



Environment Environnement
Canada Canada

ENVIRONMENTAL PROTECTION OPERATIONS

Prairie and Northern Region
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Edmonton, Alberta T6B 2X3

September 25, 2007

Our file: 4708 001 008

Gabrielle Mackenzie-Scott,
Chairperson
Mackenzie Valley Environmental Impact Review Board
P.O. Box 938,
Yellowknife, NT X1A 2N7

By Email & Facsimile: 766-7074

Dear Ms Mackenzie-Scott:

Please find attached Environment Canada's written submission to the Mackenzie Valley Environmental Impact Review Board (MVEIRB) with respect to the scheduled Public Hearings concerning Tamerlane Ventures Inc.'s proposal to proceed with the Pine Point Pilot Project in the NWT.

Jesse Jasper, Environmental Assessment Coordinator for the Meteorological Services of Canada, will be in attendance at the public hearing to make a formal presentation of this intervention, and will be available to respond to any questions which the MVEIRB members, the proponent, or the public may have concerning the issues raised by Environment Canada in this submission. We would like to note that Environment Canada's review did not encompass groundwater issues, as we do not have in-house expertise in that aspect. Environment Canada staff have reviewed the report submitted Sept. 24th by the MVEIRB's expert advisors, and concur with the points made respecting discharge water quality (section 2.2), the assessment of environmental impacts of deep well disposal (section 2.3), and groundwater monitoring (Section 2.4).

If you wish clarification on any aspect of this submission prior to the public hearing, please contact Anne Wilson at (867) 669-4735 or by email at anne.wilson@ec.gc.ca.

Yours sincerely,

Cheryl Baraniecki
Manager, Environmental Assessment

cc: Carey Ogilvie (Head, Environmental Assessment – North, EPOD Yellowknife)
Anne Wilson (Water Pollution Specialist, EA-North, EPOD)
Jesse Jasper (EA Coordinator, MSC)

ENVIRONMENT CANADA'S

SUBMISSION TO THE

**MACKENZIE VALLEY ENVIRONMENTAL
IMPACT REVIEW BOARD**

FOR THE PUBLIC HEARINGS ON THE

PINE POINT PILOT PROJECT

DEVELOPERS ASSESSMENT REPORT

SUBMITTED APRIL 2007

BY

TAMERLANE VENTURES INC.

September 2007

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NON-TECHNICAL EXECUTIVE SUMMARY

Contributing to the realization of sustainable development in Canada's North is a priority for Environment Canada (EC). The Department focuses on the provision of scientific expertise for incorporation into decisions on developments, such that all parties working together can ensure that there is minimal impact on the natural environment, and that ecosystem integrity is maintained and preserved. Toward these goals, the Department has reviewed the Tamerlane Ventures Inc. Developer's Assessment Report and supporting documents for the proposed Pine Point Pilot Project, as well as the supplementary information that has been provided to the Mackenzie Valley Environmental Impact Review Board (MVEIRB).

Environment Canada's submission focuses on issues that fall within EC's mandated responsibilities with respect to the potential for environmental effects on species at risk, migratory birds, and air quality, and those related to water management. The following recommendations are provided to the MVEIRB:

Species at Risk:

- If Species at Risk are encountered or affected, the primary mitigation measure should be avoidance. The proponent should avoid contact with or disturbance to each species, its habitat and/or its residence.
- Monitoring should be undertaken by the proponent to determine the effectiveness of mitigation and/or identify where further mitigation is required.
- Mitigation and monitoring measures must be implemented in a way that is consistent with applicable recovery strategies and action/management plans.
- The proponent should undertake monitoring for Whooping Cranes near the project site. Any observations of Whooping Cranes should be reported to Environment Canada.
- The proponent should conduct a survey for Yellow Rails near the project site. Any observations of Yellow Rails should be reported to Environment Canada.

Migratory Birds:

- Environment Canada recommends that the Proponent undertake mitigation measures to minimize the risk of bird collisions with the proposed power line on the project site.
- Environment Canada recommends that the Proponent undertake predator control measures (detailed in our report).

Water Management:

- Environment Canada recommends that details of the injection wells operation and associated contingency plans be included in an adaptive management plan to be developed at the regulatory stage.

Air Quality

- Environment Canada would like to underscore the importance of dust containment during all aspects of handling of the ore and concentrate, to prevent contamination of the transportation corridor.

