Application to Amend Management Plans and Part 1 Conditions of Approval 1BP-CST2328

Per the attached technical memorandum from Tetratech (2025-8842-00), groundwater aquifers do not exist in a permafrost environment such as Cambridge Bay. Instead, an "active layer" of thawed permafrost can exist when conditions permit. These conditions are usually found in the height of summer (late July to late August) and are in areas where direct sunlight and air temperature warms the ground sufficiently to thaw the subsurface permafrost to a degree that it flows. This can cause the ground surface to shift along the flow direction (thaw subsidence or thermokarst) which can destroy stationary groundwater wells. The limited time frame that this would occur, and the potential for thermokarst makes a traditional groundwater monitoring program impossible and irrelevant for the location of the Kitikmeot Environmental Ltd. (KEL) soil and water treatment facility in Cambridge Bay. KEL however, is committed to monitoring the environmental conditions of our facility in Cambridge Bay to ensure environmental protection. KEL presents this proposal as an alternative to the approved groundwater sampling program presented in section 3.8 of the Operations and Maintenance Plan (OMP) associated with water use licence (WUL) 1BR-CST2328 issued on April 5, 2023.

KEL changes to the water monitoring program in Cambridge Bay is as follows:

1. Replace traditional stationary monitoring wells (Piezometers) with drive points (stainless steel temporary sample points) installed at the time of sampling and removed immediately after. One drive point will be driven upgradient and two will be driven downgradient of the topographical slope from the facility. This is in keeping with the sample areas which are currently in use but negate the need to install permanent wells. Since piezometer CST-4 has been destroyed twice, the ability to install drive points will reduce the time and cost associated with drilling and installing new permanent wells and allow for greater potential to obtain samples during each sampling event.

2. Replace the groundwater criteria listed in Table A3 and A4 of the OMP with receptor driven site-specific criteria tables. KEL proposes using the revised tables A3 and A4 in the OMP as an alternative based on the end receptor being a marine environment. Rationale for using marine environment as the end receptor is the pond approximately 215 m downgradient of the KEL Facility which drains into Cambridge Bay.

3. If no active layer can be identified or insufficient water exists in the active layer to sample at the time of sampling. KEL will survey the area downgradient of the facility and sample any water seeps coming from the slope. KEL will also sample the downgradient pond and outlet to Cambridge Bay.

4. KEL will conduct testing of the upgradient and downgradient piezometer locations as well as the down-gradient pond and Cambridge Bay at the outlet of the pond discharge to establish background conditions for the parameters listed in tables A3 and A4. Based on KELs sampling over a three-year period KEL will establish site specific criteria and action levels that would trigger an environmental response from KEL.

Details of the active layer sampling plan are provided in the revised OMP provided.

KEL has also made several changes to all management plans to reflect the comments issued by Environment and Climate Change Canada (ECCC) memo March 3, 2023 file number 6300 000 034/03. As well KEL has amended the management plans to more accurately reflect the current conditions of the facility. The summary of changes for each management plan are located in the revision history table in each management plan.

Michel Gamache

Sincerely,

Michel Gamache P.Ag.

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