



HD Mining International Ltd.

MURRAY RIVER COAL PROJECT

**Decision Statement Annual Report – October 1, 2023
to September 30, 2024**

Version: 1

December 23, 2024

DOCUMENT APPROVALS AND CONTROL

APPROVALS

Name	Position	Signature	Date
Norman Johnson	Mine Manager		
Jody Shimkus	Senior Advisor		

DOCUMENT CONTROL

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EXECUTIVE SUMMARY

The Murray River Coal Project (Project) is an underground metallurgical coal mine under construction in northeast British Columbia (BC), approximately 18 kilometres southwest of Tumbler Ridge and within Treaty 8. The Proponent and Owner of the Project is HD Mining International Limited (HD Mining or Proponent).

The Project received an Environmental Assessment Decision Statement (DS) under the *Canadian Environmental Assessment Act, 2012*, on December 13, 2017, and Environmental Assessment Certificate #M15-03 (EAC) under the *BC Environmental Assessment Act (2002)* on October 1, 2015. An amended DS was issued by the Minister of the Environment on July 26, 2024.

An annual report is required by Condition 2.8 of the DS and the report must provide the information identified in Conditions 2.8.1 to 2.8.6 and 2.9. The report covers the period from October 1, 2023 to September 30, 2024. During the reporting period, HD Mining conducted pre-construction activities and engagement with relevant authorities and Indigenous groups to comply with DS (and EAC) conditions. HD Mining initiated Project construction in June 2024.

The report summarizes the activities undertaken by the Proponent in the reporting year to comply with each condition and sets out the results of the follow-up program requirements in DS conditions:

- Condition 3.8: Fish and Fish Habitat Follow-up Program;
- Conditions 3.10 and 3.11: Metal Leaching/ Acid Rock Drainage and Selenium Follow-up Program;
- Condition 3.12: Subsidence Follow-up Program;
- Condition 4.4: Migratory Birds Follow-up Program;
- Condition 6.3: Health of Indigenous Peoples Follow-up Program and Communication Plan;
- Condition 7.11: Current Use of Lands and Resources for Traditional Purposes Follow-up Program; and
- Condition 7.14: Caribou Follow-up Program.

Construction activities undertaken during the reporting period included:

- rehabilitation of existing infrastructure at the decline site;
- rehabilitation of the service decline portal to underground;
- construction of a new hoist house and monorail system; and

- establishment of an electrical substation to support underground activities.

An occupant licence to cut was applied for, but was not received within the reporting period; therefore, no construction activity occurred at the shaft site nor the coal processing site.

SOMMAIRE

Le projet Murray River Coal (projet) est une mine souterraine de charbon métallurgique en cours de construction dans le nord-est de la Colombie-Britannique (C.-B.), à environ 18 kilomètres au sud-ouest de Tumbler Ridge et à l'intérieur du Traité N° 8. Le promoteur et propriétaire du projet est HD Mining International Limited (HD Mining ou promoteur).

Le projet a fait l'objet d'une déclaration de décision d'évaluation environnementale en vertu de la *Loi canadienne sur l'évaluation environnementale de 2012*, le 13 décembre 2017, et d'un certificat d'évaluation environnementale #M15-03 (CEE) en vertu de la *Loi sur l'évaluation environnementale de la Colombie-Britannique (2002)*, le 1^{er} octobre 2015. Une déclaration de décision modifiée a été émise par le ministre de l'Environnement le 26 juillet 2024.

Un rapport annuel est requis par la condition 2.8 de la déclaration de décision et le rapport doit fournir les renseignements cités dans les conditions 2.8.1 à 2.8.6 et 2.9. Le rapport couvre la période du 1^{er} octobre 2023 au 30 septembre 2024. Au cours de la période considérée, HD Mining a mené des activités préalables à la construction et s'est engagée auprès des autorités compétentes et des Autochtones à respecter les conditions de la déclaration de décision (et du CEE). HD Mining a commencé la construction du projet en juin 2024. Le rapport résume les activités entreprises par le promoteur au cours de l'année de référence pour se conformer à chaque condition et présente les résultats des exigences du programme de suivi dans les conditions de la déclaration de décision :

- Condition 3.8 : Programme de suivi du poisson et de son habitat;
- Conditions 3.10 et 3.11 : Programme de suivi de la lixiviation des métaux/drainage rocheux acide et du sélénium;
- Condition 3.12 : Programme de suivi de l'affaissement;
- Condition 4.4 : Programme de suivi des oiseaux migrateurs;
- Condition 6.3 : Programme de suivi et plan de communication sur la santé des Autochtones;
- Condition 7.11 : Programme de suivi des activités courantes des terres et des ressources à des fins traditionnelles;
- Condition 7.14 : Programme de suivi du caribou.

Les activités de construction entreprises durant la période considérée incluent:

- réhabilitation des infrastructures existantes au site de la rampe d'accès;
- réhabilitation de la rampe d'accès de service à la mine souterraine;
- construction d'une nouvelle salle de treuil et d'un système monorail; et

- construction d'un poste de transformation électrique pour alimenter les activités souterraines.

Une demande de permis de coupe a été déposée, mais non reçu durant de la période considérée. Ainsi, aucunes activités de construction n'ont eu lieu au site du puits de mine et au site de traitement du charbon.

TABLE OF CONTENTS

DOCUMENT APPROVALS AND CONTROL	I
EXECUTIVE SUMMARY	II
SOMMAIRE	IV
TABLE OF CONTENTS	VI
1 INTRODUCTION	1
1.1 PROJECT ACTIVITIES	4
1.2 ANNUAL REPORT SCOPE AND ORGANIZATION	5
2 ENGAGEMENT AND CONSULTATION (CONDITIONS 2.2 AND 2.3)	5
3 FOLLOW-UP PROGRAMS	12
3.1 FISH AND FISH HABITAT FOLLOW-UP PROGRAM (CONDITIONS 3.1 – 3.5, 3.8)	12
3.1.1 Pre-Construction Rock Weir Assessment (Condition 3.2)	12
3.2 METAL LEACHING/ ACID ROCK DRAINAGE AND SELENIUM FOLLOW-UP PROGRAM (CONDITIONS 3.9 – 3.11)	16
3.2.1 Geochemical Characterization of Geologic Materials (Condition 3.9)	16
3.2.2 Contact Water and Receiving Water Monitoring (Condition 3.10)	20
3.2.3 Selenium in Fish Monitoring (Condition 3.11)	23
3.3 SUBSIDENCE FOLLOW-UP PROGRAM (CONDITION 3.12)	26
3.4 MIGRATORY BIRDS FOLLOW-UP PROGRAM (CONDITION 4.4)	26
3.4.1 Pre-construction Surveys (Condition 4.3)	26
3.4.2 Construction Mitigation (Condition 4.1 and 4.2)	29
3.5 HEALTH OF INDIGENOUS PEOPLE FOLLOW-UP PROGRAM (CONDITION 6.3)	31
3.5.1 Air Quality Monitoring (Condition 6.3.1)	32
3.5.2 Soil, Vegetation, and Water Quality Monitoring (Condition 6.3.2)	34
3.6 CURRENT USE OF LANDS AND RESOURCES FOR TRADITIONAL PURPOSES FOLLOW-UP PROGRAM (CONDITIONS 7.11)	34
3.7 CARIBOU FOLLOW-UP PROGRAM (CONDITION 7.14)	34
3.7.1 Pre-Construction Field Surveys (Condition 7.12)	35
4 COMMUNICATIONS PLANS	38
4.1 HEALTH OF INDIGENOUS PEOPLES COMMUNICATION PLAN (CONDITION 6.5)	38
4.2 NOISE COMMUNICATION PLAN (CONDITIONS 7.1 AND 7.3)	39
4.3 ACCIDENTS AND MALFUNCTIONS COMMUNICATION PLAN (CONDITION 10.5)	39

5	MANAGEMENT PLANS	40
	5.1 HERITAGE MANAGEMENT PLAN (CONDITION 8.2).....	40
6	OTHER DECISION STATEMENT CONDITIONS	40
7	ACRONYMS AND ABBREVIATIONS	45
8	UNITS OF MEASURE	47
9	REFERENCES	48

LIST OF APPENDICES

APPENDIX A	BC WQGS EXCEEDANCES DURING 2023-2024 REPORTING PERIOD	A-1
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LIST OF TABLES

Table 2-1.	Summary of Consultation and Engagement with Indigenous Groups and Relevant Authorities during the Reporting Period	7
Table 3-1.	Vegetation Clearing and Grubbing dates, and Pre-clearing Bird Survey Data	30
Table 6-1.	Decision Statement Conditions	40

LIST OF FIGURES

Figure 1-1.	Murray River Coal Project Location.....	3
Figure 3-1.	M20 Creek Potential Rock Weir Locations.	15
Figure 3-2.	Temporal Trends of pH in Murray River Humidity Cell Tests.	18
Figure 3-3.	Temporal Trends of Selenium in Murray River Humidity Cell Tests (log scale). 18	
Figure 3-4.	Temporal Trends of pH in Murray River Field Leach Barrels.....	19
Figure 3-5.	Temporal Trends of Selenium (mg/L) in Murray River Field Leach Barrels (log scale).	19
Figure 3-6.	Contact Water and Receiving Water Monitoring Sites.	22
Figure 3-7.	Aquatic Monitoring Locations	24
Figure 3-8.	Mean selenium concentrations in periphyton tissues sampled from all sites during the 2023 aquatic effects monitoring for the Murray River Coal Project. BCWQG for dietary tissue (4 mg/kg dry weight) is shown in red.	25
Figure 3-9.	Mean selenium concentrations in invertebrate tissue sampled from all sites during the 2023 aquatic effects monitoring for the Murray River Coal Project. BCWQG for dietary tissue (4 mg/kg dry weight) is shown in red.	25
Figure 3-10.	Active and Proposed Dustfall and Particulate Stations.	33

LIST OF PHOTOGRAPHS

Photo 3-1.	Total length of Slimy sculpin (90 mm).....	14
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1 INTRODUCTION

The Murray River Coal Project (Project) is an underground metallurgical coal mine under construction in northeast British Columbia (BC). The Proponent and Owner of the Project is HD Mining International Limited (HD Mining or Proponent). The Project is approximately 18 kilometres (km) southwest of Tumbler Ridge and falls within Treaty 8 (Figure 1-1).

HD Mining received an Environmental Assessment Decision Statement (DS) (Government of Canada 2017) under the *Canadian Environmental Assessment Act* (Government of Canada 2012) on December 13, 2017, and an Environmental Assessment Certificate #M15-03 (EAC) (BC Ministry of Environment 2015) under the *BC Environmental Assessment Act* (Government of British Columbia 2002) on October 1, 2015. An amended DS was signed by the Minister of the Environment on July 26, 2024.

Advanced exploration activities were conducted at the site, from March 2012 to early 2016, including surface development of infrastructure at the decline site and the shaft site and underground development of a decline 1,300 metres (m) down to the D coal seam. After a bulk sample of coal was collected in 2015/2016, the site was placed into care and maintenance until mine construction was initiated in June 2024.

A 5-year construction phase is currently planned, after which the mine will operate for 25 years, producing approximately 4.5 million tonnes of metallurgical coal product, and 6 million tonnes of run-of-mine (ROM) coal annually. The closure phase is approximately 3 years and HD Mining has planned for a 6-year post-closure monitoring program.

The *Decision Statement Annual Report – October 1, 2023 to September 30, 2024* (Annual Report 2023-2024) fulfills DS Conditions 2.8 and 2.9, which require the preparation and submission of an annual report on the implementation of DS conditions.

2.8 The Proponent shall, commencing in the reporting year during which the Proponent begins the implementation of the conditions set out in this Decision Statement, prepare an annual report that sets out:

2.8.1 the activities undertaken by the Proponent in the reporting year to comply with each of the conditions set out in this Decision Statement;

2.8.2 how the Proponent complied with condition 2.1;

2.8.3 for conditions set out in this Decision Statement for which consultation is a requirement, how the Proponent considered any views and information that the Proponent received during, or as a result of, the consultation;

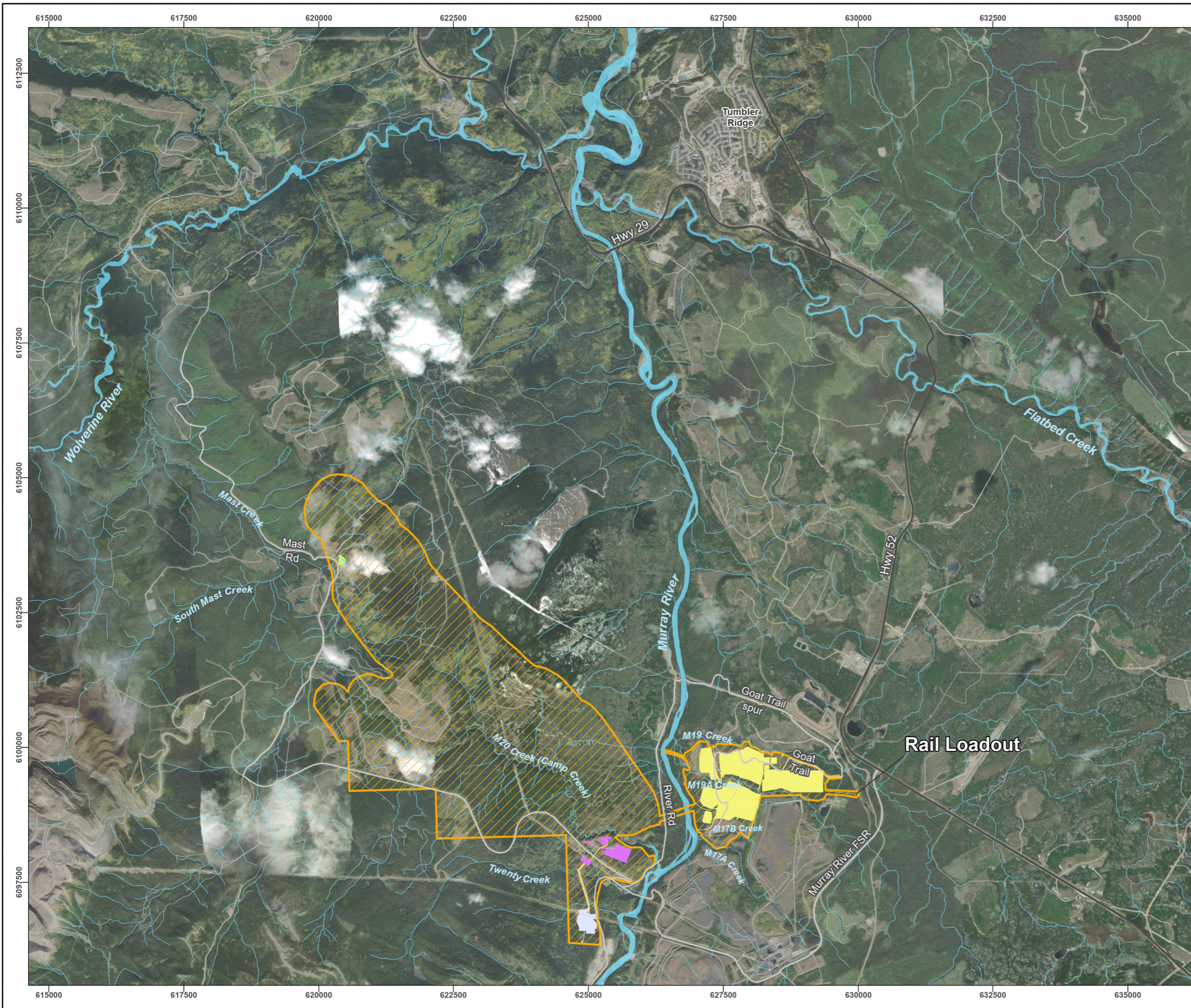
2.8.4 the information referred to in conditions 2.4 and 2.5 for each follow-up program;

2.8.5 the results of the follow-up program requirements identified in conditions 3.8, 3.10, 3.11, 3.12, 4.4, 5.3, 6.3, 7.11, and 7.14; and

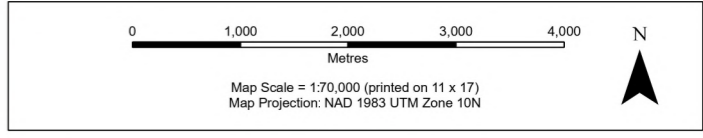
2.8.6 any modified or additional mitigation measures implemented or proposed to be implemented by the Proponent, as determined under condition 2.6.

