FINAL 2017 EAST MISSION FLATS REPOSITORY MONITORING REPORT

Prepared for

SUCCESSOR COEUR D'ALENE CUSTODIAL AND WORK TRUST

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ACRONYMS AND ABBREVIATIONS

Alta	Alta Science & Engineering, Inc.
bgs	below ground surface
BHSS	Bunker Hill Mining and Metallurgical Complex Superfund Site
BPRP	Basin Property Remediation Program
Coeur d'Alene Trust	Successor Coeur d'Alene Custodial and Work Trust
CFR	Code of Federal Regulations
COC	contaminant of concern
CSM	conceptual site model
CUL	cleanup level
DO	dissolved oxygen
DQR	double quantification rule
EMFR	East Mission Flats Repository
FYR	five-year review
IDAPA	Idaho Administrative Procedures Act
Lower Basin	Lower Basin of the Coeur d'Alene River
MCL	maximum contaminant level
MFA	Maul Foster & Alongi, Inc.
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
ORP	oxidation-reduction potential
OU	operable unit
Pace	Pace Analytical Services, LLC
PL	prediction limit
ROD	Record of Decision
RODA	Record of Decision amendment
SSAP	site-specific sampling and analysis plan
SPAF	sample plan alteration form
SVL	SVL Analytical, Inc.
TerraGraphics	TerraGraphics Environmental Engineering, Inc.
ug/L	micrograms per liter
Upper Basin	Upper Basin of the Coeur d'Alene River
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
WBZ	water-bearing zone

1 INTRODUCTION AND BACKGROUND

Semiannual water-quality monitoring was conducted at the East Mission Flats Repository (EMFR) in 2017. Maul Foster & Alongi, Inc. (MFA) prepared this report on behalf of the Successor Coeur d'Alene Custodial and Work Trust (Coeur d'Alene Trust) to summarize water-quality results from those monitoring events. EMFR is located in the Lower Basin of the Coeur d'Alene River (Lower Basin) in Northern Idaho (see Figure 1-1). The Lower Basin is included in the Bunker Hill Mining and Metallurgical Complex Superfund Site (BHSS). The Lower Basin and EMFR are located in an area of the BHSS identified in the 2002 Record of Decision (ROD) as Operable Unit (OU) 3. Repositories, including EMFR, were constructed for disposal of metals-contaminated soils, sediments, source materials, and treatment residuals generated during cleanup activities in the BHSS. Routine monitoring and evaluation of surrounding environmental conditions are required as part of ongoing EMFR operations. This report provides a summary and interpretation of the monitoring data collected at EMFR in 2017 and recommends changes to the EMFR monitoring program for implementation in 2018.

1.1 Purpose and Objectives of Monitoring Program

A monitoring program was developed for EMFR in response to recommendations from the USEPA Office of the Inspector General, as outlined in a hotline report (USEPA, 2009). The monitoring program is described in the 2009 enhanced monitoring plan (TerraGraphics Environmental Engineering, Inc. [TerraGraphics], 2009); the 2014 sampling and analysis plan/quality assurance project plan (TerraGraphics, 2014); and subsequent sample plan alteration forms (SPAFs) (SPAF #1 [TerraGraphics, 2015] and SPAF #002 [MFA, 2016]).

The purpose of the EMFR monitoring program is to evaluate repository performance and monitor the site for potential releases of dissolved contaminants of concern (COCs) (i.e., arsenic, cadmium, lead, and zinc) from repository waste to groundwater beneath the repository; monitor the area around the repository for the presence of floodwater; evaluate interactions between groundwater and Coeur d'Alene River surface water; and assess the potential for significant impacts to groundwater quality resulting from repository operations. Specific objectives of the monitoring program include the following:

- Monitoring saturation of waste materials from lateral infiltration of ponded surface water and upwelling of groundwater.
- Monitoring the quality of pore water in waste materials.
- Monitoring the timing of flood events and floodwater levels and quality.
- Evaluating horizontal groundwater gradients in the shallow portion of the upper alluvial aquifer.

- Evaluating vertical groundwater gradients between the shallow and deep portions of the upper alluvial aquifer.
- Evaluating groundwater geochemistry during high- and low-flow hydrological regimes.
- Evaluating statistical trends in water quality parameters and COC concentrations in groundwater.

1.2 Monitoring Framework

Site-specific background information relevant to understanding the framework within which monitoring activities at EMFR are conducted is provided in a separate memorandum, included as Appendix A. The memorandum provides a summary of the site location, history, regulatory context, physical setting, and conceptual site model (CSM) for EMFR. It will be updated as an attachment to the annual water quality reports if new information is obtained that significantly changes our understanding of the monitoring framework.

1.2.1 Pre-Repository vs. Repository Waste Metals Concentrations

MFA compiled information from previous investigations to compare pre-repository metals concentrations at EMFR to metals concentrations anticipated in waste material deposited or emplaced at EMFR. This comparison was intended to better inform our understanding of potential impacts to groundwater at the site resulting from EMFR operations; however, given uncertainty associated with metals concentrations in waste material emplaced at EMFR, pre-repository metals concentrations at EMFR were determined to be more representative of waste material at EMFR than concentrations obtained from the currently available waste material metals data. Therefore, the available data do not help to distinguish potential impacts associated with repository waste from those attributable to pre-repository conditions.

Metals concentrations in soil at EMFR were evaluated during two previous investigations conducted before repository operations began, in 2001 and 2007, as described below. The results of these subsurface investigations are considered representative of pre-repository COC concentrations in soil. Summary statistics based on these pre-repository investigation results are summarized in Table 1-1.

The U.S. Geological Survey (USGS) collected soil samples at EMFR and in the surrounding floodplain in 2001 and analyzed them for lead and zinc (Box et al., 2001). Sampling locations are shown on Figure 11 (Box et al., 2001), which is included in Appendix B. Sampling location 98C-18 was within the EMFR footprint and had impacts of lead and zinc up to 11,330 milligrams per kilogram (mg/kg) and 2,000 mg/kg, respectively, in surface soils at 0.6 to 0.7 foot below ground surface (bgs) (Box et al., 2001). Concentrations of lead and zinc in samples collected below 1 foot bgs at that location were consistent with metals concentrations in pre-mining sediments. Soil samples collected in the areas surrounding EMFR generally showed a similar trend of elevated lead and zinc concentrations—up to 11,330 mg/kg of lead and 3,140 mg/kg of zinc—in surface soil in the top 1 to 1.5 feet bgs overlying soil with lead and zinc concentrations representative of pre-mining sediments. Elevated lead and zinc concentrations—up to 7,290 mg/kg of lead and 5,520 mg/kg of zinc—were also identified in soil from two sampling locations south of Interstate 90 at depths of 3.6 and 7 feet bgs.

TerraGraphics conducted a subsurface investigation at EMFR in October 2007, consisting of collection of soil samples from three borings (MW-B, MW-C, and MW-D; see Figure 5 in Appendix B) and analysis for COCs (TerraGraphics, 2009). Based on the results of the October 2007 investigation, it was determined that the upper 4 feet of soil was contaminated from deposition, during flood events, of sediments contaminated by upstream mining and milling activities (TerraGraphics, 2009).

From August 2009 through 2016, EMFR accepted approximately 211,000 cubic yards of contaminated soil, primarily from the Basin Property Remediation Program (BPRP), Institutional Controls Program, and other BHSS programs (Idaho Department of Environmental Quality [IDEQ], 2016; NWCS, 2017). Waste material emplaced at EMFR has not been sampled; therefore, metals concentrations in waste materials at EMFR are not known with certainty. However, principal threat waste disposal limits and BPRP sampling results provide an upper bound on metals concentrations anticipated in waste material at EMFR.

Arsenic and lead concentrations anticipated in waste material from the BPRP, associated program cleanup levels (CULs), and principal threat waste disposal limits are summarized in Table 1-1. No waste material concentrations for cadmium and zinc were identified in the documents reviewed by MFA. The data in Table 1-1 were obtained from the EMFR 2015 annual water quality report (IDEQ, 2016); the waste material summary statistics are based on data from over 20,000 soil samples collected from locations in the BPRP requiring remediation in 2004 through 2011.

Metals concentrations in waste material emplaced at EMFR are at a minimum lower than principal threat waste disposal limits. Principal threat materials have not been accepted for disposal at EMFR, but could be with appropriate engineering measure taken to contain the materials or the materials are treated (e.g., metals stabilization) (IDEQ and USEPA, 2013).

Metals concentrations in waste material at EMFR are also anticipated to be lower than concentrations considered representative of BPRP waste material (see Table 1-1). The BPRP data considered to be representative of metals concentrations in BPRP waste material may include samples collected from the Box (as defined in the 2002 ROD) and the Upper Basin of the Coeur d'Alene River (Upper Basin). Waste material deposited at EMFR is generally generated by remediation activities in the Lower Basin. The concentrations of metals in soils sampled through the BPRP in the Upper Basin, Box, and Lower Basin are likely different; therefore, the results presented in Table 1-1 provide a sense of concentrations that could have been placed in EMFR but are not directly relatable. For example, the soil samples collected from yards in the Box would have been likely related to deposition from the smelter and may have higher concentrations than soil samples from yards in the Lower Basin where impacts are related to deposition from flooding.

The pre-repository metals concentrations provided in Table 1-1 are likely more representative of metals concentrations in waste material emplaced at EMFR than the BPRP data because the pre-repository data are largely associated with shallow samples that may be representative of flood deposited mining related sediments, as discussed above.

Concentrations of lead and arsenic detected in soil prior to repository operations at EMFR were generally lower than those anticipated in BPRP waste material, based on the BPRP data set. However, as discussed above, the BPRP data set is not considered to be directly representative of waste material emplaced at EMFR and the pre-repository metals concentrations at EMFR are based on a significantly smaller dataset (i.e., 20 versus approximately 20,000 soil samples);, therefore, it is less certain that they represent average conditions. Pre-repository arsenic, cadmium, and lead concentrations at EMFR are generally several orders of magnitude below the principal threat waste concentrations (see Table 1-1).

Given the uncertainty associated with metals concentrations in waste material emplaced at EMFR, and the likely similarity in pre-repository metals concentrations to those present in EMFR waste material, additional data—either data representative of material likely to have been deposited at EMFR or direct sampling of the waste material at EMFR itself—would be required to resolve potential differences in metals concentrations present before repository operations versus in the waste material. These data, if available, would help inform our understanding of potential impacts associated with repository operations.

2 MONITORING ACTIVITIES

On behalf of the Coeur d'Alene Trust, MFA, TerraGraphics, and/or Alta Science & Engineering, Inc. (Alta) completed two semiannual monitoring events at EMFR in 2017. The events were conducted on April 17 and 18, and October 24 and 25, and included water-level and water quality monitoring activities consistent with the 2017 site-specific sampling and analysis plan (SSAP) (included in Appendix C). Note that the SSAP includes monitoring program changes recommended in the 2016 annual water monitoring report (MFA, 2017). The SSAP was revised before the October sampling event to add field measurements of ferrous iron and analysis for total cations (calcium, iron, manganese, magnesium, potassium, and sodium) and hardness in groundwater. Field documentation and memoranda summarizing field sampling activities conducted by TerraGraphics and Alta are provided in Appendix D.

2.1 Monitoring Program Summary

The EMFR water monitoring program is summarized in Table 2-1; monitoring network locations are shown in Figure 2-1. Monitoring location identifications (e.g., 07-EMF-MW-A) include the installation year (e.g., 07); EMF to identify its location in East Mission Flats; and a designation of the location type (MW for monitoring wells, PZ for piezometers, SW for surface water, and LL for flood level recorders). The full location identifications are used in the figures and tables attached to this report, but in the text, locations will be referred to by their short names (e.g., MW-A).

2.2 Monitoring Program Deviations

Monitoring activities that deviated from programmatic requirements are discussed in the field sampling memoranda included in Appendix D and include the following:

- During the April monitoring event, a groundwater sample was collected from monitoring well MW-B before the turbidity requirement for sample collection had been met.

- Well bottom depth measurements were not recorded during the April monitoring event. Depth-to-bottom measurements collected during the October 2016 event were compared to water level measurements collected during the April monitoring event.
- Transducer data downloaded during the April monitoring event were corrected using barometric pressure readings from the barometric datalogger (barologger) installed in monitoring well BH-SF-E-0104-U, included in BHSS OU 2, instead of from the barologger installed at MW-F, since the latter barologger was submerged during a portion of the data collection period.

These exceptions were one-time deviations and will not be incorporated as permanent changes to the monitoring program. However, in response to the barologger issue at MW-F, the barologger will be moved to an EMFR location with a higher elevation to prevent its becoming submerged in the future. These temporary deviations are not expected to have adversely affected data quality. Therefore, no response is recommended.

In addition to the sampling deviations identified above, field measurement of ferrous iron; analysis of total and dissolved iron and manganese; analysis of total calcium, magnesium, and sodium; and analysis of hardness were added for the groundwater monitoring locations after the April monitoring event. These changes were implemented during the October monitoring event, as summarized in the revised SSAP (see Appendix C), and will be incorporated as permanent changes to the monitoring program. Note that although hardness was not included during the April sampling event, it was calculated based on the calcium and magnesium results (see Section 3). Total cations were added to the revised SSAP but were not analyzed during the October monitoring event.

The following issues were also encountered during the 2017 monitoring events:

- The well cap on monitoring well MW-C DEEP was blown off during flood events.
- Diagnostic testing of the transducers installed in floodwater level monitoring stations LL-1 and LL-2 indicated that water level measurements may be inaccurate because of degradation of the sensor membrane.

Monitoring well caps are sealed, but the seal at MW-C DEEP may have been compromised by the presence of the transducer installed in the well, resulting in the loss of the cap. An adapter for the transducer may resolve this issue. During future monitoring events, all monitoring wells will be inspected for the integrity of the well cap seal, and the need for transducer adapters will be evaluated. Groundwater monitoring results for MW-C DEEP may have been compromised if floodwater entered the well when the cap was off.

The diagnostic testing results for the LL-1 and LL-2 transducers indicated that the inaccuracy in water level measurements from LL-1 is likely insignificant but may be significant for LL-2. The condition of both transducers is being evaluated and their replacement before the 2018 sampling event may be recommended. Based on these findings, the water level measurements from LL-2 are considered estimated values.

3 DATA QUALITY ASSURANCE/QUALITY CONTROL REVIEW

MFA conducted a manual, independent level IV validation of analytical data collected on April 17, 2017. The data were evaluated in accordance with the USEPA's 2009 Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use. For data collected during the other sampling days in 2017, MFA conducted an independent level II validation. Pace Analytical Services, LLC (Pace) and SVL Analytical, Inc. (SVL) performed the analyses. Analytical laboratory reports are provided in Appendix E.

The validation procedures, results, and recommendations are discussed in the data validation memoranda included as Appendix F. The analytical data were determined to be complete and usable, with the assigned qualifiers, with the following exceptions:

- Pace laboratory reports for the April monitoring event did not include hardness results. MFA calculated hardness values based on the lab-reported calcium and magnesium results.
- The sample IDs listed on the SVL chain-of-custody forms for the samples collected on October 24 and 25 and in the associated pdf laboratory report included an additional prefix (EMFR). MFA removed the prefix.
- Samples collected on October 24 and 25 and submitted to SVL for alkalinity, sulfate, and/or chloride analyses were not field filtered. The associated analytical results were reported as "total," which is reflected in the project database and data tables.

No other issues were identified, and no other corrective actions were taken.

4 MONITORING RESULTS

4.1 Water Levels and Hydraulic Gradients

4.1.1 Floodwater and Repository Pore Water

Floodwater was detected in the floodwater level recorders during the April monitoring event and recorded with transducers. No floodwater was detected during the October monitoring event.

Repository pore water was detected in piezometer PZ-A during both monitoring events, and water level elevations were recorded with a transducer. No repository pore water was detected in piezometer PZ-B during either monitoring event.

Floodwater and repository pore water level elevations recorded in 2017 with transducers are plotted on a hydrograph (Figure 4-1). Floodwater was recorded between approximately March 15 and March 28, 2017, which suggests that EMFR was flooded during that period. Only one peak is shown on the hydrograph, suggesting that only one flooding event occurred during the monitoring period. Ground surface elevations at the floodwater level recorder locations are available for comparison to the floodwater elevations, but the coordinate system for the survey data has not been verified. Therefore, the data are not recommended for comparison to the floodwater elevations. MFA recommends a resurvey of the floodwater level recorders and ground surface elevations, as well as other EMFR monitoring points (i.e., piezometers and monitoring wells).

The floodwater levels ranged from 2134.48 feet to 2137.19 feet at LL-1, and 2135.78 feet to 2139.48 feet at LL-2, with a difference of 2.7 and 5 feet, respectively. These data suggest that the depth of floodwater at the repository during the flooding event was up to 2.7 feet and 5 feet or more, respectively, and is dependent on location. The floodwater level recorded at LL-2 was consistently higher than at LL-1 but exhibited a similar trend. As discussed in Section 2.2, floodwater measurements at LL-2 may be inaccurate because of a transducer issue. Although the magnitude of floodwater levels recorded at LL-2 may have been impacted by the transducer issue, the timing of and relative change in measurements are consistent with LL-1, suggesting that the data are not significantly impacted.

The detection of repository pore water at PZ-A appears to correspond with the March flooding event (see Figure 4-1). The pore water elevation increased immediately following the flooding event, and then slowly decreased until it reached an apparent plateau in July, approximately four months following the flooding. PZ-A is screened deeper than PZ-B, which may account for the detection of pore water in PZ-A, but not PZ-B, during the monitoring period (see Figure 2 in Appendix A).

4.1.2 Groundwater and Surface Water

During both monitoring events, groundwater levels in the monitoring wells were measured by hand and recorded. Hand-measured groundwater elevations are summarized in Table 4-1. Groundwater elevations were also recorded with transducers in each monitoring well. Groundwater elevations recorded in 2017 with transducers, as well as Coeur d'Alene River stage elevations from the USGS gauging station near Cataldo, Idaho (No. 12413500) (USGS, 2018), are plotted on a hydrograph (Figure 4-2).

The horizontal hydraulic groundwater gradient beneath EMFR is relatively shallow, and groundwater elevations fluctuate in response to Coeur d'Alene River stage fluctuations. The hand-measured groundwater elevations are generally collected over a two-day period during which groundwater fluctuations may occur; therefore, transducer data collected on the same day and at the same time were used to evaluate hydraulic gradients and flow directions during the 2017 monitoring events. The hand-measured values from the same day were no more than two-tenths of a foot different than the transducer-measured values. Groundwater potentiometric surface elevations and contours in the shallow portion of the upper alluvial aquifer during the April and October 2017 monitoring events are shown in Figures 4-3 and 4-4, respectively. Monitoring well MW-E is screened in the sand and clay WBZ, and monitoring well MW-C DEEP is screened in the deep portion of the upper alluvial aquifer;

therefore, although potentiometric surface elevations from those locations are shown on the contour maps, they were not used to create the contours.

Groundwater elevation fluctuations in the upper alluvial aquifer (both the shallow and deep portions) near the repository are closely related to fluctuations in the Coeur d'Alene River stage at Cataldo (see Figure 4-2). Groundwater elevations and the Coeur d'Alene River stage elevation increased during the March flooding event. Groundwater elevations in the upper alluvial aquifer in 2017 were consistently lower than the Coeur d'Alene River stage, whereas groundwater elevations in the sand and clay WBZ were generally higher than the Coeur d'Alene River stage (see Figure 4-2).

In 2016, groundwater elevations in MW-C DEEP were closely correlated with the river stage. However, in 2017, inconsistent with previously observed trends, the groundwater elevation in MW-C DEEP showed a sharp decrease following the March flooding event. This may be related to the MW-C DEEP well lid issue identified in Section 2.2, i.e., the removal of the lid by floodwater in April, possibly compromising the water level readings during that period.

Groundwater elevations in the sand and clay WBZ (monitoring well MW-E) are generally several feet higher than groundwater elevations in the upper alluvial aquifer. There was a similar groundwater elevation increase in the sand and clay WBZ in March, during the flooding event, but otherwise, fluctuations in groundwater elevations did not match those in the upper alluvial aquifer and the Coeur d'Alene River in 2017. Groundwater elevations in the sand and clay WBZ did not show a direct response to increases in the river stage, as observed in 2016, except for increased elevations during the March flooding event. Following the flooding event, groundwater elevations in the sand and clay WBZ decreased, similar to the river stage and elevations in the upper alluvial aquifer, but the response was delayed.

Groundwater elevations from MW-C and MW-C DEEP were used to evaluate a vertical hydraulic gradient in the upper alluvial aquifer (see Figure 4-2). Generally, there was a slight downward hydraulic gradient during most of the year (i.e., higher groundwater elevations in MW-C than in MW-C DEEP). However, there was a brief upward hydraulic gradient during periods of elevated river stage and corresponding elevated groundwater levels. The downward gradient returns upon decreases in river stage and groundwater levels. The hydrograph results indicate a temporary, significant downward hydraulic gradient following the March flooding event, but this may be attributable to erroneous measurements related to the MW-C DEEP well lid issue described in Section 2.2.

Groundwater flow beneath the repository during the April and October 2017 monitoring events, in high- and low-flow conditions, was generally south to southwest beneath the repository footprint and south and west in the area south of the repository (see Figures 4-3 and 4-4). These observations are generally consistent with those made in 2016, except that flow during the April (high flow) 2016 event was more westerly and had a northwest flow component in the area south of the repository, which was not observed during the 2017 monitoring events.

4.2 Groundwater Quality

4.2.1 Field Water Quality Parameters

Field water quality parameter measurements collected prior to groundwater sample collection from monitoring wells are summarized in Table 4-2. The table includes measurements from 2017 and previous monitoring events.

In general, groundwater field parameter concentrations in MW-C and MW-C DEEP, which are colocated and representative of potential differences between the shallow and deep portions of the upper alluvial aquifer, respectively, were more similar during the April (high flow) monitoring event than during the October (low flow) event in 2017. The dissolved oxygen (DO) concentration measurement at MW-C and MW-C DEEP from the April 2017 monitoring event were about an order of magnitude greater than and double, respectively, readings collected during both high- and low-flow events between 2007 and 2017. The elevated DO concentration at MW-C DEEP may be related to the well lid issue identified in Section 2.2. Floodwater, which would be expected to have a higher DO concentration than groundwater, may have entered the well. The well lid integrity for MW-C is unknown, but an issue with the lid at that well could explain the elevated DO concentration.

Specific conductivity and temperature measurements in the sand and clay WBZ (MW-E) were generally higher than those in the upper alluvial aquifer in 2017, consistent with previous observations.

Specific conductivity measurements taken in 2017 in upper alluvial aquifer well MW-F were higher than in the other upper alluvial aquifer wells, consistent with previous observations.

The oxidation-reduction potential (ORP) measurement taken in April 2017 in upper alluvial aquifer well MW-B was higher than measurements in all EMFR wells between 2007 and 2017.

Measurement of turbidity concentrations began at EMFR in October 2016. Turbidity measurements collected in October 2016 and April 2017 in monitoring wells MW-A and MW-D were up to an order of magnitude greater than those measured in other monitoring wells. Based on this finding, those wells were redeveloped in July 2017, i.e., before the October 2017 sampling event. Following redevelopment, the turbidity concentrations in those wells during the October 2017 sampling event were up to an order of magnitude lower than previous measurements and were consistent with concentrations measured in other wells at EMFR.

Field measurements of ferrous iron were collected for the first time during the October 2017 monitoring event. The highest concentration was measured in the sand and clay WBZ well (MW-E at 6.3 milligrams per liter [mg/L]). Concentrations measured in monitoring wells in the shallow portion of the upper alluvial aquifer ranged from 0.0 mg/L to 4.1 mg/L. The ferrous iron concentration measured in the deep portion of the upper alluvial aquifer (MW-C DEEP at 1.25 mg/L) is in the range of values measured in the shallow portion of that aquifer.

4.2.2 Laboratory Analytical Results

Laboratory analytical results from the 2017 monitoring events are summarized in Table 4-3. Dissolved-calcium and -magnesium results were used to calculate hardness values, either as reported by the analytical laboratory or calculated by MFA (see Section 3), and are not provided in the tables but are included in the laboratory reports and data validation memoranda (see Appendices E and F). The cleanup levels, regulatory screening criteria, prediction limits (PLs), and screening results shown in Table 4-3 are discussed in Section 5.

Carbonate and hydroxide alkalinity were not detected, but all other analytes were detected at least once. The highest dissolved-arsenic, -manganese, -iron, -potassium, and -sodium; hardness; bicarbonate and total alkalinity; chloride; and sulfate concentrations were detected in the sand and clay WBZ monitoring well, MW-E. The highest COC (i.e., dissolved arsenic, cadmium, lead, and zinc) concentrations detected in 2017 in the upper alluvial aquifer were in the downgradient monitoring wells MW-C, MW-C DEEP, and MW-F. COC concentrations do not appear to vary consistently between the high- and low-flow monitoring events, except in MW-C DEEP. Concentrations of all COCs at MW-C DEEP were generally an order of magnitude higher during the April 2017 (high flow) monitoring event. This may be related to the MW-C DEEP well lid issue identified in Section 2.2. Floodwater, with possibly elevated metals concentrations, may have entered the well.

5 DATA EVALUATION

Groundwater analytical results are evaluated for potentially significant impacts to groundwater quality resulting from repository operations.

5.1 Cleanup Level Screening

Groundwater analytical results are compared to CULs from the USEPA's 2012 interim Record of Decision amendment (RODA), as summarized in Table 5-1. Groundwater analytical results from the 2017 monitoring events (see Table 4-3) and from all monitoring events conducted since 2007 (see Table 5-2) are compared to cleanup levels.

