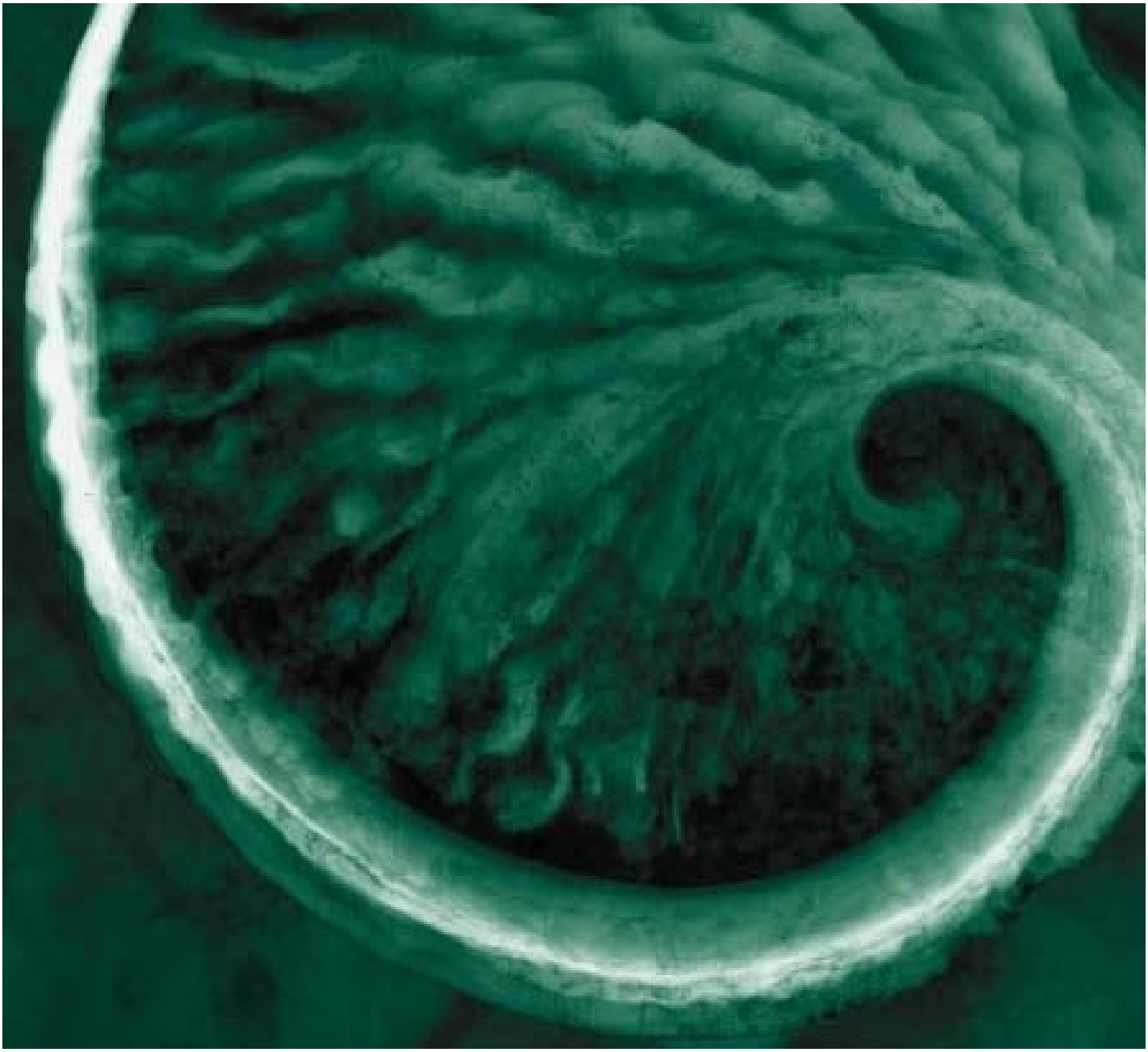
Appendix C
Human Health and
Ecological Risk Assessment



Draft Human Health and Ecological Risk Assessment for the Chicago-Research Mine Site

Lake County, California

October 2011
www.erm.com

ERM

Draft Human Health and Ecological Risk Assessment for the Chicago-Research Mine Site

Lake County, California

October 2011

Document Control No.

Project No. 0127571

Mark L. Bradford
Principal in Charge

Mark Jones
Senior Human Health Risk Assessor

Mark Shibata
Senior Ecological Risk Assessor

Environmental Resources Management
2525 Natomas Park Drive, Suite 350
Sacramento, California 95833
T: 916-924-9378

TABLE OF CONTENTS

1.0 INTRODUCTION 1
1.1 Purpose 1
1.2 Document Organization 2

2.0 SITE BACKGROUND 4
2.1 Chicago Mine History and Features 4
2.2 Research Mine History and Features 6
2.3 Biotic Setting 7
2.4 Current / Future Land Use 9

3.0 DATA EVALUATION 10
3.1 Statistical Analysis of the Data 10
3.2 Evaluation of Background Concentrations 14
3.3 Evaluation of Site Concentrations 14

4.0 HUMAN HEALTH RISK ASSESSMENT 20
4.1 Overview 20
4.2 Exposure Assessment 20
4.3 Toxicity Assessment 29
4.4 Site-specific Risk-Based Screening Levels 31
4.5 Risk Characterization 35
4.6 Uncertainty Analysis 36
4.7 Summary of Risk Estimates 41

5.0 ECOLOGICAL RISK ASSESSMENT 42
5.1 Problem Formulation 42
5.2 Site-Specific Risk-Based Screening Levels 51
5.3 Risk Characterization 55
5.4 Uncertainty Analysis 62
5.5 Summary of Risk Estimates 66

6.0 LITERATURE CITED 69

ATTACHMENTS

Attachment A: Data Used in the HHERA

Attachment B: Derivation of Background Concentrations

Attachment C: Equations Used to Calculate Human Health Site-Specific RBSLs

LIST OF FIGURES

Figure 2-1 Regional Map
Figure 2-2 Site Map

Figure 4-1 HHRA Conceptual Site Model
Figure 5-1 ERA Conceptual Site Model

LIST OF TABLES

Table 1-1 Relevant BLM, State, and Federal Guidance

Table 2-1 Birds and Mammals Commonly Observed in Oak Woodland and Grassland Habitats

Table 3-1 Constituents of Potential Concern in Soils
Table 3-2 Constituents of Potential Concern in Surface Water
Table 3-3 Constituents of Potential Concern in Sediment
Table 3-4 Surface Soil: Descriptive Statistics and Exposure Point Concentrations
Table 3-5 Surface Water: Descriptive Statistics and Exposure Point Concentrations
Table 3-6 Surface Water: Descriptive Statistics and Exposure Point Concentrations

Table 4-1 Exposure Parameters - Recreator
Table 4-2 Construction Fugitive Dust Calculations
Table 4-3 Exposure Parameters - Construction Worker
Table 4-4 Non-Cancer Toxicity Criteria
Table 4-5 Carcinogenic Toxicity Criteria
Table 4-6 Adult Recreator, Noncancer - Risk Based Screening Levels for Soil
Table 4-7 Adult Recreator, Cancer - Risk Based Screening Levels for Soil
Table 4-8 Adolescent Recreator, Noncancer - Risk Based Screening Levels for Soil
Table 4-9 Adolescent Recreator, Cancer - Risk Based Screening Levels for Soil

Table 4-10	Construction Worker, Noncancer - Risk Based Screening Levels for Soil
Table 4-11	Construction Worker, Cancer - Risk Based Screening Levels for Soil
Table 4-12	Construction Worker, Noncancer - Risk Based Screening Levels for Surface Water
Table 4-13	Construction Worker, Cancer - Risk Based Screening Levels for Surface Water
Table 4-14	Recreator Risk Based Screening Levels
Table 4-15	Construction Worker Risk Based Screening Levels Summary
Table 4-16	Recreator Soil Risk Summary
Table 4-17	Construction Worker Soil Risk Summary
Table 4-18	Construction Worker Surface Water Risk Summary
Table 5-1	List of Threatened and Endangered Species and CNPS-Listed Plants Observed At/Near the Site
Table 5-2	Assessment and Measurement Endpoints for the Site
Table 5-3	California Quail - Risk Based Screening Level Calculation
Table 5-4	California Vole - Risk Based Screening Level Calculation
Table 5-5	Bewick's Wren - Risk-Based Screening Level Calculation
Table 5-6	Trowbridge's Shrew - Risk-Based Screening Level Calculation
Table 5-7	Site-Specific Soil Risk-Based Screening Level Summary
Table 5-8	Soil – Comparison to Site-Specific Risk-Based Screening Levels
Table 5-9	Surface Water – Comparison to Site-Specific Risk-Based Screening Levels
Table 5-10	Sediment – Comparison to Site-Specific Risk-Based Screening Levels

1.0 INTRODUCTION

On behalf of the Bureau of Land Management (BLM), ERM-West, Inc. (ERM) has prepared this *Human Health and Ecological Risk Assessment (HHERA)* in support of the Engineering Evaluation/Cost Analysis (EE/CA) for the non-time critical removal action at the Chicago-Research Mine site (the Site). The HHERA process is used to systematically evaluate and organize data, assumptions, and uncertainties to help understand and predict the relationships between chemicals and effects in a way that is useful for environmental decision-making.

1.1 Purpose

Based on the current understanding and available site characterization data, the HHERA evaluates the potential for adverse human health and ecological effects that may occur as a result of potential current exposures at the Site. Findings of the HHERA will be used to assist in determining the need for and, if necessary, the scope of the EE/CA for the Site to reduce the human health and ecological risks to acceptable levels.

To support both the assessment of potential risks and potential spatial extent/scope of EE/CA actions, site-specific risk-based screening levels (RBSLs) were derived using methods and values provided in relevant regulatory guidance/databases and/or from widely recognized, consensus documents.[1] Site-specific RBSLs are chemical-specific concentrations in environmental media of concern (e.g., soil, surface water) that are protective of specific human (e.g., construction worker) and ecological receptors (e.g., herbivorous mammal populations). In the HHERA, site-specific RBSLs are compared to concentrations characterizing exposures at the Site to determine whether site conditions pose a potential risk to specific receptors should no further remedial actions be performed at the Site—i.e., a baseline risk assessment was performed. In the EE/CA, site-specific

---

1 Although called screening levels, RBSLs were derived using methods commensurate with a deterministic HHERA. For this HHERA, rather than a forward calculation of risks, a backward calculation was conducted using site-specific data (e.g., size of the site) to provide media- and chemical-specific concentrations that are protective of appropriate Site-specific human and biotic receptors.

RBSLs are compared to concentrations on a sampling location-by-location basis to scope the extent of possible EE/CA actions.

All methods and values used in this HHERA are consistent with relevant BLM, state, and federal guidance (Table 1-1).

Table 1-1.
List of Relevant BLM, State, and Federal Guidance Documents
Chicago-Research Mine EE/CA
Lake County, California

Title	Source
Human Health Risk Assessment	
Risk Assessment Guidance for Superfund: Volume I—Human Health Evaluation Manual. Supplemental Guidance	USEPA 1991
Guidelines for Exposure Assessment	USEPA 1992a
Supplemental Guidance to RAGS: Calculating the Concentration Term	USEPA 1992b
Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites	USEPA 2002b
Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment)	USEPA 2004e
Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part F, Supplemental Guidance for Inhalation Risk Assessment)	USEPA 2009
Preliminary Endangerment Assessment Guidance Manual	Cal/EPA 1994a
"Human Health Risk Assessment Note" (http://www.dtsc.ca.gov/AssessingRisk/upload/HHRA Note1.pdf)	Cal/EPA 2005
Ecological Risk Assessment	
Guidance for Ecological Risk Assessment at Hazardous Waste Sites and Permitted Facilities	DTSC 1996
Guidance for Developing Ecological Soil Screening Levels	USEPA 2005a
Guidelines for Ecological Risk Assessment	USEPA 1998
Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments	USEPA 1997
Risk Assessment Guidance for Superfund: Volume II. Environmental Evaluation Manual	USEPA 1989b

1.2 *Document Organization*

The HHERA document is organized as follows:

Section 1: Introduction;

Section 2: Site Background – brief description of site history and setting are presented;

Section 3: Data Evaluation – discussion of statistical analyses of the data and evaluations of background/ambient and site concentrations are provided;

Section 4: Human Health Risk Assessment (HHRA) – exposure scenarios are identified and findings of the HHRA are presented;

Section 5: Ecological Risk Assessment (ERA) – exposure scenarios are identified and findings of the ERA are presented; and

Section 6: Literature Cited.

Data used in the HHERA are provided in Attachment A. Details of the methods and findings of the evaluation of background concentrations are discussed in Attachment B.

2.0 SITE BACKGROUND

The Chicago-Research mines are approximately 5 miles west of the town of Middletown in Lake County, California (Figure 2-1). The Site occupies approximately 65 acres on the eastern slopes of the Mayacamas Mountains (Figure 2-2).

The elevation at Chicago Mine varies from about 2,560 to 2,750 feet above mean sea level (amsl). The elevation at the Research Mine varies from about 2,560 feet to 2,680 feet amsl. The Chicago Research Site is within the headwaters of Dry Creek, with Chicago Mine on the north side of the creek and Research Mine on the south side of the creek.

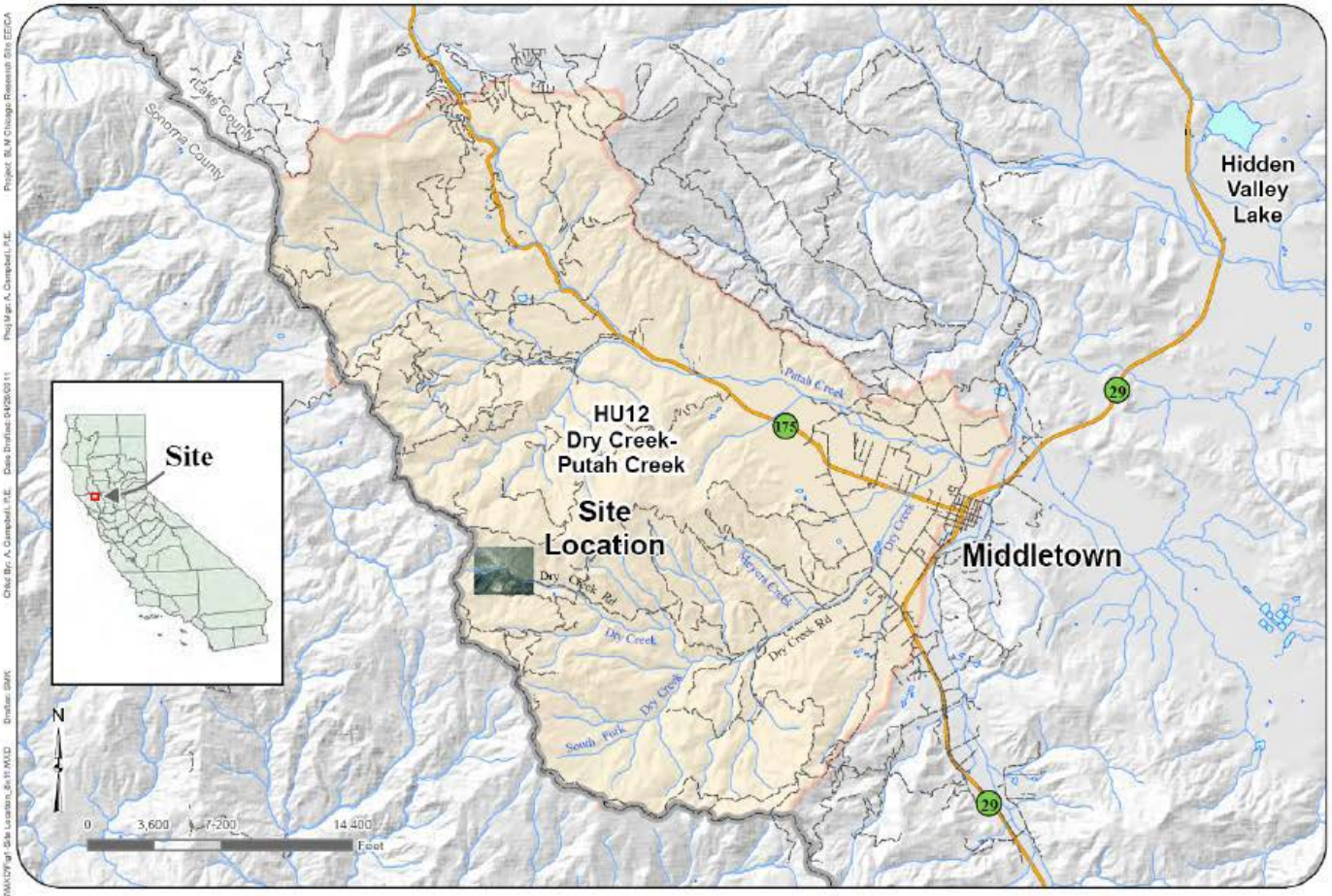
Further details are provided in the EE/CA report.

2.1 Chicago Mine History and Features

Operations at the Chicago Mercury Mine (Chicago Mine) site started in 1865 as the Pittsburgh and Ural Mines. By 1896 the Chicago Mine consisted of four 1,200 by 3,000 ft claims, two tunnels (one 100 feet long and other 400 feet long) and a 20 feet deep shaft that were used to access a cinnabar vein. The Chicago Mine temporarily ceased operation in 1911. Mining occurred at various times again between 1927 and 1943. At the end of all mining activities, the mine workings consisted of 1500 feet of adits and crosscuts, and the vertical shaft was 150 feet deep.

The abandoned Chicago Mine consists of two adits that are connected to each other, a collapsed hoist located at the creek, two former bunk houses that are collapsed, and the remains of a furnace used to process mercury ore. Photographs of all of these Site features were provided in Appendix A of the 2010 Removal Site Evaluation Report-Chicago Mercury Mine. The upper adit is accessible, although parts of the stope nearest to the adit have collapsed. The lower adit has collapsed, although cool air from the opening suggests a connection to the upper adit remains open.

Several areas of mine waste material are present, including waste rock piles, mercury ore, waste soot from the furnace, and calcines from ore processing. Wood and metal mining debris are scattered around the site. Neither Environmental Cost Management (ECM) personnel nor Science Applications International Corporation (SAIC) personnel



Chicago-Research Mine EE/CA
Lake County, California

Figure 2-1

Regional Map

ERM

Prepared by	Date	Job No. 0127571
MFS	5/26/11	FILE: Fig 5-2 ERA CSM 2BLM.doc

observed any mine water discharge or evidence of mine water discharge near the two adits during multiple site visits conducted in 2009, 2010, and 2011.

During a March 2010 site visit, SAIC field personnel identified a third collapsed adit located about 650 feet west (upstream) of the Chicago Mine and 20 feet south of Dry Creek. Rail tracks coming out of the adit extended across the creek to the north bank. SAIC personnel observed mine water discharging from the adit and flowing into Dry Creek. ECM also observed water discharging from this adit in October 2010. The presence of moss and algae along the discharge pathway implied year-round drainage.

In December 2010, ECM personnel identified a forth collapsed adit located approximately 350 feet northwest of the Chicago Mine. ECM personnel did not observed any water draining from this adit.

2.2 *Research Mine History and Features*

The adjacent Research Mercury Mine (Research Mine) was claimed in the early 1940s. Two adits were reported to be active between 1940 and 1943. The lower adit is located near the bottom of the Dry Creek ravine and the upper adit is situated higher up on the hillside. Based on dates of the bricks at the lower adit and a Wisconsin Engine found at the upper adit, it appears that the mine processed ore in the 1930's and 1940's. The concrete furnaces found at the southeastern part of the site are noted to have been active by 1918; however, they are noted in a report as being part of the Chicago Mine.

The Research Mine ores were processed at two locations. One was close to the lower adit where a collapsed brick retort and three compressed air tanks are located. Calcines processed at the retort were disposed of in a pile adjacent to Dry Creek. Small amounts of calcines are also present at the lower adit. The processing area is at the southeastern corner of the site where four concrete furnaces similar in design to a Scott furnace are located. There is soot around the furnaces, on the slopes above the furnaces and on the slope down towards the creek.

The abandoned Research mine consists of two collapsed adits, three rusted fuel tanks located close to the adits, trestles at the upper adit, the remains of a brick retort, and four concrete furnaces, the

easternmost of which is collapsed. Photographs of all of these Site features were provided in Appendix A of the 2010 Removal Site Evaluation Report-Research Mercury Mine.

As with Chicago Mine, several areas of mine waste material remain at the Research Mine. These include waste soot, waste rock piles, mercury ore, and calcines from ore processing. Miscellaneous wooden and metal mining debris were found scattered around the upper and lower adits. Neither SAIC personnel nor ECM personnel observed mine water discharge coming from the upper adit. SAIC personnel and ECM personnel observed mine water discharge emanating from the lower adit during site visits in November 2009, March, September, October, November, and December 2010, and January 2011.

2.3 *Biotic Setting*

2.3.1 *Terrestrial Habitat*

The majority of the site is terrestrial and is comprised mainly of oak woodland mixed with chaparral (*Manzanita* spp) and annual grassland. The primary canopy cover consisted of blue and valley oaks as well as gray pine. Chaparral and scrub oak were noted in the shrub layer, and several species of herbaceous non-native annual grasses and forbs were observed. Oak woodland and grassland habitats observed at the Site are known to support a variety of wildlife— birds and wildlife characteristic of these habitats are listed in Table 2-1.

Table 2-1.
Birds and Mammals Commonly Observed in Oak Woodland and Grassland Habitats
Source: Meyer and Laudenslayer 1988
Chicago-Research Mine EE/CA
Lake County, California

Plants	Birds	Mammals
Valley Oak	California quail	California vole
Blue Oak	Oak titmouse	California ground squirrel
Scrub oak	California towhee	Western grey squirrel
Coffee bush	Horned lark	Back-tailed jackrabbit
Gray Pine	Western meadowlark	Deer mouse
Avena spp.	Acorn woodpecker	Mule deer
Festuca spp.	American kestrel	Fox

Notes:
Locations for SAIC and USGS samples based on SAIC report entitled
Removal Site Evaluation Report, Chicago/Research Mercury Mine, July 2010.

Chicago-Research Mine EE/CA
Lake County, California

Figure 2-2

Site Map

ERM

Prepared by	Date	Job No. 0127571
MFS	5/26/11	FILE: Fig 2-2 Site Map 2BLM.doc

Dry Creek is freshwater aquatic habitat (Meyer and Laudenslayer 1988). Freshwater aquatic habitat provides cover, nesting, and foraging habitat for many types of wildlife. Several species of insectivorous birds (swallows, swifts, flycatchers) forage for prey in these habitats.

2.4 *Current / Future Land Use*

Consideration of both current and potential future land use is standard practice when scoping a risk assessment (USEPA 1989a; DTSC 1992) to identify appropriate exposure scenarios.

The Site is accessible only through privately owned lands and is blocked from public access by a locked gate. Further, an additional locked gate is at the entrance road onto the mine from public land, so vehicles are blocked from entry. Current land use at the Site includes open space.

Hypothetically, the Site might support future recreational use. Hypothetical future recreational use is based on:

- The Site's general proximity to several state forests and anecdotal evidence (pers. comm. A.Campbell) suggesting that the area and surrounding areas support various recreational activities such as hiking.
- The Site supports minimally disturbed woodland and annual grassland habitat that provide refuge, foraging, and nesting habitat for a number of wildlife species.

No major development of the Site is planned; therefore, no significant change in future land use at the Site is anticipated.

3.0 DATA EVALUATION

This HHERA is based on the results of soil, surface water, and sediment data that were collected, validated, and provided by ECM. Data used in the HHERA were collected within an area of approximately 7.6 acres and are provided in Attachment A. Sampling locations are presented and discussed in the EE/CA.

3.1 Statistical Analysis of the Data

All statistical analyses in support of this HHERA were conducted using USEPA's statistical software, ProUCL version 4.1.00 (USEPA 2010). Fundamental descriptive statistics (e.g., minimum, maximum, arithmetic mean, standard deviation, distribution type) and, where appropriate, the 95 percent upper confidence limit of the arithmetic mean (95% UCL) were calculated for soil, surface water, and sediment data, and are presented in Tables 3-1, 3-2, and 3-3, respectively.

Table 3-1
Surface Soil[1] -- Descriptive Statistics and Exposure Point Concentrations
Chicago-Research Mine, EE/CA
Lake County, California

Analyte	Sample Size	No. Detects	Detection Frequency (%)	**Soil** (mg/kg)								
				Detection Limit[2]		**Detects**						
				Min	Max	Min	Max	Mean	Std Dev	Distribution	95% UCL	EPC
Antimony	34	15	44%	1.9	5.0	0.10	10	2.9	2.6	Lognormal	2.6	2.6
Barium	16	13	81%	2.0	2.1	4.4	70	24	18	Gamma	29	29
Chromium	34	34	100%	--	--	86	4350	753	759	Lognormal	956	956
Cobalt	16	16	100%	--	--	19	170	82	48	Normal	103	103
Mercury	34	34	100%	--	--	0.12	17700	1148	3674	Lognormal	5083	5083
Nickel	34	34	100%	--	--	170	4920	1862	981	Normal	2147	2147
Selenium	34	1	3%	1.0	5.0	1.0	1.0	1.0	--	--	--	1.0
Silver	34	8	24%	1.0	2.5	0.060	0.20	0.12	0.044	Normal	0.14	0.14

Notes:

All concentrations given in mg/kg.(milligrams per kilogram)

Descriptive statistics from USEPA's ProUCL

COPC - Chemical of Potential Concern

-- Not Applicable

UCL - Upper confidence limit

1 - if sediment was "dry" during the year, it was also included in soil data set

2- detection limits are presented only for non-detect results.

Table 3-2
Surface Water -- Descriptive Statistics and Exposure Point Concentrations
Chicago-Research Mine EE/CA
Lake County, California

Analyte	Sample Size	No. Detects	Detection Frequency (%)	Surface Water (mg/L)									
				Detection Limit[1]		Detects							
				Min	Max	Min	Max	Mean	Median	Std Dev	Distribution	95% UCL	EPC
Barium	5	5	100%	--	--	0.032	0.064	0.047	0.044	0.014	Normal	0.060	0.060
Chromium	8	3	38%	0.010	0.010	6.4	13	8.7	6.8	3.7	Normal	13	13
Manganese	3	1	33%	1.0	1.0	13	13	13	13	--	--	--	13
Mercury	9	3	33%	0.00020	0.20	0.033	5.5	3.6	5.2	3.1	Normal	5.5	5.5
Nickel	8	3	38%	0.010	0.010	3.1	30	12	3.3	15	Lognormal	30	30

Notes:

All concentrations given in mg/L.(milligrams per liter)

Descriptive statistics from USEPA's ProUCL

Reporting limits were assigned as values for nondetects
Shapiro-Wilk tests were used to determine if data were normally distributed
-- = Not available or not calculated

1- detection limits are presented only for non-detect results.

Table 3-3
Sediment -- Descriptive Statistics and Exposure Point Concentrations
Chicago-Research Mine EE/CA
Lake County, California

Analyte	Sample Size	No. Detects	Detection Frequency (%)	Surface Water (mg/L)			
				Detection Limit[1]	Detects		
					Min	Max	EPC
Antimony	2	1	50%	1.9	0.4	0.4	0.40
Barium	1	1	100%	--	30	30	30
Cadmium	2	1	50%	0.49	0.02	0.02	0.02
Chromium	2	2	100%	--	280	784	784
Cobalt	1	1	100%	--	43	43	43
Copper	2	2	100%	--	13	16.8	17
Lead	2	2	100%	--	2	2.6	2.6
Manganese	1	1	100%	--	710	710	710
Mercury	2	2	100%	--	0.22	3.4	3.4
Nickel	2	2	100%	--	950	2420	2420
Silver	2	1	50%	0.97	0.12	0.12	0.12
Vanadium	1	1	100%	--	16	16	16
Zinc	2	2	100%	--	28	36	36

Notes:

All concentrations given in mg/kg.(milligrams per kilogram)

Reporting limits were assigned as values for nondetects
-- = Not available or not calculated
EPC = given sample size (n = 2), the EPC is equal to the maximum detected value
1- detection limits are presented only for non-detect results.

3.2 Evaluation of Background Concentrations

Metals are naturally occurring in the environment. Metals occurring at concentrations greater than soil background concentrations were considered Site-related and were evaluated further (DTSC 1997, USEPA 2002b). Metals occurring at concentrations comparable to soil background concentrations were not considered Site-related and were not quantitatively evaluated further. Moreover, consistent with standard practice, iron and magnesium were not quantitatively evaluated as these are biological essential nutrients.

To estimate upper bound background concentrations for metals in soils, ECM constructed and visually examined cumulative probability plots for soil concentrations. Consistent with DTSC guidance (1997), inflections or "breaks" in the cumulative probability plot suggest the apparent presence of multiple distinct populations—i.e., background and Site-related populations of concentration data.[2] Details of the evaluation of background concentrations and cumulative probability plots for metals in soils are provided in Attachment B.

3.3 Evaluation of Site Concentrations

An exposure point concentration (EPC) is the characteristic concentration of a constituent in an environmental medium that a receptor of concern will contact within an exposure area.[3] To support this HHERA, EPCs were calculated for:

- Soils
- Surface water
- Sediment

EPCs for transport medium are based on measured concentrations (e.g., soil concentrations for dust), or concentrations estimated by fate and transport models.

---

[2] Given the data needed to support visual evaluations of cumulative probability plots, the upper bound estimates of background concentrations of metals were not characterized for surface water and sediments.

[3] Given the proximity and size, the Chicago-Research mine site was considered a single exposure area.

Where samples sizes are sufficient[4], the lesser value of (a) the upper 95th percent confidence limit on the mean (95% UCL) or (b) the maximum measured concentration in accessible media will be used to estimate exposure (USEPA 1989a). The purpose for using the 95% UCL is to derive an upper-bound estimate of the average concentration to which a receptor will be exposed. Note that the 95% UCL accounts for the distribution and variability observed in direct measurements of chemical concentrations collected at the Site. When there is limited data, the EPC is the maximum concentration detected at the Site. Implicit in the calculation of the EPC is that both Chicago and Research mines comprise a single exposure area—i.e., human and ecological receptors are assumed to move freely about and integrate their exposure throughout the Site.

Use of either the 95% UCL or the maximum detected concentration is intended to provide a conservative estimate of a representative chemical exposure at the Site. Further, since sampling at the Site has focused on characterizing areas known or suspected to have received mining-related waste, the samples used to calculate EPCs is likely to result in conservative estimates of EPCs.

A brief rationale and assumptions used in deriving EPCs is discussed below.

3.3.1 Soil

DTSC (1992) assumes that construction activities (for residential development) may expose soils as deep as 10 feet bgs. However, considering site characteristics and mining activities, wherein tailings and waste rock were deposited at the surface on the Site, site investigation plans were developed by ECM to characterize mine-related residual concentrations of chemicals at the Site—i.e., soil samples were collected to a maximum depth of 5.5 feet bgs[5] in areas known or suspected to have been impacted by Site-related activities (Appendix A of the EE/CA). Given exposure scenarios for human and biotic receptors, all of the data (as reported by the analytical laboratory using standard USEPA methods and provided by ECM) were considered representative of potential Site-related exposures and were used in this HHERA. Analytical laboratory data were available for

4 Generally, samples sizes greater than eight (8) samples.

5 bgs = below ground surface

soils in the 0-to-1.5 ft bgs soil horizon—deeper soils (> 2 ft bgs) were only analyzed using x-ray fluorescence (XRF).[6]

EPCs for soil are based on either the 95% UCL or the maximum detected concentration, whichever is lower. Upper bound background concentrations of metals in soils identified from cumulative probability plots and soil EPCs used in the HHERA are presented in Table 3-4.

3.3.2 *Surface Water*

Surface water in the intermittent creek may contain metals dissolved from sediments affected by the Site. Given the length of the creek adjacent to the Site, the number of relevant sampling locations, and the intermittent nature of flows, analyses of metals were conducted for up to eight surface water samples (Table 3-2). EPCs for surface water are based on either the 95% UCL or the maximum detected concentration, whichever is lower. Surface water EPCs used in the HHERA are presented in Table 3-5.

3.3.3 *Sediment*

Metals released at the Site may sorb to sediment in the intermittent creek. As sampling at the Site focused on areas known or suspected to have received mining-related waste, sediments were sampled downstream from the upland waste areas at the Site. As two sediment samples were collected/analyzed, 95% UCLs could not be calculated using USEPA's ProUCL. Hence, EPCs for sediment are based on the maximum detected concentration. Sediment EPCs used in the HHERA are presented in Table 3-6.

---

6 Given the inconsistent relationship between XRF readings and laboratory-based measurements, only concentrations based on analytical laboratory measurements were used in this HHERA—i.e., no XRF data were used in this HHERA.

Table 3-4
Constituents of Potential Concern in Soils
Visual Examination of Cumulative Probability Plots [1]
Chicago-Research Mine EE/CA
Lake County, California

Chemical	Background Upper Bound	COPC/ COPEC?	Basis
Antimony	2.6	Yes	Inflection detected
Arsenic	8.2	No	No inflection observed
Barium	--	Yes	*a priori* COPEC[2]
Beryllium	--	No	Not detected
Cadmium	0.22	No	No inflection observed
Chromium	148	Yes	Inflection detected
Cobalt	--	Yes	Inflection detected
Copper	32	No	No inflection observed
Iron	--	No	Essential Nutrient
Lead	33	No	No inflection observed
Manganese	992	Yes	Inflection detected
Mercury	15.7	Yes	Inflection detected
Molybdenum	--	No	Not detected
Nickel	221	Yes	Inflection detected
Selenium	--	No	Detected once
Silver	--	Yes	*a priori* COPEC[2]
Thallium	--	No	Not detected
Vanadium	27	No	No inflection observed
Zinc	60	Yes	Inflection detected

Notes:

Concentration present in mg/kg (milligrams per kilogram)

Surface soil included sediment samples that were deemed to be "dry" (i.e., soils) during the year

Upper bound background concentration calculated based on inflection point

FOD = frequency of detection

COPC = constituent of potential concern (HHRA)

COPEC = constituent of potential ecological concern (ERA)

1 = see Appendix C for cumulative probability plots

2 = based on professional judgement--no visualization of cumulative probability plot was conducted

Table 3-5

Constituents of Potential Concern in Surface Water

Chicago-Research Mine EE/CA
Lake County, California

Chemical	COPC/ COPEC?	Basis
Antimony	No	Not Detected[1]
Arsenic	No	Not Detected[1]
Barium	Yes	Detected
Beryllium	No	Not Detected[1]
Cadmium	No	Not Detected[1]
Chromium	Yes	Detected
Cobalt	No	Not Detected[1]
Copper	No	Not Detected[1]
Lead	No	Not Detected[1]
Manganese	Yes	Detected
Mercury	Yes	Detected
Molybdenum	No	Not Detected[1]
Nickel	Yes	Detected
Selenium	No	Not Detected[1]
Silver	No	Not Detected[1]
Thallium	No	Not Detected[1]
Vanadium	No	Not Detected[1]
Zinc	No	Not Detected[1]

Notes:

Concentration present in mg/L (milligrams per liter)

FOD = frequency of detection

DL = detection limit

COPC = constituent of potential concern (HHRA)

COPEC = constituent of potential ecological concern (ERA)

1 = not evaluated further given uncertainty in EPC

--i.e., EPC is an unspecified value less than the DL

Table 3-6.
Constituents of Potential Concern in Sediment

Chicago-Research Mine EE/CA
Lake County, California

Chemical	COPC/ COPEC?	Basis
Antimony	Yes	Detected
Arsenic	No	Not Detected[1]
Barium	Yes	Detected
Beryllium	No	Not Detected[1]
Cadmium	Yes	Detected
Chromium	Yes	Detected
Cobalt	Yes	Detected
Copper	Yes	Detected
Lead	Yes	Detected
Manganese	Yes	Detected
Mercury	Yes	Detected
Molybdenum	No	Not Detected[1]
Nickel	Yes	Detected
Selenium	No	Not Detected[1]
Silver	Yes	Detected
Thallium	No	Not Detected[1]
Vanadium	Yes	Detected
Zinc	Yes	Detected

Notes:

Concentration present in mg/kg (milligrams per kilogram)

FOD = frequency of detection

DL = detection limit

COPC = constituent of potential concern (HHRA)

COPEC = constituent of potential ecological concern (ERA)

1 = not evaluated further given uncertainty in EPC

--i.e., EPC is an unspecified value less than the DL

4.0 HUMAN HEALTH RISK ASSESSMENT

The purpose of the HHRA is to evaluate the potential human health risks associated with COPCs at the Site. With this purpose in mind, the objectives of the HHRA were to:

- Provide a basis for evaluating potential health risks to current or reasonably anticipated future on-site receptors should no further action be performed at the Site,
- Provide a basis for determining residual chemical levels that are adequately protective of human health, and
- Determine whether remedial action is necessary to mitigate risks associated with COPCs in soil and surface water.

4.1 Overview

The risk assessment followed the procedures outlined in USEPA's Risk Assessment Guidance for Superfund: Volume I—Human Health Evaluation Manual (USEPA 1989a) and Cal/EPA's Supplemental Guidance for Human Health Multimedia Risk Assessments of Hazardous Waste Sites and Permitted Facilities (1992). Other guidance documents that were consulted for the risk assessment are listed in Table 1-1.

4.2 Exposure Assessment

The goal of the exposure assessment was to estimate the nature and magnitude of actual or potential human exposures to chemicals present in soil at the site.

4.2.1 Potential Human Receptors

As previously noted in Section 2.4, this Site is accessible only through privately owned lands and is blocked from public access by a locked gate. An additional locked gate is at the entrance road onto the mine from public land, so vehicles are blocked from entry. Private individuals with gate access and their guests may visit the site as hunters or for curiosity regarding the mine. However, the number of such visitors is anticipated to be very low and visits by any one individual is anticipated to be infrequent and of short duration.

Nonetheless for the purposes of this HHRA, both an adult and adolescent recreator (visitors, hikers) are assumed to be hypothetical future receptors for the Site. However, due to the remoteness of the Site, a young child (age 1-6 years) is considered to be an uncommon recreator to the Site. To ensure a protective assessment, the recreational visitor scenario evaluated in this HHRA employs conservative assumptions (see Section 2.4.2) as compared to a probable infrequent visitor at the Site.

Although hypothetical, it is also considered possible that future construction could occur as related to monitoring, maintenance, and repair of possible facilities installed as a result of a remediation action. Further under the hypothetical future recreational scenario, construction activities might include maintenance of amenities such as trails and out-buildings. As such, future hypothetical construction workers are assumed to conduct soil intrusive activities. To ensure a protective assessment, the construction worker scenario evaluated in this HHRA is based on a more typical construction worker scenario as defined by USEPA (1997a) and is conservative as compared to an anticipated construction worker at the Site.

The human receptors of concern evaluated in this HHRA include the following:

- Recreational visitor; and
- Construction worker

4.2.2 *Exposure Pathways*

For a complete exposure pathway to exist, each of the following elements must be present (USEPA 1989a):

- A source and mechanism for chemical release,
- An environmental transport medium (i.e., air, soil),
- A point of potential human contact with the medium, and
- A route of exposure (e.g., inhalation, ingestion, dermal contact).

The conceptual site model (CSM) is a tool used in risk assessment to describe relationships between chemicals and potentially exposed human receptor populations, thereby delineating the relationships between the suspected sources of chemicals identified at the site, the

mechanisms by which the chemicals might be released and transported in the site's environment, and the means by which current and/or potential future receptors could come in contact with the chemicals. The CSM provides a basis for developing exposure scenarios.

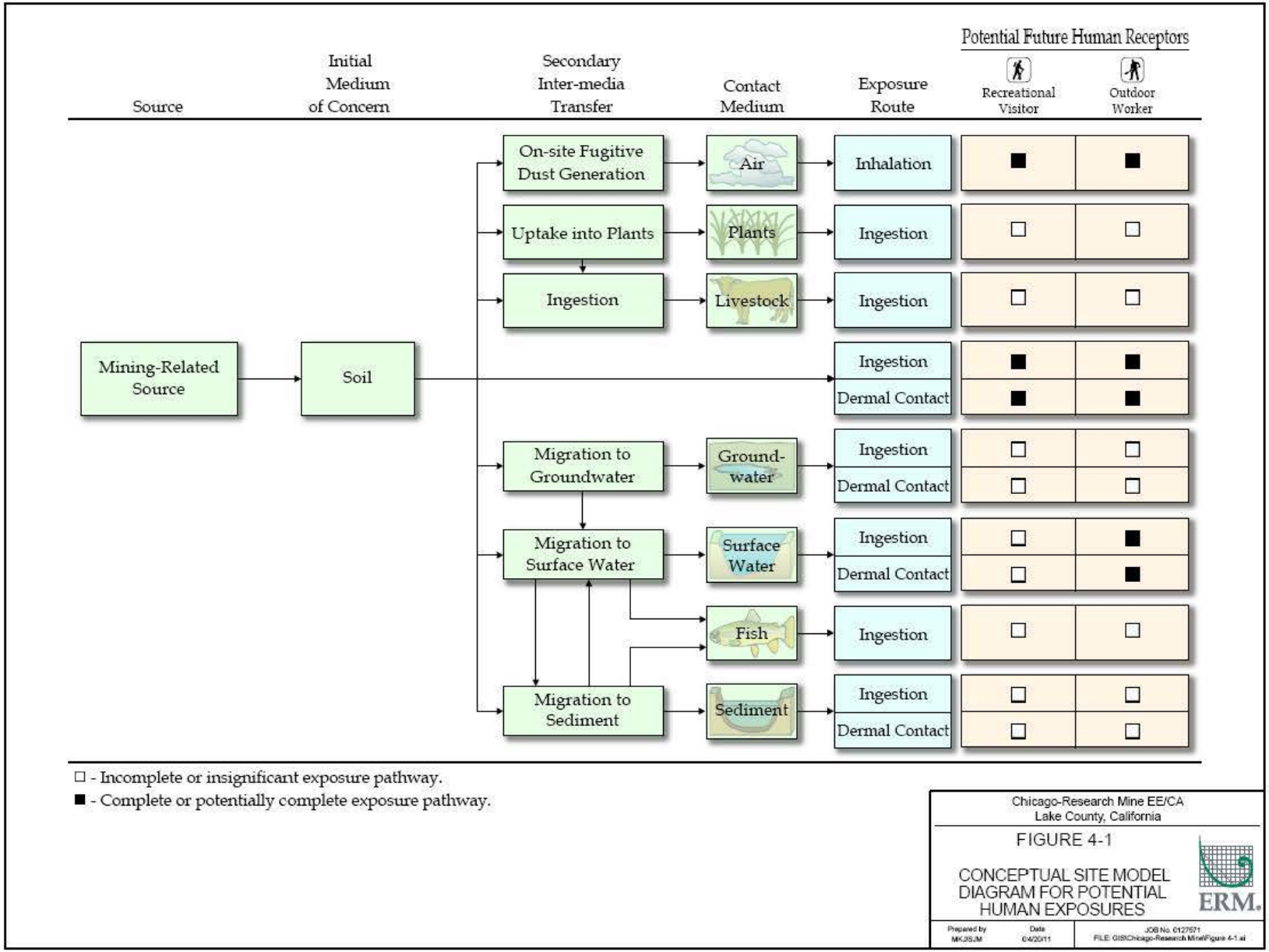
Based on our current understanding of the site, the following exposure pathways were considered complete (Figure 4-1):

- Recreational visitor
  - Incidental soil ingestion
  - Dermal contact with soil
  - Outdoor inhalation of dust
- Construction worker
  - Incidental soil ingestion
  - Dermal contact with soil
  - Outdoor inhalation of dust
  - Incidental ingestion of surface water
  - Dermal contact with surface water

Incidental ingestion of and dermal contact with surface water associated with recreation were not quantitatively assessed for the recreator given (a) the intermittent presence of water and (b) the expected infrequent/short time spent at the Site by the recreator. However, these exposure pathways were quantitatively evaluated for the construction worker given that some construction activities may necessitate contact with creek water.

Surface water runoff to the intermittent Dry Creek is a complete pathway. This pathway is assessed in the risk assessment using the measured surface water data. As none of the chemicals of interest (metals) are particularly mobile in soils, soil to groundwater is not considered a likely transfer mechanism. Therefore, migration of COPCs through the vadose zone to groundwater is not quantitatively assessed as part of this HHRA.

With the exception of incidental ingestion of surface water, ingestion of drinking water was not assessed. Dry Creek is intermittent and seasonal, and flows to potential drinking water sources such as Lake Berryessa (which is over 40 miles downstream) would be significantly diluted. Potential contribution of mercury to drinking water sources


Potential Future Human Receptors
Source
Initial Medium of Concern
Secondary Inter-media Transfer
Contact Medium
Exposure Route
Recreational Visitor
Outdoor Worker
Mining-Related Source
Soil
On-site Fugitive Dust Generation
Uptake into Plants
Ingestion
Migration to Groundwater
Migration to Surface Water
Migration to Sediment
Air
Plants
Livestock
Ground-water
Surface Water
Fish
Sediment
Inhalation
Ingestion
Dermal Contact
□ - Incomplete or insignificant exposure pathway.
■ - Complete or potentially complete exposure pathway.
Chicago-Research Mine EE/CA
Lake County, California
FIGURE 4-1
CONCEPTUAL SITE MODEL DIAGRAM FOR POTENTIAL HUMAN EXPOSURES
ERM.

has been discussed in the uncertainty section (Section 4.6). In addition, groundwater at the site is not used as a potable water source. However, this exposure pathway will be discussed in the uncertainty section of the HHRA.

