APPENDIX A

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Ref. No. 16987

April 28, 2011

Canadian Zinc Corporation
Suite 1710 - 650 West Georgia Street
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V6B 4N9

Attention: David Harpley

Via email: david@canadianzinc.com

Re: Responses to Commitments 1, 2, 7, and 8 from April 12, 2011, Technical Meeting

Dear Mr. Harpley:

Per your request, we are responding to the above-noted commitments which were made during the Prairie Creek Mine – Canadian Zinc Corporation Technical Meeting held in Yellowknife on April 12, 2011. This is a subset of the commitments which are listed in the meeting summary report.

Commitment Item 1: Review of error on Table F5, Appendix F for treated mine water during low flows (8L/s rather than 80L/s), including implications to Appendix D, Tables 5 and 8.

Response. A review of Table 3 of our draft report on mixing found that the extreme outfall discharge under the ice cover monthly minimum flow scenario should be 0.0800 m^3/s rather than 0.0080 m^3/s. The dilutions for this scenario would then change. The dilution after vertical mixing would change from 5.8 to 1.5 and dilution after transverse mixing would change from 5.9 to 1.5.

Commitment Item 2: Analysis of the likelihood of the return period for the documented 1 in 16 year Prairie Creek low flow.

Response. A low flow analysis was made on the 16 years of Water Survey of Canada streamflow data for Prairie Creek at Cadillac Mine. This gauge was operated from 1975 through 1990. Figure 1 below presents a time series plot of the annual minimum daily flows. Figure 2 presents frequency analysis results for the same data.

In the 16 years of record, the annual minimum daily flow has ranged from 0.454 to 0.029 m^3/s. There is no visually obvious trend with rising or declining flows over time. In three of the 16 years of record, flows have been extremely low, less than 0.05 m^3/s, so it is apparent that very low flows are not uncommon.

Figure 1: Time Series Plot of Annual Minimum Daily Flow
Prairie Creek at Cadillac Mine

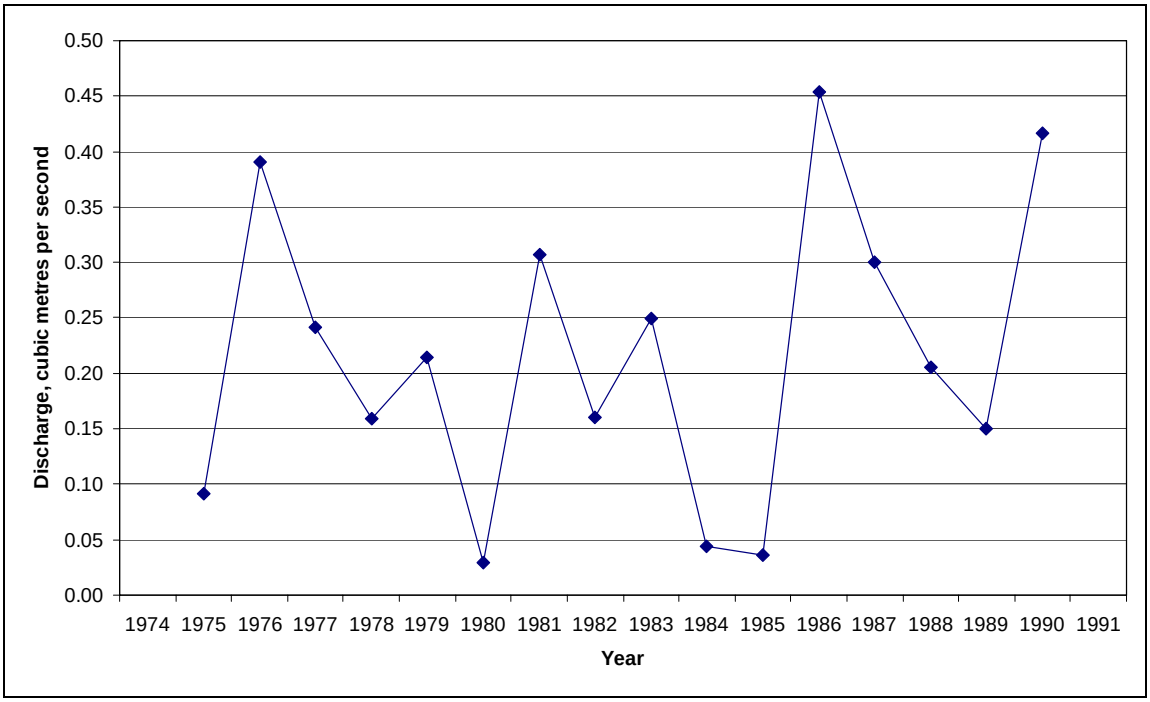
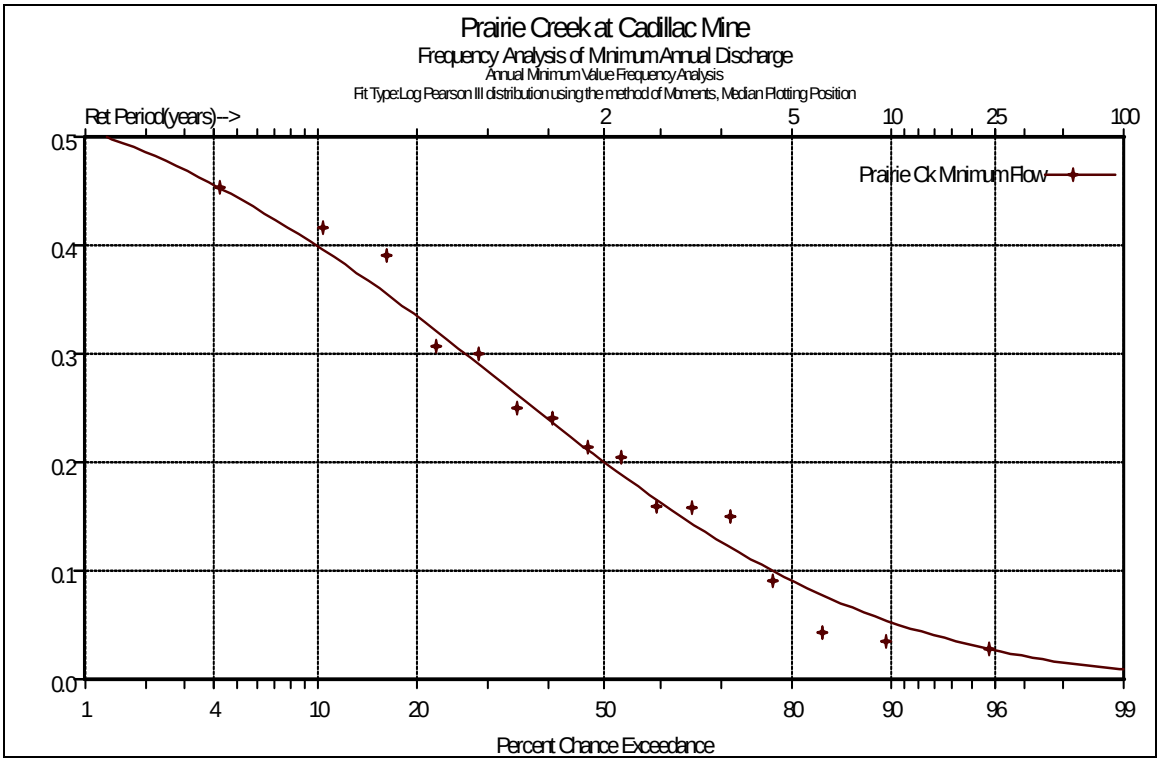


