



Environment and
Climate Change Canada

Environnement et
Changement climatique Canada

Environmental Protection Operations Directorate (EPOD)
Prairie & Northern Region (PNR)
5019 52nd Street, 4th Floor
P.O. Box 2310
Yellowknife, NT X1A 2P7

ECCC File: 5100 000 014/012
MVEIRB File: EA1415-01

March 10, 2017

via email to: chubert@reviewboard.ca

Chuck Hubert
A/Manager Environmental Impact Assessment
Mackenzie Valley Environmental Impact Review Board
5102 50th Ave
Yellowknife, NT X1A 2N7

Dear Mr. Hubert:

RE: EA14154-01 – Canadian Zinc Corp. – Prairie Creek All Season Road – Final Technical Report

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Mackenzie Valley Environmental Impact Review Board regarding the above-mentioned proposed project and is submitting the attached Technical Report to the MVEIRB via email. 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 do not hesitate to contact Bradley Summerfield at (867) 669-4707 or Bradley.Summerfield@Canada.ca.

Sincerely,

Susanne Forbrich
Regional Director

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



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ENVIRONMENT AND CLIMATE CHANGE
CANADA'S
TECHNICAL REPORT TO THE
MACKENZIE VALLEY ENVIRONMENTAL
IMPACT REVIEW BOARD

RESPECTING
THE PRAIRIE CREEK ALL SEASON
ROAD PROPOSED BY
THE CANADIAN ZINC CORPORATION

March 10, 2017

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1.0 List of Acronyms

AQMS	Air Quality Management System
ARU	Autonomous Recording Unit
CAAQS	Canadian Ambient Air Quality Standards
CCME	Canadian Council of Ministers of the Environment
CEPA	<i>Canadian Environmental Protection Act</i>
CLMP	Contaminant Loading Management Plan
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CWQGPAL	Canadian Water Quality Guidelines for the Protection of Aquatic Life
DAR	Developer's Assessment Report
DOE Act	<i>Department of the Environment Act</i>
EA	Environmental Assessment
ECCC	Environment and Climate Change Canada
GNWT	Government of the Northwest Territories
MBR	Migratory Bird Regulations
MBCA	<i>Migratory Birds Convention Act</i>
MVEIRB	Mackenzie Valley Environmental Impact Review Board
NWT	Northwest Territories
PCA	Parks Canada Agency
SARA	<i>Species at Risk Act</i>
SECP	Sediment and Erosion Control Plan
TSS	Total Suspended Sediments
WMMP	Wildlife Mitigation and Monitoring Plan

2.0 Executive Summary

The Canadian Zinc Corporation (the Proponent) Prairie Creek All Season Road project (the Project) consists of the construction, operation and closure of a 184 km all season access road from the Prairie Creek Mine to the Liard Highway. The all season access road construction is proposed over three years, with an operating life of 17 years followed by road closure and reclamation. Environment and Climate Change Canada (ECCC) based its analysis on the principle that the Project should be operated and decommissioned in a manner that ensures the highest level of environmental protection so that the well-being of Canadians is enhanced and the natural environment is conserved. To that end, ECCC has undertaken a science-based review of the various issues of interest to the Department with the aim of providing expert advice on the Proponent's assessment of the effects and proposed mitigation. A summary of some of the legislation, which is the basis of ECCC's mandate, as well as other federal guidelines that helped support the content and recommendations found in this technical report, are provided in Appendix A.

This technical report summarizes the results of ECCC's review of the information provided throughout the Environmental Assessment (EA) process. The technical report identifies concerns related to issues ECCC has identified and makes recommendations for consideration by the Mackenzie Valley Environmental Impact Review Board (MVEIRB). Recommendations in this report apply to the entire length of the proposed all season access road.

ECCC has identified concerns regarding potential acid rock drainage and metal leaching from quarries for road construction. Appropriate mitigation measures, including avoiding borrow sources that are potentially acid generating, are discussed. ECCC also discusses potential impacts to water quality. Specifically, monitoring and mitigation for suspended sediments are described. Concerns regarding the Contaminants Loading Management Plan are identified with mitigations, monitoring and thresholds discussed.

ECCC provides comments on a number of potential wildlife issues and makes recommendations accordingly. These include implementing appropriate monitoring programs, collecting additional baseline information and establishing mitigation measures. Potential impacts on migratory birds and species at risk are discussed in more detail, specifically Trumpeter Swans, Boreal Caribou and species that are known to use quarry pits as nesting sites. Mitigation measures are discussed for reducing potential impacts on these species, including avoidance of interference and habitat destruction.

3.0 Environment and Climate Change Canada's Mandate, Roles, and Responsibilities

The mandate of ECCC is determined by the statutes and regulations under the responsibility of the assigned Minister of Environment and Climate Change. In delivering this mandate, ECCC is responsible for the development and implementation of policies, guidelines, codes of practice, inter-jurisdictional and international agreements, and related programs. ECCC's specialist advice is provided, in the context of the *Canadian Environmental Protection Act* (CEPA), the pollution prevention provisions of the *Fisheries Act*, the *Migratory Birds Convention Act* (MBCA), and the *Species at Risk Act* (SARA).

ECCC administers the pollution prevention provisions of the *Fisheries Act* which prohibits the deposit of a deleterious substance into fish-bearing waters. ECCC also participates in the regulation of toxic chemicals, and the development and implementation of environmental quality guidelines pursuant to CEPA.

ECCC is responsible for protecting and conserving migratory bird populations and individuals, under the MBCA. ECCC also administers SARA in cooperation with Fisheries and Oceans Canada and the Parks Canada Agency (PCA) to prevent wildlife species from becoming extirpated or extinct, to provide for the recovery of wildlife species that are extirpated, endangered or threatened as a result of human activity, and to manage species of special concern to prevent them from becoming threatened or endangered. Additional information on ECCC's mandate is found in Appendix A.

