MEMORANDUM

Date:	August 19, 2020
To:	Angela Waterman, Telkwa Coal Limited
From:	Ruth Hardy, Hemmera Envirochem Inc.
File:	989388-01
Re:	Water Quality as an IC for the Tenas Project EA

This memo was prepared by Hemmera Envirochem Inc. (Hemmera), a wholly owned subsidiary of Ausenco Canada Inc. (Ausenco), in response to your email request received on June 25, 2020. We understand that Telkwa Coal Limited (TCL) wishes to better understand the rationale for classifying Water Quality as an Intermediate Component (IC) rather than a Valued Component (VC) in the upcoming environmental assessment (EA) for the Tenas Project (the Project). This memo provides detailed information clarifying the rationale used based on current legislative guidance.

1.0 INTRODUCTION

TCL followed BC EAO guidance in determining the scope of the environmental assessment, including the determination of Valued Components (VC) through issues scoping (BC EAO, 2020a, BC EAO, 2020b). Relevant definitions from the guidance are appended for reference in **Appendix A**.

During initial issues scoping, TCL compiled a list of candidate VCs that considered the five pillars requiring assessment under the BC Environmental Assessment Act (2018) (BCEAA): environmental, economic, social, heritage and health. Decisions by the BC EAO regarding issuance of a Certificate consider the evaluation of the significance (negligible, not significant, or significant) of residual effects to a VC. In addition to identifying potential VCs, environmental components that are not the ultimate receptors of potential Project-related effects, but are part of the effects pathways, were identified as Intermediate Components (ICs) to inform the assessment of the VCs. In order to avoid redundancies in the assessments in an effects pathway, an assessment that characterizes the significance of residual effects is completed for a VC (the receptor for the effects) while a complete analysis that determines residual changes is completed for a IC. An IC may support the assessment of significance for several VCs.

2.0 WATER QUALITY

Hemmera has reviewed the selection of Water Quality as an IC in a pathway of effects and considers its selection as an IC appropriate. TCL has undertaken a substantial process for the selection of ICs and VCs relevant to this project, which was reviewed by the BC Environmental Assessment Office (EAO) and distributed to members of the Advisory Working Group in 2019[1]. EAO guidance states that the selection of VCs from the candidates list for the assessment should focus on the ultimate receptor or component that is of concern (BC EAO, 2013). Guidance also states that the nature of the project-VC interaction and the resulting effect pathway should be clearly articulated and understood, and redundant analysis avoided. As an IC, Surface Water receives the same level of analysis and mitigation as a VC, and residual changes

[1] All documents can be found at the BC EAO Project Information Centre:
https://www.projects.eao.gov.bc.ca/p/5b905af23965330024d5b706/documents

following mitigation are determined. The water quality analysis will predict and describe changes to water quality indicators as a result of Project activities. The significance of the change will be evaluated in a receptor VC such as Fish and Fish Habitat.

Water quality was identified as a candidate VC in recognition of its importance by regulators, Indigenous groups and the public and through selection by qualified professionals for its role in effect pathways for mining projects. However, water quality (and quantity) were included as subcomponents in a Surface Water IC rather than a VC, as neither are the final receptor for potential effects: final receptors include Fish and Fish Habitat, Wildlife, Land and Resource and Human Health, as noted in the draft Application Information Requirements (dAIR) (see effect pathway figure in **Appendix B**).

The purpose of the water quality analysis is to identify changes to water quality indicators that are relevant to a receptor VC. Analysis of potential changes to water quality is based on standard guidelines that are determined based on the receptor and can be more logically assessed by the qualified professional within the context of the receptor discipline indicators. The water quality guidelines (WQG) proposed in the AIR are based on toxicological data from aquatic organisms and the end use or user of the water, the ultimate receptors. B.C.'s WQGs are generic limits that protect different water uses, including: drinking water, recreation, aquatic life, wildlife and agriculture (BC Ministry of Environment and Climate Change Strategy 2019), For water quality, a residual effects assessment as a VC without regard to the receptor does not provide a meaningful analysis. Further, assessment of the changes within both the water quality analysis and the receptor VC analysis is redundant. A residual effects assessment for water quality does not add substance to the environmental assessment, as residual changes (determined based on the guidelines) are carried forward for consideration by the receptor VC regardless of whether or not water quality is an IC or a VC. Only those identified residual changes are carried forward to the receptor assessments. TCL considers that the analyses proposed in the dAIR provide an efficient and effective assessment of the potential Project-related residual effects and is not proposing to change water quality to a VC from its role as a subcomponent in an IC.

