2016 EAST MISSION FLATS REPOSITORY MONITORING REPORT

Prepared for

SUCCESSOR COEUR D'ALENE CUSTODIAL AND WORK TRUST

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ACRONYMS AND ABBREVIATIONS

ARAR	applicable or relevant and appropriate requirement
the Basin	the Coeur d'Alene River Basin
bgs	below ground surface
BHSS	Bunker Hill Mining and Metallurgical Complex Superfund Site
BPRP	Basin Property Remediation Program
CCG	Chemtech Consulting Group, Inc.
Coeur d'Alene Trust	Successor Coeur d'Alene Custodial and Work Trust
cfs	cubic feet per second
CFR	Code of Federal Regulations
CH2M	CH2M Hill, Inc.
CLP	Contract Laboratory Program (USEPA)
COC	contaminant of concern
CRQL	contract-required quantitation limit
CY	cubic yard
DMP	data management plan
DO	dissolved oxygen
DQR	double quantification rule
EMFR	East Mission Flats Repository
EMP	enhanced monitoring plan
ICP	Institutional Controls Program
IDAPA	Idaho Administrative Procedures Act
IDEQ	Idaho Department of Environmental Quality
I-90	Interstate 90
Lower Basin	Lower Basin of the Coeur d'Alene River
MCL	maximum contaminant level
MDL	method detection limit
MFA	Maul Foster & Alongi, Inc.
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
NMSWLF	non-municipal solid waste landfill
NWCS	North Wind Construction Services
ORP	oxidation-reduction potential
OU	operable unit
Pace	Pace Analytical Labs
PL	prediction limit
QAPP	quality assurance project plan
RCRA	Resource Conservation and Recovery Act
ROD	record of decision
SAP	sampling and analysis plan
SC	specific conductivity
SPAF	sample plan alteration form

ACRONYMS AND ABBREVIATIONS (CONTINUED)

SSI	statistically significant increase
SVL	SVL Analytical, Inc.
TerraGraphics	TerraGraphics Environmental Engineering, Inc.
ug/L	micrograms per liter
Unified Guidance	Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities Unified Guidance
USEPA	U.S. Environmental Protection Agency
USGS	United States Geological Survey
WBZ	water-bearing zone

1 INTRODUCTION

Semiannual water-quality monitoring was conducted at the East Mission Flats Repository (EMFR) in 2016. 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 Coeur d'Alene River Basin (the 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 (U.S. Environmental Protection Agency [USEPA], 2002). Repositories, including EMFR, were constructed for disposal of metals-contaminated soils, sediments, source materials, and treatment residuals generated during cleanup activities in the Basin. Routine monitoring and evaluation of surrounding environmental conditions are required as part of ongoing repository operations. This report provides a summary and interpretation of the monitoring data collected at EMFR in 2016. This report also provides recommended changes to the EMFR monitoring program for implementation in 2017.

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, 2009a). The monitoring program is described in the 2009 Enhanced Monitoring Plan (EMP) (TerraGraphics Environmental Engineering, Inc. [TerraGraphics], 2009); the 2014 Sampling and Analysis Plan (SAP)/Quality Assurance Project Plan (QAPP) (TerraGraphics, 2014); and subsequent sample plan alteration forms (SPAFs) (SPAF#1 [TerraGraphics, 2015] and SPAF#002 [MFA, 2016a]).

The purpose of the EMFR monitoring program is to evaluate repository performance and monitor for potential releases of dissolved contaminants of concern (COCs) from repository waste to groundwater beneath the repository; monitor for the presence of floodwater around the repository; evaluate interactions between groundwater and surface water in the Coeur d'Alene River; and evaluate for potentially significant impacts to groundwater quality as a result of repository operations. Specific objectives of the monitoring program include the following:

- Monitor saturation and pore water quality in waste materials.
- Monitor the timing of flood events and floodwater levels and quality.
- Evaluate horizontal groundwater gradients in the shallow water-bearing zone (WBZ).
- Evaluate vertical groundwater gradients between the shallow and deep WBZs.
- Evaluate statistical trends in water quality parameters and COC concentrations in groundwater.

A previous objective of the monitoring program was to monitor floodwater quality entering and leaving the repository, but floodwater monitoring was discontinued in September 2014 (TerraGraphics, 2014).

2 BACKGROUND

2.1 Site Location

EMFR occupies a 23-acre parcel in Kootenai County, Idaho. EMFR is located approximately 1,500 feet north of the Coeur d'Alene River and about two miles west of the town of Cataldo, Idaho. EMFR is bounded to the northeast by Canyon Road, southwest by Interstate 90 (I-90), and to the north and northwest by private property. Old Mission State Park is located about a quarter mile southwest of EMFR, on the other side of I-90.

2.2 Site History

As much as 100 million tons of mine waste–impacted sediments have been emplaced or deposited over thousands of acres throughout the BHSS. Mine waste–related COC are primarily metals, including arsenic, cadmium, lead, and zinc. In the 1930s through the 1960s, an estimated 6.6 million cubic yards (CY) of mine waste–impacted sediments were dredged from the Coeur d'Alene River and placed on the Cataldo Mission Flats area, a Mine Owners Association site to the west of EMFR (TerraGraphics 2009a). Dredge spoils at the Mine Owners Association site cover an area greater than 130 acres and up to 36 feet thick. Lead concentrations as high as 8,000 milligrams per kilogram (mg/kg) have been detected in dredge spoils (Brookstrom et al., 2001). There is no known history of dredge spoils disposal directly on EMFR property (Brookstrom et al., 1999).

The EMFR area was undeveloped, with the exception of utility construction, before the repository was constructed and began receiving waste in 2009. Before construction of the repository, the EMFR area was impacted by metals-contaminated sediments, deposited by the Coeur d'Alene River from historical upstream mining and milling activities (Bookstrom et al., 2001). Mine waste–impacted sediments were historically transported by the Coeur d'Alene River and deposited in the area because of periodic flooding. Metals concentrations identified in shallow (zero to four feet below ground surface [bgs]) fluvial sediments before construction of the repository indicated the area was contaminated with arsenic, cadmium, lead, and zinc (Golder, 2014). Mining-waste impacts were not identified in native soil below approximately four feet bgs (TerraGraphics, 2009b).

Sampling and monitoring activities began in 2007 in the EMFR area. Sampling data collected between 2007 and 2009 established a baseline for groundwater flow and water quality, as well as background concentrations before placement of repository waste. Repository monitoring was performed on a quarterly basis between 2007 and January 2015, with sampling events occurring in January, April, July, and October. After January 2015, the monitoring program was changed to semiannual sampling, and statistical evaluation procedures, including a retesting strategy, were implemented.

2.3 Repository Waste

Waste stored at BHSS repositories are generated by multiple contractors under the Basin Property Remediation Program (BPRP), Institutional Controls Program (ICP), and other BHSS programs (TerraGraphics, 2009b). EMFR was developed to support the ICP and has been accepting waste material since August 2009. Active waste placement generally takes place between April and October.

Soil samples were collected in 2004 through 2011 from residential locations requiring remediation included in the BPRP and analyzed for arsenic and lead. EMFR receives waste material primarily generated under the BPRP and ICP; therefore, the BPRP soil sampling results are considered partially representative of waste deposited at EMFR. Arsenic and lead concentrations detected during the BPRP sampling are summarized in Table 2-1; arsenic and lead were identified as COCs for protection of human health in the ROD (USEPA, 2002). In addition to arsenic and lead, waste material deposited at EMFR—from both BPRP and ICP—may also be impacted with other metals that have been identified as chemicals of potential concern in the Basin (e.g., antimony, cadmium, iron, manganese, mercury, and zinc), as identified in the ROD (USEPA, 2002).

The repository is designed to receive 416,000 CY of waste material over its operational life. About 211,000 CY of contaminated soil has been placed in the EMFR from August 2009 through 2016 (NorthWind Construction Services [NWCS], 2017).

2.4 Regulatory Context

BHSS includes mining-contaminated areas in the Coeur d'Alene River corridor, adjacent floodplains, downstream water bodies, tributaries, and fill areas. BHSS was added to the National Priorities List in 1983 and includes three OUs; EMFR is within OU3, which is within the Coeur d'Alene Basin ("the Basin"), where mining-related contamination is located. This includes 45 miles of the South Fork of the Coeur d'Alene River and its tributaries, as well as the main stem of the Coeur d'Alene River down to the depositional areas of the Spokane River, which flows from Coeur d'Alene Lake into Washington State.

BHSS is managed by USEPA Region 10 in cooperation with the Idaho Department of Environmental Quality (IDEQ), tribal stakeholders, and the Coeur d'Alene Trust. Consolidation of contaminated soils, sediments, and source materials into controlled repositories is a critical component of the human health remedy for BHSS, as described in the OU3 Record of Decision (USEPA, 2002). EMFR was designed to address the ROD requirements. The ROD specifies that all repositories are subject to monitoring to demonstrate that the repository design, engineering, and maintenance are effective at preventing repository waste from impacting groundwater and surface water quality.

The ROD also specifies that Tier II and sections of the Tier III non-municipal solid waste landfill (NMSWLF) requirements under the Idaho Solid Waste Management Rules (Idaho Administrative Procedures Act [IDAPA] 58.01.06) are relevant and appropriate to the design, operation, and closure of the repositories. Monitoring well installation and groundwater monitoring are required under Tier III NMSWLF requirements.

EMFR may have been constructed on top of contaminated sediments, which may be a potential source of metals leaching to surface water and groundwater. Monitoring activities will address evaluation of cleanup goals for OU3.

3 PHYSICAL SETTING

EMFR is located in a wide floodplain valley of the Coeur d'Alene River, at the base of bedrock outcrops, in an area prone to seasonal flooding. The repository lies at an elevation of approximately 2,135 feet above sea level and gently slopes from north to south.

3.1 Geology

EMFR is located on unconsolidated alluvial deposits that overlie metamorphic rocks of the Belt Supergroup, most likely the Prichard Formation (Browne, 2006). The alluvial deposits are comprised of Quaternary gravel, sand, and silt from the ancestral flood channel of the Coeur d'Alene River (CH2M HILL, Inc. [CH2M], 2009). Bedrock outcrops in the area, most notably to the east of the repository.

Shallow deposits (generally from zero to four feet bgs) are composed of fine-grained silts and sands that are thought to be fluvial deposits, including mine waste–impacted sediments from upstream mining sites deposited over the past 100 years. The thickness of mine waste–impacted fluvial deposits and the magnitude of metals concentrations likely varies across the EMFR.

A cross section of geologic units below EMFR is shown in Figure 3-1. Previous studies have identified the following unconsolidated deposits beneath the repository:

- Low-permeability silt and clay from the ground surface (i.e., base of the repository) to about 15 to 20 feet bgs; the upper four feet of which contains mine waste–impacted fluvial deposits.
- Upper coarse-grained unit consisting of alluvial sand and gravel from about 15 to 105 feet bgs.
- A silt unit from 105 to 116 feet bgs, which separates the upper and lower coarse-grained units.
- Lower coarse-grained unit consisting of alluvial sand below 116 feet bgs.

3.2 Hydrogeology

EMFR is located in an area of transition between two hydrogeologic units, which may be attributable to historical fluctuations in the Coeur d'Alene River channel (Ralston, 2008). An upper alluvial sand and gravel aquifer is located below and to the east of EMFR, but appears to be absent to the northwest of EMFR, where sand and clay water-bearing zones (WBZs) were encountered in previous borings, located approximately 1,750 feet northwest of EMFR.

Hydrogeologic units at EMFR consist of the geologic units described in the previous section, as follows (see Figure 3-1):

- Upper alluvial sand and gravel confined aquifer from 15 to 105 feet bgs; a sand and clay aquifer is found to the west to northwest of the repository at the same depth.
- Silt confining unit below the alluvial aquifer from 105 to 116 feet bgs, which separates the upper and lower aquifers.
- Lower alluvial sand confined aquifer below about 116 feet bgs.

The upper silt and clay unit overlying the upper alluvial aquifer has low permeability and is thought to limit migration of repository leachate into the alluvial aquifer (TerraGraphics, 2009b). The weight of repository waste overlying the silt and clay unit is anticipated to compact and compress the soil, thereby further reducing the hydraulic conductivity of material underlying the repository.

The silt confining unit has not been well characterized, but it is thought to mitigate the potential migration of COC in the upper alluvial aquifer to the lower alluvial aquifer (IDEQ, 2016).

WBZ characteristics are discussed in more detail below.

3.2.1 Upper and Lower Alluvial Aquifers

Monitoring wells are screened in the upper alluvial sand and gravel aquifer, outside of the repository footprint, from approximately 17 to 27 feet bgs in the more transmissive gravel and sand zones. The depth to groundwater is generally measured at 2.5 to 16 feet bgs.

Groundwater levels are typically highest in the spring, lowest in the fall, and closely follow fluctuations in the Coeur d'Alene River stage. Horizontal flow is, typically, across the repository to the southwest or south, toward the Coeur d'Alene River. Historical monitoring data indicate that the horizontal gradient shifts to the west-northwest during flood events. At times, horizontal gradients on the east side of the repository are toward the southeast during high flows. Vertical gradients can shift upward for short periods of time.

Groundwater in the upper alluvial aquifer is confined and typically has a downward vertical gradient. Horizontal gradients are typically shallow and are influenced by the stage of the river. The horizontal gradient varies seasonally from approximately 0.001 to 0.0006 foot per foot across the repository (TerraGraphics, 2009b).

Changes in the Coeur d'Alene River stage can cause rapid responses in groundwater elevations in the monitoring wells screened in the upper aquifer. This suggests that the upper aquifer likely extends to the Coeur d'Alene River, which in turn likely contributes to aquifer recharge. Recharge to the aquifer is also thought to occur from the tributaries and wetlands to the north. Groundwater is thought to discharge to the Coeur d'Alene River, but variability in groundwater and surface water interactions may result in alternating gaining and losing conditions. Details of surface and groundwater interactions and how they may influence mobility of metals in the area are considered a data gap.

One well (MW-C DEEP) is screened towards the bottom of the upper aquifer. Flowing artesian conditions have been observed during flood events in this monitoring well (IDEQ, 2016). The lower alluvial sand and gravel confined aquifer has not been well characterized, but it is not considered to influence conditions in the upper aquifer.

3.2.2 Sand and Clay Water-Bearing Zone

Groundwater flow in the sand and clay WBZ to the west of EMFR are not well characterized because only one monitoring well is completed in this unit. Water surface elevations are typically three to seven feet higher in the sand and clay WBZ when compared to the upper aquifer located below EMFR. The influence of the sand and clay WBZ on the geochemistry and groundwater flow directions in the upper aquifer is uncertain.

3.3 Hydrology

EMFR is located in the 100-year floodplain of the Coeur d'Alene River in an area that experiences frequent flooding, typically during spring runoff events. The Coeur d'Alene River flows east to west around EMFR and is present to the east, south, and west of EMFR. The area around EMFR is generally flooded by the Coeur d'Alene River when discharge exceeds about 20,000 cubic feet per second (cfs). There is about a 50 percent chance of flooding each year at EMFR (CH2M, 2010).

EMFR is bordered on two sides by low-lying ground and permanent wetlands. Locally, groundwater levels can rise to the ground surface in response to high river stage and inundation events, with flood waters remaining ponded adjacent to the repository for extended periods (days to weeks) and potentially infiltrating into the waste repository.

Floodwater entering EMFR is primarily from the Coeur d'Alene River, with minimal contribution from wetland areas to the north. Floodwater sampling indicates that mine waste–impacted sediment deposition on the floodplain surrounding EMFR continues to occur. In general, total lead concentrations are lower in floodwater leaving the area around the EFMR than entering (IDEQ, 2016).

4 CONCEPTUAL SITE MODEL

4.1 Contaminants of Concern

Arsenic and lead were identified as COCs for protection of human health for the Basin in the ROD (USEPA, 2002). In addition to arsenic and lead, other metals identified in the Basin (see Section 2.3) may be present at EMFR; however, only those metals identified as representative of wastes at EMFR, were selected as COCs for EMFR monitoring activities. COCs at EMFR include the following metals: arsenic, cadmium, lead, and zinc are the primary COCs; copper and mercury are of secondary interest; and antimony is a COC, but is no longer monitored (IDEQ, 2016).

4.2 Metals Mobility

Metals mobility at EMFR is largely controlled by elemental chemical characteristics and metal complexation resulting from the local geochemical environment. For purposes of mobility, metals can be grouped according to their chemical characteristics, as follows: cadmium, zinc, and lead in one group, and arsenic and antimony in another. In general, cadmium and zinc are more mobile in the dissolved phase while lead tends to be particle- or colloid-associated.

Metal complexations largely affect metal mobility and include the following:

- Metals associated with iron oxides and hydroxides
- Metals associated with sulfides
- Other complexes and organic/inorganic interactions.

Metals complexation with iron hydroxides and sulfides can affect the solubility, leachability, and solid-partitioning tendencies of metals. Given this framework, the main factors affecting metals mobility are pH, oxidation-reduction potential (ORP) conditions, concentrations of potential complexing agents, and methylation/demethylation reactions. Therefore, prediction of metals mobility requires data on the pH, ORP, and major ion groups in water and how they vary with time.

Arsenic can become significantly more mobile under anaerobic conditions and as such, variability in arsenic concentrations in groundwater is likely related to variations in oxidation-reduction conditions.

4.3 Groundwater Geochemistry

Geochemical conditions in groundwater in the upper aquifer at EMFR, and hence metals mobility, are complex and variable as a result of fluctuating groundwater interactions with surface water; multiple sources of groundwater recharge; and potential mixing with groundwater from the sand and clay WBZ to the west.

Specific conductivity (SC), pH, and groundwater elevation data in the sand and clay WBZ are elevated in comparison to groundwater in the upper aquifer at EMFR, which indicates that they are distinct groundwater sources. Groundwater in the sand and clay WBZ generally has lower dissolved oxygen (DO) concentrations, lower ORP, and higher arsenic concentrations, likely resulting from reducing conditions. Also, the sand and clay WBZ is closer to the dredge-spoil disposal site, which may be leaching metals. Groundwater in the upper aquifer is generally more aerobic with lower arsenic concentrations. It is unclear if groundwater from the sand and clay WBZ to the west intermittently mixes with groundwater in the upper aquifer below EMFR, resulting in changes in the geochemistry and metals concentrations; groundwater flow in the sand and clay WBZ have not been fully characterized.

Groundwater quality below EMFR may be altered by a variety of processes. Infiltration of meteoric water may increase DO, while stagnant water conditions or influx of natural organic matter may induce anaerobic conditions. Rising groundwater may change basic geochemistry within the repository waste. Waste materials (including organic matter) on top of the affected fluvial sediments may influence the mobility of metals within the sediments below the repository.

Spatial and temporal heterogeneity in geochemical conditions can complicate estimation of background levels of metals in underlying sediments and, ultimately, complicate assessment of the source (either repository wastes or underlying soils) of COCs in groundwater. Variable geochemical conditions, combined with complex hydrogeology, may contribute to potentially high variability in groundwater sampling results. The transient and long-term effects of geochemistry on the variability of metals concentrations is a source of uncertainty.

4.4 Groundwater Quality

Average historical zinc concentrations measured from piezometers throughout the Cataldo Mission Flats area, prior to the start of repository construction, range from less than 0.1 milligrams per liter (mg/L) to more than 140 mg/L (Gill, 2003). The historical results indicate the potential for high spatial variability in groundwater metals concentrations and widespread contamination prior to repository construction. Significant metals loading to the Coeur d'Alene River from groundwater discharges in the area of Mission Flats and the dredge spoils have not been confirmed in previous evaluations (Ralston 2008).

COC concentrations also differ between the two shallow WBZs. The sand and clay WBZ to the west of EMFR shows the greatest arsenic concentrations, with frequent exceedances of the regulatory threshold of 0.01 mg/L, while the upper aquifer shows elevated concentrations of cadmium and zinc. Spatial variability in COC concentrations is most evident in dissolved zinc and dissolved cadmium concentrations, as other constituents are only infrequently detected.

Downgradient wells located within the upper aquifer, located the farthest south and west of the repository, have historically had the greatest concentrations of cadmium and zinc. The elevated COC concentrations in these wells, as compared to other monitoring wells at EMFR, are likely related to the larger area of historical contamination upgradient of this area.

Cadmium and zinc concentrations up- and cross-gradient and east of the repository also show evidence of contamination. Although concentrations are lower than those observed in the downgradient wells, concentrations are elevated in comparison to concentrations in groundwater entering the EMFR from the north, as measured in upgradient monitoring wells. During previous evaluations of EMFR data, statistically significant increases (SSIs) in zinc concentrations were detected in monitoring wells east of the repository. It is unlikely that the increase in zinc concentration is related to repository operations because this is an up- or cross-gradient location. These results indicate that sources unrelated to the repository may be contributing to increased contaminant concentrations in groundwater at EMFR (IDEQ, 2016).

4.5 Contaminant Fate and Transport

Potential contaminant fate and transport were evaluated during the design of the repository. Primary fate and transport mechanisms identified at EMFR include the following (TerraGraphics, 2009b):

- Rainwater and snowmelt percolating through the emplaced waste and, potentially, leaching metals to surface water and groundwater.
- Lateral infiltration of ponded floodwater into the repository and leaching of metals to groundwater and surface water as water drains from the waste.
- Upwelling of groundwater into repository waste due to seasonal fluctuations and leaching metals to groundwater and surface water as water drains from the waste.
- Erosion due to floodwater.
- Erosion and transport due to wind.

The early design work evaluated the potential for lateral infiltration of ponded surface water and upwelling of groundwater into the repository waste. Results indicated that waste saturation due to these conditions would not be significant based on the low hydraulic conductivity of the compacted waste and the compacted silts and clays underlying the repository. With only minimal saturation of the repository materials, it was concluded that any residual water in the base of the repository would not pose a significant threat to groundwater quality.

Erosion during flooding was also evaluated during the design. The potential for erosion from floodwater was mitigated during the design by armoring the repository side slopes to an elevation equivalent to the 100-year flood.

The potential for the repository waste to leach metals to groundwater and surface water was also evaluated during the initial design. Column test data indicated that leaching of metals from repository soil by precipitation and snowmelt percolating through the repository would not release any arsenic, cadmium, or lead, and only very low concentrations of antimony and zinc. Therefore, repository soils likely pose minimal risk to groundwater quality. The column test data for the contaminated soils underlying the repository waste showed a greater potential for leaching metals to groundwater, but not at levels that posed a risk to human health.

In addition to early design work, a fate and transport model has been developed for the EMFR to estimate risk from metals leaching (Golder, 2014). The purpose of the modeling effort was to understand if repository contaminants could migrate to a designated compliance boundary at unacceptable concentrations after placement of a one-foot soil cover on EMFR after closure. The model considered transport by percolation of meteoric water through the waste and the shallow subsurface silts and clays to the upper alluvial sand and gravel aquifer. Conservative input values (ten times maximum-measured waste leachate concentrations), as well as less conservative input values (maximum measured waste leachate concentrations) were used during the modeling to account for uncertainties in current and future geochemical conditions. Results of the modeling effort indicate that there would be no exceedances of applicable or relevant and appropriate requirements (ARARs) at the model calculation boundary over the next several hundred years given the most conservative input parameters.

The model results have not been confirmed (or refuted) by site data in the intervening years. The EMFR-specific fate and transport of metals under the highly variable hydrologic and geochemical conditions is a potential data gap. Geochemical modeling may reduce uncertainty in interpreting the results of the fate and transport model.

5 MONITORING ACTIVITIES

Water quality monitoring at EMFR was conducted on a semiannual basis in 2016, in April and October, to capture variability introduced by high and low water seasons. Monitoring activities included water-level measurements and water quality monitoring. The first event, conducted in April 2016, was completed by TerraGraphics on behalf of IDEQ. The second event, conducted in October 2016, was completed by MFA and TerraGraphics on behalf of the Coeur d'Alene Trust. No additional monitoring events were conducted in 2016.

The April and October 2016 monitoring events were conducted consistent with the 2009 EMP (TerraGraphics, 2009a); 2014 SAP/QAPP (TerraGraphics, 2014); and SPAF#1 (TerraGraphics, 2015). Before the October 2016 event, the Coeur d'Alene Trust agreed to manage water quality monitoring activities at EMFR, as documented in SPAF#002 (MFA, 2016a). With this change, Coeur d'Alene Trust program requirements were adopted in SPAF#002 and implemented during the October 2016 monitoring event. Coeur d'Alene Trust program requirements are discussed in the following documents: the Water Monitoring QAPP (MFA, 2013); the Programmatic QAPP (MFA, 2011); and the Data Management Plan (DMP) (MFA, 2014). The Programmatic QAPP was updated in December 201 (MFA, 2016b). Monitoring conducted in 2017 will be conducted consistent with the 2016 Programmatic QAPP, as discussed in Section 12 of this report.

In 2015 and 2016, USEPA conducted a review to identify potential methods to optimize the repository monitoring. Review findings were finalized in an October 2016 Optimization Review Report (USEPA, 2016). Final recommendations from the optimization review were not available in time for inclusion in the October 2016 monitoring event, but will be considered for inclusion in 2017 monitoring events, as discussed in Section 12 of this report. However, the USEPA instructed that retesting would not be conducted until after the optimization review was completed (see Section 5.4.3 of this report for a discussion of retesting requirements).

Field sampling documentation is provided in Appendix A. TerraGraphics's field summary for the April 2016 event also includes a data summary, consistent with the reporting structure under IDEQ management. TerraGraphics's field summary for the October 2016 event includes only field documentation, consistent with the reporting structure under the Coeur d'Alene Trust. Under the Coeur d'Alene Trust management, MFA is preparing data summaries and interpretation for all events conducted during the reporting year as part of the annual report.

5.1 Monitoring Network

The EMFR water monitoring program is summarized in Table 5-1; monitoring network locations are shown in Figure 5-1. 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 (e.g., "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 name (e.g., "MW-A").

The current EMFR monitoring network consists of the following:

- Two piezometers screened in the repository waste (PZ-A and PZ-B).
- Seven groundwater monitoring wells: five screened in the upper alluvial sand and gravel aquifer; one in the lower alluvial aquifer (MW-C DEEP); and one (MW-E) in the sand and clay WBZ to the west of the repository.
- The Coeur d'Alene River stage elevation is monitored at United States Geological Survey (USGS) gauging station (No. 12413500) near Cataldo, Idaho.
- Two floodwater level recorders (LL-1 and LL-2) are gauged for measuring floodwater elevation and duration. Floodwater quality was sampled opportunistically from these locations before it was discontinued in September 2014 (TerraGraphics, 2014).
- Water level transducers with data loggers ("transducers") are located in the piezometers, floodwater level recorders, and monitoring wells. The transducer located in piezometer PZ-A also has a probe to record water quality parameters (temperature, pH, DO, SC, and ORP).

Upper alluvial aquifer monitoring wells are located to the southeast (MW-A), south (MW-B), west (MW-C), and north (MW-D) of the repository (see Figure 5-1). Depending on seasonal flow directions, either MW-A or MW-D is located hydraulically upgradient or crossgradient of the repository. Upper alluvial aquifer monitoring well MW-F is located approximately 600 feet southwest of the repository on the south side of I-90, hydraulically downgradient to cross-gradient of the repository.

Monitoring well MW-C DEEP is screened near the base of the upper alluvial aquifer and is less than 50 feet from monitoring well MW-C, which is screened near the top of the upper alluvial aquifer (approximately 67.5 feet shallower than MW-C DEEP). This well pair is used to monitor vertical hydraulic gradients in the upper aquifer.

