ATTACHMENT 6

CHEMICAL DATA QUALITY ASSESSMENT REPORT

OMAHA DISTRICT
U.S. ARMY
CORPS OF ENGINEERS

Chemical Data Quality Assessment Report (CDQAR)

For

Soil Samples Obtained at

Marysville Road/Silver Creek Road Lewis and Clark County, Montana

November 2002

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LIST OF ABBREVIATIONS AND ACRONYMS

ABA	Acid Base Accounting
ADP	Analytical Data Package
ASTM	American Standard Testing Materials
°C	Degrees Celsius
CDQAR	Chemical Data Quality Assessment Report
CENWO	Corps of Engineers, Omaha District
COC	Chain-of-Custody
CQAB	Chemical and Quality Assurance Branch Laboratory
DQCR	Daily Quality Control Report
DQOs	Data Quality Objectives
DUP	Duplicate
eV	Electron volt
EPA	Environmental Protection Agency
FSP	Field Sampling Plan
Ft	Foot/Feet
HSA	Hollow Stem Auger
I.D.	Inner Diameter
IDW	Investigative Derived Waste
Kg	Kilogram
L	Liter
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LIMS	Laboratory Information Management System
MDL	Method Detection Limit
mg/kg	Milligrams per kilogram
mg/L	Milligrams per Liter
mg	Milligram
Min	Minute
ml	Milliliters
MS/MSD	Matrix Spike/Matrix Spike Duplicate
MW	Monitoring Well
N/A	Not Applicable
ND	non-detect
O.D.	Outer Diameter
PID	Photoionization Detector
ppb	Parts per Billion (measured in water as ug/L)
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RCRA	Resource Conservation Recovery Act

RPD	Relative Percent Difference
SSHP	Site Safety Health Plan
SOP	Standard Operating Procedure
ug/L	Micrograms per Liter
U.S.	United States
USACE	United States Army Corps of Engineers

1 INTRODUCTION

1.1 QUALITY CONTROL SUMMARY

This Chemical Data Quality Assessment Report (CDQAR) describes the operations and procedures followed by USACE to conduct the investigation of the soil samples obtained from the abandoned mine soils Marysville Road and Sliver Creek, Montana. Field work was performed by USACE Omaha District personnel. Analytical services were provided by a US Army Corps of Engineers laboratory, the Environmental Chemistry Branch Laboratory located in Omaha, Nebraska, and Energy Laboratory Inc., Billings Montana.

The field and sample analyses was performed in accordance with the general Site Work Plan for the Restoration of Abandoned Mines prepared by U.S. Army Corps of Engineers, Omaha District, Omaha, Nebraska, July 2002 and the Site Specific Work Plan for the Marysville Road/Silver Creek areas, August 2002.

This CDQAR includes a summary of the quality assurance (QA) and quality control (QC) procedures and an evaluation of data quality and data usability with respect to Data Quality Objectives (DQOs) established for this field investigation.

1.2 REPORT ORGANIZATION

Section 2 of this report provides a discussion of project objectives. Procedures employed to control and evaluate the quality of sample collection, transportation, storage, and analysis are presented in Section 3. Section 4 discusses data evaluation, and the results of QC evaluations are in Section 5. Conclusions and recommendations are presented in Section 6.

2 PROJECT DESCRIPTION

2.1 PROJECT PURPOSE

The purpose of this investigation is to sample roadbed soils along the Marysville Road in Montana to determine the impact of mine wastes to the area.

2.2 ANALYTICAL SERVICES

Two laboratories provided the analytical services during this project. The Environmental Chemistry Branch (ECB) laboratory provided analytical services for metals, cyanide, and pH along with TCLP soil investigation and Energy Laboratory of Billings, Montana performed analysis of soil Acid Base Accounting (ABA). Laboratory addresses are given below:

US Army Corps of Engineers
Environmental Chemistry Branch (ECB) Laboratory
420 South 18th Street
Omaha, NE 68102

Energy Laboratory
1120 So 27th St
Billings, Montana 59101

ECB Laboratory reported all non-detect results as "u". The non-detect values are given in the data tables as 'u' less than the Method Detection limits (MDL). The MDL is the minimum concentration of a substance that can be measured and reported with 99 per cent confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte. The reporting limit (RL) is determined by the laboratory and takes into account impacts from sample matrix, sample preparation, and instrument limitations. The RL represents the concentration at which the laboratory can both determine the presence of an analyte and accurately quantify the amount present. The laboratory reported detections below the RL and higher than the MDL with a "J" laboratory qualifier, which indicates a greater degree of uncertainty associated with the quantitative result. The J values are considered valid and useable. Reporting limits may increase for an individual environmental sample due to high concentrations of target analytes, matrix effects, or other interferences.

2.3 DATA QUALITY OBJECTIVES

The DQOs for this site are based on the objective of the investigation, which is to collect soil data to assess effect of former mine operations at this area, to determine if there is a threat posed to human health and the environment, and to evaluate the need for any additional response action.

2.3.1 Data Collected

The data collected at the Marysville Road/Silver Creek site were from samples obtained from soil borings and sent to the labs given above.

2.3.1.1 Field Measurements (Field Screening Data)

No field screening of samples were performed.

2.3.1.2 Off-Site Analysis (Definitive Level Data)

Definitive level data was obtained from twenty one (21) soil boring samples. All of these samples were analyzed for metals, total cyanide, pH, and Acid Base Accounting. Acid base Accounting analysis consists of acid-base accounting, sulfur forms, exchangeable acidity and SMP buffer. Sections 3 and 4 give the field and laboratory quality control procedures and the result of the quality control process is given in section 5. The data quality objectives for this data is to ensure that the data adheres criteria in sections 3,4, and 5.

3 FIELD QUALITY CONTROL PROCEDURES

3.1 PROJECT PLANNING

The field investigation was conducted as described in the Site Specific Work Plan for the Marysville Road/Silver Creek, August 2002. The plan was written by CENWO to ensure the quality of data derived from the investigation. The plan provides a discussion of the project work scope and general procedures to be followed for field and laboratory activities.

3.2 DOCUMENTED FIELD ACTIVITIES

This section summarizes the equipment, procedures, and methods undertaken to insure quality sample collection activities. Investigation activities and QC procedures were recorded and documented in the field using appropriate field forms. Prior to sample collection, as well as between sample locations, field equipment was decontaminated.

3.2.1 Soil Borings

A total twenty one (21) soil borings were drilled and sampled by CENWO personnel between 21 –23 August 2002 and were sent off site for analysis. The borings were designated MR-02-01 through MR02-21.

3.2.2 Management of Investigation Derived Waste (IDW)

IDW was handled as described in the Site Specific Work Plan for the Marysville Road/Silver Creek areas, August 2002.

3.2.3 Decontamination Procedures

The field instruments were decontaminated in the field as described in the Standard Operating Procedures.

3.2.4 Other Documentation and Reporting of Field Activities

All field activities were thoroughly documented in indelible ink using the following forms:

- Field Notebook
- Chain of Custody Record
- Daily Quality Control Report (DQCR)

CENWO field personnel initiated Chain of Custody (COC) documentation as samples were collected and selected for laboratory analysis. Sample custody was maintained from sample collection through the completion of the laboratory analysis.

3.2.5 Sample Labeling, Handling, and Shipping

The sampling team performed sample collection, sample labeling, and sample shipping. Samples were collected in the appropriate sample containers provided by ECB Laboratory. The sample containers were identified with waterproof labels and all writing was completed in indelible ink.

Labeled samples were placed in sealed Ziplock brand bags and packed in waterproof plastic ice chests with sufficient packaging material placed around and between the sample jars. Ice was double bagged and placed on the bottom of the cooler, and around the sample containers, and on top of the sample containers to achieve and maintain preservation at 4 degrees Celsius from the time of collection until receipt by the laboratory. Sample containers, preservatives, and holding times used for this project are shown in Table 3-1.

Every cooler contained a COC form, prepared in triplicate, which identified all of the sample containers, analytical requirements, time and date sampled, preservatives, and other pertinent field data. Samples were shipped by an overnight courier to ECB Laboratory to enable analysis within holding times. Upon receipt in the laboratory, the Sample Custodian opened the shipping containers, compared the contents with the COC record, ensured that the document control information was accurate and complete, and dated the form. A Sample Receipt Form was also used by the laboratory to log in samples and document their integrity upon arrival. These forms are provided in the Analytical Data Packages.

3.3 FIELD QUALITY CONTROL SAMPLES

Duplicate samples were analyzed at the rate of one every analytical batch. The results of the field QC samples and their impact on data quality are discussed in Section 4.0.

Table 3-1 Sample Containers, Preservation, and Holding Times For Soil Samples

Parameter	Container	Preservation	Maximum Holding Times:	
			Extraction	Analysis
Metals TCLP Metals pH	8 oz glass container	Ice to 4°C	6 months (Hg-28 days)	6 months (Hg-28 days) ASAP*
Total Cyanide	4 oz glass container	Ice to 4°C		14 days
ABA	16 oz glass container or plastic bag			40 days

* As soon as possible after extracted.

4 EVALUATION OF DATA QUALITY

The laboratory analytical data was reviewed and verified by ECB Laboratory and/or Energy Laboratory and then evaluated by the CENWO project chemist for compliance with project objectives.

The following section is a description of the laboratory review procedures used to ensure data quality and the project chemists' assessment of project deliverables. Data usability was determined by comparing the project DQOs against the quality of the final analytical results.

4.1 LABORATORY QUALITY CONTROL SAMPLES

This section provides a description of laboratory QC samples: laboratory control samples, method blanks, and surrogate spike samples (organic analyses only), and matrix spike/matrix spike duplicate.

4.1.1 Laboratory Control Samples (LCS)

The laboratory analyzed a spike blank sample in duplicate to evaluate the precision and accuracy within an analytical batch. The nomenclature for these samples is a laboratory control sample (LCS). LCS sample pairs consisted of analyte-free water which was spiked with selected target compounds. LCS results are included in the QC section of each laboratory's data package which are included in the Analytical Data Packages.

4.1.2 Method Blank Analyses

A laboratory method blank is a contaminant free matrix sample (e.g. a method blank is often a volume of distilled water carried through the entire analytical scheme) that is subjected to the same analytical procedures as the field samples. The method blank is used in all analyses to verify that the determined concentrations do not reflect contamination. One method blank is performed with every batch of samples (approximately 20 samples). If consistent high blank values are observed, laboratory glassware and reagents are checked for contamination and the analysis is halted until the system is brought under control.

4.1.3 Surrogate Spike Analyses

An organic surrogate compounds is spiked into all investigative samples for organics analyses. The surrogate is compared to QC limits to evaluate the matrix effect of each sample and monitor the overall system performance. Low surrogate recoveries are indicative of problems in instrument performance, extraction procedures, or severe matrix effects. Samples which have a surrogate recovery above the laboratory control limits typically do not demonstrate performance problems unless the recoveries are high enough to indicate double spiking of surrogate compounds or extremely low internal standard recoveries.

4.1.4 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

The laboratory analyzed a spiked environmental sample and duplicate to evaluate the precision and accuracy within an analytical batch. The MS is used to assess the performance of the method as applied to a particular project matrix. A MS is an environmental sample in which

known concentrations of certain target analytes have been added before sample manipulation from the preparation, cleanup, and determinative procedures have been implemented. The results of the MS are evaluated in conjunction with other QC information to determine the effect of the matrix on the bias of the analysis.

4.2 LABORATORY DATA VALIDATION ACTIVITIES

All analytical data generated by ECB Lab was checked for completeness and evaluated for overall quality prior to final report generation as outlined in the Quality Assurance Program Plan (QAPP) and specified in each laboratory's Standard Operating Procedures (SOPs). This process consisted of data generation and reduction plus three levels of documented review. Each step of the review process involved evaluation of data quality based on QC data results and the professional judgement of the reviewer(s). All reviews were documented by the reviewer's signature and the date reviewed.

The first level review was performed by the analyst who generated the raw analytical data. Primary emphasis of the review was on correctness and completeness of the data set. All data were generated and reduced following method-specific SOPs. Each analyst reviewed the quality of the work based on the guidelines established in the SOP. The first review ensured that:

- Sample preparation and analysis information was correct and complete;
- The appropriate SOPs had been followed;
- QC parameters were within method control limits; and
- Documentation was complete

The second level review was structured so that all calibration data and QC sample results were reviewed and 10 percent of the analytical results were confirmed against the bench and instrument sheets. This shall include a complete review of instrument data scans to ensure accurate peaks and retention time, and correct peak integrations have been performed. If no problems were found with the data package, the review was considered complete. If any problems were found with the data package, an additional 10 percent of the samples were checked to the bench sheet. The process was continued for each batch until no errors were found or until each data package was reviewed in its entirety. All second level reviews were performed by a laboratory supervisor, data review specialist, or QA officer to ensure that:

- Calibration data were appropriate to the method and completely documented;
- QC samples were within established guidelines;
- Qualitative identification of sample components was correct;
- Quantitative values were calculated correctly;
- Documentation was complete and correct;
- The data were ready for final reporting; and;
- The data package was complete and ready for data archive.

An important element of the second review was the documentation of any errors identified and corrected during the review process.

Before the final report was released, a third review was performed to check each data package for completeness and to ensure that the data met the overall objectives of the project. This review was done by the laboratory Program Administrator, as stated in the QAPP. The review was performed to ensure that:

- Target analyte lists were complete as specified in the sampling and analysis plan;
- Data package checklist items were present;
- Case narratives accurately documented analytical conditions;
- All non-conformances were addressed and closed.

The Analytical Data Packages (ADPs) contain the following:

- Cover page, identifying project and remarks
- Summary and discussion of method QC and shipping and/or chain-of-custody errors
- Sample receipt information including copies of Cooler Receipt Forms
- Chain-of-Custody (COC) information including copies of COCs
- Analytical Test Results

As part of the review process, both contract laboratories applied data qualifiers to specific results to indicate usability and/or special analytical conditions. The following qualifiers were used to flag data:

B	The compound was also observed in the method blank.
J	Estimated concentration below the Reporting Limit.
u	The compound was not detected.
M	Reporting limit higher than normal due to matrix interferences.
D	Derived from a dilution of extract.

All investigative and QC sample summary results have been submitted in the Analytical Data Packages. A summary of laboratory quality control issues is found in the data package. The data package as obtained from the laboratory is attached as Appendix B.

4.3 CENWO PROJECT CHEMIST QUALITY EVALUATION

In addition to the internal validation conducted by ECB Lab, the CENWO project chemist performed data validation of the data set. This included an evaluation and validation of samples based on:

- Initial sample inspection and COC documentation;
- Holding Times;
- Field Duplicate Analyses;
- Laboratory Control Samples;
- Method Blank Analyses;
- Matrix Spike/Matrix Spike Duplicate recoveries;

- Surrogate recoveries;
- Precision, accuracy, representativeness, completeness, and comparability (PARCC) parameters as they apply to this CDQAR; and
- An overall assessment of data compared to the project DQOs.

The CENWO project chemist received data from the laboratory in hard copy format. The USACE Guidance for the Review of Performance-Based Definitive Chemical Data was used to perform the review and validation of the data.

The first step in evaluating and validating the data was to group the samples according to analytical batch or work group. A table was generated which show all analytical batches (project samples and laboratory QC samples). The batches are shown on Table 4-1. After analytical batching, the batches were reviewed to ensure that the proper QC (type and frequency) was analyzed according to the QAPP for each batch. Next, sample duplicate frequency was evaluated for compliance with the QAPP. Chain-of-custody forms and Cooler Receipt Forms were then reviewed. Any problems found were documented and the impact on sample results was determined and explained.

Holding times were evaluated for compliance with extraction and analysis holding time requirements. Matrix spike recoveries were evaluated for all samples. MS/MSD results were re-calculated on at least one sample per batch. Data qualifier flags were applied as appropriate. Surrogate spike recoveries were evaluated for all samples and surrogate recoveries were re-calculated on at least one sample per batch.

Next, LCS results were reviewed for all samples. LCS recoveries were re-calculated on one sample per batch. Relative Percent Differences (RPDs) for MS/MSD and LCS/LCSD pair calculations were verified for all batches. The 5X and 10X rule (as discussed in the Functional Guidelines for the Evaluation of Chemical Data) was used for evaluation of method blank results. The completeness percentage for surrogates, LCS, MS/MSD and holding times was then calculated.

A summary of the data review/validation results are given in section 5.

As discussed previously, data qualifier flags were applied to out-of-control data as appropriate. The following qualifiers were used to indicate data usability:

u: The analyte was not detected relative to the method reporting limit.

UN: The result is reported as a tentative nondetection. There is uncertainty with whether or not the non detection is valid at the stated method reporting limit.

X: The data is tentatively rejected because project-specific data quality objectives have not been met or have not been demonstrated.

J: The target analyte is positively identified but the quantitative result is an estimate and the direction of bias is unknown. The flag indicates a significant quantitative (rather than a qualitative) uncertainty exists.

J-: The target analyte is present but the reported concentration is an estimated value that is believed to be biased low. (i.e. the actual concentration in the environmental sample believed to be higher than the reported concentration)

J+: The target analyte is present but the reported concentration is an estimated value that is believed to be biased high. (i.e. the actual concentration in the environmental sample is believed to be lower than the reported concentration)

R: Data is rejected due to the serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified. The data is not useable.

Daily Quality Control Reports and COC documentation were compared against laboratory reports to check conformity of sample identification numbers. Analytical results were compared to daily activity logs to identify sampling procedures/activities that may have impacted data quality.

Table 4-1 Analytical Batches

Marysville Road/Silver Creek
Road Alignment Surveying and Roadbed Sampling

Batch	Analyses	Sample ID
WG11169	Metals (soil)	MR-SB01-10
		MR-SB02-10
		MR-SB03-8.5
		MR-SB04-8.5
		MR-SB05-6.0
		MR-SB06-10
		MR-SB07-7
		Method Blank
		Laboratory Matrix Duplicate
		Matrix Spike (MS)/Matrix Spike Duplicate (MSD)
		Laboratory Control Sample (LCS)
WG11170	Metals (soil)	MR-SB08-10
		MR-SB09-8
		MR-SB10-6
		MR-SB11-7
		MR-SB12-5
		MR-SB13-1.5
		MR-SB14-1.5
		MR-SB15-6
		MR-SB16-6
		MR-SB17-4.5
		MR-SB19-4.5
		MR-SB20-4.5
		MR-SB18-9
		MR0SB21-5
		Method Blank
		Laboratory Matrix Duplicate
		MS/MSD
		LCS
WG11160	Mercury (soil)	MR-SB01-10
		MR-SB02-10
		MR-SB03-8.5
		MR-SB04-8.5

Batch	Analyses	Sample ID
		MR-SB05-6.0
		MR-SB06-10
		MR-SB07-7
		MR-SB-8-10
		Method Blank
		Laboratory Matrix Duplicate
		MD/MSD
		LCS
WG11208	Mercury (soil)	MR-SB09-8
		MR-SB10-6
		MR-SB11-7
		MR-SB12-5
		MR-SB13-1.5
		MR-SB14-1.5
		MR-SB15-6
		MR-SB16-6
		MR-SB17-4.5
		MR-SB19-4.5
		MR-SB20-4.5
		MR-SB18-9
		MR0SB21-5
		Method Blank
		Laboratory Matrix Duplicate
		MS/MSD
		LCS
WG11171	TCLP Metals	MR-SB18-9
		MR-SB21-5
		Method Blank
		Laboratory Matrix Duplicate
		MS/MSD
		LCS
WG11195	TCLP Mercury	MR-SB18-9
		MR-SB21-5
		Method Blank
		Laboratory Matrix Duplicate
		MS/MSD
		LCS
02082106 Continental	Total Cyanide/Total Solids	MR-SB01-10

Batch	Analyses	Sample ID
		MR-SB02-10
		MR-SB03-8.5
		MR-SB04-8.5
		MR-SB05-6
		MR-SB06-10
		MR-SB07-7
		MR-SB08-10
		MR-SB09-8
		MR-SB10-6
		MR-SB11-7
		MR-SB12-5
		MR-SB13-1.5
		MR-SB14-1.5
		MR-SB15-6
		MR-SB16-6
		MR-SB17-4.5
		MR-SB19-4.5
		MR-SB20-4.5
		MR-SB18-9
		MR-SB21-5
		Method Blank
		LCS/LCSD
		MS/MSD
M020843	pH (soil)	MR-SB01-10
		MR-SB02-10
		MR-SB03-8.5
		MR-SB04-8.5
		MR-SB05-6
		MR-SB06-10
		MR-SB07-7
		MR-SB08-10
		MR-SB09-8
		MR-SB10-6
		MR-SB11-7
		MR-SB12-5
		MR-SB13-1.5
		MR-SB14-1.5
		MR-SB15-6
		MR-SB16-6
		MR-SB17-4.5
		MR-SB19-4.5

Batch	Analyses	Sample ID
		MR-SB20-4.5
		MR-SB18-9
		MR-SB21-1-5

A sample from each of the borings was also sent to Energy Laboratory, Billings, Montana for ABA analysis. The QC review was performed by Energy Laboratory and a review by the CENWO project chemist. The ABA results are given in the Table 2, Appendix A.

5 RESULTS OF QUALITY CONTROL ACTIVITIES AND ANALYSES

Field QC activities consisted of collecting appropriate field QC samples (field duplicates, trip blanks), daily communication between the CENWO field team and ECB Lab, and consistent interaction between the CENWO field team and CENWO Technical Manager.

5.1 FIELD QC PROCEDURES AND FIELD QC ANALYSES

5.1.1 Documentation of Field Quality Procedures

Daily Reports and Daily Quality Control Reports (DQCRs) were completed to summarize daily investigation procedures and document QC activities. These reports summarize samples collected, environmental conditions, instrument problems, and any non-routine situations which may have impacted sample integrity. These reports were reviewed concurrently with the COC forms and the analytical results from the laboratories to identify potential sampling anomalies or confirm sample identifications. The DQCR reports show collection procedures were adequate to ensure data results met project objectives.

5.1.2 Field Duplicate Analyses

No field duplicate samples were collected, however one sample in each batch for metals was run in duplicate so precision for the batch can be determined. Relative percent difference (RPD) of each analyte was within compliance so no qualification was required for the metals results because of precision.

5.2 LABORATORY QC PROCEDURES AND LABORATORY QC ANALYSES

A review of laboratory QC procedures was conducted by the USACE project chemist. All issues identified, and their respective solutions are discussed below and required qualifications are given in section 5.

5.2.1 Initial Sample Inspection and COC Documentation

ECB Laboratory inspected all shipping containers and compared the contents with the appropriate COC documentation. Information from the sample check-in procedures was recorded on the Cooler Receipt Form. This form was used to document that samples listed on the COC forms agreed with samples contained in the coolers, COC forms were filled out properly, samples were not broken, custody seals were intact, and cooler temperatures were less than or equal to 4°C. These forms are included in the Analytical Data Packages. No problems or deficiencies were found with the sample shipments or COC documentation.

