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Memorandum

To: Brad Thrall, Alexco Resource Corp.

From: Matt Corriveau, Alexco Environmental Group Inc.

CC: Kai Woloshyn, Alexco Environmental Group Inc.

Date: September 27, 2017

Re: Mass Load Model for Bermingham Production and Development Program

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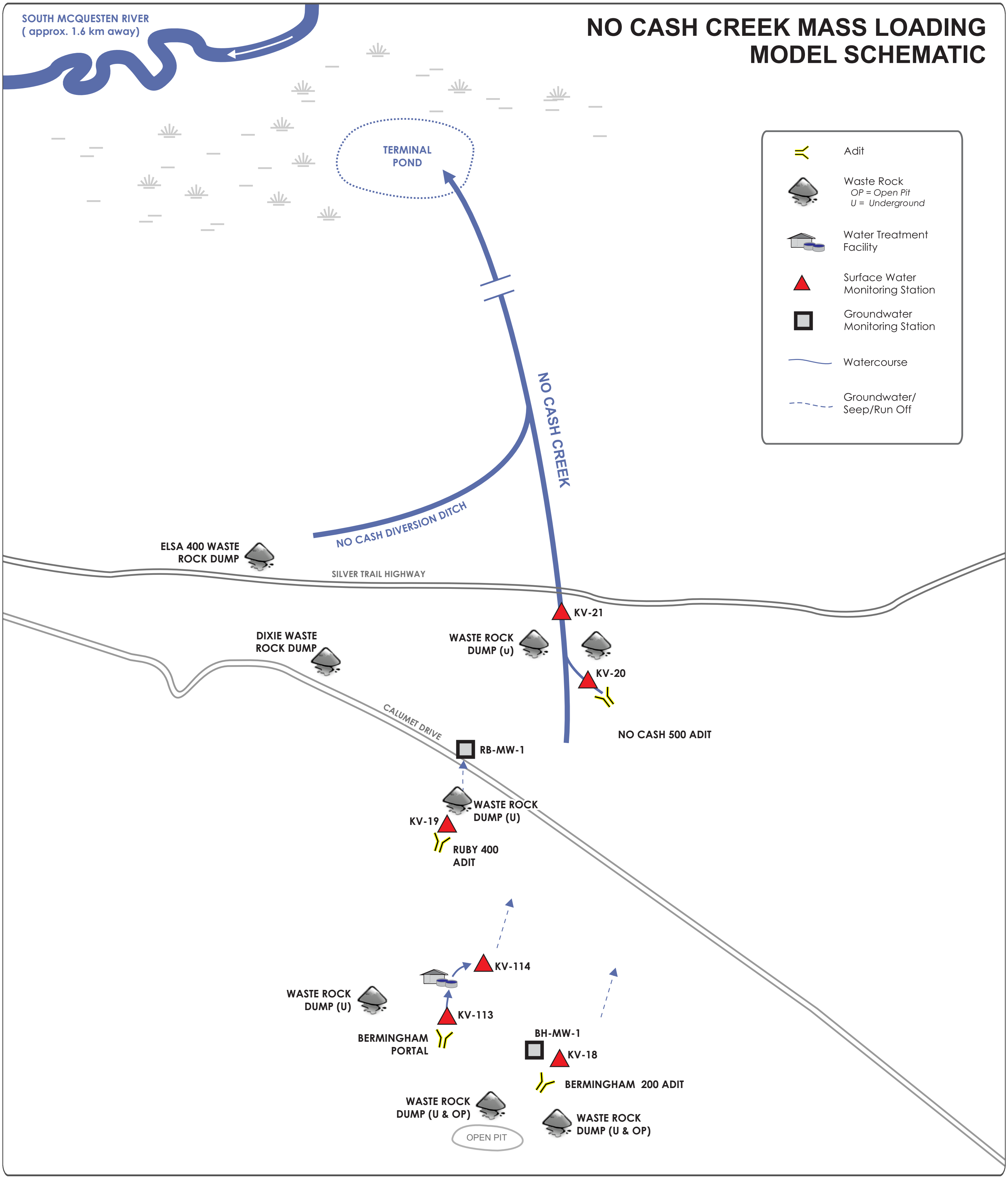
1. INTRODUCTION

A deterministic mass load model was constructed to assess the loading contributions from the development of the Bermingham Mine to the receiving environment in No Cash Creek (at KV-21, Figure 1). For this load model, additional loading to No Cash Creek at KV-21 from the Bermingham Mine was considered from the following sources:

- Untreated Bermingham Adit discharge during advanced exploration;
- Discharge from the Bermingham water treatment plant (WTP) during operations;
- Contact water from the non-acidic mine leaching (N-AML) waste rock storage dump; and
- Bermingham adit discharge in closure treated as required via mine pool treatment.

The load model calculated metal loadings in No Cash Creek (at KV-21) for three phases of the project: 1) advanced exploration (9 months); 2) operations (5 years); and 3) reclamation and post-closure (10 years). The load model calculated loads and associated concentrations in No Cash Creek for the following constituents of potential concern (COPC): silver, arsenic, cadmium, copper, nickel, lead, zinc, sulphate and ammonia.

NO CASH CREEK MASS LOADING MODEL SCHEMATIC



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AKHM

ALEXCO KENO HILL MINING CORP.
BERMINGHAM

FIGURE 1
NO CASH CREEK MASS LOADING MODEL SCHEMATIC

SEPTEMBER 2017

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2. LOADING SOURCES

The loading sources from the Bermingham Mine and associated assumptions are described in the following sub-sections.

2.1 BERMINGHAM ADIT DISCHARGE

The portal location for the Bermingham Mine will be developed below the water table and thus discharge is anticipated from the adit throughout all phases of the project. The discharge for the advanced exploration was assumed to be 205 m^3/day (2.37 L/s) during the 9-month period based on the maximum predicted rate (AEG, 2017a). The Bermingham mine dewatering rate was predicted to be a maximum of 1,000 m^3/day (AEG, 2017b) and for purpose of assessment and licensing a maximum discharge of 1,200 m^3/day has been modelled. During mining, the adit discharge has been assumed to increase linearly from 205 m^3/day (2.37 L/s) to 1,200 m^3/day (13.9 L/s) at the end of mining operations. When the mine is flooded to the elevation of the portal at closure, the portal discharge is estimated to be 216 m^3/day or 2.5 L/s (AEG, 2017b). The water quality of the adit discharge is anticipated to change throughout the life of the mine as the decline is developed into more mineralized rock that likely will leach higher concentrations of COPCs. The water quality of the adit discharge throughout the mine life is described in the following sub-sections.

2.1.1 Advanced Exploration

In the advance exploration phase during the early stages of decline development the portal will discharge to the receiving environment. In the model, the loading attributed to this discharge in the advanced exploration stage was based on the median water quality of the discharge from the Bermingham decline and its cover hole observed in the early stages of portal development (total concentrations, July to September 2017; presented in Table 2-1).

2.1.2 Operations

During the active mining operations phase, portal discharge will be conveyed to the WTP and therefore the load attributed to No Cash Creek has been calculated following treatment.

2.1.3 Reclamation and Post-closure

In the reclamation and post-closure phase of the project, the adit discharge was conservatively assumed to have water quality similar to that of the nearby flowing Bermingham 200 adit (KV-18). The median concentrations for each month of water quality data collected from 2011 to 2017 at KV-18 were calculated for each modelled parameter and hardness. The monthly median total (unfiltered) concentrations are presented in Table 2-2.

