



Bergvesenet

Postboks 3021, N-7441 Trondheim

Rapportarkivet

Innlegging av nye rapporter ved: Peter

Bergvesenet rapport nr 5901	Intern Journal nr Kasse nr. 61	Internt arkiv nr	Rapport lokalisering	Gradering
Kommer fra ..arkiv Folldal Verk AS	Ekstern rapport nr	Oversendt fra Folldal Verk a.s.	Fortrolig pga	Fortrolig fra dato:

Tittel

ANDØRJA PROSJEKTET

Forfatter

Søyland, Johannes

Dato År

0101 1989

Bedrift (oppdragsgiver og/eller oppdragstaker)

A/S Seal Bay Minerals

Kommune

Ibestad, Bjarkøy,
Evenes

Fylke

Troms, Nordland

Bergdistrikt

1: 50 000 kartblad

13321 13322 13324 13333

1: 250 000 kartblad

Narvik

Fagområde

Prøvedrift,
Prosjektorientering

Dokument type

Forekomster (forekomst, gruvefelt, undersøkelsesfelt)

Andørja, Bogen, Bjarkøy

Råstofgruppe

Malm/metall

Råstofftype

Fe

Sammendrag, innholdsfortegnelse eller innholdsbeskrivelse

Rapporten er en samling dokumenter som har vært benyttet til presentasjon av Andørja prosjektet. Blant annet er det en del brev og oversikter over potensielle fremtidige forretningsforbindelser. Prosjektet går ut på å benytte jernmalforekomstene på Andørja, i Bogen og på Bjarkøy som industrimineral og ikke som råstoff for tradisjonell jern/stålfremstilling. Dette gir bedre lønnsomhet og betinger høyere priser for konsentrat. Rapporten inneholder også en del skisser som viser tekniske løsninger i forbindelse med anleggene. Rapporten inneholder også kart som viser mitinger på jern på Andørja, Bjarkøy og Bogen.

ANDØRJA

PROSJEKTET

Europas Første
Helt Nye
Magnetitt Virksomhet
På Over 80 År

ANDÖRJÄPROSJEKTET

GROVE-TREKK

Produksjon 180.000 Tonn Slig

Marked Heavy Medea
Europa - USA

Nåværende Produksjon - SSAB
nedl. 1992

Investerings 75 mill.

Sysseissetting 35 - 50
Spinoff 100

Omsettning 55 mill.
Spinoff 100 mill.

