Appendix 4-W

Draft AIR Comment Tracking Table

DRAFT APPLICATION INFORMATION REQUIREMENTS

Crown Mountain Coking Coal Project

Comment Tracking Table
FINAL April 2018

Tracking #	Date	Submitter	Section title	Page number (+ paragraph number or table row)	Comment	Rationale (If Required)	Proponent Response	EAO Comments	WG Comment
1	July 29, 2016	Eleanor Setton Melissa Lucchetta Health Canada	3.1 Issues Scoping and Selection of Valued Components	Pg. 28 (Table 3)	For the discipline listing of "Human and terrestrial wildlife health risk," Health Canada advises that a Human Health Risk Assessment (HHRA), separate from the assessment of terrestrial wildlife health, is preferable. Health Canada suggests that the rationale explicitly state that potential effects of the Project on Aboriginal health will be assessed through a HHRA. The preferred scope of HHRA is provided in "Useful Information for Environmental Assessments" (Health Canada, 2010, available at: - http://publications.gc.ca/collections/collection_2015/sc-hc/H128-1-10-599-eng.pdf)		Table 3 provides a summary of VCs selected for the environmental assessment. It refers to the completion of Risk Assessments (plural). Risk Assessments will be completed separately on humans and wildlife. Details regarding the Health Effects Assessment are provided in Section 4.6. The section specifically notes the assessment of First Nations. The following note has been added to Section 4.6.1.2: "Risk Assessments will follow appropriate methodologies and guidance documents such as Health Canada's Useful Information for Environmental Assessments (Health Canada 2010)."	March 2018: addressed to EAO's satisfaction.	Noted; no further comment from Health Canada
2	July 29, 2016	Eleanor Setton Melissa Lucchetta Health Canada	3.1 Issues Scoping and Selection of Valued Components	Pg. 30 (Table 4)	Health Canada notes that "water quality" is included as an intermediate component (under the discipline listing for "Hydrogeology" and "Surface Water Hydrology") and would prefer that "Water Quality" be added as a valued component (VC) due to the potential link to human health.		Surface water quality is considered an intermediate VC for the assessment and will undergo a significance determination (see Section 3.1). The EAO has also made the determination that water quality will be considered as an Intermediate Component rather than a VC, which is consistent with other projects in the area. The Application will evaluate the significance of residual effects for specified intermediate VCs. The specified intermediate VCs to be assessed for significance are: surface water quality, groundwater quality, sediment quality and air quality. For each specified intermediate VC, the significance of residual effects will be a synthesis of the significance determinations for its receptor VCs. The significance determination for each intermediate VC will include a summary of the residual effects and their significance for each of the receptor VCs. If there is a significant adverse effect on any of the receptor VCs, then there will be a deemed significant adverse effect on the intermediate VC.	March 2018: addressed to EAO's satisfaction.	Noted; no further comment from Health Canada.

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3	July 29, 2016	Eleanor Setton Melissa Lucchetta Health Canada	3.10 Cumulative Effects Assessment	Pg. 37 (Table 7)	Health Canada notes that the Grassy Mountain Coal project (a proposed coal mine in western Alberta) is not included in the preliminary project and physical activity inclusion list (Table 7). Due to the proximity of the project to Crown Mountain, it is suggested that the Grassy Mountain Coal project be added to this list or a rationale for its exclusion be provided.		Disagree. The Grassy Mountain project is across the continental divide and well separated from Crown Mountain. Of note, water from the projects flows in different directions and the distance between the 2 projects is significant. It must also be stressed that the preliminary list was not meant to be a complete list of projects/activities that will be assessed under the CA Assessment. <u>Updated March 2018 Response:</u> The RSA for air quality has been updated to include the following projects: Bingay, Coal Mountain, Crowsnest Pass Complex (Grassy Mountain Coal Project, Adanac, Lynx Creek and Bellevue), and Michel Creek Coking Coal.	March 2018: addressed to EAO's satisfaction.	Health Canada is supportive of including the proposed Grassy Mountain Coal project (and any other excluded projects that may be recommended by MOE or others) in the Air Quality RSA - to better understand potential cumulative air health effects (e.g. from long range transport of dust etc.).
4	July 29, 2016	Eleanor Setton Melissa Lucchetta Health Canada	4.0 Environmental Effects Assessment	Pg. 42 and 55	Health Canada suggests that the Aquatic LSA boundary be the same as the Air Quality LSA boundary, due to potential impacts on human health through deposition of particles and COPCs into water bodies.		Disagree. The Aquatic LSA is dictated by watershed boundaries, whereas the Air Quality LSA is determined based on air sheds.	March 2018: addressed to EAO's satisfaction.	Noted; no further comment from Health Canada.
5	July 29, 2016	Eleanor Setton Melissa Lucchetta Health Canada	4.1 Air Quality and Climate	Pg. 40 (Table 8)	Health Canada suggests that the indicators for Common air contaminants (CACs) (Table 8) are updated to include SO2, CO, total suspended particles (TSP) and dust fall, as these may pose a direct risk to human health or an indirect exposure pathway.		It must be noted that the final Application will address both the provincial AIR as well as the final federal EIS Guidelines issued for the Project. The final Application will include separate concordance tables for both the AIR and the EIS Guidelines. The federal EIS Guidelines includes requirements for baseline air quality, including the following contaminants: total suspended particulates, fine particulates (PM2.5), particulate matters up to 10 micrometers in size (PM-10), sulfur oxide (SOx), volatile organic compounds (VOCs), and nitrogen oxide (NOx)" The Crown VC document specifically references Greenhouse gas emissions (CO2, CH4, and N2O) and Fine particulates [PM10 and PM 2.5] as measurement indicators. Dust fall was replaced with measurements of particulate deposition at the request of MOE during the assessment of Project VCs. Section 4.1.1 Air Quality has been edited.	March 2018: addressed to EAO's satisfaction.	Health Canada would prefer to see all measurement indicators for Air Quality listed in Table 7 (pg. 23), including the ones added to section 4.1.1, pg. 29: TSP, SO2, NO2, CO, VOCs. This Project is an open-pit operation that is expected to create exhaust from heavy equipment use and off-site transportation. To the extent that Indigenous Peoples may spend time near the project area, HC advises that the Air Quality VC also include a more exhaustive list of potential air contaminants, including: petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), and

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							Baseline air quality studies for the Crown Mountain Project will be designed to meet both EIS and AIR commitments. Air Quality and Climate have been separated into separate sections as per direction of EAO. Climate is considered a receptor Valued Component and is addressed in Section 4.2.1. Air Quality is considered an intermediate Valued Component and is addressed in Section 4.1.1. Sections 4.1.1 and 4.2.1 have been edited. <u>Updated March 2018 Response</u> Measurement indicators for the air quality baseline will include common air contaminants such as fine particulates, sulfur oxide (SO2), total suspended particulates, carbon monoxide (CO), volatile organic compounds (VOCs), and nitrogen oxide (NO2). Wording of the dAIR has been changed to reflect this. Dust fall will be assessed as part of the overall air quality baseline program. Where possible, dust will be analyzed for selected parameters such as metals. Sections have been updated		heavy metals, and any chemicals associated with coal extraction and processing as may be applicable (e.g. emissions from ammonium nitrate/fuel oil explosives used for blasting). Otherwise a rationale should be provided as to why these contaminants were not included in the air quality assessment. Please refer to: Health Canada. (2016). Guidance for Evaluating Human Health Impacts in Environmental Assessment: Air Quality. Available online at: https://www.canada.ca/en/health-canada/services/publications/healthy-living/guidance-evaluating-human-health-impacts-air-quality.html.
6	July 29, 2016	Eleanor Setton Melissa Lucchetta Health Canada	8.0 Health Effects Assessment	Pg. 120	Health Canada suggests that the first bullet point in section 8.1.4, be revised to include water quality as part of the baseline assessments of VCs.		Agreed. Water quality has been added in the list of example baseline assessments to be conducted for VCs.	Addressed to EAO's satisfaction	Noted; no further comment from Health Canada.
7	July 29, 2016	Eleanor Setton Melissa Lucchetta Health Canada	8.0 Health Effects Assessment	Pg. 120	Health Canada suggests that the second bullet point in section 8.1.4, be revised to include Traditional Food Studies that include studies on the type of foods consumed, frequency of consumption, quantity consumed, and parts consumed.		Agreed. Second bullet has been revised to include Traditional Food Studies.	Addressed to EAO's satisfaction	Noted; no further comment from Health Canada.
8	July 29, 2016	Eleanor Setton Melissa Lucchetta Health Canada	8.1 Human and Wildlife Health	Pg. 121 (Table 39)	Health Canada notes that no interaction between Human and Wildlife Health and project components or activities are expected for the following project activities: ● Materials and equipment storage; ● Fuel and explosives storage and handling; ● Sewage and wastewater treatment; ● Operation and use of facilities and site infrastructure; ● Removal of facilities and infrastructure;	Risks of spills and accidents and malfunctions may have impacts on human health through exposure pathways (including ingestion, inhalation, and direct contact with the skin or mucous membranes).	For the dAIR, the potential interaction tables are intended to be an initial assessment only and are focused on potential significant interactions. The assessment is based on our current understanding of the Project and local environment and could potentially change for the final Application. For the Application, we will review all interaction matrices in detail for completeness and consistency. It is expected that some matrices may change during	March 2018: addressed to EAO's satisfaction.	From a precautionary perspective, Health Canada would prefer to see a greater number of potential interactions between project components and activities, and the health of Indigenous Peoples acknowledged in Table 44 (pg. 126). Otherwise,

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					• Disposal of materials; • Site remediation; and • Reclamation of disturbed areas. Health Canada suggests that a rationale be provided describing why these activities are not predicted to have an impact on human health.		the detailed effects assessment once Project details are finalized and detailed baseline studies have been completed. The Application will include a rationale for selected interactions and how they were assessed. Comment acknowledged. No changes to the dAIR. <u>Updated March 2018 Response</u> The assessment of potential effects for humans includes Indigenous Peoples. Table 44 has been updated to reflect other potential sources of interaction between project component/activities and humans. Again please note that for the dAIR, the potential interaction tables are intended to be an initial assessment only and are focused on potential significant interactions.		Health Canada will seek detailed rationale(s) to explain why certain potential project-people interactions were not considered further in the EIS/Application. For example, a rationale for why the transportation of workers, staff and equipment during 16+ years of operation would not be expected to contribute changes to air quality or noise and vibration, which may potentially impact human health.
9	July 29, 2016	Eleanor Setton Melissa Lucchetta Health Canada	13.0 Management Plans	Pg. 134	Health Canada notes that there are no management plans or monitoring and follow up programs related to human health. Health Canada suggests that a monitoring and follow-up program be developed to monitor the effects from the project on human health if required.		As noted in the Section, the list is not meant to be exhaustive. Human health specific monitoring may be included under other management plans such as the Health and Safety Management Plan, Air Quality and Dust Control Plan, and the Noise Management Plan. Also if it is determined during the detailed effects assessment that potential effects to human health could occur, appropriate monitoring/management plans will be developed in consultation with regulators. Comment acknowledged. No changes to the dAIR.	Addressed to EAO's satisfaction	Noted; no further comment from Health Canada.
10	August 5, 2016	Alison Neufeld, MoE	3.2 Assessment Boundaries	Pg. 31	MoE is available to discuss selection of assessment nodes.		Acknowledged. NWP Coal will discuss baseline assessment boundaries with MOE, as necessary.	March 2018: addressed to EAO's satisfaction.	Working Group member satisfied with response.
141	August 5, 2016	Alison Neufeld, MoE	3.3 Existing Conditions & 4.3.4 Existing Conditions	Pg. 31 & Pg. 40	When discussing baseline data/existing conditions for the Aquatic Health VCs reference should be made to how data meets the minimum data requirements outlined in the Water and Air Baseline Monitoring Guidance Document for Mine Proponents and Operators, Version 2, June 2016.	http://www2.gov.bc.ca/assets/gov/environment/waste-management/industrial-waste/industrial-waste/water_air_baseline_monitoring.pdf	All baseline programs have been designed in consultation with regulators to meet minimum requirements. Guidance documents have included the June 2016 Guidance document noted. Section 3.3 describes existing conditions that will be investigated for each intermediate VC and receptor VC. Comment acknowledged. No changes made to the	March 2018: addressed to EAO's satisfaction.	This comment has been addressed.

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							dAIR.		
12	August 5, 2016	Alison Neufeld, MoE	3.10.3 Elk Valley ABMP	Pg. 38	This section should include a discussion on how the Crown Mtn project will implement best available control technologies (BACT) and contingency measures to ensure the intent of the ABMP is met.		Section 3.5 notes that mitigation measures for each intermediate and receptor VC will "Describe the mitigation measures incorporated into the project, including site and route selection, project scheduling, project design (e.g., the use of best available technologies, equipment selection, placement, emissions abatement measures), and construction and operation procedures and practices" Section 4.1.4.1.3 now notes that the assessment of Project effects on water quality will "Demonstrate how Best Achievable Control Technology (BACT), contingency measures and adaptive management will be used"	March 2018: addressed to EAO's satisfaction.	This comment has been addressed.
13	August 5, 2016	Alison Neufeld, MoE	4.3.2 Scope of the Assessment	Pg. 52 (Table 11)	Benthic Invertebrates – Including the fish population metrics and presence/absence compared to baseline as measurement indicators for the benthic invertebrate VC is confusing.	Measurement indicators for this VC should include an assessment of community composition and abundance using the CABIN approach and an assessment of tissue metals concentrations. Additionally, the assessment of potential effects should consider comparison of predicted water chemistry to toxicity information relevant to the growth, survival and reproduction of benthic invertebrates.	Measurement indicators listed are incorrect and have been changed to those listed in the Project VC Document and include: • Water quality parameters (including but not limited to nutrient and potential contaminant concentrations, temperature, pH, conductivity, metals) • Benthic invertebrate metrics (e.g., abundance, community structure) • Growth, survival, and reproduction (based on comparison to applicable toxicological benchmarks) • Metal concentrations in benthic invertebrates • Sediment quality • Groundwater (quality and quantity) and surface water (quality and quantity) statistics at representative locations	March 2018: addressed to EAO's satisfaction.	This comment has been addressed.
14	August 5, 2016	Alison Neufeld, MoE	4.3.4.8 Amphibians & 4.3.4.9 Waterbirds	Pg. 60	Amphibians & Waterbirds – The assessment of potential adverse effects to amphibians and waterbirds using water quality must include comparison of predicted water quality concentrations to toxicity information relevant to the growth, survival and reproduction of amphibians and waterbirds.		Measurement indicators for amphibians and waterbirds added to Table 11 which notes "Predicted water quality concentrations in comparison to contaminant concentrations relevant to the growth, survival, and reproduction of amphibians/waterbirds"	Addressed to EAO's satisfaction	No further comments from Working Group member.
15	August 5, 2016	Alison Neufeld, MoE	4.3.4 Existing Conditions	Pg. 56	Substantial data is being collected as part of the RAEMP in areas that overlap the regional aquatic assessment area for the Crown Mtn project. Is there an opportunity to enter into a data sharing		NWP Coal shared all of its baseline data to-date with Teck in 2016 and is willing to continue to do so in an effort to foster cooperation and better overall quality of data.	Addressed to EAO's satisfaction	No further comments from Working Group member.

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					agreement with Teck?				
16	August 5, 2016	Alison Neufeld, MoE	4.3.4 Existing Conditions	Pg. 56	MoE is very interested in reviewing baseline study plans in order to provide input upfront.	MoE has reviewed baseline results for water quality, but not aquatic biota.	NWP Coal will provide MoE with baseline plans and programs for their review and input. Baseline studies are anticipated to be completed, and in some cases re-initiated over the next several months. To date, NWP Coal has shared baseline data collected for the Project, including water quality data, climate station data, and terrestrial ecosystem mapping data. As information becomes available to share, NWP Coal will accommodate requests, as necessary to support collaboration and knowledge sharing.	March 2018: addressed to EAO's satisfaction.	Thank you. This comment has been addressed.
17	August 5, 2016	Alison Neufeld, MoE	4.3.4.2 Water Quality	Pg. 57	The water chemistry predictions are a critical component of the application. Please provide detailed information on the water quality model, either within the document, or as an appendix to the application. The model should include site-specific geochemistry and flow data. At a minimum please provide monthly mean and 95th percentile modelled water chemistry predictions at several project specific assessment nodes within the LSA and RSA. The modelled assessment nodes should include, but not be limited to baseline water quality sampling locations (identified in Figure 2 of the Review of Water Quality Program for the Crown Mountain Project Memo, Sept 1, 2015, prepared by Dillon Consulting).	The future predictions are a very important piece of the residual effects assessment. MoE is happy to consult on modelling as it is being developed. The modelling results should clearly indicate how the Project meets the intent of the Area Based Management Plan.	The water quality model and associated data will be provided as an appendix to the Application. As requested, the model will include site-specific geochemistry and flow data. The approach to water quality modelling will be consistent with that noted in the ABMP.	March 2018: addressed to EAO's satisfaction.	Thank you. This comment has been addressed.
18	August 5, 2016	Alison Neufeld, MoE	14.0 Monitoring & Follow-Up Programs	Pg. 136	This section should include a discussion on how monitoring data will be used to validate/calibrate/refine model predictions.		Details of the water quality model to be provided as an appendix to the Application. Text has been modified in the surface water quality Section as follows: "In addition, the model used to predict the concentrations of water quality parameters, and assess potential effects, including residual effects, will be described in detail in the Application and provided in an Appendix to the Application."	Please reference how monitoring data will be used to validate/calibrate/ refine model predictions as requested March 2018: addressed to EAO's satisfaction.	No further comments from Working Group member.
19	August 5, 2016	Alison Neufeld, MoE	13.0 Management Plans	Pg. 134	A Nitrogen Management Plan should be provided.		Reference to nitrate management has been included with the Blasting and Vibration Management Plan, details of which will be provided in the Application. This plan will outline measures to mitigate effects from nitrates used for blasting.	March 2018: addressed to EAO's satisfaction.	Thank you. This comment was addressed in section 7.0.
20	August 5, 2016	Alison Neufeld, MoE	15.2 Summary of Mitigation Measures	Pg. 138 Table 41)	This table will be valuable to reviewers and decision makers. I appreciate the clear linkages between potential residual effects and mitigation measures.		Thank you for your feedback.	March 2018: addressed to EAO's satisfaction.	No further comments from Working Group member.
21	August 8, 2016	Kyle Terry, Ministry of Environment	Section 1.1.2	Pg. 20	The information provided in the application in support of the 'layer cake' design and associated benefits to water quality should be very well	'Unproven' or 'out-of-the-box' water quality mitigations are often	The "layer-cake" strategy remains in a conceptual mode at this time. During the Application process, several recognized experts in geochemistry and other	March 2018: addressed to EAO's satisfaction.	Thank you for the response. The response addresses the comment. It

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					supported with as much data, literature and real-world examples as possible. Further, the application would likely benefit from incorporation of proven contingency measures, such as active water treatment, that could be implemented should the 'layer cake' not perform to expectations. Details of this contingency (triggers, type, support for effectiveness, etc.) should also be provided. Finally, it is recommended that assumptions about the effectiveness of the 'layer cake' design should be conservative from an environmental effects prediction perspective (i.e. assumed less effective than analysis might suggest).	regarded as higher risk mitigations, as it perceived likelihood that it will function as intended is generally lower. This has been proven out in previous EA submissions (i.e. Sukunka Coal Project). As such, it is recommended that the application attempt to increase the perceived likelihood of success as much as possible by providing the suggested information.	specialties will move to design/engineer, model, and prove the concept (and any subsequent iteration thereof). The Application will not be submitted unless NWP determines it can comply with all applicable standards related to spoil disposal and water quality; if an Application is submitted it will contain all relevant details of the method selected. <u>Updated March 2018 Response</u> Thank you for your comment. The Application will present a contingency plan for waste rock management, which will outline mitigation measures to be put in place should the proposed strategy not function as intended.		is still suggested, however, that the application identify and discuss proven mitigation measures that could be utilized in the event that the 'layer cake' doesn't perform as well as the models may predict. Including this information could be in the proponent's best interest, as it may avoid delays in the EA if the information is requested during review, however I am not requiring that it be part of the AIR. No additional response is required.
22	August 8, 2016	Kyle Terry, Ministry of Environment	Section 1.1.3	Pg. 21	A discussion of estimated collection efficiencies (runoff intercepted by ditch/total runoff issuing from above ditch) of the diversion and collection ditches should be provided, along with information supporting the estimated values.	Overestimation of water interception may lead to underestimation of contact water volumes and resultantly underestimation of project effects.	An additional bullet has been added to the list of information to be included on water management in the Application. The new bullet states "Estimated collection efficiencies (i.e., runoff intercepted by ditch/total runoff issuing from above ditch) of the diversion and collection ditches will be provided as well as information supporting the estimated values."	Please state in the AIR that this requested information will be included in the Application March 2018: addressed to EAO's satisfaction.	No further comments from Working Group member.
23	August 8, 2016	Kyle Terry, Ministry of Environment	Section 1.1.4	Pg. 22	Water Supply – please provide estimated pumping/uptake rates.		The dAIR now notes "Water supply and estimated pumping/uptake rates (including Grave Creek water supply reservoir and potable water wells at the plant site)." Details on estimated water pumping/update rates will be provided in detail in the Application.	Please state in the AIR that this requested information will be included in the Application March 2018: addressed to EAO's satisfaction.	No further comments from Working Group member.
24	August 8, 2016	Kyle Terry, Ministry of Environment	Section 4.1.4	Pg. 43	Please provide the final climate (precipitation, temperature, etc.) time series data in a single excel file.	Provision of the data in a format useable by the reviewer will facilitate a more timely and thorough review.	Raw data will be provided to the Ministry of Environment following submission of the Application. A note has been added to the text in Section 4.2.1 stating that raw data from the climate station will be made available.	March 2018: addressed to EAO's satisfaction.	Thank you for the response. This comment has been addressed.
25	August 8, 2016	Kyle Terry, Ministry of Environment	Section 4.3.4.3	Pg. 57	The hydrology program should follow the guidance for at least Grade B quality data collection and analysis as defined in "Manual of British Columbia Hydrometric Standards" (RISC, 2009). Baseline data quality should also be assessed using the guidance provided in this document.		Reference to the Resource Inventory Standards Committee Manual of British Columbia Hydrometric Standards has been added to Section 4.1.4.2.1. This document has served as guidance in previous hydrology baseline studies and will continued to be used for future baseline.	March 2018: addressed to EAO's satisfaction.	Thank you for the response. This comment has been addressed.

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26	August 8, 2016	Kyle Terry, Ministry of Environment	Section 4.3.4.3	Pg. 57	Please provide the final hydrology data (manual discharge measurement summary table, rating curves and water level and discharge time series) for each baseline monitoring location in a single excel file.	Provision of the data in a format useable by the reviewer will facilitate a more timely and thorough review.	A note has been added to the AIR to Section 4.1.4.2.1 stating that raw hydrology data will be provided at the time of Application submission in appendices or in a useable format to specific regulatory agencies.	March 2018: addressed to EAO's satisfaction.	Thank you for the response. This comment has been addressed.
27	August 8, 2016	Kyle Terry, Ministry of Environment	Section 4.3.4.3	Pg. 57	'Site-specific information on baseline field surveys' must include, but is not limited to: ● Continuous, daily streamflow records at all monitoring locations. ● Development of long-term hydrology statistics based, at least in part, on site specific data. Statistics must include mean and median annual flow, monthly flow, variability of both monthly and annual flow, and return period high and low flows. Ideally this would be accomplished by development of long-term synthetic streamflow series at each monitoring location. ● The hydrologic analysis should establish the 'total watershed yield' from each watershed (runoff + groundwater flow), and should be shown to balance with the climate parameters (precipitation and evapotranspiration) estimate in Section 4.1.4 (Climate Section).		NWP Coal agrees that information suggested is key to baseline hydrology studies. Requested information has been added to the dAIR and Section 4.1.4.2.1 notes: Site-specific baseline hydrology information presented in the Application for key watercourses will include but not be limited to: • Continuous, daily stream flow records at all monitoring locations, which will include up-gradient and down-gradient monitoring sites; • Development of long-term hydrology statistics based, at least in part, on site specific data. Statistics will include mean and median annual flow, monthly flow, variability of both monthly and annual flow, and return period high and low flows; • The 'total watershed yield' from each watershed (runoff + groundwater flow), as established by the hydrologic analysis; • Assessment of surface and groundwater interactions at key watercourses, including characterizing the proportion of watershed yield occurring in the channel and beneath the channel; and • A review of available long-term data, if available, related to climate change to identify existing climate/hydrology trends in the region and how these trends may impact physical environments and associated effects on intermediate and receptor components.	The requested detail must be included in the AIR – please include the bullets in section March 2018: addressed to EAO's satisfaction.	Working Group member satisfied with response.
28	August 8, 2016	Kyle Terry, Ministry of Environment	Section 4.3.4.3/4.3.4.5	Pg. 57	The hydrology and/or hydrogeology sections should include an assessment of surface/groundwater interaction at key locations in West Alexander Creek, such that the proportion of total watershed yield occurring in the channel and beneath the channel is characterized.		The beginning of Section 4.1.4.2.1 notes that the "Application will provide an overview of existing hydrological conditions at key watercourses that may be impacted by the proposed Project, including Alexander Creek, West Alexander Creek and Grave Creek." As noted in the response to comment 27 above, Section 4.1.4.2.1 now notes that baseline hydrology information will include "Assessment of surface and	This detail must be included in the AIR – please include in section. March 2018: addressed to EAO's satisfaction.	Working Group member satisfied with response.

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							groundwater interactions at key watercourses, including characterizing the proportion of watershed yield occurring in the channel and beneath the channel." This note has also been added to section 4.1.3.2.		
29	August 8, 2016	Kyle Terry, Ministry of Environment	Section 4.3.4.3	Pg. 57	A water quantity model must be developed for the mine site for incorporation into the water quality model. The water quantity model must operate on a monthly or shorter time-step, and be calibrated to the baseline hydrology data. Calibration and/or validation information must be provided with the application. The model must also incorporate all planned mine water management, and be run for all phases of the project. Finally, the model must incorporate hydrologic variability, such that receiving environment predictions can be generated for both wet and dry conditions.		NWP Coal acknowledges the need for a water quantity model. Section 4.1.4.2.1 has been change to note "A water quantity model will also be developed for the Project site and described in detail in the Application. The water quantity model will be developed for incorporation into the water quality model, and will describe relevant model calibration and/or validation information. The model will operate on a monthly or shorter time-step and be calibrated to the baseline hydrology data collected for the Project. The model will also incorporate all planned mine water management activities for all phases of the Project, and will incorporate hydrologic variability, such that receiving environment predictions can be generated for both wet and dry conditions."	This detail must be included in the AIR – please include in section. March 2018: addressed to EAO's satisfaction.	Working Group member satisfied with response.
30	August 8, 2016	Kyle Terry, Ministry of Environment	Section 10	Pg. 126	This section must include an assessment of predicted climate change at the project site, and how climate change may affect the project. In addition to predicted climate change, available long-term data should also be reviewed to identify any existing climate/hydrologic trends in the region.		New information added in Section 4.8 on assessment: "A review of available long-term data, if available, related to climate change to identify existing climate/hydrology trends in the region"	This detail must be included in the AIR – please include in section. March 2018: addressed to EAO's satisfaction.	Working Group member satisfied with response.
31	August 8, 2016	Kyle Terry, Ministry of Environment	Section 13	Pg. 134	The Mine Site Water Management plan must include the inflow design floods (IDF's) for relevant water management infrastructure, as well as details on how the IDF's were calculated. Development of the IDF's must also consider possible effects of climate change. Support (calculations, logical rationale, literature review, etc.) should also be provided for any water management assumptions, such as collection efficiencies, spoil cover effectiveness, etc.		Acknowledged. Details of the Mine Site Surface Water Management Plan will be provided in the Application and a copy of the Plan when developed will be provided to MoE for review. No changes to the dAIR.	March 2018: addressed to EAO's satisfaction.	Thank you for the response. This comment has been addressed.
32	August 9, 2016	Kristen Murphy, FLNRO – Resource Management Division	Section 1.3	Pg. 24	Please ensure that applicable studies outline supply and demand quotas for water extraction and instream fish flows, including winter fish flows		Instream flow studies will be completed as part of the fisheries baseline assessments to characterize existing aquatic habitat, as noted in Sections 4.2.2.4 and 4.2.3.4. A note on winter fish flows has been added. Bullets have also been added to the list of alternatives in Section 1.3 to note that supply and demand quotas for water extraction will be investigated.	This detail must be included in the AIR – please include in section March 2018: addressed to EAO's satisfaction.	Working Group member satisfied with response.

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33	August 9, 2016	Kristen Murphy, FLNRO – Resource Management Division	Section 3.5	Pg. 32	Please ensure that the Provincial Environmental Mitigation Policy (avoid, minimize, mitigate, offset) is considered when addressing potential impacts		Acknowledged. The Provincial Environmental Mitigation Policy will be considered when evaluating and describing potential impacts. A new bullet has been added to Section 3.5 and notes "Where relevant, the Application will discuss how the provincial Environmental Mitigation Policy was considered and applied to address potential impacts and mitigation measures."	This detail must be included in the AIR – please include in section Guidance/Policy documents that will be followed should be listed in applicable sections. March 2018: addressed to EAO's satisfaction.	Working Group member satisfied with response.
34	August 9, 2016	Kristen Murphy, FLNRO – Resource Management Division	Section 4.4.1	Pg. 63	The application should identify linkages with riparian and wetland ecosystem habitat features	Key fish habitat features	Riparian habitat and wetland ecosystems will be described as part of the Landscapes and Ecosystems VC. A bullet has been added to Section 4.2.4.4 stating connections between these ecosystems will be included as part of the existing conditions descriptions.	March 2018: addressed to EAO's satisfaction.	No additional comments provided by the Working Group member.
35	August 9, 2016	Kristen Murphy, FLNRO – Resource Management Division	Section 4.5.4	Pg. 71	As this is a greenfield site, please ensure that ground sampling and assessments are completed in association with modelling exercises		NWP Coal assumes that the comment specifically refers to groundwater sampling and agrees that groundwater sampling and assessments will be completed in association with groundwater modelling exercises completed for the Project. Information in groundwater sampling is provided in Section 4.1.3.2. Groundwater conditions will be investigated through • Background information from published reference documents and hydrogeology reports; • Baseline groundwater quality data obtained through the baseline program (e.g., field parameters and results of laboratory analyses); • Seeps and springs present in the project disturbance areas, • Summary of existing groundwater characteristics (e.g., flow, direction, seasonal variations); • Results of aquifer tests; • Information on the current hydrogeological environment including hydro stratigraphic units/aquifers, flows through and between aquifers, gradients, groundwater/surface interactions fluxes (flux rates and locations), basic aquifer parameters derived from pumping test data, and geochemistry across and at the downgradient boundaries of the site; and • Potential groundwater quantity and quality impacts of the Project over both time (i.e.,	dAIR should specify what ground sampling and assessments will be completed in association with modelling exercises. Please add detail to the section. March 2018: addressed to EAO's satisfaction.	Working Group member satisfied with response.

