

EAGLE MINE ANNUAL REPORT – 2015

EAGLE MINE SITE MINTURN, COLORADO

Prepared for:
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April 6, 2016



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1.0 INTRODUCTION

This Annual Site Monitoring and Activity Report (Annual Report) was prepared by NewFields on behalf of CBS Operations Inc. (CBS) and provides a summary of environmental data collected during the 2015 calendar year at the Eagle Mine (Site) near Minturn, Colorado. The Site location is shown on Figure 1-1. The Annual Report also summarizes design, construction, inspection, operation and maintenance, and community relation activities conducted in 2015 in connection with the Site.

This Annual Report is a deliverable listed in Table A of the Final Statement of Work - Part A (Appendix B) for the Operable Unit No. 1 Partial Consent Decree, Civil Action No. 95-N-2360 (D. Colorado) (CD/SOW). This Annual Report also satisfies the requirement for an annual monitoring report specified in the Consent Decree, Order, Judgment and Reference to the Special Master for Civil Action No. 83-C-2387 (D. Colorado), Remedial Action Plan, as amended (CD/RAP).

Monitoring activities, data summaries, interpretation and analysis of selected data, and summaries of Site activities are provided in the following sections:

- Section 2 Surface Water Monitoring and Data Summary
- Section 3 Eagle Mine Water Monitoring and Data Summary
- Section 4 Groundwater Monitoring and Data Summary
- Section 5 Summary of Site Activities.

Figures and tables are presented at the end of each section.

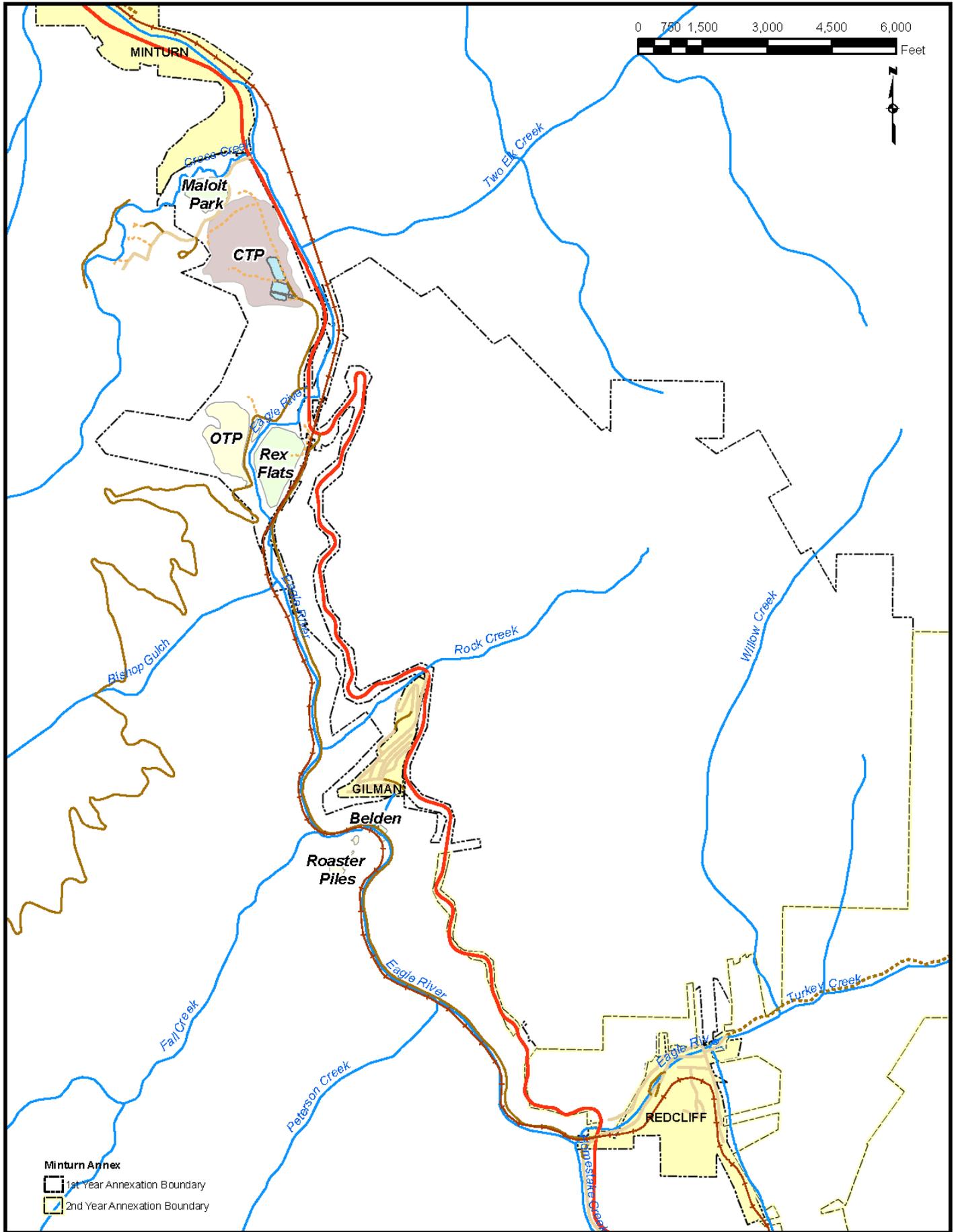


Figure 1-1 Eagle Mine Site

2.0 SURFACE WATER MONITORING AND DATA SUMMARY

This section provides a summary of surface water monitoring activities at the Site for the reporting period, Fall 2014 through Fall 2015 (fall monitoring occurs in either September or October). Surface water monitoring was originally conducted in accordance with the requirements of the Surface Water Sampling and Analysis Plan (Dames & Moore 1996). The monitoring activities have changed over the years and the scope for each year is submitted beforehand in a memorandum for Surface Water and Groundwater Monitoring for the subject year (NewFields 2014). Surface water monitoring for 2015 was finalized with Colorado Department of Public Health and Environment (CDPHE) and U.S. Environmental Protection Agency (EPA) on January 28, 2015.

2.1 Monitoring Stations

The Colorado Water Quality Control Commission (WQCC) has established water quality standards for segments of the upper Eagle River and its major tributaries. The four mainstem segments are described by WQCC as:

- 2 – Mainstem of the Eagle River from the confluence with Turkey Creek to the compressor house bridge at Belden
- 5a – Mainstem of the Eagle River from the compressor house bridge at Belden to the Highway 24 Bridge near Tigwon Road
- 5b – Mainstem of the Eagle River from Highway 24 Bridge near Tigwon Road to the confluence with Martin Creek
- 5c – Mainstem of the Eagle River from the confluence with Martin Creek to the confluence with Gore Creek.

Additionally Segment 7, Cross Creek, was subdivided into the following two segments:

- 7a – Cross Creek mainstem to the Minturn Middle School
- 7b – Cross Creek from the Minturn Middle School to the confluence with the Eagle River.

Surface water monitoring stations (Figure 2-1) for the Site were established in 1985 at the outset of the remedial investigation, corresponding closely with locations used by the US Geological Survey (USGS) in studies prior to 1985. The following Eagle River stations were monitored at least once during the reporting period:

- E-3 Eagle River above Belden (background location – Segment 2)
- E-10 Eagle River above Rock Creek (Segment 5a)

- E-12A Eagle River below Old Tailings Pile/Rex Flats (Segment 5a)
- E-15 Eagle River below Cross Creek (Segment 5b)
- E-22 Eagle River above Dowds Junction (Segment 5c).

The following two tributaries to the Eagle River at the Site were monitored:

- T-10 Rock Creek at mouth (tributary to Segment 5a)
- T-18 Cross Creek near mouth (Segment 7b; tributary to Segment 5b).

Other Eagle River tributaries at the Site are, in downstream order, Roaster Pile drainage, Fall Creek, Bishop Gulch, and Two Elk Creek. These tributaries enter the Eagle River between Red Cliff and Minturn but are no longer monitored for water quality or stream flow. Years of sampling data confirm that these tributaries are not metal loading sources to the Eagle River.

For the reporting period, Eagle River and tributary water quality samples were collected pursuant to the methods in the 2015 Monitoring Plan. Surface water quality samples collected in March, April, and October were analyzed for total arsenic and dissolved cadmium, copper, and zinc, as well as for calcium and magnesium for hardness calculations. Field measurements consisted of pH, temperature, and specific conductance.

Stream flow in the Eagle River was monitored using the USGS stream gage at E-12A (09064600). Stream flows at non-E-12A stations are calculated using historical relationships developed over many years. These historical flow relationships were established between each station and the flow measurement recorded at the E-12A stream gage. Flow in Rock Creek was manually estimated. For Cross Creek, the USGS stream gage “Cross Creek near Minturn” (09065100) discharge rating data are used to estimate flow for station T-18.

Additional surface water sampling was conducted this year as part of the *Focused Feasibility Study (FFS) Addendum, Arsenic Sampling Plan* (NewFields 2015a). The background Rock Creek sampling station T-10A was sampled when accessible during the March and April sampling. T-10A is located on the downstream side of the Rock Creek Highway 24 culvert. The south ditch around the Old Tailings Pile (OTP) was also sampled when coincident with the March and April sampling events.

Water quality data and measured or estimated stream flow are presented with the associated water quality data in Appendix A-1. Equations for the estimated flow rates for non-measured stations based on the E-12A measured flow (USGS gage 09064600) are included in Appendix A.

2.2 Hydrology

Included in this section are background information on the hydrologic monitoring program, a comparison of 2014 and 2015 stream flows to historical conditions, and a discussion of stream flow during water quality sampling events.

The Eagle River and its tributaries exhibit a large seasonal fluctuation in stream flow each year that is typical of most high-elevation watersheds in the central Rocky Mountains. Eagle River stream flow at the Site is illustrated in the hydrograph shown in Figure 2-2.

Eagle River watershed topographic elevation ranges from 8000 ft mean sea level (MSL) at the Site to over 14,000 ft MSL at the headwaters of the Eagle River, with precipitation greater in the higher elevations. From November through April each year, a seasonal snowpack accumulates in the watershed with greater snow accumulation at higher elevations. During the winter, mean daily temperatures are typically below freezing and stream flow in the Eagle River and its tributaries is at a minimum. The Eagle River winter base flow period at the Site extends from November to March each year and stream flow typically ranges from about 30 to 40 cubic feet per second (cfs). Small fluctuations in Eagle River stream flow occur during winter because of ice freezing and thawing on the river channel bed and banks.

Site snowpack begins to melt in March and April, followed by snowmelt from progressively higher elevations in the watershed through June each year. In May, Eagle River flow is usually dominated by high-elevation basin-wide snowmelt upstream from the Site. Large diurnal flow fluctuations occur because of daily snowmelt during this period. Peak flows in excess of 800 cfs are common in the Eagle River at the Site during the spring runoff period. Stream flow recedes from July through October each year, with periodic flow increases resulting from summer rainfall-runoff events.

2.2.1 Eagle River

USGS records continuous stage height readings at a stream gage located at E-12A (see Figure 2-1). The stream gage is at an elevation of 8080 ft MSL and represents a drainage area of 186 square miles.

The stream gage is operational during ice-free periods (eight months each year) from about March 15 to November 15 and collects estimated measurements during the ice periods. The channel at the stream gage typically becomes ice-covered in November and ice on the controls affects the stage height readings throughout the winter months. According to USGS criteria, the gage records are considered good (90 percent of the daily discharges are within 10 percent of their true value) except for records estimated during ice periods, which are fair (within 15 percent). Discharge during ice periods is estimated from direct stream flow measurements and stage height measurements that are corrected for ice effect.

A preliminary discharge rating has been developed for the Eagle River at the E-12A stream gage and its accuracy is evaluated regularly using current discharge measurements. The USGS is involved in the operation and maintenance of the gage through a cooperative agreement with Eagle County and CBS. The USGS publishes mean daily discharge data on a real-time basis on their website <http://waterdata.usgs.gov/co/nwis> for USGS station 09064600.

Figure 2-3 presents the 2014-2015 flow year divided into three flow periods: 2014-2015 winter low flow, 2015 spring/summer high flow, and 2015 fall low flow. The dates when samples were collected are labeled on Figure 2-3 and are marked to indicate the sampling entity: “S” for CBS, “s” for River Watch or “e” for Eagle River Water & Sanitation District. Sample results for the latter two organizations are provided by Eagle River Watershed Council; selection is primarily based on data availability (all analytes from one organization) and lowest detection limits. River Watch did not report sample results for 2015.

Eagle River stream flow at the Site was well above average during the peak flow period in 2015 (see Figure 2-2), though peak flow was slightly later than normal. Stream flow was normal (21 to 46 cfs) through the winter of 2014-2015 (see Figure 2-3). Flows rose initially early (early March) and stayed normal through March and April. Flows did not rise steeply until May 31, 2015, almost three weeks later than normal. The flows through June were much higher than normal. On May 1, 2015, the Upper Colorado River Basin snowpack, as estimated by the Natural Resources Conservation Service (NRCS), was 68 percent of normal compared to 122 percent in 2014 (NRCS 2015). The highest river flow recorded for the season was on June 17, 2015 at 1,220 cfs at station E-12A. By July 29, 2015, the daily average flows were below 150 cfs, approximately the same as average/normal flows. High flows were observed within the typical 90-day high flow window. Stream flow continued with normal flows into the fall (dropping to 34 to 45 cfs).

2.2.2 Tributaries

Rock Creek is a perennial tributary entering the Eagle River between stations E-10 and E-11 (see Figure 2-1), draining approximately 1.5 square miles. Flow measurements are estimated visually, with a bucket and stopwatch, or calculated using the measured rate of flow (in feet/sec) for the 48-foot-long, 72-inch diameter culvert at the base of Rock Creek (T-10) at the confluence with the Eagle River. Rock Creek flows typically increase from snowmelt beginning in March or April with peak flows occurring in May or June. In 2015, Rock Creek flow contributed typically around 1 percent (0.5 to 1.4%) of the Eagle River flow, with one recorded mid-March flow contributing 5.2 percent (3/19/2015).

Cross Creek is a perennial tributary entering the Eagle River between stations E-13B and E-15 (see Figure 2-1) draining approximately 34.2 square miles. Stream flow (measured at USGS station 09065100 or T-18) ranges from less than 5 cfs during the

winter season to peak flows between 150 and 200 cfs in May and early June. In 2015, Cross Creek flows was similar to the Eagle River with slightly higher than average flows in the winter and early spring and then peak flows delayed from May to June (maximum flow of 528 cfs on June 17, 2015). Flows dropped below average by mid July 2015, again similar to the Eagle River (see Figure 2-4). In 2015, Cross Creek flow contributed approximately 25 percent of the Eagle River flow during the winter, 35 percent during high flow, and 27 percent during fall low flow.

2.3 Water Quality Trends

Through a cooperative process involving all major stakeholders, water quality standards (WQS) were developed for the Colorado Water Quality Control Division (the Commission) that are protective of the aquatic community (macroinvertebrates and brown trout) expected in Segment 5 of the Eagle River and Cross Creek. The WQS were put in place on January 1, 2009, replacing the Temporary Modifications to the table value standards (TVS) provided in Regulation No. 33. The following sections discuss water quality data at the monitored stations focusing on dissolved levels of zinc, cadmium, and copper.

2.3.1 Eagle River Water Quality

Table 2-1 through Table 2-3 present the dissolved concentrations for cadmium, copper, and zinc, respectively, for the past five years, 2011 to 2015. These tables present the concentrations for Eagle River monitoring stations E-3, E-10, E-12A, E-15, and E-22. The tables also present the associated load for the CBS measured concentrations by monitoring station (see Section 2.4 for discussion of load within the river). Flow and chemical results for 2015 are provided in Appendix A.

Dissolved zinc concentrations for the Eagle River are plotted in Figure 2-5 for the reporting period October 2014 to October 2015. The WQS by segment of the Eagle River are plotted on Figure 2-6 and are compared to the monitoring station dissolved zinc concentrations. ERWSD also collect surface water samples monthly at E-12A (Station 950) and E-15 (Station 3291). These data were used to supplement Figures 2-5 and 2-6 in the months for which CBS had not collected samples as well as providing additional data for the Spring months.

Higher dissolved zinc concentrations are typically observed in the river during snowmelt periods in March and April and may extend into May. Generally by May each year, warm temperatures generate snowmelt in the upper Eagle River basin above the Site and a large increase in stream flow occurs, with peak flows typically occurring in May or June. The increased stream flow results in lower metal concentrations.

Graphical representation of concentration data for dissolved zinc, cadmium, and copper is provided in Figure 2-7. These plots show concentrations for the Eagle River stations over the 2015 period.

As discussed in previous years and in Section 4.1, the source of increased zinc concentrations in the Spring is believed to be from a groundwater surge in the Belden area. This typical Spring increase can be seen in the Segment 5 stations, depicted on Figure 2-6. All measured metal concentrations within the Site (Segments 5a and 5b) were below the WQS for all sampling events. The zinc concentration at station E-3 on March 27, 2015 was above the WQS for Segment 2 (Figure 2-7). The dissolved zinc concentration at station E-22 was also above the WQS during the March 27, 2015 sampling event (Figure 2-6 and Figure 2-7). The average hardness measured during the Spring at station E-22 for 2015 was lower (approximately 70 mg/L) versus previous averages (124 mg/L for the 2009-2012 average).

Dissolved cadmium concentrations, shown in Figure 2-7, are below the standards for the high metal season. Copper concentrations, shown in Figure 2-7, were also below standards at all stations within the Site. The copper concentrations at station E-3 on March 27 and April 27, 2015 were above the WQS for Segment 2.

2.3.2 Tributary Water Quality

Trends in dissolved zinc concentrations for Rock Creek and Cross Creek are discussed in the following sections. Table 2-4 and Table 2-5 present the dissolved concentrations for cadmium, copper, and zinc for the past five years, 2011 to 2015, in Rock Creek (T-10) and Cross Creek (T-18), respectively. The tables also present the associated load for the measured concentrations by monitoring station (see Section 2.4 for discussion of load within the river). Flow and chemical results for the reporting period are provided in Appendix A.

Rock Creek

Water samples have been collected routinely from the mouth of Rock Creek (T-10) since March 1989. Dissolved zinc results for T-10 from March 1989 to October 2015 are presented in Figure 2-8.

Water quality in Rock Creek is influenced by large seasonal fluctuations in stream flow, seepage from the Eagle Mine, and waste-rock pile runoff. Metal concentrations typically increase in April during early spring snowmelt runoff and decrease rapidly in May and June as basin-wide stream flow increases. Concentrations typically remain low during the summer months except during rainfall-runoff events. Concentrations increase in fall and winter under reduced stream flow conditions.

Significant improvements in Rock Creek water quality have occurred since 1989. Factors contributing to a continued decrease in metals concentrations in Rock Creek include lowering the mine pool elevation, collection and treatment of mine seepage and groundwater in lower Rock Creek at the RX-3 well, and the diversion and treatment of runoff/seepage from the hillside below Waste Rock Pile No. 8.

Cross Creek

Dissolved metal concentrations have been routinely measured near the mouth of Cross Creek (T-18, see Figure 2-9) since September 1990. The zinc concentration at T-18 dropped significantly in 1996 following the remediation of the Maloit Park wetlands. As seen in Figure 2-10, all detected metal concentrations are below WQS for Segment 7b.

2.4 Load Source Evaluation

In this section, dissolved zinc load in the river is used to quantify the contribution from point and non-point metal sources. Dissolved zinc load is calculated by multiplying the dissolved zinc concentration (in mg/L) by the flow (in cfs), and converting the units into pounds per day (lbs/day) using a conversion factor of 5.4. In this manner, the dissolved zinc load was calculated for each of the monitoring stations for which flow can be measured or estimated (Table 2-3 through Table 2-5).

Inherent in each computation of load is the calculated error associated with the measurement of metal concentration and stream flow (up to ± 25 percent analytical error and ± 10 percent flow error). In the analysis of loading by stream segment, it is assumed the computed load incorporates these errors and, as such, retains a compounded error of at least ± 20 percent.

Sampling stations located on the mainstem Eagle River bracket the potential metal sources. These sources include tributary inflows from Rock Creek and Cross Creek, in addition to predominately groundwater inflow from the Belden, Old Tailings Pile (OTP)/Rex Flats, and Consolidated Tailings Pile (CTP) areas. Using discrete river segments, the difference in metal load between two stations can be calculated. The amount of load contributed by measured or “accounted” tributary inflows is known. After subtracting the accounted load, the load difference is referred to as the “unaccounted” load. A positive unaccounted load (load increase) includes groundwater and/or diffuse surface-water inflow that are not measured. These are sometimes referred to as non-point source loads. A negative unaccounted load (load decrease) can result from losses of flow to groundwater, or from decreases in metal concentration through attenuation processes such as chemical precipitation or adsorption.

Table 2-6 provides a data summary of the dissolved zinc loading by Eagle River segment for a five-year period of 2011 through 2015. A discussion of peak spring zinc

loading by river segment for the sample date March 12, 2015 is provided below, using Figure 2-11 presenting the yearly peak Spring loads for reference.

Background (E-3)

The calculated dissolved zinc load at E-3 (37 lbs/day) represents the background zinc load entering Segment 5a from Segment 2. The source of the background zinc in Segment 2 is thought to be runoff from the numerous smaller mines and associated waste rock piles located along the Eagle River between Red Cliff and Belden. These mines and piles are not associated with the Eagle Mine Site.

Belden (E-3 to E-10)

Upper Segment 5a or Belden segment extends downstream from Segment 2 (station E-3) to station E-10 above Rock Creek. The calculated dissolved zinc load after subtracting background is 42 lbs/day. Investigations indicate that the primary source of the zinc load is groundwater perched in the waste rock and railroad ballast located in Belden. Runoff from the waste rock may contribute to periodic metal loads during spring and summer.

Fall Creek contributes on the order of 10 to 20 percent of the Eagle River flow in this segment. Past studies document that Fall Creek does not contribute significant quantities of metals, and this tributary metal load is assumed to be zero for purposes of load accounting (Dames & Moore 1998).

Rock Creek (E-10 to E-12A)

Lower Segment 5a or Rock Creek segment receives tributary inflow from Rock Creek and Bishop Gulch and groundwater from Rock Creek and the OTP/Rex Flats area. Historical data shows that Bishop Gulch does not contribute significant zinc load to the Eagle River. This segment typically shows a small increase in zinc load relative to the Belden segment.

The calculated dissolved zinc load decreased by 10 lbs/day, after subtracting Rock Creek, which contributed 14 lbs/day. In past years, the source of the zinc has been attributed to groundwater baseflow from Rock Creek alluvium, groundwater baseflow from Belden segment alluvium, and groundwater seepage from the OTP/Rex Flats area.

CTP (E-12A to E-15)

Segment 5b brackets the CTP and receives flow from Cross Creek, the largest tributary within the Site. Two Elk Creek, a perennial tributary, and discharge from the WTP also flow to the Eagle River in this segment; however, historical data show that the dissolved

zinc load contributed by these sources is negligible. The calculated dissolved zinc load increased by 28 lbs/day, after subtracting Cross Creek, which contributed 2.4 lbs/day. Investigations indicate that the source of the zinc is primarily groundwater baseflow from OTP/Rex Flats and the CTP.

**Table 2-1
Eagle River Cadmium Concentrations and Loads
2011 - 2015**

Date	Dissolved Cadmium Concentration ⁽¹⁾ (mg/L)					Eagle River Flow (cfs) at E-12A	Cadmium Load ^(1,2) (lbs/day)				
	E- 3	E-10	E-12A	E-15	E-22		E- 3	E-10	E-12A	E-15	E-22
3/7/11 ⁽³⁾		0.00042	0.00045	0.00031	0.00010	32		0.08	0.08	0.07	0.02
3/21/11	0.00040	0.00140	0.00130	0.00092	0.00080	43	0.08	0.34	0.30	0.32	0.27
4/4/11	0.00033	0.00097	0.00190	0.00150	0.00090	66	0.10	0.35	0.68	0.84	0.50
4/18/11	0.00022	0.00078	0.00100	0.00078	0.00080	119	<i>0.13</i>	<i>0.51</i>	<i>0.64</i>	<i>0.82</i>	<i>0.84</i>
5/4/11	0.00550	0.00110	0.00150	0.00074	0.00090	96	2.52	0.58	0.78	0.62	0.76
10/11/11	0.00005 **	0.00016	0.00025	0.00021		51	0.01 **	0.05	0.07	0.09	
3/12/12	0.00005 **	0.00049	0.00061			25	0.01 **	0.07	0.08		
3/19/12			0.00045			36			0.09		
3/26/12	0.00005 **	0.00035	0.00044	0.00027		85	0.02 **	0.16	0.20	0.20	
4/3/12			0.00036			116			0.23		
4/10/12	0.00005 **	0.00010	0.00014	0.00005 **		144	0.03 **	0.08	0.11	0.064 **	
4/17/12			0.00022			103			0.12		
10/18/12	0.00005 **	0.00014	0.00018	0.00015	0.00017	28	0.01 **	0.02	0.03	0.03	0.03
3/12/13 ⁽³⁾		0.00026	0.00028	0.00015	0.00016	9		0.02	0.01	0.00	0.00
3/22/13	0.00010 **	0.00030	0.00032	0.00021	0.00023	12	0.01 **	0.02	0.02	0.01	0.01
4/5/13	0.00035	0.00074	0.00074	0.00055	0.00043	38	0.06	0.16	0.15	0.16	0.13
4/19/13	0.00024	0.00066	0.00100	0.00053	0.00044	33	0.04	0.12	0.18	0.13	0.11
5/3/13	0.00045	0.00074	0.00110	0.00064	0.00053	130	0.28	0.53	0.77	0.74	0.61
9/30/13	0.00005 **	0.00005 **	0.00005 **	0.00005 **	0.00005 **	86	0.02 **	0.02 **	0.02 **	0.04 **	0.04 **
3/20/14	0.00018	0.00070	0.00040	0.00043	0.00037	31	0.03	0.12	0.07	0.10	0.09
4/3/14	0.00024	0.00110	0.00100	0.00078	0.00063	38	0.04	0.24	0.21	0.23	0.19
4/17/14	0.00032	0.00081	0.00093	0.00064	0.00059	143	0.22	0.63	0.72	0.82	0.75
9/24/14	0.00005 **	0.00005 **	0.00005 **	0.00005 **	0.00005 **	67	0.02 **	0.02 **	0.02 **	0.03 **	0.03 **
3/13/15	0.00014	0.00034	0.00031	0.00022	0.00019	38	0.03	0.07	0.11	0.07	0.06
3/27/15	0.00030	0.00045	0.00052	0.00033	0.00032	80	0.11	0.20	0.19	0.23	0.22
4/13/15	0.00004	0.00009	0.00012	0.00017	0.00017	143	0.03	0.07	0.05	0.22	0.22
4/27/15	0.00006	0.00021	0.00042	0.00030	0.00019	139	0.04	0.16	0.16	0.37	0.24
10/19/15	0.00004 **	0.00014 **	0.00008 **	0.00005 **	0.00007 **	34	0.01 **	0.03 **	0.03 **	0.01 **	0.02 **

Notes:

Concentrations marked with ** were not detected and reported concentration is estimated and reported at 1/2 the detection limit through 2014. In 2015 the reporting detection limit was lowered to the Laboratory's MDL. Load is calculated using this concentration.

- 1) Blanks indicate station was not sampled on designated date.
- 2) Load was calculated using the flow for the designated station and the flow relationship to the E-12A gage (see Appendix A). Loads calculated with flows greater than 100 cfs are flow driven and are italicized
- 3) Samples were not collected at E-3 due to unsafe ice/river access conditions.

**Table 2-2
Eagle River Copper Concentrations and Loads
2011 - 2015**

Date	Dissolved Copper Concentration ⁽¹⁾ (mg/L)					Eagle River Flow (cfs) at E-12A	Copper Load ^(1,2) (lbs/day)				
	E-3	E-10	E-12A	E-15	E-22		E-3	E-10	E-12A	E-15	E-22
3/7/11 ⁽³⁾		0.0031	0.0032	0.0072	0.0072	32		0.6	0.55	1.7	1.1
3/21/2011	0.0084	0.0085	0.0068	0.0059	0.0059	43	1.7	2.0	1.6	2.0	2.7
4/4/2011	0.0074	0.0082	0.0084	0.0123	0.0123	66	2.3	3.0	3.0	6.9	4.6
4/18/2011	0.0050	0.0076	0.0106	0.0068	0.0068	119	2.8	4.9	6.8	7.2	11
5/4/2011	0.0095	0.0091	0.0093	0.0060	0.0060	96	4.4	4.8	4.8	5.0	8.3
10/11/2011	0.001 **	0.0020	0.001 **	0.001 **	0.001 **	51	0.24 **	0.57	0.28 **	0.42 **	
3/12/12	0.0025	0.0033	0.0026			25	0.30	0.48	0.35		
3/19/12			0.0036			36			0.70		
3/26/12	0.0026	0.0033	0.0041	0.0031		85	1.1	1.5	1.9	2.3	
4/3/12			0.0043			116			2.7		
4/10/12	0.0027	0.0029	0.0028	0.0027		144	1.9	2.3	2.2	3.5	
4/17/12			0.0034			103			1.9		
10/18/12	0.001 **	0.001 **	0.001 **	0.001 **	0.001 **	28	0.13 **	0.16 **	0.15 **	0.20 **	0.20 **
3/12/13 ⁽³⁾		0.0026	0.001 **	0.001 **	0.001 **	9		0.2	0.05 **	0.03 **	0.03 **
3/22/13	0.002 **	0.002 **	0.002 **	0.002 **	0.002 **	12	0.11 **	0.15 **	0.13 **	0.11 **	0.11 **
4/5/13	0.0078	0.0080	0.0052	0.0039	0.0039	38	1.4	1.7	1.1	1.2	1.2
4/19/13	0.0064	0.0078	0.0085	0.0042	0.0228	33	1.0	1.5	1.5	1.0	5.7
5/3/13	0.0069	0.0089	0.0114	0.0092	0.0074	130	4.3	6.3	8.0	11	8.6
9/30/13	0.001 **	0.001 **	0.001 **	0.0021	0.0025	86	0.41 **	0.47 **	0.46 **	1.6	1.9
3/20/14	0.0045	0.0058	0.0023	0.0025	0.0023	31	0.66	1.0	0.39	0.58	0.53
4/3/14	0.0046	0.0061	0.0044	0.0036	0.0034	38	0.83	1.3	0.90	1.1	1.0
4/17/14	0.0073	0.0072	0.0077	0.0059	0.0061	143	5.0	5.6	5.9	7.5	7.8
9/24/14	0.001 **	0.0028	0.001 **	0.0020	0.001 **	67	0.32 **	1.0	0.36 **	1.1	0.57 **
3/13/15	0.0032	0.0035	0.0028	0.0024	0.0020	38	0.58	0.75	1.03	0.71	0.59
3/27/15	0.0071	0.0067	0.0062	0.0051	0.0048	80	2.7	3.0	2.31	3.5	3.3
4/13/15	0.0062	0.0051	0.0050	0.0039	0.0038	143	4.2	4.0	1.89	5.0	4.9
4/27/15	0.0068	0.0058	0.0061	0.0044	0.0041	139	4.5	4.4	2.34	5.5	5.1
10/19/15	0.0009	0.0018	0.0013	0.0013	0.0010	34	0.14	0.35	0.51	0.34	0.26

Notes:

Concentrations marked with ** were not detected and reported concentration is estimated and reported at 1/2 the detection limit through 2014. in 2015 the reporting detection limit was lowered to the Laboratory's MDL. Load is calculated using this concentration.

