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December 9, 2020

CIAR File No.: 81148

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Re: Federal Authority Advice Record for the Value Chain Solutions – Heartland Complex Expansion Project

On November 19th, the Impact Assessment Agency of Canada (the Agency) requested that Natural Resources Canada (NRCan) review Value Chain Solutions Inc.'s initial project description for the proposed Heartland Complex Expansion Project (the Project) located northeast of Fort Saskatchewan, Alberta. The Agency also requested that NRCan provide input to support the preparation of the Summary of Issues.

Pursuant to subsection 13(1) of the *Impact Assessment Act*, NRCan is providing its responsibilities and expertise related to the Project, along with a summary of issues within the Department's mandate that should be addressed during the impact assessment of the Project. Details of NRCan's response can be found in the appendix below.

If you have any questions, please contact me via e-mail at walker.smith@canada.ca or by phone at <personal information removed>.

Thank you,

<Original signed by>

Walker Smith
Environmental Assessment Officer
Office of the Chief Scientist

cc: John Clarke – Director, Environmental Assessment

Canada 

Appendix 1 – Natural Resources Canada response to the Federal Authority Advice Record for the Heartland Complex Expansion Project

Contact information:

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|--------------------------------|--|
| Department/Agency | Natural Resources Canada |
| Lead IA Contact | Walker Smith, Environmental Assessment Officer |
| Full Address | 588 Booth Street, Ottawa, Ontario, K1A 0E4 |
| Email | walker.smith@canada.ca |
| Telephone | <personal information removed> |
| Alternate Departmental Contact | ea-ee.nrcan-rncan@canada.ca |

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1. Is it probable that your department or agency may be required to exercise a power or perform a duty or function related to the Project to enable it to proceed? If yes, specify the Act of Parliament and that power, duty or function.

Based on the information provided in the Initial Project Description for the proposed Project, it is unlikely that NRCan will be required to exercise a power or perform a duty or function related to the Project to enable it to proceed.

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2. Is your department or agency in possession of specialist or expert information or knowledge that may be relevant to the conduct of an impact assessment of the Project? Specify as appropriate.

Based on the Department's diverse research programs, NRCan is in possession of specialist or expert information or knowledge related to bitumen upgrading/refining, water (surface water, groundwater and wastewater) characterization and remediation, and potential environmental impacts from bitumen upgrading/refining to soils and ecosystems. NRCan can also provide expertise on oil markets, competitiveness, and environment, social and governance (ESG) analysis.

NRCan may further refine its expertise as more information becomes available in the subsequent stages of the *Impact Assessment Act* review process.

3. Has your department or agency considered the Project; exercised a power or performed a duty or function under any Act of Parliament in relation to the Project; or taken any course of action that would allow the Project to proceed in whole or in part? Specify as appropriate.

To date, NRCan has not considered the Project, exercised a power or performed a duty or function under any Act of Parliament in relation to the Project, or taken any course of action that would allow the Project to proceed in whole or in part.

4. Has your department or agency had previous contact or involvement with the proponent or other party in relation to the Project (for example, enquiry about methodology, guidance, or data; introduction to the project)? Provide an overview of the information or advice exchanged.

NRCan did not participate in the Environmental Impact Assessment for the previously approved Heartland Upgrading Project that underwent provincial review in 2004.

In October 2020, NRCan participated in discussions with the Proponent related to the proposed VCS-Heartland Expansion Project. The Proponent was seeking federal support, and a meeting was held with NRCan that involved the PRB (Petroleum Resources Branch), the OERD (Office of Energy Research and Development), the Assistant Deputy Minister of SPPIO (Strategic Petroleum Policy and Investment Office), and Dr. Jinwen Chen (Director – Downstream and Renewables) from CanmetENERGY-Devon.

The PRB (Petroleum Resources Branch) in SPPIO, and the Clean Fuels Branch in the LCES (Low Carbon Energy Sector) also participated in other meetings with the proponent who sought to have their partial upgrading technology recognized and able to earn credits under the Clean Fuel Standard.

5. Does your department or agency have additional information or knowledge not specified, above? Specify as appropriate.

No. However, the expertise identified in this submission may be revised as further information related to the Project becomes available in subsequent stages of the assessment process.

6. From the perspective of the mandate and area(s) of expertise of your department or agency, what are the issues that should be addressed in the impact assessment of the Project, should the Agency determine that an impact assessment is required? For each issue discussed, provide a concise, plain-language summary that is appropriate for inclusion in the Summary of Issues.

NRCan's mandate seeks to enhance the responsible development and use of Canada's natural resources and the competitiveness of Canada's natural resources products. From the perspective of the mandate and areas of expertise of the department, the following issues should be addressed in the impact assessment of the Project.

Potential impacts on surface water and groundwater systems including:

- The effect of landscape alterations related to surface construction activities (*i.e.* surface water diversions, material stockpiles) on groundwater quality and quantity (recharge and discharge quantities);
- The effect of the groundwater management system on groundwater quantity including groundwater levels, and groundwater-surface water interactions;
- The effect on surface waters and groundwater of drilling and completing a deep groundwater disposal well for wastewater injection;
- Define which formation will be used for wastewater injection;
- The effect of operations on groundwater quality including groundwater composition and groundwater-surface water interactions;
- The effect of new facilities on groundwater levels, groundwater-surface water interactions and other water quality-related implications;
- The impacts of wastewater streams from operations for all possible project conditions (*i.e.* normal, start-up, worst-case and upset conditions).

In respect to the above issues, the Proponent should provide information related to the following:

- Confirm the guidelines to be used: "Accidental spills of fuels, hydrocarbons, chemicals, and waste products used for the Project could negatively affect water quality and sediment quality. The storage and handling of deleterious substances (*e.g.*, fuels, chemicals, contaminating materials, *etc.*) or hazardous materials would be dictated by applicable environmental legislation, regulations, standards, or codes."
- Summarize how the following will be achieved: "Project activities present a potential risk of contaminating groundwater, which in turn has the potential to result in adverse effects on surface water quality and sediment quality. There are two potential pathways of concern with respect to groundwater contamination that will be investigated and assessed: overland flow and accidental release of deleterious substances."
- Summarize how surface waters and near-surface potable groundwater aquifers will be protected from wastewater injection and from well integrity issues throughout the life cycle of the project.

Potential impacts to the atmosphere and climate:

- Estimate GHG emissions and emission intensity for the project, including estimates for various lifecycle pathways for the product with a comparison to other upgrading Projects;
- Assess best available technologies and identify potential technologies under development that could potentially reduce GHG emissions for the project;
- Assess how the project fits under Alberta's 100 MT cap, Canada's goal to exceed 2030 GHG emission reduction targets, and ability to achieve net zero by 2050.

Potential economic impacts of the Project:

- Market analysis of crude oil and refined products including energy commodity prices, economic and financial indicators, energy security, investment trends and competitiveness issues (related to both upstream and downstream segments including market access, regulations, taxes and royalties)

NRCan notes that the Proponent is proposing to expand the previously approved upgrading/refining operation in a region with significant industrial development. Considering this, the impact assessment should also consider the Project's contribution to cumulative effects in the context of the aforementioned issues and valued components under NRCan's mandate.

Walker Smith

Name of Departmental / Agency
Responder

Environmental Assessment Officer

Title of Responder

December 9, 2020

Date