

**Monte Cristo Mining Area  
Remedial Investigation Phase I  
Data Report, Task 2.4**

**Prepared for  
Washington State  
Department of Ecology**

**April 5, 2011  
17330-33**

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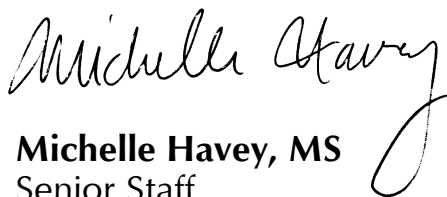


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Prepared by  
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## EXECUTIVE SUMMARY

The Washington State Department of Ecology (Ecology) has enlisted Hart Crowser to prepare a Phase I Work Plan/Existing Data Spatial Analysis in preparation for a Remedial Investigation/Feasibility Study (RI/FS). This document provides a review of soil and aquatic data quality from previous investigations in the Monte Cristo Mining Area (MCMA).

The MCMA comprises numerous abandoned base metal and gold mines, located in the Mt. Baker-Snoqualmie National Forest near Granite Falls, Washington (Figure 1), and includes the tributary watersheds feeding into the South Fork Sauk River (SFSR) and Monte Cristo Lake. Currently, the MCMA (hereafter referred to as the "Site") has a number of potential contaminant sources: open and closed adits, waste rock piles, the remnants of the ore storage facility (Ore Collector) and processing facility (Concentrator), an Assay Shack, and miscellaneous debris. Several of these potential sources are adjacent to either Glacier Creek or Seventysix Creek, both of which are tributaries to the SFSR. Mining waste has been introduced to surface water both through historical mining practices of in-stream disposal and erosion from waste piles.

Previous investigations have been conducted on various mines within the MCMA.

- Ecology conducted a screening investigation in 2002 of creek water and sediment quality in ten mining districts in Washington, including Monte Cristo.
- An Abbreviated Preliminary Assessment (APA) was conducted by the Forest Service on the Concentrator in 2002 and on Mystery Mine in 2003.
- The Washington Department of Natural Resources (DNR) investigated metal contamination in Mystery, Justice, Pride of the Mountains (POM), Pride of the Woods (POW), and New Discovery Mines in 2003.
- Snohomish Health District and Ecology conducted a Site Hazard Assessment (SHA) in 2004.
- The Forest Service conducted two additional APAs in 2006: one for Sidney Mine, and the other was a combined assessment of POW, New Discovery, and POM Mines.
- A Site Investigation was conducted in 2007 by Cascade Earth Sciences (CES) to inspect Mystery and Justice Mines, the Concentrator, Ore Collector, and the Assay Shack.
- An Engineering Evaluation/Cost Analysis (EECA) was prepared by CES in 2010 for a proposed Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Removal Action in the MCMA.

- Most recently, a Data Gap Investigation was published by CES for the MCMA in January, 2011.

The previous studies have investigated the following mine features in the MCMA:

- United Companies Concentrator
- Mystery Mine
- Ore Collector
- Assay Shack
- Justice Mine
- Golden Cord Mine
- Pride of the Mountains Mine
- Pride of the Woods Mine
- New Discovery Mine
- Haulage Ways
- Sidney Mine
- Boston-American Mine
- Sheridan Mine
- Rainy Mine

Results from these studies indicate the concentrations of several hazardous substances, particularly arsenic, exceed screening levels in one or more media at several locations in the MCMA.

Specifically, the information gathered during this review indicated the following:

## ***Soil***

Sampling and analysis included 40 samples of potentially impacted soil, along with 88 samples of waste rock, concentrate, tailings, or other upland materials. Analytical results were also reported for 10 background soil samples. The data quality review (see Appendix A) indicated that 138 samples are potentially useful in a risk assessment (RA) as part of a remedial investigation.

Environmental screening criteria for soils are presented in Table 1. Analytical results for soil samples are presented in Table 5, and compared to the lowest screening criteria.

In addition, numerous observations were collected with an X-Ray Fluorescence (XRF) unit. While the XRF results are useful for comparing the relative amounts of hazardous substances present in different areas of the Site, XRF results in general are not suitable for use in the RA.

Soil samples were collected in nine of the investigations and most of the samples meet the data quality objectives (DQO) for a remedial investigation conducted under MTCA. The four Preliminary Assessments only had summary information available, so none of that data will be used for the RI; one of the samples from the DNR study was missing information and could not be validated; and several results were qualified as estimated due to data quality exceedances. A data validation summary is provided for each investigation in the text; detailed data quality reviews can be found in Appendix A.

## ***Surface Water***

Sampling and analysis included 128 samples of potentially impacted surface water, consisting of 87 samples from perennial creeks and the South Fork of the Sauk River, and 41 samples of seeps emanating from mine adits or waste rock piles. Analytical results were also reported for 19 background surface water samples.

Environmental screening criteria for surface water are presented in Table 2. Analytical results for surface water samples are presented in Table 6, and compared to the lowest screening criteria.

Surface water samples were collected in nine of the investigations and most of the samples meet the DQO for a remedial investigation conducted under MTCA. One of the Preliminary Assessments only had summary information available, so none of those data will be used for the RI; a few of the sample results from different studies were rejected; and several results were qualified as estimated due to data quality exceedances. A data validation summary is provided for each investigation in the text; detailed data quality reviews can be found in Appendix A.

## ***Sediment***

Sampling and analysis included 78 samples of potentially impacted sediment, consisting of samples from perennial creeks and the South Fork of the Sauk River. Analytical results were also reported for 20 background sediment samples.

Environmental screening criteria for sediment are presented in Table 3. Analytical results for sediment samples are presented in Table 7, and compared to the lowest screening criteria.

Sediment samples were collected in five of the investigations and most of the samples meet the DQO for a remedial investigation conducted under MTCA. A

few of the sample results from one study were rejected due to QC problems and a few results were qualified as estimated due to data quality exceedances. Most of the sediment data are acceptable for use in an RI. A data validation summary is provided for each investigation in the text; detailed data quality reviews can be found in Appendix A.

## **Groundwater**

Sampling and analysis included 13 samples of potentially impacted groundwater from perennial creeks and the South Fork of the Sauk River. Analytical results were also reported for three background groundwater samples.

Environmental screening criteria for groundwater for protection of human health are presented in Table 4. Analytical results for groundwater samples are presented in Table 8, and compared to the lowest screening criteria. During the RI/FS, groundwater quality will also need to be compared to aquatic life protection criteria (WAC 173-201A) where groundwater discharges to surface water.

Pore water samples were collected in two of the investigations and most of the samples meet the DQO for a remedial investigation conducted under MTCA. No sample results were rejected, but several results were qualified as estimated due to data quality exceedances. All of the pore water data are acceptable for use in an RI. It appears that the pore water samples represent groundwater that has been diluted by surface water in the hyporehic zone, as discussed later in this report. A data validation summary is provided for each investigation in the text; detailed data quality reviews can be found in Appendix A.

No well logs were reported in previous investigations.



<b>CONTENTS</b>	<u>Page</u>
<b>EXECUTIVE SUMMARY</b>	ES-1
<b>INTRODUCTION</b>	1
<b>PURPOSE</b>	1
<b>SITE BACKGROUND</b>	1
<b>SUMMARY OF REPORTS REVIEWED</b>	2
<b>1. Bureau of Mines Summary Report (Johnson et al. 1983)</b>	2
<b>2. Second Screening Investigation (Raforth et al. 2002)</b>	3
<b>3. Abbreviated Preliminary Assessment Monte Cristo Concentrator         (Forest Service 2002)</b>	5
<b>4. Abbreviated Preliminary Assessment (Forest Service 2002)</b>	6
<b>5. Inactive and Abandoned Mine Lands – Mystery and Justice Mines         (Wolff et al. 2003)</b>	8
<b>6. Site Hazard Assessment (Crofoot and O’Brien 2004)</b>	11
<b>7. Abbreviated Preliminary Assessment (Forest Service 2006a)</b>	15
<b>8. Abbreviated Preliminary Assessment (Forest Service 2006b)</b>	17
<b>9. Site Inspection at the Monte Cristo Mining Area (Amann and Lambeth, 2007)</b>	18
<b>10. Engineering Evaluation / Cost Analysis (CES 2010)</b>	25
<b>11. Data Gap Investigation (CES 2011)</b>	30
<b>Other Reports Reviewed</b>	37
<b>REFERENCES</b>	40

**TABLES**

1	Potential Chemical-Specific ARARs and Proposed Screening Criteria for Waste Rock, Soil, and Tailings
2	Potential Chemical-Specific ARARs and Proposed Screening Criteria for Surface Water
3	Potential Chemical-Specific ARARs and Proposed Screening Criteria for Sediment
4	Potential Chemical-Specific ARARs and Proposed Screening Criteria for Groundwater for Protection of Human Health
5	Soil Analytical Results
6	Surface Water Analytical Results
7	Sediment Analytical Results
8	Groundwater Analytical Results
9	Soil Metal Results using X-Ray Fluorescence at Monte Cristo Mine Area, Snohomish County, Washington

**FIGURE**

1	Site Location Map
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**APPENDIX A  
QUALITY ASSURANCE DATA REVIEWS**

# **MONTE CRISTO MINING AREA REMEDIAL INVESTIGATION PHASE I DATA REPORT, TASK 2.4**

## **INTRODUCTION**

The MCMA is located in Township 29 North, Range 11 East, within the Mt. Baker-Snoqualmie National Forest in Snohomish County, Washington, near the west-center margin of the Henry M. Jackson Wilderness Area. To access the MCMA by road, go east on the Mountain Loop Highway from Granite Falls for approximately 30 miles to Barlow Summit. From there, take the Monte Cristo Road (gravel) approximately 5 miles to the Historic Monte Cristo Townsite. A series of trails lead from the Townsite to a number of the mines and prospects in the MCMA (Figure 1).

The MCMA is situated within extremely rugged terrain in the Cascade Mountains, with elevations ranging from approximately 2,755 feet above mean sea level (amsl) at the Townsite to 4,280 feet amsl at the Mystery Mine portal (Amann and Lambeth, 2007). The high-elevation portion of the MCMA is drained by Glacier Creek and Seventysix Creek, and the headwaters of both creeks exceed 6,000 feet amsl. The confluence of these streams at the Townsite marks the beginning of the SFSR, which flows 6.8 miles northwest to Monte Cristo Lake.

## **PURPOSE**

The purpose of this report is to provide an overview of the information gathered in previous investigations, and identify data limitations with respect to scope and/or analyses required to support an RI/FS.

## **SITE BACKGROUND**

This summary is based on information presented in the EECA (CES 2010). Prospecting began in the spring of 1889, with active claim staking and mine development shortly thereafter. A railroad to the Townsite was completed in 1893, and a 300-tons-per-day concentrator was constructed on site. Mining activity was strong until flooding destroyed the rail access in 1897. Rail service was restored in 1900, but production continued only on a limited basis until 1907 with several unsuccessful attempts to restore mining until 1920. A total of 54 mines and prospects, as well as ore transport, storage, and processing

facilities were identified within the Monte Cristo Mining District (District) during a study conducted by the US Bureau of Mines (Johnson et al. 1983).

Production records for the District are spotty, but ore production is estimated to be at least 310,000 tons (Johnson et al. 1983). Over 90 percent of the ore processed at the United Companies Concentrator was extracted from the Mystery/Pride Mine complex and Justice/Golden Chord Mine complex, but several other adits and claims contributed as well (Amann and Lambeth 2007). Total indicated and inferred gold-silver-copper-lead-zinc resources and restricted marginal reserves in the District are estimated at nearly 51 million tons, of which essentially all came from the large northeast shear zone developed by the Justice/Golden Cord, Mystery/Pride, and New Discovery Mines.

Standard underground mining practices were used for all mines in the MCMA. Ore from the Glacier Creek/Basin mines was sent to the Ore Collector for coarse crushing. It was then trammed along the haulage way to the United Companies Concentrator (Concentrator) by horse-drive rail. At the Concentrator, ore went through a series of fine crushers and rolls before being passed through a system of jigs for concentrating. An unknown volume of tailings were discharged to the surrounding land and Glacier Creek. The MCMA is a popular hiking, mountain climbing, and rock collecting destination for many tourists each year. One of the objectives of the CERCLA Removal Action is to reduce the human and ecological exposure to hazardous substances in the mining-related tailings and waste rock, remnant ore, and contaminated soil associated with the mines.

## **SUMMARY OF REPORTS REVIEWED**

The following sections summarize the reports we reviewed. Soil, water, and sediment quality data are presented in Tables 5 through 9.

### ***1. Bureau of Mines Summary Report (Johnson et al. 1983)***

The Bureau of Mines Summary Report (Johnson et. al 1983) covers a mineral survey of the lands within Glacier Peak that were designated for USFS Second Roadless Area Review and Evaluation (RARE II). This report does not address environmental issues, but provides valuable information relative to local geology, topography, mineral deposit size, and production history. Surveys were conducted from 1975 to 1981 to identify all mines, prospects, and mineral occurrences in and near the RARE II area. Samples were collected from the various mines and prospects to support planning decisions to determine the suitability of land for inclusion in the National Wilderness Preservation System,

not to address environmental concerns. However, this document provides an inventory of potential contaminant-producing locations within the Monte Cristo Mining District.

## **2. Second Screening Investigation (Raforth et al. 2002)**

The Second Screening Investigation report (Raforth et. al, 2002) covers an investigation of ten mining districts in the state of Washington. The purpose of this study was to do screening level sampling of water and sediments in streams in the vicinity of selected metals mining districts that include inactive or abandoned mines. Only the portion of the report concerning the Monte Cristo Mining District was reviewed for this document, including introductory and summary information. Sediment and water samples were collected from Glacier Creek to characterize upstream and downstream water quality and sediment quality. Ecology and DNR sampled water quality during both low-flow and high-flow conditions, while sediment samples were collected only during low flow. Samples were collected in August of 2000 and June of 2001.

### **Summary of Existing Environmental Data**

#### ***Soil***

No soil information was collected as part of this investigation.

#### ***Surface Water***

Surface water samples were analyzed for iron, aluminum, arsenic, and mercury as total recoverable metals; cadmium, copper, lead, and zinc were analyzed as dissolved metals. Additionally, water samples were analyzed for general chemistry parameters: total dissolved solids, sulfate, hardness, total suspended solids, and turbidity.

Two samples were collected in Glacier Creek at both high flow and low flow. The upstream sample was obtained near the headwaters of Glacier Creek at the point where it spilled from a glacial cirque at 4,410 feet amsl. This location is above the mine workings. The downstream sample was collected below the confluence of Glacier Creek, Seventysix Creek, and an unnamed north-flowing tributary at the historic mining town of Monte Cristo. Results are summarized below.

- Several metals (arsenic, cadmium, iron, and zinc) showed at least a twofold concentration increase downstream at low flow, and the concentration of arsenic for all four samples exceeded state water quality standards.

- At high flow, zinc and arsenic had more than a twentyfold increase downstream and copper increased by more than tenfold.

The data collected is limited in usefulness, as it consists of only four water samples, collected upstream and downstream of the Monte Cristo Site, at low flow and high flow periods. The ratio of sulfate to total dissolved solids was intended to be used as an indicator for Acid Rock Drainage, based on a previous study. However the authors concluded their current study results did not perform as expected, as concentrations were so low that the ratios were not useful. The authors suggested that the reason for these discrepancies was due to a drought during the winter of 2000 to 2001.

**Surface Water Data Validation.** Four water samples and a field duplicate were submitted and analyzed at Manchester Environmental Laboratory and reported as Project ID 4073-00 and 1661-01. No sample results were rejected, but several results were qualified as estimated due to data quality exceedances. See Appendix A for detailed data quality reviews.

### ***Sediment***

Composite sediment samples were collected during low flow at the upstream and downstream sample locations, colocated with the surface water samples. Sediment samples were analyzed for priority pollutant metals including aluminum, antimony, beryllium, cadmium, chromium, copper, iron, manganese, nickel, silver, zinc, arsenic, lead, mercury, selenium, and thallium.

- Results indicate concentrations of arsenic, copper, lead, antimony, and zinc exceeded the consensus-based probable effect guideline for freshwater sediments (MacDonald et al. 2000 as referenced in Raforth et al. 2002) at both the upstream and downstream locations.
- Lead, cadmium, manganese, nickel, and mercury had lower concentrations at the downstream location.
- Arsenic, copper, and antimony concentrations showed a twofold increase in the downstream samples.

The data collected is limited in usefulness, as it consists of only two sediment samples, collected upstream and downstream of the Monte Cristo Site, and the change in concentration of constituents of potential concern (COPC) is not attributable to any specific source.

**Sediment Data Validation.** Two sediment samples were submitted and analyzed at Manchester Environmental Laboratory and reported as Project ID 4073-00. No sample results were rejected, but several results were qualified as estimated due to data quality exceedances. See Appendix A for detailed data quality reviews.

### **Groundwater**

There were no groundwater samples taken as part of this investigation.

### **3. Abbreviated Preliminary Assessment Monte Cristo Concentrator (Forest Service 2002)**

The Abbreviated Preliminary Assessment (APA) report covers an investigation of the Concentrator site (Forest Service 2002), to determine whether there was a potential for a release of contaminants to the environment and/or to human health. The purpose of an APA is to determine whether further site characterization is warranted. An X-Ray Fluorescence (XRF) unit was used for field screening and additional bench testing. Soil was collected and analyzed from around the Concentrator building and a waste rock pile.

### **Summary of Existing Environmental Data**

#### **Soil**

**Concentrator.** The Concentrator, located on a hillside adjacent to Glacier Creek, consists of foundations and portions of flooring that remain from the former five-story ore processing facility. Metals in soils were measured *in situ* at the Concentrator and at a waste rock pile.

A Niton XRF was used to screen for metals in the field, and additional bench-top testing was conducted. XRF results were compared to the Environmental Protection Agency's (EPA) preliminary remediation goals (PRGs). Results of the XRF screening are summarized below.

Constituent of Potential Concern (COPC)	Result (mg/kg)	PRG * (mg/kg)
Iron	746,000	100,000
Arsenic	290,000	2.7
Lead	7,480	750
Antimony	4,140	820
Mercury	1,040	610

\*EPA Region IX PRG industrial levels criteria

No information was provided on the number or distribution of XRF observations used to characterize the approximately 14,000 bank cubic yards (bcy) of waste material present at the Concentrator (estimate from AIM Discovery Form). The data indicate that there are high levels of metals in waste materials located at the Concentrator, but are not suitable for use in a risk assessment (RA). The area is heavily used by tourists and it was apparent people had been disturbing the soil at the Concentrator.

#### **4. Abbreviated Preliminary Assessment (Forest Service 2002)**

An Abbreviated Preliminary Assessment was conducted in October 2002 on Mystery Mine No. 3 Adit in the Monte Cristo Mining District (Forest Service 2003). The purpose of the assessment was to determine if there was the potential for a release of contaminants to the environment and/or to human health.

- Waste rock and impacted soils were sampled *in situ* by Forest Service and DNR
- Effluent from the Mystery Mine No. 3 Adit was sampled by DNR

#### **Summary of Existing Environmental Data**

##### ***Soil***

Waste rock was sampled at Mystery Mine No. 3 Adit, but there was no information provided on the number of samples collected *in situ* or the number of samples sent to the lab for processing. It is unclear whether there were discrete samples taken and whether results are for composite samples.

Soil samples were analyzed using an XRF analyzer and results were only reported for COPCs where the concentration exceeded the EPA Region IX PRG industrial levels listed in the text: iron, arsenic, lead, antimony, copper, and zinc.



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Surface water samples were analyzed for iron, aluminum, arsenic, and mercury as total recoverable metals; cadmium, copper, lead, and zinc were analyzed as dissolved metals. Additionally, water samples were analyzed for general chemistry parameters: total dissolved solids, sulfate, hardness, total suspended solids, and turbidity.

Two samples were collected in Glacier Creek at both high flow and low flow. The upstream sample was obtained near the headwaters of Glacier Creek at the point where it spilled from a glacial cirque at 4,410 feet amsl. This location is above the mine workings. The downstream sample was collected below the confluence of Glacier Creek, Seventysix Creek, and an unnamed north-flowing tributary at the historic mining town of Monte Cristo. Results are summarized below.

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The data collected is limited in usefulness, as it consists of only four water samples, collected upstream and downstream of the Monte Cristo Site, at low flow and high flow periods. The ratio of sulfate to total dissolved solids was intended to be used as an indicator for Acid Rock Drainage, based on a previous study. However the authors concluded their current study results did not perform as expected, as concentrations were so low that the ratios were not useful. The authors suggested that the reason for these discrepancies was due to a drought during the winter of 2000 to 2001.

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Composite sediment samples were collected during low flow at the upstream and downstream sample locations, colocated with the surface water samples. Sediment samples were analyzed for priority pollutant metals including aluminum, antimony, beryllium, cadmium, chromium, copper, iron, manganese, nickel, silver, zinc, arsenic, lead, mercury, selenium, and thallium.

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The Abbreviated Preliminary Assessment (APA) report covers an investigation of the Concentrator site (Forest Service 2002), to determine whether there was a potential for a release of contaminants to the environment and/or to human health. The purpose of an APA is to determine whether further site characterization is warranted. An X-Ray Fluorescence (XRF) unit was used for field screening and additional bench testing. Soil was collected and analyzed from around the Concentrator building and a waste rock pile.

### **Summary of Existing Environmental Data**

#### **Soil**

**Concentrator.** The Concentrator, located on a hillside adjacent to Glacier Creek, consists of foundations and portions of flooring that remain from the former five-story ore processing facility. Metals in soils were measured *in situ* at the Concentrator and at a waste rock pile.

A Niton XRF was used to screen for metals in the field, and additional bench-top testing was conducted. XRF results were compared to the Environmental Protection Agency's (EPA) preliminary remediation goals (PRGs). Results of the XRF screening are summarized below.

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- Effluent from the Mystery Mine No. 3 Adit was sampled by DNR

#### **Summary of Existing Environmental Data**

##### ***Soil***

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Soil samples were analyzed using an XRF analyzer and results were only reported for COPCs where the concentration exceeded the EPA Region IX PRG industrial levels listed in the text: iron, arsenic, lead, antimony, copper, and zinc.

**Mystery Mine.** Waste rock samples were collected by the Forest Service and Washington DNR. Results reported below:

### **Forest Service**

Constituent of Potential Concern (COPC)	Result (mg/kg)	PRG (mg/kg)
Iron	143,000-160,000	100,000
Arsenic	32,000-35,900	2.7
Lead	15,200-15,800	750
Antimony	4,860-5,060	820

### **DNR**

Constituent of Potential Concern (COPC)	Result (mg/kg)	Referenced State Screening Criteria (mg/kg)
Iron	230,000	---
Arsenic	14,700	20
Lead	1,700	220
Copper	500	100
Zinc	1,100	270

The data are only provided as a summary and could not be validated for the purposes of this report, and thus are not useable for an RA. Also, there is no information provided on the volume of waste rock present at the Site to assess the adequacy of the sampling procedures.

### ***Surface water***

Surface water samples were analyzed for arsenic, copper, lead, zinc, iron, pH, and hardness, and potentially other constituents not listed in the APA.

**Mystery Mine.** Mine effluent (sampled by DNR) was found to exceed state aquatic criteria. Results reported in parts per billion (ppb).

Constituent of Potential Concern (COPC)	Result (ppb)	Referenced State Screening Criteria * (ppb)
Arsenic	1,100-3,300	190
Copper	700-710	24
Lead	110	6.5
Zinc	6,000-6,100	222
Iron	12,000-48,000	---
pH	4.4	
Hardness	240-250	

\*Washington State chronic water criteria.

Based on the proximity of the sites to human activity and the potential habitat use by endangered fish populations, the assessment authors recommended a Site Investigation for Mystery Mine.

**Surface Water Data Validation.** The data are only provided as a summary and could not be validated for the purposes of this report, and thus are not useable for an RI.

### ***5. Inactive and Abandoned Mine Lands – Mystery and Justice Mines (Wolff et al. 2003)***

This report provides a summary of the specific Monte Cristo Mine as part of a larger overall project conducted by DNR (Wolff et al. 2003). The goal of the overall project was to build a single database and geographic information system (GIS) covering the major mines in Washington State. Documentation at this Site focused on physical characteristics and hazards (openings, structures, materials, and waste) and water-related issues (acid mine drainage and/or metals transport). Samples were collected at the following locations:

- Soil samples from dump surfaces at three adit openings
- Surface water samples collected from adit discharge at four mine features (five samples)



## Summary of Existing Environmental Data

### **Soil**

Soil samples were collected from the waste rock dump surface at each of the locations listed below, and analyzed for arsenic, cadmium, copper, iron, lead, and zinc by inductively coupled plasma following EPA Method 6010.

**Mystery Adit 3.** One sample collected in October 2002. Results indicate concentrations in soils exceeded screening criteria for arsenic, copper, iron, lead, and zinc. There are three waste rock piles reported for the Mystery Mine, and it is not clear which pile was sampled for this study.

**Pride of the Woods Mine.** One sample collected in October 2002. Results indicate concentrations in soils exceeded screening levels for arsenic, copper, iron, lead, and zinc. The POW waste rock pile is reported to contain about 900 cubic yards (BCY).

**Pride of the Mountains Mine.** One sample collected in October 2002. Results indicate concentrations in soils exceeded screening levels for arsenic, cadmium, copper, iron, lead, and zinc. The POM waste rock pile is reported to contain about 5,000 BCY.

Soil samples were collected at the surface of the waste rock piles near mine features. The data collected are potentially useful for the given areas of interest at the Site. Three soil samples were collected with limited laboratory qualifications, as discussed in Appendix A.

**Soil Data Validation.** Two soil samples (PR-MTS WRD and PRID/WOODS DUMP) were submitted and analyzed at Severn Trent Laboratory in Seattle and reported as Report Number 109204. The chain of custody was not completed correctly, as the sample date and time of collection was listed as the time the samples were received at the laboratory. No sample receiving temperatures were recorded. No sample results were rejected due to this missing information, as it was assumed that the soil samples were received at the laboratory within six months of collection.

Sample results for Mystery Mine were not provided for data validation.

### **Surface Water**

Adit and waste rock seep samples were analyzed for total metals, including arsenic, cadmium, copper, iron, lead, and zinc. Samples were analyzed for mercury by cold vapor atomic absorption (CVAA), EPA Method 7470.

Additionally, samples were analyzed for flow, conductivity, pH, bed color (orange, natural, etc.), and temperature.

**Justice Mine.** One sample collected in October 2002. Results indicate concentrations exceeded surface water screening criteria for arsenic, iron, and lead.

**Mystery Mine.** Two samples collected in October 2002. Results indicate concentrations exceeded concentrations for arsenic, iron, and lead for both samples.

**New Discovery.** One sample collected in October 2002. Results indicate concentrations exceeded surface water screening criteria for arsenic, iron, and lead.

**Pride of the Mountains.** One sample collected in October 2002. Results indicate concentrations exceeded surface water screening criteria for arsenic, cadmium, copper, iron, and lead.

Arsenic, iron, and lead concentrations exceeded screening criteria for all five samples taken at the various mine features.

Other general observations in this report include:

- Overall, samples collected from the mine adit drainages had higher concentrations of metals than the background **Glacier Creek** samples (reported in Raforth et al. 2002).
- Samples collected in the streams and rivers below the mine sites have substantial dilution because of mixing of headwaters with mine discharges. As a result, cumulative impacts are being measured rather than impacts from individual mines.
- The report noted that fine-grained soils from waste rock dumps have migrated to riparian margins, forming a red-brown, ferricrete-like soil. A benthic macroinvertebrate sample taken in **Glacier Creek** directly below the **POW** waste rock dump contained the following taxa: 14 stoneflies (*Plecoptera pteronarcyid*) and 6 mayflies (*Ephemeroptera baetid*). These taxa are relatively sensitive to environmental degradation; their presence suggests that past mining activity in the **Glacier Creek** headwaters has not had a pronounced effect on the stream's macrobiotic life.

Note, for some results the level of detection may be higher than the screening criteria as noted in Table 6, so these results cannot be evaluated.

**Surface Water Data Validation.** Two water samples (New Disc H<sub>2</sub>O and PR-MTS) were submitted and analyzed at Severn Trent Laboratory in Seattle and reported as Report Number 109204. The chain of custody was not completed correctly, as the sample date and time of collection was listed as the time the samples were received at the laboratory. No sample receiving temperatures were recorded. No sample results were rejected due to this missing information, as it was assumed that the water samples were received at the laboratory within six months of collection.

Sample results for Mystery Mine and Justice Mine were not provided for data validation.

### ***Sediment***

No sediment samples were collected during this investigation.

### ***Groundwater***

No groundwater samples were collected during this investigation.

## ***6. Site Hazard Assessment (Crofoot and O'Brien 2004)***

A Site Hazard Assessment (SHA) was conducted for the Monte Cristo Mine Area (Crofoot and O'Brien, 2004). The purpose of an SHA is to evaluate if contamination is present and to determine the relative risk to human health and the environment. The SHA does not investigate the extent and types of contamination, nor potential contamination pathways. The SHA focused on metal contamination at select locations for:

- Waste rock and impacted soils;
- River sediment; and
- Surface water samples.

Only a limited number of samples were collected at each area, approximately one to three samples for each site for each media. Samples were collected in September 2003 and did not include groundwater samples.

## Summary of Existing Environmental Data

### **Soil**

Generally, one to two soil samples were taken at each of the following locations: Pride of Mountain Mine, Justice Mine Adit, Comet Mine Bunker, Comet Mystery, and the Concentrator, but no specific information was given on the sample locations. Soil samples were analyzed for total metals including arsenic, cadmium, chromium, lead, mercury, nickel, copper, silver, zinc, antimony, beryllium, selenium, and thallium. Some soil samples were screened with an XRF analyzer *in situ*, and results are compiled in Table 9. Results from XRF sampling indicate soil and sediment samples have high concentrations of arsenic, lead, mercury, copper, and zinc at almost all the sampling locations listed in Table 9. Chromium and nickel exceedances were only found in a few samples below the **Concentrator**, and a few samples at both the **POM and POW mines**.

**Pride of the Mountain Mine.** One sample collected in September 2003. Results indicate concentrations in soils exceeded screening criteria for arsenic, cadmium, copper, lead, mercury, and zinc.

**Pride of the Woods Mine.** One sample collected in September 2003. Results indicate concentrations in soils exceeded screening criteria for antimony, arsenic, cadmium, copper, lead, mercury, silver, and zinc.

**Justice Mine.** One sample collected in September 2003. Results indicate concentrations in soils exceeded screening criteria for antimony, arsenic, cadmium, copper, lead, mercury, and zinc.

**Comet Mine Bunker.** Two samples collected in September 2003. Results indicate concentrations in soils exceeded screening criteria for antimony, arsenic, cadmium, copper, lead, mercury, silver, and zinc for both samples.

**Comet/Mystery Tram.** One sample collected in September 2003. Results indicate concentrations in soils exceeded screening criteria for antimony, arsenic, cadmium, copper, lead, mercury, silver, and zinc.

**Concentrator.** Three samples collected in September 2003. Results indicate concentrations in soils exceeded screening criteria for antimony, arsenic, cadmium, copper, lead, mercury, silver, thallium, and zinc for all three samples, and selenium for one of the three samples.

In general, soil results show elevated concentration levels for antimony, arsenic, cadmium, copper, lead, mercury, and zinc at all locations, and a few

exceedances for silver and thallium. Arsenic levels range from 122 to 41,400 mg/kg and lead concentrations range from 26 to 20,400 mg/kg, exceeding criteria concentrations. The highest metal concentrations occur at the Concentrator, Pride of the Woods Mine, Comet Mine Bunker, and Comet Mystery Tram locations. The data collected are potentially useful for the given areas of interest at the Site. Nine soil samples were collected with no noted laboratory qualifications.

**Soil Data Validation.** Four soil samples were submitted and analyzed at Edge Analytical and reported as Reference Number 03-5599. No sample results were rejected, but several results were qualified as estimated due to data quality exceedances. See Appendix A for detailed data quality reviews.

Two soil samples were submitted and analyzed at Manchester Environmental Laboratory and reported as Project ID 1861-03. Sample results were acceptable as reported.

Three soil samples were submitted and analyzed at Manchester Environmental Laboratory and reported as Project ID 1895-03. No sample results were rejected, but several results were qualified as estimated due to data quality exceedances. See Appendix A for detailed data quality reviews.

### ***Surface Water***

Ten surface water samples were collected around the Site, the majority of the samples were collected from perennial streams at or below mine locations (eight samples), with a few from the headwaters of Seventysix and Glacier Creeks (two samples). Surface water samples were analyzed for total metals, including arsenic, cadmium, chromium, lead, mercury, nickel, copper, silver, zinc, antimony beryllium, selenium, and thallium, as well as hardness, pH, temperature, specific conductivity, dissolved oxygen, total dissolved solids, sulfate, and sulfide.

- Samples collected immediately below the mine sites generally had higher concentrations of total metals, while samples collected in the streams and rivers downstream from the mine sites have substantial dilution because of mixing of headwaters with mine discharges.
- Additionally, headwater samples are almost all non-detect with the exception of a few metals existing in the background.
- For some results the level of detection is higher than the cleanup level or criterion, so these results cannot be evaluated.

**Surface Water Data Validation.** Six water samples were submitted and analyzed at Manchester Environmental Laboratory and reported as Project ID 1861-03. Sample results were acceptable as reported.

Four water samples were submitted and analyzed at Manchester Environmental Laboratory and reported as Project ID 1895-03. No sample results were rejected, but sample results for antimony were reported as non-detect, due to laboratory method blank contamination.

Two water samples were submitted and analyzed for sulfide at Severn Trent Laboratory in Seattle and reported as Lab No. 116488. Sample results for “Glacier Creek Headwater” and “Glacier Creek below Concentrator” were acceptable as reported.

### ***Sediment***

Sediment samples were analyzed for priority pollutant metals, including arsenic, cadmium, chromium, lead, mercury, nickel, copper, silver, zinc, antimony, beryllium, selenium, and thallium. Sediment samples were collected from Glacier Creek headwaters (one sample) and SFSR at Monte Cristo Lake (one sample).

Results indicate arsenic was found in concentrations exceeding screening criteria in both locations. Additionally, concentrations of cadmium, chromium, and lead exceeded screening levels in the SFSR sediment. The data collected are potentially useful for an RA. Also, it is not clear if co-located surface water sample(s) were collected where the sediment samples were collected.

**Sediment Data Validation.** One sediment sample was submitted and analyzed at Manchester Environmental Laboratory and reported as Project ID 1861-03. The sample SFSUKLA corresponds to “So Fork Sauk River Sed-Lk MC.” No sample results were rejected, but the results for antimony were qualified as estimated (J) due to presumed matrix effects.

One sediment sample was submitted and analyzed at Manchester Environmental Laboratory and reported in Project ID 1895-03. The sample GLCKHDWT corresponds to “Glacier Creek Headwater Sed.” No sample results were rejected, but the results for mercury were qualified as estimated (J) due to batch QC exceedances.

### ***Groundwater***

No groundwater samples were collected during this SHA.

## **7. Abbreviated Preliminary Assessment (Forest Service 2006a)**

An Abbreviated Preliminary Assessment was conducted in August 2006, on three mines in the Glacier Creek Basin: Pride of the Woods, New Discovery, and Pride of the Mountains mines (Forest Service 2006a). Soil samples were collected from waste rock piles at the three mines and analyzed for metals using an XRF analyzer. Surface water samples were collected from Glacier Creek at locations above, between, and below the mines, along with a sample of the discharge from the Pride of the Mountains northwest adit.

### **Summary of Existing Environmental Data**

#### **Soil**

Composite soil samples from mine waste rock dumps were collected in the field and processed in the lab. Soil samples were analyzed using an XRF analyzer for total metals, including antimony, arsenic, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, silver, tin, and zinc.

**Pride of the Woods Mine.** Two composite samples collected in August 2006. The waste rock volume is roughly estimated at 350 loose cubic yards (lcy). This estimate differs from a later estimate of 900 bcy for the POW waste rock pile (CES 2011). The difference is more than simply an expression in different units; for comparison purposes a bank cubic yard (which represents a moderately compact condition) is often assumed to produce about one and a half loose cubic yards. No reason for the different volume estimates for the POW waste rock pile has been noted in the documents reviewed to date. Results of the XRF observations indicate concentrations exceeded screening criteria for antimony, arsenic, chromium, cobalt, copper, iron, lead, and zinc for both samples.

**New Discovery Mine.** Three composite samples collected in August 2006. The waste rock dump was estimated to be approximately 850 lcy. XRF results indicate concentrations exceeded screening criteria for antimony, arsenic, iron, lead, and zinc for all three samples, chromium, copper, and manganese for two samples, and cobalt for one of the samples.

**Pride of the Mountains Mine.** Six composite samples collected in August 2006. The mine workings comprise 2,314 feet of horizontal mine workings on three main levels connected by a maze of raises, stopes, and intermediate levels, and although there are reported to be five adits for this mine, there is apparently only one waste rock dump. Two samples were collected from the main adit, one from the northwest adit, one from the lower southeast adit, and two from the

upper southeast adit. Results indicate concentrations exceeded screening criteria for antimony, arsenic, iron, lead, and zinc for all six samples. Chromium, copper, and manganese concentrations also exceeded screening criteria in at least six of the nine samples.

The number of samples collected appears to be appropriate to generally characterize each of the waste rock piles associated with each mine feature. The authors concluded that the data indicate a Site Investigation would be appropriate for the POW, ND, and POM mines to determine appropriate cleanup actions.

**Soil Data Validation.** Eleven composite soil samples were analyzed by Niton X-Ray Fluorescence (XRF) in accordance with EPA Method 6200. No calibration information or quality control results were provided in the report and no data validation could be performed.

### ***Surface Water***

Water quality sampling at the mines and along Glacier Creek was performed on August 2, 2006. Surface water samples were analyzed for hardness, sulfate, and total metals, including antimony, arsenic, cadmium, copper, lead, nickel, and zinc. Field parameters tested during water sampling included temperature, pH, specific conductance, turbidity, dissolved oxygen, total dissolved solids, and oxidation-reduction potential.

**Glacier Creek.** One sample collected near the headwaters. Results indicate lead concentrations exceeded some, but not all of the screening criteria.

**New Discovery Mine.** Two samples collected below ND, one in Glacier Creek, and one in the seep along Glacier Creek. Results indicate arsenic concentrations exceeded screening criteria.

**Pride of the Woods.** One sample collected in Glacier Creek, below POW. Results indicate arsenic concentrations exceeded screening criteria.

**Pride of the Mountains.** One sample collected in Glacier Creek, below POM. Results indicate arsenic concentrations exceeded screening criteria.

**Pride of the Mountains Adit.** One sample collected July 2006. Discharge from the northwest adit was sampled before the flow infiltrated waste rock within 25 feet of the portal. Results indicate concentrations of arsenic and lead exceeded screening criteria.



All sampling was conducted in a single day, which does not incorporate potential differences in metals concentrations with changing seasonal flows. Based on the proximity of the sites to human activity, the potential habitat use by endangered fish populations, the conclusion of the assessment was that a Site Investigation (SI) was recommended for the three mines.

**Surface Water Data Validation.** Six water samples were submitted and analyzed at Severn Trent Laboratory and reported as Job No. 580-3244-1. No sample results were rejected, but sample results for lead, antimony, copper, nickel, and zinc were qualified due to low level laboratory method blank contamination.

### ***Sediment***

No sediment samples were collected during this in this investigation.

### ***Groundwater***

No groundwater samples were collected during this in this investigation.

## ***8. Abbreviated Preliminary Assessment (Forest Service 2006b)***

This APA report covers an investigation of the Sidney Mine, located on Seventysix Creek, to determine whether or not further site characterization was needed (Forest Service 2006b). Soil samples from the mine waste rock dump and water samples from Seventysix Creek were collected and analyzed.

### **Summary of Existing Environmental Data**

#### ***Soil***

The samples were prepared and analyzed by EPA Method 6200 using an XRF instrument. Metals reported included antimony, arsenic, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, silver, tin, and zinc.

**Sidney Mine.** Two composite soil samples collected in August 2006. Results indicate concentrations in soils exceeded screening criteria for antimony, arsenic, chromium, copper, iron, lead, and zinc in both samples and cobalt in one of the samples.

The location(s) of the composite sample(s) are generally described. Only two soil samples were analyzed by XRF to characterize the waste rock pile that was

later estimated to contain about 425 bcy. Depending on the method used to composite the samples, additional samples should probably be collected for characterization using laboratory analytical methods. The data indicate that there are high levels of metals located at the waste rock dump at Sidney mine, but are not usable for risk assessment purposes. As the purpose of the APA was to determine if additional site characterization was warranted, these sample results supported the decision to conduct further investigations.

**Soil Data Validation.** Two composite soil samples were analyzed by Niton X-Ray Fluorescence (XRF) in accordance with EPA Method 6200. No calibration information or quality control results were provided in the report and no data validation could be performed.

### ***Surface Water***

Field parameters collected at the sample locations included temperature, pH, conductivity, turbidity, dissolved oxygen, total dissolved solids, and oxidation-reduction potential. Laboratory analyses included total metals for arsenic, lead, antimony, cadmium, copper, nickel, and zinc by EPA Method 6020; sulfate by EPA Method 300.0; and hardness by EPA Method 130.2.

**Seventysix Creek.** Two samples collected, one above and one below Sidney mine. Results indicate copper concentrations in both samples exceeded screening criteria.

**Sidney Mine.** One sample collected from the adit discharge. Results indicate arsenic concentrations exceeded screening criteria.

Based on the analytical results, and the existence of ecological receptors, it was recommended that a Site Investigation be performed.

**Surface Water Data Validation.** Three water samples were submitted and analyzed at Severn Trent Laboratory and reported as Job No. 580-3244-1. No sample results were rejected, but sample results for lead, antimony, copper, nickel, and zinc were qualified due to low level laboratory method blank contamination.

## ***9. Site Inspection at the Monte Cristo Mining Area (Amann and Lambeth, 2007)***

The Site Inspection at the Monte Cristo Mining Area included an inspection of the Mystery and Justice Mines, and detailed investigation of the Concentrator, Ore Collector, and Assay Shack to determine the potential threat to human health and the environment (Amann and Lambeth, 2007). Field activities were

divided into three phases, which included sampling and analysis of soil, waste rock, tailings, surface water, pore water, and sediment samples.

- Phase I assessed water quality and impacts on the aquatic environments of Glacier Creek and the SFSR, as well as water quality in Seventysix Gulch.
- Phase II characterized contaminants present in waste rock near the Concentrator, Ore Collector, Assay Shack, and Justice Mine, as well as background soil samples and additional sediment samples in Glacier Creek.
- In Phase III, the magnitude and extent of contamination was delineated at the Concentrator, Ore Collector, Assay Shack, and along the former haulage routes.

The SI included an aquatic ecological survey to assess the potential impacts of mining activity on the in-stream habitat, benthic macroinvertebrate community, and presence of fish species. Samples were collected in June and September of 2005 and July 2006.

## **Summary of Existing Environmental Data**

### ***Soil***

Soil samples were analyzed for percent solids, soil pH, sulfur forms (total, pyrite, non-extractable, and sulfate), acid generation potential, acid neutralization potential, and acid-base potential, along with total metals concentrations (see analytes list in Table 1).

**Background.** Background soil samples were taken from ten locations in undisturbed areas upgradient of the MCMA, with two collected on the hillsides above the headwaters of Seventysix Gulch, three from the slopes at the headwaters of Glacier Creek, two from upgradient from the Mystery and Justice Mines, and three from the slopes above the Concentrator and Ore Collector. Arsenic, chromium, mercury, and zinc concentrations were elevated in background soils; however, metals were detected in soils at several of the mine features at concentrations exceeding the 90 percent UCL for background soil. Pending further statistical review, it appears the number of background soils samples satisfies the requirements of WAC 173-340-709 for determining natural background soil concentrations.

**Collector.** Fourteen samples were collected around the Ore Collector, which was estimated to have approximately 1,800 bcy of coarse ore and 700 bcy of finely crushed ore. Results indicate concentrations in soils exceeded screening

criteria for aluminum, antimony, arsenic, cadmium, chromium, copper, lead, mercury, selenium, silver, vanadium, and zinc for most samples, as well as beryllium, manganese, and thallium for several samples.

**Concentrator.** At the former Concentrator site, 23 soil samples were collected for the estimated 8,100 bcy of tailings, soil, and waste rock mixture and 100 bcy of spilled concentrate observed. Results indicate concentrations in soils exceeded screening criteria for aluminum, antimony, arsenic, cadmium, chromium, copper, iron, lead, mercury, silver, vanadium, and zinc for most samples, as well as selenium and thallium for several samples.

**Haulage Way.** Five samples were taken at intervals along the approximately 1 km haulage route, which was estimated to have 200 bcy of spilled ore. Results indicate concentrations in soils exceeded screening criteria for aluminum, arsenic, chromium, iron, manganese, and vanadium for all samples. Antimony, copper, lead, mercury, selenium, and zinc concentrations exceeded criteria in three or more of the samples.

**Assay Shack.** Four soil samples were taken from the Assay Shack, assumed to have approximately 200 bcy of contaminated soil. Results indicate concentrations in soils exceeded screening criteria for aluminum, antimony, arsenic, cadmium, copper, iron, lead, mercury, silver, vanadium, and zinc for all samples.

**Mystery Mine.** Five samples of waste rock from Mystery Mine (approximately 55,000 bcy) were sampled at four locations. The subsequently completed Data Gap investigation reported the volume of waste rock at the Mystery Mine to be only about 32,000 bcy; the reason for the discrepancy is not known. Results indicate concentrations in soils exceeded screening criteria for aluminum, antimony, arsenic, cadmium, chromium, copper, lead, mercury, silver, vanadium, and zinc for all samples. Chromium, nickel, selenium, and thallium concentrations exceeded criteria in three or more of the samples.

The data confirm that the waste material at these mine features is hazardous and has the potential to produce acid rock drainage. Also, several state and federal rare, threatened, and sensitive (RTS) mammals, birds, and herptiles were found to have potential habitat within the MCMA and have the potential to be negatively impacted. However, the data are not sufficient to determine appropriate cleanup or removal actions. The authors concluded that further sampling is necessary to identify the depth and extent of contamination.

**Phase I Soil Data Validation.** Four soil samples were submitted and analyzed at SVL Analytical and reported as Job No. 117202. No sample results were

rejected, but results for silver, zinc, selenium, and copper in sample Upper Mill were qualified as estimated (J) due to batch QC exceedances.

**Phase II Soil Data Validation.** Thirty-four soil samples were submitted and analyzed at SVL Analytical and reported as Job Nos. 119029, 119030, 119031, 119032, and 119033. No sample results were rejected, but several results were qualified as estimated due to data quality exceedances. See Appendix A for detailed data quality reviews.

The samples were also submitted and analyzed at Brooks Rand and reported as Report Number 05BR1345. Sample results were acceptable without qualification.

**Phase III Soil Data Validation.** Twenty-seven soil samples and one field duplicate were submitted and analyzed at SVL Analytical and reported as Job Nos. 124219, 124220, 124229, 124230, and 125324. No sample results were rejected, but several results were qualified as estimated due to data quality exceedances. There is a sample identification discrepancy: a sample listed on the chain of custody as COL-19 (6-6.5') was labeled as COL-07 (6-6.5') on the sample jar. According to Table 4 in the SI report, there is no sample COL-19, and sample COL-07 was collected at 1- to 2-foot depth, while sample COL-06 was collected at 6- to 6.5-foot depth. The sample was identified as COL-19 (6-6.5') in the laboratory reports.

Dry weight analyses were not performed on several sample delivery groups, so multiple sample results are reported on a wet weight basis. All results for a number of samples collected along the Haulage Way, Ore Collector, and Concentrator should be considered biased low. See Appendix A for detailed data quality reviews.

### ***Surface Water***

Surface water samples were collected for total recoverable metals analysis, which included aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc, along with pH, conductivity, hardness, total dissolved solids, total suspended solids, cyanide, and sulfate. Field measurements included flow rate, temperature, pH, turbidity, conductivity, dissolved oxygen, oxygen reduction potential, and total dissolved solids. Background surface water samples were taken from the headwaters of Glacier Creek at two locations and from one location at Seventysix Gulch. Three samples were collected on Glacier Creek downstream of Mystery Mine, one sample was taken on Seventysix Creek downstream of

Sidney and Sheridan Mines, and three samples were collected on the SFSR, downstream of the confluence of Seventysix Gulch and Glacier Creek. Surface water samples were also collected from adit discharge at the Mystery Mine Adit (one sample) and Justice Mine Adit (one sample).

Background samples from Glacier Creek had mostly non-detect metal concentrations, with the exception of barium and magnesium. Arsenic concentrations exceeded screening criteria in all three Glacier Creek samples collected below mining features.

Two samples were collected from **Seventysix Creek**, one background and one below Sidney and Sheridan Mines. Results indicate arsenic concentrations in both samples exceeded screening criteria and the non-background sample exceeded criteria for lead concentrations.

Three samples were collected in **SFSR**, with arsenic concentrations exceeding criteria for all three.

**Mystery Mine Adit.** One sample collected in September 2005. Results indicate concentrations exceeded screening criteria for aluminum, arsenic, cadmium, iron, lead, manganese, and thallium.

**Justice Mine Adit.** One sample collected in September 2005. Results indicate concentrations exceeded screening criteria for arsenic.

Samples were collected during moderately high flow conditions, therefore, additional sampling during a low-flow period was recommended by the authors. The data are not adequate to clearly determine the source contributing to increasing metals concentrations downgradient, suggesting a more comprehensive sampling scheme is necessary to identify the contributing source.

**Phase I Surface Water Data Validation.** Ten water samples, a field duplicate, and a rinse blank were submitted and analyzed at SVL Analytical and reported in Job Nos. 117209, 117217, 118765, and 118767. No sample results were rejected, but several results were qualified as estimated due to data quality exceedances. See Appendix A for detailed data quality reviews.

The samples were also submitted and analyzed at Brooks Rand and reported as Report Number 05BR0792. No sample results were rejected, but several results were qualified as estimated due to data quality exceedances. See Appendix A for detailed data quality reviews.

**Phase II Surface Water Data Validation.** Two water samples, a field duplicate, and a rinse blank were submitted and analyzed at SVL Analytical and reported in Job No. 118905. No sample results were rejected, but several results were qualified as estimated due to data quality exceedances. See Appendix A for detailed data quality reviews.

The samples were also submitted and analyzed at Brooks Rand and reported as Report Number 05BR1345. No sample results were rejected, but several results were qualified as estimated due to data quality exceedances. See Appendix A for detailed data quality reviews.

**Phase III Surface Water Data Validation.** Two rinse blanks were submitted and analyzed at SVL Analytical and reported in Job No. 124216. It was not possible to determine which samples were associated with these rinse blanks, and no sample results were qualified due to rinse blank exceedances.

### ***Sediment***

Sediment samples were analyzed for total metals, including aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, cyanide, iron, lead, magnesium, manganese, mercury methyl, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc. Additionally, sediment samples were analyzed for total organic carbon, size fraction, and percent solids.

Background sediment samples were taken from the headwaters of Glacier Creek (two locations) and Seventysix Gulch (one location). Three sediment samples were collected on Glacier Creek downstream of Mystery Mine, one sample was taken on Seventysix Creek downstream of Sidney and Sheridan Mines, and three samples were collected on the SFSR, downstream of the confluence of Seventysix Gulch and Glacier Creek. These locations also correspond to surface and groundwater (pore water) samples, and the aquatic ecological survey observation locations (results described below). In addition, five closely located samples were collected adjacent to and downstream from both the Ore Collector and Concentrator in Glacier Creek.

- Most of the sediment samples exceeded screening criteria for antimony, arsenic, cadmium, chromium, copper, lead, and zinc. In general, downstream concentrations were higher than upstream/background samples.
- Metal concentrations are highest in **SFSR** samples, suggesting tailings are in the channel deposits (alluvium). Because concentrations are high even at

the farthest downstream location, the extent of contaminated sediment transport is not defined.

- The aquatic ecological survey indicated there are potential metals impacts to benthic macroinvertebrate populations in 20 percent of the pool habitats sampled and 37 percent of the riffle habitats.

Samples were collected during moderately high-flow conditions, therefore, additional sampling during a low-flow period was recommended by the authors. Also, the authors concluded that more detailed chemical analysis of surface water and sediments is necessary to determine whether impacts to macroinvertebrate communities are a result of chemical impacts.

**Phase I Sediment Data Validation.** Ten sediment samples were submitted and analyzed at SVL Analytical and reported in Job No. 117207. No sample results were rejected, but several results were qualified as estimated due to data quality exceedances. See Appendix A for detailed data quality reviews.

The samples were also submitted and analyzed at Brooks Rand and reported as Report Number 05BR0792. One sample result was rejected, and several results were qualified as estimated due to data quality exceedances. Sample results for monomethyl mercury in sample GC-SS5 were rejected due to batch QC failures. See Appendix A for detailed data quality reviews.

**Phase II Sediment Data Validation.** Ten sediment samples were submitted and analyzed at SVL Analytical and reported in Job No. 119032. No sample results were rejected, but several results were qualified as estimated due to data quality exceedances. See Appendix A for detailed data quality reviews.

### ***Groundwater***

Groundwater (pore water) samples were collected for dissolved metals analysis, which included aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc, along with pH, conductivity, hardness, total suspended solids, cyanide, and sulfate. Field measurements included temperature, pH, turbidity, conductivity, dissolved oxygen, oxygen reduction potential, and total dissolved solids.

Groundwater samples were taken from **Glacier Creek, Seventysix Gulch,** and **SFSR** locations. Results from surface and groundwater samples were similar, with arsenic found to be the primary contaminant.



**Phase I Groundwater Data Validation.** Nine pore water samples, a field duplicate, and a rinse blank were submitted and analyzed at SVL Analytical and reported in Job Nos. 117209, 117217, 118765, and 118767. No sample results were rejected, but several results were qualified as estimated due to data quality exceedances. See Appendix A for detailed data quality reviews.

The samples were also submitted and analyzed at Brooks Rand and reported as Report Number 05BR0792. No sample results were rejected, but several results were qualified as estimated due to data quality exceedances. See Appendix A for detailed data quality reviews.

## **10. Engineering Evaluation / Cost Analysis (CES 2010)**

The 2010 Engineering Evaluation/Cost Analysis (EECA, CES 2010) did not include an extensive discussion of sampling and analyses (apparently discussed in a prior work plan) but the following sample results were included:

- Waste rock and impacted soils for total metals; and
- Waste rock and impacted soils for Toxicity Characteristic Leaching Procedure (no exceedances of screening criteria reported).

### **Soil**

Soil samples were collected and analyzed for waste rock piles and apparent impacted soils for a number of locations as summarized below.

**Boston-American Mine.** Two samples were collected and analyzed in August 2008. Results indicate concentrations in soils exceeded screening criteria for arsenic in both samples, and copper, mercury, selenium, and zinc for one of the two samples.

**Golden Cord Mine.** Two samples were collected and analyzed in August 2008. Results indicate concentrations in soils exceeded screening criteria for antimony, arsenic, copper, lead, mercury, and zinc for both samples, and cadmium for only one sample.

**Justice Mine.** Six samples were collected and analyzed in August 2008. Results indicate concentrations in soils exceeded screening criteria for arsenic, copper, lead, and zinc for all six samples, and antimony, chromium, and mercury for three or more samples.

**Mystery Mine.** Five samples were collected and analyzed in August 2008. Results indicate concentrations in soils exceeded screening criteria for antimony,

arsenic, cadmium, copper, lead, mercury, silver, and zinc for all six samples, with selenium exceedances in three of the five samples.

**New Discovery Mine.** Three samples were collected and analyzed in August 2008. Results indicate concentrations in soils exceeded screening criteria for arsenic, copper, mercury, and zinc for all samples. Antimony and silver concentrations exceed screening criteria for one sample each and lead concentrations exceeded for two samples.

**Pride of the Mountains Mine.** Three samples were collected and analyzed in August 2008. Results indicate concentrations in soils exceeded screening criteria for arsenic, copper, lead, mercury, and zinc for all three samples, with antimony, cadmium, and silver exceeding criteria for two of the three samples.

**Pride of the Woods Mine.** Two samples were collected and analyzed in August 2008. Results indicate concentrations in soils exceeded screening criteria for antimony, arsenic, copper, lead, mercury, selenium, and silver for both samples, and zinc for one sample.

**Rainy Mine.** Two samples were collected and analyzed in August 2008. Results indicate concentrations in soils exceeded screening criteria for arsenic, copper, lead, mercury, selenium, silver, and zinc for both samples, and antimony, cadmium, and chromium for one of the two samples.

**Sheridan Mine.** Two samples were collected and analyzed in August 2008. Results indicate concentrations in soils exceeded screening criteria for arsenic, cadmium, copper, lead, mercury, and zinc for both samples. Chromium, selenium, and silver concentrations exceeded screening criteria in one of the two samples.

**Sydney Mine.** Two samples were collected and analyzed in August 2008. Results indicate concentrations in soils exceeded screening criteria for arsenic, cadmium, copper, lead, mercury, selenium, silver, and zinc for the two samples, and antimony in only one of the samples.

**Soil Data Validation.** Twenty-eight soil samples and two field duplicates were submitted and analyzed at ACZ Laboratories and reported as Project IDs L71409, L71530, and L71533. No sample results were rejected, but several results were qualified as estimated due to data quality exceedances. See Appendix A for detailed data quality reviews.

## **Surface Water**

Surface water sampling and analyses reported in the EE/CA are apparently a continuation of monitoring initiated as part of earlier studies. Surface water samples were analyzed for total metals (aluminum, antimony, arsenic, cadmium, chromium, copper, iron, lead, manganese, and zinc), as well as pH, hardness, total dissolved solids, and total suspended solids. Results are summarized below.

- Nearly all surface water samples collected in **Glacier Creek** had concentrations of arsenic and mercury that exceeded screening criteria.
- Both the surface water samples collected in **Seventysix Gulch** had concentrations of arsenic, cadmium, chromium, copper, lead, mercury, selenium, and zinc that exceeded screening criteria
- All nine surface water samples collected in the **South Fork of the Sauk River** had concentrations of arsenic and mercury that exceeded screening criteria.
- Two of the three surface water sample collected in **Monte Cristo Lake** had concentrations of arsenic and mercury that exceeded screening criteria.

The accumulated results of surface water monitoring in Glacier Creek, Seventysix Gulch, the South Fork of the Sauk River, and Monte Cristo Lake represent a sizable body of information that will require further analysis. There are some problems with surface water characterization as reported in the EECA, but many of the sample results are useable for a remedial investigation. Most of the results are reported for total or total recoverable concentrations, whereas aquatic life protection criteria are typically based on dissolved concentrations for constituents of concern including arsenic, cadmium, chromium, copper, mercury, selenium, silver, and zinc that were analyzed in most samples. Relatively few samples were analyzed for barium or lead, and in most cases the detection levels for lead were well above the screening concentration. Also, iron and aluminum were often not analyzed.

Adit and waste rock seep samples were analyzed for the same parameters as the surface water samples described above, as well as for alkalinity, chloride, calcium, magnesium, sodium, potassium, and sulfate. Many of the mine sites where seep samples were collected for the EE/CA may have been previously sampled, and the EE/CA does not include any description of the location of the seep, flow rate, or persistence. Adit and waste rock seeps were sampled at the following mine locations for the EE/CA:

**Boston American Mine** (two samples collected in August 2008). Results indicate the concentration of arsenic and mercury exceeded screening criteria.

**Justice Mine** (two samples collected in August 2008). Results indicate the concentration of arsenic and mercury exceeded screening criteria.

**Mystery Mine** (two samples collected in August 2008). Results indicate the concentration of arsenic, iron, manganese, and mercury exceeded screening criteria.

**New Discovery Mine** (one sample collected in August 2008). Results indicate the concentration of arsenic, iron, manganese, and mercury exceeded screening criteria.

**Pride of the Mountains Mine** (one sample collected in August 2008). Results indicate the concentration of arsenic, iron, manganese, and mercury exceeded screening criteria.

**Pride of the Woods Mine** (one sample collected in August 2008). Results indicate the concentration of arsenic, iron, manganese, and mercury exceeded screening criteria.

**Rainy Mine** (one sample collected in August 2008). Results indicate the concentration of arsenic and mercury exceeded screening criteria.

**Sidney Mine** (one sample collected in August 2008). Results indicate the concentration of arsenic exceeded screening criteria.

Only limited information was provided on the seeps sampled. Based on the lack of information on the rate of flow, persistence and whether/where seeps infiltrate or discharge directly into local creeks, the mine and waste rock seeps should be further characterized.

**Surface Water Data Validation.** Twenty-one water samples, a field duplicate, and a rinse blank were submitted and analyzed at ACZ Laboratories and reported as Project IDs L71491, L71394, and L71393. No sample results were rejected, but several results were qualified as estimated due to data quality exceedances. See Appendix A for detailed data quality reviews.

**Drainage Water Data Validation.** Eleven water samples and one field duplicate were submitted and analyzed at ACZ Laboratories and reported as Project IDs L71395, L72382, L71396, and L71393. Project ID L72382 was provided only as an Electronic Data Deliverable (EDD), and results for sample MCEE-DW-SY-01

could not be properly validated. No sample results were rejected, but several results were qualified as estimated due to data quality exceedances. See Appendix A for detailed data quality reviews.

### ***Sediment***

The EECA largely relied on previous investigations for information on freshwater sediments. Sediment samples were collected and analyzed for the EECA including five background locations, one location in Seventysix Gulch, nine locations in the South Fork of the Sauk River, and six locations in Monte Cristo Lake. Sediment samples were compared to various screening criteria.

Although there were scattered exceptions, virtually all the sediment samples had concentrations that exceeded the comparison criteria for antimony, arsenic, cadmium, copper, lead, and zinc. A number of the sediment samples from Glacier Creek also exceeded the comparison criteria for mercury and the majority of samples in SFSR and MCL exceeded the screening criteria for chromium and silver.