- 1) Blanks indicate station was not sampled on designated date.
- 2) Load was calculated using the flow for the designated station and the flow relationship to the E-12A gage (see Appendix A). Loads calculated with flows greater than 100 cfs are flow driven and are italicized
- 3) Samples were not collected at E-3 due to unsafe ice/river access conditions.

**Table 2-3
Eagle River Zinc Concentrations and Loads
2011 - 2015**

Date	Dissolved Zinc Concentration ⁽¹⁾ (mg/L)					Eagle River Flow (cfs) at E-12A	Zinc Load ^(1,2) (lbs/day)				
	E- 3	E-10	E-12A	E-15	E-22		E- 3	E-10	E-12A	E-15	E-22
3/6/10 ⁽³⁾		0.167	0.198	0.169	0.168	18		18	19	19	18
3/17/10 ⁽³⁾		0.405	0.243	0.178	0.188	23		54	30	28	29
4/2/10 ⁽³⁾		0.132	0.248	0.195	0.224	31		23	42	45	52
4/15/2010	0.043	0.186	0.281	0.187	0.188	123	25	125	187	204	205
9/24/2010	0.010	0.070	0.103	0.080	0.080	41	2.0	16	23	26	26
3/7/11 ⁽³⁾		0.159	0.206	0.197	0.145	32		29	36	47	35
3/21/2011	0.097	0.462	0.513	0.400	0.358	43	20	111	119	137	123
4/4/2011	0.105	0.341	0.674	0.589	0.371	66	33	124	240	329	207
4/18/2011	0.095	0.270	0.364	0.291	0.291	119	54	176	234	307	307
5/4/2011	0.083	0.282	0.337	0.215	0.272	96	38	148	175	181	228
10/11/2011	0.005 **	0.059	0.099	0.097		51	1.2 **	17	27	41	
3/12/12	0.026	0.230	0.316			25	3.1	33	43		
3/19/12			0.245			36			48		
3/26/12	0.025	0.131	0.158	0.120		85	10	61	73	88	
4/3/12			0.178			116			111		
4/10/12	0.029	0.040	0.064	0.055		144	20	31	50	71	
4/17/12			0.117			103			65		
10/18/12	0.010 **	0.047	0.095	0.057	0.055	28	1.3 **	7.6	14	12	11
3/12/13 ⁽³⁾		0.113	0.166	0.121	0.110	9		6.6	8.2	3.2	2.9
3/22/13	0.010 **	0.157	0.129	0.140	0.129	12	0.6 **	12	8.4	7.5	6.9
4/5/13	0.105	0.231	0.288	0.243	0.222	38	19	49	59	72	66
4/19/13	0.067	0.223	0.445	0.377	0.231	33	11	42	79	94	58
5/3/13	0.154	0.235	0.370	0.266	0.215	130	96	167	260	308	249
9/30/13	0.010	0.028	0.041	0.033	0.035	86	4	13	19	24	26
3/20/14	0.043	0.259	0.197	0.196	0.176	31	6	46	33	45	41
4/3/14	0.059	0.306	0.342	0.251	0.220	38	11	65	70	74	65
4/17/14	0.101	0.209	0.248	0.171	0.168	143	69	163	192	219	215
9/24/14	0.005 **	0.038	0.032	0.032	0.040	67	1.6 **	14	12	18	23
3/13/15	0.029	0.128	0.153	0.111	0.113	38	5	27	56	33	34
3/27/15	0.098	0.180	0.225	0.166	0.156	80	37	79	84	115	108
4/13/15	0.035	0.063	0.088	0.068	0.068	143	24	49	33	87	87
4/27/15	0.027	0.074	0.128	0.111	0.066	139	18	56	49	138	81
10/19/15	0.009	0.048	0.065	0.047	0.039	34	1.4	9.2	25	12	10

Notes:

Concentrations marked with ** were not detected and reported concentration is estimated and reported at 1/2 the detection limit through 2014. In 2015 the reporting detection limit was lowered to the Laboratory's MDL. Load is calculated using this concentration.

- 1) Blanks indicate station was not sampled on designated date.
- 2) Load was calculated using the flow for the designated station and the flow relationship to the E-12A gage (see Appendix A). Loads calculated with flows greater than 100 cfs are flow driven and are italicized
- 3) Samples were not collected at E-3 due to unsafe ice/river access conditions.

Table 2-4
Rock Creek Dissolved Metal Concentrations and Loads
2011 - 2015

Date	Dissolved Metal Concentration ⁽¹⁾ (mg/L)			Flow ⁽²⁾ (cfs)	Dissolved Metal Load ⁽³⁾ (lbs/day)		
	Cadmium	Copper	Zinc		Cadmium	Copper	Zinc
3/7/11	0.0105	0.0119	4.01	0.38	0.0215	0.024	8.2
3/21/11	0.0054	0.0107	2.42	0.66	0.0192	0.038	8.6
4/4/11	0.0061	0.0174	2.79	0.79	0.0260	0.074	11.9
4/18/11	0.0115	0.0370	4.85	0.79	0.0491	0.158	20.7
5/4/11	0.0038	0.0205	1.52	0.68	0.0140	0.075	5.6
10/11/11	0.0049	0.0039	2.56	0.37	0.0098	0.008	5.1
3/12/12	0.0031	0.0044	1.9	0.19 *	0.0032	0.005	2.0
3/26/12	0.0119	0.0225	6.22	0.28	0.0180	0.034	9.4
4/10/12	0.0046	0.0115	2.12	0.59 *	0.0146	0.036	6.7
10/18/12	0.0025	0.0026	1.53	0.16 *	0.0022	0.002	1.3
3/12/13	0.0039	0.0023	2.65	0.13	0.0027	0.002	1.9
3/22/13	0.0044	0.0040	2.61	0.02 *	0.0005	0.000	0.3
4/5/13	0.0032	0.0152	1.67	0.06 *	0.0010	0.005	0.5
4/19/13	0.0072	0.0176	4.21	0.45	0.0175	0.043	10.2
5/3/13	0.0144	0.0354	6.66	0.45	0.0350	0.086	16.2
9/30/13	0.0029	0.0056	1.22	0.41 *	0.0064	0.012	2.7
3/20/14	0.0029	0.0031	1.74	0.20 *	0.0031	0.003	1.9
4/3/14	0.0031	0.0043	1.61	1.45	0.0243	0.034	12.6
4/17/14	0.0054	0.0201	2.07	1.00	0.0292	0.109	11.2
9/24/14	0.0028	0.0035	0.96	0.45	0.0068	0.009	2.3
3/13/15	0.0027	0.0082	1.48	0.55	0.0080	0.024	4.4
3/27/15	0.0067	0.0289	2.76	0.95	0.0344	0.148	14.2
4/13/15	0.0030	0.0218	1.30	0.71	0.0115	0.084	5.0
4/27/15	0.0032	0.0196	1.31	0.71	0.0123	0.075	5.0
10/19/15	0.0016	0.0023	0.81	0.22	0.0019	0.003	1.0

Notes:

detection limit through 2014. in 2015 the reporting detection limit was lowered to the Laboratory's MDL. Load is calculated using this concentration.

2) T-10 flow measured at the station or if marked with * estimated using a relationship with T-18 (using T-18 flow measured at USGS station 09065100 until July 2009). Flows after July 2009 are estimated using field measurements when conditions allowed. Comparisons to the T-18 relationship to estimated T-10 flows indicate the relationship has a high bias during dry years.

3) Load was calculated using the flow for the designated station and concentration presented in table. Loads marked with ** are based on estimated concentrations when metal was not detected.

**Table 2-5
Cross Creek Dissolved Metal Concentrations and Loads
2011 - 2015**

Date	Dissolved Metal Concentration ⁽¹⁾ (mg/L)			Flow ⁽²⁾ (cfs)	Dissolved Metal Load ⁽³⁾ (lbs/day)		
	Cadmium	Copper	Zinc		Cadmium	Copper	Zinc
3/7/11	0.00015	0.0051	0.118	4	0.0032	0.11	2.5
3/21/11	0.00024	0.0040	0.128	7	0.0096	0.16	5.1
4/4/11	0.00005 **	0.0041	0.104	19	0.0051 **	0.42	10.7
4/18/11	0.00018	0.0058	0.076	22	0.0214	0.69	9.1
5/4/11	0.00005 **	0.0021	0.055	17	0.0046 **	0.19	5.0
10/11/11	0.00020	0.0038	0.090	15	0.0162	0.31	7.3
3/12/12	0.0002	0.001 **	0.173	5	0.0044	0.028 **	4.8
3/26/12	0.00005 **	0.0023	0.038	16	0.0043 **	0.199	3.3
4/10/12	0.00005 **	0.0028	0.0265	36	0.0097 **	0.544	5.2
10/18/12	0.00005 **	0.001 **	0.0567	11	0.0030 **	0.059 **	3.4
3/12/13	0.00011	0.001 **	0.1820	3	0.0017	0.015 **	2.8
3/22/13	0.00010 **	0.002 **	0.1200	3	0.0015 **	0.029 **	1.7
4/5/13	0.00011	0.0023	0.0799	6	0.0037	0.077	2.7
4/19/13	0.00005 **	0.0021	0.0726	5	0.0012 **	0.051	1.8
5/3/13	0.00011	0.0044	0.0551	31	0.0184	0.74	9.2
9/30/13	0.00005	0.0038	0.0189	42	0.0113	0.86	4.3
3/20/14	0.00005	0.0025	0.0640	5.7	0.0015	0.077	2.0
4/3/14	0.00005	0.0010	0.0497	7.8	0.0021	0.042	2.1
4/17/14	0.00005	0.0027	0.0348	28	0.0076	0.41	5.3
9/24/14	0.00005 **	0.0035	0.0202	29	0.0078 **	0.55	3.2
3/13/15	0.000042 **	0.0014	0.0614	7	0.0016 **	0.053	2.3
3/27/15	0.000042 **	0.0033	0.0235	19	0.0043 **	0.34	2.4
4/13/15	0.000042 **	0.0021	0.0223	26	0.0059 **	0.29	3.1
4/27/15	0.000042 **	0.0019	0.0208	27	0.0061 **	0.28	3.0
10/19/15	0.000042 **	0.0012	0.0660	7	0.0017 **	0.047	2.6

Notes:

detection limit through 2014. In 2015 the reporting detection limit was lowered to the Laboratory's MDL. Load is calculated using this concentration.

- 2) T-18 flow measured at USGS station 09065100. Flows from August 2009 through November 2010 (when the gage was not operating) are estimated on day of sampling. Flows during ice over could not be estimated with accuracy and are not reported.
- 3) Load was calculated using the flow for the designated station and concentration presented in table. Loads marked with ** are based on estimated concentrations when metal was not detected.

**Table 2-6
Zinc Loading Summary
2011 - 2015**

Date	Eagle River Flow (cfs) at E-12A	Zinc Loading for Eagle River (lbs/day) ⁽¹⁾							
		Segment 2 (Background)	Upper Segment 5a (Belden)	Lower Segment 5a (Rock Creek)			Segment 5b		
				Entire Segment	Rock Creek Load	Without Rock Creek Load	Entire Segment	Cross Creek Load	Without Cross Creek Load
3/7/2011	32	NM	29	6.7	8.2	-1.5	12	2.5	9.3
3/21/2011	43	20	91	7.8	8.6	-0.8	18	5.1	13
4/4/2011	66	33	91	116	12	104	89	11	78
4/18/2011	119	54	122	58	21	38	73	9.1	64
5/4/2011	96	38	111	26	5.6	21	5.8	5.0	0.8
10/11/2011	47	1.2	16	10	5.1	5.4	13	7.3	6.1
3/12/2012	25	3.1	30	10	2.0	7.6	NM	4.8	NA
3/26/2012	85	10	51	11	9.4	1.9	16	3.3	12.6
4/10/2012	144	20	12	19	6.7	12	21	5.2	16
10/18/2012	28	1.3	6.3	6.8	1.3	5.5	-2.9	3.4	-6.3
3/12/2013	9	NM	6.6	1.6	1.9	-0.3	-5.0	2.8	-7.7
3/22/2013	12	0.6	11	-3.2	0.32	-3.6	-0.9	1.7	-2.6
4/5/2013	38	19	30	9.7	0.52	9.1	13	2.7	10
4/19/2013	33	11	31	38	10.2	27	15	1.8	13
5/3/2013	130	96	71	93	16.2	77	48	9.2	39
9/30/2013	86	4.1	9.3	5.5	2.7	2.8	5.3	4.3	1.1
3/20/2014	31	6.3	39	-13	1.9	-15	12	2.0	10
4/3/2014	38	11	55	4.7	13	-7.9	4.3	2.1	2.2
4/17/2014	143	69	94	29	11	17	27	5.3	22
9/24/2014	67	1.6	12	-2.2	2.3	-4.5	6.7	3.2	3.5
3/13/2015	38	5.2	22	29	4.4	24	-23	2.3	-26
3/27/2015	80	37	42	4.6	14	-10	31	2.4	28
4/13/2015	143	24	25	-16	5.0	-21	54	3.1	51
4/27/2015	139	18	38	-7.0	5.0	-12	89	3.0	86
10/19/2015	34	1.4	7.8	16	1.0	15	-13	2.6	-16

Notes:

1) Individual zinc loads are presented on Table 2-3 for the Eagle River stations and Tables 2-4 and 2-5 for the tributary stations Rock Creek (T-10) and Cross Creek (T-18), respectively. Zinc Loading for a segment is calculated using the stations listed below.

Segment 2 or Background is the measured load at E-3.

Upper Segment 5a or Belden is the load measured at E-10 minus the background load (E-3).

Lower Segment 5a is the load measured at E-12A minus the load measured at E-10. When the Rock Creek load (T-10) is removed, the remaining gain/loss is from unaccounted sources.

Segment 5b is the load measured at E-15 minus the load measured at E-12A. When the Cross Creek load (T-18) is removed, the remaining gain/loss is from unaccounted sources and the WTP (which is typically small approximately 0.2 lbs/day).

NM - Not Measured

NA - Not applicable - if a tributary load could not be measured, it is not applicable to present the Segment load "without" the tributary.

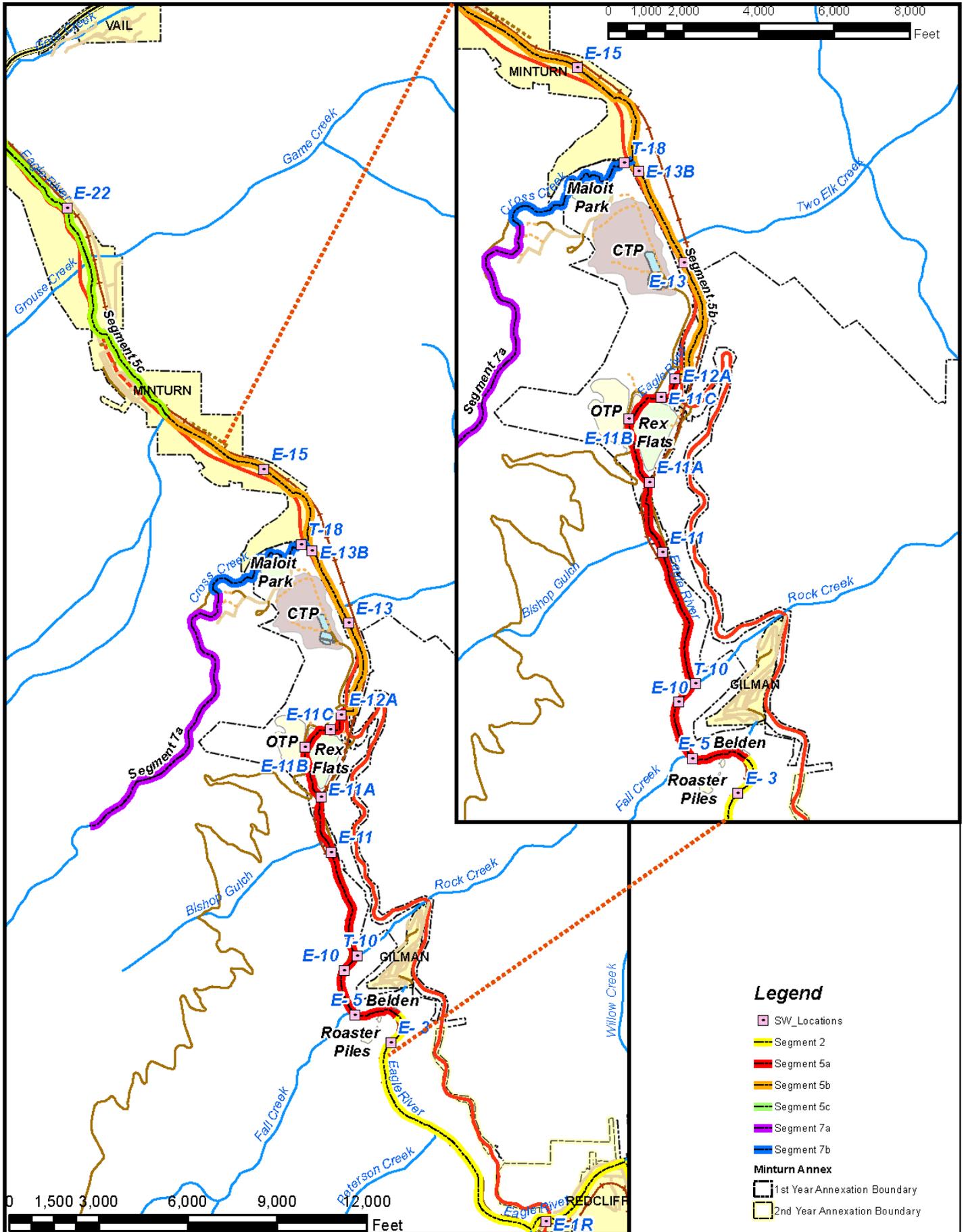
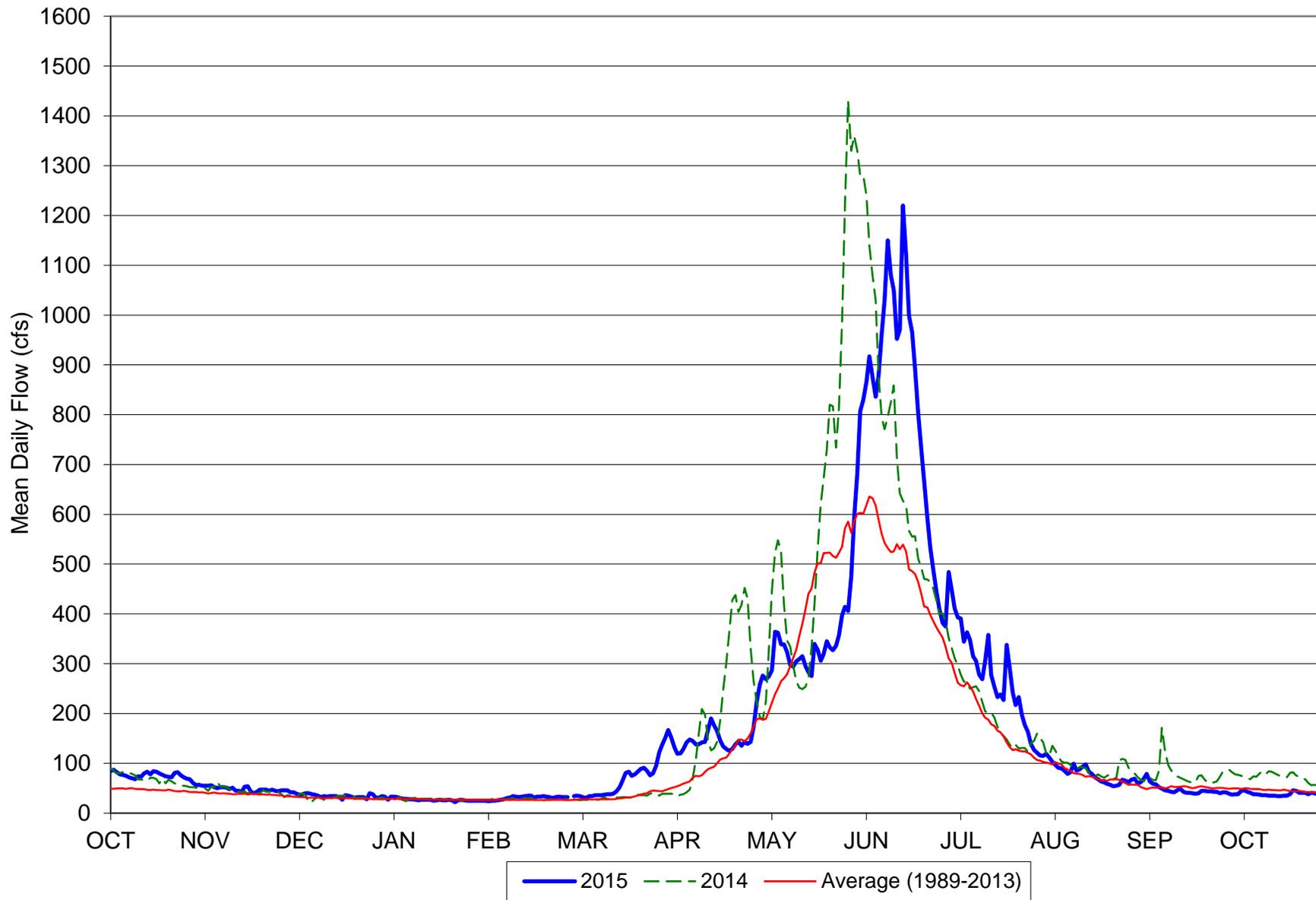


Figure 2-1 Surface Water Monitoring Locations and Eagle River Basin Segments

Eagle River Mean Daily Flow Station E-12A: 2015 vs 2014 vs Average

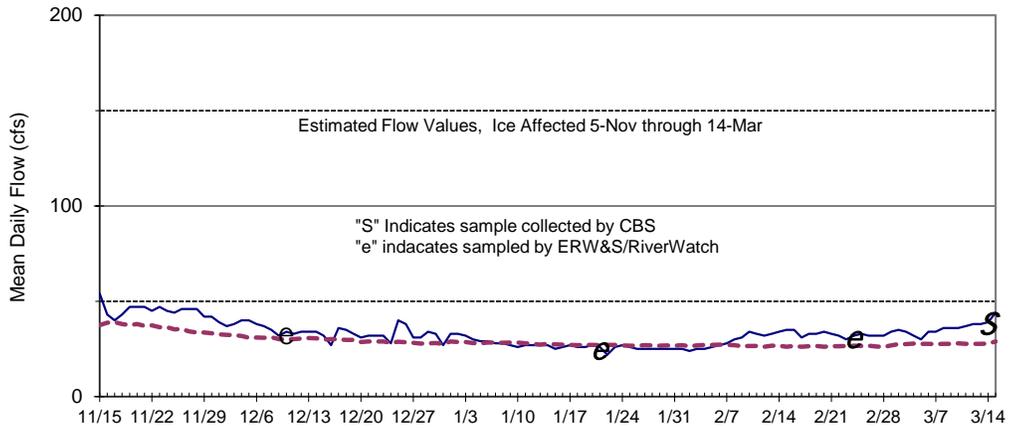


Source: USGS station 09064600 accessed at <http://waterdata.usgs.gov/co/nwis>

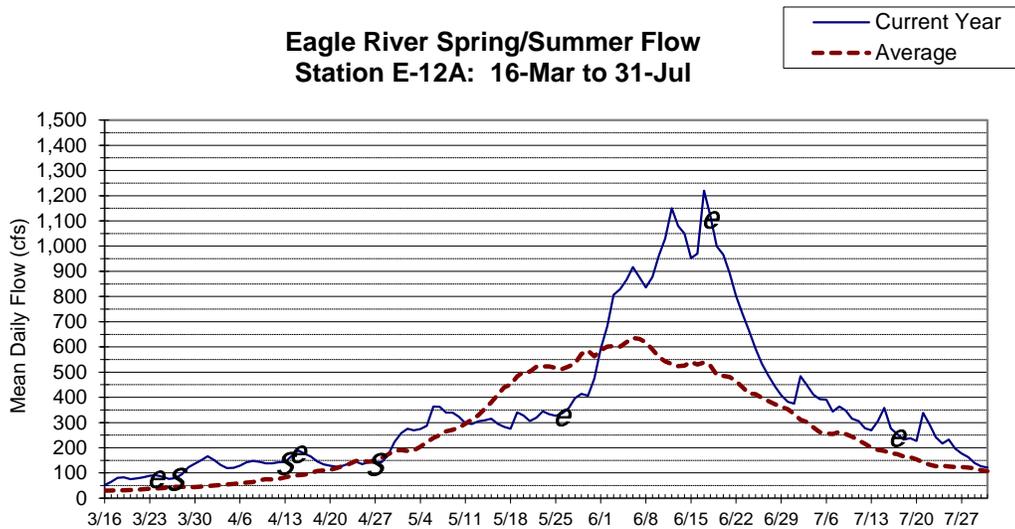
Figure 2-2

Eagle River Flow by Season at Station E-12A

Eagle River Winter Flow Station E-12A: 15-Nov to 15-Mar



Eagle River Spring/Summer Flow Station E-12A: 16-Mar to 31-Jul



Eagle River Fall Flow Station E-12A: 1-Aug to 31-Oct3

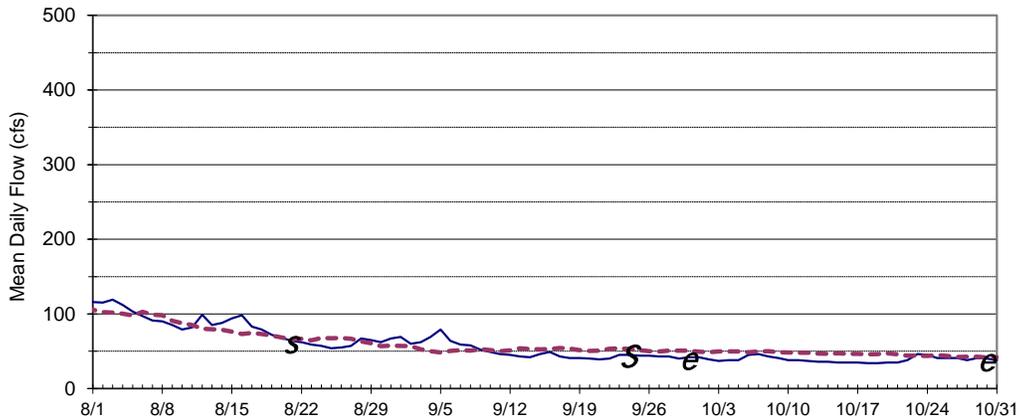
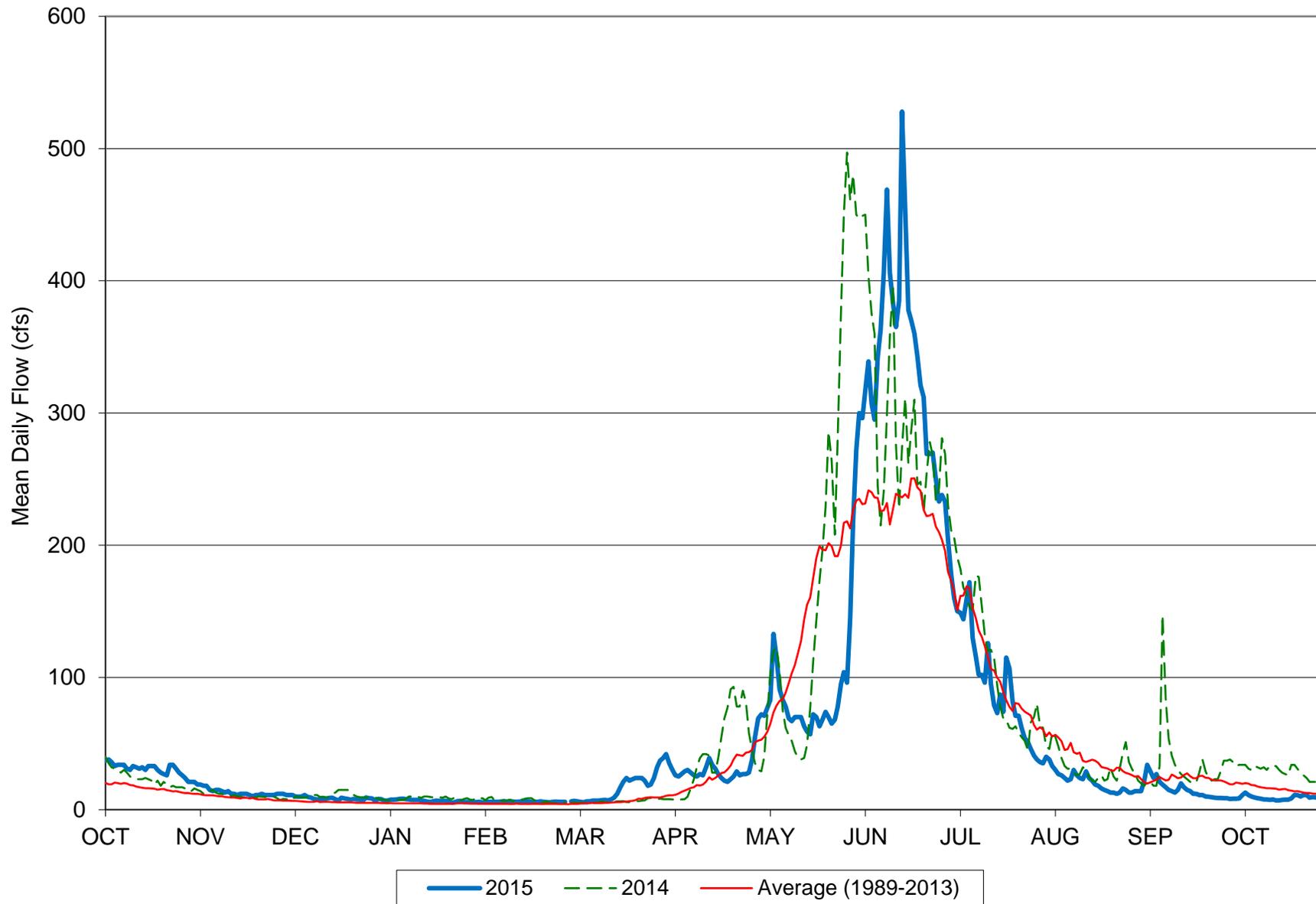