Malmreserver 200 mill. tonn
400 år

FORDELER

Store Forekomst

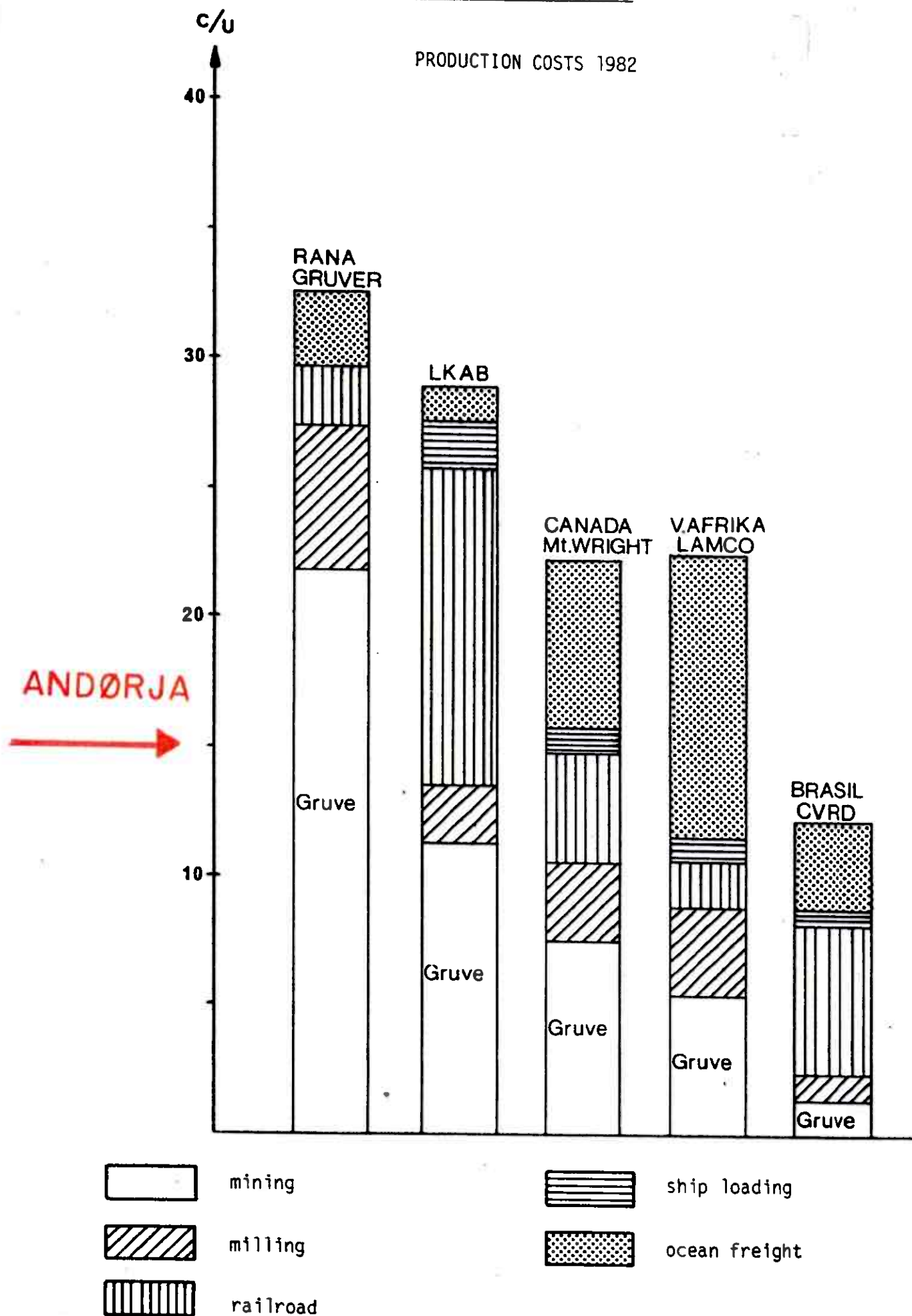
Gode Belligenet

Lave Driftskostnader

Lave Transportkostnader

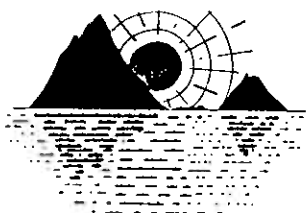
Biprodukt Verdler

FIG. 2 COST COMPARISON OF IRON ORE PRODUCERS



VIKTIGSTE ELEMENTER

1. DETTE ER SNAKK OM MAGNETITT SOM INDUSTRIMINERAL, IKKE SOM JERNMALM: ANDRE JERNMÅLMER (HEMATITT) KAN IKKE BRUKES TIL DETTE FORMÅL.
2. DEN TOTALE MENGDE AV MAGNETITT PRODUSERT I VERDEN VIL SENKE RADIKALT INNEN DET NESTE FEM ÅR (SSAB NEDLEGGELSE 1992) DE STØRSTE JERNMALMPRODUSERENDE LAND (BRAZIL OG AUSTRALIA) HAR BARE HEMATITT.
3. ET BILLIG PRODUSENT MED STORE RESERVER VILLE ALTIDSFINNE ET MARKED. SELVÅG BLIR EN AV DE STØRSTE OG BILLIGSTE.



