



April 1, 2016

JoAnne Deneron
Chair
Mackenzie Valley Environmental Impact Review Board
200 Scotia Centre
5102 50th Avenue,
Yellowknife, NT
X1A 2N7

Dear Ms. Deneron

RE: Environmental Assessment EA1415-001, Prairie Creek Mine Concentrate Haul

Since we applied for permits for an all season road, and also subsequent to the submission of our Developers' Assessment Report, Canadian Zinc Corporation (CZN) has continued to work on optimizing the Prairie Creek project, including additional drilling underground to confirm increased Measured and Indicated mineral resources, and completion of a new preliminary feasibility study (PFS). The latter was released on March 30, 2016 and now envisages a 17 year Mine life.

The all season road environmental assessment (EA) is now at the information request (IR) stage. Some IR's are requesting clarification of the number of trucks that will be needed daily to haul concentrate from the Mine. In the DAR, we indicated that approximately 15 trucks per day would be required. In reality, the answer is more complicated as the number will vary based on concentrate production, selected truck payload, and available haul periods.

With the release of the PFS, we believe it is now appropriate to provide the most up-to-date and detailed explanation of the proposed concentrate haul for the information of the Board and parties. We have elected to provide this information separate from the IR's for the improved awareness and clarity.

Calculations for the proposed concentrate haul are contained in Table 1 attached. This shows that the number of trucks per day in a given year could be as low as 5, and as high as 20. The elements of the calculations are explained below.

Concentrate Production

The PFS includes a revised mine plan. For any new mine development, the intent is usually to access and process the highest grade portions of the resource as soon as possible in order to

achieve capital payback in as short a time as possible. This is the reason that the concentrate tonnages in Table 1 are greater in Years 2-9 compared to those in Years 10-17. Mill capacity remains the same, but processing higher grade material means more concentrate and less waste. However, please bear in mind that the concentrate numbers are our best estimates at this time. The mine plan could change again in the future, for example, due to further additions to the mineral reserves which could lead to high concentrate production rates continuing for longer. Note also that the numbers given are termed ‘wet’ tonnes as they contain approximately 8% in moisture content.

Haul Trucks

As shown in Figure 2 of Appendix 1 in the DAR, there are two truck configuration options for the haul. An 8 axle tandem drive tractor with Super B-train concentrate trailers in a train configuration has a payload of 42.5 tonnes, with a gross vehicle weight (GVW) of 63.5 tonnes. A 9 axle configuration consisting of a tridem tractor with Super B-train concentrate trailers has a payload of 50.3 tonnes, with a GVW of 72.3 tonnes. The GNWT Department of Transportation stipulates a 63.5 tonne GVW maximum for B-train truck and trailer combinations, unless a variance is provided by special permit. It is our understanding that the 63.5 tonne maximum is based on limiting the scale of the required maintenance on territorial roads. CZN intends to apply for a special permit to haul the 50.3 tonne loads, which we assume the GNWT will consider in connection with upgrades to the Liard Highway. A 50.3 tonne payload is preferred because it is cheaper, safer and results in less traffic and the associated effects. However, both payload options have been included in the calculations in Table 1.

Allnorth Consultants provided advice regarding transportation options. Their advice regarding the truck options is as follows:

“The tridem tractor allows increased payload capacity with improved traction, reducing tire slippage and increasing operating efficiency. This substantially improves performance on steep road grades, especially on unpaved roads and in winter driving conditions. The advantages are:

- Higher payload
- Ability to negotiation steeper hill climbs
- Improved traction on off-highway roads
- Increased handling performance and safety”

Haul Periods

Two periods are available for hauling, summer and winter. The summer haul period is after spring break-up and before fall freeze-up on the Liard River crossing. The start of the haul period is delayed by load restrictions on the Liard Highway. The winter haul period is governed by the Liard River ice bridge. Current data indicates that such a bridge cannot accommodate loads greater than 60 tonnes until after January 15. The ‘conservative dates’ in Table 1 reflect these limitations, and include allowance for lost days due to poor weather or road conditions.