Monitoring well MW-E is screened in the sand and clay WBZ, and is located approximately 1,700 feet northwest of the repository. There are no monitoring wells located between MW-E and MW-C/MW-D (the closest upper alluvial aquifer monitoring wells to the east of MW-E) to monitor the transition area between the sand and clay WBZ and the upper and lower alluvial aquifers.

5.2 Water Level Monitoring

Transducers located in the piezometers, floodwater level recorders, and monitoring wells record water level measurements every half hour or hour, when water is present. Data are downloaded during sampling events and the water-level data are corrected to compensate for barometric pressure. Water levels are also measured by hand at the seven monitoring wells before sample collection. Coeur d'Alene River stage elevation data for the Cataldo gauging station are obtained from the USGS National Water Information System (USGS, 2016).

Groundwater levels are monitored to evaluate horizontal and vertical hydraulic gradients and groundwater flow directions. Groundwater elevations in the MW-C and MW-C DEEP well pair are compared to evaluate vertical gradients in the upper alluvial aquifer, and groundwater elevation contour maps are prepared to evaluate flow directions in the shallow portion of the upper alluvial aquifer. Groundwater level fluctuations are also compared to the Coeur d'Alene River stage elevation to monitor groundwater surface water interactions. Coeur d'Alene River levels and groundwater levels are plotted on a hydrograph (see Figure 5-2) to evaluate temporal trends and to identify any anomalies. Floodwater levels are monitored to evaluate the depth and persistence of floodwater during flooding events. The interaction of groundwater, floodwater, and surface water levels are evaluated to further characterize the hydrogeologic regime.

Saturation of the waste material is monitored by measuring water levels in two piezometers. The piezometers are sounded to manually check for the presence of water or obtain water level measurements when possible.

No water has been detected in the floodwater level recorders or piezometers since October 2015; therefore, no water level measurements were recorded at those locations in 2016. Groundwater level data were downloaded from the monitoring well transducers during the October 2016 monitoring event. Transducer data recorded after October 2016 will be downloaded during the April 2017 monitoring event.

5.3 Water Quality Monitoring

5.3.1 Floodwater

Historically, opportunistic samples of floodwater entering and leaving the repository were analyzed for COCs. The floodwater monitoring results were difficult to interpret due to minimal changes in metal concentrations between sample events and a lack of defensible methods to determine reasons or source of changing concentrations. Therefore, as discussed above, floodwater sampling was discontinued.

5.3.2 Repository Wastewater

A water-quality probe located in piezometer PZ-A records water quality when water is present, and the data are downloaded during sampling events. Also, if sufficient water is present in the piezometers during monitoring events, sampling is attempted to evaluate water quality conditions within the waste mass.

No water has been detected in the piezometers since October 2015; therefore, no samples or water quality measurements were collected from PZ-A and PZ-B in 2016.

5.3.3 Groundwater

COC concentrations and physical and geochemical parameter concentrations in groundwater are monitored to provide information on physical and chemical processes occurring at the repository and to support ongoing evaluations of floodwater and repository pore water.

Groundwater samples are collected from monitoring wells using dedicated low-flow pumps and submitted under standard chain of custody to analytical laboratories for the following analyses:

- Field-filtered samples for dissolved metals (including arsenic, cadmium, lead, and zinc).
- Dissolved anions (chloride and sulfate).
- Dissolved cations (calcium, magnesium, potassium, and sodium).
- Alkalinity (total, bicarbonate, carbonate, and hydroxide).

Groundwater field parameters are measured prior to sample collection in monitoring wells and include temperature, pH, SC, DO, and ORP.

During the IDEQ-managed monitoring event in April 2016, samples were shipped to the following laboratories:

- USEPA's Contract Laboratory Program (CLP) designated laboratory (Chemtech Consulting Group, Inc. [CCG] located in Mountainside, New Jersey) for dissolved metal and dissolved cation analyses.
- IDEQ's contracted local laboratory (SVL Analytical, Inc. [SVL] located in Kellogg, Idaho) for dissolved anion and alkalinity analyses.

During the Coeur d'Alene Trust–managed monitoring event in October 2016, samples were shipped to the Coeur d'Alene Trust's contracted laboratories (Pace Analytical Labs [Pace] in Minneapolis, Minnesota and SVL in Kellogg, Idaho).

5.4 Data Evaluation Methods

To evaluate for potentially significant impacts to groundwater quality as a result of repository operations, concentrations of analytes in groundwater from the upper alluvial aquifer are compared to regulatory threshold values; field water-quality parameters and COC concentrations in the shallow portion of the upper alluvial aquifer are evaluated for temporal trends; and COC concentrations in the shallow portion of the upper alluvial aquifer are evaluated for SSIs.

Field parameter measurement and analytical results for dissolved anions, dissolved cations, and alkalinity are monitored to provide information on physical and geochemical processes occurring at the repository and to support ongoing evaluations of floodwater and repository pore water. However, aside from the field-parameter time series plots, those analytes are not evaluated at this time, but are maintained electronically for use in future evaluations.

5.4.1 Temporal Trend Analysis

Field-parameter measurements; groundwater level and Coeur d'Alene River stage elevations; and COC concentrations are plotted on time series plots in order to visually evaluate temporal trends. These plots provide a graphical representation of temporal data trends. Temporal trends are not statistically evaluated as part of the EMFR monitoring, with the exception of the COC trend analysis that is included in the development of prediction limits, as discussed below.

5.4.2 Regulatory Thresholds

Regulatory threshold values are summarized in Table 5-2. The regulatory threshold values for groundwater are based on National Drinking Water Standards (i.e., maximum contaminant levels [MCLs]) and are provided for dissolved metals and dissolved anions. The regulatory thresholds for arsenic and cadmium are the National Primary Drinking Water Standards (primary MCLs) (IDAPA 58.01.08.050 and 40 Code of Federal Regulations [CFR] Part 141.62); the regulatory thresholds for zinc, chloride, and sulfate are the National Secondary Drinking Water Standard (secondary MCLs) (IDAPA 58.01.08.400 and 40 CFR Part 143.3). These standards are based on total concentrations; however, dissolved concentrations in groundwater are compared to the regulatory thresholds because it is assumed that dissolved concentrations are indicators of contamination in groundwater under all conditions (CH2M, 2006).

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).

Groundwater analytical results for dissolved metals are compared against contract-required quantitation limits (CRQLs) for April 2016 data and method detection limits (MDLs) for COCs that have not been detected in groundwater.

There are no regulatory threshold values for dissolved cations, alkalinity, or field water-quality parameters.

Contaminants of ecological concern and ecologically protective concentrations have not been identified for EMFR (USEPA, 2016).

5.4.3 Statistical Evaluation

Under the water-quality monitoring objectives, groundwater data are evaluated to identify statistically significant changes or trends in water quality. Consistent with the EMP, statistical data evaluation is based on guidance provided in Statistical Analysis of Groundwater Monitoring Data at Resource Conservation and Recovery Act (RCRA) Facilities Unified Guidance (Unified Guidance) (USEPA, 2009b). A memorandum—white paper (originally published in 2015 and updated in 2016; TerraGraphics, 2016; "2016 white paper") outlines the statistical evaluation steps, based on the EMP and Unified Guidance, to be used at EMFR. The statistical evaluation approach outlined in the 2016 white paper was implemented in April 2015.

As discussed in the 2016 white paper (TerraGraphics, 2016), statistical data evaluation at EMFR involves comparing analytical results to prediction limits (PLs) for previously detected COCs. For COCs not previously detected, analytical results are evaluated using the double quantification rule (DQR). The DQR threshold is the reporting limit from historical analyses. If concentrations were above PLs or were detected when not previously detected, the wells would be resampled to increase the statistical significance of the dataset. COC (dissolved arsenic, cadmium, lead, and zinc) results for groundwater in the shallow portion of the upper alluvial aquifer (monitoring wells MW-A, MW-C, MW-D, MW-F) are included in the statistical evaluation.

5.4.3.1 Prediction Limits

PLs are statistically derived values based on groundwater data collected at EMFR between 2007 and 2013, which include background sampling events (data acquired before repository operation) from 2007 to 2009. Piezometers sampled in the Mission Flats area during 2001 to 2003 (TerraGraphics 2009a) indicated some high concentrations of zinc, but the data were not considered of adequate quality to include in the determination of background. PLs for those COC and well pairs included in the statistical evaluation are summarized in Table 5-3. PLs exceedances are recognized as one line of evidence that operation of the repository may be negatively affecting groundwater quality.

In the 2016 white paper (TerraGraphics, 2016), TerraGraphics recommends that PLs be updated every two years to determine if background values can be updated. PLs are recommended to be updated as additional background data are collected because a more extensive background data set is required for data with a high degree of variability. Physical and geochemical conditions at EMFR are largely variable given the spatial and temporal heterogeneity associated with seasonal fluctuations and hydrologic fluctuations. As a result, water quality measurements are highly variable. The background dataset used to develop the PLs presented in the 2016 white paper was collected over a relatively short timeframe (2007 to 2013), which is likely insufficient to observe how metals concentrations may respond to the variety of conditions that may be present at the repository over the span of its operation.

MFA is conducting a statistical review of monitoring results collected at EMFR (forthcoming). However, given the timing of transitioning management of the EMFR monitoring from IDEQ to the Coeur d'Alene Trust, data evaluation recommendations based on that statistical review were not available for use in this report. Therefore, the PLs from the 2016 white paper (TerraGraphics, 2016) are used for comparison to the 2016 monitoring results.

5.4.3.2 Retesting Strategy

A SSI in a COC concentration is determined by comparing COC concentrations to PLs and using a one-of-three retesting strategy. As recommended in the 2016 white paper (TerraGraphics, 2016), if a PL is exceeded for any well-COC pair, a resample is collected from that well and retested for that COC. If the new measurement is below the PL, then monitoring continues as normal at the next-scheduled monitoring event. If the new measurement is above the PL, a second resample is collected and retested for that constituent. This one-of-three retesting strategy means that up to three total samples for a constituent at a well may be collected during any one semiannual monitoring event (including the initial scheduled sample). If, and only if, all three results for a constituent from a well during any semiannual event are above the PL, then a SSI can be concluded at that well for that COC.

For a well with no detections of a COC through 2013, a slightly altered method, referred to as the DQR, applies. DQR values are presented for those analytes and wells in Table 5-3 as appropriate. A resample is collected from a well only if the COC concentration exceeds the reporting limit (either the CRQL or the MDL; the DQR values presented in the 2016 white paper (TerraGraphics, 2016) and Table 5-3 are based on the CRQL). If both the original sample and the resample exceed the reporting limit, then the detection is considered a SSI. Under these conditions, the USEPA and Coeur d'Alene Trust may then decide if another resample is appropriate as a more definitive confirmation.

The retesting strategies were temporarily discontinued during USEPA's optimization review, as adopted in SPAF#002 (MFA, 2016a). Therefore, no retesting was conducted in 2016 in response to PL and/or DQR value exceedances. MFA is conducting a statistical review based in part on USEPA's optimization findings. A retesting strategy may be included as part of the updated data evaluation protocol being developed in consultation with USEPA and will be considered for adoption during the 2017 monitoring events.

6 MONITORING RESULTS

Monitoring results from the April and October 2016 monitoring events are discussed in this section. Field activities for both events are documented in the TerraGraphics field summary reports (Appendix A). TerraGraphics's April 2016 field summary report also includes a discussion of water quality and water-level monitoring results. Those results are combined with results from the October 2016 monitoring event and jointly discussed in this section.

6.1 Floodwater

No floodwater was detected in the floodwater level recorders during the 2016 monitoring events; therefore, no floodwater level elevations were recorded and no floodwater samples were collected.

6.2 Repository Wastewater

No repository wastewater was detected in the piezometers during the 2016 monitoring events; therefore, no repository wastewater elevations were recorded and no samples were collected.

6.3 Groundwater

Water levels were measured by hand, and field parameter measurements were recorded prior to collecting samples from monitoring wells.[1] Water-level elevations are summarized in Table 6-1. Field parameter measurements are summarized in Table 6-2.

6.3.1 Water Levels and Hydraulic Gradients

Groundwater elevations and contours in the shallow portion of the upper alluvial aquifer in April and October 2016 are shown in Figures 6-1 and 6-2, respectively. Monitoring well MW-E is screened in the sand and clay WBZ, and monitoring well MW-C DEEP are screened in the lower portion of the upper alluvial aquifer; therefore, water-level elevations from those wells are not included on the contour maps. The horizontal gradient is relatively shallow at EMFR and groundwater elevations fluctuate in response to Coeur d'Alene River stage fluctuations; therefore, to ensure consistency between measurements, groundwater elevations were obtained from transducer data collected on the same day and at the same time. Hand-measured water levels were compared to the transducer results and were generally consistent.

Groundwater flow beneath the repository during the 2016 monitoring events was generally toward the west in April, during high flow conditions, and toward the southwest in October, during low flow conditions. Groundwater flow south of the repository fluctuated between northwest and west during April and October, respectively. Groundwater flow is typically toward the west and northwest during high flow conditions and toward the southwest during low flow conditions; therefore, the flow conditions observed in 2016 are consistent with previous observations.

A hydrograph of groundwater elevations at EMFR, as measured in transducers installed in monitoring wells, and the Coeur d'Alene River stage in 2016 is included as Figure 5-2. Groundwater elevation fluctuations in the upper alluvial aquifer (both the shallow and deep portions) in the vicinity of the repository are closely related to fluctuations in the Coeur d'Alene River stage. 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. Groundwater elevation fluctuations in the sand and clay WBZ are similar, but not as closely related to fluctuations in the Coeur d'Alene River stage. 2016 groundwater elevations in the upper alluvial aquifer are consistently lower than the Coeur d'Alene River stage, whereas groundwater elevations in the sand and clay WBZ are at times higher than the Coeur d'Alene River stage. The sand and clay WBZ also appears to be recharged during periods of elevated river discharge, but display a delayed response to decreases in river stage.

Groundwater elevations from MW-C and MW-C DEEP were used to evaluate a vertical hydraulic gradient in the upper alluvial aquifer (see Figure 5-2). Generally, there was a slight downward hydraulic gradient during most of the year (i.e., higher groundwater elevations in MW-C than MW-C DEEP). However, there was an upward hydraulic gradient for short periods of time during periods

[1] Field parameter and water level measurements were previously collected from the production well (i.e., Decontamination Well), but this well was not sampled. Field and water level measurements from the production well were discontinued in May 2014.

of elevated river stage and corresponding elevated groundwater levels. The downward gradient returns upon decreases in river stage and groundwater levels.

6.3.2 Laboratory Analytical Results

Analytical laboratory reports for the April 2016 event are included in TerraGraphics's field summary memorandum (Appendix A); the October 2016 event reports are included in Appendix B. Groundwater analytical results, with qualifiers added during the data quality review (as discussed in the next section), are summarized in Tables 6-3a through 6-3g. An evaluation of the analytical data is provided in Section 8.

7 DATA VALIDATION AND QUALITY REVIEW

The data validation and data quality review process differed for data collected during the IDEQ-managed April 2016 event and the Coeur d'Alene Trust–managed October 2016 monitoring event. The validation and review process for those two events, and the results of MFA's data quality review, are discussed in Appendix C.

No notable deviations from the SAP/QAPP, SPAFs #1 or #002, Water Monitoring QAPP, Programmatic QAPP, or DMP occurred. As such, no corrective actions were required in adherence to the SAP/QAPP. All 2016 data, with associated qualifiers, are deemed of acceptable quality for use.

8 DATA EVALUATION

Field parameter measurements and groundwater analytical results were evaluated for potentially significant impacts to groundwater quality, consistent with the methods outlined in Section 5.4.

8.1 Temporal Trends

Time series plots were prepared for field parameter measurements and COC (dissolved arsenic, cadmium, lead, and zinc) concentrations from wells screened in the upper alluvial aquifer, including those screened in the deeper portion of that aquifer (MW-C DEEP and Decontamination Well [only field parameters for this production well]), and the sand and clay WBZ. Field parameter time series plots are included as Figures 8-1a through 8-1f. COC time series plots are included as Figures 8-2a through 8-2d.

8.1.1 Field Water Quality Parameters

SC is plotted both with and without results from monitoring well MW-E, screened in the sand and clay WBZ, since SC concentrations are generally about an order of magnitude greater in that well, ranging from 1,228 to 2,280 microsiemens per centimeter (see Figures 8-1a and 8-1b).

Groundwater in the sand and clay WBZ (MW-E) generally has a slightly lower ORP (Figure 8-1d), slightly higher pH (Figure 8-1e), and higher SC (Figure 8-1a) than groundwater in the upper alluvial aquifer. SC appears to be increasing with time in the sand and clay WBZ, whereas field parameters in the upper alluvial aquifer do to not exhibit visually apparent increasing or decreasing trends. There is insufficient data from before the start of waste disposal activities to discern if the increasing SC trend began after the start of waste disposal.

Groundwater in the deeper portion of the upper alluvial aquifer (MW-C DEEP and Decontamination Well) has a slightly higher pH than groundwater in the shallower portion of the aquifer, but all other field parameters appear to be generally consistent.

Field parameter concentrations in upper alluvial aquifer monitoring wells located upgradient of the repository (MW-A and MW-D) do not appear distinctly different than concentrations in downgradient wells (MW-B, MW-C, MW-C DEEP, and Decontamination Well), with the exception of pH for which concentrations in the upgradient wells were generally consistent with (MW-D) or slightly lower than (MW-A) concentration in the downgradient wells. Concentrations do not appear to have changed since the start of waste disposal activities.

8.1.2 Contaminants of Concern

COC concentrations in the sand and clay WBZ (MW-E) are generally consistent with concentrations in the upper alluvial aquifer, with the exception of dissolved arsenic. Dissolved arsenic concentrations detected in the sand and clay WBZ fluctuate by up to two orders of magnitude, from 0.59 (ug/L) to 23.2 ug/L (see Figure 8-2a). Lower dissolved arsenic concentrations in the sand and clay WBZ generally correspond with lower groundwater levels, and higher concentrations with higher groundwater levels (see Figures 5-2 and 8-2a). In contrast, dissolved arsenic concentrations detected in the upper aquifer can also fluctuate by up to two orders of magnitude, with concentrations ranging from 0.09 ug/L to 7.9 ug/L.

COC concentrations in the deeper portion of the upper alluvial aquifer are generally consistent with concentrations in the shallower portion, with the exception of dissolved cadmium and zinc in wells downgradient of the repository. Dissolved cadmium and zinc in downgradient wells MW-C and MW-F are elevated in comparison to concentrations in the other monitoring wells and appear to be slightly increasing (see Figures 8-2b and 8-2d). Dissolved zinc in the upgradient well MW-A also appears slightly elevated, compared to the other monitoring wells, but does not exhibit a visually apparent increasing or decreasing trend. Dissolved cadmium and zinc in downgradient wells MW-C and MW-F appear to be increasing since the 2013 to 2014 timeframe. Dissolved cadmium and zinc concentrations in downgradient well MW-C and in upgradient well MW-A were also elevated relative to other wells before the start of waste disposal.

8.2 Regulatory Threshold Exceedances

Dissolved metals and anions data collected in 2016 were compared to regulatory threshold values (see Table 6-3). The COC time series plots discussed in the previous section also show COC concentrations relative to regulatory threshold values with time (see Figures 8-2a to 8-2d).

During the 2016 monitoring events, dissolved cadmium exceeded its primary MCL in monitoring well MW-C (shallow portion of the upper alluvial aquifer and downgradient of the repository) during the October event, and chloride exceeded its secondary MCL in monitoring well MW-E (sand and clay WBZ) during both events (Table 6-3). Historically, since monitoring began in 2007, dissolved arsenic has exceeded its primary MCL, and chloride and sulfate have exceeded their secondary MCLs in monitoring well MW-E. Dissolved cadmium has exceeded its primary MCL in monitoring well MW-C (see Table 6-3 and Figure 8-2b). Primary MCL exceedances of dissolved arsenic at MW-E were detected before the start of waste disposal, but secondary MCL exceedances of chloride and sulfate at MW-E, and primary MCL exceedances of cadmium at MW-C, have only been detected after the start of waste disposal.

8.3 Prediction Limit Exceedances

COC concentrations in monitoring wells screened in the shallow portion of the upper alluvial aquifer were compared to PLs (see Table 6-3). Time series plots were prepared for monitoring well and COC pairs with PL exceedances (Figures 8-3a through 8-3e).

During the 2016 monitoring events, PLs were exceeded for dissolved cadmium and/or zinc in monitoring wells MW-B, MW-C, and MW-F, which are located downgradient of the repository, as follows:

- Zinc in MW-B in April and October 2016 (Figure 8-3a)
- Cadmium in MW-C in October 2016 (Figure 8-3b)
- Zinc in MW-C in April and October 2016 (Figure 8-3c)
- Cadmium in MW-F in April and October 2016 (Figure 8-3d)
- Zinc in MW-F in April 2016 (Figure 8-3e)

Note that all zinc concentrations detected at MW-B that have exceeded its PL have been estimated values; therefore, it is uncertain whether zinc PL exceedances at MW-B are representative of actual conditions.

Since monitoring began in 2007, no PL exceedances have been detected for arsenic or lead, nor for any COC in the monitoring wells located upgradient of the repository (MW-A and MW-D).

Analytical results have been evaluated for PL exceedances since 2014. Zinc and cadmium exceedances have generally been detected since 2014 in monitoring wells MW-B, MW-C, and MW--F. Cadmium and zinc concentrations in MW-C and MW-F appear to be increasing since 2012. No increasing or decreasing trend is visually apparent for zinc in MW-B. PL exceedances do not appear to correlate with high and/or low water events.

As discussed in Section 5.4.3.2, no retesting was conducted in response to PL exceedances. Given that no resamples were collected, no SSIs were concluded. Under the current data evaluation protocol, PL exceedances need to be observed in all three samples under the one-of-three retesting rule in order to conclude a SSI (TerraGraphics, 2016). As part of its statistical review, MFA is evaluating alternative methods for evaluating SSIs.

No PLs developed using the DQR were exceeded during the 2016 or any previous years' monitoring events.

9 DISCUSSION

Water level and groundwater chemistry results for MW-E support the CSM that groundwater in the sand and clay WBZ is distinct from groundwater in the upper alluvial aquifer. Water levels recorded by a transducer in MW-E indicate that groundwater elevations are generally several feet higher than in the upper alluvial aquifer and do not respond as readily to fluctuations in the Coeur d'Alene River stage. Only one well is screened in the sand and clay WBZ. Therefore, groundwater flow directions are not evaluated, but given the difference in groundwater elevations, there is the potential for groundwater in the sand and clay WBZ to contribute to and mix with groundwater in the upper alluvial aquifer.

Geochemical conditions in upper aquifer groundwater can affect metals mobility, and can be complex and variable as a result of fluctuating interactions between groundwater and surface water; multiple sources of groundwater recharge; and potential mixing with groundwater from the sand and clay WBZ. Dissolved anions and cations, alkalinity, and field parameters are monitored in order to establish a data set for conducting geochemical modeling, if required at some point in repository operation (e.g., to evaluate unexpectedly high COC concentrations), but are not evaluated at this time, aside from field parameter time series plots. The USEPA Optimization Review Report (USEPA, 2016) includes a recommendation for using geochemical data to conduct an initial evaluation of basic water chemistry and to consider conducting geochemical modeling as a contingent action in response to confirmed exceedances of action limits.

Groundwater in the sand and clay WBZ generally has a slightly lower ORP, slightly higher pH, and higher SC than groundwater in the upper alluvial aquifer. These results provide another line of evidence that the sand and clay WBZ is a different groundwater source than the upper aquifer, and also suggest that groundwater conditions in that WBZ may be more reductive than in the upper aquifer. Dissolved arsenic concentrations are generally higher in the sand and clay WBZ, which may be related to reductive conditions, which can mobilize arsenic.

Regulatory threshold exceedances for arsenic have historically been detected in the sand and clay WBZ but not in any other wells. Given the evidence suggesting that groundwater in the WBZ may be upgradient to and distinct from groundwater in the upper alluvial aquifer, those exceedances are not likely related to the repository.

Cadmium and zinc have exceeded their PLs, and cadmium its regulatory threshold, multiple times since as early as 2012 at monitoring well MW-C, which is located downgradient of the repository. Dissolved cadmium and zinc have also exceeded their PLs in monitoring well MW-F, which is also located downgradient of the repository. Dissolved zinc has also exceeded its PL at MW-B, located downgradient of the repository, since as early as 2013; however, those exceedances are based on estimated values and are therefore uncertain. In general, PL exceedances have been detected only since the start of waste disposal.

SSIs were not concluded from PL exceedances detected in 2016 because resampling was not conducted during the monitoring period. Also, given the large variability in physical and geochemical conditions at EMFR, as a result of spatial heterogeneities and temporal variations related to seasonal and hydrologic fluctuations, it is recommended that a robust background data set be used to develop PLs. The background dataset used to develop the PLs was collected over a relatively short timeframe, which is likely insufficient to capture the variety of conditions relevant to understanding metals concentrations and mobility. PLs have not been updated for use with 2016 data. Therefore, PL exceedances from 2016 are not necessarily a reliable indicator of potential impacts to groundwater quality as a result of repository operations.

During the 2016 monitoring events, no water was detected in piezometers or floodwater level recorders; therefore, saturation of the repository soils was not identified in 2016. Significant migration of contaminants from the repository soils to the underlying groundwater is unlikely to occur without significant quantities of water to facilitate transport. Based on these monitoring results, it is not clear that increased metals concentrations are related to the repository. Metals concentrations may be associated with metals contamination present in the EMFR area before the repository was constructed. Additional data collection, further evaluation of geochemical conditions, and updated statistical evaluation may provide a better understanding of whether elevated metals concentrations are related to potential impacts from repository operations.

10 CORRECTIVE ACTIONS

The EMP specifies that if the results of the statistical analysis suggest significant groundwater quality impacts from COC, a corrective action plan will be developed to identify the cause of the release and, if necessary, outline steps to prevent further release of COC from the repository materials (TerraGraphics, 2009a). As discussed in Section 8.3, no SSIs were concluded based on the 2016 sampling events due to the temporary discontinuation of the retesting strategy (see Section 5.3.4.2); the Optimization Report recommended evaluating corrective actions for the EMFR rather than waiting until SSIs have been observed.

11 UNCERTAINTIES AND DATA GAPS

The following uncertainties and data gaps were identified for EMFR during 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 due to limited spatial and temporal dataset.
- 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 (i.e., ARARs) that would trigger site-specific contingent remedial response are not identified. General approaches applicable to the EMFR for contingent responses in the event of ARAR 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 pre-existing extent of contamination in the vicinity of the repository, is unclear.

12 MONITORING PROGRAM CHANGES

Changes included in the SPAFs, and as recommended in the USEPA Optimization Review Report, were included in a 2017 SSAP (MFA, 2017b) for implementation during 2017 monitoring events (Appendix D). The following is a summary of those changes:

- Sample locations and chemical analyses for the EMFR locations will include those outlined in the original SAP/QAPP and SPAF#1 (TerraGraphics, 2014, 2015), as well as SPAF#002 (MFA, 2016a).
- CRQLs outlined in the SAP/QAPP meet Coeur d'Alene Trust–contractor MRLs (Pace and SVL) for all analytes except zinc (TerraGraphics, 2014). The CRQL is 2 ug/L and the MRL is 5 ug/L. If there is a detection between the MRL and the MDL, the concentration is reported and qualified as estimated. The MDL will meet the CRQL.

