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Sammendrag En forholdsvis kortfattet oppsummering av arbeider som er i gang. Vedlagt et kart som viser begrensingen av områdene: 1) Gruveåsen-Bolladalen 2) Søve 3) Vipeto - Rullekoll				



THE FEN PROJECT

A Progress Report

1st of May, 1981

K. Mørk

A/S Sydvaranger

Project leader.

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Plates: Fig 1.: Index map to the
Fenco-Union Minerals
Joint Venture
Progress Report
of May 1st, 1981.

INTRODUCTION

This report summarizes the general development of the project since last Management Committee Meeting in October 1980.

S. Olmore, V. Wiik and C.W. Carstens have been responsible for special subjects of the work program, and they present separate, accompanying reports.

Preparation of applications for "utmål" on behalf of S.D. Cappelen has been a priority matter during this period.

"Political" aspects, such as information to the public and officials, and discussions with land proprietors have required much attention from the project leaders.

WORK PROGRESS

Information.

On October 10th, 1980, Fenco arranged a public information meeting at Ulefoss. At this meeting, a broad presentation of the project was given to an audience of approximately 150 people, including local inhabitants, politicians and representatives from the press. In addition to the project workers, a panel of experts on various aspects of this particular exploration project answered questions from the audience (professor J.A.W. Bugge: general geology, economic geology of the special resources in question, and in particular on the thorium situation; Dir. K. Heier: NGU's engagement in the area (quaternary geology, soil geochemistry et O. Hesjedal: presentation of project "temakart" ("theme map"); Inspector of Mines, T. Johnsen: the Mining Act and various legal aspects; E. Stranden from the National Institute for Radiation Hygiene: radiation hazards in connection with the Th concentration in the Fen rocks).

The purpose of the meeting was to give the inhabitants a general presentation of the project, prior to our direct contact with farmers and land owners who will be directly affected by our work.

According to the Work Program, a ground magnetic survey of the whole Fen complex was scheduled for the latter part of the field season. The measurements, which involved trespassing of most of the properties in the area, commenced in mid-October and required permission from the land proprietors to cross their cultivated grounds. With reference to the mentioned information meeting, the project leader visited approximately 40 farmers and asked for such permission. This personal contact was apparently appreciated and a generally good relationship was established. Most of them had no objections to our investigations. Some farmers wanted to consider the matter more carefully and discuss it with neighbours in order to try to reach united standpoint. A meeting of the land owners was arranged, but was not attended by Fenco. At this meeting, a letter addressed to Fenco, was signed by 32 persons, stating that they are sceptic to the consequences of our work and therefore are not prepared to grant us rights beyond those we have according to the Mining Act.

In addition to this group of people, which are directly affected by our work, and hence has a factual interest in the matter, we are facing another political/"philosophical" oriented group, who claim to be particularly concerned with environmental questions and are worried about capitalistic exploitation of the country's resources. They have formed the so-called "Information Committee about mining in the Fen area". Since they were sceptic about the alleged "biased" information given by Fenco, they arranged their own information meeting at Ulefoss, on the topic: "Mining and radiation hazards in the Fen area". The project leader attended the meeting.

A majority of the land owners we were in contact with, stressed that they would not be associated with the, what they called, political left-wing group, and that their scepticism had a more pragmatic basis.

The general publicity was noted by local politicians, and Fenco was requested by the Telemark County administration to give an orientation at a meeting of the "Planning and development

committee" (planleggings- og næringsutvalget). The presentation was given by Sverdrup, Jensen and Mørk in Skien in December 1980.

At this meeting we were asked to repeat the presentation for another committee: "Environment and nature preservation committee" (natur- og miljøvernutvalget), and this was done on January 29th by Jensen, Wiik and Mørk.

On both occasions we experienced a positive attitude to our work, but the importance of giving objective information was stressed.

Fenco considered to engage a consultant to do a "consequence analyses" of our activities in the area. A principal part of such an analyses is registration of relevant environmental factors. Some studies are already done by a number of institutions, so it is primarily a matter of compiling data which are available. It was concluded that this work could be adequately handled by personell from the Fenco partners, and a separate committee, with one member from each company, was appointed to conduct an environmental baseline study of the area.