2.9 The Proponent shall submit to the Agency the annual report referred to in condition 2.8, including an executive summary in both official languages, no later than December 31 following the reporting year to which the annual report applies.

The reporting period for the report is October 1, 2023 to September 30, 2024. This report is the Project's first DS annual report.



Murray River Coal Project Location



<ul style="list-style-type: none"> Highway Road Permitted Mine Area (2023) Treaty 8 Boundary 	<ul style="list-style-type: none"> Coarse Coal Rejects and Coal Processing Site Decline Site Power Line Secondary Shaft Site Shaft Site
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Data Sources

- Permitted Mine Area (2023) provided by HD Mining
- Surface Infrastructure provided by HD Mining (2021)
- Main map, Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
- Inset map, National Geographic World Map
- Waterbody and watercourse, Freshwater Atlas, The Government of British Columbia
- Forest Service Road, Forest Tenure Road Section Lines, Treaty Boundary, Government of British Columbia

Disclaimer

EDI Environmental Dynamics Inc. has made every effort to verify this map is free of errors. Data has been derived from a variety of digital sources and, as such, EDI does not warrant the accuracy, completeness, or reliability of this map or its data.

Drawn By: PH
 Checked By: KH
 Date: 12/18/2024



Figure 1-1



Path: L:\PROJECTS\2022\IBC\22\056_HD_MurrayRiver\Construction\Final\Map\Templates\aprx\FR23_MurrayRiver\ManagementPlan\MapTemplate2024_20241217

1.1 PROJECT ACTIVITIES

Project activities during the reporting period include the start of mine construction on June 17, 2024. Table 1-1 provides an overview of Project construction activities during the reporting period.

Table 1-1. Project Construction-related Activities during the Reporting Period

Activity/Component	Description
<i>October 1, 2023 to June 16, 2024</i>	
Care and Maintenance	Ongoing care and maintenance at the decline site and shaft site
<i>June 17, 2024 to September 30, 2024</i>	
Start of Construction	June 17, 2024
Occupant Licence to Cut (OLTC)	August 22, 2024 – OLTC application submitted
Decline Site	<p>Rehabilitation of decline site</p> <ul style="list-style-type: none"> • site grading within the existing footprint • temporary soil stockpiling to create space for permanent infrastructure • replace/repair buildings and storage areas • water and septic systems, including inspections, recommissioning and pressure testing • electrical systems, including cleaning, repairs, inspections and testing • water treatment facilities, including repair of generator, refurbishment of pumps, replacement of piping system, repairs to flocculent and coagulant mixing system, and recommissioning the water treatment plant <p>Rehabilitation of the service decline portal</p> <ul style="list-style-type: none"> • development of safe re-entry plan • replacement of the ventilation fans • establishment of ventilation to face of stopping <p>Construction of new hoist house and monorail system</p> <ul style="list-style-type: none"> • Becker monorail purchased and delivered from Europe • new hoist house constructed • footings for monorail system constructed <p>Establishment of an electrical substation to support underground activities</p> <ul style="list-style-type: none"> • refurbishment of one complete bank of generators

Activity/Component	Description
	<ul style="list-style-type: none"> • tested and commissioned the power system to feed the underground substation
Shaft Site	<ul style="list-style-type: none"> • continued care and maintenance of existing infrastructure • no construction activities, pending receipt of OLTC
Coal Processing Site	<ul style="list-style-type: none"> • no construction activities, pending receipt of OLTC

1.2 ANNUAL REPORT SCOPE AND ORGANIZATION

This report has been developed to comply with Condition 2.8 of the DS. The report is organized as follows: follow-up programs (Section 3), communication plans and related pre-construction requirements (Section 4), management plans (Section 5), and other conditions (Section 6). Monitoring and field surveys were implemented during the reporting period¹, including monitoring or surveys for air quality, water quality, aquatics, fish and fish habitat, caribou, and migratory birds. These activities are described in sections 3 to 6. No environmental change occurred, that would require HD Mining to modify or add mitigation measures.

2 ENGAGEMENT AND CONSULTATION (CONDITIONS 2.2 AND 2.3)

Conditions 2.2 and 2.3 identify consultation requirements where a DS condition requires consultation with Indigenous groups and/or federal agencies. Pursuant to Section 1.18 of the DS:

“Indigenous groups means the following Aboriginal peoples: West Moberly First Nations, Saulneau First Nations, McLeod Lake Indian Band, Blueberry River First Nations, Horse Lake First Nation, Doig River First Nation (DRFN), Fort Nelson First Nation, Halfway River First Nation, Prophet River First Nations, Sucker Creek First Nation, Kelly Lake Métis Settlement Society, and Métis Nation British Columbia”.

Table 2-1 summarizes the consultation and engagement that has been undertaken with Indigenous groups and relevant authorities (Fisheries and Oceans Canada [DFO], Environment and Climate Change Canada [ECCC], Health Canada, Natural Resources Canada) during the reporting period. Some engagement activities related to traditional and medicinal plants (DS Condition 7.6) and caribou (DS Condition 7.12-7.15) occurred

¹ Some field-related and consultation activities relevant to the DS took place prior to the reporting period but are included as this is the first annual report.

prior to the reporting period. These activities are included in this report as this is the first annual report. Where required in the DS, follow-up programs were initiated with the start of construction.

HD Mining has engaged and consulted Indigenous groups and relevant authorities as per Conditions 2.2 and 2.3. Documents were provided to Indigenous groups via email for review and comment. Tables of concordance were included in follow-up programs to show where requirements in the DS were addressed. Comment periods ranged from 21 to 28 days. All comments received by HD Mining were considered and reviewed by Qualified Individuals (QIs) with the education, experience, and knowledge relevant to a particular matter. HD Mining responded to all comments in comment-response tracking tables, which were shared with the commentor.

Table 2-1. Summary of Consultation and Engagement with Indigenous Groups and Relevant Authorities during the Reporting Period

Condition	Action	Notice/Distribution Date to Indigenous Groups and Agencies	Status on September 30, 2024
2.7	Analysis of follow-up results with Indigenous groups (IGs) ²	N/A	<ul style="list-style-type: none"> Follow-up programs were initiated during the reporting period with the start of construction.
3.8 (including 3.2 to 3.5)	Fish and Fish Habitat Follow-up Program	2024-Apr-17	<ul style="list-style-type: none"> Comments received from Fisheries and Oceans Canada (DFO) on May 8, 2024. Documented and emailed written responses to DFO on July 16, 2024. Comments received on behalf of Sauteau First Nations (SFN) and West Moberly First Nations (WMFN) from the First Nations Independent Technical Review (FNITR) on August 23, 2024. Documented and emailed responses to FNITR on September 17, 2024. No comments received from other IGs.
3.9 to 3.11	Metal Leaching/ Acid Rock Drainage and Selenium Follow-up Program	2024-May-07	<ul style="list-style-type: none"> Comments received from Environment and Climate Change Canada (ECCC) on May 23, 2024. Documented and emailed written responses to ECCC on August 17, 2024. Comments received from the FNITR review on August 23, 2024. Documented and emailed responses to FNITR on September 17, 2024. No comments received from other IGs.
3.12	Subsidence Follow-up Program	2024-Apr-22	<ul style="list-style-type: none"> Comments received from ECCC on May 21, 2024. Comments received from FNITR review on August 23, 2024. Documented and emailed written responses to ECCC on August 26, 2024. Documented and emailed responses to FNITR on September 17, 2024. No comments received from other IGs.

² In this table, and throughout the document, Indigenous groups refers to all 12 groups listed in the DS Definition 1.18.

Condition	Action	Notice/Distribution Date to Indigenous Groups and Agencies	Status on September 30, 2024
4.1, 4.2, 4.4	Migratory Bird Follow-up Program	2024-Apr-24 (ECCC) 2024-May-01 (IGs)	<ul style="list-style-type: none"> • Comments received from SFN on May 7, 2024. • Resent follow-up plan to an updated contact at Prophet River First Nation on May 7, 2024. • Documented and emailed written responses to SFN on July 24, 2024. • Comments received from ECCC on May 21, 2024. • Documented and emailed written responses to ECCC on July 25, 2024. • ECCC provided further comments on August 19, 2024. • Responses and an updated version of the follow-up program with tracked changes emailed to ECCC on September 10, 2024. • No comments received from other IGs.
4.3	Migratory Bird Surveys	N/A	<ul style="list-style-type: none"> • Conducted aerial and ground waterbird surveys, and stick nest surveys in May 2022 with participation from McLeod Lake Indian Band (MLIB). • Conducted point count surveys, northern goshawk surveys, and Common Nighthawk surveys in June - July 2022 with participation from SFN. • Conducted aerial waterbird surveys in July 2022 with participation from SFN. • Conducted aerial waterbird surveys in September 2022 with participation from SFN. • Conducted point count surveys, northern goshawk surveys, stick nest raptor occupancy surveys, and deployment of autonomous recording units for common nighthawk from May to June, 2023 with participation from SFN. • Conducted an aerial waterbird survey in July 2023 with participation from WMFN. • Conducted waterbird surveys in September 2023 with participation from MLIB.
6.3	Health of Indigenous Peoples Follow-up Program	2024-May-24	<ul style="list-style-type: none"> • Comments received from ECCC on June 19, 2024. • Emailed responses to comments and an updated map to ECCC on August 6, 2024. • No comments received from IGs or other relevant authorities.

Condition	Action	Notice/Distribution Date to Indigenous Groups and Agencies	Status on September 30, 2024
6.5	Health of Indigenous Peoples Communication Plan	2024-May-24	<ul style="list-style-type: none"> No comments received from IGs or relevant authorities. Final version of the communication plan emailed to IGs and relevant authorities on September 27, 2024.
7.1, 7.3	Noise Communication Plan	2024-May-17 (IGs only)	<ul style="list-style-type: none"> Comment received from Halfway River First Nation (HRFN) on June 3, 2024. Documented and emailed written response to HRFN on July 5, 2024. No comments received from other IGs. Final version of the communication plan provided to IGs on September 27, 2024.
7.6	Verification of the presence/absence of traditional and medicinal plants	2023-Jul-26 2024-Jun-7	<ul style="list-style-type: none"> Conducted vegetation surveys in July 2023 with WMFN participation Indigenous groups were invited to provide input (July 26, 2023) on traditional and medicinal plants to supplement HD Mining's current information. Conducted vegetation surveys in August 2023 with SFN participation. Invited input (June 7, 2024) on traditional and medicinal plants with respect to updating HD Mining's current information, and provided more than 90 days notification prior to clearing activities to allow IGs to catalogue, harvest, and transplant traditional and medicinal plants from areas tentatively scheduled for clearing in September 2024. Clearing activities have not yet been initiated as HD Mining awaits the Occupant Licence to Cut. Conducted vegetation surveys in June 2024 with SFN participation. Conducted vegetation surveys in August 2024 with SFN participation. No response to HD's invitation to provide further input or for cataloguing, harvesting, or transplanting traditional and medicinal plants was received from IGs.

Condition	Action	Notice/Distribution Date to Indigenous Groups and Agencies	Status on September 30, 2024
7.7, 7.8, 7.12, 7.13, 7.14, 7.15	Caribou Follow-up Program	2024-Apr-24 (MLIB, SFN, WMFN, ECCC)	<ul style="list-style-type: none"> • Comments received from ECCC on May 8, 2024. • Documented and emailed responses to ECCC comments on May 24, 2024. • ECCC provided further comments on June 4, 2024. • Responses and supplementary documentation emailed to ECCC on July 19, 2024, July 23, 2024, and August 17, 2024. • No comments received from IGs.
7.11	Current Use of Lands and Resources for Traditional Purposes Follow-up Program	2024-May-24	<ul style="list-style-type: none"> • Comment received from ECCC on June 19, 2024. • Documented and emailed response to the comment and updated maps to ECCC on August 6, 2024. • No further input from IGs or other relevant authorities received. • Initiated development of a presentation on the follow-up program for engagement with IGs.
7.12	Caribou field surveys	N/A	<ul style="list-style-type: none"> • Conducted habitat suitability field surveys in August 2023 with SFN participation. • Conducted arboreal and lichen survey in August 2023 with WMFN participation. • Conducted ungulate pellet surveys in August 2023 with SFN participation. • Conducted arboreal and lichen survey in December 2023 with SFN participation. • Conducted snow surveys in December 2023 with SFN participation. • Conducted aerial surveys in December 2023 with SFN participation. • Conducted snow surveys in February 2024 with MLIB participation. • Conducted aerial surveys in February 2024 with MLIB participation.

Condition	Action	Notice/Distribution Date to Indigenous Groups and Agencies	Status on September 30, 2024
8.1 to 8.3	Heritage Management Plan	2023-Dec-15 (MLIB, SFN, WMFN) 2024-Jan-29 (other IGs)	<ul style="list-style-type: none"> • Emailed to MLIB, WMFN and SFN on December 15, 2023. • Emailed to other IGs on January 29, 2024. • Emailed Doig River First Nation (DRFN) as part of a delivery of other documents on February 7, 2024. • Provided updated version (clean copy) and tracked change version of the plan to MLIB, SFN, and WMFN on March 27, 2024. • Provided updated version (clean copy) and tracked change version the plan to other IGs on May 3, 2024. • Resent plan to an updated contact at Prophet River First Nation on May 7, 2024. • No input received from IGs.
10.1 to 10.4	Accidents and Malfunctions Memo	2024-May-10 (IGs) 2024-May-22 (Natural Resources Canada)	<ul style="list-style-type: none"> • No input received from IGs or relevant authorities.
10.5	Accidents and Malfunctions Communications Plan	2024-May-10 (IGs)	<ul style="list-style-type: none"> • No input received from IGs. • Updated/finalized version of communication plan provided to IGs on September 27, 2024 along with notification that the plans would be posted on HD Mining website. • Plan posted to HD Mining website on September 30, 2024.
7.16, 11.1	Implementation Schedule	2024-Apr-03	<ul style="list-style-type: none"> • Submitted to Impact Agency of Canada (IAAC) and IGs (a minimum of 30 days prior to start of construction). • Submitted updated schedule to IAAC and IGs on August 2, 2024 which addressed comments from IAAC that were received on May 14, 2024. • Informed IAAC and IGs on September 27, 2024 that the Implementation Schedule would be posted on HD Mining website. • Implementation Schedule posted to HD Mining website on September 30, 2024.