4.0 Environment and Climate Change Canada's Technical Review Comments and Recommendations

4.1 Borrow Sources Potential for Acid Rock Drainage and Metal Leaching

4.1.1 References

- Canadian Council of Ministers of the Environment, Canadian Water Quality Guidelines for the Protection of Aquatic Life, Canadian Environmental Quality Guidelines. Available at: <http://ceqg-rcqe.ccme.ca/en/index.html#void>.
- CanZinc IR2 response attachment – Table 3-1: Final Commitments Table (PR 356).
- Prairie Creek All Season Access Road Project, Technical Session Transcripts, June 13, 2016 (PR 230).
- Price, W.A. 2009. Prediction Manual for Drainage Chemistry from Sulphidic Geological Materials. MEND Report 1.20.1.
- Round 1 Information Requests Responses: IR1-GOC-ECCC-4, IR1-GOC-PCA-12, and IR1-DFN-6 (PR 200).
- Round 2 Information Request Responses: IR2-GOC-PCA-4 (PR 370).

4.1.2 Proponent's Conclusion

The Proponent has acknowledged the need to complete a more detailed investigation of potential borrow sources before using the materials for road construction. This investigation will involve drilling and collecting samples and potentially digging test pits. The Proponent has committed to conducting acid-base accounting and metal leaching testing during the detailed design phase. A reasonable number of representative samples will be taken from all borrow sites and screened for geochemical properties under the guidance of a professional geochemist.

The Proponent stated that borrow sources with a positive identification of acid rock drainage or metal leaching potential will not be used for sources for construction. In addition, any borrow source with marginal acid rock drainage or metal leaching potential will either not be used, or be used in conjunction with mitigation procedures as defined by a professional geochemist. Impacts and mitigation will be determined by a professional geochemist to render use of the material low risk, if it is to be used at all.

4.1.3 Environment and Climate Change Canada's Conclusion

ECCC notes that metal leaching does not only occur when there are acidic conditions, but can also occur in a neutral pH conditions. Acid-base testing and metal leaching testing should be undertaken under the guidance of a professional geochemist. Results from these tests would provide insight on the potential effects to water quality. ECCC notes that the Prediction Manual for Drainage Chemistry from Sulphidic Geological Materials (Price, 2009) is a reputable resource that has been used by several mining operations in evaluating acid rock drainage and/or metal leaching potential in rock. The effects on water quality should be assessed using the results from all testing in comparison to baseline figures. In absence of a baseline, the Proponent may wish to consider the Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life (CWQGPAL). Where effects are predicted, mitigation measures should be proposed.

Borrow source locations that have been identified to have marginal acid rock drainage potential should not be used for sources for construction. Once a source or rock with potential acid rock drainage and/or metal leaching has been exposed it becomes more difficult to mitigate or ensure that it will not create adverse water quality issues that would pose a risk to fish (aquatic life), particularly when the source is in proximity to fish-bearing waters.

4.1.4 Environment and Climate Change Canada'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.

4.2 Sediment and Erosion Control Plan

4.2.1 References

- Canadian Council of Ministers of the Environment, Canadian Water Quality Guidelines for the Protection of Aquatic Life, Canadian Environmental Quality Guidelines. Available at: <http://ceqg-rcqe.ccme.ca/en/index.html#void>.
- CanZinc IR2 response attachment – Table 3-1: Final Commitments Table (PR 356).
- CanZinc Letter to MVEIRB, Re: Environmental Assessment EA1415-001 Prairie Creek Mine All Season Road Information Request Round 2, Parks Canada IR9, October 19, 2016 (PR 315).
- Round 1 Requests Responses: IR1-GOC-ECCC-3, IR1-GOC-ECCC-6, and IR1-GOC-ECCC-7 (PR 200).

4.2.2 Proponent's Conclusion

The Proponent stated that the Sediment and Erosion Control Plan (SECP) will be subject to a detailed review and finalized as a condition of land use permits prior to construction. The Proponent has committed to putting sediment and erosion control measures in place to prevent the deposit of deleterious substances into fish-bearing waters. This includes installing sediment control measures for any disturbed areas where there is a risk of sediment migration to surface water.

The Proponent has committed to developing a suitable inspection and monitoring plan. This plan will establish drainage patterns along the road alignment in order to maintain natural drainage and inform adaptive management actions, and will also include the location of equipment required to complete management actions (e.g., backhoes, steamers and erosion/sediment control devices).

The Proponent stated that during road construction, operations and reclamation, there will be regular inspections by supervisory maintenance and environmental staff, as well as community monitors. Any evidence of impacts, or conditions that might lead to impacts, will be immediately brought to the attention of the transportation manager. Any obvious problems, such as sediment dispersal, will be rectified immediately by construction/maintenance crews.

The Proponent has committed to placing any stockpiles of rock and coarse material 50 m, and soil or fine material at least 100 m from fish-bearing waters that are flowing or contain water at the time of active construction. Where achieving the 50 m or 100 m setback is not possible (e.g., in tight canyons or valleys), the Proponent will maintain the greatest setback possible and implement enhanced erosion and sediment control measures to avoid impacts.

4.2.3 Environment and Climate Change Canada's Conclusion

The Proponent has indicated that sediment and erosion control measures will be installed to protect water quality at flowing fish-bearing waters. These measures should be implemented and in place prior to beginning construction and/or prior to disturbance occurring within 100 m of fish-bearing waters.

Water quality should be monitored on a regular basis. Where there is active construction or stockpiling of materials at or within 100 m of fish-bearing waters, sediment and erosion control measures should be in place. Water quality monitoring should include measurements of Total Suspended Sediments (TSS) and should be compared to predicted amounts. Adaptive management for TSS should be in place and implemented if needed. This may include modification to construction methods and implementation of additional erosion and sediment control techniques.