"Utmål"applications.

The agreement with S.D. Cappelen impose on Fenco to prepare applications for "Utmål", based on Cappelens "mutinger", before April 1st, 1981.

Four applications, signed by D. Cappelen, were submitted to the Inspector of Mines on March 28th.

The applications were based on data from previous investigations by Norsk Bergverk and FSJ, and from geological mapping and geochemical sampling carried out during the 1980 field season.

Geochemical data were compiled on maps by J.E. Wanvik, Elkem. Geological descriptions and calculations of grades and tonnages were done by K. Mørk.

The layout of the applications, the amount of data presented and the areal extent of the "utmål" were issues that had been discussed with the Bergmester on numerous occasions on beforehand, and were presented according to his recommendations.

Geology.

The following areas were given priority as mapping objects for the 1980 season (as described in the last Progress Report of October 1980), (see fig. 1) :

- a) Gruveåsen - Bolladalen. Responsible: K. Mørk.
- b) Vipeto - Rauhaug. Responsible: V. Wiik.
- c) Sjøve: Cappelen - Hydro and Tufte deposits and the Tufte Adit. Responsible: S. Olmore.

Subsequent to the Managment Committee Meeting in October 1980, Mørk was fully engaged with preparations for the information meetings, discussions with land owners and other organization matters, and therefore no additional geological information from area a) can be presented at this stage.

The scepticism and local oppisition referred to above, was generally stronger among people living in the Vipeto, Rauhaug and Fen areas (Fen is locally used for the area around the Fen farms and the Fen primary school), and most of the undersigners of the mentioned letter are from these parts. In this situation it was necessary to keep a low profile in order not to cause unnesessary irritation in this important area. Field work was therefore terminated somewhat earlier than planned. (See Wiik's report).

In the Sjøve area, much of the activities during the latter part of the field season were concentrated to the Tufte Adit. Olmore has completed mapping of the adit and has done petrographic studies of the rock types (see Olmore's report). He has established evidence for age relationships between rock types, and his petrographic studies have revealed characteristic features for the various rock types, which will be very important for the mapping in other areas.

Geochemistry.

Geochemical data from earlier investigations are stored electronically, and some preliminary computer programs for calculation of correlation factors etc. are worked out by V. Wiik (described in his report for the Management Committee Meeting in October 1980).

Registration and evaluation of chemical data are handled by Wiik, and his (accompanying) report contains lists of all chemical assay results, describes the computer work that has been done and discusses on the results.

A few general comments are presented here:

Samples collected during the 1980 season are from the following areas:

1. The Sjøve fields, comprising the Cappelen and Hydro deposits, the road cut along Ulefossveien and the Tufte Adit.

Olmore has submitted 115 samples for chemical assay, and the results are discussed in his report.

2. The Gruveåsen - Bolladalen area.

70 samples were collected systematically over a 50 x 50 m grid (see Progress Report of October 1st, 1980). The main objective of this sampling program was to obtain sufficient data for the "Utmål"-application.

The samples were first analyzed according to a routine procedure by XRF at SI for the following elements:

Nb, Y, Th, La, Ce, Nd, P and S. (For results: see Wiik's report).

25 samples of this batch were selected for more accurate assay of REE at IFE. The report shows that all the Y-values from SI are too high and the REE-values are generally too low, indicating a systematic error in the routine analytical procedure.

(The errors are, however, within the guaranteed limits). SI chemists are informed and are presently checking their methods and procedures.

The SI data, combined with mesoscopic descriptions of the rock samples, formed the basis for the "utmål" -application, as this was regarded accurate enough for that purpose.

For the purpose of rock characterization and economic evaluation, more detailed petrographic studies and more reliable geochemical data are required. We shall therefore defer a discussion on these subjects until this is achieved.

3. The Vipeto - Rullekoll area.

Following the discovery of pyrochlore mineralization at Vipeto and subsequent mapping of the "Vipeto søvite", a preliminary sampling of exposures of the søvite was carried out. 30 samples were collected and assayed by SI's routine XRF procedure. Interesting Nb-values were obtained (0,46 % NB in one sample, see Wiik's report), but no checks have been run on the accuracy of the Nb-assays. This will be done.