3 FOLLOW-UP PROGRAMS

Pursuant to Condition 2.1, HD Mining engaged QIs to develop the follow-up programs and undertake actions to address the pre-construction requirements identified in the DS. The follow-up programs were developed during the reporting period. The QIs are supporting the implementation of the follow-up programs.

3.1 FISH AND FISH HABITAT FOLLOW-UP PROGRAM (CONDITIONS 3.1 – 3.5, 3.8)

The Fish and Fish Habitat Follow-up Program (FFHFUP; Condition 3.8) is required to:

- determine the effectiveness of the rock weirs referred to in Condition 3.2 to protect fish and fish habitat; and
- determine the effectiveness of the fish habitat protection measures identified under Conditions 3.3, 3.4, and 3.5.

The FFHFUP outlines the methods and details associated with monitoring, the levels of environmental change predicted in the Environmental Assessment Certificate/ Environmental Impact Statement for the Murray River Coal Project (HD Mining International Ltd. 2014), and the mitigation measures that are to be implemented.

The following activities were undertaken during the reporting period:

- Pre-construction assessment of potential rock weir locations within M20 Creek (Condition 3.2).

Construction activities near riparian areas did not occur during the reported period, and therefore fish and fish habitat protection measures are yet to be implemented (Conditions 3.3, 3.4, and 3.5).

3.1.1 PRE-CONSTRUCTION ROCK WEIR ASSESSMENT (CONDITION 3.2)

Pre-construction assessments of potential rock weir locations within M20 Creek were initiated in 2023 and continued through 2024. Assessments included the following:

- Level 1 Fish and Fish Habitat Assessment on the lower two reaches of M20 Creek, including fish sampling;

- instream flow assessments at three potential weir locations; and
- overwintering fish sampling.

The Level 1 assessment was conducted from August 1 to August 3, 2023 and followed Fish Habitat Assessment Procedures (FHAP) (Johnston and Slaney 1996). Individual meso-habitat units were identified and measurements including length, bankfull and wetted width, substrate composition, residual pool depth, instream cover, and riparian vegetation were collected. Both reaches were evaluated for fish community composition and sampled using backpack electrofishing and minnow trapping. Potential locations for the rock weirs were determined based on channel morphology, habitat characteristics, gradient, and access.

Three potential weir sites were identified in Reach 1, approximately 700 m in length (Figure 3-1). The reach has riffle/pool habitat with extensive shallow riffle sections dominated by cobble substrates with a high proportion of fines and gravels. The weir sites are situated at transition areas between glide tail-outs and riffle crests. Reach 2 has exposed bedrock of the channel and confined steep-wall canyon throughout which likely restricts the effective placement of weirs.

Cross-sectional stream profile transects were established downstream and upstream at each potential weir site. Channel geometry, wetted widths, water depth, velocity, substrate composition, and cover type and abundance were documented at each transect to determine habitat suitability according to BC's instream flow methodology (Hatfield et al. 2003). Three instream flow assessments at low and moderate flow regimes were conducted and transects were surveyed in August 2023, June 2024 and September 2024.

Fish sampling was conducted at each potential weir location in Reach 1 in August 2023 with a backpack electrofisher (total effort: 384 seconds at 280 volts). Electrofishing was conducted to supplement baseline data to confirm the species present in the lower reach of M20 Creek. Five slimy sculpins (*Cottus cognatus*; 55 to 88 millimetres [mm]), three juvenile mountain whitefish (*Prosopium williamsoni*; 56 to 67 mm) and one longnose sucker (*Catostomus Catostomus*; 109 mm) were captured.

Overwintering sampling was completed March 11, 2024. A single minnow trap and video recording were deployed in a suitable ice-covered pool. The pool was approximately nine (9) square metres (m²) in size, with an average depth of 0.60 m.

Video recording was completed using a GoPro Hero8 Black and no fish presence was detected. The minnow trap was checked after 24 hours with no results. It was checked again on March 13, 2024, after 45.35 hours of total soak time and one slimy sculpin was caught. Total length (90 mm) and pictures were recorded, and the sculpin was released back to the watercourse (Photo 3-1).



Photo 3-1. Total length of Slimy sculpin (90 mm).

3.2 METAL LEACHING/ACID ROCK DRAINAGE AND SELENIUM FOLLOW-UP PROGRAM (CONDITIONS 3.9 – 3.11)

The Metal Leaching / Acid Rock Drainage and Selenium Follow-up Program (ML/ ARD and Se FUP) is required by:

- Condition 3.10: Requires a follow-up program to verify the accuracy of the environmental assessment as it pertains to water quality due to the presence, within the Designated Project Area, of reactive geologic material referred to in condition 3.9 and predicted adverse environmental effects on fish and fish habitat; and
- Condition 3.11: Requires a follow-up program to verify the accuracy of the environmental assessment as it pertains to the adverse environmental effects of selenium releases on fish, and to determine the effectiveness of mitigation measures referred to in condition 3.6.

The ML/ARD and Se FUP outlines the methodology, location, frequency, timing and duration of monitoring and related reporting.

The following activities were undertaken during the reporting period:

- Continued geochemical characterization via field leach barrels and humidity cells (Condition 3.9 and 3.11.1);
- Water quality monitoring of contact water and receiving waters (Condition 3.10 and 3.11.2); and
- Monitoring of selenium concentrations in sediment, benthic invertebrates and slimy sculpin (Condition 3.11.2).

3.2.1 GEOCHEMICAL CHARACTERIZATION OF GEOLOGIC MATERIALS (CONDITION 3.9)

A summary of the baseline geochemical characterization of waste rock, raw and processed coal, coarse coal rejects (CCR), and tailings is provided in Section 2.1.1 of the ML/ARD and Se FUP. No new rock was exposed during the reporting period, and therefore, the geochemical characterization of static testing is unchanged.

Results from on-going kinetic testing via field leach barrel and laboratory humidity cells are described below.

Long-term ML/ARD and Selenium Leaching Risk Assessment

To assess the long-term ML/ARD chemistry (Condition 3.10), and selenium leaching potential (Condition 3.11.1), kinetic testing programs have been underway since 2010, using representative samples of mined materials. Thirty-one humidity cell tests (HCTs) were established between 2011 and 2016 using samples of coal, waste rock, parting, and tailings. Twenty-eight of the HCTs, where leach rates and pH had stabilized, have since been terminated, while three HCTs are still running until they approach stabilization. Four Field Leach Barrels (FLBs) containing waste rock have been in operation since 2011, and three FLBs containing tailings, CCR, and CCR + tailings mix have been in operation since 2016.

The kinetic testing program is evaluated in January every year and the results are documented in the Annual Reclamation Report pursuant to BC *Mines Act* Permit #C-244 (BC Ministry of Energy Mines and Petroleum Resources 2018).

The results of the most recent evaluation of the kinetic testing program (calendar year 2023) are summarized as follows: of the three currently running HCTs, one (HC-11, Hulcross formation, potentially acid generating [PAG]) continues to exhibit declining pH (acidic at ~pH 3.85) (Figure 3-2), as well as increasing aluminum and copper release rates with concentrations that are significantly above BC Freshwater Aquatic Life (BCFAL) criteria (Ministry of Environment and Climate Change Strategy 2019, BC Ministry of Water, Land and Resource Stewardship 2023) (note that the comparison of data to BCFAL criteria is not a permit condition, but rather to help align understanding of the magnitude of results compared to other samples or parameters). Also, cadmium and zinc release concentrations remain above, or at, EMA Permit #106666 limits (BC Ministry of Environment and Climate Change Strategy 2019), but are declining and/or stabilizing. HC-11 is regularly being monitored until stabilization has occurred. The other two HCTs (HC-2, coal, and HC-31, coal reject + tailings), have become relatively stable at circumneutral pH (~pH 6.5, and 8.0, respectively) with stable metal/metalloid release rates and have both been recommended to be terminated. Selenium concentrations in the leachate of all running humidity cells were below the BCFAL criteria (Figure 3-3).

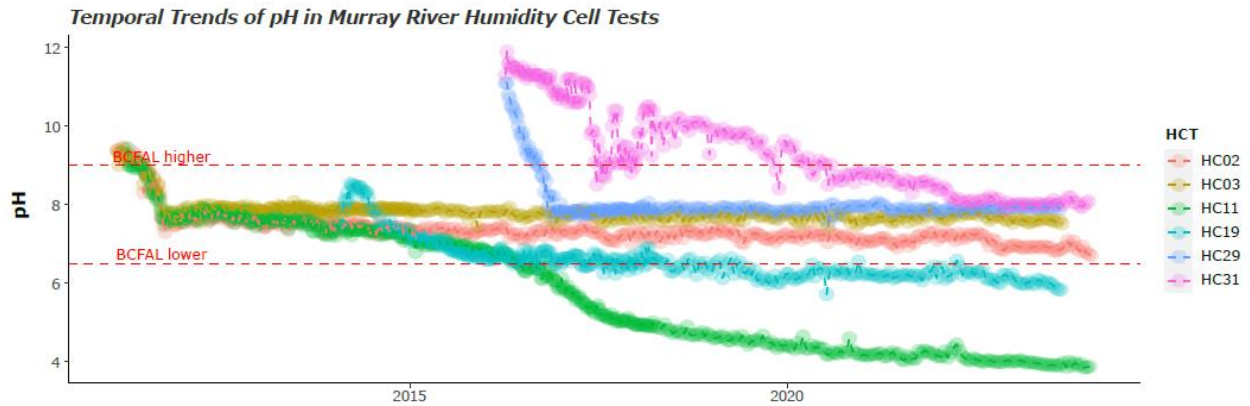


Figure 3-2. Temporal Trends of pH in Murray River Humidity Cell Tests.

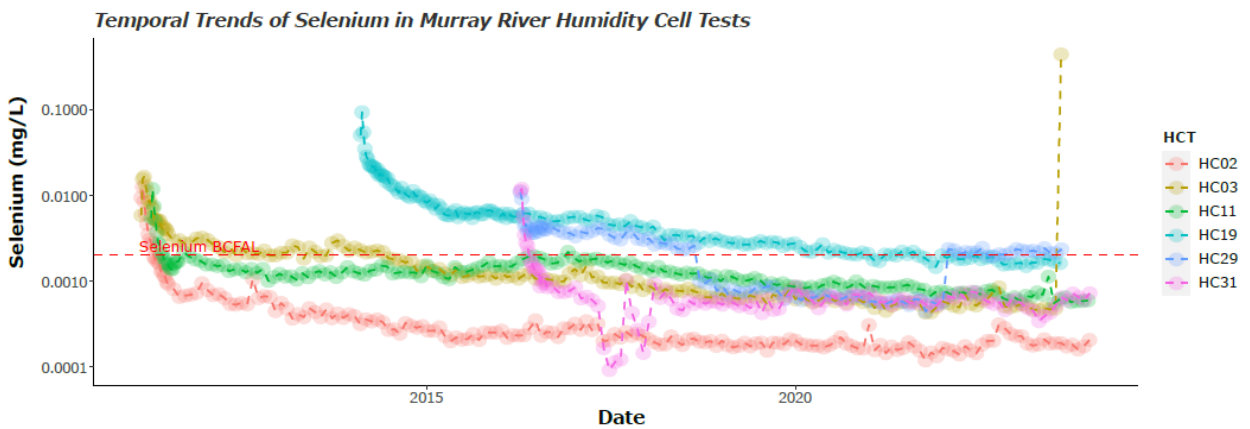


Figure 3-3. Temporal Trends of Selenium in Murray River Humidity Cell Tests (log scale).

With respect to the FLBs, two of the seven FLBs are classified as PAG material (Hasler and Hulcross formations) and their leachate shows continued declining pH (Figure 3-4), as well as increasing cadmium and zinc concentrations (above BCFAL limit) and increasing aluminum, copper, cobalt. The FLBs classified as not potentially acid generating (NPAG) (3 samples) have circumneutral pH and relatively stable metal concentrations. Selenium is elevated above the BCFAL criteria (Figure 3-5) for six of the seven FLBs. All FLBs continue to run to collect additional information on the risk of ML under site climatic conditions.

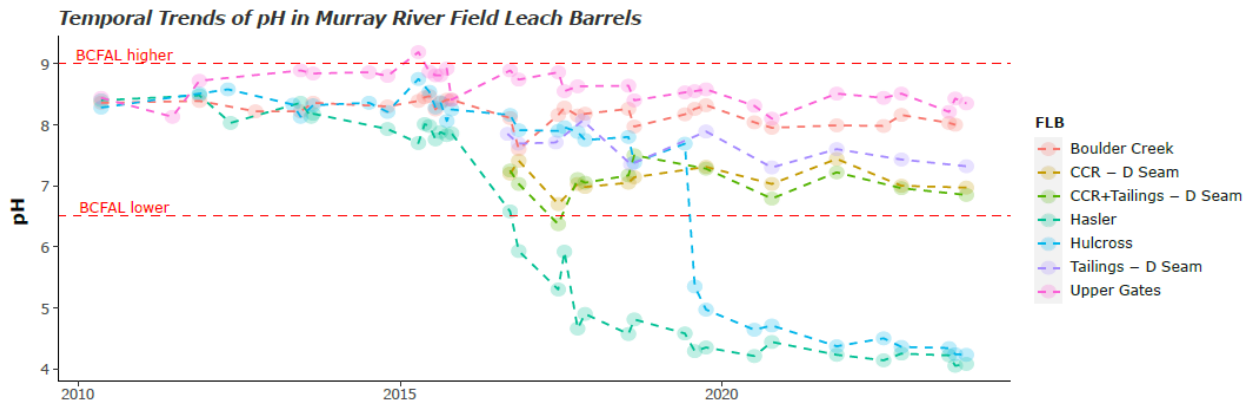


Figure 3-4. Temporal Trends of pH in Murray River Field Leach Barrels.