4.2.4 Environment and Climate Change Canada's Recommendations

1. The SECP 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 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.

4.3 Water Quality Monitoring

4.3.1 References

- Canadian Council of Ministers of the Environment, Canadian Water Quality Guidelines for the Protection of Aquatic Life, Canadian Environmental Quality Guidelines. Available at: <http://ceqg-rcqe.ccme.ca/en/index.html#void>.
- CanZinc IR2 Response Attachment – Table 3-1: Final Commitments Table (PR 356).
- CanZinc Letter to MVEIRB, Re: Environmental Assessment EA1415-001 Prairie Creek Mine All Season Road Information Request Round 2, Parks Canada IR9, October 19, 2016 (PR 315).
- Round 1 Information Requests Responses: IR1-GOC-ECCC-5 (PR 200).

4.3.2 Proponent's Conclusion

The Proponent has committed to revising the SECP to incorporate a suitable water quality monitoring program drawing on the advice from PCA and ECCC. Details of the water quality monitoring program will be considered during the SECP review prior to construction, at which time PCA will be a regulator.

The Proponent has committed to implementing TSS, turbidity, pH, dissolved oxygen and conductivity monitoring. This monitoring will take place upstream and downstream of Casket Creek during high water events if overtopping of the road surface is occurring, and at any other area where overtopping of the road surface occurs.

The Proponent has indicated that each borrow pit will need a specific development plan. Monitoring requirements will be identified during the development of these plans. The Proponent has suggested that permits and/or licences could have a condition that state that a borrow pit will only be developed once a suitable development plan including monitoring information has been approved.

4.3.3 Environment and Climate Change Canada's Conclusion

Comprehensive baseline analyses of turbidity and TSS measurements of the stream and creek crossings should be completed to determine background levels prior to the start of construction. The efficacy and robustness of the erosion and sediment control measures for the protection of water quality and aquatic life should be demonstrated through regular water quality monitoring. ECCC supports the development of a rigorous linear regression between TSS and turbidity so that TSS levels can be inferred from field measures of turbidity. Results of TSS and turbidity should be compared to predicted effects and mitigation should be adjusted if needed.

4.3.4 Environment and Climate Change Canada'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.

4.4 Contaminant Loading Management Plan

4.4.1 References

- CanZinc IR2 response attachment – Table 3-1: Final Commitments Table (PR 356).
- CanZinc Letter to MVEIRB, Re: Environmental Assessment EA1415-001, Prairie Creek Mine All Season Road, Undertakings from Technical Session, August 11, 2016 (PR 282).

4.4.2 Proponent's Conclusion

The Proponent has committed to updating the Contaminant Loading Management Plan (CLMP) in consultation with ECCC and PCA as a permit condition prior to operations. Measures for avoiding concentrate dust and potential tracking of concentrate off-site will be adopted (i.e., bags or bulk concentrate hauled inside a trailer box with a tarpaulin cover, truck wheel-wash). The Proponent has stated that they will transport zinc concentrates in bulk in sealed trucks using the 'Convey Ore' system, which is similar to the Red Dog Mine approach. Lead concentrates will be transported in bags in a truck box with a lid, which would provide secondary containment.

The Proponent has stated that regarding truck and wheel washing, trucks transporting bags would be loaded in a side bay and would not enter the concentrate shed. For bulk concentrates, trucks would also be loaded in a bay with the delivery chute over the trailer at the trailer top level. In addition, since concentrates will have an 8% moisture content, dust generation should not be an issue. The Proponent has agreed to a wheel wash for exiting trucks, but not full truck washing. The Proponent is willing to consider some form of air lancing system for bulk concentrate trucks as additional assurance that they do not leave the site with external dust.

4.4.3 Environment and Climate Change Canada's Conclusion

Contaminant loading from mine operations and transport of lead and zinc concentrate has the potential to contaminate the proposed all season access road through Nahanni National Park Reserve. One main pathway could occur when ore concentrate is tracked out of loading and unloading facilities on haul truck tires and other truck surfaces and is subsequently deposited onto the road. Another pathway could occur from concentrate spillage and escapement from haul trucks, including leakage from bags of concentrate, blowing of dust collected on the outside of the bags of concentrate on the trucks, or spillage from overturned trailers following accidents.

The CLMP should include mitigation options, contingency plans and additional monitoring. Additional monitoring should include ambient total suspended particulate, dust fall, soil and snow sampling. Sensitive receptors, such as creek crossings, should be monitored to ensure that they are not being impacted by airborne fugitive dust from the mine site and along the access road.

4.4.4 Environment and Climate Change Canada'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 CLMP.

4.5 Impact Assessment for Migratory Birds and Avian Species at Risk

4.5.1 References

- Benitez-Lopez, A., Alkemade, R. and Verweij, P.A. 2010. The impacts of roads and other infrastructure on mammal and bird populations: a meta-analysis. *Biological Conservation* 143: 1307-1316.
- CanZinc Letter to MVEIRB, Re: Environmental Assessment EA1415-01, Prairie Creek Mine All Season Road September 30, 2016 Parks Canada Letter re Baseline Information Gaps, October 21, 2016 (PR 317).
- Parks Canada Agency Letter to MVEIRB, Re: Proposed Prairie Creek All Season Access Road Environmental Assessment (EA1415-01) Baseline Information Gaps, September 30, 2016 (PR 308).
- Response to the Wildlife and Vegetation Information Requests for the Developer's Assessment Report (PR 186).
- Second Round Information Requests, Wildlife and Vegetation Responses (PR 341).

4.5.2 Proponent's Conclusion

The Proponent predicts that the magnitude and overall significance of Project effects to migratory birds, including avian species at risk, are low. The Proponent assumes the potential presence of avian species at risk to inform proposed mitigation measures. The Proponent stated that to date, adequate baseline data was collected and additional baseline data collection would not alter the predicted significance of effects. This conclusion was based on a literature review of road-related effects on birds.

The Proponent cites the scientific review of 120 papers in Kociolek and Clevenger (2009). This review concludes that the number of affected species increases with traffic volume and that traffic volume is believed to be the most important factor affecting breeding bird population densities near roads. The Proponent states that known road-related adverse effects from low traffic volume roads in much of the research literature are not comparable to the traffic volumes proposed for the all season access road. The traffic volumes proposed for the all season access road are lower than that in the research literature. Therefore, the predictions of the magnitude and overall significance of Project effects to migratory birds remain appropriate.

