

Operation and Site Performance 2006

PEND OREILLE MINE



Pend Oreille Mine

Operational Overview

The Pend Oreille Mine (POM) is an underground zinc/lead mine with on-surface ore processing facilities and is 100% owned by Teck Cominco American Incorporated. At the end of 2006, Pend Oreille mine had approximately 180 employees. The site facilities consist of underground mine workings, mill/processing buildings, a concentrate load out building and a double-lined tailings disposal facility. The mine is located in northeast Washington State, approximately 2 miles north of Metaline Falls, Washington and 95 miles north of Spokane, Washington.

The mine uses the “room and pillar” mining technique. This method involves removing ore in a “honey-combed” network of underground rooms up to 30 feet in width and 70 feet in height. Where the ore is thicker than 15 feet, multiple benches are utilized. Interspersed between the rooms are 30 feet by 30 feet pillars that are spaced approximately 30 feet apart.

Environmental Highlights

An Environmental Management System (EMS) was implemented prior to operation of the mine. The EMS is designed to manage POM’s procedures to limit adverse impacts to the environment. The program is based on the international standard ISO 14001.

The current EMS is in a “hard copy” format. Towards the end of 2006, POM began planning for the installment of an electronic format Environmental Management Information System (EMIS). Initially, the Accident and Investigation portion of the EMIS will be developed, with further database population throughout 2007.

POM operates under a National Pollutant Discharge Elimination System (NPDES) permit which allows the mine to discharge groundwater pumped from the active work headings into the Pend Oreille River. In order to meet discharge criteria, POM operates a Sulfur Reducing Bacteria (SRB) passive water treatment system. In December 2004 and during a period from September 2005 through February 2006, POM was in non-compliance for average total lead greater than the permit condition of 0.200 mg/L and was fined US\$4,500 by the Washington State Department of Ecology. Throughout 2006, POM reviewed operational conditions of the SRB system and identified and implemented procedures for the reduction of total lead in the discharge water. POM has successfully reduced lead levels to near start-up levels in 2003. December 2006 average monthly total lead was 0.109 mg/L.



Mine rescue team; (L to R) Ernie Lewis, Roger Curran, Warren Dunbar, Don Dwyer, and Kevin Foy.

The recycling program was expanded in 2006 to include wood, cardboard/paper, steel drums and E-waste. Tailings water from the active Tailings Disposal Facility (TDF #3) continued to be recycled. The milling facility successfully implemented water conservation controls and reduced water consumption by 8-acre feet.

Safety and Health

POM operation implemented mandatory weekly Environmental, Health and Safety inspections for surface and underground operations at the mine. The approach is group-based and is designed to increase communication and education of all participants. Inspections are defined by specific areas and the inspection team consists of the department head for that area, department shift supervisor, a shift employee(s) and an EHS member(s). An independent facilitator coordinates the inspections.

Tailings Management

Tailings disposal facility (TDF) #3 was designed with a Leachate Collection Recovery System (LCRS) to monitor leakage. The LCRS has a leakage rate permit limit of 18.9 litres per minute (lpm). The average leakage rate in 2006 was 1.5 lpm. Engineering and permit requirements for the next and final stage of TDF #3 was completed during the year. Construction began in Q4 and is expected to be completed in 2007.

Community Outreach, Engagement Dialogue

The Selkirk Community Teck Cominco Planners committee was developed prior to mine start-up to create dialogue and involve the local community in the development, operation and eventual closure of POM. The meetings are held quarterly. In addition, management at POM attend the monthly meetings of the Metaline Chamber of Commerce, which is a means to maintain additional dialogue with the local community.

The Box Canyon Dam completed its 50-year re-licensing program with the Federal Energy Regulatory Commission. Seattle City Light's Boundary Dam is currently involved in the same process. POM has been active in providing input to both projects.

Community Development/Good Neighbour Practices

The Selkirk Education Association received a grant from the State for local primary education. POM participated in part of the program by helping in maintenance of parks in the towns of Metaline and Lone. Students worked with industry personnel to conduct minor repair work in the parks.

POM renewed its two year agreement for the Adopt-A-Highway program with the Washington State Department of Transportation. POM maintains a 2-mile stretch of Highway 31, which includes the entrance to the mine.

As part of POM's Site Environmental Policy, POM strives to support the local community by purchasing, to the extent possible, locally sourced goods. In addition POM maintains a commitment to hire locally from a population base of approximately 1,000 in Northern Pend Oreille County. Of the 176 current employees, 55 employees (31%) are from the local area.

Emergency Preparedness and Risk Management

An Emergency Procedures program was implemented during the first year of mining. Emergency table-top and mock exercises based on the Emergency Procedures program are conducted during each year. Quarterly inspections are conducted by the Mine Safety and Health Administration (MSHA) and by the Washington State Department of Ecology. Annual inspections are conducted by our property insurers, FM Global. POM is a full member of Central Mine Rescue.