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							short-term, annual cycles, each project phase, long-term, etc.) and space (e.g., across the study area at a scale appropriate to fully describe the impacts of individual and combined activities on downgradient watersheds, and other key project locations. • Assessment of surface and groundwater interactions at key watercourses, including characterizing the proportion of watershed yield occurring in the channel and beneath the channel. The AIR also notes "A groundwater/surface water numerical model will be used to analyze the potential impacts of each Project activities (e.g., extraction methods) on groundwater quality and quantity. "		
36	August 9, 2016	Kristen Murphy, FLNRO – Resource Management Division	Table 19	Pg. 76	It would be useful to know if the whitebark pine trees are positive for white pine blister rust (wpbr). Please included in the assessment as it would be useful for determination of health of the white pine community. If the stands, or some of the individual trees, are negative for wpbr, it may provide a mitigation option of seed collection and propagation of rust-resistant seedlings.		As part of the assessment of whitebark pine health (see measurement indicators in Table 19), individual trees will be tested for blister rust to determine the health of the stand and individuals. The Vegetation Management Plan developed for the Project will include details on mitigation measures for whitebark pine, including a seed and cone collection program. No changes made to the dAIR. <u>Updated March 2018 Response</u> Measurement indicators for Whitebark pine are listed in Table 24; Table 19 was reference to a previous version of the AIR.	March 2018: addressed to EAO's satisfaction.	Table 19 in word document refers to fish VC. Please direct to appropriate Table. If the proponent's response is incorporated into the application, then response accepted.
37	August 9, 2016	Kristen Murphy, FLNRO – Resource Management Division	Table 22	Pg. 81	Habitat connectivity and migratory impacts for large carnivores and ungulates should be emphasized	Location of project is located within a known migratory corridor	NWP Coal acknowledges the presence of migratory corridors in the area. Existing conditions for VCs will be described in the Application, as noted in Section 4.2.6.1. Measurement indicators for wildlife include an assessment of habitat availability and distribution relative to baseline, which includes assessing changes to connectivity and patch size, as noted in Table 27. No changes to the dAIR. <u>Updated March 2018 Response</u> Baseline studies will be conducted to assess the movement and use of the area by ungulate species. Information will be presented in the Application as well as mitigation plans and wildlife monitoring	March 2018: addressed to EAO's satisfaction.	It should be emphasized that the geographic location covered under this application has been identified as a key migratory corridor for important ungulate species, including mountain goat. It is recommended that the proponent ensure that all baseline data and risk determinations are as robust as possible. Data should include potential impacts to international migratory bottlenecks that

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							programs to be in place during construction and operation.		could result from this project. The U.S Fish and Game Service should be referred on this project.
38	August 9, 2016	Kristen Murphy, FLNRO – Resource Management Division	General comment for General - Mitigation Sections (Fish, Wildlife and Ecosystems)		Please ensure that timelines for recovery (i.e. mitigation of effects) are considered. For example, if the proponent states that impacts to old growth forests are mitigated, please state the expected timeline for mitigation (i.e.: if the proponent considers the timeline to be life of the project, and an old growth forest require 100 +/- years for mitigation, is it possible to mitigate impacts to the VC?)		Thank you for the comment and examples. NWP Coal will note timelines for recovery in mitigation and management plans to be developed for the Project and also consider anticipated likelihood of mitigation in timelines presented.	March 2018: addressed to EAO's satisfaction.	Accepted.
39	August 11, 2016	Lisa Christensen, Teri Ridley, DFO	Section 1.1 Description of Proposed Project	Pg. 17-22	Suggest to include a description of the impacts of the Project on the environment, and vice versa; including any environmental risk assessments (as it relates to the Project Description).	Design mitigation is most effective in avoiding serious harm and is integral to establishing confidence in the conclusions regarding the potential for significant adverse effects on VCs from the Project. For example, the development of water and waste management areas and related infrastructure (sections 1.1.1 to 1.1.4) may adversely impact riparian areas and watercourses, including changes in hydrology to fish bearing streams. Having a clear understanding as to where and how the Proponent avoided and/or mitigated the impact during the review phase will help substantiate confidence in their conclusions and avoid unnecessary delays with subsequent information requests. It is realized that the environmental impacts	We agree that design mitigation is the most effective way to avoid potential project effects. Section 1.3 Project Design and /or Alternative Means of Carrying out the Project will include a discussion regarding how project design changes have been incorporated (as appropriate) to prevent and/or minimize project effects. Specific impacts of the Project on the environment will be addressed under each of the VC effects assessments (Section 4.0 - Environmental Effects Assessment). Each of these Sections will describe and discuss any project design changes made to minimize/prevent impacts. Comment acknowledged - no changes made to the dAIR.	March 2018: addressed to EAO's satisfaction.	Response acceptable, as ultimately the legislated information requirements for a "Request for Authorization" must be met should the project result in residual impacts to fish and fish habitat requiring Authorization pursuant to FA S35(2)(b) – D Hussey, DFO 21/09/17

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						are captured elsewhere in the Application however, it seems logical to highlight here as well.			
40	August 11, 2016	Lisa Christensen, Teri Ridley, DFO	Section 1.2 Applicable Authorizations	Table 2	If it is determined that a serious harm to commercial, recreational, Aboriginal (CRA) fisheries is anticipated as a result of the Project, a Fisheries Act Authorization will be required by DFO. If it is determined that an aquatic species at risk will be affected as a result of the Project, a Species at Risk Act permit may be required by DFO.	It is recommended that the Proponent have a clear understanding during the review phase of what is necessary to submit for DFO review to avoid unnecessary delays during the permitting phase. Please refer to the link below for the *Applications for Authorizations under Paragraph 35(2)b of the Fisheries Act Regulations* that outlines all the required information. http://laws-lois.justice.gc.ca/eng/regulations/SOR-2013-191	The Application will provide details on legislative requirements relevant to the Project, including authorizations and permits that may be required prior to commencement of the Project. As noted in the dAIR, a preliminary list of legislative requirements is provided in the Project Description (link provided in text). NWP Coal will review relevant information regarding legislative requirements to reduce the potential for unnecessary delays during the review phase of the Application. NWP is aware that federal authorizations such as the Fisheries Act may be required for the Project.	March 2018: addressed to EAO's satisfaction.	Response acceptable, as ultimately the legislated information requirements for a "Request for Authorization" must be met should the project result in residual impacts to fish and fish habitat requiring Authorization pursuant to FA S35(2)(b) – D Hussey, DFO 21/09/17
41	August 11, 2016	Lisa Christensen, Teri Ridley, DFO	Section 1.3 Project Design and /or Alternative Means of Carrying out the Project	Pg. 23	Please clarify if the Application will include all new (vs. existing) transportation routes and utility corridors (e.g. access roads, haul roads, transmission lines, etc.) related to the Project.	It is recommended that all transportation routes and utility corridors be included to be able to assess which route has the least impact on the environment and Aboriginal groups. Having a clear understanding as to where and how the Proponent avoided and/or mitigated project impacts will help substantiate confidence in their conclusions and possibly avoid unnecessary delays with subsequent information requests during the review phase.	Project alternatives presented in the Application will include discussion of the use of both new and existing infrastructure, including coal transportation routes and utility corridors. Information presented in Section 1.3 has been modified to convey this clearly. Utilities have been added to the list of alternative means of carrying out the Project.	March 2018: addressed to EAO's satisfaction.	Response acceptable, as ultimately the legislated information requirements for a "Request for Authorization" must be met should the project result in residual impacts to fish and fish habitat requiring Authorization pursuant to FA S35(2)(b) – D Hussey, DFO 21/09/17

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42	August 11, 2016	Lisa Christensen, Teri Ridley, DFO	Section 3.3 Existing Conditions	Pg. 31	Please note that for all fisheries baseline information, a minimum of 2-3 years of data collection is considered adequate to be able to assess potential changes to CRA fisheries productivity as a result of the Project.	In general, DFO requests 2-3 years of data collection during the review phase. This includes habitat assessment, fish utilization and hydrology data (surface and groundwater).	The approach to the collection of aquatic data is consistent with what has been completed for similar projects in the area. Multi-year programs have been implemented and are ongoing (e.g., an extensive surface water quality program has been ongoing since May 2012 and has included multi-year spring freshet and low-flow sampling). We are also fortunate that site-specific baseline data can be further supported by other aquatic surveys (fish, water quality, benthos, etc.) that have been and are being completed in the Elk Valley. Comment acknowledged - no changes to the dAIR. <u>Updated March 2018 Response</u> Thank you for your feedback. NWP Coal will connect with Working Group members regarding baseline studies.	March 2018: addressed to EAO's satisfaction.	Given the scale of potential effect to fish/fish habitat within the Alexander Ck watershed – notably a project footprint that covers most of West Alexander Ck, projects that are likely to cause ecosystem and/or population scale impacts will be required to conduct a robust fish population study that will allow the assessment of fish population viability should the project proceed. DFO, FLNRO and KNC/CCRIFC can provide guidance on the minimum standards for fish population analysis. – D Hussey, DFO 21/09/17
43	August 11, 2016	Lisa Christensen, Teri Ridley, DFO	Section 4.3.4.3 Hydrology + 4.3.4.5 Groundwater	Pg. 57 Pg. 58	It is expected that monitoring stations will be situated in locations that can justifiably predict (quantify) the changes in surface water and groundwater flows. The hydrology and groundwater monitoring programs may need to be expanded to be able to validate the models or increase confidence in predictions.	DFO's assessment during the review phase extends beyond the Project site area and considers changes to flows downstream of the Project that may impact fish bearing streams.	NWP Coal agrees with your comment. Monitoring stations must be situated in locations that provide the defensible data necessary to support the assessment of potential project impacts. Data must also be suitable to support detailed modelling. We are confident that existing station locations are suitable to evaluate project effects. We are also aware that programs may need to be expanded, as appropriate. Comment acknowledged - no changes to the dAIR. <u>Updated March 2018 Response</u> Hydrological monitoring stations were established in Alexander, West Alexander, and Grave Creeks in 2014 to assess flows and potential impacts to aquatic habitat.	March 2018: addressed to EAO's satisfaction.	Response acceptable but it should be noted that this applies to both the Alexander and Grave Ck watersheds, as both have potential for flow related fish habitat impacts – D Hussey, DFO 21/09/17
44	August 11, 2016	Lisa Christensen, Teri Ridley, DFO	Section 4.3.4.7 Fisheries + 4.4.4 Existing Conditions	Pg. 59 Pg. 65	Characterization of existing fisheries baseline conditions should also include: ● transportation corridors under review (not explicitly mentioned) ● summary of all fisheries data collected; including sample methods, timing, effort, and results at each location	For each corridor, this includes the number of proposed stream crossing locations (new vs. existing), type of crossing (culvert, bridge, etc.; permanent or temporary), and fish species/riparian habitat present. This information	NWP Coal is in agreement with your comment. The assessment of fish/fish habitat will include transportation corridors. The suggested bullets noted have been added to Sections 4.2.2.4 and 4.2.3.4. Fisheries work will include fish inventory/community assessments, fish habitat assessments, spawning surveys, overwintering surveys, benthic invertebrates	This detail must be included in the AIR – please include both bullets in section. March 2018: addressed to EAO's satisfaction.	As for Tracking # 42, given the ecosystem scale of potential impact to fish/fish habitat a robust fish population study is likely to be required to support the assessment of whether fish populations will remain viable in the Alexander, and potentially Grave,

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						supports DFOs review of cumulative impacts. A summary table is fine. For the fisheries baseline data, a summary table in the main report with referenced supporting appendices (detailed baseline data) is recommended.	and periphyton community surveys. The final Application will include detailed write-ups on field methods. Detailed data (e.g., fish collection results, benthos taxonomy, etc.) will be provided as appropriate in Appendices. <u>Updated March 2018 Response</u> NWP Coal agrees that a robust assessment and analysis of fish population is required to support the assessment of potential impacts to fish and fish habitat.		systems if the project proceeds – D Hussey, DFO 21/09/17
45	August 11, 2016	Lisa Christensen, Teri Ridley, DFO	Section 4.4.1 Fish Introduction	Pg. 63	Please note that the most valuable interactions to determine serious (residual) harm to fish are surface water quantity and groundwater quantity as intermediate components.	Water quality does not fall to DFO for review (usually ECCC and Provincial role). DFOs assessment during the review phase relies more on the potential changes in surface water and groundwater quantity that may impact CRA fisheries.	NWP Coal agrees that surface water and groundwater (quantity and quality) are important components to consider when assessing potential impacts to fish and fish habitat. As described in Section 4.1 (specifically 4.1.3 and 4.1.4), groundwater and surface water are intermediate VCs and the Application will include an assessment of Project effects on identified intermediate VCs, including groundwater and surface water. <u>Updated March 2018 Response</u> Both surface water and groundwater will be investigated and characterized to allow for an assessment of potential impacts to flow regimes of Alexander and Grave Creek watersheds. Information obtained through these studies, including instream flow studies, will support analysis of potential impacts to fish and habitat requirements as you have noted.	Addressed to EAO's satisfaction	As above, assessment of potential flow related impacts to fish/fish habitat are required in both the Alexander and Grave watersheds. Analysis of Environmental Flow Needs must address the key life-history fish and fish habitat requirements by fish spp (over-wintering, channel formation, spawning, summer rearing, fall migration, etc.). DFO, FLNRO and KNC/CCRIFC can provide guidance for these key parameters, as %MAD. If analysis indicates standards won't be met for any key period, a detailed system specific analysis will be required. D Hussey, DFO 09/21/17
46	August 11, 2016	Lisa Christensen, Teri Ridley, DFO	Section 4.4.2 Fish Scope Assessment	Table 14	Measurement Indicators should expand to include riparian habitat as it relates to changes in habitat availability for fish (second bullet). Riparian (streamside) habitat for fish is considered separate to the riparian identified in the Landscapes and Ecosystems VC. Any changes to riparian habitat for fish should be identified and captured under the Fish VC.	The indicators in Table 14 support DFOs assessment during the review phase and help to determine (quantify) serious harm to be offset by the Proponent and as described in an Offsetting Plan (OP). Note: the development of OP's can be	NWP Coal agrees that riparian habitat is an important component of fish habitat. Riparian habitat has been specifically added to the second bullet of Table 16. It now reads: "Habitat quality and quantity relative to baseline (e.g., changes in channel morphology, substrates, and calcite formations, changes in habitat connectivity, changes in habitat availability, and riparian habitat).	March 2018: addressed to EAO's satisfaction.	Response acceptable, as ultimately the legislated information requirements for a "Request for Authorization" must be met should the project result in residual impacts to fish and fish habitat requiring Authorization pursuant to FA S35(2)(b) – D Hussey, DFO 21/09/17

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						challenging, and any progress made during the review phase can avoid unnecessary delays in the permitting phase.			
47	August 11, 2016	Lisa Christensen, Teri Ridley, DFO	Section 4.4.2	Table 15 (and table 12)	Measurement indicators for Surface Water Quantity should include, peak flows, and low/high flows under different scenarios (e.g. normal, dry, wet years) as it relates to changes in habitat availability for fish throughout the year.	The full range of hydrographic data under multiple scenarios is important during the review phase to support modelling predictions that lead to the estimation of adverse effects (i.e. significant reductions in surface water and groundwater quantities). This will help substantiate confidence in the conclusions and possibly avoid unnecessary delays with subsequent information requests during the review phase	The assessment of surface water quantity will include the assessment of low flows, peak flows, etc. Hydrographs will be developed for watercourses of interest to provide an understanding of seasonal and event driven flows within the Project area. Fisheries work will include the assessment of potential changes to flows within watercourses and implications to fish communities and fish habitat. Information in Section 4.1.4 outlines the assessment of surface water quality and quantity that will be included in the Application. <u>Updated March 2018 Response</u> Thank you for your feedback. NWP Coal will connect with Working Group members regarding baseline studies.	March 2018: addressed to EAO's satisfaction.	As above, detailed guidance on requirements for flow related fish/fish habitat impact analysis should be developed in consultation with DFO, FLNRO and KNC/CCRIFC to ensure consistency with other mine project reviews. D Hussey, DFO 21/09/17
48	August 11, 2016	Lisa Christensen, Teri Ridley, DFO	Section 4.5.2 Landscape and Ecosystems Scope of Assessment	Table 16	Measurement indicators should be expanded to include fish for Wetland Ecosystems. It is expected that any loss anticipated of fisheries wetlands will be mapped and quantified. It is recommended to capture changes to riparian habitat (for fish), under the Fish VC	Wetlands with surface water connection to fish bearing waters (including overwintering habitat) should be identified and considered fish habitat. This information is necessary for DFOs assessment during the review phase.	The presence/absence of fish in wetlands will be evaluated as part of baseline studies. Riparian habitat (as related to fish) has been addressed under a previous comment (Comment #46). The wetland ecosystem row of Table 21 has been expanded to include: "presence/absence of fish".	March 2018: addressed to EAO's satisfaction.	Response acceptable, as ultimately the legislated information requirements for a "Request for Authorization" must be met should the project result in residual impacts to fish and fish habitat requiring Authorization pursuant to FA S35(2)(b) – D Hussey, DFO 21/09/17
49	August 11, 2016	Lisa Christensen, Teri Ridley, DFO	Section 9.0 Accidents and Malfunctions	Pg. 124	Please include the risk of a tailings impoundment failure in the event it becomes part of the proposed Project design. Also, if the likelihood, consequence or potential risk of an accident or malfunction is high, please include a follow up strategy to remedy.	These are included as recommendations to address any foreseeable events.	Tailings impoundments are not part of the Project design and are not a requirement of coal projects. No change to dAIR. <u>Updated March 2018 Response</u> As noted, tailings impoundments are not a proposed component of this Project.	March 2018: addressed to EAO's satisfaction.	N/A as not Tailings Impoundment associated with Coal Mining.
50	August 11,	Lisa Christensen, Teri Ridley, DFO	Section 13.0 Management Plans and	Pg. 134	It is recommended that a Compliance Reporting Plan be included (e.g. a process by which the	This is included as a recommendation to	Agreed. Compliance reporting is a key part of the overall site EMP.	March 2018: addressed to EAO's satisfaction.	No further comment provided by Working Group

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	2016		Follow up Programs		Proponent plans to report compliance to meet the multi-jurisdictional conditions outlined in the various permits, authorizations, licences, certificates, etc.).	address any foreseeable events. Note: Section 14.0 could also be expanded to include compliance reporting. Currently, it appears to cover only general reporting.	"Compliance Reporting Plan" has been added as a bullet under the Environment Management Plan.		member.
51	August 11, 2016	Lisa Christensen, Teri Ridley, DFO	Section 14.0		A (draft) Offsetting Plan should be included in the Application.	An OP is a permitting requirement under the Applications for Authorizations under Paragraph 35(2)b of the Fisheries Act Regulations, and is intended to offset serious harm to CRA fisheries as a result of the Project. Development of a draft OP during the review phase is beneficial to the Proponent as challenges (access, permission, adequate baseline data collection, etc.) are often raised that if left to address only at the permitting phase would likely cause unnecessary delays.	Should the assessment (based on the range of measurement indicators proposed) determine that there is an impact to fish and fish habitat as a result of the project, NWP and their team will work closely with DFO and other interested parties to develop an Offsetting Plan. We agree that it is very important for discussions to happen as early as possible in the process. Section 4.2.3.6 has been modified to include reference to the potential requirement of an Offsetting Plan. It includes the following: "The Application will also include a draft Offsetting Plan if appropriate. The draft Plan would be developed with input from DFO and other interested parties."	March 2018: addressed to EAO's satisfaction.	DFO satisfied with the response and the offsetting plan will be captured by the authorization process, assuming one will be required.
52	August 12, 2016	Kristen Murphy, FLNRO – Resource Management Division	Section 4.7 Wildlife		It is important that migration and movement corridors be assessed in relation to their importance in providing connectivity to traditional seasonal ranges and special habitat features.	Populations currently utilizing habitats that may be directly impacted by the mine or mine infrastructure often rely on habitats off site for critical seasonal values such as winter range, lambing and calving areas, rutting etc. Not all corridors have the same level of importance.	Agreed. Migration and movement corridors are a very important consideration when evaluating wildlife communities. Measurement indicators for receptor VCs include, as appropriate, habitat connectivity and available habitat and distribution (Table 27 - Summary of Measurement Indicators for Wildlife VCs). Concerns related to wildlife migration and movement will be addressed in the Application. No changes to the dAIR. <u>Updated March 2018 Response</u> Baseline studies will be conducted to assess the movement and use of the area by ungulate species. Information will be presented in the Application as well as mitigation plans and wildlife monitoring	March 2018: addressed to EAO's satisfaction.	Please see response to Tracking #37.

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							programs to be in place during construction and operation.		
53	August 12, 2016	Kristen Murphy, FLNRO – Resource Management Division	Section 6.3 Land Use and Access		The resource values associated with the lands in question needs to be recognized in this section e.g. - Areas that have special management concern for wildlife - Private lands that have been purchased for special management such as wildlife habitat. The Grave Prairie AMA also needs to be referenced.	The Grave Prairie area has been managed as one of the core winter range areas for the Elk Valley. Private lands in this area have been purchased by TNT as part of the management of values in this area	Section 4.4.3.3 specifically references Access Management Areas. For completeness we have added specific reference to the Grave Prairie Access Management Area as it is located with the proposed LSA. Have also added a new bullet to specifically reference private lands - "Private land holdings (e.g., Teck Conservation Lands - Grave Prairie and Alexander Creek)". Section 4.4.3.4 specifically notes that information used for the assessment will include "Existing constraints on the land base (e.g., Private land holdings, surface and sub-surface tenures and designations)" - Private land holdings includes Teck Conservation Lands.	March 2018: addressed to EAO's satisfaction.	Accepted.
54	August 17, 2016	Angeles Albornoz, NRCan	Part A – Introduction Subsection 1.1.1 Surface Extraction Areas	Pg. 19 2nd bullet	"…considerations related to pill walls;" Should be "pit walls"	n/a	Changes made in text.	Addressed to EAO's satisfaction	No further comment provided by the Working Group member.
55	August 17, 2016	Angeles Albornoz, NRCan	Section 9.0 Accidents and Malfunctions	Pg. 125 7th bullet	In addition to rockslides, suggest including landslides and subsidence.	Landslides and subsidence will be likely covered under geohazards as well.	Landslides added to the list of potential accidents and malfunctions. Please note that no underground mining is taking place for this Project and as such, not subsidence is expected to occur.	March 2018: addressed to EAO's satisfaction.	No further comment provided by the Working Group member.
56	August 17, 2016	Angeles Albornoz, NRCan	Part A – Introduction Sub-section 1.1.4 Mine Infrastructure and support Facilities	Pg. 21-22	NRCan recommends including the following wording in the AIR: "The Application will include a description of the explosives manufacturing facility and explosives magazines. The specified location of the various components of the facilities, with distances to vulnerable features including but not limited to dwellings, roads, camps, railways, and bodies of water, will be identified. It will be demonstrated that safety distances required by the Explosives Regulatory Division of Natural Resources Canada (NRCan) have been considered and met. Infrastructures for manufacturing or storing explosives will be identified, including but not limited to: explosives and magazines; related storage; maintenance / wash area; process vehicles and their parking area; offices; warehouses; and buildings. Additional information provided will include:	Pages 31-32 in the Project Description indicate that explosive manufacturing will take place on site (emulsion silos, glycol tanks, storage of ammonium nitrate).Two magazines are also included in the PD. If explosive manufacturing is still involved in the project, an explosives licence will be required from NRCan.	The Application will provide details regarding the use of explosives on site. Bullet related to explosives storage has been edited to include a note that "explosives storage will meet NRCAN requirements and applicable regulations" <u>Updated March 2018 Response</u> Explosives will not be manufactured onsite.	Issue addressed in EIS Guidelines therefore addressed to EAO's satisfaction	As per the initial comment in the rationale, if the proponent states that they *may* manufacture explosives, this should be reflected in the bullet in the proponent's response; it should state that explosive storage <u>and</u> manufacturing will meet NRCan requirements and regulations under the federal *Explosives Act*.

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					• Explosives to be manufactured; • Maximum quantity of explosives at each facility; • Explosives storage plans; • Liquid effluent disposal plans; • Evaluation of worst case scenario (i.e., accidental explosion); • Spill contingency plans; and • Details on any temporary explosive facilities to be used during the proposed Project start-up will be provided, giving the same information requirements above."				
57	August 17, 2016	Angeles Albornoz, NRCan	Section 1.2 Applicable Authorizations	Table 2 Authorization Table	If an explosives licence is required, it should be added in the section on permit requirement.	As explained above.	The Application will provide details on legislative requirements relevant to the Project, including licenses and permits that may be required for the Project. As noted in the dAIR, a preliminary list of legislative requirements is provided in the Project Description (link provided in text). A list of license requirements is not meant to be provided in the AIR and will be outlined in the Application.	Issue addressed in EIS Guidelines therefore addressed to EAO's satisfaction	NRCan is satisfied that the proponent has committed to ensuring any license or permit for explosives storage or manufacture will be listed in the Application.
58	August 22, 2016	Donna Haga, ENV	General		In the pdf, please include navigation links (i.e. bookmarks in navigation pane) and hyperlinks within the document for tables, figures, and citations.		Acknowledged. Hyperlinks will be added to the final AIR PDF.	Addressed to EAO's satisfaction	Ok
59	August 22, 2016	Donna Haga, ENV		Pg. 2	Please provide a reference to "the Project's Pre-feasibility Study".		Reference added (Norwest Corporation 2014). <u>Updated March 2018 Response</u> Reference added.	Addressed to EAO's satisfaction	There is no reference "Norwest Corporation 2014" in the References section.
60	August 22, 2016	Donna Haga, ENV		Pg. 5	Possible typo: "..; and a small dry)" Typo: "iss7ued…"		A small dry is a change house/bathing house for use by employees of the Project. Typo fixed.	Addressed to EAO's satisfaction	Ok
61	August 22, 2016	Donna Haga, ENV	Section 1.1	Pg. 17-19	It should be clear that the Application will summarize key effects, proposed mitigation measures and residual and cumulative effects on Valued Components; as well as discuss the potential for significant adverse effects on Valued Components.		Key components of the Application will be outlined at the beginning of the Application, including an overview of how information on effects, mitigation, and VCs is presented. It must also be stressed that the final Application will address the AIR as well as the final federal EIS Guidelines issued for the Project. The final Application will include separate concordance tables for both the AIR and the EIS Guidelines.	Addressed to EAO's satisfaction	Ok

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62	August 22, 2016	Donna Haga, ENV		Pg. 28	Small discrepancy between CACs in Table 3 and CAC in *Abbreviations and Acronyms* section.		Table 3 has been replaced with a new table. Document has been updated with consistent abbreviations and acronyms.	Addressed to EAO's satisfaction	Ok
63	August 22, 2016	Donna Haga, ENV		Pg. 32	Suggest changing "The matrix will identify the potential interactions between the various physical works and activities…" to "… the various physical works and activities of the project…"		Suggested change made in text.	Addressed to EAO's satisfaction	Ok
64	August 22, 2016	Donna Haga, ENV		Pg. 40 (Table 8)	NO_2 is not a greenhouse gas (but N_2O is). Please clarify. Will the CAC NO_x be considered? Please include MoE guidance documents on air quality monitoring[1–5] and dispersion modelling,[6] as well as BMPs for dust management.[7–9]		This was a typo - has been changed. Also please see Comment #5 - Health Canada and response for additional details regarding air quality. The MOE Water and Air Baseline Monitoring Guidance Document for Mine Proponents and Operators is listed in the text. The Air Quality Dispersion Modelling Guideline has been added to text.	March 2018: addressed to EAO's satisfaction.	Ok
65	August 22, 2016	Donna Haga, ENV		Pg. 43	Please include the following in the technical report describing climatic conditions: ● Photos of the climate station; and ● A maintenance record for the climate station (MoE Template[5]). Please update guidance documents in the dAIR as follows: ● "BC Ministry of Water Land and Air Protection (n.d.) Air Monitoring Site Selection and Exposure Criteria": the year of publication is 2013.[10] ● "BC Ministry of Environment (2011) Meteorological Data and Sensing Requirements in the BC Ministry of Environment": the year of publication is 2013.[4] ● "BC Ministry of Environment (2012) Water and Air Baseline Monitoring Guidance Document for Mine Proponents and Operators": this guidance document was updated in June, 2016[1] and is now accompanied by a user guide.[2]		Guidance documents noted in the AIR for climate and air quality have been updated. A note has been added stating that photos and a maintenance record for the climate station will be appended to the Application. The Application will include details regarding the use of regional air monitoring data including the identification of which monitoring stations were used, data available, and the overall rationale for station location. The proponent will obtain approval from an MOE Air Quality Meteorologist on the use of regional monitoring data prior to the Application stage of the EA. Similar to our approach with regards to the design and establishment of a Project climate station, the Crown Mountain team will continue to work with MOE and other regulators regarding the approach for the collection of air quality data, air quality modelling, etc.	Addressed to EAO's satisfaction	Ok

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					• "BC Ministry of Environment (2008) Guidelines for Air Quality Dispersion Modelling in British Columbia": this guidance document was updated in 2015.[6] "Baseline ambient air quality conditions will be established from data collected from regional air quality monitoring stations operated by the BC Ministry of Environment, …" The AIR should discuss in detail which regional monitoring data will be used to characterize the air quality baseline for the project, including rationale based on location (of both the monitoring station and the project) and air quality contaminant. The proponent should obtain approval from an MoE Air Quality Meteorologist on the use of regional monitoring data prior to the Application stage of the EA.				
66	August 22, 2016	Donna Haga, ENV	Table 9	Pg. 44	"…applicable provincial and federal ambient air quality objectives/standards…" The AIR should cite the BC air quality objectives.[11] • "Materials and Equipment storage": if dusting from any materials piles will be a possibility, there should be an "X" for CACs. • Dust emissions from stockpiles and the coal processing plant are mentioned in the project description; please clarify how these sources are encompassed in the items listed under "Operations".		The provincial Ambient Air Quality Objectives have been added to the AIR. The interaction between CACs and materials and equipment storage has been added to Table 8. Dust emissions from stockpiles and processing are included under "operation and use of facilities and site infrastructure". <u>Updated March 2018 Response</u> Section 4.1.1.2 provides a list of guidance documents that will be used for the assessment of air quality. The BC MOE (2011) Meteorological Data and Sensing Requirements in the BC Ministry of Environment has been added to the list of documents. Guidance documents relating to the collection of climatic data has been revised.	March 2018: addressed to EAO's satisfaction.	Ambient air quality objectives are mentioned in the climate VC section (page 54), however these objectives should be used to determine potential effects to air quality (i.e. in section 4.1.1.1.3 for potential effects to air quality).
67	August 22, 2016	Donna Haga, ENV	Section 4.1.8	Pg. 45	The cumulative effects assessment should be carried out using relevant provincial and/or federal air quality objectives as benchmarks.		Section 4.2.1.4 already includes a commitment to complete the air quality assessment against "applicable provincial and federal ambient air quality objectives/standards and emissions targets". No change made to dAIR.	Addressed to EAO's satisfaction	See comment above and below. 4.2.1.4 is for the climate VC (with greenhouse gases as measurement indicators). Air quality objectives should be included in the air quality section 4.1.1 (and sub-sections)

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							Updated March 2018 Response A note has been added to Section 4.1.1.2 noting that notes "Results of the air quality program will be compared against compliance with the applicable provincial and federal ambient air quality objectives/standards". The note in Section 4.2.1.4 has been revised to read "GHG emissions will be measured over the course of the Project and compared against compliance with applicable provincial and federal objectives/standards and emissions targets". Minor changes to discussion on the climate VC have been completed to address comments.		
68	August 22, 2016	Donna Haga, ENV		Pg. 120	Typo: "The health risk assessment for will include…".		Typo addressed.		OK
69	August 26, 2016	Harp Gill, senior Environmental assessment officer, Environment and Climate Change Canada	Preface to the AIR	Pg. 6, 3rd bullet under "Federal Agencies".	Please replace reference to "Environment Canada" and the acronym "EC" with "Environment and Climate Change Canada" and "ECCC", respectively, here and as applicable throughout the remainder of the document.		Title has been changed in the document.		Response is satisfactory.
70	August 26, 2016	Harp Gill, senior Environmental assessment officer, Environment and Climate Change Canada	1.1.2 – Waste Rock Management Areas, with respect to the bullet "Promote selenium sequestration"	Pg. 20	ECCC recommends that the dAIR require the proponent to identify contingency management measures with regards to the proposed selenium management plan (i.e. selenium sequestration) to address the possibility of lower than expected effectiveness of the selenium removal.	The Crown Mountain Coking Coal Project (the Project) is proposed in an area with pre-existing elevated levels of selenium.	The Project will require the development of a detailed strategy to managing selenium levels. It will include monitoring and the identification of contingency management measures. The approach for management of selenium (and other parameters) will be developed in consultation with Working Group members An additional bullet has been added to Section 1.1.2 which notes that "Contingency management measures will be presented and discussed".	EAO requires the following wording in the AIR: that "Contingency management measures will be presented and discussed. ~~as appropriate~~ March 2018: addressed to EAO's satisfaction.	Response is satisfactory.
71	August 26, 2016	Harp Gill, senior Environmental assessment officer, Environment and Climate Change Canada	1.1.2 – Waste Rock Management Areas; bullet starting with "Description of approach…"	Pg. 20	ECCC recommends that this bullet be reworded from "In the absence of testing…" to "In addition to tests and pilot studies…"	To ensure that the appropriate testing and studies are conducted to confirm the adequacy of the layered approach design.	Changes made in text.		Response is satisfactory.