Table 2-1: Median Water Quality of Modelled Parameters in Bermingham Decline and cover hole (KV-110) from July to September 2017

Parameter	mg/L	Parameter	mg/L
Silver	0.00032	Lead	0.021
Arsenic	0.0024	Sulphate	60
Cadmium	0.0018	Ammonia	0.14
Copper	0.0028	Hardness	163
Nickel	0.0080	Zinc	0.10

Table 2-2: Monthly Median Water Quality of Modelled Parameters of Bermingham 200 Adit (KV-18) from 2011 to 2017

	Silver	Arsenic	Cadmium	Copper	Nickel	Lead	Zinc	Sulphate	Ammonia	Hardness
	mg/L									
January	0.00010	0.068	0.06	0.0010	0.0025	0.0026	2.0	41	0.008	168
February	0.00010	0.071	0.05	0.0010	0.0021	0.0026	1.8	42	0.008	166
March	0.00003	0.073	0.04	0.0050	0.0016	0.0018	1.8	42	0.005	169
April	0.00019	0.078	0.04	0.0050	0.0020	0.0013	1.5	41	0.005	165
May	0.00032	0.066	0.03	0.0076	0.0023	0.0016	1.6	37	0.005	158
June	0.00040	0.028	0.06	0.0066	0.0029	0.0067	1.6	39	0.008	102
July	0.00024	0.053	0.12	0.0036	0.0029	0.0056	3.0	46	0.022	145
August	0.00025	0.039	0.11	0.0044	0.0030	0.0067	2.5	44	0.015	126
September	0.00030	0.047	0.11	0.0027	0.0031	0.0057	2.7	45	0.007	147
October	0.00016	0.048	0.12	0.0026	0.0032	0.0061	2.9	47	0.005	142
November	0.00018	0.060	0.10	0.0018	0.0028	0.0050	2.8	47	0.007	159
December	0.00015	0.067	0.08	0.0021	0.0030	0.0065	2.4	43	0.005	161

2.2 WTP DISCHARGE

The WTP will be online during the operations phase of the Bermingham project. It is anticipated that the WTP will discharge at a rate of 2.37 L/s at the beginning of operations and ramp up to 13.9 L/s at the end of operations as more mine water requires treatment throughout development. It is assumed that the discharge rate increases linearly every month. The water quality of the WTP discharge was modelled according to the proposed effluent quality standards (EQS) (Table 2-3). A hardness of 400 mg/L and a sulphate of 500 mg/L was assumed for the WTP discharge.

Table 2-3: Bermingham Proposed WTP Effluent Quality Standards

WTP Discharge Water Quality	EQS (mg/L)
Silver	0.01
Arsenic	0.1
Cadmium	0.01
Copper	0.1
Nickel	0.5
Lead	0.2
Zinc	0.5
Ammonia	15

2.3 N-AML WASTE ROCK DUMP

Up to 165,000 tonnes of N-AML waste rock (137,000 tonnes plus 20% contingency) from the development of the Bermingham decline and mine will be stored in a N-AML waste rock storage facility. The approximate waste rock placement schedule is presented in Table 2-4. It is assumed that the annual tonnage is accumulated in equal tonnages each month of the year.

Static geochemical analyses of Bermingham waste rock samples determined that waste rock from the Bermingham zone is reasonably similar geochemically to rocks from other production zones in the Keno Hill Silver District (AEG, 2017c). Thus, loading rates developed for Flame and Moth N-AML waste rock through kinetic testing were deemed appropriate for use as a surrogate for loading rates for the Bermingham zone N-AML waste rock. The Flame and Moth N-AML loading rates are summarized in Table 2-5 and are discussed in detail in Access Consulting Group's Flame and Moth Geochemical Characterization report (Access, 2013).

Table 2-4: N-AML Waste Rock Placement Schedule

Start Date	End Date	Waste Rock	Cumulative Waste Rock Stored
		tonnes	
Dec-17	Oct-18	25,000	25,000
Oct-18	Oct-19	25,000	50,000
Oct-19	Oct-20	50,000	100,000
Oct-20	Oct-21	50,000	150,000
Oct-21	Oct-22	15,000	165,000

Table 2-5: N-AML Waste Rock Loading Rates (from Flame and Moth Geochemical Characterization Report, Access, 2013)

Parameter	Annual loading rate (kg/kg/yr)	Source	Monthly loading rate (mg/kg/month)
Silver	5.94E-11	Humidity cell	4.95E-06
Arsenic	2.15E-08	Humidity cell	1.79E-03
Cadmium	1.29E-09	FMB3-median	1.08E-04
Copper	2.97E-09	Humidity cell	2.48E-04
Nickel	1.08E-08	FMB4-median	9.00E-04
Lead	1.04E-09	FMB2-median	8.67E-05
Zinc	6.56E-08	FMB3-median	5.47E-03
Sulphate	2.81E-04	Humidity cell	2.34E+01

2.4 NO CASH CREEK

The model has been developed to predict COPC concentrations in No Cash Creek at KV-21, which is located above the Silver Trail Highway. The median concentrations (total, unfiltered) for each month of water quality data collected from 2007 to 2017 at KV-21 was calculated for each modelled parameter and hardness. The monthly median concentrations are presented in Table 2-6 and the complete data set is presented in Appendix A. The monthly concentrations were converted to loads with the baseline monthly flow volumes used by Hatch (2016, Table 2-7) in the Mass Load Model for No Cash Creek.

Table 2-6: Monthly Median Water Quality of Modelled Parameter of No Cash Creek (KV-21) from 2007 to 2017

	Silver	Arsenic	Cadmium	Copper	Nickel	Lead	Zinc	Sulphate	Hardness
	mg/L								
January	0.00061	0.016	0.012	0.0120	0.0047	0.0563	1.6	360	758
February	0.00002	0.002	0.008	0.0010	0.0045	0.0013	1.1	536	715
March	0.00001	0.004	0.004	0.0010	0.0040	0.0009	0.7	470	713
April	0.00002	0.003	0.007	0.0020	0.0050	0.0025	1.1	515	758
May	0.00060	0.002	0.009	0.0050	0.0049	0.0234	0.9	86	134
June	0.00018	0.002	0.007	0.0040	0.0040	0.0067	0.8	180	302
July	0.00008	0.003	0.014	0.0037	0.0080	0.0045	1.5	270	429
August	0.00005	0.002	0.019	0.0025	0.0091	0.0036	2.0	300	472
September	0.00070	0.005	0.027	0.0065	0.0125	0.0067	2.9	280	458
October	0.00013	0.008	0.032	0.0081	0.0205	0.0091	3.5	308	465
November	0.00012	0.004	0.022	0.0050	0.0165	0.0046	2.7	396	551
December	0.00022	0.003	0.007	0.0020	0.0043	0.0017	1.1	390	641

Table 2-7: Monthly Flow Volumes and Flow Rates used in Mass Load Model for No Cash Creek at KV-21 (Hatch, 2016)

	Flow	Flow Rate
	m^3	L/s
January	25,578	9.5
February	12,282	5.0
March	20,900	7.8
April	15,291	5.9
May	36,291	13.5
June	20,306	7.8
July	24,008	9.0
August	27,424	10.2
September	29,141	11.2
October	28,886	10.8
November	19,768	7.6
December	21,233	7.9

