



OSISKO DEVELOPMENT

CARIBOO GOLD PROJECT

**DRINKING WATER AND WATER TREATMENT
PLAN REV3**

August 2025



OSISKO DEVELOPMENT

Cariboo Gold Project

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Appendix A: Declaration of Competency Form

Appendix B: Summary of Proposed Mitigation Measures for the Cariboo Gold Project

REVISION HISTORY

Rev. No.	Date	Author	Description
0	April 8, 2024	Jennifer Levenick	Initial version for environmental assessment condition review
1	November 13, 2024	Jennifer Levenick	Revised to address environmental assessment condition review comments
2	June 25, 2025	Jennifer Levenick	Revised to address BC Environmental Assessment Office review comments
3	August 6, 2025	Jennifer Levenick	Revised to address BC Environmental Assessment Office review comments

EXECUTIVE SUMMARY

The Cariboo Gold Project (the Project) was granted Environmental Assessment Certificate #M23-01 (EAC) on October 10, 2023, by the British Columbia (BC) Environmental Assessment Office (EAO). The Project is an underground gold mine with a maximum production capacity of 4,900 tonnes per day and an operational mine life of 12 years. The Project is located in the District of Wells and the Cariboo Regional District.

Condition #18 of the EAC requires the development of a Drinking Water and Water Treatment (DWWT) Plan in consultation with Lhtako Dené Nation, Xat'sül First Nation, and Williams Lake First Nation (Participating Indigenous nations), the BC Ministry of Mining and Critical Minerals (MCM), the Ministry of Environment and Parks (ENV), Northern Health Authority (NHA), the BC Ministry of Forests (MoF) Crown Contaminated Sites Program, and the District of Wells. The DWWT Plan includes a description of the approach for identification and development of a drinking water supply source for the District of Wells and the Mine Site Complex, expected permitting and licensing of a new drinking water supply, and groundwater quality reporting. The DWWT Plan will be provided to the EAO a minimum of 60 days prior to the commencement of operations at the Mine Site Complex, unless otherwise authorized by the EAO (Condition #18.2). Identification of an alternative water supply option for the District of Wells (groundwater or surface water), or another suitable mitigation, is required before Project mining progresses to a point where groundwater from the flooded underground would be predicted to be intercepted by the District of Wells drinking water well.

The identification of a groundwater supply source for the District of Wells includes a hydrogeological assessment to identify locations with favourable hydrogeological conditions for groundwater water supply and a review of applicable public information and regulations for the proposed location(s). Stratigraphic drilling and monitoring well installation(s) will be conducted to characterize the subsurface conditions. The stratigraphic information collected will be used to inform a test well drilling investigation. A pumping test in the test well will be designed to characterize the aquifer and well yield, to collect groundwater samples after a prolonged period of pumping, and to evaluate hydraulic connectivity to surface water. Data from the field investigations will be used to update the existing numerical hydrogeological model for the Project and conduct refined predictive scenario analysis runs.

The evaluation of a drinking water supply for the Mine Site Complex will consider previous work conducted, along with supplemental investigation data (Condition #18.3 f). The options under consideration for a groundwater supply source include a hydrogeological assessment of the existing test well located near the existing ODV exploration offices; an investigation for an alternate drinking water supply for the Mine Site Complex; and an assessment for sourcing

drinking water from the District of Wells water supply system. These options will be assessed by ODV, participating Indigenous nations, and stakeholders to evaluate the most appropriate source of drinking water for the Mine Site Complex.

New groundwater supply sources must be licensed before the groundwater can be used, diverted, or stored, and appropriate permits must be issued prior to construction and operation of the water supply system. The permitting and licensing considerations include a water license application in accordance with the *Water Sustainability Act*; a Source Water Approval Form submission with the NHA; a Water Supply System Construction Permit application with the NHA; and a Water System Operation Permit application with the NHA.

The DWWT Plan describes the groundwater quality reporting that will be conducted and provided to the District of Wells, ENV, NHA, Participating Indigenous nations, and the public. A communications strategy will be developed to provide appropriate disclosure regarding predicted potential post closure effects on the water quality for the District of Wells water supply system to the District of Wells.

Updates to the DWWT Plan will be provided for review to Participating Indigenous nations, MCM, ENV, NHA, the MoF Crown Contaminated Sites Program, and the District of Wells. ODV welcomes comments on the draft plan.

ABBREVIATIONS

Terminology used in this document has been defined where it is first used, while the following list has been presented to assist readers that choose to review only portions of the document.

Abbreviation	Description
AEMP	Aquatic Effects Monitoring Program
BC	British Columbia
BGM	Barkerville Gold Mines Ltd.
CRD	Cariboo Regional District
DWO	Drinking Water Officer
DWPA	<i>Drinking Water Protection Act</i>
DWPR	Drinking Water Protection Regulation
EAC	Environmental Assessment Certificate
EAO	Environmental Assessment Office
EGBC	Engineers and Geoscientists British Columbia
EHO	Environmental Health Officer
EMS	Environmental Management System
ENV	Ministry of Environment and Parks (BC)
GARP	groundwater at risk of containing pathogens
GWPR	Groundwater Protection Regulation
HHRA	Human Health Risk Assessment
HHR	Health Hazards Regulation
MCM	Ministry of Mining and Critical Minerals (BC)
MOE	Ministry of Environment (BC)
MoF	Ministry of Forests (BC)
MWR	Municipal Wastewater Regulation
NHA	Northern Health Authority
ODV	Osisko Development Corp.
Participating Indigenous nations	Lhtako Dené Nation, Xatśúll First Nation, and Williams Lake First Nation
PHE	Public Health Engineer
Project	Cariboo Gold Project
QP	Qualified Professional
QR Mill	Quesnel River Mill
USGPM	US gallons per minute

Abbreviation	Description
WRSF	Waste Rock Storage Facility
WSA	<i>Water Sustainability Act</i>
WSP	WSP Canada Inc.
WTP	Water Treatment Plant

1. INTRODUCTION

Barkerville Gold Mines Ltd. (BGM) applied to the British Columbia (BC) Environmental Assessment Office (EAO) for an Environmental Assessment Certificate (EAC) under Section 27 of the British Columbia (BC) *Environmental Assessment Act* for the Cariboo Gold Project (the Project) on October 14, 2022. This Drinking Water and Water Treatment (DWWT) Plan has been prepared in response to EAC #M23-01 Condition #18 for the Project (ODV 2022a). BGM is a wholly-owned subsidiary of Osisko Development Corp. (ODV).

A Declaration of Competency form for Jennifer Levenick, P.Eng., for preparation of the DWWT Plan is provided as Appendix A.

1.1 Objectives and Scope

The DWWT Plan was prepared to satisfy Condition #18 set out in Schedule B of EAC #M23-01 for the Project. The DWWT Plan includes a description of the approach for identification and development of a drinking water supply source for the District of Wells (Section 2) and the Mine Site Complex (Section 3), expected permitting and licensing of a new groundwater drinking water supply (Section 4), and groundwater quality reporting (Section 5). Identification of an alternative water supply from groundwater or surface water is mitigation ID 7.5-19 from Table 20.1-4 of the EAC Application. Table 20.1-4 of the EAC Application is presented in Appendix B of this DWWT Plan and includes an overview of mitigations identified in the EAC Application with respect to groundwater. With the exception of mitigation ID 7.5-19 and mitigation ID 7.5-20 (Identification of an alternative water supply or alternative mitigation), these mitigations are not related to the DWWT Plan and are, therefore, not addressed in this document. The other mitigations in Table 20.1-4 are either implemented as part of Project design or as part of other management/monitoring plans.

For mitigations associated with Project Design, the table indicates in which Project phase the mitigation will be implemented (construction, operation, closure, and/or post-closure). Mine Site and QR Mill Groundwater Monitoring Plans have been developed to monitor groundwater quality down-gradient of mine facilities and will, therefore, evaluate if changes to groundwater quality relative to baseline conditions occur due to the Project. The Groundwater Monitoring Plans specify steps that will be taken based on collected groundwater monitoring data. Groundwater Monitoring Plans are provided as Appendix C of the Human Health Monitoring and Management Plan (ODV 2024).

For non-design mitigations, management and monitoring plans have been developed to document how Project mitigations will be implemented. Relevant monitoring and mitigation plans are referenced in Table 20.1-4 for each of the identified mitigations. Management and monitoring plans referenced in Appendix B have been produced to meet other EAC condition