The 2002 ROD did not define CULs for the BHSS; therefore, by default, CULs identified for the Upper Basin, as defined in the RODA, are being used at EMFR. The RODA CULs for arsenic and cadmium are the National Primary Drinking Water Regulations (i.e., maximum contaminant levels [MCLs]) (Idaho Administrative Procedures Act [IDAPA] 58.01.05.050 and 40 Code of Federal Regulations [CFR] Part 141.62). Lead is regulated by a treatment technique (IDAPA 58.01.08.350 and 40 CFR Part 141.80) which is the basis for its RODA CUL. The RODA CUL for zinc is the National Secondary Drinking Water value (i.e., secondary MCL) (IDAPA 58.01.08.400 and 40 CFR Part 143.3). Secondary MCLs are established as guidelines for aesthetic considerations, such as taste, color, and odor. Cation, anion, hardness, and alkalinity results are not compared to cleanup levels.

Regulatory screening criteria (i.e., secondary MCLs), as available, are provided for reference for analytes that are not considered COCs at EMFR and for which there is not RODA CUL. Secondary MCLs are provided for manganese, chloride, and sulfate in the analytical result screening tables (see Table 4-3 and 5-2). The secondary MCLs are provided only for reference for those analytes; exceedances are not highlighted in the analytical summary tables.

Antimony was previously identified as a COC for EMFR but is not a COC in the RODA and is no longer monitored at EMFR. The primary MCL was identified as the CUL for comparison to historical antimony results (see Table 5-2).

No COCs exceeded their CULs in 2017. Historically, arsenic concentrations at MW-E have exceeded the CUL, but concentrations have been below the CUL since 2012 (see Table 5-2). Cadmium in upper alluvial aquifer well MW-C historically exceeded its CUL in six out of ten monitoring events conducted between July 2014 and October 2016 but did not exceed the CUL in 2017 (see Table 5-2).

The performance evaluation discussed in Section 5.3 also includes a comparison of COC concentrations from the 2017 monitoring events to CULs, but as discussed above, no COCs exceeded their CULs in 2017.

5.2 Time Series Plots

Time series plots for COC concentrations are presented in Figures 5-1 through 5-4. Time series plots are evaluated for qualitative differences in COC concentrations with time and/or between different WBZs or monitoring well locations. Concentration trends and seasonality are not evaluated with time series plots but are evaluated statistically in the performance evaluation (see Section 5.3).

COC concentrations in the sand and clay WBZ (MW-E) are generally consistent with concentrations in the upper alluvial aquifer, except dissolved arsenic (see Figure 5-1). Dissolved arsenic concentrations detected in the sand and clay WBZ ranged from 0.59 micrograms per liter (ug/L) to 23.2 ug/L (see Figure 5-1). In contrast, dissolved arsenic concentrations detected in the upper alluvial aquifer ranged from 0.09 ug/L to 7.9 ug/L.

Dissolved arsenic and lead concentrations in the deeper portion of the upper alluvial aquifer (monitoring well MW-C DEEP) are generally consistent with concentrations in the shallower portion at that same location (monitoring well MW-C) (see Figure 5-1 and 5-3) but dissolved cadmium and zinc concentrations are generally higher in the shallower portion (see Figures 5-2 and 5-4).

Arsenic and lead concentrations are generally consistent between all upper alluvial aquifer monitoring wells (see Figures 5-1 and 5-3, respectively). However, higher dissolved cadmium and zinc concentrations are consistently detected in monitoring wells MW-C and MW-F (see Figures 5-2 and 5-4) which are screened in the upper portion of the upper alluvial aquifer and are located cross- to down-gradient of the repository (see Figures 4-3 and 4-4). This observation does not apply for all downgradient monitoring wells. Monitoring well MW-B, which is also screened in the upper portion of the upper alluvial aquifer and is located immediately and consistently downgradient of the repository (see Figures 4-3 and 4-4), has exhibited cadmium and zinc concentrations that are generally consistent with concentrations in other upper alluvial monitoring wells located up- and cross-gradient (monitoring wells MW-A and MW-D) and up-gradient (monitoring well MW-D), respectively; of the repository (see Figures 5-2 and 5-4).

Concentrations of all COCs were generally consistent with the range of previously detected concentrations (see Figures 5-1 through 5-4).

5.3 Performance Evaluation

MFA completed a performance evaluation for the groundwater COCs, using the 2017 analytical results from monitoring wells screened in the upper portion of the upper alluvial aquifer (see Appendix G). The performance evaluation included a comparison of the 2017 results to background PLs (from TerraGraphics, 2016), CULs from the RODA (also included in the regulatory threshold screening discussed in Section 5.1), and historical maximum detected concentrations.

The following is a summary of findings from the performance evaluation (see Appendix G):

- No CUL exceedances were detected in 2017.
- Historical maximum detections and PLs were exceeded for the following location-constituent pairs:
  - Zinc at MW-A, MW-B, MW-C, and MWD
  - Cadmium at MW-D and MW-F
- PLs were exceeded for the following location-constituent pairs:
  - Cadmium and lead at MW-C
- The PL exceedances for the following four location-constituent pairs were detected for the first time in 2017:
  - Lead at MW-C
  - Cadmium at MW-D
  - Zinc at MW-A and MW-D

Following are conclusions and recommendations in response to these findings (see Appendix G):

- Exceedances of PLs likely will continue.
- Performance evaluations of semiannual monitoring results should be continued.
- Historical maximum and PL exceedances at upgradient monitoring well MW-D suggest an upgradient source. In response to USEPA's recommendation, two monitoring wells are slated for installation in 2018 to further characterize spatial variability and flow regimes in the EMFR vicinity (USEPA, 2016)(see Sections 6.1 and 6.3). Inclusion of these monitoring points is anticipated to clarify flow regimes which will help to identify potential upgradient areas.

- The dataset and PLs, including data from new monitoring wells, should be reevaluated in 2020 as part of the five-year-review.

Before the USEPA's optimization review (USEPA, 2016), PL and/or double quantification rule (DQR) exceedances were further evaluated by retesting using a one-of-three retesting strategy (TerraGraphics, 2016). The retesting strategy was temporarily suspended during the USEPA's optimization review; temporary suspension of the retesting strategy was adopted in SPAF #002 (MFA, 2016). Therefore, no retesting was conducted in 2016 or 2017 in response to PL and/or DQR value exceedances. As part of the 2017 performance evaluation, MFA developed a decision logic to clarify data evaluation steps and resulting retest and/or contingent action recommendations (see Appendix G). The decision logic has been approved by the USEPA.

6 DISCUSSION

The purpose of the EMFR monitoring program is to evaluate repository performance by monitoring the site for potential releases of COCs from repository waste to groundwater beneath the repository, as determined by the identification of significant impacts to groundwater quality. CUL exceedances for the dissolved COCs and the performance evaluation findings may represent potentially significant impacts; however, it is necessary to evaluate those findings in the context of historical observations and the CSM, which includes consideration of pre-repository impacts; interactions with repository pore water, floodwater (high- and low-flow events), and surface water; and the geochemical environment. This section discusses the 2017 monitoring results in the context of previous monitoring results and the CSM to evaluate the potential for groundwater impacts resulting from repository operations.

The following changes in conditions from previous events were identified during the 2017 monitoring events:

- Floodwater and repository pore water were detected for the first time since October 2015.
- Inconsistent with previously observed trends, water levels in the deeper portion of the upper alluvial aquifer (MW-C DEEP) declined faster than those in the shallow portion of the upper alluvial aquifer following the March flooding event.
- DO concentrations in shallow and deep upper alluvial aquifer monitoring wells MW-C and MW-C DEEP, respectively, were elevated above previous measurements.
- The ORP measured in April 2017 in upper alluvial aquifer well MW-B, located downgradient of the repository, was higher than previous measurements.
- PL exceedances for the following four location-constituent pairs were detected for the first time:
  - Lead at MW-C
  - Cadmium at MW-D

– Zinc at MW-A and MW-D

Elevated DO concentrations in MW-C and MW-C DEEP, and water level fluctuations in MW-C DEEP following flooding, may be due to floodwater entering the well(s) because of a failure of the well cap seals. The well cap's condition should be inspected before the next sampling event.

The higher ORP measured in shallow upper alluvial aquifer monitoring well MW-B may indicate that groundwater conditions were more favorable for oxidation than during previous monitoring events. This change in conditions may be related to floodwater infiltration—a condition that has not been observed at EMFR since 2015—which likely would provide more aeration and therefore result in a more aerobic, oxidizing environment.

The introduction of floodwater has the potential to change the geochemistry of groundwater. Geochemical indicator parameters (e.g., cations, anions, alkalinity, hardness) have been monitored at EMFR, but a comprehensive evaluation of the geochemical environment in groundwater beneath EMFR has not been conducted[1].

PLs were exceeded for the first time, as indicated above, which may be related to floodwater infiltration mobilizing metals in soil. New PL exceedances were observed in monitoring wells located upgradient to crossgradient of the repository, which suggests that the elevated COC concentrations are not related to a release from the repository, but rather to mobilization of pre-repository metals in the surrounding soil or in floodwater. However, historical maximum and recurring PL exceedances for zinc, cadmium, and/or lead in downgradient monitoring wells (MW-B, MW-C, and MW-F) have been detected. As discussed in the performance evaluation (see Section 5.3 and Appendix G), exceedances of PLs likely will continue, and an upgradient source is suspected.

Further evaluation is needed to determine whether PL exceedances are associated with a release from the repository, including additional statistical evaluation, to be conducted during the five-year review (FYR), further evaluation of geochemical conditions, and further site characterization to evaluate a potential upgradient source and interactions with the sand and clay WBZ.

A decision logic was prepared in response to PL exceedance trends and has been approved by the USEPA. At this time, monitoring and performance evaluations should continue, and potential contingent actions will be evaluated following adoption of a decision logic.

6.1 Contingent Actions

As part of the 2017 performance evaluation, MFA developed a decision logic to clarify data evaluation steps and resulting retest and/or contingent action recommendations (see Appendix G). No contingent actions are recommended at this time other than concurrence with the USEPA's

[1] Assessment of observed conditions to previously modeled predictions will be included in the FYR. Geochemical modeling is contingent action that will be considered if concentrations of any COC significantly exceed expected values. As new wells will be installed in 2018, geochemical data will continue to be collected from all monitoring locations to further support assessment in the FYR.

recommendation to install two additional upgradient monitoring wells to characterize spatial variability and flow regimes in the area of the EMFR (USEPA, 2016). Well installation is slated for 2018.

6.2 Uncertainties and Data Gaps

The following uncertainties and data gaps were identified for EMFR during the USEPA's optimization review (USEPA, 2016):

- The solid-phase association and complexation of metals in waste and sediments under the EMFR is a source of uncertainty in predicting the leachability, reactivity, and mobility of metals in both waste and sediments.
- Accuracy of background (pre-repository) concentration estimates of metals in groundwater is uncertain because of limited spatial and temporal datasets.
- Uncertainty about the direction and magnitude of groundwater flow and its influence on geochemistry, with greater uncertainty about groundwater quality and flow directions west of the EMFR.
- Details of surface and groundwater interactions and how they may influence mobility of metals.
- The transient and long-term effects of variable geochemistry on metals mobility.
- Site conditions or concentrations of COCs that would trigger site-specific contingent remedial response have not been identified. General approaches applicable to the EMFR for contingent responses in the event of applicable or relevant and appropriate requirement exceedances or structural failures are described in regulatory requirements for solid waste disposal facilities (40 CFR Parts 257, 258, and 264). How these requirements will be interpreted and implemented in the event of an exceedance or failure, given the preexisting extent of contamination in the vicinity of the repository, is unclear.

A decision logic was developed to address this last bullet, as discussed in Section 5.3 and Appendix G.

Existing pre-repository and waste metals concentrations were evaluated to address the second bullet (see Section 1.2.1); however, because of limited datasets, the results of this evaluation are uncertain.

The other uncertainties and data gaps listed above could be addressed through the following actions:

- Continue monitoring for water quality parameters and geochemical parameters (i.e., cations, anions, alkalinity, and hardness) and, as needed, include more robust geochemical modeling in interpreting those data.
- Further evaluate groundwater interactions between the sand and clay WBZ and the upper alluvial aquifer through the installation of additional monitoring well(s) between the repository and existing sand and clay WBZ monitoring well MW-E.

Also, given the uncertainties in the measuring point elevations for the piezometers and floodwater level recorders, MFA is recommending a survey of all monitoring points. As noted above, two additional upgradient monitoring wells will be installed to evaluate a potential upgradient source.

6.3 Monitoring Program Changes

As discussed in Section 7, installation of two additional monitoring wells (see Figure 8 of the optimization report for potential new well locations [USEPA, 2016]), adoption of a decision logic, and survey of all monitoring points, including the newly installed wells, is recommended for completion in 2018. No other changes to the monitoring program are recommended at this time.

7 CONCLUSIONS AND RECOMMENDATIONS

PL exceedances may not necessarily indicate that contaminants are being released from the facility. Further evaluation is needed to determine whether PL exceedances are associated with a release from the repository, including additional statistical evaluation to be conducted during the FYR, geochemical evaluation, and further characterization to evaluate a potential upgradient source and interactions with the sand and clay WBZ through installation of additional monitoring wells.

A decision logic was developed to address PL exceedances and has been approved by the USEPA.

LIMITATIONS

The services undertaken in completing this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

REFERENCES

Box, S. E., A. A. Brookstrom, M. Ikramuddin, and J. Lindsay. 2001. Geochemical analyses of soils and sediments, Coeur d'Alene draining basin, Idaho: sampling, analytical methods, and results. U.S. Geological Survey Open-File Report 01-139.

IDEQ. 2016. East Mission Flats Repository 2015 annual water quality report. Idaho Department of Environmental Quality, Boise, Idaho. November.

IDEQ and USEPA. 2013. Bunker Hill mining and mettalurgical complex waste acceptance criteria. Final. Approved by Idaho Department of Environmental Quality and U.S. Environmental Protection Agency. April.

MFA. 2016. Sample plan alteration form (QAPP addendum—SPAF #002) East Mission Flats Repository. Maul Foster & Alongi, Inc., Kellogg, Idaho. September 12; final approval September 14, 2016.

MFA. 2017. 2016 East Mission Flats Repository monitoring report. Maul Foster & Alongi, Inc., Kellogg, Idaho. June 22.

NWCS. 2017. 2016 Coeur d'Alene Basin repositories annual operations report. Prepared for the Coeur d'Alene Trust. North Wind Construction Services. April.

TerraGraphics. 2009. East Mission Flats Repository 90% design report. TerraGraphics Environmental Engineering, Inc.

TerraGraphics. 2014. Sampling and analysis plan /quality assurance project plan for water monitoring at the East Mission Flats Repository. Rev. 2. TerraGraphics Environmental Engineering, Inc.

TerraGraphics. 2015. Sample plan alteration form (QAPP addendum—SPAF #1), East Mission Flats Repository. Prepared for Idaho Department of Environmental Quality. TerraGraphics Environmental Engineering, Inc. June.

TerraGraphics. 2016. Technical memorandum. (re: prediction limit approach for East Mission Flats Repository—white paper) to D. Carpenter, Idaho Department of Environmental Quality, from TerraGraphics Environmental Engineering, Inc. October 24.

USEPA. 2009. Hotline report contaminated soil waste repository at East Mission Flats, Idaho. Report No. 09-P-0162. Prepared by the Office of the Inspector General. U.S. Environmental Protection Agency.

USEPA. 2016. Optimization review report; long-term monitoring optimization study, Bunker Hill mining and metallurgical complex, operable unit 03, East Mission Flats and Big Creek repositories, Kootenai County and Shoshone County, Idaho. U.S. Environmental Protection Agency, Region 10. October.

USGS. 2018. National Water Information System: Web interface. U.S. Geological Survey. https://waterdata.usgs.gov/nwis (accessed January 2, 2018).

TABLES

Table 1-1
Pre-Repository and BPRP Waste Material Metals Concentrations (mg/kg)
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

Metal	Arsenic		Cadmium		Lead		Zinc	
BPRP Recommended Soil Replacement Concentration	100		NV		1,000		NV	
PTW Threshold	15,000		71,000		84,600		NV	
RODA CUL	NV		NV		530		NV	
Summary Statistics	Pre-Repository Concentrations	BPRP Waste Material Concentrations	Pre-Repository Concentrations	BPRP Waste Material Concentrations	Pre-Repository Concentrations	BPRP Waste Material Concentrations	Pre-Repository Concentrations	BPRP Waste Material Concentrations
Number of Samples	20	20,622[a]	20	NV	20	20,623[a]	20	NV
Minimum Sample Concentration	6.1	0.69	0.2	NV	22.3	2	72.9	NV
Maximum Sample Concentration	114	7,000[b]	20.9	NV	8,730	90,800[b]	2,860	NV
Arithmetic Mean	28	67[c]	6.3	NV	1,473.5	2,575[c]	825.1	NV
Standard Deviation	38.5	151	6.4	NV	2,483.1	4,117	649.2	NV
Median	7.8	30.5	2.55	NV	78	1,440	672.5	NV

NOTES:

Pre-repository metals concentrations are representative of sample concentrations from pre-repository investigations conducted in 2001 and 2007, as presented in the EMFR 90% Design Report (TerraGraphics, 2009b). Samples collected from 0 to 4 feet bgs were used to characterize pre-repository conditions. Metals concentrations below that depth were considered to be representative of background conditions.

Information for the BPRP waste material concentrations provided in this table was obtained from the EMFR 2015 Annual Water Quality Report (IDEQ, 2016) and is based on data from the BPRP collected in 2004 through 2011 from locations in the program requiring remediation.

All data is reported in mg/kg.

bgs = below ground surface.

BPRP = Basin Property Remediation Program.

Coeur d'Alene Trust = Successor Coeur d'Alene Custodial and Work Trust.

EMFR = East Mission Flats Repository.

IDEQ = Idaho Department of Environmental Quality.

mg/kg = milligram per kilogram.

NV = no value.

PTW = principal threat waste.

RODA CUL = Record of Decision Amendment cleanup level.

TerraGraphics = TerraGraphics Environmental Engineering, Inc.

[a]The number of samples collected from sample locations requiring remediation was used to create summary statistics: 0–1-, 1–6-, and 6–12-inch samples were included but the 12–18-inch horizons were excluded for non-garden sample locations; 0–1-, 1–6-, 6–12-, 12–18-, 18–24-inch samples were included for garden sample locations. The higher of original/duplicate, original/split, and original/resample pairs was used for calculations.

[b]This concentration exceeds the PTW threshold. It is unlikely that soil with metals concentrations above PTW thresholds would have been disposed of at EMFR; however, if it were, mitigation measures (e.g., stabilization treatment) likely would have been conducted prior to disposal in accordance with the EMFR 90% design report (TerraGraphics, 2009b).

[c]Based on data from properties that were initially sampled between 2004 and 2011. Assumes: (1) all sample locations sampled 2004–2011 that required remediation were remediated and the remediated material was sent to a repository; (2) all sample locations requiring remediation (except gardens) were remediated to 12 inches (some actually may have been remediated to 6 inches, meaning that 6 to12 inches of material included in this analysis may not have actually gone to the repository); and (3) garden sample locations requiring remediation were remediated to 24 inches.

Table 2-1
Water Monitoring Program Summary
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

<table>
<tr><th>Location ID[a]</th><th>Location Type</th><th>Sample Medium</th><th>Lithologic Unit Screened Interval</th><th>Included in Monitoring Program?</th><th>Monitoring Activities</th><th>Monitoring Frequency</th><th>Water Level Transducer?[b]</th><th>Hydrogeologic position relative to EMFR</th><th>Monitoring Active</th><th>Monitoring Objectives</th><th>Comments</th></tr>
<tr><td>07-EMF-MW-A</td><td rowspan="7">Monitoring Well</td><td rowspan="6">Shallow Groundwater</td><td rowspan="4">Upper portion of Upper Alluvial Aquifer</td><td rowspan="7">Yes</td><td rowspan="7">• Hand-measure water levels during sampling events.
• Measure field water quality parameters during sampling events.
• Monitor water levels with transducers.
• Collect samples for laboratory analysis.</td><td rowspan="7">Semiannual</td><td rowspan="7">Yes</td><td>Upgradient (seasonally crossgradient)</td><td rowspan="4">October 2007 to present</td><td rowspan="6">Monitor horizontal groundwater gradients and groundwater quality in the uppermost portion of the upper aquifer.</td><td rowspan="2">--</td></tr>
<tr><td>07-EMF-MW-B</td><td>Downgradient</td></tr>
<tr><td>07-EMF-MW-C</td><td>Downgradient</td><td>07-EMF-MW-C and 09-EMF-MW-C DEEP are a monitoring pair used to evaluate vertical hydraulic gradients in the upper alluvial aquifer. 09-EMF-MW-C-DEEP is located approximately 50 feet from monitoring well 07-EMF-MW-C and screened approximately 67.5 feet deeper than 07-EMF-MW-C.</td></tr>
<tr><td>07-EMF-MW-D</td><td>Upgradient (seasonally crossgradient)</td><td rowspan="2">--</td></tr>
<tr><td>08-EMF-MW-E</td><td>Sand and Clay WBZ</td><td>Crossgradient</td><td rowspan="2">October 2008 to present</td></tr>
<tr><td>08-EMF-MW-F</td><td>Upper portion of Upper Alluvial Aquifer</td><td>Down- to crossgradient</td><td>Located south of Interstate 90.</td></tr>
<tr><td>09-EMF-MW-C-DEEP</td><td rowspan="2">Deep Groundwater</td><td>Lower portion of Upper Alluvial Aquifer</td><td>Downgradient</td><td>December 2009 to present</td><td>Monitor vertical groundwater gradients and groundwater quality in the lower portion of the upper alluvial aquifer.</td><td>07-EMF-MW-C and 09-EMF-MW-C DEEP are a monitoring pair used to evaluate vertical hydraulic gradients in the upper alluvial aquifer. 09-EMF-MW-C-DEEP is located approximately 50 feet from monitoring well 07-EMF-MW-C and screened approximately 67.5 feet deeper than 07-EMF-MW-C.</td></tr>
<tr><td>Decontamination Well</td><td>Production Well</td><td>--</td><td>No</td><td>--</td><td>Discontinued</td><td>--</td><td>Downgradient</td><td>June 2010 to May 2014</td><td>Monitor the quality of water used for equipment decontamination purposes.</td><td>--</td></tr>
</table>

Table 2-1
Water Monitoring Program Summary
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

Location ID[a]	Location Type	Sample Medium	Lithologic Unit Screened Interval	Included in Monitoring Program?	Monitoring Activities	Monitoring Frequency	Water Level Transducer?[b]	Hydrogeologic position relative to EMFR	Monitoring Active	Monitoring Objectives	Comments
10-EMF-PZ-A	Piezometer	Repository Waste Pore Water	Repository Waste	Yes	• Hand-measure water levels during sampling events (if water present). • Monitor water levels and field water quality parameters with a transducer.	Opportunistic during Semiannual Events	Yes	--	October 2010 to present	Monitor pore water quality and saturation of repository waste.	Repository pore water was sampled opportunistically from these locations before sampling was discontinued in 2016 based on USEPA's recommendations.[c]
10-EMF-PZ-B					• Hand-measure water levels during sampling events (if water present). • Monitor water levels with transducers.						
LL-1	Floodwater Level Recorder	Surface Water (Floodwater)	--						August 2009 to present	Monitor floodwater elevation and duration.	Floodwater was sampled opportunistically from these locations before sampling was discontinued in September 2014.[d]
LL-2									January 2009 to present		
--	Surface Water Sampling			No	--	Discontinued	--		December 2014 to 2016	Evaluate the quality of floodwater to evaluate the source and quality of water in the repository waste.	Opportunistic floodwater sampling was adopted in March 2014 and discontinued in 2016 based on USEPA's recommendations;[c] no samples were collected during active monitoring. The floodwater sample location was to be at the toe of the repository nearest to piezometers PZ-A and PZ-B.
USGS Gauging Station (No. 12413500)	River Stage Elevation	Surface Water		Yes	• Download stage data from USGS.	Semiannual			--	Monitor the Coeur d'Alene River stage elevation in order to monitor groundwater-surface water interactions.	Coeur d'Alene River stage elevation data for the Cataldo gauging station are obtained from the USGS National Water Information System.

Table 2-1
Water Monitoring Program Summary
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

Location ID[a]	Location Type	Sample Medium	Lithologic Unit Screened Interval	Included in Monitoring Program?	Monitoring Activities	Monitoring Frequency	Water Level Transducer?[b]	Hydrogeologic position relative to EMFR	Monitoring Active	Monitoring Objectives	Comments
EMF-SW-A	Surface Water Sampling	Surface Water (Floodwater)	--	No	--	Discontinued	--	--	May 2008 to March 2014	Monitor the quality of floodwater entering and leaving the repository.	--
EMF-SW-B									May 2011 to March 2014		
EMF-SW-C									May 2008 to March 2014		
EMF-SW-D									May 2011 to March 2014		

NOTES:
-- = not applicable.
Coeur d'Alene Trust = Successor Coeur d'Alene Custodial and Work Trust.
EMFR = East Mission Flats Repository.
USGS =U.S. Geological Survey.
WBZ = water bearing zone.
[a]Monitoring location identifications (e.g., “07-EMF-MW-A”) include the installation year (e.g., “07”); “EMF” to identify its location in East Mission Flats; and a designation of the location type (i.e., “MW” for monitoring wells, “PZ” for piezometers, “SW” for surface water, and “LL” for flood level recorders).
[b]Monitoring location is equipped with a transducer to monitor water level elevations every half hour to hour when water is present. Transducer data are downloaded during sampling events and corrected to compensate for barometric pressure. Piezometer 10-EMF-PZ-A is equipped with a transducer that also monitors field water quality parameters.
[c]USEPA. 2016. Optimization review report; long-term monitoring optimization study, Bunker Hill mining and metallurgical complex, Operable Unit 03, East Mission Flats and Big Creek repositories, Kootenai County and Shoshone County, Idaho. U.S. Environmental Protection Agency, Region 10. October.
[d]TerraGraphics. 2014. Sampling and analysis plan/quality assurance project plan for water monitoring at the East Mission Flats Repository. Rev. 2. TerraGraphics Environmental Engineering, Inc.

