	Compaction Test Method	ASTM D 698	
Test Equipment:	Top box = 12 in x 12 in; Bottom box = 16 in x 12 in; Load cells and LVDTs connected to data acquisition system for shear force, normal load and horizontal displacement readings; surface area = 144 in^2		
Maximum Particle Size Used, in:	1.5	Horizontal Displacement, in/min:	0.02
Soil Height, in:	3	Test Condition:	inundated
Gap Between Boxes, in:	1		

Parameter	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6
Initial Moisture Content, %	15.6	15.6	15.6	---	---	---
Initial Dry Density, pcf	107	107	107	---	---	---
Percent Compaction, %	94.3	94.3	94.3	---	---	---
Normal Compressive Stress, psf	600	1200	2400	---	---	---
Peak Shear Stress, psf	446	796.0	1503	---	---	---
Post Peak Shear Stress, psf	---	---	---	---	---	---
Final Moisture Content, %	26.8	25.4	22.5	---	---	---

Notes:

Peak Friction Angle:	**30**	**degrees**
Peak Cohesion:	**92**	**psf**
Post Peak Friction Angle:	**---**	**degrees**
Post Peak Cohesion:	**---**	**psf**

Figure a. Shear Force vs. Horizontal Displacement

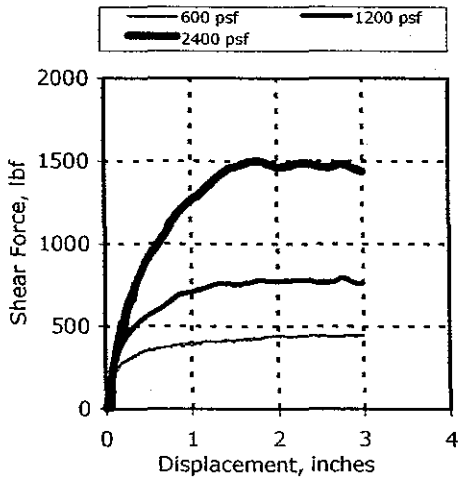
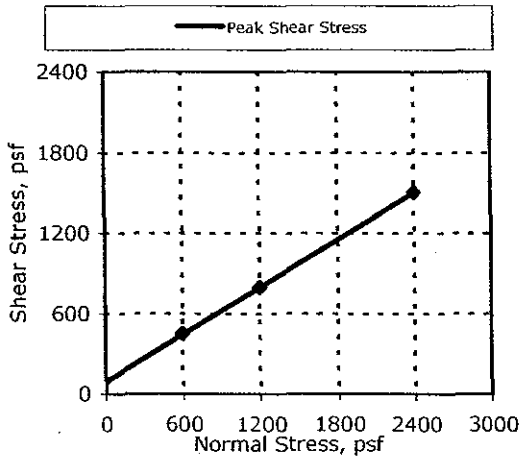


Figure b. Shear Stress vs. Normal Stress



Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material. Values for cohesion and friction angle determined from best-fit straight line to the data for the specific test conditions. Actual strength parameters may vary and should be determined by an engineer for site-specific conditions.

Ely Copper Mine SuperFund Site
80024

November 4, 2009
Arrived On Site 0800
Key Personnel On Site
Vinnie DeLorosse - Western
Carl Thunberg - Nobis
Darlene Daniels - GTX
0800 - 1000 - Site safety orientation and site reconnaissance

1000 - Sample GT-P8-~~UWA~~-110409-4X
taken at top of upper waste pile 9
γ_{wet} = 105.9
γ_{dry} = 92.2
ω = 14.9
4 ~~3~~ samples taken for
sieve / proctor / direct shear
Field density test taken using
Troxler Model 3440
nuclear densometer

1020 - Sample GT-P4-~~UWA~~-110409-4X
for sieve only

Nov. 4, 2009 cont.

1040 - Sample No.
GT-P8-~~UWA~~-110409-BX

γ_{wet} = 120.5
γ_{dry} = 104.4
ω = 15.5
taken in middle terrace
- loading dock area
4 samples taken for
sieve / proctor / direct shear

1115 Sample No.
GT-P7-~~UWA~~-110409-4X
Pile No. 7 - upper waste pile
γ_{wet} = 112.8
γ_{dry} = 103.0
ω = 9.5

1130 Sample No.
GT-P7-~~UWA~~-110409-BX
Sieve Only

1140 Sample No. A
GT-P9-~~UWA~~-110409-~~B~~X

Nov. 4, 2009 (cont.)

1155 Sample No.
GT-P11-~~LWA~~-110409-AX
taken in lower waste pile 11
γ_{wet} = 120.1
γ_{dry} = 104.9
ω = 14.5
Four containers for sieve/proctor/direct shear

1215 Sample No.
GT-P11-~~LWA~~-110409-BX

γ_{wet} = 111.7
γ_{dry} = 92.1
ω = 21.3
Four containers taken for sieve/proctor/direct shear

1225 Sample No.
GT-P12-~~LWA~~-110409-AX
For sieve only. 1 container.

Nov. 4, 2009 (cont.)

1235 Sample No.
~~FTA~~
GT-FM-~~FTA~~-110409-AX
for sieve only.
Taken from flotation mill flotation tailings pile

1250 Sample No.
GT-RB-~~RBS~~-110409-AX
Sieve only
taken within in previously disturbed area within roast bed area.

1305 Sample No.
GT-EBS-110409-AX
γ_{wet} = 134.2
γ_{dry} = 111.1
ω = 20.8
4 sample containers

1300 - 1400 GTX filling out chain of custody forms & bagging samples
GTX left site at 1400
Nobis/Wanta left site at 1430

A separate Form should be completed for each sampling event. Refer to Attachment A for instructions on completing this form, Attachment B for a complete list of the parameter codes and Attachment C for an example of a completed form.

1.EPA Program: TSCA CERCLA RCRA DW NPDES CAA
Other: CERCLA
Projected Date(s) of Sampling July 2009-December 2009
EPA Site Manager Ed Hathaway
EPA Case Team Members
Christine Clark

Site Name Ely Copper Mine
Site Location Vershire, Vermont
Assigned Site Latitude/Longitude 72°55'36.42" N / 72°18'07.55" W
CERCLA Site/Spill Identifier No. 01H3/OU2 (Include Operable Unit)
Phase: ERA SA/SI pre-RI RI (phase I, etc.) FS RD RA post-RA
(circle one) Other: FS

2.QAPP Title and Revision Date Quality Assurance Project Plan, Ely Copper Mine
Revsion 0, May 2009
Approved by: TBD Date of Approval: TBD
Title of Approving Official: Organization*: EPA
*If other than EPA, record date approval authority was delegated:

EPA Oversight Project (circle one) Y N
Confirmatory Analysis for Field Screening Y N
Are comparability criteria documented? Y N

Type of EPA Oversight (circle one) PRP or FF Other:
If EPA Oversight or Confirmatory: % splits

3. a.	Matrix Code[1]	GW	Soil/SD/TP	Biota	GW/DW /SW	GW/DW /SW	Soil/SD /TP	Soil/SD	
b.	Parameter Code[2]	SOM01.2	ILM05.4	ILM05.4	General Chem. Param.	ILM05.4	General Soil Param	Physical Tests	
c.	Preservation Code[3]	1,5	5	5	4,5	2,5,6	5		
d.	Analytical Services Mechanism	RAS	RAS	DAS	DAS	RAS	DAS	DAS	
e.	No. of Sample Locations	6	58	TBD	76-195	168	82	2 ~~TBD~~	
	Field QC:								
f.	Field Duplicate Pairs	1/20	1/20	1/20	1/20	1/20	1/20	0 ~~1/20~~	
g.	Equipment Blanks		1/20				1/20 (TOC and SPLP)		
h.	VOA Trip Blanks	1/cooler							
i.	Cooler Temperature Blanks	1/cooler	1/cooler	1/cooler	1/cooler	1/cooler	1/cooler		
j.	Bottle Blanks	0	0	0	0	0	0	0	
k.	Other:								
l.	PES sent to Laboratory	1/20	1/20			1/20			
	Laboratory QC:								
m.	Reagent Blank	1/SDG	1/SDG	1/SDG	1/SDG	1/SDG	1/SDG		
n.	Duplicate		1/SDG	1/SDG	1/SDG	1/SDG	1/SDG		
o.	Matrix Spike	1/SDG	1/SDG	1/SDG	1/SDG	1/SDG	1/SDG (TOC/ SPLP)		
p.	Matrix Spike Duplicate	1/SDG			1/SDG		1/SDG (TOC/ SPLP)		
q.	Other: LCS		1/SDG	1/SDG	1/SDG	1/SDG	1/SDG		

4.Site Information
Site Dimensions_____33.4 acres_____
List all potentially contaminated matrices_____GW , AR_____
Range of Depth to Groundwater___Unknown _____
Soil Types: Surface Subsurface Other:_____surface, subsurface, test pits_____
Sediment Types: Stream Pond Estuary Wetland Other:_____ Expected Soil/Sediment Moisture Content: High Low - LOW

When multiple matrices will be sampled during a sampling event, complete Sections 5-10 for each matrix.