Media-specific equations for soil and water are provided in Attachment C. Chemical-specific dermal absorption values from USEPA guidance (USEPA 2004e [RAGS Part E]) were used in the HHRA.

4.2.3 *Environmental Fate and Transport*

It is well recognized that chemicals can migrate within environmental media (e.g., soil to ambient air). Numerous mechanisms are known to influence this behavior of chemicals such as those at the site. Under both current and future anticipated land use conditions at the site, the principal mechanisms involved are fugitive dust emission and transport.

The following presents a discussion of the fate and transport models used in this HHRA to estimate potential future exposure levels at potential receptor locations removed spatially (by distance) and temporally (by time) from the currently impacted areas.

Fugitive Dust Generation, Dispersion, and Deposition. Metals adsorbed to soil particles can potentially become airborne, resulting in possible exposure of receptors and/or migration and off-site deposition and accumulation in soil. Long-term exposure to metals bound to dust particles are evaluated herein using the USEPA's particulate emission factor (PEF) approach (USEPA 2002a, 2004a).

Recreational. Metals entrained on soil particles can become airborne, resulting in possible exposure to commercial receptors via inhalation of outdoor air. The default PEF presented in USEPA (2002a) was applied in calculating the recreational receptors exposure estimates. The PEF relates soil concentrations to concentrations of respirable particles in air. The default (residential) PEF used was equal to 1.36×10^{9} cubic meters per kilogram (m^3/kg), or 7.4×10^{-10} kg dust/m^3 of air (Table 4-1).

Table 4-1
Exposure Parameters – Recreator
Chicago–Research Mine, EE/CA
Lake County, California

Parameter	Abbrev.	Value	Reference
Adherence Factor, soil, adult (mg/cm^2)	AFrec	0.07	USEPA, 2002a
Adherence Factor, soil, adolescent (mg/cm^2)	AFrec	0.07	USEPA, 2002a
Averaging Time (day), carcinogenic	ATc	25550	USEPA, 2002a
Averaging Time (day; ED*365), non-cancer, adult	ATnc,a	10950	Based on ED
Averaging Time (day; ED*365), non-cancer, adolescent	ATnc,c	4380	Based on ED
Body Weight, adult (kg)	BWa	70	USEPA, 2002a
Body Weight, adolescent (kg)	BWc	55	USEPA, 2002a
Exposed Surface Area, adult (cm^2/day)	SAs,a	5700	USEPA, 2002a
Exposed Surface Area, adolescent (cm^2/day)	SAs,c	3800	USEPA 1997
Exposure Duration-adult (years)	EDa	30	Prof. Judgment
Exposure Duration-adolescent (years)	EDc	12	Prof. Judgment
Exposure Frequency (d/y)	EFo	14	Assumption
Fraction of Day Exposed	FoD	1	
Inhalation Reference Dose (mg/kg-day)	RfDi	Chemical Specific	
Oral Reference Dose (mg/kg-day)	RfDo	Chemical Specific	
Particulate Emission Factor (m^3/kg)	PEF	1.36E+09	USEPA, 2002a
Volatilization Factor (m^3/kg)	VF	Chemical Specific	
Skin Absorption-Organics (unitless)	ABS	Chemical Specific	USEPA, 2004c
Slope Factor, Inhalation	CSFi	Chemical Specific	
Slope Factor, Oral	CSFo	Chemical Specific	
Soil Ingestion-adult (mg/day)	IRs,a	100	USEPA, 2002a
Soil Ingestion-adolescent (mg/day)	IRs,c	100	USEPA, 2002a
Exposure time, outdoors	ET_o	8	
Target Cancer Risk	TR	1.00E-05	
Target Hazard Quotient	THQ	1	

Construction. Metals entrained on soil particles can become airborne during construction activities (e.g., excavation, grading, transportation). Outdoor air dust concentrations resulting from construction activities were estimated utilizing algorithms from USEPA (2002a). The construction worker PEF calculations are presented in Table 4-2. The estimated PEF is presented in Tables 4-2 and 4-3.

Table 4-2
Construction Fugitive Dust Calculations
Chicago-Research Mine, EE/CA
Lake County, California

Parameter	Abbrev.	Units	Value
Wind Erosion and Construction Activities			
Fugitive dust from wind erosion[1]	M_{wind}	g	4.4 E+4
Fraction of vegetative cover[2]	V	–	0.0 E+0
Mean annual wind speed[2]	U_m	m/s	8.00
Equivalent threshold value of wind speed[2]	U_t	m/s	1.1 E+1
Function dependent on U/U_t[2]	F(x)	–	1.9 E-1
Areal Extent of site surface contamination[4]	A_{surf}	m^2	2,023.4
Exposure duration[5]	ED	year	1.0 E+0
Fugitive dust from excavation[6]	M_{excav}	g	903.43
Wet soil bulk density[8]	ρ_{soil}	Mg/m^3	1.50
Percent moisture in soil[8]	M	%	12.0
Areal extent of site excavation[9]	A_{excav}	m^2	404.7
Depth of site excavation[7]	d_{excav}	m	3.0
Number of times soil is dumped[2]	N_A	–	2.0
Fugitive dust from dozing[10]	M_{doz}	g	41.17
Percent weight of silt in soil[8]	s	%	6.9
Percent moisture in soil[8]	M	%	12.0
Mean vehicle speed[2]	S_{doz}	km/hr	11.4
Sum dozing kilometers traveled[11]	VKT_{doz}	km	2.49
Fugitive dust from grading[12]	M_{grade}	g	1,086.34
Mean vehicle speed[2]	S_{grade}	km/hr	11.4
Sum dozing kilometers traveled[12]	VKT_{grade}	km	2.49
Fugitive dust from tilling[13]	M_{till}	g	284
Percent weight of silt in soil[8]	s	%	6.9
Areal extent of site tilling[9]	A_{till}	acre	0.1
Number of times soil is tilled[2]	N_A	–	2.0
Total Time Averaged PM_{10} Emission[14]	J'_T	g/m2-sec	6.07E-06
Duration of construction[2]	T	sec	3,744,000
Subchronic Dispersion Factor for Area Source[15]	Q/C_{ia}	g/m^2-sec per kg/m^3	14.31
Constant A[2]	A	–	2.4538
Constant B[2]	B	–	17.5660
Constant C[2]	C	–	189.0426
Areal Extent of site surface contamination[4]	A_{surf}	acres	0.5
Dispersion correction factor[16]	F_D	–	0.1903
Subchronic PEF for Construction Activities[17]	PEF_{sc}	m^3/kg	**1.24E+07**

Parameter	Abbrev.	Units	Value
Unpaved Road Traffic			
Length of road segment[18]	L_R	m	45
Width of road segment[2]	W_R	m	6.1
Surface area of road segment[19]	A_R	m^2	274
Percent weight of silt in road surface[20]	s	%	8.5
Mean vehicle weight[2]	W	tons	8
Percent moisture in dry road surface[20]	M	%	0.2
Number of days/year ≥ 0.01 inches[3]	p	days	58.0
Sum vehicle kilometers traveled[21]	VKT_{road}	km	175.43
Subchronic Dispersion Factor for road segment[22]	Q/C_{rs}	g/m^2-sec per kg/m^3	23.0
Constant A[2]	A		12.9351
Constant B[2]	B		5.7383
Constant C[2]	C		71.7711
Assumed unit areal extent of site surface impacts	A_{rmf}	acres	0.5
Subchronic PEF for Unpaved Road Traffic[23]	PEF_{sc_road}	m^3/kg	**1.02E+06**
Total construction related PEF[24]	PEF_{sc_total}	m^3/kg	9.4 E+5
Total outdoor ambient air dust concentration[25]	C_{const_dust}	kg/m^3	1.1 E-6

(1) From USEPA. (2002c). Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. Office of Solid Waste and Emergency Response, Washington, DC. OSWER 9355.4-24. December.

- $M_{wind} = 0.036 \times (1-V) \times (U_m/U_t)^3 \times F(x) \times A_{rmf} \times ED \times 8760 hr/yr$.

(2) Assumed value for the site based upon USEPA (2002c).

(3) Based on long-term weather data for the area of interest (WRCC 2011, On-line. http://www.wrcc.dri.edu/).

(4) Site unit area of 0.5 acres

(5) Construction worker ED.

(6) From USEPA 2002c - $M_{excav} = 0.35 \times 0.0016 \times [(U_m/2.2)^{1.3}/(M/2)^{1.4}] \times \rho_{soil} \times A_{excav} \times d_{excav} \times N_A \times 10^3 g/kg$.

(7) Conservative estimate consistent with assumed depth of potential exposure (10 feet).

(8) Default value based upon USEPA (2002c).

(9) Assumed value of one fifth of the site based upon USEPA (2002c).

(10) From USEPA 2002c - $M_{dos} = 0.75 \times [(0.45 \times s^{1.5})/(M)^{1.4}] \times \sum VKT_{dos}/S_{dos} \times 10^3 g/kg$.

(11) From USEPA 2002c - $VKT_{dos} = [(A_{rmf}^{0.5}/2.44m) \times A_{rmf}^{0.5} \times 3]/1{,}000$ m/km.

(12) From USEPA 2002c - $M_{grade} = 0.60 \times (0.0056 \times S^{2.0}) \times \sum VKT_{grade} \times 10^3 g/kg$.

(13) From USEPA 2002c - $M_{dill} = 1.1 \times s^{0.6} \times A_{dill} \times 4{,}047 m^2/acre \times 10^{-4} ha/m^2 \times 10^3 g/kg \times N_A$.

(14) From USEPA 2002c - $J'_T = (M_{wind} + M_{excav} + M_{dos} + M_{grade} + M_{dill})/(A_{rmf} \times T)$.

(15) From USEPA 2002c - $Q/C_{sa} = A \times \exp[(\ln(A_{rmf}) - B)^2/C]$.

(16) From USEPA 2002c - $F_D = 0.1852 + (5.3537/t_c) + (-9.6318/t_c^2)$, $t_c = T/(3{,}600 sec/hour)$.

(17) From USEPA 2002c - $PEF_{sc} = Q/C_{sa} \times (1/F_D) \times (1/J'_T)$.

(18) Assumed value of the square root of the site area, based upon USEPA (2002c).

(19) From USEPA 2002c - $A_R = L_R \times W_R$

(20) Default value based upon USEPA (2002c).

(21) From USEPA 2002c - VKT_{road} = 30 vehicles × L_R × [(52 wks/yr)/2] × (5 days/week) / (1000 m/km).

(22) From USEPA 2002c - $Q/C_{rs} = A \times \exp[(\ln(A_{rmf}) - B)^2/C]$.

(23) From USEPA 2002c - $PEF_{sc\_road} = Q/C_{rs} \times (1/F_D) \times T \times A_R /$
$\{[2.6 \times (s/12)^{0.8} \times (W/3)^{0.4}/(M/0.2)^{0.3}] \times [(365-p)/365] \times 281.9 \times \sum VKT_{road}\}$.

(24) $PEF_{sc\_total} = \{1/[(1/PEF_{sc}) + (1/PEF_{sc\_road})]\}$.

(25) $C_{const\_dust} = 1/PEF_{sc\_total}$

Table 4-3
Exposure Parameters – Construction Worker
Chicago-Research Mine, EE/CA
Lake County, California

Parameter	Abbrev.	Value	Reference
Adherence Factor (mg/cm^2)	AFcw	0.3	USEPA, 2002a
Averaging Time (day), carcinogenic	ATc	25550	USEPA, 2002a
Averaging Time (day; ED*365), non-cancer	ATn	365	USEPA, 2002a
Body Weight, Adult (kg)	BWa	70	USEPA, 2002a
Exposed Surface Area (cm^2/day)	SAcw	3300	USEPA, 2002a
Exposed Surface Area, water (cm^2/day)	SAcw	5300	USEPA, 2002c
Exposure Duration (years)	EDcw	1	Prof. Judgment
Exposure Time, water (hrs/event)	EDcw	1	Prof. Judgment
Exposure Frequency (d/y)	EFo	250	USEPA, 2002a
Exposure Frequency, water (d/y)	EFw	50	Prof. Judgment
Fraction of Day Exposed	FoD	1	
Inhalation Reference Dose (mg/kg-day)	RfDi	Chemical Specific	
Oral Reference Dose (mg/kg-day)	RfDo	Chemical Specific	
Particulate Emission Factor (m^3/kg)	PEF	9.4E+05	
Volatilization Factor (m^3/kg)	VF	Chemical Specific	
Skin Absorption-Organics (unitless)	ABS	Chemical Specific	USEPA, 2004c
Slope Factor, Inhalation	CSFi	Chemical Specific	
Slope Factor, Oral	CSFo	Chemical Specific	
Soil Ingestion (mg/day)	IRScw	330	USEPA, 2002a
Water Ingestion (L/event)	IRScw	0.05	Prof. Judgment
Target Cancer Risk	TR	1.0E-05	
Target Hazard Quotient	THQ	1	

4.2.4 *Exposure Parameter Assumptions*

The assumptions regarding the extent of exposure are discussed in this section for the complete exposure pathways identified above. Many of the assumptions regarding the extent of exposure are a combination of reasonable maximum exposure (RME) and average exposure factors developed by Cal/EPA (DTSC, 1992, 1994; OEHHA, 2005) and USEPA's Superfund program (USEPA 1991a, 1997, 2002a).

In some cases, professional judgment was used in selecting exposure parameters. For example, exposure frequency for the recreational receptor (14 days) is based upon the number of days allowable on a permit issued by BLM to camp on various BLM lands. Additionally, construction worker direct contact with water exposure frequency assumes potential contact one day per week during the duration of the assumed construction period (approximately 50 days per year). Lastly, incidental surface water ingestion is assumed to be the same

magnitude as the USEPA (1989) assumption for incidental water ingestion during swimming (50 mL, or 0.05 L).

The values for recreators are provided in Table 4-1. Values for construction workers are provided in Table 4-3.

4.3 Toxicity Assessment

In order to characterize theoretical carcinogenic and non-carcinogenic risks associated with all complete exposure pathways, toxicity information for each of the chemicals will be evaluated in accordance with Cal/EPA and USEPA guidance. The hierarchy for selecting toxicity criteria is as follows:

- California Office of Environmental Health Hazard Assessment Toxicity Criteria Database (Cal/EPA 2011);
- USEPA's Integrated Risk Information System (USEPA, 2011a);
- USEPA's Provisional Peer Review Toxicity Values (PPRTV); and
- USEPA's Health Effects Assessment Summary Tables (HEAST) (USEPA 1997b).

Where toxicity values for a given chemical were present in both the Cal/EPA and EPA databases, the most conservative value was selected and used. For each chemical, only those pathways were evaluated for which toxicological criteria are specifically available in the above references. The non-cancer toxicity criteria are provided in Table 4-4. Cancer toxicity criteria are in Table 4-5.

Table 4-4
Non-Cancer Toxicity Criteria
Chicago-Research Mine EE/CA
Lake County, California

Chemical	Inhalation - Chronic Value (mg/m^3)	Inhalation - Chronic Reference	Oral[1] - Chronic Value (mg/kg/day)	Oral[1] - Chronic Reference	Oral BIO	Dermal ABS[2]	% GI ABS	Dermal[1] Chronic Value
Non-Carcinogenic								
Inorganics								
Antimony	NA		4.0 E-4	USEPA 2011	1.0	NA		
Barium	5.0 E-4	USEPA 1997	2.0 E-1	USEPA 2011	1.0	NA		
Chromium	NA		1.5 E+0	USEPA 2011	1.0	NA		
Cobalt	6.0 E-6	PPRTV	3.0 E-4	PPRTV	1.0	NA		
Manganese	5.0 E-5	USEPA 2011	1.4E-01	USEPA 2011	1.0	NA		
Mercury	3.0 E-5	OEHHA 2011	3.0 E-4	USEPA 2011	1.0	NA		
Nickel	5.0 E-5	OEHHA 2011	2.0 E-2	USEPA 2011	1.0	NA		
Selenium	2.0E-02	OEHHA 2011	5.0E-03	USEPA 2011	1.0	NA		
Silver	NA		5.0E-03	USEPA 2011	1.0	NA		

NA = Not applicable. Data is either not applicable for this chemical (*e.g.*, not carcinogenic) or not available.
BIO = bioavailability
ABS = dermal absorption efficiency
IRIS = Integrated Risk Information System
OEHHA = Office of Environmental Health Hazard Assessment
PPRTV = Provisional Peer Reviewed Toxicity Values, as referenced in USEPA Regional Screening Level Tables (USEPA 2010).
ATSDR = Agency for Toxic Substances Disease Registry, as referenced in USEPA Regional Screening Level Tables (USEPA 2010).
(1) Cadmium required the adjustment of the oral toxicity criteria for the dermal soil exposure pathway (USEPA 2004e).
(2) Dermal absorption factors obtained from USEPA 2004e.

Table 4-5
Carcinogenic Toxicity Criteria
Chicago-Research Mine EE/CA
Lake County, California

Chemical	Inhalation Value $(ug/m^3)^{-1}$	Inhalation Reference	Oral Value $(mg/kg\text{-}day)^{-1}$	Oral Reference	Cancer Weight of Evidence	Oral BIO	Dermal ABS[1]
Carcinogenic							
Inorganics							
Antimony	NA		NA			1.0	NA
Barium	NA		NA			1.0	NA
Chromium	NA		NA			1.0	NA
Cobalt	9.0 E-3	PPRTV	NA			1.0	NA
Manganese	NA		NA			1.0	NA
Mercury	NA		NA			1.0	NA
Nickel	2.6 E-4	OEHHA, 2011	NA		D	1.0	NA
Selenium	NA		NA			1.0	NA
Silver	NA		NA			1.0	NA

NA = Not applicable. Data is either not applicable for this chemical (*i.e.*, not carcinogenic) or not available.
Cancer weight of evidence classification:
A - human carcinogen
B1/B2 - probable human carcinogen
D - not classifiable as to human carcinogenicity
BIO = bioavailability
ABS = dermal absorption efficiency
OEHHA = Office of Environmental Health Hazard Assessment
PPRTV = Provisional Peer Reviewed Toxicity Values, as referenced in USEPA Regional Screening Level Tables (USEPA 2010).
(1) Dermal absorption factors obtained from USEPA 2004e.

4.4 *Site-specific Risk-Based Screening Levels*

Site-specific RBSLs are chemical-specific concentrations in environmental media of concern (e.g., soil, surface water) that are protective of specific human receptors (e.g., construction worker).

The calculations of site-specific RBSLs for soil are presented in Tables 4-6 through 4-11. The calculations of site-specific RBSLs for surface water are presented in Tables 4-12 and 4-13. The site-specific RBSLs for the recreator are summarized in Table 4-14 and for the construction worker in Table 4-15.

Table 4-6
Adult Recreator, Noncancer – Risk Based Screening Levels for Soil
Chicago-Research Mine, EE/CA
Lake County, California

Chemical	Bioavailability	Dermal ABS	Oral RfD	Toxicity Ref.	Inhalation RfC	Toxicity Ref.	PEF	Oral RBSL	Dermal RBSL	Inhalation RBSL	All Pathways
Antimony	1	NA	4.0E-04	USEPA 2011	NA		1.4 E+9	7.3 E+3	NA	NA	7.3 E+3
Barium	1	NA	2.0E-01	USEPA 2011	5.0E-04	USEPA 1997	1.4 E+9	3.7 E+6	NA	5.3 E+7	3.4 E+6
Chromium	1	NA	1.5E+00	USEPA 2011	NA		1.4 E+9	2.7 E+7	NA	NA	2.7 E+7
Cobalt	1	NA	3.0E-04	PPRTV	6.0E-06	PPRTV	1.4 E+9	5.5 E+3	NA	6.4 E+5	5.4 E+3
Mercury	1	NA	3.0E-04	USEPA 2011	3.0E-05	OEHHA 2011	1.4 E+9	5.5 E+3	NA	3.2 E+6	5.5 E+3
Nickel	1	NA	2.0E-02	USEPA 2011	5.0E-05	OEHHA 2011	1.4 E+9	3.7 E+5	NA	5.3 E+6	3.4 E+5
Selenium	1	NA	5.0E-03	USEPA 2011	2.0E-02	OEHHA 2011	1.4 E+9	9.1 E+4	NA	2.1 E+9	9.1 E+4
Silver	1	NA	5.0E-03	USEPA 2011	NA		1.4 E+9	9.1 E+4	NA	NA	9.1 E+4

RfD = Reference dose (mg/kg-d)
RfC = Reference concentration (mg/m^3)
RBSLs = Risk based screening levels
PEF = Particulate emission factor (m^3/kg)
VF = Volatilization factor (m^3/kg)

Table 4-7
Adult Recreator, Cancer – Risk Based Screening Levels for Soil
Chicago-Research Mine, EE/CA
Lake County, California

Chemical	Dermal ABS	Oral CSF	Toxicity Ref.	Inhalation URF	Toxicity Ref.	PEF	Oral RBSL	Dermal RBSL	Inhalation RBSL	All Pathways
Antimony	NA	NA		NA		1.4 E+9	NA	NA	NA	NA
Barium	NA	NA		NA		1.4 E+9	NA	NA	NA	NA
Chromium	NA	NA		NA		1.4 E+9	NA	NA	NA	NA
Cobalt	NA	NA		9.0E-03	PPRTV	1.4 E+9	NA	NA	2.8 E+5	2.8 E+5
Mercury	NA	NA		NA		1.4 E+9	NA	NA	NA	NA
Nickel	NA	NA		2.6E-04	OEHHA, 2011	1.4 E+9	NA	NA	9.5 E+6	9.5 E+6
Selenium	NA	NA		NA		1.4 E+9	NA	NA	NA	NA
Silver	NA	NA		NA		1.4 E+9	NA	NA	NA	NA

RBSLs are mg/kg
CSF = Cancer slope factor (mg/kg-d)$^{-1}$
RBSLs = Risk based screening levels
PEF = Particulate emission factor (m^3/kg)
VF = Volatilization factor (m^3/kg)

Table 4-8
Adolescent Recreator, Noncancer - Risk Based Screening Levels for Soil
Chicago-Research Mine, EE/CA
Lake County, California

Chemical	Dermal ABS	Oral RfD	Toxicity Ref.	Inhalation RfC	Toxicity Ref.	PEF	Oral RBSL	Dermal RBSL	Inhalation RBSL	All Pathways
Antimony	NA	4.0E-04	USEPA 2011	NA		1.4 E+9	5.7 E+3	NA	NA	5.7 E+3
Barium	NA	2.0E-01	USEPA 2011	5.0E-04	USEPA 1997	1.4 E+9	2.9 E+6	NA	5.3 E+7	2.7 E+6
Chromium	NA	1.5E+00	USEPA 2011	NA		1.4 E+9	2.2 E+7	NA	NA	2.2 E+7
Cobalt	NA	3.0E-04	PPRTV	6.0E-06	PPRTV	1.4 E+9	4.3 E+3	NA	6.4 E+5	4.3 E+3
Mercury	NA	3.0E-04	USEPA 2011	3.0E-05	OEHHA 2011	1.4 E+9	4.3 E+3	NA	3.2 E+6	4.3 E+3
Nickel	NA	2.0E-02	USEPA 2011	5.0E-05	OEHHA 2011	1.4 E+9	2.9 E+5	NA	5.3 E+6	2.7 E+5
Selenium	NA	5.0E-03	USEPA 2011	2.0E-02	OEHHA 2011	1.4 E+9	7.2 E+4	NA	2.1 E+9	7.2 E+4
Silver	NA	5.0E-03	USEPA 2011	NA		1.4 E+9	7.2 E+4	NA	NA	7.2 E+4

RBSLs are mg/kg
RfD = Reference dose (mg/kg-d)
RfC = Reference concentration (mg/m^3)
RBSLs = Risk based screening levels
PEF = Particulate emission factor (m^3/kg)
VF = Volatilization factor (m^3/kg)

Table 4-9
Adolescent Recreator, Cancer - Risk Based Screening Levels for Soil
Chicago-Research Mine, EE/CA
Lake County, California

Chemical	Dermal ABS	Oral CSF	Toxicity Ref.	Inhalation URF	Toxicity Ref.	PEF	Oral RBSL	Dermal RBSL	Inhalation RBSL	All Pathways
Antimony	NA	NA		NA		1.4 E+9	NA	NA	NA	NA
Barium	NA	NA		NA		1.4 E+9	NA	NA	NA	NA
Chromium	NA	NA		NA		1.4 E+9	NA	NA	NA	NA
Cobalt	NA	NA		9.0E-03	PPRTV	1.4 E+9	NA	NA	6.9 E+5	6.9 E+5
Mercury	NA	NA		NA		1.4 E+9	NA	NA	NA	NA
Nickel	NA	NA		2.6E-04	OEHHA, 2011	1.4 E+9	NA	NA	2.4 E+7	2.4 E+7
Selenium	NA	NA		NA		1.4 E+9	NA	NA	NA	NA
Silver	NA	NA		NA		1.4 E+9	NA	NA	NA	NA

RBSLs are mg/kg
CSF = Cancer slope factor (mg/kg-d)$^{-1}$
URF = Unit risk factor (ug/m^3)$^{-1}$
PEF = Particulate emission factor (m^3/kg)
RBSLs = Risk based screening levels
VF = Volatilization factor (m^3/kg)

Table 4-10
Construction Worker, Noncancer - Risk Based Screening Levels for Soil
Chicago-Research Mine, EE/CA
Lake County, California

Chemical	Bioavailability	Dermal ABS	Oral RfD	Toxicity Ref.	Inhalation RfC	Toxicity Ref.	PEF	Oral RBSL	Dermal RBSL	Inhalation RBSL	All Pathways
Antimony	1	NA	4.0E-04	USEPA 2011	NA		9.4 E+5	1.2 E+2	NA	NA	1.2 E+2
Barium	1	NA	2.0E-01	USEPA 2011	5.0E-04	USEPA 1997	9.4 E+5	6.2 E+4	NA	2.1 E+3	2.0 E+3
Chromium	1	NA	1.5E+00	USEPA 2011	NA		9.4 E+5	4.6 E+5	NA	NA	4.6 E+5
Cobalt	1	NA	3.0E-04	PPRTV	6.0E-06	PPRTV	9.4 E+5	9.3 E+1	NA	2.5 E+1	2.0 E+1
Mercury	1	NA	3.0E-04	USEPA 2011	3.0E-05	OEHHA 2011	9.4 E+5	9.3 E+1	NA	1.2 E+2	5.3 E+1
Nickel	1	NA	2.0E-02	USEPA 2011	5.0E-05	OEHHA 2011	9.4 E+5	6.2 E+3	NA	2.1 E+2	2.0 E+2
Selenium	1	NA	5.0E-03	USEPA 2011	2.0E-02	OEHHA 2011	9.4 E+5	1.5 E+3	NA	8.3 E+4	1.5 E+3
Silver	1	NA	5.0E-03	USEPA 2011	NA		9.4 E+5	1.5 E+3	NA	NA	1.5 E+3

RBSLs are mg/kg
RfD = Reference dose (mg/kg-d)
RfC = Reference concentration (mg/m^3)
RBSLs = Risk based screening levels
PEF = Particulate emission factor (m^3/kg)
VF = Volatilization factor (m^3/kg)

Table 4-11
Construction Worker, Cancer – Risk Based Screening Levels for Soil
Chicago-Research Mine, EE/CA
Lake County, California

Chemical	Bioavailability	Dermal ABS	Oral CSF	Toxicity Ref.	Inhalation CSF	Toxicity Ref.	PEF	Oral RBSL	Dermal RBSL	Inhalation RBSL	All Pathways
Antimony	1	NA	NA		NA		9.4 E+5	NA	NA	NA	NA
Barium	1	NA	NA		NA		9.4 E+5	NA	NA	NA	NA
Chromium	1	NA	NA		NA		9.4 E+5	NA	NA	NA	NA
Cobalt	1	NA	NA		9.0 E-3	PPRTV	9.4 E+5	NA	NA	3.2 E+2	3.2 E+2
Mercury	1	NA	NA		NA		9.4 E+5	NA	NA	NA	NA
Nickel	1	NA	NA		2.6 E-4	OEHHA, 2011	9.4 E+5	NA	NA	1.1 E+4	1.1 E+4
Selenium	1	NA	NA		NA		9.4 E+5	NA	NA	NA	NA
Silver	1	NA	NA		NA		9.4 E+5	NA	NA	NA	NA

RBSLs are mg/kg
CSF = Cancer slope factor $(mg/kg\text{-}d)^{-1}$
RBSLs = Risk based screening levels
URF = Unit risk factor $(ug/m^3)^{-1}$
VF = Volatilization factor (m^3/kg)
PEF = Particulate emission factor (m^3/kg)

Table 4-12
Construction Worker, Noncancer – Risk Based Screening Levels for Surface Water
Chicago-Research Mine, EE/CA
Lake County, California

Chemical	Kp	Oral RfD	Toxicity Ref.	Oral RBSL	Dermal RBSL	All Pathways
Barium	1.0E-03	2.0E-01	USEPA 2011	2.0 E+3	1.9 E+4	1.8 E+3
Chromium	1.0E-03	1.5E+00	USEPA 2011	1.5 E+4	1.4 E+5	1.4 E+4
Manganese	1.0E-03	1.4E-01	USEPA 2011	1.4 E+3	1.3 E+4	1.3 E+3
Mercury	1.0E-03	3.0E-04	USEPA 2011	3.1 E+0	2.9 E+1	2.8 E+0
Nickel	2.0E-04	2.0E-02	USEPA 2011	2.0 E+2	9.6 E+3	2.0 E+2

RBSLs are mg/L
RfD = Reference dose (mg/kg-d)
Kp = Permeability coefficient (cm/hr)
RBSLs = Risk-based screening levels

Table 4-13
Construction Worker, Cancer – Risk Based Screening Levels for Surface Water
Chicago-Research Mine, EE/CA
Lake County, California

Chemical	Kp	Oral CSF	Toxicity Ref.	Oral RBSL	Dermal RBSL	All Pathways
Barium	1.0E-03	NA		NA	NA	NA
Chromium	1.0E-03	NA		NA	NA	NA
Manganese	1.0E-03	NA		NA	NA	NA
Mercury	1.0E-03	NA		NA	NA	NA
Nickel	2.0E-04	NA		NA	NA	NA

RBSLs are mg/L
CSF = Cancer slope factor $(mg/kg\text{-}d)^{-1}$
Kp = Permeability coefficient (cm/hr)
RBSLs = Risk-based screening levels

Table 4-14
Recreator Risk Based Screening Levels
Chicago-Research Mine, EE/CA
Lake County, California

Chemical	Background (mg/kg)	Soil RBSLs (mg/kg) All Pathways				
		Adult		Adolescent		Minimum
		Noncancer (HI = 1)	Cancer (10^{-5})	Noncancer (HI = 1)	Cancer (10^{-5})	
Antimony	2.6	7.3E+03	NA	5.7E+03	NA	5.7E+03
Arsenic	8.2	–	–	–	–	–
Barium	–	3.4E+06	NA	2.7E+06	NA	2.7E+06
Beryllium	ND	–	–	–	–	–
Cadmium	0.22	–	–	–	–	–
Chromium	148	2.7E+07	NA	2.2E+07	NA	2.2E+07
Cobalt	26	5.4E+03	2.8E+05	4.3E+03	6.9E+05	4.3E+03
Copper	32	–	–	–	–	–
Lead	33	–	–	–	–	–
Manganese	992	–	–	–	–	–
Mercury	15.7	5.5E+03	NA	4.3E+03	NA	4.3E+03
Molybdenum	ND	–	–	–	–	–
Nickel	221	3.4E+05	9.5E+06	2.7E+05	2.4E+07	2.7E+05
Selenium	–	9.1E+04	NA	7.2E+04	NA	7.2E+04
Silver	–	9.1E+04	NA	7.2E+04	NA	7.2E+04
Thallium	ND	–	–	–	–	–
Vanadium	27	–	–	–	–	–
Zinc	60	–	–	–	–	–

– = Not a COPC

Table 4-15
Construction Worker Risk Based Screening Levels Summary
Chicago Research Mine, EE/CA
Lake County, California

Chemical	Background (mg/kg)	All Pathways				
		Soil (mg/kg)			Surface Water (mg/L)	
		Noncancer (HI = 1)	Cancer (10^{-5})	Minimum	Noncancer (HI = 1)	Cancer (10^{-5})
Antimony	2.6	1.2E+02	NA	1.2E+02	–	–
Arsenic	8.2	–	–	–	–	–
Barium	–	2.0E+03	NA	2.0E+03	1.8E+03	NA
Beryllium	ND	–	–	–	–	–
Cadmium	0.22	–	–	–	–	–
Chromium	148	4.6E+05	NA	4.6E+05	1.4E+04	NA
Cobalt	26	2.0E+01	3.2E+02	2.0E+01	–	–
Copper	32	–	–	–	–	–
Lead	33	–	–	–	–	–
Manganese	992	–	–	–	1.8E+03	NA
Mercury	15.7	5.3E+01	NA	5.3E+01	2.8E+00	NA
Molybdenum	ND	–	–	–	–	–
Nickel	221	2.0E+02	1.1E+04	2.0E+02	2.0E+02	NA
Selenium	–	1.5E+03	NA	1.5E+03	–	–
Silver	–	1.5E+03	NA	1.5E+03	–	–
Thallium	ND	–	–	–	–	–
Vanadium	27	–	–	–	–	–
Zinc	60	–	–	–	–	–

– = Not a COPC

4.5 *Risk Characterization*

This section presents and discusses the estimated theoretical upper-bound carcinogenic risks and non-carcinogenic health effects for each receptor and medium for the site. As described in Section 4, exposures and their associated theoretical risks for direct contact with soils and surface water were estimated for all receptors for a number of pathways and scenarios. The calculated theoretical upper-bound ILCRs are compared to the acceptable threshold value of 1 x 10^{-5}. The non-carcinogenic health effects are compared to the acceptable threshold value HI of 1.0. These results for the COPCs at the site are summarized in Tables 4-16 through 4-18.

Table 4-16
Recreator Soil Risk Summary
Chicago-Research Mine, EE/CA
Lake County, California

Chemical	Concentration mg/kg	Adult				Adolescent			
		Soil RBSL		Hazards/Risks		Soil RBSL		Hazards/Risks	
		Noncancer (HI = 1)	Cancer (10^{-5})	Noncancer (HI)	Cancer (ILCR)	Noncancer (HI = 1)	Cancer (10^{-5})	Noncancer (HI)	Cancer (ILCR)
Antimony	2.6	7.3E+03	NA	3.6E-04	NA	5.7E+03	NA	4.6E-04	NA
Barium	29	3.4E+06	NA	8.5E-06	NA	2.7E+06	NA	1.1E-05	NA
Chromium	956	2.7E+07	NA	3.5E-05	NA	2.2E+07	NA	4.4E-05	NA
Cobalt	103	5.4E+03	2.8E+05	1.9E-02	4E-09	4.3E+03	6.9E+05	2.4E-02	1E-09
Mercury	5083	5.5E+03	NA	9.3E-01	NA	4.3E+03	NA	1.2E+00	NA
Nickel	2147	3.4E+05	9.5E+06	6.3E-03	2E-09	2.7E+05	2.4E+07	7.9E-03	9E-10
Selenium	1.0	9.1E+04	NA	1.1E-05	NA	7.2E+04	NA	1.4E-05	NA
Silver	0.14	9.1E+04	NA	1.5E-06	NA	7.2E+04	NA	2.0E-06	NA
Total				9.6E-01	6E-09			1.2E+00	2E-09

All values in mg/kg

Table 4-17
Construction Worker Soil Risk Summary
Chicago-Research Mine, EE/CA
Lake County, California

Chemical	Concentration	Soil RBSL (mg/kg)		Risks	
		Noncancer (HI = 1)	Cancer (10^{-5})	Noncancer (HI)	Cancer (ILCR)
Antimony	2.6	1.2E+02	NA	2.1E-02	NA
Barium	29	2.0E+03	NA	1.4E-02	NA
Chromium	956	4.6E+05	NA	2.1E-03	NA
Cobalt	103	2.0E+01	3.2E+02	5.3E+00	3.2E-06
Mercury	5083	5.3E+01	NA	9.6E+01	NA
Nickel	2147	2.0E+02	1.1E+04	1.1E+01	1.9E-06
Selenium	1.0	1.5E+03	NA	6.6E-04	NA
Silver	0.14	1.5E+03	NA	9.1E-05	NA
Total				112	5E-06

Table 4-18
Construction Worker Surface Water Risk Summary
Chicago-Research Mine, EE/CA
Lake County, California

Chemical	Concentration mg/L	Surface Water RBSL (mg/L)		Risks	
		Noncancer (HI = 1)	Cancer (10-5)	Noncancer (HI)	Cancer (ILCR)
Barium	0.060	1.8E+03	NA	3.2E-05	NA
Chromium	13	1.4E+04	NA	9.4E-04	NA
Manganese	13	1.3E+03	NA	1.0E-02	NA
Mercury	5.5	2.8E+00	NA	2.0E+00	NA
Nickel	30	2.0E+02	NA	1.5E-01	NA
Total				2.1	NA

4.5.1 *Recreators*

For adult and adolescent recreators, the ILCRs range from 6 x 10^{-9} (adults) to 2 x 10^{-9} (adolescents). These results are below the target risk of 1 x 10^{-5}. For non-cancer risks, the HIs range from 0.96 (adults) to 1.2 (adolescents). The HI for adolescents exceeds the threshold value of 1.0. The chemical contributing the greatest (>97%) to the estimated HI is mercury.

4.5.2 *Construction Workers*

For construction workers, the ILCR is 5 x 10^{-6}. These results are below the target risk of 1 x 10^{-5}. For non-cancer risks, the HI is 112 from soil exposures and 2.1 from surface water. The HI exceeds the threshold value of 1.0. The chemicals contributing the greatest to the estimated HI include cobalt, mercury, and nickel.

4.6 *Uncertainty Analysis*

All risk estimates contain some degree of uncertainty, which is the result of inherent uncertainty and variability in the exposure and toxicity value used to estimate risk. These uncertainties, which arise at every step of a risk assessment, are evaluated to provide an indication of the relative degree of overall uncertainty associated with a risk estimate. In this section, a qualitative discussion of the uncertainties associated with the HHERA for the site is presented.

Risk assessments are not intended to estimate actual risks to a receptor associated with exposure to chemicals in the environment. In fact, estimating actual risks is impossible because of the variability in the exposed or potentially exposed populations. Therefore, risk assessment is a means of estimating the probability that an adverse

health effect will occur in a receptor. The multitude of conservative assumptions used in risk assessments guard against underestimation of risks.

Risk estimates are calculated by combining site data, assumptions about individual receptor's exposures to impacted media, and toxicity data. The uncertainties in this HHERA can be grouped into four main categories that correspond to these steps:

- Uncertainties in environmental sampling and analysis
- Uncertainties in fate and transport modeling
- Uncertainties in assumptions concerning exposure scenarios
- Uncertainties in toxicity data and dose response extrapolations

4.6.1 *Environmental Sampling and Analysis*

The HHERA for the site was based on the sampling results obtained from investigations conducted at the subject property by several consultants and spanning a significant amount of time. Errors in sampling results can arise from the field sampling, laboratory analyses, and data analyses. Errors in laboratory analysis procedures are possible, although the impacts of these sorts of errors on the risk estimates are likely to be low.

The environmental sampling at the site is one source of uncertainty in the evaluation. It is equally possible that the sampling has missed areas containing significant impacts, or that samples have been located in only the most impacted portions of the site. Based on our understanding of mining processes wherein materials of interest (tailings and waste rock) were deposited on the surface of the Site, this risk assessment characterized risks associated with potential exposures to concentrations of chemicals in surface soils (to a maximum depth of 1.5 feet bgs) in areas known or suspected to be affected by Site-related activities (see Section 3.3.1). While it may be uncertain whether chemical residues may be present deeper than 1.5 feet, based on site history and properties of chemicals of interest, the data used in this risk assessment are considered appropriate as they are likely to characterize media that were most probably affected by Site-related activities.

4.6.2 *Fate and Transport Modeling*

The assumptions and uncertainties inherent in each of the fate and transport models applied to the site are discussed in each of the individual model sections. To the extent practical, models have incorporated actual site conditions. However, where site-specific data were unavailable, fate and transport models and their input parameters were selected such that modeled concentrations at a temporally or spatially remote receptor point would be overestimated.

4.6.3 *Human Health Risk Assessment*

Below is a discussion of the uncertainties inherent in each step of the risk assessment process.

Exposure Assessment. In this report, the exposure assessment is based on a number of assumptions with varying degrees of uncertainty (USEPA 1992). Uncertainties can arise from the types of exposures examined, the points of potential human exposure, the concentrations of chemicals at the points of human exposure, and the intake assumptions. These factors and the ways in which they contribute to the risk estimation are discussed below.

Types of Exposures Examined. The selection of exposure pathways is a process, often based on professional judgment, which attempts to identify the most probable potentially significant exposure scenarios. In a risk assessment, risks are sometimes not calculated for all of the exposure pathways that may occur, possibly causing some underestimation of risk. In this evaluation, potential risks were estimated for the recreator and construction worker exposure scenarios at the site. As previously noted in Section 2.4, this Site is accessible only through privately owned lands and is blocked from public access by a locked gate. An additional locked gate is at the entrance road onto the mine from public land, so vehicles are blocked from entry. Private individuals with gate access and their guests may visit the site as hunters or for curiosity regarding the mine. However, the number of such visitors is anticipated to be very low and visits by any one individual is anticipated to be infrequent and of short duration.

Risks to potential receptors were estimated for a number of different exposure pathways (e.g., inhalation of dust). While other exposure routes could exist for a particular site use, these exposures are expected to be lower than the risks associated with the pathways

considered. For example, direct contact with surface water was not evaluated for the recreator. While this is a potentially complete exposure pathway for the recreator, this pathway is considered insignificant relative to routes quantitatively evaluated for the following considerations:

- Intermittent presence of surface water in Dry Creek—surface water is present only during/just following storm events.
- A recreator is less likely to be recreating at the Site during a storm.
- Intermittent presence of water is considered unlikely to support attractive size classes of sportfish.
- Water/flows (when present) are unlikely to be an attractive draw for recreational purposes (e.g., inner tubing, swimming, fishing).

In addition, Dry Creek was not considered a source of drinking water under HHRA exposure scenarios (e.g., due to the potential presence of *Giardia lamblia*, widespread availability and use of bottled water). Incidental exposures to construction worker were quantitatively evaluated due to the potential scenarios that may require the construction worker to be in contact with surface water (e.g., removal of a fallen log).

Dry Creek flows generally towards other surface water resources such as Lake Berryessa that could act as potential drinking water sources. However, the flows of Dry Creek are intermittent/seasonal, and nearest significant surface drinking water source (Lake Berryessa) is over 40 miles downstream. Given the intermittent nature of the flows, any concentrations of metals (such as mercury) in flows would be significantly diluted before they reach a useable surface water body.

Determining meaningful background concentrations of mercury for the area would be difficult due to the lack of pre-mining environmental data for comparison to recent information. For example, elevated mercury near the Site may be due to long term erosion of cinnabar outcrops combined with more recent mining in the same area. Without pre-mining data, the timing and sources of the mercury will be difficult to ascertain. Limitations on determining background concentrations are important because regulatory decisions sometimes require mitigation to background levels. In addition, natural erosion of rock/soil and thermal/saline springs are long-term sources of mercury in the same areas where human activities have

occurred. Some potential background mercury sources may be negligible and others may account for the majority of mercury discharge.

Points of Human Exposure. Another source of uncertainty in the exposure assessment is the assumption made regarding the locations where individuals could be exposed to impacted media at the site. In this assessment, assumptions were made to indicate the locations where people could come into contact with impacted media. It was conservatively assumed that individuals will be exposed to a consistent chemical concentration in each media, based on the assumptions used in the assessment, regardless of where they are on the site. That is, fluctuations in chemical concentrations, either spatially or temporally, are not considered. This assumption was based on the fact that over long periods of time an individual would have random, yet equal, opportunity for exposure to any specific point on the property. Thus, over time, an individual would be exposed to average (mean) concentrations, estimated in this HHRA as the 95% UCL.

Intake Assumptions Used. The risks calculated depend largely on the assumptions used to calculate the rate of chemical intake. The uncertainties associated with the parameters used in this HHRA are described below.

Individuals can come into contact with chemicals via a number of different exposure routes. For the RME scenarios, standard default rates established by regulatory agencies were used for these exposures. These represent upper bound values and provide reasonable maximum activity assumptions. The use of these standard default and upper end values makes it likely that the risk was not underestimated, and may in fact be overestimated. For exposure scenarios based on professional judgment, exposure parameters (exposure frequency) were selected with the intent of providing conservative but reasonable estimates of exposure.

Toxicological Data and Dose Response Extrapolations. The availability and quality of toxicological data is another source of uncertainty in the HHRA. Although a large database of actual human dose-uptake data exists, confounding factors exist that cannot be accurately modeled. However, the models are considered adequately conservative to provide a degree of protection to account for these uncertainties.