Table 4-1
Groundwater Elevations
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

Location	Date	Depth to Water (ft MPE)	Groundwater Elevation (ft NAVD88)
07-EMF-MW-A	12/11/2007	13.49	2131.74
	02/25/2008	13.64	2131.59
MPE:	06/03/2008	5.81	2139.42
2145.23	08/19/2008	14.12	2131.11
	11/10/2008	14.38	2130.85
	02/04/2009	13.6	2131.63
	05/07/2009	7.69	2137.54
	08/10/2009	14.09	2131.14
	11/11/2009	14.18	2131.05
	02/25/2010	13.5	2131.73
	05/19/2010	10.28	2134.95
	08/25/2010	14.21	2131.02
	11/16/2010	13.93	2131.30
	02/10/2011	11.89	2133.34
	07/06/2011	11.14	2134.09
	10/24/2011	14.55	2130.68
	01/25/2012	14.5	2130.73
	04/10/2012	8.56	2136.67
	07/31/2012	13.48	2131.75
	10/29/2012	14.35	2130.88
	01/23/2013	13.83	2131.40
	04/02/2013	9.62	2135.61
	07/23/2013	14.07	2131.16
	10/17/2013	14.66	2130.57
	01/15/2014	12.69	2132.54
	04/01/2014	9.05	2136.18
	07/23/2014	14	2131.23
	10/27/2014	14.9	2130.33
	01/14/2015	12.8	2132.43
	04/21/2015	12.43	2132.80
	10/21/2015	15.38	2129.85
	04/05/2016	8.97	2136.26
	10/25/2016	13.04	2132.19
	04/17/2017	9.23	2136.00
	10/24/2017	14.04	2131.19

Table 4-1
Groundwater Elevations
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

Location	Date	Depth to Water (ft MPE)	Groundwater Elevation (ft NAVD88)
07-EMF-MW-B	12/10/2007	13.49	2129.31
	02/25/2008	11.37	2131.43
MPE:	06/03/2008	3.31	2139.49
2142.80	08/19/2008	11.6	2131.20
	11/10/2008	12.03	2130.77
	02/04/2009	11.2	2131.60
	05/07/2009	5.31	2137.49
	08/10/2009	11.66	2131.14
	11/11/2009	11.89	2130.91
	02/25/2010	11.08	2131.72
	05/19/2010	7.99	2134.81
	08/25/2010	11.79	2131.01
	11/16/2010	11.66	2131.14
	02/10/2011	9.48	2133.32
	07/06/2011	8.55	2134.25
	10/24/2011	12.2	2130.60
	01/25/2012	12.21	2130.59
	04/10/2012	5.63	2137.17
	07/31/2012	11.03	2131.77
	10/29/2012	12.08	2130.72
	01/24/2013	11.47	2131.33
	04/02/2013	7.4	2135.40
	07/23/2013	11.69	2131.11
	10/17/2013	12.32	2130.48
	01/15/2014	10.46	2132.34
	04/01/2014	6.8	2136.00
	07/23/2014	11.62	2131.18
	10/27/2014	12.6	2130.20
	01/14/2015	10.56	2132.24
	04/21/2015	10.04	2132.76
	10/21/2015	13	2129.80
	04/05/2016	6.74	2136.06
	10/25/2016	10.74	2132.06
	04/17/2017	6.91	2135.89
	10/24/2017	11.74	2131.06

Table 4-1
Groundwater Elevations
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

Location	Date	Depth to Water (ft MPE)	Groundwater Elevation (ft NAVD88)
07-EMF-MW-C	12/10/2007	8.62	2131.73
	02/25/2008	8.8	2131.55
MPE:	08/19/2008	8.92	2131.43
2140.35	11/10/2008	9.48	2130.87
	02/03/2009	8.3	2132.05
	08/10/2009	8.94	2131.41
	11/11/2009	9.37	2130.98
	02/25/2010	8.69	2131.66
	05/19/2010	5.49	2134.86
	08/25/2010	9.1	2131.25
	11/16/2010	9.06	2131.29
	10/24/2011	9.66	2130.69
	01/25/2012	9.75	2130.60
	04/10/2012	2.43	2137.92
	07/31/2012	8.3	2132.05
	10/29/2012	9.55	2130.80
	04/02/2013	4.93	2135.42
	07/23/2013	9.11	2131.24
	10/17/2013	9.8	2130.55
	01/15/2014	7.97	2132.38
	04/01/2014	4.35	2136.00
	07/23/2014	9.03	2131.32
	10/27/2014	10.03	2130.32
	01/14/2015	7.78	2132.57
	04/21/2015	7.32	2133.03
	06/18/2015	9.3	2131.05
	08/13/2015	10.2	2130.15
	10/21/2015	10.6	2129.75
	04/05/2016	4.27	2136.08
	10/25/2016	8.25	2132.10
	04/17/2017	4.3	2136.05
	10/24/2017	9.18	2131.17

Table 4-1
Groundwater Elevations
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

Location	Date	Depth to Water (ft MPE)	Groundwater Elevation (ft NAVD88)
07-EMF-MW-D	12/10/2007	9.43	2131.89
	02/25/2008	9.4	2131.92
MPE:	08/19/2008	9.23	2132.09
2141.32	11/10/2008	10.23	2131.09
	02/03/2009	8.42	2132.90
	08/11/2009	9.39	2131.93
	11/11/2009	10.18	2131.14
	02/25/2010	9.37	2131.95
	05/19/2010	6.23	2135.09
	08/25/2010	9.43	2131.89
	11/16/2010	9.68	2131.64
	02/10/2011	6.59	2134.73
	10/24/2011	10.43	2130.89
	10/25/2011	10.43	2130.89
	01/26/2012	10.37	2130.95
	04/11/2012	4.52	2136.80
	08/01/2012	8.75	2132.57
	10/30/2012	10.14	2131.18
	01/24/2013	9.52	2131.80
	04/02/2013	5.68	2135.64
	07/23/2013	9.75	2131.57
	10/17/2013	10.69	2130.63
	01/15/2014	8.69	2132.63
	04/01/2014	5.23	2136.09
	07/23/2014	9.65	2131.67
	10/27/2014	11.03	2130.29
	01/14/2015	8.51	2132.81
	04/21/2015	7.7	2133.62
	10/21/2015	11.54	2129.78
	04/05/2016	5.09	2136.23
	10/25/2016	9.1	2132.22
	04/18/2017	5.13	2136.19
	10/24/2017	10.17	2131.15

Table 4-1
Groundwater Elevations
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

Location	Date	Depth to Water (ft MPE)	Groundwater Elevation (ft NAVD88)
08-EMF-MW-E	11/10/2008	7.42	2137.19
	02/03/2009	5.35	2139.26
MPE:	05/07/2009	4.79	2139.82
2144.61	08/11/2009	7.74	2136.87
	11/11/2009	7.08	2137.53
	02/25/2010	7.71	2136.90
	05/19/2010	5.08	2139.53
	08/25/2010	7.71	2136.90
	11/16/2010	5.32	2139.29
	02/10/2011	4.7	2139.91
	07/06/2011	5.36	2139.25
	10/24/2011	9.6	2135.01
	01/26/2012	5.23	2139.38
	04/10/2012	2.59	2142.02
	08/01/2012	7.36	2137.25
	10/29/2012	8.3	2136.31
	01/23/2013	5.34	2139.27
	04/02/2013	5.39	2139.22
	07/23/2013	8.42	2136.19
	10/17/2013	9.93	2134.68
	01/15/2014	5.22	2139.39
	04/01/2014	4.93	2139.68
	07/23/2014	7.84	2136.77
	10/27/2014	10.75	2133.86
	01/14/2015	5.21	2139.40
	04/21/2015	5.42	2139.19
	10/21/2015	12.76	2131.85
	04/05/2016	5.17	2139.44
	10/25/2016	6.51	2138.10
	04/18/2017	5	2139.61
	10/25/2017	9.29	2135.32

Table 4-1
Groundwater Elevations
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

Location	Date	Depth to Water (ft MPE)	Groundwater Elevation (ft NAVD88)
08-EMF-MW-F	11/11/2008	12.12	2130.60
	02/03/2009	11.23	2131.49
MPE:	05/07/2009	5.45	2137.27
2142.72	08/10/2009	11.69	2131.03
	11/11/2009	11.88	2130.84
	02/25/2010	11.81	2130.91
	05/19/2010	7.98	2134.74
	08/25/2010	11.81	2130.91
	11/16/2010	11.44	2131.28
	02/10/2011	9.54	2133.18
	07/06/2011	8.66	2134.06
	10/24/2011	12.24	2130.48
	10/25/2011	12.24	2130.48
	01/26/2012	12.05	2130.67
	04/11/2012	6.03	2136.69
	08/01/2012	11.14	2131.58
	10/30/2012	11.8	2130.92
	01/23/2013	11.51	2131.21
	04/02/2013	7.28	2135.44
	07/23/2013	11.69	2131.03
	10/17/2013	12.33	2130.39
	01/15/2014	10.47	2132.25
	04/01/2014	6.79	2135.93
	07/23/2014	11.6	2131.12
	10/27/2014	12.63	2130.09
	01/14/2015	10.59	2132.13
	04/22/2015	10.07	2132.65
	10/21/2015	12.97	2129.75
	04/05/2016	6.66	2136.06
	10/25/2016	10.76	2131.96
	04/18/2017	6.95	2135.77
	10/25/2017	11.97	2130.75

Table 4-1
Groundwater Elevations
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

Location	Date	Depth to Water (ft MPE)	Groundwater Elevation (ft NAVD88)
09-EMF-MW-C DEEP	02/25/2010	8.7	2131.52
	05/19/2010	5.41	2134.81
MPE:	08/25/2010	9.19	2131.03
2140.22	11/16/2010	9.04	2131.18
	10/24/2011	9.6	2130.62
	01/25/2012	9.7	2130.52
	04/10/2012	3.43	2136.79
	07/31/2012	8.44	2131.78
	10/29/2012	9.5	2130.72
	01/23/2013	9	2131.22
	04/02/2013	4.82	2135.40
	07/23/2013	9.1	2131.12
	10/17/2013	9.68	2130.54
	01/15/2014	7.96	2132.26
	04/01/2014	4.28	2135.94
	07/23/2014	9.02	2131.20
	10/27/2014	10.05	2130.17
	01/14/2015	7.82	2132.40
	04/21/2015	7.47	2132.75
	10/21/2015	10.43	2129.79
	04/05/2016	4.16	2136.06
	10/25/2016	8.2	2132.02
	04/17/2017	4.37	2135.85
	10/24/2017	9.22	2131.00

NOTES:

Coeur d'Alene Trust = Successor Coeur d'Alene Custodial and Work Trust.

ft MPE = feet below measuring point elevation.

ft NAVD88 = feet National American Vertical Datum of 1988.

MPE = measuring point elevation (ft NAVD88).

Table 4-2
Groundwater Field Parameter Measurements
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

Location	Sample Date	Specific Conductivity (uS/cm)	Dissolved Oxygen (mg/L)	Ferrous Iron (mg/L)	Oxidation Reduction Potential (mV)	pH	Temperature (degrees C)	Turbidity (NTUs)
07-EMF-MW-A	12/11/2007	265	1.01	NM	280	5.63	8.21	NM
	02/25/2008	328	0.36	NM	353	5.3	7.73	NM
	06/03/2008	150	0.51	NM	265	5.28	9.45	NM
	08/19/2008	208	0.39	NM	225	5.57	11.05	NM
	11/10/2008	163	0.34	NM	161	5.63	8.79	NM
	02/04/2009	253	0.39	NM	228	5.19	7.95	NM
	05/07/2009	202	0.38	NM	195	4.93	7.35	NM
	08/10/2009	196	0.24	NM	210	5.43	9.23	NM
	11/11/2009	121	0.48	NM	131	5.62	8.49	NM
	02/25/2010	209	0.32	NM	216	4.84	7.97	NM
	05/19/2010	181	0.42	NM	147	5.53	8.21	NM
	08/25/2010	149	0.33	NM	142	5.37	9.17	NM
	11/16/2010	164	0.43	NM	161	5.43	8.81	NM
	02/10/2011	210	0.4	NM	190	4.92	7.69	NM
	07/06/2011	229	0.35	NM	118	5.54	10.98	NM
	10/24/2011	182	R	NM	136	5.54	9.21	NM
	01/25/2012	239	0.3	NM	178	4.92	8.54	NM
	04/10/2012	222	0.26	NM	155	5.5	8.34	NM
	07/31/2012	235	0.26	NM	166	4.89	9.53	NM
	10/29/2012	182	0.52	NM	157	5.39	10.35	NM
	01/23/2013	214	0.3	NM	92	5.24	8.84	NM
	04/02/2013	163	0.39	NM	221	5.12	8.23	NM
	07/23/2013	207	0.45	NM	130	5.04	9.54	NM
	10/17/2013	127	0.78	NM	141	5.31	9.22	NM
	01/15/2014	168	0.33	NM	148	5.49	8.39	NM
	04/01/2014	188	0.17	NM	172	5.39	8.23	NM
	07/23/2014	188	1.02	NM	136	5.54	8.83	NM
	10/27/2014	119	0.1	NM	109	5.76	8.39	NM
	01/14/2015	171	1.8 J	NM	134	5.3	7.51	NM
	04/21/2015	176	0.69	NM	196	5.49	8.38	NM
	10/21/2015	126	0.32	NM	160	5.42	9.68	NM
	04/05/2016	176	0.39	NM	263	5.05	8.17	NM
	10/25/2016	129	0.86	NM	117	5.37	9.68	203
	04/17/2017	204.57	0.05	NM	271.7	4.9	8.19	149.56
	10/24/2017	141.24	0.06	4.1	155.8	5.44	9.51	20.43

Table 4-2
Groundwater Field Parameter Measurements
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

Location	Sample Date	Specific Conductivity (uS/cm)	Dissolved Oxygen (mg/L)	Ferrous Iron (mg/L)	Oxidation Reduction Potential (mV)	pH	Temperature (degrees C)	Turbidity (NTUs)
07-EMF-MW-B	12/10/2007	265	1.01	NM	280	5.63	8.21	NM
	02/25/2008	115	0.75	NM	330	5.38	7.46	NM
	06/03/2008	101	1.32	NM	253	5.6	10.26	NM
	08/19/2008	92	0.34	NM	220	5.57	16.92	NM
	11/10/2008	103	0.42	NM	169	5.47	12.88	NM
	02/04/2009	98	1.98	NM	209	5.4	10.48	NM
	05/07/2009	69	3.02	NM	213	5.11	7.8	NM
	08/10/2009	82	0.55	NM	285	5.46	11.81	NM
	11/11/2009	81	0.42	NM	184	5.39	9.24	NM
	02/25/2010	97	0.55	NM	216	4.88	8.2	NM
	05/19/2010	101	0.82	NM	135	5.59	9.37	NM
	08/25/2010	85	0.67	NM	146	5.42	10.13	NM
	11/16/2010	94	0.32	NM	177	5.39	9.44	NM
	02/10/2011	65	8.09	NM	183	5.25	4.24	NM
	07/06/2011	56	0.3	NM	177	5.7	17.28	NM
	10/24/2011	74	0.37 J	NM	112	5.46	13.55	NM
	01/25/2012	85	0.47	NM	94	5.49	11.53	NM
	04/10/2012	53	5.77	NM	97	5.83	8.61	NM
	07/31/2012	47	0.28	NM	181	5.12	18.55	NM
	10/29/2012	82	0.43	NM	204	5.52	15.71	NM
	01/24/2013	73	0.95	NM	208	5.04	12.53	NM
	04/02/2013	66	0.43	NM	238	5.63	11.54	NM
	07/23/2013	77	0.27	NM	161	5.13	12.06	NM
	10/17/2013	75	0.64	NM	208	5.31	10.67	NM
	01/15/2014	80	0.22	NM	143	5.7	9.88	NM
	04/01/2014	92	1.39	NM	186	5.6	9.38	NM
	07/23/2014	83	2.26	NM	165	5.52	10.38	NM
	10/27/2014	88	0.11	NM	146	5.64	9.1	NM
	01/14/2015	91	0.31	NM	142	5.41	6.68	NM
	04/21/2015	98	1.49	NM	197	5.71	9.17	NM
	10/21/2015	120	0.26	NM	200	5.37	9.8	NM
	04/05/2016	130	2.16	NM	284	5.45	8.33	NM
	10/25/2016	129	0.89	NM	139	5.47	10.2	1.03
	04/17/2017	165.77	1.45	NM	411.1	4.9	8.83	4.26
	10/24/2017	139.24	0.27	0.0	218.4	5.32	10.22	0.46

Table 4-2
Groundwater Field Parameter Measurements
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

Location	Sample Date	Specific Conductivity (uS/cm)	Dissolved Oxygen (mg/L)	Ferrous Iron (mg/L)	Oxidation Reduction Potential (mV)	pH	Temperature (degrees C)	Turbidity (NTUs)
07-EMF-MW-C	12/10/2007	105	0.75	NM	301	5.56	8.89	NM
	02/25/2008	105	0.52	NM	329	5.34	8.07	NM
	08/19/2008	84	0.24	NM	189	5.68	12.81	NM
	11/10/2008	93	0.3	NM	133	5.45	11.51	NM
	02/03/2009	104	0.32	NM	144	5.56	9.76	NM
	08/10/2009	83	0.7	NM	312	5.54	12.42	NM
	11/11/2009	74	0.31	NM	198	5.46	9.91	NM
	02/25/2010	102	0.42	NM	220	5.14	8.89	NM
	05/19/2010	97	0.11 J	NM	147	5.66	9.33	NM
	08/25/2010	94	0.35	NM	143	5.59	13.54	NM
	11/16/2010	105	0.21	NM	194	5.49	11.94	NM
	10/24/2011	88	0.17 J	NM	71	5.67	11.41	NM
	01/25/2012	95	1.27	NM	160	5.33	10.03	NM
	04/10/2012	81	2.57	NM	147	6.24	10.45	NM
	07/31/2012	67	0.2	NM	171	5.19	16.51	NM
	10/29/2012	102	0.2	NM	136	5.62	14.22	NM
	04/02/2013	80	1.73	NM	162	5.69	11.78	NM
	07/23/2013	89	0.2	NM	50	5.37	12.85	NM
	10/17/2013	92	0.52	NM	113	5.63	11.36	NM
	01/15/2014	87	1.85	NM	78	5.75	10.14	NM
	04/01/2014	102	3.09	NM	193	5.55	10.27	NM
	07/23/2014	124	0.62	NM	178	5.6	11.21	NM
	10/27/2014	115	0.12	NM	163	5.8	9.71	NM
	01/14/2015	114	2.19	NM	176	5.45	8.16	NM
	04/21/2015	153	0.7	NM	56	5.75	10.6	NM
	06/18/2015	154	0.41	NM	255	5.42	11.26	NM
	08/13/2015	139	0.27	NM	235	5.25	12.37	NM
	10/21/2015	139	0.2	NM	213	5.62	10.36	NM
	12/15/2015	137	1.57	NM	265	5.28	9.63	NM
	04/05/2016	164	2.13	NM	268	5.48	9.64	NM
	10/25/2016	145	0.63	NM	158	5.66	10.53	NM
	04/17/2017	0.45	10.12	NM	363.3	6.95	9.19	0.83
	10/24/2017	149.71	0.26	0.0	116.2	5.63	10.18	2.45

Table 4-2
Groundwater Field Parameter Measurements
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

Location	Sample Date	Specific Conductivity (uS/cm)	Dissolved Oxygen (mg/L)	Ferrous Iron (mg/L)	Oxidation Reduction Potential (mV)	pH	Temperature (degrees C)	Turbidity (NTUs)
07-EMF-MW-D	12/10/2007	116	0.5	NM	271	5.87	8.95	NM
	02/25/2008	132	0.51	NM	315	5.64	8.26	NM
	08/19/2008	108	0.4	NM	182	5.91	10.22	NM
	11/10/2008	118	0.38	NM	106	5.69	9.34	NM
	02/03/2009	116	0.32	NM	161	5.69	8.43	NM
	08/11/2009	110	0.43	NM	158	5.76	9.87	NM
	11/11/2009	92	0.26	NM	115	5.75	8.72	NM
	02/25/2010	107	0.38	NM	198	5.19	8.32	NM
	05/19/2010	90	0.3	NM	138	5.85	9.13	NM
	08/25/2010	107	0.22	NM	120	5.83	10.46	NM
	11/16/2010	115	0.25	NM	157	5.85	9.44	NM
	02/10/2011	91	0.24	NM	170	5.5	9.07	NM
	10/24/2011	116	0.57	NM	79	5.8	9	NM
	01/26/2012	102	0.73	NM	201	5.15	8.44	NM
	04/10/2012	97	0.23	NM	116	6.09	9.16	NM
	08/01/2012	116	0.29	NM	94	5.56	10.95	NM
	10/30/2012	129	0.36	NM	100	6.13	9.99	NM
	01/24/2013	94	0.19	NM	155	5.3	9.27	NM
	04/02/2013	78	0.21	NM	136	5.83	9.43	NM
	07/23/2013	100	0.15	NM	54	5.77	10.52	NM
	10/17/2013	91	0.38	NM	53	5.98	9.91	NM
	01/15/2014	74	0.21	NM	90	5.92	9.15	NM
	04/01/2014	86	0.39	NM	168	5.86	9	NM
	07/23/2014	93	0.68	NM	61	6.13	9.32	NM
	10/27/2014	92	0	NM	47	6.25	8.63	NM
	01/14/2015	76	0.17	NM	162	5.55	6.55	NM
	04/21/2015	81	0.17	NM	94	6.27	9.8	NM
	10/21/2015	102	0.17	NM	121	6.07	9.77	NM
	04/05/2016	97	1.27	NM	135	5.9	9.05	NM
	10/25/2016	107	0.59	NM	19	6.25	9.79	307
	04/18/2017	85.99	1.68	NM	237.1	6.16	8.82	64.76
	10/24/2017	124.22	0.02	3.35	75.3	5.95	9.61	3.57

Table 4-2
Groundwater Field Parameter Measurements
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

Location	Sample Date	Specific Conductivity (uS/cm)	Dissolved Oxygen (mg/L)	Ferrous Iron (mg/L)	Oxidation Reduction Potential (mV)	pH	Temperature (degrees C)	Turbidity (NTUs)
08-EMF-MW-E	11/10/2008	1332	0.27	NM	126	6.18	10.66	NM
	02/03/2009	1379	0.42	NM	188	6.44	8.29	NM
	05/07/2009	1461	0.3	NM	216	6.12	8.99	NM
	08/11/2009	1435	0.39	NM	22	6.39	11.14	NM
	11/11/2009	1228	0.86	NM	1	6.36	8.77	NM
	02/25/2010	1540	0.22	NM	74	6.17	8.61	NM
	05/19/2010	1500	0.2	NM	138	6.57	9.96	NM
	08/25/2010	1438	0.25	NM	50	6.45	12.26	NM
	11/16/2010	1560	0.29	NM	101	6.5	10.61	NM
	02/10/2011	1436	0.31	NM	171	6.33	8.23	NM
	07/06/2011	1449	0.21	NM	-48	6.72	11.52	NM
	10/24/2011	1450	0.26	NM	-41	6.58	11.1	NM
	01/26/2012	1790	0.51	NM	14	6.32	8.79	NM
	04/11/2012	1720	0.31	NM	104	6.4	8.67	NM
	08/01/2012	1740	0.29	NM	15	6.11	11.81	NM
	10/29/2012	1930	0.3	NM	-1	6.44	12.53	NM
	01/23/2013	1680	0.36	NM	39	6.26	8.99	NM
	04/02/2013	1478	0.39	NM	117	6.52	10.1	NM
	07/23/2013	1670	0.45	NM	11	6.32	12.43	NM
	10/17/2013	1680	0.55	NM	-33	6.42	11.79	NM
	01/15/2014	1610	0.25	NM	93	6.63	9.53	NM
	04/01/2014	1840	1.55	NM	61	6.63	10.01	NM
	07/23/2014	1730	0.76	NM	48	6.42	11.44	NM
	10/27/2014	1880	0.06	NM	20	6.52	10.28	NM
	01/14/2015	1980	0.19	NM	80	6.31	8.27	NM
	04/21/2015	2000	1.19	NM	103	6.72	13.33	NM
	10/21/2015	2280	0.26	NM	19	6.27	12.66	NM
	04/05/2016	2160	0.2	NM	126	6.32	11.16	NM
	10/25/2016	2090	0.77	NM	9	6.22	12.43	19.8
	04/18/2017	2076.4	0.34	NM	119.8	6.52	9.02	23.13
	10/25/2017	2271.9	0.02	6.3	-19.7	6.33	11.69	4.75

Table 4-2
Groundwater Field Parameter Measurements
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

