

TR9-22-25

5 DRILLING RESULTS, HAMPSHIRE IRON ORE DEPOSITS

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Abstract

Two anomalies at Hampshire were drilled by the Department of Mines and samples of core were assayed. A tentative estimate of possible reserves in the area indicated 200,000 tons of ore of 45% Fe grade.

Drilling

Drilling of the larger anomalies on the Hampshire iron ore deposits was recommended by the writer (1964) after completion of a detailed magnetometer survey of the area. Diamond drilling of this area was subsequently undertaken by the Department of Mines between February and April 1964.

Six diamond drill holes were completed on the two highest anomalies after trenching across the anomalies by bulldozer to expose their outcrop beneath the surface cover of soil and scree. DDH No. 1 on a bearing of 270° magnetic and declined at 50° was drilled on the high anomaly in the east of the area traversed. It was expected from the shape and intensity of this anomaly that the magnetite would extend in depth to 150-200 feet. Drilling was commenced in the granite country rock and expected to pass into magnetite-rich skarn rock at approximately 60 feet; however, as no magnetite was intersected in the hole after 142 feet of drilling the hole was abandoned. It was then apparent that the magnetite occurred as relatively shallow and highly irregular masses within the skarn rock, on the boundary of the granite intrusion.

DDH No. 4 on traverse 2 South, 350 East was drilled vertically into the area of highest magnetic intensity of the same anomaly as DDH No. 1 had been designed to intersect. From 0-62 feet DDH No. 4 was in weathered skarn rock containing varying amounts of magnetite; from 62-82½ feet the skarn contained very little magnetite and at 82½ feet the contact of the skarn and the granite country rock occurs.

DDH Nos. 2, 3, 5, and 6 were drilled on the large anomaly in the north of the area traversed. All the drill holes were collared from the zero position on line 6A, and all passed through a garnet-rich skarn rock containing varying amounts of magnetite. Near the surface the core shows some oxidization of the magnetite to hematite and limonite, the amount of hematite and limonite present being generally less than 10% of the total iron present at the surface and less than 5% of the total iron at depth. The granite contact was encountered at 81' 9" in hole No. 2, 37' 4" in hole No. 3, 95' in hole No. 5, and hole No. 6 was discontinued at 37' 4" while still in magnetite-rich skarn. From surface trenching and the intersections in the above drill holes the orebody here was found to have a roughly hemispherical shape and extended to a depth of approximately 60 feet.

Assays of the drill cores are shown in the accompanying table.

Ore Reserves

Ore reserve calculations at this stage are only tentative, probable ore reserves only being calculated for the northern anomaly which was drilled in detail. This anomaly is estimated to contain 70,000 tons of ore containing 50% iron mainly as magnetite. Drilling on this anomaly shows that the ore limits here approximate closely to the 30,000 gamma contour line so that this 30,000 gamma contour line has now been used to calculate the surface area of the remaining anomalies for the purpose of arriving at the possible ore reserves in the area. The depth of ore in these areas is assumed to extend to 50 feet. The average iron content of the diamond drill cores is 45% and this figure is also used for the average grade of the undrilled anomalies in calculation of the possible reserves.

The total of possible reserves indicated in the eight largest anomalies is estimated to be 200,000 tons of 45% Fe. As well as this high grade ore there is an additional amount of 250,000 tons of lower grade material indicated in the smaller anomalies and as extensions to the larger anomalies. The average grade of this material would probably be in the vicinity of 30% Fe.

Additional reserves occur in the undrilled magnetic anomaly to the east of the area drilled.

Conclusions

Further drilling is desirable to obtain an accurate estimate of the quantity of ore available. Several of the smaller anomalies should be tested by trenching and drilling. The area to the east of the main area needs more detailed magnetometer traversing before testing by trenching and possible drilling.

Reference

- JACK, R., 1964.—Magnetometer survey, Hampshire iron ore deposit. *Tech. Rep. Dep. Min. Tas.* 8, 50-54.