- The monitoring program was changed after January 2015 and then updated in October 2016, as summarized in the 2016 white paper (TerraGraphics, 2016), with a one-in-three retesting and double quantification rule strategy. PLs were established at EMFR using data through 2013. The PLs were compared to metal concentrations in certain monitoring wells. If the PL was exceeded, the well was to be retested. Zinc and cadmium concentrations exceeded PLs in some wells upgradient and downgradient at EMFR since PLs were established in 2014. In addition, some concentration trends appear to increase. The retest strategy was cancelled until the release of the Optimization Review Report (USEPA, 2016), which was concurrent with the October 2016 sampling event. The 2016 white paper (TerraGraphics, 2016) recommended that the PLs and statistical approach be reevaluated every two years; a forthcoming memorandum will present the results of the latest reevaluation.
- The Optimization Review Report recommended removing the opportunistic sampling in floodwater and in the piezometers if water is observed in either (USEPA, 2016). Samples will be collected only from the monitoring wells during 2017. Evaluation of the presence of water in the two floodwater locations (LL-1 and LL-2) and the two piezometer locations (PZ-A and PZ-B) will continue. In addition, deployment of the existing field parameter meter measuring pH, conductivity, and oxygen reduction potential at PZ-A will continue (USEPA, 2017).

Also, the Coeur d'Alene Trust's Programmatic QAPP, updated in 2016, and the sampling program will be updated to reflect those changes.

13 CONCLUSIONS AND RECOMMENDATIONS

Metals concentrations in groundwater at the EMFR area are characterized by high spatial uncertainty. The repository is located above and adjacent to two aquifer zones with different geochemistry: the upper alluvial aquifer below the repository, and the sand and clay WBZ immediately to the west. Groundwater flow directions appear to be predominantly to the southwest; however, there is evidence of variable or intermittent flow directions that may result in mixing of water from the two zones.

The period of record for groundwater monitoring at the EMFR is relatively short given the range of complex processes influencing groundwater metals concentrations. The full range of complex interactions between the contaminated soils surrounding the repository and local hydrology may not yet be documented in the monitoring record. Exceedances of the PL for metals may continue as the full range of environmental conditions are encountered and sample sizes increase. When monitoring groundwater in a complex and highly contaminated environment, PL exceedances may not necessarily indicate that contaminants are being released from the facility. A reevaluation of the data is in process and recommendations for next steps will be made following that review. The forthcoming memorandum presenting results of reevaluation of 2016 data to background data recommends evaluating groundwater for changing geochemical conditions. The 2017 SSAP was revised to include the additional anions and cations outlined in the Optimization Review Report and also included in Appendix D as SSAP 2017-02rev1.

Changes are being implemented to the EMFR monitoring program in 2017 to address data gaps and uncertainties and to better evaluate potential impacts associated with the repository.

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.

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TABLES

Table 2-1
BPRP Arsenic and Lead Concentration Summary
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust

Metal	Number of Samples[a]	Min. (mg/kg)	Max. (mg/kg)	Arithmetic Mean[b] (mg/kg)	Standard Deviation (mg/kg)	Median (mg/kg)
Arsenic	20,622	0.69	7,000	67	151	30.5
Lead	20,623	2	90,800	2,575	4,117	1,440

Notes:

Information provided in this table was obtained from the East Mission Flats Repository 2015 Annual Water Quality Report (IDEQ, 2016).

Summary Statistics are based on data from the BPRP collected in 2004 through 2011, from locations in the program requiring remediation.

BPRP = Basin Property Remediation Program.

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

mg/kg = milligram per kilogram.

Min. = minimum concentration.

Max. = maximum concentration.

[a]Number of samples collected from sample locations requiring remediation 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]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 5-1
Water Quality Monitoring Program Summary
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust

Location ID	Location Type	Sample Medium	Monitoring Frequency	Water Level Transducer?[a]	Hydrogeologic position relative to EMFR	Monitoring Period	Monitoring Objective
07-EMF-MW-A	Monitoring Well	Shallow Groundwater	Semiannual	Yes	Upgradient	October 2007 to present	Monitor horizontal groundwater gradients and groundwater quality in the uppermost portion of the upper aquifer.
07-EMF-MW-B					Downgradient		
07-EMF-MW-C					Downgradient		
07-EMF-MW-D					Upgradient		
08-EMF-MW-E					Crossgradient	October 2008 to present	
08-EMF-MW-F					Down- to crossgradient		
09-EMF-MW-C DEEP		Deep Groundwater			Downgradient	December 2009 to present	Monitor vertical groundwater gradients and groundwater quality in the lower portion of the upper aquifer.
Decontamination Well	Production Well		Discontinued	--	Downgradient	June 2010 to May 2014	Monitor the quality of water used for equipment decontamination purposes.
10-EMF-PZ-A	Piezometer	Repository Waste Pore Water	Opportunistic	Yes	--	October 2010 to present	Monitor pore water quality and saturation of repository waste.
10-EMF-PZ-B							
LL-1	Floodwater Level Recorder	Surface Water (Floodwater)				August 2009 to present	Monitor floodwater timing and depth.
LL-2						January 2009 to present	
--[b]	Surface Water Sampling			--		December 2014 to present[b]	Evaluate the quality of floodwater to evaluate the source and quality of water within the repository waste.

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Table 5-1
Water Quality Monitoring Program Summary
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust

Location ID	Location Type	Sample Medium	Monitoring Frequency	Water Level Transducer?[a]	Hydrogeologic position relative to EMFR	Monitoring Period	Monitoring Objective
EMF-SW-A	Surface Water Sampling	Surface Water (Floodwater)	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.

[a]Monitoring location is equipped with a transducer to monitor water level elevations. Piezometer 10-EMF-PZ-A is equipped with a transducer that also monitors field water quality parameters.

[b]Opportunistic floodwater monitoring was adopted in March 2014, but no samples have since been collected. The floodwater sample location-will be at the toe of the repository nearest to piezometers PZ-A and PZ-B.

Table 5-2
Regulatory Thresholds
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust

Analyte	Regulatory Threshold	Units
Antimony	6[a]	ug/L
Arsenic	10[a]	ug/L
Cadmium	5[a]	ug/L
Lead	15[b]	ug/L
Zinc	5000[c]	ug/L
Chloride	250[c]	mg/L
Sulfate	250[c]	mg/L

NOTES:

These regulatory thresholds are based on total metals concentrations. Metals concentrations have been converted from milligrams per liter to micrograms per liter for comparison to analytical results.

CFR = Code of Federal Regulations.

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

IDAPA = Idaho Administrative Procedures Act.

mg/L = milligrams per liter.

ug/L = micrograms per liter.

[a]National Primary Drinking Water Regulations (IDAPA 58.01.05.050 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]National Secondary Drinking Water Regulations (IDAPA58.01.08.400 and 40 CFR Part 143.3).

Table 5-3
Prediction Limits (ug/L)
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust

COC	Monitoring Well[a]				
	MW-A	MW-B	MW-C	MW-D	MW-F
Arsenic	1.4	1.4	2.7	2.91	1.4
Cadmium	0.777	0.2[b]	3.64	0.2[b]	1
Lead	1[b]	1[b]	1[b]	1[b]	1[b]
Zinc	1,710	26.4	2,030	132	3,820

NOTES:

All values are in micrograms per liter (ug/L).

Prediction limits are provided only for COCs identified for EMFR and apply to dissolved-metal concentrations.

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). Values have been converted from milligrams per liter to micrograms per liter for comparison to analytical results.

COC = contaminant of concern.

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

EMFR = East Mission Flats Repository.

[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.

[b]Use the Double Quantification Rule. Value shown is the contract-required quantitation limit.

Table 6-1
Water Level Elevations
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust

Location	Date	Depth to Water (ft MPE)	Water Level Elevation (ft NGVD29)
07-EMF-MW-A	12/11/2007	13.49	2128.09
	02/25/2008	13.64	2127.94
MPE:	06/03/2008	5.81	2135.77
2141.58	08/19/2008	14.12	2127.46
	11/10/2008	14.38	2127.20
	02/04/2009	13.6	2127.98
	05/07/2009	7.69	2133.89
	08/10/2009	14.09	2127.49
	11/11/2009	14.18	2127.40
	02/25/2010	13.5	2128.08
	05/19/2010	10.28	2131.30
	08/25/2010	14.21	2127.37
	11/16/2010	13.93	2127.65
	02/10/2011	11.89	2129.69
	07/06/2011	11.14	2130.44
	10/24/2011	14.55	2127.03
	01/25/2012	14.5	2127.08
	04/10/2012	8.56	2133.02
	07/31/2012	13.48	2128.10
	10/29/2012	14.35	2127.23
	01/23/2013	13.83	2127.75
	04/02/2013	9.62	2131.96
	07/23/2013	14.07	2127.51
	10/17/2013	14.66	2126.92
	01/15/2014	12.69	2128.89
	04/01/2014	9.05	2132.53
	07/23/2014	14	2127.58
	10/27/2014	14.9	2126.68
	01/14/2015	12.8	2128.78
	04/21/2015	12.43	2129.15
	10/21/2015	15.38	2126.20
	04/05/2016	8.97	2132.61
	10/25/2016	13.04	2128.54

Table 6-1
Water Level Elevations
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust

Location	Date	Depth to Water (ft MPE)	Water Level Elevation (ft NGVD29)
07-EMF-MW-B	12/10/2007	13.49	2125.66
	02/25/2008	11.37	2127.78
MPE:	06/03/2008	3.31	2135.84
2139.15	08/19/2008	11.6	2127.55
	11/10/2008	12.03	2127.12
	02/04/2009	11.2	2127.95
	05/07/2009	5.31	2133.84
	08/10/2009	11.66	2127.49
	11/11/2009	11.89	2127.26
	02/25/2010	11.08	2128.07
	05/19/2010	7.99	2131.16
	08/25/2010	11.79	2127.36
	11/16/2010	11.66	2127.49
	02/10/2011	9.48	2129.67
	07/06/2011	8.55	2130.60
	10/24/2011	12.2	2126.95
	01/25/2012	12.21	2126.94
	04/10/2012	5.63	2133.52
	07/31/2012	11.03	2128.12
	10/29/2012	12.08	2127.07
	01/24/2013	11.47	2127.68
	04/02/2013	7.4	2131.75
	07/23/2013	11.69	2127.46
	10/17/2013	12.32	2126.83
	01/15/2014	10.46	2128.69
	04/01/2014	6.8	2132.35
	07/23/2014	11.62	2127.53
	10/27/2014	12.6	2126.55
	01/14/2015	10.56	2128.59
	04/21/2015	10.04	2129.11
	10/21/2015	13	2126.15
	04/05/2016	6.74	2132.41
	10/25/2016	10.74	2128.41

Table 6-1
Water Level Elevations
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust

Location	Date	Depth to Water (ft MPE)	Water Level Elevation (ft NGVD29)
07-EMF-MW-C	12/10/2007	8.62	2128.08
	02/25/2008	8.8	2127.90
MPE:	08/19/2008	8.92	2127.78
2136.70	11/10/2008	9.48	2127.22
	02/03/2009	8.3	2128.40
	08/10/2009	8.94	2127.76
	11/11/2009	9.37	2127.33
	02/25/2010	8.69	2128.01
	05/19/2010	5.49	2131.21
	08/25/2010	9.1	2127.60
	11/16/2010	9.06	2127.64
	10/24/2011	9.66	2127.04
	01/25/2012	9.75	2126.95
	04/10/2012	2.43	2134.27
	07/31/2012	8.3	2128.40
	10/29/2012	9.55	2127.15
	04/02/2013	4.93	2131.77
	07/23/2013	9.11	2127.59
	10/17/2013	9.8	2126.90
	01/15/2014	7.97	2128.73
	04/01/2014	4.35	2132.35
	07/23/2014	9.03	2127.67
	10/27/2014	10.03	2126.67
	01/14/2015	7.78	2128.92
	04/21/2015	7.32	2129.38
	06/18/2015	9.3	2127.40
	08/13/2015	10.2	2126.50
	10/21/2015	10.6	2126.10
	04/05/2016	4.27	2132.43
	10/25/2016	8.25	2128.45

Table 6-1
Water Level Elevations
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust

Location	Date	Depth to Water (ft MPE)	Water Level Elevation (ft NGVD29)
07-EMF-MW-D	12/10/2007	9.43	2128.24
	02/25/2008	9.4	2128.27
MPE:	08/19/2008	9.23	2128.44
2137.67	11/10/2008	10.23	2127.44
	02/03/2009	8.42	2129.25
	08/11/2009	9.39	2128.28
	11/11/2009	10.18	2127.49
	02/25/2010	9.37	2128.30
	05/19/2010	6.23	2131.44
	08/25/2010	9.43	2128.24
	11/16/2010	9.68	2127.99
	02/10/2011	6.59	2131.08
	10/24/2011	10.43	2127.24
	10/25/2011	10.43	2127.24
	01/26/2012	10.37	2127.30
	04/11/2012	4.52	2133.15
	08/01/2012	8.75	2128.92
	10/30/2012	10.14	2127.53
	01/24/2013	9.52	2128.15
	04/02/2013	5.68	2131.99
	07/23/2013	9.75	2127.92
	10/17/2013	10.69	2126.98
	01/15/2014	8.69	2128.98
	04/01/2014	5.23	2132.44
	07/23/2014	9.65	2128.02
	10/27/2014	11.03	2126.64
	01/14/2015	8.51	2129.16
	04/21/2015	7.7	2129.97
	10/21/2015	11.54	2126.13
	04/05/2016	5.09	2132.58
	10/25/2016	9.1	2128.57

Table 6-1
Water Level Elevations
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust

Location	Date	Depth to Water (ft MPE)	Water Level Elevation (ft NGVD29)
08-EMF-MW-E	11/10/2008	7.42	2133.54
	02/03/2009	5.35	2135.61
MPE:	05/07/2009	4.79	2136.17
2140.96	08/11/2009	7.74	2133.22
	11/11/2009	7.08	2133.88
	02/25/2010	7.71	2133.25
	05/19/2010	5.08	2135.88
	08/25/2010	7.71	2133.25
	11/16/2010	5.32	2135.64
	02/10/2011	4.7	2136.26
	07/06/2011	5.36	2135.60
	10/24/2011	9.6	2131.36
	01/26/2012	5.23	2135.73
	04/10/2012	2.59	2138.37
	08/01/2012	7.36	2133.60
	10/29/2012	8.3	2132.66
	01/23/2013	5.34	2135.62
	04/02/2013	5.39	2135.57
	07/23/2013	8.42	2132.54
	10/17/2013	9.93	2131.03
	01/15/2014	5.22	2135.74
	04/01/2014	4.93	2136.03
	07/23/2014	7.84	2133.12
	10/27/2014	10.75	2130.21
	01/14/2015	5.21	2135.75
	04/21/2015	5.42	2135.54
	10/21/2015	12.76	2128.20
	04/05/2016	5.17	2135.79
	10/25/2016	6.51	2134.45

Table 6-1
Water Level Elevations
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust

Location	Date	Depth to Water (ft MPE)	Water Level Elevation (ft NGVD29)
08-EMF-MW-F	11/11/2008	12.12	2126.95
	02/03/2009	11.23	2127.84
MPE:	05/07/2009	5.45	2133.62
2139.07	08/10/2009	11.69	2127.38
	11/11/2009	11.88	2127.19
	02/25/2010	11.81	2127.26
	05/19/2010	7.98	2131.09
	08/25/2010	11.81	2127.26
	11/16/2010	11.44	2127.63
	02/10/2011	9.54	2129.53
	07/06/2011	8.66	2130.41
	10/24/2011	12.24	2126.83
	10/25/2011	12.24	2126.83
	01/26/2012	12.05	2127.02
	04/11/2012	6.03	2133.04
	08/01/2012	11.14	2127.93
	10/30/2012	11.8	2127.27
	01/23/2013	11.51	2127.56
	04/02/2013	7.28	2131.79
	07/23/2013	11.69	2127.38
	10/17/2013	12.33	2126.74
	01/15/2014	10.47	2128.60
	04/01/2014	6.79	2132.28
	07/23/2014	11.6	2127.47
	10/27/2014	12.63	2126.44
	01/14/2015	10.59	2128.48
	04/22/2015	10.07	2129.00
	10/21/2015	12.97	2126.10
	04/05/2016	6.66	2132.41
	10/25/2016	10.76	2128.31

Table 6-1
Water Level Elevations
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust

Location	Date	Depth to Water (ft MPE)	Water Level Elevation (ft NGVD29)
09-EMF-MW-C DEEP	02/25/2010	8.7	2127.87
	05/19/2010	5.41	2131.16
MPE:	08/25/2010	9.19	2127.38
2136.57	11/16/2010	9.04	2127.53
	10/24/2011	9.6	2126.97
	01/25/2012	9.7	2126.87
	04/10/2012	3.43	2133.14
	07/31/2012	8.44	2128.13
	10/29/2012	9.5	2127.07
	01/23/2013	9	2127.57
	04/02/2013	4.82	2131.75
	07/23/2013	9.1	2127.47
	10/17/2013	9.68	2126.89
	01/15/2014	7.96	2128.61
	04/01/2014	4.28	2132.29
	07/23/2014	9.02	2127.55
	10/27/2014	10.05	2126.52
	01/14/2015	7.82	2128.75
	04/21/2015	7.47	2129.10
	10/21/2015	10.43	2126.14
	04/05/2016	4.16	2132.41
	10/25/2016	8.2	2128.37

NOTES:

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

ft MPE = feet below measuring point elevation.

ft NGVD29 = feet National Geodetic Vertical Datum of 1929.

MPE = measuring point elevation (ft NGVD29).

Table 6-2
Field Parameter Measurements
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust

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

Table 6-2
Field Parameter Measurements
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust

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

Table 6-2
Field Parameter Measurements
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust

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

Table 6-2
Field Parameter Measurements
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust

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

Table 6-2
Field Parameter Measurements
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust

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

Table 6-2
Field Parameter Measurements
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust

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

Table 6-2
Field Parameter Measurements
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust

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

Chemical Name		Antimony		Arsenic		Cadmium		Calcium		Lead		Magnesium		Potassium	
Sample Fraction		Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total
Regulatory Threshold		6[a]	NV	10[a]	NV	5[a]	NV	NV	NV	15[b]	NV	NV	NV	NV	NV
Prediction Limit[c]		NV	NV	1.4	NV	0.777	NV	NV	NV	1[d]	NV	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	9120	NA	3 U	3 U	4160	NA	7790	NA
	02/25/2008	3 U	3 U	3 U	3 U	1.72	1.74	16100	NA	3 U	3 U	8800	NA	7830	NA
	06/03/2008	3 U	3.24	3 U	27.6	0.763	0.926	10500	NA	3 U	6.02	5280	NA	3080	NA
	08/19/2008	3 U	3 U	3 U	3 U	0.321	0.511	11500	12100	3 U	3 U	5940	6410	2890	NA
	11/10/2008	3 U	3 U	3 U	4.45	0.2 U	0.2 U	8580	8940	3 U	3 U	4390	4590	2980	2910
	02/04/2009	3 U	3 U	3 U	4.26	0.777	0.809	14200	14000	3 U	3 U	7650	7760	3600	3790
	02/04/2009	3 U	3 U	3 U	5.4	0.726	0.821	14200	14700	3 U	3 U	7640	8080	3560	3970
	05/07/2009	3 U	3 U	3 U	10.3	0.382	0.398	11100	11300	3 U	3 U	5830	6110	2420	2520
	05/07/2009	3 U	3 U	3 U	12.8	0.346	0.447	11100	11500	3 U	3 U	5710	6250	2420	2570
	08/10/2009	3 U	3 U	3 U	3 U	0.204	0.216	10400	10400	3 U	3 U	5480	5570	1950	1820
	11/11/2009	3 U	3 U	3 U	3 U	0.2 U	0.2 U	7520	7360	3 U	3 U	3880	3910	1970	2170
	02/25/2010	3 U	3 U	3 U	3 U	0.208	0.221	12100	12400	3 U	3 U	6310	6700	2300	NA
	05/19/2010	3 U	3 U	3 U	3 U	0.225	0.24	11200	11200	3 U	3 U	6160	6000	2060	2150
	08/25/2010	3 U	3 U	3 U	3 U	0.21	0.2 U	9650	9470	3 U	3 U	4870	4870	1420	1450
	08/25/2010	3 U	3 U	3 U	3 U	0.227	0.222	9680	9570	3 U	3 U	4870	4950	1430	1470
	11/16/2010	2 U	2 U	0.76 J	0.92 J	0.2 U	0.2 U	10900	11400	1 U	1 U	5740	5990	1680	1770
	02/10/2011	2 U	2 U	1 U	30.5 J	0.39	0.55	14100	14800	1 U	4.9	7750	7910	2120 J	2380
	07/06/2011	2 U	2 U	7.3 J	44.6 J	0.63	0.82	14800	15500	1 U	7.3	8120	8380	2290	1840
	10/24/2011	2 U	2 U	0.44 J	12.2	0.22	0.28	11600	12500	1 UJ	1.1 J	6210	6650	1600	NA
	01/25/2012	2 U	2 U	7.4 J	2.2	0.32	0.42	14600	15700 J	1 U	1 U	7020	7580 J	1640	NA
	04/10/2012	2 U	2 U	1.4	31.9 J	0.58	0.78	14500	15200	1 U	2.5	6870	7460	1630	NA
	07/31/2012	2 U	2 U	1.8	18.6	0.46	0.5	14800	16500	1 U	2.4	7490	8310	1510	NA
	10/29/2012	2 U	2 U	0.75 J	4.9	0.23	0.27	10600	10800	0.22 J	0.55 J	5200	5400	1600	NA
	01/23/2013	2 U	2 U	1 U	3.8	0.37	0.44	15400	15700	1 U	1 U	7680	7960	1590	NA
	04/02/2013	2 U	2 U	1 U	10.8	0.38	0.38	13600	13600	1 U	1 U	7250	7200	1430	NA
	07/23/2013	2 U	2 U	1 U	12 J+	0.33	0.36	15500	16800	1 U	1 UJ	7940	8510	1680	NA
	10/17/2013	2 U	2 U	1 U	6.1	0.2 U	0.21	9290	9970	2.6	1 U	4650	5000 J	1310	NA
	01/15/2014	2 U	2 U	1.1	4.2	0.35	0.35	14400	14700	1 U	1 U	7510	7700	1330	NA
	04/01/2014	2 U	2 U	1 U	6.2 J	0.5	0.5	14500	14900	1 U	1 U	7450	7640	1280	NA
	07/23/2014	2 U	NA	0.76 J	NA	0.29	NA	14600 J	14800	0.025 J	NA	7660 J	7730	1440	NA
	10/27/2014	2 U	NA	1 U	NA	0.2 U	NA	9780 J	NA	1 U	NA	5120 J	NA	1260	NA
	01/14/2015	NA	NA	1.1	NA	0.45	NA	14100 J	NA	1 U	NA	7350	NA	1370	NA
	04/21/2015	NA	NA	0.39 J	NA	0.5	NA	17600 J	NA	1 U	NA	8930 J	NA	1680	NA
	10/21/2015	NA	NA	0.26 J	NA	0.097 J	NA	8310 J	NA	0.039 J	NA	3960 J	NA	1090	NA
	04/05/2016	NA	NA	0.12 J	NA	0.36	NA	12300	NA	1 U	NA	6290	NA	367 J	NA
	10/25/2016	NA	NA	0.24 J	NA	0.21	NA	9200	NA	0.21	NA	4780	NA	1160	NA

	Chemical Name	Sodium		Zinc		Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Hardness	Chloride	Nitrate	Sulfate
	Sample Fraction	Dissolved	Total	Dissolved	Total	Total	Total	Total	Total	Total	Dissolved	Dissolved	Dissolved
	Regulatory Threshold	NV	NV	5000[e]	NV	NV	NV	NV	NV	NV	250[e]	NV	250[e]
	Prediction Limit[c]	NV	NV	1710	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	12800	NA	347 J	284	23	1 U	NA	23	39.9	14.2	0.11	46.7
	02/25/2008	18100	NA	1710 J	1610	13.7	1 U	NA	13.7	76.5	20.7	0.05 U	84
	06/03/2008	7000	NA	582	615	8.3	1 U	NA	8.3	48.1	8.7	0.05 U	40
	08/19/2008	7410	NA	683	710	19.5	1 U	1 U	19.5	56.7	10.1 J	0.05 U	54.4 J
	11/10/2008	5580	5720	353	369	30.6	1 U	NA	30.6	41.2	10.1	0.05 U	35.6
	02/04/2009	10500	11000	898	884	25.7	1 U	NA	25.7	67	11.3	0.05 U	75.1
	02/04/2009	10500	11500	848	883	25.3	1 U	NA	25.3	69.9	11.3	0.055	75.7
	05/07/2009	6690	7010	753	757	9.1	1 U	NA	9.1	53.4	9.15	0.05 U	56.3
	05/07/2009	6660	7170	752	759	9.1	1 U	NA	9.1	54.5	9.63	0.05 U	56.8
	08/10/2009	5660	5770	558	611	25	1 U	NA	25	49	7.29	0.05 U	49.9
	11/11/2009	4560	4570	368	300	19.5	1 U	NA	19.5	34.5	6.87	0.05 U	32.4
	02/25/2010	6870	NA	657	636	10.9	1 U	NA	10.9	58.6	7.93	0.05 U	56.4
	05/19/2010	6630	6620	568	534	11.8	1 U	NA	11.8	52.7	7.71	0.05 U	49.8
	08/25/2010	4850	4860	580	568	11.4	1 U	NA	11.4	43.7	6.41	0.05 U	40.9
	08/25/2010	4860	4900	584	571	11.3	1 U	NA	11.3	44.3	6.47	0.05 U	41.3
	11/16/2010	5840	6080	544 J	555 J	15.4	1 U	NA	15.4	53	6.41 J	0.05 U	42.6
	02/10/2011	8340	8760	1220 J	1370 J	10.8	1 U	NA	10.8	70	7.81 J	0.05 U	63.3
	07/06/2011	7480	7390	1380	1510	9.8	1 U	NA	9.8	73.3	7.95	0.05 U	72.2
	10/24/2011	5980	NA	804	860	23.5	1 U	NA	23.5	58.5	7.7	0.05 U	47.4
	01/25/2012	6450	NA	1130	1250	18	1 U	NA	18	70.4	7.18	0.05 U	60.4
	04/10/2012	6240	NA	1750	1740	10.7	1 U	NA	10.7	68.6	7.13	0.05 U	63.2
	07/31/2012	5990	NA	1560	1650	14.8	1 U	NA	14.8	75.5	6.66	0.05 U	70.4
	10/29/2012	5130	NA	862 J	868 J	15.9	1 U	NA	15.9	49.3	7.32	0.05 U	40.1
	01/23/2013	6590	NA	1350	1400 J	23.8	1 U	NA	23.8	72.1	6.77	0.05 U	63.1
	04/02/2013	6180	NA	1490	1390	9	1 U	NA	9	63.7	8.32	0.05 U	55.6
	07/23/2013	6760	NA	1240	1360	9.8	1 U	NA	9.8	77	7.22	0.05 U	63.7
	10/17/2013	4790	NA	648	737	10.6	1 U	NA	10.6	45.5	9.9	0.1	34.3
	01/15/2014	6040	NA	1240 J	1310 J	12.5	1 U	NA	12.5	68.4	7.88	0.05 U	60.2
	04/01/2014	6280	NA	1600 J	1520	10.3	1 U	1 U	10.3	68.6	8.03	0.05 U	63.6
	07/23/2014	7000	NA	1380 J	NA	10.3	1 U	1 U	10.3	68.8	7.48	0.05 UJ	64.1
	10/27/2014	5180 J	NA	616	NA	26	1 U	1 U	26	42.6	10.8	0.05 U	29.4
	01/14/2015	6250	NA	1620 J	NA	14.5	1 U	1 U	14.5	NA	9.01	NA	60.7
	04/21/2015	8130 J	NA	1590 J	NA	16.9	1 U	1 U	16.9	NA	8.94	NA	60.4
	10/21/2015	4380 J	NA	533 J	NA	10.5	1 U	1 U	10.5	NA	10.5	NA	23.8
	04/05/2016	5430	NA	1680	NA	14.6	1 U	1 U	14.6	NA	11.1	NA	52.5
	10/25/2016	4650	NA	821	NA	9.5	1 U	1 U	9.5	NA	11.8	NA	29.4

NOTES:
Results below reporting limits not flagged for exceedances.
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 analyzed.
NV = regulatory threshold or prediction limit not available or not applicable.
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]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).
[d]Value shown is the contract-required quantitation limit, per the Double Quantification Rule (TerraGraphics, 2016).
[e]Secondary Maximum Contaminant Level, National Secondary Drinking Water Regulations (IDAPA 58.01.08.400 and 40 CFR Part 143.3).

