

Las Cruces

2009 Production ramp-up summary

The grinding and leaching areas of the plant performed well throughout the ramp-up, and the agitated leach reactors regularly returned copper recovery values of higher than 90 percent. We tested the electrowinning and cathode stripping operation at the design capacity of 250 tonnes per day and the solvent extraction area operated without any significant issues. Cathode quality reached 99.999 percent copper, exceeding our expectations.

We did not, however, achieve commercial production and produced 5,600 tonnes of copper cathode compared to our estimate of 37,200 tonnes.

A number of equipment failures and operational issues delayed the ramp-up of the plant. Most of these were related to corrosive failure of plant components that were not adequately protected from high temperature and high acidity levels, and have been addressed or will be remediated and resolved in the first quarter of 2010.

- One of the reactor agitators failed in early August because corrosion protection failed. As a preventative measure, we removed and inspected all eight of the agitators, and made improvements to the rubber acid protection. We have had no indication of any subsequent damage since the repairs and inspections.
- The leach thickener's corrosion protection failed, causing the drive mechanism to fail completely. As a temporary solution, we cleaned the thickener for repair and inspection and created a new drive tube with thicker rubber protection. The rubber protection was damaged again in October by flex in the shaft and the thickener structure, causing the shaft and the diffusion cone to come in contact. New stainless steel components and other structural improvements will be installed in the first quarter of 2010.
- There were issues around the proper feeding arrangement of the band filters and the operation of the discharge conveyors that dewater and transport the leach residue before final disposal. Plugging of the fences in one of the SX settlers and initial errors in the installation of the pre-neutralization thickener rakes resulted in additional delays.
- There were pipe leaks and control problems associated with the operation of the grinding and neutralization thickeners.

Both thickeners were eventually drained and cleaned out before being returned to service with new operating parameters and procedures. They have operated as designed since that time. Filtration and conveyor operation improved by the end of December and we have scheduled additional modifications to the conveyor system to prevent blockages.

Throughput improved significantly in November: we processed 41,000 tonnes of ore, produced 1,500 tonnes of cathode and built up our in-process inventory. We also gained important operating experience over the month as we adjusted the plant to changing conditions and throughput rates.

Because of record high rainfall in the last two weeks of December, we had to use the high density sludge neutralization water treatment plant to reduce the critically high water levels in the process ponds, rather than to treat additional process water, which reduced plant throughput significantly.

Pond level management and the capacity of the neutralization plant limited production in early January. The re-direction of the neutralization plant solids to one of the tailings filters removed the water treatment bottleneck and allowed the treatment plant to operate at designed levels. Additional filter capacity will be needed to increase overall plant throughput above an estimated two-thirds rate later in the year and both temporary and permanent solutions are under investigation. We are confident that we can add temporary filter capacity to reach our stated ramp-up goals.

Capital update

The following table shows total spending for the project to the end of December 2009 and our capital objective for 2010:

(millions)	up to December 31, 2008	January to December 2009	total project at December 31, 2009	objective 2010
Construction capital	€448	€56	€504	€-
Advance stripping in the pit	6	14	20	13
Permanent water purification plant	-	5	5	12
Sustaining capital and plant improvements	-	9	9	35
Capitalized interest	18	6	24	-
Pre-operating costs capitalized, net of sales, working capital and other	30	(2)	28	(11)
Capital expenditures	€502	€88	€590	€49

Outlook for 2010

We believe that our ability to dewater the solids from the neutralization plant is a bottleneck to throughput. Solids are dewatered in a filter press and stored in the residue tailings facility as stackable filter cakes. The filter has not been performing at designed rates because of the nature of the material. Additional filter capacity will be added to ensure we can reach full plant capacity later in the year. We estimate we are lacking approximately 10 tonnes per hour of capacity for the neutralization plant sludge that we will add on a temporary basis until the permanent equipment is installed.

The maintenance shutdown in March is expected to last 14 days and involves 800 contract workers to complete a large number of projects geared towards improving plant reliability and throughput. Most importantly, failures associated with thickener corrosion and plugging of the plant discharge conveyor will be corrected permanently.

We now expect to reach commercial production (about 60 percent of design capacity) in May 2010 and design capacity (72,000 tonnes of copper cathode per year) by August 2010. We plan to produce 55,000 tonnes of copper cathode and 18,000 tonnes of copper contained in ore to ship directly to smelters, as long as market conditions persist and permits are in place.

We have developed a plan leading to full production rates in August that incorporates the above plant improvements, as well as operational and reliability-centered improvements. As well as addressing technical improvements, we are committed to improving overall performance through operator training and the organization of project execution teams. Our available resources include a comprehensive group of outside experts assisting in our ramp-up program.

The tables below show estimated production, earnings and cash flows for 2010 for 100 percent of Las Cruces using the estimates on page 15.

<i>(millions of Canadian dollars unless otherwise stated)</i>	objective 2010
Sales analysis	
Copper sales during commercial production (tonnes)	67,000
Gross copper sales	\$465
Smelter processing charges and freight	(34)
Net sales	\$431
Cost analysis	
Tonnes of ore milled (thousands)	810
Direct production costs (\$ per tonne)	\$122
Direct production costs	\$98
Depreciation and other non-cash costs	66
Operating costs	\$164
Operating earnings	\$267
Operating cash flow	\$323

	objective 2010
Tonnes of ore processed (thousands)	930
Tonnes of unprocessed ore (thousands)	129
Strip ratio	1.3
Copper grades	
cathode (percent)	6.6
unprocessed ore (percent)	13.9
Plant recoveries (percent)	92
Copper production	
cathode (tonnes)	55,000
unprocessed ore (tonnes)	18,000
Cost per tonne of ore processed (subsequent to commercial production)	(C \$) \$122
Capital expenditures (thousands)	(C \$) \$75