Environment Canada would like to thank the MVEIRB for the opportunity to comment on the proposed Pine Point Pilot Project, and we hope that these technical comments and recommendations are useful to the Board in their decision making process. Environment Canada respectfully requests the opportunity to submit additional written comments after the public hearings to address any new information brought forward at the hearings.

SECTION 1.0: INTRODUCTION

Contributing to the realization of sustainable development in Canada's North is a priority for Environment Canada (EC). The Department focuses on the provision of scientific expertise for incorporation into decisions on developments, such that all parties working together can ensure that there is minimal impact on the natural environment, and that ecosystem integrity is maintained and preserved. Toward these goals, the Department has reviewed the Tamerlane Ventures Inc. Developer's Assessment Report (DAR) for the proposed Pine Point Pilot Project and the supplementary information that has been provided to the Mackenzie Valley Environmental Impact Review Board (MVEIRB).

Environment Canada's submission focuses on issues related to the environmental effects on or related to migratory birds, species at risk, water management, and air quality.

This document is divided into four main sections. Section One provides an overview of EC's mandate and regulatory responsibilities. Section Two provides an overview of the Project and the environmental assessment process to date. Section Three provides EC's technical comments and recommendations to the proponent in response to the DAR and supporting documents. Finally, a summary of the submission is provided in Section Four.

1.1 Mandate of Environment Canada

The general mandate of EC is defined by the *Department of the Environment Act*. This Act provides the Department with a general responsibility for environmental management and protection in terms of the need to foster harmony between society and the environment for the economic, social, and cultural benefit of present and future generations of Canadians. The Department shares this responsibility with the provinces and territories. Environment Canada is also responsible for providing specialist or expert information and knowledge to federal government agencies and for the preservation and enhancement of environmental quality.

1.2 Regulatory Responsibilities

Environment Canada is participating in the review of the proposed Pine Point Pilot Project in order to provide specialist expertise, information and knowledge to the MVEIRB. Environment Canada will not be issuing any permits or authorizations for the proposed Project.

1.3 Relevant Legislation, Regulations, Policies and Guidelines

The following relevant legislation administered or adhered to by EC influenced the content of this submission: *Department of the Environment Act*, *Canadian Environmental Assessment Act*, *Canadian Environmental Protection Act, 1999*, *Fisheries Act – Pollution Prevention Provisions*, *Migratory Birds Convention Act* and *Migratory Bird Regulations*, and the *Species at Risk Act*. Various regulations, policies and guidelines stem from these legislations. Details regarding the legislation, regulations, policies and guidelines are provided in Appendix A.

SECTION 2.0: BACKGROUND

Tamerlane Ventures Inc. (TVI) is proposing to carry out a one million tonne bulk sample ore extraction at the R190 mineral deposit site near Pine Point, NT. The proposed project will include mining and crushing of ore (also using dense media separation) to produce lead/zinc concentrate, and will identify the potential for full-scale mining using freeze-curtain technology to isolate the deposits from groundwater inflows.

Technical meetings were held in July 2007 in Hay River, NT, in which TVI committed to use of a deep injection well for wastewater disposal instead of using an exfiltration pit. Following the Technical Sessions a second round of Information Requests (IRs) were also submitted to the proponent in August 2007, for response by the developer and other parties.

This submission takes into consideration all of the documents submitted with the DAR, as well as the responses to the information requests dated May and August/September, 2007. At the time of this submission, EC is awaiting the project-specific air quality assessment which was commissioned by TVI in July, and we will be unable to provide our comments on air quality issues until that has been received and reviewed.

Should new or additional relevant information be brought forward by the proponent or be identified during the final public hearings, this submission will be re-examined. Within the context of the additional information, any changes in EC's recommendations and position will be brought to the attention of the MVEIRB and the proponent.

SECTION 3.0: TECHNICAL COMMENTS

Environment Canada appreciates the cooperative approach taken by Tamerlane Ventures Inc. in working with the various interveners to address outstanding issues. While many of EC's concerns regarding the project have been addressed during the review of the DAR and subsequent information submitted, a number of issues will need to be addressed through future actions and commitments, as summarized in this report.