Chemical Name		Antimony		Arsenic		Cadmium		Calcium		Lead		Magnesium		Potassium	
Sample Fraction		Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total
Regulatory Threshold		6[a]	NV	10[a]	NV	5[a]	NV	NV	NV	15[b]	NV	NV	NV	NV	NV
Prediction Limit[c]		NV	NV	1.4	NV	0.2[d]	NV	NV	NV	1[d]	NV	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	9180	NA	3 U	5.27	3290	NA	690	NA
	02/25/2008	3 U	3 U	3 U	3 U	0.2 U	0.2 U	9820	NA	3 U	3 U	3550	NA	700	NA
	02/25/2008	3 U	3 U	3 U	3 U	0.2 U	0.2 U	10000	NA	3 U	3 U	3600	NA	720	NA
	06/03/2008	3 U	3 U	3 U	3 U	0.2 U	0.2 U	9010	NA	3 U	3 U	3320	NA	870	NA
	06/03/2008	3 U	3 U	3 U	3 U	0.2 U	0.2 U	8800	NA	3 U	3 U	3230	NA	830	NA
	08/19/2008	3 U	3 U	3 U	3 U	0.2 U	0.2 U	6400	6760	3 U	3 U	2290	2450	880	NA
	11/10/2008	3 U	3 U	3 U	3 U	0.2 U	0.2 U	7130	7650	3 U	3 U	2560	2760	870	920
	11/10/2008	3 U	3 U	3 U	3 U	0.2 U	0.2 U	7470	7650	3 U	3 U	2660	2770	900	910
	02/04/2009	3 U	3 U	3 U	3 U	0.2 U	0.2 U	7240	7340	3 U	3 U	2520	2620	800	840
	05/07/2009	3 U	3 U	3 U	3 U	0.2 U	0.2 U	5110	5170	3 U	3 U	1860	1900	500 U	500 U
	08/10/2009	3 U	3 U	3 U	3 U	0.2 U	0.2 U	5800	5820	3 U	3 U	2220	2180	520	500 U
	08/10/2009	3 U	3 U	3 U	3 U	0.2 U	0.2 U	5810	5660	3 U	4.45	2160	2140	550	500 U
	11/11/2009	3 U	3 U	3 U	3 U	0.2 U	0.2 U	6490	6350	3 U	3 U	2330	2360	670	740
	11/11/2009	3 U	3 U	3 U	3 U	0.2 U	0.2 U	6520	6420	3 U	3 U	2360	2380	650	750
	02/25/2010	3 U	3 U	3 U	3 U	0.2 U	0.2 U	6620	6840	3 U	3 U	2420	2480	530	NA
	05/19/2010	3 U	3 U	3 U	3 U	0.2 U	0.2 U	8570	8580	3 U	3 U	3310	3180	540	540
	08/25/2010	3 U	3 U	3 U	3 U	0.2 U	0.2 U	7230	7040	3 U	3 U	2640	2650	500 U	500 U
	11/16/2010	2 U	2 U	1 U	1 U	0.2 U	0.2 U	8540 J	8200	1 U	1 U	3140	3070	578	569
	11/16/2010	2 U	2 U	1 U	1 U	0.2 U	0.2 U	8240	8860	1 U	1 U	3090 J	3340	557	646 J
	02/10/2011	2 U	2 U	1 U	1 U	0.2 U	0.2 U	5240	5430	1 U	1 U	1960	2040	891 J	627
	02/10/2011	2 U	2 U	1 U	1 J	0.2 U	0.2 U	5250	5380	1 U	1 U	1970 J	2000	899 J	549
	07/06/2011	2 U	2 U	7.7 J	7.1 J	0.2 U	0.2 U	4180	4020	1 U	1 U	1530	1490	500 U	500 U
	07/06/2011	2 U	2 U	7.3 J	7.6 J	0.2 U	0.2 U	4080	4020	1 U	1 U	1520	1510	500 U	500 U
	10/24/2011	2 U	2 U	1 U	1 U	0.2 U	0.2 U	5840	6150	1 UJ	1 UJ	2130	2310	493 J	NA
	10/24/2011	NA	2 U	NA	1 U	NA	0.2 U	NA	6020	NA	1 UJ	NA	2210	NA	NA
	01/25/2012	2 U	2 U	7.3 J	1 U	0.2 U	0.2 U	6170	6200 J	1 U	0.33 J	2010	2000 J	714	NA
	04/10/2012	2 U	2 U	1.4	1.3 J	0.2 U	0.2 U	3790	3940	1 U	0.21 J	1210	1350	500 U	NA
	07/31/2012	2 U	2 U	0.71 J	0.74 J	0.2 U	0.2 U	3520	3250	1 U	1 U	1200	1100	505	NA
	10/29/2012	2 U	2 U	1 U	1 U	0.2 U	0.059 J	6230	6200	0.28 J	0.29 J	2160	2160	730	NA
	01/24/2013	2 U	2 U	1 U	1 U	0.2 U	0.2 U	5500	5350	1 U	1 U	1770	1800	998	NA
	04/02/2013	2 U	2 U	1 U	1 U	0.2 U	0.2 U	6310	6280	1 U	1 U	2300	2290	689	NA
	04/02/2013	2 U	2 U	1 U	1 U	0.2 U	0.2 U	6580	6120	1 U	1 U	2410	2260	634	NA

Chemical Name		Antimony		Arsenic		Cadmium		Calcium		Lead		Magnesium		Potassium	
Sample Fraction		Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total
Regulatory Threshold		6[a]	NV	10[a]	NV	5[a]	NV	NV	NV	15[b]	NV	NV	NV	NV	NV
Prediction Limit[c]		NV	NV	1.4	NV	0.2[d]	NV	NV	NV	1[d]	NV	NV	NV	NV	NV
Units		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
07-EMF-MW-B	07/23/2013	2 U	2 U	2.2 J+	1.8 J+	0.2 U	0.2 U	7350	8140	1 U	1 UJ	2570	2800	592	NA
	07/23/2013	2 U	2 U	2 J+	1.5 J+	0.2 U	0.2 U	7430	7620	1 U	1 UJ	2620	2650	601	NA
	10/17/2013	2 U	2 U	1 U	1 U	0.2 U	0.2 U	7250	7670	1 U	1 U	2510	2680 J	529	NA
	10/17/2013	2 U	2 U	1 U	1 U	0.2 U	0.2 U	7260	7370	1 U	1 U	2460	2590 J	522	NA
	01/15/2014	2 U	2 U	1 U	1 U	0.2 U	0.2 U	8850	9240	1 U	1 U	3210	3360	500 U	NA
	04/01/2014	2 U	2 U	1 U	1 UJ	0.2 U	0.2 U	9170	9980	1 U	1 U	3250	3530	393 J	NA
	07/23/2014	2 U	NA	0.16 J	NA	0.031 J	NA	8330 J	8530	0.037 J	NA	2990 J	3060	500 U	NA
	10/27/2014	2 U	NA	1 U	NA	0.2 U	NA	9880 J	NA	1 U	NA	3590 J	NA	500 U	NA
	01/14/2015	NA	NA	0.11 J	NA	0.058 J	NA	9800 J	NA	1 U	NA	3560	NA	516	NA
	04/21/2015	NA	NA	1 U	NA	0.2 U	NA	11600 J	NA	1 U	NA	4030 J	NA	500 U	NA
	10/21/2015	NA	NA	0.13 J	NA	0.093 J	NA	11200 J	NA	0.083 J	NA	3770 J	NA	484 J	NA
	04/05/2016	NA	NA	0.11 J	NA	0.2 U	NA	11600	NA	1 U	NA	4050	NA	500 U	NA
	10/25/2016	NA	NA	0.5 U	NA	0.036 J	NA	12000	NA	0.1 U	NA	4330	NA	539 J	NA

	Chemical Name	Sodium		Zinc		Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Hardness	Chloride	Nitrate	Sulfate
	Sample Fraction	Dissolved	Total	Dissolved	Total	Total	Total	Total	Total	Total	Dissolved	Dissolved	Dissolved
	Regulatory Threshold	NV	NV	5000[e]	NV	NV	NV	NV	NV	NV	250[e]	NV	250[e]
	Prediction Limit[c]	NV	NV	26.4	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	5310	NA	24.3 J	26.7	13.9	1 U	NA	13.9	36.5	6.47	0.083	25.5
	02/25/2008	7030	NA	19.8 J	16.3	13	1 U	NA	13	39.2	6.94	0.062	26.5
	02/25/2008	7290	NA	19.8 J	16.4	13.1	1 U	NA	13.1	39.9	6.67	0.061	26.2
	06/03/2008	5640	NA	20.8	25.5	10.8	1 U	NA	10.8	36.2	5.89	0.06	33.6
	06/03/2008	5500	NA	21.2	24.5	9.7	1 U	NA	9.7	35.3	5.47	0.063	33.6
	08/19/2008	4910	NA	24.4	30.6	12.4	1 U	1 U	12.4	27	5.23 J	0.05	19.5 J
	11/10/2008	4600	5150	19.7	20.2	15.8	1 U	NA	15.8	30.5	5.3	0.05 U	22.4
	11/10/2008	4820	5170	18.4	21.6	15.5	1 U	NA	15.5	30.5	5.29	0.05 U	22.2
	02/04/2009	4790	5030	21	20	12.7	1 U	NA	12.7	29.1	4.19	0.372	23.3
	05/07/2009	2590	2670	16.8	16.6	7.8	1 U	NA	7.8	20.7	2.24	0.165	20.1
	08/10/2009	3470	3670	16	16.9	10.6	1 U	NA	10.6	23.5	3.34	0.125	26.1
	08/10/2009	3470	3540	15.4	18.6	11	1 U	NA	11	23	3.49	0.082	23.8
	11/11/2009	5160	5230	24.9	21.3	11.6	1 U	NA	11.6	25.6	5.06	0.05 U	22.8
	11/11/2009	5180	5250	26.4	21.2	11.8	1 U	NA	11.8	25.8	4.99	0.05 U	22.9
	02/25/2010	4290	NA	15.3	16	12.3	1 U	NA	12.3	27.3	3.8	0.195	21.5
	05/19/2010	4380	4380	15.7	14.9	12	1 U	NA	12	34.5	6.31	0.332	22.3
	08/25/2010	3660	3710	15.7	14.2	13.1	1 U	NA	13.1	28.5	3.94	0.173	16.9
	11/16/2010	5080	4950 J	18.7 J	16.7 J	14.3	1 U	NA	14.3	33.1	4.14 J	0.052	19.1
	11/16/2010	4970	5320	17.9 J	17 J	11.8	1 U	NA	11.8	35.9	4.13 J	0.051	19.1
	02/10/2011	3430	3490	9 J	9.9 J	7.7	1 U	NA	7.7	22	2.41 J	0.146	13.8
	02/10/2011	3410	3430	9.1 J	10.1 J	7.6	1 U	NA	7.6	22	2.37 J	0.143	13.7
	07/06/2011	3850	3650	12.6	13	10.8	1 U	NA	10.8	16.2	3.06	0.05 U	9.31
	07/06/2011	3750	3630	12.5	13.6	10.7	1 U	NA	10.7	16.3	3.09	0.05 U	9.28
	10/24/2011	4130	NA	14.8	15.7	14.4	1 U	NA	14.4	24.9	3.16	0.05 U	11.5
	10/24/2011	NA	NA	NA	15	13.9	1 U	NA	13.9	24.1	3.21	0.05 U	11.5
	01/25/2012	4190	NA	18	18.1	14	1 U	NA	14	23.7 J	3.31	0.05 U	13
	04/10/2012	2960	NA	16.2	16.4	5.8	1 U	NA	5.8	15.4 J	2.74	0.061	10.7
	07/31/2012	3060	NA	14.2	16.4	10.5	1 U	NA	10.5	12.6	1.72	0.05 U	5.71
	10/29/2012	3650	NA	12.1 J	12.4 J	17.1	1 U	NA	17.1	24.4	2.79	0.05 U	10.3
	01/24/2013	5670	NA	18.1	18.1 J	12.6	1 U	NA	12.6	20.8	2.71	0.133	12.2
	04/02/2013	3900	NA	19.7	19.6	16.6	1 U	NA	16.6	25.1 J	3.29	0.098	12.6
	04/02/2013	4060	NA	17.9	16.8	16.1	1 U	NA	16.1	24.6	3.27	0.087	12.5

Table 6-3b
Groundwater Analytical Results—07-EMF-MW-B
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust

Chemical Name		Sodium		Zinc		Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Hardness	Chloride	Nitrate	Sulfate
Sample Fraction		Dissolved	Total	Dissolved	Total	Total	Total	Total	Total	Total	Dissolved	Dissolved	Dissolved
Regulatory Threshold		NV	NV	5000[e]	NV	NV	NV	NV	NV	NV	250[e]	NV	250[e]
Prediction Limit[c]		NV	NV	26.4	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	07/23/2013	4170	NA	28.5 J+	24.2	17.4	1 U	NA	17.4	31.9 J	3.1	0.376	11.9
	07/23/2013	4230	NA	25.9 J+	22.9	17.4	1 U	NA	17.4	29.9	3.09	0.377	11.9
	10/17/2013	4210	NA	22.2	25	21.3	1 U	NA	21.3	30.2	3.33	0.433	13.1
	10/17/2013	4330	NA	22.7	24.2	21.1	1 U	NA	21.1	29.1	3.33	0.405	13
	01/15/2014	4320	NA	22.6 J	24 J	18.3	1 U	NA	18.3	36.9	4.52	0.504	15.8
	04/01/2014	4360	NA	18.2 J	18.8	13.6	1 U	1 U	13.6	39.4	7.51	0.247	18.8
	07/23/2014	4290	NA	21.9 J	NA	13.3 J+	1 U	1 U	13.3 J+	33.9	4.24	0.677 J-	17.8
	10/27/2014	4520 J	NA	20.7	NA	15.7	1 U	1 U	15.7	38.3	5.01	1.07	18.1
	01/14/2015	4280	NA	26.8 J	NA	15.5	1 U	1 U	15.5	NA	4.99	NA	19.1
	04/21/2015	4930 J	NA	25.4 J+	NA	14.5	1 U	1 U	14.5	NA	7.08	NA	20.5
	10/21/2015	4420 J	NA	26.6 J+	NA	16.9	1 U	1 U	16.9	NA	7.6	NA	22.9
	04/05/2016	4700	NA	50.5 J+	NA	15.5	1 U	1 U	15.5	NA	11.4	NA	24.8
	10/25/2016	4970	NA	34.3 J	NA	16.9	1 U	1 U	16.9	NA	7.86	NA	25.8

NOTES:

Highlighted concentrations for detections exceeding a prediction limit. Results from samples collected only from 2014 through 2016 are compared to prediction limits.

Results below reporting limits not flagged for exceedances.

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, low bias.

J+ = estimated value, high bias.

mg/L = milligrams per liter.

NA = not analyzed.

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

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]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).

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

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

Chemical Name		Antimony		Arsenic		Cadmium		Calcium		Lead		Magnesium		Potassium	
Sample Fraction		Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total
Regulatory Threshold		6[a]	NV	10[a]	NV	5[a]	NV	NV	NV	15[b]	NV	NV	NV	NV	NV
Prediction Limit[c]		NV	NV	2.7	NV	3.64	NV	NV	NV	1[d]	NV	NV	NV	NV	NV
Units		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	5780	NA	3 U	3 U	2890	NA	2210	NA
	12/10/2007	3 U	3 U	3 U	3 U	1.21 J	1.18	5790	NA	3 U	3 U	2900	NA	2210	NA
	02/25/2008	3 U	3 U	3 U	3 U	3.18	2.82	6500	NA	3 U	3 U	3460	NA	1710	NA
	08/19/2008	3 U	3 U	3 U	3 U	1.11	1.85	4590	4960	3 U	3 U	2410	2650	1450	NA
	08/19/2008	3 U	3 U	3 U	3 U	0.954	1.81	4580	4960	3 U	3 U	2430	2630	1440	NA
	11/10/2008	3 U	3 U	3 U	3 U	0.522	1.38	5300	5470	3 U	3.2	2830	2940	1420	1390
	02/03/2009	3 U	3 U	3 U	3 U	3.54	3.59	6050	6200	3 U	3 U	3190	3400	1510	1590
	08/10/2009	3 U	3 U	3 U	3 U	2.29	2.29	4470	4310	3 U	3 U	2560	2410	1130	1100
	11/11/2009	3 U	3 U	3 U	3 U	1.44	1.38	5120	5020	3 U	3 U	2840	2850	1180	1300
	02/25/2010	3 U	3 U	3 U	3 U	3.23	3.22	5640	5810	3 U	3 U	3090	3150	1230	NA
	02/25/2010	3 U	3 U	3 U	3 U	3.26	3.23	5660	5870	3 U	3 U	3110	3180	1150	NA
	05/19/2010	3 U	3 U	3 U	3 U	3.46	3.74	5710	5990	3 U	3 U	3450	3340	1180	1240
	08/25/2010	3 U	3 U	3 U	3 U	3.64	3.33	5630	5560	3 U	3 U	3100	3130	1290	1340
	11/16/2010	2 U	2 U	1 U	1 U	2.9	3	7090	7190 J	1 U	1 U	4000	4020	1530	1490
	10/24/2011	2 U	2 U	0.81 J	1.1	0.72	0.91	5430	4920	0.38 J	0.92 J	3150	2800	1500	NA
	01/25/2012	2 U	2 U	7.4 J	0.42 J	4.9	4.1	5170	5250 J	1 U	0.45 J	2620	2680 J	1200	NA
	04/10/2012	2 U	2 U	1.7	1.8 J	0.89	1.1	5300	5670	1.5	4.8	2560	2870	1720	NA
	07/31/2012	2 U	2 U	2.7	2.6	0.25	0.68	3600	3660	0.41 J	2.2	1940	1970	1210	NA
	10/29/2012	2 U	2 U	2.7	2.2	0.095 J	0.38	4970	5060	0.61 J	2.8 J	2660	2740	1450	NA
	04/02/2013	2 U	2 U	1 U	1 U	1.5	1.2	6010	5630	1 U	1 U	3480	3270	1590	NA
	07/23/2013	2 U	2 U	2.4 J+	2.1 J+	1.9	2	6830	6400	1 U	1 UJ	3760	3520	1640	NA
	10/17/2013	2 U	2 U	1 U	1 U	1.2	1.6	6590	6960	1 U	1 U	3550	3850 J	1480	NA
	01/15/2014	2 U	2 U	1 U	1 U	1.7	1.5	7810	7290	1 U	1 U	4450	4240	1590	NA
	04/01/2014	2 U	2 U	1 U	1 UJ	2.4	2.3	7770	7920	1 U	1.3	4110	4210	1490	NA
	07/23/2014	2 U	NA	0.19 J	NA	**7.3**	NA	8990 J	9120	0.12 J	NA	5180 J	5290	1530	NA
	10/27/2014	2 U	NA	1 U	NA	3.4	NA	9670 J	NA	1 U	NA	5660 J	NA	1650	NA
	01/14/2015	NA	NA	0.13 J	NA	1.6	NA	9090 J	NA	1 U	NA	5260	NA	1570	NA
	04/21/2015	NA	NA	0.13 J	NA	**5.7**	NA	12800 J	NA	1 U	NA	7250 J	NA	1790	NA
	06/18/2015	NA	NA	NA	NA	**5.6**	NA	NA	NA	NA	NA	NA	NA	NA	NA
	06/18/2015	NA	NA	NA	NA	**5.2**	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/13/2015	NA	NA	NA	NA	**7.3**	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/21/2015	NA	NA	0.22 J	NA	**6.4**	NA	8990 J	NA	0.051 J	NA	5010 J	NA	1480	NA
	12/15/2015	NA	NA	NA	NA	2.1 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/15/2015	NA	NA	NA	NA	2 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/05/2016	NA	NA	0.15 J	NA	2.3	NA	10700	NA	1 U	NA	6140	NA	756	NA
	10/25/2016	NA	NA	0.15 J	NA	**7.7**	NA	9360	NA	0.1 U	NA	5610	NA	1580	NA

	Chemical Name	Sodium		Zinc		Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Hardness	Chloride	Nitrate	Sulfate
	Sample Fraction	Dissolved	Total	Dissolved	Total	Total	Total	Total	Total	Total	Dissolved	Dissolved	Dissolved
	Regulatory Threshold	NV	NV	5000[e]	NV	NV	NV	NV	NV	NV	250[e]	NV	250[e]
	Prediction Limit[c]	NV	NV	2030	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-C	12/10/2007	5030	NA	1450 J	1280	21.6	1 U	NA	21.6	26.3	3.55	0.05 U	18.7
	12/10/2007	5040	NA	1450 J	1290	21.5	1 U	NA	21.5	26.4	3.65	0.05 U	19
	02/25/2008	4820	NA	2240 J	1970	17.9	1 U	NA	17.9	30.5	3.62	0.05 U	21.2
	08/19/2008	3750	NA	1340	1430	17.5	1 U	1 U	17.5	23.3	3 J	0.05 U	15.1 J
	08/19/2008	3670	NA	1310	1460	18	1 U	1 U	18	23.2	2.98 J	0.05 U	15.1 J
	11/10/2008	3620	3710	1570	1590	24	1 U	NA	24	25.8	3.43	0.05 U	18.5
	02/03/2009	4170	4410	1670	1880	25.9	1 U	NA	25.9	29.5	3.49	0.065	21.7
	08/10/2009	3430	3450	1450	1560	17.2	1 U	NA	17.2	20.7	3.06	0.05 U	19.4
	11/11/2009	3510	3470	2030	1720	17.9	1 U	NA	17.9	24.3	3.19	0.05 U	16.4
	02/25/2010	3590	NA	2020	1910	17	1 U	NA	17	27.5	4.35	0.064	21.6
	02/25/2010	3540	NA	2000	1950	17.6	1 U	NA	17.6	27.8	4.28	0.05 U	22.5
	05/19/2010	3900	3930	2000	1940	28.5	1 U	NA	28.5	28.7	4.36	0.05 U	16.2
	08/25/2010	4520	4510	1860	1670	21.2	1 U	NA	21.2	26.8	5.72	0.05 U	13.4
	11/16/2010	5160 J	5120	1930 J	1930 J	22.8	1 U	NA	22.8	34.5 J	6.44 J	0.05 U	15.3
	10/24/2011	4740	NA	1360	1430	22.8	1 U	NA	22.8	23.8	3.65	0.05 U	11.6
	01/25/2012	4060	NA	1710	1800	16.1	1 U	NA	16.1	24.1 J	3.57	0.05 U	14.1
	04/10/2012	3570	NA	388	414	20.4	1 U	NA	20.4	26 J	3.36	0.279	9.78
	07/31/2012	3680	NA	1080	1160	15.9	1 U	NA	15.9	17.2 J	2.02	0.05 U	8.02
	10/29/2012	4010	NA	988 J	11500 J	26.4	1 U	NA	26.4	23.9 J	3.5	0.05 U	11.1
	04/02/2013	4660	NA	1650	1640	19.5	1 U	NA	19.5	27.5 J	4.66	0.05 U	14.6
	07/23/2013	5210	NA	2030	1970	22.4	1 U	NA	22.4	30.5 J	5.12	0.05 U	13.8
	10/17/2013	4890	NA	1350	1660	28.7	1 U	NA	28.7	33.2	5.6	0.05 U	13.8
	01/15/2014	5560	NA	1380 J	1370 J	22.1	1 U	NA	22.1	35.6	6.42	0.05 U	17.2
	04/01/2014	4990	NA	1560 J	1590	15.5	1 U	1 U	15.5	37.1	10.8	0.149	18.1
	07/23/2014	6160	NA	2530 J	NA	21.8	1 U	1 U	21.8	44.6	8.96	0.067 J-	27
	10/27/2014	6250 J	NA	2210	NA	27.7	1 U	1 U	27.7	43.3	8.66	0.05 U	24.4
	01/14/2015	5830	NA	1860 J	NA	18.1	1 U	1 U	18.1	NA	9.38	NA	28.7
	04/21/2015	7690 J	NA	3400 J	NA	21.9	1 U	1 U	21.9	NA	10.5	NA	41
	06/18/2015	NA	NA	2810	NA	NA	NA	NA	NA	NA	NA	NA	NA
	06/18/2015	NA	NA	2750	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/13/2015	NA	NA	2860	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/21/2015	5740 J	NA	2390 J	NA	26.5	1 U	1 U	26.5	NA	8.07	NA	24.3
	12/15/2015	NA	NA	1590	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/15/2015	NA	NA	1500	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/05/2016	6520	NA	2950	NA	22.4	1 U	1 U	22.4	NA	10.1	NA	38.9
	10/25/2016	6200	NA	2920	NA	25.6	1 U	1 U	25.6	NA	7.81	NA	32.3

NOTES:
Bold concentrations for detections exceeding a regulatory threshold.
Highlighted concentrations for detections exceeding a prediction limit. Results from samples collected only from 2014 through 2016 are compared to prediction limits.
Results below reporting limits not flagged for exceedances.
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, low bias.
J+ = estimated value, high bias.
mg/L = milligrams per liter.
NA = not analyzed.
NV = regulatory threshold or prediction limit not available or not applicable.
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]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).
[d]Value shown is the contract-required quantitation limit, per the Double Quantification Rule (TerraGraphics, 2016).
[e]Secondary Maximum Contaminant Level, National Secondary Drinking Water Regulations (IDAPA 58.01.08.400 and 40 CFR Part 143.3).

