

APPENDIX D

2017 SSAP



SITE-SPECIFIC WATER SAMPLING AND ANALYSIS PLAN
Project Area: East Mission Flats Repository
COEUR D'ALENE TRUST
LOWER COEUR D'ALENE BASIN, IDAHO

SSAP Number: 2017-02

Project Schedule: April and October

Site Background: The Coeur d'Alene Trust assumed water monitoring at the East Mission Flats Repository (EMFR) from the Idaho Department of Environmental Quality beginning in the spring of 2016. The repository was constructed on contaminated soil and has been receiving waste materials from a variety of sources (including the Basin Property Remediation Program, Institutional Controls Program, and development projects).

Problem Statement: Historically deposited tailings beneath the EMFR and the waste materials disposed of in the repository contain inorganic metals, which are the contaminants of concern in groundwater for protection of human health and the environment.

SSAP Objectives: Monitor groundwater elevations, floodwater elevations, and contaminants during waste placement to evaluate the performance of the EMFR.

Plan Attachments: Figure 2017-02

Field Task Manager: Christina Johnson **E-mail:** cjohnson@maulfoster.com **Phone:** 360-977-8561

Field Investigation Contractor: TerraGraphics Environmental Engineering, Inc.

Field Team Leader: Robin Nimmer **E-mail:** robin.nimmer@terragraphics.com **Phone:** 208-882-7858

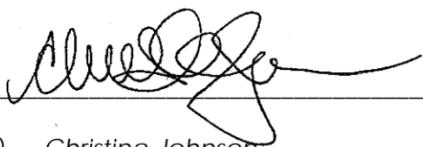
Site	Primary Site Type	Sample Type	Field Measurements	Analysis		Schedule	Predetermined Location ^a	Notes
Surface Water								
LL-1	Surface Water	Performance Monitoring	None	None		Event Timing: • April and October	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Specify: X Coordinate: 2476131.8 Y Coordinate: 2145635.9	• Download pressure transducer data.
LL-2	Surface Water	Performance Monitoring	None	None		Event Timing: • April and October	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Specify: X Coordinate: 2477316.0 Y Coordinate: 2144684.9	• Download pressure transducer data.
Monitoring Wells								
07-EMF-MW-A	Groundwater Well	Performance Monitoring	<ul style="list-style-type: none"> pH, specific conductance, temperature Turbidity, DO, ORP Water level 	<ul style="list-style-type: none"> Dissolved metals As, Cd, Pb, and Zn Dissolved cations Ca, Mg, K, and Na 	<ul style="list-style-type: none"> Anions chloride and sulfate Alkalinity (includes bicarbonate, carbonate, and hydroxide) 	Event Timing: • April and October	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Specify: X Coordinate: 2477532.1 Y Coordinate: 2144700.9	• Download pressure transducer data.
07-EMF-MW-B	Groundwater Well	Performance Monitoring	<ul style="list-style-type: none"> pH, specific conductance, temperature Turbidity, DO, ORP Water level 	<ul style="list-style-type: none"> Dissolved metals As, Cd, Pb, and Zn Dissolved cations Ca, Mg, K, and Na 	<ul style="list-style-type: none"> Anions chloride and sulfate Alkalinity (includes bicarbonate, carbonate, and hydroxide) 	Event Timing: • April and October	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Specify: X Coordinate: 2476790.6 Y Coordinate: 2144991.8	• Download pressure transducer data.
07-EMF-MW-C	Groundwater Well	Performance Monitoring	<ul style="list-style-type: none"> pH, specific conductance, temperature Turbidity, DO, ORP Water level 	<ul style="list-style-type: none"> Dissolved metals As, Cd, Pb, and Zn Dissolved cations Ca, Mg, K, and Na 	<ul style="list-style-type: none"> Anions chloride and sulfate Alkalinity (includes bicarbonate, carbonate, and hydroxide) 	Event Timing: • April and October	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Specify: X Coordinate: 2476109.1 Y Coordinate: 2145582.5	• Download pressure transducer data.
09-EMF-MW-C Deep	Groundwater Well	Performance Monitoring	<ul style="list-style-type: none"> pH, specific conductance, temperature Turbidity, DO, ORP Water level 	<ul style="list-style-type: none"> Dissolved metals As, Cd, Pb, and Zn Dissolved cations Ca, Mg, K, and Na 	<ul style="list-style-type: none"> Anions chloride and sulfate Alkalinity (includes bicarbonate, carbonate, and hydroxide) 	Event Timing: • April and October	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Specify: X Coordinate: 2476145.4 Y Coordinate: 2145552.7	• Download pressure transducer data.
07-EMF-MW-D	Groundwater Well	Performance Monitoring	<ul style="list-style-type: none"> pH, specific conductance, temperature Turbidity, DO, ORP Water level 	<ul style="list-style-type: none"> Dissolved metals As, Cd, Pb, and Zn Dissolved cations Ca, Mg, K, and Na 	<ul style="list-style-type: none"> Anions chloride and sulfate Alkalinity (includes bicarbonate, carbonate, and hydroxide) 	Event Timing: • April and October	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Specify: X Coordinate: 2476810.3 Y Coordinate: 2146019.7	• Download pressure transducer data.
08-EMF-MW-E	Groundwater Well	Performance Monitoring	<ul style="list-style-type: none"> pH, specific conductance, temperature Turbidity, DO, ORP Water level 	<ul style="list-style-type: none"> Dissolved metals As, Cd, Pb, and Zn Dissolved cations Ca, Mg, K, and Na 	<ul style="list-style-type: none"> Anions chloride and sulfate Alkalinity (includes bicarbonate, carbonate, and hydroxide) 	Event Timing: • April and October	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Specify: X Coordinate: 2474351.5 Y Coordinate: 2146279.6	• Download pressure transducer data.