Figure 2-3

Cross Creek Mean Daily Flow Station T-18: 2015 vs 2014 vs Average



Eagle River Seasonal Water Quality Dissolved Zinc: Oct-2013 to Oct-2014

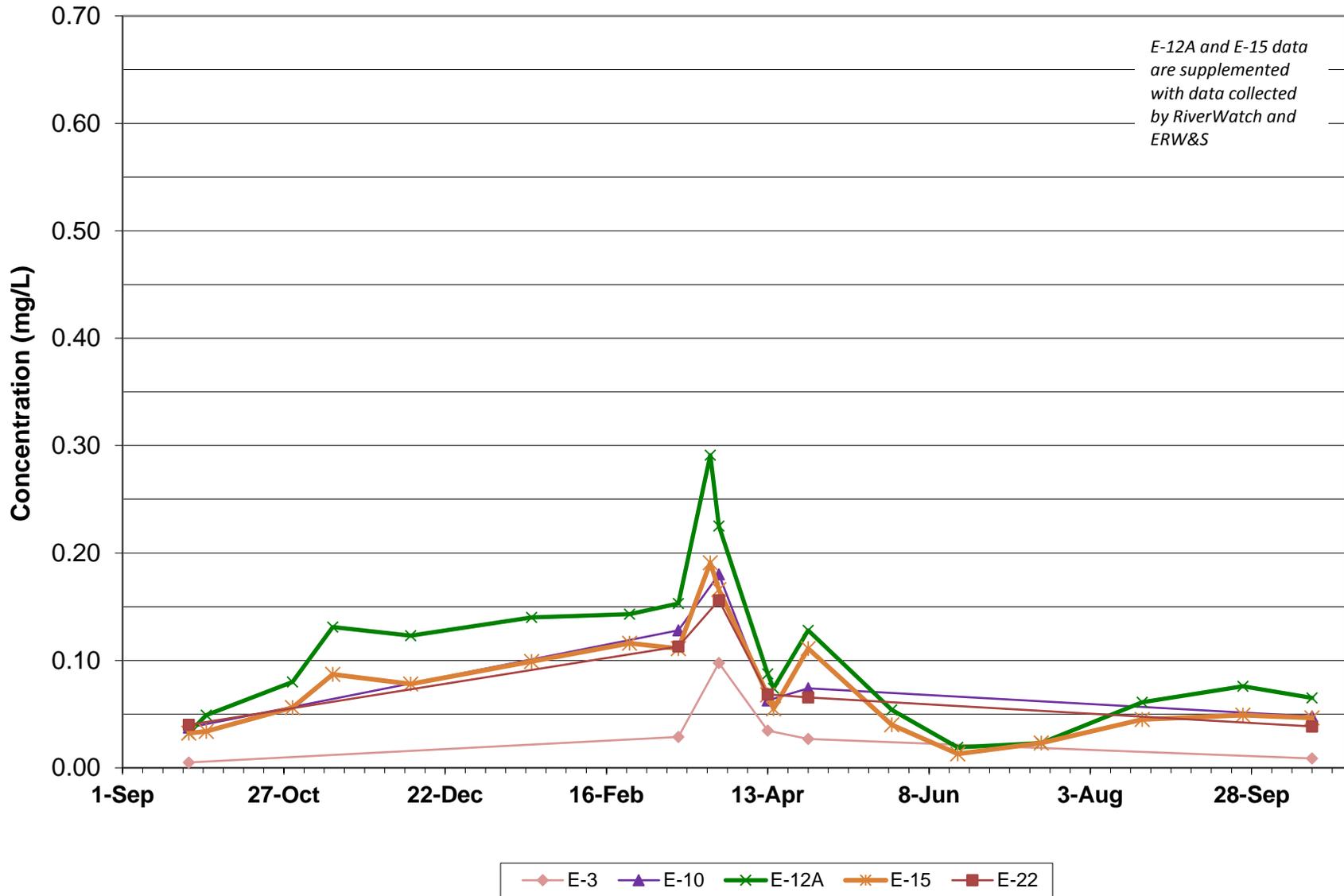


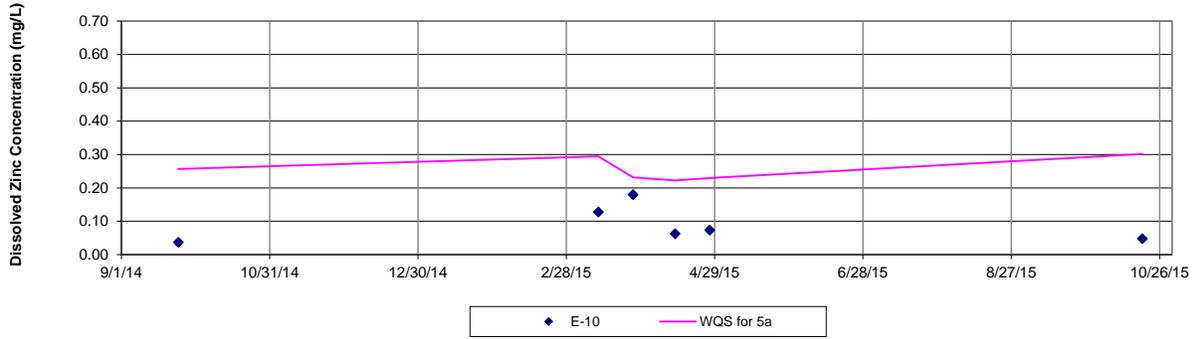
Figure 2-5

Dissolved Zinc Concentrations in Eagle River Segment 5

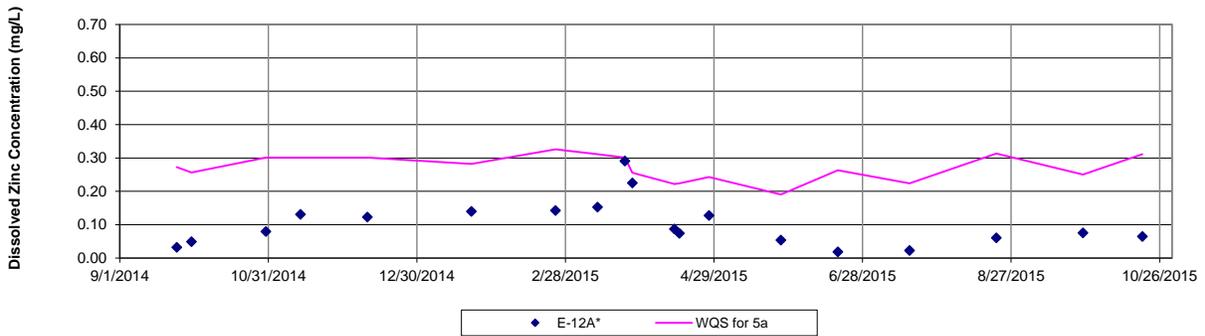
WQS are based on equations found in Table 3 of CCR 33, effective 1/1/2009 and were calculated using the hardness of the corresponding sample.

Segment 5a

E-10



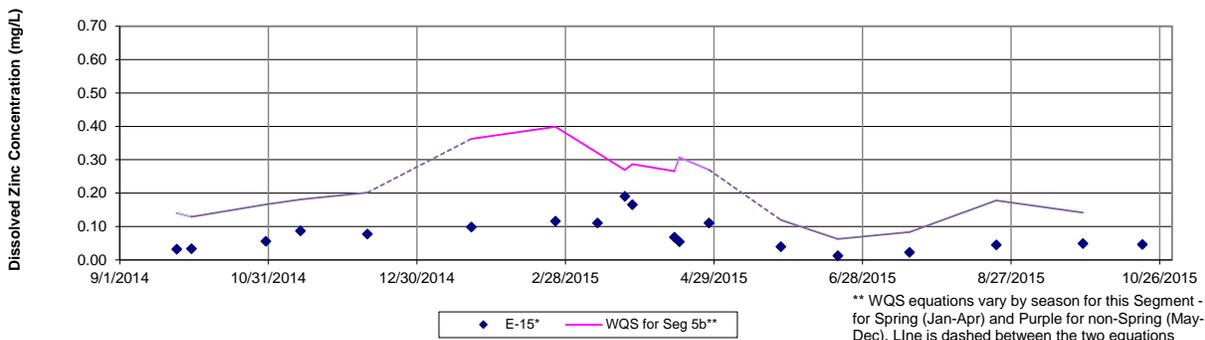
E-12A



*E-12A and E-15 data are supplemented with data collected by RiverWatch and ERW&S

Segment 5b

E-15



** WQS equations vary by season for this Segment - Pink for Spring (Jan-Apr) and Purple for non-Spring (May-Dec). Line is dashed between the two equations

Segment 5c

E-22

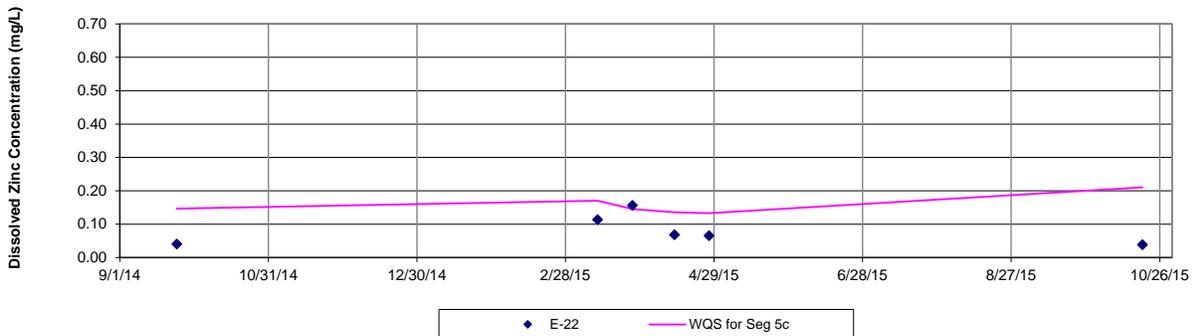
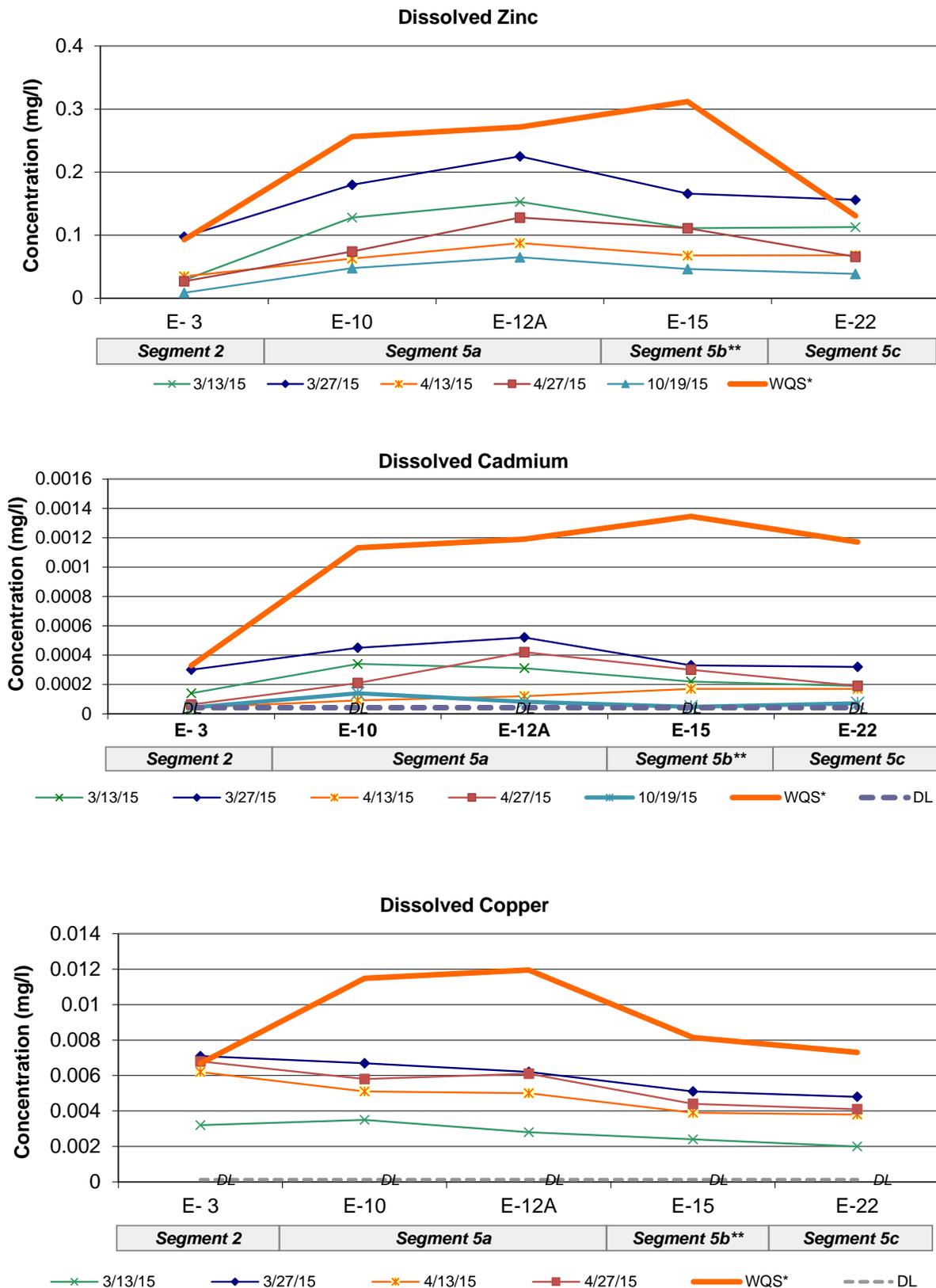


Figure 2-6

Comparisons of Dissolved Zinc, Cadmium, and Copper in the Eagle River to Chronic Ambient Water Quality Standards



* Average Hardness for each station was calculated using data from 2009-2012 and used in WQS calculation; equations vary by Segment.

** WQS for dissolved zinc shown for Segment 5b is the January-April WQS as this is appropriate comparison for all but September's sample. See Figure 2-6 for comparison of individual samples to the seasonal standards.

Figure 2-7

Dissolved Zinc Concentration Station T-10: Rock Creek

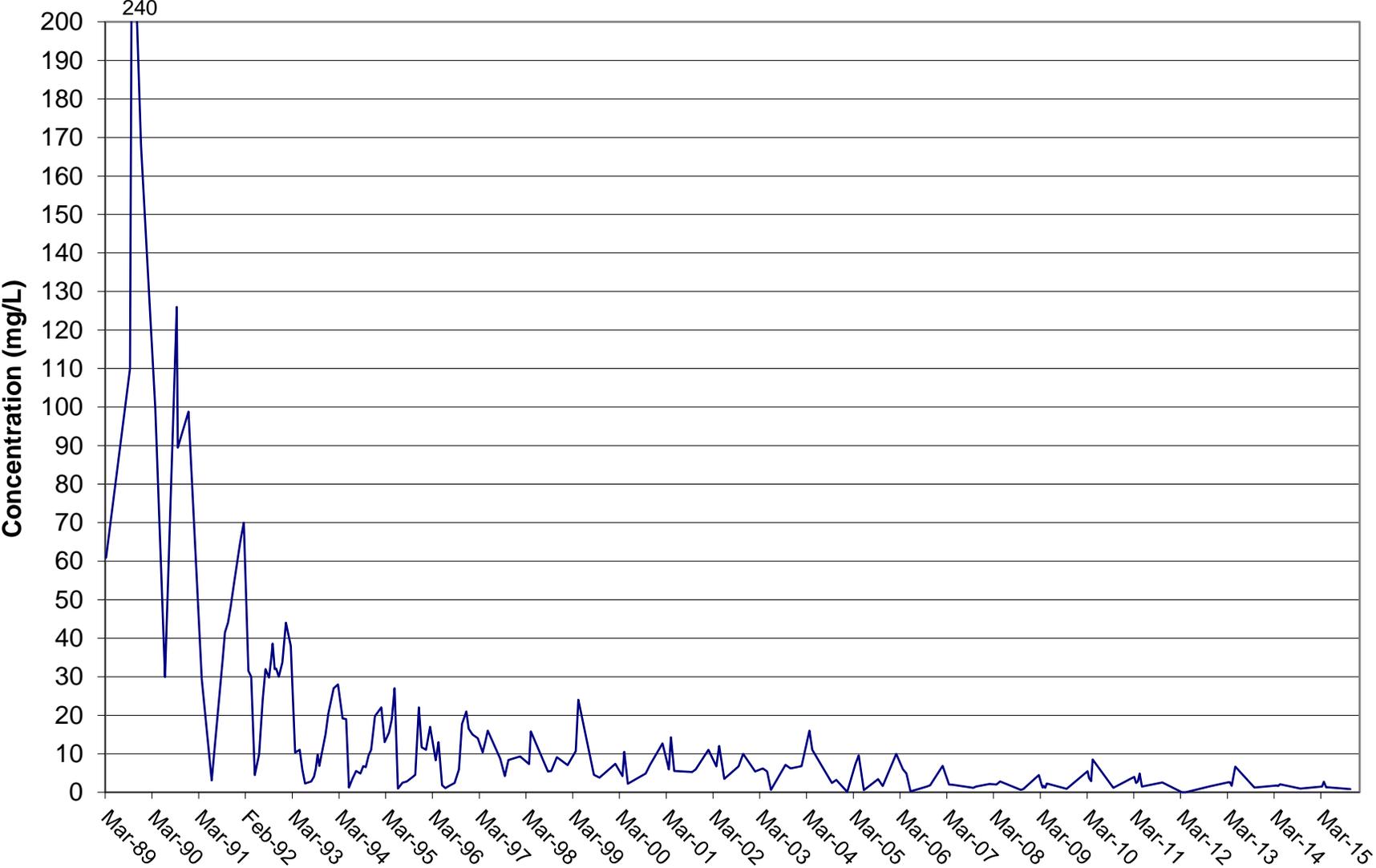


Figure 2-8

Dissolved Zinc Concentration Station T-18: Cross Creek

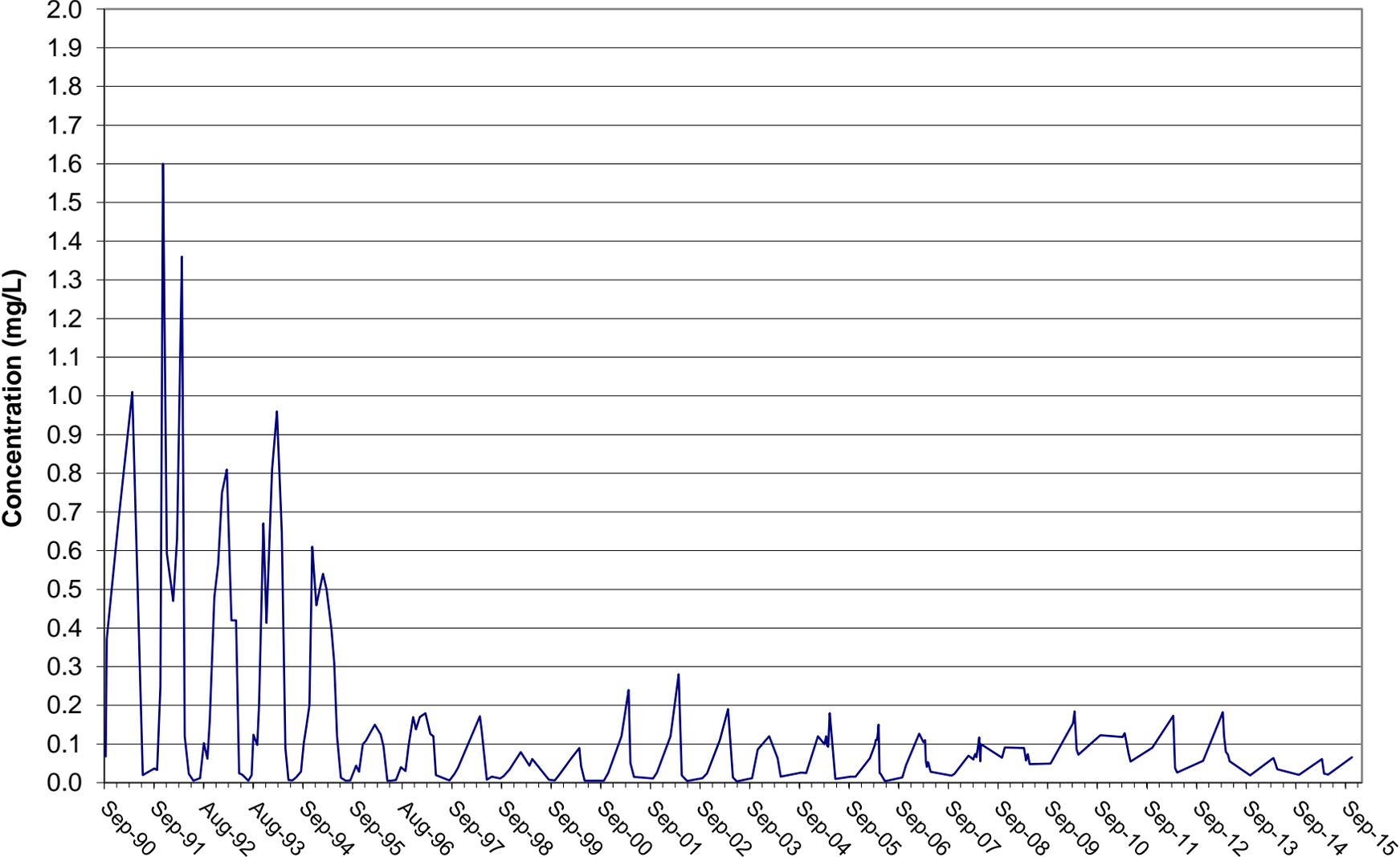
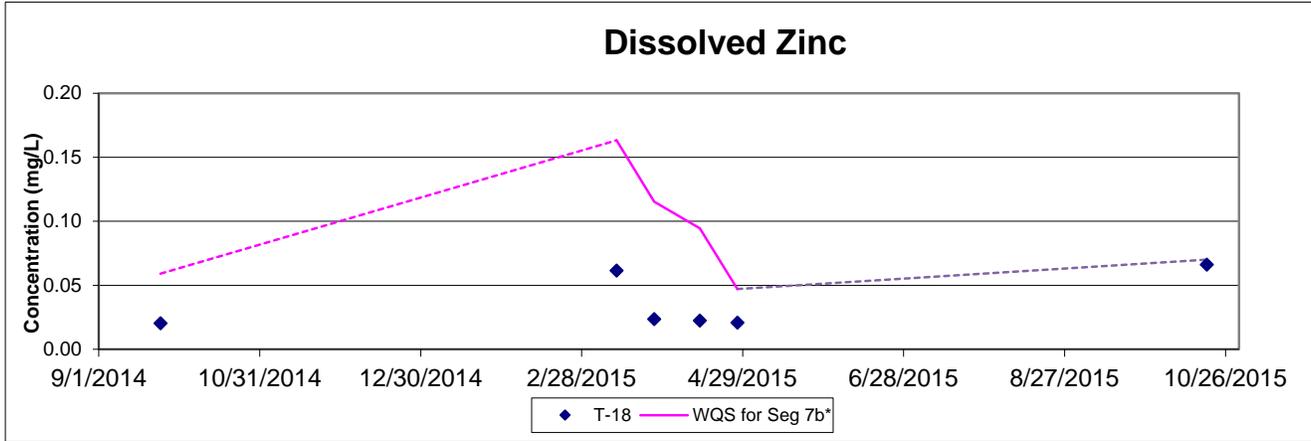


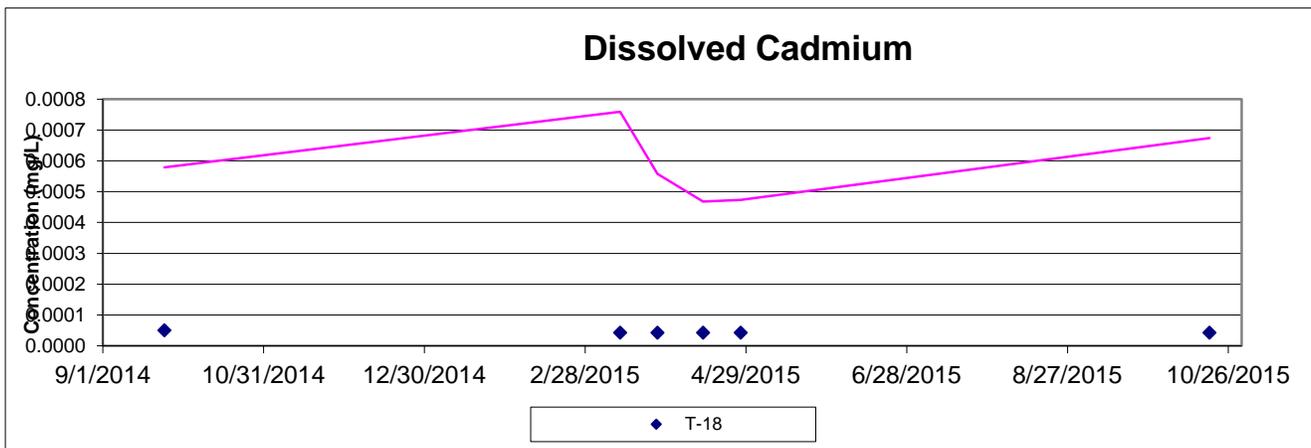
Figure 2-9

Dissolved Zinc, Cadmium, and Copper Concentrations in Cross Creek, Segment 7b

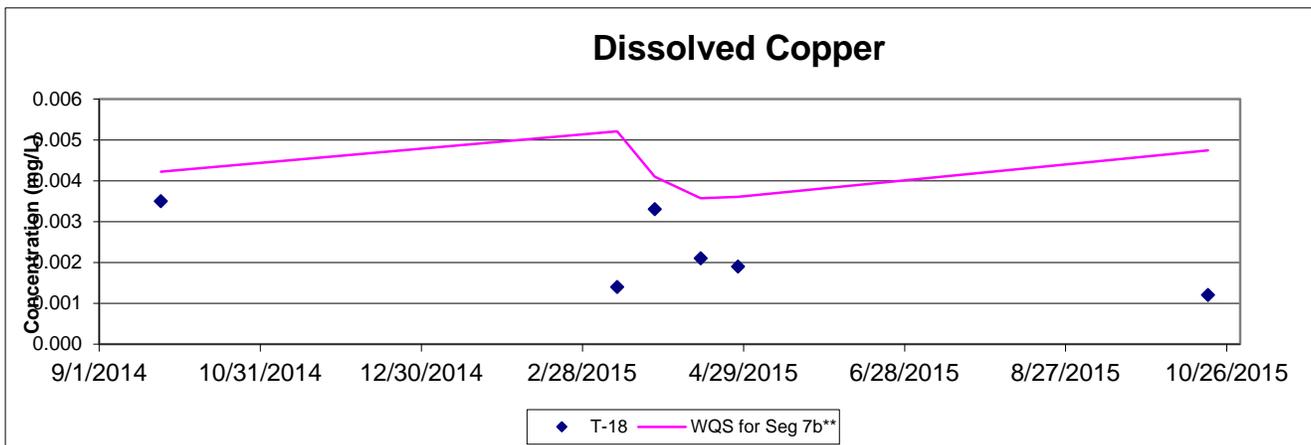
Segment 7b - Cross Creek



* All WQSs are based on equations found in Table 3 of CCR 33, effective 1/1/2009 and were calculated using the hardness of the sample. WQS equations vary by season for this Segment - Pink for Spring (Jan-Apr) and Purple for non-Spring (May-Dec). Line is dashed between



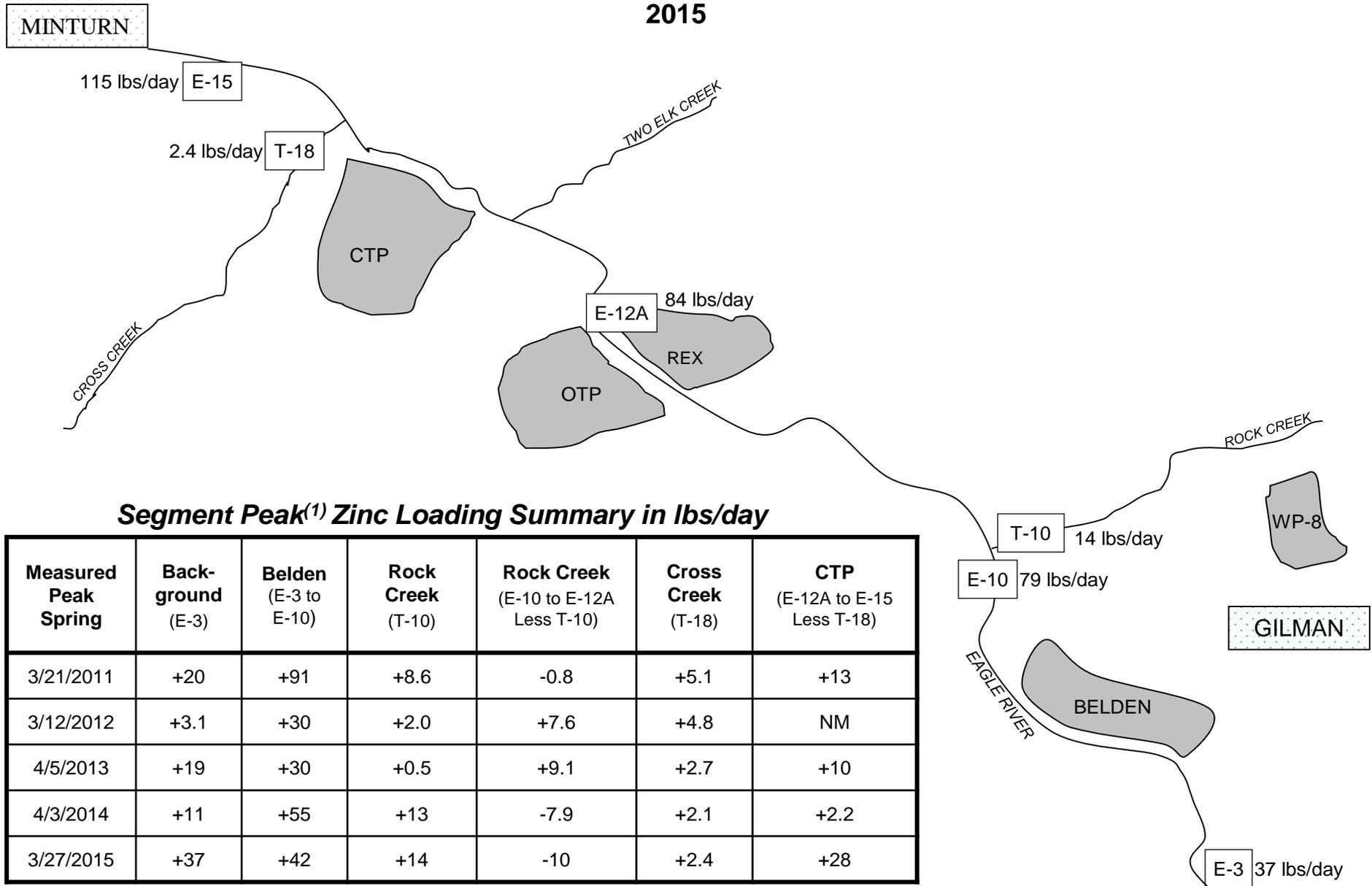
** All WQS are based on equations found in Table 3 of CCR 33, effective 1/1/2009 and were calculated using the hardness of the sample.



** All WQS are based on equations found in Table 3 of CCR 33, effective 1/1/2009 and were calculated using the hardness of the sample.