The Proponent has committed to collecting additional baseline data prior to the construction of the proposed all season access road, but not before clearing the winter road. The Proponent suggests that monitoring should be preceded by discussions regarding the scope and opportunities to collaborate.

4.5.3 Environment and Climate Change Canada's Conclusion

The Project has the potential to cause adverse effects to migratory bird communities, including avian species at risk, related to habitat loss, alteration and fragmentation, disturbance, and mortality. ECCC does not dispute the conclusions made by the Proponent regarding the literature on road-related effects on birds. However, other studies have also reported no significant effect of traffic intensity on bird abundances near roads, that species varied in their response to roads, and cautioned the development of roads in relatively undisturbed areas (e.g., Benítez-López et al. 2010). The challenges of extrapolating results and conclusions of road-related effects on birds has also been documented. Site-specific conditions are rarely replicable, and this is particularly true in this case.

ECCC acknowledges that the Proponent identified potential impacts and accommodated additional requests regarding the assessment of effects on migratory birds and avian species at risk. Despite this, ECCC cautions that the certainty of the effects assessment and the ability to validate these predictions is hindered by the lack of supportive baseline data collected by the Proponent for this EA.

In some cases, it is possible for proponents to effectively predict potential effects of a project without the collection of baseline data. This is particularly true when surrogate datasets are available to inform the assessment or the state of knowledge of potential effects has been well studied for the type of development under comparable conditions. However, this EA does not benefit from either and predictions are further complicated by the ecological sensitivity of the area. The Project is partially located in Nahanni National Park Reserve and there is a relative high number of species at risk compared to other areas of the Northwest Territories (NWT). Of the 21 species at risk identified as potentially interacting with the proposed Project, eight are migratory birds.

ECCC acknowledges the Proponent's commitment to collect baseline information prior to construction of the proposed all season access road. However, this information will be unhelpful to validate or minimize impacts if it is not collected before clearing of the winter road commences. ECCC supports the migratory bird and avian species at risk monitoring described in PCA's letter addressed to MVEIRB, dated September 30, 2016. This would provide a strong baseline with which to assess potential impacts, effectively focus mitigation and monitoring, manage cumulative impacts and apply lessons to future proposals. A key purpose of collecting baseline data is to confirm the presence/absence of species at risk and determine the presence of any biodiversity hotspots (i.e., specific habitats that support higher densities of individual and/or numbers of species) to inform project planning and design.

The use of Autonomous Recording Units (ARU) as a monitoring tool, as proposed in the PCA letter, has several advantages. It is an effective way to collect information on a variety of migratory bird species as well as other taxa (e.g., amphibians and potential for collared pikas). ARUs can be programmed to sample at different periods of the day to increase the detection of certain species and can reduce certain sampling biases associated with traditional point counts. ARUs also favor the involvement of community participants (i.e., a community-based monitoring program). ECCC has experience conducting the proposed monitoring program in the NWT and remains committed to engaging with the Proponent to provide information related to the use of ARUs, sampling design, and the analysis of results.

4.5.4 Environment and Climate Change Canada'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 all season access road alignment. This recommendation is consistent with the recommended monitoring described in the PCA letter to MVEIRB, dated September 30, 2016.
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.

4.6 Trumpeter Swans

4.6.1 References

- CanZinc Letter to MVEIRB, Re: Environmental Assessment EA1415-001, Prairie Creek Mine All Season Road, Undertakings from Technical Session, August 11, 2016, Undertaking: #16 and #17 (PR 282).
- July 2016 Vegetation and Wildlife Baseline Surveys, Prairie Creek All Season Road, August 17, 2016 (PR 289).
- Latour, P.B., J. Leger, J.E. Hines, M.L. Mallory, D.L. Mulders, H.G. Gilchrist, P.A. Smith and D.L. Dickson. 2008. Key migratory bird terrestrial habitat sites in the Northwest Territories and Nunavut. 3rd edition. Canadian Wildlife Service Occasional Paper No. 114.
- Response to the Wildlife and Vegetation Information Requests for the Developer's Assessment Report (PR 186).
- Second Round Information Requests, Wildlife and Vegetation Responses (PR 341).
- Updated Draft Wildlife Mitigation and Monitoring Plan, Prairie Creek Mine and All-Season Road, Northwest Territories, August 31, 2016 (PR 297).
- U.S. Fish and Wildlife Service. 2012. The 2010 North American Trumpeter Swan Survey – A Cooperative North American Survey. Division of Migratory Bird Management, Alaska. 26pp.
- U.S. Fish and Wildlife Service. 2014. Trumpeter Swan Survey of the Rocky Mountain Population, Winter 2014. Migratory Birds and State Programs, Mountain-Prairie Region, Colorado. 35pp.

4.6.2 Proponent's Conclusion

The Proponent described the overall significance of adverse effects of the Project on Trumpeter Swans as low. The Proponent acknowledges that the proximity and overlap of the Southern Mackenzie Mountains Key Migratory Bird Terrestrial Habitat Site is a sensitive wildlife area in their assessment, and in the development of their proposed mitigation measures.

In the Updated Draft Wildlife Mitigation and Monitoring Plan (WMMP), the Proponent proposes several mitigation measures to minimize impacts to Trumpeter Swans. These include adherence to speed limits, speed reductions when Trumpeter Swans are sighted, a sighting and notification reporting system, and a blasting and water pumping minimum setback distance of 800 m. The Proponent also commits to developing a suitable inspection and monitoring plan to ensure that natural drainage patterns are maintained along the road alignment.

A Trumpeter Swan reconnaissance survey was conducted in July 2016 as part of additional baseline studies along the proposed road alignment.