SECTION 3.1: MIGRATORY BIRDS AND SPECIES AT RISK

The Canadian Wildlife Service (CWS) of EC administers and enforces the *Migratory Birds Convention Act* (MBCA) and *Migratory Bird Regulations* (MBR). Section 6 (a) of the MBR states that no one shall destroy or disturb the nests or eggs of migratory birds and Section 5.1 of the MBCA prohibits persons from depositing substances harmful to migratory birds in waters or areas frequented by migratory birds or in a place from which the substance may enter such waters or such an area. Environment Canada also administers and enforces the *Species at Risk Act* (SARA). Section 32 (1) of SARA states that no person shall kill, harm, or harass an individual of a species listed as 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 a endangered or threatened (a “residence” being defined as a dwelling-place such as a den, nest or other similar area or place that is occupied during all or part of the species life-cycle).

CWS provides expert advice in environmental assessment review processes focusing primarily on identifying potential adverse effects to migratory bird populations, habitats, and species at risk and appropriate measures to mitigate those effects. The advice provided in an environmental assessment process does not constitute an authorization for incidental take under the MBR or SARA, nor does it assure that the project will not result in the killing or taking of a migratory bird or its nest or a species at risk. Furthermore, the advice does not absolve project proponents from their obligation to comply with all provisions of the MBCA, MBR and SARA.

Issue 3.1.1: Identification of Adverse Effects, Mitigation, and Monitoring for Species at Risk

Document Name(s): Appendix B-3 – Wildlife Baseline Studies; **Document Section(s):** 3.3; **Page Number(s):** 8

Proponent’s Conclusion

The proponent noted that eight species occurring or potentially occurring in the study area have been ascribed, or are currently being assessed for special conservation status by SARA, including the Whooping Crane, Peregrine Falcon, woodland caribou, wood bison, Short-eared Owl, northern leopard frog, Yellow Rail, and wolverine.

Environment Canada’s Conclusion

Section 79 (2) of SARA, states that during an assessment of effects of a project, the adverse effects of the project on listed wildlife species and its critical habitat must be identified, that measures are taken to avoid or lessen those effects, and that the effects need to be monitored. This section applies to all species listed on Schedule 1 of SARA. However, as a matter of best practice, Environment Canada suggests that species on other Schedules of SARA and under consideration for listing on SARA, including those designated as at risk by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), be considered during an environmental assessment in a similar manner.

Terrestrial Species at Risk potentially within project area ¹	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility ²
Whooping Crane	Endangered	Schedule 1	EC
Wood Bison	Threatened	Schedule 1	GNWT
Woodland Caribou (Boreal population)	Threatened	Schedule 1	GNWT
Yellow Rail	Special Concern	Schedule 1	EC
Northern Leopard Frog	Special Concern	Schedule 1	GNWT
Short-eared Owl	Special Concern	Schedule 3	GNWT

Wolverine (Western Population)	Special Concern	Pending	GNWT
Peregrine Falcon (<i>anatum/tundrius</i>) ³	Special Concern	Pending	GNWT
Rusty Blackbird ³	Special Concern	Pending	GNWT
Common Nighthawk ⁴	Threatened	Pending	EC

¹ The Department of Fisheries and Oceans has responsibility for aquatic species.

² Environment Canada has a national role to play in the conservation and recovery of Species at Risk in Canada, as well as responsibility for management of birds described in the *Migratory Birds Convention Act* (MBCA). Day-to-day management of terrestrial species not covered in the MBCA is the responsibility of the Territorial Government. Thus, for species within their responsibility, the Territorial Government is best suited to provide detailed advice and information on potential adverse effects, mitigation measures, and monitoring.

³ Last COSEWIC designation in April 2007 changed the designation from Threatened to Special Concern and combined the *anatum* subspecies with the *tundrius* subspecies.

³ Newly listed by COSEWIC in April 2006.

⁴ Newly listed by COSEWIC in April 2007.

Environment Canada's Recommendations

- If Species at Risk are encountered or affected, the primary mitigation measure should be avoidance. The proponent should avoid contact with or disturbance to each species, its habitat and/or its residence.
- Monitoring should be undertaken by the proponent to determine the effectiveness of mitigation and/or identify where further mitigation is required. As a minimum, this monitoring should include recording the locations and dates of any observations of Species at Risk, behaviour or actions taken by the animals when project activities were encountered, and any actions taken by the proponent to avoid contact or disturbance to the species, its habitat, and/or its residence. This information should be submitted to the appropriate regulators and organizations with management responsibility for that species, as requested.
- Mitigation and monitoring measures must be implemented in a way that is consistent with applicable recovery strategies and action/management plans.