Based on the reported frequency of sampling and extent of coverage, but in the absence of more detailed information on field conditions, it appears that sediments are relatively well characterized.

**Sediment Data Validation.** Twenty-two sediment samples and one field duplicate were submitted and analyzed at ACZ Laboratories and reported as Project IDs L71522 and L71410. No sample results were rejected, but several results were qualified as estimated due to data quality exceedances. See Appendix A for detailed data quality reviews.

### ***Groundwater***

Sediment pore water was sampled and analyzed, and compared to aquatic life protection standards at six locations in the South Fork of the Sauk River and one location in Monte Cristo Lake. Results indicate exceedance of screening criteria for arsenic and mercury at all locations in the South Fork of the Sauk River and at the single sampling location in Monte Cristo Lake, where lead concentrations also exceeded screening criteria.

It is difficult to tell if the pore water samples indicate the concentration of hazardous substances in groundwater before it discharges into surface water, or

groundwater that has been diluted by surface water.<sup>1</sup> Results of collocated surface water and pore water samples presented on Plate 2 of the EECA indicate the concentration of arsenic in pore water closely tracks the concentration in surface water, including the apparent effect of dilution where Weden creek flows into the SFSR. This suggests the pore water sample concentrations represent groundwater that has been diluted in the hyporheic zone, rather than true groundwater concentrations.

**Groundwater Data Validation.** Seven water samples and one rinse blank were submitted and analyzed at ACZ Laboratories and reported as Project ID L71492. No sample results were rejected, but several results were qualified as estimated due to data quality exceedances. See Appendix A for detailed data quality reviews.

## **11. Data Gap Investigation (CES 2011)**

The 2010 Data Gap Investigation (DGI, CES 2011) included the following:

- Seasonal high- and low-flow surface water and sediment sampling surface waters (South Fork Sauk River, Glacier Creek, Seventysix Gulch, and Monte Cristo Lake), and adit drainage and/or seeps from waste rock piles (Pride of the Mountains, New Discovery, Pride of the Woods, Mystery, Justice, Lincoln, Rainy, Sheridan, and Boston-American mines);
- Reconnaissance observations and X-Ray fluorescence (XRF) at four sites (Comet Mine Terminal, Lincoln Mine, Liberty Prospect (no XRF), and a roadside at the north side of the Weden Creek watershed);
- Bulk sampling for humidity cell tests at the Ore Collector, Concentrator, Pride of the Woods Mine, and Rainy Mine sites; and
- Topographic surveys.

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<sup>1</sup> The work plan for pore water sampling (Field Operations Plan, CES, May 2008) describes a field method using an MHEPP-27 model drive point sampler that is inserted approximately 6- to 12-inches below the streambed. However, the method does not indicate if that depth is to the tip of the drive point or to the sample collection orifice (typically a ring of holes in the side of the drive point or a short screened section) and the MHEPP-27 could not be located by a Google® search. The work plan also does not indicate if a plate around the drive point was placed on the surface of the sediment, which is a common method to reduce the chance of drawing surface water into the drive point.

This review was written prior to receiving lab reports for the DGI, so the following conclusions are based on a comparison of data from the DGI summary tables to the screening criteria established for this summary report. Once the lab reports are available, the data will be validated and included in Tables 5-8 in this report.

### **Soil**

**Comet Terminal.** The Comet Terminal, located on the east side of the Monte Cristo Townsite is the former terminus of an aerial tramway used to transport ore from the Comet Mine, located roughly 10,000 feet farther east. There is an estimated 235 bcy of ore in eleven piles in this area over an area estimated to be about 0.8 acres. For the DGI, thirty-eight XRF readings and 10 bulk samples were obtained to characterize spilled ore and potentially impacted soils in the area.

Results of the XRF screening are summarized below.

Constituent of Potential Concern (COPC)	Minimum XRF Reading (ppm)	Average XRF Reading (ppm)	Maximum XRF Reading (ppm)
Antimony	130	675	2,898
Arsenic	37	8,233	96,662
Copper	39	132	413
Lead	12	1,331	10,426
Zinc	18	215	881

Results of analytical laboratory tests on two soil samples and eight ore samples are summarized below.

Constituent of Potential Concern (COPC)	Minimum Concentration (mg/kg)	Average concentration (mg/kg)	Maximum Concentration (mg/kg)
Antimony	5	697	2,690
Arsenic	140	30,046	102,000
Copper	34	246	557
Lead	68	4,460	20,400
Zinc	118	1,135	8,000

Typically all of the soil and ore samples noted above exceeded risk-based screening criteria for the COPCs noted, as well as risk based criteria for cadmium, chromium, iron, manganese, mercury, and zinc. Based on the number of samples collected within 0.8 acre area and distinct ore piles, and

general consistency of the XRF screening data with analytical results, the Comet Terminal appears to be relatively well characterized in our opinion.

**Haulage Way.** The Haulage Way refers to a former roadway that extends a few hundred feet in length past the north side of the Comet Terminal, connecting a former rail line from the Ore Collector to the Concentrator and extending farther west to the former Assay Shack. The Haulage Way was characterized as part of the site Inspection (CES, 2008); additional work for the DGI consisted of five XRF readings and one sample of potential tailings between the Concentrator and the Assay Shack.

Laboratory analysis of the soil (probable tailings) sample indicated it contained 52 mg/kg arsenic, 63 mg/kg copper, and 47 mg/kg zinc, which all exceed screening criteria. The XRF data typically exceeded screening criteria for ecological receptors (but not for human health) for copper, lead, and cobalt. Since the Haulage Way was previously characterized and the DGI focused on a limited area, near the former Assay Shack; this area appears to be relatively well characterized in our opinion.

**Lincoln Mine.** The Lincoln Mine is a collapsed adit located in Seventysix Gulch about 0.8 miles southeast of Monte Cristo Townsite. At the time of the DGI three samples of waste rock or impacted soils were collected as well as a seep sample (discussed later).

The waste rock is intermingled with soil and rock debris from unstable areas upslope of the adit. The DGI estimates total waste rock volume may have been as much as 310 bcy, but indicates most of this has probably been removed by erosion. Analysis of the soil and waste rock samples indicated they have concentrations of arsenic, chromium (two samples), copper, iron, manganese, and zinc (two samples) that exceed screening criteria. Based on the sample results and the limited area and volume of waste rock, the Lincoln Mine appears to be relatively well characterized in our opinion.

**Weden.** The DGI included reconnaissance and sampling in an area referred to as Weden Station, about three miles northwest of the Monte Cristo Townsite. The observations were accomplished because of reports of spilled concentrate in this area, that was along the route concentrate was shipped from the MCMA to off site smelters in Everett and Tacoma. Nine XRF readings were obtained and three samples of potentially impacted soils were collected for analysis.



Results of the XRF screening are summarized below.

Constituent of Potential Concern (COPC)	Minimum XRF Reading (ppm)	Average XRF Reading (ppm)	Maximum XRF Reading (ppm)
Arsenic	15	183	108
Copper	40	95	57
Lead	15	45	29

Results of analytical laboratory tests on two soil samples and eight ore samples are summarized below.

Constituent of Potential Concern (COPC)	Minimum Concentration (mg/kg)	Average concentration (mg/kg)
Antimony	6.2	9.3
Arsenic	222	347
Copper	86	159
Lead	49	81
Zinc	118	192

These concentrations exceed screening criteria for all of the samples. In addition, chromium, iron, manganese, and mercury concentrations exceed screening criteria. The DGI recommended that this area be further characterized, particularly if ground disturbance is anticipated here as part of the remedy.

**Humidity Cell Tests.** In addition to the soil tests described above, the DGI included collection of samples for humidity cell tests (HCT) from these four locations: Pride of the Woods Mine, Rainy Mine, the Ore Collector, and the Concentrator. Results of the HCT were not available at the time the DGI report was prepared. The HCT is intended to provide information about the results of soil and rock due to weathering; while it will provide perspective on the potential for releases of hazardous substances at the MCMA; the results have no direct applicability to assessing risk to human health or the environment.

**Soil Data Validation.** Seventeen soil samples were collected in September 2010 and were submitted and analyzed at Pace Analytical Services in Seattle, WA. The samples were reported as Project No. 255193. No sample results were rejected, but several results were qualified as estimated due to data quality exceedances. See Appendix A for detailed data quality reviews.

## **Surface Water**

Surface water sampling and analyses reported in the DGI are for the most part, a continuation of monitoring initiated as part of earlier studies. Surface water samples were analyzed for total metals (aluminum, antimony, arsenic, cadmium, chromium, copper, iron, lead, manganese, and zinc), as well as pH, hardness, total dissolved solids, and total suspended solids. Sampling was accomplished in June 2010 to collect samples representative of seasonal high flows, and in September to represent seasonal low flows. A total of 21 surface water locations were sampled, including: seven stations in Glacier Creek, four stations in Seventysix Gulch, nine stations in the South Fork of the Sauk River, and one station in Monte Cristo Lake. Four stations were sampled for the first time as part of the DGI, including two each in Glacier Creek and Seventysix Gulch. Results are summarized below.

- All surface water samples collected in **Glacier Creek** had concentrations of arsenic that exceeded screening criteria.
- All surface water samples collected in **Seventysix Gulch** had concentrations of arsenic that exceeded criteria, and a few samples had concentrations of aluminum and iron that exceeded screening criteria.
- All surface water samples collected in the **South Fork of the Sauk River** had concentrations of arsenic that exceeded screening criteria.
- Both surface water samples collected in **Monte Cristo Lake** had concentrations of arsenic that exceeded screening criteria, and one of the samples had concentrations of iron and manganese that exceeded screening criteria.

The accumulated results of surface water monitoring in Glacier Creek, Seventysix Gulch, the South Fork of the Sauk River, and Monte Cristo Lake represent a sizable body of information that will require further analysis. It is not clear from the DGI whether additional surface water sampling is contemplated in the future. Considering the range of geographic coverage represented it appears likely that surface water is or will be relatively well characterized in this area.

Adit and waste rock seep samples were analyzed for the same parameters as the surface water samples described above, as well as for alkalinity, chloride, calcium, magnesium, sodium, potassium, and sulfate. Many of the mine sites where seep samples were collected for the DGI had been previously sampled,

and in many cases the DGI does not include any description of the location of the seep, flow rate, or persistence.

The DGI notes that typically the observed seepage infiltrates into the ground, but in at least two cases there is direct discharge into local creeks. A seep from the Pride of the Woods waste rock pile discharges into Glacier Creek, and a seep near the Justice Mine discharges into Glacier Creek. Adit and waste rock seeps were sampled at the following mine locations as part of the DGI:

**Boston American Mine** (one sample collected in both June and September, 2010). Results indicate the concentration of arsenic exceeded screening criteria.

**Justice Mine** (one sample collected in June and two samples collected in September 2010). Results indicate the concentration of arsenic exceeded screening criteria for all three samples. Concentrations of aluminum, iron, and manganese exceeded criteria for one of the samples.

**Mystery Mine** (one sample collected in both June and September, 2010). Results indicate the concentration of aluminum, arsenic, iron, and manganese exceeded screening criteria.

**New Discovery Mine** (one sample collected in both June and September, 2010). Results indicate the concentration of arsenic, iron, and manganese exceeded screening criteria.

**Pride of the Mountains Mine** (one sample collected in both June and September, 2010). Results indicate the concentration of arsenic exceeded screening criteria for both samples, and iron and manganese exceeded criteria in the September samples.

**Pride of the Woods Mine** (one sample collected in both June and September, 2010). Results indicate the concentration of aluminum, arsenic, iron, and manganese exceeded screening criteria for both samples.

**Rainy Mine** (one sample collected in both June and September, 2010). Results indicate the concentration of arsenic exceeded screening criteria.

**Sheridan Mine** (one sample collected in both June and September, 2010). Results indicate the concentration of arsenic exceeded screening criteria.

**Lincoln Mine** (one sample collected in September, 2010). Analysis of the sample showed concentrations of aluminum (88 ug/L) and iron (341 ug/L) that exceed screening criteria.

Based on limited information on the rate of flow, persistence and where seeps infiltrate or discharge directly into local creeks, the mine and waste rock seeps should be further characterized.

**Surface Water Data Validation.** Twenty-one water samples, one field duplicate, and an equipment rinse blank were collected in June and July, 2010. The samples were submitted and analyzed at Pace Analytical Services in Seattle, WA, and were reported as Project No. 254127. No sample results were rejected, but several results were qualified as estimated due to data quality exceedances. See Appendix A for detailed data quality reviews.

Twenty-one water samples, one field duplicate, and an equipment rinse blank were collected in September 2010. The samples were submitted and analyzed at Pace Analytical Services in Seattle, WA, and were reported as Project Nos. 255184, 255189, 255190, and 255191. No sample results were rejected, but several results were qualified as estimated due to data quality exceedances. See Appendix A for detailed data quality reviews.

**Drainage Water Data Validation.** Eight water samples and two field duplicates were collected in June and July, 2010. The samples were submitted and analyzed at Pace Analytical Services in Seattle, WA, and were reported as Project No. 254127. No sample results were rejected, but several results were qualified as estimated due to data quality exceedances. See Appendix A for detailed data quality reviews.

Nine water samples and two field duplicates were collected in September 2010. The samples were submitted and analyzed at Pace Analytical Services in Seattle, WA, and were reported as Project Nos. 255191 and 255192. No sample results were rejected, but several results were qualified as estimated due to data quality exceedances. See Appendix A for detailed data quality reviews.

### ***Sediment***

Sediment samples were analyzed for antimony, arsenic, cadmium, chromium, copper, iron, lead, manganese, mercury, zinc, and pH. Sediment samples were compared to various screening criteria.

Sediment samples were collected and analyzed for the following locations:

- **Glacier Creek** (seven samples in June and seven in September, 2010).
- **Seventysix Gulch** (four samples in June and four in September, 2010).

- **South Fork of Sauk River** (seven samples in June or July, and seven in September, 2010).
- **Monte Cristo Lake** (nine samples in September 2010)

Although there were scattered exceptions, virtually all the sediment samples had concentrations that exceeded the screening criteria for antimony, arsenic, cadmium, copper, lead, and zinc. Over half of the downstream samples (SFSR and Monte Cristo Lake) had concentrations of chromium exceed screening criteria, while none of the samples in Glacier Creek or Seventysix Creek had high concentrations of chromium.

Based on the reported frequency of sampling and extent of coverage, but in the absence of more detailed information on field conditions, it appears that sediments are relatively well characterized.

**Sediment Data Validation.** Twenty sediment samples were collected in June and July, 2010, and were submitted and analyzed at Pace Analytical Services in Seattle, WA. The samples were reported as Project No. 254127. No sample results were rejected, but several results were qualified as estimated due to data quality exceedances. See Appendix A for detailed data quality reviews.

Twenty-nine sediment samples were collected in September 2010 and were submitted and analyzed at Pace Analytical Services in Seattle, WA. The samples were reported as Project Nos. 255182, 255183, and 255184. No sample results were rejected, but several results were qualified as estimated due to data quality exceedances. See Appendix A for detailed data quality reviews.

### ***Other Reports Reviewed***

In addition we reviewed the following documents to assess suitability for inclusion in an RIFS.

#### **Mineral Resources of the Glacier Peak RARE II Area (Johnson, F. L. et al. 1983)**

This US Bureau of mine Open File report provides a summary of mineral resources in portions of Snohomish County, including the MCMA. The report provides geologic and historical background information that may be useful to identify the location of historic mining properties that should be addressed in an RIFS. The report does not include data suitable for use in a RA.

**Monte Cristo Mining district, Snohomish County  
(Lasmanis, R. 1993)**

This memorandum discusses potential for new mining activity in the MCMA, but does not include data suitable for use in a RA.

**Bulletin 23 (Washington DNR, no date)**

This report provides a summary of mineral resources including the MCMA and other areas of Snohomish County. The report provides geologic background information, but does not include data suitable for use in a RA.

**Correspondence on Snohomish County Mines and Prospects  
(Meglassan, W. and others, 1964)**

These letters identify the location of a number of historic mining properties that may be useful to identify areas that should be addressed in an RIFS. The documents do not include data suitable for use in a RA.

**Copies of Claim Boundaries on Monte Cristo Quad Map and  
Assay Notes (Sauers, J. 1980)**

This map identifies the location of a number of historic mining properties that may be useful to identify areas that should be addressed in an RIFS. The documents do not include data suitable for use in a RA.

**Patent Claim Survey Reports (Lasmanis, R. 1996)**

This report identifies historic mining properties that may be useful to identify areas that should be addressed in an RIFS. The document does not include data suitable for use in a RA.

**Correspondence on Snohomish County Mines and Prospects  
(Cole, B. 1971 and others)**

These letters discuss published references for various mining properties that may be useful to identify areas that should be addressed in an RIFS. The documents do not include data suitable for use in a RA.

### **Correspondence on Mines and Prospects for Production of Arsenic (Williams, C. 1924 and others)**

These letters discuss various mining properties that may be useful to identify areas that should be addressed in an RIFS. The documents do not include data suitable for use in a RA.

### **Mine Power Load Survey (Reiser, A.H. 1940)**

This report identifies a historic mining property that may be useful to identify areas that should be addressed in an RIFS. The document does not include data suitable for use in a RA.

### **Geologic Study of the Boston-American Mine (O'Neel, A. B. 1923)**

This report describes a historic mining property that may be useful to identify areas that should be addressed in an RIFS. The document does not include data suitable for use in a RA.

### **Nickel-Gold Ore of the Mackinaw Mine (Milton, C. and Milton, D. J. 1959)**

This report describes a historic mining property (also known as the Weden Creek Mine) that may be useful to identify areas that should be addressed in an RIFS. The document does not include data suitable for use in a RA.

### **Notes on the Mackinaw Prospect (Carithers, W. 1943 and others)**

These documents describes the prospect that later became the Weden Creek Mine, including assay and metallurgical and geologic information. These documents may be useful to identify areas that should be addressed in an RIFS, but do not include data suitable for use in a RA.

### **Abstract: Bedrock Geology of the Monte Cristo Area (Heath, M. T. 1971)**

This document does not include data suitable for use in a RA, and appears to have only limited use for background purposes.

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**Table 1 - Potential Chemical-Specific ARARs and Proposed Screening Criteria for Waste Rock, Soil, and Tailings**

Constituents of Concern (mg/kg)	Lowest Potential Soil ARAR (a)	State of Washington							Federal		
		Ecology-Reported Natural Background (b)	MTCA Method A Soil Cleanup Levels (c)	MTCA Method B Soil Cleanup Levels			Ecological Indicator Screening Criteria			EPA Eco-SSLs (g)	
				Soil Ingestion (d)	Soil Ingestion and Dermal Contact (d)	Groundwater Protection (e)	Protection of Plants (f)	Protection of Soil (f)	Protection of Wildlife (f)	Protection of Plants	Protection of Soil invertebrates
Aluminum (Al)	50	37,200	--	--	--	--	50	--	--	pH dependant	ph dependant
Antimony (Sb)	5	--	--	32	28.8	5.42	5	--	--	--	78
Arsenic (As)	0.62	7	20	0.67	0.62	5.84	-- / 10 (h)	-- / 60 (h)	7 / 132 (h)	18	--
Barium (Ba)	102	--	--	16,000	14,400	1,650	500	--	102	--	330
Beryllium (Be)	1.4	1.4	--	160	140	63	10	--	--	--	40
Cadmium (Cd)	1	1	2	80	74	0.69	4	20	14	32	140
Calcium (Ca)	--	--	--	--	--	--	--	--	--	--	--
Chromium III (Cr III)	42	42 (i)	2,000	120,000	44,600	2,000	42 (i)	42 (i)	67 (i)	--	--
Chromium IV (Cr IV)	19		19	240	128	38.4					
Cobalt (Co)	13	--	--	--	--	--	20	--	--	13	--
Copper (Cu)	36	36	--	2,960	2,700	577	100	50	217	70	80
Iron (Fe)	91.2	43,100	--	24,000	21,600	91.2	--	--	--	pH & Eh dependant	pH & Eh dependant
Lead (Pb)	17	17	250	--	--	--	50	500	118	120	1,700
Manganese (Mn)	220	1,100	--	11,200	10,100	2,340	1,100	--	1,500	220	450
Mercury (Hg, inorganic)	0.07	0.07	2	24	18	2.09	0.3	0.1	5.5	--	--
Nickel (Ni)	30	38	--	1,600	1,400	130	30	200	980	38	280
Potassium (K)	--	--	--	--	--	--	--	--	--	--	--
Selenium (Se)	0.3	--	--	400	360	5.2	1	70	0.3	0.52	4.1
Silver (Ag)	2	--	--	400	360	13.7	2	--	--	560	--
Sodium (Na)	--	--	--	--	--	--	--	--	--	--	--
Sulfur (S)	--	--	--	--	--	--	--	--	--	--	--
Thallium (Th)	1	--	--	5.6	5	2.85	1	--	--	--	--
Vanadium (Va)	2	--	--	560	505	2,240	2	--	--	--	--
Zinc (Zn)	86	86	--	24,000	22,000	5,970	86	200	360	160	120

**Notes:**

- (a) Lowest potential ARAR from shaded source.
- (b) Data from Natural Background Soil Metals Concentrations in Washington State (Ecology 1994).
- (c) WAC 173-340-740(2), WAC 173-340-900 (Table 740-1). Model Toxics Control Act (MTCA) Method A soil cleanup levels.
- (d) WAC 173-340-740(3). MTCA Method B unrestricted land use soil cleanup standards. For carcinogenic constituents, the value presented is the lower of the non-carcinogenic and carcinogenic level calculated using Equations 740-1 and 740-2 for ingestion only. Equations 740-4 and 740-5 for ingestion and dermal contact. Information from CLARC 3.1 was used unless otherwise noted.
- (e) WAC 173-340-740(3)(b)(iii)(A); MTCA Method B unrestricted land use soil cleanup standards, groundwater protection. Values calculated using the MTCA three-phase partitioning model WAC 173-340-747(4).
- (f) MTCA 173-340-900 (Table 749-3).
- (g) EPA Ecological Soil Screening Levels (ECO-SSL) are found at <http://www.epa.gov/ecotox/ecossl/>.
- (h) Based on Arsenic III / Arsenic V.
- (i) Based on total Chromium.
- Not established or not applicable.

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**Table 2 - Potential Chemical-Specific ARARs and Proposed Screening Criteria for Surface Water**

Constituents of Concern	Lowest Potential Groundwater ARAR (a)	State of Washington				Federal						
		Water Quality Standards for Surface Waters (b)		MTCA Method B Cleanup Levels [WAC 173-340-730] (c)	National Recommended Water Quality Criteria [Section 304 of the Clean Water Act] (d)				National Toxics Rule Criteria [40 CFR 131.36(b)(1)] (e)			
		Protection of Aquatic Organisms		Protection of Human Health	Protection of Aquatic Organisms		Protection of Human Health		Protection of Aquatic Organisms		Protection of Human Health	
		Acute	Chronic	Fish Ingestion	Acute	Chronic	Consumption of Water and Organism	Consumption of Organism Only	Acute	Chronic	Consumption of Water and Organism	Consumption of Organism Only
<b>Total Metals in µg/L</b>												
Aluminum (Al)	87	--	--	--	750	87	--	--	--	--	--	--
Antimony (Sb)	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic (As)	0.018	--	--	0.098	--	--	0.018	0.14	--	--	0.018	0.14
Barium (Ba)	1000	--	--	--	--	--	1,000	--	--	--	--	--
Beryllium (Be)	273	--	--	273	--	--	--	--	--	--	--	--
Cadmium (Cd)	20	--	--	20	--	--	--	--	--	--	--	--
Calcium (Ca)	--	--	--	--	--	--	--	--	--	--	--	--
Chromium (Cr)	243,000(Cr <sup>III</sup> )/486(Cr <sup>VI</sup> )	--	--	243,000(Cr <sup>III</sup> )/486(Cr <sup>VI</sup> )	--	--	--	--	--	--	--	--
Cobalt (Co)	--	--	--	--	--	--	--	--	--	--	--	--
Copper (Cu)	1300	--	--	2,660	--	--	1,300	--	--	--	--	--
Iron (Fe)	300 (f)	--	--	--	--	1,000	300 (f)	--	--	--	--	--
Lead (Pb)	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium (Mg)	--	--	--	--	--	--	--	--	--	--	--	--
Manganese (Mn)	50	--	--	--	--	--	50	100	--	--	--	--
Mercury (Hg, inorganic)	0.012	--	0.012	--	--	--	--	--	--	0.012	0.14	0.15
Nickel (Ni)	610	--	--	1,100	--	--	610	4,600	--	--	610	4,600
Potassium (K)	--	--	--	--	--	--	--	--	--	--	--	--
Selenium (Se)	5	20	5.0	2,700	--	5	170	4,200	20	5	--	--
Silver (Ag)	25900	--	--	25,900	--	--	--	--	--	--	--	--
Sodium (Na)	--	--	--	--	--	--	--	--	--	--	--	--
Thallium (Th)	0.24	--	--	1.6	--	--	0.24	0.47	--	--	1.7	6.3
Vanadium (Va)	--	--	--	--	--	--	--	--	--	--	--	--
Zinc (Zn)	7400	--	--	16,500	--	--	7,400	26,000	--	--	--	--
<b>Dissolved Metals in µg/L</b>												
Aluminum (Al)	--	--	--	--	--	--	--	--	--	--	--	--
Antimony (Sb)	14	--	--	--	--	--	--	--	--	--	14	4300
Arsenic (As)	0.018	360	190	0.098	340	150	0.018	0.14	360	190	0.018	0.14
Barium (Ba)	1000	--	--	--	--	--	1,000	--	--	--	--	--
Beryllium (Be)	273	--	--	273	--	--	--	--	--	--	--	--
Cadmium (Cd)	0.04	0.25	0.16	20	0.2	0.04	--	--	0.25	0.16	--	--
Calcium (Ca)	--	--	--	--	--	--	--	--	--	--	--	--
Chromium III (Cr III)	10	71	23	243,000	74	10	--	--	71	23	--	--
Chromium VI (Cr IV)	10	15	10	486	16	11	--	--	15	10	--	--
Cobalt (Co)	--	--	--	--	--	--	--	--	--	--	--	--
Copper (Cu)	1	2	1.0	2,660	1.3	1.1	1,300	--	2	1.0	--	--
Iron (Fe)	300 (f)	--	--	--	--	1,000	300 (f)	--	--	--	--	--
Lead (Pb)	0.15	4.0	0.15	--	3.9	0.15	--	--	4.0	0.15	--	--
Magnesium (Mg)	--	--	--	--	--	--	--	--	--	--	--	--
Manganese (Mn)	50	--	--	--	--	--	50	100	--	--	--	--
Mercury (Hg, inorganic)	0.14	2.1	--	--	1.4	0.77	--	--	2.1	--	0.14	0.15
Nickel (Ni)	6.3	171	19	1,100	56.6	6.3	610	4,600	171	19	610	4,600
Potassium (K)	--	--	--	--	--	--	--	--	--	--	--	--
Selenium (Se)	5	--	--	2,700	--	5	170	4,200	--	--	--	--
Silver (Ag)	0.04	0.05	--	25,900	0.04	--	--	--	0.05	--	--	--
Sodium (Na)	--	--	--	--	--	--	--	--	--	--	--	--
Thallium (Th)	0.24	--	--	1.6	--	--	0.24	0.47	--	--	1.7	6.3
Vanadium (Va)	--	--	--	--	--	--	--	--	--	--	--	--
Zinc (Zn)	13	14	13	16,500	14	14	7,400	26,000	14	13	--	--

**Notes:**

Drinking water criteria shown in Table 4 should also be considered if surface water is classified as a current or future potential domestic water supply under Chapter 173-201A WAC.

Underlined values require hardness correction specific to the sample data. Hardness-dependent criteria adjusted based on an apparent site-specific background hardness of 8.23 mg/L; average for surface water samples, excluding portal and other seeps (EE/CA 2010).

(a) Shaded cells identify lowest potential chemical-specific ARAR.

(b) Chapter 173-201A WAC. Water Quality Standards for Surface Waters of the State of Washington (Last update November 20, 2006).

(c) Chapter 173-340-730 WAC. MTCA Method B surface water cleanup levels. For carcinogenic constituents, the value presented is the lower of the non-carcinogenic and carcinogenic level calculated using Equations 730-1 and 730-2 and information from CLARC 3.1, unless otherwise noted.

(d) Water quality criteria published under Section 304 of the Clean Water Act. EPA, National Recommended Water Quality Criteria, 2006.

(e) National Toxics Rule. 40 CFR 131.26(b)(1).

(f) Secondary State of Washington MCLs, per 246-290-310 WAC.

-- Not established or not applicable.

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**Table 3 - Potential Chemical-Specific ARARs and Proposed Screening Criteria for Sediment**

Constituents of Concern (mg/kg)	Lowest Potential Sediment ARAR (a)	State of Washington						Federal	
		Potential Freshwater Sediment Quality Values (b)				Northwest Regional Sediment Evaluation Framework (d)		NOAA Screening Quick Reference Tables (SQuiRTs)	
		SQS (b)	CSL (b)	LAET (c)	2LAET (c)	SL1 (e)	SL2 (e)	Threshold Effects Level	Probable Effects Level
Aluminum (Al)	--	--	--	--	--	--	--	--	--
Antimony (Sb)	0.4	0.4	0.6	6	1.9	--	--	--	--
Arsenic (As)	17	20	51	31.4	50.9	20	51	59	17
Barium (Ba)	--	--	--	--	--	--	--	--	--
Beryllium (Be)	0.46	--	--	0.46	--	--	--	--	--
Cadmium (Cd)	0.596	0.6	1.0	2.39	2.9	1.1	1.5	0.596	3.53
Calcium (Ca)	--	--	--	--	--	--	--	--	--
Chromium (Cr)	37.3	95	100	95	133	95	100	37.3	90
Cobalt (Co)	--	--	--	--	--	--	--	--	--
Copper (Cu)	35.7	80	830	619	829	80	830	35.7	197
Iron (Fe)	--	--	--	--	--	--	--	--	--
Lead (Pb)	35	335	430	335	431	340	430	35	91.3
Magnesium (Mg)	--	--	--	--	--	--	--	--	--
Manganese (Mn)	--	--	--	--	--	--	--	--	--
Mercury (Hg, inorganic)	0.174	0.5	0.75	0.8	3.04	0.28	0.75	0.174	0.486
Nickel (Ni)	18	60	70	53.1	113	60	70	18	35.9
Potassium (K)	--	--	--	--	--	--	--	--	--
Selenium (Se)	--	--	--	--	--	--	--	--	--
Silver (Ag)	0.545	2	2.5	0.545	3.5	2	2.5	--	--
Sodium (Na)	--	--	--	--	--	--	--	--	--
Thallium (Th)	--	--	--	--	--	--	--	--	--
Vanadium (Va)	--	--	--	--	--	--	--	--	--
Zinc (Zn)	123	140	160	683	1,080	130	400	123	315

**Notes:**

(a) Shaded cells identify lowest potential chemical-specific ARAR.

(b) Sediment Quality Standards (SQS) and Cleanup Screening Levels (CSLs) as listed for Floating Percentile Approach example presented in Avocet (2003). Example uses mid-point of sensitivity options above 85 percent and individual polycyclic aromatic hydrocarbons (PAHs) rather than summed. Example assumes 15 percent false negatives, approximately 25 percent false positives, and better than 80 percent overall accuracy. SQS represents no adverse effects screening level. CSL represents assumed screening level above which cleanup may be required. Avocet (2003) recommends development of SQVs using the Floating Percentile Approach.

(c) Lowest Apparent Effects Threshold (LAET) and 2LAET as listed in Avocet (2003). Avocet (2003) does not recommend using the AET approach for establishing SQS and CSL standards because of relatively low statistical sensitivity. However, Avocet (2003) indicates that this approach may be appropriate for establishing maximum contaminant concentrations for dredging programs, and as hotspot and early action levels for cleanup programs.

(d) US Army Corps of Engineers et al. 2006.

(e) Interim freshwater sediment quality guidelines. Lower screening level (SL1) corresponds to a concentration below which adverse effects to benthic organisms would not be expected. Upper screening level (SL2) corresponds to a concentration at which minor adverse effects may be observed in the more sensitive groups of benthic organisms.

(f) Screening Quick Reference Tables (SQuiRTs) from [http://response.restoration.noaa.gov/book\\_shelf/122\\_NEW-SQuiRTs.pdf](http://response.restoration.noaa.gov/book_shelf/122_NEW-SQuiRTs.pdf).

-- Not established or not applicable.

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**Table 4 - Potential Chemical-Specific ARARs and Proposed Screening Criteria for Groundwater**

Constituents of Concern	Lowest Potential Groundwater ARAR (a)	State of Washington				Federal	
		State Water Quality Standards for Groundwater (b)	State MCLs (c)	MTCA Method A (d)	MTCA Method B (e)	Federal MCLGs (f)	Federal MCLs (g)
<b>Dissolved Metals in ug/L</b>							
Aluminum (Al)	16,000	--	--	--	16,000 (j)	--	--
Antimony (Sb)	6	--	6	--	6.4	6	6
Arsenic (As)	0.05	0.05	10	5	0.058	0 at tap	10
Barium (Ba)	1,000	1,000	2,000	--	3,200	2,000	2,000
Beryllium (Be)	4	--	4	--	32	4	4
Cadmium (Cd)	5	10	5	5	8	5	5
Calcium (Ca)	--	--	--	--	--	--	--
Chromium (Cr)	50	50	100	100/50 (i)	24,000/48 (k)	100	100
Cobalt (Co)	--	--	--	--	--	--	--
Copper (Cu)	592	1,000	1,300	--	592	1,300	--
Iron (Fe)	300 (h)	300	300 (h)	--	4,800	--	--
Lead (Pb)	15	50	15	15	--	0 at tap	--
Magnesium (Mg)	--	--	--	--	--	--	--
Manganese (Mn)	50 (h)	50	50 (h)	--	2,200	--	--
Mercury (Hg, inorganic)	2	2	2	2	4.8	2	2
Nickel (Ni)	100	--	100	--	320	--	--
Potassium (K)	--	--	--	--	--	--	--
Selenium (Se)	10	10	50	--	80	50	50
Silver (Ag)	50	50	100 (h)	--	80	--	--
Sodium (Na)	--	--	--	--	--	--	--
Thallium (Th)	0.5	--	2	--	1.12	0.5	2
Vanadium (Va)	112	--	--	--	112	--	--
Zinc (Zn)	4,800	5,000	5,000 (h)	--	4,800	--	--

**Notes:**

- (a) Shaded cells identify lowest potential chemical-specific ARAR.
- (b) WAC 173-200 Water Quality Standards for Groundwaters of the State of Washington.
- (c) WAC 246-290-310. State of Washington MCLs.
- (d) WAC 173-340-900, Table 720-1. MTCA Method A.
- (e) WAC 173-340-720. MTCA Method B groundwater cleanup levels. For carcinogenic constituents, the value presented is the lower of the non-carcinogenic and carcinogenic level calculated using Equations 720-1 and 720-2. Information from CLARC 3.1 was used unless otherwise noted.
- (f) Maximum Contaminant Level Goals (MCLGs) for non-carcinogens. Non-zero MCLGs are potentially relevant and appropriate. 40 CFR 141.50 and 141.51 and Drinking Water Standards and Health Advisories Office.
- (g) Maximum Contaminant Levels (MCLs). 40 CFR 141.62 and Drinking Water Standards and Health Advisories, Office of Water, US EPA, EPA 822-B-00-001, Summer 2000.
- (h) Secondary State of Washington MCLs, per 246-290-310 WAC.
- (i) Adjusted MCL/MTCA Method A value of 50 µg/L based on total value for chromium III and chromium VI. If only chromium III is present, an MCL of 100 µg/L may be used.
- (j) Reference dose and/or cancer potency factor from EPA Region 9 Preliminary Remediation Goals table, October 2004.
- (k) 24,000 µg/L (Chromium III), 48 µg/L (Chromium VI).
- Not established or not applicable.

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**Table 5 - Analytical Results for Soil Samples**

Sample ID	Report	Sampling Date	Units	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide	Iron	Lead	Magnesium
Screening Level:				50	5	0.62	102	0.6	1.0		19	13	36		91.2	24	
<b>Background (Glacier Creek)</b>																	
BKG-01-0.5	CES-SI	9/8/2005	mg/kg	16900	4.03 J	110	24.4	0.2 U	0.77	2680	42.7	13.3	18.5		33900	28.2	10800
BKG-02-0.5	CES-SI	9/8/2005	mg/kg	15500	4.28 J	127	70.7	0.3 U	0.95	2350	40.9	16.1	78.7		35800	34.6	9020
BKG-03-0.5	CES-SI	9/7/2005	mg/kg	9440	2.39 J	44.7	84.1	0.33	0.45	1040	42.8	9.35	16		27300	11.6	4920
BKG-04-0.5	CES-SI	9/7/2005	mg/kg	14000	6.25 J	69.9	65.8	0.21	0.61	4710	47.4	10.7	24.2		30400	11	8220
BKG-05-0.5	CES-SI	9/7/2005	mg/kg	14000	16.7 J	74.8	40.2	0.2 U	0.59	3640	48.9	9.24	22.4		27700	13.9	8310
BKG-06-0.5	CES-SI	9/9/2005	mg/kg	14800	2.51 J	23.3	9.74	0.2 U	0.25	797	49.9	1.24	8.2		16200	14.6	395
BKG-07-0.5	CES-SI	9/10/2005	mg/kg	24900	8.23 J	700	58.8	0.28	1.13	3620	39.2	5.29	53.6		29700	52.3	5030
BKG-08-0.5	CES-SI	9/8/2005	mg/kg	7290	1.65 J	81.5	34.2	0.2 U	0.39	423	53.2	2.33	19.7		22800	18.3	1150
BKG-09-0.5	CES-SI	9/8/2005	mg/kg	39000	1.9 J	78.9	83.1	0.49	0.73	3930	93.5	9.1	40.1		35500	21.5	11600
BKG-10-0.5	CES-SI	9/8/2005	mg/kg	32000	2.43 J	64.5	12.1	0.2 U	0.54	925	36	1.61	13.3		28100	32	723
<b>Assay Shack</b>																	
Assay Shack	CES-SI	6/1/2005	mg/kg	3290	2220	20600	69.2	0.2 U	4.33	2340	3.96	2.24	338	0.5 U	55100	10200	509
AS-02 (0.5-1')	CES-SI	7/19/2006	mg/kg wet	1370	400	6980	23.9	0.2 U	3.47	773	54.3	3.6	305		33200	4940	276
AS-03 (1.5-2')	CES-SI	7/19/2006	mg/kg wet	980	4500	85800	26.2	0.2 U	1.62	260	37.7	2.4	202		121000	3310	184
AS-04	CES-SI	7/19/2006	mg/kg wet	1510	1290	32100	203	0.2 U	1.6	315	27.6	4.4	243		58400	6300	198
<b>Ore Collector</b>																	
Ore Collector	CES-SI	6/1/2005	mg/kg	2350	1680	28100	35.2	0.2 U	7.58	250	4.33	1.13	417		58200	8460	960
COL-01-0.5	CES-SI	9/10/2005	mg/kg	10700	204	41600	66.8	0.2 U	5.79	1690	39.6	11	1840		68200	2720	4460
COL-01-2'	CES-SI	9/10/2005	mg/kg	7500	183	37100	46.7	0.2 U	9.26	3240	35.9	12.6	896		71500	3720	3690
COL-01-3'	CES-SI	9/10/2005	mg/kg	7350	328	71600	36	0.2 U	15.9	5130	41.8	12.9	1760		87100	2480	3830
COL-02-0.5'	CES-SI	9/10/2005	mg/kg	599	9860	14000	26.2	0.2 U	13.7	22.8	29.7	0.6 U	509		33400	22500	29.8
COL-02-2'	CES-SI	9/10/2005	mg/kg	763	3240	11500	30.2	0.2 U	5.95	22.5	29.3	0.6 U	318		32000	16000	38.2
COL-03-0.5'	CES-SI	9/10/2005	mg/kg	807	3270	13200	113	0.2 U	6.06	43.5	25	0.6 U	329		40500	14700	51.9
COL-03-2'	CES-SI	9/10/2005	mg/kg	1100	6640	23200	30.7	0.2 U	19.5	49.9	35.2	1.39	348		59000	20800	59
COL-04 (3-5.5')	CES-SI	7/19/2006	mg/kg wet	860	3190	10900	35.3	2	10.1	80	38.4	6	302		47000	12400	60
COL-05 (5-10')	CES-SI	7/19/2006	mg/kg wet	2180	2490	88700	19.2	2	2	150	13.9	6	51		149000	720	910
COL-06 (0-5')	CES-SI	7/19/2006	mg/kg wet	4340	20	2160	61.1	2	7.2	2020	53.8	9.8	635		51700	2220	2160
COL-08 (1-7')	CES-SI	7/19/2006	mg/kg	2130	73 J	9510 J	32.3	0.2 U	8.08	830	1.41	9.46	4810		72400	5220	815
COL-09 (6-6.5')	CES-SI	7/19/2006	mg/kg wet	3870	170	19200	88.9	2	9.8	880	60.3	6	1140		65000	5210	1010
COL-10 (0-0.5')	CES-SI	7/20/2006	mg/kg wet	4990	340	18600	58.8	2	2.2	800	59.7	6	309		85800	3580	1490
COL-11 (0.5-1.5')	CES-SI	7/20/2006	mg/kg wet	660	8770	42000	22.5	2	39.8	50	81.5	6	647		62500	18900	60
<b>Concentrator</b>																	
MC-2	SHA	9/11/2003	mg/kg		1365	3460		0.07 U	4.13		2.44		378				9580
MC-3	SHA	9/11/2003	mg/kg		4582	34900		0.088 U	11.4		5.74		516				7000
CONCL2WE	SHA	9/11/2003	mg/kg		3990	14600		0.1 U	1.54		1.5		1340				16300
Lower Mill	CES-SI	6/1/2005	mg/kg	990	4170	15000	31.1	0.2 U	7.03	237	2.19	0.6 U	329	0.5 U	49700	8800	227
Upper Mill	CES-SI	6/1/2005	mg/kg	2000	2240	31300	53.8	0.2 U	8.54	448	6.84	2.71	591 J	0.5 U	73000	7890	1570
CON-01-0.5'	CES-SI	9/10/2005	mg/kg	529	6460	5610	28.8	0.2 U	4.43	25.1	37	0.6 U	1080		47600	21400	17.1
CON-01-1.5'	CES-SI	9/10/2005	ng/g														
CON-01-1.5'	CES-SI	9/10/2005	mg/kg	1590	10700	21700	47	0.2 U	12.9	194	33.7	1.2	899		45600	20800	490
CON-02-0.5'	CES-SI	9/10/2005	mg/kg	5430	1130	18000	445	0.22	2.87	1420	40.1	3.78	586		60000	7370	2260
CON-02-1'	CES-SI	9/10/2005	ng/g														
CON-02-1.5'	CES-SI	9/10/2005	mg/kg	4750	4780	53300	239	0.6	76.3	2060	20.2	10.9	4240		142000	11200	444
CON-03-0.5'	CES-SI	9/10/2005	mg/kg	2120	3960	14500	25.5	0.2 U	7.94	335	32.3	1.93	497		48200	6140	459
CON-03-1.5'	CES-SI	9/10/2005	mg/kg	2690	3420	11800	26.5	0.2 U	6.33	509	33.4	1.61	635		47000	5170	556
CON-03-2'	CES-SI	9/10/2005	ng/g														
CON-04-0.5'	CES-SI	9/10/2005	mg/kg	1610	430	41300	25.7	0.2 U	7.51	142	21.8	0.65	114		68800	3580	68.3
CON-05-0.5'	CES-SI	9/10/2005	mg/kg	840	6040	22600	266	0.2 U	14.4	42.9	17.7	0.65	1770		38700	20800	42.4
CON-06-0.5'	CES-SI	9/10/2005	mg/kg	23600	7.6	446	84.5	0.24	1.87	1920	62.8	12.1	57.7		30000	84.7	8440
CON-07-0.5'	CES-SI	9/10/2005	mg/kg	3020	4300	46400	125	0.2 U	5.81	476	27	6.13	734		86700	17200	1020
CON-08-0.5'	CES-SI	9/10/2005	mg/kg	1230	5490	34600	93.2	0.2 U	6.64	254	23.1	0.6 U	501		72200	8860	184
CON-09-0.5'	CES-SI	9/10/2005	mg/kg	1080	6630	92100	30.2	0.2 U	16.3	12.4	18.5	1.53	1390		82900	17900	33.7
CON-10 (1')	CES-SI	7/19/2006	mg/kg wet	3130	3900	14900	27.8	0.2 U	7.99	1090 J	56.1	4.22	569		57500	6200	1140

**Table 5 - Analytical Results for Soil Samples**

Sample ID	Report	Sampling		Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide	Iron	Lead	Magnesium
		Date	Units														
Screening Level:				50	5	0.62	102	0.6	1.0		19	13	36		91.2	24	
CON-11	CES-SI	7/19/2006	mg/kg wet	24000	140	9160	47.1	0.28	0.23	1140	94.5	7.22	292		46200	955	6290
CON-12	CES-SI	7/19/2006	mg/kg wet	7440	620	6640	19.9	0.2 U	0.2 U	750	83.8	1.99	258		37000	2760	1240
CON-13	CES-SI	7/19/2006	mg/kg wet	10400	1210	9460	22.4	0.2 U	0.33	568	76.2	1.49	231		41900	3270	1270
CON-14	CES-SI	7/19/2006	mg/kg wet	21600	110	1760	235	1.32	1.76	3810	69.2	28.1	452		22200	857	2140
CON-15	CES-SI	7/19/2006	mg/kg wet	4350	1300	12600	37.1	0.2 U	6.17	692	64.6	4.39	396		58700	3530	970
CON-16	CES-SI	7/19/2006	mg/kg wet	3320	1650	14400	30.9	0.2 U	6.39	468	49.8	5.86	273		55900	3980	1150
CON-16 (1')	CES-SI	7/19/2006	mg/kg wet	2770	4790	41600	30.1	0.2 U	114	6580	20.7	21	2620		117000	11800	4150
CON-17	CES-SI	7/19/2006	mg/kg wet	14100	500	8850	19.6	0.2 U	0.59	652	69.4	0.6 U	1250		85100	2570	304
CON-18	CES-SI	7/19/2006	mg/kg	18100	53	1650	394	1.49	0.66	5330	12.2	7.81	180		15400	471	2230
CON-18 (24-36")	CES-SI	7/19/2006	mg/kg wet	25800	2 U	137	53.3	0.32	0.2 U	1480	64.6	3.61	29.9		21000	36.6	4130
CON-19	CES-SI	7/19/2006	mg/kg wet	6470	2800	36100	319	0.26	1.43	1270	50	4.8	504		86800	9490	2310
<b>Haulage Way</b>																	
HW-01 (0-0.5')	CES-SI	7/20/2006	mg/kg wet	18100	9	647	61.5	0.2	0.2	4410	93.9	12.5	35.2		28300	107	8020
HW-02 (0-0.5')	CES-SI	7/20/2006	mg/kg wet	22100	90	11000	51.3	2	2.2	5520	142	11.9	220		59800	1120	7710
HW-03 (0-0.5')	CES-SI	7/20/2006	mg/kg wet	15000	4	143	41.2	0.22	0.46	1270	32.3	5.45	43.7		14400	73.8	1850
HW-04 (0-0.5')	CES-SI	7/20/2006	mg/kg wet	13100	570	22600	52	2	5.5	1970	48.2	9.9	2880		68500	2990	5150
HW-05 (0-0.5')	CES-SI	7/20/2006	mg/kg wet	20500	2	62.9	1170	2.93	0.2	14300	74.2	9.34	68.1		15800	22.7	2480
MCRA2-WR-HW-10	DGI	9/29/2010	mg/kg	22700	2.8	51.7	1220		0.4 T		5.1		63.9		8270	16.9	
<b>Boston-American Mine</b>																	
MCEE-WR-BA-01	CES-EECA	8/20/2008	mg/Kg		0.5 T	72.6 J							8			6.24 J	
MCEE-WR-BA-02	CES-EECA	8/20/2008	mg/Kg		0.4 T	226 J			0.45		16		131			23.3 J	
<b>Comet Mine</b>																	
COMETBKS	SHA	9/11/2003	mg/kg		719	14700		0.11	2.29		11.1		78			1950	
MC-5	SHA	9/12/2003	mg/kg		133	8450		0.072 U	8.33		0.24 U		1160			20400	
COMETBKR	SHA	9/25/2003	mg/kg		168	31200		0.15	9.12		11		212			7340	
MCRA2-WR-CT-01	DGI	9/27/2010	mg/kg	5810	2690	82900	108		558		19.4 J		427		144000	20400	
MCRA2-WR-CT-02	DGI	9/27/2010	mg/kg	19400	4.9	140	39.2		0.57 T		28.4		33.9		22500	68.4	
MCRA2-WR-CT-03	DGI	9/27/2010	mg/kg	26900	70	1150	16.3 T		7.9		13.1		77.7		40700	1700	
MCRA2-WR-CT-04	DGI	9/27/2010	mg/kg	21200	20.4	898	25.1 T		5.4 T		24.2		123		24400	204	
MCRA2-WR-CT-05	DGI	9/27/2010	mg/kg	2980	1010	102000	24.4		742		8.2		557		134000	6400	
MCRA2-WR-CT-06	DGI	9/27/2010	mg/kg	5460	811	19200	96.1		118		18		445		110000	5070	
MCRA2-WR-CT-07	DGI	9/29/2010	mg/kg	15700	479	35300	23.9 T		176		18.8		265		53800	4050	
MCRA2-WR-CT-08	DGI	9/29/2010	mg/kg	15300	339	34500	52.5		206		22.4		313		56000	3770	
MCRA2-WR-CT-09	DGI	9/29/2010	mg/kg	28200	10.9	468	125		2.7 T		41.6		70.9		33500	110	
MCRA2-WR-CT-10	DGI	9/29/2010	mg/kg	10400	1530	23900	60.4		141		24.2		148		67000	2830	
<b>Golden Cord Mine</b>																	
MCEE-WR-GC-01	CES-EECA	8/22/2008	mg/Kg		970	33600					30 U		383			10000	
MCEE-WR-GC-02	CES-EECA	8/22/2008	mg/Kg		190	14300			55		30 U		801			2790	
<b>Justice Mine</b>																	
MC-4	SHA	9/12/2003	mg/kg		12	4900		0.07 U	6.75		0.232 U		93.3			228	
MCEE-WR-JU-01	CES-EECA	8/21/2008	mg/Kg		62	7320					28		175			360	
MCEE-WR-JU-02	CES-EECA	8/21/2008	mg/Kg		4.2	732			1 T		217		187			45.2	
MCEE-WR-JU-03	CES-EECA	8/21/2008	mg/Kg		280	39400					33		1660			1660	
MCEE-WR-JU-04	CES-EECA	8/21/2008	mg/Kg		110	10200					30 U		242			1370	
MCEE-WR-JU-05	CES-EECA	8/21/2008	mg/Kg		100 U	7780					79		682			369	
MCEE-WR-JU-06	CES-EECA	8/21/2008	mg/Kg		100 U	11700					56		128			290	
<b>Lincoln Mine</b>																	
MCRA2-WR-LN-01	DGI	9/28/2010	mg/kg	24400	1.5	63.2	60.3		6.1 U		23.3		42.7		21100	16.4	
MCRA2-WR-LN-02	DGI	9/28/2010	mg/kg	20100	1.6 U	38.3	53.2		6.3 U		16.1		45.5		17800	11.6	
MCRA2-WR-LN-03	DGI	9/28/2010	mg/kg	28900	1.6	56.4	60.5		6.3 U		23.2		35.5		22000	22.9	
<b>Mystery Mine</b>																	
MM-01-0.5	CES-SI	9/9/2005	mg/kg	1590	4460	24300	21	0.2 U	7.41	136	18.6	2.54	691		48600	8190	241
MM-01-1.0'	CES-SI	9/9/2005	mg/kg	1270	3750	24000	19.4	0.2 U	26.4	91.6	22.1	1.51	1040		45500	7030	116
MM-02-0.5	CES-SI	9/9/2005	mg/kg	1630	320	17000	81	0.2 U	11.1	333	28.5	1.7	345		272000	815	307

**Table 5 - Analytical Results for Soil Samples**

Sample ID	Report	Sampling Date	Units	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide	Iron	Lead	Magnesium
Screening Level:				50	5	0.62	102	0.6	1.0		19	13	36		91.2	24	
MM-03-0.5	CES-SI	9/9/2005	mg/kg	4230	650	21400	32.4	0.2 U	11.2	782	24	7.85	823		121000	2350	1420
MM-04-0.5	CES-SI	9/9/2005	mg/kg	7370	20.4	2480	23.6	0.25	7.11	5580	11.1	21.2	139		52500	198	3000
MCEE-WR-MM-01	CES-EECA	8/22/2008	mg/Kg		900 T	11700			2.97		4 T		256			2150 J	
MCEE-WR-MM-02	CES-EECA	8/22/2008	mg/Kg		51	4660 J			2.25		U		129			286 J	
MCEE-WR-MM-03	CES-EECA	8/22/2008	mg/Kg		8800	5290 J			1.62		U		407			89200 J	
MCEE-WR-MM-04	CES-EECA	8/22/2008	mg/Kg		310	9690			5.68		7		626			887	
MCEE-WR-MM-05	CES-EECA	8/22/2008	mg/Kg		60 J	4710 J			1.93		4 T		132			296	
<b>New Discovery Mine</b>																	
MC-GC-4A	USFS	8/1/2006	mg/kg		198.2	7539.2			36.9 U		1160	750 U	112.8 U		79200	1080	
MC-GC-4B	USFS	8/1/2006	mg/kg		412.4	4649.6			37.2 U		555 U	806.8	285.4		95100	1449.6	
MC-GC-4C	USFS	8/1/2006	mg/kg		1060	12000			46.05 U		2080	855 U	403.4		125000	3798.4	
MCEE-WR-ND-01	CES-EECA	8/22/2008	mg/Kg		107	7170			30 U		19 T		844			1030	
MCEE-WR-ND-02	CES-EECA	8/22/2008	mg/Kg		200 U	22100			U		30 U		268			3460	
MCEE-WR-ND-03	CES-EECA	8/22/2008	mg/Kg		2 U	42.6			0.6		3 T		83			14.8	
<b>Pride of the Mountains Mine</b>																	
PR/MTS WRD	DNR 2003	10/11/2002	mg/kg			17300			7.29				1010		66700	7040	
POMTN	SHA	9/25/2003	mg/kg		0.57 J	332 J		0.17	1.89		9.71		48			130 J	
MC-GC-6A	USFS	8/1/2006	mg/kg		193.2	5628.8			37.95 U		1580	645 U	181.4		67400	2108.8	
MC-GC-6B	USFS	8/1/2006	mg/kg		256.2	9836.8			37.05 U		1096.6	645 U	536.8		70700	3280	
MC-GC-6C	USFS	8/1/2006	mg/kg		225.6	12800			35.4 U		989.6	800.4	528.8		77200	5360	
MC-GC-7	USFS	8/1/2006	mg/kg		240.8	9024			25.95 U		538	705 U	1629.6		70200	7494.4	
MC-GC-8A	USFS	8/1/2006	mg/kg		449.6	5008			42.45 U		862.4	570 U	277.8		53800	4508.8	
MC-GC-8B	USFS	8/1/2006	mg/kg		258	5958.4			39.3 U		510 U	600 U	98.85 U		65600	1469.6	
MCEE-WR-PM-01	CES-EECA	8/22/2008	mg/Kg		100 U	11700			U		30 U		227			1590	
MCEE-WR-PM-02	CES-EECA	8/22/2008	mg/Kg		52	7870			5 T		6 U		397			1560	
MCEE-WR-PM-03	CES-EECA	8/22/2008	mg/Kg		103	5170			5 T		5		630			1190	
<b>Pride of the Woods Mine</b>																	
PRIDE/WOODS DUMP	DNR 2003	10/11/2002	mg/kg			15300			1.11 U				195		55900	1450	
POWOODS	SHA	9/25/2003	mg/kg		416	41400		0.18	2.42		12.1		517			2760	
MC-GC-2A	USFS	8/1/2006	mg/kg		16200	42982.4			27.45 U		1389.6	1560	323		114000	6428.8	
MC-GC-2B	USFS	8/1/2006	mg/kg		80.2	7654.4			34.35 U		1009.6	566	101.8		65300	242.6	
MCEE-WR-PW-01	CES-EECA	8/22/2008	mg/Kg		250	3980			U		U		70			1260	
MCEE-WR-PW-02	CES-EECA	8/22/2008	mg/Kg		170	5880			0.69		11		221			411 J	
<b>Rainy Mine</b>																	
MCEE-WR-RY-01	CES-EECA	8/21/2008	mg/Kg		10.3	7510			0.33		32		127			232	
MCEE-WR-RY-02	CES-EECA	8/21/2008	mg/Kg		U	73400			1.87		8		523			880	
<b>Sheridan Mine</b>																	
MCEE-WR-SH-01	CES-EECA	8/23/2008	mg/Kg		U	1720 J			1.34		27		69			26 J	
MCEE-WR-SH-02	CES-EECA	8/23/2008	mg/Kg		3 T	2120 J			4.23		4 T		44			129 J	
<b>Sidney Mine</b>																	
MC-76-2A	USFS	8/1/2006	mg/kg		59.5	40780.8			42 U		2480	1380 U	471.2		149900	518	
MC-GC-2B	USFS	8/1/2006	mg/kg		80.2	7654.4			34.35 U		1009.6	566	101.8		65300	242.6	
MCEE-WR-SY-01	CES-EECA	8/23/2008	mg/Kg		12.5	28100			1.25		5 T		2460			105	
MCEE-WR-SY-02	CES-EECA	8/23/2008	mg/Kg		U	38400			1.7		7		1140			117	
<b>Weden Siding</b>																	
MCRA2-WR-WD-01	DGI	9/29/2010	mg/kg	32600	6.2	222	48.7		0.2 T		43.4		159		37900	53.2	
MCRA2-WR-WD-02	DGI	9/29/2010	mg/kg	25700	7.2	231	31		0.57 T		29.4		85.8		28300	49.2	
MCRA2-WR-WD-03	DGI	9/29/2010	mg/kg	32100	9.3	347	43.9		1 T		36.6		109		36900	80.6	

