Parent Company of Canadian Zinc

July 9, 2019

Julian Morse
Regulatory Officer
Mackenzie Valley Land and Water Board
7th Floor, 4922 48th St.
PO Box 2130
Yellowknife, NT
X1A 2P6

Dear Mr. Morse:

Re: New Exploration Land Use Permit MV2019C0011 and Water Licence MV2019L2-0006 replacing MV2001L2-0003 and MV2012C0008
2nd Decline, Prairie Creek Mine

Further to our applications dated April 24, 2019 and the Water Board's letters dated May 3, 2019 noting incomplete applications, this letter provides Canadian Zinc Corporation's (CZN's) responses to the May 3 letters.

LUP MV2019C0011

1. An application fee was provided in person.

2. A new application is provided in Attachment 1.

3. The LUP security worksheet has been completed and is provided in Attachment 2, totalling $50,076. The approach we have taken in security estimations is that land disturbance is covered by the LUP, except for those distrubances related to water management which are covered by the Water Licence. As such, the LUP covers the proposed waste rock storage pad and the equipment and materials used to develop the 2nd decline. Comments on the LUP security worksheet entries are as follows:
   - No cost is provided for camp structures because the existing Prairie Creek Mine camp will be used, a camp that is already in use to support site care and maintenance under Surface Lease 9510/10-5-5, and intended to be used to support future mine operations.
   - Waste and remaining materials will be limited because these will be disposed of, and consumed, progressively respectively.
   - Numbers for gasoline and diesel reflect quantities expected to be consumed. No aviation fuel is listed because charter aircraft fuel offsite.

Suite 1710-650 West Georgia Street, Vancouver, BC V6B 4N9
Tel: (604) 688-2001 Fax: (604) 688-2043
E-mail:david.harpley@norzinc.com, Website: www.canadianzinc.com

- The land disturbance reflects the approximate size of the proposed waste rock storage pad (~3,000 m^2).
- The multipliers reflect air access, CZN's successfully completed the first decline development, and the proposal to add to the existing waste rock storage pad rather than create a new footprint.

Water Licence MV2019L2-0006

1. The proposed development would include driving of a 2nd decline and exploration drilling from that decline. We estimate that these activities will require manpower of 10 people on average over one year in total. Using a rule-of-thumb of 270 L/person/day, freshwater requirements to service the people would be approximately 1,000 m^3, or 200 m^3 per year over a five year LUP.

   Drilling for decline development will not use water since the drilling method is percussion. Drilling to obtain rock core does need water for lubrication and cooling. Usually, there is enough formation water for this, and so external water use is limited. Boreholes may start in dry rock before the water table is intercepted. We can assume that 20 boreholes might be drilled from the decline. We can further assume that each borehole might require 1 m^3 before the water table is reached. Therefore, exploration drilling will require the use of 20 m^3, or 4 m^3 per year over a five year LUP.

   As the decline is advanced, formation water (water that resides within the host rock formation) will need to be pumped out. Exploration boreholes may also be artesian and produce formation water once drilled. These waters are assumed to be 'waste' waters, and not waters to be 'used'.

   As a result, we propose an annual water use fee to use 204 m^3 of $31.

2. Analytical results of a sample collected from the 1st decline (flooded) are provided in Attachment 3. These should represent a good indication of formation water quality for the 2nd decline, which, like the 1st decline, will not draw water from the existing underground workings. Note that all metal concentrations are quite low. The total zinc concentration is 0.131 mg/L, and the dissolved concentration 0.069 mg/L.

3. EA01-002 was conducted for the activities related to the current application. However, most reviewers will be aware that much more detail was considered on many topics in EA0809-002. It would be inappropriate to ignore that information. Where we reference EA0809-002 in the questionnaire, we provide additional advice below:
   - 8.3 – This section related to project impacts. The Developer's Assessment Report (DAR) for EA01-002 can be found here: EA01-002 DAR
   - 8.7 – This section refers to socio-economics. This is a topic much more thoroughly considered in EA0809-002. Therefore, reviewers should refer to the DAR for that EA, for which a link was provided previously.

A comprehensive description of the specific activities to be covered by the current Licence Application was provided with our April 24, 2019 submission. This included a project description for the 2nd decline development which was the subject of LUP2012C0008, and continuing use of Licence MV2001L2-0003. That description has not changed. Reviewers should note that the 2nd decline project is for further exploration, and would be pursued in the event there is further delay in proceeding to full mine operations, for which different regulatory permits exist. The 2nd decline development would represent a very limited scope of activities, consisting of developing a new tunnel parallel to, but not in contact with, the mineralized vein, the placement of waste rock on a pad adjacent to the 870 level portal, treatment of decline water in conjunction with the drainage from the existing underground workings, and exploration drilling from the new decline tunnel.

4. Our application of April 24 included a table (Table 1) providing a summary of waste rock geochemistry for the 1st decline. This demonstrates a low acid potential, and very high neutralization potential. More detailed results for the 1st decline are provided in Attachment 4. These include metals results from Aqua Regia Digestion. These do not necessarily indicate leachate water quality. However, results for July-September 2007 provide water quality data for samples taken from the waste rock pad collection pond. Total zinc concentrations were in the range 0.253-0.613 mg/L, with an average of 0.465 mg/L.

   It should be noted that the 2nd decline will be developed in the same host rock as the 1st decline. However, the initial section of the 1st decline crossed the mineralized vein. The first few waste rock samples showed a limited influence of the vein. The 2nd decline will not cross the vein therefore it is expected that waste rock pad leachate will be no worse than previously, and is likely to be better than for the first decline program.

5. The DAR for EA01-002 is referenced above. A 2nd decline project description was submitted with our new application. Monitoring reports related to waste rock and waste rock pad sampling are attached relating to 4. above. Formation water from the 1st decline was managed with the existing 870 level water. As noted in 2. above, decline water is of much better quality, therefore SNP results for treatment of the combined mine water stream (MV2001L2-003) really reflect the 870 water.

6. An application fee was provided in person.

7. As suggested in the Board's May 3 letter, CZN contacted the GNWT regarding security for the WL. The GNWT directed CZN to complete a security estimate using the RECLAIM model. Further to point 3 of the LUP reply above, WL security is assumed to cover water management facilities, including the existing water treatment plant, delivery pipeline to the Polishing Pond, sediment in the pond, and the pond itself. After development and closure, the 2nd decline would flood and produce a small quantity of relatively good quality discharge, much like the 1st decline. Security is estimated for the current water treatment infrastructure despite the fact that it would likely remain to manage water from the pre-existing mine workings. A copy of the RECLAIM estimate is

provided in Attachment 5, totalling $47,108. Comments on the worksheet entries are as follows:

- The treatment plant consists of 2 small wooden buildings and 2 metal tanks. Security is based on the removal of 105 m^2 of wooden structures at the higher rate indicated for unit costs;
- Removal of 34 m of >6" pipeline;
- Removal and disposal of accumulated sediment assuming an area of 350 m^2 and average sediment depth of 0.2 m, producing 70 m^3; and,
- Removal of the Polishing Pond. This will be accomplished by dozing the liner into the base of the pond, and then dozing the berms over the liner and contouring the area to blend with the surroundings which are floodplain materials with limited vegetation.

Closing Remarks

We trust the above information is sufficient to proceed with the Licence and LUP applications. If you have any questions, please contact us.

Yours truly,

David P. Harpley
VP Environment and Permitting Affairs

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Attachment 1

Mackenzie Valley Land and Water Board
7th Floor - 4922 48th Street, PO Box 2130
Yellowknife, NT. X1A 2P6
867-669-0506
867-873-6610
mvlwb.com

Land Use Permit Application Form

(Subsection 19(2) and Schedule 2 of the Mackenzie Valley Land Use Regulations)

1 Applicant Name: Canadian Zinc Corporation

Applicant's Mailing Address:
1710 – 650 W. Georgia St.
Vancouver, BC, V6B 4N9

Fax no.: 604-688-2043
Telephone no.: 604-688-2001

2 Head office address:
As above

Fax no.:
Telephone no.:

Field supervisor: David Harpley
Email address: David.Harpley@Norzinc.com

3 Other personnel (subcontractor, contractors, company staff etc.):
To be determined
Total number of persons on site: Est. 15-25

4 Eligibility (Refer to section 18 of the Mackenzie Valley Land Use Regulations):

■ (a)(i) ☐ (a)(ii) ☐ (a)(iii) ☐ (b)

5 Other rights, licences or permits related to this permit application (mineral rights, timber permits, water licences, etc.):

To complete this section of the Application Form, please see page 16 of the Board's Guide to the Land Use Permitting Process for more information.

MV2001L2-0003. Surface Lease 95F10/10-5-5. Mining Lease 2932

6 **a)** Summary of operation (describe purpose, nature and location of all activities). Refer to paragraph 19(3)(*b*) of the Mackenzie Valley Land Use Regulations:

To complete this section of the Application Form, please see page 15 of the Board's Guide to the Land Use Permitting Process for more information.

See attached.

b) Indicate if a camp is to be set up. If yes, indicate size of camp or describe camp. (Provide details on a separate page, if necessary):

See attached.

7 Summary of potential environmental and resource impacts and mitigation measures (describe the effects of the proposed land-use operation on land, water, flora and fauna and related socio-economic impacts). (Use separate page if necessary):

To complete this section of the Application Form, proponents are encouraged to use Appendix B of the Board's Guide to the Land Use Permitting Process.

See attached.

8 Proposed restoration plans (Use a separate page if necessary):

To complete this section of the Application Form, please see page 16 of the Board's Guide to the Land Use Permitting Process for more information.

