MEMO

Date: October 29, 2016 HCP Ref No.: CZN7932

From: John Wilcockson

To: David Harpley, Canadian Zinc Corp

Subject: **Prairie Creek Mine, all season road undertaking 7 DFN IR#1 reply**

This memo responds to Dehcho First Nations (DFN) IR#1 from the proposed all season road undertaking 7 information requests.

DFN #1 - SUNDOG CREEK RE-ALIGNMENT

Comment - On page 6 of the Allnorth response to the Technical undertakings dated August 10, 2016, CanZinc states that "Tetra Tech EBA will assist CZN in providing a preliminary design including details of the proposed diversion berm at the upstream end. We will also provide commentary on our expectations regarding hydraulic performance and sediment movement. The preliminary design will be based on the alignment and LiDAR elevation data as of 2012. We would want to obtain additional channel bed profile and substrate information prior to developing the final design. Our recommendation is for CZN to commit that the final design will be developed to provide hydraulic/sediment capacity equivalent to the existing channel and will mimic the habitat characteristics of the existing channel. The final design will also consider the risks of new channel avulsion, and any measures required to minimize those risks." From TetraTech memo dated July 5, 2016, Tetratech states that "Our recommendation is for CZN to commit that the final design will be developed to provide hydraulic/sediment capacity equivalent to the geometry of the existing channel, defined by its geometry, and to mimic the substrate characteristics of the existing channel."

Recommendation - DFN's understanding is that the substrate of the two channels are different – the old portion of Sundog creek has cobble substrate and the new alignment will have cobble imbedded in sand – how will CanZinc mimic the substrate characteristics of the existing channel? How will the change in substrate affect fish and fish habitat?

Response – David Harpley (CZN) and John Wilcockson (Hatfield Consultants) walked the new alignment in July 2016. The substrate consists primarily of cobble and coarse gravel having a similar size range to that found in the existing channel. Some of this substrate is interspersed with sand, again, similar to the existing channel (Photograph 1 and 2) Sand settles out at the margin of the flowing channel, where flow velocity is lower. This occurred in the proposed new alignment in the past. The new alignment will be designed to have a similar morphology as the existing channel. Sandy substrates are an infrequent but natural component of the Sundog Creek system.

Photograph 1 Sediments interspersed with cobble along the existing channel of Sundog Creek (km35.3).

Photograph 2 Sand interspersed with cobble and gravel on the bank of the Sundog Creek existing channel at km35.8