3. ADDITIONAL MODEL CONSIDERATIONS

3.1 NATURAL ATTENUATION

Natural attenuation processes that significantly reduce most metal concentrations in No Cash Creek between KV-20 (No Cash 500 adit) and KV-21 (No Cash Creek at Silver Trail Highway) have been well-documented (Kwong et al., 1994, 1997; Interralogic, 2010, 2011, 2012, 2013). In the Mass Load Model for No Cash Creek (Hatch, 2016), the model was calibrated to account for natural attenuation of metal loads using observed measured data. The attenuation factors (as percent of load removed) developed for between KV-20 and KV-21 are presented in Table 3-1. The flowpath length between load sources from the Bermingham project and KV-21 is greater than between KV-20 and KV-21 (Figure 1). Thus, a greater surface area would be available for natural attenuation processes to occur and removal rates would likely be greater than between KV-20 and KV-21. Additionally, greater losses of loads from the Bermingham site to groundwater would be expected. To be conservative, it was assumed that natural attenuation would remove 50% of COPC loads between the site and No Cash Creek at KV-21 (Table 3-1) except for sulphate which was not observed to be significantly attenuated.

Table 3-1: Percent Reduction of COPCs Resulting from Natural Attenuation in No Cash Creek

COPC	Natural Attenuation Factor for No Cash Creek (Hatch, 2016) (% Removal)	Natural Attenuation Factor for Bermingham Mass Load Model (% Removal)
Silver	90%	50%
Arsenic	90%	50%
Cadmium	90%	50%
Copper	90%	50%
Nickel	90%	50%
Lead	90%	50%
Zinc	90%	50%
Sulphate	0%	0%
Ammonia	90%	50%

3.2 IN SITU TREATMENT OF BERMINGHAM MINE POOL

Potentially elevated concentrations of COPCs are anticipated in the Bermingham adit discharge upon closure based on the water quality observed in the historic Bermingham 200 adit – particularly for cadmium and zinc (see Table 2-2) – and thus, passive treatment options were considered. The Bermingham mine pool is expected to be amenable to in situ treatment where a soluble source of organic carbon (e.g. alcohol and/or molasses) is added to the mine pool to stimulate the formation of reducing conditions. This treatment approach has been successfully implemented in the flooded underground workings of the Silver King mine to treat the same COPCs expected to be found in the Bermingham adit discharge (AEG, 2017d). The added organic carbon stimulates native sulphate-reducing microorganisms which convert sulphate to sulphide. Concentrations of COPCs such as cadmium and zinc are then lowered via precipitation as sulphide minerals.

Such in situ treatment has been documented to remove 90% of chalcophile trace elements (e.g. cadmium, zinc, antimony, copper, and lead) and ammonia, and 50 to 90% of nickel. In order to remain conservative, lower percentages were used to determine the final Bermingham adit discharge COPC concentrations that were estimated to flow to the receiving environment upon closure (Table 3-2).

Table 3-2: Percent Reduction of COPCs Resulting from in situ Bermingham Mine Pool Treatment

COPC	In Situ Treatment Reduction (% Removal)
Silver	0
Arsenic	0
Cadmium	0.75
Copper	0
Nickel	0.5
Lead	0.5
Zinc	0.75
Sulphate	0
Ammonia	0.5

4. RESULTS

Water quality objectives (WQO) for No Cash Creek at KV-21 have been developed using the surface water quality guidelines for protection of aquatic life prepared by the Canadian Council of Ministers of the Environment (CCME) (CCME, 2017) or the British Columbia Minister of the Environment (BCMOE) (BCMoE, 2016), or the CCME background concentration procedure (BCP) (CCME, 2003). The WQOs developed with the background concentration procedure used the 2011 to July 2017 data set for KV-21 (Appendix A). Table 4-1: presents the WQOs for No Cash Creek at KV-21, which are either the 95th percentile and upper confidence level mean (UCLM) or the most recently published generic guideline for protection of aquatic life. The monthly median observed temperature and field pH at KV-21 between 2007 and 2017 was used to calculate the total ammonia WQO by month (Table 4-2). As there are no fish in No Cash Creek and no direct connection to the South McQuesten River these WQO have been used for comparison purposes only.

Table 4-1: Water Quality Objectives for No Cash Creek (KV-21) (Greyed value selected as WQO for comparison)

KV-21	95th percentile (mg/L)	UCLM (mg/L)	CCME (mg/L)	BCMoE (mg/L)	WQO	Guideline Used
Total Arsenic	0.022	0.010	0.005	0.005	BCP	95th and UCLM
Total Cadmium	0.045	0.018	0.00037[a]	0.00046[a]	BCP	95th and UCLM
Total Copper	0.063	0.0094	0.004[a]	0.01[a]	BCP	95th and UCLM
Total Lead	0.20	0.11	0.007[a]	0.02[a]	BCP	95th and UCLM
Total Nickel	0.031	0.011	0.15[a]	-	CCME	0.15
Total Silver	0.046	0.0041	0.00025	0.0015	BCP	95th and UCLM
Total Zinc	4.39	1.98	0.03	0.19[a]	BCP	95th and UCLM
Sulphate	549	374	-	429[a]	BCMOE	429
Ammonia	-	-	1.27[b]	1.18[b]	CCME	pH and Temp dependent

[a] Based on lower quartile hardness of 385 mg/L observed at No Cash Creek

[b] Based on pH 8 and temperature of 5°C

Table 4-2: Monthly Median Observed Temperature and pH at KV-21 and Corresponding Water Quality Objectives for Total Ammonia Based on CCME Guidelines

	Median Observed Temperature (°C)	Median Observed pH (Field)	Total Ammonia CCME Guideline (mg/L)
January	0	8	1.92
February	0	7.8	1.92
March	0.2	7.9	1.92
April	0.2	8.1	0.62
May	0.2	7.6	5.95
June	4.5	7.7	1.27
July	4.7	8.2	0.41
August	5.6	8	1.27
September	4.3	7.9	1.27
October	1.2	8	1.92
November	0	7.9	1.92
December	0	7.9	1.92

The predicted concentrations for the modelled COPCs over the course of the mine life are presented in Figure 2 through Figure 6. Hardness-dependent guidelines were calculated using modelled hardness. The following trends for COPCs are observed:

- Silver: predicted silver concentrations are consistently well below both the UCLM and 95th percentile concentrations of 0.0041 mg/L and 0.046 mg/L, respectively (Figure 2). The greatest silver concentration of 0.0035 mg/L was predicted to occur towards the end of the operations phase when discharge from the WTP is highest. The average silver concentrations predicted during advanced exploration and reclamation and post-closure phases are an order of magnitude less than the UCLM concentration.

- Arsenic: exceedances of the 95th percentile arsenic concentration at KV-21 (0.022 mg/L) were predicted during years two through five of the operations phase (Figure 2). The maximum predicted arsenic concentration of 0.039 mg/L was in year five of operations when the WTP discharge rates are highest. The average arsenic concentration during operations was roughly 2.5 times the UCLM concentration of 0.0095 mg/L. The highest arsenic concentration during the reclamation and post-closure phase of 0.024 mg/L was predicted in January of each year in post-closure and just marginally exceeded the 95th percentile concentration. All other months in post-closure were between the UCLM and 95th percentile concentrations. The average arsenic concentration in the post-closure phase was ~75% greater than the UCLM concentration.