Following completion of the exploration program, all equipment will be removed from the underground workings. Dewatering will be discontinued and the workings will flood to the natural groundwater level. As the development is a decline, very little discharge of water with a low content of metals is expected, as is the case from the previous decline. Rock removed from underground will be consolidated with the existing waste rock pad near the 870 m portal.

Roads:
(Provide details on a separate page.)

☐ Is this to be a pioneered (new) road?

☐ Has the route been laid out or ground truthed?

9 Proposed disposal methods:

To complete this section of the Application Form, a waste management plan for the proposed activities is to be developed in accordance with the Board's Guidelines for Developing a Waste Management Plan and submitted as an attachment to the Application Form. A template for this Plan is provided in the Guidelines.

a) Garbage: Incineration and solid waste disposal site

b) Sewage (Sanitary and grey water): Sump or treatment plant

c) Brush & trees: NA

d) Overburden (Organic soils, waste material, etc.): Waste rock to be stockpiled next to 870 portal

10 Equipment (includes drills, pumps, etc.) (Use separate page if necessary):

Number	Type and Size	Proposed use
See	attached sheet	

11 Fuels:	Number of containers:	Capacity of containers:	Location:
Diesel	11	400-1200 L	Mobile equipment
Gasoline	3	150 L	Pick up trucks
Aviation Fuel			
Propane			
Other			

12 Containment fuel spill contingency plans (attach separate contingency plan if necessary):

A spill contingency plan for the proposed activities is to be developed in accordance with INAC's Guidelines for Spill Contingency Planning, April 2007 (accessible here). This Plan is to be submitted as an attachment to the Application Form.

A spill contingency plan is on file, is in use, and has been provided

13 Methods of fuel transfer (to other tanks, vehicles, etc.):

Manual or electric pump, gravity

14 Period of operation (includes time to cover all phases of project work applied for, including restoration):

From (DD/MM/YY) 01/07/19 To (DD/MM/YY) 01/07/24

15 Period of permit (up to five years, with maximum of two years of extension):

Start Date (DD/MM/YY): 01/07/19 Completion Date (DD/MM/YY): 01/07/24

16 Location of activities by map coordinates (attach maps and sketches):

To complete this part of the Application Form, please see the Standards for Geographic Information Systems (GIS) Submissions.

Minimum latitude (degree, minute): 61o 33' N

Maximum latitude (degree, minute): 61o 33' N

Minimum longitude (degree, minute): 124o 48' W

Maximum longitude (degree, minute): 124o 48' W

Map Sheet no.: 95F10

17 Applicant (print name in full, in upper case): DAVID HARPLEY

Signature: David Harpley Digitally signed by David Harpley DN: cn=David Harpley, o=Norzinc, ou, email=David.Harpley@Norzinc.com, c=CA Date: 2019.07.01 10:35:36 -07'00' Date (DD/MM/YY): 01/07/19

18 Application fees for Type A or Type B permit (for federal and non-federal lands)[1]:

a) Application fees for Type A or Type B permit (include the first two hectares) - $150.00: $ 150

AND

b) Land-use fees for **federal public lands only**:

If more than two hectares of federal public lands are being used, enter the number of hectares in excess of the two hectares included in the Application fee.

_____ hectares at $50.00/hectare $ 0

1. To help identify whether your activity is on federal lands, please see this map.

Total fees[2]: $ 150

2. Please make all cheques payable to the Receiver General for Canada.

19 Additional Information (Attach additional pages if necessary).

6 a)
As part of the ongoing process of establishing, confirming and enhancing the known mineral resource at the Prairie Creek property, Canadian Zinc proposes to develop an exploration decline to permit access for underground exploration drilling of the stratabound deposit underlying the Zone 3 quartz vein mineralization. Further delineation of the vein-type mineralization will be undertaken at the same time.

The proposed decline will be accessed from the existing 870 m portal and the 880 m level. The decline will have a 15% downward grade, and will be developed in the footwall of the Vein deposit, but distant from the Vein and would not cross the Vein.

The proposed decline will allow drilling to be conducted from underground about 200 m above the stratabound, as compared to drilling from surface which would require approximately 450 m long holes, resulting in a substantial saving in drilling costs

6 b) The land use operation will be based in and serviced from the existing facilities at the Prairie Creek Mine. No new camp will be set up.

7. The Project was the subject of EA01-02. Minimal environmental disturbance is expected to occur as all activity will take place within the area of previous mining activity and within 1000 m of the existing mill and associated facilities. New surface disturbance will be restricted to the immediate area of the portal, an area of about 500 m2, and confined to the location of the waste rock pad from a previous decline.

The mineral resources at Prairie Creek are hosted in carbonate rocks. The decline will be driven entirely within a sedimentary dolostone formation. Waste rock will be trucked and combined with that from the previous decline in a reconfigured dump.

Carbonate limestones and shales of the Whittaker and Lower Road River Formations occur in the area of the new tunnel, and these have been tested and determined to have very low levels of mineralization, low sulphide values and high excess neutralization potential, and will therefore pose no hazard to the environment through sulphide oxidation processes.

The quality of water expected to be pumped from the new decline is expected to be similar to the previous decline i.e. considerably better than the drainage presently emanating from the 880 m level. In addition to underground sumps to settle sediment, water pumped from the decline will be treated with 880 m level water using the existing water treatment facilities, including the Polishing Pond.

Mackenzie Valley Land and Water Board 7th Floor - 4922
48th Street, PO Box 2130 Yellowknife, NT. X1A 2P6 867-669-0506

Canadian Zinc Corporation
Land Use Permit Application
Decline Development and Underground Exploration Drilling

Section 10 (Continued from Application)

10. Equipment (includes drills, pumps, etc.) (Please use separate page if necessary.)

Type & number	Size	Proposed use
1 Two-boom air jumbo drill	MJM20B	Decline development
1Boyles or ADL diamond drill	B-10 or 150 Mini Myte	Exploration drilling
3 scoop trams	Wagner 2-yard	Rock hauling
1 front end loader	Cat 966	Rock loading
2 rock trucks	Volvo 5350	Rock Hauling
1 U/G service vehicle		U/G support
1 Electric Fan	60 – 75 hp	Ventilation
2 Wilden face pumps		Dewatering
1 Flygt sump pump	13 hp	Dewatering
1 Cat bulldozer	D8	Road Maintenance
1 Cat grader	14G	Road Maintenance
3 Pick up trucks	¾ ton	Personnel transport

Attachment 2

Land Use Permit Security Worksheet

Application Number:	Input Amount	Multiplier	
Camp (C1)			
Temporary Structures			
Input number of tent frames or weatherhaven (3.5m x 4.2m)	0	$200.00	$0.00
Input number of trailers (3.5m x 15.2m)	0	$300.00	$0.00
Input total square metres of other temporary structures (i.e. core shacks)	0	$2.50	$0.00
Fixed Structures			
Input total square metres of fixed structures	0	$25.00	$0.00
Solid Waste			
For non-burnable material, input # of person days per season	3650	$1.00	$3,650.00
For burnable material, input # of person days per season	3650	$0.50	$1,825.00
Total C1			$5,475.00
Regulated / Hazardous Materials (R1)			
Based upon on site volume			
Explosives; up to 500 kg (~pallet) dry explosives input 1, if none, input 0	1	$500.00	$500.00
Additional Explosives; input total kg >500	0	$0.50	$0.00
Drilling Muds (oil based); enter number of 63 m^3 (or equivalent) containers	1	$1,000.00	$1,000.00
Used Oil, Lubes and Antifreeze: enter number of pieces of heavy equipment	4	$500.00	$2,000.00
Other;			
Total R1			$3,500.00
Hydrocarbon Storage and Transfer (H1)			
Based upon on site volume			
Gasoline and Diesel			
Enter total volume of gasoline&diesel <25,000 L	25000	$0.50	$12,500.00
Enter total volume of gasoline&fuel > 25,000 L	25000	$0.25	$6,250.00
Total Gasoline and Diesel			$18,750.00
When fuel is within bermed site or has other safety feature, enter 1, otherwise enter 0	0	25%	$0.00
Aviation Fuel			
Enter total volume of aviation fuel < 25,000 L	0	$0.50	$0.00
Enter total volume of aviation fuel > 25,000 L	0	$0.25	$0.00
Total Aviation Fuel			$0.00
When fuel is within bermed site or has other safety feature, enter 1, otherwise enter 0	0	25%	$0.00
Total H1			$18,750.00
Land Disturbance (L1)			
Disturbed Surface Area			
(Developed surface area that may require restoration through the use of scarification, reseeding, fertilizing or other similar techniques)			
Enter number of hectares disturbed	0.3	$1,000.00	$300.00
Other Land Disturbances			
Creek Crossings; enter number of creek crossings	0	$500.00	$0.00
Off-Road Activities; if any activities are likely, enter 1	0	$500.00	$0.00
Sump Factor; enter total area occupied by sumps in m^2	0	$10.00	$0.00
Well Factor; enter number of wells.	0	$25,000.00	$0.00
Total L1			$300.00

Land Use Permit Security Worksheet (continued)

Application Number:	Input Amount	Multiplier	
Equipment (E1)			
Based upon type of equipment			
Enter number of pieces of heavy equipment (i.e. dozer, forklift, large gensets)	3	$1,000.00	$3,000.00
Enter number of drills	1	$1,000.00	$1,000.00
Enter number of light vehicles (trucks, atvs, snowmobiles, boats)	1	$250.00	$250.00
Enter number of small generators or pumps	0	$100.00	$0.00
Enter number of empty fuel storage tanks	14	$500.00	$7,000.00
Total E1			$11,250.00

Security Calculation		
Preliminary Calculation		
Enter amount from C1		$5,475.00
Enter amount from R1		$3,500.00
Enter amount from H1		$18,750.00
Enter amount from L1		$300.00
Enter amount from E1		$11,250.00
Preliminary Calculation, total of above	**A**	$39,275.00
Multipliers		
Site Access Multiplier. If the project has all weather road access enter 1, if ice road access enter 1.5, if air access enter 2	**B**	2
Performance Multiplier. If applicant has succssfully completed the terms of a LUP enter 0.85, otherwise enter 1	**C**	0.85
Environmental Risk Factor. If location has high environmental value or unusual environmental risk enter 2. If location is previously disturbed enter 0.75. Otherwise enter 1.	**D**	0.75
Calculated Security		
Multiply preliminary calculation (A) by performance multipliers (B, C and D)	**E**	$50,075.63
Existing Securities		
List existing associated permits and amount of overlapping security		
Permit:		
Permit:		
Permit:		
Permit:		
Overlapping Securities, total of above	**F**	$0.00
Final Security Determination		
Subtract overlapping securities (F) from calculated security (E)		**$50,075.63**

Comments

PLEASE PUT YOUR ASSUMPTIONS IN HERE SO THAT EVERYONE CAN SEE YOUR CALCS.