A/S Seal Bay Minerals

LISTE OVER AKTIV KONTAKTER PER 1-1-1989

Bernhard Kruger, Director
Frank & Schulte GmbH
Box 101255
D-4300 Essen 1
West Germany

Mark Wolff, Vice President
Koch Carbon, Inc.
Box 2213
Wichita, Kansas 67201
USA

Otavi Minen AG
Morgenthaler Allee 19-21
6236 Eschborn
West Germany

Dr. George Podolsky
Phizer Pigments, Inc.
640 N 13th St.
Easton, PA 18042
USA

Dr. Johann Heim
Norsulfid (Outokumpu)
Brøsetveg. 168
7000 Trondheim

Fergusson-Wild & Co. (F&S)
3 St. Helens Pl.
London EC3A6BB
England

Roger Miller, Vice President
Citibank
6 Fairview Dr.
Westport Connecticut 06880

Mr. Barry Haycox
Chief Purchasing Officer
British Coal
Box 5, Coal House
Doncaster
South Yorkshire
England

Dyr. Wilczek
STALEXPORT
Katowice
Mickiewiczza
Poland

Mr. J. J. Allen
Marketing Manager
Tennant Metallurgical Ltd.
The Mount, Glossop Road
Sheffield, S10 2QA
England

Dir. Ola Øverlie
A/S Olivin
N6146 Aaheim

Dir. Knut Huber
Svedala-Arbrå
Fryajavn 27
Oslo 4

PRODUKTER

MAGNETITT

EN JERNMALM (Fe_3O_4) MED MAGNETISKE EGENSKAPER
I DETTE TILFELLE SKAL IKKE MAGNETITTEN BRUKES SOM VANLIG JERNMALM

HEAVY-MEDIA Kr. 200 PER TONN

BRUKES TIL Å LAGE EN TUNGT VESKE (SP VEKT 2.0) SOM DA BRUKES TIL
Å SKILLE KULL FRA LEIR ELLER ANNET GRÅBERG

RBC (MAGNETITT GRUS) Kr. 400 PER TONN

STØPES I BRICQUETTER SOM BRUKES TIL VARME MAGASINERING

PCC (MAGNETITT GRUS) Kr. 400 PER TONN

BRUKES FOR Å LAGE TUNGT BETONG TIL DEKKING AV OLJE- OG GASSLEDNINGER
I SJØEN

SUPERSLIG (SUPERREN MAGNETITT) Kr. 300 PER TONN

BRUKES INNEN STØPERIINDUSTRIEN FOR DIREKT SMELTING FRA MALM
TIL STÅL

ALT TIL EKSPORT

0801/

55076Z TDHEM N
74250TI OSLO N
ZCZC ONOD6

09448

ZCZC URG318 YAD1316900
NOTD CO UIPW 102
ARXNY 102/97 13 1124

A/S SEAL BAY MINERALS
ANDERS TVEREGGENSV.10
7037 TRONDHEIM

TWO SAMPLES, SUPER MAGNETITE (71-0/0 FE, 0.01-0/0 P) AND HEAVY
MEDIA MAGNET
ITE (68-0/0 FE -200 MESH) WERE RECENTLY SENT TO MR. W. A. WILKINSON
AT OUR NEW YORK OFFICE.
IS IT POSSIBLE TO SEND ADDITIONAL INFORMATION, BOTH DESCRIPTIVE AND
TECHNICAL DATA?

PLEASE SEND TO: DR. GEORGE PODOLSKY
PFIZER PIGMENTS INC.
640 NORTH 13TH ST.
EASTON, PA 18042-1497
(PHONE NO. 215-250-7000, EXT. 3230)

IF POSSIBLE, PLEASE SEND REPLY BY FAX (215-250-9270) OR TELEX (420440
ITT).

ALSO, PLEASE INCLUDE YOUR TELEPHONE NO., FAX NO. OR TELEX NO.
REGARDS,

GEORGE PODOLSKY

COL TVEREGGENSV.10 7037 (71-0/0 0.01-0/0 P) (68-0/0 -200 MESH)
DATA? 640 13TH 18042-1497 (PHONE 215-250-7000, 3230)
(215-250-9270) (420440 ITT).