- Cadmium: predicted cadmium concentrations were consistently well below the 95th percentile concentration (0.045 mg/L) and the average annual predicted concentration was below the UCLM concentration (0.018 mg/L) for all phases of the mine life (Figure 3).

- Copper: predicted copper concentrations (maximum of 0.036 mg/L during operations) were consistently well below the 95th percentile concentration (0.063 mg/L) observed at KV-21 (Figure 3). The median copper concentration predicted during the operations phase (0.025 mg/L) was ~2.8 times greater than the UCLM concentration at KV-21 (0.009 mg/L). During the reclamation and post-closure phase, predicted copper concentrations were consistently at or below the BC MoE guideline and the average predicted copper concentration (0.004 mg/L) was well below the UCLM concentration.

- Nickel: the average predicted nickel concentrations for all phases of the mine life (maximum average concentration of 0.11 mg/L during operations) were below the CCME guideline for nickel (Figure 4). Marginal exceedances of the CCME guideline were predicted to occur in certain months after year three of the operations with a maximum nickel concentration of 0.18 mg/L occurring in February of the final year of operations when WTP discharge rates were greatest. During the reclamation and post-closure phase predicted nickel concentrations were well below the CCME guideline and consistently less than 95th percentile concentration of 0.031 mg/L and the median nickel concentration of 0.007 mg/L was less than the UCLM concentration of 0.011 mg/L).

- Lead: predicted lead concentrations were consistently well below the 95th percentile and UCLM concentrations of 0.2 mg/L and 0.11 mg/L, respectively (Figure 4). The maximum predicted lead concentration was 0.08 mg/L in the final year of operations when the WTP discharge rate was greatest. During the reclamation and post-closure phase, the predicted lead concentrations were often below the BC MoE guideline in addition to being well below the 95th percentile and UCLM concentrations.

- Zinc: predicted zinc concentrations were consistently well below the 95th percentile concentration of 4.4 mg/L at KV-21 and the annual average predicted zinc concentrations for each phase of the mine life were below the UCLM concentration of 2 mg/L (Figure 5).

- Sulphate: predicted sulphate concentrations were greatest in the operations phase when WTP discharge is occurring and reached a maximum of 612 mg/L, exceeding the 95th percentile concentration at KV-21 of 549 mg/L (Figure 5). The median predicted sulphate concentration during the operations phase was 414 mg/L, well below the 95th percentile concentration and ~25% greater than the UCLM of 374 mg/L at KV-21. During the reclamation and post-closure phase predicted sulphate concentrations were on average lower than both the 95th percentile and the more stringent BC MoE guideline (429 mg/L) with maximum concentrations predicted to exceed the 95th percentile concentration for one month a year (582 mg/L). The median sulphate concentration during post-closure was ~10% greater than the UCLM concentrations.

- Ammonia: predicted ammonia concentrations were elevated in the operations phase of the project, increasing as WTP discharge increased and reaching a maximum concentration of 5.3 mg/L in year five of the operations phase (Figure 6). During operations, ammonia concentrations are predicted to exceed CCME guidelines during most months except for May when the temperature and pH dependent guideline is highest (6 mg/L).

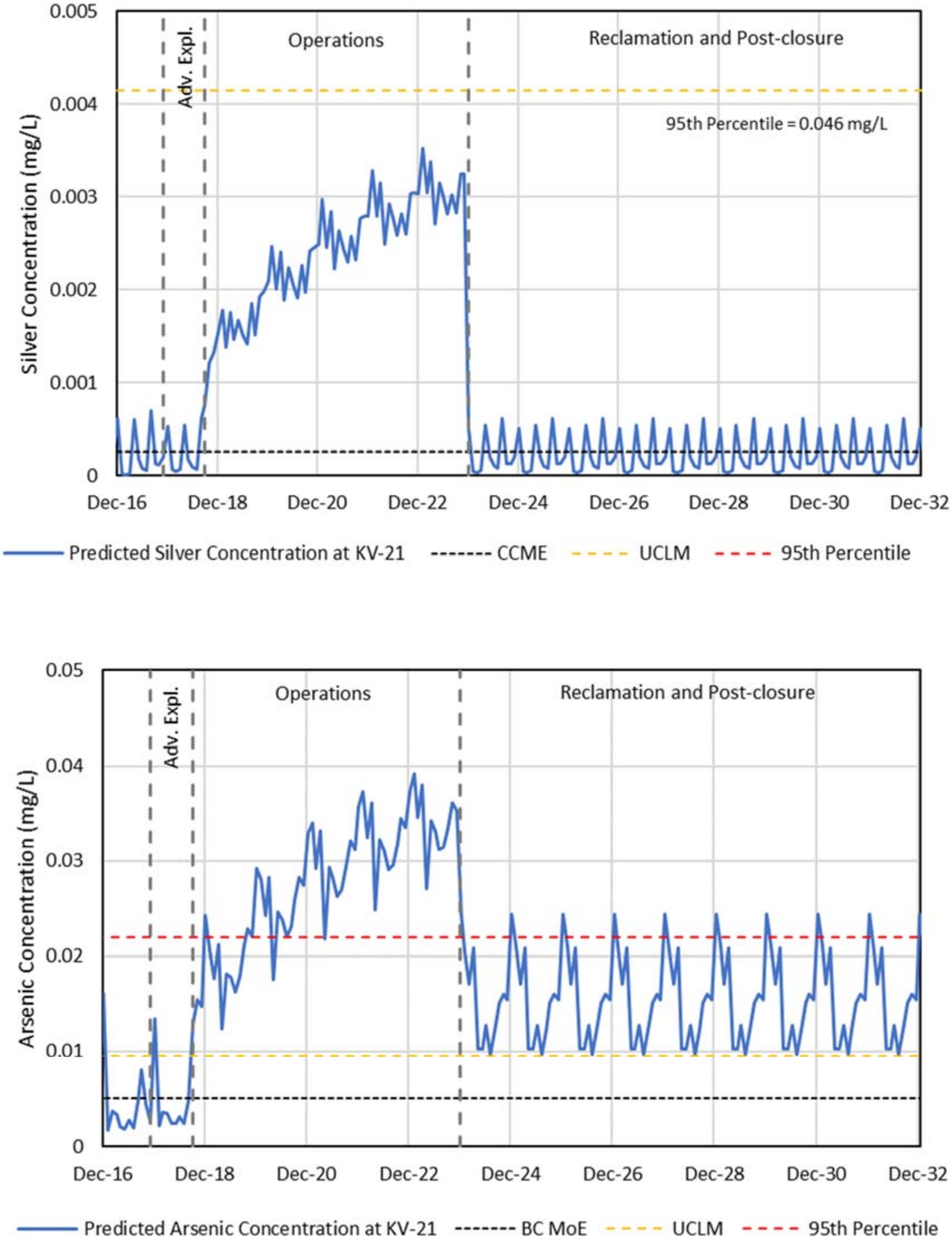
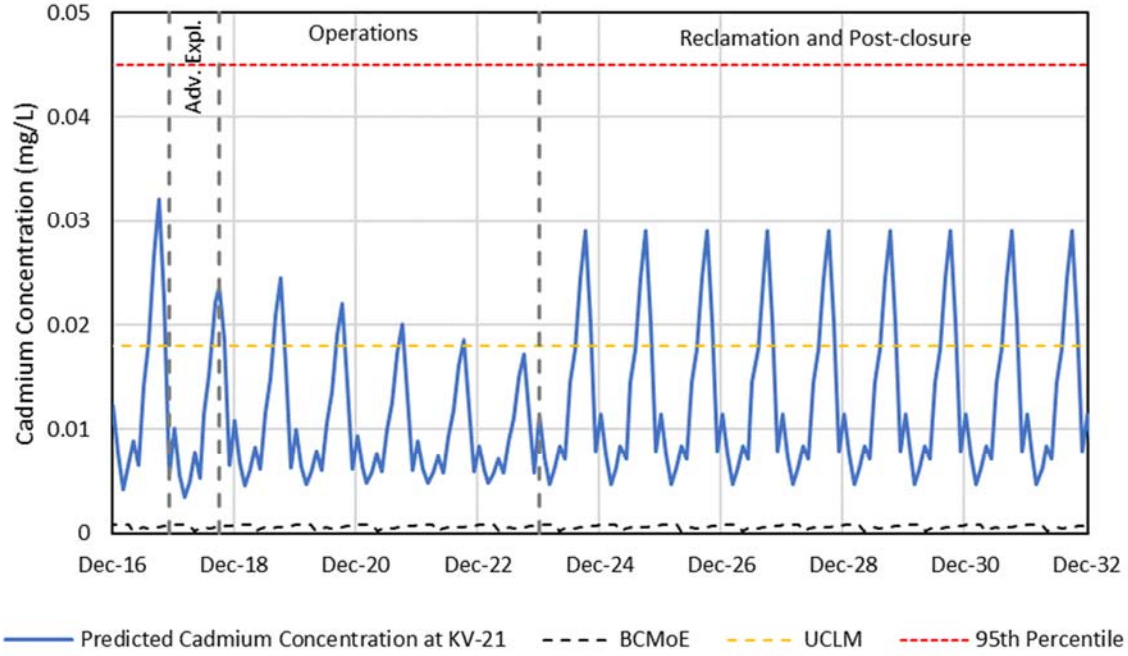