Attachment 3

Canadian Zinc Corporation
ATTN: David Harpley
Suite 1710 - 650 West Georgia Street
Vancouver BC V6B 4N9

Date Received: 16-AUG-17
Report Date: 18-AUG-17 17:06 (MT)
Version: FINAL

Client Phone: 604-688-2001

Certificate of Analysis

Lab Work Order #: L1975931

Project P.O. #: NOT SUBMITTED
Job Reference: PRAIRIE CREEK
C of C Numbers: 10-387739
Legal Site Desc:

Shane Stack
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1975931-1				
	Description	Underground				
	Sampled Date	11-AUG-17				
	Sampled Time	14:30				
	Client ID	DECLINE				
Grouping	**Analyte**					
WATER						
Physical Tests	Conductivity (uS/cm)	1280				
	Hardness (as CaCO3) (mg/L)	817 HTC				
	pH (pH)	7.80				
	Total Suspended Solids (mg/L)	12.1				
Total Metals	Aluminum (Al)-Total (mg/L)	<0.010				
	Antimony (Sb)-Total (mg/L)	0.0157				
	Arsenic (As)-Total (mg/L)	0.0420				
	Barium (Ba)-Total (mg/L)	<0.020				
	Beryllium (Be)-Total (mg/L)	<0.0050				
	Boron (B)-Total (mg/L)	<0.10				
	Cadmium (Cd)-Total (mg/L)	<0.000050				
	Calcium (Ca)-Total (mg/L)	193				
	Chromium (Cr)-Total (mg/L)	<0.00050				
	Cobalt (Co)-Total (mg/L)	0.00060				
	Copper (Cu)-Total (mg/L)	<0.0010				
	Iron (Fe)-Total (mg/L)	4.99				
	Lead (Pb)-Total (mg/L)	0.0014				
	Lithium (Li)-Total (mg/L)	<0.050				
	Magnesium (Mg)-Total (mg/L)	81.6				
	Manganese (Mn)-Total (mg/L)	0.042				
	Mercury (Hg)-Total (mg/L)	<0.00020				
	Molybdenum (Mo)-Total (mg/L)	0.0064				
	Nickel (Ni)-Total (mg/L)	0.0082				
	Potassium (K)-Total (mg/L)	3.2				
	Selenium (Se)-Total (mg/L)	<0.0010				
	Silver (Ag)-Total (mg/L)	<0.000050				
	Sodium (Na)-Total (mg/L)	<2.0				
	Thallium (Tl)-Total (mg/L)	<0.00020				
	Titanium (Ti)-Total (mg/L)	<0.050				
	Uranium (U)-Total (mg/L)	0.0817				
	Vanadium (V)-Total (mg/L)	<0.030				
	Zinc (Zn)-Total (mg/L)	0.131				
Dissolved Metals	Dissolved Metals Filtration Location	LAB				
	Zinc (Zn)-Dissolved (mg/L)	0.0690				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

Qualifiers for Individual Parameters Listed:

Qualifier	Description
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

EC-SCREEN-VA	Water	Conductivity Screen (Internal Use Only)	APHA 2510

Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-TOT-CVAFS-VA	Water	Total Hg in Water by CVAFS LOR=50ppt	EPA 1631E (mod)

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).

MET-D-CCMS-VA	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020A (mod)

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

MET-T-CCMS-VA	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

MET-TOT-ICP-VA	Water	Total Metals in Water by ICPOES	EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

10-387739

Reference Information

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

10- 387739

ALS Environmental

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

Page 1 of 1

Report To		**Report Format / Distribution**		**Service Request**:(Rush subject to availability - Contact ALS to confirm TAT)	
Company:	CZN	Standard: email Other (specify):			Regular (Standard Turnaround Times - Business Days)
Contact:	David Harpley	Select: PDF X Excel X Digital Fax		X	Priority(2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address:	#1710 - 650 w Georgia st. Vancouver, B.C., V8B-4N9	Email 1: david@canadian2inc.com			Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
		Email 2:			Same Day or Weekend Emergency - Contact ALS to confirm TAT
Phone:	604-594-3855 Fax:			**Analysis Request**	
Invoice To	Same as Report ? (circle) Yes or (No) (if No, provide details)	**Client / Project Information**		(Indicate Filtered or Preserved, F/P)	
	Copy of Invoice with Report? (circle) (Yes) or No	Job #:	Prairie Creek		
Company:	CZN	PO / AFE:			
Contact:	Cynthia Quan	LSD:			
Address:	cynthia.quan@canadian2inc.com				
Phone:	604-688-2001 Fax:	Quote #:			
Lab Work Order # (lab use only)		**ALS Contact:**	**Sampler:**		

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	pH Cond.	TSS	Total Metals	Diss Zinc								Number of Containers
	Decline	11-08-17	2:30 pm	Underground	X	X	X	X								3

Special Instructions / Regulation with water or land use (CCME- Freshwater Aquatic Life/BC CSR-Commercial/AB Tier 1-Natural/ETC) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Rick Gabel	14-08-17	7:00 pm	SJ	Aug 16	12:30 pm	9.6 °C				

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION — WHITE - LABORATORY COPY — YELLOW - CLIENT COPY — GENF 18.01 Front

Attachment 4

November 6, 2006

Meg McKluskie
Regulatory Officer
Mackenzie Valley Land and Water Board
7th Floor-4910 50th Avenue,
Yellowknife, NT
X1A 2P6

Dear Ms. McKluskie:

Re: Report of Waste Rock Pile Monitoring Data, August and September, 2006
Water License MV2001L2-0003

This letter reports results for the Waste Rock Pile located on a lined pad near the 870 Level portal.

As you know, the rock pile is being created by the placement of rock from development of a new decline from the 870 Level adit. Rock from the development is being placed on a prepared pad. A representative sample of the rock is collected weekly for testing. The pad also has a collection sump for pad runoff. A water sample is also collected from the sump weekly.

The attached figure shows the new decline as it exists at present. The figure also shows the segments of the decline from which the weekly rock samples were created. A weekly rock pile is created on the surface pad prior to sampling. A sample is collected by taking grabs of the finer material from multiple locations around the weekly pile. Rock samples are sent monthly to Canadian Environmental and Metallurgical Inc. (CEMI) in Burnaby, BC. Water samples are sent weekly with SNP samples to Maxxam Analytics, also of Burnaby.

Results for August and September samples are given in the attached tables. There were four weekly rock samples plus a duplicate for August, but only one water sample. The sump was dry until the end of the month. There were five weekly rock samples plus a duplicate for September, and five weekly water samples. The tables also contain information on weekly pile rock type and occurrence of sulphides.

The results show that all weekly rock piles have an abundance of neutralisation capacity, and based on the ratio of neutralisation potentials to acid potentials (NP/AP) always being in excess

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of 40:1, all piles are non-acid generating. The first two samples (1-1 and 1-2) closest to the vein had slightly higher sulphur contents, and correspondingly higher metal concentrations, notably lead and zinc. The rock from which these piles were generated does not host significant mineralization, and the elevated metal concentrations are surprising to us. It is possible that the piles contain some 'contamination' from material in the vein area. Alternatively or as well, the method of pile sampling (collection of fines) may have contributed to the results. We are considering doing some channel sampling from the walls of the decline to correlate with the pile samples, and determine whether the pile samples are indeed representative.

Results for sump samples show no indication of significant metal-bearing leachate. This is perhaps not surprising since precipitation over the period was low, and there was no, or very little, runoff. This trend has continued up to and including the onset of freezing conditions.

All rock from the new decline remains on the pad near the 870 Level portal. Decline development is expected to be completed for this year in another 2 weeks.

If you have any questions, please do not hesitate to contact us.

Yours truly,

David P. Harpley, P. Geo.
Environmental Coordinator
Canadian Zinc Corp.

cc. Alan Taylor CZN
Troy Searson DIAND

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Vancouver, BC V6B 4N9
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PROJECT : Canadian Zinc, Prairie Creek **August**
CEMI
Project : 0571

Modified Acid-Base Accounting

Sample ID	Paste pH	S(T) %	S(SO4) %	S(S-2) %	AP	NP	Net NP	NP/AP Ratio	Fizz Test	Rock Type	Visible Sulphides
1-1	9.6	0.51	0.02	0.49	15.3	814.9	799.6	53.2	Strong	Road River Fn*	Few %
1-2	9.3	0.66	0.02	0.64	20.0	864.7	844.7	43.2	Strong	Road River Fn*	Few %
1-3	9.7	0.14	<0.01	0.14	4.4	901.1	896.7	206.0	Strong	Road River Fn*	Trace
1-4	9.4	0.07	<0.01	0.07	2.2	890.2	888.0	406.9	Strong	Road River Fn*	Trace
Duplicates											
1-1	9.6	0.51	0.02			819.8			Strong		

Note:

* Shale and Argillaceous Dolostone

AP = Acid potential in tonnes CaCO3 equivalent per 1000 tonnes of material. AP is determined from calculated sulphide sulphur content: S(T) - S(SO4).