5.2.2 Holding Times

Samples were delivered daily by the overnight courier to ECB Laboratory to ensure all analyses were completed within the required holding times. Part of the CENWO chemist evaluation included reviewing sample extraction and analysis dates to ensure holding times were met. Based on CENWO's review of the laboratory data, all samples were extracted and analyzed within the required holding times.

5.2.3 Method Blank Analyses

Method blanks were analyzed to assess existence and magnitude of contamination problems and measure the representativeness of the analytical process. Blanks reflect the amount of contamination introduced into the environmental samples during sample collection, transfer from the site to the laboratory or analysis. In particular, method blanks reflect laboratory contamination from both the determinative and preparatory method. At least one method blank must be reported for each preparation batch of samples. All blanks were clean except in the following:

Analytical Batch: WG11169 and WG11170. These two method blanks contained Zinc at 0.9 and 1 mg/km respectively. The values are below the reporting limit of 2 mg/km and all samples in the two batches had zinc values greater than 35 mg/km so no qualification was applied to the zinc values.

5.2.4 Laboratory Control Samples

Laboratory control samples are evaluated to assess overall method performance and are the primary indicators of laboratory performance. Laboratory control samples are method blanks which are typically spiked with all target analytes of interest. The percent recovery is used as a measure of accuracy and bias. The relative percent difference (RPD) for duplicate LCS recoveries is normally used as a measure of precision. When both a laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) are processed for a batch of samples, there is no significant physical distinction between the LCS and the LCSD. Both the LCS and the LCSD must satisfy the same recovery acceptance criteria. At least one LCS must be reported with each batch of samples. Multiple LCSs may be required to evaluate method precision. For example, a laboratory control sample and a laboratory control sample duplicate (LCSD) may be analyzed to provide information on the precision of the analytical method. The generation of control chart limits for precision via the analysis of LCS/LCSD pairs is an effective means to measure method precision. LCS and LCSD results are included in the QC section of the laboratory's data package.

Metals: An LCS was analyzed with each metals analytical batch. The % recovery was compared to set criteria for each analyte. The LCS % recoveries were all within set criteria so no qualifications were applied to metals results.

Cyanide: An LCS and LCD was analyzed as part of the cyanide quality control to determine precision and accuracy. The % recoveries and RPD results met set criteria so no qualification was applied to the cyanide results.

5.2.5 Surrogate Recovery

Surrogates are organic compounds which are similar in chemical composition to the analytes of interest. Surrogates are spiked into environmental and batch QC samples prior to sample preparation and analysis. Surrogate recoveries for environmental samples are used to evaluate matrix interference on a sample-specific basis. High or low surrogate recoveries

indicate problems in instrument performance, extraction procedures, or severe matrix effects. Samples for metals analysis are not spiked with surrogate analytes. No surrogate is added to samples for cyanide analysis.

5.2.6 MS/MSD Recovery

Matrix Spike (MS) and matrix spike duplicate (MSD) results are examined to evaluate the impact of matrix effects on overall analytical performance. A matrix spike is a representative environmental sample which is spiked with target analytes of interest prior to being taken through the entire analytical process in order to evaluate analytical bias for an actual matrix. A matrix duplicate is a collocated or a homogenized sample which is processed through the entire analytical procedure in order to evaluate overall precision for an actual matrix.

It should be noted that MS recovery failure and poor precision may arise because of (i) poor sampling technique, (ii) inadequate homogenization, or (iii) from matrix effects associated with the preparatory or determinative portion of an analytical method. Matrix interferences may be "positive" or "negative" in nature. Results of MS/MSD analyses are included in the Analytical Data Packages.

Metals: On set of MS/MSD samples were analyzed for each metals analytical batch. Analytical batches WG11169 and WG11170 had low Antimony recoveries. MS and MSD % recoveries should not be used alone for qualification, but should be used along with the LCS recovery. Since the Antimony LCS recoveries are within set criteria this indicates that the process can analyze properly for Antimony. The low MS and MSD % recovery for Antimony may indicate a matrix interference or improper digestion. For this reason the Antimony samples will be qualified as "J-" as bias low for detect and qualified as "uJ-" for non detect samples. Antimony recoveries from soil samples are generally low because of Sb complexes that are not extracted by the HNO3 extraction fluid. A better extraction fluid is HNO3/HCl. Five samples were re-extracted using HNO3/HCl. The results are given here along with the previous results using HNO3.

	HNO3	HNO3/HCl
MR-SB02-10	1 J	4 J
MR-SB04-8.5	14	42
MR-SB09-8	u	u
MR-SB11-7	2 J	6
MR-SB14-1.5	u	u

These results show that non-detects are still non-detect, but any detected values should be estimated with low bias. This is how the antimony values in Appendix A have been qualified.

No % recovery or RPD values for Iron were calculated since the original matrix had high iron concentrations (in the order of 15,000 to 25,000 mg/km) and the spike concentration was 600 mg/km. Since the LCS results for Iron was within set criteria no qualification was

applied to the Iron results. See table 5-1.

Table 5-1 OUT OF CONTROL MATRIX SPIKE/MATRIX SPIKE DUPLICATE SAMPLE ANALYSIS Soil Metal Samples

Batch	Analyte	Sample Result ug/l	MS Spike Concn ug/l	MSD Spike Concn ug/l	MS Percent Recovery	MSD Percent Recovery	QC Limits	RPD (%)	RPD Limit
WG11169	Antimony	u	100	100	25	24.9	80-120	2	25
WG11170	Antimony	u	100	100	25.5	24.4	80-120	4	25

Cyanide: On set of MS/MSD samples were analyzed for cyanide analytical batch was within set criteria. No qualifications were applied to the Cyanide results.

5.2.7 Quality Control for pH analyses

Quality control for pH analysis consists of standardization of the pH meter using standard solutions of pH 4 and pH 7. The pH instrument was standardized using this method.

5.2.8 Quality Control for Acid Base Accounting (ABA)

Quality control for the ABA was controlled and investigated by the Energy laboratory and further reviewed by the CENWO project chemist. No qualification was applied to the ABA parameters.

5.2.9 Completeness of Data Packages

The CENWO Chemist reviewed the data package and confirmed the completeness of the data package. All the planned sampling activities were executed and all the laboratory analyses were performed.

5.3 PRECISION, ACCURACY, REPRESENTATIVENESS, COMPLETENESS AND COMPARABILITY (PARCC)

DQOs and their corresponding measurement indicators were specified in the Sampling and Analysis Plan. To achieve the project DQOs, specific PARCC goals are established for laboratory and field sampling procedures. These PARCC parameters are the measurement tools for determining the usability of generated data.

Precision and accuracy goals were based on knowledge of each analytical measurement system. For this CDQAR, precision was measured using the RPD between two replicated sample analyses. The precision evaluation encompassed laboratory precision (LCS samples), and combined field/laboratory precision (MS/MSD samples).

Accuracy was measured using the percent recovery of surrogates, MS/MSD samples, and LCS sample pairs. Spike recoveries form field samples and laboratory QC samples are compared to established control limits to determine a laboratory's ability to accurately determine both qualitative and quantitative results.

Representativeness is the degree to which the data accurately and precisely portrayed the environmental conditions being studied. For the site investigation, sampling procedures and sample locations were selected to bias samples in areas of potential places of contamination. All sampling was conducted using known approved field procedures to minimize variability.

Completeness refers to the amount of valid data obtainable from a measurement system compared to the expected amount of data. The SAP established a completeness goal of 90 percent for laboratory QC requirements. This goal was attained by the data for this project.

5.4 Data Tables

The qualified data is given in Appendix A.

5.5 Analytical Data Package

Data Sheets as Obtained from Environmental Chemistry Laboratory and Energy Labs will be given upon request as hard copy of the Analytical Data Package.

6 CONCLUSIONS

This CDQAR presents, in specific terms, the quality control practices utilized to achieve the goals of the site investigation at Marysville Road/Silver Creek Road, Colorado. The analytical program for this project conformed with the CENWO General Chemistry SOS and the General Geology SOS. Samples were also collected and analyzed in accordance with ASTM and EPA methods and laboratory specific QA/QC procedures were used. These procedures were followed to generate high quality data.

The quality issues addressed in Section 5 of this report do not impact the usability of the data. The required qualifications have been applied to the data in Appendix A, Table1. The reviewed data are usable and are suitable for addressing the overall objective of this investigation.

Appendix A

Table 1, Analytical Results
Marysville Road/Silver Creek, Soil samples
mg/kg

Sample	MDL	MR-SB01-10			MR-SB02-10			MR-SB03-8.5			MR-SB04-8.5			MR-SB05-6			MR-SB06-10			MR-SB07-7		
Date Collected		8/21/02	RL	Q	8/21/02	RL	Q	8/21/02	RL	Q	8/22/02	RL	Q	8/22/02	RL	Q	8/22/02	RL	Q	8/22/02	RL	Q
Silver	0.2	<0.2	1	u	< 0.2	1	u	< 0.2	1	u	< 0.2	1	u	<0.2	1	u	<0.2	1	u	<0.2	1	u
Arsenic	0.6	26.9	3		38.2	3		58.4	3		55.8	3		23.3	3		32.2	3		102	3	
Barium	0.1	326	0.5		157	0.5		219	0.5		317	0.5		256	0.5		325	0.5		218	0.5	
Cadmium	0.1	0.3	0.5	J	0.22	0.5	J	0.24	0.5	J	0.32	0.5	J	0.5	0.5		0.4	0.5	J	0,28	0.5	J
Chromium	0.4	12.5	2		12	23		14.9	2		10.9	2		11.7	2		11.1	2		9.28	2	
Cupper	0.4	17.8	2		17	2		23.7	2		16	2		18.3	2		15.9	2		24.2	2	
Iron	8	15200	24		16600	24		21300	24		14200	24		14900	24		15100	24		13000	24	
Mercury	0.001	0.012	0.005		0.008	0.005		0.035	0.005		0.091	0.005		0.077	0.005		0.053	0.005		0.0395	0.005	
Manganese	0.2	569	0.8		455	0.8		987	0.8		1040	0.8		450	0.8		431	0.8		356	0.8	
Nickel	0.6	12.8	2		11.5	2		14.8	2		12.9	2		13.1	2		13.5	2		11.8	2	
Lead	0.4	16	2		10.1	2		13.6	2		14.5	2		15.3	2		16.6	2		12.6	2	
Antimony	1.2	<1.2	4	uJ-	<1.2	4	uJ-	2.4	4	J-	13.7	4	J-	<1.2	4	uJ-	<1.2	4	uJ-	<1.2	4	uJ-
Zinc	0.6	48.3	2	B	46.9	2	B	61.9	2	B	59.6	2	B	69.3	2	B	86.5	2	B	44.3	2	B
Cyanide		<0.2	0.2		<0.2	0.2		<0.2	0.2		<0.2	0.2		<0.2	0.2		<0.2	0.2		<0.2	0.2	
pH		8.09			8.47			8.49			8.86			8.85			8.45			8.98		

Table 1, (cont) Analytical Results

Marysville Road/Silver Creek, Soil samples

mg/kg

Sample	MDL	MR-SB08-10			MR-SB09-8			MR-SB10-6			MR-SB11-7			MR-SB12-5			MR-SB13-1..5			MR-SB14-1.5		
Date Collected		8/22/02	RL	Q	8/22/02	RL	Q	8/22/02	RL	Q	8/22/02	RL	Q	8/23/02	RL	Q	8/23/02	RL	Q	8/23/02	RL	Q
Silver	0.2	<0.2	1	u	< 0.2	1	u	< 0.2	1	u	4.38	1		<0.2	1	u	<0.2	1	u	<0.2	1	u
Arsenic	0.6	57.4	3		23.1	3		28.8	3		13.4	3		30..5	3		93.1	3		30	3	
Barium	0.1	174	0.5		136	0.5		131	0.5		106	0.5		132	0.5		176	0.5		142	0.5	
Cadmium	0.1	0.15	0.5	J	0.13	0.5	J	0.18	0.5	J	0..31	0.5	J	0.1	0.5	u	0.12	0.5	J	0.6	0.5	
Chromium	0.4	26	2		11.8	2		10.7	2		8.58	2		11.6	2		9.6	2		10.2	2	
Copper	0.4	20.4	2		17.6	2		15.4	2		40.9	2		14.5	2		20.7	2		12.3	2	
Iron	8	14300	24		15400	24		13400	24		12200	24		14400	24		12600	24		11500	24	
Mercury	0.001	0.033	0.005		0.02	0.005		0.027	0.005		6.39	0.055		0.017	0.005		0.044	0.005		0.054	0.005	
Manganese	0.2	380	0.8		405	0.8		411	0.8		323	0.8		343	0.8		356	0.8		369	0.8	
Nickel	0.6	12.6	2		13.4	2		11.2	2		10.6	2		13.1	2		10.7	2		8.96	2	
Lead	0.4	12.2	2		12.2	2		11.5	2		33.7	2		11.7	2		13.4	2		15.9	2	
Antimony	1.2	<1.2	4	uJ-	<1.2	4	uJ-	<1.2	4	uJ-	1.9	4	J-	<1.2	4	uJ-	<1.2	4	uJ-	<1.2	4	uJ-
Zinc	0.6	50.9	2	B	55.9	2	B	64.2	2	B	70.1	2	B	52	2	B	50.3	2	B	70.8	2	B
Cyanide		<0.2	0.2		<0.2	0.2		<0.2	0.2		<0.2	0.2		<0.2	0.2		<0.2	0.2		<0.2	0.2	
pH		9.05			8.96			8.95			8.46			9.17			8.74			8.55		

Table 1, (cont) Analytical Results

Marysville Road/Silver Creek, Soil samples

mg/kg

Sample	MDL	MR-SB15-6			MR-SB16-6			MR-SB17-4.5			MR-SB18-9			MR-SB19-4.5			MR-SB20-4.5			MR-SB21-5		
Date Collected		8/23/02	RL	Q	8/23/02	RL	Q	8/23/02	RL	Q	8/23/02	RL	Q	8/23/02	RL	Q	8/23/02	RL	Q	8/23/02	RL	Q
Silver	0.2	<0.2	1	u	< 0.2	1	u	< 0.2	1	u	<0.2	1	u	0.43	1	J	0.43	1	J	1.13	1	
Arsenic	0.6	24.8	3		15.1	3		7.77	3		9.4	3		26	3		24	3		6.46	3	
Barium	0.1	157	0.5		110	0.5		89.2	0.5		427	0.5		306	0.5		181	0.5		198	0.5	
Cadmium	0.1	<0.10	0.5	u	0.15	0.5	J	<0.1	0.5	u	<0.1	0.5	uJ	<0.1	0.5	u	<0.1	0.5	u	<0.1	0.5	
Chromium	0.4	13.6	2		21	2		17.7	2		12.9	2		10.1	2		10.7	2		9.13	2	
Copper	0.4	14.1	2		13.5	2		17.2	2		23.5	2		17.8	2		66.3	2		25.6	2	
Iron	8	11800	24		9650	24		13100	24		15800	24		16700	24		14700	24		20700	24	
Mercury	0.001	0.020	0.005		0.037	0.005		0.065	0.005		0.4	0.005		0.574	0.005		0.503	0.005		0.403	0.005	
Manganese	0.2	393	0.8		313	0.8		324	0.8		283	0.8		502	0.8		391	0.8		696	0.8	
Nickel	0.6	11.5	2		7.95	2		6.87	2		12.5	2		8.89	2		9.1	2		5.83	2	
Lead	0.4	8.15	2		7.65	2		6.32	2		15.3	2		70.2	2		160	2		6.99	2	
Antimony	1.2	<1.2	4	uJ-	<1.2	4	uJ-	<1.2	4	uJ-	<1.2	4	uJ-	<1.2	4	uJ-	<1.2	4	uJ-	<1.2	4	uJ-
Zinc	0.6	61.1	2	B	37.8	2	B	39.6	2	B	39.1	2	B	67.1	2	B	52.7	2	B	61	2	B
Cyanide		<0.2	0.2		<0.2	0.2		<0.2	0.2		<0.2	0.2		<0.2	0.2		<0.2	0.2		<0.2	0.2	
pH		8.78			8.89			8.57			7.05			8.19			8.52			8.61		

u = non detect up to MDL

J = estimate values due to analyte detected between MDL and RL or data qualification

J- = estimate value with low bias

Table 1, (cont) Analytical Results

Marysville Road/Silver Creek, Soil samples
TCLP (mg/L)

Samples	MDL	MR-SB18-9	RL	Q	MR-SB21-5	RL	Q
Arsenic	0.006	< 0.006	0.03	u	< 0.006	0.03	u
Barium	0.001	0.519	0.005		1.14	0.005	
Cadmium	0.001	0.001	0.005	J	0.001	0.005	J
Chromium	0.005	< 0.005	0.03	u	< 0.005	0.03	u
Lead	0.01	<0.01	0.05	u	<0.01	0.05	u
Selenium	0.01	<0.01	0.05	u	<0.01	0.05	u
Silver	0.002	<0.002	0.01	u	<0.002	0.01	u
Mercury	0.004	<0.004	0.02	u	<0.004	0.02	u

u = non detect up to MDL

J = estimate values due to analyte detected between MDL and RL or data qualification

Table 2, Analytical Results, Acid-Base-Acounting

Marysville Road/Silver Creek, Soil samples

Sample	RL	Units	MR-SB01-10	MR-SB02-10	MR-SB03-8.5	MR-SB04-8.5	MR-SB05-6	MR-SB06-10	MR-SB07-07
Date Collected			8/21/02	8/21/02	8/21/02	8/22/02	8/22/02	8/22/02	8/22/02
Neutralization Potential	1	ppt	190	94	64	293	312	248	387
Acid potential	1	ppt	1	ND	1	ND	ND	ND	ND
Acid/Base Potential		ppt	190	84	63	293	312	247	387
Sulfur, Total	0.01	Wt %	0.34	0.05	0.05	0.02	0.02	0.05	0.01
Sulfur, Hot Water Extractable	0.01	Wt %	0.32	0.04	0.02	0.02	0.01	0.04	<0.01
Sulfur, HCl Extractable	0.01	Wt %	0.02	<0.01	0.03	<0.01	<0.01	<0.01	<0.01
Sulfur, HNO3 Extractable	0.01	Wt %	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sulfur, Residual	0.01	Wt %	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Table 2, (cont) Analytical Results, Acid-Base-Accounting

Marysville Road/Silver Creek, Soil samples

Sample	RL	Units	MR-SB08-10	MR-SB09-8	MR-SB10-6	MR-SB11-7	MR-SB12-5	MR-SB13-1.5	MR-SB14-1.5
Date Collected			8/22/02	8/22/02	8/22/02	8/22/02	8/23/02	8/23/02	8/23/02
Neutralization Potential	1	ppt	390	329	392	271	327	418	361
Acid potential	1	ppt	ND	ND	ND	ND	ND	ND	ND
Acid/Base Potential		Ppt	390	329	392	271	327	417	361
Sulfur, Total	0.01	Wt %	0.01	0.01	0.01	0.01	0.01	0.03	0.01
Sulfur, Hot Water Extractable	0.01	Wt %	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sulfur, HCl Extractable	0.01	Wt %	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01
Sulfur, HNO3 Extractable	0.01	Wt %	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01
Sulfur, Residual	0.01	Wt %	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Table 2, (cont) Analytical Results, Acid-Base-Accounting

Marysville Road/Silver Creek, Soil samples

Sample	RL	Units	MR-SB15-6	MR-SB16-6	MR-SB17-4.5	MR-SB18-9	MR-SB19-4.5	MR-SB20-4.5	MR-SB21-5
Date Collected			8/23/02	8/23/02	8/23/02	8/23/02	8/23/02	8/23/02	8/23/02
Neutralization Potential	1	ppt	355	157	70	52	111	164	42
Acid potential	1	ppt	ND	ND	ND	3	1	1	ND
Acid/Base Potential		ppt	355	157	70	49	110	163	42
Sulfur, Total	0.01	Wt %	0.01	0.01	0.01	0.16	0.04	0.03	0.02
Sulfur, Hot Water Extractable	0.01	Wt %	<0.01	<0.01	<0.01	0.08	0.01	<0.01	0.02
Sulfur, HCl Extractable	0.01	Wt %	<0.01	<0.01	<0.01	<0.01	0.02	0.01	<0.01
Sulfur, HNO3 Extractable	0.01	Wt %	<0.01	<0.01	<0.01	0.03	<0.01	0.02	0.03
Sulfur, Residual	0.01	Wt %	<0.01	<0.01	<0.01	0.05	<0.01	<0.01	<0.01

ppt = tons of calcium carbonate equivalent per 1000 tons of sample (or parts per thousand)

ND = non detect less than R

ECB Project No. 6683

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
ENVIRONMENTAL CHEMISTRY BRANCH
OMAHA, NEBRASKA 68102

28 OCT 2002

Subject: Certificate of Analysis

Project: Marysville Road - Silver Creek, MT
Intended Use: Special
Source of Material:

Submitted by: Tom Liefer, CENWO-ED-GG
Date Sampled: 21 - 23 Aug 02 **Date Received:** 27 Aug 02
Method of Test or Specification: See attached test result sheets

References: Omaha District Request No. W59XQG21210165 dated 01 May 02

-- REMARKS --

1. Review comments for project data are presented on the following pages.

2. Sample receipt information and analytical data are provided in the following parts of the report.

   Part A: Sample Receipt Information (2 pages)
   Part B: Chain-of-Custody Information (5 pages)
   Part C: Analytical Test Results (115 pages)

