

# APPENDIX B.1A: Concordance Table to the Executive Committee's Request for Supplementary Information

## VOLUME B.I: PROJECT INTRODUCTION & OVERVIEW

### B.1 Introduction

**B.1A** Concordance Table to the Executive Committee's Request for Supplementary Information

### B.2 First Nations and Community Consultation

### B.4 Project Description

**B.4A** Guide to the Management of the Casino Tailings Facility

**B.4B** Mine Waste Management Alternatives Assessment

**B.4C** Tailings Management Facility Dam Breach Inundation Study

**B.4D** Tailings Management Operation, Maintenance and Surveillance Manual

**B.4E** 2014 and 2015 Geotechnical Testing of Leach Ore

**B.4F** Ore Characterization

**B.4G** Review and Updates to the Conceptual Wetland Water Treatment Design

**CASINO MINING CORPORATION**  
**CASINO PROJECT**  
**CONCORDANCE TABLE TO THE EXECUTIVE COMMITTEE'S REQUEST FOR**  
**SUPPLEMENTARY INFORMATION No. 2**

On January 27, 2015, the Executive Committee requested that CMC provide supplementary information to the Casino Project (YESAB Project No. 2014-0002) to enable the Executive Committee to commence Screening. The Executive Committee considered comments from various First Nations, Decision Bodies and regulators on the adequacy of the Project Proposal in the preparation of the Adequacy Review Report (ARR). CMC provided a Supplementary Information Report (SIR-A) on March 16, 2015. Subsequently, the Executive Committee issued a second Adequacy Review Report (ARR No.2) on May 15, 2015 following a second round of review.

The Executive Committee has 224 requests for supplementary information related to the Project Proposal submitted on January 3, 2014 and to the Supplementary Information Report submitted on March 16, 2015. These requests are listed in the concordance table with the corresponding location of the supplementary information within the SIR.

Request #	Request for Supplementary Information	Response
R2-1	A framework and associated details for the establishment of the IGRP including its structure, scope and timing. The framework shall include relevant details such as expert reviewers' qualifications, their roles and continued involvement over the mine life. This framework will demonstrate a commitment to those aspects of the Project where external review from the IGRP will be obtained. At a minimum the IGRP will provide oversight for the following: a. alternatives assessment for tailings and waste rock management; b. risk assessment for the chosen method for tailings and waste rock management; c. design of tailings and waste rock management infrastructure; d. change management framework; e. technical review framework; f. hazard classification and rationale for the proposed TMF dam; and g. dam breach/inundation study. The Proponent will provide outcomes from the IGRP's work prior to entering the screening process.	Section B.4.2.1.1
R2-2	Frameworks for a change management procedure and an associated technical review procedure which will define processes for making and approving changes to designs or operating plans, such as may occur when conditions encountered in the field during construction or operations differ from design assumptions. Describe aspects of the project design for which engineering design changes will be overseen by the IGRP. These frameworks will also describe how regulators, First Nations, and other interested parties will be involved in the review processes.	Section B.4.2.2.1
R2-3	A detailed description and assessment of alternatives to or alternative ways of undertaking the Project with respect to tailings and waste rock management. This alternatives assessment should be comprehensive, provide transparent rationale and give consideration to the following: a. Full life-cycle costs and all phases of the proposed TMF dam (i.e. in perpetuity);	Section B.4.3.1.1

Request #	Request for Supplementary Information	Response
	b. Risks of the proposed TMF dam (i.e. as per risk assessment); c. Potential significant adverse effects of the proposed TMF dam to environmental values (i.e. wildlife, water and aquatic resources) and socio-economic values (i.e. health, social, heritage and economic); d. Identification and comparison of best practices and best-available technologies for tailings management; e. Options for managing water balance to ensure safety and reduce probable risks of structural and/or non-structural TMF dam failure (i.e. as determined by the risk assessment); f. Technically-sound engineering solutions that mitigate potential significant adverse effects based on actual site conditions (e.g. permafrost, climate change, construction challenges); and g. A clear and transparent evaluation of the factors that support the proposed TMF dam.	
R2-4	A risk assessment for the TMF dam.	Section B.4.3.2.1
R2-5	Describe the involvement of independent professional engineers in: the ongoing review of monitoring data; the evaluation of site infrastructure performance with respect to design parameters; and any necessary adaptive response measures.	Section B.4.3.2.2
R2-6	Information on the feasibility and limitations of using “on-stream analyzers” on a continuous basis to monitor sulphur removal from the NAG tailings stream.	Section B.4.4.1
R2-7	Discussion on the implications related to the estimate that 25 percent of the processed supergene ore would produce non-PAG rougher tailings.	Section B.4.4.2
R2-8	One of the following: a. Responses to previous Adequacy Review Report requests as they relate to the Freegold Road upgrade and Carmacks by-pass: <ul style="list-style-type: none"> <li>• R13 and R14 (in relation to the camp for the upgrade),</li> <li>• R18 (including safety, wildlife, and maintenance),</li> <li>• R27 (in relation to traffic in Carmacks and the by-pass),</li> <li>• R297 (in relation to clear span bridges for the upgrade),</li> <li>• R298 (in relation to decommissioning of abandoned structures along the alignment),</li> <li>• R299 (in relation to the Nordenskiold River bridge and pier),</li> <li>• R300 (in relation to available habitat at the Nordenskiold River bridge)</li> <li>• R410 (in relation to a cabin near the project footprint), or</li> </ul> b. A modified project proposal that excludes the Freegold Road upgrade and Carmacks by-pass but includes a revised description of activities, transportation plan, and effects assessment.	Section B.4.5.1.1
R2-9	Camp details including: a. Information regarding surface water within the camp footprint and any diversions, b. Supporting information on the appropriateness of a septic system, c. Details for reclamation of camp site, and	Section B.4.5.1.2

