Environmental Protection Operations Directorate
Pacific and Yukon Region
101 - 401 Burrard Street
Vancouver, BC
V6C 3R2

November 3, 2020

ECPT: 20-BC-003
CIAR: 80702

Fraser Ross
Project Manager
Impact Assessment Agency of Canada
210A – 757 West Hastings Street
Vancouver, BC V6C 3M2

Dear Fraser Ross:

Re: Castle Project – Initial Project Description Federal Authority Advice Record

Environment and Climate Change Canada (ECCC) received a request from the Impact Assessment Agency of Canada (the Agency) on October 14, 2020 to provide input on the Initial Project Description (IPD) for the Castle Project (the Project). At this time, the Agency specifically requested that ECCC only provide additional information that was not provided to the Agency during the designation request process for the Project, on the following topics:

- Identify powers, duties, or functions associated with the Project;
- Identify specialist or expert information and knowledge relevant to an impact assessment of the Project;
- Identify previous consideration of or actions taken in relation to the Project;
- Identify any previous contact or involvement with the Proponent or others in relation to the Project;
- Identify key issues that should be addressed in the impact assessment of the Project;
- Information on the Strategic Assessment of Climate Change and how it would apply to the Castle Project; and
- Status update (if available) on the draft Coal Mining Effluent Regulations.

ECCC reviewed the following documents for this request:

- Castle Project IPD under the *Impact Assessment Act*, October 2020; and

- ECCC's Federal Authority Advice Record (FAAR) for the Castle designation request, submitted to the Agency on July 16, 2020.

ECCC's response to this request is attached, as is a copy of ECCC's technical comments on the provincial IPD for the Project, which were submitted to the BC Environmental Assessment Office (BC EAO) on June 26, 2020.

ECCC's comments are founded upon departmental mandate and are related to: migratory birds and their habitat, species at risk, water quality, air quality, GHGs, and environmental emergencies. Applicable laws, legislation and best management practices related to this Project under ECCC's authority include, but are not limited to:

- *Canadian Environmental Protection Act, 1999*;
- *Migratory Birds Convention Act, 1994*;
- *Fisheries Act;* and
- *Species at Risk Act*.

If you have any questions or concerns regarding the advice provided in the attached, please do not hesitate to contact Chelsey Cameron at 236-427-6056 or Chelsey.Cameron@canada.ca, or Christie Spry at 236-427-6073 or Christie.Spry@canada.ca.

Sincerely,

<Original signed by>

Chelsey Cameron
Senior Environmental Assessment Officer
Environment and Climate Change Canada / Government of Canada

<Original signed by>

Christie Spry
Senior Environmental Assessment Officer
Environment and Climate Change Canada / Government of Canada

Attach. (1): Environment and Climate Change Canada Comments to the Impact Assessment Agency on the Castle Initial Project Description (IPD)
Attach. (2): Environment and Climate Change Technical Comments to the BC EAO on Castle IPD (June 26, 2020)

Attachment 1

Environment and Climate Change Canada (ECCC) Comments to the Impact Assessment Agency of Canada on the Castle Project Initial Project Description (IPD)

ECCC provided a Federal Authority Advice Record (FAAR) to the Impact Assessment Agency (the Agency) on July 16, 2020, as part of the federal designation request process. The information provided below is additional supplementary FAAR information that was not provided to the Agency during the designation request process. The information below should be considered together with the designation request FAAR to get the complete picture of ECCC's FAAR comments for the Castle Project (the Project).

Comments by topic area:

- **identify powers, duties, or functions associated with the Project**
  - ECCC is developing new Coal Mining Effluent Regulations under the *Fisheries Act*. The Regulations would set baseline effluent quality standards for deleterious substances including selenium, nitrate and suspended solids with the objectives of reducing harm to the aquatic environment and providing regulatory clarity under the *Fisheries Act*. ECCC is aiming to publish the proposed Regulations in the *Canada Gazette*, Part I in spring 2021, followed by a 60-day comment period. Publication of the final Regulations in *Canada Gazette*, Part II would follow a year later.

- **identify specialist or expert information and knowledge relevant to an impact assessment of the Project**
  - No additional comments at this time.