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72	August 26, 2016	Harp Gill, senior Environmental assessment officer, Environment and Climate Change Canada	3.1 – Issues Scoping and Selection of Valued Components	Pg. 28-29, Table 3	Given ECCC's legislative mandate regarding Water Quality and the existing water quality issues present in Elk Valley watershed (e.g., elevated selenium levels), the inclusion of Water Quality as a Valued Component (VC) for the Project is recommended to ensure the key environmental issues for the region are thoroughly assessed in the EA review process. For additional information, please refer to Appendix A of ECCC's letter to the EAO (dated Nov.15, 2015) on Valued Component selection.	ECCC is responsible for the pollution prevention provisions of the *Fisheries Act*, which prohibit the discharge of deleterious substances to water frequented by fish, or to a place where those substances might enter such waters.	The EAO has made the determination that water quality will be considered as an Intermediate Component for the Project rather than a VC, which is consistent with other projects in the area. Section 3.1 and 4.1 of the dAIR outline Intermediate Valued Components that will be assessed for the project. Section 4.1 now describes that surface water quality and groundwater quality will undergo an assessment of significance. <u>Updated March 2018 Response</u> Please see EAO's comment regarding Valued Components.	The EAO has clarified the 2013 Selection of Valued Components and Assessment of Potential Effects (the VC Guideline) to ensure consistent and correct interpretation of the VC Guideline. The EAO's view is that the VC Guideline is consistent with accepted impact assessment methodology; however clarifications were needed to emphasize the following: All 'components' are Valued Components and there are two types; intermediate Valued Components and receptor Valued Components: • An intermediate Valued Component is a component of the natural or human environment that is changed by the project, which change then causes an effect on another component of the environment. • Intermediate components are typically abiotic physical media such as air, water, soil/sediment or terrain. • A receptor Valued Component is a component of the natural or human environment that is measurably affected by the project, directly or indirectly, and which forms an endpoint of a given effect pathway: e.g. westslope cutthroat trout; human health. •Residual effects are characterized for both intermediate components and receptor components using the following standard criteria:	Comment: ECCC requests a meeting with the EAO to clarify the details of how and when a significance determination will be made for surface water quality. ECCC will defer comments on IR 72 until after the requested meeting has occurred. Rationale: ECCC appreciates that a significance determination will now be made for residual surface water quality effects, in addition to a full characterization of residual effects (magnitude, duration, reversibility, etc.). However,, ECCC requires further clarification in order to provide expert advice on whether the approach outlined in Section 3.8 is appropriate.

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								• context, magnitude, extent, duration, reversibility, frequency, likelihood, confidence and risk. For Crown Mountain the significance of residual adverse effects is assessed for: • all receptor components; and • the following intermediate VCs: surface water quality, groundwater quality, and air quality. For each specified intermediate VC, the significance of residual effects will be a synthesis of the significance determinations for its receptor VCs. The significance determination for each intermediate VC will include a summary of the residual effects and their significance for each of the receptor VCs. If there is a significant adverse effect on any of the receptor VCs, then there will be a deemed significant adverse effect on the intermediate VC. ECCC requested a meeting with EAO to discuss this approach to significance determination. EAO's approach to significance determinations and the use of intermediate components was discussed with ECCC as part of the Bingay Project EA.	

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73	August 26, 2016	Harp Gill, senior Environmental assessment officer, Environment and Climate Change Canada	3.1 – Issues Scoping and Selection of Valued Components	Pg. 29, Table 3, "Aquatic Health" discipline	ECCC recommends that *"Higher level trophic species (e.g., Great blue heron [Ardea Herodias])"* be added to the list representing the waterbirds VC in this section, and throughout the Draft Application Information Requirements (dAIR) as applicable.	The *Draft Valued Components for the Environmental Assessment* document, dated May 2016 includes "Higher level trophic species (e.g., Great blue heron [Ardea Herodias])" (pdf page 19) as a representative species for all waterbird species within the RSA for the discipline Aquatic Health. However, this is not reflected in Table 3 of the dAIR and throughout the document.	Herons were considered as a candidate VC under Aquatic Health - Higher level trophic species (e.g., Great blue heron [Ardea Herodias]). They were excluded as a VC, with the understanding that for the purposes of the effects assessments for aquatic health, the selected waterbird species were considered suitable to address potential effects on higher trophic level bird species such as Great Blue Heron. As the Project progresses and additional studies are completed NWP Coal will continue to assess the potential need to include high level trophic species such as heron in the effects assessment. <u>Updated March 2018 Response</u> Baseline bird studies, including breeding, migratory, raptor, and owl surveys, will be used to record observations of species, including high trophic fish-eating bird species. Aside from waterbirds, bird studies completed to date have observed fish-eating birds, such as Belted Kingfisher, in the study areas. Fish tissue sampling will be conducted to determine level of contaminants in fish species and will allow for an examination of potential effects to wildlife, including birds, that consumes fish. The wildlife health risk assessment will include an analysis of potential impacts to wildlife, including piscivorous bird species such as Kingfisher. A high-trophic level fish-eating bird species has not been added as a VC.	Issue addressed in EIS Guidelines therefore addressed to EAO's satisfaction	Comment: ECCC requests that a high trophic level, fish-eating bird species be added as a VC for Aquatic Health to assess potential effects of contaminants of concern via the consumption of the aquatic resource VCs identified (e.g. Westslope cutthroat trout, Bull trout, Burbot, Longnose sucker, Mountain whitefish, Kokanee, benthic invertebrates). Rationale: • Contaminants from mining activities have been found downstream of mine projects in the Elk Valley. • Levels of selenium in waterways in the Elk Valley may impact fish, which will be assessed through the fish VC for the Aquatic Health discipline. • Piscivorous bird species have the potential to be exposed to mine-related contaminants through the consumption of fish, which can lead to adverse health effects related to bioaccumulation of contaminants. • A fish-eating, high trophic bird species is required to assess

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									health effects related to the consumption of fish, which are not captured by the species currently selected for the waterbird VC. Currently, the selected species are non-piscivorous, and occupy a lower position in the food web, and therefore are not sufficient to determine impacts to higher trophic level, fish-eating species. With respect to EAO's comment about the EIS guidelines, ECCC advises that while the guidelines include "*exposure to relevant contaminants of concern (see section 6.1.2) based on data from existing sources*" in Sections 6.1.6 and 6.1.7, as well as "*direct and indirect effects resulting from increased exposure to contaminants of concern*" in Sections 6.3.2 and 6.3.3, these guidelines are too general to specifically address the comment related to VC selection.

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74	August 26, 2016	Harp Gill, senior Environmental assessment officer, Environment and Climate Change Canada	3.1 – Issues Scoping and Selection of Valued Components	Pg. 29, Table3, "Wildlife" discipline, 9th bullet.	ECCC recommends expanding the list of indicator species used to represent the migratory birds VC such that it encompasses all bird guilds present in the Project area (e.g. waterbirds, waterfowl, shorebirds, and landbirds) and includes all habitat types that the Project will likely impact (e.g. old growth forest, riparian areas, wetlands, freshwater/stream, alpine). ECCC recommends using the list of Priority Species provided by Bird Conservation Region Strategies as a selection guideline for potential Indicator Species as identified in the following link: http://nabci.net/Canada/English/bird_conservation_regions.html	ECCC notes that not all major bird guilds are represented by an indicator species for the migratory birds VC. ECCC also advises that species listed under the *Species at Risk Act* and those that are Committee on the Status of endangered Wildlife in Canada (COSEWIC)-assessed often have very specific habitat needs that do not reflect those of the larger species groups. For this reason, ECCC typically recommends that each federally listed or –assessed species that is likely to occur within the project area be included as a separate VC (but not representing a larger grouping). Other non-listed or –assessed species should be selected as indicator species to represent larger groupings.	Our approach is consistent with other Projects in the Elk Valley. As per previous comment provided by ECCC on the VC Document Woodpeckers (cavity nester) were added as an indicator of forest landbird species diversity. ECCC recommended that woodpeckers be added as a representative guild for migratory birds. Comment acknowledged. No change to the dAIR. <u>Updated March 2018 Response</u> VC selection for the Project was discussed in-depth at the October 2015 at the VC Working Group meeting in Cranbrook and the draft VC Document was provided to Working Group members for comment. VCs were selected, among other reasons, to be consistent with other projects in close proximity to Crown Mountain. The waterbird and migratory bird VC will capture waterfowl, shorebirds, marsh birds, and land birds. Waterbirds will be used as indicators for impacts to waterfowl, shorebirds, and marsh birds. The species list under the migratory birds VC is not meant to be exclusive. Migratory bird studies to be completed for the Project may result in additional information to refine the list of species to be used as indicator species for the migratory birds VC. NWP Coal is currently working with ECCC and CWS to develop timing and species appropriate studies to assess migratory birds in the area. Should the list of indicator species change, NWP will provide rational and details in the Application. Habitats targeted as part of baseline studies include wetlands, riparian habitat, riverine, upland forests, valley forests, grasslands, avalanche chutes, disturbed areas (e.g., cut blocks), and edge habitats (areas of transition between habitat types). We have reviewed the *Migratory Birds Convention Act* (MBCA) and believe that breeding bird, migratory bird, owl, and raptor surveys completed and scheduled for the Project will target species listed under the MBCA that have the potential to occur in the Project area.	Issue addressed in EIS Guidelines therefore addressed to EAO's satisfaction	Comment: ECCC requests the selection of additional non-species at risk indicator species to represent the migratory birds VC. This will ensure that migratory birds are represented for each bird guild and habitat type present in the Project area. Specifically, ECCC requests that the following 5 guilds and 2 habitat types be represented: • Guilds: Waterfowl, shorebirds, marsh birds, land birds (aerial insectivores and grassland birds) • Habitat types: Old growth forest, and freshwater stream The list of Priority Species provided by Bird Conservation Region Strategies should be used as guidance for selecting additional Indicator Species: http://nabci.net/Canada/English/bird_conservation_regions.html . Rationale: With respect to the EAO's comment, while ECCC agrees that the issue is addressed to a certain extent by Sections 6.1.6 and 6.1.7 of the EIS guidelines, the level of

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							Specific migratory bird surveys will be conducted in spring 2018. Based on the results of the survey, the list of indicator species for the migratory birds VC may change. Olive-sided Flycatcher is provincially blue-listed and has been observed within the Project LSA during multiple studies. Old growth and mature forests, wetland ecosystems, and riparian habitat are included as VCs under the landscapes and ecosystems discipline. Northern Goshawk is listed as an indicator of old growth and mature forests and American Dipper has been selected to indicate change in riparian habitat. We are of the opinion that the selected VCs represent key guilds and habitat types within the Project Area.		detail in the guidelines is not adequate for the selection of appropriate VCs. The project is expected to potentially impact the following bird guilds and the following habitat types: <u>Guilds:</u> 1. Waterfowl 2. Shorebirds 3. Marsh birds 4. Land birds -*aerial insectivores* 5. Land birds - *grassland birds* 6. Land birds - *forest birds* <u>Habitats:</u> 1. Old growth forest 2. Riparian areas & wetlands 3. Freshwater/stream 4. Alpine However, selected indicator species for the migratory bird VC only represent the following guilds and habitats: <u>Guilds*:</u> 1. Land birds - *forest birds* <u>Habitats:</u> 1. Old growth forest 2. Freshwater/stream Based on the above, 5 guilds and 2 habitat types will potentially be impacted by the project, however no indicator species are included to represent these guilds and

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									habitats. *Note 1: While waterfowl and shorebird species have been selected as indicators for the waterbird VC, the effects assessment for these indicator species may not be appropriate to determine potential effects of the project on migratory birds generally. This is because the waterbird VC would be assessed under the Aquatic Health discipline, which is specific to aquatic-related effects and therefore likely to be narrower in scope than the Wildlife Heath discipline, under which the migratory bird VC would be assessed. Note 2: Barn Swallow and Olive-sided Flycatcher are COSEWIC-assessed or SARA-listed as at-risk, and therefore should be assessed as part of the Wildlife discipline. However, while these species belong to the "aerial insectivore" guild, they are at-risk. An at-risk status inherently indicates that the population status and trends may not be sufficiently stable or may not sufficiently represent the species' "traditional" habitat use to perform the role of "indicator" for other aerial insectivores. Based on this, the use of species with an 'at-risk' status should not be used as indicators for other larger species guild/habitat grouping

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75	August 26, 2016	Harp Gill, senior Environmental assessment officer, Environment and Climate Change Canada	3.1 – Issues Scoping and Selection of Valued Components	Pg. 30, 1st paragraph following Table 3	After the sentence *"The Application will summarize the process and methodologies used to identify and select the [valued components (VC)] for assessment" ,ECCC recommends the addition of the following sentence: "The process and methodologies should include a commitment to include federal species at risk and COSEWIC – assessed species as a valued component in the effects assessment if they are detected in the project area as a result of baseline studies appropriate to access the presence/not detected status for each potentially occurring species".*	Species listed under the Species at Risk Act and those that are COSEWIC-assessed often have very specific habitat needs that do not reflect those of the larger species groups. For this reason, ECCC typically recommends that an effects assessment specific to each species at risk to be conducted as part of an environmental assessment (EA). During the review period for the selection of VC, ECCC provided advice on federal species at risk and indicated that if a species were to be detected in the Project area, it should be included as a VC in the effects assessment. When reviewing the VC document, ECCC specifically referred to Western Screech Owl macfarlanei, Short-eared Owl, Common Nighthawk, Blackswift, Magnum Mantleslug and Rubber Boa, but noted that the same approach should be taken for any federally listed or – assessed species that has the potential to occur in the Project area. For example, the presence/ absence, as the VC document states that "The Rocky Mountain tailed frog […] has been confirmed to occur in the Flathead River drainage, south of the LSA" (Draft	Existing wording is consistent with AIR template and other recently accepted AIR documents for similar projects in the Elk Valley. Section 2.2 already includes commitments related to migratory birds and species at risk. It also references the federal EIS guidelines. It must be noted that responses to previous comments on the VC document by ECCC, have included a commitment by NWP Coal to potentially add additional VCs if they are detected on site as part of site assessments. NWP Coal has previously stated that should these species be detected or if habitat mapping indicates the presence of suitable habitat then representative species may be included as VCs based on discussions with ECCC and other regulators. No change made to dAIR. <u>Updated March 2018 Response</u> Baseline studies will be conducted using RISC standards, when available for specific species, as well as other guidance documents for field surveys, as appropriate. Details of methodologies will be provided in detail in the Application and associated appendices.	Issue addressed in EIS Guidelines therefore addressed to EAO's satisfaction	Comment: ECCC requests that the Proponent confirm if detections will be based on results from surveys conducted using standard methodologies appropriate for each species (as opposed to incidental observations/detections only). Rationale: ECCC agrees that the issue is addressed to a certain extent in Sections 6.1.6 and 6.1.7 of the EIS guidelines however the level of detail in the guidelines is not adequate for identifying how detections should be made.

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						Valued Components for Environmental Assessment (May 2016), pdf page 25).			
76	August 26, 2016	Harp Gill, senior Environmental assessment officer, Environment and Climate Change Canada	3.3 – Existing Conditions	Pg. 31, 1st paragraph, 5th bullet	At the end of the following bullet: "Where additional project and VC-specific field studies are conducted, the scope and methods to be used will follow published documents pertaining to data collection and analysis methods, where these are available. Where methods used for the assessment deviate from applicable published guidance, the rationale for the variance will be provided in the Application", ECCC recommends the addition of the following sentence: "Where available standard methods do not provide guidance on whether surveys should be repeated on multiple years to account for inter-annual variation in species occurrence, a minimum of two years of survey should be conducted, repeating the same survey transects as those in the first year".	In the context of migratory birds, species at risk and wetland habitat, many species show seasonal and/or inter-annual variation in their distribution and habitat use. Resources Inventory Committee survey methodology standards, as well as other standards, typically do not include guidance on whether surveys should be repeated in subsequent years; however repetition of surveys in multiple years is important to assess the presence/not detected and relative abundance status of species in an area and to provide robust baseline against which to evaluate the prediction of effects and the effectiveness of mitigation measures through monitoring studies.	Proposed level of detail is beyond the scope of the AIR. Provided level of detail is consistent with other recent AIR documents for similar projects in the Elk Valley. The commitment to complete studies following established methods should be sufficient. The final Application will provide extensive detail regarding sampling methods including timing. No change to the dAIR.	March 2018: addressed to EAO's satisfaction.	No further comments provided by Working Group member.
77	August 26, 2016	Harp Gill, senior Environmental assessment officer, Environment and Climate Change Canada	Section 3.5 – Mitigation Measures	Pg. 32	ECCC recommends the following bullet be added to the list identifying how mitigation will be addressed for each VC in the Application: *"Identify situations where the implementation of a mitigation measure for one VC has the potential to adversely affect another VC. Clearly indicate how this situation will be avoided and/or further mitigated".*	While mitigation measures may succeed at mitigating the adverse effects of the Project on one or more VCs, some measures can incidentally adversely impact other VCs. For Example, while planting early seral vegetation is appropriate	We agree that it is important to identify potential situations where mitigation measures proposed for the protection of a specific wildlife group or specific species could be potentially detrimental to another group. The following bullet has been added to Section 3.5 stating "Where appropriate, identify potential situations where the implementation of a mitigation measure for one VC has the potential to adversely affect another VC. The assessment will discuss how	March 2018: addressed to EAO's satisfaction.	Response is satisfactory.

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						for foraging for ungulates such as moose and deer, this can be detrimental to the maintenance of balanced predator/prey dynamics in caribou habitat.	these situations may be avoided and/or further mitigated".		
78	August 26, 2016	Harp Gill, senior Environmental assessment officer, Environment and Climate Change Canada	Section 3.5 – Mitigation Measures	Pg. 32, 1st bullet in this section	After the sentence *"Describe the approach to identify and analyze mitigation measures, including any management and compensation plans proposed by the Proponent, which will be implemented to address potential effects",* ECCC recommends the addition of the following sentence: *"List any applicable legislative and policy requirements or guidance that were used to identify the mitigation approach for a particular VC".*	ECCC's *"Federal Policy on Wetland Conservation – Guidance for Application and Implementation in Environmental Assessment"* (attached Annex 3) provides guidance on the applicability of the goal of no net loss of wetland functions, as well as on the mitigation hierarchy for wetlands, including compensation measures. As such, this document should be considered in the development of the Application and supporting studies and should be referenced in the Application. Wetlands are a particular priority for ECCC because of their importance to the maintenance of migratory bird populations for which the Department has a responsibility under the *Migratory Birds Convention Act (MBCA),* and for protection of species at risk for which it has a responsibility under the *Species at Risk Act*.	Section 3.5, we would suggest that the commitment to "describe the approach to identify and analyze mitigation measures" would include the identification of relevant legislation, policy, etc.; however, for clarity we have made the following changes to the first bullet: "Describe the approach to identify and analyze mitigation measures, including applicable legislative and policy requirements, and any management and compensation plans proposed by the Proponent, which will be implemented to address potential effects"	March 2018: addressed to EAO's satisfaction.	Response is satisfactory.
79	August 26, 2016	Harp Gill, senior Environmental assessment officer, Environment and Climate Change	Section 3.6 – Characterization of Residual Effects	Pg. 33, 1st paragraph in this section	ECCC recommends that "*uncertainty"* be added to the list of criteria used to determine residual adverse effects.	In the context of migratory birds and species at risk, this insertion would ensure that uncertainties are	Section 3.9 - Confidence and Risk includes "uncertainty" It specifically states, as per the EAO's AIR Template that: "The Application will summarize the process and methodology used to evaluate the levels of confidence associated with residual effects	Addressed to EAO's satisfaction for the dAIR	Response is satisfactory.

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		Canada				identified and allow for the evaluation of confidence and risk as described under section 3.9 of the dAIR.	predictions and in particular, how any identified uncertainty may affect either the likelihood or the significance of the predicted residual effect. The Application will also describe any measures to reduce uncertainty through monitoring, adaptive management or other follow-up programs." The wording in Section 3.4 is also standardized wording from the EAO AIR template. For consistency with Section 3.6, and with the approach used for similar projects in the Elk Valley, "Uncertainty" has been added to the list of criteria used to determine potential residual effects. A new bullet has been added that states: "Uncertainty - The confidence in the prediction made. Indicates how good our data and our understanding of the specific VC is, and whether we have confidence that the proposed mitigative measures will reduce/eliminate effects. Three categories are typically used: low, moderate or high." It must also be noted that this is also addressed in the federal EIS Guidelines which include direction regarding the Significance of Residual Effects (Section 6.5). Section 6.5 specifically states that "Where significant adverse effects are identified, the EIS will set out the probability (likelihood) that they will occur, and describe the degree of scientific uncertainty related to the data and methods used within the framework of its environmental analysis"		
80	August 26, 2016	Harp Gill, senior Environmental assessment officer, Environment and Climate Change Canada	Section 3.8 – Determination of Significance	Pg. 35, 1st paragraph in this section	ECCC recommends that the following sentence be added at the end of this paragraph: *"Where thresholds are established, a rationale should be provided for how this threshold is appropriate for the VC and how it was established, including an indication of which legislative or policy requirements or guidance helped identify or select this threshold".*	ECCC's *"Federal Policy on Wetland conservation – Guidance for Application and Implementation in Environmental Assessment"* (attached Annex 3) provides the threshold of "no net loss of wetland functions" in certain situations, which may apply to the Project.	Section 3.8 Determination of Significance has been updated to describe how significance will be assessed for receptor VCs as well as intermediate VCs, and states: "Receptor VCs The Application will evaluate the significance of residual effects for all receptor VCs, and will present the process and methodology used to define and evaluate the significance of residual effects, including	March 2018: addressed to EAO's satisfaction.	Response is satisfactory.

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						Wetlands are a particular priority for ECCC because of their importance to the maintenance of migratory bird populations for which the Department has a responsibility under the *Migratory Birds Convention Act (MBCA)*, and for protection of species at risk for which it has a responsibility under the *Species at Risk Act*.	how the term "significance" has been used in relation to each receptor VC using quantitative and qualitative thresholds. A conclusion of significance of residual adverse effects will be provided for each receptor VC. Intermediate VCs The Application will evaluate the significance of residual effects for specified intermediate VCs. The specified intermediate VCs to be assessed for significance are: surface water quality, groundwater quality, sediment quality and air quality. For each specified intermediate VC, the significance of residual effects will be a synthesis of the significance determinations for its receptor VCs. The significance determination for each intermediate VC will include a summary of the residual effects and their significance for each of the receptor VCs. If there is a significant adverse effect on any of the receptor VCs, then there will be a deemed significant adverse effect on the intermediate VC." The federal EIS Guidelines also include direction regarding the Significance of Residual Effects (Section 6.5).		
81	August 26, 2016	Harp Gill, senior Environmental assessment officer, Environment and Climate Change Canada	Section 3.10 – Cumulative Effects Assessment	Pg. 35	Cumulative effects of the Project on freshwater selenium concentrations in the Elk Valley should include site specific water quality predictions for the proposed Project.	There are five existing coal mines in the Elk Valley and the cumulative impact on freshwater selenium concentrations from coal mines in the Elk Valley is an established issue that should be addressed in the Application.	Agreed that it will be important to complete a detailed assessment of potential Project effects related to water quality, including predictions related to key parameters such as selenium. Sections 4.1.4.1.3 and 4.1.4.1.4 discuss effects related to surface water quality. Cumulative effects are addressed in Sections 3.8 and 4.1.4.1.4.	Section on EVWQP included in AIR. March 2018: addressed to EAO's satisfaction.	Comment: ECCC requests a follow-up meeting with the EAO to discuss the Cumulative Effects Assessment approach for Crown Mountain. Rationale: It is ECCC's understanding that the Elk Valley Water Quality Plan (EVWQP) considers only Teck mines, and was not drafted as a cumulative effects assessment tool for the entire Elk Valley watershed and proposed new mines. Further discussion is required as to how the

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									EVWQP can contribute to a project-specific effects assessment and identification of mitigation measures required of an Environmental Assessment of new mines.
82	August 26, 2016	Harp Gill, senior Environmental assessment officer, Environment and Climate Change Canada	Section 3.10.1 – Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities (under 3.10 – Cumulative Effects)	Pg. 36	This section indicates that new and proposed projects to be considered in the cumulative effects assessment are those which are new and/or proposed up to January 1, 2016. ECCC suggests amending this statement to one that would be inclusive of more recent projects (e.g. the cumulative effects assessment should include a consideration of all past, present and reasonably foreseeable projects).	Given that the expected timeline for finalization of the Application is uncertain and subject to change, the time limit of January 1, 2016 may not sufficiently reflect past, present and reasonably foreseeable projects and/or activities at the time that the Application will be provided for review.	Agree that the current timeline for the project is not defined and that including a specific date in the AIR is not appropriate. The AIR states "The cumulative effects assessment will take into consideration past, present and reasonably foreseeable projects" Cumulative Effects Assessment are also addressed under Section 6.6.3 of the federal EIS Guidelines issued for the Project.	March 2018: addressed to EAO's satisfaction.	Response is satisfactory.
83	August 26, 2016	Harp Gill, senior Environmental assessment officer, Environment and Climate Change Canada	4.1.2 – Scope of the Assessment (under 4.1 – Air Quality and Climate)	Pg. 40, Table 8	ECCC recommends that, in addition to emissions of GHG, PM_{10} and $PM_{2.5}$, emission of nitrogen dioxide (NO_2), sulphur dioxide (SO_2), carbon monoxide (CO) and black carbon (BC) be included in the description and the assessment. Please note that there is a minor error in the first row of this table: GHGs are composed of CO_2, VH_4 and N_2O, but not NO_2 as mentioned.	SO_2, NO_2, CO, and PM are associated with combustion source emissions. In contrast, emissions associated with mine surfaces, waste rock or ore handling, and mine vehicle/road surface mechanical disturbances are limited to particulate matter emissions. Black carbon is a short-lived climate pollutant and a public health concern. Canada now has a black carbon emission inventory and tracking black carbon provides valuable information for air quality management strategies.	Section 4.1.1 Air Quality now notes "Additional common air contaminants, including those noted in the federal EIS guidelines, will also be evaluated, as appropriate, as part of the air quality assessment. This may include total suspended particulates, sulfur dioxide (SO2), nitrogen dioxide (NO2), carbon monoxide (CO), and volatile organic compounds (VOCs)." Table 14 notes that measurement indicators for the climate VC will include Greenhouse gas emissions (CO_2, CH_4, and N_2O). Black Carbon (BC) is not included in the Project EIS Guidelines. It is our understanding that BC is emitted from incomplete combustion of carbon-based fuels (i.e., fossil fuels, biofuels, wood). It is also our understanding that it is a component of PM2.5 and as such will be evaluated as part of the particulate assessment (PM2.5 and PM10). <u>Updated March 2018 Response</u> Text revised in Section 4.1.1.	March 2018: addressed to EAO's satisfaction.	Comment: ECCC offers the following comments: • ECCC requests the text in Section 4.1.1 be amended as follows (see additions in bold and ~~strikethrough~~): "Additional common air contaminants, including those noted in the federal EIS guidelines, will also be evaluated~~, as appropriate~~, as part of the air quality assessment. This ~~may~~ includes total suspended particulates, sulfur dioxide

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									(SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), and volatile organic compounds (VOCs)." • ECCC notes that Table 14 lists measurement indicators for the climate VC which includes greenhouse gas emissions (CO_2, CH_4, and N_2O) and is satisfied with this response. • ECCC is satisfied with the Proponent's response as it relates to Black Carbon. Rationale: The following rationale is provided as it relates to ECCC's recommended changes to the text in Section 4.1.1: The EIS guidelines states that, at a minimum, the assessment will include a description of ambient air quality including the following contaminants: total suspended particulates, fine particulates ($PM_{2.5}$), particulate matters up to 10 micrometers in size (PM_{10}), sulfur oxide (SO_X), volatile organic compounds (VOCs), and nitrogen oxide (NO_X). Further, the EIS guidelines states that changes in air quality as a

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									result of the project will also be assessed (Section 6.2.1). Therefore, this list of pollutants is considered to be the minimum acceptable.
84	August 26, 2016	Harp Gill, senior Environmental assessment officer, Environment and Climate Change Canada	4.1.4 – Existing Conditions (under 4.1 Air Quality and Climate)	Pg. 43	ECCC suggests removing the following paragraph at the end of page 43 since it already appears on page 40: "As mentioned in Section 4.1.2, the Application will include: ● Estimate of direct greenhouse gas emissions associated with all phases of the Project, as well as any mitigation measures proposed to minimize greenhouse gas emissions. ● Should residual greenhouse gas emissions remain after mitigation is applied, the Application will include an analysis of the relative contribution of the Project to provincial, national, and sector greenhouse gas emissions and the inclusion of applicable standards or targets.		Agreed. Paragraph has been removed to tighten up document and avoid repetition.	March 2018: addressed to EAO's satisfaction.	Response is satisfactory.
85	August 26, 2016	Harp Gill, senior Environmental assessment officer, Environment and Climate Change Canada	4.3.2 – Scope of Assessment (under 4.3 – Aquatic Health)	Pg. 52, Table 11, "benthic invertebrates" VC	ECCC recommends that the measurement indicators identified for benthic invertebrates in Table 11 be consistent with the information presented in section 4.3.4.1 of the dAIR.	Section 4.3.4.1 indicates that baseline field-collected information for benthic invertebrate communities is characterized following the Canadian Aquatic Biomonitoring Network (CABIN) protocol. Table 11 should be updated to reflect these measurement indicators (e.g. benthic community composition, abundance, etc.) in addition to those listed.	There was a mistake in the draft document. It has been addressed under comment 13 and the measurements Indicators have been updated.	March 2018: addressed to EAO's satisfaction.	Response is satisfactory.
86	August 26, 2016	Harp Gill, senior Environmental assessment officer, Environment and Climate Change	4.3.2 – Scope of Assessment (under 4.3 – Aquatic Health)	Pg. 52, Table 11, "waterbird" VC	In Table 11, ECCC recommends that the measurement indicators identified for waterbirds be similar to that identified for amphibian species, and be consistent with the information presented in section 4.3.4.9 of	Section 4.3.4.9 indicates that waterbird baseline information (e.g., bird surveys, tissue and/or egg samples, etc.) will be	Agreed. The measurement indicators have been updated for consistency. <u>Updated March 2018 Response</u>	March 2018: addressed to EAO's satisfaction.	Comment: ECCC requests the addition of an indicator in Table 16 of the June 2017 draft AIR for measuring metal

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		Canada			the dAIR.	collected to support the effects assessment for the Aquatic Health – Waterbird VC. Table 11 should be updated to reflect this consistency. Further, the measurement indicators identified for amphibian species in Table 11 includes sediment quality. Section 5.1 of the *Migratory Birds Convention ACT (MBCA)* prohibits the deposit of a substance that is harmful to migratory birds in waters or an area frequented by migratory birds or in a place from which the substance may enter such waters or such an area.	Agree that the tissue and or egg sample indicator should be added to waterbird species. This was an oversight and has been included in Table 16. Thank you for highlighting relevant studies related to the effects of selenium on wild birds. We agree that these studies provide useful information that will be used as part of the wildlife health risk assessment. The risk assessment will address potential effects to birds such as growth deformities and reproductive impairment. As noted in Table 43, the assessment will include the calculation of hazard quotients to evaluate potential impacts.		concentrations in tissue and/or egg samples from representative waterbird species. ECCC requests that, as part of the effects assessment of selenium and other contaminants on waterbird species, the Proponent determine potential effects on nesting productivity, individual health risks, and reproductive impairment. Rationale: ECCC notes the changes made in Table 16 (formerly Table 11) did not include measurement of metal concentrations in tissues, as is included for amphibians in the table and as is indicated in Section 4.2.2.4 for birds ("[…] results of tissue and/or egg samples collected as part of the terrestrial risk assessment […]"). ECCC brings to the Proponent's attention relevant studies conducted on the effects of selenium on wild birds (see below), in particular waterfowl and waterbirds such as grebes, coots, mallards, gadwall, teal, avocet, and killdeer. The studies provide selenium concentrations at toxicity levels associated with growth deformities and reproductive impairment of these bird species. For a summary and a compiled list of relevant

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									studies, see: · Elliott JE, Bishop CA, Morrissey CA (Eds.) (2011). Wildlife Ecotoxicology: Forensic Approaches, Emerging Topics in Ecotoxicology 3. Springer, New York (466 pp.) (Chapter 11) · Ohlendorf HM (2002) The birds of Kesterson Reservoir: A historical perspective. Aquatic Toxicology 57:1–10. · Ohlendorf HM, Heinz GH (2011). Selenium in birds. In Environmental Contaminants in Biota: Interpreting Tissue Concentrations, second edition (W. N. Beyer and J. P. Meador, Editors). CRC Press, Boca Raton, FL, USA. pp. 669–701.
87	August 26, 2016	Harp Gill, senior Environmental assessment officer, Environment and Climate Change Canada	4.3.3 – Context and Boundaries (under 4.3 – Aquatic Health)	Pg. 53	ECCC recommends that transboundary impacts on a quatic health (including water quality) are identifi ed and assessed in the EA review.	In addition to ECCC's responsibilities for the pollution prevention provisions of the Fisheries Act, ECCC has an obligation under the Boundary Waters Treaty (Article IV) to ensure that transboundary waters are not polluted.	Transboundary issues are addressed under Section D4 - Transboundary Environmental Effects of the EIS Guidelines. The dAIR also commits to addressing the transboundary environment. No changes to the dAIR	Addressed to EAO's satisfaction for the dAIR	Response is satisfactory.