Request #	Request for Supplementary Information	Response
	d. Volumes of vegetation to be cleared and disposal methods.	
R2-10	A description and assessment of the two possible scenarios for the Freegold Road extension: a. Road closure and reclamation including methods, objectives, and timelines, b. Continued road use including management, access, and effects.	Section B.4.5.1.3
R2-11	Clarification if project traffic predictions and the project effects assessment include empty vehicles, and if not, updated predictions and corresponding effects assessments.	Section B.4.5.1.4
R2-12	An analysis of potential effects along the Klondike Highway, for all affected sections.	Section B.4.5.1.5
R2-13	An assessment of and mitigations for potential effects due to traffic in Carmacks and Carcross.	Section B.4.5.1.6
R2-14	Additional analysis regarding the appropriate PMP value for the design of the mine facilities. Specifically, utilize the full period of rainfall record as discussed by EcoMetrix (YOR 2014-0002-399-1), discuss the PMP contours presented in TP-47, and utilize other available methods of predicting PMP such as more recent publications regarding PMP estimates for eastern interior Alaska.	Section B.4.6.1.1
R2-15	Typical cross-sections and design drawings of alignments for diversion ditching across the project site with particular focus around the HLF including: a. confining embankment; b. access road section; and c. event ponds area.	Section B.4.6.1.2
R2-16	Details and rationale on the selection of return period design criteria for all the WMP components during all phases of the Project, including long-term closure. Details should include calculation of the failure probabilities.	Section B.4.6.2.1
R2-17	Additional supporting evidence to demonstrate the sufficiency of a 30 cm thick soil liner based on the actual conditions at the mine site (e.g. shear strength, slope stability, stack height, bedrock conditions).	Section B.4.7.1.1
R2-18	An outline of plausible mitigation strategies (e.g. intermediate liners; additional and/or higher standard liners) to ensure performance objectives of the HLF are achieved.	Section B.4.7.1.2
R2-19	Clarification on how one portion of the pad versus another portion will be isolated if a leak is detected. In addition, please provide a full detail design diagram of the components used in the heap leach facility including placement of the LDRS components and how they interact.	Section B.4.7.2.1
R2-20	Details on the maintenance and repair of LDRS sumps.	Section 0
R2-21	Details on the pipelines, pumps, and related infrastructure connecting the components of the HLF including SART, cyanide, and gold extraction facilities. Include details on pipeline alignments and leak detection measures.	Section B.4.7.3.1

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R2-22	Clarify whether CMC intends to seek certification under the International Cyanide Management Code and conduct independent third-party auditing of its conformance with the cyanide management standards of practice. If so, clarify whether results of independent audits would be made available for review by interested stakeholders.	Section B.4.7.3.2
R2-23	Indication when results are expected from the additional test work and how these results will be provided in a timely manner iteratively throughout the screening process.	Section B.4.7.4.1
R2-24	An updated TMF dam hazard classification that is informed by the IGRP-overseen risk assessment and related dam breach/inundation study. Where relevant, also include details regarding the impacts to dam design and mitigation strategies as a result of this additional work.	Section B.4.8.1.1
R2-25	Additional comparison information about natural analogies within similar environments. Include estimates of the hydraulic gradient(s) for the TMF dam, throughout its lifecycle (i.e. in perpetuity), and include a discussion that reflects on the findings of the Bjelkevik (2005) report (i.e. compare the estimated hydraulic gradient of the TMF with the hydraulic gradient of natural analogies that have demonstrated long-term stability).	Section B.4.8.1.2
R2-26	Additional information regarding the factor of safety including: a. The factor of safety under pseudo-static condition, since the minimum factor of safety for slope stability under seismic loading is 1.0 and not less than 1.0 (refer to Table 6-3 of Canadian Dam Safety Guideline, 2007). b. Was the excess pore pressure during the construction period and before the embankment rise considered? c. Confirmation that the stability analysis during different stages of construction and impounding meets the minimum factor of safety proposed by CDA such that: the minimum factor of safety of 1.3 "Before the reservoir filling" and FOS of 1.5 at the "normal reservoir level".	Section B.4.8.1.3
R2-27	A conceptual operations, maintenance and surveillance (OM&S) plan to demonstrate how the TMF will be managed in both the operational and closure periods. At a minimum, this plan will meet the current Mining Association of Canada's (MAC) guidance material for tailings management facilities. The OM&S plan must: a. Comprehensively address how custodial transfer will occur for all liability associated with this project. This aspect of the plan will include criteria for custodial transfer (e.g. to whom; timing; security funding; other obligations) and consider scenarios such as abandonment and end-of-mine life transfer. Provide examples of successful custodial transfer of comparable projects. b. Include supporting information that addresses monitoring and remediation activities that may be required during closure including the extent of remediation required in event of a maximum design earthquake. The plan must also consider response to multiple maximum design earthquakes that may occur considering the TMF is proposed to remain in perpetuity. c. Evaluate the potential effects of climate change on the Project through all phases, in perpetuity.	Section B.4.8.1.4

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R2-28	Detail on the care and maintenance costs in perpetuity. This estimate will be supported by the OM&S plan, which will document the ongoing care and maintenance requirements during the closure and post-closure period. This estimate must consider costs for all liability associated with the mine site infrastructure including accidents and malfunctions	Section c
R2-29	Demonstrate how the TMF dam will be able to achieve a steady state condition for passive care during the post-closure of this project (i.e. in perpetuity).	Section B.4.8.1.6
R2-30	A dam breach analysis with water/tailings inundation modeling. Include information related to the IGRPs oversight and review of this work. The analysis must be consistent with the Canadian Dam Association's (2007) dam safety guidelines and include: a. probable maximum flood inundation map showing the maximum extent of flooding relating to a sudden full storage embankment breach extending to when expected flooding is within the natural water channels; b. an assessment of environmental and human impacts associated with a release of tailings; c. an assessment of potential impacts to First Nation Settlement Lands; d. an assessment of impacts to downstream infrastructure; e. mitigation measures in the event of a tailings breach; and, f. for each proposed breach scenario, a cross section of the critical TMF embankment, proposed loading factors, and each scenario's factor of safety.	Section B.4.8.2.1
R2-31	Detailed information on the sources and quantities for all borrow materials that are required for all mine site infrastructure, the airstrip and airstrip access road, and the Freegold road upgrade and extension, throughout all phases. This information will be based on site investigations and will include: confirmation of the depth and areal extent of the proposed aggregate borrow sources; and, characterization of the physical and chemical variability of materials (i.e. quality and suitability for intended use) required for mine site infrastructure.	Section B.4.8.3.1
R2-32	An explanation on the likelihood and implications of saturation of the TMF dam's foundation, drains, and lower portions.	Section B.4.8.4.1
R2-33	The references used to guide the factor of 1.5 and a discussion about the applicability of the reviewed cases to this project.	Section B.4.8.4.2
R2-34	The measured shear wave velocity for the foundation material.	Section B.4.8.4.3
R2-35	Mean PGA as derived from EZ-FRISK.	Section B.4.8.4.4
R2-36	Information regarding PMP and the IDF including: a. An updated PMP estimate using more robust storm expansion techniques. This modelling must be done by a trained meteorologist with a background in PMP derivation; b. Justification for using the 100 year snowpack combined with the PMP for computing the PMF instead of a more conservative return period; and c. Evidence demonstrating that the IDF represents the worst case in terms of volume of inflow.	Section B.4.8.5.1