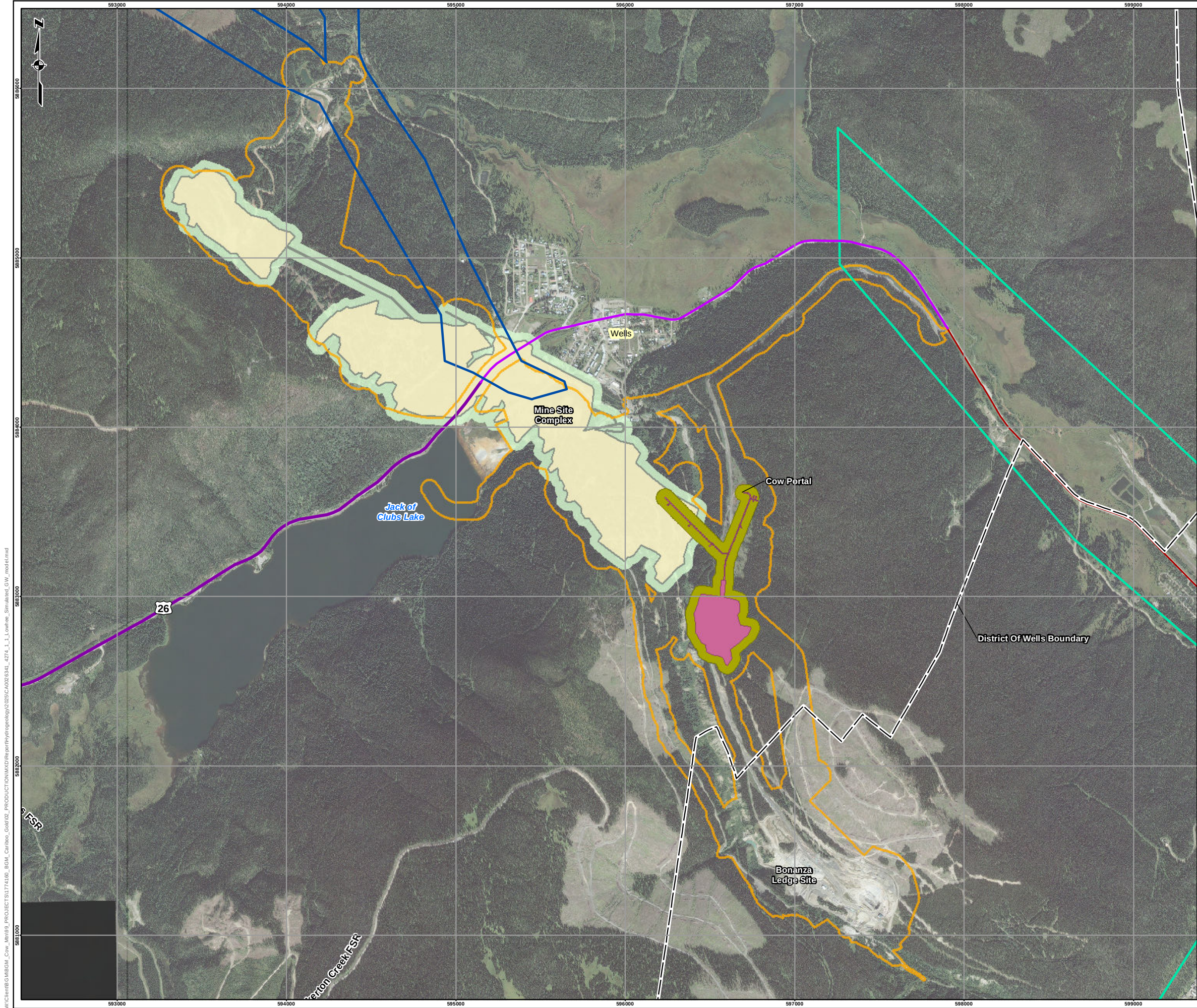
requirements or are attached to the Construction Environmental Management Plan produced to meet EAC Condition #10 requirements, and have not been attached to the DWWT Plan to reduce duplication and maintain version control. The referenced monitoring or mitigation plan outlines the implementation of the mitigation, how the mitigation will be evaluated, and how the mitigation will be reported on.

Groundwater modelling for the Project indicates that development and implementation of an alternative drinking water supply is required prior to the start of closure. While the alternative water supply (either groundwater or surface water) is not needed until closure, identification of the alternative drinking water source needs to be identified prior to closure during construction and operations. With respect to timing, a sensitivity run was simulated in the groundwater model for post-closure assuming only the Lowhee Zone of the Project would be mined, with connection of the Lowhee Zone to the Cow Portal. The scenario assumes that the Lowhee Zone will be developed such that it does not intercept other underground workings; therefore, it does not require active dewatering of these underground workings during operations.

Particle tracking was used for the post-closure simulation to predict where seepage would migrate after the Lowhee Zone underground workings were allowed to reflood. Seepage from the Lowhee Zone was predicted to migrate from the Lowhee underground area, through the nearby historical workings to the Wells Aquifer, and then discharge to the Willow River. No direct seepage pathway to the District of Wells drinking water well was predicted. The results of this sensitivity run support that mining of the Lowhee Zone can occur in tandem with the refinement of mitigation options for the District of Wells drinking water well.

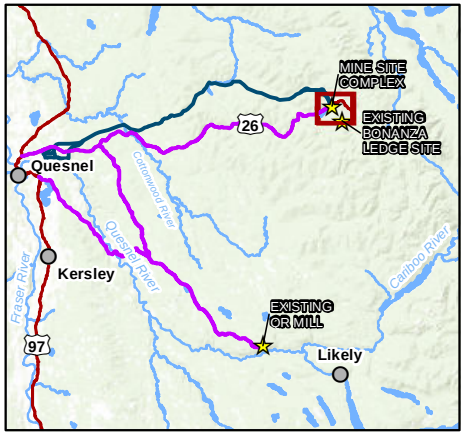
Identification of an alternative water supply option for the District of Wells, or another suitable mitigation, will be conducted before Project mining progresses during construction or operations to a point where groundwater from the flooded underground would be predicted to be intercepted by the District of Wells drinking water well at closure. Full development/construction of the alternative water supply is not required until closure. The area of underground mining (i.e., the Lowhee Zone) that can occur without mitigation options identified for the District of Wells drinking water well is presented on Figure 1-1.

The DWWT Plan requires consultation with Lhtako Dené Nation, Xatśūll First Nation, and Williams Lake First Nation (Participating Indigenous nations), the BC Ministry of Mining and Critical Minerals (MCM), the Ministry of Environment and Parks (ENV), Northern Health Authority (NHA), the BC Ministry of Forests (MoF) Crown Contaminated Sites Program, and the District of Wells. The DWWT Plan will be provided to the EAO a minimum of 60 days prior to the commencement of operations at the Mine Site Complex, unless otherwise authorized by the EAO (Condition #18.2). Figure 1-2: provides a general overview of the process for groundwater source development, permitting, construction, and licensing.

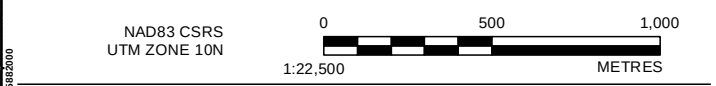


LEGEND

- HIGHWAY
- TRANSPORTATION ROUTE
- TRANSMISSION LINE CORRIDOR
- MINE SITE SURFACE FOOTPRINT (MAXIMUM EXTENT)
- PROJECT UNDERGROUND MINE AREA NOT TO PROCEED WITHOUT MITIGATION
- PROJECT UNDERGROUND FOOTPRINT NOT TO PROCEED WITHOUT MITIGATION
- LOWHEE PROJECT UNDERGROUND MINE AREA AND PERMITTED COW PORTAL BULK SAMPLE UNDERGROUND AREA
- LOWHEE PROJECT UNDERGROUND MINE FOOTPRINT AND PERMITTED COW PORTAL BULK SAMPLE UNDERGROUND AREA
- BARKERVILLE HISTORIC TOWN AND PARK
- DISTRICT OF WELLS BOUNDARY



- REFERENCE(S)**
1. TRAILS, WATER FEATURES, ROADS, MUNICIPAL BOUNDARY, PARK/PROTECTED AREAS, BARKERVILLE HISTORIC TOWN/PARK, CITIES (INSET), PROVINCIAL BORDERS (INSET) OBTAINED FROM THE B.C. MINISTRY OF FORESTS, LANDS, NATURAL RESOURCE OPERATIONS AND RURAL DEVELOPMENT.
 2. HILLSHADE DERIVED FROM LIDAR DATA FLOWN BY MCELHANNAY CONSULTANTS LTD. JUNE 27, 2016.
 3. BASE DATA SOURCE: ESRI, GEOBASE, NRCAN, AND THE GIS USER COMMUNITY.
 4. INSET BASE SOURCE: ESRI, DELORME, GEBCO, NOAA NGDC, AND OTHER CONTRIBUTORS.



CARIBOO GOLD PROJECT

**LOWHEE PROJECT ZONE SIMULATED IN
GROUNDWATER MODEL**

REV.	DESCRIPTION	DATE	INITIALS
A		8/5/2025	J.P.
PROJECT NO. 151-11330-70	PHASE 00	REV. B	FIGURE 1-1

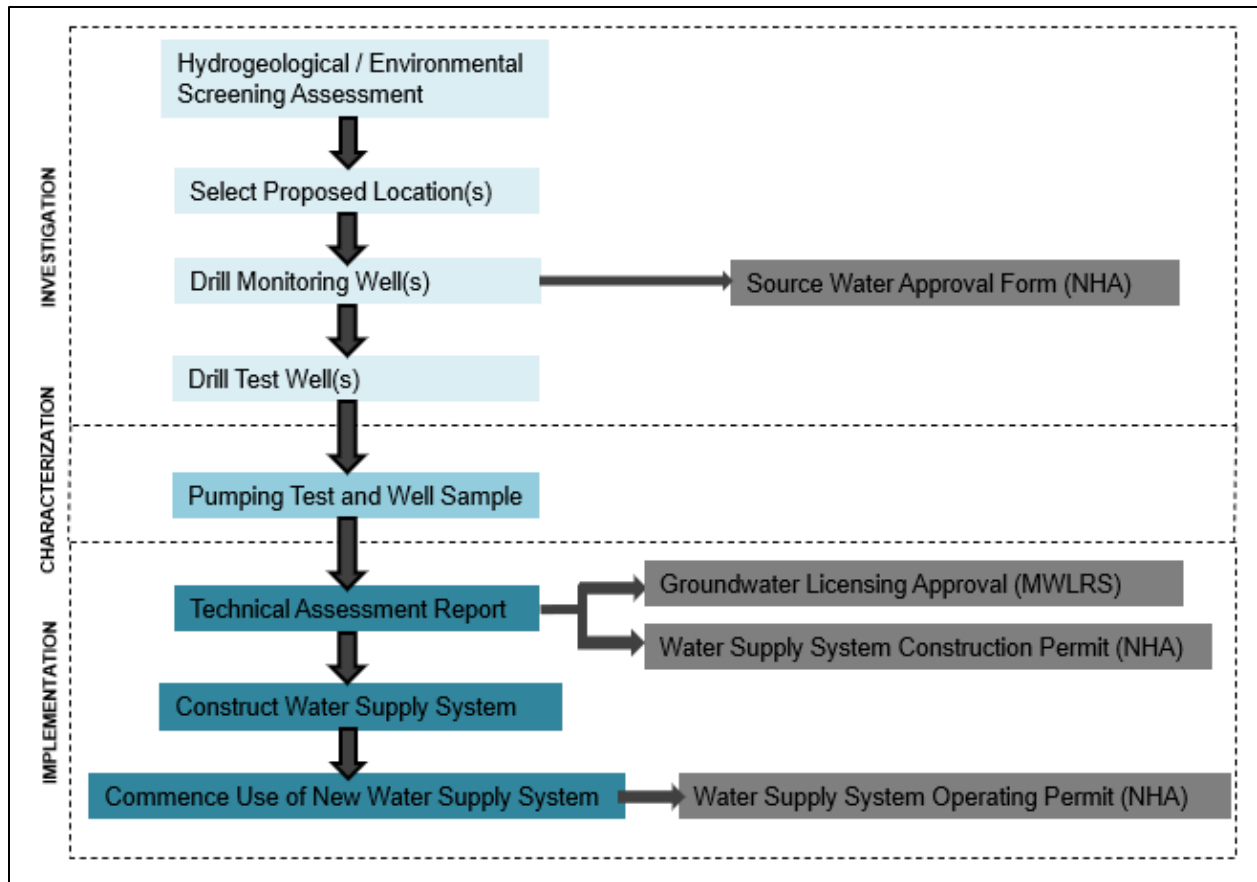


Figure 1–2: Drinking Water and Water Treatment Plan Overview

1.2 Project Overview

ODV is proposing to develop the Project, an underground gold mine with a maximum production capacity of 1,793,400 tonnes per year of mineralized material (ore) located in the District of Wells and Cariboo Regional District (CRD), BC. The Project includes the following sites and key components (Figure 1–3:):