Matrix Code[1]___GW, SW, DW, SD, SO_____

5. Data Use (circle all that apply) Site Investigation/Assessment PRP Determination Removal Actions
Nature and Extent of Contamination **Human and/or Ecological Risk Assessment** Remediation Alternatives
Engineering Design Remedial Action
Post-Remedial Action (quarterly monitoring) Other:_____

6.Summarize DQOs:___ to estimate the nature and extent of Site contamination, estimate the biological impacts resulting from source area contamination, and to refine the conceptual site model.

Complete Table if applicable

COCs	Action Levels		Analytical Method-Quantitation Limits	
See Tables 6-2 through 6-12 in QAPP				

7.Sampling Method (circle technique)Bailer **Low flow pump** (Region I method: **Yes** No) Peristaltic Pump
Positive Displacement Pump Faucet or Spigot Other:___Biota Sampling_____
Split Spoon Dredge Trowel Other:_____

Sampling Procedures (SOP name, No., Rev. #, and date)_____SA-003, Low Flow/Low Stress GW Sampling, Rev 1, Jan. 2009, See Table 9-1 in QAPP_____
List Background Sample Locations_____See Table 8-1 in QAPP_____
Circle: **Grab** or Composite
"Hot spots" sampled: **Yes** No

8.Field Data (circle) **ORP** **pH** **Specific Conductance** **Dissolved O_2** **Temperature** **Turbidity**

Other:_____XRF screening data for metals_____

9.Analytical Methods and Parameters

Method title/SOP name	Method/SOP Identification number	Revision Date	Target Parameters (VOA, SV, Pest/PCB, Metals, etc.)
SOM01.2	SOM01.2	April 2007	VOA, SV. Pest/PCB
ILM05.4	ILM05.4	December 2006	Metals (ICP-AES, ICP-MS, Hg)
SW846 1312 SPLP Metals	SW-846 1312/6010C/7470A	February 2007	SPLP Metals
Nitrate/nitrite	MCAWW 353.2	MCAWW, 1982	NO3/NO2
Total Organic Carbon	SW-846 9060	February 2007	TOC

Anions by IC	300.0	MCAWW, 1982	Chloride, sulfate
Titrimetric Procedure for Sulfides	9030/9034	SW-846, 2007	Sulfide
Alkalinity by Titration	SM 2320B	SM, 1992	Alkalinity
Acidity	SM2310B	SM, 1992	Acidity
See QAPP Table 12-1 for remaining methods.			

10. Validation Criteria (circle one) 1. Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, **Part II, III or IV**
2. Other Approved Validation Criteria:_____
Validation Tier (circle one) I **II** **III** Partial Tier III: _____Tier I for general chemistry parameters._____
Company/Organization Performing Data Validation_____Nobis Engineering, Inc._____**Prime** or Subcontractor (circle one)

11. Company Name_____Nobis Engineering, Inc._____Contract Number_____EP-S1-06-03_____
Contract Name (e.g. START, RACS, etc.)____RAC2_____Work Assignment No.__0024-RI-CO-017L_____
Person Completing Form/Title____Gail DeRuzzo/Lead Chemist_____Date of DQO Summary Form Completion__5/15/09_____

Matrix Codes[1] - Refer to Attachment B, Part I
Parameter Codes[2] - Refer to Attachment B, Part II

Preservation Codes[3]

1. HCl to pH ≤ 2
2. HNO_3
3. $NaHSO_4$
4. H_2SO_4
5. Cool @ 4°C (± 2°)
6. NaOH
7. $K_2Cr_2O_7$
8. Freeze
9. Room Temperature (avoid excessive heat)
10. Other (Specify)
N. Not preserved

* - To supplement Matrix Codes and/or Parameter Codes contact the QA Unit

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0045S SDG NO.: J0905729

Sample Name:		D01557		D01558		D01559		D01560		D01561	
Sample Location:		SW-49		SW-77		SW-79		SW-78		SW-47	
Lab Sample ID:		J0905729-001		J0905729-002		J0905729-003		J0905729-004		J0905729-005	
Station ID:		SW-49-111609AX		SW-77-111609AX		SW-79-111609AX		SW-78-111609AX		SW-47-111609-AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		16 Nov 09		16 Nov 09		16 Nov 09		16 Nov 09		16 Nov 09	
Date Analyzed:		30 Nov 09		30 Nov 09		30 Nov 09		30 Nov 09		30 Nov 09	
Chemical	CRQL										
Alkalinity (as CACO3)	5	5	U	5	U	5	U	5	U	5	U
ALKALINITY, BICARBONATE (AS CACO3)	5	5	U	5	U	5	U	5	U	5	U
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U	5	U	5	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0045S SDG NO.: J0905729

Sample Name:		D01562		D01563		D01564		D01566		D01567	
Sample Location:		SW-75		SW-80		SW-48		SW-45		SW-46	
Lab Sample ID:		J0905729-006		J0905729-007		J0905729-008		J0905729-010		J0905729-011	
Station ID:		SW-75-111609AX		SW-80-111609AX		SW-48-111609AX		SW-45-111709AD		SW-46-111609AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		16 Nov 09		16 Nov 09		16 Nov 09		17 Nov 09		17 Nov 09	
Date Analyzed:		30 Nov 09		30 Nov 09		30 Nov 09		30 Nov 09		30 Nov 09	
Chemical	CRQL										
Alkalinity (as CACO3)	5	5	U	5	U	5	U	5	U	5	U
ALKALINITY, BICARBONATE (AS CACO3)	5	5	U	5	U	5	U	5	U	5	U
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U	5	U	5	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0045S SDG NO.: J0905729

Sample Name:		D01568		D01569		D01570		D01571	
Sample Location:		SW-81		SW-82		SW-71		SW-42	
Lab Sample ID:		J0905729-012		J0905729-013		J0905729-014		J0905729-015	
Station ID:		SW-81-111709AX		SW-82-111709AX		SW-71-111709AX		SW-42-111709AX	
Dilution Factor:		1		1		1		1	
Sample Date:		17 Nov 09		17 Nov 09		17 Nov 09		17 Nov 09	
Date Analyzed:		30 Nov 09		30 Nov 09		30 Nov 09		30 Nov 09	
Chemical	CRQL								
Alkalinity (as CACO3)	5	5	U	5	U	2	J	5	U
ALKALINITY, BICARBONATE (AS CACO3)	5	5	U	5	U	2	J	5	U
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U	5	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0045S SDG NO.: J0905729

Sample Name:		D01572		D01573	
Sample Location:		SW-29		SW-17	
Lab Sample ID:		J0905729-016		J0905729-017	
Station ID:		SW-29-111709AX		SW-17-111709AX	
Dilution Factor:		1		1	
Sample Date:		17 Nov 09		17 Nov 09	
Date Analyzed:		30 Nov 09		30 Nov 09	
Chemical	CRQL				
Alkalinity (as CACO3)	5	5	U	16	
ALKALINITY, BICARBONATE (AS CACO3)	5	5	U	16	
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
TDS Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0045S SDG
NO.: J0905729

Sample Name:		D01557		D01558		D01559		D01560		D01561		D01562	
Sample Location:		SW-49		SW-77		SW-79		SW-78		SW-47		SW-75	
Lab Sample ID:		J0905729-001		J0905729-002		J0905729-003		J0905729-004		J0905729-005		J0905729-006	
Station ID:		SW-49-111609AX		SW-77-111609AX		SW-79-111609AX		SW-78-111609AX		SW-47-111609-AX		SW-75-111609AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		16 Nov 09		16 Nov 09		16 Nov 09		16 Nov 09		16 Nov 09		16 Nov 09	
Date Analyzed:		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09	
Chemical	CRQL												
Total Dissolved Solids	10	320		49		600		680		940		670	

DATA SUMMARY TABLE
Tier I Unvalidated Data
TDS Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0045S SDG
NO.: J0905729

Sample Name:		D01563		D01564		D01565		D01566		D01567		D01568	
Sample Location:		SW-80		SW-48		SW-45		SW-45		SW-46		SW-81	
Lab Sample ID:		J0905729-007		J0905729-008		J0905729-009		J0905729-010		J0905729-011		J0905729-012	
Station ID:		SW-80-111609AX		SW-48-111609AX		SW-45-111709AX		SW-45-111709AD		SW-46-111609AX		SW-81-111709AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		16 Nov 09		16 Nov 09		17 Nov 09		17 Nov 09		17 Nov 09		17 Nov 09	
Date Analyzed:		20 Nov 09		20 Nov 09		20 Nov 09		20 Nov 09		20 Nov 09		20 Nov 09	
Chemical	CRQL												
Total Dissolved Solids	10	190		62		560		580		480		610	

DATA SUMMARY TABLE
Tier I Unvalidated Data
TDS Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0045S SDG
NO.: J0905729

