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Kommer fra ..arkiv	Ekstern rapport nr	Oversendt fra	Fortrolig pga	Fortrolig fra dato:
Elkem AS Hovedbibl		Elkem AS		

Tittel

Drilling proposal for the Holla magnetic anomaly near Håtveit creek, Fen project

Forfatter
Mørk, K.
Olmore, S.D.

Dato År
July 1981

Bedrift (Oppdragsgiver og/eller oppdragstaker)
Management committee FENCO

Kommune	Fylke	Bergdistrikt	1: 50 000 kartblad	1: 250 000 kartblad
Nome	Telemark		17134	Skien

Fagområde	Dokument type	Forekomster (forekomst, gruvefelt, undersøkelsesfelt)
Boring		Håtveit Holla Fenfeltet

Råstoffgruppe	Råstofftype
Malm/metall	RE

Sammendrag, innholdsfortegnelse eller innholdsbeskrivelse

En magnetisk anomali ble påvist i Håtveit-bekken under måling høsten 1980. Prøvetaking av blotning viste 0,5 % Nb.
Anomlien er på grensen mellom søvitt og basiske silikatbergearter.
Det foreslås boret et 400 m langt hull for å finne årsak til den magnetiske anomalien.

DRILLING PROPOSAL FOR THE HOLLA MAGNETIC ANOMALY NEAR HÅTVEIT CREEK, FEN PROJECT

K. Mørk - A/S Sydvaranger
S. D. Olmore - Union Minerals Norge A/S

July - 1981

INTRODUCTION

During the Fen management committee meeting on May 6, 1981 it was approved in principal that drilling should be accomplished this year mainly for "political purposes". Presented here are the details of a proposal to drill a magnetically and geochemically anomalous area about ½ kilometer from the Holla Church ruins.

The magnetic-anomalous nature of the Håtveit creek area (Holla anomaly) was brought to the attention of Fenco and Union geologists during a ground magnetic survey conducted by C. Carstens in the Fall of 1980.

Upon recognition of the anomaly Mørk and Carstens sampled nearby outcrops and analyzed for niobium, which was later recorded at 0.5 percent in one specimen. Carstens in his report entitled "Results from magnetic investigations of the Fen area in 1980" defined more precisely an exploration object in the area of Håtveit creek.

During the management committee meeting for the Fen project Carstens presented the anomaly as one of several with exploration interest (Figure 1). Also, during the meeting, J. Keim of Molycorp recommended that a "wildcat" drill hole be placed to test the anomaly and to obtain geologic information in a little-known portion of the complex, an alternative to a proposal by S. Olmore that a drill hole be placed in the deeper portions of the Hydro dike. D. Cappelen favored the Håtveit area because he believed the site would be a particularly good one on which to demonstrate the exploration intentions of Fenco to the local inhabitants.

T. Sverdrup visited the proposed site on June 22 and approved its location as shown in Figure 2.

GEOLOGY AND GEOCHEMISTRY

The geology and geochemistry of the Håtveit Creek area (Holla anomaly) are not well known owing to the scarcity of outcrops; but from the little geologic information available, a large, tongue-shaped mass of søvite can be inferred on the geologic map (Figure 2). The søvite mass may have separated out of an earlier-formed basic silicate magma rich in carbonate. The contact between basic silicate phases and søvite phases is depicted as sharp for diagrammatic purposes, but it is in fact probably a graditional zone with mixtures of both rock types.

Foliation and primary-silicate banding in the søvite has a general NNW strike and near-vertical dips, and is inferred to reflect the attitude of the contact between søvite and basic silicate rocks.

Geochemical analyses of samples of søvite and basic silicate rocks taken from the target area are listed below.