Mine Site:

- Mine Site Complex:
 - Waste management facilities;
 - Water supply and management structures and facilities;
 - Services Building;
 - Electrical Substation;
 - Camp (Worker Accommodation);
 - Valley Portal;
 - Water Treatment Plant (WTP); and

- Other ancillary infrastructure.
- Bonanza Ledge Site:
 - A Waste Rock Storage Facility (WRSF) and associated water management structures;
 - Overburden Stockpiles;
 - Temporary Ore Stockpile;
 - Cow Portal; and
 - Other ancillary infrastructure.
- Access roads and infrastructure.
- Quesnel River Mill (QR Mill):
 - ODV's existing and associated infrastructure within the Project Surface Footprint, including use of the Worker Accommodation and necessary upgrades to the existing infrastructure.
- Transmission Line.

The mine will have an estimated operational mine life of 12 years and will operate 24 hours per day, 365 days per year. Closure will occur over a period of 2 years after mining is completed.

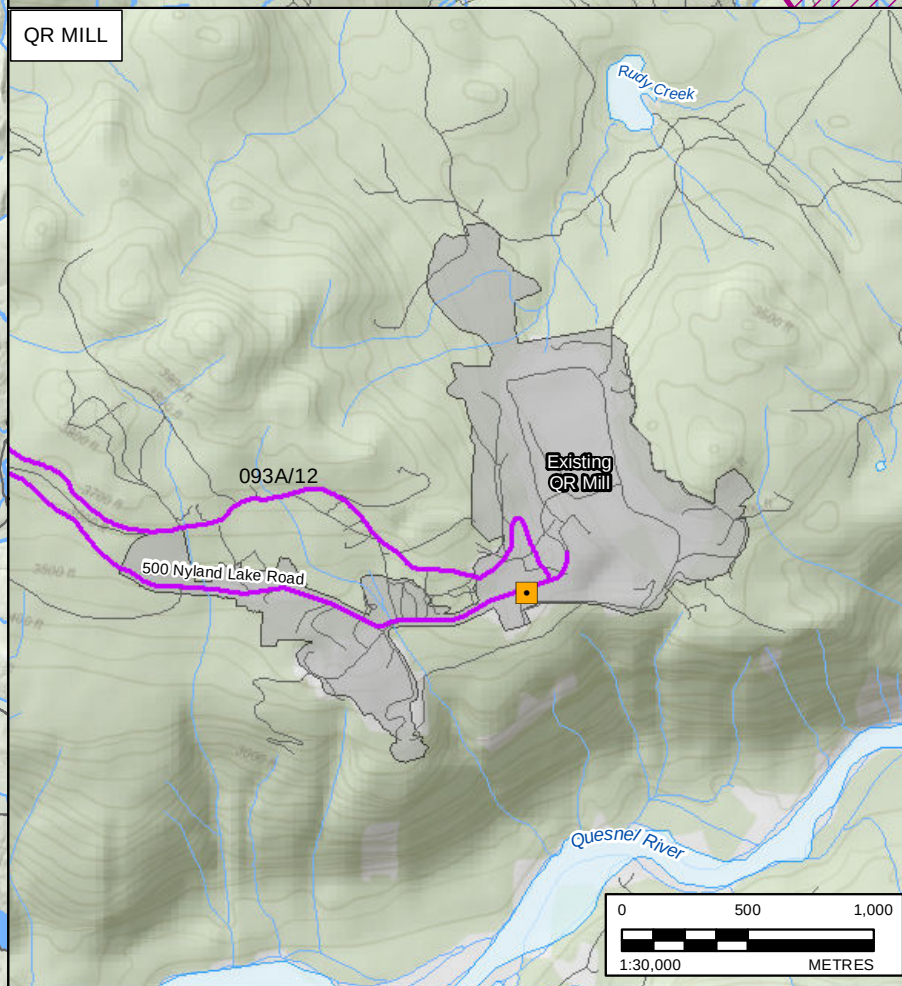
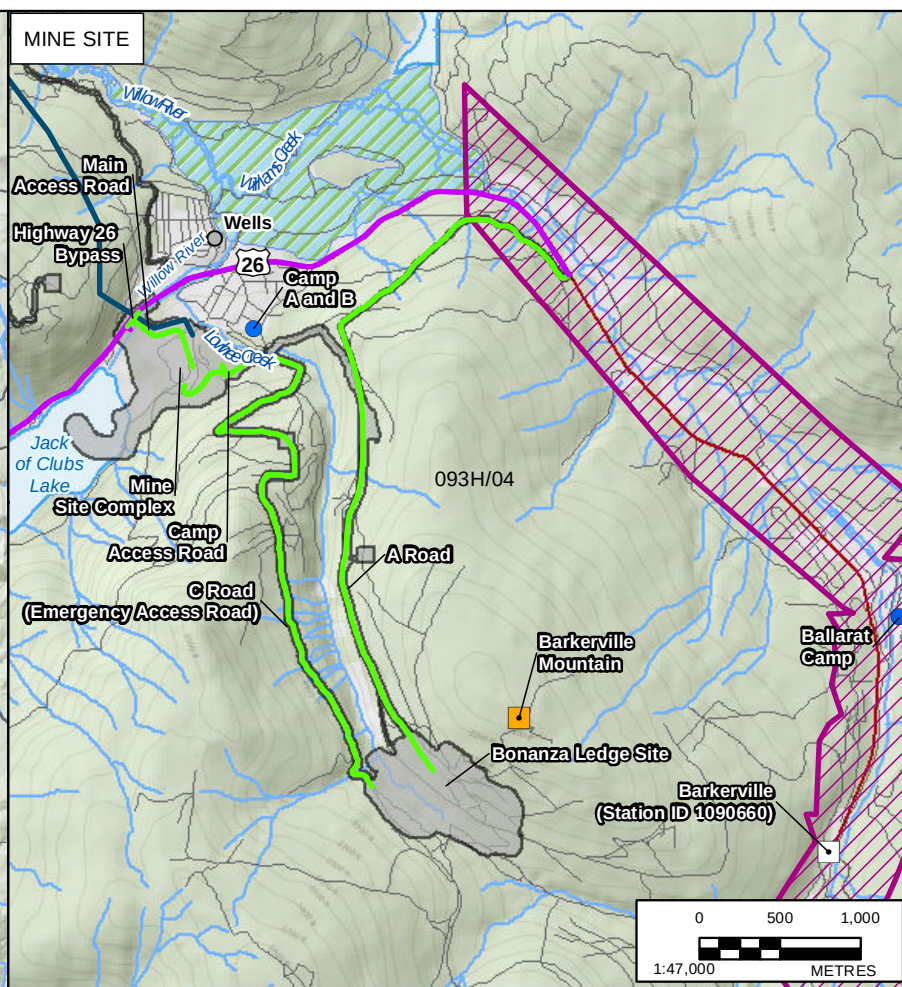
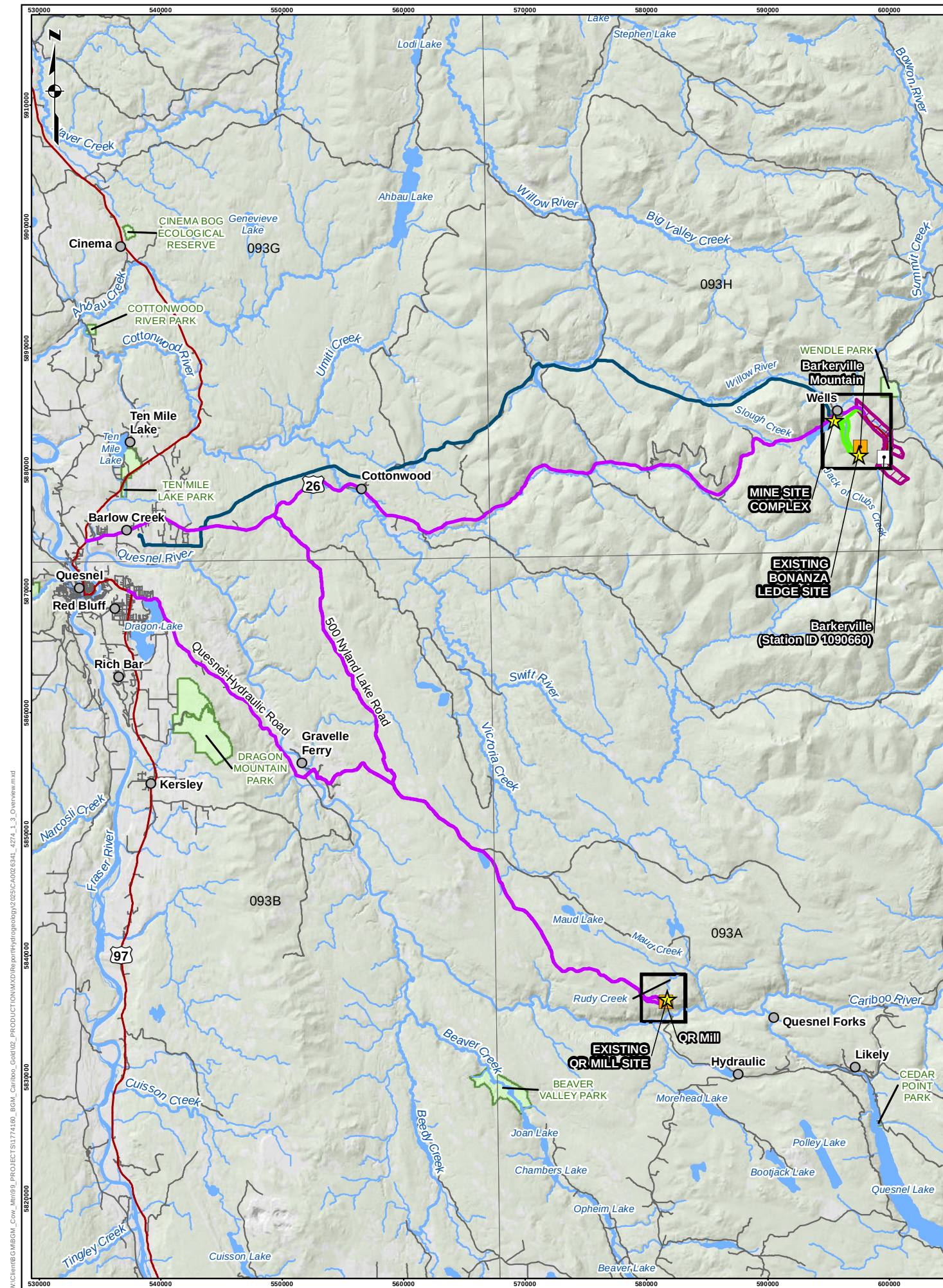
1.3 Roles and Responsibilities