- **identify previous consideration of or actions taken in relation to the Project**
  - No additional comments at this time.

- **identify any previous contact or involvement with the Proponent or others in relation to the Project**
  - On June 26, 2020, ECCC provided technical water quality comments on the Castle IPD to the BC Environmental Assessment Office during their IPD review period. These comments have also been shared with the Agency.
  - On July 16, 2020, ECCC submitted a Federal Authority Advice Record to the Agency, as part of the federal Designation Request process.

- **identify key issues that should be addressed in the impact assessment of the Project (Summary of issues)**

Air Quality

Mining

The construction, operation, and decommissioning of mines can result in adverse effects on air quality. Mining operations, processing (crushing and milling), and activities associated with any combustion processes can result in the emission of contaminants such as sulfur oxides (SO_x), nitrogen oxides (NO_x), volatile organic compounds (VOCs), and particulate matter ($PM_{2.5}$, PM_{10}

and PM). Activities that cause a physical disturbance to land and ore material, such as earth moving, land clearing, blasting, crushing, and transportation, can also introduce particulate matter (e.g., dust and soot) to the surrounding region. The emission of these air contaminants can result in to local or regional degradation of ambient air quality, with potential impacts on human health as well as on sensitive ecosystem receptors. Furthermore, emissions of air contaminants resulting from the Project may add cumulatively to the emissions from other activities, contributing to degradation of air quality in the region.

When contaminants settle out of the air in the surrounding environment, their deposition may result in adverse impacts to terrestrial and aquatic ecosystems. For example, metals and polycyclic aromatic hydrocarbon emissions from mining activities may result in elevated concentrations of these contaminants in water, soil, flora, and fauna. Emissions of NO_x and SO_2 may also lead to acidification and potential exceedance of ecosystems' critical loads. Air contaminant emissions can result in contamination of nearby land and waterbodies, and may affect plants, wildlife, and fish and fish habitat.

Road and Rail Transportation Emissions

Projects which involve an increase in capacity for rail traffic (e.g. intermodal yard expansion) and projects which will result in an increase in demand for rail traffic as a direct result of the Project (e.g., projects where product will be transported by rail) have the potential to adversely affect air quality. More specifically, the combustion of fossil fuels to power the rail engines can result in the emission of air contaminants such as SO_x, NO_x, VOCs, and $PM_{2.5}$. When some contaminants settle out of the air in the surrounding environment, their deposition may result in acidification and potential exceedance of ecosystems' critical loads. The emission of these air contaminants can result in local or regional degradation of ambient air quality, with potential impacts on human health as well as sensitive ecosystem receptors.

Projects which involve on-road vehicles and mobile off-road machines for construction, operation and decommissioning, or that lead to an increase in road traffic (e.g. hauling materials to the site), have the potential to adversely affect air quality. More specifically, the combustion of fossil fuels can result in the emission of air contaminants such as SO_x, NO_x, VOCs, and $PM_{2.5}$. When some contaminants settle out of the air in the surrounding environment, their deposition may result in acidification and potential exceedance of ecosystems' critical loads. The emission of these air pollutants can result in local or regional degradation of ambient air quality, with potential impacts on human health as well as sensitive ecosystem receptors.

Greenhouse Gas Emissions and Climate Change

The construction, operation, and decommissioning of the proposed Project may result in greenhouse gas (GHG) emissions. Furthermore, the Project has the potential to be affected by future climate change, possibly resulting in impacts to the environment.

The Strategic Assessment of Climate Change (SACC) provides guidance related to climate change throughout the impact assessment process. The SACC outlines information that the Proponent should provide during the impact assessment process, on: GHG emissions, GHG mitigation measures, and climate change resilience; the circumstances in which an upstream GHG assessment will be required; and the circumstances in which a credible plan for achieving net-zero GHG emissions by 2050 is required.

