

**Final Site Investigation Report
Josephine Mill No. 1
Metaline Falls, Washington**

**January 2010
SK030179.0000**

Prepared for:

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January 15, 2010

SK030179.0000

United States Environmental Protection Agency, Region 10
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Attention: Mr. Earl Liverman, Federal On-Scene Coordinator

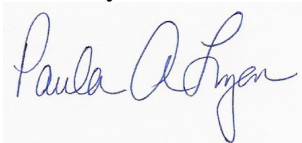
Subject: Final Site Investigation Report, Josephine Mill No.1 Pend Oreille County, Washington

Dear Mr. Liverman:

LFR Inc. (LFR) is pleased to provide the Final Site Investigation (SI) Report prepared on behalf of Stimson Lumber Company and Idaho Forest Industries. The Final SI Report documents implementation of the EPA approved Site Investigation Work Plan and Field Sampling Plan dated October 3, 2008; and addresses comments provided by the United States Environmental Protection Agency (EPA) and the Washington Department of Ecology (Ecology) in correspondence dated June 22, 2009. This Final SI Report supercedes the draft Site Investigation Report dated April 24, 2009.

If you have any questions or comments, or require further information, please contact Paula Lyon at (509) 535-7225.

Sincerely,



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Attachment

cc: Mr. Steven Petrin, Stimson Lumber Company
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CONTENTS

SIGNATURES	VII
1 INTRODUCTION	1
1.1 Background.....	1
1.2 Objectives	2
2 SITE DESCRIPTION	3
2.1 Location and Setting	3
2.2 Topography	3
2.3 Climate.....	4
2.4 Soils	4
2.5 Geology	4
2.6 Hydrogeology.....	5
2.7 Land Use	6
3 PRELIMINARY SITE EVALUATION.....	7
3.1 Site History	7
3.2 Previous Investigations.....	7
3.2.1 April 2002 START-2 Report TDD: 01-08-0009.....	7
3.2.2 September 2002 START-2 Report TDD: 02-06-0008	8
3.2.3 March 2003 START-2 Report TDD: 02-07-0004	8
3.2.4 November 2003 START-2 Report TDD: 03-05-0003	9
4 FIELD SAMPLING PLAN	9
4.1 Sampling Design	9
4.2 Special Training/Certification.....	10
4.3 Sample Plan Rationale	10
4.4 Analytical Plan Rationale.....	10
5 CURRENT SITE INVESTIGATION ACTIVITIES	11
5.1 XRF In-Situ Screening and Sample Collection Activities.....	11
5.2 XRF Screening Locations	13

5.2.1	Right-of Way – Old Pend Oreille Mine Road	13
5.2.2	Remnant or Former Mill Structures (Upper Portion of the Site)	14
5.2.3	Waste Rock Piles.....	15
5.2.4	Mill Tailings	16
5.2.5	Creek Bank.....	18
5.2.6	Sediment Samples	18
5.2.7	Surface Water Samples.....	18
6	ANALYTICAL PROGRAM.....	18
6.1	Methods and Laboratory	19
6.2	Data Quality and Quality Assurance Objectives	19
7	REGULATORY STANDARDS	20
7.1	EPA Regional Screening Levels.....	20
7.2	Other Federal Regulatory Requirements	20
7.3	MTCA Method A Soil Unrestricted Uses.....	21
7.4	MTCA Method B Standard Method - Soil Unrestricted.....	21
7.5	Washington Established Background Concentrations	22
7.6	Consensus-Based Sediment Quality Guidelines - Threshold Effect Concentrations Sediment Standards.....	22
7.7	State and Federal Regulatory Requirements for Disposal of Mining Wastes.....	22
8	ANALYTICAL RESULTS AND DATA EVALUATION.....	23
8.1	Waste Rock Samples	23
8.2	Mill Composite Tailings Samples	24
8.3	Stream Bank Sediment Samples – Flume Creek	25
8.4	Surface Water Samples – Flume Creek	26
8.5	Tailings Samples – Additional Analyses	27
8.6	Determination of COCs	28
9	VOLUME ESTIMATES BASED ON SPATIAL DISTRIBUTION OF COC	29
9.1	Volume Estimate of Mine Waste	29
9.1.1	Upper Portion.....	29
9.1.2	Unpaved Access Road.....	30

9.1.3 Lower Portion	30
9.2 Spatial Distribution of COCs.....	31
10 SUMMARY AND CONCLUSIONS	31
11 LIMITATIONS	32
12 REFERENCES	34

TABLES

1 Data Quality Objectives	
2 Analytical Plan	
3 Summary of Regulatory Cleanup Levels	
4 Summary of XRF Field Screening Readings and Observations	
5 Summary of Waste Rock and Tailings Sample Analytical Data - Metals	
6 Summary of Analytical Data - RCRA 8 Metals	
7 Summary of Sediment Analytical Data – Metals	
8 Summary of Surface Water Analytical Data – Metals	
9 Summary of Soil Analytical Data – SVOCs, VOCs, PCBs, PAHs	
10 Summary of Estimated Volume of Impacted Materials	

FIGURES

- 1 Site Vicinity Map
- 2 Site Map
- 3 Sample Location Map
- 4 Mine Waste Volume and Depths
- 5 Spatial Distribution of Lead and Zinc

APPENDICES

- A Sample Alteration Form
- B Certified Analytical Reports
- C Data Validation Summary Memorandum
- D Photographic Documentation

SIGNATURES

**Site Investigation Work Plan
Josephine Mill No. 1 Property
Located at S½, SW ¼, Section 16, T39N, R43E, Metaline Falls,
Pend Oreille County, Washington**

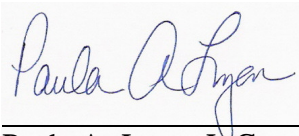
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ACRONYMS AND ABBREVIATIONS

amsl	above mean sea level
AOC	Administrative Order on Consent
ASTM	American Society for Testing and Materials
bgs	below ground surface
BLM	United States Bureau of Land Management
CB TEC	Consensus Based Threshold Effect Concentration
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
COC	chain-of-custody
COPCs	constituents of potential concern
DQOs	data quality objectives
Ecology	Washington State Department of Ecology
EPA	United States Environmental Protection Agency
FSP	Field Sampling Plan
HSP	Health and Safety Plan
IDW	Investigation-derived waste
IFI	Idaho Forest Industries
LFR	LFR Inc.
mg/kg	milligrams per kilogram (parts per million)
MS/MSD	matrix spike/matrix spike duplicate
MTCA	Model Toxics Control Act
NPL	National Priorities List
PAs	preliminary assessments
PAHs	polynuclear aromatic hydrocarbons
PCBs	polychlorinated biphenyls
ppm	parts per million
PRGs	Preliminary Remediation Goals
PQL	practical quantitation limit
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control

RPD	relative percent difference
SI	Site Investigation
SIWP	Site Investigation Work Plan
SMS	Sediment Management Standards
SPLP	Synthetic Precipitation Leaching Procedure
SQG	Sediment Quality Guidelines
START	Superfund Technical Assessment and Response Team
Stimson	Stimson Lumber Company
SVOCs	semivolatile organic compounds
TAL	Target Analyte List
TBC	To Be Considered
TCLP	toxicity characteristic leaching procedure
$\mu\text{g/L}$	micrograms per liter
USFS	United States Forest Service
USGS	U.S. Geological Survey
VOCs	volatile organic compounds
XRF	x-ray fluorescence

1 INTRODUCTION

LFR has prepared this Site Investigation (SI) Report on behalf of Stimson Lumber Company (Stimson) and Idaho Forest Industries, Inc. (IFI) collectively referred to as the “Clients” for the Josephine Mill No. 1 property, also known as the Old Josephine Mill located near the towns of Metaline and Metaline Falls, in Pend Oreille County, Washington (also referred to as the “Site” in this SI Report; Figures 1 and 2). The purpose of this SI Report is to present the findings of the site investigation activities and evaluate the potential impacts to human health and the environment due to historical mining and milling operations at the Site. The primary constituents of potential concern (COPCs) are defined as metals, which may include (but are not limited to) lead, zinc, silver, and cadmium in tailings and waste rock. Other possible, but not anticipated, COPCs may include polynuclear aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and polychlorinated biphenyls (PCBs).

1.1 Background

The Site is located in northeast Washington State, approximately 1.5 miles northwest of the town of Metaline Falls, Washington and occupies approximately 5.3 acres. The Site is one of three properties associated with the Josephine Mine, the other two of which are located on Bureau of Land Management (BLM) property. The Josephine Mine has also been historically referred to as the “Clark Mine” or “Hortense Mine”. The Josephine Mine was a former cadmium, lead, silver and zinc mine that reportedly operated from approximately 1909 to 1955. The (Old) Josephine Mill No. 1 and the New Josephine Mill No. 2 were the two mills that supported operations at the Josephine Mine. The Old Josephine Mill No. 1 was reportedly constructed circa 1919, while the New Josephine Mill No. 2 was constructed in 1935-36. Teck Cominco American Inc. reportedly maintains the prospecting lease for the Josephine Mine. IFI purchased the real property at the Site from Bunker Limited Partnership LLC circa 1992 for the purpose of forest products management. Stimson acquired the surface rights to the Site from IFI in October 2000. Neither Stimson nor IFI have performed any mining or mill related operations or activities at the Site, nor any timber harvesting or forest management related activities during their respective periods of ownership.

The United States Environmental Protection Agency (EPA) Region 10 Superfund Technical Assessment and Response Team (START-2) conducted preliminary assessments/site investigations (PA/SI) in June 2001, as documented in the report entitled “Preliminary Assessment and Site Investigation Report, Lower Pend Oreille River Mine and Mills, Pend Oreille County, Washington,” dated April 2002 (herein referred to as the “START Report”). Subsequent mine site visits were conducted by EPA with the BLM in July 2002 as documented in the “Grandview, Josephine, and Pend Oreille Mines/Mills Trip Report, Metaline Falls, Washington,” dated September 2002. EPA and START further evaluated the potential threat to public health and the environment and associated potential for release of hazardous constituents at the Site as

documented in the report entitled “Josephine Mill No. 1 Preliminary Assessment Report, Metaline Falls, Washington,” dated March 2003. EPA/START and BLM performed a site reconnaissance visit in August 2003. The November 2003 START report, “Grandview and Josephine Mines Removal Assessment Report, Metaline Falls, Washington,” identified potential environmental conditions associated with prior land uses at the Site, which include remnants of the former Old Josephine Mill No.1 mill building, waste rock piles, and a tailings pile located near the north bank of Flume Creek.

Pursuant to the Comprehensive Environmental Response and Compensation Liability Act (CERCLA), EPA issued an Administrative Order on Consent (AOC) letter to Stimson on May 23, 2007; and a General Notice Letter to Stimson dated December 27, 2007 in which EPA informed Stimson that Stimson may be liable under CERCLA as a current owner and/or operator of the Site. EPA representatives met with legal counsel for Stimson and IFI, as well as Stimson and LFR personnel, on April 16, 2008 in Spokane, Washington and an agreement was reached that site reconnaissance and further characterization of metal concentration constituents in the waste rock and mill tailing piles at the Site is needed to delineate the areal scope of the a site investigation and to determine an appropriate response at the Site. In the interim, EPA agreed to allow Stimson to pursue a SI absent an AOC.

EPA approved the Site Investigation Work Plan and associated Field Sampling Plan (FSP) including the Quality Assurance Project Plan (QAPP) which describes the quality assurance/quality control (QA/QC) procedures, analytical methods, calibration procedure, data reduction, validation and reporting procedures for the project and the Health and Safety Plan (HSP) dated October 3, 2008. Site investigation activities were conducted in accordance with the approved SIWP.

1.2 Objectives

The purpose of the SI Report is to describe activities undertaken to identify and characterize the presence, concentrations, and volume of COPCs in site soils related to historical mining and milling operations in order to evaluate potential remedial alternatives at the Site as proposed in the approved SIWP. The SI Report includes a description of the rationale, methods, and findings from the following SI activities conducted:

- Site reconnaissance to delineate the areal scope of SI activities;
- Field screening and sample collection in accordance with the Field Sampling Plan (FSP), which described the method(s) LFR used to characterize the vertical and lateral extent of COPC impacts to mining waste rock and waste tailings piles at the Site, including sampling locations and frequencies, and sample handling.
- A description of site features and characteristics that could affect contaminant migration (e.g., physical and chemical properties of soils and water, barriers to migration);

- The general hydrological characteristics of the Site, including potential impacts to Flume Creek;
- Regulatory action levels for the constituents of concern (COC) determined to be present above the screening levels.

2 SITE DESCRIPTION

2.1 Location and Setting

The Site is located in the south half (S $\frac{1}{2}$) of the southwest quarter (SW $\frac{1}{4}$) of Section 16, Township 39 North, Range 43 East, near the town of Metaline, in Pend Oreille County, Washington. The Site is located approximately 0.2-mile east of the Boundary Dam road off of State Highway 31 and is accessed via a locked gate leading to the unpaved access road. The Site property consists of approximately 5.3 acres of land that contains a partially forested steep rock slope with remnant wood and concrete mill structures north of the unpaved access road, also referred to as the Old Pend Oreille Mines Road; and tailing and waste rock piles and miscellaneous metal debris south of the access road on the north bank of Flume Creek. The Old Pend Oreille Mines Road divides the Site into the upper portion and lower portion of the Site, but will be referred to as the unpaved access road through this SI. The Site is bounded to the southeast by Flume Creek, which flows to the north-northeast and discharges into the Pend Oreille River. The New Josephine Mill No.2 and Josephine Mine are located farther to the north and northeast of the Site on the western side of the Pend Oreille River. The Site and surrounding features are presented on Figures 1 and 2.

The Site was used for historical milling of lead and zinc ore from the Josephine Mine, resulting in accumulations of waste rock and mine tailings. Metals are the anticipated COPCs at the Site. Other COPCs such as VOCs, SVOCs, PAHs, and polychlorinated biphenyls (PCBs) are possible but not expected, based on documented historical site activities and/or visual observations regarding chemical processes at the Site. There are no active processes currently in operation at the Site. The Site is unpaved and is situated against a moderately steep rock slope to the north of the unpaved access road, and a gentle sloping area that may consist of an accumulation of mine waste rock and/or processed tailings. Site access is limited by a locked gated on the unpaved road; which does not preclude the potential for trespassers such as recreationalists to enter the Site. The nearest reported residence (Bright residence) is located approximately 0.5 mile to the southwest of the Site. The nearest residential communities are located greater than .5 miles from the Site along Highway 31 towards the communities of Metaline Falls and Metaline, Washington.

2.2 Topography

Topographic map coverage of the site vicinity is provided by the U.S. Geological Survey Abercrombie Mountain and Metaline 7.5-minute Quadrangle Maps (USGS

1992). The elevation of the subject property ranges from approximately 2,400 feet above mean sea level (amsl) along Flume Creek to approximately 2,540 feet amsl along the northeastern face of the steep slope north of the unpaved access road. The topography slopes steeply to the south-southeast on property north of the unpaved access road; and less steeply towards Flume Creek. The Site is surrounded primarily by remote forested timber land; the Colville Forest and a utility transmission line to the west; the Josephine Mine farther to the northeast; and the Pend Oreille and Grandview mines farther to the east of the Pend Oreille River. The town of Metaline Falls is located approximately 1.5 miles southeast of the Site.

2.3 Climate

The climate of the general Metaline Falls, Washington area is relatively mild with four well-defined seasons. According to data obtained from the National Weather Service Metaline Experimental Station (455317) for the period from December 1, 1900, to May 31, 1965, the average maximum temperatures recorded for the Metaline Falls area during the summer months (June to August) range from 74.4 to 82.3 degrees Fahrenheit (°F); and during the winter months (January to March) range from 29.9 to 46.9 °F. Average total precipitation is 27.38 inches. Average snowfall is 85.2 inches.

2.4 Soils

The site surficial soils consist of an accumulation of waste rock and tailings derived from historical mining operations. According to the USDA Soil Survey provided at <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>, the underlying soils at the Site are classified as Belzar, high precipitation – Rock Outcrops. The forested portions flanking the northeastern portion of the Site are classified as Dufort silt loam of one to 15 percent slopes; and the western portion classified as the Martella silt loam of 15 to 25 percent slopes. Soils along Flume Creek are generally classified as Typical Xerothents of 30 to 65 percent slopes.

2.5 Geology

The Site lies within the Kootenay Arc subprovince, and the geology as mapped throughout most of this region consists of predominantly Quaternary, Cretaceous, early Paleozoic (Cambrian through Devonian), and Precambrian-aged formations (Yates et al. 1966). The majority of the Cretaceous and Paleozoic formations are covered by the Quaternary units consisting of recent alluvium, and lake deposits, glaciofluvial deposits and glacial till of Pleistocene age. Cretaceous formations typically consist of granodiorite and quartz monzonite associated with the Kaniksu Batholith. Precambrian and Paleozoic formations typically consist of metasedimentary rocks, quartzites, limestone, hydrothermally altered limestones, silicified or crystalline dolostones, and argillites. These formations are irregularly dispersed throughout the region over hundreds of square miles.

The structural history of the subprovince is complex with several periods of folding and faulting. The internal structure of the Kootenay Arc is generally characterized by northeasterly-southwesterly trending folds and thrust faults (Yates et al. 1966). Superimposed on these structures are high-angle normal faults with northeast and north trends (Dings and Whitebread 1965; Yates et al. 1966).

The general vicinity of the Site is composed of the Metaline Limestone of Middle Cambrian age, which consists predominantly of carbonaceous limestone and dolomite (Park et al. 1943). The distinctive feature of the Metaline Limestone in the vicinity of the Site west of the Pend Oreille River is the strongly fractured and irregularly silicified dolomite and dolomite breccia (USGS 1965). The steep walls exposed along Flume Creek are composed of both limestone and dolomite. Slightly farther to the east of the Site, the Metaline Limestone is overlain by the Ledbetter Slate of Early and Middle Ordovician age. More recent Quaternary age lake deposits (Qld) are exposed along the base of the steep Metaline limestone rock faces and make up the more gentle sloping areas along Flume Creek.

Irregular ore deposits of sphalerite (zinc sulfide, ZnFeS) and galena (lead sulfide, PbS) occur in the Metaline Mining District, primarily as mineralized replacement deposits within the upper contact of the Metaline Limestone Formation. At the Josephine Mine, ore occurs in the Josephine horizon, a carbonaceous and locally siliceous breccia within the upper portion of the Metaline Formation beneath the Ledbetter Slate (Derkey et al. 1990). Mineralized rock is typically medium to moderately dark gray, massive, and faintly to strongly brecciated (USGS 1965). The northeast to southwest trending Flume Creek Fault, a vertical fault is present approximately 1 mile west of the Site.

2.6 Hydrogeology

Groundwater generally occurs in the Metaline Mining District in a shallow, unconfined system with a steep hydraulic gradient. Primary recharge sources to this groundwater system include infiltration of precipitation and snowmelt, recharge from streams, and potential contribution from bedrock sources. Ephemeral groundwater within the surficial deposits present on the hillsides is expected to drain relatively quickly to the tributary valley groundwater system in and along Flume Creek. Discharge from the tributary valley system primarily enters the shallow alluvial deposits of the Pend Oreille River Valley. The expected general flow direction of the regional aquifer in this area is to the east-southeast towards the Pend Oreille River.

Actual depth to groundwater at the Site was not found during our research because no wells are present at the Site; therefore, the local and regional geologic conditions described herein are based solely on available literature regarding the area. A search of the Washington Department of Ecology (Ecology) well search database for Township 39 North, Range 43 East, Sections 9, 10, 15, 16, 17, 20, 21, and 22 was conducted. No well log records are on file for Section 16. The nearest well (domestic) is located approximately 0.5 mile southwest of the Site in the SW $\frac{1}{4}$ of the NW $\frac{1}{4}$ of

Section 21 and is registered to Harry Bright, completed on September 1, 1992. As presented on the well log, the well is screened from 160 feet to 340 feet below ground surface (bgs) in grey and black limestone. The static water level was recorded at 180 feet bgs at the time of installation.

2.7 Land Use

Historical land use at the Site included agricultural timber and mining land uses. Current land use at the Site is zoned by the Pend Oreille County Comprehensive Plan as Natural Resource Land (NR), which encompasses agricultural timber and mining land uses. The land use in the vicinity of the Site consists of mixed remote private and public (USFS and BLM) forest lands and active and inactive mining sites, and a high voltage electrical transmission corridor. The nearest residential communities are Metaline Falls and Metaline located approximately 1.5 miles southeast and 2.2 miles southwest of the Site, respectively. The USFS Colville National Forest is located to the west of Highway 31. The BLM owns the land adjacent to the Site, which includes the former New Josephine Mill No. 2 and Josephine Mine. Current and future land use is anticipated to remain nature resource land.

LFR performed limited research of the potential for historical mill-related structures at the Site to be of historical or cultural significance. As a screening tool, The National Register of Historic Places database was searched for registered historic places in Pend Oreille County, Washington. The Josephine Mine historically referred to as the “Clark Mine” or “Hortense Mine”, were not listed on the Register of Historic Places database. In general, mine and mill sites, and mine-related structures are not listed on the National Register of Historic Places database. Remnant concrete and wood mill structures at the Site are not expected to be impacted from potential remedial activities at the Site. A summary of the historic sites listed in the database are summarized below:

State	County	Resource Name	Address	City	Listed	Distance to Josephine Mill
WA	Pend Oreille	Idaho and Wash. Northern RR Bridge	Spans Pend Oreille River, off WA 31	Metaline Falls	1982-07-16	6 miles south
WA	Pend Oreille	United States Border Station	Roughly bounded by WA 31 and the U.S. Canadian border, Colville National Forest	Metaline Falls	1997-01-31	Approximately 8 miles north
WA	Pend Oreille	Larson, Lewis P., House	5th and Pend Oreille Blvd.	Metaline Falls	1979-03-26	Approximately 1 mile south southeast

State	County	Resource Name	Address	City	Listed	Distance to Josephine Mill
WA	Pend Oreille	Metaline Falls School	302 Park	Metaline Falls	1988-09-08	Approximately 1 mile south southeast
WA	Pend Oreille	Pend Oreille Mines and Metals Building	103 S. Grandview St.	Metaline Falls	1997-08-29	Approximately 1 mile south southeast
WA	Pend Oreille	Washington Hotel	5th and Washington St.	Metaline Falls	1979-03-26	Approximately 1 mile south southeast
WA	Pend Oreille	Phillips, Dr. John and Viola, House and Office	S. 337 Spokane Ave.	Newport	2006-01-03	Approximately 50 miles south southeast

3 PRELIMINARY SITE EVALUATION

3.1 Site History

The approximately 5.3 acre Site is one of three properties associated with the Josephine Mine (aka Hortense and/or Clark Mine) two properties of which are located on BLM property. The Josephine Mine was formerly a cadmium, lead, silver and zinc mine that reportedly operated from approximately 1909 to 1955. The (Old) Josephine Mill No. 1 and the New Josephine Mill No. 2 provided milling support to the mining operations at the Josephine Mine. The Old Josephine Mill No. 1 was reportedly constructed circa 1919, while the New Josephine Mill No. 2 was constructed in circa 1935. The Site consists of waste rock and tailing piles, two wood remnant milling structures, and concrete foundations, the unpaved access road, and de minimis miscellaneous metal equipment debris. Stimson and IFI have not performed any mining or milling related activities during their ownership of the Site. Nor has Stimson and IFI conducted any timber management activities at the Site during their respective periods of ownership.

3.2 Previous Investigations

3.2.1 April 2002 START-2 Report TDD: 01-08-0009

START-2 conducted a PA/SI in June 2001, as documented in the report the "Preliminary Assessment and Site Investigation Report, Lower Pend Oreille River

Mine and Mills, Pend Oreille County, Washington,” dated April 2002. This assessment focused on the Josephine Mine and did not include observations, sample collection or data specific to the (Old) Josephine Mill No. 1 Site.

3.2.2 September 2002 START-2 Report TDD: 02-06-0008

In July 2002, EPA, along with BLM, conducted removal assessments (RAs) on the Grandview, Josephine, and Pend Oreille mines/mills including the Site as documented in the “Grandview, Josephine, and Pend Oreille Mines/Mill Trip Report, Metaline Falls, Washington,” dated September 2002. The report identified potential receptors (targets) relative to the Grandview, Josephine and Pend Oreille Mines/Mills, including the following threatened or endangered species: bull trout, American peregrine falcon, gray wolves, grizzly bears, North American lynx, Pacific fisher, and woodland caribou. According to the September 2002 report, recreation activities include fishing on the Pend Oreille River at the mouth of major tributaries such as Flume, Sullivan and Slate creeks as well as water sports, the majority of which occurs upriver from the mines and mills between Box Canyon and Metaline Falls. At the time of the September 2002 report, the only boat launches present were in Metaline and at the Boundary Dam. Other recreational activities such as hiking, camping, and biking occur in the Colville National Forest to the west of the Site; and in the Salmo-Priest Wilderness Area located 3 miles east of the Pend Oreille River. Farms and rural residences are found to the east and south of the mine/mills areas and are located north of the Pend Oreille Mine/Mill along Threemile Creek across the Pend Oreille River north of Flume Creek. The 2002 report noted no reported schools or day-care facilities within 200 feet of the mine/mill areas. Wetlands were reportedly scattered through the watershed along the Pend Oreille River. The report concluded that the results of the RAs indicated that the three mines and associated mills are potential sources of inorganic (metals) hazardous substance contamination at concentrations above regulatory levels and recommended further action under CERCLA.

3.2.3 March 2003 START-2 Report TDD: 02-07-0004

EPA, BLM, and START representatives conducted a visual inspection on July 23, 2002 at the Site to further evaluate the potential threat to public health and the environment and associated potential for release of hazardous constituents at the Site as documented in the report entitled “Josephine Mill No. 1 Preliminary Assessment Report, Metaline Falls, Washington,” dated March 2003. The report noted an areal dimension of approximately 35 feet by 50 feet for the tailing pile with an unknown thickness; and 15 feet by 10 feet by 5 feet in height for the adjacent waste rock pile, which was mixed into the tailings pile. The report identified remnants of mill buildings consisting of concrete foundations with partial concrete walls and wood debris, as well as a wooden ore storage bin, 40 feet east of the tailing pile, across the dirt access road. START representatives collected two samples from the tailings pile for XRF field screening. According to the report the XFR readings indicated the presence of copper, lead, and zinc constituents. Appendix A of the report includes sites photographs and a photo log.

Appendix B of the START Report includes XRF results, which indicate that six sample readings (26-32) were recorded at the Josephine Mill No. 1 and include a table of the XRF readings collected. Sample 26, collected from the tailings pile 50 feet below the road, contained lead (Pb) at a concentration of 19,289 parts per million (ppm); zinc (Zn) at a concentration of 268,902 ppm; and copper (Cu) at a concentration of 4,998 ppm. Sample 27, collected from the waste rock (or ore) pile west of Sample 26 contained Pb at a concentration of 7,814 ppm; Zn at a concentration of 37,094 ppm; and Cu at a concentration of 3,228 ppm. Sample 31, collected from the tailings on the edge of the stream, contained Pb at a concentration of 532 ppm and Zn at a concentration of 27,187 ppm. Sample 32, collected north of the dirt access road, contained Pb at 836 ppm and Zn at 5,168 ppm. Other metals screened for were either not detected or detected at concentrations below regulatory concern.

3.2.4 November 2003 START-2 Report TDD: 03-05-0003

EPA, START-2 and BLM returned to the Grandview and Josephine Mine sites on August 19, 2003 to assess the need to conduct RAs at the sites as documented in the report entitled "Grandview and Josephine Mines Removal Assessment Report, Metaline Falls, Washington," dated November 2003. The report states that the START-2 collected one sample of the tailings material (OJMO1 sample no. 030381200) at the Old Josephine Mill and that this sample contained lead and cadmium at concentrations exceeding the preliminary remediation goals (PRGs) for these metals in residential soil, but did not exceed the PRGs established for industrial sites. No other metals tested for were detected above the PRGs for residential soils. XFR screening of soils at the Site detected concentrations of lead ranging from 1,030 ppm to 2,300 ppm and zinc ranging from 44,000 ppm to 47,000 ppm, both of which exceed the lead and zinc PRGs established for residential and industrial soils.

4 FIELD SAMPLING PLAN

4.1 Sampling Design

A judgmental (non-random) sampling design was employed to collect samples from locations that have a potential to be affected by contaminants, as identified from historical research and/or previous investigations. Site-specific conditions such as topography or visual evidence of contamination will be evaluated and incorporated, when applicable, into the selection of specific sampling locations. Other conditions potentially contributing to deviations from the anticipated sampling locations may include, but may not be limited to, new observations or information obtained in the field that warrant an altered sampling approach, difficulty in reaching a desired soil sampling depth caused by adverse soil conditions or obstructions, or limited access to a sampling location.

4.2 Special Training/Certification

Occupational Safety and Health Administration 40-hour Hazardous Waste Operations and Emergency Response training is required for personnel performing SI field related activities. A site-specific health and safety plan (HSP) was prepared for the Site and provided as Appendix A of the SIWP. The HSP includes descriptions of anticipated chemical and physical hazards; levels of personal protection required; health and safety monitoring requirements and action levels; personnel decontamination procedures; and emergency procedures are included in this plan. Subcontractors were responsible for preparing and following their own HSP.

4.3 Sample Plan Rationale

The overall rationale for the field sampling plan (FSP) was based on satisfying the Data Quality Objectives (DQOs) and Sample Analytical Plan presented in Tables 1 and 2, respectively. The objectives of the FSP were to collect sufficient and valid analytical data from Site soils, sediment, and surface water to support the SI. The rationale was developed using existing data collected from the Site and vicinity by others with respect to the COPC transport pathways, and potential receptors.

The SI is designed to focus on data collection activities that will allow a thorough evaluation of site conditions relevant to the COPCs. DQOs specified in Table 1 for this investigation were designed to satisfy the following data needs:

- Characterize the extent of near-surface conditions relative to the documented waste rock and tailing piles present at the Site;
- Assess COPC and exposure pathways with respect to the Ecology Model Toxic Control Act (MTCA) levels, and other regulatory levels including but not limited to EPA Regional Screening Levels; *Consensus-Based Freshwater Sediment Water Quality* guidelines for ecological exposures; and/or other applicable guidance; and
- Identify the range of response actions to be considered.

To meet these objectives, the sampling methods and investigative techniques were designed to accommodate the relative complexity of surface and near-surface conditions related to mine waste rock piles and tailings at the Site.

4.4 Analytical Plan Rationale

The rationale for the analytical plan is based on the established media-specific MTCA Method A Non-Restricted and Industrial Land Uses, MTCA Method B Unrestricted Uses, EPA Regional Screening Levels (RSLs) and *Consensus Based Freshwater Sediment Water Quality Guidelines* for the COPCs, as presented in Table 3. Definitive data are generated using rigorous analytical methods, such as approved EPA reference methods. Additional QA/QC information (including data validation procedures) related

to the methodologies of the SI are provided in the QAPP provided in Section 4.0 of the approved FSP.

5 CURRENT SITE INVESTIGATION ACTIVITIES

The SIWP dated October 3, 2008 was approved by USEPA. The SIWP was designed to determine the lateral and vertical extent of impacts in COPCs in mine-waste materials (soils, sediments) and surface water and/or groundwater specific to the accumulation of mining materials from historic milling operations at the Site. The SIWP incorporated a field screening and subsurface soil collection sampling program that allowed for visual observation of subsurface conditions and field measurements to be performed. Deviations from the anticipated sampling locations are documented in the Sample Alteration Form presented as Appendix A.

5.1 XRF In-Situ Screening and Sample Collection Activities

The objective of the Site investigation was to define the areal extent of mine-contaminated materials from historic mining and milling processes. LFR anticipated the mine waste materials accumulated at the Site to be homogeneous in nature and utilized both in-situ XRF field screening and visual observations to delineate materials by type and depths, including depths to native underlying soils to estimate the volume of mine waste soils on Site.

SI field activities were performed on October 6 and 7, 2008. In-situ field screening was performed using a ThermoScientific Niton® XL3p X-ray fluorescence (XRF) instrument in combination with mine waste materials sample collection efforts were performed in the general vicinity of the sample locations proposed in the SIWP. The XRF Unit Model XL3p was calibrated per manufacturer specifications with the appropriate calibrations blanks on a daily basis prior to the initiation of in situ field screening as per the XRF calibration protocol and standards provided in the approved FSP.

Observations of the general description of the mine waste materials (waste rock, mill tailings and concentrates) and any evidence of odor and /or physical evidence of staining, or the presence of stressed vegetation were noted in the field notes and are presented in Table 4.

Twenty-seven (27) test-pits and five hand-augured borings spatially located at the Site were utilized for in-situ XRF screening, sample collection, and vertical delineation. Visual observations of the soils encountered, the XRF reading and the associated depths within the tailing or waste rock piles were recorded in the field notes. LFR marked the approximate center of each test pit or field sampling location with a wooden stake and assigned a unique location identifier.

The goal of test pit excavation was to identify native soils so as to record the thickness of the overlying accumulated mining materials. XRF readings of the mine tailings or waste rock were collected as a composite, which integrated the full vertical interval or thickness of mine materials above the native soils at each test pit or boring location. XRF readings within the underlying native soils were collected at depths of six inches or deeper where the XRF reading(s) indicated attenuated metals concentrations. Screening and sample locations were measured and mapped to provide a scale of the contaminant distribution at the Site.

Each test pit and XRF field screening location was given a unique label designation that included:

- The screening location number:
- The material type [i.e. mine waste rock (WR), mine tailings (T), native soils, or creek bank sediments(CB), right-of-way (ROW), or specific locations such as the “dump site”]; and
- Subsamples collected from more than one locations where readings were recorded were identified alphabetically (A, B, C) and combined into one composite sample to be analyzed. For example specific readings were recorded at locations at T1A, T1B, and T1C. The depth integrated intervals over which the readings were obtained were placed into a sample bag and further composited into one sample for laboratory analyses and designated as sample T1. Subsamples collected at CB1A, CB1B, and CB1C were combined into composite sample CB1. Subsamples collected at ROW1A, ROW1B, ROW1C, ROW1D and ROW1E were combined into composite sample ROW1. Subsamples T1A, T1B, and T1C were combined into composite sample T1. Subsamples WR1A, and WR1B were combined into composite sample WR1, and the same for waste rock piles WR2 and WR3.
- The vertical thickness representative of the interval over which material (tailings or waste rock) was collected for the XRF reading; and the depth in the native material where the reading was recorded at each sample location.

In general, the XRF readings were taken by direct contact with the underlying native material. Direct readings were taken of the composite samples collected from the vertical interval of the sidewall of the test pit excavations (or borings) by placing the samples (and subsamples) into sample collection plastic bags and taking the XRF reading through direct contact with the sample bag.

For the purposes of this field investigation a hot spot was defined as an area that exhibited an XRF reading concentration at least one order of magnitude (10X) greater than surrounding or adjacent screening locations. The hot spot areas were identified following completion of the initial screening so as to provide perspective as to the nature and extent of the contamination within the Site. For purposes of this SI, the hot spot readings were identified as the mill tailings materials accumulated in the general location of the former mill structure at the base of the steep slope located in the upper portion of the Site north of the unpaved access road. Based on the in-situ XRF

screening these locations were field identified as Test Pits T1A, T1B, T1C, TP1, and T2; and Test Pit T13 located south of the unpaved access road.

Sample designations were not labeled with the nomenclature originally provided for in the FSP due to the lateral size of each test pit that resulted from excavation needed to observe native soils at depth and the close proximity of the test pits within the confines of a small area; and the homogeneity of the materials observed within the same area. Further discussion of the field convention as it applies to naming of test pit location, XRF readings, and sample locations is provided in the Sample Alteration Form included as Appendix A.

5.2 XRF Screening Locations

The purpose of the XRF field screening activities was to provide for real-time confirmation of visual identification of mine waste material types, to identify the thickness of waste rock and tailings, to locate and identify the native soils, and to define the areal limits of accumulated mine wastes.

Twenty-seven (27) test pits and five hand-augured borings were excavated into the mill and mine waste materials at the Site. Test pits ranged in depth from one foot to 14 feet depending on the visual observations of accumulated mine waste materials at each location. The majority of the test pit excavations occurred in the above-grade accumulation of mine waste materials or piles deposited onto the site during years of historical operations. XRF readings for lead and zinc were used as indicator metals for field screening purposes and were recorded at each location at various depths. A summary of the test pit locations, XRF readings, corresponding recorded depths, and visual observations of mine waste material types and other observed conditions are presented in Table 4.

5.2.1 Right-of Way – Old Pend Oreille Mine Road

Five test pits were conducted at lateral intervals of approximately 75 to 100 feet in the unpaved access road (formerly the Old Pend Oreille Mine Road) or right-of-way (screening locations ROW1A through ROW1E, respectively) that divides the Site into the upper and lower portions. XRF readings were collected at depths of 6 to 22 inches in depth bgs.

- Test Pit ROW1A-16 located 350 feet east of the western boundary property line was excavated to approximately 16 inches bgs. The top 6 inches appeared to be gray road base materials underlain by reddish-brown fine-grained materials.
- Test Pit ROW1B-18 was excavated to 18 inches bgs and was located 75 feet east of test pit ROW1A. The reading and soil subsample was collected in native soil at 18 inches bgs.
- Test Pit ROW1C-17 located 100 feet west of ROW1B was excavated to a depth of 17 inches bgs. The top 6 inches consisted of brownish-gray sand. The reading and

soil sample were collected in the reddish-brown sandy silt native soils encountered from 6 to 17 inches bgs.

- Test Pit ROW1D-22 located approximately 100 feet east of ROW1C was excavated to a depth of 22 inches bgs. The surface cover and top 8 inches consisted of road base with sparse vegetation and roots underlain by a layer of gray fine-grained silty materials. The readings and soil sample were taken in native soil encountered at 22 inches bgs.
- Test Pit ROW1E-20 located 100 feet east of ROW1D was excavated to a depth of 20 inches. The reading and soil sample was taken in native soils at 20 inches bgs.
- One composite soil sample ROW1 consists of 5 subsamples collected from within the tailings from test pits ROW1A through ROW1E collectively.

XRF readings for lead in native soils in the road were 582.58 mg/kg in reading ROW1A which is the westernmost reading within the ROW; and 29.82 mg/kg in ROW1E, the easternmost reading in the road. The highest reading for lead in presumed native soil in the unpaved access road was 2,734.67 mg/kg at test pit ROW1D.

Zinc readings were similar to lead readings in native soils in the ROW in that the highest zinc reading of 9,305 mg/kg corresponded to the highest lead reading at test pit ROW1D; the lowest zinc readings in the ROW were at test pit ROW1E similar to lead.

5.2.2 Remnant or Former Mill Structures (Upper Portion of the Site)

Five test pits identified as T1A, T1B, T1C and TP1 and T2 were excavated in the general vicinity of the former mill structure as determined by review of historic aerial photographs, historical photographs of the mill, and visual evidence of remnant wood and concrete structures from the historic mill. Locations T1A, T1B, and T1C are located at the base of the steep bedrock hillside adjacent to and north of the ROW and generally consist of mill tailings accumulated at depths ranging from 2.5 ft to 5.6 feet underlain by a thin veneer of soils and or bedrock.

- Test pit T1A was located in the westernmost location of the former mill structure and excavated to a total depth of 30 inches (2.5 ft) where a thin layer of native reddish-brown, sandy silt soil and the root system of a relic tree were encountered. The native soils were overlain by approximately 30 inches of tailings.
- Test Pit T1B was placed in the approximate location of the former mill based on the presence of the wood subfloor and joists encountered during the excavation of the test pit. The bottom of the subfloor and associated joists extended from approximately 13 inches to 29 inches in depth. Materials beneath the mill subfloor structure consisted of dark grayish-tan fine-grained mill tailings to 52 inches in depth. Native soils were encountered at depths greater than 52 inches bgs.

- Test Pit T1C was located at the eastern end of the former mill structure. Tailings were encountered at depths up to 48 inches. The native reddish-brown sandy silt was encountered at 76 inches in depth and was visually observed to the total depth of the excavation at approximately 7.5 feet bgs.
- Test Pit TP1 was located to the furthest east extent of the former mill structures along the perimeter of the un-vegetated and forested perimeter. TP1 was excavated to a total depth of 36 inches to the interface of the root zone of the coniferous trees and the native undisturbed underlying bedrock formation. A 6 inch seam of light gray tailings was encountered at approximately 19 inches bgs. The top 6 inches indicated a mixture of unprocessed waste rock materials with lesser amounts of finer tailings materials.
- Test Pit location T2 was located in waste materials that resemble mill “concentrates” based on the finely crushed powdery homogenous consistency of the materials and the presence of fabric bags used to contain and transport concentrates. Three readings were recorded from the interval of 0 to 22 inches, at 22 inches, and from an interval of 22 to 43 inches in depth. One composite sample T2 was collected from the tailings mixed with the potential “concentrates” from an interval of 22 to 43 inches in the north sidewall of the test pit.