Submitted by:

for Laura Percifield

DOUGLAS B. TAGGART
Chief, Environmental
Chemistry Branch

LP 10/28/02

Percifield/glm/444-4313

PART A

SAMPLE RECEIPT INFORMATION

QA/QC Table #	Customer Sample ID	Date Sampled	Matrix	ECB # Assigned	Tests Assigned	QA Test Results Page Number
001	MR-SB01-10	21 Aug 02	Soil	M020843-001 M020843-001 M020843-001	Metals Cn pH	C1-C2 C71 C95
002	MR-SB02-10	21 Aug 02	Soil	M020843-002 M020843-002 M020843-002	Metals Cn pH	C3-C4 C72 C96
003	MR-SB03-8.5	21 Aug 02	Soil	M020843-003 M020843-003 M020843-003	Metals Cn pH	C5-C6 C73 C97
004	MR-SB04-8.5	22 Aug 02	Soil	M020843-004 M020843-004 M020843-004	Metals Cn pH	C7-C8 C74 C98
005	MR-SB05-6.0	22 Aug 02	Soil	M020843-005 M020843-005 M020843-005	Metals Cn pH	C9-C10 C75 C99
006	MR-SB06-10	22 Aug 02	Soil	M020843-006 M020843-006 M020843-006	Metals Cn pH	C11-C12 C76 C100
007	MR-SB07-7	22 Aug 02	Soil	M020843-007 M020843-007 M020843-007	Metals Cn pH	C13-C14 C77 C101
008	MR-SB08-10	22 Aug 02	Soil	M020843-008 M020843-008 M020843-008	Metals Cn pH	C15-C16 C78 C102
009	MR-SB09-8	22 Aug 02	Soil	M020843-009 M020843-009 M020843-009	Metals Cn pH	C17-C18 C79 C103
010	MR-SB10-6	22 Aug 02	Soil	M020843-010 M020843-010 M020843-010	Metals Cn pH	C19-C20 C80 C104
011	MR-SB11-7	22 Aug 02	Soil	M020843-011 M020843-011 M020843-011	Metals Cn pH	C21-C22 C81 C105
012	MR-SB12-5	23 Aug 02	Soil	M020843-012 M020843-012 M020843-012	Metals Cn pH	C23-C24 C82 C106
013	MR-SB13-1.5	23 Aug 02	Soil	M020843-013 M020843-013 M020843-013	Metals Cn pH	C25-C26 C83 C107
014	MR-SB14-1.5	23 Aug 02	Soil	M020843-014 M020843-014 M020843-014	Metals Cn pH	C27-C28 C84 C108
015	MR-SB15-6.0	23 Aug 02	Soil	M020843-015 M020843-015 M020843-015	Metals Cn pH	C29-C30 C85 C109
016	MR-SB16-6.0	23 Aug 02	Soil	M020843-016 M020843-016 M020843-016	Metals Cn pH	C31-C32 C86 C110

A2

QA/QC Table #	Customer Sample ID	Date Sampled	Matrix	ECB # Assigned	Tests Assigned	QA Test Results Page Number
017	MR-SB17-4.5	23 Aug 02	Soil	M020843-017	Metals	C33-C34
				M020843-017	Cn	C87
				M020843-017	pH	C111
018	MR-SB19-4.5	23 Aug 02	Soil	M020843-018	Metals	C35-C36
				M020843-018	Cn	C88
				M020843-018	pH	C112
019	MR-SB20-4.5	23 Aug 02	Soil	M020843-019	Metals	C37-C38
				M020843-019	Cn	C89
				M020843-019	pH	C113
020	MR-SB18-9.0	23 Aug 02	Soil	M020843-020	Metals	C39-C40
				M020843-020	Cn	C90
				M020843-020	pH	C114
				M020843-021	TCLP metals	C59-C60
021	MR-SB21-5	23 Aug 02	Soil	M020843-022	Metals	C41-C42
				M020843-022	Cn	C91
				M020843-022	pH	C115
				M020843-023	TCLP metals	C61-C62

PART B

CHAIN-OF-CUSTODY INFORMATION

Page No.	Chain-of-Custody No.	Date Signed
B1	10096	23 Aug 02
B2	10098	23 Aug 02
B3	10100	23 Aug 02
B4	10099	23 Aug 02

U.S. ARMY CORPS OF ENGINEERS

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME
IJMS6683	Marysville Road, MT

SAMPLERS: *(Signature)* Jason L Wag[illegible]

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Metals	PH	total Cyanide				REMARKS
	8/21/02	1150	X		MR-SB01-10	2	X	X	X				1 8oz. Jar and 4oz. Jar
	8/21/02	1400	X		MR-SB02-10	2	X	X	X				"
	8/21/02	1515	X		MR-SB03-8.5	2	X	X	X				"
	8/22/02	0755	X		MR-SB04-8.5	2	X	X	X				"
	8/22/02	0845	X		MR-SB05-6.0'	2	X	X	X				"

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Jason L Wag[illegible]	8/23/02 1515				
Relinquished by: *(Signature)*	**Date / Time**	**Received by:** *(Signature)*	**Relinquished by:** *(Signature)*	**Date / Time**	**Received by:** *(Signature)*
Relinquished by: *(Signature)*	**Date / Time**	**Received for Laboratory by:** *(Signature)*	**Date / Time**	**Remarks**	
		Shelly [illegible]	8/27/02 0920		

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

10096

U.S. ARMY CORPS OF ENGINEERS

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME
AIMS6663	Monsville RCS, MT

SAMPLERS: *(Signature)* Jason J Wagner

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	metals	pH	Total Cyanide				REMARKS
	6/20/02	1105	X		MR-SBOX6-10	2	X	X	X				1 8oz. Glass Jar / 1 4oz. Glass Jar
	6/20/02	1155	X		MR-SB07-7	2	X	X	X				"
	6/20/02	1350	X		MR-SB08-10	2	X	X	X				"
	6/21/02	1440	X		MR-SB09-8	2	X	X	X				"
													"

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Jason J Wagner	06/23/02 1530				
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)*	Date / Time	Remarks	
		Shelly Shrunk	6/27/02 0720		

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

10098

U.S. ARMY CORPS OF ENGINEERS

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME
LIMS 6683	Marysville Rd, MT

SAMPLERS: *(Signature)* Jason J Wagner

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	metals	pH	total Cyanide				REMARKS
	8/22/02	1515	X		MRSB10 – 6	2	X	X	X				1 8oz. Glass Jar / 1 4oz. Jar
	8/22/02	1550	X		MR-SB11 – 7	2	X	X	X				"
	8/23/02	0743	X		MR-SB12 – 5	2	X	X	X				"
	8/23/02	0810	X		MR-SB13 – 1.5	2	X	X	X				"
	8/23/02	0835	X		MR-SB14 – 1.5	2	X	X	X				"
	8/23/02	0935	X		MR-SB15 – 6.0	2	X	X	X				"

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Jason J Wagner	8/23/02 1535				
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)* Shelly Lunt	Date / Time 8/27/02 0900	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

U.S. ARMY CORPS OF ENGINEERS

B4

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME
4IMS66683	Marysville Rd, MT

SAMPLERS: (Signature) Jason Wagner

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Metals	pH	Total Cyanide	TCLP Metals				REMARKS
	6/23/02	1035	X		MR-SB16-6.0	2	X	X	X					1 8oz. Glass Jar / 402. Glass Jar
	6/23/02	1245	X		MR-SB17-4.5	2	X	X	X					11
	6/23/02	1310	X		MR-SB18-9.0	2	X	X	X	X				11
	6/23/02	1340	X		MR-SB19-4.5	2	X	X	X					11
	6/23/02	1400	X		MR-SB20-4.5	2	X	X	X					11
	6/23/02	1435	X		MR-SB21-5	2	X	X	X	X				11

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Jason Wagner	6/23/02 1350				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		Shelly Lemmon	8/27/02 0900		

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

10099

B5

COOLER RECEIPT FORM
Chemistry Quality Assurance Branch Laboratory

LIMS # 1683 CQAB Cooler # _____ Number of Coolers 4 Contractor Cooler _____

Project: Marquette Rd Date received: 8/27/02

USE OTHER SIDE OF THIS FORM TO NOTE DETAILS CONCERNING CHECK-IN PROBLEMS. 1096, 98

A. PRELIMINARY EXAMINATION PHASE: Date cooler opened: 8/27/02 C-of-C Number: 99, 100

by (print) Shelly Swink (sign) Shelly Swink

1. Did cooler come with a shipping slip (air bill, etc.)? ..... (YES) NO

   If YES, enter carrier name & air bill number here: Fed Ex

2. Were custody seals on outside of cooler? ..... (YES) NO

   How many & where: 1 front seal date: 8/26/02 seal name: JWagner

3. Were custody seals unbroken and intact at the date and time of arrival? ..... (YES) NO

4. Did you screen samples for radioactivity using the Geiger Counter? ..... (YES) NO

5. Were custody papers sealed in a plastic bag & taped inside to the lid? ..... (YES) NO

6. Were custody papers filled out in the appropriate place? ..... (YES) NO

7. Did you sign custody papers in the appropriate place? ..... (YES) NO

8. Was project identifiable from custody papers? ..... (YES) NO

9. Type of ice: ice Temperature: 4.0 Date temperature measured: 8/27

10. Describe type of packing in cooler: bubble wrap

11. Were all bottles sealed in separate plastic bags? ..... (YES) NO

B. LOG-IN PHASE: Date samples were logged-in: 8/27/02

by (print) Shelly Swink (sign) Shelly Swink

12. Did all bottles arrive unbroken & were labels in good condition? ..... (YES) NO

13. Were all bottle labels complete (ID, date, time, signature, preservative, etc.)? ..... (YES) NO

14. Did all bottle labels agree with custody papers? ..... (YES) NO

15. Were correct containers used for the tests indicated? ..... (YES) NO

16. Were correct preservatives added to samples? ..... VM YES NO

17. Was a sufficient amount of sample sent for tests indicated? ..... (YES) NO

18. Was headspace absent in volatile samples? If NO, list by QA#: _____ NA YES NO

19. Were the custody papers checked against the sample receipt form? By whom? RP Date: 8/27/02

PART C

QUALITY ASSURANCE TEST RESULTS

C1

DEPARTMENT OF THE ARMY
Corps of Engineers
Environmental Chemistry Branch
Omaha Laboratory

Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB01-10
Sample ID: M020843-001

Date Sampled: 08/21/02
Date Received: 08/27/02
Date Reported: 09/18/02

Matrix: Soil
Units: mg/kg
% Solids: 83.3

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-36-0	Antimony	1	u	4.0	1.	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-38-2	Arsenic	1	27.	3.0	0.6	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-39-3	Barium	1	326.	0.50	0.1	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-43-9	Cadmium	1	0.3 J	0.50	0.1	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-47-3	Chromium	1	13.	2.0	0.4	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-50-8	Copper	1	18.	2.0	0.4	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7439-89-6	Iron	1	15200	24.	8.	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7439-92-1	Lead	1	16.	2.0	0.4	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7439-96-5	Manganese	1	569.	0.80	0.2	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-02-0	Nickel	1	13.	2.0	0.6	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-22-4	Silver	1	u	1.0	0.2	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-66-6	Zinc	1	48.3 B	2.0	0.6	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon

u: Analyte was analyzed for but not detected at or above the sample reporting limit

J: Estimated concentration below laboratory reporting limit.

B: Analyte also present in the method blank.

Quality Assurance / Quality Control

ICP Method Blank ID: WG11169-1
GFAA Method Blank ID: NA
CVAA Method Blank ID: NA

ICP LCS ID: WG11169-2
GFAA LCS ID: NA
CVAA LCS ID: NA

ICP LD ID: WG11169-3
GFAA LD ID: NA
CVAA LD ID: NA

ICP MS ID: WG11169-4
GFAA MS ID: NA
CVAA MS ID: NA

ICP MSD ID: WG11169-5
GFAA MSD ID: NA
CVAA MSD ID: NA

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C2

DEPARTMENT OF THE ARMY
Corps of Engineers
Environmental Chemistry Branch
Omaha Laboratory

Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB01-10
Sample ID: M020843-001

Date Sampled: 08/21/02
Date Received: 08/27/02
Date Reported: 09/12/02

Matrix: Soil
Units: mg/kg
% Solids: 83.3

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	1	0.012	0.0050	0.001	EPA 7471	WG11160	09-03-02	09-04-02	Bond

Quality Assurance / Quality Control

ICP Method Blank ID: NA
GFAA Method Blank ID: NA
CVAA Method Blank ID: WG11160-1

ICP LCS ID: NA
GFAA LCS ID: NA
CVAA LCS ID: WG11160-2

ICP LD ID: NA
GFAA LD ID: NA
CVAA LD ID: WG11160-3

ICP MS ID: NA
GFAA MS ID: NA
CVAA MS ID: WG11160-4

ICP MSD ID: NA
GFAA MSD ID: NA
CVAA MSD ID: WG11160-5

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C3

DEPARTMENT OF THE ARMY
Corps of Engineers
Environmental Chemistry Branch
Omaha Laboratory

Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB02-10
Sample ID: M020843-002

Date Sampled: 08/21/02
Date Received: 08/27/02
Date Reported: 09/18/02

Matrix: Soil
Units: mg/kg
% Solids: 90.5

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-36-0	Antimony	1	1 J	4.0	1.	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-38-2	Arsenic	1	38.2	3.0	0.6	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-39-3	Barium	1	157.	0.50	0.1	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-43-9	Cadmium	1	0.2 J	0.50	0.1	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-47-3	Chromium	1	12.	2.0	0.4	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-50-8	Copper	1	17.	2.0	0.4	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7439-89-6	Iron	1	16600	24.	8.	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7439-92-1	Lead	1	10.	2.0	0.4	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7439-96-5	Manganese	1	445.	0.80	0.2	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-02-0	Nickel	1	11.	2.0	0.6	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-22-4	Silver	1	u	1.0	0.2	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-66-6	Zinc	1	46.9 B	2.0	0.6	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon

u: Analyte was analyzed for but not detected at or above the sample reporting limit

J: Estimated concentration below laboratory reporting limit.

B: Analyte also present in the method blank.

Quality Assurance / Quality Control

ICP Method Blank ID: WG11169-1
GFAA Method Blank ID: NA
CVAA Method Blank ID: NA

ICP LCS ID: WG11169-2
GFAA LCS ID: NA
CVAA LCS ID: NA

ICP LD ID: WG11169-3
GFAA LD ID: NA
CVAA LD ID: NA

ICP MS ID: WG11169-4
GFAA MS ID: NA
CVAA MS ID: NA

ICP MSD ID: WG11169-5
GFAA MSD ID: NA
CVAA MSD ID: NA

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C4

DEPARTMENT OF THE ARMY
Corps of Engineers
Environmental Chemistry Branch
Omaha Laboratory

Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB02-10
Sample ID: M020843-002

Date Sampled: 08/21/02
Date Received: 08/27/02
Date Reported: 09/12/02

Matrix: Soil
Units: mg/kg
% Solids: 90.5

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	1	0.0077	0.0050	0.001	EPA 7471	WG11160	09-03-02	09-04-02	Bond

Quality Assurance / Quality Control

ICP Method Blank ID: NA
GFAA Method Blank ID: NA
CVAA Method Blank ID: WG11160-1

ICP LCS ID: NA
GFAA LCS ID: NA
CVAA LCS ID: WG11160-2

ICP LD ID: NA
GFAA LD ID: NA
CVAA LD ID: WG11160-3

ICP MS ID: NA
GFAA MS ID: NA
CVAA MS ID: WG11160-4

ICP MSD ID: NA
GFAA MSD ID: NA
CVAA MSD ID: WG11160-5

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C5

DEPARTMENT OF THE ARMY
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Environmental Chemistry Branch
Omaha Laboratory

Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB03-8.5
Sample ID: M020843-003

Date Sampled: 08/21/02
Date Received: 08/27/02
Date Reported: 09/18/02

Matrix: Soil
Units: mg/kg
% Solids: 88.9

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-36-0	Antimony	1	2 J	4.0	1.	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-38-2	Arsenic	1	58.4	3.0	0.6	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-39-3	Barium	1	219.	0.50	0.1	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-43-9	Cadmium	1	0.2 J	0.50	0.1	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-47-3	Chromium	1	15.	2.0	0.4	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-50-8	Copper	1	23.7	2.0	0.4	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7439-89-6	Iron	1	21300	24.	8.	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7439-92-1	Lead	1	14.	2.0	0.4	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7439-96-5	Manganese	1	987.	0.80	0.2	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-02-0	Nickel	1	15.	2.0	0.6	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-22-4	Silver	1	u	1.0	0.2	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-66-6	Zinc	1	61.9 B	2.0	0.6	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon

u: Analyte was analyzed for but not detected at or above the sample reporting limit

J: Estimated concentration below laboratory reporting limit.

B: Analyte also present in the method blank.

Quality Assurance / Quality Control

ICP Method Blank ID: WG11169-1
GFAA Method Blank ID: NA
CVAA Method Blank ID: NA

ICP LCS ID: WG11169-2
GFAA LCS ID: NA
CVAA LCS ID: NA

ICP LD ID: WG11169-3
GFAA LD ID: NA
CVAA LD ID: NA

ICP MS ID: WG11169-4
GFAA MS ID: NA
CVAA MS ID: NA

ICP MSD ID: WG11169-5
GFAA MSD ID: NA
CVAA MSD ID: NA

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C6

DEPARTMENT OF THE ARMY
Corps of Engineers
Environmental Chemistry Branch
Omaha Laboratory

Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB03-8.5
Sample ID: M020843-003

Date Sampled: 08/21/02
Date Received: 08/27/02
Date Reported: 09/12/02

Matrix: Soil
Units: mg/kg
% Solids: 88.9

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	1	0.035	0.0050	0.001	EPA 7471	WG11160	09-03-02	09-04-02	Bond

Quality Assurance / Quality Control

ICP Method Blank ID: NA
GFAA Method Blank ID: NA
CVAA Method Blank ID: WG11160-1

ICP LCS ID: NA
GFAA LCS ID: NA
CVAA LCS ID: WG11160-2

ICP LD ID: NA
GFAA LD ID: NA
CVAA LD ID: WG11160-3

ICP MS ID: NA
GFAA MS ID: NA
CVAA MS ID: WG11160-4

ICP MSD ID: NA
GFAA MSD ID: NA
CVAA MSD ID: WG11160-5

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C7

DEPARTMENT OF THE ARMY
Corps of Engineers
Environmental Chemistry Branch
Omaha Laboratory

Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB04-8.5
Sample ID: M020843-004
Date Sampled: 08/22/02
Date Received: 08/27/02
Date Reported: 09/18/02
Matrix: Soil
Units: mg/kg
% Solids: 93.0

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-36-0	Antimony	1	14.	4.0	1.	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-38-2	Arsenic	1	55.8	3.0	0.6	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-39-3	Barium	1	317.	0.50	0.1	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-43-9	Cadmium	1	0.3 J	0.50	0.1	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-47-3	Chromium	1	11.	2.0	0.4	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-50-8	Copper	1	16.	2.0	0.4	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7439-89-6	Iron	1	14200	24.	8.	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7439-92-1	Lead	1	15.	2.0	0.4	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7439-96-5	Manganese	1	1040	0.80	0.2	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-02-0	Nickel	1	13.	2.0	0.6	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-22-4	Silver	1	u	1.0	0.2	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-66-6	Zinc	1	59.6 B	2.0	0.6	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon

u: Analyte was analyzed for but not detected at or above the sample reporting limit

J: Estimated concentration below laboratory reporting limit.

B: Analyte also present in the method blank.

Quality Assurance / Quality Control

ICP Method Blank ID: WG11169-1
GFAA Method Blank ID: NA
CVAA Method Blank ID: NA

ICP LCS ID: WG11169-2
GFAA LCS ID: NA
CVAA LCS ID: NA

ICP LD ID: WG11169-3
GFAA LD ID: NA
CVAA LD ID: NA

ICP MS ID: WG11169-4
GFAA MS ID: NA
CVAA MS ID: NA

ICP MSD ID: WG11169-5
GFAA MSD ID: NA
CVAA MSD ID: NA

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C8

DEPARTMENT OF THE ARMY
Corps of Engineers
Environmental Chemistry Branch
Omaha Laboratory

Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB04-8.5
Sample ID: M020843-004

Date Sampled: 08/22/02
Date Received: 08/27/02
Date Reported: 09/12/02

Matrix: Soil
Units: mg/kg
% Solids: 93.0

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	1	0.0911	0.0050	0.001	EPA 7471	WG11160	09-03-02	09-04-02	Bond

Quality Assurance / Quality Control

ICP Method Blank ID: NA
GFAA Method Blank ID: NA
CVAA Method Blank ID: WG11160-1

ICP LCS ID: NA
GFAA LCS ID: NA
CVAA LCS ID: WG11160-2

ICP LD ID: NA
GFAA LD ID: NA
CVAA LD ID: WG11160-3

ICP MS ID: NA
GFAA MS ID: NA
CVAA MS ID: WG11160-4

ICP MSD ID: NA
GFAA MSD ID: NA
CVAA MSD ID: WG11160-5

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DEPARTMENT OF THE ARMY
Corps of Engineers
Environmental Chemistry Branch
Omaha Laboratory

Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB05-6.0
Sample ID: M020843-005

Date Sampled: 08/22/02
Date Received: 08/27/02
Date Reported: 09/18/02

Matrix: Soil
Units: mg/kg
% Solids: 90.9

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-36-0	Antimony	1	u	4.0	1.	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-38-2	Arsenic	1	23.	3.0	0.6	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-39-3	Barium	1	256.	0.50	0.1	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-43-9	Cadmium	1	0.5 J	0.50	0.1	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-47-3	Chromium	1	12.	2.0	0.4	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-50-8	Copper	1	18.	2.0	0.4	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7439-89-6	Iron	1	14900	24.	8.	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7439-92-1	Lead	1	15.	2.0	0.4	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7439-96-5	Manganese	1	450.	0.80	0.2	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-02-0	Nickel	1	13.	2.0	0.6	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-22-4	Silver	1	u	1.0	0.2	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-66-6	Zinc	1	69.3 B	2.0	0.6	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon

u: Analyte was analyzed for but not detected at or above the sample reporting limit

J: Estimated concentration below laboratory reporting limit.

B: Analyte also present in the method blank.

Quality Assurance / Quality Control

ICP Method Blank ID: WG11169-1
GFAA Method Blank ID: NA
CVAA Method Blank ID: NA

ICP LCS ID: WG11169-2
GFAA LCS ID: NA
CVAA LCS ID: NA

ICP LD ID: WG11169-3
GFAA LD ID: NA
CVAA LD ID: NA

ICP MS ID: WG11169-4
GFAA MS ID: NA
CVAA MS ID: NA

ICP MSD ID: WG11169-5
GFAA MSD ID: NA
CVAA MSD ID: NA

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C1D

DEPARTMENT OF THE ARMY
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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB05-6.0
Sample ID: M020843-005

Date Sampled: 08/22/02
Date Received: 08/27/02
Date Reported: 09/12/02

Matrix: Soil
Units: mg/kg
% Solids: 90.9

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	1	0.0766	0.0050	0.001	EPA 7471	WG11160	09-03-02	09-04-02	Bond

Quality Assurance / Quality Control

ICP Method Blank ID: NA
GFAA Method Blank ID: NA
CVAA Method Blank ID: WG11160-1

ICP LCS ID: NA
GFAA LCS ID: NA
CVAA LCS ID: WG11160-2

ICP LD ID: NA
GFAA LD ID: NA
CVAA LD ID: WG11160-3

ICP MS ID: NA
GFAA MS ID: NA
CVAA MS ID: WG11160-4

ICP MSD ID: NA
GFAA MSD ID: NA
CVAA MSD ID: WG11160-5

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C11

DEPARTMENT OF THE ARMY
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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB06-10
Sample ID: M020843-006
Date Sampled: 08/22/02
Date Received: 08/27/02
Date Reported: 09/18/02
Matrix: Soil
Units: mg/kg
% Solids: 93.3

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-36-0	Antimony	1	u	4.0	1.	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-38-2	Arsenic	1	32.2	3.0	0.6	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-39-3	Barium	1	325.	0.50	0.1	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-43-9	Cadmium	1	0.4 J	0.50	0.1	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-47-3	Chromium	1	11.	2.0	0.4	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-50-8	Copper	1	16.	2.0	0.4	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7439-89-6	Iron	1	15100	24.	8.	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7439-92-1	Lead	1	17.	2.0	0.4	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7439-96-5	Manganese	1	431.	0.80	0.2	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-02-0	Nickel	1	13.	2.0	0.6	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-22-4	Silver	1	u	1.0	0.2	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-66-6	Zinc	1	86.5 B	2.0	0.6	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon

u: Analyte was analyzed for but not detected at or above the sample reporting limit

J: Estimated concentration below laboratory reporting limit.