Location	Sample Date	Specific Conductivity (uS/cm)	Dissolved Oxygen (mg/L)	Ferrous Iron (mg/L)	Oxidation Reduction Potential (mV)	pH	Temperature (degrees C)	Turbidity (NTUs)
08-EMF-MW-F	11/11/2008	144	0.44	NM	140	5.45	9.43	NM
	02/03/2009	133	0.5	NM	177	5.45	9.16	NM
	05/07/2009	134	0.44	NM	219	4.83	9.37	NM
	08/10/2009	117	1.23	NM	293	5.46	11.63	NM
	11/11/2009	142	0.33	NM	137	5.37	9.81	NM
	02/25/2010	151	1.63	NM	155	5.49	11.08	NM
	05/19/2010	305	0.49	NM	157	5.34	8.82	NM
	08/25/2010	151	1.63	NM	155	5.49	11.08	NM
	11/16/2010	222	0.31	NM	157	5.44	9.94	NM
	02/10/2011	158	0.75	NM	171	5.23	8.82	NM
	07/06/2011	100	0.36	NM	197	5.76	12.72	NM
	10/24/2011	157	0.41 J	NM	119	5.55	10.65	NM
	01/26/2012	272	0.46	NM	122	5.34	9.7	NM
	04/11/2012	142	0.23	NM	110	5.42	9.85	NM
	08/01/2012	118	0.17	NM	135	5.44	12.29	NM
	10/30/2012	182	0.56	NM	253	5.68	12.59	NM
	01/23/2013	150	0.33	NM	125	5.34	11.22	NM
	04/02/2013	180	0.32	NM	201	5.48	11.87	NM
	07/23/2013	154	0.16	NM	111	5.33	13.18	NM
	10/17/2013	196	0.48	NM	206	5.48	12.45	NM
	01/15/2014	244	0.37	NM	94	5.58	10.72	NM
	04/01/2014	248	0.6	NM	194	5.54	10.17	NM
	07/23/2014	213	0.7	NM	109	5.63	10.86	NM
	10/27/2014	267	0.12	NM	124	5.65	9.85	NM
	01/14/2015	268	0.36	NM	167	5.43	8.38	NM
	04/22/2015	199	0.77	NM	264	5.17	10.16	NM
	10/21/2015	309	0.35	NM	217	5.57	12.78	NM
	04/05/2016	350	1.12	NM	269	5.28	8.9	NM
	10/25/2016	276	0.82	NM	115	5.62	10.43	1.45
	04/18/2017	294.64	1.01	NM	308.2	5.56	8.68	12.62
	10/25/2017	347.55	0.1	0.0	215.6	5.47	10.14	4.74

Table 4-2
Groundwater Field Parameter Measurements
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

Location	Sample Date	Specific Conductivity (uS/cm)	Dissolved Oxygen (mg/L)	Ferrous Iron (mg/L)	Oxidation Reduction Potential (mV)	pH	Temperature (degrees C)	Turbidity (NTUs)
09-EMF-MW-C DEEP	02/25/2010	107	1.06	NM	201	5.65	9.07	NM
	05/19/2010	93	1.66	NM	141	6.13	10.6	NM
	08/25/2010	93	0.21	NM	122	5.88	13.9	NM
	11/16/2010	99	0.26	NM	172	5.84	10.79	NM
	10/24/2011	98	0.11	NM	35	5.96	10.52	NM
	01/25/2012	148	0.23	NM	108	6.26	9.46	NM
	04/10/2012	117	0.36	NM	100	6.34	10.03	NM
	07/31/2012	99	0.08	NM	-27	5.74	14.56	NM
	10/29/2012	114	0.2	NM	13	5.94	13.7	NM
	01/23/2013	96	0.32	NM	28	5.46	10.9	NM
	04/02/2013	83	0.14	NM	71	6.04	11.29	NM
	07/23/2013	90	0.13	NM	-151	5.91	13.99	NM
	10/17/2013	83	0.5	NM	8	5.9	11.09	NM
	01/15/2014	104	0.29	NM	54	6.61	9.82	NM
	04/01/2014	85	1.15	NM	176	6.16	10.31	NM
	07/23/2014	82	0.9	NM	131	6.01	11.72	NM
	10/27/2014	80	0.11	NM	136	6.24	9.67	NM
	01/14/2015	68	2.43	NM	140	6.02	8.36	NM
	04/21/2015	78	0.37	NM	-43	6.31	10.78	NM
	10/21/2015	96	1.04	NM	175	6.09	10.71	NM
	04/05/2016	89	3.65	NM	209	6.32	9.98	NM
	10/25/2016	88	1.71	NM	130	6.11	10.31	5.9
	04/17/2017	74.79	9.45	NM	361	6.5	9.11	0.92
	10/24/2017	116.73	0.03	1.25	-26.1	6.12	10.07	0.68
DECONTAMINATION WELL	11/16/2010	105	2.98	NM	190	6.13	10.12	NM
	07/06/2011	97	9.03	NM	5	6.59	11.14	NM
	10/25/2011	67	3.85	NM	75	6.14	11	NM
	08/01/2012	139	1.12	NM	47	5.81	23.92	NM
	10/30/2012	42	2.36	NM	160	6.19	12.4	NM
	07/24/2013	88	5.36	NM	149	6.82	14.05	NM

NOTES:
C = Celsius.
Coeur d'Alene Trust = Successor Coeur d'Alene Custodial and Work Trust.
J = Result is estimated.
mg/L = milligrams per liter.
mV = millivolt.
NM = not measured.
NTU = nephelometric turbidity unit.
R = Result is rejected.
uS/cm = microsiemens per centimeter.

Table 4-3
2017 Groundwater Analytical Results
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

			COCs				Dissolved Cations				Hardness	Alkalinity				Dissolved Anions	
		Chemical Name	Arsenic	Cadmium	Lead	Zinc	Iron	Manganese	Potassium	Sodium	Hardness	Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, total	Chloride	Sulfate
		Sample Fraction	Dissolved	Dissolved	Dissolved	Dissolved	Dissolved	Dissolved	Dissolved	Dissolved	Dissolved	Total	Total	Total	Total	Dissolved	Dissolved
		RODA Cleanup Level	10[a]	5[a]	15[b]	5000[c]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Regulatory Screening Level	NA	NA	NA	NA	NV	50[c]	NV	NV	NV	NV	NV	NV	NV	250[c]	250[c]
		MW-A PLs	1.4	0.777	1	1710	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		MW-B PLs	1.4	0.2	1	26.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		MW-C PLs	2.7	3.64	1	2030	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		MW-D PLs	2.91	0.2	1	132	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		MW-F PLs	1.4	1	1	3820	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Location	Date Collected	Sample Type	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
07-EMF-MW-A	04/17/2017	S-ROUTINE	0.43 J	0.5	0.1 U	1770	--	--	1340	6340	63600	9.3	1 U	1 U	9.3	12.4	55.6
	10/24/2017	S-ROUTINE	0.5 U	0.65	0.077 J	937	1300	217	1100	4770	42800	7.2	1 U	1 U	7.2	15.7	24.5
07-EMF-MW-B	04/17/2017	S-ROUTINE	0.1 J	0.036 J	0.1 U	39.9	--	--	576	7450	52800	14.5	1 U	1 U	14.5	17.6	34.1
	04/17/2017	QC-FD	0.11 J	0.038 J	0.1 U	40.6	--	--	594	7730	53600	14.9	1 U	1 U	14.9	16.8	34
	10/24/2017	S-ROUTINE	0.5 U	0.035 J	0.032 J	34	50 U	7.3 U	571	5720	46400	18.1	1 U	1 U	18.1	7.88	27.8
	10/24/2017	QC-FD	0.5 U	0.051 J	0.031 J	36.1	50 U	7.6 U	577	5930	47900	20.3	1 U	1 U	20.3	7.89	27.7
07-EMF-MW-C	04/17/2017	S-ROUTINE	0.71	0.54	1.3	158	--	--	1390	2940	22100	14.3	1 U	1 U	14.3	3.94	8.91
	10/24/2017	S-ROUTINE	0.35 J	4.2	0.16	2690	429	1430	1680	6730	49400	27.4	1 U	1 U	27.4	8.06	35.1
07-EMF-MW-D	04/18/2017	S-ROUTINE	0.34 J	1.2	0.1 U	325	--	--	1510	3690	28700	24.2	1 U	1 U	24.2	5.93	8.44
	10/24/2017	S-ROUTINE	0.48 J	0.13	0.1 U	106	2470	928	1540	5460	40000	42.4	1 U	1 U	42.4	6.21	6.63
08-EMF-MW-E	04/18/2017	S-ROUTINE	1.6	0.14	0.1 U	14.7	--	--	4010	58700	842000	434	1 U	1 U	434	393	125
	10/25/2017	S-ROUTINE	3.7	0.089	0.031 J	9.2	18100	64300	4880	86100	791000	495	1 U	1 U	495	446	101
08-EMF-MW-F	04/18/2017	S-ROUTINE	0.5 U	1.5	0.28	2900	--	--	760	20000	71000	11.9	1 U	1 U	11.9	40.8	57.2
	10/25/2017	S-ROUTINE	0.5 U	1.6	0.2	2980	8.8 J	457	915	26700	83400	18.2	1 U	1 U	18.2	49.4	57.1
09-EMF-MW-C Deep	04/17/2017	S-ROUTINE	2.8	0.52	4	53.7	--	--	810	3270	30800	27.1	1 U	1 U	27.1	2.16	12.9
	10/24/2017	S-ROUTINE	0.45 J	0.08 U	0.24	5 U	2750	166	852	4360	38100	38.9	1 U	1 U	38.9	4.37	11.3

NOTES:

No RODA cleanup level exceedances were identified. Note that regulatory screening criteria are provided for reference for analytes that are not COCs for EMFR but exceedances are not bolded/highlighted.

Highlighted concentrations for detections exceeding a prediction limit. Results from samples collected only from 2014 through 2017 are compared to prediction limits.

-- = not analyzed.

CFR = Code of Federal Regulations.

COC = contaminant of concern.

Coeur d'Alene Trust = Successor Coeur d'Alene Custodial and Work Trust.

EMFR = East Mission Flats Repository.

IDAPA = Idaho Administrative Procedures Act.

J = estimated value.

mg/L = milligrams per liter.

NA = prediction limit not available or not applicable.

NV = regulatory threshold not available or not applicable.

PL = prediction limit.

RODA = Record of Decision amendment.

U = Analyte not detected at or above the contract-required quantitation limit or the method reporting limit.

ug/L = micrograms per liter.

[a]Maximum Contaminant Level, National Primary Drinking Water Regulation (IDAPA 58.01.08.050 and 40 CFR Part 141.62).

[b]Lead is regulated by a treatment technique that requires systems to control the corrosiveness of their water. If more than 10% of tap water samples exceed the action level, water systems must take additional steps (IDAPA 58.01.08.350 and 40 CFR Part 141.80).

[c]Secondary Maximum Contaminant Level, National Secondary Drinking Water Regulations (IDAPA 58.01.08.400 and 40 CFR Part 143.3).

Table 5-1
Cleanup Levels and Prediction Limits
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

Analyte	RODA Cleanup Level	Prediction Limit by Monitoring Well[a]				
		MW-A	MW-B	MW-C	MW-D	MW-F
Antimony	6[b]	--	--	--	--	--
Arsenic	10[b]	1.4	1.4	2.7	2.91	1.4
Cadmium	5[b]	0.777	0.2[c]	3.64	0.2[c]	1
Lead	15[d]	1[c]	1[c]	1[c]	1[c]	1[c]
Zinc	5,000[e]	1,710	26.4	2,030	132	3,820

NOTES:

All values are in micrograms per liter.

Prediction limits are provided only for COCs identified for EMFR and apply to dissolved-metal concentrations. RODA cleanup levels are based on total metals concentrations.

-- = not analyzed

CFR = Code of Federal Regulations.

COC = contaminant of concern.

Coeur d'Alene Trust = Successor Coeur d'Alene Custodial and Work Trust.

EMFR = East Mission Flats Repository.

IDAPA = Idaho Administrative Procedures Act.

RODA = Record of Decision amendment.

[a]Prediction limits were developed only for monitoring wells screened in the shallow portion of the upper alluvial aquifer; therefore, there are no prediction limits for monitoring wells MW-C DEEP or MW-E. The prediction limit values shown are the nonparametric prediction limits calculated using the results of monitoring conducted from 2007 through 2013, developed for use with EMFR 2014 and 2015 data, as obtained from the prediction limit memorandum (TerraGraphics, 2016).

[b]Maximum Contaminant Level, National Primary Drinking Water Regulation (IDAPA 58.01.08.050 and 40 CFR Part 141.62).

[c]Used the Double Quantification Rule. Value shown is the contract-required quantitation limit.

[d]Lead is regulated by a treatment technique that requires systems to control the corrosiveness of their water. If more than 10% of tap water samples exceed the action level, water systems must take additional steps (IDAPA 58.01.08.350 and 40 CFR Part 141.80).

[e]Secondary Maximum Contaminant Level, National Secondary Drinking Water Regulations (IDAPA 58.01.08.400 and 40 CFR Part 143.3).

Table 5-2a
Summary of Groundwater Analytical Results—07-EMF-MW-A
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

	Chemical Name	Antimony		Arsenic		Cadmium		Lead		Zinc		Iron		Manganese
	Sample Fraction	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
	RODA Cleanup Level	6[a]	NV	10[a]	NV	5[a]	NV	15[b]	NV	5000[c]	NV	NA	NA	NA
	Regulatory Screening Level	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NV	NV	50[c]
	Prediction Limit[d]	NV	NV	1.4	NV	0.777	NV	1[e]	NV	1710	NV	NV	NV	NV
	Units	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L
07-EMF-MW-A	12/11/2007	3 U	3 U	3 U	3 U	0.58 J	0.54	3 U	3 U	347 J	284	--	--	--
	02/25/2008	3 U	3 U	3 U	3 U	1.72	1.74	3 U	3 U	1710 J	1610	--	--	--
	06/03/2008	3 U	3.24	3 U	27.6	0.763	0.926	3 U	6.02	582	615	--	--	--
	08/19/2008	3 U	3 U	3 U	3 U	0.321	0.511	3 U	3 U	683	710	--	--	--
	11/10/2008	3 U	3 U	3 U	4.45	0.2 U	0.2 U	3 U	3 U	353	369	--	--	--
	02/04/2009	3 U	3 U	3 U	4.26	0.777	0.809	3 U	3 U	898	884	--	--	--
	02/04/2009	3 U	3 U	3 U	5.4	0.726	0.821	3 U	3 U	848	883	--	--	--
	05/07/2009	3 U	3 U	3 U	10.3	0.382	0.398	3 U	3 U	753	757	--	--	--
	05/07/2009	3 U	3 U	3 U	12.8	0.346	0.447	3 U	3 U	752	759	--	--	--
	08/10/2009	3 U	3 U	3 U	3 U	0.204	0.216	3 U	3 U	558	611	--	--	--
	11/11/2009	3 U	3 U	3 U	3 U	0.2 U	0.2 U	3 U	3 U	368	300	--	--	--
	02/25/2010	3 U	3 U	3 U	3 U	0.208	0.221	3 U	3 U	657	636	--	--	--
	05/19/2010	3 U	3 U	3 U	3 U	0.225	0.24	3 U	3 U	568	534	--	--	--
	08/25/2010	3 U	3 U	3 U	3 U	0.21	0.2 U	3 U	3 U	580	568	--	--	--
	08/25/2010	3 U	3 U	3 U	3 U	0.227	0.222	3 U	3 U	584	571	--	--	--
	11/16/2010	2 U	2 U	0.76 J	0.92 J	0.2 U	0.2 U	1 U	1 U	544 J	555 J	--	--	--
	02/10/2011	2 U	2 U	1 U	30.5 J	0.39	0.55	1 U	4.9	1220 J	1370 J	--	--	--
	07/06/2011	2 U	2 U	7.3 J	44.6 J	0.63	0.82	1 U	7.3	1380	1510	--	--	--
	10/24/2011	2 U	2 U	0.44 J	12.2	0.22	0.28	1 UJ	1.1 J	804	860	--	--	--
	01/25/2012	2 U	2 U	7.4 J	2.2	0.32	0.42	1 U	1 U	1130	1250	--	--	--
	04/10/2012	2 U	2 U	1.4	31.9 J	0.58	0.78	1 U	2.5	1750	1740	--	--	--
	07/31/2012	2 U	2 U	1.8	18.6	0.46	0.5	1 U	2.4	1560	1650	--	--	--
	10/29/2012	2 U	2 U	0.75 J	4.9	0.23	0.27	0.22 J	0.55 J	862 J	868 J	--	--	--
	01/23/2013	2 U	2 U	1 U	3.8	0.37	0.44	1 U	1 U	1350	1400 J	--	--	--
	04/02/2013	2 U	2 U	1 U	10.8	0.38	0.38	1 U	1 U	1490	1390	--	--	--
	07/23/2013	2 U	2 U	1 U	12 J+	0.33	0.36	1 U	1 UJ	1240	1360	--	--	--
	10/17/2013	2 U	2 U	1 U	6.1	0.2 U	0.21	2.6	1 U	648	737	--	--	--
	01/15/2014	2 U	2 U	1.1	4.2	0.35	0.35	1 U	1 U	1240 J	1310 J	--	--	--
	04/01/2014	2 U	2 U	1 U	6.2 J	0.5	0.5	1 U	1 U	1600 J	1520	--	--	--
	07/23/2014	2 U	--	0.76 J	--	0.29	--	0.025 J	--	1380 J	--	--	--	--
	10/27/2014	2 U	--	1 U	--	0.2 U	--	1 U	--	616	--	--	--	--
	01/14/2015	--	--	1.1	--	0.45	--	1 U	--	1620 J	--	--	--	--
	04/21/2015	--	--	0.39 J	--	0.5	--	1 U	--	1590 J	--	--	--	--
	10/21/2015	--	--	0.26 J	--	0.097 J	--	0.039 J	--	533 J	--	--	--	--
	04/05/2016	--	--	0.12 J	--	0.36	--	1 U	--	1680	--	--	--	--
	10/25/2016	--	--	0.24 J	--	0.21	--	0.21	--	821	--	--	--	--
	04/17/2017	--	--	0.43 J	--	0.5	--	0.1 U	--	1770	--	--	--	--
	10/24/2017	--	--	0.5 U	--	0.65	--	0.077 J	--	937	--	1300	--	217

Chemical Name		Potassium		Sodium		Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Hardness	Chloride	Nitrate	Sulfate
Sample Fraction		Dissolved	Total	Dissolved	Total	NA	NA	NA	NA	Total/Dissolved[f]	NA	NA	NA
RODA Cleanup Level		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Regulatory Screening Level		NV	NV	NV	NV	NV	NV	NV	NV	NV	250[c]	NV	250[c]
Prediction Limit[d]		NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV
Units		ug/L		ug/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
07-EMF-MW-A	12/11/2007	7790	--	12800	--	23	1 U	--	23	39.9	14.2	0.11	46.7
	02/25/2008	7830	--	18100	--	13.7	1 U	--	13.7	76.5	20.7	0.05 U	84
	06/03/2008	3080	--	7000	--	8.3	1 U	--	8.3	48.1	8.7	0.05 U	40
	08/19/2008	2890	--	7410	--	19.5	1 U	1 U	19.5	56.7	10.1 J	0.05 U	54.4 J
	11/10/2008	2980	2910	5580	5720	30.6	1 U	--	30.6	41.2	10.1	0.05 U	35.6
	02/04/2009	3600	3790	10500	11000	25.7	1 U	--	25.7	67	11.3	0.05 U	75.1
	02/04/2009	3560	3970	10500	11500	25.3	1 U	--	25.3	69.9	11.3	0.055	75.7
	05/07/2009	2420	2520	6690	7010	9.1	1 U	--	9.1	53.4	9.15	0.05 U	56.3
	05/07/2009	2420	2570	6660	7170	9.1	1 U	--	9.1	54.5	9.63	0.05 U	56.8
	08/10/2009	1950	1820	5660	5770	25	1 U	--	25	49	7.29	0.05 U	49.9
	11/11/2009	1970	2170	4560	4570	19.5	1 U	--	19.5	34.5	6.87	0.05 U	32.4
	02/25/2010	2300	--	6870	--	10.9	1 U	--	10.9	58.6	7.93	0.05 U	56.4
	05/19/2010	2060	2150	6630	6620	11.8	1 U	--	11.8	52.7	7.71	0.05 U	49.8
	08/25/2010	1420	1450	4850	4860	11.4	1 U	--	11.4	43.7	6.41	0.05 U	40.9
	08/25/2010	1430	1470	4860	4900	11.3	1 U	--	11.3	44.3	6.47	0.05 U	41.3
	11/16/2010	1680	1770	5840	6080	15.4	1 U	--	15.4	53	6.41 J	0.05 U	42.6
	02/10/2011	2120 J	2380	8340	8760	10.8	1 U	--	10.8	70	7.81 J	0.05 U	63.3
	07/06/2011	2290	1840	7480	7390	9.8	1 U	--	9.8	73.3	7.95	0.05 U	72.2
	10/24/2011	1600	--	5980	--	23.5	1 U	--	23.5	58.5	7.7	0.05 U	47.4
	01/25/2012	1640	--	6450	--	18	1 U	--	18	70.4	7.18	0.05 U	60.4
	04/10/2012	1630	--	6240	--	10.7	1 U	--	10.7	68.6	7.13	0.05 U	63.2
	07/31/2012	1510	--	5990	--	14.8	1 U	--	14.8	75.5	6.66	0.05 U	70.4
	10/29/2012	1600	--	5130	--	15.9	1 U	--	15.9	49.3	7.32	0.05 U	40.1
	01/23/2013	1590	--	6590	--	23.8	1 U	--	23.8	72.1	6.77	0.05 U	63.1
	04/02/2013	1430	--	6180	--	9	1 U	--	9	63.7	8.32	0.05 U	55.6
	07/23/2013	1680	--	6760	--	9.8	1 U	--	9.8	77	7.22	0.05 U	63.7
	10/17/2013	1310	--	4790	--	10.6	1 U	--	10.6	45.5	9.9	0.1	34.3
	01/15/2014	1330	--	6040	--	12.5	1 U	--	12.5	68.4	7.88	0.05 U	60.2
	04/01/2014	1280	--	6280	--	10.3	1 U	1 U	10.3	68.6	8.03	0.05 U	63.6
	07/23/2014	1440	--	7000	--	10.3	1 U	1 U	10.3	68.8	7.48	0.05 UJ	64.1
	10/27/2014	1260	--	5180 J	--	26	1 U	1 U	26	42.6	10.8	0.05 U	29.4
	01/14/2015	1370	--	6250	--	14.5	1 U	1 U	14.5	--	9.01	--	60.7
	04/21/2015	1680	--	8130 J	--	16.9	1 U	1 U	16.9	--	8.94	--	60.4
	10/21/2015	1090	--	4380 J	--	10.5	1 U	1 U	10.5	--	10.5	--	23.8
	04/05/2016	367 J	--	5430	--	14.6	1 U	1 U	14.6	--	11.1	--	52.5
	10/25/2016	1160	--	4650	--	9.5	1 U	1 U	9.5	--	11.8	--	29.4
	04/17/2017	1340	--	6340	--	9.3	1 U	1 U	9.3	63.6	12.4	--	55.6
	10/24/2017	1100	--	4770	--	7.2	1 U	1 U	7.2	42.8	15.7	--	24.5

NOTES:
Results below reporting limits not flagged for exceedances.
No RODA cleanup level exceedances were identified. Note that regulatory screening criteria are provided for reference for analytes that are not contaminants of concern for EMFR but exceedances are not bolded/highlighted.
Highlighted concentrations for detections exceeding a prediction limit. Results from samples collected only from 2014 through 2017 are compared to prediction limits.
-- = not analyzed.
CFR = Code of Federal Regulations.
Coeur d'Alene Trust = Successor Coeur d'Alene Custodial and Work Trust.
EMFR = East Mission Flats Repository.
IDAPA = Idaho Administrative Procedures Act.
J = estimated value.
J+ = estimated value, high bias.
mg/L = milligrams per liter.
NA = not applicable.
NV = regulatory threshold or prediction limit not available or not applicable.
RODA = Record of Decision amendment.
U = Analyte not detected at or above the contract-required quantitation limit or the method reporting limit.
ug/L = micrograms per liter.
UJ = Analyte estimated, not detected at or above the contract-required quantitation limit or the method reporting limit.
[a]Maximum Contaminant Level, National Primary Drinking Water Regulation (IDAPA 58.01.08.050 and 40 CFR Part 141.62).
[b]Lead is regulated by a treatment technique that requires systems to control the corrosiveness of their water. If more than 10% of tap water samples exceed the action level, water systems must take additional steps (IDAPA 58.01.08.350 and 40 CFR Part 141.80).
[c]Secondary Maximum Contaminant Level, National Secondary Drinking Water Regulations (IDAPA 58.01.08.400 and 40 CFR Part 143.3).
[d]Nonparametric prediction limit calculated using the results of monitoring conducted from 2007 through 2013 and developed for use with EMFR 2014 and 2015 data, as obtained from the prediction limit memorandum (TerraGraphics, 2016).
[e]Value shown is the contract-required quantitation limit, per the Double Quantification Rule (TerraGraphics, 2016).
[f]Hardness has been analyzed as either a total or dissolved fraction.