Figure 2-10

ZINC PEAK LOADING 2015



Segment Peak⁽¹⁾ Zinc Loading Summary in lbs/day

Measured Peak Spring	Back-ground (E-3)	Belden (E-3 to E-10)	Rock Creek (T-10)	Rock Creek (E-10 to E-12A Less T-10)	Cross Creek (T-18)	CTP (E-12A to E-15 Less T-18)
3/21/2011	+20	+91	+8.6	-0.8	+5.1	+13
3/12/2012	+3.1	+30	+2.0	+7.6	+4.8	NM
4/5/2013	+19	+30	+0.5	+9.1	+2.7	+10
4/3/2014	+11	+55	+13	-7.9	+2.1	+2.2
3/27/2015	+37	+42	+14	-10	+2.4	+28

(1) Peak is based on **largest zinc concentration** measured at E-10 during the Spring (March or April)
 NM- not measured. Missing either flow or concentration

3.0 EAGLE MINE WATER MONITORING AND DATA SUMMARY

Eagle Mine water monitoring activities conducted in 2015 included the following:

- Measuring mine water levels.
- Collecting mine water samples.
- Monitoring mine seepage flow.
- Pumping the Mill Level seepage.

These monitoring activities and related data are summarized in this section. Activities conducted at the Liberty No. 4 well, which intercepts clean water prior to flowing into the Eagle Mine, are also summarized in this section.

3.1 Mine Water Levels

The mine pool level was measured in the Wilkesbarre shaft in Gilman until 1998. Beginning in July 1998 and continuing until 2002, the mine water level was measured from a reference point set in the Bleakhouse Mine workings (elevation 8503.8 ft MSL). Since 1992, mine water has been released at the Adit No. 5 bulkhead and gravity drained through a pipeline to the WTP for treatment (the MDD). Since 2002, the mine water levels have been monitored using a pressure transducer in the MDD pipeline. The Wilkesbarre shaft is not deep enough to access mine pool levels below 8498 ft MSL. Graphical representations of the mine pool level for 1992 through 2015 and for 2014 and 2015 are presented in Figure 3-1.

The mine pool elevation rose 3.23 feet, from 8467.28 ft MSL on December 26, 2014 to its high point of 8470.52 ft MSL on January 28, 2015. The combination of the MDD and the Liberty well groundwater withdrawals during 2015 lowered the mine pool 14.32 ft to 8456.20 ft MSL on December 31, 2015.

3.2 Mine Water Sampling

In the 1990s, mine pool seepage through rock fractures was a significant source of metals, especially in the Rock Creek drainage where the flooded workings of the Bleakhouse Mine were leaking through highly fractured Cambrian quartzite. Mine pool seepage ceased to be a major source of metal loading since the inception of the MDD program and control of the mine pool level below 8500 ft MSL. Operational history has demonstrated that as long as the elevation of the mine pool is maintained below 8500 ft MSL, most of the seeps are under control.

Mine water has been historically sampled directly from the mine pool via the Wilkesbarre shaft, from the bulkhead valve in Adit 5, and from the MDD at the Rock Creek vault. The

zinc concentration from the MDD sample collected in March 18, 2015 is compared to samples from previous years in Figure 3-2. The MDD sample and samples from Tip Top, seepage at Adit #6, the CTP trenches, and the WTP combined influent were collected on March 18, 2015 as part of a WTP improvement assessment. Sample results are presented in Appendix B.

3.3 Eagle Mine Seeps

The Eagle Mine began filling with water in 1984 when the mine dewatering pumps were turned off. The mine filled and eventually began leaking water in the Rock Creek area in September 1989. Subsequently, monitoring stations were established. Since 1990, seepage has been collected and piped to the WTP for treatment. Seepage stations are shown on Figure 3-3. Flow at collected seeps S-5 (Adit 5 bulkhead), S-6 (Adit 6 bulkhead), and S-TT (Tip Top bulkhead) is typically monitoring on a daily or weekly basis, unless access is difficult in the winter. These seeps were sampled in 2015 as part of a treatment plant siting study. Sample results are presented in Appendix B.

3.4 Mill Level Seeps

In the Spring, melting ice and snow collects in the mine workings that house the underground mill between the Newhouse level (8483 ft MSL) and the Copper Tipple Loading Tunnel (8397 ft MSL) or about 40 feet topographically above the Eagle River. When the mine and mill were operating, water that accumulated in the Mill Level was pumped out for treatment. At present, the so-called Mill Level water picks up elevated metal concentrations due to contact with ore and concentrates in the underground mill. Once the Mill Level water reaches its maximum level of 10 inches or so, it leaks outside the mine through old pipelines, fractures in the bedrock, and two tunnels that serviced the mill, the Loading Tipple and the Service Incline. Mill Level seepage probably recharges the shallow groundwater in the Copper Tipple Trench area. A dedicated electric sump pump on the Mill level was used to dewater the Mill Level pool over the year. A total of 105,000 gallons was pumped to the treatment plant.

<u>Date of Pumping</u>	<u>Volume of water removed</u>
1/13-15/15 *	26,400
3/26/15 *	12,900
4/6/15	15,000
4/29/15	24,000
8/13/15	2,700
9/15/15	24,000

Two samples of Mill Level water were collected in 2015 (indicated by asterisk). The January 15, 2015 sample was tested for total arsenic, cadmium, copper, and zinc. The March 26, 2015 sample was collected as part of the *Focused Feasibility Study (FFS)*

Addendum, Arsenic Sampling Plan (NewFields 2015a) and only arsenic was tested. The sample results are included in Appendix B.

3.5 Liberty No. 4 Well

Since 1990, investigations have been conducted by CBS to identify the means to reduce inflow to the Eagle Mine, thereby allowing better control of the mine pool level and, eventually, reduce flow to the WTP. From these investigations, it was concluded that the most feasible method to reduce recharge to the mine is to stop or reduce flow entering on the 19 Level, via exploratory drift 19-5-E-3. It has been estimated that 200 gpm or more of fresh water continuously recharges the drift via core holes drilled horizontally from the tunnel into the Leadville Dolomite. To intercept flow in the 19-5-E-3 drift, a well (Liberty No. 4 or LIB-4) was installed in the drift in July 1998.

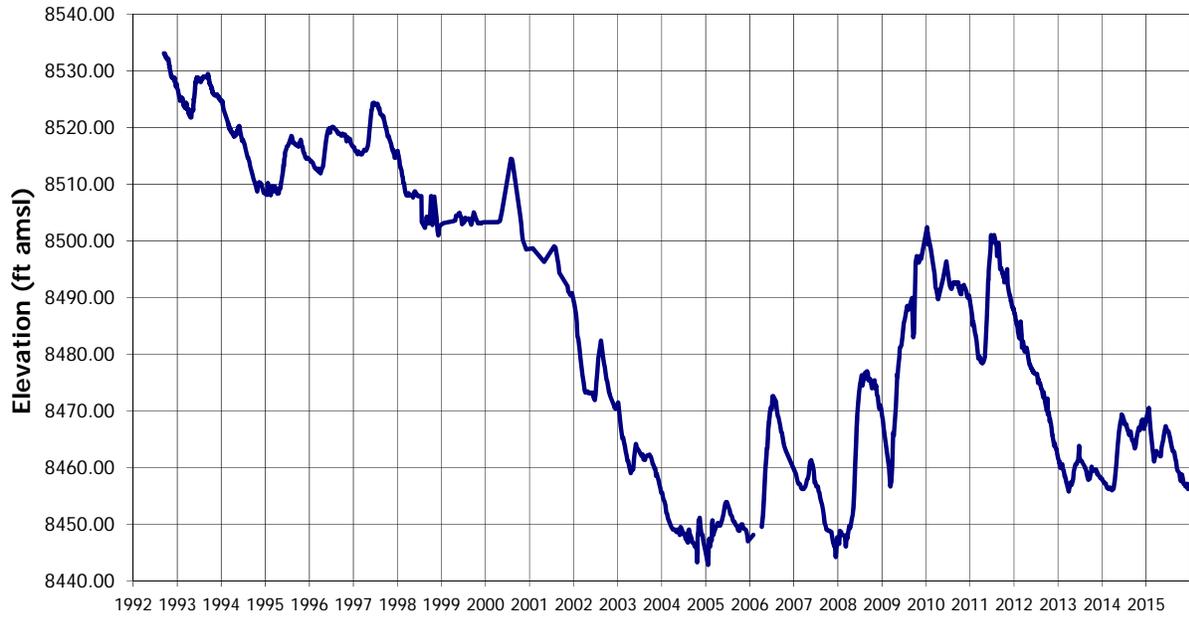
On September 1, 1999, EPA issued an Explanation of Significant Differences (ESD) describing EPA's decision regarding this mine pool component of the remedy for the Site. The ESD, which is an addition to the 1993 Record of Decision, required installation of a pumping system at the Liberty No. 4 well. After delays due to securing an easement for power and pump problems, the Liberty No. 4 well began pumping on October 30, 2001.

Power issues at the LIB-4 well in 2014 were not resolved until January 28, 2015. The pumping rate was approximately 200 gpm from January 28 through March 10, 2015, when pump rate was reduced to approximately 150 gpm to decrease conductivity and zinc concentrations in the pumped water. A pump rate of 150 gpm was maintained for the rest of the year.

Water samples, field parameters, and flow measurements are taken in accordance with CDPHE Permit No CO-0048952. Discharge from the well is measured by a totalizing flow meter in the pump house. The total gallons pumped figures, developed using the instantaneous readings and the calculated weekly averages, began to show discrepancies in early December 2015. Cleaning the flow meter did not resolve the problem, so the meter was changed out in 2016. The higher of the two flow measurements was selected for permit reporting purposes. In 2015, between 69,144,000 and 72,587,850 gallons were pumped from the Liberty No. 4 well to Willow Creek. Field parameters and sample results are provided in Appendix B. All permit requirements were met.

Eagle Mine Water Level (measured in the Bleakhouse tunnel)

Mine Pool 1992 - 2015

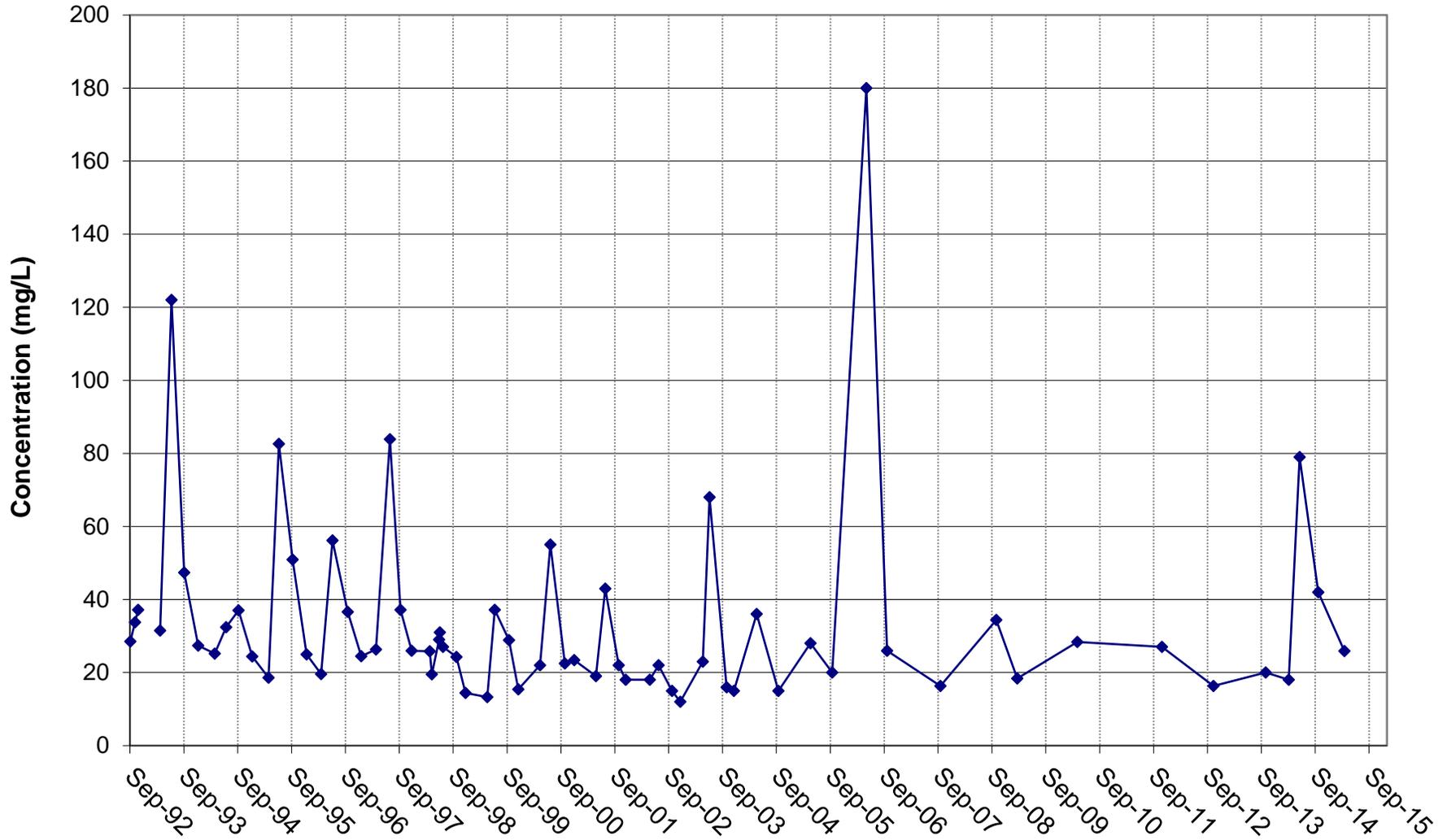


Mine Pool 2014 - 2015



Figure 3-1

Adit #5 Zinc Concentrations⁽¹⁾ (MS-5 or MDD) 1992 to 2015



⁽¹⁾ Dissolved zinc except for 2011 and 2012 measurements; monitoring in 2013-14 by Golder indicates zinc concentrations are primarily in the dissolved phase.

Figure 3-2

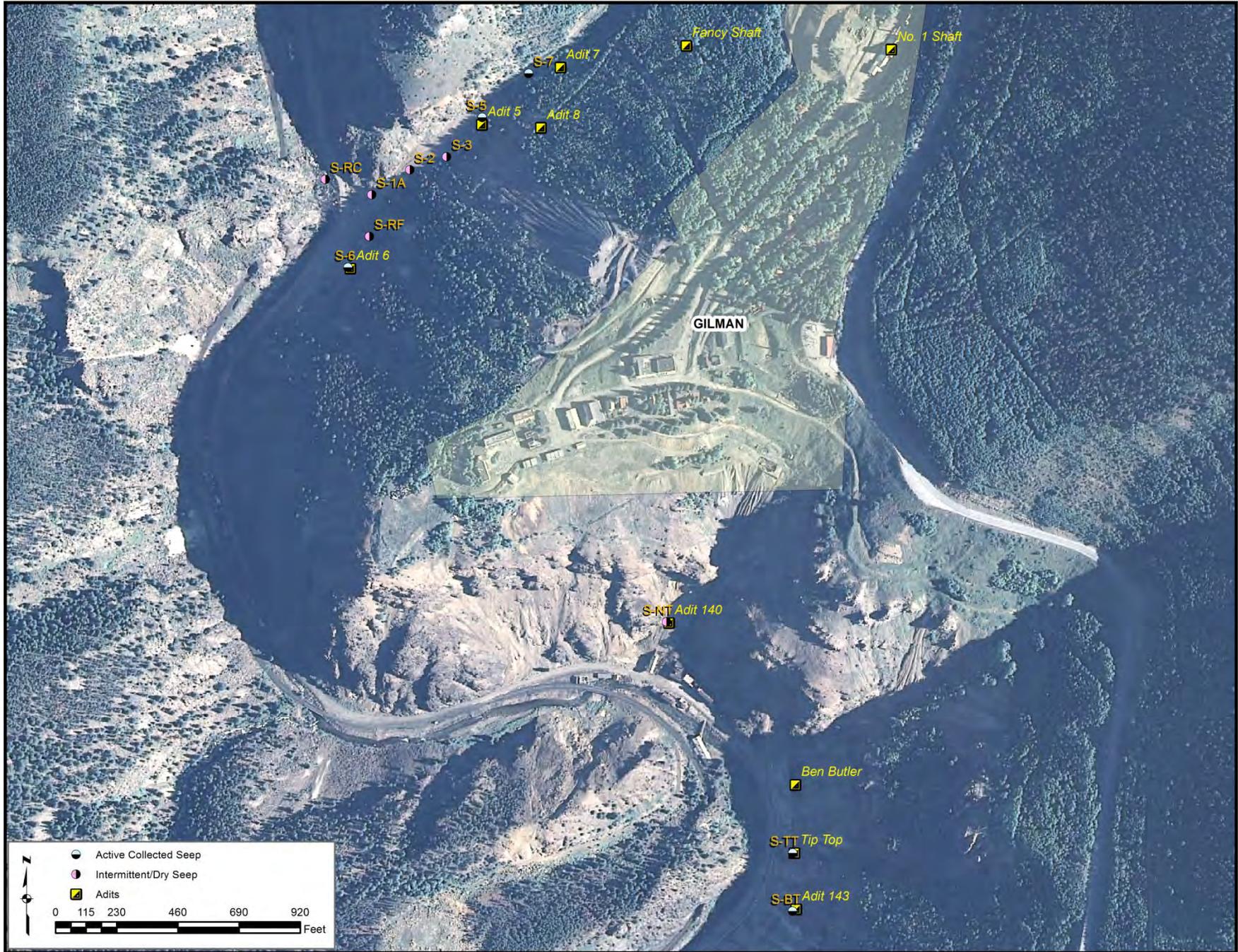


Figure 3-3 Approximate Mine Seep/Adit Locations

4.0 GROUNDWATER MONITORING AND DATA SUMMARY

Section 4 presents an historical background of the groundwater monitoring activities conducted at the Site. Also discussed in this section are the groundwater extraction and diversion systems that were operated in 2015. The Rock Creek groundwater extraction system (siphon) is discussed with the Rock Creek groundwater in Section 4.2. Section 4.3 presents the operation summary of the upgradient groundwater diversion trench (UGDT) at the CTP. Section 4.4 presents the operation summary of the CTP groundwater extraction trenches.

All 2015 groundwater quality data were collected exclusively for the FFS Addendum, Arsenic Sampling Plan and Report (NewFields 2015a and 2015b). Sample results are presented in Appendix B.

4.1 Belden Area

Several years of water level measurements in seven Belden area monitoring wells indicate that the water table rises in the spring in response to recharge from snowmelt. This rise in the local water table in the Belden area is commensurate with a seasonal increase in the zinc concentration in the Belden reach of the river.

Based on recent sampling, groundwater in the Belden area is moderately acidic (pH range 2.8 to 5.8) and contains elevated concentrations of sulfate, zinc, and other metals leached from sulfide minerals within undifferentiated mineralized source materials in the area and from seepage from the Mill Level of the Eagle Mine.

In 2006, CBS and NewFields proposed to meet the anticipated WQS in Segment 5a by extracting and treating groundwater in Belden. System performance reports (NewFields 2007a, 2007b, 2007c; and 2008) document data collected from Belden wells and the as-built information for the groundwater collection trench constructed in 2007 (this trench is referred to as the Copper Tipple Trench). Figure 4-1 presents the location of the Belden groundwater wells and the Copper Tipple Trench. This year the groundwater pulse in the Copper Tipple Trench was recorded in the BTS-1 well by an increase in water levels from late February to March 19, 2015. The trench and well are typically dry (8362.68 ft MSL) and overall, the groundwater level rose just over seven feet (8370.06 ft MSL) this year (Figure 4-2). The figures show that Belden well BW-9R had a similar rise in water levels. The 2015 water elevations are provided in Appendix C.

Groundwater samples were collected from the Belden wells BTS-1 (Copper Tipple Trench) and BW-9R during March and April 2015 for the FFS Addendum, Arsenic Sampling Plan and Report (NewFields 2015a and 2015b). Sample results are presented in Appendix B.

4.2 Rock Creek

Groundwater within Rock Creek canyon colluvium, also called baseflow, is a source of metal loading to Segment 5a downstream from station E-10. Groundwater samples were collected from the Rock Creek well EDS-3 during March and April 2015 for the FFS Addendum, Arsenic Sampling Plan and Report (NewFields 2015a and 2015b). Sample results are presented in Appendix B.

A groundwater extraction system consisting of four, 4-inch diameter wells was installed at a narrow bedrock constriction in lower Rock Creek Canyon near seep S-2 in October 1992. These extraction wells are spaced approximately 15 feet apart and are approximately 15 feet deep with the well bottom in granite. A gravity siphon was installed in one extraction well (RX-3) on June 23, 1993 that has the ability to remove approximately 1 gpm. The RX-3 siphon did not operate during 2015. The EDS-3 pumping well at the base of Rock Creek operated at approximately 12 gpm from March 24, 2015 to April 29, 2015.

4.3 CTP Upgradient Groundwater Diversion Trench (UGDT)

The UGDT was originally installed in the late 1980s, but its use was discontinued in 1990 due to elevated metal concentrations in the discharge. Section 9.0 of the CD/SOW required an analysis of the need to reactivate or reconstruct the UGDT. CBS requested reopening the UGDT in 1997 because the CTP cap was complete and water quality of the groundwater in the nearby DT wells was good. In March 1999, CDPHE and EPA agreed that operation of the UGDT benefited the reestablishment of wetland vegetation in Maloit Park and increased the efficiency of the north groundwater extraction trench. The UGDT has flowed seasonally since that time.

The UGDT outfall was flowing at approximately 2.9 gpm by late-March 2015 and flowed through the summer. The UGDT was dry by early-August 2015. Monitoring data of flow and field parameters are presented in Appendix C.

4.4 CTP Groundwater Extraction

Two extraction trenches at the CTP intercept groundwater and route it to the WTP surge ponds for treatment. The combined flow from the east groundwater extraction trench and north groundwater extraction trench is measured at the surge ponds by a totalizing meter. Run times are recorded for each of the pumps.

The flow rate from the two trenches was reduced in late 2012 and early 2013 compared to previous years. Partial pipeline blockages were identified and the force main and east trench collection pipe were jetted in 2013. With the replacement of the east trench

surface plumbing and jetting in September 2014 the flow rate when both pumps are operating increased to 130 gpm. For 2015, the combined production (both trenches) was approximately 10,437,000 gallons. The 2015 production from the trenches represents approximately 8.5 percent of the total volume treated at the WTP in 2015. The total monthly production is provided in Appendix C.

Water levels at the east trench are monitored in well ET-1 to assess the effectiveness of pipe cleaning and pumping. Water levels are measured in situ with a HOBO water level transducer. ET-1 is also manually measured with a Solinst water level meter weekly to calibrate the HOBO and to bridge data gaps when the HOBO data is downloaded. The 2015 water elevations (non-HOBO) are provided in Appendix C.

An ET-1 water level profile is included as Figure 4-3. High water levels in ET-1 in the Spring are not unusual due to significant recharge from snowmelt. The ET-1 water level peaked during the week ending March 27, 2015 and declined thereafter. No major maintenance issues were identified in 2015.

The dissolved zinc concentration in the groundwater collected by the trenches has leveled off in recent years as depicted in Figure 4-4. In 2015, a water sample from each of the trench sumps was collected as part of the WTP improvement assessment. The analytical results and field measurements are provided in Appendix B

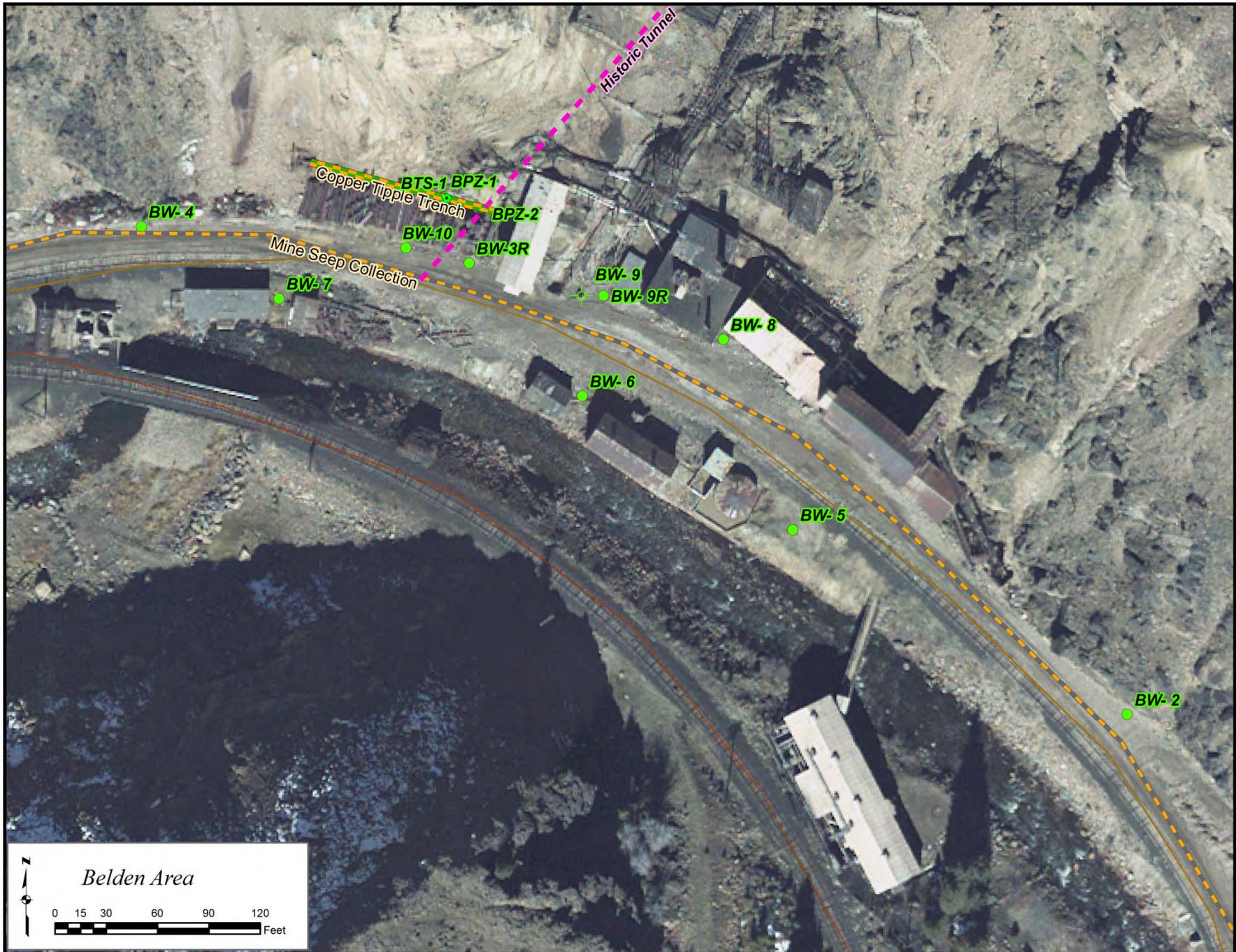


Figure 4-1 Belden Area Groundwater Well Locations

2015 Water Levels Belden Area

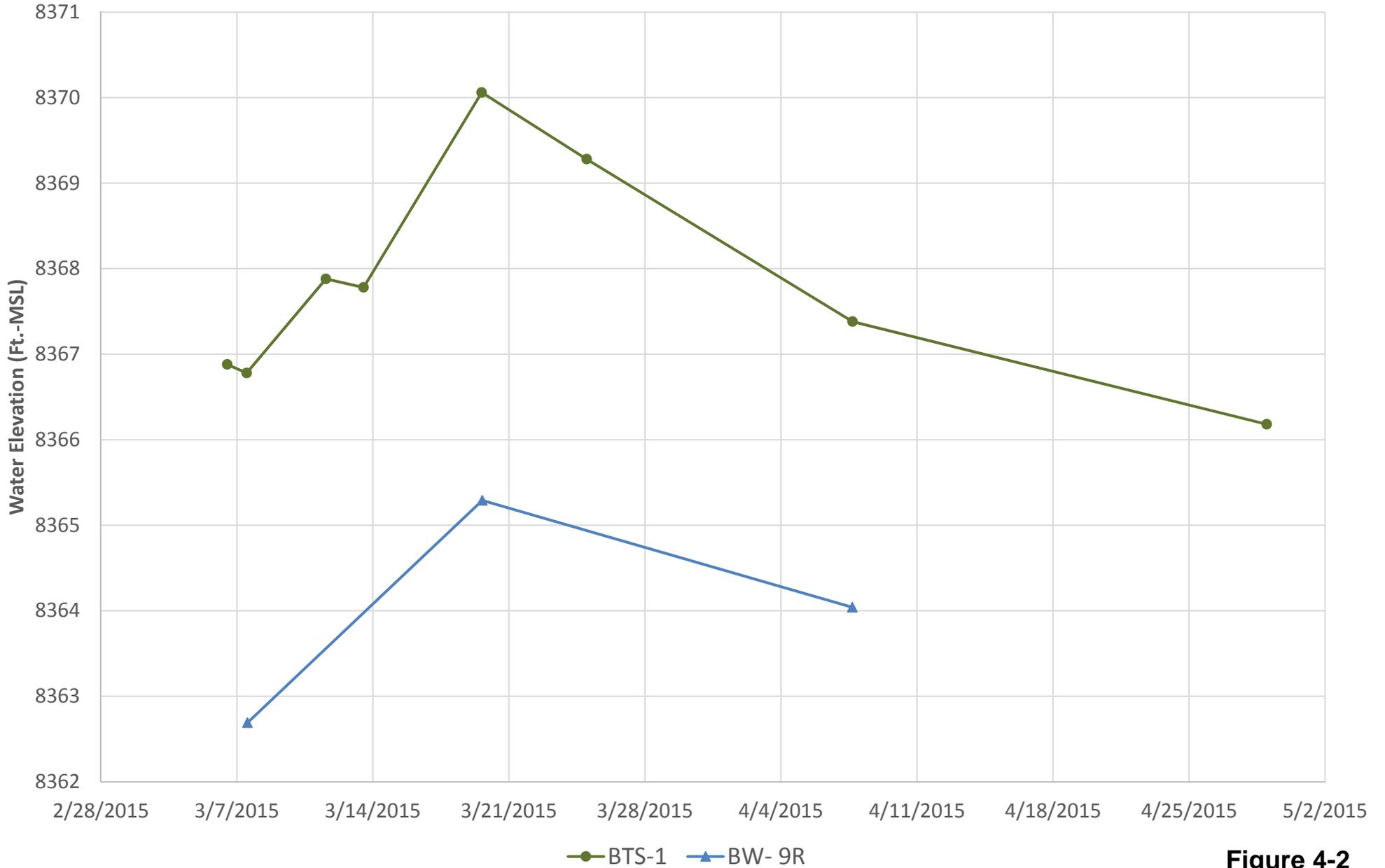
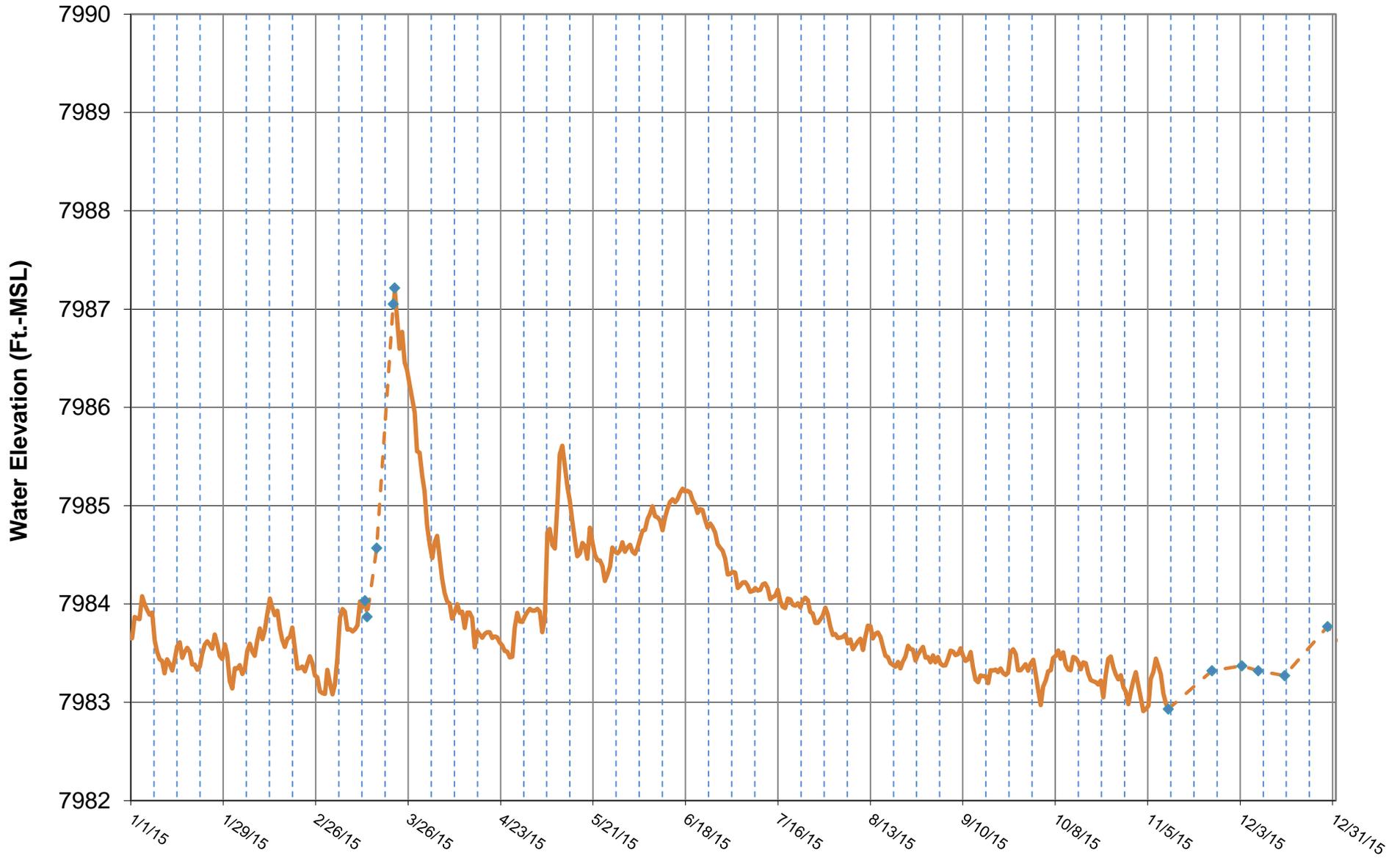