Figure 2: Predicted Silver and Arsenic Concentrations in No Cash Creek at KV-21.



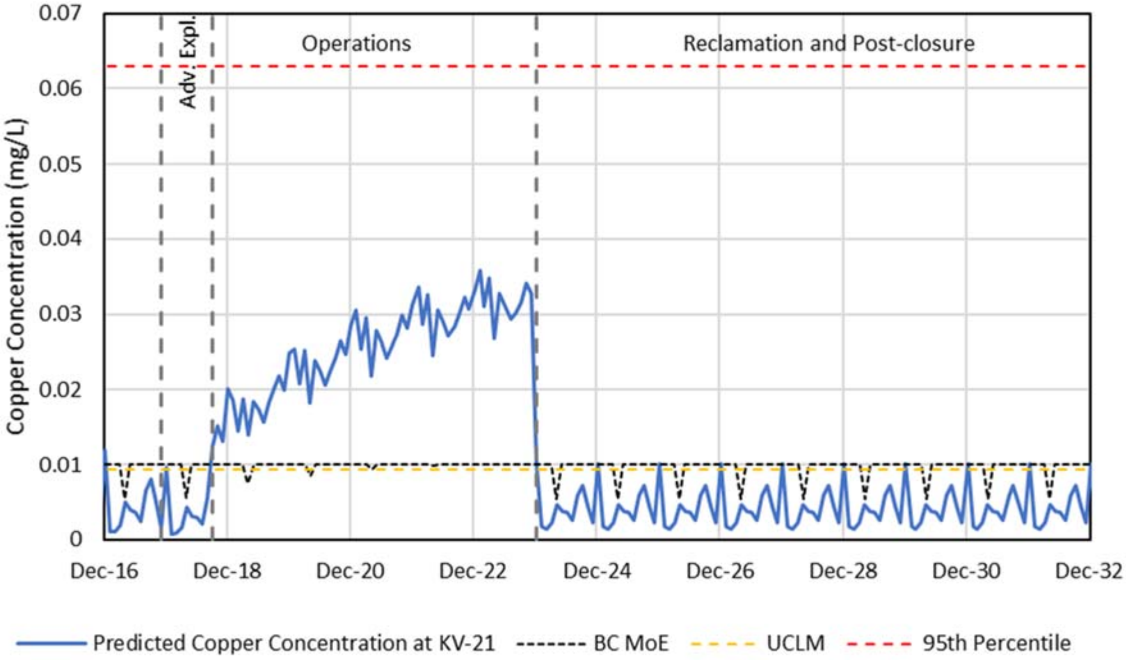
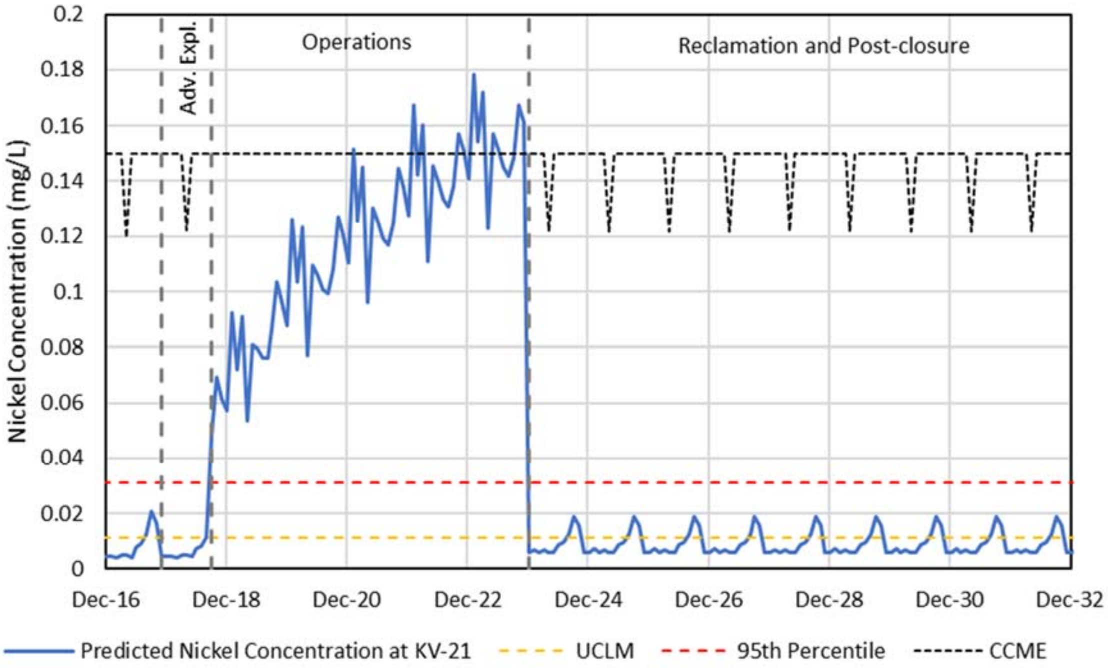


Figure 3: Predicted Cadmium and Copper Concentrations in No Cash Creek at KV-21.