**Table 5 - Analytical Results for Soil Samples**

Sample ID	Report	Sampling Date	Manganese	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Tin	Vanadium	Zinc
Screening Level:			220	0.07		30		0.3	2		1		2	85
<b>Background (Glacier Creek)</b>														
BKG-01-0.5	CES-SI	9/8/2005	699	0.177 J		21.2	1090	0.6 U	0.5 U	258	1.5 U		62.3	99.1
BKG-02-0.5	CES-SI	9/8/2005	986	0.0683 J		36.7	3290	0.6 U	0.5 U	240	1.5 U		56.5	132
BKG-03-0.5	CES-SI	9/7/2005	783	0.72 J		33	1540	0.6 U	0.5 U	137	1.5 U		35.3	63.6
BKG-04-0.5	CES-SI	9/7/2005	1500	0.773 J		22.9	1290	0.6 U	0.5 U	605	1.5 U		66.3	72.7
BKG-05-0.5	CES-SI	9/7/2005	1010	0.338 J		22.4	1280	0.6 U	0.5 U	568	1.5 U		70.4	75.5
BKG-06-0.5	CES-SI	9/9/2005	101	0.033 UJ		7.2	250	0.78	0.5 U	512	1.5 U		42.5	14.4
BKG-07-0.5	CES-SI	9/10/2005	403	0.0583 J		15.9	1850	0.7	0.54	472	1.5 U		50.7	110
BKG-08-0.5	CES-SI	9/8/2005	323	0.0333 J		14.1	319	0.6 U	0.5 U	269	1.5 U		67.4	29.6
BKG-09-0.5	CES-SI	9/8/2005	466	0.0583 J		38.6	2750	6 U	0.5 U	738	1.5 U		89	114
BKG-10-0.5	CES-SI	9/8/2005	291	0.147 J		10.2	354	1.53	0.66	320	1.5 U		77.4	30.6
<b>Assay Shack</b>														
Assay Shack	CES-SI	6/1/2005	199	36.3		1 U	1060	2.11	48	123	1.13		21.4	353
AS-02 (0.5-1')	CES-SI	7/19/2006	75.9	15.3 J		3.1	261	0.6 U	26.9	488	8 U		32.2	644
AS-03 (1.5-2')	CES-SI	7/19/2006	72	0.328 J		2.7	562	3 U	32.5	392	8 U		21.1	450
AS-04	CES-SI	7/19/2006	163	0.245 J		5.2	1730	1.9	57.9	127	8 U		28.4	320
<b>Ore Collector</b>														
Ore Collector	CES-SI	6/1/2005	169	2.4		1 U	1750	4.14	72.4	85	0.2 U		14	213
COL-01-0.5	CES-SI	9/10/2005	506	8.7 J		22.3	1710	2.34	40.2	50 U	1.5 U		41.7	969
COL-01-2'	CES-SI	9/10/2005	1220	3.83 J		18.3	2220	2.03	36.2	50 U	1.5 U		26.8	1350
COL-01-3'	CES-SI	9/10/2005	1330	5.38 J		19.4	1620	3.18	34.1	50 U	1.5 U		34.1	2130
COL-02-0.5'	CES-SI	9/10/2005	29.6	5.45 J		8.6	1820	3.23	415	50 U	5.57		1.94	814
COL-02-2'	CES-SI	9/10/2005	18	7.75 J		7.7	1850	3.91	214	50 U	4.94		2.4	298
COL-03-0.5'	CES-SI	9/10/2005	21.2	5.85 J		10	2450	3.34	182	50 U	4.59		2.66	256
COL-03-2'	CES-SI	9/10/2005	40.4	6.22 J		12.5	2280	3.05	180	50 U	4.14		3.42	2150
COL-04 (3-5.5')	CES-SI	7/19/2006	23.3	0.267		20	2630	3.2	133	500	3.4		5	317
COL-05 (5-10')	CES-SI	7/19/2006	57.9	0.415		100	750	4.4	9.8	500	10		24.3	38
COL-06 (0-5')	CES-SI	7/19/2006	340	0.412		11	3690	0.6	16.2	500	2		27.6	995
COL-08 (1-7')	CES-SI	7/19/2006	289 J	0.98 J		1 U	3210	4 U	51.2 J	190	1.5 U		12.3	1740 J
COL-09 (6-6.5')	CES-SI	7/19/2006	532	0.402		50	3860	1.2	60.2	500	4		27.3	1730
COL-10 (0-0.5')	CES-SI	7/20/2006	409	1.01		50	4280	1.2	29.7	500	4		25.9	397
COL-11 (0.5-1.5')	CES-SI	7/20/2006	43.9	0.66		100	1240	4.3	257	500	4.9		5	5160
<b>Concentrator</b>														
MC-2	SHA	9/11/2003		8.5 J		0.469 U		3.05 UJ	126		7.5			149
MC-3	SHA	9/11/2003		7.07 J		0.604		3.8 UJ	115		5.3			852
CONCL2WE	SHA	9/11/2003		4.33		3.26		1.4 J	118		9			471
Lower Mill	CES-SI	6/1/2005	205	1.68		1 U	1050	1.85	91.4	107	1 U		11.5	401
Upper Mill	CES-SI	6/1/2005	530	2.13		1 U	952	2.87 J	62.4 J	84	2 U		13.5	943 J
CON-01-0.5'	CES-SI	9/10/2005	24.2	6.2 J		18.1	940	6000 UJ	376	50 U	15.8		0.92	452
CON-01-1.5'	CES-SI	9/10/2005		0.04										
CON-01-1.5'	CES-SI	9/10/2005	37.2	3.95 J		20.3	1000	6.77	294	50 U	4.3		9.4	1290
CON-02-0.5'	CES-SI	9/10/2005	235	0.825 J		33.4	1000 U	1.36	63.3	50 U	1.5 U		32.8	205
CON-02-1'	CES-SI	9/10/2005		0.018 T										
CON-02-1.5'	CES-SI	9/10/2005	219	1.38 J		45.6	2500 U	6000 U	186	50 U	4.9		21.2	11600
CON-03-0.5'	CES-SI	9/10/2005	249	1.27 J		19.5	1690	0.8	74	50 U	1.5		12.3	912
CON-03-1.5'	CES-SI	9/10/2005	193	1.52 J		20.9	1700	0.61	74.6	50 U	1.5 U		14.8	850
CON-03-2'	CES-SI	9/10/2005		0.02 T										
CON-04-0.5'	CES-SI	9/10/2005	170	1.34 J		26.3	1500	1.22	23.9	50 U	1.5 U		11.5	441
CON-05-0.5'	CES-SI	9/10/2005	44	3.28 J		15.3	1330	6000 U	360	50 U	3.4		2.5	1740
CON-06-0.5'	CES-SI	9/10/2005	830	0.108 J		40.1	2170	0.6 U	1.01	278	1.5 U		64.4	176
CON-07-0.5'	CES-SI	9/10/2005	133	1.56 J		35.9	2500 U	6 U	113	50 U	2.2		20.3	549
CON-08-0.5'	CES-SI	9/10/2005	50.9	2.43 J		26.2	1500	1.59	118	50 U	2.5		7.72	719
CON-09-0.5'	CES-SI	9/10/2005	16.6	8.35 J		30.7	2500 U	6 U	229	50 U	5.6		3.37	1850
CON-10 (1')	CES-SI	7/19/2006	298	0.207 J		3.4	1900	0.6 UJ	52	86	8 U		15.2	1210

**Table 5 - Analytical Results for Soil Samples**

Sample ID	Report	Sampling Date	Manganese	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Tin	Vanadium	Zinc
Screening Level:			220	0.07		30		0.3	2			1	2	85
CON-11	CES-SI	7/19/2006	383	0.293 J		18.1	1240	1	12.8	183	8 U		71.3	135
CON-12	CES-SI	7/19/2006	131	0.078 J		5.6	1120	0.6 U	24.9	328	8 U		40.7	63.7
CON-13	CES-SI	7/19/2006	95.1	0.268 J		3.3	1690	0.6 U	55.1	126	8 U		32.5	209
CON-14	CES-SI	7/19/2006	1810	0.182 J		10.8	769	1.3	17.7	363	8 U		88	180
CON-15	CES-SI	7/19/2006	515	0.38 J		5	1930	0.6 U	35.9	130	8 U		23.5	900
CON-16	CES-SI	7/19/2006	908	0.64 J		3.9	1780	1.5 U	36.2	55	8 U		18.1	570
CON-16 (1')	CES-SI	7/19/2006	7210	0.217 J		7.4	1880	1.5 U	150	93	8 U		16.3	18500
CON-17	CES-SI	7/19/2006	43	0.11 J		2.1	495	2.4	22.2	605	8 U		28.9	160
CON-18	CES-SI	7/19/2006	334	0.15 J		9.6	461	4 U	6.52	516	1.5 U		84.4	101
CON-18 (24-36")	CES-SI	7/19/2006	161	0.048 J		9.5	578	0.9	0.56	314	8 U		70.8	58.8
CON-19	CES-SI	7/19/2006	217	0.64 J		6.6	1500	1.5 U	131	234	8 U		43.9	310
<b>Haulage Way</b>														
HW-01 (0-0.5')	CES-SI	7/20/2006	503	0.057		21.2	1900	0.3	1.02	831	0.8		71.6	150
HW-02 (0-0.5')	CES-SI	7/20/2006	483	0.613		50	1350	1.3	9.5	1130	2		64.7	233
HW-03 (0-0.5')	CES-SI	7/20/2006	549	0.17		9.3	491	0.6	0.88	118	0.8		32.4	62.1
HW-04 (0-0.5')	CES-SI	7/20/2006	510	0.582		29	1040	1.5	102	500	4		41.4	970
HW-05 (0-0.5')	CES-SI	7/20/2006	284	0.033		12.6	561	1.1	0.6	878	0.8		104	32.5
MCRA2-WR-HW-10	DGI	9/29/2010	174	0.05 T		10.2								46.9
<b>Boston-American Mine</b>														
MCEE-WR-BA-01	CES-EECA	8/20/2008		0.89 J				0.93	0.2					5
MCEE-WR-BA-02	CES-EECA	8/20/2008		0.2 UJ				0.1 T	0.46					114
<b>Comet Mine</b>														
COMETBKS	SHA	9/11/2003		0.368		12.1		0.5 U	5.39		0.12			435
MC-5	SHA	9/12/2003		4.47 J		0.481 U		3.13 UJ	320		0.4 T			882
COMETBKR	SHA	9/25/2003		2.28		11.3		5 U	17		0.17			180
MCRA2-WR-CT-01	DGI	9/27/2010	245	4.9 J		2.4 T								8000
MCRA2-WR-CT-02	DGI	9/27/2010	439	0.071 T		38.2								141
MCRA2-WR-CT-03	DGI	9/27/2010	1710	0.2		6.3 T								805
MCRA2-WR-CT-04	DGI	9/27/2010	811	0.22		17.6 T								156
MCRA2-WR-CT-05	DGI	9/27/2010	113	3.6		107 U								317
MCRA2-WR-CT-06	DGI	9/27/2010	333	0.97		2.1 T								624
MCRA2-WR-CT-07	DGI	9/29/2010	209	2.3		10 T								118
MCRA2-WR-CT-08	DGI	9/29/2010	377	1.5		16.8 T								594
MCRA2-WR-CT-09	DGI	9/29/2010	872	0.14		45.4								252
MCRA2-WR-CT-10	DGI	9/29/2010	241	0.76		14.3 T								346
<b>Golden Cord Mine</b>														
MCEE-WR-GC-01	CES-EECA	8/22/2008		1.8				U	30 U					450
MCEE-WR-GC-02	CES-EECA	8/22/2008		0.36				U	10 U					3550
<b>Justice Mine</b>														
MC-4	SHA	9/12/2003		0.61 J		15.7		3.01 UJ	0.232 U		0.92			312
MCEE-WR-JU-01	CES-EECA	8/21/2008		0.25				U	5 U					382
MCEE-WR-JU-02	CES-EECA	8/21/2008		0.2 U				U	0.5 U					236 J
MCEE-WR-JU-03	CES-EECA	8/21/2008		0.53				U	30 U					577
MCEE-WR-JU-04	CES-EECA	8/21/2008		0.22				U	10 U					392
MCEE-WR-JU-05	CES-EECA	8/21/2008		0.27				U	17					269 J
MCEE-WR-JU-06	CES-EECA	8/21/2008		0.2 U				U	U					367 J
<b>Lincoln Mine</b>														
MCRA2-WR-LN-01	DGI	9/28/2010	407	0.034 T		17.5 T								115
MCRA2-WR-LN-02	DGI	9/28/2010	327	0.036 T		14.1 T								72.7
MCRA2-WR-LN-03	DGI	9/28/2010	420	0.07 T		15.7 T								89
<b>Mystery Mine</b>														
MM-01-0.5	CES-SI	9/9/2005	103	1.78 J		19.3	1500	1.54	251	50 U	1.9		9.88	884
MM-01-1.0'	CES-SI	9/9/2005	55.9	2.05 J		17.5	1600	1.39	94.6	50 U	1.8		5.94	3540
MM-02-0.5	CES-SI	9/9/2005	301	0.59 J		82.7	1000 U	0.6 U	7.19	50 U	1.5 U		15.6	278

**Table 5 - Analytical Results for Soil Samples**

Sample ID	Report	Sampling Date	Manganese	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Tin	Vanadium	Zinc
Screening Level:			220	0.07		30		0.3	2		1		2	85
MM-03-0.5	CES-SI	9/9/2005	203	<b>0.832</b> J		<b>38.8</b>	2300	<b>1.67</b>	<b>46.6</b>	50 U	<b>3.5</b>		<b>30.7</b>	<b>1360</b>
MM-04-0.5	CES-SI	9/9/2005	<b>4820</b>	<b>0.37</b> J		<b>30.3</b>	3370	0.6 U	<b>4.58</b>	294	<b>5.8</b>		<b>73.9</b>	<b>1180</b>
MCEE-WR-MM-01	CES-EECA	8/22/2008		<b>0.64</b> J				<b>1.35</b>	<b>292</b>					<b>301</b>
MCEE-WR-MM-02	CES-EECA	8/22/2008		<b>0.85</b> J				0.19 T	<b>7.66</b>					<b>566</b>
MCEE-WR-MM-03	CES-EECA	8/22/2008		<b>3.06</b> J				<b>17.4</b>	<b>307</b>					<b>159</b>
MCEE-WR-MM-04	CES-EECA	8/22/2008		<b>0.69</b> J				<b>1.4</b>	<b>23.4</b>					<b>1300</b> J
MCEE-WR-MM-05	CES-EECA	8/22/2008		<b>0.87</b> J				0.1 T	<b>7.48</b>					<b>520</b>
<b>New Discovery Mine</b>														
MC-GC-4A	USFS	8/1/2006	<b>4428.8</b>	<i>80.85</i> U	6.45 U	240 U		<i>30.9</i> U	<i>127.8</i> U			208.6		<b>820</b>
MC-GC-4B	USFS	8/1/2006	<b>7225.6</b>	<i>58.95</i> U	5.85 U	225 U		<i>22.35</i> U	<i>139.2</i> U			152.8		<b>522.4</b>
MC-GC-4C	USFS	8/1/2006	<i>1410</i> U	<i>87.15</i> U	5.85 U	255 U		<i>33.3</i> U	<i>150</i> U			161.6		<b>1389.6</b>
MCEE-WR-ND-01	CES-EECA	8/22/2008		<b>2.41</b>				U	<b>17</b>					<b>1180</b>
MCEE-WR-ND-02	CES-EECA	8/22/2008		<b>0.8</b>				U	<b>30</b> U					<b>1770</b>
MCEE-WR-ND-03	CES-EECA	8/22/2008		<b>1.69</b>				U	<b>0.3</b> U					<b>117</b> J
<b>Pride of the Mountains Mine</b>														
PR/MTS WRD	DNR 2003	10/11/2002												<b>941</b>
POMTN	SHA	9/25/2003		<b>0.528</b>		7.9		5 U	0.45		0.22			<b>328</b> J
MC-GC-6A	USFS	8/1/2006	<i>1080</i> U	<i>68.1</i> U	7.05 U	210 U		<i>25.8</i> U	<i>135.45</i> U			92.55 U		<b>735.6</b>
MC-GC-6B	USFS	8/1/2006	<b>5977.6</b>	<i>87.6</i> U	6.75 U	225 U		<i>33</i> U	<i>146.25</i> U			97.8 U		<b>1380</b>
MC-GC-6C	USFS	8/1/2006	<i>1185</i> U	<i>103.65</i> U	6.9 U	255 U		<i>38.7</i> U	<i>130.35</i> U			244.2		<b>754</b>
MC-GC-7	USFS	8/1/2006	<b>2688.8</b>	<i>101.25</i> U	7.65 U	255 U		<i>36.45</i> U	<i>93.3</i> U			183.8		<b>1120</b>
MC-GC-8A	USFS	8/1/2006	<b>5747.2</b>	<i>71.25</i> U	6.6 U	210 U		<i>26.4</i> U	<i>150</i> U			102.5 U		<b>818</b>
MC-GC-8B	USFS	8/1/2006	<b>7200</b>	<i>69.3</i> U	6.6 U	<b>213.2</b>		<i>25.95</i> U	<i>139.2</i> U			135.9		<b>636.8</b>
MCEE-WR-PM-01	CES-EECA	8/22/2008		<b>0.6</b>				U	<b>10</b> U					<b>250</b>
MCEE-WR-PM-02	CES-EECA	8/22/2008		<b>0.62</b>				U	<b>10</b>					<b>712</b> J
MCEE-WR-PM-03	CES-EECA	8/22/2008		<b>0.7</b>				U	<b>12</b>					<b>1120</b> J
<b>Pride of the Woods Mine</b>														
PRIDE/WOODS DUMP	DNR 2003	10/11/2002												<b>113</b>
POWOODS	SHA	9/25/2003		<b>8.61</b>		5 U		5 U	<b>49.1</b>		5.42			<b>271</b>
MC-GC-2A	USFS	8/1/2006	<i>1800</i> U	<i>210</i> U	8.4 U	345 U		<i>78.6</i> U	<i>96.75</i> U			166.8		<b>442.8</b>
MC-GC-2B	USFS	8/1/2006	<i>915</i> U	<i>65.7</i> U	6 U	195 U		<i>26.1</i> U	<i>137.4</i> U			174.5		<b>246.6</b>
MCEE-WR-PW-01	CES-EECA	8/22/2008		<b>1.31</b> J				<b>0.74</b>	<b>42.5</b>					<b>21</b>
MCEE-WR-PW-02	CES-EECA	8/22/2008		<b>3.72</b> J				<b>0.88</b>	<b>19</b>					<b>184</b>
<b>Rainy Mine</b>														
MCEE-WR-RY-01	CES-EECA	8/21/2008		<b>0.99</b> J				<b>0.97</b>	<b>6.33</b>					<b>141</b>
MCEE-WR-RY-02	CES-EECA	8/21/2008		<b>0.76</b> J				<b>1.22</b>	<b>16.9</b>					<b>352</b>
<b>Sheridan Mine</b>														
MCEE-WR-SH-01	CES-EECA	8/23/2008		<b>0.31</b> J				0.18 T	0.64					<b>245</b>
MCEE-WR-SH-02	CES-EECA	8/23/2008		<b>0.99</b> J				<b>0.75</b>	<b>3.69</b>					<b>971</b>
<b>Sidney Mine</b>														
MC-76-2A	USFS	8/1/2006	<i>2250</i> U	<i>210</i> U	8.4 U	420 U		<i>78.15</i> U	<i>165</i> U			282.2		<b>323.8</b>
MC-GC-2B	USFS	8/1/2006	<i>915</i> U	<i>65.7</i> U	6 U	195 U		<i>26.1</i> U	<i>137.4</i> U			174.5		<b>246.6</b>
MCEE-WR-SY-01	CES-EECA	8/23/2008		<b>0.29</b> J				<b>1.2</b>	<b>14.9</b>					<b>289</b>
MCEE-WR-SY-02	CES-EECA	8/23/2008		<b>0.51</b> J				<b>1.13</b>	<b>8.74</b>					<b>337</b>
<b>Weden Siding</b>														
MCRA2-WR-WD-01	DGI	9/29/2010	<b>778</b>	<b>0.34</b>		<b>33.1</b>								<b>155</b>
MCRA2-WR-WD-02	DGI	9/29/2010	<b>599</b>	<b>0.14</b>		15.6 T								<b>118</b>
MCRA2-WR-WD-03	DGI	9/29/2010	<b>1060</b>	<b>0.29</b>		<b>24.8</b> T								<b>192</b>

U = Not detected at reporting limit indicated.

J = Estimated value.

T = Value is between the MDL and MRL.

Concentrations that exceed screening level are bolded.

Reporting limits that exceed screening level are italicized.

Blank indicates sample not analyzed for specific analyte.







**Table 6 - Analytical Results for Surface Water Samples**

Sample ID	Report	Sampling Date	Units	Aluminum	Antimony	Arsenic	Trivalent Arsenic	Barium	Beryllium	Cadmium	Calcium, Diss.	Calcium, Total	Calcium, Tot. Rec.	Chromium	Cobalt	Copper	Cyanide	Iron	Lead		
Screening Level:			mg/L	0.087		0.000018		1.0	0.273	0.02				0.486		1.3		0.3	0.00015		
MCRA1-SW-SFSR-06	DGI	6/30/2010	mg/L	0.0237	0.0018	<b>0.0079</b>				0.00008	U			0.0005	U	0.00067		0.0217	T	0.0001	U
MCRA1-SW-SFSR-07	DGI	6/30/2010	mg/L	0.0366	0.0018	<b>0.0079</b>				0.00008	U			0.0005	U	0.00066		0.0378	T	0.00012	U
MCRA1-SW-SFSR-08	DGI	6/30/2010	mg/L	0.0229	0.0017	<b>0.0077</b>				0.00008	U			0.0005	U	0.00068		0.0256	T	0.00011	U
MCRA1-SW-SFSR-09	DGI	7/1/2010	mg/L	0.0244	J 0.0023	<b>0.0128</b>				0.00008	U			0.0005	U	0.0015		0.0888		0.00037	U
MCRA2-SW-SFSR-01	DGI	9/27/2010	mg/L	0.0104	0.0021	<b>0.0091</b>				0.000038	T			0.0005	U	0.0003	T	0.0055	T	0.00014	
MCRA2-SW-SFSR-02	DGI	9/27/2010	mg/L	0.0102	0.0019	<b>0.0106</b>				0.00008	U			0.0005	U	0.00084		0.0067	T	0.00009	T
MCRA2-SW-SFSR-03	DGI	9/27/2010	mg/L	0.0044	0.0025	<b>0.0107</b>				0.000044	T			0.0005	U	0.00041	T	0.05	U	0.000046	T
MCRA2-SW-SFSR-04	DGI	9/27/2010	mg/L	0.006	0.002	<b>0.0083</b>				0.00003	T			0.00024	T	0.00045	T	0.05	U	0.000037	T
MCRA2-SW-SFSR-05	DGI	9/27/2010	mg/L	0.0094	0.0023	<b>0.0088</b>				0.00004	T			0.0005	U	0.00076		0.0099	T	0.000086	T
MCRA2-SW-SFSR-06	DGI	9/30/2010	mg/L	0.0204	0.0027	<b>0.0093</b>				0.000045	T			0.00029	T	0.00064		0.021	T	0.00011	
MCRA2-SW-SFSR-07	DGI	9/30/2010	mg/L	0.0251	0.0026	<b>0.0093</b>				0.000022	T			0.0003	T	0.00064		0.0295	T	0.00011	
MCRA2-SW-SFSR-08	DGI	9/30/2010	mg/L	0.0139	0.0025	<b>0.0088</b>				0.000045	T			0.0005	U	0.00073		0.0176	T	0.000086	T
MCRA2-SW-SFSR-09	DGI	9/30/2010	mg/L	0.0163	0.0029	<b>0.0178</b>				0.000042	T			0.0005	U	0.00074		0.122		<b>0.00028</b>	
<b>Monte Cristo Lake</b>																					
MCEE-SW-MCL-01	CES-EECA	8/26/2008	mg/L		0.0029	<b>0.0685</b>				0.0005	U	3.5		0.05	U	0.05	U			0.0008	U
MCRA1-SW-MCL-01	DGI	7/1/2010	mg/L	0.0395	0.0017	<b>0.0272</b>				0.000032	T			0.0005	U	0.00098		0.158		<b>0.00061</b>	
MCRA2-SW-MCL-01	DGI	9/30/2010	mg/L	0.0514	0.002	<b>0.053</b>				0.000047	T			0.00031	T	0.0015		<b>0.675</b>		<b>0.00086</b>	

**Table 6 - Analytical Results for Surface Water Samples**

Sample ID	Report	Sampling Date	Units	Magnesium, Diss.	Magnesium, Total	Magnesium, Tot. Rec.	Manganese	Mercury	Mercury-Brooks Rand	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
Screening Level:							0.05	0.000012		0.61		0.005	25.9		0.00024		7.4
<b>Background</b>																	
Glacier Creek Upstream Low Flow	Ecology	8/18/2000	mg/L					0.000002	UJ								0.0018
Glacier Creek Upstream High Flow	Ecology	6/19/2001	mg/L					0.0000042									0.0002
GLACRHDW	SHA	9/25/2003	mg/L					0.00005	U	0.0005	U	0.0005	U	0.0001	U	0.0001	U
GC-SW1	CES-SI	6/2/2005	mg/L		0.48	0.476	0.004	U	0.0002	U	0.00000289	J	0.01	U	0.5	U	0.003
GC-SW2	CES-SI	6/2/2005	mg/L		0.441	0.434	0.004	U	0.0002	U	0.00000218	J	0.01	U	0.5	U	0.003
MC-GC-9	USFS	8/2/2006	mg/L							0.002	U						0.005
MCRA1-SW-GC-01	DGI	6/29/2010	mg/L				0.0013	U									0.0019
MCRA1-SW-GC-02	DGI	6/29/2010	mg/L				0.00095	U									0.0019
MCRA1-SW-GC-02a	DGI	6/29/2010	mg/L				0.00095	U									0.0032
MCRA2-SW-GC-01	DGI	9/29/2010	mg/L				0.0022	U									0.003
MCRA2-SW-GC-02	DGI	9/28/2010	mg/L				0.0035										0.004
MCRA2-SW-GC-02a	DGI	9/29/2010	mg/L				0.0034										0.0057
76CKHDWT	SHA	9/11/2003	mg/L					0.00005	U	0.0005	U	0.0005	U	0.0001	U	0.0001	U
76G-SW1	CES-SI	6/3/2005	mg/L		0.144	0.15	0.004	U	0.0002	U	0.00000078	J	0.005	U	0.5	U	0.003
MC-76-1	USFS	8/3/2006	mg/L							0.0047							0.0079
MCEE-SW-76G-01	CES-EECA	8/21/2008	mg/L					0.1	T			0.08	T	0.17			81
MCRA1-SW-76G-01	DGI	6/28/2010	mg/L				0.00068	U									0.0022
MCRA1-SW-76G-01a	DGI	6/29/2010	mg/L				0.005										0.0102
MCRA1-SW-76G-01b	DGI	6/29/2010	mg/L				0.0363										0.0422
MCRA2-SW-76G-01	DGI	9/28/2010	mg/L				0.0016										0.005
MCRA2-SW-76G-01a	DGI	9/28/2010	mg/L				0.0379										0.013
MCRA2-SW-76G-01b	DGI	9/28/2010	mg/L				0.0111										0.0106
<b>Glacier Creek</b>																	
Glacier Creek Downstream Low Flow	Ecology	8/18/2000	mg/L					0.000002	UJ								0.0056
Glacier Creek Downstream High Flow	Ecology	6/19/2001	mg/L					0.0000058									0.00504
GC-SW3	CES-SI	6/2/2005	mg/L		0.426	0.415	0.004	U	0.0002	U	0.00000088	J	0.01	U	0.5	U	0.003
GC-SW4	CES-SI	6/2/2005	mg/L		0.432	0.407	0.004	U	0.0002	U	0.00000179	J	0.01	U	0.5	U	0.003
GC-SW5	CES-SI	6/2/2005	mg/L		0.374	0.357	0.004	U	0.0002	U	0.0000009	J	0.01	U	0.5	U	0.003
MC-GC-1	USFS	8/2/2006	mg/L							0.002	U						0.005
MC-GC-3	USFS	8/2/2006	mg/L							0.002	U						0.005
MC-GC-4	USFS	8/2/2006	mg/L							0.002	U						0.0079
MC-GC-5	USFS	8/2/2006	mg/L							0.002	U						0.005
MC-GC-6	USFS	8/2/2006	mg/L							0.002	U						1.6
MCEE-SW-GC-04	CES-EECA	8/19/2008	mg/L	0.5	T			0.0000016				0.0005	U	0.0003	U		0.05
MCEE-SW-GC-05	CES-EECA	8/19/2008	mg/L	1	U			0.0000011				0.0005	U	0.0003	U		0.05
MCRA1-SW-GC-03	DGI	6/29/2010	mg/L				0.0013	U									0.0035
MCRA1-SW-GC-04	DGI	6/28/2010	mg/L				0.0035										0.0109
MCRA1-SW-GC-04a	DGI	6/28/2010	mg/L				0.0012	U									0.0236
MCRA1-SW-GC-05	DGI	6/28/2010	mg/L				0.0017	U									0.0082
MCRA2-SW-GC-03	DGI	9/27/2010	mg/L				0.0025	U									0.0066
MCRA2-SW-GC-04	DGI	9/27/2010	mg/L				0.0021	U									0.0059
MCRA2-SW-GC-04a	DGI	9/27/2010	mg/L				0.0011	U									0.02
MCRA2-SW-GC-05	DGI	9/27/2010	mg/L				0.0023										0.0089
<b>Glacier Creek below Concentrator</b>																	
GCCONCDG	SHA	9/12/2003	mg/L					0.00005	U	0.0005	U	0.0005	U	0.0001	U	0.0001	U
GLACBCNC	SHA	9/25/2003	mg/L					0.00005	U	0.0005	U	0.0005	U	0.0001	U	0.0001	U
<b>Seventysix Creek</b>																	
76CKSDYM	SHA	9/11/2003	mg/L					0.00005	U	0.0005	U	0.0005	U	0.0001	U	0.0001	U
76G-SW2	CES-SI	6/3/2005	mg/L		0.279	0.276	0.004	U	0.0002	U	0.00000051	J	0.005	U	0.5	U	0.003
MC-76-2	USFS	8/3/2006	mg/L							0.002	U						0.005
MC-76-3	USFS	8/3/2006	mg/L							0.002	U						0.0052
MCEE-SW-76G-02	CES-EECA	8/21/2008	mg/L					0.12	T			0.09	T	0.58			285
MCRA1-SW-76G-02	DGI	6/28/2010	mg/L				0.00064	U									0.0077
MCRA2-SW-76G-02	DGI	9/27/2010	mg/L				0.00081	U									0.005
<b>Boston-American Mine</b>																	
MCEE-DW-BA-01	CES-EECA	8/20/2008	mg/L	1.9			0.03	U	0.0000039	U		0.0002	T	0.0003	U		0.05
MCEE-DW-BA-02	CES-EECA	8/20/2008	mg/L	1	U		0.013	T	0.000021			0.0005	U	0.0003	U		0.05
MCRA1-DW-BA-01	DGI	6/28/2010	mg/L		1.79		0.0026	U			0.74			11.6			0.004
MCRA2-DW-BA-01	DGI	9/27/2010	mg/L		1.8		0.0026				0.741			12.5			0.0051

Table 6 - Analytical Results for Surface Water Samples

Sample ID	Report	Sampling Date	Units	Magnesium, Diss.	Magnesium, Total	Magnesium, Tot. Rec.	Manganese	Mercury	Mercury-Brooks Rand	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
Screening Level:							0.05	0.000012		0.61		0.005	25.9		0.00024		7.4
<b>Justice Mine</b>																	
GCKJUSMB	SHA	9/12/2003	mg/L					0.00005 U		0.00119		0.0005 U	0.0001 U		0.0001 U		0.0568
GCKJUSTM	SHA	9/12/2003	mg/L					0.00005 U		0.00092		0.0005 U	0.0001 U		0.0001 U		0.021
JM-AS-01	CES-SI	9/9/2005	mg/L		3.85	4.01	0.0124	0.0002 U		0.01 U	0.63	0.00062 U	0.00012 U	4.24	0.00024 U	0.005 U	0.019
MCCE-DW-JU-01	CES-EECA	8/20/2008	mg/L	2.2			0.011 T	0.000001 U				0.0005 U	0.0003 U				0.06
MCCE-DW-JU-02	CES-EECA	8/20/2008	mg/L	2.1			0.03 U	0.0000012 U				0.0005 U	0.0003 U				0.04 T
MCRA1-DW-JU-01	DGI	6/30/2010	mg/L		1.22		0.0155				0.267			1.4			0.0773
MCRA2-DW-JU-01	DGI	9/28/2010	mg/L		1.95		0.177				0.391			2.06			0.169
MCRA2-SP-JU-01	DGI	9/28/2010	mg/L				0.0031										0.0474
<b>Lincoln Mine</b>																	
MCRA2-LN-SP-01	DGI	9/28/2010	mg/L		0.198		0.0236				0.12			0.962			0.005 U
<b>Mystery Mine</b>																	
MM-AS-01	CES-SI	9/9/2005	mg/L		25.1	25.2	4.23	0.0002 U		0.01 U	1.21	0.00062 U	0.00022	4.42	0.00036	0.005 U	6.59
MCCE-DW-MY-01	CES-EECA	8/20/2008	mg/L	7.9			1.59	0.0000034 U				0.001 U	0.0002 T				2.59
MCCE-DW-MY-02	CES-EECA	8/20/2008	mg/L	6.4			1.37	0.0000019 U				0.0005 U	0.00018 T				2.34
MCRA1-DW-MY-01	DGI	6/30/2010	mg/L		6.78		1.12				0.426			1.13			2.03
MCRA2-DW-MY-01	DGI	9/28/2010	mg/L		6.22		1.03				0.404			1.09			1.81
<b>New Discovery Mine</b>																	
New disc H2O	DNR 2003	10/11/2002	mg/L														0.225
MCCE-DW-ND-01	CES-EECA	8/23/2008	mg/L	9.3			0.696	0.0000111				0.0005 U	0.00008 T				0.85
MCRA1-DW-ND-01	DGI	6/29/2010	mg/L		1.81		0.0972				0.318			0.75			0.179
MCRA2-DW-ND-01	DGI	9/29/2010	mg/L		1.72		0.169				0.352			0.647			0.202
<b>Pride of the Mountains Mine</b>																	
PR-MTS	DNR 2003	10/11/2002	mg/L														5.17
GLACPOMN	SHA	9/25/2003	mg/L					0.00005 U		0.0005 U		0.0005 U	0.0001 U		0.0001 U		0.005 U
GLACRPOM	SHA	9/25/2003	mg/L					0.00005 U		0.0005 U		0.0005 U	0.0001 U		0.0001 U		0.005 U
MCCE-DW-PM-01	CES-EECA	8/22/2008	mg/L	3.2			0.108	0.0000038 U				0.0005 U	0.0003 U				0.83
MCRA1-DW-PM-01	DGI	6/29/2010	mg/L		1.33		0.0425				0.486			0.604			0.387
MCRA2-DW-PM-01	DGI	9/29/2010	mg/L		2.13		0.0535				0.609			0.691			0.609
<b>Pride of the Woods Mine</b>																	
MCCE-DW-PW-01	CES-EECA	8/23/2008	mg/L	1.1			0.522	0.00082				0.0003 T	0.00382				1.22
MCRA1-DW-PW-01	DGI	6/29/2010	mg/L		1.39		0.606				0.961			0.938			0.522
MCRA2-DW-PW-01	DGI	9/27/2010	mg/L		2.04		0.652				0.71			2.04			1.9
<b>Rainy Mine</b>																	
MCCE-DW-RY-01	CES-EECA	8/21/2008	mg/L	0.9 T			0.017 T	0.000006				0.0001 T	0.0003 U				0.05 U
MCRA1-DW-RY-01	DGI	6/30/2010	mg/L		0.54		0.0156				0.289			0.938			0.003 T
MCRA2-DW-RY-01	DGI	9/27/2010	mg/L		0.565		0.0248				0.311			1.02			0.0098 U
<b>Sheridan Mine</b>																	
MCRA1-DW-SH-01	DGI	6/30/2010	mg/L		0.659		0.0156				0.184			2.2			0.0238
MCRA1-SW-DP-01	DGI	6/30/2010	mg/L				1.13										2.03
MCRA1-SW-DP-02	DGI	6/29/2010	mg/L				0.511										0.55
MCRA1-SW-DP-03	DGI	7/1/2010	mg/L				0.0089										0.0054
MCRA1-SW-EQ-01	DGI	7/1/2010	mg/L				0.0005 U										0.0037 T
MCRA2-DW-SH-01	DGI	9/28/2010	mg/L		0.458		0.0069				0.162			1.33			0.0101 U
<b>South Fork Sauk River</b>																	
SFKSMCLK	SHA	9/12/2003	mg/L					0.00005 U		0.0005 U		0.0005 U	0.0001 U		0.0001 U		0.005 U
SFSR-SW1	CES-SI	6/1/2005	mg/L		0.296	0.309	0.004 U	0.0002 U	0.00000077 J	0.005 U	0.5 U	0.003 U	0.005 U	0.5 U	0.001 U	0.005 U	0.01 U
SFSR-SW2	CES-SI	6/1/2005	mg/L		0.315	0.313	0.004 U	0.0002 U	0.00000045 J	0.005 U	0.5 U	0.003 U	0.005 U	0.51	0.001 U	0.005 U	0.01 U
SFSR-SW3	CES-SI	6/1/2005	mg/L		0.307	0.309	0.004 U	0.0002 U	0.00000042 J	0.005 U	0.5 U	0.003 U	0.005 U	0.55	0.001 U	0.005 U	0.01 U
SFSR-SW4	CES-SI	6/1/2005	mg/L			0.431	0.004 U	0.0002 U	0.00000062 J	0.005 U	0.5 U	0.003 U	0.005 U		0.001 U	0.005 U	0.01 U
MCCE-SW-SFSR-01	CES-EECA	8/19/2008	mg/L	1 U				0.0000007				0.0005 U	0.0003 U				0.05 U
MCCE-SW-SFSR-02	CES-EECA	8/19/2008	mg/L	1 U				0.0000006				0.0005 U	0.0003 U				0.05 U
MCCE-SW-SFSR-03	CES-EECA	8/19/2008	mg/L	1 U				0.0000005 B				0.0005 U	0.0003 U				0.05 U
MCCE-SW-SFSR-04	CES-EECA	8/27/2008	mg/L	0.4 T				0.0000016				0.0005 U	0.0003 U				0.05 U
MCCE-SW-SFSR-05	CES-EECA	8/27/2008	mg/L	0.4 T				0.0000014				0.0005 U	0.0003 U				0.05 U
MCCE-SW-SFSR-06	CES-EECA	8/26/2008	mg/L	0.5 T				0.000001				0.0005 U	0.0003 U				0.05 U
MCCE-SW-SFSR-07	CES-EECA	8/26/2008	mg/L	0.5 T				0.000001				0.001 U	0.0005 U				0.1 U
MCCE-SW-SFSR-08	CES-EECA	8/25/2008	mg/L	0.5 T				0.000001				0.0005 U	0.0003 U				0.05 U
MCCE-SW-SFSR-09	CES-EECA	8/25/2008	mg/L	0.6 T				0.0000011				0.0005 U	0.0003 U				0.05 U
MCRA1-SW-SFSR-01	DGI	6/28/2010	mg/L				0.0011 U										0.0081
MCRA1-SW-SFSR-02	DGI	6/30/2010	mg/L				0.00068 U										0.0092
MCRA1-SW-SFSR-03	DGI	6/30/2010	mg/L				0.0011 U										0.0105
MCRA1-SW-SFSR-04	DGI	6/30/2010	mg/L				0.0005 U										0.0057
MCRA1-SW-SFSR-05	DGI	6/30/2010	mg/L				0.00083 U										0.0126

**Table 6 - Analytical Results for Surface Water Samples**

Sample ID	Report	Sampling Date	Units	Magnesium, Diss.	Magnesium, Total	Magnesium, Tot. Rec.	Manganese	Mercury	Mercury-Brooks Rand	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
Screening Level:							0.05	0.000012		0.61		0.005	25.9		0.00024		7.4
MCRA1-SW-SFSR-06	DGI	6/30/2010	mg/L				0.0011	U									0.0052
MCRA1-SW-SFSR-07	DGI	6/30/2010	mg/L				0.0014	U									0.0041
MCRA1-SW-SFSR-08	DGI	6/30/2010	mg/L				0.0013	U									0.0043
MCRA1-SW-SFSR-09	DGI	7/1/2010	mg/L				0.0088										0.0046
MCRA2-SW-SFSR-01	DGI	9/27/2010	mg/L				0.00084	U									0.0076
MCRA2-SW-SFSR-02	DGI	9/27/2010	mg/L				0.0028	U									0.0059
MCRA2-SW-SFSR-03	DGI	9/27/2010	mg/L				0.0005	U									0.0072
MCRA2-SW-SFSR-04	DGI	9/27/2010	mg/L				0.0005	U									0.0047
MCRA2-SW-SFSR-05	DGI	9/27/2010	mg/L				0.001	U									0.0056
MCRA2-SW-SFSR-06	DGI	9/30/2010	mg/L				0.0015	U									0.0063
MCRA2-SW-SFSR-07	DGI	9/30/2010	mg/L				0.0014	U									0.0048
MCRA2-SW-SFSR-08	DGI	9/30/2010	mg/L				0.0013	U									0.0102
MCRA2-SW-SFSR-09	DGI	9/30/2010	mg/L				0.0154										0.0079
<b>Monte Cristo Lake</b>																	
MCEE-SW-MCL-01	CES-EECA	8/26/2008	mg/L	0.8	T			0.0000023				0.0005	U	0.0003	U		0.05
MCRA1-SW-MCL-01	DGI	7/1/2010	mg/L				0.0242										0.0042
MCRA2-SW-MCL-01	DGI	9/30/2010	mg/L				<b>0.0526</b>										0.0061

DIS = Dissolved  
 TOT = Total  
 TR = Total Recoverable

U = Not detected at reporting limit indicated.  
 J = Estimated value.  
 T = Value is between the MDL and MRL.

Concentrations that exceed screening level are bolded.  
 Reporting limits that exceed screening level are italicized.  
 Blank indicates sample not analyzed for specific analyte.

**Table 7 - Analytical Results for Sediment Samples**

Sample ID	Report	Sampling Date	Units	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide	Iron	Lead	Magnesium	Manganese
Screening Level:					0.4	17		0.46	0.596		37.3		35.7			35		
<b>Background</b>																		
Glacier Creek Upstream	Ecology	8/18/2000	mg/Kg dw	10500	6.2 J	0.251		0.2 U	0.52		17.7		33.3		25000	86.6		1190
GLCKHDWT	SHA	9/25/2003	mg/kg		0.43	122		0.18	0.65		16.4		21.7			26.3		
GC-SS1	CES-SI	6/2/2005	ng/g															
GC-SS1	CES-SI	6/2/2005	mg/kg	11500	5.7	52	96.3	0.2 U	0.96	4110 J	67.1	8.62	20.6	0.5 U	24200	8.44 J	6180	1350
GC-SS2	CES-SI	6/2/2005	mg/kg	10800	9.9	227	109	0.2 U	1.55	3030 J	49.6	9.39	50	0.5 U	24900	104 J	5760	1600
MCEE-SS-GC-01	CES-EECA	8/22/2008	mg/Kg		5.8	42.1			0.25 T		15		13			7.88		
MCEE-SS-GC-02	CES-EECA	8/22/2008	mg/Kg		4.8	75.1			0.44		16		16			19.6		
MCRA1-SS-GC-01	DGI	6/29/2010	mg/kg	9910	23.9 J	48.5			0.097 T		16.5		14.5 J		24300	6.3		1820
MCRA1-SS-GC-02	DGI	6/29/2010	mg/kg	9910	13.6 T	153			1.5 T		14.5		29		25800	48.9		1420
MCRA1-SS-GC-02a	DGI	6/29/2010	mg/kg	12600	17.6 T	243			2 T		18.4		37.1		33600	123		2250
MCRA2-SS-GC-01	DGI	9/29/2010	mg/kg		19.2 U	26.3			6.4 U		14.6		17.9		20300			808
MCRA2-SS-GC-02	DGI	9/28/2010	mg/kg		88.7	975			4.8 T		15.2		50.9		46300			1880
MCRA2-SS-GC-02a	DGI	9/29/2010	mg/kg		126	271			1.4 T		16.4		41.3		25200			1740
76G-SS1	CES-SI	6/2/2005	mg/kg	15200	2 U	16.8	39.1	0.2	1.3	3670	42.6	10.6	15.6		28700	9.8	10600	657
MCRA1-SS-76G-01	DGI	6/29/2010	mg/kg	13200	0.81 T	22.7			6 U		24		16.5		27500	16.1		663
MCRA1-SS-76G-01a	DGI	6/29/2010	mg/kg	12200	25.4	925			12.2		19.4		40.9		32800	176		1650
MCRA1-SS-76G-01b	DGI	6/29/2010	mg/kg	15300	13.7 T	686			7.6		13.8		66.7		39100	261		971
MCRA2-SS-76G-01	DGI	9/28/2010	mg/kg		18.7 U	11.4 T			6.2 U		23.3		12.1 T		26500			733
MCRA2-SS-76G-01a	DGI	9/28/2010	mg/kg		33.7	775			3.8 T		13.9		29.6		26100			1140
MCRA2-SS-76G-01b	DGI	9/28/2010	mg/kg		34.5	308			1.6 T		13.2		30		25600			889
<b>Glacier Creek</b>																		
Glacier Creek Downstream	Ecology	8/18/2000	mg/Kg dw	12700	12 J	0.543		0.2 U	0.5 U		21.2		84.5		29600	76.3		915
GC-SS3	CES-SI	6/2/2005	mg/kg	9960	11.6	250	98.4	0.23	1.71	3020 J	48.9	9.56	41		25200	84.8 J	5220	1510
GC-SS4	CES-SI	6/2/2005	mg/kg	11900	7.9	367	94	0.21	1.91	3910 J	48.5	10	67.5		25500	69.3 J	5530	1350
GC-SS5	CES-SI	6/1/2005	ng/g															
GC-SS5	CES-SI	6/2/2005	mg/kg	13400	3.8	291	88.4	0.2 U	1.79	4230 J	53.5	12.5	117	0.5 U	28800	48.2 J	7030	959
MCEE-SS-GC-03	CES-EECA	8/22/2008	mg/Kg		8.3	133			0.63		12		26			37.5		
MCEE-SS-GC-04	CES-EECA	8/19/2008	mg/Kg		16.3	255			1.17		15		48			78.3		
MCEE-SS-GC-05	CES-EECA	8/19/2008	mg/Kg		3.9	210			0.89		18		99			33.2		
MCRA1-SS-GC-03	DGI	6/29/2010	mg/kg	12000	17.6 T	294			3.4 T		17.9		42.2		37000	83.3		2370
MCRA1-SS-GC-04	DGI	6/28/2010	mg/kg	11100	8.8 T	429			4.8 T		14.7		67.4		30800	66.6		1860
MCRA1-SS-GC-04a	DGI	6/28/2010	mg/kg	14600	5.8 T	271			3.3 T		16		103		33700	54.3		1030
MCRA1-SS-GC-05	DGI	6/28/2010	mg/kg	14100	5 T	146			1.4 T		12.2		69.1		27400	50.7		923
MCRA2-SS-GC-03	DGI	9/27/2010	mg/kg		18.7 U	194			0.91 T		13.6		48.6		28600			1690
MCRA2-SS-GC-04	DGI	9/27/2010	mg/kg		29.2	402			2.4 T		11.8		70.5		28300			1720
MCRA2-SS-GC-04a	DGI	9/27/2010	mg/kg		42.1	1920			15.1		21.1		525		37500			2320
MCRA2-SS-GC-05	DGI	9/27/2010	mg/kg		19.2 U	284			1.6 T		18.8		96.5		32200			1200
<b>Glacier Creek near Collector</b>																		
COL-SS-01	CES-SI	9/10/2005	mg/kg		5.19 J	330	90.1		1.09		49		93.5		30600	37.9		706
COL-SS-02	CES-SI	9/10/2005	mg/kg		5.84 J	294	82.6		1.23		43.6		111		29400	43.6		868
COL-SS-03	CES-SI	9/10/2005	mg/kg		5.56 J	331	85.5		1.1		43.5		93.4		30200	37.5		705
COL-SS-04	CES-SI	9/10/2005	mg/kg		3.92 J	112	91.9		1.14		45.1		78.8		27900	32.1		790
COL-SS-05	CES-SI	9/10/2005	mg/kg		14.5 J	469	79.5		1.22		36.7		97.6		29100	72.6		821
<b>Glacier Creek near Concentrator</b>																		
CON-SS-01	CES-SI	9/10/2005	mg/kg		10.6 J	160	90.6		0.89		41.2		30.5		24500	55.3		1230
CON-SS-02	CES-SI	9/10/2005	mg/kg		4.01 J	130	91.8		1.12		52.6		74.7		30000	35.1		864
CON-SS-03	CES-SI	9/10/2005	mg/kg		5.08 J	282	92.4		1.23		48.6		92.1		31200	46.1		799
CON-SS-04	CES-SI	9/10/2005	mg/kg		14.1 J	267	106		1.19		48.2		82.8		31400	30		715
CON-SS-05	CES-SI	9/10/2005	mg/kg		3.44 J	197	84.6		0.92		44.9		75.8		28800	29.5		616
<b>Seventysix Creek</b>																		
76G-SS2	CES-SI	6/2/2005	mg/kg	17100	11.2	276	52.8	0.2 U	2.91	4730	41.5	10.5	34.2		30600	89.5	9200	950
76G-SS2	CES-SI	6/3/2005	ng/g															
MCRA1-SS-76G-02	DGI	6/28/2010	mg/kg	19300	11 T	430			4.7 T		17.3		41.4		32700	105		1150
MCRA2-SS-76G-02	DGI	9/27/2010	mg/kg		32.6	391			1.6 T		18.5		58.4		30600			920
<b>South Fork Sauk River</b>																		
SFSAUKLA	SHA	9/12/2003	mg/kg		15.7 J	1090		0.17	3.9		36.6		207			278		
SFSR-SS1	CES-SI	6/1/2005	ng/g															
SFSR-SS1	CES-SI	6/1/2005	mg/kg	15300	7.1	269	62.8	0.2 U	1.9	3510	46.1	10.6	79.5	0.5 U	29500	65.4	8720	688
SFSR-SS2	CES-SI	6/1/2005	mg/kg	15300	13.5	544	66.8	0.22	1.99	3630	56.9	11.4	115		28400	136	7740	747
SFSR-SS3	CES-SI	6/1/2005	ng/g															

**Table 7 - Analytical Results for Sediment Samples**

Sample ID	Report	Sampling Date	Units	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide	Iron	Lead	Magnesium	Manganese	
Screening Level:					0.4	17		0.46	0.596		37.3		35.7			35			
SFSR-SS3	CES-SI	6/1/2005	mg/kg	15700	17.3	480	57.6	0.23	2.02	3610	61.5	10.9	116	0.5 U	28400	156	8450	715	
MCEE-SS-SFSR-01	CES-EECA	8/19/2008	mg/Kg		10.5	239			1.04		23 J		56 J			96			
MCEE-SS-SFSR-02	CES-EECA	8/19/2008	mg/Kg		12.8 J	453			1.17		26 J		92 J			101			
MCEE-SS-SFSR-03	CES-EECA	8/19/2008	mg/Kg		10.3	194			0.61		24 J		68 J			60			
MCEE-SS-SFSR-04	CES-EECA	8/27/2008	mg/Kg		24.2	315 J			0.87		41		95			105			
MCEE-SS-SFSR-05	CES-EECA	8/27/2008	mg/Kg		20.7	187 J			0.77		38		89			90.9			
MCEE-SS-SFSR-06	CES-EECA	8/26/2008	mg/Kg		10.6	383 J			0.9		49		81			145			
MCEE-SS-SFSR-07	CES-EECA	8/26/2008	mg/Kg		51 J	384 J			1.34		45		83			171			
MCEE-SS-SFSR-08	CES-EECA	8/25/2008	mg/Kg		47	348 J			0.96		54		79			111			
MCEE-SS-SFSR-09	CES-EECA	8/25/2008	mg/Kg		18	408 J			0.81		43		70			109			
MCRA1-SS-SFSR-01	DGI	6/28/2010	mg/kg	19700	8.7 T	290			2.5 T		21		74.4		39000	76		1070	
MCRA1-SS-SFSR-02	DGI	6/30/2010	mg/kg	22500	13.2 T	398			3.8 T		24.7		221		40500	114		854	
MCRA1-SS-SFSR-03	DGI	6/30/2010	mg/kg	22200	18.4	305			2.8 T		25.6		93.2		38000	155		982	
MCRA1-SS-SFSR-04	DGI	6/30/2010	mg/kg	23100	16.4 T	206			1.4 T		40.3		102		40200	76.1		695	
MCRA1-SS-SFSR-05	DGI	6/30/2010	mg/kg	15800	19.7 T	351			3.4 T		36.5		123		36100	101		765	
MCRA1-SS-SFSR-06	DGI	7/1/2010	mg/kg	18100	33.2	425			4.5 T		48.7		95.9		34900	132		789	
MCRA1-SS-SFSR-07	DGI	7/1/2010	mg/kg	18900	8.9 T	154			1.4 T		60.4		90.8		34300	76.9		609	
MCRA1-SS-SFSR-08	DGI	7/1/2010	mg/kg	16500	22.1	275			2.9 T		45.8		78.4		31200	83.7		655	
MCRA1-SS-SFSR-09	DGI	7/1/2010	mg/kg	17800	15.5 T	508			5.1 T		41.4		92.1		33900	118		634	
MCRA2-SS-SFSR-01	DGI	9/27/2010	mg/kg		19.2 U	204			1.4 T		14.4		64 J		24900			1600	
MCRA2-SS-SFSR-02	DGI	9/27/2010	mg/kg		35.6	571			2.5 T		26.1		116		38900			962	
MCRA2-SS-SFSR-03	DGI	9/27/2010	mg/kg		29.5	446			2 T		20.2		103		33200			925	
MCRA2-SS-SFSR-04	DGI	9/27/2010	mg/kg		29.3 U	637			2.3 T		49		134		39900			771	
MCRA2-SS-SFSR-05	DGI	9/27/2010	mg/kg		34.9	301			1.2 T		44		130		40200			956	
MCRA2-SS-SFSR-06	DGI	9/30/2010	mg/kg		17.2 U	64.5			5.7 U		65.5		56.8		31800			681	
MCRA2-SS-SFSR-07	DGI	9/30/2010	mg/kg		27	898			4.1 T		53.1		77.6		29900			623	
MCRA2-SS-SFSR-08	DGI	9/30/2010	mg/kg		32.7	176			0.62 T		69		93.4		37000			878	
MCRA2-SS-SFSR-09	DGI	9/30/2010	mg/kg		23.8	423			1.7 T		41.6		99.8		33800			701	
<b>Monte Cristo Lake</b>																			
MCEE-SS-MLL-01	CES-EECA	8/26/2008	mg/Kg		10.3	338 J			0.99		65		94			89.5			
MCEE-SS-MLL-02	CES-EECA	8/26/2008	mg/Kg		41	541 J			0.95		42		87			158			
MCEE-SS-MLL-03	CES-EECA	8/26/2008	mg/Kg		36	418 J			0.78		43		69			111			
MCEE-SS-MLL-04	CES-EECA	8/26/2008	mg/Kg		24.2	656 J			1.07		40		76			146			
MCEE-SS-MLL-05	CES-EECA	8/26/2008	mg/Kg		16.1	413 J			1.22		57		92			111			
MCEE-SS-MLL-06	CES-EECA	8/26/2008	mg/Kg		0.0085	0.281 J			1.25		56		100			133			
MCRA2-SS-MCL-02-1	DGI	9/30/2010	mg/kg		42.5	696			2.7 T		43.6		113		31900	165		559	
MCRA2-SS-MCL-02-2	DGI	9/30/2010	mg/kg		55	806			3.6 T		42		92.4		32600	298		644	
MCRA2-SS-MCL-02-3	DGI	9/30/2010	mg/kg		70	758			3.8 T		37		111		30700	270		600	
MCRA2-SS-MCL-03-1	DGI	9/30/2010	mg/kg		46.7	724			3.8 T		51.3		146		30500	220		508	
MCRA2-SS-MCL-03-2	DGI	9/30/2010	mg/kg		93.4	1270			8.5		48.9		245		40600	413		1180	
MCRA2-SS-MCL-03-3	DGI	9/30/2010	mg/kg		164	1310			10.2		40.7		269		31700	521		1030	
MCRA2-SS-MCL-04-1	DGI	9/30/2010	mg/kg		39.9	345			1.7 T		43.8		117		29400	145		459	
MCRA2-SS-MCL-04-2	DGI	9/30/2010	mg/kg		84.3	1060			7.4		49.8		227		37400	330		828	
MCRA2-SS-MCL-04-3.5	DGI	9/30/2010	mg/kg		68.3	1010			6.2 T		50.2		189		34500	290		896	

**Table 7 - Analytical Results for Sediment Samples**

Sample ID	Report	Sampling Date	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
Screening Level:			0.174	18		1	0.545				123
<b>Background</b>											
Glacier Creek Upstream	Ecology	8/18/2000	<b>0.254</b> J	13.4		0.3 U	1 U		0.3 UJ		<b>172</b>
GLCKHDWT	SHA	9/25/2003	<b>0.874</b> J	12.1		5 U	0.18		0.14		123
GC-SS1	CES-SI	6/2/2005	0.012 UJ								
GC-SS1	CES-SI	6/2/2005		12.2	1540	0.34	0.5 UJ	649	0.2 U	51.4	72.8
GC-SS2	CES-SI	6/2/2005		11.2	1910	0.36	0.5 UJ	529	0.263	47	<b>163</b>
MCEE-SS-GC-01	CES-EECA	8/22/2008	<b>0.33</b>				U	0.06 T			66 J
MCEE-SS-GC-02	CES-EECA	8/22/2008	<b>0.46</b>			0.11 T	0.18				90 J
MCRA1-SS-GC-01	DGI	6/29/2010									66.4
MCRA1-SS-GC-02	DGI	6/29/2010									<b>123</b>
MCRA1-SS-GC-02a	DGI	6/29/2010									<b>199</b>
MCRA2-SS-GC-01	DGI	9/29/2010	<b>0.28</b>								
MCRA2-SS-GC-02	DGI	9/28/2010	<b>0.42</b>								
MCRA2-SS-GC-02a	DGI	9/29/2010	<b>0.25</b>								
76G-SS1	CES-SI	6/2/2005		14.6	1020	0.39	0.5 UJ	287	0.2 U	48.9	77.4
MCRA1-SS-76G-01	DGI	6/29/2010									78.3
MCRA1-SS-76G-01a	DGI	6/29/2010									<b>350</b>
MCRA1-SS-76G-01b	DGI	6/29/2010									<b>362</b>
MCRA2-SS-76G-01	DGI	9/28/2010	0.0057 T								
MCRA2-SS-76G-01a	DGI	9/28/2010	<b>0.5</b>								
MCRA2-SS-76G-01b	DGI	9/28/2010	0.16								
<b>Glacier Creek</b>											
Glacier Creek Downstream	Ecology	8/18/2000	0.066 J	12.7		0.3 U	1 U		0.3 UJ		<b>190</b>
GC-SS3	CES-SI	6/2/2005		11.5	1680	0.41	0.5 UJ	468	0.28	47.7	<b>163</b>
GC-SS4	CES-SI	6/2/2005		11.7	1780	0.46	0.5 UJ	711	0.248	49.4	<b>185</b>
GC-SS5	CES-SI	6/1/2005		R							
GC-SS5	CES-SI	6/2/2005		15.8	2360	0.3 U	0.5 UJ	628	0.2 U	66.2	<b>156</b>
MCEE-SS-GC-03	CES-EECA	8/22/2008	<b>4.6</b>			0.08 T	0.21				115 J
MCEE-SS-GC-04	CES-EECA	8/19/2008	<b>0.26</b>			0.12 T	0.52				<b>174</b> J
MCEE-SS-GC-05	CES-EECA	8/19/2008	0.2 U			0.14 T	0.22				<b>148</b> J
MCRA1-SS-GC-03	DGI	6/29/2010									<b>161</b>
MCRA1-SS-GC-04	DGI	6/28/2010									<b>206</b>
MCRA1-SS-GC-04a	DGI	6/28/2010									<b>216</b>
MCRA1-SS-GC-05	DGI	6/28/2010									<b>232</b>
MCRA2-SS-GC-03	DGI	9/27/2010	<b>0.28</b>								
MCRA2-SS-GC-04	DGI	9/27/2010	<b>0.2</b>								
MCRA2-SS-GC-04a	DGI	9/27/2010	<b>0.53</b>								
MCRA2-SS-GC-05	DGI	9/27/2010	<b>0.18</b>								
<b>Glacier Creek near Collector</b>											
COL-SS-01	CES-SI	9/10/2005									<b>143</b>
COL-SS-02	CES-SI	9/10/2005									<b>166</b>
COL-SS-03	CES-SI	9/10/2005									<b>143</b>
COL-SS-04	CES-SI	9/10/2005									120
COL-SS-05	CES-SI	9/10/2005									<b>165</b>
<b>Glacier Creek near Concentrator</b>											
CON-SS-01	CES-SI	9/10/2005									123
CON-SS-02	CES-SI	9/10/2005									<b>138</b>
CON-SS-03	CES-SI	9/10/2005									<b>150</b>
CON-SS-04	CES-SI	9/10/2005									<b>143</b>
CON-SS-05	CES-SI	9/10/2005									122
<b>Seventysix Creek</b>											
76G-SS2	CES-SI	6/2/2005		10.2	1880	0.3 U	0.5 UJ	761	0.2 U	61.9	<b>295</b>
76G-SS2	CES-SI	6/3/2005	0.012 U								
MCRA1-SS-76G-02	DGI	6/28/2010									<b>255</b>
MCRA2-SS-76G-02	DGI	9/27/2010	0.17								
<b>South Fork Sauk River</b>											
SFSAUKLA	SHA	9/12/2003	0.0911	<b>96.5</b>		0.5 U	<b>6.94</b>		0.17		<b>806</b>
SFSR-SS1	CES-SI	6/1/2005	0.017 JT								
SFSR-SS1	CES-SI	6/1/2005		16.1	1840	0.46	0.5 UJ	518	0.2 U	58.5	<b>177</b>
SFSR-SS2	CES-SI	6/1/2005		15.4	2020	0.33	0.5 UJ	624	0.2 U	56.2	<b>206</b>
SFSR-SS3	CES-SI	6/1/2005	0.012 UJ								

**Table 7 - Analytical Results for Sediment Samples**

Sample ID	Report	Sampling Date	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc		
Screening Level:			0.174	18		1	0.545				123		
SFSR-SS3	CES-SI	6/1/2005		17.7	1910	0.34	0.5	UJ	618	0.2	U	50.7	<b>192</b>
MCEE-SS-SFSR-01	CES-EECA	8/19/2008	0.2	U		0.14	T	0.27					<b>192</b> J
MCEE-SS-SFSR-02	CES-EECA	8/19/2008	<b>0.23</b>			0.19	T	<b>0.63</b>					<b>222</b> J
MCEE-SS-SFSR-03	CES-EECA	8/19/2008	<b>0.21</b>			0.22	T	0.47					<b>127</b> J
MCEE-SS-SFSR-04	CES-EECA	8/27/2008		U		0.18	T	<b>0.73</b>					<b>172</b>
MCEE-SS-SFSR-05	CES-EECA	8/27/2008		U		0.15	T	0.53					<b>165</b>
MCEE-SS-SFSR-06	CES-EECA	8/26/2008		U		0.25	T	<b>1.38</b>					<b>165</b>
MCEE-SS-SFSR-07	CES-EECA	8/26/2008		U		0.25	T	<b>1.35</b>					<b>157</b>
MCEE-SS-SFSR-08	CES-EECA	8/25/2008	0.12	T		0.23	T	<b>1.16</b>					<b>172</b>
MCEE-SS-SFSR-09	CES-EECA	8/25/2008		U		0.17	T	<b>0.99</b>					<b>193</b>
MCRA1-SS-SFSR-01	DGI	6/28/2010											<b>196</b>
MCRA1-SS-SFSR-02	DGI	6/30/2010											<b>261</b>
MCRA1-SS-SFSR-03	DGI	6/30/2010											<b>225</b>
MCRA1-SS-SFSR-04	DGI	6/30/2010											<b>187</b>
MCRA1-SS-SFSR-05	DGI	6/30/2010											<b>190</b>
MCRA1-SS-SFSR-06	DGI	7/1/2010											<b>208</b>
MCRA1-SS-SFSR-07	DGI	7/1/2010											<b>150</b>
MCRA1-SS-SFSR-08	DGI	7/1/2010											<b>162</b>
MCRA1-SS-SFSR-09	DGI	7/1/2010											<b>212</b>
MCRA2-SS-SFSR-01	DGI	9/27/2010	0.1										
MCRA2-SS-SFSR-02	DGI	9/27/2010	0.11										
MCRA2-SS-SFSR-03	DGI	9/27/2010	0.065	T									
MCRA2-SS-SFSR-04	DGI	9/27/2010	0.082	T									
MCRA2-SS-SFSR-05	DGI	9/27/2010	0.057	T									
MCRA2-SS-SFSR-06	DGI	9/30/2010	0.035	T									
MCRA2-SS-SFSR-07	DGI	9/30/2010	0.03	T									
MCRA2-SS-SFSR-08	DGI	9/30/2010	0.036	T									
MCRA2-SS-SFSR-09	DGI	9/30/2010	0.059	T									
<b>Monte Cristo Lake</b>													
MCEE-SS-MLL-01	CES-EECA	8/26/2008	0.15	T			0.46		<b>1.44</b>				<b>147</b>
MCEE-SS-MLL-02	CES-EECA	8/26/2008		U			0.17	T	<b>3.9</b>				<b>197</b>
MCEE-SS-MLL-03	CES-EECA	8/26/2008		U			0.16	T	<b>0.83</b>				<b>191</b>
MCEE-SS-MLL-04	CES-EECA	8/26/2008		U			0.14	T	<b>1.98</b>				<b>250</b>
MCEE-SS-MLL-05	CES-EECA	8/26/2008	0.11	T			0.35		<b>1.26</b>				<b>193</b>
MCEE-SS-MLL-06	CES-EECA	8/26/2008	<b>0.19</b>	T			0.35		<b>2.21</b>				<b>202</b>
MCRA2-SS-MCL-02-1	DGI	9/30/2010	0.07	T									<b>210</b>
MCRA2-SS-MCL-02-2	DGI	9/30/2010	0.1	T									<b>331</b>
MCRA2-SS-MCL-02-3	DGI	9/30/2010	0.093	T									<b>367</b>
MCRA2-SS-MCL-03-1	DGI	9/30/2010	0.14										<b>294</b>
MCRA2-SS-MCL-03-2	DGI	9/30/2010	<b>0.3</b>										<b>646</b>
MCRA2-SS-MCL-03-3	DGI	9/30/2010	<b>0.4</b>										<b>1250</b>
MCRA2-SS-MCL-04-1	DGI	9/30/2010	0.075	T									<b>210</b>
MCRA2-SS-MCL-04-2	DGI	9/30/2010	<b>0.37</b>										<b>1160</b>
MCRA2-SS-MCL-04-3.5	DGI	9/30/2010	<b>0.26</b>										<b>395</b>

U = Not detected at reporting limit indicated.  
 J = Estimated value.  
 T = Value is between the MDL and MRL.

