



2007 Sustainability Summary
Red Dog Operations

Teck

Letter from the General Manager

Welcome to our 2007 Sustainability Summary Report. This summary is an opportunity to share with our stakeholders our key economic, environmental and social successes, challenges, goals and plans for the future. We plan to continue this dialogue with our stakeholders to help us improve our performance in the years to come.

In 2007, there were three significant areas of focus. They were: the Aqqaluk permitting, which would allow us to extend mining activity into the Aqqaluk Deposit adjacent to the main deposit, the National Pollutant Discharge Elimination System permit (our water discharge permit), and the fugitive dust risk assessment. These continue to be important stakeholder engagement issues, and we are committed to finding mutually-beneficial solutions to the associated challenges outlined in further detail in this report.

Engaging our stakeholders is key in finding mutually-beneficial solutions. In 2007, along with the support of our partners, NANA, we increased engagement activities such as workshops, public meetings and interviews; these activities resulted in more meaningful dialogue. Priority issues and concerns were as follows:

- fugitive dust from the facility and associated results from the recently-completed Ecological and Human Health Risk Assessment;
- the treated water discharge into Red Dog creek
- Red Dog's "number one" placement on the Toxic Release Inventory, based on the volume of our waste rock

We provide responses to these concerns in the "Key Areas of Focus" section of this report. In the coming years, we plan to continue increasing engagement and involvement with our stakeholders.

Following a year with the highest number of Lost Time Incidents (23) in Red Dog's history, improving our on-site safety record and strengthening the Operation's safety culture are of paramount importance. In addition to the priorities listed above, efforts will be focused on the following initiatives:

- completing a sustainable water treatment plan and water balance
- obtaining a State of Alaska solid waste permit (including Reclamation and Closure plans)
- associated financial assurance for the facility (bonding or similar mechanism)

With the continued support from NANA, we look forward to future work we will do in enriching our commitment to operating in a sustainable manner.

John Knapp
General Manager



Overview of Operation/Facility

The Red Dog Mine is located in northwestern Alaska, approximately 130 km north of Kotzebue. The Operation consists of: an open pit mine, a mill for processing ore, waste rock disposal areas, tailings impoundment, and support facilities. With an annual production capacity of over 580,000 tonnes of zinc in concentrate, Red Dog is the largest zinc mine in the world. Zinc and lead concentrates produced at the mill are trucked 52 miles to a port site on the Chukchi Sea for shipping to overseas smelters. The mine is operated by Teck Cominco Alaska Incorporated (TCAK) under an agreement with the NANA Regional Corporation (NANA). The Red Dog mine has over 350 employees and contract workers, of which over 55% are NANA shareholders.

The Red Dog mine is a self-contained and self-sustaining Operation: it generates its own power, operates its own airport, and houses all employees on-site. It therefore has the rare opportunity to exercise significantly more control over its environmental footprint than other mines, and has implemented a broad range of conservation programs, such as recycling of batteries, plastic, paper and glass. Ironically, factoring the "cost of carbon" into recycling has made it much less cost-effective than in previous years. While the dumping of recyclable material in a landfill would generate the least amount of greenhouse gases, this is an unpalatable option; research into energy savings and new technologies is currently underway, with special attention being placed on alternative energy modes, such as wind power and natural gas.

Key Areas of Focus

Aqqaluk Permitting

TCAK and NANA are proposing to continue mining operations through 2031 by extending mining activity into the Aqqaluk Deposit, located adjacent to the Main Deposit. The U.S. Environmental Protection Agency (EPA) is currently reviewing a proposal submitted by TCAK to extend the Red Dog Mine Operation. The Aqqaluk Deposit represents an additional estimated 20 years of mining for the region and NANA. Mining of the Aqqaluk Deposit would need to commence in 2010 to keep the mine operating. Under the proposal, the Aqqaluk Deposit's ore processing would utilize the same methods employed at the Main Deposit.

Before the EPA can determine whether the extension would require a modification of the existing NPDES permit to account for any changes resulting from mining of the Aqqaluk deposit, a Supplemental Environmental Impact Statement (SEIS) must be completed. The SEIS would update the Environmental Impact Statement (EIS) developed in 1984 when the first National Pollution Discharge Elimination System (NPDES) permit was issued for mine discharges.