	Fe	Si	Mg	Al	P	Na	Ti	K	Ca	Mn	Ba	Sr	V	Nb	Y	Th	S	La	Ce	Nd	U	Ta
HB - 1	8.0	4.4	5.0	0.099	3.8	0.23	0.28	0.4	21.4	0.29	0.033	0.27	0.023	<0.005	0.010	0.008	0.12	0.024	0.060	0.030		
HB - 2	1.9	1.0	0.6	0.19	1.4	0.22	0.08	0.1	37.8	0.15	0.057	0.44	0.010	0.020	0.008	<0.005	0.29	0.023	0.050	0.023		
HB - 3	2.2	1.0	1.4	0.18	1.1	0.22	0.03	0.4	33.9	0.19	0.11	0.55	0.009	0.12	0.008	0.021	0.25	0.026	0.057	0.026	0.003	0.019
HB - 4	4.1	1.3	2.9	0.15	1.8	0.25	0.06	0.5	31.5	0.24	0.085	0.53	0.021	0.50	0.007	0.047	0.26	0.028	0.062	0.027	0.003	0.022
HB - 5	2.0	1.1	9.4	0.37	1.1	0.15	0.02	0.3	24.3	0.59	0.028	0.49	<0.005	0.029	<0.005	<0.005	0.10	0.012	0.029	0.017		
HB - 6	6.3	19.3	1.4	8.8	0.5	0.49	0.56	6.6	8.0	0.30	0.59	0.25	0.033	0.041	0.006	0.005	0.15	0.01	0.015	0.01		

TABLE - GEOCHEMISTRY OF SIX SAMPLES FROM AREA OF THE HOLLA ANOMALY.

Fig. 1.