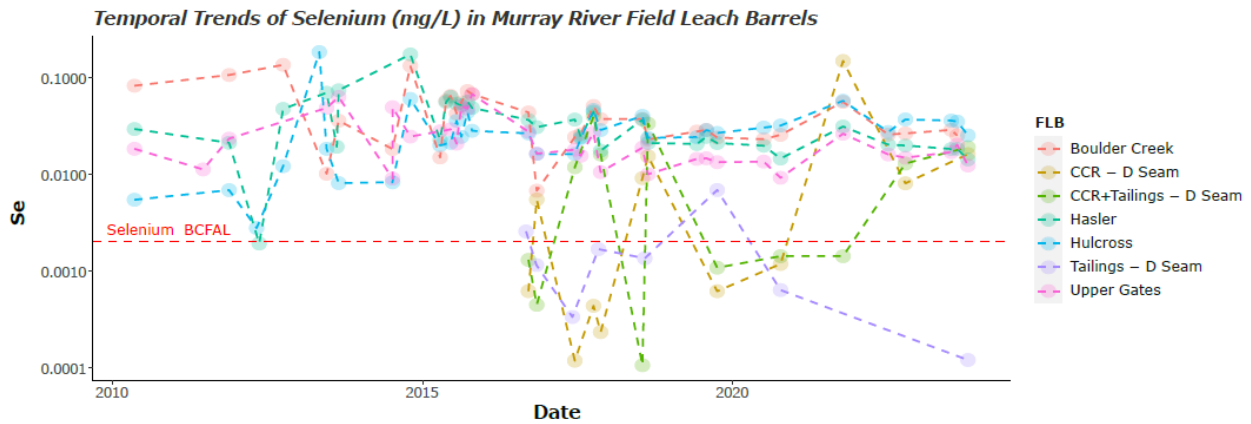


Figure 3-5. Temporal Trends of Selenium (mg/L) in Murray River Field Leach Barrels (log scale).

The results of the kinetic testing programs (humidity cells and FLBs) were used to update the geochemical source terms, which, in turn, feed into the water quality prediction model (consistent with DS Condition 3.9). As per EMA Permit #106666, Section 4, water quality predictions (model) are required to be updated at least 60 days prior to the start of construction, and every 5 years thereafter. The latest model update was completed and submitted to the BC Ministry of Environment and Climate Change Strategy in March 2024, with a subsequent update in November 2024. The latest base case model results indicate that with the planned mitigation measures water quality predictions in the receiving environment will remain below chronic BCFAL guidelines or background concentrations for all project nodes and all project phases.

3.2.2 CONTACT WATER AND RECEIVING WATER MONITORING (CONDITION 3.10)

Contact water and receiving water sites (Figure 3-6) are monitored monthly for field parameters, conventional parameters, major ions, nutrients, and total and dissolved metals. The contact water sites are also monitored for extractable petroleum hydrocarbons.

During the reporting period, contact water in the decline and shaft site ponds was sampled monthly. From the start of construction through the end of the reporting period, there were no discharges from the decline pond, the shaft site pond, or the coal processing plant (CPP) pond (as it has not been constructed).

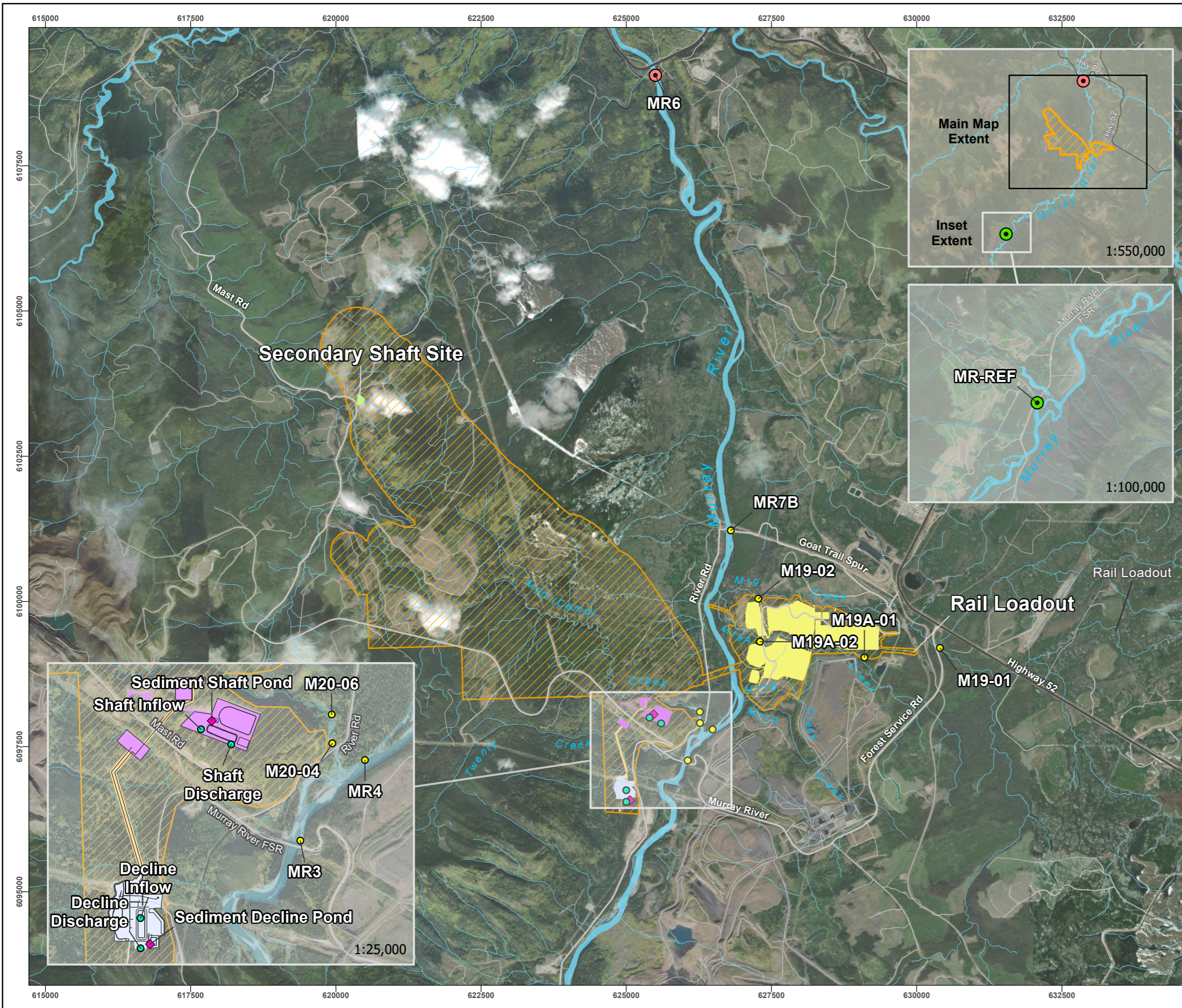
Water quality sampling of receiving waters was conducted monthly to adhere to *EMA* Permit #106666. At MR-REF, water quality samples were collected quarterly. In the reporting period, there were 59 exceedances of the BC Water Quality Guidelines (BCWQG; Appendix A) (BC Ministry of Water, Land and Resource Stewardship 2024). Exceedances included dissolved oxygen, sulphate, turbidity, total suspended solids (TSS), dissolved iron and several total metals, aluminum, chromium, iron, selenium and thallium. These results are generally consistent with baseline results from previous years. Most exceedances occurred during freshet and following a heavy rain event in July, and occurred not only at downstream sites but also at upstream reference sites. Timing and location of exceedances indicate water quality reflects baseline conditions and exceedances are un-related to project activities occurring on site. These water quality exceedances (detailed below) will be reported to the province as part of the annual reporting requirements of *EMA* Permit #106666.

The dissolved oxygen guideline was exceeded eight times between two sites in M19A Creek that have low summer flow and beaver ponds in the system. There were three instances of dissolved iron exceedances at the reference site (M19A-01). These exceedances are expected to be due to redox conditions at that site, as oxidation-reduction potential (ORP) measurements frequently indicate a reducing environment. Sulphate was exceeded six times, and all exceedances were in M19A Creek. These exceedances are expected to be impacted by upstream beaver ponds where anaerobic and redox conditions may be leading to increased sulphates.

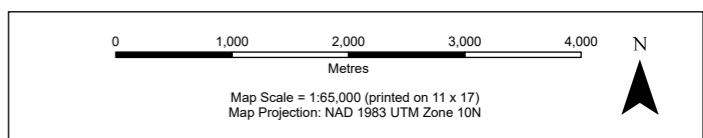
Levels of TSS were exceeded three times, once at each of the following sampling stations: M20-04; MR4; and MR7B. Turbidity was exceeded six times, once at M20-04, MR3, MR4, and MR6, and twice at MR7B. Most of the TSS and turbidity exceedances were

in July during a period of moderate flow, two were in February at MR4 when the auger stirred up sediment and may not have fully settled before sample collection, and one occurred in September during moderate flows following a period of rain.

There were 33 total metals exceedances; of these exceedances 17 were aluminum, 10 were iron, three were thallium, two were selenium, and one chromium. Most total metals exceedances were during freshet or other periods of high TSS. Metals can bond to suspended solids and increase the levels of total metals in the water column. One sample had two total metal exceedances in February and was attributed to stirred up sediment from the auger which artificially increased TSS.



Contact Water and Receiving Water Monitoring Sites



Legend	
	Exposure Site
	Reference Site
	Sediment Quality Sites
	Water Quality Monitoring Sites
	Effluent
	Receiving Environment
	Highway
	Road
	Permitted Mine Area (2023)
	Surface Infrastructure
	Coarse Coal Rejects and Coal Processing Site
	Decline Site
	Power Line
	Secondary Shaft Site
	Shaft Site
	Detailed Infrastructure Polygons

Data Sources

- Permitted Mine Area (2023) provided by HD Mining
- Surface Infrastructure provided by HD Mining (2021)
- Main map: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
- Inset map: National Geographic World Map
- Waterbody and watercourse: Freshwater Atlas. The Government of British Columbia
- Forest Service Road, Forest Tenure Road Section Lines. Government of British Columbia

Disclaimer

EDI Environmental Dynamics Inc. has made every effort to verify this map is free of errors. Data has been derived from a variety of digital sources and, as such, EDI does not warrant the accuracy, completeness, or reliability of this map or its data.

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 Checked By: JM
 Date: 11/27/2024



Figure 3-6



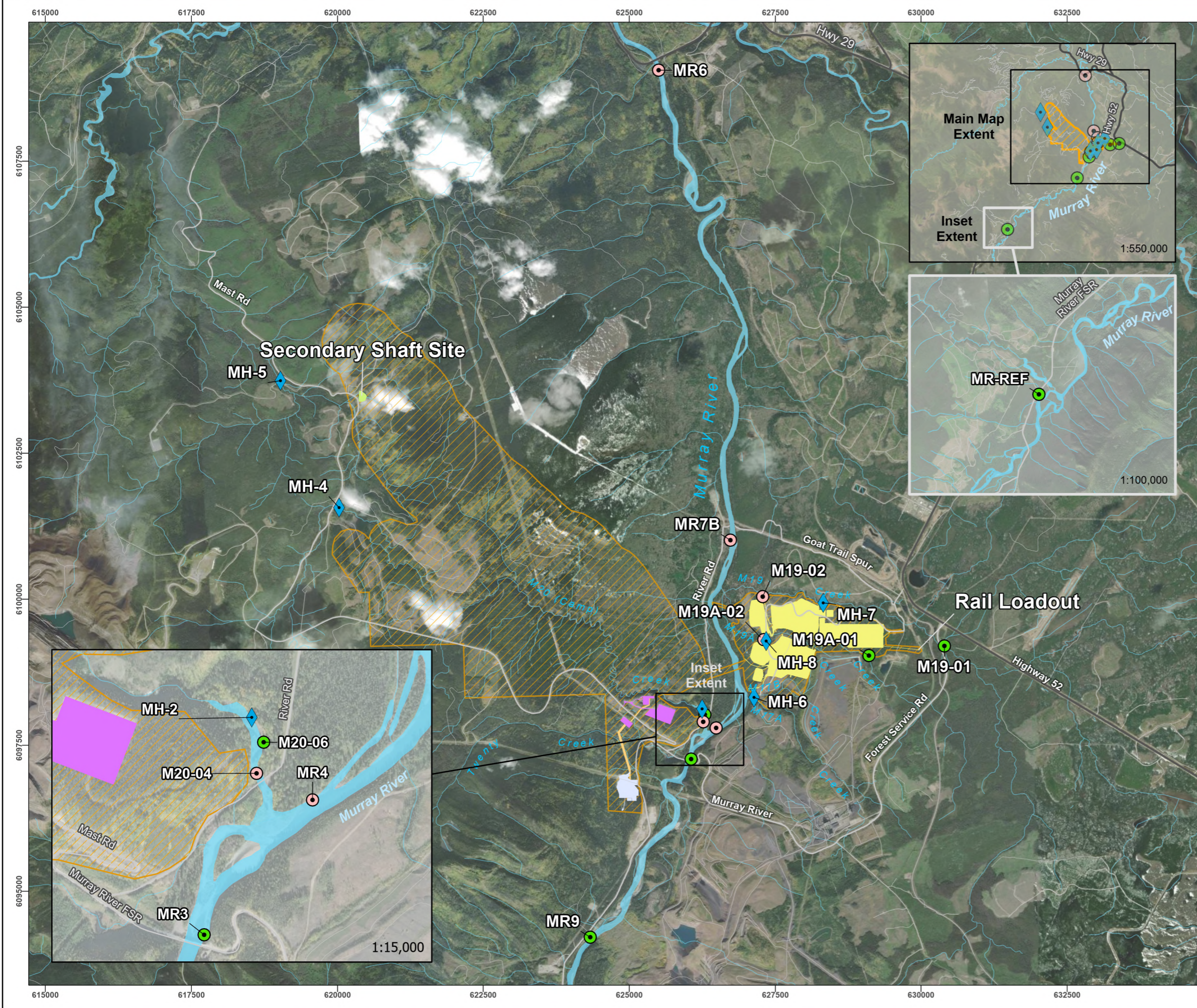
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3.2.3 SELENIUM IN FISH MONITORING (CONDITION 3.11)

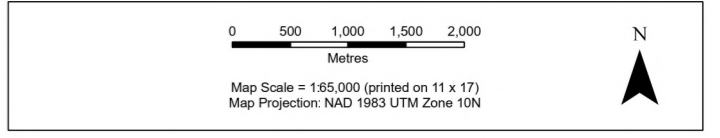
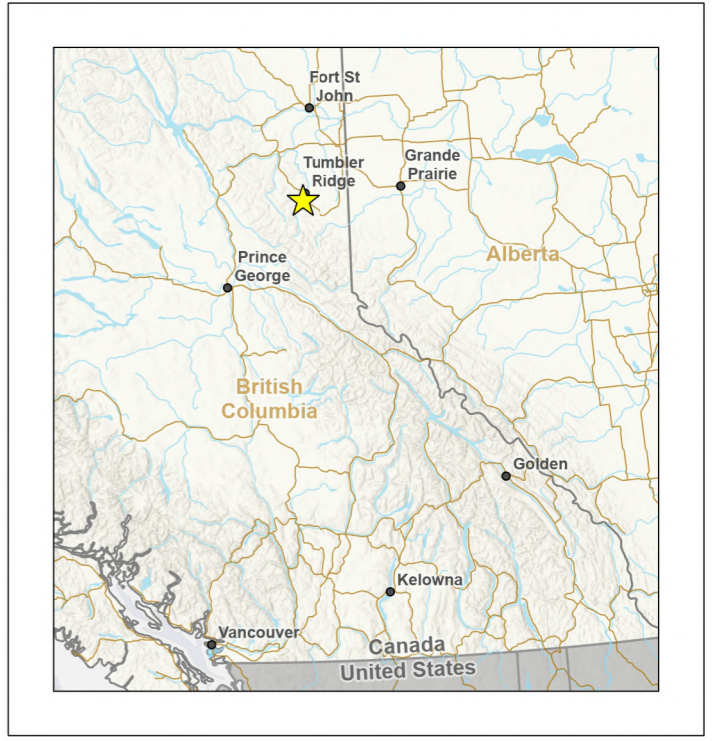
The selenium in fish monitoring plan monitors selenium concentrations at two sites on the M19, M19A and M20 streams, and six sites in the Murray River (Figure 3-7). Total selenium concentrations in water are used as performance measures that determine sampling requirements as seen in Table 2-5 of the ML/ARD and Se FUP. Average selenium concentrations during the reporting period were under 1 µg/L at the M19, M19A and Murray River sites. M20 Creek concentrations were between 1 to 2 µg/L (1.2 µg/L) at the reference and exposure sites. Total selenium concentrations in water quality between 1 to 2 µg/L require sampling tissue once every three years.