Combinations of Sources of Uncertainty. Uncertainties from different sources are compounded in the HHRA. For example, if an individual's daily intake rate for a chemical is calculated to determine potential health risks, the uncertainties in the concentration measurements, exposure assumptions, and toxicities will all be expressed in the result. Therefore, by combining all upper bound numbers, the uncertainty is compounded, and the resulting risk estimate is generally above the 90th or 95th percentile, perhaps even greater than the 99th percentile, which begins to approach or exceed an exposure that can be considered probable (USEPA 1992).

4.7 Summary of Risk Estimates

The results for the recreator scenario are as follows:

- The ILCRs range from 6×10^{-9} (adults) to 2×10^{-9} (adolescents) and are less than the target risk of 1×10^{-5}.
- The HI for the adult recreator is 0.96 (adults) and does not exceed the threshold value of 1.0.
- The HI for the adolescent recreator is 1.2 (adolescents) and exceeds the threshold value of 1.0. The chemical contributing the greatest (>97%) to the estimated HI is mercury.

The results for the construction worker scenario are as follows:

- The ILCR is 5×10^{-6} and is less than the target risk of 1×10^{-5}.
- The HI is 112 for soil exposures and 2.1 for surface water exposures—both HIs exceed the threshold value of 1.0. The chemicals contributing the greatest to the estimated HI include cobalt, mercury, and nickel.

Based on these results, it is recommended that the EE/CA considered potential exposures to mine waste-related (Site-related) elevated concentrations of cobalt, mercury, and nickel in soils.

5.0 ECOLOGICAL RISK ASSESSMENT

The ecological risk assessment (ERA) process is used to systematically evaluate and organize data, assumptions, and uncertainties to help understand and predict the relationships between stressors and ecological effects in a way that is useful for environmental decision-making (USEPA 1998). The purpose of this ERA is to evaluate the potential for adverse ecological impacts that may occur as a result of potential exposures to Site-related chemicals to support the development of an engineering evaluation/cost analysis (EE/CA).

This ERA is consistent with BLM, state, and federal guidance (see Table 1-1).

5.1 Problem Formulation

Problem formulation establishes the scope of the ecological risk assessment, identifies the major factors to be considered, and ensures that ecological receptors likely to be exposed and exposure scenarios most likely to contribute to ecological risk are evaluated. Problem formulation consists of the following:

- Identify biotic receptors of concern (BROCs);
- Identify constituents of potential ecological concern (COPECs);
- Identify potentially complete exposure pathways; and
- Establish assessment endpoints.

5.1.1 Biotic Receptors of Concern

Consistent with guidance, biotic receptors of concern (BROCs) were identified and included the following:

- Biota of regulatory interest — species and habitat that are protected by federal and state regulations.[7]
- Biota of resource management interest — habitats/species that may support functional attributes (e.g., flood control).

---

[7] A RareFind query of the California Natural Diversity Data Base (CNDDB) was conducted to identify threatened and endangered species.

- Biota of commercial/recreational interest — species that have an economic or recreational value (e.g., crops, livestock, fisheries, hunted game).
- Biota of ecological interest — species that play an important role in mediating processes or interactions that affect the structure, function, or biodiversity of native habitats, communities, or ecosystems (e.g., keystone species).

Biota of Regulatory Interest. A query of the CNNDB found no federally or state listed threatened or endangered species at the Site (Table 5-1). Townsend's Big-eared bat (*Corynorhinus townsendii*), a Bureau of Land Management and California Department of Fish and Game Species of Concern, was noted in the CNDDB as occurring at the site. The mine shaft where the bats reportedly live was observed during a site visit and appeared to be in good condition as no collapses were noted. The Townsend's big-eared bat is a nocturnal flier and typically forages over large areas for flying insects (e.g., moths, beetles, flies).

Table 5-1.
List of Threatened and Endangered Species and CNPS-Listed Plants Observed
Within 1-Mile of the Site
Chicago-Research Mine EE/CA
Lake County, California

Common Name	Scientific Name	Other Status
Plants		
No State- or Federal-Listed Threatened, Endangered,or Candidate Species		
Freed's jewel-flower	*Streptanthus brachiatus ssp. hoffmanii*	BLM Sensitive CNPS 1B.2c
Snow Mountain buckwheat	*Eriogonum nervulosum*	BLM Sensitive USFS Sensitive CNPS 1B.2
Cobb Mountain lupine	*Lupinus sericatus*	BLM Sensitive CNPS 1B.2
Calistoga ceanothus	*Ceanothus divergens*	BLM Sensitive CNPS 1B.2
Amphibians		
No State- or Federal-Listed Threatened, Endangered,or Candidate Species		
Birds		
No State- or Federal-Listed Threatened, Endangered,or Candidate Species		
Mammals		
No State- or Federal-Listed Threatened, Endangered,or Candidate Species		
Townsend's big-eared bat	Corynorhinus townsendii	BLM Sensitive DFG Species of Special Concern USFS Sensitive

Source: St. Helena Quad, California Natural Diversity Database (CNDDB)

Notes:

CNPS = California Native Plant Society
DFG = California Department of Fish & Game
USFWS = U.S. Fish & Wildlife Service

According to the CNDDB, Freed's jewel flower, a BLM sensitive species and California Native Plant Society (CNPS) designated 1B.2 species, was reported at the Site. This plant was observed at several different areas in 1977, and was last observed in 1987, which was also the last time the record was updated. The plant is presumed extant (i.e. still there) according to the CNDDB. Freed's jewel flower is typically found on serpentine rock outcrops, primarily in geothermal development areas.

Biota of Commercial/Recreational/Resource Management Interest. Currently, the site does not support legal agriculture, rangeland/grazing, and/or hunting. Moreover, future plans for the site does not include commercial/recreational land uses. Since the headwaters for Dry Creek are close to the site, the ravine is steep, and flow in the creek is intermittent, the Site does not support good habitat for recreational fishing. Accordingly, no biota of commercial/recreational/resource management interest were identified for the Site.

Biota of Ecological Interest. Currently, the Site supports fairly undisturbed native plant communities. Habitat at the site is similar to the immediately surrounding areas and typical for the general region in which the site is located.

Based on the California Department of Fish and Game (CDFG) Wildlife Habitat Relationship System (WHRS), the following taxonomic groups (guilds) of ecological interest were observed/are anticipated to occur in intermittent freshwater and terrestrial habitats observed at the Site:

Freshwater Aquatic Habitat

- Aquatic plants
- Aquatic [water-column] invertebrates
- Sediment-dwelling invertebrates
- Fishes
- Amphibians

Terrestrial Habitat

- Terrestrial plants
- Soil invertebrates
- Reptiles

- Birds
- Mammals

Biota of ecological interest include members of these guilds that observed/anticipated to occur at the Site.

Representative Species. Given the number of species and the complexity of biological communities, all biota present at the Site can not be individually assessed. A key strategy of this ERA was to identify representative wildlife species for which potential risks are characterized.[8] To promote a protective ERA, representative species were selected for wildlife guilds to represent guild members based on:

- Taxonomic relatedness;
- Similar function/role (functional relatedness) in the ecosystem;
- Known or presumed similarities in exposure routes, including dietary routes;
- Known or presumed similarities in physiology and life history;
- Availability of wildlife exposure factor data (e.g., ingestion rates); and
- Biological characteristics that would tend to maximize estimates of exposure (e.g., small body size, small home or foraging ranges).

The results of risk analyses for these representative wildlife species are then used to infer the potential for adverse impacts to taxonomically and functionally related biota. The assumption is that potential risks to representative species are indicative of potential risks to other members of the guild.

No representative species were identified for amphibians and reptiles as no site-specific RBSLs were derived for these taxon given the lack of widely-recognized consensus-based exposure factors, reference toxicity values, and/or screening levels. The lack of a quantitative evaluation for amphibian and reptiles is the state-of-the-practice and are not unique to this ERA. Uncertainties associated with the lack of RBSLs for amphibians and reptiles are discussed in the uncertainty analysis.

---

8 No representative species are needed to assess potential risks to plants and invertebrates (aquatic/sediment-dwelling/soil) .

Accordingly, representative wildlife species for this ERA include:

- California quail
- Bewick's wren
- California vole
- Trowbridge's shrew

The California quail and California vole are herbivorous bird and mammal species. Bewick's wren and Trowbridge's shrew are insectivorous bird and mammal species. To bound potential risks, the California quail and California vole are assumed to have an idealized diet entirely comprised of plants and the Bewick's wren and Trowbridge's shrew are assumed to have an idealized diet entirely comprised of soil invertebrates.[9] Based on past ERAs, site-specific RBSLs for herbivorous and insectivorous birds and mammals are protective of carnivorous birds and mammals. Carnivorous wildlife are considered to have relatively small exposures to Site-related chemicals as compared to less mobile wildlife.[10]

5.1.2 *Chemicals of Potential Ecological Concern*

COPECs are constituents that may adversely affect biota. COPECs do not necessarily signify a risk; rather, they are merely constituents that have been identified for further examination.

Metals are naturally occurring in soils (see Section 3.2). Metals occurring at concentrations comparable to soil background concentrations were not considered Site-related and were not quantitatively evaluated further. Moreover, consistent with standard practice, calcium, iron, magnesium, potassium, and sodium were not quantitatively evaluated as these are essential nutrients.

A total of 34 soil samples were collected and analyzed for metals.[11] Naturally occurring background concentrations ranges for metals in soil were established using cumulative probability plots and used to identify Site-related metals (see Attachment B for further details).

---

9 Omnivores will have exposures/risks intermediate to idealized herbivores and insectivores.

10 Carnivorous wildlife generally have large home ranges/foraging areas and, on average, are considered to spend a small portion of their time on-site.

11 Barium and cobalt were analyzed in 16 of 34 soil samples.

Metals showing no inflections in these plots were considered to be consistent with naturally occurring concentrations and include:

- Arsenic
- Copper
- Cadmium
- Lead
- Vanadium

Metals identified to be elevated as compared to background concentrations were evaluated further in this ERA and include (Table 3-1):

- Antimony
- Barium
- Chromium
- Cobalt
- Manganese
- Mercury
- Nickel
- Silver
- Zinc

Beryllium, molybdenum, and thallium were not detected in any soil sample at the Site—selenium was only detected once. These metals were not evaluated further because detection limits were less than site-specific RBSLs.

Given the lack of background concentrations for metals in surface water and sediment, all metals detected in surface water and sediment were evaluated (Tables 3-2 and 3-3). If not detected, metals were not quantitatively evaluated.

5.1.3 *Potentially Complete Exposure Pathways*

Identification of complete exposure pathways focuses the ERA on those exposure scenarios that are most likely to pose a potential exposure/risk to BROCs. Potentially complete exposure pathways are defined as pathways having all the following attributes:

- A source and mechanism of constituent release
- A transport medium (e.g., soil, water, tissue)
- A point or area where receptors of concern may contact constituents

- An exposure route through which constituent uptake occurs (e.g., ingestion)

Exposure pathways considered in this ERA include:

Freshwater Aquatic BROCs

- Uptake from water by aquatic biota (i.e., aquatic plants, water-column invertebrates, fishes)
- Uptake from sediments by sediment-dwelling invertebrates

Terrestrial BROCs

- Root uptake by plants
- Uptake by soil invertebrates
- Incidental ingestion of soil by wildlife
- Ingestion of tainted food by wildlife (i.e., foodchain exposure)

An exposure pathway conceptual site model (CSM) for the Site is shown in Figure 5-1 and is intended to identify, to the best of our current knowledge, sources, mechanisms of transport, media of concern, and exposure routes.

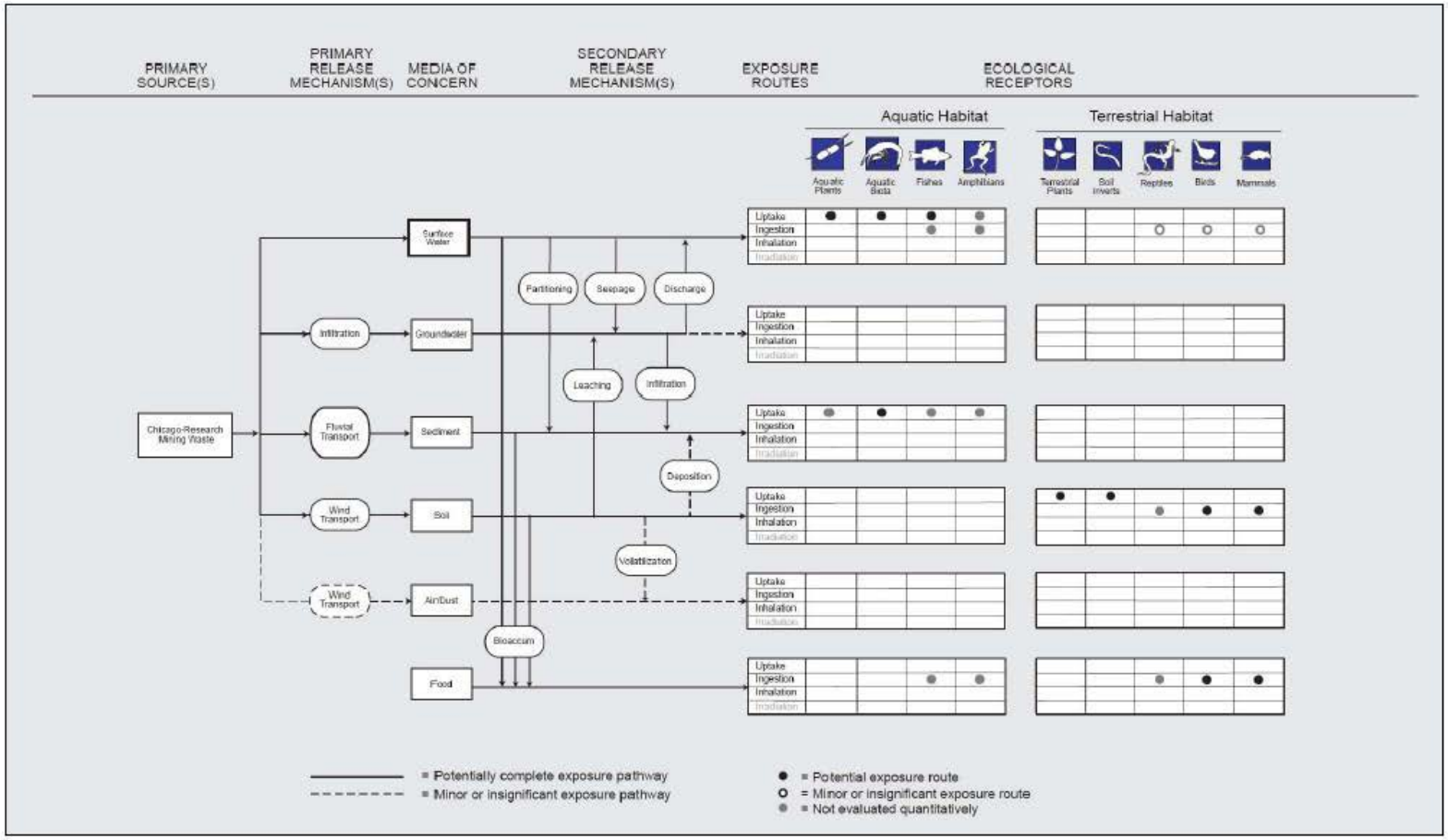
Inhalation and dermal contact are not quantitatively evaluated in this ERA. Inhalation is considered to be an incomplete exposure pathway and is not quantitatively evaluated in this ERA given:

- The lack of volatile constituents, with the possible exception of mercury[12]; and
- Vapors are rapidly dispersed in aboveground air following volatilization from soil or surface water, resulting in very low exposure point concentrations of volatile constituents in aboveground air (USEPA 1998).

Dermal absorption is considered to be an insignificant exposure pathway because:

---

12 Given the lack of widely recognized, agency-approved inhalation ESL for mercury, this pathway was not quantitatively evaluated.



Chicago-Research Mine EE/CA
Lake County, California

Figure 5-1

ERA Conceptual Site Model

ERM

Prepared by	Date	Job No. 0127571
MFS	10/12/11	FILE: Fig 5-1 ERA CSM 2BLM.doc

- For the most part, the available studies are confined to laboratory studies on rodents whose fur has been shaved and the contaminant is directly applied to the shaved, exposed skin—this type of exposure rarely occurs in the environment; and
- Results of exposure studies indicate that exposures due to dermal absorption are insignificant compared to ingestion for terrestrial receptors (Peterle 1991).

This approach is consistent with ERAGS (USEPA 1997), which states that the ingestion route is most important for terrestrial animals. While the dermal contact pathways may be potentially complete for terrestrial wildlife species, it is considered to be less significant relative to other routes of exposure and "…although other exposure routes can be important, more assumptions are needed to estimate exposure levels for these routes, and the results are less certain…" (USEPA 2005).

Uncertainties associated with the omission of these exposure routes are discussed in the uncertainty analysis of the ERA.

5.1.4 *Assessment Endpoints*

Assessment endpoints are "…explicit expressions of the actual environmental value that is to be protected…" (USEPA 1998). An assessment endpoint consists of:

- A specific ecological entity (e.g., insectivorous bird populations)
- A specific characteristic of the entity that is important to protect and that is potentially at risk (e.g., continued persistence of the populations)

Assessment endpoints link the ERA to management concerns to ensure that the ERA provides information pertinent to decision-making.

Measurement endpoints are measurable responses due to exposures to COPECs that are related and are used to evaluate the assessment endpoint (USEPA 1998). For this ERA, site-specific RBSLs are used as measurement endpoints for evaluating assessment endpoints.

Assessment and measurement endpoints for the Site are listed in Table 5-2.

Table 5-2.
Assessment and Measurement Endpoints for the Site
Chicago-Research Mine EE/CA
Lake County, California

Assessment Endpoint	Measurement Endpoints
Freshwater Aquatic	
Continued persistence of aquatic plant community	CA Toxics Rule water quality standards
Continued persistence of aquatic invertebrate community	CA Toxics Rule water quality standards
Continued persistence of sediment-dwelling biota	Sediment quality guidelines
Continued persistence of fish populations (if present)	CA Toxics Rule water quality standards
Continued persistence of amphibian populations (if present)	NA
Terrestrial	
Continued persistence of plant community	EcoSSLs for plants
Continued persistence of soil invertebrate community	EcoSSLs for soil invertebrates
Continued persistence of reptile populations	NA
Continued persistence of bird populations	Site-specific RBSLs for the California quail and Bewick's wren
Continued persistence of mammal populations	Site-specific RBSLs for the California vole and Trowbridge shrew

Notes:

NA = not assessed quantitatively

Potentially exposed reptile and amphibian populations were identified as assessment endpoints for this ERA, but could not be quantitatively evaluated. The lack of widely recognized, consensus toxicity benchmarks for amphibians and reptiles is characteristic of the state-of-the-practice for ERAs and is not unique to this ERA. The lack of a quantitative evaluation is identified as a potential data gap and discussed in Section 5.2.2 of this ERA.

Based on past ERAs, RBSLs for herbivorous and insectivorous birds and mammals are protective of carnivorous birds and mammals

5.2 *Site-Specific Risk-Based Screening Levels*

RBSLs are constituent-specific concentrations in media of concern (e.g., soil, surface water, sediment) that are protective of biota of concern and were used to characterize potential ecological risks. RBSLs for plants, soil invertebrates, aquatic biota, and sediment-dwelling invertebrates were obtained directly from the following widely recognized sources that are commonly recommended by regulatory agencies:

- Plants/soil invertebrates – USEPA (2005-2007) ecological soil screening levels
- Aquatic biota – USEPA (2000) California Toxics Rule water quality standards
- Sediment-dwelling invertebrates – MacDonald et al. 2000 sediment quality guidelines as listed in NOAA SQUiRT (2009)

Site-specific RBSLs for wildlife (birds and mammals) were, for the most part, derived for representative wildlife species using bioaccumulation models and toxicity reference values (TRVs) provided in USEPA's constituent-specific ecological soil screening level reports.[13] RBSLs for birds and mammals are considered site-specific

[13] see Section 6.0, Literature Cited, USEPA (2005b-k, 2006, 2007a-e)

because they were developed for representative species identified specifically for the Site and were derived using, in part, on site-specific information (e.g., site area).

The calculation of site-specific RBSLs are presented in the following tables:

- California quail (Table 5-3)
- California vole (Table 5-4)
- Bewick's wren (Table 5-5)
- Trowbridge's shrew (Table 5-6)

The site-specific RBSLs are summarized in Table 5-7.

Table 5-3
California Quail - Risk Based Screening Level Calculation
Chicago-Research Mine EE/CA
Lake County, California

Soil COPEC	Target[1] Hazard Quotient	TRV (mg/kg-day)	Total Dose (mg/kg-day)	Dose[2] Incidental Soil Ingestion (mg/kg-day)	Dose[2] Plant Ingestion (mg/kg-day)	Food EPC Plant (mg/kg)	Bioaccumulation Model[3] Soil-Plant BAF	Bioaccumulation Model[3] B0	Bioaccumulation Model[3] B1	RBSL Soil (mg/kg)
Antimony	–	–	0	NA	NA	NA	–	-3.233	0.938	NA
Barium	–	–	0	NA	NA	NA	0.15600	–	–	NA
Chromium	1.0	2.7	3	2	0.8	10.196	0.04100	–	–	249
Cobalt	1.0	7.6	8	7	0.6	7.071	0.00745	–	–	949
Manganese	1.0	179	179	97	82.2	1030	0.07920	–	–	13000
Mercury	1.0	0.90	1	0	0.4	5.397	0.08540	–	–	63
Nickel	1.0	6.7	7	5	1.2	15.2	–	-2.223	0.748	741
Silver	1.0	2.0	2	2	0.3	3.311	0.01400	–	–	236
Zinc	1.0	66.1	66	29	37.4	468.9	–	1.575	0.554	3862

COPEC - Chemical of Potential Ecological Concern
EPC - Exposure Point Concentration
BAF - Bioaccumulation Factor
TRV - Toxicity Reference Value; See Appendix A
RBSL - Risk Based Screening Level
1 -Hazard Quotient = Total Dose/TRV
2 -See text for dose calculations. Indicator receptor life history parameters are provided in Appendix A
3 -Food EPCs calculated using a point estimate bioaccumulation factor or log-linear regression model (see Appendix A for discussion).

Table 5-4
California Vole - Risk Based Screening Level Calculation
Chicago–Research Mine EE/CA
Lake County, California

Soil COPEC	Target[1] Hazard Quotient	TRV (mg/kg-day)	Total Dose (mg/kg-day)	Dose[2] Incidental Soil Ingestion (mg/kg-day)	Dose[2] Plant Ingestion (mg/kg-day)	Food EPC Plant (mg/kg)	Bioaccumulation Model[3] BAF	B0	B1	RBSL Soil (mg/kg)
Antimony	1.0	0.059	0	0	0.0	0.1	–	-3.233	0.938	2.9
Barium	1.0	51.8	52	7	44.9	136.040	0.156	–	–	872
Chromium	1.0	2.4	2	1	1.5	4.587	0.041	–	–	112
Cobalt	1.0	7.3	7	6	1.7	5.262	0.00745	–	–	706
Manganese	1.0	51.5	51.5	12	39.5	119.750	0.0792	–	–	1512
Mercury	1.0	2.9	3	1	2.2	6.765	0.0854	–	–	79
Nickel	1.0	1.7	2	1	1.0	3.1	–	-2.223	0.748	87
Silver	1.0	6.0	6	4	2.2	6.721	0.014	–	–	480
Zinc	1.0	75.4	75	7	68.4	207.3	–	1.575	0.554	885

COPEC - Chemical of Potential Ecological Concern
EPC - Exposure Point Concentration
BAF - Bioaccumulation Factor
TRV - Toxicity Reference Value; See Appendix A
RBSL - Risk Based Screening Level
1 -Hazard Quotient = Total Dose/TRV
2 -See text for dose calculations. Indicator receptor life history parameters are provided in Appendix A
3 -Food EPCs calculated using a point estimate bioaccumulation factor or log-linear regression model (see Appendix A for discussion).

Table 5-5
Bewick's Wren - Risk-Based Screening Level Calculation
Chicago-Research Mine, EE/CA
Lake County, California

Soil COPEC	Target[1] Hazard Quotient	TRV (mg/kg-day)	Total Dose (mg/kg-day)	Dose[2] Incidental Soil Ingestion (mg/kg-day)	Dose[2] Invertebrate Ingestion (mg/kg-day)	Food EPC Inverts (mg/kg)	Bioaccumulation Model[3] Soil-Invert BAF	B0	B1	RBSL Soil (mg/kg)
Antimony	–	–	0	NA	–	NA	1.000	–	–	NA
Barium	–	–	0	NA	–	NA	0.091	–	–	NA
Chromium	1.0	2.7	2.7	0.62	2.0	2.1	0.306	–	–	6.7
Cobalt	1.0	7.6	7.6	3.3	4.3	4.4	0.122	–	–	36
Manganese	1.0	179	179	120	58.8	59.4	–	-0.809	0.682	1305
Mercury	1.0	0.90	0.90	0.059	0.84	0.85	1.32	–	–	0.64
Nickel	1.0	6.7	6.7	0.54	6.2	6.2	1.059	–	–	5.9
Silver	1.0	2.0	2.0	0.088	1.9	2.0	2.045	–	–	0.95
Zinc	1.0	66.1	66	0	66.1	66.7	–	4.449	0.328	0.47

Notes:
COPEC - Chemical of Potential Ecological Concern
EPC - Exposure Point Concentration
BAF - Bioaccumulation Factor
TRV - Toxicity Reference Value; See Appendix A
RBSL - Risk Based Screening Level
1 -Hazard Quotient = Total Dose/TRV
2 -See text for dose calculations. Indicator receptor life history parameters are provided in Appendix A
3 -Food EPCs calculated using a point estimate bioaccumulation factor or log-linear regression model (see Appendix A for discussion).

Table 5-6
Trowbridge's Shrew - Risk-Based Cleanup Level Calculation
Chicago-Research Mine, EE/CA
Lake County, California

Soil COPEC	Target[1] Hazard Quotient	TRV (mg/kg-day)	Total Dose (mg/kg-day)	Dose[2] Incidental Soil Ingestion (mg/kg-day)	Dose[2] Invertebrate Ingestion (mg/kg-day)	Food EPC Inverts (mg/kg)	Bioaccumulation Model[3] Soil-Invert BAF	B0	B1	RBSL Soil (mg/kg)
Antimony	1.0	0.059	0.059	0.0042	0.055	0.088	1.000	–	–	0.088
Barium	1.0	51.8	52	24	28.1	45	0.091	–	–	497
Chromium	1.0	2.4	2.4	0.48	1.9	3.1	0.306	–	–	10
Cobalt	1.0	7.3	7.3	2.8	4.5	7.2	0.122	–	–	59
Manganese	1.0	51.5	51.5	29.4	22.1	35.6	–	-0.809	0.682	617
Mercury	1.0	2.9	2.9	0.16	2.7	4.4	1.32	–	–	3.3
Nickel	1.0	1.7	1.7	0.12	1.6	2.6	1.059	–	–	2.4
Selenium	1.0	0.143	0.14	0.0067	0.14	0.22	–	-0.075	0.733	0.14
Silver	1.0	6.0	6.0	0.22	5.8	9.4	2.045	–	–	4.6
Zinc	1.0	75.4	75.4	0.1	75.2	121.3	–	4.449	0.328	2.9

Notes:

COPEC - Chemical of Potential Ecological Concern
EPC - Exposure Point Concentration
BAF - Bioaccumulation Factor
TRV - Toxicity Reference Value; See Appendix A
RBSL - Risk Based Screening Level
1 -Hazard Quotient = Total Dose/TRV
2 -See text for dose calculations. Indicator receptor life history parameters are provided in Appendix A
3 -Food EPCs calculated using a point estimate bioaccumulation factor or log-linear regression model (see Appendix A for discussion).

Table 5-7
Site Specific Soil Risk Based Screening Level Summary
Chicago-Research Mine, EE/CA
Lake County, California

COPEC	Surface Water Aquatic Biota RBSL (mg/L)	SEDIMENT Sediment Biota RBSL TEC (mg/kg)	SEDIMENT Sediment Biota RBSL PEC (mg/kg)	SOIL Background Upper Bound (mg/kg)	SOIL Plant RBSL (mg/kg)	SOIL Soil Invert RBSL (mg/kg)	SOIL Quail RBSL (mg/kg)	SOIL Vole RBSL (mg/kg)	SOIL Wren RBSL (mg/kg)	SOIL Shrew RBSL (mg/kg)
Antimony	NE	–	–	2.6	–	78	NA	2.5	NA	0.088
Arsenic	NE	NE	NE	NC	NC	NC	NC	NC	NC	NC
Barium						330	NA	872	NA	497
Beryllium	NE	NE	NE	NC	NC	NC	NC	NC	NC	NC
Cadmium	NE	0.99	5.0	–	NC	NC	NC	NC	NC	NC
Chromium[a]	0.18	43	111	148	–	–	249	112	6.9	10
Cobalt	NE			26	13		919	906	36	59
Copper	NE	32	149	NC	NC	NC	NC	NC	NC	NC
Lead	NE	36	128	NC	NC	NC	NC	NC	NC	NC
Manganese	NE	–	–	992	–	–	13000	1512	1305	617
Mercury	0.0013	0.10	1.1	15.7	0.30	0.10	63	79	0.6431	3.3
Molybdenum	NE	NE	NE	NC	NC	NC	NC	NC	NC	NC
Nickel	0.052	23	49	221	30	200	741	07	5.9	2.4
Selenium	NE	NE	NE	NC	NC	NC	NC	NC	NC	NC
Silver	NE	–	–	–	560	–	236	400	0.95	4.6
Thallium	NE	NE	NE	NC	NC	NC	NC	NC	NC	NC
Vanadium	NE	–	–	NC	NC	NC	NC	NC	NC	NC
Zinc	NE	121	459	60	160	120	3062	005	0.47	2.9

Note

NC - Not a COPEC
NE - Not evaluated because constituent not detected in any sample
– - RBSL not available/not calculated
COPEC - Chemical of Potential Ecological Concern
RBSL - Risk Based Screening Level
[a] Chromium: RBSL for aquatic biota is based on CrIII water quality standard and is hardness-dependent–assumed hardness of 100 mg/[$CaCO_3$]/L
TEC = threshold effect concentration – concentration below which impacts are not anticipated
PEC = probable effect concentration – concentration above which impacts are anticipated

5.3 *Risk Characterization*

Risk characterization integrates the results of exposure and effects assessments to evaluate the likelihood of adverse ecological impacts associated with exposure to COPECs (USEPA 1992). The risk characterization will present:

- Comparisons of exposures to site-specific RBSLs
- Identify and discuss potential consequences of sources of uncertainty

As discussed in Section 1. 1, RBSLs are compared to EPCs (i.e., concentrations characterizing exposures at the Site) to determine whether specific metals pose a potential risk to specific receptors. For the purposes of this ERA, a hazard quotient (HQ) is defined as:

$$HQ = \frac{EPC}{\text{RBSL or Background}}$$

(whichever is greater)

A hazard index (HI) is defined as:

$$HI = \sum_{i=1}^{n} HQ_i \quad \text{… where } n \text{ is number of COPECs}$$

A HI less than one (HI < 1) indicates negligible risk. Conversely, a HI greater than or equal to one (HQ ≥ 1) indicates that further investigation/assessment or implementation of a risk management action is warranted.

EPCs, background, site-specific RBSLs, HQs, and HIs used to characterize potential ecological risks are provided in Tables 5-8, 5-9, and 5-10.

Table 5-8
Soil -- Comparison to Site-Specific RBSLs
Chicago-Research Mine, EE/CA
Lake County, California

Soil COPEC	EPC	Background (upper bound)	Terrestrial Biota											
			Plant		Soil Invertebrate		California Quail		California Vole		Bewick's Wren		Trowbridge's Shrew	
			RBSL	HQ	RBSL	HQ	RBSL	HQ	RBSL	HQ	RBSL	HQ	RBSL	HQ
Antimony	2.6	2.6	--	1.0	78	0.03	--	1.0	2.9	0.9	--	1.0	0.088	1.0
Barium	29	--	--	--	330	0.09	--	--	872	0.03	--	--	497	0.06
Chromium	956	148	--	6.5	--	6.5	249	3.8	112	6.5	6.7	6.5	10	6.5
Cobalt	103	26	13	4.0	--	4.0	949	0.1	706	0.1	36	2.9	59	1.7
Manganese	1185	992	--	1.2	--	1.2	13000	0.09	1512	0.8	1305	0.9	617	1.2
Mercury	5083	15.7	0.30	324	0.10	324	63	80	79	64	0.64	324	3.3	324
Nickel	2147	221	38	9.7	280	7.7	741	2.9	87	9.7	5.9	9.7	2.4	9.7
Silver	0.14	--	560	0.0003	--	--	236	0.0006	480	0.0003	0.95	0.1	4.6	0.03
Zinc	42	60	160	0.26	120	0.4	3862	0.01	885	0.05	0.70	0.70	2.9	0.7
HI				346		343		88		82		345		345

Note:

All units are in mg/Kg (milligrams per kilograms)

-- = RBSL not available/not calculated

COPEC = Constituent of potential ecological concern

EPC = Exposure point concentration, max detect or 95% UCL, whichever is minimum

ND = Non-detect, EPC not calculated for lack of detected concentration

RBSL = Risk based screening level

= HQ or HI greater than 1

Table 5-9
Surface Water — Comparison to Site-Specific RBSLs
Chicago-Research Mine, EE/CA
Lake County, California

Surface Water	EPC	Aquatic Biota	
		RBSL	HQ
Antimony	ND	–	
Arsenic	ND	0.15	
Barium	0.060	–	
Beryllium	ND	–	
Cadmium	ND	0.0022	
Chromium*	13	0.18	72
Cobalt	ND	–	
Copper	ND	0.0090	
Iron	54	–	
Lead	ND	0.0025	
Magnesium	97	–	
Manganese	13	–	
Mercury**	5.5	0.0013	4231
Molybdenum	ND	–	
Nickel	30	0.052	577
Selenium	ND	0.0050	
Silver	ND	–	
Thallium	ND	–	
Vanadium	ND	–	
Zinc	ND	0.12	
HI			4880

Note

All units are in mg/L (milligrams per liter)

– = RBSL not available

COPEC = Constituent of potential ecological concern

EPC = Exposure point concentration, max detect or 95% UCL, whichever is less

ND = Non-detect, EPC not calculated for lack of detected concentration

RBSL = Risk based screening level

* Chromium: RBSL for aquatic biota is based on CrIII water quality standard and is hardness-dependent—assumed hardness of 100 mg[CaCO3]/L

** Mercury: RBSL for aquatic biota is based on Tier II Secondary Chronic Value (SVC) (Suter & Tsao 1996)

= HQ or HI greater than 1

Table 5-10
Sediment – Comparison to Site-Specific RBSLs
Chicago-Research Mine, EE/CA
Lake County, California

Sediments	EPC	RBSL			
		TEC	TEC HQ	PEC	PEC HQ
Antimony	0.4	–		–	
Arsenic	ND	9.97		33	
Barium	30	–		–	
Beryllium	ND	–		–	
Cadmium	0.02	0.99	0.02	5.0	0.004
Chromium	784	43	18	111	7.1
Cobalt	43	–		–	
Copper	17	31.6	0.5	149	0.1
Iron	52000	–		–	
Lead	2.6	35.8	0.07	128	0.02
Magnesium	–	–		–	
Manganese	710	–		–	
Mercury	3.4	0.18	19	1.1	3.2
Molybdenum	ND	–		–	
Nickel	2420	23	107	49	50
Selenium	ND	–		–	
Silver	0.12	–		–	
Thallium	ND	–		–	
Vanadium	16	–		–	
Zinc	36	121	0.3	459	0.08
HI					60

Note:
All units are in mg/Kg (milligrams per kilograms)
– = RBSL not available
COPEC = Constituent of potential ecological concern
EPC = Exposure point concentration, max detect or 95% UCL, whichever is minimum
ND = Non-detect, EPC not calculated for lack of detected concentration
RBSL = Risk based screening level
TEC = threshold effect concentration – concentration below which impacts are not anticipated
PEC = probable effect concentration – concentration above which impacts are anticipated
= HQ or HI greater than 1

5.3.1 *Comparisons to Site-Specific Risk-Based Screening Levels*

To determine whether there exists a potential for adverse ecological impacts (ecological risks), exposures point concentrations (EPCs) for the Site are compared to site-specific RBSLs. The EPC is a measure of exposure at the Site. In accordance with guidance (USEPA 1989), the EPC is defined as the 95% UCL or the maximum detected concentration, whichever is less.

Plant Community. EPCs, background concentrations, site-specific RBSLs that are protective of plant communities, HQs, and the HI are

presented in Table 5-8. For plant communities at the Site, the HI is 346 and the following five metals had HQs greater than one:

- Chromium
- Cobalt
- Manganese
- Mercury
- Nickel

Mercury represents over 90% of the HI (HQ_{Hg} = 324). None of the remaining four metals had an HQ greater than 10.

An HI over 340 indicates that further investigation/assessment or implementation of a risk management action is warranted (Table 5-8). Table 1 of the EE/CA identifies remedial actions for the Site.

Soil Invertebrate Community. EPCs, background concentrations, site-specific RBSLs that are protective of soil invertebrate communities, HQs, and the HI are presented in Table 5-8. For soil invertebrate communities at the Site, the HI is 343 and the following five metals had HQs greater than one:

- Chromium
- Cobalt
- Manganese
- Mercury
- Nickel

Mercury represents over 90% of the HI (HQ_{Hg} = 324). None of the remaining four metals had an HQ greater than 10.

An HI over 340 indicates that further investigation/assessment or implementation of a risk management action is warranted (Table 5-8). Table 1 of the EE/CA identifies remedial actions for the Site.

Herbivorous and Insectivorous Bird Populations. EPCs, background concentrations, site-specific RBSLs that are protective of herbivorous and insectivorous birds, HQs, and HIs are presented in Table 5-8. For herbivorous bird populations (as inferred from the risk analyses for the California quail) at the Site, the HI is 88; while for insectivorous bird populations (as inferred from the risk analyses for the Bewick's wren) at the Site, the HI is 345. The following four metals had HQs greater than one:

- Chromium
- Cobalt (insectivorous birds only)
- Mercury
- Nickel

Mercury represents over 90% of the HIs for both herbivorous and insectivorous birds (HQ_{Hg} = 80 and 324, respectively). None of the remaining metals had an HQ greater than 10.

HIs greater than 80 and greater than 300 indicate that further investigation/assessment or implementation of a risk management action is warranted (Table 5-8). Table 1 of the EE/CA identifies remedial actions for the Site.

Herbivorous and Insectivorous Mammal Populations. EPCs, background concentrations, site-specific RBSLs that are protective of herbivorous and insectivorous mammals, HQs, and HIs are presented in Table 5-8. For herbivorous mammal populations (as inferred from the risk analyses for the California vole) at the Site, the HI is 82; while for insectivorous mammal populations (as inferred from the risk analyses for the Trowbridge's shrew) at the Site, the HI is 345. The following five metals had HQs greater than one:

- Chromium
- Cobalt
- Manganese
- Mercury
- Nickel

Mercury represents nearly 80% (HQ_{Hg} = 64) and over 90% (HQ_{Hg} = 324) of the HIs for herbivorous and insectivorous mammals, respectively. None of the remaining metals had an HQ greater than 10.

HIs greater than 80 and greater than 340 indicate that further investigation/assessment or implementation of a risk management action is warranted (Table 5-8). Table 1 of the EE/CA identifies remedial actions for the Site.

Aquatic Biota Community (aquatic plants, water-column invertebrates, fishes). The ephemeral nature of flows in Dry Creek is considered (a) to provide marginal freshwater aquatic habitat to support a persistent aquatic biota community and fish populations and (b) impart intermittent exposures to dissolved metals in surface water.

Nonetheless to ensure a protective assessment, EPCs, background concentrations, site-specific RBSLs that are protective of aquatic biota[14] (i.e., aquatic plants, water-column invertebrates, fishes), HQs, and the HI are presented in Table 5-9. For aquatic biota communities at the Site, the HI is 4880 and the following metals had HQs greater than one:

- Chromium
- Nickel
- Mercury

Mercury represents over 85% (HQ_{Hg} = 4231) of the HI for aquatic biota communities. HQs for both chromium and nickel are greater than 10.

An HI of 4880 indicates that further investigation/ assessment or implementation of a risk management action is warranted (Table 5-9). Table 1 of the EE/CA identifies remedial actions for the Site.

Sediment-Dwelling Biota Community (macroinvertebrates). The ephemeral nature of flows in Dry Creek is considered to provide marginal freshwater aquatic habitat to support a persistent sediment-dwelling biota community at the Site. Nonetheless to ensure a protective assessment, EPCs, background concentrations, site-specific RBSLs that are protective of sediment-dwelling biota[15] (i.e., benthic macroinvertebrates), HQs, and HI are presented in Table 5-10. For sediment-dwelling biota communities at the Site, the HI is 60 and the following metals had PEC HQs greater than one:

- Chromium
- Nickel
- Mercury

Nickel represents over 80% (HQ_{Hg} = 50) of the HI for sediment-dwelling biota communities. PEC HQs for both chromium and mercury are less than 10. PEC HQs greater than indicate that adverse impacts are anticipated (MacDonald et al. 2000)

---

14 RBSLs that are protective of aquatic biota are also protective of wildlife that may drink surface water.

15 RBSLs that are protective of sediment-dwelling biota are considered to be protective of wildlife that may incidentally ingest sediment while feeding or drinking.

An HI of 60 indicates that further investigation/assessment or implementation of a risk management action is warranted (Table 5-10). Given the magnitude of the HQs and HI, the limited sediment data to evaluate potential exposures/risks to sediment-dwelling biota is unlikely to effect conclusions reached in this ERA. Table 1 of the EE/CA identifies remedial actions for the Site.

5.4 *Uncertainty Analysis*

The uncertainty analysis identifies the key assumptions and data gaps associated with the analyses performed. The approach used for the Site is intended to mitigate sources of uncertainties resulting in underestimation of risks. For example, to ensure that risk characterizations are protective:

- Constituent concentrations in media are based on samples collected from known or suspected impacted areas at the Site.
- Exposure assumed that wildlife does not avoid contaminated areas or foods.
- RBSLs were obtained from widely recognized, consensus sources—these sources were often prepared by federal or state regulatory agencies

To further ensure that risk characterizations are presented in proper context, potential uncertainties and their likely consequence on the conclusions of ERA are discussed. In addition to uncertainties identified and discussed in Section 4.6, uncertainties related to the ERA are discussed below.

5.4.1 *Exposure-Related Uncertainty*

Identification of Potentially Exposed Ecological Receptors. Identification of potentially exposed ecological receptors was based in large part on a site visit and the following existing sources of information:

- California's Wildlife Habitat Relationship System
- RareFind query of the California Natural Diversity Database

Accordingly, some plants and animals that may occur at the Site may not have been identified. Note that identification of all plants and

animals that may occur at the Site is not required to perform this ERA. The above biological characterizations are considered to be sufficient to support this ERA as they identify:

- Types, size, and nature of dominant habitats at the Site
- Dominant wildlife observed or expected at the Site
- Special status species observed or expected at the Site
- Biota of commercial (e.g., livestock) or recreational (e.g., game) interest (if present) at the Site

Land Use. Exposure scenarios considered in this ERA are based on our best understanding of current and future land uses. Should future land use at the Site differ from that anticipated in this ERA, characterizations of potential ecological risks in this ERA are unlikely to be applicable for decision-making.

Omission of Inhalation and Dermal Contact Exposure Pathways. Exposures due to dermal contact were considered insignificant and were not quantitatively evaluated in this ERA. In general, results of dermal risk calculations indicate that the dermal exposure route is minor relative to the ingestion pathway, typically comprising less than 5 percent of the risk due to ingestion for a given chemical (Peterle 1991; USEPA 2005). The omission of dermal contact is likely to have a negligible effect on conclusions reached in the ERA.

Limited Sediment Data. Characterization of potential exposures to metals in sediments in the intermittent creek was based on two sediment samples. USEPA's statistical software, ProUCL, does not recommend and will not calculate an EPC for sample sizes less than five samples (USEPA 2011b). Consequently, in this ERA, characterization of exposures to metals in sediments is based on the maximum detected concentration. Given the ephemeral nature of flows, the creek is considered to provide marginal habitat to support sediment-dwelling biota. Finally, limited sediment data used to evaluate potential exposures/risks to sediment-dwelling biota are unlikely to effect conclusions reached in this ERA given the magnitude of the PEC HQs and HI.

Non-Detected Metals. Metals that were not detected in all samples were not quantitatively evaluated given the uncertainty in the EPCs—i.e., EPCs are an unspecified concentrations less than the detection

limits. Although omitting quantitative risk analyses for non-detected constituents may underestimate potential risks, characterizations of potential risks based on non-detected concentrations are considered to provide a limited and uncertain basis for supporting decision-making.

Zinc. Zinc is the only soil COPEC wherein the EPC (42 mg/kg) for soils is less than the upper bound concentration for background (60 mg/kg).[16] Although considered to be elevated in Site soils, this relationship suggests that background is likely to represent a significant portion of the EPC for zinc and that the average exposure to zinc at the Site is less than the upper bound background concentration.