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88	August 26, 2016	Harp Gill, senior Environmental assessment officer, Environment and Climate Change Canada	4.3.4.2 – Water Quality (under 4.3 – Aquatic Health)	Pg. 56-57	ECCC recommends this section include specific treatment or mitigation associated with water quality effects that will result from the proposed Project, both during mine operations and post-closure.	ECCC is responsible for the pollution prevention provisions of the *Fisheries Act*, which prohibit the discharge of deleterious substances to waters frequented by fish, or to a place where those substances might enter such waters.	Addressed under Section 4.2.2.5 - Potential Effects. The text in this section has been slightly modified to state: "The Application will also identify measures to avoid, manage or otherwise mitigate (including potential water treatment) potential adverse effects to aquatic resources and aquatic health during operations and post-closure". <u>Updated March 2018 Response</u> Project phases have been added to the text. It now reads "The Application will also identify measures to avoid, manage or otherwise mitigate (including potential water treatment) potential adverse effects to aquatic resources and aquatic health for each phase of the Project (i.e., construction, operations, closure, and post-closure)."	March 2018: addressed to EAO's satisfaction.	Comment: ECCC requests the following text be revised as indicated in bold: "The Application will also identify measures to avoid, manage or otherwise mitigate (including potential water treatment) potential adverse effects to aquatic resources and aquatic health for each phase of the project (Construction, Operations, Closure and Post-Closure)." Rationale: For consistency, this addition should include all phases of the project.
89	August 26, 2016	Harp Gill, senior Environmental assessment officer, Environment and Climate Change Canada	4.3.4.2 – Water Quality (under 4.3 – Aquatic Health)	Pg. 57, last paragraph in this section	ECCC recommends that the section on water quality predictions include the leach waters coming from the layered dump, which presumably would include a reducing environment for selenium sequestration.	Study of a similar reducing site in northeast BC produced very effective selenium reduction but also resulted in very high dissolved manganese in the leach waters. ECCC is responsible for the pollution prevention provisions of the Fisheries Act, which prohibit the discharge deleterious substances to waters frequently by fish, or to a place where those substances might enter such waters.	The final Application will include a detailed assessment of water quality associated with site features including the layered waste rock storage areas. Details regarding the proposed waste rock management areas are provided in Section 1.1.2. The section includes a commitment to provide the following information in the Application: "Description of approach (i.e., tests, pilot studies, etc.) to be conducted to verify and prove effectiveness of the proposed layering strategy. In addition to tests and pilot studies, examples of sites where this technology has been implemented and any relevant monitoring data (e.g., water quality) will be provided" <u>Updated March 2018 Response</u> A bullet has been added to Section 1.1.2 noting that an "assessment of water quality associated with site features including the layered waste rock storage areas" will be provided in the Application.	March 2018: addressed to EAO's satisfaction.	Comment: ECCC requests site-specific water quality predictions for leachate from the waste rock management area be included in Section 1.1.2. Rationale: The Proponent's response indicates that a detailed assessment of water quality associated with site features, including the layered waste rock storage areas, will be included in the final Application. However, this commitment is not present in the dAIR itself. Instead, the dAIR only provides a commitment to describing the *approach* used to verify the effectiveness of the proposed layering strategy.
90	August 26,	Harp Gill, senior Environmental	4.3.4.9 – Waterbirds (under 4.3 – Aquatic	Pg. 60, 1st paragraph, 3rd	ECCC recommends that this bullet also include: "Bird surveys will include	Details are not provided about what the *"bird*	Additional detail requested on waterbird surveys has been provided in Sections 4.2.2.2 and 4.2.2.4.	March 2018: addressed to EAO's satisfaction.	Response is satisfactory.

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	2016	assessment officer, Environment and Climate Change Canada	Health)	bullet	presence/not detected and habitat baseline surveys for each of the representative bird species identified as part of the "Aquatic Health – Waterbird" VC in Table 11"; ECCC recommends that Table 11 be updated with this above information.	*survey"* will entail. This information is required to ensure that sufficient baseline will be collected for each of the representative bird species for Aquatic Health VC.			
91	August 26, 2016	Harp Gill, senior Environmental assessment officer, Environment and Climate Change Canada	4.5.5 – Potential Effects (under 4.5 – Landscapes and Ecosystems)	Pg. 73, 1st paragraph	ECCC recommends that the following addition be made at the end of the first paragraph: "The Application will clearly identify the spatial overlap between all red- and blue-listed wetland communities and the spatial scope of any federal authorization or permit applicable to the project (Such asthose referred to in section 1.2 of the dAIR). The Application will also identify geographic areas where the continuing loss or degradation of wetlands has reached critical levels".	This information is necessary to understand how the goal of no net loss of wetland functions of the Federal Policy on Wetland Conservation, 1991, may apply to the project. For additional guidance refer to "Federal Policy on Wetland Conservation – Guidance for Application and Implementation in Environmental Assessment" (Attached Annex 3).	The federal EIS Guidelines for the Project include reference to the assessment of wetlands although at a high level. Detailed measurement indicators for wetlands and for vegetation VCs are provided in Tables 21 and 24, respectively. These tables include reference to red and blue listed communities. The level of detail proposed is beyond the scope of the AIR and is not consistent with the EAO AIR template No changes made to the dAIR.	Table 24 of the dAIR – Describes Vegetation VC's including 'Listed and Sensitive Plant Communities and Species' and their measurement indicators. NWP's proposed information as described in Table 24 of the dAIR is acceptable to EAO. March 2018: addressed to EAO's satisfaction.	Response is satisfactory.
92	August 26, 2016	Harp Gill, senior Environmental assessment officer, Environment and Climate Change Canada	4.7.4 – Existing Conditions (under 4.7 – Wildlife)	Pg. 84, regarding the bullet starting with "Results for the baselines wildlife program…"	ECCC recommends that the dAIR require the proponent to conduct baseline studies for bat species at risk. These studies should include desktop surveys (see, for example, Bat Acoustic Monitoring Portal http://databasin.org/groups/59d81a3951fd4915909efacbe2317efb)in combination with field surveys. ECCC recommends that field surveys employing methodologies such as radio telemetry, visual surveys, and acoustic monitoring be evaluated for use in acquiring baseline information, including locations of hibernacula and maternity roosting sites. ECCC suggests referring to provincial inventory standards, published methodologies, and provincial best management practices for guidance on surveying methodologies. ECCC advises that acoustic bat surveys alone are insufficient in determining the presence and location of hibernacula and roosting sites for bats. ECCC recommends that bat surveys be conducted for more than one year to account for inter-annual variation, as well as survey and potential weather limitations. (see Loeb et al. 2015, Holroyd and	ECCC provides early advice on baseline requirements for bat species at risk to inform the development of the Application and supporting studies.	As noted in Section 4.2.6, at-risk bat species (Little brown bat, Northern myotis, and the Eastern red bat) are a receptor wildlife VC and will be assessed as part of the environmental assessment. Table 27 details the measurement indicators to be used to assess potential impacts to at-risk bat species. Bat baseline surveys will be completed by a qualified professional and it is anticipated this work will be completed in 2017. Thank you for the information and recommendations related to the bat surveys. No changes to the dAIR.	Addressed to EAO's satisfaction in the AIR and issue further addressed in EIS Guidelines	Response is satisfactory.

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					Craig 2016) References: Loeb, S.C., Rodhouse, T.J., Ellison, L.E., Lausen, C.L., Reichard, J.D., Irvine, K.M., Ingersoll, T.E., Coleman, J.T., Thogmartin, W.E., Sauer, J.R. and Francis, C.M., 2015. A plan for the North American bat monitoring program (NABat). Holroyd, S.L., and V.J. Craig. 2016. Best Managemen t Practices for Bats in British Columbia, Chapter 2: Mine Developments and Inactive Mine Habitats. B.C . Ministry of Environment, Victoria, BC. 60pp.				
93	August 26, 2016	Harp Gill, senior Environmental assessment officer, Environment and Climate Change Canada	4.7.6 – Mitigation Measures (under 4.7 – Wildlife)	Page 85, 1st paragraph in this section	ECCC recommends including the following in section 4.7.6 of the dAIR: "The Application will reference any standard mitigation assumed or proposed to be implemented, including but not limited to: ● Avoidance of Detrimental Effects to Migratory Birds (Incidental Take): http://ec.gc.ca/paom-itmb/default.asp?lang=En&n=C51C415F-1 ● Migratory bird nesting periods in regions across BC: http://ec.gc.ca/paom-itmb/default.asp?lang=En&n=4F39A78F-1"	ECCC recommends avoiding engaging in potentially destructive or disruptive activities in key sensitive periods (such as migration and nesting periods) and locations, in order to reduce the risk of affecting birds, their nests or eggs. Appropriate preventive and mitigation measures to avoid incidental take and to help maintain sustainable populations of migratory birds should be implemented as part of the Project.	The wording presented in this section is standard texted used by the EAO in AIR documents. It is anticipated that federal requirements will be outlined in the EIS Guidelines. As noted in Sections 4.2.2.6 and 3.5, the Application will describe mitigation measures to be implemented for each VC, as well as appropriate guidelines to be implemented over the course of the Project to reduce potential impacts to VCs. No changes made to the dAIR.	Addressed to EAO's satisfaction in the AIR and issue further addressed in EIS Guidelines	Response is satisfactory.
94	August 26, 2016	Harp Gill, senior Environmental assessment officer, Environment and Climate Change Canada	4.7 – Wildlife (overall comment)	Pg. 80-86	Establishing an accurate baseline that reflects natur al inter- annual variation is important for assessing potential project impacts, focusing mitigation and monitoring , and addressing potential cumulative impacts. It is also i mportant to note that a key purpose of collecting b aseline data is to determine the presence of any bio diversity or distribution hotspots. For the scientific a ssessment of potential impacts on migratory birds, ECCC recommends that the Appl ication should follow the guiding principles as prese nted in: Hanson et al. 2009, A framework for the sci entific assessment of potential project impacts on bi rds - CWS Technical Report series No. 508. This is a vailable online at:	ECCC provides early advice on baseline and effects assessment requirements for migratory birds to inform the development of the Application and supporting studies.	Thank you for the information. The Hanson et al. (2009) framework has been added as a potential resource in Section 4.2.6.4. Table 27 details measurement indicators for wildlife VCs. Indicators to be used to assess changes in migratory birds include: - Habitat availability and distribution relative to baseline (e.g., changes to the available habitat such as structural stage, successional status, species richness, composition and cover, and distribution and connectivity of habitat for this species) - Known occurrence and abundance (e.g., changes to the number of documented occurrences relative to baseline, changes to	Issue addressed in EIS Guidelines therefore addressed to EAO's satisfaction	Response is satisfactory.

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					http://publications.gc.ca/site/archivee-archived.html?url=http://publications.gc.ca/collections/collection_2010/ec/CW69-5-508-eng.pdf For migratory bird species (including federally-assessed and – listed Species at Risk) that the Project may impact, ECCC recommends that: - Project effects be identified, assessed, and mitigation and monitoring plans be provided; - If a species is not identified, surveyed, and assessed as part of the Application, that a clear justification be provided; - Migratory bird survey data be evaluated in relation to habitat use, specifically: species abundance, distribution, and density in each habitat of the Project area,; and - Migratory bird surveys be conducted following appropriate Resource Inventory Committee Standards and other available accepted protocols. ECCC further recommends that the dAIR include the assessment and evaluation of migratory bird use (breeding, migration, and overwintering) in the Project area.		individual populations) As noted in Section 4.2.6.4, a variety of Resource Committee standards will be used in the collection of terrestrial baseline data, including data on migratory birds. Standards used will be referenced in the Application. Project effects will be discussed in detail in the Application and information to be provided is outlined in Section 4.2.6.5 of the dAIR.		
95	August 26, 2016	Harp Gill, senior Environmental assessment officer, Environment and Climate Change Canada	4.7 – Wildlife (overall comment)	Pg. 80-86	In the context of SARA section 79, ECCC recommends for all federally-listed species (i.e. SARA-listed and COSEWIC-assessed species) that the Project may impact, that: ● A separately effects assessment for each federally-assessed and listed species (including COSEWIC-assessed and SARA-listed) that is known or expected to occur within the Local and Regional Study Area; ● Description of the Project's potential adverse effects on the species and its critical habitat within the Local and Regional Study Areas; ● Description of measures to be taken to avoid or lessen any potential effects from	ECCC provides early advice on baseline and effects assessment requirements for federally-listed species to inform the development of the Application and supporting studies. See Appendix A for more information on ECCC's responsibilities with respect to SARA-listed species.	Thank you for the recommendations on addressing potential impacts to species at risk. NWP Coal will complete impact and effects assessments for receptor VCs, which includes federally-listed species. NWP Coal anticipates that the requirements listed are outlined in the EIS guidelines and where relevant to the Project, have been included in that document. Both federal and provincial EA requirements will be provided in the Application. Federal requirements are not included in the dAIR as they are presented in the EIS Guidelines. <u>Updated March 2018 Response</u>	Issue addressed in EIS Guidelines therefore addressed to EAO's satisfaction	Comment: ECCC requests that an effects assessment be conducted separately and solely for each species that is COSEWIC-assessed or SARA-listed as at-risk and that has the potential to be impacted by the project. Rationale: With respect to the EAO's comment about the EIS guidelines, ECCC notes that the guidelines do not specify the information requested above as they

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					the Project on each federally-listed species and its critical habitat; ● An account on how those measures are consistent with recovery document available on the Species at Risk Public Registry. ● Description of monitoring strategies to assess the anticipated effects on federally-listed species and their critical habitat to ensure that mitigation measures are effective, as well as to determine whether any unanticipated effects are occurring; ● If a species is not identified, surveyed, and assessed as part of the Application, that a clear justification be provided; ● Species at risk and vegetation surveys be partially integrated, so that habitat functioning for specific species can be evaluated on a habitat (vegetation community) basis. This assessment should include and evaluate species at risk seasonal use (breeding, migration, and overwintering) of the Project area.		The effects assessment will be completed on receptor VCs. VC selection for the Project was discussed in-depth at the October 2015 at the VC Working Group meeting in Cranbrook and the draft VC Document was provided to Working Group members for comment. VC's were selected, among other reasons, to be consistent with other projects in close proximity to Crown Mountain.		generally only require that species that are COSEWIC-assessed and SARA-listed as at-risk be "considered" in the identification of VCs. ECCC's request above is in line with the comment identified in Tracking #75 where ECCC requests that all potentially impacted species at risk and COSEWIC-assessed species be included as VCs and assessed separately and solely (i.e., not as an indicator for other species).
96	August 26, 2016	Harp Gill, senior Environmental assessment officer, Environment and Climate Change Canada	4.7.4 – Existing Conditions (under 4.7 – Wildlife)	Page 84, list of standards and guidance documents	ECCC recommends that the following guidance documents be included in the list of "Standards and guidance documents used in the collection of baseline terrestrial data [...]": ● Resources Inventory Committee (1998), *Inventory Methods for Swallows and Swifts* ● Resources Inventory Committee (1999), *Inventory Methods for Woodpeckers* ● Resources Inventory Committee (2001), *Inventory Methods for Raptors* ● Resources Inventory Committee (1998), *Inventory Methods for Snakes* ● Resources Inventory Committee (1998), *Inventory Methods for Nighthawks and Poorwills* ● Resources inventory Committee (1999), *Inventory Methods for Waterfowl and*	ECCC recognizes that the list in the dAIR is not meant to be exhaustive; however a more comprehensive list in the AIR would help ensure that appropriate methodologies targeted at each species are used in the development of the Application and supporting studies.	Guidance documents have been added to Section 4.2.6.4. The Application will detail all relevant materials, such as reference and guidance documents, used in the completion of baseline studies and effects assessments.	Addressed to EAO's satisfaction in the AIR and issue further addressed in EIS Guidelines	Response is satisfactory.

Tracking #	Date	Submitter	Section title	Page number (+ paragraph number or table row)	Comment	Rationale (If Required)	Proponent Response	EAO Comments	WG Comment
					Allied Species ● Resources Inventory Committee (1997), *Shorebirds* ● Resources Inventory Committee (1998), *Inventory Methods for Marsh Birds: Bitterns and Rails* ● Resources Inventory Committee (1998), *Inventory Methods for Pond Dwelling Amphibians* ● Resources Inventory Committee (2000), *Inventory Methods for Tailed Frogs and Pacific Giant Salamanders* ● Resources Inventory Committee (1998), *Inventory Methods for Terrestrial Arthropods* ● Environment and Climate Change Canada's standard Guidance for Environmental Assessments on Western Toad (attached Annex 4) ● Environment and Climate Change Canada's standard Guidance for Environmental Assessments on Black Swift (attached Annex 4)				
97	August 26, 2016	Harp Gill, senior Environmental assessment officer, Environment and Climate Change Canada	9.0 – Accidents and Malfunctions	Pg. 124	ECCC recommends that the bullet stating the following: "Identification of measures to mitigate the consequences to valued components" be amended to, "Identification of measures to mitigate the consequences to valued components and their predicted effectiveness".	Information on the anticipated level of success of mitigation measures is necessary to evaluate the assessment of residual effects and significance determination.	Bullet has been edited. Note this is a change to standard wording provided by the EAO.	EAO supports the proposed wording change in the dAIR.	Response is satisfactory.
98	August 26, 2016	Christina Yamada, Interior Health	Preface	Pg. 6	Please add Interior Health Authority to the list of reviewing agencies.		Added.	Addressed to EAO's satisfaction	Satisfied with proponent's response.
99	August 26, 2016	Christina Yamada, Interior Health	Air Quality and Climate – Scope of the Assessment	Pg. 40	Should include SO_2 and CO as measurement indicators.		Section 4.1.1 now notes "Additional common air contaminants, including those noted in the federal EIS guidelines, will also be evaluated, as appropriate, as part of the air quality assessment. This may include total suspended particulates, sulfur dioxide (SO2), nitrogen dioxide (NO2), carbon monoxide (CO), and volatile organic compounds (VOCs)."	This detail must be included in the AIR – please include in section. March 2018: addressed to EAO's satisfaction.	Satisfied with proponent's response.
100	August 26, 2016	Christina Yamada, Interior Health	Human and Wildlife Health	Pg. 119	Add soil quality as Intermediate VC		Soil quality is included in the AIR as Intermediate VCs, as noted in Section 4.1 and Section 4.1.5 Soil Quality	March 2018: addressed to the EAO's satisfaction.	Satisfied with proponent's response.

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							and Quantity. These have been added to Table 42 Summary of Measurement Indicators for Human and Wildlife Health.		
101	August 26, 2016	Christina Yamada, Interior Health	Human and Wildlife Health	Pg. 119	Add noise as Intermediate VC		Noise and vibration are included in the AIR as intermediate VCs, as noted in Section 4.1 and Section 4.1.2. These have been added to Table 42 Summary of Measurement Indicators for Human and Wildlife Health.	March 2018: addressed to EAO's satisfaction.	Satisfied with proponent's response.
102	August 26, 2016	Christina Yamada, Interior Health	Human and Wildlife Health	Pg. 120	Include use of preferred diet consumption data from KNC Dietary Study.	Preferred consumption rates are significantly higher than current consumption rates. This may be due to several factors including concerns of health risk. Excluding preferred consumption data from the assessment may lead to underestimations of risk and misunderstanding that consuming country food at the preferred rate is safe, when it may pose a risk.	"Preferred diet consumption data" added as a measurement indicator to Table 42 Summary of Measurement Indicators for the Human and Wildlife Health VCs.	March 2018: addressed to EAO's satisfaction.	Satisfied with proponent's response.
103	August 26, 2016	Qinghan Bian, MOE	Section 4.0 Environmental Effects Assessment	40/143 paragraph 1 and line 1	The sentence is incomplete, missing a word? "The Application will include an Assessment of Environmental Effects (of/on?) VCs identified in the Air"		Typo addressed.	Addressed to EAO's satisfaction	Climate Action Secretariat satisfied with comment.
104	August 26, 2016	Qinghan Bian, MOE	4.1.2 Scope of the Assessment	40/143, Paragraph below Table 8	It should also raise the requirements for GHG, for example in line 2 adds "relevant air quality management and greenhouse gas emissions", though a statement is made based on the federal requirements in the following paragraph.		Text revised in Sections 4.1.1 and 4.2.1.	March 2018: addressed to EAO's satisfaction.	Climate Action Secretariat satisfied with comment.
105	August 26, 2016	Qinghan Bian, MOE	" "	40~41/143 (also 43/143)	The requirement of indirect greenhouse gas assessment should be also included in various phases		Estimates of both direct and indirect GHG emissions are now noted in the text.	March 2018: addressed to EAO's satisfaction.	Climate Action Secretariat satisfied with comment.
106	August 26, 2016	Qinghan Bian, MOE	" "	40~41/143 (also 43/143)	A comparison of the project's greenhouse gas during various phases to the provincial GHG targets is preferred, beside of the comparison against the current emissions levels (of provincial, national. ...)		A new bullet added in the description of the scope of assessment in Section 4.2.1.2, noting "Comparison of direct and indirect greenhouse gas emissions during various Project phases to provincial and federal emissions targets"	March 2018: addressed to EAO's satisfaction.	Climate Action Secretariat satisfied with comment.
107	August 26,	Qinghan Bian, MOE	4.1.4	44/143 paragraph 2	"Production of GHGs will... Project emissions will be required to be in compliance with applicable GHG		Section 4.2.1.2 now notes "GHG emissions will be	March 2018: addressed to EAO's satisfaction.	Climate Action Secretariat satisfied with comment.

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	2016				emission targets" should be changed to "GHG emissions will ...~~Project emissions will be required to be in compliance with applicable GHG emission targets~~"		measured over the course of the Project and compared against compliance with applicable provincial and federal ambient air quality objectives/standards and emissions targets."		
108	August 26, 2016	Qinghan Bian, MOE	4.1.5	44/143 Table 9	Within "Operations": "Fuel and explosive storage and handling" could involve GHG emissions especially when fuel oil is involved; The "Use of Explosive" is missing which release GHGs during explosion Within "Decommissioning, Closure and Reclamation": GHG emissions could be released as fugitive from the "Closed Mines", which is missing		In Table 15, the use of explosives is covered under Pit Development which includes use of explosives during blasting. GHG emissions under fuel and explosives storage / handling have been added. A new activity has been added to Table 15 to note "post-closure/closed mine".	March 2018: addressed to EAO's satisfaction.	Climate Action Secretariat satisfied with comment.
109	August 30, 2016	Lorna Green, MOE	Section 1.1.2 Waste Rock Management Areas	Pg. 20	The report discusses a layering strategy proposed for the project, to reduce selenium levels in effluent. It does not appear that this is a proven strategy and so contingency treatment alternative(s) with costs should be discussed as well.	See comment.	A note has been added that alternative strategies to proposed waste rock layering strategy will be discussed in the Application.	March 2018: addressed to EAO's satisfaction.	Response and additions to the dAIR document are acceptable.
110	August 30, 2016	Lorna Green, MOE	Section 1.1.3 Water Management Infrastructure	Pg.21	Ministry of Environment (MOE) Technical Guidance 7, Assessing the Design, Size and Operation of Sediment Ponds Used in Mining should be used as a reference as well if sedimentation ponds are included in water management.	See comment	Reference to technical guidance document added to Section 1.1.3.	March 2018: addressed to EAO's satisfaction.	Response and additions to the dAIR document are acceptable.
111	August 30, 2016	Lorna Green, MOE	Section 1.1.4 Mine Infrastructure and Support Facilities	Pg. 22	A sewage treatment plant is indicated as part of the facilities. It should be noted that a registration under the Municipal Wastewater Registration will likely be required for the operation of the plant.	See comment	Thank you for noting that a Municipal Wastewater Registration may be required for the Project. NWP Coal will confirm requirement of registration as the Project progresses.	Addressed to EAO's satisfaction	Acceptable.
112	August 30, 2016	Lorna Green, MOE	Section 3.2.1 Spatial, Temporal, Administrative and Technical Boundaries	Pg. 30	The dAIR indicates that "Information on spatial, temporal, administrative and technical boundaries for specific VCs will be included in the appropriate VC section for this document and will encompass all relevant project phases, components and activities." It is not clear what is meant by 'relevant project phases, components and activities'. Please ensure that the temporal boundaries include far future post-closure timeframes.	See comment	Thank you for your comment. Temporal boundaries for VCs will include anticipated present, past, and future activities, including post-closure timeframes. Note added to section to note inclusion of construction, operation, decommissioning, and post-closure timeframes. <u>Updated March 2018 Response</u> Post-closure timelines will be defined further in the Application and will include relevant "reasonably foreseeable" projects and/or activities. Slight change to Section 3.2.1.	March 2018: addressed to EAO's satisfaction.	Please ensure that post-closure assessments also includes far-future assessments, and not just immediate post-closure.

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113	August 30, 2016	Lorna Green, MOE	Section 3.10.3 Elk Valley Area Based Management Plan	Pg. 38	Compliance with the ABMP is discussed in this section, which is required. However, use of best available technology to reduce impacts will be required as well.	Alexander Creek watershed is currently unimpacted from mining activities and potential impacts from the Crown Mountain project were not included in the modeling for the ABMP. As such, MOE will use water quality guidelines as initial benchmarks for assessing the project.	NWP Coal is committed to using best available technology over the course of the Project, and specifically, to develop the waste rock management strategy proposed for the Project. BACT are referenced in Section 4.1.4 Surface Water Quality and Quantity.	Please reference use of Best Available Control Technology in the appropriate sections of the dAIR March 2018: addressed to EAO's satisfaction.	Acceptable.
114	August 30, 2016	Lorna Green, MOE	Section 4.1.5 Potential Effects	Pg. 44, Table 9	"Materials and equipment storage" has no potential air quality VC interactions shown in this table. However, it is felt that CACs should be marked for this activity.	"Materials" have not been specified for this activity. If the materials include common construction requirements (i.e., concrete, sand, aggregate), it is possible they would contribute dust.	A potential interaction between storage and CACs is now noted in Table 8.	March 2018: addressed to EAO's satisfaction.	Response and additions to the dAIR document are acceptable.
115	August 30, 2016	Lorna Green, MOE	Section 4.1.5 Potential Effects	Pg. 44, Table 9	"Fuel and explosives storage and handling" has no potential air quality VC interactions shown in this table. However, it is felt that GHG Emissions should be marked for this activity.	It is likely that fuel and explosives handling will require the use of vehicles, and therefore result in GHG emissions. Please provide more information on handling procedures if this is not the case.	A potential interaction between GHG emissions and fuel and explosives storage and handling is now noted in Table 15.	March 2018: addressed to EAO's satisfaction.	Response and additions to the dAIR document are acceptable.
116	August 30, 2016	Lorna Green, MOE	Section 4.2.3 Context and Boundaries	Pg. 47	The last sentence of this section indicates that Crown Mountain will consult with the MOE regarding location of receptors for Noise and Vibration baseline studies. However, MOE does not deal with noise and vibration, and instead MEM should be contacted. As well, the FLNRO wildlife section might have some input in regards to impacts to wildlife from noise and vibration in the area.	See comments	Text changed to reflect that relevant federal and provincial agencies will be consulted on baseline receptor locations.	March 2018: addressed to EAO's satisfaction.	Response and additions to the dAIR document are acceptable.
117	August 30, 2016	Lorna Green, MOE	Section 4.3.4.5 Groundwater	Pg. 58	It is unclear how the requirements of the groundwater baseline program will be met with the limited number and locations of the groundwater wells installed to date. A thorough review of Ministry of Environment Technical Guidance 6 (Water and Air Baseline Monitoring Guidance Document for Mine Proponents and Operators) (TG6) is recommended for the proponent.	The report only mentions 5 groundwater wells installed in and around the proposed plant and extraction areas. These wells may offer some valuable information for site and operations planning. However, no	NWP Coal intends to follow the guidelines set out in the BC MOE Water and Air Baseline Monitoring Guidance Document for Mine Proponents and Operations. Installation details of the wells used for the Project will be provided in the Application. The Application will also note how the baseline groundwater studies were	March 2018: addressed to EAO's satisfaction.	Acceptable.

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						information is included about the installation details of the wells. If they were screened in bedrock (which is assumed to be the case), then it is difficult to see how the data gathered will be used to assess the interactions between surface water and shallow groundwater (overburden) systems at and downstream of the potential waste rock areas and other disturbed locations. There seem to be a number of components missing in the groundwater program discussed in the dAIR that are in TG6, including the need to "ensure that groundwater data have sufficient spatial and vertical coverage to characterize the three-dimensional groundwater flow regime at both the site and off-site receiving environments. Additionally, the monitoring program must consider the life cycle of the project with monitoring sites established for operational and closure requirements."	carried out in relation to the Guidance document and describe how associated data was collected to characterize existing site conditions. No changes made to the dAIR.		

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118	August 30, 2016	Caren Dymond, Competitiveness and Innovation Branch FLNRO	4.1 Air Quality and Climate 4.6 Vegetation management plan	Pg. 40	Greenhouse gas emissions associated with changing from forests to other land-uses (e.g. mine, buildings) should be assessed and mitigated. A spreadsheet with per hectare emissions factors is available from the EAO. The Vegetation management plan and reclamation should describe how they will maintain or increase forest carbon stocks post construction and post-shut down.	BC's legislated targets to reduce greenhouse gas emissions include those resulting from land-use change. Different management activities can affect those emissions and carbon sinks both during deforestation and reclamation.	Thank you for providing the spreadsheet to NWP Coal with your comments. This tool to evaluate GHGs associated with changes in land use as part of assessing impacts of Project-related GHG emissions on the environment. This assessment and development of mitigation measures is noted in Section 4.2.1.2 in the scope of items to be addressed in the Application, "Estimate of direct and indirect greenhouse gas emissions associated with all phases of the Project, as well as any mitigation measures proposed to minimize greenhouse gas emissions". NWP Coal will note in the Vegetation Management Plan developed for the Project offsets to impacts on forested areas and associated carbon stocks. No changes made to the dAIR.	This comment will be carried forward to Application Review	Working Group member satisfied with response.
119	September 21, 2016	Nicole Pyett, Regional Hydrogeologist, FLNR	1.1.1 Surface Extraction Areas	Pg. 19	Comment #1 – Natural groundwater quality, gradients, and flows may be disrupted by mining operations. An expanded field monitoring/assessment program, a comprehensive water balance, and a groundwater/surface water interactions numerical model should be completed to fully describe the following: - The current hydrogeological environment including hydrostratigraphic units/aquifers, flows through and between aquifers, gradients, groundwater/surface interactions fluxes (flux rates and locations), basic aquifer parameters (T, K, S, etc.) derived from pumping test data, and geochemistry across, and at the downgradient boundaries, of the site; - The potential groundwater quantity and quality impacts of the project over both time (short-term, annual cycles, each project phase, long-term, etc.) and space (across the study area at a scale appropriate to fully describe the impacts of individual and combined activities on downgradient watersheds, and other key project locations such as pit areas, waste	The project description document outlines only a very vague explanation of the proposed hydrogeological assessment. The dAIR does not fully describe a holistic approach to the assessment of current and potential hydrogeological conditions. The five currently installed groundwater monitoring wells do not provide enough information to adequately describe the subsurface/hydrogeological environment across the site as required to inform discussions surrounding the potential impacts of site operations on groundwater quantity and quality.	Thank you for your comments and suggestions on groundwater baseline studies and modelling. The suggested bullets have been added to Section 1.1.1 and detailed bullets have been added to Section 4.1.3.2 Groundwater. The groundwater baseline program carried out for the Project will be presented in detail in the Application. Specific details and results of the program are not meant to be described in the AIR; however, the commitment to carrying out specific baseline studies for receptor VCs and related intermediate VCs is described in the AIR. In addition, modelling completed for the Project will be described in the Application. The adequacy, or lack thereof, of current groundwater wells will be evaluated by the professional(s) performing the groundwater portion of the Application and any inadequacies will be addressed at that time. NWP Coal agrees that individuals must be registered professionals. Groundwater will be described in detail in the Application and information to be outlined on existing groundwater conditions is provided in Section 4.1.3.2 the dAIR.	Please state in the AIR that the Application will describe: - the current hydrogeol... -the potential groundwater quantity and... -consider and discuss the.... March 2018: addressed to EAO's satisfaction.	Thank you for the additional details. Original comment contains the level of detail expected in the application.