5.2.3 Waste Rock Piles

Two test pit locations identified as WR1A and WR1B were excavated into the pile of light tan sand, gravel, and cobbles that was sparsely vegetated on the ground surface. The test pits were excavated to 32 inches in depth. XRF readings and two subsamples were collected at test pit locations WR1A and WR1B respectively, which were combined into composite sample WR1. A thin black layer of ash like material was noted below 32 inches and was underlain by a light gray layer resembling mill tailings. The presence of mill tailings was confirmed by the elevated zinc and lead XRF readings in the light gray material at depths greater than 32 inches bgs.

One test pit was excavated into the above grade waste rock pile located in the central portion of the Site identified as location WR2. The material in the pile consisted of homogenous partially crushed/processed waste rock. XRF readings and 5 vertically integrated subsamples were collected from within the test pit sidewalls from the top of the waste pile to the depth of the excavation and composited into sample WR2. The materials appeared to be finer grained on the surface or exterior of the waste pile, but the waste rock materials as a whole remained relatively consistent in appearance throughout the pile.

XRF readings and three additional subsamples were collected from the surficial/near surface top 12 inches of angular broken rock located at the northeastern portion of the rock slope in the vicinity of the remnant concrete and wood mill structures identified as Waste Rock sample location WR3.

5.2.4 Mill Tailings

Mill tailings were observed to be accumulated in piles and lobes extending from the unpaved access road south towards Flume Creek. Test pits were excavated into the mill tailings materials to depths where native soils were encountered. XRF readings and samples were collected from the mill tailings and/or native soils in each test pit as follows:

- Test Pit T3 was excavated into the accumulation of gray fine grained tailings materials located at the base of the easternmost accumulation of tailings located along the tree lined eastern property boundary. The above grade tailings pile was estimated to be approximately 107 inches in depth. XRF readings were recorded at 10 inches below the top of the above grade pile, and from ground surface to 46 inches in depth from the toe or lower portion of the tailings pile. A layer of woody debris was encountered at 46 inches below the surface of the pile. A vertical composite of the material was collected from the sidewall of the excavation from 46 inches in depth to the ground surface at the toe of the above-grade pile and is identified as sample T3. Perched near surface water was observed seeping into the base of the test pit at 46 inches bgs at the toe of the above-grade pile as illustrated in the photographs provided in Appendix D.
- Test Pit excavation T4 is located in the southeast central portion of the site due south of the “Dump Site” in vegetated mill tailings materials. Underlying deeper native soils were present at a depth of 52 inches. The ground surface was vegetated, spongy, and saturated. The near surface soil included highly organic peat. The saturated conditions appear to be the result of impounded perched water likely created by the accumulation of tailings in the wood cribbing structure coupled with the underlying native bedrock. Tailings were sampled from the surface of the pile to 22 inches below the surface of the pile.
- Test Pit excavation T5 is located in the central portion of the Site at the base of what appears to be the remains of the wood flume that transported mill tailings from the mill across the access road to the lower portion of the Site. Test pit T5 was excavated to a total depth of 11 feet below the top of the above-grade accumulation of mill tailings. Very fine-grained native sand was encountered at 11 feet below the top of the mill tailings.
- Test Pit T6 was cut horizontally into the toe of the steep slope of the waste rock feature identified as WR1. Native soils were encountered at 68 inches below the surface of the waste pile. A root zone was encountered at approximately 12 inches below the top of the pile, which was then underlain by the gray fined grained tailings observed from 12 inches to 54 inches below the top of the pile.
- Test Pit T7 was located at the base of the large waste rock pile identified as WR2 and consisted of homogenous mill tailings materials, which extend to 126 inches below the surface of the pile where native soils were encountered. Sample T7 consisted of a vertical composite of sidewall materials obtained from depths of 50 inches to the surface of the pile

- Test Pit T8 was located in accumulated tailing materials adjacent to and east of the primary overland surface flow path and immediately north of the observed remnant wooden cribbing structure. The total depth of T8 was excavated to 8.5 feet bgs wherein tree roots were encountered with black, wet, clayey silty soils exhibiting an organic sulfur odor. Perched water in contact with the native bedrock was encountered in the base of this test pit location, likely related to impoundment of water behind cribbing structure. Sample T8 is an integrated vertical composite of the sidewall of the test pit from 7 feet to the ground surface.
- Test Pit T9 is excavated to a depth of 40 inches and is located within the primary overland flow path in the riparian zone adjacent to and north of Flume Creek. Native soils were encountered at 38 inches bgs and were saturated by the impounded perched water in contact with bedrock. Sample T9 is an integrated vertical composite of the sidewall of the test pit from 38 inches to the ground surface.
- Test Pit T10 is located slightly south of the large waste rock pile (WR2) in the central portion of the Site excavated to a depth of 36 inches below the surface of the pile. Native soil was encountered at 36 inches. Sample T10 is an integrated vertical composite of the sidewall from 34 inches to the surface in the mill tailings material.
- Test Pit T11 is excavated in the central portion of tailings pile lobe. Native soils were encountered at 55 inches in depth. Sample T11 is an integrated vertical composite of the sidewall from 50 inches to the surface in the mill tailings material.
- Test Pit T12 was excavated in the southwest portion of the Site and was excavated to a total depth of 50 inches where native soils were encountered. Sample T12 is an integrated vertical composite of the sidewall from 36 inches to the surface in the mill tailings material.
- Test Pit T13 was excavated to a total depth of 101 inches. Native soils were encountered from 89 inches to 101 inches bgs. Sample T10 is an integrated vertical composite of the sidewall from 89 inches to the ground surface in the mill tailings material. The thickest accumulation of tailings was measured in Test Pit T13.
- Conversely the shallowest accumulation of tailings was measured in Test Pit T14 located approximately 40 feet south west of T13. Test Pit T14 was excavated to a depth of 18 inches. Tailings were present from the surface to 6 inches in depth and native soils were present from 6 to 18 inches. Sample T14 was collected from the tailings present from 0 to 6 inches depth.
- Sample T15 was collected by hand-augured boring at the top of the slope of a lobe of tailings that extend in a southerly direction towards Flume Creek. Native soils were encountered at a depth of 26 inches in the boring. Sample T15 is an integrated vertical composite of the boring from 26 inches to the ground surface from the mill tailings material.

- Location T15B was inaccessible to the backhoe based on its location at the toe or base of the tailings lobe adjacent to Flume Creek. The XRF reading for T15B was obtained by a hand-augured boring into the tailings materials. Native soils were encountered at 14 inches below the surface. No sample was collected for this location.

5.2.5 Creek Bank

Three hand-augured borings were placed at sample locations CB1A, CB1B, and CB1C located in tailing materials immediately adjacent to and south of the remnant wood cribbing feature observed at the Site. Surface conditions at these locations were observed to be highly vegetated with riparian vegetation. The near-surface materials (tailings) were observed to be saturated and spongy. Surface water flow paths was observed across or through this portion of the Site and discharged via overland flow and infiltration into Flume Creek. XRF readings were collected at each of these locations. At location CB1A tailing were observed from 6 to 22 inches in depth and native soils were encountered at a depth of 24 inches. At location CB1B, tailings were observed from 0 to approximately 14 inches. Native soils were observed below 14 inches. At CB1C tailings were present from 0 to 16 inches, underlain by native soils from 16 to 22 inches. Composite sample CB1 was collected from the subsamples collected from CB1A from 0 to 16 inches; CB1B from 0 to 14 inches, and CB1C from 0 to 16 inches.

5.2.6 Sediment Samples

Two sediment samples (FC1 and FC2) were collected from field-observed depositional features along the interface of the bed and bank Flume Creek. Sample FC1-Sed was collected at the upgradient property boundary and Sample FC2-Sed was collected on-site at the location where sediment was visually observed to have been deposited along the bed and bank of Flume Creek. The sediment sample locations are presented in Figure 3 and 4.

5.2.7 Surface Water Samples

Two surface water samples (FC1 and FC2) were collected from Flume Creek that coincided with the sediment sample locations described in Section 5.2.6 and are presented in Figures 3 and 4. Surface water sample FC1 was collected at the upgradient property boundary and surface water sample FC2 was collected on-site.

6 ANALYTICAL PROGRAM

The analytical program was performed in accordance with the approved FSP and QAPP provided in the approved SIWP and parameters as presented in Table 2.

6.1 Methods and Laboratory

Collected soil, sediment, and surface samples collected were analyzed for the following laboratory parameters using the specified test methods:

Parameters	Detection Limits	Analytical Method
Target Analyte List Metals (Ag, Al, As Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, Hg, K, Mg, Mn, Na, Ni, Pb, Sb, Se, Ti, V, Zn) in 10% of selected samples	MDL	EPA SW-846 Methods 6010B/7000 Series
Diesel and Heavy Range Petroleum Hydrocarbons (DRO)	MDL	Method NWTPH-Dx
Polynuclear Aromatic Hydrocarbons (PAHs), if DRO detected above regulatory standards	MDL	EPA SW-846 Method 8270C
Polychlorinated biphenyls (PCBs)	MDL	EPA SW-846 Method 8082A
Semivolatile Organic Compounds (SVOCs)	0.05 mg/kg 0.01 mg/kg for PAHs	EPA SW-846 Method 8270C
Volatile Organic Compounds (VOCs)	0.05 mg/kg	EPA SW- 846 Methods 5035/8260B

6.2 Data Quality and Quality Assurance Objectives

The DQOs are the quantitative and qualitative descriptions of the data required to support an environmental decision or action. As target values for data quality, they are not necessary criteria for acceptance or rejection of data. The data user develops DQOs for a specific purpose. The DQO development process involves three stages: 1) defining the question or decision to be made, 2) clarifying and precisely identifying the information required, and 3) designing a data collection program.

DQOs for this investigation were designed to satisfy the following data needs: 1) to characterize near surface conditions at the Site; 2) to assess COPC concentrations and exposure pathways with respect to the proposed regulatory levels, or other relevant guidance; and 3) to narrow the range of remedial alternatives to be considered.

The data quality and quality assurance objectives were performed in accordance with the approved QAPP. An evaluation of the quality assurance/quality control data validation is summarized and provided in Appendix C. All data was considered valid and useable for this project.

7 REGULATORY STANDARDS

The purpose of this review includes the identification of impacts to soils, sediment, and surface water from the accumulation of mill tailings and waste rock from historic mining operations at the Site. A necessary part of this review is the evaluation of appropriate remedial standards for the Site. The Washington State MTCA Cleanup Regulation [Washington Administrative Code (WAC) Chapter 173-340] (“Cleanup Regulations”) includes a process for establishing site cleanup standards intended to protect human health and the environment under current and potential future site uses. The Cleanup Regulations provide a uniform, statewide approach to cleanup that can be applied on a site-by-site basis. The cleanup level for each site substance in each medium (ground water, surface water, soil, and air) must be below a concentration that (1) for cancer-causing substances, would cause an exceedance of the allowable level of excess cancer risk in humans and/or (2) for non-cancer causing substances, could cause illness in humans. The cleanup level for each substance must also be below a concentration that could adversely impact terrestrial or aquatic ecological receptors (plants and animals), unless it can be demonstrated that such impacts are not a concern at the site. The Cleanup Regulations provide three options (Methods A, B, and C) for establishing site cleanup levels.

The Cleanup Levels and Risk Calculations (CLARC) Database Search (web-based) was used as the source for the MTCA Method A Soil cleanup standards for metals, carcinogenic and non-carcinogenic PAHs, PCBs, SVOCs and VOCs. The regulatory cleanup levels are provided for comparison of detected analytes in Tables 5 through 9.

7.1 EPA Regional Screening Levels

The Regional Screening Levels for Chemicals for Superfund Sites dated July 7, 2009 (RSLs) are conservative $1E-06$ risk based screening levels commonly accepted where chemical specific cleanup criteria is not available. These may also be used for comparative purposes during the initial screening event to determine COCs. The RSLs provide carcinogenic and non-carcinogenic chemical specific screening criteria for soil, air, drinking water, and protection of groundwater for residential and industrial receptors.

7.2 Other Federal Regulatory Requirements

Section 300.451(i) of the National Contingency Program (NCP) requires that removal actions under CERCLA comply with potentially applicable or relevant and appropriate requirements (ARARs) under federal and state environmental laws. Additionally local, state and federal policies, guidance and proposed standards while not legally binding referred to as To-Be-Considered materials (TBCs) may be further identified, discussed,

and determined in the Action Memorandum as remedial goals and objectives are further defined.

7.3 MTCA Method A Soil Unrestricted Uses

Method A provides tables of cleanup levels that are protective of human health for 25 to 30 of the most common hazardous substances found in soil and ground water at sites. These levels were developed using the procedures in Method B based on the assumption of a 1.0×10^{-6} acceptable excess cancer risk. The Method A cleanup level for a substance must be at least as stringent as the concentration in the Method A table and the concentrations established under applicable state or federal laws. If neither the Method A table nor the applicable state and federal laws provide a value, then the natural background concentration or the practical quantitation limit (PQL) may be used as the cleanup level. For soil, the Method A cleanup level must also be at least as stringent as a concentration that will not result in significant adverse effects on the protection and propagation of terrestrial ecological receptors (plants and animals), unless it can be demonstrated that such impacts are not a concern at the site. Metal COC concentrations detected above their MRLs were compared to the MTCA Method A soil cleanup levels for Unrestricted Land Use for chromium and lead. Where Method A standards were not established for COPCs, then MTCA Method B were standards were applied.

7.4 MTCA Method B Standard Method - Soil Unrestricted

Cleanup levels under Method B are established using applicable state and federal laws and the risk assessment equations and other requirements specified for each medium. Method B is divided into two tiers—standard and modified. Standard Method B uses generic default assumptions to calculate cleanup levels. Modified Method B provides for the use of chemical-specific or site-specific information to change selected default assumptions. The natural background concentrations and PQLs for a substance must be considered when setting cleanup levels under Method B. For both standard and modified Method B, the human health risk level for individual carcinogens may not exceed one in a million or 1.0×10^{-6} . If more than one type of hazardous substance is present, the total risk level at the site may not exceed one in 100,000 or 1.0×10^{-5} . Levels for non-carcinogens cannot exceed the point at which a substance may cause illness in humans (that is, the hazard quotient cannot exceed 1).

The method B cleanup standards for soil are applicable for sites contaminated by carcinogenic and non-carcinogenic PAHs, because the Method A cleanup standards do not include criteria for these COCs (with the exception of naphthalene). Metal COPCs including arsenic, barium, cadmium, mercury, selenium, silver and zinc were compared to the MTCA Method B standards. Lead was compared to the MTCA Method A standards because Method B does not include a standard for lead.

7.5 Washington Established Background Concentrations

Average regional background concentrations for metals associated with Eastern Washington as determined by a state-wide natural background study conducted by the Washington Department of Ecology (Ecology, 1994) were provided for comparative purposes only and are not utilized as cleanup levels. The guidance provides that detected constituent concentrations in soil not directly related to Site activities are considered to be naturally occurring (“background”) concentrations, even though one or more cleanup levels may be exceeded. Background levels are levels of constituents that are present under ambient conditions and have not been increased by anthropogenic sources. If inorganic chemicals are present at the Site at background levels, they may be eliminated from quantitative risk assessment (RAGS, 1989). Background concentrations for the region were provided for comparison purposes, but are not determined to be appropriate for determining risk-based cleanup levels

7.6 Consensus-Based Sediment Quality Guidelines - Threshold Effect Concentrations Sediment Standards

Pursuant to MTCA Cleanup regulations WAC 173-340-760, sediment standards must comply with the standards specified in Chapter 173-204 WAC, Sediment Management Standards (SMS). The SMS contains only narrative standards for sediment in freshwater and brackish water areas; however numerical criteria may be developed on a site specific basis to meet the narrative standards in the SMS. Sediment Quality Standards (SQS) and Cleanup Screening Levels (CSL) were discussed in the *Phase II Report: Development and Recommendation of SQVs for Freshwater Sediments in Washington State* (Ecology, 2003); however no sediment values were finalized. To date, Ecology has not adopted any numeric limits for freshwater environments and instead references the use of the EPA Consensus-Based Threshold Effect Concentrations (TEC) for comparisons of constituent concentrations in sediments.

7.7 State and Federal Regulatory Requirements for Disposal of Mining Wastes

Under federal regulations, principally the Resource Conservation and Recovery Act (RCRA), heavy metal constituents associated with mining waste are not considered to be hazardous substances because these constituents result from the extraction and beneficiation of ore (milling) and are considered to be “uniquely associated” with the primary mineral production of the historic operations. Therefore, the mining waste containing the associated heavy metal constituents is exempt from RCRA regulation pursuant to the mining waste exemption contained in Code of Federal Regulations (CFR) Title 40 Part 261 - *Identification and Listing of Hazardous Waste*, commonly referred to as the “Beville Exemption” or “Mine Waste Exemption” [40 CFR §261.4.b.7].

However, Ecology's Hazardous Waste and Toxic Reduction Program (HWTR Program) which administers the Dangerous Waste Regulations (Chapter 173-303 WAC) does not recognize the federal Mine Waste Exemption. The HWTR Program is the Washington State equivalent for the federal RCRA program. Ecology uses the term "Dangerous Waste" to refer to all wastes defined under the Dangerous Waste Regulations as dangerous, or extremely hazardous or mixed waste. Wastes that meet the state criteria may be characterized as DW or Extremely Hazardous Waste (EHW) depending on the waste's concentration, toxicity, persistence, or ability to bioaccumulate in living organisms within the food chain.

The heavy metals present in the Site mine wastes are subject to regulation as DW because they exhibit the characteristic of toxicity. Metal concentration analysis to determine toxicity is performed use of the Toxicity Characteristic Leaching Procedure (TCLP). Further discussion with Ecology regarding the possibility of allowing the use of the Synthetic Precipitation Leaching Procedure (SPLP) to make toxicity determinations to support risk based decision making regarding on-site management of heavy metal impacted mine waste.

8 ANALYTICAL RESULTS AND DATA EVALUATION

Metal COC concentrations detected above their MRLs were compared to the MTCA Method A soil cleanup levels for Unrestricted Land Use for chromium and lead. Where standard cleanup levels were not established for MTCA Method A then MTCA Method B soil cleanup levels were used to evaluate the other metal COPCs. In those cases where metal cleanup levels exist for both MTCA Method A and MTCA Method B then MTCA Method B was selected as groundwater pathway is not considered a complete exposure pathway at the Site. The soil cleanup levels selected for the metal COPCs are presented in Table 3. The analytical results and comparison to the relevant MTCA Method A and MTCA Method B soil cleanup levels for Unrestricted Land Use are presented in Tables 5 through 9.

8.1 Waste Rock Samples

In general, lead concentrations detected in the three mine waste rock piles at the Site range from 106 mg/kg to 11,500 mg/kg.

- Waste Rock Sample WR1, made up of subsamples WR1A and WR1B resulted in concentrations of cadmium detected at 6.24 mg/kg, lead detected at 106 mg/kg and zinc detected at 1,340 mg/kg collected from 0 to 30 inches in the waste rock pile. Concentrations of cadmium, lead, zinc and other metals analyzed for were below their respective MTCA B cleanup levels and other comparative regulatory levels. XRF readings when compared to the analytical results for sample WR1 were higher for cadmium; similar for lead; and an order of magnitude lower for zinc.

- Waste Rock Sample WR2, consisting of the collection of 5 subsamples from spatial locations within the above grade pile; and from depths ranging from surface to 168 inches into the waste rock pile. Cadmium was detected at a concentration of 318 mg/kg, which exceeds the MTCA B cleanup level of 80 mg/kg. Lead was detected at a concentration of 11,500 mg/kg which exceeds the MTCA A level of 1,000 mg/kg. Zinc was detected at a concentration of 53,400 mg/kg, which exceeds the MTCA B level of 24,000 mg/kg. The highest detection of arsenic at the site was detected at a concentration of 33.90 mg/kg in WR2, which is slightly above and the same order of magnitude as the established arsenic MTCA B level of 24 mg/kg. Concentrations of other detected metals were below their respective MTCA B levels and other comparative regulatory levels. XRF readings when compared to the analytical results for sample WR2 were lower for cadmium and lead; and within the same range as detected for zinc.
- Waste Rock Sample WR3, consists of the collection of 3 subsamples from spatial locations within the above grade pile; and from depths ranging from surface to 18 inches wherein underlying native bedrock was encountered. Cadmium was detected at a concentration of 318 mg/kg, which exceeds the MTCA B cleanup level of 80 mg/kg. Lead was detected at a concentration of 11,500 mg/kg which exceeds the MTCA A level of 1,000 mg/kg. Zinc was detected at a concentration of 53,400 mg/kg, which exceeds the MTCA B level of 24,000 mg/kg. Concentrations of other detected metals were below their respective MTCA B levels and other comparative regulatory levels. XRF readings when compared to the analytical results for sample WR3 were higher for cadmium; and within the same range as detected for lead and zinc.

8.2 Mill Composite Tailings Samples

Analytical results for sample ROW1, (a composite made up of 5 subsamples from ROW1A through ROW1E), indicates the presence of lead above the MTCA A cleanup levels. The zinc concentration detected at 13,200 mg/kg is below the MTCA Method B cleanup level of 24,000 mg/kg. All other metals detected were not above their respective MTCA B cleanup levels. XRF readings when compared to the analytical results of sample ROW1 tailings were similar for cadmium and lead; and an order of magnitude lower for zinc.

Cadmium and zinc COCs were detected at concentrations above the MTCA B cleanup levels in the following composite tailings samples: T1, T1B, T2 (Dup-2), T3, T4, T5, T6, T7, T8, T9, T10, T11, T12, T13 (Dup-1), T14, T15 and composite sample CB1. In general, cadmium concentrations detected in tailings materials at the Site range from 143 mg/kg to 552 mg/kg. The average cadmium concentration of 237 mg/kg was calculated for the Site. Zinc concentrations range from 45,000 mg/kg to 144,000 in tailings with an average zinc concentration of 74,148 mg/kg.

Lead detected at concentrations above the MTCA A cleanup level of 250 mg/kg, were detected in the following composite tailings samples: T1, T1B, T2 (Dup-2), T4, T9, T10, T13 (Dup-1), T15, and Dump-Comp. Lead concentrations range from 485 mg/kg

to 60,000 mg/kg in tailings. The average lead concentration based on the soils analytical data is 6,536 mg/kg. Lead was not detected above the MTCA A cleanup levels in tailings samples T3, T5, T6, T7, T8, T11, T12, and composite sample CB1.

Mercury was detected at a concentration of 26.4 mg/kg in sample T13, and 38.1 mg/kg the blind field duplicate sample Dup-1 for this sample location. Mercury detected in tailings at test pit location T13 represents the highest detected concentration of mercury at the Site and is above the MTCA B cleanup level of 24 mg/kg. Mercury was not detected above the MTCA B cleanup levels in any of the tailings samples (T1 through T14, CB1, Dump-Comp and T1B) analyzed. Mercury concentrations detected at this location are considered an isolated “hot-spot” and are not representative of mercury conditions at the Site. Arsenic, barium, chromium, selenium, and silver were not detected at concentrations above their respective MTCA A or MTCA B cleanup levels.

The 23 target analyte metals (TAL) were analyzed for in composite tailings samples T1 and T13. None of the 14 TAL metals that do have cleanup levels (aluminum, antimony, beryllium, calcium, cobalt, copper, iron, magnesium, manganese, nickel, potassium, sodium, thallium and vanadium) were detected at concentrations above their respective cleanup levels.

Generally, cadmium XRF reading concentrations when compared to the analytical concentrations detected for tailings samples T1 through T15, Dump-comp and CB1, were consistently lower by one order of magnitude or lower but within the same order of magnitude. Lead and zinc XRF reading concentrations when compared to the analytical concentrations detected for tailings samples T4 through T12, and T14, T15, Dump-comp and CB1 were consistently one order of magnitude lower or lower but within the same or of magnitude.

XRF reading concentrations when compared to lead and zinc analytical concentrations are consistently higher (one order of magnitude higher or elevated within the same order of magnitude) than the analytical concentrations detected in tailings at locations T1, T1B, T2, and T13. The consistent XRF readings for cadmium, lead, and zinc when compared to the analytical results in the tailings supports the homogeneity of the tailings in general at the Site with the exception of the elevated lead and zinc concentrations present in locations T1, T1B, T2, and T13.

8.3 Stream Bank Sediment Samples – Flume Creek

Two sediment samples (FC1 and FC2) were collected from observed depositional features within the interface of the bed and bank of Flume Creek. Sample FC1 was collected at the upgradient property boundary. Cadmium detected at a concentration of 0.84 mg/kg in sediment sample FC1 at the upgradient property boundary is slightly lower, but roughly equivalent to the cadmium concentration of 0.98 mg/kg detected in on site sediment sample FC2. Zinc detected at a concentration of 130 mg/kg sediment sample FC1 at the upgradient property boundary is slightly higher, but roughly

equivalent to the zinc concentration of 109 mg/kg detected in on site sediment sample FC2. Lead detected at a concentration of 67.7 mg/kg in sediment sample FC1 at the upgradient property boundary is slightly higher, but roughly equivalent to the lead concentration of 57 mg/kg detected in on site sediment sample FC2.

Metal COCs detected in both sediment samples FC1 and FC2 sediment sample are below the CB TEC levels. In general, metal COCs in the sediment sample FC1 at the upgradient property boundary when compared to on site sediment sample FC2 appear to be roughly equivalent.

Analytical results for sediment samples are presented in Table 7. Sediment sample locations are illustrated in Figures 3 and 4.

8.4 Surface Water Samples – Flume Creek

Two surface water samples were collected from Flume Creek and analyzed for total and dissolved metals.

Total metals in water sample FC1 collected at the upgradient property boundary to the west were not detected above the method reporting limit (MRL) for arsenic, cadmium, chromium, mercury, selenium and silver. Barium was detected at a concentration of 13.8 $\mu\text{g/L}$; however there is no regulatory standard for comparison purposes. Zinc detected at a concentration of 17 $\mu\text{g/L}$ in water sample FC1 at the upgradient property boundary is roughly equivalent to the zinc concentration of 19.2 $\mu\text{g/L}$ detected in on site water sample FC2. Concentrations detected in FC1 above the reporting limit for barium and lead exceed the concentrations detected in sample FC2 collected on site.

Total metal concentrations were not detected at or above the reporting limit for arsenic, cadmium, chromium, lead, mercury, selenium, and silver in on site surface water sample FC2. Total dissolved barium detected at a concentration of 11.8 $\mu\text{g/L}$ was slightly above the concentration below the concentration of 13.8 $\mu\text{g/L}$ detected in off-site surface water sample FC1. Lead in water sample FC2 was not detected at a concentration above the 1 $\mu\text{g/L}$ MRL, however the MRL exceeds the CLARC ARAR for Freshwater Aquatic Life (chronic) of 0.54 $\mu\text{g/L}$. Zinc in FC2 was detected at a concentration of 19.2 $\mu\text{g/L}$ which does not exceed any of the CLARC ARAR standards.

A dissolved lead concentration of 1.88 $\mu\text{g/L}$ was detected in on site surface water sample FC1, which is above the 0.54 $\mu\text{g/L}$ CLARC ARAR Fresh Water Aquatic Life (chronic) standard. The concentration of 31.9 $\mu\text{g/L}$ detected on-site surface water sample FC2 does not exceed any of the CLARC ARAR standards.

The MRLs for metals in water samples analyzed exceed the CLARC ARARs as follows: The MRL of 1 $\mu\text{g/L}$ for arsenic exceeds the MTCA B carcinogen standard of 0.098 $\mu\text{g/L}$. The MRL 2 $\mu\text{g/L}$ for cadmium $\mu\text{g/L}$ exceed the respective CLARC Surface Water ARAR for fresh water aquatic acute and chronic standards. The MRL

of 0.2 µg/L for mercury exceeds the CLARC Surface Water ARAR for fresh water aquatic life (chronic) and National Toxics Rule – ARAR for Aquatic Life (chronic); and the National Toxic Rule – ARAR for human health.

Total and dissolved lead concentrations detected in upgradient surface water sample FC1 and on-site sample FC2 are similar in concentration and exceed the applicable CLARC Surface Water ARAR for Aquatic Life in Fresh Water (Chronic), but do not exceed for human receptors.

In general, metal COCs in upgradient surface water sample FC1 when compared to on site surface water sample FC2 appear to be roughly equivalent, which suggests there is no contribution of adverse impacts from accumulated mine waste to surface water in Flume Creek. Surface water is not expected to be a complete exposure pathway based on the comparison of surface water quality conditions compared to background upgradient background surface water quality conditions. Surface water may be a potentially complete pathway for fresh water aquatic receptors, if determined to be present in Flume Creek.

Analytical results for surface water samples are presented in Table 7. The surface water sample locations are presented in Figures 3 and 4. Analytical results for surface water samples are presented in Table 8.

8.5 Tailings Samples – Additional Analyses

Additional analyses were conducted on soil sample T1B collected in tailings from the vicinity beneath the former mill and on soil sample Dump-Comp collected in tailings from the area where solid waste were observed to be dumped. These sample locations were assumed to represent the most likely locations to be impacted with COPCs other than metals from mining-related operations. Samples T1B and Dump-Comp were also analyzed for the following additional analytical parameters including the RCRA 8 Metals, PAHs, PCBs, SVOCs and VOCs. The analytes detected for were not detected at concentrations above their respective MTCA A or MTCA B standards. Analytical results are presented in Table 9.

Consistent with the analytical findings for metals in Table 5, COCs cadmium, and zinc exceeded their respective MTCA Method A cleanup levels. Lead detected in samples T1B and Dump-Comp, respectively, at concentrations of 41.6 mg/kg and 12,900 mg/kg exceeds the MTCA Method B value of 24 mg/kg for lead. Mercury detected at T1B and Dump-Comp at concentrations of 10.6 mg/kg and 4.86 mg/kg, respectively, are below the MTCA B standard of 24 mg/kg.

Detected cadmium concentrations of 552 mg/kg in T1B exceed the MTCA B value of 80 mg/kg. Elevated detected levels of lead were reported at 4,170 mg/kg, which exceed the MTCA A value of 24 mg/kg. An elevated concentration of 144,000 mg/kg for zinc was detected in T1B, which exceeds the Method B value of 24,000 mg/kg and corresponds to the elevated zinc XRF readings at this location.

Detected cadmium at a concentration of 143 mg/kg in sample Dump-Comp exceeds the MTCA B value of 80 mg/kg. Detected lead at an elevated concentration of 12,900 mg/kg exceeded the MTCA A value of 250 mg/kg. Zinc concentrations detected at 57,200 mg/kg in tailings at Dump-Comp exceed the MTCA B value of 24,000 mg/kg.

Tailing sample T1B and Dump-Comp was analyzed for DRO, HRO, PAHs, SVOCs and VOCs. Detected concentrations of DRO at 175 mg/kg and 43 mg/kg are below the MTCA A value of 2,000 mg/kg. No PCB, SVOCs, or VOCs were detected at or above their respective MRLs in tailings sample T1B. One detection of chrysene at a concentration of 0.0164 mg/kg is below the MTCA A value of 0.0177 mg/kg, which is the calculated total toxicity equivalent factor (TTEF) for carcinogenic PAHs; and below the listed MTCA B value of 0.137 mg/kg. DRO, HRO, PAH, SVOC and VOCs compounds were not detected at or above their respective MRLs in tailings sample Dump-Comp.

In general, LFR observed the mine waste materials to be homogenous in nature and used the XRF field screening and visual observations to delineate the mine waste materials by type (i.e. waste, rock, mill tailings, and/or concentrates) and to determine the depth to the underlying native soils and/or bedrock.

No visual or olfactory evidence of stained materials were noted on the surface or at depth within any of the test pit locations at the Site. The lateral distribution of tailings and waste rock were defined by and coincided with the general lack of observed vegetation on the waste rock or tailings materials accumulated on site; with the exception of locations T3, T4, and CB1A, CB1B and CB1C, which were observed to be vegetated with riparian plants. Tailings materials at these locations were observed to be wet as noted by the spongy nature of the vegetation and upper two feet of tailings materials and the flow of water through these surface and near-surface materials

8.6 Determination of COCs

The overall approach to the Site soil characterization and analytical effort was intended to provide adequate horizontal and vertical delineation of surface and near surface mine waste contaminated soils in areas found to be affected by historic milling operations. In general, mine waste contaminated soils affected above the respective MTCA Method A and MTCA Method B Standard Unrestricted Land Use soil cleanup levels were encountered in areas where historical operations were performed at the Site.

Based upon the Site analytical results, the principal COCs present in significant concentrations in Site soils are limited to metals namely cadmium, lead, and zinc. In addition, arsenic and mercury were identified at isolated locations and will be considered COCs but may be addressed as “hot-spots” due to the low frequency of detection above the MTCA B cleanup levels. The non-carcinogenic COC compounds at the Site consist of cadmium, lead, mercury, and zinc. Arsenic, the sole carcinogenic

COC at the Site, was detected at one waste rock test pit location (WR1) above the MTCA Method B level.

In general, the selected COCs arsenic, cadmium, mercury, lead, and zinc in tailings and waste rock exceed their respective MTCA Method A and Method B Soil cleanup levels. Other detected metals analyzed for in soils do not exceed their respective regulatory levels. Detected concentrations of cadmium, mercury, lead, and zinc COCs in tailings and waste rock also exceed their respective Washington State Natural Background Levels. DRO, HRO, PAH, SVOC and VOCs compounds were not detected at concentrations above the respective MTCA A and MTCA B values and are therefore not considered COCs at the Site.

9 VOLUME ESTIMATES BASED ON SPATIAL DISTRIBUTION OF COC

The results of the XRF screening, the laboratory analyses, and the visual descriptions of test pits were utilized to develop relative thicknesses and areal distribution of mine waste materials. The following sections describe the methods employed to quantify the character and distribution of the mine waste within the Site.

9.1 Volume Estimate of Mine Waste

The distribution of mine waste and concentrates within the site was estimated by using visual indicators and supported or verified with XRF readings and analytical laboratory results. The tailings and concentrates exhibit a distinctive light gray or ashen color and are fairly uniform in grain size (finer than 8 mesh screen size). For the estimate of waste volume the Site was divided into three geographic areas; the Upper Portion (north of the unpaved access road), the unpaved access road, and the Lower Portion (south of the access road). A discussion of the volume estimates for each area is provided in the following sections.

9.1.1 Upper Portion

As discussed in Section 5.2.2 and 5.2.3 the Upper Portion has been impacted by mill tailings, waste rock and possibly concentrates. Since the range of COC concentrations among the materials encountered were similar and in close proximity, segregation by the different materials at the time of the field investigation was not practicable. A volume estimate was developed that encompasses identified waste materials in the Upper Portion.

The volume estimates were derived using average waste thicknesses from the test pits and areal extent of the surface expression of the waste on the ground. Using this method the volume of waste material in the Upper Portion is estimated to be approximately 1,200 cubic yards.

9.1.2 Unpaved Access Road

Waste materials encountered in the unpaved access road test pits are considered to be tailings. The average depth of accumulated tailings ranged from six to twelve inches along the western portion of the road which were underlain by native materials. Moving further to the east along the unpaved revealed native soils were encountered at depths of 20 and 22 inches bgs. The volume estimate for waste material within the access road was derived using the more conservative measurement of waste materials or 22 inches encountered in test pit ROW-1D. The volume estimate assumed a conservative road width of 20 feet and an impacted length of 525 feet (representing a distance 100 feet west from the westernmost test pit ROW1A to 50 east of the easternmost test pit ROW1E). Using this method the volume of waste material in the access road is estimated to be approximately 700 cubic yards.

9.1.3 Lower Portion

The Lower Portion of the Site is more varied in terrain and waste encountered than the other two geographic areas of the Site. The waste consisted principally of waste rock distributed in two piles, a mass layer of relatively homogeneous tailings over the majority of the impacted Site with a few small piles, and one dump area containing garbage and discarded vehicle parts that were deposited on tailings. The waste areas exhibiting higher concentrations include waste rock pile (WR2), the Dump Area, and test pit T13.

The volumes for the higher concentration areas were calculated separately for each area and combined for a total volume estimate. Based upon the measured thickness of waste and estimated areal extent, the volumes were estimated as follows; WR2, approximately 380 cubic yards; Dump Area, approximately 20 cubic yards; T13, approximately 260 cubic yards, for a combined total of 660 cubic yards of higher concentration waste.

The lower concentration wastes were encountered in waste rock pile WR1, and the remainder of the test pits in the Lower Portion, including the cribbing area. For the volume estimate all test pits were assigned equal areal weight which reduced the volume calculation to averaging the waste thickness from each test pit and multiplying the result by the total area encompassing the test pits. Using this method the volume of lower concentration waste material in the Lower Portion is estimated to be approximately 9,400 cubic yards.

The total volume of mine waste contaminated materials on-site is estimated at 11,960 cubic yards. A summary of the estimated volume of mine waste on the Site is presented in Table 10.

9.2 Spatial Distribution of COCs

The highest detected concentrations of COCs (cadmium, lead, and zinc) in tailings and waste rock are present in test pit sample locations T1, T1B, T2 and WR3 in the area of the former mill operations (upper portion) of the Site. Elevated concentrations of COCs are also present in tailings and waste rock at test pit sample locations T12, T13, T14, T15 and WR2 located in the west central portion of the Site. Elevated concentrations of COCs detected in tailings test pit sample locations T3, T4, T5, T6, T7, T8, T9, T11 and CB1 in the central and eastern portion of the Site. Elevated concentrations of COCs are present in waste rock piles WR2 and WR3 located in northern portion of the Site coincident with former mill operations. Detected elevated concentrations of COCs in general are above the MTCA cleanup levels protective of human health and the environment.

10 SUMMARY AND CONCLUSIONS

The Josephine Mill No.1 property processed lead and zinc ores in the early 1900s and deposits of mine waste (principally in the form of tailings and waste rock) have been scattered within the Site boundaries. The Hazardous Substances identified in previous reports by EPA, the BLM, and others for the Site were limited to heavy metals, specifically lead and zinc. LFR through the SI identified the primary COCs at the Site to include cadmium, lead and zinc, and to a lesser extent two isolated areas where arsenic and mercury are present above the regulatory cleanup levels.

Results from the implementation of the EPA approved Site Investigation Work Plan indicate that the areal extent approximately two acres in size at the Site has been impacted by mine waste with metals concentrations exceeding state regulatory thresholds (MTCA Method A and Method B) for unrestricted land use. Results of samples analyzed for other COCs, including PAHs, PCBs, SVOCs and VOCs revealed concentrations below the applicable regulatory thresholds. Further, no visual or olfactory evidence of stained materials were noted on the surface or at depth within any of the test pit locations at the Site.

The lateral distribution of tailings and waste rock were defined by and coincided with the general lack of observed vegetation on the waste rock or tailings materials accumulated on site; with the exception of locations T3, T4, and CB1A, CB1B and CB1C, which were observed to be vegetated with riparian plants.

Concentrations of metals within the mine waste were distributed such that two categories of mine waste could be established; those areas with higher concentrations of mine waste and conversely those areas with lower concentrations of mine waste.

Volumes of mine waste estimated to reside within an area less than two acres at Site are as follows:

- Lower concentration wastes are estimated at 10,100 cubic yards
- Higher concentration wastes are estimated at 1,860 cubic yards

Based upon the findings of the SI, the potential removal action alternatives recommended for consideration may include: (1) No Action; (2) Institutional Controls to include fencing, signage, and other engineered controls to limit site access (3) Institutional Controls, Excavation and On-Site Consolidation and Containment; and (4) Removal via excavation and off-site disposal of the total volume of mine waste to a permitted off site facility.

11 LIMITATIONS

The opinions and recommendations presented in this addendum report are based upon the scope of services, information obtained through the performance of the services, and the schedule defined under paragraph 5 of the approved Site Investigation Work Plan. This report is an instrument of professional service and was prepared in accordance with the generally accepted standards and level of skill and care under similar conditions and circumstances established by the environmental consulting industry. No representation, warranty, or guarantee, express or implied, is intended or given. To the extent that LFR relied upon any information prepared by other parties not under contract to LFR, LFR makes no representation as to the accuracy or completeness of such information.

This report is expressly prepared for a particular purpose. Only the party for whom this report was originally prepared and/or other specifically agreed parties have the right to make use of and rely upon this report. Reuse of this report or any portion thereof for other than its intended purpose, or if modified, or if used by third parties, shall be at the user's sole risk.

The services provided under this contract included professional opinions and judgments based on data collected from public and private records, interviews with knowledgeable parties and regulatory agency personnel, field observations and measurements, analytical reports by an independent laboratory, and reasonable interpretation of applicable environmental regulations.

Results of any investigations or testing and any findings presented in this report apply solely to conditions existing at the time when LFR's investigative work was performed. It must be recognized that any such investigative or testing activities are inherently limited and do not represent a conclusive or complete characterization.

No environmental assessment can wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with a property. Conditions in other parts of the project site may vary from those at the locations where data were collected. LFR's ability to interpret investigation results is related to the availability of

the data and the extent of the investigation activities. As such, complete confidence in environmental investigation conclusions cannot reasonably be achieved.