B: Analyte also present in the method blank.

Quality Assurance / Quality Control

ICP Method Blank ID: WG11169-1
GFAA Method Blank ID: NA
CVAA Method Blank ID: NA

ICP LCS ID: WG11169-2
GFAA LCS ID: NA
CVAA LCS ID: NA

ICP LD ID: WG11169-3
GFAA LD ID: NA
CVAA LD ID: NA

ICP MS ID: WG11169-4
GFAA MS ID: NA
CVAA MS ID: NA

ICP MSD ID: WG11169-5
GFAA MSD ID: NA
CVAA MSD ID: NA

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C12

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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB06-10
Sample ID: M020843-006

Date Sampled: 08/22/02
Date Received: 08/27/02
Date Reported: 09/12/02

Matrix: Soil
Units: mg/kg
% Solids: 93.3

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	1	0.0529	0.0050	0.001	EPA 7471	WG11160	09-03-02	09-04-02	Bond

Quality Assurance / Quality Control

ICP Method Blank ID: NA
GFAA Method Blank ID: NA
CVAA Method Blank ID: WG11160-1

ICP LCS ID: NA
GFAA LCS ID: NA
CVAA LCS ID: WG11160-2

ICP LD ID: NA
GFAA LD ID: NA
CVAA LD ID: WG11160-3

ICP MS ID: NA
GFAA MS ID: NA
CVAA MS ID: WG11160-4

ICP MSD ID: NA
GFAA MSD ID: NA
CVAA MSD ID: WG11160-5

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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB07-7
Sample ID: M020843-007
Date Sampled: 08/22/02
Date Received: 08/27/02
Date Reported: 09/18/02
Matrix: Soil
Units: mg/kg
% Solids: 91.7

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-36-0	Antimony	1	1.5	4.0	1.	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-38-2	Arsenic	1	102.	3.0	0.6	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-39-3	Barium	1	218.	0.50	0.1	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-43-9	Cadmium	1	0.3 J	0.50	0.1	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-47-3	Chromium	1	9.3	2.0	0.4	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-50-8	Copper	1	24.2	2.0	0.4	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7439-89-6	Iron	1	13000	24.	8.	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7439-92-1	Lead	1	13.	2.0	0.4	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7439-96-5	Manganese	1	356.	0.80	0.2	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-02-0	Nickel	1	12.	2.0	0.6	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-22-4	Silver	1	u	1.0	0.2	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-66-6	Zinc	1	44.3 B	2.0	0.6	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon

u: Analyte was analyzed for but not detected at or above the sample reporting limit

J: Estimated concentration below laboratory reporting limit.

B: Analyte also present in the method blank.

Quality Assurance / Quality Control

ICP Method Blank ID: WG11169-1
GFAA Method Blank ID: NA
CVAA Method Blank ID: NA

ICP LCS ID: WG11169-2
GFAA LCS ID: NA
CVAA LCS ID: NA

ICP LD ID: WG11169-3
GFAA LD ID: NA
CVAA LD ID: NA

ICP MS ID: WG11169-4
GFAA MS ID: NA
CVAA MS ID: NA

ICP MSD ID: WG11169-5
GFAA MSD ID: NA
CVAA MSD ID: NA

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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB07-7
Sample ID: M020843-007

Date Sampled: 08/22/02
Date Received: 08/27/02
Date Reported: 09/12/02

Matrix: Soil
Units: mg/kg
% Solids: 91.7

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	1	0.040	0.0050	0.001	EPA 7471	WG11160	09-03-02	09-04-02	Bond

Quality Assurance / Quality Control

ICP Method Blank ID: NA
GFAA Method Blank ID: NA
CVAA Method Blank ID: WG11160-1

ICP LCS ID: NA
GFAA LCS ID: NA
CVAA LCS ID: WG11160-2

ICP LD ID: NA
GFAA LD ID: NA
CVAA LD ID: WG11160-3

ICP MS ID: NA
GFAA MS ID: NA
CVAA MS ID: WG11160-4

ICP MSD ID: NA
GFAA MSD ID: NA
CVAA MSD ID: WG11160-5

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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB08-10
Sample ID: M020843-008

Date Sampled: 08/22/02
Date Received: 08/27/02
Date Reported: 09/18/02

Matrix: Soil
Units: mg/kg
% Solids: 93.9

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-36-0	Antimony	1	1 J	4.0	1.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-38-2	Arsenic	1	57.4	3.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-39-3	Barium	1	174.	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-43-9	Cadmium	1	0.2 J	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-47-3	Chromium	1	26.0	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-50-8	Copper	1	20.4	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-89-6	Iron	1	14300	24.	8.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-92-1	Lead	1	12.	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-96-5	Manganese	1	380.	0.80	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-02-0	Nickel	1	13.	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-22-4	Silver	1	u	1.0	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-66-6	Zinc	1	50.9 B	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon

u: Analyte was analyzed for but not detected at or above the sample reporting limit

J: Estimated concentration below laboratory reporting limit.

B: Analyte also present in the method blank.

Quality Assurance / Quality Control

ICP Method Blank ID: WG11170-1
GFAA Method Blank ID: NA
CVAA Method Blank ID: NA

ICP LCS ID: WG11170-2
GFAA LCS ID: NA
CVAA LCS ID: NA

ICP LD ID: WG11170-3
GFAA LD ID: NA
CVAA LD ID: NA

ICP MS ID: WG11170-4
GFAA MS ID: NA
CVAA MS ID: NA

ICP MSD ID: WG11170-5
GFAA MSD ID: NA
CVAA MSD ID: NA

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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB08-10
Sample ID: M020843-008

Date Sampled: 08/22/02
Date Received: 08/27/02
Date Reported: 09/12/02

Matrix: Soil
Units: mg/kg
% Solids: 93.9

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	1	0.033	0.0050	0.001	EPA 7471	WG11160	09-03-02	09-04-02	Bond

Quality Assurance / Quality Control

ICP Method Blank ID: NA
GFAA Method Blank ID: NA
CVAA Method Blank ID: WG11160-1

ICP LCS ID: NA
GFAA LCS ID: NA
CVAA LCS ID: WG11160-2

ICP LD ID: NA
GFAA LD ID: NA
CVAA LD ID: WG11160-3

ICP MS ID: NA
GFAA MS ID: NA
CVAA MS ID: WG11160-4

ICP MSD ID: NA
GFAA MSD ID: NA
CVAA MSD ID: WG11160-5

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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB09-8
Sample ID: M020843-009

Date Sampled: 08/22/02
Date Received: 08/27/02
Date Reported: 09/18/02

Matrix: Soil
Units: mg/kg
% Solids: 94.3

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-36-0	Antimony	1	u	4.0	1.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-38-2	Arsenic	1	23.	3.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-39-3	Barium	1	136.	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-43-9	Cadmium	1	0.1 J	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-47-3	Chromium	1	12.	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-50-8	Copper	1	18.	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-89-6	Iron	1	15400	24.	8.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-92-1	Lead	1	12.	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-96-5	Manganese	1	405.	0.80	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-02-0	Nickel	1	13.	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-22-4	Silver	1	u	1.0	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-66-6	Zinc	1	55.9 B	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon

u: Analyte was analyzed for but not detected at or above the sample reporting limit

J: Estimated concentration below laboratory reporting limit.

B: Analyte also present in the method blank.

Quality Assurance / Quality Control

ICP Method Blank ID: WG11170-1
GFAA Method Blank ID: NA
CVAA Method Blank ID: NA

ICP LCS ID: WG11170-2
GFAA LCS ID: NA
CVAA LCS ID: NA

ICP LD ID: WG11170-3
GFAA LD ID: NA
CVAA LD ID: NA

ICP MS ID: WG11170-4
GFAA MS ID: NA
CVAA MS ID: NA

ICP MSD ID: WG11170-5
GFAA MSD ID: NA
CVAA MSD ID: NA

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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB09-8
Sample ID: M020843-009

Date Sampled: 08/22/02
Date Received: 08/27/02
Date Reported: 09/12/02

Matrix: Soil
Units: mg/kg
% Solids: 94.3

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	1	0.020	0.0050	0.001	EPA 7471	WG11208	09-11-02	09-12-02	Bond

Quality Assurance / Quality Control

ICP Method Blank ID: NA
GFAA Method Blank ID: NA
CVAA Method Blank ID: WG11208-1

ICP LCS ID: NA
GFAA LCS ID: NA
CVAA LCS ID: WG11208-2

ICP LD ID: NA
GFAA LD ID: NA
CVAA LD ID: WG11208-3

ICP MS ID: NA
GFAA MS ID: NA
CVAA MS ID: WG11208-4

ICP MSD ID: NA
GFAA MSD ID: NA
CVAA MSD ID: WG11208-5

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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB10-6
Sample ID: M020843-010

Date Sampled: 08/22/02
Date Received: 08/27/02
Date Reported: 09/18/02

Matrix: Soil
Units: mg/kg
% Solids: 92.2

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-36-0	Antimony	1	u	4.0	1.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-38-2	Arsenic	1	29.	3.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-39-3	Barium	1	131.	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-43-9	Cadmium	1	0.2 J	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-47-3	Chromium	1	11.	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-50-8	Copper	1	15.	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-89-6	Iron	1	13400	24.	8.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-92-1	Lead	1	12.	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-96-5	Manganese	1	411.	0.80	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-02-0	Nickel	1	11.	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-22-4	Silver	1	u	1.0	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-66-6	Zinc	1	64.2 B	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon

u: Analyte was analyzed for but not detected at or above the sample reporting limit

J: Estimated concentration below laboratory reporting limit.

B: Analyte also present in the method blank.

Quality Assurance / Quality Control

ICP Method Blank ID: WG11170-1
GFAA Method Blank ID: NA
CVAA Method Blank ID: NA

ICP LCS ID: WG11170-2
GFAA LCS ID: NA
CVAA LCS ID: NA

ICP LD ID: WG11170-3
GFAA LD ID: NA
CVAA LD ID: NA

ICP MS ID: WG11170-4
GFAA MS ID: NA
CVAA MS ID: NA

ICP MSD ID: WG11170-5
GFAA MSD ID: NA
CVAA MSD ID: NA

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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB10-6
Sample ID: M020843-010

Date Sampled: 08/22/02
Date Received: 08/27/02
Date Reported: 09/12/02

Matrix: Soil
Units: mg/kg
% Solids: 92.2

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	1	0.027	0.0050	0.001	EPA 7471	WG11208	09-11-02	09-12-02	Bond

Quality Assurance / Quality Control

ICP Method Blank ID: NA
GFAA Method Blank ID: NA
CVAA Method Blank ID: WG11208-1

ICP LCS ID: NA
GFAA LCS ID: NA
CVAA LCS ID: WG11208-2

ICP LD ID: NA
GFAA LD ID: NA
CVAA LD ID: WG11208-3

ICP MS ID: NA
GFAA MS ID: NA
CVAA MS ID: WG11208-4

ICP MSD ID: NA
GFAA MSD ID: NA
CVAA MSD ID: WG11208-5

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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB11-7
Sample ID: M020843-011

Date Sampled: 08/22/02
Date Received: 08/27/02
Date Reported: 09/18/02

Matrix: Soil
Units: mg/kg
% Solids: 95.6

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-36-0	Antimony	1	2 J	4.0	1.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-38-2	Arsenic	1	134.	3.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-39-3	Barium	1	106.	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-43-9	Cadmium	1	0.3 J	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-47-3	Chromium	1	8.6	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-50-8	Copper	1	40.9	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-89-6	Iron	1	12200	24.	8.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-92-1	Lead	1	33.7	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-96-5	Manganese	1	323.	0.80	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-02-0	Nickel	1	11.	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-22-4	Silver	1	4.4	1.0	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-66-6	Zinc	1	70.1 B	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon

J: Estimated concentration below laboratory reporting limit.

B: Analyte also present in the method blank.

Quality Assurance / Quality Control

ICP Method Blank ID: WG11170-1
GFAA Method Blank ID: NA
CVAA Method Blank ID: NA

ICP LCS ID: WG11170-2
GFAA LCS ID: NA
CVAA LCS ID: NA

ICP LD ID: WG11170-3
GFAA LD ID: NA
CVAA LD ID: NA

ICP MS ID: WG11170-4
GFAA MS ID: NA
CVAA MS ID: NA

ICP MSD ID: WG11170-5
GFAA MSD ID: NA
CVAA MSD ID: NA

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DEPARTMENT OF THE ARMY
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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB11-7
Sample ID: M020843-011

Date Sampled: 08/22/02
Date Received: 08/27/02
Date Reported: 09/12/02

Matrix: Soil
Units: mg/kg
% Solids: 95.6

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	11	6.39	0.055	0.01	EPA 7471	WG11208	09-11-02	09-12-02	Bond

Quality Assurance / Quality Control

ICP Method Blank ID: NA
GFAA Method Blank ID: NA
CVAA Method Blank ID: WG11208-1

ICP LCS ID: NA
GFAA LCS ID: NA
CVAA LCS ID: WG11208-2

ICP LD ID: NA
GFAA LD ID: NA
CVAA LD ID: WG11208-3

ICP MS ID: NA
GFAA MS ID: NA
CVAA MS ID: WG11208-4

ICP MSD ID: NA
GFAA MSD ID: NA
CVAA MSD ID: WG11208-5

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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB12-5
Sample ID: M020843-012
Date Sampled: 08/23/02
Date Received: 08/27/02
Date Reported: 09/18/02
Matrix: Soil
Units: mg/kg
% Solids: 92.2

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-36-0	Antimony	1	u	4.0	1.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-38-2	Arsenic	1	30.5	3.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-39-3	Barium	1	132.	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-43-9	Cadmium	1	u	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-47-3	Chromium	1	12.	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-50-8	Copper	1	15.	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-89-6	Iron	1	14400	24.	8.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-92-1	Lead	1	12.	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-96-5	Manganese	1	343.	0.80	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-02-0	Nickel	1	13.	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-22-4	Silver	1	u	1.0	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-66-6	Zinc	1	52.0 B	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon

u: Analyte was analyzed for but not detected at or above the sample reporting limit

B: Analyte also present in the method blank.

Quality Assurance / Quality Control

ICP Method Blank ID: WG11170-1
GFAA Method Blank ID: NA
CVAA Method Blank ID: NA

ICP LCS ID: WG11170-2
GFAA LCS ID: NA
CVAA LCS ID: NA

ICP LD ID: WG11170-3
GFAA LD ID: NA
CVAA LD ID: NA

ICP MS ID: WG11170-4
GFAA MS ID: NA
CVAA MS ID: NA

ICP MSD ID: WG11170-5
GFAA MSD ID: NA
CVAA MSD ID: NA

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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB12-5
Sample ID: M020843-012

Date Sampled: 08/23/02
Date Received: 08/27/02
Date Reported: 09/12/02

Matrix: Soil
Units: mg/kg
% Solids: 92.2

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	1	0.017	0.0050	0.001	EPA 7471	WG11208	09-11-02	09-12-02	Bond

Quality Assurance / Quality Control

ICP Method Blank ID: NA
GFAA Method Blank ID: NA
CVAA Method Blank ID: WG11208-1

ICP LCS ID: NA
GFAA LCS ID: NA
CVAA LCS ID: WG11208-2

ICP LD ID: NA
GFAA LD ID: NA
CVAA LD ID: WG11208-3

ICP MS ID: NA
GFAA MS ID: NA
CVAA MS ID: WG11208-4

ICP MSD ID: NA
GFAA MSD ID: NA
CVAA MSD ID: WG11208-5

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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB13-1.5
Sample ID: M020843-013

Date Sampled: 08/23/02
Date Received: 08/27/02
Date Reported: 09/18/02

Matrix: Soil
Units: mg/kg
% Solids: 92.7

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-36-0	Antimony	1	u	4.0	1.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-38-2	Arsenic	1	93.1	3.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-39-3	Barium	1	176.	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-43-9	Cadmium	1	0.1 J	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-47-3	Chromium	1	9.6	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-50-8	Copper	1	20.7	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-89-6	Iron	1	12600	24.	8.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-92-1	Lead	1	13.	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-96-5	Manganese	1	356.	0.80	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-02-0	Nickel	1	11.	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-22-4	Silver	1	u	1.0	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-66-6	Zinc	1	50.3 B	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon

u: Analyte was analyzed for but not detected at or above the sample reporting limit

J: Estimated concentration below laboratory reporting limit.

B: Analyte also present in the method blank.

Quality Assurance / Quality Control

ICP Method Blank ID: WG11170-1
GFAA Method Blank ID: NA
CVAA Method Blank ID: NA

ICP LCS ID: WG11170-2
GFAA LCS ID: NA
CVAA LCS ID: NA

ICP LD ID: WG11170-3
GFAA LD ID: NA
CVAA LD ID: NA

ICP MS ID: WG11170-4
GFAA MS ID: NA
CVAA MS ID: NA

ICP MSD ID: WG11170-5
GFAA MSD ID: NA
CVAA MSD ID: NA

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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB13-1.5
Sample ID: M020843-013

Date Sampled: 08/23/02
Date Received: 08/27/02
Date Reported: 09/12/02

Matrix: Soil
Units: mg/kg
% Solids: 92.7

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	1	0.044	0.0050	0.001	EPA 7471	WG11208	09-11-02	09-12-02	Bond

Quality Assurance / Quality Control

ICP Method Blank ID: NA
GFAA Method Blank ID: NA
CVAA Method Blank ID: WG11208-1

ICP LCS ID: NA
GFAA LCS ID: NA
CVAA LCS ID: WG11208-2

ICP LD ID: NA
GFAA LD ID: NA
CVAA LD ID: WG11208-3

ICP MS ID: NA
GFAA MS ID: NA
CVAA MS ID: WG11208-4

ICP MSD ID: NA
GFAA MSD ID: NA
CVAA MSD ID: WG11208-5

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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB14-1.5
Sample ID: M020843-014

Date Sampled: 08/23/02
Date Received: 08/27/02
Date Reported: 09/18/02

Matrix: Soil
Units: mg/kg
% Solids: 94.3

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-36-0	Antimony	1	u	4.0	1.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-38-2	Arsenic	1	30.	3.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-39-3	Barium	1	142.	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-43-9	Cadmium	1	0.60	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-47-3	Chromium	1	10.	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-50-8	Copper	1	12.	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-89-6	Iron	1	11500	24.	8.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-92-1	Lead	1	16.	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-96-5	Manganese	1	369.	0.80	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-02-0	Nickel	1	9.0	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-22-4	Silver	1	u	1.0	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-66-6	Zinc	1	70.8 B	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon

u: Analyte was analyzed for but not detected at or above the sample reporting limit

B: Analyte also present in the method blank.

Quality Assurance / Quality Control

ICP Method Blank ID: WG11170-1
GFAA Method Blank ID: NA
CVAA Method Blank ID: NA

ICP LCS ID: WG11170-2
GFAA LCS ID: NA
CVAA LCS ID: NA

ICP LD ID: WG11170-3
GFAA LD ID: NA
CVAA LD ID: NA

ICP MS ID: WG11170-4
GFAA MS ID: NA
CVAA MS ID: NA

ICP MSD ID: WG11170-5
GFAA MSD ID: NA
CVAA MSD ID: NA

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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB14-1.5
Sample ID: M020843-014

Date Sampled: 08/23/02
Date Received: 08/27/02
Date Reported: 09/12/02

Matrix: Soil
Units: mg/kg
% Solids: 94.3

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	1	0.0542	0.0050	0.001	EPA 7471	WG11208	09-11-02	09-12-02	Bond

Quality Assurance / Quality Control

ICP Method Blank ID: NA
GFAA Method Blank ID: NA
CVAA Method Blank ID: WG11208-1

ICP LCS ID: NA
GFAA LCS ID: NA
CVAA LCS ID: WG11208-2

ICP LD ID: NA
GFAA LD ID: NA
CVAA LD ID: WG11208-3

ICP MS ID: NA
GFAA MS ID: NA
CVAA MS ID: WG11208-4

ICP MSD ID: NA
GFAA MSD ID: NA
CVAA MSD ID: WG11208-5

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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB15-6.0
Sample ID: M020843-015

Date Sampled: 08/23/02
Date Received: 08/27/02
Date Reported: 09/18/02

Matrix: Soil
Units: mg/kg
% Solids: 92.1

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-36-0	Antimony	1	u	4.0	1.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-38-2	Arsenic	1	25.	3.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-39-3	Barium	1	157.	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-43-9	Cadmium	1	u	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-47-3	Chromium	1	14.	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-50-8	Copper	1	14.	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-89-6	Iron	1	11800	24.	8.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-92-1	Lead	1	8.2	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-96-5	Manganese	1	393.	0.80	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-02-0	Nickel	1	11.	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-22-4	Silver	1	u	1.0	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-66-6	Zinc	1	61.1 B	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon

u: Analyte was analyzed for but not detected at or above the sample reporting limit

B: Analyte also present in the method blank.

Quality Assurance / Quality Control

ICP Method Blank ID: WG11170-1
GFAA Method Blank ID: NA
CVAA Method Blank ID: NA

ICP LCS ID: WG11170-2
GFAA LCS ID: NA
CVAA LCS ID: NA

ICP LD ID: WG11170-3
GFAA LD ID: NA
CVAA LD ID: NA

ICP MS ID: WG11170-4
GFAA MS ID: NA
CVAA MS ID: NA

ICP MSD ID: WG11170-5
GFAA MSD ID: NA
CVAA MSD ID: NA

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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB15-6.0
Sample ID: M020843-015
Date Sampled: 08/23/02
Date Received: 08/27/02
Date Reported: 09/12/02
Matrix: Soil
Units: mg/kg
% Solids: 92.1

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	1	0.020	0.0050	0.001	EPA 7471	WG11208	09-11-02	09-12-02	Bond

Quality Assurance / Quality Control

ICP Method Blank ID: NA
GFAA Method Blank ID: NA
CVAA Method Blank ID: WG11208-1

ICP LCS ID: NA
GFAA LCS ID: NA
CVAA LCS ID: WG11208-2

ICP LD ID: NA
GFAA LD ID: NA
CVAA LD ID: WG11208-3

ICP MS ID: NA
GFAA MS ID: NA
CVAA MS ID: WG11208-4

ICP MSD ID: NA
GFAA MSD ID: NA
CVAA MSD ID: WG11208-5

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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB16-6.0
Sample ID: M020843-016

Date Sampled: 08/23/02
Date Received: 08/27/02
Date Reported: 09/18/02

Matrix: Soil
Units: mg/kg
% Solids: 95.3

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-36-0	Antimony	1	u	4.0	1.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-38-2	Arsenic	1	15.	3.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-39-3	Barium	1	110.	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-43-9	Cadmium	1	0.1 J	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-47-3	Chromium	1	21.0	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-50-8	Copper	1	13.	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-89-6	Iron	1	9650	24.	8.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-92-1	Lead	1	7.7	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-96-5	Manganese	1	313.	0.80	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-02-0	Nickel	1	7.9	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-22-4	Silver	1	u	1.0	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-66-6	Zinc	1	37.8 B	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon

u: Analyte was analyzed for but not detected at or above the sample reporting limit

J: Estimated concentration below laboratory reporting limit.