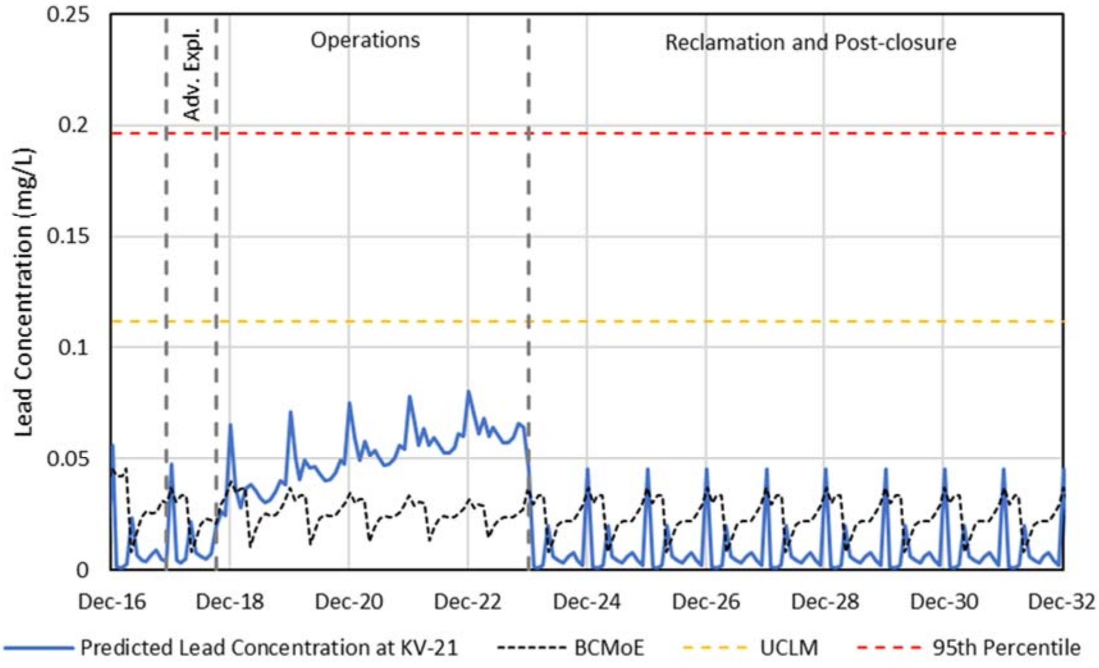


Figure 4: Predicted Nickel and Lead Concentrations in No Cash Creek at KV-21.

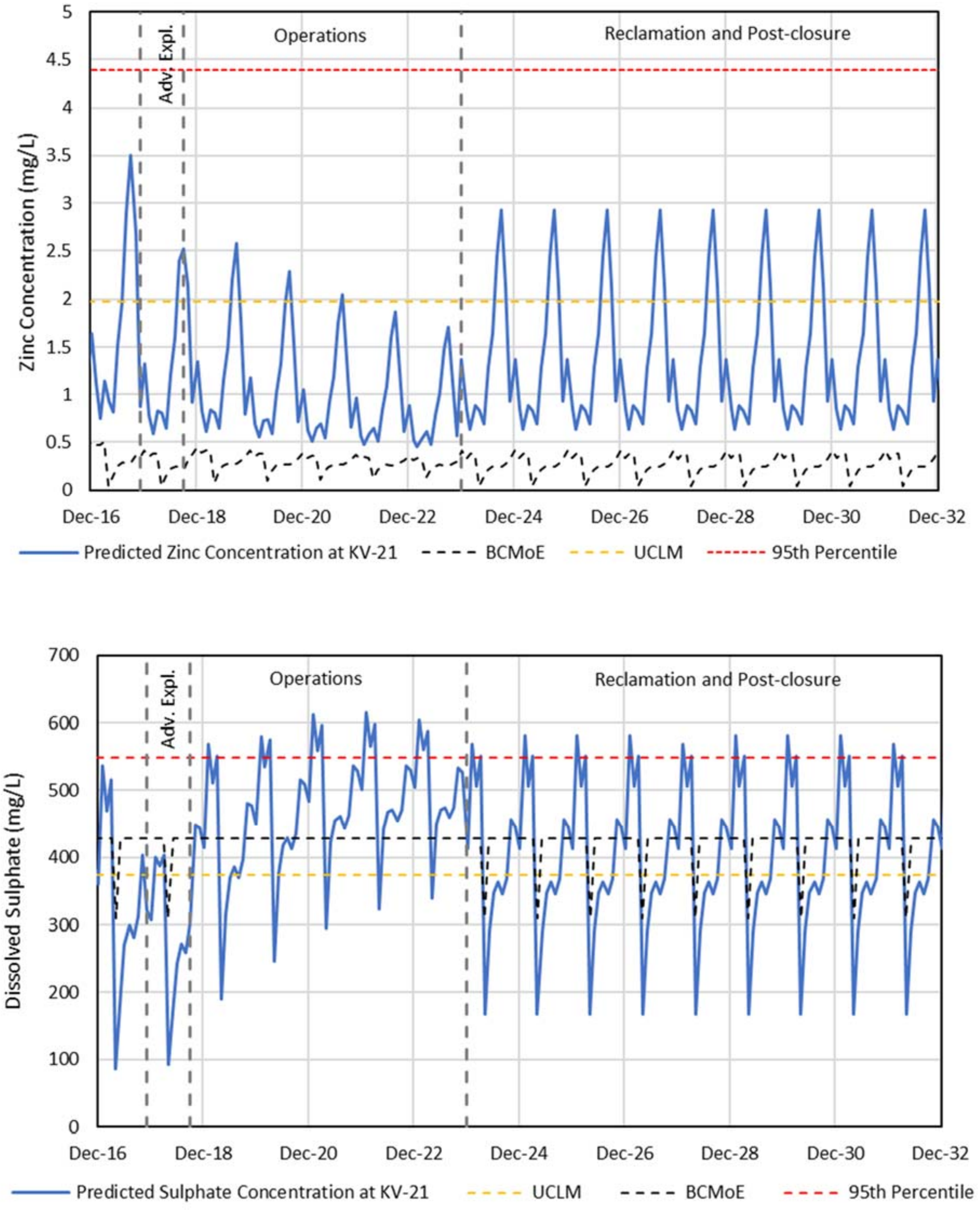
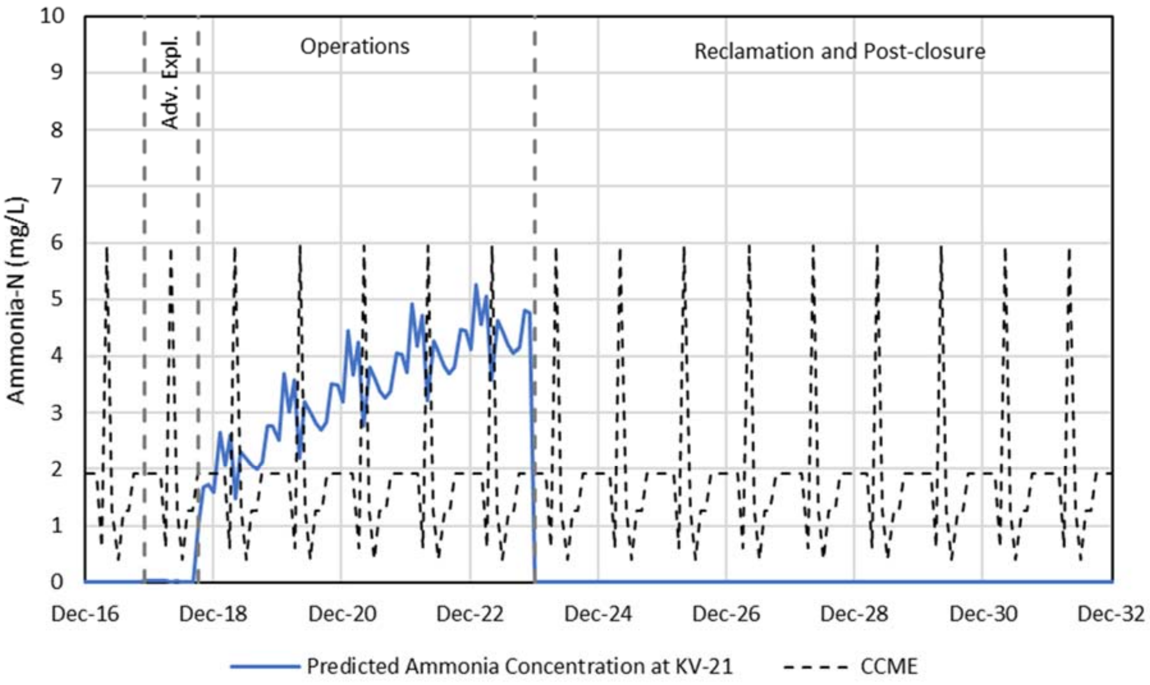