Samples collected during the Site investigation will only indicate the presence or absence of the investigated COPCs within the discrete sampled unit. Although samples will be collected from areas most likely to be contaminated by suspected substances based on known conditions, contamination may exist in areas not sampled, or for potential contaminants not selected for analysis and characterization. Consequently, any analytical results should be considered only as indicators of possible site conditions, with specific statistical significance.

LFR, therefore, does not provide any guarantees, certifications, or warranties regarding any conclusions regarding environmental contamination of property. Furthermore, nothing contained in this document shall relieve any party of its responsibility to abide by contract documents and applicable laws, codes, regulations, or standards.

12 REFERENCES

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APPENDIX A

Sample Alteration Form

APPENDIX B

Certified Analytical Reports

APPENDIX C

Data Validation Memorandum

APPENDIX D

Photographic Documentation

FIGURES

TABLES

Table 1: Data Quality Objectives

Media	Soil, Sediments, and Surface Water
Objectives	Evaluate the presence and extent of COPCs in mine waste rock and tailing piles, sediments, and surface water.
Data Use and Rationale	Site characterization to determine potential response actions
COPCs	Focus on Metals; evaluate potential for presence of PAHs, SVOCs, VOCs, and PCBs
Levels of Concern	MTCA Method A and B Unrestricted Land Use and Consensus-Based Freshwater Sediment Water Quality Guidelines
Analytical Program	Niton XRF In-Situ Field Screen PAHs analyses by Method EPA 8270C VOCs by EPA 8260B PCBs by EPA 8082A Metals by 6010B/6020/7000 Series

Notes:

COPCs = Constituents of Potential Concern
MTCA Method A = Model Toxics Control Act
PAHs = Polynuclear Aromatic Hydrocarbons
PCBs = Polychlorinated Biphenyls
SVOCs = Semivolatile Organic Compounds
VOCs = Volatile Organic Compounds
XRF = X-Ray Fluorescence

Table 2: Analytical Plan

Media	Number of Samples and Method			
	NWTPH-Dx and/or PAHs analyses by EPA 8270C	VOCs EPA 8260B and SVOCs by Method 8270C	PCBs EPA 8082A	Metals EPA 6010B and 7000 Series
Soil	2	2	2	24 ⁽¹⁾
Sediment	NA	NA	NA	2
Surface Water	NA	NA	NA	2

Notes:

NA = Constituents not proposed to be analyzed by this method as it is not applicable

⁽¹⁾ Includes two field duplicates

Table 3: Summary of Regulatory Cleanup Levels

Constituents of Potential Concern (COPCs)	MTCA Soil Method A Unrestricted Uses (mg/kg)	MTCA Soil Method B Unrestricted Uses (mg/kg)	Consensus-Based Threshold Effect Concentrations (CB TEC)² Sediment (mg/kg) dry weight unless otherwise noted)
Arsenic (As)	20	0.39	9.79
Cadmium (Cd)	2	70	0.99
Chromium (Cr) VI	19	230	43.4
Chromium (Cr) III	2,000	12,000	43.4
Copper (Cu)	NS	3,100	31.6
Lead (Pb)	250	400	35.8
Mercury (Hg)	2	23	0.18
Silver (Ag)	NS	390	NS
Zinc (Zn)	NS	23,000	121
Diesel Range Organics (DRO)	2,000	NS	NS
PAHs (carcinogenic)	0.1	NS	NS
Acenaphthene	3,700	3,400	NS
Acenaphthylene	NS	NS	NS
Anthracene	NS	17,000	57.2 µg/kg
Benzo(k)fluoranthene ¹	0.1	1.5	NS
Benzo(b)fluoranthene ¹	0.1	0.15	NS
Benzo(g,h,i)perylene ¹	0.1	NS	NS
Benzo(a)anthracene ¹	0.1	0.15	108 µg/kg
Benzo(a)pyrene ¹	0.1	0.015	150 µg/kg
Chrysene ¹	0.1	15	166 µg/kg
Dibenz(ah)anthracene ¹	0.1	0.015	33.0 µg/kg
Fluoranthene ¹	0.1	2,300	423 µg/kg
Fluorene	NS	2,300	NS

Indeno(1,2,3-cd)pyrene ¹	0.1	0.15	NS
Naphthalene	5	3.9	NS
Methylnaphthalene-1 ¹	NS	22	NS
Methylnaphthalene-2	NS	310	NS
Phenanthrene	NS	NS	NS
Pyrene	NS	1,700	195
PCBs (mixtures)	1	0.17 high risk 3.9 low risk	59 µg/kg

Notes:

NS = No Standard Available

COPCs = Constituents of Potential Concern

MTCA = Model Toxics Control Act

TBD = To be determined

CB TEC = Threshold Effect Concentrations

¹Cleanup level based on direct contact using Equation 740-2. If other carcinogenic PAHs are suspected of being present at the site, test for them and use this value as the total concentration that all carcinogenic PAHs must meet using the toxicity equivalency methodology in WAC 713-34-708(8)

²United States Environmental Protection Agency (EPA) 2000. *Prediction of Sediment Toxicity Using Consensus-Based Freshwater Sediment Quality Guidelines*; and *Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems* (MacDonald, D.D. et. al, 2000)

Table 4
Summary of XRF Field Screening Readings and Observations
Josephine Mill No. 1
Metaline, Washington

Date Time	Reading Number	Test Pit or Sample Location	Depth (inches), Material Type Observations	RCRA 8 Metals								Additional Metals										
				Arsenic (As)	Barium (Ba)	Cadmium (Cd)	Chromium (Cr)	Lead (Pb)	Mercury (Hg)	Selenium (Se)	Silver (Ag)	Zinc (Zn)	Calcium (Ca)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Potassium (K)	Manganese (Mn)	Nickel (Ni)	Antimony (Sb)	Titanium (Ti)	Vanadium (V)
Unpaved Access Road																						
10/6/2008 9:26	13	ROW1A	Incomplete Reading	< LOD				< LOD	< LOD	< LOD		2,711.70		< LOD	< LOD	15,634.54		< LOD	< LOD			
10/6/2008 9:28	14	ROW1A-Redo	12-16 Native	< LOD	386.86	40.91	< LOD	582.58	< LOD	< LOD	17.42	2,572.86	70,584.14	< LOD	< LOD	16,154.80	9,833.08	629.92	< LOD	69.25	1,462.05	87.99
10/6/2008 9:36	16	ROW1B	18 Native	< LOD	395.18	19.34	< LOD	146.92	< LOD	< LOD	< LOD	623.10	13,982.29	< LOD	< LOD	22,940.18	14,548.43	682.07	< LOD	35.33	3,346.05	< LOD
10/6/2008 9:40	17	ROW1C	6-17 Native	< LOD	< LOD	< LOD	< LOD	747.72	< LOD	< LOD	< LOD	1,878.61	21,744.34	< LOD	< LOD	24,102.61	16,375.68	425.28	< LOD	< LOD	2,452.89	157.30
10/6/2008 9:47	18	ROW1D	8-22 Native	166.87	1,039.21	62.44	< LOD	2,734.67	< LOD	< LOD	21.59	9,305.28	65,315.38	< LOD	< LOD	20,452.95	5,211.41	748.23	< LOD	133.62	912.13	< LOD
10/6/2008 9:48	19	ROW1D	Incomplete Reading	< LOD				173.41	< LOD	< LOD		7,390.60		< LOD	< LOD	24,341.83		488.90	< LOD			
10/6/2008 9:50	20	ROW1D-redo	8-22 Native	26.27	422.82	35.99	< LOD	200.22	< LOD	< LOD	< LOD	7,674.55	16,711.67	< LOD	< LOD	24,085.83	11,728.39	508.80	< LOD	38.30	2,739.33	130.13
10/6/2008 9:52	21	ROW	Incomplete Reading	< LOD				< LOD	< LOD	< LOD		5,137.27		< LOD	< LOD	< LOD		< LOD	< LOD			
10/6/2008 9:52	22	ROW	Incomplete Reading	< LOD				2,175.02	< LOD	< LOD		4,010.78		< LOD	< LOD	5,622.45		< LOD	< LOD			
10/6/2008 9:54	23	ROW1D-sidewall	8 Tailings	< LOD	503.40	41.62	< LOD	2,085.46	< LOD	< LOD	21.60	3,978.68	213,474.13	< LOD	< LOD	8,515.99	4,767.27	151.85	< LOD	94.34	464.22	< LOD
10/6/2008 10:01	24	ROW1E	20 Native	< LOD	242.87	< LOD	50.42	29.82	< LOD	< LOD	< LOD	367.32	18,356.09	193.56	< LOD	20,039.32	15,272.83	380.21	< LOD	< LOD	3,257.84	< LOD
10/6/2008 10:08	25	ROW1	0 to 22 Tailings composite of subsamples ROW1A-E	< LOD	116.66	20.64	121.49	1,406.59	< LOD	< LOD	< LOD	5,110.43	46,858.58	< LOD	< LOD	22,489.25	7,884.39	436.15	< LOD	< LOD	4,445.42	< LOD
Upper Portion/Former Mill Location																						
10/6/2008 10:26	27	T1A	30 Native	< LOD	520.61	< LOD	< LOD	17.87	< LOD	< LOD	12.63	1,199.72	10,361.12	< LOD	< LOD	16,674.35	9,954.10	336.87	< LOD	38.68	2,757.00	< LOD
10/6/2008 10:33	28	T1A	0-6 Tailings	< LOD	290.34	250.77	89.89	39,100.60	< LOD	< LOD	18.86	134,720.27	174,615.67	< LOD	< LOD	11,403.14	< LOD	590.60	< LOD	65.37	< LOD	82.47
10/6/2008 10:36	29	T1A	0-24 Native	< LOD	785.60	153.52	< LOD	455.08	< LOD	< LOD	22.29	7,704.34	38,997.72	< LOD	< LOD	13,027.69	3,384.11	323.22	< LOD	126.41	939.29	< LOD
10/6/2008 10:48	30	T1B	0-53 Tailings	< LOD	239.80	283.04	< LOD	1,014.15	< LOD	< LOD	< LOD	110,967.79	44,464.64	< LOD	< LOD	21,161.33	4,503.89	694.71	< LOD	60.71	1,275.30	< LOD
10/6/2008 10:57	31	T1B	Incomplete Reading	< LOD				< LOD	< LOD	< LOD		< LOD		< LOD	< LOD	< LOD		< LOD	< LOD			
10/6/2008 10:59	32	T1B	68 Native	< LOD	< LOD	28.33	70.88	17.60	< LOD	< LOD	< LOD	2,356.14	14,360.00	< LOD	< LOD	11,158.98	14,061.08	304.74	< LOD	< LOD	2,063.12	< LOD
10/6/2008 11:04	33	T1B	67 Tailings	649.53	844.15	392.47	< LOD	33,477.26	199.32	< LOD	39.99	223,944.80	48,072.69	< LOD	592.72	54,089.10	865.94	< LOD	< LOD	191.27	< LOD	< LOD
10/6/2008 11:22	34	T1C	76 Native	< LOD	< LOD	< LOD	41.75	30.60	< LOD	< LOD	< LOD	3,146.75	14,683.58	< LOD	< LOD	10,944.01	16,753.44	298.40	< LOD	< LOD	2,426.06	< LOD
10/6/2008 11:28	35	T1C	0-48 Tailings	386.33	314.90	311.20	46.46	13,841.36	< LOD	< LOD	19.84	112,572.29	71,906.52	< LOD	226.72	19,491.19	3,568.26	570.19	< LOD	99.97	581.26	< LOD
10/6/2008 11:51	36	T1C	Incomplete Reading	471.79				7,375.88	< LOD	< LOD		120,565.75		< LOD	564.22	12,578.31		< LOD	< LOD			
10/6/2008 11:51	37	T1C	Incomplete Reading	< LOD				5,283.60	< LOD	< LOD		100,230.55		< LOD	< LOD	< LOD		< LOD	< LOD			
10/6/2008 11:53	38	T2	43 Tailings/concentrates	< LOD	274.94	340.09	74.55	3,253.44	236.21	46.72	< LOD	149,489.33	57,543.03	< LOD	< LOD	6,697.97	1,055.53	< LOD	< LOD	166.21	< LOD	< LOD
10/6/2008 11:56	39	T2	22 Tailings/concentrates	< LOD	456.15	369.33	78.64	1,025.71	106.41	24.07	< LOD	103,240.78	104,379.29	< LOD	< LOD	5,340.41	794.24	251.55	< LOD	71.95	< LOD	45.86
10/6/2008 11:58	40	T2	0-22 Tailings	201.56	482.46	101.13	48.07	4,656.36	< LOD	< LOD	24.61	22,944.14	124,331.81	< LOD	< LOD	2,915.39	729.03	260.47	< LOD	97.80	< LOD	< LOD
10/6/2008 12:19	41	TP1	36 Interface w/bedrock	< LOD	< LOD	< LOD	56.60	321.16	< LOD	< LOD	< LOD	7,754.48	76,149.88	< LOD	< LOD	15,778.96	4,763.54	502.85	< LOD	< LOD	1,327.89	< LOD
10/6/2008 12:21	43	TP1	19 Tailings	< LOD	795.89	1,162.11	114.27	1,364.79	979.87	288.98	< LOD	735,417.06	49,705.04	< LOD	< LOD	28,514.74	465.61	765.41	< LOD	169.70	108.65	< LOD
10/6/2008 12:25	44	TP1	0-6 Tailings	228.94	665.36	263.37	36.31	2,020.36	147.16	37.17	35.35	114,012.20	67,258.08	< LOD	< LOD	11,072.89	2,967.12	461.38	< LOD	148.55	380.75	< LOD
10/6/2008 12:36	45	T1B	Incomplete Reading	< LOD				3,078.92	< LOD	< LOD		130,879.02		< LOD	< LOD	16,791.41		< LOD	< LOD			
10/6/2008 12:38	46	T1B	52 Tailings	< LOD	285.80	323.63	51.99	3,538.47	251.61	50.37	25.83	177,766.61	55,890.91	< LOD	< LOD	19,696.92	1,916.09	507.46	< LOD	70.85	276.03	< LOD
10/6/2008 12:40	47	T1B	40 Tailings	60.22	186.49	86.48	58.11	440.96	55.18	< LOD	< LOD	40,217.42	114,529.05	< LOD	< LOD	7,891.22	2,466.10	327.16	< LOD	< LOD	396.36	< LOD
10/6/2008 12:55	48	T1B	29 Tailings-Subfloor	176.51	470.20	379.56	36.34	2,769.99	160.27	39.42	< LOD	181,513.64	73,957.02	< LOD	< LOD	18,356.90	3,607.84	533.59	< LOD	58.77	670.63	< LOD
10/6/2008 12:58	49	T1B	13 Tailings-Floor Joists	< LOD	305.02	230.99	43.93	3,933.96	< LOD	< LOD	24.39	103,746.63	88,756.36	< LOD	1,403.95	10,867.91	1,661.64	232.60	< LOD	93.75	173.10	54.86
Lower Portion Waste Rock Pile																						
10/6/2008 14:12	51	WR1A	32 Waste Rock	< LOD	879.51	61.27	< LOD	37.58	< LOD	< LOD	45.62	257.89	6,418.14	< LOD	< LOD	27,300.19	5,643.50	447.27	< LOD	183.64	1,162.03	< LOD
10/6/2008 14:17	52	WR1B	32 Waste Rock	16.88	718.52	30.38	< LOD	30.90	< LOD	< LOD	< LOD	559.16	8,380.42	< LOD	< LOD	28,422.22	17,090.00	239.02	< LOD	72.97	2,695.01	140.61
10/6/2008 14:20	53	WR1C	32 Waste Rock	< LOD	242.76	125.39	32.41	246.58	< LOD	< LOD	20.39	26,987.02	94,461.88	< LOD	< LOD	3,665.51	2,642.81	< LOD	< LOD	57.31	490.32	56.15
Lower Portion Tailings and Waste Rock																						
10/6/2008 14:30	54	T3	46 Organics/Wood	< LOD	< LOD	< LOD	186.23	< LOD	< LOD	5.38	< LOD	145.92	32,259.17	< LOD	< LOD	237.53	< LOD	< LOD	< LOD	< LOD	< LOD	85.57
10/6/2008 14:34	55	T3	10 Tailings	< LOD	93.92	104.37	111.07	648.58	< LOD	< LOD	< LOD	41,284.21	78,426.83	< LOD	< LOD	4,230.14	1,666.35	< LOD	< LOD	46.44	172.39	< LOD
10/6/2008 14:41	56	T4	52 Peat	< LOD	< LOD	< LOD	157.39	< LOD	< LOD	5.32	< LOD	77.91	25,120.51	< LOD	< LOD	568.92	< LOD	< LOD	< LOD	< LOD	161.50	< LOD
10/6/2008 14:47	58	T4	0-24 Tailings	< LOD	< LOD	99.98	153.77	2,838.03	< LOD	< LOD	< LOD	36,213.00	60,402.67	< LOD	< LOD	5,765.32	801.43	207.53	< LOD	34.67	345.32	95.02
10/6/2008 14:56	59	T5	132 Native	< LOD	187.26	< LOD	98.46	17.33	< LOD	< LOD	< LOD	653.67	12,075.66	< LOD	< LOD	14,370.98	12,346.41	83.95	< LOD	< LOD	3,505.40	118.88

Table 4
Summary of XRF Field Screening Readings and Observations
Josephine Mill No. 1
Metaline, Washington

Date Time	Reading Number	Test Pit or Sample Location	Depth (inches), Material Type Observations	RCRA 8 Metals								Additional Metals										
				Arsenic (As)	Barium (Ba)	Cadmium (Cd)	Chromium (Cr)	Lead (Pb)	Mercury (Hg)	Selenium (Se)	Silver (Ag)	Zinc (Zn)	Calcium (Ca)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Potassium (K)	Manganese (Mn)	Nickel (Ni)	Antimony (Sb)	Titanium (Ti)	Vanadium (V)
10/6/2008 15:02	60	T5	0-38 Tailings	< LOD	< LOD	109.52	141.43	236.30	< LOD	< LOD	< LOD	24,846.02	71,312.13	< LOD	< LOD	1,941.55	779.28	101.81	< LOD	28.57	398.21	79.78
10/6/2008 15:05	62	T6	68 Native	11.89	314.78	< LOD	109.81	25.99	< LOD	< LOD	< LOD	2,698.18	10,876.72	< LOD	< LOD	20,374.72	12,961.54	377.22	< LOD	25.97	3,631.09	124.96
10/6/2008 15:11	63	T6	12-54 Tailings	< LOD	< LOD	58.96	184.58	41.41	< LOD	< LOD	< LOD	3,815.81	11,390.36	< LOD	< LOD	21,532.28	14,379.02	281.09	< LOD	< LOD	3,928.10	< LOD
10/6/2008 15:16	64	T7	126 Native	< LOD	301.82	29.79	202.24	24.53	< LOD	< LOD	< LOD	2,293.21	9,905.05	< LOD	< LOD	17,766.20	11,796.13	313.73	< LOD	39.70	3,565.15	< LOD
10/6/2008 15:23	65	T7	Invalid Reading	< LOD	< LOD	31.41	180.19	44.38	< LOD	< LOD	< LOD	2,577.08	10,733.00	< LOD	< LOD	19,787.02	12,924.86	282.66	< LOD	< LOD	3,860.75	< LOD
10/6/2008 15:26	66	T7	0-50 Tailings	< LOD	< LOD	76.91	163.80	377.39	< LOD	< LOD	< LOD	21,807.92	51,056.57	< LOD	< LOD	2,447.70	1,740.95	131.02	< LOD	< LOD	538.08	< LOD
10/6/2008 15:33	67	T8	102 Native Organics	< LOD	< LOD	< LOD	218.57	15.96	< LOD	< LOD	< LOD	228.68	6,924.88	201.97	< LOD	17,194.32	9,479.27	114.81	< LOD	< LOD	3,161.47	182.81
10/6/2008 15:37	68	T8	0-84 Tailings	< LOD	100.45	140.76	134.47	625.57	63.37	11.54	< LOD	44,812.23	64,356.73	< LOD	< LOD	4,050.22	2,528.03	149.66	< LOD	< LOD	572.16	75.88
10/6/2008 15:42	69	T9	38 Native - Dry	26.39	100.46	< LOD	266.67	116.93	< LOD	< LOD	< LOD	9,879.50	14,220.17	< LOD	< LOD	18,436.07	6,173.88	< LOD	< LOD	< LOD	2,369.62	120.98
10/6/2008 15:47	70	T9	40 Native - Saturated	< LOD	< LOD	< LOD	239.20	24.66	15.57	< LOD	< LOD	3,574.38	4,223.27	351.38	< LOD	19,382.94	7,911.35	102.43	< LOD	< LOD	12,578.09	< LOD
10/6/2008 15:48	71	T9	Incomplete Reading	< LOD				< LOD	< LOD	< LOD		< LOD		< LOD	< LOD	25,142.72		< LOD	< LOD			
10/6/2008 15:51	73	T9	0-38 Tailings	< LOD	129.20	137.53	120.12	1,042.34	50.06	< LOD	< LOD	51,814.23	57,051.90	< LOD	< LOD	5,775.61	2,387.91	141.23	< LOD	40.82	630.45	66.78
10/6/2008 15:56	74	T10	36 Native	< LOD	< LOD	< LOD	250.40	14.43	< LOD	< LOD	< LOD	2,739.25	8,133.35	< LOD	< LOD	12,446.84	6,722.01	89.34	< LOD	< LOD	16,887.04	< LOD
10/6/2008 16:02	75	T10	0-34 Tailings	< LOD	< LOD	150.38	118.62	727.86	47.60	< LOD	< LOD	41,280.09	62,493.79	< LOD	< LOD	3,493.15	2,077.77	< LOD	< LOD	< LOD	540.19	79.89
10/6/2008 16:15	76	T11	Incomplete Reading	< LOD				50.10	< LOD	< LOD		5,678.23		< LOD	< LOD	19,269.95		450.84	< LOD			
10/6/2008 16:15	77	T11	Incomplete Reading	< LOD				555.60	< LOD	< LOD		17,815.38		< LOD	< LOD	19,384.80		592.84	< LOD			
10/6/2008 16:17	78	T11	55 Native	< LOD	96.39	< LOD	122.03	33.66	< LOD	< LOD	< LOD	5,254.70	9,447.16	< LOD	< LOD	20,986.04	9,652.71	458.39	< LOD	< LOD	2,492.63	105.39
10/6/2008 16:21	79	T11	0-50 Tailings	< LOD	< LOD	70.31	162.28	127.64	47.38	< LOD	< LOD	26,894.55	75,939.23	< LOD	< LOD	2,274.60	1,293.78	114.46	< LOD	< LOD	395.83	58.18
10/6/2008 16:25	80	T12	50 Native	< LOD	< LOD	< LOD	233.39	< LOD	< LOD	< LOD	< LOD	2,240.70	7,096.82	< LOD	< LOD	8,696.93	6,596.91	157.11	< LOD	< LOD	10,163.13	< LOD
10/6/2008 16:30	81	T12	0-36 Tailings	< LOD	< LOD	154.36	176.08	219.50	< LOD	< LOD	< LOD	55,418.46	68,727.20	< LOD	< LOD	3,880.46	1,335.65	< LOD	< LOD	< LOD	377.74	72.38
10/6/2008 16:34	82	T13	89-101 Native	< LOD	95.10	< LOD	238.49	< LOD	< LOD	< LOD	< LOD	1,001.08	5,549.86	< LOD	< LOD	17,699.55	9,151.07	105.33	< LOD	< LOD	2,987.86	< LOD
10/6/2008 16:41	83	T13	0-89 Tailings	< LOD	168.98	275.45	197.00	3,958.61	120.42	< LOD	< LOD	124,133.09	34,568.57	< LOD	< LOD	10,390.29	2,424.46	< LOD	< LOD	< LOD	514.12	104.86
10/6/2008 16:47	84	T14	18 Native	< LOD	< LOD	< LOD	234.47	10.95	< LOD	< LOD	< LOD	118.69	6,686.40	< LOD	< LOD	16,186.13	8,983.13	387.30	< LOD	< LOD	3,185.16	< LOD
10/6/2008 16:52	85	T14	0-6 Tailings	< LOD	< LOD	221.49	153.65	816.47	88.61	18.45	< LOD	66,464.41	33,749.59	< LOD	< LOD	7,701.39	2,474.68	289.58	< LOD	< LOD	606.48	75.98
10/6/2008 17:00	86	WR2	168 Interior Waste Rock	330.84	330.07	187.23	237.87	9,977.97	< LOD	33.78	123.68	80,033.29	61,294.88	< LOD	3,981.78	23,911.01	5,428.16	2,655.98	< LOD	261.66	2,651.52	< LOD
10/6/2008 17:04	87	WR2	Surficial Grab - West	< LOD	540.87	125.33	239.44	9,949.21	< LOD	23.32	228.13	46,050.58	61,865.35	< LOD	3,068.97	23,403.11	5,489.97	2,318.25	< LOD	386.39	3,149.30	< LOD
10/6/2008 17:08	88	WR2	24-26 Grab - East	< LOD	429.89	94.77	231.24	5,852.30	< LOD	18.78	104.98	40,575.11	62,116.54	< LOD	2,545.54	17,603.18	6,258.75	2,085.02	< LOD	274.34	3,210.40	< LOD
10/7/2008 8:34	90	WR3	Waste Rock Surface	327.75	< LOD	94.84	246.30	7,839.42	< LOD	< LOD	< LOD	80,563.53	71,836.96	< LOD	< LOD	11,583.00	909.92	325.82	< LOD	< LOD	574.09	90.05
10/7/2008 8:41	91	WR3	Incomplete Reading	346.52				6,120.66	< LOD	< LOD		43,198.75		< LOD	< LOD	6,434.50		211.82	< LOD			
10/7/2008 8:42	92	WR3	18 Waste Rock	401.01	217.10	130.72	169.83	4,313.93	< LOD	< LOD	< LOD	29,672.65	62,006.43	< LOD	< LOD	5,213.25	< LOD	262.81	< LOD	67.98	349.94	< LOD
10/7/2008 10:17	93	T15	26 Native	< LOD	180.50	< LOD	148.83	52.14	< LOD	< LOD	< LOD	358.64	6,312.93	< LOD	< LOD	25,890.55	11,879.14	505.44	< LOD	< LOD	4,008.94	< LOD
10/7/2008 10:36	94	T15	Incomplete Reading	< LOD				< LOD	< LOD	< LOD		1,188.94		< LOD	< LOD	< LOD		< LOD	< LOD			
10/7/2008 10:41	95	T15	0-26 Tailings	< LOD	219.95	211.92	185.28	731.74	< LOD	< LOD	< LOD	68,204.14	43,457.20	< LOD	< LOD	5,347.99	1,676.22	< LOD	< LOD	39.60	417.92	70.42
10/7/2008 11:02	96	T15B	14 Native	< LOD	< LOD	< LOD	155.76	61.15	< LOD	< LOD	< LOD	1,803.43	15,364.62	< LOD	< LOD	21,345.53	14,603.38	513.46	< LOD	< LOD	3,353.59	< LOD
10/7/2008 11:06	97	T15B	0-14 Tailings	< LOD	< LOD	261.41	230.41	1,085.03	< LOD	< LOD	< LOD	86,757.08	35,377.15	< LOD	< LOD	8,723.44	2,342.31	330.97	< LOD	< LOD	914.10	95.79
Creek Bank (Hand-Augered)																						
10/7/2008 11:37	98	CB1A	24 Native	< LOD	< LOD	< LOD	222.33	11.92	< LOD	< LOD	< LOD	2,262.72	15,188.25	< LOD	< LOD	8,094.39	6,312.43	< LOD	< LOD	< LOD	1,750.47	< LOD
10/7/2008 11:44	99	CB1A	6-22 Tailings (vegetated)	< LOD	94.84	78.35	155.61	402.78	< LOD	< LOD	< LOD	31,621.52	63,517.24	< LOD	< LOD	1,907.16	< LOD	223.40	< LOD	< LOD	206.96	58.15
10/7/2008 12:02	100	CB1B	14 Native	11.59	< LOD	< LOD	284.40	30.06	< LOD	< LOD	< LOD	2,528.68	5,116.26	< LOD	< LOD	14,250.11	4,315.89	125.90	< LOD	< LOD	4,234.95	< LOD
10/7/2008 12:08	101	CB1B	0-14 Tailings (vegetated)	< LOD	< LOD	85.91	232.83	1,205.02	< LOD	< LOD	< LOD	38,367.97	50,472.76	< LOD	< LOD	3,434.15	655.31	142.62	< LOD	< LOD	1,123.75</	

Table 5
Summary of Waste Rock and Tailings Sample Analytical Data - Metals
Josephine Mill No. 1
Metaline, Washington

Sample Location	Sample Material Type and Depth	Total Metals ⁽¹⁾																						
		Arsenic (As)	Barium (Ba)	Cadmium (Cd)	Chromium (Cr)	Lead (Pb)	Mercury (Hg)	Selenium (Se)	Silver (Ag)	Zinc (Zn)	Aluminum (Al)	Antimony (Sb)	Beryllium (Be)	Calcium (Ca)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Magnesium (Mg)	Manganese (Mn)	Nickel (Ni)	Potassium (K)	Sodium (Na)	Thallium (Tl)	Vanadium (V)
WR1	Waste Rock - Composite from WR1A and WR1B from 0" to 32"	3.84	69.1	6.24	8.16	106	0.214	ND	ND	1,340	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR2	Waste Rock - Composite of 5 test pit sidewall subsample composites from surface to 168 " (14' depth)	33.90	18.1	318	10.8	11,500	1.44	13	115	53,400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR3	Waste Rock - Composite made up of 3 test pit sidewall subsample composites from surface to 18 "	11.90	28	229	6	9,090	3.85	3.57	ND	68,600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ROW1	Tailings - Composite from surface to 22"	6.78	66.5	47.1	9.19	1,790	1.2	ND	ND	13,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
T1	Tailings - Composite from test pit sidewallsubsamples from T1A, T1B & T1C from surface to 68"	8.95	43.7	286	2.23	20,400	14.8	5.25	3.02	85,200	2,100	13.1	ND	230,000	1.22	143	10,000	31,400	297	7.85	127	59.8	ND	14.2
T1B	Tailings-Composite from surface to 53"	7.09	36	552	3.63	4,170	10.6	3.59	ND	144,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
T2	Tailings - Composite from surface to 43"	17.70	24	373	2.85	60,000 J	11.9	6.09	9.26 J	162,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dup-2	Tailings - Composite from surface to 43" (blind field duplicate of T2)	12.90	20.6	367	2.29	18,100 J	13.7	6.49	2.37 J	133,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
T3	Tailings - Composite from surface to 46"	5.58	4.37	146	1.89	485	2.73	6.68	ND	46,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
T4	Tailings - Composite from surface to 52"	5.27	7	200	1.45	2,170	3.15	6.1	ND	68,600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
T5	Tailings - Composite from surface to 132"	4.68	6.01	117	1.54	481	2.85	6.02	ND	36,900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
T6	Tailings - Composite from surface to 68"	5.99	6.66	181	1.94	561	4.12	5.09	ND	59,900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
T7	Tailings - Composite from surface to 126"	4.23	4.41	141	2.75	660	3.85	5.11	ND	45,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
T8	Tailings - Composite from surface to 102"	6.83	7.53	206	1.81	941	4.52	5.4	ND	62,900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
T9	Tailings - Composite from surface to 40"	5.27	8.49	162	2.22	1,280	4.61	6.07	ND	56,900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
T10	Tailings - Composite from surface to 34"	6.81	10.9	277	2.79	1,090	11	5.08	ND	83,600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
T11	Tailings - Composite from surface to 55"	4.64	4.12	165	0.788	518	5.02	5.86	ND	59,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
T12	Tailings - Composite from surface to 50"	7.55	8.35	298	2.24	799	9.89	5.14	ND	93,900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
T13	Tailings - Composite from surface to 89"	11.60	12.2	352	4.57	3,730	26.4	3.4	0.647	98,000	1,140	ND	ND	51,600	0.941	67.7	4,710	22,100	164	5.89	244	ND	NA	18.1
Dup-1	Tailings - Composite from surface to 89" (blind field duplicate of T13)	11.90	14.7	371	4.64	3,270	38.1	ND	ND	107,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
T14	Tailings - Composite from surface to 6"	8.22	20.6	257	4.55	1,030	11.8	3.37	ND	86,800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
T15	Tailings - Composite from surface to 26"	8.21	18	289	3.82	1,090	13	3.44	ND	96,600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dump-Comp	Tailings - Composite from surface to 16"	9.72	16	143	6.29	12,900	4.86	ND	ND	57,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CB1	Tailings - Composite from 3 hand-auger boring subsample composites from surface to 22"	8.59	7.86	197	3.34	701	2.02	6.55	ND	60,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MTCA - Soil, Method A, Unrestricted Land Use		20	NS	2	19 ⁽²⁾ /2,000 ⁽³⁾	250	2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MTCA - Soil, Method B, Unrestricted Land Use [Non-carcinogen-Direct Contact - ingestion only]		24	16,000	80	NS	NS	24	NS	NS	24,000	NS	32	160	NS	NS	3,000	NS	NS	11,000	1,600	NS	NS	NS	NS
Washington State Natural Background Soil Metals Concentrations (Ecology, 1994)		6	No Data	1	38	10	0	No Data	No Data	67	25,591	No Data	No Data	No Data	No Data	26	29,631	No Data	527	No Data	No Data	No Data	No Data	No Data

Notes:

(1) Total Metals – Mercury analyzed using EPA Method 7471, other metals Metals analyzed using EPA Method 6010C,

(2) Chromium VI

(3) Chromium III

(4) Screening Level for elemental mercury

(5) Screening Level for mercury, inorganic salts

NS No Standard Available

ND not detected above laboratory method reporting limit

NA constituent not analyzed

J The associated analytical result is an approximation of the analyte in the sample; see Data Validation Summary for details.

All concentrations reported in milligrams per kilogram (mg/kg) or parts per million (ppm)

Concentrations shown in **Bold** indicate exceedance of the MTCA - Soil Method B Unrestricted Land Use cleanup levels or MTCA Method A Unrestricted Land Use

Table 6
Summary of RCRA 8 Metals plus Zinc in Tailings
Josephine Mill No. 1
Metalline, Washington

Sample Location	RCRA 8 Metals ⁽¹⁾								Zinc (Zn)
	Arsenic (As)	Barium (Ba)	Cadmium (Cd)	Chromium (Cr)	Lead (Pb)	Mercury (Hg)	Selenium (Se)	Silver (Ag)	
TIB	7.09 J	35.5 J	552 J	3.63 J	4,170 J	10.6 J	3.59 J	ND J	144,000
Dump-Comp	9.72 J	16.3 J	143 J	6.29 J	12,900 J	4.86 J	ND J	ND J	57,200
MTCA-Soil, Method A Unrestricted Land Uses	20	NS	2	19 ⁽²⁾ 2,000 ⁽³⁾	250	2	NS	NS	NS
MTCA-Soil, Method B Unrestricted Land Uses	24	16,000	80	NS	NS	24	NS	NS	24,000

Notes:

(1) RCRA 8 Metals analyzed using EPA Method 6010C, mercury analyzed using EPA Method 7471

(2) Chromium VI

(3) MTCA Method A Clean up Levels for Chromium III

(4) MTCA Method B Soil Cleanup Level, Non Carcinogenic, for Unrestricted Land Use, direct contact (by ingestion only) obtained from CLARC online database

ND not detected above laboratory method reporting limit

NS No Standard Available

J The associated analytical result is an approximation of the analyte in the sample; see Data Validation summary for Details

All concentrations reported in milligrams per kilogram (mg/kg) or parts per million (ppm)

Concentrations shown in **Bold** indicated exceedance of clean up level

Table 7
Summary of Sediment Analytical Data - Metals
Josephine Mill No. 1
Metaline, Washington

Sample Name	Flume Creek Location	Total Metals ⁽¹⁾																						
		Arsenic (As)	Barium (Ba)	Cadmium (Cd)	Chromium (Cr)	Lead (Pb)	Mercury (Hg)	Selenium (Se)	Silver (Ag)	Zinc (Zn)	Aluminum (Al)	Antimony (Sb)	Beryllium (Be)	Calcium (Ca)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Magnesium (Mg)	Manganese (Mn)	Nickel (Ni)	Potassium (K)	Sodium (Na)	Thallium (Tl)	Vanadium (V)
FC1-Sed	Upgradient Property Boundary	ND	32.2	0.84	14	67.7	ND	ND	ND	130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FC2-Sed	On-site	ND	26.7	0.984	12.4	57	ND	ND	ND	109	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Consensus-Based Threshold Effect Concentrations (CB TEC) ⁽²⁾		9.79	NS	0.99	43.4	35.8	0.18	NS	NA	121	NS	NS	NS	NS	NS	31.6	NS	NS	NS	22.7	NS	NS	NS	NS
Washington State Natural Background Soil Metals Concentrations (Ecology, 1994)		5.76	No Data	0.81	37.80	9.85	0.02	NS	No Data	67.47	25,591	No Data	No Data	No Data	No Data	26.42	29,631	No Data	526.59	No Data	No Data	No Data	No Data	No Data
NOAA Screening Quick Reference Tables ⁽³⁾ Threshold Effect Concentrations (TEC)		9.79	NS	0.99	43.4	35.8	0.18	NS	NS	121	NS	NS	NS	NS	NS	31.6	NS	NS	NS	22.7	NS	NS	NS	NS

Notes:
(1) Total Metals = Mercury analyzed using EPA Method 7471, other metals analyzed using EPA Method 6010C
(2) MacDonald, D.D. et al. 2000. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems
(3) Buchman, M.F., 2008. NOAA Screening Quick Reference Tables, NOAA OR&R Report 08-1, Seattle WA, Office of Response and Restoration [sic] Division, National Oceanic and Atmospheric Administration, 34 pages

ND not detected above laboratory method reporting limit
NA constituent not analyzed
NS No standard available
All concentrations reported in milligrams per kilogram (mg/kg) or parts per million (ppm)
Concentrations shown in **Bold** indicate exceedance of a the CB TEC value

Table 8
Summary of Analytical Data - Surface Water from Flume Creek - Metals
Josephine Mill No. 1
Metaline, Washington

	Sample Name	Flume Creek Location	Metals ⁽¹⁾								
			Arsenic (As)	Barium (Ba)	Cadmium (Cd)	Chromium (Cr)	Lead (Pb)	Mercury (Hg)	Selenium (Se)	Silver (Ag)	Zinc (Zn)
Total Metals	FC1	Upgradient Property Boundary	ND < 1	13.8	ND < 2	ND < 8	1.38 J	ND < 0.2	ND < 1	ND < 10	17.0
	FC2	On-site	ND < 1	11.8	ND < 2	ND < 8	ND < 1	ND < 0.2	ND < 1	ND < 10	19.2
Dissolved Metals	FC1	Upgradient Property Boundary	ND < 1	12.6	ND < 2	ND < 8	ND < 1	ND < 0.2	ND < 1	ND < 10	ND < 10
	FC2	On-site	ND < 1	11.9	ND < 2	ND < 8	1.88	ND < 0.2	ND < 1	ND < 10	31.9
Clean-Up Levels and Risk Calculation (CLARO) Summary Surface Water	MTCA Method B Standard Formula Value	Carcinogen	0.098	NS	NS	NS	NS	NS	NS	NS	NS
	MTCA Method B Standard Formula Value	Non-Carcinogen	18	NS	20	240,000 ⁽²⁾ 490 ⁽³⁾	NS	NS	2,700	26,000	17,000
	MTCA Method C Standard Formula Value	Carcinogen	2.5	NS	NS	NS	NS	NS	NS	NS	NS
	MTCA Method C Standard Formula Value	Non-Carcinogen	44	NS	51	610,000 ⁽²⁾ 1200 ⁽³⁾	NS	NS	6,800	65,000	41,000
	ARAR Aquatic Life	Fresh/Acute Ch. 173-201A WAC	360	NS	0.82	180 ⁽²⁾ 15 ⁽³⁾	14	2.1	20	0.32	35
	ARAR Aquatic Life	Fresh/Chronic Ch. 173-201A WAC	190	NS	0.37	57 ⁽²⁾ 10 ⁽³⁾	0.54	0.012	5	NS	32
	ARAR Aquatic Life	Fresh/Acute National Toxics Rule - 40 CFR 131	360	NS	3.9	550 ⁽²⁾ 15 ⁽³⁾	65	2.1	20	3.4	110
	ARAR Aquatic Life	Fresh/Chronic National Toxics Rule - 40 CFR 131	190	NS	1	180 ⁽²⁾ 10 ⁽³⁾	2.5	0.012	5	NS	100
	ARAR Human Health	Fresh Water National Toxics Rule - 40 CFR 131	0.018	NS	NS	NS	NS	0.14	NS	NS	NS

Notes:

(1) Total & Dissolved Metals analyzed using EPA Method 200.7 for barium, cadmium, chromium, silver, and zinc;
EPA Method 245.1 for mercury; EPA Method 200.8 for arsenic, lead, and selenium

(2) Chromium III

(3) Chromium VI

ND not detected above laboratory method reporting limit (MRL)

NS No standard available

J The associated analytical result is an approximation of the analyte in the sample; see Data Validation Summary for detail:

All concentrations reported in micrograms per liter (µg/L) or parts per billion (ppb)

Concentrations shown in **Bold** indicated exceedance of cleanup level

Table 9
Summary of Soil Analytical Data - SVOCs, VOC, PCBs, PAHs
Josephine Mill No. 1
Metalline, Washington

Parameter (and Method of Analysis)		Diesel Range Organics (DRO) (NWTPH-Dx)	Heavy Oil Range Organics (HRO) (NWTPH-Dx)	Semi Volatile Organic Compounds (SVOC) (EPA 8270C)	Volatile Organic Compounds (VOCs) (EPA 8260B)	Polychlorinated bi-phenols (PCB) (EPA 8082)	Polynuclear Aromatic Hydrocarbons (PAHs)	
							Non-carcinogenic PAHs (EPA 8270C)	Carcinogenic PAHs (TTEC) ⁽¹⁾ (EPA 8270C)
Sample Name	Location and Depth							
TIB Composite	Tailings Composite from surface to 53"	175 J	463 J	ND J	ND J	ND J	Chrysene: 0.0164 J	0.0177
Dump-Comp	Tailings Composite from surface to 16"	ND J	1,120 J	ND J	ND J	ND J	ND J	0.0387
MTCA Method A Soil Cleanup Level for Unrestricted Land Uses		2,000	2,000	0.1 - 5	0.02 - 7	1	5	0.1
MTCA, Method B Soil Clean up Level, Carcinogen, Standard Formula, Direct Contact (ingestion only), Unrestricted Land Use		NS	NS	0.0043 - 1,100	0.11 - 350	0.5	NS	0.14
MTCA, Method B Soil Cleanup Level, Non-Carcinogen, Standard Formula Value, Direct Contact (ingestion only), Unrestricted Land Use		NS	NS	16 - 320,000	16 - 110,000	1.6 - 5.6	1,600 - 24,000	NS

Notes (1) TTEC = Total Toxicity Equivalent Concentration = $\sum C_n \cdot \text{TEF}_n$, where C = concentration of carcinogenic PAH (cPAH)_n (or MRL if ND), TEF = Toxic Equivalency Factor of cPAH_n
ND not detected above laboratory method reporting limit
NA constituent not analyzed
NS No standard available
J The associated analytical result is an approximation of the analyte in the sample; see Data Validation Summary for details.
All concentrations reported in milligrams per kilogram (mg/kg) or parts per million (ppm)
Concentrations shown in **Bold** indicates exceedance of cleanup level

Calculation of Total Toxicity Equivalent Concentration (TTEC)

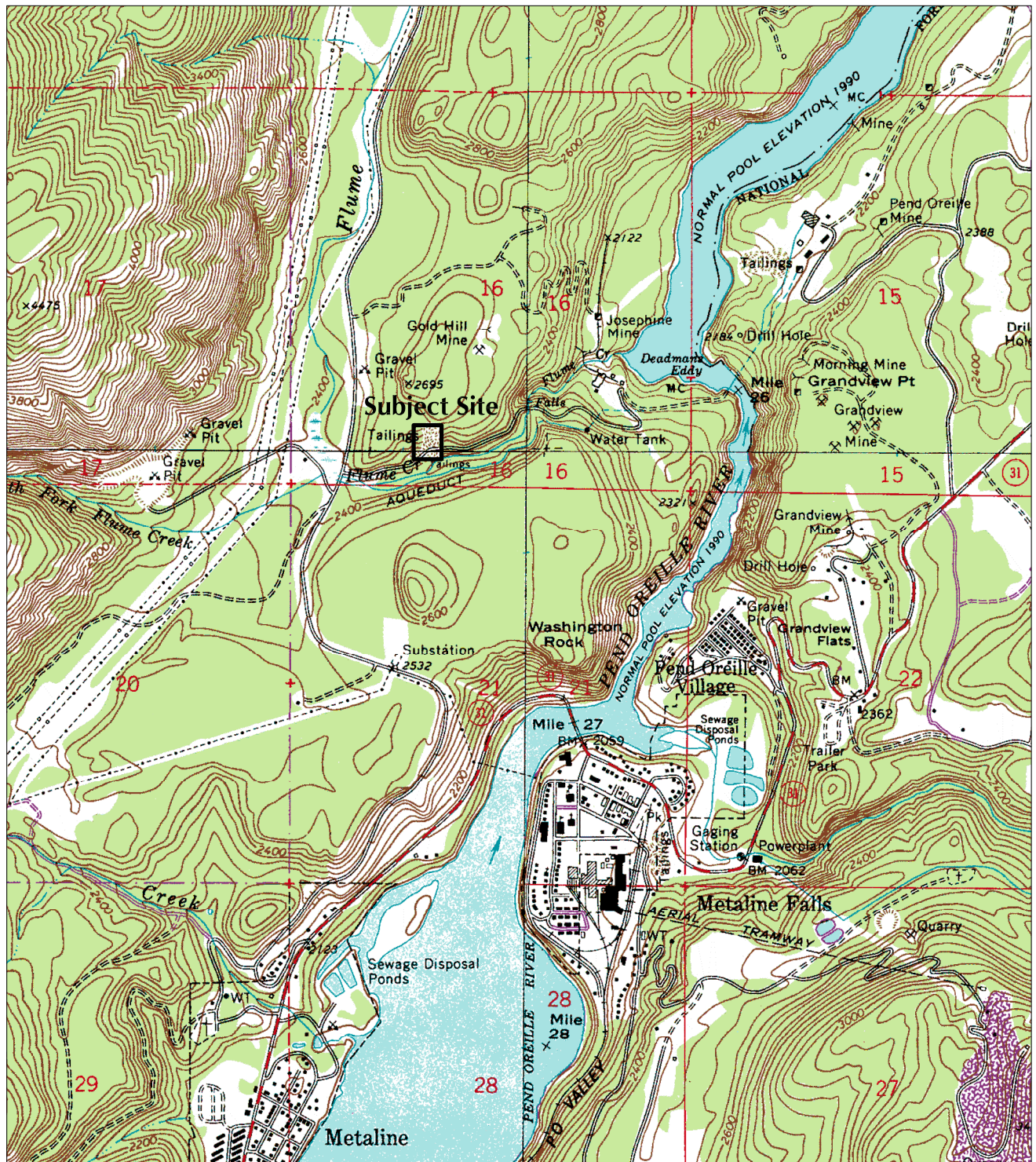
Toxicity Equivalency Factor TEF Table 708-2, page 233 MTCA	Sample:	TIB	Dump-comp
	c-PAH	measured value or MRL if ND	measured value or MRL if ND
0.1	Benzo(a)anthracene	0.0117	0.0256
1	Benzo(a)pyrene	0.0117	0.0256
0.1	Benzo(b)fluoranthene	0.0117	0.0256
0.1	Benzo(k)fluoranthene	0.0117	0.0256
0.01	Chrysene	0.0164	0.0256
0.1	Dibenz(a,h)anthracene	0.0117	0.0256
0.1	Indeno(1,2,3cd)pyrene	0.0117	0.0256
Total Toxicity Equivalent Concentration (TTEC)		0.0177	0.0387
Clean-up level = 0.14 mg/kg		compliant	compliant

Table 10
Summary of Estimated Mine Waste Volumes
Josephine Mill No. 1
Metalline, Washington

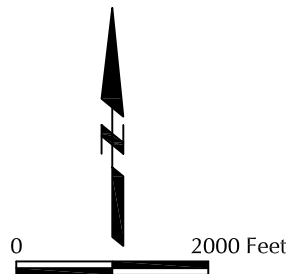
Geographic Location	Higher Concentration Volume	Lower Concentration Volume	Total Volume
Upper Portion	1,200	0	1,200
Access Road	0	700	700
Lower Portion	660	9,400	10,060
Totals	1,860	10,100	11,960

Notes:

- (1) All volumes in cubic yards.
- (2) Higher Concentration wastes contain lead concentrations $\geq 3,000$ mg/kg
- (3) Lower Concentration wastes contain lead concentrations $< 3,000$ mg/kg



Map Source: USGS 7.5 Topographic Maps: Abercrombie Mountain, Boundary Dam, Metaline Falls, and Metaline, Washington (1986)



Site Vicinity Map

Site Investigation Report

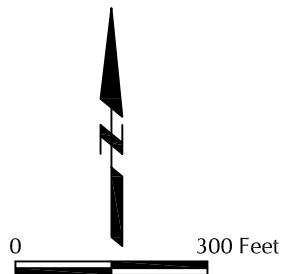
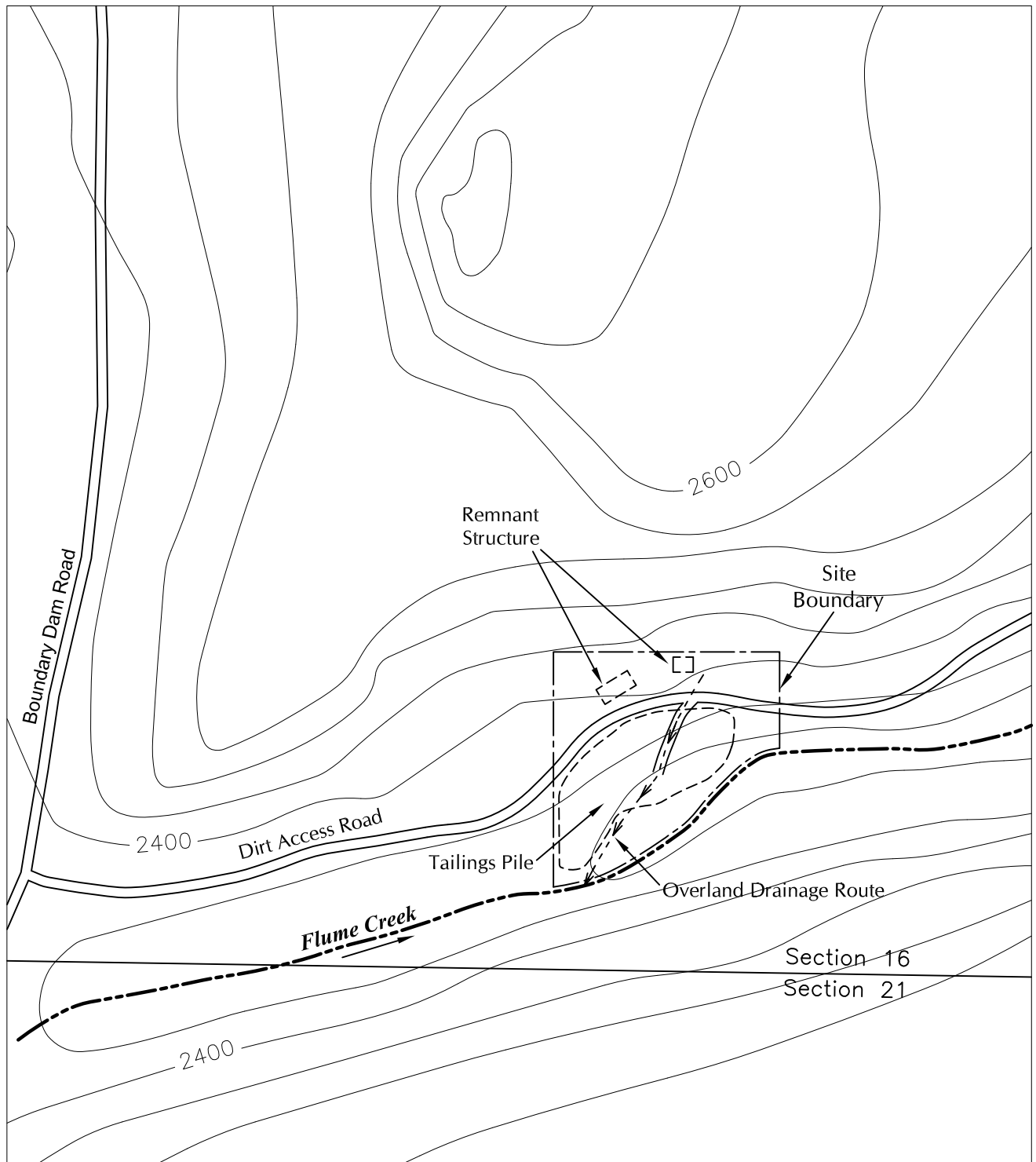
Josephine Mill No. 1

S1/2, SW1/4, Section 16, T39N R43E

Metaline Falls, Washington

Figure 1

LFPublic0271301791001***JosephineMillSiteInvestigationReportFigures.pdf 042109



Site Map
 Site Investigation Report
 Josephine Mill No. 1
 S1/2, SW1/4, Section 16, T39N R43E
 Metaline Falls, Washington

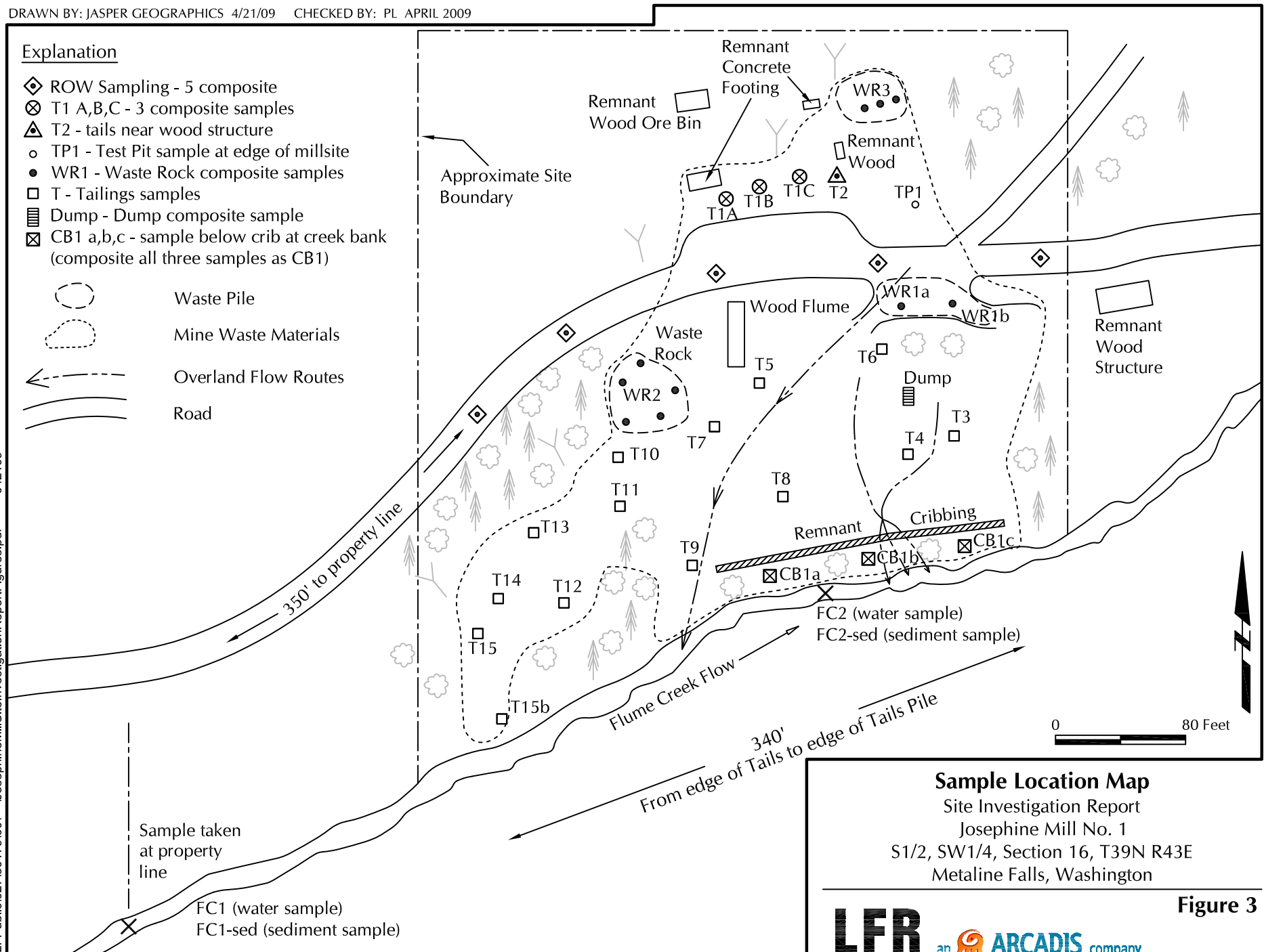


Figure 3

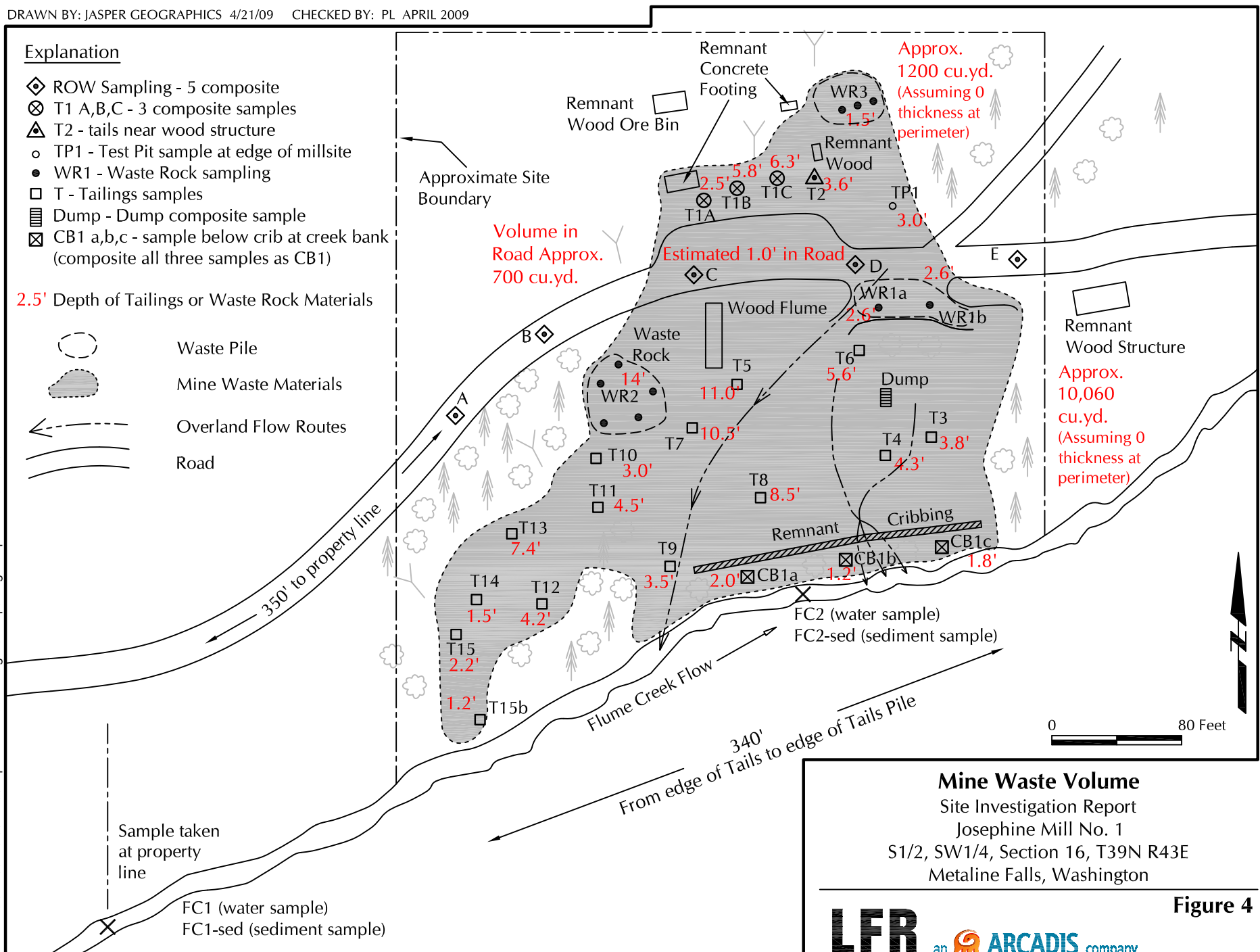


Figure 4

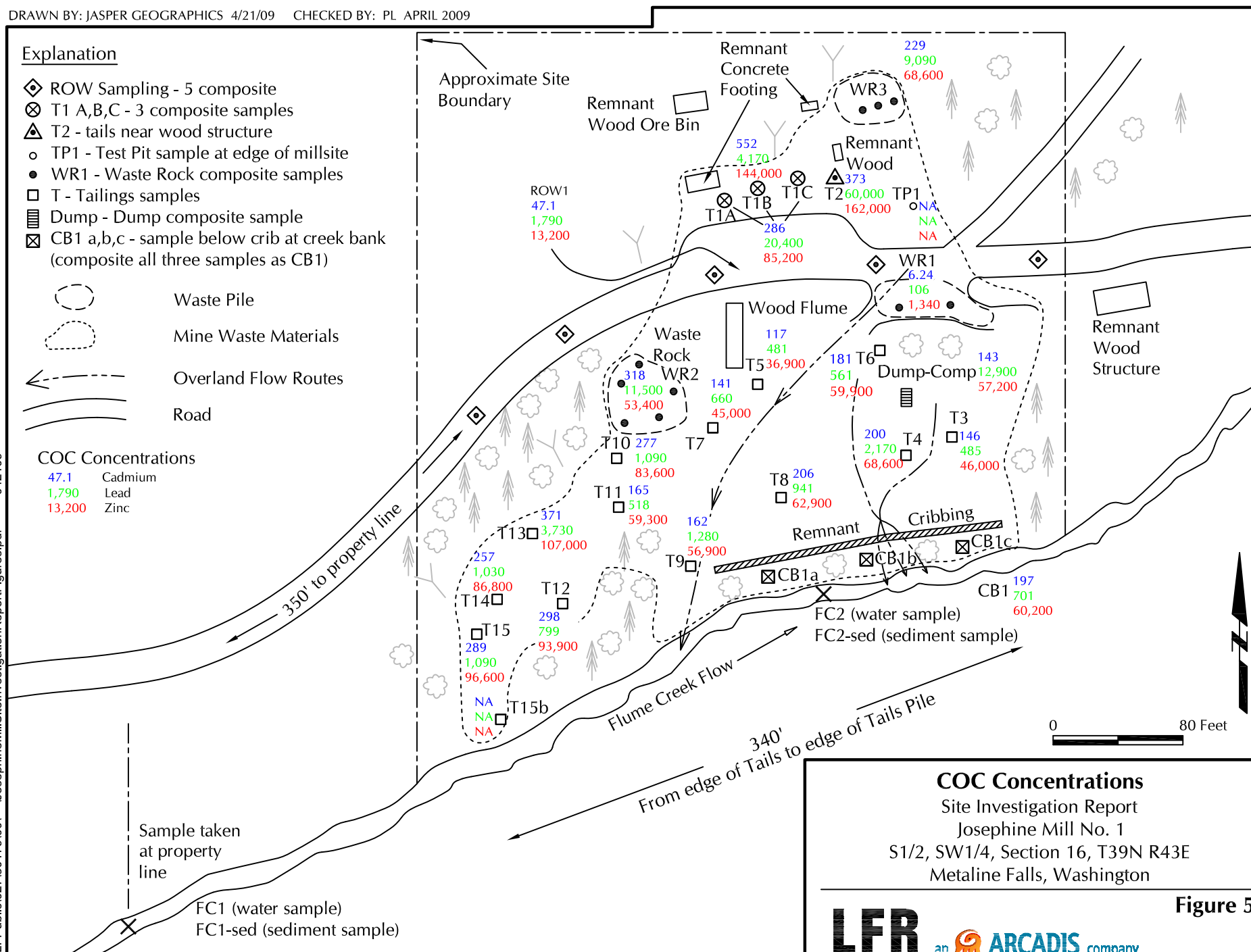


Figure 5

Appendix A

Sample Alteration Form

Project Name: Josephine Mill No. 1

Project Number: 027-30179-00

Materials to be sampled: Mine materials from historic milling operations to include, waste rock, tailings, concentrates, stream bank sediments, and surface water from Flume Creek.

Measurement Parameter:

Field sample collection and laboratory analyses performed in accordance with the approved Site Investigation Work Plan (SIWP), field sampling and analysis Plan (FSP) and Quality Assurance Project Plan (QAPP). Field screening of 23 Target Analyte List (TAS) metals with the ThermoscientificNiton®XL3P x-ray fluorescence (XRF) instrumentation followed by laboratory analyses for total metals by EPA Method 6010B and 7000 Series. Three tailing samples analyzed for polychlorinated bi-phenyls (PCBs) EPA Method 8082A, volatile organic compounds (VOCs) by EPA Method 8260B, and semi-volatile organic compounds (SVOCs) by EPA Method 8270C to include NWTPH-Dx and Polynuclear aromatic hydrocarbons (PAHs). Two Sediment samples to be analyzed by the above identified methods. Two surface water samples to be analyzed for total dissolved metals. Two field duplicate mine waste samples to be collected and analyzed for the above-listed methods.

Standard procedures for field collection & laboratory analyses:

2008. *Revised Site Investigation Work Plan, Josephine Mill No. 1 Property Metaline Falls, Washington*. Prepared by LFR Inc. October 3.

Reason for Change/Variation in Field or Analytical Procedures:

1. The field screening density of (1) sample per 4,000 square-feet (sf) was not maintained, but was increased to a more conservative screening density of a minimum of one reading and/or one sample per 3,000 sf. Eighty-five (83) XRF readings were collected at 34 locations over an area of 340 feet by 300 feet or 102,000 sf. The average field screening density was every 3,000 sf. A total of 83 XRF readings were collected, which include readings from native underlying soils, to vertically composited sidewall samples of like mine materials at each of the 34 locations.
2. The MRL reported by TestAmerica for SVOC analyses was not 0.05 mg/kg as specified in the approved SIWP. In general, reported MRLs ranged from 0.3 to 0.6 mg/kg. The reported MRL for VOCs ranged from 0.129 mg/kg to 0.198 mg/kg.

The MDLs were not provided in TestAmerica's data package (Appendix B), but are typically lower than MRLs reported.

3. The only Investigation-Derived Waste (IDW) generated during the screening and sampling activities was approximately 50 pairs of latex gloves which were determined to be less than 25 gallons or 220 pounds and is within the conditionally exempt small quantity generator (CESQG) exemption criteria from hazardous waste regulation. The gloves were double bagged and disposed of at the municipal solid waste landfill as non-hazardous CESQG solid waste.
4. Two mine waste material (soil) samples were analyzed for NWTPH-Dx, PAHs, VOCs, SVOCs and PCBs instead of the three samples proposed. Only two areas visually observed (T1B and Dump Site) in the field to be potentially impacted with constituents of potential concern (COPCs) other than metals are described as follows:
 - Sample T1B was field located in the general footprint and/or vicinity of the former mill operations and mechanical systems. This location was determined to be most likely to be impacted by hazardous and/or petroleum substances from mill process operations.
 - Based on the visual observation of miscellaneous debris and containers located in the vicinity of the area identified as the Dump Site. Sample "Dump site" was collected to assess impacts from hazardous and/or petroleum substances. No visual or olfactory evidence of petroleum hydrocarbon were observed to be present at the time of the SI.
5. Sample nomenclature proposed in Sections 3.1 of the FSP were not utilized in the field. Each XRF screening and sample location corresponded to a test pit excavation, sediment or surface water sample location and was identified by a unique designation as follows:

T – numeric designation : screening location and test pit in mill tailings

T – numeric and alpha designations (ie. T1A) indicate subsamples that make up one composite sample from the tailings material

WR – numeric designation: screening location and test pit in waste rock

WR – numeric and alpha designation indicate (i.e. WR1a) indicate subsamples that make up a composite sample.

ROW – numeric designation: screening locations in road or right-of-way

CB – numeric and alpha designation: (i.e. CB1a) indicates subsamples that make up one composite sample from tailings in the Creek Bank

Dump – indicates the sample(s) collected from the dump site

FC – numeric indicates sediment and surface water samples collected from Flume Creek

The depth of the sample collected or XRF reading were not added to each of the above designations, but are instead reported in the narrative and tables.

6. Visual observation of the mine-tailings materials were observed to be relatively homogeneous (color, texture and lack of stratification) in appearance hence “hot spot” screening was not necessary. Elevated XRF readings (up to 10 times or one order of magnitude higher than surrounding mine-contaminated soils) were found to be present in the general vicinity of the former mill operations located north of the road as anticipated.

Special Equipment, Materials or Personnel Required: None

Field Engineer: _____ Date _____

Project Manager: _____ Date _____

QA/QC: _____ Date _____

October 24, 2008

Paula Lyon
LFR, Inc.
2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

RE: Josephine Mill

Enclosed are the results of analyses for samples received by the laboratory on 10/10/08 11:50.
The following list is a summary of the Work Orders contained in this report, generated on 10/24/08 13:59.

If you have any questions concerning this report, please feel free to contact me.

<u>Work Order</u>	<u>Project</u>	<u>ProjectNumber</u>
SRJ0068	Josephine Mill	0273017900

TestAmerica Spokane



Randee Decker, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name:

Josephine Mill

Project Number:

0273017900

Project Manager:

Paula Lyon

Report Created:

10/24/08 13:59

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FC1	SRJ0068-01	Water	10/07/08 09:40	10/10/08 11:50
FC1-Sed	SRJ0068-02	Soil	10/07/08 09:50	10/10/08 11:50
FC2	SRJ0068-03	Water	10/07/08 09:10	10/10/08 11:50
FC2-Sed	SRJ0068-04	Soil	10/07/08 09:20	10/10/08 11:50
Dup - 1	SRJ0068-05	Soil	10/07/08 17:00	10/10/08 11:50
Dup - 2	SRJ0068-06	Soil	10/07/08 17:05	10/10/08 11:50
WR1	SRJ0068-07	Soil	10/06/08 14:30	10/10/08 11:50
WR2	SRJ0068-08	Soil	10/06/08 11:20	10/10/08 11:50
WR3	SRJ0068-09	Soil	10/07/08 09:45	10/10/08 11:50
Row1	SRJ0068-10	Soil	10/06/08 10:20	10/10/08 11:50
T1	SRJ0068-11	Soil	10/06/08 10:38	10/10/08 11:50
T2	SRJ0068-12	Soil	10/06/08 12:08	10/10/08 11:50
T3	SRJ0068-13	Soil	10/06/08 14:45	10/10/08 11:50
T4	SRJ0068-14	Soil	10/06/08 14:50	10/10/08 11:50
T5	SRJ0068-15	Soil	10/06/08 15:05	10/10/08 11:50
T6	SRJ0068-16	Soil	10/06/08 15:15	10/10/08 11:50
T7	SRJ0068-17	Soil	10/06/08 15:30	10/10/08 11:50
T8	SRJ0068-18	Soil	10/06/08 15:45	10/10/08 11:50
T9	SRJ0068-19	Soil	10/06/08 16:00	10/10/08 11:50
T10	SRJ0068-20	Soil	10/06/08 16:10	10/10/08 11:50
T11	SRJ0068-21	Soil	10/06/08 16:30	10/10/08 11:50
T12	SRJ0068-22	Soil	10/06/08 16:35	10/10/08 11:50
T13	SRJ0068-23	Soil	10/06/08 16:45	10/10/08 11:50
T14	SRJ0068-24	Soil	10/06/08 16:55	10/10/08 11:50
T15	SRJ0068-25	Soil	10/07/08 10:45	10/10/08 11:50
CB1	SRJ0068-26	Soil	10/07/08 12:00	10/10/08 11:50

TestAmerica Spokane



Randee Decker, Project Manager

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LFR, Inc.	Project Name: Josephine Mill	Report Created:
2310 N. Molter Rd. Suite 101	Project Number: 0273017900	10/24/08 13:59
Liberty Lake, WA 99019	Project Manager: Paula Lyon	

Total Metals by EPA 200 Series Methods

TestAmerica Spokane

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
SRJ0068-01 (FC1)	Water		Sampled: 10/07/08 09:40							
Barium	EPA 200.7	0.0138	----	0.00800	mg/l	1x	8100146	10/20/08 07:43	10/20/08 17:33	
Cadmium	"	ND	----	0.00200	"	"	"	"	"	
Chromium	"	ND	----	0.00800	"	"	"	"	"	
Mercury	EPA 245.1	ND	----	0.000200	"	"	8100088	10/14/08 06:44	10/14/08 10:35	
Silver	EPA 200.7	ND	----	0.0100	"	"	8100146	10/20/08 07:43	10/20/08 15:56	
Zinc	"	0.0170	----	0.0100	"	"	"	"	10/20/08 17:33	
SRJ0068-03 (FC2)	Water		Sampled: 10/07/08 09:10							
Barium	EPA 200.7	0.0118	----	0.00800	mg/l	1x	8100146	10/20/08 07:43	10/20/08 17:43	
Cadmium	"	ND	----	0.00200	"	"	"	"	"	
Chromium	"	ND	----	0.00800	"	"	"	"	"	
Mercury	EPA 245.1	ND	----	0.000200	"	"	8100088	10/14/08 06:44	10/14/08 10:42	
Silver	EPA 200.7	ND	----	0.0100	"	"	8100146	10/20/08 07:43	10/20/08 16:01	
Zinc	"	0.0192	----	0.0100	"	"	"	"	10/20/08 17:43	

TestAmerica Spokane



Randee Decker, Project Manager

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LFR, Inc. 2310 N. Molter Rd. Suite 101 Liberty Lake, WA 99019	Project Name: Josephine Mill Project Number: 0273017900 Project Manager: Paula Lyon	Report Created: 10/24/08 13:59
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Dissolved Metals by EPA 200 Series Methods

TestAmerica Spokane

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
SRJ0068-01 (FC1)		Water		Sampled: 10/07/08 09:40						
Barium	EPA 200.7	0.0126	----	0.00800	mg/l	1x	8100146	10/20/08 07:43	10/20/08 17:38	
Cadmium	"	ND	----	0.00200	"	"	"	"	"	
Chromium	"	ND	----	0.00800	"	"	"	"	"	
Mercury	EPA 245.1 mod	ND	----	0.000200	"	"	8100088	10/14/08 06:44	10/14/08 10:45	
Silver	EPA 200.7	ND	----	0.0100	"	"	8100146	10/20/08 07:43	10/20/08 15:58	
Zinc	"	ND	----	0.0100	"	"	"	"	10/20/08 17:38	
SRJ0068-03 (FC2)		Water		Sampled: 10/07/08 09:10						
Barium	EPA 200.7	0.0119	----	0.00800	mg/l	1x	8100146	10/20/08 07:43	10/20/08 17:48	
Cadmium	"	ND	----	0.00200	"	"	"	"	"	
Chromium	"	ND	----	0.00800	"	"	"	"	"	
Mercury	EPA 245.1 mod	ND	----	0.000200	"	"	8100088	10/14/08 06:44	10/14/08 10:47	
Silver	EPA 200.7	ND	----	0.0100	"	"	8100146	10/20/08 07:43	10/20/08 16:04	
Zinc	"	0.0319	----	0.0100	"	"	"	"	10/20/08 17:48	

TestAmerica Spokane



Randee Decker, Project Manager

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LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**

Project Number: 0273017900

Project Manager: Paula Lyon

Report Created:

10/24/08 13:59

Total Metals by EPA 6010/7000 Series Methods
TestAmerica Spokane

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
SRJ0068-02 (FC1-Sed)			Soil				Sampled: 10/07/08 09:50			
Arsenic	EPA 6010C	ND	----	3.29	mg/kg dry	1x	8100128	10/16/08 10:50	10/16/08 18:05	
Barium	"	32.2	----	0.657	"	"	"	"	"	
Cadmium	"	0.840	----	0.263	"	"	"	"	"	
Chromium	"	14.0	----	0.657	"	"	"	"	"	
Lead	"	67.7	----	1.97	"	"	"	"	10/21/08 15:08	
Mercury	EPA 7471	ND	----	0.0500	"	"	8100114	10/16/08 06:28	10/16/08 15:31	
Selenium	EPA 6010C	ND	----	3.29	"	"	8100128	10/16/08 10:50	10/16/08 18:05	
Silver	"	ND	----	0.657	"	"	"	"	10/17/08 11:36	
Zinc	"	130	----	0.657	"	"	"	"	10/21/08 15:08	
SRJ0068-04 (FC2-Sed)			Soil				Sampled: 10/07/08 09:20			
Arsenic	EPA 6010C	ND	----	2.90	mg/kg dry	1x	8100128	10/16/08 10:50	10/16/08 18:10	
Barium	"	26.7	----	0.581	"	"	"	"	"	
Cadmium	"	0.984	----	0.232	"	"	"	"	"	
Chromium	"	12.4	----	0.581	"	"	"	"	"	
Lead	"	57.0	----	1.74	"	"	"	"	10/21/08 15:13	
Mercury	EPA 7471	ND	----	0.0500	"	"	8100114	10/16/08 06:28	10/16/08 15:33	
Selenium	EPA 6010C	ND	----	2.90	"	"	8100128	10/16/08 10:50	10/16/08 18:10	
Silver	"	ND	----	0.581	"	"	"	"	10/17/08 11:39	
Zinc	"	109	----	0.581	"	"	"	"	10/21/08 15:13	
SRJ0068-05 (Dup - 1)			Soil				Sampled: 10/07/08 17:00			
Arsenic	EPA 6010C	11.9	----	3.43	mg/kg dry	1x	8100128	10/16/08 10:50	10/16/08 18:16	
Barium	"	14.7	----	0.686	"	"	"	"	"	
Cadmium	"	371	----	0.274	"	"	"	"	"	
Chromium	"	4.64	----	0.686	"	"	"	"	"	
Lead	"	3270	----	103	"	50x	"	"	10/21/08 15:17	
Mercury	EPA 7471	38.1	----	5.00	"	100x	8100114	10/16/08 06:28	10/17/08 10:52	
Selenium	EPA 6010C	ND	----	3.43	"	1x	8100128	10/16/08 10:50	10/16/08 18:16	
Silver	"	ND	----	0.686	"	"	"	"	10/17/08 11:42	
Zinc	"	107000	----	34.3	"	50x	"	"	10/21/08 15:17	

TestAmerica Spokane



Randee Decker, Project Manager

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LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**

Project Number: 0273017900

Project Manager: Paula Lyon

Report Created:

10/24/08 13:59

Total Metals by EPA 6010/7000 Series Methods

TestAmerica Spokane

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
SRJ0068-06 (Dup - 2)		Soil		Sampled: 10/07/08 17:05						
Arsenic	EPA 6010C	12.9	----	3.49	mg/kg dry	1x	8100128	10/16/08 10:50	10/16/08 18:22	
Barium	"	20.6	----	0.698	"	"	"	"	"	
Cadmium	"	367	----	0.279	"	"	"	"	"	
Chromium	"	2.29	----	0.698	"	"	"	"	"	
Lead	"	18100	----	209	"	100x	"	"	10/21/08 15:24	
Mercury	EPA 7471	13.7	----	2.50	"	50x	8100114	10/16/08 06:28	10/17/08 10:54	
Selenium	EPA 6010C	6.49	----	3.49	"	1x	8100128	10/16/08 10:50	10/16/08 18:22	
Silver	"	2.37	----	0.698	"	"	"	"	10/17/08 11:45	
Zinc	"	133000	----	69.8	"	100x	"	"	10/21/08 15:24	
SRJ0068-07 (WR1)		Soil		Sampled: 10/06/08 14:30						
Arsenic	EPA 6010C	3.84	----	2.80	mg/kg dry	1x	8100128	10/16/08 10:50	10/16/08 18:28	
Barium	"	69.1	----	0.561	"	"	"	"	"	
Cadmium	"	6.24	----	0.224	"	"	"	"	"	
Chromium	"	8.16	----	0.561	"	"	"	"	"	
Lead	"	106	----	1.68	"	"	"	"	10/21/08 15:28	
Mercury	EPA 7471	0.214	----	0.0500	"	"	8100114	10/16/08 06:28	10/16/08 15:46	
Selenium	EPA 6010C	ND	----	2.80	"	"	8100128	10/16/08 10:50	10/16/08 18:28	
Silver	"	ND	----	0.561	"	"	"	"	10/17/08 11:48	
Zinc	"	1340	----	0.561	"	"	"	"	10/21/08 15:28	
SRJ0068-08 (WR2)		Soil		Sampled: 10/06/08 11:20						
Arsenic	EPA 6010C	33.9	----	2.67	mg/kg dry	1x	8100128	10/16/08 10:50	10/16/08 18:33	
Barium	"	18.1	----	0.535	"	"	"	"	"	
Cadmium	"	318	----	0.214	"	"	"	"	"	
Chromium	"	10.8	----	0.535	"	"	"	"	"	
Lead	"	11500	----	160	"	100x	"	"	10/21/08 15:33	
Mercury	EPA 7471	1.44	----	0.250	"	5x	8100114	10/16/08 06:28	10/17/08 11:01	
Selenium	EPA 6010C	13.0	----	2.67	"	1x	8100128	10/16/08 10:50	10/16/08 18:33	
Silver	"	115	----	0.535	"	"	"	"	10/17/08 11:51	
Zinc	"	53400	----	53.5	"	100x	"	"	10/21/08 15:33	