For species under the primary management responsibility of the Government of Northwest Territories (GNWT), Environment Canada anticipates the GNWT will provide expertise as to the adequacy of the information provided on these species as well as identify other appropriate mitigation and/or monitoring measures to minimize effects to these species from the project.

Environment Canada's recommendations related to predator control (Issue 3.1.5) and power lines (Issue 3.1.4) will minimize impacts of the project on Migratory Birds, including Whooping Cranes, Yellow Rails, and Common Nighthawks. Additionally, specific recommendations for Whooping Cranes and Yellow Rail are given under Issues 3.1.2 and 3.1.3.

Issue 3.1.2: Monitoring for Whooping Cranes

Document Name(s): Wildlife Baseline Studies - Pine Point Project; **Document Section(s):** 3.3.1; **Page Number(s):** 8 to 9

Proponent's Conclusion

The proponent has correctly identified the Whooping Crane as an endangered species listed on SARA (Schedule 1) and potentially occurring within the range of their proposed project. A Whooping Crane was observed at a recently flooded beaver pond within the study area during the 2005 September bird surveys.

Environment Canada's Conclusion

Whooping Cranes are of concern, as there are less than 400 in existence in the wild. Whooping cranes nest south of the project area and young, non-breeding "sub-adults" may be seen in the project area. As such, monitoring should be done to ensure that, if Whooping Cranes are using the area at the same time as project activities, any adverse effects are avoided or lessened.

Environment Canada's Recommendations

The proponent should undertake monitoring for Whooping Cranes near the project site.

- Wetland areas near the project site, including the area identified as Shrubby Fen in the Local Study Area, should be visually checked every two weeks from May to September to see if any cranes are present. If a Whooping Crane is observed, the wetland area should be visually checked on a weekly basis for crane(s) and measures undertaken to avoid disturbance to the bird. Environment Canada should be contacted to determine whether any further mitigation measures might be required.
- Project personnel should also be instructed to report any sightings of Whooping Cranes. Observations should include the location, date, number of cranes, behaviour or actions taken by the animals if project activities encountered, and any actions taken by the proponent to avoid contact or disturbance. Any observations of Whooping Cranes should be reported to Environment Canada.

Issue 3.1.3: Baseline Survey for Yellow Rail

Document Name(s): Developer's Assessment Report; **Document Section(s):** 2.12.2; **Page Number(s):** 73

Proponent's Conclusion

The proponent notes that the Yellow Rail, a species of special designation, could occur within the study area. No Yellow Rails were detected during the baseline bird surveys conducted by the proponent.

Environment Canada's Conclusion

Recent observations of Yellow Rail in June between 2004 and 2007 in the Northwest Territories by the Canadian Wildlife Service suggest that Yellow Rail may be more abundant and widespread in the Northwest Territories than previously thought. These observations of Yellow Rails were in shrubby wetlands. Yellow Rails are secretive

wetland birds that are rarely seen. Their peak calling period is during the night, and thus they are not always detected by the typical early morning bird surveys. There is uncertainty as to whether the baseline bird surveys done by the proponent would have detected Yellow Rail in the area. Furthermore, Shrubby Fen (possible Yellow Rail habitat) occurs within the Local Study Area of the proposed project. Surveys specifically directed at detecting Yellow Rails would confirm whether or not the birds are present in the area.

Environment Canada's Recommendations

The proponent should conduct a survey for Yellow Rails near the project site.

- The area identified as Shrubby Fen in the Local Study Area and any other wetland areas near the project site should be surveyed for Yellow Rails in June 2008 or the year before project activities begin. The proponent should contact Environment Canada for details on standardized Yellow Rail survey protocols. If Yellow Rails are observed or heard, measures should be undertaken to avoid disturbance to the birds, the area should be re-surveyed in subsequent years, and Environment Canada contacted to determine whether any further mitigation measures might be required.
- Project personnel should also be instructed to report any sightings of Yellow Rails. Observations should include the location, date, number of birds, behaviour or actions taken by the birds if project activities encountered, and any actions taken by the proponent to avoid contact or disturbance. Any observations of Yellow Rails should be reported to Environment Canada.

Issue 3.1.4: Risk of Bird Collisions with Power Lines

Document Name(s): Notes from Video Conference July 5, 2007

Proponent's Conclusion

The proponent is proposing to have a 200 to 500 metre power line from their project facilities. The Developer's Assessment Report did not assess the risk of bird collisions with the proposed power line.