As you know, the GNWT has conducted and continue to conduct upgrades to the Liard Highway. CZN will continue to work with the GNWT DOT as part of our Transportation Collaboration Agreement. We expect that highway upgrades will have a positive impact on the timing of load restrictions i.e. reduce the post-spring period of restrictions. We also believe the Liard River ice bridge can be available earlier with a focussed construction effort. We have selected a crossing location where the channel has a broad and relatively even depth, which should facilitate ice bridge formation. These changes are estimated to increase the total haul days by 29. In the revised haul periods, termed 'projected dates', the number of haul days increases from 192 to 221.

Significance in Terms of Effects

The estimated haul calculations at this time indicate a maximum number of trucks per day of 20. This compares to the "approximately 15 trucks per day" noted in the DAR. We have discussed the haul estimates with our wildlife and air quality consultants, and both advise that the difference is inconsequential in terms of their effects assessments. A letter from Tetra Tech EBA regarding their wildlife effects assessment is attached. Golder Associates provided a memorandum response to DFO IR7 regarding dust, also attached. The memorandum compares the all season road to the Jay Project, and states that the "deposition of dust sourced from Project (Jay) activities has negligible potential to result in adverse changes to water quality in adjacent waterbodies". By comparison, since the Jay Project's quantified dust deposition assessment was based on the passage of 840 rock-trucks per day and 55 road-train ore hauling trips per day along its various roadways, dust deposition from concentrate trucks operating on the Prairie Creek road will not be significant, whether there are 15 trucks or 20 trucks. We continue to assess the effects of noise, and will consider the estimated haul numbers in this.

If you have any questions, please contact us at 604 688 2001.

Yours truly,
CANADIAN ZINC CORPORATION



David P. Harpley, P. Geo.
VP, Environment and Permitting Affairs

TABLE 1: CONCENTRATE PRODUCTION AND HAUL TRUCK NUMBERS

Conservative Dates				Projected Dates			
	From	To	Number		From	To	Number
Summer haul period	Jul 1	Nov 4	127	Summer haul period	Jun 15	Nov 4	142
Summer lost days			5	Summer lost days			5
Winter haul period	Jan 15	Mar 31	75	Winter haul period	Jan 1	Mar 31	89
Winter lost days			5	Winter lost days			5
Total No. Haul Days			192	Total No. Haul Days			221

Year	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9
Concentrate t.p.a.	112,357	154,634	138,799	139,947	146,636	154,120	139,492	161,679
Conservative								
No. trucks/day - 42.5 t	13.8	19.0	17.0	17.2	18.0	18.9	17.1	19.8
No. trucks/day - 50.3 t	11.6	16.0	14.4	14.5	15.2	16.0	14.4	16.7
Projected								
No. trucks/day - 42.5 t	12.0	16.5	14.8	14.9	15.6	16.4	14.9	17.2
No. trucks/day - 50.3 t	10.1	13.9	12.5	12.6	13.2	13.9	12.5	14.5
Year	Y10	Y11	Y12	Y13	Y14	Y15	Y16	Y17
Concentrate t.p.a.	127,567	119,221	117,000	118,248	116,924	86,161	77,097	59,808
Conservative								
No. trucks/day - 42.5 t	15.6	14.6	14.3	14.5	14.3	10.6	9.4	7.3
No. trucks/day - 50.3 t	13.2	12.3	12.1	12.2	12.1	8.9	8.0	6.2
Projected								
No. trucks/day - 42.5 t	13.6	12.7	12.5	12.6	12.4	9.2	8.2	6.4
No. trucks/day - 50.3 t	11.5	10.7	10.5	10.6	10.5	7.8	6.9	5.4

April 1, 2016

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ISSUED FOR USE
 FILE: Y14103320-01.003
 Via Email: david@canadianzinc.com