TestAmerica Spokane



Randee Decker, Project Manager

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LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**

Project Number: 0273017900

Project Manager: Paula Lyon

Report Created:

10/24/08 13:59

Total Metals by EPA 6010/7000 Series Methods

TestAmerica Spokane

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
SRJ0068-09 (WR3)		Soil		Sampled: 10/07/08 09:45						
Arsenic	EPA 6010C	11.9	----	2.81	mg/kg dry	1x	8100128	10/16/08 10:50	10/16/08 19:00	
Barium	"	28.0	----	0.562	"	"	"	"	"	
Cadmium	"	229	----	0.225	"	"	"	"	"	
Chromium	"	6.00	----	0.562	"	"	"	"	"	
Lead	"	9090	----	169	"	100x	"	"	10/21/08 15:51	
Mercury	EPA 7471	3.85	----	1.25	"	25x	8100114	10/16/08 06:28	10/17/08 11:03	
Selenium	EPA 6010C	3.57	----	2.81	"	1x	8100128	10/16/08 10:50	10/16/08 19:00	
Silver	"	ND	----	0.562	"	"	"	"	10/17/08 12:02	
Zinc	"	68600	----	56.2	"	100x	"	"	10/21/08 15:51	
SRJ0068-10 (Row1)		Soil		Sampled: 10/06/08 10:20						
Arsenic	EPA 6010C	6.78	----	2.82	mg/kg dry	1x	8100128	10/16/08 10:50	10/16/08 19:06	
Barium	"	66.5	----	0.564	"	"	"	"	"	
Cadmium	"	47.1	----	0.225	"	"	"	"	"	
Chromium	"	9.19	----	0.564	"	"	"	"	"	
Lead	"	1790	----	42.3	"	25x	"	"	10/21/08 15:56	
Mercury	EPA 7471	1.20	----	0.250	"	5x	8100114	10/16/08 06:28	10/17/08 11:05	
Selenium	EPA 6010C	ND	----	2.82	"	1x	8100128	10/16/08 10:50	10/16/08 19:06	
Silver	"	ND	----	0.564	"	"	"	"	10/17/08 12:05	
Zinc	"	13200	----	14.1	"	25x	"	"	10/21/08 15:56	
SRJ0068-11 (T1)		Soil		Sampled: 10/06/08 10:38						
Aluminum	EPA 6010C	2100	----	3.25	mg/kg dry	1x	8100128	10/16/08 10:50	10/16/08 19:12	
Antimony	"	13.1	----	3.25	"	"	"	"	10/17/08 09:14	
Arsenic	"	8.95	----	3.25	"	"	"	"	10/16/08 19:12	
Barium	"	43.7	----	0.650	"	"	"	"	"	
Beryllium	"	ND	----	0.195	"	"	"	"	"	
Cadmium	"	286	----	0.260	"	"	"	"	"	
Calcium	"	230000	----	793	"	100x	"	"	10/17/08 09:20	
Chromium	"	2.23	----	0.650	"	1x	"	"	10/16/08 19:12	
Cobalt	"	1.22	----	0.650	"	"	"	"	"	
Copper	"	143	----	0.650	"	"	"	"	"	
Iron	"	10000	----	130	"	100x	"	"	10/17/08 09:20	B1
Lead	"	20400	----	195	"	"	"	"	"	
Magnesium	"	31400	----	2.60	"	1x	"	"	10/16/08 19:12	
Manganese	"	297	----	0.650	"	"	"	"	"	
Mercury	EPA 7471	14.8	----	2.50	"	50x	8100125	10/16/08 10:18	10/17/08 11:16	
Nickel	EPA 6010C	7.85	----	1.95	"	1x	8100128	10/16/08 10:50	10/16/08 19:12	
Potassium	"	127	----	32.5	"	"	"	"	"	

TestAmerica Spokane



Randee Decker, Project Manager

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LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**

Project Number: 0273017900

Project Manager: Paula Lyon

Report Created:

10/24/08 13:59

Total Metals by EPA 6010/7000 Series Methods

TestAmerica Spokane

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
SRJ0068-11 (T1)		Soil		Sampled: 10/06/08 10:38						
Selenium	EPA 6010C	5.25	----	3.25	mg/kg dry	1x	8100128	10/16/08 10:50	10/16/08 19:12	
Silver	"	3.02	----	0.650	"	"	"	"	10/17/08 12:08	
Sodium	"	59.8	----	32.5	"	"	"	"	10/16/08 19:12	
Thallium	"	ND	----	3.25	"	"	"	"	10/17/08 09:14	
Vanadium	"	14.2	----	0.650	"	"	"	"	10/16/08 19:12	
Zinc	"	85200	----	65.0	"	100x	"	"	10/21/08 16:01	
SRJ0068-12 (T2)		Soil		Sampled: 10/06/08 12:08						
Arsenic	EPA 6010C	17.7	----	3.24	mg/kg dry	1x	8100156	10/21/08 07:07	10/22/08 16:16	
Barium	"	24.0	----	0.649	"	"	"	"	"	
Cadmium	"	373	----	0.259	"	"	"	"	"	
Chromium	"	2.85	----	0.649	"	"	"	"	"	
Lead	"	60000	----	195	"	100x	"	"	10/23/08 08:33	
Mercury	EPA 7471	11.9	----	2.50	"	50x	8100125	10/16/08 10:18	10/17/08 11:18	
Selenium	EPA 6010C	6.09	----	3.24	"	1x	8100156	10/21/08 07:07	10/22/08 16:16	
Silver	"	9.26	----	0.649	"	"	"	"	10/22/08 11:41	
Zinc	"	162000	----	64.9	"	100x	"	"	10/22/08 17:18	
SRJ0068-13 (T3)		Soil		Sampled: 10/06/08 14:45						
Arsenic	EPA 6010C	5.58	----	3.15	mg/kg dry	1x	8100156	10/21/08 07:07	10/22/08 16:22	
Barium	"	4.37	----	0.631	"	"	"	"	"	
Cadmium	"	146	----	0.252	"	"	"	"	"	
Chromium	"	1.89	----	0.631	"	"	"	"	"	
Lead	"	485	----	1.89	"	"	"	"	10/23/08 08:37	
Mercury	EPA 7471	2.73	----	0.250	"	5x	8100125	10/16/08 10:18	10/17/08 11:20	
Selenium	EPA 6010C	6.68	----	3.15	"	1x	8100156	10/21/08 07:07	10/22/08 16:22	
Silver	"	ND	----	0.631	"	"	"	"	10/22/08 11:43	
Zinc	"	46000	----	63.1	"	100x	"	"	10/22/08 16:44	
SRJ0068-14 (T4)		Soil		Sampled: 10/06/08 14:50						
Arsenic	EPA 6010C	5.27	----	3.15	mg/kg dry	1x	8100156	10/21/08 07:07	10/22/08 16:27	
Barium	"	7.00	----	0.630	"	"	"	"	"	
Cadmium	"	200	----	0.252	"	"	"	"	"	
Chromium	"	1.45	----	0.630	"	"	"	"	"	
Lead	"	2170	----	1.89	"	"	"	"	10/23/08 08:41	
Mercury	EPA 7471	3.15	----	0.500	"	10x	8100125	10/16/08 10:18	10/17/08 11:22	
Selenium	EPA 6010C	6.10	----	3.15	"	1x	8100156	10/21/08 07:07	10/22/08 16:27	
Silver	"	ND	----	0.630	"	"	"	"	10/22/08 11:46	
Zinc	"	68600	----	63.0	"	100x	"	"	10/22/08 16:39	

TestAmerica Spokane



Randee Decker, Project Manager

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LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**

Project Number: 0273017900

Project Manager: Paula Lyon

Report Created:

10/24/08 13:59

Total Metals by EPA 6010/7000 Series Methods
TestAmerica Spokane

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
SRJ0068-15 (T5)		Soil		Sampled: 10/06/08 15:05						
Arsenic	EPA 6010C	4.68	----	2.63	mg/kg dry	1x	8100156	10/21/08 07:07	10/22/08 16:33	
Barium	"	6.01	----	0.526	"	"	"	"	"	
Cadmium	"	117	----	0.211	"	"	"	"	"	
Chromium	"	1.54	----	0.526	"	"	"	"	"	
Lead	"	481	----	1.58	"	"	"	"	10/23/08 08:46	
Mercury	EPA 7471	2.85	----	0.500	"	10x	8100125	10/16/08 10:18	10/17/08 11:30	
Selenium	EPA 6010C	6.02	----	2.63	"	1x	8100156	10/21/08 07:07	10/22/08 16:33	
Silver	"	ND	----	0.526	"	"	"	"	10/22/08 11:49	
Zinc	"	36900	----	52.6	"	100x	"	"	10/22/08 17:13	
SRJ0068-16 (T6)		Soil		Sampled: 10/06/08 15:15						
Arsenic	EPA 6010C	5.99	----	2.82	mg/kg dry	1x	8100156	10/21/08 07:07	10/22/08 17:24	
Barium	"	6.66	----	0.564	"	"	"	"	"	
Cadmium	"	181	----	0.226	"	"	"	"	"	
Chromium	"	1.94	----	0.564	"	"	"	"	"	
Lead	"	561	----	1.69	"	"	"	"	10/23/08 08:51	
Mercury	EPA 7471	4.12	----	1.25	"	25x	8100125	10/16/08 10:18	10/17/08 11:32	
Selenium	EPA 6010C	5.09	----	2.82	"	1x	8100156	10/21/08 07:07	10/22/08 17:24	
Silver	"	ND	----	0.564	"	"	"	"	10/22/08 11:52	
Zinc	"	59900	----	56.4	"	100x	"	"	10/22/08 17:30	
SRJ0068-17 (T7)		Soil		Sampled: 10/06/08 15:30						
Arsenic	EPA 6010C	4.23	----	2.96	mg/kg dry	1x	8100156	10/21/08 07:07	10/22/08 17:35	
Barium	"	4.41	----	0.592	"	"	"	"	"	
Cadmium	"	141	----	0.237	"	"	"	"	"	
Chromium	"	2.75	----	0.592	"	"	"	"	"	
Lead	"	660	----	1.78	"	"	"	"	10/23/08 08:56	
Mercury	EPA 7471	3.85	----	1.25	"	25x	8100125	10/16/08 10:18	10/17/08 11:34	
Selenium	EPA 6010C	5.11	----	2.96	"	1x	8100156	10/21/08 07:07	10/22/08 17:35	
Silver	"	ND	----	0.592	"	"	"	"	10/22/08 11:55	
Zinc	"	45000	----	59.2	"	100x	"	"	10/22/08 17:41	

TestAmerica Spokane



Randee Decker, Project Manager

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LFR, Inc.	Project Name: Josephine Mill	Report Created:
2310 N. Molter Rd. Suite 101	Project Number: 0273017900	10/24/08 13:59
Liberty Lake, WA 99019	Project Manager: Paula Lyon	

Total Metals by EPA 6010/7000 Series Methods

TestAmerica Spokane

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
SRJ0068-18 (T8)		Soil		Sampled: 10/06/08 15:45						
Arsenic	EPA 6010C	6.83	----	2.79	mg/kg dry	1x	8100156	10/21/08 07:07	10/22/08 17:46	
Barium	"	7.53	----	0.557	"	"	"	"	"	
Cadmium	"	206	----	0.223	"	"	"	"	"	
Chromium	"	1.81	----	0.557	"	"	"	"	"	
Lead	"	941	----	1.67	"	"	"	"	10/23/08 09:14	
Mercury	EPA 7471	4.52	----	1.25	"	25x	8100125	10/16/08 10:18	10/17/08 11:37	
Selenium	EPA 6010C	5.40	----	2.79	"	1x	8100156	10/21/08 07:07	10/22/08 17:46	
Silver	"	ND	----	0.557	"	"	"	"	10/22/08 12:06	
Zinc	"	62900	----	55.7	"	100x	"	"	10/22/08 17:51	
SRJ0068-19 (T9)		Soil		Sampled: 10/06/08 16:00						
Arsenic	EPA 6010C	5.27	----	3.03	mg/kg dry	1x	8100156	10/21/08 07:07	10/22/08 17:56	
Barium	"	8.49	----	0.607	"	"	"	"	"	
Cadmium	"	162	----	0.243	"	"	"	"	"	
Chromium	"	2.22	----	0.607	"	"	"	"	"	
Lead	"	1280	----	1.82	"	"	"	"	10/23/08 09:19	
Mercury	EPA 7471	4.61	----	1.25	"	25x	8100125	10/16/08 10:18	10/17/08 11:39	
Selenium	EPA 6010C	6.07	----	3.03	"	1x	8100156	10/21/08 07:07	10/22/08 17:56	
Silver	"	ND	----	0.607	"	"	"	"	10/22/08 12:09	
Zinc	"	56900	----	60.7	"	100x	"	"	10/22/08 18:02	
SRJ0068-20 (T10)		Soil		Sampled: 10/06/08 16:10						
Arsenic	EPA 6010C	6.81	----	3.06	mg/kg dry	1x	8100156	10/21/08 07:07	10/22/08 18:32	
Barium	"	10.9	----	0.612	"	"	"	"	"	
Cadmium	"	277	----	0.245	"	"	"	"	"	
Chromium	"	2.79	----	0.612	"	"	"	"	"	
Lead	"	1090	----	1.84	"	"	"	"	10/23/08 09:24	
Mercury	EPA 7471	11.0	----	2.50	"	50x	8100125	10/16/08 10:18	10/17/08 11:41	
Selenium	EPA 6010C	5.08	----	3.06	"	1x	8100156	10/21/08 07:07	10/22/08 18:32	
Silver	"	ND	----	0.612	"	"	"	"	10/22/08 12:12	
Zinc	"	83600	----	61.2	"	100x	"	"	10/22/08 18:59	

TestAmerica Spokane



Randee Decker, Project Manager

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LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**

Project Number: 0273017900

Project Manager: Paula Lyon

Report Created:

10/24/08 13:59

Total Metals by EPA 6010/7000 Series Methods
TestAmerica Spokane

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
SRJ0068-21 (T11)		Soil		Sampled: 10/06/08 16:30						
Arsenic	EPA 6010C	4.64	----	2.78	mg/kg dry	1x	8100156	10/21/08 07:07	10/22/08 18:38	
Barium	"	4.12	----	0.556	"	"	"	"	"	
Cadmium	"	165	----	0.222	"	"	"	"	"	
Chromium	"	0.788	----	0.556	"	"	"	"	"	
Lead	"	518	----	1.67	"	"	"	"	10/23/08 09:28	
Mercury	EPA 7471	5.02	----	2.50	"	50x	8100125	10/16/08 10:18	10/17/08 11:44	
Selenium	EPA 6010C	5.86	----	2.78	"	1x	8100156	10/21/08 07:07	10/22/08 18:38	
Silver	"	ND	----	0.556	"	"	"	"	10/22/08 12:15	
Zinc	"	59300	----	55.6	"	100x	"	"	10/22/08 18:54	
SRJ0068-22 (T12)		Soil		Sampled: 10/06/08 16:35						
Arsenic	EPA 6010C	7.55	----	2.92	mg/kg dry	1x	8100156	10/21/08 07:07	10/22/08 18:43	
Barium	"	8.35	----	0.583	"	"	"	"	"	
Cadmium	"	298	----	0.233	"	"	"	"	"	
Chromium	"	2.24	----	0.583	"	"	"	"	"	
Lead	"	799	----	1.75	"	"	"	"	10/23/08 09:33	
Mercury	EPA 7471	9.86	----	2.50	"	50x	8100125	10/16/08 10:18	10/17/08 11:46	
Selenium	EPA 6010C	5.14	----	2.92	"	1x	8100156	10/21/08 07:07	10/22/08 18:43	
Silver	"	ND	----	0.583	"	"	"	"	10/22/08 12:18	
Zinc	"	93900	----	58.3	"	100x	"	"	10/22/08 18:49	
SRJ0068-23 (T13)		Soil		Sampled: 10/06/08 16:45						
Aluminum	EPA 6010C	1140	----	3.21	mg/kg dry	1x	8100128	10/16/08 10:50	10/16/08 19:18	
Antimony	"	ND	----	3.21	"	"	"	"	10/17/08 09:25	
Arsenic	"	11.6	----	3.21	"	"	"	"	10/16/08 19:18	
Barium	"	12.2	----	0.642	"	"	"	"	"	
Beryllium	"	ND	----	0.193	"	"	"	"	"	
Cadmium	"	352	----	0.257	"	"	"	"	"	
Calcium	"	51600	----	7.83	"	"	"	"	"	
Chromium	"	4.57	----	0.642	"	"	"	"	"	
Cobalt	"	0.941	----	0.642	"	"	"	"	"	
Copper	"	67.7	----	0.642	"	"	"	"	"	
Iron	"	4710	----	1.28	"	"	"	"	"	
Lead	"	3730	----	193	"	100x	"	"	10/17/08 09:31	
Magnesium	"	22100	----	2.57	"	1x	"	"	10/16/08 19:18	
Manganese	"	164	----	0.642	"	"	"	"	"	
Mercury	EPA 7471	26.4	----	5.00	"	100x	8100125	10/16/08 10:18	10/17/08 11:48	
Nickel	EPA 6010C	5.89	----	1.93	"	1x	8100128	10/16/08 10:50	10/16/08 19:18	
Potassium	"	244	----	32.1	"	"	"	"	"	

TestAmerica Spokane



Randee Decker, Project Manager

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LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**

Project Number: 0273017900

Project Manager: Paula Lyon

Report Created:

10/24/08 13:59

Total Metals by EPA 6010/7000 Series Methods

TestAmerica Spokane

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
SRJ0068-23 (T13)		Soil		Sampled: 10/06/08 16:45						
Selenium	EPA 6010C	3.40	----	3.21	mg/kg dry	1x	8100128	10/16/08 10:50	10/16/08 19:18	
Silver	"	0.647	----	0.642	"	"	"	"	10/17/08 12:11	
Sodium	"	ND	----	32.1	"	"	"	"	10/16/08 19:18	
Thallium	"	ND	----	3.21	"	"	"	"	10/17/08 09:25	
Vanadium	"	18.1	----	0.642	"	"	"	"	10/16/08 19:18	
Zinc	"	98000	----	32.1	"	50x	"	"	10/21/08 16:05	
SRJ0068-24 (T14)		Soil		Sampled: 10/06/08 16:55						
Arsenic	EPA 6010C	8.22	----	3.05	mg/kg dry	1x	8100156	10/21/08 07:07	10/22/08 19:04	
Barium	"	20.6	----	0.610	"	"	"	"	"	
Cadmium	"	257	----	0.244	"	"	"	"	"	
Chromium	"	4.55	----	0.610	"	"	"	"	"	
Lead	"	1030	----	1.83	"	"	"	"	10/23/08 09:37	
Mercury	EPA 7471	11.8	----	2.50	"	50x	8100125	10/16/08 10:18	10/17/08 11:51	
Selenium	EPA 6010C	3.37	----	3.05	"	1x	8100156	10/21/08 07:07	10/22/08 19:04	
Silver	"	ND	----	0.610	"	"	"	"	10/22/08 12:21	
Zinc	"	86800	----	61.0	"	100x	"	"	10/22/08 19:20	
SRJ0068-25 (T15)		Soil		Sampled: 10/07/08 10:45						
Arsenic	EPA 6010C	8.21	----	2.99	mg/kg dry	1x	8100156	10/21/08 07:07	10/22/08 19:10	
Barium	"	18.0	----	0.598	"	"	"	"	"	
Cadmium	"	289	----	0.239	"	"	"	"	"	
Chromium	"	3.82	----	0.598	"	"	"	"	"	
Lead	"	1090	----	1.79	"	"	"	"	10/23/08 09:42	
Mercury	EPA 7471	13.0	----	5.00	"	100x	8100125	10/16/08 10:18	10/17/08 11:58	
Selenium	EPA 6010C	3.44	----	2.99	"	1x	8100156	10/21/08 07:07	10/22/08 19:10	
Silver	"	ND	----	0.598	"	"	"	"	10/22/08 12:24	
Zinc	"	96600	----	59.8	"	100x	"	"	10/22/08 19:15	
SRJ0068-26 (CB1)		Soil		Sampled: 10/07/08 12:00						
Arsenic	EPA 6010C	8.59	----	3.21	mg/kg dry	1x	8100156	10/21/08 07:07	10/22/08 19:54	
Barium	"	7.86	----	0.641	"	"	"	"	"	
Cadmium	"	197	----	0.256	"	"	"	"	"	
Chromium	"	3.34	----	0.641	"	"	"	"	"	
Lead	"	701	----	1.92	"	"	"	"	10/23/08 09:47	
Mercury	EPA 7471	2.02	----	1.25	"	25x	8100125	10/16/08 10:18	10/17/08 12:00	
Selenium	EPA 6010C	6.55	----	3.21	"	1x	8100156	10/21/08 07:07	10/22/08 19:54	
Silver	"	ND	----	0.641	"	"	"	"	10/22/08 12:27	
Zinc	"	60200	----	64.1	"	100x	"	"	10/22/08 19:49	

TestAmerica Spokane



Randee Decker, Project Manager

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LFR, Inc.	Project Name:	Josephine Mill	Report Created:
2310 N. Molter Rd. Suite 101	Project Number:	0273017900	10/24/08 13:59
Liberty Lake, WA 99019	Project Manager:	Paula Lyon	

Total Metals by EPA 6010/7000 Series Methods
TestAmerica Spokane

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
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TestAmerica Spokane



Randee Decker, Project Manager

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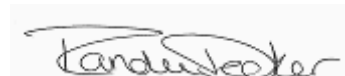
LFR, Inc.	Project Name: Josephine Mill	
2310 N. Molter Rd. Suite 101	Project Number: 0273017900	Report Created:
Liberty Lake, WA 99019	Project Manager: Paula Lyon	10/24/08 13:59

Conventional Chemistry Parameters by APHA/EPA Methods

TestAmerica Spokane

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
SRJ0068-02 (FC1-Sed)		Soil								Sampled: 10/07/08 09:50
% Solids	TA SOP	76.1	----	0.0100	% by Weight	1x	8100120	10/16/08 08:39	10/17/08 07:45	
SRJ0068-04 (FC2-Sed)		Soil								Sampled: 10/07/08 09:20
% Solids	TA SOP	86.1	----	0.0100	% by Weight	1x	8100120	10/16/08 08:39	10/17/08 07:45	
SRJ0068-05 (Dup - 1)		Soil								Sampled: 10/07/08 17:00
% Solids	TA SOP	72.9	----	0.0100	% by Weight	1x	8100120	10/16/08 08:39	10/17/08 07:45	
SRJ0068-06 (Dup - 2)		Soil								Sampled: 10/07/08 17:05
% Solids	TA SOP	71.6	----	0.0100	% by Weight	1x	8100120	10/16/08 08:39	10/17/08 07:45	
SRJ0068-07 (WR1)		Soil								Sampled: 10/06/08 14:30
% Solids	TA SOP	89.2	----	0.0100	% by Weight	1x	8100120	10/16/08 08:39	10/17/08 07:45	
SRJ0068-08 (WR2)		Soil								Sampled: 10/06/08 11:20
% Solids	TA SOP	93.5	----	0.0100	% by Weight	1x	8100120	10/16/08 08:39	10/17/08 07:45	
SRJ0068-09 (WR3)		Soil								Sampled: 10/07/08 09:45
% Solids	TA SOP	89.0	----	0.0100	% by Weight	1x	8100120	10/16/08 08:39	10/17/08 07:45	
SRJ0068-10 (Row1)		Soil								Sampled: 10/06/08 10:20
% Solids	TA SOP	88.7	----	0.0100	% by Weight	1x	8100120	10/16/08 08:39	10/17/08 07:45	
SRJ0068-11 (T1)		Soil								Sampled: 10/06/08 10:38
% Solids	TA SOP	76.9	----	0.0100	% by Weight	1x	8100120	10/16/08 08:39	10/17/08 07:45	
SRJ0068-12 (T2)		Soil								Sampled: 10/06/08 12:08
% Solids	TA SOP	77.1	----	0.0100	% by Weight	1x	8100120	10/16/08 08:39	10/17/08 07:45	
SRJ0068-13 (T3)		Soil								Sampled: 10/06/08 14:45

TestAmerica Spokane



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LFR, Inc.	Project Name: Josephine Mill	Report Created:
2310 N. Molter Rd. Suite 101	Project Number: 0273017900	10/24/08 13:59
Liberty Lake, WA 99019	Project Manager: Paula Lyon	

Conventional Chemistry Parameters by APHA/EPA Methods

TestAmerica Spokane

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
SRJ0068-13 (T3)		Soil						Sampled: 10/06/08 14:45		
% Solids	TA SOP	79.3	----	0.0100	% by Weight	1x	8100120	10/16/08 08:39	10/17/08 07:45	
SRJ0068-14 (T4)		Soil						Sampled: 10/06/08 14:50		
% Solids	TA SOP	79.4	----	0.0100	% by Weight	1x	8100120	10/16/08 08:39	10/17/08 07:45	
SRJ0068-15 (T5)		Soil						Sampled: 10/06/08 15:05		
% Solids	TA SOP	95.0	----	0.0100	% by Weight	1x	8100120	10/16/08 08:39	10/17/08 07:45	
SRJ0068-16 (T6)		Soil						Sampled: 10/06/08 15:15		
% Solids	TA SOP	88.6	----	0.0100	% by Weight	1x	8100131	10/16/08 14:41	10/17/08 07:45	
SRJ0068-17 (T7)		Soil						Sampled: 10/06/08 15:30		
% Solids	TA SOP	84.4	----	0.0100	% by Weight	1x	8100131	10/16/08 14:41	10/17/08 07:45	
SRJ0068-18 (T8)		Soil						Sampled: 10/06/08 15:45		
% Solids	TA SOP	89.7	----	0.0100	% by Weight	1x	8100131	10/16/08 14:41	10/17/08 07:45	
SRJ0068-19 (T9)		Soil						Sampled: 10/06/08 16:00		
% Solids	TA SOP	82.4	----	0.0100	% by Weight	1x	8100131	10/16/08 14:41	10/17/08 07:45	
SRJ0068-20 (T10)		Soil						Sampled: 10/06/08 16:10		
% Solids	TA SOP	81.7	----	0.0100	% by Weight	1x	8100131	10/16/08 14:41	10/17/08 07:45	
SRJ0068-21 (T11)		Soil						Sampled: 10/06/08 16:30		
% Solids	TA SOP	89.9	----	0.0100	% by Weight	1x	8100131	10/16/08 14:41	10/17/08 07:45	
SRJ0068-22 (T12)		Soil						Sampled: 10/06/08 16:35		
% Solids	TA SOP	85.7	----	0.0100	% by Weight	1x	8100131	10/16/08 14:41	10/17/08 07:45	
SRJ0068-23 (T13)		Soil						Sampled: 10/06/08 16:45		

TestAmerica Spokane



Randee Decker, Project Manager

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LFR, Inc.	Project Name: Josephine Mill	Report Created:
2310 N. Molter Rd. Suite 101	Project Number: 0273017900	10/24/08 13:59
Liberty Lake, WA 99019	Project Manager: Paula Lyon	

Conventional Chemistry Parameters by APHA/EPA Methods

TestAmerica Spokane

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
SRJ0068-23 (T13)		Soil		Sampled: 10/06/08 16:45						
% Solids	TA SOP	77.9	----	0.0100	% by Weight	1x	8100131	10/16/08 14:41	10/17/08 07:45	
SRJ0068-24 (T14)		Soil		Sampled: 10/06/08 16:55						
% Solids	TA SOP	82.0	----	0.0100	% by Weight	1x	8100131	10/16/08 14:41	10/17/08 07:45	
SRJ0068-25 (T15)		Soil		Sampled: 10/07/08 10:45						
% Solids	TA SOP	83.6	----	0.0100	% by Weight	1x	8100131	10/16/08 14:41	10/17/08 07:45	
SRJ0068-26 (CB1)		Soil		Sampled: 10/07/08 12:00						
% Solids	TA SOP	78.0	----	0.0100	% by Weight	1x	8100131	10/16/08 14:41	10/17/08 07:45	

TestAmerica Spokane



Randee Decker, Project Manager

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LFR, Inc.	Project Name: Josephine Mill	Report Created:
2310 N. Molter Rd. Suite 101	Project Number: 0273017900	10/24/08 13:59
Liberty Lake, WA 99019	Project Manager: Paula Lyon	

Total Metals by EPA 200 Series Methods

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
SRJ0068-01 (FC1)		Water		Sampled: 10/07/08 09:40						
Arsenic	EPA 200.8	ND	----	0.00100	mg/l	1x	8J14049	10/14/08 17:35	10/15/08 13:49	
Lead	"	0.00138	----	0.00100	"	"	"	"	"	
Selenium	"	ND	----	0.00100	"	"	"	"	"	
SRJ0068-03 (FC2)		Water		Sampled: 10/07/08 09:10						
Arsenic	EPA 200.8	ND	----	0.00100	mg/l	1x	8J14049	10/14/08 17:35	10/15/08 13:57	
Lead	"	ND	----	0.00100	"	"	"	"	"	
Selenium	"	ND	----	0.00100	"	"	"	"	"	

TestAmerica Spokane



Randee Decker, Project Manager

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LFR, Inc.	Project Name: Josephine Mill	Report Created:
2310 N. Molter Rd. Suite 101	Project Number: 0273017900	10/24/08 13:59
Liberty Lake, WA 99019	Project Manager: Paula Lyon	

Dissolved Metals by EPA 200 Series Methods

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
SRJ0068-01 (FC1)		Water		Sampled: 10/07/08 09:40						
Arsenic	EPA 200.8 - Diss	ND	----	0.00100	mg/l	1x	8J15028	10/15/08 12:53	10/15/08 17:12	
Lead	"	ND	----	0.00100	"	"	"	"	"	M1
Selenium	"	ND	----	0.00100	"	"	"	"	"	M1
SRJ0068-03 (FC2)		Water		Sampled: 10/07/08 09:10						
Arsenic	EPA 200.8 - Diss	ND	----	0.00100	mg/l	1x	8J15028	10/15/08 12:53	10/15/08 17:19	
Lead	"	0.00188	----	0.00100	"	"	"	"	"	
Selenium	"	ND	----	0.00100	"	"	"	"	"	

TestAmerica Spokane



Rande Decker, Project Manager

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LFR, Inc.	Project Name: Josephine Mill	Report Created:
2310 N. Molter Rd. Suite 101	Project Number: 0273017900	10/24/08 13:59
Liberty Lake, WA 99019	Project Manager: Paula Lyon	

Total Metals by EPA 200 Series Methods - Laboratory Quality Control Results
TestAmerica Spokane

QC Batch: 8100088 Water Preparation Method: Metals

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8100088-BLK1)							Extracted: 10/14/08 06:44							
Mercury	EPA 245.1	ND	---	0.000200	mg/l	1x	--	--	--	--	--	--	10/14/08 10:17	
LCS (8100088-BS1)							Extracted: 10/14/08 06:44							
Mercury	EPA 245.1	0.00105	---	0.000200	mg/l	1x	--	0.00100	105%	(85-115)	--	--	10/14/08 10:15	
Duplicate (8100088-DUP1)							QC Source: SRJ0044-01		Extracted: 10/14/08 06:44					
Mercury	EPA 245.1	ND	---	0.000200	mg/l	1x	ND	--	--	--	1.36% (17.1)		10/14/08 10:54	
Matrix Spike (8100088-MS1)							QC Source: SRJ0044-01		Extracted: 10/14/08 06:44					
Mercury	EPA 245.1	0.00110	---	0.000200	mg/l	1x	0.000148	0.00100	95.2%	(70-130)	--	--	10/14/08 10:56	
Matrix Spike Dup (8100088-MSD1)							QC Source: SRJ0044-01		Extracted: 10/14/08 06:44					
Mercury	EPA 245.1	0.00112	---	0.000200	mg/l	1x	0.000148	0.00100	97.2%	(70-130)	1.80% (18.2)		10/14/08 10:58	

QC Batch: 8100146 Water Preparation Method: Metals

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8100146-BLK1)							Extracted: 10/20/08 07:43							
Barium	EPA 200.7	ND	---	0.00800	mg/l	1x	--	--	--	--	--	--	10/20/08 17:19	
Zinc	"	ND	---	0.0100	"	"	--	--	--	--	--	--	"	
Cadmium	"	ND	---	0.00200	"	"	--	--	--	--	--	--	"	
Chromium	"	ND	---	0.00800	"	"	--	--	--	--	--	--	"	
Silver	"	ND	---	0.0100	"	"	--	--	--	--	--	--	10/20/08 15:38	
LCS (8100146-BS1)							Extracted: 10/20/08 07:43							
Zinc	EPA 200.7	1.10	---	0.0100	mg/l	1x	--	1.00	110%	(85-115)	--	--	10/20/08 17:14	
Chromium	"	1.07	---	0.00800	"	"	--	"	107%	"	--	--	"	
Cadmium	"	1.05	---	0.00200	"	"	--	"	105%	"	--	--	"	
Silver	"	1.13	---	0.0100	"	"	--	"	113%	"	--	--	10/20/08 15:36	
Barium	"	1.08	---	0.00800	"	"	--	"	108%	"	--	--	10/20/08 17:14	
Duplicate (8100146-DUP1)							QC Source: SRJ0057-04		Extracted: 10/20/08 07:43					
Chromium	EPA 200.7	ND	---	0.00800	mg/l	1x	ND	--	--	--	87.7% (20)		10/20/08 19:07	R4
Cadmium	"	ND	---	0.00200	"	"	ND	--	--	--	NR	"	"	
Zinc	"	ND	---	0.0100	"	"	ND	--	--	--	NR	"	"	
Barium	"	0.0300	---	0.00800	"	"	0.0292	--	--	--	2.80%	"	"	
Silver	"	ND	---	0.0100	"	"	ND	--	--	--	NR	"	10/20/08 16:16	

TestAmerica Spokane



Randee Decker, Project Manager

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LFR, Inc.	Project Name: Josephine Mill	
2310 N. Molter Rd. Suite 101	Project Number: 0273017900	Report Created:
Liberty Lake, WA 99019	Project Manager: Paula Lyon	10/24/08 13:59

Total Metals by EPA 200 Series Methods - Laboratory Quality Control Results


TestAmerica Spokane

QC Batch: 8100146 Water Preparation Method: Metals

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Matrix Spike (8100146-MS1)			QC Source: SRJ0057-04					Extracted: 10/20/08 07:43						
Zinc	EPA 200.7	1.07	---	0.0100	mg/l	1x	0.00787	1.00	107%	(70-130)	--	--	10/20/08 19:12	
Chromium	"	1.06	---	0.00800	"	"	0.00160	"	106%	(75-125)	--	--	"	
Barium	"	1.09	---	0.00800	"	"	0.0292	"	106%	(70-130)	--	--	"	
Silver	"	1.09	---	0.0100	"	"	ND	"	109%	(75-125)	--	--	10/20/08 16:19	
Cadmium	"	1.05	---	0.00200	"	"	0.00109	"	105%	(70-130)	--	--	10/20/08 19:12	
Matrix Spike Dup (8100146-MSD1)			QC Source: SRJ0057-04					Extracted: 10/20/08 07:43						
Zinc	EPA 200.7	1.07	---	0.0100	mg/l	1x	0.00787	1.00	106%	(70-130)	0.260% (20)		10/20/08 19:31	
Cadmium	"	1.05	---	0.00200	"	"	0.00109	"	104%	"	0.300% "		"	
Barium	"	1.10	---	0.00800	"	"	0.0292	"	107%	"	0.597% "		"	
Silver	"	1.10	---	0.0100	"	"	ND	"	110%	(75-125)	0.817% "		10/20/08 16:20	
Chromium	"	1.06	---	0.00800	"	"	0.00160	"	106%	"	0.248% "		10/20/08 19:31	

TestAmerica Spokane

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Rande Decker, Project Manager



LFR, Inc.	Project Name: Josephine Mill	
2310 N. Molter Rd. Suite 101	Project Number: 0273017900	Report Created:
Liberty Lake, WA 99019	Project Manager: Paula Lyon	10/24/08 13:59

Dissolved Metals by EPA 200 Series Methods - Laboratory Quality Control Results
TestAmerica Spokane

QC Batch: 8100088 Water Preparation Method: Metals

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8100088-BLK1)							Extracted: 10/14/08 06:44							
Mercury	EPA 245.1 mod	ND	---	0.000200	mg/l	1x	--	--	--	--	--	--	10/14/08 10:17	
LCS (8100088-BS1)							Extracted: 10/14/08 06:44							
Mercury	EPA 245.1 mod	0.00105	---	0.000200	mg/l	1x	--	0.00100	105%	(85-115)	--	--	10/14/08 10:15	
Duplicate (8100088-DUP1)				QC Source: SRJ0044-01				Extracted: 10/14/08 06:44						
Mercury	EPA 245.1 mod	ND	---	0.000200	mg/l	1x	ND	--	--	--	1.36% (17.1)		10/14/08 10:54	
Matrix Spike (8100088-MS1)				QC Source: SRJ0044-01				Extracted: 10/14/08 06:44						
Mercury	EPA 245.1 mod	0.00110	---	0.000200	mg/l	1x	0.000148	0.00100	95.2%	(70-130)	--	--	10/14/08 10:56	
Matrix Spike Dup (8100088-MSD1)				QC Source: SRJ0044-01				Extracted: 10/14/08 06:44						
Mercury	EPA 245.1 mod	0.00112	---	0.000200	mg/l	1x	0.000148	0.00100	97.2%	(70-130)	1.80% (18.2)		10/14/08 10:58	

QC Batch: 8100146 Water Preparation Method: Metals

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8100146-BLK1)							Extracted: 10/20/08 07:43							
Cadmium	EPA 200.7	ND	---	0.00200	mg/l	1x	--	--	--	--	--	--	10/20/08 17:19	
Barium	"	ND	---	0.00800	"	"	--	--	--	--	--	--	"	
Chromium	"	ND	---	0.00800	"	"	--	--	--	--	--	--	"	
Zinc	"	ND	---	0.0100	"	"	--	--	--	--	--	--	"	
Silver	"	ND	---	0.0100	"	"	--	--	--	--	--	--	10/20/08 15:38	
LCS (8100146-BS1)							Extracted: 10/20/08 07:43							
Cadmium	EPA 200.7	1.05	---	0.00200	mg/l	1x	--	1.00	105%	(85-115)	--	--	10/20/08 17:14	
Chromium	"	1.07	---	0.00800	"	"	--	"	107%	"	--	--	"	
Barium	"	1.08	---	0.00800	"	"	--	"	108%	"	--	--	"	
Silver	"	1.13	---	0.0100	"	"	--	"	113%	"	--	--	10/20/08 15:36	
Zinc	"	1.10	---	0.0100	"	"	--	"	110%	"	--	--	10/20/08 17:14	
Duplicate (8100146-DUP1)				QC Source: SRJ0057-04				Extracted: 10/20/08 07:43						
Silver	EPA 200.7	ND	---	0.0100	mg/l	1x	ND	--	--	--	NR (20)		10/20/08 16:16	
Barium	"	0.0300	---	0.00800	"	"	0.0292	--	--	--	2.80%	"	10/20/08 19:07	
Zinc	"	ND	---	0.0100	"	"	ND	--	--	--	NR	"	"	
Cadmium	"	ND	---	0.00200	"	"	ND	--	--	--	NR	"	"	

TestAmerica Spokane

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Randee Decker, Project Manager



LFR, Inc.	Project Name: Josephine Mill	
2310 N. Molter Rd. Suite 101	Project Number: 0273017900	Report Created:
Liberty Lake, WA 99019	Project Manager: Paula Lyon	10/24/08 13:59

Dissolved Metals by EPA 200 Series Methods - Laboratory Quality Control Results
TestAmerica Spokane

QC Batch: 8100146 Water Preparation Method: Metals

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Duplicate (8100146-DUP1)				QC Source: SRJ0057-04				Extracted: 10/20/08 07:43						
Chromium	EPA 200.7	ND	---	0.00800	mg/l	1x	ND	--	--	--	87.7%	(20)	10/20/08 19:07	R4
Matrix Spike (8100146-MS1)				QC Source: SRJ0057-04				Extracted: 10/20/08 07:43						
Cadmium	EPA 200.7	1.05	---	0.00200	mg/l	1x	0.00109	1.00	105%	(75-125)	--	--	10/20/08 19:12	
Silver	"	1.09	---	0.0100	"	"	ND	"	109%	"	--	--	10/20/08 16:19	
Barium	"	1.09	---	0.00800	"	"	0.0292	"	106%	"	--	--	10/20/08 19:12	
Chromium	"	1.06	---	0.00800	"	"	0.00160	"	106%	"	--	--	"	
Zinc	"	1.07	---	0.0100	"	"	0.00787	"	107%	"	--	--	"	
Matrix Spike Dup (8100146-MSD1)				QC Source: SRJ0057-04				Extracted: 10/20/08 07:43						
Chromium	EPA 200.7	1.06	---	0.00800	mg/l	1x	0.00160	1.00	106%	(75-125)	0.248%	(20)	10/20/08 19:31	
Silver	"	1.10	---	0.0100	"	"	ND	"	110%	"	0.817%	"	10/20/08 16:20	
Cadmium	"	1.05	---	0.00200	"	"	0.00109	"	104%	"	0.300%	"	10/20/08 19:31	
Zinc	"	1.07	---	0.0100	"	"	0.00787	"	106%	"	0.260%	"	"	
Barium	"	1.10	---	0.00800	"	"	0.0292	"	107%	"	0.597%	"	"	