Net GHG Emissions

In section 14 of the Addendum to the IPD, the Proponent has provided GHG emissions for Fording River Operations (FRO) for the years 2017 to 2019. For the year 2019, total GHG emissions from FRO were 692,656 tons of CO_2 equivalent. The Proponent states that as the Project would use existing FRO coal processing plant and support facilities and would maintain the same coal production capacity, GHG emissions are anticipated to remain at approximately current levels for the operational mine life of the Project (i.e., several decades). These emissions as described are not aligned with the long-term goal of the Government of Canada to achieve net-zero emissions by 2050. The Proponent will need to demonstrate how they will achieve this long-term goal.

- ECCC recommends the Proponent include in the Detailed Project Description clarification on the scope of activities included in the estimate, an estimate of GHG emissions for each phase of the Project (i.e., construction, operation and decommissioning), a breakdown of each term of equation 1 of the SACC, as well as methodology, data, emission factors and assumptions used to quantify annual GHG emission estimates.

- Section 3.1 of the SACC provides guidance on how to quantify GHG emissions from a project.

Carbon sinks

The Project as described could have adverse effects on carbon sinks (i.e., forests, oceans or other natural environments that absorb carbon dioxide from the atmosphere), potentially disturbing 2,550 ha of land.

- ECCC recommends the Proponent include in the Detailed Project Description the following information related to impacts of the Project on carbon sinks: a description of the activities that would result in an impact on carbon sinks, and land areas expected to be impacted by the Project. Land areas should be categorized by ecosystem type (forests, cropland, grassland, wetlands, built-up land) over the course of the Project lifetime, including any areas of restored or reclaimed ecosystems.

GHG Mitigation Measures

The Proponent states that they will "*continue to evaluate options to reduce GHG emissions from the Project and overall operations, including material handling options such as autonomous haul trucks, trolley assist, and electric conveyors*" (section 14 of the Addendum to the IPD, p. 19).

- ECCC encourages the Proponent to describe in their Detailed Project Description the mitigation measures, which could include technologies and practices they are considering to reduce GHG emissions from all sources (including fugitive emissions sources). Given the potential lifetime of the Project beyond 2050, ECCC encourages the Proponent to provide an overview of the measures being considered to ensure the Project meets a net-zero emissions target by 2050.

Climate Change Resilience

As climate over the lifetime of a project is projected to be different from past and current climate in the area, and the proposed Project has an operational lifetime of “several decades” (as well as an additional post-closure period of unknown length), climate change considerations are relevant to the Project review (Castle IPD, p. i). There is potential for climate change to affect the Project, which in turn, may have impacts on the surrounding environment (e.g., through accidents or malfunctions). Climate changes in the Project area, such as possible changes in mean and extreme precipitation, temperature, and related environmental conditions, may alter baseline conditions, with implications for climate sensitive aspects of project design and associated effects on the environment.

Further information can be found in the SACC, https://www.strategicassessmentclimatechange.ca.

Water Quality and Quantity

Mining

The activities linked to the construction, operation, and decommissioning of mining projects can have adverse effects on the quality of groundwater and surface water, as well as on the hydrological regimes of watercourses and water bodies.

Mining operations can expose rock that contain soluble minerals. When water passes over or through them, these minerals can dissolve in water and result in highly mineralized runoff; this runoff drains into water bodies thereby altering mineral concentrations and resulting in adverse effects on water quality. The construction, operation, and decommissioning of mines can result in adverse effects on water quality by exposing potentially acid generating rock to air and water. Through the natural process of sulphide oxidation, water draining from areas of this exposed rock could release acidity and associated metals to project site effluents. Although this region has high neutralizing capacity, the exposure of acid generating rock may lead to the mobilization of leached metals to the aquatic receiving environment, and thus have adverse effects on water quality. The proposed Project may include exposure of potentially metal-leaching rock to air and water (i.e., oxidation of selenium bearing rock). Interaction between water, air and the exposed rock could then lead to the leaching of metals into the receiving environment and water body, resulting in adverse effects on water quality.

Mining projects often include the following activities: blasting, operating heavy equipment, ore processing, and land clearing etc. These activities could result in the introduction of particulate matter (dust), erosion, and high concentrations of ammonia, hydrocarbons, and other contaminants to surrounding waters, resulting in adverse effects on water quality. The deposition of airborne particulate matter generated by the Project could also be a source of surface water contamination.