Environment Canada's Conclusion

Birds, including Species at Risk such as Whooping Cranes, have been killed from collisions with power lines. Mitigation measures can be done to minimize the risk of bird collisions and these were discussed with the proponent during the July 5, 2007 video conference.

Environment Canada's Recommendations

Environment Canada recommends that the Proponent undertake mitigation measures to minimize the risk of bird collisions with the proposed power line on the project site. Environment Canada should be contacted for further details on specific mitigation measures.

Issue 3.1.5: Potential Increase in Predation on Migratory Birds due to Project Development

Document Name(s): Developer Assessment Report; **Document Section(s):** 7.8.4; **Page Number(s):** 333-334

Proponent's Conclusion

The Developer's Assessment Report did recognize that certain wildlife species may be attracted to project facilities. To minimize the potential attraction/habituation of certain wildlife species to the project area, the proponent is planning to store all foods and human garbage in wildlife-proof containers prior to offsite disposal. The Developer's Assessment Report did not identify that the project may also result in increased nesting, roosting, and denning sites for predators of birds. The proponent has stated that it is willing to conduct limited wildlife monitoring in the immediate vicinity of the development area and is prepared to record all significant wildlife observations made by personnel while in the project area.

Environment Canada's Conclusion

The project may increase potential predators on migratory birds (such as raptors, ravens, foxes, and bears) to the area. Increases of these predators in an area can have negative effects on local bird populations, including Species at Risk such as Whooping Cranes, Yellow Rails, and Common Nighthawks. Preventing attraction includes not only good waste management practices, but also consideration of building design to discourage roosting, nesting, and denning sites on or within the infrastructure. Suggestions on potential infrastructure design to reduce roosting, nesting and denning were discussed with the proponent during the video conference on July 5, 2007.

Environment Canada's Recommendations

Environment Canada recommends that the Proponent undertake the following predator control measures:

- All wildlife should be prevented from gaining access to solid and liquid waste and other wildlife attractants;
- All structures should be designed to preclude nesting and roosting sites for avian predators or den sites for mammalian predators;
- Orientation for project personnel should include best practices with regard to waste management and avoiding wildlife; and,
- Regular surveillance of facilities and project waste sites for the presence of wildlife to ensure that the predator control measures are effective.

SECTION 3.2: WATER MANAGEMENT ISSUES

Issue 3.2.1: Use of an injection well and contingency disposal methods.

Document Name(s): IR0607-002-45, -35

Proponent's Conclusion

Following the July 17-18 Technical Sessions the Proponent has revised the wastewater disposal method from use of the quarry area as an infiltration basin, to downhole disposal in a deep injection well. Contingency plans for wastewater disposal include maintaining a second well, and planning for use of the quarry area to construct a lined holding pond for use in the event both injection wells are not functioning.

Environment Canada's Conclusions

Use of an injection well is preferable to the initially proposed infiltration basin, and EC supports the additional contingencies of a second well plus a lined containment area to be used in the case of both wells failing. As identified in the course of the technical meetings, there are some uncertainties around water quality and the potential for plugging of the wells due to mine water sediments or chemical precipitates from the saline groundwater clogging pores and fractures in bedrock surrounding the injection well outlet. Tamerlane is partially addressing this by doing further bench scale testing, and will have also have an opportunity to learn from experience in the early operating stages of the mining work, as information is gleaned on water quality and quantity.

It appears that the containment area will be constructed at the same time as the wells, and is intended to be used only if both wells are not working for water disposal, and will provide about four days holding capacity. This would allow for settling and removal of solids which will then be directed to the backfill system. It is not clear how the containment area will operate under freezing conditions, when recycling of water or solids removal may be problematic.

Environment Canada's Recommendation

Plans for the injection wells and containment area have been recently developed, and along with the containment area should provide reasonable water management options. EC recommends that details of their operation and associated contingency plans be included in an adaptive management plan to be developed in the regulatory stage. The plan should include contingencies for water treatment of suspended solids as well as regulated constituents of the wastewater. Methods for addressing injection blockage problems (e.g. injection of water under pressure, injection of drilling muds under pressure to fracture bedrock, use of chemicals to dissolve precipitates, etc) should be reviewed and included.