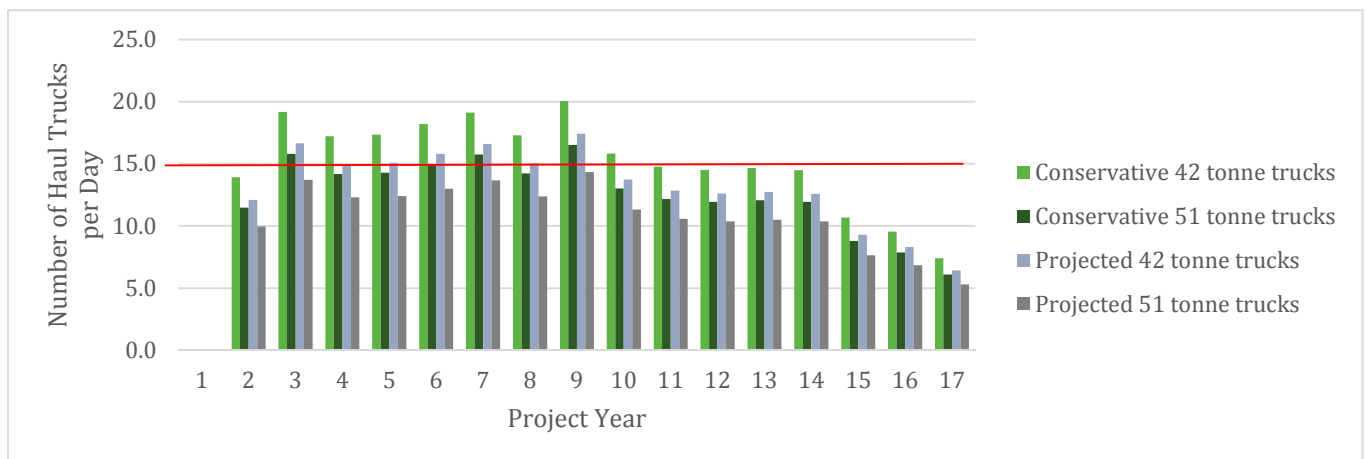
Attention: David Harpley
 VP Environmental & Permitting Affairs

Subject: Modifications to Haul Truck Traffic Volumes
 Wildlife & Vegetation Assessment Report for the Developer's Assessment Report,
 Environmental Assessment, EA1415-01
 Proposed All-Season Road Access to Prairie Creek Mine, NT

Tetra Tech EBA Inc. (Tetra Tech EBA) prepared a Vegetation and Wildlife and Wildlife Habitat Assessment report (Report) for a proposed all-season road from Northwest Territories Highway 7 (near Nahanni Butte) to the Prairie Creek Mine (issued September, 2015). This Report has been submitted as an appendix to the Developer's Assessment Report (DAR) to support Canadian Zinc Corporation (CZN) in securing approval from the Mackenzie Valley Review Board (MVRB).

Tetra Tech EBA has received notification from CZN that the haul truck traffic volumes and hauling periods considered in the Report have been slightly modified since its submission, and were asked to consider if these modifications may affect the vegetation and wildlife and wildlife habitat impact assessment in the Report.

Tetra Tech EBA understands that haul truck traffic volumes are dependent upon the truck size (approximately 42 or 51 tonne payloads), production year, and the length of the hauling period (conservative 192 hauling days; and projected 221 hauling days). As a result, the overall concentrate truck volumes will differ each year, with the annual traffic ranging from as low as 5.3 trucks/day to 20.0 trucks/day depending on conservative and projected estimates (Graph 1). Therefore, throughout the length of the project period, haul truck traffic volumes average between 10.9 to 15.3 trucks/day.



Graph 1: Conservative and Projected Daily Haul Truck Traffic Volumes

The environmental assessment was completed based on approximately 15 haul trucks/day throughout the entire project life (Graph 1, red line). Tetra Tech EBA regards the haul truck traffic volume modifications to be of a very minor nature, and do not alter the predictions presented in the Report.

We trust this letter meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech EBA Inc.



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MEMORANDUM

TO David Harpley

DATE March 28, 2016

CC

FROM Chris Madland

REFERENCE No. DFO_Dust_IR1

DEPARTMENT OF FISHERIES AND OCEANS DUST DEPOSITION IR RESPONSE

Pre-amble: The Developer states that "The primary dust-related effects... are anticipated to occur within about 10 m of the main development" and "effects on waterbodies from dust are expected to be minimal. The road is proximal to or crosses many stream, but the limited amount of dust will be carried in flowing water and settle as sediment, adding only a small increment to the bed load" (DAR Main Report, p. 239-40).