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					rock management areas, wetlands, other areas of known groundwater/surface water interactions, etc.); and - Consider and discuss the potential impacts of climate change to groundwater quality and quantity on the project site. The proponent should also provide a full outline and justification of any assumptions related to the water balance and numerical modeling and all associated data sets. The numerical model should be updated and recalibrated annually by a Qualified Professional with expertise in hydrogeology. Please note that as per British Columbia's *Engineers and Geoscientists Act* (available at www.bclaws.ca), individuals engaging in the practice of professional geoscience in BC must be registered with BC's Association of Professional Engineers and Geoscientists (APEGBC). Reports will not be reviewed unless they have been completed by a Qualified Professional.	http://www2.gov.bc.ca/assets/gov/environment/waste-management/ industrial-waste/industrial-waste/water_air_baseline_monitoring.pdf http://www.env.gov.bc.ca/wsd/plan_protect_sustain/groundwater/groundwater_modelling_guidelines_final-2012.pdf			
120	September 21, 2016	Nicole Pyett, Regional Hydrogeologist, FLNR	1.1.2 Waste Rock Management Areas	Pg. 20	Comment #2 – Further information on the waste rock management strategy is required to adequately assess the potential impacts to Valued and Intermediate Components. At minimum, the studies should include: - A full description of the waste rock management strategy including specific groundwater quality and quantity parameter thresholds for "success" (further info below); - A thorough explanation of the application of thresholds (i.e. how many water quality threshold exceedances over what period of time constitute "failure"; Are there any parameters which immediately negate the ability of the project to continue?; etc.); - Sufficient field-based research to provide evidence that this is an appropriate method for this project site; - Groundwater quality and quantity monitoring plans over short and long-term scales (i.e. post-closure); and,	Only a very limited description of the proposed waste rock management strategy has been described to date.	The proposed waste rock layering strategy will be described in detail in the Application and include information presented in your comments. NWP Coal is committed to thoroughly investigate the proposed layering strategy and any viable alternatives and will include substantial detail in the Application to demonstrate the implementation of the technique at the Project site. Additional bullets have been added to Section 1.1.2, including: - Details on groundwater quality and quantity as it relates to the proposed waste rock management strategy, including thresholds for successful implementation of the strategy (i.e., levels for measuring success or failure of the strategy) and field-based research to support implementation of strategy; - Groundwater and surface water quality and quantity monitoring plans, including monitoring locations, to assess potential	The requirements and parameters listed for the studies must be included in the AIR to ensure each is included in the Application March 2018: addressed to EAO's satisfaction.	Working Group member satisfied with response.

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					- The groundwater quality and quantity impacts expected in the range of potential outcomes from "success" to "failure" (including potential groundwater quality and quantity impacts of any contingency plans). Threshold parameters should include (at minimum): surface water and groundwater quality measured directly above and below the waste rock management areas, above and below any locations of known groundwater/surface water interactions, and at the project boundary for comparison with background levels and pre-project conditions.		impacts (to include background monitoring locations);		
121	September 21, 2016	Nicole Pyett, Regional Hydrogeologist, FLNR	1.1.3 Water Management Infrastructure	Pg. 21-22	See comment #1 (above). Upgradient and downgradient groundwater and surface water levels should be monitored before, during, and after pit pumping events over the full life of the project. These levels should be compared with modeled results. Triggers for operational modifications should be fully described in situations in which the monitored water levels do not reconcile with modeled results. Justify the site selection and timelines for background and downgradient groundwater quality sampling. Groundwater monitoring locations should be placed upgradient and downgradient of any infrastructure that may impact water quality or quantity including waste rock areas, facilities, the raw coal stockpile area, and transportation routes. Demonstrate the impact of the use of impounds and sedimentation ponds on groundwater levels across the project site using numerical modeling.		Requested details on water management related to groundwater and surface water will be presented in detail in the Application. The following has been added to Section 1.1.3 to address additional information requests: - Details of monitoring programs, including locations of monitoring stations, to measure groundwater and surface water levels, such as upgradient and downgradient levels, during and after pit pumping over the course of the Project As noted in Section 1.1.3, the use of impoundments is not anticipated. A note has been added under this discussion in the case that impoundments are used: - Describe potential impacts on groundwater levels across the Project site and related modelling used	This detail must be included in the AIR – please summarize requirements and include in section March 2018: addressed to EAO's satisfaction.	Working Group member satisfied with response.
122	September 21, 2016	Nicole Pyett, Regional Hydrogeologist, FLNR	1.1.4 Mine Infrastructure and Support Facilities	Pg. 22	Comment #3 Fully describe the impacts of on-site operations (plant area, transportation, loading, vehicle wash, natural gas supply, explosives storage or use, fuel storage, sewage treatment, water supply) on groundwater quality and quantity including contingency plans for accidents and long-term shut-down conditions.		Section 4.1.3 of the AIR outlines the proposed approach for assessing and describing the potential effects on groundwater quality and quantity, an intermediate VC. Section 4.1.3.3 now includes a note that states "For example, the Application will describe the impacts of Project operations (e.g., plant operation, transportation, water supply) on groundwater and surface water quantity and quality, as well as contingency plans for accidents and potential	This detail must be included in the AIR – please summarize requirements and include in section	Working Group member satisfied with response.

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							conditions that require shutting down of the site."		
123	September 21, 2016	Nicole Pyett, Regional Hydrogeologist, FLNR	1.3 Project Design and/or Alternative Means of Carrying out the Project	Pg. 23-24	Use a groundwater/surface water numerical model to analyse the potential impacts of each extraction method on groundwater quality and quantity. Prepare a mitigation plan for any negative effects associated with the operational activities listed on page 23 (e.g. extraction, siting of wash plant, etc.).		A note has been added to Section 4.1.3.2 regarding the use of a numerical model, and notes "A groundwater/surface water numerical model will be used to analyze the potential impacts of each Project activities (e.g., extraction methods) on groundwater quality and quantity". NWP Coal is committed to fully assessing impacts to groundwater and surface water, as well as the development of management plans to reduce impacts of the Project on the environment.	Details of model requirements should be summarized and listed in AIR. March 2018: addressed to EAO's satisfaction.	Working Group member satisfied with response.
124	September 21, 2016	Nicole Pyett, Regional Hydrogeologist, FLNR	3.1 Issues Scoping and Selection of Valued Components FLNR	Pg. 28-30	Groundwater quality and quantity should be listed as VCs rather than intermediate components.	The *Water Sustainability Act* (WSA) and other provincial legislation restricts activities that may potentially lead to aquifer contamination as an end product, not limited to the VCs listed for this project. As the act of introducing contamination to an aquifer is illegal, groundwater contamination should be *directly considered* and not limited to consideration only in the context of impacts to Valued Components. Similarly, the WSA restricts activities which may impact aquifer water levels or discharges so it should also be directly considered for all projects.	Both surface water and groundwater are Intermediate Components, as detailed in the final VC Document. The EAO has also made the determination that water quality will be considered as an Intermediate Component rather than a VC, which is consistent with other projects in the area. Section 3.1 of the AIR describes VCs selected for the EA. No changes made to the dAIR.	The EAO has clarified the 2013 Selection of Valued Components and Assessment of Potential Effects (the VC Guideline) to ensure consistent and correct interpretation of the VC Guideline. The EAO's view is that the VC Guideline is consistent with accepted impact assessment methodology; however clarifications were needed to emphasize the following: All 'components' are Valued Components and there are two types; intermediate Valued Components and receptor Valued Components: • An intermediate Valued Component is a component of the natural or human environment that is changed by the project, which change then causes an effect on another component of the environment. • Intermediate components are typically abiotic physical media such as air, water, soil/sediment or terrain. • A receptor Valued Component is a component	No further comments provided by Working Group member.

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								of the natural or human environment that is measurably affected by the project, directly or indirectly, and which forms an endpoint of a given effect pathway: e.g. westslope cutthroat trout; human health. •Residual effects are characterized for both intermediate components and receptor components using the following standard criteria: • context, magnitude, extent, duration, reversibility, frequency, likelihood, confidence and risk. For Crown Mountain the significance of residual adverse effects is assessed for: • all receptor components; and • the following intermediate VCs: surface water quality, groundwater quality, and air quality. For each specified intermediate VC, the significance of residual effects will be a synthesis of the significance determinations for its receptor VCs. The significance determination for each intermediate VC will include a summary of the residual effects and their significance for each of the receptor VCs. If there is a significant adverse effect on any of the receptor VCs, then there will be a deemed significant adverse effect on the intermediate VC.	
125	September 21, 2016	Nicole Pyett, Regional Hydrogeologist, FLNR	3.2 Assessment Boundaries	Pg. 30	Assessment boundaries should directly consider groundwater quality and quantity.	The nature of groundwater flow creates potential for long-term impacts to downgradient systems long after project closure. Any impacts to water quality and quantity should be assessed in the interest	Assessment boundaries for VCs related to groundwater quality and quantity will be described in detail in the Application.	Addressed to EAO's satisfaction	Working Group member satisfied with response.

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						of public and environmental protection.			
126	September 21, 2016	Nicole Pyett, Regional Hydrogeologist, FLNR	3.3 Existing Conditions	Pg. 31	Include a full description of water quality and quantity (see comment #1)		A full description of water quality and quantity will be provided in the Application. Section 4.1.4 of the dAIR provides details on surface water quality information to be included in the Application. <u>Updated March 2018 Response</u> Details on the surface water quality program were expanded following your initial comment in the Spring of 2017 and are presented in Section 4.1.4.1.3. Surface water quantity data to be collected is described in Section 4.1.4.2.1, which notes that continuous daily stream flow data will be collected at monitoring locations. Section 4.8 details the potential effects of the environment on the Project and notes that a review of long-term data related to climate change will be completed to assess climate and hydrological trends in the region. A similar note has been added to Section 4.1.4.2.1 - "A review of available long-term data, if available, related to climate change to identify existing climate/hydrology trends in the region and how these trends may impact physical environments and associated effects on intermediate and receptor components". Surface water quality monitoring stations will be established at locations that allow for an analysis of potential impacts to up-gradient and down-gradient environments. A note has been added to Section 4.1.4.2.1 to acknowledge this. Administrative items addressed, thank you.	Addressed to the EAO's satisfaction.	Section 4.1.4 of the dAIR does not adequately describe the water quality and quantity information required within the application. Surface water quality sampling pre/during/post project should provide a more comprehensive analysis. Surface water quantity information should describe be expanded to describe evaluation of impacts from longer term trends, the potential implications of climate change on availability/flows across the site and in the region, and inversely, provide fine enough detail to capture any flow patterns that may impact timing of use (e.g. diurnal changes in flow causes by ET in upgradient vegetation). Continuous monitoring would provide adequate data to demonstrate the presence or absence of particular flow regimes on-site. The application will also need to ensure appropriate spatial coverage of surface water monitoring including up-gradient and down-gradient of the project as well as other key locations. Administrative: The second bullet in Section 4.1.4 likely intends to be discussing surface water rather than air ("… documents relative to the

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									management of air quality…") "mental" should also be replaced with "metal" in two places in the third bullet.
127	September 21, 2016	Nicole Pyett, Regional Hydrogeologist, FLNR	3.4 Potential Effects	Pg. 31-32	Include a full description of potential effects on water quality and quantity (see comment #1)		A full description of potential effects to water quality and quantity will be provided in the Application. Section 4.1.4 of the dAIR provides details on surface water quality information to be included in the Application. <u>Updated March 2018 Response</u> Anticipated significant issues and effects related to fish, fish habitat, and aquatic health will be presented in the respective sections of the Application for these receptor VCs as water quality/quantity are intermediate components. Effects on water quality will be presented in the Application in detail and as noted in Section 4.1.4.1.3, information will include "a consolidated summary of the predicted residual adverse effects to the receptor VCs of surface water quality. The summary will provide the results of the assessment of land use and tenure, human health, aquatic health and terrestrial wildlife health VCs where predicted changes to water quality is considered a primary effect pathway." Mitigation and monitoring programs will outline specific thresholds of concerns to be used over the course of the Project.	Addressed to EAO's satisfaction.	As above The assessment of potential effects on water quality and quantity should identify any anticipated significant issues (e.g. dry stream bed due to operations during a fish spawning period) and discuss anticipated thresholds of concern (e.g. an aquatic life guideline for a particular metal) that will trigger on-site actions described within the mitigation portion of the dAIR.
128	September 21, 2016	Nicole Pyett, Regional Hydrogeologist, FLNR	3.5 Mitigation Measures	Pg. 33	Include a full description of mitigation measures for water quality and quantity (see comment #1)		Descriptions of water quality and quantity mitigation measures will be provided in the Application in the discussion on VCs. Mitigation measures and relevant information to be provided are noted in 4.1.4 of the dAIR. <u>Updated March 2018 Response</u> A detailed monitoring program will be presented in the Application. The monitoring program will outline	Addressed to EAO's satisfaction.	The application should fully describe on-site and downstream actions if trigger points (described above) are reached during or post-project. Are there any expected changes to water quality or quantity which will negate the ability of the project to continue or require

Tracking #	Date	Submitter	Section title	Page number (+ paragraph number or table row)	Comment	Rationale (If Required)	Proponent Response	EAO Comments	WG Comment
							triggers and thresholds of concern and related actions that will be put in to place as well as anticipated timelines for actions (e.g., immediate shut down). At this time, the current Project design is being finalized; however, the NWP Coal does not intend to develop a Project that cannot meet requirements of the EVWQP.		significant changes to on-site operations? (ties to likelihood evaluation)
129	September 21, 2016	Nicole Pyett, Regional Hydrogeologist, FLNR	3.6 Characterization of Residual Effects	Pg. 33-34	Include a full characterization of residual effects on water quality and quantity including Context, magnitude, extent, duration, reversibility, and frequency (see comment #1)		A full description of residual effects will be presented in the Application. Assessment of project effects on water quality will be discussed in Section 4.1.4.1.3 and 4.1.4.1.4.	The EAO has clarified the 2013 Selection of Valued Components and Assessment of Potential Effects (the VC Guideline) to ensure consistent and correct interpretation of the VC Guideline. The EAO's view is that the VC Guideline is consistent with accepted impact assessment methodology; however clarifications were needed to emphasize the following: All 'components' are Valued Components and there are two types; intermediate Valued Components and receptor Valued Components: • An intermediate Valued Component is a component of the natural or human environment that is changed by the project, which change then causes an effect on another component of the environment. • Intermediate components are typically abiotic physical media such as air, water, soil/sediment or terrain. • A receptor Valued Component is a component of the natural or human environment that is measurably affected by the project, directly or	No further comments provided by Working Group member.

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								indirectly, and which forms an endpoint of a given effect pathway: e.g. westslope cutthroat trout; human health. •Residual effects are characterized for both intermediate components and receptor components using the following standard criteria: • context, magnitude, extent, duration, reversibility, frequency, likelihood, confidence and risk. For Crown Mountain the significance of residual adverse effects is assessed for: • all receptor components; and • the following intermediate VCs: surface water quality, groundwater quality, and air quality. For each specified intermediate VC, the significance of residual effects will be a synthesis of the significance determinations for its receptor VCs. The significance determination for each intermediate VC will include a summary of the residual effects and their significance for each of the receptor VCs. If there is a significant adverse effect on any of the receptor VCs, then there will be a deemed significant adverse effect on the intermediate VC.	
130	September 21, 2016	Nicole Pyett, Regional Hydrogeologist, FLNR	3.7 Likelihood	Pg. 34-35	Include a full evaluation of the likelihood of impacts to water quality and quantity (see comment #1)		A full description of potential impacts to water quality and quantity will be provided in the Application. Assessment of project effects on water quality will be discussed in Sections 4.1.4.1.3 and 4.1.4.1.4.	See EAO's response to comment #129.	No further comments provided by Working Group member.
131	September 21, 2016	Nicole Pyett, Regional Hydrogeologist, FLNR	3.8 Determination of Significance	Pg. 35	Include a determination of significance for impacts to water quality and quantity (see comment #1)		Cumulative effects and significance determinations will be fully described in the Application, as noted in Section 4.1.4.1.4.	See EAO's response to comment #129.	No further comments provided by Working Group member.
132	September 21, 2016	Nicole Pyett, Regional Hydrogeologist, FLNR	3.9 Confidence and Risk	Pg. 35	Include a full evaluation of confidence and risk for water quality and quantity (see comment #1)		Confidence and risk for water quality and quantity will be described in the Application.	See EAO's response to comment #129.	No further comments provided by Working Group member.

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133	September 21, 2016	Nicole Pyett, Regional Hydrogeologist, FLNR	3.10 Cumulative Effects Assessment	Pg. 35-36	Include gw quantity and quality in cumulative effects assessment. Consider spatial and temporal scales appropriate to the discipline of hydrogeology (see comment #1)		A detailed cumulative effects assessment will be presented in the Application.	See EAO's response to comment #129.	No further comments provided by Working Group member.
134	September 21, 2016	Nicole Pyett, Regional Hydrogeologist, FLNR	3.11 Follow-up Strategy	Pg. 39	Provide a follow-up strategy for any expected impacts on water quality and quantity. Include thresholds, timelines, and benchmarks for project completion.		Management plans and monitoring and follow-up programs will be described in detail in the Application, as noted in Sections 7.0 of the AIR. <u>Updated March 2018 Response</u> As noted in Section 3.11, where residual adverse effects or cumulative effects for an intermediate VC or receptor VC are identified, the Application will provide the following: • Identifies the measures that will be used to evaluate the accuracy of the original effects prediction; • Identifies the measures that will be used to evaluate the effectiveness of proposed mitigation measures; and • Proposes an appropriate strategy to apply in the event that original predictions of effects and mitigation effectiveness are not as expected. This includes reference to further mitigation, involvement of key stakeholders, local Aboriginal groups, government agencies and any other measures deemed necessary to manage the issue. As such, a detailed follow-up strategy for water quality or quantity will be developed if residual effects are expected as a result of the Project. At this time, additional details will not be provided in the AIR given that an analysis has not been completed on potential effects of the project on VCs.	Addressed to EAO's satisfaction.	Insufficient detail is provided by the proponent to evaluate the adequacy of the follow-up strategy for any expected impacts to water quality or quantity.
135	September 21, 2016	Nicole Pyett, Regional Hydrogeologist, FLNR	4.3.2 Aquatic Health, Scope of the Assessment	Pg. 51-53	Fully assess impacts to water quality and quantity (see comment #1).		A full description of potential impacts to water quality and quantity will be provided in the Application.	See EAO's response to comment #129.	No further comments provided by Working Group member.
136	September 21, 2016	Nicole Pyett, Regional Hydrogeologist, FLNR	4.3.4.2 Aquatic Health, Water Quality	Pg. 56-57	Water quality assessments should include groundwater and surface water components.		Surface water quality and groundwater will be assessed as described in Sections 4.1.4 of the AIR and details will be provided in the Application.	See EAO's response to comment #129.	No further comments provided by Working Group member.
137	September 21,	Nicole Pyett, Regional Hydrogeologist, FLNR	4.3.4.5 Aquatic Health, Groundwater	Pg. 58	Fully assess impacts to water quality and quantity (see comment #1).		Impacts to water quality and quantity will be described in detail in the Application.	See EAO's response to comment #129.	No further comments provided by Working Group

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	2016								member.
138	September 21, 2016	Nicole Pyett, Regional Hydrogeologist, FLNR	4.3.4.6 Aquatic Health, Geochemistry	Pg. 59-60	Fully assess impacts to water quality and quantity (see comment #1 , #2, and #3).		Impacts to water quality and quantity will be described in detail in the Application. <u>Updated March 2018 Response</u> Based on comments from MEM, the geochemistry information has been expanded and additional details provided. See Section 4.1.4.1.2.	See EAO's response to comment #129.	Original comment still applies and sets expectations for responses for tracking #133, #135 – #137, and other comments found below.
139	September 21, 2016	Nicole Pyett, Regional Hydrogeologist, FLNR	4.3.6 Mitigation measures	Pg. 62	As above		Impacts, proposed mitigation measures, residual and cumulative effects, as well as follow-up monitoring will be described in detail in the Application.	See EAO's response to comment #129.	No further comments provided by Working Group member.
140	September 21, 2016	Nicole Pyett, Regional Hydrogeologist, FLNR	4.3.7 Residual Effects and their significance	Pg. 62	As above		Impacts, proposed mitigation measures, residual and cumulative effects, as well as follow-up monitoring will be described in detail in the Application.	See EAO's response to comment #129.	No further comments provided by Working Group member.
141	September 21, 2016	Nicole Pyett, Regional Hydrogeologist, FLNR	4.3.8 Cumulative Effects and their Significance	Pg. 62-63	As above		Impacts, proposed mitigation measures, residual and cumulative effects, as well as follow-up monitoring will be described in detail in the Application.	See EAO's response to comment #129.	No further comments provided by Working Group member.
142	September 21, 2016	Nicole Pyett, Regional Hydrogeologist, FLNR	4.3.9 Follow-up Strategy	Pg. 63	As above		Impacts, proposed mitigation measures, residual and cumulative effects, as well as follow-up monitoring will be described in detail in the Application.	See EAO's response to comment #129.	No further comments provided by Working Group member.
143	September 21, 2016	Nicole Pyett, Regional Hydrogeologist, FLNR	4.4.1 Fish - Introduction	Pg. 63	Fully describe the impact of groundwater quality and quantity on fish populations across, and downgradient of, the study site (see comment #1).	Groundwater fluxes to surface water bodies often contribute to water quality and quantity conditions required for the success of aquatic organisms including fish.	Impacts to receptor VCs will be presented in detail in the Application. NWP Coal acknowledges the potential link between groundwater quality and quantity on fish populations within and surrounding the Project area. <u>Updated March 2018 Response</u> Impacts to aquatic health will be evaluated using a number of intermediate components, including surface water quality and quantity and groundwater quality and quantity (see Section 4.2.2.1 and Table 16). Specific intermediate components are not repeated in each of the aquatic health VC subsections; however, for more clarity has been included on intermediate components. Sections 4.1.3.2 and 4.1.4 describes information to be presented in the Application to characterize existing groundwater conditions, including the interaction between groundwater and surface water as well as	Addressed to EAO's satisfaction.	There is no reference to groundwater or groundwater/surface water interactions on pages 62 – 63. The quantity and quality of fluxes across the groundwater/ surface water interface should be described (at minimum) over an annual season at a spatial scale acceptable to fisheries experts.

Tracking #	Date	Submitter	Section title	Page number (+ paragraph number or table row)	Comment	Rationale (If Required)	Proponent Response	EAO Comments	WG Comment
							measurement indicators related to surface water.		
144	September 21, 2016	Nicole Pyett, Regional Hydrogeologist, FLNR	4.5.1 Landscapes and Ecosystems - Introduction	Pg. 66-67	Fully describe the impact of groundwater quality and quantity on landscapes and ecosystems across, and downgradient of, the study site (see comment #1).	Groundwater fluxes to wetlands often contribute to water quality and quantity conditions required for the success of aquatic ecosystems.	Impacts to VCs, such as landscapes and ecosystems, will be described in the Application, including the potential impacts to Intermediate Components that relate to receptor VCs. Section 3.1 of the AIR provides additional details on intermediate and receptor VCs. <u>Updated March 2018 Response</u> Groundwater is an intermediate VC. Groundwater levels and flow rates, as well as metal and non-metal concentrations in groundwater will be assessed and described in the Application to understand potential effects to ecosystem VCs. Baseline data collection will be conducted over multiple seasons to gain an understanding of changes of overtime and across the Project area and how those changes affect both terrestrial and aquatic ecosystems.	Addressed to EAO's satisfaction.	The quantity and quality of groundwater contributions to ecosystems should be described (at minimum) over an annual season at a spatial scale acceptable to ecosystems experts.
145	September 21, 2016	Nicole Pyett, Regional Hydrogeologist, FLNR	4.6.1 Vegetation - Introduction	Pg. 75	Fully describe the impact of groundwater quality and quantity on vegetation across, and downgradient of, the study site (see comment #1).	Groundwater levels in the vadose zone often contribute to water quality and quantity conditions required for the success of sensitive vegetation.	Impacts to Intermediate and receptor VCs, and the associated relationship of these components, will be described in detail in the Application. <u>Updated March 2018 Response</u> Groundwater is an intermediate VC. Groundwater levels and flow rates, as well as metal and non-metal concentrations in groundwater will be assessed and described in the Application to understand potential effects to vegetation VCs. Baseline data collection will be conducted over multiple seasons to gain an understanding of changes of overtime and across the Project area and how those changes affect both terrestrial and aquatic ecosystems.	Addressed to EAO's satisfaction.	The quantity and quality of groundwater contributions to landscapes should be described (at minimum) over an annual season at a spatial scale acceptable to ecosystems experts.
146	September 21, 2016	Nicole Pyett, Regional Hydrogeologist, FLNR	4.7.1 Wildlife - Introduction	Pg. 80	Fully describe the impact of groundwater quality and quantity on wildlife across, and downgradient of, the study site (see comment #1).	Groundwater quality and quantity conditions often support food webs required for the success of wildlife.	Impacts to Intermediate and receptor VCs, and the associated relationship of these components, will be described in detail in the Application. <u>Updated March 2018 Response</u> See above comments.	See EAO's response to comment #129	The quantity and quality of groundwater contributions to support wildlife should be described (at minimum) over an annual season at a spatial scale acceptable to wildlife experts.

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147	October 18, 2016	Nelson Wight, District of Sparwood	Socio-economic Analysis		I would like to stress the importance of doing a more thorough assessment of the socio-economic impacts than what we have seen in previous applications. It should examine all aspects of the mining operation that could impact the community from shift schedules to procurement to legacy funding. For example, shift schedules can severely impact communities, as we saw here in Sparwood. When Teck went to the 4 x 4 shift, we saw a hollowing out of our community. With a high population of temporary residents (just here for their shift), there is less investment in community activities and in local businesses, too. When we were reviewing the application for the Baldy Ridge expansion, we realized just how difficult this can be to measure these impacts. However, there must be others who have done this elsewhere by looking at specific indicators and using a cumulative effects model to predict possible impacts.		Thank you for your comments and the difficulty in assessing the items you mention is acknowledged. NWP Coal intends to conduct a thorough assessment of community health and well-being, which will include assessing health indicators such as shift work schedules and worker conditions. Part of the assessment of community health and well-being will include reviewing socio-economic data at a local and regional level, and evaluating impacts of similar projects. Worker safety and health of local communities is paramount to the success of any Project and continued health of communities. Section 4.4.1 provides details on the community health and well-being assessment to take place as part of Project socio-economic analysis.	This comment will be carried forward to Application Review unless WG member has specific requirements for inclusion in the AIR	Working Group member satisfied with response.
148	October 18, 2016	Nelson Wight, District of Sparwood	Human Health		Here are a couple academic papers written about the Central Appalachia region. Increased Risk of Depression for People Living in Coal Mining Areas of Central Appalachia: http://online.liebertpub.com/doi/full/10.1089/eco.2013.0029 The Effects of Mountaintop Removal Coal Mining on Mental Health, Well-Being, and Community Health in Central Appalachia http://www.academia.edu/3891666/OTHER_ORIGINAL_ARTICLES_The_Effects_of_Mountaintop_Removal_Coal_Mining_on_Mental_Health_Well-Being_and_Community_Health_in_Central_Appalachia We have another proposal for a mine that will forever alter the natural landscape. It would be good to have a better understanding of the impacts to mental health. Although there is data available, it is incomplete and aggregated to our health region. A more rigorous review of mental health should be done for our community.		Thank you for providing resources related to the socio-economic impacts of coal mining. NWP Coal is committed to completing a thorough and detailed socio-economic assessment to evaluate existing socio-economic conditions and assess potential impacts of the Project on local and regional socio-economic conditions, which includes assessment community health and well-being. The importance of considering and evaluating potential impacts to mental health is acknowledged and will be considering moving forward. Section 4.4 of the dAIR outlines VCs to be evaluated as part of the Social Effects Assessment.	This comment will be carried forward to Application Review	Working Group member satisfied with response.

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					Shift schedules can also have an impact on health. There is strong evidence that doing the 4 x 4 shift where you switch from days to nights halfway through is the worst type of shift if you are concerned for human health. Yet this practice persists. Whatever shift schedule is proposed should be reviewed as to its impact on health.				
149	October 18, 2016	Nelson Wight, District of Sparwood	Compensation vs Mitigation		For each of the sections in the application there is a section dealing with mitigation. However, where that is not possible, there should be details on the compensation proposed. This is particularly relevant when addressing visual impacts. You can't mitigate the loss of an entire landscape. And we know that there are huge economic impacts when you destroy entire landscapes through logging and mining, particularly as it relates to tourism.		It is the intent of NWP to not create issues that cannot be mitigated; however, the issue of compensation will be discussed, where appropriate, in the mitigation section of relevant VCs.	This comment will be carried forward to Application Review	Working Group member satisfied with response.
150	October 18, 2016	Nelson Wight, District of Sparwood	Dust		We have a significant amount of dust concerns already and it's not just related to the mining activity at Elkview. Much of the coal dust drops off parked vehicles that come from any of the existing mine sites and contributes to the amount of fugitive dust emissions from our roads. Having vehicle wash stations at the mine would help reduce that concern.		An Air Quality and Dust Control Management Plan will be developed for the Project, as noted in Section 7.0. Included in this plan will be details on dust suppression and associated mitigation measures to reduce fugitive dusts. Mitigation measures, such as wash areas at the Project site, will be presented in the management plan.	Addressed to EAO's satisfaction.	Working Group member satisfied with response.
151	December 7, 2016	Liz Murphy, Reclamation Inspector, Ministry of Energy and Mines	Section 1.1 Description of Proposed projects		Geology and Description of the Deposit ▪ General Geology ▪ Detailed Geology Topography and Surface Drainage Features Water Quality Fisheries and Aquatic Resources Surficial Geology, Terrain and Soils Mapping ▪ Surficial Geology and Terrain Mapping ▪ Soil Survey and Soil Characterization for Reclamation Vegetation and Wildlife Land Status and Use Land Capability In order to understand pre and post disturbance environments, baseline information for existing conditions is required in the AIR, including collection of baseline information as they relate to valued components. The fieldwork and subsequent assessments completed for baseline conditions will inform several of the management plans required for the AIR (e.g., Erosion and Sediment Control, Reclamation and Closure, and Soil Management).		Headings added under a new bullet in Section 1.1, which reads: • Describe the following features of the natural environment: o Geology and deposit information (e.g., general geology and detailed geology); o Surficial geology, terrain and soils (surficial geology, terrain mapping, soil surveys, soil characterizations); o Topography and surface drainage features; o Water quality; o Fisheries and aquatic resources; o Vegetation; and o Wildlife; • Land status and use as well as land capability; Baseline information for receptor VCs, as well as Intermediate VCs, will be presented in detail in the	This detail must be included in the AIR – please include in section March 2018: addressed to the EAO's satisfaction.	No further comments.

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							Application. The AIR document is meant to outline commitments on information that will be presented by the Proponent in the Application. NWP Coal agrees that information collected as part of baseline studies will inform management plans to be developed for the Project.		
152	December 7, 2016	Liz Murphy, Reclamation Inspector, Ministry of Energy and Mines	Section 1.1 Description of Proposed projects		A conceptual Reclamation and Closure Plan is not included in the body of the draft AIR but rather listed as two separate management plans with no detail provided. MEM requires a conceptual Reclamation and closure Plan to be described in the AIR and provided in the subsequent EA application. Reclamation prescriptions and associated effectiveness monitoring should be site specific enough to enable reviewers to analyze the adequacy of proposals. The following details are required in the plan: ● Pre- and post-development end land use and land capability, ● Opportunities for progressive reclamation, ● Revegetation strategies, with a focus on the principles of natural succession, ● Information on re-establishing native plant communities ● Salvage and use of large woody debris, ● Salvage and use of topsoil and overburden, ● Drainage and erosion control strategies, ● Decommissioning activities, and ● Contaminated sites and groundwater well decommissioning requirements. The conceptual reclamation and closure plan should also contain as much site specific information as possible on how progressive reclamation and reclamation monitoring programs will be developed and implemented during each phase of the project development. This includes how and when research will be conducted to address knowledge gaps and to test the conceptual strategies proposed. In addition, monitoring programs to confirm the predicted success evaluation should be described in adequate detail. For example, MEM emphasizes		The AIR is not the vehicle to contain details of management plans, but is the proper place to state these plans must be contained in the Application, as noted in Section7.0. The Application will include a list of management plans for all phases of the Project. Thank you for providing details on information MEM would prefer to see presented in a Reclamation and Closure Plan. The details listed will help to inform the preparation of relevant mitigation and management plans. Similar to the management plans, details of monitoring programs to be carried out are not presented in detail in the AIR and will be addressed in the Application. Section 7.1 notes information that will be included in the Application related to monitoring and follow-up programs.	This comment will be carried forward to Application Review. Section E should list all management plans that will be included in the Application March 2018: addressed to the EAO's satisfaction.	No further comments.