Table 5-2b
Summary of Groundwater Analytical Results—07-EMF-MW-B
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

Chemical Name		Antimony		Arsenic		Cadmium		Lead		Zinc		Iron		Manganese
Sample Fraction		Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
RODA Cleanup Level		6[a]	NV	10[a]	NV	5[a]	NV	15[b]	NV	5000[c]	NV	NA	NA	NA
Regulatory Screening Level		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NV	NV	50[c]
Prediction Limit[d]		NV	NV	1.4	NV	0.2[e]	NV	1[e]	NV	26.4	NV	NV	NV	NV
Units		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L
07-EMF-MW-B	12/10/2007	3 U	3 U	3 U	3 U	0.2 U	0.2 U	3 U	5.27	24.3 J	26.7	Iron	--	--
	02/25/2008	3 U	3 U	3 U	3 U	0.2 U	0.2 U	3 U	3 U	19.8 J	16.3	--	--	--
	02/25/2008	3 U	3 U	3 U	3 U	0.2 U	0.2 U	3 U	3 U	19.8 J	16.4	--	--	--
	06/03/2008	3 U	3 U	3 U	3 U	0.2 U	0.2 U	3 U	3 U	20.8	25.5	--	--	--
	06/03/2008	3 U	3 U	3 U	3 U	0.2 U	0.2 U	3 U	3 U	21.2	24.5	--	--	--
	08/19/2008	3 U	3 U	3 U	3 U	0.2 U	0.2 U	3 U	3 U	24.4	30.6	--	--	--
	11/10/2008	3 U	3 U	3 U	3 U	0.2 U	0.2 U	3 U	3 U	19.7	20.2	--	--	--
	11/10/2008	3 U	3 U	3 U	3 U	0.2 U	0.2 U	3 U	3 U	18.4	21.6	--	--	--
	02/04/2009	3 U	3 U	3 U	3 U	0.2 U	0.2 U	3 U	3 U	21	20	--	--	--
	05/07/2009	3 U	3 U	3 U	3 U	0.2 U	0.2 U	3 U	3 U	16.8	16.6	--	--	--
	08/10/2009	3 U	3 U	3 U	3 U	0.2 U	0.2 U	3 U	3 U	16	16.9	--	--	--
	08/10/2009	3 U	3 U	3 U	3 U	0.2 U	0.2 U	3 U	4.45	15.4	18.6	--	--	--
	11/11/2009	3 U	3 U	3 U	3 U	0.2 U	0.2 U	3 U	3 U	24.9	21.3	--	--	--
	11/11/2009	3 U	3 U	3 U	3 U	0.2 U	0.2 U	3 U	3 U	26.4	21.2	--	--	--
	02/25/2010	3 U	3 U	3 U	3 U	0.2 U	0.2 U	3 U	3 U	15.3	16	--	--	--
	05/19/2010	3 U	3 U	3 U	3 U	0.2 U	0.2 U	3 U	3 U	15.7	14.9	--	--	--
	08/25/2010	3 U	3 U	3 U	3 U	0.2 U	0.2 U	3 U	3 U	15.7	14.2	--	--	--
	11/16/2010	2 U	2 U	1 U	1 U	0.2 U	0.2 U	1 U	1 U	18.7 J	16.7 J	--	--	--
	11/16/2010	2 U	2 U	1 U	1 U	0.2 U	0.2 U	1 U	1 U	17.9 J	17 J	--	--	--
	02/10/2011	2 U	2 U	1 U	1 U	0.2 U	0.2 U	1 U	1 U	9 J	9.9 J	--	--	--
	02/10/2011	2 U	2 U	1 U	1 J	0.2 U	0.2 U	1 U	1 U	9.1 J	10.1 J	--	--	--
	07/06/2011	2 U	2 U	7.7 J	7.1 J	0.2 U	0.2 U	1 U	1 U	12.6	13	--	--	--
	07/06/2011	2 U	2 U	7.3 J	7.6 J	0.2 U	0.2 U	1 U	1 U	12.5	13.6	--	--	--
	10/24/2011	2 U	2 U	1 U	1 U	0.2 U	0.2 U	1 UJ	1 UJ	14.8	15.7	--	--	--
	10/24/2011	--	2 U	--	1 U	--	0.2 U	--	1 UJ	--	15	--	--	--
	01/25/2012	2 U	2 U	7.3 J	1 U	0.2 U	0.2 U	1 U	0.33 J	18	18.1	--	--	--
	04/10/2012	2 U	2 U	1.4	1.3 J	0.2 U	0.2 U	1 U	0.21 J	16.2	16.4	--	--	--
	07/31/2012	2 U	2 U	0.71 J	0.74 J	0.2 U	0.2 U	1 U	1 U	14.2	16.4	--	--	--
	10/29/2012	2 U	2 U	1 U	1 U	0.2 U	0.059 J	0.28 J	0.29 J	12.1 J	12.4 J	--	--	--
	01/24/2013	2 U	2 U	1 U	1 U	0.2 U	0.2 U	1 U	1 U	18.1	18.1 J	--	--	--
	04/02/2013	2 U	2 U	1 U	1 U	0.2 U	0.2 U	1 U	1 U	19.7	19.6	--	--	--
	04/02/2013	2 U	2 U	1 U	1 U	0.2 U	0.2 U	1 U	1 U	17.9	16.8	--	--	--
	07/23/2013	2 U	2 U	2.2 J+	1.8 J+	0.2 U	0.2 U	1 U	1 UJ	28.5 J+	24.2	--	--	--
	07/23/2013	2 U	2 U	2 J+	1.5 J+	0.2 U	0.2 U	1 U	1 UJ	25.9 J+	22.9	--	--	--
	10/17/2013	2 U	2 U	1 U	1 U	0.2 U	0.2 U	1 U	1 U	22.2	25	--	--	--
	10/17/2013	2 U	2 U	1 U	1 U	0.2 U	0.2 U	1 U	1 U	22.7	24.2	--	--	--

Table 5-2b
Summary of Groundwater Analytical Results—07-EMF-MW-B
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

	Chemical Name	Antimony		Arsenic		Cadmium		Lead		Zinc		Iron		Manganese
	Sample Fraction	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
	RODA Cleanup Level	6[a]	NV	10[a]	NV	5[a]	NV	15[b]	NV	5000[c]	NV	NA	NA	NA
	Regulatory Screening Level	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NV	NV	50[c]
	Prediction Limit[d]	NV	NV	1.4	NV	0.2[e]	NV	1[e]	NV	26.4	NV	NV	NV	NV
	Units	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L
07-EMF-MW-B	01/15/2014	2 U	2 U	1 U	1 U	0.2 U	0.2 U	1 U	1 U	22.6 J	24 J	--	--	--
	04/01/2014	2 U	2 U	1 U	1 UJ	0.2 U	0.2 U	1 U	1 U	18.2 J	18.8	--	--	--
	07/23/2014	2 U	--	0.16 J	--	0.031 J	--	0.037 J	--	21.9 J	--	--	--	--
	10/27/2014	2 U	--	1 U	--	0.2 U	--	1 U	--	20.7	--	--	--	--
	01/14/2015	--	--	0.11 J	--	0.058 J	--	1 U	--	26.8 J	--	--	--	--
	04/21/2015	--	--	1 U	--	0.2 U	--	1 U	--	25.4 J+	--	--	--	--
	10/21/2015	--	--	0.13 J	--	0.093 J	--	0.083 J	--	26.6 J+	--	--	--	--
	04/05/2016	--	--	0.11 J	--	0.2 U	--	1 U	--	50.5 J+	--	--	--	--
	10/25/2016	--	--	0.5 U	--	0.036 J	--	0.1 U	--	34.3 J	--	--	--	--
	04/17/2017	--	--	0.1 J	--	0.036 J	--	0.1 U	--	39.9	--	--	--	--
	04/17/2017	--	--	0.11 J	--	0.038 J	--	0.1 U	--	40.6	--	--	--	--
	10/24/2017	--	--	0.5 U	--	0.035 J	--	0.032 J	--	34	--	50 U	--	7.3 U
	10/24/2017	--	--	0.5 U	--	0.051 J	--	0.031 J	--	36.1	--	50 U	--	7.6 U

Chemical Name		Potassium		Sodium		Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Hardness	Chloride	Nitrate	Sulfate
Sample Fraction		Dissolved	Total	Dissolved	Total	NA	NA	NA	NA	Total/Dissolved[f]	NA	NA	NA
RODA Cleanup Level		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Regulatory Screening Level		NV	NV	NV	NV	NV	NV	NV	NV	NV	250[c]	NV	250[c]
Prediction Limit[d]		NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV
Units		ug/L		ug/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
07-EMF-MW-B	12/10/2007	690	--	5310	--	13.9	1 U	--	13.9	36.5	6.47	0.083	25.5
	02/25/2008	700	--	7030	--	13	1 U	--	13	39.2	6.94	0.062	26.5
	02/25/2008	720	--	7290	--	13.1	1 U	--	13.1	39.9	6.67	0.061	26.2
	06/03/2008	870	--	5640	--	10.8	1 U	--	10.8	36.2	5.89	0.06	33.6
	06/03/2008	830	--	5500	--	9.7	1 U	--	9.7	35.3	5.47	0.063	33.6
	08/19/2008	880	--	4910	--	12.4	1 U	1 U	12.4	27	5.23 J	0.05	19.5 J
	11/10/2008	870	920	4600	5150	15.8	1 U	--	15.8	30.5	5.3	0.05 U	22.4
	11/10/2008	900	910	4820	5170	15.5	1 U	--	15.5	30.5	5.29	0.05 U	22.2
	02/04/2009	800	840	4790	5030	12.7	1 U	--	12.7	29.1	4.19	0.372	23.3
	05/07/2009	500 U	500 U	2590	2670	7.8	1 U	--	7.8	20.7	2.24	0.165	20.1
	08/10/2009	520	500 U	3470	3670	10.6	1 U	--	10.6	23.5	3.34	0.125	26.1
	08/10/2009	550	500 U	3470	3540	11	1 U	--	11	23	3.49	0.082	23.8
	11/11/2009	670	740	5160	5230	11.6	1 U	--	11.6	25.6	5.06	0.05 U	22.8
	11/11/2009	650	750	5180	5250	11.8	1 U	--	11.8	25.8	4.99	0.05 U	22.9
	02/25/2010	530	--	4290	--	12.3	1 U	--	12.3	27.3	3.8	0.195	21.5
	05/19/2010	540	540	4380	4380	12	1 U	--	12	34.5	6.31	0.332	22.3
	08/25/2010	500 U	500 U	3660	3710	13.1	1 U	--	13.1	28.5	3.94	0.173	16.9
	11/16/2010	578	569	5080	4950 J	14.3	1 U	--	14.3	33.1	4.14 J	0.052	19.1
	11/16/2010	557	646 J	4970	5320	11.8	1 U	--	11.8	35.9	4.13 J	0.051	19.1
	02/10/2011	891 J	627	3430	3490	7.7	1 U	--	7.7	22	2.41 J	0.146	13.8
	02/10/2011	899 J	549	3410	3430	7.6	1 U	--	7.6	22	2.37 J	0.143	13.7
	07/06/2011	500 U	500 U	3850	3650	10.8	1 U	--	10.8	16.2	3.06	0.05 U	9.31
	07/06/2011	500 U	500 U	3750	3630	10.7	1 U	--	10.7	16.3	3.09	0.05 U	9.28
	10/24/2011	493 J	--	4130	--	14.4	1 U	--	14.4	24.9	3.16	0.05 U	11.5
	10/24/2011	--	--	--	--	13.9	1 U	--	13.9	24.1	3.21	0.05 U	11.5
	01/25/2012	714	--	4190	--	14	1 U	--	14	23.7 J	3.31	0.05 U	13
	04/10/2012	500 U	--	2960	--	5.8	1 U	--	5.8	15.4 J	2.74	0.061	10.7
	07/31/2012	505	--	3060	--	10.5	1 U	--	10.5	12.6	1.72	0.05 U	5.71
	10/29/2012	730	--	3650	--	17.1	1 U	--	17.1	24.4	2.79	0.05 U	10.3
	01/24/2013	998	--	5670	--	12.6	1 U	--	12.6	20.8	2.71	0.133	12.2
	04/02/2013	689	--	3900	--	16.6	1 U	--	16.6	25.1 J	3.29	0.098	12.6
	04/02/2013	634	--	4060	--	16.1	1 U	--	16.1	24.6	3.27	0.087	12.5
	07/23/2013	592	--	4170	--	17.4	1 U	--	17.4	31.9 J	3.1	0.376	11.9
	07/23/2013	601	--	4230	--	17.4	1 U	--	17.4	29.9	3.09	0.377	11.9
	10/17/2013	529	--	4210	--	21.3	1 U	--	21.3	30.2	3.33	0.433	13.1
	10/17/2013	522	--	4330	--	21.1	1 U	--	21.1	29.1	3.33	0.405	13

Table 5-2b
Summary of Groundwater Analytical Results—07-EMF-MW-B
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

Chemical Name		Potassium		Sodium		Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Hardness	Chloride	Nitrate	Sulfate
Sample Fraction		Dissolved	Total	Dissolved	Total	NA	NA	NA	NA	Total/Dissolved[f]	NA	NA	NA
RODA Cleanup Level		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Regulatory Screening Level		NV	NV	NV	NV	NV	NV	NV	NV	NV	250[c]	NV	250[c]
Prediction Limit[d]		NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV
Units		ug/L		ug/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
07-EMF-MW-B	01/15/2014	500 U	--	4320	--	18.3	1 U	--	18.3	36.9	4.52	0.504	15.8
	04/01/2014	393 J	--	4360	--	13.6	1 U	1 U	13.6	39.4	7.51	0.247	18.8
	07/23/2014	500 U	--	4290	--	13.3 J+	1 U	1 U	13.3 J+	33.9	4.24	0.677 J-	17.8
	10/27/2014	500 U	--	4520 J	--	15.7	1 U	1 U	15.7	38.3	5.01	1.07	18.1
	01/14/2015	516	--	4280	--	15.5	1 U	1 U	15.5	--	4.99	--	19.1
	04/21/2015	500 U	--	4930 J	--	14.5	1 U	1 U	14.5	--	7.08	--	20.5
	10/21/2015	484 J	--	4420 J	--	16.9	1 U	1 U	16.9	--	7.6	--	22.9
	04/05/2016	500 U	--	4700	--	15.5	1 U	1 U	15.5	--	11.4	--	24.8
	10/25/2016	539 J	--	4970	--	16.9	1 U	1 U	16.9	--	7.86	--	25.8
	04/17/2017	576	--	7450	--	14.5	1 U	1 U	14.5	52.8	17.6	--	34.1
	04/17/2017	594	--	7730	--	14.9	1 U	1 U	14.9	53.6	16.8	--	34
	10/24/2017	571	--	5720	--	18.1	1 U	1 U	18.1	46.4	7.88	--	27.8
	10/24/2017	577	--	5930	--	20.3	1 U	1 U	20.3	47.9	7.89	--	27.7

NOTES:

No RODA cleanup level exceedances were identified. Note that regulatory screening criteria are provided for reference for analytes that are not contaminants of concern for EMFR but exceedances are not bolded/highlighted.

Highlighted concentrations for detections exceeding a prediction limit. Results from samples collected only from 2014 through 2017 are compared to prediction limits.

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NV = regulatory threshold or prediction limit not available or not applicable.

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ug/L = micrograms per liter.

UJ = Analyte estimated, not detected at or above the contract-required quantitation limit or the method reporting limit.

[a]Maximum Contaminant Level, National Primary Drinking Water Regulation (IDAPA 58.01.08.050 and 40 CFR Part 141.62).

[b]Lead is regulated by a treatment technique that requires systems to control the corrosiveness of their water. If more than 10 percent of tap water samples exceed the action level, water systems must take additional steps (IDAPA 58.01.08.350 and 40 CFR Part 141.80).

[c]Secondary Maximum Contaminant Level, National Secondary Drinking Water Regulations (IDAPA 58.01.08.400 and 40 CFR Part 143.3).

[d]Nonparametric prediction limit calculated using the results of monitoring conducted from 2007 through 2013 and developed for use with EMFR 2014 and 2015 data, as obtained from the prediction limit memorandum (TerraGraphics, 2016).

[e]Value shown is the contract-required quantitation limit, per the Double Quantification Rule (TerraGraphics, 2016).

[f]Hardness has been analyzed as either a total or dissolved fraction.

Table 5-2c
Summary of Groundwater Analytical Results—07-EMF-MW-C
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

Chemical Name		Antimony		Arsenic		Cadmium		Lead		Zinc		Iron		Manganese	Potassium	
Sample Fraction		Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Dissolved	Total
RODA Cleanup Level		6[a]	NV	10[a]	NV	5[a]	NV	15[b]	NV	5000[c]	NV	NA	NA	NA	NA	NA
Regulatory Screening Level		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NV	NV	50[c]	NV	NV
Prediction Limit[d]		NV	NV	2.7	NV	3.64	NV	1[e]	NV	2030	NV	NV	NV	NV	NV	NV
Units		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	ug/L	
07-EMF-MW-C	12/10/2007	3 U	3 U	3 U	3 U	1.3 J	1.15	3 U	3 U	1450 J	1280	--	--	--	2210	--
	12/10/2007	3 U	3 U	3 U	3 U	1.21 J	1.18	3 U	3 U	1450 J	1290	--	--	--	2210	--
	02/25/2008	3 U	3 U	3 U	3 U	3.18	2.82	3 U	3 U	2240 J	1970	--	--	--	1710	--
	08/19/2008	3 U	3 U	3 U	3 U	1.11	1.85	3 U	3 U	1340	1430	--	--	--	1450	--
	08/19/2008	3 U	3 U	3 U	3 U	0.954	1.81	3 U	3 U	1310	1460	--	--	--	1440	--
	11/10/2008	3 U	3 U	3 U	3 U	0.522	1.38	3 U	3.2	1570	1590	--	--	--	1420	1390
	02/03/2009	3 U	3 U	3 U	3 U	3.54	3.59	3 U	3 U	1670	1880	--	--	--	1510	1590
	08/10/2009	3 U	3 U	3 U	3 U	2.29	2.29	3 U	3 U	1450	1560	--	--	--	1130	1100
	11/11/2009	3 U	3 U	3 U	3 U	1.44	1.38	3 U	3 U	2030	1720	--	--	--	1180	1300
	02/25/2010	3 U	3 U	3 U	3 U	3.23	3.22	3 U	3 U	2020	1910	--	--	--	1230	--
	02/25/2010	3 U	3 U	3 U	3 U	3.26	3.23	3 U	3 U	2000	1950	--	--	--	1150	--
	05/19/2010	3 U	3 U	3 U	3 U	3.46	3.74	3 U	3 U	2000	1940	--	--	--	1180	1240
	08/25/2010	3 U	3 U	3 U	3 U	3.64	3.33	3 U	3 U	1860	1670	--	--	--	1290	1340
	11/16/2010	2 U	2 U	1 U	1 U	2.9	3	1 U	1 U	1930 J	1930 J	--	--	--	1530	1490
	10/24/2011	2 U	2 U	0.81 J	1.1	0.72	0.91	0.38 J	0.92 J	1360	1430	--	--	--	1500	--
	01/25/2012	2 U	2 U	7.4 J	0.42 J	4.9	4.1	1 U	0.45 J	1710	1800	--	--	--	1200	--
	04/10/2012	2 U	2 U	1.7	1.8 J	0.89	1.1	1.5	4.8	388	414	--	--	--	1720	--
	07/31/2012	2 U	2 U	2.7	2.6	0.25	0.68	0.41 J	2.2	1080	1160	--	--	--	1210	--
	10/29/2012	2 U	2 U	2.7	2.2	0.095 J	0.38	0.61 J	2.8 J	988 J	11500 J	--	--	--	1450	--
	04/02/2013	2 U	2 U	1 U	1 U	1.5	1.2	1 U	1 U	1650	1640	--	--	--	1590	--
	07/23/2013	2 U	2 U	2.4 J+	2.1 J+	1.9	2	1 U	1 UJ	2030	1970	--	--	--	1640	--
	10/17/2013	2 U	2 U	1 U	1 U	1.2	1.6	1 U	1 U	1350	1660	--	--	--	1480	--
	01/15/2014	2 U	2 U	1 U	1 U	1.7	1.5	1 U	1 U	1380 J	1370 J	--	--	--	1590	--
	04/01/2014	2 U	2 U	1 U	1 UJ	2.4	2.3	1 U	1.3	1560 J	1590	--	--	--	1490	--
	07/23/2014	2 U	--	0.19 J	--	**7.3**	--	0.12 J	--	2530 J	--	--	--	--	1530	--
	10/27/2014	2 U	--	1 U	--	3.4	--	1 U	--	2210	--	--	--	--	1650	--
	01/14/2015	--	--	0.13 J	--	1.6	--	1 U	--	1860 J	--	--	--	--	1570	--
	04/21/2015	--	--	0.13 J	--	**5.7**	--	1 U	--	3400 J	--	--	--	--	1790	--
	06/18/2015	--	--	--	--	**5.6**	--	--	--	2810	--	--	--	--	--	--
	06/18/2015	--	--	--	--	**5.2**	--	--	--	2750	--	--	--	--	--	--
	08/13/2015	--	--	--	--	**7.3**	--	--	--	2860	--	--	--	--	--	--
	10/21/2015	--	--	0.22 J	--	**6.4**	--	0.051 J	--	2390 J	--	--	--	--	1480	--
	12/15/2015	--	--	--	--	2.1 J	--	--	--	1590	--	--	--	--	--	--
	12/15/2015	--	--	--	--	2 J	--	--	--	1500	--	--	--	--	--	--
	04/05/2016	--	--	0.15 J	--	2.3	--	1 U	--	2950	--	--	--	--	756	--
	10/25/2016	--	--	0.15 J	--	**7.7**	--	0.1 U	--	2920	--	--	--	--	1580	--
	04/17/2017	--	--	0.71	--	0.54	--	1.3	--	158	--	--	--	--	1390	--
	10/24/2017	--	--	0.35 J	--	4.2	--	0.16	--	2690	--	429	--	1430	1680	--

Table 5-2c
Summary of Groundwater Analytical Results—07-EMF-MW-C
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

	Chemical Name	Sodium		Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Hardness	Chloride	Nitrate	Sulfate
	Sample Fraction	Dissolved	Total	NA	NA	NA	NA	Total/Dissolved[f]	NA	NA	NA
	RODA Cleanup Level	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Regulatory Screening Level	NV	NV	NV	NV	NV	NV	NV	250[c]	NV	250[c]
	Prediction Limit[d]	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV
	Units	ug/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
07-EMF-MW-C	12/10/2007	5030	--	21.6	1 U	--	21.6	26.3	3.55	0.05 U	18.7
	12/10/2007	5040	--	21.5	1 U	--	21.5	26.4	3.65	0.05 U	19
	02/25/2008	4820	--	17.9	1 U	--	17.9	30.5	3.62	0.05 U	21.2
	08/19/2008	3750	--	17.5	1 U	1 U	17.5	23.3	3 J	0.05 U	15.1 J
	08/19/2008	3670	--	18	1 U	1 U	18	23.2	2.98 J	0.05 U	15.1 J
	11/10/2008	3620	3710	24	1 U	--	24	25.8	3.43	0.05 U	18.5
	02/03/2009	4170	4410	25.9	1 U	--	25.9	29.5	3.49	0.065	21.7
	08/10/2009	3430	3450	17.2	1 U	--	17.2	20.7	3.06	0.05 U	19.4
	11/11/2009	3510	3470	17.9	1 U	--	17.9	24.3	3.19	0.05 U	16.4
	02/25/2010	3590	--	17	1 U	--	17	27.5	4.35	0.064	21.6
	02/25/2010	3540	--	17.6	1 U	--	17.6	27.8	4.28	0.05 U	22.5
	05/19/2010	3900	3930	28.5	1 U	--	28.5	28.7	4.36	0.05 U	16.2
	08/25/2010	4520	4510	21.2	1 U	--	21.2	26.8	5.72	0.05 U	13.4
	11/16/2010	5160 J	5120	22.8	1 U	--	22.8	34.5 J	6.44 J	0.05 U	15.3
	10/24/2011	4740	--	22.8	1 U	--	22.8	23.8	3.65	0.05 U	11.6
	01/25/2012	4060	--	16.1	1 U	--	16.1	24.1 J	3.57	0.05 U	14.1
	04/10/2012	3570	--	20.4	1 U	--	20.4	26 J	3.36	0.279	9.78
	07/31/2012	3680	--	15.9	1 U	--	15.9	17.2 J	2.02	0.05 U	8.02
	10/29/2012	4010	--	26.4	1 U	--	26.4	23.9 J	3.5	0.05 U	11.1
	04/02/2013	4660	--	19.5	1 U	--	19.5	27.5 J	4.66	0.05 U	14.6
	07/23/2013	5210	--	22.4	1 U	--	22.4	30.5 J	5.12	0.05 U	13.8
	10/17/2013	4890	--	28.7	1 U	--	28.7	33.2	5.6	0.05 U	13.8
	01/15/2014	5560	--	22.1	1 U	--	22.1	35.6	6.42	0.05 U	17.2
	04/01/2014	4990	--	15.5	1 U	1 U	15.5	37.1	10.8	0.149	18.1
	07/23/2014	6160	--	21.8	1 U	1 U	21.8	44.6	8.96	0.067 J-	27
	10/27/2014	6250 J	--	27.7	1 U	1 U	27.7	43.3	8.66	0.05 U	24.4
	01/14/2015	5830	--	18.1	1 U	1 U	18.1	--	9.38	--	28.7
	04/21/2015	7690 J	--	21.9	1 U	1 U	21.9	--	10.5	--	41
	06/18/2015	--	--	--	--	--	--	--	--	--	--
	06/18/2015	--	--	--	--	--	--	--	--	--	--
	08/13/2015	--	--	--	--	--	--	--	--	--	--
	10/21/2015	5740 J	--	26.5	1 U	1 U	26.5	--	8.07	--	24.3
	12/15/2015	--	--	--	--	--	--	--	--	--	--
	12/15/2015	--	--	--	--	--	--	--	--	--	--
	04/05/2016	6520	--	22.4	1 U	1 U	22.4	--	10.1	--	38.9
	10/25/2016	6200	--	25.6	1 U	1 U	25.6	--	7.81	--	32.3
	04/17/2017	2940	--	14.3	1 U	1 U	14.3	22.1	3.94	--	8.91
	10/24/2017	6730	--	27.4	1 U	1 U	27.4	49.4	8.06	--	35.1

NOTES:

Bold concentrations for detections exceeding a RODA cleanup level. Note that regulatory screening criteria are provided for reference for analytes that are not contaminants of concern for EMFR but exceedances are not bolded/highlighted.