Performance Trends—Pend Oreille			
	2006	2005	2004
Health & Safety Statistics			
Fatalities	0	0	0
Lost Time Injuries	2	9	3
LTI Frequency	0.96	4.41	1.70
Severity	11.97	64.72	19.23
Permit Compliance			
Number of Excursions	2	4	2
Reportable Spills			
Number	0	0	5
Average Concentrations in Effluent (mg/L)			
Zinc (permit limit 0.44 mg/L)	0.0990	0.1220	0.0960
Lead (permit limit 0.20 mg/L)	0.1720	0.1770	0.0750
Stream Water Quality—Downstream of Discharge			
Zinc	<0.0075	<0.005	<0.005
Lead	<0.010	<0.010	<0.005
Energy Use (Direct and Indirect)			
Electricity (TJ)	157	158	117
Fuel (TJ)	24	30	18
Energy Intensity in Product (GJ/t)	4.64	3.55	
GHG Emissions (Direct)			
CO ₂ equivalents (kt)	1.9	2.3	1.4
Carbon Intensity (as CO ₂ e) in Product (t/t)	0.05	0.04	
Production (000 tonnes) (metal contained in concentrate)			
Lead/Zinc	39	53	0
Recycling			
Total solid material (tonnes)	1.1	1.2	1.3
Total liquid materials (m ³)	95.8	27.0	41.0
Total items counted (count)	201.0	362.0	294.0
Managed Wastes			
Total waste rock (000 tonnes)	3	n/a	n/a
Total non-hazardous wastes to landfill (000 tonnes)	.2	n/a	n/a
Total tailings volume (000 m ³)	305	n/a	n/a
Water Conservation			
Total groundwater withdrawal (m ³ /yr)	831,983		
Total surface water withdrawal (m ³ /yr)	0		
Water sources affected by w/d (name)	None		
Total volume of water recycled/reused (m ³ /yr)	1,414,269		
Total percentage water recycled/reused %	170		
Reclamation			
Reclaimed land (ha)	0	0	
Land to be reclaimed (ha)	350	350	
Trees/shrubs planted (count)	0	0	

Human Resources

POM offers a Health Tracks wellness program to its employees. Employees who enroll in the program are given full physicals and, based on the findings, provided with a “wellness” program for weight loss, cholesterol reduction, Smoke Enders consultation, etc.

POM conducts MSHA New Miner, Experienced Miner and annual refresher training. Two mine rescue teams conduct training in alternate months throughout the year. On-site medical and safety personnel received first aid training, drug recognition, and drug sampling procedure training.

Safety personnel and mine rescue teams attend training related to mine rescue and also participate in the regional mine rescue competition. Professional staff members are encouraged in their professional growth by attending workshops and conferences that pertain to their field.

POM supports education and works specifically with the Pend Oreille Valley Foundation in support of local education and athletic programs. The Human Resources group participates in the local and state job fairs.

During 2006, work force retention has been difficult. Hiring skilled employees, such as experienced miners, mechanics and electricians, has been challenging. Of a year end work force of 176, 59 were hired in 2006 while 44 left during the same period.

Awards and Recognition

The Selkirk Community Teck Cominco Planners (SCTCP), received the *National Summit of Mining Communities* award in October at the National Summit meeting. The award is given to an individual, community, industry or governmental agency exhibiting the most innovative or moving “moment in time” during the summit. The SCTCP was established prior to the reopening of POM to involve the community in the development, operation and eventual closure of POM.

The operation was awarded the Association of Washington Businesses Service Award for community involvement. The award recognizes outstanding volunteerism and contributions made to communities.



Colleen and Mike Miller have been married for 35 years. Colleen is an underground medic and Mike is a serviceman.

Benefits provided to Pend Oreille full-time, part-time and temporary employees			
	FT	PT	TMP
Health Insurance	yes	no	yes
Extended Health/Medical (US)	yes	no	no
Dental	yes	no	no
Health Spending Account	no	no	no
Group Travel	no	no	no
Life	yes	no	no
Dependent Life	yes	no	no
Employee Optional Life	yes	no	no
Spousal Optional Life	yes	no	no
AD&D	yes	no	no
Employee Optional AD&D	yes	no	no
Spousal Optional AD&D	yes	no	no
Short-Term Disability	yes	no	no
Long-Term Disability	yes	no	no
Maternity Leave	yes	no	no
Parental Leave	yes	no	no
Retirement Plan (pension, RRSP, 401K)	yes	no	no

FT = Full-time PT = Part-time TMP = Temporary