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R2-37	Following an updated dam hazard classification as requested in section 2.7.1 include a description of how the IDF design will protect the TMF dam from overtopping.	Section B.4.8.6.1
R2-38	Further discussion on the implications of ice build-up in the spillway and how this will be monitored and managed. In addition to ice build-up, describe how the spillway will be monitored and maintained in perpetuity post-closure – this must consider any changing circumstances and/or conditions that may compromise the function of the spillway.	Section B.4.8.6.2
R2-39	Mitigations, with appropriate thresholds for implementation, and monitoring activities for closure spillway related erosion, both in the spillway channel and downstream water bodies.	Section B.4.8.6.3
R2-40	Ensure that the risk assessment requested in section 2.2.2 considers the likelihood and consequence of an HLF failure that results in displacement of water in the TMF.	Section B.4.8.7.1
R2-41	An expansion of CMC's response related to core and filter thickness by providing a review of comparable designs. Also, provide a detailed analysis that describes the deformation response of the core and the downstream filter during different stages of construction.	Section B.4.8.8.1
R2-42	A comprehensive description of the tailings beach design including but not limited to: beach length, width, slope, deposition strategies, construction QA/QC and monitoring/maintenance requirements in perpetuity.	Section B.4.8.8.2
R2-43	Quantification of the reduction of seepage and hydraulic gradient throughout the various phases of the TMF dam based on the chosen design. Provide an estimate of how the seepage and hydraulic gradient may change in perpetuity.	Section B.4.8.8.3
R2-44	The results of laboratory tests conducted to assess whether 12 percent fines sand would be free-draining including under the very high stresses in the proposed dam and frost susceptible of this material. Additionally, if applicable, provide the implications of the 12 percent fines sand not being free-draining or being frost susceptible.	Section B.4.8.9.1
R2-45	Information regarding sand properties including: a. Explanation why the more conservative 30° angle of internal friction for angular sands was not selected for the Casino dam design; b. Explanation why the same value can be assumed to apply to the tailings generated from processing of all of the three ore types; and, c. Implications if the more conservative value of 30° is applied to the tailings generated from processing of all of the three ore types. d. Confirmation whether the maximum anticipated stress for placed cyclone sand is supported by completed testing.	Section B.4.8.9.2
R2-46	Identification the actual source of the discrepancy present in the specific gravity values for the tailings sand products through repeat testing. If repeat testing is not possible, describe the implications of this discrepancy using conservative assumptions.	Section B.4.8.9.3

Request #	Request for Supplementary Information	Response
R2-47	A response to the concerns articulated by EcoMetrix regarding 2 m lifts.	Section B.4.8.9.4
R2-48	Supporting evidence for the absence or presence of faults and fractures within the TMF and embankment areas including their activity. Specifically: a. Confirm whether lidar data has been collected to determine the presence or absence of young faults near the tailings dam; b. Provide the detailed joint surveying along the dam foundation and the abutments and update the seepage analysis report; and, c. Provide a geostatistical model that represents the permeability characteristics of the bedrock below the dam foundation.	Section B.4.8.9.5
R2-49	Additional drill results and associated foundation characterization (e.g. packer testing, trenching), with detailed analysis and discussion, to provide an accurate characterization of the hydraulic conductivity and identification of fault/shear zones within the embankment foundation.	Section B.4.8.9.5
R2-50	A description of how grouting can be successfully performed given the challenges presented by permafrost. Also, update the responses for R89 a – e of the ARR in accordance with the response to R2-49.	Section B.4.8.9.5
R2-51	The rationale behind “the material is assumed to be isotropic” knowing the horizontal permeability is greater than vertical permeability in embankment dams that is constructed in several stages. Also assuming an isotropic permeability for the rock, will not be a valid assumption due to preferential seepage in the rock mass.	Section B.4.8.9.5
R2-52	The justification on why no seepage barrier is proposed for the dam foundation despite the calculated seepage rate.	Section B.4.8.9.5
R2-53	The anticipated seepage problems surrounding the storage area.	Section B.4.8.9.5
R2-54	Details regarding permafrost and permafrost conditions in relation to the TMF, including: a. confirmation that an assessment of the hydraulic properties of the permafrost under the embankment structures studies will be conducted during the detailed design; b. a winter construction execution plan that details measures and procedures for embankment placement of fill that ensures the fill soils are not frozen at the time of placement and compaction; c. QA/QC plan for construction during the cold season; d. details on permafrost conditions of the foundation materials before the construction and during the embankment raise; e. a discussion regarding the potential segregation of solids and water fractions, with the formation of discrete ice lenses within the tailings mass and its implication for tailings management; and, f. a discussion regarding the integrity implications of the potential frozen and unfrozen fill co-existing within the structure.	Section B.4.8.9.5
R2-55	A detailed schedule for the works required to construct the TMF before and during operations. Consideration should be given to key QA/QC requirements and	Section B.4.8.9.5



