

II.5. Manganese

Manganesos Atacama S.A. (MASA) is a CAP subsidiary that produces manganese, ferromanganese and ferrosilicon ore.

The company exploits the Corral Quemado and Los Loros mines in the IV Region. It also operates other manganese works in the same region under leasing agreements. It is currently developing a new mine, which is thought to be the continuation of others that are being exploited.

In 1991 production of manganese ore was 43,767 tons (39,697 tons in 1990). Half of the production of Manganesos Atacama is bought by Huachipato, and the other half is destined to the manufacturing of iron alloys.

Production of metallic manganese was 16,830 tons (13,732 tons in 1990). Production of iron alloys was 8,454 tons (6,396 tons in 1990).

Sales of Manganesos Atacama were US\$ 7.5 million in 1991, slightly higher than the previous year's US\$ 5.9 million. Profits were US\$1,06 million (US\$ 0.8 million in 1990).

In December, 1987 the company completed a US\$ 2 million investment in a steel cone plant for milling with a 12,000 tpy capacity. In 1988 the plant produced 1,816 tons of cylcaps. In 1991 it announced a 1-million-dollar investment in the expansion and improvement of the industrial sector that will permit it to absorb an increase in iron alloy production, and the preparation of the new mine, which will mark the beginning of the new mining exploitation after it completes exploratory work.

II.6. Zinc and Lead

Lead and zinc mining in Chile is not as developed as copper and iron mining. The most important mine is El Toqui in the Aysén region, an underground exploitation which belongs to Minera Lac Chile. Exploitation is carried out by room and pillar methods at a rate of 1000 tpd of mineral.

Other similar works are Doña Rosa, also owned by Lac, Empresa Minera de Aysén, and Compañía Minera de Catemu, in the V Region, all of which are underground operations.

Chile is a small zinc and lead producer. Zinc production was 30,998 tons in 1991, compared to 25,146 tons in 1990.

There are three Chilean producers: Sociedad Contractual Minera Toqui and Empresa Minera de Aysén, both in the XI Region, and Compañía Minera de Catemu in the V Region.

II.6.1 El Toqui - Minera Lac Chile.

In 1987 Minera Lac bought 85% of El Toqui for US\$ 30 million, using Chapter XIX debt-equity swaps. In 1989 it bought the other 15% for US\$ 5.5 million, and thus became the sole owner.

The purchase covered a 1,200 square km area including the San Antonio lead and zinc mine, the Mallín Alto zinc mine and a concentrating plant in the XI Region. Production is approximately 32,000 tons of ore per year. This amount will increase to 50,000 tons in the near future. Most of the zinc is exported to Brazil.

The deposit is reached through galleries and extraction is carried out by low cost room and pillar methods at a rate of 1000 tons of ore per day. In 1989 the plant processed 275,000 tons of ore with an average grade of 6.9% of zinc and recovered 30,554 tons of concentrate with a content of 15,388 tons of zinc. In 1990 production was 44,632 tons of concentrate. As a result of the ore's better prime grade, the company hoped to increase zinc concentrate production in 1991 by more than 15% compared to 1990.

In 1989 explorations led to a 170% increase in reserves, and 5.24 million tons with an average grade of 7.8% zinc were reached. The most significant contribution came from Doña Rosa. Probable reserves are estimated at 4.3 million additional diluted tons, with grades of 8% zinc, 1.7 g/t gold, 23.7 g/t silver, 0.22% copper and 0.41% lead. There is also a high grade area of 0.9 million tons containing 9.4% of zinc, 37.7 g/t of gold, 37.0 g/t of silver, 0.3% of copper and 0.68% of lead. A feasibility study for exploitation of this deposit is in progress.

Minera Lac Chile is carrying out a feasibility study to increase production to 200,000 tpy along with construction of a zinc refinery. The availability of electric power is an important problem among several others that have yet to be solved.