5.4.2 *Toxicity-Related Uncertainty*

Species-to-Species Extrapolations. Species are known to vary with respect to sensitivity to specific chemicals (USEPA, 1998; Calabrese and Baldwin, 1993). Based on our review of the toxicological data, ranges of sensitivity for members within a class of vertebrates were commonly up to 100-fold. This range of uncertainty is substantiated by Calabrese and Baldwin (1993). Although a range in sensitivity may be described, little is known about the relative chemical-specific sensitivity (and the "direction" of sensitivity) for species in the wild compared to laboratory test species.

Laboratory-to-Field Extrapolations. A number of studies (primarily for aquatic systems) have evaluated the ability of single-chemical laboratory toxicity test results to predict adverse effects of that chemical on organisms under field conditions. Preliminary chemical contaminant studies suggest that laboratory toxicity tests represent more conservative exposure scenarios than those that occur in nature (USEPA 1991b). Furthermore, concentrations of chemicals causing no effect in laboratory tests also do not appear to affect communities in the field. Thus, the use of SLERA screening levels is likely to provide a conservative level of protection to plant communities and wildlife populations observed in the field.

Lack of RBSLs for Amphibians and Reptiles. Potential impacts to reptile and amphibian populations could not be quantitatively assessed due to the lack of widely recognized, consensus RBSLs. This

---

16 Note that only two soil samples exhibited zinc concentrations greater than the upper bound concentration for background—i.e., 96 mg/kg and 116 mg/kg.

lack of consensus RBSLs for amphibians and reptiles is characteristic of the state of ERAs and is not unique to this ERA. Potential impacts to amphibians and reptiles that are inferred from risk characterizations for other wildlife is fraught with uncertainties and is not conducted in this ERA. The lack of a ERA for reptiles and amphibians represents a potential data gap for decision-makers.

5.4.3 *Mercury / Methlymercury*

Mercury is a potent neurotoxicant, with methylmercury being the most toxic form. Ingestion of large amounts of methylmercury has resulted in impaired central nervous system function, kidney and gastrointestinal damage, cardiovascular collapse, and death. Effects from lower ingestion rates included impairments to peripheral vision, speech, hearing, and walking. Adverse neurological effects in children appear at dose levels five to ten times lower than dose levels associated with toxicity in adults (NRC 2000).

Wildlife species may also experience detrimental effects from methylmercury exposure. The greatest concern for toxicity is for species that consume fish or other aquatic organisms. Adverse effects that have been observed with multiple species in the field or laboratory include impaired learning, ineffective social behaviors, weakened physical abilities, neurological damage, and reproductive impairment (Wolfe et al. 1998).

Given elevated concentrations of mercury that exceed human and ecological RBSLs, there is a concern that Site-related mercury will make its way to the creek where it could be transported and transformed to methylmercury in downstream wetlands.

Transport. Runoff from background soil, mineralized areas, and mine site soils is considered to contribute to off-site transport and deposition of mercury-laden sediments/particulates. However, the degree of run-off is uncertain given existing vegetation and the lack of visual signs of erosion. Further, there are several findings of note for the Site:

- The maximum sediment concentration (3.4 mg/kg) is well below the site soil EPC (5,083 mg/kg) and the maximum site soil concentration (17,700 mg/kg);
- The maximum sediment concentration (3.4 mg/kg) is well below the background soil concentration (15.7 mg/kg);

- Sediment data are limited, but are consistent in demonstrating that there exists limited transport/deposition of mercury to the bed of Dry Creek adjacent to Chicago-Research mine;[17] and
- Further, transport of these particular sediments further downstream would be further attenuated/diluted.

There exists uncertainty regarding the existence/magnitude of off-site transport and downstream migration of suspended sediment that are derived from site soils—i.e., site-related soils that are not deposited in the creek bed adjacent to the Mine, but transported further downcreek. Extensive sediment transport modeling is required to establish how much the site impacts the creek and the watershed.

Given this uncertainty and elevated concentrations of mercury remaining in site soils, the HHERA recommends that the EE/CA consider actions to prevent Site-related contributions to Dry Creek. Consistent with the RWQCB's request, the EE/CA uses background mercury levels to screen for areas possibly requiring mitigation.

5.5 *Summary of Risk Estimates*

The results for terrestrial receptors are as follows:

- Plant Communities
  - concentrations of chromium, cobalt, manganese, mercury, and nickel in soils at the Site exceed RBSLs for plants; and
  - the HQs and HI indicate that further investigation/ assessment or implementation of a risk management action is warranted.
- Soil Invertebrates
  - concentrations of chromium, cobalt, manganese, mercury, and nickel in soils at the Site exceed RBSLs for soil invertebrates; and
  - the HQs and HI indicate that further investigation/ assessment or implementation of a risk management action is warranted.

---

17 The three sediment samples from the Helen Mine study contained 0.15, 1.2, and 53.6 mg/kg of mercury and appear to support that there exists limited transport/deposition of mercury to the bed of Dry Creek adjacent to these mine sites. However, these findings cannot be used to infer downcreek migration of suspended sediments that are derived from site soils.

- Reptiles
  - a quantitative evaluation could not be conducted due to the lack of widely recognized consensus toxicity values for reptiles;
  - the lack of consensus reference toxicity data is considered a data gap (see Section 5.2.2); and
  - this data gap is not unique to this ERA.

- Birds
  - concentrations of chromium, mercury, and nickel in soils at the Site exceed RBSLs for herbivorous birds (as inferred from HQs for the California quail);
  - concentrations of chromium, cobalt, mercury, nickel, and zinc in soils at the Site exceed RBSLs for insectivorous birds (as inferred from HQs for Bewick's wren); and
  - the HQs and HI indicate that further investigation/ assessment or implementation of a risk management action is warranted.
- Mammals
  - concentrations of chromium, mercury, and nickel in soils at the Site exceed RBSLs for herbivorous mammals (as inferred from HQs for the California vole);
  - concentrations of chromium, cobalt, mercury, and nickel in soils at the Site exceed RBSLs for insectivorous mammals (as inferred from the HQs for the Trowbridge's shrew); and
  - the HQs and HI indicate that further investigation/ assessment or implementation of a risk management action is warranted.

The results for aquatic receptors are as follows:

- Aquatic Biota Community – aquatic plants, water-column invertebrates, and fishes
  - concentrations of chromium, mercury, and nickel in surface water in the intermittent creek at the Site exceed RBSLs; and
  - HQs and the HI indicate that further investigation/ assessment or implementation of a risk management action is warranted.

- Sediment-Dwelling Invertebrate Communities
  - concentrations of chromium, mercury, and nickel in sediment in the intermittent creek at the Site exceed RBSLs; and
  - HQs and the HI indicate that further investigation/ assessment or implementation of a risk management action is warranted.
- Amphibians
  - a quantitative evaluation could not be conducted due to the lack of widely recognized consensus toxicity values for amphibians;
  - the lack of consensus reference toxicity data is considered a data gap (see Section 5.2.2); and
  - this data gap is not unique to this ERA.

Based on these results, it is recommended that the EE/CA considered potential exposures to mine waste-related (Site-related) elevated concentrations of chromium, cobalt, manganese, mercury, and nickel in soils.

6.0 LITERATURE CITED

American Society for Testing and Materials (ASTM). 2000. Standard Guide for Risk-Based Corrective Action. E2081-00.

Beyer, W.N., E.E. Connor, and S. Gerould. 1994. Estimates of soil ingestion by wildlife. *J. Wildlife Management 58*(2):375-382.

Bloom, N.S., 2004. Solid Phase Mercury Speciation and Incubation Studies in or Related to Mine-site Runoff in the Cache Creek Watershed (CA), Frontier Geosciences Inc. In Final report for CalFed Bay-Delta Mercury Program grant entitled "An assessment of ecological and human health impacts of mercury in the Bay-Delta Estuary Watershed".

Bloom, N.S., G.A. Gill, and NS S. Cappellino. 1999. Speciation and cycling of mercury in Lavaca Bay, Texas, sediments. *Env. Sci. Tech. 33*:7-13.

Calabrese, E.J., and L.A. Baldwin. 1993. *Performing Ecological Risk Assessments*. Lewis Publishers, Chelsea, MI.

California Department of Toxic Substances Control (DTSC). 1996. Guidance for Ecological Risk Assessment at Hazardous Waste Sites and Permitted Facilities.

California Department of Toxic Substances Control (DTSC). 1999. Preliminary Endangerment Assessment Guidance Manual. State of California Environmental Protection Agency, Sacramento, California.

California Department of Toxic Substances Control (DTSC). February 2011. California Environmental Protection Agency, Toxicity Criteria Database. On-line database: http://www.oehha.ca.gov/risk/chemicalDB/index.asp.

CVRWQCB. 2004. Cache Creek, Bear Creek, and Harley Gulch TMDL for Mercury. Final Staff Report. Sacramento, CA.

CVRWQCB. 2007. Sulphur Creek TMDL for Mercury. Final Staff Report. Sacramento, CA.

Compeau, G.C. and R. Bartha. 1985. Sulfate-reducing bacteria: principle methylator of mercury in anoxic estuarine sediment. *Appl. & Environ. Microbiol. 50*:498-502.

Efroymson, R.A., M.E. Will, G.W. Suter II, and A.C. Wooten. 1997a. Toxicological Benchmarks for Screening Contaminants of Potential

Concern for Effects on Terrestrial Plants. 1997 Revision. U.S. Department of Energy, Oak Ridge National Laboratory.

Efroymson, R.A., M.E. Will, and G.W. Suter II. 1997b. Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process. 1997 Revision. U.S. Department of Energy, Oak Ridge National Laboratory.

Falter, R. and R. Wilken. 1998. Isotope experiments for the determination of abiotic mercury methylation potential of a Rhine River sediment. *Wasser 90L*:217-232.

Ford, K. 2004. Risk Management Criteria for Metals at BLM Mining Sites. Technical Note 390. Bureau of Land Management, National Science and Technology Center. Denver, CO.

Gilmour, C.C. and G.S. Riedel. 1995. Measurement of mercury (Hg) methylation in sediments using high specific activity 203Hg and ambient incubation. *Water, Air, and Soil Pollution 80*:747-756.

Henry, E.A., et al. 1995. Total mercury and methylmercury mass balance in an alkaline hypereutrophic urban lake (Onondaga Lake, NY). *Water, Air, and Soil Pollution 80*:509-518.

Herrin, R. T., R. C. Lathrop, et al. 1998. Hypolimnetic methylmercury and its uptake by plankton during fall destratification: A key entry point of mercury into lake food chains? *Limnol. & Oceanogr. 43*(7): 1476-1486.

Krabbenhoft, D.P., J.G. Wiener, W.G. Brumbaugh, M.L. Olson, J.F. DeWild, and T.J. Sabin. 1999. A national pilot study of mercury contamination of aquatic ecosystems along multiple gradients. Toxic Substances Hydrology Program, U.S. Geological Survey. Proceedings of the Technical Meeting, Charleston, SC, March 1999. Water-Resources Investigations Report: 99-4018 A-C.

Mayer, K.E. and W.R. Laudenslayer 1988. A guide to wildlife habitats of California. California Department of Forestry and Fire Protection.

MacDonald, D.D., C.G. Ingersoll, and T.A. Berger. 2000. Development and evaluation of consensus-based sediment quality guidelines for freshwater ecosystems. *Arch. Environ. Contam. Toxicol. 39*: 20-31.

National Academy of Science (NAS). 1994. Science and Judgment in Risk Assessment. National Academy Press, NY.

National Oceanic and Atmospheric Administration (NOAA). 2008. Screening Quick Reference Tables (SQUiRT). NOAA OR&R Report 08-1. Office of Response and Restoration. Seattle, WA.

National Research Council (NRC). 2000. Toxicological Effects of Methylmercury. Committee on the Toxicological Effects of Mercury, Washington, D.C. National Academy Press.

Peterle, T.J. 1991. *Wildlife Toxicology*. Van Nostrand Reinhold, New York.

Sample, B.E., D.M. Opresko, and G.W. Suter II. 1996. Toxicological Benchmarks for Wildlife: 1996 Revision. U.S. Department of Energy, Oak Ridge National Laboratory.

Sample, B.E., J.J. Beauchamp, R.A. Efroymson, G.W. Suter II, and T.L. Ashwood. 1998. Development and Validation of Bioaccumulation Models for Earthworms. U.S. Department of Energy, Oak Ridge National Laboratory.

Slotton DG, Ayers SM, Suchanek TH, Weyland RD, Liston AM, 2004a. Mercury Bioaccumulation and Trophic Transfer in the Cache Creek Watershed, California, in Relation to Diverse Aqueous Mercury Exposure Conditions. Final Report. Department of Environmental Science and Policy and Department of Wildlife, Fish and Conservation Biology. University of California, Davis. Prepared for the CALFED Bay-Delta Program.

Suter II, G.W. and C.L. Tsao. 1996. Toxicological Benchmarks for Screening Potential Contaminants of Concern for Effects on Aquatic Biota: 1996 Revision. ES/ER/TM-96/R2. Oak Ridge National Laboratory, Department of Energy.

U.S. Environmental Protection Agency (USEPA). 1989a. Risk Assessment Guidance for Superfund (RAGS). Human Health Evaluation Manual Part A. Office of Emergency and Remedial Response, Washington, D.C. EPA/540/1-89/002.

U.S. Environmental Protection Agency (USEPA). 1989b. Risk Assessment Guidance for Superfund. Volume II. Environmental Evaluation Manual. EPA/540/1-89/001. Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 1991a. Risk Assessment Guidance for Superfund: Volume I — Human Health Evaluation Manual. Supplemental Guidance Standard Default

Exposure Factors. OSWER Directive 9285.3-03. Office of Emergency and Remedial Response. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 1991b. Summary Report on Issues in Ecological Risk Assessment. EPA/625/3-91/018. Risk Assessment Forum, U.S. Environmental Protection Agency, Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 1992a. Guidance for Data Usability in Risk Assessment. Publication 9285.7-09A. PB92-963356. Office of Emergency and Remedial Response. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 1992b. Guidelines for Exposure Assessment. Federal Register, 57(104):22888-22938. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 1992c. Framework for Ecological Risk Assessment. EPA/630/R-92/001. Risk Assessment Forum. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 1992c. Dermal Exposure Assessment: Principles and Applications. USEPA/600/9-91/011B. Office of Health and Environmental Assessment. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 1993. Wildlife Exposure Factors. USEPA/600/9-91/011B. Office of Health and Environmental Assessment. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 1997a. Exposure Factors Handbook. USEPA/600/P-95/002Fa-c. Office of Research and Development. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 1997b. Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments. EPA-540-R-97-006. Office of Solid Waste and Emergency Response. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 1998. Guidelines for Ecological Risk Assessment. EPA/630/R-95/002F. Risk Assessment Forum, U.S. Environmental Protection Agency, Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 2000. Water Quality Standards – Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California. Final Rule. 40CFR Part 131. Federal Register Vol. 65, No. 97.

U.S. Environmental Protection Agency (USEPA). 2001a. Risk Assessment Guidance for Superfund: Volume 3—Part A, Process for Conducting Probabilistic Risk Assessment. Draft. Office of Solid Waste and Emergency Response, Washington, DC.

U.S. Environmental Protection Agency (USEPA). 2001b. Risk Assessment Guidance for Superfund: Volume I Human Health Evaluation Manual—Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments. Publication 9285.7-47. Office of Emergency and Remedial Response. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 2002a. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. Office of Solid Waste and Emergency Response. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 2003. Memorandum on Human Health Toxicity Values in Superfund Risk Assessments, from Michael B. Cook, Director, Office of Superfund Remediation and Technology Innovation to Superfund Remediation Policy Managers, Regions 1 - 10. OSWER Directive 9285.7-53. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 2004. Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual —Part E, Supplemental Guidance for Dermal Risk Assessment. Final. EPA/540/R/99/005. Office of Emergency and Remedial Response. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 2005a. Guidance for Developing Ecological Soil Screening Levels. Office of Solid Waste and Emergency Response. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 2005b. Ecological Soil Screening Levels for Aluminum. Interim Final. Office of Solid Waste and Emergency Response. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 2005c. Ecological Soil Screening Levels for Antimony. Interim Final. Office of Solid Waste and Emergency Response. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 2005d. Ecological Soil Screening Levels for Arsenic. Interim Final. Office of Solid Waste and Emergency Response. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 2005e. Ecological Soil Screening Levels for Barium. Interim Final. Office of Solid Waste and Emergency Response. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 2005f. Ecological Soil Screening Levels for Beryllium. Interim Final. Office of Solid Waste and Emergency Response. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 2005g. Ecological Soil Screening Levels for Cadmium. Interim Final. Office of Solid Waste and Emergency Response. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 2005h. Ecological Soil Screening Levels for Chromium. Interim Final. Office of Solid Waste and Emergency Response. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 2005i. Ecological Soil Screening Levels for Cobalt. Interim Final. Office of Solid Waste and Emergency Response. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 2005j. Ecological Soil Screening Levels for Lead. Interim Final. Office of Solid Waste and Emergency Response. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 2005k. Ecological Soil Screening Levels for Vanadium. Interim Final. Office of Solid Waste and Emergency Response. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 2006. Ecological Soil Screening Levels for Silver. Interim Final. Office of Solid Waste and Emergency Response. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 2007a. Ecological Soil Screening Levels for Copper. Interim Final. Office of Solid Waste and Emergency Response. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 2007b. Ecological Soil Screening Levels for Manganese. Interim Final. Office of Solid Waste and Emergency Response. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 2007c. Ecological Soil Screening Levels for Nickel. Interim Final. Office of Solid Waste and Emergency Response. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 2007d. Ecological Soil Screening Levels for Selenium. Interim Final. Office of Solid Waste and Emergency Response. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 2007e. Ecological Soil Screening Levels for Zinc. Interim Final. Office of Solid Waste and Emergency Response. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 2009. Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual —Part F, Supplemental Guidance for Inhalation Risk Assessment. Final. OSWER 9285.7-82. Office of Superfund Remediation and Technology Innovation. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 2011a. Integrated Risk Information System (IRIS). On-line database. National Center for Environmental Assessment (NCEA). Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 2011b. ProUCL Version 4.1.00. Technical Guide (Draft). EPA/600/R-07/041. Office of Research and Development. Las Vegas, NV.

Watras, C.J. and J.W. Huckabee. 1994. *Mercury Pollution: Integration and Synthesis*. Lewis Publishers. Boca Raton, FL.

Watras, C. J., N.S. Bloom, K.A. Morrison, C.C. Gilmour, and S.R. Craig. 1995. Methylmercury production in the anoxic hypolimnion of a dimictic seepage lake. *Water, Air, and Soil Pollut.80*: 735–745.

Wolfe, M.F., S. Schwarzbach, and R.A. Sulaiman. 1998. Effects of mercury on wildlife: A comprehensive review. *Env. Tox. & Chem. 17*(2): 146-60.

Zeiner, D.C., W.F. Laudenslayer, K.E. Mayer, and M. White (eds). 1990a. California's Wildlife. Vol. 2. Birds. California Statewide Wildlife Habitat Relationships System. California State Department of Fish and Game.

Zeiner, D.C., W.F. Laudenslayer, K.E. Mayer, and M. White (eds). 1990b. California's Wildlife. Vol. 3. Mammals. California Statewide Wildlife Habitat Relationships System. California State Department of Fish and Game.

Attachments

Attachment A

Data Used in the HHERA

(see electronic file)

SiteID	EastCoordinate	NorthCoordinate	LabSampID	SampleLocation	SampBegDepth	SampEndDepth	Medium	SampleDate	CustomText1	Source	CustomText2	AnalysisTy	Instrument	PrepType	Method	TotalOrDis	DilFactor	CAS	FieldSampleID	Parameter	Expr1021	TextResult	NumericRe	Detect_Fla	Units	Reportable	DetectionL	RDL	PQL	CustomFla	Modifier	Qualifier	systemFla	QAFlag	Comment
21CH-0R	6361048.171	2033579.4		21CH-0R			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Antimony	mg/Kg	5.2	5.2	D	mg/Kg	FALSE									High Grade Ore
21CH-1C	6361048.171	2033579.4		21CH-1C			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Antimony	mg/Kg	1.3	1.3	D	mg/Kg	FALSE									Fine sand size calcine adjacent to retort
21CH-2C	6361048.171	2033579.4		21CH-2C			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Antimony	mg/Kg	0.6	0.6	D	mg/Kg	FALSE									Coarse Calcine red-black
21CH-3AR	6361048.171	2033579.4		21CH-3AR			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Antimony	mg/Kg	0.1	0.1	D	mg/Kg	FALSE									Silica-carbonate alteration and quartz vei
21CH-4C	6361048.171	2033579.4		21CH-4C			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Antimony	mg/Kg	2.5	2.5	D	mg/Kg	FALSE									Condenser soot below waste rock at ore
21RE-1C	6361537.816	2033063.592		21RE-1C			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Antimony	mg/Kg	2.8	2.8	D	mg/Kg	FALSE									Coarse Sand to Gravel next to Creek
21RE-1-S	6361537.816	2033063.592		21RE-1-S			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Antimony	mg/Kg	0.4	0.4	D	mg/Kg	FALSE									Sediment at Collapsed adit drainage
21RE-2C	6361537.816	2033063.592		21RE-2C			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Antimony	mg/Kg	10.4	10.4	D	mg/Kg	FALSE									Fine Sand Calcine at adit
CM01-S	6361134.835	2033690.467	720-31892-11	CM01-S		0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-36-0		Antimony	mg/Kg	2.7	2.7	D	mg/Kg	FALSE	2		0.34						soil
CM09-S	6361134.835	2033635.424	720-31892-12	CM09-S		0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-36-0		Antimony	mg/Kg	2	2	D	mg/Kg	FALSE	1.9		0.32						soil
CM23-S	6361191.174	2033577.142	720-31892-13	CM23-S		0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-36-0		Antimony	mg/Kg	4.4	4.4	D	mg/Kg	FALSE	2		0.33						soil
CM-SS-1	6351862.333	2033589.514		CM-SS-1			Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Antimony	mg/Kg	<5.0	5	ND	mg/Kg	FALSE									Soot and Calcines
CM-SS-2	6361120.03	2033587.848		CM-SS-2			Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Antimony	mg/Kg	<5.0	5	ND	mg/Kg	FALSE									Soot and Calcines
CM-SS-3	6361035.381	2033532.356		CM-SS-3			Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Antimony	mg/Kg	<5.0	5	ND	mg/Kg	FALSE									Soot and Calcines
CM-SS-4	6361076.204	2033627.238		CM-SS-4			Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Antimony	mg/Kg	<5.0	5	ND	mg/Kg	FALSE									Soot and Calcines
CM-SS-5	6361122.208	2033583.077		CM-SS-5			Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Antimony	mg/Kg	<5.0	5	ND	mg/Kg	FALSE									Soot and Calcines
CMT3a-12	6361169.482	2033583.097	720-32087-1	CMT3a-12		1	Solid	11/29/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B			7440-36-0		Antimony	mg/Kg	2.8	2.8	D	mg/Kg	FALSE	1.9		0.32						soil
CMT5a-4	6361105.047	2033606.93	720-32087-2	CMT5a-4		0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B			7440-36-0		Antimony	mg/Kg	< 2.1	2.1	ND	mg/Kg	FALSE	2.1		0.35						soil
CMT7a-4	6361020.214	2033524.689	720-32087-3	CMT7a-4		0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B			7440-36-0		Antimony	mg/Kg	< 2	2	ND	mg/Kg	FALSE	2		0.34						soil
RM05-S	6361706.936	2033330.478	720-31892-15	RM05-S		0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-36-0		Antimony	mg/Kg	3.5	3.5	D	mg/Kg	FALSE	2.1		0.34						soil
RM36-S	6361327.791	2033203.409	720-31892-17	RM36-S		0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-36-0		Antimony	mg/Kg	< 2.1	2.1	ND	mg/Kg	FALSE	2.1		0.34						soil
RM43-S	6361403.917	2033111.429	720-31892-19	RM43-S		0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-36-0		Antimony	mg/Kg	4.1	4.1	D	mg/Kg	FALSE	2		0.33						soil
RM60-S	6361554.953	2033035.502	720-31892-18	RM60-S		0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-36-0		Antimony	mg/Kg	< 2.1	2.1	ND	mg/Kg	FALSE	2.1		0.34						soil
RM94-S	6361915.699	2032865.907	720-31892-16	RM94-S		0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-36-0		Antimony	mg/Kg	< 2.1	2.1	ND	mg/Kg	FALSE	2.1		0.35						soil
RMDS	6362080.702	2032779.716	720-31892-10	RMDS		0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-36-0		Antimony	mg/Kg	< 1.9	1.9	ND	mg/Kg	FALSE	1.9		0.32						sediment
RM-SS-1	6361920.27	2032913.392		RM-SS-1			Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Antimony	mg/Kg	<5.0	5	ND	mg/Kg	FALSE									Soot and calcines
RM-SS-2	6361937.897	2032910.604		RM-SS-2			Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Antimony	mg/Kg	<5.0	5	ND	mg/Kg	FALSE									Soot and calcines
RM-SS-3	6361532.277	2033078.635		RM-SS-3			Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Antimony	mg/Kg	<5.0	5	ND	mg/Kg	FALSE									Soot and calcines
RM-SS-4	6361503.037	2033180.118		RM-SS-4			Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Antimony	mg/Kg	<5.0	5	ND	mg/Kg	FALSE									Soot and calcines
RM-SS-5	6361393.842	2033137.569		RM-SS-5			Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Antimony	mg/Kg	<5.0	5	ND	mg/Kg	FALSE									Soot and calcines
RMT3z-8	6361346.725	2033241.751	720-32087-4	RMT3z-8		0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B			7440-36-0		Antimony	mg/Kg	< 2	2	ND	mg/Kg	FALSE	2		0.33						soil
RMT3z-8 dup	6361346.725	2033241.751	720-32087-5	RMT3z-8 dup		0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		DUP	Thermo ICP	Total/NA	6010B			7440-36-0		Antimony	mg/Kg	< 1.9	1.9	ND	mg/Kg	FALSE	1.9		0.32						soil
RMT6a-5	6361346.235	2032982.26	720-32087-6	RMT6a-5		0.4166	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B			7440-36-0		Antimony	mg/Kg	0.96	0.96	D	mg/Kg	FALSE	0.51		0.085						soil
RMT8b-15	6361972.83	2032854.226	720-32087-7	RMT8b-15		1.25	Solid	12/1/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B			7440-36-0		Antimony	mg/Kg	< 2.1	2.1	ND	mg/Kg	FALSE	2.1		0.35						soil
21CH-0R	6361048.171	2033579.4		21CH-0R			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Arsenic	mg/Kg	2	2	D	mg/Kg	FALSE									High Grade Ore
21CH-1C	6361048.171	2033579.4		21CH-1C			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Arsenic	mg/Kg	1	1	D	mg/Kg	FALSE									Fine sand size calcine adjacent to retort
21CH-2C	6361048.171	2033579.4		21CH-2C			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Arsenic	mg/Kg	2	2	D	mg/Kg	FALSE									Coarse Calcine red-black
21CH-3AR	6361048.171	2033579.4		21CH-3AR			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Arsenic	mg/Kg	0.6	0.6	D	mg/Kg	FALSE									Silica-carbonate alteration and quartz vei
21CH-4C	6361048.171	2033579.4		21CH-4C			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Arsenic	mg/Kg	3.8	3.8	D	mg/Kg	FALSE									Condenser soot below waste rock at ore
21RE-1C	6361537.816	2033063.592		21RE-1C			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Arsenic	mg/Kg	1.2	1.2	D	mg/Kg	FALSE									Coarse Sand to Gravel next to Creek
21RE-1-S	6361537.816	2033063.592		21RE-1-S			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Arsenic	mg/Kg	<0.2	0.2	ND	mg/Kg	FALSE									Sediment at Collapsed adit drainage
21RE-2C	6361537.816	2033063.592		21RE-2C			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Arsenic	mg/Kg	7.8	7.8	D	mg/Kg	FALSE									Fine Sand Calcine at adit
CM01-S	6361134.835	2033690.467	720-31892-11	CM01-S		0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-38-2		Arsenic	mg/Kg	< 4.1	4.1	ND	mg/Kg	FALSE	4.1		0.35						soil
CM09-S	6361134.835	2033635.424	720-31892-12	CM09-S		0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-38-2		Arsenic	mg/Kg	< 3.9	3.9	ND	mg/Kg	FALSE	3.9		0.33						soil
CM23-S	6361191.174	2033577.142	720-31892-13	CM23-S		0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-38-2		Arsenic	mg/Kg	5	5	D	mg/Kg	FALSE	4		0.34						soil
CM-SS-1	6351862.333	2033589.514		CM-SS-1			Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Arsenic	mg/Kg	<2.5	2.5	ND	mg/Kg	FALSE									Soot and Calcines
CM-SS-2	6361120.03	2033587.848		CM-SS-2			Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Arsenic	mg/Kg	<2.5	2.5	ND	mg/Kg	FALSE									Soot and Calcines
CM-SS-3	6361035.381	2033532.356		CM-SS-3			Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Arsenic	mg/Kg	<2.5	2.5	ND	mg/Kg	FALSE									Soot and Calcines
CM-SS-4	6361076.204	2033627.238		CM-SS-4			Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Arsenic	mg/Kg	<2.5	2.5	ND	mg/Kg	FALSE									Soot and Calcines
CM-SS-5	6361122.208	2033583.077		CM-SS-5			Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Arsenic	mg/Kg	<2.5	2.5	ND	mg/Kg	FALSE									Soot and Calcines
CMT3a-12	6361169.482	2033583.097	720-32087-1	CMT3a-12		1	Solid	11/29/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B			7440-38-2		Arsenic	mg/Kg	< 3.9	3.9	ND	mg/Kg	FALSE	3.9		0.33						soil
CMT5a-4	6361105.047	2033606.93	720-32087-2	CMT5a-4		0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B			7440-38-2		Arsenic	mg/Kg	< 4.2	4.2	ND	mg/Kg	FALSE	4.2		0.35						soil
CMT7a-4	6361020.214	2033524.689	720-32087-3	CMT7a-4		0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B			7440-38-2		Arsenic	mg/Kg	< 4	4	ND	mg/Kg	FALSE	4		0.34						soil
RM05-S	6361706.936	2033330.478	720-31892-15	RM05-S		0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-38-2		Arsenic	mg/Kg	< 4.1	4.1	ND	mg/Kg	FALSE	4.1		0.35						soil
RM36-S	6361327.791	2033203.409	720-31892-17	RM36-S		0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-38-2		Arsenic	mg/Kg	< 4.1	4.1	ND	mg/Kg	FALSE	4.1		0.35						soil
RM43-S	6361403.917	2033111.429	720-31892-19	RM43-S		0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-38-2		Arsenic	mg/Kg	< 4	4	ND	mg/Kg	FALSE	4		0.34						soil
RM60-S	6361554.953	2033035.502	720-31892-18	RM60-S		0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-38-2		Arsenic	mg/Kg	< 4.1	4.1	ND	mg/Kg	FALSE	4.1		0.35						soil
RM94-S	6361915.699	2032865.907	720-31892-16	RM94-S		0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-38-2		Arsenic	mg/Kg	< 4.2	4.2	ND	mg/Kg	FALSE	4.2		0.36						soil
RMDS	6362080.702	2032779.716	720-31892-10	RMDS		0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-38-2		Arsenic	mg/Kg	< 3.9	3.9	ND	mg/Kg	FALSE	3.9		0.33						sediment
RM-SS-1	6361920.27	2032913.392		RM-SS-1			Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Arsenic	mg/Kg	<2.5	2.5	ND	mg/Kg	FALSE									Soot and calcines
RM-SS-2	6361937.897	2032910.604		RM-SS-2			Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Arsenic	mg/Kg	<2.5	2.5	ND	mg/Kg	FALSE									Soot and calcines
RM-SS-3	6361532.277	2033078.635		RM-SS-3			Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Arsenic	mg/Kg	<2.5	2.5	ND	mg/Kg	FALSE									Soot and calcines
RM-SS-4	6361503.037	2033180.118		RM-SS-4			Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Arsenic	mg/Kg	<2.5	2.5	ND	mg/Kg	FALSE									Soot and calcines
RM-SS-5	6361393.842	2033137.569		RM-SS-5			Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Arsenic	mg/Kg	<2.5	2.5	ND	mg/Kg	FALSE									Soot and calcines
RMT3z-8	6361346.725	2033241.751	720-32087-4	RMT3z-8		0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B			7440-38-2		Arsenic	mg/Kg	< 3.9	3.9	ND	mg/Kg	FALSE	3.9		0.33						soil
RMT3z-8 dup	6361346.725	2033241.751	720-32087-5	RMT3z-8 dup		0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		DUP	Thermo ICP	Total/NA	6010B			7440-38-2		Arsenic	mg/Kg	< 3.9	3.9	ND	mg/Kg	FALSE	3.9		0.33						soil
RMT6a-5	6361346.235	2032982.26	720-32087-6	RMT6a-5		0.4166	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B			7440-38-2		Arsenic	mg/Kg	< 4.1	4.1	ND	mg/Kg	FALSE	4.1		0.35						soil
RMT8b-15	6361972.83	2032854.226	720-32087-7	RMT8b-15		1.25	Solid	12/1/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B			7440-38-2		Arsenic	mg/Kg	< 4.2	4.2	ND	mg/Kg	FALSE	4.2		0.36						soil
CM01-S	6361134.835	2033690.467	720-31892-11	CM01-S		0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-39-3		Barium	mg/Kg	7	7	D	mg/Kg	FALSE	2		0.29						soil
CM09-S	6361134.835	2033635.424	720-31892-12	CM09-S		0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-39-3		Barium	mg/Kg	5	5	D	mg/Kg	FALSE	1.9		0.28						soil
CM23-S	6361191.174	2033577.142	720-31892-13	CM23-S		0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-39-3		Barium	mg/Kg	35	35	D	mg/Kg	FALSE	2		0.28						soil
CMT3a-12	6361169.482	2033583.097	720-32087-1	CMT3a-12		1	Solid	11/29/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B			7440-39-3		Barium	mg/Kg	32	32	D	mg/Kg	FALSE	1.9		0.28						soil
CMT5a-4	6361105.047	2033606.93	720-32087-2	CMT5a-4		0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B			7440-39-3		Barium	mg/Kg	4.4	4.4	D	mg/Kg	FALSE	2.1		0.3						soil
CMT7a-4	6361020.214	2033524.689	720-32087-3	CMT7a-4		0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B			7440-39-3		Barium	mg/Kg	4.8	4.8	D	mg/Kg	FALSE	2		0.29						soil
RM05-S	6361706.936	2033330.478	720-31892-15	RM05-S		0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-39-3		Barium	mg/Kg	< 2.1	2.1	ND	mg/Kg	FALSE	2.1		0.29						soil
RM36-S	6361327.791	2033203.409	720-31892-17	RM36-S		0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-39-3		Barium	mg/Kg	< 2.1	2.1	ND	mg/Kg	FALSE	2.1		0.29						soil
RM43-S	6361403.917	2033111.429	720-31892-19	RM43-S		0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-39-3		Barium	mg/Kg	25	25	D	mg/Kg	FALSE	2		0.28						soil
RM60-S	6361554.953	2033035.502	720-31892-18	RM60-S		0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-39-3		Barium	mg/Kg	19	19	D	mg/Kg	FALSE	2.1		0.29						soil
RM94-S	6361915.699	2032865.907	720-31892-16	RM94-S		0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-39-3		Barium	mg/Kg	26	26	D	mg/Kg	FALSE	2.1		0.3						soil
RMDS	6362080.702	2032779.716	720-31892-10	RMDS		0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-39-3		Barium	mg/Kg	30	30	D	mg/Kg	FALSE	1.9		0.28						sediment
RMT3z-8	6361346.725	2033241.751	720-32087-4	RMT3z-8		0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B			7440-39-3		Barium	mg/Kg	< 2	2	ND	mg/Kg	FALSE	2		0.28						soil
RMT3z-8 dup	6361346.725	2033241.751	720-32087-5	RMT3z-8 dup		0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		DUP	Thermo ICP	Total/NA	6010B			7440-39-3		Barium	mg/Kg	27	27	D	mg/Kg	FALSE	1.9		0.28						soil
RMT6a-5	6361346.235	2032982.26	720-32087-6	RMT6a-5		0.4166	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B			7440-39-3		Barium	mg/Kg	32	32	D	mg/Kg	FALSE	2		0.29						soil
RMT8b-15	6361972.83	2032854.226	720-32087-7	RMT8b-15		1.25	Solid	12/1/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B			7440-39-3		Barium	mg/Kg	70	70	D	mg/Kg	FALSE	2.1		0.3						soil
CM01-S	6361134.835	2033690.467	720-31892-11	CM01-S		0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-41-7		Beryllium	mg/Kg	< 0.41	0.41	ND	mg/Kg	FALSE	0.41		0.13						soil
CM09-S	6361134.835	2033635.424	720-31892-12	CM09-S		0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-41-7		Beryllium	mg/Kg	< 0.39	0.39	ND	mg/Kg	FALSE	0.39		0.13						soil
CM23-S	6361191.174	2033577.142	720-31892-13	CM23-S		0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-41-7		Beryllium	mg/Kg	< 0.4	0.4	ND	mg/Kg	FALSE	0.4		0.13						soil
CMT3a-12	6361169.482	2033583.097	720-32087-1	CMT3a-12		1	Solid	11/29/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B			7440-41-7		Beryllium	mg/Kg	< 0.39	0.39	ND	mg/Kg	FALSE	0.39		0.13						soil
CMT5a-4	6361105.047	2033606.93	720-32087-2	CMT5a-4		0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B			7440-41-7		Beryllium	mg/Kg	< 0.42	0.42	ND	mg/Kg	FALSE	0.42		0.14						soil
CMT7a-4	6361020.214	2033524.689	720-32087-3	CMT7a-4		0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B			7440-41-7		Beryllium	mg/Kg	< 0.4	0.4	ND	mg/Kg	FALSE	0.4		0.13						soil
RM05-S	6361706.936	2033330.478	720-31892-15	RM05-S		0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-41-7		Beryllium	mg/Kg	< 0.41	0.41	ND	mg/Kg	FALSE	0.41		0.13						soil
RM36-S	6361327.791	2033203.409	720-31892-17	RM36-S		0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-41-7		Beryllium	mg/Kg	< 0.41	0.41	ND	mg/Kg	FALSE	0.41		0.13						soil
RM43-S	6361403.917	2033111.429	720-31892-19	RM43-S		0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-41-7		Beryllium	mg/Kg	< 0.4	0.4	ND	mg/Kg	FALSE	0.4		0.13						soil
RM60-S	6361554.953	2033035.502	720-31892-18	RM60-S		0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-41-7		Beryllium	mg/Kg	< 0.41	0.41	ND	mg/Kg	FALSE	0.41		0.13						soil
RM94-S	6361915.699	2032865.907	720-31892-16	RM94-S		0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-41-7		Beryllium	mg/Kg	< 0.42	0.42	ND	mg/Kg	FALSE	0.42		0.14						soil
RMDS	6362080.702	2032779.716	720-31892-10	RMDS		0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-41-7		Beryllium	mg/Kg	< 0.39	0.39	ND	mg/Kg	FALSE	0.39		0.13						sediment
RMT3z-8	6361346.725	2033241.751	720-32087-4	RMT3z-8		0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B			7440-41-7		Beryllium	mg/Kg	< 0.39	0.39	ND	mg/Kg	FALSE	0.39		0.13						soil
RMT3z-8 dup	6361346.725	2033241.751	720-32087-5	RMT3z-8 dup		0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		DUP	Thermo ICP	Total/NA	6010B			7440-41-7		Beryllium	mg/Kg	< 0.39	0.39	ND	mg/Kg	FALSE	0.39		0.13						soil
RMT6a-5	6361346.235	2032982.26	720-32087-6	RMT6a-5		0.4166	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B			7440-41-7		Beryllium	mg/Kg	< 0.41	0.41	ND	mg/Kg	FALSE	0.41		0.13						soil
RMT8b-15	6361972.83	2032854.226	720-32087-7	RMT8b-15		1.25	Solid	12/1/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B			7440-41-7		Beryllium	mg/Kg	< 0.42	0.42	ND	mg/Kg	FALSE	0.42		0.14						soil
21CH-0R	6361048.171	2033579.4		21CH-0R			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Cadmium	mg/Kg	0.12	0.12	D	mg/Kg	FALSE									High Grade Ore
21CH-1C	6361048.171	2033579.4		21CH-1C			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Cadmium	mg/Kg	0.06	0.06	D	mg/Kg	FALSE									Fine sand size calcine adjacent to retort
21CH-2C	6361048.171	2033579.4		21CH-2C			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Cadmium	mg/Kg	0.02	0.02	D	mg/Kg	FALSE									Coarse Calcine red-black
21CH-3AR	6361048.171	2033579.4		21CH-3AR			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Cadmium	mg/Kg	0.02	0.02	D	mg/Kg	FALSE									Silica-carbonate alteration and quartz vei
21CH-4C	6361048.171	2033579.4		21CH-4C			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Cadmium	mg/Kg	0.1	0.1	D	mg/Kg	FALSE									Condenser soot below waste rock at ore
21RE-1C	6361537.816	2033063.592		21RE-1C			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Cadmium	mg/Kg	0.08	0.08	D	mg/Kg	FALSE									Coarse Sand to Gravel next to Creek
21RE-1-S	6361537.816	2033063.592		21RE-1-S			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Cadmium	mg/Kg	0.02	0.02	D	mg/Kg	FALSE									Sediment at Collapsed adit drainage
21RE-2C	6361537.816	2033063.592		21RE-2C			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Cadmium	mg/Kg	0.22	0.22	D	mg/Kg	FALSE									Fine Sand Calcine at adit
CM01-S	6361134.835	2033690.467	720-31892-11	CM01-S		0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-43-9		Cadmium	mg/Kg	< 0.51	0.51	ND	mg/Kg	FALSE	0.51		0.051						soil
CM09-S	6361134.835	2033635.424	720-31892-12	CM09-S		0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-43-9		Cadmium	mg/Kg	< 0.49	0.49	ND	mg/Kg	FALSE	0.49		0.048						soil
CM23-S	6361191.174	2033577.142	720-31892-13	CM23-S		0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-43-9		Cadmium	mg/Kg	< 0.5	0.5	ND	mg/Kg	FALSE	0.5		0.05						soil
CM-SS-1	6351862.333	2033589.514		CM-SS-1			Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Cadmium	mg/Kg	<2.5	2.5	ND	mg/Kg	FALSE									Soot and Calcines
CM-SS-2	6361120.03	2033587.848		CM-SS-2			Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Cadmium	mg/Kg	<2.5	2.5	ND	mg/Kg	FALSE									Soot and Calcines
CM-SS-3	6361035.381	2033532.356		CM-SS-3			Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Cadmium	mg/Kg	<2.5	2.5	ND	mg/Kg	FALSE									Soot and Calcines
CM-SS-4	6361076.204	2033627.238		CM-SS-4			Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Cadmium	mg/Kg	<2.5	2.5	ND	mg/Kg	FALSE									Soot and Calcines
CM-SS-5	6361122.208	2033583.077		CM-SS-5			Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Cadmium	mg/Kg	<2.5	2.5	ND	mg/Kg	FALSE									Soot and Calcines
CMT3a-12	6361169.482	2033583.097	720-32087-1	CMT3a-12		1	Solid	11/29/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B			7440-43-9		Cadmium	mg/Kg	< 0.49	0.49	ND	mg/Kg	FALSE	0.49		0.048						soil
CMT5a-4	6361105.047	2033606.93	720-32087-2	CMT5a-4		0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B			7440-43-9		Cadmium	mg/Kg	< 0.52	0.52	ND	mg/Kg	FALSE	0.52		0.052						soil
CMT7a-4	6361020.214	2033524.689	720-32087-3	CMT7a-4		0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B			7440-43-9		Cadmium	mg/Kg	< 0.51	0.51	ND	mg/Kg	FALSE	0.51		0.05						soil
RM05-S	6361706.936	2033330.478	720-31892-15	RM05-S		0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-43-9		Cadmium	mg/Kg	< 0.52	0.52	ND	mg/Kg	FALSE	0.52		0.051						soil
RM36-S	6361327.791	2033203.409	720-31892-17	RM36-S		0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-43-9		Cadmium	mg/Kg	< 0.52	0.52	ND	mg/Kg	FALSE	0.52		0.051						soil
RM43-S	6361403.917	2033111.429	720-31892-19	RM43-S		0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-43-9		Cadmium	mg/Kg	< 0.5	0.5	ND	mg/Kg	FALSE	0.5		0.049						soil
RM60-S	6361554.953	2033035.502	720-31892-18	RM60-S		0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-43-9		Cadmium	mg/Kg	< 0.52	0.52	ND	mg/Kg	FALSE	0.52		0.051						soil
RM94-S	6361915.699	2032865.907	720-31892-16	RM94-S		0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-43-9		Cadmium	mg/Kg	< 0.53	0.53	ND	mg/Kg	FALSE	0.53		0.052						soil
RMDS	6362080.702	2032779.716	720-31892-10	RMDS		0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-43-9		Cadmium	mg/Kg	< 0.49	0.49	ND	mg/Kg	FALSE	0.49		0.048						sediment
RM-SS-1	6361920.27	2032913.392		RM-SS-1			Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Cadmium	mg/Kg	<2.5	2.5	ND	mg/Kg	FALSE									Soot and calcines
RM-SS-2	6361937.897	2032910.604		RM-SS-2			Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Cadmium	mg/Kg	<2.5	2.5	ND	mg/Kg	FALSE									Soot and calcines
RM-SS-3	6361532.277	2033078.635		RM-SS-3			Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Cadmium	mg/Kg	<2.5	2.5	ND	mg/Kg	FALSE									Soot and calcines
RM-SS-4	6361503.037	2033180.118		RM-SS-4			Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Cadmium	mg/Kg	<2.5	2.5	ND	mg/Kg	FALSE									Soot and calcines
RM-SS-5	6361393.842	2033137.569		RM-SS-5			Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Cadmium	mg/Kg	<2.5	2.5	ND	mg/Kg	FALSE									Soot and calcines
RMT3z-8	6361346.725	2033241.751	720-32087-4	RMT3z-8		0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B			7440-43-9		Cadmium	mg/Kg	< 0.49	0.49	ND	mg/Kg	FALSE	0.49		0.049						soil
RMT3z-8 dup	6361346.725	2033241.751	720-32087-5	RMT3z-8 dup		0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		DUP	Thermo ICP	Total/NA	6010B			7440-43-9		Cadmium	mg/Kg	< 0.49	0.49	ND	mg/Kg	FALSE	0.49		0.048						soil
RMT6a-5	6361346.235	2032982.26	720-32087-6	RMT6a-5		0.4166	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B			7440-43-9		Cadmium	mg/Kg	< 0.51	0.51	ND	mg/Kg	FALSE	0.51		0.051						soil
RMT8b-15	6361972.83	2032854.226	720-32087-7	RMT8b-15		1.25	Solid	12/1/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B			7440-43-9		Cadmium	mg/Kg	< 0.53	0.53	ND	mg/Kg	FALSE	0.53		0.052						soil
21CH-0R	6361048.171	2033579.4		21CH-0R			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Chromium	mg/Kg	1805	1805	D	mg/Kg	FALSE									High Grade Ore
21CH-1C	6361048.171	2033579.4		21CH-1C			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Chromium	mg/Kg	1670	1670	D	mg/Kg	FALSE									Fine sand size calcine adjacent to retort
21CH-2C	6361048.171	2033579.4		21CH-2C			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Chromium	mg/Kg	745	745	D	mg/Kg	FALSE									Coarse Calcine red-black
21CH-3AR	6361048.171	2033579.4		21CH-3AR			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Chromium	mg/Kg	730	730	D	mg/Kg	FALSE									Silica-carbonate alteration and quartz vei
21CH-4C	6361048.171	2033579.4		21CH-4C			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Chromium	mg/Kg	4350	4350	D	mg/Kg	FALSE									Condenser soot below waste rock at ore
21RE-1C	6361537.816	2033063.592		21RE-1C			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Chromium	mg/Kg	949	949	D	mg/Kg	FALSE									Coarse Sand to Gravel next to Creek
21RE-1-S	6361537.816	2033063.592		21RE-1-S			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Chromium	mg/Kg	784	784	D	mg/Kg	FALSE									Sediment at Collapsed adit drainage
21RE-2C	6361537.816	2033063.592		21RE-2C			Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Chromium	mg/Kg	1530	1530	D	mg/Kg	FALSE									Fine Sand Calcine at adit
CM01-S	6361134.835	2033690.467	720-31892-11	CM01-S		0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B			7440-47-3		Chromium	mg/Kg	520	520	D	mg/Kg	FALSE	2		0.22						soil