Iso magnetic map overlay.
scale 1:5000
After C. Carstens

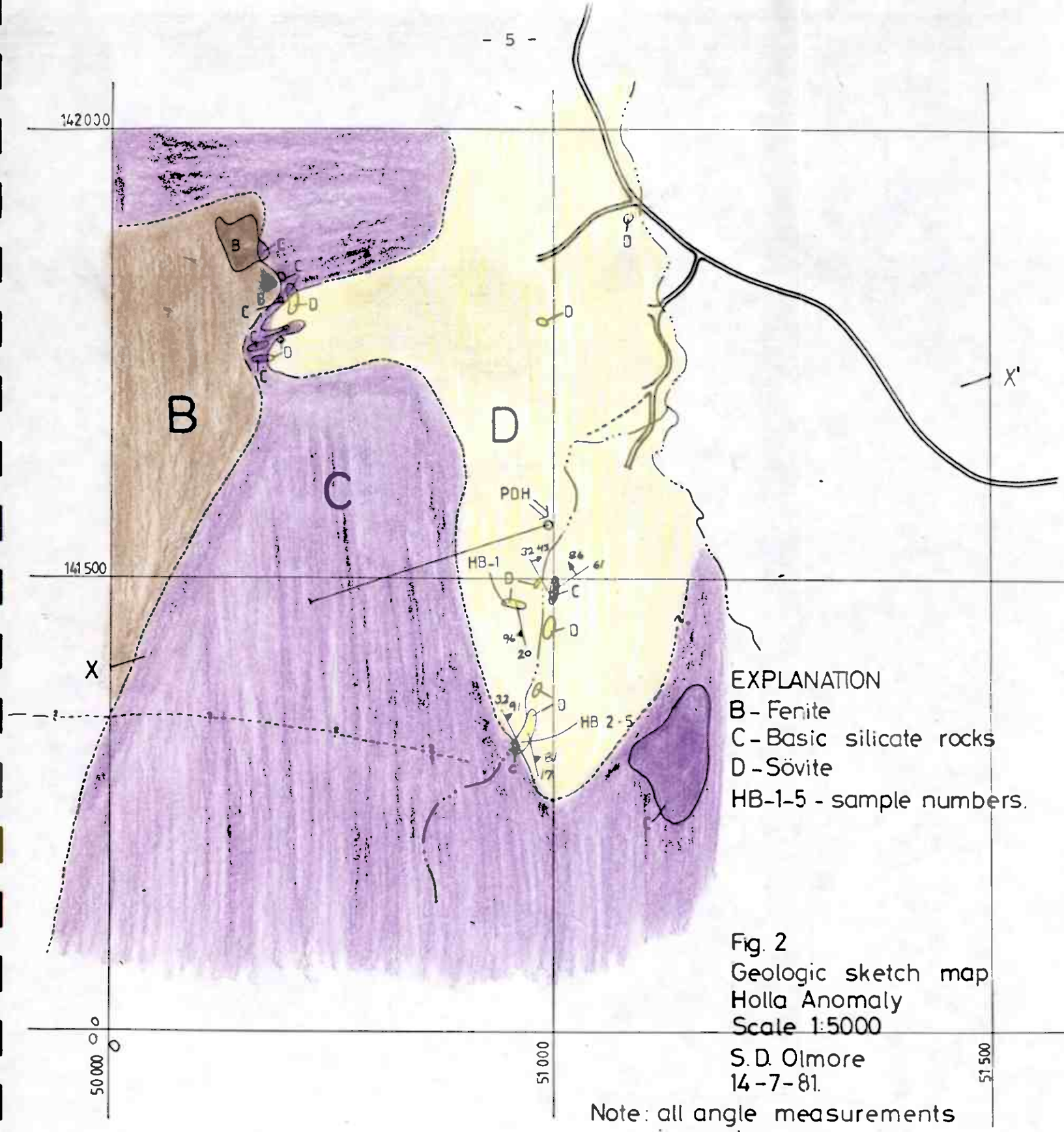

Fig. 2
Geologic sketch map
Holla Anomaly
Scale 1:5000
S.D. Olmore
14-7-81.

Note: all angle measurements in grads.