Highlighted concentrations for detections exceeding a prediction limit. Results from samples collected only from 2014 through 2017 are compared to prediction limits.

Results below reporting limits not flagged for exceedances.

-- = not analyzed.

CFR = Code of Federal Regulations.

Coeur d'Alene Trust = Successor Coeur d'Alene Custodial and Work Trust.

EMFR = East Mission Flats Repository.

IDAPA = Idaho Administrative Procedures Act.

J- = estimated value, low bias.

J = estimated value.

J+ = estimated value, high bias.

mg/L = milligrams per liter.

NA = not applicable.

NV = regulatory threshold or prediction limit not available or not applicable.

RODA = Record of Decision amendment.

U = Analyte not detected at or above the contract-required quantitation limit or the method reporting limit.

ug/L = micrograms per liter.

UJ = Analyte estimated, not detected at or above the contract-required quantitation limit or the method reporting limit.

[a]Maximum Contaminant Level, National Primary Drinking Water Regulation (IDAPA 58.01.08.050 and 40 CFR Part 141.62).

[b]Lead is regulated by a treatment technique that requires systems to control the corrosiveness of their water. If more than 10 percent of tap water samples exceed the action level, water systems must take additional steps (IDAPA 58.01.08.350 and 40 CFR Part 141.80).

[c]Secondary Maximum Contaminant Level, National Secondary Drinking Water Regulations (IDAPA 58.01.08.400 and 40 CFR Part 143.3).

[d]Nonparametric prediction limit calculated using the results of monitoring conducted from 2007 through 2013 and developed for use with EMFR 2014 and 2015 data, as obtained from the prediction limit memorandum (TerraGraphics, 2016).

[e]Value shown is the contract-required quantitation limit, per the Double Quantification Rule (TerraGraphics, 2016).

[f]Hardness has been analyzed as either a total or dissolved fraction.

Table 5-2d
Summary of Groundwater Analytical Results—07-EMF-MW-D
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

Chemical Name		Antimony		Arsenic		Cadmium		Lead		Zinc		Iron		Manganese
Sample Fraction		Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
RODA Cleanup Level		6[a]	NV	10[a]	NV	5[a]	NV	15[b]	NV	5000[c]	NV	NA	NA	NA
Regulatory Screening Level		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NV	NV	50[c]
Prediction Limit[d]		NV	NV	2.91	NV	0.2[e]	NV	1[e]	NV	132	NV	NV	NV	NV
Units		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L
07-EMF-MW-D	12/10/2007	3 U	3 U	3 U	3 U	0.2 U	0.2 U	3 U	3 U	32.6 J	33.6	--	--	--
	02/25/2008	3 U	3 U	3 U	3 U	0.2 U	0.2 U	3 U	3 U	28.5 J	26.8	--	--	--
	08/19/2008	3 U	3 U	3 U	8.45	0.2 U	0.2 U	3 U	4.07	132	140	--	--	--
	11/10/2008	3 U	3 U	3 U	3 U	0.2 U	0.2 U	3 U	3 U	79.4	86.6	--	--	--
	02/03/2009	3 U	3 U	3 U	4.34	0.2 U	0.2 U	3 U	3 U	53.1	52.2	--	--	--
	08/11/2009	3 U	3 U	3 U	3 U	0.2 U	0.2 U	3 U	3 U	91.8	87	--	--	--
	11/11/2009	3 U	3 U	3 U	3.5	0.2 U	0.2 U	3 U	3 U	103	79.5	--	--	--
	02/25/2010	3 U	3 U	3 U	4.24	0.2 U	0.2 U	3 U	3 U	35.2	33.8	--	--	--
	05/19/2010	3 U	3 U	3 U	3 U	0.2 U	0.2 U	3 U	3 U	105	103	--	--	--
	08/25/2010	3 U	3 U	3 U	5.61	0.2 U	0.2 U	3 U	3 U	109	96.3	--	--	--
	11/16/2010	2 U	2 U	1.8	2.7	0.2 U	0.2 U	1 U	1 U	56.3 J	38.8 J	--	--	--
	02/10/2011	2 U	2 U	1 U	10.3 J	0.2 U	0.2 U	1 U	8.9	127 J	147 J	--	--	--
	10/25/2011	2 U	2 U	1.9	4.4	0.2 U	0.2 U	1 UJ	1 UJ	39.5	29.8	--	--	--
	01/26/2012	2 U	2 U	7.9 J	1.7	0.16 J	0.18 J	1 U	1 U	58.4	49.7	--	--	--
	04/10/2012	2 U	2 U	1.4	42.8 J	0.2 U	0.32	1 U	1.9	184	253	--	--	--
	07/31/2012	--	2 U	--	17.6	--	0.2 U	--	2	--	116	--	--	--
	08/01/2012	2 U	--	2.1	--	0.2 U	--	1 U	--	112	--	--	--	--
	10/30/2012	2 U	2 U	1.8	5.3	0.049 J	0.2 U	0.47 J	0.56 J	46.4 J	43.7 J	--	--	--
	01/24/2013	2 U	2 U	1 U	23.1	0.2 U	0.2 U	1 U	1 U	42.5	37.1 J	--	--	--
	01/24/2013	2 U	2 U	1 U	14	0.2 U	0.2 U	1 U	1 U	41.1	35.6 J	--	--	--
	04/02/2013	2 U	2 U	1 U	61.7	0.2 U	0.2 U	1 U	1.7	46.6	43	--	--	--
	07/23/2013	2 U	2 U	2.9 J+	39.8	0.2 U	0.2 U	1 U	1.4 J	38.7 J+	46	--	--	--
	10/17/2013	2 U	2 U	1 U	26.4	0.2 U	0.2 U	1 U	1.7	53.7	78.5	--	--	--
	01/15/2014	2 U	2 U	1 U	15.6	0.2 U	0.2 U	1 U	1 U	21 J	21.2 J	--	--	--
	04/01/2014	2 U	2 U	1 U	99.8 J	0.2 U	0.2 U	1 U	5.4	32.6 J	36.9	--	--	--
	07/23/2014	2 U	--	1.1	--	0.048 J	--	1 U	--	33.1 J	--	--	--	--
	10/27/2014	2 U	--	1 U	--	0.2 U	--	1 U	--	58.7	--	--	--	--
	01/14/2015	--	--	0.24 J	--	0.028 J	--	1 U	--	25.1 J	--	--	--	--
	04/21/2015	--	--	0.27 J	--	0.2 U	--	1 U	--	50.6 J	--	--	--	--
	10/21/2015	--	--	0.32 J	--	0.2 U	--	0.037 J	--	127 J	--	--	--	--
	04/05/2016	--	--	0.31 J	--	0.13 J	--	1 U	--	118	--	--	--	--
	10/25/2016	--	--	0.52	--	0.041 J	--	0.27	--	108	--	--	--	--
	04/18/2017	--	--	0.34 J	--	1.2	--	0.1 U	--	325	--	--	--	--
	10/24/2017	--	--	0.48 J	--	0.13	--	0.1 U	--	106	--	2470	--	928

Table 5-2d
Summary of Groundwater Analytical Results—07-EMF-MW-D
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

Chemical Name		Potassium		Sodium		Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Hardness	Chloride	Nitrate	Sulfate
Sample Fraction		Dissolved	Total	Dissolved	Total	NA	NA	NA	NA	Total/Dissolved[f]	NA	NA	NA
RODA Cleanup Level		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Regulatory Screening Level		NV	NV	NV	NV	NV	NV	NV	NV	NV	250[c]	NV	250[c]
Prediction Limit[d]		NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV
Units		ug/L		ug/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
07-EMF-MW-D	12/10/2007	2490	--	5420	--	35.7	1 U	--	35.7	32.7	2.52	0.05 U	12.4
	02/25/2008	2390	--	7720	--	26.4	1 U	--	26.4	36.9	5.44	0.05 U	23.2
	08/19/2008	1230	--	4910	--	30.1	1 U	1 U	30.1	31.1	3.94 J	0.158	14.5 J
	11/10/2008	1390	1370	5350	5520	34	1 U	--	34	32.9	5.28	0.05 U	18
	02/03/2009	1470	1480	5970	6270	30.7	1 U	--	30.7	31.8	4.46	0.05 U	20.4
	08/11/2009	1210	1180	4740	5050	32.2	1 U	--	32.2	26.5	3.18	0.05 U	18.9
	11/11/2009	1140	1320	4700	4970	30.8	1 U	--	30.8	27.8	3.21	0.05 U	13.6
	02/25/2010	1250	--	5110	--	24.3	1 U	--	24.3	30	3.66	0.09	19.3
	05/19/2010	1040	1100	4370	4410	27.2	1 U	--	27.2	31.2	3.08	0.064	12.8
	08/25/2010	1160	1240	4900	5050	30.6	1 U	--	30.6	29.7	3.8	0.05 U	12.2
	11/16/2010	1350	1390 J	5810	6050	30.1	1 U	--	30.1	32.1	3.8 J	0.05 U	11.5
	02/10/2011	1720 J	1340	5260	5150	27.3	1 U	--	27.3	32	3.35 J	0.06	11.1
	10/25/2011	1210	--	5170	--	36.2	1 U	--	36.2	27	3.03	0.05 U	11.4
	01/26/2012	1260	--	4820	--	24	1 U	--	24	27.9 J	3.13	0.058 J	12.4
	04/10/2012	1010	--	4060	--	31.6	1 U	--	31.6	34.4	3.61	0.05 U	9.05
	07/31/2012	--	--	--	--	36.4	1 U	--	36.4	30.2 J	2.7	0.05 U	9.35
	08/01/2012	1210	--	4780	--	--	--	--	--	--	--	--	--
	10/30/2012	1320	--	4900	--	39	1 U	--	39	30.9 J	2.93	0.05 U	10.4
	01/24/2013	1200	--	4910	--	27.1	1 U	--	27.1	2.84 J	3.22	0.05 U	10.9
	01/24/2013	1230	--	4990	--	26.9	1 U	--	26.9	3.04 J	3.15	0.05 U	11.1
	04/02/2013	1220	--	5060	--	25.7	1 U	--	25.7	31.6 J	4.22	0.05 U	12
	07/23/2013	1260	--	5110	--	24	1 U	--	24	28.7 J	3.86	0.05 U	10.1
	10/17/2013	1120	--	4350	--	29.5	1 U	--	29.5	30.6	4.41	0.05 U	8.83
	01/15/2014	1360	--	5760	--	23.7	1 U	--	23.7	28.8	4.19	0.05 U	12.4
	04/01/2014	1140	--	5250	--	26.6	1 U	1 U	26.6	30.5	5.37	0.065	10.9
	07/23/2014	1110	--	5030	--	34.3	1 U	1 U	34.3	27.8	3.88	0.05 UJ	9.66
	10/27/2014	1070	--	4850 J	--	35.2	1 U	1 U	35.2	33.8	4.93	0.05 U	7.98
	01/14/2015	1220	--	5200	--	22.9	1 U	1 U	22.9	--	4.02	--	11.7
	04/21/2015	1130	--	5120 J	--	27.5	1 U	1 U	27.5	--	3.76	--	9.57
	10/21/2015	957	--	4170 J	--	36.8	1 U	1 U	36.8	--	4.48	--	6.84
	04/05/2016	977	--	4450	--	33.6	1 U	1 U	33.6	--	5.33	--	9.22
	10/25/2016	1100 J	--	4670	--	37.9	1 U	1 U	37.9	--	4.7	--	7.56
	04/18/2017	1510	--	3690	--	24.2	1 U	1 U	24.2	28.7	5.93	--	8.44
	10/24/2017	1540	--	5460	--	42.4	1 U	1 U	42.4	40.0	6.21	--	6.63

NOTES:
No RODA cleanup level exceedances were identified. Note that regulatory screening criteria are provided for reference for analytes that are not contaminants of concern for EMFR but exceedances are not bolded/highlighted.
Highlighted concentrations for detections exceeding a prediction limit. Results from samples collected only from 2014 through 2017 are compared to prediction limits.
Results below reporting limits not flagged for exceedances.
-- = not analyzed.
CFR = Code of Federal Regulations.
Coeur d'Alene Trust = Successor Coeur d'Alene Custodial and Work Trust.
EMFR = East Mission Flats Repository.
IDAPA = Idaho Administrative Procedures Act.
J = estimated value.
J+ = estimated value, high bias.
mg/L = milligrams per liter.
NA = not applicable.
NV = regulatory threshold or prediction limit not available or not applicable.
RODA = Record of Decision amendment.
U = Analyte not detected at or above the contract-required quantitation limit or the method reporting limit.
ug/L = micrograms per liter.
UJ = Analyte estimated, not detected at or above the contract-required quantitation limit or the method reporting limit.
[a]Maximum Contaminant Level, National Primary Drinking Water Regulation (IDAPA 58.01.08.050 and 40 CFR Part 141.62).
[b]Lead is regulated by a treatment technique that requires systems to control the corrosiveness of their water. If more than 10 percent of tap water samples exceed the action level, water systems must take additional steps (IDAPA 58.01.08.350 and 40 CFR Part 141.80).
[c]Secondary Maximum Contaminant Level, National Secondary Drinking Water Regulations (IDAPA 58.01.08.400 and 40 CFR Part 143.3).
[d]Nonparametric prediction limit calculated using the results of monitoring conducted from 2007 through 2013 and developed for use with EMFR 2014 and 2015 data, as obtained from the prediction limit memorandum (TerraGraphics, 2016).
[e]Value shown is the contract-required quantitation limit, per the Double Quantification Rule (TerraGraphics, 2016).
[f]Hardness has been analyzed as either a total or dissolved fraction.

Table 5-2e
Summary of Groundwater Analytical Results—08-EMF-MW-E
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

Chemical Name		Antimony		Arsenic		Cadmium		Lead		Zinc		Iron		Manganese
Sample Fraction		Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
RODA Cleanup Level		6[a]	NV	10[a]	NV	5[a]	NV	15[b]	NV	5000[c]	NV	NA	NA	NA
Regulatory Screening Level		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NV	NV	50[c]
Units		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L
	11/10/2008	3 U	3 U	**14.8**	16.7	0.2 U	0.2 U	3 U	3 U	14.1	17.6	--	--	--
	02/03/2009	3 U	3 U	3 U	10.1	0.2 U	0.2 U	3 U	3 U	10 U	11.4	--	--	--
	05/07/2009	3 U	3 U	3.5	13.7	0.2 U	0.2 U	3 U	3 U	8.89	12	--	--	--
	08/11/2009	3 U	3 U	**19.5**	19.4	0.2 U	0.2 U	3 U	3 U	8.48	9.11	--	--	--
	11/11/2009	3 U	3 U	**23.2**	20.5	0.2 U	0.2 U	3 U	3 U	6.71	7.37	--	--	--
	02/25/2010	3 U	3 U	3 U	11.9	0.2 U	0.2 U	3 U	3 U	5.99	8.81	--	--	--
	05/19/2010	3 U	3 U	4.47	9.82	0.2 U	0.2 U	3 U	3 U	6.33	7.83	--	--	--
	08/25/2010	3 U	3 U	**17.2**	16.2	0.2 U	0.2 U	3 U	3 U	6.87	7.28	--	--	--
	11/16/2010	2 U	2 U	**17.7**	19.8	0.2 U	0.2 U	1 U	1 U	6.9 J	6.4 J	--	--	--
	02/10/2011	2 U	2 U	0.89 J	14.1	0.2 U	0.12 J	1 U	1 U	4.2 J	6.6 J	--	--	--
	07/06/2011	2 U	2 U	7.4 J	27.9 J	0.2 U	0.2 U	1 U	1 U	4.8 J	6.8 J	--	--	--
	10/24/2011	2 U	2 U	**20**	16.8	0.2 U	0.2 U	1 UJ	1 UJ	4.5	3.9	--	--	--
	01/26/2012	2 U	2 U	6.9 J	8.3	0.2 U	0.2 U	1 U	1 U	5 J	5.3	--	--	--
	01/26/2012	2 U	2 U	6 J	8	0.2 U	0.2 U	1 U	1 U	5.1 J	5.6	--	--	--
	04/11/2012	2 U	2 U	1.6	4.4 J	0.2 U	0.2 U	1 U	1 U	6.3	6.3	--	--	--
	04/11/2012	2 U	2 U	1.6	4.4 J	0.2 U	0.2 U	1 U	1 U	5.6	6.5	--	--	--
	08/01/2012	2 U	2 U	6.3	9	0.2 U	0.2 U	1 U	1 U	6.3	6.5	--	--	--
	08/01/2012	2 U	2 U	5.9	9.3	0.2 U	0.2 U	1 U	1 U	6.4	7	--	--	--
08-EMF-MW-E	10/29/2012	2 U	2 U	**14.9**	17.5	0.082 J	0.2 U	1 U	0.26 J	7.1 J	8.1 J	--	--	--
	01/23/2013	2 U	2 U	1.3	6.9	0.2 U	0.2 U	1 U	1 U	9.1 J	10.2 J	--	--	--
	04/02/2013	2 U	2 U	1 U	3.6	0.2 U	0.2 U	1 U	1 U	8.3 J+	9.6	--	--	--
	07/23/2013	2 U	2 U	2.6 J+	7.1 J+	0.2 U	0.2 U	1 U	1 UJ	12.4 J+	10.3	--	--	--
	10/17/2013	2 U	2 U	6.7	10.7	0.2 U	0.2 U	1 U	1 U	12 J	9.8	--	--	--
	01/15/2014	2 U	2 U	1 U	4.5	0.2 U	0.2 U	1 U	1 U	7.3 J	8.2 J	--	--	--
	04/01/2014	2 U	2 U	1.4	1.6 J	0.2 U	0.2 U	1 U	1 U	17.5 J	18	--	--	--
	07/23/2014	2 U	--	4.5	--	0.11 J	--	1 U	--	39.2 J	--	--	--	--
	10/27/2014	2 U	--	4.2	--	0.2 U	--	1 U	--	19.8	--	--	--	--
	01/14/2015	--	--	1	--	0.096 J	--	1 U	--	17.5 J	--	--	--	--
	04/21/2015	--	--	0.92 J	--	0.2 U	--	1 U	--	20.9 J+	--	--	--	--
	04/21/2015	--	--	0.99 J	--	0.2 U	--	1 U	--	21.8 J+	--	--	--	--
	10/21/2015	--	--	7.4	--	0.22 J	--	0.032 J	--	9 J+	--	--	--	--
	10/21/2015	--	--	7.8	--	0.19	--	1 U	--	8.3 J+	--	--	--	--
	04/05/2016	--	--	0.59 J	--	0.2 U	--	1 U	--	18.8 J+	--	--	--	--
	10/25/2016	--	--	6.4	--	0.046 J	--	0.1 U	--	9.2 J	--	--	--	--
	10/25/2016	--	--	6.4	--	0.043 J	--	0.1 U	--	8.9 J	--	--	--	--
	04/18/2017	--	--	1.6	--	0.14	--	0.1 U	--	14.7	--	--	--	--
	10/25/2017	--	--	3.7	--	0.089	--	0.031 J	--	9.2	--	18100	--	64300

Table 5-2e
Summary of Groundwater Analytical Results—08-EMF-MW-E
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

Chemical Name		Potassium		Sodium		Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Hardness	Chloride	Nitrate	Sulfate
Sample Fraction		Dissolved	Total	Dissolved	Total	NA	NA	NA	NA	Total/Dissolved[d]	NA	NA	NA
RODA Cleanup Level		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Regulatory Screening Level		NV	NV	NV	NV	NV	NV	NV	NV	NV	250[c]	NV	250[c]
Units		ug/L		ug/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
08-EMF-MW-E	11/10/2008	4210	4130	27300	28200	545	1 U	--	545	601	63.8	0.05 U	165
	02/03/2009	3550	3730	23800	25000	606	1 U	--	606	647	63.3	0.5 U	169
	05/07/2009	3390	3690	21900	23900	539	1 U	--	539	666	70.3	0.05 U	174
	08/11/2009	3680	3800	23300	25400	534	1 U	--	534	580	63.4	0.05 U	168
	11/11/2009	3140	3670	18100	19300	565	1 U	--	565	649	75.4	0.05 U	164
	02/25/2010	3170	--	18100	--	679	1 U	--	679	705	76.9	0.05 U	172
	05/19/2010	3070	3190	19500	18900	612	1 U	--	612	722	78.1	0.05 U	174
	08/25/2010	3500	3610	21700	21400	552	1 U	--	552	674	71.9	0.05 U	168
	11/16/2010	4000	3790	23700	22600	584	1 U	--	584	849	81 J	0.05 U	178
	02/10/2011	4210	3940	23700	23500	562	1 U	--	562	763	1.97 J	0.05 U	176
	07/06/2011	3620	3470	23300	--	555	1 U	--	555	671	81.2	0.05 U	190
	10/24/2011	3850	--	25100	--	556	1 U	--	556	666	67.6	0.25 U	180
	01/26/2012	3330	--	19900	--	568	1 U	--	568	770	1.99	0.153 J	232
	01/26/2012	3430	--	20500	--	568	1 U	--	568	811	2.12	0.194 J	239
	04/11/2012	3520	--	21400	--	583	1 U	--	583	839	94.1	0.05 U	246
	04/11/2012	3440	--	21000	--	--	--	--	--	850	--	--	--
	08/01/2012	3720	--	23200	--	600	1 U	--	600	814	85.7	0.05 U	224
	08/01/2012	3650	--	22700	--	596	1 U	--	596	789	85.9	0.05 U	225
	10/29/2012	3820	--	22500	--	640	1 U	--	640	815	96.9	0.05 U	227
	01/23/2013	3520	--	23000	--	570	1 U	--	570	88.4	121	0.422	252
	04/02/2013	3440	--	22300	--	562	1 U	--	562	856	137	0.22	255
	07/23/2013	3650	--	23900	--	577	1 U	--	577	926	144	0.05 U	229
	10/17/2013	3680	--	23200	--	597	1 U	--	597	943	210	0.05 U	200
	01/15/2014	4100	--	27600	--	560	1 U	--	560	987	266	0.321	204
	04/01/2014	3650	--	26500	--	562	1 U	1 U	562	1070	286	0.857	199
	07/23/2014	3650	--	26800	--	554	1 U	1 U	554	952	259	0.05 UJ	183
	10/27/2014	4210	--	30300 J	--	533	1 U	1 U	533	1050	385	0.05 U	157
	01/14/2015	3770	--	28800	--	506	1 U	1 U	506	--	420	--	165
	04/21/2015	4210	--	34900 J	--	503	1 U	1 U	503	--	413	--	156
	04/21/2015	4310	--	35600 J	--	--	--	--	--	--	--	--	--
	10/21/2015	4380	--	41600 J	--	514	1 U	1 U	514	--	425	--	128
	10/21/2015	4440	--	42100 J	--	511	1 U	1 U	511	--	428	--	129
	04/05/2016	1140	--	42600	--	486	1 U	1 U	486	--	425	--	133
	10/25/2016	4420	--	58900	--	480	1 U	1 U	480	--	404	--	112
	10/25/2016	4400	--	58400	--	476	1 U	1 U	476	--	404	--	113
	04/18/2017	4010	--	58700	--	434	1 U	1 U	434	842	393	--	125
	10/25/2017	4880	--	86100	--	495	1 U	1 U	495	791	446	--	101

NOTES:
Bold concentrations for detections exceeding a RODA cleanup level. Note that regulatory screening criteria are provided for reference for analytes that are not contaminants of concern for EMFR but exceedances are not bolded/highlighted.
Results below reporting limits not flagged for exceedances.
-- = not analyzed.
CFR = Code of Federal Regulations.
Coeur d'Alene Trust = Successor Coeur d'Alene Custodial and Work Trust.
IDAPA = Idaho Administrative Procedures Act.
J = estimated value.
J+ = estimated value, high bias.
mg/L = milligrams per liter.
NA = not applicable.
NV = regulatory threshold or prediction limit not available or not applicable.
RODA = Record of Decision amendment.
U = Analyte not detected at or above the contract-required quantitation limit or the method reporting limit.
ug/L = micrograms per liter.
UJ = Analyte estimated, not detected at or above the contract-required quantitation limit or the method reporting limit.
[a]Maximum Contaminant Level, National Primary Drinking Water Regulation (IDAPA 58.01.08.050 and 40 CFR Part 141.62).
[b]Lead is regulated by a treatment technique that requires systems to control the corrosiveness of their water. If more than 10 percent of tap water samples exceed the action level, water systems must take additional steps (IDAPA 58.01.08.350 and 40 CFR Part 141.80).
[c]Secondary Maximum Contaminant Level, National Secondary Drinking Water Regulations (IDAPA 58.01.08.400 and 40 CFR Part 143.3).
[d]Hardness has been analyzed as either a total or dissolved fraction.

