



**Sä Dena Hes Mine  
2012 Annual Report  
Yukon Production Licence QML – 0004**



Prepared by  
Dormant Mines Office – Kimberley, BC

March 2013

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## **1.0 SUMMARY**

A Joint Venture consisting of Teck Resources Limited (25%), Teck Metals Ltd. (25%), and Pan-Pacific Metal Mining Corporation (50%) (a wholly owned subsidiary of Korea Zinc) formed the Sä Dena Hes Operating Corporation which purchased the Sä Dena Hes Mine from Coopers and Lybrand Ltd. the appointed Court Receiver, in March 1994. Teck Metals Ltd. manages the mine under an Agreement with the Joint Venture Partners. Full-time security and property management is provided by Teck Metals Ltd. through on-site personnel. The mine operation continued to be maintained on a 'Temporary Closure' basis throughout 2012. In 2001 Sä Dena Hes was granted a Yukon Quartz Mining Production Licence QML-0004 ('Production Licence'). This report is submitted in compliance with Section 13 of the Production Licence.

## **2.0 PRODUCTION DATA**

The mine remained under 'Temporary Closure' status throughout 2012.

### **2.1 Ore & Waste Mined**

Ore Produced .....	0 tonnes
Waste Produced .....	0 tonnes

### **2.2 Head Grades Processed**

Zinc Grade .....	N. A.
Lead Grade.....	N. A.

### **2.3 Concentrate Production**

Zinc Concentrate .....	0 tonnes
Lead Concentrate .....	0 tonnes

### **2.4 Stockpiles**

Ore Stockpiles .....	0 tonnes
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## **3.0 FORECAST MINE LIFE**

Expected mine life is approximately 4 years based on current resources. The Mineral Resources have not been updated recently and are as follows (Appendix A – Memorandum from Paul Bankes, Director Reserve Evaluations to Bruce Donald, Re: Sä Dena Hes Resources March 6, 2008). In January 2012 a decision was made that at the end of the current period of Temporary Closure the mine would be permanently closed.

Mineral Resources

Indicated .....	2,190,000 tonnes
Zinc .....	10.4%
Lead .....	2.6%

**4.0 BACKFILL PLACED UNDERGROUND**

There was no backfill placed underground during 2012.

**5.0 MINE PLANS**

Mine plans and sections were submitted with the Production Licence 2001 Annual Report. They are not being resubmitted as there have been no changes since.

**6.0 RECLAMATION**

The site was in Temporary Closure throughout the year awaiting return of economic metal prices. Site reclamation activities were related to study activity.

**6.1 Reclamation Plan**

In January 2006 an updated Detailed Decommissioning and Reclamation Plan (DDRP) was submitted as required. This plan was updated and submitted early in 2010 and most recently in January 2012. Both plans are currently under review.

**6.2 Revegetation Studies**

The DDRP proposed Revegetation studies in Section 3.6 of the report. The Production Licence requires that the testing proposed in Section 3.6 and 3.6.2.1 be conducted.

In accordance with the February 2000 Detailed Decommissioning and Reclamation Plan for the site, a revegetation test program was initiated and has been on-going annually from 2000 until 2008. The 2008 review of the annual reports revealed that annual changes in vegetation response over the past several years were insignificant. As a result of these observations the decision was made to reduce the sampling period to every 3-5 years. It has also been observed that revegetation of linear disturbances is naturally occurring with native species. The high moisture regime of the mine site coupled with a large and local native seed source is resulting in very rapid establishment of erosion controlling vegetative cover in these areas.

It was also noted that volunteer native shrubs were becoming sparsely established over portions of the tailings pond. These plants were becoming established on areas with varying depths of till cover and had every indication of being very healthy i.e. color and growth. In August, 2009 a total of 1300 Alder (*Alnus* sp.) 410A plugs (1-0 stock) were planted on the tailings pond. Seed for this planting was obtained in 2009 from local sources on site and sent to a nursery in British Columbia for cleaning and growing. Six rows of plants were established running from the water's edge to the deepest section of the till cover. A 2010 assessment of success of the planting indicated a survival rate in excess of 95% and the 2011 and 2012 assessments also showed that the high survival rate was continuing. During the first two seasons of growth there was little difference between the vigor of plants growing on till versus those growing directly on the tailings. However, observations conducted in 2012 showed that the plants growing on the till exhibit significantly increased vigor (plant height approximately 2 feet) and those growing directly on the tailings showed definite signs of severe stress. The following photos show the results of three years of growth on the till cap. Metal analysis of both twigs and leaves was carried out in 2011 and again in 2012. Samples were taken from plantings on tailings, till and also from an undisturbed area. Initial results indicate that Zinc is more readily taken up than Lead and that willow plants accumulate significantly more lead and zinc than alder, and that leaves accumulate more than twigs.



*Alder test plots -2010*



*Alder test plots -2011*



*Alder test plots – 2012*

## **7.0 SOLID WASTE DISPOSAL**

### **7.1 Solid Waste Disposal & Recycling**

The site generates a small volume of waste oil from onsite power generation and mobile equipment. This material is taken to Watson Lake for disposal. In 2012 no additional waste was removed from the site.

### **7.2 Inventory of Wastes Placed in the Landfill**

In 2009 a solid waste permit (#81-020) was approved authorizing the disposal of solid waste material obtained from the demolition of the Jewel Box Shop that was destroyed by snow in the winter of 2006-2007. An amendment to this permit was received authorizing the disposal of additional shop waste that was generated as a result of the snow load destruction of the Golden Hills Shop in the winter of 2009-2010. Final demolition of the Jewel Box area was completed in 2011 that saw the demolition of remaining offices and the removal of all salvageable material. All wooden debris was burned and the remaining solid wastes were placed in the landfill and buried.