Surface water quantities could be changed by alteration of surface flows, whether it be through diversion of waterways, flow of precipitated water through waste rock, changes in the flow of seepage and precipitation reporting to groundwater and/or changes to runoff flows. This can potentially affect water quality. Furthermore, the production of mine-affected water has the potential for contaminants to enter groundwater through seepage from the waste rock as well as

fine and coarse coal reject disposal areas, contaminants which could report to surface waters downstream.

Mining projects may result in adverse effects to surface water quality through “drawdown” of the water table – that is, a lowering of the water table underground. Water table drawdown can happen through the construction of open pits, underground mines, as well as through pumping out groundwater that seeps into an open pit or underground mine. It can also happen due to removal of water from constructed wells for water-intensive operational processes in the mine. The “drawdown” of a water table can have an impact on surface water quality by reducing the quantity of groundwater available to recharge surface water bodies. This, in turn, could reduce the total volumes of water in nearby lakes or rivers and potentially increase the concentration of contaminants in those water bodies, thereby resulting in adverse effects on water quality. In addition, the drawdown of groundwater can have an effect on the ability to use saturated backfill as a treatment option for contaminated water. If the area where treatment utilizing saturated backfill is unable to maintain saturation, the treatment process may not be as effective.

Wildlife, species at risk, and habitat

Mining

The activities linked to the construction, operation, and decommissioning of a mine and associated infrastructure could have negative effects on terrestrial wildlife, including migratory birds and non-aquatic[1] species at risk (amphibians, arthropods, birds, lichens, terrestrial mammals, mosses, reptiles, and vascular plants) as listed on the *Species at Risk Act* (*SARA*), and their habitat.

Potential effects to wildlife and their habitat (including residences and critical habitat defined under *SARA*) resulting from the Project can vary based on a number of factors, including: project location, duration, scale, and configuration; ancillary project activities (e.g., land clearing and blasting); cumulative effects; the type of habitat that may be disturbed; and the sensitivity of species found in the Project area. The pathway through which potential effects are conveyed will depend on the land, air, and water constituents associated with the site along with the behavioral adaptability, presence and interaction with the species limiting factor (e.g., habitat supporting staging, nesting, roosting or foraging) and population resilience.

Migratory birds, and non-aquatic[1] species at risk, and habitat

Exploration and construction of mines and associated infrastructure can contribute to large-scale land clearing activities, which leads to destruction, disturbance and fragmentation of habitat (e.g., foraging, nesting), habitat avoidance, sensory disturbance, and the inadvertent disturbance and destruction of individuals, nest and eggs of migratory birds. There is a higher risk that these effects would be more severe for migratory birds that are also species at risk and species where habitat is sensitive to disturbance (e.g., wetlands) or where there is already a high degree of cumulative effects to habitat or individuals. Destruction and/or disturbance of habitat can have increased impacts on species at risk individuals, residence, and their critical

[1] From the *Species at Risk Act*: *aquatic species* means a wildlife species that is a fish, as defined in section 2 of the *Fisheries Act*, or a marine plant, as defined in section 47 of that Act.
From the *Fisheries Act*: *fish* includes (a) parts of a fish, (b) shellfish, crustaceans, marine animals and nay parts of shellfish, crustaceans or marine animals, and (c) the eggs, sperm, larvae, spat and juvenile stages of fish, shellfish, crustaceans and marine animals.

habitat; which can lead to changes in prey and predator dynamics, loss of food resources, loss of breeding areas, changes in migration or movement, and increased risk of mortality. Certain species of migratory birds (e.g. Bank swallows, Common nighthawk) may nest in large piles of soil left unattended/unvegetated during the most critical period of breeding season.

Where a mining project requires new road infrastructure or an increase in capacity to existing road networks, the increase in road traffic volumes are likely to result in an increase in wildlife injury, mortality, and the introduction of invasive species and hunters/poachers. Although adverse direct effects to migratory birds and their nests are typically managed through appropriate scheduling of activities outside of the breeding season, collisions with vehicles and associated infrastructure can result in direct mortality of wildlife. Effects will be most acute during the operation phase as this is when the most pronounced and sustained increase in vehicle volume.