Chemical Name		Antimony		Arsenic		Cadmium		Lead		Zinc		Iron		Manganese	Potassium	
Sample Fraction		Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Dissolved	Total
RODA Cleanup Level		6[a]	NV	10[a]	NV	5[a]	NV	15[b]	NV	5000[c]	NV	NA	NA	NA	NA	NA
Regulatory Screening Level		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NV	NV	50[c]	NV	NV
Prediction Limit[d]		NV	NV	1.4	NV	1	NV	1[e]	NV	3820	NV	NV	NV	NV	NV	NV
Units		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	ug/L	
08-EMF-MW-F	11/11/2008	3 U	3 U	3 U	3 U	0.205	0.2 U	3 U	3 U	1580	1530	--	--	--	780	980
	02/03/2009	3 U	3 U	3 U	3 U	0.304	0.33	3 U	3 U	1160	1170	--	--	--	750	780
	05/07/2009	3 U	3 U	3 U	3 U	0.258	0.316	3 U	3 U	1320	1360	--	--	--	750	790
	08/10/2009	3 U	3 U	3 U	3 U	0.23	0.291	3 U	3 U	1120	1130	--	--	--	720	650
	11/11/2009	3 U	3 U	3 U	3 U	0.464	0.424	3 U	3 U	2530	2130	--	--	--	750	840
	02/25/2010	3 U	3 U	3 U	3 U	0.947	1.06	3 U	3 U	3820	3700	--	--	--	910	--
	05/19/2010	3 U	3 U	3 U	3 U	1.32	1.22	3 U	3 U	4470	4580	--	--	--	920	960
	08/25/2010	3 U	3 U	3 U	3 U	0.436	0.362	3 U	3 U	1930	1720	--	--	--	750	780
	11/16/2010	2 U	2 U	1 U	1 U	0.65	0.7	1 U	1 U	3370 J	3210 J	--	--	--	984	925
	02/10/2011	2 U	2 U	1 U	1 U	0.45	0.43	0.43 J	2.3	1840 J	1920 J	--	--	--	1210 J	953
	07/06/2011	2 U	2 U	5.6 J	5.7 J	0.16 J	0.15 J	0.79 J	1 U	976	1080	--	--	--	714	624
	10/25/2011	2 U	2 U	1 U	1 U	0.31	0.38	1 UJ	0.33 J	1690	1890	--	--	--	999	--
	01/26/2012	2 U	2 U	4.1 J	0.28 J	0.94	1.1	0.29 J	0.71 J	3100	3650	--	--	--	1010	--
	04/11/2012	2 U	2 U	0.86 J	1.2 J	0.31	0.31	1 U	0.38 J	1630	1590	--	--	--	711	--
	08/01/2012	2 U	2 U	0.57 J	0.61 J	0.2 U	0.2 U	1 U	1 U	1330	1250	--	--	--	775	--
	10/30/2012	2 U	2 U	1 U	1 U	0.38	0.37	0.36 J	0.4 J	1730 J	1550 J	--	--	--	1020	--
	10/30/2012	2 U	2 U	1 U	1 U	0.43	0.38	0.31 J	0.36 J	1660 J	1520 J	--	--	--	980	--
	01/23/2013	2 U	2 U	1 U	1 U	0.45	0.39	1 U	1 U	1810	1630 J	--	--	--	894	--
	04/02/2013	2 U	2 U	1 U	1 U	1	1.1	1 U	1 U	2970	2980	--	--	--	1040	--
	07/23/2013	2 U	2 U	1.4 J+	1.6 J+	0.53	0.57	1 U	1 UJ	1900	1820	--	--	--	915	--
	10/17/2013	2 U	2 U	1 U	1 U	0.99	0.95	1 U	1 U	2390	2400	--	--	--	991	--
	01/15/2014	2 U	2 U	1 U	1 U	1.8	1.8	1 U	1 U	3280 J	3370 J	--	--	--	1070	--
	01/15/2014	2 U	2 U	1 U	1 U	1.6	1.7	1 U	1 U	3250 J	3320 J	--	--	--	1070	--
	04/01/2014	2 U	2 U	1 U	1 UJ	1.8	1.8	1 U	1 U	3620 J	3520	--	--	--	877	--
	04/01/2014	2 U	2 U	1 U	1 UJ	1.8	1.7	1 U	1 U	3470 J	3260	--	--	--	860	--
	07/23/2014	2 U	--	0.17 J	--	1.2	--	0.094 J	--	2570 J	--	--	--	--	860	--
	07/23/2014	2 U	--	0.14 J	--	1.2	--	0.098 J	--	2640 J	--	--	--	--	850	--
	10/27/2014	2 U	--	1 U	--	1.7	--	1 U	--	3280	--	--	--	--	939	--
	10/27/2014	2 U	--	1 U	--	1.9	--	1 U	--	3470	--	--	--	--	945	--
	01/14/2015	--	--	0.099 J	--	1.9	--	1 U	--	4160 J	--	--	--	--	964	--
	01/14/2015	--	--	0.1 J	--	1.6	--	1 U	--	3840 J	--	--	--	--	1000	--
	04/22/2015	--	--	0.14 J	--	1.1	--	1 U	--	2860 J	--	--	--	--	880	--
	10/21/2015	--	--	0.1 J	--	1.4	--	0.12 J	--	3270 J	--	--	--	--	961	--
	04/05/2016	--	--	0.11 J	--	1.9	--	1 U	--	4140	--	--	--	--	500 U	--
	04/05/2016	--	--	1 U	--	2	--	0.07 J	--	4080	--	--	--	--	86.4 J	--
	10/25/2016	--	--	0.5 U	--	1.6	--	0.1 U	--	3120	--	--	--	--	887 J	--
	04/18/2017	--	--	0.5 U	--	1.5	--	0.28	--	2900	--	--	--	--	760	--
	10/25/2017	--	--	0.5 U	--	1.6	--	0.2	--	2980	--	8.8 J	--	457	915	--

Chemical Name		Sodium		Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Hardness	Chloride	Nitrate	Sulfate
Sample Fraction		Dissolved	Total	NA	NA	NA	NA	Total/Dissolved[f]	NA	NA	NA
RODA Cleanup Level		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Regulatory Screening Level		NV	NV	NV	NV	NV	NV	NV	250[c]	NV	250[c]
Prediction Limit[d]		NV	NV	NV	NV	NV	NV	NV	NV	NV	NV
Units		ug/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
08-EMF-MW-F	11/11/2008	5060	5570	14.5	1 U	--	14.5	46.8	11.5	0.05 U	34.2
	02/03/2009	4530	4710	16.8	1 U	--	16.8	43.5	8.29	0.05 U	32.6
	05/07/2009	4390	4540	12.8	1 U	--	12.8	41.3	8.01	0.596	39.3
	08/10/2009	4000	4080	12	1 U	--	12	33.8	7.7	0.05 U	39.5
	11/11/2009	5950	5910	12.4	1 U	--	12.4	51.9	18.5	0.05 U	35.7
	02/25/2010	7820	--	12.8	1 U	--	12.8	84.8	31.2	0.153	50.9
	05/19/2010	10200	10200	13.4	1 U	--	13.4	104	38.2	0.255	66
	08/25/2010	5720	5740	14.9	1 U	--	14.9	49.7	13.1	0.05 U	32.8
	11/16/2010	9580 J	9140	14.4	1 U	--	14.4	77.3	27.3 J	0.05 U	40.5
	02/10/2011	7200	6850	14.6	1 U	--	14.6	54	13.5 J	0.203	31.6
	07/06/2011	5090	4830	11.7	1 U	--	11.7	30.4	7.13	0.05 U	21.6
	10/25/2011	7930	--	13.5	1 U	--	13.5	46.9	18.8	0.05 U	24.8
	01/26/2012	10900	--	13.7	1 U	--	13.7	72.3	33	0.05 U	38
	04/11/2012	6780	--	16.1	1 U	--	16.1	42.1	11.8	0.109	24.6
	08/01/2012	6150	--	14.3	1 U	--	14.3	32.5 J	8.35	0.05 U	21.6
	10/30/2012	8980	--	14.2	1 U	--	14.2	47.3	19.8	0.05 U	25.4
	10/30/2012	8890	--	14.7	1 U	--	14.7	47.9	19.8	0.05 U	25.4
	01/23/2013	9650	--	14	1 U	--	14	4.69	17.6	0.05 U	27.4
	04/02/2013	13400	--	15.6	1 U	--	15.6	54.8	27.3	0.05 U	36.4
	07/23/2013	10500	--	16.9	1 U	--	16.9	48.7	16.3	0.05 U	30.8
	10/17/2013	14000	--	17.5	1 U	--	17.5	61.3	28.6	0.061	40.5
	01/15/2014	20900	--	14.5	1 U	--	14.5	89.9	44.1	0.139	54.6
	01/15/2014	19800	--	14.3	1 U	--	14.3	85.7	42.7	0.142	52.9
	04/01/2014	18500	--	13.1	1 U	1 U	13.1	73.7	36.3	--	50.9
	04/01/2014	18300	--	12.9	1 U	1 U	12.9	75.9	36.7	--	51.3
	07/23/2014	17500	--	14.2 J+	1 U	1 U	14.2 J+	68.3	30.8	0.125 J-	46.1
	07/23/2014	17800	--	14.3 J+	1 U	1 U	14.3 J+	67.9	30.5	0.123 J-	45.8
	10/27/2014	23500 J	--	14.7	1 U	1 U	14.7	90.8	45.5	0.235	57
	10/27/2014	23100 J	--	14.5	1 U	1 U	14.5	--	46	0.27	57.4
	01/14/2015	22300	--	14	1 U	1 U	14	--	44.9	--	61.6
	01/14/2015	22300	--	13.8	1 U	1 U	13.8	--	45.4	--	62.6
	04/22/2015	17100 J	--	15.6	1 U	1 U	15.6	--	30.4	--	42.4
	10/21/2015	22600 J	--	15.2	1 U	1 U	15.2	--	42.6	--	54.6
	04/05/2016	24600	--	12.7	1 U	1 U	12.7	--	52.2	--	71.8
	04/05/2016	24900	--	12.6	1 U	1 U	12.6	--	51.6	--	71.8
	10/25/2016	21400	--	14.9	1 U	1 U	14.9	--	36.9	--	56.9
	04/18/2017	20000	--	11.9	1 U	1 U	11.9	71.0	40.8	--	57.2
	10/25/2017	26700	--	18.2	1 U	1 U	18.2	83.4	49.4	--	57.1

NOTES:

No RODA cleanup level exceedances were identified. Note that regulatory screening criteria are provided for reference for analytes that are not contaminants of concern for EMFR but exceedances are not bolded/highlighted.

Highlighted concentrations for detections exceeding a prediction limit. Results from samples collected only from 2014 through 2017 are compared to prediction limits.

Results below reporting limits not flagged for exceedances.

-- = not analyzed.

CFR = Code of Federal Regulations.

Coeur d'Alene Trust = Successor Coeur d'Alene Custodial and Work Trust.

EMFR = East Mission Flats Repository.

IDAPA = Idaho Administrative Procedures Act.

J- = estimated value, low bias.

J = estimated value.

J+ = estimated value, high bias.

mg/L = milligrams per liter.

NA = not applicable.

NV = regulatory threshold or prediction limit not available or not applicable.

RODA = Record of Decision amendment.

U = Analyte not detected at or above the contract-required quantitation limit or the method reporting limit.

ug/L = micrograms per liter.

UJ = Analyte estimated, not detected at or above the contract-required quantitation limit or the method reporting limit.

[a]Maximum Contaminant Level, National Primary Drinking Water Regulation (IDAPA 58.01.08.050 and 40 CFR Part 141.62).

[b]Lead is regulated by a treatment technique that requires systems to control the corrosiveness of their water. If more than 10 percent of tap water samples exceed the action level, water systems must take additional steps (IDAPA 58.01.08.350 and 40 CFR Part 141.80).

[c]Secondary Maximum Contaminant Level, National Secondary Drinking Water Regulations (IDAPA 58.01.08.400 and 40 CFR Part 143.3).

[d]Nonparametric prediction limit calculated using the results of monitoring conducted from 2007 through 2013 and developed for use with EMFR 2014 and 2015 data, as obtained from the prediction limit memorandum (TerraGraphics, 2016).

[e]Value shown is the contract-required quantitation limit, per the Double Quantification Rule (TerraGraphics, 2016).

[f]Hardness has been analyzed as either a total or dissolved fraction.

Table 5-2g
Summary of Groundwater Analytical Results—09-EMF-MW-C DEEP
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

Chemical Name		Antimony		Arsenic		Cadmium		Lead		Zinc		Iron		Manganese
Sample Fraction		Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
RODA Cleanup Level		6[a]	NV	10[a]	NV	5[a]	NV	15[b]	NV	5000[c]	NV	NA	NA	NA
Regulatory Screening Level		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NV	NV	50[c]
Units		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L
09-EMF-MW-C DEEP	02/25/2010	3 U	3 U	3 U	3 U	0.2 U	0.2 U	3 U	3 U	11.3	11.9	--	--	--
	05/19/2010	3 U	3 U	3 U	3 U	0.2 U	0.2 U	3 U	3 U	5 U	5 U	--	--	--
	11/16/2010	2 U	2 U	1 U	1 U	0.2 U	0.2 U	1 U	1 U	21.6 J	25.5 J	--	--	--
	10/24/2011	2 U	2 U	1 U	1 U	0.2 U	0.2 U	1 UJ	2 J	16.7	18	--	--	--
	01/25/2012	2 U	2 U	7.5 J	0.48 J	0.2 U	0.17 J	1 U	0.52 J	19.1	22.2	--	--	--
	04/10/2012	2 U	2 U	4.2	3.8 J	0.2 U	0.34	0.95 J	4.8	154	222	--	--	--
	07/31/2012	2 U	2 U	1.1	1.3	0.2 U	0.2 U	1 U	0.69 J	11.6	31	--	--	--
	10/29/2012	2 U	2 U	0.65 J	0.52 J	0.2 U	0.2 U	0.28 J	0.23 J	3.2 J	3.7 J	--	--	--
	01/23/2013	2 U	2 U	1 U	1 U	0.2 U	0.2 U	1 U	1 U	22.6	41.1 J	--	--	--
	04/02/2013	2 U	2 U	1 U	1 U	0.2 U	0.2 U	1 U	1 U	23.7	26.5	--	--	--
	07/23/2013	2 U	2 U	2.2 J+	2.3 J+	0.2 U	1.2	1 U	8.6 J	8.8 J+	222	--	--	--
	10/17/2013	2 U	2 U	1 U	1 U	0.2 U	0.2 U	2.9	1.3	9.6 J	33.4	--	--	--
	01/15/2014	2 U	2 U	1.4	1.9	0.2 U	0.2 U	1 U	1 U	46.3 J	47.1 J	--	--	--
	04/01/2014	2 U	2 U	1 U	1 UJ	0.53	0.54	1 U	1 U	72.4 J	70.9	--	--	--
	07/23/2014	2 U	--	0.29 J	--	0.085 J	--	0.079 J	--	32.8 J	--	--	--	--
	10/27/2014	2 U	--	1 U	--	0.2 U	--	1 U	--	22.2	--	--	--	--
	01/14/2015	--	--	0.2 J	--	0.045 J	--	1 U	--	12 J	--	--	--	--
	04/21/2015	--	--	0.32 J	--	0.2 U	--	1 U	--	30.4 J	--	--	--	--
	10/21/2015	--	--	0.087 J	--	0.2 U	--	0.047 J	--	13.3 J+	--	--	--	--
	04/05/2016	--	--	0.73 J	--	0.2 U	--	1 U	--	20.8 J+	--	--	--	--
	10/25/2016	--	--	0.5 U	--	0.014 J	--	0.1 U	--	25.2 J	--	--	--	--
	04/17/2017	--	--	2.8	--	0.52	--	4	--	53.7	--	--	--	--
	10/24/2017	--	--	0.45 J	--	0.08 U	--	0.24	--	5 U	--	2750	--	166

Table 5-2g
Summary of Groundwater Analytical Results—09-EMF-MW-C DEEP
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust

Chemical Name		Potassium		Sodium		Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Hardness	Chloride	Nitrate	Sulfate
Sample Fraction		Dissolved	Total	Dissolved	Total	Total	Total	Total	Total	Total/Dissolved[d]	Dissolved	Dissolved	Dissolved
RODA Cleanup Level		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Regulatory Screening Level		NV	NV	NV	NV	NV	NV	NV	NV	NV	250[c]	NV	250[c]
Units		ug/L		ug/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
09-EMF-MW-C DEEP	02/25/2010	690	--	3170	--	36.3	1 U	--	36.3	39.3	1.8	0.136	13.7
	05/19/2010	690	690	3650	3530	32.2	1 U	--	32.2	35.3	1.45	0.13	12.4
	11/16/2010	801 J	839	4150	4260	30.9	1 U	--	30.9	44.6	2.85 J	0.079	11.8
	10/24/2011	776	--	3840	--	31.6	1 U	--	31.6	31	3.21	0.05 U	10.1
	01/25/2012	1000	--	6290	--	53.8	1 U	--	53.8	53.8	2.44	0.05 U	8.86
	04/10/2012	1300	--	3780	--	36	1 U	--	36	42.2	3.09	0.05 U	10.2
	07/31/2012	831	--	3800	--	34.4	1 U	--	34.4	31.5 J	2.61	0.05 U	7.11
	10/29/2012	945	--	3930	--	36.1	1 U	--	36.1	34.8	2.91	0.05 U	9.56
	01/23/2013	--	--	--	--	31	1 U	--	31	39.7	2.85	0.05 U	11.8
	04/02/2013	776	--	3900	--	30.1	1 U	--	30.1	35.7	2.79	0.05 U	11.7
	07/23/2013	998	--	5490	--	36.2	1 U	--	36.2	34.3	2.86	0.05 U	6.46
	10/17/2013	731	--	3990	--	34.4	1 U	--	34.4	36.3	2.45	0.05 U	9.44
	01/15/2014	1040	--	6750	--	51.5	1 U	--	51.5	51.4	1.66	0.05 U	10.5
	04/01/2014	694	--	4720	--	29.9	1 U	1 U	29.9	36	1.85	0.103	12.2
	07/23/2014	695	--	4110	--	30	1 U	1 U	30	36.7	3.05	0.05 UJ	9.38
	10/27/2014	688	--	5520 J	--	32.2	1 U	1 U	32.2	34.9	2.11	0.064	10.2
	01/14/2015	611	--	3370	--	20	1 U	1 U	20	--	1.85	--	13.1
	04/21/2015	792	--	4900 J	--	--	--	--	--	--	--	--	--
	10/21/2015	683	--	4200 J	--	30.6	1 U	1 U	30.6	--	2.33	--	11.3
	04/05/2016	500 U	--	4230	--	25.9	1 U	1 U	25.9	--	1.28	--	11.7
	10/25/2016	720 J	--	4340	--	29.3	1 U	1 U	29.3	--	2.32	--	11.4
	04/17/2017	810	--	3270	--	27.1	1 U	1 U	27.1	30.8	2.16	--	12.9
	10/24/2017	852	--	4360	--	38.9	1 U	1 U	38.9	38.1	4.37	--	11.3

NOTES:

No RODA cleanup level exceedances were identified. Note that regulatory screening criteria are provided for reference for analytes that are not contaminants of concern for EMFR but exceedances are not bolded/highlighted.

Results below reporting limits not flagged for exceedances.

-- = not analyzed.

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J = estimated value.

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U = Analyte not detected at or above the contract-required quantitation limit or the method reporting limit.

ug/L = micrograms per liter.

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[a]Maximum Contaminant Level, National Primary Drinking Water Regulation (IDAPA 58.01.08.050 and 40 CFR Part 141.62).

[b]Lead is regulated by a treatment technique that requires systems to control the corrosiveness of their water. If more than 10% of tap water samples exceed the action level, water systems must take additional steps (IDAPA 58.01.08.350 and 40 CFR Part 141.80).

[c]Secondary Maximum Contaminant Level, National Secondary Drinking Water Regulations (IDAPA 58.01.08.400 and 40 CFR Part 143.3).

[d]Hardness has been analyzed as either a total or dissolved fraction.

FIGURES

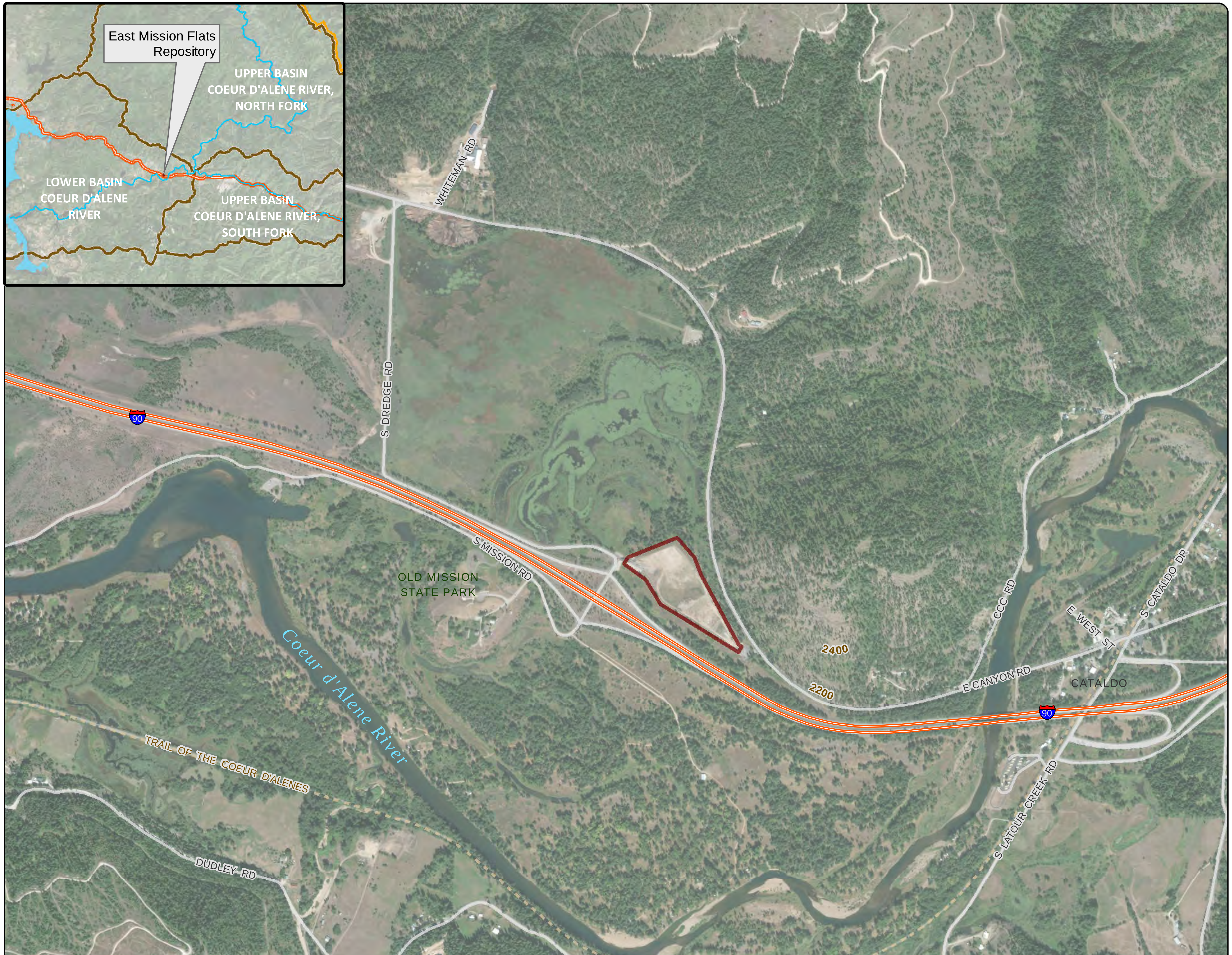

Figure 1-1
Vicinity Map

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

Legend

- Interstate Highway
- Road
- Trail
- State Boundary
- Basin Boundary
- East Mission Flats Repository Boundary

0 500 1,000
Feet

Source: Aerial photograph obtained from ESRI, Inc. ArcGIS Online; watershed and rivers datasets obtained from Idaho Dept. of Water Resources; roads dataset obtained from TerraGraphics; elevation contours obtained from U.S. Geological Survey.

