

DORSET TIN DREDGE

Dorset Tin Dredge 1944-71:

From 1944 until June 1960 the Dorset tin dredge was owned and operated by the Federal Government under the control of the Department of Supply. From 1960 until cessation, it was operated by the Dorset Tin Division, a wholly owned subsidiary of the Storeys Creek Tin Mining Co. N.L.

Original design and construction was by Thompsons of Castlemaine, Victoria, at Redbank, N.E. Victoria where it began operations as a gold dredge.

When faced with the need to increase the country's output of tin during the years of World War II, the Commonwealth Government transferred the dredge from Redbank to the Dorset Flats, on the Ringarooma River, between Pioneer and South Mount Cameron.

The dredge was dismantled and shipment to Tasmania began in 1942. It was redesigned and built on site of commencement of operations in a man made pond 1943/4. Rebuilding contractors were Messrs Jacobson & Dalton, Victoria.

To enable the all-electric bucket dredge to operate the Hydro Electric Commission's power line was extended from Herrick, which made it possible for townships of Pioneer, South Mount Cameron, and later Gladstone, to be connected to the State's electricity system.

On the Dorset Flats and Dorset Extended areas, the dredge which commenced working in October 1944 had a maximum digging depth of 36 ft. and during those years when about 1,000 acres were treated, parts of a previous dredge were raised.

It took 15 years to work out the Dorset Flat, then came the move downstream, about 1 mile, for work on Dorset Extended. In readiness, a man-made gorge of 1,800 ft. long had been sluiced through a low hill. In the narrow gorge which connected the two areas, the dredge was locked, or raised 30 ft. above its previous level.

The dredge was then towed through the channel, with a tractor on each side, over a total distance of 2,300 ft. involving a fall of 40 ft. Dredging began at the exit of the gorge toward the new area. This began in August 1959 and ended when the dredge was moored for dismantling, May 1963.

Piece by piece the dredge was transported to the next location downstream, about 14 miles away on the MacGregor Flats/Black Duck Lagoon area, called the New Dorset Area, where operations were commenced in April 1964.

The new site, about 3-4 miles in a straight line N.W. of Gladstone required the HEC power line to be extended across the Ringarooma River; 3½ miles of access road constructed, along with workshops, office and other buildings.

Reconstruction of the dredge was undertaken by Phoenix Foundry, Launceston.

Here the dredge was to undergo some alterations. The bucket chain was now to carry 84 buckets to allow a digging depth of 50 ft. below waterline. The overall length was about 200 ft., with the pontoon section 136 ft. long, having a forward beam of 38 ft., and 50 ft. over the stern section. Pontoon depth was also increased to 8 ft. 6 inches. Height was 50 ft. above waterline.

Each of the one ton manganese hardened steel buckets had a ½ cubic yard capacity, 28 cyds., or 24 tons, for each 2½ minute revolution of the chain, with an hourly digging rate 300 to 350 cyds., 2 million tons per year. The bucket chain was driven by a 200 h.p. motor.

Buckets emptied their load into a drop chute which fed the 40 ft. long, 6 ft. diameter, revolving screen driven by a 50 h.p. motor at 13 revolutions per minute.

Water jets broke material in the screen, so that oversize material passed out into a stone chute to deposit spoil at the rear, land filling as the dredge moved forward. Undersize material, alluvial tin and gold passed through 3/8 inch holes in the eight strakes/plates, (overall screen area of 432 sq. ft.).

Undersized material was collected in a distributor and fed over 10 primary 3 cell jigs, with spigot product passed over 2 secondary 4 cell jigs, where it was 30-40% concentrate, which was taken ashore daily on a 20 ft. flat bottom boat, and taken to the tin shed treatment plant for dressing. A curvilinear table was used during treatment, as well as goldplates.

Estimated tonnage of the dredge with its spare parts on board, the material being dredged and jig ragging was anything from 800 to 1,000 tons.

Face width worked by the dredge was up to 250 ft. with an advance of 4 ft. by 50 ft. depth, every shift of the six day week of operations, with time out for regular maintenance Tuesdays and Thursdays, or unexpected stoppages.

Basically the dredge was a ship, or floating tin mine, with references to bow and stern, port and starboard side. The differences between the dredge and ordinary water vessels was that the dredge was connected to land by the five winching lines — the headline, which was anchored to a hefty tree stump ¼ mile ahead, and the bow and stern, port and starboard lines, and the power cable, termed as a trailing cable delivering 6.6 kv.

The power cable was floated across the dredge pond on 44-gallon fuel drums affixed by specially made support brackets.

All movements of the dredge, side to side, forward and back was controlled by the winchman. Others on board during shifts were the jigman who kept that section functioning smoothly, the greaser, and at times a deck hand.

Communications between the ship and office was maintained by two-way radio, which were also used at times on boring plants when working ahead of the area being worked. Three closed circuit television sets were used, enabling the winchman to keep check on material passing up the bucket chain, on the stone chute and the power cable.

The day work force (shore gang), was responsible for clearing the land ahead of the mine face of trees, scrub and logs, making roads and bridges, moving winch lines, and removal of concentrates daily from dredge for transport to the treatment plant. On the Dorset Flats area, in earlier years, the shore gang was also involved in altering the course of the Ringarooma River to allow dredging of the various beds it flowed along.

A drilling or boring programme was continuously in play, to enable a course to be plotted for future dredge movement. At times three boring plants operated. At one stage the company imported a special plant from Holland which drilled a 16 inch dia. hole, and was the only such plant in Australia. Other plants drilled 6 inch holes, and were all machine driven.

The Dorset tin dredge was the only one in Tasmania and one of the largest in Australia.

Tin Production: The Dorset Flats yielded approximately 2,000 tons of tin concentrates assaying 75% Sn., and 5,500 oz. fine gold, from a total throughput of 25,000,000 cubic yards, or 0.178 lbs. tin per cubic yard. The Dorset Extended Flats yielded approx. 425 tons tin concentrates, assaying 75%, and 1,400 oz. fine gold, from total throughput 5,200,000 cyds., at 0.183 lbs. tin per cubic yard.

Production on the New Dorset Area, 756 tons of tin concentrates, at 75.2% assay, with fine gold averaging approx. one oz. per ton of tin 760 oz. Throughput of material at 267 cyds. per hour.

In the 27 years of the last dredge operations, the Dorset Flats saw the dredge founder on 14th August, 1955 due to an overload of material on the jigs on one side of the ship. Floods in June 1969, on New Dorset area, caused a loss of power to the vessel, and allowed sand and mud to trap the dredge, which took several weeks for clearance and resumption of operations.

Work force numbered 50 in 1956, and 39 in 1969. This dredge ceased work March 1971.

Charles Taylor



Dorset Tin Dredge
at Doone Lagoon



5 cm