B: Analyte also present in the method blank.

Quality Assurance / Quality Control

ICP Method Blank ID: WG11170-1
GFAA Method Blank ID: NA
CVAA Method Blank ID: NA

ICP LCS ID: WG11170-2
GFAA LCS ID: NA
CVAA LCS ID: NA

ICP LD ID: WG11170-3
GFAA LD ID: NA
CVAA LD ID: NA

ICP MS ID: WG11170-4
GFAA MS ID: NA
CVAA MS ID: NA

ICP MSD ID: WG11170-5
GFAA MSD ID: NA
CVAA MSD ID: NA

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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB16-6.0
Sample ID: M020843-016
Date Sampled: 08/23/02
Date Received: 08/27/02
Date Reported: 09/12/02
Matrix: Soil
Units: mg/kg
% Solids: 95.3

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	1	0.037	0.0050	0.001	EPA 7471	WG11208	09-11-02	09-12-02	Bond

Quality Assurance / Quality Control

ICP Method Blank ID: NA
GFAA Method Blank ID: NA
CVAA Method Blank ID: WG11208-1

ICP LCS ID: NA
GFAA LCS ID: NA
CVAA LCS ID: WG11208-2

ICP LD ID: NA
GFAA LD ID: NA
CVAA LD ID: WG11208-3

ICP MS ID: NA
GFAA MS ID: NA
CVAA MS ID: WG11208-4

ICP MSD ID: NA
GFAA MSD ID: NA
CVAA MSD ID: WG11208-5

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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB17-4.5
Sample ID: M020843-017

Date Sampled: 08/23/02
Date Received: 08/27/02
Date Reported: 09/18/02

Matrix: Soil
Units: mg/kg
% Solids: 96.0

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-36-0	Antimony	1	u	4.0	1.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-38-2	Arsenic	1	7.8	3.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-39-3	Barium	1	89.2	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-43-9	Cadmium	1	u	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-47-3	Chromium	1	18.	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-50-8	Copper	1	17.	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-89-6	Iron	1	13100	24.	9.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-92-1	Lead	1	6.3	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-96-5	Manganese	1	324.	0.80	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-02-0	Nickel	1	6.9	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-22-4	Silver	1	u	1.0	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-66-6	Zinc	1	39.6 B	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon

u: Analyte was analyzed for but not detected at or above the sample reporting limit

B: Analyte also present in the method blank.

Quality Assurance / Quality Control

ICP Method Blank ID: WG11170-1
GFAA Method Blank ID: NA
CVAA Method Blank ID: NA

ICP LCS ID: WG11170-2
GFAA LCS ID: NA
CVAA LCS ID: NA

ICP LD ID: WG11170-3
GFAA LD ID: NA
CVAA LD ID: NA

ICP MS ID: WG11170-4
GFAA MS ID: NA
CVAA MS ID: NA

ICP MSD ID: WG11170-5
GFAA MSD ID: NA
CVAA MSD ID: NA

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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB17-4.5
Sample ID: M020843-017
Date Sampled: 08/23/02
Date Received: 08/27/02
Date Reported: 09/12/02
Matrix: Soil
Units: mg/kg
% Solids: 96.0

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	1	0.0654	0.0050	0.001	EPA 7471	WG11208	09-11-02	09-12-02	Bond

Quality Assurance / Quality Control

ICP Method Blank ID: NA
GFAA Method Blank ID: NA
CVAA Method Blank ID: WG11208-1

ICP LCS ID: NA
GFAA LCS ID: NA
CVAA LCS ID: WG11208-2

ICP LD ID: NA
GFAA LD ID: NA
CVAA LD ID: WG11208-3

ICP MS ID: NA
GFAA MS ID: NA
CVAA MS ID: WG11208-4

ICP MSD ID: NA
GFAA MSD ID: NA
CVAA MSD ID: WG11208-5

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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB19-4.5
Sample ID: M020843-018
Date Sampled: 08/23/02
Date Received: 08/27/02
Date Reported: 09/18/02
Matrix: Soil
Units: mg/kg
% Solids: 94.4

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-36-0	Antimony	1	u	4.0	1.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-38-2	Arsenic	1	27.	3.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-39-3	Barium	1	306.	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-43-9	Cadmium	1	u	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-47-3	Chromium	1	10.	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-50-8	Copper	1	18.	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-89-6	Iron	1	16700	24.	8.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-92-1	Lead	1	70.2	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-96-5	Manganese	1	502.	0.80	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-02-0	Nickel	1	8.9	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-22-4	Silver	1	0.4 J	1.0	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-66-6	Zinc	1	67.1 B	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon

u: Analyte was analyzed for but not detected at or above the sample reporting limit

J: Estimated concentration below laboratory reporting limit.

B: Analyte also present in the method blank.

Quality Assurance / Quality Control

ICP Method Blank ID: WG11170-1
GFAA Method Blank ID: NA
CVAA Method Blank ID: NA

ICP LCS ID: WG11170-2
GFAA LCS ID: NA
CVAA LCS ID: NA

ICP LD ID: WG11170-3
GFAA LD ID: NA
CVAA LD ID: NA

ICP MS ID: WG11170-4
GFAA MS ID: NA
CVAA MS ID: NA

ICP MSD ID: WG11170-5
GFAA MSD ID: NA
CVAA MSD ID: NA

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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB19-4.5
Sample ID: M020843-018

Date Sampled: 08/23/02
Date Received: 08/27/02
Date Reported: 09/12/02

Matrix: Soil
Units: mg/kg
% Solids: 94.4

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	1	0.574	0.0050	0.001	EPA 7471	WG11208	09-11-02	09-12-02	Bond

Quality Assurance / Quality Control

ICP Method Blank ID: NA
GFAA Method Blank ID: NA
CVAA Method Blank ID: WG11208-1

ICP LCS ID: NA
GFAA LCS ID: NA
CVAA LCS ID: WG11208-2

ICP LD ID: NA
GFAA LD ID: NA
CVAA LD ID: WG11208-3

ICP MS ID: NA
GFAA MS ID: NA
CVAA MS ID: WG11208-4

ICP MSD ID: NA
GFAA MSD ID: NA
CVAA MSD ID: WG11208-5

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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB20-4.5
Sample ID: M020843-019
Date Sampled: 08/23/02
Date Received: 08/27/02
Date Reported: 09/18/02
Matrix: Soil
Units: mg/kg
% Solids: 94.6

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-36-0	Antimony	1	u	4.0	1.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-38-2	Arsenic	1	24.	3.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-39-3	Barium	1	181.	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-43-9	Cadmium	1	u	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-47-3	Chromium	1	11.	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-50-8	Copper	1	66.3	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-89-6	Iron	1	14700	24.	8.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-92-1	Lead	1	160.	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-96-5	Manganese	1	391.	0.80	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-02-0	Nickel	1	9.1	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-22-4	Silver	1	0.4 J	1.0	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-66-6	Zinc	1	52.7 B	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon

u: Analyte was analyzed for but not detected at or above the sample reporting limit

J: Estimated concentration below laboratory reporting limit.

B: Analyte also present in the method blank.

Quality Assurance / Quality Control

ICP Method Blank ID: WG11170-1
GFAA Method Blank ID: NA
CVAA Method Blank ID: NA

ICP LCS ID: WG11170-2
GFAA LCS ID: NA
CVAA LCS ID: NA

ICP LD ID: WG11170-3
GFAA LD ID: NA
CVAA LD ID: NA

ICP MS ID: WG11170-4
GFAA MS ID: NA
CVAA MS ID: NA

ICP MSD ID: WG11170-5
GFAA MSD ID: NA
CVAA MSD ID: NA

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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB20-4.5
Sample ID: M020843-019

Date Sampled: 08/23/02
Date Received: 08/27/02
Date Reported: 09/12/02

Matrix: Soil
Units: mg/kg
% Solids: 94.6

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	1	0.503	0.0050	0.001	EPA 7471	WG11208	09-11-02	09-12-02	Bond

Quality Assurance / Quality Control

ICP Method Blank ID: NA
GFAA Method Blank ID: NA
CVAA Method Blank ID: WG11208-1

ICP LCS ID: NA
GFAA LCS ID: NA
CVAA LCS ID: WG11208-2

ICP LD ID: NA
GFAA LD ID: NA
CVAA LD ID: WG11208-3

ICP MS ID: NA
GFAA MS ID: NA
CVAA MS ID: WG11208-4

ICP MSD ID: NA
GFAA MSD ID: NA
CVAA MSD ID: WG11208-5

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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB18-9.0
Sample ID: M020843-020
Date Sampled: 08/23/02
Date Received: 08/27/02
Date Reported: 09/18/02
Matrix: Soil
Units: mg/kg
% Solids: 88.2

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-36-0	Antimony	1	u	4.0	1.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-38-2	Arsenic	1	9.4	3.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-39-3	Barium	1	427.	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-43-9	Cadmium	1	u	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-47-3	Chromium	1	13.	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-50-8	Copper	1	23.5	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-89-6	Iron	1	15800	24.	8.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-92-1	Lead	1	15.	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-96-5	Manganese	1	283.	0.80	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-02-0	Nickel	1	13.	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-22-4	Silver	1	u	1.0	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-66-6	Zinc	1	39.1 B	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon

u: Analyte was analyzed for but not detected at or above the sample reporting limit

B: Analyte also present in the method blank.

Quality Assurance / Quality Control

ICP Method Blank ID: WG11170-1
GFAA Method Blank ID: NA
CVAA Method Blank ID: NA

ICP LCS ID: WG11170-2
GFAA LCS ID: NA
CVAA LCS ID: NA

ICP LD ID: WG11170-3
GFAA LD ID: NA
CVAA LD ID: NA

ICP MS ID: WG11170-4
GFAA MS ID: NA
CVAA MS ID: NA

ICP MSD ID: WG11170-5
GFAA MSD ID: NA
CVAA MSD ID: NA

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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB18-9.0
Sample ID: M020843-020

Date Sampled: 08/23/02
Date Received: 08/27/02
Date Reported: 09/12/02

Matrix: Soil
Units: mg/kg
% Solids: 88.2

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	1	0.400	0.0050	0.001	EPA 7471	WG11208	09-11-02	09-12-02	Bond

Quality Assurance / Quality Control

ICP Method Blank ID: NA
GFAA Method Blank ID: NA
CVAA Method Blank ID: WG11208-1

ICP LCS ID: NA
GFAA LCS ID: NA
CVAA LCS ID: WG11208-2

ICP LD ID: NA
GFAA LD ID: NA
CVAA LD ID: WG11208-3

ICP MS ID: NA
GFAA MS ID: NA
CVAA MS ID: WG11208-4

ICP MSD ID: NA
GFAA MSD ID: NA
CVAA MSD ID: WG11208-5

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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB21-5
Sample ID: M020843-022
Date Sampled: 08/23/02
Date Received: 08/27/02
Date Reported: 09/18/02
Matrix: Soil
Units: mg/kg
% Solids: 95.2

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-36-0	Antimony	1	u	4.0	1.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-38-2	Arsenic	1	6.5	3.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-39-3	Barium	1	198.	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-43-9	Cadmium	1	u	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-47-3	Chromium	1	9.1	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-50-8	Copper	1	25.6	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-89-6	Iron	1	20700	24.	8.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-92-1	Lead	1	7.0	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-96-5	Manganese	1	696.	0.80	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-02-0	Nickel	1	5.8	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-22-4	Silver	1	1.1	1.0	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-66-6	Zinc	1	61.0 B	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon

u: Analyte was analyzed for but not detected at or above the sample reporting limit

B: Analyte also present in the method blank.

Quality Assurance / Quality Control

ICP Method Blank ID: WG11170-1
GFAA Method Blank ID: NA
CVAA Method Blank ID: NA

ICP LCS ID: WG11170-2
GFAA LCS ID: NA
CVAA LCS ID: NA

ICP LD ID: WG11170-3
GFAA LD ID: NA
CVAA LD ID: NA

ICP MS ID: WG11170-4
GFAA MS ID: NA
CVAA MS ID: NA

ICP MSD ID: WG11170-5
GFAA MSD ID: NA
CVAA MSD ID: NA

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Total Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB21-5
Sample ID: M020843-022

Date Sampled: 08/23/02
Date Received: 08/27/02
Date Reported: 09/12/02

Matrix: Soil
Units: mg/kg
% Solids: 95.2

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	1	0.403	0.0050	0.001	EPA 7471	WG11208	09-11-02	09-12-02	Bond

Quality Assurance / Quality Control

ICP Method Blank ID: NA
GFAA Method Blank ID: NA
CVAA Method Blank ID: WG11208-1

ICP LCS ID: NA
GFAA LCS ID: NA
CVAA LCS ID: WG11208-2

ICP LD ID: NA
GFAA LD ID: NA
CVAA LD ID: WG11208-3

ICP MS ID: NA
GFAA MS ID: NA
CVAA MS ID: WG11208-4

ICP MSD ID: NA
GFAA MSD ID: NA
CVAA MSD ID: WG11208-5

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Method Blank

Method Blank ICP Sample ID: WG11169-1
Method Blank GFAA Sample ID:
Method Blank CVAA Sample ID:

Matrix: Soil
Units: mg/kg

CAS Number	Analyte	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-36-0	Antimony	u	4.0	1.	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-38-2	Arsenic	u	3.0	0.6	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-39-3	Barium	u	0.50	0.1	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-43-9	Cadmium	u	0.50	0.1	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-47-3	Chromium	u	2.0	0.4	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-50-8	Copper	u	2.0	0.4	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7439-89-6	Iron	u	24.	8.	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7439-92-1	Lead	u	2.0	0.4	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7439-96-5	Manganese	u	0.80	0.2	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-02-0	Nickel	u	2.0	0.6	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-22-4	Silver	u	1.0	0.2	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-66-6	Zinc	0.9 J	2.0	0.6	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon

u: Analyte was analyzed for but not detected at or above the sample reporting limit

J: Estimated concentration below laboratory reporting limit

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Laboratory Matrix Duplicate

Matrix Duplicate ICP Sample ID: WG11169-3
Matrix Duplicate GFAA Sample ID:
Matrix Duplicate CVAA Sample ID:

Matrix: Soil
Units: mg/kg

CAS Number	Analyte	Sample Result	Dup Result	RPD	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-36-0	Antimony	u	u	NC	4.0	1.	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-38-2	Arsenic	6.0	5.5	8	3.0	0.6	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-39-3	Barium	136.	139.	2	0.50	0.1	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-43-9	Cadmium	0.2 J	0.2 J	11	0.50	0.1	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-47-3	Chromium	17.	17.	3	2.0	0.4	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-50-8	Copper	16.	16.	1	2.0	0.4	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7439-89-6	Iron	16900	17000	1	24.	8.	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7439-92-1	Lead	28.6	29.2	2	2.0	0.4	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7439-96-5	Manganese	482.	479.	1	0.80	0.2	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-02-0	Nickel	17.	17.	1	2.0	0.6	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-22-4	Silver	u	u	NC	1.0	0.2	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-66-6	Zinc	55.1 B	55.8 B	1	2.0	0.6	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon

u: Analyte was analyzed for but not detected at or above the sample reporting limit
NC: Not Calculable
J: Estimated concentration below laboratory reporting limit
B: Analyte also present in the method blank.

CVAA Sample: M020839-002

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Matrix Spike, Matrix Spike Duplicate

MS ICP Sample ID: WG11169-4 MSD ICP Sample ID: WG11169-5 Matrix: Soil
MS GFAA Sample ID: MSD GFAA Sample ID: Units: mg/kg
MS CVAA Sample ID: MSD CVAA Sample ID:

CAS Number	Analyte	Sample Result	MS Conc	Spike Added	%Rec MS	MSD Conc	%Rec MSD	RPD	Method	Date Digested	Date Analyzed	Analyst
7440-36-0	Antimony	u	25.4	100.	25	24.9	25	2	EPA 6010B	09-05-02	09-11-02	Shannon
7440-38-2	Arsenic	6.0	100.	100.	94	100.	94	0	EPA 6010B	09-05-02	09-11-02	Shannon
7440-39-3	Barium	136.	254.	100.	118	260.	124 *	2	EPA 6010B	09-05-02	09-11-02	Shannon
7440-43-9	Cadmium	0.2 J	47.8	50.0	95	47.5	95	1	EPA 6010B	09-05-02	09-11-02	Shannon
7440-47-3	Chromium	17.	114.	100.	97	115.	98	1	EPA 6010B	09-05-02	09-11-02	Shannon
7440-50-8	Copper	16.	114.	100.	98	114.	98	0	EPA 6010B	09-05-02	09-11-02	Shannon
7439-89-6	Iron	16900	18900	600.	NC(1)	19400	NC(1)	NC	EPA 6010B	09-05-02	09-11-02	Shannon
7439-92-1	Lead	28.6	126.	100.	97	123.	95	2	EPA 6010B	09-05-02	09-11-02	Shannon
7439-96-5	Manganese	482.	570.	100.	88&	578.	96 &	2	EPA 6010B	09-05-02	09-11-02	Shannon
7440-02-0	Nickel	17.	114.	100.	97	114.	97	0	EPA 6010B	09-05-02	09-11-02	Shannon
7440-22-4	Silver	u	18.6	20.0	93	18.6	93	0	EPA 6010B	09-05-02	09-11-02	Shannon
7440-66-6	Zinc	55.1 B	158.	100.	103	159.	104	1	EPA 6010B	09-05-02	09-11-02	Shannon

%Rec: Percent of the spike recovered from the matrix

NC: Not Calculable

*: Indicates the value is outside control limits (80-120) for %Rec.

&: = High original analyte concentration may prevent accurate determination of the spike recovery.

NC(1): Not calculated; original analyte concentration too large to accurately determine recovery.

B: Analyte also present in method blank

J: Estimated concentration below laboratory reporting limit
ICP Sample: M020839-002

CVAA Sample:

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Laboratory Control Sample

LCS ICP Sample ID: WG11169-2
LCS GFAA Sample ID:
LCS CVAA Sample ID:

Matrix: Soil
Units: mg/kg

CAS Number	Analyte	LCS Result	True Value	%Rec	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-36-0	Antimony	100.	100.	100	4.0	1.	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-38-2	Arsenic	102.	100.	102	3.0	0.6	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-39-3	Barium	103.	100.	103	0.50	0.1	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-43-9	Cadmium	51.0	50.0	102	0.50	0.1	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-47-3	Chromium	98.5	100.	99	2.0	0.4	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-50-8	Copper	102.	100.	102	2.0	0.4	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7439-89-6	Iron	597.	600.	100	24.	8.	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7439-92-1	Lead	101.	100.	101	2.0	0.4	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7439-96-5	Manganese	103.	100.	103	0.80	0.2	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-02-0	Nickel	102.	100.	102	2.0	0.6	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-22-4	Silver	19.5	20.0	98	1.0	0.2	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon
7440-66-6	Zinc	109.	100.	109	2.0	0.6	EPA 6010B	WG11169	09-05-02	09-11-02	Shannon

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Method Blank

Method Blank ICP Sample ID: WG11170-1
Method Blank GFAA Sample ID:
Method Blank CVAA Sample ID:

Matrix: Soil
Units: mg/kg

CAS Number	Analyte	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-36-0	Antimony	u	4.0	1.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-38-2	Arsenic	u	3.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-39-3	Barium	u	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-43-9	Cadmium	u	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-47-3	Chromium	u	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-50-8	Copper	u	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-89-6	Iron	u	24.	8.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-92-1	Lead	u	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-96-5	Manganese	u	0.80	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-02-0	Nickel	u	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-22-4	Silver	u	1.0	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-66-6	Zinc	1. J	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon

u: Analyte was analyzed for but not detected at or above the sample reporting limit

J: Estimated concentration below laboratory reporting limit

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Laboratory Matrix Duplicate

Matrix Duplicate ICP Sample ID: WG11170-3
Matrix Duplicate GFAA Sample ID:
Matrix Duplicate CVAA Sample ID:

Matrix: Soil
Units: mg/kg

CAS Number	Analyte	Sample Result	Dup Result	RPD	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-36-0	Antimony	u	u	NC	4.0	1.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-38-2	Arsenic	5.4	5.2	5	3.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-39-3	Barium	95.8	95.6	0	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-43-9	Cadmium	u	u	NC	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-47-3	Chromium	26.9	23.2	15	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-50-8	Copper	9.4	9.2	2	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-89-6	Iron	19900	19100	4	24.	8.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-92-1	Lead	14.	14.	1	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-96-5	Manganese	145.	143.	1	0.80	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-02-0	Nickel	9.9	9.8	0	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-22-4	Silver	u	u	NC	1.0	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-66-6	Zinc	24.9 B	24.5 B	2	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon

u: Analyte was analyzed for but not detected at or above the sample reporting limit
NC: Not Calculable
B: Analyte also present in the method blank.

CVAA Sample: M020848-003

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Matrix Spike, Matrix Spike Duplicate

MS ICP Sample ID: WG11170-4 MSD ICP Sample ID: WG11170-5 Matrix: Soil
MS GFAA Sample ID: MSD GFAA Sample ID: Units: mg/kg
MS CVAA Sample ID: MSD CVAA Sample ID:

CAS Number	Analyte	Sample Result	MS Conc	Spike Added	%Rec MS	MSD Conc	%Rec MSD	RPD	Method	Date Digested	Date Analyzed	Analyst
7440-36-0	Antimony	u	25.5	100.	25	24.4	24	4	EPA 6010B	09-05-02	09-11-02	Shannon
7440-38-2	Arsenic	5.4	100.	100.	95	99.4	94	1	EPA 6010B	09-05-02	09-11-02	Shannon
7440-39-3	Barium	95.8	200.	100.	104	201.	106	1	EPA 6010B	09-05-02	09-11-02	Shannon
7440-43-9	Cadmium	u	48.2	50.0	96	48.2	96	0	EPA 6010B	09-05-02	09-11-02	Shannon
7440-47-3	Chromium	26.9	130.	100.	103	130.	103	0	EPA 6010B	09-05-02	09-11-02	Shannon
7440-50-8	Copper	9.4	116.	100.	106	110.	101	5	EPA 6010B	09-05-02	09-11-02	Shannon
7439-89-6	Iron	19900	24100	600.	NC(1)	24300	NC(1)	NC	EPA 6010B	09-05-02	09-11-02	Shannon
7439-92-1	Lead	14.	112.	100.	98	113.	99	1	EPA 6010B	09-05-02	09-11-02	Shannon
7439-96-5	Manganese	145.	242.	100.	97	264.	119	9	EPA 6010B	09-05-02	09-11-02	Shannon
7440-02-0	Nickel	9.9	110.	100.	100	110.	100	0	EPA 6010B	09-05-02	09-11-02	Shannon
7440-22-4	Silver	u	18.9	20.0	95	18.9	95	0	EPA 6010B	09-05-02	09-11-02	Shannon
7440-66-6	Zinc	24.9 B	135.	100.	110	134.	109	1	EPA 6010B	09-05-02	09-11-02	Shannon

%Rec: Percent of the spike recovered from the matrix

NC: Not Calculable

*: Indicates the value is outside control limits (80-120) for %Rec.