Figure 4-2

East Trench Monitoring Well ET-1 Water Levels

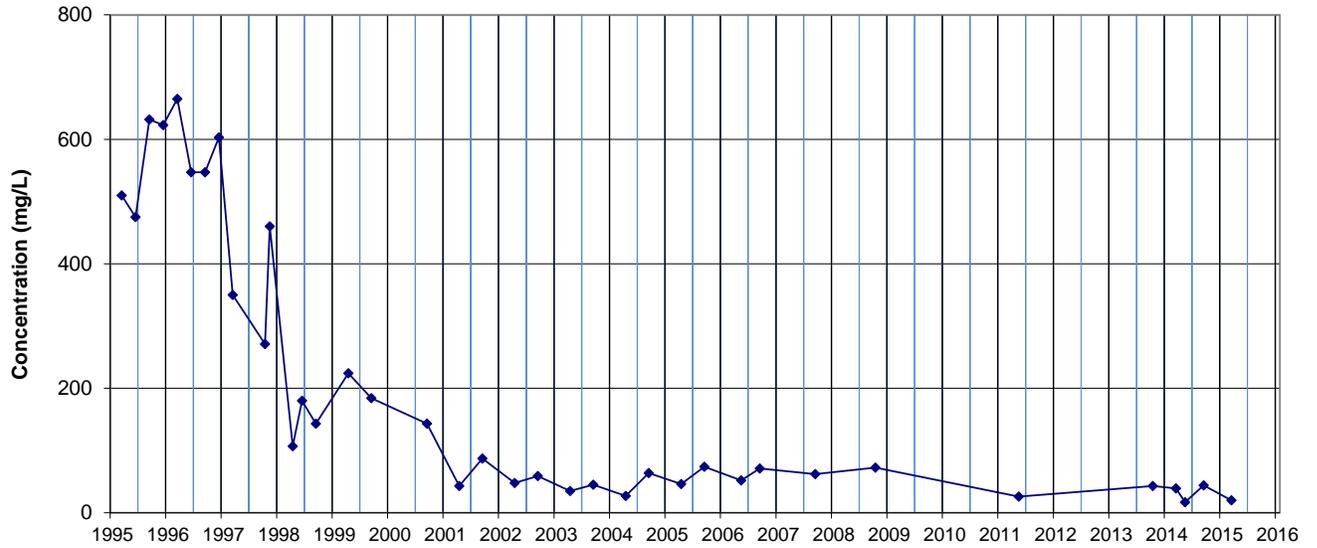


*solid line measured by water level pressure transducer (HOBO) and dashed line by water level meter
HOBO measurement are not corrected for atmospheric pressure but rather calibrated to the water level meter*

Figure 4-3

Dissolved Zinc Concentrations CTP Trench Area

East Sump



North Sump

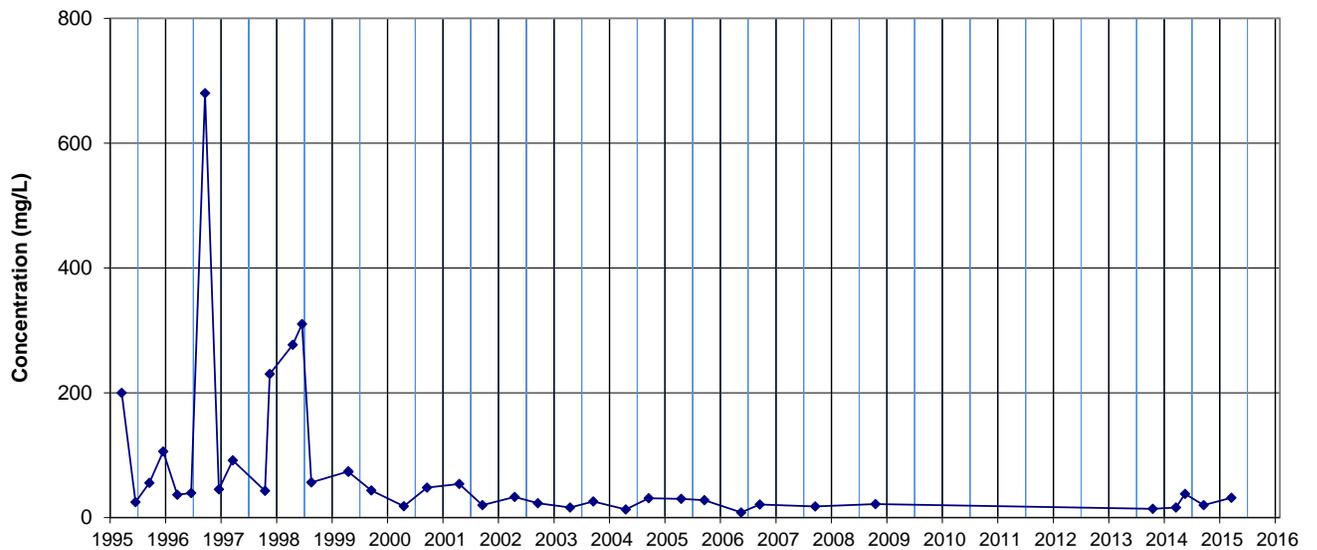


Figure 4-4

5.0 SUMMARY OF SITE ACTIVITIES

Section 5.0 contains a summary of the key submittals and the significant activities that occurred in 2015.

5.1 Deliverables, Reports, and Letters Completed and Submitted to EPA and CDPHE

- *Surface Water and Groundwater Monitoring Plan for 2015*, dated December 19, 2014 was approved January 28, 2015.
- *Focused Feasibility Study (FFS) Addendum, Arsenic Sampling Plan*, March 13, 2015.
- *2014 Pipeline Inspection and Maintenance Report*, dated April 15, 2015.
- *Annual Report for Eagle Mine Site – 2014*, dated April 10, 2015.
- *Focused Feasibility Study (FFS) Addendum, 2015 Arsenic Results*, dated June 3, 2015.

5.2 Pipeline Operation and Maintenance

- Periodic inspections and maintenance were conducted. Annual maintenance activities were documented in a report *2015 Pipeline Maintenance and Repair* submitted in March 2016.

5.3 CDPHE Spill Line Reports

As required by the Emergency Response/Contingency Plan (Environ 2014) all releases from the site are reported to the CDPHE Spill Line. Minor releases occurred at the Site on April 2, 2015 and June 2, 2015. The related spill report forms for these incidents are included in Appendix D. These reports include the initial spill report, as recorded by the Spill Line and the follow-up report, produced by Ramboll Environ.

- On April 2, 2015 a leaking valve was discovered in Rex Flats. The leak was measured using a bucket and stop watch at 2 gpm. Because the duration of the leak was unknown and the location was close to the Eagle River, Ramboll Environ notified Eagle River Water and Sanitation District in addition to the normal protocol of informing the CDPHE and EPA and the CDPHE Spill Line. Samples were also collected from the Eagle River both upstream and downstream of the location where the spill would have reached the river.

Analytical data associated with the April 2, 2015 spill is included in Appendix D.

- On June 2, 2015, scale buildup caused a backup in the pipeline and subsequent overflow at the snowmobile shed manhole near the gate into the WTP. Flow from the MDD was reduced to prevent the overflow. The pipeline was jetted on June 5, 17 and 18 to remove the restriction and normal flow was achieved. The overflow resulted in water ponding on the ground beneath the pipeline, but no flow reached the river. No river samples were taken. Stained soil beneath the pipeline was removed on October 1, 2015 and placed in the Temp Cell.

5.4 Site Inspections and Audits

- General site inspections were performed during weekdays with observations recorded on Daily Inspection Forms.
- CDPHE's annual site inspection was conducted on April 7, 2015.

5.5 WTP Operation and Maintenance

- The WTP treated 122,323,756 gallons of water, generating approximately 1,589 cubic yards of dewatered sludge. The sludge was placed in the lined Sludge Cell.
- The major plant upgrades included.
 - New sludge press cloths were installed.
 - A secondary polymer pump and mixing unit installed in March 2015 to allow for the addition of two different polymers to improve floc generation and clarifier settling during the spring snow melt.
 - The acid pump was replaced in January 2015.
 - The acid room floor was replaced in July 2015.
 - The SCADA computer system was replaced in August 2015.
 - Electrical repairs and maintenance were performed throughout the year on various WTP components.
 - Air compressor repairs and maintenance were performed throughout the year.
 - The acid room roof was replaced in October 2015.
- Other activities conducted by plant staff include.
 - A presentation was given to students at the ski and snowboard school at Maloit Park on March 19, 2015.
 - Trash was picked up along Highway 24 in April 2015.

- Water in the sludge cell remaining from the Upper Pond cleanout in October 2014 and from snowmelt was pumped from the Sludge Cell into the Lower Pond in May and June to be treated in the WTP.
- An area near the East Trench lacking vegetation during the Annual Spring Inspection was addressed on September 9, 2015 with a layer of topsoil, native grass seeding and mulch.
- Video inspection of the culvert under Highway 24 that transmits treated water from the WTP to the Eagle River was performed on September 24, 2015 to confirm there were no obstructions in the pipe prior to winter.
- Float switches were installed in the MDD vault and New Manhole in November 2015 and connected to the SCADA system to provide real-time notification if the water level in either vault or manhole rises to levels of concern which could indicate a potential overflow.
- Additional No Trespassing signs were installed at various locations around the Site.
- Jetting of facility pipelines and structures included the following:
 - The Upper Pond vault and pond bypass valve box were vacuumed in October
 - The discharge line from the vault to the Upper Pond
 - The pipe from the influent wet well to R1 tank increasing plant flow.
- Golder Associates continued their pre-design study of the most cost effective treatment process and location for a new water treatment plant.
- Ramboll Environ collected influent water samples from six locations on Wednesday March 18, 2015 for a full suite of general chemistry and metals analyses to help evaluate seasonal changes in influent water chemistry to be used to help troubleshoot the turbidity issues at the WTP but also for future WTP design. Data are presented in Appendix B.

5.6 Liberty Well No. 4 (Lib-4) Operation and Maintenance

- During the year, approximately 72 million gallons of water were pumped from the 19-5-E-3 tunnel to Willow Creek.
- Power issues kept the pump idle until January 28, 2015. The pumping rate was approximately 200 gpm from January 28 through March 10, 2015, when the pumping rate was dropped to 150 gpm to decrease the conductivity of the pumped water. A 150-gpm pump rate was maintained for the rest of the year.
- All discharge permit requirements for CO-00048952 were met.

5.7 Focused Feasibility Study (FFS) Activities

- Samples of surface water and groundwater were collected and tested following the guidelines in the FFS Addendum, Arsenic Sampling Plan (NewFields 2015a). Results were presented in the FFS Addendum, Arsenic Results (NewFields 2015b).
- Rock Creek pumping well EDS-3 was operated from March 24, 2015 to April 29, 2015 to intercept metal loads entering the river from Rock Creek groundwater.
- A total of 105,000 gallons of water was pumped to the treatment plant from the Mill Level in Belden to maintain a low water level.

5.8 Community Involvement and Community Relations

- The Colorado Parks and Wildlife annual fish shock program was not conducted in 2015.
- Ramboll/Environ facilitated a tour of the WTP on July 29, 2015 as part of a public Site tour coordinated by the Eagle River Watershed Council.

5.9 Planned 2016 Activities and Submittals

- Mine water withdrawal rate will be measured daily as recorded by the SCADA system at the plant and at the totalizing meter on the MDD pipeline located near the mouth of Rock Creek.
- The mine pool elevation will be measured routinely. CBS will seek approval from EPA and CDPHE to use the pressure transducer located in the Lib-4 well rather than the pressure gauge in the MDD pipeline.
- General site inspections will be performed by site personnel on weekdays.
- Accumulated water in the Temp Cell and Sludge Cell will be periodically pumped to the WTP surge ponds for treatment.
- Accumulated debris at the Tramway culvert in Belden will be periodically removed.
- Accumulated debris at seep 7 and the WP-8 seep collection facilities will be periodically removed and transported to the Sludge Cell.

- Debris from the beaver dams in upper Rock Creek will be periodically removed and transported to the Sludge Cell.
- Scale will be periodically removed from the pipelines and the sediment traps.
- A 2016 Pipeline Maintenance and Repair report will be prepared for submittal to EPA and CDPHE in 2017.
- A 2016 Annual report will be prepared for submittal to EPA and CDPHE in 2017.
- An FFS Addendum will be prepared in cooperation with EPA and CDPHE quantifying the arsenic load diverted from the river by the alternatives listed in the FFS (NewFields 2013).
- The Lib-4 well will be operated on a full-time basis up to a monthly average of 210 gpm. Samples will be collected to meet the permit requirements. Communication upgrades for this remote well will be evaluated and, if feasible, added to increase its reliability and decrease pump down time.
- The CTP groundwater extraction trenches will continue to operate, pumping groundwater to the Surge Ponds at the WTP.
- Rock Creek pumping well EDS-3 will be pumped in the spring to intercept metal load entering the river from Rock Creek.
- The water in the Mill Level in Belden will be removed periodically and treated to maintain a low water level.
- The WTP will continue to operate and upgrades will be made as needed.
- The river and two tributaries will be sampled every other week during March and April, and again in September or October, in accordance with the 2016 Monitoring Plan (NewFields 2016a).
- A 2017 Monitoring Plan will be submitted to EPA and CDPHE in late 2016.

6.0 REFERENCES

Dames & Moore, 1996. Surface Water Sampling and Analysis Plan.

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Upper Colorado River Basin snowpack

2014: ftp://ftp.wcc.nrcs.usda.gov/data/snow/basin_reports/colorado/wy2014/basnco4.txt

2015: ftp://ftp.wcc.nrcs.usda.gov/data/snow/basin_reports/colorado/wy2015/basnco4.txt

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APPENDIX A
SURFACE WATER DATA

**A-1 Eagle River Water Quality Data
Eagle Mine Site
January through December 2015**

Eagle River Water Quality Report

Eagle Mine Site, January through December 2015

Station ID	Station Description	Field Temperature (Deg. C)	Field Spec. Cond. @25C (umhos/cm)	Field Temperature (Deg. C)	Calcium Dissolved (mg/L)	Magnesium Dissolved (mg/L)	Calculated Hardness (mg/L)	Arsenic Total (mg/L)	Cadmium Dissolved (mg/L)	Copper Dissolved (mg/L)	Zinc Dissolved (mg/L)
<i>E- 3</i>	<i>EAGLE RIVER ABOVE BELDEN</i>										
3/13/2015 12:10	--	4.5	139 J	4.5	21.5	7.84	86	0.0002	0.00014	0.0032	0.0288
3/27/2015 13:50	--	4	133	4	14.6	5.59	59	0.00016 J	0.0003	0.0071	0.0976
4/13/2015 13:10	--	7	129	7	14.6	5.74	60	0.00031	0.000042 U	0.0062	0.0347
4/27/2015 13:00	--	6	125	6	15.4	5.76	62	0.00021	0.000063 J	0.0068	0.0269
10/19/2015 13:15	--	7.7	170	7.7	21.6	8.23	88	0.00018 J	0.000042 U	0.00086 J	0.0087 J
<i>E-10</i>	<i>EAGLE RIVER ABOVE ROCK CREEK</i>										
3/13/2015 12:37	--	2.9	140 J	2.9	19.5	7.59	80	0.00025	0.00034	0.0035	0.128
3/27/2015 13:40	--	4	133	4	14.7	5.73	60	0.00021	0.00045	0.0067	0.18
4/13/2015 13:30	--	7	122	7	14	5.49	58	0.00026	0.000092 J	0.0051	0.0628
4/27/2015 13:20	--	5.5	127	5.5	14.8	5.55	60	0.0002	0.00021	0.0058	0.074
10/19/2015 13:35	--	7.3	163	7.3	20	7.84	82	0.00013 J	0.00014	0.0018 J	0.0479
<i>E-12A</i>	<i>EAGLE RIVER BELOW OLD TAILINGS</i>										
3/13/2015 14:10	38 Ae	3.2	155 J	3.2	20.4	8.37	85	0.00031	0.00031	0.0028	0.153
3/27/2015 12:00	80 A	3	155	3	16.4	6.5	68	0.00023	0.00052	0.0062	0.225
4/13/2015 12:30	143 A	5	129	5	13.9	5.51	57	0.00031	0.00012	0.005	0.0875
4/27/2015 12:30	139 A	5.3	128	5.3	15.8	5.94	64	0.00032	0.00042	0.0061	0.128
10/19/2015 12:40	34 A	7.4	175	7.4	20.9	8.05	85	0.00024	0.000083 J	0.0013 J	0.065
<i>E-15</i>	<i>EAGLE RIVER BELOW CROSS CREEK</i>										
3/13/2015 13:50	--	3.1	160 J	3.1	21	8.74	88	0.00025	0.00022	0.0024	0.111
3/27/2015 11:40	--	3	172	3	18.3	7.73	77	0.00025	0.00033	0.0051	0.166
4/13/2015 11:30	--	4	150	4	17.3	6.71	71	0.00032	0.00017	0.0039	0.0679
4/27/2015 11:40	--	4	150	4	17.6	6.85	72	0.00021	0.0003	0.0044	0.111
10/19/2015 12:00	--	7.4	241	7.4	28.7	11.4	119	0.00016 J	0.000047 J	0.0013 J	0.0465

NM or "--" - Not Measured NA - Not Available est - Estimated Flow U - Undetected at stated detection limit J - Estimated Concentration

Flow for E-12A and T-18 from USGS gages, "e" - est due to ice; A - USGS finalized and P indicates the USGS reported this datum as preliminary and subject to revision.

Eagle River Water Quality Report

Eagle Mine Site, January through December 2015

<i>Station ID</i>	<i>Station Description</i>	Field Temperature (Deg. C)	Field Spec. Cond. @25C (umhos/cm)	Field Temperature (Deg. C)	Calcium Dissolved (mg/L)	Magnesium Dissolved (mg/L)	Calculated Hardness (mg/L)	Arsenic Total (mg/L)	Cadmium Dissolved (mg/L)	Copper Dissolved (mg/L)	Zinc Dissolved (mg/L)
Sample Date and Time	Flow (cfs)										
<i>E-22</i>	<i>EAGLE RIVER ABOVE DOWDS JUNCT.</i>										
3/13/2015 13:33	--	3.9	178 J	3.9	23	9.53	97	0.00031	0.00019	0.002	0.113
3/27/2015 11:30	--	3	172	3	19.3	7.83	80	0.00026	0.00032	0.0048	0.156
4/13/2015 11:10	--	4	158	4	18.3	6.92	74	0.00029	0.00017	0.0038	0.0683
4/27/2015 11:20	--	4.5	151	4.5	17.9	6.72	72	0.0003	0.00019	0.0041	0.0656
10/19/2015 11:28	--	7.9	252	7.9	30.2	11.8	124	0.00027	0.000071 J	0.00099 J	0.0385
<i>OTP-South Ditch</i>	<i>Runoff from OTP South Ditch</i>										
3/19/2015 16:10	--	2	293	2	--	--	--	0.0017	--	--	--
3/27/2015 14:00	--	5	1129	5	--	--	--	0.0103	--	--	--
<i>T-10</i>	<i>ROCK CREEK AT MOUTH</i>										
3/13/2015 12:50	0.55	3.7	435 J	3.7	39.1	29	217	0.0014	0.0027	0.0082	1.48
3/19/2015 15:30	1.25	6	477	6	--	--	--	0.0022	--	--	--
3/27/2015 13:30	0.95	5	548	5	41.7	33.5	242	0.0014	0.0067	0.0289	2.76
4/13/2015 13:45	0.71	9	345	9	29.3	23.2	169	0.001	0.003	0.0218	1.3
4/27/2015 13:30	0.71	6	396	6	33	26.4	191	0.0011	0.0032	0.0196	1.31
10/19/2015 13:40	0.22	9.7	457	9.7	44.4	30.7	237	0.002	0.0016	0.0023	0.81
<i>T-10A</i>	<i>Upstream Rock Creek, just downstream of the Hwy 24</i>										
3/20/2015 10:30	--	3	180	3	--	--	--	0.00034	--	--	--
3/27/2015 13:10	--	3	198	3	--	--	--	0.0002	--	--	--
4/13/2015 12:10	--	4	166	4	--	--	--	0.00022	--	--	--
4/27/2015 12:05	--	4.5	169	4.5	--	--	--	0.00021	--	--	--
<i>T-10-B</i>	<i>Dup of T-10A</i>										
4/13/2015 12:15	--	--	--	--	--	--	--	0.00024	--	--	--
4/27/2015 12:00	--	--	--	--	--	--	--	0.00013 J	--	--	--

NM or "--" - Not Measured NA - Not Available est - Estimated Flow U - Undetected at stated detection limit J - Estimated Concentration
 Flow for E-12A and T-18 from USGS gages, "e" - est due to ice; A - USGS finalized and P indicates the USGS reported this datum as preliminary and subject to revision.

Eagle River Water Quality Report

Eagle Mine Site, January through December 2015

<i>Station ID</i>	<i>Station Description</i>	Field Temperature (Deg. C)	Field Spec. Cond. @25C (umhos/cm)	Field Temperature (Deg. C)	Calcium Dissolved (mg/L)	Magnesium Dissolved (mg/L)	Calculated Hardness (mg/L)	Arsenic Total (mg/L)	Cadmium Dissolved (mg/L)	Copper Dissolved (mg/L)	Zinc Dissolved (mg/L)
Sample Date and Time	Flow (cfs)										
<i>T-18</i>	<i>CROSS CREEK NEAR MOUTH</i>										
3/13/2015 13:58	7 A	2.9	76 J	2.9	9.88	3.74	40	0.00014 J	0.000042 U	0.0014 J	0.0614
3/27/2015 11:50	19 Ae	3	69	3	7.21	2.1	27	0.00014 J	0.000042 U	0.0033	0.0235
4/13/2015 11:50	26 A	4	58	4	5.79	1.62	21	0.00016 J	0.000042 U	0.0021	0.0223
4/27/2015 11:50	27 A	4.5	49	4.5	5.81	1.69	21	0.0002	0.000042 U	0.0019 J	0.0208
10/19/2015 12:30	7.3 P	8	83	8	9.08	2.8	34	0.000084 J	0.000042 U	0.0012 J	0.066

NM or "--" - Not Measured NA - Not Available est - Estimated Flow U - Undetected at stated detection limit J - Estimated Concentration
 Flow for E-12A and T-18 from USGS gages, "e" - est due to ice; A - USGS finalized and P indicates the USGS reported this datum as preliminary and subject to revision.

A-2 Eagle River Flow Relationships

Appendix A-2

Flow Rates for Eagle River Monitoring Stations

Eagle River Monitoring Station	Flow Rate Equations
E-3 - above Belden	$E-3 \text{ Flow} = 0.8855 (E-12A \text{ Flow}) - 0.0872$
E-5 - above Fall Creek	$E-5 \text{ Flow} = 0.9424 (E-12A \text{ Flow}) - 2.0748$
E-10 - above Rock Creek	$E-10 \text{ Flow} = 0.9979 (E-12A \text{ Flow}) + 1.7100$
E-11 - below Rock Creek	$E-11 \text{ Flow} = 1.0124 (E-12A \text{ Flow}) + 1.7416$
E-12A - below Old Tailings Pile/Rex Flats	<i>E-12A Flow (measured at USGS station 09064600)</i>
E-13B - above Cross Creek	$E-13B \text{ Flow} = 1.1390 (E-12A \text{ Flow}) - 0.2774$
E-15 - below Cross Creek	$E-15 \text{ Flow} = 1.7333 (E-12A \text{ Flow}) - 10.918$
E-22 – above Dowds Junction	$E-22 \text{ Flow} = E-15 \text{ Flow}$ (conservative assumption per CDPHE)

The flow at six main stem Eagle River monitoring stations is approximated using a flow rate equation that relates the station flow to that measured at E-12A through interpolation of historical flow records. Graphs used to determine the equation are provided in *Eagle Mine Annual Report – 2007, Eagle Mine Site Minturn, Colorado*, prepared by NewFields, February 29, 2008 for CBS Operations Inc.