	Chemical Name	Antimony		Arsenic		Cadmium		Calcium		Lead		Magnesium		Potassium	
	Sample Fraction	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total
	Regulatory Threshold	6[a]	NV	10[a]	NV	5[a]	NV	NV	NV	15[b]	NV	NV	NV	NV	NV
	Prediction Limit[c]	NV	NV	2.91	NV	0.2[d]	NV	NV	NV	1[d]	NV	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	8140	NA	3 U	3 U	3010	NA	2490	NA
	02/25/2008	3 U	3 U	3 U	3 U	0.2 U	0.2 U	8520	NA	3 U	3 U	3800	NA	2390	NA
	08/19/2008	3 U	3 U	3 U	8.45	0.2 U	0.2 U	6940	7010	3 U	4.07	3190	3310	1230	NA
	11/10/2008	3 U	3 U	3 U	3 U	0.2 U	0.2 U	6960	7290	3 U	3 U	3320	3560	1390	1370
	02/03/2009	3 U	3 U	3 U	4.34	0.2 U	0.2 U	7140	7000	3 U	3 U	3380	3480	1470	1480
	08/11/2009	3 U	3 U	3 U	3 U	0.2 U	0.2 U	5910	5740	3 U	3 U	2930	2950	1210	1180
	11/11/2009	3 U	3 U	3 U	3.5	0.2 U	0.2 U	6190	6050	3 U	3 U	3050	3090	1140	1320
	02/25/2010	3 U	3 U	3 U	4.24	0.2 U	0.2 U	6230	6560	3 U	3 U	3180	3300	1250	NA
	05/19/2010	3 U	3 U	3 U	3 U	0.2 U	0.2 U	6950	7010	3 U	3 U	3430	3330	1040	1100
	08/25/2010	3 U	3 U	3 U	5.61	0.2 U	0.2 U	6650	6460	3 U	3 U	3230	3280	1160	1240
	11/16/2010	2 U	2 U	1.8	2.7	0.2 U	0.2 U	7100	6850	1 U	1 U	3690 J	3640	1350	1390 J
	02/10/2011	2 U	2 U	1 U	10.3 J	0.2 U	0.2 U	7190	7210	1 U	8.9	3460	3440	1720 J	1340
	10/25/2011	2 U	2 U	1.9	4.4	0.2 U	0.2 U	5980	5710	1 UJ	1 UJ	3170	3090	1210	NA
	01/26/2012	2 U	2 U	7.9 J	1.7	0.16 J	0.18 J	6120	6250 J	1 U	1 U	2930	2970 J	1260	NA
	04/10/2012	2 U	2 U	1.4	42.8 J	0.2 U	0.32	8020	8220	1 U	1.9	3240	3370	1010	NA
	07/31/2012	NA	2 U	NA	17.6	NA	0.2 U	NA	6730	NA	2	NA	3260	NA	NA
	08/01/2012	2 U	NA	2.1	NA	0.2 U	NA	6920	NA	1 U	NA	3320	NA	1210	NA
	10/30/2012	2 U	2 U	1.8	5.3	0.049 J	0.2 U	6510	6740	0.47 J	0.56 J	3260	3420	1320	NA
	01/24/2013	2 U	2 U	1 U	23.1	0.2 U	0.2 U	6880	6300	1 U	1 U	3360	3070	1200	NA
	01/24/2013	2 U	2 U	1 U	14	0.2 U	0.2 U	6710	6680	1 U	1 U	3360	3330	1230	NA
	04/02/2013	2 U	2 U	1 U	61.7	0.2 U	0.2 U	6310	6770	1 U	1.7	3340	3570	1220	NA
	07/23/2013	2 U	2 U	2.9 J+	39.8	0.2 U	0.2 U	6230	6300	1 U	1.4 J	3160	3150	1260	NA
	10/17/2013	2 U	2 U	1 U	26.4	0.2 U	0.2 U	6660	6950	1 U	1.7	3140	3230 J	1120	NA
	01/15/2014	2 U	2 U	1 U	15.6	0.2 U	0.2 U	6760	6070	1 U	1 U	3660	3310	1360	NA
	04/01/2014	2 U	2 U	1 U	99.8 J	0.2 U	0.2 U	7480	6670	1 U	5.4	3790	3370	1140	NA
	07/23/2014	2 U	NA	1.1	NA	0.048 J	NA	5830 J	5940	1 U	NA	3040 J	3150	1110	NA
	10/27/2014	2 U	NA	1 U	NA	0.2 U	NA	8200 J	NA	1 U	NA	3970 J	NA	1070	NA
	01/14/2015	NA	NA	0.24 J	NA	0.028 J	NA	6120 J	NA	1 U	NA	3220	NA	1220	NA
	04/21/2015	NA	NA	0.27 J	NA	0.2 U	NA	7020 J	NA	1 U	NA	3330 J	NA	1130	NA
	10/21/2015	NA	NA	0.32 J	NA	0.2 U	NA	8540 J	NA	0.037 J	NA	3640 J	NA	957	NA
	04/05/2016	NA	NA	0.31 J	NA	0.13 J	NA	7490	NA	1 U	NA	3680	NA	977	NA
	10/25/2016	NA	NA	0.52	NA	0.041 J	NA	8590	NA	0.27	NA	3960	NA	1100 J	NA

Chemical Name		Sodium		Zinc		Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Hardness	Chloride	Nitrate	Sulfate
Sample Fraction		Dissolved	Total	Dissolved	Total	Total	Total	Total	Total	Total	Dissolved	Dissolved	Dissolved
Regulatory Threshold		NV	NV	5000[e]	NV	NV	NV	NV	NV	NV	250[e]	NV	250[e]
Prediction Limit[c]		NV	NV	132	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	5420	NA	32.6 J	33.6	35.7	1 U	NA	35.7	32.7	2.52	0.05 U	12.4
	02/25/2008	7720	NA	28.5 J	26.8	26.4	1 U	NA	26.4	36.9	5.44	0.05 U	23.2
	08/19/2008	4910	NA	132	140	30.1	1 U	1 U	30.1	31.1	3.94 J	0.158	14.5 J
	11/10/2008	5350	5520	79.4	86.6	34	1 U	NA	34	32.9	5.28	0.05 U	18
	02/03/2009	5970	6270	53.1	52.2	30.7	1 U	NA	30.7	31.8	4.46	0.05 U	20.4
	08/11/2009	4740	5050	91.8	87	32.2	1 U	NA	32.2	26.5	3.18	0.05 U	18.9
	11/11/2009	4700	4970	103	79.5	30.8	1 U	NA	30.8	27.8	3.21	0.05 U	13.6
	02/25/2010	5110	NA	35.2	33.8	24.3	1 U	NA	24.3	30	3.66	0.09	19.3
	05/19/2010	4370	4410	105	103	27.2	1 U	NA	27.2	31.2	3.08	0.064	12.8
	08/25/2010	4900	5050	109	96.3	30.6	1 U	NA	30.6	29.7	3.8	0.05 U	12.2
	11/16/2010	5810	6050	56.3 J	38.8 J	30.1	1 U	NA	30.1	32.1	3.8 J	0.05 U	11.5
	02/10/2011	5260	5150	127 J	147 J	27.3	1 U	NA	27.3	32	3.35 J	0.06	11.1
	10/25/2011	5170	NA	39.5	29.8	36.2	1 U	NA	36.2	27	3.03	0.05 U	11.4
	01/26/2012	4820	NA	58.4	49.7	24	1 U	NA	24	27.9 J	3.13	0.058 J	12.4
	04/10/2012	4060	NA	184	253	31.6	1 U	NA	31.6	34.4	3.61	0.05 U	9.05
	07/31/2012	NA	NA	NA	116	36.4	1 U	NA	36.4	30.2 J	2.7	0.05 U	9.35
	08/01/2012	4780	NA	112	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/30/2012	4900	NA	46.4 J	43.7 J	39	1 U	NA	39	30.9 J	2.93	0.05 U	10.4
	01/24/2013	4910	NA	42.5	37.1 J	27.1	1 U	NA	27.1	2.84 J	3.22	0.05 U	10.9
	01/24/2013	4990	NA	41.1	35.6 J	26.9	1 U	NA	26.9	3.04 J	3.15	0.05 U	11.1
	04/02/2013	5060	NA	46.6	43	25.7	1 U	NA	25.7	31.6 J	4.22	0.05 U	12
	07/23/2013	5110	NA	38.7 J+	46	24	1 U	NA	24	28.7 J	3.86	0.05 U	10.1
	10/17/2013	4350	NA	53.7	78.5	29.5	1 U	NA	29.5	30.6	4.41	0.05 U	8.83
	01/15/2014	5760	NA	21 J	21.2 J	23.7	1 U	NA	23.7	28.8	4.19	0.05 U	12.4
	04/01/2014	5250	NA	32.6 J	36.9	26.6	1 U	1 U	26.6	30.5	5.37	0.065	10.9
	07/23/2014	5030	NA	33.1 J	NA	34.3	1 U	1 U	34.3	27.8	3.88	0.05 UJ	9.66
	10/27/2014	4850 J	NA	58.7	NA	35.2	1 U	1 U	35.2	33.8	4.93	0.05 U	7.98
	01/14/2015	5200	NA	25.1 J	NA	22.9	1 U	1 U	22.9	NA	4.02	NA	11.7
	04/21/2015	5120 J	NA	50.6 J	NA	27.5	1 U	1 U	27.5	NA	3.76	NA	9.57
	10/21/2015	4170 J	NA	127 J	NA	36.8	1 U	1 U	36.8	NA	4.48	NA	6.84
	04/05/2016	4450	NA	118	NA	33.6	1 U	1 U	33.6	NA	5.33	NA	9.22
	10/25/2016	4670	NA	108	NA	37.9	1 U	1 U	37.9	NA	4.7	NA	7.56

NOTES:
Bold concentrations for detections exceeding a regulatory threshold.
Highlighted concentrations for detections exceeding a prediction limit. Results from samples collected only from 2014 through 2016 are compared to prediction limits.
Results below reporting limits not flagged for exceedances.
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 analyzed.
NV = regulatory threshold or prediction limit not available or not applicable.
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]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).
[d]Value shown is the contract-required quantitation limit, per the Double Quantification Rule (TerraGraphics, 2016).
[e]Secondary Maximum Contaminant Level, National Secondary Drinking Water Regulations (IDAPA 58.01.08.400 and 40 CFR Part 143.3).

Chemical Name		Antimony		Arsenic		Cadmium		Calcium		Lead		Magnesium		Potassium	
Sample Fraction		Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total
Regulatory Threshold		6[a]	NV	10[a]	NV	5[a]	NV	NV	NV	15[b]	NV	NV	NV	NV	NV
Units		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
08-EMF-MW-E	11/10/2008	3 U	3 U	**14.8**	16.7	0.2 U	0.2 U	145000	147000	3 U	3 U	55100	56700	4210	4130
	02/03/2009	3 U	3 U	3 U	10.1	0.2 U	0.2 U	161000	158000	3 U	3 U	60000	61200	3550	3730
	05/07/2009	3 U	3 U	3.5	13.7	0.2 U	0.2 U	155000	162000	3 U	3 U	59800	63600	3390	3690
	08/11/2009	3 U	3 U	**19.5**	19.4	0.2 U	0.2 U	141000	137000	3 U	3 U	56600	58000	3680	3800
	11/11/2009	3 U	3 U	**23.2**	20.5	0.2 U	0.2 U	158000	157000	3 U	3 U	60600	62100	3140	3670
	02/25/2010	3 U	3 U	3 U	11.9	0.2 U	0.2 U	173000	174000	3 U	3 U	65500	66100	3170	NA
	05/19/2010	3 U	3 U	4.47	9.82	0.2 U	0.2 U	183000	175000	3 U	3 U	73200	68900	3070	3190
	08/25/2010	3 U	3 U	**17.2**	16.2	0.2 U	0.2 U	173000	164000	3 U	3 U	65200	63900	3500	3610
	11/16/2010	2 U	2 U	**17.7**	19.8	0.2 U	0.2 U	40600	206000	1 U	1 U	40900	81300 J	4000	3790
	02/10/2011	2 U	2 U	0.89 J	14.1	0.2 U	0.12 J	183000	185000	1 U	1 U	72500	73200	4210	3940
	07/06/2011	2 U	2 U	7.4 J	27.9 J	0.2 U	0.2 U	162000	165000	1 U	1 U	62900	63000	3620	3470
	10/24/2011	2 U	2 U	**20**	16.8	0.2 U	0.2 U	162000	160000	1 UJ	1 UJ	65100	64700	3850	NA
	01/26/2012	2 U	2 U	6.9 J	8.3	0.2 U	0.2 U	188000	195000 J	1 U	1 U	66000	68900 J	3330	NA
	01/26/2012	2 U	2 U	6 J	8	0.2 U	0.2 U	190000	204000 J	1 U	1 U	67200	72900 J	3430	NA
	04/11/2012	2 U	2 U	1.6	4.4 J	0.2 U	0.2 U	209000	211000	1 U	1 U	72200	75700	3520	NA
	04/11/2012	2 U	2 U	1.6	4.4 J	0.2 U	0.2 U	205000	214000	1 U	1 U	71200	76400	3440	NA
	08/01/2012	2 U	2 U	6.3	9	0.2 U	0.2 U	202000	204000	1 U	1 U	73500	73900	3720	NA
	08/01/2012	2 U	2 U	5.9	9.3	0.2 U	0.2 U	198000	198000	1 U	1 U	71900	71500	3650	NA
	10/29/2012	2 U	2 U	**14.9**	17.5	0.082 J	0.2 U	198000	205000	1 U	0.26 J	70600	73600	3820	NA
	01/23/2013	2 U	2 U	1.3	6.9	0.2 U	0.2 U	226000	224000	1 U	1 U	78500	78700	3520	NA
	04/02/2013	2 U	2 U	1 U	3.6	0.2 U	0.2 U	211000	212000	1 U	1 U	79300	79300	3440	NA
	07/23/2013	2 U	2 U	2.6 J+	7.1 J+	0.2 U	0.2 U	225000	232000	1 U	1 UJ	81000	84500	3650	NA
	10/17/2013	2 U	2 U	6.7	10.7	0.2 U	0.2 U	230000	237000	1 U	1 U	81300	85400 J	3680	NA
	01/15/2014	2 U	2 U	1 U	4.5	0.2 U	0.2 U	274000	246000	1 U	1 U	101000	90300	4100	NA
	04/01/2014	2 U	2 U	1.4	1.6 J	0.2 U	0.2 U	269000	269000	1 U	1 U	95000	96100	3650	NA
	07/23/2014	2 U	NA	4.5	NA	0.11 J	NA	230000 J	239000	1 U	NA	82700 J	86100	3650	NA
	10/27/2014	2 U	NA	4.2	NA	0.2 U	NA	284000 J	NA	1 U	NA	102000 J	NA	4210	NA
	01/14/2015	NA	NA	1	NA	0.096 J	NA	264000 J	NA	1 U	NA	92900	NA	3770	NA
	04/21/2015	NA	NA	0.92 J	NA	0.2 U	NA	302000 J	NA	1 U	NA	108000 J	NA	4210	NA
	04/21/2015	NA	NA	0.99 J	NA	0.2 U	NA	310000 J	NA	1 U	NA	110000 J	NA	4310	NA
	10/21/2015	NA	NA	7.4	NA	0.22 J	NA	257000 J	NA	0.032 J	NA	90000 J	NA	4380	NA
	10/21/2015	NA	NA	7.8	NA	0.19	NA	260000 J	NA	1 U	NA	91000 J	NA	4440	NA
	04/05/2016	NA	NA	0.59 J	NA	0.2 U	NA	245000	NA	1 U	NA	85400	NA	1140	NA
	10/25/2016	NA	NA	6.4	NA	0.046 J	NA	230000	NA	0.1 U	NA	84700	NA	4420	NA
	10/25/2016	NA	NA	6.4	NA	0.043 J	NA	231000	NA	0.1 U	NA	83900	NA	4400	NA

Chemical Name		Sodium		Zinc		Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Hardness	Chloride	Nitrate	Sulfate
Sample Fraction		Dissolved	Total	Dissolved	Total	Total	Total	Total	Total	Total	Dissolved	Dissolved	Dissolved
Regulatory Threshold		NV	NV	5000[c]	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	27300	28200	14.1	17.6	545	1 U	NA	545	601	63.8	0.05 U	165
	02/03/2009	23800	25000	10 U	11.4	606	1 U	NA	606	647	63.3	0.5 U	169
	05/07/2009	21900	23900	8.89	12	539	1 U	NA	539	666	70.3	0.05 U	174
	08/11/2009	23300	25400	8.48	9.11	534	1 U	NA	534	580	63.4	0.05 U	168
	11/11/2009	18100	19300	6.71	7.37	565	1 U	NA	565	649	75.4	0.05 U	164
	02/25/2010	18100	NA	5.99	8.81	679	1 U	NA	679	705	76.9	0.05 U	172
	05/19/2010	19500	18900	6.33	7.83	612	1 U	NA	612	722	78.1	0.05 U	174
	08/25/2010	21700	21400	6.87	7.28	552	1 U	NA	552	674	71.9	0.05 U	168
	11/16/2010	23700	22600	6.9 J	6.4 J	584	1 U	NA	584	849	81 J	0.05 U	178
	02/10/2011	23700	23500	4.2 J	6.6 J	562	1 U	NA	562	763	1.97 J	0.05 U	176
	07/06/2011	23300	NA	4.8 J	6.8 J	555	1 U	NA	555	671	81.2	0.05 U	190
	10/24/2011	25100	NA	4.5	3.9	556	1 U	NA	556	666	67.6	0.25 U	180
	01/26/2012	19900	NA	5 J	5.3	568	1 U	NA	568	770	1.99	0.153 J	232
	01/26/2012	20500	NA	5.1 J	5.6	568	1 U	NA	568	811	2.12	0.194 J	239
	04/11/2012	21400	NA	6.3	6.3	583	1 U	NA	583	839	94.1	0.05 U	246
	04/11/2012	21000	NA	5.6	6.5	NA	NA	NA	NA	850	NA	NA	NA
	08/01/2012	23200	NA	6.3	6.5	600	1 U	NA	600	814	85.7	0.05 U	224
	08/01/2012	22700	NA	6.4	7	596	1 U	NA	596	789	85.9	0.05 U	225
	10/29/2012	22500	NA	7.1 J	8.1 J	640	1 U	NA	640	815	96.9	0.05 U	227
	01/23/2013	23000	NA	9.1 J	10.2 J	570	1 U	NA	570	88.4	121	0.422	**252**
	04/02/2013	22300	NA	8.3 J+	9.6	562	1 U	NA	562	856	137	0.22	**255**
	07/23/2013	23900	NA	12.4 J+	10.3	577	1 U	NA	577	926	144	0.05 U	229
	10/17/2013	23200	NA	12 J	9.8	597	1 U	NA	597	943	210	0.05 U	200
	01/15/2014	27600	NA	7.3 J	8.2 J	560	1 U	NA	560	987	**266**	0.321	204
	04/01/2014	26500	NA	17.5 J	18	562	1 U	1 U	562	1070	**286**	0.857	199
	07/23/2014	26800	NA	39.2 J	NA	554	1 U	1 U	554	952	**259**	0.05 UJ	183
	10/27/2014	30300 J	NA	19.8	NA	533	1 U	1 U	533	1050	**385**	0.05 U	157
	01/14/2015	28800	NA	17.5 J	NA	506	1 U	1 U	506	NA	**420**	NA	165
	04/21/2015	34900 J	NA	20.9 J+	NA	503	1 U	1 U	503	NA	**413**	NA	156
	04/21/2015	35600 J	NA	21.8 J+	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/21/2015	41600 J	NA	9 J+	NA	514	1 U	1 U	514	NA	**425**	NA	128
	10/21/2015	42100 J	NA	8.3 J+	NA	511	1 U	1 U	511	NA	**428**	NA	129
	04/05/2016	42600	NA	18.8 J+	NA	486	1 U	1 U	486	NA	**425**	NA	133
	10/25/2016	58900	NA	9.2 J	NA	480	1 U	1 U	480	NA	**404**	NA	112
	10/25/2016	58400	NA	8.9 J	NA	476	1 U	1 U	476	NA	**404**	NA	113

NOTES:
Bold concentrations for detections exceeding a regulatory threshold.
Results below reporting limits not flagged for exceedances.
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 analyzed.
NV = regulatory threshold or prediction limit not available or not applicable.
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).

	Chemical Name	Antimony		Arsenic		Cadmium		Calcium		Lead		Magnesium		Potassium	
	Sample Fraction	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total
	Regulatory Threshold	6[a]	NV	10[a]	NV	5[a]	NV	NV	NV	15[b]	NV	NV	NV	NV	NV
	Prediction Limit[c]	NV	NV	1.4	NV	1	NV	NV	NV	1[d]	NV	NV	NV	NV	NV
	Units	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	10400	11000	3 U	3 U	4440	4660	780	980
	02/03/2009	3 U	3 U	3 U	3 U	0.304	0.33	10500	10500	3 U	3 U	4040	4210	750	780
	05/07/2009	3 U	3 U	3 U	3 U	0.258	0.316	9860	9910	3 U	3 U	3880	4030	750	790
	08/10/2009	3 U	3 U	3 U	3 U	0.23	0.291	8400	7970	3 U	3 U	3450	3380	720	650
	11/11/2009	3 U	3 U	3 U	3 U	0.464	0.424	12500	12200	3 U	3 U	5260	5230	750	840
	02/25/2010	3 U	3 U	3 U	3 U	0.947	1.06	19200	19600	3 U	3 U	8670	8700	910	NA
	05/19/2010	3 U	3 U	3 U	3 U	1.32	1.22	23400	23500	3 U	3 U	11500	11000	920	960
	08/25/2010	3 U	3 U	3 U	3 U	0.436	0.362	12000	11800	3 U	3 U	4910	4930	750	780
	11/16/2010	2 U	2 U	1 U	1 U	0.65	0.7	18600	17700	1 U	1 U	8300	8020	984	925
	02/10/2011	2 U	2 U	1 U	1 U	0.45	0.43	13000 J	12700	0.43 J	2.3	5460	5320	1210 J	953
	07/06/2011	2 U	2 U	5.6 J	5.7 J	0.16 J	0.15 J	7180	7220	0.79 J	1 U	3100	3010	714	624
	10/25/2011	2 U	2 U	1 U	1 U	0.31	0.38	10200	10300	1 UJ	0.33 J	4580	4660	999	NA
	01/26/2012	2 U	2 U	4.1 J	0.28 J	0.94	1.1	16800	17100 J	0.29 J	0.71 J	7040	7180 J	1010	NA
	04/11/2012	2 U	2 U	0.86 J	1.2 J	0.31	0.31	10000	10300	1 U	0.38 J	3780	3980	711	NA
	08/01/2012	2 U	2 U	0.57 J	0.61 J	0.2 U	0.2 U	8010	7820	1 U	1 U	3240	3160	775	NA
	10/30/2012	2 U	2 U	1 U	1 U	0.38	0.37	10900	11200	0.36 J	0.4 J	4600	4690	1020	NA
	10/30/2012	2 U	2 U	1 U	1 U	0.43	0.38	10800	11300	0.31 J	0.36 J	4630	4780	980	NA
	01/23/2013	2 U	2 U	1 U	1 U	0.45	0.39	11600	11100	1 U	1 U	4690	4640	894	NA
	04/02/2013	2 U	2 U	1 U	1 U	1	1.1	13800	12300	1 U	1 U	6510	5850	1040	NA
	07/23/2013	2 U	2 U	1.4 J+	1.6 J+	0.53	0.57	11700	11400	1 U	1 UJ	5040	4900	915	NA
	10/17/2013	2 U	2 U	1 U	1 U	0.99	0.95	14600	14200	1 U	1 U	6520	6270 J	991	NA
	01/15/2014	2 U	2 U	1 U	1 U	1.8	1.8	20700	20000	1 U	1 U	10000	9740	1070	NA
	01/15/2014	2 U	2 U	1 U	1 U	1.6	1.7	19800	19100	1 U	1 U	9520	9240	1070	NA
	04/01/2014	2 U	2 U	1 U	1 UJ	1.8	1.8	18000	16600	1 U	1 U	8440	7850	877	NA
	04/01/2014	2 U	2 U	1 U	1 UJ	1.8	1.7	18000	17100	1 U	1 U	8490	8090	860	NA
	07/23/2014	2 U	NA	0.17 J	NA	1.2	NA	15700 J	15400	0.094 J	NA	7250 J	7220	860	NA
	07/23/2014	2 U	NA	0.14 J	NA	1.2	NA	15700 J	15400	0.098 J	NA	7310 J	7160	850	NA
	10/27/2014	2 U	NA	1 U	NA	1.7	NA	20400 J	NA	1 U	NA	10100 J	NA	939	NA
	10/27/2014	2 U	NA	1 U	NA	1.9	NA	20000 J	NA	1 U	NA	9760 J	NA	945	NA
	01/14/2015	NA	NA	0.099 J	NA	1.9	NA	19500 J	NA	1 U	NA	9190	NA	964	NA
	01/14/2015	NA	NA	0.1 J	NA	1.6	NA	19600 J	NA	1 U	NA	9190	NA	1000	NA
	04/22/2015	NA	NA	0.14 J	NA	1.1	NA	16500 J	NA	1 U	NA	7240 J	NA	880	NA
	10/21/2015	NA	NA	0.1 J	NA	1.4	NA	19200 J	NA	0.12 J	NA	8800 J	NA	961	NA
	04/05/2016	NA	NA	0.11 J	NA	1.9	NA	19600	NA	1 U	NA	9520	NA	500 U	NA
	04/05/2016	NA	NA	1 U	NA	2	NA	19700	NA	0.07 J	NA	9660	NA	86.4 J	NA
	10/25/2016	NA	NA	0.5 U	NA	1.6	NA	16900	NA	0.1 U	NA	8230	NA	887 J	NA

Table 6-3f
Groundwater Analytical Results—08-EMF-MW-F
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust

	Chemical Name	Sodium		Zinc		Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Hardness	Chloride	Nitrate	Sulfate
	Sample Fraction	Dissolved	Total	Dissolved	Total	Total	Total	Total	Total	Total	Dissolved	Dissolved	Dissolved
	Regulatory Threshold	NV	NV	5000[e]	NV	NV	NV	NV	NV	NV	250[e]	NV	250[e]
	Prediction Limit[c]	NV	NV	3820	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
08-EMF-MW-F	11/11/2008	5060	5570	1580	1530	14.5	1 U	NA	14.5	46.8	11.5	0.05 U	34.2
	02/03/2009	4530	4710	1160	1170	16.8	1 U	NA	16.8	43.5	8.29	0.05 U	32.6
	05/07/2009	4390	4540	1320	1360	12.8	1 U	NA	12.8	41.3	8.01	0.596	39.3
	08/10/2009	4000	4080	1120	1130	12	1 U	NA	12	33.8	7.7	0.05 U	39.5
	11/11/2009	5950	5910	2530	2130	12.4	1 U	NA	12.4	51.9	18.5	0.05 U	35.7
	02/25/2010	7820	NA	3820	3700	12.8	1 U	NA	12.8	84.8	31.2	0.153	50.9
	05/19/2010	10200	10200	4470	4580	13.4	1 U	NA	13.4	104	38.2	0.255	66
	08/25/2010	5720	5740	1930	1720	14.9	1 U	NA	14.9	49.7	13.1	0.05 U	32.8
	11/16/2010	9580 J	9140	3370 J	3210 J	14.4	1 U	NA	14.4	77.3	27.3 J	0.05 U	40.5
	02/10/2011	7200	6850	1840 J	1920 J	14.6	1 U	NA	14.6	54	13.5 J	0.203	31.6
	07/06/2011	5090	4830	976	1080	11.7	1 U	NA	11.7	30.4	7.13	0.05 U	21.6
	10/25/2011	7930	NA	1690	1890	13.5	1 U	NA	13.5	46.9	18.8	0.05 U	24.8
	01/26/2012	10900	NA	3100	3650	13.7	1 U	NA	13.7	72.3	33	0.05 U	38
	04/11/2012	6780	NA	1630	1590	16.1	1 U	NA	16.1	42.1	11.8	0.109	24.6
	08/01/2012	6150	NA	1330	1250	14.3	1 U	NA	14.3	32.5 J	8.35	0.05 U	21.6
	10/30/2012	8980	NA	1730 J	1550 J	14.2	1 U	NA	14.2	47.3	19.8	0.05 U	25.4
	10/30/2012	8890	NA	1660 J	1520 J	14.7	1 U	NA	14.7	47.9	19.8	0.05 U	25.4
	01/23/2013	9650	NA	1810	1630 J	14	1 U	NA	14	4.69	17.6	0.05 U	27.4
	04/02/2013	13400	NA	2970	2980	15.6	1 U	NA	15.6	54.8	27.3	0.05 U	36.4
	07/23/2013	10500	NA	1900	1820	16.9	1 U	NA	16.9	48.7	16.3	0.05 U	30.8
	10/17/2013	14000	NA	2390	2400	17.5	1 U	NA	17.5	61.3	28.6	0.061	40.5
	01/15/2014	20900	NA	3280 J	3370 J	14.5	1 U	NA	14.5	89.9	44.1	0.139	54.6
	01/15/2014	19800	NA	3250 J	3320 J	14.3	1 U	NA	14.3	85.7	42.7	0.142	52.9
	04/01/2014	18500	NA	3620 J	3520	13.1	1 U	1 U	13.1	73.7	36.3	NA	50.9
	04/01/2014	18300	NA	3470 J	3260	12.9	1 U	1 U	12.9	75.9	36.7	NA	51.3
	07/23/2014	17500	NA	2570 J	NA	14.2 J+	1 U	1 U	14.2 J+	68.3	30.8	0.125 J-	46.1
	07/23/2014	17800	NA	2640 J	NA	14.3 J+	1 U	1 U	14.3 J+	67.9	30.5	0.123 J-	45.8
	10/27/2014	23500 J	NA	3280	NA	14.7	1 U	1 U	14.7	90.8	45.5	0.235	57
	10/27/2014	23100 J	NA	3470	NA	14.5	1 U	1 U	14.5	NA	46	0.27	57.4
	01/14/2015	22300	NA	4160 J	NA	14	1 U	1 U	14	NA	44.9	NA	61.6
	01/14/2015	22300	NA	3840 J	NA	13.8	1 U	1 U	13.8	NA	45.4	NA	62.6
	04/22/2015	17100 J	NA	2860 J	NA	15.6	1 U	1 U	15.6	NA	30.4	NA	42.4
	10/21/2015	22600 J	NA	3270 J	NA	15.2	1 U	1 U	15.2	NA	42.6	NA	54.6
	04/05/2016	24600	NA	4140	NA	12.7	1 U	1 U	12.7	NA	52.2	NA	71.8
	04/05/2016	24900	NA	4080	NA	12.6	1 U	1 U	12.6	NA	51.6	NA	71.8
	10/25/2016	21400	NA	3120	NA	14.9	1 U	1 U	14.9	NA	36.9	NA	56.9

NOTES:
Highlighted concentrations for detections exceeding a prediction limit. Results from samples collected only from 2014 through 2016 are compared to prediction limits.
Results below reporting limits not flagged for exceedances.
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, low bias.
J+ = estimated value, high bias.
mg/L = milligrams per liter.
NA = not analyzed.
NV = regulatory threshold or prediction limit not available or not applicable.
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]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).
[d]Value shown is the contract-required quantitation limit, per the Double Quantification Rule (TerraGraphics, 2016).
[e]Secondary Maximum Contaminant Level, National Secondary Drinking Water Regulations (IDAPA 58.01.08.400 and 40 CFR Part 143.3).

