Bergvesenet

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Rapportarkivet

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Tittel

Strømfjorden Iron Ore Field.

Forfatter	Dato År	Bedrift (Oppdragsgiver og/eller oppdragstaker)
Rasmussen, W.C.I	okt 1915	

Kommune	Fylke	Bergdistrikt	1: 50 000 kartblad	1: 250 000 kartblad
Hadsel	Nordland		12323	Svolvær

Fagområde	Dokument type	Forekomster (forekomst, gruvefelt, undersøkelsesfelt)
Forekomstbeskrivelse		Strømfjord Elvehammeren

Råstoffgruppe	Råstofftype
Malm/metall	Fe

Sammendrag, innholdsfortegnelse eller innholdsbeskrivelse

Beliggenhetsbeskrivelse av et sett mutinger. Ligger i granittiske bergarter.
5 muinger blir beskrevet. Prøvetaking blir utført. Analysene viser 28-38 % Fe. Stedvis noe S og P. Det antydes malmmengder fra 130 00 til 580 000 tonn, avhengig av sammenhengen mellom linsene.
Under tvil anbefales videre undersøkelser.

Avskrift

Translation. W. C. J. Rasmussen, okt. 1915
Hadsel

Kopi
efter trykt rapport

AP

Strømfjorden Iron Ore Field.

1. Situation, Local and Geological Conditions.

The ore field is situated at Stromfjord, an arm of the Eidsfjord, in Vesteraalen. (See Topographical chart of Norway, sheet K. 8. Oksnaes.)

The most important claims, which all were secured by "utmaal" in the autumn of 1914, are situated in a N.W. - S.E. running series on the mountain slope, East of the Gaardsvandet Lake and Stromfjord. There are also to be found ore bodies, not yet exploited, on the nearest mountain ridge.

At the Stromfjord the owner of the ore field has secured good sites for loading quay and works, the facilities for cheaply erecting a loading quay being very good. Ice will hardly interfere with the loading of steamers.

The nearest Telegraph & Telephone Station and calling place for steamers is Sildpollen, which place is situated about 4 km. to the North. At a similar distance to the N.E. are situated the Lahaugen iron ore occurrences.

The district is fairly well populated. From the large Vesteraalen district one may for the greater part of the year reckon upon a sufficiency of workmen.

The mountains East of Stromfjorden are precipitous and often unaccessible. The mountain slope and valley is often covered by debris of loose stone, birch bush and soil. According to observations made during several visits to the district granite seems to be the dominating country rock. Same varies greatly, however, both with regard to structure and colour. Whilst same in the high mountain is coarsely grained, on the slopes round the Gaardsvandet lake it is more compact. In this granite is to be found a series of magnetite occurrences.

The mode of occurrence reminds one greatly of the iron ore deposits at Melovar.

From this it will be understood that the occurrences do not belong to the group of the large Northern ore fields such as Sorreisen - Salangen - Neverhaugen - Dunderland, but is bound to and originates from eruptive granite.

2. Description of the Claims.

All the claims exploited are situated at a height of 35 to 60 meters above the Gaardvandet Lake.

Claim No. 1, indicated on the chart by a cross & 1.

One the slope, S.S.W. of the Ravntind, barings have been made over a width of 10 meters along the mountain side. The ore is exposed over the whole width of the baring, but the corresponding ore area will be somewhat less. Average samples were taken out.

About 10 meters to the East is to be seen bare rock in the day, but the ore here seems to appear more in streaks. In the baring it seems more evenly dispersed right across.

The ore here thus seems to extend over a considerable width, but in the direction of strike same has been little examined. To the naked eye the ore here seems to be of good quality and does not seem to be contaminated by sulphur.

Claim No. 2, indicated on the chart by a cross & 2.

About 400 meters N.W. of claim No.1 an adit of a length of 50 m. has been driven. To start with same runs in granite and intersects afterwards skarnberg and ore and ends in rock (probably skarn).

The ore in the adit has a width of 9½ meters. The extent will be about 6.7 m., as the dip seems to be 45 deg. to the North. Parallel to the ore vein is at several places to be found sulphur pyrites to an extent of up to 30 cm.

Average samples of the ore were taken out in the adit and same seems to be of good quality for magnetic concentrating purposes. A great deal of the sulphur pyrites could be sorted out by hand.