APPENDIX B
EAGLE MINE WATER DATA

**B-1 Eagle Mine Drawdown (MDD)
Eagle Mine Site
January through December 2015**

Table B-1 Eagle Mine Drawdown

Eagle Mine Site, January through December 2015

Date	Discharge (gallons/day)	Cumulative Discharge (gallons YTD)	Hours from Previous Reading	Average Discharge (gpm)	Eagle Mine Water Level (Ft. MSL)
1/2/15	210,794	417,196	47.5	146	
1/5/15	230,856	1,110,405	72.1	160	8,468.44 *
1/6/15	199,458	1,309,032	23.9	139	
1/7/15	139,413	1,446,121	23.6	97	
1/8/15	183,564	1,635,294	24.7	127	
1/9/15	229,951	1,886,484	26.2	160	8,468.90 *
1/12/15	245,964	2,625,400	72.1	171	
1/13/15	243,637	2,842,305	21.4	169	
1/14/15	207,779	3,041,282	23.0	144	8,469.36 *
1/15/15	135,072	3,176,260	24.0	94	
1/16/15	198,612	3,379,286	24.5	138	8,469.59 *
1/19/15	215,492	4,030,700	72.5	150	
1/20/15	223,503	4,255,755	24.2	155	
1/21/15	206,136	4,465,899	24.5	143	
1/22/15	214,541	4,673,289	23.2	149	8,469.82 *
1/23/15	213,719	4,893,093	24.7	148	
1/26/15	212,825	5,529,943	71.8	148	
1/27/15	175,508	5,701,673	23.5	122	
1/28/15	215,659	5,901,158	22.2	150	8,470.52 *
1/29/15	198,986	6,110,646	25.3	138	
1/30/15	286,997	6,403,024	24.4	199	
2/2/15	286,772	7,265,929	72.2	199	
2/3/15	285,965	7,556,064	24.4	199	
2/4/15	285,380	7,836,291	23.6	198	
2/5/15	285,339	8,121,036	24.0	198	
2/6/15	284,044	8,402,318	23.8	197	
2/9/15	290,441	9,244,596	69.6	202	
2/10/15	264,559	9,533,774	26.2	184	8,466.82 *
2/11/15	282,317	9,816,875	24.1	196	
2/12/15	284,871	10,098,976	23.8	198	
2/13/15	283,871	10,383,833	24.1	197	
2/16/15	282,482	11,232,259	72.1	196	
2/17/15	282,109	11,528,278	25.2	196	
2/18/15	280,820	11,795,642	22.9	195	
2/19/15	281,086	12,078,290	24.1	195	
2/20/15	281,276	12,360,738	24.1	195	
2/23/15	290,253	13,240,972	72.8	202	
2/24/15	289,821	13,519,925	23.1	201	
2/25/15	289,105	13,818,265	24.8	201	
2/26/15	288,963	14,113,047	24.5	201	
2/27/15	289,683	14,393,275	23.2	201	8,463.36 *
3/2/15	280,213	15,237,027	72.3	195	

* Mine water level reading from pressure transducer

OpsCalc_201X.xlsxMDD=Discharge

Table B-1 Eagle Mine Drawdown

Eagle Mine Site, January through December 2015

Date	Discharge (gallons/day)	Cumulative Discharge (gallons YTD)	Hours from Previous Reading	Average Discharge (gpm)	Eagle Mine Water Level (Ft. MSL)
3/3/15	291,771	15,536,295	24.6	203	
3/4/15	291,461	15,837,067	24.8	202	
3/5/15	291,888	16,135,644	24.6	203	
3/6/15	291,411	16,383,343	20.4	202	
3/7/15	299,671	16,705,281	25.8	208	
3/8/15	279,290	16,998,729	25.2	194	
3/9/15	292,474	17,284,094	23.4	203	
3/10/15	292,016	17,560,901	22.7	203	
3/11/15	291,550	17,896,791	27.7	202	
3/12/15	291,095	18,158,170	21.6	202	8,461.05 *
3/13/15	290,628	18,435,074	22.9	202	
3/16/15	146,110	18,875,333	72.3	101	
3/17/15	121,264	18,995,923	23.9	84	
3/18/15	120,709	19,114,704	23.6	84	
3/19/15	120,631	19,238,099	24.5	84	
3/20/15	120,395	19,354,230	23.2	84	
3/23/15	119,678	19,718,500	73.1	83	
3/24/15	120,134	19,820,697	20.4	83	
3/25/15	119,001	19,953,499	26.8	83	
3/26/15	119,187	20,080,632	25.6	83	8,462.44 *
3/27/15	119,207	20,209,938	26.0	83	
3/30/15	117,498	20,542,278	67.9	82	
3/31/15	115,089	20,666,718	25.9	80	
4/1/15	118,693	20,790,934	25.1	82	8,462.90 *
4/2/15	157,303	20,937,859	22.4	109	
4/3/15	222,122	21,156,742	23.6	154	
4/6/15	238,176	21,870,113	71.9	165	
4/7/15	250,796	22,108,543	22.8	174	
4/8/15	281,869	22,394,523	24.3	196	
4/9/15	280,467	22,675,380	24.0	195	
4/10/15	280,203	22,957,334	24.1	195	8,462.44 *
4/13/15	281,873	23,784,749	70.5	196	
4/14/15	280,722	24,075,803	24.9	195	
4/15/15	178,174	24,253,482	23.9	124	
4/16/15	176,793	24,432,485	24.3	123	
4/17/15	258,720	24,704,680	25.3	180	
4/20/15	256,510	25,466,371	71.3	178	
4/21/15	280,216	25,747,171	24.0	195	
4/22/15	279,709	26,021,441	23.5	194	
4/23/15	278,815	26,314,778	25.3	194	8,462.44 *
4/24/15	280,066	26,590,371	23.6	194	
4/27/15	280,064	27,427,450	71.7	194	

* Mine water level reading from pressure transducer

OpsCalc_201X.xlsxMDD=Discharge

Table B-1 Eagle Mine Drawdown

Eagle Mine Site, January through December 2015

Date	Discharge (gallons/day)	Cumulative Discharge (gallons YTD)	Hours from Previous Reading	Average Discharge (gpm)	Eagle Mine Water Level (Ft. MSL)
4/28/15	280,886	27,713,603	24.4	195	
4/29/15	281,468	28,015,399	25.7	195	
4/30/15	280,239	28,272,674	22.0	195	8,461.97 *
5/1/15	281,500	28,544,009	23.1	195	
5/4/15	279,522	29,388,981	72.6	194	
5/5/15	307,875	29,694,504	23.8	214	
5/6/15	312,368	30,016,417	24.7	217	
5/7/15	312,604	30,295,373	21.4	217	8,461.97 *
5/8/15	174,261	30,485,003	26.1	121	
5/11/15	272,198	31,294,415	71.4	189	
5/12/15	284,038	31,584,370	24.5	197	
5/13/15	281,377	31,863,598	23.8	195	
5/14/15	280,824	32,146,567	24.2	195	8,463.59 *
5/15/15	287,700	32,432,469	23.8	200	
5/18/15	280,939	33,276,262	72.1	195	
5/19/15	267,024	33,562,757	25.7	185	
5/20/15	267,276	33,817,040	22.8	186	
5/21/15	252,426	34,061,928	23.3	175	
5/22/15	263,902	34,326,013	24.0	183	
5/26/15	263,204	35,375,357	95.7	183	
5/27/15	262,539	35,647,559	24.9	182	
5/28/15	235,904	35,867,245	22.4	164	8,464.98 *
5/29/15	169,976	36,049,851	25.8	118	
6/1/15	285,583	36,896,485	71.2	198	8,465.67 *
6/2/15	263,142	37,143,363	22.5	183	
6/3/15	227,897	37,383,130	25.2	158	
6/4/15	213,545	37,602,755	24.7	148	
6/5/15	212,039	37,797,860	22.1	147	8,466.13 *
6/8/15	214,748	38,460,746	74.1	149	
6/9/15	248,505	38,708,043	23.9	173	
6/10/15	247,574	38,949,428	23.4	172	
6/11/15	247,331	39,198,477	24.2	172	8,466.82 *
6/12/15	248,347	39,441,823	23.5	172	
6/15/15	247,431	40,189,444	72.5	172	
6/16/15	246,501	40,437,657	24.2	171	
6/17/15	246,219	40,663,016	22.0	171	8,467.28 *
6/18/15	176,828	40,854,825	26.0	123	
6/19/15	317,722	41,174,533	24.1	221	
6/22/15	319,822	42,137,998	72.3	222	
6/23/15	319,732	42,450,403	23.5	222	
6/24/15	319,896	42,771,854	24.1	222	
6/25/15	318,390	43,152,153	28.7	221	8,466.82 *

* Mine water level reading from pressure transducer

OpsCalc_201X.xlsxMDD=Discharge

Table B-1 Eagle Mine Drawdown

Eagle Mine Site, January through December 2015

Date	Discharge (gallons/day)	Cumulative Discharge (gallons YTD)	Hours from Previous Reading	Average Discharge (gpm)	Eagle Mine Water Level (Ft. MSL)
6/26/15	276,033	43,400,583	21.6	192	
6/29/15	315,792	44,329,537	70.6	219	
6/30/15	323,400	44,648,221	23.7	225	
7/1/15	330,270	44,968,629	23.3	229	
7/2/15	329,618	45,306,945	24.6	229	8,466.36 *
7/3/15	329,479	45,661,593	25.8	229	
7/6/15	334,804	46,642,522	70.3	233	
7/7/15	334,519	46,939,175	21.3	232	
7/8/15	114,625	47,090,974	31.8	80	
7/9/15	109,388	47,187,524	21.2	76	8,466.36 *
7/10/15	131,586	47,301,565	20.8	91	
7/13/15	197,397	47,897,457	72.5	137	
7/14/15	332,341	48,230,721	24.1	231	
7/15/15	332,367	48,561,242	23.9	231	
7/16/15	331,535	48,913,498	25.5	230	
7/17/15	337,227	49,257,985	24.5	234	8,465.67 *
7/20/15	330,266	50,267,820	73.4	229	
7/21/15	330,888	50,570,674	22.0	230	
7/22/15	329,891	50,882,925	22.7	229	
7/23/15	329,373	51,226,022	25.0	229	8,465.21 *
7/24/15	327,276	51,559,889	24.5	227	
7/27/15	326,282	52,492,738	68.6	227	
7/28/15	325,503	52,884,020	28.9	226	
7/29/15	326,202	53,135,241	18.5	227	
7/30/15	322,873	53,514,617	28.2	224	8,464.28 *
7/31/15	322,646	53,818,890	22.6	224	
8/3/15	321,747	54,780,779	71.7	223	
8/4/15	321,095	55,122,165	25.5	223	
8/5/15	320,376	55,424,965	22.7	222	
8/6/15	319,185	55,746,367	24.2	222	8,463.59 *
8/7/15	319,337	56,099,855	26.6	222	
8/10/15	318,275	57,050,923	71.7	221	
8/11/15	317,008	57,357,144	23.2	220	
8/12/15	317,030	57,651,938	22.3	220	
8/13/15	323,262	57,972,955	23.8	224	
8/14/15	305,741	58,292,285	25.1	212	8,462.90 *
8/16/15	252,742	58,812,864	49.4	176	
8/17/15	246,692	59,051,847	23.3	171	
8/18/15	-3,523,805	55,895,105	21.5	-2447	
8/19/15	3,528,043	59,489,299	24.4	2450	
8/20/15	267,333	59,765,357	24.8	186	8,462.90 *
8/21/15	266,320	60,025,574	23.4	185	

* Mine water level reading from pressure transducer

OpsCalc_201X.xlsxMDD=Discharge

Table B-1 Eagle Mine Drawdown

Eagle Mine Site, January through December 2015

Date	Discharge (gallons/day)	Cumulative Discharge (gallons YTD)	Hours from Previous Reading	Average Discharge (gpm)	Eagle Mine Water Level (Ft. MSL)
8/22/15	265,876	60,280,741	23.0	185	
8/23/15	265,279	60,559,284	25.2	184	
8/24/15	265,109	60,825,314	24.1	184	
8/25/15	264,143	61,087,439	23.8	183	
8/26/15	293,958	61,357,105	22.0	204	
8/27/15	152,962	61,509,005	23.8	106	8,462.67 *
8/28/15	295,209	61,848,495	27.6	205	
8/31/15	293,797	62,757,838	74.3	204	
9/1/15	293,397	62,999,279	19.7	204	
9/2/15	292,584	63,297,755	24.5	203	
9/3/15	327,669	63,677,305	27.8	228	8,461.74 *
9/4/15	322,782	63,974,533	22.1	224	
9/7/15	315,317	64,890,705	69.7	219	
9/8/15	384,673	65,358,991	29.2	267	
9/9/15	260,235	65,616,877	23.8	181	
9/10/15	319,727	65,913,513	22.3	222	8,461.05 *
9/11/15	315,878	66,201,532	21.9	219	
9/14/15	314,529	67,184,434	75.0	218	
9/15/15	337,081	67,455,035	19.3	234	
9/16/15	366,350	67,873,030	27.4	254	
9/17/15	366,283	68,217,692	22.6	254	8,459.90 *
9/18/15	366,973	68,633,085	27.2	255	
9/21/15	321,369	69,593,845	71.8	223	
9/22/15	320,486	69,910,325	23.7	223	
9/23/15	319,607	70,224,605	23.6	222	
9/24/15	305,275	70,460,133	18.5	212	8,459.43 *
9/25/15	195,995	70,679,675	26.9	136	
9/27/15	251,101	71,215,705	51.2	174	
9/28/15	356,505	71,576,171	24.3	248	
9/29/15	284,016	71,813,837	20.1	197	
9/30/15	283,283	72,091,612	23.5	197	
10/1/15	281,227	72,412,484	27.4	195	
10/2/15	282,324	72,658,537	20.9	196	
10/5/15	280,133	73,492,517	71.4	195	
10/6/15	279,724	73,779,234	24.6	194	
10/7/15	278,481	74,066,804	24.8	193	
10/9/15	218,940	74,523,233	50.0	152	
10/12/15	277,341	75,333,493	70.1	193	
10/13/15	298,880	75,648,355	25.3	208	
10/14/15	297,905	75,945,846	24.0	207	
10/15/15	299,399	76,217,592	21.8	208	8,457.82 *
10/16/15	316,418	76,526,100	23.4	220	

* Mine water level reading from pressure transducer

OpsCalc_201X.xlsxMDD=Discharge

Table B-1 Eagle Mine Drawdown

Eagle Mine Site, January through December 2015

Date	Discharge (gallons/day)	Cumulative Discharge (gallons YTD)	Hours from Previous Reading	Average Discharge (gpm)	Eagle Mine Water Level (Ft. MSL)
10/19/15	316,663	77,502,477	74.0	220	
10/20/15	314,325	77,843,214	26.0	218	
10/21/15	314,769	78,112,735	20.5	219	
10/22/15	243,418	78,364,605	24.8	169	8,457.59 *
10/23/15	217,772	78,605,213	26.5	151	
10/26/15	269,356	79,378,864	68.9	187	
10/27/15	267,884	79,643,585	23.7	186	
10/28/15	269,283	79,947,650	27.1	187	
10/29/15	266,967	80,209,055	23.5	185	8,458.74 *
10/30/15	269,453	80,478,882	24.0	187	
11/2/15	271,943	81,330,025	75.1	189	
11/3/15	268,616	81,539,135	18.7	187	
11/4/15	76,899	81,611,655	22.6	53	
11/5/15	461,040	82,077,177	24.2	320	8,458.05 *
11/6/15	223,189	82,310,285	25.1	155	
11/9/15	303,701	83,254,922	74.6	211	
11/10/15	305,553	83,548,805	23.1	212	
11/11/15	303,221	83,857,711	24.5	211	
11/12/15	302,759	84,137,343	22.2	210	8,457.12 *
11/13/15	260,983	84,414,275	25.5	181	
11/16/15	265,038	85,219,329	72.9	184	
11/17/15	262,965	85,497,999	25.4	183	
11/18/15	163,989	85,667,113	24.8	114	8,457.12 *
11/19/15	255,653	85,905,545	22.4	178	
11/20/15	259,554	86,105,798	18.5	180	
11/23/15	259,324	86,918,166	75.2	180	
11/24/15	276,951	87,192,040	23.7	192	
11/25/15	288,110	87,468,546	23.0	200	
11/27/15	268,952	88,039,509	51.0	187	8,456.66 *
11/30/15	275,469	88,857,690	71.3	191	
12/1/15	276,070	89,115,547	22.4	192	
12/2/15	274,623	89,410,195	25.7	191	
12/3/15	272,276	89,659,025	21.9	189	8,456.66 *
12/4/15	275,232	89,920,878	22.8	191	
12/7/15	274,222	90,745,448	72.2	190	
12/8/15	287,576	91,045,805	25.1	200	8,457.12 *
12/9/15	299,779	91,336,840	23.3	208	
12/10/15	286,395	91,653,665	26.5	199	
12/11/15	304,919	91,981,665	25.8	212	8,456.89 *
12/14/15	303,012	92,842,513	68.2	210	
12/15/15	303,035	93,183,217	27.0	210	
12/16/15	302,496	93,464,916	22.4	210	

* Mine water level reading from pressure transducer

OpsCalc_201X.xlsxMDD=Discharge

Table B-1 Eagle Mine Drawdown

Eagle Mine Site, January through December 2015

Date	Discharge (gallons/day)	Cumulative Discharge (gallons YTD)	Hours from Previous Reading	Average Discharge (gpm)	Eagle Mine Water Level (Ft. MSL)
12/17/15	301,130	93,761,445	23.6	209	8,456.20 *
12/18/15	303,770	94,067,535	24.2	211	
12/21/15	284,636	94,942,198	73.7	198	
12/22/15	283,702	95,186,103	20.6	197	
12/23/15	282,299	95,479,380	24.9	196	
12/24/15	279,613	95,790,255	26.7	194	8,456.20 *
12/28/15	283,020	96,883,025	92.7	197	
12/29/15	281,257	97,174,048	24.8	195	
12/30/15	280,382	97,449,952	23.6	195	
12/31/15	279,835	97,747,860	25.5	194	8,456.20 *

* Mine water level reading from pressure transducer

**B-2 Mine, Seep, and Groundwater Quality Report
Eagle Mine Site
2015**

Groundwater and Mine Water Quality Report

Eagle Mine Site, January – December 2015

Location	Sample Date	Field pH (SU)	Field Temp. (deg C)	Field Specific Cond. @25C (umhos/cm)	Metals (mg/L)
BTS-1	3/7/2015	2.93	5.5	5824 J	Arsenic, Total 0.183
	3/19/2015	2.6	5.5	4051	Arsenic, Total 0.0326
	4/7/2015	2.8	5	3846	Arsenic, Total 0.0183 / 0.0177
BW- 9R	3/7/2015	7	7	4486 J	Arsenic, Total 0.0026 / 0.0026
	3/19/2015	6.8	6.5	3007	Arsenic, Total 0.0022
	4/7/2015	6.9	9	3770	Arsenic, Total 0.0027
EDS-3	3/7/2015	6.83	5	1832 J	Arsenic, Total 0.0032
	3/19/2015	6.5	8	1477	Arsenic, Total 0.0015 / 0.0018
	4/7/2015	6.35	6.6	1375	Arsenic, Total 0.0013
MILL-1	1/15/2015	NA	NA	NA	Arsenic, Total 0.0012 Cadmium Total 0.618 Copper Total 0.932 Zinc Total 377
MILL-2	3/26/2015	6.13	1	2757	Arsenic, Total 0.0016

Notes:

NA - not analyzed

J – estimated

Field duplicated samples are presented as Primary / Duplicate

Additional samples collected for WTP improvement assessment provided on page 2.

Eagle Mine WTP Influent Samples
3.18.2015

Sample Location	Units	Tip Top		ADIT #6		MDD		North Trench		East Trench		WTP Influent	
		Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
Metals Analysis													
Aluminum	ug/l	3260	3310	5750	5670	< 100	< 100	< 1000 ^a	179	314	102	< 100	< 100
Arsenic	ug/l	363	107	54.6	< 25	352	34.2	271	< 25	< 25	< 130 ^a	< 25	< 25
Barium	ug/l	< 10	< 10	< 10	< 10	12.8	12.4	14.1	12.7	< 10	< 10	10.7	10.7
Boron	ug/l	< 50	< 50	< 250 ^a	< 250 ^a	< 50	< 50	106	113	< 50	< 50	56.0	57.5
Cadmium	ug/l	58.9	58.9	240	242	29.6	25.0	< 10	< 10	< 10	< 10	28.5	27.2
Calcium	ug/l	326000	343000	279000	284000	401000	401000	269000	261000	327000	307000	389000	389000
Chromium	ug/l	< 10	-	< 10	-	< 10	-	12.0	-	< 10	-	< 10	-
Copper	ug/l	4190	4220	4630	4610	235	34.8	12.7	< 10	< 10	< 10	66.3	14.6
Iron	ug/l	349000	318000	118000	93000	62600	23600	183000	136000	256000	217000	20000	3370
Lead	ug/l	< 250 ^a	< 250 ^a	< 250 ^a	< 250 ^a	< 50	< 50	< 500 ^a	< 50	< 250 ^a	< 250 ^a	< 50	< 50
Magnesium	ug/l	242000	247000	486000	500000	283000	285000	301000	282000	403000	378000	296000	289000
Manganese	ug/l	68400	70800	48100	47500	19700	19900	120000	122000	84300	82500	33700	32000
Mercury	ug/l	< 0.10	-	< 0.10	-	< 0.10	-	< 0.10	-	< 0.10	-	< 0.10	-
Molybdenum	ug/l	< 50 ^a	< 50 ^a	< 50 ^a	< 50 ^a	< 10	< 10	< 10	< 10	< 50 ^a	< 10	< 10	< 10
Nickel	ug/l	187	199	175	178	56.2	56.8	36.4	39.3	79.3	76.4	62.8	62.2
Phosphorus	ug/l	1720	898	430	261	< 100	< 100	< 1000 ^a	< 1000 ^a	< 100	< 500 ^a	< 100	< 100
Potassium	ug/l	-	6080	-	5280	-	12900	-	9860	-	7910	-	12000
Selenium	ug/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	50.5	< 50	< 50	< 50	< 50
Silicon	ug/l	-	11100	-	10800	-	6840	-	8050	-	7920	-	5670
Silver	ug/l	< 150 ^a	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30
Sodium	ug/l	20600	-	12400	-	7960	-	83200	-	39500	-	17400	-
Thallium	ug/l	< 50 ^a	< 50 ^a	< 50 ^a	< 50 ^a	< 10	< 10	< 100 ^a	< 100 ^a	< 50 ^a	< 50 ^a	< 50 ^a	< 50 ^a
Zinc	ug/l	55400	59000	136000	136000	26100	25900	36800	31700	21200	20000	28500	27900
General Chemistry													
Alkalinity, Total as CaCO3	mg/l	< 5.0	-	< 5.0	-	136	-	180	-	116	-	45.0	-
Chloride	mg/l	5.2	-	8.0	-	11.3	-	28.3	-	12.0	-	12.0	-
Cyanide, Total	mg/l	< 0.0050	-	< 0.0050	-	< 0.0050	-	< 0.0050	-	< 0.0050	-	< 0.0050	-
Fluoride	mg/l	1.6	-	1.1	-	< 1.0 ^b	-	1.0	-	< 0.50 ^b	-	< 1.0 ^b	-
Nitrogen, Ammonia	mg/l	< 0.050	-	0.060	-	0.10	-	1.9	-	0.57	-	0.30	-
Nitrogen, Nitrate	mg/l	0.050	-	1.3	-	< 0.10 ^b	-	< 0.10 ^b	-	0.57	-	< 0.10 ^b	-
Silica, Dissolved	mg/l	-	23.7 ^c	-	23.1 ^c	-	14.6 ^c	-	17.2 ^c	-	16.9 ^c	-	12.1 ^c
Solids, Total Dissolved	mg/l	4270	-	4890	-	3260	-	4780	-	5080	-	3300	-
Solids, Total Suspended	mg/l	56.0	-	104	-	34.0	-	20.0	-	108	-	54.0	-
Sulfate	mg/l	2840	-	3260	-	2110	-	2220	-	2900	-	2180	-
Sulfide	mg/l	< 2.5 ^b	-	< 2.5 ^b	-	< 2.5 ^b	-	< 2.5 ^b	-	< 2.5 ^b	-	< 2.5 ^b	-
pH (Laboratory)	S.U.	2.93	-	3.16	-	6.17	-	6.53	-	6.38	-	6.33	-
Field Chemistry													
pH	S.U.	3.02	-	3.35	-	6.07	-	6.53	-	6.82	-	6.49	-
Temperature	°C	7.03	-	1.1	-	16.08	-	7.51	-	3.94	-	2.71	-
ORP	mV	430	-	462	-	74	-	63	-	-43	-	-16	-
Conductivity	mS/cm	3470	-	3910	-	2870	-	2850	-	2810	-	3680	-
Turbidity	NTU	5.3	-	13.1	-	57.5	-	70	-	33.2	-	17.8	-
DO	mg/L	5.27	-	9.2	-	0.89	-	5.65	-	7.92	-	4.23	-
TDS	g/L	2220	-	2530	-	1880	-	1820	-	1800	-	2350	-

Footnotes:

Samples collected by Environ-Ramboll and analyzed for the purpose of evaluating WTP process improvement

^a Elevated detection limit due to dilution required for possible matrix interference.

^b Elevated detection limit due to matrix interference.

^c Calculated as: (Silicon * 2.139)

**B-3 Liberty Well No. 4 Water Quality Reports
Eagle Mine Site
2015**

Liberty Well No. 4 Water Quality Report

Eagle Mine Site, January - December 2015

<i>Station ID and Description</i>		Field	Field Spec.					Hydrogen		Arsenic	Cadmium	Copper	Lead	Selenium	Zinc Pot.
Sample Date and Time	Pump Rate (GPM)	Field pH (SU)	Temp. (Deg. C)	Cond. @25C (umhos/cm)	TSS (mg/L)	TDS (mg/L)	Chloride (mg/L)	Sulfide (mg/L)	Mercury (mg/L)	Total (mg/L)	Pot. Diss. (mg/L)	Pot. Diss. (mg/L)	Pot. Diss. (mg/L)	Pot. Diss. (mg/L)	Diss (mg/L)
<i>LIB- 4</i>	<i>LIBERTY WELL AT WILLOW CREEK</i>														
1/29/2015 10:57	203	7.61	13.2	455	5 U	--	0.75	--	--	0.002	0.00021	--	0.0019	0.0028	--
2/5/2015 12:05	200	7.62	13.9	354	--	--	--	--	--	--	--	--	--	--	--
2/11/2015 11:15	200	7.64	13.6	369	5 U	254	0.79	0.5 U	0.0000046	0.0025	0.00019	0.0012 J	0.0018	0.003	0.105
2/19/2015 11:03	200	7.61	13.9	388	--	--	--	--	--	--	--	--	--	--	--
2/24/2015 11:34	200	7.58	12.8	396	5 U	--	--	--	--	0.0025	0.00016	--	0.0019	0.0028	--
3/6/2015 10:47	200	7.56	14.2	416	--	--	--	--	--	--	--	--	--	--	--
3/10/2015 11:30	198	7.29	13.5	583	5 U	--	17.9	--	--	0.0071	0.00095	--	0.0023	0.0024	1.09
3/11/2015 13:06	182	7.62	13.8	509	--	--	--	--	--	--	--	--	--	--	--
3/12/2015 10:35	153	7.52	12.9	375	--	--	--	--	--	--	--	--	--	--	--
3/18/2015 10:17	151	7.95	13.2	379	--	--	--	--	--	--	--	--	--	--	--
3/27/2015 10:00	152	7.58	12.2	375	5 U	--	--	--	--	0.0021	0.00032	--	0.0036	0.0027	0.14
4/1/2015 11:27	152	7.63	13.6	421	--	--	--	--	--	--	--	--	--	--	--
4/9/2015 11:18	151	7.6	13.1	416	5 U	--	0.8	--	--	0.0023	0.00019	--	0.0021	0.003	0.0668
4/15/2015 11:00	153	7.58	12.8	420	--	--	--	--	--	--	--	--	--	--	--
4/21/2015 11:10	153	7.65	13	408	5 U	--	--	--	--	0.0021	0.00022	--	0.002	0.0026	0.0649
4/29/2015 10:48	152	7.66	14.8	409	--	--	--	--	--	--	--	--	--	--	--
5/7/2015 10:23	150	7.58	13.5	410	5 UJ	--	0.73	--	--	0.0022	0.0002	0.00092 J	0.002	0.0025	0.0603
5/13/2015 11:01	149	7.58	14.8	404	--	--	--	--	--	--	--	--	--	--	--
5/19/2015 11:10	151	7.61	12.7	420	--	--	--	--	--	--	--	--	--	--	--
5/26/2015 11:00	152	7.47	13.3	415	5 U	234	--	0.5 U	0.0000054	0.0021	0.00021	--	0.0023	0.0028	0.0561
6/3/2015 10:24	151	7.55	14.4	396	--	--	--	--	--	--	--	--	--	--	--
6/9/2015 11:41	151	7.58	15.6	401	5 U	--	0.73	--	--	0.0025	0.00023	--	0.0036	0.0026	0.0617
6/16/2015 10:20	152	7.48	14.7	404	--	--	--	--	--	--	--	--	--	--	--
6/23/2015 11:04	152	7.53	15.9	399	5 U	--	--	--	--	0.0021	0.00018	--	0.0026	0.0026	0.0547
6/30/2015 11:34	151	7.51	15.8	381	--	--	--	--	--	--	--	--	--	--	--
7/7/2015 10:30	151	7.47	14.2	401	5 U	--	--	--	--	0.0019	0.00017	--	0.0022	0.0024	0.0508
7/14/2015 11:08	151	7.53	16.1	400	--	--	--	--	--	--	--	--	--	--	--

U - Undetected at stated detection limit

J - Estimated value

Liberty Well No. 4 Water Quality Report

Eagle Mine Site, January - December 2015

<i>Station ID and Description</i>		Field	Field Spec.					Hydrogen		Arsenic	Cadmium	Copper	Lead	Selenium	Zinc Pot.
Sample Date and Time	Pump Rate (GPM)	Field pH (SU)	Temp. (Deg. C)	Cond. @25C (umhos/cm)	TSS (mg/L)	TDS (mg/L)	Chloride (mg/L)	Sulfide (mg/L)	Mercury (mg/L)	Total (mg/L)	Pot. Diss. (mg/L)	Pot.Diss (mg/L)	Pot. Diss. (mg/L)	Pot. Diss. (mg/L)	Diss (mg/L)
7/22/2015 12:07	152	7.38	15.1	397	5 U	224	0.69	0.5 U	0.0000055	0.0023	0.00018	0.00076 J	0.0021	0.0022	0.0576
7/31/2015 11:27	150	7.51	15.6	395	--	--	--	--	--	--	--	--	--	--	--
8/4/2015 12:41	150	7.48	15.5	386	2.5 J	--	0.7	--	--	0.0019	0.00017	--	0.0018	0.0024	0.0545
8/13/2015 10:52	150	7.42	15.5	389	--	--	--	--	--	--	--	--	--	--	--
8/20/2015 11:43	150	7.58	16.2	380	--	--	--	--	--	--	--	--	--	--	--
8/24/2015 11:29	150	7.47	15.2	382	5 U	--	--	--	--	0.002	0.00021	--	0.0018	0.0024	0.055
9/2/2015 11:12	148	7.73	16	388	--	--	--	--	--	--	--	--	--	--	--
9/8/2015 11:24	148	7.7	14.2	395	5 U	--	0.72	--	--	0.0017	0.00012	--	0.0017	0.0023	0.0567
9/15/2015 12:16	148	7.62	15.3	392	--	--	--	--	--	--	--	--	--	--	--
9/24/2015 8:46	148	7.39	12.5	410	--	--	--	--	--	--	--	--	--	--	--
9/29/2015 11:35	148	7.43	15.4	383	5 U	--	--	--	--	0.002	0.00019	--	0.002	0.0023	0.0584
10/7/2015 12:12	147	7.42	13.9	397	--	--	--	--	--	--	--	--	--	--	--
10/14/2015 11:15	146	7.58	13.9	412	5 U	240	0.67	--	0.0000058	0.002	0.0002	0.0039	0.002	0.0025	0.0568
10/22/2015 8:28	147	7.33	12.7	412	--	--	--	--	--	--	--	--	--	--	--
10/29/2015 10:55	0				--	--	--	--	--	--	--	--	--	--	--
10/31/2015 17:58	147	7.3	13.1	419	5 U	--	--	0.5 U	--	0.0021	0.00019	--	0.0019	0.0028	0.0611
11/4/2015 9:57	146	7.32	12.7	425	--	--	--	--	--	--	--	--	--	--	--
11/10/2015 11:30	145	7.37	13	425	5 U	--	0.69	--	--	0.0025	0.00028	--	0.0041	0.0026	0.0967
11/18/2015 13:50	150	7.54	11.9	424	5 U	--	--	--	--	0.0022	0.00024	--	0.0022	0.0024	0.0559
11/24/2015 11:25	150	7.58	12.3	434	--	--	--	--	--	--	--	--	--	--	--
12/1/2015 13:00	137	7.63	11.6	425	5 U	--	0.73	--	--	0.0019	0.00019	--	0.0018	0.0026	0.0527
12/9/2015 13:50	143	7.5	12.8	423	--	--	--	--	--	--	--	--	--	--	--
12/15/2015 11:15	151	7.35	8.6	442	5 U	--	--	--	--	0.0022	0.00024	--	0.0021	0.0029	0.0558
12/23/2015 11:35	152	7.61	10.6	437	--	--	--	--	--	--	--	--	--	--	--
12/30/2015 12:45	80 est	7.3	9.9	437	--	--	--	--	--	--	--	--	--	--	--

U - Undetected at stated detection limit

J - Estimated value

APPENDIX C
GROUNDWATER DATA

**C-1 Groundwater Elevation Data
Eagle Mine Site
January – December 2015**

Groundwater Elevation Data

Eagle Mine Site, January - December 2015

Well ID	DATE	Measuring Point Elevation (ft)	Depth to Water (feet)	Elevation (ft MSL)	
BTS-1					
	3/6/2015	8,381.18	14.30	8,366.88	
	3/7/2015	8,381.18	14.40	8,366.78	
	3/11/2015	8,381.18	13.30	8,367.88	
	3/13/2015	8,381.18	13.40	8,367.78	
	3/19/2015	8,381.18	11.12	8,370.06	
	3/25/2015	8,381.18	11.90	8,369.28	
	4/7/2015	8,381.18	13.80	8,367.38	
	4/29/2015	8,381.18	15.00	8,366.18	
BW- 9R					
	3/7/2015	8,380.49	17.80	8,362.69	
	3/19/2015	8,380.49	15.20	8,365.29	
	4/7/2015	8,380.49	16.45	8,364.04	
EDS-3					
	3/7/2015	8,300.08		NM, pump obstructs	
	3/19/2015	8,300.08		NM, pump obstructs	
	4/7/2015	8,300.08		NM, pump obstructs	
ET- 1					
	1/6/2015	7,993.37	9.80	7,983.57	
	1/13/2015	7,993.37	10.00	7,983.37	
	1/22/2015	7,993.37	10.00	7,983.37	
	1/26/2015	7,993.37	10.00	7,983.37	
	2/3/2015	7,993.37	10.00	7,983.37	
	2/12/2015	7,993.37	9.60	7,983.77	
	2/17/2015	7,993.37	9.70	7,983.67	
	2/24/2015	7,993.37	9.90	7,983.47	
	3/3/2015	7,993.37	9.90	7,983.47	
	3/9/2015	7,993.37	9.60	7,983.77	
	3/13/2015	7,993.37	9.50	7,983.87	Pulled transducer
	3/16/2015	7,993.37	8.80	7,984.57	
	3/21/2015	7,993.37	6.32	7,987.05	Placed Transducer
	4/2/2015	7,993.37	8.50	7,984.87	
	4/9/2015	7,993.37	9.20	7,984.17	
	4/15/2015	7,993.37	9.40	7,983.97	
	4/20/2015	7,993.37	9.50	7,983.87	
	4/29/2015	7,993.37	9.50	7,983.87	
	5/5/2015	7,993.37	9.30	7,984.07	
	5/11/2015	7,993.37	7.60	7,985.77	
	5/27/2015	7,993.37	8.50	7,984.87	
	6/2/2015	7,993.37	8.70	7,984.67	
	6/9/2015	7,993.37	8.40	7,984.97	
	6/16/2015	7,993.37	8.30	7,985.07	
	6/22/2015	7,993.37	8.40	7,984.97	

Groundwater Elevation Data

Eagle Mine Site, January - December 2015

Well ID	DATE	Measuring Point Elevation (ft)	Depth to Water (feet)	Elevation (ft MSL)
ET- 1	6/29/2015	7,993.37	9.00	7,984.37
	7/7/2015	7,993.37	9.20	7,984.17
	7/13/2015	7,993.37	9.35	7,984.02
	7/23/2015	7,993.37	9.40	7,983.97
	7/30/2015	7,993.37	9.70	7,983.67
	8/5/2015	7,993.37	9.80	7,983.57
	8/13/2015	7,993.37	9.80	7,983.57
	8/19/2015	7,993.37	9.90	7,983.47
	8/25/2015	7,993.37	10.00	7,983.37
	9/4/2015	7,993.37	10.00	7,983.37
	9/10/2015	7,993.37	10.00	7,983.37
	9/17/2015	7,993.37	10.00	7,983.37
	9/24/2015	7,993.37	10.00	7,983.37
	9/29/2015	7,993.37	10.00	7,983.37
	10/6/2015	7,993.37	10.00	7,983.37
	10/12/2015	7,993.37	10.10	7,983.27
	10/21/2015	7,993.37	10.10	7,983.27
	10/29/2015	7,993.37	10.10	7,983.27
	11/3/2015	7,993.37	10.10	7,983.27
	11/24/2015	7,993.37	10.05	7,983.32
	12/3/2015	7,993.37	10.00	7,983.37
	12/8/2015	7,993.37	10.05	7,983.32
	12/16/2015	7,993.37	10.10	7,983.27
	12/29/2015	7,993.37	9.60	7,983.77

**C-2 CTP Groundwater Extraction System
Eagle Mine Site
January – December 2015**

CTP Groundwater Extraction System

Eagle Mine Site, January - December 2015

Month	Tot. Gallons Pumped per Month	Cumulative Gallons Pumped for the Year	Cumulative Gallons Pumped
January	641,073	641,073	394,122,593
February	711,111	1,352,184	394,833,704
March	1,199,949	2,552,133	396,033,653
April	1,006,225	3,558,358	397,039,878
May	1,010,916	4,569,274	398,050,794
June	1,088,888	5,658,162	399,139,682
July	952,580	6,610,742	400,092,262
August	849,303	7,460,045	400,941,565
September	745,377	8,205,422	401,686,942
October	734,025	8,939,447	402,420,967
November	760,891	9,700,338	403,181,858
December	736,901	10,437,239	403,918,759

Notes:

North and East Trenches combined total gallons is measured via a flow meter at the surge pond.