Table 6-3g
Groundwater Analytical Results—09-EMF-MW-C DEEP
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust

Chemical Name		Antimony		Arsenic		Cadmium		Calcium		Lead		Magnesium		Potassium	
Sample Fraction		Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total
Regulatory Threshold		6[a]	NV	10[a]	NV	5[a]	NV	NV	NV	15[b]	NV	NV	NV	NV	NV
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	9900	10300	3 U	3 U	3190	3290	690	NA
	05/19/2010	3 U	3 U	3 U	3 U	0.2 U	0.2 U	8820	9040	3 U	3 U	3220	3110	690	690
	11/16/2010	2 U	2 U	1 U	1 U	0.2 U	0.2 U	10700	11400	1 U	1 U	3750	3950 J	801 J	839
	10/24/2011	2 U	2 U	1 U	1 U	0.2 U	0.2 U	8980	7890	1 UJ	2 J	3100	2750	776	NA
	01/25/2012	2 U	2 U	7.5 J	0.48 J	0.2 U	0.17 J	13600	15000 J	1 U	0.52 J	3590	4000 J	1000	NA
	04/10/2012	2 U	2 U	4.2	3.8 J	0.2 U	0.34	9880	10000	0.95 J	4.8	3960	4170	1300	NA
	07/31/2012	2 U	2 U	1.1	1.3	0.2 U	0.2 U	8720	8190	1 U	0.69 J	2860	2690	831	NA
	10/29/2012	2 U	2 U	0.65 J	0.52 J	0.2 U	0.2 U	9180	9020	0.28 J	0.23 J	3010	2990	945	NA
	01/23/2013	2 U	2 U	1 U	1 U	0.2 U	0.2 U	NA	10300	1 U	1 U	NA	3380	NA	NA
	04/02/2013	2 U	2 U	1 U	1 U	0.2 U	0.2 U	9190	9300	1 U	1 U	2950	3020	776	NA
	07/23/2013	2 U	2 U	2.2 J+	2.3 J+	0.2 U	1.2	9660	8760	1 U	8.6 J	3190	3010	998	NA
	10/17/2013	2 U	2 U	1 U	1 U	0.2 U	0.2 U	9010	9410	2.9	1.3	2900	3100 J	731	NA
	01/15/2014	2 U	2 U	1.4	1.9	0.2 U	0.2 U	14300	14200	1 U	1 U	3880	3860	1040	NA
	04/01/2014	2 U	2 U	1 U	1 UJ	0.53	0.54	9760	9320	1 U	1 U	3250	3090	694	NA
	07/23/2014	2 U	NA	0.29 J	NA	0.085 J	NA	9090 J	9510	0.079 J	NA	3030 J	3160	695	NA
	10/27/2014	2 U	NA	1 U	NA	0.2 U	NA	9760 J	NA	1 U	NA	3330 J	NA	688	NA
	01/14/2015	NA	NA	0.2 J	NA	0.045 J	NA	7720 J	NA	1 U	NA	2550	NA	611	NA
	04/21/2015	NA	NA	0.32 J	NA	0.2 U	NA	10600 J	NA	1 U	NA	3390 J	NA	792	NA
	10/21/2015	NA	NA	0.087 J	NA	0.2 U	NA	8980 J	NA	0.047 J	NA	2930 J	NA	683	NA
	04/05/2016	NA	NA	0.73 J	NA	0.2 U	NA	8400	NA	1 U	NA	2640	NA	500 U	NA
	10/25/2016	NA	NA	0.5 U	NA	0.014 J	NA	8470	NA	0.1 U	NA	2910	NA	720 J	NA

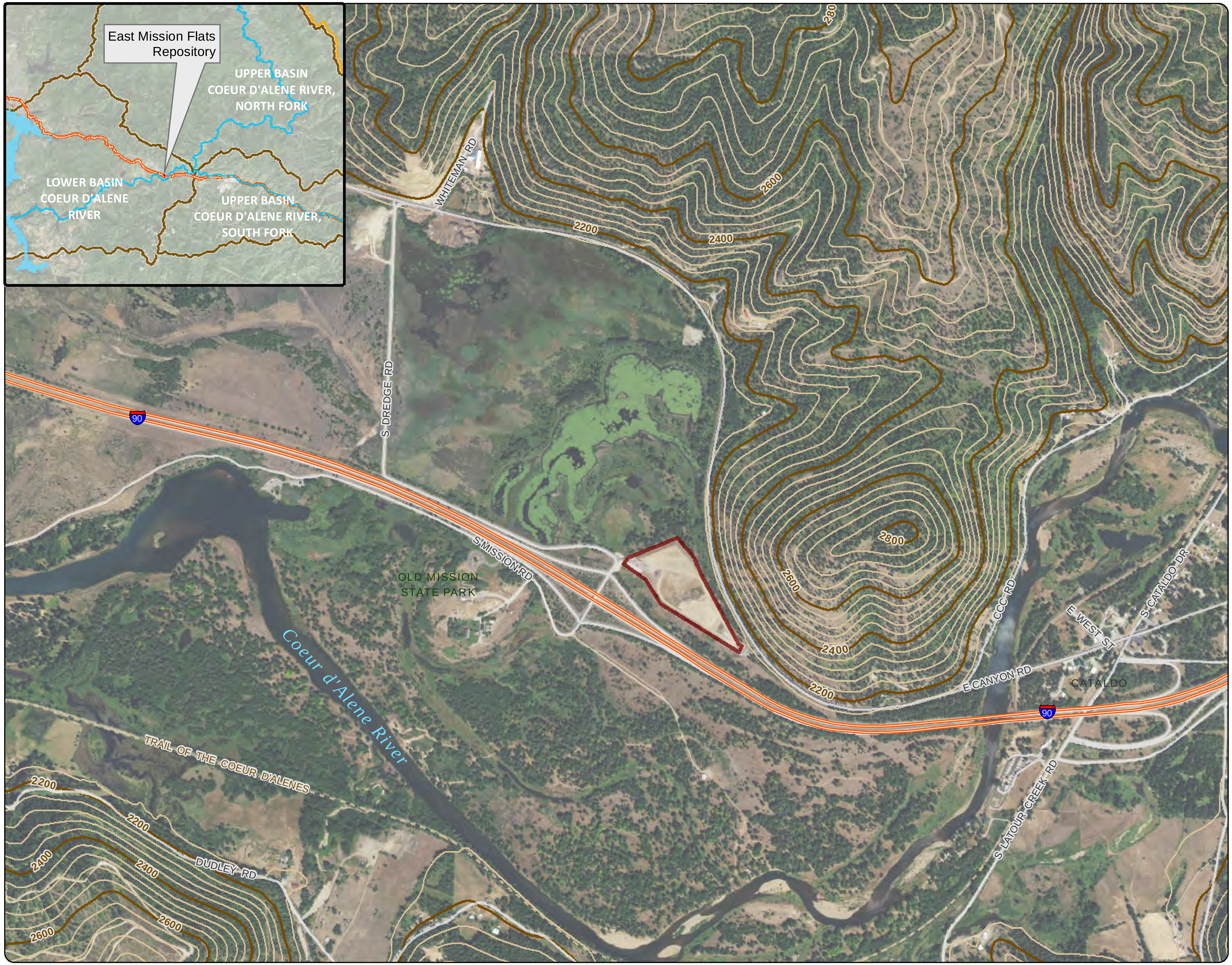
Chemical Name		Sodium		Zinc		Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Hardness	Chloride	Nitrate	Sulfate
Sample Fraction		Dissolved	Total	Dissolved	Total	Total	Total	Total	Total	Total	Dissolved	Dissolved	Dissolved
Regulatory Threshold		NV	NV	5000[C]	NV	NV	NV	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	3170	NA	11.3	11.9	36.3	1 U	NA	36.3	39.3	1.8	0.136	13.7
	05/19/2010	3650	3530	5 U	5 U	32.2	1 U	NA	32.2	35.3	1.45	0.13	12.4
	11/16/2010	4150	4260	21.6 J	25.5 J	30.9	1 U	NA	30.9	44.6	2.85 J	0.079	11.8
	10/24/2011	3840	NA	16.7	18	31.6	1 U	NA	31.6	31	3.21	0.05 U	10.1
	01/25/2012	6290	NA	19.1	22.2	53.8	1 U	NA	53.8	53.8	2.44	0.05 U	8.86
	04/10/2012	3780	NA	154	222	36	1 U	NA	36	42.2	3.09	0.05 U	10.2
	07/31/2012	3800	NA	11.6	31	34.4	1 U	NA	34.4	31.5 J	2.61	0.05 U	7.11
	10/29/2012	3930	NA	3.2 J	3.7 J	36.1	1 U	NA	36.1	34.8	2.91	0.05 U	9.56
	01/23/2013	NA	NA	22.6	41.1 J	31	1 U	NA	31	39.7	2.85	0.05 U	11.8
	04/02/2013	3900	NA	23.7	26.5	30.1	1 U	NA	30.1	35.7	2.79	0.05 U	11.7
	07/23/2013	5490	NA	8.8 J+	222	36.2	1 U	NA	36.2	34.3	2.86	0.05 U	6.46
	10/17/2013	3990	NA	9.6 J	33.4	34.4	1 U	NA	34.4	36.3	2.45	0.05 U	9.44
	01/15/2014	6750	NA	46.3 J	47.1 J	51.5	1 U	NA	51.5	51.4	1.66	0.05 U	10.5
	04/01/2014	4720	NA	72.4 J	70.9	29.9	1 U	1 U	29.9	36	1.85	0.103	12.2
	07/23/2014	4110	NA	32.8 J	NA	30	1 U	1 U	30	36.7	3.05	0.05 UJ	9.38
	10/27/2014	5520 J	NA	22.2	NA	32.2	1 U	1 U	32.2	34.9	2.11	0.064	10.2
	01/14/2015	3370	NA	12 J	NA	20	1 U	1 U	20	NA	1.85	NA	13.1
	04/21/2015	4900 J	NA	30.4 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/21/2015	4200 J	NA	13.3 J+	NA	30.6	1 U	1 U	30.6	NA	2.33	NA	11.3
	04/05/2016	4230	NA	20.8 J+	NA	25.9	1 U	1 U	25.9	NA	1.28	NA	11.7
	10/25/2016	4340	NA	25.2 J	NA	29.3	1 U	1 U	29.3	NA	2.32	NA	11.4

NOTES:
Results below reporting limits not flagged for exceedances.
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 analyzed.
NV = regulatory threshold or prediction limit not available or not applicable.
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).

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
- Elevation Contour (20 foot interval)
- Elevation Contour (100 foot interval)

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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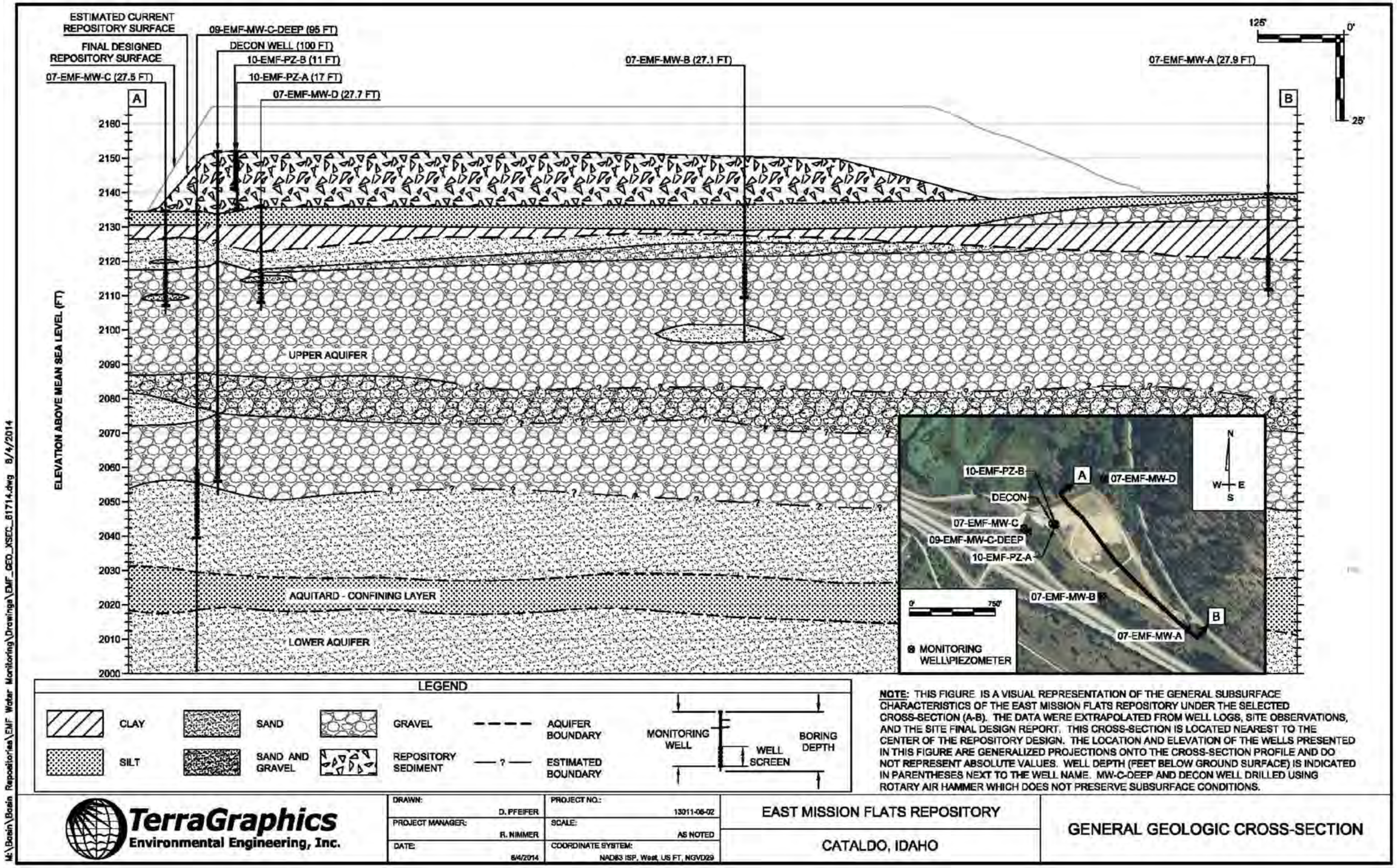
Print Date: 2/27/2017
Approved By: H. Good
Produced By: apadilla
Project: 0442.06.05

Figure 3-1
Geologic Cross Section

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



Source: East Mission Flats Repository 2015 annual water quality report prepared by Idaho Department of Environmental Quality. November 2016.

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Figure 5-1
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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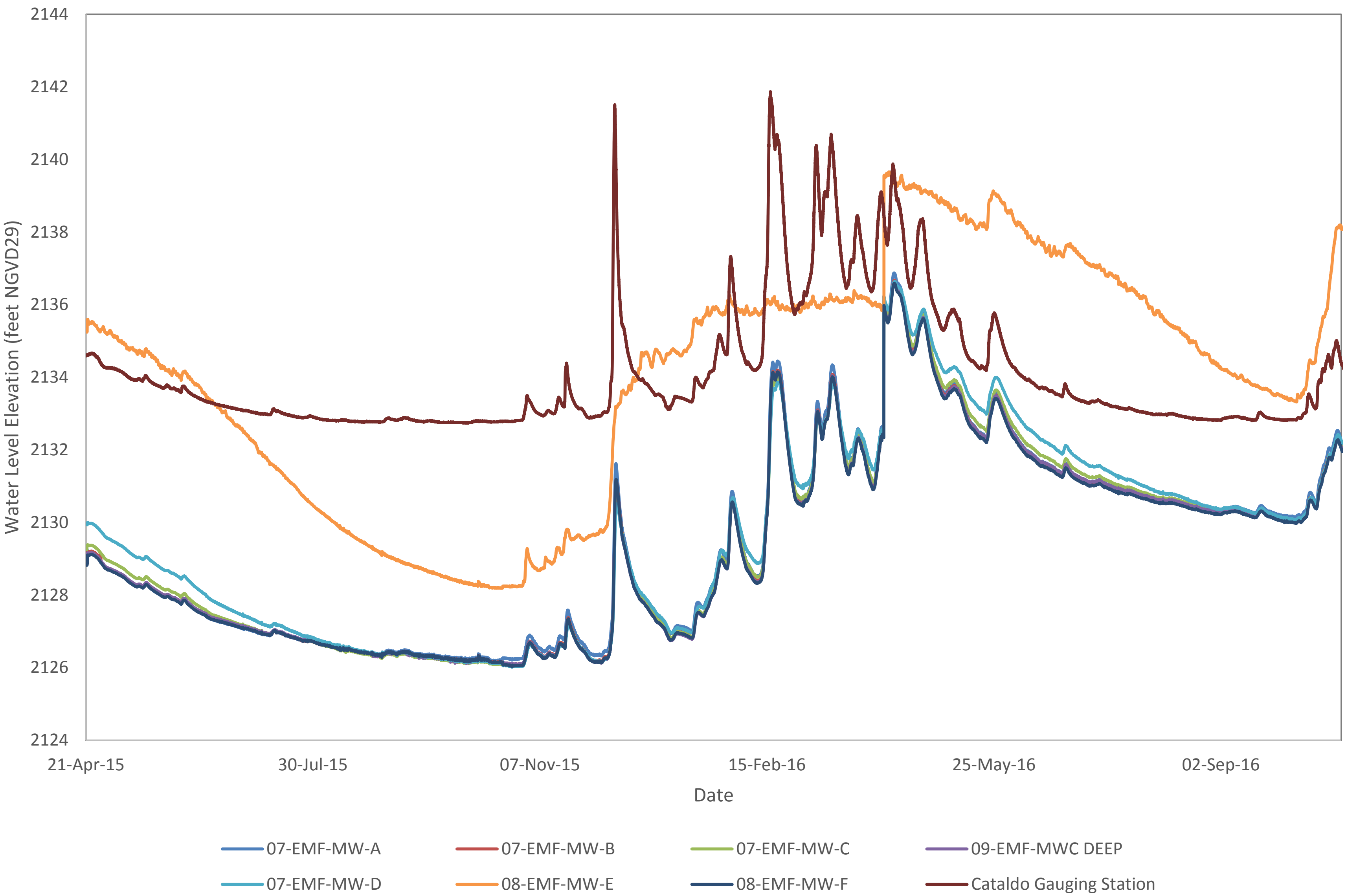
Print Date: 5/31/2017
Approved By: H. Good
Produced By: rroberts
Project: 0442.06.03-02

Figure 5-2
Water Level Hydrograph
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust



Note:
East Mission Flats Repository groundwater and Coeur d'Alene River stage elevations are shown.
NGVD29 = National Geodetic Vertical Datum of 1929.

Figure 6-1
April 2016 Groundwater Elevations and 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 (w/ Well ID and Water Level Elevation (feet NGVD29))
- Water Level Elevation (0.1 foot interval)
- Water Level Elevation (0.02 foot interval)

Notes:
1. Water level elevations shown were recorded by transducers on April 5, 2016 at 9:00am.
2. Water level elevations from locations 09-EMF-MW-C Deep and 08-EMF-MW-E were not used in preparing the water level surface.
3. NGVD29 = National Geodetic Vertical Datum of 1929.

0 180 360
Feet

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

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Path: X:\CtA\0442\06.05_2017 Water Monitoring\2016 EMFR Monitoring Report\Projects\Fig6-1_April 2016 Groundwater Elevation and Contours.mxd
Print Date: 5/31/2017
Approved By: H. Good
Produced By: estrandhagen
Project: 0442.06.03-02

Figure 6-2
October 2016 Groundwater Elevations and 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 (w/ Well ID and Water Level Elevation (feet NGVD29))
- Water Level Elevation (0.1 foot interval)
- Water Level Elevation (0.02 foot interval)

Notes:
1. Water level elevations shown were recorded by transducers on October 25, 2016 at 8:00am.
2. Water level elevations from locations 09-EMF-MW-C Deep and 08-EMF-MW-E were not used in preparing the water level surface.
3. NGVD29 = National Geodetic Vertical Datum of 1929.

0 180 360
Feet

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

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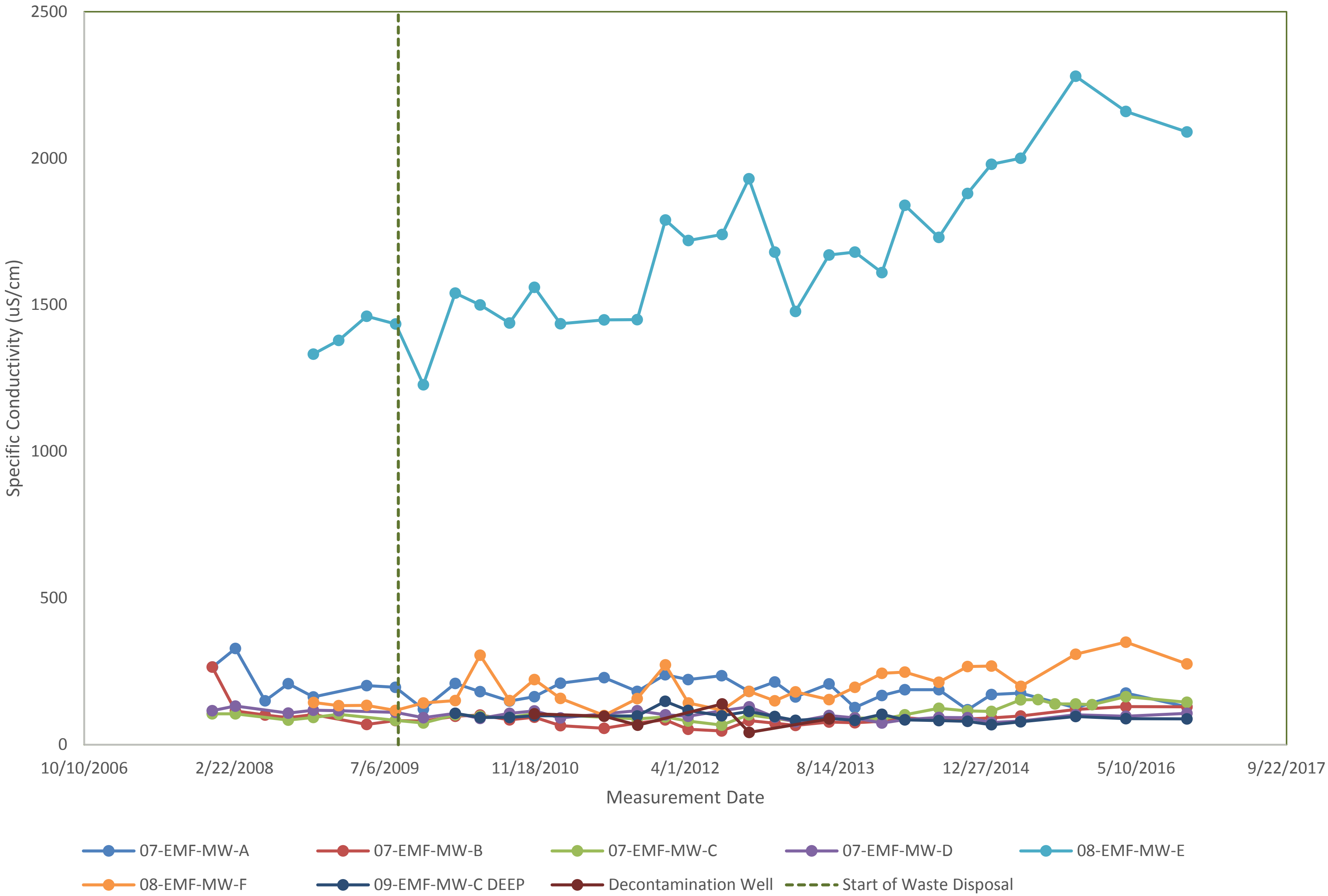
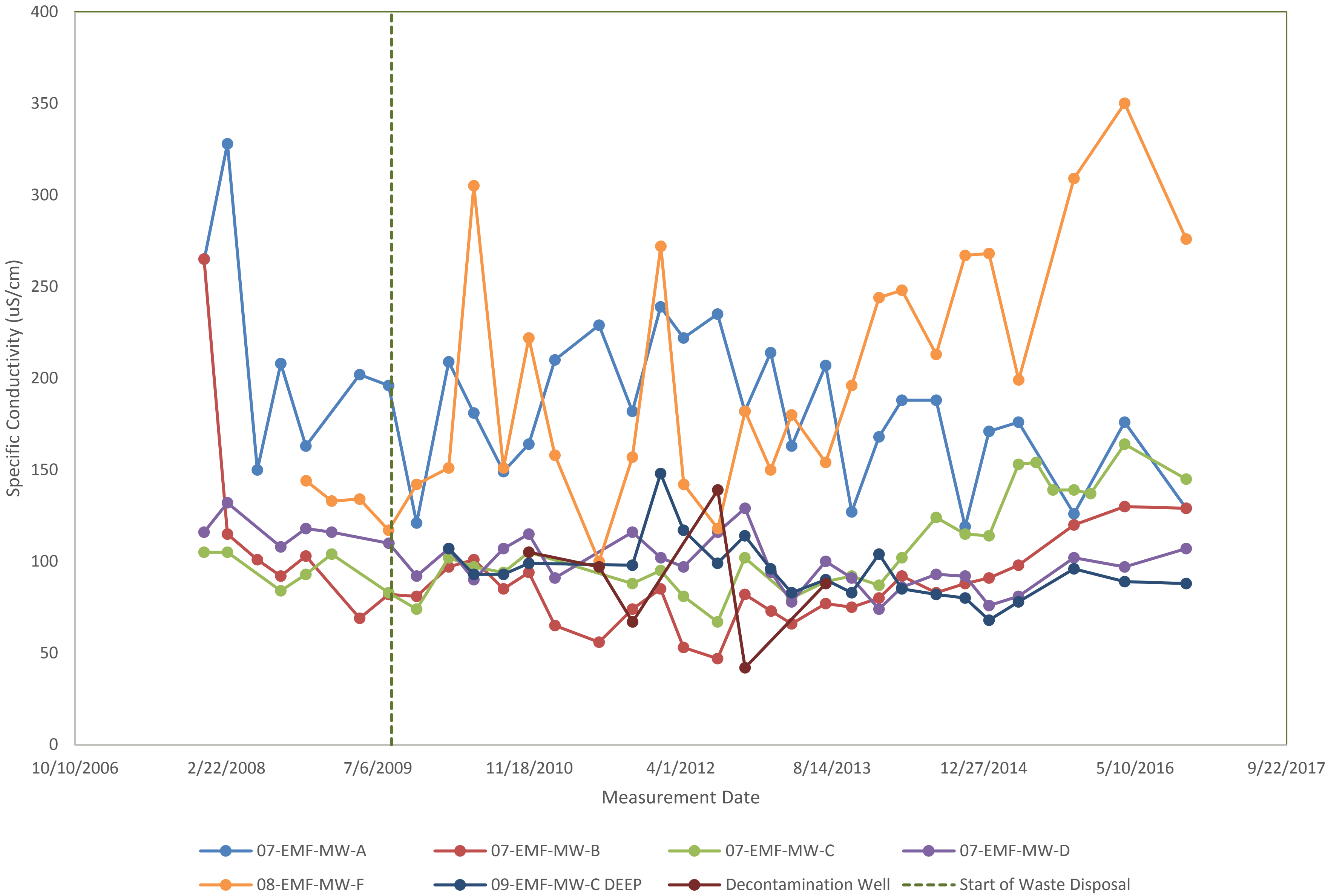
Path: X:\CdA\0442\06.05_2017 Water Monitoring\2016 EMFR Monitoring Report\Projects\Fig6-2_October 2016 Groundwater Elevation and Contours.mxd
Print Date: 3/24/2017
Approved By: H. Good
Produced By: estrandhagen
Project: 0442.06.05