Average samples were also taken of sorted ore from the adit, but the analysis given below gives a result less satisfactory than anticipated during my visit.

About 25 meters East of and above the adit is to be found bared ore on a crest, which forms the outcrop of the ore in the adit.

Claim No. 3, indicated on the chart by a cross & 3.

From the adit the ore can be traced in the day for a length of about 100 meters in a N.W. direction on the steep mountain slope. The extent is quite considerable, but varies. On an average it will be about 4.5 meters. Seemingly the ore occurs in streaks, close to each other, accompanied by veins and streaks of granite. One may say that this is a fairly good concentrating ore.

Claim No. 4, indicated on the chart by a cross & 4.

This claim, which is situated above and East of the Stromfjorden farms, was followed for a length of 10 - 15 meters but people in the district stated that same runs right up into the high mountain. The width seemed to be about 3 meters. The ore seemed to be fairly good for concentrating purposes.

Claim No. 5, indicated on the chart by a cross & 5.

This claim is situated somewhat higher up than the previously named claim and about 100 meters further to the North. In a couple of barings can be seen that the width is at least 2 meters. The ore was traced along the strike for a distance of about 40 to 50 meters to the East and seems to run up into the high mountain.

The ore is of better quality than in the previous claim and the occurrence must be considered as promising.

An average sample of the ore was taken.

3. Quantity of Ore and Quality.

The above details are very sparing and not sufficient for the purpose of forming a proper basis for the calculation of the ore quantity. The owner, however, ought to be given an opportunity to form his own independent opinion as regards the field and with this object in view it will be necessary to indicate a few assumed figures, which will be left for the future exploitation of the field to confirm.

In the first instance we will say that the specific weight of the crude ore is 3.5. Then we may consider it probable that the ore goes down to a depth of 50 meters, as the outcrop of the ores in the day is to be seen at a similar height above the Gaardsvandet Lake. The angle of dip is uncertain, but at several places same seems to be about 45 deg. North.

Claims No. 4 & 5, as well as the claims on the top of the mountain, ought not to be taken into consideration until same are bared and further examined.

In connection herewith I below give a table containing the most important data one will have to go by in this instance. -

Occurrence	Number on Chart & Description	Analysis of small average samples.								Length L	Extent E	Area L & E	Depth D	Quantity of ore
		% Fe	% S	% P	% FeO	% Fe_2O_3	% CaO	% MgO	% SiO_2	Of the bared ore in meters			In Mtrs.	LxExx x 3.5
Below Ravntind Ravntind	1	34.98	0.395	0.126	1418	34.20	3.10	16.0	46.30	20	7	140	50	24.500 tons
Adit	2	29.06	3.450	0.161	1889	20.40	3.70	20.3	51.10	25	6.7	1675	50	29.312 "
Claim 3	3									100	4.5	450	50	78.750 "
Main Field														132.562 tons
Elvhammeren	5	28.33	0.264	0.143	11.14	28.09	2.45	2.17	55.54					
Sorted ore from adit		38.18	0.440	0.370	16.59	36.11	4.75	2.32	38.18					

The analysis only show trace of TiO_2.

Calculating a depth of 50 meters and assuming the length and extent of the ore is the same at a depth as in the day, then the main field should contain 132,500 tons of crude ore.

On the other hand, if the ore should be connected in such a way that the claims 1, 2 & 3 are one large occurrence, then we will get an ore area of

500 m. x 6,6 m. ; 3,300 m^2.

The quantity of ore will thus be

3,300 x 50 x 3,5: 577,500 tons of crude ore.

These figures speak for themselves and indicate very clearly the importance of the further exploitation of the field.

The analyses given are made by the chemist at the Sulitjelma Mines from samples taken out by the undersigned.

The analyses are very interesting and instructive, as amongst other things they clearly give the important information that ore cannot be won for export even through sorting. One will therefore have to take it for granted that the ore must be concentrated and as same only contains magnetite it seems plain that the ore will have to be concentrated magnetically, and for this purpose it seems to be very suitable.

According to the data we have at present before us the ore will contain on an average about 30 % of iron, the ore is fairly hard, but on the other hand same is as a rule fairly coarse crystalline.

The contents of phosphorus will through concentration be reduced as well as the contents of sulphur. The last named could also be reduced somewhat through sorting all parcels containing pyrites.