4.6.3 Environment and Climate Change Canada's Conclusion

The Project intersects the Southeastern Mackenzie Mountain Key Migratory Habitat Site (NT Site 17) in two locations approximately near kilometers 87 to 98 and kilometers 157 to 183. Approximately 8% of the Canadian breeding population of Trumpeter Swans nests in the wetlands adjacent to the rivers, creeks and lakes within this area (Latour et al. 2008). Breeding Trumpeter Swans are vulnerable to disturbance, and their lowland habitat is sensitive to terrain disturbance. The results of North American surveys indicate an increasing population (U.S. Fish and Wildlife Service 2012 and 2014), however, due to past overharvesting, the Trumpeter Swan remains of management concern to wildlife agencies in both Canada and the United States.

ECCC is supportive of the mitigation measures proposed by the Proponent specific to Trumpeter Swans in the Updated Draft WMMP. The Updated Draft WMMP refers to a potential for "other construction activities (if critical for development)" to occur within the minimum setback distance with the assistance of a Canadian Zinc Environmental Monitor. Intensity and duration of activities within 800 m of observed Trumpeter Swans should be carefully assessed before commencing activities. Frequent, long-term and large disturbances, the presence of several sources of disturbances, and loud noise emissions (greater than 50 dB) should generally be avoided while Trumpeter Swans are present in the area.

Undertaking #16 identifies approximately 14 waterbodies or wetlands within 1 km of the proposed all season access road alignment which also overlaps sections of the Southeastern Mackenzie Mountain Key Migratory Habitat Site. There are an additional five waterbodies or wetlands, if the sensitive area is extended between kilometers 98 to

117, as suggested in Undertaking #16. While mitigation and monitoring should take place in all suitable habitat, effort should be focused in the sections overlapping the Southeastern Mackenzie Mountain Key Migratory Habitat Site as there is potential for population-level effects to occur in these areas.

ECCC notes that the reconnaissance survey conducted in July 2016 did not cover kilometers 157 to 183 of the proposed all season access road in the Southeastern Mackenzie Mountain Key Migratory Habitat Site.

4.6.4 Environment and Climate Change Canada'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).

4.7 Migratory Bird Mitigation and Monitoring

4.7.1 References

- Environment and Climate Change Canada, Safeguarding Migratory Birds. Available at: <http://www.ec.gc.ca/paom-itmb/>.
- Updated Draft Wildlife Mitigation and Monitoring Plan, Prairie Creek Mine and All-Season Road, Northwest Territories, August 31, 2016 (PR 297).

4.7.2 Proponent's Conclusion

Table 3 of the Updated Draft WMMP states that, to the extent possible, clearing activities are to occur outside the breeding bird nesting season. Pre-clearing surveys would precede clearing activities should they be required during the sensitive nesting period.

The Updated Draft WMMP explains how wildlife mortality and the effectiveness of mitigation measures will be reported annually. Appendix C of the Updated Draft WMMP describes recommended minimum setback distances for wildlife species, including migratory birds and avian species at risk.

4.7.3 Environment and Climate Change Canada's Conclusion

ECCC acknowledges and supports the Proponent's intent to avoid clearing activities during the general nesting period for migratory birds in nesting zones B7 and B8. However, few details are provided about pre-clearing surveys to assess any residual impacts (e.g., expected frequency, types of circumstances, survey methods and experience level of personnel).

The nesting periods provided by ECCC are general guidance to assist proponents in planning their field activities. It is important to note that breeding periods may vary from year to year due to climatic conditions and some species may nest outside the dates provided if conditions are favourable. In addition, there may be more variation to the general nesting periods for mountainous landscapes where the nesting period can start later on mountain tops or earlier in valleys. Other stakeholders, such as PCA, may have site-specific nesting information that could also be used to refine this sensitive period.

ECCC does not generally recommend nest search techniques. In most habitats, the ability to detect active nests remains very low while the risk of disturbing breeding birds and their eggs is high, and could lead to incidental take. If migratory bird nests containing eggs or young are located or discovered during operations, all disruptive activities in the nesting area should be halted until nesting is completed. Any active nest found should be protected with a buffer zone determined by a setback distance appropriate to the species, and taking into consideration the intensity of the disturbance and the surrounding habitat. Buffer zones should be kept in place until the young have naturally and permanently left the vicinity of the nest. If work is proposed in the areas where migratory birds are nesting, options like avoiding, adapting, rescheduling or relocating activities that could disturb or destroy the nests, should be considered.

ECCC supports the Proponent reporting all wildlife mortality and effectiveness of mitigation measures to inform adaptive management. ECCC is generally supportive of the Proponent's use of the minimum setback distances described in Appendix C of the Updated Draft WMMP. However, ECCC notes that forest songbirds are not included in Appendix C and that this type of nesting migratory bird is expected to be encountered during Project activities.

4.7.4 Environment and Climate Change Canada'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.eenordrpntno-eanorthpnrnwt.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.

4.8 Species at Risk

4.8.1 References

- Government of Canada, Species at Risk Public Registry. Available at: <https://www.registrelep-sararegistry.gc.ca/default.asp?lang=En&n=24F7211B-1>.
- Updated Draft Wildlife Mitigation and Monitoring Plan, Prairie Creek Mine and All-Season Road, Northwest Territories, August 31, 2016 (PR 297).

4.8.2 Proponent's Conclusion

In the Updated Draft of the WMMP, the Proponent describes the application of the SARA (Section 2.3.2), and provides a list of species of conservation concern (Table 1).

4.8.3 Environment and Climate Change Canada's Conclusion

ECCC notes that the description of the application of SARA in Section 2.3.2 of the Updated Draft WMMP is incomplete. The general prohibitions for migratory birds (protected under the MBCA) and aquatic species (protected under the *Fisheries Act*) listed on Schedule 1 of SARA apply wherever these species are found (i.e., not only on federal lands as described).

ECCC advises that Table 1 of the Updated Draft WMMP requires revisions to reflect the current status of species listed on Schedule 1 of SARA or assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

4.8.4 Environment and Climate Change Canada'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.registrelep-sararegistry.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.