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					that a reclamation monitoring program should be designed and implemented in order to assess actual success of reclamation prescriptions. The reclamation monitoring program should be designed to test, at an operational level, the mitigation theories proposed during all phases of project development. The AIR should include a commitment to design and implement a site specific reclamation monitoring program. If reclamation is listed as mitigation for effects on valued or intermediate components, details of the reclamation are required In order to assess the likelihood of mitigation.				
153	Decem ber 7, 2016	Liz Murphy, Reclamation Inspector, Ministry of Energy and Mines	Section 1.1 Description of Proposed projects		Section 1.1 Project Description states that cost estimates for decommissioning, closure, abandonment and reclamation will be provided. Please note that for permitting purposes, MEM will require all costs associated with reclamation and closure, including long-term treatment, monitoring, and maintenance, of the project within the *Mines Act* application area be included in an excel spreadsheet format. It is important to include all costs for activities associated with Crown Mountain Coking Coal Project proposed Mines Act permit area, even those that may not occur on site; for example, off-site disposal of hydrocarbon contaminated soils. This detailed information is required to inform MEM's reclamation liability assessment.		Thank you for the information. NWP Coal will ensure relevant information is provided in the Mines Act permit for the Project. Note that NWP Coal intends to submit the Mines Act permit separate from the EA Application. The Application will include details regarding closure and reclamation and a Reclamation and Closure plan will be prepared for the Project. This plan may be presented to MEM by NWP Coal prior to finalization to ensure requirements and appropriate detail is included.	This comment will be carried forward to Application Review.	No further comments provided by Working Group member.
154	Decem ber 7, 2016	Liz Murphy, Reclamation Inspector, Ministry of Energy and Mines	Section 1.1.4 Description of Proposed projects		Mine infrastructure and Support Facilities, lists the rail load out facility and rail siding as mine components that will be considered in the project effects assessment. MEM understands that the currently proposed load out area is located in the Grave Prairie area, on fee simple lands owned by Teck Resources. The Application will be required to document how NWP Canada Inc. has secured the required fee simple lands for project infrastructure if impacts to the Grave Prairie area are included in the assessment and expected to be reviewed by MEM and other working group members.		NWP Coal is in discussions with Teck regarding lands located in the Grave Prairie area. Any agreement resulting from those discussions will be documented in the Application. The Application will provide detailed information on the location of Project infrastructure and components. Mapping and figures will be provided in the Application to demonstrate locations of Project infrastructure.	Addressed to EAO's satisfaction in the AIR	No further comments provided by Working Group member.
155	Decem ber 7, 2016	Liz Murphy, Reclamation Inspector, Ministry of Energy and Mines	Section 3.1 Issues Scoping and Selection of valued components	Table 4	Intermediate components to be described in the Environmental Assessment, indicates that Terrain, Soil Quality and Soil Quantity have been selected as intermediate components. Please note that the EA application will require		Soil information and characterization will be collected as part of the baseline studies, including estimates of volumes of soil for stockpiling and salvaging. Soil quality and quantity is an intermediate VC for the project and is outlined in Section 4.1.5 of the AIR.	Addressed to EAO's satisfaction in the AIR	No further comments provided by Working Group member.

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					details of proposed soil salvage activities in the disturbance area. Soil characterization applied over the proposed project footprint will also be required. Specifically, this includes identification and mapping of soil units, mapping of suitability of soil resources for reclamation, estimates of volumes available by suitability rating, and similar mapping and volume estimates of materials that are proposed for salvage and stockpiling. Ideally this would include the proposed mine plan configuration over top of soil mapping. Detailed information is particularly important if reclamation is proposed as mitigation for Project effects.		Detailed Soil Management and a Reclamation and Closure Plans will be developed for the Project, specifying reclamation procedures and related mitigation measures.		
156	December 7, 2016	Liz Murphy, Reclamation Inspector, Ministry of Energy and Mines	Section 3.5 Mitigation Measures		The draft AIR does not list specific details of planned mitigation measures, therefore it is not known if reclamation will be proposed as mitigation for specific value components. Ideally the draft AIR should include a list of mitigation measures proposed for value components to enable reviewers to assess mitigation in the planning phase of the project. Please note that if reclamation is proposed as mitigation for effects on value components, the details of the proposed reclamation must be provided and assessed with respect to those particular value components. This includes an assessment of the probable success of mitigation. The application should clearly demonstrate how reclamation activities will be incorporated into plans to mitigate effects on value components. The Reclamation and Closure Plan must include the approaches and site-specific plans that will be implemented and/or further investigated pertaining to the value components.		Detailed mitigation measures for VCs will be presented in the Application; as such details are outside of the purpose and scope of the AIR document.	This comment will be carried forward to Application Review.	No further comments provided by Working Group member.
157	December 7, 2016	Liz Murphy, Reclamation Inspector, Ministry of Energy and Mines	Section 3.9 Confidence and Risk		Further to the information provided in this section, the application should include a discussion of contingencies for components of the project that are assessed as higher risk.		Section 3.6 has been edited slightly to include contingency measures as a tool to reduce uncertainty.	Addressed to EAO's satisfaction in the AIR	No further comments.
158	December 7, 2016	Liz Murphy, Reclamation Inspector, Ministry of Energy and Mines	13 Management Plans		The reclamation Management Plan is listed separately from the Conceptual Closure Plan. For Environmental Assessment applications, the conceptual Reclamation and Closure Plan is commonly submitted as one plan. A summary description of the plan is also expected within the body of the application. See comment 2 above for more information. Please note that *Mines Act*		Change made in text. Section 7.0 now notes that a Reclamation and Closure Plan will be prepared for the Project.	Addressed to EAO's satisfaction in the AIR	No further comments.

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					permit applications require one reclamation and Closure Plan.				
159	December 7, 2016	Liz Murphy, Reclamation Inspector, Ministry of Energy and Mines	13 Management Plans		An Erosion and Sediment Control Plan is listed in this section with no detail provided. Please note that MEM appreciates that Best Management Practices (BMPs) assist with a general understanding of erosion and sediment and erosion control principles and prescriptions, it is important that the Erosion and Sediment Control Plan submitted for the EA provides adequate site-specific information on the basis prescriptions. This information may also assist in informing mine plan modification that could be required to mitigate risks associated with surface erosion. For *Mines Act* permitting, it is MEM's expectation that the plan provide details of the site conditions, prescriptions proposed for specific locations and a clear basis for the design proposed. A schematic of the site illustrating prescriptions and a discussion of why each was chosen is helpful for both MEM and the Environmental Monitors implementing the plan. In addition, MEM would require effectiveness monitoring of the Erosion and Sediment Control Plan and annual updates of that plan, based on monitoring results.		Details of management and mitigation plans will be provided in the Application, as noted in Section 7.0 and relevant mitigation sections on receptor VCs. NWP Coal will ensure adequate detail is provided in the Mines Act permit submitted for the Project, including details of the Erosion and Sediment Control Plan to be developed for the Project. Please note that, at this time, NWP does not anticipate concurrently submitting the Application for an EA Certificate and a Mine Permit Application.	This comment will be carried forward to Application Review.	No further comments provided by Working Group member.
160	December 9, 2016	Megan Heathfield & Nicole Kapell, KNC	B3.1 Issues Scoping and Selection for the Environmental Assessment	Page 30, Table 4 (Row 3 & 4)	Hydrology and Surface water Hydrology are listed as an intermediate valued component. KNC requires water to be a assessed as a valued component.	The KNC considers water to be an intrinsic value on its own. It is a highly valued, highly significant resource and water quality is the basis for identifying and mitigating impacts to fish and fish habitat, landscapes and ecosystems, vegetation and wildlife. As such, surface and groundwater quality and quantity should be considered as a valued component as opposed to an intermediate component.	The EAO made the determination that water quality will be considered as an Intermediate Component rather than a VC, which is consistent with other projects in the area. Sections 3.1, 4.1, and 4.2 discuss the intermediate and receptor VCs that will be evaluated as part of the Assessment.	The EAO has clarified the 2013 Selection of Valued Components and Assessment of Potential Effects (the VC Guideline) to ensure consistent and correct interpretation of the VC Guideline. The EAO's view is that the VC Guideline is consistent with accepted impact assessment methodology; however clarifications were needed to emphasize the following: All 'components' are Valued Components and there are two types; intermediate Valued Components and receptor Valued Components: • An intermediate Valued Component is a component of the natural or human environment that is changed by the project, which change then causes	

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								an effect on another component of the environment. • Intermediate components are typically abiotic physical media such as air, water, soil/sediment or terrain. • A receptor Valued Component is a component of the natural or human environment that is measurably affected by the project, directly or indirectly, and which forms an endpoint of a given effect pathway: e.g. westslope cutthroat trout; human health. Residual effects are characterized for both intermediate components and receptor components using the following standard criteria: • context, magnitude, extent, duration, reversibility, frequency, likelihood, confidence and risk. For Crown Mountain the significance of residual adverse effects is assessed for: • all receptor components; and • the following intermediate VCs: surface water quality, groundwater quality, and air quality. For each specified intermediate VC, the significance of residual effects will be a synthesis of the significance determinations for its receptor VCs. The significance determination for each intermediate VC will include a summary of the residual effects and their significance for each of the receptor VCs. If there is a significant	

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								adverse effect on any of the receptor VCs, then there will be a deemed significant adverse effect on the intermediate VC	
161	December 9, 2016	Megan Heathfield & Nicole Kapell, KNC	B3.5 Mitigation Measure to 3.11 Follow Up Strategy	Pages 32 to 39	In section 3.3 and 3.4 of this document the assessment of adverse impacts to VC's and intermediate components is listed. The subsequent sections (i.e. sections 3.5 to 3.11), only the VC's are considered and there is no mention of the intermediate component. Please include the assessment of project effects to intermediate components in these sections.		Intermediate VCs are now described in Section 4.1 of the AIR. Table 7 notes those intermediate VCs that will undergo an assessment of significance, which includes air quality, groundwater quality, and surface water quality.	See EAO response to comment #160.	
162	December 9, 2016	Megan Heathfield & Nicole Kapell, KNC	B3.10.1 Identifying past, present or reasonably foreseeable projects and/or activities.	Page 35, Paragraph 1	The cumulative effects assessment should framed around evaluating the impacts associated with past, present and future project activities. Not just the activities themselves.		The first sentence of Section 3.10.1 has been revised slightly.	See EAO response to comment #160.	
163	December 9, 2016	Megan Heathfield & Nicole Kapell, KNC	B5.1.2 Scope of the Assessment (Economic Conditions)	Page 87, Paragraph 1	Should specify "local Aboriginal Groups" or "Aboriginal Groups (KNC)" as is used in other parts of the document.	The term Aboriginal Groups does not relate specifically to local indigenous groups (i.e. KNC) and therefore leaves possible procurement and employment opportunities open to all or nonlocal aboriginal peoples or companies, when these opportunities should primarily be given to local indigenous groups.	Agreed. "Local" has been added in this section. This change has also been carried through the entire document.	Addressed to EAO's satisfaction	

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164	December 9, 2016	Megan Heathfield & Nicole Kapell, KNC	B7.0 Heritage Effects Assessment	Page 113, Paragraph 1	The term Archaeological Resources is not considered to be broad enough to incorporate both Tangible and Intangible cultural heritage resources. Please use the term Cultural Heritage Resources as opposed to Archaeological Resources.	Archaeology is the study of the physical materials left behind past human behaviour and the assessment of the sites associated with those material objects. The term archaeological resource therefore refers more specifically to the tangible cultural heritage. However, cultural heritage can also be intangible, such as in the case of language and spiritually significant sites or areas.	This issue was discussed at the Working Group level and it was decided at that time to use the current language, which is consistent with Applications filed by other local mines. For consistency, then, the VC Document will not be changed. However, NWP respects the significance and importance of "Cultural Heritage Resources" and will continue to work with the KNC to identity and include important resources that may be included in the assessment going forward. <u>Updated April 2018 Response</u> As per recent edits by the EAO and the KNC, the VC will remain as "Archaeological Resources". The following has been added to Part C of the AIR regarding intangible cultural heritage resources and their inclusion in the AIR: "A description of intangible cultural heritage resources that have the potential to be impacted by the Project, using publically available information and/or information provided by KNC through consultation activities. Intangible resources may include areas of traditional use, significant spiritual or ceremonial sites and areas, trails and travel corridors, language, and place names".	Following further discussion with KNC, the EAO recommends the Archaeological Resources VC be changed to a more all-encompassing 'Cultural Heritage Resources' VC to incorporate both tangible and intangible cultural heritage resources. The EAO also expects that Indigenous Traditional Use and Intangible Cultural Heritage would both be detailed in Part C of the Application.	
165	December 9, 2016	Megan Heathfield & Nicole Kapell, KNC	B7.1.2 Scope of Assessment	Page 113, Paragraph 1	This section indicates that "The focus of the archaeological resources assessment will be on those features, such as archaeological sites, that are protected under the Heritage Conservation Act (RSBC 1996, Chapter 187)." Please include historic burial sites to the list of sites that will be included in the assessment of heritage values.	For historic sites that date post 1846, the HCA does not apply. However, human burials and archaeological site containing human remains are still protected by the HCA even if they date post 1846. Thus, similar to pre-contact sites, these areas/sites will require assessment by a professional archaeologist under a Section 14 HCA permit.	Change made in to text, now Section 4.5.1.2.	March 2018: addressed to EAO's satisfaction.	The change is satisfactory to KNC.
166	December 9, 2016	Megan Heathfield & Nicole Kapell, KNC	B7.1.2 Scope of Assessment	Page 113, Paragraph 2	The acronym BMP is missing from the Abbreviations and Acronym Table on Page 13 of the document. Please include. Please clarify what is meant by the "potential disturbance of archaeological resources." Is this		BMP "Best Management Practice" has been added to the acronym list. Section 4.5.1.3 has been edited to clarify that the	March 2018: addressed to EAO's satisfaction.	The change is satisfactory to the KNC

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					referring to guidelines associated with the inadvertent disturbance of archaeological resources (i.e. chance find procedures) or is it referring to the BC Archaeological Branch guidelines for the disturbance of archaeological resources as a result of the project (i.e. Site Alteration Permits etc.)		archaeological assessment is focused on known / documented resources. A detailed Heritage Resources Impact Mitigation Plan will be developed for the Project which will outline in detail protocols for the inadvertent disturbance of archaeological resources (e.g., chance finds during construction activities).		
167	December 9, 2016	Megan Heathfield & Nicole Kapell, KNC	B7.1.4	Page 114, Bullet 6	The proponent, or the consulting firm contracted to complete the archaeological assessment will not have direct access to TEK, as the KNC is currently only engaging at the working group level on this project until we have more information as to impacts to water and other Ktunaxa rights and interests. There is publically available information outlining KNC interests in this project area that can be used by the proponent for this section.		NWP Coal acknowledges the KNC's current level of participation on the Project and as information becomes available on water and Ktunaxa rights and interests, it will be provided. NWP Coal intends to use publically available information, as necessary, in the preparation of the Application. <u>Updated March 2018 Response</u> Section 4.5.1.4 has been updated to state "Traditional Use and Traditional Ecological Knowledge studies will be used to inform archaeological assessments, if provided and approved by the KNC." Also, Section 4.6.1.4 now notes that "Results of Traditional Use, Traditional Knowledge, and Traditional Food studies, if provided and approved by the KNC" will be sources of information for human and wildlife health assessments. Section 5.1 has also been changed to note "Traditional Ecological Knowledge and Traditional Land Use information, if available and approved by the KNC, with a description of how Traditional Ecological Knowledge (TEK) and Traditional Land Use Studies (TLUS)information was gathered and incorporated into the assessment of impacts of the proposed Project on Aboriginal Interests"	March 2018: addressed to EAO's satisfaction.	Would prefer that the wording be changed to stat that TEK will only be used to inform an archaeological assessment if provided and approved by the KNC.
168	December 9, 2016	Megan Heathfield & Nicole Kapell, KNC	B7.1.5 Potential Effects	Page 117, Table 37	"Disposal of materials" was not selected. This should be selected Similarly, "Transport of materials and equipment" should also be selected.	There is the potential for cultural resources to be affected depending on where and how mine materials are disposed of. If additional	These interactions are now noted in Table 42.	March 2018: addressed to EAO's satisfaction.	This is satisfactory to the KNC.

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						infrastructure is required to transport the materials and equipment. For example, new or upgrading of roads, there is the potential for additional adverse impacts to archaeological resources.			
169	December 9, 2016	Jon Bisset, CRIFC	B4.0 Environmental Effects Assessment	Page 40, Paragraph 1	General comment - Water Quality, Water Quantity, and Fish Habitat/Morphology are key sections and primary components which should be included in the AIR and identified as specific headings, such as Air and Climate, Aquatic Health, Fish, Wildlife.	The EAO should asses three fundamental components and their interactions - physical (as represented by habitat/channel form, landscape, geomorphology, etc.) chemical - air and water quality (air quality and climate are separate titles; water quality should be as well) and biotic (aquatic and terrestrial ecosystem components, which are already identified - fish, plants, animals and invertebrates (aquatic and terrestrial). From KNC's perspective, it might be more valuable and appropriate to consider describing this section (4.0) as All Living Things.	Intermediate components, including surface water quality and quantity and groundwater are discussed in Section 4.1 of the AIR. A variety of detailed information will be presented on these intermediate VCs as well as the receptor VCs for aquatic health and fish, which are presented in Sections 4.2 of the AIR. We fully agree that these are key sections that will require significant attention and discussion. NWP Coal acknowledges the comment. No changes to the dAIR.	As previously indicated, for Crown Mountain the significance of residual adverse effects is assessed for: • all receptor components; and • the following intermediate VCs: surface water quality, groundwater quality, and air quality. The EAO is of the view that water quality, quantity and groundwater that appropriate linkages will be made in the Application and that the VC Guideline is consistent with accepted impact assessment methodology; however clarifications were needed to emphasize the following: All 'components' are Valued Components and there are two types; intermediate Valued Components and receptor Valued Components: • An intermediate Valued Component is a component of the natural or human environment that is changed by the project, which change then causes an effect on another component of the environment. • Intermediate components are typically abiotic physical media such as air, water, soil/sediment or	Water Quality, Water Quantity and Groundwater are not (particularly from the Ktunaxa perspective) intermediate components – they are fundamental to all living things; if they are left unchanged as indicated in the response, these will be a key focus for discussion and establishment of the linkages during the working groups. These should be listed as primary, not intermediate components (particularly given the legislative requirements that pertain to water quality and quantity under the Federal Fisheries Act, Sections 35 and 36). The linkages will need to be clearly defined.

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								terrain. • A receptor Valued Component is a component of the natural or human environment that is measurably affected by the project, directly or indirectly, and which forms an endpoint of a given effect pathway: e.g. westslope cutthroat trout; human health. Residual effects are characterized for both intermediate components and receptor components using the following standard criteria: • context, magnitude, extent, duration, reversibility, frequency, likelihood, confidence and risk. For each specified intermediate VC, the significance of residual effects will be a synthesis of the significance determinations for its receptor VCs. The significance determination for each intermediate VC will include a summary of the residual effects and their significance for each of the receptor VCs. If there is a significant adverse effect on any of the receptor VCs, then there will be a deemed significant adverse effect on the intermediate VC.	
170	December 9, 2016	Jon Bisset, CRIFC	B4.3.2 Scope of the Assessment	Page 52, Bullet 2	The bullet includes white sucker, but this was not carried through to Section 4.4 Fish (see comments below) Please add stable isotope analysis and potentially eDNA analysis as measurement indicators of aquatic health. Please remove habitat quality as a metric, as this is subjective.	Analysis and determination of acceptable habitat is problematic and often leads to inaccurate results. This type of assessment may have a very limited use as part of a weight of evidence approach, but there are much better and more useful approaches and metrics that can be used as a more empirical measure.	Assume the comment is related to longnose sucker (not White sucker). Longnose sucker is included and has been added to Section 4.2.3. Stable isotope analysis and eDNA analysis are methods beyond the scope of the assessment of aquatic health required for the Project. These types of approaches are more research oriented and better suited for more regional assessments completed by academia and governments. Isotope analysis and eDNA are beyond the scope of what has been completed (and proposed) for similar projects in the area.	Stable isotope analysis and eDNA may be beneficial tools to use during the baseline data collection. The EAO will work with NWP, ENV and KNC to consider the use of these techniques for the Application. Language regarding the use of eDNA has been added to the dAIR, as follows: • NWP may consider the use of technologies such as stable isotope analysis and eDNA analysis to assist in determining measurement	Yes, longnose (I think it said white in the document, that's why I typed it, but agree that it's probably longnose); I don't agree that stable isotope analysis is beyond the scope of this EA – we have been discussing its importance in other EA documents in the Elk Valley; this may not require a change in the dAIR, but we should definitely discuss the merits of this information;

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							Should it be determined that additional analyses are required, such as isotope analysis and eDNA, the approach and scope would be determined in association with regulators, the KNC and other stakeholders. Comment acknowledged by NWP Coal and no changes to the dAIR regarding Isotopes and DNA. Habitat quality will be determined based on specific measurements and observations such as channel morphology, presence/extent of calcite formations, etc.) It is recommended that it remains as a metric - with the comment that in the Application it will be clearly defined based on more quantitative information and species of interest. <u>Updated March 2018 Response</u> Stable isotope analysis and eDNA may be beneficial tools to use during the Project. NWP Coal will work with the EAO to consider the use of these techniques pending further conversations with the EAO, ENV and KNC. Wording has been added to Sections 4.2.2.4 and 4.2.3.4 regarding this. Substantial aquatic baseline data has been collected to date to characterize existing conditions in key watercourses, including presence/absence surveys. Surveys conducted for the Project satisfy guidelines, including the requirement to conduct 2 years of studies, and we are confident that completed studies characterize fish distribution in the area. The use of eDNA would not be expected to add to our understanding of fish distribution within the Project area. In addition, eDNA analysis is not available from commercial labs – it is typically completed by Universities. Based on discussions with the Crown Mountain local aquatic lead, it is our understanding that eDNA analysis is not typically used as measurement indicator in the Elk Valley.	indicators of aquatic health. • The use of such technologies will depend on the availability and efficacy of such technologies during data collection. • NWP will work with the EAO, ENV and KNC in determining the use of such technologies and their applicability in the Elk Valley for Crown Mountain.	further, if you are not doing field studies to identify the presence/absence of species (particularly SARQA listed species) in the study area, eDNA is one way of identifying the potential (and risk/potential impacts of the project). I disagree that both of these assessment tools are beyond the scope of this impact assessment. I am satisfied with the comment that this will be discussed further with KNC; also, KNC is not a stakeholder – it is a government (at the same level as the federal and provincial governments). KNC works on a government-to-government level. I completely disagree – there is no way to measure/assess habitat quality, and it should be removed. We have gone through these discussions (particularly about the use (or misuse/inappropriateness of HSI) in other EAs and it has gotten us nowhere and wasted a lot of time and money (and is not being used). If you can predict what the sediment transport/bedload transport in a watercourse is before a flood event, then maybe we can consider it. Otherwise, please remove it. In its present form and application it is useless.

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							Stable isotope analysis is typically used for food web modelling and like eDNA is not expected to contribute additional information to our understanding of aquatic systems. In addition, based on discussions with the Crown Mountain local aquatic lead, it is our understanding that stable isotope analysis is not typically used as measurement indicator in the Elk Valley. We agree that it is difficult to determine habitat quality and associated changes over time, given the subjective nature, and agree that it should be removed as a measurement indicator for aquatic health and fish VCs. However, it Is expected that the Application will still present and discuss habitat quality related information. Where it is presented the methods used to determine quality will be clearly defined. Habitat quantity will remain as a measurement indicator and as such, the measurement indicator now notes: "Habitat quantity relative to baseline (e.g., changes in channel morphology, substrates and calcite formations, changes in habitat connectivity, changes in habitat availability, and riparian habitat)" Note the AIR has been change to reflect the removal of habitat quality for the following VCs: - All fish species within the RSA - Westslope cutthroat trout - Bull trout - Kokanee - Mountain whitefish - Longnose sucker		
171	Decem ber 9, 2016	Jon Bisset, CRIFC	B4.3.2 Scope of Assessment	Page 52, Table 11	Please include Longnose Suckers as a VC in the fish section as they are listed as a valued component for aquatic health.	Will be useful to establish genetic markers (i.e. eDNA) particularly for Species at Risk and invasive species (i.e. zebra mussels)	Please see comment addressed above. <u>Updated March 2018 Response</u> Longnose sucker were added as a fish under the fish VC (Section 4.2.3).	March 2018: addressed to EAO's satisfaction.	See also my above comments

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172	December 9, 2016	Jon Bisset, CRIFC	B4.3.2 Scope of Assessment	Page 52, Table 11, Row 3 Bullet 3	For the presence/absence of amphibians, it may be useful to use eDNA analysis in addition to targeted surveys.		See above re eDNA analysis. <u>Updated March 2018 Response</u> Please see our response to comment #170.	March 2018: addressed to EAO's satisfaction.	See also above;
173	December 9, 2016	Jon Bisset, CRIFC	B4.3.4.7 Fisheries	Page 59, Entire section	Much of this section is copy and pasted from section 4.4 Fish. The title 'Fisheries' has a different and specific meaning under the Federal Fisheries Act and Fisheries Protection Policy Statement which defines a 'fishery' as follows and therefore may not be applicable for this section. **fishery:** includes the area, locality, place or station in or on which a pound, seine, net, weir or other fishing appliance is used, set, placed or located, and the area, tract or stretch of water in or from which fish may be taken by the said pound, seine, net, weir or other fishing appliance, and also the pound, seine, net, weir, or other fishing appliance used in connection therewith. (Subsection 2(1))	The header title needs to be clearly defined and consistent with terminology used in the pertinent legislation. Furthermore, fisheries as defined under the act, has specific protection measures and requirements for First Nations.	Agree that federal policy has a specific definition of what is considered a fishery. Propose we change the header to something simply "Fish", which is consistent with recent AIR documentation for similar projects. Regardless of the title, it is important that the details under Sections 4.2.2.4 and 4.2.3.4 specifically outline the types of baseline data that will be collected, which is currently an extensive list. It includes: -Fish communities; -Fish inventories and spawner surveys; -Fish habitat (e.g., geomorphological conditions); -Instream flow studies, including discussion on the drainage and flow network of watercourses and winter fish flows; -Calcite mapping; and -Fish health (e.g., metal levels in fish tissues). Minor wording changes have been made to the dAIR.	March 2018: addressed to EAO's satisfaction.	Agreed, I'm happy with the comment/response. The definitions/terms under the Act are also under review/may change, and I don't want to get to hung up on the terms but would like to focus on the details.
174	December 9, 2016	Jon Bisset, CRIFC	B4.4 Fish	Page 63	Please add a section of Fish Habitat, preferably with a focus on channel morphology and/or stream corridors. Please add a separate section for Water Quality Please add a separate section for Water Quantity	Descriptions and interactions between these primary habitats or ecosystem drivers need to be clearly described in this section.	The intermediate VCs of surface water quality and quantity are described in Section 4.1.4 of the AIR. Receptor VCs aquatic habitat and fish are described in Sections 4.2.2 and 4.2.3, respectively. Have expanded the reference to fish habitat here to now read "Fish habitat (e.g., geomorphological conditions, substrates, presence/absence of calcite formations, habitat connectivity, extent and quality of riparian habitat and habitat availability)".	March 2018: addressed to EAO's satisfaction.	I'm happy with the comment/revisions. I'm still not happy with the characterization of the critical drivers (flow, water quality and quantity) as intermediate but we have had this discussion before and gotten nowhere. This is a fundamental area of disagreement between KNC and EAO.

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							Other Sections have also been cross-referenced, as appropriate.		
175	December 9, 2016	Jon Bisset, CRIFC	B4.4.1 Introduction	Page 43, paragraph 2	Please include a complete list of measurement indicators or intermediate components for the fish VC's, with an evaluation of whether the linage is a primary or secondary pathway. Please clearly identify the functional processes that drive habitat formation within the project area and how the fish relate to or are represented or modified by those processes. The application needs to be explicit about the pathways or linkages, potential impacts resulting from the project and their significance.	Primary components that create the physical fish habitat, include channel morphology driven by valley form, surficial geology, water quantity (discharge) and water quality as well as chemical modifications, which are driven by biological processes and water flowing through and over parent material and carrying with it constituents of concern. Riparian habitat and vegetation play an important physical role by moderating erosion rates, sediment transport and channel forming as well as a chemical role including nutrient cycling and removal or input to drive habitat productivity. Channel Morphology (fluvial geomorphology) is a primary pathway. It is the main process that integrates physical (flow, erosion, sediment transport and deposition) and chemical (water and nutrient cycling, weathering) that affect fish and other invertebrates that make up the riparian habitat. A key principle for the Ktunaxa is ʔa·kxamis' qapi qapsin, which can be roughly translated as "All	Table 3 outlines the receptor VCs and related intermediate VCs that will be assessed as part of the Application. Intermediate VCs are those environmental components of a natural system that are pathways to effects on receptor VCs (e.g., water quality is a pathway that carries potential contaminants that affect fish health). Section 4.1 notes that the Application will include an assessment of Project effects on each identified environmental intermediate VC, and will include the rationale for any differences in the list of intermediate VCs presented in the Application from those listed in the final AIR.	This comment will be carried forward to Application Review. See EAO's response to comment #169.	See above; the phrasing in the dAIR diminishes the importance of water quality and quantity for ʔa•kxamis' qapi qapsin (All Living Things)

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						Living Things," which considered fish as a part of all living things and a species, like others, that relies on certain critical components to live, such as; that fish are one component of. The critical things that allow fish to live, such as appropriate water quantity and quality, food and the physical space and stability necessary for fish to complete their life history stages and functions including feeding, spawning, overwintering and rearing. Aquatic ecosystems are dynamic, complex systems and fish are extremely important indicators of ecosystem health and therefore impacts to fish and fish habitat needs to be carefully monitored and mitigated. They aid in the cycling of nutrients and water for longer time periods, and can transport various constituents through the food chain and over long distances. This is of particular importance with the presence of possible constituents of concern such as selenium, nitrate, phosphorus and cadmium.			
176	Decem ber 9, 2016	Jon Bisset, CRIFC	B4.4.2 Scope of the assessment	Page 63, paragraph 1	All of the species listed are moderate to high trophic levels species. It is important to consider adding low to moderate trophic level species as well, such as longnose sucker or longnose dace.	For Example, longnose sucker and longnose dace are smaller in body size thereby higher bioaccumulation pathways for	Agree - longnose sucker should have been included. Has been added.	March 2018: addressed to EAO's satisfaction.	Good, thanks

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						constituents of concern. Additionally, these species are more typically found associated with lentic-type habitats, compared to some of the other species listed, and may give a broader understanding of pathways/linkages, particularly for water quality concerns. There is considerable tissue data regarding selenium available for the Elk Valley that could be used as background data and/or reference material and benchmarks.			
177	December 9, 2016	Jon Bisset, CRIFC	B4.4.2 Scope of the assessment	Page 64, Table 14	Please clarify how are the measurement indicators are evaluated?	For example, fish presence and absence will not provide you with much information other than potentially catastrophic changes (i.e. loss of a population). Analysis of trends in abundance and population structure over time, rather than, say specific population densities, may be the most appropriate measurement indicator.	Measurement indicators are not in intended to be used in isolation of each other for the Effects Assessment. They are intended to be used together to all for a robust assessment of potential impacts to the VC in question. Additional details regarding measurement indicators and how they are selected is provided in the VC Document. The VC document is intended to be used "hand-in-hand" with the AIR. Also how specific measurement indicators will be evaluated will depend on the VC in question. This detail will be included in the Application, but is beyond the scope of the AIR. No changes made to the dAIR	March 2018: addressed to EAO's satisfaction.	Agreed – we will need to discuss this issue though. The reason for providing it here as a comment is to help scope the pre-assessment information collection prior to development of the working groups, so that subsequent assessment and monitoring can be used to compare to reference (not baseline) conditions, and provide context. This is also consistent with the approach we have been taking throughout the Ktunaxa territory for these metrics.
178	December 9, 2016	Jon Bisset, CRIFC	B4.4.2 Scope of the assessment	Page 64, Table 14	Please delete 'habitat quality' as a measurement indicator.	This criterion is purely subjective and there are not good indicators for this as it not possible to predict sediment and flood events. It may be more productive to	Please see response for Comment # 170 No changes to the dAIR. <u>Updated March 2018 Response</u>	March 2018: addressed to EAO's satisfaction.	Please see my response to Comment #170. I do not agree with the use/description or characterization of habitat quality – we have no way of determining this (and

Tracking #	Date	Submitter	Section title	Page number (+ paragraph number or table row)	Comment	Rationale (If Required)	Proponent Response	EAO Comments	WG Comment
						concentrate on measurable criterion such as indicators of morphology. Habitat assessments should be primarily based on the channel physical parameters that can be measured and are replicable.	Thank you for your comment and clarification regarding habitat quality. As noted in the response to comment #170, we have removed habitat quality as a measurement indicator. Habitat quantity will remain as a measurement indicator and as such, the measurement indicator now notes: "Habitat quantity relative to baseline (e.g., changes in channel morphology, substrates and calcite formations, changes in habitat connectivity, changes in habitat availability, and riparian habitat)".		our perceptions based on the metrics we use are often wrong). Let's use something we can actually measure empirically and evaluate the change/rate of change in a consistent manner, not something that is entirely subjective.
179	December 9, 2016	Jon Bisset, CRIFC	B4.4.2 Scope of the assessment	Page 64, Table 15	Surface and Groundwater water quality and quantity should if VC's not intermediate components. The definition of water as an intermediate component provided by EAO is not consistent with the Ktunaxa view on the importance of water. The measurement indicators provided are a good start, but are not complete. The list needs to be added to and allow for the flexibility to add others as better information becomes available, which will permit proactivity. The table should also provide a mechanism to explain groundwater and surface water interactions and how diversions, pumping, dewatering and storage, as altered by the project, translates into downstream and down gradient changes.	Water quantity, quality, and sediment transport, and their balance, are principal drivers for channel morphology and habitat. They provide the basic form for habitat and subsequent habitat quality, which is the most important component for fish and benthos colonization, resiliency and recovery.	Comment is not entirely clear, but appears to recommend that surface and groundwater quality and quantity should be considered standalone VCs rather than intermediate components. The final decision to not have water quality as a VC was made by the EAO and is consistent with other projects in the Elk Valley. Sections 4.1.3 and 4.1.4 provide details on the groundwater and surface water intermediate VCs, respectively. Groundwater quality and surface water quality will undergo an assessment of significance determination. We fully recognize the importance of both groundwater and surface water and they will be evaluated in detail in the Application - regardless if they are considered a VC or Intermediate Component.	March 2018: see EAO's response to comment #169.	See previous comments re water quality and quantity. We completely disagree with EAO about them as a VC, and have expressed this with all of the other projects in Ktunaxa Amakis. It really doesn't matter though, the ultimate determination is dictated by the Fisheries Act, and so if the EA meets those requirements then the proponent (and EAO) is fine. I appreciate the last comment though, thank you.
180	December 9, 2016	Jon Bisset, CRIFC	B4.4.3 Context and Boundaries	Page 64, paragraph 2	Please provide the RSA and LSA maps and in they have not yet been finalized please indicate how they will be finalized together with consultation from the working groups, so there can be a fulsome and inclusive discussion about these boundaries.	This is a critical discussion piece as the boundaries drive significance evaluations.	RSA and LSA maps are provided in the Valued Components Document. The AIR and VCD are intended to work hand in hand. The final Application will include detailed figures illustrating RSA's and LSA's for Valued Components evaluated. No change to the AIR.	March 2018: see EAO's response to comment #169.	Agreed, and this will be a key focus of discussion as part of the VCs document and working groups. I'm fine with the wording/response and recognition.
181	December 9, 2016	Jon Bisset, CRIFC	4.4.4 Existing Conditions	Page 65, paragraph 2, bullet 10	Please clarify the term 'fish health' as it is vague. In the upper Fording River, through the DQO process and identification of key questions, we were more explicit in describing 'fish health' and the appropriate metrics. Please describe whether you	It is important to be clear about what fish health is specifically referring to in order to effectively determine and evaluate	Section 4.2.3.4 notes that fish health will be evaluated in a number of ways such as: 1. Observations of collected fish - looking at presence of skeletal deformities, presence of	This detail must be included in the AIR – please include in section This list (1, 2, 3) in your response must be included in the AIR.	Great, thanks for this response.