Sample Name:		D01569		D01570		D01571		D01572		D01573	
Sample Location:		SW-82		SW-71		SW-42		SW-29		SW-17	
Lab Sample ID:		J0905729-013		J0905729-014		J0905729-015		J0905729-016		J0905729-017	
Station ID:		SW-82-111709AX		SW-71-111709AX		SW-42-111709AX		SW-29-111709AX		SW-17-111709AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		17 Nov 09		17 Nov 09		17 Nov 09		17 Nov 09		17 Nov 09	
Date Analyzed:		20 Nov 09		20 Nov 09		20 Nov 09		20 Nov 09		20 Nov 09	
Chemical	CRQL										
Total Dissolved Solids	10	490		110		530		170		20	

DATA SUMMARY TABLE
Tier I Unvalidated Data
TSS Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0045S SDG NO.:
J0905729

Sample Name:		D01557		D01558		D01559		D01560		D01561		D01562	
Sample Location:		SW-49		SW-77		SW-79		SW-78		SW-47		SW-75	
Lab Sample ID:		J0905729-001		J0905729-002		J0905729-003		J0905729-004		J0905729-005		J0905729-006	
Station ID:		SW-49-111609AX		SW-77-111609AX		SW-79-111609AX		SW-78-111609AX		SW-47-111609-AX		SW-75-111609AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		16 Nov 09		16 Nov 09		16 Nov 09		16 Nov 09		16 Nov 09		16 Nov 09	
Date Analyzed:		20 Nov 09		20 Nov 09		20 Nov 09		20 Nov 09		20 Nov 09		20 Nov 09	
Chemical	CRQL												
Total Suspended Solids	5	5	U	5	U	2.5	J	29		22		5.5	

DATA SUMMARY TABLE
Tier I Unvalidated Data
TSS Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0045S SDG NO.:
J0905729

Sample Name:		D01563		D01564		D01565		D01566		D01567		D01568	
Sample Location:		SW-80		SW-48		SW-45		SW-45		SW-46		SW-81	
Lab Sample ID:		J0905729-007		J0905729-008		J0905729-009		J0905729-010		J0905729-011		J0905729-012	
Station ID:		SW-80-111609AX		SW-48-111609AX		SW-45-111709AX		SW-45-111709AD		SW-46-111609AX		SW-81-111709AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		16 Nov 09		16 Nov 09		17 Nov 09		17 Nov 09		17 Nov 09		17 Nov 09	
Date Analyzed:		20 Nov 09		20 Nov 09		20 Nov 09		20 Nov 09		20 Nov 09		20 Nov 09	
Chemical	CRQL												
Total Suspended Solids	5	5	U	5	U	5	U	5	U	5	U	2.5	J

DATA SUMMARY TABLE
Tier I Unvalidated Data
TSS Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0045S SDG NO.:
J0905729

Sample Name:		D01569		D01570		D01571		D01572		D01573	
Sample Location:		SW-82		SW-71		SW-42		SW-29		SW-17	
Lab Sample ID:		J0905729-013		J0905729-014		J0905729-015		J0905729-016		J0905729-017	
Station ID:		SW-82-111709AX		SW-71-111709AX		SW-42-111709AX		SW-29-111709AX		SW-17-111709AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		17 Nov 09		17 Nov 09		17 Nov 09		17 Nov 09		17 Nov 09	
Date Analyzed:		20 Nov 09		20 Nov 09		20 Nov 09		20 Nov 09		20 Nov 09	
Chemical	CRQL										
Total Suspended Solids	5	5	U	7		5	U	5	U	5	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anions Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.:
0045S SDG NO.:
J0905729

Sample Name:		D01557		D01558		D01559		D01559		D01560		D01560	
Sample Location:		SW-49		SW-77		SW-79		SW-79		SW-78		SW-78	
Lab Sample ID:		J0905729-001		J0905729-002		J0905729-003		J0905729-003		J0905729-004		J0905729-004	
Station ID:		SW-49-111609AX		SW-77-111609AX		SW-79-111609AX		SW-79-111609AX		SW-78-111609AX		SW-78-111609AX	
Dilution Factor:		1		1		1		5		1		5	
Sample Date:		16 Nov 09		16 Nov 09		16 Nov 09		16 Nov 09		16 Nov 09		16 Nov 09	
Date Analyzed:		24 Nov 09		24 Nov 09		24 Nov 09		25 Nov 09		24 Nov 09		25 Nov 09	
Chemical	CRQL												
Chloride	0.2	0.4		0.34		0.35				0.36			
Sulfate	0.4	200		22									
Sulfate	2							360				410	

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anions Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.:
0045S SDG NO.:
J0905729

Sample Name:		D01561		D01561		D01562		D01562		D01563		D01564	
Sample Location:		SW-47		SW-47		SW-75		SW-75		SW-80		SW-48	
Lab Sample ID:		J0905729-005		J0905729-005		J0905729-006		J0905729-006		J0905729-007		J0905729-008	
Station ID:		SW-47-111609-AX		SW-47-111609-AX		SW-75-111609AX		SW-75-111609AX		SW-80-111609AX		SW-48-111609AX	
Dilution Factor:		1		5		1		5		1		1	
Sample Date:		16 Nov 09		16 Nov 09		16 Nov 09		16 Nov 09		16 Nov 09		16 Nov 09	
Date Analyzed:		24 Nov 09		25 Nov 09		24 Nov 09		25 Nov 09		24 Nov 09		24 Nov 09	
Chemical	CRQL												
Chloride	0.2	0.34				0.34				0.38		0.42	
Sulfate	0.4									130		39	
Sulfate	2			560				390					

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anions Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.:
0045S SDG NO.:
J0905729

Sample Name:		D01566		D01566		D01567		D01567		D01568		D01568	
Sample Location:		SW-45		SW-45		SW-46		SW-46		SW-81		SW-81	
Lab Sample ID:		J0905729-010		J0905729-010		J0905729-011		J0905729-011		J0905729-012		J0905729-012	
Station ID:		SW-45-111709AD		SW-45-111709AD		SW-46-111609AX		SW-46-111609AX		SW-81-111709AX		SW-81-111709AX	
Dilution Factor:		1		5		1		5		1		5	
Sample Date:		17 Nov 09		17 Nov 09		17 Nov 09		17 Nov 09		17 Nov 09		17 Nov 09	
Date Analyzed:		24 Nov 09		25 Nov 09		24 Nov 09		25 Nov 09		24 Nov 09		25 Nov 09	
Chemical	CRQL												
Chloride	0.2	0.36				0.38				0.38			
Sulfate	0.4												
Sulfate	2			390				330				410	

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anions Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.:
0045S SDG NO.:
J0905729

Sample Name:		D01569		D01569		D01570		D01571		D01571	
Sample Location:		SW-82		SW-82		SW-71		SW-42		SW-42	
Lab Sample ID:		J0905729-013		J0905729-013		J0905729-014		J0905729-015		J0905729-015	
Station ID:		SW-82-111709AX		SW-82-111709AX		SW-71-111709AX		SW-42-111709AX		SW-42-111709AX	
Dilution Factor:		1		5		1		1		5	
Sample Date:		17 Nov 09		17 Nov 09		17 Nov 09		17 Nov 09		17 Nov 09	
Date Analyzed:		24 Nov 09		25 Nov 09		24 Nov 09		24 Nov 09		25 Nov 09	
Chemical	CRQL										
Chloride	0.2	0.38				0.57		0.36			
Sulfate	0.4					70					
Sulfate	2			350						360	

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anions Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.:
0045S SDG NO.:
J0905729

Sample Name:		D01572		D01573	
Sample Location:		SW-29		SW-17	
Lab Sample ID:		J0905729-016		J0905729-017	
Station ID:		SW-29-111709AX		SW-17-111709AX	
Dilution Factor:		1		1	
Sample Date:		17 Nov 09		17 Nov 09	
Date Analyzed:		24 Nov 09		24 Nov 09	
Chemical	CRQL				
Chloride	0.2	0.36		0.4	
Sulfate	0.4	110		6.8	
Sulfate	2				

DATA SUMMARY TABLE
Tier I Unvalidated Data
Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT

CASE NO.: 0045S
SDG NO.: J0905729

Sample Name:		D01557		D01558		D01559		D01560		D01561		D01562	
Sample Location:		SW-49		SW-77		SW-79		SW-78		SW-47		SW-75	
Lab Sample ID:		J0905729-001		J0905729-002		J0905729-003		J0905729-004		J0905729-005		J0905729-006	
Station ID:		SW-49-111609AX		SW-77-111609AX		SW-79-111609AX		SW-78-111609AX		SW-47-111609-AX		SW-75-111609AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		16 Nov 09		16 Nov 09		16 Nov 09		16 Nov 09		16 Nov 09		16 Nov 09	
Date Analyzed:		01 Dec 09		01 Dec 09		01 Dec 09		01 Dec 09		01 Dec 09		01 Dec 09	
Chemical	CRQL												
ACIDITY, TOTAL	10	67		17		140		160		400		270	

DATA SUMMARY TABLE
Tier I Unvalidated Data
Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT

CASE NO.: 0045S
SDG NO.: J0905729

Sample Name:		D01563		D01564		D01566		D01567		D01568		D01569	
Sample Location:		SW-80		SW-48		SW-45		SW-46		SW-81		SW-82	
Lab Sample ID:		J0905729-007		J0905729-008		J0905729-010		J0905729-011		J0905729-012		J0905729-013	
Station ID:		SW-80-111609AX		SW-48-111609AX		SW-45-111709AD		SW-46-111609AX		SW-81-111709AX		SW-82-111709AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		16 Nov 09		16 Nov 09		17 Nov 09		17 Nov 09		17 Nov 09		17 Nov 09	
Date Analyzed:		01 Dec 09		01 Dec 09		01 Dec 09		01 Dec 09		01 Dec 09		01 Dec 09	
Chemical	CRQL												
ACIDITY, TOTAL	10	110		10	U	160		150		180		160	

DATA SUMMARY TABLE
Tier I Unvalidated Data
Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT

CASE NO.: 0045S
SDG NO.: J0905729

Sample Name:		D01570		D01571		D01572		D01573	
Sample Location:		SW-71		SW-42		SW-29		SW-17	
Lab Sample ID:		J0905729-014		J0905729-015		J0905729-016		J0905729-017	
Station ID:		SW-71-111709AX		SW-42-111709AX		SW-29-111709AX		SW-17-111709AX	
Dilution Factor:		1		1		1		1	
Sample Date:		17 Nov 09		17 Nov 09		17 Nov 09		17 Nov 09	
Date Analyzed:		01 Dec 09		01 Dec 09		01 Dec 09		01 Dec 09	
Chemical	CRQL								
ACIDITY, TOTAL	10	10	U	150		38		10	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrate/Nitrite Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0045S SDG NO.: J0905729

Sample Name:		D01557		D01558		D01559		D01560		D01561	
Sample Location:		SW-49		SW-77		SW-79		SW-78		SW-47	
Lab Sample ID:		J0905729-001		J0905729-002		J0905729-003		J0905729-004		J0905729-005	
Station ID:		SW-49-111609AX		SW-77-111609AX		SW-79-111609AX		SW-78-111609AX		SW-47-111609-AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		16 Nov 09		16 Nov 09		16 Nov 09		16 Nov 09		16 Nov 09	
Date Analyzed:		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09	
Chemical	CRQL										
Nitrogen, Nitrite + Nitrate	0.02	0.058		0.056		0.02	U	0.02	U	0.02	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrate/Nitrite Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0045S SDG NO.: J0905729

	Sample Name:	D01562		D01563		D01564		D01565		D01566	
	Sample Location:	SW-75		SW-80		SW-48		SW-45		SW-45	
	Lab Sample ID:	J0905729-006		J0905729-007		J0905729-008		J0905729-009		J0905729-010	
	Station ID:	SW-75-111609AX		SW-80-111609AX		SW-48-111609AX		SW-45-111709AX		SW-45-111709AD	
	Dilution Factor:	1		1		1		1		1	
	Sample Date:	16 Nov 09		16 Nov 09		16 Nov 09		17 Nov 09		17 Nov 09	
	Date Analyzed:	24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09	
Chemical	CRQL										
Nitrogen, Nitrite + Nitrate	0.02	0.11		0.02	U	0.02	U	0.08		0.079	

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrate/Nitrite Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0045S SDG NO.: J0905729

Sample Name:		D01567		D01568		D01569		D01570		D01571	
Sample Location:		SW-46		SW-81		SW-82		SW-71		SW-42	
Lab Sample ID:		J0905729-011		J0905729-012		J0905729-013		J0905729-014		J0905729-015	
Station ID:		SW-46-111609AX		SW-81-111709AX		SW-82-111709AX		SW-71-111709AX		SW-42-111709AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		17 Nov 09		17 Nov 09		17 Nov 09		17 Nov 09		17 Nov 09	
Date Analyzed:		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09	
Chemical	CRQL										
Nitrogen, Nitrite + Nitrate	0.02	0.17		0.061		0.02	U	0.02	U	0.02	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrate/Nitrite Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0045S SDG NO.: J0905729

Sample Name:		D01572		D01573	
Sample Location:		SW-29		SW-17	
Lab Sample ID:		J0905729-016		J0905729-017	
Station ID:		SW-29-111709AX		SW-17-111709AX	
Dilution Factor:		1		1	
Sample Date:		17 Nov 09		17 Nov 09	
Date Analyzed:		24 Nov 09		24 Nov 09	
Chemical	CRQL				
Nitrogen, Nitrite + Nitrate	0.02	0.02	U	0.02	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
Sulfide Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.:
0045S SDG NO.:
J0905729

Sample Name:		D01557		D01558		D01559		D01560		D01561		D01562	
Sample Location:		SW-49		SW-77		SW-79		SW-78		SW-47		SW-75	
Lab Sample ID:		J0905729-001		J0905729-002		J0905729-003		J0905729-004		J0905729-005		J0905729-006	
Station ID:		SW-49-111609AX		SW-77-111609AX		SW-79-111609AX		SW-78-111609AX		SW-47-111609-AX		SW-75-111609AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		16 Nov 09		16 Nov 09		16 Nov 09		16 Nov 09		16 Nov 09		16 Nov 09	
Date Analyzed:		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09	
Chemical	CRQL												
Sulfide	2	2	U	2	U	2	U	2	U	2	U	2	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
Sulfide Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.:
0045S SDG NO.:
J0905729

Sample Name:		D01563		D01564		D01565		D01566		D01567		D01568	
Sample Location:		SW-80		SW-48		SW-45		SW-45		SW-46		SW-81	
Lab Sample ID:		J0905729-007		J0905729-008		J0905729-009		J0905729-010		J0905729-011		J0905729-012	
Station ID:		SW-80-111609AX		SW-48-111609AX		SW-45-111709AX		SW-45-111709AD		SW-46-111609AX		SW-81-111709AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		16 Nov 09		16 Nov 09		17 Nov 09		17 Nov 09		17 Nov 09		17 Nov 09	
Date Analyzed:		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09	
Chemical	CRQL												
Sulfide	2	2	U	2	U	2	U	2	U	2	U	2	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
Sulfide Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.:
0045S SDG NO.:
J0905729

Sample Name:		D01569		D01570		D01571		D01572		D01573	
Sample Location:		SW-82		SW-71		SW-42		SW-29		SW-17	
Lab Sample ID:		J0905729-013		J0905729-014		J0905729-015		J0905729-016		J0905729-017	
Station ID:		SW-82-111709AX		SW-71-111709AX		SW-42-111709AX		SW-29-111709AX		SW-17-111709AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		17 Nov 09		17 Nov 09		17 Nov 09		17 Nov 09		17 Nov 09	
Date Analyzed:		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09	
Chemical	CRQL										
Sulfide	2	2	U	0.53	J	2	U	2	U	2	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueaous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0045S SDG NO.: J0905805

Sample Name:		D01574		D01575		D01576		D01577		D01578	
Sample Location:		SW-41		SW-83		SW-83		SW-73		SW-72	
Lab Sample ID:		J0905805-001		J0905805-002		J0905805-003		J0905805-004		J0905805-005	
Station ID:		SW-41-111709AX		SW-83-111809AX		SW-83-111809AD		SW-73-111809AX		SW-72-111809AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		17 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09	
Date Analyzed:		30 Nov 09		30 Nov 09		30 Nov 09		30 Nov 09		30 Nov 09	
Chemical	CRQL										
Alkalinity (as CACO3)	5	4	J	5	U	5	U	27		25	
ALKALINITY, BICARBONATE (AS CACO3)	5	4	J	5	U	5	U	27		25	
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U	5	U	5	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueaous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0045S SDG NO.: J0905805

Sample Name:		D01579		D01580		D01581		D01582		D01583	
Sample Location:		SW-51		SW-40		SW-13		SW-32		SW-12	
Lab Sample ID:		J0905805-006		J0905805-007		J0905805-008		J0905805-009		J0905805-010	
Station ID:		SW-51-111809AX		SW-40-111709AX		SW-13-111809AX		SW-32-111809AX		SW-12-111809AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		18 Nov 09		17 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09	
Date Analyzed:		30 Nov 09		30 Nov 09		30 Nov 09		30 Nov 09		30 Nov 09	
Chemical	CRQL										
Alkalinity (as CACO3)	5	28		12		12		5	U	5	U
ALKALINITY, BICARBONATE (AS CACO3)	5	28		12		12		5	U	5	U
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U	5	U	5	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueaous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0045S SDG NO.: J0905805

Sample Name:		D01584		D01585		D01586		D01587	
Sample Location:		SW-36		SW-84		SW-34		SW-04	
Lab Sample ID:		J0905805-011		J0905805-012		J0905805-013		J0905805-014	
Station ID:		SW-36-111809AX		SW-84-111809AX		SW-34-111809AX		SW-04-111909AX	
Dilution Factor:		1		1		1		1	
Sample Date:		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09	
Date Analyzed:		30 Nov 09		30 Nov 09		30 Nov 09		30 Nov 09	
Chemical	CRQL								
Alkalinity (as CACO3)	5	11		11		5	U	58	
ALKALINITY, BICARBONATE (AS CACO3)	5	11		11		5	U	58	
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U	5	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueaous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0045S SDG NO.: J0905805