**C-3 Upgradient Groundwater Diversion Trench
Eagle Mine Site
2015**

Upgradient Groundwater Diversion Trench

Eagle Mine Site, 2015

Monitoring Location	Date	Flow (gpm)	Stage/ Level (ft.)	Field pH (Std Unts) >6.0 *	Field Temperature (Deg. C)	Field Spec. Cond. @ 25C (umhos/cm) <950 *
UGDT	<i>Flowed from 3/??/15 to 8/4/15</i>					
	March-15	<i>under snow</i>				
	3/27/2015 (1)	2.9	0.08	7.4	4.9	517
	4/1/2015 (1)	13.2	0.17	7.0	4.5	459
	4/17/2015 (1)	9	0.14	7.1	6.8	504
	4/21/2015 (1)	11.7	0.16	7.1	6.7	509
	4/30/2015	10.3	0.15	7.3	7.9	515
	5/5/2015	13.2	0.17	7.1	9.5	508
	5/12/2015	6.6	0.12	6.9	7.5	495
	5/15/2015	3				
	5/20/2015	2.9	0.08	7.0	8.5	515
	5/27/2015	2.9	0.08	7.0	9.6	523
	6/3/2015	2.9	0.08	7.0	9.3	513
	6/9/2015	2.9	0.08	7.1	11.7	522
	6/16/2015	0.2	0.02	7.0	12.1	531
	6/22/2015	18.3	0.2	7.0	14	485
	6/29/2015	18.3	0.2	7.0	15.6	506
	7/8/2015	18.3	0.2	7.0	13.2	557
	7/13/2015	11.7	0.16	6.1	14.3	556
	7/23/2015	9	0.14	7.0	15.5	546
	7/30/2015	0.2	0.02	7.0	16.5	569
	8/5/2015	0		No flow		

Note

*Operational/maintenance standard - action required, see O&M Plan

(1) flow suspect as water pooling at outflow point

APPENDIX D
SPILL REPORTS

D-1 April 2, 2015

MEDIUM IMPACTED: WATER AND LAND Fixed Facility Land Air Groundwater

Surface Water Waterway Impacted: EAGLE RIVER

NUMBER OF DEATHS:

NUMBER OF INJURIES:

EVACUATION:

NUMBER EVACUATED:

ACTION TAKEN: Samples were taken from the river, and results will be available later. The release has been stopped by putting a cap on it. Clean up has been completed except that a vacuum truck will be coming up to collect the water from a basin that is under the pipeline.

CDPHE NOTIFIED: HMMWD: WENDY NAUGLE, R BEIERLE, J HENDERSON, E SMITH, J O'ROURKE, S NEWTON, K STEWART, D FOSTER; WQCD: M THIEBAUD, D KURZ, ROB CRIBBS, H DRISSEL, C KEEVER; CPW: MINDI MAY, DOUG KRIEGER, SHERMAN HEBEIN, KENDALL BAKICH, PERRY WILL

COMMENTS: Eagle County EH: Ray Merry, Laura Fawcett

RESPONDERS: ENVIRON INTERNATIONAL

RESPONDER COMMENTS:

ADDITIONAL COMMENTS:

<input checked="" type="checkbox"/> Field Services - Grand Junction 222 South 6th Street, Room 232 Grand Junction, CO 81501 Telephone: 970-248-7150 Fax: 970-248-7198 Contact email: michelle.thiebaud@state.co.us	<input type="checkbox"/> Field Services - Pueblo 140 Central Main, Suite 300 Pueblo, CO 81003 Telephone: 719-295-5060 Fax: 719-543-8441 Contact email: carol.keever@state.co.us	<input type="checkbox"/> Field Services - Denver 4300 Cherry Creek Dr. South, B2 Denver, Colorado 80246-1530 Phone: 303-692-3650 Fax: 303-782-0390 Contact email: annemarie.goolsby@state.co.us
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Reporting Form: Incident / Spill / Sanitary Sewer Overflow (SSO)

The Water Quality Control Division distinguishes between reporting requirements for spills that occur with respect to activities that result in a discharge that is authorized under a CDPS permit and those that are not. Reporting and management of spills that occur with respect to activities resulting in a discharge authorized under a permit should be performed in accordance with the specific requirements of that permit. If the permit does not require a 5-day report, please provide the information below in writing. For non-permitted activities, or in the case of an activity where a permit does not address reporting of or response to a given spill, please submit this written response to the Water Quality Control Division within five (5) working days of the date of the event. If sufficient space is not provided, please attach other sheets. Please send the completed form with signature via fax or email to the Division's Field Services office indicated above. If you have any questions please contact the Division's Field Services Engineer at your earliest convenience. The Field Services County list is available at: <http://www.colorado.gov/cdphe/wqcd> (Contacts, Inspection services contacts, then Field services contacts).

Prior to the five (5) working day deadline, you may request an extension to submit the report if sample analyses justifiably are going to require more time to analyze than the reporting time allows. To request an extension please send an email to the Division's Field Services Engineer for the County that the incident / spill / SSO took place or to the email listed above.

Incident Background Information			
County	Eagle		
Incident / Spill Number (Division provided) and Spill Date	2015-0189 4/2/15		
Type of Incident / Spill / SSO (check one)	<input type="checkbox"/> Sanitary Sewer Overflow/Reuse	<input type="checkbox"/> Petroleum Product	<input type="checkbox"/> Chemical
	<input type="checkbox"/> WW Treatment Plant Bypass or Upset (through an authorized outfall point)	<input type="checkbox"/> Combined Sewer Overflow	<input type="checkbox"/> Biosolids
	<input type="checkbox"/> Unplanned potable water release (e.g., water line break)		<input checked="" type="checkbox"/> Other
Contact Information			
Potentially Responsible Party (PRP): Contact Name	Russ Cepko	Potentially Responsible Party (PRP): Company / Agency	CBS Operations, Inc.
PRP Phone / Fax	Phone: 412-642-2569 Fax: 412-642-3014	PRP email address	russ.cepko@cbs.com
CDPS Permit Number:	CO-0042480	CDPS Permittee Name:	CBS Operations, Inc.
Reported by (if not PRP): Contact Name	David Heinze	Reported by (if not PRP): Company / Agency	ENVIRON International
Reported by (if not PRP): Phone / Fax	Phone: 303-382-5474 Fax: 303-382-5499	Reported by (if not PRP): email address	dheinze@environcorp.com
Incident Information: Please provide the following information.			
A	Incident / spill / SSO source, cause, and event description. Response: The release occurred at the Eagle Mine Superfund Site. During inspection of a portion of the conveyance system in Rex Flats on April 2, 2015, it was discovered that a valve on a clean-out was leaking. The cause of the leaking valve was likely recent freeze/thaw of the cleanout that is typically frozen over the winter. The release flow rate was measured at 2 gallons per minute. A plug was placed in the end of the pipe shortly after discovery which stopped the leak.		
B	Material released (e.g., untreated wastewater, biosolids, specific chemicals or products) and estimated total quantity (e.g., gallons). Please attach MSDS for any and all chemicals or products involved in spill or release. Response: Material released was mine water from the Eagle Mine that was being conveyed from the mine to the water treatment plant. The quantity released is unknown.		

C	<p>Actual or estimated dates and times of the event, including duration and actual date and time spill was fully controlled/stopped. If release is still occurring, the date and time the release is expected to be stopped.</p> <p>Response: The duration of the leak is unknown. It likely started when the cleanout on the pipeline thawed in recent weeks. The leak was stopped upon discovery at 10:45 AM on April 2, 2015.</p>
D	<p>Location of release (e.g., address, lat/long, road name and mile marker).</p> <p>Response: The release occurred in Rex Flats near the intersection of Highway 24 and Tigwon Road south of Minturn, Colorado. The release occurred on the south side of the Eagle River on the bypass pipeline just before it extends vertically up the trestle and over the Eagle river.</p>
E	<p>Describe measures taken or planned to contain, reduce, and clean up spill or release.</p> <p>Response: A plug was immediately installed in the end of the pipe that stopped the release. Released water flowed into a pit beneath the valve and likely migrated into the ground but may have flowed into the Eagle River. A vacuum truck was mobilized the day of the release discovery and removed any standing water in the pit and the material in the cleanout was also removed.</p>
F	<p>Steps taken or planned to prevent reoccurrence of the event.</p> <p>Response: The leaking valve will be replaced and the plug will remain in the end of the pipe permanently.</p>
<p>Incident Impact to State Waters (As defined in § 25-8-103(19), C.R.S.). <i>Examples of State waters include: perennial streams, intermittent or ephemeral gulches, ditches, ponds, lakes, reservoirs, irrigation canals, wetlands, stormwater conveyances (when they discharge to surface water), and groundwater.</i></p>	
G	<p>Did flow or materials reach surface waters of the State? If so, please describe the path of flow to State waters and which State water body was impacted (e.g., spill impacted a storm drain which was directly connected to Cherry Creek, Colorado River, etc.). If yes, what quantity of material (e.g., gallons) reached the surface water and what was the resulting impact?</p> <p>Response: Released water likely reached the Eagle River which is located approximately 100' north of the leaking valve location. The quantity of material released is unknown. The release flow rate was measured at approximately two gallons per minute but the start date of the release is unknown. No impact was noted to the Eagle River.</p>
H	<p>Were any water quality samples or other samples taken? If so, please describe sampling process and attached results.</p> <p>Response: Samples were collected of the mine water leaking from the pipe and of the Eagle river upstream and downstream of the release. Results will be provided upon receipt from the laboratory.</p>
I	<p>Did flow or materials reach groundwater of the State? If so, please describe the path of flow to State waters and which State water body impacted (e.g, spill soaked into ground and wet soil was not excavated). If yes, what quantity of material (e.g., gallons) reached the ground or groundwater and what was the resulting impact?</p> <p>Response: Released water likely migrated to groundwater beneath the valve location. The quantity of material released is unknown. The release flow rate was measured at approximately two gallons per minute but the start date of the release is unknown.</p>
J	<p>Did the incident include any of the following (check if yes)? If so, please include additional details below.</p> <p><input checked="" type="checkbox"/> Toxic Chemical Release <input type="checkbox"/> Fish Kill</p> <p>Response: The mine water contains metals such as zinc, lead, cadmium and copper. The release was less than the 15 GPM threshold established in the Site Emergency Response Plan which is the conservative limit established at low flow conditions where releases below this threshold have been demonstrated to have little measurable effect on the downstream water users. The Eagle River was well above its assumed low flow which forms the basis for the flow limits for notification.</p>
<p>Incident Impact to Areas or Water Users</p>	
K	<p>Did the incident / spill / SSO impact any areas (e.g., public use areas including parks or swim beaches) or downstream water users (e.g., public water suppliers, irrigation diversions)? Please list impacted areas and/or users, their location, and potential impacts.</p> <p>Response: Released water flowed into a pit beneath the valve and likely migrated into the ground but may have flowed into the Eagle River. Downstream water users are located several miles from the release area (the closest water intakes for the Eagle River Water and Sanitation District are located more than 6 miles downstream of the release). As previously discussed, the release was less than the 15 GPM threshold established in the Site Emergency Response Plan which is the conservative limit established at low flow conditions where releases below this threshold have been demonstrated to have little measurable effect on the downstream water users. The Eagle River was well above its assumed low flow which forms the basis for the flow limits for notification.</p>

L	How were the impacted area users (e.g., park patrons) and downstream water users notified (e.g., signs posted, list downstream users contact via phone). Response: The Eagle Mine site CDPHE Remedial Project Manager was notified immediately upon discovery of the release followed by a phone call to the CDPHE Spill Hotline. In addition, the Eagle River Water and Sanitation district was notified even though not required by the Site Emergency Response Plan.
---	--

I hereby certify that the information presented above is accurate and complete.			
Date	Company	Typed Name and Title	Signature
4.8.15	ENVIRON International Corp.	David J. Heinze	

MEMO

Job **Eagle Mine WTP Site: Project Number 2125250A**
Client **CBS Operations, Inc.**
Date **April 20, 2015**
To **File**
From **David Heinze**

Rock Box Release – April 2, 2015 Summary of Post Release Water Sampling

Date April 20, 2015

During inspection of a portion of the conveyance system in Rex Flats on April 2, 2015, it was discovered that a valve on a clean-out was leaking. The cause of the leaking valve was likely recent freeze/thaw of the cleanout that is typically frozen over the winter. The release flow rate was measured at 2 gallons per minute. A plug was placed in the end of the pipe shortly after discovery which stopped the leak.

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Released water flowed into a pit beneath the valve and likely migrated into the ground but may have flowed into the Eagle River. A vacuum truck was mobilized the day of the release discovery and removed any standing water in the pit and the material in the cleanout was also removed.

Released water likely reached the Eagle River which is located approximately 100' north of the leaking valve location. The quantity of material released is unknown. The release flow rate was measured at approximately two gallons per minute but the start date of the release is unknown. No impact was noted to the Eagle River.

Water samples were collected at three locations immediately after the release was discovered and stopped. The sample identification and locations are summarized below:

1. Rock Box – sample collected in the pit beneath the leaking valve collected at approximately 1025;
2. River Upstream – sample collected from the Eagle River approximately 30' upstream of the confluence of the release location with the Eagle River at approximately 1035; and
3. River Downstream – sample collected from the Eagle River approximately 30' downstream of the confluence of the release location with the Eagle River at approximately 1025 (sample collected at the same time as the Rock Box sample).

Eagle Mine Site
Rock Box Release 4.2.15 - Water Samples

Constituent	Rock Box at Release	Eagle River Samples	
		Upstream of Release	Downstream of Release
Total Metals (ug/L)			
Boron	<80	<80	<80
Cadmium	65.5	0.37	0.43
Copper	722	7.6	9.4
Lead	20.4	2	4.3
Mercury	<0.10	<0.10	<0.10
Zinc	40,000	170	188
Total Recoverable Metals (ug/L)			
Arsenic	165	<0.4	0.6
Dissolved Metals (ug/L)			
Iron	26,400	133	277
Manganese	21,200	76.9	112
Potentially Dissolved Metals (ug/L)			
Cadmium	63.2	0.43	0.48
Copper	622	7.1	7.2
Lead	20.1	1.7	3.3
Manganese	22,800	89.3	131
Zinc	44,300	148	171
General Chemistry (mg/L)			
Total Dissolved Solids	3,250	86.0	90.0
Total Suspended Solids	120	5.0	<5.0
Sulfate	2,210	9.3	11.1

Notes:

Laboratory analyses by Accustest Laboratories

< - result below the respective laboratory reporting limit

Technical Report for

Environ-EMWTP

Eagle Mine Project

2125250A

Accutest Job Number: D69350

Sampling Date: 04/02/15

Report to:

**Environ-EMWTP
PO Box 758
Minturn, CO 81645
dhouston@environcorp.com; mwhite@environcorp.com
ATTN: Don Houston**

Total number of pages in report: 45



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

A handwritten signature in black ink, appearing to read "Scott Heideman".

Scott Heideman
Laboratory Director

Client Service contact: Janel Mulholland 303-425-6021

Certifications: CO (CO00049), ID, NE (CO00049), ND (R-027), NJ (CO 0007), OK (D9942), UT (NELAP CO00049), LA (LA150028), TX (T104704511), WY

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Test results relate only to samples analyzed.

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Sample Summary

Environ-EMWTP

Job No: D69350

Eagle Mine Project
Project No: 2125250A

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
D69350-1	04/02/15	10:25 BK	04/03/15	AQ	Water	ROCK BOX
D69350-1A	04/02/15	10:25 BK	04/03/15	AQ	Water	ROCK BOX
D69350-1F	04/02/15	10:25 BK	04/03/15	AQ	Water Filtered	ROCK BOX
D69350-1FA	04/02/15	10:25 BK	04/03/15	AQ	Potentially Diss. AQ	ROCK BOX
D69350-2	04/02/15	10:35 BK	04/03/15	AQ	Water	RIVER UPSTREAM
D69350-2A	04/02/15	10:35 BK	04/03/15	AQ	Water	RIVER UPSTREAM
D69350-2F	04/02/15	10:35 BK	04/03/15	AQ	Water Filtered	RIVER UPSTREAM
D69350-2FA	04/02/15	10:35 BK	04/03/15	AQ	Potentially Diss. AQ	RIVER UPSTREAM
D69350-3	04/02/15	10:25 BK	04/03/15	AQ	Water	RIVER DOWNSTREAM
D69350-3A	04/02/15	10:25 BK	04/03/15	AQ	Water	RIVER DOWNSTREAM
D69350-3F	04/02/15	10:25 BK	04/03/15	AQ	Water Filtered	RIVER DOWNSTREAM
D69350-3FA	04/02/15	10:25 BK	04/03/15	AQ	Potentially Diss. AQ	RIVER DOWNSTREAM

Summary of Hits

Job Number: D69350
Account: Environ-EMWTP
Project: Eagle Mine Project
Collected: 04/02/15

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
---------------	------------------	-----------------	----	-----	-------	--------

D69350-1 ROCK BOX

Cadmium	65.5	0.20			ug/l	EPA 200.8
Copper	722	4.0			ug/l	EPA 200.8
Lead	20.4	1.0			ug/l	EPA 200.8
Zinc	40000	50			ug/l	EPA 200.8
Solids, Total Dissolved	3250	10			mg/l	SM 2540C-2011
Solids, Total Suspended	120	5.0			mg/l	SM 2540D-2011
Sulfate	2210	50			mg/l	EPA 300.0/SW846 9056

D69350-1A ROCK BOX

Arsenic	165	0.40			ug/l	EPA 200.8
---------	-----	------	--	--	------	-----------

D69350-1F ROCK BOX

Iron	26400	20			ug/l	EPA 200.8
Manganese	21200	5.0			ug/l	EPA 200.8

D69350-1FA ROCK BOX

Cadmium	63.2	0.20			ug/l	EPA 200.8
Copper	622	4.0			ug/l	EPA 200.8
Lead	20.1	1.0			ug/l	EPA 200.8
Manganese	22800	20			ug/l	EPA 200.8
Zinc	44300	200			ug/l	EPA 200.8

D69350-2 RIVER UPSTREAM

Cadmium	0.37	0.20			ug/l	EPA 200.8
Copper	7.6	4.0			ug/l	EPA 200.8
Lead	2.0	1.0			ug/l	EPA 200.8
Zinc	170	20			ug/l	EPA 200.8
Solids, Total Dissolved	86.0	10			mg/l	SM 2540C-2011
Solids, Total Suspended	5.0	5.0			mg/l	SM 2540D-2011
Sulfate	9.3	2.5			mg/l	EPA 300.0/SW846 9056

D69350-2A RIVER UPSTREAM

No hits reported in this sample.

D69350-2F RIVER UPSTREAM

Iron	133	20			ug/l	EPA 200.8
Manganese	76.9	2.0			ug/l	EPA 200.8

Summary of Hits

Job Number: D69350
Account: Environ-EMWTP
Project: Eagle Mine Project
Collected: 04/02/15

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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D69350-2FA RIVER UPSTREAM

Cadmium	0.43	0.20		ug/l	EPA 200.8
Copper	7.1	4.0		ug/l	EPA 200.8
Lead	1.7	1.0		ug/l	EPA 200.8
Manganese	89.3	2.0		ug/l	EPA 200.8
Zinc	148	20		ug/l	EPA 200.8

D69350-3 RIVER DOWNSTREAM

Cadmium	0.43	0.20		ug/l	EPA 200.8
Copper	9.4	4.0		ug/l	EPA 200.8
Lead	4.3	1.0		ug/l	EPA 200.8
Zinc	188	20		ug/l	EPA 200.8
Solids, Total Dissolved	90.0	10		mg/l	SM 2540C-2011
Sulfate	11.1	2.5		mg/l	EPA 300.0/SW846 9056

D69350-3A RIVER DOWNSTREAM

Arsenic	0.60	0.40		ug/l	EPA 200.8
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D69350-3F RIVER DOWNSTREAM

Iron	277	20		ug/l	EPA 200.8
Manganese	112	2.0		ug/l	EPA 200.8

D69350-3FA RIVER DOWNSTREAM

Cadmium	0.48	0.20		ug/l	EPA 200.8
Copper	7.2	4.0		ug/l	EPA 200.8
Lead	3.3	1.0		ug/l	EPA 200.8
Manganese	131	2.0		ug/l	EPA 200.8
Zinc	171	20		ug/l	EPA 200.8

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: ROCK BOX	Date Sampled: 04/02/15
Lab Sample ID: D69350-1	Date Received: 04/03/15
Matrix: AQ - Water	Percent Solids: n/a
Project: Eagle Mine Project	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Boron	< 80	80	ug/l	2	04/08/15	04/11/15 NT	EPA 200.8 ²	EPA 200.8 ⁵
Cadmium	65.5	0.20	ug/l	2	04/08/15	04/16/15 NT	EPA 200.8 ⁴	EPA 200.8 ⁵
Copper	722	4.0	ug/l	2	04/08/15	04/11/15 NT	EPA 200.8 ²	EPA 200.8 ⁵
Lead	20.4	1.0	ug/l	2	04/08/15	04/11/15 NT	EPA 200.8 ²	EPA 200.8 ⁵
Mercury	< 0.10	0.10	ug/l	1	04/09/15	04/10/15 KV	EPA 245.1 ¹	EPA 245.1 ⁶
Zinc	40000	50	ug/l	5	04/08/15	04/16/15 JB	EPA 200.8 ³	EPA 200.8 ⁵

- (1) Instrument QC Batch: MA5988
- (2) Instrument QC Batch: MA5993
- (3) Instrument QC Batch: MA6010
- (4) Instrument QC Batch: MA6016
- (5) Prep QC Batch: MP15635
- (6) Prep QC Batch: MP15652

RL = Reporting Limit

Report of Analysis

Client Sample ID: ROCK BOX	Date Sampled: 04/02/15
Lab Sample ID: D69350-1	Date Received: 04/03/15
Matrix: AQ - Water	Percent Solids: n/a
Project: Eagle Mine Project	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Total Dissolved	3250	10	mg/l	1	04/09/15	AK	SM 2540C-2011
Solids, Total Suspended	120	5.0	mg/l	1	04/08/15	JF	SM 2540D-2011
Sulfate	2210	50	mg/l	100	04/04/15 17:03	JB	EPA 300.0/SW846 9056

RL = Reporting Limit

Report of Analysis

Client Sample ID: ROCK BOX	Date Sampled: 04/02/15
Lab Sample ID: D69350-1A	Date Received: 04/03/15
Matrix: AQ - Water	Percent Solids: n/a
Project: Eagle Mine Project	

Total Recoverable Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	165	0.40	ug/l	2	04/08/15	04/16/15 JB	EPA 200.8 ¹	EPA 200.8 ²

(1) Instrument QC Batch: MA6010

(2) Prep QC Batch: MP15635

RL = Reporting Limit

Report of Analysis

Client Sample ID: ROCK BOX	Date Sampled: 04/02/15
Lab Sample ID: D69350-1F	Date Received: 04/03/15
Matrix: AQ - Water Filtered	Percent Solids: n/a
Project: Eagle Mine Project	

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	26400	20	ug/l	2	04/08/15	04/11/15 NT	EPA 200.8 ¹	EPA 200.8 ³
Manganese	21200	5.0	ug/l	5	04/08/15	04/16/15 JB	EPA 200.8 ²	EPA 200.8 ³

(1) Instrument QC Batch: MA5993

(2) Instrument QC Batch: MA6010

(3) Prep QC Batch: MP15635

RL = Reporting Limit

Report of Analysis

Client Sample ID: ROCK BOX	Date Sampled: 04/02/15
Lab Sample ID: D69350-1FA	Date Received: 04/03/15
Matrix: AQ - Potentially Diss. AQ	Percent Solids: n/a
Project: Eagle Mine Project	

Potentially Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	63.2	0.20	ug/l	2	04/08/15	04/16/15 JB	EPA 200.8 ¹	EPA 200.8 ³
Copper	622	4.0	ug/l	2	04/08/15	04/16/15 JB	EPA 200.8 ¹	EPA 200.8 ³
Lead	20.1	1.0	ug/l	2	04/08/15	04/16/15 JB	EPA 200.8 ¹	EPA 200.8 ³
Manganese	22800	20	ug/l	20	04/08/15	04/16/15 NT	EPA 200.8 ²	EPA 200.8 ³
Zinc	44300	200	ug/l	20	04/08/15	04/16/15 NT	EPA 200.8 ²	EPA 200.8 ³

- (1) Instrument QC Batch: MA6010
- (2) Instrument QC Batch: MA6016
- (3) Prep QC Batch: MP15632

RL = Reporting Limit

Report of Analysis

Client Sample ID: RIVER UPSTREAM	Date Sampled: 04/02/15
Lab Sample ID: D69350-2	Date Received: 04/03/15
Matrix: AQ - Water	Percent Solids: n/a
Project: Eagle Mine Project	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Boron	< 80	80	ug/l	2	04/08/15	04/11/15 NT	EPA 200.8 ²	EPA 200.8 ⁴
Cadmium	0.37	0.20	ug/l	2	04/08/15	04/16/15 NT	EPA 200.8 ³	EPA 200.8 ⁴
Copper	7.6	4.0	ug/l	2	04/08/15	04/11/15 NT	EPA 200.8 ²	EPA 200.8 ⁴
Lead	2.0	1.0	ug/l	2	04/08/15	04/11/15 NT	EPA 200.8 ²	EPA 200.8 ⁴
Mercury	< 0.10	0.10	ug/l	1	04/09/15	04/10/15 KV	EPA 245.1 ¹	EPA 245.1 ⁵
Zinc	170	20	ug/l	2	04/08/15	04/11/15 NT	EPA 200.8 ²	EPA 200.8 ⁴

(1) Instrument QC Batch: MA5988

(2) Instrument QC Batch: MA5993

(3) Instrument QC Batch: MA6016

(4) Prep QC Batch: MP15635

(5) Prep QC Batch: MP15652

RL = Reporting Limit

Report of Analysis

Client Sample ID: RIVER UPSTREAM	Date Sampled: 04/02/15
Lab Sample ID: D69350-2	Date Received: 04/03/15
Matrix: AQ - Water	Percent Solids: n/a
Project: Eagle Mine Project	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Total Dissolved	86.0	10	mg/l	1	04/09/15	AK	SM 2540C-2011
Solids, Total Suspended	5.0	5.0	mg/l	1	04/08/15	JF	SM 2540D-2011
Sulfate	9.3	2.5	mg/l	5	04/04/15 11:23	JB	EPA 300.0/SW846 9056

RL = Reporting Limit

Report of Analysis

Client Sample ID: RIVER UPSTREAM	Date Sampled: 04/02/15
Lab Sample ID: D69350-2A	Date Received: 04/03/15
Matrix: AQ - Water	Percent Solids: n/a
Project: Eagle Mine Project	

Total Recoverable Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	< 0.40	0.40	ug/l	2	04/08/15	04/16/15 JB	EPA 200.8 ¹	EPA 200.8 ²