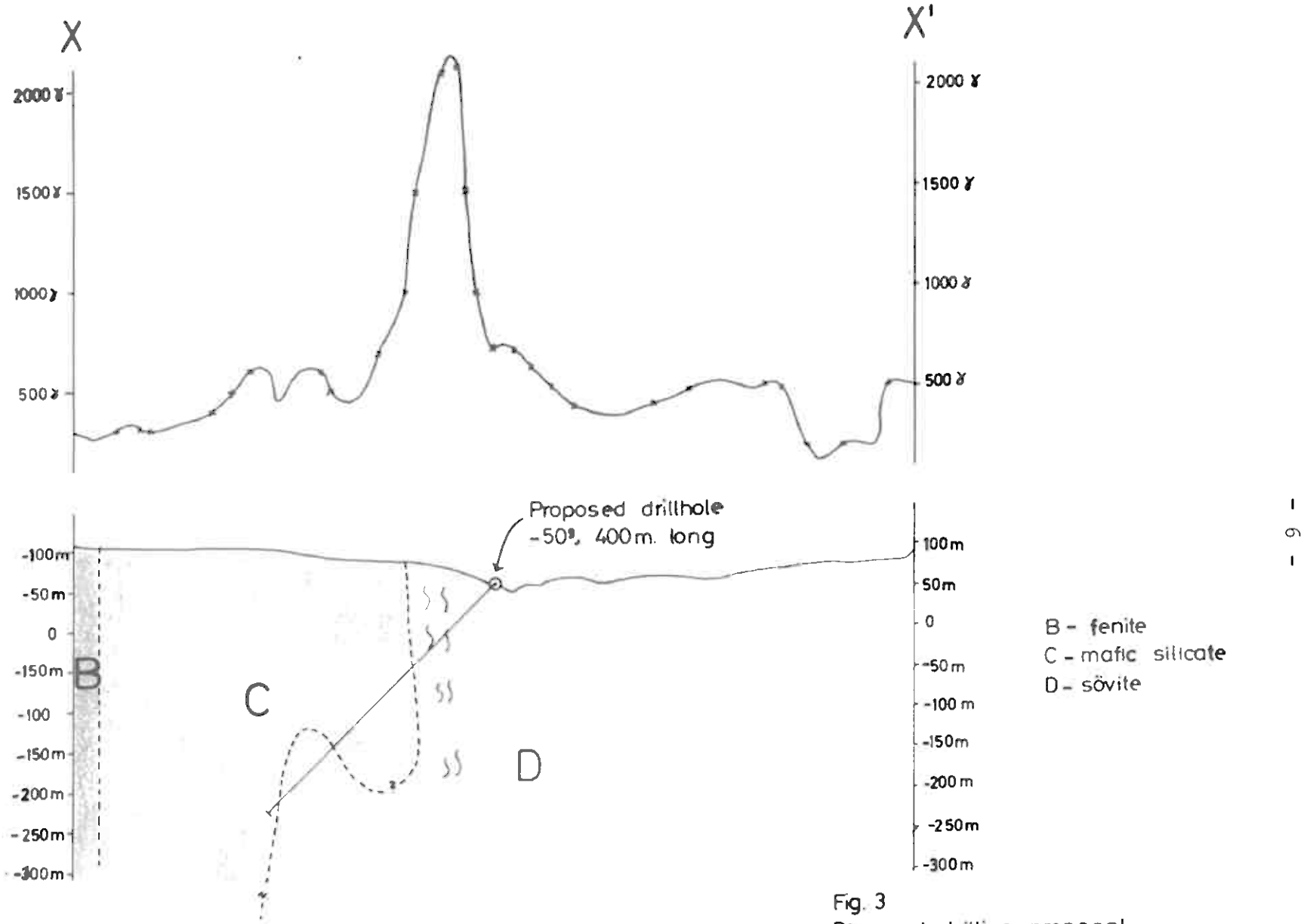

Fig. 3
Diamond drilling proposal
Holla Anomaly
Scale 1:5000

(See map for sample locations). Samples HB-1 and HB-5 are probably rauhaugite with low Ca content - 21.4 percent and 24.3 percent respectively; they correspondingly have a relatively high Mg content - 5.0 percent and 9.4 percent respectively. Samples HB-2, HB-3, and HB-4 are typical of søvite with total Ca greater than about 30 percent. The søvite is anomalous in Th, Nb, and Ta with samples HB-3 and HB-4 of particular interest. Sample HB-6 is of basic silicate rock and contains high Si - 19.3 percent, and anomalous V - 0.033 percent. The overall chemistry of søvite from the Håtveit area is similar to the chemistry of søvite from the Hydro - Tuftestollen area.

Other than carbonate mineral phases, the megascopic mineralogy of søvite indicates the presence of as much as 2 to 3 percent magnetite, both green and brown biotite, pyrochlore and apatite.

GROUND MAGNETIC SURVEY

The ground magnetic expression of the Holla anomaly is diagrammed in Figure 1, which is positioned as an overlay on the geologic map (Figure 2). The magnetic expression of the anomaly is graphed in Figure 3 along with a corresponding geologic cross section. A 1500 gamma magnetic anomaly approximately straddles the contact between basic silicate rocks and søvite. There are also two small 100-200 gamma anomalies 150-200 meters west of the peak of the large anomaly. Carstens (1981) proposes that the anomalies may represent anywhere from 1 to 4 percent magnetite in søvite, and he further suggests a spatial correlation between magnetite and niobium mineralization (pyrochlore and columbite). An alternative explanation is that the magnetic anomalies may also be explained by possible segregations of magnetite-rich bodies in mafic silicate rocks. In this case the target is less certain, but the possibility of vanadium and titanium mineralization should be considered.

DRILLING PROPOSAL

It is proposed to drill one 400m angle hole with a bearing of about 280^g and an inclination of -50^g for the principal purpose of exploring the source of the large magnetic anomalies shown in Figure 3.

Assuming the drilling is accomplished with two 12 hour shifts per day, it is estimated that the job should require 3 to 4 weeks from beginning to completion.

The following is an estimate of the drilling costs:

Mobilization/Demobilization	kr 17,000
0-100m at 300/m	kr 30,000
100-200m at 350/m	kr 35,000
200-300m at 400/m	kr 40,000
300-400m at 450/m	kr 45,000
80 core boxes at 80/ea	kr 6,400
Sub total	kr 173,400
+ 20 percent VAT	kr 34,680
Total cost	kr 208,080
	US $ 34,680

xxxxxxxxxxxxxxxxxxxx
Postboks 83, 1321 Stabekk

TLS/bs 21-7-1981

A/S FENCO
v/siv.ing. D. Cappelen
Ulefoss Jernverk
3731 ULEFOSS.

Vedr.: Forslag til diamantboringer.

I tillegg til tidligere forslag til diamantboringer oversendes herved vårt forslag til boring ved Holla nær bekken Håtveit. Såfremt De ikke har motforestillinger mot de foreslåtte boringene og Union aksepterer forslaget vil disse bli iverksatt i høst.

Med hilsen
for AKTIESELSKABET SYDVARANGER

Thor L. Sverdrup
Prospekteringssjef

E. D.					23/7 31/7
Ansv. Avd. G					
Gruppsjef					/
Resy av	Ferdigbehandlet ?				
	Nei	/	Ja		/
Resyme TLP. Ok.					
C.W. Carstens.					/
		/			/
		/			/

Vedlegg.

Kopi : Elkem ~~Spigerverket~~ v/Roar Jensen.
ASV v/V. Wiik.