Concentrations that exceed screening level are bolded.  
 Reporting limits that exceed screening level are italicized.  
 Blank indicates sample not analyzed for specific analyte.



**Table 8 - Analytical Results for Groundwater Samples**

Sample ID	Report	Sampling Date	Units	Fraction	Aluminum	Antimony	Arsenic	Trivalent Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide	Iron	Lead	Magnesium
Screening Level:			mg/L		16	0.006	0.000058		2	0.004	0.005		0.1		0.592		0.3	0.015	
<b>Background</b>																			
GC-PW1	CES-SI	6/2/2005	mg/L	DIS	0.03 U	0.02 U	0.003 U	0.000008 U	0.0084	0.002 U	0.002 U	3.41	0.006 U	0.006 U	0.01 U	0.01 UJ	0.06 U	0.003 U	0.51
GC-PW2	CES-SI	6/2/2005	mg/L	DIS	0.03 U	0.02 U	0.003 U		0.0423	0.002 U	0.002 U	4.55	0.006 U	0.006 U	0.01 U	0.01 UJ	0.06 U	0.003 U	0.522
76G-PW1	CES-SI	6/3/2005	mg/L	DIS	0.03 U	0.005 U	0.003 U	0.000008 U	0.0038	0.002 U	0.00005 U	2.24	0.006 U	0.006 U	0.001 U		0.06 U	0.003 U	0.149
<b>Glacier Creek</b>																			
GC-PW3	CES-SI	6/2/2005	mg/L	DIS	0.03 U	0.02 U	<b>0.0038</b>	0.000021 T	0.0096	0.002 U	0.002 U	3.03	0.006 U	0.006 U	0.01 U		0.06 U	0.003 U	0.384
GC-PW5	CES-SI	6/2/2005	mg/L	DIS	0.03 U	0.02 U	<b>0.0076</b>	0.000138	0.0057	0.002 U	0.002 U	2.62	0.006 U	0.006 U	0.01 U		0.06 U	0.003 U	0.363
<b>Seventysix Creek</b>																			
76G-PW2	CES-SI	6/3/2005	mg/L	DIS	0.03 U	0.005 U	<b>0.0106</b>	0.000008 U	0.002 U	0.002 U	0.00005 U	3.06	0.006 U	0.006 U	0.001 U		0.06 U	0.003 U	0.266
<b>South Fork Sauk River</b>																			
SFSR-PW1	CES-SI	6/1/2005	mg/L	DIS	0.03 U	0.005 U	<b>0.0103</b>	0.000016 T	0.0049	0.002 U	0.00005 U	2.51	0.006 U	0.006 U	0.001 U	0.01 U	0.06 U	0.003 U	0.287
SFSR-PW2	CES-SI	6/1/2005	mg/L	DIS	0.045	0.005 U	<b>0.0143</b>		0.0037	0.002 U	0.00005 U	2.53	0.006 U	0.006 U	0.001 U		0.06 U	0.003 U	0.297
SFSR-PW3	CES-SI	6/1/2005	mg/L	DIS	0.03 U	0.005 U	<b>0.0158</b>	0.000008 U	0.0033	0.002 U	0.00005 U	3.03	0.006 U	0.006 U	0.001 U	0.01 U	0.06 U	0.003 U	0.287
SFSR-PW4	CES-SI	6/1/2005	mg/L	DIS	0.054	0.005 U	<b>0.0095</b>		0.0043	0.002 U	0.00005 U	2.63	0.006 U	0.006 U	0.001 U		0.06 U	0.003 U	0.298
SFSR-PW05	CES-SI	6/3/2005	mg/L	DIS	0.03 U	0.005 U	0.003 U	U	0.002 U	0.002 U	0.00005 U	0.04 U	0.006 U	0.006 U	0.001 U		0.06 U	0.003 U	0.06 U
MCEE-PW-SFSR-04	CES-EECA	8/27/2008	mg/L	DIS		0.0026	<b>0.0094</b>				0.0005 U	3.5	0.05 U		0.05 U			0.0005 U	0.6 T
MCEE-PW-SFSR-05	CES-EECA	8/27/2008	mg/L	DIS		0.0032	<b>0.0103</b>				0.0005 U	3.4	0.05 U		0.05 U			0.0005 U	0.5 T
MCEE-PW-SFSR-06	CES-EECA	8/26/2008	mg/L	DIS		0.0032	<b>0.0079</b>				0.0005 U	3.5	0.05 U		0.05 U			0.0005 U	0.5 T
MCEE-PW-SFSR-07	CES-EECA	8/26/2008	mg/L	DIS		0.0031	<b>0.0086</b>				0.0005 U	3.6	0.05 U		0.05 U			0.0005 U	0.5 T
MCEE-PW-SFSR-08	CES-EECA	8/25/2008	mg/L	DIS		0.003	<b>0.0081</b>				0.0005 U	3.8	0.05 U		0.05 U			0.0005 U	0.5 T
MCEE-PW-SFSR-09	CES-EECA	8/25/2008	mg/L	DIS		0.0042	<b>0.0135</b>				0.0005 U	4.3	0.05 U		0.05 U			0.0005 U	0.6 T
<b>Monte Cristo Lake</b>																			
MCEE-PW-MCL-01	CES-EECA	8/26/2008	mg/L	DIS		<b>0.0063</b>	<b>2.82</b>				0.0005 U	7.2	0.05 U		0.05 U			0.0002 T	1.5

DIS = Dissolved  
 TOT = Total

U = Not detected at reporting limit indicated.  
 J = Estimated value.  
 T = Value is between the MDL and MRL.  
 R = Rejected.

Concentrations that exceed screening level are bolded.  
 Reporting limits that exceed screening level are italicized.  
 Blank indicates sample not analyzed for specific analyte.

**Table 8 - Analytical Results for Groundwater Samples**

Sample ID	Report	Sampling Date	Units	Fraction	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
Screening Level:			mg/L		0.05	0.002	0.1		0.05	0.08		0.0005	0.112	4.8
<b>Background</b>														
GC-PW1	CES-SI	6/2/2005	mg/L	DIS	0.004 U	0.0002 U	0.01 U	0.5 U	0.003 U	0.005 U	0.5 U	0.002 U	0.005 U	0.01 U
GC-PW2	CES-SI	6/2/2005	mg/L	DIS	0.0058	0.0002 U	0.01 U	0.5 U	0.003 U	0.005 U	0.67	0.002 U	0.005 U	0.018
76G-PW1	CES-SI	6/3/2005	mg/L	DIS	0.004 U	0.0002 U	0.005 U	0.5 U	0.003 U	0.005 U	0.5 U	0.002 U	0.005 U	0.01 U
<b>Glacier Creek</b>														
GC-PW3	CES-SI	6/2/2005	mg/L	DIS	0.004 U	0.0002 U	0.01 U	0.5 U	0.003 U	0.005 U	0.5 U	0.002 U	0.005 U	0.01 U
GC-PW5	CES-SI	6/2/2005	mg/L	DIS	0.004 U	0.0002 U	0.01 U	0.5 U	0.003 U	0.005 U	0.5 U	0.002 U	0.005 U	0.01 U
<b>Seventysix Creek</b>														
76G-PW2	CES-SI	6/3/2005	mg/L	DIS	0.004 U	0.0002 U	0.005 U	0.5 U	0.003 U	0.005 U	0.5 U	0.002 U	0.005 U	0.01 U
<b>South Fork Sauk River</b>														
SFSR-PW1	CES-SI	6/1/2005	mg/L	DIS	0.004 U	0.0002 U	0.005 U	0.5 U	0.003 U	0.005 U	0.5 U	0.002 U	0.005 U	0.01 U
SFSR-PW2	CES-SI	6/1/2005	mg/L	DIS	0.004 U	0.0002 U	0.005 U	0.5 U	0.003 U	0.005 U	0.51	0.002 U	0.005 U	0.01 U
SFSR-PW3	CES-SI	6/1/2005	mg/L	DIS	0.004 U	0.0002 U	0.005 U	0.5 U	0.003 U	0.005 U	0.53	0.002 U	0.005 U	0.01 U
SFSR-PW4	CES-SI	6/1/2005	mg/L	DIS	0.004 U	0.0002 U	0.005 U	0.5 U	0.003 U	0.005 U	0.5 U	0.002 U	0.005 U	0.01 U
SFSR-PW05	CES-SI	6/3/2005	mg/L	DIS	0.004 U	0.0002 U	0.005 U	0.5 U	0.003 U	0.005 U	0.5 U	0.002 U	0.005 U	0.01 U
MCEE-PW-SFSR-04	CES-EECA	8/27/2008	mg/L	DIS		0.000001			0.0005 U	0.0003 U				0.05 U
MCEE-PW-SFSR-05	CES-EECA	8/27/2008	mg/L	DIS		0.0000007			0.0005 U	0.0003 U				0.05 U
MCEE-PW-SFSR-06	CES-EECA	8/26/2008	mg/L	DIS		0.0000014			0.0005 U	0.0003 U				0.05 U
MCEE-PW-SFSR-07	CES-EECA	8/26/2008	mg/L	DIS		0.0000001			0.0005 U	0.0003 U				0.05 U
MCEE-PW-SFSR-08	CES-EECA	8/25/2008	mg/L	DIS		0.0000011			0.0005 U	0.0003 U				0.05 U
MCEE-PW-SFSR-09	CES-EECA	8/25/2008	mg/L	DIS		0.0000009			0.0005 U	0.0003 U				0.05 U
<b>Monte Cristo Lake</b>														
MCEE-PW-MCL-01	CES-EECA	8/26/2008	mg/L	DIS		0.0000011			0.0005 U	0.0003 U				0.01 T

DIS = Dissolved  
 TOT = Total

U = Not detected at reporting limit indicated.  
 J = Estimated value.  
 T = Value is between the MDL and MRL.  
 R = Rejected.

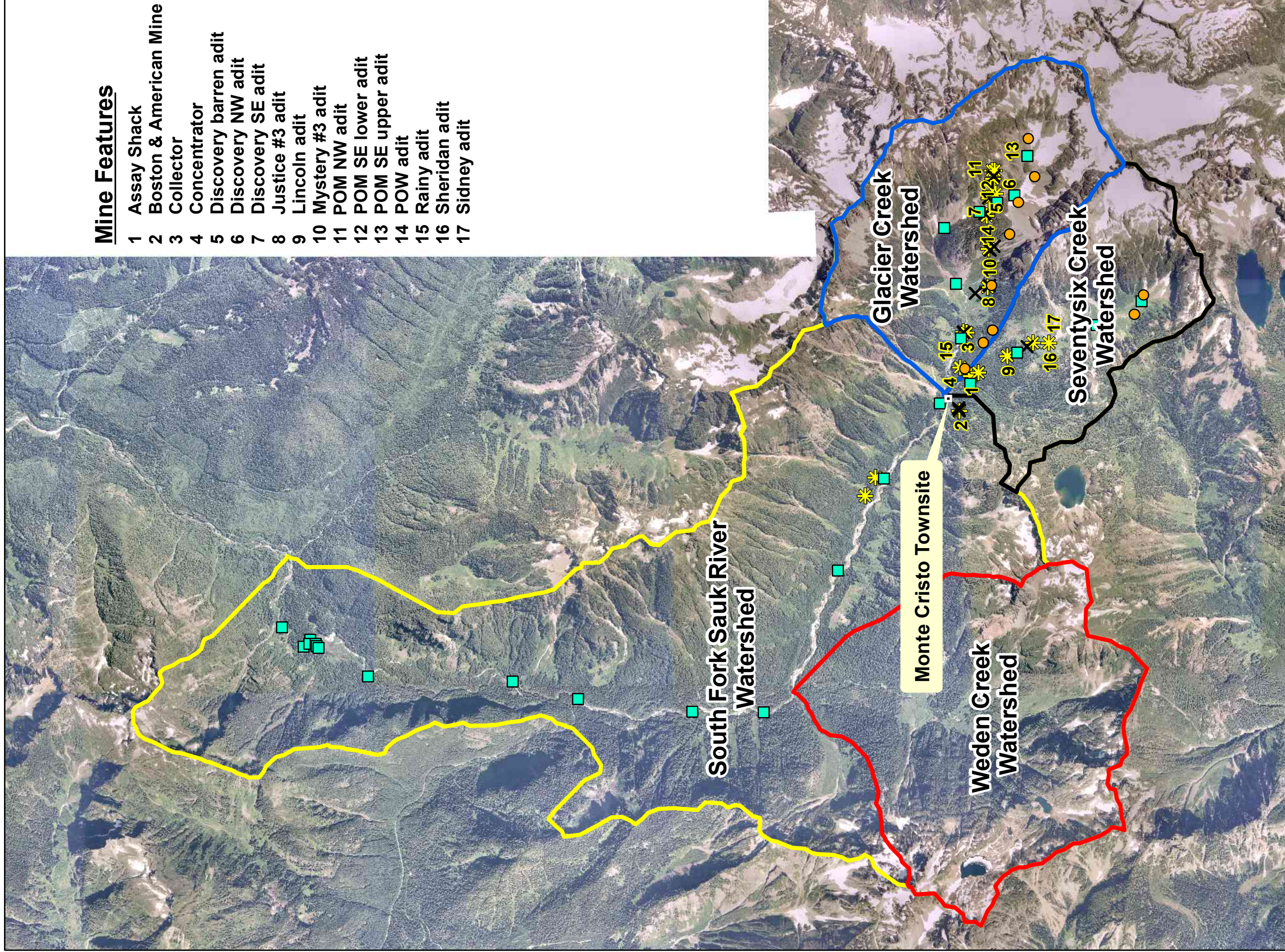
Concentrations that exceed screening level are bolded.  
 Reporting limits that exceed screening level are italicized.  
 Blank indicates sample not analyzed for specific analyte.

**Table 9 - Soil Metal Results using X-Ray Fluorescence at Monte Cristo Mine Area, Snohomish County, Washington (data from Crofoot and O'Brien 2004)**

No	Location/Creek Basin, mg/kg	Arsenic As	Chromium Cr	Lead Pb	Mercury Hg	Nickel Ni	Copper Cu	Zinc Zn
13	76 Creek headwater sediment	207.2	<LOD	94.8	12.2	<LOD	<LOD	150.1
14	76 Cr mine talus	574.8	<LOD	297.4	13.1	<LOD	115.9	1589.6
15	76 Cr Sidney mine dump-N	518.8	<LOD	323.4	13.1	<LOD	116.1	1708.8
16	76 Cr Sidney mine dump-E	998.4	<LOD	102.7	134.2	<LOD	101.1	<LOD
17	76 Cr down gradient	588.4	<LOD	122.6	16	<LOD	51.4	232.2
18	76 Cr dump-East	17996.8	<LOD	115.1	185.8	<LOD	389.4	<LOD
19	Concentrator level 1-East	10297.6	<LOD	4268.8	70.4	<LOD	997.6	4348.8
20	Concentrator level 1-West	2339.2	<LOD	5827.2	60.4	406.6	250.8	167.1
21	Concentrator level 2-East	27980.8	<LOD	6438.4	242	<LOD	391.8	216.2
22	Concentrator level 2-West	17190.4	<LOD	11494.4	1140	15590.4	3878.4	2009.6
23	Concentrator level 4-Center	5440	5958.4	916.8	861.6	15590.4	3708.8	1779.2
24	Concentrator level 5-East	21888	2720	4729.6	827.2	4880	1109.6	466.4
25	Concentrator level 5-West	26099.2	<LOD	1480	570.8	<LOD	<LOD	266.6
26	Pride/Mystery Tram Terminal	9977.6	<LOD	11494.4	545.2	3747.2	1340	943.2
27	Pride/Mystery Tram Terminal	4518.4	<LOD	9395.2	224	<LOD	368.8	297.8
28	Comet Mine Bunker-South	48486.4	<LOD	3209.6	760.8	<LOD	122.7	205
29	Comet Mine Bunker-North	6988.8	<LOD	1409.6	48.1	<LOD	81.3	440.8
30	RR Track at Power House	275	<LOD	39.6	15.4	<LOD	74.9	151.7
31	Glacier Creek above Concltr	105.4	<LOD	23.1	<LOD	<LOD	89	88.2
32	Glacier Creek below Concltr	148.2	<LOD	38.8	9.2	<LOD	80	105.8
33	So Fork Sauk River-Lake MC	292.8	<LOD	91.2	<LOD	80.3	65.5	115.8
39	Glacier Creek headwater sed	132.5	<LOD	17	32	686.8	153.2	101.1
61	Glacier Creek headwaters	84.4	<LOD	24.4	<LOD	<LOD	64.7	34.8
40	Glacier Cr 89 mine tailings	60	<LOD	<LOD	177.5	3638.4	671.2	352.4
43	Pride of the Mountain 1343	153.6	<LOD	54	196.7	4000	775.2	446.4
44	Pride of the Mountain 1414	<LOD	11200	<LOD	7315.2	91084.8	29596	15296
53	Pride of the Mountain 1414 Loc 2	134.3	<LOD	85.4	<LOD	<LOD	<LOD	96.1
45	Pride of the Mountain 1416	734.4	<LOD	96.5	67.6	1400	241	223.2
54	Pride of the Mountain 1416 Loc 2	736.4	<LOD	86.8	<LOD	<LOD	43.5	103.7
46	Pride of the Woods 1435	13299.2	1868.8	959.2	463.6	8179.2	1769.6	787.6
47	Pride of the Woods 1437	18892.8	<LOD	1429.6	462	3609.6	829.6	388
59	Glacier Creek POW mine	12397	<LOD	922.4	372.2	na	159.2	<LOD
62	Glacier Creek POW mine Loc 2	14092.8	<LOD	1120	551.6	na	173.7	<LOD
60	Glacier Creek POW mine Loc 3	22297.6	<LOD	1629.6	1908.8	<LOD	5907.2	2548.8
55	Comet Mine Bunker	13593.6	<LOD	1840	274.6	<LOD	69.7	238.8
56	Town site Severance House	200.2	<LOD	54.7	18.4	<LOD	59.4	206
57	Glacier Creek below Concentrator	122	<LOD	28.1	12.1	<LOD	51.2	85.9
58	Glac Cr below Concentrator-bar	300.4	<LOD	43.5	<LOD	<LOD	75.2	144.9
61	Glacier Creek Headwaters	84.4	<LOD	24.4	<LOD	<LOD	64.7	34.8

<LOD = Result lower than detection.  
na = Not available.

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**Mine Features**

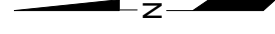
- 1 Assay Shack
- 2 Boston & American Mine
- 3 Collector
- 4 Concentrator
- 5 Discovery barren adit
- 6 Discovery NW adit
- 7 Discovery SE adit
- 8 Justice #3 adit
- 9 Lincoln adit
- 10 Mystery #3 adit
- 11 POM NW adit
- 12 POM SE lower adit
- 13 POM SE upper adit
- 14 POW adit
- 15 Rainy adit
- 16 Sheridan adit
- 17 Sidney adit

**Legend**

- Background soil sample locations
- Aquatic/surface water sample locations
- X Adit drainage sample locations

\*Sample locations shown are from existing GIS data; additional locations will need to be determined from georeferenced maps in a future phase of work.

Notes: Map prepared from data provided by Washington Department of Ecology, US Forest Service, and Department of Natural Resources.



Monte Cristo Mining Area  
Snohomish County, Washington

17330-33

Site Location Map  
01/2011



Figure  
**1**

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**APPENDIX A**  
**QUALITY ASSURANCE DATA REVIEWS**

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/7/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Brooks Rand **Laboratory Job ID#:** 05BR0792  
**Analysis:** EPA 1631E - Total Hg **Matrix:** Water

### **Sample ID Numbers:**

SFSR-SW1, SFSR-SW2, SFSR-SW3, SFSR-SW4, GC-SW1, GC-SW2, GC-SW3, GC-SW4, GC-SW5, 76G-SW1, 76G-SW2, SFSR-SW-06

Field Dup: SFSR-SW1/SFSR-SW4

MS: SFSR-SW1,76G-SW2, 76G-PW2, Batch QC

**Sampling Date:** 6/1/05, 6/2/05, 6/3/05, 6/4/05 **Extraction Date:** 6/14/05, 6/16/05  
**Analysis Date:** 6/16/05, 6/22/05

### **Holding Times and Reporting Limits:**

Reporting limits are acceptable. Samples collected on 6/3/05 and 6/4/05 received at lab within 48 hours and oxidized/preserved (76G-SW1, 76G-SW2, and SFSR-SW06). Samples collected 6/1/05 and 6/2/05 received >48 hours, and no indication on sample receiving form that they were preserved or oxidized in the field. Samples (SFSR-SW1, SFSR-SW2, SFSR-SW3, SFSR-SW4, GC-SW1, GC-SW2, GC-SW3, GC-SW4, and GC-SW5) qualified as estimated (J) due to holding time.

### **Method, Trip, and Field Blanks:**

MB are ND. Rinsate blank SFSR-SW-06 was ND.

### **Laboratory Control Samples (LCS):**

OPR are within method control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

RPD within control limits.

### **Qualification Summary:**

Samples collected 6/1/05 and 6/2/05 received >48 hours, and no indication on sample receiving form that they were preserved in the field. Samples (SFSR-SW1, SFSR-SW2, SFSR-SW3, SFSR-SW4, GC-SW1, GC-SW2, GC-SW3, GC-SW4, and GC-SW5) qualified as estimated (J) due to holding time.



## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/7/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Brooks Rand **Laboratory Job ID#:** 05BR0792  
**Analysis:** EPA 1631E - dissolved Hg **Matrix:** Water

### **Sample ID Numbers:**

SFSR-PW1, SFSR-PW2, SFSR-PW3, SFSR-PW4, GC-PW1, GC-PW2, GC-PW3, GC-PW5, 76G-PW1, 76G-PW2, SFSR-PW-05 (incorrectly identified as SFSR-SW-05 on COC)

Field dup: SFSR-PW1/ SFSW-PW4

MS: SFSR-SW1,76G-SW2, 76G-PW2, Batch QC

**Sampling Date:** 6/1/05, 6/2/05, 6/3/05 **Extraction Date:** 6/14/05, 6/16/05

**Analysis Date:** 6/16/05, 6/22/05

### **Holding Times and Reporting Limits:**

Reporting limits are acceptable. Samples collected on 6/3/05 and 6/4/05 received at lab within 48 hours and oxidized/preserved (76G-PW1, 76G-PW2, and SFSR-PW-05). Samples collected 6/1/05 and 6/2/05 received >48 hours, and no indication on sample receiving form that they were preserved or oxidized in the field. Samples (SFSW-PW1, SFSR-PW2, SFSR-PW3, SFSR-PW4, GC-PW1, GC-PW2, GC-PW3, and GC-PW5) qualified as estimated (J) due to holding time.

### **Method, Trip, and Field Blanks:**

Method blanks are non detect. Rinsate blank SFSR-PW-05 had a detection for Hg above the PQL and above the associated samples. Due to potential cross-contamination, all sample results are rejected (R).

### **Laboratory Control Samples (LCS):**

OPR within control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

RPD within control limits.

**Qualification Summary:**

Samples collected 6/1/05 and 6/2/05 received >48 hours, and no indication on sample receiving form that they were preserved or oxidized in the field. Samples (SFSW-PW1, SFSR-PW2, SFSR-PW3, SFSR-PW4, GC-PW1, GC-PW2, GC-PW3, and GC-PW5) qualified as estimated (J) due to holding time.

Rinsate blank SFSR-PW-05 had a detection for Hg above the PQL and above the associated samples. Due to potential cross-contamination, all sample results are rejected (R).

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/7/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Brooks Rand **Laboratory Job ID#:** 05BR0792  
**Analysis:** EPA 1630 mod - Monomethyl Hg **Matrix:** Soil  
**Sample ID Numbers:**  
SFSR-SS1, SFSR-SS3, GC-SS5, GC-SS1, 76G-SS2  
MS/Dup: GC-SS5, Batch QC  
**Sampling Date:** 6/1/05, 6/2/05, 6/3/05 **Extraction Date:** 6/15/05, 6/24/05  
**Analysis Date:** 6/17/05, 6/27/05

### **Holding Times and Reporting Limits:**

Reporting limits are acceptable. No holding times for soil samples, assume 28 days - acceptable. Detections between MDL and RL qualified as estimated (B). B changed to T.

### **Method, Trip, and Field Blanks:**

MB were ND.

### **Certified Reference Material (CRM):**

Within control limits.

### **Laboratory Control Samples (LCS):**

OPR within control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Batch QC 6/17/05 MS/MSD recoveries failed low. GC-SS5 MS/MSD failed below 10%. RPD for GC-SS5 MS/MSD failed. Batch QC MS/MSD 6/27/05 passed. PS passed, indicating matrix effects in source samples. Sample results for GC-SS5 were rejected (R). Samples SFSR-SS1, SFSR-SS3, GC-SS1 were qualified as estimated (J).

### **Laboratory Duplicate:**

RPD was NA as sample results <5x MRL.

### **Field Duplicate:**

NA

### **Qualification Summary:**

Detections between MDL and RL qualified as estimated (B). B changed to T.

Batch QC MS/MSD recoveries failed low. GC-SS5 MS/MSD failed below 10%. RPD for GC-SS5 MS/MSD failed. PS passed, indicating matrix effects in source samples. Sample results for GC-SS5 were rejected (R). Samples SFSR-SS1, SFSR-SS3, GC-SS1, were qualified as estimated (J).

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/7/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Brooks Rand **Laboratory Job ID#:** 05BR0792  
**Analysis:** EPA 1630 - monomethyl Hg **Matrix:** Water

**Sample ID Numbers:**

SFSR-SW3,

MS: Batch QC

**Sampling Date:** 6/1/05 **Extraction Date:** 6/13/05

**Analysis Date:** 6/14/05

**Holding Times and Reporting Limits:**

Reporting limits are acceptable. Holding times acceptable.

**Method, Trip, and Field Blanks:**

MB were ND.

**Laboratory Control Samples (LCS):**

LCS within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within lab control limits.

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33  
**Project:** Monte Cristo  
**Laboratory:** Brooks Rand  
**Analysis:** EPA 1630 - dissolved monomethyl Hg

**Review Date:** 1/7/11  
**Reviewer:** A. Conrad  
**Laboratory Job ID#:** 05BR0792  
**Matrix:** Water

**Sample ID Numbers:**

SFSR-PW3

MS: Batch QC

**Sampling Date:** 6/1/05  
**Extraction Date:** 6/13/05

**Analysis Date:** 6/14/05

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB are ND

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/7/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Brooks Rand **Laboratory Job ID#:** 05BR0792  
**Analysis:** EPA 1632 mod - As III **Matrix:** Soil

### **Sample ID Numbers:**

SFSR-SS1, SFSR-SS2, SFSR-SS3, GC-SS1, GC-SS2, GC-SS3, GC-SS4, GC-SS5, 76G-SS1, 76G-SS2

MS/Dup: Batch QC, GC-SS5

**Sampling Date:** 6/1/05, 6/2/05, 6/3/05 **Extraction Date:** 6/22/05, 7/6/05

**Analysis Date:** 6/23/05, 7/7/05

### **Holding Times and Reporting Limits:**

Reporting limits are acceptable. Holding times not established for soils -within 28 days.

### **Method, Trip, and Field Blanks:**

MB are ND

### **Standard Reference Material (SRM):**

Within control limits.

### **Laboratory Control Samples (LCS):**

NA

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

### **Laboratory Duplicate:**

Within control limits or NA.

### **Field Duplicate:**

NA

### **Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/7/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** 05BR0792  
**Analysis:** EPA 1632 - As III **Matrix:** Water

**Sample ID Numbers:**

SFSR-SW1, SFSR-SW3, GC-SW1, GC-SW3, 76G-SW1

MS: SFSR-SW1, Batch QC

Dup: Batch QC

**Sampling Date:** 6/1/05, 6/2/05, 6/3/05 **Extraction Date:** NA

**Analysis Date:** 6/23/05

**Holding Times and Reporting Limits:**

Reporting limits and holding times are acceptable.

**Method, Trip, and Field Blanks:**

MB were ND

**Laboratory Control Samples (LCS):**

NA

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

**Laboratory Duplicate:**

RPD within control limits.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33

**Review Date:** 1/7/11

**Project:** Monte Cristo

**Reviewer:** A. Conrad

**Laboratory:** Brooks Rand

**Laboratory Job ID#:** 05BR0792

**Analysis:** EPA 1632 - dissolved As III

**Matrix:** Water

**Sample ID Numbers:**

SFSR-PW1, SFSR-PW3, GC-PW1, GC-PW3, GC-PW5, 76G-PW1, 76G-PW2

MS: SFSR-SW1, Batch QC

Dup: Batch QC

**Sampling Date:** 6/1/05, 6/2/05, 6/3/05

**Extraction Date:** NA

**Analysis Date:** 6/23/05

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Detections between MDL and RL qualified as estimated (B). B changed to T.

**Method, Trip, and Field Blanks:**

MB were ND.

**Laboratory Control Samples (LCS):**

NA

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

**Laboratory Duplicate:**

RPD within control.

**Field Duplicate:**

NA

**Qualification Summary:**

Detections between MDL and RL qualified as estimated (B). B changed to T.



## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	1/7/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	Brooks Rand	<b><u>Laboratory Job ID#:</u></b>	05BR0792
<b><u>Analysis:</u></b>	% solids	<b><u>Matrix:</u></b>	Soil

**Sample ID Numbers:**

SFSR-SS1, SFSR-SS2, SFSR-SS3, GC-SS1, GC-SS2, GC-SS3, GC-SS4, GC-SS5, 76G-SS1, 76G-SS2

Dup: GC-SS5, Batch QC

**Sampling Date:** 6/1/05, 6/2/05, 6/3/05      **Extraction Date:** 6/22/05, 7/5/05

**Analysis Date:** 6/24/05, 7/6/05

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB acceptable.

**Laboratory Control Samples (LCS):**

NA

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD within limits.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/11/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Brooks Rand **Laboratory Job ID#:** 05BR1345  
**Analysis:** EPA 1630 mod - Monomethyl Hg **Matrix:** Soil  
**Sample ID Numbers:**  
CON-01-1.5', CON-02-1', CON-03-2'  
MS/Dup: Batch QC  
**Sampling Date:** 9/10/05 **Extraction Date:** 9/27/05  
**Analysis Date:** 10/2/05

### **Holding Times and Reporting Limits:**

Reporting limits are acceptable. No holding times for soil samples, assume 28 days - acceptable. Samples received at 6oC, above method temperature acceptance criteria. As samples were received shortly after sample collection, the samples may not have had time to equilibrate with the coolant. Results not qualified.

Detections between MDL and RL qualified as estimated (B). B changed to T.

### **Method, Trip, and Field Blanks:**

MB were ND.

### **Certified Reference Material (CRM):**

Within control limits.

### **Laboratory Control Samples (LCS):**

NA

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

### **Laboratory Duplicate:**

RPD within control limits.

### **ICV/CCV:**

Within control limits.

### **Qualification Summary:**

Detections between MDL and RL qualified as estimated (B). B changed to T.

## DATA QUALITY REVIEW

**Job Number:** 17330-33  
**Review Date:** 1/10/11  
**Project:** Monte Cristo  
**Reviewer:** A. Conrad  
**Laboratory:** ACZ  
**Laboratory Job ID#:** 05BR1345  
**Analysis:** EPA 1632 - As III  
**Matrix:** Water

### **Sample ID Numbers:**

MM-AS-01, MM-AS-02, JM-AS-01

Field dup: MM-AS-01/ MM-AS-02

MS: Batch QC

**Sampling Date:** 9/9/05, 9/10/05

**Extraction Date:** 9/13/05

**Analysis Date:** 9/13/05

### **Holding Times and Reporting Limits:**

Reporting limits Are acceptable. The laboratory qualified the results with "H" for not meeting temp requirements for the method (<4oC - samples received at 6oC > 4 hours after sample collection). H changed to J.

### **Method, Trip, and Field Blanks:**

MB were ND

### **Laboratory Control Samples (LCS):**

NA

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

RPD within control limits.

### **CCV:**

Three CCVs failed low. Bracketed samples were reanalyzed with passing CCVs. No results qualified.

### **Qualification Summary:**

The laboratory qualified the results with "H" for not meeting temp requirements for the method (<4oC - samples received at 6oC > 4 hours after sample collection). H changed to J.

## DATA QUALITY REVIEW

**Job Number:** 17330-33  
**Project:** Monte Cristo  
**Laboratory:** Brooks Rand  
**Analysis:** EPA 160.3 - % solids

**Review Date:** 1/11/11  
**Reviewer:** A. Conrad  
**Laboratory Job ID#:** 05BR1345  
**Matrix:** Soil

**Sample ID Numbers:**  
CON-01-1.5', CON-02-1', CON-03-2'

Dup: Batch QC

**Sampling Date:** 9/10/05  
**Analysis Date:** 9/28/05  
**Extraction Date:** NA

**Holding Times and Reporting Limits:**  
Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**  
MB acceptable.

**Laboratory Control Samples (LCS):**  
NA

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**  
NA

**Laboratory Duplicate:**  
RPD within limits.

**Field Duplicate:**  
NA

**Qualification Summary:**  
Data acceptable without qualification.

## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	1/10/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	SVL Analytical	<b><u>Laboratory Job ID#:</u></b>	117202
<b><u>Analysis:</u></b>	SM 9045C - pH	<b><u>Matrix:</u></b>	Soil

**Sample ID Numbers:**

Ore Collector, Assay Shack, Upper Mill, Lower Mill

Dup: Upper Mill

<b><u>Sampling Date:</u></b>	6/1/05	<b><u>Extraction Date:</u></b>	NA
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<b><u>Analysis Date:</u></b>	6/8/05
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**Holding Times and Reporting Limits:**

Holding times within 14 days and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

NA

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD within control limits.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	1/10/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	SVL	<b><u>Laboratory Job ID#:</u></b>	117202
<b><u>Analysis:</u></b>	EPA 1610B - Ca, K, Mg, Na, Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Fe, Mn, Ni, Pb, Sb, V, Zn	<b><u>Matrix:</u></b>	Soil

**Sample ID Numbers:**  
Ore Collector, Assay Shack, Upper Mill, Lower Mill  
MS: Upper Mill

<b><u>Sampling Date:</u></b>	6/1/05	<b><u>Extraction Date:</u></b>	NR
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**Analysis Date:** 6/21/05

**Holding Times and Reporting Limits:**  
Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**  
Method blanks are non detect.

**Laboratory Control Samples (LCS):**  
Within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**  
Within method control limits with following exceptions: MS/MSD for Ag, Al, Cu, Fe, Mn, Pb, Sb, Zn exceeds control limits due to high levels of metals in source sample compared to spiking amount. Sample results not qualified. Ag, Zn, and Cu in Upper Mill qualified as estimated (J) due to RPD failure (>35%).

**Laboratory Duplicate:**  
NA

**Field Duplicate:**  
NA

**Qualification Summary:**  
Ag, Zn, and Cu in Upper Mill qualified as estimated (J) due to RPD failure (>35%).

## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	1/10/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	SVL	<b><u>Laboratory Job ID#:</u></b>	117202
<b><u>Analysis:</u></b>	EPA 7471A - Hg	<b><u>Matrix:</u></b>	Soil

**Sample ID Numbers:**

Ore Collector, Assay Shack, Upper Mill, Lower Mill

MS: Upper Mill

<b><u>Sampling Date:</u></b>	6/1/05	<b><u>Extraction Date:</u></b>	6/14/05
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<b><u>Analysis Date:</u></b>	6/14/05
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**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB is ND.

**Laboratory Control Samples (LCS):**

LCS within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

MS/MSD for Hg exceeds control limits due to high levels of metals in source sample compared to spiking amount. Sample results not qualified.

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33

**Review Date:** 1/10/11

**Project:** Monte Cristo

**Reviewer:** A. Conrad

**Laboratory:** SVL

**Laboratory Job ID#:** 117202

**Analysis:** EPA 7740- Se

**Matrix:** Soil

**Sample ID Numbers:**

Ore Collector, Assay Shack, Upper Mill, Lower Mill

MS: Upper Mill

**Sampling Date:** 6/1/05

**Extraction Date:** 6/21/05

**Analysis Date:** 6/21/05

**Holding Times and Reporting Limits:**

Reporting limits are acceptable. Holding times acceptable.

**Method, Trip, and Field Blanks:**

MB were ND.

**Laboratory Control Samples (LCS):**

LCS within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

MS/MSD exceeds control limits. Se in Upper Mill qualified as estimated (J).

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

MS/MSD exceeds control limits. Se in Upper Mill qualified as estimated (J).



## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 117202  
**Analysis:** EPA 7841 - TI **Matrix:** Soil

### **Sample ID Numbers:**

Ore Collector, Assay Shack, Upper Mill, Lower Mill

MS: Upper Mill

**Sampling Date:** 6/1/05 **Extraction Date:** 6/20/05

**Analysis Date:** 6/20/05

### **Holding Times and Reporting Limits:**

Holding times are acceptable. RL elevated in Ore Collector, Upper Mill, and Lower Mill due to sample dilutions associated with matrix interferences.

### **Method, Trip, and Field Blanks:**

MB are ND

### **Laboratory Control Samples (LCS):**

Within Control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

NA

### **Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33

**Review Date:** 1/10/11

**Project:** Monte Cristo

**Reviewer:** A. Conrad

**Laboratory:** SVL

**Laboratory Job ID#:** 117202

**Analysis:** EPA 9012A - Cyanide

**Matrix:** Soil

**Sample ID Numbers:**

Assay Shack, Upper Mill, Lower Mill

Dup/MS: Upper Mill

**Sampling Date:** 6/1/05

**Extraction Date:** 6/14/05

**Analysis Date:** 6/14/05

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB are ND

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

**Laboratory Duplicate:**

RPD is NA.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33  
**Project:** Monte Cristo  
**Laboratory:** SVL  
**Analysis:** SM 4500I - WAD CN-

**Review Date:** 1/10/11  
**Reviewer:** A. Conrad  
**Laboratory Job ID#:** 117202  
**Matrix:** Soil

**Sample ID Numbers:**

Upper Mill, Lower Mill

Dup/MS: Upper Mill

**Sampling Date:** 6/1/05

**Extraction Date:** 6/14/05

**Analysis Date:** 6/14/05

**Holding Times and Reporting Limits:**

Reporting limits and holding times are acceptable.

**Method, Trip, and Field Blanks:**

MB were ND

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

**Laboratory Duplicate:**

RPD is NA.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33

**Review Date:** 1/12/11

**Project:** Monte Cristo

**Reviewer:** A. Conrad

**Laboratory:** SVL

**Laboratory Job ID#:** 117202

**Analysis:** % Solids

**Matrix:** Soil

**Sample ID Numbers:**

Ore Collector, Assay Shack, Upper Mill, Lower Mill

Dup: Upper Mill

**Sampling Date:** 6/1/05

**Extraction Date:** NR

**Analysis Date:** 6/13/05

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

NA

**Laboratory Control Samples (LCS):**

NA

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD within control limits.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

**Cooler temp not measured upon receipt. Other samples from project received on the same day were within temperature. No results qualified.**

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL Analytical **Laboratory Job ID#:** 117207  
**Analysis:** Leco - TOC **Matrix:** Soil

**Sample ID Numbers:**

GC-SS1, GC-SS2, GC-SS3, GC-SS4, GC-SS5, 76G-SS1, 76G-SS2, SFSR-SS1, SFSR-SS2, SFSR-SS1B (SFSR-SS3),

Dup: GC-SS1

**Sampling Date:** 6/1/05, 6/2/05 **Extraction Date:** NA

**Analysis Date:** 6/20/05

**Holding Times and Reporting Limits:**

Holding times past 14 days. No holding times reported for Leco analysis. Sample results qualified as estimated (J). Reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

NA

**Laboratory Control Samples (LCS):**

NA

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD slightly exceeds 20% control limits. TOC results for GC-SS1 qualified as estimated (J).

**Field Duplicate:**

NA

**Qualification Summary:**

Holding times past 14 days. No temp determination on sample receipt. Sample results for GC-SS1, GC-SS2, GC-SS3, GC-SS4, GC-SS5, 76G-SS1, 76G-SS2, SFSR-SS1, SFSR-SS2, and SFSR-SS1B (SFSR-SS3) qualified as estimated (J). RPD slightly exceeds 20% control limits. TOC results for GC-SS1 qualified as estimated (J).

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 117207  
**Analysis:** EPA 1610B - Ca, K, Mg, Na, Ag, **Matrix:** Soil  
Al, As, Ba, Be, Cd, Co, Cr, Cu,  
Fe, Mn, Ni, Pb, Sb, V, Zn

### **Sample ID Numbers:**

GC-SS1, GC-SS2, GC-SS3, GC-SS4, GC-SS5, 76G-SS1, 76G-SS2, SFSR-SS1, SFSR-SS2, SFSR-SS1B (SFSR-SS3),

MS: GC-SS1

**Sampling Date:** 6/1/05, 6/2/05 **Extraction Date:** NR

**Analysis Date:** 6/20/05

### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

### **Method, Trip, and Field Blanks:**

Method blanks are non detect.

### **Laboratory Control Samples (LCS):**

Within method control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within method control limits with following exceptions: MS/MSD for Ag fell below control limits. A Post Spike for Ag was performed with results below control limits, indicating matrix effect in batch. Ag in GC-SS1, GC-SS2, GC-SS3, GC-SS4, GC-SS5, 76G-SS1, 76G-SS2, SFSR-SS1, SFSR-SS2, and SFSR-SS1B (SFSR-SS3) qualified as estimated (J). MS/MSD for Al, Fe, and Mn exceeds control limits due to high levels of metals in source sample compared to spiking amount. Sample results not qualified. MS/MSD for Ca exceeds method control limits. PS for Ca had results within control limits, indicating matrix effect. Ca in GC-SS1, GC-SS2, GC-SS3, GC-SS4, GC-SS5 qualified as estimated (J). MS/MSD for Pb fell below control limits. PS for Pb was within CL, indicating matrix effect. Pb in samples GC-SS1, GC-SS2, GC-SS3, GC-SS4, GC-SS5 qualified as estimated (J).

### **Qualification Summary:**

MS/MSD for Ag fell below control limits. A Post Spike for Ag was performed with results below control limits, indicating matrix effect in batch. Ag in GC-SS1, GC-SS2, GC-SS3, GC-SS4, GC-SS5, 76G-SS1, 76G-SS2, SFSR-SS1, SFSR-SS2, and SFSR-SS1B (SFSR-SS3) qualified as estimated (J). MS/MSD for Ca exceeds method control limits. PS for Ca had results within control limits, indicating matrix effect. Ca in GC-SS1, GC-SS2, GC-SS3, GC-SS4, GC-SS5 qualified as estimated (J). MS/MSD for Pb fell below control limits. PS for Pb was within CL, indicating matrix effect. Pb in samples GC-SS1, GC-SS2, GC-SS3, GC-SS4, GC-SS5 qualified as estimated (J).

## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	1/10/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	SVL	<b><u>Laboratory Job ID#:</u></b>	117207
<b><u>Analysis:</u></b>	Grain size	<b><u>Matrix:</u></b>	Soil

**Sample ID Numbers:**

GC-SS1, GC-SS2, GC-SS3, GC-SS4, GC-SS5, 76G-SS1, 76G-SS2, SFSR-SS1, SFSR-SS2, SFSR-SS1B (SFSR-SS3),

<b><u>Sampling Date:</u></b>	6/1/05, 6/2/05	<b><u>Extraction Date:</u></b>	NA
<b><u>Analysis Date:</u></b>	6/15/05		

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

NA

**Laboratory Control Samples (LCS):**

NA

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.



## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 117202  
**Analysis:** EPA 7740- Se **Matrix:** Soil

**Sample ID Numbers:**

GC-SS1, GC-SS2, GC-SS3, GC-SS4, GC-SS5, 76G-SS1, 76G-SS2, SFSR-SS1, SFSR-SS2, SFSR-SS1B (SFSR-SS3),

MS: GC-SS1

**Sampling Date:** 6/1/05, 6/2/05 **Extraction Date:** 6/21/05

**Analysis Date:** 6/21/05

**Holding Times and Reporting Limits:**

Reporting limits are acceptable. Holding times acceptable.

**Method, Trip, and Field Blanks:**

MB were ND.

**Laboratory Control Samples (LCS):**

LCS within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

MS/MSD within control limits.

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 117207  
**Analysis:** EPA 7841 - TI **Matrix:** Soil

**Sample ID Numbers:**

GC-SS1, GC-SS2, GC-SS3, GC-SS4, GC-SS5, 76G-SS1, 76G-SS2, SFSR-SS1, SFSR-SS2, SFSR-SS1B (SFSR-SS3),

MS: GC-SS1

**Sampling Date:** 6/1/05, 6/2/05 **Extraction Date:** 6/20/05

**Analysis Date:** 6/20/05

**Holding Times and Reporting Limits:**

Holding times and RL are acceptable.

**Method, Trip, and Field Blanks:**

MB are ND

**Laboratory Control Samples (LCS):**

Within Control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	1/10/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	SVL	<b><u>Laboratory Job ID#:</u></b>	117207
<b><u>Analysis:</u></b>	EPA 9012A - Cyanide	<b><u>Matrix:</u></b>	Soil

### **Sample ID Numbers:**

GC-SS1, GC-SS2, GC-SS5, SFSR-SS1, SFSR-SS1B (SFSR-SS3),

Dup/MS: GC-SS1

<b><u>Sampling Date:</u></b>	6/1/05, 6/2/05	<b><u>Extraction Date:</u></b>	6/14/05
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<b><u>Analysis Date:</u></b>	6/14/05
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### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

### **Method, Trip, and Field Blanks:**

MB are ND

### **Laboratory Control Samples (LCS):**

Within control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

### **Laboratory Duplicate:**

RPD is NA.

### **Field Duplicate:**

NA

### **Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 117207  
**Analysis:** SM 4500I - WAD CN- **Matrix:** Soil

**Sample ID Numbers:**

GC-SS1, GC-SS2, GC-SS5, SFSR-SS1, SFSR-SS1B (SFSR-SS3),

Dup/MS: GC-SS1

**Sampling Date:** 6/1/05, **Extraction Date:** 6/14/05

**Analysis Date:** 6/14/05

**Holding Times and Reporting Limits:**

Reporting limits and holding times are acceptable.

**Method, Trip, and Field Blanks:**

MB were ND

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

**Laboratory Duplicate:**

RPD is NA.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33

**Review Date:** 1/12/11

**Project:** Monte Cristo

**Reviewer:** A. Conrad

**Laboratory:** SVL

**Laboratory Job ID#:** 117207

**Analysis:** % solids

**Matrix:** Soil

**Sample ID Numbers:**

GC-SS1, GC-SS2, GC-SS3, GC-SS4, GC-SS5, 76G-SS1, 76G-SS2, SFSR-SS1, SFSR-SS2, SFSR-SS1B (SFSR-SS3),

**Sampling Date:** 6/1/05, 6/2/05

**Extraction Date:** NA

**Analysis Date:** NR

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

NA

**Laboratory Control Samples (LCS):**

NA

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Lab Duplicate:**

NR

**Qualification Summary:**

No batch QC or analysis date reported. Within 6 months. Not qualified.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL Analytical **Laboratory Job ID#:** 117209  
**Analysis:** EPA 120.1 - conductivity **Matrix:** Water

**Sample ID Numbers:**

76G-SW1, 76G-PW1, 76G-SW2, 76G-PW2, SFSR-SW1, SFSR-SW2, SFSR-SW3, SFSR-PW1, SFSR-PW2, SFSR-PW3

Dup: SFSR-SW1

**Sampling Date:** 6/1/05, 6/3/05 **Extraction Date:** NA

**Analysis Date:** 6/8/05

**Holding Times and Reporting Limits:**

Holding times within 28 days. Reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB has detection for conductivity <<than samples. No results qualified.

**Laboratory Control Samples (LCS):**

Within limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD within CL.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33  
**Project:** Monte Cristo  
**Laboratory:** SVL  
**Analysis:** EPA 200.7 - Total Ca, K, Mg,  
Na, Ag, Al, Ba, Be, Cd, Co, Cr,  
Cu, Fe, Mn, Ni, Sb, V, Zn

**Review Date:** 1/10/11  
**Reviewer:** A. Conrad  
**Laboratory Job ID#:** 117209  
**Matrix:** Water

**Sample ID Numbers:**

76G-SW1, 76G-SW2, SFSR-SW1, SFSR-SW2, SFSR-SW3, SFSR-SW4,

Field dup: SFSR-SW1/ SFSR-SW4

Dup/MS: SFSR-SW1

**Sampling Date:** 6/1/05, 6/3/05  
**Extraction Date:** NR

**Analysis Date:** 6/20/05, 6/21/05

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

Method blanks are non detect.

**Laboratory Control Samples (LCS):**

Within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within method control limits.

**Laboratory Duplicate RPD:**

Within method control limits or NA.

**Field Duplicate RPD:**

RPD within 50% with following exception: Ba. Results are <5x RL and not qualified.

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33                                      **Review Date:** 1/10/11  
**Project:** Monte Cristo                                      **Reviewer:** A. Conrad  
**Laboratory:** SVL    **Laboratory Job ID#:** 117209  
**Analysis:** EPA 200.8 - total As, Pb, Se, Tl                      **Matrix:** Water

**Sample ID Numbers:**  
76G-SW1, 76G-SW2, SFSR-SW1, SFSR-SW2, SFSR-SW3, SFSR-SW4,  
Field dup: SFSR-SW1/ SFSR-SW4  
Dup/MS: SFSR-SW1

**Sampling Date:** 6/1/05, 6/3/05                                      **Extraction Date:** NA  
**Analysis Date:** 6/21/05, 6/22/05

**Holding Times and Reporting Limits:**  
Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**  
MB is ND

**Laboratory Control Samples (LCS):**  
Within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**  
Within method control limits.

**Laboratory Duplicate:**  
RPD within CL or NA.

**Field Duplicate:**  
RPD within 50% with following exception: As. Sample and dup results <5x RL and no results qualified.

**Qualification Summary:**  
Data acceptable without qualification.



## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	1/10/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	SVL	<b><u>Laboratory Job ID#:</u></b>	117209
<b><u>Analysis:</u></b>	EPA 150.1 - pH	<b><u>Matrix:</u></b>	Water

### **Sample ID Numbers:**

76G-SW1, 76G-PW1, 76G-SW2, 76G-PW2, SFSR-SW1, SFSR-SW2, SFSR-SW3, SFSR-PW1, SFSR-PW2, SFSR-PW3

Dup: 76G-PW2

<b><u>Sampling Date:</u></b>	6/1/05, 6/3/05	<b><u>Extraction Date:</u></b>	NA
<b><u>Analysis Date:</u></b>	6/10/05		

### **Holding Times and Reporting Limits:**

Reporting limits are acceptable. Samples analyzed past holding time of ASAP. Sample results qualified as estimated (J).

### **Method, Trip, and Field Blanks:**

NA

### **Laboratory Control Samples (LCS):**

LCS within control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

### **Laboratory Duplicate:**

RPD within control limits.

### **Field Duplicate:**

NA

### **Qualification Summary:**

Samples analyzed past holding time of ASAP. Sample results qualified as estimated (J).

## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	1/10/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	SVL	<b><u>Laboratory Job ID#:</u></b>	117209
<b><u>Analysis:</u></b>	EPA 160.1 - TDS	<b><u>Matrix:</u></b>	Water

**Sample ID Numbers:**

76G-SW1, 76G-PW1, 76G-SW2, 76G-PW2, SFSR-SW1, SFSR-SW2, SFSR-SW3, SFSR-PW1, SFSR-PW2, SFSR-PW3

Dup: SFSR-SW1

<b><u>Sampling Date:</u></b>	6/1/05, 6/3/05	<b><u>Extraction Date:</u></b>	NA
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<b><u>Analysis Date:</u></b>	6/8/05
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**Holding Times and Reporting Limits:**

Holding times and RL are acceptable.

**Method, Trip, and Field Blanks:**

MB are ND

**Laboratory Control Samples (LCS):**

Within Control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD is NA

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 117209  
**Analysis:** EPA 335.2 - Cyanide **Matrix:** Water

**Sample ID Numbers:**

76G-SW1, SFSR-SW1, SFSR-SW3, SFSR-PW1, SFSR-PW3

Dup/MS: SFSR-SW1

**Sampling Date:** 6/1/05, 6/3/05 **Extraction Date:** 6/14/05

**Analysis Date:** 6/14/05

**Holding Times and Reporting Limits:**

Reporting limits are acceptable. Samples appear to be received at lab unpreserved. Received at the lab within 48 hours, and could have been preserved there. Not qualified.

**Method, Trip, and Field Blanks:**

MB are ND

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

**Laboratory Duplicate:**

RPD is NA.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 117209  
**Analysis:** SM 4500I - WAD CN- **Matrix:** Water

**Sample ID Numbers:**

76G-SW1, SFSR-SW1, SFSR-SW3, SFSR-PW1, SFSR-PW3

Dup/MS: SFSR-SW1

**Sampling Date:** 6/1/05, 6/3/05 **Extraction Date:** 6/14/05

**Analysis Date:** 6/14/05

**Holding Times and Reporting Limits:**

Reporting limits are acceptable. Samples appear to be received at lab unpreserved. Received at the lab within 48 hours, and could have been preserved there. Not qualified.

**Method, Trip, and Field Blanks:**

MB were ND

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

**Laboratory Duplicate:**

RPD is NA.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	1/10/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	SVL	<b><u>Laboratory Job ID#:</u></b>	117209
<b><u>Analysis:</u></b>	SM 2340B - Hardness	<b><u>Matrix:</u></b>	Water

### **Sample ID Numbers:**

76G-SW1, 76G-PW1, 76G-SW2, 76G-PW2, SFSR-SW1, SFSR-SW2, SFSR-SW3, SFSR-PW1,  
SFSR-PW2, SFSR-PW3

Dup/MS: SFSR-SW1, SFSR-PW1

<b><u>Sampling Date:</u></b>	6/1/05, 6/3/05	<b><u>Extraction Date:</u></b>	NR
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**Analysis Date:** 6/20/05

### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

### **Method, Trip, and Field Blanks:**

MB were ND

### **Laboratory Control Samples (LCS):**

Within control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

### **Laboratory Duplicate:**

RPD is NA.

### **Field Duplicate:**

NA

### **Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	1/10/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	SVL	<b><u>Laboratory Job ID#:</u></b>	117209
<b><u>Analysis:</u></b>	EPA 300.0 - Sulfate	<b><u>Matrix:</u></b>	Water

**Sample ID Numbers:**

76G-SW1, 76G-PW1, 76G-SW2, 76G-PW2, SFSR-SW1, SFSR-SW2, SFSR-SW3, SFSR-PW1, SFSR-PW2, SFSR-PW3

Dup: SFSR-SW1

<b><u>Sampling Date:</u></b>	6/1/05, 6/3/05	<b><u>Extraction Date:</u></b>	6/18/05
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<b><u>Analysis Date:</u></b>	6/18/05
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**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB were ND

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD within CL.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	1/10/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	SVL	<b><u>Laboratory Job ID#:</u></b>	117209
<b><u>Analysis:</u></b>	EPA 245.1 - total Hg	<b><u>Matrix:</u></b>	Water

**Sample ID Numbers:**

76G-SW1, 76G-SW2, SFSR-SW1, SFSR-SW2, SFSR-SW3, SFSR-SW4,

Field dup: SFSR-SW1/ SFSR-SW4

Dup/MS: SFSR-SW1

**Sampling Date:** 6/1/05, 6/3/05

**Extraction Date:** 6/23/05

**Analysis Date:** 6/23/05

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB were ND

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within method control limits.

**Laboratory Duplicate:**

RPD is NA.

**Field Duplicate:**

RPD is NA.

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 117209  
**Analysis:** EPA 245.1 - dissolved Hg **Matrix:** Water

**Sample ID Numbers:**

76G-PW1, 76G-PW2, SFSR-PW1, SFSR-PW2, SFSR-PW3, SFSR-PW4, SFSR-PW05

Dup/MS: SFSR-PW1

**Sampling Date:** 6/1/05, 6/3/05 **Extraction Date:** 6/23/05

**Analysis Date:** 6/23/05

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB were ND. Rinsate blank SFSR-PW05 was ND.

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within method control limits.

**Laboratory Duplicate:**

RPD is NA.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.



## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 117209  
**Analysis:** EPA 200.7 - dissolved Ca, K,  
Mg, Na, Ag, Al, Ba, Be, Cd, Co,  
Cu, Fe, Mn, Ni, Sb, V, Zn **Matrix:** Water

**Sample ID Numbers:**

76G-PW1, 76G-PW2, SFSR-PW1, SFSR-PW2, SFSR-PW3, SFSR-PW4, SFSR-PW05

Field dup: SFSR-PW1/ SFSR-PW4

Dup/MS: SFSR-PW1

**Sampling Date:** 6/1/05, 6/3/05 **Extraction Date:** NR

**Analysis Date:** 6/20/05

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB were ND. Rinsate blank SFSR-PW05 was ND.

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within method control limits.

**Laboratory Duplicate:**

RPD within CL or NA.

**Field Duplicate:**

RPD within control limits with exception of Al. Results for Al in sample and dup <5x RL, and no sample results qualified.

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33                      **Review Date:** 1/10/11  
**Project:** Monte Cristo                    **Reviewer:** A. Conrad  
**Laboratory:** SVL                            **Laboratory Job ID#:** 117209  
**Analysis:** EPA 200.8 - dissolved As, Pb,  
Se, Tl    **Matrix:** Water

**Sample ID Numbers:**

76G-PW1, 76G-PW2, SFSR-PW1, SFSR-PW2, SFSR-PW3, SFSR-PW4, SFSR-PW05

Field dup: SFSR-PW1/ SFSR-PW4

Dup/MS: SFSR-PW1

**Sampling Date:** 6/1/05, 6/3/05                      **Extraction Date:** NR

**Analysis Date:** 6/21/05, 6/22/05

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB were ND. Rinsate blank SFSR-PW05 was ND.

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within method control limits with following exception: Se slightly exceeded method control limits. Associated samples ND for Se, LCS within CL, no results qualified.

**Laboratory Duplicate:**

RPD within CL or NA.

**Field Duplicate:**

RPD within CL or NA.

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL Analytical **Laboratory Job ID#:** 117217  
**Analysis:** EPA 120.1 - conductivity **Matrix:** Water

**Sample ID Numbers:**

GC-SW1, GC-SW2, GC-SW3, GC-SW4, GC-SW5, GC-PW1, GC-PW2, GC-PW3, GC-PW5

**Sampling Date:** 6/1/05, 6/2/05 **Extraction Date:** NA

**Analysis Date:** 6/10/05

**Holding Times and Reporting Limits:**

Holding times within 28 days. Reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB has detection for conductivity <<than samples. No results qualified.

**Laboratory Control Samples (LCS):**

Within limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33  
**Project:** Monte Cristo  
**Laboratory:** SVL  
**Analysis:** EPA 200.7 - Total Ca, K, Mg,  
Na, Ag, Al, Ba, Be, Cd, Co, Cr,  
Cu, Fe, Mn, Ni, Sb, V, Zn

**Review Date:** 1/10/11  
**Reviewer:** A. Conrad  
**Laboratory Job ID#:** 117217  
**Matrix:** Water

**Sample ID Numbers:**  
GC-SW1, GC-SW2, GC-SW3, GC-SW4, GC-SW5,  
Dup/MS: GC-SW1, GC-SW3

**Sampling Date:** 6/1/05, 6/2/05  
**Analysis Date:** 6/21/05  
**Extraction Date:** NR

**Holding Times and Reporting Limits:**  
Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**  
Method blanks are non detect.