(1) Instrument QC Batch: MA6010

(2) Prep QC Batch: MP15635

RL = Reporting Limit

Report of Analysis

Client Sample ID: RIVER UPSTREAM	Date Sampled: 04/02/15
Lab Sample ID: D69350-2F	Date Received: 04/03/15
Matrix: AQ - Water Filtered	Percent Solids: n/a
Project: Eagle Mine Project	

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	133	20	ug/l	2	04/08/15	04/11/15 NT	EPA 200.8 ¹	EPA 200.8 ²
Manganese	76.9	2.0	ug/l	2	04/08/15	04/11/15 NT	EPA 200.8 ¹	EPA 200.8 ²

(1) Instrument QC Batch: MA5993

(2) Prep QC Batch: MP15635

RL = Reporting Limit

Report of Analysis

Client Sample ID: RIVER UPSTREAM	Date Sampled: 04/02/15
Lab Sample ID: D69350-2FA	Date Received: 04/03/15
Matrix: AQ - Potentially Diss. AQ	Percent Solids: n/a
Project: Eagle Mine Project	

Potentially Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	0.43	0.20	ug/l	2	04/08/15	04/16/15 JB	EPA 200.8 ¹	EPA 200.8 ²
Copper	7.1	4.0	ug/l	2	04/08/15	04/16/15 JB	EPA 200.8 ¹	EPA 200.8 ²
Lead	1.7	1.0	ug/l	2	04/08/15	04/16/15 JB	EPA 200.8 ¹	EPA 200.8 ²
Manganese	89.3	2.0	ug/l	2	04/08/15	04/16/15 JB	EPA 200.8 ¹	EPA 200.8 ²
Zinc	148	20	ug/l	2	04/08/15	04/16/15 JB	EPA 200.8 ¹	EPA 200.8 ²

(1) Instrument QC Batch: MA6010

(2) Prep QC Batch: MP15632

RL = Reporting Limit

Report of Analysis

Client Sample ID: RIVER DOWNSTREAM Lab Sample ID: D69350-3 Matrix: AQ - Water Project: Eagle Mine Project	Date Sampled: 04/02/15 Date Received: 04/03/15 Percent Solids: n/a
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Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Boron	< 80	80	ug/l	2	04/08/15	04/11/15 NT	EPA 200.8 ²	EPA 200.8 ⁴
Cadmium	0.43	0.20	ug/l	2	04/08/15	04/16/15 NT	EPA 200.8 ³	EPA 200.8 ⁴
Copper	9.4	4.0	ug/l	2	04/08/15	04/11/15 NT	EPA 200.8 ²	EPA 200.8 ⁴
Lead	4.3	1.0	ug/l	2	04/08/15	04/11/15 NT	EPA 200.8 ²	EPA 200.8 ⁴
Mercury	< 0.10	0.10	ug/l	1	04/09/15	04/10/15 KV	EPA 245.1 ¹	EPA 245.1 ⁵
Zinc	188	20	ug/l	2	04/08/15	04/11/15 NT	EPA 200.8 ²	EPA 200.8 ⁴

- (1) Instrument QC Batch: MA5988
- (2) Instrument QC Batch: MA5993
- (3) Instrument QC Batch: MA6016
- (4) Prep QC Batch: MP15635
- (5) Prep QC Batch: MP15652

RL = Reporting Limit

Report of Analysis

Client Sample ID: RIVER DOWNSTREAM	Date Sampled: 04/02/15
Lab Sample ID: D69350-3	Date Received: 04/03/15
Matrix: AQ - Water	Percent Solids: n/a
Project: Eagle Mine Project	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Total Dissolved	90.0	10	mg/l	1	04/09/15	AK	SM 2540C-2011
Solids, Total Suspended	< 5.0	5.0	mg/l	1	04/08/15	JF	SM 2540D-2011
Sulfate	11.1	2.5	mg/l	5	04/04/15 11:36	JB	EPA 300.0/SW846 9056

RL = Reporting Limit

Report of Analysis

Client Sample ID: RIVER DOWNSTREAM	Date Sampled: 04/02/15
Lab Sample ID: D69350-3A	Date Received: 04/03/15
Matrix: AQ - Water	Percent Solids: n/a
Project: Eagle Mine Project	

Total Recoverable Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	0.60	0.40	ug/l	2	04/08/15	04/16/15 JB	EPA 200.8 ¹	EPA 200.8 ²

(1) Instrument QC Batch: MA6010

(2) Prep QC Batch: MP15635

RL = Reporting Limit

Report of Analysis

Client Sample ID: RIVER DOWNSTREAM	Date Sampled: 04/02/15
Lab Sample ID: D69350-3F	Date Received: 04/03/15
Matrix: AQ - Water Filtered	Percent Solids: n/a
Project: Eagle Mine Project	

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	277	20	ug/l	2	04/08/15	04/11/15 NT	EPA 200.8 ¹	EPA 200.8 ²
Manganese	112	2.0	ug/l	2	04/08/15	04/11/15 NT	EPA 200.8 ¹	EPA 200.8 ²

(1) Instrument QC Batch: MA5993

(2) Prep QC Batch: MP15635

RL = Reporting Limit

Report of Analysis

Client Sample ID: RIVER DOWNSTREAM	Date Sampled: 04/02/15
Lab Sample ID: D69350-3FA	Date Received: 04/03/15
Matrix: AQ - Potentially Diss. AQ	Percent Solids: n/a
Project: Eagle Mine Project	

Potentially Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	0.48	0.20	ug/l	2	04/08/15	04/16/15 JB	EPA 200.8 ¹	EPA 200.8 ²
Copper	7.2	4.0	ug/l	2	04/08/15	04/16/15 JB	EPA 200.8 ¹	EPA 200.8 ²
Lead	3.3	1.0	ug/l	2	04/08/15	04/16/15 JB	EPA 200.8 ¹	EPA 200.8 ²
Manganese	131	2.0	ug/l	2	04/08/15	04/16/15 JB	EPA 200.8 ¹	EPA 200.8 ²
Zinc	171	20	ug/l	2	04/08/15	04/16/15 JB	EPA 200.8 ¹	EPA 200.8 ²

(1) Instrument QC Batch: MA6010

(2) Prep QC Batch: MP15632

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D69350 **Client:** EAGLE MINE WATER **Project:** ENVIRON 2125250A
Date / Time Received: 4/3/2015 10:30:00 AM **Delivery Method:** _____ **Airbill #'s:** fx
Cooler Temps (Initial/Adjusted): #1: (4.7/4.7):

Cooler Security

	<u>Y or N</u>			<u>Y or N</u>	
1. Custody Seals Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. Smpl Dates/Time OK	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Cooler Temperature

	<u>Y or N</u>	
1. Temp criteria achieved:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Cooler temp verification:	<u>IR Gun;</u>	
3. Cooler media:	<u>Ice (Bag)</u>	
4. No. Coolers:	<u>1</u>	

Quality Control Preservation

	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Trip Blank present / cooler:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Trip Blank listed on COC:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Samples preserved properly:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. VOCs headspace free:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments

Sample Integrity - Documentation

	<u>Y or N</u>	
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Sample Integrity - Condition

	<u>Y or N</u>	
1. Sample recvd within HT:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Condition of sample:	<u>Intact</u>	

Sample Integrity - Instructions

	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Analysis requested is clear:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
2. Bottles received for unspecified tests	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
3. Sufficient volume recvd for analysis:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. Compositing instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.1
4

Metals Analysis

5

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D69350
Account: ENVIRCOM - Environ-EMWTP
Project: Eagle Mine Project

QC Batch ID: MP15632
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 04/08/15

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	1.1	2		
Antimony	0.40	.0022	.011		
Arsenic	0.20	.017	.044		
Barium	2.0	.016	.079		
Beryllium	0.20	.016	.069		
Boron	40	.49	2.1		
Cadmium	0.10	.036	.042	0.022	<0.10
Calcium	400	5.6	12		
Chromium	2.0	.053	.053		
Cobalt	0.20	.0049	.015		
Copper	2.0	.06	.13	0.23	<2.0
Iron	10	3.5	4.6		
Lead	0.50	.0079	.008	0.032	<0.50
Magnesium	100	1.3	1.3		
Manganese	1.0	.12	.13	0.072	<1.0
Molybdenum	1.0	.049	.029		
Nickel	2.0	.0088	.027		
Phosphorus	60	2.6	4.3		
Potassium	200	2.9	2.9		
Selenium	0.40	.06	.21		
Silver	0.10	.0019	.008		
Sodium	500	4.9	4.9		
Strontium	20	.01	.015		
Thallium	0.20	.0024	.005		
Tin	10	.063	1.3		
Titanium	2.0	.059	.092		
Uranium	0.20	.0017	.002		
Vanadium	1.0	.037	.2		
Zinc	10	.21	.96	1.0	<10

Associated samples MP15632: D69350-1FA, D69350-2FA, D69350-3FA

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D69350
 Account: ENVIRCOM - Environ-EMWTP
 Project: Eagle Mine Project

QC Batch ID: MP15632
 Matrix Type: AQUEOUS

Methods: EPA 200.8
 Units: ug/l

Prep Date: 04/08/15

Metal	D69409-1FA Original MS	SpikeLot ICPAL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium				
Beryllium				
Boron				
Cadmium	0.0	94.2	100	94.2 70-130
Calcium	anr			
Chromium	anr			
Cobalt				
Copper	873	95.1	100	-777.9(a) 70-130
Iron	anr			
Lead	0.55	222	200	110.7 70-130
Magnesium	anr			
Manganese	5.2	100	100	94.8 70-130
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium	anr			
Silver	anr			
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium	anr			
Vanadium				
Zinc	805	87.6	100	-717.4(a) 70-130

Associated samples MP15632: D69350-1FA, D69350-2FA, D69350-3FA

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

5.1.2
5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D69350
 Account: ENVIRCOM - Environ-EMWTP
 Project: Eagle Mine Project

QC Batch ID: MP15632
 Matrix Type: AQUEOUS

Methods: EPA 200.8
 Units: ug/l

Prep Date: 04/08/15

Metal	D69409-1FA Original MSD		SpikeLot ICPAL2 % Rec		MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium						
Beryllium						
Boron						
Cadmium	0.0	95.2	100	95.2	1.1	20
Calcium	anr					
Chromium	anr					
Cobalt						
Copper	873	94.4	100	-778.6(a	0.7	20
Iron	anr					
Lead	0.55	224	200	111.7	0.9	20
Magnesium	anr					
Manganese	5.2	102	100	96.8	2.0	20
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium	anr					
Silver	anr					
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium	anr					
Vanadium						
Zinc	805	87.0	100	-718.0(a	0.7	20

Associated samples MP15632: D69350-1FA, D69350-2FA, D69350-3FA

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D69350
 Account: ENVIRCOM - Environ-EMWTP
 Project: Eagle Mine Project

QC Batch ID: MP15632
 Matrix Type: AQUEOUS

Methods: EPA 200.8
 Units: ug/l

Prep Date: 04/08/15

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium				
Beryllium				
Boron				
Cadmium	110	100	110.0	85-115
Calcium	anr			
Chromium	anr			
Cobalt				
Copper	102	100	102.0	85-115
Iron	anr			
Lead	219	200	109.5	85-115
Magnesium	anr			
Manganese	108	100	108.0	85-115
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium	anr			
Silver	anr			
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium	anr			
Vanadium				
Zinc	102	100	102.0	85-115

Associated samples MP15632: D69350-1FA, D69350-2FA, D69350-3FA

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested

5.1.3
5

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D69350
Account: ENVIRCOM - Environ-EMWTP
Project: Eagle Mine Project

QC Batch ID: MP15635
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 04/08/15

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	1.1	2		
Antimony	0.40	.0022	.011		
Arsenic	0.20	.017	.044	-0.0090	<0.20
Barium	2.0	.016	.079		
Beryllium	0.20	.016	.069		
Boron	40	.49	2.1	1.5	<40
Cadmium	0.10	.036	.042	0.0030	<0.10
Calcium	400	5.6	12		
Chromium	2.0	.053	.053		
Cobalt	0.20	.0049	.015		
Copper	2.0	.06	.13	0.019	<2.0
Iron	10	3.5	4.6	1.4	<10
Lead	0.50	.0079	.008	0.022	<0.50
Magnesium	100	1.3	1.3		
Manganese	1.0	.12	.13	0.077	<1.0
Molybdenum	1.0	.049	.029		
Nickel	2.0	.0088	.027		
Phosphorus	60	2.6	4.3		
Potassium	200	2.9	2.9		
Selenium	0.40	.06	.21		
Silver	0.10	.0019	.008		
Sodium	500	4.9	4.9		
Strontium	20	.01	.015		
Thallium	0.20	.0024	.005		
Tin	10	.063	1.3		
Titanium	2.0	.059	.092		
Uranium	0.20	.0017	.002		
Vanadium	1.0	.037	.2		
Zinc	10	.21	.96	0.52	<10

Associated samples MP15635: D69350-1, D69350-2, D69350-3, D69350-1A, D69350-1F, D69350-2A, D69350-2F, D69350-3A, D69350-3F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D69350
 Account: ENVIRCOM - Environ-EMWTP
 Project: Eagle Mine Project

QC Batch ID: MP15635
 Matrix Type: AQUEOUS

Methods: EPA 200.8
 Units: ug/l

Prep Date: 04/08/15

Metal	D69350-1F Original MS		SpikeLot ICPAL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	14.7	204	200	94.7	70-130
Barium					
Beryllium					
Boron	43.0	250	200	103.5	70-130
Cadmium	66.7	159	100	92.3	70-130
Calcium					
Chromium					
Cobalt					
Copper	278	370	100	92.0	70-130
Iron	26400	27200	1000	80.0	70-130
Lead	0.11	222	200	110.9	70-130
Magnesium					
Manganese	21200	23600	100	2400.0(a)	70-130
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP15635: D69350-1, D69350-2, D69350-3, D69350-1A, D69350-1F, D69350-2A, D69350-2F, D69350-3A, D69350-3F

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery

5.2.2
 5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D69350
Account: ENVIRCOM - Environ-EMWTP
Project: Eagle Mine Project

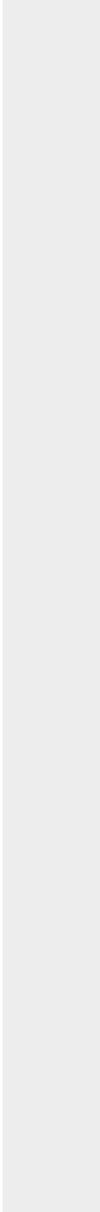
QC Batch ID: MP15635
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 04/08/15

Metal	D69350-1F Original MS	SpikeLot ICPAL2	% Rec	QC Limits
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information.



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D69350
 Account: ENVIRCOM - Environ-EMWTP
 Project: Eagle Mine Project

QC Batch ID: MP15635
 Matrix Type: AQUEOUS

Methods: EPA 200.8
 Units: ug/l

Prep Date: 04/08/15

Metal	D69350-1F Original MSD		SpikeLot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	14.7	206	200	95.7	1.0	20
Barium						
Beryllium						
Boron	43.0	255	200	106.0	2.0	20
Cadmium	66.7	156	100	89.3	1.9	20
Calcium						
Chromium						
Cobalt						
Copper	278	375	100	97.0	1.3	20
Iron	26400	27400	1000	100.0	0.7	20
Lead	0.11	222	200	110.9	0.0	20
Magnesium						
Manganese	21200	23800	100	2600.0(a)	0.8	20
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP15635: D69350-1, D69350-2, D69350-3, D69350-1A, D69350-1F, D69350-2A, D69350-2F, D69350-3A, D69350-3F

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery

5.2.2
5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D69350
Account: ENVIRCOM - Environ-EMWTP
Project: Eagle Mine Project

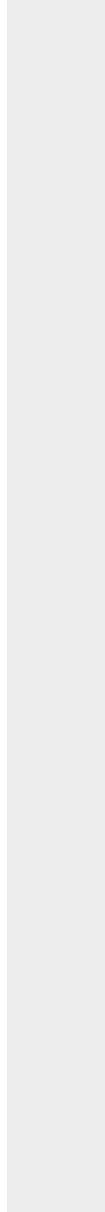
QC Batch ID: MP15635
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 04/08/15

Metal	D69350-1F Original MSD	SpikeLot ICPAL2	% Rec	MSD RPD	QC Limit
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information.



5.2.2
5

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D69350
 Account: ENVIRCOM - Environ-EMWTP
 Project: Eagle Mine Project

QC Batch ID: MP15635
 Matrix Type: AQUEOUS

Methods: EPA 200.8
 Units: ug/l

Prep Date: 04/08/15

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	226	200	113.0	85-115
Barium				
Beryllium				
Boron	226	200	113.0	85-115
Cadmium	106	100	106.0	85-115
Calcium				
Chromium				
Cobalt				
Copper	109	100	109.0	85-115
Iron	1090	1000	109.0	85-115
Lead	213	200	106.5	85-115
Magnesium				
Manganese	105	100	105.0	85-115
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	101	100	101.0	85-115

Associated samples MP15635: D69350-1, D69350-2, D69350-3, D69350-1A, D69350-1F, D69350-2A, D69350-2F, D69350-3A, D69350-3F

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D69350
Account: ENVIRCOM - Environ-EMWTP
Project: Eagle Mine Project

QC Batch ID: MP15652
Matrix Type: AQUEOUS

Methods: EPA 245.1
Units: ug/l

Prep Date: 04/09/15

Metal	RL	IDL	MDL	MB raw	final
Mercury	0.10	.011	.009	0.0070	<0.10

Associated samples MP15652: D69350-1, D69350-2, D69350-3

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

5.3.1
5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D69350
 Account: ENVIRCOM - Environ-EMWTP
 Project: Eagle Mine Project

QC Batch ID: MP15652
 Matrix Type: AQUEOUS

Methods: EPA 245.1
 Units: ug/l

Prep Date: 04/09/15

Metal	D69350-1 Original MS	Spikelot HGWSR1	% Rec	QC Limits
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Mercury	0.0	3.0	3.13	96.0	70-130
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Associated samples MP15652: D69350-1, D69350-2, D69350-3

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

5.3.2
5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D69350
 Account: ENVIRCOM - Environ-EMWTP
 Project: Eagle Mine Project

QC Batch ID: MP15652
 Matrix Type: AQUEOUS

Methods: EPA 245.1
 Units: ug/l

Prep Date: 04/09/15

Metal	D69350-1 Original MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.0	3.0	3.13	96.0	0.0 20

Associated samples MP15652: D69350-1, D69350-2, D69350-3

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

5.3.2
5

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D69350
 Account: ENVIRCOM - Environ-EMWTP
 Project: Eagle Mine Project

QC Batch ID: MP15652
 Matrix Type: AQUEOUS

Methods: EPA 245.1
 Units: ug/l

Prep Date: 04/09/15

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
Mercury	3.1	3.13	99.2	85-115

Associated samples MP15652: D69350-1, D69350-2, D69350-3

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested

5.3.3
5

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D69350
Account: ENVIRCOM - Environ-EMWTP
Project: Eagle Mine Project

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Bromide	GP14985/GN29358	0.050	0.0	mg/l	0.5	0.526	105.2	90-110%
Chloride	GP14985/GN29358	0.50	0.0	mg/l	5	5.09	101.8	90-110%
Fluoride	GP14985/GN29358	0.10	0.0	mg/l	1	1.03	103.0	90-110%
Nitrogen, Nitrate	GP14985/GN29358	0.010	0.0	mg/l	0.1	0.108	108.0	90-110%
Nitrogen, Nitrite	GP14985/GN29358	0.0040	0.0	mg/l	0.05	0.0531	106.2	90-110%
Phosphate, Ortho	GP14985/GN29358	0.050	0.0	mg/l	0.5	0.535	107.0	90-110%
Solids, Total Dissolved	GN29420	10	0.0	mg/l	400	404	101.0	90-110%
Solids, Total Suspended	GN29399	5.0	0.0	mg/l	300	291	97.0	90-110%
Sulfate	GP14985/GN29358	0.50	0.0	mg/l	5	5.14	102.8	90-110%

Associated Samples:

Batch GN29399: D69350-1, D69350-2, D69350-3

Batch GN29420: D69350-1, D69350-2, D69350-3

Batch GP14985: D69350-1, D69350-2, D69350-3

(*) Outside of QC limits

6.1
6

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D69350
Account: ENVIRCOM - Environ-EMWTP
Project: Eagle Mine Project

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Solids, Total Dissolved	GN29420	D69350-1	mg/l	3250	3260	0.3	0-20%
Solids, Total Suspended	GN29399	D69350-1	mg/l	120	120	0.0	0-20%

Associated Samples:

Batch GN29399: D69350-1, D69350-2, D69350-3

Batch GN29420: D69350-1, D69350-2, D69350-3

(*) Outside of QC limits

6.2
6

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D69350
Account: ENVIRCOM - Environ-EMWTP
Project: Eagle Mine Project

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Bromide	GP14985/GN29358	D69358-1	mg/l	0.0	5	5.3	106.0	80-120%
Chloride	GP14985/GN29358	D69358-1	mg/l	34.9	50	87.0	104.2	80-120%
Fluoride	GP14985/GN29358	D69358-1	mg/l	0.0	10	10.1	101.0	80-120%
Nitrogen, Nitrate	GP14985/GN29358	D69358-1	mg/l	0.0	1	1.1	110.0	80-120%
Nitrogen, Nitrite	GP14985/GN29358	D69358-1	mg/l	0.0	0.5	0.58	116.0	80-120%
Phosphate, Ortho	GP14985/GN29358	D69358-1	mg/l	0.46	5	6.2	114.8	80-120%
Sulfate	GP14985/GN29358	D69358-1	mg/l	124	50	182	116.0	80-120%

Associated Samples:

Batch GP14985: D69350-1, D69350-2, D69350-3

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

6.3
6

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D69350
Account: ENVIRCOM - Environ-EMWTP
Project: Eagle Mine Project

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Bromide	GP14985/GN29358	D69358-1	mg/l	0.0	5	5.3	0.0	20%
Chloride	GP14985/GN29358	D69358-1	mg/l	34.9	50	85.8	1.4	20%
Fluoride	GP14985/GN29358	D69358-1	mg/l	0.0	10	10.1	0.0	20%
Nitrogen, Nitrate	GP14985/GN29358	D69358-1	mg/l	0.0	1	1.1	0.0	20%
Nitrogen, Nitrite	GP14985/GN29358	D69358-1	mg/l	0.0	0.5	0.57	1.7	20%
Phosphate, Ortho	GP14985/GN29358	D69358-1	mg/l	0.46	5	6.2	0.0	20%
Sulfate	GP14985/GN29358	D69358-1	mg/l	124	50	182	0.0	20%

Associated Samples:

Batch GP14985: D69350-1, D69350-2, D69350-3

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

6.4

6

D-2 June 2, 2015

MEDIUM IMPACTED: LAND

Fixed Facility Land Air Groundwater

Surface Water Waterway Impacted:

NUMBER OF DEATHS:

NUMBER OF INJURIES:

EVACUATION:

NUMBER EVACUATED:

ACTION TAKEN: The flow was shut down, and they will jet the line to clear the obstruction. They will probably dig up the impacted soil for proper disposal.

CDPHE NOTIFIED: HMWMD: ROB BEIERLE, ED SMITH, CAREN JOHANNES, WENDY NAUGLE, SUSAN NEWTON, KATHRYN STEWART, DAVID FOSTER; MICHELLE THIEBAUD, DAVID KURZ, TOM SCHAFFER, ROB CRIBBS, HEATHER DRISSEL, CAROL KEEVER

COMMENTS: Eagle County EH: Ray Merry, Laura Fawcett

RESPONDERS: CBS OPERATIONS

RESPONDER COMMENTS:

ADDITIONAL COMMENTS:

<input checked="" type="checkbox"/> Field Services - Grand Junction 222 South 6th Street, Room 232 Grand Junction, CO 81501 Telephone: 970-248-7150 Fax: 970-248-7198 Contact email: michelle.thiebaud@state.co.us	<input type="checkbox"/> Field Services - Pueblo 140 Central Main, Suite 300 Pueblo, CO 81003 Telephone: 719-295-5060 Fax: 719-543-8441 Contact email: carol.keever@state.co.us	<input type="checkbox"/> Field Services - Denver 4300 Cherry Creek Dr. South, B2 Denver, Colorado 80246-1530 Phone: 303-692-3650 Fax: 303-782-0390 Contact email: annemarie.goolsby@state.co.us
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Reporting Form: Incident / Spill / Sanitary Sewer Overflow (SSO)

The Water Quality Control Division distinguishes between reporting requirements for spills that occur with respect to activities that result in a discharge that is authorized under a CDPS permit and those that are not. Reporting and management of spills that occur with respect to activities resulting in a discharge authorized under a permit should be performed in accordance with the specific requirements of that permit. If the permit does not require a 5-day report, please provide the information below in writing. For non-permitted activities, or in the case of an activity where a permit does not address reporting of or response to a given spill, please submit this written response to the Water Quality Control Division within five (5) working days of the date of the event. If sufficient space is not provided, please attach other sheets. Please send the completed form with signature via fax or email to the Division's Field Services office indicated above. If you have any questions please contact the Division's Field Services Engineer at your earliest convenience. The Field Services County list is available at: <http://www.colorado.gov/cdphe/wqcd> (Contacts, Inspection services contacts, then Field services contacts).

Prior to the five (5) working day deadline, you may request an extension to submit the report if sample analyses justifiably are going to require more time to analyze than the reporting time allows. To request an extension please send an email to the Division's Field Services Engineer for the County that the incident / spill / SSO took place or to the email listed above.

Incident Background Information			
County	Eagle		
Incident / Spill Number (Division provided) and Spill Date	2015-0323 6/2/15		
Type of Incident / Spill / SSO (check one)	<input type="checkbox"/> Sanitary Sewer Overflow/Reuse	<input type="checkbox"/> Petroleum Product	<input type="checkbox"/> Chemical
	<input type="checkbox"/> WW Treatment Plant Bypass or Upset (through an authorized outfall point)	<input type="checkbox"/> Combined Sewer Overflow	<input type="checkbox"/> Biosolids
	<input type="checkbox"/> Unplanned potable water release (e.g., water line break)		<input checked="" type="checkbox"/> Other
Contact Information			
Potentially Responsible Party (PRP): Contact Name	Russ Cepko	Potentially Responsible Party (PRP): Company / Agency	CBS Operations, Inc.
PRP Phone / Fax	Phone: 412-642-2569 Fax: 412-642-3014	PRP email address	russ.cepko@cbs.com
CDPS Permit Number:	CO-0042480	CDPS Permittee Name:	CBS Operations, Inc.
Reported by (if not PRP): Contact Name	David Heinze	Reported by (if not PRP): Company / Agency	Ramboll Environ US Corp
Reported by (if not PRP): Phone / Fax	Phone: 303-382-5474 Fax: 303-382-5499	Reported by (if not PRP): email address	dheinze@environcorp.com

Incident Information: Please provide the following information.

A	Incident / spill / SSO source, cause, and event description. Response: The release occurred at the Eagle Mine Superfund Site. During inspection of a portion of the conveyance system near the snowmobile shed on June 2, 2015, it was discovered that the manhole in this area was leaking; manholes upstream and downstream of this manhole were not leaking. The cause of the leaking manhole was likely an obstruction within the pipeline downstream from the manhole which caused the pipeline to back up and leak out of the manhole. Pipeline jetting activities were conducted on the conveyance system upstream from this area on June 1, 2015 and a flow test was performed by increasing the flow in the Mine Draw Down (MDD) conveyance system. The MDD flow was reduced upon discovery which stopped the release. The pipeline will be jetted to remove the obstruction.
B	Material released (e.g., untreated wastewater, biosolids, specific chemicals or products) and estimated total quantity (e.g., gallons). Please attach MSDS for any and all chemicals or products involved in spill or release.

	Response: Material released was mine water from the Eagle Mine that was being conveyed from the mine to the water treatment plant. The quantity released is unknown but was conservatively estimated at 1,000 gallons.
C	Actual or estimated dates and times of the event, including duration and actual date and time spill was fully controlled/stopped. If release is still occurring, the date and time the release is expected to be stopped. Response: The duration of the leak is unknown. It likely started in the early hours of June 2, 2015 and was stopped upon discovery at 11:00 AM on June 2, 2015.
D	Location of release (e.g., address, lat/long, road name and mile marker). Response: The release occurred at the manhole near the snow mobile shed near the entrance to the Eagle Mine Water Treatment Plant off Tigwon Road. The release occurred on the west side of the road to the WTP and extended under the pipeline trestle.
E	Describe measures taken or planned to contain, reduce, and clean up spill or release. Response: The MDD flow was immediately reduced which stopped the release. The pipeline in this area will be jetted to remove the obstruction in the pipe. Stained soil will be scraped by hand and relocated to the Temp Cell or Sludge Cell and the area will be seeded with native vegetation and covered with mulch or straw.
F	Steps taken or planned to prevent reoccurrence of the event. Response: The pipeline in this area will be jetted to remove the obstruction in the pipe to prevent reoccurrence of the event.
Incident Impact to State Waters (As defined in § 25-8-103(19), C.R.S.). <i>Examples of State waters include: perennial streams, intermittent or ephemeral gulches, ditches, ponds, lakes, reservoirs, irrigation canals, wetlands, stormwater conveyances (when they discharge to surface water), and groundwater.</i>	
G	Did flow or materials reach surface waters of the State? If so, please describe the path of flow to State waters and which State water body was impacted (e.g., spill impacted a storm drain which was directly connected to Cherry Creek, Colorado River, etc.). If yes, what quantity of material (e.g., gallons) reached the surface water and what was the resulting impact? Response: Released water did not reach surface waters of the state.
H	Were any water quality samples or other samples taken? If so, please describe sampling process and attached results. Response: Samples were not collected.
I	Did flow or materials reach groundwater of the State? If so, please describe the path of flow to State waters and which State water body impacted (e.g., spill soaked into ground and wet soil was not excavated). If yes, what quantity of material (e.g., gallons) reached the ground or groundwater and what was the resulting impact? Response: Released water likely migrated to groundwater beneath the trestle in the area of the release. The quantity of material released is unknown but was conservatively estimated at 1,000 gallons.
J	Did the incident include any of the following (check if yes)? If so, please include additional details below. <input checked="" type="checkbox"/> Toxic Chemical Release <input type="checkbox"/> Fish Kill Response: The mine water contains metals such as zinc, lead, cadmium and copper.
Incident Impact to Areas or Water Users	
K	Did the incident / spill / SSO impact any areas (e.g., public use areas including parks or swim beaches) or downstream water users (e.g., public water suppliers, irrigation diversions)? Please list impacted areas and/or users, their location, and potential impacts. Response: Released water flowed onto private property beneath a wooden trestle for the mine water conveyance system. The incident did not impact public use areas or downstream water users.
L	How were the impacted area users (e.g., park patrons) and downstream water users notified (e.g., signs posted, list downstream users contact via phone).

	Response: The Eagle Mine site CDPHE Remedial Project Manager was notified immediately upon discovery of the release followed by a notification to the CDPHE Spill Hotline.
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I hereby certify that the information presented above is accurate and complete.

Date	Company	Typed Name and Title	Signature
6.8.15	Ramboll Environ US Corporation	David J. Heinze	David J Heinze