CM09-S	6361134.835	2033635.424	720-31892-12	CM09-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-47-3	Chromium	mg/Kg	370	370	D	mg/Kg	FALSE	1.9	0.21	soil
CM23-S	6361191.174	2033577.142	720-31892-13	CM23-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-47-3	Chromium	mg/Kg	820	820	D	mg/Kg	FALSE	2	0.21	soil
CM-SS-1	6351862.333	2033589.514		CM-SS-1		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Chromium	mg/Kg	610	610	D	mg/Kg	FALSE			Soot and Calcines
CM-SS-2	6361120.03	2033587.848		CM-SS-2		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Chromium	mg/Kg	650	650	D	mg/Kg	FALSE			Soot and Calcines
CM-SS-3	6361035.381	2033532.356		CM-SS-3		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Chromium	mg/Kg	830	830	D	mg/Kg	FALSE			Soot and Calcines
CM-SS-4	6361076.204	2033627.238		CM-SS-4		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Chromium	mg/Kg	810	810	D	mg/Kg	FALSE			Soot and Calcines
CM-SS-5	6361122.208	2033583.077		CM-SS-5		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Chromium	mg/Kg	1200	1200	D	mg/Kg	FALSE			Soot and Calcines
CMT3a-12	6361169.482	2033583.097	720-32087-1	CMT3a-12	1	Solid	11/29/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7440-47-3	Chromium	mg/Kg	720	720	D	mg/Kg	FALSE	1.9	0.21	soil
CMT5a-4	6361105.047	2033606.93	720-32087-2	CMT5a-4	0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7440-47-3	Chromium	mg/Kg	220	220	D	mg/Kg	FALSE	2.1	0.22	soil
CMT7a-4	6361020.214	2033524.689	720-32087-3	CMT7a-4	0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7440-47-3	Chromium	mg/Kg	390	390	D	mg/Kg	FALSE	2	0.21	soil
RM05-S	6361706.936	2033330.478	720-31892-15	RM05-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-47-3	Chromium	mg/Kg	690	690	D	mg/Kg	FALSE	2.1	0.22	soil
RM36-S	6361327.791	2033203.409	720-31892-17	RM36-S	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-47-3	Chromium	mg/Kg	100	100	D	mg/Kg	FALSE	2.1	0.22	soil
RM43-S	6361403.917	2033111.429	720-31892-19	RM43-S	0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-47-3	Chromium	mg/Kg	420	420	D	mg/Kg	FALSE	2	0.21	soil
RM60-S	6361554.953	2033035.502	720-31892-18	RM60-S	0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-47-3	Chromium	mg/Kg	330	330	D	mg/Kg	FALSE	2.1	0.22	soil
RM94-S	6361915.699	2032865.907	720-31892-16	RM94-S	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-47-3	Chromium	mg/Kg	370	370	D	mg/Kg	FALSE	2.1	0.22	soil
RMDS	6362080.702	2032779.716	720-31892-10	RMDS	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-47-3	Chromium	mg/Kg	280	280	D	mg/Kg	FALSE	1.9	0.21	sediment
RM-SS-1	6361920.27	2032913.392		RM-SS-1		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Chromium	mg/Kg	320	320	D	mg/Kg	FALSE			Soot and calcines
RM-SS-2	6361937.897	2032910.604		RM-SS-2		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Chromium	mg/Kg	490	490	D	mg/Kg	FALSE			Soot and calcines
RM-SS-3	6361532.277	2033078.635		RM-SS-3		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Chromium	mg/Kg	470	470	D	mg/Kg	FALSE			Soot and calcines
RM-SS-4	6361503.037	2033180.118		RM-SS-4		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Chromium	mg/Kg	240	240	D	mg/Kg	FALSE			Soot and calcines
RM-SS-5	6361393.842	2033137.569		RM-SS-5		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Chromium	mg/Kg	820	820	D	mg/Kg	FALSE			Soot and calcines
RMT3z-8	6361346.725	2033241.751	720-32087-4	RMT3z-8	0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7440-47-3	Chromium	mg/Kg	86	86	D	mg/Kg	FALSE	2	0.21	soil
RMT3z-8 dup	6361346.725	2033241.751	720-32087-5	RMT3z-8 dup	0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		DUP	Thermo ICP	Total/NA	6010B	7440-47-3	Chromium	mg/Kg	140	140	D	mg/Kg	FALSE	1.9	0.21	soil
RMT6a-5	6361346.235	2032982.26	720-32087-6	RMT6a-5	0.4166	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7440-47-3	Chromium	mg/Kg	680	680	D	mg/Kg	FALSE	2	0.22	soil
RMT8b-15	6361972.83	2032854.226	720-32087-7	RMT8b-15	1.25	Solid	12/1/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7440-47-3	Chromium	mg/Kg	460	460	D	mg/Kg	FALSE	2.1	0.22	soil
CM01-S	6361134.835	2033690.467	720-31892-11	CM01-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-48-4	Cobalt	mg/Kg	93	93	D	mg/Kg	FALSE	0.82	0.082	soil
CM09-S	6361134.835	2033635.424	720-31892-12	CM09-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-48-4	Cobalt	mg/Kg	120	120	D	mg/Kg	FALSE	0.78	0.078	soil
CM23-S	6361191.174	2033577.142	720-31892-13	CM23-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-48-4	Cobalt	mg/Kg	160	160	D	mg/Kg	FALSE	0.8	0.08	soil
CMT3a-12	6361169.482	2033583.097	720-32087-1	CMT3a-12	1	Solid	11/29/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7440-48-4	Cobalt	mg/Kg	150	150	D	mg/Kg	FALSE	0.78	0.078	soil
CMT5a-4	6361105.047	2033606.93	720-32087-2	CMT5a-4	0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7440-48-4	Cobalt	mg/Kg	60	60	D	mg/Kg	FALSE	0.83	0.083	soil
CMT7a-4	6361020.214	2033524.689	720-32087-3	CMT7a-4	0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7440-48-4	Cobalt	mg/Kg	72	72	D	mg/Kg	FALSE	0.81	0.081	soil
RM05-S	6361706.936	2033330.478	720-31892-15	RM05-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-48-4	Cobalt	mg/Kg	76	76	D	mg/Kg	FALSE	0.82	0.082	soil
RM36-S	6361327.791	2033203.409	720-31892-17	RM36-S	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-48-4	Cobalt	mg/Kg	23	23	D	mg/Kg	FALSE	0.82	0.082	soil
RM43-S	6361403.917	2033111.429	720-31892-19	RM43-S	0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-48-4	Cobalt	mg/Kg	98	98	D	mg/Kg	FALSE	0.79	0.079	soil
RM60-S	6361554.953	2033035.502	720-31892-18	RM60-S	0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-48-4	Cobalt	mg/Kg	90	90	D	mg/Kg	FALSE	0.82	0.082	soil
RM94-S	6361915.699	2032865.907	720-31892-16	RM94-S	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-48-4	Cobalt	mg/Kg	62	62	D	mg/Kg	FALSE	0.84	0.084	soil
RMDS	6362080.702	2032779.716	720-31892-10	RMDS	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-48-4	Cobalt	mg/Kg	43	43	D	mg/Kg	FALSE	0.78	0.078	sediment
RMT3z-8	6361346.725	2033241.751	720-32087-4	RMT3z-8	0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7440-48-4	Cobalt	mg/Kg	19	19	D	mg/Kg	FALSE	0.78	0.078	soil
RMT3z-8 dup	6361346.725	2033241.751	720-32087-5	RMT3z-8 dup	0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		DUP	Thermo ICP	Total/NA	6010B	7440-48-4	Cobalt	mg/Kg	26	26	D	mg/Kg	FALSE	0.78	0.078	soil
RMT6a-5	6361346.235	2032982.26	720-32087-6	RMT6a-5	0.4166	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7440-48-4	Cobalt	mg/Kg	170	170	D	mg/Kg	FALSE	0.82	0.082	soil
RMT8b-15	6361972.83	2032854.226	720-32087-7	RMT8b-15	1.25	Solid	12/1/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7440-48-4	Cobalt	mg/Kg	52	52	D	mg/Kg	FALSE	0.84	0.084	soil
21CH-0R	6361048.171	2033579.4		21CH-0R		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Copper	mg/Kg	8.6	8.6	D	mg/Kg	FALSE			High Grade Ore
21CH-1C	6361048.171	2033579.4		21CH-1C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Copper	mg/Kg	11.8	11.8	D	mg/Kg	FALSE			Fine sand size calcine adjacent to retort
21CH-2C	6361048.171	2033579.4		21CH-2C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Copper	mg/Kg	7.2	7.2	D	mg/Kg	FALSE			Coarse Calcine red-black
21CH-3AR	6361048.171	2033579.4		21CH-3AR		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Copper	mg/Kg	4.4	4.4	D	mg/Kg	FALSE			Silica-carbonate alteration and quartz vei
21CH-4C	6361048.171	2033579.4		21CH-4C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Copper	mg/Kg	27.6	27.6	D	mg/Kg	FALSE			Condenser soot below waste rock at ore (
21RE-1C	6361537.816	2033063.592		21RE-1C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Copper	mg/Kg	10	10	D	mg/Kg	FALSE			Coarse Sand to Gravel next to Creek
21RE-1-S	6361537.816	2033063.592		21RE-1-S		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Copper	mg/Kg	16.8	16.8	D	mg/Kg	FALSE			Sediment at Collapsed adit drainage
21RE-2C	6361537.816	2033063.592		21RE-2C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Copper	mg/Kg	17.4	17.4	D	mg/Kg	FALSE			Fine Sand Calcine at adit
CM01-S	6361134.835	2033690.467	720-31892-11	CM01-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-50-8	Copper	mg/Kg	< 6.1	6.1	ND	mg/Kg	FALSE	6.1	2.9	soil
CM09-S	6361134.835	2033635.424	720-31892-12	CM09-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-50-8	Copper	mg/Kg	7.2	7.2	D	mg/Kg	FALSE	5.8	2.8	soil
CM23-S	6361191.174	2033577.142	720-31892-13	CM23-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-50-8	Copper	mg/Kg	13	13	D	mg/Kg	FALSE	6	2.8	soil
CM-SS-1	6351862.333	2033589.514		CM-SS-1		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Copper	mg/Kg	6.5	6.5	D	mg/Kg	FALSE			Soot and Calcines
CM-SS-2	6361120.03	2033587.848		CM-SS-2		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Copper	mg/Kg	6.9	6.9	D	mg/Kg	FALSE			Soot and Calcines
CM-SS-3	6361035.381	2033532.356		CM-SS-3		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Copper	mg/Kg	8	8	D	mg/Kg	FALSE			Soot and Calcines
CM-SS-4	6361076.204	2033627.238		CM-SS-4		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Copper	mg/Kg	8.3	8.3	D	mg/Kg	FALSE			Soot and Calcines
CM-SS-5	6361122.208	2033583.077		CM-SS-5		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Copper	mg/Kg	11	11	D	mg/Kg	FALSE			Soot and Calcines
CMT3a-12	6361169.482	2033583.097	720-32087-1	CMT3a-12	1	Solid	11/29/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7440-50-8	Copper	mg/Kg	11	11	D	mg/Kg	FALSE	5.8	2.8	soil
CMT5a-4	6361105.047	2033606.93	720-32087-2	CMT5a-4	0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7440-50-8	Copper	mg/Kg	< 6.2	6.2	ND	mg/Kg	FALSE	6.2	3	soil
CMT7a-4	6361020.214	2033524.689	720-32087-3	CMT7a-4	0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7440-50-8	Copper	mg/Kg	9.1	9.1	D	mg/Kg	FALSE	6.1	2.9	soil
RM05-S	6361706.936	2033330.478	720-31892-15	RM05-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-50-8	Copper	mg/Kg	< 6.2	6.2	ND	mg/Kg	FALSE	6.2	2.9	soil
RM36-S	6361327.791	2033203.409	720-31892-17	RM36-S	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-50-8	Copper	mg/Kg	8.7	8.7	D	mg/Kg	FALSE	6.2	2.9	soil
RM43-S	6361403.917	2033111.429	720-31892-19	RM43-S	0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-50-8	Copper	mg/Kg	9.6	9.6	D	mg/Kg	FALSE	5.9	2.8	soil
RM60-S	6361554.953	2033035.502	720-31892-18	RM60-S	0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-50-8	Copper	mg/Kg	11	11	D	mg/Kg	FALSE	6.2	2.9	soil
RM94-S	6361915.699	2032865.907	720-31892-16	RM94-S	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-50-8	Copper	mg/Kg	< 6.3	6.3	ND	mg/Kg	FALSE	6.3	3	soil
RMDS	6362080.702	2032779.716	720-31892-10	RMDS	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-50-8	Copper	mg/Kg	13	13	D	mg/Kg	FALSE	5.8	2.8	sediment
RM-SS-1	6361920.27	2032913.392		RM-SS-1		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Copper	mg/Kg	12	12	D	mg/Kg	FALSE			Soot and calcines
RM-SS-2	6361937.897	2032910.604		RM-SS-2		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Copper	mg/Kg	31	31	D	mg/Kg	FALSE			Soot and calcines
RM-SS-3	6361532.277	2033078.635		RM-SS-3		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Copper	mg/Kg	6.3	6.3	D	mg/Kg	FALSE			Soot and calcines
RM-SS-4	6361503.037	2033180.118		RM-SS-4		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Copper	mg/Kg	<5.0	5	ND	mg/Kg	FALSE			Soot and calcines
RM-SS-5	6361393.842	2033137.569		RM-SS-5		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Copper	mg/Kg	11	11	D	mg/Kg	FALSE			Soot and calcines
RMT3z-8	6361346.725	2033241.751	720-32087-4	RMT3z-8	0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7440-50-8	Copper	mg/Kg	6.3	6.3	D	mg/Kg	FALSE	5.9	2.8	soil
RMT3z-8 dup	6361346.725	2033241.751	720-32087-5	RMT3z-8 dup	0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		DUP	Thermo ICP	Total/NA	6010B	7440-50-8	Copper	mg/Kg	12	12	D	mg/Kg	FALSE	5.8	2.8	soil
RMT6a-5	6361346.235	2032982.26	720-32087-6	RMT6a-5	0.4166	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7440-50-8	Copper	mg/Kg	13	13	D	mg/Kg	FALSE	6.1	2.9	soil
RMT8b-15	6361972.83	2032854.226	720-32087-7	RMT8b-15	1.25	Solid	12/1/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7440-50-8	Copper	mg/Kg	7.6	7.6	D	mg/Kg	FALSE	6.3	3	soil
21CH-0R	6361048.171	2033579.4		21CH-0R		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Iron	mg/Kg	49000	49000	D	mg/Kg	FALSE			High Grade Ore
21CH-1C	6361048.171	2033579.4		21CH-1C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Iron	mg/Kg	79000	79000	D	mg/Kg	FALSE			Fine sand size calcine adjacent to retort
21CH-2C	6361048.171	2033579.4		21CH-2C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Iron	mg/Kg	52000	52000	D	mg/Kg	FALSE			Coarse Calcine red-black
21CH-3AR	6361048.171	2033579.4		21CH-3AR		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Iron	mg/Kg	37000	37000	D	mg/Kg	FALSE			Silica-carbonate alteration and quartz vei
21CH-4C	6361048.171	2033579.4		21CH-4C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Iron	mg/Kg	154000	154000	D	mg/Kg	FALSE			Condenser soot below waste rock at ore (
21RE-1C	6361537.816	2033063.592		21RE-1C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Iron	mg/Kg	60000	60000	D	mg/Kg	FALSE			Coarse Sand to Gravel next to Creek
21RE-1-S	6361537.816	2033063.592		21RE-1-S		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Iron	mg/Kg	52000	52000	D	mg/Kg	FALSE			Sediment at Collapsed adit drainage
21RE-2C	6361537.816	2033063.592		21RE-2C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Iron	mg/Kg	83000	83000	D	mg/Kg	FALSE			Fine Sand Calcine at adit
CM-SS-1	6351862.333	2033589.514		CM-SS-1		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Iron	mg/Kg	49000	49000	D	mg/Kg	FALSE			Soot and Calcines
CM-SS-2	6361120.03	2033587.848		CM-SS-2		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Iron	mg/Kg	53000	53000	D	mg/Kg	FALSE			Soot and Calcines
CM-SS-3	6361035.381	2033532.356		CM-SS-3		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Iron	mg/Kg	63000	63000	D	mg/Kg	FALSE			Soot and Calcines
CM-SS-4	6361076.204	2033627.238		CM-SS-4		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Iron	mg/Kg	63000	63000	D	mg/Kg	FALSE			Soot and Calcines
CM-SS-5	6361122.208	2033583.077		CM-SS-5		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Iron	mg/Kg	80000	80000	D	mg/Kg	FALSE			Soot and Calcines
RM-SS-1	6361920.27	2032913.392		RM-SS-1		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Iron	mg/Kg	40000	40000	D	mg/Kg	FALSE			Soot and calcines
RM-SS-2	6361937.897	2032910.604		RM-SS-2		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Iron	mg/Kg	37000	37000	D	mg/Kg	FALSE			Soot and calcines
RM-SS-3	6361532.277	2033078.635		RM-SS-3		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Iron	mg/Kg	40000	40000	D	mg/Kg	FALSE			Soot and calcines
RM-SS-4	6361503.037	2033180.118		RM-SS-4		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Iron	mg/Kg	26000	26000	D	mg/Kg	FALSE			Soot and calcines
RM-SS-5	6361393.842	2033137.569		RM-SS-5		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Iron	mg/Kg	82000	82000	D	mg/Kg	FALSE			Soot and calcines
21CH-0R	6361048.171	2033579.4		21CH-0R		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Lead	mg/Kg	11.5	11.5	D	mg/Kg	FALSE			High Grade Ore
21CH-1C	6361048.171	2033579.4		21CH-1C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Lead	mg/Kg	6.5	6.5	D	mg/Kg	FALSE			Fine sand size calcine adjacent to retort
21CH-2C	6361048.171	2033579.4		21CH-2C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Lead	mg/Kg	1.5	1.5	D	mg/Kg	FALSE			Coarse Calcine red-black
21CH-3AR	6361048.171	2033579.4		21CH-3AR		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Lead	mg/Kg	0.5	0.5	D	mg/Kg	FALSE			Silica-carbonate alteration and quartz vei
21CH-4C	6361048.171	2033579.4		21CH-4C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Lead	mg/Kg	6	6	D	mg/Kg	FALSE			Condenser soot below waste rock at ore (
21RE-1C	6361537.816	2033063.592		21RE-1C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Lead	mg/Kg	6.5	6.5	D	mg/Kg	FALSE			Coarse Sand to Gravel next to Creek
21RE-1-S	6361537.816	2033063.592		21RE-1-S		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Lead	mg/Kg	2	2	D	mg/Kg	FALSE			Sediment at Collapsed adit drainage
21RE-2C	6361537.816	2033063.592		21RE-2C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Lead	mg/Kg	24.5	24.5	D	mg/Kg	FALSE			Fine Sand Calcine at adit
CM01-S	6361134.835	2033690.467	720-31892-11	CM01-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7439-92-1	Lead	mg/Kg	< 2	2	ND	mg/Kg	FALSE	2	0.43	soil
CM09-S	6361134.835	2033635.424	720-31892-12	CM09-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7439-92-1	Lead	mg/Kg	2.3	2.3	D	mg/Kg	FALSE	1.9	0.41	soil
CM23-S	6361191.174	2033577.142	720-31892-13	CM23-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7439-92-1	Lead	mg/Kg	4.2	4.2	D	mg/Kg	FALSE	2	0.42	soil
CM-SS-1	6351862.333	2033589.514		CM-SS-1		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Lead	mg/Kg	11	11	D	mg/Kg	FALSE			Soot and Calcines
CM-SS-2	6361120.03	2033587.848		CM-SS-2		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Lead	mg/Kg	33	33	D	mg/Kg	FALSE			Soot and Calcines
CM-SS-3	6361035.381	2033532.356		CM-SS-3		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Lead	mg/Kg	16	16	D	mg/Kg	FALSE			Soot and Calcines
CM-SS-4	6361076.204	2033627.238		CM-SS-4		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Lead	mg/Kg	<10	10	ND	mg/Kg	FALSE			Soot and Calcines
CM-SS-5	6361122.208	2033583.077		CM-SS-5		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Lead	mg/Kg	<10	10	ND	mg/Kg	FALSE			Soot and Calcines
CMT3a-12	6361169.482	2033583.097	720-32087-1	CMT3a-12	1	Solid	11/29/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7439-92-1	Lead	mg/Kg	3.4	3.4	D	mg/Kg	FALSE	1.9	0.41	soil
CMT5a-4	6361105.047	2033606.93	720-32087-2	CMT5a-4	0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7439-92-1	Lead	mg/Kg	4.9	4.9	D	mg/Kg	FALSE	2.1	0.44	soil
CMT7a-4	6361020.214	2033524.689	720-32087-3	CMT7a-4	0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7439-92-1	Lead	mg/Kg	5.9	5.9	D	mg/Kg	FALSE	2	0.42	soil
RM05-S	6361706.936	2033330.478	720-31892-15	RM05-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7439-92-1	Lead	mg/Kg	< 2.1	2.1	ND	mg/Kg	FALSE	2.1	0.43	soil
RM36-S	6361327.791	2033203.409	720-31892-17	RM36-S	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7439-92-1	Lead	mg/Kg	2.3	2.3	D	mg/Kg	FALSE	2.1	0.43	soil
RM43-S	6361403.917	2033111.429	720-31892-19	RM43-S	0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7439-92-1	Lead	mg/Kg	5.6	5.6	D	mg/Kg	FALSE	2	0.42	soil
RM60-S	6361554.953	2033035.502	720-31892-18	RM60-S	0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7439-92-1	Lead	mg/Kg	15	15	D	mg/Kg	FALSE	2.1	0.43	soil
RM94-S	6361915.699	2032865.907	720-31892-16	RM94-S	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7439-92-1	Lead	mg/Kg	3.5	3.5	D	mg/Kg	FALSE	2.1	0.44	soil
RMDS	6362080.702	2032779.716	720-31892-10	RMDS	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7439-92-1	Lead	mg/Kg	2.6	2.6	D	mg/Kg	FALSE	1.9	0.41	sediment
RM-SS-1	6361920.27	2032913.392		RM-SS-1		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Lead	mg/Kg	22	22	D	mg/Kg	FALSE			Soot and calcines
RM-SS-2	6361937.897	2032910.604		RM-SS-2		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Lead	mg/Kg	11	11	D	mg/Kg	FALSE			Soot and calcines
RM-SS-3	6361532.277	2033078.635		RM-SS-3		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Lead	mg/Kg	<4	4	ND	mg/Kg	FALSE			Soot and calcines
RM-SS-4	6361503.037	2033180.118		RM-SS-4		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Lead	mg/Kg	<4	4	ND	mg/Kg	FALSE			Soot and calcines
RM-SS-5	6361393.842	2033137.569		RM-SS-5		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B		Lead	mg/Kg	<10	10	ND	mg/Kg	FALSE			Soot and calcines
RMT3z-8	6361346.725	2033241.751	720-32087-4	RMT3z-8	0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7439-92-1	Lead	mg/Kg	2	2	D	mg/Kg	FALSE	2	0.41	soil
RMT3z-8 dup	6361346.725	2033241.751	720-32087-5	RMT3z-8 dup	0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		DUP	Thermo ICP	Total/NA	6010B	7439-92-1	Lead	mg/Kg	2.2	2.2	D	mg/Kg	FALSE	1.9	0.41	soil
RMT6a-5	6361346.235	2032982.26	720-32087-6	RMT6a-5	0.4166	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7439-92-1	Lead	mg/Kg	2.6	2.6	D	mg/Kg	FALSE	2	0.43	soil
RMT8b-15	6361972.83	2032854.226	720-32087-7	RMT8b-15	1.25	Solid	12/1/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7439-92-1	Lead	mg/Kg	15	15	D	mg/Kg	FALSE	2.1	0.44	soil
21CH-0R	6361048.171	2033579.4		21CH-0R		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Manganese	mg/Kg	540	540	D	mg/Kg	FALSE			High Grade Ore
21CH-1C	6361048.171	2033579.4		21CH-1C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Manganese	mg/Kg	1255	1255	D	mg/Kg	FALSE			Fine sand size calcine adjacent to retort
21CH-2C	6361048.171	2033579.4		21CH-2C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Manganese	mg/Kg	780	780	D	mg/Kg	FALSE			Coarse Calcine red-black
21CH-3AR	6361048.171	2033579.4		21CH-3AR		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Manganese	mg/Kg	590	590	D	mg/Kg	FALSE			Silica-carbonate alteration and quartz vei
21CH-4C	6361048.171	2033579.4		21CH-4C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Manganese	mg/Kg	2670	2670	D	mg/Kg	FALSE			Condenser soot below waste rock at ore (
21RE-1C	6361537.816	2033063.592		21RE-1C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Manganese	mg/Kg	970	970	D	mg/Kg	FALSE			Coarse Sand to Gravel next to Creek
21RE-1-S	6361537.816	2033063.592		21RE-1-S		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Manganese	mg/Kg	710	710	D	mg/Kg	FALSE			Sediment at Collapsed adit drainage
21RE-2C	6361537.816	2033063.592		21RE-2C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Manganese	mg/Kg	1345	1345	D	mg/Kg	FALSE			Fine Sand Calcine at adit
CM-SS-1	6351862.333	2033589.514		CM-SS-1		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Manganese	mg/Kg	730	730	D	mg/Kg	FALSE			Soot and Calcines
CM-SS-2	6361120.03	2033587.848		CM-SS-2		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Manganese	mg/Kg	940	940	D	mg/Kg	FALSE			Soot and Calcines
CM-SS-3	6361035.381	2033532.356		CM-SS-3		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Manganese	mg/Kg	990	990	D	mg/Kg	FALSE			Soot and Calcines
CM-SS-4	6361076.204	2033627.238		CM-SS-4		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Manganese	mg/Kg	880	880	D	mg/Kg	FALSE			Soot and Calcines
CM-SS-5	6361122.208	2033583.077		CM-SS-5		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Manganese	mg/Kg	1400	1400	D	mg/Kg	FALSE			Soot and Calcines
RM-SS-1	6361920.27	2032913.392		RM-SS-1		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Manganese	mg/Kg	420	420	D	mg/Kg	FALSE			Soot and calcines
RM-SS-2	6361937.897	2032910.604		RM-SS-2		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Manganese	mg/Kg	520	520	D	mg/Kg	FALSE			Soot and calcines
RM-SS-3	6361532.277	2033078.635		RM-SS-3		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Manganese	mg/Kg	660	660	D	mg/Kg	FALSE			Soot and calcines
RM-SS-4	6361503.037	2033180.118		RM-SS-4		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Manganese	mg/Kg	230	230	D	mg/Kg	FALSE			Soot and calcines

RM-SS-5	6361393.842	2033137.569		RM-SS-5		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Manganese	mg/Kg	1300	1300	D	mg/Kg	FALSE			Soot and calcines
21CH-0R	6361048.171	2033579.4		21CH-0R		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				7471A		Mercury	mg/Kg	17700	17700	D	mg/Kg	FALSE			High Grade Ore
21CH-1C	6361048.171	2033579.4		21CH-1C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				7471A		Mercury	mg/Kg	77	77	D	mg/Kg	FALSE			Fine sand size calcine adjacent to retort
21CH-2C	6361048.171	2033579.4		21CH-2C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				7471A		Mercury	mg/Kg	8.4	8.4	D	mg/Kg	FALSE			Coarse Calcine red-black
21CH-3AR	6361048.171	2033579.4		21CH-3AR		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				7471A		Mercury	mg/Kg	57	57	D	mg/Kg	FALSE			Silica-carbonate alteration and quartz vei
21CH-4C	6361048.171	2033579.4		21CH-4C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				7471A		Mercury	mg/Kg	430	430	D	mg/Kg	FALSE			Condenser soot below waste rock at ore
21RE-1C	6361537.816	2033063.592		21RE-1C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				7471A		Mercury	mg/Kg	3.4	3.4	D	mg/Kg	FALSE			Coarse Sand to Gravel next to Creek
21RE-1-S	6361537.816	2033063.592		21RE-1-S		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				7471A		Mercury	mg/Kg	3.4	3.4	D	mg/Kg	FALSE			Sediment at Collapsed adit drainage
21RE-2C	6361537.816	2033063.592		21RE-2C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				7471A		Mercury	mg/Kg	15.7	15.7	D	mg/Kg	FALSE			Fine Sand Calcine at adit
CM01-S	6361134.835	2033690.467	720-31892-11	CM01-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			LL_HG Analyzer	Total/NA	7471A	7439-97-6	Mercury	mg/Kg	450	450	D	mg/Kg	FALSE	9.8	2.5	soil
CM09-S	6361134.835	2033635.424	720-31892-12	CM09-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			LL_HG Analyzer	Total/NA	7471A	7439-97-6	Mercury	mg/Kg	1700	1700	D	mg/Kg	FALSE	51	13	soil
CM23-S	6361191.174	2033577.142	720-31892-13	CM23-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			LL_HG Analyzer	Total/NA	7471A	7439-97-6	Mercury	mg/Kg	990	990	D	mg/Kg	FALSE	9.8	2.5	soil
CM-SS-1	6351862.333	2033589.514		CM-SS-1		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				7471A		Mercury	mg/Kg	1.8	1.8	D	mg/Kg	FALSE			Soot and Calcines
CM-SS-2	6361120.03	2033587.848		CM-SS-2		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				7471A		Mercury	mg/Kg	1400	1400	D	mg/Kg	FALSE			Soot and Calcines
CM-SS-3	6361035.381	2033532.356		CM-SS-3		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				7471A		Mercury	mg/Kg	13000	13000	D	mg/Kg	FALSE			Soot and Calcines
CM-SS-4	6361076.204	2033627.238		CM-SS-4		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				7471A		Mercury	mg/Kg	8.3	8.3	D	mg/Kg	FALSE			Soot and Calcines
CM-SS-5	6361122.208	2033583.077		CM-SS-5		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				7471A		Mercury	mg/Kg	260	260	D	mg/Kg	FALSE			Soot and Calcines
CMT3a-12	6361169.482	2033583.097	720-32087-1	CMT3a-12	1	Solid	11/29/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			LL_HG Analyzer	Total/NA	7471A	7439-97-6	Mercury	mg/Kg	700	700	D	mg/Kg	FALSE	10	2.5	soil
CMT5a-4	6361105.047	2033606.93	720-32087-2	CMT5a-4	0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			LL_HG Analyzer	Total/NA	7471A	7439-97-6	Mercury	mg/Kg	200	200	D	mg/Kg	FALSE	9.7	2.4	soil
CMT7a-4	6361020.214	2033524.689	720-32087-3	CMT7a-4	0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			LL_HG Analyzer	Total/NA	7471A	7439-97-6	Mercury	mg/Kg	6.3	6.3	D	mg/Kg	FALSE	1	0.26	soil
RM05-S	6361706.936	2033330.478	720-31892-15	RM05-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			LL_HG Analyzer	Total/NA	7471A	7439-97-6	Mercury	mg/Kg	0.12	0.12	D	mg/Kg	FALSE	0.01	0.0025	soil
RM36-S	6361327.791	2033203.409	720-31892-17	RM36-S	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			LL_HG Analyzer	Total/NA	7471A	7439-97-6	Mercury	mg/Kg	74	74	D	mg/Kg	FALSE	1	0.26	soil
RM43-S	6361403.917	2033111.429	720-31892-19	RM43-S	0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			LL_HG Analyzer	Total/NA	7471A	7439-97-6	Mercury	mg/Kg	52	52	D	mg/Kg	FALSE	0.98	0.25	soil
RM60-S	6361554.953	2033035.502	720-31892-18	RM60-S	0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			LL_HG Analyzer	Total/NA	7471A	7439-97-6	Mercury	mg/Kg	9.2	9.2	D	mg/Kg	FALSE	0.1	0.025	soil
RM94-S	6361915.699	2032865.907	720-31892-16	RM94-S	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			LL_HG Analyzer	Total/NA	7471A	7439-97-6	Mercury	mg/Kg	450	450	D	mg/Kg	FALSE	9.5	2.4	soil
RMDS	6362080.702	2032779.716	720-31892-10	RMDS	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			LL_HG Analyzer	Total/NA	7471A	7439-97-6	Mercury	mg/Kg	0.22	0.22	D	mg/Kg	FALSE	0.01	0.0025	sediment
RM-SS-1	6361920.27	2032913.392		RM-SS-1		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				7471A		Mercury	mg/Kg	14	14	D	mg/Kg	FALSE			Soot and calcines
RM-SS-2	6361937.897	2032910.604		RM-SS-2		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				7471A		Mercury	mg/Kg	150	150	D	mg/Kg	FALSE			Soot and calcines
RM-SS-3	6361532.277	2033078.635		RM-SS-3		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				7471A		Mercury	mg/Kg	6.6	6.6	D	mg/Kg	FALSE			Soot and calcines
RM-SS-4	6361503.037	2033180.118		RM-SS-4		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				7471A		Mercury	mg/Kg	130	130	D	mg/Kg	FALSE			Soot and calcines
RM-SS-5	6361393.842	2033137.569		RM-SS-5		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				7471A		Mercury	mg/Kg	2.1	2.1	D	mg/Kg	FALSE			Soot and calcines
RMT3z-8	6361346.725	2033241.751	720-32087-4	RMT3z-8	0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			LL_HG Analyzer	Total/NA	7471A	7439-97-6	Mercury	mg/Kg	86	86	D	mg/Kg	FALSE	1	0.25	soil
RMT3z-8 dup	6361346.725	2033241.751	720-32087-5	RMT3z-8 dup	0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		DUP	LL_HG Analyzer	Total/NA	7471A	7439-97-6	Mercury	mg/Kg	130	130	D	mg/Kg	FALSE	1	0.26	soil
RMT6a-5	6361346.235	2032982.26	720-32087-6	RMT6a-5	0.4166	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			LL_HG Analyzer	Total/NA	7471A	7439-97-6	Mercury	mg/Kg	4.1	4.1	D	mg/Kg	FALSE	0.98	0.25	soil
RMT8b-15	6361972.83	2032854.226	720-32087-7	RMT8b-15	1.25	Solid	12/1/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			LL_HG Analyzer	Total/NA	7471A	7439-97-6	Mercury	mg/Kg	910	910	D	mg/Kg	FALSE	9.8	2.5	soil
CM01-S	6361134.835	2033690.467	720-31892-11	CM01-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7439-98-7	Molybdenum	mg/Kg	< 2	2	ND	mg/Kg	FALSE	2	0.26	soil
CM09-S	6361134.835	2033635.424	720-31892-12	CM09-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7439-98-7	Molybdenum	mg/Kg	< 1.9	1.9	ND	mg/Kg	FALSE	1.9	0.25	soil
CM23-S	6361191.174	2033577.142	720-31892-13	CM23-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7439-98-7	Molybdenum	mg/Kg	< 2	2	ND	mg/Kg	FALSE	2	0.26	soil
CMT3a-12	6361169.482	2033583.097	720-32087-1	CMT3a-12	1	Solid	11/29/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7439-98-7	Molybdenum	mg/Kg	< 1.9	1.9	ND	mg/Kg	FALSE	1.9	0.25	soil
CMT5a-4	6361105.047	2033606.93	720-32087-2	CMT5a-4	0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7439-98-7	Molybdenum	mg/Kg	< 2.1	2.1	ND	mg/Kg	FALSE	2.1	0.27	soil
CMT7a-4	6361020.214	2033524.689	720-32087-3	CMT7a-4	0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7439-98-7	Molybdenum	mg/Kg	< 2	2	ND	mg/Kg	FALSE	2	0.26	soil
RM05-S	6361706.936	2033330.478	720-31892-15	RM05-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7439-98-7	Molybdenum	mg/Kg	< 2.1	2.1	ND	mg/Kg	FALSE	2.1	0.26	soil
RM36-S	6361327.791	2033203.409	720-31892-17	RM36-S	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7439-98-7	Molybdenum	mg/Kg	< 2.1	2.1	ND	mg/Kg	FALSE	2.1	0.26	soil
RM43-S	6361403.917	2033111.429	720-31892-19	RM43-S	0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7439-98-7	Molybdenum	mg/Kg	< 2	2	ND	mg/Kg	FALSE	2	0.25	soil
RM60-S	6361554.953	2033035.502	720-31892-18	RM60-S	0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7439-98-7	Molybdenum	mg/Kg	< 2.1	2.1	ND	mg/Kg	FALSE	2.1	0.26	soil
RM94-S	6361915.699	2032865.907	720-31892-16	RM94-S	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7439-98-7	Molybdenum	mg/Kg	< 2.1	2.1	ND	mg/Kg	FALSE	2.1	0.27	soil
RMDS	6362080.702	2032779.716	720-31892-10	RMDS	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7439-98-7	Molybdenum	mg/Kg	< 1.9	1.9	ND	mg/Kg	FALSE	1.9	0.25	sediment
RMT3z-8	6361346.725	2033241.751	720-32087-4	RMT3z-8	0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7439-98-7	Molybdenum	mg/Kg	< 2	2	ND	mg/Kg	FALSE	2	0.25	soil
RMT3z-8 dup	6361346.725	2033241.751	720-32087-5	RMT3z-8 dup	0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		DUP	Thermo ICP	Total/NA	6010B	7439-98-7	Molybdenum	mg/Kg	< 1.9	1.9	ND	mg/Kg	FALSE	1.9	0.25	soil
RMT6a-5	6361346.235	2032982.26	720-32087-6	RMT6a-5	0.4166	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7439-98-7	Molybdenum	mg/Kg	< 2	2	ND	mg/Kg	FALSE	2	0.26	soil
RMT8b-15	6361972.83	2032854.226	720-32087-7	RMT8b-15	1.25	Solid	12/1/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7439-98-7	Molybdenum	mg/Kg	< 2.1	2.1	ND	mg/Kg	FALSE	2.1	0.27	soil
21CH-0R	6361048.171	2033579.4		21CH-0R		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Nickel	mg/Kg	2300	2300	D	mg/Kg	FALSE			High Grade Ore
21CH-1C	6361048.171	2033579.4		21CH-1C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Nickel	mg/Kg	3490	3490	D	mg/Kg	FALSE			Fine sand size calcine adjacent to retort
21CH-2C	6361048.171	2033579.4		21CH-2C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Nickel	mg/Kg	2470	2470	D	mg/Kg	FALSE			Coarse Calcine red-black
21CH-3AR	6361048.171	2033579.4		21CH-3AR		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Nickel	mg/Kg	1455	1455	D	mg/Kg	FALSE			Silica-carbonate alteration and quartz vei
21CH-4C	6361048.171	2033579.4		21CH-4C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Nickel	mg/Kg	4920	4920	D	mg/Kg	FALSE			Condenser soot below waste rock at ore
21RE-1C	6361537.816	2033063.592		21RE-1C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Nickel	mg/Kg	2680	2680	D	mg/Kg	FALSE			Coarse Sand to Gravel next to Creek
21RE-1-S	6361537.816	2033063.592		21RE-1-S		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Nickel	mg/Kg	2420	2420	D	mg/Kg	FALSE			Sediment at Collapsed adit drainage
21RE-2C	6361537.816	2033063.592		21RE-2C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Nickel	mg/Kg	3450	3450	D	mg/Kg	FALSE			Fine Sand Calcine at adit
CM01-S	6361134.835	2033690.467	720-31892-11	CM01-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-02-0	Nickel	mg/Kg	1600	1600	D	mg/Kg	FALSE	2	0.21	soil
CM09-S	6361134.835	2033635.424	720-31892-12	CM09-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-02-0	Nickel	mg/Kg	2200	2200	D	mg/Kg	FALSE	1.9	0.2	soil
CM23-S	6361191.174	2033577.142	720-31892-13	CM23-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-02-0	Nickel	mg/Kg	2400	2400	D	mg/Kg	FALSE	2	0.2	soil
CM-SS-1	6351862.333	2033589.514		CM-SS-1		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Nickel	mg/Kg	1900	1900	D	mg/Kg	FALSE			Soot and Calcines
CM-SS-2	6361120.03	2033587.848		CM-SS-2		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Nickel	mg/Kg	2200	2200	D	mg/Kg	FALSE			Soot and Calcines
CM-SS-3	6361035.381	2033532.356		CM-SS-3		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Nickel	mg/Kg	2400	2400	D	mg/Kg	FALSE			Soot and Calcines
CM-SS-4	6361076.204	2033627.238		CM-SS-4		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Nickel	mg/Kg	2000	2000	D	mg/Kg	FALSE			Soot and Calcines
CM-SS-5	6361122.208	2033583.077		CM-SS-5		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Nickel	mg/Kg	2500	2500	D	mg/Kg	FALSE			Soot and Calcines
CMT3a-12	6361169.482	2033583.097	720-32087-1	CMT3a-12	1	Solid	11/29/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7440-02-0	Nickel	mg/Kg	2300	2300	D	mg/Kg	FALSE	1.9	0.2	soil
CMT5a-4	6361105.047	2033606.93	720-32087-2	CMT5a-4	0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7440-02-0	Nickel	mg/Kg	1200	1200	D	mg/Kg	FALSE	2.1	0.21	soil
CMT7a-4	6361020.214	2033524.689	720-32087-3	CMT7a-4	0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7440-02-0	Nickel	mg/Kg	1600	1600	D	mg/Kg	FALSE	2	0.21	soil
RM05-S	6361706.936	2033330.478	720-31892-15	RM05-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-02-0	Nickel	mg/Kg	1400	1400	D	mg/Kg	FALSE	2.1	0.21	soil
RM36-S	6361327.791	2033203.409	720-31892-17	RM36-S	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-02-0	Nickel	mg/Kg	200	200	D	mg/Kg	FALSE	2.1	0.21	soil
RM43-S	6361403.917	2033111.429	720-31892-19	RM43-S	0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-02-0	Nickel	mg/Kg	1600	1600	D	mg/Kg	FALSE	2	0.2	soil
RM60-S	6361554.953	2033035.502	720-31892-18	RM60-S	0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-02-0	Nickel	mg/Kg	1400	1400	D	mg/Kg	FALSE	2.1	0.21	soil
RM94-S	6361915.699	2032865.907	720-31892-16	RM94-S	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-02-0	Nickel	mg/Kg	1100	1100	D	mg/Kg	FALSE	2.1	0.21	soil
RMDS	6362080.702	2032779.716	720-31892-10	RMDS	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-02-0	Nickel	mg/Kg	950	950	D	mg/Kg	FALSE	1.9	0.2	sediment
RM-SS-1	6361920.27	2032913.392		RM-SS-1		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Nickel	mg/Kg	980	980	D	mg/Kg	FALSE			Soot and calcines
RM-SS-2	6361937.897	2032910.604		RM-SS-2		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Nickel	mg/Kg	1300	1300	D	mg/Kg	FALSE			Soot and calcines
RM-SS-3	6361532.277	2033078.635		RM-SS-3		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Nickel	mg/Kg	1800	1800	D	mg/Kg	FALSE			Soot and calcines
RM-SS-4	6361503.037	2033180.118		RM-SS-4		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Nickel	mg/Kg	810	810	D	mg/Kg	FALSE			Soot and calcines
RM-SS-5	6361393.842	2033137.569		RM-SS-5		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Nickel	mg/Kg	2600	2600	D	mg/Kg	FALSE			Soot and calcines
RMT3z-8	6361346.725	2033241.751	720-32087-4	RMT3z-8	0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7440-02-0	Nickel	mg/Kg	170	170	D	mg/Kg	FALSE	2	0.2	soil
RMT3z-8 dup	6361346.725	2033241.751	720-32087-5	RMT3z-8 dup	0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		DUP	Thermo ICP	Total/NA	6010B	7440-02-0	Nickel	mg/Kg	210	210	D	mg/Kg	FALSE	1.9	0.2	soil
RMT6a-5	6361346.235	2032982.26	720-32087-6	RMT6a-5	0.4166	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7440-02-0	Nickel	mg/Kg	2100	2100	D	mg/Kg	FALSE	2	0.21	soil
RMT8b-15	6361972.83	2032854.226	720-32087-7	RMT8b-15	1.25	Solid	12/1/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7440-02-0	Nickel	mg/Kg	1200	1200	D	mg/Kg	FALSE	2.1	0.21	soil
21CH-0R	6361048.171	2033579.4		21CH-0R		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Selenium	mg/Kg	<1	1	ND	mg/Kg	FALSE			High Grade Ore
21CH-1C	6361048.171	2033579.4		21CH-1C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Selenium	mg/Kg	<1	1	ND	mg/Kg	FALSE			Fine sand size calcine adjacent to retort
21CH-2C	6361048.171	2033579.4		21CH-2C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Selenium	mg/Kg	1	1	D	mg/Kg	FALSE			Coarse Calcine red-black
21CH-3AR	6361048.171	2033579.4		21CH-3AR		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Selenium	mg/Kg	<1	1	ND	mg/Kg	FALSE			Silica-carbonate alteration and quartz vei
21CH-4C	6361048.171	2033579.4		21CH-4C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Selenium	mg/Kg	<1	1	ND	mg/Kg	FALSE			Condenser soot below waste rock at ore
21RE-1C	6361537.816	2033063.592		21RE-1C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Selenium	mg/Kg	<1	1	ND	mg/Kg	FALSE			Coarse Sand to Gravel next to Creek
21RE-1-S	6361537.816	2033063.592		21RE-1-S		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Selenium	mg/Kg	<1	1	ND	mg/Kg	FALSE			Sediment at Collapsed adit drainage
21RE-2C	6361537.816	2033063.592		21RE-2C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Selenium	mg/Kg	<1	1	ND	mg/Kg	FALSE			Fine Sand Calcine at adit
CM01-S	6361134.835	2033690.467	720-31892-11	CM01-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7782-49-2	Selenium	mg/Kg	< 4.1	4.1	ND	mg/Kg	FALSE	4.1	0.61	soil
CM09-S	6361134.835	2033635.424	720-31892-12	CM09-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7782-49-2	Selenium	mg/Kg	< 3.9	3.9	ND	mg/Kg	FALSE	3.9	0.58	soil
CM23-S	6361191.174	2033577.142	720-31892-13	CM23-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7782-49-2	Selenium	mg/Kg	< 4	4	ND	mg/Kg	FALSE	4	0.6	soil
CM-SS-1	6351862.333	2033589.514		CM-SS-1		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Selenium	mg/Kg	<5.0	5	ND	mg/Kg	FALSE			Soot and Calcines
CM-SS-2	6361120.03	2033587.848		CM-SS-2		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Selenium	mg/Kg	<5.0	5	ND	mg/Kg	FALSE			Soot and Calcines
CM-SS-3	6361035.381	2033532.356		CM-SS-3		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Selenium	mg/Kg	<5.0	5	ND	mg/Kg	FALSE			Soot and Calcines
CM-SS-4	6361076.204	2033627.238		CM-SS-4		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Selenium	mg/Kg	<5.0	5	ND	mg/Kg	FALSE			Soot and Calcines
CM-SS-5	6361122.208	2033583.077		CM-SS-5		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Selenium	mg/Kg	<5.0	5	ND	mg/Kg	FALSE			Soot and Calcines
CMT3a-12	6361169.482	2033583.097	720-32087-1	CMT3a-12	1	Solid	11/29/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7782-49-2	Selenium	mg/Kg	< 3.9	3.9	ND	mg/Kg	FALSE	3.9	0.58	soil
CMT5a-4	6361105.047	2033606.93	720-32087-2	CMT5a-4	0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7782-49-2	Selenium	mg/Kg	< 4.2	4.2	ND	mg/Kg	FALSE	4.2	0.62	soil
CMT7a-4	6361020.214	2033524.689	720-32087-3	CMT7a-4	0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7782-49-2	Selenium	mg/Kg	< 4	4	ND	mg/Kg	FALSE	4	0.61	soil
RM05-S	6361706.936	2033330.478	720-31892-15	RM05-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7782-49-2	Selenium	mg/Kg	< 4.1	4.1	ND	mg/Kg	FALSE	4.1	0.62	soil
RM36-S	6361327.791	2033203.409	720-31892-17	RM36-S	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7782-49-2	Selenium	mg/Kg	< 4.1	4.1	ND	mg/Kg	FALSE	4.1	0.62	soil
RM43-S	6361403.917	2033111.429	720-31892-19	RM43-S	0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7782-49-2	Selenium	mg/Kg	< 4	4	ND	mg/Kg	FALSE	4	0.59	soil
RM60-S	6361554.953	2033035.502	720-31892-18	RM60-S	0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7782-49-2	Selenium	mg/Kg	< 4.1	4.1	ND	mg/Kg	FALSE	4.1	0.62	soil
RM94-S	6361915.699	2032865.907	720-31892-16	RM94-S	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7782-49-2	Selenium	mg/Kg	< 4.2	4.2	ND	mg/Kg	FALSE	4.2	0.63	soil
RMDS	6362080.702	2032779.716	720-31892-10	RMDS	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7782-49-2	Selenium	mg/Kg	< 3.9	3.9	ND	mg/Kg	FALSE	3.9	0.58	sediment
RM-SS-1	6361920.27	2032913.392		RM-SS-1		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Selenium	mg/Kg	<5.0	5	ND	mg/Kg	FALSE			Soot and calcines
RM-SS-2	6361937.897	2032910.604		RM-SS-2		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Selenium	mg/Kg	<5.0	5	ND	mg/Kg	FALSE			Soot and calcines
RM-SS-3	6361532.277	2033078.635		RM-SS-3		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Selenium	mg/Kg	<5.0	5	ND	mg/Kg	FALSE			Soot and calcines
RM-SS-4	6361503.037	2033180.118		RM-SS-4		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Selenium	mg/Kg	<5.0	5	ND	mg/Kg	FALSE			Soot and calcines
RM-SS-5	6361393.842	2033137.569		RM-SS-5		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Selenium	mg/Kg	<5.0	5	ND	mg/Kg	FALSE			Soot and calcines
RMT3z-8	6361346.725	2033241.751	720-32087-4	RMT3z-8	0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7782-49-2	Selenium	mg/Kg	< 3.9	3.9	ND	mg/Kg	FALSE	3.9	0.59	soil
RMT3z-8 dup	6361346.725	2033241.751	720-32087-5	RMT3z-8 dup	0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		DUP	Thermo ICP	Total/NA	6010B	7782-49-2	Selenium	mg/Kg	< 3.9	3.9	ND	mg/Kg	FALSE	3.9	0.58	soil
RMT6a-5	6361346.235	2032982.26	720-32087-6	RMT6a-5	0.4166	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7782-49-2	Selenium	mg/Kg	< 4.1	4.1	ND	mg/Kg	FALSE	4.1	0.61	soil
RMT8b-15	6361972.83	2032854.226	720-32087-7	RMT8b-15	1.25	Solid	12/1/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7782-49-2	Selenium	mg/Kg	< 4.2	4.2	ND	mg/Kg	FALSE	4.2	0.63	soil
21CH-0R	6361048.171	2033579.4		21CH-0R		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Silver	mg/Kg	0.08	0.08	D	mg/Kg	FALSE			High Grade Ore
21CH-1C	6361048.171	2033579.4		21CH-1C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Silver	mg/Kg	0.08	0.08	D	mg/Kg	FALSE			Fine sand size calcine adjacent to retort
21CH-2C	6361048.171	2033579.4		21CH-2C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Silver	mg/Kg	0.12	0.12	D	mg/Kg	FALSE			Coarse Calcine red-black
21CH-3AR	6361048.171	2033579.4		21CH-3AR		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Silver	mg/Kg	0.06	0.06	D	mg/Kg	FALSE			Silica-carbonate alteration and quartz vei
21CH-4C	6361048.171	2033579.4		21CH-4C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Silver	mg/Kg	0.14	0.14	D	mg/Kg	FALSE			Condenser soot below waste rock at ore
21RE-1C	6361537.816	2033063.592		21RE-1C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Silver	mg/Kg	0.12	0.12	D	mg/Kg	FALSE			Coarse Sand to Gravel next to Creek
21RE-1-S	6361537.816	2033063.592		21RE-1-S		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Silver	mg/Kg	0.12	0.12	D	mg/Kg	FALSE			Sediment at Collapsed adit drainage
21RE-2C	6361537.816	2033063.592		21RE-2C		Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Silver	mg/Kg	0.2	0.2	D	mg/Kg	FALSE			Fine Sand Calcine at adit
CM01-S	6361134.835	2033690.467	720-31892-11	CM01-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-22-4	Silver	mg/Kg	< 1	1	ND	mg/Kg	FALSE	1	0.21	soil
CM09-S	6361134.835	2033635.424	720-31892-12	CM09-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-22-4	Silver	mg/Kg	< 0.97	0.97	ND	mg/Kg	FALSE	0.97	0.2	soil
CM23-S	6361191.174	2033577.142	720-31892-13	CM23-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-22-4	Silver	mg/Kg	< 1	1	ND	mg/Kg	FALSE	1	0.2	soil
CM-SS-1	6351862.333	2033589.514		CM-SS-1		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Silver	mg/Kg	<2.5	2.5	ND	mg/Kg	FALSE			Soot and Calcines
CM-SS-2	6361120.03	2033587.848		CM-SS-2		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Silver	mg/Kg	<2.5	2.5	ND	mg/Kg	FALSE			Soot and Calcines
CM-SS-3	6361035.381	2033532.356		CM-SS-3		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Silver	mg/Kg	<2.5	2.5	ND	mg/Kg	FALSE			Soot and Calcines
CM-SS-4	6361076.204	2033627.238		CM-SS-4		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Silver	mg/Kg	<2.5	2.5	ND	mg/Kg	FALSE			Soot and Calcines
CM-SS-5	6361122.208	2033583.077		CM-SS-5		Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020		Silver	mg/Kg	<2.5	2.5	ND	mg/Kg	FALSE			Soot and Calcines
CMT3a-12	6361169.482	2033583.097	720-32087-1	CMT3a-12	1	Solid	11/29/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7440-22-4	Silver	mg/Kg	< 0.97	0.97	ND	mg/Kg	FALSE	0.97	0.2	soil
CMT5a-4	6361105.047	2033606.93	720-32087-2	CMT5a-4	0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7440-22-4	Silver	mg/Kg	< 1	1	ND	mg/Kg	FALSE	1	0.21	soil
CMT7a-4	6361020.214	2033524.689	720-32087-3	CMT7a-4	0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed			Thermo ICP	Total/NA	6010B	7440-22-4	Silver	mg/Kg	< 1	1	ND	mg/Kg	FALSE	1	0.2	soil
RM05-S	6361706.936	2033330.478	720-31892-15	RM05-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-22-4	Silver	mg/Kg	< 1	1	ND	mg/Kg	FALSE	1	0.21	soil
RM36-S	6361327.791	2033203.409	720-31892-17	RM36-S	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-22-4	Silver	mg/Kg	< 1	1	ND	mg/Kg	FALSE	1	0.21	soil
RM43-S	6361403.917	2033111.429	720-31892-19	RM43-S	0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-22-4	Silver	mg/Kg	< 0.99	0.99	ND	mg/Kg	FALSE	0.99	0.2	soil
RM60-S	6361554.953	2033035.502	720-31892-18	RM60-S	0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-22-4	Silver	mg/Kg	< 1	1	ND	mg/Kg	FALSE	1	0.21	soil
RM94-S	6361915.699	2032865.907	720-31892-16	RM94-S	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-22-4	Silver	mg/Kg	< 1.1	1.1	ND	mg/Kg	FALSE	1.1	0.21	soil
RMDS	6362080.702	2032779.716	720-31892-10	RMDS	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP2	Total/NA	6010B	7440-22-4	Silver	mg/Kg	< 0.97	0.97	ND	mg/Kg	FALSE	0.97	0.2	sediment