**Laboratory Control Samples (LCS):**  
Within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**  
Within method control limits.

**Laboratory Duplicate RPD:**  
RPD within CL or NA.

**Qualification Summary:**  
Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 117217  
**Analysis:** EPA 200.8 - total As, Pb, Se, Tl **Matrix:** Water

**Sample ID Numbers:**  
GC-SW1, GC-SW2, GC-SW3, GC-SW4, GC-SW5,  
Dup/MS: GC-SW1

**Sampling Date:** 6/1/05, 6/2/05 **Extraction Date:** NA  
**Analysis Date:** 6/21/05, 6/22/05

**Holding Times and Reporting Limits:**  
Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**  
MB is ND

**Laboratory Control Samples (LCS):**  
Within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**  
Within method control limits.

**Laboratory Duplicate:**  
RPD within CL or NA.

**Field Duplicate:**  
NA

**Qualification Summary:**  
Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33

**Review Date:** 1/10/11

**Project:** Monte Cristo

**Reviewer:** A. Conrad

**Laboratory:** SVL

**Laboratory Job ID#:** 117217

**Analysis:** EPA 150.1 - pH

**Matrix:** Water

**Sample ID Numbers:**

GC-SW1, GC-SW2, GC-SW3, GC-SW4, GC-SW5, GC-PW1, GC-PW2, GC-PW3, GC-PW5

**Sampling Date:** 6/1/05, 6/2/05

**Extraction Date:** NA

**Analysis Date:** 6/14/05

**Holding Times and Reporting Limits:**

Reporting limits are acceptable. Samples analyzed past holding time of ASAP. Sample results qualified as estimated (J).

**Method, Trip, and Field Blanks:**

NA

**Laboratory Control Samples (LCS):**

LCS within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Samples analyzed past holding time of ASAP. Sample results qualified as estimated (J).

## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	1/10/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	SVL	<b><u>Laboratory Job ID#:</u></b>	117217
<b><u>Analysis:</u></b>	EPA 160.1 - TDS	<b><u>Matrix:</u></b>	Water

### **Sample ID Numbers:**

GC-SW1, GC-SW2, GC-SW3, GC-SW4, GC-SW5, GC-PW1, GC-PW2, GC-PW3, GC-PW5

<b><u>Sampling Date:</u></b>	6/1/05, 6/2/05	<b><u>Extraction Date:</u></b>	NA
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<b><u>Analysis Date:</u></b>	6/10/05
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### **Holding Times and Reporting Limits:**

RL are acceptable. Samples analyzed past 7 day holding time. Sample results qualified as estimated (J).

### **Method, Trip, and Field Blanks:**

MB are ND

### **Laboratory Control Samples (LCS):**

Within Control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

NA

### **Qualification Summary:**

Samples analyzed past 7 day holding time. Sample results qualified as estimated (J).

## DATA QUALITY REVIEW

**Job Number:** 17330-33                      **Review Date:** 1/10/11  
**Project:** Monte Cristo                      **Reviewer:** A. Conrad  
**Laboratory:** SVL                              **Laboratory Job ID#:** 117217  
**Analysis:** EPA 335.2 - Cyanide              **Matrix:** Water

**Sample ID Numbers:**  
GC-SW1, GC-PW1, GC-PW2,

**Sampling Date:** 6/2/05                      **Extraction Date:** 6/14/05  
**Analysis Date:** 6/14/05

**Holding Times and Reporting Limits:**

Reporting limits are acceptable. Could not determine if samples properly preserved in field - appear to be unpreserved. Received at lab past 48 unpreserved holding time. Sample results qualified as estimated (J).

**Method, Trip, and Field Blanks:**

MB are ND

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NR

**Laboratory Duplicate:**

NR

**Field Duplicate:**

NA

**Qualification Summary:**

Could not determine if samples properly preserved in field - appear to be unpreserved. Received at lab past 48 unpreserved holding time. Sample results qualified as estimated (J).



## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 117217  
**Analysis:** SM 4500I - WAD CN- **Matrix:** Water

**Sample ID Numbers:**  
GC-SW1, GC-PW1, GC-PW2,

**Sampling Date:** 6/2/05 **Extraction Date:** 6/14/05  
**Analysis Date:** 6/14/05

### **Holding Times and Reporting Limits:**

Reporting limits are acceptable. Could not determine if samples properly preserved in field - appear to be unpreserved. Received at lab past 48 unpreserved holding time. Sample results qualified as estimated (J).

### **Method, Trip, and Field Blanks:**

MB were ND

### **Laboratory Control Samples (LCS):**

Within control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NR

### **Laboratory Duplicate:**

NR

### **Field Duplicate:**

NA

### **Qualification Summary:**

Could not determine if samples properly preserved in field - appear to be unpreserved. Received at lab past 48 unpreserved holding time. Sample results qualified as estimated (J).

## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	1/10/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	SVL	<b><u>Laboratory Job ID#:</u></b>	117217
<b><u>Analysis:</u></b>	SM 2340B - Hardness	<b><u>Matrix:</u></b>	Water

**Sample ID Numbers:**

GC-SW1, GC-SW2, GC-SW3, GC-SW4, GC-SW5, GC-PW1, GC-PW2, GC-PW3, GC-PW5

Dup/MS: GC-SW3, GC-PW1

<b><u>Sampling Date:</u></b>	6/1/05, 6/2/05	<b><u>Extraction Date:</u></b>	NR
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<b><u>Analysis Date:</u></b>	6/21/05
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**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB were ND

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

**Laboratory Duplicate:**

RPD within CL.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 117217  
**Analysis:** EPA 300.0 - Sulfate **Matrix:** Water

**Sample ID Numbers:**

GC-SW1, GC-SW2, GC-SW3, GC-SW4, GC-SW5, GC-PW1, GC-PW2, GC-PW3

**Sampling Date:** 6/1/05, 6/2/05 **Extraction Date:** 6/18/05, 6/19/05

**Analysis Date:** 6/18/05, 6/19/05

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB were ND

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 117217  
**Analysis:** EPA 245.1 - total Hg **Matrix:** Water

**Sample ID Numbers:**  
GC-SW1, GC-SW2, GC-SW3, GC-SW4, GC-SW5

**Sampling Date:** 6/1/05, 6/2/05 **Extraction Date:** 6/14/05

**Analysis Date:** 6/14/05

**Holding Times and Reporting Limits:**  
Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**  
MB were ND

**Laboratory Control Samples (LCS):**  
Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**  
NR

**Laboratory Duplicate:**  
NR

**Field Duplicate:**  
NA

**Qualification Summary:**  
Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33  
**Review Date:** 1/10/11  
**Project:** Monte Cristo  
**Reviewer:** A. Conrad  
**Laboratory:** SVL  
**Laboratory Job ID#:** 117217  
**Analysis:** EPA 245.1 - dissolved Hg  
**Matrix:** Water

**Sample ID Numbers:**  
GC-PW1, GC-PW2, GC-PW3, GC-PW5

**Sampling Date:** 6/1/05, 6/2/05  
**Extraction Date:** 6/14/05

**Analysis Date:** 6/14/05

**Holding Times and Reporting Limits:**  
Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**  
MB were ND

**Laboratory Control Samples (LCS):**  
Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**  
NR

**Laboratory Duplicate:**  
NR

**Field Duplicate:**  
NA

**Qualification Summary:**  
Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33  
**Project:** Monte Cristo  
**Laboratory:** SVL  
**Analysis:** EPA 200.7 - dissolved Ca, K,  
Mg, Na, Ag, Al, Ba, Be, Cd, Co,  
Cu, Fe, Mn, Ni, Sb, V, Zn

**Review Date:** 1/10/11  
**Reviewer:** A. Conrad  
**Laboratory Job ID#:** 117217  
**Matrix:** Water

**Sample ID Numbers:**  
GC-PW1, GC-PW2, GC-PW3, GC-PW5  
Dup/MS: GC-PW1

**Sampling Date:** 6/1/05, 6/2/05  
**Analysis Date:** 6/21/05  
**Extraction Date:** NR

**Holding Times and Reporting Limits:**  
Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**  
MB were ND

**Laboratory Control Samples (LCS):**  
Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**  
Within method control limits.

**Laboratory Duplicate:**  
RPD within CL or NA.

**Field Duplicate:**  
NA

**Qualification Summary:**  
Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33  
**Project:** Monte Cristo  
**Laboratory:** SVL  
**Analysis:** EPA 200.8 - dissolved As, Pb,  
Se, Tl

**Review Date:** 1/10/11  
**Reviewer:** A. Conrad  
**Laboratory Job ID#:** 117217  
**Matrix:** Water

**Sample ID Numbers:**  
GC-PW1, GC-PW2, GC-PW3, GC-PW5  
Dup/MS: GC-PW1

**Sampling Date:** 6/1/05, 6/2/05  
**Extraction Date:** NR

**Analysis Date:** 6/21/05, 6/22/05

**Holding Times and Reporting Limits:**  
Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**  
MB were ND

**Laboratory Control Samples (LCS):**  
Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**  
Within method control limits.

**Laboratory Duplicate:**  
RPD within CL or NA.

**Field Duplicate:**  
NA

**Qualification Summary:**  
Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 118765  
**Analysis:** EPA 200.8 - total As, Cd, Cu, Ni, **Matrix:** Water  
Pb, Sb, Tl  
**Sample ID Numbers:**  
76G-SW1, 76G-SW2, SFSR-SW1, SFSR-SW2, SFSR-SW3, SFSR-SW4,  
**Sampling Date:** 6/1/05, 6/3/05 **Extraction Date:** NA  
**Analysis Date:** 9/15/05

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB is ND

**Laboratory Control Samples (LCS):**

Within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NR

**Laboratory Duplicate:**

NR

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.



## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 118765  
**Analysis:** EPA 200.8 - dissolved Cd, Cu,  
Ni, Sb **Matrix:** Water

**Sample ID Numbers:**

76G-PW1, 76G-PW2, SFSR-PW1, SFSR-PW2, SFSR-PW3, SFSR-PW4, SFSR-PW05

**Sampling Date:** 6/1/05, 6/3/05 **Extraction Date:** NR

**Analysis Date:** 9/15/05

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB were ND

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NR

**Laboratory Duplicate:**

NR

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33  
**Project:** Monte Cristo  
**Laboratory:** SVL  
**Analysis:** EPA 200.8 - total As, Cd, Cu, Ni, Pb, Sb, Tl

**Review Date:** 1/10/11  
**Reviewer:** A. Conrad  
**Laboratory Job ID#:** 118767  
**Matrix:** Water

**Sample ID Numbers:**

76G-SW1, 76G-SW2, SFSR-SW1, SFSR-SW2, SFSR-SW3, SFSR-SW4,

Field dup: SFSR-SW1/SFSR-SW4

Dup/MS: SFSR-SW4

**Sampling Date:** 6/1/05, 6/3/05

**Extraction Date:** NA

**Analysis Date:** 9/15/05

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB is ND

**Laboratory Control Samples (LCS):**

Within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within method control limits.

**Laboratory Duplicate:**

RPD within CL or NA

**Field Duplicate:**

RPD within CL or NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 118767  
**Analysis:** EPA 200.8 - dissolved Cd, Cu,  
Ni, Sb **Matrix:** Water

**Sample ID Numbers:**

76G-PW1, 76G-PW2, SFSR-PW1, SFSR-PW2, SFSR-PW3, SFSR-PW4, SFSR-PW05

Field dup: SFSR-SW1/SFSR-SW4, SFSR-PW1/SFSR-PW4

Dup/MS: SFSR-PW4

**Sampling Date:** 6/1/05, 6/3/05 **Extraction Date:** NR

**Analysis Date:** 9/15/05

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB were ND

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

**Laboratory Duplicate:**

RPD within CL or NA

**Field Duplicate:**

RPD within CL or NA

**Qualification Summary:**

Data acceptable without qualification.

**Cooler temp not measured upon receipt. Samples received on 9/14/05. No indication if samples were cooled. Results for conductivity, pH, and TDS qualified as estimated (J).**

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/11/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL Analytical **Laboratory Job ID#:** 118905  
**Analysis:** EPA 120.1 - conductivity **Matrix:** Water

**Sample ID Numbers:**

MM-AS-01, MM-AS-02, JM-AS-01  
Field dup: MM-AS-01/MM-AS-02  
Dup: MM-AS-01

**Sampling Date:** 9/9/05, 9/10/05 **Extraction Date:** NA  
**Analysis Date:** 9/15/05

**Holding Times and Reporting Limits:**

Holding times within 28 days. Reporting limits are acceptable. Samples not filtered within 24 hours and no indication what cooler temp was. Sample results qualified as estimated (J).

**Method, Trip, and Field Blanks:**

MB has detection for conductivity <<than samples. No results qualified.

**Laboratory Control Samples (LCS):**

Within limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD within CL

**Field Duplicate:**

RPD within CL

**Qualification Summary:**

Samples not filtered within 24 hours and no indication what cooler temp was. Sample results MM-AS-01, MM-AS-02, JM-AS-01 qualified as estimated (J).

## DATA QUALITY REVIEW

**Job Number:** 17330-33  
**Project:** Monte Cristo  
**Laboratory:** SVL  
**Analysis:** EPA 200.7 - Total Ca, K, Mg,  
Na, Al, Ba, Co, Cr, Fe, Mn, Ni,  
V, Zn

**Review Date:** 1/11/11  
**Reviewer:** A. Conrad  
**Laboratory Job ID#:** 118905  
**Matrix:** Water

**Sample ID Numbers:**

MM-AS-01, MM-AS-02, JM-AS-01, JM-AS-02

Field dup: MM-AS-01/MM-AS-02

Dup/MS: MM-AS-01

**Sampling Date:** 9/9/05, 9/10/05  
**Extraction Date:** NR

**Analysis Date:** 9/25/05

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

Method blanks are non detect. Rinsate blank JM-AS-02 has detections for Ca and Na above the RL. Results in associated samples >10x amount in rinsate blank, and no sample results qualified.

**Laboratory Control Samples (LCS):**

Within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within method control limits with following exception. MS for Zn not reported as spiking amount < amount in source sample. No results qualified.

**Laboratory Duplicate RPD:**

RPD within CL or NA.

**Field Duplicate RPD:**

RPD within CL or NA.

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/11/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 118905  
**Analysis:** EPA 200.8 - total Ag, As, Be, Cd, **Matrix:** Water  
Cu, Pb, Sb, Se, Tl

**Sample ID Numbers:**

MM-AS-01, MM-AS-02, JM-AS-01, JM-AS-02

Field dup: MM-AS-01/MM-AS-02

Dup/MS: MM-AS-01

**Sampling Date:** 9/9/05, 9/10/05 **Extraction Date:** NA

**Analysis Date:** 9/26/05, 9/27/05

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB is ND. Rinsate blank JM-AS-02 is ND.

**Laboratory Control Samples (LCS):**

Within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within method control limits with following exceptions. MS forAs not reported as spiking amount < amount in source sample. No results qualified.

**Laboratory Duplicate:**

RPD within CL or NA.

**Field Duplicate:**

RPD within CL or NA.

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/11/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 118905  
**Analysis:** EPA 150.1 - pH **Matrix:** Water

### **Sample ID Numbers:**

MM-AS-01, MM-AS-02, JM-AS-01

Field dup: MM-AS-01/MM-AS-02

Dup: MM-AS-01

**Sampling Date:** 9/9/05, 9/10/05 **Extraction Date:** NA

**Analysis Date:** 9/15/05

### **Holding Times and Reporting Limits:**

Reporting limits are acceptable. Samples analyzed past holding time of ASAP. Sample results qualified as estimated (J).

### **Method, Trip, and Field Blanks:**

NA

### **Laboratory Control Samples (LCS):**

LCS within control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

### **Laboratory Duplicate:**

RPD within CL.

### **Field Duplicate:**

RPD within CL.

### **Qualification Summary:**

Samples analyzed past holding time of ASAP. Sample results MM-AS-01, MM-AS-02, JM-AS-01 qualified as estimated (J).



## DATA QUALITY REVIEW

**Job Number:** 17330-33  
**Project:** Monte Cristo  
**Laboratory:** SVL  
**Analysis:** EPA 160.1 - TDS  
**Review Date:** 1/11/11  
**Reviewer:** A. Conrad  
**Laboratory Job ID#:** 118905  
**Matrix:** Water

**Sample ID Numbers:**  
MM-AS-01, MM-AS-02, JM-AS-01  
Field dup: MM-AS-01/MM-AS-02  
Dup: MM-AS-01

**Sampling Date:** 9/9/05, 9/10/05  
**Extraction Date:** NA  
**Analysis Date:** 9/15/05

**Holding Times and Reporting Limits:**

RL are acceptable. Samples analyzed within 7 day holding time. No indication that samples were properly cooled. Samples qualified as estimated (J).

**Method, Trip, and Field Blanks:**

MB are ND

**Laboratory Control Samples (LCS):**

Within Control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD within control limits.

**Field Duplicate:**

RPD within CL.

**Qualification Summary:**

No indication that samples were properly cooled. Samples MM-AS-01, MM-AS-02, JM-AS-01 qualified as estimated (J).

## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	1/11/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	SVL	<b><u>Laboratory Job ID#:</u></b>	118905
<b><u>Analysis:</u></b>	SM 2340B - Hardness	<b><u>Matrix:</u></b>	Water

**Sample ID Numbers:**

MM-AS-01, MM-AS-02, JM-AS-01

Field dup: MM-AS-01/MM-AS-02

Dup/MS: MM-AS-01

<b><u>Sampling Date:</u></b>	9/9/05, 9/10/05	<b><u>Extraction Date:</u></b>	NR
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**Analysis Date:** 9/25/05

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB were ND

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

**Laboratory Duplicate:**

RPD within CL.

**Field Duplicate:**

RPD within CL.

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33

**Review Date:** 1/11/11

**Project:** Monte Cristo

**Reviewer:** A. Conrad

**Laboratory:** SVL

**Laboratory Job ID#:** 118905

**Analysis:** EPA 300.0 - Sulfate

**Matrix:** Water

**Sample ID Numbers:**

MM-AS-01, MM-AS-02, JM-AS-01

Field dup: MM-AS-01/MM-AS-02

Dup/MS: MM-AS-01

**Sampling Date:** 9/9/05, 9/10/05

**Extraction Date:** 9/23/05

**Analysis Date:** 9/23/05

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB were ND

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

**Laboratory Duplicate:**

RPD within control.

**Field Duplicate:**

RPD within CL.

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33                      **Review Date:** 1/11/11  
**Project:** Monte Cristo                      **Reviewer:** A. Conrad  
**Laboratory:** SVL                              **Laboratory Job ID#:** 118905  
**Analysis:** EPA 245.1 - total Hg              **Matrix:** Water

**Sample ID Numbers:**

MM-AS-01, MM-AS-02, JM-AS-01, JM-AS-02

Field dup: MM-AS-01/MM-AS-02

Dup/MS: MM-AS-01

**Sampling Date:** 9/9/05, 9/10/05

**Extraction Date:** 9/20/05

**Analysis Date:** 9/20/05

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB were ND. Rinsate blank JM-AS-02 is ND.

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

**Laboratory Duplicate:**

RPD is NA

**Field Duplicate:**

RPD is NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/11/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL Analytical **Laboratory Job ID#:** 119029  
**Analysis:** Leco - Non-extractable Sulfur, **Matrix:** Soil  
Pyritic sulfur, sulfate sulfur, total  
sulfur

**Sample ID Numbers:**

CON-01-0.5', CON-02-1.5', CON-09-0.5', MM-01-0.5', MM-03-0.5', MM-01-1.0'

**Sampling Date:** 9/9/05, 9/10/05 **Extraction Date:** 9/29/05

**Analysis Date:** 9/29/05

**Holding Times and Reporting Limits:**

Holding times past 14 days. No holding times reported for Leco analysis. Not qualified. Reporting limits are acceptable. Sample receiving temps >60C, but elevated temps would not affect sulfur.

**Method, Trip, and Field Blanks:**

MB is ND

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/11/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 119029  
**Analysis:** EPA 6010B - Ca, K, Mg, Na, Ag, **Matrix:** Soil  
Al, As, Ba, Be, Cd, Co, Cr, Cu,  
Fe, Mn, Ni, Pb, Sb, Tl, V, Zn

**Sample ID Numbers:**

CON-01-0.5', CON-01-1.5', CON-02-0.5', CON-02-1.5', CON-03-0.5', CON-03-1.5', CON-04-0.5', CON-05-0.5', CON-06-0.5', CON-07-0.5', CON-08-0.5', CON-09-0.5', MM-01-0.5', MM-02-0.5', MM-03-0.5', MM-04-0.5', MM-01-1.0'

MS: CON-01-0.5', CON-08-0.5'

**Sampling Date:** 9/9/05, 9/10/05 **Extraction Date:** NR

**Analysis Date:** 10/4/05, 10/5/05

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Sample receiving temps >6oC. Results not qualified as higher temps will not affect metals.

**Method, Trip, and Field Blanks:**

Method blanks are non detect.

**Laboratory Control Samples (LCS):**

Within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within method control limits with following exceptions: CON-08-0.5' MS/MSD for Ag, Al, As, Fe, Pb, Zn was not reported due to high levels of metals in source sample compared to spiking amount. Sample results not qualified. CON-01-0.5' MS/MSD for Al, As, Fe, Pb, was not reported due to high levels of metals in source sample compared to spiking amount. Sample results not qualified.

**Qualification Summary:**

Data acceptable without qualification.



## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/11/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 119029  
**Analysis:** EPA 7740- Se **Matrix:** Soil

### **Sample ID Numbers:**

CON-01-0.5', CON-01-1.5', CON-02-0.5', CON-02-1.5', CON-03-0.5', CON-03-1.5', CON-04-0.5', CON-05-0.5', CON-06-0.5', CON-07-0.5', CON-08-0.5', CON-09-0.5', MM-01-0.5', MM-02-0.5', MM-03-0.5', MM-04-0.5', MM-01-1.0'

MS: CON-01-0.5', CON-08-0.5'

**Sampling Date:** 9/9/05, 9/10/05 **Extraction Date:** 10/10/05

**Analysis Date:** 10/10/05

### **Holding Times and Reporting Limits:**

Holding times acceptable. RL was elevated in samples CON-01-0.5', CON-02-1.5', CON-05-0.5', CON-06-0.5', CON-07-0.5', CON-09-0.5', MM-02-0.5', and MM-04-0.5' due to dilutions due to matrix interferences. Sample receiving temps >60C. Results not qualified as higher temps will not affect metals.

### **Method, Trip, and Field Blanks:**

MB was ND.

### **Laboratory Control Samples (LCS):**

LCS within control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

CON-01-0.5' MS/MSD exceeds control limits. The source sample was diluted due to matrix interferences. Results for CON-01-0.5' were qualified as estimated (J). CON-08-0.5' MS/MSD fell below control limits of 75-125%. High levels of Se in source sample compared to spiking amount. Sample results not qualified.

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

NA

### **Qualification Summary:**

CON-01-0.5' MS/MSD exceeds control limits. The source sample was diluted due to matrix interferences. Results for CON-01-0.5' were qualified as estimated (J).



## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/11/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 119029  
**Analysis:** % solids **Matrix:** Soil

**Sample ID Numbers:**

CON-01-0.5', CON-01-1.5', CON-02-0.5', CON-02-1.5', CON-03-0.5', CON-03-1.5', CON-04-0.5', CON-05-0.5', CON-06-0.5', CON-07-0.5', CON-08-0.5', CON-09-0.5', MM-01-0.5', MM-02-0.5', MM-03-0.5', MM-04-0.5', MM-01-1.0'

Dup: CON-01-0.5

**Sampling Date:** 9/9/05, 9/10/05 **Extraction Date:** NA

**Analysis Date:** 9/22/05

**Holding Times and Reporting Limits:**

Holding times and RL are acceptable. Sample receiving temps >60C. Results not qualified as higher temps will not affect solids.

**Method, Trip, and Field Blanks:**

NA

**Laboratory Control Samples (LCS):**

NA

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD within control limits.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/11/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 119029  
**Analysis:** ASA Monograph 9 - pH - paste **Matrix:** Soil

**Sample ID Numbers:**

CON-01-0.5', CON-01-1.5', CON-02-0.5', CON-02-1.5', CON-03-0.5', CON-03-1.5', CON-04-0.5', CON-05-0.5', CON-06-0.5', CON-07-0.5', CON-08-0.5', CON-09-0.5', MM-01-0.5', MM-02-0.5', MM-03-0.5', MM-04-0.5', MM-01-1.0'

Dup: CON-01-0.5'

**Sampling Date:** 9/9/05, 9/10/05 **Extraction Date:** NA

**Analysis Date:** 9/29/05

**Holding Times and Reporting Limits:**

Reporting limits are acceptable. No holding times requirement. Sample receiving temps >6oC. Extraction occurs in lab, and results not qualified.

**Method, Trip, and Field Blanks:**

NA

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD is within control limits.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33

**Review Date:** 1/11/11

**Project:** Monte Cristo

**Reviewer:** A. Conrad

**Laboratory:** SVL

**Laboratory Job ID#:** 119029

**Analysis:** Acid generating potentials, acid  
neutralizing potentials

**Matrix:** Soil

**Sample ID Numbers:**

CON-01-0.5', CON-02-1.5', CON-09-0.5', MM-01-0.5', MM-03-0.5', MM-01-1.0'

Dup: CON-01-0.5'

**Sampling Date:** 9/9/05, 9/10/05

**Extraction Date:** 9/29/05

**Analysis Date:** 9/29/05

**Holding Times and Reporting Limits:**

Reporting limits are acceptable. No holding times. Sample receiving temps >6oC. Results not qualified.

**Method, Trip, and Field Blanks:**

NA

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD is within control limits.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/11/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL Analytical **Laboratory Job ID#:** 119030  
**Analysis:** EPA 1311/6010B - TCLP Ag, As, **Matrix:** Soil  
Ba, Cd, Cr, Pb, Se

**Sample ID Numbers:**

CON-01-0.5', CON-02-1.5', CON-09-0.5', MM-01-0.5', MM-01-1.0', MM-03-0.5'

MS: CON-01-0.5'

**Sampling Date:** 9/9/05, 9/10/05 **Extraction Date:** 10/3/05

**Analysis Date:** 10/6/05

**Holding Times and Reporting Limits:**

Holding times within 6 months. Reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB is ND.

**Laboratory Control Samples (LCS):**

Within limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

CON-01-0.5' MS/MSD within control limits with following exception. The recovery for Ba fell below the CL. A post spike was performed and Ba was within CL. Results for Ba in CON-01-0.5' were qualified as estimated (J).

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

CON-01-0.5' MS/MSD within control limits with following exception. The recovery for Ba fell below the CL. A post spike was performed and Ba was within CL. Results for Ba in CON-01-0.5', CON-02-1.5', and CON-09-0.5' were qualified as estimated (J).



## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/11/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL Analytical **Laboratory Job ID#:** 119031  
**Analysis:** EPA 1312/6010B - SPLP Ag, As, **Matrix:** Soil  
Ba, Cd, Cr, Pb, Se

**Sample ID Numbers:**

CON-01-0.5', CON-02-1.5', CON-09-0.5', MM-01-0.5', MM-01-1.0', MM-03-0.5'

MS: CON-01-0.5'

**Sampling Date:** 9/9/05, 9/10/05 **Extraction Date:** 10/3/05

**Analysis Date:** 10/6/05

**Holding Times and Reporting Limits:**

Holding times within 6 months. Reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB is ND.

**Laboratory Control Samples (LCS):**

Within limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33

**Review Date:** 1/11/11

**Project:** Monte Cristo

**Reviewer:** A. Conrad

**Laboratory:** SVL

**Laboratory Job ID#:** 119031

**Analysis:** EPA 1312/7470A - SPLP Hg

**Matrix:** Soil

**Sample ID Numbers:**

CON-01-0.5', CON-02-1.5', CON-09-0.5', MM-01-0.5', MM-01-1.0', MM-03-0.5'

MS: CON-01-0.5'

**Sampling Date:** 9/9/05, 9/10/05

**Extraction Date:** 10/3/05

**Analysis Date:** 10/5/05

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Sample receiving temps >6oC. Sample results qualified as estimated (J).

**Method, Trip, and Field Blanks:**

Method blanks is non detect.

**Laboratory Control Samples (LCS):**

Within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within limits.

**Laboratory Duplicate RPD:**

NA

**Qualification Summary:**

Sample receiving temps >6oC. Sample results qualified as estimated (J).

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/11/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL Analytical **Laboratory Job ID#:** 119032  
**Analysis:** EPA 7041 - Sb **Matrix:** Soil

### **Sample ID Numbers:**

BKG-01-0.5', BKG-02-0.5', BKG-03-0.5', BKG-04-0.5', BKG-05-0.5', BKG-06-0.5', BKG-07-0.5',  
BKG-08-0.5', BKG-09-0.5', BKG-10-0.5', CON-SS-01, CON-SS-02, CON-SS-03, CON-SS-04,  
CON-SS-05, COL-SS-01, COL-SS-02, COL-SS-03, COL-SS-04, COL-SS-05

Dup: BKG-01-0.5', BKG-10-0.5'

**Sampling Date:** 9/7/05, 9/8/05, 9/9/05, **Extraction Date:** 10/10/05  
9/10/05

**Analysis Date:** 10/10/05

### **Holding Times and Reporting Limits:**

Reporting limits and holding times are acceptable. Sample receiving temps >60C. Results not qualified, as high temps will not significantly affect metals.

### **Method, Trip, and Field Blanks:**

MB is ND

### **Laboratory Control Samples (LCS):**

Within control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

BKG-01-0.5' MS/MSD: Recoveries for Sb failed low. BKG-10-0.5' MS: Recovery for Sb failed low. LCS within control limits. Results for Sb qualified as estimated (J) in all samples.

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

NA

### **Qualification Summary:**

BKG-01-0.5' MS/MSD: Recoveries for Sb failed low. BKG-10-0.5' MS: Recovery for Sb failed low. LCS within control limits. Results for Sb qualified as estimated (J) in BKG-01-0.5', BKG-02-0.5', BKG-03-0.5', BKG-04-0.5', BKG-05-0.5', BKG-06-0.5', BKG-07-0.5', BKG-08-0.5', BKG-09-0.5', BKG-10-0.5', CON-SS-01, CON-SS-02, CON-SS-03, CON-SS-04, CON-SS-05, COL-SS-01, COL-SS-02, COL-SS-03, COL-SS-04, COL-SS-05.



## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/11/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 119032  
**Analysis:** EPA 6010B - Ca, K, Mg, Na, Ag, **Matrix:** Soil  
Al, As, Ba, Be, Cd, Co, Cr, Cu,  
Fe, Mn, Ni, Pb, Tl, V, Zn

### **Sample ID Numbers:**

BKG-01-0.5', BKG-02-0.5', BKG-03-0.5', BKG-04-0.5', BKG-05-0.5', BKG-06-0.5', BKG-07-0.5',  
BKG-08-0.5', BKG-09-0.5', BKG-10-0.5',

MS: BKG-01-0.5', BKG-10-0.5'

**Sampling Date:** 9/7/05, 9/8/05, 9/9/05, **Extraction Date:** NR  
9/10/05  
**Analysis Date:** 10/5/05

### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Sample receiving temps >60C. Results not qualified, as high temps will not significantly affect metals.

### **Method, Trip, and Field Blanks:**

Method blanks are non detect.

### **Laboratory Control Samples (LCS):**

Within method control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within method control limits with following exceptions: BKG-01-0.5' MS/MSD for Al, Fe was not reported due to high levels of metals in source sample compared to spiking amount. Sample results not qualified. BKG-10-0.5' MS/MSD for Al, Fe, was not reported due to high levels of metals in source sample compared to spiking amount. Sample results not qualified.

### **Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/11/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 119032  
**Analysis:** EPA 6010B - As, Ba, Cd, Cr, Cu, **Matrix:** Soil  
Fe, Mn, Pb, Zn

### **Sample ID Numbers:**

CON-SS-01, CON-SS-02, CON-SS-03, CON-SS-04, CON-SS-05, COL-SS-01, COL-SS-02, COL-SS-03, COL-SS-04, COL-SS-05

MS: BKG-01-0.5', BKG-10-0.5'

**Sampling Date:** 9/10/05 **Extraction Date:** NR

**Analysis Date:** 10/5/05

### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Sample receiving temps >60C. Results not qualified, as high temps will not significantly affect metals.

### **Method, Trip, and Field Blanks:**

Method blanks are non detect.

### **Laboratory Control Samples (LCS):**

Within method control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within method control limits with following exceptions: BKG-01-0.5' MS/MSD for Fe was not reported due to high levels of metals in source sample compared to spiking amount. Sample results not qualified. BKG-10-0.5' MS/MSD for Fe, was not reported due to high levels of metals in source sample compared to spiking amount. Sample results not qualified.

### **Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33

**Review Date:** 1/11/11

**Project:** Monte Cristo

**Reviewer:** A. Conrad

**Laboratory:** SVL

**Laboratory Job ID#:** 119032

**Analysis:** EPA 7471A - Hg

**Matrix:** Soil

**Sample ID Numbers:**

BKG-01-0.5', BKG-02-0.5', BKG-03-0.5', BKG-04-0.5', BKG-05-0.5', BKG-06-0.5', BKG-07-0.5',  
BKG-08-0.5', BKG-09-0.5', BKG-10-0.5',

MS: BKG-01-0.5', BKG-10-0.5'

**Sampling Date:** 9/7/05, 9/8/05, 9/9/05,  
9/10/05

**Extraction Date:** 9/28/05

**Analysis Date:** 9/28/05

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Sample receiving temps >6oC. Results qualified as estimated.

**Method, Trip, and Field Blanks:**

MB is ND.

**Laboratory Control Samples (LCS):**

Within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

BKG-01-0.5' MS/MSD for Hg failed low. RPD for Hg failed. BKG-10-0.5' MS for Hg failed high. Hg results in all samples were qualified as estimated (J).

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

BKG-01-0.5' MS/MSD for Hg failed low. RPD for Hg failed. BKG-10-0.5' MS for Hg failed high. Hg results in samples BKG-01-0.5', BKG-02-0.5', BKG-03-0.5', BKG-04-0.5', BKG-05-0.5', BKG-06-0.5', BKG-07-0.5', BKG-08-0.5', BKG-09-0.5', BKG-10-0.5' were qualified as estimated (J).

Sample receiving temps >6oC. Results for BKG-01-0.5', BKG-02-0.5', BKG-03-0.5', BKG-04-0.5', BKG-05-0.5', BKG-06-0.5', BKG-07-0.5', BKG-08-0.5', BKG-09-0.5', BKG-10-0.5' qualified as estimated.



## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/11/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 119032  
**Analysis:** % solids **Matrix:** Soil

### **Sample ID Numbers:**

BKG-01-0.5', BKG-02-0.5', BKG-03-0.5', BKG-04-0.5', BKG-05-0.5', BKG-06-0.5', BKG-07-0.5',  
BKG-08-0.5', BKG-09-0.5', BKG-10-0.5', CON-SS-01, CON-SS-02, CON-SS-03, CON-SS-04,  
CON-SS-05, COL-SS-01, COL-SS-02, COL-SS-03, COL-SS-04, COL-SS-05

Dup: BKG-01-0.5'

**Sampling Date:** 9/7/05, 9/8/05, 9/9/05, **Extraction Date:** NA  
9/10/05

**Analysis Date:** 9/30/05

### **Holding Times and Reporting Limits:**

Holding times and RL are acceptable. Sample receiving temps >60C. Results not qualified, as high temps will not significantly affect solids.

### **Method, Trip, and Field Blanks:**

NA

### **Laboratory Control Samples (LCS):**

NA

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

### **Laboratory Duplicate:**

RPD within control limits.

### **Field Duplicate:**

NA

### **Qualification Summary:**

Data acceptable without qualification.



## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	1/11/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	SVL Analytical	<b><u>Laboratory Job ID#:</u></b>	119033
<b><u>Analysis:</u></b>	Leco - Non-extractable Sulfur, Pyritic sulfur, sulfate sulfur, total sulfur	<b><u>Matrix:</u></b>	Soil

### **Sample ID Numbers:**

COL-01-0.5', COL-03-2'

Dup: COL-01-0.5'

**Sampling Date:** 9/10/05

**Extraction Date:** 9/29/05

**Analysis Date:** 9/29/05

### **Holding Times and Reporting Limits:**

Holding times past 14 days. No holding times reported for Leco analysis. Not qualified.  
Reporting limits are acceptable. Sample receiving temps >60C. Sample results not qualified  
as elevated temps will not significantly affect sulfur.

### **Method, Trip, and Field Blanks:**

MB is ND

### **Laboratory Control Samples (LCS):**

Within control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

### **Laboratory Duplicate:**

RPD within control limits.

### **Field Duplicate:**

NA

### **Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33                      **Review Date:** 1/11/11  
**Project:** Monte Cristo                      **Reviewer:** A. Conrad  
**Laboratory:** SVL                      **Laboratory Job ID#:** 119033  
**Analysis:** EPA 6010B - Ca, K, Mg, Na, Ag, **Matrix:** Soil  
Al, As, Ba, Be, Cd, Co, Cr, Cu,  
Fe, Mn, Ni, Pb, Sb, Tl, V, Zn

### **Sample ID Numbers:**

COL-01-0.5', COL-01-2', COL-01-3', COL-02-0.5', COL-02-2', COL-03-0.5', COL-03-2'

MS: COL-01-0.5'

**Sampling Date:** 9/10/05                      **Extraction Date:** NR

**Analysis Date:** 10/5/05, 10/6/05

### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Sample receiving temps >60C. Sample results not qualified, as high temps will not significantly affect metals.

### **Method, Trip, and Field Blanks:**

Method blanks are non detect.

### **Laboratory Control Samples (LCS):**

Within method control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within method control limits with following exceptions: COL-01-0.5' MS/MSD for Al, As, Cu, Fe, Pb, were not reported due to high levels of metals in source sample compared to spiking amount. Sample results not qualified. COL-01-0.5' MS/MSD for Sb failed high. A PS for Sb was performed within control limits. The amount spiked was less than the source sample, and no results were qualified.

### **Qualification Summary:**

Data acceptable without qualification.





## DATA QUALITY REVIEW

**Job Number:** 17330-33

**Review Date:** 1/12/11

**Project:** Monte Cristo

**Reviewer:** A. Conrad

**Laboratory:** SVL

**Laboratory Job ID#:** 119033

**Analysis:** EPA 7740- Se

**Matrix:** Soil

**Sample ID Numbers:**

COL-01-0.5', COL-01-2', COL-01-3', COL-02-0.5', COL-02-2', COL-03-0.5', COL-03-2'

MS: COL-01-0.5'

**Sampling Date:** 9/10/05

**Extraction Date:** 9/29/05

**Analysis Date:** 9/29/05

**Holding Times and Reporting Limits:**

Holding times and RL are acceptable. Sample receiving temps >60C. Sample results not qualified, as high temps will not significantly affect metals.

**Method, Trip, and Field Blanks:**

MB was ND.

**Laboratory Control Samples (LCS):**

LCS within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.



## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/12/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 119033  
**Analysis:** ASA Monograph 9 - pH - paste **Matrix:** Soil

**Sample ID Numbers:**

COL-01-0.5', COL-01-2', COL-01-3', COL-02-0.5', COL-02-2', COL-03-0.5', COL-03-2'

Dup: COL-01-0.5'

**Sampling Date:** 9/10/05 **Extraction Date:** NA

**Analysis Date:** 9/29/05

**Holding Times and Reporting Limits:**

Reporting limits are acceptable. No holding times requirement. Sample receiving temps >60C. Sample results not qualified as preparation occurs in lab.

**Method, Trip, and Field Blanks:**

NA

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD is within control limits.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/12/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 119033  
**Analysis:** Acid generating potentials, acid neutralizing potentials **Matrix:** Soil

**Sample ID Numbers:**

COL-01-0.5', COL-03-2'

Dup: COL-01-0.5'

**Sampling Date:** 9/10/05 **Extraction Date:** 9/29/05  
**Analysis Date:** 9/29/05

**Holding Times and Reporting Limits:**

Reporting limits are acceptable. No holding times. Sample receiving temps >6oC. Sample results not qualified as.

**Method, Trip, and Field Blanks:**

NA

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD is within control limits or NA.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/12/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 124216  
**Analysis:** EPA 200.7 - Total Ca, K, Mg, Na, Al, Ba, Co, Cr, Fe, Mn, Ni, V, Zn **Matrix:** Water  
**Sample ID Numbers:**  
MC-RB-01, MC-RB-02  
Dup/MS: MC-RB-01, MC-RB-02  
**Sampling Date:** 7/21/06 **Extraction Date:** NR  
**Analysis Date:** 8/7/06

### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Receiving temp exceeds 60C. Sample results not qualified, as warmer temp will not significantly affect metals.

### **Method, Trip, and Field Blanks:**

Method blanks are non detect.

### **Laboratory Control Samples (LCS):**

Within method control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within method control limits.

### **Laboratory Duplicate RPD:**

RPD is NA.

### **Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/12/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 124216  
**Analysis:** EPA 200.8 - total Ag, As, Be, Cd, **Matrix:** Water  
Cu, Pb, Sb, Se, Tl

**Sample ID Numbers:**

MC-RB-01, MC-RB-02

Dup/MS: MC-RB-01, MC-RB-02

**Sampling Date:** 7/21/06 **Extraction Date:** NA

**Analysis Date:** 7/31/06

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Receiving temp exceeds 60C. Sample results not qualified, as warmer temp will not significantly affect metals.

**Method, Trip, and Field Blanks:**

MB is ND. MC-RB-01 is ND. MC-RB-02 has detections for Ca and As above the RL. Not known which samples are associated with this RB.

**Laboratory Control Samples (LCS):**

Within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within method control limits.

**Laboratory Duplicate:**

RPD is NA.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

**Sample COL-06 (0-5'). Sample label reads COL-06. Sample logged in using COC.  
Sample COL-05 (5-10'). Sample label reads COL-05. Sample logged in using COC.  
Sample COL-19 (6-6.5'). Sample label reads COL-07 (6-6.5'). Sample logged in  
using COC.**

**No time on COC for samples COL-10 (0-0.5') or COL-11 (0.5-1.5'). Times taken  
from sample labels.**

**No % solids - results are wet weight.**



## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/12/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL Analytical **Laboratory Job ID#:** 124219  
**Analysis:** Leco - Non-extractable Sulfur, **Matrix:** Soil  
Pyritic sulfur, sulfate sulfur, total  
sulfur

**Sample ID Numbers:**

HW-02 (0-0.5'), HW-05 (0-0.5'), COL-04 (3-5.5'), COL-19 (6-6.5')

Dup: HW-02 (0-0.5')

**Sampling Date:** 7/19/06, 7/20/06 **Extraction Date:** 8/9/06

**Analysis Date:** 8/9/06

**Holding Times and Reporting Limits:**

Holding times past 14 days. No holding times reported for Leco analysis. Not qualified.  
Reporting limits are acceptable. Sample receiving temps >60C. Sample results not qualified  
as sulfur not significantly affected by elevated temps.

**Method, Trip, and Field Blanks:**

MB is ND

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD within control limits or NA.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/12/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 124219  
**Analysis:** EPA 6010B - Ca, K, Mg, Na, Ag, **Matrix:** Soil  
Al, As, Ba, Be, Cd, Co, Cr, Cu,  
Fe, Mn, Ni, Pb, Sb, V, Zn

### **Sample ID Numbers:**

HW-01 (0-0.5'), HW-03 (0-0.5'), HW-04 (0-0.5'), COL-05 (5-10'), COL-06 (0-5'), COL-08 (1-7'), COL-10 (0-0.5'), COL-11 (0.5-1.5'), HW-02 (0-0.5'), HW-05 (0-0.5'), COL-04 (3-5.5'), COL-19 (6-6.5')

MS: HW-02 (0-0.5')

**Sampling Date:** 7/19/06, 7/20/06 **Extraction Date:** NR

**Analysis Date:** 8/11/06, 8/12/06

### **Holding Times and Reporting Limits:**

Holding times are acceptable. RL elevated for Na and Be in HW-04 (0-0.5') and COL-06 (0-5') due to sample dilutions. RL elevated for Na, Be, Cd, Co, and Ni in COL-05 (5-10') due to sample dilutions. RL elevated for Na, Be, and Ni in COL-08 (1-7') due to sample dilutions. RL elevated for Be in HW-02 (0-0.5') due to sample dilutions. RL elevated for Mg, Na, Be, Co, Ni, and V in COL-04 (3-5.5') and COL-11 (0.5-1.5') due to sample dilutions. RL elevated for Na, Be, Co, and Ni in COL-10 (0-0.5') and COL-19 (6-6.5') due to sample dilutions.

Sample receiving temps >60C. No sample results qualified, as high temps will not significantly affect metals.

### **Method, Trip, and Field Blanks:**

Method blanks are non detect.

### **Laboratory Control Samples (LCS):**

Within method control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within method control limits with following exceptions: HW-02 (0-0.5') MS/MSD for Al, As, Fe, Pb, were not reported due to high levels of metals in source sample compared to spiking amount. Sample results not qualified. HW-02 (0-0.5') MS/MSD for Sb failed low. A PS for Sb was performed within control limits. Sb in HW-02 (0-0.5'), HW-01 (0-0.5'), HW-03 (0-0.5'), HW-04 (0-0.5'), and HW-05 (0-0.5'), qualified as estimated (J) due to matrix effects.

### **Qualification Summary:**

HW-02 (0-0.5') MS/MSD for Sb failed low. A PS for Sb was performed within control limits. Sb in HW-02 (0-0.5'), HW-01 (0-0.5'), HW-03 (0-0.5'), HW-04 (0-0.5'), and HW-05 (0-0.5'), qualified as estimated (J) due to matrix effects.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/12/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 124219  
**Analysis:** EPA 7471A - Hg **Matrix:** Soil

### **Sample ID Numbers:**

HW-01 (0-0.5'), HW-03 (0-0.5'), HW-04 (0-0.5'), COL-05 (5-10'), COL-06 (0-5'), COL-08 (1-7'), COL-10 (0-0.5'), COL-11 (0.5-1.5'), HW-02 (0-0.5'), HW-05 (0-0.5'), COL-04 (3-5.5'), COL-19 (6-6.5')

MS: HW-02 (0-0.5')

**Sampling Date:** 7/19/06, 7/20/06 **Extraction Date:** 8/7/06

**Analysis Date:** 8/7/06

### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Sample receiving temps >6oC. Sample results qualified as estimated (J).

### **Method, Trip, and Field Blanks:**

MB is ND.

### **Laboratory Control Samples (LCS):**

Within method control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

HW-02 (0-0.5') MS/MSD for Hg failed low due to high levels of metals in source sample compared to spiking amount. No sample results qualified.

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

NA

### **Qualification Summary:**

Sample receiving temps >6oC. Sample results for HW-01 (0-0.5'), HW-03 (0-0.5'), HW-04 (0-0.5'), COL-05 (5-10'), COL-06 (0-5'), COL-08 (1-7'), COL-10 (0-0.5'), COL-11 (0.5-1.5'), HW-02 (0-0.5'), HW-05 (0-0.5'), COL-04 (3-5.5'), and COL-19 (6-6.5') qualified as estimated (J).

## DATA QUALITY REVIEW

**Job Number:** 17330-33                      **Review Date:** 1/12/11  
**Project:** Monte Cristo                      **Reviewer:** A. Conrad  
**Laboratory:** SVL                                **Laboratory Job ID#:** 124219  
**Analysis:** EPA 7740- Se                      **Matrix:** Soil

**Sample ID Numbers:**

HW-01 (0-0.5'), HW-03 (0-0.5'), HW-04 (0-0.5'), COL-05 (5-10'), COL-06 (0-5'), COL-08 (1-7'), COL-10 (0-0.5'), COL-11 (0.5-1.5'), HW-02 (0-0.5'), HW-05 (0-0.5'), COL-04 (3-5.5'), COL-19 (6-6.5')

MS: HW-02 (0-0.5')

**Sampling Date:** 7/19/06, 7/20/06                      **Extraction Date:** 8/18/06

**Analysis Date:** 8/18/06

**Holding Times and Reporting Limits:**

Holding times are acceptable. RL elevated for Se in HW-03 (0-0.5'), COL-06 (0-5'), and COL-08 (1-7') due to dilutions associated with matrix interferences. Sample receiving temps >6oC. No sample results qualified, as high temps will not significantly affect metals.

**Method, Trip, and Field Blanks:**

MB was ND.

**Laboratory Control Samples (LCS):**

LCS within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits of 75-125%.

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/12/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 124219  
**Analysis:** EPA 7841 - TI **Matrix:** Soil

### **Sample ID Numbers:**

HW-01 (0-0.5'), HW-03 (0-0.5'), HW-04 (0-0.5'), COL-05 (5-10'), COL-06 (0-5'), COL-08 (1-7'), COL-10 (0-0.5'), COL-11 (0.5-1.5'), HW-02 (0-0.5'), HW-05 (0-0.5'), COL-04 (3-5.5'), COL-19 (6-6.5')

MS: HW-02 (0-0.5')

**Sampling Date:** 7/19/06, 7/20/06 **Extraction Date:** 8/21/06

**Analysis Date:** 8/21/06

### **Holding Times and Reporting Limits:**

Holding times are acceptable. RL elevated for TI in HW-01 (0-0.5'), HW-03 (0-0.5'), HW-04 (0-0.5'), COL-05 (5-10'), COL-06 (0-5'), COL-08 (1-7'), COL-10 (0-0.5'), HW-02 (0-0.5'), HW-05 (0-0.5'), and COL-19 (6-6.5') due to dilutions for matrix interferences. Sample receiving temps >60C. No sample results qualified, as high temps will not significantly affect metals.

### **Method, Trip, and Field Blanks:**

MB is NA

### **Laboratory Control Samples (LCS):**

Within control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

NA

### **Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/12/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 124219  
**Analysis:** ASA Monograph 9 - pH - paste **Matrix:** Soil

**Sample ID Numbers:**

HW-01 (0-0.5'), HW-03 (0-0.5'), HW-04 (0-0.5'), COL-05 (5-10'), COL-06 (0-5'), COL-08 (1-7'), COL-10 (0-0.5'), COL-11 (0.5-1.5'), HW-02 (0-0.5'), HW-05 (0-0.5'), COL-04 (3-5.5'), COL-19 (6-6.5')

Dup: HW-02 (0-0.5')

**Sampling Date:** 7/19/06, 7/20/06 **Extraction Date:** NA

**Analysis Date:** 8/9/06

**Holding Times and Reporting Limits:**

Reporting limits are acceptable. No holding times requirement. Sample receiving temps exceed 6oC. Sample results not qualified.

**Method, Trip, and Field Blanks:**

NA

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD is within control limits.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33  
**Project:** Monte Cristo  
**Laboratory:** SVL  
**Analysis:** Acid generating potentials, acid neutralizing potentials

**Review Date:** 1/12/11  
**Reviewer:** A. Conrad  
**Laboratory Job ID#:** 124219  
**Matrix:** Soil

**Sample ID Numbers:**

HW-02 (0-0.5'), HW-05 (0-0.5'), COL-04 (3-5.5'), COL-19 (6-6.5')

Dup: HW-02 (0-0.5')

**Sampling Date:** 7/19/05, 7/20/05  
**Extraction Date:** 8/9/06

**Analysis Date:** 8/9/06

**Holding Times and Reporting Limits:**

Reporting limits are acceptable. No holding times. Sample receiving temps exceed 60C. Sample results not qualified.

**Method, Trip, and Field Blanks:**

NA

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD is within control limits.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

**Time on COC for sample CON-18 (24-36") differs from sample label. Time used from COC.  
No % solids - results are wet weight.**



## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/12/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL Analytical **Laboratory Job ID#:** 124220  
**Analysis:** Leco - Non-extractable Sulfur, **Matrix:** Soil  
Pyritic sulfur, sulfate sulfur, total sulfur

**Sample ID Numbers:**

CON-10 (1'), CON-15, CON-19, AS-03 (1.5-2'), CON-20 (1')

Field dup: CON-10 (1')/ CON-20 (1')

Dup: CON-10 (1')

**Sampling Date:** 7/19/06 **Extraction Date:** 8/9/06

**Analysis Date:** 8/9/06

**Holding Times and Reporting Limits:**

Holding times past 14 days. No holding times reported for Leco analysis. Not qualified. Reporting limits are acceptable. Sample receiving temps >60C. Sample results not qualified.

**Method, Trip, and Field Blanks:**

MB is ND

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD within control limits or NA.

**Field Duplicate:**

RPD within control limits or NA.

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/12/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 124220  
**Analysis:** EPA 6010B - Ca, K, Mg, Na, Ag, **Matrix:** Soil  
Al, As, Ba, Be, Cd, Co, Cr, Cu,  
Fe, Mn, Ni, Pb, Sb, V, Zn

### **Sample ID Numbers:**

CON-10 (1'), CON-11, CON-12, CON-13, CON-14, CON-15, CON-16, CON-16 (1'), CON-17, CON-18, CON-18 (24-36"), CON-19, AS-02 (0.5-1'), AS-03 (1.5-2'), AS-04, CON-20 (1')

Field dup: CON-10 (1')/ CON-20 (1')

MS: CON-10 (1')

**Sampling Date:** 7/19/06, **Extraction Date:** NR

**Analysis Date:** 8/8/06, 8/17/06

### **Holding Times and Reporting Limits:**

Holding times and RL are acceptable.

Sample receiving temps >60C. No sample results qualified, as high temps will not significantly affect metals.

### **Method, Trip, and Field Blanks:**

Method blanks are non detect.

### **Laboratory Control Samples (LCS):**

Within method control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within method control limits with following exceptions: CON-10 (1') MS/MSD for Al, As, Cu, Fe, Pb, Sb, Zn were not reported due to high levels of metals in source sample compared to spiking amount. Sample results not qualified.

### **Field Duplicate:**

RPD within 50% with exception of Calcium. Calcium results in CON-10 (1') and CON-20 (1') qualified as estimated.

### **Qualification Summary:**

Field duplicate RPD within 50% with exception of Calcium. Calcium results in CON-10 (1') and CON-20 (1') qualified as estimated.









## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/12/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 124220  
**Analysis:** Acid generating potentials, acid neutralizing potentials **Matrix:** Soil

**Sample ID Numbers:**

CON-10 (1'), CON-15, CON-19, AS-03 (1.5-2'), CON-20 (1')

Field dup: CON-10 (1')/ CON-20 (1')

Dup: CON-10 (1')

**Sampling Date:** 7/19/05 **Extraction Date:** 8/9/06

**Analysis Date:** 8/9/06

**Holding Times and Reporting Limits:**

Reporting limits are acceptable. No holding times. Sample receiving temps exceed 60C. Sample results not qualified.

**Method, Trip, and Field Blanks:**

NA

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD is within control limits.

**Field Duplicate:**

RPD within 50% with exception of Acid-Base Potential. As Acid generation and acid neutralization potentials were within control, no results qualified.

**Qualification Summary:**

Data acceptable without qualification.

**Sample COL-19 (6-6.5') - sample label read COL-07 (6-6.5')**  
**Samples received above 60C.**



## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/12/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL Analytical **Laboratory Job ID#:** 124229  
**Analysis:** EPA 1312/6010B - SPLP Ag, As, **Matrix:** Soil  
Ba, Cd, Cr, Pb, Se

### **Sample ID Numbers:**

CON-10 (1'), CON-15, CON-19, AS-03 (1.5-2'), CON-20 (1'), HW-02 (0-0.5'), HW-05 (0-0.5'), COL-04 (3-5.5'), COL-19 (6-6.5')

Field dup: CON-10 (1')/ CON-20 (1')

MS: CON-10 (1')

**Sampling Date:** 7/19/06, 7/20/06 **Extraction Date:** NR

**Analysis Date:** 8/7/06

### **Holding Times and Reporting Limits:**

Holding times within 6 months. Reporting limits are acceptable. Sample receiving temps above 60C. Sample results not qualified as elevated temps will not significantly affect metals.

### **Method, Trip, and Field Blanks:**

MB is ND.

### **Laboratory Control Samples (LCS):**

Within limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

RPD within 50% with exception of As and Pb. Results for As and Pb are qualified as estimated in CON-10 (1') and CON-20 (1').

### **Qualification Summary:**

Field duplicate RPD within 50% with exception of As and Pb. Results for As and Pb are qualified as estimated in CON-10 (1') and CON-20 (1').

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/12/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL **Laboratory Job ID#:** 124229  
**Analysis:** EPA 1312/7470A - SPLP Hg **Matrix:** Soil

### **Sample ID Numbers:**

CON-10 (1'), CON-15, CON-19, AS-03 (1.5-2'), CON-20 (1'), HW-02 (0-0.5'), HW-05 (0-0.5'), COL-04 (3-5.5'), COL-19 (6-6.5')

Field dup: CON-10 (1')/ CON-20 (1')

MS: CON-10 (1')

**Sampling Date:** 7/19/06, 7/20/06 **Extraction Date:** NR

**Analysis Date:** 8/3/06

### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Sample receiving temps above 6oC. Sample results qualified as estimated (J).

### **Method, Trip, and Field Blanks:**

Method blanks is non detect.

### **Laboratory Control Samples (LCS):**

Within method control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within limits.

### **Laboratory Duplicate RPD:**

NA

### **Field Duplicate RPD:**

Sample and dup were ND, RPD was NA.

### **Qualification Summary:**

Sample receiving temps above 6oC. Sample results for CON-10 (1)', CON-15, CON-19, AS-03 (1.5-2'), CON-20 (1'), HW-02 (0-0.5'), HW-05 (0-0.5'), COL-04 (3-5.5'), and COL-19 (6-6.5') qualified as estimated (J).

**Sample COL-19 (6-6.5') - sample label read COL-07 (6-6.5')**  
**Samples received above 60C.**

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/12/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** SVL Analytical **Laboratory Job ID#:** 124230  
**Analysis:** EPA 1311/6010B - TCLP Ag, As, **Matrix:** Soil  
Ba, Cd, Cr, Pb, Se

### **Sample ID Numbers:**

CON-10 (1'), CON-15, CON-19, AS-03 (1.5-2'), CON-20 (1'), HW-02 (0-0.5'), HW-05 (0-0.5'), COL-04 (3-5.5'), COL-19 (6-6.5')

Field dup: CON-10 (1')/ CON-20 (1')

MS: CON-10 (1')

**Sampling Date:** 7/19/06, 7/20/06 **Extraction Date:** NR

**Analysis Date:** 8/7/06

### **Holding Times and Reporting Limits:**

Holding times within 6 months. Reporting limits are acceptable. Sample receiving temps above 60C. Sample results not qualified as elevated temps will not significantly affect metals.

### **Method, Trip, and Field Blanks:**

MB is ND.

### **Laboratory Control Samples (LCS):**

Within limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

RPD within control limits or NA.

### **Qualification Summary:**

Data acceptable without qualification.



## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	1/12/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	SVL	<b><u>Laboratory Job ID#:</u></b>	125324
<b><u>Analysis:</u></b>	EPA 6010B - Ca, K, Mg, Na, Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Fe, Mn, Ni, Pb, Sb, Se, Tl, V, Zn	<b><u>Matrix:</u></b>	Soil

**Sample ID Numbers:**  
COL-08 (1-7'), CON-18  
MS: COL-08 (1-7')

<b><u>Sampling Date:</u></b>	7/19/06	<b><u>Extraction Date:</u></b>	NR
<b><u>Analysis Date:</u></b>	9/28/06		

### **Holding Times and Reporting Limits:**

Holding times and RL are acceptable.

Sample receiving temps >60C. No sample results qualified, as high temps will not significantly affect metals.

### **Method, Trip, and Field Blanks:**

Method blanks are non detect.

### **Laboratory Control Samples (LCS):**

Within method control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within method control limits with following exceptions: COL-08 (1-7') MS/MSD for Ag, Al, As, Cu, Fe, Pb, were not reported due to high levels of metals in source sample compared to spiking amount. Sample results not qualified. COL-08 (1-7') MS/MSD for Sb failed high. A PS for Sb was performed within control limits. Sb in COL-08 (1-7') qualified as estimated (J).

Post spikes analyzed for Se and Tl within control limits. RPD for Ag, As, Mn, Zn exceeds control limits. Ag, As, Mn, Zn in COL-08 (1-7') qualified as estimated (J).

### **Qualification Summary:**

COL-08 (1-7') MS/MSD for Sb failed high. A PS for Sb was performed within control limits. Sb in COL-08 (1-7') qualified as estimated (J).

RPD for Ag, As, Mn, Zn exceeds control limits. Ag, As, Mn, Zn in COL-08 (1-7') qualified as estimated (J).









## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 12/27/10  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L71393  
**Analysis:** EPA 200.8 - total recoverable **Matrix:** Water  
Sb, As, Cd, Pb, Se, Ag,

**Sample ID Numbers:**

MCEE-SW-GC-01, MCEE-SW-GC-02, MCEE-SW-GC-03, MCEE-SW-766-01, MCEE-SW-766-02.  
MCEE-SW-01

MS: Batch QC, MCEE-SW-01

**Sampling Date:** 8/21/08, 8/22/08, 8/23/08 **Extraction Date:** 8/26/08, 8/27/08

**Analysis Date:** 8/27/08, 9/3/08

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Detections between MDL and RL qualified as estimated (B). B changed to T.

**Method, Trip, and Field Blanks:**

MB (LRB) are ND.

**Laboratory Control Samples (LCS):**

LFB are within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

LFM/LFMD - within method control limits.