The construction, operation and decommissioning of mines may impact wildlife directly and indirectly though impacts to habitat through changes in geomorphological processes (e.g., sedimentation processes, water quality). Additionally, birds that land on and/or frequent wastewater (e.g., submerged tailings in tailings ponds, pit water) have the potential to come into contact with toxic substances which can result in on- and offsite mortality. During construction, operation, maintenance and decommissioning, there is the potential for harmful substances to enter or be spilled into the receiving environment that may negatively affect wildlife. Depending on the nature of the release (e.g., toxicity, volume release, and exposure pathways), effects to wildlife could be acute, chronic, or both. Changes to water quality and quantity can affect migratory birds, wildlife, and their habitat.

Noise, vibrations and light from construction and operation activities may result in habitat disturbance which may result in: changes to movement or migration patterns; avoidance of use or attraction to an area; and harm or mortality to individuals. Attraction to lights at night or in poor visibility conditions during the day may cause birds to collide with lit structures or their vertical support structures, resulting in injury or death. In other instances, birds may become disoriented while circling a light source, deplete their energy reserves, and either die of exhaustion or drop to the ground where they are at risk from predation.

Environmental Emergencies

Adverse effects to air quality, water quality, wildlife and wildlife habitat could result from the accidental release of hydrocarbons, explosives and other contaminants to the surrounding environment.. Optimized spill prevention, preparedness and response measures and systems will be important given the risk of spills of hazardous substances to the environment, especially to nearby waterways and environmentally sensitive areas.

Part 8 of the *Canadian Environmental Protection Act* (*CEPA*) 1999 on environmental emergencies (sections 193 to 205) addresses the **prevention** of, **preparedness** for, **response** to and **recovery** from environmental emergencies caused by uncontrolled, unplanned or accidental releases. It also addressed the reduction of any foreseeable likelihood of releases of toxic or other hazardous substances listed in Schedule 1 of the *Environmental Emergency Regulations*. This act may apply if Schedule 1 substances onsite meet or exceed the threshold to be regulated under *CEPA* 1999.

Attachment 2

Environmental Protection Operations Directorate
Pacific and Yukon Region
201 - 401 Burrard Street
Vancouver, BC
V6C 3S5

June 26, 2020

ECPT: 20-BC-003
CEAR: 80702

Matthew Rodgers
Project Assessment Office
British Columbia Environmental Assessment Office
1-836 Yates St
Victoria, BC V8W 1L8

Dear Mr. Rodgers:

Re: Castle Project – Environment and Climate Change Canada Comments on Initial Project Description

Environment and Climate Change Canada (ECCC) has completed a review of the following sections of Teck Coal Limited's (the Proponent's) *Initial Project Description: Castle Project* (dated March 2020), which was provided by the BC Environmental Assessment Office (EAO) in support of the environmental assessment for the proposed Castle Project (the Project):

- Project Design (Section 3.4.2, pages 14-35);
- Regional Environmental Challenges (Section 6.1.3);
- Project-Environment Interactions (Table 24, pages 76-79); and
- Permits and Land-Use Plans (Tables 15 and 23 on pages 31 and 74, respectively).

ECCC's comments are included in the attached tracking table ("Castle Project- ECCC Comments on the Initial Project Description"), as per the EAO's request. As a Technical Advisor in the provincial environmental assessment process, ECCC's comments are focused on water quality, or mine design as it relates to water quality.

If you have any questions or concerns regarding the advice provided in the attached, please do not hesitate to contact Christie Spry at 604-666-7829 or Christie.Spry@canada.ca, or Chelsey Cameron at 604-666-5566 or Chelsey.Cameron@canada.ca.

