



Environment and
Climate Change Canada

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May 26, 2017

ECCC File: 5100 000 014/012
MVEIRB File: EA14154-01

Chuck Hubert, AEA Manager
Mackenzie Valley Environmental Impact Review Board
200 Scotia Centre
Box 938, 5102-50th Ave
Yellowknife, NT X1A 2N7

via email: chubert@reviewboard.ca

Dear Mr. Hubert:

**RE: EA14154-01 – Canadian Zinc Corporation – Prairie Creek All Season Road –
Environment and Climate Change Canada Closing Comments**

Environment and Climate Change Canada (ECCC) is pleased to provide its closing comments to the Mackenzie Valley Environmental Impact Review Board (MVEIRB) for the Canadian Zinc Corporation (the Proponent) All Season Road EA14154-01.

To date, ECCC has participated in all phases of the Environmental Assessment (EA) of the proposed Prairie Creek All Season Road in order to provide specialist advice, information and knowledge to the MVEIRB. ECCC will not be issuing permits or authorizations associated with the proposed Project.

In the ECCC Technical Report of April 10, 2017 (Public Registry 448), ECCC provided recommendations on the following issues:

1. Borrow Sources Potential for Acid Rock Drainage and Metal Leaching
2. Sediment and Erosion Control Plan
3. Water Quality Monitoring
4. Contaminant Loading Management Plan
5. Impact Assessment for Migratory Birds and Avian Species at Risk
6. Trumpeter Swans
7. Migratory Bird Mitigation and Monitoring
8. Species at Risk
9. Quarry Operations and Avian Species at Risk
10. Boreal Caribou

At the public hearing, ECCC addressed the issues identified above during the ECCC Technical Presentations (Public Registry 499 and 500) taking into consideration the April 17, 2017 Canadian Zinc Corporation response to the ECCC Technical Report (Public Registry 484). During the question period following ECCC's Technical Presentations the legal counsel for the MVEIRB asked ECCC to address whether or not the Proponent has committed to the recommendations made in ECCC's Technical Report in ECCC's closing comments (Page 209, Public Hearing Transcript April 27, 2017, Public Registry 525). The MVEIRB legal counsel also asked ECCC to identify in the closing comments the department's position on whether or not there are significant residual effects or impacts from this Project (Page 210, Public Hearing Transcript April 27, 2017, Public Registry 525).

ECCC has provided a summary of the recommendations provided in the ECCC Technical Report and has identified which recommendations the Proponent has committed and not committed to below. ECCC provides scientific expertise evidence, and recommendations throughout the EA process in order to assist the MVEIRB in determining whether there are any significant residual effects or impacts from the project.

Issue 1 - Borrow Sources Potential for Acid Rock Drainage and Metal Leaching

ECCC's Recommendations:

1. All representative units should be sampled at all potential borrow source locations in order to identify any acid rock drainage and/or metal leaching potential that would impact water quality.
2. Testing should be completed using acid-base accounting and metal leaching test methods to characterize representative units.
3. Acid-base and leaching testing should be overseen by a qualified professional geochemist for acid rock drainage and/or metal leaching management.
4. Units classified or identified as marginal borrow material, for sources for construction, should be avoided.

The Proponent has committed to addressing ECCC Recommendations 1-3 as noted in (Canadian Zinc Corporation Response to Technical Reports, Page 4, Public Registry 484).

The Proponent has not explicitly committed to addressing ECCC Recommendation 4. While the Proponent has committed to engaging a professional to study the acid rock drainage and metal leaching potential of borrow material, they have not committed to avoiding the use of units classified as marginal for construction. Marginal borrow material sources should be avoided as once exposed it becomes difficult to mitigate or ensure that source rock with acid rock drainage and/or metal leaching potential will not create adverse water quality issues.

ECCC is of the view that if Recommendation 4 is fully implemented in addition to the commitments made for Recommendations 1-3 there are no further outstanding concerns with regard to Borrow Sources Potential for Acid Rock Drainage and Metal Leaching.

Issue 2 - Sediment and Erosion Control Plan

ECCC's Recommendations:

1. The Sediment and Erosion Control Plan should be reviewed and finalized before commencing construction.
2. Erosion and sediment control measures should be put in place when constructing around fish-bearing waters.
3. Appropriate setback distances from fish-bearing waters should be determined and implemented based on site conditions for the storage of potential Total Suspended Sediment (TSS) generating materials.
4. Monitoring should be completed during construction periods, prior to spring freshet, and when rainfall events are forecast to ensure sediment and erosion control mitigation measures are effective.