As required by the State, a scoping responsiveness study was completed in December of 2007; this study identified two minor data gaps. Firstly, the subsistence use patterns of the region have not been updated since the original EIS. To fill this data gap, Tetra Tech, an environmental consulting firm hired by the EPA, and the Alaska Department of Fish and Game, will conduct a subsistence use pattern survey in 2008. Secondly, several members of the Noatak and Kivalina communities expressed concerns that the new mine could potentially affect the health of the workforce and the community. To alleviate this concern, an additional section dealing with public health has been added to the SEIS. The Maniilaq Association is conducting a Health Impact Assessment (HIA) outside of the National Environmental Policy Act process. Tetra Tech will use existing health information, and possibly portions of the HIA, in the development of the public health section of the SEIS.

The draft SEIS plan was completed in December 2007 and was reviewed by the Agencies, TCAK and NANA in January 2008. Major SEIS milestones & schedule are as follows:

- Agency review Preliminary Draft SEIS – August 2008
- Draft SEIS public comment period – September 2008
- Issue Final SEIS and Record of Decision – April 2009
- NWAB Master Plan amendment – May 2009
- NPDES permit in effect – May 2009

Fugitive Dust Risk Assessment

An Ecological and Human Health Risk Assessment was finalized and released to the Alaska Dept. of Environmental Conservation, who formally approved the report in December 2007. The assessment sought to determine whether metals in dust found in the tundra within and around the port, the road, and outside the mine boundary are likely to have any effects on human health or the environment. The study did not identify any current risk to people, concluded that subsistence foods are safe for people to consume, and identified some ecological effects (to plant communities and ptarmigan); this will require ongoing risk management. Discussions continued with various stakeholders this year on the development of a Risk Management Plan; the current strategy is to set a framework with stakeholders through workshop-style sessions.

NPDES Permit

The NPDES permit relates to water discharges from the mine. Results from analyses of effluent samples collected during the fourth quarter indicate that the total dissolved solids (TDS) exceeded the TDS permit limit of 3,900 mg/L that was believed to be in effect at the time of discharge. In 2007 a new NPDES permit was issued and subsequently withdrawn by the US EPA. Several meetings and negotiations were conducted with the EPA to resolve the permit status and related compliance issues in light of withdrawal of the permit. Although an array of solutions were considered and discussed, a definitive strategy was not established.

Internal work continues on the future status of the permit, and dialogue with the State will continue regarding potential issuance of a State wastewater permit. There is uncertainty around water discharge until a new permit is issued, and this was compounded by litigation by five individuals from the Kivalina community over permit violations. More information on NPDES frequently asked questions are available at <http://cfpub.epa.gov/npdes/faqs.cfm>.

Toxic Release Inventory (TRI)

The Toxics Release Inventory (TRI) is a publicly-available EPA database (www.epa.gov/tri) containing information on chemical releases and waste management activities reported annually by certain industries and federal facilities. Mining companies operating in the United States have been required to report TRI numbers to the EPA since 1998.

Why are the Red Dog mine's TRI numbers so high? The mining industry as a whole reports high TRI numbers, often because materials identified as 'toxic' (e.g. lead) are naturally contained in rock excavated from mine sites. For example, when miners at Red Dog move a pile of rock from one place to another, that rock contains naturally-occurring lead. Because it has been moved, it is considered by the EPA to have been "released" and is thus subject to the TRI reporting requirements. Due to the size and high-grade nature of its rock and ore, the Red Dog Mine has reported the nation's largest TRI 'release' for the past few years. However, these releases are not, strictly speaking, 'pollution', in the conventional sense. In fact, 99.9% of our estimated, reported TRI releases are simply piles of rock that have been mined and are being stored; they are still being managed in an environmentally-responsible way. More information regarding this issue is provided in the Engagement section of Teck's 2007 Sustainability Report and is also available at www.teck.com.



Goals and Objectives from 2007

Reduce releases of metal-bearing fugitives

In its commitment to improving production efficiency and waste-reduction systems, the Operation implemented a number of measures to reduce metal-bearing fugitive dust. In addition to completing the Coarse Ore Storage Building dust-control system and beginning related scoping, new dust control agents were evaluated on all site-associated roads and the Delong Mountain Regional Transportation System (DTMS) port facility and road. Despite its best efforts, the Operation had poor performance for tailings dust control in 2007.

Improve Water Management

Red Dog dedicated significant resources to dealing with the complex challenges of improving water treatment and reducing TDS in the mine's discharge. The Operation recognizes the need to maintain a sustainable water balance, additions are being made to the tailings dams as a result of rising tailings and water levels.