Figure 2: Frequency Analysis Plot of Annual Minimum Daily Flow
Prairie Creek at Cadillac Mine



A key question for a low flow frequency analysis is whether the stream dries up completely (or freezes solid to the bed) and the frequency of this happening. The record at Prairie Creek does not include any observations of zero flow. There are various theoretical frequency analysis and plotting position methods which can be applied to low flow data, but no way of knowing which methods give the more accurate results for extrapolation beyond the range of past experience. When applied to low flows, many of the commonly-used frequency distributions (such as Log Person III) have a lower boundary located between zero and lowest recorded flow on record. Other distributions (Normal, Pearson III, Gumbell) are not bounded by zero flow conditions.

The frequency analysis results shown in Figure 2 are based on the widely-used Log Pearson III distribution and data plotted with a median plotting position. The curve seems to fit the data reasonably well. This analysis would indicate that the minimum observed low flow in the 16-year period of record has a recurrence interval of about one in 25 years.

Commitment Item 7: Review of transcription error in Appendix L, table 1 (i.e., mean depth and max depth) and any implications this error may have to modeling.

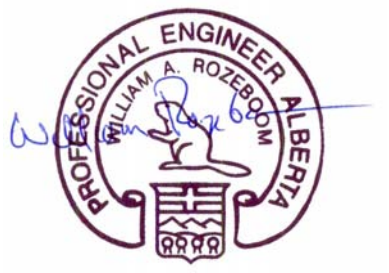
Response. A review of Table 1 indicated that the mean and maximum depths were reversed for open water flow conditions. These values were not used directly in any analysis so do not affect the results of the mixing analysis.

Commitment Item 8: Background information about use of the exfiltration discharge design elsewhere.

Response. NHC prepared wastewater exfiltration gallery hydraulic designs in the 1980s for two outfalls to the McLeod River at Whitecourt Alberta. One was for Millar Western Pulp Ltd in 1987 and the second was for Alberta Newsprint Co. Ltd. One of these had severe start-up problems due to inadequate effluent screening and the delivery of wood chips into the exfiltration pipe. We have not followed up on the subsequent performance of these outfalls but presume satisfactory performance since we would have been consulted if there had been significant problems. Exfiltration methods are commonly used to dispose of stormwater or wastewater flow to groundwater, but in most standard applications the trench is placed above the normal groundwater level and the direction of flow is down, not up.

Respectfully submitted,

northwest hydraulic consultants



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