The Proponent has committed to addressing ECCC Recommendations 1-3 as noted in (Canadian Zinc Corporation Response to Technical Reports, Page 4, and Public Registry 484).

The Proponent has not committed to addressing ECCC Recommendation 4. ECCC notes further opportunity to address this recommendation exists during the regulatory phase, should the Project be approved to proceed. Therefore, ECCC has no further outstanding concerns with regard to the Sediment and Erosion Control Plan.

Issue 3 - Water Quality Monitoring

ECCC's Recommendations:

1. Comprehensive Project monitoring of TSS and turbidity should be completed and mitigation should be adjusted if needed.
2. Baseline turbidity and TSS monitoring to support development of linear regression with TSS should be completed.
3. Engagement with ECCC, to develop monitoring program details up to and throughout the permitting phase, should continue.

The Proponent has committed to addressing all of ECCC's Recommendations as noted in (Canadian Zinc Corporation Response to Technical Reports, Page 5, Public Registry 484). ECCC notes that baseline analysis of turbidity and TSS should be completed prior to and also during construction so that the site specific relationship between turbidity and TSS can be validated.

ECCC notes that should the Project be approved to proceed, further opportunity exists during the regulatory phase to finalize the methodology for the recommended baseline data collection and monitoring programs. Therefore, ECCC has no further outstanding concerns with regard to Water Quality Monitoring.

Issue 4 - Contaminant Loading Management Plan

ECCC's Recommendations:

1. Mitigation approaches to prevent potential contaminant loading should be identified and implemented at the Prairie Creek mine and along the access road.
2. Description of the monitoring program, including both baseline monitoring, monitoring during mining operations and along the access road, should be provided.
3. Description of trigger or action levels above which adaptive management and contingency plans need to be implemented should be provided.
4. Description of adaptive management and contingency plans to be employed if trigger or action levels are exceeded should be provided.
5. Monitoring of annual soil, snow, dustfall, and ambient dust sampling should be included in the Contaminant Loading Management Plan.

The Proponent has committed to addressing ECCC Recommendations 1 and 5 as noted in (Canadian Zinc Corporation Response to Technical Reports, Page 6, Public Registry484).

The Proponent has not explicitly committed to Recommendations 2-4. ECCC notes the importance of monitoring for contaminants along the full length of the road, including adequate baseline information, trigger and action levels and adaptive management and contingency plans if trigger or action levels are exceeded. ECCC notes further opportunity to address these recommendations exists during the regulatory phase, should the Project be approved to proceed. Therefore, ECCC has no further outstanding concerns with regard to the Contaminants Loading Management Plan.

Issue 5 - Impact Assessment for Migratory Birds and Avian Species at Risk

ECCC's Recommendations:

1. A robust monitoring program, including pre-construction information, should be implemented for migratory birds and avian species at risk along the proposed road alignment. This recommendation is consistent with the recommended monitoring described in the Parks Canada Agency letter dated September 30, 2016 (Public Registry 308).
2. Information should be collected to obtain a minimum of one year of baseline conditions. Survey protocols should optimize detectability and sufficient survey effort should be provided to obtain comprehensive coverage of habitat types.

3. Results of monitoring programs should be summarized in annual wildlife monitoring reports.

The Proponent has committed to addressing ECCC Recommendations 1-3 through the implementation of a field program using Autonomous Recording Units (ARUs) in cooperation with ECCC and Parks Canada. Representatives from ECCC, Parks Canada and Tetra Tech Canada Inc. (on behalf of the Proponent) met on April 12, 2017 to discuss the migratory bird and species at risk baseline requirements and monitoring with the goal of identifying study objectives, constraints, protocols, and habitat types along the alignment to assist with study design (Public Registry 518). The Proponent has also committed to completing this field program during the spring/summer field season of 2017 (Public Registry 530). ECCC has committed to lending half of the required ARUs needed for the study in 2017, up to a maximum of 50, in addition to providing training for the Proponent's staff. ECCC remains committed to engaging with the Proponent to provide information related to sampling design and the analysis of results (Page 136, Public Hearing Transcript April 28, 2017, Public Registry 528). ECCC notes that ARUs favour the involvement of community participants (i.e., a community-based monitoring program).

ECCC acknowledges the Proponent's efforts to begin collecting the required baseline data on migratory birds and avian species at risk, however since this baseline data was not available during the technical review period or at the final hearing, ECCC was unable to fully assess the impact of the project on migratory birds and avian species at risk.