Sincerely,

<Original signed by>

Christie Spry
Senior Environmental Assessment Coordinator
Environment and Climate Change Canada / Government of Canada

<Original signed by>

Chelsey Cameron
Senior Environmental Assessment Coordinator
Environment and Climate Change Canada / Government of Canada

Attach. (1): Castle Project- ECCC Comments on the Initial Project Description

cc: Todd Goodsell, BC Environmental Assessment Office
Alex Denis, BC Environmental Assessment Office
Fraser Ross, Impact Assessment Agency of Canada

Date: June 26, 2020

Castle Project-
ECCC Comments on the Initial Project Description

Item	Date	Name	Organization	Section of IPD	Comment
1	26-Jun-20	Christie Spry/ C	ECCC	Section 3.4.1, Section 6.1.2, Section 6.1.3, Table 18.	In multiple sections of the Initial Project Description, the Proponent states that water management for the Project will align with their Elk Valley Water Quality Plan (EVWQP), and meet existing and future permit requirements. However, in Section 6.1.3 – Table 18 Recent Environmental Challenges in the Project Region, the Proponent states “instream concentrations are not meeting permit limits at all locations” and current actions to address exceedances of permit concentrations from existing mining operations include "adjusting Teck’s Implementation Plan (updated every three years) to achieve compliance with the EVWQP and Permit 107517." ECCC understands that the Province of British Columbia (BC) requested and approved the EVWQP to stabilize water quality concentrations and limit cumulative effects in the Elk Valley Region of BC. ECCC did not endorse the final EVWQP, and notes that the water quality predictions in the EVWQP, as well as Teck’s 2019 Implementation Plan Adjustment (2019 IPA), do not take into account prospective coal mining developments by other proponents in region (i.e., the EVWQP is not a complete picture of cumulative effects in the region). ECCC identifies that Teck’s 2015 Initial Implementation Procedures (2015 IIP), which outlined the mitigation plan to achieve water quality targets, was not completed as proposed by the Proponent, as identified in the 2019 IPA. The 2019 IPA demonstrates delays in the timing of treatment compared to the 2015 IIP, including the delay of the construction and commissioning timelines of multiple water treatment facilities. This delay results in site performance objectives and water quality compliance limits in the EVWQP not being met by the proponent at some locations, as stated in Section 6.1.3 – Table 18 (Water Quality) of the IPD. ECCC recommends that the Proponent: • identify methods to proactively mitigate and achieve instream water quality concentrations that are protective of aquatic life; • identify how expanding Fording River Operations (FRO) and extending the operating timeline of an existing mine will not contribute to sustained or increased loadings of selenium, sulphate, nitrate, and cadmium to the environment nor result in adverse effects to the environment; and • consider how other prospective developments in the Elk Valley Region contribute to potential impacts to water quality in the Elk River and Lake Koocanusa, and inform the regional understanding of cumulative impacts water quality from all past, present, and reasonably foreseeable mining operations.
2	26-Jun-20	Christie Spry/ C	ECCC	Section 3.4.1	In Section 3.4.1, and other locations within the IPD, the Proponent states that Project planning and design will "advance the use of new and innovative technologies where they are technically and economically feasible." ECCC is of the understanding that while new and innovative technologies may be helpful in mitigating environmental risk, it is recommended that all technologies considered in the design of the Project be demonstrated under similar conditions (e.g., climate, chemistry, scale, longevity, etc.) and be peer-reviewed.