The goal to discharge 5,299,576.5 m³ in 2007 was not achieved, as only 3,334,947.8 m³ were discharged. This was due to the fact that it was a low precipitation year, yielding reduced water volumes in the creeks.

Reduce Waste

Although the goals of the 2007 recycling program were not fully achieved, it is on track for 2008. A parallel Powerhouse program (in which electrical power for the mine is generated) established a goal of reducing the amount of used oil sent offsite by 10%. Powerhouse Operators were able to exceed this goal and reduced the amount of used oil sent offsite by 11%. This success has given the Operation the confidence to set its reduction goal to 15% for 2008.

Reduce Leaks and Spills from the concentrator by 10% (<21 spills)

Although the Operation was unable to meet its leaks and spills-reduction target, efforts will be re-focused and this task will carry over into 2008.

Remediate Impacted Area

A 0.25 hectare area previously impacted by metals near the Concentrate Storage Building near the Port was successfully remediated, according to plan.

Improve Acid Rock Drainage Management

A program was implemented to test compacted covers on the waste rock test cells. The control and minimization of acid rock drainage from the waste rock dumps will be a major closure issue for the Mine. The testing of different cover materials, methods, and construction techniques is essential for the proper closure of the waste rock dumps and Teck's ability to minimize long-term environmental impacts at the Red Dog mine.

Finalize Critical Task Analysis and develop control to mitigate loss

The Critical Task Analysis is a hazard analysis of all tasks performed at the Red Dog mine. The program was finalized in 2007, and is proceeding gradually.

Reduce loss time incidents

This goal was not achieved in 2007, since there was the highest number of LTIs (i.e., 23).

Environmental Programs

The health, safety and environmental management information system software “SiteLine”, developed at Red Dog, continues to be integrated into the Operation, with the Health and Safety component of the program seeing increased usage. Mainly as a result of its success at Red Dog, several other Teck Operations (i.e., Pogo mine, Highland Valley Cooper mine, Pend Oreille mine, and Elkview mine of Elk Valley Coal) have been incorporating the software into their respective management systems.

To maintain its ISO 14001:2004 certification, the Operation underwent an external Environmental Management Systems (EMS) surveillance audit in July 2007. The Operation was successful in this recertification process.

In addition to the efforts already directed at reducing fugitive dust, the Operation’s primary focus is on obtaining a revised NPDES permit for discharge of treated water at the mine facility. Complementary priorities include developing the best treatment methodologies for a sustainable water treatment plan and water balance, as well as stormwater sediment controls around the haul road bridge abutments.

Safety and Health

The Operation’s Occupational Health and Safety Committee broadened their mandate and, as a consequence, attracted additional staff involvement throughout the year. A Club Health and Wellness Program was initiated in the first quarter, was subsequently supported by company-wide Olympic Champion health and fitness programming, and culminated in Red Dog mine’s Health Fair in December.

Reclamation and Closure

An application was submitted to the State of Alaska for a solid waste disposal permit. The application is far-reaching, and includes numerous supporting documents, including reclamation and closure plans. The development of a “Trust Fund”-style mechanism for reclamation, closure, and long-term water treatment after closure still being considered; NANA concerns about fund management are currently under consideration.

Conservation and Biodiversity Initiatives

Every two years, we conduct a marine mammal survey at the DMTS port facility that provides an indication of the general abundance of these animals adjacent to the port. There were no definitive conclusions from the survey, as the results were variable and ice-pack dependent and, as a result, could not be compared to previous surveys. As in past years, large numbers of seals were observed offshore of the DMTS port facility and operations at the port do not appear to be having adverse impacts on marine mammal use of the areas adjacent to the port.

Audits (internal)

- June 9th – 16th: Corporate Health and Safety Audit.
- July 2007 external EMS surveillance audit for maintenance of ISO 14001: 2004 certification
- December 2007 Internal EMS Audit

Energy Efficiency and GHG Emissions Management

The Operation’s GHG emissions per unit of metal produced show levels are steady for 2006-2007 at 0.27 t/t.

Community Outreach, Engagement, Dialogue/ Aboriginal Relations

Red Dog Operations works in close conjunction with NANA, and as such, has taken care to establish a respectful relationship with business representatives and the wider community. Representatives from the Operation participate in annual village meetings, as well as quarterly Subsistence Committee meetings. Ad hoc stakeholder meetings have been convened around such topics as development of the SEIS, for the renewal of the NPDES Permit, and the Risk Assessment and associated Risk Management planning.