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					are talking about fish health (i.e. condition factor, disease, etc.), or health as it relates to toxicity for human consumption.	the metrics used. It is important to clarify whether the interest is in Condition Factor or tissue concentrations of a given parameter as it relates to potential toxicity for the fish, or human consumption and bioaccumulation. For Example, do we want to know what concentrations of Selenium or Cadmium in order to limit consumption rates, particularly for at risk populations such as youth and/or pregnant women?	lesions, fin erosion, etc. 2. Analysis of collected fish metric data such a lengths and weights to determine condition factors, length-weight relationships, etc. 3. Evaluation of metal levels in fish tissues and comparison to relevant guidelines (both for aquatic life and for human consumption). Human health considerations as it relates to consumption of fish will be addressed as part of the Human Health Risk Assessment. The bullet for fish health already references points 1 (DELT surveys) and 3 (metal levels). Text has been expanded/edited slightly to include point 2.	March 2018: addressed to EAO's satisfaction.	
182	December 9, 2016	Jon Bisset, CRIFC	B4.4.5 Potential Effects	Page 65, Paragraph 1	The intermediate components show a fundamental lack of understanding of pathways and drivers and should be considered a VC. Fish are actually more of an intermediate component as they depend on water (i.e. water quality and quantity, hydrology, groundwater, geochemistry, atmospheric, cycling processes) as a primary driver.	If the definitions of primary versus intermediate components are not changed to more accurately reflect the pathway, potential impacts and significance to the VC (in this case fish), then at a minimum the significance and pathways or linkages must be clear and explicit in order to determine potential impacts, significance, mitigation and/or reversibility and potential offsetting that is required. The threshold for 'significant impacts' and definitions of mitigation and offsetting must align (or at least be consistent with) the legal definitions in the Federal Fisheries Act.	Intermediate and receptor VCs for the Project are presented in the Valued Components document and in Sections 3.1, 4.1, and 4.2 of the AIR. Certain intermediate VCs will undergo an assessment of significance, including air quality, groundwater quality, and surface water quality. The selection of fish as a standard VC is consistent with other projects in the Elk Valley. Fish could actually be considered both a VC and an intermediate component. For example, a Project could potentially alter water quality (intermediate component) which may in turn affect a fish population or a specific fish species (a VC). This example could be expanded to say that water quality effects fish, which ultimately reduces fishing success of commercial or sport fishing activity. In that case fish would be an intermediate component and the ultimate receptor VC is economic activity. Additional details regarding the selection of VCs and intermediate components are found in the Crown Mountain VC Document. Also the EAO's guidance document "Guideline for the Selection of Valued	See EAO's response to comment #169. The EAO is of the view that the proposed methodology, and role of intermediate components, will address KNC's concerns regarding linkages and pathways.	I'm ok with the response, and recognize that this is in some ways beyond the proponent. This will be an ongoing discussion point, and as long as the linkages are clearly identified and described, we may be able to address the issue(s) in the final report. Thanks

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							Components and Assessment of Potential Effects" provides details regarding the overall selection process. What is important to note is that both fish and water quality will be assessed in great detail in the final Application. NWP Coal acknowledges the comment. No changes made to the dAIR.		
183	December 9, 2016	Heather McMahon*, CRIFC *Second round responses provided by Katrina Caley, KNC.	B3.1	Page 28-29, Table 3 (row 3 and row 1)	Missing from aquatic ecosystem VC's are water quality, periphyton, and sediment quality	Fish and benthic invertebrates are not sufficient for determining aquatic ecosystem health. Need the habitat variables in order to have context.	Table 3 outlines the receptor Valued Components that will be evaluated in the Application. This list is consistent with the VCs presented in the Project Valued Components for Environmental Assessment, dated April 2016. Water quality/quantity and sediment quality/quantity are intermediate components. Periphyton was excluded as a VC for the Project EA. <u>Updated March 2018 Response</u> Periphyton were excluded as a VC because benthic invertebrates are the indicator for impacts to periphyton communities. Additionally, periphyton was also excluded to maintain some consistency in environmental assessments completed in the immediate vicinity. The aquatic baseline program has included collection of data for both benthic invertebrate and periphyton communities in watercourses across the LSA. This information will be used as lines of evidence for the aquatic health risk assessment.	March 2018: addressed to EAO's satisfaction.	Provide rationale for excluding periphyton as a VC.
184	December 9, 2016	Heather McMahon*, CRIFC *Second round responses provided by Katrina Caley, KNC.	B4.3.2	Page 51	Include small bodied fish species	Only large bodied fish are listed, any small bodied fish (sculpin, dace, etc) should be included as well (if found in the project area).	Fish species to be assessed in the Application are presented in the Valued Components for Environmental Assessment document and Section 4.2.3 of the AIR. <u>Updated March 2018 Response</u> Rationale for VCs is provided in the Valued	March 2018: addressed to EAO's satisfaction.	Provide rationale for not including small bodied fish species.

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							Components for Environmental Assessment Document. Small bodied fish species have not been included as a separate VCs as all fish species within the Regional Study Area (RSA) will be represented by westslope cutthroat trout, bull trout, burbot, longnose sucker, mountain whitefish, and kokanee. Although small bodied fish are not a receptor VC, information on these species, such as their distribution, will be presented in the Application. Information on small bodied fish will also be included as part of the health risk assessment.		
185	December 9, 2016	Heather McMahon*, CRIFC *Second round responses provided by Katrina Caley, KNC.	B4.3.2	Page 52; Table 11 (row 2)	Metal concentrations in fish are to be tested, but tissue is not specified? Would recommend muscle and egg tissues be analyzed.	Muscle and egg tissues are not always consistent between fish species. In order to understand the impacts to fish both tissues should be analyzed. Furthermore, this should include stable isotope analysis for fish and invertebrates.	Analysis of fish eggs has been added to the dAIR, which is consistent with other Projects in the Elk Valley. See Comment #170 for info regarding isotope analysis. <u>Updated March 2018 Response</u> The AIR notes that metal concentrations in fish tissues will serve as a measurement indicator. For further clarification this has been changed to state "metal concentrations in fish muscle tissues". Based on concerns regarding lethal sampling, analysis of fish eggs has been removed as a measurement indicator. Stable isotope analysis will not be completed for the Project as the data collected to date provides an understanding of fish distribution and use of watercourses in the area (which has included presence/absence surveys).	March 2018: the EAO has confirmed with ENV that only fish muscle tissue should be used for data collection due to concerns around lethal sampling of spawning WCT and the current status of WCT populations. The EAO recommends the use of a muscle to egg conversion factor as there is a strong relationship between WCT fish egg and muscle.	Provide rationale for not including fish muscle tissue. Other mining projects in the Elk Valley include both muscle and egg sampling. Comment #170 re: stable isotope analysis is adequate.
186	December 9, 2016	Heather McMahon*, CRIFC *Second round responses provided by Katrina Caley, KNC.	B4.3.4.1	Page 56	Only CABIN protocols are described for BI analysis. Other methods should be included (ponar/eckman) for potential lentic areas.	CABIN protocols are used in erosional habitats. The response of lotic and lentic habitats to mining is different, therefore, sampling for lentic areas (if applicable) should also be included.	The CABIN method is the generally accepted method for flowing, wadeable stream. Other approaches include the Index of Biotic Integrity (IBI). Agree that for deeper, depositional habitats that the use of a kick net will not work well and that grab samplers such as a Ponar or Eckman would need to be	March 2018: addressed to EAO's satisfaction.	This additional text satisfies the original comment.

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							used. Given the characteristics of the watercourses in the Project area, we do not expect require the use of grab samplers, however a note has been added to the dAIR as follows: "Should deeper, depositional areas be encountered that require sampling, other suitable methods will be used such a Ponar or Eckman dredge."		
187	December 9, 2016	Cathy Conroy, Terrestrial Biologist, KNC	B3.1 Valued Component	Discipline: Landscapes and Ecosystems	Alpine tundra not included as an ecosystem. Why?	Provides important and critical habitat for a number of species in all seasons.	Grassland ecosystems are a receptor VC and occur in high elevation alpine areas with the Local Study Area. Alpine tundra has not been selected as a VC; however, grassland ecosystem will serve as an indicator of impacts to alpine areas. <u>Updated March 2018 Response</u> Thank you for the additional comments on alpine tundra and ecosystems. Based on the Terrestrial Ecosystem Mapping (TEM) completed for the Project, as well as the Elk Valley Predicted Ecosystem Mapping data (PEM), no impacts to alpine tundra are anticipated within the mine footprint. The highest elevation ecosystem in our LSA is the ESSFdkp (dry-cool parkland) and this ecosystem does have some areas that are in common with alpine tundra; however, there is tree cover throughout much of the ESSFdkp. Some avalanche chutes and grasslands occur near the top of Crown Mountain, within the ESSFdkp. Avalanche chutes and grassland ecosystems are a receptor VCs, as outlined in Section 4.2.4 of the dAIR.	March 2018: addressed to EAO's satisfaction.	Alpine tundra is not the same as a grassland ecosystem, and also differ from rock outcrops found below treeline. Grassland ecosystems do not serve as an indicator of alpine tundra. It is important to quantify and identify potential impacts to AT – which is a culturally significant ecosystem. It is difficult to determine how much AT may be impacted. There are still potential impacts to adjacent and upslope AT areas on the west side of the proposed mine site. I would like to see AT specifically addressed in the AIR as a unique ecosystem.
188	December 9, 2016	Cathy Conroy, Terrestrial Biologist, KNC	B3.1 Valued Component	p. 29, Table 3 Discipline: Vegetation	Why does the table read "Listed and sensitive plant communities and species" and then indicates only two specific species (Limber Pine and Whitebark Pine - assuming 'Whitebark' is Whitebark Pine)?	Can the proponent either identify all the listed species they will include as VCs, or for perhaps for now, leave it as "Listed and Sensitive plant communities and species", and then identify the specific species in the AIR?	The VC document prepared for the Project described the rationale and details on vegetation VCs.	March 2018: addressed to EAO's satisfaction.	Addressed.
189	Decem	Cathy Conroy,	B3.1 Valued	p. 29, Table 3	Why only Barn Swallow and Olive-sided Flycatcher	There are a number of	The VC Document provides a rationale on receptor	Addressed to EAO's satisfaction in	Addressed.

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	ber 9, 2016	Terrestrial Biologist, KNC	Component	Discipline: Wildlife Migratory birds (Barn Swallow, Olive-sided Flycatcher and Woodpeckers)	listed, and then woodpeckers? Does the proponent intend to look at cavity nesting bird species guild in general, in addition to migratory songbirds, or just the woodpecker guild? Other resident and migratory bird species at risk not been included, even though they likely occur within the mine impact area. Why?	other Federally and Provincially-listed avian species not listed in this table, but expected or known to occur within or adjacent to the proposed mining footprint. Can the proponent either identify the Provincially and/or Federally-listed bird species they will include as VCs, OR simply state: ● Migratory Birds as identified by the Migratory Birds Convention Act, 1994. ● Sensitive or At-Risk avian species as identified by Federal and Provincial regulations.	wildlife VCs, including migratory birds. Section 4.2.6 of the dAIR outlines the assessment to be completed for wildlife, which includes migratory birds.	the AIR and issue further addressed in EIS Guidelines	
190	Decem ber 9, 2016	Cathy Conroy, Terrestrial Biologist, KNC	B3.1 Valued Component	p. 29, Table 3 Discipline: Wildlife	Marten not included. Why?	There is little known about this important furbearing species, or its interactions with industries such as mining and forestry. It is likely previous logging in the area has already impacted the local population. Further development will add to impacts on local populations.	As noted in the Valued Components for Environmental Assessment Document, American marten was excluded as a VC given that baseline studies for furbearers noted very few marten within the LSA. <u>Updated March 2018 Response</u> Thank you for the information related to American marten. We agree this species should be added as a receptor VC given its importance to the Ktunaxa and as an indicator species. The AIR now includes marten as a wildlife VC.	March 2018: addressed to EAO's satisfaction.	Based on the proponent's response, it could be inferred that wolverine are included as a VC because they are more numerous than marten – if numbers of animals noted during baseline studies have resulted in their exclusion as is implied here. Marten home ranges are such that 3-6 could occur within the mine footprint itself (home range sizes are unknown but likely 5-7 km2 for males, 3-6 km2 for females). Marten home range sizes are orders of magnitude smaller than wolverine home range sizes, therefore even fewer

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									wolverine might be expected to be noted in the LSA. Marten are a culturally significant species to the Ktunaxa, are indicators of forest ecosystem health, and should be included as a VC due to cumulative effects on this species in the region. Wolverine are impacted at a different scale through disruption of movement corridors and habitat fragmentation; marten are impacted through direct loss of habitat, impacts to prey species, and habitat degradation and fragmentation. KNC would like to see marten included as a VC.
191	December 9, 2016	Cathy Conroy, Terrestrial Biologist, KNC	B4.5.2 Scope of the Assessment	p. 67	Alpine tundra not included as an ecosystem. Why?	Provides important and critical habitat for a number of species in all seasons.	See response to comment 187. <u>Updated March 2018 Response</u> Please see our response to comment #187.	March 2018: addressed to EAO's satisfaction.	
192	December 9, 2016	Cathy Conroy, Terrestrial Biologist, KNC	B4.6.2 Scope of the Assessment	p. 75, Table 19	Document reads "Listed and sensitive plant communities and species", and then indicates only two specific species (Limber Pine and Whitebark Pine). Will other listed and sensitive species also be included? Why has the proponent only identified these two species?	Can the proponent identify all the listed and sensitive species they will include as VCs? Just listing two species here is confusing.	See response to comment 189.	March 2018: addressed to EAO's satisfaction.	Addressed.
193	December 9, 2016	Cathy Conroy, Terrestrial Biologist, KNC	B4.6.2 Scope of the Assessment	p. 75, Table 19	The proponent includes 'changes to individual populations' as a measurement indicator. This is very unrealistic, and likely impossible.	Unrealistic Measurement Indicator. Seems like someone has just cut and pasted but has not considered the implications of undertaking analysis of individual populations of	Changes to plant populations will be assessed through baseline studies of the occurrence and abundance of selected plant communities and species completed before the Project and following the Project construction as per the Vegetation Management Plan. It has been included as an example of what may be	March 2018: addressed to EAO's satisfaction.	Addressed.

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						plant species.	assessed to evaluate changes in the occurrence and abundance of plant communities and species.		
194	December 9, 2016	Cathy Conroy, Terrestrial Biologist, KNC	B4.6.2 Scope of the Assessment	p. 75, Table 19 Limber Pine	In the event any limber pine individuals are found during site development activities, health will be assessed This sentence is confusing. Is the health of the individual plants going to be assessed? What value is there in doing a health assessment if, during development, the plants are likely to be removed?		Like whitebark pine, individual trees with the potential to be impacted during site development will be assessed for blister rust and to determine if seed and cone collection can occur on healthy individuals before removal. Additional detail is provided in Table 24 to note how limber pine and Whitebark pine will be addressed.	Include this point in AIR re: assessment for blisterrust. Please clarify/outline methodology to be used March 2018: addressed to EAO's satisfaction.	Addressed.
195	December 9, 2016	Cathy Conroy, Terrestrial Biologist, KNC	B4.6.2 Scope of the Assessment	p. 75, Table 19 Whitebark Pine	Whitebark pine health This is unclear. Is the health of individual plants assessed? What value is a health assessment of individuals if, during development, the plants are likely to be harvested, damaged, or removed? Or is it part of a larger scale assessment of Whitebark pine health and population profile (i.e. age class distribution, density, distribution).		The assessment of whitebark pine health will assess individual plants which will be used as indicators of the health of the larger population in the Project area. Individual trees will be tested for blister rust to determine the health of the stand and individuals. If individual plants are impacted as part of site development, a seed and cone collection program will be implemented based on the health of the individual. The Vegetation Management Plan developed for the Project will include details on mitigation measures for whitebark pine, including the seed and cone collection program.	March 2018: addressed to EAO's satisfaction.	Addressed.
196	December 9, 2016	Cathy Conroy, Terrestrial Biologist, KNC	B4.7.2 Scope of Assessment	p. 81-82, Table 22	The proponent includes 'changes to individual populations' as a measurement indicator for all species. This is likely not realistic for some species, and probably impossible for others.	Some unrealistic measurement indicators for many species listed in the table.	In-depth baseline studies will be completed to assess impacts to populations of a variety of receptor VCs. Measurement indicators for receptor VCs are presented in the Valued Components for Environmental Assessment document.	March 2018: addressed to EAO's satisfaction.	Addressed.
197	December 9, 2016	Cathy Conroy, Terrestrial Biologist, KNC	B4.7.2 Scope of Assessment	p. 81, Table 22 At Risk Bat Species	Habitat availability and distribution relative to baseline (e.g., changes to the available habitat and distribution of habitat for this species [including roost sites, hibernacula, and summering areas]) Does the proponent mean 'including, but not limited to, roost sites, hibernacula, and summering areas.' What is meant by 'summering areas'? Known occurrence and abundance (e.g., changes to the number of documented occurrences relative to baseline, changes to individual populations) How will changes to individual populations be determined? Is the proponent proposing to		Suitable habitats with the Project LSA that can be safely accessed will be assessed, which may include roost sites, hibernacula, and summering area. Other areas may be targeted for mist netting or other surveys, such as flyway corridors. Summering areas for bats refers to summer roost sites. Monitoring programs established will allow for an assessment of changes in populations relative to baseline. Details and commitments of monitoring programs will be outlined in the Application. No changes made to the AIR.	March 2018: addressed to EAO's satisfaction.	Addressed.

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					undertake research to identify individual populations for these species? If so, this is likely unrealistic. This should be clarified in the AIR.				
198	December 9, 2016	Cathy Conroy, Terrestrial Biologist, KNC	B4.7.2 Scope of Assessment	p. 82, Table 22 Migratory Birds	Why only Barn Swallow and Olive-sided Flycatcher listed, and then woodpeckers? Does the proponent intend to look at cavity nesting bird species guild in general, in addition to migratory songbirds, or just the woodpecker guild? Which species of woodpecker?	The species identified in dAIR do not make sense.	See response to comment 189.	March 2018: addressed to EAO's satisfaction.	Addressed.
199	December 9, 2016	Cathy Conroy, Terrestrial Biologist, KNC	B4.7.4 Existing Conditions	p. 84	Please indicate that qualified professionals will undertake the collection and reporting of baseline wildlife data.		A note has been added to Section 3.3 Existing Conditions stating: "All baseline studies for the Project will be led and completed by qualified professionals. A list of professionals will be provided in the Application."	Please include in dAIR where applicable March 2018: addressed to EAO's satisfaction.	
200	December 9, 2016	Cathy Conroy, Terrestrial Biologist, KNC	B4.7.5 Potential Effects	P. 85, Table 24	Potential Wildlife VC interactions with Project Components or Activities does not indicate that the following activities will result in interactions with wildlife: ● Resource extraction and processing ● Sewage and wastewater treatment ● Rail line and load-out ● Disposal of materials ● Transport of materials and equipment	These activities directly impact wildlife and their intermediate components in a number of ways, including but not limited to: ● Greenhouse gas emissions ● Interactions with vehicles including large and small trucks, and rail (displacement from habitat, stress, injury from collisions, death from ● collisions) ● Fugitive dust and other contaminants ● Noise and light pollution ● Displacement of species and fragmentation or degradation	Thank you for your comments on Table 29. The interactions you noted are now included in Table 29.	March 2018: addressed to EAO's satisfaction.	Addressed.

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						of habitats ● Introduction of invasive species via infrastructure for rail, hydro, gas			
201	December 16, 2016	Brenda L. Bailey, Ph.D., P.Geo. Senior Environmental Geoscientist, Ministry of Energy and Mines	Section 1.1 Description of Proposed Project		a) The following sections should form part of the project description. These sections should be added to the AIR and include a basic summary with details of how each will be described in the application. ● Regional and Project Geology ● Baseline Studies including geochemistry ● Project components and Activities ● Physical Activities by phase (i.e. construction, operations, closure, post-closure) ● Mining Methods ● Coal Processing and Stockpiling Facilities ● Water management ● Waste management ● Power sources ● Production Schedule ● Capital costs		a) A detailed description of the Project will be provided in the Application, and will include many of the sections noted in your comment as well as others that are necessary to provide an in-depth explanation of the proposed Project. At this time, it is difficult to know exactly what subheadings will be used in the Application to convey details on the Project; however, NWP Coal is committed to providing a thorough and detailed description of the Project, associated infrastructure, and Project activities. Several of the bullets noted are already provided in the dAIR and a few new bullets have been added. <u>Updated March 2018 Response</u> Following a review of the dAIR, many of the suggested additions are outlined in Section 1.1 as well as the subsections 1.1.1 to 1.1.4. Mining methods had been added to Section 1.1.1. ● Regional and Project Geology – see Section 1.1 ● Baseline Studies including geochemistry - see Section 1.1 ● Project components and Activities - see Section 1.1 ● Physical Activities by phase (i.e. construction, operations, closure, post-closure) - see Section 1.1 ● Mining Methods **added to Section 1.1.1 ● Coal Processing and Stockpiling Facilities – Section 1.1.4 ● Water management – Section 1.1.3 ● Waste management – Sections 1.1 and 1.1.4 ● Power sources - see Section 1.1.4 ● Production Schedule - see Section 1.1 ● Capital costs - see Section 1.1	This detail must be included in the AIR – please include bullets in section March 2018: addressed to EAO's satisfaction.	

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					b)Tables 11 and 12 – it is not clear how the measured indicators will be used in the effects assessment. Please include a description for each indicator as to how each will be determined and evaluated for the life of the project to assess the VCs and intermediate components.		b) Section 3.1 of the AIR describes the issues scoping and selection of VCs for the assessment, which includes intermediate VCs and receptor VCs. Intermediate VCs are expanded upon in Section 4.1 and each intermediate VC is described in a separate section. The VC Document also describes in detail both receptor VCs and Intermediate Components. <u>Updated March 2018 Response</u> Section 3.4 describes how potential effects will be summarized in the AIR. This section notes: "For each intermediate VC and receptor VC, the Application will: ● Identify the potential interactions of the proposed Project with the considered and selected intermediate VCs and receptor VCs, and the interactions between intermediate VCs and receptor VCs; ● Identify and describe the potential adverse effects resulting from the proposed Project; ● Demonstrate how feedback from local Aboriginal Groups, the public, stakeholders and government agencies on VC selection and assessment was incorporated, as appropriate. The Application will identify any interactions between project activities, intermediate VCs and receptor VCs that were excluded from further assessment, including the methods and criteria used to justify the exclusion and input received from EAO, government agencies, local Aboriginal Groups and the public regarding the exclusion."	March 2018: addressed to EAO's satisfaction.	
\202	December 16, 2016	Brenda L. Bailey, Ph.D., P.Geo. Senior Environmental Geoscientist, Ministry of Energy and Mines	Section 4.3.1 Aquatic Health, Introduction		Geochemistry is not specifically a subsection of groundwater quality. Geochemistry should be removed from the brackets and made its own section (either under Aquatic Health or in the baseline information section).		Geochemistry is now described under Section 4.1.4.1.2, as a component of the surface water quality intermediate VC. <u>Updated March 2018 Response</u> EAO to provide more guidance. Comment is addressed as per NWP and EAO's reconfiguration of AIR document.	March 2018: addressed to EAO's satisfaction.	

Tracking #	Date	Submitter	Section title	Page number (+ paragraph number or table row)	Comment	Rationale (If Required)	Proponent Response	EAO Comments	WG Comment
203	December 16, 2016	Brenda L. Bailey, Ph.D., P.Geo. Senior Environmental Geoscientist, Ministry of Energy and Mines	Section 4.3.4.2 Water Quality		The water quality section should incorporate aspects of predictive water quality modeling. The following are suggested additions: a) Development of geochemical source terms and geochemical modeling should be presented in a clear and transparent manner, and the methods, assumptions and rationale used to generate source terms and estimate water quality should be thoroughly explained (including the use of geochemical analogues).		Modelling is addressed in Section 4.1.4.1.3 of the AIR. This section notes that the assessment of Project effects on water quality will: • Include both project specific and watershed modelling; • Utilize existing watershed modelling being developed by Teck and other proponents in the Elk Valley (proponent to discuss watershed modelling with Teck); Water quality modelling will be consistent with Elk Valley ABMP. Geochemical source terms are referenced in Section 4.1.4.1.2. We appreciate the detailed comments you have provided. As our subject matter experts precede to engineer and design a spoil disposal system for Crown Mountain, the items you have identified will be, where appropriate, applied. And, of course, many additional considerations will no doubt arise for identification and evaluation as well. We feel the dAIR adequately identifies what the Application must address given the conceptual nature of the strategy at this point in time. <u>Updated March 2018 Response</u> A new paragraph has been added to Section 4.1.4.1.2 which notes “In addition, the Application will present the development of geochemical source terms and geochemical modelling, assumptions and rational used to generate source terms, and relevant water quality estimates. Limitations associated with source term development will also be discussed and a sensitivity analyses will be provided where there are significant uncertainties of risk associated with the source terms.”	March 2018: addressed to EAO’s satisfaction.	

Tracking #	Date	Submitter	Section title	Page number (+ paragraph number or table row)	Comment	Rationale (If Required)	Proponent Response	EAO Comments	WG Comment
					b) Water quality will be conducted for relevant onsite and receiving environment location downstream of any discharge points, key flow conditions and relevant time-steps in the mine life (i.e. temporal boundaries will include operations, closure, post-closure, discharging. Pit filling etc.).		Water quality (and quantity) is currently being completed at key locations with the local study area. Locations have been selected to be able to evaluate potential project effects. Have added the following to paragraph in –Section 4.1.4.1.1 "Monitoring stations will be established at key locations to allow the evaluation of potential receiving environments associated with the Project." <u>Updated March 2018 Response</u> Water quality will also be monitored over the course the Project, including operations to post-closure. To clarify this, the note added previously to 4.1.4.1.1 has been expanded to state "Monitoring stations will be established at key locations to allow the evaluation of potential receiving environments associated with the Project, such as at relevant onsite and receiving environment locations downstream of discharge points and to capture data on key flow conditions. These stations, as well as additional stations as necessary as the Project develops, will be monitored over the course of the Project, including operations through to post-closure."		
204	December 16, 2016	Brenda L. Bailey, Ph.D., P.Geo. Senior Environmental Geoscientist, Ministry of Energy and Mines	Section 4.3.4.6 Geochemistry		It is unclear why the geochemistry baseline section is within the Aquatic Health section. This information should be moved to the project description (Section 1.1). a) *<u>Required edit:</u>* "Baseline geochemistry investigations are focused on testing of ~~rocks~~ materials in the Project area to evaluate the metal leaching/acid rock drainage (ML/ARD) potential to contribute to an understanding of how ML/ARD may impact aquatic health resources and water quality."		The dAIR framework is setup to work hand-in-hand with the VC document. Geochemistry is not a receptor VC, but is considered an important part of the overall assessment of the aquatic environment (e.g., groundwater quality, surface water quality, sediment quality, etc.). It is for that reason it is presented in its own subsection in Section 4.1.4.1.2. In general the level of detail being requested is beyond the scope/intent of the AIR and beyond what has been included for the AIRs for similar projects in the Elk Valley. That being said, the Application will include the level of detail noted. NWP Coal fully recognizes the need to adequately characterize site geochemistry. Where possible, additional details have been added to the dAIR as noted below:	Working Group member to comment on adequacy of response for a,b,c,d,e For I-X please add conditional references in the AIR in the appropriate sections ie. If waste rock segregation is a component of the project then the application will demonstrate the feasibility to successfully segregate the PAG and non-PAG mine waste during operations, etc March 2018: addressed to EAO's satisfaction.	

Tracking #	Date	Submitter	Section title	Page number (+ paragraph number or table row)	Comment	Rationale (If Required)	Proponent Response	EAO Comments	WG Comment
							a) Suggested edit has been made in the dAIR. <u>Updated March 2018 Response</u> Suggested edit "a)" is included in the recent version of the dAIR.		
					b) <u>*Required edit:*</u> <u>*Remove:*</u> "The objective of the geochemistry program is to provide point source water chemistry predictions (i.e. geochemical source terms) for all disturbed materials on site, including waste rock (spoil), process waste, pit walls and overburden." <u>*Replace with:*</u> "The objective of the geochemistry program is to characterize the ML/ARD potential of all disturbed materials on site, including waste rock, raw coal, clean coal, CCR/tailings, pit walls, borrow sources, and overburden."		b) Suggested edit has been made in the dAIR. <u>Updated March 2018 Response</u> Suggested edit "b)" is included in the recent version of the dAIR.	March 2018: addressed to EAO's satisfaction.	
					c) The following should be incorporated into the geochemistry section: The application will provide a characterization of the geochemical behaviour of expected mine materials such as waste rock, raw coal, clean coal, CCR/tailings, pit walls, borrow sources, overburden, water treatment plant by-products and will include: ● Mineralogy; ● Elemental composition of major and trace elements; ● Acid Base Accounting (ABA); ● Assessment of short-term metal leaching properties; ● Longer-term kinetic testing to evaluate rates of acid generation (if any) and metal leaching; ● Seasonal and long-term analysis of existing water quality and loading estimates; and, ● The lag time to ML/ARD onset will be assessed for all potentially ARD generating materials.		c) Information is included in Section 4.1.4.1.2; however, bullets have been expanded to include some additional detail. Have also included a cross-references, where appropriate. <u>Updated March 2018 Response</u> The information requested in comment "c)" was previously added to the dAIR. Two bullets requested have been expanded upon in Section 4.1.4.1.2: • Kinetic testing results, including discussion of longer-term kinetic testing to evaluate rates of acid generation (if any) and metal leaching; • Lag time to ML/ARD onset and assessment for potentially ARD generating materials; Also added to Section 4.1.4.1.2 is the following: "In addition, the Application will present the development of geochemical source terms and geochemical modelling, assumptions and rational used to generate source terms, and relevant water quality estimates. Limitations associated with source term development will also be discussed and a sensitivity analyses will be	March 2018: addressed to EAO's satisfaction.	