OTAVI MINEN AG · Postfach 57 48 · D-6236 Eschborn-Frankfurt/M.

OTAVI MINEN AG

A/S Seal Bay Minerals
Attn. Johannes Soyland
Anders Tvereggensv. 10
7037 Trondheim

Norway

Mergenthalerallee 19 - 21
D-6236 Eschborn-Frankfurt/M.
Telefon 06196/7028-0
Telex 4072630 otav
Telefax 06196/702880
Teletex 6196739

Ihre Zeichen

Ihre Nachricht vom

Unsere Zeichen

Tag

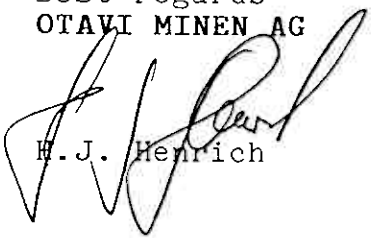
HAZ Bö-mm

30.1.1989

Dear Mr. Sayland,

thank you for your letter, which we received the beginning of January. The samples which you have sent we handed to our customer for further testing, however, we would be very interested in a complete analysis of your magnetite ore. Please keep us informed on any new developments.

Best regards
OTAVI MINEN AG


H.J. Henrich

i.A. Böhm



Tennant Metallurgical Ltd

The Mount Glossop Road Sheffield S10 2QA
Tel: 0742 671111 Tlx: 547060 TENMET G Fax: 0742 671110
Registered in England No 1772462



SIPD/JJA/PMC

25th January, 1989.

Mr. J. Søyland,
A/S Seal Bay Minerals,
Anders Tvereggensv. 10,
7037 Trondheim,
NORWAY.

Dear Mr. Søyland,

Thank you for your letter of the 23rd December, 1988 concerning your acquisition of the concentrator to produce magnetite.

We are very interested in this as we have regular contacts in the heavy media field worldwide regarding sales of ferrosilicon and in some cases magnetite. In addition we are involved in several areas of activity in the U.K. where there are outlets for magnetite.

We await the samples you have posted to us and would like to receive specifications and indicative prices from you.

Yours sincerely,

A handwritten signature in dark ink, appearing to read 'J.J. Allen', with a stylized flourish at the end.

J.J. Allen,
Marketing Manager.

OVERSETTELSE

TENNANT METALLURGICAL Ltd.

Brev av 25.01.89

Kjære Hr. Søyland

Takk for brevet av 23 Des -88 angående din ervervelse av en oppredningsverk til produksjon av magnetitt.

Vi er veldig interesert i dette når vi har regelmessig kontakter i heavy media feltet verden rundt med salg av ferrosilisium og ofte magnetitt. I tillegg er vi involvert med flere områder i England som bruker magnetitt.

Vi venter på dine prøver og også ønskes tilsendt siktkurv og kjemiske analyser og en utkast til pris.

Med hilsen

J.J.Allen

British Coal Corporation
Coal House, Doncaster, South Yorkshire, DN1 3HD
Telephone: Doncaster (0302) 66611
Telegrams: Coalboard Doncaster
Telex: 547324 BCDONC G
Station Code 'DON'

**British
COAL**

Our ref: Y.131781/10/01

9th February, 1988.

Vesteralen Bergindustri A/S,
Fagernesveien 1,
Postboks 416,
8501 Narvik,
NORWAY.

For the attention of Mr. Johannes Soyland, President

Dear Sirs,

MAGNETITE SAMPLE

I refer to your letter dated 20th November, 1987 and to the sample of magnetite submitted for evaluation.

... I enclose for your information a copy of the report by British Coal's Scientific Control Laboratory, in respect of the sample. If you wish to pursue any specific points relating to this report you should direct your enquiries to:-

Mr. J. Haynes,
Scientific Control Laboratory North,
British Coal Corporation,
Golden Smithies Lane,
Wath-upon-Deane,
ROTHERHAM,
South Yorkshire
S63 7EW.