Site	Primary Site Type	Sample Type	Field Measurements	Analysis		Schedule	Predetermined Location ^a	Notes
08-EMF-MW-F	Groundwater Well	Performance Monitoring	<ul style="list-style-type: none"> pH, specific conductance, temperature Turbidity, DO, ORP Water level 	<ul style="list-style-type: none"> Dissolved metals As, Cd, Pb, and Zn Dissolved cations Ca, Mg, K, and Na 	<ul style="list-style-type: none"> Anions chloride and sulfate Alkalinity (includes bicarbonate, carbonate, and hydroxide) 	Event Timing: <ul style="list-style-type: none"> April and October 	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Specify: X Coordinate: 2476172.7 Y Coordinate: 2144530.9	<ul style="list-style-type: none"> Download pressure transducer data.
Piezometers (Repository Water)								
10-EMF-PZ-A	Piezometer	Performance Monitoring	<ul style="list-style-type: none"> pH; ORP; conductivity Water level 	None		Event Timing: <ul style="list-style-type: none"> April and October 	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Specify: X Coordinate: 2476381.8 Y Coordinate: 2145615.8	<ul style="list-style-type: none"> Field parameter meter deployed prior to anticipated high water. Download pressure transducer data.
10-EMF-PZ-B	Piezometer	Performance Monitoring	<ul style="list-style-type: none"> Water level 	None		Event Timing: <ul style="list-style-type: none"> April and October 	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Specify: X Coordinate: 2476382.0 Y Coordinate: 2145621.0	<ul style="list-style-type: none"> Download pressure transducer data.

Type	Frequency	Analysis	Number Anticipated per Event
Equipment rinsate blanks	One per every 20 samples (or fewer) each day of sample collection	<ul style="list-style-type: none"> Dissolved metals As, Cd, Pb, and Zn Dissolved cations Ca, Mg, K, and Na Anions chloride and sulfate, alkalinity (includes bicarbonate, carbonate, and hydroxide) 	2
Filter blank	One per every 20 samples (or fewer)	<ul style="list-style-type: none"> Dissolved metals As, Cd, Pb, and Zn Dissolved cations Ca, Mg, K, and Na 	1
Field duplicate samples	One per every ten samples (or fewer) per sample matrix	<ul style="list-style-type: none"> Dissolved metals As, Cd, Pb, and Zn Dissolved cations Ca, Mg, K, and Na Anions chloride and sulfate, alkalinity (includes bicarbonate, carbonate, and hydroxide) 	1
Laboratory matrix spike/matrix spike duplicate	Each analytical batch of samples for every 20 (or fewer) samples received	<ul style="list-style-type: none"> Dissolved metals As, Cd, Pb, and Zn Dissolved cations Ca, Mg, K, and Na Anions chloride and sulfate, alkalinity (includes bicarbonate, carbonate, and hydroxide) 	1