RM-SS-1	6361920.27	2032913.392	RM-SS-1	Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown			6020		Silver	mg/Kg	<2.5	2.5	ND	mg/Kg	FALSE			Soot and calcines
RM-SS-2	6361937.897	2032910.604	RM-SS-2	Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown			6020		Silver	mg/Kg	<2.5	2.5	ND	mg/Kg	FALSE			Soot and calcines
RM-SS-3	6361532.277	2033078.635	RM-SS-3	Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown			6020		Silver	mg/Kg	<2.5	2.5	ND	mg/Kg	FALSE			Soot and calcines
RM-SS-4	6361503.037	2033180.118	RM-SS-4	Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown			6020		Silver	mg/Kg	<2.5	2.5	ND	mg/Kg	FALSE			Soot and calcines
RM-SS-5	6361393.842	2033137.569	RM-SS-5	Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown			6020		Silver	mg/Kg	<2.5	2.5	ND	mg/Kg	FALSE			Soot and calcines
RMT3z-8	6361346.725	2033241.751	720-32087-4	RMT3z-8	0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		Thermo ICP	Total/NA	6010B	7440-22-4	Silver	mg/Kg	< 0.98	0.98	ND	mg/Kg	FALSE	0.98	0.2	soil
RMT3z-8 dup	6361346.725	2033241.751	720-32087-5	RMT3z-8 dup	0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed	DUP	Thermo ICP	Total/NA	6010B	7440-22-4	Silver	mg/Kg	< 0.97	0.97	ND	mg/Kg	FALSE	0.97	0.2	soil
RMT6a-5	6361346.235	2032982.26	720-32087-6	RMT6a-5	0.4166	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		Thermo ICP	Total/NA	6010B	7440-22-4	Silver	mg/Kg	< 1	1	ND	mg/Kg	FALSE	1	0.21	soil
RMT8b-15	6361972.83	2032854.226	720-32087-7	RMT8b-15	1.25	Solid	12/1/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		Thermo ICP	Total/NA	6010B	7440-22-4	Silver	mg/Kg	< 1.1	1.1	ND	mg/Kg	FALSE	1.1	0.21	soil
CM01-S	6361134.835	2033690.467	720-31892-11	CM01-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV		Thermo ICP2	Total/NA	6010B	7440-28-0	Thallium	mg/Kg	< 2	2	ND	mg/Kg	FALSE	2	0.59	soil
CM09-S	6361134.835	2033635.424	720-31892-12	CM09-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV		Thermo ICP2	Total/NA	6010B	7440-28-0	Thallium	mg/Kg	< 1.9	1.9	ND	mg/Kg	FALSE	1.9	0.56	soil
CM23-S	6361191.174	2033577.142	720-31892-13	CM23-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV		Thermo ICP2	Total/NA	6010B	7440-28-0	Thallium	mg/Kg	< 2	2	ND	mg/Kg	FALSE	2	0.58	soil
CMT3a-12	6361169.482	2033583.097	720-32087-1	CMT3a-12	1	Solid	11/29/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		Thermo ICP	Total/NA	6010B	7440-28-0	Thallium	mg/Kg	< 1.9	1.9	ND	mg/Kg	FALSE	1.9	0.56	soil
CMT5a-4	6361105.047	2033606.93	720-32087-2	CMT5a-4	0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		Thermo ICP	Total/NA	6010B	7440-28-0	Thallium	mg/Kg	< 2.1	2.1	ND	mg/Kg	FALSE	2.1	0.6	soil
CMT7a-4	6361020.214	2033524.689	720-32087-3	CMT7a-4	0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		Thermo ICP	Total/NA	6010B	7440-28-0	Thallium	mg/Kg	< 2	2	ND	mg/Kg	FALSE	2	0.59	soil
RM05-S	6361706.936	2033330.478	720-31892-15	RM05-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV		Thermo ICP2	Total/NA	6010B	7440-28-0	Thallium	mg/Kg	< 2.1	2.1	ND	mg/Kg	FALSE	2.1	0.6	soil
RM36-S	6361327.791	2033203.409	720-31892-17	RM36-S	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV		Thermo ICP2	Total/NA	6010B	7440-28-0	Thallium	mg/Kg	< 2.1	2.1	ND	mg/Kg	FALSE	2.1	0.6	soil
RM43-S	6361403.917	2033111.429	720-31892-19	RM43-S	0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV		Thermo ICP2	Total/NA	6010B	7440-28-0	Thallium	mg/Kg	< 2	2	ND	mg/Kg	FALSE	2	0.57	soil
RM60-S	6361554.953	2033035.502	720-31892-18	RM60-S	0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV		Thermo ICP2	Total/NA	6010B	7440-28-0	Thallium	mg/Kg	< 2.1	2.1	ND	mg/Kg	FALSE	2.1	0.6	soil
RM94-S	6361915.699	2032865.907	720-31892-16	RM94-S	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV		Thermo ICP2	Total/NA	6010B	7440-28-0	Thallium	mg/Kg	< 2.1	2.1	ND	mg/Kg	FALSE	2.1	0.61	soil
RMDS	6362080.702	2032779.716	720-31892-10	RMDS	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV		Thermo ICP2	Total/NA	6010B	7440-28-0	Thallium	mg/Kg	< 1.9	1.9	ND	mg/Kg	FALSE	1.9	0.56	sediment
RMT3z-8	6361346.725	2033241.751	720-32087-4	RMT3z-8	0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		Thermo ICP	Total/NA	6010B	7440-28-0	Thallium	mg/Kg	< 2	2	ND	mg/Kg	FALSE	2	0.57	soil
RMT3z-8 dup	6361346.725	2033241.751	720-32087-5	RMT3z-8 dup	0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed	DUP	Thermo ICP	Total/NA	6010B	7440-28-0	Thallium	mg/Kg	< 1.9	1.9	ND	mg/Kg	FALSE	1.9	0.56	soil
RMT6a-5	6361346.235	2032982.26	720-32087-6	RMT6a-5	0.4166	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		Thermo ICP	Total/NA	6010B	7440-28-0	Thallium	mg/Kg	< 2	2	ND	mg/Kg	FALSE	2	0.59	soil
RMT8b-15	6361972.83	2032854.226	720-32087-7	RMT8b-15	1.25	Solid	12/1/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		Thermo ICP	Total/NA	6010B	7440-28-0	Thallium	mg/Kg	< 2.1	2.1	ND	mg/Kg	FALSE	2.1	0.61	soil
CM01-S	6361134.835	2033690.467	720-31892-11	CM01-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV		Thermo ICP2	Total/NA	6010B	7440-62-2	Vanadium	mg/Kg	16	16 D	ND	mg/Kg	FALSE	2	0.28	soil
CM09-S	6361134.835	2033635.424	720-31892-12	CM09-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV		Thermo ICP2	Total/NA	6010B	7440-62-2	Vanadium	mg/Kg	11	11 D	ND	mg/Kg	FALSE	1.9	0.26	soil
CM23-S	6361191.174	2033577.142	720-31892-13	CM23-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV		Thermo ICP2	Total/NA	6010B	7440-62-2	Vanadium	mg/Kg	27	27 D	ND	mg/Kg	FALSE	2	0.27	soil
CMT3a-12	6361169.482	2033583.097	720-32087-1	CMT3a-12	1	Solid	11/29/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		Thermo ICP	Total/NA	6010B	7440-62-2	Vanadium	mg/Kg	22	22 D	ND	mg/Kg	FALSE	1.9	0.26	soil
CMT5a-4	6361105.047	2033606.93	720-32087-2	CMT5a-4	0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		Thermo ICP	Total/NA	6010B	7440-62-2	Vanadium	mg/Kg	7.8	7.8 D	ND	mg/Kg	FALSE	2.1	0.28	soil
CMT7a-4	6361020.214	2033524.689	720-32087-3	CMT7a-4	0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		Thermo ICP	Total/NA	6010B	7440-62-2	Vanadium	mg/Kg	11	11 D	ND	mg/Kg	FALSE	2	0.27	soil
RM05-S	6361706.936	2033330.478	720-31892-15	RM05-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV		Thermo ICP2	Total/NA	6010B	7440-62-2	Vanadium	mg/Kg	13	13 D	ND	mg/Kg	FALSE	2.1	0.28	soil
RM36-S	6361327.791	2033203.409	720-31892-17	RM36-S	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV		Thermo ICP2	Total/NA	6010B	7440-62-2	Vanadium	mg/Kg	4.8	4.8 D	ND	mg/Kg	FALSE	2.1	0.28	soil
RM43-S	6361403.917	2033111.429	720-31892-19	RM43-S	0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV		Thermo ICP2	Total/NA	6010B	7440-62-2	Vanadium	mg/Kg	13	13 D	ND	mg/Kg	FALSE	2	0.27	soil
RM60-S	6361554.953	2033035.502	720-31892-18	RM60-S	0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV		Thermo ICP2	Total/NA	6010B	7440-62-2	Vanadium	mg/Kg	12	12 D	ND	mg/Kg	FALSE	2.1	0.28	soil
RM94-S	6361915.699	2032865.907	720-31892-16	RM94-S	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV		Thermo ICP2	Total/NA	6010B	7440-62-2	Vanadium	mg/Kg	14	14 D	ND	mg/Kg	FALSE	2.1	0.29	soil
RMDS	6362080.702	2032779.716	720-31892-10	RMDS	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV		Thermo ICP2	Total/NA	6010B	7440-62-2	Vanadium	mg/Kg	16	16 D	ND	mg/Kg	FALSE	1.9	0.26	sediment
RMT3z-8	6361346.725	2033241.751	720-32087-4	RMT3z-8	0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		Thermo ICP	Total/NA	6010B	7440-62-2	Vanadium	mg/Kg	4.1	4.1 D	ND	mg/Kg	FALSE	2	0.27	soil
RMT3z-8 dup	6361346.725	2033241.751	720-32087-5	RMT3z-8 dup	0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed	DUP	Thermo ICP	Total/NA	6010B	7440-62-2	Vanadium	mg/Kg	7	7 D	ND	mg/Kg	FALSE	1.9	0.26	soil
RMT6a-5	6361346.235	2032982.26	720-32087-6	RMT6a-5	0.4166	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		Thermo ICP	Total/NA	6010B	7440-62-2	Vanadium	mg/Kg	20	20 D	ND	mg/Kg	FALSE	2	0.28	soil
RMT8b-15	6361972.83	2032854.226	720-32087-7	RMT8b-15	1.25	Solid	12/1/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		Thermo ICP	Total/NA	6010B	7440-62-2	Vanadium	mg/Kg	16	16 D	ND	mg/Kg	FALSE	2.1	0.29	soil
21CH-0R	6361048.171	2033579.4	21CH-0R	Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown			6020		Zinc	mg/Kg	38	38 D	ND	mg/Kg	FALSE			High Grade Ore
21CH-1C	6361048.171	2033579.4	21CH-1C	Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown			6020		Zinc	mg/Kg	50	50 D	ND	mg/Kg	FALSE			Fine sand size calcine adjacent to retort
21CH-2C	6361048.171	2033579.4	21CH-2C	Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown			6020		Zinc	mg/Kg	34	34 D	ND	mg/Kg	FALSE			Coarse Calcine red-black
21CH-3AR	6361048.171	2033579.4	21CH-3AR	Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown			6020		Zinc	mg/Kg	26	26 D	ND	mg/Kg	FALSE			Silica-carbonate alteration and quartz vei
21CH-4C	6361048.171	2033579.4	21CH-4C	Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown			6020		Zinc	mg/Kg	116	116 D	ND	mg/Kg	FALSE			Condenser soot below waste rock at ore c
21RE-1C	6361537.816	2033063.592	21RE-1C	Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown			6020		Zinc	mg/Kg	38	38 D	ND	mg/Kg	FALSE			Coarse Sand to Gravel next to Creek
21RE-1-S	6361537.816	2033063.592	21RE-1-S	Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown			6020		Zinc	mg/Kg	36	36 D	ND	mg/Kg	FALSE			Sediment at Collapsed adit drainage
21RE-2C	6361537.816	2033063.592	21RE-2C	Solid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown			6020		Zinc	mg/Kg	60	60 D	ND	mg/Kg	FALSE			Fine Sand Calcine at adit
CM01-S	6361134.835	2033690.467	720-31892-11	CM01-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV		Thermo ICP2	Total/NA	6010B	7440-66-6	Zinc	mg/Kg	21	21 D	ND	mg/Kg	FALSE	6.1	2.6	soil
CM09-S	6361134.835	2033635.424	720-31892-12	CM09-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV		Thermo ICP2	Total/NA	6010B	7440-66-6	Zinc	mg/Kg	26	26 D	ND	mg/Kg	FALSE	5.8	2.5	soil
CM23-S	6361191.174	2033577.142	720-31892-13	CM23-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV		Thermo ICP2	Total/NA	6010B	7440-66-6	Zinc	mg/Kg	46	46 D	ND	mg/Kg	FALSE	6	2.5	soil
CM-SS-1	6351862.333	2033589.514	CM-SS-1	Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown			6020		Zinc	mg/Kg	<50	50 ND		mg/Kg	FALSE			Soot and Calcines
CM-SS-2	6361120.03	2033587.848	CM-SS-2	Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown			6020		Zinc	mg/Kg	<50	50 ND		mg/Kg	FALSE			Soot and Calcines
CM-SS-3	6361035.381	2033532.356	CM-SS-3	Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown			6020		Zinc	mg/Kg	<50	50 ND		mg/Kg	FALSE			Soot and Calcines
CM-SS-4	6361076.204	2033627.238	CM-SS-4	Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown			6020		Zinc	mg/Kg	<50	50 ND		mg/Kg	FALSE			Soot and Calcines
CM-SS-5	6361122.208	2033583.077	CM-SS-5	Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown			6020		Zinc	mg/Kg	<50	50 ND		mg/Kg	FALSE			Soot and Calcines
CMT3a-12	6361169.482	2033583.097	720-32087-1	CMT3a-12	1	Solid	11/29/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		Thermo ICP	Total/NA	6010B	7440-66-6	Zinc	mg/Kg	39	39 D	ND	mg/Kg	FALSE	5.8	2.5	soil
CMT5a-4	6361105.047	2033606.93	720-32087-2	CMT5a-4	0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		Thermo ICP	Total/NA	6010B	7440-66-6	Zinc	mg/Kg	21	21 D	ND	mg/Kg	FALSE	6.2	2.6	soil
CMT7a-4	6361020.214	2033524.689	720-32087-3	CMT7a-4	0.33	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		Thermo ICP	Total/NA	6010B	7440-66-6	Zinc	mg/Kg	36	36 D	ND	mg/Kg	FALSE	6.1	2.6	soil
RM05-S	6361706.936	2033330.478	720-31892-15	RM05-S	0	Solid	11/17/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV		Thermo ICP2	Total/NA	6010B	7440-66-6	Zinc	mg/Kg	18	18 D	ND	mg/Kg	FALSE	6.2	2.6	soil
RM36-S	6361327.791	2033203.409	720-31892-17	RM36-S	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV		Thermo ICP2	Total/NA	6010B	7440-66-6	Zinc	mg/Kg	17	17 D	ND	mg/Kg	FALSE	6.2	2.6	soil
RM43-S	6361403.917	2033111.429	720-31892-19	RM43-S	0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV		Thermo ICP2	Total/NA	6010B	7440-66-6	Zinc	mg/Kg	57	57 D	ND	mg/Kg	FALSE	5.9	2.5	soil
RM60-S	6361554.953	2033035.502	720-31892-18	RM60-S	0	Solid	11/19/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV		Thermo ICP2	Total/NA	6010B	7440-66-6	Zinc	mg/Kg	96	96 D	ND	mg/Kg	FALSE	6.2	2.6	soil
RM94-S	6361915.699	2032865.907	720-31892-16	RM94-S	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV		Thermo ICP2	Total/NA	6010B	7440-66-6	Zinc	mg/Kg	19	19 D	ND	mg/Kg	FALSE	6.3	2.7	soil
RMDS	6362080.702	2032779.716	720-31892-10	RMDS	0	Solid	11/18/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV		Thermo ICP2	Total/NA	6010B	7440-66-6	Zinc	mg/Kg	28	28 D	ND	mg/Kg	FALSE	5.8	2.5	sediment
RM-SS-1	6361920.27	2032913.392	RM-SS-1	Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown			6020		Zinc	mg/Kg	<50	50 ND		mg/Kg	FALSE			Soot and calcines
RM-SS-2	6361937.897	2032910.604	RM-SS-2	Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown			6020		Zinc	mg/Kg	<50	50 ND		mg/Kg	FALSE			Soot and calcines
RM-SS-3	6361532.277	2033078.635	RM-SS-3	Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown			6020		Zinc	mg/Kg	<50	50 ND		mg/Kg	FALSE			Soot and calcines
RM-SS-4	6361503.037	2033180.118	RM-SS-4	Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown			6020		Zinc	mg/Kg	<50	50 ND		mg/Kg	FALSE			Soot and calcines
RM-SS-5	6361393.842	2033137.569	RM-SS-5	Solid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown			6020		Zinc	mg/Kg	<50	50 ND		mg/Kg	FALSE			Soot and calcines
RMT3z-8	6361346.725	2033241.751	720-32087-4	RMT3z-8	0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		Thermo ICP	Total/NA	6010B	7440-66-6	Zinc	mg/Kg	14	14 D	ND	mg/Kg	FALSE	5.9	2.5	soil
RMT3z-8 dup	6361346.725	2033241.751	720-32087-5	RMT3z-8 dup	0.66	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed	DUP	Thermo ICP	Total/NA	6010B	7440-66-6	Zinc	mg/Kg	22	22 D	ND	mg/Kg	FALSE	5.8	2.5	soil
RMT6a-5	6361346.235	2032982.26	720-32087-6	RMT6a-5	0.4166	Solid	11/30/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		Thermo ICP	Total/NA	6010B	7440-66-6	Zinc	mg/Kg	51	51 D	ND	mg/Kg	FALSE	6.1	2.6	soil
RMT8b-15	6361972.83	2032854.226	720-32087-7	RMT8b-15	1.25	Solid	12/1/2010	ECM-2010	720-32087-1_TalStandard_fixed.xlsx.720-32087-1_TalStandard_fixed		Thermo ICP	Total/NA	6010B	7440-66-6	Zinc	mg/Kg	24	24 D	ND	mg/Kg	FALSE	6.3	2.7	soil

SiteID	EastCoordina	NorthCoordinate	LabSampleI	SampleLocation	SampBegD	SampEndD	Medium	SampleDate	CustomText1	Source	CustomText2	AnalysisTy	Instrument	PrepType	Method	TotalOrDis	DilFactor	CAS	FieldSampleID	Parameter	NumericRe	Det flag	Expr1021	TextResult	Units	Reportable	DetectionL	RDL	PQL	CustomFlag	Modifier	Qualifier	systemFlag	QAFlag	Comment
CM-SW-1	6361414.86	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Antimony	2	ND	mg/L	<2.0	mg/L	FALSE									Surface water
CMDS/RMUS	6361325.92	2033386.64	720-31892	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-36-0		Antimony	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0024						surface water
RMDS	6362080.7	2032779.716	720-31892	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-36-0		Antimony	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0024						surface water
RMMid	6361765.1	2032989.662	720-31892	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-36-0		Antimony	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0024						surface water
CMMid	6361170.73	2033469.106	720-31892	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-36-0		Antimony	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0024						surface water
CMUS	6360956.65	2033448.432	720-31892	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-36-0		Antimony	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0024						surface water
21RE1	6361537.82	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entr	unknown				6020					Arsenic	NA		mg/L	N/A	mg/L	FALSE									Surface water
CM-SW-1	6361414.86	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Arsenic	1	ND	mg/L	<1.0	mg/L	FALSE									Surface water
RM-SW-1	6362056.02	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Arsenic	1	ND	mg/L	<1.0	mg/L	FALSE									Surface water
RM-SW-2	6361513.33	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Arsenic	1	ND	mg/L	<1.0	mg/L	FALSE									Surface water
CMDS/RMUS	6361325.92	2033386.64	720-31892	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-38-2		Arsenic	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0026						surface water
RMDS	6362080.7	2032779.716	720-31892	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-38-2		Arsenic	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0026						surface water
RMMid	6361765.1	2032989.662	720-31892	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-38-2		Arsenic	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0026						surface water
CMMid	6361170.73	2033469.106	720-31892	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-38-2		Arsenic	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0026						surface water
CMUS	6360956.65	2033448.432	720-31892	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-38-2		Arsenic	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0026						surface water
CMDS/RMUS	6361325.92	2033386.64	720-31892	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-39-3		Barium	0.044	D	mg/L	0.044	mg/L	FALSE	0.005		0.0014						surface water
RMDS	6362080.7	2032779.716	720-31892	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-39-3		Barium	0.032	D	mg/L	0.032	mg/L	FALSE	0.005		0.0014						surface water
RMMid	6361765.1	2032989.662	720-31892	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-39-3		Barium	0.036	D	mg/L	0.036	mg/L	FALSE	0.005		0.0014						surface water
CMMid	6361170.73	2033469.106	720-31892	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-39-3		Barium	0.057	D	mg/L	0.057	mg/L	FALSE	0.005		0.0014						surface water
CMUS	6360956.65	2033448.432	720-31892	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-39-3		Barium	0.064	D	mg/L	0.064	mg/L	FALSE	0.005		0.0014						surface water
CMDS/RMUS	6361325.92	2033386.64	720-31892	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-41-7		Beryllium	0.002	ND	mg/L	< 0.002	mg/L	FALSE	0.002		0.00033						surface water
RMDS	6362080.7	2032779.716	720-31892	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-41-7		Beryllium	0.002	ND	mg/L	< 0.002	mg/L	FALSE	0.002		0.00033						surface water
RMMid	6361765.1	2032989.662	720-31892	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-41-7		Beryllium	0.002	ND	mg/L	< 0.002	mg/L	FALSE	0.002		0.00033						surface water
CMMid	6361170.73	2033469.106	720-31892	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-41-7		Beryllium	0.002	ND	mg/L	< 0.002	mg/L	FALSE	0.002		0.00033						surface water
CMUS	6360956.65	2033448.432	720-31892	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-41-7		Beryllium	0.002	ND	mg/L	< 0.002	mg/L	FALSE	0.002		0.00033						surface water
21RE1	6361537.82	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entr	unknown				6020					CaCO3	340	D	mg/L	340	mg/L	FALSE									Surface water
CM-SW-1	6361414.86	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					CaCO3	140	D	mg/L	140	mg/L	FALSE									Surface water
RM-SW-1	6362056.02	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					CaCO3	150	D	mg/L	150	mg/L	FALSE									Surface water
RM-SW-2	6361513.33	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					CaCO3	150	D	mg/L	150	mg/L	FALSE									Surface water
21RE1	6361537.82	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entr	unknown				6020					Cadmium	NA		mg/L	N/A	mg/L	FALSE									Surface water
CM-SW-1	6361414.86	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Cadmium	1	ND	mg/L	<1.0	mg/L	FALSE									Surface water
RM-SW-1	6362056.02	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Cadmium	1	ND	mg/L	<1.0	mg/L	FALSE									Surface water
RM-SW-2	6361513.33	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Cadmium	1	ND	mg/L	<1.0	mg/L	FALSE									Surface water
CMDS/RMUS	6361325.92	2033386.64	720-31892	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-43-9		Cadmium	0.0025	ND	mg/L	< 0.0025	mg/L	FALSE	0.0025		0.0013						surface water
RMDS	6362080.7	2032779.716	720-31892	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-43-9		Cadmium	0.0025	ND	mg/L	< 0.0025	mg/L	FALSE	0.0025		0.0013						surface water
RMMid	6361765.1	2032989.662	720-31892	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-43-9		Cadmium	0.0025	ND	mg/L	< 0.0025	mg/L	FALSE	0.0025		0.0013						surface water
CMMid	6361170.73	2033469.106	720-31892	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-43-9		Cadmium	0.0025	ND	mg/L	< 0.0025	mg/L	FALSE	0.0025		0.0013						surface water
CMUS	6360956.65	2033448.432	720-31892	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-43-9		Cadmium	0.0025	ND	mg/L	< 0.0025	mg/L	FALSE	0.0025		0.0013						surface water
21RE1	6361537.82	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entr	unknown				6020					Calcium	4	D	mg/L	4	mg/L	FALSE									Surface water
CM-SW-1	6361414.86	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Calcium	8.8	D	mg/L	8.8	mg/L	FALSE									Surface water
RM-SW-1	6362056.02	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Calcium	8.2	D	mg/L	8.2	mg/L	FALSE									Surface water
RM-SW-2	6361513.33	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Calcium	8.2	D	mg/L	8.2	mg/L	FALSE									Surface water
21RE1	6361537.82	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entr	unknown				6020					Chromium	NA		mg/L	N/A	mg/L	FALSE									Surface water
CM-SW-1	6361414.86	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Chromium	13	D	mg/L	13	mg/L	FALSE									Surface water
RM-SW-1	6362056.02	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Chromium	6.8	D	mg/L	6.8	mg/L	FALSE									Surface water
RM-SW-2	6361513.33	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Chromium	6.4	D	mg/L	6.4	mg/L	FALSE									Surface water
CMDS/RMUS	6361325.92	2033386.64	720-31892	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-47-3		Chromium	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0015						surface water
RMDS	6362080.7	2032779.716	720-31892	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-47-3		Chromium	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0015						surface water
RMMid	6361765.1	2032989.662	720-31892	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-47-3		Chromium	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0015						surface water
CMMid	6361170.73	2033469.106	720-31892	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-47-3		Chromium	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0015						surface water
CMUS	6360956.65	2033448.432	720-31892	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-47-3		Chromium	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0015						surface water
CMDS/RMUS	6361325.92	2033386.64	720-31892	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-48-4		Cobalt	0.002	ND	mg/L	< 0.002	mg/L	FALSE	0.002		0.0012						surface water
RMDS	6362080.7	2032779.716	720-31892	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-48-4		Cobalt	0.002	ND	mg/L	< 0.002	mg/L	FALSE	0.002		0.0012						surface water
RMMid	6361765.1	2032989.662	720-31892	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-48-4		Cobalt	0.002	ND	mg/L	< 0.002	mg/L	FALSE	0.002		0.0012						surface water
CMMid	6361170.73	2033469.106	720-31892	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-48-4		Cobalt	0.002	ND	mg/L	< 0.002	mg/L	FALSE	0.002		0.0012						surface water
CMUS	6360956.65	2033448.432	720-31892	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-48-4		Cobalt	0.002	ND	mg/L	< 0.002	mg/L	FALSE	0.002		0.0012						surface water
21RE1	6361537.82	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entr	unknown				6020					Copper	NA		mg/L	N/A	mg/L	FALSE									Surface water
CM-SW-1	6361414.86	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Copper	2	ND	mg/L	<2.0	mg/L	FALSE									Surface water
RM-SW-1	6362056.02	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Copper	2	ND	mg/L	<2.0	mg/L	FALSE									Surface water
RM-SW-2	6361513.33	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Copper	2	ND	mg/L	<2.0	mg/L	FALSE									Surface water
CMDS/RMUS	6361325.92	2033386.64	720-31892	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-50-8		Copper	0.02	ND	mg/L	< 0.02	mg/L	FALSE	0.02		0.001						surface water
RMDS	6362080.7	2032779.716	720-31892	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-50-8		Copper	0.02	ND	mg/L	< 0.02	mg/L	FALSE	0.02		0.001						surface water
RMMid	6361765.1	2032989.662	720-31892	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-50-8		Copper	0.02	ND	mg/L	< 0.02	mg/L	FALSE	0.02		0.001						surface water
CMMid	6361170.73	2033469.106	720-31892	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-50-8		Copper	0.02	ND	mg/L	< 0.02	mg/L	FALSE	0.02		0.001						surface water
CMUS	6360956.65	2033448.432	720-31892	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-50-8		Copper	0.02	ND	mg/L	< 0.02	mg/L	FALSE	0.02		0.001						surface water
21RE1	6361537.82	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entr	unknown				6010B					Iron	0.02	ND	mg/L	<0.02	mg/L	FALSE									Surface water
CM-SW-1	6361414.86	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6010B					Iron	54	D	mg/L	54	mg/L	FALSE									Surface water
RM-SW-1	6362056.02	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6010B					Iron	40	ND	mg/L	<40	mg/L	FALSE									Surface water
RM-SW-2	6361513.33	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6010B					Iron	40	ND	mg/L	<40	mg/L	FALSE									Surface water
21RE1	6361537.82	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entr	unknown				6010B					Lead	NA		mg/L	N/A	mg/L	FALSE									Surface water
CM-SW-1	6361414.86	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6010B					Lead	5	ND	mg/L	<5	mg/L	FALSE									Surface water
RM-SW-1	6362056.02	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6010B					Lead	5	ND	mg/L	<5	mg/L	FALSE									Surface water
RM-SW-2	6361513.33	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6010B					Lead	5	ND	mg/L	<5	mg/L	FALSE									Surface water
CMDS/RMUS	6361325.92	2033386.64	720-31892	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7439-92-1		Lead	0.005	ND	mg/L	< 0.005	mg/L	FALSE	0.005		0.0023						surface water
RMDS	6362080.7	2032779.716	720-31892	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7439-92-1		Lead	0.005	ND	mg/L	< 0.005	mg/L	FALSE	0.005		0.0023						surface water
RMMid	6361765.1	2032989.662	720-31892	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7439-92-1		Lead	0.005	ND	mg/L	< 0.005	mg/L	FALSE	0.005		0.0023						surface water
CMMid	6361170.73	2033469.106	720-31892	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7439-92-1		Lead	0.005	ND	mg/L	< 0.005	mg/L	FALSE	0.005		0.0023						surface water
CMUS	6360956.65	2033448.432	720-31892	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7439-92-1		Lead	0.005	ND	mg/L	< 0.005	mg/L	FALSE	0.005		0.0023						surface water
21RE1	6361537.82	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entr	unknown				6020					Magnesium	97	D	mg/L	97	mg/L	FALSE									Surface water
CM-SW-1	6361414.86	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Magnesium	28	D	mg/L	28	mg/L	FALSE									Surface water
RM-SW-1	6362056.02	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Magnesium	32	D	mg/L	32	mg/L	FALSE									Surface water
RM-SW-2	6361513.33	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Magnesium	31	D	mg/L	31	mg/L	FALSE									Surface water
21RE1	6361537.82	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entr	unknown				6020					Manganese	NA		mg/L	N/A	mg/L	FALSE									Surface water
CM-SW-1	6361414.86	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Manganese	13	D	mg/L	13	mg/L	FALSE									Surface water
RM-SW-1	6362056.02	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Manganese	1	ND	mg/L	<1.0	mg/L	FALSE									Surface water
RM-SW-2	6361513.33	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Manganese	1	ND	mg/L	<1.0	mg/L	FALSE									Surface water
21RE1	6361537.82	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entr	unknown				7471A					Mercury	0.0328	D	mg/L	0.0328	mg/L	FALSE									Surface water
CM-SW-1	6361414.86	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				7471A					Mercury	0.2	ND	mg/L	<0.2	mg/L	FALSE									Surface water
RM-SW-1	6362056.02	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				7471A					Mercury	5.5	D	mg/L	5.5	mg/L	FALSE									Surface water
RM-SW-2	6361513.33	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				7471A					Mercury	5.2	D	mg/L	5.2	mg/L	FALSE									Surface water
RMDS	6362080.7	2032779.716	720-31892	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			LL_HG An	Total/NA	7470A			7439-97-6		Mercury	0.0002	ND	mg/L	< 0.0002	mg/L	FALSE	0.0002		0.0001						surface water
RMMid	6361765.1	2032989.662	720-31892	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			LL_HG An	Total/NA	7470A			7439-97-6		Mercury	0.0002	ND	mg/L	< 0.0002	mg/L	FALSE	0.0002		0.0001						surface water
CMDS/RMUS	6361325.92	2033386.64	720-31892	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			LL_HG An	Total/NA	7470A			7439-97-6		Mercury	0.0002	ND	mg/L	< 0.0002	mg/L	FALSE	0.0002		0.0001						surface water
CMMid	6361170.73	2033469.106	720-31892	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			LL_HG An	Total/NA	7470A			7439-97-6		Mercury	0.0002	ND	mg/L	< 0.0002	mg/L	FALSE	0.0002		0.0001						surface water
CMUS	6360956.65	2033448.432	720-31892	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			LL_HG An	Total/NA	7470A			7439-97-6		Mercury	0.0002	ND	mg/L	< 0.0002	mg/L	FALSE	0.0002		0.0001						surface water
RMDS	6362080.7	2032779.716	720-31892	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7439-98-7		Molybdenum	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0008						surface water
RMMid	6361765.1	2032989.662	720-31892	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7439-98-7		Molybdenum	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0008						surface water
CMDS/RMUS	6361325.92	2033386.64	720-31892	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7439-98-7		Molybdenum	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0008						surface water
CMMid	6361170.73	2033469.106	720-31892	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7439-98-7		Molybdenum	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0008						surface water
CMUS	6360956.65	2033448.432	720-31892	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7439-98-7		Molybdenum	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0008						surface water
21RE1	6361537.82	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entr	unknown				6020					Nickel	NA		mg/L	N/A	mg/L	FALSE									Surface water
CM-SW-1	6361414.86	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Nickel	30	D	mg/L	30	mg/L	FALSE									Surface water
RM-SW-1	6362056.02	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Nickel	3.3	D	mg/L	3.3	mg/L	FALSE									Surface water
RM-SW-2	6361513.33	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Nickel	3.1	D	mg/L	3.1	mg/L	FALSE									Surface water
RMDS	6362080.7	2032779.716	720-31892	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-02-0		Nickel	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0008						surface water
RMMid	6361765.1	2032989.662	720-31892	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-02-0		Nickel	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0008						surface water
CMDS/RMUS	6361325.92	2033386.64	720-31892	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-02-0		Nickel	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0008						surface water
CMMid	6361170.73	2033469.106	720-31892	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-02-0		Nickel	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0008						surface water
CMUS	6360956.65	2033448.432	720-31892	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-02-0		Nickel	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0008						surface water
21RE1	6361537.82	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entr	unknown				6020					Selenium	NA		mg/L	N/A	mg/L	FALSE									Surface water
CM-SW-1	6361414.86	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Selenium	2	ND	mg/L	<2.0	mg/L	FALSE									Surface water
RM-SW-1	6362056.02	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Selenium	2	ND	mg/L	<2.0	mg/L	FALSE									Surface water
RM-SW-2	6361513.33	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Selenium	2	ND	mg/L	<2.0	mg/L	FALSE									Surface water
RMDS	6362080.7	2032779.716	720-31892	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7782-49-2		Selenium	0.02	ND	mg/L	< 0.02	mg/L	FALSE	0.02		0.0071						surface water
RMMid	6361765.1	2032989.662	720-31892	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7782-49-2		Selenium	0.02	ND	mg/L	< 0.02	mg/L	FALSE	0.02		0.0071						surface water
CMDS/RMUS	6361325.92	2033386.64	720-31892	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7782-49-2		Selenium	0.02	ND	mg/L	< 0.02	mg/L	FALSE	0.02		0.0071						surface water
CMMid	6361170.73	2033469.106	720-31892	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7782-49-2		Selenium	0.02	ND	mg/L	< 0.02	mg/L	FALSE	0.02		0.0071						surface water
CMUS	6360956.65	2033448.432	720-31892	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7782-49-2		Selenium	0.02	ND	mg/L	< 0.02	mg/L	FALSE	0.02		0.0071						surface water
21RE1	6361537.82	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entr	unknown				6020					Silver	NA		mg/L	N/A	mg/L	FALSE									Surface water
CM-SW-1	6361414.86	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Silver	2	ND	mg/L	<2.0	mg/L	FALSE									Surface water
RM-SW-1	6362056.02	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Silver	2	ND	mg/L	<2.0	mg/L	FALSE									Surface water
RM-SW-2	6361513.33	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Silver	2	ND	mg/L	<2.0	mg/L	FALSE									Surface water
RMDS	6362080.7	2032779.716	720-31892	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-22-4		Silver	0.005	ND	mg/L	< 0.005	mg/L	FALSE	0.005		0.0012						surface water
RMMid	6361765.1	2032989.662	720-31892	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-22-4		Silver	0.005	ND	mg/L	< 0.005	mg/L	FALSE	0.005		0.0012						surface water
CMDS/RMUS	6361325.92	2033386.64	720-31892	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-22-4		Silver	0.005	ND	mg/L	< 0.005	mg/L	FALSE	0.005		0.0012						surface water
CMMid	6361170.73	2033469.106	720-31892	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-22-4		Silver	0.005	ND	mg/L	< 0.005	mg/L	FALSE	0.005		0.0012						surface water
CMUS	6360956.65	2033448.432	720-31892	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-22-4		Silver	0.005	ND	mg/L	< 0.005	mg/L	FALSE	0.005		0.0012						surface water
21RE1	6361537.82	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entr	unknown				unknown					Sulfate	78	D	mg/L	78	mg/L	FALSE									Surface water
RM-SW-1	6362056.02	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				unknown					Sulfate	NA		mg/L	N/A	mg/L	FALSE									Surface water
RM-SW-2	6361513.33	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				unknown					Sulfate	NA		mg/L	N/A	mg/L	FALSE									Surface water
RMDS	6362080.7	2032779.716	720-31892	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-28-0		Thallium	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0035						surface water
RMMid	6361765.1	2032989.662	720-31892	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-28-0		Thallium	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0035						surface water
CMDS/RMUS	6361325.92	2033386.64	720-31892	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-28-0		Thallium	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0035						surface water
CMMid	6361170.73	2033469.106	720-31892	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-28-0		Thallium	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0035						surface water
CMUS	6360956.65	2033448.432	720-31892	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-28-0		Thallium	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0035						surface water
RMDS	6362080.7	2032779.716	720-31892	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-62-2		Vanadium	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0007						surface water
RMMid	6361765.1	2032989.662	720-31892	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-62-2		Vanadium	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0007						surface water
CMDS/RMUS	6361325.92	2033386.64	720-31892	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-62-2		Vanadium	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0007						surface water
CMMid	6361170.73	2033469.106	720-31892	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-62-2		Vanadium	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0007						surface water
CMUS	6360956.65	2033448.432	720-31892	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-62-2		Vanadium	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0007						surface water
21RE1	6361537.82	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entr	unknown				6020					Zinc	NA		mg/L	N/A	mg/L	FALSE									Surface water
CM-SW-1	6361414.86	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Zinc	20	ND	mg/L	<20	mg/L	FALSE									Surface water
RM-SW-1	6362056.02	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Zinc	20	ND	mg/L	<20	mg/L	FALSE									Surface water
RM-SW-2	6361513.33	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entr	unknown				6020					Zinc	20	ND	mg/L	<20	mg/L	FALSE									Surface water
RMDS	6362080.7	2032779.716	720-31892	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-66-6		Zinc	0.02	ND	mg/L	< 0.02	mg/L	FALSE	0.02		0.0096						surface water
RMMid	6361765.1	2032989.662	720-31892	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-66-6		Zinc	0.02	ND	mg/L	< 0.02	mg/L	FALSE	0.02		0.0096						surface water
CMDS/RMUS	6361325.92	2033386.64	720-31892	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-66-6		Zinc	0.02	ND	mg/L	< 0.02	mg/L	FALSE	0.02		0.0096						surface water
CMMid	6361170.73	2033469.106	720-31892	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-66-6		Zinc	0.02	ND	mg/L	< 0.02	mg/L	FALSE	0.02		0.0096						surface water
CMUS	6360956.65	2033448.432	720-31892	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo IC	Total/NA	6010B			7440-66-6		Zinc	0.02	ND	mg/L	< 0.02	mg/L	FALSE	0.02		0.0096						surface water