4.9 Quarry Operations and Avian Species at Risk

4.9.1 References

- CanZinc Letter to MVEIRB, Re: Environmental Assessment EA1415-001, Prairie Creek Mine All Season Road, Undertakings from Technical Session, August 11, 2016, Undertaking: #17 (PR 282).
- Developer's Assessment Report Addendum (PR 110).
- Second Round Information Requests, Wildlife and Vegetation Responses (PR 341).
- Updated Draft Wildlife Mitigation and Monitoring Plan, Prairie Creek Mine and All-Season Road, Northwest Territories, August 31, 2016 (PR 297).

4.9.2 Proponent's Conclusion

In the Developer's Assessment Report (DAR) Addendum, the Proponent predicted that the overall significance of effects of the Project on Barn Swallow, Bank Swallow, Common Nighthawk, and Olive-sided Flycatcher were neutral. The potential effects on habitat loss and fragmentation, habitat effectiveness and abundance and occurrence for these species were predicted to be either positive or neutral in direction and low or neutral in significance (Undertaking #17).

The Proponent limited their effects assessment in the DAR Addendum for other avian species at risk such as Horned Grebe, Yellow Rail, and Canada Warbler, citing that potential effects were minimized or avoided by the Project's design and/or location.

In Table 3 of the Second Round Information Requests, Wildlife and Vegetation Responses, the predicted effects from direct and indirect habitat loss and fragmentation for the proposed all season access road and permitted winter road were provided. These effects on avian species at risk were described as adverse in direction and medium to low in significance.

Mitigation measures for avian species at risk are focused on timing restrictions, setback distances, staff training and maintaining natural drainage patterns along the proposed alignment. The Updated Draft WMMP proposes annual monitoring of Barn and Bank Swallow nesting in anthropogenic habitats and structures (Section 5.3.6).

4.9.3 Environment and Climate Change Canada's Conclusion

ECCC is unable to validate the effects assessment for migratory birds, particularly with regards to avian species at risk in the absence of supportive baseline data. There was a limited attempt by the Proponent to confirm avian species at risk presence along the proposed alignment and generic mitigation measures were developed based on accepting the occurrence of these species. Knowledge of avian species at risk

occurrences, abundance and distribution within the Project area would allow for targeted measures, such as avoiding specific areas or important habitats. ECCC acknowledges the Proponent's commitment to collect baseline information prior to construction of the proposed all season access road. However, this information will be unhelpful to validate or minimize impacts if it is not collected before clearing of the winter road commences.

ECCC is concerned about potential disruptive activities to avian species at risk at quarries and borrow sites. Bank Swallow, Common Nighthawk and other migratory bird species are known to nest on stockpiles, overburden piles and on flat cleared areas that contain gravel. It is unclear if all construction activities in these areas are limited to the winter period, or if the Proponent is assuming that the intensity of activities at these sites during the summer period will prevent birds from nesting. The proposed monitoring and potential impacts are discussed in the context of the Proponent extending the use of borrow sources during the operation and closure phases.

ECCC is concerned that the monitoring frequency proposed by the Proponent may be insufficient to detect nesting and mitigate impacts. Adequate prevention and monitoring are necessary at these sites as birds can initiate nests within days at inactive or quiet sites during the nesting season.

ECCC is supportive of proposed timing restrictions and minimum setback distances for all species. ECCC is also supportive of maintaining natural drainages in the Project area, which will benefit wetland dependent avian species at risk (e.g., Horned Grebe, Yellow Rail, and Red-necked Phalarope).

4.9.4 Environment and Climate Change Canada's Recommendations

1. ECCC (ec.eenordrpntno-eanorthpnrnwt.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.

4.10 Boreal Caribou

4.10.1 References

- Allnorth, Proposed Prairie Creek Mine Access Road, Response to Information Requests, May 10, 2016, Appendix G: Updated Route Maps (PR 184).
- GNWT – ENR Wildlife Division Maps (PR 329).
- Recovery Strategy for the Woodland Caribou (*Rangifer tarandus caribou*), Boreal population, in Canada (PR 190).
- Response to the Wildlife and Vegetation Information Requests for the Developer's Assessment Report (PR 186).
- Round 2 Information Requests Review Comment Table (PR 320).
- Second Round Information Requests, Wildlife and Vegetation Responses (PR 341).
- Updated Draft Wildlife Mitigation and Monitoring Plan, Prairie Creek Mine and All-Season Road, Northwest Territories, August 31, 2016 (PR 297).

4.10.2 Proponent's Conclusion

The Proponent predicts that the buffered disturbance of the Project footprint would contribute approximately 1,700 ha of new disturbance within the NWT range (NT1) and represents approximately 0.0006% of the habitat within the range. The Proponent did not include the disturbance estimate from the buffered winter road footprint because it was previously assessed by MVEIRB in EA0809-002.

The Proponent proposes to reduce the Project footprint by foregoing the undeveloped permitted winter road, in lieu of developing a winter road along the proposed all season access road alignment (i.e., the Proponent proposes clearing a single road corridor).

The Updated Draft WMMP suggests measures to limit access to the proposed all season access road including a privately operated barge across the Liard River, installation of signs, gating on Indian Affairs Branch lands and a manned checkpoint. The WMMP also states that impacts to individuals and habitat will be minimized through low traffic volumes and speeds, a sighting and notification reporting system, implementing seasonal blasting measures and the use of northern industry standards and practices (notably Government of the Northwest Territories [GNWT] dust suppression guidelines).

4.10.3 Environment and Climate Change Canada's Conclusion

ECCC notes that the GNWT has the primary management responsibility for Boreal Caribou and is also leading the development of a range plan for the species. For these reasons, the GNWT should be consulted on the adequacy of proposed mitigation and monitoring measures to minimize Project effects to Boreal Caribou.

The national recovery goal for Boreal Caribou is to achieve self-sustaining local populations in all Boreal Caribou ranges throughout their current distribution in Canada. The likelihood of the self-sustaining population is based on two indicators, population trend and disturbance level within a Boreal Caribou range. Recovery is achieved for Boreal Caribou in the NWT range (NT1) by maintaining population and range conditions that support its current self-sustaining status.