3	26-Jun-20	Christie Spry/ C	ECCC	Section 3.4.2	In Section 3.4.2, the Proponent outlines the rationale for project components and activities. ECCC is of the understanding that the assessment of project components, activities, and design include the assessment of impacts of climate change on the Project; in particular, the impacts to water quality, water quantity, and water flow for the Project. ECCC recommends that the Proponent include impacts of climate change on the Project as a rationale for selecting project components, activities, and project design in Setion 3.4.2.
4	26-Jun-20	Christie Spry/ C	ECCC	Section 3.4.2.4 Table 5	In Section 3.4.2.4 - Table 5 the Proponent states "possible removal of portions of the Chauncey Creek drainage area" and "possible cast-over and fly rock entering the Chauncey Creek drainage area." It is unclear whether Chauncey Creek is considered as an existing mine-impacted tributary of the Fording River, and whether Chauncey Creek is considered for clean water diversions as part of the IPD. It is ECCC's understanding that the Project will result in the removal of portions of the Chauncey Creek drainage area, and result in possible cast-over and fly rock entering Chauncey Creek drainage area. This would result in the likely disturbance of Chauncey Creek and may impact water quality in the tributary. In addition, on page 21 of Section 3.4.2.4, the Proponent indicates that the fault and the steeply dipping strata in the height of land between the Fording River drainage and the Chauncey Creek drainage would influence the overall size and shape of the mine pits or pit. The IPD describes two different approaches to overcome these design constraints; one of which would involve locating the eastern edge of the pit to the east of the height of land, within the Chauncey Creek drainage. ECCC recommends the Proponent: • identify whether Chauncey Creek is considered to have been impacted by existing mining operations in the Elk Valley Region; • consider the use of clean water diversions to minimize impacts to clean water within the Project area, and implement mine design strategies to prevent impacts to a non-mining impacted tributary of the Fording River; • discuss the potential impacts that could result from locating the mine within the upper portions of Chauncey Creek drainage; and • discuss how the pit shell would be designed to follow the key concept of avoiding or minimizing disturbance of watersheds with no direct mining impacts, such as Chauncey Creek.
5	26-Jun-20	Christie Spry/ C	ECCC	Section 3.4.2.4-Table 5	In Section 3.4.2 - Table 5 (Rationale for Project Pit Shell) the Proponent identifies considerations related to the project pit shell. ECCC recommends that the proposed text in Table 5, page 19 be revised to include the following additional text in bold: “Environmental and social considerations related to the size and shape of a pit shell on Castle Mountain include (but are not limited to):” ECCC recommends that the considerations related to the Project’s pit shell also reflect implications for closure and post-closure phases of the mine life, including: • quantity and quality of seepage, runoff, and discharges; • environmental loadings of water quality parameters, including selenium and other contaminants of concern; • management of waste and wastewater, and water treatment; and • waste rock and tailings increase with larger pit shell (i.e., the larger the pit shell, the greater the amount of waste remaining on site in perpetuity).

6	26-Jun-20	Christie Spry/ C	ECCC	Section 3.4.2.6 Table 7

In Section 3.4.2.6 - Table 7 the Proponent states "interference with the planned Kilmarnock Creek diversion" in discussion of the selected waste rock storage locations.

ECCC understands that adverse environmental effects have been observed downstream of the existing Fording River Operations, as noted in Section 6.3.1 – Table 18 of the IPD “recent surveys (fall 2019) show a drop in the numbers of westslope cutthroat trout in the upper Fording River.” ECCC further identifies that the Proponent should minimize, rather than increase, existing loadings of contaminants of concern to the receiving environment, in particular waterways where impacts to fish and fish habitat have been observed. It is unclear on how interference with the planned Kilmarnock Creek clean water diversion with waste rock placement will stabilize or decrease chemical loadings downstream and improve water quality.

ECCC recommends that the Proponent identify:
• the predicted changes to water quality in the receiving environment, in particular the upper Fording River, if the planned Kilmarnock Creek diversion is impacted by proposed waste rock placement from the Project;
• mechanisms to minimize the disturbance of a planned mitigation measure (Kilmarnock Creek diversion) for the existing FRO during the placement of waste rock from the proposed Project; and
• how increased loadings of contaminants of concern into the upper Fording River are to be mitigated with the placement of waste rock in the area of a planned clean water diversion.

7	26-Jun-20	Christie Spry/ C	ECCC	Section 3.4.2.7

In Section 3.4.2.7, the Proponent outlines that the Project’s conceptual source control and treatment designs and plans are based on several key concepts, including adopting a Best Achievable Technology approach.

ECCC recommends that the Detailed Project Description identify and describe the best achievable technology options for water quality source control and treatment.

8	26-Jun-20	Christie Spry/ C	ECCC	Section 3.4.2.7 Table 8

In Table 8, the Proponent indicates that source control efforts for nitrates involve changing blasting practices to minimize interactions between the explosives and water. However, this table does not discuss source control methods to prevent release of nitrates from explosive storage areas.

It is unclear how the overall management of nitrate-based explosives would prevent nitrate releases from storage and transport of explosives.

For the Detailed Project Description, ECCC recommends that Table 8 (Rationale for Project Water Quality Source Control) provide additional information on source control methods to prevent release of nitrates from explosive storage areas.