Figure 5: Predicted Zinc and Sulphate Concentrations in No Cash Creek at KV-21.



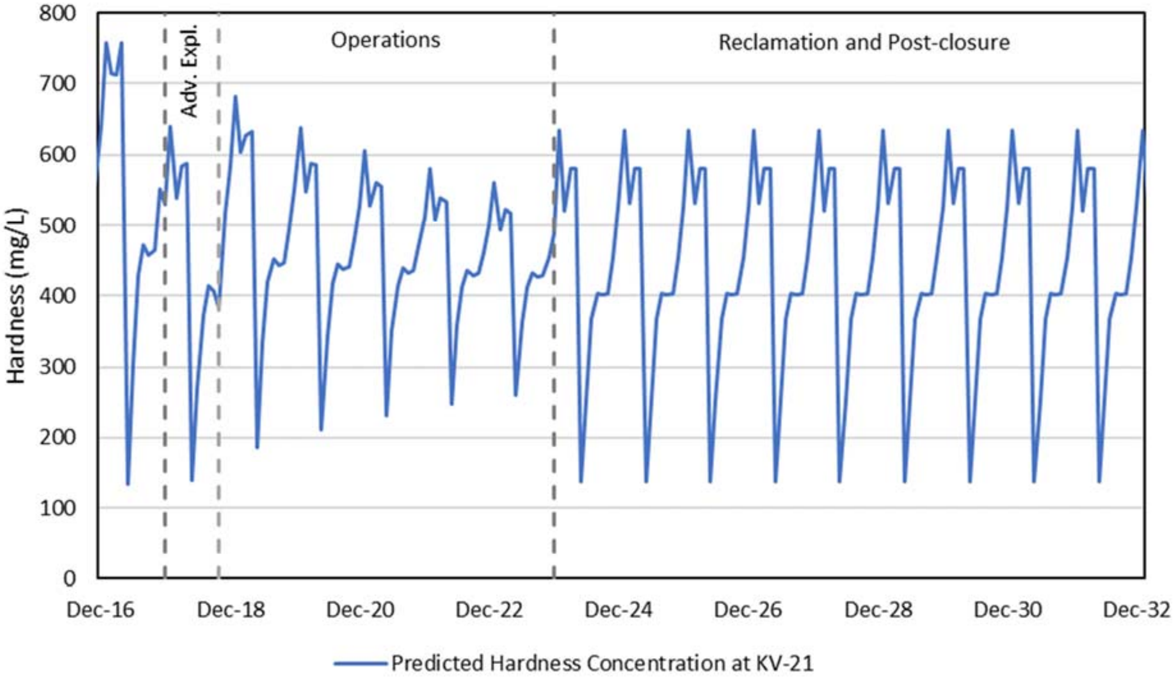


Figure 6: Predicted Ammonia and Hardness Concentrations in No Cash Creek at KV-21.

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APPENDIX A. No Cash Water Quality Data from 2007 to 2017