In connection with the geological mapping of this area, Wiik collected a number of samples, of which 50 have been assayed by the same routine procedure (see Wiik's report).

4. Håtveitbekken

This locality is an exposure of søvitic carbonatite (?) in the creek called Håtveitbekken (locality 141 310/50 960, see fig. I).

This area is characterized by an irregular and anomalous magnetic picture (see Carsten's report).

The søvite contain irregular clusters of visible magnetite and biotite, but pyrochlore was not detected with hand lense.

6 samples were collected at this exposure, assay results

are listed in Wiik's report (HB 6 is a silicate rock, the others are carbonatites). Highest Nb-value recorded was 0,5 %.

Assay routines.

Geological samples are analyzed according to the following procedures:

1. By SI

Step I : Routine assay of all samples;
7 elements, determined by XRF:
Nb, Th, Y, P, S, La, CE, Nd.

Step II: ICP assay of 13 elements on selected samples for geochemical characterization of rocks.

They are: Fe, Si, Mg, Al, P, Na, Ti, K,
Ca, Mn, Ba, Sr and V.

In addition SI does XRF analyses for U and Ta on selected samples (generally samples enriched in Nb and Th).

2. By IFE

Accurate determination of 7 RE-elements (La, Ce, Nd, Sm, Eu, Gd and Y) in samples which are enriched in La, Ce and Nd according to SI's routine analyses. (Pr is at present not done, but since some old and limited number of analyses indicate of that it makes out in the range of 3 - 8 % of the REE, it should be included).

Selected samples will be analyzed for Nb, Th and P by IFE, both as a check of SI's routine analyses for these elements, and also for more accurate determinations.

Geophysic.

Magnetic measurements cover approximately 80 % of the Fen Complex (see C.W. Carstens report). The remaining parts have not been done since it involve crossing og cultivated land for which we have as yet not got permission to trespass (see above).

Revised Work Program for 1981 - diamond drilling proposal.

Due to the "political" situation in the area, it was appropriate to revise the original work program for 1981, and a new proposal has been submitted to the Parties.

This program involve the following operations:

1. Opening of the Fen Mines and subsequent mapping of accessible parts as soon as necessary safety precautions have been taken.
2. Diamond drilling of one profile in the Gruveåsen (see Revised Work Program).
3. Diamond drilling of the central carbonatite mass in the Søve area.

The Main Adit of the Fen Mines has recently been opened and inspected, but some safety measurements are required before work can commence:

- a) The mine will be inspected by the Inspector of Mines.
- b) Radioactivity measurements will be done by the National Institute for Radiation Hygiene.

A diamond drilling program for the Søve area is under preparation.

Personell.

Cand.real. Tom Andersen has been employed by A/S Sydvaranger, and he will, as provided for in the budget and work program, work full time on the project.

Viggo Wiik shall have to reduce his engagement in the project to some extent. He will handle the geochemical data, but will not be available for field work.

Summary.

The work progress can be summarized as follows:

1. "Utmål" -applications have been prepared and presented to the Inspector of Mines.
2. Geological mapping and petrographic studies of rocks from the north-western parts of the Complex has progressed according to the Work Program.
3. The work in the Vipeto - Rullekoll area has been somewhat hampered by the "political" situation, but some geological and geochemical information has been obtained.
4. Magnetic measurements has been done on accessible parts of the Complex, and a geophysical interpretation is presented, but the planned total coverage of the whole Fen Complex has not been achieved, again as a result of the "political" situation.
5. 145 samples from previous investigations have been re-analyzed, both as a check on accuracy and for assay of additional elements. 223 samples collected during the 1980-season have been assayed. Geochemical data are stored in a computer, and some correlation programs have been run.
6. Administration of the project - in particular concerning information to the public and negotiations with land owners - has consumed more time than expected.

Stabekk, May 4th 1981



Kristen Mørk
Project leader

THE FEN AREA

Telemark, Norway

0 100 200 300 400 500 m

NORSJØ

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Area I Gruveåsen - Bolladalen

II Söve

III Vipeto - Rullekoll

• Sample point

Index map to the
Fenco - Union Minerals
Joint Venture
Progress Report of May 1st, 1981

April-81, K Mörk

Scale
1 : 5000

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Fig. no.
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