Selenium concentrations in sediment, periphyton and benthic tissue were sampled in September 2023, and results were analyzed during the reporting period. M19-02 was dry during sampling in September 2023.

Monitoring found sediment samples were below the 2µg/g ALERT concentration for selenium in the BCWQG. Selenium concentrations in periphyton were compared to the BCWQG for dietary tissue (4 mg/L). The average for all sites was below the guidelines. Three (3) of eight (8) replicates at M20-06 (reference site) exceeded the guideline (Figure 3-8). Mean total selenium concentration of benthic tissue were above the BCWQG for dietary tissue (4 milligrams per kilogram [mg/kg]) at five (5) sites in September 2023, including M20-06, M19-01, MR6, M20-04 and M19A-02 (Figure 3-9). M19A Creek had a higher concentration of selenium in benthic tissue in the exposure site prior to construction, indicating that the exposure site may have naturally elevated selenium concentrations or has been previously impacted by other development. However, in the Murray River and M20 Creek, the reference and exposure sites were relatively comparable.



Aquatic Monitoring Locations



- | | |
|---|--|
| <ul style="list-style-type: none"> Hydrometric Station Exposure Site Reference Site Highway Road Permitted Mine Area (2023) | <ul style="list-style-type: none"> Surface Infrastructure Coarse Coal Rejects and Coal Processing Site Decline Site Power Line Secondary Shaft Site Shaft Site |
|---|--|

Data Sources

- Permitted Mine Area (2023) provided by HD Mining
- Surface Infrastructure provided by HD Mining (2021)
- Main map, Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
- Inset map, National Geographic World Map
- Waterbody and watercourse, Freshwater Atlas, The Government of British Columbia
- Forest Service Road, Forest Tenure Road Section Lines, Government of British Columbia

Disclaimer

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 Checked By: KH
 Date: 2024-12-23



Figure 3-7



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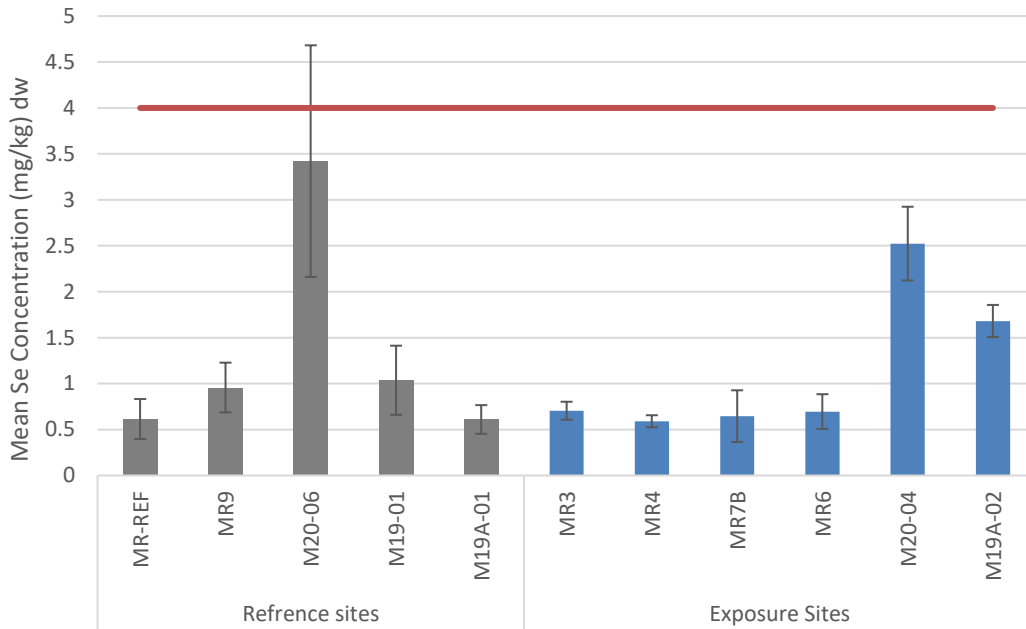


Figure 3-8. Mean selenium concentrations in periphyton tissues sampled from all sites during the 2023 aquatic effects monitoring for the Murray River Coal Project. BCWQG for dietary tissue (4 mg/kg dry weight) is shown in red.

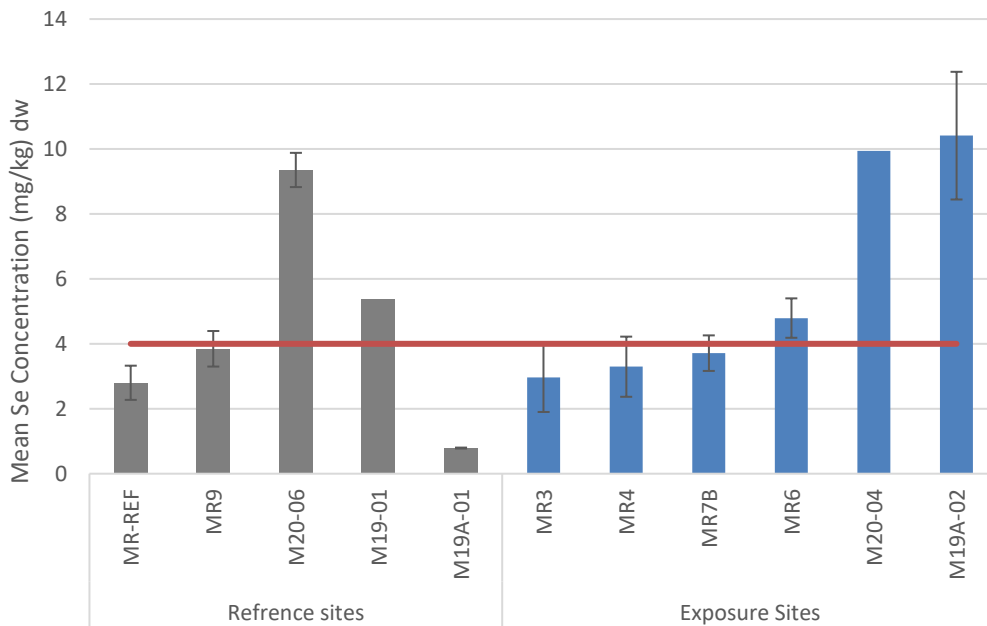


Figure 3-9. Mean selenium concentrations in invertebrate tissue sampled from all sites during the 2023 aquatic effects monitoring for the Murray River Coal Project. BCWQG for dietary tissue (4 mg/kg dry weight) is shown in red.

3.3 SUBSIDENCE FOLLOW-UP PROGRAM (CONDITION 3.12)

The Subsidence Follow-up Program is required to verify the accuracy of the environmental assessment as it pertains to the adverse environmental effects of subsidence caused by or associated with the Designated Project. Subsidence monitoring will be initiated prior to the commencement of operations. Therefore, no monitoring was done during the reporting period.

3.4 MIGRATORY BIRDS FOLLOW-UP PROGRAM (CONDITION 4.4)

The Migratory Birds Follow-up Program (MBFUP) is required to:

- determine the effectiveness of the mitigation measures implemented by the Proponent to avoid harm to migratory birds, their eggs and nests, including the measures to comply with conditions 4.1 and 4.2; and
- verify the use of the subsidence area by migratory birds identified by the environmental impact statement.

3.4.1 PRE-CONSTRUCTION SURVEYS (CONDITION 4.3)

Pre-construction surveys for raptors, waterbirds and landbirds were conducted in 2022 and 2023 (Section 7 of ERM 2024) to confirm the accuracy of the environmental assessment as it pertains to the presence and distribution of migratory birds and the use by migratory bird habitat within the Designated Project Area, including within the subsidence zone. The surveys also took into account the inventory standards for each species established by the Resources Information Standards Committee including:

- Inventory Methods for Raptors (Resources Inventory Committee 2001);
- Inventory Methods for Waterfowl and Allied Species: Loons, Grebes, Swans, Geese, Ducks, American Coot and Sandhill Crane (Resources Inventory Committee 1999a);
- Inventory Methods for Forest and Grassland Songbirds (Resources Inventory Committee 1999b).

A report summarizing the survey results (ERM Consultants Canada Ltd. 2024) was provided to ECCC and IAAC on July 23, 2024.

3.4.1.1 Raptors

Raptors were monitored in 2022 and 2023 using goshawk call playbacks and aerial surveys. Survey locations have been provided in Figures 7.2-2 and 7.3-1 of ERM 2024 which was submitted to ECCC and IAAC. Survey results are summarized below:

- Goshawk call playback surveys were completed in the summer (June 25 to July 2, 2022; June 1-8 and July 2-5, 2023). Surveys were completed in the summer (June 25 to July 2, 2022; June 1-8 and July 2-5, 2023). One adult American goshawk (*Accipiter atricapillus atricapillus*) was detected at a call playback site just outside of the *Mines Act* permit boundary on River Road between the Shaft Site and Murray River.
- Aerial stick nest surveys were completed in conjunction with aerial waterbird surveys in the spring (May 25, 2022; May 10-11, 2023), summer (July 20-21, 2022; July 20-21, 2023) and fall (September 20-21, 2022; September 27-28, 2023). Five active raptor nests were detected within the RSA: two osprey (*Pandion haliaetus*) nests, two bald eagle (*Haliaeetus leucocephalus*) nests, and one red-tailed hawk (*Buteo jamaicensis*) nest.
- No active nests were found in the Project footprint or within the *Mines Act* permit boundary.
- One hundred and nine raptors or raptor nests, belonging to 14 species, were incidentally observed within the RSA during other wildlife field surveys in 2022 and 2023; however, none were located within the Project footprint. Incidental observations included two species of conservation concern, rough-legged hawk (*Buteo lagopus*) and American goshawk, both of which are blue-listed (BC Conservation Data Centre 2024). One species of conservation concern, peregrine falcon (*Falco peregrinus anatum*), was identified during the 2010 survey and is red-listed (BC Conservation Data Centre 2024). The most commonly observed raptor species were osprey and bald eagle.

Raptors and raptor nests, such as bald eagle, peregrine falcon, and osprey, are protected under the BC *Wildlife Act* (Government of British Columbia 1996a). However, of the active raptor nests identified, in 2022 and 2023 surveys, the nests were outside the buffer distance of 300 m from the Project footprint (BC Ministry of Forests, Lands and Natural Resource Operations 2013). One bald-eagle nest was within one km of the Project

footprint and the other nests were more than one km from the Project footprint. Therefore, it is unlikely that any of the active nests will require further mitigations or monitoring.

3.4.1.2 Waterbirds

Aerial surveys of the RSA were completed in the spring (May 25, 2022; May 10–11, 2023), summer (July 20–21, 2022; July 20–21, 2023), and fall (September 20–21, 2022; September 27–28, 2023). See Figure 7.3-1 of ERM 2024 for survey locations. Survey results are summarized below:

- Forty-two species were detected.
- Waterbirds were most abundant in May and July and least abundant in September of both years.
- The most detected species were mallard (*Anas platyrhynchos*), spotted sandpiper (*Actitis macularia*), ring-necked duck (*Aythya collaris*), Canada goose (*Branta canadensis*), and common merganser (*Mergus merganser*). Four species of conservation concern were detected in 2022 and 2023: lesser yellowlegs (*Tringa flavipes*), tundra swan (*Cygnus columbianus*), horned grebe (*Podiceps auritus*), and surf scoter (*Melanitta perspicillata*).
- During the 2010 to 2013 baseline surveys, two other species of conservation concern were detected: western grebe (*Aechmophorus occidentalis*) and red-necked phalarope (*Phalaropus lobatus*). These detections did not occur within the Project footprint.

3.4.1.3 Landbirds

Variable-radius point count surveys (VRPCs) were conducted to estimate the species richness and relative abundance of landbirds the summer (June 25 to July 1, 2022; June 1–8, 2023), as well as during baseline surveys in 2010. See Figure 7.4-1 and 7.4-2 of ERM 2024 for survey locations. Common nighthawk surveys were conducted separately from VRPCs during the preferred survey window for nighthawks (July 15 to July 15) due to nighthawk peak activity periods being at dusk while other landbirds typically have their peak activity period just after sunrise.

Two methods were used to survey for common nighthawk (Hannah et al. 2022) (Resources Inventory Committee 1999b). Both approaches are acceptable survey methods (for this species and are consistent with fulfilling DS condition 4.3: “to verify the presence

and distribution of migratory birds and the use of migratory bird habitat prior to construction.” In 2022 common nighthawk were surveyed at 20 roadside sites across two transects following the *Canadian Nightjar Survey Protocol* (Knight 2019). In 2023, surveys for common nighthawk were conducted at 12 sites using automated recording units (ARUs) for a total of 150 nights. No baseline surveys of common nighthawks were conducted in 2010.

In 2022 and 2023, 68 species of landbirds and 3,477 individuals (1,402 in 2022, 2,075 in 2023) were detected using the VRPCs. Baseline surveys in 2010 detected 72 species and 1048 individuals. The most commonly detected species were white-throated sparrow (*Zonotrichia albicollis*), Swainson’s thrush (*Catharus ustulatus*), warbling vireo (*Vireo gilvus*), yellow-rumped warbler (*Setophaga coronata*), and Tennessee warbler (*Leiothlypis peregrina*). Five species of conservation concern were detected: barn swallow (*Hirundo rustica*), black-throated green warbler (*Setophaga virens*), common nighthawk, Canada warbler (*Cardellina canadensis*), and olive-sided flycatcher (*Contopus cooperi*). Common nighthawks were detected at three roadside survey sites south of the Project footprint in 2022, and in 2023 they were detected at six ARU sites, two of which were within the Project footprint and the *Mines Act* permit boundary.