ODV has the obligation of maintaining compliance with Project commitments and informing mine personnel and site contractors of relevant obligations during all phases of the mine life. A clear understanding of the roles, responsibilities, and level of authority that employees and contractors have when working on the Project is essential to meet DWWT Plan and ODV Environmental Management System (EMS) objectives. Table 1-1 provides an overview of general responsibilities for ODV personnel and other professionals.

Table 1-1: Roles and Responsibilities Defined

Role	Responsibilities
Vice President Environment	Responsible for verifying that the DWWT Plan is implemented throughout the applicable Project phases and providing updates of the DWWT Plan for review to Participating Indigenous nations, MCM, ENV, NHA, the MoF Crown Contaminated Sites Program, and the District of Wells.
General Manager	Responsible for communicating groundwater reporting outlined in the DWWT Plan to Participating Indigenous nations and stakeholders in the recommended format and within appropriate timelines.
Environmental Manager	Responsible for verifying that data is appropriately collected for monitoring and reporting as outlined in the DWWT Plan and is provided to the General Manager.
Qualified Professionals and Qualified Persons	Qualified professionals and qualified persons will lead field investigations, under delegation from ODV, to identify and develop an alternate drinking water supply source or alternative mitigation for both the District of Wells and the Mine Site Complex as described in the DWWT Plan.

Notes: DWWT = Drinking Water and Water Treatment; MCM = BC Ministry of Mining and Critical Minerals, ENV = BC Ministry of Environment and Parks; MoF = BC Ministry of Forests; NHA = Northern Health Authority; ODV = Osisko Development Corp.

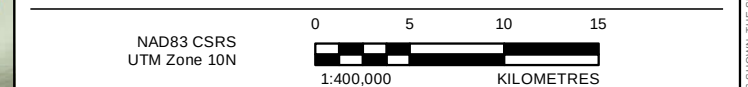


- ### LEGEND
- | | |
|---|---|
|  | POPULATED COMMUNITY |
|  | ENVIRONMENT AND CLIMATE CHANGE CANADA CLIMATE STATION |
|  | ODV-OPERATED CLIMATE STATION |
|  | PROJECT INFRASTRUCTURE LOCATION |
|  | TEMPORARY EARLY CONSTRUCTION CAMP |
|  | ROAD |
|  | HIGHWAY |
|  | WATERCOURSE |
|  | WATERBODY |
|  | PARKS/PROTECTED AREA |
|  | BARKERVILLE HISTORIC TOWN AND PARK |
|  | TRANSPORTATION ROUTE |
|  | TRANSPORTATION ROUTE (MINE SITE ACCESS ROADS) |
|  | TRANSMISSION LINE ROUTE |
|  | SURFACE DISTURBANCE AREA |



REFERENCE(S)

1. WATER FEATURES, TRANSPORTATION FEATURES OBTAINED FROM CANVEC © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED.
2. CITIES/TOWNS, INDIAN RESERVES, FEDERAL LANDS AND PARK/PROTECTED AREAS OBTAINED FROM BC MINISTRY OF FORESTS, LANDS NATURAL RESOURCE OPERATIONS AND RURAL DEVELOPMENT.
3. INSET BASE SOURCE: ESRI, DELORME, GEBCO, NOAA NGDC, AND OTHER CONTRIBUTORS.



CARIBOO GOLD PROJECT

LOCATION AND ACCESS

REV.	DESCRIPTION	DATE	INITIALS
0		7/31/2025	MY
PROJECT NO. 177416003	PHASE 00	REV. 0	FIGURE 1-3

2. DISTRICT OF WELLS DRINKING WATER

The identification and development of a new drinking water supply source for the District of Wells prior to closure of the Project is a condition in Schedule B of EAC #M23-01 for the Project (Condition #18.3b). The primary focus for the District of Wells drinking water supply will be the development of an alternative groundwater source outside of the estimated influence of Project activities, although identification of a surface water source may be evaluated in tandem in case a groundwater source is not identified. Identification of an alternative water supply option for the District of Wells, or another suitable mitigation, is required before Project mining progresses to a point where groundwater from the flooded underground would be predicted to be intercepted by the District of Wells drinking water well. The following sections describe the approach for the investigation and characterization of a new water supply well (Condition #18.3b). Licensing and permitting details associated with the new groundwater water supply source are presented in Section 4.

Although a groundwater source is the primary focus for the District of Wells drinking water supply, identification of a surface water source may be evaluated in tandem with the groundwater investigation, or in the event an alternate groundwater drinking water supply cannot be identified. For either a groundwater or surface water supply as the source of drinking water for the District of Wells, the source drinking water quality will be compared to assumptions adopted in the Human Health Risk Assessment (HHRA) in the EAC Application. The HHRA will be updated if the source water quality established for the District of Wells is not equivalent to or better than the source water concentrations assumed in the HHRA.

If a groundwater or surface water supply cannot be identified, and the existing District of Wells water supply well is selected as the water supply source for the Project, the following measures will be taken:

- The rationale for this decision and results of the investigative work will be reported to the District of Wells, the EAO, and the NHA (Condition #18.3d).
- A treatment plan, or an alternate mitigation plan, would be developed to address Project effects on groundwater quality at the District of Wells water supply throughout operations, closure, and post-closure (Condition #18.3d).
- An update to the HHRA in the EAC Application would be required to account for risks to human health (Condition #18.3d).

The implementation of mitigation measure(s) required would be determined by the Qualified Professional (QP) using any updated information collected during the groundwater supply investigation if the existing District of Wells water supply well is selected as the water supply source for the Project (Condition #18.3a).

2.1 Groundwater Supply Identification

Hydrogeological modelling conducted in support of the Project EAC Application has identified the potential for mining-related, post-closure impacts to the existing community groundwater supply well for the District of Wells. One of the proposed remedial measures to address the potential post-closure impacts is the identification of an alternate potable groundwater source for the District of Wells that would not be influenced by the Project. An alternate source of potable groundwater would be considered as follows:

- A groundwater source in a different aquifer other than the Wells Aquifer.
- A groundwater source in the Wells Aquifer at a sufficient distance away from the Project that post-closure changes in water quality associated with the Project would not be anticipated.

The objective of the Groundwater Supply Identification will be to identify locations with favourable hydrogeological conditions for a groundwater water supply source, investigate the stratigraphy in these areas, and install a test well. These steps are described in further detail in Sections 2.1.1 to 2.1.3 and Section 2.2.1. Updated groundwater modelling to refine predicted effects of the Project is described in Section 2.2.2.

2.1.1 Hydrogeological / Environmental Screening Assessment

A hydrogeological / environmental screening assessment will be conducted to propose drilling location(s) for investigating an alternate groundwater supply well for the District of Wells and to identify areas of potential environmental concern which have the likelihood to impact groundwater in the proximity of the proposed drilling location(s). Selection of the drilling locations will include consultation with the District of Wells.

The assessment will include a review of hydrogeological information for the District of Wells area, including public well records, hydrogeological testing, previous drilling investigations, and other historical information. The primary purpose of this review will be to identify locations with favourable hydrogeological conditions for groundwater water supply. Selected drilling locations will be assessed for potential influences on the surrounding ecosystem and wildlife according to the requirements of the Project Wildlife Management Plan.

In addition to determining favourable drilling location(s), a review of applicable public information will be conducted. This includes the Provincial Groundwater Wells and Aquifer Database (GWELLS) to review well construction records near the proposed drilling location(s) and the Contaminated Sites Registry to evaluate regulatory requirements and required setbacks for a water supply well, as well as potential environmental concerns. Regulations applicable to the development of water supply wells will be reviewed, including the Groundwater Protection Regulation (GWPR), Health Hazards Regulation (HHR), and Municipal Wastewater Regulation (MWR). Horizontal setbacks may be required from:

- An existing water supply well that is used or intended to be used (GWPR Section 18);
- The nearest private dwelling (HHR Section 8);
- Probable sources of contamination (HHR Section 8);
- An existing cemetery or a dumping ground (HHR Section 8); and
- A sewerage system (MWR Section 82 and Sewerage System Standard Practice Manual).