NP = Neutralization potential in tonnes CaCO3 equivalent per 1000 tonnes of material. NET NP = NP - AP

Metals by Aqua Regia Digestion with ICP Finish

Sample ID	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %
1-1	25.4	0.2	87	122	<0.5	<5	>15.0	153	1	35	517	0.54
1-2	16.6	0.16	81	65	<0.5	<5	>15.0	136	2	18	503	0.61
1-3	3.3	0.14	30	52	<0.5	<5	>15.0	32	2	12	78	0.64
1-4	0.5	0.14	17	36	<0.5	<5	>15.0	7	2	10	5	0.67
Sample ID	**Hg ppm**	**K %**	**La ppm**	**Mg %**	**Mn ppm**	**Mo ppm**	**Na %**	**Ni ppm**	**P ppm**	**Pb ppm**	**S %**	**Sb ppm**
1-1	97	0.11	<10	9.06	344	7	0.03	13	233	>10000	0.64	177
1-2	70	0.09	<10	9.48	189	8	0.02	14	205	6806	0.86	176
1-3	13	0.08	<10	9.66	276	11	0.02	12	209	2071	0.2	34
1-4	3	0.09	<10	10.22	320	11	0.02	13	164	402	0.1	9
Sample ID	**Sc ppm**	**Sr ppm**	**Th ppm**	**Ti %**	**Tl ppm**	**U ppm**	**V ppm**	**W ppm**	**Zn ppm**	**Zr ppm**		
1-1	1	76	5	<0.01	<10	122	46	<10	>10000	6		
1-2	1	70	<5	<0.01	<10	122	45	<10	>10000	6		
1-3	1	76	5	<0.01	<10	133	36	<10	4223	6		
1-4	1	72	9	<0.01	<10	139	39	<10	841	6		

Collection Pond Water Sample

Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu
0.07	<0.05	<0.05	0.037	<0.0002	<0.05	<0.008	<0.002	15.9	<0.005	<0.005	<0.005
Fe	**Pb**	**Mg**	**Mn**	**Mo**	**Ni**	**P**	**K**	**Se**	**Si**	**Ag**	**Na**
0.06	<0.03	3.17	0.004	<0.005	<0.008	<0.1	<1	<0.03	0.38	<0.01	0.67
Sr	**S**	**Tl**	**Sn**	**Ti**	**V**	**Zn**	**Zr**				
0.03	1.3	<0.03	<0.02	<0.003	<0.005	0.04	<0.005				

Modified Acid-Base Accounting

Sample ID	Paste pH	S(T) %	S(SO4) %	S(S-2) %	AP	NP	Net NP	NP/AP Ratio	Fizz Test	Rock Type	Visible Sulphides
# 2-1	9.0	0.14	0.01	0.13	4.1	834.8	830.7	205.5	Strong	Road River Fn*	Trace
# 2-3	9.1	0.24	<0.01	0.24	7.5	761.9	754.4	101.6	Strong	Road River Fn*	Trace
# 2-4	9.2	0.22	0.06	0.16	5.0	804.5	799.5	160.9	Strong	Road River Fn*	Trace
# 2-5	9.1	0.15	0.05	0.1	3.1	968.5	965.4	309.9	Strong	Road River Fn*	Trace
# 2-21	8.9	0.22	0.03	0.19	5.9	709.4	703.5	119.5	Strong	Road River Fn*	Trace
# 2-22	9.1	0.27	0.05	0.22	6.9	732.1	725.2	106.5	Strong	Road River Fn*	Trace
Duplicates											
# 2-1	-	0.13	0.03	-	-	-	-		-		
# 2-22	9.0	-	-	-	-	737.2	-		Strong		

Note:

* Shale and Argillaceous Dolostone

AP = Acid potential in tonnes CaCO3 equivalent per 1000 tonnes of material. AP is determined from calculated sulphide sulphur content: S(T) - S(SO4).

NP = Neutralization potential in tonnes CaCO3 equivalent per 1000 tonnes of material. NET NP = NP - AP

Metals by Aqua Regia Digestion with ICP Finish

Sample ID	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %
# 2-1	1.2	0.13	19	45	<0.5	<5	>15.0	11	2	11	50	0.62
# 2-3	3.2	0.16	24	54	<0.5	<5	>15.0	29	2	27	101	0.71
# 2-4	3.4	0.15	25	37	<0.5	<5	>15.0	18	3	18	82	0.68
# 2-5	<0.2	0.14	14	21	<0.5	<5	>15.0	3	2	21	19	0.54
# 2-21	2.3	0.16	15	45	<0.5	<5	>15.0	13	3	16	47	0.65
# 2-22	1.4	0.15	12	38	<0.5	<5	>15.0	9	2	13	43	0.61

Sample ID	Hg ppm	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm
# 2-1	2	0.09	<10	5.04	202	10	0.01	12	221	741	0.2	14
# 2-3	9	0.1	10	5.6	170	9	0.02	19	577	1756	0.29	28
# 2-4	7	0.1	10	8.03	166	9	0.02	18	803	2198	0.29	28
# 2-5	<1	0.1	11	8.28	125	8	0.02	15	1048	132	0.21	<5
# 2-21	4	0.12	14	2.55	104	9	0.02	25	298	1490	0.29	9
# 2-22	1	0.11	14	2.61	98	10	0.01	14	613	1158	0.29	12

Sample ID	Sc ppm	Sr ppm	Th ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm	Zr ppm
# 2-1	1	269	8	<0.01	<10	132	23	<10	1347	5
# 2-3	2	209	9	<0.01	<10	118	20	<10	4032	6
# 2-4	2	125	9	<0.01	<10	118	18	<10	2371	7
# 2-5	1	117	7	<0.01	<10	112	9	<10	379	5
# 2-21	2	277	12	<0.01	<10	137	26	<10	1861	6
# 2-22	2	272	11	<0.01	<10	135	26	<10	1088	6

…

Collection Pond Water Samples **September**

	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn
Sep 4	0.2	<0.05	<0.05	0.024	<0.0002	<0.05	<0.008	<0.002	9.25	<0.005	<0.005	<0.005	0.228	<0.03	2.2	0.009
Sep 11	0.3	<0.05	<0.05	0.027	<0.0002	<0.05	<0.008	<0.002	12.6	<0.005	<0.005	<0.005	0.197	<0.03	2.42	0.004
Sep 20	0.15	<0.05	<0.05	0.023	<0.0002	<0.05	<0.008	<0.002	11.4	<0.005	<0.005	<0.005	0.086	<0.03	2.37	0.002
Sep 26	0.16	<0.05	<0.05	0.025	<0.0002	<0.05	<0.008	<0.002	13.6	<0.005	<0.005	0.008	0.196	0.03	2.77	0.005
Oct 2	0.21	<0.05	<0.05	0.029	<0.0002	<0.05	<0.008	<0.002	14.9	<0.005	<0.005	0.006	0.165	<0.03	2.92	0.004
	Mo	**Ni**	**P**	**K**	**Se**	**Si**	**Ag**	**Na**	**Sr**	**S**	**Tl**	**Sn**	**Ti**	**V**	**Zn**	**Zr**
Sep 4	<0.005	<0.008	<0.1	1	<0.03	0.44	<0.01	0.38	0.015	0.8	<0.03	<0.02	<0.003	<0.005	0.081	<0.005
Sep 11	<0.005	<0.008	<0.1	<1	<0.03	0.65	<0.01	0.25	0.019	1	<0.03	<0.02	<0.003	<0.005	0.05	<0.005
Sep 20	<0.005	<0.008	<0.1	<1	<0.03	0.39	<0.01	0.79	0.019	1	<0.03	<0.02	<0.003	<0.005	0.045	<0.005
Sep 26	<0.005	<0.008	<0.1	1	<0.03	0.4	<0.01	0.85	0.026	3.5	<0.03	<0.02	<0.003	<0.005	0.077	<0.005
Oct 2	<0.005	<0.008	<0.1	<1	<0.03	0.48	<0.01	1.82	0.025	3.3	<0.03	<0.02	<0.003	<0.005	0.077	<0.005

All results mg/L

April 20, 2006

Peter Lennie-Misgeld
Senior Regulatory Officer
Mackenzie Valley Land and Water Board
7th Floor-4910 50th Avenue,
Yellowknife, NT
X1A 2P6

Dear Mr. Lennie-Misgeld:

Re: Report of Waste Rock Pile Monitoring Data, October and November, 2006
Water License MV2001L2-0003

This letter reports results for October and November, 2006 for the Waste Rock Pile located on a lined pad near the 870 Level portal. Please note that the reporting of these results is later than we would prefer because there was a misunderstanding with the laboratory regarding the November samples, the samples were put aside and not tested immediately.

Background

As you know, the rock pile is being created by the placement of rock from development of a new decline from the 870 Level adit. Rock from the development is being placed on a prepared pad. A representative sample of the rock is collected weekly for testing. The pad also has a collection sump for pad runoff. The intention is to collect a water sample from the sump weekly.