SECTION 3.3: AIR QUALITY ISSUES

Issue 3.3.1: Site-specific air quality assessment

Document Name(s): DAR; ***Document Section(s):*** 7.7.1; ***Page Number(s):*** page 319-324. ***Also:*** IR0607-002-54

Proponent's Conclusion

TVI commissioned a project specific air quality assessment in July 2007 which would include air dispersion modeling for the Pine Point Pilot Project. This was done in response to concerns from EC and GNWT that site-specific factors needed to be used in the assessment.

Environment Canada's Conclusions and Recommendations

EC is unable to provide comments and recommendations until the air quality assessment report is available. We anticipate this should be available for review prior to the public hearing, and EC will advise the MVEIRB of any concerns and recommendations as soon as possible.

Issue 3.3.2: Fugitive dust emissions along transportation corridor to Hay River ore transfer/loadout facility.

Document Name(s): DAR; ***Document Section(s):*** 7.7.1; ***Page Number:*** page 323. ***Also:*** IR0607-002-35, -37

Proponent's Conclusion

Dust release from the concentrate will be prevented through the use of covered trucks and maintaining the product in a moist condition.

Environment Canada's Conclusions

EC has concerns with the escape of dust during transport, and references recent studies done in Alaska of contamination of the transportation corridor for the Red Dog Mine. Reports done by the US Geological Survey and the National Parks Service have documented significant concentrations of lead, zinc, and cadmium in snow and vegetation along the transportation system easement from the mine to the shipping point.

While acknowledging that the Pine Point Pilot Project will be occurring on a small scale, we note the potential for future ore extraction which may extend the trucking duration and volumes.

A report done by the Alaskan State Government includes the following relevant information:

“The primary sources and mechanisms of fugitive dust transport along the DMTS road include tracking (adhering to the tires or other surfaces of the haul trucks, and subsequently being deposited onto the road), and windblown dust from the road surface. Dust on truck surfaces may be blown from those surfaces and carried onto the road or into the surrounding environment. Surface water runoff from the road can carry metals containing dust from the surface of the road to the tundra just off the road shoulder. In the past, concentrate spillage and escapement from trucks was likely a significant factor; however, new trucks with

hydraulically closed steel covers that seal tightly may have minimized or possibly eliminated this source.”

http://arcticcircle.uconn.edu/SEEJ/RedDog/alaska_dec/

Environment Canada’s Recommendation

EC would like to underscore the importance of dust containment during all aspects of handling of the ore and concentrate. Trucks which will be used to transport the ore should not only be covered, but should be checked to ensure there are no openings in the concentrate hold which would allow the escape of materials.

SECTION 4.0: SUMMARY OF RECOMMENDATIONS

Environment Canada would like to thank the MVEIRB for the opportunity to comment on the Pine Point Pilot Project DAR, and we hope that these technical comments and recommendations are useful to the MVEIRB in their decision making process.

Environment Canada respectfully requests the opportunity to submit additional written comments after the public hearings to address any new information brought forward at the hearings.

Species at Risk:

- If Species at Risk are encountered or affected, the primary mitigation measure should be avoidance. The proponent should avoid contact with or disturbance to each species, its habitat and/or its residence.
- Monitoring should be undertaken by the proponent to determine the effectiveness of mitigation and/or identify where further mitigation is required.
- Mitigation and monitoring measures must be implemented in a way that is consistent with applicable recovery strategies and action/management plans.
- The proponent should undertake monitoring for Whooping Cranes near the project site. Any observations of Whooping Cranes should be reported to Environment Canada.
- The proponent should conduct a survey for Yellow Rails near the project site, and any observations of Yellow Rails reported to Environment Canada.

Migratory Birds:

- Environment Canada recommends that the Proponent undertake mitigation measures to minimize the risk of bird collisions with the proposed power line on the project site.
- Environment Canada recommends that the Proponent undertake predator control measures (as detailed above in our report).

Water Management:

- EC recommends that details of the injection wells operation and associated contingency plans be included in an adaptive management plan to be developed at the regulatory stage.

Air Quality

- EC would like to underscore the importance of dust containment during all aspects of handling of the ore and concentrate, to prevent contamination of the transportation corridor. Trucks which will be used to transport the ore should not only be covered, but should be checked to ensure there are no openings in the concentrate hold which would allow the escape of materials.