The setback requirements will be dependant on the results of the hydrogeological / environmental screening assessment. Permitting and regulatory requirements are discussed in more detail in Section 4. Prior to starting the monitoring well drilling investigation, utility clearances will be conducted in accordance with ground disturbance rules and regulations in BC.

New drinking water sources within the NHA region must be assessed by the NHA to promote regional consistency and to verify that NHA treatment objectives are being met. NHA will be notified once the drilling location(s) for investigating an alternate groundwater supply well for the District of Wells has been identified.

2.1.2 Stratigraphic Drilling and Monitoring Well Installation

A monitoring well drilling investigation will precede a test well investigation to better characterize the stratigraphy at the proposed drilling location(s). Soil samples collected during the drilling process will support the determination of favourable hydrogeological conditions for a water supply well and allow groundwater sample collection to evaluate groundwater quality. A sonic drill rig is recommended for the stratigraphic drilling and monitoring well installation. Sonic drilling samples produce a relatively undisturbed subsurface sample with near full core recovery and a continuous subsurface profile.

Artesian conditions are possible near the District of Wells, given the topography and geomorphology in the valley. If artesian conditions are encountered, reporting will be conducted in alignment with requirements of the *Water Sustainability Act* (WSA).

Regulatory requirements and/or best practices for the monitoring well drilling investigation include:

- A registered geotechnical / environmental well driller authorized to operate in BC (GWPR).
- A registered driller with competency in stopping and controlling artesian flow.
- A QP with experience in flowing artesian conditions to support the planning and design of the stratigraphic drilling investigation.

Soil samples collected during drilling will be logged to characterize the subsurface as drilling is advanced. Soil logging includes a description of physical properties, including mineral composition, grain size, and water content. This information supports the stratigraphic interpretation of the distribution of aquifers and aquitards in the area of investigation. A monitoring well installation will proceed if a favourable water-bearing deposit or aquifer is intersected. Depending on the stratigraphy (i.e., unconfined/confined, depth), a nested monitoring

well configuration will be considered with a deeper well screened close to the well screen and a shallow well screened across the water table.

Following a successful monitoring well installation, a groundwater sample will be collected and submitted to an accredited laboratory. The analysis suite will be selected to compare the results to Guidelines for Canadian Drinking Water Quality established by Health Canada (Health Canada 2022), water quality standards for potable water defined in the Drinking Water Protection Regulation (DWPR), and NHA Required Water Quality Parameters. A QP will compare the results to relevant regulatory guidelines and determine whether to continue with a test well installation or if further sampling may be required to confirm potential elevated concentrations of contaminants. If water quality is above water quality assumptions in the HHRA at the identified potable water supply source, the water quality data will be provided to water treatment engineers to determine appropriate technology to treat the water and meet assumptions of the HHRA and the duration required for treatment. It is anticipated that the treatment will be required indefinitely at the identified water source, but until that source is identified and the water quality assessed, this can not be confirmed.

Source Water Approval

A Source Water Approval Form must be submitted and approved by the Environmental Health Officer (EHO) in conjunction with the Public Health Engineer (PHE). The purpose of the Source Water Approval Form is to assess water quality, evaluate whether the well is at risk of containing pathogens (GARP), and identify potential treatment requirements. The EHO and PHE will review the form and may choose to approve the source as proposed, to approve the source with conditions, or to reject the source. The groundwater quality data submitted at this stage will be collected from the monitoring well installation. Once a test well is drilled, additional groundwater quality data will be collected from the test well during the pumping test process that could provide further information for the Source Water Approval.

2.1.3 Test Well Drilling Investigation

If the new groundwater source is approved by the NHA, a test well drilling investigation will proceed. The stratigraphic information collected during the monitoring well installation will be used to inform the test well drilling process and desired target interval for a well screen assembly. The test well drilling will be conducted by a registered water well driller authorized to operate in BC (GWPR). If flowing artesian conditions are observed during the stratigraphic drilling, or are suspected, the registered well driller must have competency in stopping and controlling artesian flow.

The test well will be designed in accordance with the GWPR, including:

- A surface seal will be installed to prevent the entry of foreign matter from the surface into the well or aquifer that the well is screened into.

- A production casing diameter will be selected to allow a pump of sufficient size to provide the design flow for the well.
- A slot size for the well screen will be determined in the field based on sieve testing analysis of the material from the elevation of the planned screened interval and best practices for well screen design (such as British Columbia Ground Water Association 2017). The length of the screen will be determined in the field based on drilling results from the target interval.

Following a successful installation, the well will be developed to increase hydraulic connection and remove fines from the area surrounding the well screen using a method suitable for the borehole conditions. Disinfection of the well, along with wellhead completion, including the installation of a Well Identification Plate, will follow the requirements of the GWPR.

2.2 Groundwater Supply Characterization

A pumping test will be designed based on drilling observations to characterize the aquifer and well yield, collect groundwater samples after a prolonged period of pumping, and evaluate hydraulic connectivity to surface water. The monitoring well(s) or nested wells installed prior to the test well (Section 2.1.2) will be utilized as observation wells during the pumping test. The hydrogeological setting will be assessed to evaluate whether additional monitoring well installations are needed for the pumping test to adequately characterize the aquifer and to support licensing requirements (Section 4) and installed prior to testing.

2.2.1 Pumping Test

A pumping test will be designed to provide an estimate of the well's yield / specific capacity, the potential impact of pumping the new well on other wells, and the hydraulic properties of the aquifer. The pumping test design will consider the following:

- The conceptual hydrogeology and whether the screened interval is installed in a confined or unconfined aquifer.
- Guidance documents, including ENV's Guide to Conducting Well Pumping Tests and Guidance for Technical Assessment Requirements in Support of an Application for Groundwater Use in British Columbia (ENV 2020).

The pumping test data will be analyzed and provided to ODV. If it is determined that the test well will not move forward as an alternate water supply source for the District of Wells, the well will be decommissioned in accordance with the GWPR, including the preparation of a well decommissioning report.

During the pumping test, three groundwater samples will be collected and submitted to an accredited laboratory. One sample will be collected near the beginning of the pumping test, one during the pumping test, and another at the end to assess potential changes in groundwater quality over the duration of pumping. The analysis suite will be selected to compare the results to Guidelines for Canadian Drinking Water Quality (Health Canada 2022), water quality standards

for potable water defined in the DWPR, and NHA Required Water Quality Parameters. Relative to the groundwater quality samples collected from the previous monitoring well installation, groundwater quality samples from the test well are considered more representative of the aquifer conditions since they will be obtained after a prolonged period of pumping from a larger diameter well.

The groundwater quality results from the test well will be provided to treatment engineers to determine what, if any, water treatment methods may be required (Condition #18.3e). Treatment engineers will use the groundwater quality results to evaluate the potential for leaching and increased lead levels at the tap (Condition #18.3c).

2.2.2 Updates to Hydrogeological Model

Data from the field investigations will be compared to assumptions in the conceptual and numerical groundwater models for the Project. The field investigation data will be checked to assess if hydraulic conductivity estimates are within estimates for the hydrostratigraphic unit in the baseline report and if the aquifer thickness at the test hole locations aligns with the hydrostratigraphic units defined in the numerical hydrogeological model for the Project. If the hydraulic conductivity values fall outside of the properties in the numerical model, or if the test hole locations modify the interpretation of the hydrostratigraphic thickness or extent, the model will be updated to reflect the new information collected. If the collected data aligns with data in the baseline report and numerical model, the model will not be updated and will only be used to simulate the final selected well location and pumping rate.

The model will be used to predict the influence of the new drinking water well on the groundwater flow system, including changes in groundwater levels, and the potential to cause contaminant mobilization related to identified contaminated areas near the well (Condition #18.3g). The refined scenario analysis runs will be used to assess if there are any changes in predictions, assumptions, or conclusions made in the EAC Application (Condition #18.3g). The updated model will also be used to evaluate whether the alternative drinking water source(s) identified and tested as part of the groundwater supply investigation/characterization may be adversely impacted by mining activities associated with the Project.

If the assessment indicates changes to groundwater flow or quality require mitigation measures, or that the alternate drinking water source identified may be adversely impacted by mining activities associated with the Project, mitigation measures will be identified and assessed. Mitigation measures will be dependent on the selected well location and adverse change predicted and, therefore, are not included in this plan. Changes to groundwater flow or quality will be evaluated against the existing monitoring network and Mine Site Groundwater Monitoring Plan (Appendix C of the Human Health Monitoring and Management Plan [ODV 2024]) to determine whether additional monitoring may be required, and the Groundwater Monitoring Plan will be updated if additional monitoring is identified as needed.

3. MINE SITE COMPLEX DRINKING WATER

The Mine Site Complex will include a work camp that requires a drinking water supply. The Preliminary Economic Assessment conducted for the Project identified a well (TW21-03) located near the existing ODV exploration offices as the proposed water source for potable water requirements for the Mine Site Complex (ODV 2022b).

TW21-03 was drilled in 2021 as part of a Groundwater Exploration Program (WSP 2023a) by Golder Associates Ltd. (now WSP) that followed on from a Groundwater Supply Options Assessment (Golder 2021) to identify potential locations for a groundwater supply well for the proposed camp.

The evaluation of a drinking water supply for the Mine Site Complex will consider previous work conducted and further investigation identified in this document (Condition #18.3f). The options under consideration include:

- A hydrogeological assessment of the existing test well (TW21-03);
- An investigation for an alternate drinking water supply for the Mine Site Complex; and
- An assessment for sourcing drinking water from the District of Wells water supply system.

These options will be assessed to evaluate the most appropriate source of drinking water for the Mine Site Complex.

3.1 Hydrogeological Assessment of Existing Test Well

In 2021, three test wells were drilled near the ODV exploration offices as part of the Groundwater Supply Exploration Program (WSP 2023a). This drilling location was selected because of:

- Proximity to the demand point;
- Reduced costs from conveyance infrastructure;
- A location on ODV-controlled land; and
- Unlikely interference with the community well, as the groundwater target was in a different aquifer.