The attached figure shows the new decline as it exists at present. The figure also shows the segments of the decline from which the weekly rock samples were created. A weekly rock pile is created on the surface pad prior to sampling. A sample is collected by taking grabs of the finer material from multiple locations around the weekly pile. Rock samples are sent monthly to Canadian Environmental and Metallurgical Inc. (CEMI) in Burnaby, BC. Water samples are sent weekly with SNP samples to Maxxam Analytics, also of Burnaby.

Results

Results for October and November samples are given in the attached table. There were four weekly rock samples for October, and five for November, plus a duplicate for each month. There

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was no water samples since freezing conditions prevailed throughout the period. The table also contains information on weekly pile rock type and occurrence of sulphides.

The results show that all weekly rock piles have an abundance of neutralisation capacity, and based on the ratio of neutralisation potentials to acid potentials (NP/AP) always being in excess of 50:1, all piles are non-acid generating. All sulphur contents are less than 0.4%.

All rock from the new decline remains on the pad near the 870 Level portal. Decline development ceased for the year on December 10. Development work will re-commence in approximately one months time.

If you have any questions, please do not hesitate to contact us.

Yours truly,

David P. Harpley, P. Geo.
Environmental Coordinator
Canadian Zinc Corp.

cc. Alan Taylor CZN
Troy Searson DIAND

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Vancouver, BC V6B 4N9
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CEMI Project # 0571: Canadian Zinc, Prairie Creek

October

Modified Acid-Base Accounting

Sample ID	Paste pH	S(T)%	S(SO4)%	S(S-2)%	AP	NP	Net NP	Fizz Test	Rock Type	Visible Sulphides
3-1	8.3	0.24	0.09	0.15	4.7	793.8	789.1	Moderate	Road River Fn*	Trace
3-2	8.9	0.3	0.07	0.23	7.2	761.3	754.1	Moderate	Road River Fn*	Trace
3-3	8.1	0.31	0.06	0.25	7.8	727.5	719.7	Strong	Road River Fn*	Trace
3-4	8.6	0.29	0.07	0.22	6.9	701.3	694.4	Moderate	Road River Fn*	Trace
3-1 duplicate	8.38	0.25	0.08			792.5		Moderate		

Notes:

* Shale and Argillaceous Dolostone

AP = Acid potential in tonnes (t) $CaCO_3$ equivalent per 1000 t of material. AP is determined from calculated sulphide sulphur content: S(T) - $S(SO_4)$

NP = Neutralization potential in tonnes (t) $CaCO_3$ equivalent per 1000 t of material

NET NP = NP - AP

Metals by Aqua Regia Digestion with ICP Finish

Sample ID	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %
3-1	0.6	0.14	15	131	<0.5	<5	>15.0	6	2	47	42	0.63
3-2	<0.2	0.16	20	35	0.5	<5	>15.0	3	2	58	34	0.48
3-3	<0.2	0.17	20	74	0.5	<5	14.4	1	2	79	25	0.5
3-4	<0.2	0.16	22	43	0.5	<5	14.91	3	2	64	29	0.48
Sample ID	**Hg ppm**	**K %**	**La ppm**	**Mg %**	**Mn ppm**	**Mo ppm**	**Na %**	**Ni ppm**	**P ppm**	**Pb ppm**	**S %**	**Sb ppm**
3-1	2	0.1	11	8.42	134	8	0.02	17	1299	318	0.3	8
3-2	1	0.1	13	8.93	78	7	0.02	30	2070	58	0.38	<5
3-3	<1	0.11	13	8.4	76	8	0.02	31	1986	32	0.37	<5
3-4	<1	0.1	12	8.68	74	7	0.02	30	2091	61	0.37	<5
Sample ID	**Sc ppm**	**Sr ppm**	**Th ppm**	**Ti %**	**Tl ppm**	**U ppm**	**V ppm**	**W ppm**	**Zn ppm**	**Zr ppm**		
3-1	2	96	8	<0.01	<10	85	9	<10	693	6		
3-2	1	101	7	<0.01	<10	78	9	<10	235	4		
3-3	2	98	6	<0.01	<10	74	9	<10	142	4		
3-4	2	100	6	<0.01	<10	75	9	<10	271	5		

CEMI Project # 0571: Canadian Zinc, Prairie Creek

November

Modified Acid-Base Accounting

Sample ID	Paste pH	S(T) %	S(SO4) %	S(S-2) %	AP	NP	Net NP	Fizz Test	Rock Type	Visible Sulphides
4-1	8.15	0.4	0.04	0.36	11.3	584.8	573.6	Strong	Road River Fn*	Trace
4-2	8.26	0.39	0.04	0.35	10.9	633.6	622.7	Strong	Road River Fn*	Trace
4-3	8.27	0.36	0.03	0.33	10.3	586.2	575.9	Moderate	Road River Fn*	Trace
4-4	8.22	0.38	0.04	0.34	10.6	578.5	567.9	Moderate	Road River Fn*	Trace
4-4A	8.25	0.39	0.03	0.36	11.3	573.5	562.3	Strong	Road River Fn*	Trace
4-1 duplicate	8.16	0.39	0.04			584.8		Strong		

Notes:

* Shale and Argillaceous Dolostone

AP = Acid potential in tonnes (t) $CaCO_3$ equivalent per 1000 t of material. AP is determined from calculated sulphide sulphur content: S(T) - $S(SO_4)$

NP = Neutralization potential in tonnes (t) $CaCO_3$ equivalent per 1000 t of material

NET NP = NP - AP

Metals by Aqua Regia Digestion with ICP Finish

Sample ID	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %
4-1	0.6	0.18	<5	56	<0.5	<5	>15.0	6	1	45	32	0.8
4-2	0.8	0.19	<5	50	<0.5	<5	>15.0	7	1	41	33	0.79
4-3	0.4	0.15	<5	37	<0.5	<5	>15.0	3	<1	39	16	0.79
4-4	0.5	0.14	<5	47	<0.5	<5	>15.0	4	<1	36	19	0.75
4-4A	<0.2	0.15	<5	49	<0.5	<5	>15.0	3	<1	47	22	0.82
Sample ID	**Hg ppm**	**K %**	**La ppm**	**Mg %**	**Mn ppm**	**Mo ppm**	**Na %**	**Ni ppm**	**P ppm**	**Pb ppm**	**S %**	**Sb ppm**
4-1	4	0.13	13	2.59	86	4	0.02	19	765	349	0.54	12
4-2	2	0.14	13	2.6	90	4	0.02	20	683	361	0.54	14
4-3	<1	0.11	13	2.28	81	4	0.01	17	738	133	0.54	11
4-4	2	0.11	13	2.38	80	4	0.01	17	758	206	0.53	6
4-4A	2	0.11	13	2.56	86	4	0.02	18	694	189	0.56	10
Sample ID	**Sc ppm**	**Sr ppm**	**Th ppm**	**Ti %**	**Tl ppm**	**U ppm**	**V ppm**	**W ppm**	**Zn ppm**	**Zr ppm**		
4-1	2	265	<5	<0.01	12	<10	29	<10	722	7		
4-2	2	283	<5	<0.01	12	<10	31	<10	817	7		
4-3	2	279	<5	<0.01	10	<10	28	<10	325	7		
4-4	2	269	<5	<0.01	10	<10	26	<10	435	7		
4-4A	2	275	<5	<0.01	<10	<10	27	<10	391	7		

November 14, 2007

Tyree Mullaney
Regulatory Officer
Mackenzie Valley Land and Water Board
7th Floor-4910 50th Avenue,
Yellowknife, NT
X1A 2P6

Dear Ms. Mullaney:

Re: Report of Waste Rock Pile Monitoring Data, July 16 – September 11, 2007
Water License MV2001L2-0003

This letter reports results for the period July 16 – September 11, 2007 for the Waste Rock Pile located on a lined pad near the 870 Level portal.

Background

As you know, the rock pile is being created by the placement of rock from development of a new decline from the 870 Level adit. Rock from the development is being placed on a prepared pad. A representative sample of the rock is collected weekly for testing. The pad also has a collection sump for pad runoff. The intention is to collect a water sample from the sump weekly.

The attached figure shows the new decline as it exists at present. The figure also shows the segments of the decline from which the weekly rock samples were created. A weekly rock pile is created on the surface pad prior to sampling. A sample is collected by taking grabs of the finer material from multiple locations around the weekly pile. Rock samples are sent monthly to Canadian Environmental and Metallurgical Inc. (CEMI) in Burnaby, BC. Water samples are sent weekly with SNP samples to Maxxam Analytics, also of Burnaby.

Results

Results are given in the attached tables. There were four weekly rock samples for the period July 16 – August 13, and four for the period August 16 – September 11, plus a duplicate for each month. Water sample collection was possible from Aug 6 onwards. The tables also contain information on weekly pile rock type and occurrence of sulphides.

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The results show that all weekly rock piles have an abundance of neutralisation capacity, and based on the ratio of neutralisation potentials to acid potentials (NP/AP) always being in excess of 60:1, all piles are non-acid generating. All sulphur contents are less than 0.4%.

All rock from the new decline remains on the pad near the 870 Level portal.

If you have any questions, please do not hesitate to contact us.