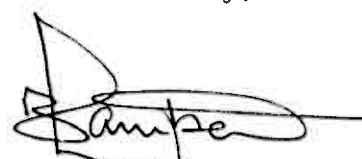
Telephone:- Rotherham (0709) 878022

With regard to supply contracts for magnetite, these operate on a 3 year basis; the next 3 year period commencing 1st April, 1988 for which contracts have already been awarded.

Contract planning usually commences 12 months before the termination of a 3 year period, and as such British Coal will start this process during the Spring of 1990 for contracts commencing 1st April, 1991. If, having studied the Scientific Control report, you wish to be considered as a potential future supplier to the Corporation, perhaps you would contact this office again during the early part of 1990.

I trust you find this helpful, but should you have any queries, please let me know.

Yours faithfully,


B.W. HAYCOX
Chief Purchasing Officer,
Consumable Stores Section



FRANK & SCHULTE

GESELLSCHAFT MIT BESCHRÄNKTER HAFTUNG

ENCLOSURE 9

Frank & Schulte GmbH Postfach 10 12 55 D-4300 Essen 1

Mr. Johannes Soyland
President
VBI Vesteralen Bergindustri A/S
Postboks 416
N-8501 Narvik

Ihr Zeichen

Ihr Schreiben vom

Durchwahl

438 248

Unser Zeichen

BK/Eu

Essen 1, Alfredstraße 154

20.01.88

Dear Sir,

We refer to our recent meeting and your letter of Dec 22, 1987 and note with great interest that you work on the possibilities going in production with Magnetite ex Selvag Deposit at short date, and would like our company to do the marketing. Once again we confirm that we are highly interested in marketing your products in Europe, but also USA, on a long term basis. To our knowledge the tonnages will be the following:

GREAT BRITAIN	80,000mt	fine Magnetite
EUROPE	5,000mt	course Magnetite
EUROPE	20,000mt	medium fine Magnetite
EUROPE	30,000mt	fine Magnetite
USA	250,000mt	fine Magnetite

We understand that Fosdalen Bergverk will switch their Iron Ore production from metallurgical to non-metallurgical, and consequently this source is going to last until after the year 2000. We also know that Sydvaranger A/S will ship a trial lot of approx. 35,000mt fine Magnetite in the course of this month to USA via National Lead. The present price as an average is ranging between NKR 180.-- to 200.--pmt, dry weight, fob port of shipment. Due to strong competition of Sydvaranger A/S, Fosdalen, Titania A/S and SSAB, no doubt, price level will go down.

As we are keenly interested in a cooperation with you we look forward to receiving more detailed information from you.

Yours sincerely,

— Bernhard Krüger —

Frank & Schulte GmbH
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Alfredstraße 154
D-4300 Essen 1

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Telefax 0201/438247

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Dresdner Bank AG Essen 4025556 (BLZ 360 800 80)
Commerzbank Essen 1202878 (BLZ 360 400 39)
Postgirokonto Essen 23174-433 (BLZ 360 100 43)

Sitz der Gesellschaft Essen
Amtsgericht Essen HRB 111
SWIFT address DEUTDEDE

Geschäftsführung
H. W. Detenng
H. K. Hoffmann
H. H. Schramm



FRANK & SCHULTE

GESELLSCHAFT MIT BESCHRÄNKTER HAFTUNG

Frank & Schulte GmbH Postfach 101255 D-4300 Essen 1

Mr. Johannes Soyland
- President -
VBI Vesteralen Bergindustri A/S
Postboks 416
N-8501 Narvik

Ihr Zeichen

Ihr Schreiben vom

Durchwahl
438 248

Unser Zeichen
BK/Eu

Essen 1, Alfredstraße 15
02.02.88

Dear Johannes,

Thanks a lot for your up-date information of January 27, 1988 with regard to FOSDALEN and SSAB. At the same time I was informed by Mr. Johann G. Heim of NORSULFID that the FOSDALEN resources are going to last at least another four years. Anyhow, it is quite obvious that FOSDALEN's stocks are limited. We like to confirm that we consider VBI / SELVAG to be our future primary source for Magnetite. Therefore, any further information of this project is highly appreciated. Needless to say that our European and USA customers expect our guarantee for a continuous supply for all qualities.