After the test wells were installed, a pumping test was conducted in one of the three wells, TW21-03, which was considered the most promising location for aquifer testing due to the higher flow rates obtained during well development, and the low turbidity. The other two wells, TW21-01 and TW21-02, were utilized to monitor drawdown during the pumping test. The groundwater source for TW21-03 is a shallow, unconfined, or partially confined aquifer with the screen installed in an alluvial fan type aquifer. The estimated well yield was low, between 10-15 US gallons per

minute (USGPM). Due to the hydrogeological setting of the aquifer, groundwater availability may be impacted by seasonality.

Potential challenges associated with the use of the TW21-03 as a water supply source for the Mine Site Complex include:

- Permitting constraints associated with the aquifer being partially unconfined or leaky and potentially hydraulically connected to Lowhee Creek;
- Uncertainty in the seasonal variation of groundwater availability and turbidity;
- A lower well yield than the peak flow rate desired for the proposed Mine Site Complex camp; and
- Potential changes in Lowhee Creek baseflow and surface water quality as documented in the EAC Application for the Project (ODV 2022a).

Further evaluation would be required to determine the feasibility of selecting TW21-03 as a water supply source. If this location is pursued, this evaluation will include additional pumping tests with new monitoring wells near TW21-03 to improve the understanding of well yield and the degree of aquifer confinement during different periods of groundwater availability. Additional water level and water quality monitoring and analysis in TW21-03 could also provide information on seasonal variability. If this location is not pursued, alternative source locations will be selected for assessment.

3.2 Investigation for Alternate Drinking Water Supply Well for Mine Site Complex

An investigation would be conducted in the same phased manner outlined in Section 2 to identify and implement a groundwater supply source for the Mine Site Complex. The investigation would include:

- A hydrogeological / environmental screening assessment to propose suitable drilling location(s);
- A stratigraphic drilling and monitoring well installation to characterize the stratigraphy at the proposed drilling location(s); and
- A test well drilling investigation using the stratigraphic information collected from the stratigraphic drilling and monitoring well installation to inform the test well drilling process and desired target interval for a well screen assembly.

The investigation would comply with the relevant regulations and guidelines in BC. Characterization of the water supply source would be carried out as described in Section 2.2, which includes a pumping test and analysis and reporting of the data collected during testing. Implementation of a successful groundwater supply well for the Mine Site Complex would require licensing and permitting prior to construction and operation. These steps are described in Section 4.

3.3 Assessment for Sourcing from the District of Wells Water Supply System

ODV and the District of Wells have previously engaged in discussions about sourcing water directly from the existing community water supply well for the Mine Site Complex. Specifics regarding the separation or integration of the supply systems have evolved and would require further discussion; however, it is understood that sourcing water from the community water supply well for the Mine Site Complex remains an option for the Project. Due to the Project post-closure impacts predicted for the District of Wells drinking water supply, this would be a temporary solution to provide drinking water for the Mine Site Complex until an alternate supply for the District of Wells can be identified. An assessment will be conducted to determine the feasibility of waterworks construction and potential impacts to the existing system. The assessment may include:

- Cost / benefit analysis of water conveyance infrastructure from the Mine Site Complex to the existing District of Wells water supply distribution system;
- Capacity analysis to provide the necessary peak flow rates and the extent of additional water storage that may be required; and
- If and to what extent the added usage will result in changes in groundwater flow and groundwater quality, including potential alterations to groundwater flow regimes and/or contaminant mobilization related to the existing contaminated area, and changes to predictions, assumptions, or conclusions made in the EAC Application (Condition #18.3g) (See Section 2.2.2). The EAC Application included consideration of additional pumping in the Wells aquifer to meet the Camp Water Supply Needs; therefore, additional changes in groundwater flow and groundwater quality are not anticipated.

Additional items may be investigated to comply with relevant regulations and guidelines in BC if the District of Wells water supply system is selected as the desired source of drinking water for the Mine Site Complex.

4. PERMITTING AND LICENSING

After the groundwater supply has been characterized for the District of Wells (Section 2) and for the Mine Site Complex (Section 3), provincial licensing and permitting requirements must be satisfied. The permitting and licensing considerations include:

- A water license application in accordance with the WSA;
- A Source Water Approval Form submission with the NHA;
- A Water Supply System Construction Permit application with the NHA; and
- A Water System Operation Permit application with the NHA.

After a water license and construction permit are granted, a pump installation and tie-in construction can proceed. Operations of the new supply well can begin once a Water System Operation Permit is granted. The licensing and permitting, along with construction and operations, are described in further detail below.

4.1 Groundwater Licensing and Permitting

Under the WSA, users of groundwater for waterworks require a water license. A water application must be submitted, and a water license granted, before the groundwater can be lawfully used, diverted, or stored. An application for the new water supply source will be submitted in accordance with application requirements outlined in Section 3(1) of the WSR.

As part of the application, a technical assessment will be conducted to facilitate administration of applications (Condition #18.3c). The Guidance for Technical Assessments in Support of an Application for Groundwater Use in BC recommends that the technical assessment address groundwater availability, impacts to existing users, hydraulic connection to surface waters, and other relevant issues identified by a QP. Best practice guidelines exist with different requirements and levels of technical assessment based on the proposed quantity of water use; however, the statutory decision maker (NHA) can require additional information to support the decision of the application. The results of the technical assessment will be summarized in a technical report by the QP.

Depending on the results of the GARP assessment (Section 2.1.2), either a screening form or a hydrogeology report will be attached to the Source Water Approval Form submission to the NHA. The QP will provide information to the Drinking Water Officer (DWO) that assists in this determination and will follow Professional Practice Guidelines from Engineers and Geoscientists BC (EGBC) outlined in the Assessment of GARP (EGBC 2019).

In addition to a water license under the WSA, and the Source Water Approval Form submission to the NHA, a construction permit application will also be submitted to the NHA as a requirement under the *Drinking Water Protection Act* (DWPA). The construction permit must be obtained before the construction, installation, alteration, or extension of a water supply system. A construction permit is valid for one year unless a different period is specified.

Once the Construction Permit is issued, the file will be forwarded to an Environmental Health Office to begin the operating permit approval process. The DWPA requires an operating permit for permitting a new water system as a public water system. The Waterworks Operating Permit application includes descriptions of the source, treatment plant, distribution, and reservoirs/storage tanks. All applicable sections will be prepared. Section E includes sampling information for bacteriological sampling sites and water chemistry sampling sites. This section is to be prepared with an Environmental Health Officer.

4.2 Construction and Operations

As required by the GWPR, a registered well pump installer that satisfies the qualifications described in the WSA will be selected to install a well pump in the completed test well after a construction permit is issued and within the duration that the permit is valid. QPs will be retained to tie-in the new water supply well to the existing water supply distribution system and to undertake the associated construction. The owner / operator of the new water supply will be required to report to the NHA as part of the Waterworks Operating Permit. The frequency of water quality sampling and reporting required will be detailed in the Waterworks Operating Permit and determined by the NHA.

5. MONITORING AND REPORTING

5.1 Drinking Water Quality Communication

The EAC Application has predicted potential post-closure effects on the water quality for the District of Wells water supply system. ODV will provide the District of Wells, ENV, NHA, and Participating Indigenous Nations annual reporting on groundwater monitoring data that will be publicly available (described in Section 5.2).

A groundwater well survey was conducted to identify potential groundwater well users in the local study area of the Project (WSP 2023b). The survey identified five potential properties with wells, not including the District of Wells community well:

- Two campsites with hand pump wells that are also connected to the Historic Town of Barkerville distribution system, which relies on surface water. These wells are identified in the provincial groundwater database and are outside of the District of Wells.
- One old, partially buried well in the District of Wells which is not utilized, according to the resident.
- One property in the District of Wells identified by the resident to have a private well on the property, but who did not want to provide specific information, including the use of water or if the well is actively used.
- One potential well on a neighbouring property outside of the District of Wells, identified by a neighbour, whose actual property owner was not able to be confirmed.

ODV will develop a communications strategy with the District of Wells to provide appropriate disclosure to residents of the District of Wells, including signage for potability of surface water sources (Condition #18.3j) and information regarding the groundwater water quality data collected in the District of Wells as part of the Project (Condition #18.3h). During the development of this strategy, ODV will provide the District of Wells the results of the well survey. Pending discussions with the District of Wells, this communication strategy may include communication tied to new land purchases, new private well installations, and/or land development in the District of Wells. ODV will initiate consultation with the District of Wells in Q3 2025, or as they are starting well investigation. ODV will communicate to the District of Wells if, and when a successful alternative drinking water resource has been identified. A successful alternative drinking water resource will be one that meets or exceeds assumptions in the HHRA with respect to drinking water quality. The communication will include the identified source of water and the quality of the water. If treatment is required to achieve acceptable quality of water relative to assumptions in the HHRA, this will also be communicated to the District of Wells. The timing of communication can not be identified, as it unknown how long the field programs will take until a suitable water

source is identified. Timing is, therefore, constrained in that an alternative water supply option for the District of Wells, or another suitable mitigation, will be identified before Project mining progresses to a point where groundwater from the flooded underground would be predicted to be intercepted by the District of Wells drinking water well. Full development/construction of the alternative water supply is not required until closure.

5.2 Groundwater Quality Monitoring and Reporting

Site and receiving environment monitoring for the Mine Site is described in the Groundwater Monitoring Plan (Appendix C of the Human Health Monitoring and Management Plan [ODV 2024]) and the Aquatic Effects Monitoring Plan (AEMP 2025). These plans outline the location and frequency of sample collection, and the analyses that will be conducted. Mitigation will be evaluated according to the schedule and methods outlined in these management and monitoring plans and QP involvement will follow requirements in these plans. The adaptive management aspects of the plans will identify the need to change these programs in accordance with site conditions and results obtained.