NC(1): Not calculated; original analyte concentration too large to accurately determine recovery.

B: Analyte also present in method blank

ICP Sample: M020848-003

CVAA Sample:

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C50

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Laboratory Control Sample

LCS ICP Sample ID: WG11170-2
LCS GFAA Sample ID:
LCS CVAA Sample ID:

Matrix: Soil
Units: mg/kg

CAS Number	Analyte	LCS Result	True Value	%Rec	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-36-0	Antimony	98.8	100.	99	4.0	1.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-38-2	Arsenic	99.9	100.	100	3.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-39-3	Barium	102.	100.	102	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-43-9	Cadmium	50.1	50.0	100	0.50	0.1	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-47-3	Chromium	98.1	100.	98	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-50-8	Copper	101.	100.	101	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-89-6	Iron	593.	600.	99	24.	8.	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-92-1	Lead	100.	100.	100	2.0	0.4	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7439-96-5	Manganese	102.	100.	102	0.80	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-02-0	Nickel	100.	100.	100	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-22-4	Silver	19.3	20.0	97	1.0	0.2	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon
7440-66-6	Zinc	107.	100.	107	2.0	0.6	EPA 6010B	WG11170	09-05-02	09-11-02	Shannon

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CS1

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Method Blank

Method Blank ICP Sample ID:
Method Blank GFAA Sample ID:
Method Blank CVAA Sample ID: WG11160-1

Matrix: Soil
Units: mg/kg

CAS Number	Analyte	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	u	0.0050	0.001	EPA 7471	WG11160	09-03-02	09-04-02	Bond

u: Analyte was analyzed for but not detected at or above the sample reporting limit

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Laboratory Matrix Duplicate

Matrix Duplicate ICP Sample ID:
Matrix Duplicate GFAA Sample ID:
Matrix Duplicate CVAA Sample ID: WG11160-3

Matrix: Soil
Units: mg/kg

CAS Number	Analyte	Sample Result	Dup Result	RPD	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	0.049	0.040	22	0.0050	0.001	EPA 7471	WG11160	09-03-02	09-04-02	Bond

CVAA Sample: M020830-016

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CS3

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Matrix Spike, Matrix Spike Duplicate

MS ICP Sample ID:
MS GFAA Sample ID:
MS CVAA Sample ID: WG11160-4

MSD ICP Sample ID:
MSD GFAA Sample ID:
MSD CVAA Sample ID: R10628-1

Matrix: Soil
Units: mg/kg

CAS Number	Analyte	Sample Result	MS Conc	Spike Added	%Rec MS	MSD Conc	%Rec MSD	RPD	Method	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	0.049	0.245	0.200	98	0.245	98	0	EPA 7471	09-03-02	09-04-02	Bond

%Rec: Percent of the spike recovered from the matrix

ICP Sample:

CVAA Sample: M020830-016

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Laboratory Control Sample

LCS ICP Sample ID:
LCS GFAA Sample ID:
LCS CVAA Sample ID: WG11160-2

Matrix: Soil
Units: mg/kg

CAS Number	Analyte	LCS Result	True Value	%Rec	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	0.224	0.200	112	0.0050	0.001	EPA 7471	WG11160	09-03-02	09-04-02	Bond

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C55

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Method Blank

Method Blank ICP Sample ID:
Method Blank GFAA Sample ID:
Method Blank CVAA Sample ID: WG11208-1

Matrix: Soil
Units: mg/kg

CAS Number	Analyte	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	u	0.0050	0.001	EPA 7471	WG11208	09-11-02	09-12-02	Bond

u: Analyte was analyzed for but not detected at or above the sample reporting limit

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Laboratory Matrix Duplicate

Matrix Duplicate ICP Sample ID:
Matrix Duplicate GFAA Sample ID:
Matrix Duplicate CVAA Sample ID: WG11208-3

Matrix: Soil
Units: mg/kg

CAS Number	Analyte	Sample Result	Dup Result	RPD	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	0.020	0.021	4	0.0050	0.001	EPA 7471	WG11208	09-11-02	09-12-02	Bond

CVAA Sample: M020843-009

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Matrix Spike, Matrix Spike Duplicate

MS ICP Sample ID:
MS GFAA Sample ID:
MS CVAA Sample ID: WG11208-4

MSD ICP Sample ID:
MSD GFAA Sample ID:
MSD CVAA Sample ID: WG11208-5

Matrix: Soil
Units: mg/kg

CAS Number	Analyte	Sample Result	MS Conc	Spike Added	%Rec MS	MSD Conc	%Rec MSD	RPD	Method	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	0.020	0.223	0.200	102	0.223	102	0	EPA 7471	09-11-02	09-12-02	Bond

%Rec: Percent of the spike recovered from the matrix

ICP Sample:

CVAA Sample: M020843-009

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Laboratory Control Sample

LCS ICP Sample ID:
LCS GFAA Sample ID:
LCS CVAA Sample ID: WG11208-2

Matrix: Soil
Units: mg/kg

CAS Number	Analyte	LCS Result	True Value	%Rec	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	0.210	0.200	105	0.0050	0.001	EPA 7471	WG11208	09-11-02	09-12-02	Bond

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PHONE: (402) 444-4300

Continental Analytical Services, Inc.

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 09/10/2002
Date Sample Recd: 08/28/2002
Continental File No: 5409
Continental Order No: 81311
Client P.O.: .6683,WO#WG11120

Lab Number: 02082106
Sample Description: M020843-001
MR-SBC1-10

Date Sampled: 08/21/2002
Time Sampled: 1150

Analysis	Concentration	Units	Dilution Factor	Reporting Limit
Cyanide, Total	ND(0.2)	mg/kg dry wt.	1.0	0.2
Solids, Total	88.0	% by weight	1.0	0.1

Analysis	Date Prepared	Date Analyzed	QC Batch	Analyst	Method(s)
Cyanide, Total	N/A	08/29/2002	020829-1	MLL	9010B(M)
Solids, Total	N/A	08/28/2002	020828-1	TJW	SM 2540B

Laboratory analyses were performed on samples utilizing procedures published in Title 40 of the Code of Federal Regulations, Parts 136 or 141, or in EPA Publication, SW-846, 3rd edition, September, 1986 and the latest promulgated update. ND(), where noted, indicates none detected with the reporting limit in parentheses. Samples will be retained for thirty days unless otherwise notified.

CONTINENTAL ANALYTICAL SERVICES, INC.

Clifford J. Baker
Technical Manager

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 09/10/2002
Date Sample Recd: 08/28/2002
Continental File No: 5409
Continental Order No: 81311
Client P.O.: 6683,WO#WG11120

Lab Number: 02082107
Sample Description: M020843-002
MW-SBC 2-10

Date Sampled: 08/21/2002
Time Sampled: 1400

Analysis	Concentration	Units	Dilution Factor	Reporting Limit
Cyanide, Total	ND(0.2)	mg/kg dry wt.	1.0	0.2
Solids, Total	93.3	% by weight	1.0	0.1

Analysis	Date Prepared	Date Analyzed	QC Batch	Analyst	Method(s)
Cyanide, Total	N/A	08/29/2002	020829-1	MLL	9010B(M)
Solids, Total	N/A	08/28/2002	020828-1	TJW	SM 2540B

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Technical Manager

Continental Analytical Services, Inc.

Client: US Army Corps of Engineers
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420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 09/10/2002
Date Sample Recd: 08/28/2002
Continental File No: 5409
Continental Order No: 81311
Client P.O.: 6683,WO#WG11120

Lab Number: 02082108
Sample Description: M020843-003
MR-SB03-8.5

Date Sampled: 08/21/2002
Time Sampled: 1515

Analysis	Concentration	Units	Dilution Factor	Reporting Limit
Cyanide, Total	ND(0.2)	mg/kg dry wt.	1.0	0.2
Solids, Total	88.5	% by weight	1.0	0.1

Analysis	Date Prepared	Date Analyzed	QC Batch	Analyst	Method(s)
Cyanide, Total	N/A	08/29/2002	020829-1	MLL	9010B(M)
Solids, Total	N/A	08/28/2002	020828-1	TJW	SM 2540B

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Date Sample Rptd: 09/10/2002
Date Sample Recd: 08/28/2002
Continental File No: 5409
Continental Order No: 81311
Client P.O.: 6683,WO#WG11120

Lab Number: 02082109
Sample Description: M020843-004
MR-SB04-8.5

Date Sampled: 08/22/2002
Time Sampled: 0755

Analysis	Concentration	Units	Dilution Factor	Reporting Limit
Cyanide, Total	ND(0.2)	mg/kg dry wt.	1.0	0.2
Solids, Total	92.4	% by weight	1.0	0.1

Analysis	Date Prepared	Date Analyzed	QC Batch	Analyst	Method(s)
Cyanide, Total	N/A	08/29/2002	020829-1	MLL	9010B(M)
Solids, Total	N/A	08/28/2002	020828-1	TJW	SM 2540B

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Date Sample Rptd: 09/10/2002
Date Sample Recd: 08/28/2002
Continental File No: 5409
Continental Order No: 81311
Client P.O.: 6683,WO#WG11120

Lab Number: 02082110
Sample Description: M020843-005
MR-SB05-6.0

Date Sampled: 08/22/2002
Time Sampled: 0845

Analysis	Concentration	Units	Dilution Factor	Reporting Limit
Cyanide, Total	ND(0.2)	mg/kg dry wt.	1.0	0.2
Solids, Total	88.6	% by weight	1.0	0.1

Analysis	Date Prepared	Date Analyzed	QC Batch	Analyst	Method(s)
Cyanide, Total	N/A	08/29/2002	020829-1	MLL	9010B(M)
Solids, Total	N/A	08/28/2002	020828-1	TJW	SM 2540B

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Date Sample Rptd: 09/10/2002
Date Sample Recd: 08/28/2002
Continental File No: 5409
Continental Order No: 81311
Client P.O.: 6683,WO#WG11120

Lab Number: 02082111
Sample Description: M020843-006
MR-SB06-10

Date Sampled: 08/22/2002
Time Sampled: 1105

Analysis	Concentration	Units	Dilution Factor	Reporting Limit
Cyanide, Total	ND(0.2)	mg/kg dry wt.	1.0	0.2
Solids, Total	86.5	% by weight	1.0	0.1

Analysis	Date Prepared	Date Analyzed	QC Batch	Analyst	Method(s)
Cyanide, Total	N/A	08/29/2002	020829-1	MLL	9010B(M)
Solids, Total	N/A	08/28/2002	020828-1	TJW	SM 2540B

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785-827-1273 • 800-535-3076 • FAX 785-823-7830

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Omaha, NE 68102-2586

Date Sample Rptd: 09/10/2002
Date Sample Recd: 08/28/2002
Continental File No: 5409
Continental Order No: 81311
Client P.O.: 6683,WO#WG11120

Lab Number: 02082112
Sample Description: M020843-007
MR-SB07-7

Date Sampled: 08/22/2002
Time Sampled: 1155

Analysis	Concentration	Units	Dilution Factor	Reporting Limit
Cyanide, Total	ND(0.2)	mg/kg dry wt.	1.0	0.2
Solids, Total	89.3	% by weight	1.0	0.1

Analysis	Date Prepared	Date Analyzed	QC Batch	Analyst	Method(s)
Cyanide, Total	N/A	08/29/2002	020829-1	MLL	9010B(M)
Solids, Total	N/A	08/28/2002	020828-1	TJW	SM 2540B

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Date Sample Rptd: 09/10/2002
Date Sample Recd: 08/28/2002
Continental File No: 5409
Continental Order No: 81311
Client P.O.: 6683,WO#WG11120

Lab Number: 02082113
Sample Description: M020843-008
MR-SB08-10

Date Sampled: 08/22/2002
Time Sampled: 1350

Analysis	Concentration	Units	Dilution Factor	Reporting Limit
Cyanide, Total	ND(0.2)	mg/kg dry wt.	1.0	0.2
Solids, Total	91.9	% by weight	1.0	0.1

Analysis	Date Prepared	Date Analyzed	QC Batch	Analyst	Method(s)
Cyanide, Total	N/A	08/29/2002	020829-1	MLL	9010B(M)
Solids, Total	N/A	08/28/2002	020828-1	TJW	SM 2540B

Laboratory analyses were performed on samples utilizing procedures published in Title 40 of the Code of Federal Regulations, Parts 136 or 141, or in EPA Publication, SW-846, 3rd edition, September, 1986 and the latest promulgated update. ND(), where noted, indicates none detected with the reporting limit in parentheses. Samples will be retained for thirty days unless otherwise notified.

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Date Sample Rptd: 09/10/2002
Date Sample Recd: 08/28/2002
Continental File No: 5409
Continental Order No: 81311
Client P.O.: 6683,WO#WG11120

Lab Number: 02082114
Sample Description: M020843-009
MR-SB09-S

Date Sampled: 08/22/2002
Time Sampled: 1440

Analysis	Concentration	Units	Dilution Factor	Reporting Limit
Cyanide, Total	ND(0.2)	mg/kg dry wt.	1.0	0.2
Solids, Total	90.4	% by weight	1.0	0.1

Analysis	Date Prepared	Date Analyzed	QC Batch	Analyst	Method(s)
Cyanide, Total	N/A	08/29/2002	020829-1	MLL	9010B(M)
Solids, Total	N/A	08/28/2002	020828-1	TJW	SM 2540B

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Date Sample Rptd: 09/10/2002
Date Sample Recd: 08/28/2002
Continental File No: 5409
Continental Order No: 81311
Client P.O.: 6683,WO#WG11120

Lab Number: 02082115
Sample Description: M020843-010
MR-SB10-6

Date Sampled: 08/22/2002
Time Sampled: 1515

Analysis	Concentration	Units	Dilution Factor	Reporting Limit
Cyanide, Total	ND(0.2)	mg/kg dry wt.	1.0	0.2
Solids, Total	91.4	% by weight	1.0	0.1

Analysis	Date Prepared	Date Analyzed	QC Batch	Analyst	Method(s)
Cyanide, Total	N/A	09/04/2002	020904-2	MLL	9010B(M)
Solids, Total	N/A	08/28/2002	020828-1	TJW	SM 2540B

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Date Sample Rptd: 09/10/2002
Date Sample Recd: 08/28/2002
Continental File No: 5409
Continental Order No: 81311
Client P.O.: 6683,WO#WG11120

Lab Number: 02082116
Sample Description: M020843-011
MR-SB11-7

Date Sampled: 08/22/2002
Time Sampled: 1550

Analysis	Concentration	Units	Dilution Factor	Reporting Limit
Cyanide, Total	ND(0.2)	mg/kg dry wt.	1.0	0.2
Solids, Total	93.5	% by weight	1.0	0.1

Analysis	Date Prepared	Date Analyzed	QC Batch	Analyst	Method(s)
Cyanide, Total	N/A	08/29/2002	020829-1	MLL	9010B(M)
Solids, Total	N/A	08/28/2002	020828-1	TJW	SM 2540B

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Date Sample Rptd: 09/10/2002
Date Sample Recd: 08/28/2002
Continental File No: 5409
Continental Order No: 81311
Client P.O.: 6683,WO#WG11120

Lab Number: 02082117
Sample Description: M020843-012
MW-SB12-5

Date Sampled: 08/23/2002
Time Sampled: 0743

Analysis	Concentration	Units	Dilution Factor	Reporting Limit
Cyanide, Total	ND(0.2)	mg/kg dry wt.	1.0	0.2
Solids, Total	91.7	% by weight	1.0	0.1

Analysis	Date Prepared	Date Analyzed	QC Batch	Analyst	Method(s)
Cyanide, Total	N/A	08/29/2002	020829-1	MLL	9010B(M)
Solids, Total	N/A	08/28/2002	020828-1	TJW	SM 2540B

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Date Sample Rptd: 09/10/2002
Date Sample Recd: 08/28/2002
Continental File No: 5409
Continental Order No: 81311
Client P.O.: 6683,WO#WG11120

Lab Number: 02082118
Sample Description: M020843-013
MR-SB13-1.5

Date Sampled: 08/23/2002
Time Sampled: 0810

Analysis	Concentration	Units	Dilution Factor	Reporting Limit
Cyanide, Total	ND(0.2)	mg/kg dry wt.	1.0	0.2
Solids, Total	94.0	% by weight	1.0	0.1

Analysis	Date Prepared	Date Analyzed	QC Batch	Analyst	Method(s)
Cyanide, Total	N/A	08/29/2002	020829-1	MLL	9010B(M)
Solids, Total	N/A	08/28/2002	020828-1	TJW	SM 2540B

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Date Sample Rptd: 09/10/2002
Date Sample Recd: 08/28/2002
Continental File No: 5409
Continental Order No: 81311
Client P.O.: 6683,WO#WG11120

Lab Number: 02082119
Sample Description: M020843-014
MR-SB14-1.5

Date Sampled: 08/23/2002
Time Sampled: 0835

Analysis	Concentration	Units	Dilution Factor	Reporting Limit
Cyanide, Total	ND(0.2)	mg/kg dry wt.	1.0	0.2
Solids, Total	93.3	% by weight	1.0	0.1

Analysis	Date Prepared	Date Analyzed	QC Batch	Analyst	Method(s)
Cyanide, Total	N/A	08/29/2002	020829-1	MLL	9010B(M)
Solids, Total	N/A	08/28/2002	020828-1	TJW	SM 2540B

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Date Sample Rptd: 09/10/2002
Date Sample Recd: 08/28/2002
Continental File No: 5409
Continental Order No: 81311
Client P.O.: 6683,WO#WG11120

Lab Number: 02082120
Sample Description: M020843-015
MR-SB15-6.C

Date Sampled: 08/23/2002
Time Sampled: 0935

Analysis	Concentration	Units	Dilution Factor	Reporting Limit
Cyanide, Total	ND(0.2)	mg/kg dry wt.	1.0	0.2
Solids, Total	89.8	% by weight	1.0	0.1

Analysis	Date Prepared	Date Analyzed	QC Batch	Analyst	Method(s)
Cyanide, Total	N/A	08/29/2002	020829-1	MLL	9010B(M)
Solids, Total	N/A	08/28/2002	020828-1	TJW	SM 2540B

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Date Sample Rptd: 09/10/2002
Date Sample Recd: 08/28/2002
Continental File No: 5409
Continental Order No: 81311
Client P.O.: 6683,WO#WG11120

Lab Number: 02082121
Sample Description: M020843-016
MR-SB16-6.0

Date Sampled: 08/23/2002
Time Sampled: 1035

Analysis	Concentration	Units	Dilution Factor	Reporting Limit
Cyanide, Total	ND(0.2)	mg/kg dry wt.	1.0	0.2
Solids, Total	93.4	% by weight	1.0	0.1

Analysis	Date Prepared	Date Analyzed	QC Batch	Analyst	Method(s)
Cyanide, Total	N/A	08/29/2002	020829-1	MLL	9010B(M)
Solids, Total	N/A	08/28/2002	020828-1	TJW	SM 2540B

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Date Sample Rptd: 09/10/2002
Date Sample Recd: 08/28/2002
Continental File No: 5409
Continental Order No: 81311
Client P.O.: 6683,WO#WG11120

Lab Number: 02082122
Sample Description: M020843-017
MR-SB17-4.5

Date Sampled: 08/23/2002
Time Sampled: 1245

Analysis	Concentration	Units	Dilution Factor	Reporting Limit
Cyanide, Total	ND(0.2)	mg/kg dry wt.	1.0	0.2
Solids, Total	95.8	% by weight	1.0	0.1

Analysis	Date Prepared	Date Analyzed	QC Batch	Analyst	Method(s)
Cyanide, Total	N/A	08/29/2002	020829-1	MLL	9010B(M)
Solids, Total	N/A	08/30/2002	020830-1	TJW	SM 2540B

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Date Sample Rptd: 09/10/2002
Date Sample Recd: 08/28/2002
Continental File No: 5409
Continental Order No: 81311
Client P.O.: 6683,WO#WG11120

Lab Number: 02082123
Sample Description: M020843-018

Date Sampled: 08/23/2002
Time Sampled: 1340

MR-SB19 -11.5

Analysis	Concentration	Units	Dilution Factor	Reporting Limit
Cyanide, Total	ND(0.2)	mg/kg dry wt.	1.0	0.2
Solids, Total	94.0	% by weight	1.0	0.1

Analysis	Date Prepared	Date Analyzed	QC Batch	Analyst	Method(s)
Cyanide, Total	N/A	08/29/2002	020829-1	MLL	9010B(M)
Solids, Total	N/A	08/28/2002	020828-1	TJW	SM 2540B

Laboratory analyses were performed on samples utilizing procedures published in Title 40 of the Code of Federal Regulations, Parts 136 or 141, or in EPA Publication, SW-846, 3rd edition, September, 1986 and the latest promulgated update. ND(), where noted, indicates none detected with the reporting limit in parentheses. Samples will be retained for thirty days unless otherwise notified.

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Date Sample Rptd: 09/10/2002
Date Sample Recd: 08/28/2002
Continental File No: 5409
Continental Order No: 81311
Client P.O.: 6683,WO#WG11120

Lab Number: 02082124
Sample Description: M020843-019
MR-SB20-4.5

Date Sampled: 08/23/2002
Time Sampled: 1400

Analysis	Concentration	Units	Dilution Factor	Reporting Limit
Cyanide, Total	ND(0.2)	mg/kg dry wt.	1.0	0.2
Solids, Total	95.6	% by weight	1.0	0.1

Analysis	Date Prepared	Date Analyzed	QC Batch	Analyst	Method(s)
Cyanide, Total	N/A	08/29/2002	020829-1	MLL	9010B(M)
Solids, Total	N/A	08/28/2002	020828-1	TJW	SM 2540B

Laboratory analyses were performed on samples utilizing procedures published in Title 40 of the Code of Federal Regulations, Parts 136 or 141, or in EPA Publication, SW-846, 3rd edition, September, 1986 and the latest promulgated update. ND(), where noted, indicates none detected with the reporting limit in parentheses. Samples will be retained for thirty days unless otherwise notified.