The site continues in Temporary Closure with one caretaker and assistant as permanent residents. All putrescible waste is been stored in animal proof containers prior to disposal.

### **7.3 Hydrocarbon Contaminated Soils**

There are several areas on the mine site where spills of hydrocarbons occurred either during mine operations or from subsequent storage of hydrocarbons have contaminated soils. In 2006, soil analysis indicated that some of the soils exceed the criteria for "Special Waste". Further sampling was conducted in 2007 and other service shop areas have identified additional areas of hydrocarbon contamination. Limited additional sampling in 2010 indicated some bioremediation was occurring. In August 2010 a meeting was held with the Yukon Contaminated Sites Coordinator with the intent of developing a plan for treatment of this material. A detailed sampling program was conducted in 2011 to further characterize the material and to determine the volume of material requiring treatment. This work was authorized under Special Waste Permit 41-247. Work continued in 2012 to finalize extent of contamination, quantify total volumes,

evaluate remediation options and implement disposal activities. A total of 130 cubic meters of hydrocarbon contaminated Special Waste was excavated and removed from the site. This material was shipped to the Tervita Northern Rockies Landfill Site in Fort Nelson, BC for disposal. Further investigative work conducted at the Jewel Box site during the year indicated a previous unknown hydrocarbon spill. Further investigation uncovered old documentation indicating that a large diesel spill in the order of 1000 liters had occurred in 1990.

### **8.0 WILDLIFE OBSERVATIONS**

The Production Licence requires that sightings of wildlife at the mine site are reported on an annual basis. The caretaker who resides at the site records wildlife sightings in a log book retained at the site and a summary of this information has been compiled and is attached in Appendix B.

### **9.0 PRODUCTION PLANS FOR 2013**

In January 2012, the decision was made that the operation would be permanently closed following the expiration of the current Licence. Work commenced in 2012, to implement the necessary studies and permit applications that would be necessary to implement the Closure Plan. These studies included a review of the 2012 DDRP plan by Keyeh Nejehe Golder and a final report that includes identified deficiencies will be submitted in early 2013 for approval.

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Dave E. Ryder  
Senior Environmental Coordinator  
Dormant Properties  
Teck Resources Limited

## **APPENDIX A**

**MEMORANDUM REGARDING  
Sä DENAHES RESOURCES –  
DATED MARCH 6, 2008**

## **MEMORANDUM**

**Memo To:** Bruce Donald

**Date:** March 6, 2008

**From:** Paul Bankes, Director Reserve Evaluations

**Re:** Sa Dena Hes Resources – December 31, 2007

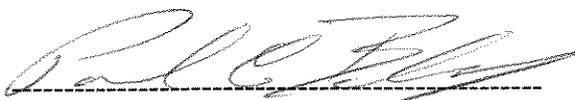
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Sa Dena Hes

### **Indicated Historic Resources**

<b>Ore Body</b>	<b>Tonnes</b>	<b>% Zn</b>	<b>% Pb</b>	<b>g/t Ag</b>
Burnick	1,170,000	10.4	0.6	40
Jewel Box	630,000	9.9	5.9	45
Attila	390,000	11.5	3.1	60
<b>Total</b>	<b>2,190,000</b>	<b>10.4</b>	<b>2.6</b>	<b>45</b>

This property was acquired from Curragh Inc. in 1994. Historic resources are contained in three ore zones Attila, Burnick and Jewel Box. Curragh had operated the mine until 1992 and prior to closure had mined 726,758 tonnes grading 11.7% Zn, 7.2% Pb from the Jewel Box ore body. Historic Reserve estimates, prepared prior to the adoption of NI – 43-101, are based on an 8% Pb plus Zn cut-off. Attila resource was calculated by Curragh in 1992 and confirmed by Cominco in 1995. The Burnick resource was calculated by Cominco in November 1995 following the completion of 5900 metres of drilling and development of a preliminary mine plan. The jewel Box resources were recalculated by Cominco in 2001.



Paul C. Bankes, P. Geo  
Director Reserve Evaluations  
Teck Cominco Limited.

## **APPENDIX B**

### **LISTING OF 2012 WILDLIFE SIGHTINGS AT THE MINE SITE**

## **SA DENA HES MINE SITE - WILDLIFE SIGHTINGS – 2012**

### **BEAVER**

Beaver activity significantly increased during the year with new dams being constructed immediately downstream of the Reclaim Dam.

### **BLACK BEAR**

May 30	Km 23 Main Access Road
March 31	Tailings Pond
June 3	Tailings Pond
June 8	Sow & 2 cubs – North Dam
June 23	South Dam
July 6	Km 17 Main Access Road
July 10	South Dam
July 13	South Dam
July 22	Camp Creek
July 23	North Dam
Sept 16	Km 2 Main Access Road
Sept 23	Reclaim Dam

**GEESE** Observed on the N. Tailings pond over the summer

### **MOOSE**

March 15	Cow	Km 3
June 17	Cow/Calf	Above JewelBox
Aug 7	3 Cow&2Calves	Reclaim Dam
Aug 9	Cow	South Dam
Aug 11	Cow	North Garbage Dump
Aug 29	Cow	shot at Km 15
Nov 2	Cow	shot at Km 18

### **OSPREY**

7-Sep-11 2 three osprey chicks; mother gone, Brood successfully raised by both parents

### **LYNX**

Jan 12 – Km 3 Main Access Road