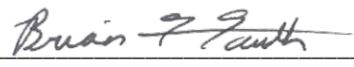
Samples for metals, cations and hardness will be shipped to: Pace Minneapolis Lab 1700 Elm Street SE Minneapolis, MN 55414	Samples for alkalinity and anions will be delivered to: SVL Analytical One Government Gulch Kellogg, ID 83837-0929
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Notes:
This SSAP was designed to be used in conjunction with the Programmatic Quality Assurance Project Plan (2017; tables listed below) prepared by MFA on behalf of the Coeur d'Alene Trust.
Water monitoring data needs guidelines can be found in Programmatic QAPP Table 1-2.
Quality control samples to be collected per Programmatic QAPP Table C-1.
Container, preservation, and holding time requirements per Programmatic QAPP Table C-2.
Analytical methods, performance criteria, and reporting limits per Programmatic QAPP Table C-3.
Field measurement performance criteria per Programmatic QAPP Table C-4.
As = arsenic.
EMFR = East Mission Flats Repository.
Ca = calcium.
Cd = cadmium.
Coeur d'Alene Trust = Successor Coeur d'Alene Custodial and Work Trust.
DO = dissolved oxygen.
K = potassium.
Mg = magnesium.
Na = sodium.
ORP = oxidation reduction potential.
Pb = lead.
Zn = zinc.
^aCoordinates presented in North American Datum 1983 State Plane Idaho West FIPS 1103 in feet.

Signature 
Name (print) Christina Johnson

Maul Foster & Alongi, Inc., Project Manager

Date: March 24, 2017

Signature 
Name (print) Brian Fauth

Maul Foster & Alongi, Inc., Quality Assurance Manager

Date: March 24, 2017

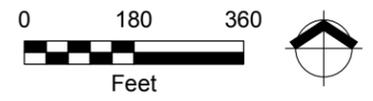
Project: 0442.06.03-02 Produced By: astrandhagen Approved By: K. Roslund Print Date: 3/17/2017 Path: X:\CoA\044206.05_2017 Water Monitoring\2016 EMFR Monitoring Report\Projects\Fig_SSAP_2017_02_Monitoring Network and Site Features.mxd

Figure SSAP 2017-02 Monitoring Locations

Coeur d'Alene Trust
East Mission Flats Repository
Lower Coeur d'Alene Basin, Idaho

Legend

- Interstate Highway
- Road
- Surface Water Location
- Piezometer
- Monitoring Well
- Culvert Location
- East Mission Flats Repository Boundary



Source: Aerial photograph obtained from ESRI, Inc. ArcGIS Online; watershed and rivers datasets obtained from Idaho Dept. of Water Resources; roads and cities datasets obtained from ESRI Online Services.



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Project Area: East Mission Flats Repository
COEUR D'ALENE TRUST
LOWER COEUR D'ALENE BASIN, IDAHO

SSAP Number: 2017-02rev1

Project Schedule: October

Site Background: The Coeur d'Alene Trust assumed water monitoring at the East Mission Flats Repository (EMFR) from the Idaho Department of Environmental Quality beginning in the spring of 2016. The repository was constructed on contaminated soil and has been receiving waste materials from a variety of sources (including the Basin Property Remediation Program, Institutional Controls Program, and development projects).

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07-EMF-MW-B	Groundwater Well	Performance Monitoring	<ul style="list-style-type: none"> pH, specific conductance, temperature, turbidity, DO, ORP Ferrous iron (October) Water level 	<ul style="list-style-type: none"> Dissolved metals As, Cd, Pb, and Zn Dissolved and total cations Ca, Fe, Mn, Mg, K, and Na 	<ul style="list-style-type: none"> Anions chloride and sulfate Alkalinity (includes bicarbonate, carbonate, and hydroxide) Hardness 	Event Timing: • October	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Specify: X Coordinate: 2476790.6 Y Coordinate: 2144991.8	• Download pressure transducer data.
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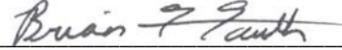
^aCoordinates presented in North American Datum 1983 State Plane Idaho West FIPS 1103 in feet.

Signature 

Name (print) Christina Johnson

Maul Foster & Alongi, Inc., Project Manager

Date: March 24, 2017

Signature 

Name (print) Brian Fauth

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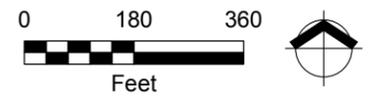


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