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C90

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Date Sample Rptd: 09/10/2002
Date Sample Recd: 08/28/2002
Continental File No: 5409
Continental Order No: 81311
Client P.O.: 6683,WO#WG11120

Lab Number: 02082125
Sample Description: M020843-020

Date Sampled: 08/23/2002
Time Sampled: 1310

MR-SB18-9.0

Analysis	Concentration	Units	Dilution Factor	Reporting Limit
Cyanide, Total	ND(0.2)	mg/kg dry wt.	1.0	0.2
Solids, Total	85.6	% by weight	1.0	0.1

Analysis	Date Prepared	Date Analyzed	QC Batch	Analyst	Method(s)
Cyanide, Total	N/A	08/29/2002	020829-1	MLL	9010B(M)
Solids, Total	N/A	08/28/2002	020828-1	TJW	SM 2540B

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Date Sample Rptd: 09/10/2002
Date Sample Recd: 08/28/2002
Continental File No: 5409
Continental Order No: 81311
Client P.O.: 6683,WO#WG11120

Lab Number: 02082126
Sample Description: M020843-022
MR-SB21-5

Date Sampled: 08/23/2002
Time Sampled: 1435

Analysis	Concentration	Units	Dilution Factor	Reporting Limit
Cyanide, Total	ND(0.2)	mg/kg dry wt.	1.0	0.2
Solids, Total	93.9	% by weight	1.0	0.1

Analysis	Date Prepared	Date Analyzed	QC Batch	Analyst	Method(s)
Cyanide, Total	N/A	09/04/2002	020904-2	MLL	9010B(M)
Solids, Total	N/A	08/28/2002	020828-2	TJW	SM 2540B

Laboratory analyses were performed on samples utilizing procedures published in Title 40 of the Code of Federal Regulations, Parts 136 or 141, or in EPA Publication, SW-846, 3rd edition, September, 1986 and the latest promulgated update. ND(), where noted, indicates none detected with the reporting limit in parentheses. Samples will be retained for thirty days unless otherwise notified.

CONTINENTAL ANALYTICAL SERVICES, INC.

Clifford J. Baker
Technical Manager

Continental Analytical Services, Inc.

QUALITY CONTROL REPORT
METHOD BLANK DATA

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Reported: 09/10/2002
Date Sample Received: 08/28/2002
Continental File No: 5409
Continental Order No: 81311
Client P.O.: 6683,WO#WG11120

QC Batch	Lab Number	Analysis	Concentration	Units	Book/Page
020828-1	020828BLK1	Solids, Total	100.	% by weight	5060/303
020828-2	020828BLK2	Solids, Total	100.	% by weight	5060/303
020829-1	020829BLK1	Cyanide, Total	ND(0.2)	mg/kg	5265/71
020830-1	020830BLK1	Solids, Total	100.	% by weight	5060/307
020904-2	020904BLK2	Cyanide, Total	ND(0.2)	mg/kg	5265/78

Quality control analyses were performed on samples at time of analysis in accordance with procedures Published in Title 40 of the Code of Federal Regulations, Parts 136 or 141, or in EPA publication, SW-846, 3rd edition, Nov. 1986 and the latest promulgated update.

CONTINENTAL ANALYTICAL SERVICES, INC.

Clifford J. Baker
Technical Manager

Jacqueline Cairo
Quality Assurance Officer

Continental Analytical Services, Inc.

QUALITY CONTROL REPORT
LABORATORY CONTROL SAMPLE / LABORATORY CONTROL SAMPLE DUPLICATE DATA

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Reported: 09/10/2002
Date Sample Received: 08/28/2002
Continental File No: 5409
Continental Order No: 81311
Client P.O.: 6683,WO#WG11120

QC Batch	Lab Number	Analysis	Spike Level	Units	Accuracy Data (% Recovery) LCS	LCSD	Limits	Precision Data RPD	Limit
020828-1	020828LCS1	Solids, Total	80	% by w	101.	101.	93.8-109	0.0	2.0
020828-2	020828LCS2	Solids, Total	80	% by w	100.	101.	93.8-109	1.0	2.0
020829-1	020829LCS1	Cyanide, Total	4.0	mg/kg	93.2	96.0	83.4-113	3.0	8.7
020830-1	020830LCS1	Solids, Total	80	% by w	102.	102.	93.8-109	0.0	2.0
020904-2	020904LCS2	Cyanide, Total	4.0	mg/kg	104.	91.3V	83.4-113	13.0	8.7

V - Exceeds precision control limit. Meets accuracy control limits.

Quality control analyses were performed on samples at time of analysis in accordance with procedures Published in Title 40 of the Code of Federal Regulations, Parts 136 or 141, or in EPA publication, SW-846, 3rd edition, Nov. 1986 and the latest promulgated update.

CONTINENTAL ANALYTICAL SERVICES, INC.

Clifford J. Baker
Technical Manager

Jacqueline Cairo
Quality Assurance Officer

Continental Analytical Services, Inc.

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QUALITY CONTROL REPORT
MATRIX SPIKE / MATRIX SPIKE DUPLICATE DATA

Client: US Army Corps of Engineers
Attn:Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Reported: 09/10/2002
Date Sample Received: 08/28/2002
Continental File No: 5409
Continental Order No: 81311
Client P.O.: 6683,WO#WG11120

Matrix Spike/Matrix Spike Duplicate Data from Sample Batch:

Analysis	QC Batch	Spike Level	Units	Accuracy Data (% Recovery) MS	MSD	Limits	Precision Data RPD	Limit	Laboratory Number
Cyanide, Total	020829-1	4.0	mg/kg	80.3	83.2	73.4-122	3.5	10.1	02081612R
Solids, Total	020828-1	0.00	% by w	88.0J	88.8J	#	0.9	7.6	02082106 +
Cyanide, Total	020904-2	4.0	mg/kg	97.8	99.3	73.4-122	1.5	10.1	02082126 +
Solids, Total	020830-1	0.00	% by w	95.8J	96.4J	#	0.6	7.6	02082122 +
Solids, Total	020828-2	0.00	% by w	93.9J	93.5J	#	0.4	7.6	02082126 +

J - MS/MSD cannot be performed for this analysis. Value shown is the result of a duplicate analysis of the sample.

- Accuracy and/or precision control limits are either not available for this analysis or not applicable to this analysis.

+ - The MS/MSD sample analyses were performed on this sample from this Continental order number.

Quality control analyses were performed on samples at time of analysis in accordance with procedures Published in Title 40 of the Code of Federal Regulations, Parts 136 or 141, or in EPA publication, SW-846, 3rd edition, Nov. 1986 and the latest promulgated update.

CONTINENTAL ANALYTICAL SERVICES, INC.

Clifford J. Baker
Technical Manager

Jacqueline Cairo
Quality Assurance Officer

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DEPARTMENT OF THE ARMY
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Environmental Chemistry Branch
Omaha Laboratory

Tclp Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB18-9.0
Sample ID: M020843-021

Date Sampled: 08/23/02
Date Received: 08/27/02
Date Reported: 09/18/02

Matrix: Tclp Extract
Units: mg/L

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-38-2	Arsenic	1	u	0.030	0.006	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon
7440-39-3	Barium	1	0.519	0.005	0.001	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon
7440-43-9	Cadmium	1	0.001 J	0.005	0.001	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon
7440-47-3	Chromium	1	u	0.030	0.005	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon
7439-92-1	Lead	1	u	0.050	0.01	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon
7782-49-2	Selenium	1	u	0.050	0.01	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon
7440-22-4	Silver	1	u	0.010	0.002	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon

u: Analyte was analyzed for but not detected at or above the sample reporting limit

J: Estimated concentration below laboratory reporting limit.

Quality Assurance / Quality Control

ICP Method Blank ID: WG11171-1
GFAA Method Blank ID: NA
CVAA Method Blank ID: NA

ICP LCS ID: WG11171-2
GFAA LCS ID: NA
CVAA LCS ID: NA

ICP LD ID: WG11171-3
GFAA LD ID: NA
CVAA LD ID: NA

ICP MS ID: WG11171-4
GFAA MS ID: NA
CVAA MS ID: NA

ICP MSD ID: WG11171-5
GFAA MSD ID: NA
CVAA MSD ID: NA

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PHONE: (402) 444-4300

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DEPARTMENT OF THE ARMY
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TCLP Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB18-9.0
Sample ID: M020843-021

Date Sampled: 08/23/02
Date Received: 08/27/02
Date Reported: 09/10/02

Matrix: TCLP extract
Units: ug/L

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	20	u	2.0	0.4	EPA 7470	WG11195	09-09-02	09-10-02	Bond

u: Analyte was analyzed for but not detected at or above the sample reporting limit

Quality Assurance / Quality Control

ICP Method Blank ID: NA
GFAA Method Blank ID: NA
CVAA Method Blank ID: WG11195-1

ICP LCS ID: NA
GFAA LCS ID: NA
CVAA LCS ID: WG11195-2

ICP LD ID: NA
GFAA LD ID: NA
CVAA LD ID: WG11195-3

ICP MS ID: NA
GFAA MS ID: NA
CVAA MS ID: WG11195-4

ICP MSD ID: NA
GFAA MSD ID: NA
CVAA MSD ID: WG11195-5

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DEPARTMENT OF THE ARMY
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Tclp Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB21-5
Sample ID: M020843-023

Date Sampled: 08/23/02
Date Received: 08/27/02
Date Reported: 09/18/02

Matrix: Tclp Extract
Units: mg/L

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-38-2	Arsenic	1	u	0.030	0.006	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon
7440-39-3	Barium	1	1.14	0.005	0.001	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon
7440-43-9	Cadmium	1	0.001	0.005	0.001	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon
7440-47-3	Chromium	1	u	0.030	0.005	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon
7439-92-1	Lead	1	u	0.050	0.01	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon
7782-49-2	Selenium	1	u	0.050	0.01	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon
7440-22-4	Silver	1	u	0.010	0.002	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon

u: Analyte was analyzed for but not detected at or above the sample reporting limit

Quality Assurance / Quality Control

ICP Method Blank ID: WG11171-1
GFAA Method Blank ID: NA
CVAA Method Blank ID: NA

ICP LCS ID: WG11171-2
GFAA LCS ID: NA
CVAA LCS ID: NA

ICP LD ID: WG11171-3
GFAA LD ID: NA
CVAA LD ID: NA

ICP MS ID: WG11171-4
GFAA MS ID: NA
CVAA MS ID: NA

ICP MSD ID: WG11171-5
GFAA MSD ID: NA
CVAA MSD ID: NA

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TCLP Metals

Project Name: Marysville Road - Silver Creek
Project Number: 6683
Client Sample ID: MR-SB21-5
Sample ID: M020843-023
Date Sampled: 08/23/02
Date Received: 08/27/02
Date Reported: 09/10/02
Matrix: TCLP extract
Units: ug/L

CAS Number	Analyte	Dilution	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	20	u	2.0	0.4	EPA 7470	WG11195	09-09-02	09-10-02	Bond

u: Analyte was analyzed for but not detected at or above the sample reporting limit

Quality Assurance / Quality Control

ICP Method Blank ID: NA
GFAA Method Blank ID: NA
CVAA Method Blank ID: WG11195-1

ICP LCS ID: NA
GFAA LCS ID: NA
CVAA LCS ID: WG11195-2

ICP LD ID: NA
GFAA LD ID: NA
CVAA LD ID: WG11195-3

ICP MS ID: NA
GFAA MS ID: NA
CVAA MS ID: WG11195-4

ICP MSD ID: NA
GFAA MSD ID: NA
CVAA MSD ID: WG11195-5

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Method Blank

Method Blank ICP Sample ID: WG11171-1
Method Blank GFAA Sample ID:
Method Blank CVAA Sample ID:

Matrix: Tclp Extract
Units: mg/L

CAS Number	Analyte	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-38-2	Arsenic	u	0.030	0.006	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon
7440-39-3	Barium	u	0.005	0.001	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon
7440-43-9	Cadmium	u	0.005	0.001	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon
7440-47-3	Chromium	u	0.030	0.005	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon
7439-92-1	Lead	u	0.050	0.01	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon
7782-49-2	Selenium	u	0.050	0.01	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon
7440-22-4	Silver	u	0.010	0.002	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon

u: Analyte was analyzed for but not detected at or above the sample reporting limit

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Laboratory Matrix Duplicate

Matrix Duplicate ICP Sample ID: WG11171-3
Matrix Duplicate GFAA Sample ID:
Matrix Duplicate CVAA Sample ID:

Matrix: Tclp Extract
Units: mg/L

CAS Number	Analyte	Sample Result	Dup Result	RPD	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-38-2	Arsenic	u	u	NC	0.030	0.006	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon
7440-39-3	Barium	0.519	0.519	0	0.005	0.001	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon
7440-43-9	Cadmium	0.001 J	u	NC	0.005	0.001	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon
7440-47-3	Chromium	u	u	NC	0.030	0.005	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon
7439-92-1	Lead	u	u	NC	0.050	0.01	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon
7782-49-2	Selenium	u	u	NC	0.050	0.01	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon
7440-22-4	Silver	u	u	NC	0.010	0.002	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon

u: Analyte was analyzed for but not detected at or above the sample reporting limit
NC: Not Calculable
J: Estimated concentration below laboratory reporting limit

CVAA Sample: M020843-021

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Matrix Spike, Matrix Spike Duplicate

MS ICP Sample ID: WG11171-4 MSD ICP Sample ID: WG11171-5 Matrix: Tclp Extract
MS GFAA Sample ID: MSD GFAA Sample ID: Units: mg/L
MS CVAA Sample ID: MSD CVAA Sample ID:

CAS Number	Analyte	Sample Result	MS Conc	Spike Added	%Rec MS	MSD Conc	%Rec MSD	RPD	Method	Date Digested	Date Analyzed	Analyst
7440-38-2	Arsenic	u	2.07	2.00	104	2.09	104	1	EPA 6010B	09-05-02	09-17-02	Shannon
7440-39-3	Barium	0.519	2.54	2.00	101	2.54	101	0	EPA 6010B	09-05-02	09-17-02	Shannon
7440-43-9	Cadmium	0.001 J	0.996	1.00	100	1.01	100	1	EPA 6010B	09-05-02	09-17-02	Shannon
7440-47-3	Chromium	u	1.95	2.00	97	1.96	98	1	EPA 6010B	09-05-02	09-17-02	Shannon
7439-92-1	Lead	u	1.99	2.00	100	2.01	101	1	EPA 6010B	09-05-02	09-17-02	Shannon
7782-49-2	Selenium	u	2.06	2.00	103	2.07	104	1	EPA 6010B	09-05-02	09-17-02	Shannon
7440-22-4	Silver	u	0.397	0.400	99	0.397	99	0	EPA 6010B	09-05-02	09-17-02	Shannon

%Rec: Percent of the spike recovered from the matrix

J: Estimated concentration below laboratory reporting limit
ICP Sample: M020843-021

CVAA Sample:

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Laboratory Control Sample

LCS ICP Sample ID: WG11171-2
LCS GFAA Sample ID:
LCS CVAA Sample ID:

Matrix: Tclp Extract
Units: mg/L

CAS Number	Analyte	LCS Result	True Value	%Rec	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7440-38-2	Arsenic	2.05	2.00	103	0.030	0.006	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon
7440-39-3	Barium	2.01	2.00	101	0.005	0.001	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon
7440-43-9	Cadmium	1.01	1.00	101	0.005	0.001	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon
7440-47-3	Chromium	1.95	2.00	98	0.030	0.005	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon
7439-92-1	Lead	1.98	2.00	99	0.050	0.01	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon
7782-49-2	Selenium	2.06	2.00	103	0.050	0.01	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon
7440-22-4	Silver	0.383	0.400	96	0.010	0.002	EPA 6010B	WG11171	09-05-02	09-17-02	Shannon

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Environmental Chemistry Branch
Omaha Laboratory

Method Blank

Method Blank ICP Sample ID:
Method Blank GFAA Sample ID:
Method Blank CVAA Sample ID: WG11195-1

Matrix: Liquid
Units: ug/L

CAS Number	Analyte	Result	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date, Digested	Date Analyzed	Analyst
7439-97-6	Mercury	u	2.0	0.4	EPA 7470	WG11195	09-09-02	09-10-02	Bond

u: Analyte was analyzed for but not detected at or above the sample reporting limit

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Laboratory Matrix Duplicate

Matrix Duplicate ICP Sample ID:
Matrix Duplicate GFAA Sample ID:
Matrix Duplicate CVAA Sample ID: WG11195-3

Matrix: TCLP extract
Units: ug/L

CAS Number	Analyte	Sample Result	Dup Result	RPD	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	u	u	NC	2.0	0.4	EPA 7470	WG11195	09-09-02	09-10-02	Bond

u: Analyte was analyzed for but not detected at or above the sample reporting limit
NC: Not Calculable

QC Sample: M020843-021

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FAX: (402) 341-5448
PHONE: (402) 444-4300

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Matrix Spike, Matrix Spike Duplicate

MS ICP Sample ID:
MS GFAA Sample ID:
MS CVAA Sample ID: WG11195-4

MSD ICP Sample ID:
MSD GFAA Sample ID:
MSD CVAA Sample ID: WG11195-5

Matrix: TCLP extract
Units: ug/L

CAS Number	Analyte	Sample Result	MS Conc	Spike Added	%Rec MS	MSD Conc	%Rec MSD	RPD	Method	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	u	2.14	2.00	107.	2.14	107.	0	EPA 7470	09-09-02	09-10-02	Bond

%Rec: Percent of the spike recovered from the matrix

QC Sample: M020843-021

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FAX: (402) 341-5448
PHONE: (402) 444-4300

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Laboratory Control Sample

LCS ICP Sample ID:
LCS GFAA Sample ID:
LCS CVAA Sample ID: WG11195-2

Matrix: Liquid
Units: ug/L

CAS Number	Analyte	LCS Result	True Value	%Rec	Sample Quant Limit	Sample Det Limit	Method	Batch ID	Date Digested	Date Analyzed	Analyst
7439-97-6	Mercury	2.13	2.00	107.	2.0	0.4	EPA 7470	WG11195	09-09-02	09-10-02	Bond

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FAX: (402) 341-5448
PHONE: (402) 444-4300

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DEPARTMENT OF THE ARMY
Engineer Research and Development Center, Corps of Engineers
Chemical Quality Assurance Branch Laboratory
Omaha, Nebraska

Wet Chemistry

FAMIS Number: 6683
Project Name: Marysville Road – Silver Creek

Sample Description: Soil
Lab Sample No.: M020843-001
Client Sample ID: MR-SB01-10

Date Sampled: 21 Aug 02
Date Received: 27 Aug 02
Analyst: J. Bond

Procedure	Analysis	Result pH units	Date Analyzed
EPA-150.1	pH	8.09	05 Sep 02

Laboratory Comments:

Approved By: [signature]

Date: 9.6.02

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DEPARTMENT OF THE ARMY
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Chemical Quality Assurance Branch Laboratory
Omaha, Nebraska

Wet Chemistry

FAMIS Number: 6683
Project Name: Marysville Road – Silver Creek

Sample Description: Soil
Lab Sample No.: M020843-002
Client Sample ID: MR-SB02-10

Date Sampled: 21 Aug 02
Date Received: 27 Aug 02
Analyst: J. Bond

Procedure	Analysis	Result pH units	Date Analyzed
EPA-150.1	pH	8.47	05 Sep 02

Laboratory Comments:

Approved By: Frank M. Arrow Date: 9.6.02

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Omaha, Nebraska

Wet Chemistry

FAMIS Number: 6683
Project Name: Marysville Road – Silver Creek

Sample Description: Soil
Lab Sample No.: M020843-003
Client Sample ID: MR-SB03-8.5

Date Sampled: 21 Aug 02
Date Received: 27 Aug 02
Analyst: J. Bond

Procedure	Analysis	Result pH units	Date Analyzed
EPA-150.1	pH	8.49	05 Sep 02

Laboratory Comments:

Approved By: Thom. N. Arm Date: 9.6.02

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Chemical Quality Assurance Branch Laboratory
Omaha, Nebraska

Wet Chemistry

FAMIS Number: 6683
Project Name: Marysville Road – Silver Creek

Sample Description: Soil
Lab Sample No.: M020843-004
Client Sample ID: MR-SB04-8.5

Date Sampled: 22 Aug 02
Date Received: 27 Aug 02
Analyst: J. Bond

Procedure	Analysis	Result pH units	Date Analyzed
EPA-150.1	pH	8.86	05 Sep 02

Laboratory Comments:

Approved By: [signature] Date: 9.6.02

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Omaha, Nebraska

Wet Chemistry

FAMIS Number: 6683
Project Name: Marysville Road – Silver Creek

Sample Description: Soil
Lab Sample No.: M020843-005
Client Sample ID: MR-SB05-6.0

Date Sampled: 22 Aug 02
Date Received: 27 Aug 02
Analyst: J. Bond

Procedure	Analysis	Result pH units	Date Analyzed
EPA-150.1	pH	8.85	05 Sep 02

Laboratory Comments:

Approved By: Prem. N. Arora Date: 9.6.02

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Chemical Quality Assurance Branch Laboratory
Omaha, Nebraska

Wet Chemistry

FAMIS Number: 6683
Project Name: Marysville Road – Silver Creek

Sample Description: Soil
Lab Sample No.: M020843-006
Client Sample ID: MR-SB06-10

Date Sampled: 22 Aug 02
Date Received: 27 Aug 02
Analyst: J. Bond

Procedure	Analysis	Result pH units	Date Analyzed
EPA-150.1	pH	8.45	05 Sep 02

Laboratory Comments:

Approved By: Pam N. Ann Date: 9.6.02

C101

DEPARTMENT OF THE ARMY
Engineer Research and Development Center, Corps of Engineers
Chemical Quality Assurance Branch Laboratory
Omaha, Nebraska

Wet Chemistry

FAMIS Number: 6683
Project Name: Marysville Road – Silver Creek

Sample Description: Soil
Lab Sample No.: M020843-007
Client Sample ID: MR-SB07-7

Date Sampled: 22 Aug 02
Date Received: 27 Aug 02
Analyst: J. Bond

Procedure	Analysis	Result pH units	Date Analyzed
EPA-150.1	pH	8.98	05 Sep 02

Laboratory Comments:

Approved By: Prem. W. Arora Date: 9.6.02

C106

DEPARTMENT OF THE ARMY
Engineer Research and Development Center, Corps of Engineers
Chemical Quality Assurance Branch Laboratory
Omaha, Nebraska

Wet Chemistry

FAMIS Number: 6683
Project Name: Marysville Road – Silver Creek

Sample Description: Soil
Lab Sample No.: M020843-008
Client Sample ID: MR-SB08-10

Date Sampled: 22 Aug 02
Date Received: 27 Aug 02
Analyst: J. Bond

Procedure	Analysis	Result pH units	Date Analyzed
EPA-150.1	pH	9.05	05 Sep 02

Laboratory Comments:

