

II.3.8.- Compañía Minera El Indio - Lac Minerals

Compañía Minera El Indio's main shareholder is Minera Lac Chile, a subsidiary of Lac Minerals of Canada. Lac bought El Indio from Bond International Gold in 1899. In turn Bond had purchased it from Saint Joe Minerals of the United States, which was the company that developed the project. A small percentage (7%) belongs to Chilean mining entrepreneurs.

El Indio was the largest new mining project developed in Chile during the 1980s. Its discovery, wealth, and the technological novelties applied in its exploitation and treatment processes marked a milestone in Chilean mining. El Indio placed Chile among the ten largest gold producers in the world. The revolutionary exploration methods used made possible a number of other discoveries in the area of Copiapó and the Salar de Maricunga: Lobo, La Pepa, La Coipa, Escondido, Refugio, Marte, Apolinario, were new names that the miners learned after El Indio, as well as many other names in this and other regions.

The company is the largest gold producer in the country and operates three underground mines and five open pit mines at the El Indio mine. The initial investment for development of the El Indio mine was US\$ 200 million in 1979, with an average cost of US\$ 10 million per year during subsequent years.

Initially, the El Indio plant was designed to process 1,250 tpd, and this amount was reached in 1982. In 1987 this capacity was expanded to 2,600 tpd by investing US\$ 24 million to compensate for the decrease in ore grades. As the grades are still falling, the company has taken the necessary steps to process 3,000 tons a day in 1992.

Tambo.

The mine belongs to the El Indio mining complex. It exploits three underground mines and three open pit mines which produce 500 tpd of mineral which is processed in a crushing plant built in 1988.

By means of a heap leaching process Tambo's capacity is being increased to 2,000 tpd of mineral.

The geology of Tambo is formed by an alunite breccia with gold content, unlike El Indio which consists of an enargite gold system.

This is why Tambo produces gold and only small amounts of silver, whereas El Indio produces copper, gold and silver.

Works carried out to expand the capacity to 2,500 tpd included the acquisition of a reconditioned 13 x 16 foot Allis Chalmers mill (Mill Number Two in the Processing Plant), the installation of three Outokumpu cells and a flotation plant in acid media. In 1988 US\$ 12 million was invested in a second concentrate roaster to separate arsenic and US\$ 4.5 million in a plant to filter tailings by pressure, the only one of its kind in Chile. Since 1988 US\$ 24 million has been invested in the expansion of both mines. As of 1990 there are plans to invest US\$ 15 million more, mainly in a 50,000 tpy third roaster. Construction of the roaster would take about thirty months.

Mineral reserves

At the end of 1985 the El Indio mineral reserves (including El Tambo) amounted to 5.4 million tons of plant ore with a content of 8.4 g/t gold, 97 g/t silver and 4.74% copper. Reserves of direct smelting ore were 46 thousand tons with 197 g/t gold, 124 g/t silver and 4.44% copper. Ore reserves for heap leaching (Tambo) were estimated at 170 thousand tons with 2.3 g/t gold, a small amount of silver and no copper. Today with the construction of a drainage tunnel, proven and probable reserves add up to 9.78 million tons with a content of 6.9 g/t plus 10.5 million tons of ore for heap leaching with a grade of 1.0 g/t of gold.

In 1989 the plant processed 1,064,000 tons of ore with an average grade of 6.2 g/t of gold, 46.7 g/t of silver and 2.9% of copper.

The lowest grade ore, from Tambo, is processed in a heap leaching yard from which 5,522 ounces (172 kilos) of fine gold were obtained. In addition, 9,000 tons of direct smelting ore were extracted, and 37,236 kilos of gold (1,158 kilos) were obtained from them. Total production of fine in 1989 was 6,974 kilos of gold, 40,736 kilos of silver and 26,970 kilos of copper.

Production of gold has decreased since its peak production of 9,100 kilos in 1986, due to depletion of direct smelting ore and an increase in copper production, due to the change of minerals.

El Indio also produces arsenic trioxide. In 1989 production was approximately 6,000 tons, and exports were 5,831 tons valued at US\$ 2.0 million.