TestAmerica Spokane



Randee Decker, Project Manager

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LFR, Inc.	Project Name: Josephine Mill	Report Created:
2310 N. Molter Rd. Suite 101	Project Number: 0273017900	10/24/08 13:59
Liberty Lake, WA 99019	Project Manager: Paula Lyon	

Total Metals by EPA 6010/7000 Series Methods - Laboratory Quality Control Results
TestAmerica Spokane


QC Batch: 8100114 Soil Preparation Method: Metals

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8100114-BLK1)								Extracted: 10/16/08 06:28						
Mercury	EPA 7471	ND	---	0.0500	mg/kg wet	1x	--	--	--	--	--	--	10/16/08 14:15	
LCS (8100114-BS1)								Extracted: 10/16/08 06:28						
Mercury	EPA 7471	0.104	---	0.0500	mg/kg wet	1x	--	0.100	104%	(80-120)	--	--	10/16/08 14:13	
Duplicate (8100114-DUP1)				QC Source: SRJ0052-28				Extracted: 10/16/08 06:28						
Mercury	EPA 7471	115	---	5.00	mg/kg dry	100x	69.2	--	--	--	49.7% (40)		10/17/08 11:08	R2
Matrix Spike (8100114-MS1)				QC Source: SRJ0052-28				Extracted: 10/16/08 06:28						
Mercury	EPA 7471	87.5	---	10.0	mg/kg dry	200x	69.2	0.117	15600	(80-120)	--	--	10/17/08 12:09	MHA
Matrix Spike Dup (8100114-MSD1)				QC Source: SRJ0052-28				Extracted: 10/16/08 06:28						
Mercury	EPA 7471	78.6	---	5.00	mg/kg dry	100x	69.2	0.117	8000%	(80-120)	10.7% (20)		10/17/08 11:13	MHA

QC Batch: 8100125 Soil Preparation Method: Metals

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8100125-BLK1)								Extracted: 10/16/08 10:18						
Mercury	EPA 7471	ND	---	0.0500	mg/kg wet	1x	--	--	--	--	--	--	10/16/08 16:31	
LCS (8100125-BS1)								Extracted: 10/16/08 10:18						
Mercury	EPA 7471	0.106	---	0.0500	mg/kg wet	1x	--	0.100	106%	(80-120)	--	--	10/16/08 16:29	
Duplicate (8100125-DUP1)				QC Source: SRJ0068-25				Extracted: 10/16/08 10:18						
Mercury	EPA 7471	13.5	---	5.00	mg/kg dry	100x	13.0	--	--	--	3.60%	(40)	10/17/08 12:02	
Matrix Spike (8100125-MS1)				QC Source: SRJ0068-25				Extracted: 10/16/08 10:18						
Mercury	EPA 7471	13.3	---	5.00	mg/kg dry	100x	13.0	0.120	200%	(80-120)	--	--	10/17/08 12:04	MHA
Matrix Spike Dup (8100125-MSD1)				QC Source: SRJ0068-25				Extracted: 10/16/08 10:18						
Mercury	EPA 7471	11.6	---	5.00	mg/kg dry	100x	13.0	0.120	-1190%	(80-120)	13.4%	(20)	10/17/08 12:07	MHA

TestAmerica Spokane



Randee Decker, Project Manager

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LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**

Project Number: 0273017900

Project Manager: Paula Lyon

Report Created:

10/24/08 13:59

Total Metals by EPA 6010/7000 Series Methods - Laboratory Quality Control Results

TestAmerica Spokane

QC Batch: 8100128

Soil Preparation Method: Metals

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8100128-BLK1)										Extracted: 10/16/08 10:50				
Nickel	EPA 6010C	ND	---	1.50	mg/kg wet	1x	--	--	--	--	--	--	10/16/08 19:46	
Sodium	"	ND	---	25.0	"	"	--	--	--	--	--	--	"	
Beryllium	"	ND	---	0.150	"	"	--	--	--	--	--	--	"	
Manganese	"	ND	---	0.500	"	"	--	--	--	--	--	--	"	
Barium	"	ND	---	0.500	"	"	--	--	--	--	--	--	"	
Potassium	"	ND	---	25.0	"	"	--	--	--	--	--	--	"	
Chromium	"	ND	---	0.500	"	"	--	--	--	--	--	--	"	
Cadmium	"	ND	---	0.200	"	"	--	--	--	--	--	--	"	
Zinc	"	ND	---	0.500	"	"	--	--	--	--	--	--	10/21/08 14:52	
Cobalt	"	ND	---	0.500	"	"	--	--	--	--	--	--	10/16/08 19:46	
Vanadium	"	ND	---	0.500	"	"	--	--	--	--	--	--	"	
Thallium	"	ND	---	2.50	"	"	--	--	--	--	--	--	10/17/08 09:09	
Selenium	"	ND	---	2.50	"	"	--	--	--	--	--	--	10/16/08 19:46	
Silver	"	ND	---	0.500	"	"	--	--	--	--	--	--	10/17/08 11:27	
Calcium	"	ND	---	6.10	"	"	--	--	--	--	--	--	10/16/08 19:46	
Lead	"	ND	---	1.50	"	"	--	--	--	--	--	--	10/17/08 09:09	
Magnesium	"	ND	---	2.00	"	"	--	--	--	--	--	--	10/16/08 19:46	
Copper	"	ND	---	0.500	"	"	--	--	--	--	--	--	"	
Antimony	"	ND	---	2.50	"	"	--	--	--	--	--	--	10/17/08 09:09	
Iron	"	2.54	---	1.00	"	"	--	--	--	--	--	--	10/16/08 19:46	B1
Aluminum	"	ND	---	2.50	"	"	--	--	--	--	--	--	"	
Arsenic	"	ND	---	2.50	"	"	--	--	--	--	--	--	"	

LCS (8100128-BS1)

Extracted: 10/16/08 10:50

Copper	EPA 6010C	50.8	---	0.500	mg/kg wet	1x	--	50.0	102%	(80-120)	--	--	10/16/08 17:43	
Iron	"	58.5	---	1.00	"	"	--	"	117%	"	--	--	"	
Cobalt	"	53.3	---	0.500	"	"	--	"	107%	"	--	--	"	
Barium	"	53.1	---	0.500	"	"	--	"	106%	"	--	--	"	
Beryllium	"	50.7	---	0.150	"	"	--	"	101%	"	--	--	"	
Potassium	"	524	---	25.0	"	"	--	500	105%	(70-120)	--	--	"	
Calcium	"	554	---	6.10	"	"	--	"	111%	(80-120)	--	--	"	
Nickel	"	53.8	---	1.50	"	"	--	50.0	108%	"	--	--	"	
Arsenic	"	49.8	---	2.50	"	"	--	"	99.5%	"	--	--	"	
Cadmium	"	51.9	---	0.200	"	"	--	"	104%	"	--	--	"	
Lead	"	53.9	---	1.50	"	"	--	"	108%	"	--	--	10/17/08 09:05	
Selenium	"	49.6	---	2.50	"	"	--	"	99.2%	"	--	--	10/16/08 17:43	
Antimony	"	51.1	---	2.50	"	"	--	"	102%	"	--	--	10/17/08 09:05	
Silver	"	53.0	---	0.500	"	"	--	"	106%	"	--	--	10/17/08 11:25	
Sodium	"	538	---	25.0	"	"	--	500	108%	(80-200)	--	--	10/16/08 17:43	

TestAmerica Spokane

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Randee Decker, Project Manager



LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**

Project Number: 0273017900

Project Manager: Paula Lyon

Report Created:

10/24/08 13:59

Total Metals by EPA 6010/7000 Series Methods - Laboratory Quality Control Results

TestAmerica Spokane

QC Batch: 8100128

Soil Preparation Method: Metals

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
LCS (8100128-BS1)							Extracted: 10/16/08 10:50							
Thallium	EPA 6010C	55.3	---	2.50	mg/kg wet	1x	--	50.0	111%	(80-120)	--	--	10/17/08 09:05	
Chromium	"	53.0	---	0.500	"	"	--	"	106%	"	--	--	10/16/08 17:43	
Magnesium	"	545	---	2.00	"	"	--	500	109%	"	--	--	"	
Manganese	"	54.5	---	0.500	"	"	--	50.0	109%	"	--	--	"	
Zinc	"	54.2	---	0.500	"	"	--	"	108%	"	--	--	10/21/08 14:47	
Vanadium	"	52.0	---	0.500	"	"	--	"	104%	"	--	--	10/16/08 17:43	
Aluminum	"	51.8	---	2.50	"	"	--	"	104%	"	--	--	"	
Duplicate (8100128-DUP1)							QC Source: SRJ0101-01 Extracted: 10/16/08 10:50							
Beryllium	EPA 6010C	0.451	---	0.186	mg/kg dry	1x	0.462	--	--	--	2.27%	(20)	10/16/08 19:29	
Copper	"	18.5	---	0.619	"	"	18.5	--	--	--	0.141%	"	"	
Magnesium	"	5530	---	2.48	"	"	5580	--	--	--	1.01%	"	"	
Aluminum	"	19100	---	309	"	100x	19100	--	--	--	0.00901	"	10/17/08 10:19	
Cadmium	"	0.288	---	0.248	"	1x	0.306	--	--	--	6.28%	"	10/16/08 19:29	
Chromium	"	15.4	---	0.619	"	"	15.8	--	--	--	2.30%	"	"	
Thallium	"	ND	---	3.09	"	"	ND	--	--	--	NR	"	10/17/08 09:41	
Selenium	"	ND	---	3.09	"	"	ND	--	--	--	NR	"	10/16/08 19:29	
Cobalt	"	17.6	---	0.619	"	"	16.9	--	--	--	4.16%	"	"	
Iron	"	45800	---	124	"	100x	45000	--	--	--	1.83%	"	10/17/08 10:19	
Silver	"	ND	---	0.619	"	1x	ND	--	--	--	NR	"	10/17/08 12:17	
Vanadium	"	75.5	---	0.619	"	"	78.5	--	--	--	3.85%	"	10/16/08 19:29	
Calcium	"	4370	---	7.55	"	"	4370	--	--	--	0.0608%	"	"	
Manganese	"	684	---	0.619	"	"	664	--	--	--	2.94%	"	"	
Nickel	"	16.4	---	1.86	"	"	16.4	--	--	--	0.0971%	"	"	
Antimony	"	ND	---	3.09	"	"	ND	--	--	--	16.2%	"	10/17/08 09:41	
Lead	"	9.25	---	1.86	"	"	10.3	--	--	--	10.8%	"	"	
Sodium	"	266	---	30.9	"	"	257	--	--	--	3.60%	"	10/16/08 19:29	
Zinc	"	63.9	---	0.619	"	"	65.3	--	--	--	2.08%	"	10/21/08 16:17	
Barium	"	140	---	0.619	"	"	145	--	--	--	3.18%	"	10/16/08 19:29	
Arsenic	"	4.82	---	3.09	"	"	7.33	--	--	--	41.4%	"	"	R2
Potassium	"	1280	---	30.9	"	"	1310	--	--	--	1.98%	"	"	

TestAmerica Spokane



Randee Decker, Project Manager

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LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**

Project Number: 0273017900

Project Manager: Paula Lyon

Report Created:

10/24/08 13:59

Total Metals by EPA 6010/7000 Series Methods - Laboratory Quality Control Results

TestAmerica Spokane

QC Batch: 8100128

Soil Preparation Method: Metals

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Matrix Spike (8100128-MS1)		QC Source: SRJ0101-01					Extracted: 10/16/08 10:50							
Magnesium	EPA 6010C	6130	---	2.48	mg/kg dry	1x	5580	619	88.6%	(75-125)	--	--	10/16/08 19:35	
Potassium	"	1860	---	30.9	"	"	1310	"	88.8%	"	--	--	"	
Nickel	"	71.8	---	1.86	"	"	16.4	61.9	89.5%	"	--	--	"	
Cobalt	"	72.7	---	0.619	"	"	16.9	"	90.1%	"	--	--	"	
Selenium	"	45.7	---	3.09	"	"	ND	"	73.9%	"	--	--	"	M8
Manganese	"	707	---	0.619	"	"	664	"	68.9%	"	--	--	"	M8
Sodium	"	814	---	30.9	"	"	257	619	90.0%	"	--	--	"	
Vanadium	"	134	---	0.619	"	"	78.5	61.9	90.0%	"	--	--	"	
Zinc	"	360	---	0.619	"	"	65.3	"	477%	"	--	--	10/21/08 16:23	M7
Cadmium	"	58.3	---	0.248	"	"	0.306	"	93.8%	"	--	--	10/16/08 19:35	
Thallium	"	34.9	---	3.09	"	"	ND	"	56.4%	"	--	--	10/17/08 09:47	M8
Copper	"	76.1	---	0.619	"	"	18.5	"	93.0%	"	--	--	10/16/08 19:35	
Chromium	"	71.3	---	0.619	"	"	15.8	"	89.8%	"	--	--	"	
Iron	"	46500	---	124	"	100x	45000	"	2490%	"	--	--	10/17/08 10:24	MHA
Barium	"	196	---	0.619	"	1x	145	"	82.3%	"	--	--	10/16/08 19:35	
Calcium	"	4890	---	7.55	"	"	4370	619	83.8%	"	--	--	"	
Aluminum	"	20000	---	309	"	100x	19100	61.9	1410%	"	--	--	10/17/08 10:24	MHA
Antimony	"	46.2	---	3.09	"	1x	0.569	"	73.7%	"	--	--	10/17/08 09:47	M8
Silver	"	54.7	---	0.619	"	"	ND	"	88.4%	"	--	--	10/17/08 12:19	
Lead	"	64.0	---	1.86	"	"	10.3	"	86.8%	"	--	--	10/17/08 09:47	
Beryllium	"	57.2	---	0.186	"	"	0.462	"	91.7%	"	--	--	10/16/08 19:35	
Arsenic	"	59.8	---	3.09	"	"	7.33	"	84.8%	"	--	--	"	

Matrix Spike Dup (8100128-MSD1)

		QC Source: SRJ0101-01					Extracted: 10/16/08 10:50							
Arsenic	EPA 6010C	58.3	---	3.09	mg/kg dry	1x	7.33	61.9	82.4%	(75-125)	2.51% (20)		10/16/08 19:40	
Barium	"	196	---	0.619	"	"	145	"	82.5%	"	0.0455%	"	"	
Aluminum	"	19800	---	309	"	100x	19100	"	1140%	"	0.866%	"	10/17/08 10:29	MHA
Silver	"	55.3	---	0.619	"	1x	ND	"	89.3%	"	0.952%	"	10/17/08 12:22	
Calcium	"	4970	---	7.55	"	"	4370	619	96.8%	"	1.63%	"	10/16/08 19:40	
Beryllium	"	57.0	---	0.186	"	"	0.462	61.9	91.3%	"	0.381%	"	"	
Zinc	"	121	---	0.619	"	"	65.3	"	90.4%	"	99.3%	"	10/21/08 16:29	R
Thallium	"	34.4	---	3.09	"	"	ND	"	55.6%	"	1.37%	"	10/17/08 09:52	M8
Cadmium	"	57.6	---	0.248	"	"	0.306	"	92.5%	"	1.34%	"	10/16/08 19:40	
Sodium	"	829	---	30.9	"	"	257	619	92.4%	"	1.83%	"	"	
Nickel	"	70.9	---	1.86	"	"	16.4	61.9	88.1%	"	1.21%	"	"	
Lead	"	62.9	---	1.86	"	"	10.3	"	84.9%	"	1.80%	"	10/17/08 09:52	
Magnesium	"	6150	---	2.48	"	"	5580	619	92.2%	"	0.357%	"	10/16/08 19:40	
Iron	"	48200	---	124	"	100x	45000	61.9	5100%	"	3.41%	"	10/17/08 10:29	MHA
Manganese	"	723	---	0.619	"	1x	664	"	93.8%	"	2.16%	"	10/16/08 19:40	

TestAmerica Spokane

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Randee Decker, Project Manager



LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**

Project Number: 0273017900

Project Manager: Paula Lyon

Report Created:

10/24/08 13:59

Total Metals by EPA 6010/7000 Series Methods - Laboratory Quality Control Results

TestAmerica Spokane

QC Batch: 8100128

Soil Preparation Method: Metals

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Matrix Spike Dup (8100128-MSD1)			QC Source: SRJ0101-01					Extracted: 10/16/08 10:50						
Copper	EPA 6010C	76.6	---	0.619	mg/kg dry	1x	18.5	61.9	93.8%	(75-125)	0.649% (20)		10/16/08 19:40	
Potassium	"	1870	---	30.9	"	"	1310	619	89.8%	"	0.345%	"	"	
Chromium	"	71.6	---	0.619	"	"	15.8	61.9	90.2%	"	0.387%	"	"	
Antimony	"	46.0	---	3.09	"	"	0.569	"	73.4%	"	0.503%	"	10/17/08 09:52	M8
Selenium	"	45.5	---	3.09	"	"	ND	"	73.5%	"	0.536%	"	10/16/08 19:40	M8
Vanadium	"	135	---	0.619	"	"	78.5	"	91.3%	"	0.595%	"	"	
Cobalt	"	72.3	---	0.619	"	"	16.9	"	89.4%	"	0.580%	"	"	

QC Batch: 8100156

Soil Preparation Method: Metals

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8100156-BLK1)			Extracted: 10/21/08 07:07											
Zinc	EPA 6010C	ND	---	0.500	mg/kg wet	1x	--	--	--	--	--	--	10/22/08 16:00	
Selenium	"	ND	---	2.50	"	"	--	--	--	--	--	--	"	
Barium	"	ND	---	0.500	"	"	--	--	--	--	--	--	"	
Chromium	"	ND	---	0.500	"	"	--	--	--	--	--	--	"	
Silver	"	ND	---	0.500	"	"	--	--	--	--	--	--	10/22/08 11:32	
Cadmium	"	ND	---	0.200	"	"	--	--	--	--	--	--	10/22/08 16:00	
Lead	"	ND	---	1.50	"	"	--	--	--	--	--	--	10/23/08 08:19	
Arsenic	"	ND	---	2.50	"	"	--	--	--	--	--	--	10/22/08 16:00	

LCS (8100156-BS1)

Extracted: 10/21/08 07:07

Arsenic	EPA 6010C	50.8	---	2.50	mg/kg wet	1x	--	50.0	102%	(80-120)	--	--	10/22/08 15:55	
Lead	"	55.2	---	1.50	"	"	--	"	110%	"	--	--	10/23/08 08:14	
Barium	"	55.8	---	0.500	"	"	--	"	112%	"	--	--	10/22/08 15:55	
Zinc	"	55.7	---	0.500	"	"	--	"	111%	"	--	--	"	
Chromium	"	54.5	---	0.500	"	"	--	"	109%	"	--	--	"	
Silver	"	54.4	---	0.500	"	"	--	"	109%	"	--	--	10/22/08 11:29	
Selenium	"	50.7	---	2.50	"	"	--	"	101%	"	--	--	10/22/08 15:55	
Cadmium	"	52.9	---	0.200	"	"	--	"	106%	"	--	--	"	

TestAmerica Spokane



Randee Decker, Project Manager

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LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**

Project Number: 0273017900

Project Manager: Paula Lyon

Report Created:

10/24/08 13:59

Total Metals by EPA 6010/7000 Series Methods - Laboratory Quality Control Results

TestAmerica Spokane

QC Batch: 8100156

Soil Preparation Method: Metals

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Duplicate (8100156-DUP1)			QC Source: SRJ0047-01					Extracted: 10/21/08 07:07						
Cadmium	EPA 6010C	11.0	---	0.237	mg/kg dry	1x	11.3	--	--	--	3.27%	(20)	10/22/08 20:00	
Silver	"	3.84	---	0.592	"	"	6.50	--	--	--	51.5%	"	10/22/08 12:30	R2
Arsenic	"	13.0	---	2.96	"	"	13.2	--	--	--	1.09%	"	10/22/08 20:00	
Barium	"	22200	---	59.2	"	100x	20900	--	--	--	6.18%	"	10/23/08 01:43	
Lead	"	80.0	---	1.78	"	1x	92.2	--	--	--	14.1%	"	10/23/08 09:51	
Zinc	"	1660	---	0.592	"	"	1770	--	--	--	6.61%	"	10/22/08 20:00	
Chromium	"	52.6	---	0.592	"	"	57.9	--	--	--	9.61%	"	"	
Selenium	"	ND	---	2.96	"	"	ND	--	--	--	45.5%	"	"	R4
Matrix Spike (8100156-MS1)			QC Source: SRJ0047-01					Extracted: 10/21/08 07:07						
Arsenic	EPA 6010C	69.6	---	2.96	mg/kg dry	1x	13.2	59.2	95.2%	(75-125)	--	--	10/22/08 20:06	
Selenium	"	55.5	---	2.96	"	"	0.670	"	92.5%	"	--	--	"	
Silver	"	68.1	---	0.592	"	"	6.50	"	104%	"	--	--	10/22/08 12:33	
Lead	"	177	---	1.78	"	"	92.2	"	143%	"	--	--	10/23/08 09:56	M7
Chromium	"	118	---	0.592	"	"	57.9	"	101%	"	--	--	10/22/08 20:06	
Cadmium	"	70.2	---	0.237	"	"	11.3	"	99.4%	"	--	--	"	
Barium	"	22500	---	59.2	"	100x	20900	"	2720%	"	--	--	10/23/08 01:48	MHA
Zinc	"	1730	---	0.592	"	1x	1770	"	-66.5%	"	--	--	10/22/08 20:06	MHA
Matrix Spike Dup (8100156-MSD1)			QC Source: SRJ0047-01					Extracted: 10/21/08 07:07						
Cadmium	EPA 6010C	69.4	---	0.237	mg/kg dry	1x	11.3	59.2	98.0%	(75-125)	1.16%	(20)	10/22/08 20:11	
Selenium	"	55.4	---	2.96	"	"	0.670	"	92.4%	"	0.137%	"	"	
Barium	"	17000	---	59.2	"	100x	20900	"	-6570%	"	27.9%	"	10/23/08 01:53	MHA
Chromium	"	113	---	0.592	"	1x	57.9	"	92.7%	"	4.49%	"	10/22/08 20:11	
Lead	"	171	---	1.78	"	"	92.2	"	132%	"	3.60%	"	10/23/08 10:15	M7
Silver	"	67.6	---	0.592	"	"	6.50	"	103%	"	0.757%	"	10/22/08 12:44	
Arsenic	"	70.5	---	2.96	"	"	13.2	"	96.8%	"	1.37%	"	10/22/08 20:11	
Zinc	"	1470	---	0.592	"	"	1770	"	-514%	"	16.6%	"	"	MHA

TestAmerica Spokane



Randee Decker, Project Manager

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LFR, Inc.	Project Name: Josephine Mill	
2310 N. Molter Rd. Suite 101	Project Number: 0273017900	Report Created:
Liberty Lake, WA 99019	Project Manager: Paula Lyon	10/24/08 13:59

Conventional Chemistry Parameters by APHA/EPA Methods - Laboratory Quality Control Results
TestAmerica Spokane


QC Batch: 8100120 Soil Preparation Method: Wet Chem

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Duplicate (8100120-DUP1)			QC Source: SRJ0068-15					Extracted: 10/16/08 08:39						
% Solids	TA SOP	93.2	---	0.0100	% by Weight	1x	95.0	--	--	--	1.91%	(5)	10/17/08 07:45	

QC Batch: 8100131 Soil Preparation Method: Wet Chem

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Duplicate (8100131-DUP1)			QC Source: SRJ0101-01					Extracted: 10/16/08 14:41						
% Solids	TA SOP	80.9	---	0.0100	% by Weight	1x	80.8	--	--	--	0.124%	(5)	10/17/08 07:45	

TestAmerica Spokane



Rande Decker, Project Manager

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LFR, Inc.	Project Name: Josephine Mill	Report Created:
2310 N. Molter Rd. Suite 101	Project Number: 0273017900	10/24/08 13:59
Liberty Lake, WA 99019	Project Manager: Paula Lyon	

Total Metals by EPA 200 Series Methods - Laboratory Quality Control Results

TestAmerica Seattle

QC Batch: 8J14049

Water Preparation Method: EPA 200 Series

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8J14049-BLK1)							Extracted: 10/14/08 17:35							
Arsenic	EPA 200.8	ND	---	0.00100	mg/l	1x	--	--	--	--	--	--	10/15/08 12:55	
Lead	"	ND	---	0.00100	"	"	--	--	--	--	--	--	"	
Selenium	"	ND	---	0.00100	"	"	--	--	--	--	--	--	"	
LCS (8J14049-BS1)							Extracted: 10/14/08 17:35							
Lead	EPA 200.8	0.0780	---	0.00100	mg/l	1x	--	0.0800	97.5%	(85-115)	--	--	10/15/08 13:02	
Arsenic	"	0.0846	---	0.00100	"	"	--	"	106%	"	--	--	"	
Selenium	"	0.0742	---	0.00100	"	"	--	"	92.8%	"	--	--	10/15/08 16:09	
Duplicate (8J14049-DUP1)							QC Source: SRJ0068-01		Extracted: 10/14/08 17:35					
Selenium	EPA 200.8	ND	---	0.00100	mg/l	1x	ND	--	--	--	NR	(20)	10/15/08 13:41	
Arsenic	"	ND	---	0.00100	"	"	ND	--	--	--	NR	"	"	
Lead	"	0.00136	---	0.00100	"	"	0.00138	--	--	--	1.46%	"	"	
Matrix Spike (8J14049-MS1)							QC Source: SRJ0068-01		Extracted: 10/14/08 17:35					
Lead	EPA 200.8	0.0721	---	0.00100	mg/l	1x	0.00138	0.0800	88.4%	(75-125)	--	--	10/15/08 13:10	
Selenium	"	0.0886	---	0.00100	"	"	ND	"	111%	"	--	--	"	
Arsenic	"	0.0778	---	0.00100	"	"	ND	"	97.2%	"	--	--	"	

TestAmerica Spokane



Rande Decker, Project Manager

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LFR, Inc.	Project Name: Josephine Mill	
2310 N. Molter Rd. Suite 101	Project Number: 0273017900	Report Created:
Liberty Lake, WA 99019	Project Manager: Paula Lyon	10/24/08 13:59

Dissolved Metals by EPA 200 Series Methods - Laboratory Quality Control Results
TestAmerica Seattle

QC Batch: 8J15028 Water Preparation Method: EPA 200 Series

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8J15028-BLK1)							Extracted: 10/15/08 12:53							
Selenium	EPA 200.8 - Diss	ND	---	0.00100	mg/l	1x	--	--	--	--	--	--	10/15/08 16:17	
Arsenic	"	ND	---	0.00100	"	"	--	--	--	--	--	--	"	
Lead	"	ND	---	0.00100	"	"	--	--	--	--	--	--	"	
LCS (8J15028-BS1)							Extracted: 10/15/08 12:53							
Arsenic	EPA 200.8 - Diss	0.202	---	0.00100	mg/l	1x	--	0.200	101%	(85-115)	--	--	10/15/08 16:25	
Selenium	"	0.200	---	0.00100	"	"	--	"	99.8%	"	--	--	"	
Lead	"	0.202	---	0.00100	"	"	--	"	101%	"	--	--	"	
Duplicate (8J15028-DUP1)							QC Source: SRJ0068-01	Extracted: 10/15/08 12:53						
Arsenic	EPA 200.8 - Diss	ND	---	0.00100	mg/l	1x	ND	--	--	--	2.90%	(20)	10/15/08 17:04	
Lead	"	ND	---	0.00100	"	"	ND	--	--	--	11.6%	"	"	
Selenium	"	ND	---	0.00100	"	"	ND	--	--	--	NR	"	"	
Matrix Spike (8J15028-MS1)							QC Source: SRJ0068-01	Extracted: 10/15/08 12:53						
Selenium	EPA 200.8 - Diss	0.124	---	0.00100	mg/l	1x	ND	0.100	124%	(80-120)	--	--	10/16/08 08:12	M1
Arsenic	"	0.115	---	0.00100	"	"	0.000340	0.0995	115%	(75-125)	--	--	10/15/08 16:33	
Lead	"	0.134	---	0.00100	"	"	0.000810	0.100	133%	"	--	--	"	M1

TestAmerica Spokane



Randee Decker, Project Manager

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LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**

Project Number: 0273017900

Project Manager: Paula Lyon

Report Created:

10/24/08 13:59

Notes and Definitions

Report Specific Notes:

- B1 - Analyte was detected in the associated method blank. Analyte concentration in the sample is greater than 10x the concentration found in the method blank.
- M1 - The MS and/or MSD were above the acceptance limits due to sample matrix interference. See Blank Spike (LCS).
- M7 - The MS and/or MSD were above the acceptance limits. See Blank Spike (LCS).
- M8 - The MS and/or MSD were below the acceptance limits. See Blank Spike (LCS).
- MHA - Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information. See Blank Spike (LCS).
- R - The RPD exceeded the method control limit due to sample matrix effects. The individual analyte QA/QC recoveries, however, were within acceptance limits.
- R2 - The RPD exceeded the acceptance limit.
- R4 - Due to the low levels of analyte in the sample, the duplicate RPD calculation does not provide useful information.

Laboratory Reporting Conventions:

- DET - Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.
- ND - Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).
- NR/NA - Not Reported / Not Available
- dry - Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.
- wet - Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported on a Wet Weight Basis.
- RPD - RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).
- MRL - METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.
- MDL* - METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated Results.
- Dil - Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.
- Reporting Limits - Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and percent solids, where applicable.
- Electronic Signature - Electronic Signature added in accordance with TestAmerica's *Electronic Reporting and Electronic Signatures Policy*. Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Spokane



Randee Decker, Project Manager

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ANALYTICAL TESTING CORPORATION

425-420-9200 FAX 420-9210
509-924-9200 FAX 924-9290
503-906-9200 FAX 906-9210
907-563-9200 FAX 563-9210

Work Order #:

07506

[illegible]

TestAmerica

ANALYTICAL TESTING CORPORATION

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 425-420-9200 FAX 420-9210
11922 E. First Ave, Spokane, WA 99206-5302 509-924-9200 FAX 924-9290
9405 SW Nimbus Ave, Beaverton, OR 97008-7145 503-906-9200 FAX 906-9210
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #: **SP50068**

CLIENT: LEF		INVOICE TO: LEF Inc.							
REPORT TO: Paula Lyon		P.O. NUMBER:							
ADDRESS: 2310 North Miller Rd. Liberty Lake WA 99019		PRESERVATIVE							
PHONE: 509 535 7825 FAX: 509 535 7361		REQUESTED ANALYSES							
PROJECT NAME: Josephine Mink		OTHER							
PROJECT NUMBER: 0273017900		Specify:							
SAMPLED BY: Jim Finley		Turnaround Requests less than standard may incur Rush Charges.							
CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	24 metals	Metals REPA 8 + Zn	DATE	TIME	RECEIVED BY	DATE	TIME	TEMP
1 Row 1	10-6-08	1030	X						
2 T1	10-6-08	1038	X						
3 T2	10-6-08	1203	X						
4 T3	10-6-08	1445	X						
5 T4	10-6-08	1450	X						
6 T5	10-6-08	1505	X						
7 T6	10-6-08	1515	X						
8 T7	10-6-08	1530	X						
9 T8	10-6-08	1545	X						
10 T9	10-6-08	1600	X						
RELEASED BY: Jim Finley		DATE: 10-8-08		TIME: 1545		RECEIVED BY: Paula Lyon		DATE: 10-8-08	
PRINT NAME: Jim Finley		FIRM: LEF		TIME: 1545		PRINT NAME: Paula Lyon		FIRM: LEF	
RELEASED BY: Paula Lyon		DATE: 10-10-08		TIME: 1545		RECEIVED BY: Paula Lyon		DATE: 10-10-08	
PRINT NAME: Paula Lyon		FIRM: LEF		TIME: 1545		PRINT NAME: Paula Lyon		FIRM: LEF	
ADDITIONAL REMARKS:		FIRM: LEF		DATE: 10-10-08		PRINT NAME: Paula Lyon		FIRM: LEF	
TAL-1000 0907		FIRM: LEF		DATE: 10-10-08		PRINT NAME: Paula Lyon		FIRM: LEF	

TestAmerica

ANALYTICAL TESTING CORPORATION

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 425-420-9200 FAX 420-9210
 11922 E. First Ave, Spokane, WA 99206-5302 509-924-9200 FAX 924-9290
 9405 SW Nimbus Ave, Beaverton, OR 97008-7145 503-906-9200 FAX 906-9210
 2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #: **SP200606**

CLIENT: LF2		INVOICE TO:			
REPORT TO: Paula Lyon		P.O. NUMBER:			
ADDRESS: 2310 North Moller Road Liberty Lake WA 99019		PRESERVATIVE			
PHONE: 509-535-7225 FAX: 509-535-7361		REQUESTED ANALYSES			
PROJECT NAME: Josephine Mill		METALS REEAS+2n			
PROJECT NUMBER: 027 30174-00		TAL-23 Metals			
SAMPLED BY: Jim Finlay		OTHER Specify:			
CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA VOID
1 T10	10-6-08 1610	S	1		-20
2 T11	10-6-08 1630	S	1		-21
3 T12	10-6-08 1635	S	1		-22
4 T13	10-6-08 1645	S	1		-23
5 T14	10-6-08 1655	S	1		-24
6 T15	10-7-08 1045	S	1		-25
7 CB1	10-7-08 1200	S	1		-26
8					
9					
10					

RELEASED BY: J Finlay	FIRM: LF2	DATE: 10-8-08	TIME: 1545
PRINT NAME: Paula Lyon	FIRM: LF2	DATE: 10-10-08	TIME: 1150
RECEIVED BY: Paula Lyon	FIRM: LF2	DATE: 10-10-08	TIME: 1150
PRINT NAME: Paula Lyon	FIRM: LF2	DATE: 10-10-08	TIME: 1150
ADDITIONAL REMARKS:			

Amended Report

March 23, 2009

Paula Lyon
LFR, Inc.
2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

RE: Josephine Mill

Enclosed are the results of analyses for samples received by the laboratory on 10/08/08 16:50.
The following list is a summary of the Work Orders contained in this report, generated on 03/23/09 13:30.

If you have any questions concerning this report, please feel free to contact me.

<u>Work Order</u>	<u>Project</u>	<u>ProjectNumber</u>
SRJ0061	Josephine Mill	0273017900

TestAmerica Spokane



Randee Decker, Project Manager

Amended Report

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Amended Report

LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**
Project Number: 0273017900
Project Manager: Paula Lyon

Report Created:
03/23/09 13:30

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TIB	SRJ0061-01	Soil	10/06/08 13:04	10/08/08 16:50
Dump - Comp	SRJ0061-02	Soil	10/07/08 13:20	10/08/08 16:50

TestAmerica Spokane



Randee Decker, Project Manager

Amended Report

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Amended Report

LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**
Project Number: 0273017900
Project Manager: Paula Lyon


Report Created:
03/23/09 13:30

Analytical Case Narrative
TestAmerica - Spokane, WA

SRJ0061

Due to a laboratory error samples SRJ0061-01 & -02 (TIB & Dump - Comp) were not analyzed for Zinc as requested. The samples were re-logged and analyzed and the results are reflected in the amended report.

