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February 18, 2020

MV2014F0013
MV2014L8-0006
MV2019L8-0002

Mr. David Harpley
Canadian Zinc Corporation
SUITE 1710-650 West Georgia Street
Vancouver BC V6B 4N9

Sent via Email

Dear Mr. Harpley:

**Permafrost Management and Monitoring Plan – Version 2 – Resubmission required
Canadian Zinc Corporation – Prairie Creek All Season Road Project**

The Mackenzie Valley Land and Water Board (MVLWB or the Board) met on February 13, 2020 to review your Permafrost Management Plan, Version 2, which was submitted under Condition 49 of Land Use Permit (Permit) MV2014F0013, Part F, condition 9 of Water Licence (Licence) MV2014L8-0006, and Part E, condition 9 of Licence MV2019L8-0002.

The Board requires that Canadian Zinc Corporation resubmit the Permafrost Management Plan, Version 2 in accordance with comments made during this review, as summarized in Table 1 (attached). Please include a conformity table in the Plan. This Plan should be resubmitted a minimum of 60 days prior to the commencement of Phase 1, and will be considered approved upon receipt of this information and written confirmation of conformity from Board staff.

The Board notes that, in response to a review comment, Canadian Zinc Corporation indicated that one month of baseline data to establish baseline ground temperatures may be used. The Permafrost Management and Monitoring Plan indicates that three months of data is necessary to establish baseline ground temperatures. The Board would like to remind Canadian Zinc Corporation to update and re-submit the Plan, in accordance with condition 129 of MV2014F0013 and Part B, condition 9 and 10 of MV2014L8-0006 and MV2019L8-0002, with justification for using baseline ground temperature results from the first month of monitoring only, if appropriate.

The Board notes Canadian Zinc Incorporated's News Release dated February 4, 2020 regarding the change in Project schedule and has directed Canadian Zinc Incorporated to submit the revised Permafrost Management and Monitoring Plan **60 days prior to commencement of Phase 1**. However, if an approved Permafrost Management and Monitoring Plan is required for any activities conducted in the Summer of 2020, the Board directs Canadian Zinc Incorporated to submit the Plan by **March 16, 2020**. Please contact Board staff to confirm the submission date of the Permafrost Management and Monitoring Plan.

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If you have any questions or concerns, please contact Kimberley Murray at (867) 766 7458 or email kmurray@mvlwb.com.

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'Mavis Cli-Michaud', written in a cursive style.

Mavis Cli-Michaud
MVLWB, Chair

Copied to: Distribution List

Attached: Table 1: Board Directives on Permafrost Management and Monitoring Plan, Version 2

Table 1: Canadian Zinc Corporation – Prairie Creek All Season Road Project – Board Directives from review of the Permafrost Management and Monitoring Plan, Version 2

Item	Outstanding items requiring updating	Review comment reference
1.	Update to incorporate available TK from AKDFN , should they choose to provide any, and reflect the commitment that CZN will include AKDFN’s TK study to updated Permafrost Management and Monitoring Plans when relevant. CZN to continue engaging with ADKFN regarding incorporating TK and involvement with monitoring.	ADKFN-1
2.	Update Figure B to the 1995 version of the Permafrost Map of Canada and include the following in the figure caption: 1) the permafrost categories and corresponding colours and 2) a link to where the document can be accessed online. Ensure that the legend is legible.	ENR-3; Parks-6
3.	Present additional details as to how the estimate of permafrost sections along the ASR route decreased from 73 km to as low as 25 km.	ENR-5
4.	Update Section 6.2 to include a reference to the appropriate section of Appendix C that provides additional detail on the criteria used to refine the number of instrumentation locations, and clarifies how the number and locations changed from that which was previously proposed.	ENR-7
5.	Update the low action level response in Section 7.1.1 to indicate that performance monitoring of the affected area will be increased to twice weekly.	ENR-9; PC-7
6.	Update to include the criteria for selection of the fully instrumented road sections, as described in response to ENR-10.	ENR-10
7.	Update Section 5.1 to reference Allnorth and Tetra Tech’s previous reconnaissance work completed in 2014 and 2018, as opposed to 2018 and 2019.	MVLWB-2
8.	Update Section 5.3 to include a reference to the section of the Spill Contingency Plan that CZN is referring to when discussing guidance on responses and actions that could be followed from drainage blockages.	MVLWB-3
9.	Update Section 5.4 with the correct name of the Traffic Control Mitigation and Road Operations and Maintenance Plan.	MVLWB-4
10.	Update to include reference to snow management in the Traffic Control Mitigation and Road Operations and Maintenance Plan and the adaptive management response of using snow fences and/or regrading.	MVLWB-2; PC-2
11.	Update the statement in Section 6.1 about annual reporting to read: “Completed inspection reports and findings will be interpreted and reported in CZN’s Annual Permit and Water Licence Report to be submitted to the MVLWB and PC following PWR deactivation”.	MVLWB-6
12.	Consider updating Section 6.3 to include the information about the frequency of monitoring and quality control checks for the settlement survey monuments and standpipe piezometer that will take place for the All Season Road, as included in the response to the review comment.	MVLWB-10
13.	Update Appendix A and B with links to the Access Road Map Book and 2018 Geotechnical Investigation Report that work.	MVLWB-11

14.	Update Section 5.1 to include details about the personnel who will complete the pre-construction scouting, and a list of characteristics that will be used to identify permafrost conditions.	PC-1
15.	Update to include the inspection form that can be used by the Construction Manager to document the performance monitoring for permafrost and the associated adaptive management response action.	PC-3