Yours truly,

David P. Harpley, P. Geo.
Environmental Coordinator
Canadian Zinc Corp.

cc. Alan Taylor CZN
Troy Searson DIAND

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CEMI Project # 0571: Canadian Zinc, Prairie Creek

July 16 - August 13 2007

Modified Acid-Base Accounting

Sample ID	Paste pH	S(T)%	S(SO4)%	S(S-2)%	AP	NP	Net NP	Fizz Test	Rock Type	Visible Sulphides
5-1	8.16	0.28	0.02	0.26	8.1	776.9	768.8	Moderate	Road River Fn*	Trace
5-2	8.30	0.19	0.03	0.16	5.0	781.3	776.3	Strong	Road River Fn*	Trace
5-3	7.86	0.26	0.03	0.23	7.2	757.5	750.3	Moderate	Road River Fn*	Trace
5-5	8.22	0.25	0.02	0.23	7.2	750.0	742.8	Strong	Road River Fn*	Trace
5-1 duplicate	8.15	0.27	0.02			777.0		Moderate		

Notes:

* Shale and Argillaceous Dolostone

AP = Acid potential in tonnes (t) $CaCO_3$ equivalent per 1000 t of material. AP is determined from calculated sulphide sulphur content: S(T) - $S(SO_4)$

NP = Neutralization potential in tonnes (t) $CaCO_3$ equivalent per 1000 t of material

NET NP = NP - AP

Metals by Aqua Regia Digestion with ICP Finish

Sample ID	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %
5-1	<0.2	0.07	14	59	<0.5	<5	>15	2	2	7	<1	0.61
5-2	0.2	0.07	13	165	<0.5	<5	>15	2	2	8	<1	0.57
5-3	0.2	0.06	14	88	<0.5	<5	>15	4	2	8	<1	0.54
5-5	0.7	0.07	13	60	<0.5	<5	>15	5	1	11	<1	0.56
Sample ID	**Hg ppm**	**K %**	**La ppm**	**Mg %**	**Mn ppm**	**Mo ppm**	**Na %**	**Ni ppm**	**P ppm**	**Pb ppm**	**S %**	**Sb ppm**
5-1	<1	0.06	17	1.85	87	2	0.01	13	211	92	0.29	<5
5-2	<1	0.05	17	1.76	83	2	0.01	21	189	143	0.23	<5
5-3	1	0.05	15	1.47	74	2	0.01	12	294	106	0.3	<5
5-5	1	0.05	16	2.36	82	2	0.01	13	327	262	0.29	5
Sample ID	**Sc ppm**	**Sr ppm**	**Th ppm**	**Ti %**	**Tl ppm**	**U ppm**	**V ppm**	**W ppm**	**Zn ppm**	**Zr ppm**		
5-1	2	396	7	<0.01	<10	69	19	<10	186	5		
5-2	1	405	7	<0.01	<10	69	20	<10	209	5		
5-3	1	381	5	<0.01	<10	71	19	<10	276	5		
5-5	2	315	6	<0.01	<10	64	20	<10	521	5		

CEMI Project # 0571: Canadian Zinc, Prairie Creek

August 16 - September 11 2007

Modified Acid-Base Accounting

Sample ID	Paste pH	S(T) %	S(SO4) %	S(S-2) %	AP	NP	Net NP	Fizz Test	Rock Type	Visible Sulphides
6-1	8.31	0.3	<0.01	0.3	9.4	836.5	827.1	Strong	Road River Fn*	Trace
6-2	8.45	0.29	<0.01	0.29	9.1	849.5	840.4	Strong	Road River Fn*	Trace
6-3	8.46	0.32	<0.01	0.32	10.0	848.8	838.8	Strong	Road River Fn*	Trace
6-4	8.27	0.35	<0.01	0.35	10.9	669.4	658.5	Strong	Road River Fn*	Trace
6-1 duplicate	8.28	0.29	<0.01			837.1		Strong		

Notes:

* Shale and Argillaceous Dolostone

AP = Acid potential in tonnes (t) $CaCO_3$ equivalent per 1000 t of material. AP is determined from calculated sulphide sulphur content: S(T) - $S(SO_4)$

NP = Neutralization potential in tonnes (t) $CaCO_3$ equivalent per 1000 t of material

NET NP = NP - AP

Metals by Aqua Regia Digestion with ICP Finish

Sample ID	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %
6-1	0.4	0.05	4.7	55	<1	<0.1	>10	1.3	2.7	7	9.3	0.44
6-2	0.5	0.07	5.1	44	<1	<0.1	>10	1.9	2.8	6	11.2	0.42
6-3	0.6	0.07	6.7	44	<1	0.1	>10	2.5	2.7	8	13.7	0.45
6-4	1.1	0.08	11	197	<1	0.1	>10	6.9	2.8	10	23.5	0.45
Sample ID	**Hg ppm**	**K %**	**La ppm**	**Mg %**	**Mn ppm**	**Mo ppm**	**Na %**	**Ni ppm**	**P ppm**	**Pb ppm**	**S %**	**Sb ppm**
6-1	0.4	0.04	11	2.12	104	3.9	0.01	23.4	0.02	73.5	0.49	1.4
6-2	0.7	0.05	11	3.35	119	3.7	0.01	22.3	0.03	86.3	0.52	2.3
6-3	0.9	0.05	10	4.93	151	4.1	0.01	20.4	0.01	137.9	0.49	3.3
6-4	2.9	0.06	12	3.43	106	3.6	0.01	21.8	0.02	309.7	0.45	6.5
Sample ID	**Sc ppm**	**Sr ppm**	**Th ppm**	**Ti %**	**Tl ppm**	**U ppm**	**V ppm**	**W ppm**	**Zn ppm**	**Zr ppm**		
6-1	1.8	406	1.9	0.022	<0.1	1.5	17	<0.1	136	5		
6-2	1.7	343	1.8	0.017	<0.1	1.6	23	0.1	186	5.6		
6-3	1.6	236	1.7	0.014	0.1	1.7	20	0.1	282	5.7		
6-4	1.7	277	2	0.016	<0.1	1.7	21	0.5	781	6		

Collection Pond Water Samples

	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn
Aug 6	0.05	<0.05	<0.05	0.032	<0.0002	<0.05	0.012	0.003	260	0.005	<0.005	<0.005	0.016	<0.03	53.6	0.016
Aug 14	0.03	<0.05	<0.05	0.022	<0.0002	<0.05	0.018	<0.002	267	<0.005	<0.005	<0.005	0.01	<0.03	58.8	0.016
Aug 23	<0.02	<0.05	<0.05	0.019	<0.0002	<0.05	<0.008	<0.002	196	<0.005	<0.005	<0.005	0.02	<0.03	40.9	0.01
Aug 30	<0.02	<0.05	<0.05	0.016	<0.0002	<0.05	<0.008	<0.002	172	<0.005	<0.005	<0.005	0.02	<0.03	38.2	0.009
Sep 4	0.03	<0.05	<0.05	0.015	<0.0002	<0.05	0.008	<0.002	140	<0.005	<0.005	<0.005	0.033	0.03	31.5	0.008
Sep 11	0.23	<0.05	<0.05	0.017	<0.0002	<0.05	0.012	<0.002	125	<0.005	<0.005	<0.005	0.111	<0.03	35.5	0.006
	Mo	**Ni**	**P**	**K**	**Se**	**Si**	**Ag**	**Na**	**Sr**	**S**	**Tl**	**Sn**	**Ti**	**V**	**Zn**	**Zr**
Aug 6	0.007	0.022	<0.1	7	0.04	1.07	<0.01	11.8	0.822	267	<0.03	<0.02	<0.003	<0.005	0.581	<0.005
Aug 14	0.014	0.018	<0.1	7	0.06	1.04	<0.01	9.29	0.991	283	<0.03	<0.02	<0.003	<0.005	0.613	<0.005
Aug 23	0.01	0.015	<0.1	4	<0.03	0.75	<0.01	4.68	0.722	198	<0.03	<0.02	<0.003	<0.005	0.498	<0.005
Aug 30	0.009	0.011	<0.1	3	0.03	0.62	<0.01	4.01	0.612	174	<0.03	<0.02	<0.003	<0.005	0.471	<0.005
Sep 4	0.007	0.012	<0.1	2	<0.03	0.55	<0.01	3.03	0.51	138	<0.03	<0.02	<0.003	<0.005	0.374	<0.005
Sep 11	0.021	0.012	<0.1	4	0.04	0.87	<0.01	6.42	0.481	135	<0.03	<0.02	<0.003	<0.005	0.253	<0.005

All results mg/L

Attachment 5

SUMMARY OF COSTS

CAPITAL COSTS	COMPONENT NAME	COST	LAND LIABILITY	WATER LIABILITY
OPEN PIT		$0	$0	$0
UNDERGROUND MINE		$0	$0	$0
TAILINGS FACILITY		$0	$0	$0
ROCK PILE		$0	$0	$0
BUILDINGS AND EQUIPMENT		$4,305	$0	$4,305
CHEMICALS AND CONTAMINATED SOIL MANAGEMEN		$10,220	$0	$10,220
SURFACE AND GROUNDWATER MANAGEMENT		$21,163	-	$21,163
INTERIM CARE AND MAINTENANCE		$0	-	$0
SUBTOTAL: Capital Costs		**$35,688**	**$0**	**$35,688**
PERCENT OF SUBTOTAL			**0%**	**100%**

INDIRECT COSTS		COST	LAND LIABILITY	WATER LIABILITY
MOBILIZATION/DEMOBILIZATION		$0	$0	$0
POST-CLOSURE MONITORING AND MAINTENANCE		$0	$0	$0
ENGINEERING	5%	$1,784	$0	$1,784
PROJECT MANAGEMENT	5%	$1,784	$0	$1,784
HEALTH AND SAFETY PLANS/MONITORING & QA/QC	1%	$357	$0	$357
BONDING/INSURANCE	1%	$357	$0	$357
CONTINGENCY	20%	$7,138	$0	$7,138
MARKET PRICE FACTOR ADJUSTMENT	0%	$0	$0	$0
SUBTOTAL: Indirect Costs		**$11,420**	**$0**	**$11,420**

