



Environment Canada
Environnement Canada

Environment Canada
Prairie and Northern Region
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October 29th 2010

Our File: 4780 006 040 050

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

Attention: Chuck Hubert

By email: chubert@reviewboard.ca

Re: EA0809-002 - Round 2 Information Requests on the Canadian Zinc Corporation Prairie Creek Mine Environmental Assessment

Environment Canada (EC) thanks the Mackenzie Valley Environmental Impact Review Board for the opportunity to seek additional information in the Information Request (IR) Process. Following on the Round 1 responses and the Technical Sessions held October 6th to 8th 2010, EC has several questions outstanding for Round 2.

We have had the opportunity to discuss IR's with other parties and as a result plan to submit joint IR's with Parks Canada Agency (PCA) on Spill Contingency Planning. Those IR's will be submitted by PCA on behalf of both EC and PCA.

EC encourages the Board to remove the November 29th response deadline for the developer to answer the IR's in the interest of allowing sufficient time for Canadian Zinc Corporation to compile adequate information. Our concern lies with delays which could occur later in the process should we go forward to hearings without adequate information at this stage.

Please do not hesitate to contact Anne Wilson at (867) 669-4735 or by email at anne.wilson@ec.gc.ca with any questions or concerns.

Yours truly,

Carey Ogilvie

Carey Ogilvie
Head, Environmental Assessment North (NT & NU)
Environmental Protection Operations

CC: Susanne Forbrich (Manager, Environmental Assessment, EPOD, PNR, Edmonton)
EC Review Team Distribution List

IR Number: EC-2-1
Source: Environment Canada
To: Canadian Zinc Corp. (CZN)
Subject: Effluent quality predictions
References: IR Response – EC-16 (in part)
Technical Sessions – Undertakings #3, 4, 6, 7, and 8.

Preamble:

Water quality predictions are a key element needed for evaluating the effects of a development. It is necessary to have a clear understanding of the changes which can be expected to occur during the construction, operation, and closure of the mine. To assess the effects associated with changes to water quality, effluent and non-point sources of elements must be well characterized. Predicted concentrations for the full suite of parameters contained in the effluent should be provided for maximum values, as well as for seasonal and annual averages.

With this information, the proponent can quantify the extent and magnitude of potential changes which may occur in the receiving environment. To this end, information must be presented on the extent of alteration which can occur in the receiving waters, for the full suite of parameters. This will require an understanding of effluent behaviour in the stream, including the effects of any modifying factors (such as pH, hardness, dissolved oxygen etc.) on the fate and effects of individual contaminants. Knowledge of the biological receptors will also be needed, in order to assess the effects of the discharge. The area of chronic toxicity caused by the discharge must be minimized, and there must be no acute toxicity of undiluted effluent at end of pipe. Potential contaminant-associated changes to the ecosystem should be described and quantified.

In addition to the effects of parameters which act as contaminants, there can be adverse effects or changes associated with the addition of nutrients. Prairie Creek is a phosphorus-limited oligotrophic stream, with median total phosphorus concentrations of 0.005 mg/L. Phosphorus in runoff can increase due to surface disturbance, and mine water can contribute a less-available form of phosphorus. Camp wastewater will be the biggest source of biologically available phosphorus, as well as nitrogen, and may cause increases in biological productivity. Predictions should be made of nutrient concentrations and loadings, and there should be a discussion of potential effects on the downstream ecosystem.

When developing predictions, it is expected that these will take into account all available mitigation measures. For example, the in-stream concentration predictions should be based on the optimum discharge configuration that can be used for minimizing creation of a discrete effluent plume, and maximizing dispersion. Realistic treatment capabilities should underlie effluent quality estimates. Where alternatives or contingencies may be needed, it is expected that these will be identified and enough detail provided to assure reviewers that the risk of poor quality effluent can be addressed.

Requests:

1. EC requests that CZN provide predictions for integrated effluent quality for all sources combined (process water, mine water, site runoff, and sewage effluent), with predicted composition to include a full list of parameters (metals, nutrients,

major ions). Values should be provided for maximum anticipated concentrations, and for seasonal and annual average concentrations.

2. EC requests that CZN provide predictions for downstream concentrations of a full suite of parameters. These should include metals, major ions, and nutrients. Predictions should be compared to water quality objectives.
3. EC requests that information on the camp wastewater be provided, and include system treatment capability, estimated discharge volumes, predicted effluent quality, and annual loadings for nutrients. Parameters of concern include pH, BOD5, TSS, total phosphorus, ammonia (as N), and nitrate (as N).
4. EC requests that CZN fully describe expected environmental changes or impacts associated with the metals, nutrient and major ions parameters.
5. EC requests that the proponent provide a description of mitigation measures available to prevent impacts, and/or as a contingency in the event concentrations are higher than predicted, or monitoring detects changes which were not predicted.