Information Request: Please provide the predicted dust deposition rates (e.g., in mg/dm²/day), the affected water bodies and the areas of the affected water bodies located within 10 m of the road that may be subject to dust deposition, and the incremental addition of dust to the total suspended solids (TSS) load of water courses as a result of construction, operation and decommissioning of the all-weather access road.

Response:

Dust deposition values proximal to the road in or near waterbodies or on land were not quantified in the DAR. The methodology for assessing air quality near the road made use of a screening level air quality model that predicted the transport and resulting ambient concentrations of entrained dust relative to distance from the road. This methodology was used because the emissions from the road were considered to be minimal, transient and ephemeral. Further, they were considered as minor emission sources when considered in the context of the operation as a whole.

This issue has however been assessed in detail, and quantified in other Developer's Assessment Reports in the Northwest Territories recently. A contemporary example is provided in the work completed for the Dominion Diamond Jay Project. The Jay Project is a large, open pit diamond mine that includes a considerable amount of unpaved road transport of ore. Unpaved roads on and near the Jay project are adjacent to, and cross, waterbodies in a way similar to the Prairie Creek Mine access road. The traffic volumes and activity level at the Jay Project are considerably greater than those planned at Prairie Creek. In this sense, the Jay Project assessment serves as a very conservative analog.

During the regulatory phase of the Jay Project, an information request was presented by Kevin O'Reilly of the Independent Environmental Monitoring Agency; DAR-IEMA-IR2-02, pg 102 of 302 (Review Board 2015). Mr. O'Reilly asked specifically that the developer "*...verify the accuracy of its impact predictions and significance determinations on water quality, aquatic biota, vegetation and wildlife as a result of the increased area of dust deposition exceedances.*"

The response provided to Mr. O'Reilly and accepted by the Board is directly applicable to DFO IR7 that is the subject of this response. The salient and directly applicable part of the response, the component related to deposition to water bodies, is reproduced here.



MEMORANDUM

“The small changes to the projected TSS concentrations from dust deposition relative to values reported in the DAR do not alter the conclusions in the DAR. As per the response to Round 1 Information Request DAR-IEMA-IR14, and the findings of dust deposition studies undertaken at Diavik (DDMI 2009, 2011) and Ekati (Rescan 2012), it is maintained that the deposition of dust sourced from Project activities has negligible potential to result in adverse changes to water quality in adjacent waterbodies. Overall, therefore, changes in the air quality predictions (i.e., air deposition effects to lakes within close proximity to Project activities) as a result of the Jay Project Air Quality Assessment Update (Golder 2015) do not alter the pathway analysis, assessment of the results, impact classification, nor determination of significance for water quality presented in Section 8 of the DAR.”

It should be noted specifically that the Prairie Creek Mine and access road will be collectively a considerably smaller development than the aforementioned Dominion Diamonds Jay Project which presents a *“negligible potential to result in adverse changes to water quality in adjacent waterbodies.”* The Jay Project’s quantified dust deposition assessment was based on the passage of 840 rock-trucks per day and 55 road-train ore hauling trips per day along its various roadways, compared to the Prairie Creek Project with an expected passage of 15 transport vehicles per day.

References

DDMI (Diavik Diamond Mines Inc.). 2009. Aquatic Effects Monitoring Program. 2008 Annual Report. Yellowknife, NWT. April 2009.

DDMI. 2011. Lakebed Sediment, Water Quality and Benthic Invertebrate Study. A154 Dike: Year 4 Results. A418 Dike: Year 2 Results. Yellowknife, NWT. August 2011.

Golder (Golder Associates Ltd.). 2015. Technical Memorandum: Jay Project Air Quality Assessment Update. Issued January 19, 2015.

Rescan (Rescan Environmental Services Ltd.) 2012. Ekati Diamond Mine, 2012 Aquatic Effects Monitoring Program Re-evaluation. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.

Review Board (Mackenzie Valley Environmental Impact Review Board) 2015. EA1314-01 Jay Project, Dominion Diamond Ekati Corporation Developer’s Assessment Report – Responses to Round 2 Information Requests. Accessed online March 24, 2016, http://reviewboard.ca/upload/project_document/EA1314-01_01_Jay_Project_Round_2_IR_Responses.PDF

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