TOTAL COSTS	**$47,108**	**$0**	**$47,108**

1 **Building / Equip Name:** **Bldg / Equip #: 1**

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
DISPOSE MOBILE EQUIPMENT									
Decontaminate and ship off-site		allow		#N/A	$0.00	$0		$0	$0
Decontaminate and dispose on-site		allow		#N/A	$0.00	$0		$0	$0
Other				#N/A	$0.00	$0		$0	$0
REMOVE BUILDINGS - see note below									
Accomodation Complex		m2		#N/A	$0.00	$0		$0	$0
Process Facilities		m2		#N/A	$0.00	$0		$0	$0
Offices, Repair, Lab, Warehouse		m2		#N/A	$0.00	$0		$0	$0
Storage Facilites		m2		#N/A	$0.00	$0		$0	$0
Water and Wastewater Treatment Facilities		m2	105	BRW	$41.00	$4,305		$0	$4,305
U/G Heating Plant		m2		#N/A	$0.00	$0		$0	$0
Emulsion Plant		m2		#N/A	$0.00	$0		$0	$0
AN Storage Facility		m2		#N/A	$0.00	$0		$0	$0
Warehouse, Shops and Other		m2		#N/A	$0.00	$0		$0	$0
Storage Facility at Laydown/Airstrip		m2		#N/A	$0.00	$0		$0	$0
Fuel tanks		m2		#N/A	$0.00	$0		$0	$0
Fuel Tanks		m2		#N/A	$0.00	$0		$0	$0
Freshwater intake		m2		#N/A	$0.00	$0		$0	$0
Reclaim pumps		m2		#N/A	$0.00	$0		$0	$0
Outfall & Diffuser		m2		#N/A	$0.00	$0		$0	$0
Airstrip lighting, navigation, electrician		mandays		#N/A	$0.00	$0		$0	$0
Airstrip lighting, navigation, mechanical		mandays		#N/A	$0.00	$0		$0	$0
Break foundation slabs	total of all buildings	m2		#N/A	$0.00	$0		$0	$0
Consolidate & dump boneyard debris		m3		#N/A	$0.00	$0		$0	$0
Other				#N/A	$0.00	$0		$0	$0
LANDFILL FOR DEMOLITION WASTE									
Place rock cover	Blast rock fill	m3		#N/A	$0.00	$0		$0	$0
Place soil cover	Soil Cap - Landfill and Septic Field	m3		#N/A	$0.00	$0		$0	$0
Vegetate		ha		#N/A	$0.00	$0		$0	$0
GRADE AND CONTOUR PADS									
Accomodation Complex		ha		#N/A	$0.00	$0		$0	$0
Process Facilities		ha		#N/A	$0.00	$0		$0	$0
Offices, Repair, Lab, Warehouse		ha		#N/A	$0.00	$0		$0	$0
Storage Facilites		ha		#N/A	$0.00	$0		$0	$0
Water and Wastewater Treatment Facilities		ha		#N/A	$0.00	$0		$0	$0
U/G Heating Plant		ha		#N/A	$0.00	$0		$0	$0
Emulsion Plant		ha		#N/A	$0.00	$0		$0	$0
Warehouse, Shops and Other		ha		#N/A	$0.00	$0		$0	$0
Place rock cover		m3		#N/A	$0.00	$0		$0	$0
Vegetate		ha		#N/A	$0.00	$0		$0	$0
Other				#N/A	$0.00	$0		$0	$0
PUNCTURE LINED SUMPS									
Puncture liner and place soil cover		m3		#N/A	$0.00	$0		$0	$0
RECLAIM ROADS									
Remove culverts		each		#N/A	$0.00	$0		$0	$0
Remove bridges		each		#N/A	$0.00	$0		$0	$0
Scarify and install water breaks		ha		#N/A	$0.00	$0		$0	$0
Scarify airstriip		ha		#N/A	$0.00	$0		$0	$0
Scarify laydown areas		ha		#N/A	$0.00	$0		$0	$0
Vegetate		ha		#N/A	$0.00	$0		$0	$0
Other				#N/A	$0.00	$0		$0	$0
SPECIALIZED ITEMS									
Dispose of misc. debris and laydown area refuse				#N/A	$0.00	$0		$0	$0
					Total	$4,305		$0	$4,305
					% of Total			0%	100%

Note: Unit costs are based on 3m high, single storey building. Scale larger building areas accordingly. E.g. 10m high building multiply area by 3.3 (10/3

1 **Chemicals/Soil Area Name:**

Note: The procedures, equipment and packaging for clean up and removal of chemicals or contaminated soils are highly dependent on the nature of the chemicals and their existing state of containment. Government guidelines should be consulted on an individual chemical basis. Any estimate made here should be considered very rough unless specific evaluations have been conducted.

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
HAZARDOUS MATERIALS AUDIT									
Hazardous materials audit		mandays		#N/A	$0.00	$0		$0	$0
BUILDING DECONTAMINATION & CONSOLIDATION OF HAZARDOUS MATERIALS									
Environmental technician/coordinator		mandays		#N/A	$0.00	$0		$0	$0
Decontaminate: oil, fuel		mandays		#N/A	$0.00	$0		$0	$0
Decontaminate maintenance shop		mandays		#N/A	$0.00	$0		$0	$0
Decontaminate power plant		mandays		#N/A	$0.00	$0		$0	$0
Decontaminate bulk fuel storage		mandays		#N/A	$0.00	$0		$0	$0
Decontaminate ANFO plant		mandays		#N/A	$0.00	$0		$0	$0
Decontaminate offices/warehouse/accom		mandays		#N/A	$0.00	$0		$0	$0
Removal of asbestos siding on buildings		m2		#N/A	$0.00	$0		$0	$0
Removal of friable asbestos on equipment		m2		#N/A	$0.00	$0		$0	$0
Other				#N/A	$0.00	$0		$0	$0
HAZARDOUS MATERIALS REMOVAL									
Waste oils		litre		#N/A	$0.00	$0		$0	$0
Waste fuel		litre		#N/A	$0.00	$0		$0	$0
Waste batteries		kg		#N/A	$0.00	$0		$0	$0
Assay & environmental lab reagents		kg		#N/A	$0.00	$0		$0	$0
Machine shop paints, solvents etc		litre		#N/A	$0.00	$0		$0	$0
Glycol		litre		#N/A	$0.00	$0		$0	$0
Process reagents		kg		#N/A	$0.00	$0		$0	$0
Nuclear sources		allow		#N/A	$0.00	$0		$0	$0
Other hazardous materials		allow		#N/A	$0.00	$0		$0	$0
HAZARDOUS MATERIALS									
Transportation to disposal facility		allow		#N/A	$0.00	$0		$0	$0
Disposal fees		allow		#N/A	$0.00	$0		$0	$0
Other				#N/A	$0.00	$0		$0	$0
CONTAMINATED SOILS									
Contam. soil investigation - Phase 1		each		#N/A	$0.00	$0		$0	$0
Contam. soil investigation - Phase 2		each		#N/A	$0.00	$0		$0	$0
CONTAMINATED SOIL REMOVAL									
Excavate and transport to onsite facility		m3	70	CSR	$146.00	$10,220		$0	$10,220
Manage hydrocarbon remediation at facility		m3		#N/A	$0.00	$0		$0	$0
Reagents/stabilizing agent		m2		#N/A	$0.00	$0		$0	$0
Excavate and transport to offsite facility		m3		#N/A	$0.00	$0		$0	$0
Contour decontaminated area		m3		#N/A	$0.00	$0		$0	$0
CONTAMINATED SOIL VERY LOW PERMEABILITY COVER									
Supply geomembrame, HDPE, ES3, GCL		m2		#N/A	$0.00	$0		$0	$0
Upper and lower bedding layers		m3		#N/A	$0.00	$0		$0	$0
Install geomembrane, HDPE, ES3, GCL		m2		#N/A	$0.00	$0		$0	$0
Erosion protection layer		m3		#N/A	$0.00	$0		$0	$0
Vegetate		m2		#N/A	$0.00	$0		$0	$0
Install infiltration/seepage instrumentatior		allow		#N/A	$0.00	$0		$0	$0
Other				#N/A	$0.00	$0		$0	$0
OTHER									
				#N/A	$0.00	$0		$0	$0
					Total	$10,220		$0	$10,220
					% of Total			0%	100%

1 **Capital Expenditures and Short Term Water Treatment identified in 'Instructions' worksheet**