3.4.2 CONSTRUCTION MITIGATION (CONDITION 4.1 AND 4.2)

Section 4.2 of the MBFUP outlines mitigation measures specific to birds and their habitat, and the protection of their populations. Mitigation measures relating to timing windows and setbacks, pre-clearing nest surveys, waste disposal, water treatment/sediment ponds, and lighting control are implemented or confirmed by the site Environmental Monitors, who conduct weekly inspections of the site, and work with construction contractors and the wildlife QI in advance of planned new disturbances.

Monitoring completed from the start of construction (June 2024) to September 30, 2024 indicates that mitigation measures have been effective (effectiveness measured by the absence of any confirmed or potential bird morbidity or mortality per Section 5.1.3 of the MBFUP). A full year of monitoring data will be available for review and inclusion in the next Annual Report (2024-2025).

No incidental observations of bird morbidity or mortality were recorded. Regular environmental monitoring efforts included monitoring for nesting birds in the Project footprint and site infrastructure; no nesting birds were identified during this monitoring. Non-nesting bird observations included birds wading on site ponds at both the decline

site and shaft site. No construction or clearing activities were conducted in areas where birds were actively observed. No bird breeding behaviours, such as carrying nesting material or territorial displays, were observed during pre-clearing surveys or incidentally within or near to construction areas throughout the reporting period.

Pre-clearing surveys were conducted during designated bird nesting windows, and vegetation clearing activities within these windows only proceeded after a pre-clearing survey was completed and the QI provided approval. For further details on vegetation clearing and grubbing dates, pre-clearing bird survey data (including survey dates, weather conditions, surveyors and results), refer to Table 3-1. With the measure of success being the absence of bird mortality or morbidity combined with the application of the established mitigation measures, it is confirmed that the implemented mitigation measures to date were effective.

Table 3-1. Vegetation Clearing and Grubbing dates, and Pre-clearing Bird Survey Data

Date of Survey	Surveyor(s)	Within Nesting Window	Weather During Survey	Purpose	Results
April 12, 2024	EDI personnel	Yes	Clear, sunny	Pre-clearing survey to identify potential pileated woodpecker nesting cavities along access roads within the Project footprint prior to removing possible danger trees.	Potential nesting cavity was marked and protected, with crews instructed not to disturb it.
June 21, 2024	EDI personnel	Yes	Clear, sunny	Pre-clearing survey to identify bird nests along the main access roadway at the Decline Site. Survey supported clearing efforts to improve vehicle visibility and safety.	No bird nests or breeding behaviour were observed in the area approved for clearing. Two species: orange-crowned warbler (<i>Vermivora celata</i>) and American robin (<i>Turdus migratorius</i>) were identified in the area by sound.
August 3, 2024	EDI personnel	Yes	27°C, clear, sunny	Pre-clearing bird survey prior to clearing walking path to the site shed located northeast of the site office at the Decline Site. Area surveyed primarily consisted of grasses and small, young trees, including seedlings and saplings.	No birds or bird nests were observed in the area.

Date of Survey	Surveyor(s)	Within Nesting Window	Weather During Survey	Purpose	Results
August 9, 2024	EDI personnel	No	Clear, sunny	Pre-disturbance breeding bird survey to identify nests at various small sites across the Decline Site. Activities proposed included light brushing and clearing of overgrown areas along buildings, access roads and existing infrastructure in previously disturbed and high traffic areas. Areas surveyed consisted of sparse grasses and small, young trees, including seedlings and saplings. Brushing activities didn't occur until after the nesting window.	One species: western wood-pewee (<i>Contopus sordidulus</i>) was identified by sight and sound in one section of the area surveyed. No bird nests or breeding bird behaviour were observed in the areas to be cleared.

As the operations phase is not scheduled until 2029 and subsidence is not expected to occur until then, additional migratory bird surveys as detailed in the MBFUP were not required during the reporting period.

3.5 HEALTH OF INDIGENOUS PEOPLE FOLLOW-UP PROGRAM (CONDITION 6.3)

The purpose of the Health of Indigenous People Follow-up Program (HIPFUP) is to verify the accuracy of the environmental assessment as it pertains to the health of Indigenous Peoples. Potential pathways for Contaminants of Potential Concern (COPCs) will be monitored through exposure pathways in air, soil, vegetation, and water. Over 30 potential COPCs were screened and 10 (including arsenic) are identified (Table 5-1 of the HIPFUP). In addition to the 10 COPCs, Polycyclic Aromatic Hydrocarbons (PAHs) will be monitored in soils and surface water as per guidelines in Table 5-6 (CCME and BC WQGs) and Table 5-7 (BC Contaminated Sites Regulation, BC Reg 375/96 (Government of British Columbia 1996b) limits and CCME limits) of the HIPFUP. Air quality monitoring will include dustfall, total suspended particulates (TSP), and PM₁₀.

The following activities from the HIPFUP were undertaken during the reporting period:

- air quality monitoring (Conditions 6.1 and 6.3.1); and
- surface water quality monitoring (Condition 6.3.2).

3.5.1 AIR QUALITY MONITORING (CONDITION 6.3.1)

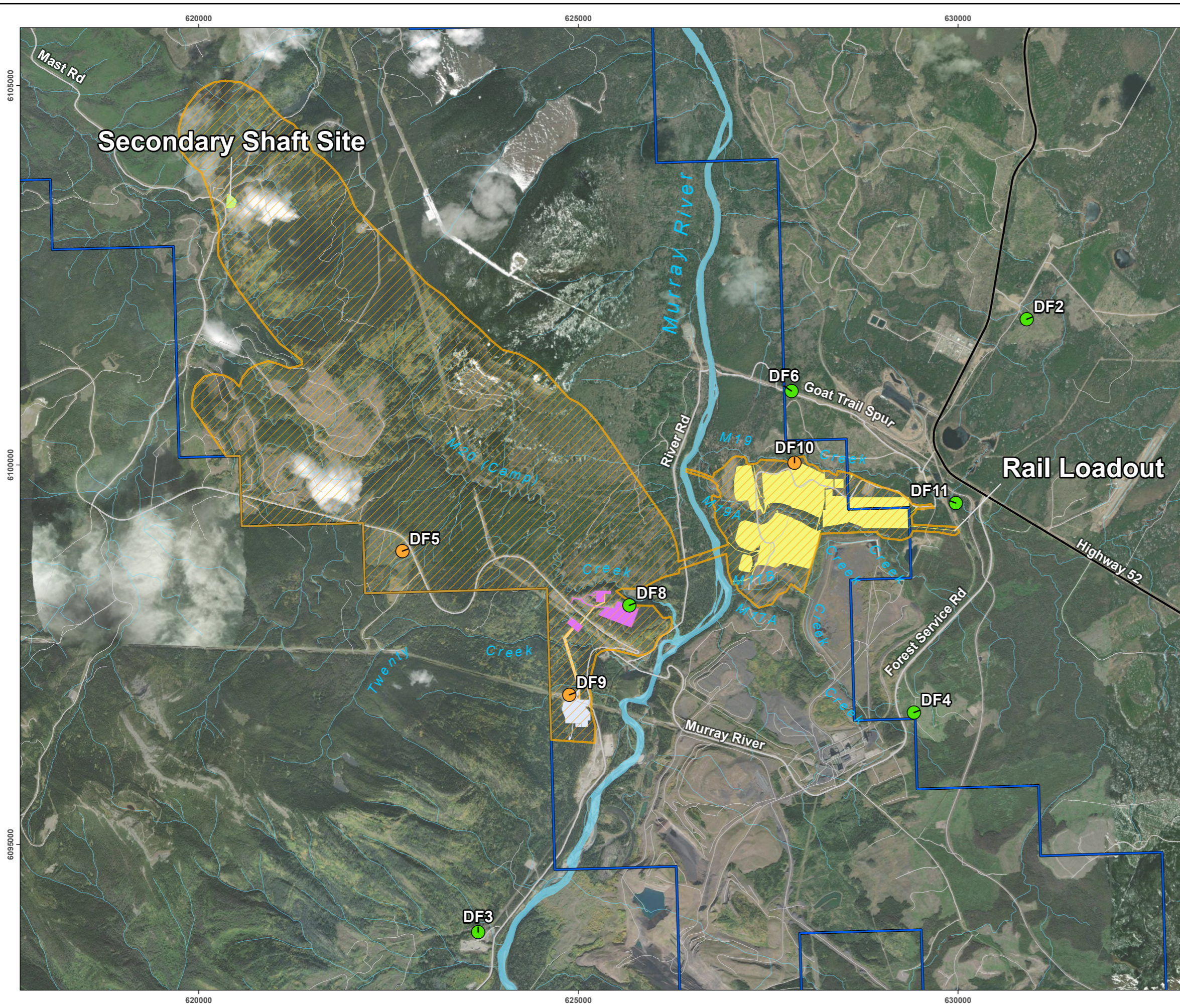
Monthly dustfall (DF) monitoring was conducted at seven stations upwind and downwind of the mine site (Figure 3-10). Dustfall stations 10 and 11, also shown on Figure 3-10, are planned for installation in the next reporting period. A MetOne Environmental Beta Attenuation Mass Monitor (E-BAM) was purchased and will be used to monitor PM₁₀ and TSP in the next reporting period.

Dustfall sampling was conducted according to the draft *Standard Operating Procedure for the Sample Collection of Dustfall (Settleable Particulate Matter) and Metals* (BC Environmental Protection and Sustainability 2018). Provincial guidelines for total DF were rescinded in 2006 following a review of methodologies that concluded the methods are outdated and not recommended for monitoring. HD continues to monitor dustfall for comparative purposes to baseline conditions and to support calculating deposition rates. Comparison of dustfall measurements to the old objective (2.9 milligrams per square decimeter per day [mg/dm²/day]) is for reference purposes only (Ministry of Environment and Climate Change Strategy 2020). From October 2023 to September 2024, there were four dustfall sites where the rescinded objective was surpassed:

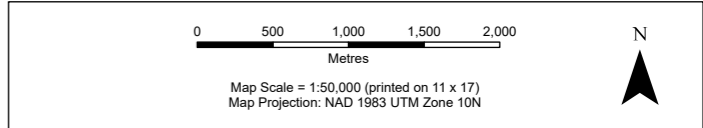
- DF2, 3.23 mg/dm²/day in October;
- DF5, 10.1 mg/dm²/day in October;
- DF8, 10.8 mg/dm²/day in August; and,
- DF9, 4.52 mg/dm²/day in September.

Total dustfall trends typically have low levels in winter and higher rates of dustfall in the summer and fall during dry conditions. DF8 and DF9 are located on the shaft and decline sites, DF5 is located near the Mast Forest Service Road and DF2 is located in a pine plantation on the east side of Highway 52. DF9 and DF5 are near high traffic areas, DF8 and DF2 are in proximity to tall trees and may be influenced from leaf litter, pollen or other material being deposited from the adjacent forest canopy. The majority of the DF from the exceedances was volatile indicating that it was primarily organic material.

Sulphate and nitrate anion analysis from DF canisters began in August 2024. Therefore, acid deposition rates for two months were analyzed during the reporting period. Acid deposition guidelines are based on annual averages. Therefore, annual deposition rates will be reported in the 2024-2025 annual report.



Active and Proposed Dustfall and Particulate Stations



<p>Proposed Monitoring Station</p> <ul style="list-style-type: none"> ● Dustfall ● Dustfall/Particulate Highway Road Permitted Mine Area (2023) 	<p>Project Footprint</p> <ul style="list-style-type: none"> Coarse Coal Rejects and Coal Processing Site Decline Site Power Line Secondary Shaft Site Shaft Site
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Data Sources

- Permitted Mine Area (2023) provided by HD Mining
- Surface Infrastructure provided by HD Mining (2021)
- Main map, Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
- Inset map, National Geographic World Map
- Waterbody and watercourse, Freshwater Atlas, The Government of British Columbia
- Forest Service Road, Forest Tenure Road Section Lines, Government of British Columbia

Disclaimer

EDI Environmental Dynamics Inc. has made every effort to verify this map is free of errors. Data has been derived from a variety of digital sources and, as such, EDI does not warrant the accuracy, completeness, or reliability of this map or its data.

Drawn By: AR
 Checked By: KH
 Date: 11/28/2024



Figure 3-10



Path: L:\PROJECTS\HD_Mining\2024\AQCL_mapping_2024.aprx\AQCL_mapping_2024.aprx\AQCL_mapping_2024.aprx\ParticulatesStations_20241128

3.5.2 SOIL, VEGETATION, AND WATER QUALITY MONITORING (CONDITION 6.3.2)

Water quality monitoring was conducted as per EMA Permit #106666. The COPCs identified in the HIPFUP, except for PAHs, were monitored at 12 receiving water sites in May and September 2024. The results were compared to the 95th percentile for the surface water COPCs. There were no exceedances in surface water COPCs in May or September at any of the receiving water sites. One site, M19-02 was dry during the September sampling period (See Figure 3-7 for monitoring locations).

3.6 CURRENT USE OF LANDS AND RESOURCES FOR TRADITIONAL PURPOSES FOLLOW-UP PROGRAM (CONDITIONS 7.11)

The purpose of the Current Use of Lands and Resources for Traditional Purposes Follow-up Program (CUFUP) is to verify the accuracy of the environmental assessment as it pertains to the effects of changes caused by the Designated Project to the environment on fishing, harvesting, hunting and trapping activities for traditional purposes.

The CUFUP will be informed by engagement with Indigenous groups and data collected from other monitoring programs, including Aquatic Effects Monitoring Program, Invasive Plants and Vegetation Management Plan, Health of Indigenous Peoples FUP (Section 3.3.1) Noise Communication Plan (Section 3.4.1), Selenium Management Plan, and Wildlife Management Plan.

Analysis of results for the CUFUP will begin in the next Annual Report (2024-2025).

3.7 CARIBOU FOLLOW-UP PROGRAM (CONDITION 7.14)

The Caribou Follow-up Program (CFUP) is required to:

- verify the accuracy of the environmental assessment; and
- determine the effectiveness of the mitigation measures pertaining to the Designated Project's adverse environmental effects on the Quintette herd of Southern mountain caribou (*Rangifer tarandus caribou*) and its critical habitat.

The following activities from the CFUP were undertaken during the reporting period:

- Pre-construction field surveys to verify critical habitat (Condition 7.12).

3.7.1 PRE-CONSTRUCTION FIELD SURVEYS (CONDITION 7.12)

Pre-construction field surveys were completed in 2023 and 2024 to confirm the distribution of low elevation range habitat and Type 1 Matrix habitat, defined as critical habitat for the Quintette herd of Southern Mountain caribou in the Recovery Strategy for Woodland Caribou, within the subsidence footprint. Field program objectives were to:

- confirm the ratings of existing habitat suitability mapping for caribou habitat;
- conduct lichen surveys to evaluate caribou forage;
- evaluate snow conditions, as an index of forage availability and predation risk; and,
- evaluate ungulate activity, as an index of predation risk.