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Print Date: 3/6/2018
Approved By: H. Good
Produced By: estrandhagen
Project: 0442.06.05

Figure 2-1
Monitoring Network and Site Features

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

Legend

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

0 180 360
Feet

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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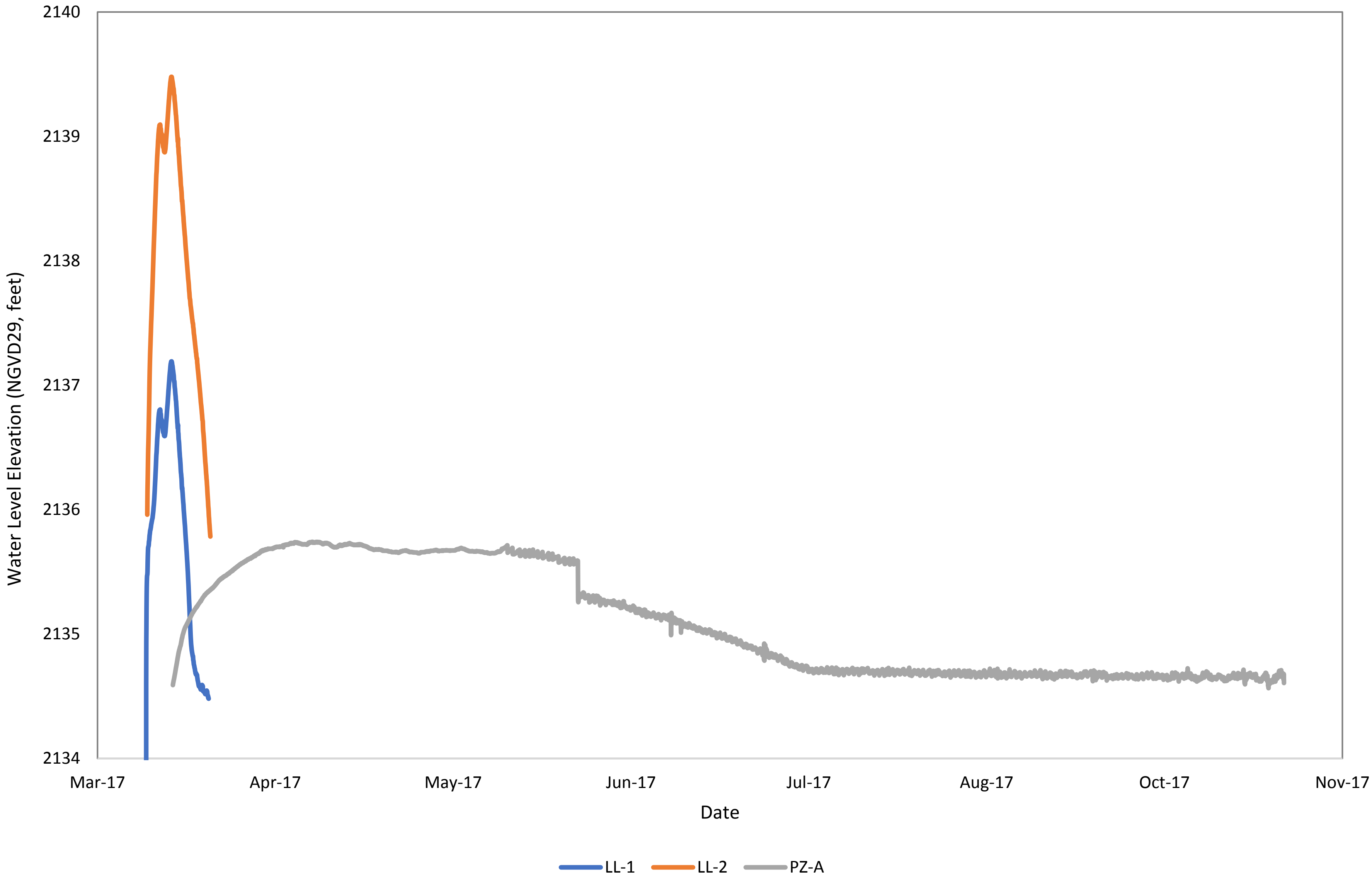
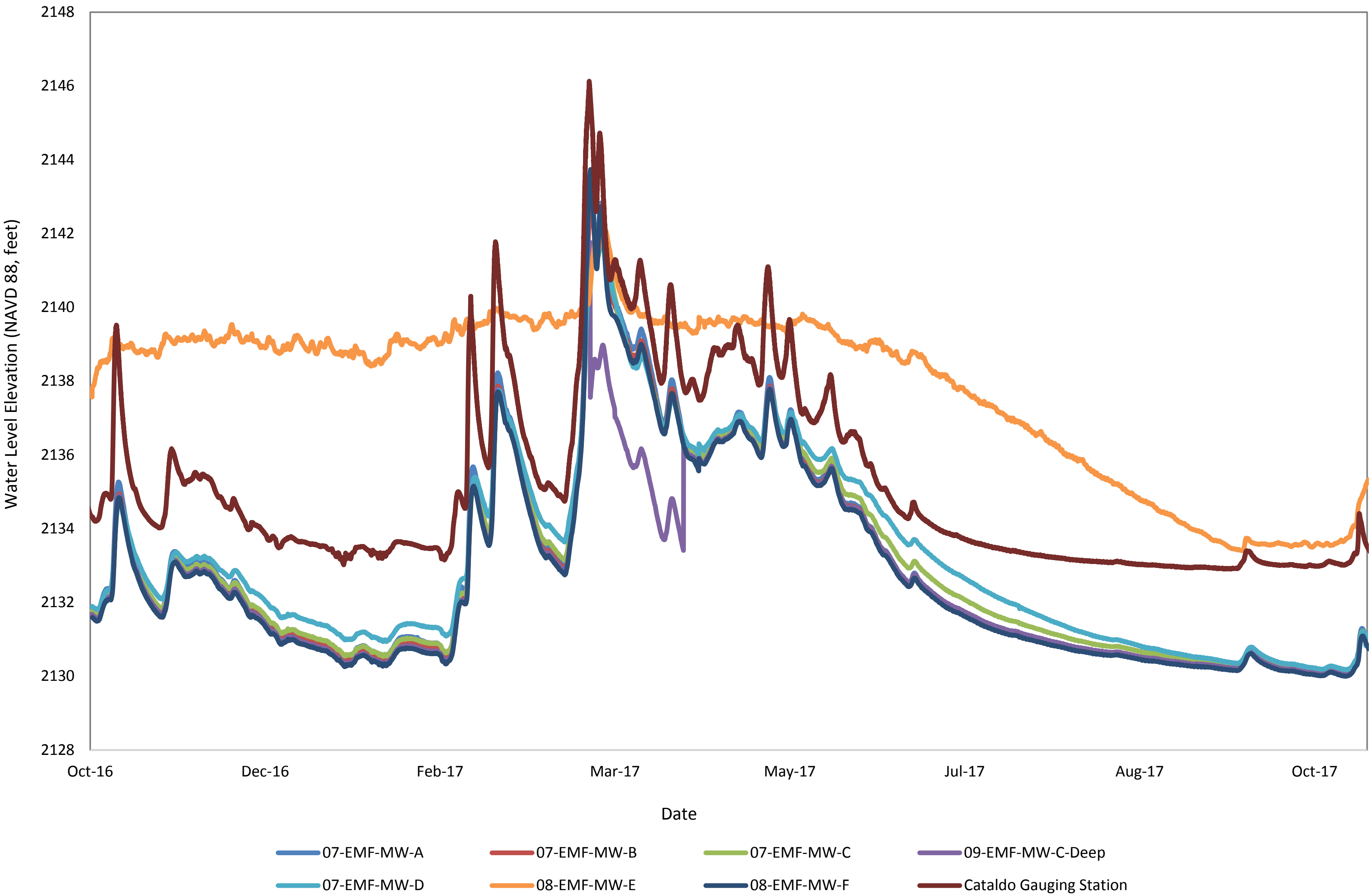
Print Date: 2/7/2018 Approved By: H. Good Produced By: estrandhagen Project: 0442.06.03-02

Figure 4-1
Water Level Hydrograph—Floodwater and Pore Water
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust



Note:
The coordinate system for the PZ-A water level elevations is unconfirmed.
NGVD29 = National Geodetic Vertical Datum of 1929.

Figure 4-2
Water Level Hydrograph—Groundwater and Surface Water
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust



Notes:
East Mission Flats Repository groundwater and Coeur d'Alene River stage elevations are shown.
NAVD8 = North American Vertical Datum of 1988.

Figure 4-3
April 2017 Groundwater Potentiometric Surface Contours

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

Legend

- Groundwater Flow Direction
- Interstate Highway
- Road
- East Mission Flats Repository Boundary
- Monitoring Well (with Well ID and Potentiometric Surface Elevation (feet NAVD88))
- Potentiometric Surface Contour (0.1 foot interval)
- Potentiometric Surface Contour (0.02 foot interval)

Notes:

1. Groundwater potentiometric surface contours are representative of the shallow portion of the upper alluvial aquifer.
2. Groundwater potentiometric surface elevations for 08-EMF-MW-E and 09-EMF-MW-C DEEP are shown, but were not used for contouring because these wells are screened in the sand and clay water-bearing zone and lower portion of the upper alluvial aquifer, respectively.
3. Grayed-out locations were not used when generating the groundwater potentiometric surface.
4. Potentiometric surface elevations shown were recorded by transducers on April 17, 2017 at 9:00 AM.
5. NAVD88 = North American Vertical Datum of 1988.

0 180 360
Feet

Source: Aerial photograph obtained from ESRI, Inc. ArcGIS Online; roads datasets obtained from ESRI.

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Print Date: 3/20/2018
Approved By: H. Good
Produced By: estrandhagen
Project: 0442.06.06-05

Figure 4-4
October 2017 Groundwater Potentiometric Surface Contours

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

Legend

- Groundwater Flow Direction
- 90 Interstate Highway
- Road
- East Mission Flats Repository Boundary
- Monitoring Well (with Well ID and Potentiometric Surface Elevation (feet NAVD88))
- Potentiometric Surface Contour (0.1 foot interval)
- Potentiometric Surface Contour (0.02 foot interval)

Notes:
1. Groundwater potentiometric surface contours are representative of the shallow portion of the upper alluvial aquifer.
2. Groundwater potentiometric surface elevations for 08-EMF-MW-E and 09-EMF-MW-C DEEP are shown, but were not used for contouring because these wells are screened in the sand and clay water-bearing zone and lower portion of the upper alluvial aquifer, respectively.
3. Grayed-out locations were not used when generating the groundwater potentiometric surface.
4. Potentiometric surface elevations shown were recorded by transducers on October 24, 2017 at 9:00 AM.
5. NAVD88 = North American Vertical Datum of 1988.

0 180 360
Feet

Source: Aerial photograph obtained from ESRI, Inc. ArcGIS Online; roads datasets obtained from ESRI.

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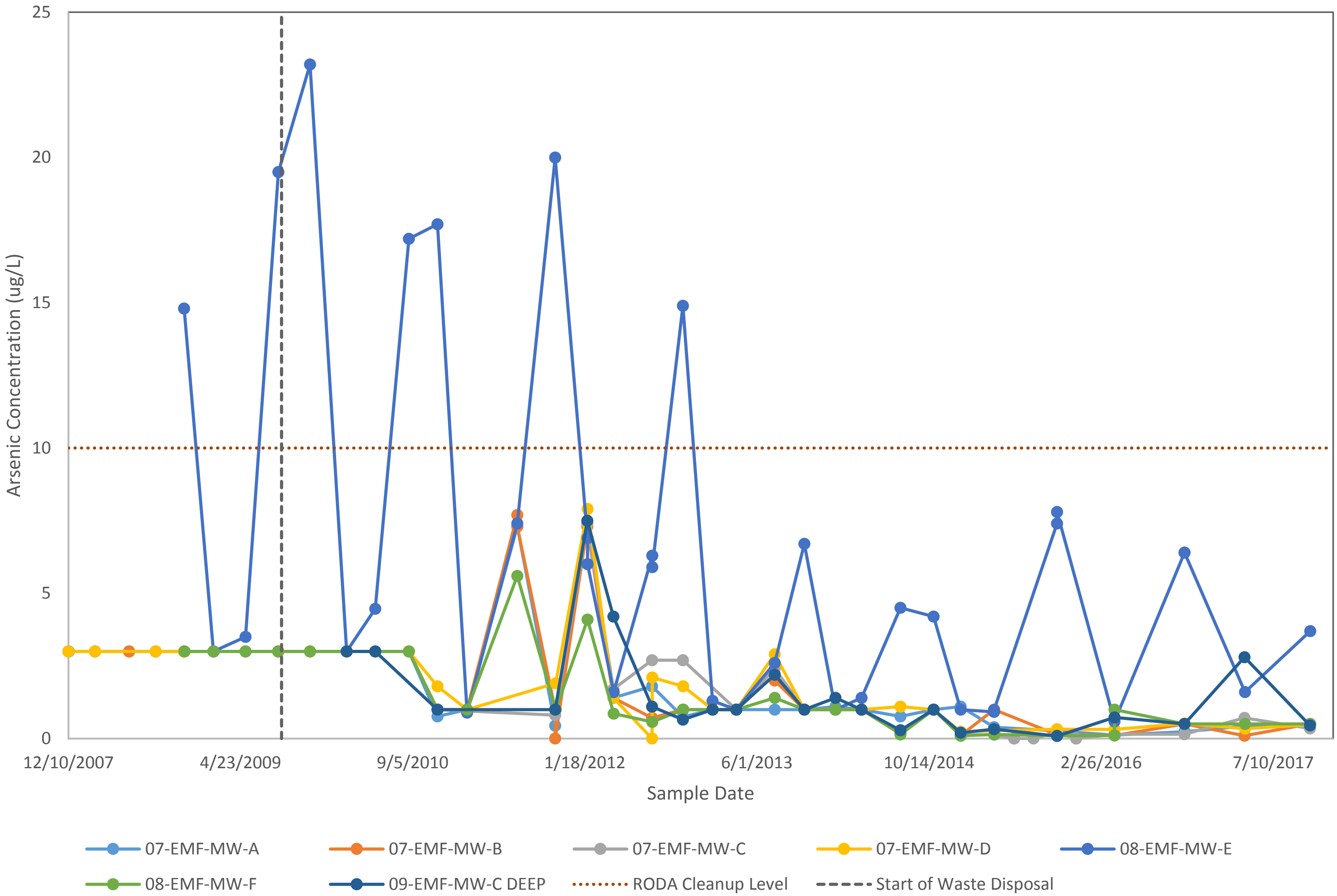
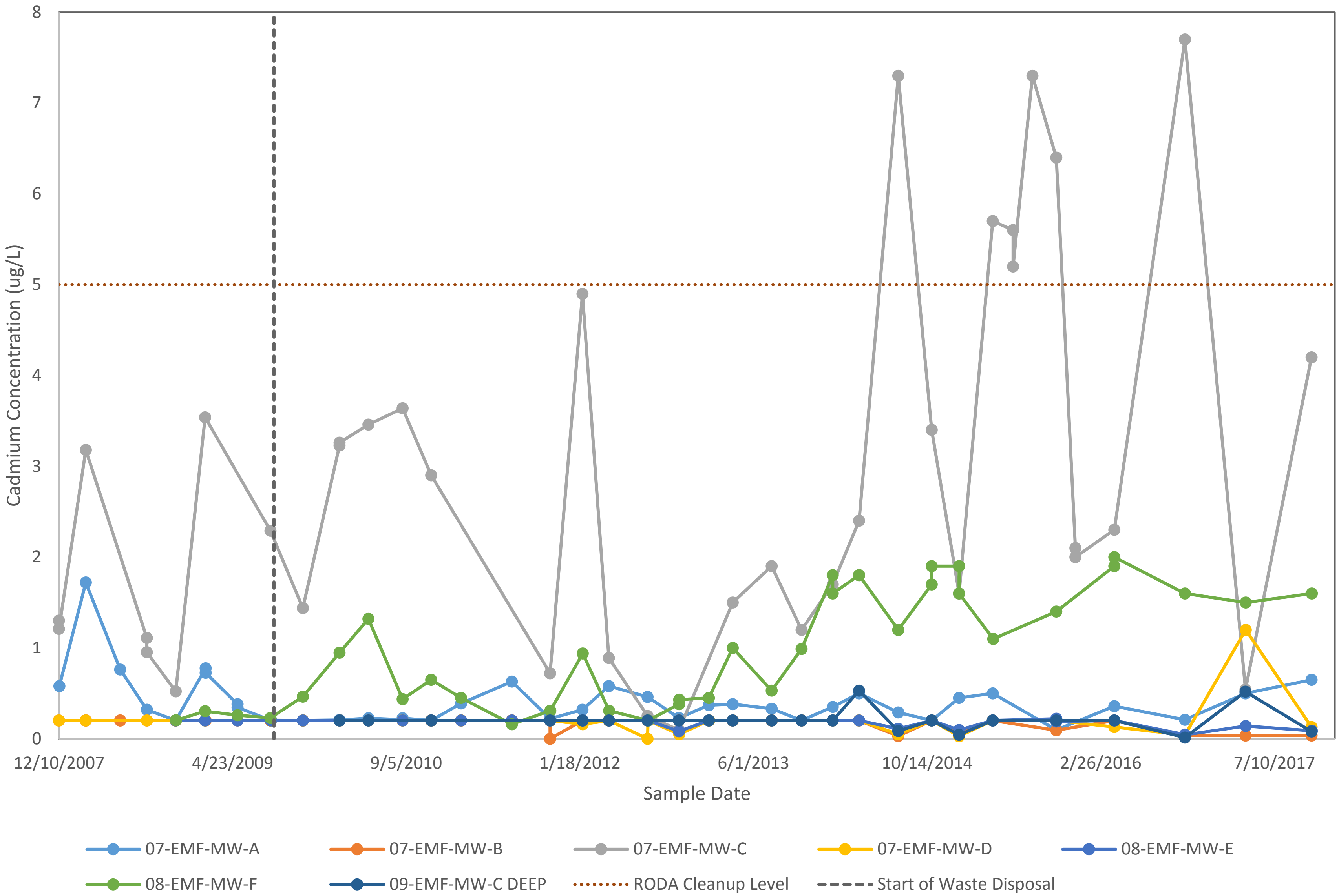
Project: 0442.06.06-05 Produced By: estrandhagen Approved By: H. Good Print Date: 3/20/2018 Path: X:\CdA\0442\06.06_2018 Water Monitoring\EMFR_Monitoring_Report\Project\Fig4-4_October 2017 Groundwater Elevation and Contours_0320.mxd

Figure 5-1
Contaminant of Concern Time Series Plot—Arsenic
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust



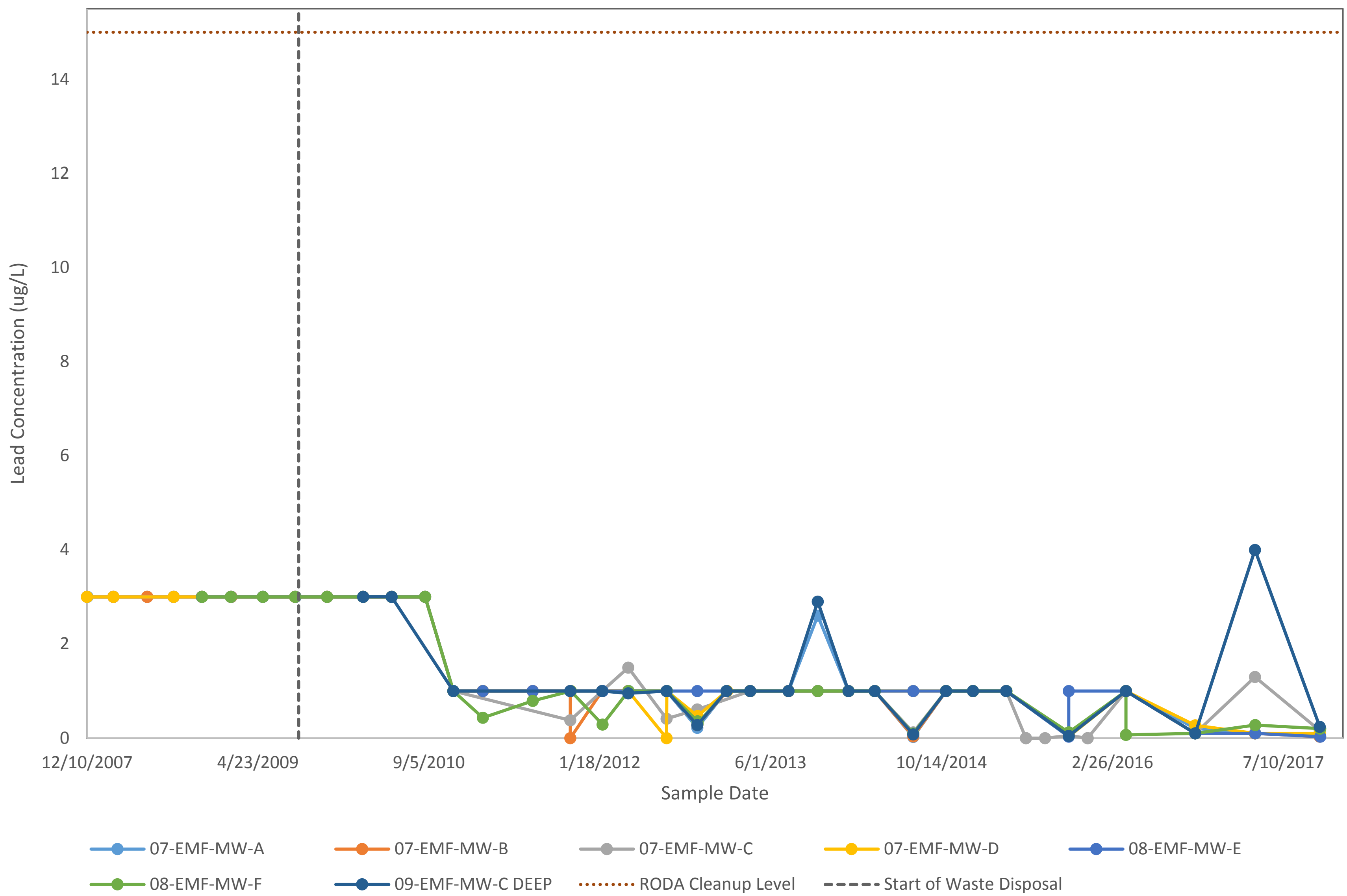
Notes:
Non-detect values are set equal to the reporting limit.
RODA cleanup Level = 10 ug/L.
RODA = Record of Decision amendment.
ug/L = micrograms per liter.

Figure 5-2
Contaminant of Concern Time Series Plot—Cadmium
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust



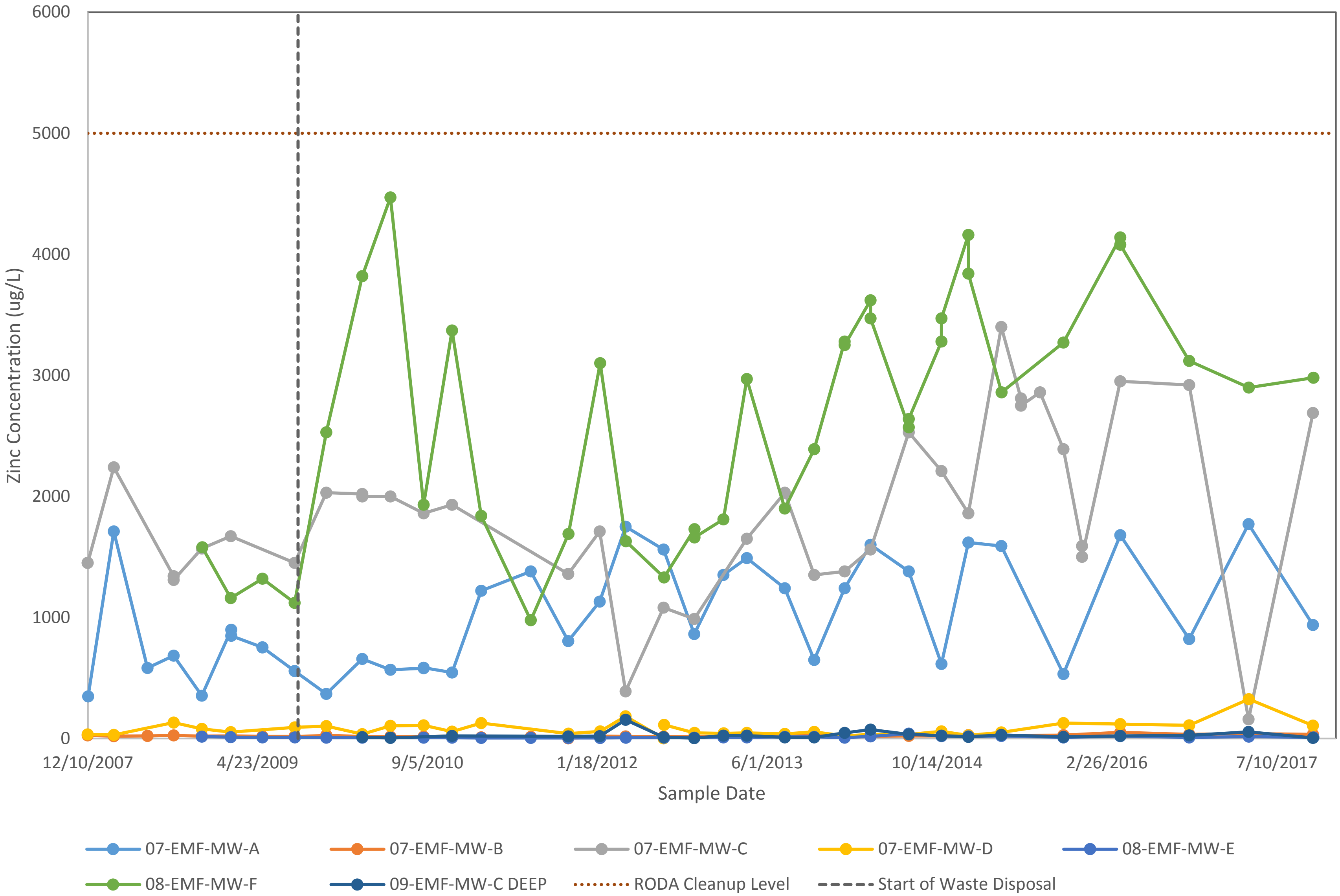
Notes:
Non-detect values are set equal to the reporting limit.
RODA cleanup level = 5 ug/L.
RODA = Record of Decision amendment.
ug/L = micrograms per liter.

Figure 5-3
Contaminant of Concern Time Series Plot—Lead
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust



Notes:
Non-detect values are set equal to the reporting limit.
RODA cleanup level = 15 ug/L.
RODA = Record of Decision amendment.
ug/L = micrograms per liter.

Figure 5-4
Contaminant of Concern Time Series Plot—Zinc
East Mission Flats Repository
2017 Water Quality Monitoring
Coeur d'Alene Trust



Notes:
Non-detect values are set equal to the reporting limit.
RODA cleanup level = 5,000 ug/L.
RODA = Record of Decision amendment.
ug/L = micrograms per liter.