However, since the Proponent has committed to the collection of baseline data so that the impact predictions made in the Environmental Assessment can be validated and committed to implementing the mitigation measures outlined in the following sections, ECCC has no further outstanding concerns related to migratory birds and avian species at risk.

Issue 6 - Trumpeter Swans

ECCC's Recommendations:

1. Frequent, long-term, and large disturbances, multiple sources of disturbances, and noise emissions greater than 50 dB (or greater than 10 dB above ambient) should be avoided within 800 m of observed Trumpeter Swans.
2. Mitigation and monitoring efforts should be focused in sections where the Project overlaps the Southeastern Mackenzie Mountain Key Migratory Habitat Site (NT Site 17).

The Proponent has committed to addressing ECCC Recommendation 2 as noted in (Canadian Zinc Corporation Response to Technical Reports, Page 9, Addendum 1 Public Registry 484).

In regards to Recommendation 1, the Proponent has committed to a minimum setback distance of 800 m of observed Trumpeter Swans for blasting, water pumping and crushing activities during the general nesting period (Page 10 and 12, Updated Draft Wildlife Mitigation and Monitoring Plan - August 31, 2016, Public Registry 297; Page 9, Addendum 1 - Canadian Zinc Corporation Response to Technical Reports, Public Registry 484).

ECCC notes that the intensity and duration of activities within 800 m of observed Trumpeter Swans should be carefully assessed before commencing activities. The Proponent has committed to conducting any additional construction-related activities that may be required within 800 m of observed Trumpeter Swans during the nesting period with the assistance of a Canadian Zinc Corporation Environmental Monitor (Page 9, Addendum 1 - Canadian Zinc Corporation Response to Technical Reports, Public Registry 484). The Proponent is encouraged to consult ECCC (ec.eenordrpnno-eanorthpnmwt.ec@canada.ca) for advice and/or additional mitigation measures for any additional construction-related activities that may be required within 800 m of observed Trumpeter Swans. ECCC has no further outstanding concerns with regard to Trumpeter Swans.

Issue 7 - Migratory Bird Mitigation and Monitoring

ECCC's Recommendations:

1. All phases of the Project should be carried out in a manner that protects migratory birds and avoids harming, killing or disturbing migratory birds or destroying, disturbing or taking their nests or eggs. In this regard, the Proponent should take into account ECCC's guidelines (<http://www.ec.gc.ca/paom-itmb/>).
2. A scientifically sound approach to determine the likelihood of nesting birds should be used in the event that clearing or disturbance cannot be scheduled outside of the nesting season. If necessary, the use of non-intrusive search methods (e.g., point counts) could be undertaken to conduct an area search, for evidence of nesting, prior to the commencement of clearing.
3. Migratory bird surveys should be carried out by an avian specialist with experience with migratory birds and migratory bird behaviour indicative of nesting (e.g., singing birds, alarm calls, distraction displays, carrying nesting material or food).
4. Results from all pre-clearing surveys should be reported in the annual wildlife monitoring report.
5. Options such as avoiding, adapting, rescheduling or relocating activities, should be considered and implemented if there are indications of migratory bird nests where disturbance activities that have the potential to disturb or destroy nests are proposed.
6. All disruptive activities in the nesting area should be halted if migratory bird nests containing eggs or young are discovered. An appropriate buffer zone (i.e., setback distance) should be determined and observed until the young have

naturally and permanently left the vicinity of the nest. Buffer zones should be appropriate for the species and take into consideration the intensity of the disturbance and the surrounding habitat. Buffer zones should also be adjusted after assessing their effectiveness.

7. A buffer zone for forest songbirds should be included in Appendix C of the WMMP.
8. If required, ECCC (ec.eenordrprntno-eanorthpnrnw.ec@canada.ca) should be contacted for advice and/or additional mitigation measures.
9. All of the above recommendations should be incorporated into the next revision of the WMMP.

The Proponent has committed to all of the above recommendations and has committed to updating their Wildlife Mitigation and Monitoring Plan to incorporate the recommended changes (Page 10, Addendum 1 - Canadian Zinc Corporation Response to Technical Reports, Public Registry 484). ECCC has no further concerns related to the Migratory Bird Mitigation and Monitoring proposed for the project.

