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Prairie & Northern Region
Environmental Protection Operations (EPO) Directorate
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Your File No.: S12X-006

Angela Love
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Sahtu Land and Water Board
P.O. Box 1
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Via Email at Angela.love@slwb.com

Attention: Ms. Love

RE: S12X-006 – Husky Oil Operations Limited – Revised Groundwater and Surface Water Monitoring Program – Slater River H-64 and Little Bear N-09

Environment Canada (EC) has reviewed the Husky Oil Operations Limited (Husky) revised Groundwater and Surface Water Monitoring Program for Slater River and Little Bear, Exploration Licences 462 and 643 (Program). The Program is required under Land Use Permit S12X-006 (Slater River Groundwater Baseline Drilling Program).

EC is pleased to see that the majority of comments on the previous draft of the Program (provided to the Sahtu Land and Water Board February 1, 2013) have been considered and incorporated into the revised Program.

EC understands that two bedrock wells were drilled during the 2013 project activities and that bedrock aquifers were only encountered at one of the wells (MW-09). Potential surficial groundwater was found at MW-01A and MW-19B. All other surficial boreholes encountered permafrost and/or bedrock and were abandoned or completed as thermistor sites to monitor the temperature of the shallow permafrost zone. Does Husky plan on drilling additional wells in the future so that there is more than one bedrock aquifer well and two surficial wells, as anticipated in the Land Use Permit S12X-006 application and previous draft of the program?

EC recommends the Program document map be updated to reflect drilled well locations identified in Table 1 with descriptions (e.g., deep aquifer well including depth to aquifer, shallow well including depth to groundwater, shallow/bedrock thermistor, thermistor only, abandoned dry well, season drilled etc.) as well as remaining potential (future?) groundwater wells.

Although conducting elevation surveys of the groundwater wells, as part of the groundwater elevation measurements, was not discussed in the revised Program, it is EC's understanding that the information has been collected from the groundwater wells that have already been installed. EC recommends this information be included in the Program document.

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In the revised Program, Husky indicates groundwater samples were collected prior to and after the completion and stimulation of the N-09 and H-64 well sites. They also state, groundwater sampling will consist of one event and will be conducted with the second surface water sampling event (early fall). Groundwater associated with the shallow (surficial) monitoring program will be samples from MW-01A, MW-19B and from the bedrock well MW-09A. As mentioned in our February 1, 2013 letter to the Sahtu Land and Water Board, EC recommends a second sampling event be completed annually in order to provide reliability in the baseline data (i.e. reproducibility in the data) and demonstrate the extent of seasonal variability in groundwater quality and water levels. Conducting two sampling events per year, at least until sufficient baseline data has been established, would also prevent a potential 2 year (or more) data gap if for some reason wells couldn't be sampled during a sampling event.

In its February 1, 2013 letter to the Sahtu Land and Water Board EC also recommended that the Groundwater and Surface Water Monitoring Program and annual reporting also include a summary of long-term water monitoring goals and a characterization of the groundwater and surface water resource. This would include, but not be limited to, detailed well information, a groundwater and surface water quality data and interpretation, groundwater surface elevation and flow direction, changes over time (including due to seasonal effects) and any other interpreted results and conclusions and statistical data analysis. Maps and diagrams should be used where appropriate to communicate information (including the information requested above, well completion diagrams, borehole stratigraphy, cross-sections – stratigraphic and hydrogeological and flow maps). EC understands these items will be captured in Husky's upcoming annual reporting.

EC understands the Sahtu Land and Water Board is working with oil and gas companies in the region, such as Husky and ConocoPhillips, to ensure consistency between the surface water and groundwater monitoring programs, so that information can be viewed not only on a project by project basis but also regionally. EC supports those efforts.

Thank you for the opportunity to review Husky's revised Groundwater and Surface Water Monitoring Program. Please do not hesitate to contact me at (867) 669-4744 or loretta.ransom@ec.gc.ca with any questions concerning the above points.

Sincerely,



Loretta Ransom
Senior Environmental Assessment Coordinator, EPO

cc: Ken Hansen (Project Manager, Husky Oil Operations Limited)
Carey Ogilvie (Head, Environmental Assessment North, EPO)
Martin Guilbeault (Senior Scientist - Hydrogeology, EC)