For a description of the methodology and results, please refer to the *Murray River Coal Project Updated Wildlife Baseline Report 2022 to 2023* (ERM Consultants Canada Ltd. 2024), which was provided to ECCC and IAAC on July 23, 2024.

3.7.1.1 Methods

To verify the existing Habitat Suitability Models (HSMs), 23 habitat suitability plots of approximately 20 m radius each were surveyed in August 2023 within the subsidence footprint. Field survey methods followed the *Wildlife Habitat Rating Standards* (Resources Inventory Committee 1999c) and were conducted by an experienced biologist and an SFN land user employed by ASKI Reclamation LP, under the supervision of a QI. The number of plots completed was based upon relatively low habitat variability and a high proportion of clearcut within the footprint. Habitat suitability was assessed using the same methodology as previous modelling, namely utilizing a two season (winter-living [WL] and growing-living [GL]) and six class rating scheme (Resources Inventory Committee 1999c): high (1), moderately high (2), moderate (3), low (4), very low (5), and nil (6). The species-habitat model used was the same as that used in previous caribou modelling for the Project (EDI Environmental Dynamics Inc 2014). Type 1 Matrix habitat was also assessed against previously developed models.

Additional information relating to habitat suitability for caribou gained from lichen and snow surveys were also incorporated into habitat suitability ratings interpreted by a QI and aligned with the methods from the original HSM (EDI Environmental Dynamics Inc 2014). Arboreal lichen availability was surveyed according to methods in the *BC Land Management Handbook 43* (Stevenson et al. 1998). Terrestrial lichen availability was

surveyed according to the methods in *A Guide to Evaluating Forest Stands as Terrestrial Lichen Forage Habitat for Caribou* (Lance and Eastland 2000). Terrestrial lichen availability was measured at seven of the same sites as habitat suitability plots, with the entire area of lichen presence across the plot (up to 30 m) included for the data collection. Arboreal lichen surveys were conducted along 100 m transects, following the most suitable line of trees with arboreal lichen present, with the first survey point occurring at the same location as habitat suitability and terrestrial lichen plots. At 10 m intervals along the transect, a 5 m radius survey was completed to assess presence of lichen on a maximum of 10 trees. All lichen surveys were in accordance with the *Land Management Handbook Field Guide Insert 7* (Armleder et al. 1992).

To assess snow conditions and their potential influence on habitat for caribou within the subsidence footprint, snow surveys were completed concurrently with aerial ungulate surveys in December 2023 and February 2024. Snow data was collected at 13 sites within the subsidence footprint, reflecting approximately half of the habitat suitability plots. Data collected at each site included snow depth, snow hardness, and a qualitative assessment of the supportive properties of the upper snowpack. Snow hardness was assessed for any snow layers in the upper 50 centimetres (cm) of the snowpack, as measured using hand hardness, according to the standards of the *International Classification for Seasonal Snow on the Ground* (Fierz, C. et al. 2009).

Pellet count surveys were completed to quantify the small-scale differences in ungulate distribution and provide a better fine-scale evaluation of relative habitat usage than aerial surveys. Methods for pellet surveys followed provincial standards outlined in *Ground-based Inventory Methods for Selected Ungulates* (Resources Inventory Committee 1998). Surveys were completed in August 2023, during the snow-free period, to capture year-round pellets. A total of 20 pellet count transects were completed within the LSA; please refer to the *Murray River Coal Project Updated Wildlife Baseline Report 2022 to 2023* (ERM Consultants Canada Ltd. 2024) for complete methodology.

Aerial surveys were also conducted to build on the results of pellet surveys and determine ungulate abundance and distribution on a larger scale within the LSA. Aerial ungulate surveys were completed in December 2023 and February 2024 to assess both early and late winter ungulate abundance in the area directly surrounding the Project. Surveys were completed following methods presented in *Aerial-based Inventory Methods for Selected Ungulates* (Resources Inventory Committee 2002) focusing primarily on moose and elk. Please refer to the *Murray River Coal Project Updated Wildlife Baseline Report 2022 to 2023*

(ERM Consultants Canada Ltd. 2024) for complete methodology used for aerial survey design and execution.

3.7.1.2 Results

Habitat suitability model field validation plots were completed at 23 locations across the LSA. The average overall suitability rating across plots surveyed was 4.5 (moderate low/low). Habitat suitability model values from validation plots aligned well with existing models developed through the environmental assessment process (EDI Environmental Dynamics Inc 2014). No updates to existing models were required following validation plots except for winter Type 1 Matrix habitat models where “High” values were reduced by one class to “Moderately High” following field validation, largely due to high densities of alternative prey (moose and elk) throughout the LSA resulting in increased predation risk. Overall, the LSA provides limited high-quality habitat for caribou in any season, primarily limited by existing development (seismic exploration, pipelines, forestry, and associated infrastructure). While pockets of intact high-quality habitat for caribou do exist within the LSA, these features collectively suffer from fragmentation of habitat and reduction of habitat suitability when considered in context.

The results from the lichen transect surveys were also used to verify existing habitat suitability modelling for caribou by providing data on caribou forage availability in both summer and winter seasons. Surveys were completed in August and December of 2023 where there was an average of 5% terrestrial lichen cover and 7.5% respectively. Although presence of preferred lichen species was recorded at most survey locations, these patches were often fragmented and isolated from other areas of high-quality forage by large gaps of low quality (frequently open cutblock) habitat, or extensive deadfall resulting in major impediment.

Snow surveys were completed at 11 locations in the LSA during December 2023, with two additional surveys completed in February 2024 along with visiting the 11 existing survey locations from December. Snow depth was significantly lower than seasonal averages in December 2023, restricting available snow survey sampling areas. Average snow depth in December 2023 was 17.7 cm with an average rating of “very high” snow hardness. A minimum recorded snow depth of 4 cm, and a maximum recorded snow depth of 40 cm was recorded. During the February 2024 surveys, the average snow depth was 39.5 cm, with a minimum recorded snow depth of 15 cm, and a maximum recorded snow depth

of 75 cm. Layers of either surface deposits and crusts or ice masses were observed, all with snow hardness ratings of either “high”, “very high”, or “ice” recorded.

A total of 16 out of the 20 transects had ungulate pellets present. Moose pellets were the most recorded ungulate sign across all transects (n = 2,628), followed by elk (n = 716) and deer (unknown sp.; n = 478). The transects containing the highest number of pellets were within 1km of the Project footprint. The complete results of ungulate pellet surveys are summarized in the *Murray River Coal Project Updated Wildlife Baseline Report 2022 to 2023* (ERM Consultants Canada Ltd. 2024).

Aerial ungulate surveys were completed in seven survey units across the LSA on December 6, 2023, and February 27, 2024. Species observed included elk, moose, mountain goat, and mule deer. During the December 2023 and February 2024 surveys, ungulates were observed in five and six of the seven survey units respectively. For both December 2023 and February 2024 surveys, the ungulate species with the most detections was elk, which was also the species with the most individuals observed across all detections for both survey periods. Incidental wildlife detections recorded during these surveys included moose, elk, caribou, and mountain goat. During December surveys, a single detection of five caribou was recorded approximately 25 km west of the mine site, outside the edge of the RSA at high elevation above the Wolverine River valley. During February surveys, an additional three detections of 14 caribou total were recorded in a similar region of high elevation habitat above the Wolverine River valley, just outside of the RSA. The complete results of ungulate pellet surveys are summarized in the *Murray River Coal Project Updated Wildlife Baseline Report 2022 to 2023* (ERM Consultants Canada Ltd. 2024).

4 COMMUNICATIONS PLANS

The following communication plans were developed during the reporting period.

4.1 HEALTH OF INDIGENOUS PEOPLES COMMUNICATION PLAN (CONDITION 6.5)

The purpose of the Health of Indigenous Peoples Communication Plan (HIPCP) is to identify a plan to communicate the results of the HIPFUP, required by Condition 6.3 of the DS. The plan includes procedures to communicate any associated potential health risks, updated human health risk assessment, and modified or additional mitigation

measures resulting from the HIPFUP, or the development of site performance objectives referred to in DS Condition 6.4. During the reporting period, no water or air quality monitoring identified potential health risks that required communications with Indigenous groups.

4.2 NOISE COMMUNICATION PLAN (CONDITIONS 7.1 AND 7.3)

The Noise Communications Plan (NCP) addresses:

- Condition 7.1 which requires a plan to communicate information related to noise generated by the Project; and
- Condition 7.3 which requires a protocol for receiving complaints related to the exposure to noise generated by the Project.

During the reporting period, there were no elevated noise levels generated at the Project site that required notifying Indigenous groups and HD Mining did not receive any noise complaints.

4.3 ACCIDENTS AND MALFUNCTIONS COMMUNICATION PLAN (CONDITION 10.5)

The Accidents and Malfunctions Communication Plan (AMCP) includes:

- the types of potential accidents and malfunctions that require notifications to Indigenous groups;
- the manner by which each Indigenous group shall be notified by the Proponent of an accident or malfunction and of any opportunities for the Indigenous groups to assist in the response to the accident or malfunction; and
- the contact information of the representatives of the Proponent that the Indigenous groups may contact and of the representatives of each Indigenous group to which the Proponent provides notification.

There were no accidents or malfunctions at the site during the reporting period that required Indigenous groups to be notified.

5 MANAGEMENT PLANS

5.1 HERITAGE MANAGEMENT PLAN (CONDITION 8.2)

A Heritage Management Plan (HMP) was developed that addresses DS Conditions 8.1 to 8.3. The plan describes the types of physical and cultural heritage features and structures, sites or things of historical, archaeological, paleontological or architectural significance that may be encountered during construction, and the procedures for monitoring and responding if such features are encountered. Review of the plan is on-going with provincial agencies; once the HMP is finalized it will be posted to the HD Mining website (per DS Condition 2.10).

All construction activities between June 17 and September 30, 2024 occurred within existing disturbed footprint. During the reporting period, HD Mining established a Permit to Disturb process, which includes environmental screening of spatial datasets to identify any work restrictions or monitoring requirements prior to approval from the Environment and Sustainability Manager before new ground disturbance to proceed. As part of the environmental screening, environmental monitors assess the need to establish physical no-work zones related to known archaeological sites. A chance find protocol is in place.

6 OTHER DECISION STATEMENT CONDITIONS

Table 6-1 summarizes activities associated with other conditions in the DS.

Table 6-1. Decision Statement Conditions

Condition		Activity during Reporting Period
2.1	Precautionary approach	<ul style="list-style-type: none"> Qualified individuals have been engaged to develop and implement the follow up programs in a manner that meets the DS Conditions.
2.2	Consultation	<ul style="list-style-type: none"> See Section 2 of this report.
2.3, 2.7	Consultation with Indigenous groups	<ul style="list-style-type: none"> See Section 2 of this report.
2.4, 2.6	Follow-up program requirements	<ul style="list-style-type: none"> Developed follow-up programs per Conditions 2.4 and 2.6.

Condition		Activity during Reporting Period
2.5	Update of follow-up programs	<ul style="list-style-type: none"> Indigenous groups and relevant authorities have received the follow-up programs, communication plans and management plan. The NCP, AMCP and HIPCP have been updated/finalized and submitted to IAAC, Indigenous groups, and relevant authorities (September 27, 2024).
2.8, 2.9	Annual report	<ul style="list-style-type: none"> This Annual Report 2023-2024 has been developed in accordance with Conditions 2.8 and 2.9.
2.10	Publish to internet	<ul style="list-style-type: none"> The Noise Communication Plan, and the Implementation Schedule have been posted to HD Mining's website.
2.11	Transfer of ownership	<ul style="list-style-type: none"> There was no transfer of ownership, care or control or management of the Designated Project in whole or in part during the reporting period.
2.12	Material change(s)	<ul style="list-style-type: none"> No material changes were made to the Designated Project that required notice be provided to the Impact Assessment Agency pursuant to condition 2.12.
2.13	Material change(s)	<ul style="list-style-type: none"> No material changes were made to the Designated Project that required any action pursuant to condition 2.13.
3.1	Erosion and sediment control measures	<ul style="list-style-type: none"> Implemented erosion and sediment control measures at the decline site in June 2024 and maintained through daily and weekly inspections. No new construction activity was initiated at the shaft site nor at the coal processing site.
3.2	Rock weirs	<ul style="list-style-type: none"> See Section 3.1 of this report.
3.3	Construction near water	<ul style="list-style-type: none"> Not applicable – no construction near water occurred during the reporting period.
3.4	Intake pumping system	<ul style="list-style-type: none"> Not applicable – no construction of intake works occurred during the reporting period.
3.5	Dewatering activities of fish bearing waterbodies	<ul style="list-style-type: none"> Not applicable – no dewatering activities occurred during the reporting period.
3.6	Coarse coal rejects and waste rock mitigations	<ul style="list-style-type: none"> Not applicable - coarse coal rejects (CCR) not yet present; no new material added to the waste rock pile during the reporting period.
3.7	Contact water treatment	<ul style="list-style-type: none"> Contact water runoff is collected at the decline site and the shaft site. There was no release of contact water from the site from start of construction through the end of the reporting period.

