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Louise Knox
Regional Director, Ontario Region
Canadian Environmental Assessment Agency
55 St. Clair Avenue East, Room 907
Toronto, ON M4T 1M2

Dear Ms. Knox:

Re: Request for Advice Regarding the Cliffs Chromite Project

This is in response to your letter of August 23, 2011 to Esther Bobet of Environment Canada (EC) requesting our opinion on whether the proposed Cliffs Chromite Project may cause significant adverse effects, taking into consideration mitigation measures EC considers appropriate. This response is in context of our departmental mandates and based on information received by us from the proponent, Cliffs Natural Resources Inc. (Cliffs), and the information presented in letters representing concerns of potentially affected First Nations, namely, the Chiefs of Mattawa First Nations and the Chiefs of Mushkegowuk Council.

EC has reviewed the proponent's Project Description, dated May 2011, and proposed baseline study work plans for the four key components of the proposed project: the mine, ore processing facility, ferrochrome production facility and integrated transportation system. EC has also reviewed letters received by the federal Minister of the Environment from First Nations expressing concerns about the proposed project and about development in the Ring of Fire in general.

Based on the information provided at this stage in the environmental assessment, EC cannot determine whether or not the project as proposed will cause significant adverse effects. We can, however, identify areas of uncertainty where the potential for significant impacts exists, and suggest an approach to addressing them.

Mine and Ore Processing Facility

- Potential Adverse Effects on Water Quality and Wildlife

The proposed mine tailings cells and waste rock piles may result in discharges of metals and other contaminants into water bodies in and adjacent to the mine site via surface runoff and leachate seepage. As the target mineral of this mining project is chromite, it is expected that hexavalent and trivalent chromium will likely be released into the environment, with trivalent chromium in the ore and waste rock potentially oxidizing into hexavalent chromium. Hexavalent chromium is a priority substance regulated by the *Canadian Environmental Protection Act, 1999* (CEPA) on the basis it may have an immediate or long-term harmful effect on the environment or its biological diversity and constitutes or may constitute a danger to human life or health. Hexavalent chromium occurs in small amounts naturally in the environment and is also released through various industrial processes.

Insufficient baseline information has been provided to date for EC to determine the extent to which hexavalent chromium is naturally present in the environment at the mine site. As well, insufficient project details have been provided by which to assess the potential for hexavalent chromium to be discharged into the aquatic environment via the mine tailings and waste rock management and the proposed ore processing.

To understand the significance of hexavalent chromium in the project and downstream aquatic environments, information is also needed on the potential for uptake of hexavalent chromium and its compounds by exposed biota. This would assist in determining chronic and acute toxicity in organisms, and in predicting the transfer of this CEPA regulated substance through the food chain. As no information has been provided by Cliffs on this issue to date, EC is unable at this time to determine the potential significance of any exposure to hexavalent chromium by wildlife, such as aquatic birds, and species at risk, such as Woodland Caribou.

In summary, EC has concerns about the potential for elevated concentrations of hexavalent chromium and other metals in the receiving environment as a result of the project mine waste management and ore processing but has insufficient information to determine with any certainty at this time whether these concentrations may cause signficant adverse effects on water quality and wildlife.

Ferrochrome Production Facility

- Potential Adverse Effects on Air Quality and First Nations

The location of the proposed ferrochrome facility is not yet determined, although Capreol in the City of Greater Sudbury is presented as a base case in Cliffs' Project Description. The precise location of the ferrochrome facility is crucial to assessing the combined impact of air emissions from the facility's base metal smelting process and the ambient air quality to determine potential for exceedances of relevant air quality criteria. This would be of particular concern if the facility were to be located near reserve lands, because of potential transboundary effects on First Nations lands. Additionally, if the facility were to be sited on reserve lands, the lack of applicable federal regulatory controls for these emissions would also be a concern.

Without more information about the final location of the proposed ferrochrome production facility and without details of its proposed construction and operation, EC is unable to determine whether this project component may cause signficant adverse effects on local and transboundary air quality.

Integrated Transportation System

- Potential Adverse Effects on Wildlife

The proposed integrated transportation system associated with the Cliffs Mine, and potentially with future developments, includes 260 km of new all-season road. This new road is to be located in one of the largest areas of intact boreal forest on the planet and within or adjacent to the globally significant peatlands of the Hudson Bay Lowlands. Changes in these sensitive habitats due to the transportation corridor may cause issues for migratory birds and other important wildlife communities related to habitat loss and fragmentation, increased disturbance, and increased edge effects.

Several migratory bird species at risk are known to occur in Northern Ontario and have the potential to be impacted by the project. These include: Canada Warbler, Common Nighthawk, Whip-poor-will, Olive-sided Flycatcher, which are all listed as Threatened on Schedule 1 the *Species at Risk Act* (SARA); and, Rusty Blackbird, a species of Special Concern on Schedule 1 of SARA. The project also lies within the Atlantic and Mississippi Flyways and, consequently, a large number of migratory birds, including waterfowl, pass through the area.

The mining area and transportation corridor will bisect habitats within the range of the Boreal population of Woodland Caribou (Listed as Threatened on Schedule 1 of SARA). Furthermore, these developments may have direct effects on proposed areas of critical habitat as identifed in the National Woodland Caribou Boreal population Recovery Strategy, which was released in draft for public comment on August 26, 2011. Forest fragmentation and development are key threats to Woodland Caribou so the Cliffs Chromite mine project, along with other mining developments within the Woodland Caribou range of Ontario, will need to be assessed for possible cumulative effects on caribou populations and habitats.

Limited baseline information has been provided to date on wildlife use of areas adjacent to and along the transportation corridor. EC therefore is unable to determine at this time whether this component of the project as proposed may cause significant adverse effects on migratory birds, including migratory bird species at risk, and other species at risk such as Woodland Caribou.

Conclusion

EC understands that this project, if built, would be the first large chromite mine in North America and that chromite and other mineral deposits discovered in the Ring of Fire cover an expansive land base in northern Ontario. The access corridor proposed for this mine would also open a large area of currently remote northern Ontario that could induce additional development proposals including other mines, hydroelectricity generation and transmission and forestry. Given that the project is sited in the upper reaches of several major watersheds which outlet to the highly sensitive and ecologically important James Bay and Hudson Bay coastal ecosystems, the potential for cumulative effects to occur outside of the project area also needs to be considered. The cumulative effects of known and anticipated mining and other developments on Ontario's Far North could be substantial if not sufficiently understood and managed at the regional scale.

EC is therefore of the opinion that a regional environmental assessment process that considers the interconnectivity and the cumulative impact of currently proposed and anticipated future developments within and connecting to the Ring of Fire would be an appropriate approach to resolving the majority of the uncertainties expressed in this response.

Closing

Environment Canada appreciates the opportunity to provide these comments. Should you have any questions about this response, please do not hesitate to contact the undersigned at (905) 336-4953.

Yours truly,

Rob Dobos
Manager, Environmental Assessment Section

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