In addition to the working relationships described above, the Operation has instituted Job Shadow and School-to-Work programs geared specifically towards Inupiat youth. The purpose of these programs is to:

- connect school classrooms to future jobs or professions;
- make school more relevant for the students;
- form partnerships between business and schools; and,
- enhance student employability.

The programs aim to provide a job shadow experience, develop mentor relationships, concentrate exposure on specific job areas, and spark an interest in students for pursuing post-secondary education.

Community Development/ Good Neighbour Practices

The Operation has long recognized that its success as an enterprise is very much linked with the well-being of its surrounding communities. Red Dog has always tried to be a good neighbour, and examples of this include: housing people from Kivalina during village evacuation; instituting a local hire preference encompassing Kivalina and Noatak; and contributing strategic donations to fortify the village infrastructure and social fabric.

Emergency Preparedness and Risk Management

On June 28, a mass casualty simulation was conducted at the Red Dog Mine Airport. The drill simulated an Alaska Airline 737 crash-landing with 30 people onboard, and tested scenarios with “passengers” suffering from varying degrees of injuries.












Human Resources

Broad improvements to the apprenticeship program, a program providing employment and training under actual job conditions supervised by skilled craft workers, were fortified with donations to the Alaska Native Science and Engineering Program and the Kotzebue technical center.


Awards and Recognition

The six members of the Red Dog mine Fire Team placed 4th overall in team competition, 2nd place in the ladder raise, and 3rd place in the fire extinguisher competition at the Alaska State Firefighters Conference held in Valdez on September 24-29, 2007.

	2007	2006	2005	
Health & Safety Statistics				
Total Recordable Incident Frequency	8.39	3.96	6.43	
Fatalities	0	1	0	
Lost Time Incidents	23	11	18	
LTI Frequency	3.51	1.83	3.31	
LTI Severity	131.0	953.5	119.0	
Permit Compliance				
Number of Excursions	6	15	13	
% Compliance Water	97.5%			
% Compliance Air	100.0%			
Reportable Spills				
Number	150	130	128	
Volume (L)	94,605			
Weight (kg)	9,539			
Metals Released in Effluent (tonnes)				
Cadmium	0.001	0.003	0.004	
Lead	0.003	0.003	0.003	
Zinc	0.276	0.393	0.330	
Average Concentrations in Effluent (mg/L)				Permitted
Cadmium	< 0.001	< 0.001	< 0.001	0.002
Lead	< 0.001	< 0.001	< 0.001	0.008
Zinc	0.073	0.072	0.058	0.120
Energy Use				
Electricity (TJ)	0	0	0	
Fuel (TJ)	2,588	2,652	2,680	
Carbon Energy Intensity in Product (GJ/t)	3.6	3.9	4.0	
Energy Intensity in Product (GJ/t)	3.6	3.9	4.0	
GHG Emissions				
CO ₂ equivalents (kt) (Direct)	190	183	192	
Carbon Intensity in Product (t/t) (Direct)	0.27	0.27	0.29	
Production - Metal Contained in Concentrate (000 tonnes)				
Zinc	575	557	568	
Lead	136	123	102	
Total	712	681	670	
Recycling				
Total solid material (tonnes)	754	927	458	
Total liquid materials (m ³)	161	67	0	

	2007	2006	2005
Managed Waste			
Total waste rock ('000 tonnes)	 3549	4236	
Total tailings dry ('000 tonnes)	 2,086	1,989	
Total solid non-haz. material to landfill (tonnes)	 5,207	7,423	
Total solid non-haz. material incinerated (tonnes)	275	333	
Total solid hazardous material incinerated or disposed (tonnes)	7		
Water Conservation			
Total groundwater withdrawal (m3/yr)	 0	0	
Total surface water withdrawal (m3/yr)	 558,569	845,117	
Total volume of water recycled/reused (m3/yr)	 12,957,127	12,136,635	
Total percentage water recycled/reused %	 100	100	
Reclamation			
New reclamation for the year (ha)	 0	0	0
Reclaimed to date (ha)	 0	0	0
Land to be reclaimed (ha)	 1,022	1,022	930
Trees/shrubs planted (count)	 100	0	0

n/a = not available

Deloitte & Touche LLP reviewed selected environmental, health and safety data in the 2007 Sustainability Report. Their Independent Reviewers' Report is available on page 54. Only performance data with the following symbol  was independently reviewed by Deloitte & Touche LLP.

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