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	contingency planning for scheduling delays and freezing conditions.	
R2-56	QA/QC measures during the lifetime of the embankment to ensure the effectiveness of insulation and the core structure will not be affected by the action of freezing. Please also provide confirmation regarding if permafrost aggradation potential has been considered into the TMF containment structure? If permafrost aggradation has not been considered, provide a discussion regarding the potential of permafrost aggradation into the TMF.	Section B.4.8.9.5
R2-57	Additional detail to understand the implication of shorter than expected construction windows for the TMF dam and specifically: a. Describe the implications of suspensions in fill placement operations if CMC is unable to operate in November and/or March. Also consider the implications of not being able to operate for additional months should they prove too cold. Describe how CMC will manage these implications. b. Clarification if the likelihood of one or more very cold years for the construction window has been evaluated. If so, describe the implications. Describe how CMC will manage these implications.	Section B.4.8.9.6
R2-58	Further detail on the referenced examples provided in response to R94. Demonstrate how these examples are applicable to this project and how they support the proposed construction schedule and methodology. Include details regarding the equipment and infrastructure required to facilitate winter construction.	Section B.4.8.9.7
R2-59	Discuss the implications of potentially incorporating frozen layers within the embankment (e.g. discrete ice lenses within the tailings mass; layers of frozen and unfrozen fill) to the stability and integrity of this infrastructure.	Section B.4.8.9.8
R2-60	Provide comprehensive characterization of the depth, extent and nature of permafrost where the TMF is to be constructed. Based on this characterization, confirm that excavation of all permafrost soils will be practical and how this excavation will successfully be achieved.	Section B.4.8.10.1
R2-61	Details regarding: a. A clear definition of ice-rich soils and rock; b. Characterization of the ice content of the near surface soils and rock to assess the potential volume of ice-rich materials to be excavated and disposed; c. A well-defined and rational methodology and decision making process to identify and characterize permafrost soils and rock that can be used to guide all excavation and stripping work; d. A detailed permafrost hazard map (predictive) and associated methodology that identifies type, nature, and magnitude of permafrost related hazards in the study area; e. If the TMF is situated on permafrost soils that are too deep to excavate, consideration of creep deformation of those permafrost soils resulting from placement of the TMF; and, f. Based on the map above, identification of specific risks to the Project (i.e. minesite infrastructure and the Northern Freegold Road) from identified permafrost hazards. The map should include consideration of climate change, as well, over the life of the Project.	Section B.4.8.10.2

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R2-62	Based on the risk identified in response to the questions above, please provide general options and considerations for engineering design to mitigate the identified risks.	Section B.4.8.10.3
R2-63	Provide a comprehensive assessment of how groundwater flow may be affected due to changing thermal conditions (i.e. melting permafrost). Consideration should be given to all stages of the Project, including in perpetuity for post-closure.	Section B.4.8.10.4
R2-64	Provide further justification of the validity of the baseline model calibration and its potential impact on groundwater flows in the Mine Effects models ensuring permafrost is considered in the calibrations.	Section B.4.8.10.5
R2-65	Confirm how the dam core will be insulated during construction and include comprehensive details (e.g. properties and characteristics of insulation; methodology for installing insulation; objectives and adaptive management). Provide relevant examples to support the proposed methodology.	Section B.4.8.11.1
R2-66	An explanation on how the additional transition zones can affect the current analysis.	Section B.4.8.12.1
R2-67	Identification of potential hazards of wildfire to LNG facilities at the Casino Mine site and a quantitative assessment of the related risk to those facilities. Ensure that risks and procedures associated with forest fires are discussed.	Section B.4.9.1.1
R2-68	For the diesel facilities and fueling stations, provide: a. a detailed description for all facilities related to diesel including location, design, construction, operation and closure; b. measures for the safety of project personnel including separation distances from office and living areas; and c. design measures and operating procedures to prevent a cascading accident.	Section B.4.9.2.1
R2-69	Further analysis of closure options including long-term and short-term costs, care and maintenance requirements, and long-term environmental risks. The options analysis should include: a. open pit; b. tailings management facility; c. heap leach facility; d. stockpile areas; and e. water management and treatment.	Section B.4.10.1.1
R2-70	Discussion and, if necessary, an update to the conceptual closure plan to take into account the most recent Government of Yukon Reclamation and Closure Planning for Quartz Mining Projects, Plan Requirements and Closure Costing Guidance (Government of Yukon, 2013). Details should include: a. additional closure methodology that demonstrates that the open pit water can passively flow to the TMF without continued intervention; and b. identification of closure methodologies that have been demonstrated effective in northern environments, and that clearly meet the objectives described in Section 5 of the guidance document.	Section B.4.10.1.2
R2-71	In relation to examples of successful similar treatment systems provided in	Section

Request #	Request for Supplementary Information	Response
	Appendix A.4H (Cold Climate Passive Treatment Systems Literature Review), a discussion on flow rates relative to those for the proposed project.	B.4.10.2.1
R2-72	In relation to plans on field studies to support and refine the effectiveness of the wetland water treatment system, details on: a. what benchmarks (e.g. CCME WQO or SSWQO identified in proposal) will serve as the performance objectives for the overall passive treatment system; b. what performance triggers (i.e. clear indication that the current strategy will not achieve treatment objectives) will be used during the development of the passive treatment system to identify when contingency treatment methods, such as development of bioreactors in the case of the HLF, will need to be investigated.	Section B.4.10.2.2
R2-73	Contingency, alternative, or additional treatment options that could achieve water quality objectives should the passive treatment system not be viable or perform as required. Details should include: a. identification of alternative treatment methodologies that can be employed at the site with best practicable technologies that is supported by comprehensive technical information; b. a conventional water treatment option within the framework of the water treatment plan for temporary and final closure. This should include the circumstances and triggers under which this treatment option would be developed; and c. a full alternatives assessment to demonstrate how alternative treatment technologies (that do not include wetland systems) were considered.	Section B.4.10.2.3
R2-74	In order to evaluate the potential effects related to the worst case scenario of an ineffective passive treatment, prediction of a worst case scenario of downstream water quality assuming no treatment system. Predictions should extend as far downstream as necessary to demonstrate no further exceedances of the CCME surface water quality objectives attributed to the mine (or 90th percentile of background for those constituents that naturally exceed CCME).	Section B.4.10.2.4
R2-75	A discussion and rationale on how the design of the north end of the tailings management facility wetlands will accommodate a range of possible flows from the pit lake. Identify how residence time can be controlled when flows are expected to be so highly variable, and how the proposed control valves could be relied upon in such a remote area.	Section B.4.10.2.5
R2-76	Details and design considerations for the remotely operated solar powered decant valves. Details should include: a. contingency planning related to malfunctions, inappropriate feedback and interaction; and b. examples where such systems are effectively used in similar northern or cold climate conditions.	Section B.4.10.2.6
R2-77	Details regarding potential impacts to pit water quality, and demonstrate water treatment capabilities in the TMF are sufficient, if a pit wall fails and there is a spike in metals and/or acidity in pit water.	Section B.4.10.3.1
R2-78	Examples of successful heap rinsing at comparable sites where materials of a similar nature, mass and northern location have been encountered.	Section B.4.10.4.1

