

TCL 32

PEKO MINES N.L.  
TENNANT CREEK  
NORTHERN TERRITORY

SOME POINTS OF INTEREST

August 1965

HISTORY

The Peko outcrop was first located in 1935 by a prospector named Joe Kaczensky.

Initially it operated as a very small gold mine - there is no indication of copper above the 200 ft. level - and from 1935 to 1951, over a period of 16 years, a mere 6,080 tons of ore were extracted, assaying about 15 dwts to the ton.

The present Company was formed in 1949 and commenced preliminary operations in 1950 on a very modest scale. A small but rich dome of oxidised copper ore had been driven through on the 200 ft. level and in 1950 the Bureau of Mineral Resources intersected primary chalcocopyrite at about 370 ft. with a diamond drill hole.

With the limited funds available at that time, assessment of the orebody potential was slow and cautious. By early 1953, however, it had become apparent that a copper body of no mean importance was coming into existence; fresh capital was called in and towards the latter part of 1953 the Company really started to develop the Mine and to erect a plant to produce copper concentrate.

The Orlando Mine is the second operating mine of the group and it is located 25 miles north-west of Peko. Exploratory drilling began on these leases in September 1957, shaft sinking in May 1959, and production from the mine commenced in August 1962.

A third underground mine, the Ivanhoe Mine, has just been brought into production. Exploratory drilling began on the Ivanhoe leases in November 1959, and shaft sinking commenced in August 1963. This mine is 19 miles from Peko, 2 miles off the Orlando road.

A decision has just been made to develop a fourth underground mine to be known as the Juno Mine. This mine is located about 3 miles south-west of Peko.

Peko Mines operates as a subsidiary of Peko-Wallsend Investments Ltd., which has interests in coal, beach sands and tin, as well as the activities described below.

PRODUCTION

Production from the Peko deposit has been continuous since May 1954. Up until 6th July 1965, 1,308,411 tons of ore had been milled, yielding 257,576 tons of concentrates containing 69,708 tons of copper, 129,358 ounces of gold and 737,697 ounces of silver.

Present throughput from Peko is about 165,000 tons per year of ore containing 4% of copper and 2.5 dwts gold per ton. This yields some 22,000 tons of concentrates containing some 6,075 tons of copper, 14,000 ounces of gold and 95,000 ounces of silver. This is valued at about £2,100,000 and is wholly exported to Japan.

PRODUCTION (contd.)

Orlando ore is carted 25 miles to Peko for treatment in 20 ton diesel trucks and also in a 70 ton road train. Up until 6th July of this year 132,161 tons of ore had been milled yielding 27,464 ounces of gold in bullion - and 6,186 tons of concentrate, containing 24,890 ounces of gold, 1,196 tons of copper and 9,392 ounces of silver.

Present throughput from Orlando is about 35,000 tons per year of ore containing 11.0 dwts gold and .9% copper per ton. This yields some 16,000 ounces of gold, 270 tons of copper and 3,900 ounces of silver; and is valued at about £360,000.

Ore is carted from Ivanhoe in a similar fashion to Orlando and up until 6th July of this year 10,918 tons of ore had been milled, yielding 1,514 tons of concentrates containing 356 tons of copper, 1,169 ounces of gold, 5,677 ounces of silver; and also 1,111 ounces of gold in bullion.

Present throughput, however, is at the rate of 39,000 tons per year with an expected grade of 4% copper and 4 dwts gold per ton. This will yield some 6,700 ounces of gold, 1,390 tons of copper and 10,000 ounces of silver; and is valued at about £520,000.

The total value of mineral produced next year will be around £3,000,000; the total value of mineral won to date from Tennant Creek operations, after 11 years of continuous production, is about £23½ million.

UNDERGROUNDS

The main shaft at Peko is a three compartment shaft measuring 15 ft. 10 ins. x 4 ft. 6 ins. inside the timber. It is 1,390 feet deep with the lowest operating level at 1,260 feet. Main levels are generally spaced at 150 feet intervals. A new loading station is currently being installed at 1,320 feet. Mining methods are cut-and-fill sub-level benching, long hole blasting and shrink stoping, depending on the different zones and conditions underground. Ore is hoisted in 3 ton skips at 1,000 f.p.m. at the average rate of 100 tons per hour, using a 350 H.P. a.c. double drum winder. The orebody is about 300 feet long with widths from 15 feet to 110 feet. It dips at about 70° to the north and pitches to the west. It outcrops at the surface in an ironstone mass, which is relatively barren.

The Orlando shaft is four compartment and measures 12 ft. 6 ins. x 3 ft. 10 ins. inside the timber and the lowest operating level is 890 feet. There are main levels at 170 feet intervals above this in the shaft. A new level is currently being cut at 1045 feet. Mining method is now entirely cut-and-fill; shrink and sub-level stoping were tried initially, but these methods did not give sufficient control in the weak, schistose type rock. Ore is hoisted in ¾ ton trucks at 500 f.p.m., at the average rate of 25 tons per hour, using a 100 H.P. a.c. double drum winder.