Figure 8-1a
Field Parameter Time Series Plot—Specific Conductivity
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust



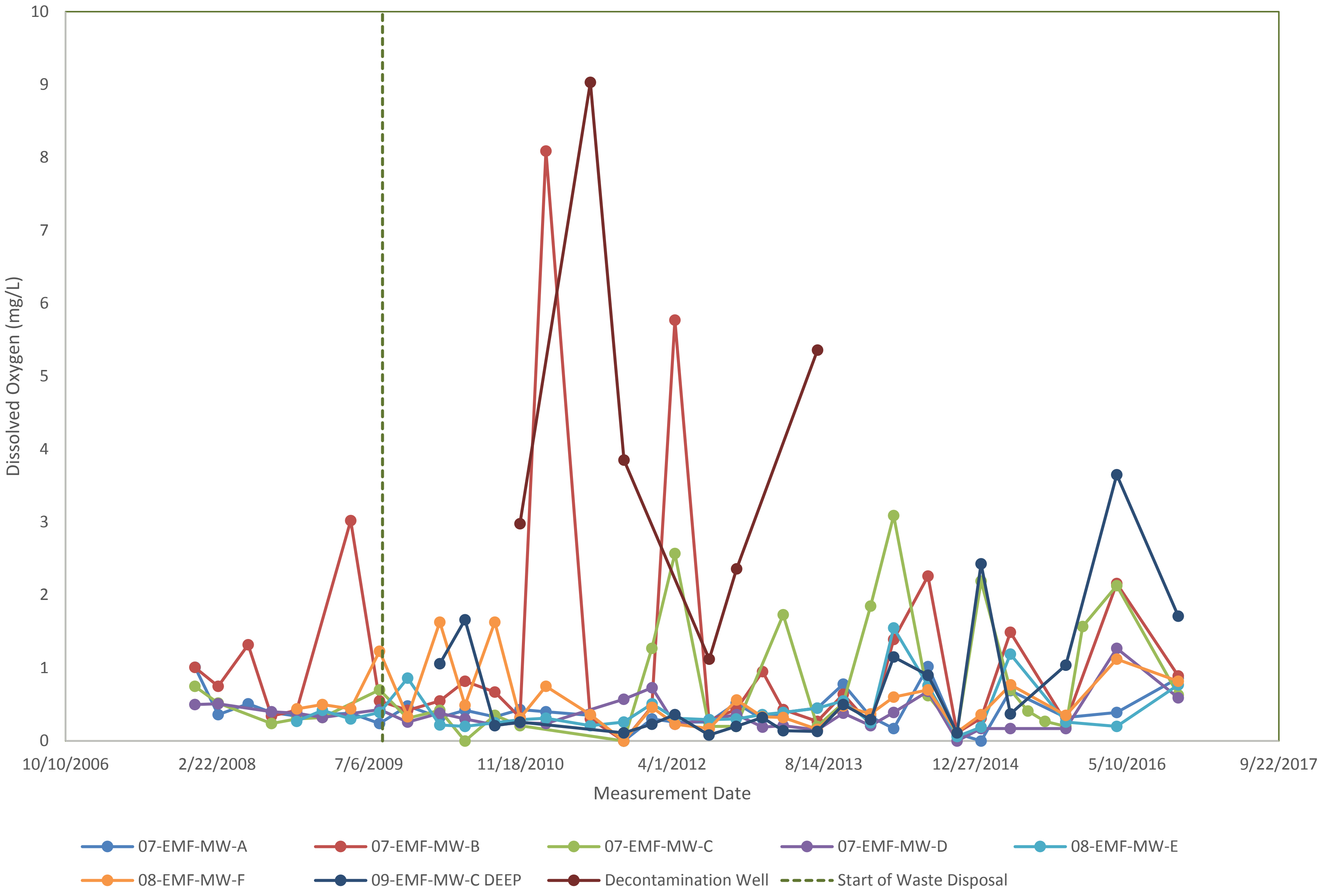
Note:
uS/cm = microsiemens per centimeter.

Figure 8-1b
Field Parameter Time Series Plot—Specific Conductivity (MW-E removed)
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust



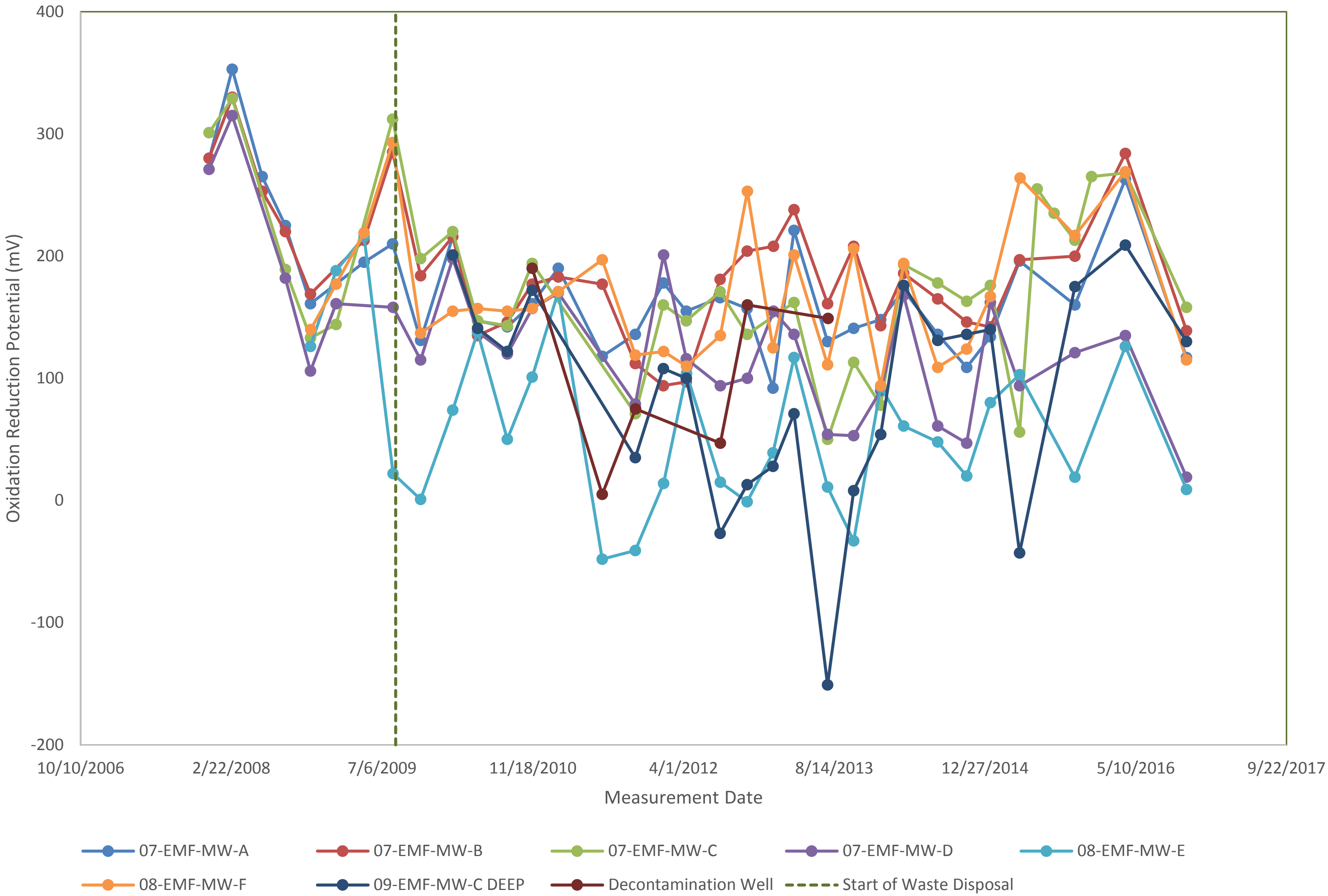
Note:
uS/cm = microsiemens per centimeter.

Figure 8-1c
Field Parameter Time Series Plot—Dissolved Oxygen
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust



Note:
mg/L = milligrams per liter.

Figure 8-1d
Field Parameter Time Series Plot—Oxidation Reduction Potential
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust



Note:
mV = millivolts.

Figure 8-1e
Field Parameter Time Series Plot—pH
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust

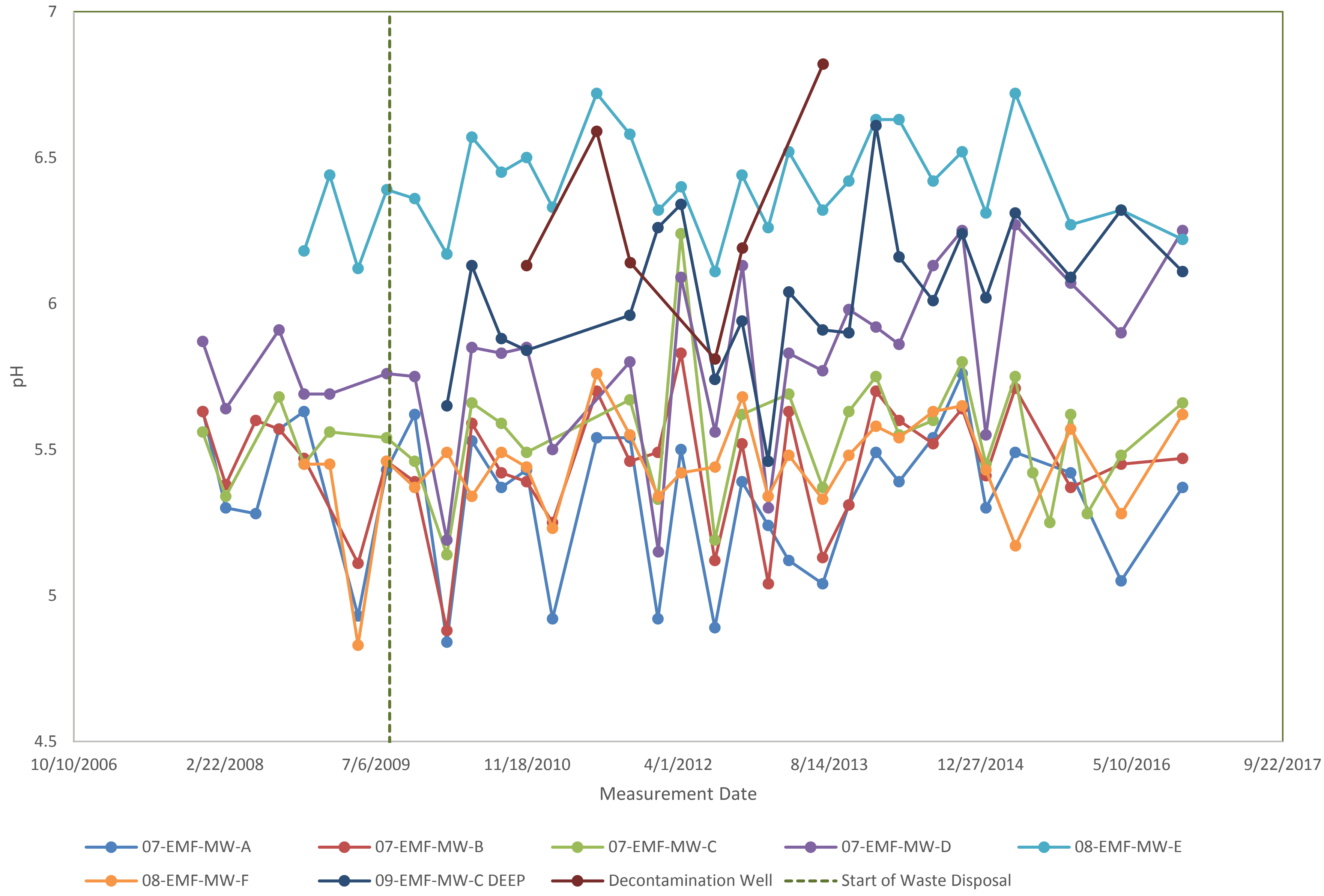


Figure 8-1f
Field Parameter Time Series Plot—Temperature
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust

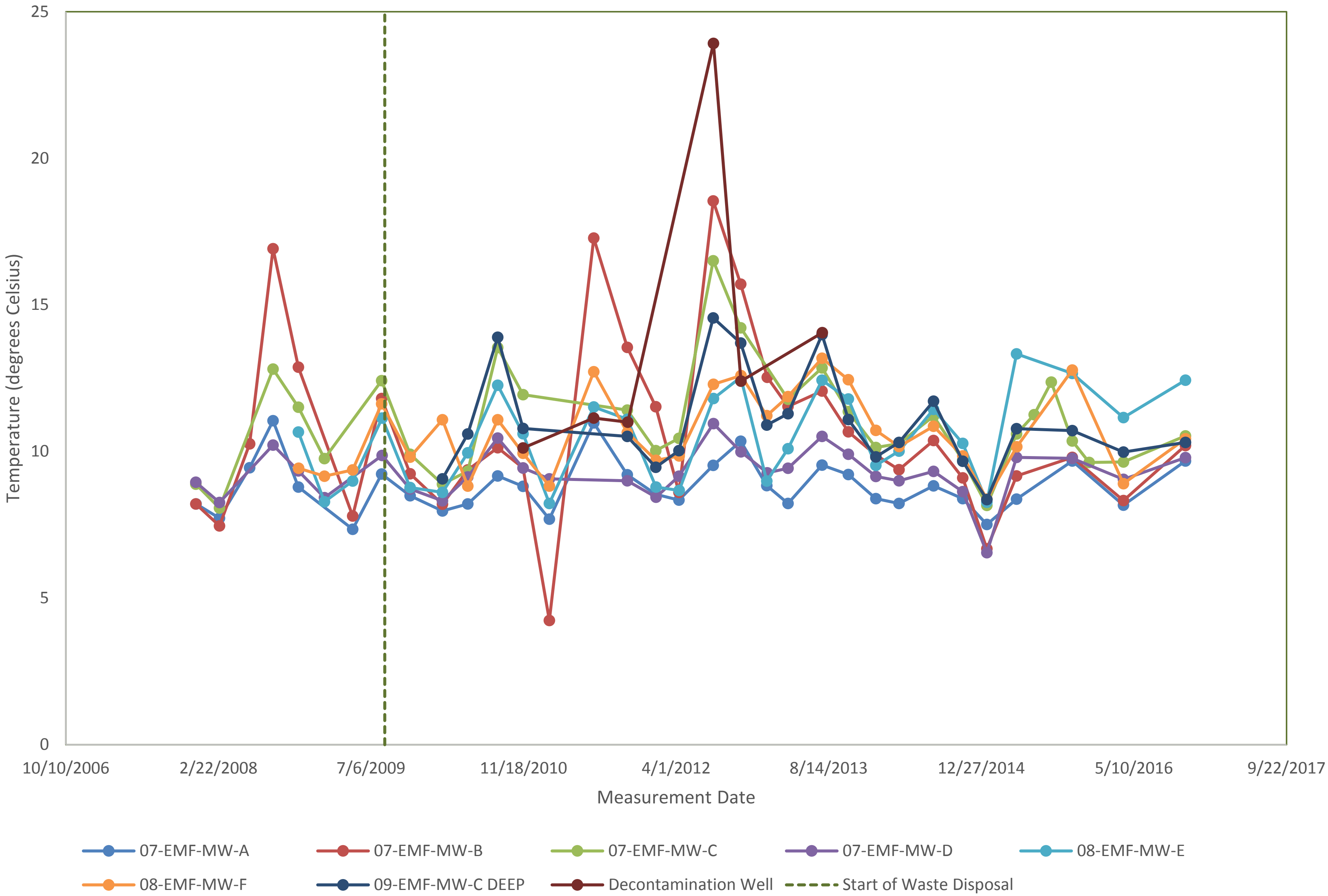
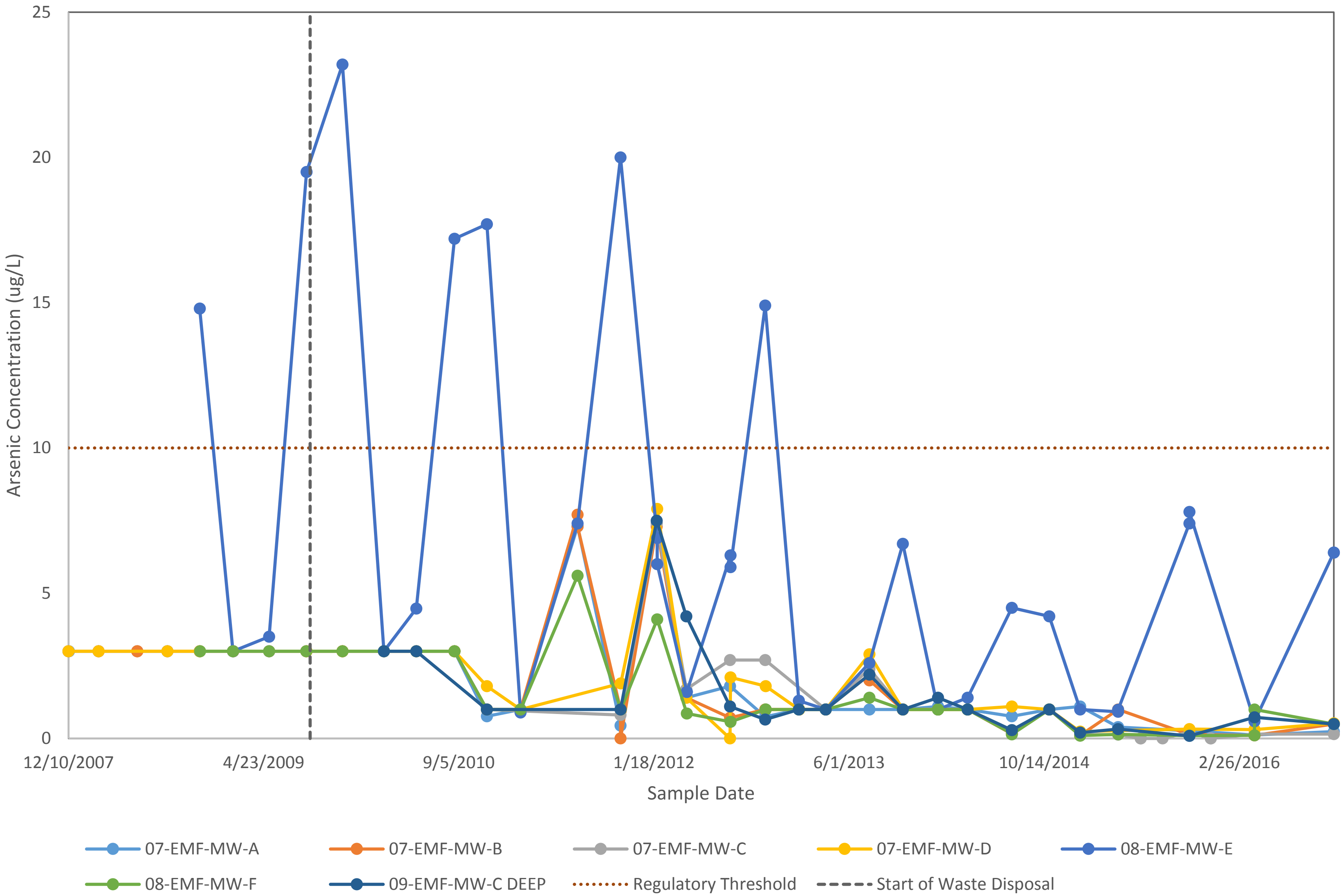
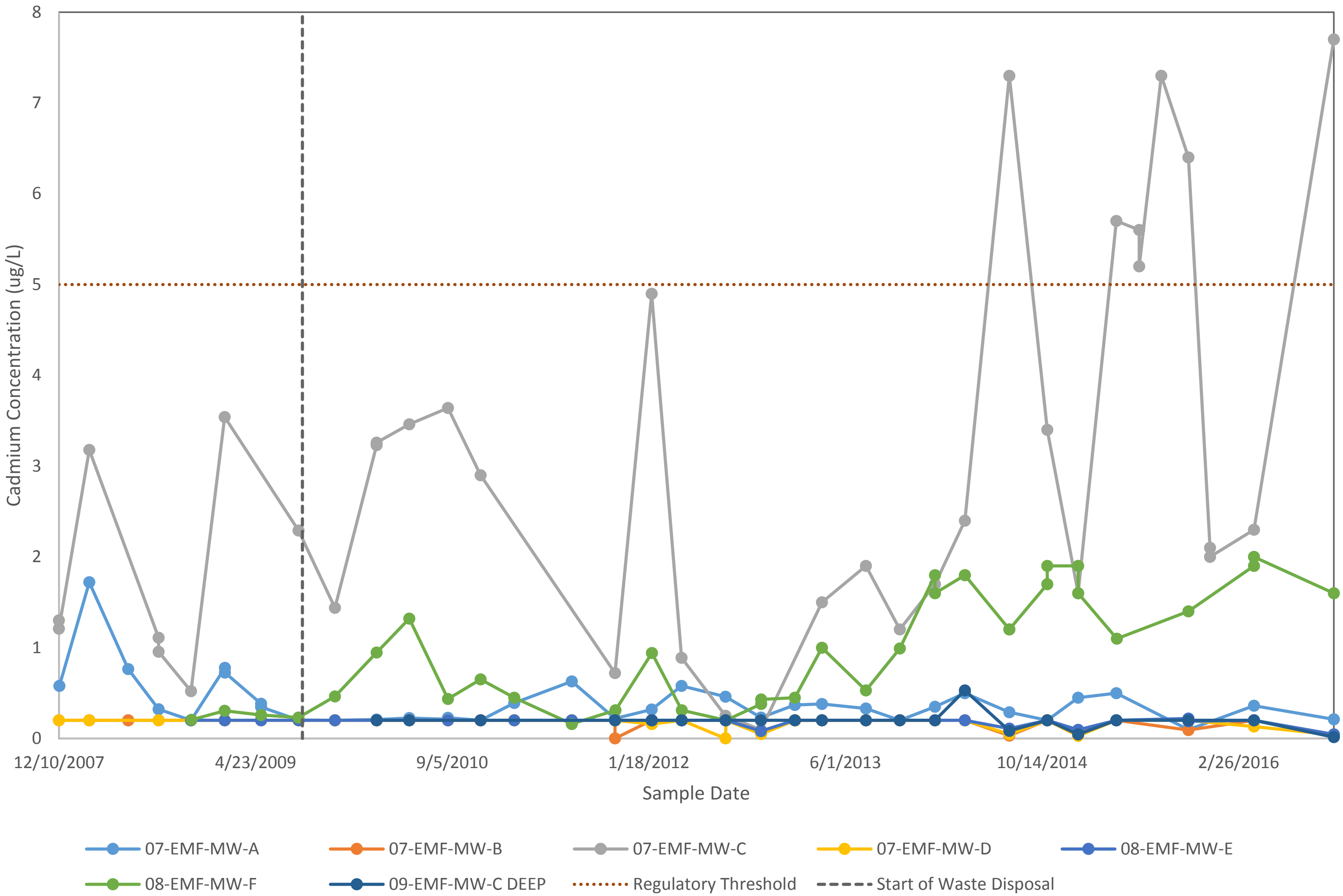


Figure 8-2a
Metals Time Series Plot—Arsenic
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust



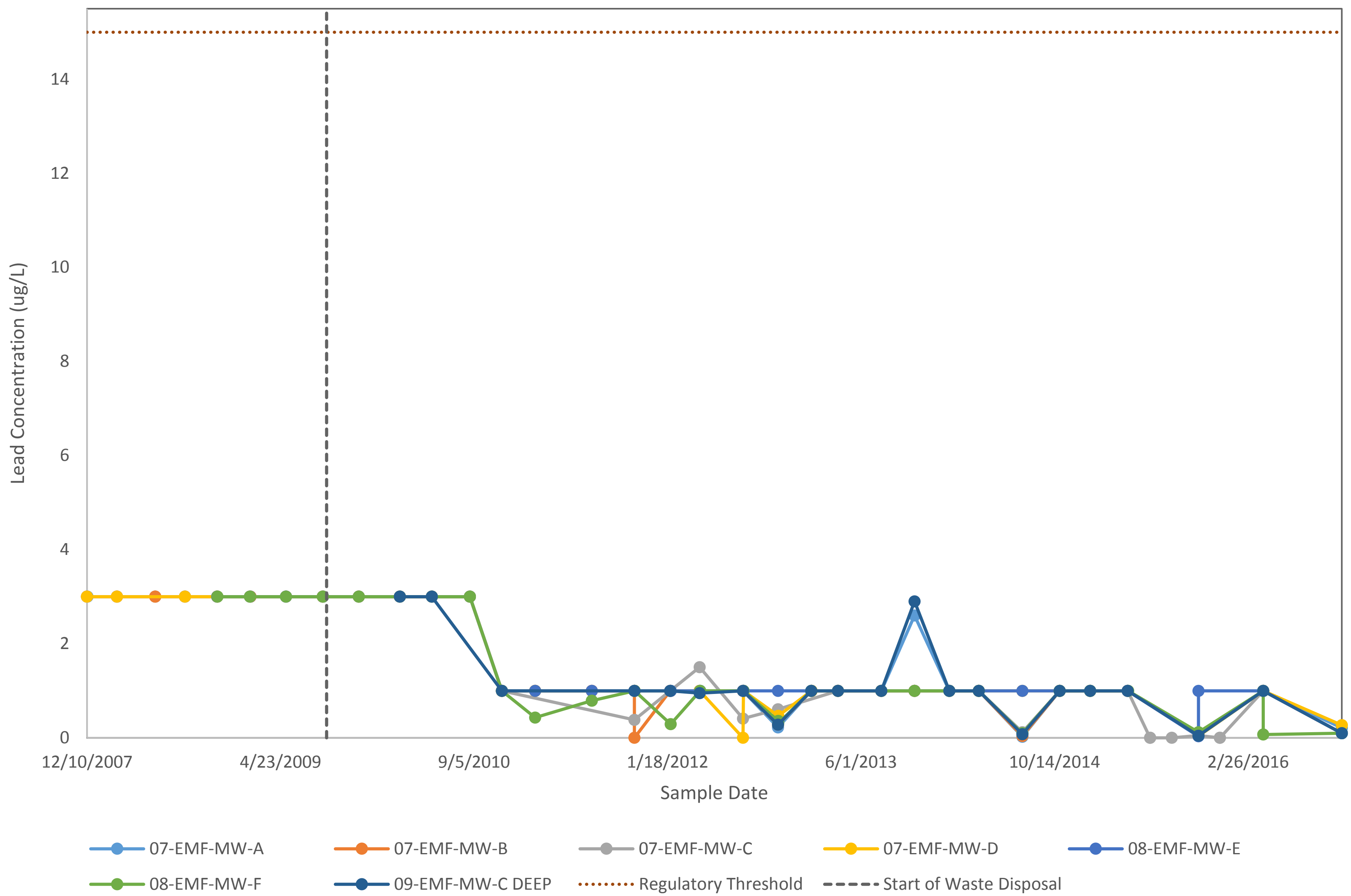
Notes:
Non-detect values are set equal to the reporting limit.
Regulatory threshold value = 10 ug/L (Primary Maximum Contaminant Level).
ug/L = micrograms per liter.