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost
BREACH DYKE EMBANKMENT						
Remove fill		m3		#N/A	$0.00	$0
Contour water intake area		m3		#N/A	$0.00	$0
STABILIZE SEDIMENT PONDS/WATER MANAGEMENT PONDS						
Place soil cover		m3		#N/A	$0.00	$0
Doze & spread excavated material		m3	4887	DS	$3.80	$18,571
Vegetate spread material		ha		#N/A	$0.00	$0
Rip rap in channel base		each		#N/A	$0.00	$0
REDIRECT RUNOFF/CONSTRUCT DIVERSION DITCHES						
Excavate ditches -soil		m3		#N/A	$0.00	$0
Excavate ditches -rock		m3		#N/A	$0.00	$0
Stabilize side slopes		m3		#N/A	$0.00	$0
Rip rap in channel base		m3		#N/A	$0.00	$0
BREACH DITCHES						
Excavate breaches		m3		#N/A	$0.00	$0
Backfill/recontour		m3		#N/A	$0.00	$0
Install flow dissipation		m3		#N/A	$0.00	$0
Vegetate remainder of ditch		m2		#N/A	$0.00	$0
DECOMISSION FRESH WATER SUPPLY						
Breach embankment		m		#N/A	$0.00	$0
Remove pump		LS		#N/A	$0.00	$0
Remove pipeline		m		#N/A	$0.00	$0
WATER CONTROL IN RECLAMATION QUARRY						
Install pumping system		LS		#N/A	$0.00	$0
Remove pumping system		LS		#N/A	$0.00	$0
REMOVE PIPELINES						
Remove pipes		m	36	PLR	$72.00	$2,592
Concrete plug deep pipes		m3		#N/A	$0.00	$0
Other				#N/A	$0.00	$0
GROUNDWATER COLLECTION SYSTEM						
Excavate/install sumps		m3		#N/A	$0.00	$0
Install pumping wells		m3		#N/A	$0.00	$0
Install pumps/pipelines/power supply		LS		#N/A	$0.00	$0
CONSTRUCT CONTAMINATED WATER STORAGE POND						
Excavate pond		m3		#N/A	$0.00	$0
Doze & spread excavated material		m3		#N/A	$0.00	$0
Vegetate spread material		ha		#N/A	$0.00	$0
Bedding layer		m3		#N/A	$0.00	$0
Supply geomembrane		m2		#N/A	$0.00	$0
Install geomembrane		m2		#N/A	$0.00	$0
Erosion protection layer		m3		#N/A	$0.00	$0
CONSTRUCT PASSIVE TREATMENT SYSTEM (e.g. Constructed Wetland)						
Construct access roads		km		#N/A	$0.00	$0
Install HDPE piping system from collection pond		m		#N/A	$0.00	$0
Inter-cell flow structures		allow		#N/A	$0.00	$0
Install liners		m2		#N/A	$0.00	$0
Install growth media		m3		#N/A	$0.00	$0
Wetland vegetation		ha		#N/A	$0.00	$0
CONSTRUCT WATER TREATMENT PLANT						
Build treatment plant		LS		#N/A	$0.00	$0
Build sludge containment facility		LS		#N/A	$0.00	$0
SHORT TERM WATER TREATMENT*						
Annual water treatment cost, from "Water Treatment"						$0
					Total	$21,163

*Note: include water treatment cost from "Water Treatment" worksheet if treatment is considered short term and is not included in a particular component worksheet.

Mackenzie Valley Land and Water Board
7th Floor - 4922 48th Street, PO Box 2130
Yellowknife, NT. X1A 2P6
867-669-0506
867-873-6610
mvlwb.com

Land Use Permit Application Form

(Subsection 19(2) and Schedule 2 of the Mackenzie Valley Land Use Regulations)

1 Applicant Name: Canadian Zinc Corporation

Applicant's Mailing Address:
1710 – 650 W. Georgia St.
Vancouver, BC, V6B 4N9

Fax no.: 604-688-2043
Telephone no.: 604-688-2001

2 Head office address:
As above

Fax no.:
Telephone no.:

Field supervisor: David Harpley
Email address: David.Harpley@Norzinc.com

3 Other personnel (subcontractor, contractors, company staff etc.):
To be determined
Total number of persons on site: Est. 15-25

4 Eligibility (Refer to section 18 of the Mackenzie Valley Land Use Regulations):

■ (a)(i) ☐ (a)(ii) ☐ (a)(iii) ☐ (b)

5 Other rights, licences or permits related to this permit application (mineral rights, timber permits, water licences, etc.):

To complete this section of the Application Form, please see page 16 of the Board's Guide to the Land Use Permitting Process for more information.

MV2001L2-0003. Surface Lease 95F10/10-5-5. Mining Lease 2932

6 **a)** Summary of operation (describe purpose, nature and location of all activities). Refer to paragraph 19(3)(*b*) of the Mackenzie Valley Land Use Regulations:

To complete this section of the Application Form, please see page 15 of the Board's Guide to the Land Use Permitting Process for more information.

See attached.

b) Indicate if a camp is to be set up. If yes, indicate size of camp or describe camp. (Provide details on a separate page, if necessary):

See attached.

7 Summary of potential environmental and resource impacts and mitigation measures (describe the effects of the proposed land-use operation on land, water, flora and fauna and related socio-economic impacts). (Use separate page if necessary):

To complete this section of the Application Form, proponents are encouraged to use Appendix B of the Board's Guide to the Land Use Permitting Process.

See attached.

8 Proposed restoration plans (Use a separate page if necessary):

To complete this section of the Application Form, please see page 16 of the Board's Guide to the Land Use Permitting Process for more information.

Following completion of the exploration program, all equipment will be removed from the underground workings. Dewatering will be discontinued and the workings will flood to the natural groundwater level. As the development is a decline, very little discharge of water with a low content of metals is expected, as is the case from the previous decline. Rock removed from underground will be consolidated with the existing waste rock pad near the 870 m portal.

Roads:
(Provide details on a separate page.)

☐ Is this to be a pioneered (new) road?

☐ Has the route been laid out or ground truthed?

9 Proposed disposal methods:

To complete this section of the Application Form, a waste management plan for the proposed activities is to be developed in accordance with the Board's Guidelines for Developing a Waste Management Plan and submitted as an attachment to the Application Form. A template for this Plan is provided in the Guidelines.

a) Garbage: Incineration and solid waste disposal site

b) Sewage (Sanitary and grey water): Sump or treatment plant

c) Brush & trees: NA

d) Overburden (Organic soils, waste material, etc.): Waste rock to be stockpiled next to 870 portal

10 Equipment (includes drills, pumps, etc.) (Use separate page if necessary):

Number	Type and Size	Proposed use
See	attached sheet	

11 Fuels:	Number of containers:	Capacity of containers:	Location:
Diesel	11	400-1200 L	Mobile equipment
Gasoline	3	150 L	Pick up trucks
Aviation Fuel			
Propane			
Other			

12 Containment fuel spill contingency plans (attach separate contingency plan if necessary):

A spill contingency plan for the proposed activities is to be developed in accordance with INAC's Guidelines for Spill Contingency Planning, April 2007 (accessible here). This Plan is to be submitted as an attachment to the Application Form.

A spill contingency plan is on file, is in use, and has been provided

13 Methods of fuel transfer (to other tanks, vehicles, etc.):

Manual or electric pump, gravity

14 Period of operation (includes time to cover all phases of project work applied for, including restoration):

From (DD/MM/YY) 01/07/19 To (DD/MM/YY) 01/07/24

15 Period of permit (up to five years, with maximum of two years of extension):

Start Date (DD/MM/YY): 01/07/19 Completion Date (DD/MM/YY): 01/07/24

16 Location of activities by map coordinates (attach maps and sketches):

To complete this part of the Application Form, please see the Standards for Geographic Information Systems (GIS) Submissions.

Minimum latitude (degree, minute): 61o 33' N

Maximum latitude (degree, minute): 61o 33' N

Minimum longitude (degree, minute): 124o 48' W

Maximum longitude (degree, minute): 124o 48' W

Map Sheet no.: 95F10

17 Applicant (print name in full, in upper case): DAVID HARPLEY

Signature: David Harpley Digitally signed by David Harpley DN: cn=David Harpley, o=Norzinc, ou, email=David.Harpley@Norzinc.com, c=CA Date: 2019.07.01 10:35:36 -07'00' Date (DD/MM/YY): 01/07/19

18 Application fees for Type A or Type B permit (for federal and non-federal lands)[1]:

a) Application fees for Type A or Type B permit (include the first two hectares) - $150.00: $ 150

AND

b) Land-use fees for **federal public lands only**:

If more than two hectares of federal public lands are being used, enter the number of hectares in excess of the two hectares included in the Application fee.

_____ hectares at $50.00/hectare $ 0

1. To help identify whether your activity is on federal lands, please see this map.

Total fees[2]: $ 150

2. Please make all cheques payable to the Receiver General for Canada.

19 Additional Information (Attach additional pages if necessary).

6 a)
As part of the ongoing process of establishing, confirming and enhancing the known mineral resource at the Prairie Creek property, Canadian Zinc proposes to develop an exploration decline to permit access for underground exploration drilling of the stratabound deposit underlying the Zone 3 quartz vein mineralization. Further delineation of the vein-type mineralization will be undertaken at the same time.

The proposed decline will be accessed from the existing 870 m portal and the 880 m level. The decline will have a 15% downward grade, and will be developed in the footwall of the Vein deposit, but distant from the Vein and would not cross the Vein.

The proposed decline will allow drilling to be conducted from underground about 200 m above the stratabound, as compared to drilling from surface which would require approximately 450 m long holes, resulting in a substantial saving in drilling costs

6 b) The land use operation will be based in and serviced from the existing facilities at the Prairie Creek Mine. No new camp will be set up.

7. The Project was the subject of EA01-02. Minimal environmental disturbance is expected to occur as all activity will take place within the area of previous mining activity and within 1000 m of the existing mill and associated facilities. New surface disturbance will be restricted to the immediate area of the portal, an area of about 500 m2, and confined to the location of the waste rock pad from a previous decline.

The mineral resources at Prairie Creek are hosted in carbonate rocks. The decline will be driven entirely within a sedimentary dolostone formation. Waste rock will be trucked and combined with that from the previous decline in a reconfigured dump.

Carbonate limestones and shales of the Whittaker and Lower Road River Formations occur in the area of the new tunnel, and these have been tested and determined to have very low levels of mineralization, low sulphide values and high excess neutralization potential, and will therefore pose no hazard to the environment through sulphide oxidation processes.

The quality of water expected to be pumped from the new decline is expected to be similar to the previous decline i.e. considerably better than the drainage presently emanating from the 880 m level. In addition to underground sumps to settle sediment, water pumped from the decline will be treated with 880 m level water using the existing water treatment facilities, including the Polishing Pond.