ECCC is concerned with NT1 available habitat approaching thresholds established in the national Recovery Strategy for Boreal Caribou. The most recent estimate of available habitat for Boreal Caribou within NT1 is 65.76%. 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 (PR 320 and 329).

The Proponent's impact assessment is based on the baseline condition being a permitted winter road alignment, previously assessed by MVEIRB in EA0809-002. The current impact assessment 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's understanding is that the permitted winter road and the winter road supporting the construction of the proposed all season access road are two different road corridors based on maps in Appendix G of the Allnorth responses to information requests.

ECCC has concerns with the rationale for the Proponent's impact assessment. This approach does not consider the existing environmental conditions along the proposed all season access road alignment and therefore reduces the magnitude of the impacts in the assessment (this concern is applicable to all wildlife Valued Ecosystem Components). In addition, the national Recovery Strategy for Boreal Caribou, which identifies critical habitat, was not available at the time of the previous review EA0809-002. There is also a requirement under Subsection 79(2) of SARA that the MVEIRB ensure that adverse effects of the Project are identified for the listed wildlife species and its critical habitat.

ECCC is supportive of the Proponent's commitment to pursue a single road corridor to reduce the Project's overall footprint (i.e., to forego construction of the permitted winter road alignment in lieu of the proposed Project). ECCC also 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, ECCC would

advise that the proposed corridor seek to reduce the cumulative impacts on habitat and individuals within NT1 to achieve the population and distribution objectives defined in the national Recovery Strategy for Boreal Caribou.

ECCC is supportive of proposed mitigation measures in the Updated Draft WMMP and the additional measures committed to by the Proponent during the EA process (e.g., installing windrows, lumber and other brush clearing materials to discourage access and limit sightlines at intersections with linear features).

4.10.4 Environment and Climate Change Canada's Recommendations:

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.

5.0 Conclusion

ECCC would like to thank MVEIRB for the opportunity to provide input to the EA for the Canadian Zinc Corporation Prairie Creek All Season Road project. ECCC has participated extensively throughout the EA process and has provided specialist advice and recommendations provided based on our mandate, in the context of the CEPA, the pollution prevention provisions of the *Fisheries Act*, the MBCA, and SARA. ECCC would also like to acknowledge the effort that the Proponent has taken to address technical concerns and issues raised by Intervenors.

ECCC's intervention comments and recommendations are not to be interpreted as any type of acknowledgement, compliance, permission, approval, authorization, or release of liability related to any requirements to comply with federal or territorial statutes and regulations.

APPENDIX A: Relevant Legislation, Regulations and Guidelines

Introduction

The mandate of Environment and Climate Change Canada (ECCC) is determined by the statutes and regulations assigned to the federal Minister of Environment and Climate Change by Parliament or by the Government of Canada. Delivering this mandate requires ECCC, among other things, to develop and implement policies, guidelines, codes of practice, inter-jurisdictional and international agreements and related programs. The following lists specific legislation and national environmental policies and programs administered by ECCC that influence the content of Environmental Assessment (EA) submissions.

In EAs, ECCC generally carries out its responsibilities by providing recommendations, advice, and information within its mandate. This is provided to both the proponent and decision-makers and may be used in the development of potential conditions that may accompany an EA approval. This Appendix is intended to summarize ECCC's mandate.

For purposes of reliability and accuracy, and for interpreting and applying regulations or policy, it is recommended that the reader refer to the original document. Official versions of legislation can be found on the Department of Justice website (<http://laws.justice.gc.ca/eng/>).

Legislation

Department of the Environment Act

General responsibility for environmental management and protection is attributed to ECCC, through the Minister, under the *Department of the Environment Act* (DOE Act). This responsibility extends to and includes all matters over which Parliament has jurisdiction, which matters have not, by law, been assigned to any other department, board, or agency of the Government of Canada relating to:

- the preservation and enhancement of the quality of the natural environment (e.g., water, air, and soil);
- renewable resources including migratory birds and other non-domestic flora and fauna;
- water;
- meteorology; and
- co-ordination of policies and programs respecting preservation and enhancement of the quality of the natural environment.

The DOE Act requires the Minister to advise heads of federal departments, boards and agencies on matters pertaining to the preservation and enhancement of the quality of the natural environment.

Canadian Environmental Protection Act

The *Canadian Environmental Protection Act* (CEPA) is aimed at preventing pollution and protecting the environment and human health while contributing to sustainable development. CEPA shifts the focus away from managing pollution (after it has been created) to preventing pollution. CEPA provides the federal government with tools to protect the environment and human health, establishes strict deadlines for controlling certain toxic substances, and requires the virtual elimination of toxic substances which are bioaccumulative, persistent and result primarily from human activity.

One of CEPA's major thrusts is the prevention and management of risks posed by harmful substances. CEPA manages impacts of environmental emergencies, vehicle engines and equipment emissions, fuels, hazardous wastes, disposal at sea, and other sources of pollution. Three CEPA sections are described below:

Environmental Emergencies

Part 8 of CEPA related to environmental emergencies (sections 193 to 205) and provides various authorities to address the prevention of, preparedness for, response to, and recovery from environmental emergencies caused by uncontrolled, unplanned or accidental releases and to reduce any foreseeable likelihood of releases of toxic or other hazardous substances listed in Schedule 1 of the Environmental Emergency (E2) Regulations.

Fisheries Act - Pollution Prevention Provisions

ECCC administers Section 36(3) and (4) of the *Fisheries Act*, the purpose of which is to prevent pollution by prohibiting the deposit of harmful substances into waters frequented by fish, unless authorized by regulations under the Act or other federal legislation. The “general prohibition” in this section states, in part, that no person shall deposit or permit the deposit of a deleterious substance of any type in water frequented by fish, unless authorized by, and deposited in accordance with, regulations under the *Fisheries Act* or other federal legislation.

Meeting the requirements of the *Fisheries Act* is mandatory, irrespective of any provincial regulatory or permitting system. The release of substances with the potential to be “deleterious,” as identified in Subsection 34(1) of the *Fisheries Act*, from the construction, operation, reclamation or decommissioning stages of the project in any waters frequented by fish, may constitute violations of the *Fisheries Act*.