Issue 8 - Species at Risk

ECCC's Recommendations:

1. Section 2.3.2 of the Updated Draft WMMP should be revised to reflect that the general prohibitions for migratory birds and aquatic species listed on Schedule 1 apply wherever these species are found.
2. Table 1 of the Updated Draft WMMP should be revised to reflect current status of species listed on Schedule 1 of SARA or assessed by COSEWIC. Table 1 should be revised and included as part of the annual monitoring reports to aid the Proponent in remaining aware of status changes while minimizing the number of revisions to the WMMP. The Proponent should consult the Species at Risk Registry on a regular basis (<https://www.registrelepsararegistry.gc.ca/default.asp?lang=En&n=24F7211B-1>) to maintain the most current information for their operations including new COSEWIC assessments and/or species added to Schedule 1 of SARA.
3. If species at risk are encountered or affected by the Project, the primary mitigation measure should be avoidance. The Proponent should avoid contact with or disturbance to each species, its habitat, and/or its residence.

The Proponent has committed to all of the recommendations and has committed to updating their Wildlife Mitigation and Monitoring Plan to incorporate the recommended changes (Page 11, Addendum 1 - Canadian Zinc Corporation Response to Technical Reports, Public Registry 484). ECCC has no further concerns related to impacts on Species at Risk as a result of project activities.

Issue 9 - Quarry Operations and Avian Species at Risk

ECCC's Recommendations:

1. ECCC (ec.eenordrpntno-eanorthpnmwt.ec@canada.ca) should be consulted regarding migratory bird mitigation measures and advice for Project areas outside the Nahanni National Park Reserve.
2. The absence of nesting avian species at risk (and other migratory birds) should be confirmed in borrow and gravel pits prior to commencing disruptive activities during the general nesting period. If work commences, monitoring for the absence of nests at borrow and gravel pits should continue throughout activities.
3. Staff and contractors should be made aware of the conservation status of all species at risk that could be encountered at the Project. Staff and contractors should also be made aware of the potential of species at risk to use anthropogenic habitats and structures for nesting, the reporting protocol and all appropriate mitigation measures.

The Proponent has committed addressing ECCC Recommendation 1 and 3 as noted in (Addendum 1 - Canadian Zinc Corporation Response to Technical Reports, Public Registry, Page 11, 484).

In regards to Recommendation 2, the Proponent has committed to confirming the absence of nesting species prior to commencing disruptive activities during the general nesting period; however, they have not committed to monitoring for the absence of nests at borrow and gravel pits throughout activities (Page 11, Addendum 1 - Canadian Zinc Corporation Response to Technical Reports, Public Registry 484). ECCC notes the absence of nesting at borrow and gravel pits should also be confirmed following any breaks in disruptive activities and not just prior to initially commencing activities. This monitoring is important to detect nesting and mitigate impacts as birds can initiate nests within days at inactive or quiet sites during the nesting season. ECCC has no further concerns with regard to effects of Quarry Operations on Avian Species at Risk.

Issue 10 - Boreal Caribou

ECCC's Recommendation:

1. The Proponent should review disturbance estimates for the Project, and may wish to consult the GNWT on these and the adequacy of proposed mitigation and monitoring measures to minimize Project effects on Boreal Caribou.

The Proponent has committed to consulting with the Government of the Northwest Territories (GNWT) regarding the adequacy of the proposed mitigation and monitoring measures for Boreal Caribou.

ECCC notes differences between the disturbance estimates for the Project produced by the Proponent and the Government of the Northwest Territories. ECCC's estimates of

the new buffered disturbance within NT1 resulting from the Project are consistent with those presented by GNWT in the second round of information requests (Public Registry 320 and 329).

The Proponent's disturbance estimate is based on the baseline condition being a permitted winter road alignment, previously assessed by MVEIRB in EA0809-002, and the Proponent only assessed the deviations between the winter road supporting the construction of the proposed all season access road and the proposed all season access road alignment.

ECCC acknowledges the small contribution of the Project to the overall disturbance levels within NT1, even after acceptance of the winter road disturbance within the estimate. However, it is important when evaluating cumulative effects that the most accurate disturbance estimates are used, which ECCC believes to be those presented by the GNWT. ECCC defers to the advice and conclusions provided by the GNWT on this matter.

ECCC's specialist advice is provided based on our mandate pursuant to the *Canadian Environmental Protection Act*, the pollution prevention provisions of the *Fisheries Act*, the *Migratory Birds Convention Act*, and the *Species at Risk Act*. Should you require further information, please contact Bradley Summerfield at (867)669-4707 or Bradley.Summerfield@canada.ca.

Sincerely,



Susanne Forbrich
Regional Director

cc: Bradley Summerfield, Senior Environmental Assessment Coordinator
Georgina Williston, Head, Environmental Assessment North (NT and NU),
EPOD-PNR