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Detections between MDL and RL qualified as estimated (B). B changed to T.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 12/29/10  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L71393  
**Analysis:** EPA 200.7 - Total recoverable **Matrix:** Water  
Cr, Cu, Zn

**Sample ID Numbers:**  
MCEE-SW-GC-01, MCEE-SW-GC-02, MCEE-SW-GC-03, MCEE-SW-766-01, MCEE-SW-766-02,  
MCEE-SW-01  
MS: MCEE-SW-766-02, MCEE-SW-766-01

**Sampling Date:** 8/21/08, 8/22/08, 8/23/08 **Extraction Date:** 8/27/08, 8/28/08,  
8/29/08

**Analysis Date:** 9/2/08, 9/3/08

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

Method blanks (LRB) are non detect.

**Laboratory Control Samples (LCS):**

LFB within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

LFM/LFMD within method control limits.

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 12/29/10  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L71393  
**Analysis:** EPA 200.7 - dissolved Ca, Mg **Matrix:** Water

**Sample ID Numbers:**

MCEE-SW-GC-01, MCEE-SW-GC-02, MCEE-SW-GC-03, MCEE-SW-766-01, MCEE-SW-766-02,  
MS: MCEE-SW-GC-01

**Sampling Date:** 8/21/08, 8/22/08, 8/23/08 **Extraction Date:** NA

**Analysis Date:** 9/3/08

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Detections between MDL and RL qualified as estimated (B). B changed to T.

**Method, Trip, and Field Blanks:**

No MB or LRB prepared. Samples not extracted - apparently analyzed as is. Lab used ICB to indicate cleanliness of system. ICBs were ND.

**Laboratory Control Samples (LCS):**

LFB within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

AS/ASD within method control limits.

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Detections between MDL and RL qualified as estimated (B). B changed to T.

## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	12/29/10
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	ACZ	<b><u>Laboratory Job ID#:</u></b>	L71393
<b><u>Analysis:</u></b>	EPA 1631 - total Hg	<b><u>Matrix:</u></b>	Water

**Sample ID Numbers:**

MCEE-SW-GC-01, MCEE-SW-GC-02, MCEE-SW-GC-03, MCEE-RB-01, MCEE-SW-766-01, MCEE-SW-766-02, Trip Blank

MS: Batch QC

**Sampling Date:** 8/21/08, 8/22/08, 8/23/08      **Extraction Date:** 8/29/08

**Analysis Date:** 8/29/08

**Holding Times and Reporting Limits:**

Reporting limits are acceptable. Samples MCEE-RB-01 (air blank) and Trip Blank received unpreserved at lab, past the 48 hour holding time for unpreserved samples. Sample Trip Blank qualified as estimated (J).

**Method, Trip, and Field Blanks:**

CCBs acceptable. Rinse Blank was ND. Trip blank was ND.

**Laboratory Control Samples (LCS):**

LFB within laboratory control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within lab control limits.

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Samples MCEE-RB-01 (air blank) and Trip Blank received unpreserved at lab, past the 48 hour holding time for unpreserved samples. Sample Trip Blank qualified as estimated (J).

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 12/29/10  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L71393  
**Analysis:** SM 2510B - Conductivity **Matrix:** Water

**Sample ID Numbers:**

MCEE-SW-GC-01, MCEE-SW-GC-02, MCEE-SW-GC-03, MCEE-SW-766-01, MCEE-SW-766-02

Dup: Batch QC

**Sampling Date:** 8/21/08, 8/22/08, 8/23/08 **Extraction Date:** NA

**Analysis Date:** 8/28/08

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

NA

**Laboratory Control Samples (LCS):**

Within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD within control limits.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33

**Review Date:** 12/29/10

**Project:** Monte Cristo

**Reviewer:** A. Conrad

**Laboratory:** ACZ

**Laboratory Job ID#:** L71393

**Analysis:** SM 2340B - Hardness

**Matrix:** Water

**Sample ID Numbers:**

MCEE-SW-GC-01, MCEE-SW-GC-02, MCEE-SW-GC-03, MCEE-SW-766-01, MCEE-SW-766-02

**Sampling Date:** 8/21/08, 8/22/08, 8/23/08

**Extraction Date:** NA

**Analysis Date:** 9/9/08

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Detections between MDL and RL qualified as estimated (B). B changed to T.

**Method, Trip, and Field Blanks:**

NA

**Laboratory Control Samples (LCS):**

NA

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Ca and Mg analytical data acceptable. Detections between MDL and RL qualified as estimated (B). B changed to T.





## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	12/29/10
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	ACZ	<b><u>Laboratory Job ID#:</u></b>	L71393
<b><u>Analysis:</u></b>	SM 2540C - TDS	<b><u>Matrix:</u></b>	Water

**Sample ID Numbers:**

MCEE-SW-GC-01, MCEE-SW-GC-02, MCEE-SW-GC-03, MCEE-SW-766-01, MCEE-SW-766-02

Dup: MCEE-SW-GC-01, Batch QC

**Sampling Date:** 8/21/08, 8/22/08, 8/23/08      **Extraction Date:** NA

**Analysis Date:** 8/28/08

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

PBW was ND.

**Laboratory Control Samples (LCS):**

Within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD within control or NA as sample and/or dup <10x MDL.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 12/29/10  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L71393  
**Analysis:** SM 2540D- TSS **Matrix:** Water

**Sample ID Numbers:**

MCEE-SW-GC-01, MCEE-SW-GC-02, MCEE-SW-GC-03, MCEE-SW-766-01, MCEE-SW-766-02

Dup: MCEE-SW-766-01, Batch QC

**Sampling Date:** 8/21/08, 8/22/08, 8/23/08 **Extraction Date:** NA

**Analysis Date:** 8/27/08

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

PBW is ND.

**Laboratory Control Samples (LCS):**

Within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD within limits or NA as sample and/or dup <10x MDL.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33

**Review Date:** 12/29/10

**Project:** Monte Cristo

**Reviewer:** A. Conrad

**Laboratory:** ACZ

**Laboratory Job ID#:** L71393

**Analysis:** EPA 375.4 - Sulfate

**Matrix:** Water

**Sample ID Numbers:**

MCEE-SW-GC-01, MCEE-SW-GC-02, MCEE-SW-GC-03, MCEE-SW-766-01, MCEE-SW-766-02

MS/Dup: Batch QC

**Sampling Date:** 8/21/08, 8/22/08, 8/23/08

**Extraction Date:** 9/8/08

**Analysis Date:** 9/8/08

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Detections between MDL and RL qualified as estimated (B). B changed to T.

**Method, Trip, and Field Blanks:**

NA

**Laboratory Control Samples (LCS):**

LFB within laboratory control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Recovery exceeds control limits. Insufficient spiking amount compared to amount of sulfate in source sample. No sample results qualified.

**Laboratory Duplicate:**

RPD within limits.

**Field Duplicate:**

NA

**Qualification Summary:**

Detections between MDL and RL qualified as estimated (B). B changed to T.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 12/29/10  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L71394  
**Analysis:** EPA 200.8 - total recoverable **Matrix:** Water  
Sb, As, Cd, Pb, Se, Ag,

### **Sample ID Numbers:**

MCEE-SW-SFSR-01, MCEE-SW-SFSR-02, MCEE-SW-SFSR-03, MCEE-SW-DP-02, MCEE-SW-GC-05, MCEE-SW-GC-04

Field dup: MCEE-SW-SFSR-03/ MCEE-SW-DP-02

MS: MCEE-SW-01 (L71393)

**Sampling Date:** 8/19/08 **Extraction Date:** 8/27/08

**Analysis Date:** 8/27/08

### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Cooler temp at lab <2°C - samples not qualified as low temp will not affect metals. Detections between MDL and RL qualified as estimated (B). B changed to T.

### **Method, Trip, and Field Blanks:**

MB (LRB) are ND.

### **Laboratory Control Samples (LCS):**

LFB are within method control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

LFM/LFMD - within method control limits.

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

RPDs within control limits with the exception of Se. Results for Se below RL, and no results qualified.

### **Qualification Summary:**

Detections between MDL and RL qualified as estimated (B). B changed to T.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 12/29/10  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L71394  
**Analysis:** EPA 200.7 - Total recoverable **Matrix:** Water  
Cr, Cu, Zn

### **Sample ID Numbers:**

MCEE-SW-SFSR-01, MCEE-SW-SFSR-02, MCEE-SW-SFSR-03, MCEE-SW-DP-02, MCEE-SW-GC-05, MCEE-SW-GC-04

Field dup: MCEE-SW-SFSR-03/ MCEE-SW-DP-02

MS: MCEE-SW-766-02

**Sampling Date:** 8/19/08 **Extraction Date:** 8/29/08, 8/30/08

**Analysis Date:** 9/2/08, 9/3/08

### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Cooler temp at lab <2°C - samples not qualified as low temp will not affect metals.

### **Method, Trip, and Field Blanks:**

Method blanks (LRB) are non detect.

### **Laboratory Control Samples (LCS):**

LFB within method control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

LFM/LFMD within method control limits.

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

RPDs within control limits.

### **Qualification Summary:**

Data acceptable without qualification.



## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 12/29/10  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L71394  
**Analysis:** EPA 1631 - total Hg **Matrix:** Water

### **Sample ID Numbers:**

MCEE-SW-SFSR-01, MCEE-SW-SFSR-02, MCEE-SW-SFSR-03, MCEE-SW-DP-02, MCEE-SW-GC-05, MCEE-SW-GC-04, Trip Blank

Field dup: MCEE-SW-SFSR-03/ MCEE-SW-DP-02

MS: MCEE-SW-SFSR-03, Batch QC

**Sampling Date:** 8/19/08 **Extraction Date:** 8/29/08

**Analysis Date:** 8/29/08

### **Holding Times and Reporting Limits:**

Cooler temp at lab <2°C - samples not qualified as low temp will not affect metals. Detections between MDL and RL qualified as estimated (B). B changed to T. Sample trip blank received unpreserved at lab, past 48 hour holding time. Hg results for trip blank qualified as estimated (J).

### **Method, Trip, and Field Blanks:**

CCBs acceptable. Trip blank was ND.

### **Laboratory Control Samples (LCS):**

LFB within laboratory control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within lab control limits.

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

RPD within control limits.

### **Qualification Summary:**

Detections between MDL and RL qualified as estimated (B). B changed to T.

Sample trip blank received unpreserved at lab -out of hold. Hg results for trip blank qualified as estimated (J).

## DATA QUALITY REVIEW

**Job Number:** 17330-33                      **Review Date:** 12/29/10  
**Project:** Monte Cristo                      **Reviewer:** A. Conrad  
**Laboratory:** ACZ                              **Laboratory Job ID#:** L71394  
**Analysis:** SM 2510B - Conductivity                      **Matrix:** Water

**Sample ID Numbers:**

MCEE-SW-SFSR-01, MCEE-SW-SFSR-02, MCEE-SW-SFSR-03, MCEE-SW-DP-02, MCEE-SW-GC-05, MCEE-SW-GC-04,

Field dup: MCEE-SW-SFSR-03/ MCEE-SW-DP-02

Dup: Batch QC

**Sampling Date:** 8/19/08                      **Extraction Date:** NA

**Analysis Date:** 8/28/08

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Cooler temp at lab <2°C - samples not qualified as low temp will not affect conductivity.

**Method, Trip, and Field Blanks:**

NA

**Laboratory Control Samples (LCS):**

Within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD within control limits.

**Field Duplicate:**

RPD within control limits.

**Qualification Summary:**

Data acceptable without qualification.





## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	12/29/10
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	ACZ	<b><u>Laboratory Job ID#:</u></b>	L71394
<b><u>Analysis:</u></b>	SM 4500-H+ B - pH	<b><u>Matrix:</u></b>	Water

**Sample ID Numbers:**

MCEE-SW-SFSR-01, MCEE-SW-SFSR-02, MCEE-SW-SFSR-03, MCEE-SW-DP-02, MCEE-SW-GC-05, MCEE-SW-GC-04

Field dup: MCEE-SW-SFSR-03/ MCEE-SW-DP-02

Dup: Batch QC

<b><u>Sampling Date:</u></b>	8/19/08	<b><u>Extraction Date:</u></b>	NA
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**Analysis Date:** 8/28/08

**Holding Times and Reporting Limits:**

Reporting limits are acceptable. Cooler temp at lab <2°C - samples not qualified as low temp will not affect pH. Samples qualified by lab with "H" as received past holding time. pH is a field test. H changed to J.

**Method, Trip, and Field Blanks:**

NA

**Laboratory Control Samples (LCS):**

Within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD within control limits.

**Field Duplicate:**

RPD within control limits.

**Qualification Summary:**

Samples qualified by lab with "H" as received past holding time. H changed to J.



## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 12/29/10  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L71394  
**Analysis:** SM 2540D- TSS **Matrix:** Water

**Sample ID Numbers:**

MCEE-SW-SFSR-01, MCEE-SW-SFSR-02, MCEE-SW-SFSR-03, MCEE-SW-DP-02, MCEE-SW-GC-05, MCEE-SW-GC-04

Field dup: MCEE-SW-SFSR-03/ MCEE-SW-DP-02

Dup: MCEE-SW-GC-04

**Sampling Date:** 8/19/08 **Extraction Date:** NA

**Analysis Date:** 8/26/08

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Cooler temp at lab <2°C - samples not qualified as low temp will not affect solids.

**Method, Trip, and Field Blanks:**

PBW is ND.

**Laboratory Control Samples (LCS):**

Within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD was NA as sample and/or dup <10x MDL.

**Field Duplicate:**

RPD within control limits.

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 12/29/10  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L71394  
**Analysis:** EPA 375.4 - Sulfate **Matrix:** Water

### **Sample ID Numbers:**

MCEE-SW-SFSR-01, MCEE-SW-SFSR-02, MCEE-SW-SFSR-03, MCEE-SW-DP-02, MCEE-SW-GC-05, MCEE-SW-GC-04

Field dup: MCEE-SW-SFSR-03/ MCEE-SW-DP-02

MS/Dup: MCEE-SW-GC-05, Batch QC

**Sampling Date:** 8/19/08 **Extraction Date:** 9/8/08

**Analysis Date:** 9/8/08

### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Cooler temp at lab <2°C - samples not qualified as low temp will not affect sulfate. Detections between MDL and RL qualified as estimated (B). B changed to T.

### **Method, Trip, and Field Blanks:**

NA

### **Laboratory Control Samples (LCS):**

LFB within laboratory control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Recovery within control limits for MCEE-SW-GC-05 MS. Recovery exceeds control limits for Batch QC. Insufficient spiking amount compared to amount of sulfate in source sample. No sample results qualified.

### **Laboratory Duplicate:**

RPD within limits for batch QC. RPD for MCEE-SW-GC-05 was NA as sample and/or dup <10x MDL.

### **Field Duplicate:**

RPD within control limits.

### **Qualification Summary:**

Detections between MDL and RL qualified as estimated (B). B changed to T.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 12/29/10  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L71395  
**Analysis:** EPA 200.8 - total recoverable **Matrix:** Water  
Sb, As, Cd, Pb, Se, Ag,

**Sample ID Numbers:**

MCEE-DW-PW-01, MCEE-DW-ND-01, MCEE-DW-RY-01

MS: Batch QC

**Sampling Date:** 8/23/08 **Extraction Date:** 9/3/08

**Analysis Date:** 9/4/08, 9/8/08

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Detections between MDL and RL qualified as estimated (B). B changed to T.

**Method, Trip, and Field Blanks:**

MB (LRB) are ND.

**Laboratory Control Samples (LCS):**

LFB are within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

LFM/LFMD - within method control limits.

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Detections between MDL and RL qualified as estimated (B). B changed to T.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 12/29/10  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L71395  
**Analysis:** EPA 200.7 - Total recoverable **Matrix:** Water  
Cr, Cu, , Fe, Mn, Zn

**Sample ID Numbers:**

MCEE-DW-PW-01, MCEE-DW-ND-01, MCEE-DW-RY-01

MS: MCEE-DW-ND-01

**Sampling Date:** 8/23/08 **Extraction Date:** 9/2/08

**Analysis Date:** 9/4/08, 9/8/08

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Detections between MDL and RL qualified as estimated (B). B changed to T.

**Method, Trip, and Field Blanks:**

Method blanks (LRB) are non detect.

**Laboratory Control Samples (LCS):**

LFB within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

LFM/LFMD within method control limits.

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Detections between MDL and RL qualified as estimated (B). B changed to T.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 12/29/10  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L71395  
**Analysis:** EPA 200.7 - dissolved Ca, Mg **Matrix:** Water

**Sample ID Numbers:**

MCEE-DW-PW-01, MCEE-DW-ND-01, MCEE-DW-RY-01

MS: Batch QC

**Sampling Date:** 8/23/08 **Extraction Date:** NA

**Analysis Date:** 9/3/08

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Detections between MDL and RL qualified as estimated (B). B changed to T.

**Method, Trip, and Field Blanks:**

No MB or LRB prepared. Samples not extracted - apparently analyzed as is. Lab used ICB to indicate cleanliness of system. ICBs were ND.

**Laboratory Control Samples (LCS):**

LFB within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

AS/ASD within method control limits.

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Detections between MDL and RL qualified as estimated (B). B changed to T.

























## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 12/29/10  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L71396  
**Analysis:** EPA 1631 - total Hg **Matrix:** Water

### **Sample ID Numbers:**

MCEE-DW-BA-01, MCEE-DW-BA-02, MCEE-DW-JU-01, MCEE-DW-JU-02, MCEE-DW-MY-01, MCEE-DW-MY-02, MCEE-DW-PM-01, MCEE-SW-DP-01, Trip Blank

Field dup: MCEE-DW-MY-01/ MCEE-SW-DP-01

MS: Batch QC

**Sampling Date:** 8/20/08, 8/22/08 **Extraction Date:** 9/2/08, 9/4/08

**Analysis Date:** 9/2/08, 9/4/08

### **Holding Times and Reporting Limits:**

RL acceptable. Cooler temp at lab <2°C - samples not qualified as low temp will not affect metals. Sample trip blank received unpreserved at lab -out of hold. Hg results for Trip Blank qualified as estimated (J).

### **Method, Trip, and Field Blanks:**

CCBs acceptable.

Trip blank had detection for Hg at PQL. Samples <10x the amount in the trip blank (MCEE-DW-BA-01, MCEE-DW-JU-01, MCEE-DW-JU-02, MCEE-DW-MW-01, MCEE-DW-MY-02, MCEE-DW-PM-01, MCEE-SW-DP-01) were qualified as U. Samples >10x the amount in the trip blank were not qualified.

### **Laboratory Control Samples (LCS):**

LFB within laboratory control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within lab control limits.

### **Field Duplicate:**

RPD within control limits.

### **Qualification Summary:**

Sample trip blank received unpreserved at lab -out of hold. Hg results for trip blank qualified as estimated (J).

Trip blank had detection for Hg at PQL. Samples <10x the amount in the trip blank (MCEE-DW-BA-01, MCEE-DW-JU-01, MCEE-DW-JU-02, MCEE-DW-MW-01, MCEE-DW-MY-02, MCEE-DW-PM-01, MCEE-SW-DP-01) were qualified as U. Samples >10x the amount in the trip blank were not qualified.















## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 12/30/10  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L71409  
**Analysis:** EPA 6020 - Sb, As, Cd, Pb, Se, **Matrix:** Soil  
Ag,  
**Sample ID Numbers:**  
MCEE-SW-766-01, MCEE-SW-766-02  
MS: Batch QC  
**Sampling Date:** 8/21/08 **Extraction Date:** 9/2/08  
**Analysis Date:** 9/4/08, 9/9/08

### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Detections between MDL and RL qualified as estimated (B). B changed to T.

### **Method, Trip, and Field Blanks:**

MB (PBS) are ND. Lab qualified Pb in samples with "\*" as CCB had Pb at or above RL. Pb in samples >10x amount in blank, and "\*" removed.

### **Laboratory Control Samples (LCS):**

LCS/LCSD within lab and method control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within method control limits with following exceptions. Sb analyzed on 9/9/08 fell below control limits. LCS/LCSD within control - MS was batch QC - sample results not qualified. Pb analyzed on 9/4/08 exceed control limits due to high levels of Pb in source sample compared to spike level. No results qualified.

### **Laboratory Duplicate:**

NA

### **Serial Dilutions:**

Lab qualified Cd with "\*" as serial dilutions were not evaluated for this element as sample concentration <100x the MDL. "\*" removed.

### **Qualification Summary:**

Detections between MDL and RL qualified as estimated (B). B changed to T.

Lab qualified Cd in samples MCEE-SW-766-01, MCEE-SW-766-02 with "\*" as serial dilutions were not evaluated for these element as sample concentration <100x the MDL. "\*" removed. "\*" qualifier not included on EDD.

Lab qualified Pb in samples MCEE-SW-766-01, MCEE-SW-766-02 with "\*" as CCB had Pb at or above RL. Pb in samples >10x amount in blank, and "\*" removed. "\*" qualifier not included on EDD.





## DATA QUALITY REVIEW

**Job Number:** 17330-33

**Review Date:** 12/30/10

**Project:** Monte Cristo

**Reviewer:** A. Conrad

**Laboratory:** ACZ

**Laboratory Job ID#:** L71409

**Analysis:** Total solids

**Matrix:** Soil

**Sample ID Numbers:**

MCEE-SW-766-01, MCEE-SW-766-02

MS: Batch QC

**Sampling Date:** 8/21/08

**Extraction Date:** 8/28/08

**Analysis Date:** 8/29/08

**Holding Times and Reporting Limits:**

Reporting limits and holding time are acceptable.

**Method, Trip, and Field Blanks:**

PBS is ND.

**Laboratory Control Samples (LCS):**

NA

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

Within control limits.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.



**Qualification Summary:**

Detections between MDL and RL qualified as estimated (B). B changed to T.

MCEE-SS-SFSR-02 MS for Sb failed low, MSD within control, RPD exceeds limits. High levels of Sb in source sample compared to spiking amount - no qualification. RPD outside limits due to sample inhomogeneity. Due to RPD failure, Sb in sample MCEE-SS-SFSR-02 qualified as estimated (J).

Lab qualified Pb in samples MCEE-SS-SFSR-01, MCEE-SS-SFSR-02 with "\*" as CCB had Pb at or above RL. Pb in samples >10x amount in blank, and "\*" removed. "\*" qualifier not included on EDD.





**Qualification Summary:**

MS within method control limits with following exceptions: MCEE-SS-SFSR-01 MS/MSD: Cr and Cu failed low in MS/MSD. LCS within control. RPD failed for Cr. Results for Cr and Cu in samples MCEE-SS-SFSR-01, MCEE-SS-SFSR-02, and MCEE-SS-SFSR-03 qualified as estimated (J). Remaining samples in batch not qualified, as samples not considered sufficiently similar.

Lab qualified Cr with "\*" as serial dilutions was not evaluated for this element as sample concentration <50x the MDL. "\*" removed. Lab qualified Zn with "\*" as serial dilution outside criteria due to suspected matrix interference. "\*" changed to J in samples MCEE-SS-SFSR-01, MCEE-SS-SFSR-02, MCEE-SS-SFSR-03, MCEE-SS-DP-02, MCEE-SS-GC-01, MCEE-SS-GC-02, MCEE-SS-GC-03, MCEE-SS-GC-04, and MCEE-SS-GC-05.











## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 12/30/10  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L71491  
**Analysis:** EPA 1631 - total Hg **Matrix:** Water

### **Sample ID Numbers:**

MCEE-SW-SFSR-06, MCEE-SW-SFSR-07, MCEE-SW-SFSR-08, MCEE-SW-SFSR-09, MCEE-SW-MCL-01, MCEE-SW-SFSR-04, MCEE-SW-SFSR-05

MS: MCEE-SW-SFSR-06, Batch QC

**Sampling Date:** 8/26/08, 8/25/08, 8/27/08 **Extraction Date:** 9/9/08

**Analysis Date:** 9/9/08

### **Holding Times and Reporting Limits:**

Cooler temp at lab <2°C - samples not qualified as low temp will not affect metals.  
Reporting limits and holding times are acceptable.

### **Method, Trip, and Field Blanks:**

CCBs acceptable.

### **Laboratory Control Samples (LCS):**

LFB within laboratory control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within lab control limits.

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

NA

### **Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 12/30/10  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L71491  
**Analysis:** SM 2510B - Conductivity **Matrix:** Water

**Sample ID Numbers:**

MCEE-SW-SFSR-06, MCEE-SW-SFSR-07, MCEE-SW-SFSR-08, MCEE-SW-SFSR-09, MCEE-SW-MCL-01, MCEE-SW-SFSR-04, MCEE-SW-SFSR-05

Dup: MCEE-SW-SFSR-06

**Sampling Date:** 8/26/08, 8/25/08, 8/27/08 **Extraction Date:** NA

**Analysis Date:** 9/4/08

**Holding Times and Reporting Limits:**

Cooler temp at lab <2°C - samples not qualified as low temp will not affect conductivity. Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

NA

**Laboratory Control Samples (LCS):**

Within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD within control limits.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.









## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 12/30/10  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L71491  
**Analysis:** SM 2540D- TSS **Matrix:** Water

**Sample ID Numbers:**

MCEE-SW-SFSR-06, MCEE-SW-SFSR-07, MCEE-SW-SFSR-08, MCEE-SW-SFSR-09, MCEE-SW-MCL-01, MCEE-SW-SFSR-04, MCEE-SW-SFSR-05

Dup: Batch QC

**Sampling Date:** 8/26/08, 8/25/08, 8/27/08 **Extraction Date:** NA

**Analysis Date:** 8/29/08

**Holding Times and Reporting Limits:**

Cooler temp at lab <2°C - samples not qualified as low temp will not affect solids. Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

PBW is ND.

**Laboratory Control Samples (LCS):**

Within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD NA as sample and/or dup <10x MDL.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.























**Qualification Summary:**

Detections between MDL and RL qualified as estimated (B). B changed to T.

LCS are within method control limits with following exception. Recovery for As in LCS analyzed on 9/19/08 exceeds control limit. LCSD within control. Associated samples qualified by lab with "\*\*". Due to LCS failure, serial dilution failure, MS exceedances, As in associated samples qualified as estimated (J).

MS within method control limits with following exceptions: MCEE-SS-SFSR-07 MS/MSD for Sb, Pb, and As failed. High levels of Sb, Pb, and As in source sample compared to spiking amount - no qualification. RPD outside limits for Sb due to sample inhomogeneity. Due to RPD failure, Sb in sample MCEE-SS-SFSR-07 qualified as estimated (J).

Lab qualified As with "\*\*" as serial dilution outside criteria due to suspected matrix interference. "\*\*" changed to J in samples MCEE-SS-SFSR-06, MCEE-SS-SFSR-07, MCEE-SS-SFSR-08, MCEE-SS-SFSR-09, MCEE-SS-MLL-01, MCEE-SS-MLL-02, MCEE-SS-MLL-03, MCEE-SS-MLL-04, MCEE-SS-MLL-05, MCEE-SS-MLL-06, MCEE-SS-SFSR-04, MCEE-SS-SFSR-05.











**Serial Dilutions:**

Lab qualified As with “\*” as serial dilution outside criteria due to suspected matrix interference. “\*” changed to J in samples MCEE-WR-SH-01, MCEE-WR-SH-02, MCEE-WR-BA-01, MCEE-WR-BA-02, MCEE-WR-MM-02, and MCEE-WR-MM-03.

Lab qualified Pb with “\*” as serial dilution outside criteria due to suspected matrix interference. “\*” changed to J in samples MCEE-WR-SH-01, MCEE-WR-SH-02, MCEE-WR-BA-01, MCEE-WR-BA-02, MCEE-WR-MM-01, MCEE-WR-MM-02, MCEE-WR-MM-03, and MCEE-WR-PW-02.

Lab qualified Ag in samples MCEE-WR-MM-01 and MCEE-WR-MM-03 with “\*” as serial dilutions were not evaluated for this element as sample concentration <100x the MDL. “\*” removed.

Lab qualified Cd in samples MCEE-WR-MM-04, MCEE-WR-MM-05, MCEE-WR-PW-01, MCEE-WR-PW-02, MCEE-WR-SY-01, MCEE-WR-SY-0,2 MCEE-WR-RY-01, and MCEE-WR-RY-02 with “\*” as serial dilutions were not evaluated for this element as sample concentration <100x the MDL. “\*” removed.

Lab qualified Se in samples MCEE-WR-PW-01, MCEE-WR-PW-02, MCEE-WR-SY-01, MCEE-WR-SY-02, MCEE-WR-RY-01, and MCEE-WR-RY-02 with “\*” as serial dilutions were not evaluated for this element as sample concentration <100x the MDL. “\*” removed.

**Qualification Summary:**

Detections between MDL and RL qualified as estimated (B). B changed to T.

LCS are within method control limits with following exception. Recovery for As in LCS analyzed on 9/19/08 exceeds control limit. LCSD within control. Associated samples qualified by lab with "\*\*\*". Due to LCS failure, serial dilution failure, MS exceedances, As in associated samples qualified as estimated (J).

MS within method control limits with following exceptions: MCEE-WR-MM-05 MS/MSD for Sb, Pb, and As failed. High levels of Sb, Pb, and As in source sample compared to spiking amount - no qualification. RPD outside limits for Sb and As due to sample inhomogeneity. Due to RPD failure, Sb and As in sample MCEE-WR-MM-05 qualified as estimated (J).

Lab qualified As with "\*\*\*" as serial dilution outside criteria due to suspected matrix interference. "\*\*\*" changed to J in samples MCEE-WR-SH-01, MCEE-WR-SH-02, MCEE-WR-BA-01, MCEE-WR-BA-02, MCEE-WR-MM-02, and MCEE-WR-MM-03.

Lab qualified Pb with "\*\*\*" as serial dilution outside criteria due to suspected matrix interference. "\*\*\*" changed to J in samples MCEE-WR-SH-01, MCEE-WR-SH-02, MCEE-WR-BA-01, MCEE-WR-BA-02, MCEE-WR-MM-01, MCEE-WR-MM-02, MCEE-WR-MM-03, and MCEE-WR-PW-02.

Lab qualified Ag in samples MCEE-WR-MM-01 and MCEE-WR-MM-03 with "\*\*\*" as serial dilutions were not evaluated for this element as sample concentration <100x the MDL. "\*\*\*" removed.

Lab qualified Cd in samples MCEE-WR-MM-04, MCEE-WR-MM-05, MCEE-WR-PW-01, MCEE-WR-PW-02, MCEE-WR-SY-01, MCEE-WR-SY-0,2 MCEE-WR-RY-01, and MCEE-WR-RY-02 with "\*\*\*" as serial dilutions were not evaluated for this element as sample concentration <100x the MDL. "\*\*\*" removed.

Lab qualified Se in samples MCEE-WR-PW-01, MCEE-WR-PW-02, MCEE-WR-SY-01, MCEE-WR-SY-02, MCEE-WR-RY-01, and MCEE-WR-RY-02 with "\*\*\*" as serial dilutions were not evaluated for this element as sample concentration <100x the MDL. "\*\*\*" removed.



**Qualification Summary:**

Detections between MDL and RL qualified as estimated (B). B changed to T.

Lab qualified Cr in MCEE-WR-SH-01, MCEE-WR-SH-02, MCEE-WR-BA-01, MCEE-WR-BA-02, and MCEE-WR-MM-01 with "\*" as serial dilutions was not evaluated for this element as sample concentration <50x the MDL. "\*" removed. "\*" qualifier not on EDD.

MCEE-WR-MM-04 MS/MSD for Cu and Zn outside control limits. High levels of Cu and Zn in source sample compared to spiking amount - no qualification. RPD for Zn outside control limits due to sample inhomogeneity. Zn in MCEE-WR-MM-04 qualified as estimated (J).







**Qualification Summary:**

Cooler temp exceeds 6°C. Samples qualified as estimated (J).

Detections between MDL and RL qualified as estimated (B). B changed to T.

MB 9/16/08 has detection between MDL and RL. Associated samples with results between MDL and RL are reported at RL (0.2 U) (MCEE-WR-BA-02).

MCEE-WR-SH-02 MSD exceeds control limits; MS within control. RPD outside control limits due to sample inhomogeneity. Hg in MCEE-WR-SH-02 qualified as estimated (J).



## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/4/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L71530  
**Analysis:** EPA 1312/6010B - SPLP As, Ba, **Matrix:** Soil  
Cd, Cr, Cu, Pb, Se, Ag, Zn

### **Sample ID Numbers:**

MCEE-WR-SH-02, MCEE-WR-BA-02, MCEE-WR-MM-02, MCEE-WR-PW-02, MCEE-WR-SY-01, MCEE-WR-RY-01,

MS: MCEE-WR-SH-02

Dup: Batch QC

**Sampling Date:** 8/21/08, 8/23/08, 8/20/08, **Extraction Date:** 9/9/08, 9/10/08  
8/22/08  
**Analysis Date:** 9/19/08

### **Holding Times and Reporting Limits:**

Cooler temp exceeds 6°C. Samples not qualified as higher temp will not affect metals. Reporting limits acceptable. Method indicates that extracts should be analyzed ASAP after extraction. Sample results analyzed 9-10 days after extraction, but not qualified. Detections between MDL and RL qualified as estimated (B). B changed to T.

### **Method, Trip, and Field Blanks:**

MB (PBS) is ND with following exceptions. Cu was detected between MDL and RL. Cu results in associated samples between MDL and RL raised to RL (0.05) and U-flagged (MCEE-WR-SH-02, MCEE-WR-BA-02, MCEE-WR-MM-02, and MCEE-WR-PW-02). Cu results in associated samples above RL but <10x MB were qualified as non-detect (U) (MCEE-WR-SY-01, MCEE-WR-RY-01).

Zn was detected between MDL and RL. Zn results in associated samples between MDL and RL raised to RL (0.05) and U-flagged (MCEE-WR-BA-02). Zn results in associated samples above RL but <10x MB were qualified as non-detect (U) (MCEE-WR-MM-02, MCEE-WR-PW-02, MCEE-WR-SY-01, MCEE-WR-RY-01).

### **Laboratory Control Samples (LCS):**

NA

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

### **Laboratory Duplicate:**

RPD within control limits or NA with following exception. Zn exceeded control limits due to sample inhomogeneity. Batch QC sample - results not qualified.

**Qualification Summary:**

Detections between MDL and RL qualified as estimated (B). B changed to T.

MB (PBS) is ND with following exceptions. Cu was detected between MDL and RL. Cu results in associated samples between MDL and RL raised to RL (0.05) and U-flagged (MCEE-WR-SH-02, MCEE-WR-BA-02, MCEE-WR-MM-02, and MCEE-WR-PW-02). Cu results in associated samples above RL but <10x MB were qualified as non-detect (U) (MCEE-WR-SY-01, MCEE-WR-RY-01).

Zn was detected between MDL and RL. Zn results in associated samples between MDL and RL raised to RL (0.05) and U-flagged (MCEE-WR-BA-02). Zn results in associated samples above RL but <10x MB were qualified as non-detect (U) (MCEE-WR-MM-02, MCEE-WR-PW-02, MCEE-WR-SY-01, MCEE-WR-RY-01).















## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/4/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L71533  
**Analysis:** EPA 6020- Sb, As, Cd, Pb, Se, **Matrix:** Soil  
Ag,

### **Sample ID Numbers:**

MCEE-WR-GC-01, MCEE-WR-GC-02, MCEE-WR-ND-01, MCEE-WR-ND-02, MCEE-WR-ND-03, MCEE-WR-PM-01, MCEE-WR-PM-02, MCEE-WR-PM-03, MCEE-WR-JU-01, MCEE-WR-JU-02, MCEE-WR-JU-03, MCEE-WR-JU-04, MCEE-WR-JU-05, MCEE-WR-JU-06

MS: MCEE-WR-GC-02

**Sampling Date:** 8/21/08, 8/22/08 **Extraction Date:** 9/9/08

**Analysis Date:** 9/22/08, 9/26/08,

### **Holding Times and Reporting Limits:**

Cooler temp exceeds 6°C. Samples not qualified as higher temp will not affect metals. Holding times are acceptable. Detections between MDL and RL qualified as estimated (B). B changed to T. RL elevated for Cd, Se and Ag in samples MCEE-WR-GC-01, MCEE-WR-JU-01, MCEE-WR-JU-03, and MCEE-WR-JU-04 due to sample dilutions. RL elevated for Se and Ag in sample MCEE-WR-GC-02 due to sample dilutions. RL elevated for Cd and Se in samples MCEE-WR-ND-01, MCEE-WR-PM-02, and MCEE-WR-PM-03 due to sample dilutions. RL elevated for Sb, Cd, Se, and Ag in samples MCEE-WR-ND-02, MCEE-WR-PM-01, and MCEE-WR-JU-06 due to sample dilutions. RL elevated for Sb, Cd, and Se in sample MCEE-WR-JU-05 due to sample dilutions.

### **Method, Trip, and Field Blanks:**

MB (PBS) are ND with following exceptions.

MB analyzed on 9/22/08 had detection for Sb between MDL and RL. Sb in associated samples between MDL and RL raised to RL and U-flagged (MCEE-WR-ND-02, MCEE-WR-ND-03, MCEE-WR-PM-01, MCEE-WR-JU-05, MCEE-WR-JU-06).

MB analyzed on 9/22/08 had As above the RL. As in associated samples >10x amount in MB and no results qualified.

MB analyzed on 9/22/08 had Se above the RL. Se in associated samples was ND, and no results qualified.

MB analyzed on 9/26/08 had Ag between MDL and RL. Ag in associated samples between MDL and RL were raised to RL and U-flagged (MCEE-WR-GC-01, MCEE-WR-GC-02, MCEE-WR-ND-02, MCEE-WR-ND-03, MCEE-WR-PM-01, MCEE-WR-JU-01, MCEE-WR-JU-03, MCEE-WR-JU-04, and MCEE-WR-JU-02).

### **Laboratory Control Samples (LCS):**

LCS are within method control limits with following exception. RPD for Sb exceeds control limits. Recoveries for Sb within CL, and sample results not qualified.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

MS within method control limits with following exceptions: MCEE-WR-GC-02 MS/MSD for Sb, Cd, Pb, and As failed. High levels of Sb, Cd, Pb, and As in source sample compared to spiking amount - no qualification.

MCEE-WR-GC-02 MS/MSD for Se and Ag failed low. MS/MSD was diluted, and recoveries fell below RL. Sample results not qualified.

**Serial Dilutions:**

Lab qualified Ag in samples MCEE-WR-GC-01, MCEE-WR-ND-01, MCEE-WR-ND-02, MCEE-WR-ND-03, MCEE-WR-PM-01, MCEE-WR-PM-02, MCEE-WR-PM-03, MCEE-WR-JU-01, MCEE-WR-JU-02, MCEE-WR-JU-03, MCEE-WR-JU-04, MCEE-WR-JU-05, MCEE-WR-JU-06, and MCEE-WR-GC-02 with “\*” as serial dilutions were not evaluated for this element as sample concentration <100x the MDL. “\*” removed.

**Qualification Summary:**

Detections between MDL and RL qualified as estimated (B). B changed to T.

MB analyzed on 9/22/08 had detection for Sb between MDL and RL. Sb in associated samples between MDL and RL raised to RL and U-flagged (MCEE-WR-ND-02, MCEE-WR-ND-03, MCEE-WR-PM-01, MCEE-WR-JU-05, MCEE-WR-JU-06).

MB analyzed on 9/26/08 had Ag between MDL and RL. Ag in associated samples between MDL and RL were raised to RL and U-flagged (MCEE-WR-GC-01, MCEE-WR-GC-02, MCEE-WR-ND-02, MCEE-WR-ND-03, MCEE-WR-PM-01, MCEE-WR-JU-01, MCEE-WR-JU-03, MCEE-WR-JU-04, and MCEE-WR-JU-02).

Lab qualified Ag in samples MCEE-WR-GC-01, MCEE-WR-ND-01, MCEE-WR-ND-02, MCEE-WR-ND-03, MCEE-WR-PM-01, MCEE-WR-PM-02, MCEE-WR-PM-03, MCEE-WR-JU-01, MCEE-WR-JU-02, MCEE-WR-JU-03, MCEE-WR-JU-04, MCEE-WR-JU-05, MCEE-WR-JU-06, and MCEE-WR-GC-02 with “\*” as serial dilutions were not evaluated for this element as sample concentration <100x the MDL. “\*” removed. “\*” qualifier not included on EDD.



### **Serial Dilutions:**

Lab qualified Cr in MCEE-WR-GC-01, MCEE-WR-GC-02, MCEE-WR-ND-01, MCEE-WR-ND-02, MCEE-WR-ND-03, MCEE-WR-PM-01, MCEE-WR-PM-02, MCEE-WR-PM-03, MCEE-WR-JU-01, MCEE-WR-JU-02, MCEE-WR-JU-03, MCEE-WR-JU-04, MCEE-WR-JU-05, and MCEE-WR-JU-06 with "\*" as serial dilutions was not evaluated for this element as sample concentration <50x the MDL. "\*" removed.

Lab qualified Cu in MCEE-WR-ND-03, MCEE-WR-PM-02, MCEE-WR-PM-03, MCEE-WR-JU-01, MCEE-WR-JU-02, MCEE-WR-JU-05, and MCEE-WR-JU-06 with "\*" as serial dilutions was not evaluated for this element as sample concentration <50x the MDL. "\*" removed.

Lab qualified Zn in MCEE-WR-ND-03, MCEE-WR-PM-02, MCEE-WR-PM-03, MCEE-WR-JU-02, MCEE-WR-JU-05, and MCEE-WR-JU-06 with "\*" as serial dilution exceeded criteria due to matrix interference. "\*" changed to J in those samples.

### **Qualification Summary:**

Detections between MDL and RL qualified as estimated (B). B changed to T.

MB analyzed on 9/23/08 for Cr had detection between MDL and RL. Cr results in associated samples between MDL and RL were raised to the RL and U-flagged (MCEE-WR-GC-01, MCEE-WR-GC-02, MCEE-WR-ND-01, MCEE-WR-ND-02, MCEE-WR-PM-01, and MCEE-WR-JU-04).

Lab qualified Cr in MCEE-WR-GC-01, MCEE-WR-GC-02, MCEE-WR-ND-01, MCEE-WR-ND-02, MCEE-WR-ND-03, MCEE-WR-PM-01, MCEE-WR-PM-02, MCEE-WR-PM-03, MCEE-WR-JU-01, MCEE-WR-JU-02, MCEE-WR-JU-03, MCEE-WR-JU-04, MCEE-WR-JU-05, and MCEE-WR-JU-06 with "\*" as serial dilutions was not evaluated for this element as sample concentration <50x the MDL. "\*" removed. "\*" qualifier not included on EDD.

Lab qualified Cu in MCEE-WR-ND-03, MCEE-WR-PM-02, MCEE-WR-PM-03, MCEE-WR-JU-01, MCEE-WR-JU-02, MCEE-WR-JU-05, and MCEE-WR-JU-06 with "\*" as serial dilutions was not evaluated for this element as sample concentration <50x the MDL. "\*" removed. "\*" qualifier not included on EDD.

Lab qualified Zn in MCEE-WR-ND-03, MCEE-WR-PM-02, MCEE-WR-PM-03, MCEE-WR-JU-02, MCEE-WR-JU-05, and MCEE-WR-JU-06 with "\*" as serial dilution exceeded criteria due to matrix interference. "\*" changed to J in those samples.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/5/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L71533  
**Analysis:** Total solids **Matrix:** Soil

### **Sample ID Numbers:**

MCEE-WR-GC-01, MCEE-WR-GC-02, MCEE-WR-ND-01, MCEE-WR-ND-02, MCEE-WR-ND-03, MCEE-WR-PM-01, MCEE-WR-PM-02, MCEE-WR-PM-03, MCEE-WR-JU-01, MCEE-WR-JU-02, MCEE-WR-JU-03, MCEE-WR-JU-04, MCEE-WR-JU-05, MCEE-WR-JU-06

Dup: MCEE-WR-GC-01

**Sampling Date:** 8/21/08, 8/22/08 **Extraction Date:** 9/2/08

**Analysis Date:** 9/2/08, 9/3/08

### **Holding Times and Reporting Limits:**

Cooler temp exceeds 6°C. Samples not qualified as higher temp will not affect solids. Holding times and reporting limits are acceptable.

### **Method, Trip, and Field Blanks:**

PBS is ND.

### **Laboratory Control Samples (LCS):**

NA

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

### **Laboratory Duplicate:**

RPD within control limits.

### **Field Duplicate:**

NA

### **Qualification Summary:**

Data acceptable without qualification.







## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/5/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L71533  
**Analysis:** EPA 1312/6010B - SPLP As, Ba, Cd, Cr, Cu, Pb, Se, Ag, Zn **Matrix:** Soil

### **Sample ID Numbers:**

MCEE-WR-GC-02, MCEE-WR-ND-01, MCEE-WR-PM-02, MCEE-WR-JU-01, MCEE-WR-JU-03

Dup: MCEE-WR-GC-02

MS: Batch QC

**Sampling Date:** 8/21/08, 8/22/08 **Extraction Date:** 9/10/08

**Analysis Date:** 9/19/08

### **Holding Times and Reporting Limits:**

Cooler temp exceeds 6°C. Samples not qualified as higher temp will not affect metals. Reporting limits acceptable. Method indicates that extracts should be analyzed ASAP after extraction. Sample results analyzed 9 days after extraction, but not qualified. Detections between MDL and RL qualified as estimated (B). B changed to T.

### **Method, Trip, and Field Blanks:**

MB (PBS) is ND with following exceptions. Cu was detected between MDL and RL. Cu results in associated samples between MDL and RL raised to RL (0.05) and U-flagged (MCEE-WR-GC-02, MCEE-WR-JU-01, and MCEE-WR-JU-03). Cu results above RL and <10x amount in MB were qualified as non-detect (U) (MCEE-WR-PM-02).

Zn was detected between MDL and RL. Zn results in associated samples above RL and not qualified.

### **Laboratory Control Samples (LCS):**

NA

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

### **Laboratory Duplicate:**

RPD within control limits or NA with following exception. Zn exceeded control limits due to sample inhomogeneity. Zn in MCEE-WR-GC-02 qualified as estimated (J).

**Qualification Summary:**

Detections between MDL and RL qualified as estimated (B). B changed to T.

MB (PBS) is ND with following exceptions. Cu was detected between MDL and RL. Cu results in associated samples between MDL and RL raised to RL (0.05) and U-flagged (MCEE-WR-GC-02, MCEE-WR-JU-01, and MCEE-WR-JU-03). Cu results above RL and <10x amount in MB were qualified as non-detect (U) (MCEE-WR-PM-02).

RPD within control limits or NA with following exception. Zn exceeded control limits due to sample inhomogeneity. Zn in MCEE-WR-GC-02 qualified as estimated (J).

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/5/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L71533  
**Analysis:** EPA 1311/6010B - TCLP As, Ba, Cd, Cr, Cu, Pb, Se, Ag, Zn **Matrix:** Soil

### **Sample ID Numbers:**

MCEE-WR-GC-02, MCEE-WR-ND-01, MCEE-WR-PM-02, MCEE-WR-JU-01, MCEE-WR-JU-03,  
Dup/MS: Batch QC

**Sampling Date:** 8/21/08, 8/22/08 **Extraction Date:** 9/9/08

**Analysis Date:** 9/19/08

### **Holding Times and Reporting Limits:**

Cooler temp exceeds 6°C. Samples not qualified as higher temp will not affect metals. Reporting limits acceptable. Method indicates that extracts should be analyzed ASAP after extraction. Sample results analyzed 10 days after extraction, but not qualified. Detections between MDL and RL qualified as estimated (B). B changed to T.

### **Method, Trip, and Field Blanks:**

MB (PBS) is ND with following exceptions. Ba was detected above the RL. Ba results in associated samples <10x amount in MB were U-flagged (MCEE-WR-ND-01, MCEE-WR-PM-02, MCEE-WR-JU-01, and MCEE-WR-JU-03). Ba results between MDL and RL were raised to RL and U-flagged (MCEE-WR-GC-02)

### **Laboratory Control Samples (LCS):**

NA

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

### **Laboratory Duplicate:**

RPD within control limits or NA.

### **Qualification Summary:**

Detections between MDL and RL qualified as estimated (B). B changed to T.

MB (PBS) is ND with following exceptions. Ba was detected above the RL. Ba results in associated samples <10x amount in MB were U-flagged (MCEE-WR-ND-01, MCEE-WR-PM-02, MCEE-WR-JU-01, and MCEE-WR-JU-03). Ba results between MDL and RL were raised to RL and U-flagged (MCEE-WR-GC-02)

COC did not request Cu and Zn. Lab reported results for those metals.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/5/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L71533  
**Analysis:** EPA 1312/7470A - SPLP Hg **Matrix:** Soil

**Sample ID Numbers:**

MCEE-WR-GC-02, MCEE-WR-ND-01, MCEE-WR-PM-02, MCEE-WR-JU-01, MCEE-WR-JU-03,

Dup: MCEE-WR-GC-02

MS: Batch QC

**Sampling Date:** 8/21/08, 8/22/08 **Extraction Date:** 9/10/08

**Analysis Date:** 9/18/08

**Holding Times and Reporting Limits:**

Cooler temp exceeds 6°C. Samples qualified as estimated (J). Reporting limits acceptable. Method indicates that extracts should be analyzed ASAP after extraction. Sample results analyzed 8 days after extraction, but not qualified.

**Method, Trip, and Field Blanks:**

MB is ND.

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

**Laboratory Duplicate:**

RPD is NA.

**Qualification Summary:**

Cooler temp exceeds 6°C. Samples qualified as estimated (J).

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/5/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L71533  
**Analysis:** EPA 1311/7470A - TCLP Hg **Matrix:** Soil

**Sample ID Numbers:**

MCEE-WR-GC-02, MCEE-WR-ND-01, MCEE-WR-PM-02, MCEE-WR-JU-01, MCEE-WR-JU-03

Dup/MS: Batch QC

**Sampling Date:** 8/21/08, 8/22/08 **Extraction Date:** 9/9/08

**Analysis Date:** 9/18/08

**Holding Times and Reporting Limits:**

Cooler temp exceeds 6°C. Samples qualified as estimated (J). Reporting limits acceptable. Method indicates that extracts should be analyzed ASAP after extraction. Sample results analyzed 9 days after extraction, but not qualified.

**Method, Trip, and Field Blanks:**

MB is ND.

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

**Laboratory Duplicate:**

RPD is NA.

**Qualification Summary:**

Cooler temp exceeds 6°C. Samples qualified as estimated (J).

## DATA QUALITY REVIEW

**Job Number:** 17330-33

**Review Date:** 1/5/11

**Project:** Monte Cristo

**Reviewer:** A. Conrad

**Laboratory:** ACZ

**Laboratory Job ID#:** L71533

**Analysis:** EPA 600/2-78-054 - Sulfur  
Forms

**Matrix:** Soil

**Sample ID Numbers:**

MCEE-WR-GC-02, MCEE-WR-ND-01, MCEE-WR-PM-02, MCEE-WR-JU-01, MCEE-WR-JU-03

Dup: Batch QC

**Sampling Date:** 8/21/08, 8/22/08

**Extraction Date:** NA

**Analysis Date:** 9/16/08

**Holding Times and Reporting Limits:**

Cooler temp exceeds 6°C. Samples not qualified as higher temp will not affect metals. Reporting limits and holding times acceptable. Detections between MDL and RL qualified as estimated (B). B changed to T.

**Method, Trip, and Field Blanks:**

MB is ND.

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD is within control limits with following exceptions. Sulfur Pyritic Sulfide and Sulfur Sulfate exceeds control limits. Results not qualified as Batch QC.

**Qualification Summary:**

Detections between MDL and RL qualified as estimated (B). B changed to T.



## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/6/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L71533  
**Analysis:** EPA 600/2-78-054 - **Matrix:** Soil  
Neutralization Potential as  
CaCO<sub>3</sub>

**Sample ID Numbers:**

MCEE-WR-GC-02, MCEE-WR-ND-01, MCEE-WR-PM-02, MCEE-WR-JU-01, MCEE-WR-JU-03

Dup: Batch QC

**Sampling Date:** 8/21/08, 8/22/08 **Extraction Date:** NA

**Analysis Date:** 9/16/08

**Holding Times and Reporting Limits:**

Cooler temp exceeds 6°C. Samples not qualified as higher temp will not affect metals. Reporting limits and holding times acceptable. Detections between MDL and RL qualified as estimated (B). B changed to T.

**Method, Trip, and Field Blanks:**

NA

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD is NA.

**Qualification Summary:**

Detections between MDL and RL qualified as estimated (B). B changed to T.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/6/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L71533  
**Analysis:** EPA 600/2-78-054 - Acid potentials **Matrix:** Soil

**Sample ID Numbers:**

MCEE-WR-GC-02, MCEE-WR-ND-01, MCEE-WR-PM-02, MCEE-WR-JU-01, MCEE-WR-JU-03

**Sampling Date:** 8/21/08, 8/22/08 **Extraction Date:** NA

**Analysis Date:** 9/29/08

**Holding Times and Reporting Limits:**

Cooler temp exceeds 6°C. Samples not qualified as higher temp will not affect metals. Reporting limits and holding times acceptable. Detections between MDL and RL qualified as estimated (B). B changed to T.

**Method, Trip, and Field Blanks:**

NA

**Laboratory Control Samples (LCS):**

NA

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

NA

**Qualification Summary:**

Detections between MDL and RL qualified as estimated (B). B changed to T.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/6/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L72382  
**Analysis:** EPA 200.8 - total recoverable **Matrix:** Water  
Sb, As, Cd, Pb, Se, Ag,

**Sample ID Numbers:**

MMEE-DW-SY-01

MS: Not reported

**Sampling Date:** 9/30/08 **Extraction Date:** NR

**Analysis Date:** 10/15/08

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Detections between MDL and RL qualified as estimated (B). B changed to T.

**Method, Trip, and Field Blanks:**

NR

**Laboratory Control Samples (LCS):**

NR

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NR

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Detections between MDL and RL qualified as estimated (B). B changed to T.

No lab report provided for validation. Qualifiers updated from EDD.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/6/11

**Project:** Monte Cristo **Reviewer:** A. Conrad

**Laboratory:** ACZ **Laboratory Job ID#:** L72382

**Analysis:** EPA 200.7 - Total recoverable  
Cr, Cu, Fe, Mn, Zn **Matrix:** Water

**Sample ID Numbers:**  
MMEE-DW-SY-01

MS: Not reported

**Sampling Date:** 9/30/08 **Extraction Date:** NR

**Analysis Date:** 10/17/08, 10/20/08

**Holding Times and Reporting Limits:**  
Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**  
Not reported.

**Laboratory Control Samples (LCS):**  
NR

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**  
NR

**Laboratory Duplicate:**  
NA

**Field Duplicate:**  
NA

**Qualification Summary:**  
Data reported without qualification.

No lab report provided for validation. Qualifiers updated from EDD.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/6/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L72382  
**Analysis:** EPA 200.7 - dissolved Ca, Mg **Matrix:** Water

**Sample ID Numbers:**

MMEE-DW-SY-01

MS: Not reported

**Sampling Date:** 9/30/10 **Extraction Date:** NR

**Analysis Date:** 10/16/08

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Detections between MDL and RL qualified as estimated (B). B changed to T.

**Method, Trip, and Field Blanks:**

NR

**Laboratory Control Samples (LCS):**

NR

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NR

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Detections between MDL and RL qualified as estimated (B). B changed to T.

No lab report provided for validation. Qualifiers updated from EDD.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/6/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L72382  
**Analysis:** EPA 245.1 - total Hg **Matrix:** Water

**Sample ID Numbers:**

MMEE-DW-SY-01

MS: Not reported

**Sampling Date:** 9/30/08 **Extraction Date:** 10/22/08

**Analysis Date:** 10/22/08

**Holding Times and Reporting Limits:**

Reporting limits and holding times are acceptable.

**Method, Trip, and Field Blanks:**

NR

**Laboratory Control Samples (LCS):**

NR

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NR

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Data reported without qualification.

No lab report provided for validation. Qualifiers updated from EDD.

## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	1/6/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	ACZ	<b><u>Laboratory Job ID#:</u></b>	L72382
<b><u>Analysis:</u></b>	SM 2510B - Conductivity	<b><u>Matrix:</u></b>	Water
<b><u>Sample ID Numbers:</u></b> MMEE-DW-SY-01			
<b><u>Sampling Date:</u></b>	9/30/08	<b><u>Extraction Date:</u></b>	NA
<b><u>Analysis Date:</u></b>	10/18/08		

**Holding Times and Reporting Limits:**  
Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**  
NA

**Laboratory Control Samples (LCS):**  
NR

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**  
NA

**Laboratory Duplicate:**  
NR

**Field Duplicate:**  
NA

**Qualification Summary:**  
Data reported without qualification.

No lab report provided for validation. Qualifiers updated from EDD.

## DATA QUALITY REVIEW

**Job Number:** 17330-33

**Review Date:** 1/6/11

**Project:** Monte Cristo

**Reviewer:** A. Conrad

**Laboratory:** ACZ

**Laboratory Job ID#:** L72382

**Analysis:** SM 2340B - Hardness

**Matrix:** Water

**Sample ID Numbers:**

MMEE-DW-SY-01

**Sampling Date:** 9/30/08

**Extraction Date:** NA

**Analysis Date:** 10/23/08

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

NA

**Laboratory Control Samples (LCS):**

NA

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Ca and Mg analytical data acceptable. Data reported without qualification.

No lab report provided for validation. Qualifiers updated from EDD.



## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/6/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L72382  
**Analysis:** SM 4500-H+ B - pH **Matrix:** Water

**Sample ID Numbers:**

MMEE-DW-SY-01

**Sampling Date:** 9/30/08 **Extraction Date:** NA

**Analysis Date:** 10/18/08

**Holding Times and Reporting Limits:**

Reporting limits are acceptable. Samples qualified by lab with "H" as received past holding time. pH is a field test. H changed to J.

**Method, Trip, and Field Blanks:**

NA

**Laboratory Control Samples (LCS):**

NR

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

NR

**Field Duplicate:**

NA

**Qualification Summary:**

Samples qualified by lab with "H" as received past holding time. H changed to J.

No lab report provided for validation. Qualifiers updated from EDD.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/6/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L72382  
**Analysis:** SM 2540C - TDS **Matrix:** Water  
**Sample ID Numbers:**  
MMEE-DW-SY-01  
**Sampling Date:** 9/30/08 **Extraction Date:** NA  
**Analysis Date:** 10/14/08

### **Holding Times and Reporting Limits:**

Reporting limits are acceptable. Samples analyzed past 7 day holding time. Lab qualified results with H. H changed to J.

Detections between MDL and RL qualified as estimated (B). B changed to T.

### **Method, Trip, and Field Blanks:**

NR

### **Laboratory Control Samples (LCS):**

NR

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

### **Laboratory Duplicate:**

NR

### **Field Duplicate:**

NA

### **Qualification Summary:**

Samples analyzed past 7 day holding time. Lab qualified results with H. H changed to J.

Detections between MDL and RL qualified as estimated (B). B changed to T.

No lab report provided for validation. Qualifiers updated from EDD.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/6/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L72382  
**Analysis:** SM 2540D- TSS **Matrix:** Water  
**Sample ID Numbers:**  
MMEE-DW-SY-01  
**Sampling Date:** 9/30/08 **Extraction Date:** NA  
**Analysis Date:** 10/14/08

**Holding Times and Reporting Limits:**

Reporting limits are acceptable. Samples analyzed past 7 day holding time. Lab qualified results with H. H changed to J.

**Method, Trip, and Field Blanks:**

NR

**Laboratory Control Samples (LCS):**

NR

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

NR

**Field Duplicate:**

NA

**Qualification Summary:**

Samples analyzed past 7 day holding time. Lab qualified results with H. H changed to J.

No lab report provided for validation. Qualifiers updated from EDD.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/6/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** ACZ **Laboratory Job ID#:** L72382  
**Analysis:** EPA 375.4 - Sulfate **Matrix:** Water  
**Sample ID Numbers:**  
MMEE-DW-SY-01  
**Sampling Date:** 9/30/08 **Extraction Date:** 10/19/08  
**Analysis Date:** 10/19/08

### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Detections between MDL and RL qualified as estimated (B). B changed to T.

### **Method, Trip, and Field Blanks:**

NA

### **Laboratory Control Samples (LCS):**

NR

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NR

### **Laboratory Duplicate:**

NR

### **Field Duplicate:**

NA

### **Qualification Summary:**

Detections between MDL and RL qualified as estimated (B). B changed to T.

No lab report provided for validation. Qualifiers updated from EDD.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/6/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Edge Analytical **Laboratory Job ID#:** 03-5599  
**Analysis:** EPA 6010B - total As, Be, Cd, **Matrix:** Soil  
Cr, Cu, Pb, Ni, Se, Zn  
**Sample ID Numbers:**  
MC-2 Northeast corner of cond, MC-3 Southeast corner of Cond, MC-4 Justice Adit, MC-5  
Justice Tram Drainage  
Dup/MS: Batch QC  
**Sampling Date:** 9/11/03, 9/12/03 **Extraction Date:** 9/18/03, 10/6/03  
**Analysis Date:** 9/18/03, 10/6/03

### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Receiving temperature exceeds 60C. Samples not qualified as higher temp will not affect metals.

### **Method, Trip, and Field Blanks:**

9/18/03 MB: Detections for Zn and Ag are between MDL and MRL. Zn and Ag in associated samples >10x amount in MB and no results qualified. 10/6/03 MB: Detection for Zn between MDL and MRL. Zn in associated samples > 10x amount in MB and no results qualified.

### **Laboratory Control Samples (LCS):**

LCS are within laboratory control limits of 70-130% and method control limits of 80-120% with following exception. Se fell below method control limits for 9/18/03 LCS and 10/6/03 LCS, within lab control limits. QCS samples within method control limits for all metals.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

9/18/03 MS/MSD: Recoveries within lab control limits of 70-130%. Recoveries below method control limits of 75-125% for Cr, Ni, Cu in MS; Zn, As, Cd in MSD. Sample results not qualified as Batch QC.