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					The application will present the results of the geochemistry test data and source terms used for the predictive water quality model in a clear and transparent manner, and the methods, assumptions and rationale used to generate source terms will be thoroughly explained, including the use of relevant analogues. The application will describe any limitations associated with source term development. Sensitivity analyses will be provided where there are significant uncertainties of risk associated with the source terms. The assessment of potential effects that may result via a geochemical pathway will be undertaking in the aquatic health, fish, landscape and ecosystems, wildlife and/or human health effects assessments.		provided where there are significant uncertainties of risk associated with the source terms."		
					d) Geochemical assessment applies common guidance from several sources. MEM requests the following guidance documents be added/replaced in this section: ● Policy for metal leaching and acid rock drainage at British Columbia mine sites. B.C. Ministry of Energy and Mines and B.C. Ministry of Environment, Lands and Parks (1998); and, ● Guidelines for Metal Leaching and Acid Rock Drainage at Mine Sites in British Columbia (MEM, 1998) ● Prediction Manual for Drainage Chemistry from Sulphidic Materials (MEND Report 1.20.1; December 2009)		d) Additional guidance documents are now referenced. <u>Updated March 2018 Response</u> No additional changes. Guidance documents are included in current version of dAIR.	March 2018: addressed to EAO's satisfaction.	
					e) The baseline geochemistry section requires enhancement to include greater scoping of the information that will be supplied for mitigation of ML/ARD effects to surface water quality and groundwater quality. This information should be utilized in the development of site specific management strategies. Since it is unclear what the mitigation/management strategies will be required for the project, it is requested that the information requirements for the most common		e) Reference to the development of site-specific management strategies, as appropriate has been added. I - Details regarding the waste rock management strategy are provided in Section 1.1.2. Waste rock segregation will be discussed in the Application if it is applicable to the selected disposal site design. A bullet has been added to Section 1.1.2 which states "If applicable, a description of the feasibility to segregate PAG and non-PAG mine waste materials during	March 2018: addressed to EAO's satisfaction.	

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					ML/ARD mitigation strategies be incorporated into the draft AIR as follows: I. If waste rock segregation is proposed, the application will demonstrate the feasibility to successfully segregate PAG and non-PAG mine waste materials during operations, propose geochemical characterization and segregation during operations (i.e. geochemical surrogates, on site lab, procedures needed etc.). The application will include a sensitivity analysis to access the effects segregation of waste rock.		operations as well as describe the geochemical characterization and segregation during operations (i.e. geochemical surrogates, on site lab, procedures needed etc.)" <u>Updated March 2018 Response</u> Information is presented in Section 1.1.2, as noted above; however, this information has also been added to Section 4.1.4.1.2: The Application will also include, as appropriate, proposed mitigative measures and site-specific management strategies to address potential ML/ARD effects as well as prevention and management strategies that may be needed over the course of the Project, including temporary closure or early permanent closure scenarios. If applicable, the ML/ARD mitigation strategies and associated information will be presented in the Application if waste rock segregation is proposed, including: • A description of the feasibility to segregate PAG and non-PAG mine waste materials during operations; • Demonstration of adequate proportions of PAG and non-PAG wastes throughout mine life; • Description of proposed geochemical characterization and segregation during operations (e.g., geochemical surrogates); • Geochemistry of individual wastes and mixed wastes including metal release characteristics; • Site-specific management criteria for blending; • Waste handling and placement plans; • Assessment of anticipated waste dump hydrology, if applicable; • Proposed operation monitoring plans and contingency plans for seepage water quality management; and • A sensitive analysis to assess the effects of waste rock segregation.		
					II. If a water cover is proposed for ML/ARD management, information will be provided to identify the types, volumes and geochemistry of mine waste to be		II - Water cover is not a suitable approach for ML/ARD management for the project as the spoil disposal area will be well above drainage.	March 2018: addressed to EAO's satisfaction.	

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					flooded, the lag time to onset of ML/ARD in mine waste to be flooded, the disposal methods and location, the time until full flooding will occur, information to demonstrate that mine wastes will remain flooded during extreme climatic events, measures to mitigate soluble contaminants that could affect water quality, an assessment of geochemical stability under flooded conditions, and monitoring and maintenance requirements to ensure geochemical and physical security of flooded mine wastes (refer also to ML/ARD guidelines).		<u>Updated March 2018 Response</u> Water cover will not be presented as a management technique for ML/ARD management on the Crown Mountain Project. As such, this information is not presented in the dAIR.		
					III. If engineered cover systems (either interim or final) are proposed as a ML/ARD mitigation plan for the project, a conceptual design will be provided including the design objectives and principles, the characteristics and volumes of cover materials required, construction methods, assessment of expected performance and long-term effectiveness under the expected range of climatic conditions, monitoring and maintenance requirements, contingency plans, costs of constructing and long-term monitoring and maintenance (refer also to ML/ARD guidelines).		III - Details regarding the waste rock management strategy are provided in Section 1.1.2. It is premature to discuss items such as engineered cover systems: this topic, and others, if applicable, will be evaluated and presented in the Application. A note has been added to Section 1.1.2 that states "If engineered cover systems are proposed for the Project as part of the waste rock management, a conceptual design of the proposed cover system will be provided". <u>Updated March 2018 Response</u> The information provided in Section 1.1.2 has been updated to include details of the comment. The bullet now notes: "If engineered cover systems are proposed for the Project as part of the waste rock management, a conceptual design of the proposed cover system will be provided and include and include: a description of the design objectives and principles; the characteristics and volumes of cover materials required; construction methods; assessment of expected performance and long-term effectiveness under the expected range of climatic conditions; monitoring and maintenance requirements; contingency plans; and costs of constructing;	March 2018: addressed to EAO's satisfaction.	

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					IV. If blending of PAG and non-PAG materials to produce a benign composite is proposed as a ML/ARD mitigation strategy, information will be presented on the geochemistry of individual wastes and mixed wastes including metal release characteristics, site specific management criteria for blending, detailed waste handling and placement plans, demonstration of adequate proportions of PAG and non-PAG wastes throughout mine life, an assessment of anticipated waste dump hydrology, proposed operational monitoring plans and contingency plans for seepage water quality management (refer also to ML/ARD guidelines).		IV - The handling of PAG material, should it occur, will be discussed in the Application. See response to comment I. <u>Updated March 2018 Response</u> Section 4.1.4.1.2 has been updated to include the following information: The Application will also include, as appropriate, proposed mitigative measures and site-specific management strategies to address potential ML/ARD effects as well as prevention and management strategies that may be needed over the course of the Project, including temporary closure or early permanent closure scenarios. If applicable, the ML/ARD mitigation strategies and associated information will be presented in the Application if waste rock segregation is proposed, including: • A description of the feasibility to segregate PAG and non-PAG mine waste materials during operations; • Demonstration of adequate proportions of PAG and non-PAG wastes throughout mine life; • Description of proposed geochemical characterization and segregation during operations (e.g., geochemical surrogates); • Geochemistry of individual wastes and mixed wastes including metal release characteristics; • Site-specific management criteria for blending; • Waste handling and placement plans; • Assessment of anticipated waste dump hydrology, if applicable; • Proposed operation monitoring plans and contingency plans for seepage water quality management; and • A sensitive analysis to assess the effects of waste rock segregation.	March 2018: addressed to EAO's satisfaction.	

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					V. If drainage collection and treatment (either active or passive) is proposed as a mitigation strategy for the project, a conceptual design will be provided including: ● Location; ● Characterization of influent and effluent chemistry and flow; ● Treatment process information and demonstration of its effectiveness; ● Demonstration of the effectiveness of the drainage collection and conveyance system; ● Predicted reagent use; ● Assessed performance under the expected range of flow and climatic conditions; ● Water treatment plant by-product disposal and management plans (including physical and geochemical characteristics of wastes, long-term geochemical stability); ● The operating, monitoring and maintenance requirements to ensure successful treatment is sufficient to achieve long-term environmental protection requirements; and, ● Anticipated capital and operating costs (refer also to ML/ARD guidelines). Please note that drainage collection and treatment should be viewed as a mitigation strategy of last resort, only to be considered if other prevention/mitigation methods are not feasible.		V - Reference to water management in and around the waste rock management areas is provided in Section 1.1.2. The section also commits to the assessment of alternative strategies to proposed waste rock layering strategy and the development and discussion of contingency management measures, as appropriate. NWP agrees completely that drainage collection and treatment should be viewed as a mitigation strategy of last resort. A new bullet has been added to Section 1.1.2 that notes "If drainage collection and treatment is proposed as an alternative strategy to waste rock management, the Application will include a conceptual design for this alternative, including the location of the collection and treatment, characterization of influent and effluents, treatment and performance processes and their anticipated effectiveness, relevant monitoring plants, and anticipated capital and operating costs" <u>Updated March 2018 Response</u> The relevant bullet in Section 1.1.2 has been updated and now notes: "If drainage collection and treatment is proposed as an alternative strategy to waste rock management, the Application will include a conceptual design for this alternative and outline the following information: the location of the collection and treatment; characterization of influent and effluents; treatment and performance processes and their anticipated effectiveness; demonstration of the effectiveness of the drainage collection and conveyance system; predicted reagent use; assessed performance under the expected range of flow and climatic conditions; relevant mitigation and monitoring plans (which will include physical and geochemical characteristics of wastes and long-term geochemical stability); anticipated capital and operating costs."	March 2018: addressed to EAO's satisfaction.	

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					VI. If new and/or innovative mitigations are proposed for the project that are not in conventional use at mine sites in BC, the Proponent must provide results of pilot testing, research and development work, and/or provide relevant analogues from other mining applications to demonstrate their effectiveness and appropriateness for the project.		VI - Agree. NWP has continued to make this commitment. Section 1.1.2 includes a commitment to tests, pilot studies, etc. NWP is committed to demonstrating the effectiveness and appropriateness of proposed waste rock management strategies for the Project. <u>Updated March 2018 Response</u> As noted above, Section 1.1.2 notes that the following will be included in the Application: "Description of approach (i.e., tests, pilot studies, research, etc.) to be conducted to verify and prove effectiveness of the proposed layering strategy. In addition to tests and pilot studies, examples of sites where this technology has been implemented and any relevant monitoring data (e.g., water quality) will be provided".	March 2018: addressed to EAO's satisfaction.	
					VII. If drainage collection and treatment is proposed as a mitigation strategy for the project, a conceptual design will be provided including location, characterization of influent and effluent chemistry and flow, demonstration of the effectiveness of the drainage collection and holding system, conceptual design information on the treatment process , predicted reagent use, assessed performance under the expected range of flow and climatic conditions, sludge disposal plan, the operating, monitoring and maintenance requirements to ensure successful treatment is sufficient to achieve long-term environmental protection requirements, and anticipated capital and operating costs (refer also to ML/ARD guidelines).		VII - this appears to be a repeat comment. Addressed under Comment V. See response to comment V. <u>Updated March 2018 Response</u> See updated response to comment V.	March 2018: addressed to EAO's satisfaction.	
					VIII. Develop mitigation and monitoring plans based on the predicted ML/ARD potential and environmental protection needs;		VIII and X - Agree that appropriate mitigation and monitoring plans will need to be developed for the project. Proposed management plans are summarized in Section 7.0 and include a Mine Site Surface Water Management Plan and a Reclamation and Closure Plan. The plans would take into consideration predicted ML/ARD potential for the site and	March 2018: addressed to EAO's satisfaction.	

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							environmental protection needs. Section 7.1 includes a commitment for details regarding monitoring and follow-up programs. Section 4.1.3.3 also notes that contingency plans will be developed. <u>Updated March 2018 Response</u> Section 4.1.4.1.2 notes "The Application will also include, as appropriate, proposed mitigative measures and site-specific management strategies to address potential ML/ARD effects as well as prevention and management strategies that may be needed over the course of the Project, including temporary closure or early permanent closure scenarios." Section 7.1 provides a commitment to monitoring and follow-up programs being presented in the Application.		
					IX. ML/ARD prevention and management strategies are required for temporary closure or early-permanent closure scenarios.		IX – The final sentence of Section 4.1.4.1.2 has been revised to note "The Application will also include, as appropriate, proposed mitigative measures and site-specific management strategies to address potential ML/ARD effects as well as prevention and management strategies that may be needed for temporary closure or early-permanent closure scenarios." <u>Updated March 2018 Response</u> No additional changes made to the current dAIR.	March 2018: addressed to EAO's satisfaction.	
					X. Contingency plans will be provided where there are significant uncertainties for risks associated with the predicted water quality.		<u>Updated March 2018 Response</u> Section 4.1.4.1.4 notes that the assessment of Project effects on water quality will "Demonstrate how Best Achievable Control Technology (BACT), contingency measures and adaptive management will be used".	March 2018: addressed to EAO's satisfaction.	
Additional Comments Added									
205	Sep 12, 2017	Donna Haga, ENV	4.1, updated page number 23		It is suggested to include meteorology as a measurement indicator of air quality.		<u>Updated March 2018 Response</u> Meteorology has been added as a measurement indicator for air quality. To support this, information on collection of meteorological data has been moved	March 2018: addressed to EAO's satisfaction.	

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							from Section 4.2.1.4 Climate to Section 4.1.1.2 Air Quality.		
206	Sep 12, 2017	Donna Haga, ENV	Preface, Acronyms (and elsewhere), updated page number v, xv,		Please replace Ministry of Environment with Ministry of Environment and Climate Change Strategy, and use ENV as the acronym		Updated March 2018 Response Acronym updated.	March 2018: addressed to EAO's satisfaction.	
207	Sep 12, 2017	Donna Haga, ENV	1.1, updated page number 2		"Describe the following features of the natural environment and relevant baseline studies:..." Air quality is missing here.		Updated March 2018 Response Air quality and climate have been added.	March 2018: addressed to EAO's satisfaction.	
208	Sep 12, 2017	Donna Haga, ENV	1.1.1, 1.1.2, 1.1.3, 1.1.4, updated page number 3-6		Fugitive Dust Control is anticipated from various project components (pits, waste rock piles, haul roads, conveyor belts, etc.), but mitigation and monitoring for fugitive dust is not mentioned in any of these sections.		Updated March 2018 Response A bullet item has been added to Section 1.1.1 noting that the discussion on surface extraction areas will include a "Description of the air quality and dust control management plan and monitoring program, which will include mitigation measures on fugitive dust control as it relates to surface extraction activities". Section 7.0 notes that an Air Quality and Dust Control Management Plan will be developed for the Project and presented in the Application.	March 2018: addressed to EAO's satisfaction.	
209	Sep 12, 2017	Donna Haga, ENV	4.1.1.1, updated page number 29		It is recommended that the regional study area be expanded to include other EA's and mines in the area: Bingay, Coal Mountain, Crowsnest Pass Complex (Grassy Mountain Coal Project, Adanac, Lynx Creek and Bellevue), Michel Creek Coking Coal.		Updated March 2018 Response The RSA for air quality has been updated to include the following projects: Bingay, Coal Mountain, Crowsnest Pass Complex (Grassy Mountain Coal Project, Adanac, Lynx Creek and Bellevue), and Michel Creek Coking Coal.	March 2018: addressed to EAO's satisfaction.	
210	Sep 13, 2017	Donna Haga, ENV	4.2.1.3, updated page number 52-53		Air quality seems to be used as a measurement indicator for climate (although not listed as such in Table 14). It is not justified clearly why the air quality LSA/RSA is being used as the climate LSA/RSA. Air quality is not considered to be a measurement indicator of climate (although GHG emissions would be); meteorology could be considered a measurement indicator of air quality. The justification related to air quality in the climate section should either be moved to the air quality section; or should be rationalized more clearly.		Updated March 2018 Response Table 14 notes that GHG emissions will be used as the measurement indicator for climate. Meteorology has been added as a measurement indicator for air quality (see Section 4.1.1.2). Due to the relationship of air quality and climate, the proposed study areas are the same for the assessments of both components. If MOE would like something different, based on their expertise, we would be open to discuss further.	March 2018: addressed to EAO's satisfaction.	
211	Sep 13, 2017	Donna Haga, ENV	4.2.1.5, updated page number 54		Table 15: is "Air Quality" a typo. It seems "Climate" should be used here.		Updated March 2018 Response Thank you, the typo has been addressed.	March 2018: addressed to EAO's satisfaction.	
212	Sep 29, 2017	Darcy O'Connor US EPA	Water Quality & Aquatic Health, Section 2.2 5th Bullet		The dAIR indicates that the Application will evaluate potential effects on the transboundary environment. However, it is not clear how that will occur because the aquatic regional study area ends at the U.S./Canada border. The EPA recommends		Please see the response from the EAO.	As per the EAO's correspondence to the EPA dated March, 7 2018, NWP has considered initial predictions for potential effects to water quality to establish the study boundaries for	

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					that the DAIR include an assessment of downstream impacts in the U.S. portions of the watershed to surface water, aquatic health and other aquatic "Valued Components" such as fish and water bird species, including but not limited to, Lake Koocanusa and the Kootenai River.			the environmental assessment (EA). The current local study area (LSA) where direct and indirect effects from the project may occur extends to just beyond the District of Elkford. The regional study area (RSA) matches the area established by the Elk Valley Water Quality Plan (EVWQP) and will be used as a cumulative effects boundary. NWP currently predicts no effects at the Koocanusa Reservoir. The EA is designed to substantiate these predictions through a robust, scientific assessment. The EAO is of the view that our methodology will identify and assess any potential transboundary effects at the US Border. Study area boundaries can be adjusted based on modeling predictions. The detailed water quality information will be provided by NWP at the EA Application stage. As a member of the Crown Mountain Working Group, the US EPA will have the opportunity to review the detailed modelling methods and results.	
213	Septem ber 29, 2017	Darcy O'Connor US EPA	Water Quality & Aquatic Health		The State of Montana and B.C. have established the Lake Koocanusa Monitoring and Research Working Group (LKMRWG). The objective of the group is to "collaborate for the purpose of protecting the uses of Lake Koocanusa by determining water monitoring priorities, developing science-based water quality research plans/studies and developing water quality criteria/objectives for Montana and B.C." The LKMRWG has been tasked with developing site-specific water quality criteria and objectives that will be protective of Lake Koocanusa. The Application should describe how the proponent will comply with any potential site-specific objectives applicable in B.C. developed by the group, potentially including a selenium water column target that, while yet undetermined, may be less than 2 µg/L in the reservoir.		Please see the response from the EAO.	As per the EAO's correspondence to the EPA dated March, 7 2018, the EVWQP was developed by Teck Coal Limited (Teck) in response to a Ministerial Order issued in April 2013 under the Environmental Management Act (EMA). The BC Ministry of Environment and Climate Change Strategy (ENV) has clarified that the EVWQP applies to all water-related decisions made under EMA within the designated area defined as the Elk Valley, including the Canadian portion of Koocanusa Reservoir. NWP will be required to meet any water quality targets established under the LKRMWG or the EVWQP. On January 12, 2016, ENV advised NWP that NWP will need to be prepared to implement changes in a timely manner that	

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								would achieve a new long-term standard for Selenium should a new target be determined for the Koocanusa Reservoir. NWP has requested the opportunity to participate in the LKMRWG and is waiting for direction from the group as to the level of participation it would like NWP to have.	
214	September 29, 2017	Darcy O'Connor US EPA	Water Quality & Aquatic Health		We recommend that the Application discuss whether the mine proponent will participate in the LKMRWG. Currently, Teck Coal participates as a member of the Monitoring and Research Committee (MRC).		Please see the response from the EAO.	As per the EAO's correspondence to the EPA dated March, 7 2018, NWP has requested the opportunity to participate in the LKMRWG and is waiting for direction from the group as to the level of participation it would like NWP to have.	
215	September 29, 2017	U.S. EPA	Water Quality & Aquatic Health, Sections 4.1.4.1.3 and .4		As noted in sections 4.1.4.1.3 and .4 of the DAIR, the Application will demonstrate how the project will meet B.C.'s water quality guidelines (i.e., 2 µg/L for Se for protection of aquatic life) and will meet the Elk Valley Water Quality Plan, including water quality targets at the downstream order stations. We recommend that the Application describe the systems and technologies that will be used to meet water quality targets. • In particular, we note the absence of discussion regarding active treatment to reduce selenium and nitrogen loadings from seepage from the waste rock pile. The application should discuss the logistics and technical feasibility of collecting, pumping, and treating contaminated seepage and runoff. For example, would there need to be a water treatment plant located downstream of the waste rock impoundment in West Alexander Creek? • Will the project proponent need to achieve the water quality targets immediately or will there be a compliance schedule such as for the Teck Coal mines? • Where will the water quality targets apply? Do the water quality targets apply in the smaller streams located around the proposed mine such as Grave and Alexander Creeks? • The Application should also describe the		Please see the response from the EAO.	As per the EAO's correspondence to the EPA dated March, 7 2018, in changes to the most recent version of the dAIR, Section 4.1.4.1.4 now states that the assessment of Project effects on water quality will "Demonstrate how Best Achievable Control Technology (BACT), contingency measures and adaptive management will be used". Section 4.2.2.5 of the dAIR states that the Application will also identify measures to avoid, manage or otherwise mitigate (including potential water treatment) potential adverse effects to aquatic resources and aquatic health for each phase of the Project (i.e., construction, operations, closure, and post-closure). For example, the Application will describe the impacts of Project operations (e.g., plant operation, transportation, water supply) on groundwater and surface water quantity and quality, as well as contingency plans for accidents and potential conditions that require shutting down of the site. And finally, updates to the dAIR have addressed seepage water quality.	

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					process for implementing revised site-specific water quality criteria which may change during the application process or later during mining operations.			Section 4.1.4.1.2 now includes requirements for proposed operation monitoring plans and contingency plans for seepage water quality management if waste rock segregation is proposed.	
216	September 29, 2017	U.S. EPA	Water Quality & Aquatic Health		It is not clear from the DAIR how water quality in the Elk River Valley and Lake Koocanusa will be assessed and protected from the cumulative effects of multiple existing and proposed mines. In the U.S. Clean Water Act statutory and regulatory[1] terms, we would anticipate development of the equivalent of a "waste load allocation" and "total maximum daily load" calculation dividing the loadings for pollutants of concern (e.g., selenium, nitrate and cadmium) between different mines and natural conditions. We recommend that the Application summarize the specific processes and information that will be used to develop discharge limits or targets in water discharge permits including allocations of pollution loadings in order to comply with downstream water quality requirements.		Please see the response from the EAO.	As per the EAO's correspondence to the EPA dated March, 7 2018, the EAO accepts the Elk Valley Area Based Management Plan (ABMP) as the cumulative effects assessment for surface water quality, aquatic ecosystem health, human health and groundwater quality in the Elk Valley. The ABMP contains specifications applicable to all future coal operations in the Elk Valley watershed including the proposed Crown Mountain Project. These include: • short, medium and long-term targets for selenium, cadmium, nitrate and sulphate in water and for the reduction of calcite; • an adaptive management approach to ensure that the plan evolves with monitoring information, outcomes of research and development, and advances in science and technology, and • ongoing monitoring to assess water quality and aquatic health during the implementation of the plan to confirm objectives are met. The ABMP covers the entire Elk Valley watershed, including the Canadian portion of Koocanusa Reservoir. Under the Valley-wide permit, ENV requires Teck to monitor within the Koocanusa Reservoir close to the international border. The EAO anticipates that this will be the	

[1] "Waste load allocation (WLA)" means "The portion of a receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution. WLAs constitute a type of water quality-based effluent limitation." 40 C.F.R. § 130.3(h). "Total maximum daily load (TMDL)" means "The sum of the individual WLAs for point sources and [load allocations (LAs)] for nonpoint sources and natural background. If a receiving water has only one point source discharger, the TMDL is the sum of that point source WLA plus the LAs for any nonpoint courses of pollution and natural background sources, tributaries, or adjacent segments. TMDLs can be expressed in terms of either mass per time, toxicity, or other appropriate measure. If Best Management Practices (BMPs) or other nonpoint source pollution controls make more stringent load allocations practicable, the wasteload allocations can be made less stringent. Thus, the TMDL process provides for nonpoint source control tradeoffs." 40 C.F.R. § 130.3(i).

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								minimum requirement for non-Teck proponents in the future. ENV will also require coordinated water quality monitoring for all proponents.	
217	September 29, 2017	U.S. EPA	Water Quality & Aquatic Health, Tables 10, 11, 18		The DAIR and 2014 project description appears to anticipate a straightforward mine closure without any provisions for long-term water treatment, long-term maintenance of the low permeability soil layer to reduce seepage through the waste rock disposal facility, or long-term diversion of drainage away from waste rock storage areas. We recommend that the Application address long-term requirements to ensure that water quality and aquatic life are protected. We recommend that the anticipated Valued Component interactions with project components or activities described in tables 10, 11, 18 (Aquatic Health) include information on maintaining the components of the project that protect water quality and aquatic life, such as water treatment, and maintaining the recontouring and revegetation of the disturbed area. For example, what would happen if an erosion channel developed through the cap in the waste rock management area?		Please see the response from the EAO.	As per the EAO's correspondence to the EPA dated March, 7 2018, Section 1.1.2 of the dAIR has been updated and now requires the following: "If drainage collection and treatment is proposed as an alternative strategy to waste rock management, the Application will include a conceptual design for this alternative and outline the following information: • including the location of the collection and treatment; • characterization of influent and effluents; • treatment and performance processes and their anticipated effectiveness; • demonstration of the effectiveness of the drainage collection and conveyance system; • predicted reagent use; assessed performance under the expected range of flow and climatic conditions; • relevant mitigation and monitoring plans (which will include physical and geochemical characteristics of wastes and long-term geochemical stability); and • anticipated capital and operating costs." With respect to maintaining re-contouring and revegetation of the disturbed area, NWP will be required to prepare a draft Reclamation Plan as part of its EA application, and further reclamation details including end land use will be required as part of the Mines Act permitting process. The BC reclamation standards include long-term erosion control of post-closure landforms. To meet these standards, The Ministry of	

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								Energy, Mines and Petroleum Resources (EMPR) requires proponents to evaluate runoff and erosion potential and consider these aspects, in addition to other reclamation standards such as land capability, land use, geotechnical and geochemical stability, in the designs for post-closure landforms. Post-closure effectiveness monitoring will also be required for as long as needed to ensure that all of the reclamation requirements are met, and maintenance would need to be implemented if the monitoring results indicated that it was required. For the example, the cover design should be implemented in a manner that prevents erosion, however, if erosion were to occur, the cover would require repair. The reclamation security would consider these types of post-closure requirements to ensure that closure plans are effective.	
218	September 29, 2017	U.S. EPA	Water Quality & Aquatic Health, Section 1.1		The DAIR (Section 1.1) indicates that the Application will include a description of the "estimated costs for decommissioning/closure/management/reclamation." We recommend that the Application disclose the financial arrangements such as bonding or insurance policies to ensure that mine can be successfully closed and reclaimed if the proponent becomes insolvent or if the mine temporary closes, in order to ensure that potential transboundary water quality impacts can be managed into the future.		Please see the response from the EAO.	As per the EAO's correspondence to the EPA dated March, 7 2018, details regarding reclamation bonding will be required as part of the *Mines Act* permitting process should the project obtain an EA Certificate.	
219	September 29, 2017	U.S. EPA	Water Quality & Aquatic Health, Section 1.1.3		The DAIR (Section 1.1.3) lists the information that would be included in the Application if an impoundment is proposed. If an impoundment is proposed, we recommend that a failure modes effects analysis (FMEA) be conducted on the impoundment embankment design to assess potential impacts to water quality.		Please see the response from the EAO.	As per the EAO's correspondence to the EPA dated March, 7 2018, the Project Description does not include an impoundment. The Canadian Dam Association defines three broad types of failure mode: overtopping, structural collapse, and contaminated seepage. If a mine proposes a tailings impoundment, EMPR requires a "dam breach and inundation study", which captures the impact of a particular failure	

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								mode (collapse), and which is the basis for consequence classification. Risk of overtopping and contaminated seepage failure modes must be quantified and mitigated as a part of the design process. Typically this is adequate for EA and permitting, and a comprehensive FMEA is not required. If a site is especially complex, EMPR may require an FMEA, but this is determined on a site specific basis.	
220	September 29, 2017	U.S. EPA	Water Quality & Aquatic Health, Section 1.3		The DAIR (Section 1.3) lists the alternatives that will be considered in the Application. We recommend that water treatment alternatives be evaluated due to the unproven effectiveness of the waste rock layering approach.		Please see the response from the EAO.	As per the EAO's correspondence to the EPA dated March, 7 2018, a new bullet has been added to Section 1.1.2 that notes if drainage collection and treatment is proposed as an alternative strategy to waste rock management, the Application will include a conceptual design for this alternative, including the location of the collection and treatment, characterization of influent and effluents, treatment and performance processes and their anticipated effectiveness, relevant monitoring plants, and anticipated capital and operating costs.	
221	September 29, 2017	U.S. EPA	Monitoring		The EPA recommends that the proponent establish monitoring stations within the reservoir, including at the international border. This monitoring should be coordinated with other proponents in the Elk Valley, the B.C. Ministry of Environment, and the Montana Department of Environmental Quality.		Please see the response from the EAO.	As per the EAO's correspondence to the EPA dated March, 7 2018, the EAO accepts the Elk Valley Area Based Management Plan (ABMP) as the cumulative effects assessment for surface water quality, aquatic ecosystem health, human health and groundwater quality in the Elk Valley. The ABMP contains specifications applicable to all future coal operations in the Elk Valley watershed including the proposed Crown Mountain Project. These include: • short, medium and long-term targets for selenium, cadmium, nitrate and sulphate in water and for the reduction of calcite; • an adaptive management approach to ensure that the plan evolves with	

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								monitoring information, outcomes of research and development, and advances in science and technology, and • ongoing monitoring to assess water quality and aquatic health during the implementation of the plan to confirm objectives are met. The ABMP covers the entire Elk Valley watershed, including the Canadian portion of Koocanusa Reservoir. Under the Valley-wide permit, ENV requires Teck to monitor within the Koocanusa Reservoir close to the international border. The EAO anticipates that this will be the minimum requirement for non-Teck proponents in the future. ENV will also require coordinated water quality monitoring for all proponents	
222	September 29, 2017	U.S. EPA	Aboriginal & Public Consultation		The EPA recommends adding the Confederate Salish and Kootenai Tribes and the Kootenai Tribe of Idaho to the list of Aboriginal groups that will be discussed in the Aboriginal Consultation section of the Application.		Please see the response from the EAO.	As per the Memorandum of Understanding with the State of Montana (2010 Memorandum of Understanding and Cooperation on Environmental Protection, Climate Action and Energy between the Government of BC and the State of Montana), which states that one or more representatives from state, federal and tribal governmental agencies, as appropriate, will be invited to participate in Working Groups established for its EAs, including CSKT. As follow up to a letter sent regarding the Crown Mountain EA in October 2014, the EAO sent a letter to CSKT in October 2017 with an update on the Crown Mountain Project and an offer to participate in the Working Group. There has been no response to these letters from the EAO. As direct or cumulative effects from Crown Mountain are not anticipated in the State of Idaho, the EAO welcomes further discussion with the	

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								US EPA on what the specific interests of KTOI may be in relation to the Crown Mountain Project.	
223	September 29, 2017	U.S. EPA	Aboriginal & Public Consultation		The Consultation Plan should include the states of Montana and Idaho as well as downstream local communities in the U.S. such as Libby and Eureka, Montana. The EPA recommends that the proponent hold future public meetings on the project in the U.S. This will allow U.S. stakeholders the opportunity to review and comment on the proposed activities and their potential impact within the U.S.		Please see the response from the EAO.	As per the Memorandum of Understanding with the State of Montana (2010 *Memorandum of Understanding and Cooperation on Environmental Protection, Climate Action and Energy between the Government of BC and the State of Montana*), which identifies that one or more representatives from state, federal and tribal governmental agencies, as appropriate, will be invited to participate in Working Groups established for its EAs, including CSKT.	