IR Number: EC-2-2
Source: Environment Canada
To: Canadian Zinc Corp.
Subject: Major ions
References: IR Response – EC-14
DAR Appendix 5

Preamble:

Changes in receiving water TDS can occur in connection with effluent discharges, due to elevated concentrations of the major ions (cations calcium, magnesium, sodium and potassium, and anions carbonate-bicarbonate, chloride and sulphate). CZN did predict that the magnitude of the TDS loads would be similar to the predictions made for sulphate (approximately 50 tonnes annually), but effluent quality predictions do not cover individual constituents. Source term predictions have been provided for pH and a list of metals (DAR Appendix 5), but not for the major ions, nor the nutrients.

In the technical meetings, CZN stated they would investigate the testing of existing samples for major ions to provide a better estimate of effluent quality for TDS.

Requests:

1. EC requests that CZN provide test results for major ion constituents, and estimate contributions from process reagents.

IR Number: EC 2-3
Source: Environment Canada
To: Canadian Zinc Corporation
Subject: Wildlife Monitoring Plan and Technical Advisory Committee
Reference: Technical Sessions – Undertaking #28

Preamble:

At the end of the Oct.6-8 technical meetings there was discussion surrounding the formation of a technical advisory committee to handle outstanding issues relating to mitigation and monitoring during operation of the mine and to provide oversight and input into monitoring programs and adaptive management.

This technical advisory committee should be involved in discussions surrounding the development of the Wildlife Monitoring Plan (WMP). In response to EC's first round IR (IR Number EC-10) requesting an updated draft of the WMP, CZN proposed that a formal WMP was not necessary at the environmental assessment stage, but accepted that it was important to have an appropriate WMP in place before operations commence, and committed to producing such a plan. During the technical hearings CZN envisioned that the technical advisory committee would be "a body that is both focused towards management and review of technical information, and also a vehicle for public engagement and interaction, including community engagement". From the technical hearings, Undertaking no. 28 requested that Canadian Zinc draw up the terms of reference for the technical advisory committee as well as suggest the parties to that committee and possible involvements, and that it be sent out for review. CZN committed to preparing such a draft. During their closing comments at the technical hearings, EC expressed their interest in having a representative from the Canadian Wildlife Service participate in the committee to address outstanding wildlife concerns with respect to the WMP.

Request:

For Canadian Zinc Corporation to:

1. Specify who they envision as being members of the technical advisory committee;
2. Provide details of how the technical advisory committee will be involved in the development of the WMP;
3. Provide a draft of the TOR for the technical advisory committee for review by potential members of the committee;
4. Provide a timeline for the provision of a revised WMP to the technical advisory committee that addresses Section 3.3.6-5 of the Terms of Reference as well as the expected timing of follow-up meetings that would allow members of the committee to review the plan and provide input into the development of the final WMP to be in place prior to the start-up of mine operations and development of the mine access road.

The revised WMP should be a stand alone document, and should therefore consolidate existing information relevant to mitigation, monitoring and adaptive management for all wildlife VECs that is currently provided in the DAR and associated appendices as well as any new information provided in response to first and second round IRs. The revised WMP should also highlight steps that are being undertaken to fulfill requirements of Section 3.3.6-5 of the Terms of

Reference that are not currently addressed, as well as how existing plans will be modified in order to be appropriate for full-scale mining covering all activities occurring at the mine site and along the transportation corridor.

IR Number: EC2-4
Source: Environment Canada
To: Canadian Zinc Corporation
Subject: Summer road maintenance
Reference: Technical Sessions – Day 2

Preamble: During the technical sessions it was revealed that summertime road maintenance will take place along the upper portions of the access road from the Mine site towards Sundog Creek. The length of this section of the access road appears to be constrained by the first point at which CZN is unable to cross a fish bearing stream. These summer maintenance activities were not described in the DAR or in 1st round IRs. EC has concerns about the potential impact of these activities on migratory birds, given that these activities will occur within the nesting season for migratory birds in boreal regions of the NWT (migratory birds may be found incubating eggs from May 7 until July 21, and young birds can be present in the nest until August 10).

Request:

For Canadian Zinc Corporation to:

1. Provide further clarification on the details of road maintenance activities to be carried out during spring and summer, the expected length of the section of the road where these activities will occur, vegetation types or sensitive terrain along this section of the road, equipment and personnel to be used during these activities and the expected timing of activities;
2. Describe any potential impacts of these spring/summer road maintenance activities on Species at Risk or migratory birds that may be encountered on or adjacent to the access road with specific consideration given to the fact that these activities will occur within the migratory bird nesting season.

CZN should note that Olive-sided Flycatcher, and Common Nighthawk are now listed on Schedule 1 of the federal *Species at Risk Act* (SARA) as threatened. Section 79(2) of SARA requires that during an environmental assessment, potential adverse effects on listed wildlife species and their critical habitat must be identified, measures must be taken to avoid or lessen those adverse effects and to monitor them, and any such measures must be consistent with any applicable recovery strategies or action plans;

3. Describe proposed mitigation to minimize potential impacts and details of any monitoring programs to verify whether mitigation is successful and to identify where adaptive management may be necessary.