10/6/03 MS/MSD: Recoveries within lab control limits with exception of As, Se in MS; Se in MSD. Recoveries below method control limits for As, Se in MS; Ni, As, Se in MSD. RPD within lab control limits of 50%; exceed method control limits of 20% for Cr in 9/18/03 MS/MSD. Sample results not qualified as Batch QC.

### **Laboratory Duplicate:**

Within laboratory control limits (50%) or NA with following exception. Pb in 10/6/03 dup exceeds laboratory RPD limits. Cr in 9/18/03 dup and Cu, Zn, and Pb in 10/6/03 dup exceed method control limits of 20%. No sample results qualified, as batch QC samples.

### **Qualification Summary:**

Se fell below method control limits in LCS. Se also fell below method control limits in 10/6/03 MS/MSD. Se in associated samples qualified as estimated (J).

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/6/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Edge Analytical **Laboratory Job ID#:** 03-5599  
**Analysis:** EPA 6020 - Total Sb, Tl **Matrix:** Soil

**Sample ID Numbers:**

MC-2 Northeast corner of cond, MC-3 Southeast corner of Cond, MC-4 Justice Adit, MC-5 Justice Tram Drainage

MS: MC-2 Northeast corner of cond, MC-5 Justice Tram Drainage

**Sampling Date:** 9/11/03, 9/12/03 **Extraction Date:** 10/29/03,  
10/30/03

**Analysis Date:** 10/29/03, 10/30/03

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Detections between MDL and RL qualified as estimated (J). J changed to T. Receiving temperature exceeds 60C. Samples not qualified as higher temp will not affect metals.

**Method, Trip, and Field Blanks:**

Method blanks are non detect.

**Laboratory Control Samples (LCS):**

LCS and QCS within lab and method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

MS/MSD within lab and method control limits.

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Detections between MDL and RL qualified as estimated (J). J changed to T.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/6/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Edge Analytical **Laboratory Job ID#:** 03-5599  
**Analysis:** EPA 7471A - total Hg **Matrix:** Soil

**Sample ID Numbers:**

MC-2 Northeast corner of cond, MC-3 Southeast corner of Cond, MC-4 Justice Adit, MC-5 Justice Tram Drainage

MS: Batch QC

**Sampling Date:** 9/11/03, 9/12/03 **Extraction Date:** 9/17/03

**Analysis Date:** 9/17/03

**Holding Times and Reporting Limits:**

Reporting limits and holding times are acceptable. Receiving temperature exceeds 60C. Samples qualified as estimated (J).

**Method, Trip, and Field Blanks:**

MB is ND.

**Laboratory Control Samples (LCS):**

LCS and QCS within laboratory and method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

MS exceeds control limits. Batch QC -no sample results qualified.

**Laboratory Duplicate:**

RPD is NA

**Field Duplicate:**

NA

**Qualification Summary:**

Receiving temperature exceeds 60C. Samples qualified as estimated (J).

## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	1/19/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	Edge Analytical	<b><u>Laboratory Job ID#:</u></b>	03-5599
<b><u>Analysis:</u></b>	Dry weights	<b><u>Matrix:</u></b>	Soil

**Sample ID Numbers:**

MC-2 Northeast corner of cond, MC-3 Southeast corner of Cond, MC-4 Justice Adit, MC-5 Justice Tram Drainage

<b><u>Sampling Date:</u></b>	9/11/03, 9/12/03	<b><u>Extraction Date:</u></b>	NR
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<b><u>Analysis Date:</u></b>	NR
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**Holding Times and Reporting Limits:**

NR. Receiving temperature exceeds 60C. Samples not qualified as higher temp will not affect solids.

**Method, Trip, and Field Blanks:**

NR

**Laboratory Control Samples (LCS):**

NR

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

NR

**Field Duplicate:**

NA

**Qualification Summary:**

Laboratory contacted regarding dry weight corrections, as no percent solids reported. According to the analyst spoken with, the variation in the dilution factor and PQL values for each analyte and sample shows that a dry weight correction was factored in.



## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/6/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Manchester Environmental Lab **Laboratory Job ID#:** 1861-03  
**Analysis:** EPA 200.8 - Ni, Se, Ag, Cd, Tl, Be, Cr, Cu, Zn, As, Pb, Sb **Matrix:** Soil  
**Sample ID Numbers:**  
CONCL2WE, COMETBKS, SFSUKLA  
MS: SFSUKLA  
**Sampling Date:** 9/11/03, 9/12/03 **Extraction Date:** NR  
**Analysis Date:** 9/29/03

### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

### **Method, Trip, and Field Blanks:**

MB is ND

### **Laboratory Control Samples (LCS):**

LCS are within method control limits

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

MS within method control limits with following exceptions. MSD for Cu and Pb was not calculated; MS was within CL. MS/MSD for Zn and As were not calculated, due to high levels of target metal in source sample compared to spiking amount. Results not qualified.

MS/MSD for Sb failed low, indicating matrix effect. LCS within limits. Sb results in SFSUKLA qualified as estimated (J).

### **Laboratory Duplicate:**

NA

### **Qualification Summary:**

CONCL2WE - Se qualified as J due to matrix interferences.

MS/MSD for Sb failed low, indicating matrix effect. LCS within limits. Sb results in SFSUKLA qualified as estimated (J).

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/6/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Manchester Environmental Lab **Laboratory Job ID#:** 1861-03  
**Analysis:** EPA 200.8 - Cr, Cu, Zn, As, Ag, Se, Cd, Sb, Pb, Tl, Ni, Be **Matrix:** Water

**Sample ID Numbers:**

76CKHDWT, 76CKSDYM, GCKJUSTM, GCKJUSMB, GCCONCDG, SFKSSMCLK

MS: 76CKSDYM

**Sampling Date:** 9/11/03, 9/12/03 **Extraction Date:** NR

**Analysis Date:** 9/18/03, 9/22/03, 9/23/03

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

Method blanks are non detect.

**Laboratory Control Samples (LCS):**

LCS within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

MS/MSD within method control limits.

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Results acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33      **Review Date:** 1/6/11  
**Project:** Monte Cristo      **Reviewer:** A. Conrad  
**Laboratory:** Manchester Environmental Lab      **Laboratory Job ID#:** 1861-03  
**Analysis:** EPA 245.5 - total Hg      **Matrix:** Soil

**Sample ID Numbers:**  
CONCL2WE, COMETBKS, SFSUKLA

MS: SFSUKLA

**Sampling Date:** 9/11/03, 9/12/03      **Extraction Date:** 9/22/03

**Analysis Date:** 9/22/03

**Holding Times and Reporting Limits:**  
Reporting limits and holding times are acceptable.

**Method, Trip, and Field Blanks:**  
MB is ND.

**Laboratory Control Samples (LCS):**  
LCS within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**  
MS within control limits.

**Laboratory Duplicate:**  
NA

**Field Duplicate:**  
NA

**Qualification Summary:**  
Results acceptable without qualification.

## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	1/6/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	Manchester Environmental Lab	<b><u>Laboratory Job ID#:</u></b>	1861-03
<b><u>Analysis:</u></b>	EPA 245.1 - total Hg	<b><u>Matrix:</u></b>	Water

**Sample ID Numbers:**

76CKHDWT, 76CKSDYM, GCKJUSTM, GCKJUSMB, GCCONCDG, SFKSSMCLK

MS: GCKJUSMB

<b><u>Sampling Date:</u></b>	9/11/03, 9/12/03	<b><u>Extraction Date:</u></b>	9/23/03
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<b><u>Analysis Date:</u></b>	9/23/03
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**Holding Times and Reporting Limits:**

Reporting limits and holding times are acceptable.

**Method, Trip, and Field Blanks:**

MB is ND.

**Laboratory Control Samples (LCS):**

LCS within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

MS within control limits.

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Results acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/6/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Manchester Environmental Lab **Laboratory Job ID#:** 1895-03  
**Analysis:** EPA 200.8 - Ni, Se, Ag, Cd, Tl, Be, Cr, Cu, Zn, As, Pb, Sb **Matrix:** Soil

**Sample ID Numbers:**  
GLCKHDWT, POMTN, POWOODS, COMETBKR  
MS: POMTN

**Sampling Date:** 9/25/03 **Extraction Date:** NR

**Analysis Date:** 10/8/03, 10/13/03

**Holding Times and Reporting Limits:**  
Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**  
MB is ND

**Laboratory Control Samples (LCS):**  
LCS are within method control limits

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**  
MS within method control limits with following exceptions. MSD for Pb was below control limits; MS was within CL. RPD failed. Pb results in POMTN qualified as estimated (J).  
MS/MSD for Zn and As were outside acceptance criteria and not reported, due to sample inhomogeneity. Results for Zn and As in POMTN qualified as estimated (J).  
MS/MSD for Sb failed low due to matrix effect. LCS within limits. Sb results in POMTN qualified as estimated (J).

**Laboratory Duplicate:**  
NA

**Qualification Summary:**  
MS within method control limits with following exceptions. MSD for Pb was below control limits; MS was within CL. RPD failed. Pb results in POMTN qualified as estimated (J).  
MS/MSD for Zn and As were outside acceptance criteria and not reported, due to sample inhomogeneity. Results for Zn and As in POMTN qualified as estimated (J).  
MS/MSD for Sb failed low due to matrix effect. LCS within limits. Sb results in POMTN qualified as estimated (J).

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/6/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Manchester Environmental Lab **Laboratory Job ID#:** 1895-03  
**Analysis:** EPA 200.8 - Cr, Cu, Zn, As, Ag, **Matrix:** Water  
Se, Cd, Sb, Pb, Tl, Ni, Be

**Sample ID Numbers:**

GLACRHDW, GLACRPOM, GLACBCNC, GLACPOMN

MS: GLACPOMN

**Sampling Date:** 9/25/03 **Extraction Date:** NR

**Analysis Date:** 10/20/03, 10/13/03

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

Method blanks are non detect with following exception. The result for Sb was below the RL, but greater than 1/2 RL. The results for Sb in the associated samples were qualified by the lab as estimated (J). As the amount of Sb in the associated samples was <10x the MB, the J qualifier was changed to U.

**Laboratory Control Samples (LCS):**

LCS within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

MS/MSD within method control limits.

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

The MB result for Sb was below the RL, but greater than 1/2 RL. The results for Sb in the associated samples were qualified by the lab as estimated (J). As the amount of Sb in the associated samples was <10x the MB, the J qualifier was changed to U in samples GLACRHDW, GLACRPOM, GLACBCNC, and GLACPOMN).

## DATA QUALITY REVIEW

**Job Number:** 17330-33  
**Review Date:** 1/6/11  
**Project:** Monte Cristo  
**Reviewer:** A. Conrad  
**Laboratory:** Manchester Environmental Lab  
**Laboratory Job ID#:** 1895-03  
**Analysis:** EPA 245.5 - total Hg  
**Matrix:** Soil

**Sample ID Numbers:**  
GLCKHDWT, POMTN, POWOODS, COMETBKR  
MS: GLCKHDWT

**Sampling Date:** 9/25/03  
**Extraction Date:** 10/2/03  
**Analysis Date:** 10/2/03

**Holding Times and Reporting Limits:**  
Reporting limits and holding times are acceptable.

**Method, Trip, and Field Blanks:**  
MB is ND.

**Laboratory Control Samples (LCS):**  
LCS within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**  
MS - not calculated due to sample inhomogeneity. Results for source sample GLCKHDWT qualified as estimated (J).

**Laboratory Duplicate:**  
NA

**Field Duplicate:**  
NA

**Qualification Summary:**  
MS - not calculated due to sample inhomogeneity. Results for source sample GLCKHDWT qualified as estimated (J).

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/6/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Manchester Environmental Lab **Laboratory Job ID#:** 1895-03  
**Analysis:** EPA 245.1 - total Hg **Matrix:** Water

**Sample ID Numbers:**

GLACRHDW, GLACRPOM, GLACBCNC, GLACPOMN

MS: GLACRPOM

**Sampling Date:** 9/25/03 **Extraction Date:** 9/30/03

**Analysis Date:** 9/30/03

**Holding Times and Reporting Limits:**

Reporting limits and holding times are acceptable.

**Method, Trip, and Field Blanks:**

MB is ND.

**Laboratory Control Samples (LCS):**

LCS within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

MS within control limits.

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Results acceptable without qualification.





## DATA QUALITY REVIEW

**Job Number:** 17330-33

**Review Date:** 1/6/11

**Project:** Monte Cristo

**Reviewer:** A. Conrad

**Laboratory:** Manchester Environmental Lab

**Laboratory Job ID#:** 1895-03

**Analysis:** SM 2540C - TDS

**Matrix:** Water

**Sample ID Numbers:**

GLACRHDW, GLACBELC

Dup: GLACBELC

**Sampling Date:** 9/25/03

**Extraction Date:** 10/2/03

**Analysis Date:** 10/2/03

**Holding Times and Reporting Limits:**

Reporting limits and holding times are acceptable.

**Method, Trip, and Field Blanks:**

MB is ND.

**Laboratory Control Samples (LCS):**

LCS within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD within control limits.

**Field Duplicate:**

NA

**Qualification Summary:**

Results acceptable without qualification.

## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	1/6/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	Manchester Environmental Lab	<b><u>Laboratory Job ID#:</u></b>	1895-03
<b><u>Analysis:</u></b>	SM 2340B - Hardness	<b><u>Matrix:</u></b>	Water

**Sample ID Numbers:**

GLACRHDW, GLACRPOM, GLACBCNC, GLACPOMN

<b><u>Sampling Date:</u></b>	9/25/03	<b><u>Extraction Date:</u></b>	NA
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<b><u>Analysis Date:</u></b>	12/18/03
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**Holding Times and Reporting Limits:**

Reporting limits and holding times are acceptable.

**Method, Trip, and Field Blanks:**

MB is ND.

**Laboratory Control Samples (LCS):**

LCS within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Results acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/6/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Manchester Environmental Lab **Laboratory Job ID#:** 1861-03  
**Analysis:** SM 2340B - Hardness **Matrix:** Water

**Sample ID Numbers:**  
76CKHDWT, 76CKSDYM, GCKJUSTM, GCKJUSMB, GCCONCDG, SFKSSMCLK

**Sampling Date:** 9/11/03, 9/12/03 **Extraction Date:** NA

**Analysis Date:** 12/18/03

**Holding Times and Reporting Limits:**  
Reporting limits and holding times are acceptable.

**Method, Trip, and Field Blanks:**

MB is ND.

**Laboratory Control Samples (LCS):**

LCS within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Results acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/7/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** STL **Laboratory Job ID#:** 116488  
**Analysis:** EPA 376.2 - sulfide **Matrix:** Water

**Sample ID Numbers:**

Glacier Ck Headwater, Glacier Ck below Concentrator

Dup/MS: Glacier Ck Headwater

**Sampling Date:** 9/25/03 **Extraction Date:** 9/30/03

**Analysis Date:** 9/30/03

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB is ND

**Laboratory Control Samples (LCS):**

Within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within method control limits.

**Laboratory Duplicate:**

RPD is NA

**Qualification Summary:**

Data acceptable without qualification.

**No sample receiving temps reported. Sample time of collection not properly reported on COC. All samples reported as collected at same date and time as delivery at laboratory.**

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/12/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** STL **Laboratory Job ID#:** 109204  
**Analysis:** EPA 6010B - total As, Cd, Cu, Fe, Pb, Zn **Matrix:** Water  
**Sample ID Numbers:**  
New disc H2O, PR-MTS  
Dup/MS: Batch QC  
**Sampling Date:** 10/11/02 (?) **Extraction Date:** 10/15/02  
**Analysis Date:** 10/15/02

### **Holding Times and Reporting Limits:**

Could not determine if holding times met, but assume within 6 months. Results not qualified. Reporting limits are acceptable.

### **Method, Trip, and Field Blanks:**

MB is ND.

### **Laboratory Control Samples (LCS):**

LCS/LCSD (Fe) are within method control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

MS/MSD within control limits with following exception. Fe exceeds limits due to high levels of Fe in source sample compared to spiking amount. LCS for Fe within control. No sample results qualified.

### **Laboratory Duplicate:**

RPD within control or NA with following exceptions: RPDs for Cu and Fe exceed limits. Cu results <5x MDL and NA. Fe results probably due to sample heterogeneity. No sample results qualified as batch QC.

### **Field Duplicate:**

NA

### **Qualification Summary:**

Data not qualified.





## DATA QUALITY REVIEW

**Job Number:** 17330-33  
**Review Date:** 1/12/11  
**Project:** Monte Cristo  
**Reviewer:** A. Conrad  
**Laboratory:** STL  
**Laboratory Job ID#:** 109204  
**Analysis:** EPA 130.2 - Hardness  
**Matrix:** Water

### **Sample ID Numbers:**

New disc H2O, PR-MTS

Dup: New disc H2O

**Sampling Date:** 10/11/02 (?)      **Extraction Date:** NA

**Analysis Date:** 10/23/02

### **Holding Times and Reporting Limits:**

Could not determine if within holding times as sample collection date may be incorrect. However, probably within 6 months. Results not qualified. Reporting limits are acceptable.

### **Method, Trip, and Field Blanks:**

MB is ND.

### **Laboratory Control Samples (LCS):**

NA

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

### **Laboratory Duplicate:**

RPD within control limits.

### **Field Duplicate:**

NA

### **Qualification Summary:**

Data not qualified.



**Qualification Summary:**

Lab qualified results between MDL and RL with J. J changed to T.

MB has detection for Pb, Sb, Cu, Ni, and Zn between MDL and RL. The laboratory qualified those metals in associated samples with B. Detections for those metals in the associated samples between the MDL and RL were raised to the RL and U-flagged (MC-GC-1 [Pb, Cu, Ni, Zn], MC-GC-3 [Pb, Cu, Ni, Zn], MC-GC-4 [Pb, Cu, Ni], MC-GC-5 [Pb, Cu, Ni, Zn], MC-GC-6 [Ni], MC-GC-9 [Pb, Cu, Ni], MC-76-1 [Pb, Cu], MC-76-2 [Pb, Sb, Cu, Ni, Zn], MC-76-3 [Pb, Cu, Ni]). Detections for those metals in the associated samples above the RL and >10x MB had B qualifier removed (MC-GC-1 [Sb], MC-GC-3 [Sb], MC-GC-4 [Sb, Zn], MC-GC-5 [Sb], MC-GC-6 [Pb, Sb, Cu, Zn], MC-GC-9 [Sb, Zn], MC-76-1 [Sb, Ni, Zn], MC-76-3 [Sb, Zn]).



## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/20/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Severn Trent Lab **Laboratory Job ID#:** 580-3244-1  
**Analysis:** EPA 130.2 - hardness **Matrix:** Water

**Sample ID Numbers:**

MC-GC-1, MC-GC-3, MC-GC-4, MC-GC-5, MC-GC-6, MC-GC-9, MC-GC-10, MC-76-1, MC-76-2, MC-76-3

**Sampling Date:** 8/2/06, 8/3/06 **Extraction Date:** 8/10/06  
**Analysis Date:** 8/10/06

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB is ND.

**Laboratory Control Samples (LCS):**

Within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

NA

**Qualification Summary:**

Results acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33  
**Project:** Monte Cristo  
**Laboratory:** Manchester Environmental Lab  
**Analysis:** EPA 160.1 - TDS  
**Review Date:** 1/13/11  
**Reviewer:** A. Conrad  
**Laboratory Job ID#:** 4073-00,  
1661-01  
**Matrix:** Water

**Sample ID Numbers:**

4A, 4C, GC Up, GC Down

Dup: GC Up, Batch QC

**Sampling Date:** 8/18/00, 6/19/01  
**Extraction Date:** NA  
**Analysis Date:** 8/28/00, 6/26/01

**Holding Times and Reporting Limits:**

Reporting limits are acceptable. Holding time for 4A and 4C (collected 8/18/00) exceeds 7 days. Results for 4A and 4C qualified as estimated (J). Receiving temp for 2000 samples (4A and 4C) exceeded 6°C. Results for 4A and 4C qualified as estimated (J).

**Method, Trip, and Field Blanks:**

Not reported.

**Laboratory Control Samples (LCS):**

Not reported

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD for 2001 data in control. RPD for 2000 data in control.

**Field Duplicate:**

NA

**Qualification Summary:**

Holding time for 4A and 4C (collected 8/18/00) exceeds 7 days. Results for 4A and 4C qualified as estimated (J).

Receiving temp for 2000 samples (4A and 4C) exceeded 6°C. Results for 4A and 4C qualified as estimated (J).

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/13/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Manchester Environmental **Laboratory Job ID#:** 4073-00,  
1661-01  
**Analysis:** EPA 160.2 - TSS **Matrix:** Water

**Sample ID Numbers:**

4A, 4C, GC Up, GC Down

Dup: Batch QC

**Sampling Date:** 8/18/00, 6/19/01 **Extraction Date:** NA

**Analysis Date:** 8/25/00, 6/26/01

**Holding Times and Reporting Limits:**

Reporting limits and holding times are acceptable. Receiving temp for 2000 samples (4A and 4C) exceeded 6°C. Results for 4A and 4C qualified as estimated (J).

**Method, Trip, and Field Blanks:**

Not reported.

**Laboratory Control Samples (LCS):**

Not reported.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD for 2000 data within control limits.

**Field Duplicate:**

NA

**Qualification Summary:**

Receiving temp for 2000 samples (4A and 4C) exceeded 6°C. Results for 4A and 4C qualified as estimated (J).

## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	1/13/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	Manchester Environmental	<b><u>Laboratory Job ID#:</u></b>	4073-00, 1661-01
<b><u>Analysis:</u></b>	EPA 200.7 - total Al, Fe	<b><u>Matrix:</u></b>	Water

**Sample ID Numbers:**  
4A, 4C, GC Up, GC Down  
Field dup: 4C

<b><u>Sampling Date:</u></b>	8/18/00, 6/19/01	<b><u>Extraction Date:</u></b>	8/31/00, 6/28/01
<b><u>Analysis Date:</u></b>	9/8/00, 7/18/01		

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Receiving temp for 2000 samples (4A and 4C) exceeded 6°C. Results not qualified as elevated temperature will not significantly affect metals.

**Method, Trip, and Field Blanks:**

MB are ND with following exception. MB 2001 has detection for Fe above RL. Fe in associated samples GC Up and GC Down qualified by the lab with J. As the sample results were ND, the UJ qualifier was changed to U.

**Laboratory Control Samples (LCS):**

LCS within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

NA

**Field Duplicate:**

RPD for Al was NA as sample and dup were ND. RPD for Fe exceeded the control limits, but as sample/dup were <5x RL, no results qualified.

**Qualification Summary:**

MB 2001 has detection for Fe above RL. Fe in associated samples GC Up and GC Down qualified by the lab with J. As the sample results were ND, the UJ qualifier was changed to U.



## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/13/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Manchester Environmental **Laboratory Job ID#:** 4073-00,  
1661-01  
**Analysis:** EPA 200.8 - dissolved As, Cd,  
Cu, Pb, Zn **Matrix:** Water  
**Sample ID Numbers:**  
4A, 4C, GC Up, GC Down  
Field dup: 4C  
**Sampling Date:** 8/18/00, 6/19/01 **Extraction Date:** 8/30/00, 6/29/01  
**Analysis Date:** 8/30/00, 6/29/01

**Holding Times and Reporting Limits:**

Holding times and RL acceptable. Receiving temp for 2000 samples (4A and 4C) exceeded 6°C. Results not qualified as elevated temperature will not significantly affect metals.

**Method, Trip, and Field Blanks:**

MB are ND.

**Laboratory Control Samples (LCS):**

LCS within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

NA

**Field Duplicate:**

RPD within control or NA.

**Qualification Summary:**

Zn in 4A qualified as estimated (J) by lab due to potential high bias.

## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	1/13/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	Manchester Environmental	<b><u>Laboratory Job ID#:</u></b>	4073-00
<b><u>Analysis:</u></b>	EPA 245.5 - Hg	<b><u>Matrix:</u></b>	Soil

**Sample ID Numbers:**  
4A, 4C  
MS: 4C

<b><u>Sampling Date:</u></b>	8/18/00	<b><u>Extraction Date:</u></b>	9/7/00, 9/14/00
<b><u>Analysis Date:</u></b>	9/8/00, 9/14/00		

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Receiving temp for 2000 samples (4A and 4C) exceeded 6°C. Results for 4A and 4C qualified as estimated (J).

**Method, Trip, and Field Blanks:**

MB is ND

**Laboratory Control Samples (LCS):**

Within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within method control limits.

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Receiving temp for 2000 samples (4A and 4C) exceeded 6°C. Results for 4A and 4C qualified as estimated (J).

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/13/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Manchester Environmental **Laboratory Job ID#:** 4073-00,  
1661-01  
**Analysis:** EPA 245.7 - total Hg **Matrix:** Water

**Sample ID Numbers:**

4A, 4C, GC Up, GC Down

Field dup: 4C

MS: 4C

**Sampling Date:** 8/18/00, 6/19/01 **Extraction Date:** 9/11/00, 7/2/01

**Analysis Date:** 9/13/00, 7/3/01

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Receiving temp for 2000 samples (4A and 4C) exceeded 6°C. Results for 4A and 4C qualified as estimated (J).

**Method, Trip, and Field Blanks:**

MBs are ND

**Laboratory Control Samples (LCS):**

Within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within method control limits.

**Laboratory Duplicate:**

NA

**Field Duplicate:**

RPD is NA

**Qualification Summary:**

Receiving temp for 2000 samples (4A and 4C) exceeded 6°C. Results for 4A and 4C qualified as estimated (J).



## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	1/13/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	Manchester Environmental	<b><u>Laboratory Job ID#:</u></b>	4073-00, 1661-01
<b><u>Analysis:</u></b>	SM 2130 - Turbidity	<b><u>Matrix:</u></b>	Water

### **Sample ID Numbers:**

4A, 4C, GC Up, GC Down

Dup: 4A

**Sampling Date:** 8/18/00, 6/19/01

**Extraction Date:** NA

**Analysis Date:** 8/25/00, 6/22/01

### **Holding Times and Reporting Limits:**

Reporting limits are acceptable. Holding times exceeds 48 hours. Results for samples qualified as estimated (J). Receiving temp for 2000 samples (4A and 4C) exceeded 6°C. Results for 4A and 4C qualified as estimated (J).

### **Method, Trip, and Field Blanks:**

NA

### **Laboratory Control Samples (LCS):**

NA

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

### **Laboratory Duplicate:**

RPD within control limits.

### **Field Duplicate:**

NA

### **Qualification Summary:**

Holding times exceeds 48 hours. Results for samples qualified as estimated (J). Receiving temp for 2000 samples (4A and 4C) exceeded 6°C. Results for 4A and 4C qualified as estimated (J).

## DATA QUALITY REVIEW

**Job Number:** 17330-33  
**Project:** Monte Cristo  
**Laboratory:** Manchester Environmental  
**Analysis:** SM 2340B - Hardness  
**Review Date:** 1/13/11  
**Reviewer:** A. Conrad  
**Laboratory Job ID#:** 4073-00,  
1661-01  
**Matrix:** Water

**Sample ID Numbers:**

4A, 4C, GC Up, GC Down

Dup: GC Down

**Sampling Date:** 8/18/00, 6/19/01

**Extraction Date:** NA

**Analysis Date:** 8/31/00, 6/29/01

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Receiving temp for 2000 samples (4A and 4C) exceeded 6°C. Results not qualified as elevated temperatures will not significantly affect metals.

**Method, Trip, and Field Blanks:**

MBs are ND.

**Laboratory Control Samples (LCS):**

Within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD was within control limits.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/13/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Manchester Environmental **Laboratory Job ID#:** 4073-00  
**Analysis:** EPA 6010B - total Al, Sb, Be, Cd, **Matrix:** Soil  
Cr, Cu, Fe, Mn, Ni, Ag, Zn  
**Sample ID Numbers:**  
4A, 4C  
MS: 4C  
**Sampling Date:** 8/18/00 **Extraction Date:** 9/18/00  
**Analysis Date:** 9/20/00

### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Receiving temp for 2000 samples (4A and 4C) exceeded 6°C. Results not qualified as elevated temperatures will not significantly affect metals.

### **Method, Trip, and Field Blanks:**

MB was ND.

### **Laboratory Control Samples (LCS):**

ERAS within method control limits with following exception. Sb recovered high. Sb in sample 4A qualified as estimated (J).

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

4C MS/MSD: Al, Mn, and Fe recoveries not calculated, as spiking amount less than source sample. Results not qualified. 4C MS/MSD: Sb recovered low. LCS recovered high. Results for Sb in 4A and 4C qualified as estimated (J).

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

NA

### **Qualification Summary:**

4C MS/MSD: Sb recovered low. LCS recovered high. Results for Sb in 4A and 4C qualified as estimated (J).





## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	1/13/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	Manchester Environmental	<b><u>Laboratory Job ID#:</u></b>	4073-00
<b><u>Analysis:</u></b>	EPA 7421 - Pb	<b><u>Matrix:</u></b>	Soil

### **Sample ID Numbers:**

4A, 4C

MS: 4C

**Sampling Date:** 8/18/00

**Extraction Date:** 9/18/00

**Analysis Date:** 9/21/00

### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Receiving temp for 2000 samples (4A and 4C) exceeded 6°C. Results not qualified as elevated temperatures will not significantly affect metals.

### **Method, Trip, and Field Blanks:**

MB was ND.

### **Laboratory Control Samples (LCS):**

ERAS within method control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

NA

### **Qualification Summary:**

Data acceptable without qualification.



## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 1/13/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Manchester Environmental **Laboratory Job ID#:** 4073-00  
**Analysis:** EPA 7841 - TI **Matrix:** Soil

**Sample ID Numbers:**

4A, 4C

MS: 4C

**Sampling Date:** 8/18/00 **Extraction Date:** 9/18/00

**Analysis Date:** 9/21/00

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Receiving temp for 2000 samples (4A and 4C) exceeded 6°C. Results not qualified as elevated temperatures will not significantly affect metals.

**Method, Trip, and Field Blanks:**

MB was ND.

**Laboratory Control Samples (LCS):**

ERAS within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

MS recovered below 75%, MSD above 125%. RPD failed. Results for TI in 4C and 4A qualified as estimated (J).

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

MS recovered below 75%, MSD above 125%. RPD failed. Results for TI in 4C and 4A qualified as estimated (J).

## DATA QUALITY REVIEW

**Job Number:** 17330-33

**Review Date:** 3/11/11

**Project:** Monte Cristo

**Reviewer:** A. Conrad

**Laboratory:** Pace Analytical - Seattle

**Laboratory Job ID#:** 254127

### **Sample Receiving Discrepancies:**

One cooler was received at 7.2°C, above the method recommended temperature of 4 +/- 2°C. Associated samples were to be analyzed for metals, ions, alkalinity, TDS, TSS, and hardness. The cooler contained samples MCRA1-DW-MY-01, MCRA1-DW-JU-01, MCRA1-DW-BA-01, MCRA1-DW-ND-01, MCRA1-DW-PM-01, MCRA1-DW-PW-01, MCRA1-DW-SH-01, and MCRA1-DW-RY-01. Sample results for TDS, TSS, and pH were qualified as estimated (J) due to this temperature exceedance.

### **Sample ID Numbers:**

MCRA1-SW-SFSR-01, MCRA1-SW-SFSR-02, MCRA1-SW-SFSR-03, MCRA1-SW-SFSR-04, MCRA1-SW-SFSR-05, MCRA1-SW-SFSR-06, MCRA1-SW-SFSR-07, MCRA1-SW-SFSR-08, MCRA1-SW-SFSR-09, MCRA1-SW-GC-01, MCRA1-SW-GC-02, MCRA1-SW-GC-02a, MCRA1-SW-GC-03, MCRA1-SW-GC-04, MCRA1-SW-GC-04a, MCRA1-SW-GC-05, MCRA1-SW-76G-01, MCRA1-SW-76G-01a, MCRA1-SW-76G-01b, MCRA1-SW-76G-02, MCRA1-SW-DP-01, MCRA1-SW-DP-02, MCRA1-SW-EQ-01, MCRA1-SW-MCL-01, MCRA1-SS-GC-01, MCRA1-SS-GC-02, MCRA1-SS-GC-02a, MCRA1-SS-GC-03, MCRA1-SS-GC-04, MCRA1-SS-GC-04a, MCRA1-SS-GC-05, MCRA1-SS-76G-01, MCRA1-SS-76G-01a, MCRA1-SS-76G-02, MCRA1-SS-76G-01b, MCRA1-SS-SFSR-01, MCRA1-SS-SFSR-02, MCRA1-SS-SFSR-03, MCRA1-SS-SFSR-04, MCRA1-SS-SFSR-05, MCRA1-SS-SFSR-06, MCRA1-SS-SFSR-07, MCRA1-SS-SFSR-08, MCRA1-SS-SFSR-09, MCRA1-DW-MY-01, MCRA1-DW-JU-01, MCRA1-DW-BA-01, MCRA1-DW-ND-01, MCRA1-DW-PM-01, MCRA1-DW-PW-01, MCRA1-DW-SH-01, MCRA1-DW-RY-01, MCRA1-SW-DP-03

## DATA QUALITY REVIEW

**Job Number:** 17330-33                      **Review Date:** 3/11/11  
**Project:** Monte Cristo                      **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical - Seattle                      **Laboratory Job ID#:** 254127  
**Analysis:** USDA 21A pH - paste                      **Matrix:** Sediment

### **Sample ID Numbers:**

MCRA1-SS-GC-01, MCRA1-SS-GC-02, MCRA1-SS-GC-02a, MCRA1-SS-GC-03, MCRA1-SS-GC-04, MCRA1-SS-GC-04a, MCRA1-SS-GC-05, MCRA1-SS-76G-01, MCRA1-SS-76G-01a, MCRA1-SS-76G-02, MCRA1-SS-76G-01b, MCRA1-SS-SFSR-01, MCRA1-SS-SFSR-02, MCRA1-SS-SFSR-03, MCRA1-SS-SFSR-04, MCRA1-SS-SFSR-05, MCRA1-SS-SFSR-06, MCRA1-SS-SFSR-07, MCRA1-SS-SFSR-08, MCRA1-SS-SFSR-09,

Dup: MCRA1-SS-SFSR-02, Batch QC

**Sampling Date:** 6/28/10, 6/29/10, 6/30/10,                      **Extraction Date:** NA  
7/1/10

**Analysis Date:** 7/13/10, 7/19/10

### **Holding Times and Reporting Limits:**

No holding time reported for pH paste. Reporting limits are acceptable.

### **Method, Trip, and Field Blanks:**

NA

### **Laboratory Control Samples (LCS):**

Within control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

### **Laboratory Duplicate:**

RPD within control limits.

### **Field Duplicate:**

NA

### **Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 3/11/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical **Laboratory Job ID#:** 254127  
**Analysis:** EPA 6010B - Al, As, Cd, Cr, Cu, **Matrix:** Sediment  
Fe, Mn, Sb

### **Sample ID Numbers:**

MCRA1-SS-GC-01, MCRA1-SS-GC-02, MCRA1-SS-GC-02a, MCRA1-SS-GC-03, MCRA1-SS-GC-04, MCRA1-SS-GC-04a, MCRA1-SS-GC-05, MCRA1-SS-76G-01, MCRA1-SS-76G-01a, MCRA1-SS-76G-02, MCRA1-SS-76G-01b, MCRA1-SS-SFSR-01, MCRA1-SS-SFSR-02, MCRA1-SS-SFSR-03, MCRA1-SS-SFSR-04, MCRA1-SS-SFSR-05, MCRA1-SS-SFSR-06, MCRA1-SS-SFSR-07, MCRA1-SS-SFSR-08, MCRA1-SS-SFSR-09,

MS: MCRA1-SS-GC-01

**Sampling Date:** 6/28/10, 6/29/10, 6/30/10, **Extraction Date:** 7/12/10  
7/1/10  
**Analysis Date:** 7/14/10

### **Holding Times and Reporting Limits:**

Holding times acceptable. Reporting limits elevated for Cd in MCRA1-SS-GC-01, MCRA1-SS-GC-02, MCRA1-SS-GC-02a, MCRA1-SS-GC-03, MCRA1-SS-GC-04, MCRA1-SS-GC-04a, MCRA1-SS-GC-05, MCRA1-SS-76G-01, MCRA1-SS-76G-02, MCRA1-SS-SFSR-01, MCRA1-SS-SFSR-02, MCRA1-SS-SFSR-03, MCRA1-SS-SFSR-04, MCRA1-SS-SFSR-05, MCRA1-SS-SFSR-06, MCRA1-SS-SFSR-07, MCRA1-SS-SFSR-08, and MCRA1-SS-SFSR-09; for Sb in MCRA1-SS-GC-02, MCRA1-SS-GC-02a, MCRA1-SS-GC-03, MCRA1-SS-GC-04, MCRA1-SS-GC-04a, MCRA1-SS-GC-05, MCRA1-SS-76G-01, MCRA1-SS-76G-02, MCRA1-SS-76G-01b, MCRA1-SS-SFSR-01, MCRA1-SS-SFSR-02, MCRA1-SS-SFSR-04, MCRA1-SS-SFSR-05, MCRA1-SS-SFSR-07, and MCRA1-SS-SFSR-09 due to sample dilutions. Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

### **Method, Trip, and Field Blanks:**

Method blank had detections for Fe and Mn between the MDL and RL. Results in associated samples for Fe and Mn were greater than 10x the amount in the MB and were not qualified.

### **Laboratory Control Samples (LCS):**

Within method control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within method control limits with following exceptions: MS/MSD for Al, As, Fe, and Mn fell outside the control limits due to high levels of metals in the source sample compared to spiking amount. Sample results not qualified. MS/MSD for Sb and Cu fell outside the control limits. Results for Sb and Cu in MCRA1-SS-GC-01 qualified as estimated (J).

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

NA

**Qualification Summary:**

Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

MS/MSD for Sb and Cu fell outside the control limits. Results for Sb and Cu in MCRA1-SS-GC-01 qualified as estimated (J).

## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	3/11/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	Pace Analytical	<b><u>Laboratory Job ID#:</u></b>	254127
<b><u>Analysis:</u></b>	EPA 6020 - Pb, Zn	<b><u>Matrix:</u></b>	Sediment

### **Sample ID Numbers:**

MCRA1-SS-GC-01, MCRA1-SS-GC-02, MCRA1-SS-GC-02a, MCRA1-SS-GC-03, MCRA1-SS-GC-04, MCRA1-SS-GC-04a, MCRA1-SS-GC-05, MCRA1-SS-76G-01, MCRA1-SS-76G-01a, MCRA1-SS-76G-02, MCRA1-SS-76G-01b, MCRA1-SS-SFSR-01, MCRA1-SS-SFSR-02, MCRA1-SS-SFSR-03, MCRA1-SS-SFSR-04, MCRA1-SS-SFSR-05, MCRA1-SS-SFSR-06, MCRA1-SS-SFSR-07, MCRA1-SS-SFSR-08, MCRA1-SS-SFSR-09

MS: MCRA1-SS-GC-01, MCRA1-SS-76G-01b

<b><u>Sampling Date:</u></b>	6/28/10, 6/29/10, 6/30/10, 7/1/10	<b><u>Extraction Date:</u></b>	7/12/10
<b><u>Analysis Date:</u></b>	7/16/10		

### **Holding Times and Reporting Limits:**

Reporting limits are acceptable. Holding times acceptable.

### **Method, Trip, and Field Blanks:**

MB had detection for Pb between the MDL and RL. Results in associated samples for Pb were greater than 10x the amount in the MB and were not qualified.

### **Laboratory Control Samples (LCS):**

LCS within control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

MCRA1-SS-GC-01 MS/MSD recoveries within control limits with exception of Zn in MSD. High levels of Zn in source sample compared to spiking amount. No results qualified.

MCRA1-SS-76G-01b MS/MSD exceeds control limits for Pb and Zn due to high levels of metals in the source sample compared to spiking amount and sample dilution. No results qualified.

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

NA

### **Qualification Summary:**

Data acceptable without qualification.





## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	3/11/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	Pace Analytical	<b><u>Laboratory Job ID#:</u></b>	254127
<b><u>Analysis:</u></b>	SM 2320B - Alkalinity	<b><u>Matrix:</u></b>	Water

**Sample ID Numbers:**

MCRA1-DW-MY-01, MCRA1-DW-JU-01, MCRA1-DW-BA-01, MCRA1-DW-ND-01, MCRA1-DW-PM-01, MCRA1-DW-PW-01, MCRA1-DW-SH-01, MCRA1-DW-RY-01

Dup: MCRA1-DW-MY-01, Batch QC

**Sampling Date:** 6/28/10, 6/29/10, 6/30/10      **Extraction Date:** NA

**Analysis Date:** 7/8/10

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB is ND.

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD is within control limits or NA if sample and dup are ND.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.



## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 3/11/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical **Laboratory Job ID#:** 254127  
**Analysis:** EPA 6020 - Al, Sb, As, Cd, Cr, **Matrix:** Water  
Cu, Fe, Pb, Mn, Zn (K, Ca, Mg)

### **Sample ID Numbers:**

MCRA1-SW-SFSR-01, MCRA1-SW-SFSR-02, MCRA1-SW-SFSR-03, MCRA1-SW-SFSR-04, MCRA1-SW-SFSR-05, MCRA1-SW-SFSR-06, MCRA1-SW-SFSR-07, MCRA1-SW-SFSR-08, MCRA1-SW-SFSR-09, MCRA1-SW-GC-01, MCRA1-SW-GC-02, MCRA1-SW-GC-02a, MCRA1-SW-GC-03, MCRA1-SW-GC-04, MCRA1-SW-GC-04a, MCRA1-SW-GC-05, MCRA1-SW-76G-01, MCRA1-SW-76G-01a, MCRA1-SW-76G-01b, MCRA1-SW-76G-02, MCRA1-SW-DP-01, MCRA1-SW-DP-02, MCRA1-SW-EQ-01, MCRA1-SW-MCL-01, MCRA1-DW-MY-01, MCRA1-DW-JU-01, MCRA1-DW-BA-01, MCRA1-DW-ND-01, MCRA1-DW-PM-01, MCRA1-DW-PW-01, MCRA1-DW-SH-01, MCRA1-DW-RY-01, MCRA1-SW-DP-03

Field dup: MCRA1-DW-MY-01/MCRA1-SW-DP-01; MCRA1-DW-PW-01/MCRA1-SW-DP-02; MCRA1-SW-SFSR-09/MCRA1-SW-DP-03

MS: MCRA1-SW-SFSR-01, MCRA1-SW-GC-02, MCRA1-SW-DP-01, MCRA1-DW-SH-01

**Sampling Date:** 6/28/10, 6/29/10, 6/30/10, **Extraction Date:** 7/12/10  
7/1/10  
**Analysis Date:** 7/15/10, 7/16/10, 7/19/10,  
7/20/10

### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

### **Method, Trip, and Field Blanks:**

MB 820460 has detections for As, Cd, Pb, and Mn between MDL and RL. The laboratory qualified those metals in the associated samples with B. Results for those metals in the associated samples that were <10x the amount in the MB had the B qualifier changed to U [MCRA1-SW-SFSR-01 (Cd, Pb, Mn), MCRA1-SW-SFSR-02 (Pb, Mn), MCRA1-SW-SFSR-03 (Pb, Mn), MCRA1-SW-SFSR-05 (Mn), MCRA1-SW-SFSR-06 (Mn), MCRA1-SW-SFSR-07 (Pb, Mn), MCRA1-SW-SFSR-08 (Pb, Mn), MCRA1-SW-SFSR-09 (Pb), MCRA1-SW-GC-01 (As, Mn), MCRA1-SW-GC-02 (Mn), MCRA1-SW-GC-02a (Mn), MCRA1-SW-GC-03 (Pb, Mn), MCRA1-SW-GC-04 (Pb), MCRA1-SW-GC-04a (Cd, Pb, Mn), MCRA1-SW-GC-05 (Pb, Mn), MCRA1-SW-76G-01 (Mn), MCRA1-SW-76G-01b (Cd), and MCRA1-SW-76G-02 (Pb, Mn). The results for those metals in the associated samples that fell between the MDL and the RL were raised to the RL and qualified as non-detect (U) [MCRA1-SW-SFSR-02 (Cd), MCRA1-SW-SFSR-03 (Cd), MCRA1-SW-SFSR-04 (Cd, Pb, Mn), MCRA1-SW-SFSR-05 (Cd, Pb), MCRA1-SW-SFSR-06 (Cd, Pb), MCRA1-SW-SFSR-07 (Cd), MCRA1-SW-SFSR-08 (Cd), MCRA1-SW-SFSR-09 (Cd), MCRA1-SW-GC-01 (Cd, Pb), MCRA1-SW-GC-02 (Pb), MCRA1-SW-GC-02a (Cd, Pb), MCRA1-SW-GC-03 (Cd), MCRA1-SW-GC-04 (Cd), MCRA1-SW-GC-05 (Cd), MCRA1-SW-76G-01 (As, Pb), and MCRA1-SW-76G-02 (Cd). Results for those metals in the associated samples that were >10x the amount in the MB, had the B qualifier removed [MCRA1-SW-SFSR-01 (As), MCRA1-SW-SFSR-02 (As), MCRA1-SW-SFSR-03 (As), MCRA1-SW-SFSR-04 (As), MCRA1-SW-SFSR-05 (As), MCRA1-SW-SFSR-06 (As), MCRA1-SW-SFSR-07 (As), MCRA1-SW-SFSR-08 (As), MCRA1-SW-SFSR-09 (As, Mn), MCRA1-SW-GC-02 (As), MCRA1-SW-GC-02a (As), MCRA1-SW-GC-03 (As), MCRA1-SW-GC-04 (As, Mn), MCRA1-SW-GC-04a (As), MCRA1-SW-GC-05 (As), MCRA1-SW-76G-01a (As, Pb, Mn), MCRA1-SW-76G-01b (As, Pb, Mn), and MCRA1-SW-76G-02 (As).

MB 820465 has detections for Mn and K between the MDL and RL. The laboratory qualified those metals in the associated samples with B. Results for those metals in the associated samples that were <10x the amount in the MB had the B qualifier changed to U [MCRA1-DW-BA-01 (Mn)]. The results for those metals in the associated samples that fell between the MDL and the RL were raised to the RL and qualified as non-detect (U) [MCRA1-SW-EQ-01 (Mn)]. Results for those metals in the associated samples that were >10x the amount in the MB, had the B qualifier removed [MCRA1-SW-DP-01 (Mn), MCRA1-SW-DP-02 (Mn), MCRA1-SW-MCL-01 (Mn), MCRA1-DW-MY-01 (Mn, K), MCRA1-DW-JU-01 (Mn, K), MCRA1-DW-BA-01 (K), MCRA1-DW-ND-01 (Mn, K), MCRA1-DW-PM-01 (Mn, K), MCRA1-DW-PW-01 (Mn, K), MCRA1-DW-SH-01 (Mn, K), MCRA1-DW-RY-01 (Mn, K), and MCRA1-SW-DP-03 (Mn).

Rinsate blank MCRA1-SW-EQ-01 had detections for Al, As, Cr, Pb, and Cu above the RL; and Fe, Mn, and Zn between the MDL and RL. The detection for Mn was elevated to the RL and qualified as non-detect (U) due to MB contamination. No sample results were qualified due to rinsate blank detections.

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

MCRA1-SW-SFSR-01MS/MSD, MCRA1-SW-GC-02 MS, and MCRA1-DW-SH-01 MS: Within control limits.

MCRA1-SW-DP-01 MS/MSD: Results for Al, As, Ca, Zn, and Mn fell outside the control limits due to high levels of metals in the source sample compared to the spiking amount. Sample results not qualified.

**Laboratory Duplicate:**

NA

**Field Duplicate:**

MCRA1-DW-MY-01/MCRA1-SW-DP-01: RPD within control limits.

MCRA1-DW-PW-01/MCRA1-SW-DP-02: RPD for Al, Sb, As, Cr, Fe, and Pb exceeded 35%. Results for Al, Sb, As, Cr, Fe, and Pb in MCRA1-DW-PW-01 and MCRA1-SW-DP-02 qualified as estimated (J).

MCRA1-SW-SFSR-09/MCRA1-SW-DP-03: RPD for Al, Cd, and Cu exceeded 35%. Results for Cd and Cu <5x RL and not qualified. Results for Al in MCRA1-SW-SFSR-09 and MCRA1-SW-DP-03 qualified as estimated (J).

**Qualification Summary:**

Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

MB 820460 has detections for As, Cd, Pb, and Mn between MDL and RL. The laboratory qualified those metals in the associated samples with B. Results for those metals in the associated samples that were <10x the amount in the MB had the B qualifier changed to U [MCRA1-SW-SFSR-01 (Cd, Pb, Mn), MCRA1-SW-SFSR-02 (Pb, Mn), MCRA1-SW-SFSR-03 (Pb, Mn), MCRA1-SW-SFSR-05 (Mn), MCRA1-SW-SFSR-06 (Mn), MCRA1-SW-SFSR-07 (Pb, Mn), MCRA1-SW-SFSR-08 (Pb, Mn), MCRA1-SW-SFSR-09 (Pb), MCRA1-SW-GC-01 (As, Mn), MCRA1-SW-GC-02 (Mn), MCRA1-SW-GC-02a (Mn), MCRA1-SW-GC-03 (Pb, Mn), MCRA1-SW-GC-04 (Pb), MCRA1-SW-GC-04a (Cd, Pb, Mn), MCRA1-SW-GC-05 (Pb, Mn), MCRA1-SW-76G-01 (Mn), MCRA1-SW-76G-01b (Cd), and MCRA1-SW-76G-02 (Pb, Mn)]. The results for those metals in the associated samples that fell between the MDL and the RL were raised to the RL and qualified as non-detect (U) [MCRA1-SW-SFSR-02 (Cd), MCRA1-SW-SFSR-03 (Cd), MCRA1-SW-SFSR-04 (Cd, Pb, Mn), MCRA1-SW-SFSR-05 (Cd, Pb), MCRA1-SW-SFSR-06 (Cd, Pb), MCRA1-SW-SFSR-07 (Cd), MCRA1-SW-SFSR-08 (Cd), MCRA1-SW-SFSR-09 (Cd), MCRA1-SW-GC-01 (Cd, Pb), MCRA1-SW-GC-02 (Pb), MCRA1-SW-GC-02a (Cd, Pb), MCRA1-SW-GC-03 (Cd), MCRA1-SW-GC-04 (Cd), MCRA1-SW-GC-05 (Cd), MCRA1-SW-76G-01 (As, Pb), and MCRA1-SW-76G-02 (Cd)]. Results for those metals in the associated samples that were >10x the amount in the MB, had the B qualifier removed [MCRA1-SW-SFSR-01 (As), MCRA1-SW-SFSR-02 (As), MCRA1-SW-SFSR-03 (As), MCRA1-SW-SFSR-04 (As), MCRA1-SW-SFSR-05 (As), MCRA1-SW-SFSR-06 (As), MCRA1-SW-SFSR-07 (As), MCRA1-SW-SFSR-08 (As), MCRA1-SW-SFSR-09 (As, Mn), MCRA1-SW-GC-02 (As), MCRA1-SW-GC-02a (As), MCRA1-SW-GC-03 (As), MCRA1-SW-GC-04 (As, Mn), MCRA1-SW-GC-04a (As), MCRA1-SW-GC-05 (As), MCRA1-SW-76G-01a (As, Pb, Mn), MCRA1-SW-76G-01b (As, Pb, Mn), and MCRA1-SW-76G-02 (As)].

MB 820465 has detections for Mn and K between the MDL and RL. The laboratory qualified those metals in the associated samples with B. Results for those metals in the associated samples that were <10x the amount in the MB had the B qualifier changed to U [MCRA1-DW-BA-01 (Mn)]. The results for those metals in the associated samples that fell between the MDL and the RL were raised to the RL and qualified as non-detect (U) [MCRA1-SW-EQ-01 (Mn)]. Results for those metals in the associated samples that were >10x the amount in the MB, had the B qualifier removed [MCRA1-SW-DP-01 (Mn), MCRA1-SW-DP-02 (Mn), MCRA1-SW-MCL-01 (Mn), MCRA1-DW-MY-01 (Mn, K), MCRA1-DW-JU-01 (Mn, K), MCRA1-DW-BA-01 (K), MCRA1-DW-ND-01 (Mn, K), MCRA1-DW-PM-01 (Mn, K), MCRA1-DW-PW-01 (Mn, K), MCRA1-DW-SH-01 (Mn, K), MCRA1-DW-RY-01 (Mn, K), and MCRA1-SW-DP-03 (Mn)].

RPD for Al, Sb, As, Cr, Fe, and Pb exceeded 35%. Results for Al, Sb, As, Cr, Fe, and Pb in MCRA1-DW-PW-01 and MCRA1-SW-DP-02 qualified as estimated (J).

RPD for Al, Cd, and Cu exceeded 35%. Results for Cd and Cu <5x RL and not qualified. Results for Al in MCRA1-SW-SFSR-09 and MCRA1-SW-DP-03 qualified as estimated (J).

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 3/11/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical **Laboratory Job ID#:** 254127  
**Analysis:** SM 2540C - TDS **Matrix:** Water

### **Sample ID Numbers:**

MCRA1-SW-SFSR-01, MCRA1-SW-SFSR-02, MCRA1-SW-SFSR-03, MCRA1-SW-SFSR-04, MCRA1-SW-SFSR-05, MCRA1-SW-SFSR-06, MCRA1-SW-SFSR-07, MCRA1-SW-SFSR-08, MCRA1-SW-SFSR-09, MCRA1-SW-GC-01, MCRA1-SW-GC-02, MCRA1-SW-GC-02a, MCRA1-SW-GC-03, MCRA1-SW-GC-04, MCRA1-SW-GC-04a, MCRA1-SW-GC-05, MCRA1-SW-76G-01, MCRA1-SW-76G-01a, MCRA1-SW-76G-01b, MCRA1-SW-76G-02, MCRA1-SW-MCL-01, MCRA1-DW-MY-01, MCRA1-DW-JU-01, MCRA1-DW-BA-01, MCRA1-DW-ND-01, MCRA1-DW-PM-01, MCRA1-DW-PW-01, MCRA1-DW-SH-01, MCRA1-DW-RY-01

Dup: Batch QC, MCRA1-SW-GC-04a, MCRA1-DW-JU-01, MCRA1-DW-RY-01

**Sampling Date:** 6/28/10, 6/29/10, 6/30/10, **Extraction Date:** NR  
7/1/10  
**Analysis Date:** 7/2/10, 7/7/10

### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

One cooler was received at 7.2°C, above the method recommended temperature of 4 +/- 2°C. The associated samples MCRA1-DW-MY-01, MCRA1-DW-JU-01, MCRA1-DW-BA-01, MCRA1-DW-ND-01, MCRA1-DW-PM-01, MCRA1-DW-PW-01, MCRA1-DW-SH-01, and MCRA1-DW-RY-01 were qualified as estimated (J) due to this temperature exceedance.

### **Method, Trip, and Field Blanks:**

MB are ND.

### **Laboratory Control Samples (LCS):**

Within control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

### **Laboratory Duplicate:**

Batch QC, MCRA1-DW-JU-01, MCRA1-DW-RY-01: RPD within control limits.

MCRA1-SW-GC-04a: RPD exceeds control limit. Sample and dup <5x RL, and results not qualified.

### **Field Duplicate:**

NA

### **Qualification Summary:**



Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

One cooler was received at 7.2°C, above the method recommended temperature of 4 +/- 2°C. The associated samples MCRA1-DW-MY-01, MCRA1-DW-JU-01, MCRA1-DW-BA-01, MCRA1-DW-ND-01, MCRA1-DW-PM-01, MCRA1-DW-PW-01, MCRA1-DW-SH-01, and MCRA1-DW-RY-01 were qualified as estimated (J) due to this temperature exceedance.

## DATA QUALITY REVIEW

**Job Number:** 17330-33                      **Review Date:** 3/11/11  
**Project:** Monte Cristo                      **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical                      **Laboratory Job ID#:** 254127  
**Analysis:** SM 2540D - TSS                      **Matrix:** Water

### **Sample ID Numbers:**

MCRA1-SW-SFSR-01, MCRA1-SW-SFSR-02, MCRA1-SW-SFSR-03, MCRA1-SW-SFSR-04, MCRA1-SW-SFSR-05, MCRA1-SW-SFSR-06, MCRA1-SW-SFSR-07, MCRA1-SW-SFSR-08, MCRA1-SW-SFSR-09, MCRA1-SW-GC-01, MCRA1-SW-GC-02, MCRA1-SW-GC-02a, MCRA1-SW-GC-03, MCRA1-SW-GC-04, MCRA1-SW-GC-04a, MCRA1-SW-GC-05, MCRA1-SW-76G-01, MCRA1-SW-76G-01a, MCRA1-SW-76G-01b, MCRA1-SW-76G-02, MCRA1-SW-MCL-01, MCRA1-DW-MY-01, MCRA1-DW-JU-01, MCRA1-DW-BA-01, MCRA1-DW-ND-01, MCRA1-DW-PM-01, MCRA1-DW-PW-01, MCRA1-DW-SH-01, MCRA1-DW-RY-01

Dup: Batch QC, MCRA1-DW-BA-01, MCRA1-SW-SFSR-02, MCRA1-DW-RY-01

**Sampling Date:** 6/28/10, 6/29/10, 6/30/10,                      **Extraction Date:** NR  
7/1/10  
**Analysis Date:** 7/3/10, 7/6/10

### **Holding Times and Reporting Limits:**

Holding times are acceptable. RL raised for MCRA1-SW-GC-04 due to insufficient sample volume available.

One cooler was received at 7.2°C, above the method recommended temperature of 4 +/- 2°C. The associated samples MCRA1-DW-MY-01, MCRA1-DW-JU-01, MCRA1-DW-BA-01, MCRA1-DW-ND-01, MCRA1-DW-PM-01, MCRA1-DW-PW-01, MCRA1-DW-SH-01, and MCRA1-DW-RY-01 were qualified as estimated (J) due to this temperature exceedance.

### **Method, Trip, and Field Blanks:**

MB are ND.

### **Laboratory Control Samples (LCS):**

NA

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

### **Laboratory Duplicate:**

Batch QC, MCRA1-DW-BA-01, MCRA1-SW-SFSR-02: RPD within control limits or NA if sample and dup < RL.

MCRA1-DW-RY-01: RPD exceeds control limit. Sample and dup <5x RL, and results not qualified.

### **Field Duplicate:**

NA

### **Qualification Summary:**

One cooler was received at 7.2°C, above the method recommended temperature of 4 +/- 2°C. The associated samples MCRA1-DW-MY-01, MCRA1-DW-JU-01, MCRA1-DW-BA-01, MCRA1-DW-ND-01, MCRA1-DW-PM-01, MCRA1-DW-PW-01, MCRA1-DW-SH-01, and MCRA1-DW-RY-01 were qualified as estimated (J) due to this temperature exceedance.



**Field Duplicate:**

NA

**Qualification Summary:**

Samples were analyzed past holding time of ASAP. Sample results qualified by lab with H6. H6 changed to J in samples MCRA1-SW-SFSR-01, MCRA1-SW-SFSR-02, MCRA1-SW-SFSR-03, MCRA1-SW-SFSR-04, MCRA1-SW-SFSR-05, MCRA1-SW-SFSR-06, MCRA1-SW-SFSR-07, MCRA1-SW-SFSR-08, MCRA1-SW-SFSR-09, MCRA1-SW-GC-01, MCRA1-SW-GC-02, MCRA1-SW-GC-02a, MCRA1-SW-GC-03, MCRA1-SW-GC-04, MCRA1-SW-GC-04a, MCRA1-SW-GC-05, MCRA1-SW-76G-01, MCRA1-SW-76G-01a, MCRA1-SW-76G-01b, MCRA1-SW-76G-02, MCRA1-SW-MCL-01, MCRA1-DW-MY-01, MCRA1-DW-JU-01, MCRA1-DW-BA-01, MCRA1-DW-ND-01, MCRA1-DW-PM-01, MCRA1-DW-PW-01, MCRA1-DW-SH-01, and MCRA1-DW-RY-01.

One cooler was received at 7.2°C, above the method recommended temperature of 4 +/- 2°C. The associated samples MCRA1-DW-MY-01, MCRA1-DW-JU-01, MCRA1-DW-BA-01, MCRA1-DW-ND-01, MCRA1-DW-PM-01, MCRA1-DW-PW-01, MCRA1-DW-SH-01, and MCRA1-DW-RY-01 were qualified as estimated (J) due to this temperature exceedance.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 3/11/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical **Laboratory Job ID#:** 254127  
**Analysis:** EPA 300.0 - chloride, sulfate **Matrix:** Water

**Sample ID Numbers:**

MCRA1-DW-MY-01, MCRA1-DW-JU-01, MCRA1-DW-BA-01, MCRA1-DW-ND-01, MCRA1-DW-PM-01, MCRA1-DW-PW-01, MCRA1-DW-SH-01, MCRA1-DW-RY-01

MS: Batch QC

**Sampling Date:** 6/28/10, 6/29/10, 6/30/10 **Extraction Date:** NA

**Analysis Date:** 7/9/10, 7/13/10

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

**Method, Trip, and Field Blanks:**

MB is ND.

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

MS/MSD recoveries within control limits. MS/MSD results for sulfate exceeded the calibration curve and were qualified as estimated (E). No sample results were qualified.