Approved By: Prem N. Amar Date: 9.6.02

C103

DEPARTMENT OF THE ARMY
Engineer Research and Development Center, Corps of Engineers
Chemical Quality Assurance Branch Laboratory
Omaha, Nebraska

Wet Chemistry

FAMIS Number: 6683
Project Name: Marysville Road – Silver Creek

Sample Description: Soil
Lab Sample No.: M020843-009
Client Sample ID: MR-SB09-8

Date Sampled: 21 Aug 02
Date Received: 27 Aug 02
Analyst: J. Bond

Procedure	Analysis	Result pH units	Date Analyzed
EPA-150.1	pH	8.96	05 Sep 02

Laboratory Comments:

Approved By: Frem W. Brown Date: 9.6.02

C104

DEPARTMENT OF THE ARMY
Engineer Research and Development Center, Corps of Engineers
Chemical Quality Assurance Branch Laboratory
Omaha, Nebraska

Wet Chemistry

FAMIS Number: 6683
Project Name: Marysville Road – Silver Creek

Sample Description: Soil
Lab Sample No.: M020843-010
Client Sample ID: MR-SB10-6

Date Sampled: 21 Aug 02
Date Received: 27 Aug 02
Analyst: J. Bond

Procedure	Analysis	Result pH units	Date Analyzed
EPA-150.1	pH	8.95	05 Sep 02

Laboratory Comments:

Approved By: Fern W. Arno Date: 9.6.02

C105

DEPARTMENT OF THE ARMY
Engineer Research and Development Center, Corps of Engineers
Chemical Quality Assurance Branch Laboratory
Omaha, Nebraska

Wet Chemistry

FAMIS Number: 6683
Project Name: Marysville Road – Silver Creek

Sample Description: Soil
Lab Sample No.: M020843-011
Client Sample ID: MR-SB11-7

Date Sampled: 22 Aug 02
Date Received: 27 Aug 02
Analyst: J. Bond

Procedure	Analysis	Result pH units	Date Analyzed
EPA-150.1	pH	8.46	05 Sep 02

Laboratory Comments:

Approved By: Lynn W. Arnold Date: 9.6.02

C106

DEPARTMENT OF THE ARMY
Engineer Research and Development Center, Corps of Engineers
Chemical Quality Assurance Branch Laboratory
Omaha, Nebraska

Wet Chemistry

FAMIS Number: 6683
Project Name: Marysville Road – Silver Creek

Sample Description: Soil
Lab Sample No.: M020843-012
Client Sample ID: MR-SB12-5

Date Sampled: 23 Aug 02
Date Received: 27 Aug 02
Analyst: J. Bond

Procedure	Analysis	Result pH units	Date Analyzed
EPA-150.1	pH	9.17	06 Sep 02

Laboratory Comments:

Approved By: Ken W. Arne Date: 9-6-02

C107

DEPARTMENT OF THE ARMY
Engineer Research and Development Center, Corps of Engineers
Chemical Quality Assurance Branch Laboratory
Omaha, Nebraska

Wet Chemistry

FAMIS Number: 6683
Project Name: Marysville Road – Silver Creek

Sample Description: Soil
Lab Sample No.: M020843-013
Client Sample ID: MR-SB13-1.5

Date Sampled: 23 Aug 02
Date Received: 27 Aug 02
Analyst: J. Bond

Procedure	Analysis	Result pH units	Date Analyzed
EPA-150.1	pH	8.74	06 Sep 02

Laboratory Comments:

Approved By: Pam. N. Arne Date: 9.6.02

C108

DEPARTMENT OF THE ARMY
Engineer Research and Development Center, Corps of Engineers
Chemical Quality Assurance Branch Laboratory
Omaha, Nebraska

Wet Chemistry

FAMIS Number: 6683
Project Name: Marysville Road – Silver Creek

Sample Description: Soil
Lab Sample No.: M020843-014
Client Sample ID: MR-SB14-1.5

Date Sampled: 23 Aug 02
Date Received: 27 Aug 02
Analyst: J. Bond

Procedure	Analysis	Result pH units	Date Analyzed
EPA-150.1	pH	8.55	06 Sep 02

Laboratory Comments:

Approved By: Brian W. Arnold Date: 9.6.02

C109

DEPARTMENT OF THE ARMY
Engineer Research and Development Center, Corps of Engineers
Chemical Quality Assurance Branch Laboratory
Omaha, Nebraska

Wet Chemistry

FAMIS Number: 6683
Project Name: Marysville Road – Silver Creek

Sample Description: Soil
Lab Sample No.: M020843-015
Client Sample ID: MR-SB15-6.0

Date Sampled: 23 Aug 02
Date Received: 27 Aug 02
Analyst: J. Bond

Procedure	Analysis	Result pH units	Date Analyzed
EPA-150.1	pH	8.78	06 Sep 02

Laboratory Comments:

Approved By: Frem N. Arne Date: 9.6.02

C110

DEPARTMENT OF THE ARMY
Engineer Research and Development Center, Corps of Engineers
Chemical Quality Assurance Branch Laboratory
Omaha, Nebraska

Wet Chemistry

FAMIS Number: 6683
Project Name: Marysville Road – Silver Creek

Sample Description: Soil
Lab Sample No.: M020843-016
Client Sample ID: MR-SB16-6.0

Date Sampled: 23 Aug 02
Date Received: 27 Aug 02
Analyst: J. Bond

Procedure	Analysis	Result pH units	Date Analyzed
EPA-150.1	pH	8.89	06 Sep 02

Laboratory Comments:

Approved By: Prem. N. Arora Date: 9.6.02

C111

DEPARTMENT OF THE ARMY
Engineer Research and Development Center, Corps of Engineers
Chemical Quality Assurance Branch Laboratory
Omaha, Nebraska

Wet Chemistry

FAMIS Number: 6683
Project Name: Marysville Road – Silver Creek

Sample Description: Soil
Lab Sample No.: M020843-017
Client Sample ID: MR-SB17-4.5

Date Sampled: 23 Aug 02
Date Received: 27 Aug 02
Analyst: J. Bond

Procedure	Analysis	Result pH units	Date Analyzed
EPA-150.1	pH	8.57	06 Sep 02

Laboratory Comments:

Approved By: Prem. N. Arora Date: 9.6.02

C112

DEPARTMENT OF THE ARMY
Engineer Research and Development Center, Corps of Engineers
Chemical Quality Assurance Branch Laboratory
Omaha, Nebraska

Wet Chemistry

FAMIS Number: 6683
Project Name: Marysville Road – Silver Creek

Sample Description: Soil
Lab Sample No.: M020843-018
Client Sample ID: MR-SB19-4.5

Date Sampled: 23 Aug 02
Date Received: 27 Aug 02
Analyst: J. Bond

Procedure	Analysis	Result pH units	Date Analyzed
EPA-150.1	pH	8.19	06 Sep 02

Laboratory Comments:

Approved By: Prem. N. Arora

Date: 9. 6.02

C113

DEPARTMENT OF THE ARMY
Engineer Research and Development Center, Corps of Engineers
Chemical Quality Assurance Branch Laboratory
Omaha, Nebraska

Wet Chemistry

FAMIS Number: 6683
Project Name: Marysville Road – Silver Creek

Sample Description: Soil
Lab Sample No.: M020843-019
Client Sample ID: MR-SB20-4.5

Date Sampled: 23 Aug 02
Date Received: 27 Aug 02
Analyst: J. Bond

Procedure	Analysis	Result pH units	Date Analyzed
EPA-150.1	pH	8.52	06 Sep 02

Laboratory Comments:

Approved By: Frank W. Brown Date: 9.6.02

C114

DEPARTMENT OF THE ARMY
Engineer Research and Development Center, Corps of Engineers
Chemical Quality Assurance Branch Laboratory
Omaha, Nebraska

Wet Chemistry

FAMIS Number: 6683
Project Name: Marysville Road – Silver Creek

Sample Description: Soil
Lab Sample No.: M020843-020
Client Sample ID: MR-SB18-9.0

Date Sampled: 23 Aug 02
Date Received: 27 Aug 02
Analyst: J. Bond

Procedure	Analysis	Result pH units	Date Analyzed
EPA-150.1	pH	7.05	06 Sep 02

Laboratory Comments:

Approved By: Loren W. Bond Date: 9.6.02

C115

DEPARTMENT OF THE ARMY
Engineer Research and Development Center, Corps of Engineers
Chemical Quality Assurance Branch Laboratory
Omaha, Nebraska

Wet Chemistry

FAMIS Number: 6683
Project Name: Marysville Road – Silver Creek

Sample Description: Soil
Lab Sample No.: M020843-022
Client Sample ID: MR-SB21-5

Date Sampled: 23 Aug 02
Date Received: 27 Aug 02
Analyst: J. Bond

Procedure	Analysis	Result pH units	Date Analyzed
EPA-150.1	pH	8.61	05 Sep 02

Laboratory Comments:

Approved By: Kenneth N. Brown Date: 9.6.02

Energy Laboratories Inc

Sample Receipt Checklist

Client Name US-ARMY-CRPS-OF-ENGNR

Date and Time Received: 8/27/2002

Work Order Number B02081306

Received by kim

Checklist completed b [signature] 08/27/02 (Signature / Date)

Reviewed by _____ (Initials / Date)

Carrier name FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☐	No ☑	na °C Soil
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Adjusted? _____ Checked by _____

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments:

_____

_____

Corrective Action _____

_____

_____

U.S. ARMY CORPS OF ENGINEERS

No Seals
Fed Ex

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME
105 66683	Marysville Rd, MT

SAMPLERS: (Signature) Jason L Wong

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Acrd-Base/Neutrals	REMARKS
	8/21/02	1150	X		MRSB01-10	1	X	1 Pint Plastic Bag BD08 1306-1
	8/21/02	1400	X		MR-SB02-10	1	X	" 2
	8/21/02	1515	X		MR-SB03-8.5	1	X	" 3
	8/22/02	0755	X		MR-SB04-8.5	1	X	" 4
	8/22/02	0845	X		MR-SB05-6.0	1	X	" 5
	8/22/02	1105	X		MR-SB06-10	1	X	" 6
	8/22/02	1155	X		MR-SB07-7	1	X	" 7
	8/22/02	1350	X		MR-SB08-10	1	X	" 8
	8/22/02	1440	X		MR-SB09-8	1	X	" 9
	8/22/02	1515	X		MR-SB10-6	1	X	" 10
	8/22/02	1550	X		MR-SB11-7	1	X	" 11
	8/23/02	0743	X		MR-SB12-5	1	X	" 12
	8/23/02	0810	X		MR-SB13-1.5	1	X	" 13
	8/23/02	0835	X		MR-SB14-1.5	1	X	" 14
	8/23/02	0935	X		MR-SB15-6.0	1	X	" 15

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Jason L Wong	8/23/02 1540				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		Thomas McDonald	08/27/02 0930		

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

10097

U.S. ARMY CORPS OF ENGINEERS

CHAIN OF CUSTODY RECORD

Mr Wells
UB10820 Fed Ex

PROJ. NO.	PROJECT NAME
IMS 6683	Marys River Rd, MT

SAMPLERS: (Signature) Jason J Wagner

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Acetate Base Acetate	REMARKS
	8/23/02	1035	X		MR-SB16-6.0	1	X	1 Pint Bag BJ05C1305b-16
	8/23/02	1245	X		MR-SB17-4.5	1	X	" 17
	8/23/02	1310	X		MR-SB18-9.0	1	X	" 18
	8/23/02	1340	X		MR-SB19-4.5	1	X	" 19
	8/23/02	1400	X		MR-SB20-4.5	1	X	" 20
	8/23/02	1435	X		MR-SB21-5	1	X	" 21

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Jason J Wagner	8/23/02 1545				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		Cynthia McDaniel	08/27/02 0930		

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

10101

ENERGY LABORATORIES, INC. • P.O. Box 30916 • 1120 South 27th Street • Billings, MT 59107-0916
800-735-4489 • 406-252-6325 • 406-252-6069 fax • eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: US Army Corps of Engineers
Project: Proj No Lims 6683, Marysville Rd, MT

Lab Order: B02081306
Report Date: 11/07/02

Lab ID: B02081306-001
Client Sample ID: MRSB01-10
Matrix: SOIL

Collection Date: 08/21/02 11:50
DateReceived: 08/27/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Neutralization Potential	190	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid Potential	1	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid/Base Potential	190	ppt				Sobek Modified	09/09/02 00:00 / srm
Sulfur, Total	0.34	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Hot Water Extractable	0.32	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HCl Extractable	0.02	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HNO3 Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Residual	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm

Lab ID: B02081306-002
Client Sample ID: MR-SB02-10
Matrix: SOIL

Collection Date: 08/21/02 14:00
DateReceived: 08/27/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Neutralization Potential	94	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid Potential	ND	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid/Base Potential	94	ppt				Sobek Modified	09/09/02 00:00 / srm
Sulfur, Total	0.05	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Hot Water Extractable	0.04	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HCl Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HNO3 Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Residual	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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800-735-4489 • 406-252-6325 • 406-252-6069 fax • eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: US Army Corps of Engineers
Project: Proj No Lims 6683, Marysville Rd, MT

Lab Order: B02081306
Report Date: 11/07/02

Lab ID: B02081306-003
Client Sample ID: MR-SB03-8.5
Matrix: SOIL

Collection Date: 08/21/02 15:15
DateReceived: 08/27/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Neutralization Potential	64	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid Potential	1	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid/Base Potential	63	ppt				Sobek Modified	09/09/02 00:00 / srm
Sulfur, Total	0.05	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Hot Water Extractable	0.02	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HCl Extractable	0.03	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HNO3 Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Residual	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm

Lab ID: B02081306-004
Client Sample ID: MR-SB04-8.5
Matrix: SOIL

Collection Date: 08/22/02 07:55
DateReceived: 08/27/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Neutralization Potential	293	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid Potential	ND	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid/Base Potential	293	ppt				Sobek Modified	09/09/02 00:00 / srm
Sulfur, Total	0.02	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Hot Water Extractable	0.02	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HCl Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HNO3 Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Residual	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: US Army Corps of Engineers
Project: Proj No Lims 6683, Marysville Rd, MT

Lab Order: B02081306
Report Date: 11/07/02

Lab ID: B02081306-005
Client Sample ID: MR-SB05-6.0
Matrix: SOIL

Collection Date: 08/22/02 08:45
DateReceived: 08/27/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Neutralization Potential	312	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid Potential	ND	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid/Base Potential	312	ppt				Sobek Modified	09/09/02 00:00 / srm
Sulfur, Total	0.02	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Hot Water Extractable	0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HCl Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HNO3 Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Residual	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm

Lab ID: B02081306-006
Client Sample ID: MR-SB06-10
Matrix: SOIL

Collection Date: 08/22/02 11:05
DateReceived: 08/27/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Neutralization Potential	248	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid Potential	ND	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid/Base Potential	247	ppt				Sobek Modified	09/09/02 00:00 / srm
Sulfur, Total	0.05	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Hot Water Extractable	0.04	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HCl Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HNO3 Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Residual	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: US Army Corps of Engineers
Project: Proj No Lims 6683, Marysville Rd, MT

Lab Order: B02081306
Report Date: 11/07/02

Lab ID: B02081306-007
Client Sample ID: MR-SB07-7
Matrix: SOIL

Collection Date: 08/22/02 11:55
DateReceived: 08/27/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Neutralization Potential	387	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid Potential	ND	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid/Base Potential	387	ppt				Sobek Modified	09/09/02 00:00 / srm
Sulfur, Total	0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Hot Water Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HCl Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HNO3 Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Residual	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm

Lab ID: B02081306-008
Client Sample ID: MR-SB08-10
Matrix: SOIL

Collection Date: 08/22/02 13:50
DateReceived: 08/27/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Neutralization Potential	390	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid Potential	ND	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid/Base Potential	390	ppt				Sobek Modified	09/09/02 00:00 / srm
Sulfur, Total	0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Hot Water Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HCl Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HNO3 Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Residual	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm

Report Definitions:
RL - Analyte reporting limit.
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MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: US Army Corps of Engineers
Project: Proj No Lims 6683, Marysville Rd, MT

Lab Order: B02081306
Report Date: 11/07/02

Lab ID: B02081306-009
Client Sample ID: MR-SB09-8
Matrix: SOIL

Collection Date: 08/22/02 14:40
DateReceived: 08/27/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Neutralization Potential	329	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid Potential	ND	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid/Base Potential	329	ppt				Sobek Modified	09/09/02 00:00 / srm
Sulfur, Total	0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Hot Water Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HCl Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HNO3 Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Residual	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm

Lab ID: B02081306-010
Client Sample ID: MR-SB10-6
Matrix: SOIL

Collection Date: 08/22/02 15:15
DateReceived: 08/27/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Neutralization Potential	392	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid Potential	ND	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid/Base Potential	392	ppt				Sobek Modified	09/09/02 00:00 / srm
Sulfur, Total	0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Hot Water Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HCl Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HNO3 Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Residual	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm

Report Definitions:
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LABORATORY ANALYTICAL REPORT

Client: US Army Corps of Engineers
Project: Proj No Lims 6683, Marysville Rd, MT

Lab Order: B02081306
Report Date: 11/07/02

Lab ID: B02081306-011
Client Sample ID: MR-SB11-7
Matrix: SOIL

Collection Date: 08/22/02 15:50
DateReceived: 08/27/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Neutralization Potential	271	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid Potential	ND	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid/Base Potential	271	ppt				Sobek Modified	09/09/02 00:00 / srm
Sulfur, Total	0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Hot Water Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HCl Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HNO3 Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Residual	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm

Lab ID: B02081306-012
Client Sample ID: MR-SB12-5
Matrix: SOIL

Collection Date: 08/23/02 07:43
DateReceived: 08/27/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Neutralization Potential	327	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid Potential	ND	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid/Base Potential	327	ppt				Sobek Modified	09/09/02 00:00 / srm
Sulfur, Total	0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Hot Water Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HCl Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HNO3 Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Residual	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm

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LABORATORY ANALYTICAL REPORT

Client: US Army Corps of Engineers
Project: Proj No Lims 6683, Marysville Rd, MT

Lab Order: B02081306
Report Date: 11/07/02

Lab ID: B02081306-013
Client Sample ID: MR-SB13-1.5
Matrix: SOIL

Collection Date: 08/23/02 08:10
DateReceived: 08/27/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Neutralization Potential	418	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid Potential	1	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid/Base Potential	417	ppt				Sobek Modified	09/09/02 00:00 / srm
Sulfur, Total	0.03	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Hot Water Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HCl Extractable	0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HNO3 Extractable	0.02	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Residual	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm

Lab ID: B02081306-014
Client Sample ID: MR-SB14-1.5
Matrix: SOIL

Collection Date: 08/23/02 08:35
DateReceived: 08/27/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Neutralization Potential	361	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid Potential	ND	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid/Base Potential	361	ppt				Sobek Modified	09/09/02 00:00 / srm
Sulfur, Total	0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Hot Water Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HCl Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HNO3 Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Residual	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm

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MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: US Army Corps of Engineers
Project: Proj No Lims 6683, Marysville Rd, MT

Lab Order: B02081306
Report Date: 11/07/02

Lab ID: B02081306-015
Client Sample ID: MR-SB15-6.0
Matrix: SOIL

Collection Date: 08/23/02 09:35
DateReceived: 08/27/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Neutralization Potential	355	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid Potential	ND	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid/Base Potential	355	ppt				Sobek Modified	09/09/02 00:00 / srm
Sulfur, Total	0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Hot Water Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HCl Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HNO3 Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Residual	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm

Lab ID: B02081306-016
Client Sample ID: MR-SB16-6.0
Matrix: SOIL

Collection Date: 08/23/02 22:35
DateReceived: 08/27/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Neutralization Potential	157	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid Potential	ND	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid/Base Potential	157	ppt				Sobek Modified	09/09/02 00:00 / srm
Sulfur, Total	0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Hot Water Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HCl Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HNO3 Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Residual	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm

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LABORATORY ANALYTICAL REPORT

Client: US Army Corps of Engineers
Project: Proj No Lims 6683, Marysville Rd, MT

Lab Order: B02081306
Report Date: 11/07/02

Lab ID: B02081306-017
Client Sample ID: MR-SB17-4.5
Matrix: SOIL

Collection Date: 08/23/02 12:45
DateReceived: 08/27/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Neutralization Potential	70	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid Potential	ND	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid/Base Potential	70	ppt				Sobek Modified	09/09/02 00:00 / srm
Sulfur, Total	0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Hot Water Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HCl Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HNO3 Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Residual	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm

Lab ID: B02081306-018
Client Sample ID: MR-SB18-9.0
Matrix: SOIL

Collection Date: 08/23/02 13:10
DateReceived: 08/27/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Neutralization Potential	52	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid Potential	3	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid/Base Potential	49	ppt				Sobek Modified	09/09/02 00:00 / srm
Sulfur, Total	0.16	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Hot Water Extractable	0.08	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HCl Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HNO3 Extractable	0.03	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Residual	0.05	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm

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LABORATORY ANALYTICAL REPORT

Client: US Army Corps of Engineers
Project: Proj No Lims 6683, Marysville Rd, MT

Lab Order: B02081306
Report Date: 11/07/02

Lab ID: B02081306-019
Client Sample ID: MR-SB19-4.5
Matrix: SOIL

Collection Date: 08/23/02 13:40
DateReceived: 08/27/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Neutralization Potential	111	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid Potential	1	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid/Base Potential	110	ppt				Sobek Modified	09/09/02 00:00 / srm
Sulfur, Total	0.04	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Hot Water Extractable	0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HCl Extractable	0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HNO3 Extractable	0.02	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Residual	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm

Lab ID: B02081306-020
Client Sample ID: MR-SB20-4.5
Matrix: SOIL

Collection Date: 08/23/02 14:00
DateReceived: 08/27/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Neutralization Potential	164	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid Potential	1	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid/Base Potential	163	ppt				Sobek Modified	09/09/02 00:00 / srm
Sulfur, Total	0.03	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Hot Water Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HCl Extractable	0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HNO3 Extractable	0.02	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Residual	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm

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LABORATORY ANALYTICAL REPORT

Client: US Army Corps of Engineers
Project: Proj No Lims 6683, Marysville Rd, MT

Lab Order: B02081306
Report Date: 11/07/02

Lab ID: B02081306-021
Client Sample ID: MR-SB21-5
Matrix: SOIL

Collection Date: 08/23/02 14:35
DateReceived: 08/27/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Neutralization Potential	42	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid Potential	ND	ppt		1		Sobek Modified	09/09/02 00:00 / srm
Acid/Base Potential	42	ppt				Sobek Modified	09/09/02 00:00 / srm
Sulfur, Total	0.02	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Hot Water Extractable	0.02	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HCl Extractable	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, HNO3 Extractable	0.03	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm
Sulfur, Residual	<0.01	wt%		0.01		Sobek Modified	09/09/02 00:00 / srm

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QCL - Quality control limit.
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ND - Not detected at the reporting limit.