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R2-79	A description how the liner in the HLF will be perforated following completion of the rinsing stage. Include a description of how drainage flowing from the HLF through the perforated liner will be captured by the TMF.	Section B.4.10.4.2
R2-80	Details on the design of the HLF cover. Details should include: a. details of construction materials and methods being proposed (e.g. on-site borrow material and/or geosynthetic liner) and supported by on-site characterization; b. consideration of other mine-site facility requirements for low-permeability material; and c. stability and long-term maintenance requirements if incorporating a geosynthetic liner.	Section B.4.10.5.1
R2-81	Feasibility level design details for the water management pond cut-off wall and cut-off trench/barrier. Include a discussion of how the structures are to be constructed. Details should include: a. details on how CMC will ensure that all groundwater seepage is collected in the water management pond as designed and modelled; b. what monitoring will be set up to ensure that the water management pond is performing as predicted, including groundwater and seepage monitoring; and c. contingencies for all project phases, in case the water management pond does not perform as expected, including if groundwater/seepage is found to by-pass the water management pond.	Section B.4.10.6.1
R2-82	Additional details about the water management pond dam should include: a. cross-sections; b. construction materials; c. consequence of failure classification; d. detailed foundation characterization; and e. monitoring and maintenance requirements.	Section B.4.10.6.2
R2-83	Contingency measures or alternatives that may be required in the event of early closure if passive treatment system field trials have not been completed or are shown to be unsuccessful. Details should include: a. identification of alternative treatment methodologies that can be employed at the site with best practicable technologies that is supported by comprehensive technical information; b. a conventional water treatment option within the framework of the water treatment plan for temporary and final closure. This should include the circumstances and triggers under which this treatment option would be developed.	Section B.4.10.7.1
R2-84	Update the CCRP and security estimates based on the Government of Yukon's updated guidance document: Reclamation and Closure Planning for Quartz Mining Projects, Plan Requirements and Closure Costing Guidance (Government of Yukon, 2013).	Section B.4.10.8.1
R2-85	Additional justification and discussion on security estimates based on new information generated by questions throughout this report. Details should include: a. all major mine components; b. all reclamation and closure stages; c. consideration of temporary or early closure;	Section B.4.10.8.2

Request #	Request for Supplementary Information	Response
	d. consideration of accidents and malfunctions, including the implications of structural and non-structural failures of the TMF dam; and e. consideration of effects of the environment.	
R2-86	Location, size, volume, and hydrology of the landfill site	Section B.4.11.1
R2-87	Anticipated volume of landfill space required for different waste streams.	Section B.4.11.2
R2-88	A description of the liner and/or leachate collection system proposed, including details for maintenance, operation, and closure.	Section B.4.11.3
R2-121	Clarification on how the design for the TMF accounts for climate variation in perpetuity, beyond the construction and operation phases of the mine.	Section B.4.12.1
R2-122	After the application of a maximum 25 percent increase in flow to all relevant baseline information, a comprehensive description of resulting changes to the tailings management facility, open pit, water management pond, heap leach facility, and diversion ditches. This should include consideration of project effects, and mitigations.	Section B.4.12.2
R2-123	The data inputs, as requested by ARCADIS and noted above, for the air quality model.	Section B.8.2.1.1
R2-124	Mitigations to reduce or eliminate the frequency and extent of air quality exceedances modeled including evidence for each mitigation's effectiveness.	Section B.8.2.2.1
R2-125	Unclassed air quality model outputs in a standard GIS format.	Section B.8.2.2.2
R2-126	Predicted change in dust composition during construction and operations.	Section B.8.3.1.1
R2-127	Discussion on additional dust sources such as project induced wind-based erosion, blasting, and traffic in relation to dust quantity, including details on the inclusion of these sources in air quality modeling.	Section B.8.3.1.2
R2-128	Water requirements for dust management and dust prevention strategies and details on any water additives.	Section B.8.3.1.3
R2-129	Discuss how the Project affects each of the commercial, recreation, or Aboriginal (CRA) fisheries and the species supporting those fisheries, which includes an understanding of the habitats but also the fish populations utilizing those habitats.	Section B.10.2.1.1
R2-130	Identification of project components likely requiring a paragraph 35(2)(b) Fisheries Act authorization.	Section B.10.2.1.2
R2-131	Demonstrate that proposed charge weights to be used in construction of the access road and infrastructure pads will not cause harm to fish and fish eggs.	Section B.10.3.1.1
R2-132	More information on the fish passage barrier in Taylor Creek, including clarification of its location and documentation that there are no upstream fish. If it is not available, the habitat upstream of the potential barrier in Taylor Creek should be	Section B.10.4.1.1