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 3/9/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical - Seattle **Laboratory Job ID#:** 255182  
**Analysis:** USDA 21A pH - paste **Matrix:** Sediment

### **Sample ID Numbers:**

MCRA2-SS-SFSR-01, MCRA2-SS-SFSR-02, MCRA2-SS-SFSR-03, MCRA2-SS-SFSR-04, MCRA2-SS-SFSR-05, MCRA2-SS-SFSR-06, MCRA2-SS-SFSR-07, MCRA2-SS-SFSR-08, MCRA2-SS-SFSR-09

Dup: MCRA2-SS-SFSR-01, Batch QC

**Sampling Date:** 9/27/10, 9/30/10 **Extraction Date:** NA

**Analysis Date:** 10/8/10

### **Holding Times and Reporting Limits:**

No holding time reported for paste pH. Reporting limits are acceptable.

### **Method, Trip, and Field Blanks:**

NA

### **Laboratory Control Samples (LCS):**

NA

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

### **Laboratory Duplicate:**

RPD within control limits.

### **Field Duplicate:**

NA

### **Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 3/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical **Laboratory Job ID#:** 255182  
**Analysis:** EPA 6010B - As, Cd, Cr, Cu, Fe, **Matrix:** Sediment  
Mn, Sb

### **Sample ID Numbers:**

MCRA2-SS-SFSR-01, MCRA2-SS-SFSR-02, MCRA2-SS-SFSR-03, MCRA2-SS-SFSR-04, MCRA2-SS-SFSR-05, MCRA2-SS-SFSR-06, MCRA2-SS-SFSR-07, MCRA2-SS-SFSR-08, MCRA2-SS-SFSR-09

MS: MCRA2-SS-SFSR-01

**Sampling Date:** 9/27/10, 9/30/10 **Extraction Date:** 10/6/10

**Analysis Date:** 10/7/10, 10/11/10

### **Holding Times and Reporting Limits:**

Holding times acceptable. Reporting limits elevated for Sb and Cd in MCRA2-SS-SFSR-01, MCRA2-SS-SFSR-04, and MCRA2-SS-SFSR-06; for Cd in MCRA2-SS-SFSR-02, MCRA2-SS-SFSR-03, MCRA2-SS-SFSR-05, MCRA2-SS-SFSR-07, MCRA2-SS-SFSR-08, and MCRA2-SS-SFSR-09 due to sample dilutions. Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

### **Method, Trip, and Field Blanks:**

Method blank had detections for Sb and Mn between the MDL and RL. Results in associated samples for Sb and Mn that fell between the MDL and RL were raised to the RL and qualified as non-detect (U) [MCRA2-SS-SFSR-01 (Sb), MCRA2-SS-SFSR-04 (Sb), and MCRA2-SS-SFSR-06 (Sb)]. Results for Sb and Mn in the remaining associated samples were greater than 10x the amount in the MB and were not qualified.

### **Laboratory Control Samples (LCS):**

Within method control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within method control limits with following exceptions: MS/MSD for As, Cu, Fe, and Mn exceeded the control limits due to high levels of metals in the source sample compared to spiking amount. Sample results not qualified. The RPDs for As and Cu exceeded the laboratory control limits of 20%. Cu in MCRA2-SS-SFSR-01 qualified as estimated (J) due to exceedance of 35% RPD.

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

NA

### **Qualification Summary:**



Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

Method blank had detections for Sb and Mn between the MDL and RL. Results in associated samples for Sb and Mn that fell between the MDL and RL were raised to the RL and qualified as non-detect (U) [MCRA2-SS-SFSR-01 (Sb), MCRA2-SS-SFSR-04 (Sb), and MCRA2-SS-SFSR-06 (Sb)].

Cu in MCRA2-SS-SFSR-01 qualified as estimated (J) due to exceedance of 35% RPD.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 3/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical **Laboratory Job ID#:** 255182  
**Analysis:** EPA 7471A - Hg **Matrix:** Sediment

### **Sample ID Numbers:**

MCRA2-SS-SFSR-01, MCRA2-SS-SFSR-02, MCRA2-SS-SFSR-03, MCRA2-SS-SFSR-04, MCRA2-SS-SFSR-05, MCRA2-SS-SFSR-06, MCRA2-SS-SFSR-07, MCRA2-SS-SFSR-08, MCRA2-SS-SFSR-09

MS: MCRA2-SS-SFSR-01

**Sampling Date:** 9/27/10, 9/30/10 **Extraction Date:** 10/6/10

**Analysis Date:** 10/7/10

### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

### **Method, Trip, and Field Blanks:**

MB is ND.

### **Laboratory Control Samples (LCS):**

LCS within control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

MS/MSD within control limits.

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

NA

### **Qualification Summary:**

Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	3/10/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	Pace Analytical	<b><u>Laboratory Job ID#:</u></b>	255182
<b><u>Analysis:</u></b>	EPA 6020 - Pb, Zn	<b><u>Matrix:</u></b>	Sediment

### **Sample ID Numbers:**

MCRA2-SS-SFSR-01, MCRA2-SS-SFSR-02, MCRA2-SS-SFSR-03, MCRA2-SS-SFSR-04, MCRA2-SS-SFSR-05, MCRA2-SS-SFSR-06, MCRA2-SS-SFSR-07, MCRA2-SS-SFSR-08, MCRA2-SS-SFSR-09

MS: Batch QC, MCRA2-SS-SFSR-06

**Sampling Date:** 9/27/10, 9/30/10 **Extraction Date:** 10/11/10

**Analysis Date:** 10/14/10

### **Holding Times and Reporting Limits:**

Reporting limits are acceptable. Holding times acceptable.

### **Method, Trip, and Field Blanks:**

MB was ND.

### **Laboratory Control Samples (LCS):**

LCS within control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Batch QC MS/MSD exceeds control limits for Pb and Zn. Due to sample dilution, results could not be evaluated. No results qualified.

MCRA2-SS-SFSR-06 MS/MSD exceeds control limits for Pb and Zn. Due to sample dilution, results could not be evaluated. No results qualified.

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

NA

### **Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33      **Review Date:** 3/10/11  
**Project:** Monte Cristo      **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical      **Laboratory Job ID#:** 255182  
**Analysis:** ASTM-D2974-87 - % Moisture      **Matrix:** Sediment

### **Sample ID Numbers:**

MCRA2-SS-SFSR-01, MCRA2-SS-SFSR-02, MCRA2-SS-SFSR-03, MCRA2-SS-SFSR-04, MCRA2-SS-SFSR-05, MCRA2-SS-SFSR-06, MCRA2-SS-SFSR-07, MCRA2-SS-SFSR-08, MCRA2-SS-SFSR-09

Dup: Batch QC, MCRA2-SS-SFSR-03

**Sampling Date:** 9/27/10, 9/30/10      **Extraction Date:** NR

**Analysis Date:** 10/5/10, 10/6/10

### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

### **Method, Trip, and Field Blanks:**

NA

### **Laboratory Control Samples (LCS):**

NA

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

### **Laboratory Duplicate:**

RPD within control limits.

### **Field Duplicate:**

NA

### **Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 3/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical - Seattle **Laboratory Job ID#:** 255183  
**Analysis:** USDA 21A pH - paste **Matrix:** Sediment

### **Sample ID Numbers:**

MCRA2-SS-GC-01, MCRA2-SS-GC-02, MCRA2-SS-GC-02a, MCRA2-SS-GC-03, MCRA2-SS-GC-04, MCRA2-SS-GC-04a, MCRA2-SS-GC-05, MCRA2-SS-76G-01, MCRA2-SS-76G-01a, MCRA2-SS-76G-01b, MCRA2-SS-76G-02

Dup: MCRA2-SS-76G-02, Batch QC

**Sampling Date:** 9/27/10, 9/28/10, 9/29/10 **Extraction Date:** NA

**Analysis Date:** 10/8/10

### **Holding Times and Reporting Limits:**

No holding time reported for paste pH. Reporting limits are acceptable.

### **Method, Trip, and Field Blanks:**

NA

### **Laboratory Control Samples (LCS):**

NA

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

### **Laboratory Duplicate:**

RPD within control limits.

### **Field Duplicate:**

NA

### **Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 3/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical **Laboratory Job ID#:** 255183  
**Analysis:** EPA 6010B - As, Cd, Cr, Cu, Fe, Mn, Sb **Matrix:** Sediment

### **Sample ID Numbers:**

MCRA2-SS-GC-01, MCRA2-SS-GC-02, MCRA2-SS-GC-02a, MCRA2-SS-GC-03, MCRA2-SS-GC-04, MCRA2-SS-GC-04a, MCRA2-SS-GC-05, MCRA2-SS-76G-01, MCRA2-SS-76G-01a, MCRA2-SS-76G-01b, MCRA2-SS-76G-02

MS: MCRA2-SS-SFSR-01

**Sampling Date:** 9/27/10, 9/28/10, 9/29/10 **Extraction Date:** 10/6/10

**Analysis Date:** 10/7/10, 10/11/10

### **Holding Times and Reporting Limits:**

Holding times acceptable. Reporting limits elevated for Sb and Cd in MCRA2-SS-GC-01, MCRA2-SS-GC-03, and MCRA2-SS-GC-05; for Cd in MCRA2-SS-GC-02, MCRA2-SS-GC-02a, MCRA2-SS-GC-04, MCRA2-SS-76G-01a, MCRA2-SS-76G-01b, and MCRA2-SS-76G-02; for Sb, As, Cd, and Cu in MCRA2-SS-76G-01 due to sample dilutions. Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

### **Method, Trip, and Field Blanks:**

Method blank had detections for Sb and Mn between the MDL and RL. Results in associated samples for Sb and Mn that fell between the MDL and RL were raised to the RL and qualified as non-detect (U) [MCRA2-SS-GC-01 (Sb), MCRA2-SS-GC-03 (Sb), MCRA2-SS-GC-05 (Sb), and MCRA2-SS-76G-01 (Sb)]. Results for Sb and Mn in the remaining associated samples were greater than 10x the amount in the MB and were not qualified.

### **Laboratory Control Samples (LCS):**

Within method control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within method control limits with following exceptions: MS/MSD for As, Cu, Fe, and Mn exceeded the control limits due to high levels of metals in the source sample compared to spiking amount. Sample results not qualified. The RPDs for As and Cu exceeded the laboratory control limits of 20%. Source sample was qualified.

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

NA

### **Qualification Summary:**

Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

Method blank had detections for Sb and Mn between the MDL and RL. Results in associated samples for Sb and Mn that fell between the MDL and RL were raised to the RL and qualified as non-detect (U) [MCRA2-SS-GC-01 (Sb), MCRA2-SS-GC-03 (Sb), MCRA2-SS-GC-05 (Sb), and MCRA2-SS-76G-01 (Sb)].

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 3/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical **Laboratory Job ID#:** 255183  
**Analysis:** EPA 7471A - Hg **Matrix:** Sediment

### **Sample ID Numbers:**

MCRA2-SS-GC-01, MCRA2-SS-GC-02, MCRA2-SS-GC-02a, MCRA2-SS-GC-03, MCRA2-SS-GC-04, MCRA2-SS-GC-04a, MCRA2-SS-GC-05, MCRA2-SS-76G-01, MCRA2-SS-76G-01a, MCRA2-SS-76G-01b, MCRA2-SS-76G-02

MS: Batch QC

**Sampling Date:** 9/27/10, 9/28/10, 9/29/10 **Extraction Date:** 10/8/10

**Analysis Date:** 10/8/10

### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

### **Method, Trip, and Field Blanks:**

MB is ND.

### **Laboratory Control Samples (LCS):**

LCS within control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

MS/MSD fell below control limits due to high levels in source sample compared to spiking amount. No results qualified.

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

NA

### **Qualification Summary:**

Detections between MDL and RL reported as estimated (J) by lab. J changed to T.





## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 3/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical **Laboratory Job ID#:** 255183  
**Analysis:** ASTM D2974-87 - % Moisture **Matrix:** Sediment

**Sample ID Numbers:**

MCRA2-SS-GC-01, MCRA2-SS-GC-02, MCRA2-SS-GC-02a, MCRA2-SS-GC-03, MCRA2-SS-GC-04, MCRA2-SS-GC-04a, MCRA2-SS-GC-05, MCRA2-SS-76G-01, MCRA2-SS-76G-01a, MCRA2-SS-76G-01b, MCRA2-SS-76G-02

Dup: MCRA2-SS-76G-02, MCRA2-SS-GC-01

**Sampling Date:** 9/27/10, 9/28/10, 9/29/10 **Extraction Date:** NR

**Analysis Date:** 10/7/10

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

NA

**Laboratory Control Samples (LCS):**

NA

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD within control limits.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33                      **Review Date:** 3/10/11  
**Project:** Monte Cristo                      **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical - Seattle                      **Laboratory Job ID#:** 255184  
**Analysis:** USDA 21A pH - paste                      **Matrix:** Sediment

**Sample ID Numbers:**

MCRA2-SS-MCL-02-1, MCRA2-SS-MCL-02-2, MCRA2-SS-MCL-02-3, MCRA2-SS-MCL-03-1,  
MCRA2-SS-MCL-03-2, MCRA2-SS-MCL-03-3, MCRA2-SS-MCL-04-1, MCRA2-SS-MCL-04-2,  
MCRA2-SS-MCL-04-3.5

Dup: MCRA2-SS-MCL-02-1

**Sampling Date:** 9/30/10                      **Extraction Date:** NA

**Analysis Date:** 10/8/10

**Holding Times and Reporting Limits:**

No holding time reported for paste pH. Reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

NA

**Laboratory Control Samples (LCS):**

NA

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD within control limits.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 3/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical **Laboratory Job ID#:** 255184  
**Analysis:** EPA 6010B - As, Cd, Cr, Cu, Fe, **Matrix:** Sediment  
Mn, Sb

**Sample ID Numbers:**

MCRA2-SS-MCL-02-1, MCRA2-SS-MCL-02-2, MCRA2-SS-MCL-02-3, MCRA2-SS-MCL-03-1, MCRA2-SS-MCL-03-2, MCRA2-SS-MCL-03-3, MCRA2-SS-MCL-04-1, MCRA2-SS-MCL-04-2, MCRA2-SS-MCL-04-3.5

MS: MCRA2-SS-MCL-02-1

**Sampling Date:** 9/30/10 **Extraction Date:** 10/6/10

**Analysis Date:** 10/7/10, 10/11/10

**Holding Times and Reporting Limits:**

Holding times acceptable. Reporting limits elevated for Cd in MCRA2-SS-MCL-02-1, MCRA2-SS-MCL-02-2, MCRA2-SS-MCL-02-3, MCRA2-SS-MCL-03-1, MCRA2-SS-MCL-04-1, and MCRA2-SS-MCL-04-3.5 due to sample dilutions. Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

**Method, Trip, and Field Blanks:**

Method blank had detections for Sb and Cu between the MDL and RL. Results in associated samples for Sb and Cu were greater than 10x the amount in the MB and were not qualified.

**Laboratory Control Samples (LCS):**

Within method control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within method control limits with following exceptions: MS/MSD for As, Cu, Fe, and Mn fell outside the control limits due to high levels of metals in the source sample compared to spiking amount. Sample results not qualified. The RPD for As exceeded the laboratory control limits of 20%, but fell within 35%. No results qualified.

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Detections between MDL and RL reported as estimated (J) by lab. J changed to T.



## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 3/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical **Laboratory Job ID#:** 255184  
**Analysis:** EPA 6020 - Pb, Zn **Matrix:** Sediment

### **Sample ID Numbers:**

MCRA2-SS-MCL-02-1, MCRA2-SS-MCL-02-2, MCRA2-SS-MCL-02-3, MCRA2-SS-MCL-03-1, MCRA2-SS-MCL-03-2, MCRA2-SS-MCL-03-3, MCRA2-SS-MCL-04-1, MCRA2-SS-MCL-04-2, MCRA2-SS-MCL-04-3.5

MS: Batch QC, MCRA2-SS-MCL-03-3

**Sampling Date:** 9/39/10 **Extraction Date:** 10/11/10

**Analysis Date:** 10/13/10

### **Holding Times and Reporting Limits:**

Reporting limits are acceptable. Holding times acceptable.

### **Method, Trip, and Field Blanks:**

MB was ND.

### **Laboratory Control Samples (LCS):**

LCS within control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Batch QC MS/MSD recoveries exceeded control limits for Pb and Zn. Due to sample dilution, results could not be evaluated. No results qualified.

MCRA2-SS-MCL-03-3 MS/MSD exceeds control limits for Pb and Zn. Due to sample dilution, results could not be evaluated. No results qualified.

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

NA

### **Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 3/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical **Laboratory Job ID#:** 255184  
**Analysis:** ASTM D2974-87 - % Moisture **Matrix:** Sediment

**Sample ID Numbers:**

MCRA2-SS-MCL-02-1, MCRA2-SS-MCL-02-2, MCRA2-SS-MCL-02-3, MCRA2-SS-MCL-03-1, MCRA2-SS-MCL-03-2, MCRA2-SS-MCL-03-3, MCRA2-SS-MCL-04-1, MCRA2-SS-MCL-04-2, MCRA2-SS-MCL-04-3.5

Dup: Batch QC, MCRA2-SS-MCL-03-2

**Sampling Date:** 9/30/10 **Extraction Date:** NR  
**Analysis Date:** 10/6/10

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

NA

**Laboratory Control Samples (LCS):**

NA

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD within control limits.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 3/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical **Laboratory Job ID#:** 255184  
**Analysis:** EPA 200.8 - Al, Sb, As, Cd, Cr,  
Cu, Fe, Mn **Matrix:** Water  
**Sample ID Numbers:**  
MCRA2-SW-MCL-01  
MS: MCRA2-SW-MCL-01, Batch QC  
**Sampling Date:** 9/30/10 **Extraction Date:** 10/19/10  
**Analysis Date:** 10/20/10, 10/25/10

### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

### **Method, Trip, and Field Blanks:**

MB had detection for Al between the MDL and RL. The laboratory qualified Al in the associated sample, MCRA2-SW-MCL-01, with B. The results for Al in the associated sample were >10x the amount in the MB, and the B qualifier was removed.

### **Laboratory Control Samples (LCS):**

Within method control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

MS/MSD recoveries within control limits.

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

NA

### **Qualification Summary:**

Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

MB had detection for Al between the MDL and RL. The laboratory qualified Al in the associated sample, MCRA2-SW-MCL-01, with B. The results for Al in the associated sample were >10x the amount in the MB, and the B qualifier was removed.



## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 3/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical **Laboratory Job ID#:** 255184  
**Analysis:** SM 2340B - Hardness **Matrix:** Water

**Sample ID Numbers:**

MCRA2-SW-MCL-01

Dup: MCRA2-SW-MCL-01

**Sampling Date:** 9/30/10 **Extraction Date:** 10/19/10

**Analysis Date:** 10/20/10

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB was ND.

**Laboratory Control Samples (LCS):**

NA

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD within control limits.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification. Note: Analytical data for Ca and Mg not available for review.

## DATA QUALITY REVIEW

**Job Number:** 17330-33                      **Review Date:** 3/10/11  
**Project:** Monte Cristo                      **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical                      **Laboratory Job ID#:** 255184  
**Analysis:** EPA 6020 - Pb, Zn                      **Matrix:** Water

**Sample ID Numbers:**

MCRA2-SW-MCL-01

MS: MCRA2-SW-MCL-01, Batch QC

**Sampling Date:** 9/30/10                      **Extraction Date:** 10/11/10

**Analysis Date:** 10/15/10

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB has detection for Zn between MDL and RL. Zn in associated sample MCRA2-SW-MCL-01 <10x amount in MB and qualified as non-detect (U).

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits.

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

MB has detection for Zn between MDL and RL. Zn in associated sample MCRA2-SW-MCL-01 <10x amount in MB and qualified as non-detect (U).

## DATA QUALITY REVIEW

**Job Number:** 17330-33  
**Review Date:** 3/10/11  
**Project:** Monte Cristo  
**Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical  
**Laboratory Job ID#:** 255184  
**Analysis:** SM 2540C - TDS  
**Matrix:** Water

**Sample ID Numbers:**

MCRA2-SW-MCL-01

Dup: Batch QC

**Sampling Date:** 9/30/10  
**Extraction Date:** NR

**Analysis Date:** 10/4/10

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB is ND.

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD within control limits or NA if sample and dup are below RL.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33  
**Project:** Monte Cristo  
**Laboratory:** Pace Analytical  
**Analysis:** SM 2540D - TSS

**Review Date:** 3/10/11  
**Reviewer:** A. Conrad  
**Laboratory Job ID#:** 255184  
**Matrix:** Water

**Sample ID Numbers:**

MCRA2-SW-MCL-01

Dup: Batch QC

**Sampling Date:** 9/30/10  
**Analysis Date:** 10/4/10

**Extraction Date:** NR

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB is ND.

**Laboratory Control Samples (LCS):**

NA

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

Batch QC RPD was NA as sample and dup are below RL.

Batch QC RPD exceeded control limits. Laboratory qualified result as due to matrix interference. As associated sample MCRA2-SW-MCL-01 was ND, no results were qualified.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 3/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical **Laboratory Job ID#:** 255184  
**Analysis:** SM 4500-H+ - pH **Matrix:** Water

**Sample ID Numbers:**

MCRA2-SW-MCL-01

Dup: MCRA2-SW-MCL-01

**Sampling Date:** 9/30/10 **Extraction Date:** NR

**Analysis Date:** 10/5/10

**Holding Times and Reporting Limits:**

Reporting limits are acceptable. Sample was analyzed past holding time of ASAP. Sample results qualified by lab with H6. H6 changed to J.

**Method, Trip, and Field Blanks:**

NA

**Laboratory Control Samples (LCS):**

NA

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD within control limits.

**Field Duplicate:**

NA

**Qualification Summary:**

Sample was analyzed past holding time of ASAP. Sample results qualified by lab with H6. H6 changed to J.

## DATA QUALITY REVIEW

**Job Number:** 17330-33

**Review Date:** 3/10/11

**Project:** Monte Cristo

**Reviewer:** A. Conrad

**Laboratory:** Pace Analytical - Seattle

**Laboratory Job ID#:** 255189

### **Sample Receiving Discrepancies:**

COC had sample MCRA2-SW-SFSR-01 mis-identified as MCRA2-SW-SFRS-01. The remaining samples on the COC were identified correctly. The laboratory incorrectly entered all the samples into the LIMS using SFRS instead of SFSR. The sample names were corrected on the EDD.

### **Sample ID Numbers:**

MCRA2-SW-SFSR-01 (MCRA2-SW-SFRS-01), MCRA2-SW-SFSR-02 (MCRA2-SW-SFRS-02),  
MCRA2-SW-SFSR-03 (MCRA2-SW-SFRS-03), MCRA2-SW-SFSR-04 (MCRA2-SW-SFRS-04),  
MCRA2-SW-SFSR-05 (MCRA2-SW-SFRS-05), MCRA2-SW-SFSR-06 (MCRA2-SW-SFRS-06),  
MCRA2-SW-SFSR-07 (MCRA2-SW-SFRS-07), MCRA2-SW-SFSR-08 (MCRA2-SW-SFRS-08),  
MCRA2-SW-SFSR-09 (MCRA2-SW-SFRS-09)

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 3/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical **Laboratory Job ID#:** 255189  
**Analysis:** EPA 6020 - Al, Sb, As, Cd, Cr,  
Cu, Fe, Pb, Mn, Zn **Matrix:** Water

### **Sample ID Numbers:**

MCRA2-SW-SFSR-01, MCRA2-SW-SFSR-02, MCRA2-SW-SFSR-03, MCRA2-SW-SFSR-04,  
MCRA2-SW-SFSR-05, MCRA2-SW-SFSR-06, MCRA2-SW-SFSR-07, MCRA2-SW-SFSR-08,  
MCRA2-SW-SFSR-09

MS: MCRA2-SW-SFSR-01, Batch QC

**Sampling Date:** 9/27/10, 9/30/10 **Extraction Date:** 10/11/10

**Analysis Date:** 10/15/10

### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

### **Method, Trip, and Field Blanks:**

MB had detection for Mn between the MDL and RL. The laboratory qualified Mn in the associated samples with B. The results for Mn in the associated samples [MCRA2-SW-SFSR-01, MCRA2-SW-SFSR-02, MCRA2-SW-SFSR-05, MCRA2-SW-SFSR-06, MCRA2-SW-SFSR-07, and MCRA2-SW-SFSR-08] were <10x the amount in the MB, and the B qualifier was changed to U. The results for Mn in the associated samples fell between the MDL and the RL and were raised to the RL and qualified as non-detect (U) [MCRA2-SW-SFSR-03 and MCRA2-SW-SFSR-04]. The result for Mn in the associated sample MCRA2-SW-SFSR-09 was >10x the amount in the MB, and the B qualifier was removed.

### **Laboratory Control Samples (LCS):**

Within method control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

MCRA2-SW-SFSR-01MS/MSD recoveries within control limits.

Batch QC MS recoveries fell outside control limits for Al, Sb, Cd, Cr, Pb and Zn. As the LCS and site sample MS were within control limits, no sample results were qualified.

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

NA

### **Qualification Summary:**

Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

MB had detection for Mn between the MDL and RL. The laboratory qualified Mn in the associated samples with B. The results for Mn in the associated samples [MCRA2-SW-SFSR-01, MCRA2-SW-SFSR-02, MCRA2-SW-SFSR-05, MCRA2-SW-SFSR-06, MCRA2-SW-SFSR-07, and MCRA2-SW-SFSR-08] were <10x the amount in the MB, and the B qualifier was changed to U. The results for Mn in the associated samples fell between the MDL and the RL and were raised to the RL and qualified as non-detect (U) [MCRA2-SW-SFSR-03 and MCRA2-SW-SFSR-04]. The result for Mn in the associated sample MCRA2-SW-SFSR-09 was >10x the amount in the MB, and the B qualifier was removed.



## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	3/10/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	Pace Analytical	<b><u>Laboratory Job ID#:</u></b>	255189
<b><u>Analysis:</u></b>	SM 2340B - Hardness	<b><u>Matrix:</u></b>	Water

**Sample ID Numbers:**

MCRA2-SW-SFSR-01, MCRA2-SW-SFSR-02, MCRA2-SW-SFSR-03, MCRA2-SW-SFSR-04, MCRA2-SW-SFSR-05, MCRA2-SW-SFSR-06, MCRA2-SW-SFSR-07, MCRA2-SW-SFSR-08, MCRA2-SW-SFSR-09

Dup: MCRA2-SW-SFSR-01

<b><u>Sampling Date:</u></b>	9/27/10, 9/30/10	<b><u>Extraction Date:</u></b>	10/11/10
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**Analysis Date:** 10/15/10

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB was ND.

**Laboratory Control Samples (LCS):**

NA

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD within control limits.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification. Note: Analytical data for Ca and Mg not available for review.

## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	3/10/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	Pace Analytical	<b><u>Laboratory Job ID#:</u></b>	255189
<b><u>Analysis:</u></b>	SM 2540C - TDS	<b><u>Matrix:</u></b>	Water

**Sample ID Numbers:**

MCRA2-SW-SFSR-01, MCRA2-SW-SFSR-02, MCRA2-SW-SFSR-03, MCRA2-SW-SFSR-04, MCRA2-SW-SFSR-05, MCRA2-SW-SFSR-06, MCRA2-SW-SFSR-07, MCRA2-SW-SFSR-08, MCRA2-SW-SFSR-09

Dup: Batch QC, MCRA2-SW-SFSR-06

**Sampling Date:** 9/27/10, 9/30/10                                      **Extraction Date:** NR

**Analysis Date:** 10/4/10, 10/6/10

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB are ND.

**Laboratory Control Samples (LCS):**

Within control limits.

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

Batch QC RPD within control limits or NA if sample and dup are below RL.

MCRA2-SW-SFSR-06 RPD exceeds control limits. Sample and dup results <5x RL and no results qualified.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 3/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical **Laboratory Job ID#:** 255189  
**Analysis:** SM 2540D - TSS **Matrix:** Water

**Sample ID Numbers:**

MCRA2-SW-SFSR-01, MCRA2-SW-SFSR-02, MCRA2-SW-SFSR-03, MCRA2-SW-SFSR-04,  
MCRA2-SW-SFSR-05, MCRA2-SW-SFSR-06, MCRA2-SW-SFSR-07, MCRA2-SW-SFSR-08,  
MCRA2-SW-SFSR-09

Dup: Batch QC, MCRA2-SW-SFSR-06

**Sampling Date:** 9/27/10, 9/30/10 **Extraction Date:** NR

**Analysis Date:** 10/4/10, 10/6/10

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB is ND.

**Laboratory Control Samples (LCS):**

NA

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

Batch QC RPD was NA as sample and dup are below RL.

Batch QC RPD exceeded control limits. Laboratory qualified result as due to matrix interference. As site sample RPD within control limits, no results were qualified.

MCRA2-SW-SFSR-06 RPD is within control limits.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.



## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 3/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical **Laboratory Job ID#:** 255190  
**Analysis:** EPA 6020 - Al, Sb, As, Cd, Cr, **Matrix:** Water  
Cu, Fe, Pb, Mn, Zn

### **Sample ID Numbers:**

MCRA2-SW-GC-01, MCRA2-SW-GC-02, MCRA2-SW-GC-02a, MCRA2-SW-GC-03, MCRA2-SW-GC-04, MCRA2-SW-GC-04a, MCRA2-SW-GC-05, MCRA2-SW-76G-01, MCRA2-SW-76G-01a, MCRA2-SW-76G-01b, MCRA2-SW-76G-02

MS: MCRA2-SW-GC-05, Batch QC

**Sampling Date:** 9/27/10, 9/28/10, 9/29/10 **Extraction Date:** 10/11/10

**Analysis Date:** 10/16/10, 10/17/10

### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

### **Method, Trip, and Field Blanks:**

MB 868743 had detection for Mn between the MDL and RL. The laboratory qualified Mn in the associated samples with B. The results for Mn in the associated samples [MCRA2-SW-GC-01, MCRA2-SW-GC-03, MCRA2-SW-GC-04, and MCRA2-SW-GC-04a] were <10x the amount in the MB, and the B qualifier was changed to U. The results for Mn in the associated samples [MCRA2-SW-GC-02 and MCRA2-SW-GC-02a] were >10x the amount in the MB, and the B qualifier was removed.

MB 868748 had detections for Mn and Zn between the MDL and RL. The laboratory qualified Mn and Zn in the associated samples with B. Results for those metals in the associated samples that were <10x the amount in the MB had the B qualifier changed to U [MCRA2-SW-GC-05 (Zn), MCRA2-SW-76G-01a (Zn), MCRA2-SW-76G-01b (Zn), and MCRA2-SW-76G-02 (Mn)]. The results for those metals in the associated samples that fell between the MDL and the RL were raised to the RL and qualified as non-detect (U) [MCRA2-SW-76G-01 (Zn) and MCRA2-SW-76G-02 (Zn)]. Results for those metals in the associated samples that were >10x the amount in the MB, had the B qualifier removed [MCRA2-SW-GC-05 (Mn), MCRA2-SW-76G-01 (Mn), MCRA2-SW-76G-01a (Mn), and MCRA2-SW-76G-01b (Mn)].

### **Laboratory Control Samples (LCS):**

Within method control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Batch QC (MCRA2-SW-SFRS-01) MS/MSD recoveries within control limits.

Batch QC 868747 MS recoveries fell outside control limits for Al, Sb, Cd, Cr, Pb and Zn. As the LCS and other MS/MSD results were within control limits, no sample results were qualified.

MCRA2-SW-GC-05 MS/MSD recoveries were within control limits.

Batch QC 868752 MS recoveries within control limits with exception of Al and Zn. The recoveries were not evaluated due to sample dilution, and no sample results were qualified.

**Laboratory Duplicate:**

NA

**Field Duplicate:**

NA

**Qualification Summary:**

Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

MB 868743 had detection for Mn between the MDL and RL. The laboratory qualified Mn in the associated samples with B. The results for Mn in the associated samples [MCRA2-SW-GC-01, MCRA2-SW-GC-03, MCRA2-SW-GC-04, and MCRA2-SW-GC-04a] were <10x the amount in the MB, and the B qualifier was changed to U. The results for Mn in the associated samples [MCRA2-SW-GC-02 and MCRA2-SW-GC-02a] were >10x the amount in the MB, and the B qualifier was removed.

MB 868748 had detections for Mn and Zn between the MDL and RL. The laboratory qualified Mn and Zn in the associated samples with B. Results for those metals in the associated samples that were <10x the amount in the MB had the B qualifier changed to U [MCRA2-SW-GC-05 (Zn), MCRA2-SW-76G-01a (Zn), MCRA2-SW-76G-01b (Zn), and MCRA2-SW-76G-02 (Mn)]. The results for those metals in the associated samples that fell between the MDL and the RL were raised to the RL and qualified as non-detect (U) [MCRA2-SW-76G-01 (Zn) and MCRA2-SW-76G-02 (Zn)]. Results for those metals in the associated samples that were >10x the amount in the MB, had the B qualifier removed [MCRA2-SW-GC-05 (Mn), MCRA2-SW-76G-01 (Mn), MCRA2-SW-76G-01a (Mn), and MCRA2-SW-76G-01b (Mn)].

## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	3/10/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	Pace Analytical	<b><u>Laboratory Job ID#:</u></b>	255190
<b><u>Analysis:</u></b>	SM 2340B - Hardness	<b><u>Matrix:</u></b>	Water

**Sample ID Numbers:**

MCRA2-SW-GC-01, MCRA2-SW-GC-02, MCRA2-SW-GC-02a, MCRA2-SW-GC-03, MCRA2-SW-GC-04, MCRA2-SW-GC-04a, MCRA2-SW-GC-05, MCRA2-SW-76G-01, MCRA2-SW-76G-01a, MCRA2-SW-76G-01b, MCRA2-SW-76G-02

Dup: MCRA2-SW-SFRS-01 (Batch QC), MCRA2-SW-GC-05

**Sampling Date:** 9/27/10, 9/28/10, 9/29/10      **Extraction Date:** 10/11/10

**Analysis Date:** 10/16/10, 10/17/10

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB 868743 was ND.

MB 868748 had detection for hardness between MDL and RL. Associated samples >10x amount in MB and not qualified.

**Laboratory Control Samples (LCS):**

NA

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD within control limits.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification. Note: Analytical data for Ca and Mg not available for review.

## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	3/10/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	Pace Analytical	<b><u>Laboratory Job ID#:</u></b>	255190
<b><u>Analysis:</u></b>	SM 2540C - TDS	<b><u>Matrix:</u></b>	Water

### **Sample ID Numbers:**

MCRA2-SW-GC-01, MCRA2-SW-GC-02, MCRA2-SW-GC-02a, MCRA2-SW-GC-03, MCRA2-SW-GC-04, MCRA2-SW-GC-04a, MCRA2-SW-GC-05, MCRA2-SW-76G-01, MCRA2-SW-76G-01a, MCRA2-SW-76G-01b, MCRA2-SW-76G-02

Dup: Batch QC, MCRA2-SW-76G-02, MCRA2-SW-76G-01, Batch QC (MCRA2-SW-SFRS-06)

**Sampling Date:** 9/27/10, 9/28/10, 9/29/10      **Extraction Date:** NR

**Analysis Date:** 10/4/10, 10/5/10, 10/6/10

### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

### **Method, Trip, and Field Blanks:**

MB 10/4/10 and 10/6/10 were ND.

MB 10/5/10 had detection for TDS at the MDL. TDS results in associated samples MCRA2-SW-GC-02, MCRA2-SW-76G-01, MCRA2-SW-76G-01a, and MCRA2-SW-76G-01b were either above RL or below MDL, and no results were qualified.

### **Laboratory Control Samples (LCS):**

Within control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

### **Laboratory Duplicate:**

Batch QC RPD within control limits.

MCRA2-SW-76G-02 RPD is NA as sample and dup are below RL.

MCRA2-SW-76G-01 RPD is NA as sample and dup are <5x RL.

Batch QC (MCRA2-SW-SFRS-06) RPD exceeds control limits. Sample and dup results <5x RL and no results qualified.

### **Field Duplicate:**

NA

### **Qualification Summary:**

Data acceptable without qualification.



## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 3/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical **Laboratory Job ID#:** 255190  
**Analysis:** SM 2540D - TSS **Matrix:** Water

### **Sample ID Numbers:**

MCRA2-SW-GC-01, MCRA2-SW-GC-02, MCRA2-SW-GC-02a, MCRA2-SW-GC-03, MCRA2-SW-GC-04, MCRA2-SW-GC-04a, MCRA2-SW-GC-05, MCRA2-SW-76G-01, MCRA2-SW-76G-01a, MCRA2-SW-76G-01b, MCRA2-SW-76G-02

Dup: Batch QC, MCRA2-SW-76G-01, Batch QC (MCRA2-SW-SFRS-06), MCRA2-SW-76G-02

**Sampling Date:** 9/27/10, 9/28/10, 9/29/10 **Extraction Date:** NR

**Analysis Date:** 10/4/10, 10/5/10, 10/6/10

### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

### **Method, Trip, and Field Blanks:**

MB are ND.

### **Laboratory Control Samples (LCS):**

NA

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

### **Laboratory Duplicate:**

Batch QC RPD exceeds control limits due to matrix interference. Sample results not qualified as not site sample and other QC within criteria.

MCRA2-SW-76G-01 and MCRA2-SW-76G-02: RPDs are NA as sample and dup are below RL.

Batch QC (MCRA2-SW-SFRS-06) RPD is within control limits.

### **Field Duplicate:**

NA

### **Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	3/10/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	Pace Analytical	<b><u>Laboratory Job ID#:</u></b>	255190
<b><u>Analysis:</u></b>	SM 4500-H+ - pH	<b><u>Matrix:</u></b>	Water

**Sample ID Numbers:**

MCRA2-SW-GC-01, MCRA2-SW-GC-02, MCRA2-SW-GC-02a, MCRA2-SW-GC-03, MCRA2-SW-GC-04, MCRA2-SW-GC-04a, MCRA2-SW-GC-05, MCRA2-SW-76G-01, MCRA2-SW-76G-01a, MCRA2-SW-76G-01b, MCRA2-SW-76G-02

Dup: Batch QC (MCRA2-SW-SFRS-01), MCRA2-SW-GC-01

**Sampling Date:** 9/27/10, 9/28/10, 9/29/10      **Extraction Date:** NR

**Analysis Date:** 10/2/10

**Holding Times and Reporting Limits:**

Reporting limits are acceptable. Samples were analyzed past holding time of ASAP. Sample results qualified by lab with H6. H6 changed to J in associated samples (MCRA2-SW-GC-01, MCRA2-SW-GC-02, MCRA2-SW-GC-02a, MCRA2-SW-GC-03, MCRA2-SW-GC-04, MCRA2-SW-GC-04a, MCRA2-SW-GC-05, MCRA2-SW-76G-01, MCRA2-SW-76G-01a, MCRA2-SW-76G-01b, MCRA2-SW-76G-02).

**Method, Trip, and Field Blanks:**

NA

**Laboratory Control Samples (LCS):**

NA

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD within control limits.

**Field Duplicate:**

NA

**Qualification Summary:**

Samples were analyzed past holding time of ASAP. Sample results qualified by lab with H6. H6 changed to J in associated samples (MCRA2-SW-GC-01, MCRA2-SW-GC-02, MCRA2-SW-GC-02a, MCRA2-SW-GC-03, MCRA2-SW-GC-04, MCRA2-SW-GC-04a, MCRA2-SW-GC-05, MCRA2-SW-76G-01, MCRA2-SW-76G-01a, MCRA2-SW-76G-01b, MCRA2-SW-76G-02).

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 3/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical **Laboratory Job ID#:** 255191  
**Analysis:** EPA 6020 - Al, Sb, As, Cd, Cr, **Matrix:** Water  
Cu, Fe, Pb, Mn, Zn

### **Sample ID Numbers:**

MCRA2-SW-DP-01, MCRA2-SW-DP-02, MCRA2-SW-DP-03, MCRA2-SW-EQ-01, MCRA2-SP-JU-01

Field dups: MCRA2-SW-DP-01 (dup of MCRA2-DW-MY-01), MCRA2-SW-DP-02 (dup of MCRA2-DW-PW-01), MCRA2-SW-DP-03 (dup of MCRA2-SW-SFRS-09)

MS: Batch QC (MCRA2-SW-SFRS-01), MCRA2-SW-DP-02

**Sampling Date:** 9/27/10, 9/28/10, 9/30/10 **Extraction Date:** 10/11/10

**Analysis Date:** 10/15/10, 10/16/10,  
10/17/10

### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

### **Method, Trip, and Field Blanks:**

MB had detection for Mn between the MDL and RL. The laboratory qualified Mn in the associated samples with B. The results for Mn in the associated samples that fell between the MDL and the RL were raised to the RL and qualified as non-detect (U) [MCRA2-SW-EQ-01]. The results for Mn in the associated samples [MCRA2-SW-DP-01, MCRA2-SW-DP-02, MCRA2-SW-DP-03, and MCRA2-SP-JU-01] were >10x the amount in the MB, and the B qualifier was removed.

Rinsate blank MCRA2-SW-EQ-01 had detections for Al above the RL, and detections for Pb, Mn, and Zn between the MDL and RL. The result for Mn was raised to the RL due to laboratory MB contamination. No sample results were qualified based on equipment blank exceedances.

### **Laboratory Control Samples (LCS):**

Within method control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Batch QC (MCRA2-SW-SFRS-01) MS/MSD recoveries within control limits.

MCRA2-SW-DP-02 MS recoveries fell outside control limits for Al, Sb, Cd, Cr, Pb and Zn. Recoveries for Al and Zn exceeded the control limits due to high levels of metals in the source sample compared to spiking amount. Sample results for Al and Zn were not qualified. Recoveries for Sb, Cd, Cr, and Pb failed low, possibly due to matrix effects. Results for Sb, Cd, Cr, and Pb in MCRA2-SW-DP-02 were qualified as estimated (J).

### **Laboratory Duplicate:**

NA

**Field Duplicate:**

MCRA2-SW-DP-01 (dup of MCRA2-DW-MY-01): RPDs <35%.

MCRA2-SW-DP-02 (dup of MCRA2-DW-PW-01): RPDs <35%.

MCRA2-SW-DP-03 (dup of MCRA2-SW-SFSR-09): RPDs <35% with exception of Cd. Cd results in sample and dup below RL and no sample results qualified.

**Qualification Summary:**

Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

MB had detection for Mn between the MDL and RL. The laboratory qualified Mn in the associated samples with B. The results for Mn in the associated samples that fell between the MDL and the RL were raised to the RL and qualified as non-detect (U) [MCRA2-SW-EQ-01]. The results for Mn in the associated samples [MCRA2-SW-DP-01, MCRA2-SW-DP-02, MCRA2-SW-DP-03, and MCRA2-SP-JU-01] were >10x the amount in the MB, and the B qualifier was removed.

MCRA2-SW-DP-02 MS recoveries fell outside control limits for Al, Sb, Cd, Cr, Pb and Zn. Recoveries for Al and Zn exceeded the control limits due to high levels of metals in the source sample compared to spiking amount. Sample results for Al and Zn were not qualified. Recoveries for Sb, Cd, Cr, and Pb failed low, possibly due to matrix effects. Results for Sb, Cd, Cr, and Pb in MCRA2-SW-DP-02 were qualified as estimated (J).

## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	3/10/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	Pace Analytical	<b><u>Laboratory Job ID#:</u></b>	255192
<b><u>Analysis:</u></b>	EPA 6020 - Al, Sb, As, Cd, Ca, Cr, Cu, Fe, Pb, Mg, Mn, K, Na, Zn	<b><u>Matrix:</u></b>	Water

### **Sample ID Numbers:**

MCRA2-DW-MY-01, MCRA2-DW-JU-01, MCRA2-DW-BA-01, MCRA2-DW-ND-01, MCRA2-DW-PM-01, MCRA2-DW-PW-01, MCRA2-DW-RY-01, MCRA2-DW-SH-01, MCRA2-LN-SP-01  
MS: Batch QC (MCRA2-SW-GC-05), MCRA2-DW-PW-01

**Sampling Date:** 9/27/10, 9/28/10, 9/29/10      **Extraction Date:** 10/11/10

**Analysis Date:** 10/17/10, 10/18/10

### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable. Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

### **Method, Trip, and Field Blanks:**

MB had detection for Ca, Mg, Mn, K, and Zn between the MDL and RL. The laboratory qualified those metals in the associated samples with B. Results for those metals in the associated samples that were <10x the amount in the MB had the B qualifier changed to U [MCRA2-DW-BA-01 (Zn), MCRA2-DW-RY-01 (Zn), and MCRA2-DW-SH-01 (Zn)]. The results for those metals in the associated samples that fell between the MDL and the RL were raised to the RL and qualified as non-detect (U) [MCRA2-LN-SP-01 (Zn)]. Results for those metals in the associated samples that were >10x the amount in the MB, had the B qualifier removed [MCRA2-DW-MY-01 (Ca, Mg, Mn, K, Zn), MCRA2-DW-JU-01 (Ca, Mg, Mn, K, Zn), MCRA2-DW-BA-01 (Ca, Mg, Mn, K), MCRA2-DW-ND-01 (Ca, Mg, Mn, K, Zn), MCRA2-DW-PM-01 (Ca, Mg, Mn, K, Zn), MCRA2-DW-PW-01 (Ca, Mg, Mn, K, Zn), MCRA2-DW-RY-01 (Ca, Mg, Mn, K), MCRA2-DW-SH-01 (Ca, Mg, Mn, K), and MCRA2-LN-SP-01 (Ca, Mg, Mn, K)].

### **Laboratory Control Samples (LCS):**

Within method control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Batch QC (MCRA2-SW-GC-05) MS/MSD recoveries were within control limits.

MCRA2-DW-PW-01 MS recoveries within control limits with exception of Al, Na, and Zn. The laboratory qualified the results as not evaluated due to sample dilution. Zn was analyzed at a dilution, and results were not evaluated or qualified. Recoveries for Al and Na failed due to high levels of those metals in the source sample compared to the spiking amount. No sample results were qualified.

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

Evaluated in 255191 data review.

**Qualification Summary:**

Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

MB had detection for Ca, Mg, Mn, K, and Zn between the MDL and RL. The laboratory qualified those metals in the associated samples with B. Results for those metals in the associated samples that were <10x the amount in the MB had the B qualifier changed to U [MCRA2-DW-BA-01 (Zn), MCRA2-DW-RY-01 (Zn), and MCRA2-DW-SH-01 (Zn)]. The results for those metals in the associated samples that fell between the MDL and the RL were raised to the RL and qualified as non-detect (U) [MCRA2-LN-SP-01 (Zn)]. Results for those metals in the associated samples that were >10x the amount in the MB, had the B qualifier removed [MCRA2-DW-MY-01 (Ca, Mg, Mn, K, Zn), MCRA2-DW-JU-01 (Ca, Mg, Mn, K, Zn), MCRA2-DW-BA-01 (Ca, Mg, Mn, K), MCRA2-DW-ND-01 (Ca, Mg, Mn, K, Zn), MCRA2-DW-PM-01 (Ca, Mg, Mn, K, Zn), MCRA2-DW-PW-01 (Ca, Mg, Mn, K, Zn), MCRA2-DW-RY-01 (Ca, Mg, Mn, K), MCRA2-DW-SH-01 (Ca, Mg, Mn, K), and MCRA2-LN-SP-01 (Ca, Mg, Mn, K)].

## DATA QUALITY REVIEW

**Job Number:** 17330-33  
**Review Date:** 3/10/11  
**Project:** Monte Cristo  
**Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical  
**Laboratory Job ID#:** 255192  
**Analysis:** SM 2340B - Hardness  
**Matrix:** Water

**Sample ID Numbers:**

MCRA2-DW-MY-01, MCRA2-DW-JU-01, MCRA2-DW-BA-01, MCRA2-DW-ND-01, MCRA2-DW-PM-01, MCRA2-DW-PW-01, MCRA2-DW-RY-01, MCRA2-DW-SH-01, MCRA2-LN-SP-01

Dup: Batch QC (MCRA2-SW-GC-05)

**Sampling Date:** 9/27/10, 9/28/10, 9/29/10  
**Extraction Date:** 10/11/10

**Analysis Date:** 10/17/10, 10/18/10

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB had detection for hardness between MDL and RL. Associated samples >10x amount in MB and not qualified.

**Laboratory Control Samples (LCS):**

NA

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD within control limits.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 3/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical **Laboratory Job ID#:** 255192  
**Analysis:** SM 2540C - TDS **Matrix:** Water

### **Sample ID Numbers:**

MCRA2-DW-MY-01, MCRA2-DW-JU-01, MCRA2-DW-BA-01, MCRA2-DW-ND-01, MCRA2-DW-PM-01, MCRA2-DW-PW-01, MCRA2-DW-RY-01, MCRA2-DW-SH-01, MCRA2-LN-SP-01

Dup: Batch QC, Batch QC (MCRA2-SW-76G-02), Batch QC (MCRA2-SW-76G-01), Batch QC (MCRA2-SW-SFRS-06)

**Sampling Date:** 9/27/10, 9/28/10, 9/29/10 **Extraction Date:** NR

**Analysis Date:** 10/4/10, 10/5/10, 10/6/10

### **Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

### **Method, Trip, and Field Blanks:**

MB 10/4/10 and 10/6/10 were ND.

MB 10/5/10 had detection for TDS at the MDL. TDS results in associated samples MCRA2-DW-MY-01, MCRA2-DW-JU-01, MCRA2-DW-SH-01, and MCRA2-LN-SP-01 were above RL, and no results were qualified.

### **Laboratory Control Samples (LCS):**

Within control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

### **Laboratory Duplicate:**

Batch QC RPD within control limits.

Batch QC (MCRA2-SW-76G-02) RPD is NA as sample and dup are below RL.

Batch QC (MCRA2-SW-76G-01) RPD is NA as sample and dup are <5x RL.

Batch QC (MCRA2-SW-SFRS-06) RPD exceeds control limits. Sample and dup results <5x RL and no results qualified.

### **Field Duplicate:**

NA

### **Qualification Summary:**

Data acceptable without qualification.



## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	3/10/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	Pace Analytical	<b><u>Laboratory Job ID#:</u></b>	255192
<b><u>Analysis:</u></b>	SM 2540D - TSS	<b><u>Matrix:</u></b>	Water

**Sample ID Numbers:**

MCRA2-DW-MY-01, MCRA2-DW-JU-01, MCRA2-DW-BA-01, MCRA2-DW-ND-01, MCRA2-DW-PM-01, MCRA2-DW-PW-01, MCRA2-DW-RY-01, MCRA2-DW-SH-01, MCRA2-LN-SP-01

Dup: Batch QC, Batch QC (MCRA2-SW-76G-01), Batch QC (MCRA2-SW-SFRS-06), Batch QC (MCRA2-SW-76G-02)

**Sampling Date:** 9/27/10, 9/28/10, 9/29/10      **Extraction Date:** NR

**Analysis Date:** 10/4/10, 10/5/10, 10/6/10

**Holding Times and Reporting Limits:**

Holding times and reporting limits are acceptable.

**Method, Trip, and Field Blanks:**

MB are ND.

**Laboratory Control Samples (LCS):**

NA

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

Batch QC RPD exceeds control limits due to matrix interference. Sample results not qualified as not site sample and other QC within criteria.

Batch QC (MCRA2-SW-76G-01 and MCRA2-SW-76G-02): RPDs are NA as sample and dup are below RL.

Batch QC (MCRA2-SW-SFRS-06) RPD is within control limits.

**Field Duplicate:**

NA

**Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

<b><u>Job Number:</u></b>	17330-33	<b><u>Review Date:</u></b>	3/10/11
<b><u>Project:</u></b>	Monte Cristo	<b><u>Reviewer:</u></b>	A. Conrad
<b><u>Laboratory:</u></b>	Pace Analytical	<b><u>Laboratory Job ID#:</u></b>	255192
<b><u>Analysis:</u></b>	SM 4500-H+ - pH	<b><u>Matrix:</u></b>	Water

**Sample ID Numbers:**

MCRA2-DW-MY-01, MCRA2-DW-JU-01, MCRA2-DW-BA-01, MCRA2-DW-ND-01, MCRA2-DW-PM-01, MCRA2-DW-PW-01, MCRA2-DW-RY-01, MCRA2-DW-SH-01, MCRA2-LN-SP-01

Dup: MCRA2-DW-MY-01, MCRA2-DW-PW-01

**Sampling Date:** 9/27/10, 9/28/10, 9/29/10      **Extraction Date:** NR

**Analysis Date:** 10/2/10, 10/7/10

**Holding Times and Reporting Limits:**

Reporting limits are acceptable. Samples were analyzed past holding time of ASAP. Sample results qualified by lab with H6. H6 changed to J in associated samples (MCRA2-DW-MY-01, MCRA2-DW-JU-01, MCRA2-DW-BA-01, MCRA2-DW-ND-01, MCRA2-DW-PM-01, MCRA2-DW-PW-01, MCRA2-DW-RY-01, MCRA2-DW-SH-01, and MCRA2-LN-SP-01).

**Method, Trip, and Field Blanks:**

NA

**Laboratory Control Samples (LCS):**

NA

**Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

**Laboratory Duplicate:**

RPD within control limits.

**Field Duplicate:**

NA

**Qualification Summary:**

Samples were analyzed past holding time of ASAP. Sample results qualified by lab with H6. H6 changed to J in associated samples (MCRA2-DW-MY-01, MCRA2-DW-JU-01, MCRA2-DW-BA-01, MCRA2-DW-ND-01, MCRA2-DW-PM-01, MCRA2-DW-PW-01, MCRA2-DW-RY-01, MCRA2-DW-SH-01, and MCRA2-LN-SP-01).



## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 3/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical **Laboratory Job ID#:** 255192  
**Analysis:** EPA 300.0 - Chloride and sulfate **Matrix:** Water

### **Sample ID Numbers:**

MCRA2-DW-MY-01, MCRA2-DW-JU-01, MCRA2-DW-BA-01, MCRA2-DW-ND-01, MCRA2-DW-PM-01, MCRA2-DW-PW-01, MCRA2-DW-RY-01, MCRA2-DW-SH-01, MCRA2-LN-SP-01

MS: Batch QC

**Sampling Date:** 9/27/10, 9/28/10, 9/29/10 **Extraction Date:** NR

**Analysis Date:** 10/9/10, 10/13/10

### **Holding Times and Reporting Limits:**

Reporting limits and holding times are acceptable. Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

### **Method, Trip, and Field Blanks:**

MB is ND.

### **Laboratory Control Samples (LCS):**

Within control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Within control limits. Result for sulfate exceeded above calibration curve and reported as estimated (E). No sample results qualified.

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

NA

### **Qualification Summary:**

Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

## DATA QUALITY REVIEW

**Job Number:** 17330-33

**Review Date:** 3/9/11

**Project:** Monte Cristo

**Reviewer:** A. Conrad

**Laboratory:** Pace Analytical - Seattle

**Laboratory Job ID#:** 255193

**Sample Receiving Discrepancies:**

pH by EPA 9045 not requested on COC, but analyzed and reported by lab.

**Sample ID Numbers:**

MCRA2-WR-CT-01, MCRA2-WR-CT-02, MCRA2-WR-CT-03, MCRA2-WR-CT-04, MCRA2-WR-CT-05, MCRA2-WR-CT-06, MCRA2-WR-CT-07, MCRA2-WR-CT-08, MCRA2-WR-CT-09, MCRA2-WR-CT-10, MCRA2-WR-LN-01, MCRA2-WR-LN-02, MCRA2-WR-LN-03, MCRA2-WR-HW-10, MCRA2-WR-WD-01, MCRA2-WR-WD-02, MCRA2-WR-WD-03

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 3/9/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical - Seattle **Laboratory Job ID#:** 255193  
**Analysis:** USDA 21A pH - paste **Matrix:** Soil

### **Sample ID Numbers:**

MCRA2-WR-CT-01, MCRA2-WR-CT-02, MCRA2-WR-CT-03, MCRA2-WR-CT-04, MCRA2-WR-CT-05, MCRA2-WR-CT-06, MCRA2-WR-CT-07, MCRA2-WR-CT-08, MCRA2-WR-CT-09, MCRA2-WR-CT-10, MCRA2-WR-LN-01, MCRA2-WR-LN-02, MCRA2-WR-LN-03, MCRA2-WR-HW-10, MCRA2-WR-WD-01, MCRA2-WR-WD-02, MCRA2-WR-WD-03

Dup: MCRA2-WR-CT-01, MCRA2-WR-LN-01

**Sampling Date:** 9/27/10, 9/28/10, 9/29/10 **Extraction Date:** NA

**Analysis Date:** 10/6/10

### **Holding Times and Reporting Limits:**

No holding time reported for paste pH. Reporting limits are acceptable.

### **Method, Trip, and Field Blanks:**

NA

### **Laboratory Control Samples (LCS):**

NA

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

NA

### **Laboratory Duplicate:**

RPD within control limits.

### **Field Duplicate:**

NA

### **Qualification Summary:**

Data acceptable without qualification.

## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 3/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical **Laboratory Job ID#:** 255193  
**Analysis:** EPA 6010B - As, Ba, Cd, Cr, Cu, Fe, Mn, Ni **Matrix:** Soil

### **Sample ID Numbers:**

MCRA2-WR-CT-01, MCRA2-WR-CT-02, MCRA2-WR-CT-03, MCRA2-WR-CT-04, MCRA2-WR-CT-05, MCRA2-WR-CT-06, MCRA2-WR-CT-07, MCRA2-WR-CT-08, MCRA2-WR-CT-09, MCRA2-WR-CT-10, MCRA2-WR-LN-01, MCRA2-WR-LN-02, MCRA2-WR-LN-03, MCRA2-WR-HW-10, MCRA2-WR-WD-01, MCRA2-WR-WD-02, MCRA2-WR-WD-03

MS: MCRA2-WR-CT-01

**Sampling Date:** 9/27/10, 9/28/10, 9/29/10 **Extraction Date:** 10/6/10

**Analysis Date:** 10/7/10, 10/11/10

### **Holding Times and Reporting Limits:**

Holding times acceptable. Reporting limits elevated for Ni in MCRA2-WR-CT-01, MCRA2-WR-CT-03, MCRA2-WR-CT-04, MCRA2-WR-CT-05, MCRA2-WR-CT-06, MCRA2-WR-CT-07, MCRA2-WR-CT-08, MCRA2-WR-CT-10, MCRA2-WR-LN-01, MCRA2-WR-LN-02, MCRA2-WR-LN-03, MCRA2-WR-WD-02, and MCRA2-WR-WD-03; for Cd in MCRA2-WR-CT-02, MCRA2-WR-CT-04, MCRA2-WR-CT-09, MCRA2-WR-LN-01, MCRA2-WR-LN-02, MCRA2-WR-LN-03, MCRA2-WR-WD-01, MCRA2-WR-WD-02, and MCRA2-WR-WD-03 due to sample dilutions. Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

### **Method, Trip, and Field Blanks:**

Method blank had detections for As, Cr, and Fe between the MDL and RL. Results for As, Cr, and Fe in the associated samples were greater than 10x the amount in the MB and were not qualified.

### **Laboratory Control Samples (LCS):**

Within method control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

MS/MSD for As, Ba, Cd, Cu, Fe, and Mn exceeded the control limits due to high levels of metals in the source sample compared to spiking amount. Sample results not qualified. MS/MSD for Cr fell below the control limits. Results for Cr in MCRA2-WR-CT-01 were qualified as estimated (J). The RPD for Mn exceeded control limits of 335%. Mn in MCRA2-WR-CT-01 qualified as estimated (J).

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

NA

**Qualification Summary:**

Detections between MDL and RL reported as estimated (J) by lab. J changed to T.

MS/MSD for Cr fell below the control limits. Results for Cr in MCRA2-WR-CT-01 were qualified as estimated (J). The RPD for Mn exceeded control limits of 335%. Mn in MCRA2-WR-CT-01 qualified as estimated (J).





## DATA QUALITY REVIEW

**Job Number:** 17330-33 **Review Date:** 3/10/11  
**Project:** Monte Cristo **Reviewer:** A. Conrad  
**Laboratory:** Pace Analytical **Laboratory Job ID#:** 255193  
**Analysis:** EPA 6020 - Sb, Pb, Zn **Matrix:** Soil

### **Sample ID Numbers:**

MCRA2-WR-CT-01, MCRA2-WR-CT-02, MCRA2-WR-CT-03, MCRA2-WR-CT-04, MCRA2-WR-CT-05, MCRA2-WR-CT-06, MCRA2-WR-CT-07, MCRA2-WR-CT-08, MCRA2-WR-CT-09, MCRA2-WR-CT-10, MCRA2-WR-LN-01, MCRA2-WR-LN-02, MCRA2-WR-LN-03, MCRA2-WR-HW-10, MCRA2-WR-WD-01, MCRA2-WR-WD-02, MCRA2-WR-WD-03

MS: Batch QC, MCRA2-WR-CT-07, MCRA2-WR-WD-01

**Sampling Date:** 9/27/10, 9/28/10, 9/29/10 **Extraction Date:** 10/7/10,  
10/11/10  
**Analysis Date:** 10/13/10, 10/14/10

### **Holding Times and Reporting Limits:**

Holding times acceptable. RL elevated for Sb in MCRA2-WR-LN-02 due to sample dilution.

### **Method, Trip, and Field Blanks:**

MB 10/7/10 had detection for lead between MDL and RL. Lead in associated samples >10x amount in blank and no results qualified.

MB 10/11/10 was ND.

### **Laboratory Control Samples (LCS):**

LCS within control limits.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD):**

Batch QC MS/MSD exceeds control limits for Sb, Pb, and Zn. Due to sample dilution, results could not be evaluated. RPD for Sb exceeded 20%, within 35%. No results qualified.

MCRA2-WR-CT-07MS exceeds control limits for Sb, Pb, and Zn. Due to sample dilution, results could not be evaluated. The result for Pb exceeded the calibration range. No results qualified.

MCRA2-WR-WD-01MS/MSD exceeds control limits for Sb and Zn. Due to sample dilution, results could not be evaluated. No results qualified.

### **Laboratory Duplicate:**

NA

### **Field Duplicate:**

NA

### **Qualification Summary:**

Data acceptable without qualification.