Figure 8-2b
Metals Time Series Plot—Cadmium
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust



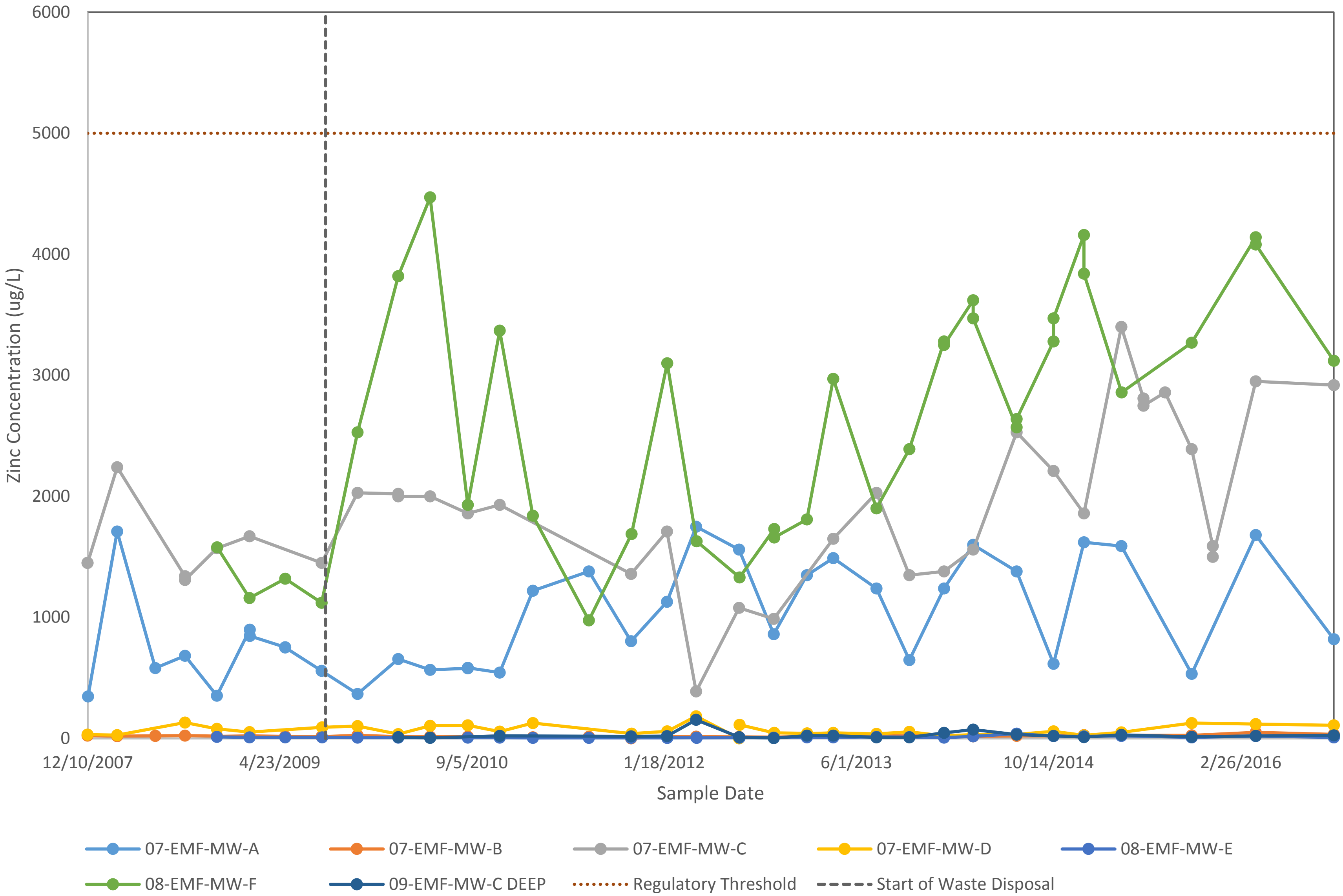
Notes:
Non-detect values are set equal to the reporting limit.
Regulatory threshold value = 5 ug/L (Primary Maximum Contaminant Level).
ug/L = micrograms per liter.

Figure 8-2c
Metals Time Series Plot—Lead
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust



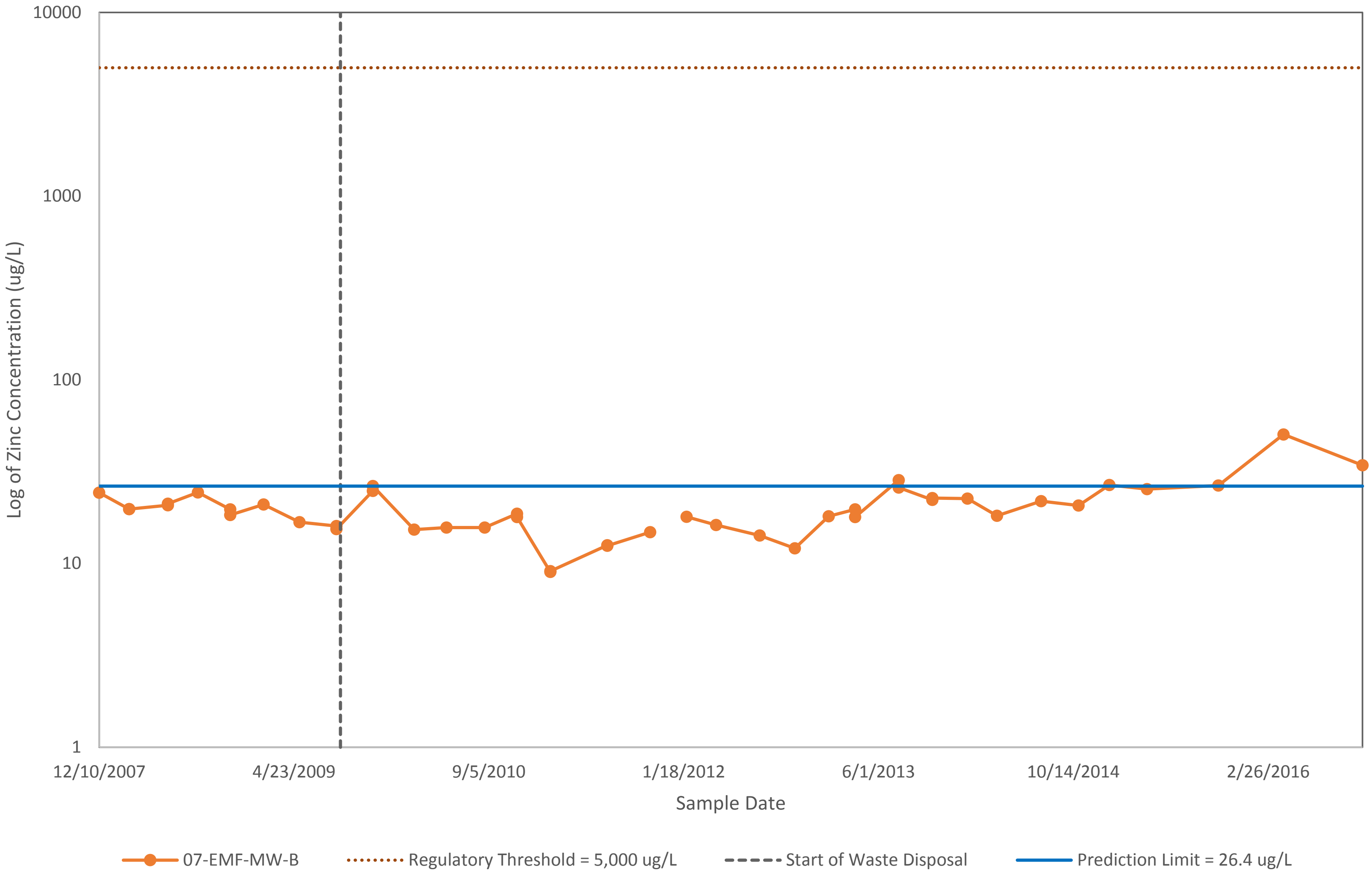
Notes:
Non-detect values are set equal to the reporting limit.
Regulatory threshold value = 15 ug/L (Treatment Requirement).
ug/L = micrograms per liter.

Figure 8-2d
Metals Time Series Plot—Zinc
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust



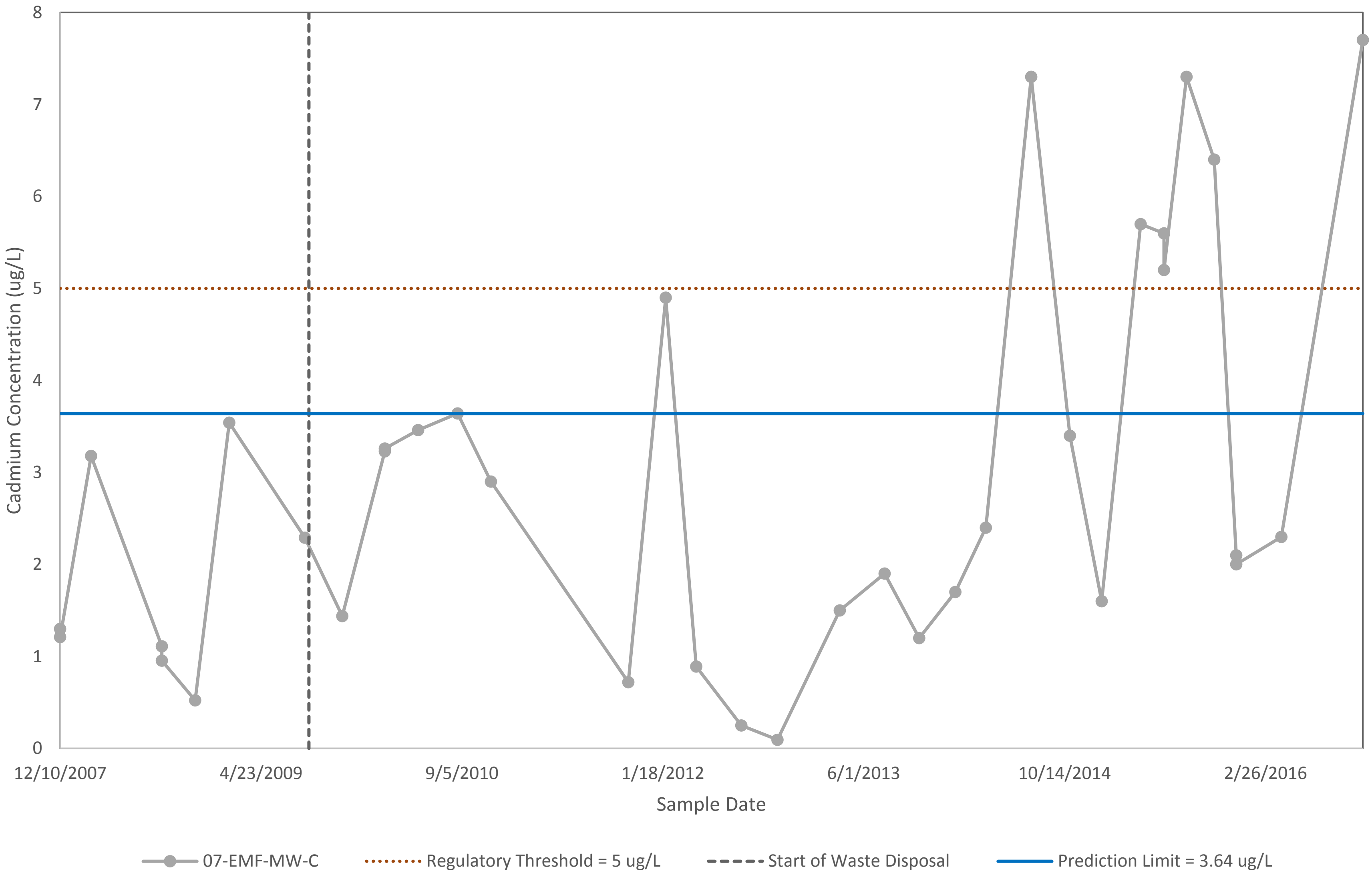
Notes:
Non-detect values are set equal to the reporting limit.
Regulatory threshold value = 5,000 ug/L (Secondary Maximum Contaminant Level).
ug/L = micrograms per liter.

Figure 8-3a
Prediction Limit Exceedance Time Series Plot—MW-B—Zinc
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust



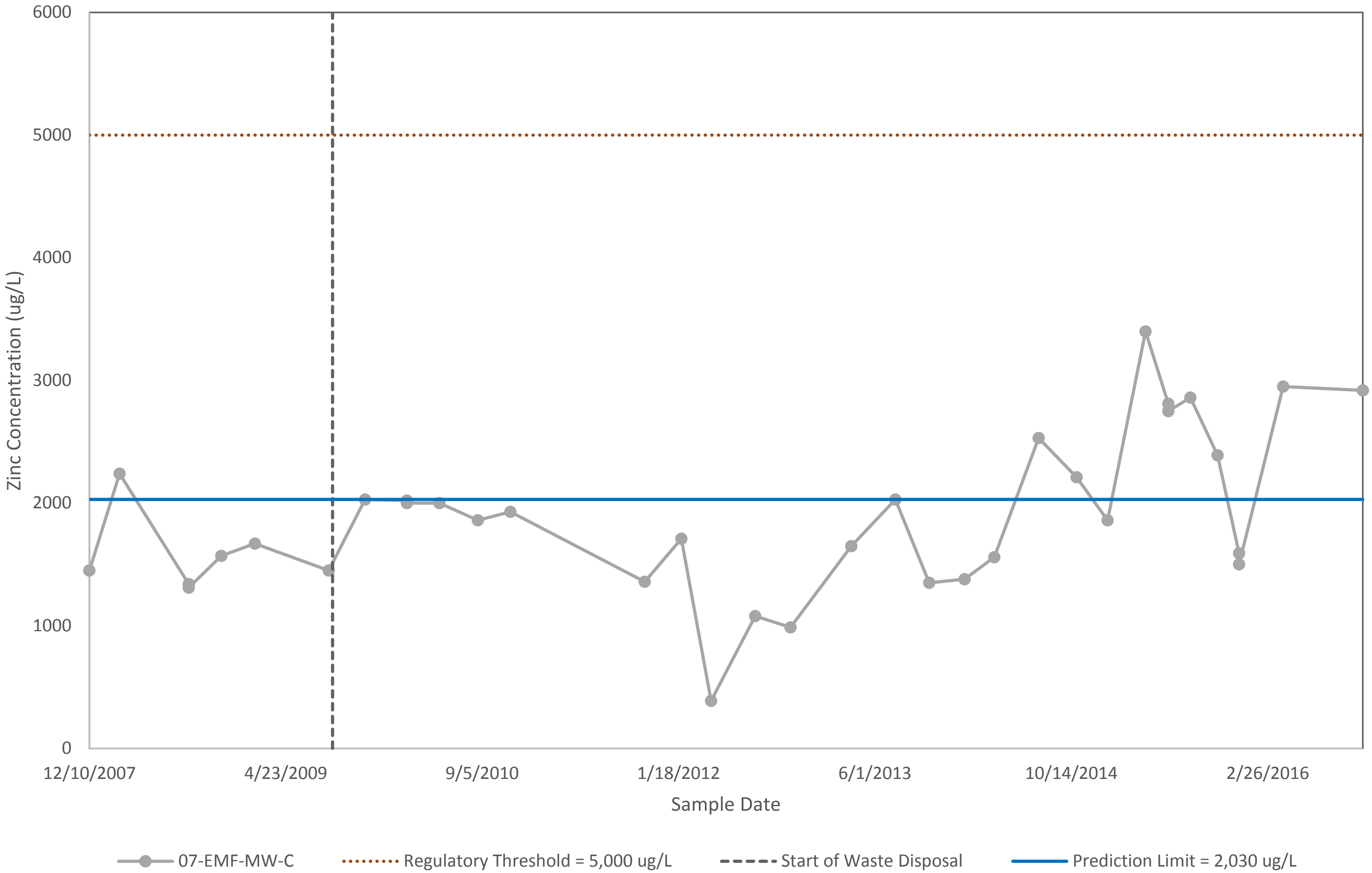
Notes:
Non-detect values are set equal to the reporting limit.
(a) Secondary Maximum Contaminant Level.
(b) Developed for use with 2014 and 2015 data.
ug/L = micrograms per liter.

Figure 8-3b
Prediction Limit Exceedance Time Series Plot—MW-C—Cadmium
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust



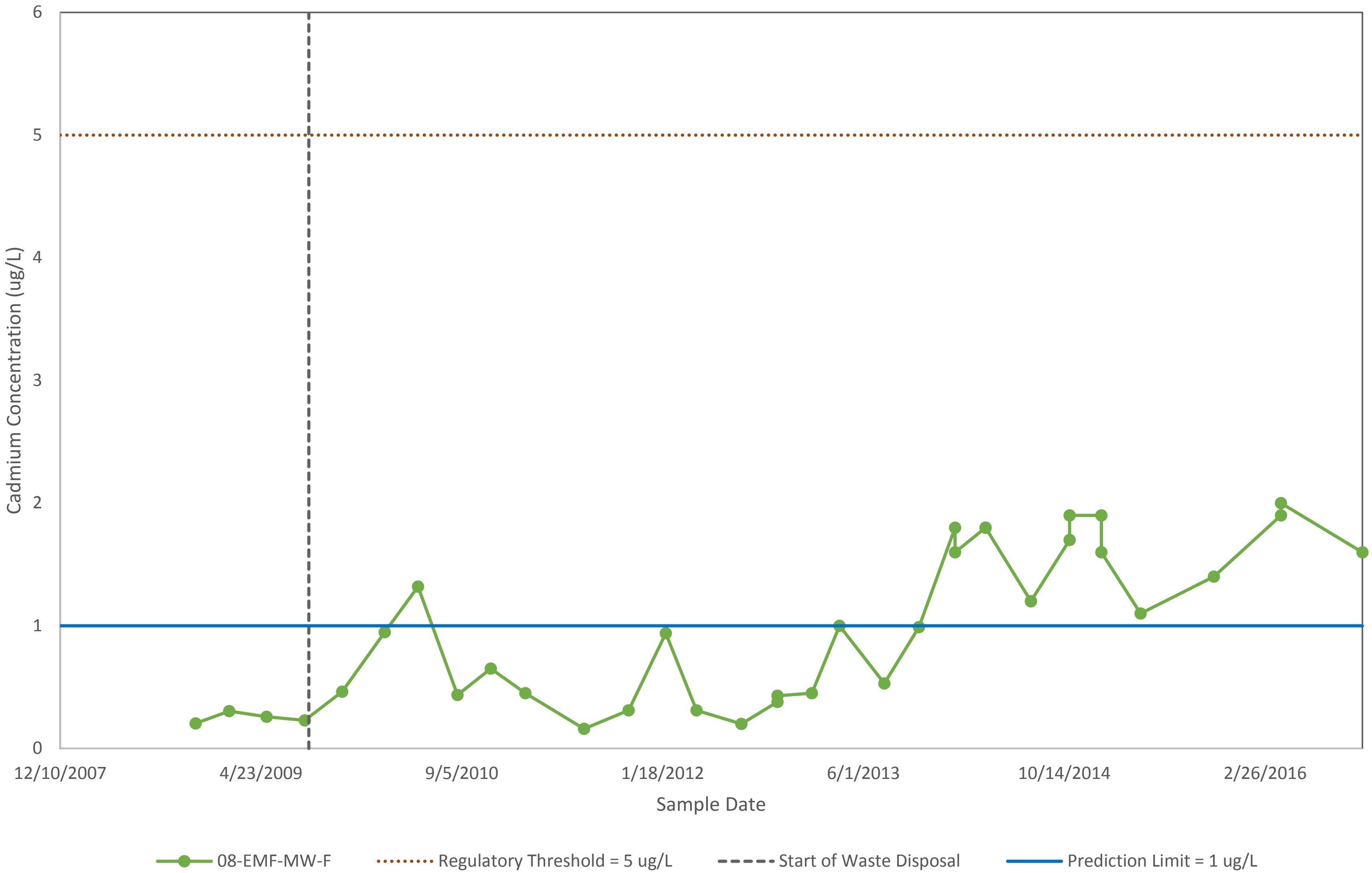
Notes:
Non-detect values are set equal to the reporting limit.
(a) Primary Maximum Contaminant Level.
(b) Developed for use with 2014 and 2015 data.
ug/L = micrograms per liter.

Figure 8-3c
Prediction Limit Exceedance Time Series Plot—MW-C—Zinc
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust



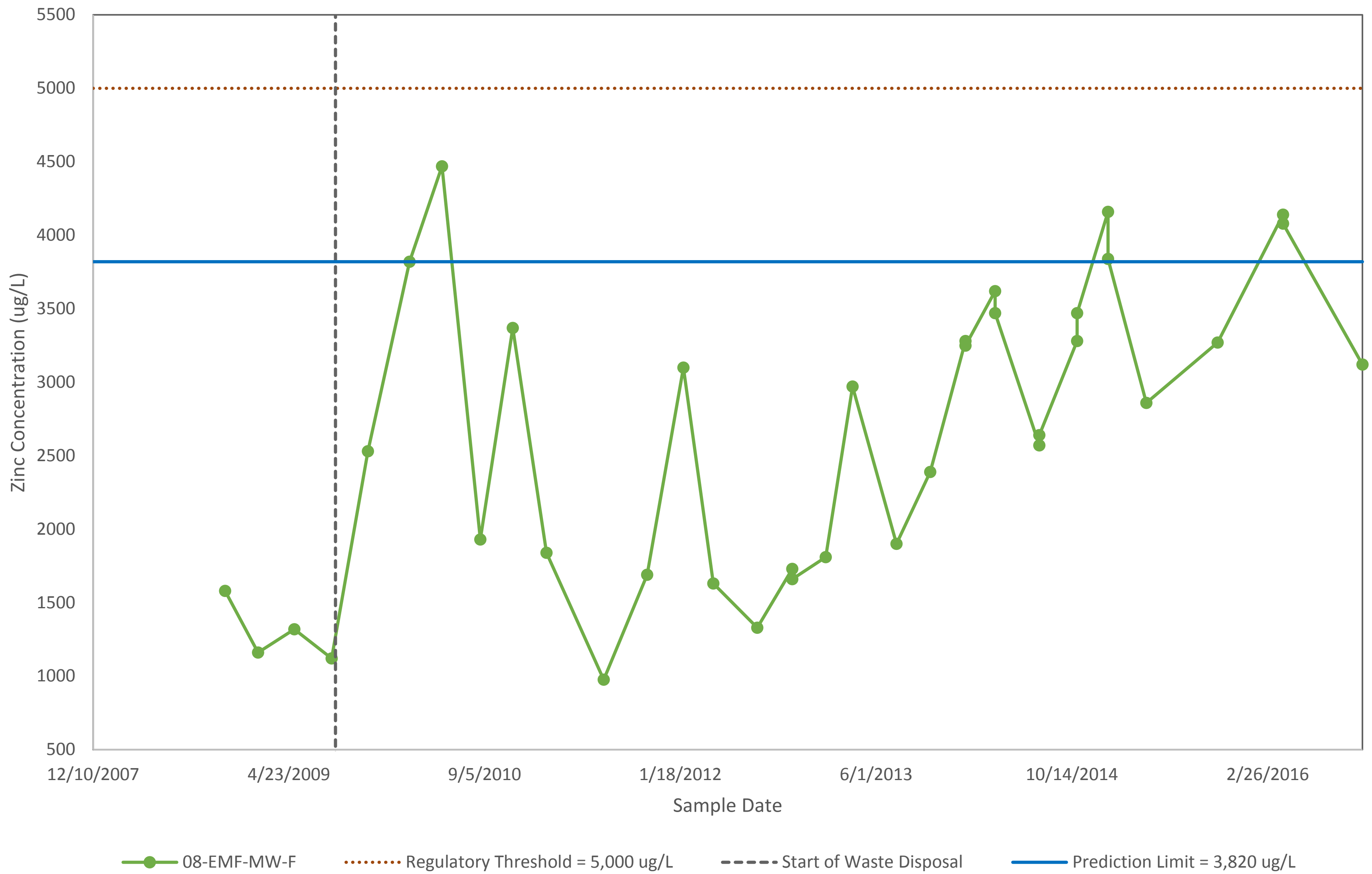
Notes:
Non-detect values are set equal to the reporting limit.
(a) Secondary Maximum Contaminant Level.
(b) Developed for use with 2014 and 2015 data.
ug/L = micrograms per liter.

Figure 8-3d
Prediction Limit Exceedance Time Series Plot—MW-F—Cadmium
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust



Notes:
Non-detect values are set equal to the reporting limit.
(a) Primary Maximum Contaminant Level.
(b) Developed for use with 2014 and 2015 data.
ug/L = micrograms per liter.

Figure 8-3e
Prediction Limit Exceedance Time Series Plot—MW-F—Zinc
East Mission Flats Repository
2016 Water Quality Monitoring
Coeur d'Alene Trust



Notes:
Non-detect values are set equal to the reporting limit.
(a) Secondary Maximum Contaminant Level.
(b) Developed for use with 2014 and 2015 data.
ug/L = micrograms per liter.