Request #	Request for Supplementary Information	Response
	included in calculation of habitat losses. This should follow the advice provided in Fisheries and Oceans Canada, Canadian Science Advisory Secretariat (Research Document 2008/026): Protocol for the Protection of Fish Species at Risk in Ontario Great Lakes Area (Fisheries and Oceans Canada, 2008).	
R2-133	Fish presence and habitat suitability maps that include information on freshwater species.	Section B.10.4.1.2
R2-134	A table including information on ephemeral channels and the likelihood of fish species presence during wetted periods.	Section B.10.4.1.3
R2-135	Additional information that allows for quantification of existing habitat value in Casino Creek.	Section B.10.4.1.4
R2-136	Additional quantitative baseline data including fish population and density estimates for all areas that will be impacted by changes in flows (reduced flows, changes in flow due to discharge and timing changes in flows). This should include a description of data quality objectives for both precision and accuracy relative to CPUE abundance estimates and how the data will be used to determine relative number of fish present for future comparisons (e.g. monitoring for change).	Section B.10.4.1.5
R2-137	Rationale and justification for the selection of reference sites and a description for how the data from the reference sites will be used for future comparisons (i.e. monitoring through all project phases).	Section B.10.4.1.6
R2-138	Final reports related to baseline data, if available, of appendices A – E for appendix 10A - Casino Project Fish and Aquatic Resources Baseline Report, November 12, 2013, by Palmer Environmental Consulting Group Inc.	Section B.10.4.2.1
R2-139	Additional information regarding the HEP including: a. methods and data used to calculate habitat gains; b. seasonal use by life stage for Arctic grayling; and c. incorporation of all life stages into the HEP.	Section B.10.5.1.1
R2-140	More information on information used in the PHABSIM model. This should include: a. A comparison of the streamflows from Knight-Piésold and that used in the PHABSIM model including tables and figures to illustrate the comparison; b. Clarity on assumptions and objectives of the modelling process regarding the estimation of impacts on fish habitat (e.g. average conditions, extreme flows, time periods etc.); c. Clarity around the consideration of fish stranding in the assessment (i.e. were extreme low flows considered in the assessment); and d. All sources of data used in the hydrology assessment and a detailed description of methods.	Section B.10.5.1.2
R2-141	An assessment of impacts to fish habitat related to culverted stream crossings on the Freegold Road.	Section B.10.6.1.1
R2-142	For each, if present, of spawning and rearing habitat, details regarding how pier	Section B.10.6.2.1

Request #	Request for Supplementary Information	Response
	construction and hydraulic forces will alter the habitat and over what area.	
R2-143	The rationale for discounting this location as winter habitat, including consideration of juvenile fish species overwintering within substrate.	Section B.10.6.2.2
R2-144	Discussion of possible options for the bridge, including a no-pier option. This discussion should include a rationale detailing the options and alternatives considered if a no-pier option is not possible.	Section B.10.6.2.3
R2-145	A list of crossing details noting crossing properties and type of crossing, index by location as indicated in appendix 10B.	Section B.10.6.3.1
R2-146	A discussion of the potential effects of the construction, operation, and possible decommissioning of project infrastructure in areas with elevated potential for rare plant species. Details should include: <ul style="list-style-type: none"> <li>a. how the lack of baseline data will be addressed;</li> <li>b. how effects would be detected; and</li> <li>c. what adaptive management measures would be undertaken if effects occur.</li> </ul>	Section B.11.2.1.1
R2-147	An analysis of the potential effects of the construction, operation, and possible decommissioning of the airstrip and airstrip access road on proximate vegetation and wetlands, with a focus on downslope wetland impacts due to changes in ground and surface water flows. This analysis should consider all wetland types occurring in the LSA.	Section B.11.2.1.2
R2-148	An analysis of the potential effects to wetlands and suggested mitigation measures related to the construction and use of the airstrip.	Section B.11.2.1.3
R2-149	An assessment of critical habitat, potential project effects, and proposed mitigations to Yukon Podistera ( <i>Podistera yukonensis</i> ).	Section B.11.2.1.4
R2-150	Initiatives that CMC will lead to monitor and address the issue of potential increased predation, mortality, and disturbance to caribou and Dall's sheep in relation to the Freegold Road.	Section <b>Error!</b> <b>Reference source not found.</b>
R2-151	An analysis of how baseline data will be established and how predation mortality will be monitored and addressed.	Section <b>Error!</b> <b>Reference source not found.</b>
R2-152	Supporting evidence for the assertion that road design is a sufficient mitigation to the barrier effects of the Freegold Road.	Section <b>Error!</b> <b>Reference source not found.</b>
R2-153	A review of available data for population demographics (sex and age ratios related to surveys in the RSA). Use of demographic data for harvest and surveys will provide valuable insight into the sensitivity of regional populations to potential impacts from road maintenance and operations	Section <b>Error!</b> <b>Reference source not</b>

Request #	Request for Supplementary Information	Response
		<b>found.</b>
R2-154	A discussion of the proposed Klaza caribou model based on draft components. This should include how the model supports project effects assessment and determination of significance. The review should include available population demographic data from harvest and surveys.	Section <b>Error!</b> Reference source not found.
R2-155	A discussion of noise associated with the Project in relation to the habitat suitability model using the most recent reference materials available. This discussion should include consideration of noise from all project activities and baseline conditions (see R2-212, R2-213, R2-314).	Section <b>Error!</b> Reference source not found.
R2-156	A discussion of objectives for evaluating model assumptions for caribou disturbance, monitoring movement and potential changes in predation, and setting adaptive management thresholds for actions which may mitigate adverse effects.	Section <b>Error!</b> Reference source not found.
R2-157	Discussion on the effects to the Fortymile caribou herd in the event of overlap, including extend, duration, magnitude, and significance. The analysis should consider herd size and demographics.	Section <b>Error!</b> Reference source not found.
R2-158	Discuss how the RSF model accounts for variability in caribou distribution based on environmental conditions and among years. This should include consideration of available data on actual caribou distribution from the 1980's – present.	Section <b>Error!</b> Reference source not found.
R2-159	Population survey data and demographic models for moose to determine sensitivity to change from potential additional predation or hunting pressure.	Section <b>Error!</b> Reference source not found.
R2-160	Moose harvest data by sex, including an estimate of First Nations harvest, as well as a population model and sensitivity analysis.	Section <b>Error!</b> Reference source not found.
R2-161	Information on the frequency, extent, and methods for monitoring of the pipeline route including: a. Prior to construction to inform the route, and b. During construction and operations c. Geotechnical and topographical information that will be used to determine which (if any) sections of the pipeline are buried.	Section <b>Error!</b> Reference source not found.
R2-162	Initiate additional bear den surveys, utilizing suggestions by Government of Yukon, and indicate when information will be available during the screening process.	Section <b>Error!</b> Reference source not found.