SiteID	EastCoordinate	NorthCoordinate	LabSampID	SampleLocation	SampBegD	SampEndD	Medium	SampleDate	CustomText1	Source	CustomText2	AnalysisTy	Instrument	PrepType	Method	TotalOrDiss	DilFactor	CAS	FieldSampleID	Parameter	NumericRe	Det flag	Expr1021	TextResult	Units	Reportable	DetectionLi	RDL	PQL	CustomFlag	Modifier	Qualifier	systemFlag	QAFlag	Comment
CM-SW-1	6361414.859	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Antimony	2	ND	mg/L	<2.0	mg/L	FALSE									Surface water
CMDS/RMUS	6361325.916	2033386.64	720-31892-3	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-36-0		Antimony	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0024						surface water
RMDS	6362080.702	2032779.716	720-31892-5	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-36-0		Antimony	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0024						surface water
RMMid	6361765.099	2032989.662	720-31892-4	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-36-0		Antimony	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0024						surface water
CMMid	6361170.727	2033469.106	720-31892-2	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-36-0		Antimony	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0024						surface water
CMUS	6360956.651	2033448.432	720-31892-1	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-36-0		Antimony	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0024						surface water
21RE1	6361537.816	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Arsenic	NA		mg/L	N/A	mg/L	FALSE									Surface water
CM-SW-1	6361414.859	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Arsenic	1	ND	mg/L	<1.0	mg/L	FALSE									Surface water
RM-SW-1	6362056.015	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Arsenic	1	ND	mg/L	<1.0	mg/L	FALSE									Surface water
RM-SW-2	6361513.325	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Arsenic	1	ND	mg/L	<1.0	mg/L	FALSE									Surface water
CMDS/RMUS	6361325.916	2033386.64	720-31892-3	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-38-2		Arsenic	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0026						surface water
RMDS	6362080.702	2032779.716	720-31892-5	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-38-2		Arsenic	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0026						surface water
RMMid	6361765.099	2032989.662	720-31892-4	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-38-2		Arsenic	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0026						surface water
CMMid	6361170.727	2033469.106	720-31892-2	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-38-2		Arsenic	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0026						surface water
CMUS	6360956.651	2033448.432	720-31892-1	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-38-2		Arsenic	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0026						surface water
CMDS/RMUS	6361325.916	2033386.64	720-31892-3	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-39-3		Barium	0.044	D	mg/L	0.044	mg/L	FALSE	0.005		0.0014						surface water
RMDS	6362080.702	2032779.716	720-31892-5	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-39-3		Barium	0.032	D	mg/L	0.032	mg/L	FALSE	0.005		0.0014						surface water
RMMid	6361765.099	2032989.662	720-31892-4	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-39-3		Barium	0.036	D	mg/L	0.036	mg/L	FALSE	0.005		0.0014						surface water
CMMid	6361170.727	2033469.106	720-31892-2	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-39-3		Barium	0.057	D	mg/L	0.057	mg/L	FALSE	0.005		0.0014						surface water
CMUS	6360956.651	2033448.432	720-31892-1	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-39-3		Barium	0.064	D	mg/L	0.064	mg/L	FALSE	0.005		0.0014						surface water
CMDS/RMUS	6361325.916	2033386.64	720-31892-3	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-41-7		Beryllium	0.002	ND	mg/L	< 0.002	mg/L	FALSE	0.002		0.00033						surface water
RMDS	6362080.702	2032779.716	720-31892-5	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-41-7		Beryllium	0.002	ND	mg/L	< 0.002	mg/L	FALSE	0.002		0.00033						surface water
RMMid	6361765.099	2032989.662	720-31892-4	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-41-7		Beryllium	0.002	ND	mg/L	< 0.002	mg/L	FALSE	0.002		0.00033						surface water
CMMid	6361170.727	2033469.106	720-31892-2	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-41-7		Beryllium	0.002	ND	mg/L	< 0.002	mg/L	FALSE	0.002		0.00033						surface water
CMUS	6360956.651	2033448.432	720-31892-1	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-41-7		Beryllium	0.002	ND	mg/L	< 0.002	mg/L	FALSE	0.002		0.00033						surface water
21RE1	6361537.816	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					CaCO3	340	D	mg/L	340	mg/L	FALSE									Surface water
CM-SW-1	6361414.859	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					CaCO3	140	D	mg/L	140	mg/L	FALSE									Surface water
RM-SW-1	6362056.015	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					CaCO3	150	D	mg/L	150	mg/L	FALSE									Surface water
RM-SW-2	6361513.325	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					CaCO3	150	D	mg/L	150	mg/L	FALSE									Surface water
21RE1	6361537.816	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Cadmium	NA		mg/L	N/A	mg/L	FALSE									Surface water
CM-SW-1	6361414.859	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Cadmium	1	ND	mg/L	<1.0	mg/L	FALSE									Surface water
RM-SW-1	6362056.015	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Cadmium	1	ND	mg/L	<1.0	mg/L	FALSE									Surface water
RM-SW-2	6361513.325	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Cadmium	1	ND	mg/L	<1.0	mg/L	FALSE									Surface water
CMDS/RMUS	6361325.916	2033386.64	720-31892-3	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-43-9		Cadmium	0.0025	ND	mg/L	< 0.0025	mg/L	FALSE	0.0025		0.0013						surface water
RMDS	6362080.702	2032779.716	720-31892-5	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-43-9		Cadmium	0.0025	ND	mg/L	< 0.0025	mg/L	FALSE	0.0025		0.0013						surface water
RMMid	6361765.099	2032989.662	720-31892-4	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-43-9		Cadmium	0.0025	ND	mg/L	< 0.0025	mg/L	FALSE	0.0025		0.0013						surface water
CMMid	6361170.727	2033469.106	720-31892-2	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-43-9		Cadmium	0.0025	ND	mg/L	< 0.0025	mg/L	FALSE	0.0025		0.0013						surface water
CMUS	6360956.651	2033448.432	720-31892-1	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-43-9		Cadmium	0.0025	ND	mg/L	< 0.0025	mg/L	FALSE	0.0025		0.0013						surface water
21RE1	6361537.816	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Calcium	4	D	mg/L	4	mg/L	FALSE									Surface water
CM-SW-1	6361414.859	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Calcium	8.8	D	mg/L	8.8	mg/L	FALSE									Surface water
RM-SW-1	6362056.015	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Calcium	8.2	D	mg/L	8.2	mg/L	FALSE									Surface water
RM-SW-2	6361513.325	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Calcium	8.2	D	mg/L	8.2	mg/L	FALSE									Surface water
21RE1	6361537.816	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Chromium	NA		mg/L	N/A	mg/L	FALSE									Surface water
CM-SW-1	6361414.859	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Chromium	13	D	mg/L	13	mg/L	FALSE									Surface water
RM-SW-1	6362056.015	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Chromium	6.8	D	mg/L	6.8	mg/L	FALSE									Surface water
RM-SW-2	6361513.325	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Chromium	6.4	D	mg/L	6.4	mg/L	FALSE									Surface water
CMDS/RMUS	6361325.916	2033386.64	720-31892-3	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-47-3		Chromium	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0015						surface water
RMDS	6362080.702	2032779.716	720-31892-5	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-47-3		Chromium	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0015						surface water
RMMid	6361765.099	2032989.662	720-31892-4	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-47-3		Chromium	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0015						surface water
CMMid	6361170.727	2033469.106	720-31892-2	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-47-3		Chromium	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0015						surface water
CMUS	6360956.651	2033448.432	720-31892-1	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-47-3		Chromium	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0015						surface water
CMDS/RMUS	6361325.916	2033386.64	720-31892-3	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-48-4		Cobalt	0.002	ND	mg/L	< 0.002	mg/L	FALSE	0.002		0.0012						surface water
RMDS	6362080.702	2032779.716	720-31892-5	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-48-4		Cobalt	0.002	ND	mg/L	< 0.002	mg/L	FALSE	0.002		0.0012						surface water
RMMid	6361765.099	2032989.662	720-31892-4	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-48-4		Cobalt	0.002	ND	mg/L	< 0.002	mg/L	FALSE	0.002		0.0012						surface water
CMMid	6361170.727	2033469.106	720-31892-2	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-48-4		Cobalt	0.002	ND	mg/L	< 0.002	mg/L	FALSE	0.002		0.0012						surface water
CMUS	6360956.651	2033448.432	720-31892-1	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-48-4		Cobalt	0.002	ND	mg/L	< 0.002	mg/L	FALSE	0.002		0.0012						surface water
21RE1	6361537.816	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Copper	NA		mg/L	N/A	mg/L	FALSE									Surface water
CM-SW-1	6361414.859	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Copper	2	ND	mg/L	<2.0	mg/L	FALSE									Surface water
RM-SW-1	6362056.015	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Copper	2	ND	mg/L	<2.0	mg/L	FALSE									Surface water
RM-SW-2	6361513.325	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Copper	2	ND	mg/L	<2.0	mg/L	FALSE									Surface water
CMDS/RMUS	6361325.916	2033386.64	720-31892-3	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-50-8		Copper	0.02	ND	mg/L	< 0.02	mg/L	FALSE	0.02		0.001						surface water
RMDS	6362080.702	2032779.716	720-31892-5	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-50-8		Copper	0.02	ND	mg/L	< 0.02	mg/L	FALSE	0.02		0.001						surface water
RMMid	6361765.099	2032989.662	720-31892-4	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-50-8		Copper	0.02	ND	mg/L	< 0.02	mg/L	FALSE	0.02		0.001						surface water
CMMid	6361170.727	2033469.106	720-31892-2	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-50-8		Copper	0.02	ND	mg/L	< 0.02	mg/L	FALSE	0.02		0.001						surface water
CMUS	6360956.651	2033448.432	720-31892-1	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-50-8		Copper	0.02	ND	mg/L	< 0.02	mg/L	FALSE	0.02		0.001						surface water
21RE1	6361537.816	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B					Iron	0.02	ND	mg/L	<0.02	mg/L	FALSE									Surface water
CM-SW-1	6361414.859	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B					Iron	54	D	mg/L	54	mg/L	FALSE									Surface water
RM-SW-1	6362056.015	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B					Iron	40	ND	mg/L	<40	mg/L	FALSE									Surface water
RM-SW-2	6361513.325	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B					Iron	40	ND	mg/L	<40	mg/L	FALSE									Surface water
21RE1	6361537.816	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B					Lead	NA		mg/L	N/A	mg/L	FALSE									Surface water
CM-SW-1	6361414.859	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B					Lead	5	ND	mg/L	<5	mg/L	FALSE									Surface water
RM-SW-1	6362056.015	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B					Lead	5	ND	mg/L	<5	mg/L	FALSE									Surface water
RM-SW-2	6361513.325	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6010B					Lead	5	ND	mg/L	<5	mg/L	FALSE									Surface water
CMDS/RMUS	6361325.916	2033386.64	720-31892-3	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7439-92-1		Lead	0.005	ND	mg/L	< 0.005	mg/L	FALSE	0.005		0.0023						surface water
RMDS	6362080.702	2032779.716	720-31892-5	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7439-92-1		Lead	0.005	ND	mg/L	< 0.005	mg/L	FALSE	0.005		0.0023						surface water
RMMid	6361765.099	2032989.662	720-31892-4	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7439-92-1		Lead	0.005	ND	mg/L	< 0.005	mg/L	FALSE	0.005		0.0023						surface water
CMMid	6361170.727	2033469.106	720-31892-2	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7439-92-1		Lead	0.005	ND	mg/L	< 0.005	mg/L	FALSE	0.005		0.0023						surface water
CMUS	6360956.651	2033448.432	720-31892-1	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7439-92-1		Lead	0.005	ND	mg/L	< 0.005	mg/L	FALSE	0.005		0.0023						surface water
21RE1	6361537.816	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Magnesium	97	D	mg/L	97	mg/L	FALSE									Surface water
CM-SW-1	6361414.859	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Magnesium	28	D	mg/L	28	mg/L	FALSE									Surface water
RM-SW-1	6362056.015	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Magnesium	32	D	mg/L	32	mg/L	FALSE									Surface water
RM-SW-2	6361513.325	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Magnesium	31	D	mg/L	31	mg/L	FALSE									Surface water
21RE1	6361537.816	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Manganese	NA		mg/L	N/A	mg/L	FALSE									Surface water
CM-SW-1	6361414.859	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Manganese	13	D	mg/L	13	mg/L	FALSE									Surface water
RM-SW-1	6362056.015	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Manganese	1	ND	mg/L	<1.0	mg/L	FALSE									Surface water
RM-SW-2	6361513.325	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Manganese	1	ND	mg/L	<1.0	mg/L	FALSE									Surface water
21RE1	6361537.816	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				7471A					Mercury	0.0328	D	mg/L	0.0328	mg/L	FALSE									Surface water
CM-SW-1	6361414.859	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				7471A					Mercury	0.2	ND	mg/L	<0.2	mg/L	FALSE									Surface water
RM-SW-1	6362056.015	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				7471A					Mercury	5.5	D	mg/L	5.5	mg/L	FALSE									Surface water
RM-SW-2	6361513.325	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				7471A					Mercury	5.2	D	mg/L	5.2	mg/L	FALSE									Surface water
RMDS	6362080.702	2032779.716	720-31892-5	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			LL_HG Analyzer	Total/NA	7470A			7439-97-6		Mercury	0.0002	ND	mg/L	< 0.0002	mg/L	FALSE	0.0002		0.0001						surface water
RMMid	6361765.099	2032989.662	720-31892-4	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			LL_HG Analyzer	Total/NA	7470A			7439-97-6		Mercury	0.0002	ND	mg/L	< 0.0002	mg/L	FALSE	0.0002		0.0001						surface water
CMDS/RMUS	6361325.916	2033386.64	720-31892-3	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			LL_HG Analyzer	Total/NA	7470A			7439-97-6		Mercury	0.0002	ND	mg/L	< 0.0002	mg/L	FALSE	0.0002		0.0001						surface water
CMMid	6361170.727	2033469.106	720-31892-2	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			LL_HG Analyzer	Total/NA	7470A			7439-97-6		Mercury	0.0002	ND	mg/L	< 0.0002	mg/L	FALSE	0.0002		0.0001						surface water
CMUS	6360956.651	2033448.432	720-31892-1	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			LL_HG Analyzer	Total/NA	7470A			7439-97-6		Mercury	0.0002	ND	mg/L	< 0.0002	mg/L	FALSE	0.0002		0.0001						surface water
RMDS	6362080.702	2032779.716	720-31892-5	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7439-98-7		Molybdenum	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0008						surface water
RMMid	6361765.099	2032989.662	720-31892-4	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7439-98-7		Molybdenum	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0008						surface water
CMDS/RMUS	6361325.916	2033386.64	720-31892-3	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7439-98-7		Molybdenum	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0008						surface water
CMMid	6361170.727	2033469.106	720-31892-2	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7439-98-7		Molybdenum	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0008						surface water
CMUS	6360956.651	2033448.432	720-31892-1	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7439-98-7		Molybdenum	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0008						surface water
21RE1	6361537.816	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Nickel	NA		mg/L	N/A	mg/L	FALSE									Surface water
CM-SW-1	6361414.859	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Nickel	30	D	mg/L	30	mg/L	FALSE									Surface water
RM-SW-1	6362056.015	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Nickel	3.3	D	mg/L	3.3	mg/L	FALSE									Surface water
RM-SW-2	6361513.325	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Nickel	3.1	D	mg/L	3.1	mg/L	FALSE									Surface water
RMDS	6362080.702	2032779.716	720-31892-5	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-02-0		Nickel	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0008						surface water
RMMid	6361765.099	2032989.662	720-31892-4	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-02-0		Nickel	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0008						surface water
CMDS/RMUS	6361325.916	2033386.64	720-31892-3	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-02-0		Nickel	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0008						surface water
CMMid	6361170.727	2033469.106	720-31892-2	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-02-0		Nickel	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0008						surface water
CMUS	6360956.651	2033448.432	720-31892-1	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-02-0		Nickel	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0008						surface water
21RE1	6361537.816	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Selenium	NA		mg/L	N/A	mg/L	FALSE									Surface water
CM-SW-1	6361414.859	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Selenium	2	ND	mg/L	<2.0	mg/L	FALSE									Surface water
RM-SW-1	6362056.015	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Selenium	2	ND	mg/L	<2.0	mg/L	FALSE									Surface water
RM-SW-2	6361513.325	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Selenium	2	ND	mg/L	<2.0	mg/L	FALSE									Surface water
RMDS	6362080.702	2032779.716	720-31892-5	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7782-49-2		Selenium	0.02	ND	mg/L	< 0.02	mg/L	FALSE	0.02		0.0071						surface water
RMMid	6361765.099	2032989.662	720-31892-4	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7782-49-2		Selenium	0.02	ND	mg/L	< 0.02	mg/L	FALSE	0.02		0.0071						surface water
CMDS/RMUS	6361325.916	2033386.64	720-31892-3	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7782-49-2		Selenium	0.02	ND	mg/L	< 0.02	mg/L	FALSE	0.02		0.0071						surface water
CMMid	6361170.727	2033469.106	720-31892-2	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7782-49-2		Selenium	0.02	ND	mg/L	< 0.02	mg/L	FALSE	0.02		0.0071						surface water
CMUS	6360956.651	2033448.432	720-31892-1	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7782-49-2		Selenium	0.02	ND	mg/L	< 0.02	mg/L	FALSE	0.02		0.0071						surface water
21RE1	6361537.816	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Silver	NA		mg/L	N/A	mg/L	FALSE									Surface water
CM-SW-1	6361414.859	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Silver	2	ND	mg/L	<2.0	mg/L	FALSE									Surface water
RM-SW-1	6362056.015	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Silver	2	ND	mg/L	<2.0	mg/L	FALSE									Surface water
RM-SW-2	6361513.325	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Silver	2	ND	mg/L	<2.0	mg/L	FALSE									Surface water
RMDS	6362080.702	2032779.716	720-31892-5	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-22-4		Silver	0.005	ND	mg/L	< 0.005	mg/L	FALSE	0.005		0.0012						surface water
RMMid	6361765.099	2032989.662	720-31892-4	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-22-4		Silver	0.005	ND	mg/L	< 0.005	mg/L	FALSE	0.005		0.0012						surface water
CMDS/RMUS	6361325.916	2033386.64	720-31892-3	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-22-4		Silver	0.005	ND	mg/L	< 0.005	mg/L	FALSE	0.005		0.0012						surface water
CMMid	6361170.727	2033469.106	720-31892-2	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-22-4		Silver	0.005	ND	mg/L	< 0.005	mg/L	FALSE	0.005		0.0012						surface water
CMUS	6360956.651	2033448.432	720-31892-1	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-22-4		Silver	0.005	ND	mg/L	< 0.005	mg/L	FALSE	0.005		0.0012						surface water
21RE1	6361537.816	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				unknown					Sulfate	78	D	mg/L	78	mg/L	FALSE									Surface water
RM-SW-1	6362056.015	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				unknown					Sulfate	NA		mg/L	N/A	mg/L	FALSE									Surface water
RM-SW-2	6361513.325	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				unknown					Sulfate	NA		mg/L	N/A	mg/L	FALSE									Surface water
RMDS	6362080.702	2032779.716	720-31892-5	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-28-0		Thallium	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0035						surface water
RMMid	6361765.099	2032989.662	720-31892-4	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-28-0		Thallium	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0035						surface water
CMDS/RMUS	6361325.916	2033386.64	720-31892-3	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-28-0		Thallium	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0035						surface water
CMMid	6361170.727	2033469.106	720-31892-2	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-28-0		Thallium	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0035						surface water
CMUS	6360956.651	2033448.432	720-31892-1	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-28-0		Thallium	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0035						surface water
RMDS	6362080.702	2032779.716	720-31892-5	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-62-2		Vanadium	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0007						surface water
RMMid	6361765.099	2032989.662	720-31892-4	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-62-2		Vanadium	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0007						surface water
CMDS/RMUS	6361325.916	2033386.64	720-31892-3	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-62-2		Vanadium	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0007						surface water
CMMid	6361170.727	2033469.106	720-31892-2	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-62-2		Vanadium	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0007						surface water
CMUS	6360956.651	2033448.432	720-31892-1	CMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-62-2		Vanadium	0.01	ND	mg/L	< 0.01	mg/L	FALSE	0.01		0.0007						surface water
21RE1	6361537.816	2033063.592		21RE1			Liquid	4/19/2001	USGS-2001	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Zinc	NA		mg/L	N/A	mg/L	FALSE									Surface water
CM-SW-1	6361414.859	2033130.223		CM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Zinc	20	ND	mg/L	<20	mg/L	FALSE									Surface water
RM-SW-1	6362056.015	2032809.687		RM-SW-1			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Zinc	20	ND	mg/L	<20	mg/L	FALSE									Surface water
RM-SW-2	6361513.325	2033143.934		RM-SW-2			Liquid	3/4/2010	SAIC-2010	Copy of 20110126_Data Entry_mas.xlsx.tData	unknown				6020					Zinc	20	ND	mg/L	<20	mg/L	FALSE									Surface water
RMDS	6362080.702	2032779.716	720-31892-5	RMDS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-66-6		Zinc	0.02	ND	mg/L	< 0.02	mg/L	FALSE	0.02		0.0096						surface water
RMMid	6361765.099	2032989.662	720-31892-4	RMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-66-6		Zinc	0.02	ND	mg/L	< 0.02	mg/L	FALSE	0.02		0.0096						surface water
CMDS/RMUS	6361325.916	2033386.64	720-31892-3	CMDS/RMUS			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-66-6		Zinc	0.02	ND	mg/L	< 0.02	mg/L	FALSE	0.02		0.0096						surface water
CMMid	6361170.727	2033469.106	720-31892-2	CMmid			Water	11/16/2010	ECM-2010	720-31892-1_TalStandard.xlsx.FromCSV			Thermo ICP	Total/NA	6010B			7440-66-6		Zinc	0.02	ND	mg/L	< 0.02	mg/L	FALSE	0.02		0.0096						surface water

Attachment B

Derivation of Background Concentrations

ATTACHMENT B
BACKGROUND CONCENTRATIONS IN SOILS

B1.0 INTRODUCTION

Metals are naturally occurring in soils, surface water, and sediments. Use of background concentrations in identifying site-related impacts is a common and critical step of most site investigations.

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), states "The President shall not provide for a removal or remediation action under this section in response to a release or threat of a release of a naturally occurring substance in its unaltered form, or altered solely through naturally occurring processes or phenomena, from a location where it is naturally found…" [42 USC section 9604(a)(3)(A)]. Thus, the establishment and use of a defensible background concentration data set is an important step in the Engineering Evaluation/Cost Analysis (EECA) process for the Chicago-Research mine site (the Site) because the removal action cannot legally require remediation of constituents to less than naturally occurring concentrations.

The purpose of this appendix is to:

- Describe the approach for characterizing upper bound background concentrations of metals in soils for the Site.
- List upper bound background concentrations of metals in soils for the Site.

Methods used in the proposed approach are described and were taken from the California Department of Toxic Substances Control (DTSC) guidance (DTSC 1997) and other relevant guidance documents (USEPA 2002; USDON 2002; USACE 2008).

B2.0 UNDERSTANDING TO DATE

For the most part, soil samples were collected at locations known or suspected to be impacted by Site-related activities—i.e., the majority soil

samples were not collected with the specific purpose of characterizing background concentrations.[1] Note that methods exist to identify and characterize background concentrations from samples collected with the purpose of characterizing site conditions.

Sample sizes ranging from 16 to 34 samples were considered sufficient to provide a robust evaluation of background concentrations of metals in soils (Table C-1). No evaluations were performed for beryllium, molybdenum, silver, and thallium because either all or all-but-one of the data were comprised of non-detected values.

Table B-1. Descriptive statistics for Metals in Soil Samples

Metal	N	FOD	Min	Max	Normal?
Antimony	34	44%	0.10	10	No
Arsenic	34	24%	0.60	7.8	Yes
Barium	16	81%	4.4	70	No
Beryllium	16	0%	—	—	—
Cadmium	34	24%	0.020	0.22	Yes
Chromium	34	100%	86	4350	No
Cobalt	16	100%	19	170	Yes
Copper	34	85%	4.4	31	No
Iron	18	100%	26000	154000	No
Lead	34	79%	0.50	33	No
Manganese	18	100%	230	2670	No
Mercury	34	100%	0.12	17700	No
Molybdenum	16	0%	—	—	—
Nickel	34	100%	170	4920	Yes
Selenium	34	3%	1.0	1.0	—
Silver	34	24%	0.060	0.20	Yes
Thallium	16	0%	—	—	—
Vanadium	16	100%	4.1	27	Yes
Zinc	34	71%	14	116	No

Legend:
N = sample size
FOD = frequency of detection
Min / Max = minimum / maximum detected concentration
Normal? = Are data normally or lognormally distributed?
Yes = normally or lognormally distributed
No = not normally or lognormally distributed

[1] Note that four soil samples (from a previous investigation) were used to characterize background concentrations for mercury. These four samples are included in Table B-1. In addition, a single measurement of background concentration was obtained for antimony, arsenic, cadmium, chromium, copper, lead, manganese, nickel, and zinc.

Fewer samples were collected for surface water and sediment and no evaluation of background concentrations of metals in these environmental media were conducted—i.e., all detected metals in these media were evaluated further in the risk assessment or EECA.

B3.0 METHOD FOR CHARACTERIZING UPPER BOUND BACKGROUND CONCENTRATIONS FOR METALS IN SOILS

A cumulative probability plot is a graph of concentration (often, the log of the concentration) versus the cumulative probability. If data are drawn from a single population (background), the cumulative probability plot will be a straight line. Inflections (or "breaks") in the plot suggest multiple populations. However, background concentrations can consist of multiple, normally distributed populations based on samples from differing natural soil formations. This is because discrete soil formations may consist of entirely different natural mineral compositions. Nonetheless, DTSC (1997) recommends that the range of concentrations associated with the straight line segment nearest the origin is indicative of background concentrations.

Inflection points are distinguished by visual inspection. Hence, cumulative probability plots offer a simple way of graphically determining background ranges. However, given the visual nature of this method, the use of cumulative probability plots in identifying upper bound background concentrations is considered subjective.

Consistent with guidance, the upper bound of the line segment closest to the origin was considered the upper bound background concentration. However, where available, the concentration from the single background location sample was used to identify pertinent line segments. Specifically, the line segment containing the concentration from the background sample was considered to be indicative of background concentrations. Hence, the upper bound of this line segment was considered the upper bound background concentration.

ECM prepared cumulative probability plots for metals in Site soils using SigmaPlot®. Plots were examined and upper bound background concentrations of metals in soils at the Site were identified.

B4.0 UPPER BOUND BACKGROUND CONCENTRATIONS

Cumulative probability plots are shown in Figures C-1 to C-13. Upper bound concentrations of metals in soils at the Site are presented in Table C-2.

Table B-2. Descriptive statistics for Metals in Soil Samples

Metal	Upper Bound	Basis
Antimony	2.6	Inflection detected
Arsenic	8.2	No inflection observed
Barium[1]	—	—
Beryllium	—	Not detected
Cadmium	0.22	No inflection observed
Chromium	148	Inflection detected
Cobalt	26	Inflection detected
Copper	32	No inflection observed
Iron[2]	—	—
Lead	33	No inflection observed
Manganese	992	Inflection detected
Mercury	15.7	Inflection detected
Molybdenum	—	Not detected
Nickel	221	Inflection detected
Selenium	—	Detected once
Silver[1]	—	—
Thallium	—	Not detected
Vanadium	27	No inflection observed
Zinc	60	Infl0.22ection detected

Legend:
1 Upper bound background concentrations for barium and silver were not evaluated—hence, both metals were evaluated further in the risk assessment and EECA
2 Consistent with guidance, iron was considered an essential nutrient and was not evaluated further.

The basis for the upper bound background concentration is also summarized in Table B-2 and is discussed further below.

Antimony. The cumulative probability plot for antimony is shown in Figure B-1. The concentration from the background surface soil sample was contained in a line segment with an upper bound of 2.6 mg/kg (= $e^{0.95}$).

Arsenic. The cumulative probability plot for arsenic is shown in Figure C-2. The concentration from the background surface soil sample was contained in a line segment with an upper bound of 8.2 mg/kg (= $e^{2.1}$). Note that this line segment also contained the highest detected concentration of arsenic in soils. Arsenic was not identified as a constituent of concern for the Site.

Barium. No evaluation was conducted for barium. Barium is rarely a "risk-driver" and the need to screen/eliminate this metal from further analyses was not considered critical. Barium was evaluated in the risk assessment and EECA.

Beryllium. Beryllium was not detected in any soil sample collected at the Site (reporting limits ranging from 0.39 to 0.42 mg/kg). Consequently, beryllium was not identified as a constituent of concern for the Site.

Cadmium. The cumulative probability plot for cadmium is shown in Figure C-3. Most of the data for cadmium were comprised of non-detected values. Non-detected values ranged from 0.49 to 2.5 mg/kg.[2] Cadmium was not detected in the background sample at a reporting limit of 2.5 mg/kg. Detected concentrations ranged from 0.02 to 0.22 mg/kg. The line segment nearest the origin contains concentrations up to 0.25 mg/kg. This line segment is considered to include all data with the exception of the background datum, which, at 1.25 mg/kg (= ½-reporting limit), is located well above the site characterization data.

Chromium. The cumulative probability plot for chromium is shown in Figure C-4a,b. A discontinuation in the data was observed at 148 mg/kg (= e^{5}) (Figure C-4a). An upper bound background concentration of 148 mg/kg was selected.

Cobalt. The cumulative probability plot for cobalt is shown in Figure C-5. An inflection point was observed at 26 mg/kg (= $e^{3.25}$).

Copper. The cumulative probability plot for copper is shown in Figure C-6. No inflection point was observed. Copper was not identified as a constituent of concern for the Site.

Iron. No evaluation of iron was conducted for iron. Iron is an essential nutrient and, consistent with guidance, was not identified as a constituent of concern for the risk assessment.

---

[2] Non-detected concentrations were plotted as ½-reporting limits.

Lead. The cumulative probability plot for lead is shown in Figure C-7. No inflection point was observed. Lead was not identified as a constituent of concern for the Site.

Manganese. The cumulative probability plot for manganese is shown in Figure C-8. The concentration from the background surface soil sample was contained in a line segment with an upper bound of 992 mg/kg (= $e^{6.9}$).

Mercury. The cumulative probability plot for mercury is shown in Figure C-9. A gap or a break between separate populations was observed at 15.7 mg/kg, separating the mercury samples into two distinct population ranges. The lower-range population included three samples from known background areas, while the upper population included a single background sample from bedrock. The California Regional Water Quality Control Board, Central Valley Region, normally excludes rock samples from background determinations because bedrock can contain higher metals concentrations than weathered soil, and it does not readily release metal-bearing sediments. Therefore, the inflection point was used to identify 15.7 mg/kg as the upper bound for the range of background mercury levels.

Molybdenum. Molybdenum was not detected in any soil sample collected at the Site (reporting limits ranging from 1.9 to 2.1 mg/kg). Consequently, molybdenum was not identified as a constituent of concern for the Site.

Nickel. The cumulative probability plot for nickel is shown in Figure C-10. An inflection/discontinuation point was observed. The line segment nearest the origin was selected as representing background concentrations. The upper bound for this line segment was observed at 221 mg/kg (= $e^{5.4}$).

Selenium. Selenium was not detected in 33 of 34 soil sample collected at the Site (reporting limits ranging from 1.0 to 5.0 mg/kg). Selenium was detected in one soil sample collected at the Site (= 1.0 mg/kg). Given the low frequency of detection (3%), selenium was not identified as a constituent of concern for the Site.

Silver. Silver was not detected in 26 of 34 soil sample collected at the Site (reporting limits ranging from 1.0 to 2.5 mg/kg). Silver was detected in 8 of 34 soil samples collected at the Site (ranging from 0.06 to 0.2 mg/kg). Silver was evaluated in the risk assessment and EECA.

Thallium. Thallium was not detected in any soil sample collected at the Site (reporting limits ranging from 2.0 to 2.1 mg/kg). Consequently, thallium was not identified as a constituent of concern for the Site.

Vanadium. The cumulative probability plot for vanadium is shown in Figure C-11. No inflection point was observed. The upper bound for this line segment was observed at 27 mg/kg.

Zinc. The cumulative probability plot for zinc is shown in Figure C-12. An inflection/discontinuation point was observed. The line segment nearest the origin was selected as representing background concentrations. The upper bound for this line segment was observed at 60 mg/kg (= $e^{4.1}$).

B5.0 LITERATURE CITED

California Department of Toxic Substances Control (DTSC). 1997. Selecting inorganic constituents as chemicals of potential concern at risk assessments at hazardous waste sites and permitted facilities. Final Policy. Sacramento, CA.

U.S. Army Corps of Engineers (USACE). 2008. *Environmental Statistics*. EM 1110-1-4014. Washington, D.C.

U.S. Department of the Navy (USDON). 2002. *Guidance for Environmental Background Analysis. Volume I: Soil. NFESC User's Guide*. UG-2049-ENV, NAVFAC. Washington, D.C.

United States Environmental Protection Agency (USEPA). 2002. *Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites*. EPA 540-R-01-003. Office of Emergency and Remedial Response. Washington, D.C.

USEPA. 2011. *ProUCL Technical Guidance*. EPA/600/R-07/041. Office of Research and Development. Las Vegas, NV.