Migratory Birds Convention Act

The purpose of the *Migratory Birds Convention Act* (MBCA) and its Regulations is to ensure the conservation of migratory bird populations by regulating potentially harmful human activities. A permit must be issued for all activities affecting migratory birds, with some exceptions detailed in the Regulations. The MBCA implements the Migratory Birds Convention between Canada and the United States by protecting and conserving migratory birds, as populations and individual birds and their nests. ECCC administers and enforces the MBCA and Migratory Bird Regulations (MBR).

Section 5.1 of the MBCA prohibits the deposit of a substance that is harmful to migratory birds in waters or an area frequented by migratory birds or in a place from which the substance may enter such waters or such an area. ECCC reviews projects for their potential impacts to migratory birds and provides advice on how impacts could be avoided, mitigated or compensated for.

Subsection 5(a) of the MBCA prohibits the possession of a migratory bird or nest without lawful excuse or authorization by the regulations. The prohibition against the disturbance, destruction, or taking of a nest, egg or nest shelter of a migratory bird is set out in Subsection 6(a) of the MBR.

Species at Risk Act

ECCC also administers and enforces the *Species at Risk Act* (SARA) in partnership with the Department of Fisheries and Oceans Canada and the Parks Canada Agency (PCA). The purpose of SARA is to prevent wildlife species from being extirpated or becoming extinct, to provide for the recovery of wildlife species that are extirpated, endangered or threatened as a result of human activity, and to manage species of special concern to prevent them from becoming endangered or threatened. Schedule 1 of SARA provides a list of wildlife species at risk in Canada.

SARA provides automatic protection for aquatic species and birds protected by the MBCA, if they are listed as extirpated, endangered or threatened. The prohibitions in Sections 32 and 33 of SARA apply whether these species are on federal, provincial or territorial lands. These prohibitions also apply to all other species listed as extirpated, endangered or threatened located on federal lands.

Subsection 32(1) of SARA states that no person shall kill, harm, harass capture or take an individual of a wildlife species listed as an extirpated, endangered or threatened, and Section 33 states that no person shall damage or destroy the residence of one or more individuals of a wildlife species listed as endangered or threatened or as an extirpated species if a recovery strategy recommends the reintroduction of the species into the wild in Canada (a “residence” being defined as a dwelling-place such as a den, nest or other similar area or place that is occupied or habitually occupied by one or more individuals during all or part of the species life- cycle).

Subsection 79(1) requires that every person who is required by or under an Act of Parliament to ensure that an assessment of the environmental effects of a project is conducted must notify the competent minister(s) in writing if the project is likely to affect a listed wildlife species or its critical habitat. Under subsection 79(2), the person must also identify adverse effects on listed species, including species of special concern, and on the critical habitat of extirpated, endangered and threatened species; and, if the project is carried out, ensure that measures are taken to avoid or lessen those effects and to monitor them. These measures must be consistent with best available information including any recovery strategy, action or management plan (in a final or proposed version), respect the terms and conditions of SARA regarding protection of individuals, residences, and critical habitat of extirpated, endangered, or threatened species.

The competent minister's role during an assessment of a project is to provide technical advice and support to assist in addressing these requirements. However, it should be noted that the SARA competent minister also has certain specific obligations relative to species and critical habitat protection stemming from SARA itself, separate from the assessment process. As such, the proponent must also meet any statutory obligations under SARA.

Policies and Guidelines

Federal Policy on Wetland Conservation

The Federal Policy on Wetland Conservation applies to federal departments addressing the potential loss of wetlands and wetland functions. Projects and activities of the Government of Canada are subject to the Policy. For projects on non-federal lands and waters, such losses are evaluated in terms of the scope of any federal permits, licenses, authorizations and other instruments under federal jurisdiction which may be applicable. The Policy has a no-net-loss of wetland functions objective and, as such, necessitates a consideration of all wetland functions which could be impacted by a project. For ECCC, functions of specific interest include those important to migratory birds and species at risk.

The Policy recognizes the importance of considering cumulative effects and tailors expected outcomes for wetlands to the level of cumulative effects experienced in the area. ECCC applies the Policy to ensure that project-related impacts to sensitive wetland/riparian habitats are appropriately addressed. ECCC advises that impacts to wetlands, related riparian areas and their associated functions be avoided wherever possible. Where avoidance is not possible, appropriate mitigation measures should be employed to minimize impacts. Where there are residual impacts that cannot be addressed through mitigation measures, compensation is recommended.

Air Quality Management System

The Air Quality Management System (AQMS) is a comprehensive approach for improving air quality in Canada and is the product of collaboration by the federal, provincial and territorial governments and stakeholders. It includes: new Canadian Ambient Air Quality Standards (CAAQS) to set the bar for outdoor air quality management across the country, a framework for air zone air management within provinces and territories that enables action tailored to specific sources of air emissions in a given area, regional air sheds that facilitate coordinated action where air pollution crosses a border, industrial emission requirements that set a base level of performance for major industries in Canada, and improved intergovernmental collaboration to reduce emissions from the transportation sector.

CAAQS are health-based air quality objectives for pollutant concentrations in outdoor air. Under the AQMS, ECCC and Health Canada established air quality standards for fine particulate matter and ground-level ozone, two pollutants of concern to human health and the major components of smog. These standards are more stringent and more comprehensive than the previous Canada-wide standards for these pollutants. Furthermore, the CAAQS lower the short-term limits and introduce new limits for long-term exposure for fine particulate matter.

Canadian Environmental Quality Guidelines

The guidelines provide nationally endorsed science based goals for the quality of atmospheric, aquatic, and terrestrial ecosystems. The guidelines provide chemical-specific fact sheets that summarize the key scientific information and rationale for each substance, detailed summary tables of recommended guidelines for the different media and resource uses, and the protocols used in developing the guidelines, along with their associated implementation guidance. Indices of water quality, soil quality and sediment quality are also included.