TABLE: ASSAYS OF CORE SAMPLES

D.D. Hole No.	Bear- ing	In- clin- ation	From Ft. In.	To Ft. In.	Re- covery %	Total Fe %	SiO ₂ %	Al ₂ O ₃ %	Ti %	Mn %	P %	S %	Cu %	V %	Com- bined Water	Der- ived Fe %
2	270'	50°	8 0	21 0	11	42.1	..	..	..	..	..	..	..	..	..	..
			21 0	30 0	25	34.3	..	..	..	..	..	..	..	..	..	..
			30 0	40 0	7	47.9	..	..	..	..	..	..	..	..	..	..
			40 0	50 0	47	48.0	..	..	..	..	..	..	..	..	..	..
			50 0	60 0	50	56.5	..	..	..	..	..	..	..	..	..	..
			60 0	70 0	90	58.4	..	..	..	..	..	..	..	..	..	..
			70 0	81 9	40	52.2	..	..	..	..	..	..	..	..	..	..
			0 0	10 0	Sludge	56.4	..	..	..	..	..	..	..	..	..	..
			10 0	20 0	Sludge	43.6	..	..	..	..	..	..	..	..	..	..
			20 0	30 0	Sludge	56.8	..	..	..	..	..	..	..	..	..	..
			30 0	40 0	Sludge	64.7	..	..	..	..	..	..	..	..	..	..
			8 0	30 0	Comp.	..	18.5	3.30	0.06	1.26	0.07	0.02	0.003	Nil	3.0	37.2
			30 0	81 9	Comp.	..	8.9	2.75	0.07	0.92	0.03	Tr.	0.004	Nil	2.0	51.8
3	90°	50°	16 0	26 0	26	46.3	..	..	..	..	..	..	..	..	..	..
			26 0	36 0	19	24.7	..	..	..	..	..	..	..	..	..	..
			5 0	16 0	Sludge	62.8	..	..	..	..	..	..	..	..	..	..
			16 0	36 0	Sludge	50.9	..	..	..	..	..	..	..	..	..	..
			16 0	36 0	Comp.	..	25.7	4.05	0.11	0.61	0.02	0.04	0.003	Nil	4.5	35.5
4	..	90°	0 0	12 0	8	65.5	..	..	..	..	..	..	..	..	..	..
			12 0	22 0	40	52.8	..	..	..	..	..	..	..	..	..	..
			22 0	32 0	62	46.1	..	..	..	..	..	..	..	..	..	..
			32 0	42 0	72	41.3	..	..	..	..	..	..	..	..	..	..
			42 0	52 0	35	46.7	..	..	..	..	..	..	..	..	..	..
			52 0	62 0	67	31.9	..	..	..	..	..	..	..	..	..	..
			0 0	32 0	Comp.	..	8.6	2.94	0.07	0.60	0.02	0.03	0.004	Nil	2.3	55.5
			32 0	62 0	Comp.	..	19.6	3.90	0.06	0.58	0.02	0.02	0.003	Nil	1.6	40.0

TABLE: ASSAYS OF CORE SAMPLES

D.D. Hole No.	Bear- ing	In- clin- ation	From Ft. In.	To Ft. In.	Re- covery %	Total Fe %	SiO ₂ %	Al ₂ O ₃ %	Ti %	Mn %	P %	S %	Cu %	V %	Com- bined Water	Der- ived Fe %
5	180°	45°	7 6	12 0	50	46.0	..	..	..	..	..	..	..	..	..	..
			12 0	22 0	22	51.9	..	..	..	..	..	..	..	..	..	..
			22 0	36 6	33	41.8	..	..	..	..	..	..	..	..	..	..
			36 6	48 4	16	35.3	..	..	..	..	..	..	..	..	..	..
			48 4	57 0	44	46.9	..	..	..	..	..	..	..	..	..	..
			57 0	62 0	40	60.4	..	..	..	..	..	..	..	..	..	..
			62 0	74 6	40	29.5	..	..	..	..	..	..	..	..	..	..
			74 6	90 0	32	52.4	..	..	..	..	..	..	..	..	..	..
			90 0	95 0	40	19.2	..	..	..	..	..	..	..	..	..	..
			0 0	12 0	Sludge	43.7	..	..	..	..	..	..	..	..	..	..
			12 0	22 0	Sludge	48.2	..	..	..	..	..	..	..	..	..	..
			27 0	42 0	Sludge	48.5	..	..	..	..	..	..	..	..	..	..
			48 8	57 0	Sludge	55.5	..	..	..	..	..	..	..	..	..	..
			57 0	62 0	Sludge	49.0	..	..	..	..	..	..	..	..	..	..
			62 0	69 0	Sludge	49.7	..	..	..	..	..	..	..	..	..	..
			75 0	91 0	Sludge	57.0	..	..	..	..	..	..	..	..	..	..
			7 6	36 6	Comp.	..	12.9	2.76	0.05	0.67	0.05	Tr.	0.003	Nil	2.1	45.9
			36 6	90 0	Comp.	..	18.1	3.70	0.07	0.77	0.02	0.02	0.003	Nil	1.3	43.1
6	360°	45°	10 0	22 0	32	49.7	..	..	..	..	..	..	..	..	..	..
			22 0	31 0	33	37.4	..	..	..	..	..	..	..	..	..	..
			31 0	37 4	55	22.6	..	..	..	..	..	..	..	..	..	..
			10 0	22 0	Sludge	32.3	..	..	..	..	..	..	..	..	..	..
			22 0	31 0	Sludge	37.8	..	..	..	..	..	..	..	..	..	..
			31 0	37 4	Sludge	58.7	..	..	..	..	..	..	..	..	..	..
			10 0	37 4	Comp.	..	17.2	4.31	0.07	0.84	0.07	0.03	..	Nil	..	39.4