Condition		Activity during Reporting Period
3.8	Fish and Fish Habitat Follow-up Program	<ul style="list-style-type: none"> • See Section 3.1 of this report.
3.9, 3.10	Geochemical characterization and Water quality	<ul style="list-style-type: none"> • See Section 3.2 of this report.
3.11	Effects of selenium releases on fish	<ul style="list-style-type: none"> • See Section 3.2 of this report.
3.12	Subsidence Follow-up Program	<ul style="list-style-type: none"> • See Section 3.3 of this report.
4.1 to 4.4	Migratory Birds	<ul style="list-style-type: none"> • See Section 3.4 of this report.
6.1	Fugitive dust mitigations	<ul style="list-style-type: none"> • Implemented fugitive dust mitigation measures in June 2024 and maintained through regular inspection. • Examples of mitigation measures include: <ul style="list-style-type: none"> ○ Ongoing visual monitoring for dust control; and ○ Reduce vehicle speed to minimize dust. • No new construction activity was initiated at the shaft site nor at the coal processing site.
6.2	Speed limits	<ul style="list-style-type: none"> • Speed limits are enforced on private access roads.
6.3	Health of Indigenous Peoples Follow-up Program	<ul style="list-style-type: none"> • See Section 3.5 of this report
6.4	Beaver dam removal	<ul style="list-style-type: none"> • Not applicable - no beaver dams removed from M19A Creek.
6.5	Health of Indigenous Peoples Communication Plan	<ul style="list-style-type: none"> • See Section 4.1 of this report
6.6	Engine maintenance program	<ul style="list-style-type: none"> • Developed an engine maintenance program and implemented it starting June 2024.
7.1, 7.3	Noise Communication Plan	<ul style="list-style-type: none"> • See Section 4.2 of this report
7.2	Noise mitigations	<ul style="list-style-type: none"> • Implemented noise mitigation measures in June 2024 and maintained through weekly to daily inspection. • Examples of mitigation measures include: <ul style="list-style-type: none"> ○ Maintain vehicles in proper working order to reduce noise; ○ Turn off equipment when not in use; avoid unnecessary idling; and

Condition		Activity during Reporting Period
		<ul style="list-style-type: none"> ○ Installed noise reduction silencers on main ventilating fans.
7.4	Road closure notifications to IGs	<ul style="list-style-type: none"> • Not applicable - no road closures during the reporting period.
7.5	Access to sacred and camping sites	<ul style="list-style-type: none"> • There was no change in access to sacred and camping sites during the reporting period. • Site visits were held with representatives from SFN and WMFN, during which no concerns were expressed regarding access to sites. • Project activities all occurred within existing footprint, and therefore caused no change in access during the reporting period.
7.6	Verification of the presence/absence of traditional and medicinal plants	<ul style="list-style-type: none"> • See Table 2-1 • Based on HD Mining's current list, during vegetation surveys, 42 species of traditional and medicinal plants were identified in 2023, and 32 species were identified in 2024
7.7, 7.8	Mineral lick/wallow	<ul style="list-style-type: none"> • Remote wildlife cameras are in place to monitor the mineral lick/wallow and the game trail that accesses this area. • This feature is outside the zone of subsidence; no Project effects anticipated during construction.
7.9	Tree buffers	<ul style="list-style-type: none"> • Maintained tree buffers around the decline and the shaft site. • Clearing has not yet occurred at the coal processing site. • The Murray River Forest Service Road is now a public road (Kinuseo Falls Road).
7.10	Progressive reclamation	<ul style="list-style-type: none"> • Not applicable - progressive reclamation scheduled to begin in 2030.
7.11	Current Use Follow Up Program	<ul style="list-style-type: none"> • See Section 3.6 of this report.
7.12	Caribou field surveys	<ul style="list-style-type: none"> • Caribou field surveys were conducted in 2023 and 2024; see Table 2-1 for details.
7.13 to 7.15	Caribou	<ul style="list-style-type: none"> • See Section 3.7 of this report.
7.16, 11.1	Implementation Schedule	<ul style="list-style-type: none"> • Submitted to Impact Agency of Canada (IAAC) and the IGs on April 3, 2024 to fulfill the submission 30 days prior to construction requirement. • Submitted an updated schedule to IAAC and the IGs on August 2, 2024 in response to comments from IAAC. • Informed IAAC and the IGs on September 27, 2024, and then posted the schedule on the HD Mining website on September 30, 2024.

Condition		Activity during Reporting Period
8.1 to 8.3	Heritage Management Plan	<ul style="list-style-type: none"> See Section 5 of this report.
9.1	Environmental monitoring	<ul style="list-style-type: none"> HD Mining has been an active participant in the Murray River Aquatic Cumulative Effects Assessment Framework Steering Committee since 2014. No meetings were held during the reporting period.
10.1 to 10.5	Accidents and malfunctions	<ul style="list-style-type: none"> The site maintains an up-to-date Mine Emergency Response Plan. No accidents or malfunctions occurred at site during the reporting period.
11.1	Implementation Schedule	<ul style="list-style-type: none"> See Section 2 of this report.
11.2 to 11.3	Implementation Schedule	<ul style="list-style-type: none"> Not applicable – next Implementation Schedule update is due in 2 years, and no material change has occurred to warrant any other update.
12.1 to 12.2	Record Keeping	<ul style="list-style-type: none"> Project records are maintained at HD Mining’s head office in Vancouver, BC. The IAAC was notified on July 3, 2024 that the head office location had changed.

7 ACRONYMS AND ABBREVIATIONS

Acronym or Abbreviation	Definition
ALG	aquatic life guidelines
AMCP	Accidents and Malfunctions Communication Plan
AMFUP	Accidents and Malfunctions Follow-up Plan
Annual Report 2023-2024	Decision Statement Annual Report – October 1, 2023 to September 30, 2024
ARU	automated recording units
BACI	Before-After-Control-Impact
BC	British Columbia
BCFAL	British Columbia Freshwater Aquatic Life
BCWQG	British Columbia Water Quality Guidelines
CABIN	Canadian Aquatic Biomonitoring Network
CCME	
CCR	coarse coal rejects
CFUP	Caribou Follow-up Program
COPC	Contaminants of Potential Concern
CPP	Coal Processing Plant
CUFUP	Current Use of Lands and Resources for Traditional Purposes Follow-Up Program
DFO	Fisheries and Oceans Canada
DRFN	Doig River First Nation
DS	Decision Statement
EAC Application/EIS	Environmental Assessment Certificate/Environmental Impact Statement for the Murray River Coal Project
E-BAM	Environmental Beta Attenuation Mass Monitor
ECCC	Environment and Climate Change Canada
e.g.,	for example (Latin <i>exempli gratia</i>)
EMA	<i>Environmental Management Act</i>
et al.	and others (Latin <i>et alia</i>)
FFHFUP	Fish and Fish Habitat Follow-up Program
FHAP	Fish Habitat Assessment Procedures
FLB	Field Leach Barrels
FNITR	First Nations Independent Technical Review
HCT	humidity cell test

Acronym or Abbreviation	Definition
HD Mining or Proponent	HD Mining International Ltd.
HIPCP	Health of Indigenous Peoples Communication Plan
HIPFUP	Health of Indigenous Peoples Follow-Up Program
HMP	Heritage Management Plan
HRFN	Halfway River First Nation
IAAC	Impact Agency of Canada
i.e.,	that is, (Latin <i>id est</i>)
IG	Indigenous groups
IPVMP	Invasive Plants and Vegetation Management Plan
Joint Application	Murray River Coal Project Joint Application for <i>Mines Act</i> and <i>Environmental Management Act</i> Permits (2016)
LSA	Local Study Area
MBFUP	Migratory Birds Follow-up Program
MLIB	McLeod Lake Indian Band
MERP	Mine Emergency Response Plan
ML/ARD	Metal Leaching/ Acid Rock Drainage Management Plan
ML/ARD and Se FUP	Metal Leaching/ Acid Rock Drainage and Selenium Follow-up Program
ML/ARD MP	metal leaching/acid rock drainage
NCP	Noise Communication Plan
NPAG	not potentially acid generating
OLTC	Occupant Licence to Cut
ORP	oxidation-reduction potential
PAG	potentially acid generating
PAH	Polycyclic Aromatic Hydrocarbons
Project	Murray River Coal Project
QI	Qualified Individual
REDRR	Regional Early Detection Rapid Response
ROM	run of mine
RSA	Regional Study Area
SFN	Saulteau First Nations
SFUP	Subsidence Follow-up Program
SOP	Standard Operating Procedure
TSS	total suspended solids

Acronym or Abbreviation	Definition
TSP	total suspended particulates
VRPC	variable-radius point count
WQG	Water Quality Guidelines
WMFN	West Moberly First Nations

8 UNITS OF MEASURE

Acronym or Abbreviation	Definition
µg/L	microgram per litre
cm	centimetre
hr	hour
km	kilometre
KM	kilometre (when used before a distance marker number, i.e. KM 10 of the ...)
m	metre
m ²	square metres
mg/dm ² /day	milligrams per square decimeter per day
mg/kg	milligrams per kilogram
mm	millimetre
PM ₁₀	particulate matter

9 REFERENCES

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- BC Environmental Protection and Sustainability. 2018. SOP-05C - Standard Operating Procedure for the Sample Collection of Dustfall (Settleable Particulate Matter) and Metals - British Columbia Field Sampling Manual.
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APPENDIX

**APPENDIX A BC WQGS EXCEEDANCES
DURING 2023-2024
REPORTING PERIOD**



Appendix A Table 1. Surface Water Quality Results for the Permitted Receiving Environment Sites

Class	Analyte	Site ID	Sample ID	Date sampled	Units	BCWQG - Chronic aquatic life	BCWQG - Acute aquatic life	Sample value	
In-situ	Dissolved oxygen	M19-01	FJ2402953-018	2024-09-25	mg/L	8	5	7.18	
	Dissolved oxygen	M19-01	VA23D0118-019	2023-12-12	mg/L	8	5	7.85	
	Dissolved oxygen	M19A-01	FJ2402146-015	2024-07-23	mg/L	8	5	6.25	
	Dissolved oxygen	M19A-01	FJ2402592-008	2024-08-27	mg/L	8	5	5.9	
	Dissolved oxygen	M19A-01	FJ2402953-017	2024-09-24	mg/L	8	5	4.91	
	Dissolved oxygen	M19A-01	VA23C5222-014	2023-10-17	mg/L	8	5	7.25	
	Dissolved oxygen	M19A-01	VA23D0118-018	2023-12-12	mg/L	8	5	4.74	
	Dissolved oxygen	M19A-01	VA24B5476-020	2024-06-25	mg/L	8	5	7.23	
Physical	TSS	M20-04	FJ2402146-009	2024-07-24	mg/L	See Exceedance Colour key ³		84.9	
	TSS	MR-4	VA24A3765-010	2024-02-22	mg/L	See Exceedance Colour key ⁴		105	
	TSS	MR-7B	FJ2402146-013	2024-07-23	mg/L	See Exceedance Colour key ⁴		33.3	
	Turbidity	M20-04	FJ2402146-009	2024-07-24	NTU	See Exceedance Colour key ³		87.2	
	Turbidity	MR-3	FJ2402146-010	2024-07-23	NTU	See Exceedance Colour key ⁴		13.6	
	Turbidity	MR-4	VA24A3765-010	2024-02-22	NTU	See Exceedance Colour key ⁴		20.6	
	Turbidity	MR-6	FJ2402146-012	2024-07-25	NTU	See Exceedance Colour key ⁴		10.4	
	Turbidity	MR-7B	FJ2402146-013	2024-07-23	NTU	See Exceedance Colour key ⁴		21.6	
Inorganics	Turbidity	MR-7B	FJ2402953-015	2024-09-24	NTU	See Exceedance Colour key ⁴		21.2	
	Sulphate (SO4)	M19A-01	VA23D0118-018	2023-12-12	mg/L	429		542	
Inorganics	Sulphate (SO4)	M19A-02	FJ2402953-019	2024-09-24	mg/L	429		481	
	Sulphate (SO4)	M19A-02	VA23C5222-016	2023-10-17	mg/L	429		446	
	Sulphate (SO4)	M19A-02	VA23C8321-011	2023-11-21	mg/L	429		475	
	Sulphate (SO4)	M19A-02	VA23D0118-020	2023-12-12	mg/L	429		505	
	Sulphate (SO4)	M19A-02	VA24A8467-014	2024-04-16	mg/L	429		441	
	Total metals	Aluminum (Al)	M20-04	FJ2401055-002	2024-04-15	mg/L	0.23		0.498
Aluminum (Al)		M20-04	FJ2402146-009	2024-07-24	mg/L	0.56		1.59	
Aluminum (Al)		M20-06	FJ2401055-001	2024-04-15	mg/L	0.23		0.624	
Aluminum (Al)		M20-06	FJ2402146-008	2024-07-24	mg/L	0.46		1.47	
Aluminum (Al)		M20-06	VA24B1801-007	2024-05-22	mg/L	0.58		0.747	
Aluminum (Al)		MR-3	FJ2402146-010	2024-07-23	mg/L	0.24		0.425	
Aluminum (Al)		MR-3	FJ2402953-012	2024-09-25	mg/L	0.31		0.528	
Aluminum (Al)		MR-4	FJ2402146-011	2024-07-24	mg/L	0.18		0.202	
Aluminum (Al)		MR-4	FJ2402953-013	2024-09-25	mg/L	0.32		0.638	
Aluminum (Al)		MR-4	VA24A3765-010	2024-02-22	mg/L	0.18		1	
Aluminum (Al)		MR-6	FJ2402146-012	2024-07-25	mg/L	0.19		0.197	
Aluminum (Al)		MR-6	FJ2402953-014	2024-09-25	mg/L	0.28		0.629	
Aluminum (Al)		MR-7B	FJ2402146-013	2024-07-23	mg/L	0.25		0.486	
Aluminum (Al)		MR-7B	FJ2402953-015	2024-09-24	mg/L	0.3		0.621	
Aluminum (Al)		MR-9	FJ2402146-014	2024-07-24	mg/L	0.19		0.457	
Aluminum (Al)		MR-9	FJ2402953-016	2024-09-25	mg/L	0.32		0.512	
Aluminum (Al)		MR-9	VA23C5222-013	2023-10-18	mg/L	0.26		0.426	
Chromium (Cr)		M20-04	FJ2402146-009	2024-07-24	mg/L	0.0025 ⁵		0.00261	
Iron (Fe)		M19A-01	FJ2402146-015	2024-07-23	mg/L		1	1.76	
Iron (Fe)		M19A-01	FJ2402592-008	2024-08-27	mg/L		1	1.11	
Iron (Fe)		M19A-01	FJ2402953-017	2024-09-24	mg/L		1	2.13	
Iron (Fe)		M19A-01	VA24B1801-014	2024-05-21	mg/L		1	1.36	
Iron (Fe)		M20-04	FJ2402146-009	2024-07-24	mg/L		1	2.59	
Iron (Fe)		M20-06	FJ2402146-008	2024-07-24	mg/L		1	2.45	
Iron (Fe)		M20-06	VA24B1801-007	2024-05-22	mg/L		1	1.05	
Iron (Fe)		MR-4	FJ2402953-013	2024-09-25	mg/L		1	1.02	
Iron (Fe)		MR-4	VA24A3765-010	2024-02-22	mg/L		1	2.15	
Iron (Fe)		MR-6	FJ2402953-014	2024-09-25	mg/L		1	1.03	
Selenium (Se)		M20-04	FJ2402146-009	2024-07-24	mg/L	0.002		0.0028	
Selenium (Se)		M20-06	FJ2402146-008	2024-07-24	mg/L	0.002		0.00274	
Thallium (Tl)		M20-04	FJ2402146-009	2024-07-24	mg/L	0.00003		0.000053	
Thallium (Tl)		M20-06	FJ2402146-008	2024-07-24	mg/L	0.00003		0.000042	
Thallium (Tl)		MR-4	VA24A3765-010	2024-02-22	mg/L	0.00003		0.000042	
Dissolved metals		Iron (Fe)	M19A-01	FJ2402146-015	2024-07-23	mg/L		0.35	0.449
		Iron (Fe)	M19A-01	FJ2402592-008	2024-08-27	mg/L		0.35	0.681
		Iron (Fe)	M19A-01	FJ2402953-017	2024-09-24	mg/L		0.35	0.516

Exceedance colour key:
 Exceeds BCWQG - Chronic aquatic life
 Exceeds BCWQG - Acute aquatic life
 Exceeds more than one guideline

Replicate exceeded 20% relative percent difference (RPD)

<5DL Value less than 5 times detection limit, RPD not calculated

¹ Reference Site for TSS and Turbidity is M19-01

² Reference Site for TSS and Turbidity is M19A-01

³ Reference Site for TSS and Turbidity is M20-06

⁴ Reference Site for TSS and Turbidity is MR-9

⁵ There is no guideline for total chromium. The guideline for hexavalent chromium has been conservatively applied.