We are at any time prepared to come to Norway for further negotiations, and want to mention that we estimate a cooperation with Ola Oeverlie to be of all partners' benefit.

Sincerely,

- Bernhard Krüger -

Frank & Schulte GmbH
Postfach 101255
Alfredstraße 154
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Dresdner Bank AG Essen 4025556 (BLZ 36080080)
Commerzbank Essen 1202878 (BLZ 36040039)
Postgirokonto Essen 23174-433 (BLZ 36010043)

Sitz der Gesellschaft Essen
Amtsgericht Essen HRB 111
SWIFT-address DEUTDE DE

Geschäftsführer
H. W. Detering
H. K. Hoffmann
H. H. Schramm

OVERSETTELSE:

FRANK & SCHULTE

Brev av 02.02.88

Kjære Johannes.

Takk for din ajourføring om forholdet omkring Fosdalen og SSAB. Samtidig er jeg blitt informert av dr. Heim ved Norsulfid om at Fosdalen har malm til kun fire års drift. Det er iallefall klart at Fosdalen's reserver er svært begrenset.

Vi ønsker å bekrefte at vi betrakter VBI - Selvåg (Seal Bay Andørja) som vår fremtidig primærleverandør av magnetitt. Dermed er all informasjon om prosjektet høgt ønsket. Det er unødvendig å si at våre Europeiske og Amerikanske kunder venter at vi garanterer kontinuerlige leveranser av alle kvaliteter.

Vi er klar til å komme til Norge når som helst for videre forhandlinger og ønsker å si at vi venter et godt samarbeid og ser samarbeid med Ola Øverlie i A/S Olivin som en fordel.

Med hilsen

Bernhard Kruger.



FRANK & SCHULTE
GESELLSCHAFT MIT BESCHRÄNKTER HAFTUNG

Frank & Schulte GmbH Postfach 10 12 55 D-4300 Essen 1

Mr. Johannes Soyland
- President -
VBI Vesteralen Bergindustri A/S
Postboks 416
N-8501 Narvik

Ihr Zeichen

Ihr Schreibenvom

16/02/88

Durchwahl

438 248

Unser Zeichen

BK/Eu

Essen 1, Alfredstraße 154

24.02.88

Dear Johannes,

I want to thank you very much for your kind letter of 22 Feb 1988 and particularly for the pre-feasibility study which to me does look quite promising indeed. I also consider A/S OLIVIN, but also DEMINEX being efficient partners for this project.

I am sure you will remember that our group of companies are exercising a close cooperation with all European mining companies (including BRITISH COAL and CHARBONNAGES DE FRANCE). We have just signed a contract with Belgium for 2,500 tons Fine Magnetite. Contacts on the US market should be established by FASA, NEW YORK, (Mr. W.G. Holroyd). To our knowledge KOCH CARBON INC. will guarantee maximum 60 % of the US market, and not 70 %. For that reason we feel it is of importance to handle the total US market in order to achieve an optimum of our sales conditions.

Due to the fact that I will be committed with trips to China, the States and South Africa in March/April/May, I am forced to postpone the intended meeting with you until June 1988.