The Ivanhoe shaft is four compartment and measures 15 ft. x 4 ft. 2 ins. inside the timber, and it is currently at a depth of 750 feet, with the lowest operating level at 560 feet. Level interval is 170 feet. A new level is being cut at 730 feet. This orebody does not outcrop and there are no values above 200 feet. Mining methods being tried initially are shrink and sub-level benching, as the orebody is narrow and steep dipping in the upper sections. Ore is hoisted in one ton trucks at 800 f.p.m., using a 200 H.P. a.c. double drum winder.

UNDERGROUNDS (contd.)

At the new Juno Mine a 15 ft. 6 ins. x 5 ft. 2 ins. internal dimension shaft will be sunk to 1,000 feet immediately. A 300 H.P. a.c. double drum winder will be used and a Cryderman mechanical shaft mucker. Steel sets will be used in this shaft.

The ore reserve figures currently are 920,000 tons of ore at Peko, containing 4.1% copper and 2.67 dwts of gold per ton; 120,000 tons of ore at Orlando, containing 9.0 dwts gold and .9% copper per ton; 250,000 tons of ore at Ivanhoe, containing 4.5% copper and 3.0 dwts gold per ton; and 70,000 tons of ore at Juno containing 60 dwts gold and 18% copper per ton.

PLANT

The total value of operating plant, workshops, water supply etc. on the three mines stands at about £2,600,000.

The Peko ore treatment or beneficiation process briefly consists of two stages of crushing (down to  $\frac{1}{4}$  inch size), two stages of grinding (down to 80% -300 mesh), four stages of flotation (roughing, scavenging, cleaning and re-cleaning), and then thickening and filtering. The concentrate is finally sun dried and bagged for loading on to road transports for Alice Springs; then by train to Port Augusta, where it is shipped to Japan - a total journey of about 8,000 miles.

Orlando ore has its own circuit and treatment consists of crushing and grinding initially - then gravity concentration and amalgamation to recover about 50% of the gold, followed by flotation for copper and the remainder of the gold.

Ivanhoe ore passes through its own gravity section for part of gold recovery as bullion, and then it combines with Peko ore for the final stages of flotation, thickening, filtering and drying.

POWER, WATER HOUSING AND SERVICES

The Company has 34 houses for key personnel at Peko, 2 houses at Orlando, and 1 house at Ivanhoe; there are single quarters and messing provided for other personnel at all three mines. More employees are now making their homes in Tennant Creek, as facilities improve in the town, and the N.T. Housing Commission has built over 30 concrete brick houses in the town. The Mine runs its own kindergarten.

Water consumption is almost 5 million gallons per month. About 4 million gallons of this is salt water from underground and from three bores located up to  $1\frac{1}{2}$  miles from the Mine - the other one million is fresh water for domestic use, which is collected in four earth dams or tanks excavated at a maximum distance of 2 miles from Peko, and also in a dam at Orlando. The four dams at Peko will hold about 50 million gallons of water.

Mine workshop services consist of shops for fitting, welding, powerhouse maintenance, carpenters, plumbers, underground maintenance, electrical and garage, employing in all about 70 men.

Peko generates its own power in a 5,000 K.W. diesel power station. Ivanhoe and Orlando are supplied through 27 miles of 33 KV transmission line from the Peko powerhouse; and the township of Tennant Creek through 7 miles of 11 KV line. Three miles of line are being built to the new mine at Juno.

POWER, WATER, HOUSING AND SERVICES (contd.)

Peko has constructed 20 miles of bitumen road to Orlando and Ivanhoe, on a 50% subsidy from the Commonwealth Government.

EMPLOYMENT AND COSTS

There are about 250 employees at Peko, 45 at Orlando and 45 at Ivanhoe. The Company has a total payroll liability of about £700,000 per year. It also spends about £500,000 per year on freight and handling of product between Tennant Creek and Port Augusta. Value of freight on stores, supplies and all other materials is about £80,000 per year, and the value of operating stores is about £600,000 per year. Peko, therefore, has a positive effect on employment in other parts of Australia.

Peko sells in competition with the world, and transport costs are a real and vital factor in economic survival. Transport costs in Australia alone, form about 25% of Peko's entire cost structure.

EXPLORATION

Peko is now spending well over £100,000 per year in exploration in the Tennant Creek area and in other parts of Northern Australia. This does not include special amounts that must be spent on prospect development. Peko has been in active exploration for almost nine years now, and a separate exploration company, Geopeko Ltd., was formed in January 1963, to co-ordinate and expand exploration activities. This Company is based in Tennant Creek and has built a modern establishment in the township.

Orlando, Ivanhoe and Juno have resulted from these efforts; that is three underground mines located in seven years.

A fourth prospect, 15 miles west of Orlando and known as Explorer 5, is emerging as a possible low grade, relatively large copper body, with grades indicated being in the order of 2.5% copper and 1 dwt of gold per ton. Exploratory drilling began at Explorer 5 in September 1959, and a further 12 months drilling must be concluded before any decision can be made. In the meantime an extended feasibility study is being undertaken to examine all aspects of an economic operation. Currently the body has been drilled between 600 and 1,200 feet below the surface.

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LEGEND INDICATING GROUP ACTIVITIES.

MINES

Drilling Activities

Geological & Geophysical Activity.

LOCATION PLAN SHOWING THE

ACTIVITIES OF PEKO MINES, NL AND GEOPERKO LTD.

IN THE TENNANT CREEK AREA, NORTH IN TERRITORY.