The Groundwater Monitoring Plan provides the groundwater monitoring program for the Mine Site. The information gathered during groundwater monitoring will be summarized annually and include an assessment of groundwater quality in the Wells Aquifer (drinking water aquifer) and a summary of the results of field programs or assessment steps conducted to identify an alternative drinking water source. The annual reporting will provide a summary of monitoring results and identify existing or developing water quality trends or issues. A copy of the annual reporting for each calendar year will be provided to the District of Wells, ENV, NHA, Participating Indigenous nations, and the public through posting on a Project internet site (Condition #18.3i) by July 31st of the following year. ODV will provide a draft version of the annual report to the District of Wells, NHA, and Participating Indigenous nations, which will include any recommendations to alter the Groundwater Monitoring Plan or DWWT Plan, by June 1st of the following calendar year on a Project internet site to allow a 30-day window to receive comments. The Groundwater Monitoring Plan is not a fixed document and components of the Groundwater Monitoring Plan will be revised over the life of the Project based on recommendations in annual reporting. The proposed monitoring wells and frequency of sampling will be assessed each year by a QP based on the collected groundwater data. The data will be compared to baseline groundwater quality to assess if changes in groundwater due to the Project have occurred.

Conditions #3 and #4 of EAC M23-01 require that ODV develop management plans that include schedules for implementation of mitigation, methods for evaluating mitigation, and trigger-response actions. The objective of trigger-response is to identify circumstances that require ODV to implement alternative or supplementary mitigation measures, monitoring, or adaptive management based on evaluation of mitigation.

The DWWT plan is a description of the approach for identification and development of a drinking water supply source for the District of Wells (Section 2) and the Mine Site Complex (Section 3),

expected permitting and licensing of a new groundwater drinking water supply (Section 4), and groundwater quality reporting. The timing of sub-tasks in this program can not be identified until a suitable location is identified through drilling and testing. It is unknown how many test holes will have to be drilled to confirm a suitable location. Timing is therefore constrained in that the identification of an alternative water supply option for the District of Wells, or another suitable mitigation, will be identified before Project mining progresses to a point where groundwater from the flooded underground would be predicted to be intercepted by the District of Wells drinking water well. Full development/construction of the alternative water supply is not required until closure. The trigger for the DWTT Plan is the successful or unsuccessful identification of an alternative drinking water source, or another suitable mitigation, prior to mining proceeding past a point where groundwater from the flooded underground would be predicted to be intercepted by the District of Wells drinking water well. In the unlikely event an alternative drinking water source is not identified, mining will not proceed past a point where groundwater from the flooded underground would be predicted to be intercepted by the District of Wells drinking water well.

The location of Condition #4 requirements, and Condition #3 requirements related to monitoring, in the Human Health Monitoring and Management Plan and the Aquatic Effects Monitoring Plan is provided in Table 5-1. Appendix B includes reference to the location of monitoring and trigger-response content in other management plans relevant to hydrogeology mitigation not directly related to the DWWT Plan.

Condition Item	Condition Requirement ⁽¹⁾	Plan ⁽²⁾	Section Number
3.2e	Schedule for implementing the actions in the document throughout the relevant Project phases.	AEMP	3.3
		HHMMP	4.2.1
3.2f	How the effectiveness of any mitigation measures will be evaluated including the schedule for evaluating effectiveness.	AEMP	4
		HHMMP	5.2
3.2g	Schedules and methods for the submission of reporting required under the applicable condition, and the form and content of these reports.	AEMP	4
		HHMMP	6
3.3a	A description of baseline information that will be used to support monitoring of the effectiveness of mitigation.	AEMP	2
		HHMMP	3, 4, 6
3.3b	Methods, objective, location, frequency, timing, and duration of monitoring.	AEMP	3
		HHMMP	3, 4, 6
3.3c	Scope, content and frequency of reporting of the monitoring results.	AEMP	4
		HHMMP	3, 4, 6
4.1	Where the following conditions of this Certificate require the Holder to develop a plan, program or other document that includes monitoring, including monitoring of mitigation measures or monitoring to determine the effectiveness of the mitigation measures, the Holder must, subject to 4.4, include trigger-response actions in that plan.	AEMP	5
		HHMMP	4, 5, Appendix D

Condition Item	Condition Requirement ⁽¹⁾	Plan ⁽²⁾	Section Number
4.2	The objective of trigger-response planning is to identify the circumstances that will require the Holder to implement alternate or additional mitigation measures, monitoring, or other adjustments through adaptive management to address the effects of the Project if the monitoring shows that those effects. a) are not being mitigated to the extent contemplated in the Application. b) Are different than those predicted in the Application. c) Have exceeded the triggers identified in paragraph 4.3a of this condition.	AEMP	5
		HHMMP	5
4.3a	The identification of qualitative and quantitative triggers (a trigger is a type or level of change using ENV's Development and Use of Trigger Response Plans Technical Guidance (March 2022, or as updated or replaced from time to time), which, when observed through monitoring and/or stakeholder/community/service provider feedback, will require the Holder to alter existing, or develop new, mitigation measures to avoid, reduce, and/or remediate effects).	AEMP	5
		HHMMP	5.1.1, Appendix D
4.3b	The methods that will be applied to detect when a qualitative or quantitative trigger, or type or level of change referred to in 4.3a has occurred.	AEMP	5
		HHMMP	5.1.1, 5.1.2
4.3c	A description of the process and timing to alter any existing mitigation measures or develop new mitigation measures to reduce or avoid effects.	AEMP	5
		HHMMP	5.1.2, 5.2
4.3d	The means by which the identification of the new and/or altered mitigation measures will be applied when any of the changes identified in paragraphs 4.2 occur, or the process by which those will be established and updated over the relevant timeframe for the specific condition.	AEMP	5
		HHMMP	5.1.2
4.3e	The monitoring program that will be used to determine if the altered or new mitigation measures and/or remediation activities are effectively mitigating or remediating the effects and or avoiding potential effects.	AEMP	5
		HHMMP	5.1.2, 5.2
4.3f	The scope, content, and frequency of reporting on the implementation of altered or new mitigation measures.	AEMP	5
		HHMMP	5.2
4.4	If there are any requirements or mitigation measures required in the plan, program or other document for which trigger-response, or elements of trigger-response listed in 4.3, is assessed to be not appropriate or applicable, the plan must include identification of those requirements and measures, and the rationale for that assessment.	AEMP	-
		HHMMP	5

Notes: (1) Condition set out in Schedule B Table of Conditions of EAC M23-01.

(2) Aquatic Effects Monitoring Plan (AEMP), Human Health Monitoring and Management Plan (HHMMP)

*- "denotes conditions not applicable to the environmental plan

6. CONCLUSION

The DWWT Plan was prepared to provide a description of the groundwater supply investigation, characterization, and expected permitting and licensing to support the development of an alternate source of potable water for the District of Wells and for the Mine Site Complex portion of the Project. The DWWT Plan also outlines the steps and relevant regulatory guidelines during the investigation and characterization stages. The DWWT Plan is a living document and will be updated as new information becomes available.

If the investigative work is not able to identify an alternate drinking water supply source, measures will be taken to address Project effects on groundwater quality at the District of Wells water supply well. Identification of an alternative water supply option (either groundwater or surface water) for the District of Wells, or another suitable mitigation, will be confirmed before Project mining progresses to a point where groundwater from the flooded underground would be predicted to be intercepted by the District of Wells drinking water well. In the unlikely event an alternative drinking water source or mitigation is not identified, mining will not proceed past a point where groundwater from the flooded underground would be predicted to be intercepted by the District of Wells drinking water well. The DWWT Plan includes a description of groundwater quality information that will be shared with Participating Indigenous nations, MCM, ENV, NHA, the MoF Crown Contaminated Sites Program, and the District of Wells.

The DWWT Plan will be reviewed annually and revised if changes in mitigation or approach are required based on groundwater monitoring and investigative work. The Plan and any updates made will be implemented throughout operations, closure, and post-closure under the direction of a QP (Condition #18.4). Updates to the DWWT Plan will be provided for review to Participating Indigenous nations, MCM, ENV, NHA, the MoF Crown Contaminated Sites Program, and the District of Wells. Feedback provided by reviewers will be considered in the DWWT Plan update and responded to by ODV. Rationale will be provided in responses where requested revisions have not been incorporated into the update. A copy of the current version of the DWWT Plan will be included on the dedicated Project website.

7. REFERENCES

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WSP. 2023b. Cariboo Gold Project – Hydrogeology Existing Conditions Report Addendum. Reference No. GAL970-174160-30000-TM-Rev0. May 26, 2023.

APPENDIX A DECLARATION OF COMPETENCY FORM

Declaration of Competency

The Ministry of Environment and Climate Change Strategy relies on the work, advice, recommendations and in some cases decision making of qualified professionals¹, under government's professional reliance regime. With this comes an assumption that professionals who undertake work in relation to ministry legislation, regulations and codes of practice have the knowledge, experience and objectivity necessary to fulfill this role.

1. Name of Qualified Professional Jennifer Levenick
Title Senior Hydrogeologist
2. Are you a registered member of a professional association in B.C.? ☒ Yes ☐ No
Name of Association: EGBC (PEng) Registration # 35959
3. Brief description of professional services:
Drinking Water and Water Treatment Plan preparation

This declaration of competency is collected under section 26(c) of the *Freedom of Information and Protection of Privacy Act* for the purposes of increasing government transparency and ensuring professional ethics and accountability. By signing and submitting this statement you consent to its publication and its disclosure outside of Canada. This consent is valid from the date submitted and cannot be revoked. If you have any questions about the collection, use or disclosure of your personal information please contact the Ministry of Environment and Climate Change Strategy Headquarters Office at 1-800-663-7867.

Declaration

I am a qualified professional with the knowledge, skills and experience to provide expert information, advice and/or recommendations in relation to the specific work described above.

Signature: 
X

Print Name: Jennifer Levenick

Witnessed by 
X

Print Name: Sean Weston

Date signed: April 8, 2024

¹Qualified Professional, in relation to a duty or function under ministry legislation, means an individual who

- a) is registered in British Columbia with a professional association, is acting under that organization's code of ethics, and is subject to disciplinary action by that association, and
- b) through suitable education, experience, accreditation and knowledge, may reasonably be relied on to provide advice within his or her area of expertise, which area of expertise is applicable to the duty or function.