Sincerely,

- Bernhard Krüger -

Frank & Schulte GmbH
Postfach 10 12 55
Alfredstraße 154
D-4300 Essen 1

Telefon 0201/438-0
Fernschreiber 857835 lus d
Telegramme Silizium Essen
Telefax 0201/438247

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Dresdner Bank AG Essen 4025556 (BLZ 36080080)
Commerzbank Essen 1202878 (BLZ 36040039)
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Sitz der Gesellschaft Essen
Amtsgericht Essen HRB 111

SWIFT-address DEUTDEDE

Geschäftsführung
H. W. Detenng
H. K. Hoffmann
H. H. Schramm



FRANK & SCHULTE
GESELLSCHAFT MIT BESCHRÄNKTER HAFTUNG

Frank & Schulte GmbH · Postfach 101255 · D-4300 Essen 1

Mr. Johannes Soyland
- President -
VBI Vesteralen Bergindustri A/S
Postboks 416
N-8501 Narvik

Ihr Zeichen

Ihr Schreiben vom

Durchwahl
438 248

Unser Zeichen
BK/Eu

Essen 1, Alfredstraße 1
16.03.88

Dear Johannes,

First of all let me thank you for your very optimistic letter of March 3, 1988 and I share your hope that in the not too far future your financing to start the Magnetite production will finally be warranted. In this context I like to define my position with regard to some facts. FUS wish to act as VBI's agent worldwide, i.e. USA and UK included because otherwise there would neither be any chance to guarantee a minimum of 180.000mt Magnetite per annum, nor would FUS then consider an advance payment of NKR 10 million. You will recall from my letter of January 20, 1988 that in Europe, without the UK, the Magnetite market is estimated to be roughly 55,000mt p.a. only with declining tendency.

Both of us should take into consideration that handling the USA market successfully is very much depending on sea freights. I am pretty sure we would require at least 30/35,000mt shipments enabling us to obtain a competitive freight rate in comparison with the Chilean Pellet Feed rates. This material presently is offered by COMETALS at US\$ 23.--pmt cif New Orleans.

You and I are well aware that Rome was not built in a day, and Selvag won't be too! So, let's go ahead!

Sincerely,

- Bernhard Krüger -

Frank & Schulte GmbH
Postfach 101255
Alfredstraße 154
D-4300 Essen 1

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Fernschreiber: 857835 fua d
Telegramme: SIZLUM Essen
Telefax: 0201/438247

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Sitz der Gesellschaft: Essen
Amtsgericht Essen HRB 111
S.W.I.F.T.-address: DEUTDEDE

Geschäftsführn:
H. W. Detering
H. K. Hoffmann
H. H. Schramm



FRANK & SCHULTE

GESELLSCHAFT MIT BESCHRÄNKTER HAFTUNG

Frank & Schulte GmbH Postfach 10 12 55 D-4300 Essen 1

Mr. Johannes Soyland
A/S Seal Bay Minerals
Anders Tvereggensv. 10
N-7037 Trondheim

Ihr Zeichen

Ihr Schreiben vom
17.01.89

Durchwahl
438 248

Unser Zeichen
BK/Eu

Essen 1, Alfredstraße 154
07.02.89

Dear Johannes,

I would like to thank you for your various recent letters which I have read with great interest. It does make no difference to FUS whether you are cooperating with Fosdalen, Raudsand or whether you start a mine. We are highly interested to serve the market also after 1992, i.e. at the time when Fosdalen, Norsk Jernverk and SSAB sources are run out. I am sure wishing for a mutual successful relationship is uniting both of us.

In the past I have always put my cards on the table, and I am willing to do so in future. Therefore, I request you to keep me fully informed about your plans. I want, in any case, continue our special Magnetite business.

Look forward to be hearing from you again.

Sincerely,

- Bernhard Krüger -

PS:

Sample has been received. Have you got a works analysis available with specific weight, magnetic contents and screen analysis. We also like to offer this quality to NCB, therefore, we require tonnages available 89/90 and price indication fob port of shipment.

Frank & Schulte GmbH
Postfach 10 12 55
Alfredstraße 154
D-4300 Essen 1

Telefon 0201/438-0
Fernschreiber 857 524 fus d
857 835 fus d
Telefax 0201/438247

Deutsche Bank AG, Essen 140/3658 (BLZ 36070050)
Dresdner Bank AG, Essen 4025556 (BLZ 36080080)
Commerzbank Essen 1202878 (BLZ 36040039)
Post girokonto Essen 23174 433 (BLZ 36010043)

Sitz der Gesellschaft Essen
Amtsgericht Essen HRB 7739
SWIFT-address DEUT DE DE

Geschäftsführung
H.H. Schramm (Vors.)
R.U. Engel
Dr.H. Wölfel

Frank & Schulte GmbH stets in Vertretung der Stines Handel GmbH

OVERSETTELSE:

FRANK & SCHULTE

Brev av 07.02.89

Kjære Johannes.