Sample Name:		D01588		D01589	
Sample Location:		SW-09		SW-38	
Lab Sample ID:		J0905805-015		J0905805-016	
Station ID:		SW-09-111909AX		SW-38-111909AX	
Dilution Factor:		1		1	
Sample Date:		19 Nov 09		19 Nov 09	
Date Analyzed:		30 Nov 09		30 Nov 09	
Chemical	CRQL				
Alkalinity (as CACO3)	5	5	U	64	
ALKALINITY, BICARBONATE (AS CACO3)	5	5	U	64	
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
TDS Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0045S SDG
NO.: J0905805

Sample Name:		D01574		D01575		D01576		D01577		D01578		D01579	
Sample Location:		SW-41		SW-83		SW-83		SW-73		SW-72		SW-51	
Lab Sample ID:		J0905805-001		J0905805-002		J0905805-003		J0905805-004		J0905805-005		J0905805-006	
Station ID:		SW-41-111709AX		SW-83-111809AX		SW-83-111809AD		SW-73-111809AX		SW-72-111809AX		SW-51-111809AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		17 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09	
Date Analyzed:		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09	
Chemical	CRQL												
Total Dissolved Solids	10	51		520		540		33		34		37	

DATA SUMMARY TABLE
Tier I Unvalidated Data
TDS Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0045S SDG
NO.: J0905805

Sample Name:		D01580		D01581		D01582		D01583		D01584		D01585	
Sample Location:		SW-40		SW-13		SW-32		SW-12		SW-36		SW-84	
Lab Sample ID:		J0905805-007		J0905805-008		J0905805-009		J0905805-010		J0905805-011		J0905805-012	
Station ID:		SW-40-111709AX		SW-13-111809AX		SW-32-111809AX		SW-12-111809AX		SW-36-111809AX		SW-84-111809AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		17 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09	
Date Analyzed:		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09	
Chemical	CRQL												
Total Dissolved Solids	10	34		41		190		97		23		21	

DATA SUMMARY TABLE
Tier I Unvalidated Data
TDS Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0045S SDG
NO.: J0905805

Sample Name:		D01586		D01587		D01588		D01589	
Sample Location:		SW-34		SW-04		SW-09		SW-38	
Lab Sample ID:		J0905805-013		J0905805-014		J0905805-015		J0905805-016	
Station ID:		SW-34-111809AX		SW-04-111909AX		SW-09-111909AX		SW-38-111909AX	
Dilution Factor:		1		1		1		1	
Sample Date:		18 Nov 09		18 Nov 09		19 Nov 09		19 Nov 09	
Date Analyzed:		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09	
Chemical	CRQL								
Total Dissolved Solids	10	120		71		120		82	

DATA SUMMARY TABLE
Tier I Unvalidated Data
TSS Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0045S SDG
NO.: J0905805

Sample Name:		D01574		D01575		D01576		D01577		D01578		D01579	
Sample Location:		SW-41		SW-83		SW-83		SW-73		SW-72		SW-51	
Lab Sample ID:		J0905805-001		J0905805-002		J0905805-003		J0905805-004		J0905805-005		J0905805-006	
Station ID:		SW-41-111709AX		SW-83-111809AX		SW-83-111809AD		SW-73-111809AX		SW-72-111809AX		SW-51-111809AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		17 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09	
Date Analyzed:		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09	
Chemical	CRQL												
Total Suspended Solids	5	8.5		5	U	5	U	5	U	51		5	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
TSS Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0045S SDG
NO.: J0905805

Sample Name:		D01580		D01581		D01582		D01583		D01584		D01585	
Sample Location:		SW-40		SW-13		SW-32		SW-12		SW-36		SW-84	
Lab Sample ID:		J0905805-007		J0905805-008		J0905805-009		J0905805-010		J0905805-011		J0905805-012	
Station ID:		SW-40-111709AX		SW-13-111809AX		SW-32-111809AX		SW-12-111809AX		SW-36-111809AX		SW-84-111809AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		17 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09	
Date Analyzed:		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09	
Chemical	CRQL												
Total Suspended Solids	5	5	U	5	U	5.5		4	J	2.5	J	2.5	J

DATA SUMMARY TABLE
Tier I Unvalidated Data
TSS Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0045S SDG
NO.: J0905805

Sample Name:		D01586		D01587		D01588		D01589	
Sample Location:		SW-34		SW-04		SW-09		SW-38	
Lab Sample ID:		J0905805-013		J0905805-014		J0905805-015		J0905805-016	
Station ID:		SW-34-111809AX		SW-04-111909AX		SW-09-111909AX		SW-38-111909AX	
Dilution Factor:		1		1		1		1	
Sample Date:		18 Nov 09		18 Nov 09		19 Nov 09		19 Nov 09	
Date Analyzed:		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09	
Chemical	CRQL								
Total Suspended Solids	5	5	U	5	U	4.5	J	2	J

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anions Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0045S SDG NO.: J0905805

Sample Name:		D01574		D01574		D01575		D01575		D01576		D01576	
Sample Location:		SW-41		SW-41		SW-83		SW-83		SW-83		SW-83	
Lab Sample ID:		J0905805-001		J0905805-001		J0905805-002		J0905805-002		J0905805-003		J0905805-003	
Station ID:		SW-41-111709AX		SW-41-111709AX		SW-83-111809AX		SW-83-111809AX		SW-83-111809AD		SW-83-111809AD	
Dilution Factor:		1		1		1		5		1		5	
Sample Date:		17 Nov 09		17 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09	
Date Analyzed:		01 Sep 25		25 Nov 09		01 Sep 25		25 Nov 09		01 Sep 25		25 Nov 09	
Chemical	CRQL												
Chloride	0.2	0.48				0.37				0.36			
Sulfate	0.4			33									
Sulfate	2							350				350	

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anions Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0045S SDG NO.: J0905805

Sample Name:		D01577		D01577		D01578		D01578		D01579		D01579	
Sample Location:		SW-73		SW-73		SW-72		SW-72		SW-51		SW-51	
Lab Sample ID:		J0905805-004		J0905805-004		J0905805-005		J0905805-005		J0905805-006		J0905805-006	
Station ID:		SW-73-111809AX		SW-73-111809AX		SW-72-111809AX		SW-72-111809AX		SW-51-111809AX		SW-51-111809AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09	
Date Analyzed:		01 Sep 25		25 Nov 09		01 Sep 25		25 Nov 09		01 Sep 25		25 Nov 09	
Chemical	CRQL												
Chloride	0.2	0.34				0.5				0.33			
Sulfate	0.4			9.4				5.9				8.1	
Sulfate	2												

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anions Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0045S SDG NO.: J0905805

Sample Name:		D01580		D01580		D01581		D01581		D01582		D01582	
Sample Location:		SW-40		SW-40		SW-13		SW-13		SW-32		SW-32	
Lab Sample ID:		J0905805-007		J0905805-007		J0905805-008		J0905805-008		J0905805-009		J0905805-009	
Station ID:		SW-40-111709AX		SW-40-111709AX		SW-13-111809AX		SW-13-111809AX		SW-32-111809AX		SW-32-111809AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		17 Nov 09		17 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09	
Date Analyzed:		01 Sep 25		25 Nov 09		01 Sep 25		25 Nov 09		01 Sep 25		25 Nov 09	
Chemical	CRQL												
Chloride	0.2	0.4				0.38				0.43			
Sulfate	0.4			21				20				130	
Sulfate	2												

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anions Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0045S SDG NO.: J0905805

Sample Name:		D01583		D01583		D01584		D01584		D01585		D01585	
Sample Location:		SW-12		SW-12		SW-36		SW-36		SW-84		SW-84	
Lab Sample ID:		J0905805-010		J0905805-010		J0905805-011		J0905805-011		J0905805-012		J0905805-012	
Station ID:		SW-12-111809AX		SW-12-111809AX		SW-36-111809AX		SW-36-111809AX		SW-84-111809AX		SW-84-111809AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09	
Date Analyzed:		01 Sep 25		25 Nov 09		01 Sep 25		25 Nov 09		01 Sep 25		25 Nov 09	
Chemical	CRQL												
Chloride	0.2	0.4				0.4				0.39			
Sulfate	0.4			71				7.8				6.6	
Sulfate	2												

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anions Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0045S SDG NO.: J0905805

Sample Name:		D01586		D01586		D01587		D01587		D01588		D01588	
Sample Location:		SW-34		SW-34		SW-04		SW-04		SW-09		SW-09	
Lab Sample ID:		J0905805-013		J0905805-013		J0905805-014		J0905805-014		J0905805-015		J0905805-015	
Station ID:		SW-34-111809AX		SW-34-111809AX		SW-04-111909AX		SW-04-111909AX		SW-09-111909AX		SW-09-111909AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09		19 Nov 09		19 Nov 09	
Date Analyzed:		01 Sep 25		25 Nov 09		01 Sep 25		25 Nov 09		01 Sep 25		25 Nov 09	
Chemical	CRQL												
Chloride	0.2	0.35				2.5				0.4			
Sulfate	0.4			66				12				77	
Sulfate	2												