TestAmerica Spokane



Randee Decker, Project Manager

Amended Report

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Amended Report

LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**

Project Number: 0273017900

Project Manager: Paula Lyon

Report Created:

03/23/09 13:30

Semivolatile Petroleum Products by NWTPH-Dx

TestAmerica Spokane

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
SRJ0061-01 (TIB)		Soil					Sampled: 10/06/08 13:04			
Diesel Range Hydrocarbons	NWTPH-Dx	175	----	11.7	mg/kg dry	1x	8100077	10/10/08 09:04	10/20/08 15:24	
Heavy Oil Range Hydrocarbons	"	463	----	29.2	"	"	"	"	"	
Surrogate(s): 2-FBP		124%			50 - 150 %	"			"	
p-Terphenyl-d14		136%			50 - 150 %	"			"	
SRJ0061-02 (Dump - Comp)		Soil					Sampled: 10/07/08 13:20			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	----	158	mg/kg dry	10x	8100077	10/10/08 09:04	10/18/08 13:51	
Heavy Oil Range Hydrocarbons	"	1120	----	395	"	"	"	"	"	
Surrogate(s): 2-FBP		78.6%			50 - 150 %	"			"	
p-Terphenyl-d14		94.9%			50 - 150 %	"			"	

TestAmerica Spokane



Randee Decker, Project Manager

Amended Report

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Amended Report

LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**
Project Number: 0273017900
Project Manager: Paula Lyon

Report Created:
03/23/09 13:30

Total Metals by EPA 6010/7000 Series Methods

TestAmerica Spokane

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
SRJ0061-01 (TIB)		Soil		Sampled: 10/06/08 13:04						
Arsenic	EPA 6010C	7.09	----	2.92	mg/kg dry	1x	8100128	10/16/08 10:50	10/16/08 17:53	
Barium	"	35.3	----	0.584	"	"	"	"	"	
Cadmium	"	552	----	0.234	"	"	"	"	"	
Chromium	"	3.63	----	0.584	"	"	"	"	"	
Lead	"	4170	----	87.6	"	50x	"	"	10/21/08 14:57	
Mercury	EPA 7471	10600	----	2500	ug/kg dry	"	8100114	10/16/08 06:28	10/17/08 10:47	
Selenium	EPA 6010C	3.59	----	2.92	mg/kg dry	1x	8100128	10/16/08 10:50	10/16/08 17:53	
Silver	"	ND	----	0.584	"	"	"	"	10/17/08 11:30	
Zinc	"	144000	----	29.2	"	50x	"	"	03/20/09 17:45	
SRJ0061-02 (Dump - Comp)		Soil		Sampled: 10/07/08 13:20						
Arsenic	EPA 6010C	9.72	----	3.95	mg/kg dry	1x	8100128	10/16/08 10:50	10/16/08 17:59	
Barium	"	16.3	----	0.790	"	"	"	"	"	
Cadmium	"	143	----	0.316	"	"	"	"	"	
Chromium	"	6.29	----	0.790	"	"	"	"	"	
Lead	"	12900	----	237	"	100x	"	"	10/21/08 15:03	
Mercury	EPA 7471	4860	----	1250	ug/kg dry	25x	8100114	10/16/08 06:28	10/17/08 10:49	
Selenium	EPA 6010C	ND	----	3.95	mg/kg dry	1x	8100128	10/16/08 10:50	10/16/08 17:59	
Silver	"	ND	----	0.790	"	"	"	"	10/17/08 11:33	
Zinc	"	57200	----	79.0	"	100x	"	"	03/20/09 17:52	

TestAmerica Spokane



Randee Decker, Project Manager

Amended Report

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Amended Report

LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**

Project Number: 0273017900

Project Manager: Paula Lyon

Report Created:

03/23/09 13:30

Volatile Organic Compounds by EPA Method 8260B

TestAmerica Spokane

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
SRJ0061-01 (TIB)		Soil		Sampled: 10/06/08 13:04						
Dichlorodifluoromethane	EPA 8260B	ND	----	0.129	mg/kg dry	1x	8100086	10/13/08 14:03	10/14/08 16:01	
Chloromethane	"	ND	----	0.645	"	"	"	"	"	
Vinyl chloride	"	ND	----	0.129	"	"	"	"	"	
Bromomethane	"	ND	----	0.645	"	"	"	"	"	
Chloroethane	"	ND	----	0.129	"	"	"	"	"	
Trichlorofluoromethane	"	ND	----	0.0387	"	"	"	"	"	
1,1-Dichloroethene	"	ND	----	0.129	"	"	"	"	"	
Carbon disulfide	"	ND	----	0.129	"	"	"	"	"	
Methylene chloride	"	ND	----	1.29	"	"	"	"	"	
Acetone	"	ND	----	1.29	"	"	"	"	"	
trans-1,2-Dichloroethene	"	ND	----	0.129	"	"	"	"	"	
Methyl tert-butyl ether	"	ND	----	0.129	"	"	"	"	"	
1,1-Dichloroethane	"	ND	----	0.129	"	"	"	"	"	
cis-1,2-Dichloroethene	"	ND	----	0.129	"	"	"	"	"	
2,2-Dichloropropane	"	ND	----	0.129	"	"	"	"	"	
Bromochloromethane	"	ND	----	0.129	"	"	"	"	"	
Chloroform	"	ND	----	0.129	"	"	"	"	"	
Carbon tetrachloride	"	ND	----	0.129	"	"	"	"	"	
1,1,1-Trichloroethane	"	ND	----	0.129	"	"	"	"	"	
2-Butanone	"	ND	----	1.29	"	"	"	"	"	
1,1-Dichloropropene	"	ND	----	0.129	"	"	"	"	"	
Benzene	"	ND	----	0.0258	"	"	"	"	"	
1,2-Dichloroethane (EDC)	"	ND	----	0.129	"	"	"	"	"	
Trichloroethene	"	ND	----	0.0387	"	"	"	"	"	
Dibromomethane	"	ND	----	0.129	"	"	"	"	"	
1,2-Dichloropropane	"	ND	----	0.129	"	"	"	"	"	
Bromodichloromethane	"	ND	----	0.129	"	"	"	"	"	
cis-1,3-Dichloropropene	"	ND	----	0.129	"	"	"	"	"	
Toluene	"	ND	----	0.129	"	"	"	"	"	
4-Methyl-2-pentanone	"	ND	----	1.29	"	"	"	"	"	
trans-1,3-Dichloropropene	"	ND	----	0.129	"	"	"	"	"	
Tetrachloroethene	"	ND	----	0.129	"	"	"	"	"	
1,1,2-Trichloroethane	"	ND	----	0.129	"	"	"	"	"	
Dibromochloromethane	"	ND	----	0.129	"	"	"	"	"	
1,3-Dichloropropane	"	ND	----	0.129	"	"	"	"	"	
1,2-Dibromoethane	"	ND	----	0.129	"	"	"	"	"	
2-Hexanone	"	ND	----	1.29	"	"	"	"	"	
Ethylbenzene	"	ND	----	0.129	"	"	"	"	"	

TestAmerica Spokane



Randee Decker, Project Manager

Amended Report

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Amended Report

LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**
Project Number: 0273017900
Project Manager: Paula Lyon

Report Created:
03/23/09 13:30

Volatile Organic Compounds by EPA Method 8260B

TestAmerica Spokane

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
SRJ0061-01 (TIB)		Soil		Sampled: 10/06/08 13:04						
Chlorobenzene	EPA 8260B	ND	----	0.129	mg/kg dry	1x	8100086	10/13/08 14:03	10/14/08 16:01	
1,1,1,2-Tetrachloroethane	"	ND	----	0.129	"	"	"	"	"	
m,p-Xylene	"	ND	----	0.516	"	"	"	"	"	
o-Xylene	"	ND	----	0.258	"	"	"	"	"	
Styrene	"	ND	----	0.129	"	"	"	"	"	
Bromoform	"	ND	----	0.129	"	"	"	"	"	
Isopropylbenzene	"	ND	----	0.129	"	"	"	"	"	
n-Propylbenzene	"	ND	----	0.129	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	"	ND	----	0.129	"	"	"	"	"	
Bromobenzene	"	ND	----	0.129	"	"	"	"	"	
1,3,5-Trimethylbenzene	"	ND	----	0.129	"	"	"	"	"	
2-Chlorotoluene	"	ND	----	0.129	"	"	"	"	"	
1,2,3-Trichloropropane	"	ND	----	0.129	"	"	"	"	"	
4-Chlorotoluene	"	ND	----	0.129	"	"	"	"	"	
tert-Butylbenzene	"	ND	----	0.129	"	"	"	"	"	
1,2,4-Trimethylbenzene	"	ND	----	0.129	"	"	"	"	"	
sec-Butylbenzene	"	ND	----	0.129	"	"	"	"	"	
p-Isopropyltoluene	"	ND	----	0.129	"	"	"	"	"	
1,3-Dichlorobenzene	"	ND	----	0.129	"	"	"	"	"	
1,4-Dichlorobenzene	"	ND	----	0.129	"	"	"	"	"	
n-Butylbenzene	"	ND	----	0.129	"	"	"	"	"	
1,2-Dichlorobenzene	"	ND	----	0.129	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	"	ND	----	0.645	"	"	"	"	"	
Hexachlorobutadiene	"	ND	----	0.129	"	"	"	"	"	
1,2,4-Trichlorobenzene	"	ND	----	0.129	"	"	"	"	"	
Naphthalene	"	ND	----	0.258	"	"	"	"	"	
1,2,3-Trichlorobenzene	"	ND	----	0.129	"	"	"	"	"	
Surrogate(s): Dibromofluoromethane		116%		42.7 - 151 %	"				"	
Toluene-d8		94.9%		50.8 - 132 %	"				"	
4-bromofluorobenzene		93.7%		51 - 136 %	"				"	

TestAmerica Spokane



Randee Decker, Project Manager

Amended Report

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Amended Report

LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**
Project Number: 0273017900
Project Manager: Paula Lyon

Report Created:
03/23/09 13:30

Volatile Organic Compounds by EPA Method 8260B

TestAmerica Spokane

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
SRJ0061-02 (Dump - Comp)		Soil		Sampled: 10/07/08 13:20						
Dichlorodifluoromethane	EPA 8260B	ND	----	0.198	mg/kg dry	1x	8100086	10/13/08 14:03	10/14/08 17:34	
Chloromethane	"	ND	----	0.988	"	"	"	"	"	
Vinyl chloride	"	ND	----	0.198	"	"	"	"	"	
Bromomethane	"	ND	----	0.988	"	"	"	"	"	
Chloroethane	"	ND	----	0.198	"	"	"	"	"	
Trichlorofluoromethane	"	ND	----	0.0593	"	"	"	"	"	
1,1-Dichloroethene	"	ND	----	0.198	"	"	"	"	"	
Carbon disulfide	"	ND	----	0.198	"	"	"	"	"	
Methylene chloride	"	ND	----	1.98	"	"	"	"	"	
Acetone	"	ND	----	1.98	"	"	"	"	"	
trans-1,2-Dichloroethene	"	ND	----	0.198	"	"	"	"	"	
Methyl tert-butyl ether	"	ND	----	0.198	"	"	"	"	"	
1,1-Dichloroethane	"	ND	----	0.198	"	"	"	"	"	
cis-1,2-Dichloroethene	"	ND	----	0.198	"	"	"	"	"	
2,2-Dichloropropane	"	ND	----	0.198	"	"	"	"	"	
Bromochloromethane	"	ND	----	0.198	"	"	"	"	"	
Chloroform	"	ND	----	0.198	"	"	"	"	"	
Carbon tetrachloride	"	ND	----	0.198	"	"	"	"	"	
1,1,1-Trichloroethane	"	ND	----	0.198	"	"	"	"	"	
2-Butanone	"	ND	----	1.98	"	"	"	"	"	
1,1-Dichloropropene	"	ND	----	0.198	"	"	"	"	"	
Benzene	"	ND	----	0.0395	"	"	"	"	"	
1,2-Dichloroethane (EDC)	"	ND	----	0.198	"	"	"	"	"	
Trichloroethene	"	ND	----	0.0593	"	"	"	"	"	
Dibromomethane	"	ND	----	0.198	"	"	"	"	"	
1,2-Dichloropropane	"	ND	----	0.198	"	"	"	"	"	
Bromodichloromethane	"	ND	----	0.198	"	"	"	"	"	
cis-1,3-Dichloropropene	"	ND	----	0.198	"	"	"	"	"	
Toluene	"	ND	----	0.198	"	"	"	"	"	
4-Methyl-2-pentanone	"	ND	----	1.98	"	"	"	"	"	
trans-1,3-Dichloropropene	"	ND	----	0.198	"	"	"	"	"	
Tetrachloroethene	"	ND	----	0.198	"	"	"	"	"	
1,1,2-Trichloroethane	"	ND	----	0.198	"	"	"	"	"	
Dibromochloromethane	"	ND	----	0.198	"	"	"	"	"	
1,3-Dichloropropane	"	ND	----	0.198	"	"	"	"	"	
1,2-Dibromoethane	"	ND	----	0.198	"	"	"	"	"	
2-Hexanone	"	ND	----	1.98	"	"	"	"	"	
Ethylbenzene	"	ND	----	0.198	"	"	"	"	"	

TestAmerica Spokane



Randee Decker, Project Manager

Amended Report

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Amended Report

LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**
Project Number: 0273017900
Project Manager: Paula Lyon

Report Created:
03/23/09 13:30

Volatile Organic Compounds by EPA Method 8260B

TestAmerica Spokane

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
SRJ0061-02 (Dump - Comp)		Soil		Sampled: 10/07/08 13:20						
Chlorobenzene	EPA 8260B	ND	----	0.198	mg/kg dry	1x	8100086	10/13/08 14:03	10/14/08 17:34	
1,1,1,2-Tetrachloroethane	"	ND	----	0.198	"	"	"	"	"	
m,p-Xylene	"	ND	----	0.790	"	"	"	"	"	
o-Xylene	"	ND	----	0.395	"	"	"	"	"	
Styrene	"	ND	----	0.198	"	"	"	"	"	
Bromoform	"	ND	----	0.198	"	"	"	"	"	
Isopropylbenzene	"	ND	----	0.198	"	"	"	"	"	
n-Propylbenzene	"	ND	----	0.198	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	"	ND	----	0.198	"	"	"	"	"	
Bromobenzene	"	ND	----	0.198	"	"	"	"	"	
1,3,5-Trimethylbenzene	"	ND	----	0.198	"	"	"	"	"	
2-Chlorotoluene	"	ND	----	0.198	"	"	"	"	"	
1,2,3-Trichloropropane	"	ND	----	0.198	"	"	"	"	"	
4-Chlorotoluene	"	ND	----	0.198	"	"	"	"	"	
tert-Butylbenzene	"	ND	----	0.198	"	"	"	"	"	
1,2,4-Trimethylbenzene	"	ND	----	0.198	"	"	"	"	"	
sec-Butylbenzene	"	ND	----	0.198	"	"	"	"	"	
p-Isopropyltoluene	"	ND	----	0.198	"	"	"	"	"	
1,3-Dichlorobenzene	"	ND	----	0.198	"	"	"	"	"	
1,4-Dichlorobenzene	"	ND	----	0.198	"	"	"	"	"	
n-Butylbenzene	"	ND	----	0.198	"	"	"	"	"	
1,2-Dichlorobenzene	"	ND	----	0.198	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	"	ND	----	0.988	"	"	"	"	"	
Hexachlorobutadiene	"	ND	----	0.198	"	"	"	"	"	
1,2,4-Trichlorobenzene	"	ND	----	0.198	"	"	"	"	"	
Naphthalene	"	ND	----	0.395	"	"	"	"	"	
1,2,3-Trichlorobenzene	"	ND	----	0.198	"	"	"	"	"	
Surrogate(s): Dibromofluoromethane		124%		42.7 - 151 %	"				"	
Toluene-d8		101%		50.8 - 132 %	"				"	
4-bromofluorobenzene		101%		51 - 136 %	"				"	

TestAmerica Spokane



Randee Decker, Project Manager

Amended Report

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Amended Report

LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**
Project Number: 0273017900
Project Manager: Paula Lyon

Report Created:
03/23/09 13:30

Polychlorinated Biphenyls by EPA Method 8082

TestAmerica Spokane

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
SRJ0061-01 (TIB)			Soil				Sampled: 10/06/08 13:04			
PCB-1016	EPA 8082	ND	----	58.4	ug/kg dry	1x	8100085	10/21/08 12:34	10/22/08 20:23	
PCB-1221	"	ND	----	58.4	"	"	"	"	10/22/08 19:56	
PCB-1232	"	ND	----	58.4	"	"	"	"	"	
PCB-1242	"	ND	----	58.4	"	"	"	"	"	
PCB-1248	"	ND	----	58.4	"	"	"	"	"	
PCB-1254	"	ND	----	58.4	"	"	"	"	"	
PCB-1260	"	ND	----	58.4	"	"	"	"	10/22/08 20:23	

Surrogate(s): TCX 96.2% 27.9 - 154 % "

Decachlorobiphenyl 55.9% 35 - 157 % "

SRJ0061-02 (Dump - Comp)			Soil				Sampled: 10/07/08 13:20			
PCB-1016	EPA 8082	ND	----	79.0	ug/kg dry	1x	8100085	10/21/08 12:34	10/22/08 20:51	
PCB-1221	"	ND	----	79.0	"	"	"	"	10/22/08 20:23	
PCB-1232	"	ND	----	79.0	"	"	"	"	"	
PCB-1242	"	ND	----	79.0	"	"	"	"	"	
PCB-1248	"	ND	----	79.0	"	"	"	"	"	
PCB-1254	"	ND	----	79.0	"	"	"	"	"	
PCB-1260	"	ND	----	79.0	"	"	"	"	10/22/08 20:51	

Surrogate(s): TCX 90.1% 27.9 - 154 % "

Decachlorobiphenyl 56.3% 35 - 157 % "

TestAmerica Spokane



Randee Decker, Project Manager

Amended Report

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Amended Report

LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**
Project Number: 0273017900
Project Manager: Paula Lyon

Report Created:
03/23/09 13:30

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

TestAmerica Spokane

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
SRJ0061-01 (TIB)		Soil		Sampled: 10/06/08 13:04						
1-Methylnaphthalene	EPA 8270 mod.	ND	----	0.0117	mg/kg dry	1x	8100090	10/14/08 07:20	10/21/08 17:09	
2-Methylnaphthalene	"	ND	----	0.0117	"	"	"	"	"	
Acenaphthene	"	ND	----	0.0117	"	"	"	"	"	
Acenaphthylene	"	ND	----	0.0117	"	"	"	"	"	
Anthracene	"	ND	----	0.0117	"	"	"	"	"	
Benzo (a) anthracene	"	ND	----	0.0117	"	"	"	"	"	
Benzo (a) pyrene	"	ND	----	0.0117	"	"	"	"	"	
Benzo (b) fluoranthene	"	ND	----	0.0117	"	"	"	"	"	
Benzo (ghi) perylene	"	ND	----	0.0117	"	"	"	"	"	
Benzo (k) fluoranthene	"	ND	----	0.0117	"	"	"	"	"	
Chrysene	"	0.0164	----	0.0117	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	----	0.0117	"	"	"	"	"	
Fluoranthene	"	ND	----	0.0117	"	"	"	"	"	
Fluorene	"	ND	----	0.0117	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	ND	----	0.0117	"	"	"	"	"	
Naphthalene	"	ND	----	0.0117	"	"	"	"	"	
Phenanthrene	"	ND	----	0.0117	"	"	"	"	"	
Pyrene	"	ND	----	0.0117	"	"	"	"	"	
<i>Surrogate(s): Nitrobenzene-d5</i>		<i>109%</i>		<i>38.8 - 139 %</i>		<i>"</i>		<i>"</i>		
<i>2-FBP</i>		<i>112%</i>		<i>40 - 132 %</i>		<i>"</i>		<i>"</i>		
<i>p-Terphenyl-d14</i>		<i>128%</i>		<i>31.7 - 179 %</i>		<i>"</i>		<i>"</i>		

SRJ0061-02 (Dump - Comp)

SRJ0061-02 (Dump - Comp)		Soil		Sampled: 10/07/08 13:20						
1-Methylnaphthalene	EPA 8270 mod.	ND	----	0.0256	mg/kg dry	1x	8100090	10/14/08 07:20	10/21/08 17:38	
2-Methylnaphthalene	"	ND	----	0.0256	"	"	"	"	"	
Acenaphthene	"	ND	----	0.0256	"	"	"	"	"	
Acenaphthylene	"	ND	----	0.0256	"	"	"	"	"	
Anthracene	"	ND	----	0.0256	"	"	"	"	"	
Benzo (a) anthracene	"	ND	----	0.0256	"	"	"	"	"	
Benzo (a) pyrene	"	ND	----	0.0256	"	"	"	"	"	
Benzo (b) fluoranthene	"	ND	----	0.0256	"	"	"	"	"	
Benzo (ghi) perylene	"	ND	----	0.0256	"	"	"	"	"	
Benzo (k) fluoranthene	"	ND	----	0.0256	"	"	"	"	"	
Chrysene	"	ND	----	0.0256	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	----	0.0256	"	"	"	"	"	
Fluoranthene	"	ND	----	0.0256	"	"	"	"	"	
Fluorene	"	ND	----	0.0256	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	ND	----	0.0256	"	"	"	"	"	

TestAmerica Spokane

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Amended Report

Randee Decker, Project Manager



LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**
Project Number: 0273017900
Project Manager: Paula Lyon

Report Created:
03/23/09 13:30

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring
TestAmerica Spokane

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
SRJ0061-02	(Dump - Comp)		Soil				Sampled: 10/07/08 13:20			
Naphthalene	EPA 8270 mod.	ND	----	0.0256	mg/kg dry	1x	8100090	10/14/08 07:20	10/21/08 17:38	
Phenanthrene	"	ND	----	0.0256	"	"	"	"	"	
Pyrene	"	ND	----	0.0256	"	"	"	"	"	
<i>Surrogate(s):</i>	<i>Nitrobenzene-d5</i>		<i>81.4%</i>			<i>38.8 - 139 %</i>	<i>"</i>			<i>"</i>
	<i>2-FBP</i>		<i>92.2%</i>			<i>40 - 132 %</i>	<i>"</i>			<i>"</i>
	<i>p-Terphenyl-d14</i>		<i>112%</i>			<i>31.7 - 179 %</i>	<i>"</i>			<i>"</i>

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Amended Report

Randee Decker, Project Manager



Amended Report

LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**
Project Number: 0273017900
Project Manager: Paula Lyon

Report Created:
03/23/09 13:30

Conventional Chemistry Parameters by APHA/EPA Methods

TestAmerica Spokane

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
SRJ0061-01 (TIB)			Soil				Sampled: 10/06/08 13:04			
% Solids	TA SOP	85.6	----	0.0100	% by Weight	1x	8100091	10/10/08 11:20	10/15/08 15:31	
SRJ0061-02 (Dump - Comp)			Soil				Sampled: 10/07/08 13:20			
% Solids	TA SOP	63.3	----	0.0100	% by Weight	1x	8100091	10/10/08 11:20	10/15/08 15:31	

TestAmerica Spokane



Randee Decker, Project Manager

Amended Report

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LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**
Project Number: 0273017900
Project Manager: Paula Lyon

Report Created:
03/23/09 13:30

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
SRJ0061-01 (TIB)		Soil					Sampled: 10/06/08 13:04			
Acenaphthene	EPA 8270C	ND	----	0.327	mg/kg wet	1x	8100535	10/14/08 18:45	10/17/08 00:27	
Acenaphthylene	"	ND	----	0.327	"	"	"	"	"	
Anthracene	"	ND	----	0.327	"	"	"	"	"	
Benzo (a) anthracene	"	ND	----	0.327	"	"	"	"	"	
Benzo (a) pyrene	"	ND	----	0.327	"	"	"	"	"	
Benzo (b) fluoranthene	"	ND	----	0.327	"	"	"	"	"	
Benzo (ghi) perylene	"	ND	----	0.327	"	"	"	"	"	
Benzo (k) fluoranthene	"	ND	----	0.327	"	"	"	"	"	
Benzoic Acid	"	ND	----	0.990	"	"	"	"	"	
Benzyl alcohol	"	ND	----	0.990	"	"	"	"	"	
4-Bromophenyl phenyl ether	"	ND	----	0.327	"	"	"	"	"	
Butyl benzyl phthalate	"	ND	----	0.327	"	"	"	"	"	
4-Chloro-3-methylphenol	"	ND	----	0.327	"	"	"	"	"	
4-Chloroaniline	"	ND	----	1.98	"	"	"	"	"	
Bis(2-chloroethoxy)methane	"	ND	----	0.327	"	"	"	"	"	
Bis(2-chloroethyl)ether	"	ND	----	0.327	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	"	ND	----	0.327	"	"	"	"	"	
2-Chloronaphthalene	"	ND	----	0.327	"	"	"	"	"	
2-Chlorophenol	"	ND	----	0.327	"	"	"	"	"	
4-Chlorophenyl phenyl ether	"	ND	----	0.327	"	"	"	"	"	
Chrysene	"	ND	----	0.327	"	"	"	"	"	
Di-n-butyl phthalate	"	ND	----	0.990	"	"	"	"	"	
Di-n-octyl phthalate	"	ND	----	0.327	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	----	0.327	"	"	"	"	"	
Dibenzofuran	"	ND	----	0.327	"	"	"	"	"	
1,2-Dichlorobenzene	"	ND	----	0.990	"	"	"	"	"	
1,3-Dichlorobenzene	"	ND	----	0.990	"	"	"	"	"	
1,4-Dichlorobenzene	"	ND	----	0.990	"	"	"	"	"	
3,3'-Dichlorobenzidine	"	ND	----	0.990	"	"	"	"	"	
2,4-Dichlorophenol	"	ND	----	0.327	"	"	"	"	"	
Diethyl phthalate	"	ND	----	0.327	"	"	"	"	"	
2,4-Dimethylphenol	"	ND	----	0.990	"	"	"	"	"	
Dimethyl phthalate	"	ND	----	0.327	"	"	"	"	"	
4,6-Dinitro-2-methylphenol	"	ND	----	0.990	"	"	"	"	"	
2,4-Dinitrophenol	"	ND	----	1.98	"	"	"	"	"	
2,4-Dinitrotoluene	"	ND	----	0.495	"	"	"	"	"	
2,6-Dinitrotoluene	"	ND	----	0.495	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	"	ND	----	1.98	"	"	"	"	"	

TestAmerica Spokane

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Amended Report

Randee Decker, Project Manager

Amended Report

LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**
Project Number: 0273017900
Project Manager: Paula Lyon

Report Created:
03/23/09 13:30

Semivolatile Organic Compounds per EPA Method 8270C

TestAmerica Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
SRJ0061-01 (TIB)		Soil		Sampled: 10/06/08 13:04						
Fluoranthene	EPA 8270C	ND	----	0.327	mg/kg wet	1x	8100535	10/14/08 18:45	10/17/08 00:27	
Fluorene	"	ND	----	0.327	"	"	"	"	"	
Hexachlorobenzene	"	ND	----	0.327	"	"	"	"	"	
Hexachlorobutadiene	"	ND	----	0.990	"	"	"	"	"	
Hexachlorocyclopentadiene	"	ND	----	0.990	"	"	"	"	"	
Hexachloroethane	"	ND	----	0.990	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	ND	----	0.327	"	"	"	"	"	
Isophorone	"	ND	----	0.327	"	"	"	"	"	
2-Methylnaphthalene	"	ND	----	0.327	"	"	"	"	"	
2-Methylphenol	"	ND	----	0.327	"	"	"	"	"	
3-,4-Methylphenol	"	ND	----	0.327	"	"	"	"	"	
Naphthalene	"	ND	----	0.327	"	"	"	"	"	
2-Nitroaniline	"	ND	----	0.327	"	"	"	"	"	
3-Nitroaniline	"	ND	----	0.990	"	"	"	"	"	
4-Nitroaniline	"	ND	----	0.327	"	"	"	"	"	
Nitrobenzene	"	ND	----	0.327	"	"	"	"	"	
2-Nitrophenol	"	ND	----	0.327	"	"	"	"	"	
4-Nitrophenol	"	ND	----	0.990	"	"	"	"	"	
N-Nitrosodi-n-propylamine	"	ND	----	0.327	"	"	"	"	"	
N-Nitrosodiphenylamine	"	ND	----	0.327	"	"	"	"	"	
Pentachlorophenol	"	ND	----	0.990	"	"	"	"	"	
Phenanthrene	"	ND	----	0.327	"	"	"	"	"	
Phenol	"	ND	----	0.327	"	"	"	"	"	
Pyrene	"	ND	----	0.327	"	"	"	"	"	
1,2,4-Trichlorobenzene	"	ND	----	0.990	"	"	"	"	"	
2,4,5-Trichlorophenol	"	ND	----	0.327	"	"	"	"	"	
2,4,6-Trichlorophenol	"	ND	----	0.327	"	"	"	"	"	
<i>Surrogate(s): 2-Fluorobiphenyl</i>		85.5%		30 - 126 %		"		"		
<i>2-Fluorophenol</i>		71.4%		28 - 119 %		"		"		
<i>Nitrobenzene-d5</i>		76.3%		26 - 117 %		"		"		
<i>Phenol-d6</i>		72.3%		35 - 125 %		"		"		
<i>p-Terphenyl-d14</i>		73.6%		26 - 143 %		"		"		
<i>2,4,6-Tribromophenol</i>		82.8%		30 - 127 %		"		"		

TestAmerica Spokane



Randee Decker, Project Manager

Amended Report

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LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**

Project Number: 0273017900

Project Manager: Paula Lyon

Report Created:

03/23/09 13:30

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
SRJ0061-02	(Dump - Comp)	Soil					Sampled: 10/07/08 13:20			RL3
Acenaphthene	EPA 8270C	ND	----	0.660	mg/kg wet	2x	8100535	10/14/08 18:45	10/17/08 00:49	
Acenaphthylene	"	ND	----	0.660	"	"	"	"	"	
Anthracene	"	ND	----	0.660	"	"	"	"	"	
Benzo (a) anthracene	"	ND	----	0.660	"	"	"	"	"	
Benzo (a) pyrene	"	ND	----	0.660	"	"	"	"	"	
Benzo (b) fluoranthene	"	ND	----	0.660	"	"	"	"	"	
Benzo (ghi) perylene	"	ND	----	0.660	"	"	"	"	"	
Benzo (k) fluoranthene	"	ND	----	0.660	"	"	"	"	"	
Benzoic Acid	"	ND	----	2.00	"	"	"	"	"	
Benzyl alcohol	"	ND	----	2.00	"	"	"	"	"	
4-Bromophenyl phenyl ether	"	ND	----	0.660	"	"	"	"	"	
Butyl benzyl phthalate	"	ND	----	0.660	"	"	"	"	"	
4-Chloro-3-methylphenol	"	ND	----	0.660	"	"	"	"	"	
4-Chloroaniline	"	ND	----	4.00	"	"	"	"	"	
Bis(2-chloroethoxy)methane	"	ND	----	0.660	"	"	"	"	"	
Bis(2-chloroethyl)ether	"	ND	----	0.660	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	"	ND	----	0.660	"	"	"	"	"	
2-Chloronaphthalene	"	ND	----	0.660	"	"	"	"	"	
2-Chlorophenol	"	ND	----	0.660	"	"	"	"	"	
4-Chlorophenyl phenyl ether	"	ND	----	0.660	"	"	"	"	"	
Chrysene	"	ND	----	0.660	"	"	"	"	"	
Di-n-butyl phthalate	"	ND	----	2.00	"	"	"	"	"	
Di-n-octyl phthalate	"	ND	----	0.660	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	----	0.660	"	"	"	"	"	
Dibenzofuran	"	ND	----	0.660	"	"	"	"	"	
1,2-Dichlorobenzene	"	ND	----	2.00	"	"	"	"	"	
1,3-Dichlorobenzene	"	ND	----	2.00	"	"	"	"	"	
1,4-Dichlorobenzene	"	ND	----	2.00	"	"	"	"	"	
3,3'-Dichlorobenzidine	"	ND	----	2.00	"	"	"	"	"	
2,4-Dichlorophenol	"	ND	----	0.660	"	"	"	"	"	
Diethyl phthalate	"	ND	----	0.660	"	"	"	"	"	
2,4-Dimethylphenol	"	ND	----	2.00	"	"	"	"	"	
Dimethyl phthalate	"	ND	----	0.660	"	"	"	"	"	
4,6-Dinitro-2-methylphenol	"	ND	----	2.00	"	"	"	"	"	
2,4-Dinitrophenol	"	ND	----	4.00	"	"	"	"	"	
2,4-Dinitrotoluene	"	ND	----	0.999	"	"	"	"	"	
2,6-Dinitrotoluene	"	ND	----	0.999	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	"	ND	----	4.00	"	"	"	"	"	

TestAmerica Spokane

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Amended Report

Randee Decker, Project Manager

LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**
Project Number: 0273017900
Project Manager: Paula Lyon

Report Created:
03/23/09 13:30

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
---------	--------	--------	------	-----	-------	-----	-------	----------	----------	-------

SRJ0061-02	(Dump - Comp)	Soil			Sampled: 10/07/08 13:20					RL3
Fluoranthene	EPA 8270C	ND	----	0.660	mg/kg wet	2x	8100535	10/14/08 18:45	10/17/08 00:49	
Fluorene	"	ND	----	0.660	"	"	"	"	"	
Hexachlorobenzene	"	ND	----	0.660	"	"	"	"	"	
Hexachlorobutadiene	"	ND	----	2.00	"	"	"	"	"	
Hexachlorocyclopentadiene	"	ND	----	2.00	"	"	"	"	"	
Hexachloroethane	"	ND	----	2.00	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	ND	----	0.660	"	"	"	"	"	
Isophorone	"	ND	----	0.660	"	"	"	"	"	
2-Methylnaphthalene	"	ND	----	0.660	"	"	"	"	"	
2-Methylphenol	"	ND	----	0.660	"	"	"	"	"	
3-,4-Methylphenol	"	ND	----	0.660	"	"	"	"	"	
Naphthalene	"	ND	----	0.660	"	"	"	"	"	
2-Nitroaniline	"	ND	----	0.660	"	"	"	"	"	
3-Nitroaniline	"	ND	----	2.00	"	"	"	"	"	
4-Nitroaniline	"	ND	----	0.660	"	"	"	"	"	
Nitrobenzene	"	ND	----	0.660	"	"	"	"	"	
2-Nitrophenol	"	ND	----	0.660	"	"	"	"	"	
4-Nitrophenol	"	ND	----	2.00	"	"	"	"	"	
N-Nitrosodi-n-propylamine	"	ND	----	0.660	"	"	"	"	"	
N-Nitrosodiphenylamine	"	ND	----	0.660	"	"	"	"	"	
Pentachlorophenol	"	ND	----	2.00	"	"	"	"	"	
Phenanthrene	"	ND	----	0.660	"	"	"	"	"	
Phenol	"	ND	----	0.660	"	"	"	"	"	
Pyrene	"	ND	----	0.660	"	"	"	"	"	
1,2,4-Trichlorobenzene	"	ND	----	2.00	"	"	"	"	"	
2,4,5-Trichlorophenol	"	ND	----	0.660	"	"	"	"	"	
2,4,6-Trichlorophenol	"	ND	----	0.660	"	"	"	"	"	
Surrogate(s):	2-Fluorobiphenyl		92.3%			30 - 126 %	"		"	
	2-Fluorophenol		78.8%			28 - 119 %	"		"	
	Nitrobenzene-d5		85.9%			26 - 117 %	"		"	
	Phenol-d6		78.4%			35 - 125 %	"		"	
	p-Terphenyl-d14		72.1%			26 - 143 %	"		"	
	2,4,6-Tribromophenol		84.8%			30 - 127 %	"		"	

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Randee Decker, Project Manager

Amended Report

Amended Report

LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**

Project Number: 0273017900

Project Manager: Paula Lyon

Report Created:

03/23/09 13:30

Semivolatile Petroleum Products by NWTPH-Dx - Laboratory Quality Control Results

TestAmerica Spokane

QC Batch: 8100077

Soil Preparation Method: EPA 3550B

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8100077-BLK1)							Extracted: 10/10/08 09:04							
Diesel Range Hydrocarbons	NWTPH-Dx	ND	---	10.0	mg/kg wet	1x	--	--	--	--	--	--	10/16/08 12:44	
Heavy Oil Range Hydrocarbons	"	ND	---	25.0	"	"	--	--	--	--	--	--	"	
Surrogate(s): 2-FBP		Recovery:	95.7%	Limits: 50-150%		"	10/16/08 12:44							
p-Terphenyl-d14			110%	50-150%		"	"							
LCS (8100077-BS1)							Extracted: 10/10/08 09:04							
Diesel Range Hydrocarbons	NWTPH-Dx	104	---	10.0	mg/kg wet	1x	--	83.3	124%	(73-133)	--	--	10/17/08 21:24	
Surrogate(s): 2-FBP		Recovery:	105%	Limits: 50-150%		"	10/17/08 21:24							
p-Terphenyl-d14			113%	50-150%		"	"							
Duplicate (8100077-DUP1)				QC Source: SRJ0061-01				Extracted: 10/10/08 09:04						
Diesel Range Hydrocarbons	NWTPH-Dx	87.1	---	11.7	mg/kg dry	1x	175	--	--	--	67.0% (40)	--	10/20/08 11:27	R3
Heavy Oil Range Hydrocarbons	"	207	---	29.2	"	"	463	--	--	--	76.3%	"	"	R3
Surrogate(s): 2-FBP		Recovery:	93.4%	Limits: 50-150%		"	10/20/08 11:27							
p-Terphenyl-d14			105%	50-150%		"	"							
Matrix Spike (8100077-MS1)				QC Source: SRJ0061-01				Extracted: 10/10/08 09:04						
Diesel Range Hydrocarbons	NWTPH-Dx	221	---	11.7	mg/kg dry	1x	175	97.4	48.0%	(70.1-139)	--	--	10/17/08 22:34	M7
Surrogate(s): 2-FBP		Recovery:	95.5%	Limits: 50-150%		"	10/17/08 22:34							
p-Terphenyl-d14			103%	50-150%		"	"							

TestAmerica Spokane



Randee Decker, Project Manager

Amended Report

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Amended Report

LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**
Project Number: 0273017900
Project Manager: Paula Lyon

Report Created:
03/23/09 13:30

Total Metals by EPA 6010/7000 Series Methods - Laboratory Quality Control Results

TestAmerica Spokane

QC Batch: 8100114

Soil Preparation Method: Metals

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8100114-BLK1)							Extracted: 10/16/08 06:28							
Mercury	EPA 7471	ND	---	50.0	ug/kg wet	1x	--	--	--	--	--	--	10/16/08 14:15	
LCS (8100114-BS1)							Extracted: 10/16/08 06:28							
Mercury	EPA 7471	104	---	50.0	ug/kg wet	1x	--	100	104%	(80-120)	--	--	10/16/08 14:13	
Duplicate (8100114-DUP1)							QC Source: SRJ0052-28		Extracted: 10/16/08 06:28					
Mercury	EPA 7471	115000	---	5000	ug/kg dry	100x	69200	--	--	--	49.7% (40)	--	10/17/08 11:08	R2
Matrix Spike (8100114-MS1)							QC Source: SRJ0052-28		Extracted: 10/16/08 06:28					
Mercury	EPA 7471	87500	---	10000	ug/kg dry	200x	69200	117	15600	(80-120)	--	--	10/17/08 12:09	MHA
Matrix Spike Dup (8100114-MSD1)							QC Source: SRJ0052-28		Extracted: 10/16/08 06:28					
Mercury	EPA 7471	78600	---	5000	ug/kg dry	100x	69200	117	8000%	(80-120)	10.7% (20)	--	10/17/08 11:13	MHA

QC Batch: 8100128

Soil Preparation Method: Metals

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8100128-BLK1)							Extracted: 10/16/08 10:50							
Zinc	EPA 6010C	ND	---	0.500	mg/kg wet	1x	--	--	--	--	--	--	10/21/08 14:52	
Cadmium	"	ND	---	0.200	"	"	--	--	--	--	--	--	10/16/08 19:46	
Selenium	"	ND	---	2.50	"	"	--	--	--	--	--	--	"	
Lead	"	ND	---	1.50	"	"	--	--	--	--	--	--	10/17/08 09:09	
Chromium	"	ND	---	0.500	"	"	--	--	--	--	--	--	10/16/08 19:46	
Silver	"	ND	---	0.500	"	"	--	--	--	--	--	--	10/17/08 11:27	
Barium	"	ND	---	0.500	"	"	--	--	--	--	--	--	10/16/08 19:46	
Arsenic	"	ND	---	2.50	"	"	--	--	--	--	--	--	"	
LCS (8100128-BS1)							Extracted: 10/16/08 10:50							
Lead	EPA 6010C	53.9	---	1.50	mg/kg wet	1x	--	50.0	108%	(80-120)	--	--	10/17/08 09:05	
Silver	"	53.0	---	0.500	"	"	--	"	106%	"	--	--	10/17/08 11:25	
Arsenic	"	49.8	---	2.50	"	"	--	"	99.5%	"	--	--	10/16/08 17:43	
Selenium	"	49.6	---	2.50	"	"	--	"	99.2%	"	--	--	"	
Chromium	"	53.0	---	0.500	"	"	--	"	106%	"	--	--	"	
Cadmium	"	51.9	---	0.200	"	"	--	"	104%	"	--	--	"	
Barium	"	53.1	---	0.500	"	"	--	"	106%	"	--	--	"	
Zinc	"	54.2	---	0.500	"	"	--	"	108%	"	--	--	10/21/08 14:47	

TestAmerica Spokane



Randee Decker, Project Manager

Amended Report

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Amended Report

LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**
Project Number: 0273017900
Project Manager: Paula Lyon

Report Created:
03/23/09 13:30

Total Metals by EPA 6010/7000 Series Methods - Laboratory Quality Control Results

TestAmerica Spokane

QC Batch: 8100128

Soil Preparation Method: Metals

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Duplicate (8100128-DUP1)			QC Source: SRJ0101-01					Extracted: 10/16/08 10:50						
Selenium	EPA 6010C	ND	---	3.09	mg/kg dry	1x	ND	--	--	--	NR	(20)	10/16/08 19:29	
Lead	"	9.25	---	1.86	"	"	10.3	--	--	--	10.8%	"	10/17/08 09:41	
Cadmium	"	0.288	---	0.248	"	"	0.306	--	--	--	6.28%	"	10/16/08 19:29	
Barium	"	140	---	0.619	"	"	145	--	--	--	3.18%	"	"	
Chromium	"	15.4	---	0.619	"	"	15.8	--	--	--	2.30%	"	"	
Silver	"	ND	---	0.619	"	"	ND	--	--	--	NR	"	10/17/08 12:17	
Zinc	"	63.9	---	0.619	"	"	65.3	--	--	--	2.08%	"	10/21/08 16:17	
Arsenic	"	4.82	---	3.09	"	"	7.33	--	--	--	41.4%	"	10/16/08 19:29	R2
Matrix Spike (8100128-MS1)			QC Source: SRJ0101-01					Extracted: 10/16/08 10:50						
Zinc	EPA 6010C	360	---	0.619	mg/kg dry	1x	65.3	61.9	477%	(75-125)	--	--	10/21/08 16:23	M7
Barium	"	196	---	0.619	"	"	145	"	82.3%	"	--	--	10/16/08 19:35	
Chromium	"	71.3	---	0.619	"	"	15.8	"	89.8%	"	--	--	"	
Selenium	"	45.7	---	3.09	"	"	ND	"	73.9%	"	--	--	"	M8
Lead	"	64.0	---	1.86	"	"	10.3	"	86.8%	"	--	--	10/17/08 09:47	
Cadmium	"	58.3	---	0.248	"	"	0.306	"	93.8%	"	--	--	10/16/08 19:35	
Arsenic	"	59.8	---	3.09	"	"	7.33	"	84.8%	"	--	--	"	
Silver	"	54.7	---	0.619	"	"	ND	"	88.4%	"	--	--	10/17/08 12:19	
Matrix Spike Dup (8100128-MSD1)			QC Source: SRJ0101-01					Extracted: 10/16/08 10:50						
Lead	EPA 6010C	62.9	---	1.86	mg/kg dry	1x	10.3	61.9	84.9%	(75-125)	1.80%	(20)	10/17/08 09:52	
Barium	"	196	---	0.619	"	"	145	"	82.5%	"	0.0455%	"	10/16/08 19:40	
Chromium	"	71.6	---	0.619	"	"	15.8	"	90.2%	"	0.387%	"	"	
Cadmium	"	57.6	---	0.248	"	"	0.306	"	92.5%	"	1.34%	"	"	
Silver	"	55.3	---	0.619	"	"	ND	"	89.3%	"	0.952%	"	10/17/08 12:22	
Selenium	"	45.5	---	3.09	"	"	ND	"	73.5%	"	0.536%	"	10/16/08 19:40	M8
Arsenic	"	58.3	---	3.09	"	"	7.33	"	82.4%	"	2.51%	"	"	
Zinc	"	121	---	0.619	"	"	65.3	"	90.4%	"	99.3%	"	10/21/08 16:29	R

TestAmerica Spokane



Randee Decker, Project Manager

Amended Report

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Amended Report

LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**
Project Number: 0273017900
Project Manager: Paula Lyon

Report Created:
03/23/09 13:30

Volatile Organic Compounds by EPA Method 8260B - Laboratory Quality Control Results

TestAmerica Spokane

QC Batch: 8100086

Soil Preparation Method: GC/MS Volatiles

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8100086-BLK1)										Extracted: 10/13/08 14:03				
Dichlorodifluoromethane	EPA 8260B	ND	---	0.100	mg/kg wet	1x	--	--	--	--	--	--	10/14/08 08:25	
Chloromethane	"	ND	---	0.500	"	"	--	--	--	--	--	--	"	
Vinyl chloride	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Bromomethane	"	ND	---	0.500	"	"	--	--	--	--	--	--	"	
Chloroethane	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Trichlorofluoromethane	"	ND	---	0.0300	"	"	--	--	--	--	--	--	"	
1,1-Dichloroethene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Carbon disulfide	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Methylene chloride	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
Acetone	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
trans-1,2-Dichloroethene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Methyl tert-butyl ether	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
1,1-Dichloroethane	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
cis-1,2-Dichloroethene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
2,2-Dichloropropane	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Bromochloromethane	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Chloroform	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Carbon tetrachloride	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
1,1,1-Trichloroethane	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
2-Butanone	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
1,1-Dichloropropene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Benzene	"	ND	---	0.0200	"	"	--	--	--	--	--	--	"	
1,2-Dichloroethane (EDC)	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Trichloroethene	"	ND	---	0.0300	"	"	--	--	--	--	--	--	"	
Dibromomethane	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
1,2-Dichloropropane	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Bromodichloromethane	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
cis-1,3-Dichloropropene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Toluene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
4-Methyl-2-pentanone	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
trans-1,3-Dichloropropene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Tetrachloroethene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
1,1,2-Trichloroethane	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Dibromochloromethane	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
1,3-Dichloropropane	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
1,2-Dibromoethane	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
2-Hexanone	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
Ethylbenzene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Chlorobenzene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	