Appendix A: KV-21 No Cash Creek Baseline Data

		Discharge (Flow)	pH (field)	Termperature	Hardness (from total)	Sulphate, dissolved	Arsenic (As), total	Cadmium (Cd), total	Copper (Cu), total	Lead (Pb), total	Nickel (Ni), total	Zinc (Zn), total
Station Name	**Sample Date**	**L/s**	**pH Units**	**˚C**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
KV-21	15/07/2007	15	8.33	5.3			0.0018	0.0181	0.003	0.005	0.008	2.06
KV-21	10/09/2007						0.008	0.0142	0.01	0.0356	0.0118	1.78
KV-21	13/03/2008		7.59	0.1			0.0045	0.0016	0.001	0.0009	0.0032	0.365
KV-21	17/05/2008		7.55	0			0.0075	0.00947	0.009	0.0964	0.006	1.03
KV-21	20/06/2008						0.0018	0.0048	0.002	0.0017	0.0037	0.757
KV-21	06/07/2008		7.21	4			0.0042	0.00658	0.006	0.0231	0.0041	0.868
KV-21	13/08/2008	6.5	7.47	5			0.0021	0.0177	0.005	0.0053	0.0091	1.98
KV-21	15/09/2008		7.25	4			0.0055	0.0284	0.008	0.0078	0.012	3.24
KV-21	05/10/2008			3			0.0033	0.022	0.006	0.0083	0.009	2.2
KV-21	12/11/2008						0.0038	0.0321	0.005	0.0028	0.021	3.59
KV-21	20/12/2008						0.0028	0.00606	0.002	0.0017	0.0043	0.974
KV-21	12/01/2009						0.0112	0.00655	0.008	0.0197	0.0014	1.06
KV-21	01/02/2009						0.0033	0.00494	0.001	0.0065	0.004	0.829
KV-21	10/03/2009						0.003	0.00411	0.001	0.0008	0.004	0.781
KV-21	16/04/2009				871		0.0034	0.00627	0.0007	0.0109	0.005	1.04
KV-21	06/05/2009		6.77	1.5	138		0.0013	0.0069	0.003	0.0156	0.0038	0.698
KV-21	05/06/2009 21:30		7.63	4.5	298		0.0015	0.0079	0.004	0.0067	0.0041	0.921
KV-21	07/07/2009 9:15	3	8.21	3.7	550		0.0015	0.0075	0.002	0.0007	0.004	0.973
KV-21	11/08/2009				614	370	0.0015	0.0082	0.001	0.0008	0.004	0.989
KV-21	09/09/2009		7.72	4.5	458	270	0.0028	0.0312	0.005	0.0055	0.013	3.01
KV-21	06/10/2009	6	7.79	1.8	418	270	0.0228	0.0465	0.04	0.0241	0.016	4.59
KV-21	13/11/2009		8.16	0.1	590	340	0.0013	0.0124	<0.001	0.0006	0.007	1.67
KV-21	03/12/2009		7.91	0.2	625	380	0.0037	0.0085	0.002	0.0099	0.004	1.2
KV-21	12/01/2010		8.2	0.5	758	360	0.0211	0.0181	0.016	0.0929	0.008	2.22
KV-21	12/02/2010 12:00		8.05	0.5	837	530	0.0014	0.008	0.002	0.0009	0.004	1.22
KV-21	11/03/2010		7.96	0.3	656	470	0.0007	0.0068	<0.001	0.0003	0.004	1.09
KV-21	08/04/2010		8.08	0	623	530	0.0009	0.0067	0.002	0.0006	0.004	1.17
KV-21	05/05/2010	10	7.62	0	129	99	0.0008	0.0034	0.003	0.0074	0.003	0.474
KV-21	08/06/2010	8	7.8	3.2	305	180	0.0019	0.0066	0.004	0.0089	0.004	0.821
KV-21	08/07/2010	7	8.2	3.7	464	270	0.0018	0.0134	0.002	0.0018	0.007	1.5
KV-21	04/08/2010		8.2	8.1	472	300	0.0017	0.0213	0.002	0.0018	0.013	1.99
KV-21	14/09/2010		7.29	704	458	290	0.0038	0.0248	0.005	0.0035	0.017	2.77
KV-21	07/10/2010	8	8.1	1.5	498	360	0.00225	0.0151	0.00226	0.00162	0.0114	1.83
KV-21	16/11/2010		7.16	0	551	430	0.0044	0.0126	0.004	0.0069	0.012	1.77
KV-21	07/12/2010 17:30		8.21	0	656	400	0.0015	0.0069	0.001	0.0011	0.005	1.11
KV-21	08/02/2011 15:05		7.65	0	810	560	0.0064	0.0073	0.004	0.0094	0.005	1.04
KV-21	23/03/2011 16:00		8.09	0	770		0.0049	0.0044	0.001	0.0024	0.006	0.709
KV-21	19/04/2011 14:00			0.5	758	500	0.0035	0.0065	0.002	0.0025	0.006	1.14
KV-21	27/05/2011 13:50	20	8.26	3.7	182	140	0.0023	0.0118	0.005	0.0312	0.005	1.21
KV-21	12/07/2011 16:50	5	8.2	7	393	250	0.0022	0.0239	0.004	0.008	0.01	2.38
KV-21	18/08/2011 16:15	11	7.8	4.4	297	180	0.0021	0.0194	0.003	0.0061	0.009	1.93
KV-21	29/10/2011 14:15	0.181818	8.14	0.5	507	308	0.00911	0.0349	0.00894	0.00999	0.0228	3.62
KV-21	14/02/2012 12:50	2.2	7.82	0.1	671	467	0.00108	0.00861	0.00089	0.00121	0.00704	1.24
KV-21	01/05/2012 15:00		8.12	0	273	226	0.0019	0.00719	0.00387	0.0113	0.00372	0.852
KV-21	09/07/2012 9:35	11.8	8.16	3.3	388	289	0.00279	0.0183	0.0037	0.00403	0.00963	1.89
KV-21	14/10/2012 16:20		7.87	2.6	480	336	0.00531	0.0311	0.00706	0.00601	0.0208	3.38
KV-21	10/02/2013 12:30			-0.1	715	575	0.000826	0.00475	0.000827	0.000761	0.00269	0.795
KV-21	07/05/2013 12:00											
KV-21	11/07/2013 15:00		8.25	4.3	585	427	0.0044	0.00550	<0.0050	0.00154	<0.0050	0.707
KV-21	08/09/2013 11:13	9.7	8.01	4.8								
KV-21	13/09/2013 9:16	22.45										
KV-21	09/10/2013 14:55	17.36	7.96	0.8	439	259	0.0156	0.0179	0.0209	0.0135	0.0201	1.75
KV-21	09/11/2013 13:30	4.2	7.93	-0.1								
KV-21	03/02/2014 9:45		7.99	0	703	543	0.00204	0.00392	0.00135	0.00133	0.00224	0.583
KV-21	10/05/2014 10:50	57.6	7.13	0	80.3	54.5	0.00825	0.0108	0.00752	0.131	0.00580	0.959
KV-21	08/06/2014 14:07	4.5										
KV-21	04/07/2014 14:10	4.74	8.4	6	504	365	0.00399	0.00720	0.00370	0.00163	0.00497	0.794
KV-21	03/08/2014 15:40	10.744	8.51	6.6								
KV-21	22/09/2014 16:00	25.646	8.18	2.8								
KV-21	25/10/2014 15:00	12.5										
KV-21	18/11/2014 14:00	6.7	7.77	0	533	396	0.0081	0.0435	0.0080	0.00637	0.0312	4.71
KV-21	18/12/2014 9:20											
KV-21	14/01/2015 12:30	3.3	7.6	-0.1								
KV-21	06/02/2015 12:00		7.35	-0.1	748	536	0.00131	0.0140	0.00101	0.00176	0.0150	1.93
KV-21	05/03/2015 14:40											
KV-21	03/04/2015 13:00	2.4	7.87	-0.1								
KV-21	14/05/2015 16:00	243.5	7.48	0.3	109	54.4	0.174	0.107	0.104	3.04	0.0548	8.39
KV-21	11/06/2015 14:53	10.8										
KV-21	18/06/2015 15:00		7.69	4.4								
KV-21	30/07/2015 13:16	0.152	8.03	5	352	237	0.00276	0.0150	0.00457	0.00628	0.00917	1.54
KV-21	17/09/2015	34.9										
KV-21	20/10/2015 10:52	16.9	7.96	0.7	411	264	0.0144	0.0407	0.0220	0.0164	0.0309	4.18
KV-21	20/11/2015 15:38	2.3	8.25	-0.1								
KV-21	18/12/2015 10:40	10.4	7.84	0								
KV-21	09/01/2016 13:26	5.4	8	0								
KV-21	01/02/2016 12:20	3.6	7.71	0	586	441	0.00234	0.0132	0.00099	0.00112	0.0166	1.83
KV-21	06/03/2016 10:40	5.8	7.74	0.7								
KV-21	05/04/2016 16:00	2.7	8.09	0.3								

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		Discharge (Flow)	pH (field)	Termperature	Hardness (from total)	Sulphate, dissolved	Arsenic (As), total	Cadmium (Cd), total	Copper (Cu), total	Lead (Pb), total	Nickel (Ni), total	Zinc (Zn), total
Station Name	**Sample Date**	**L/s**	**pH Units**	**˚C**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
KV-21	04/05/2016 12:23	48.9	7.57	0.6	134	72.9	0.00186	0.00843	0.00495	0.0134	0.00473	0.903
KV-21	16/06/2016 11:25	16.2	7.83	4.6								
KV-21	15/07/2016 13:25	21.6	7.84	7.2	282	190	0.00674	0.0328	0.0109	0.0141	0.0144	3.10
KV-21	06/08/2016 17:05	45.2	7.98	5.6								
KV-21	23/09/2016 10:50	25.1	8.4	1								
KV-21	23/10/2016 12:10	10.2	7.36	0.3	465	320	0.00675	0.0332	0.00725	0.00613	0.0245	3.64
KV-21	10/11/2016 17:30	5.8	7.78	0.4								
KV-21	01/12/2016 12:05	6.2	6.61	0								