APPENDIX 1: RELEVANT LEGISLATION, POLICIES AND GUIDELINES

Department of the Environment Act

The *Department of the Environment Act (DOE Act)* provides EC with general responsibility for environmental management and protection. Its obligations extend to and include all matters over which Parliament has jurisdiction, and have not by law been assigned to any other department, board, or agency of the Government of Canada as related to:

- Preservation and enhancement of the quality of the natural environment (e.g. water, air, soil)
- Renewable resources including migratory birds and other non-domestic flora and fauna
- Water
- Meteorology
- Coordination of policies and programs respecting preservation and enhancement of the quality of the natural environment.

The *DOE Act* states that EC has a mandated responsibility to advise heads of federal departments, boards and agencies on matters pertaining to the preservation and enhancement of the quality of the natural environment. As such, this mandate is extremely broad.

Canadian Environmental Protection Act, 1999

Proclaimed on March 31, 2000, the new *Canadian Environmental Protection Act, 1999* (CEPA 1999, referred to hereinafter as *CEPA*) is an Act respecting pollution prevention and the protection of the environment and human health in order to contribute to sustainable development. *CEPA* shifts the focus away from managing pollution after it has been created to preventing pollution. The Act provides the federal government with new 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.

For substances that are declared "toxic" under *CEPA* and are added to the List of Toxic Substances in Schedule 1 of the Act, instruments will be proposed to establish preventive or control actions for managing the substance and thereby reduce or eliminate its release into the environment. These tools may be used to control any aspect of the substance's life cycle, from the design and development stage to its manufacture, use, storage, transport and ultimate disposal.

Examples of preventive and control instruments include:

- regulations;
- pollution prevention plans;
- environmental emergency plans;
- environmental codes of practice;
- environmental release guidelines; and

- pre-notification and assessment of new substances (chemicals, biochemicals, polymers, biopolymers, and animate products of biotechnology).

Authority to require emergency plans for toxic or other hazardous substances is provided in Part 8 of *CEPA*. Environmental emergency plans for such a substance(s) must cover prevention, preparedness, response and recovery.

Fisheries Act - Pollution Prevention Provisions

The Minister of Fisheries and Oceans is legally responsible to Parliament for administration and enforcement of all sections of the *Fisheries Act*. However, under a Prime Ministerial Instruction (1978) and a Memorandum of Understanding (1985), EC administers and enforces those aspects of the Act dealing with the prevention and control of pollutants affecting fish. In this context, EC works to:

- advance pollution prevention technologies;
- promote the development of preventative solutions; and
- work with the provinces, territories, industry, other government departments and the public on issues relating to the pollution provisions of the *Fisheries Act*.

The main pollution prevention provision is found in subsection 36(3) of the Act, and is commonly referred to as the "general prohibition". This subsection prohibits the deposit, into fish-bearing waters, of substances that are deleterious to fish. The legal definition of "deleterious substance" provided in subsection 34(1) of the Act, in conjunction with court rulings, provides a very broad interpretation of deleterious and includes any substance with a potentially harmful chemical, physical or biological effect on fish or fish habitat. One measure of a deleterious substance (such as a liquid discharge) is acute lethality as measured by the standard 96 hour fish bioassay test.

Migratory Birds Convention Act

The purpose of the *Migratory Birds Convention* (1916, amended by Protocol in 1999) is to ensure the conservation of migratory birds, as defined in the *Act*, and prohibit the take of migratory birds except for scientific, educational, avicultural, or other specific purposes consistent with the principles of the Convention. The *Migratory Birds Convention Act (MBCA)*, based upon the Convention, provides the authority for the *Migratory Bird Regulations (MBR)*, which establishes specific prohibitions and defines activities which may be permitted, and the circumstances under which such permitted activities may take place.

The Canadian Wildlife Service (CWS) of Environment Canada administers and enforces the *MBCA* and *MBR*. CWS provides expert advice in environmental assessment review processes. CWS focuses primarily on identifying potential adverse effects to migratory bird populations and habitats, and appropriate measures to mitigate those effects. The advice provided in an environmental assessment process does not constitute an authorization for incidental take under the *MBR*'s, nor does it assure that the project will not result in the killing or taking of a migratory bird or its nest. Furthermore, the advice

does not absolve project proponents from their obligation to comply with all provisions of the MBCA and MBR.