Request #	Request for Supplementary Information	Response
		<b>found.</b>
R2-163	A discussion of how denning may affect or be affected by project activity and suggested mitigations to prevent disturbance.	Section <b>Error!</b> Reference source not found.
R2-164	Updated habitat suitability and effectiveness which take into consideration the comments from Yukon government and SLR.	Section <b>Error!</b> Reference source not found.
R2-165	Detailed information on how timing of food sources has been incorporated into the models.	Section <b>Error!</b> Reference source not found.
R2-166	An updated security areas model using a maximum altitude of 1 900 m and incorporating low intensity disturbance.	Section <b>Error!</b> Reference source not found.
R2-167	Additional information on Table 8.1 of the grizzly bear effects assessment, including: a. proportion of males and females harvested; b. a discussion of how the numbers in part a relate to the population estimate; and c. a discussion of the population-level effects of direct mortality.	Section <b>Error!</b> Reference source not found.
R2-168	A discussion and analysis of the significance of mortality estimates based on population density estimate of 11 bears/1 000 km <sup>2</sup> and annual allowable mortality rate of 4 percent.	Section <b>Error!</b> Reference source not found.
R2-169	Revised traffic effect analysis, including road kills, using all project traffic not just loaded vehicles.	Section <b>Error!</b> Reference source not found.
R2-170	Information on how effects on known sites of collared pika occupancy will be avoided or minimized. This should include mitigation measures to ensure the health of the population.	Section <b>Error!</b> Reference source not found.
R2-171	A habitat suitability model and related analyses, which identifies potential denning habitat of wolverines in the local study area and regional study area.	Section <b>Error!</b> Reference source not found.

Request #	Request for Supplementary Information	Response
R2-172	A risk assessment for wolverines which considers the habitat suitability model. The assessment should identify potential effects to natal and maternal den sites and proposed measures for avoiding disturbance of females with kits.	Section <b>Error!</b> Reference source not found.
R2-173	Detailed information on study methodology for the July, 2014, bat survey.	Section <b>Error!</b> Reference source not found.
R2-174	Results and discussion of additional field work needed to determine the presence of little brown myotis and its roosts and hibernacula.	Section <b>Error!</b> Reference source not found.
R2-175	Monitoring and mitigation measures that will be undertaken for this species if their presence is determined. This will require more detailed information in the Wildlife Mitigation and Monitoring Plan.	Section <b>Error!</b> Reference source not found.
R2-176	Additional baseline information on Dall sheep that will allow for population and demographic monitoring in the future.	Section <b>Error!</b> Reference source not found.
R2-177	A discussion of the indirect effects to Dall sheep based on: a. Increased hunter access; b. Disturbance related to land and air traffic; and c. Changes in predator-prey dynamics. d. The discussion should include seasonal variation as well as proposed mitigation and monitoring measures.	Section <b>Error!</b> Reference source not found.
R2-178	Rationale on the exclusion of the identified species (rock ptarmigan, white-tailed ptarmigan, and short-eared owl) as key indicators as compared against other species of concern, including available baseline information, or the inclusion of these species as key indicator species (either as a group or individually).	Section <b>Error!</b> Reference source not found.
R2-179	Baseline data and assessment of effects in relation to red-necked phalarope.	Section <b>Error!</b> Reference source not found.
R2-180	Spatial information on the presence of alpine meadows or alpine open areas.	Section <b>Error!</b> Reference source not found.

Request #	Request for Supplementary Information	Response
R2-181	Description of how the WMMP will address and protect the identified species (e.g. olive sided fly catcher, rusty blackbird, common nighthawk, short-eared owl, horned grebe, and other human intolerant species of concern.)	Section <b>Error!</b> Reference source not found.
R2-182	A description of how the WMMP will address and protect wetland habitats and their occupants.	Section <b>Error!</b> Reference source not found.
R2-183	Effects assessment of the TMF wetland on waterfowl. This should include: a. Discussion of pathways by which waterfowl accumulate detrimental levels of metals and negative effects of trace metals, particularly with respect to bioaccumulation; b. Inclusion of other trace metals found in elevated levels according to baseline surveys; and c. Consideration of the availability of open water bodies in the LSA relative to the RSA (i.e. likelihood of waterfowl staging in the project footprint.)	Section <b>Error!</b> Reference source not found.
R2-184	Thresholds for trace metal (e.g. selenium, arsenic, lead) concentrations at which waterfowl/TMF wetland monitoring would occur during the construction, operation, and decommissioning phases and a discussion of how this information will be factored into mitigation measures. This should include a discussion of additional deterrence measures that would be utilized if thresholds are crossed and an analysis of their effectiveness.	Section <b>Error!</b> Reference source not found.
R2-185	A discussion of amending the Wildlife Mitigation and Monitoring Plan to include a vegetation monitoring and management plan aimed at removing/minimizing plant growth around the TMF and Pit pond.	Section <b>Error!</b> Reference source not found.
R2-186	Information on the authority of the Wildlife Working Group (i.e. how are recommendations from the group incorporated into future planning and action?)	Section <b>Error!</b> Reference source not found.
R2-187	Details on what triggers will be used, by species, to determine whether to cease or extend monitoring at the 3-5 year mark.	Section <b>Error!</b> Reference source not found.
R2-188	Details on if, and how, impacts to species with large ranges will be monitored beyond the 10 km buffer of the project area.	Section <b>Error!</b> Reference source not found.