TestAmerica Spokane

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Amended Report

Randee Decker, Project Manager



Amended Report

LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**
Project Number: 0273017900
Project Manager: Paula Lyon

Report Created:
03/23/09 13:30

Volatile Organic Compounds by EPA Method 8260B - Laboratory Quality Control Results

TestAmerica Spokane

QC Batch: 8100086

Soil Preparation Method: GC/MS Volatiles

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
---------	--------	--------	------	-----	-------	-----	---------------	-----------	-------	----------	-------	----------	----------	-------

Blank (8100086-BLK1)

Extracted: 10/13/08 14:03

1,1,1,2-Tetrachloroethane	EPA 8260B	ND	---	0.100	mg/kg wet	1x	--	--	--	--	--	--	10/14/08 08:25	
m,p-Xylene	"	ND	---	0.400	"	"	--	--	--	--	--	--	"	
o-Xylene	"	ND	---	0.200	"	"	--	--	--	--	--	--	"	
Styrene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Bromoform	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Isopropylbenzene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
n-Propylbenzene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
1,1,2,2-Tetrachloroethane	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Bromobenzene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
1,3,5-Trimethylbenzene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
2-Chlorotoluene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
1,2,3-Trichloropropane	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
4-Chlorotoluene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
tert-Butylbenzene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
1,2,4-Trimethylbenzene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
sec-Butylbenzene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
p-Isopropyltoluene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
1,3-Dichlorobenzene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
1,4-Dichlorobenzene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
n-Butylbenzene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
1,2-Dichlorobenzene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
1,2-Dibromo-3-chloropropane	"	ND	---	0.500	"	"	--	--	--	--	--	--	"	
Hexachlorobutadiene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
1,2,4-Trichlorobenzene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Naphthalene	"	ND	---	0.200	"	"	--	--	--	--	--	--	"	
1,2,3-Trichlorobenzene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	

Surrogate(s): Dibromofluoromethane

Recovery: 110%

Limits: 42.7-151%

10/14/08 08:25

Toluene-d8

97.8%

50.8-132%

"

4-bromofluorobenzene

101%

51-136%

"

TestAmerica Spokane

Randee Decker

Randee Decker, Project Manager

Amended Report

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Amended Report

LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**
Project Number: 0273017900
Project Manager: Paula Lyon

Report Created:
03/23/09 13:30

Volatile Organic Compounds by EPA Method 8260B - Laboratory Quality Control Results

TestAmerica Spokane

QC Batch: 8100086

Soil Preparation Method: GC/MS Volatiles

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
---------	--------	--------	------	-----	-------	-----	---------------	-----------	-------	----------	-------	----------	----------	-------

LCS (8100086-BS1)

Extracted: 10/13/08 14:03

Methyl tert-butyl ether	EPA 8260B	0.788	---	0.100	mg/kg wet	1x	--	1.00	78.8%	(70-130)	--	--	10/14/08 08:55	
Benzene	"	1.03	---	0.0200	"	"	--	"	103%	(75.8-122)	--	--	"	
Toluene	"	0.920	---	0.100	"	"	--	"	92.0%	(80-124)	--	--	"	
Ethylbenzene	"	0.901	---	0.100	"	"	--	"	90.1%	(70-130)	--	--	"	
m,p-Xylene	"	1.93	---	0.400	"	"	--	2.00	96.4%	"	--	--	"	
o-Xylene	"	0.910	---	0.200	"	"	--	1.00	91.0%	"	--	--	"	
Naphthalene	"	0.791	---	0.200	"	"	--	"	79.1%	"	--	--	"	
<i>Surrogate(s): Dibromofluoromethane Recovery: 108% Limits: 42.7-151% "</i>														
<i>Toluene-d8 87.6% 50.8-132% "</i>														
<i>4-bromofluorobenzene 96.9% 51-136% "</i>														

Matrix Spike (8100086-MS1)

QC Source: SRJ0061-01

Extracted: 10/13/08 14:03

Methyl tert-butyl ether	EPA 8260B	1.10	---	0.131	mg/kg dry	1x	ND	1.14	96.0%	(70-130)	--	--	10/14/08 16:32	
Benzene	"	1.23	---	0.0262	"	"	ND	"	108%	(72-120)	--	--	"	
Toluene	"	1.08	---	0.131	"	"	ND	"	94.6%	(75.6-120)	--	--	"	
Ethylbenzene	"	1.04	---	0.131	"	"	ND	"	91.4%	(70-130)	--	--	"	
m,p-Xylene	"	2.28	---	0.524	"	"	ND	2.29	99.7%	"	--	--	"	
o-Xylene	"	1.07	---	0.262	"	"	ND	1.14	93.3%	"	--	--	"	
Naphthalene	"	1.06	---	0.262	"	"	ND	"	92.9%	"	--	--	"	
<i>Surrogate(s): Dibromofluoromethane Recovery: 117% Limits: 42.7-151% "</i>														
<i>Toluene-d8 88.6% 50.8-132% "</i>														
<i>4-bromofluorobenzene 97.9% 51-136% "</i>														

Matrix Spike Dup (8100086-MSD1)

QC Source: SRJ0061-01

Extracted: 10/13/08 14:03

Methyl tert-butyl ether	EPA 8260B	1.06	---	0.130	mg/kg dry	1x	ND	1.13	94.0%	(70-130)	3.49% (25)	10/14/08 17:03
Benzene	"	1.19	---	0.0259	"	"	ND	"	106%	(72-120)	3.35% (29.5)	"
Toluene	"	1.07	---	0.130	"	"	ND	"	94.8%	(75.6-120)	1.19% (27)	"
Ethylbenzene	"	1.05	---	0.130	"	"	ND	"	92.9%	(70-130)	0.179% (25)	"
m,p-Xylene	"	2.24	---	0.518	"	"	ND	2.25	99.5%	"	1.54% "	"
o-Xylene	"	1.07	---	0.259	"	"	ND	1.13	94.9%	"	0.395% "	"
Naphthalene	"	1.04	---	0.259	"	"	ND	"	92.1%	"	2.31% "	"
<hr/>												
Surrogate(s):	Dibromofluoromethane	Recovery:	116%	Limits:	42.7-151%	"						10/14/08 17:03
	Toluene-d8		89.0%		50.8-132%	"						"
	4-bromofluorobenzene		97.6%		51-136%	"						"

TestAmerica Spokane

Randee Decker

Randee Decker, Project Manager

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Amended Report



Amended Report

LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**
Project Number: 0273017900
Project Manager: Paula Lyon

Report Created:
03/23/09 13:30

Polychlorinated Biphenyls by EPA Method 8082 - Laboratory Quality Control Results

TestAmerica Spokane

QC Batch: 8100085

Soil Preparation Method: EPA 3550B

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8100085-BLK1)														
										Extracted: 10/21/08 12:34				
PCB-1016	EPA 8082	ND	---	50.0	ug/kg wet	1x	--	--	--	--	--	--	10/22/08 18:35	
PCB-1221	"	ND	---	50.0	"	"	--	--	--	--	--	--	10/22/08 17:13	
PCB-1232	"	ND	---	50.0	"	"	--	--	--	--	--	--	"	
PCB-1242	"	ND	---	50.0	"	"	--	--	--	--	--	--	"	
PCB-1248	"	ND	---	50.0	"	"	--	--	--	--	--	--	"	
PCB-1254	"	ND	---	50.0	"	"	--	--	--	--	--	--	"	
PCB-1260	"	ND	---	50.0	"	"	--	--	--	--	--	--	10/22/08 18:35	
Surrogate(s): TCX		Recovery:	87.6%	Limits: 27.9-154%		"						10/22/08 18:35		
Decachlorobiphenyl			86.8%	35-157%		"						"		
LCS (8100085-BS1)														
										Extracted: 10/21/08 12:34				
PCB-1016	EPA 8082	179	---	50.0	ug/kg wet	1x	--	167	108%	(63.1-147)	--	--	10/22/08 18:08	
PCB-1260	"	175	---	50.0	"	"	--	"	105%	(74.4-130)	--	--	"	
Surrogate(s): TCX		Recovery:	95.1%	Limits: 27.9-154%		"						10/22/08 18:08		
Decachlorobiphenyl			88.4%	35-157%		"						"		
Matrix Spike (8100085-MS1)														
										QC Source: SRJ0061-02		Extracted: 10/21/08 12:34		
PCB-1016	EPA 8082	181	---	79.0	ug/kg dry	1x	ND	263	68.8%	(50.6-145)	--	--	10/22/08 18:08	
PCB-1260	"	164	---	79.0	"	"	ND	"	62.1%	(57.6-120)	--	--	"	
Surrogate(s): TCX		Recovery:	62.8%	Limits: 27.9-154%		"						10/22/08 18:08		
Decachlorobiphenyl			37.4%	35-157%		"						"		
Matrix Spike Dup (8100085-MSD1)														
										QC Source: SRJ0061-02		Extracted: 10/21/08 12:34		
PCB-1016	EPA 8082	161	---	79.0	ug/kg dry	1x	ND	263	61.2%	(50.6-145)	11.6%	(40)	10/22/08 19:02	
PCB-1260	"	136	---	79.0	"	"	ND	"	51.5%	(57.6-120)	18.6%	(27.4)	"	M2
Surrogate(s): TCX		Recovery:	72.0%	Limits: 27.9-154%		"						10/22/08 19:02		
Decachlorobiphenyl			36.2%	35-157%		"						"		

TestAmerica Spokane



Randee Decker, Project Manager

Amended Report

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Amended Report

LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**
Project Number: 0273017900
Project Manager: Paula Lyon

Report Created:
03/23/09 13:30

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring - Laboratory Quality Control Results

TestAmerica Spokane

QC Batch: 8100090

Soil Preparation Method: EPA 3550B

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8100090-BLK1)										Extracted: 10/14/08 07:20				
1-Methylnaphthalene	EPA 8270 mod.	ND	---	0.0100	mg/kg wet	1x	--	--	--	--	--	--	10/14/08 18:54	
2-Methylnaphthalene	"	ND	---	0.0100	"	"	--	--	--	--	--	--	"	
Acenaphthene	"	ND	---	0.0100	"	"	--	--	--	--	--	--	"	
Acenaphthylene	"	ND	---	0.0100	"	"	--	--	--	--	--	--	"	
Anthracene	"	ND	---	0.0100	"	"	--	--	--	--	--	--	"	
Benzo (a) anthracene	"	ND	---	0.0100	"	"	--	--	--	--	--	--	"	
Benzo (a) pyrene	"	ND	---	0.0100	"	"	--	--	--	--	--	--	"	
Benzo (b) fluoranthene	"	ND	---	0.0100	"	"	--	--	--	--	--	--	"	
Benzo (ghi) perylene	"	ND	---	0.0100	"	"	--	--	--	--	--	--	"	
Benzo (k) fluoranthene	"	ND	---	0.0100	"	"	--	--	--	--	--	--	"	
Chrysene	"	ND	---	0.0100	"	"	--	--	--	--	--	--	"	
Dibenzo (a,h) anthracene	"	ND	---	0.0100	"	"	--	--	--	--	--	--	"	
Fluoranthene	"	ND	---	0.0100	"	"	--	--	--	--	--	--	"	
Fluorene	"	ND	---	0.0100	"	"	--	--	--	--	--	--	"	
Indeno (1,2,3-cd) pyrene	"	ND	---	0.0100	"	"	--	--	--	--	--	--	"	
Naphthalene	"	ND	---	0.0100	"	"	--	--	--	--	--	--	"	
Phenanthrene	"	ND	---	0.0100	"	"	--	--	--	--	--	--	"	
Pyrene	"	ND	---	0.0100	"	"	--	--	--	--	--	--	"	
<i>Surrogate(s): Nitrobenzene-d5 Recovery: 55.2% Limits: 38.8-139% "</i> <i>2-FBP 77.0% 40-132% "</i> <i>p-Terphenyl-d14 138% 31.7-179% "</i>														10/14/08 18:54

LCS (8100090-BS1)

Extracted: 10/14/08 07:20

Chrysene	EPA 8270 mod.	0.313	---	0.0100	mg/kg wet	1x	--	0.333	94.0%	(47.8-120)	--	--	10/15/08 16:44	
Fluorene	"	0.309	---	0.0100	"	"	--	"	92.8%	(50.9-120)	--	--	"	
Indeno (1,2,3-cd) pyrene	"	0.333	---	0.0100	"	"	--	"	99.8%	(39.5-120)	--	--	"	
Naphthalene	"	0.256	---	0.0100	"	"	--	"	76.8%	(39.2-120)	--	--	"	
<i>Surrogate(s): Nitrobenzene-d5 Recovery: 84.0% Limits: 38.8-139% "</i> <i>2-FBP 98.6% 40-132% "</i> <i>p-Terphenyl-d14 139% 31.7-179% "</i>														10/15/08 16:44

TestAmerica Spokane



Randee Decker, Project Manager

Amended Report

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Amended Report

LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**

Project Number: 0273017900

Project Manager: Paula Lyon

Report Created:

03/23/09 13:30

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring - Laboratory Quality Control Results

TestAmerica Spokane

QC Batch: 8100090

Soil Preparation Method: EPA 3550B

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
---------	--------	--------	------	-----	-------	-----	---------------	-----------	-------	----------	-------	----------	----------	-------

Matrix Spike (8100090-MS1)

QC Source: SRJ0072-01

Extracted: 10/14/08 07:20

Chrysene	EPA 8270 mod.	0.301	---	0.0104	mg/kg dry	1x	ND	0.347	87.0%	(31.6-132)	--	--	10/15/08 17:14	
Fluorene	"	0.300	---	0.0104	"	"	ND	"	86.6%	(43.4-123)	--	--	"	
Indeno (1,2,3-cd) pyrene	"	0.272	---	0.0104	"	"	ND	"	78.6%	(28.3-147)	--	--	"	
Naphthalene	"	0.232	---	0.0104	"	"	ND	"	67.0%	(30.9-120)	--	--	"	
<i>Surrogate(s): Nitrobenzene-d5</i>														
		<i>Recovery:</i>	75.8%	<i>Limits:</i> 38.8-139%		"								
		<i>2-FBP</i>	91.4%	<i>40-132%</i>		"								
		<i>p-Terphenyl-d14</i>	132%	<i>31.7-179%</i>		"								

Matrix Spike Dup (8100090-MSD1)

QC Source: SRJ0072-01

Extracted: 10/14/08 07:20

Chrysene	EPA 8270 mod.	0.369	---	0.0104	mg/kg dry	1x	ND	0.347	106%	(31.6-132)	20.1% (30.2)	10/15/08 17:44	
Fluorene	"	0.342	---	0.0104	"	"	ND	"	98.8%	(43.4-123)	13.2% (36)	"	
Indeno (1,2,3-cd) pyrene	"	0.421	---	0.0104	"	"	ND	"	121%	(28.3-147)	42.8% (32.7)	"	R
Naphthalene	"	0.264	---	0.0104	"	"	ND	"	76.2%	(30.9-120)	12.8% (35.6)	"	
<hr/>													
Surrogate(s):	Nitrobenzene-d5	Recovery:	82.2%	Limits:	38.8-139%	"						10/15/08 17:44	
	2-FBP		107%		40-132%	"						"	
	p-Terphenyl-d14		157%		31.7-179%	"						"	

TestAmerica Spokane



Randee Decker, Project Manager

Amended Report

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Amended Report

LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**
Project Number: 0273017900
Project Manager: Paula Lyon

Report Created:
03/23/09 13:30

Conventional Chemistry Parameters by APHA/EPA Methods - Laboratory Quality Control Results

TestAmerica Spokane

QC Batch: 8100091

Soil Preparation Method: Wet Chem

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Duplicate (8100091-DUP1)			QC Source: SRJ0061-02					Extracted: 10/10/08 11:20						
% Solids	TA SOP	61.0	---	0.0100	% by Weight	1x	63.3	--	--	--	3.70%	(5)	10/15/08 15:31	
Duplicate (8100091-DUP2)			QC Source: SRJ0072-02					Extracted: 10/14/08 09:50						
% Solids	TA SOP	95.1	---	0.0100	% by Weight	1x	89.0	--	--	--	6.63%	(5)	10/15/08 10:15	R2
Duplicate (8100091-DUP3)			QC Source: SRJ0082-18					Extracted: 10/14/08 16:50						
% Solids	TA SOP	92.2	---	0.0100	% by Weight	1x	92.4	--	--	--	0.217%	(5)	10/15/08 15:31	

TestAmerica Spokane



Rande Decker, Project Manager

Amended Report

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Amended Report

LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**
Project Number: 0273017900
Project Manager: Paula Lyon

Report Created:
03/23/09 13:30

Semivolatile Organic Compounds per EPA Method 8270C - Laboratory Quality Control Results

TestAmerica Portland

QC Batch: 8100535

Soil Preparation Method: EPA 3550

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8100535-BLK1)										Extracted: 10/14/08 18:45				
Acenaphthene	EPA 8270C	ND	---	0.329	mg/kg wet	1x	--	--	--	--	--	--	10/16/08 14:16	
Acenaphthylene	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
Anthracene	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
Benzo (a) anthracene	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
Benzo (a) pyrene	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
Benzo (b) fluoranthene	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
Benzo (ghi) perylene	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
Benzo (k) fluoranthene	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
Benzoic Acid	"	ND	---	0.998	"	"	--	--	--	--	--	--	"	
Benzyl alcohol	"	ND	---	0.998	"	"	--	--	--	--	--	--	"	
4-Bromophenyl phenyl ether	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
Butyl benzyl phthalate	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
4-Chloro-3-methylphenol	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
4-Chloroaniline	"	ND	---	2.00	"	"	--	--	--	--	--	--	"	
Bis(2-chloroethoxy)methane	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
Bis(2-chloroethyl)ether	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
Bis(2-chloroisopropyl)ether	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
2-Chloronaphthalene	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
2-Chlorophenol	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
4-Chlorophenyl phenyl ether	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
Chrysene	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
Di-n-butyl phthalate	"	ND	---	0.998	"	"	--	--	--	--	--	--	"	
Di-n-octyl phthalate	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
Dibenzo (a,h) anthracene	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
Dibenzofuran	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
1,2-Dichlorobenzene	"	ND	---	0.998	"	"	--	--	--	--	--	--	"	
1,3-Dichlorobenzene	"	ND	---	0.998	"	"	--	--	--	--	--	--	"	
1,4-Dichlorobenzene	"	ND	---	0.998	"	"	--	--	--	--	--	--	"	
3,3'-Dichlorobenzidine	"	ND	---	0.998	"	"	--	--	--	--	--	--	"	
2,4-Dichlorophenol	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
Diethyl phthalate	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
2,4-Dimethylphenol	"	ND	---	0.998	"	"	--	--	--	--	--	--	"	
Dimethyl phthalate	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
4,6-Dinitro-2-methylphenol	"	ND	---	0.998	"	"	--	--	--	--	--	--	"	
2,4-Dinitrophenol	"	ND	---	2.00	"	"	--	--	--	--	--	--	"	
2,4-Dinitrotoluene	"	ND	---	0.499	"	"	--	--	--	--	--	--	"	
2,6-Dinitrotoluene	"	ND	---	0.499	"	"	--	--	--	--	--	--	"	
Bis(2-ethylhexyl)phthalate	"	ND	---	2.00	"	"	--	--	--	--	--	--	"	
Fluoranthene	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	

TestAmerica Spokane



Randee Decker, Project Manager

Amended Report

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Amended Report

LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**
Project Number: 0273017900
Project Manager: Paula Lyon

Report Created:
03/23/09 13:30

Semivolatile Organic Compounds per EPA Method 8270C - Laboratory Quality Control Results

TestAmerica Portland

QC Batch: 8100535

Soil Preparation Method: EPA 3550

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8100535-BLK1)										Extracted: 10/14/08 18:45				
Fluorene	EPA 8270C	ND	---	0.329	mg/kg wet	1x	--	--	--	--	--	--	10/16/08 14:16	
Hexachlorobenzene	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
Hexachlorobutadiene	"	ND	---	0.998	"	"	--	--	--	--	--	--	"	
Hexachlorocyclopentadiene	"	ND	---	0.998	"	"	--	--	--	--	--	--	"	
Hexachloroethane	"	ND	---	0.998	"	"	--	--	--	--	--	--	"	
Indeno (1,2,3-cd) pyrene	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
Isophorone	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
2-Methylnaphthalene	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
2-Methylphenol	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
3-,4-Methylphenol	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
Naphthalene	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
2-Nitroaniline	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
3-Nitroaniline	"	ND	---	0.998	"	"	--	--	--	--	--	--	"	
4-Nitroaniline	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
Nitrobenzene	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
2-Nitrophenol	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
4-Nitrophenol	"	ND	---	0.998	"	"	--	--	--	--	--	--	"	
N-Nitrosodi-n-propylamine	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
N-Nitrosodiphenylamine	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
Pentachlorophenol	"	ND	---	0.998	"	"	--	--	--	--	--	--	"	
Phenanthrene	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
Phenol	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
Pyrene	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
1,2,4-Trichlorobenzene	"	ND	---	0.998	"	"	--	--	--	--	--	--	"	
2,4,5-Trichlorophenol	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
2,4,6-Trichlorophenol	"	ND	---	0.329	"	"	--	--	--	--	--	--	"	
Surrogate(s):	2-Fluorobiphenyl	Recovery:	104%	Limits:	30-126%	"							10/16/08 14:16	
	2-Fluorophenol		91.6%		28-119%	"							"	
	Nitrobenzene-d5		90.5%		26-117%	"							"	
	Phenol-d6		100%		35-125%	"							"	
	p-Terphenyl-d14		128%		26-143%	"							"	
	2,4,6-Tribromophenol		88.0%		30-127%	"							"	

TestAmerica Spokane



Randee Decker, Project Manager

Amended Report

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Amended Report

LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**
Project Number: 0273017900
Project Manager: Paula Lyon

Report Created:
03/23/09 13:30

Semivolatile Organic Compounds per EPA Method 8270C - Laboratory Quality Control Results

TestAmerica Portland

QC Batch: 8100535

Soil Preparation Method: EPA 3550

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
---------	--------	--------	------	-----	-------	-----	---------------	-----------	-------	----------	-------	----------	----------	-------

LCS (8100535-BS1)

Extracted: 10/14/08 18:45

Acenaphthene	EPA 8270C	2.18	---	0.329	mg/kg wet	1x	--	2.50	87.4%	(46-120)	--	--	10/16/08 14:38	
4-Chloro-3-methylphenol	"	2.11	---	0.329	"	"	--	"	84.6%	(36-138)	--	--	"	
2-Chlorophenol	"	2.01	---	0.329	"	"	--	"	80.7%	(18-137)	--	--	"	
1,4-Dichlorobenzene	"	1.96	---	0.998	"	"	--	"	78.5%	(7-135)	--	--	"	
2,4-Dinitrotoluene	"	2.22	---	0.499	"	"	--	"	89.0%	(49-125)	--	--	"	
4-Nitrophenol	"	2.21	---	0.998	"	"	--	"	88.5%	(40-148)	--	--	"	
N-Nitrosodi-n-propylamine	"	2.35	---	0.329	"	"	--	"	94.1%	(20-138)	--	--	"	
Pentachlorophenol	"	1.62	---	0.998	"	"	--	"	65.1%	(22-129)	--	--	"	
Phenol	"	1.87	---	0.329	"	"	--	"	74.8%	(37-122)	--	--	"	
Pyrene	"	2.48	---	0.329	"	"	--	"	99.3%	(26-143)	--	--	"	
1,2,4-Trichlorobenzene	"	2.06	---	0.998	"	"	--	"	82.7%	(25-129)	--	--	"	

Surrogate(s):	2-Fluorobiphenyl	Recovery:	91.8%	Limits:	30-126%	"							10/16/08 14:38	
	2-Fluorophenol		81.6%		28-119%	"							"	
	Nitrobenzene-d5		82.1%		26-117%	"							"	
	Phenol-d6		88.1%		35-125%	"							"	
	p-Terphenyl-d14		119%		26-143%	"							"	
	2,4,6-Tribromophenol		101%		30-127%	"							"	

Matrix Spike (8100535-MS1)

QC Source: PRI0169-02

Extracted: 10/14/08 18:45

Acenaphthene	EPA 8270C	3.54	---	2.42	mg/kg dry	4x	ND	4.59	77.2%	(26-150)	--	--	10/16/08 16:28	
4-Chloro-3-methylphenol	"	3.52	---	2.42	"	"	ND	"	76.7%	"	--	--	"	
2-Chlorophenol	"	3.26	---	2.42	"	"	ND	"	71.0%	(8-150)	--	--	"	
1,4-Dichlorobenzene	"	2.96	---	7.34	"	"	ND	"	64.6%	(4-150)	--	--	"	
2,4-Dinitrotoluene	"	3.52	---	3.67	"	"	ND	"	76.7%	(32-150)	--	--	"	
4-Nitrophenol	"	3.60	---	7.34	"	"	ND	"	78.6%	(20-175)	--	--	"	
N-Nitrosodi-n-propylamine	"	3.21	---	2.42	"	"	ND	"	70.1%	(10-150)	--	--	"	
Pentachlorophenol	"	2.61	---	7.34	"	"	ND	"	56.8%	(12-150)	--	--	"	
Phenol	"	3.01	---	2.42	"	"	ND	"	65.6%	(17-150)	--	--	"	
Pyrene	"	3.99	---	2.42	"	"	0.259	"	81.4%	(16-175)	--	--	"	
1,2,4-Trichlorobenzene	"	3.11	---	7.34	"	"	ND	"	67.7%	(18-150)	--	--	"	

Surrogate(s):	2-Fluorobiphenyl	Recovery:	61.4%	Limits:	30-126%	"							10/16/08 16:28	
	2-Fluorophenol		57.5%		28-119%	"							"	
	Nitrobenzene-d5		60.8%		26-117%	"							"	
	Phenol-d6		61.4%		35-125%	"							"	
	p-Terphenyl-d14		68.4%		26-143%	"							"	
	2,4,6-Tribromophenol		60.9%		30-127%	"							"	

TestAmerica Spokane

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Amended Report

Randee Decker, Project Manager



Amended Report

LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**
Project Number: 0273017900
Project Manager: Paula Lyon

Report Created:
03/23/09 13:30

Semivolatile Organic Compounds per EPA Method 8270C - Laboratory Quality Control Results

TestAmerica Portland

QC Batch: 8100535

Soil Preparation Method: EPA 3550

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Matrix Spike Dup (8100535-MSD1)			QC Source: PRI0169-02				Extracted: 10/14/08 18:45							
Acenaphthene	EPA 8270C	3.49	---	2.40	mg/kg dry	4x	ND	4.54	77.0%	(26-150)	1.34%	(60)	10/16/08 16:50	
4-Chloro-3-methylphenol	"	3.57	---	2.40	"	"	ND	"	78.6%	"	1.34%	"	"	
2-Chlorophenol	"	3.09	---	2.40	"	"	ND	"	68.1%	(8-150)	5.21%	"	"	
1,4-Dichlorobenzene	"	2.85	---	7.27	"	"	ND	"	62.7%	(4-150)	3.93%	"	"	
2,4-Dinitrotoluene	"	3.52	---	3.63	"	"	ND	"	77.5%	(32-150)	0.0447%	"	"	
4-Nitrophenol	"	4.15	---	7.27	"	"	ND	"	91.5%	(20-175)	14.2%	"	"	
N-Nitrosodi-n-propylamine	"	3.17	---	2.40	"	"	ND	"	69.8%	(10-150)	1.45%	"	"	
Pentachlorophenol	"	2.84	---	7.27	"	"	ND	"	62.5%	(12-150)	8.49%	"	"	
Phenol	"	3.00	---	2.40	"	"	ND	"	66.0%	(17-150)	0.345%	"	"	
Pyrene	"	3.77	---	2.40	"	"	0.259	"	77.3%	(16-175)	5.76%	"	"	
1,2,4-Trichlorobenzene	"	2.90	---	7.27	"	"	ND	"	63.8%	(18-150)	6.91%	"	"	
<hr/>														
Surrogate(s):	2-Fluorobiphenyl	Recovery:	74.7%	Limits:	30-126%	"	10/16/08 16:50							
	2-Fluorophenol		71.1%		28-119%	"	"							
	Nitrobenzene-d5		72.1%		26-117%	"	"							
	Phenol-d6		77.8%		35-125%	"	"							
	p-Terphenyl-d14		82.0%		26-143%	"	"							
	2,4,6-Tribromophenol		77.1%		30-127%	"	"							

TestAmerica Spokane



Randee Decker, Project Manager

Amended Report

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Amended Report

LFR, Inc.

2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Project Name: **Josephine Mill**
Project Number: 0273017900
Project Manager: Paula Lyon

Report Created:
03/23/09 13:30

Notes and Definitions

Report Specific Notes:

- M2 - The MS and/or MSD were below the acceptance limits due to sample matrix interference. See Blank Spike (LCS).
- M7 - The MS and/or MSD were above the acceptance limits. See Blank Spike (LCS).
- M8 - The MS and/or MSD were below the acceptance limits. See Blank Spike (LCS).
- MHA - Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information. See Blank Spike (LCS).
- R - The RPD exceeded the method control limit due to sample matrix effects. The individual analyte QA/QC recoveries, however, were within acceptance limits.
- R2 - The RPD exceeded the acceptance limit.
- R3 - The RPD exceeded the acceptance limit due to sample matrix effects.
- RL3 - Reporting limit raised due to high concentrations of non-target analytes.

Laboratory Reporting Conventions:

- DET - Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.
- ND - Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).
- NR/NA - Not Reported / Not Available
- dry - Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.
- wet - Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported on a Wet Weight Basis.
- RPD - RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).
- MRL - METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.
- MDL* - METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated Results.
- Dil - Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.
- Reporting Limits - Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and percent solids, where applicable.
- Electronic Signature - Electronic Signature added in accordance with TestAmerica's *Electronic Reporting and Electronic Signatures Policy*. Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Spokane



Randee Decker, Project Manager

Amended Report

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ANALYTICAL TESTING CORPORATION

425-420-9200 FAX 420-9210
509-924-9200 FAX 924-9290
503-906-9200 FAX 906-9210
907-563-9200 FAX 563-9210

Work Order #:

CLIENT: LF2		INVOICE TO:	
REPORT TO: Paula Lyon		LF2 INC.	
ADDRESS: 2310 North Moller Road		2310 North. Moller Road	
LIBERTY LAKE WA 99019		LIBERTY LAKE WA 99019.	
PHONE: 509 535 7225		P.O. NUMBER:	
FAX: 509 535 7361			
PROJECT NAME: Josephine Mill		PRESERVATIVE	
PROJECT NUMBER: 027307900			
SAMPLED BY: Jim Finley		REQUESTED ANALYSES	
CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	<input type="checkbox"/> NM/TPH <input type="checkbox"/> DX <input type="checkbox"/> PAHs <input type="checkbox"/> SVOCs <input type="checkbox"/> VOCs <input type="checkbox"/> B260 <input type="checkbox"/> PCBs <input type="checkbox"/> B082A <input type="checkbox"/> Metals	
1 TI8	10-6-08 1304	1	1
2 Dump-comp	10-7-08 1320	1	1
3			
4			
5			
6			
7			
8			
9			
10			
RELEASED BY: Jim Finley		DATE: 10-8-08	
PRINT NAME: Jim Finley		FIRM: LF2	
RELEASED BY: Stacie Parker		DATE: 10-08-08	
PRINT NAME: Stacie Parker		FIRM: LF2	
ADDITIONAL REMARKS:		TIME: 4:50	
RECEIVED BY: Gloria Paster		DATE: 04/28/08	
PRINT NAME: Gloria Paster		FIRM: LF2	
RECEIVED BY: Stacie Parker		DATE: 10/28	
PRINT NAME: Stacie Parker		FIRM: LF2	
ADDITIONAL REMARKS:		TIME: 1:50	

TURNAROUND REQUEST

in Business Days *

Organic & Inorganic Analyses: 10 7 5 4 3 2 1 <1

Petroleum Hydrocarbon Analyses: 5 4 3 2 1 <1

OTHER: ☐ Specify: _____

* Turnaround Request less than standard may incur Rush Charges

MATRIX (W, S, O) # OF CONT. LOCATION / COMMENTS TA WO ID

5 3 Metals 706246100

5 4 -02

DATE: **04/28/08** TIME: **1500**

DATE: **10/28** TIME: **1:50**

DATE: **10/28** TIME: **1:50**

DATE: **10/28** TIME: **1:50**

Data Validation Summary

October 2008 Soil and Surface Water Monitoring Event
Josephine Mill No. 1 Property
Metaline Falls, Washington

LFR Inc. (LFR) performed a data validation evaluation of the analytical data collected during the Josephine Mill No. 1 Property (the "Site") soil and surface water monitoring and sampling events conducted on October 6 and 7, 2008. The data validation evaluation was conducted in accordance with the objectives and specifications in the USEPA approved Site Investigation Work Plan which includes the Field Sampling Plan (FSP) and project Quality Assurance Project Plan (QAPP). Collected soil and surface water samples were transported to TestAmerica located in Spokane Valley, Washington for analysis. TestAmerica is a multi-state certified laboratory. The samples were analyzed for the following analytes and methods:

- diesel and heavy oil range petroleum hydrocarbons by method NWTPH-Dx
- metals by (Environmental Protection Agency) EPA methods in the 200/6010/7000 series
- polychlorinated biphenyls (PCBs) by EPA method 8082
- polynuclear aromatic hydrocarbons (PAHs) or semivolatile organic compounds (SVOCs) by EPA method 8270C
- volatile organic compounds (VOCs) by EPA method 8260B

The following flag denotes:

J The associated analytical result is an approximation of the analyte in the sample.

Chain of Custody

Twenty-eight samples were submitted to TestAmerica for laboratory analysis. Two of those were surface water samples collected from the Site. The field documentation was complete and chain-of-custody sample transfers were conducted in accordance with the procedures outlined in the QAPP.

Two field duplicate samples were submitted and analyzed. Duplicate samples were analyzed for metals by EPA Methods 6010/7000 series.

Samples were received by TestAmerica on October 8 and 10, 2008 intact and with the proper labeling and chain-of-custody. Cooler temperatures were recorded at 5.3 degrees Celsius, which was above the criteria indicated on the project QAPP but within the acceptable temperature criteria of less than 6 degrees Celsius according to TestAmerica.

However, one sample delivery group (SDG), SRJ0061, was documented by TestAmerica on the chain of custody to be 13.2 degrees Celsius upon receipt. Due to this exceedance of the temperature criteria, the metal, petroleum hydrocarbon, VOC, PCB, and SVOC results for samples TIB and Dump-Comp were qualified with J flags.

Holding Times

Samples were in compliance with their hold times between sampling, extraction, and analysis. None of the sample results were flagged with qualifiers due to hold time exceedances.

Laboratory Control

Laboratory control measures (e.g., lab surrogate recovery, duplicate precision, and method blank analysis) were analyzed for all the analytical batches where all the samples were included. All laboratory data are useable for the purpose of this project.

Two analytical results were J flagged due to non-compliant laboratory control measurements as follows:

- In SDG SRJ0061, diesel and heavy oil petroleum hydrocarbon results from sample T1B were J qualified because the corresponding quality control (QC) duplicate results were below the acceptable range of percent recovery; and
- In SDG SRJ0068, the lead result from sample FC1 is J flagged due to high matrix spike percent recovery.

Field Accuracy

Two trip blanks were included in the FSP. The relative percent differences (RPDs) were greater than 50% for two pairs of soil samples. RPDs between the two lead results and two silver results of the original sample T2 and corresponding duplicate sample Dup-2 were greater than 50%. Consequently, these analytical results were qualified with J flags.

The remainder of the RPDs between the original and duplicate samples was less than 50%.

Summary

A review of the laboratory QC results revealed a few issues which caused the analytical data to be qualified. Due the exceedance of the temperature criteria, the metal, petroleum hydrocarbons, VOC, PCB, and SVOC results from samples TIB and Dump-Comp were qualified. Two analytical results were J qualified due to non-compliant duplicate and matrix spike percent recoveries. In addition, the RPDs were greater than 50% for lead and silver results from a field and duplicate field sample; these results were also qualified.

The remainder for the analytical results was not estimated and was within their respective compliance criteria. In conclusion, based upon a data validation evaluation, the project data are valid and acceptable for use.



Photograph #1

Description of Photograph:

View into the test pit ROW1A of reddish brown sandy silt native soils underlying tailing and vegetated unpaved access road.

Site Location:

Josephine Mill No. 1
Metaline, Washington

Photograph Taken By:

Paula A. Lyon

Date of Photograph:

October 6, 2008



Photograph #2

Description of Photograph:

View of northeast wall of test pit T1A. Documents native reddish brown soils in base of test pit, light tailings materials, and timbers from the former mill structure...

Site Location:

Josephine Mill No. 1
Metaline, Washington

Photograph Taken By:

Paula A. Lyon

Date of Photograph:

October 6, 2008



Photograph #3

Description of Photograph:

North wall and base of test pit T1C
Fine-grained materials observed in the upper two feet may be residual concentrates based on the presence of fabric typically used to contain and transport tailings. The remains of an old pipe was uncovered. Native bedrock materials are present in base of test pit.

Site Location:

Josephine Mill No. 1
Metaline, Washington

Photograph Taken By:

Paula A. Lyon

Date of Photograph:

October 6, 2008



Photograph #4

Description of Photograph:

View into test pit TP3 along eastern boundary of the upper portion of the Site. Localized perched water from the impoundment of tailings (by the wood cribbing) observed seeping into the bottom of the test pit in reddish brown native materials underlying the light gray tailings.

Site Location:

Josephine Mill No. 1
Metaline, Washington

Photograph Taken By:

Paula A. Lyon

Date of Photograph:

October 6, 2008



Photograph #5

Description of Photograph:

View to east of test pit 4 (T4) in center of photograph. Dark materials from test pit are peat and native materials encountered at depth underlying tailings.

Site Location:

Josephine Mill No. 1
Metaline, Washington

Photograph Taken By:

Paula A. Lyon

Date of Photograph:

October 6, 2008



Photograph #6

Description of Photograph:

View to the northwest of the Waste Rock pile in the background, a remnant wood structure from the flume, and the deep accumulation of light gray homogeneous tailings in the central portion near test pit T5 at the Site.

Site Location:

Josephine Mill No. 1
Metaline, Washington

Photograph Taken By:

Paula A. Lyon

Date of Photograph:

October 6, 2008



Photograph #7

Description of Photograph:

View into test pit T8, which illustrates the homogeneous fine grained light gray mill tailings accumulated in the central portion of the Site and metal piping.

Site Location:

Josephine Mill No. 1
Metaline, Washington

Photograph Taken By:

Paula A. Lyon

Date of Photograph:

October 6, 2008



Photograph #8

Description of Photograph:

View to northeast of the location of test pit T8 and the accumulation of light gray tailings. Metal pipe is visible.

Site Location:

Josephine Mill No. 1
Metaline, Washington

Photograph Taken By:

Paula A. Lyon

Date of Photograph:

October 6, 2008



Photograph #9

Description of Photograph:

View to the northwest of test pit T10. Accumulation of light gray tailings overlying reddish brown native sandy silt.

Site Location:

8505 East Sprague Avenue
Spokane, Washington

Photograph Taken By:

Paula A. Lyon

Date of Photograph:

October 6, 2008



Photograph #10

Description of Photograph:

View of test pit T13 of light gray 89 inches of tailings. Reddish brown native soils are present at depths greater than 90 inches but are not visible in this photograph.

Site Location:

Josephine Mill No. 1
Metaline, Washington

Photograph Taken By:

Paula A. Lyon

Date of Photograph:

October 6, 2008



Photograph #11

Description of Photograph:

View to the northwest of the interior of the center of the deep of the subsample composites from test pit WR2 in the Waste Rock Pile. Illustrates the homogeneous nature of the waste rock pile as little to no stratification was observed.

Site Location:

Josephine Mill No. 1
Metaline, Washington

Photograph Taken By:

Paula A. Lyon

Date of Photograph:

October 6, 2008



Photograph #12

Description of Photograph:

Expanded view of test pit WR2 in the center of the Waste Rock Pile.

Site Location:

Josephine Mill No. 1
Metaline, Washington

Photograph Taken By:

Paula A. Lyon

Date of Photograph:

October 6, 2008



Photograph #13

Description of Photograph:

View into test pit T14, which illustrates a 6-inch layer of tailings overlying native soils in the westernmost extent of the tailings accumulation.

Site Location:

Josephine Mill No. 1
Metaline, Washington

Photograph Taken By:

Paula A. Lyon

Date of Photograph:

October 6, 2008