3.0 CLOSURE

This Work was performed in accordance with Purchase Order PERM 0015 between Hemmera Envirochem Inc. (Hemmera), a wholly owned subsidiary of Ausenco Engineering Canada Inc. (Ausenco), and Telkwa Coal Limited (Client), dated March 31, 2019 (Contract).

This Report has been prepared by Hemmera, based on fieldwork conducted by Hemmera, for sole benefit and use by Telkwa Coal Limited. In performing this Work, Hemmera has relied in good faith on information provided by others, and has assumed that the information provided by those individuals is both complete and accurate. This Work was performed to current industry standard practice for similar environmental work, within the relevant jurisdiction and same locale. The findings presented herein should be considered within the context of the scope of work and project terms of reference; further, the findings are time sensitive and are considered valid only at the time the Report was produced. The conclusions and recommendations contained in this Report are based upon the applicable guidelines, regulations, and legislation existing at the time the Report was produced; any changes in the regulatory regime may alter the conclusions and/or recommendations.

Hemmera has appreciated the opportunity to assist you. If you have any questions regarding this memo please do not hesitate to contact us.

4.0 REFERENCES

BC Environmental Assessment Office. (2013). Guideline for the Selection of Valued Components and Assessment of Potential Effects. Retrieved on July 28, 2020 from https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/environmental-assessments/guidance-documents/eao-guidance-selection-of-valued-components.pdf?bcgovtm=Monthly_eNewsletters.

BC Environmental Assessment Office. (2020a). Introduction to Environmental Assessment under the Provincial *Environmental Assessment Act* (2018). Version 1.01. Retrieved on July 28, 2020 from https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/environmental-assessments/guidance-documents/2018-act/eao_user_guide_v101.pdf.

BC Environmental Assessment Office. (2020b). Effects Assessment Policy. Version 1.0. Retrieved on July 28, 2020 from https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/environmental-assessments/guidance-documents/2018-act/effects_assessment_policy_v1_-_april_2020.pdf.

BC Ministry of Environment and Climate Change Strategy. (2019). British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture. Retrieved on August 17, 2020 from https://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/waterquality/water-quality-guidelines/approved-wqgs/wqg_summary_aquaticlife_wildlife_agri.pdf.

APPENDIX A

BC EAO Definitions and Example Effect Pathway (EAO User Guide, BC EAO, 2020a)

Effect Pathway: Cause-effect linkage between a project and component of the biophysical or human environment.

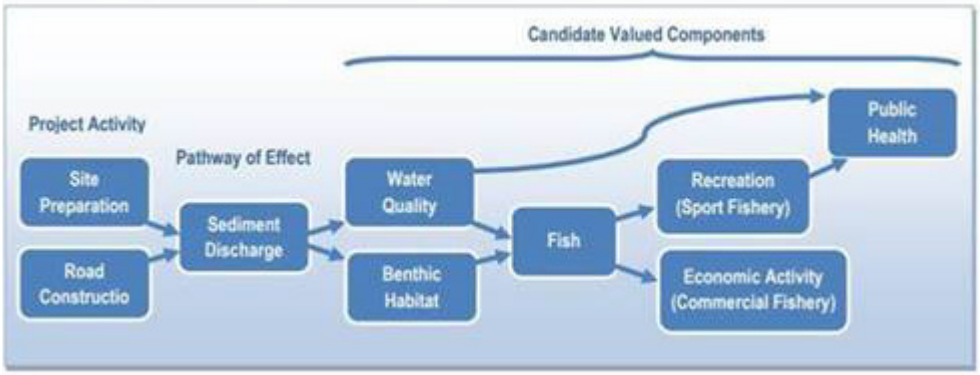
Indicators: Represent an aspect of the VC that is important to its integrity and can be used to understand and evaluate the potential effect of the project on the VC. Indicators are qualitative or quantitative metrics used to assess and report on the condition and trend of a VC and should be clearly identified in order to better understand the interactions between the project and the selected VC.

Residual Effect: A result that remains, or are predicted to remain, after applying mitigation measures to avoid, minimize, restore or offset a project's effects.

Subcomponents: Smaller distinct aspects of a VC that can be used to classify, assess, or characterize the effects assessment into meaningful parts.

Valued Components: Components of the biophysical and human environment that are considered by the public, Indigenous nations, the proponent, government agencies, or scientists and other technical specialists involved in the EA process to have scientific, ecological, economic, social, cultural, archaeological, historical or other importance. There may be aspects of environmental, economic, social, cultural, health or Indigenous values that are valued and may be assessed along an effect pathway but are not captured as an individual VC.

Example of Valued Component Effect Pathway:



Source: BC EAO 2020a

APPENDIX B

TCL Effect Pathway for Atmospherics IC and Water IC