<b>Request #</b>	<b>Request for Supplementary Information</b>	<b>Response</b>
R2-189	Further information on the implementation of employment strategies to mitigate for effects of closure or unplanned closure.	Section B.15.2.1.1
R2-190	Clarification on efforts that will be used to draw employees from unemployed or underemployed populations.	Section B.15.2.1.2
R2-191	Details on implementation of the hiring policy	Section B.14.2.1.1
R2-192	Projected direct Project employment for affected communities based on actual employment information from mines in neighbouring jurisdictions and/or Minto mine. Please indicate if employees are new, existing, or returning residents or from other communities in Yukon.	Section B.14.3.1.1
R2-193	Details on the proposed mitigation strategies (flexible rotations, counselling services, and adaptive management) for the shift structure identified in the proposal.	Section B.14.4.1.1
R2-194	Details on how unscheduled community/cultural events will be accommodated in the shift structure. This should include references to experiences in Yukon and neighbouring jurisdictions.	Section B.14.4.1.2
R2-195	Identify local values within the category of community vitality and wellbeing as informed by communities and First Nations, including communities outside of Carmacks, Pelly Crossing, and Whitehorse where there is potential for significant project effects.	Section B.16.2.1
R2-196	Provide baseline data, and relevant indicators, for identified local values within the category of community vitality and wellbeing.	Section B.16.2.2
R2-197	An assessment of potential effects due to project activities to local values within the category of community vitality and wellbeing, relying where possible on relevant analogs.	Section B.16.2.3
R2-198	A description of input from First Nations including traditional knowledge and how it will inform the plan	Section B.18.2.1
R2-199	A description on how mitigations regarding heritage resources will be implemented throughout the life of the Project	Section B.18.2.2
R2-200	A monitoring and evaluation mechanism.	Section B.18.2.3
R2-201	A comprehensive TLU study including traditional knowledge. The information provided shall cover traditional land use activities identified by First Nations.	Section B.18.3.1
R2-202	An assessment of effects of the Project on TLU.	Section B.18.3.2
R2-203	An assessment of effects of the Project on traditional economies.	Section B.18.3.3

Request #	Request for Supplementary Information	Response
R2-204	<p>A discussion of the potential effects of the Project to commercial, recreational and Aboriginal fisheries (e.g. Arctic grayling and Chinook salmon). This discussion should include:</p> <ul style="list-style-type: none"> <li>a. a geographic scope that includes areas downstream of Dip Creek up to and including the White River;</li> <li>b. consideration of the changes in rearing, spawning, and overwintering habitat;</li> <li>c. a consideration of the migratory nature of various fish species; and</li> <li>d. potential fish kills and stranding.</li> </ul>	Section B.10.6.3.2
R2-205	<p>A description of plant species of traditional, cultural, or economic importance within the Project footprint. Include a description of any efforts to engage First Nations or other land users in identifying plants of concern and any ground studies that sought to identify and map plants of concern. This information shall be provided as part of a Traditional Land Use study as requested in Section 15.1</p>	Section B.18.4.1
R2-206	<p>Provide a description of concerns raised regarding effects to traditional harvest areas and indicate the location of the areas of concern. This information shall be provided as part of a Traditional Land Use study as requested in Section 15.1.</p>	Section B.18.5.1
R2-207	<p>Provide a record of discussions and concerns raised by all affected trapline concession holders. The discussion shall include an assessment of potential impacts and any proposed mitigations for all trapping concessions, focusing on concessions #150 and #408.</p>	Section B.2.2.1.1
R2-208	<p>Provide a record of discussions and concerns raised by all affected outfitting concession holders. The discussion shall include an assessment of potential impacts and any proposed mitigations for all outfitting concessions.</p>	Section B.2.2.1.2
R2-209	<p>A description of any contact or discussions between CMC and mineral rights holders in relation to the road. Also include a description of how many mineral claim holders have been contacted and a summary of the concerns raised.</p>	Section B.2.3.1.1
R2-210	<p>Assessment of effects, and potential mitigations if required, on the Yukon Quest.</p>	Section B.2.4.1.1
R2-211	<p>Clarification of differences between the reference noise levels presented in the original proposal and the Supplementary Information Report.</p>	Section B.9.2.1.1
R2-212	<p>An assessment of effects, and any proposed monitoring and mitigations, due to non-modeled noise, in relation to wildlife, due to: air traffic; blasting; and cycloning.</p>	Section B.9.2.1.2
R2-213	<p>Rationale for a 45 dBA background sound level.</p>	Section B.9.2.1.3
R2-214	<p>Rationale for the use of A-weightings for assessing effects to wildlife and human annoyance (in relation to low frequency sounds), including how the use of A-weightings influence an effects assessment.</p>	Section B.9.2.1.4
R2-215	<p>Discussion on the temporal distribution of noise effects in communities, including Carmacks and Carcross, on a seasonal and diurnal basis</p>	Section B.9.2.1.5

<b>Request #</b>	<b>Request for Supplementary Information</b>	<b>Response</b>
R2-216	Any anticipated effects, proposed mitigations, and monitoring to noise effects in communities including Carmacks and Carcross.	Section B.9.2.1.6
R2-217	Details on evacuation including anticipated timelines and seasonal considerations.	Section B.21.2.1.1
R2-218	Rationale for the two hours, or 682m <sup>3</sup> , as the minimum capacity for water storage on-site for firefighting capacity.	Section B.21.2.2.1
R2-219	A risk assessment of the transportation route that considers all major water crossings in relation to the transportation of hazardous materials.	Section B.21.2.3.1
R2-220	A human health risk assessment for the Project. Details should include: a. identify hazardous materials present on-site; b. evaluation of toxicity of hazardous materials; c. identify and assess pathways, including consumption of wildlife, fish, and traditional foods; and d. characterize risk to human health.	Section B.21.2.4.1
R2-221	Rationale based on an HHRA for the exclusion of a human health monitoring plan, or, alternatively, details on a human health monitoring plan.	Section B.21.2.4.2
R2-222	Summaries of discussions that support the proposed emergency response plans with emergency service providers, communities, and governments.	Section B.21.2.5.1
R2-223	Details on emergency response for LNG accidents or emergencies in relation to the response team and their equipment including details on training, composition, availability, and location.	Section B.21.2.5.2
R2-224	Please provide a comprehensive emergency response plan that addresses accidents and malfunctions related to major mine infrastructure. This must include consideration of structural and non-structural failure of the TMF dam as informed by the risk assessment and the dam breach and inundation study.	Section B.21.3.1.1