APPENDIX B SUMMARY OF PROPOSED MITIGATION MEASURES FOR THE CARIBOO GOLD PROJECT

Table 20.1-4 Summary of Proposed Mitigation Measures for the Cariboo Gold Project (from Section 7.5 | Groundwater of the EAC Application)

Mitigation ID	Key Mitigation Measures	Timing for Mitigation to Become Effective (all effective immediately upon implementation unless otherwise stated)	Project Phase (C=Construction, O=Operation, CL=Closure, PC=Post-closure)	Associated Project Components (All =all Project components, including the Mine Site, QR Mill, Transmission Line, and Transportation Route or applies to the Project's corporate commitments)	Valued Component / Subcomponent / Topic Addressed	Potential Project Related Effect Addressed	Means through which Mitigation is Implemented and Evaluated (Project Design, Management/Monitoring Plan)	Source of Mitigation Measure				
7.5 Groundwater												
7.5-1	Vegetation clearing, soil stripping, grubbing, and grading for construction, temporary workspace, or storage areas, will occur only within the approved Project boundaries.	-	C,O,CL,PC	Mine Site, QR Mill, Transmission Line	All Groundwater subcomponents	Increased Surface Water Runoff, Reduced Groundwater Infiltration	Implementation: Vegetation Management Plan (EEMP Appendix E Section 2) Monitoring and Trigger Response: Vegetation Management Plan Section 3.5 Reporting: Vegetation Management Plan Section 3.5	Section 7.5.5.3				
7.5-2	Brownfield sites that have been previously disturbed by historical mining operations will be used for the placement of Project infrastructure.			Mine Site, QR Mill		Groundwater Quantity			Reduced Groundwater Infiltration from Reclamation of Disturbed Areas			
									Increased Surface Water Runoff, Reduced Groundwater Infiltration			
					Reduced Groundwater Infiltration from Reclamation of Disturbed Areas							
					Increased Surface Water Runoff, Reduced Groundwater Infiltration							
					Reduced Groundwater Infiltration from Reclamation of Disturbed Areas							
7.5-3	Sediment and erosion control measures (e.g., silt curtains) will be implemented.	C,O,CL	Mine Site	Increased Surface Water Runoff, Reduced Groundwater Infiltration	Mitigation: Surface Erosion Prevention and Sediment Control Plan (CEMP Appendix D) Monitoring and Trigger Response: Section 5 Reporting: Sections 5.2 and 6							
7.5-4	Sewage and septic waste will be piped to a treatment system prior to being discharged to the drainage galleries. Effluent will be treated by the mixed bed bioreactor system.			Alteration of Groundwater Quantity and Quality from Discharge from Sewage and Septic Handling System at the Mine Site Complex	Design mitigation. Septic system will be permitted and operated and monitored in accordance with permit requirements.							
7.5-5	Drainage galleries have been designed according to the Municipal Wastewater Regulation.											
drinking water plan	Groundwater removed to facilitate development of the underground mine will be treated to meet permit requirements prior to discharge to the receiving environment.	C,O	Mine Site	Alteration to Groundwater Flow and Water Level Elevation from Underground Dewatering and Operation of a Water Supply Well	Design mitigation summarized in AEMP (Section 1.4) Monitoring and reporting on Mine Site groundwater quality and quantity, and Mine Site surface water quality and quantity, will be accomplished through the Groundwater Monitoring Plan and AEMP, respectively (see Drinking Water and Water Treatment Plan Section 5.2)							
7.5-7	Interception wells will be operated in the event seepage from the Filtered Stack Tailings Storage Facility results in the migration of poor-quality groundwater and results in surface water concentrations above applicable guidelines/criteria.	Management / monitoring requirement; adaptive response	C,O,CL,PC	QR Mill	All Groundwater subcomponents	Alteration to Groundwater Flow Quantity and Quality from Alteration of Seepage from QR TSF \ FSTSF and Operation of a Water Supply Well	Design mitigation summarized in QR Mill Groundwater Monitoring Plan (Appendix C of HHMMP; other wells on Figure 2.1) Monitoring and reporting on QR Mill groundwater quality and quantity, and QR Mill surface water quality and quantity, will be accomplished through the Groundwater Monitoring Plan and AEMP, respectively (see Drinking Water and Water Treatment Plan Section 5.2)					
7.5-8	A liner will be placed over existing tailings and a cover will be placed over the final Filtered Stack tailings surface.	PC					Mine Site	Alteration in Groundwater Quality and Quantity from Seepage from Mine Waste Stockpiles and Surface Water Management Systems	Design mitigation summarized in QR Mill Groundwater Monitoring Plan (Appendix C of HHMMP) Monitoring and reporting on QR Mill groundwater quality and quantity will be accomplished through the QR Mille Groundwater Monitoring Plan (Appendix C of HHMMP).			
7.5-9	The historical waste material will be covered by a non-potentially acid generating liner to separate it from the Bulk Fill Area that will be constructed on top of the covered historical material. It will be progressively reclaimed with an engineered cover.			Mine Site	Alteration in Groundwater Quality and Quantity from Seepage from Mine Waste Stockpiles and Surface Water Management Systems	Design mitigation. No Bulk Fill Area is now being created. Monitoring and reporting on Mine Site groundwater quality and quantity will be accomplished through the Groundwater Monitoring Plan (Appendix C of HHMMP).						
7.5-10	Major site facilities will be lined, and seepage will be collected and managed within the Project water management system.					Mine Site	Alteration in Groundwater Quality and Quantity from Seepage from Mine Waste Stockpiles and Surface Water Management Systems	Design mitigation. Monitoring and reporting on Mine Site groundwater quality and quantity will be accomplished through the Groundwater Monitoring Plan (Appendix C of HHMMP)				
7.5-11	During post-closure, after active water treatment and management activities have ceased (passive care period), shallow seepage from stockpiles will be collected by perimeter ditching and passively conveyed to the receiving environment through the closure drainage systems.			C,O,CL,PC	Mine Site, QR Mill			Groundwater Quality	Alteration in Groundwater Quality from Structures, Equipment, and Material Handling	Mitigation: Chemicals and Materials Storage, Transfer and Handling Plan (CMSTHP; CEMP Appendix G) Monitoring: CMSTHP Section 5 Reporting: CHMSTHP Section 6		
7.5-12	A cover will be placed over the mine waste stockpiles at closure.	Mine Site, QR Mill, Transmission Line				Groundwater Quality	Alteration in Groundwater Quality from Structures, Equipment, and Material Handling			Mitigation: Chemicals and Materials Storage, Transfer and Handling Plan (CEMP Appendix G) Monitoring and Trigger-Response: CEMP Section 6.1 Reporting: CEMP Section 7		
7.5-13	At closure, salvageable equipment/materials will be removed and infrastructure will be decommissioned. ODV will remove chemicals, reagents, explosives, and hazardous materials, and return them to suppliers or dispose of them in a designated facility. Until removal, chemicals will be stored in existing storage containers during operations in accordance with the BC Hazardous Waste Regulation (Government of BC, 1988).		Mine Site, QR Mill							Groundwater Quality	Alteration in Groundwater Quality from Structures, Equipment, and Material Handling	Design mitigation Mitigation: Metal Leaching and Acid Rock Drainage Management Plan (MLARDMP; CEMP Appendix I) Monitoring and Trigger-Response: MLARDMP Reporting: MLARDMP
7.5-14	Inventories of reagents and other chemicals will be managed through operations to quantities required for current and planned usage. Transportation, storage, use, and disposal of explosives for the Project will be conducted in accordance with best management practices and applicable regulations.											Mine Site, QR Mill, Transmission Line
7.5-15	Inert, non-salvageable materials that pose no risk of soil contamination or risk to surrounding waterways will be used as underground backfill on-site or removed off-site.	Mine Site, QR Mill		Groundwater Quality	Alteration in Groundwater Quality from Structures, Equipment, and Material Handling	Mitigation: Soil Management Plan (EEMP Appendix G Section 3 and Appendix B) Monitoring and Trigger Reponse: Soil Management Plan Section 4 Reporting: Soil Management Plan Section 6						
7.5-16	An inspection program will be developed and implemented during operations to determine whether soil has been affected by contamination through hydrocarbon spills or other mine waste materials, including areas around fuel tanks.		Mine Site, QR Mill			Groundwater Quality	Alteration in Groundwater Quality from Structures, Equipment, and Material Handling	Mitigation: Soil Management Plan (EEMP Appendix G Section 3 and Appendix B) Monitoring and Trigger Reponse: Soil Management Plan Section 4 Reporting: Soil Management Plan Section 6				
7.5-17	ODV will follow established guidelines for site assessment and remediation strategies used in mitigating and/or remediating contamination.							Mine Site, QR Mill	Groundwater Quality	Alteration in Groundwater Quality from Structures, Equipment, and Material Handling	Mitigation: Soil Management Plan (EEMP Appendix G Section 3 and Appendix B) Monitoring and Trigger Reponse: Soil Management Plan Section 4 Reporting: Soil Management Plan Section 6	
7.5-18	No unconsolidated backfill (rockfill and / or tailings) will be placed in underground workings. All underground backfill will be cemented (comprising a mixture of cemented and / or paste rockfill and tailings) to reduce chemical loading from the rockfill.	C,PC		Mine Site	All Groundwater subcomponents						Alteration of Groundwater Flow Quantity and Quality from Underground Flooding	Design mitigation Mitigation: Metal Leaching and Acid Rock Drainage Management Plan (MLARDMP; CEMP Appendix I) Monitoring and Trigger-Response: MLARDMP Reporting: MLARDMP
7.5-19	An alternative water supply from groundwater or surface water will be sourced for the Community of Wells.		C,O,CL,PC			Mine Site, QR Mill, Transmission Line	Groundwater Quantity					Reduced Groundwater Infiltration from Reclamation of Disturbed Areas
7.5-20	Hydraulic containment of groundwater from underground mine workings through pumping in potential combination with a low permeability cut-off will be a back-up mitigation.							C,O,CL,PC	Mine Site, QR Mill, Transmission Line	Groundwater Quantity		
7.5-21	Reclamation of disturbed areas will occur progressively throughout Project life (including contouring and revegetation), incorporating strategies to manage potential for runoff and erosion and to increase the potential for groundwater infiltration.	C,O,CL,PC		Mine Site, QR Mill, Transmission Line	Groundwater Quantity						Reduced Groundwater Infiltration from Reclamation of Disturbed Areas	