The contents of Ti is, as previously indicated, very low.

What kind of product will be obtained through magnetic separation one will best be able to get an idea of upon application to a Test Institution. For instance, The Metallurgiske Aktiebolaget, Stockholm, receive samples for testing purposes and also give tenders for erection of magnetic concentration works.

4. Resume.

Above I believe I have stated all which according to the inspection done can be said.

The ore quantity may of course be very moderate, but may also be quite considerable. To lay out money on such an occurrence is always connected with risk. Personally I am inclined to recommend to the owner, if he commands the necessary capital, to examine the field systematically, and it will always be a pleasure to me to indicate how such examination work should be done. In any case one ought to be prepared for an outlay of about Kr.50.000,-. Of course, this amount would be proportionately reduced through stopping the examination work if the ore, for instance, should not continue at a depth, as assumed.

Exportable ore cannot be sorted out, but the crude ore seems to be particularly suitable for magnetic concentration. The ore is magnetite. The contents of S & P is troublesome. There is only trace of Ti. The ore is hard, but coarse crystalline

There i I would recommend that in connection with any examination work undertaken general samples be taken out, which should be subjected to concentrating trials by a firm specialising in such tests. Although not having an exact knowledge as regards the cost of such tests I should say it might be done for about Kr.5.000.-. The main point would be to obtain particulars as to what kind of product one would obtain, extent of crushing and cost of concentration per ton.

Finally I beg to repeat -

The situation is favourable.

The mining of ore can be arranged in such a way that same will be practical and cheap.

Good sites for quay and works have already been secured. Only favourably situated water power seems to be wanting.

I have previously named the Lahaugen iron ore fields situated in the near neighbourhood, which property belongs to O/R Sakf. Ragnar Nielsen, Sortland.

Regarding these occurrences the State Geologist Foslie states that same consists of a series of ore veins in gneis-granite. The total ore area is stated to be 2680 m^2 and his opinion is that the ore is workable as the contents of iron on an average is about 36 %.

Personally I believe that the contents of iron in both these fields is similar, and it would be an advantage to secure this field for the purpose of utilising the same together with Stromfjorden.

As regards the Melovar group of iron ore deposits, previously referred to, which seem to be of a geological similarity, Professor Vogt states in "Norges Jernmalmsforekomster 1910" that these occurrences have an ore area of 1,000 m^2. Per ton rock mined is obtained 60 % iron of 54 % Fe and maximum 0.2 % S, and 20 % ore of 55 % Fe and 1-2 % S. The cost of production is Kr.3 to 6.00 per ton sorted ore, excl. amortisation and general expenses

In accordance with official statistics at the end of 1913 altogether 160.000 tons of ore had been exported. At a depth of 150 meters there was still ore remaining over a length of 40 meters and width of 10 meters. The production this year is expected to reach 35.000 tons.

Compared with the Melovar occurrences the situation of Stromfjorden is more favourable and the cost of production would therefore be considerably cheaper.

On the small island of Melovar, which is facing the open sea, an ore vein runs steeply down below sea level. So as to protect the mine opening against the sea embankments have had to be made. For haulage of ore and on account of water in the mine a steam engine has been installed, which also supplies power to the boring machines, to a small concentrating plant (which treats all the small ore from the mine) and also power for electric lighting and ropeway. The ropeway is quite short and conveys the ore right across the island to the loading place. From this it will be understood that the natural conditions are rather difficult, also in this respect that communications with the large populated districts are irregular. All the same the mine is doing well, mostly due to a fairly large percentage of exportable ore and the splendid planning of the working.

At Stromfjorden steam power would not be necessary for examination and preparatory work, nor for actual mining work during the first years. Neither would steam power be required for transport of ore from the mouth of the mine to works and loading place, but when concentrating works are erected one would have to arrange for sufficient power for the requirements of the mine.

The great difference between the two deposits (according to analysis given) seems at the present time to be due to the quality of the ore, but it is quite possible that through further examination work one may come across richer ore bodies. The ore area at Melovar cannot be said to be imposing. At Stromfjorden on the other hand there are possibilities for opening out new and considerable ore reserves.

Bodo, October 1915.

Sgd. W.C.I. Rasmussen,
Inspector of Mines.