Figures

Figure B-1. Cumulative Probability Plot for Antimony

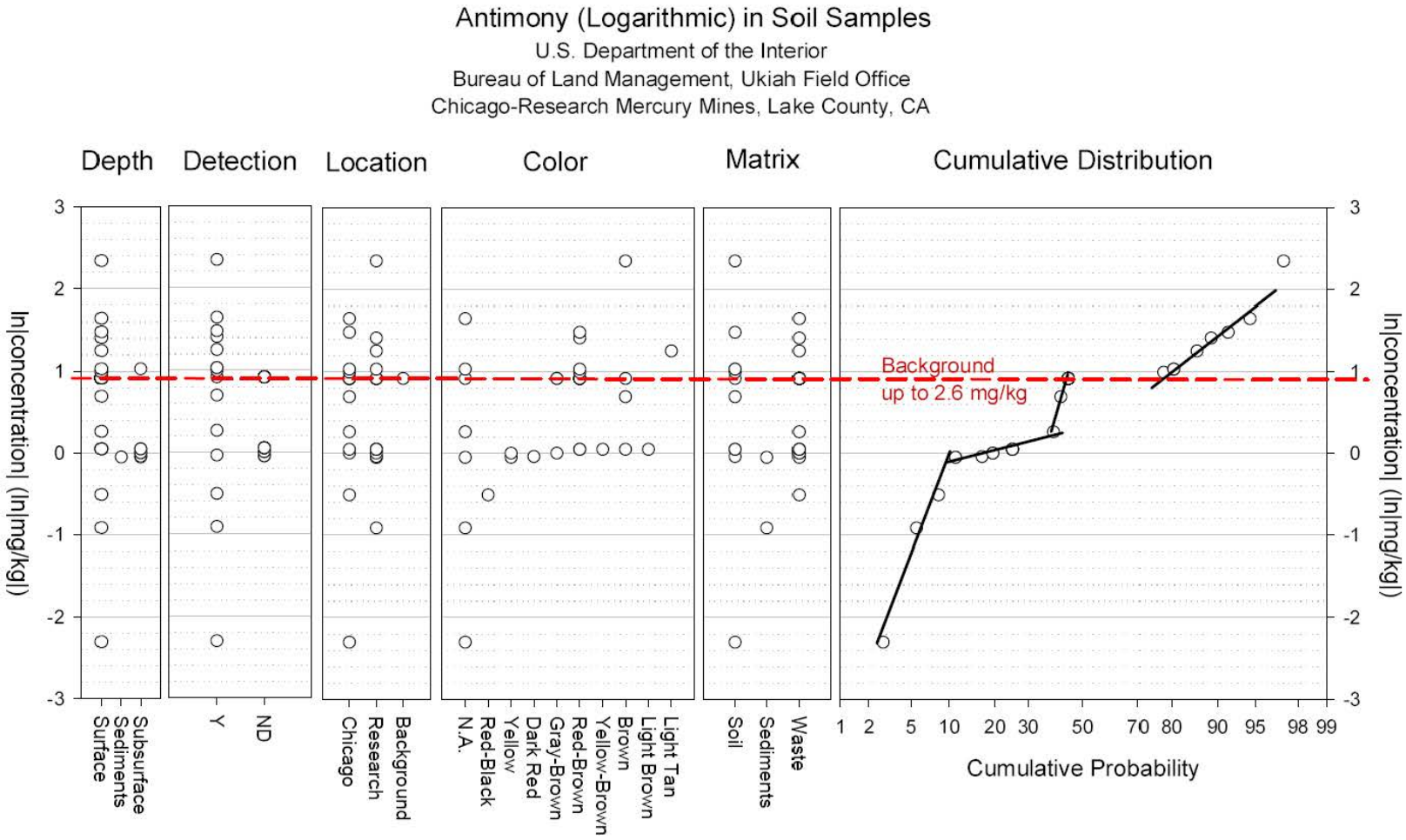


Figure B-2. Cumulative Probability Plot for Arsenic

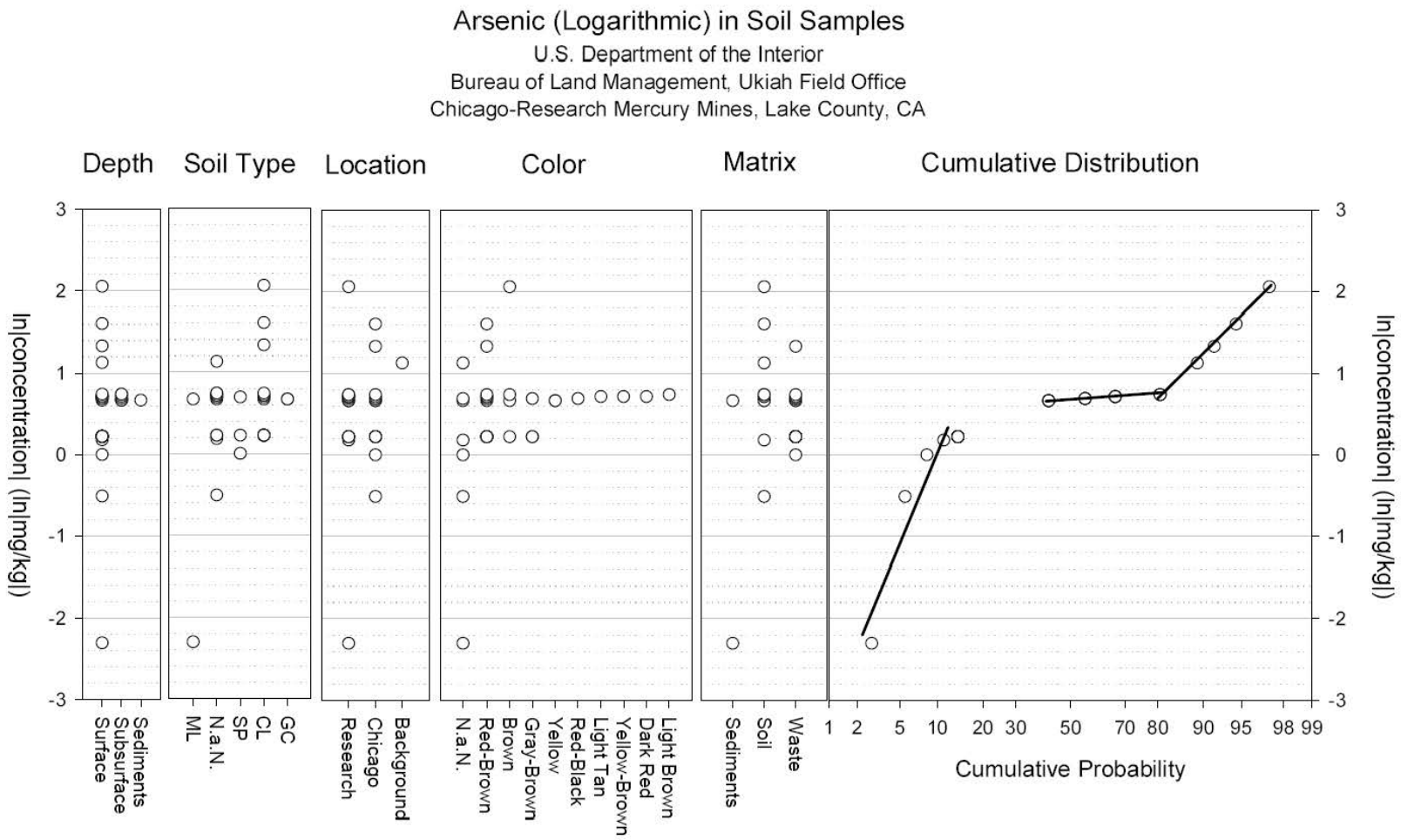


Figure B-3. Cumulative Probability Plot for Cadmium

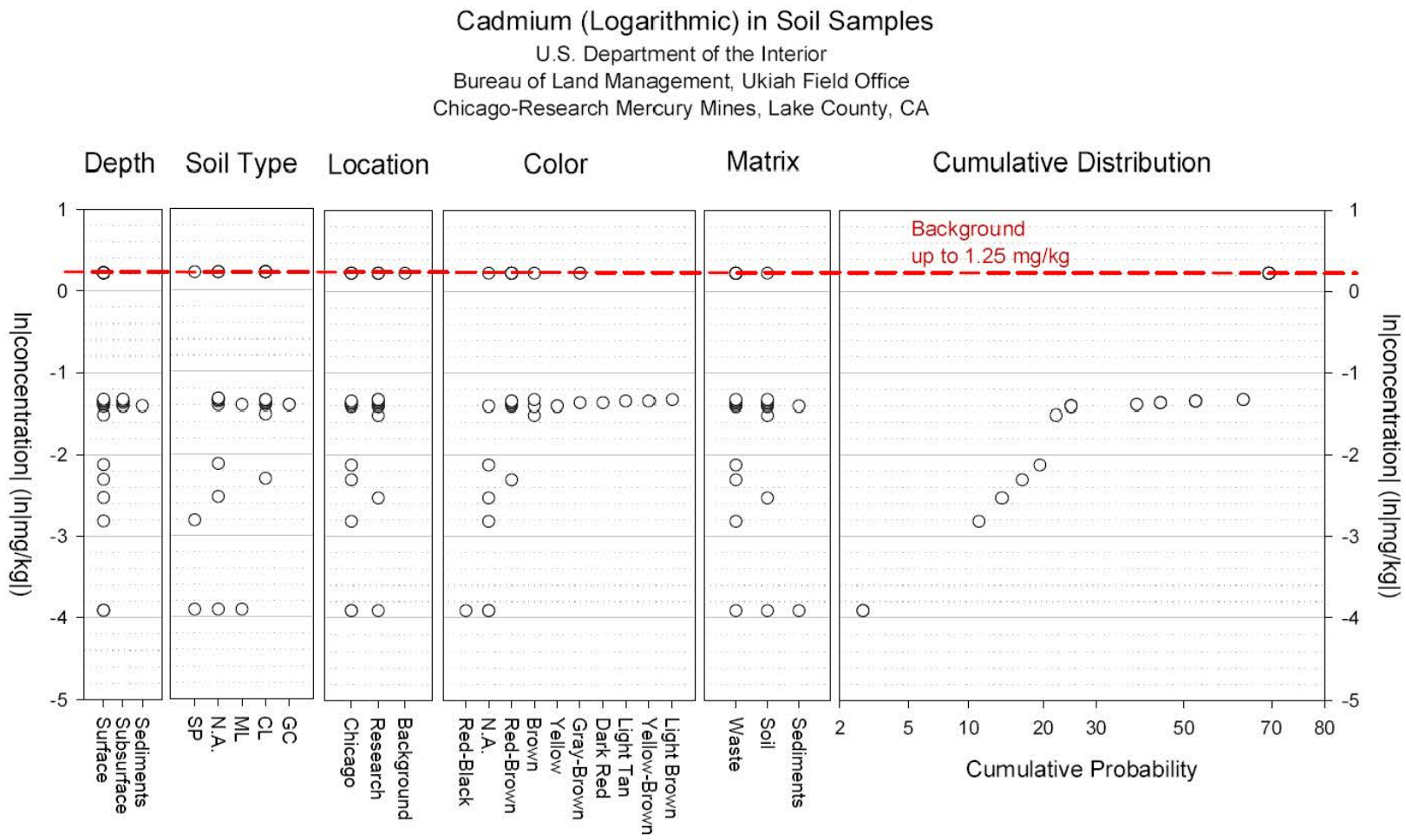


Figure B-4. Cumulative Probability Plot for Chromium

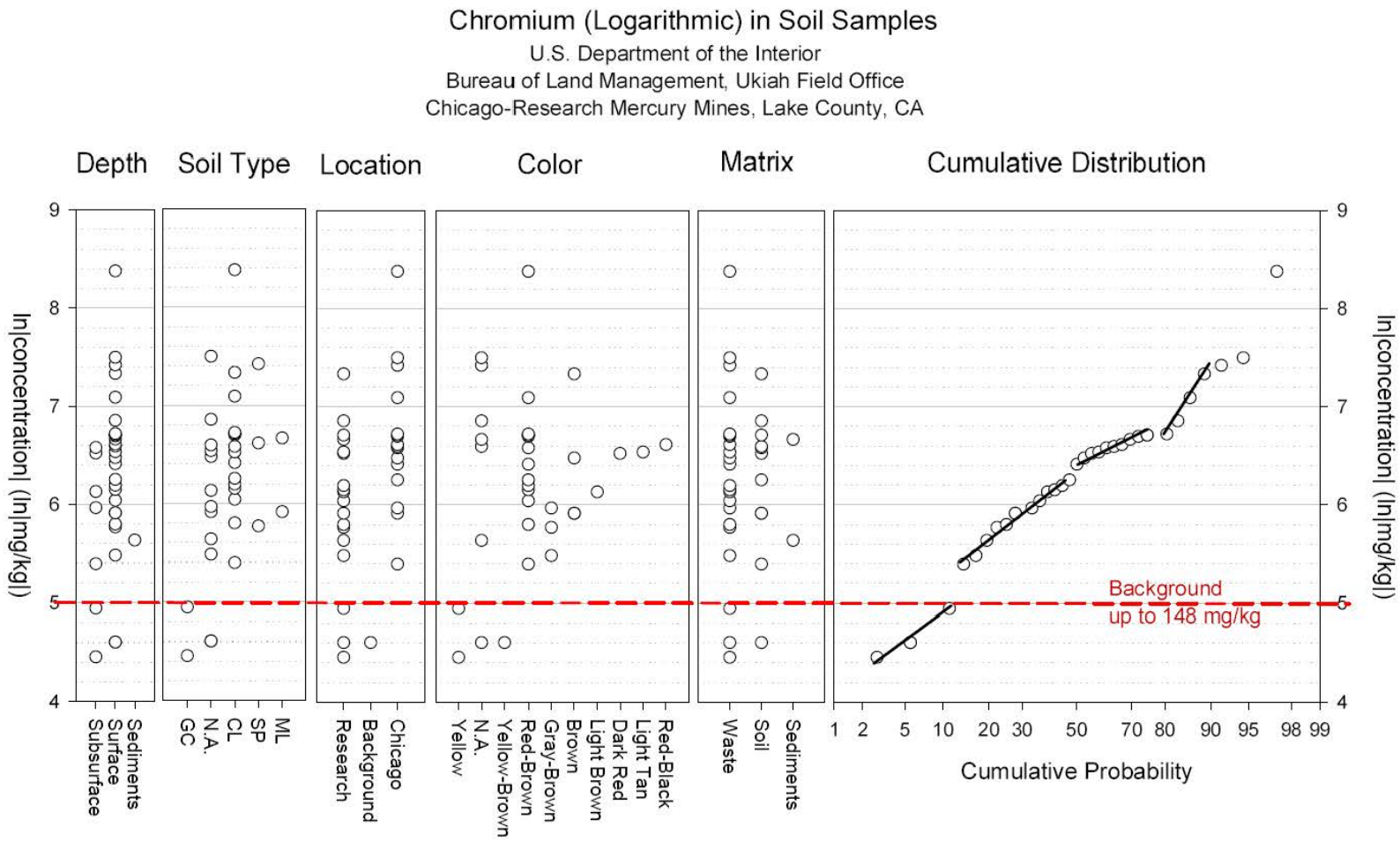


Figure B-5. Cumulative Probability Plot for Cobalt

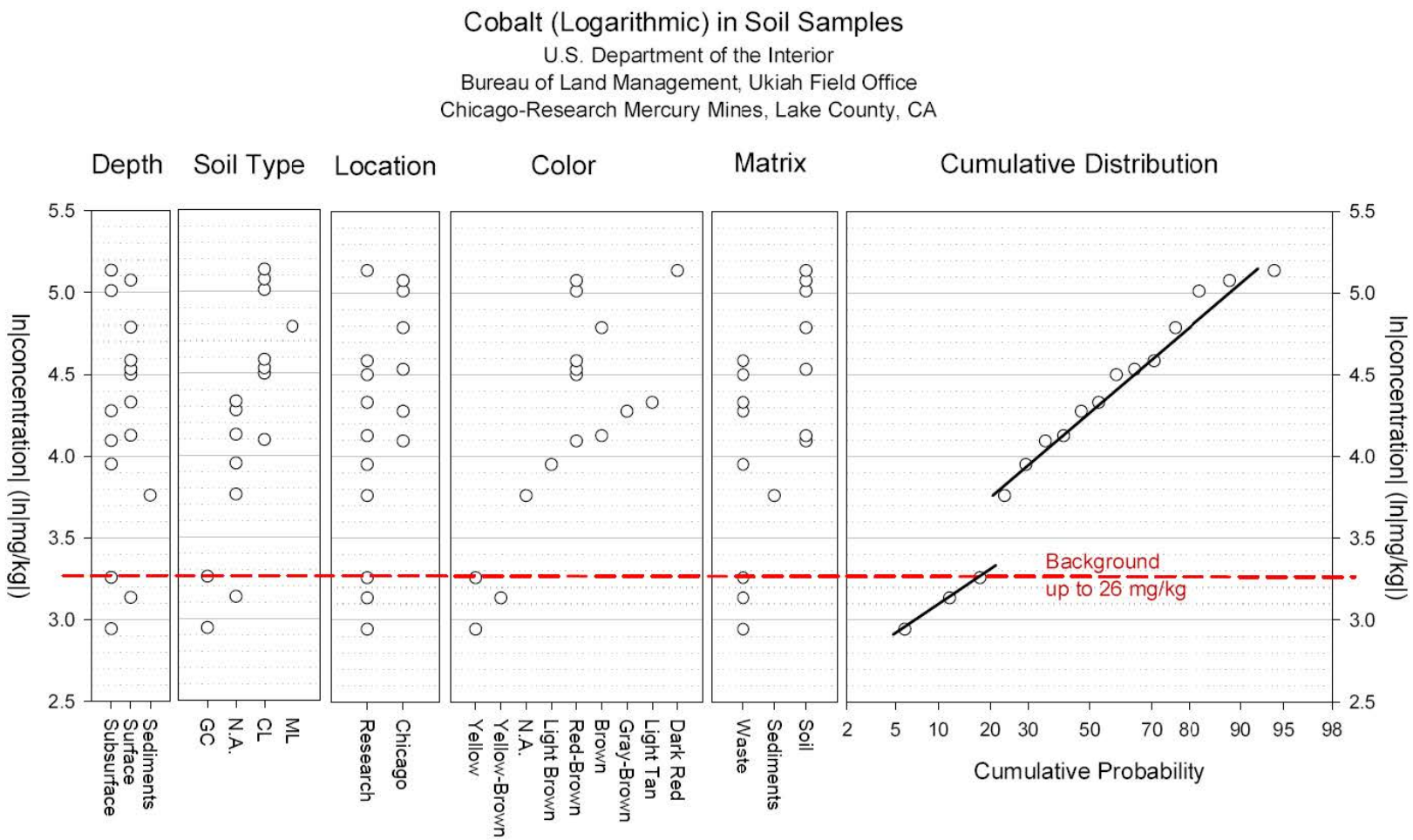


Figure B-6. Cumulative Probability Plot for Copper

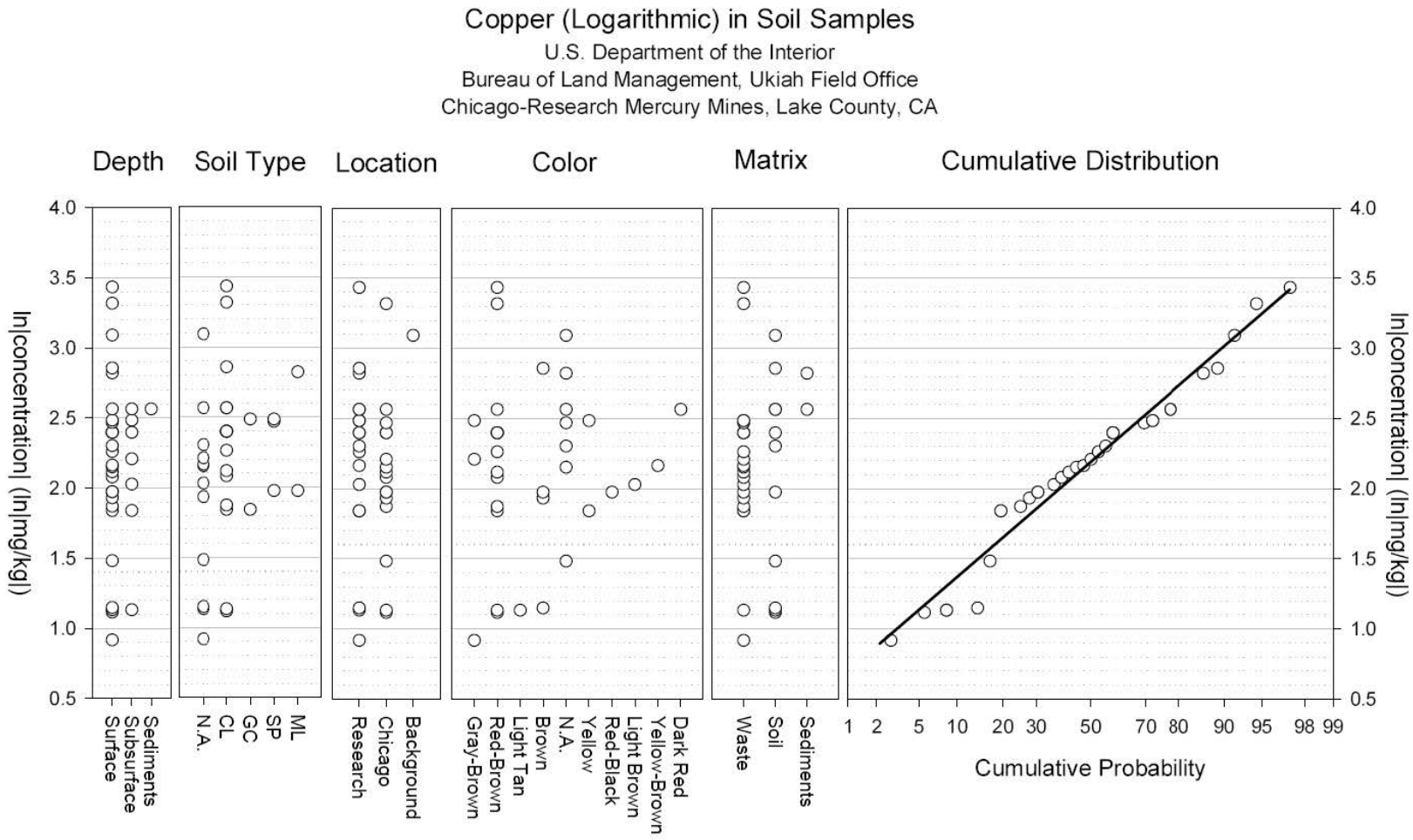


Figure B-7. Cumulative Probability Plot for Lead

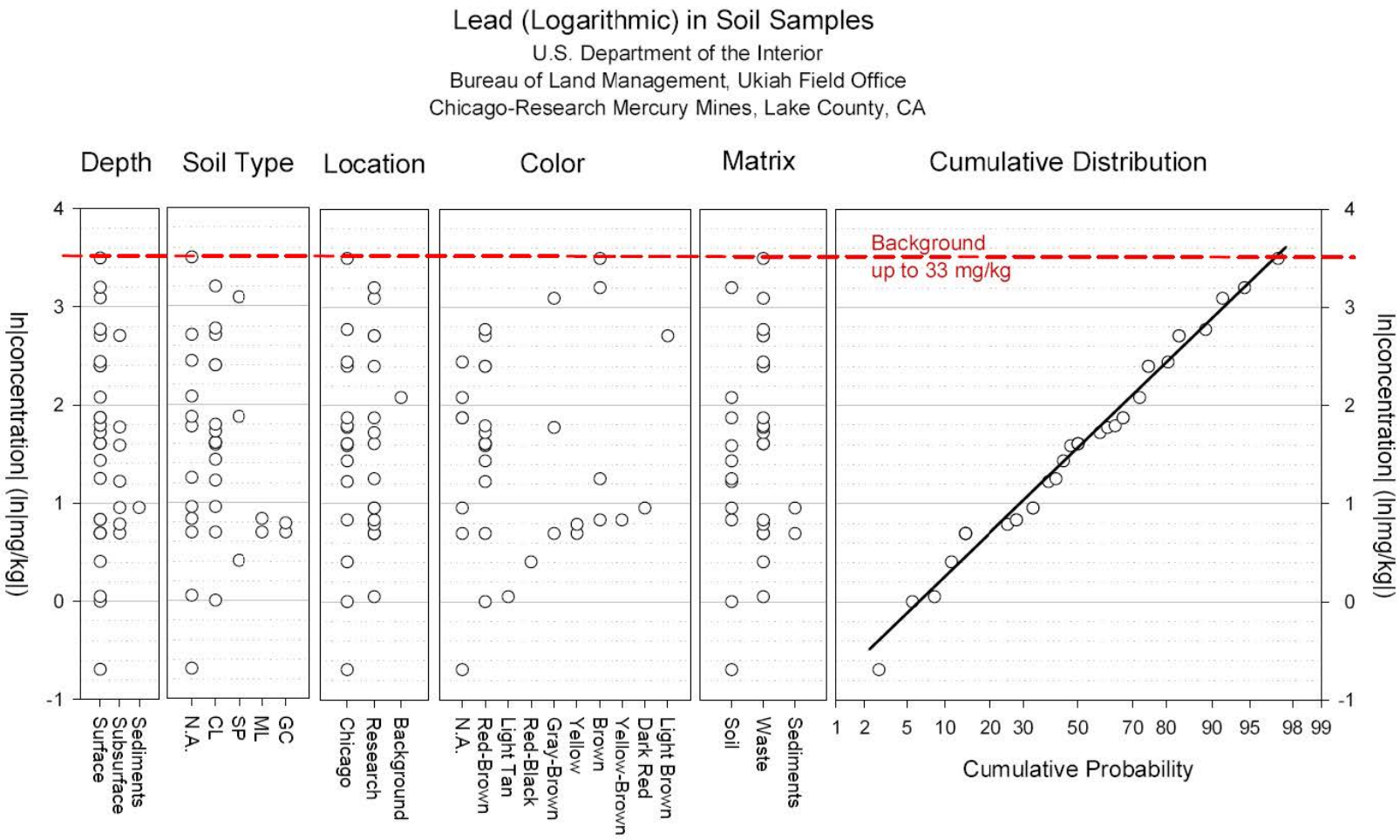


Figure B-8. Cumulative Probability Plot for Manganese

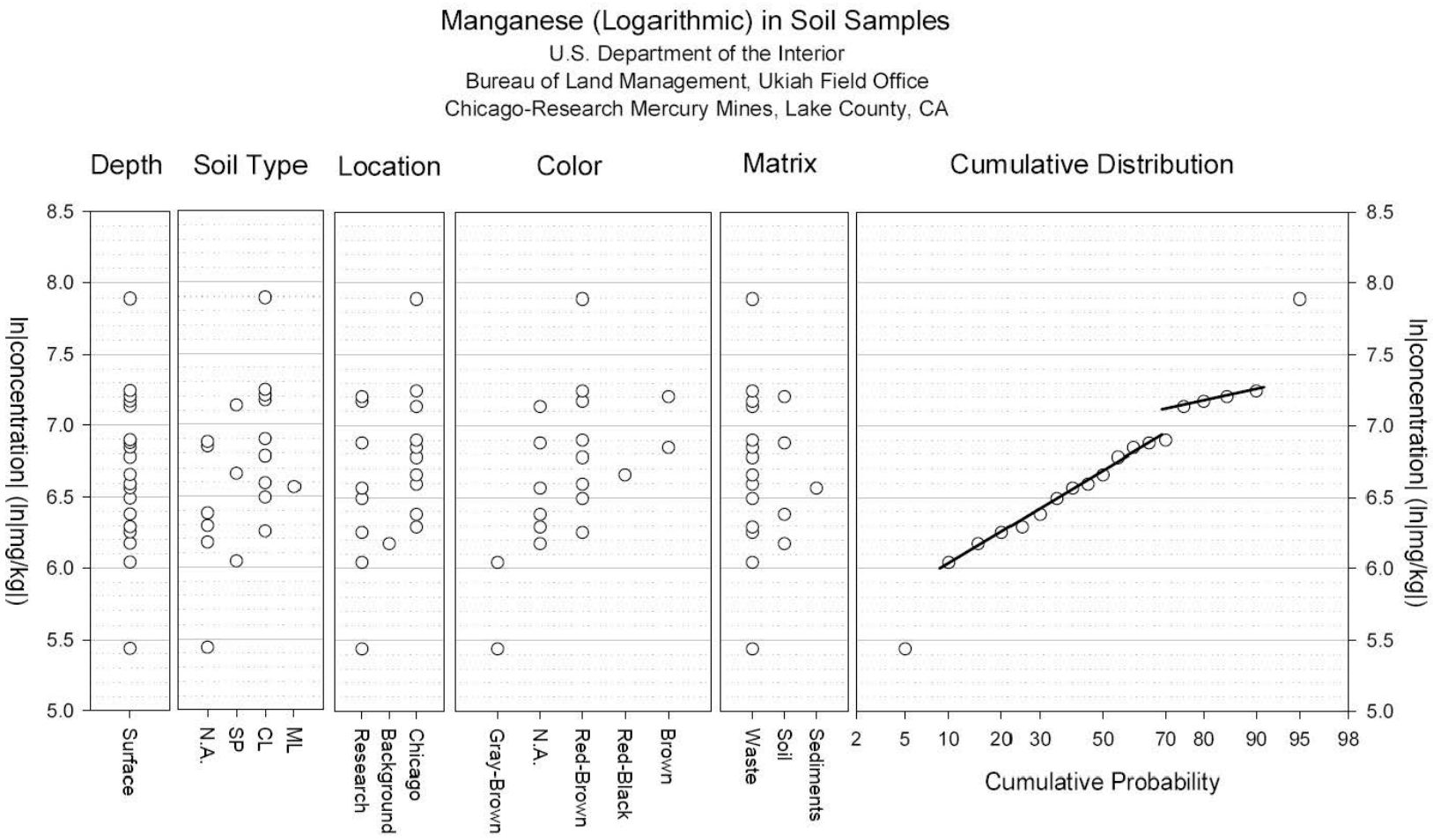


Figure B-9. Cumulative Probability Plot for Mercury

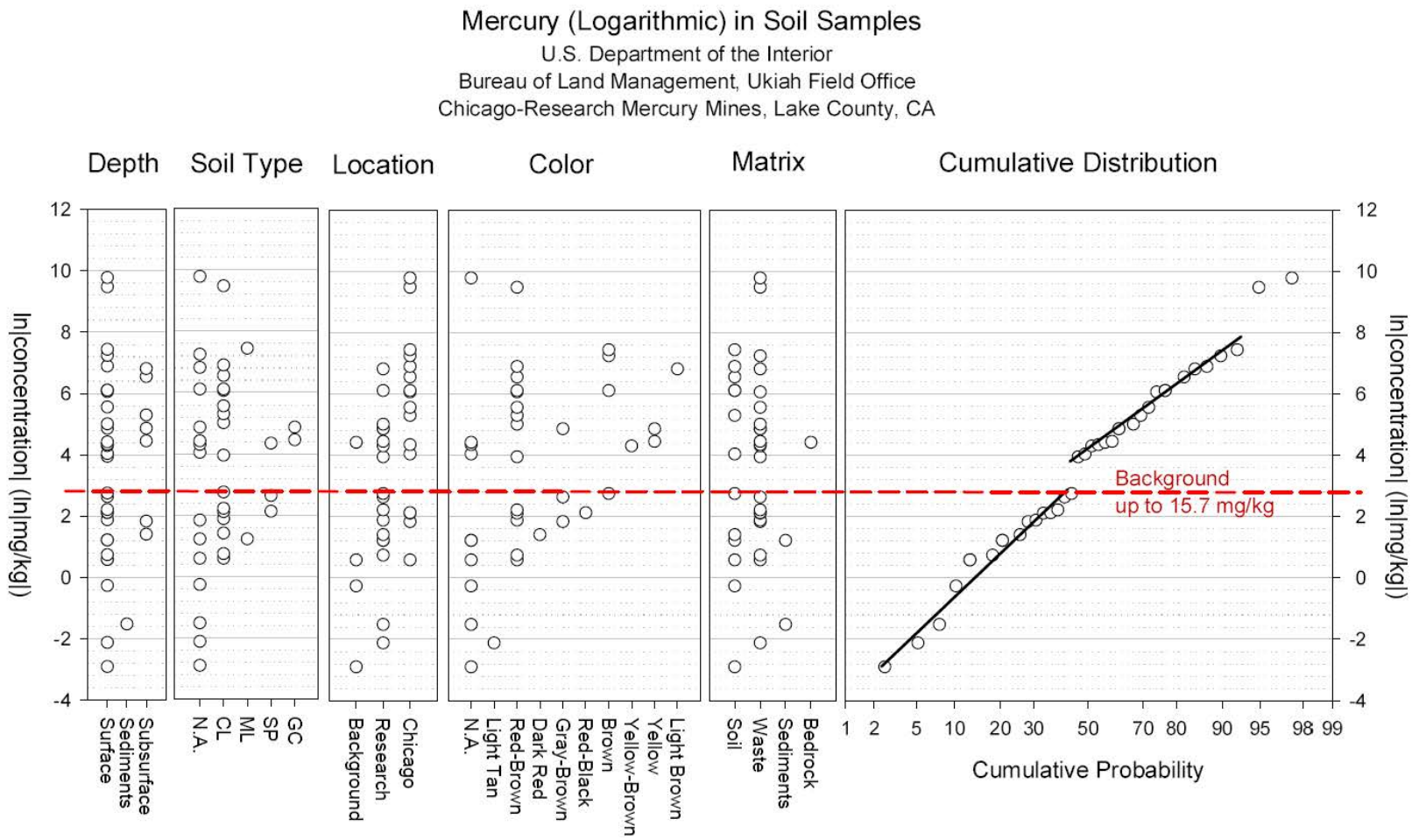


Figure B-10. Cumulative Probability Plot for Nickel

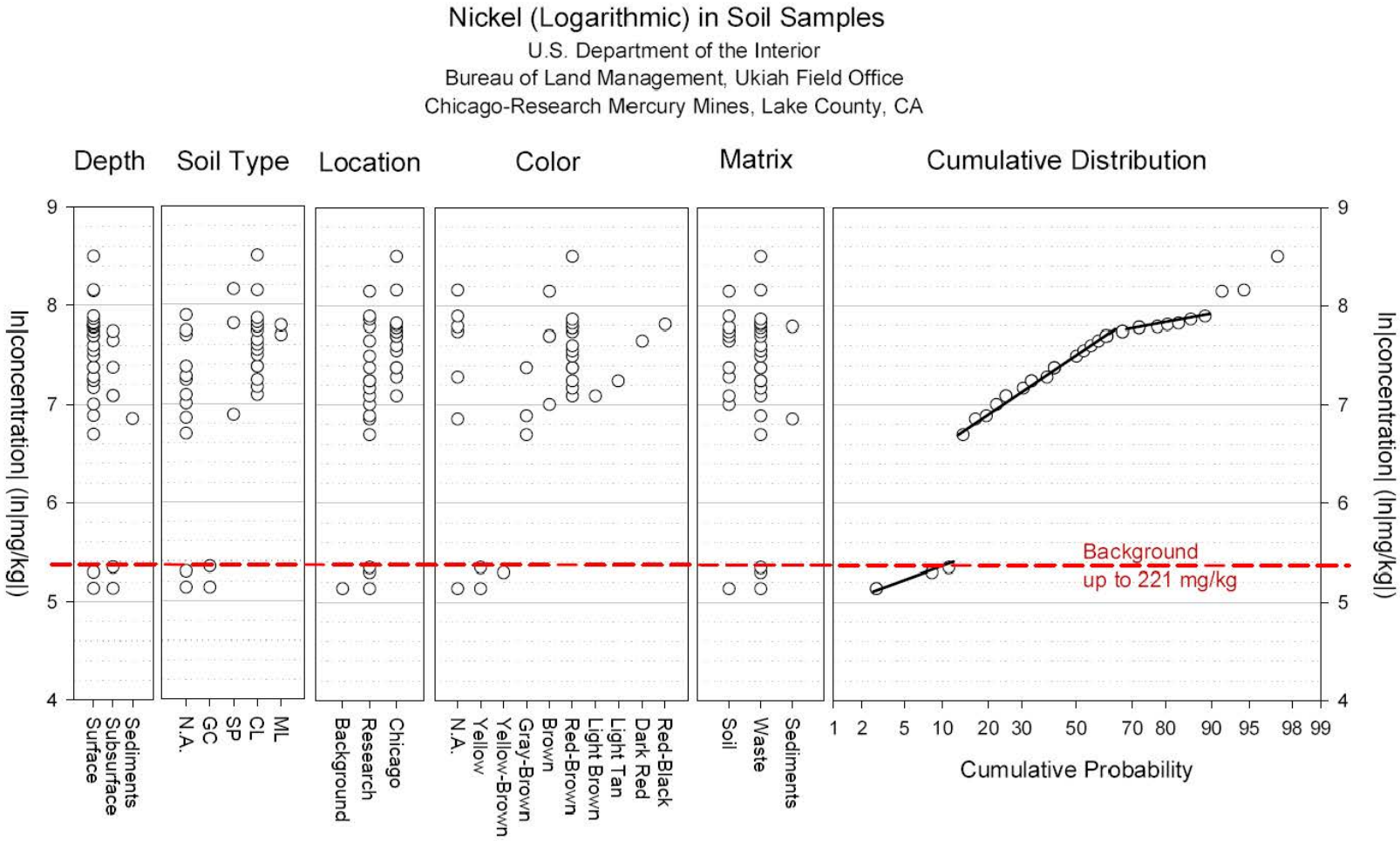


Figure B-11. Cumulative Probability Plot for Vanadium

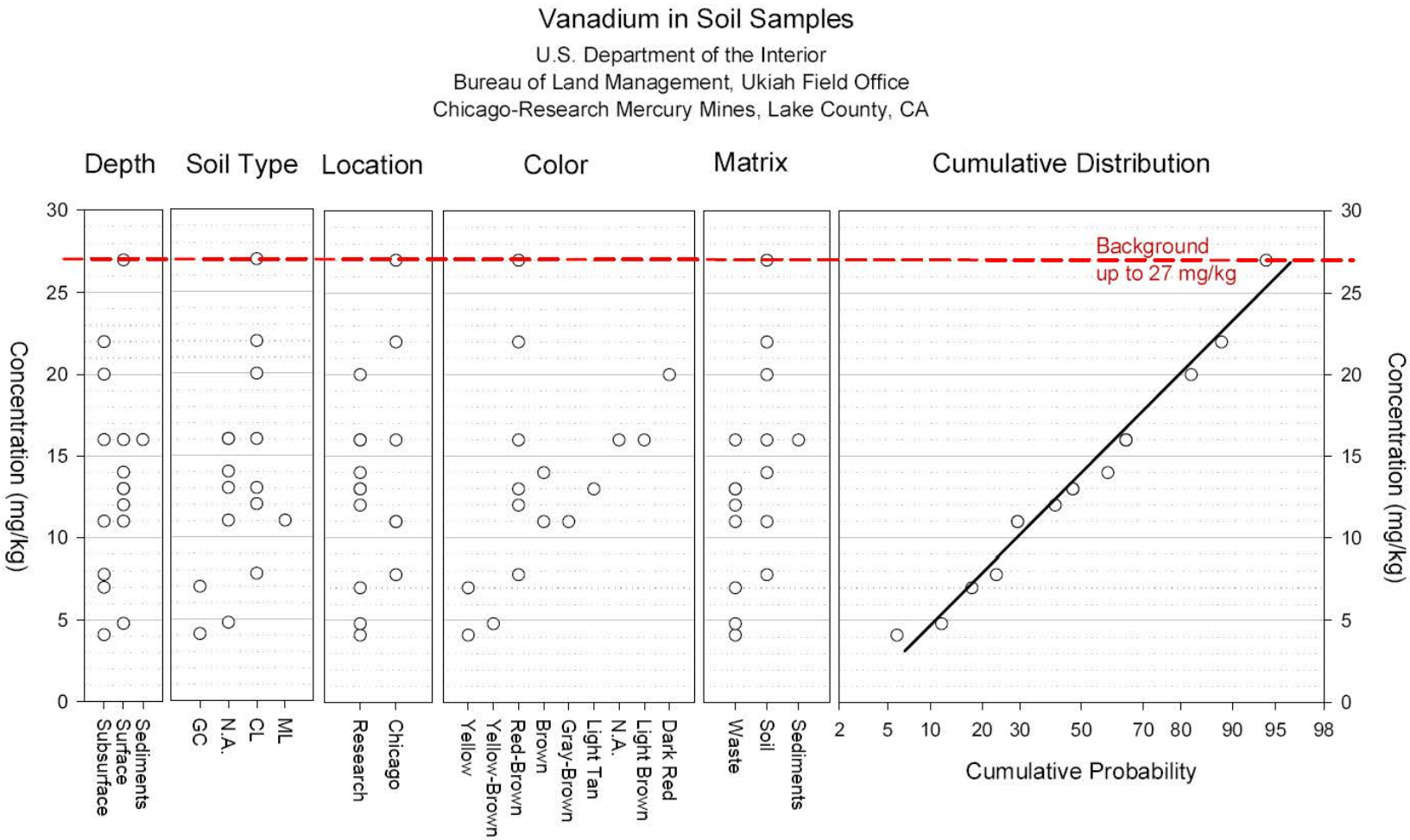
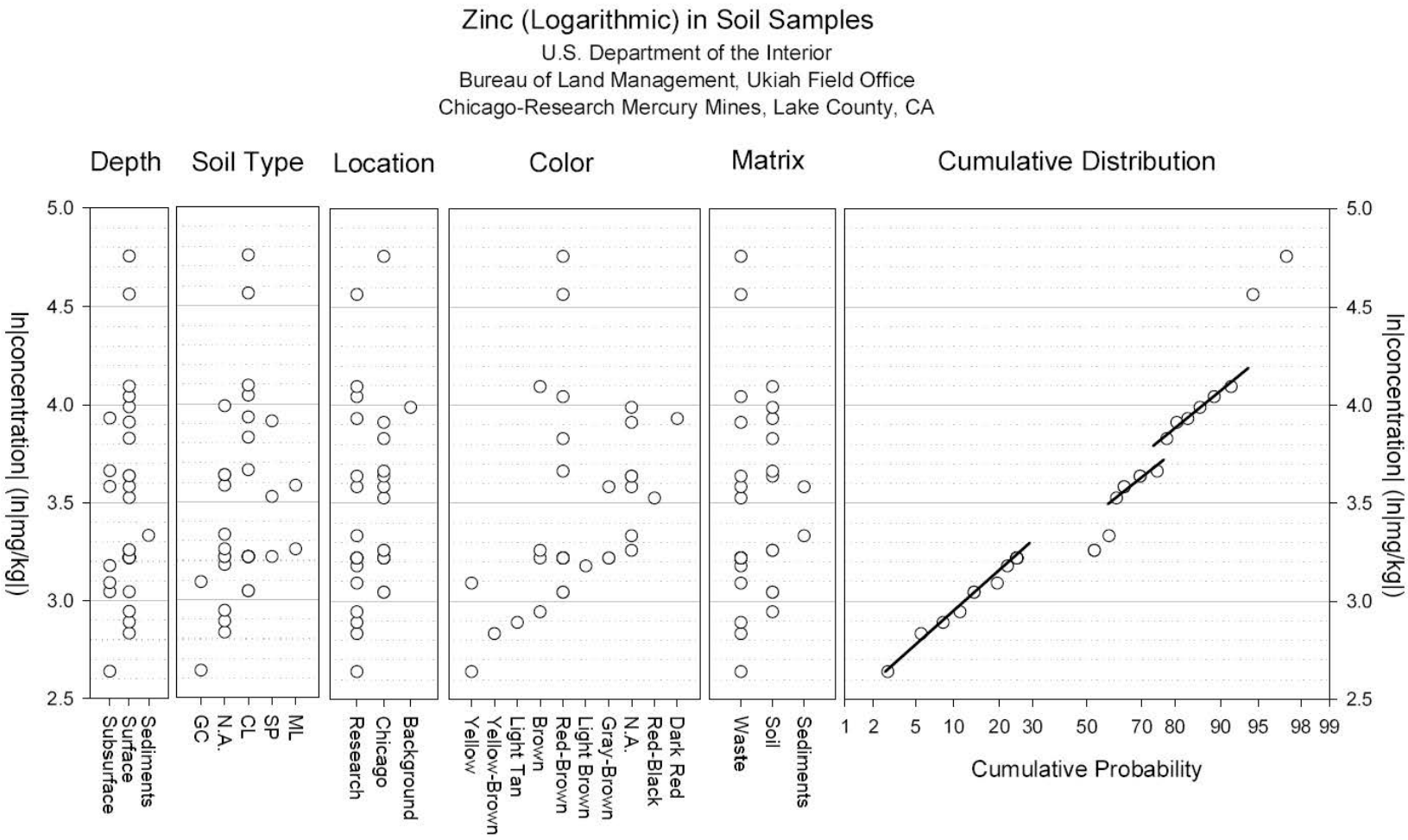


Figure B-12. Cumulative Probability Plot for Zinc



Attachment C

Equations Used to Calculate Human Health Site-Specific RBSLs

ATTACHMENT C
EQUATIONS USED TO CALCULATE HUMAN HEALTH RBSLS

Generic equations for calculating RBSLs were presented in the workplan (ERM, 2011). Media (soil, surface water) and endpoint (on-cancer, cancer) specific equations (and the respective input parameter descriptions) are presented below:

Soil Incidental Ingestion:

$$\text{RBSLnon-cancer} = \frac{\text{RfD x BW x AT}}{\text{IR x EF x ED x CF1 x THI}} \quad \text{…Eq. C-1}$$

$$\text{RBSLcancer} = \frac{\text{BW x AT}}{\text{IR x EF x ED x CF1 x CSF x TCR}} \quad \text{…Eq. C-2}$$

Soil Dermal Contact:

$$\text{RBSLnon-cancer} = \frac{\text{RfD x BW x AT}}{\text{SA x AF x EF x ED x CF1 x THI}} \quad \text{…Eq. C-3}$$

$$\text{RBSLcancer} = \frac{\text{BW x AT}}{\text{SA x AF x ED x CF x CSF1 x TCR}} \quad \text{…Eq. C-4}$$

Inhalation:

$$\text{RBSLnon-cancer} = \frac{\text{RfD x BW x AT x 24 hr/d}}{\text{ET x EF x ED x CF1 x THI}} \quad \text{…Eq. C-5}$$

$$\text{RBSLcancer} = \frac{\text{BW x AT x 24 hr/d}}{\text{ET x ED x CF1 x CSF x TCR}} \quad \text{…Eq. C-6}$$

Water Ingestion:

$$\text{RBSLnon-cancer} = \frac{\text{RfD x BW x AT}}{\text{IR x EF x ED x THI}} \quad \text{…Eq. C-7}$$

$$\text{RBSLcancer} = \frac{\text{BW x AT}}{\text{IR x EF x ED x CSF x TCR}} \quad \text{…Eq. C-8}$$

Water Dermal Contact:

$$\text{RBSLnon-cancer} = \frac{\text{RfD x BW x AT}}{\text{SA x CF2 x Kp x ET x EF x ED x THI}} \quad \text{…Eq. C-9}$$

$$\text{RBSLcancer} = \frac{\text{BW x AT}}{\text{SA x CF2 x Kp x ET x EF x ED x CSF x TCR}} \quad \text{…Eq. C-10}$$

where:

RBSL	=	RBSL (mg/kg)
Target HI	=	Target Hazard Index (unitless)
Target ILCR	=	Target Incremental Lifetime Cancer Risk (unitless)
BW	=	Body Weight (kg)
AT	=	Averaging Time (period which exposure is averaged-days or hours).
RfD	=	Reference Dose (mg/kg/day)
RfC	=	Reference Concentration (mg/m^3)

CSF = Cancer Slope Factor $(mg/kg/day)^{-1}$

IUR = Incremental Unit Risk $(mg/m^3)^{-1}$

IR = Ingestion Rate (mg/day soil; L/day water)

SA = Skin Surface Area Exposed (cm^2)

AF = Adherence Factor (mg/cm^2)

ET = Exposure Time (hours/day)

EF = Exposure Frequency (days/year)

ED = Exposure Duration (years)

CF1 = Conversion Factor (10^{-6} kg/mg)

CF2 = Conversion Factor (0.001 L/cm^3)

Kp = Dermal permeability coefficient (cm/hr)

And $RBSL_{noncancer\text{-}total} = 1/\sum(1/RBSLs_{noncancer\text{-}media})$

And $RBSL_{cancer\text{-}total} = 1/\sum(1/RBSLs_{cancer\text{-}media})$

$RBSLs_{media}$ = media-pathway specific RBSL for non-cancer/cancer

RBSL = $RBSL_{non\text{-}cancer}$ or $RBSL_{cancer}$, whichever is less