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anions Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire,
VT
CASE NO.:
0045S SDG
NO.: J0905805

Sample Name:		D01589		D01589	
Sample Location:		SW-38		SW-38	
Lab Sample ID:		J0905805-016		J0905805-016	
Station ID:		SW-38-111909AX		SW-38-111909AX	
Dilution Factor:		1		1	
Sample Date:		19 Nov 09		19 Nov 09	
Date Analyzed:		01 Sep 25		25 Nov 09	
Chemical	CRQL				
Chloride	0.2	2.5			
Sulfate	0.4			6.9	
Sulfate	2				

DATA SUMMARY TABLE
Tier I Unvalidated Data
Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT

CASE NO.: 0045S
SDG NO.: J0905805

Sample Name:		D01574		D01575		D01576		D01577		D01578		D01579	
Sample Location:		SW-41		SW-83		SW-83		SW-73		SW-72		SW-51	
Lab Sample ID:		J0905805-001		J0905805-002		J0905805-003		J0905805-004		J0905805-005		J0905805-006	
Station ID:		SW-41-111709AX		SW-83-111809AX		SW-83-111809AD		SW-73-111809AX		SW-72-111809AX		SW-51-111809AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		17 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09	
Date Analyzed:		01 Dec 09		02 Dec 09		02 Dec 09		02 Dec 09		02 Dec 09		02 Dec 09	
Chemical	CRQL												
ACIDITY, TOTAL	10	10	U	170		140		10	U	10	U	10	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT

CASE NO.: 0045S
SDG NO.: J0905805

Sample Name:		D01580		D01581		D01582		D01583		D01584		D01585	
Sample Location:		SW-40		SW-13		SW-32		SW-12		SW-36		SW-84	
Lab Sample ID:		J0905805-007		J0905805-008		J0905805-009		J0905805-010		J0905805-011		J0905805-012	
Station ID:		SW-40-111709AX		SW-13-111809AX		SW-32-111809AX		SW-12-111809AX		SW-36-111809AX		SW-84-111809AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		17 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09	
Date Analyzed:		01 Dec 09		02 Dec 09		02 Dec 09		02 Dec 09		02 Dec 09		02 Dec 09	
Chemical	CRQL												
ACIDITY, TOTAL	10	10	U	10	U	69		19		10	U	10	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT

CASE NO.: 0045S
SDG NO.: J0905805

Sample Name:		D01586		D01587		D01588		D01589	
Sample Location:		SW-34		SW-04		SW-09		SW-38	
Lab Sample ID:		J0905805-013		J0905805-014		J0905805-015		J0905805-016	
Station ID:		SW-34-111809AX		SW-04-111909AX		SW-09-111909AX		SW-38-111909AX	
Dilution Factor:		1		1		1		1	
Sample Date:		18 Nov 09		18 Nov 09		19 Nov 09		19 Nov 09	
Date Analyzed:		02 Dec 09		02 Dec 09		02 Dec 09		02 Dec 09	
Chemical	CRQL								
ACIDITY, TOTAL	10	30		10	U	32		10	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrate/Nitrite Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0045S SDG NO.:
J0905805

Sample Name:		D01574		D01575		D01576		D01577		D01578		D01579	
Sample Location:		SW-41		SW-83		SW-83		SW-73		SW-72		SW-51	
Lab Sample ID:		J0905805-001		J0905805-002		J0905805-003		J0905805-004		J0905805-005		J0905805-006	
Station ID:		SW-41-111709AX		SW-83-111809AX		SW-83-111809AD		SW-73-111809AX		SW-72-111809AX		SW-51-111809AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		17 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09	
Date Analyzed:		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09	
Chemical	CRQL												
Nitrogen, Nitrite + Nitrate	0.02	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrate/Nitrite Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0045S SDG NO.:
J0905805

Sample Name:		D01580		D01581		D01582		D01583		D01584		D01585	
Sample Location:		SW-40		SW-13		SW-32		SW-12		SW-36		SW-84	
Lab Sample ID:		J0905805-007		J0905805-008		J0905805-009		J0905805-010		J0905805-011		J0905805-012	
Station ID:		SW-40-111709AX		SW-13-111809AX		SW-32-111809AX		SW-12-111809AX		SW-36-111809AX		SW-84-111809AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		17 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09	
Date Analyzed:		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09	
Chemical	CRQL												
Nitrogen, Nitrite + Nitrate	0.02	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrate/Nitrite Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0045S SDG NO.:
J0905805

Sample Name:		D01586		D01587		D01588		D01589	
Sample Location:		SW-34		SW-04		SW-09		SW-38	
Lab Sample ID:		J0905805-013		J0905805-014		J0905805-015		J0905805-016	
Station ID:		SW-34-111809AX		SW-04-111909AX		SW-09-111909AX		SW-38-111909AX	
Dilution Factor:		1		1		1		1	
Sample Date:		18 Nov 09		18 Nov 09		19 Nov 09		19 Nov 09	
Date Analyzed:		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09	
Chemical	CRQL								
Nitrogen, Nitrite + Nitrate	0.02	0.02	U	0.031		0.02	U	0.033	

DATA SUMMARY TABLE
Tier I Unvalidated Data
Sulfide Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.:
0045S SDG NO.:
J0905805

Sample Name:		D01574		D01575		D01576		D01577		D01578		D01579	
Sample Location:		SW-41		SW-83		SW-83		SW-73		SW-72		SW-51	
Lab Sample ID:		J0905805-001		J0905805-002		J0905805-003		J0905805-004		J0905805-005		J0905805-006	
Station ID:		SW-41-111709AX		SW-83-111809AX		SW-83-111809AD		SW-73-111809AX		SW-72-111809AX		SW-51-111809AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		17 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09	
Date Analyzed:		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09	
Chemical	CRQL												
Sulfide	2	2	U	2	U	2	U	2	U	0.53	J	0.43	J

DATA SUMMARY TABLE
Tier I Unvalidated Data
Sulfide Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.:
0045S SDG NO.:
J0905805

Sample Name:		D01580		D01581		D01582		D01583		D01584		D01585	
Sample Location:		SW-40		SW-13		SW-32		SW-12		SW-36		SW-84	
Lab Sample ID:		J0905805-007		J0905805-008		J0905805-009		J0905805-010		J0905805-011		J0905805-012	
Station ID:		SW-40-111709AX		SW-13-111809AX		SW-32-111809AX		SW-12-111809AX		SW-36-111809AX		SW-84-111809AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		17 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09		18 Nov 09	
Date Analyzed:		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09	
Chemical	CRQL												
Sulfide	2	2	U	2	U	2	U	2	U	2	U	2	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
Sulfide Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.:
0045S SDG NO.:
J0905805

Sample Name:		D01586		D01587		D01588		D01589	
Sample Location:		SW-34		SW-04		SW-09		SW-38	
Lab Sample ID:		J0905805-013		J0905805-014		J0905805-015		J0905805-016	
Station ID:		SW-34-111809AX		SW-04-111909AX		SW-09-111909AX		SW-38-111909AX	
Dilution Factor:		1		1		1		1	
Sample Date:		18 Nov 09		18 Nov 09		19 Nov 09		19 Nov 09	
Date Analyzed:		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09	
Chemical	CRQL								
Sulfide	2	2	U	2	U	2	U	2	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anions Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.:
0045S SDG NO.:
J0905880

Sample Name:		D01590		D01591		D01592		D01593		D01594		D01595	
Sample Location:		MW-01B		MW-01A		MW-02B		MW-02C		MW-14C		MW-10B	
Lab Sample ID:		J0905880-001		J0905880-002		J0905880-003		J0905880-004		J0905880-005		J0905880-006	
Station ID:		MW-01B-112009AX		MW-01A-112009AX		MW-02B-112009AX		MW-02C-112009AX		MW-14C-112309AX		MW-10B-112309AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		20 Nov 09		20 Nov 09		20 Nov 09		20 Nov 09		23 Nov 09		23 Nov 09	
Date Analyzed:		04 Dec 09		04 Dec 09		04 Dec 09		04 Dec 09		04 Dec 09		04 Dec 09	
Chemical	CRQL												
Sulfate	0.4	180		170		140		87		15		9.7	
Sulfate	0.8												
Sulfate	2												

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anions Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.:
0045S SDG NO.:
J0905880