Species at Risk Act

The *Species at Risk Act (SARA)* provides a framework for actions across Canada to ensure the survival of wildlife species and the protection of our natural heritage. It sets out how to decide which species are a priority for action and what to do to protect a species. Three federal Ministers have responsibilities under *SARA*; the Minister of Fisheries and Oceans is responsible for aquatic species at risk, the Minister of Heritage (through Parks Canada Agency) is responsible for species at risk found in national parks, national historic sites or other protected heritage areas, and the Minister of the Environment is responsible for all other species at risk, and is also responsible for the administration of the *Act*.

The *Species at Risk Act* is being brought into force through a phased approach. Phase 1 came into force March 24, 2003 and set out amendments to other related federal laws including the *Canada Wildlife Act*, *Migratory Birds Convention Act (1994)*, and the *Wild Animal and Plant Regulation of International and Inter-provincial Trade Act*. As of June 5, 2003, Phase 2 of the Act emphasizing consultation, stewardship, cooperation and information about the law came into effect. The remaining sections of *SARA* (Phase 3), the *SARA* prohibitions, critical habitat protection, and enforcement of the law, came into effect on June 1, 2004.

SARA applies on all federal lands, and on those territorial lands where the territorial government does not have its own specific legislation to protect species at risk (the “safety net” clause). All species included on the List of Wildlife Species at Risk (i.e. endangered, threatened, extirpated and special concern) will require the development of either recovery strategies or management plans. Further, projects that require an environmental assessment under an Act of Parliament will have to take into account the project’s effects on listed wildlife species and their critical habitat. The assessment must include recommendations for measures to avoid or reduce adverse effects and plans to monitor the impact of the project, if it goes ahead. The project plan must respect recovery strategies and action plans. All other *SARA* prohibitions will still apply.

The Canadian Biodiversity Strategy

In 1992, more than 160 countries, including Canada, signed the United Nations Convention on Biological Diversity (the Convention) at the United Nations Conference on Environment and Development (the Earth Summit), held in Rio de Janeiro. The goals of the Convention are to conserve the ecosystem, species and genetic diversity, to ensure that the Earth's biological resources are used wisely and to ensure that the economic benefits from using these resources are shared fairly and equitably. Conservation of biodiversity and sustainable use of biological resources are necessary to ensure that the economic, societal and environmental benefits can be available to current and future generations.

One of the key obligations for parties that ratified the Convention was to prepare a national biodiversity strategy. The Canadian Biodiversity Strategy (the Strategy) was prepared as a response to this obligation and has been developed as a guide to the implementation of the Biodiversity Convention in Canada. According to the Strategy, federal, provincial and territorial governments, in cooperation with stakeholders and members of the public, will pursue implementation of the directions contained in the Strategy according to their policies, priorities and fiscal capabilities.

Environment Canada in collaboration with other federal agencies, provincial and territorial environmental and resource management agencies, industry and a range of non-governmental organizations completed the Strategy in 1995, based in part on the principles of the *Canada Wildlife Act* and “A Wildlife Policy for Canada”. The Strategy supports wildlife biodiversity and conservation and increases the focus on integrated and ecosystem-based approaches to conservation based on Canada’s existing legislation.

While the Strategy does not deal with the mining sector specifically, it does provide a framework for jurisdictions to consider biodiversity when addressing environmental issues. The goals of the Strategy are to:

- Conserve biological biodiversity and sustainable use of biological resources.
- Improve our understanding of ecosystems and increase our resource management capacity.
- Promote an understanding of the need to conserve biodiversity and sustainably use biological resources.
- Maintain or develop incentives and legislation that support biodiversity conservation and sustainable use.
- Work with other countries to meet the objectives of the Convention.

The Federal Policy on Wetland Conservation

In 1991, The Federal Policy on Wetland Conservation was adopted by the Government of Canada. This policy promotes the wise use of wetlands and elevates concerns for wetland conservation to a national level. The policy promotes the concepts of cooperative approaches to wetland conservation, the need for linkages between wetlands conservation and other related initiatives (e.g. water policy, wildlife conservation, etc.), promotion of the concept of no net loss of wetland functions for federal lands and the promotion of wetland protection through adequate consideration of wetland concerns in environmental assessments of new development projects.

The federal policy holds No Net Loss of wetland functions as its target for conservation of wetlands. Similarly, this guideline emphasizes the need for environmental assessment to ensure every effort has been made on the part of the proponent to prevent loss of wetland functions.