9	26-Jun-20	Christie Spry/ C	ECCC	Section 3.4.2.7 Table 8

For the Detailed Project Description, ECCC recommends that Table 8 (Rationale for Project Water Quality Source Control) describe how each selenium source control option is a proven methodology that has demonstrated long-term effectiveness.

The Proponent states in Table 9 that saturated rock fills (SRFs) “appear” to be an effective means of water treatment. This language signals that SRFs are s not a proven method of treatment.

10	26-Jun-20	Christie Spry/ C	ECCC	Section 3.4.2.7

ECCC recommends that the Proponent:
• consider the use of proven water treatment methods as contingency plans in the event that the SRFs do not perform as expected ; and
• describe the limitations, unknowns, assumptions, and risks regarding SRFs.

				In Section 3.4.2.8, the Proponent states that they will be applying a Best Achievable Technology approach to assessing how the Project will manage tailings.
11	26-Jun-20	Christie Spry/ (	ECCC	Section 3.4.2.8	ECCC recommends that the Detailed Project Description identify and describe the Best Achievable Technology options for tailings management.
12	26-Jun-20	Christie Spry/ (	ECCC	Section 3.4.2.8 Table 10	In Section 3.4.2.8 - Table 10 (Rationale for Project Tailings Handling Options), the Proponent does not address whether the various tailings handling options are effective under similar Project conditions. In addition, the Proponent has suggested it will consider some innovative applications for dry tailings, including as a soil amendment for reclamation and as an addition to bottom-up spoils as part of source control. ECCC recommends that the Proponent identifies: • whether each tailings handling option has been demonstrated to be successful under similar project conditions; and • the limitations and risks associated with each option.
13	26-Jun-20	Christie Spry/ (	ECCC	Section 3.4.2.8 Table 11	In Section 3.4.2.8, Table 11 describes the Rationale for Project Tailings Storage Options. ECCC recommends that the Proponent consider: • the limitations, unknowns, assumptions and risks associated with each tailings storage option; and • the potential effects of each option on the aquatic environment over the short, medium and long-term.
14	26-Jun-20	Christie Spry/ (	ECCC	Section 6.1.3 Table 18	In Section 6.1.3 - Table 18 the Proponent states, "recent surveys (fall 2019) show a drop in the numbers of westslope cutthroat trout in the upper Fording River". “Operational changes at FRO and Greenhills Operations (GHO) to reduce the potential for additional stress to the population” are identified as current actions to address to this identified environmental challenge. In Table 7, the Proponent states that “the Project will locate a waste rock storage area in the Kilmarnock Creek drainage along the north side of Castle Mountain.” Drainage from the Kilmarnock Creek diversion area will enter the Upper Fording River and could potentially increase contaminant loadings to the water. ECCC finds that this would likely increase, not “decrease the potential for additional stress to the population.” ECCC recommends that the Proponent: • continue their work identify the cause of the recently observed (2019) decline in the fish population, in order to ensure that the Project will not add any additional stress to the fish population; • outline what operational changes are planned to restore the fish population and prevent adverse effects to aquatic life and the environment, and include these in the design plan; and • Consider mine design options, which prevent or mitigate any potential increase in contaminant loadings to the upper Fording River, to reduce the potential for additional stress to the westslope cutthroat trout population.
15	26-Jun-20	Christie Spry/ (	ECCC	Section 7	In Section 7, the Proponent outlines the effects of the environment on the Project. ECCC recommends that the Proponent incorporate rain-on-snow events as a natural hazard that may lead to a high flow flood event in the Project area.

16	26-Jun-20	Christie Spry/ C	ECCC	Section 10 Table 24

In Section 10 - Table 24, the Proponent describes the “project-specific water quality treatment initiatives such as using existing and/or proposed infrastructure (e.g., Fording River Active Water Treatment Facility South), to treat contact water.”

ECCC understands that the potential increase in waste rock placement in the FRO area, potential infilling of the Eagle Pit, and potential impacts to Chauncey Creek could mean that the treatment plant has to treat a larger volume of water as well as potentially increased contaminant concentrations.

ECCC recommends that the Proponent consider the treatment capacity (both flow and concentration) of the Fording River Active Water Treatment Facility South in the assessment of its use as a mitigation strategy for the Project.