Sample Name:		D01596		D01597		D01598		D01599		D01600		D01601	
Sample Location:		MW-01C		MW-10C		MW-14A		MW-11C		MW-23A		MW-03C	
Lab Sample ID:		J0905880-007		J0905880-008		J0905880-009		J0905880-010		J0905880-011		J0905880-012	
Station ID:		MW-01C-112309AX		MW-10C-112309AX		MW-14A-112309AX		MW-11C-112309AX		MW-23A-112309AX		MW-03C-112309AX	
Dilution Factor:		1		1		1		1		1		1	
Sample Date:		23 Nov 09		23 Nov 09		23 Nov 09		23 Nov 09		23 Nov 09		23 Nov 09	
Date Analyzed:		04 Dec 09		04 Dec 09		04 Dec 09		04 Dec 09		04 Dec 09		04 Dec 09	
Chemical	CRQL												
Sulfate	0.4	110		19		9		48		11		5.7	
Sulfate	0.8												
Sulfate	2												

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anions Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.:
0045S SDG NO.:
J0905880

Sample Name:		D01602		D01603		D01604		D01605		D01606		D01607	
Sample Location:		MW-20C		MW-17A		MW-15A		MW-04A		MW-08A		MW-08A	
Lab Sample ID:		J0905880-013		J0905880-014		J0905880-015		J0905880-016		J0905880-017		J0905880-018	
Station ID:		MW-20C-112309AX		MW-17A-112409AX		MW-15A-112409AX		MW-04A-112409AX		MW-08A-112409AX		MW-08A-112409AD	
Dilution Factor:		1		1		1		2		5		5	
Sample Date:		23 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09	
Date Analyzed:		04 Dec 09		04 Dec 09		04 Dec 09		04 Dec 09		04 Dec 09		04 Dec 09	
Chemical	CRQL												
Sulfate	0.4	60		10		7.5							
Sulfate	0.8							240					
Sulfate	2									390		380	

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anions Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.:
0045S SDG NO.:
J0905880

Sample Name:		D01608		D01609	
Sample Location:		MW-16A		MW-04C	
Lab Sample ID:		J0905880-019		J0905880-020	
Station ID:		MW-16A-112409AX		MW-04C-112409AX	
Dilution Factor:		1		1	
Sample Date:		24 Nov 09		24 Nov 09	
Date Analyzed:		04 Dec 09		04 Dec 09	
Chemical	CRQL				
Sulfate	0.4	9.2		83	
Sulfate	0.8				
Sulfate	2				

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.:
0045S SDG NO.:
J0905928

Sample Name:		D01610		D01611		D01612		D01613		D01614		D01615	
Sample Location:		MW-12C		MW-21C		MW-13A		MW-05B		MW-09C		MW-06A	
Lab Sample ID:		J0905928-001		J0905928-002		J0905928-003		J0905928-004		J0905928-005		J0905928-006	
Station ID:		MW-12C-112409AX		MW-21C-112409AX		MW-13A-112409AX		MW-05B-112409AX		MW-09C-112409AX		MW-06A-112509AX	
Dilution Factor:		1		10		1		2		5		1	
Sample Date:		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		24 Nov 09		25 Nov 09	
Date Analyzed:		04 Dec 09		04 Dec 09		04 Dec 09		04 Dec 09		04 Dec 09		04 Dec 09	
Chemical	CRQL												
Sulfate	0.4	160				43						25	
Sulfate	0.8							280					
Sulfate	2									390			
Sulfate	4			600									

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.:
0045S SDG NO.:
J0905928

Sample Name:		D01616		D01617		D01618		D01619		D01620	
Sample Location:		MW-05C		MW-07C		MW-06C		MW-07A		MW-19C	
Lab Sample ID:		J0905928-007		J0905928-008		J0905928-009		J0905928-010		J0905928-011	
Station ID:		MW-05C-112509AX		MW-07C-112509AX		MW-06C-112509AX		MW-07A-112509AX		MW-19C-112509AX	
Dilution Factor:		5		1		1		1		2	
Sample Date:		25 Nov 09		25 Nov 09		25 Nov 09		25 Nov 09		25 Nov 09	
Date Analyzed:		04 Dec 09		04 Dec 09		04 Dec 09		04 Dec 09		04 Dec 09	
Chemical	CRQL										
Sulfate	0.4			4.6		150		4.8			
Sulfate	0.8									290	
Sulfate	2	340									
Sulfate	4										

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0045S SDG NO.: J0905991

Sample Name:		D01636	
Sample Location:		SW-43	
Lab Sample ID:		J0905991-001	
Station ID:		SW-43-120209AX	
Dilution Factor:		1	
Sample Date:		02 Dec 09	
Date Analyzed:		08 Dec 09	
Chemical	CRQL		
Alkalinity (as CACO3)	5	5	U
ALKALINITY, CARBONATE (AS CACO3)	5	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U
BICARBONATE	5	5	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
TDS Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0045S SDG
NO.: J0905991

Sample Name:		D01636	
Sample Location:		SW-43	
Lab Sample ID:		J0905991-001	
Station ID:		SW-43-120209AX	
Dilution Factor:		1	
Sample Date:		02 Dec 09	
Date Analyzed:		08 Dec 09	
Chemical	CRQL		
Total Dissolved Solids	10	1800	

DATA SUMMARY TABLE
Tier I Unvalidated Data
TSS Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0045S SDG NO.:
J0905991

Sample Name:		D01636	
Sample Location:		SW-43	
Lab Sample ID:		J0905991-001	
Station ID:		SW-43-120209AX	
Dilution Factor:		1	
Sample Date:		02 Dec 09	
Date Analyzed:		08 Dec 09	
Chemical	CRQL		
Total Suspended Solids	5	14	

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.:
0045S SDG NO.:
J0905991

Sample Name:		D01636		D01636	
Sample Location:		SW-43		SW-43	
Lab Sample ID:		J0905991-001		J0905991-001	
Station ID:		SW-43-120209AX		SW-43-120209AX	
Dilution Factor:		1		20	
Sample Date:		02 Dec 09		02 Dec 09	
Date Analyzed:		07 Dec 09		11 Dec 09	
Chemical	CRQL				
Chloride	0.2	0.37			
Sulfate	8			1300	

DATA SUMMARY TABLE
Tier I Unvalidated Data
Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT

CASE NO.: 0045S
SDG NO.: J0905991

Sample Name:		D01636	
Sample Location:		SW-43	
Lab Sample ID:		J0905991-001	
Station ID:		SW-43-120209AX	
Dilution Factor:		1	
Sample Date:		02 Dec 09	
Date Analyzed:		15 Dec 09	
Chemical	CRQL		
ACIDITY, TOTAL	10	160	

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrate/Nitrite Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0045S SDG NO.:
J0905991

Sample Name:		D01636	
Sample Location:		SW-43	
Lab Sample ID:		J0905991-001	
Station ID:		SW-43-120209AX	
Dilution Factor:		1	
Sample Date:		02 Dec 09	
Date Analyzed:		09 Dec 09	
Chemical	CRQL		
Nitrogen, Nitrite + Nitrate	0.02	0.12	

DATA SUMMARY TABLE
Tier I Unvalidated Data
Sulfide Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.:
0045S SDG NO.:
J0905991

Sample Name:		D01636	
Sample Location:		SW-43	
Lab Sample ID:		J0905991-001	
Station ID:		SW-43-120209AX	
Dilution Factor:		1	
Sample Date:		02 Dec 09	
Date Analyzed:		07 Dec 09	
Chemical	CRQL		
Sulfide	2	2	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.:
0045S SDG NO.:
J0905994

Sample Name:		D01621		D01622		D01623		D01624		D01625		D01626	
Sample Location:		MW-02A		MW-21A		MW-21A		MW-22A		MW-19A		MW-05A	
Lab Sample ID:		J0905994-001		J0905994-002		J0905994-003		J0905994-004		J0905994-005		J0905994-006	
Station ID:		MW-02A-113009AX		MW-21A-113009AX		MW-21A-113009AD		MW-22A-113009AX		MW-19A-113009AX		MW-05A-120109AX	
Dilution Factor:		5		10		10		10		5		5	
Sample Date:		30 Nov 09		30 Nov 09		30 Nov 09		30 Nov 09		30 Nov 09		01 Dec 09	
Date Analyzed:		11 Dec 09		11 Dec 09		11 Dec 09		11 Dec 09		11 Dec 09		11 Dec 09	
Chemical	CRQL												
Sulfate	0.4												
Sulfate	0.8												
Sulfate	2	170								350		370	
Sulfate	4			630		620		410					

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.:
0045S SDG NO.:
J0905994

Sample Name:		D01627		D01628		D01629		D01630		D01631		D01632	
Sample Location:		MW-05A		BM-01		MW-11A		MW-18A		MW-14D		MW-20A	
Lab Sample ID:		J0905994-007		J0905994-008		J0905994-009		J0905994-010		J0905994-011		J0905994-012	
Station ID:		MW-05A-120109AD		BM-01-120109AX		MW-11A-120109AX		MW-18A-120109AX		MW-14D-120109AX		MW-20A-120109AX	
Dilution Factor:		5		1		1		10		1		1	
Sample Date:		01 Dec 09		01 Dec 09		01 Dec 09		01 Dec 09		01 Dec 09		01 Dec 09	
Date Analyzed:		11 Dec 09		07 Dec 09		07 Dec 09		11 Dec 09		07 Dec 09		07 Dec 09	
Chemical	CRQL												
Sulfate	0.4			8.3		27				27		190	
Sulfate	0.8												
Sulfate	2	370											
Sulfate	4							930					

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.:
0045S SDG NO.:
J0905994

Sample Name:		D01633		D01634		D01635	
Sample Location:		MW-09A		MW-20D		MW-19D	
Lab Sample ID:		J0905994-013		J0905994-014		J0905994-015	
Station ID:		MW-09A-120209AX		MW-20D-120209AX		MW-19D-120209AX	
Dilution Factor:		2		1		2	
Sample Date:		02 Dec 09		02 Dec 09		02 Dec 09	
Date Analyzed:		11 Dec 09		07 Dec 09		11 Dec 09	
Chemical	CRQL						
Sulfate	0.4			76			
Sulfate	0.8	230				210	
Sulfate	2						
Sulfate	4						

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0045S SDG NO.: J0906129

Sample Name:		D01637		D01638		D01639		D01640		D01641	
Sample Location:		M11LT55.1		M11LT60.0		M11LT63.0		M11LT064		M11LT065	
Lab Sample ID:		J0906129-001		J0906129-002		J0906129-003		J0906129-004		J0906129-005	
Station ID:		M11LT55.1-120709AX		M11LT60.0-120709AX		M11LT63.0-120709AX		M11LT064-120709AX		M11LT065-120709AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		07 Dec 09		07 Dec 09		07 Dec 09		07 Dec 09		07 Dec 09	
Date Analyzed:		17 Dec 09		17 Dec 09		17 Dec 09		17 Dec 09		17 Dec 09	
Chemical	CRQL										
Alkalinity (as CACO3)	5	72		120		55		68		74	
ALKALINITY, BICARBONATE (AS CACO3)	5	72		120		55		68		74	
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U	5	U	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U	5	U	5	U	5	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
Alkalinity Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.: 0045S SDG NO.: J0906129

Sample Name:		D01642		D01643	
Sample Location:		M11LT065		M11LT19.0	
Lab Sample ID:		J0906129-006		J0906129-007	
Station ID:		M11LT065-1207090AD		M11LT19.0-120809AX	
Dilution Factor:		1		1	
Sample Date:		07 Dec 09		08 Dec 09	
Date Analyzed:		17 Dec 09		17 Dec 09	
Chemical	CRQL				
Alkalinity (as CACO3)	5	74		76	
ALKALINITY, BICARBONATE (AS CACO3)	5	74		76	
ALKALINITY, CARBONATE (AS CACO3)	5	5	U	5	U
ALKALINITY, HYDROXIDE (AS CACO3)	5	5	U	5	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.:
0045S SDG NO.:
J0906129

Sample Name:		D01637		D01638		D01639		D01640		D01641	
Sample Location:		M11LT55.1		M11LT60.0		M11LT63.0		M11LT064		M11LT065	
Lab Sample ID:		J0906129-001		J0906129-002		J0906129-003		J0906129-004		J0906129-005	
Station ID:		M11LT55.1-120709AX		M11LT60.0-120709AX		M11LT63.0-120709AX		M11LT064-120709AX		M11LT065-120709AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		07 Dec 09		07 Dec 09		07 Dec 09		07 Dec 09		07 Dec 09	
Date Analyzed:		12 Dec 09		12 Dec 09		12 Dec 09		12 Dec 09		12 Dec 09	
Chemical	CRQL										
Chloride	0.2	0.38		2.1		0.35		2.2		0.49	
Sulfate	0.4	8.6		12		5.4		9.9		9.9	

DATA SUMMARY TABLE
Tier I Unvalidated Data
Anion Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.:
0045S SDG NO.:
J0906129

Sample Name:		D01642		D01643	
Sample Location:		M11LT065		M11LT19.0	
Lab Sample ID:		J0906129-006		J0906129-007	
Station ID:		M11LT065-1207090AD		M11LT19.0-120809AX	
Dilution Factor:		1		1	
Sample Date:		07 Dec 09		08 Dec 09	
Date Analyzed:		12 Dec 09		12 Dec 09	
Chemical	CRQL				
Chloride	0.2	0.48		0.39	
Sulfate	0.4	9.9		15	

DATA SUMMARY TABLE
Tier I Unvalidated Data
Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT

CASE NO.: 0045S
SDG NO.: J0906129

Sample Name:		D01637		D01638		D01639		D01640		D01641	
Sample Location:		M11LT55.1		M11LT60.0		M11LT63.0		M11LT064		M11LT065	
Lab Sample ID:		J0906129-001		J0906129-002		J0906129-003		J0906129-004		J0906129-005	
Station ID:		M11LT55.1-120709AX		M11LT60.0-120709AX		M11LT63.0-120709AX		M11LT064-120709AX		M11LT065-120709AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		07 Dec 09		07 Dec 09		07 Dec 09		07 Dec 09		07 Dec 09	
Date Analyzed:		21 Dec 09		21 Dec 09		21 Dec 09		21 Dec 09		21 Dec 09	
Chemical	CRQL										
ACIDITY, TOTAL	10	10	U	10	U	10	U	10	U	10	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
Acidity Analysis
Aqueous - mg/L

SITE: Ely Copper
Mine - Vershire, VT

CASE NO.: 0045S
SDG NO.: J0906129

Sample Name:		D01642		D01643	
Sample Location:		M11LT065		M11LT19.0	
Lab Sample ID:		J0906129-006		J0906129-007	
Station ID:		M11LT065-1207090AD		M11LT19.0-120809AX	
Dilution Factor:		1		1	
Sample Date:		07 Dec 09		08 Dec 09	
Date Analyzed:		21 Dec 09		21 Dec 09	
Chemical	CRQL				
ACIDITY, TOTAL	10	10	U	10	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrate/Nitrite Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0045S SDG NO.:
J0906129

Sample Name:		D01637		D01638		D01639		D01640		D01641	
Sample Location:		M11LT55.1		M11LT60.0		M11LT63.0		M11LT064		M11LT065	
Lab Sample ID:		J0906129-001		J0906129-002		J0906129-003		J0906129-004		J0906129-005	
Station ID:		M11LT55.1-120709AX		M11LT60.0-120709AX		M11LT63.0-120709AX		M11LT064-120709AX		M11LT065-120709AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		07 Dec 09		07 Dec 09		07 Dec 09		07 Dec 09		07 Dec 09	
Date Analyzed:		16 Dec 09		16 Dec 09		16 Dec 09		16 Dec 09		16 Dec 09	
Chemical	CRQL										
Nitrogen, Nitrite + Nitrate	0.02	0.043		0.002		0.009		0.126		0.042	

DATA SUMMARY TABLE
Tier I Unvalidated Data
Nitrate/Nitrite Analysis
Aqueous - mg/L

SITE: Ely Copper Mine -
Vershire, VT
CASE NO.: 0045S SDG NO.:
J0906129

Sample Name:		D01642		D01643	
Sample Location:		M11LT065		M11LT19.0	
Lab Sample ID:		J0906129-006		J0906129-007	
Station ID:		M11LT065-1207090AD		M11LT19.0-120809AX	
Dilution Factor:		1		1	
Sample Date:		07 Dec 09		08 Dec 09	
Date Analyzed:		16 Dec 09		16 Dec 09	
Chemical	CRQL				
Nitrogen, Nitrite + Nitrate	0.02	0.042		0.032	

DATA SUMMARY TABLE
Tier I Unvalidated Data
Sulfide Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.:
0045S SDG NO.:
J0906129

Sample Name:		D01637		D01638		D01639		D01640		D01641	
Sample Location:		M11LT55.1		M11LT60.0		M11LT63.0		M11LT064		M11LT065	
Lab Sample ID:		J0906129-001		J0906129-002		J0906129-003		J0906129-004		J0906129-005	
Station ID:		M11LT55.1-120709AX		M11LT60.0-120709AX		M11LT63.0-120709AX		M11LT064-120709AX		M11LT065-120709AX	
Dilution Factor:		1		1		1		1		1	
Sample Date:		07 Dec 09		07 Dec 09		07 Dec 09		07 Dec 09		07 Dec 09	
Date Analyzed:		14 Dec 09		14 Dec 09		14 Dec 09		14 Dec 09		14 Dec 09	
Chemical	CRQL										
Sulfide	2	0.4	J	2	U	2	U	2	U	2	U

DATA SUMMARY TABLE
Tier I Unvalidated Data
Sulfide Analysis
Aqueous - mg/L

SITE: Ely Copper Mine - Vershire, VT
CASE NO.:
0045S SDG NO.:
J0906129

Sample Name:		D01642		D01643	
Sample Location:		M11LT065		M11LT19.0	
Lab Sample ID:		J0906129-006		J0906129-007	
Station ID:		M11LT065-1207090AD		M11LT19.0-120809AX	
Dilution Factor:		1		1	
Sample Date:		07 Dec 09		08 Dec 09	
Date Analyzed:		14 Dec 09		14 Dec 09	
Chemical	CRQL				
Sulfide	2	0.4	J	2	U