Jeg takker for dine siste brev som jeg har lest med stor interesse. Det er det samme for FUS (Frank & Schulte) om du samarbeider med Fosdalen, eller Rødsand, eller starter en ny gruve. Vi er veldig interessert i å forsyne markedet også etter 1992, når Fosdalen, Norsk Jernverk og SSAB går ut av produksjon.

Jeg ønsker et suksessrikt forhold mellom oss i fremtiden.

Jeg har alltid spilt med åpne kort og jeg vil også gjøre det i fremtiden. Dermed oppfordrer jeg deg til å holde oss informert om alle planer. Jeg ønsker i allefall å fortsette med vårt spesialprodukt - Magnetitt foretning.

Ser frem til å høre fra deg igjen.

P.S. Prøvene er mottatt. Har du en siktkurv og kjemisk analyse med egenvekt og magnetisk %.?

Vi ønsker å tilby det til NCB i England. Vi trenger da å vite hvor mange tonn som kan være klare til skipning -89/ -90, og til hvilken pris ?

Med hilsen

Bernhard Kruger

K KOCH

KOCH CARBON INC

July 23, 1987

Johannes Soyland
Vesteralen Berg Ind.
Fgernesveg #1
P.O. Box 416
8501 Narvik Norway

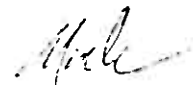
Dear John,

Per our recent phone conversation, below please find the typical spec which we use to purchase our Raw ore:

Fe₃O₄: 90% min.
Fe: 65% min.
P₂O₅: .02%-.04%
SiO₂: 1.0%-2.0%
MnO: .05%-.10%
Al₂O₃: 3.0%-4.0%
CaO: .1%-.2%
MgO: .8%-1.0%
S: .1%-.2%
Cr₂O₃: .2%-.3%
V₂O₅: .8%-1.0%
TiO₂: 4%-6%
Moisture: 8-9% max.
Specific Gravity: 4.85-5.00
Davis Tube Magnetics: 94%
Size: 90%-325 mesh max.
60%-325 mesh min.

Please keep us up to date on your production plans as they develop.

Sincerely,


Mark Wolff
Koch Carbon, Inc.

MW/sds

K KOCH

KOCH CARBON INC

June 20, 1988

John Soyland - President
VBI Vesteralen Bergindustri A/S
Fagernesveien 1
Postboks 416
8501 Narvik
Norway

Dear John:

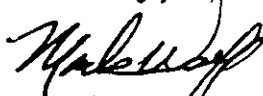
Per our recent conversations, Koch Carbon is interested in receiving a test cargo of magnetite from your new operations as soon as possible. Of course, any such purchase by Koch is subject to agreement on scheduling, price and quality. Should such shipment prove successful on our plants, Koch may be interested in negotiating a long term purchase arrangement for a minimum of 35,000 ton per year. We envision that an agreement of this sort would have the following terms, among others:

Purchase Quantity: Approximately 35,000 NT plus option
Price: To be negotiated but in all cases less than other available magnetite of similar specification delivered to Koch plants.
Duration: Up to 10 years with fall out provision if ore or shipping becomes noncompetitive.
Other: Koch to have exclusive rights to import ore to North America.

As we also discussed, with the proper guarantees and conditions, Koch may be in position to arrange for prepayment of initial shipment or shipments.

Please keep us up to date on the progress of your project, as we are anxious to evaluate and support new competitive sources of high quality magnetite ore.

Sincerely,



Mark A. Wolff
Vice President - Coal Supply

MAW/jks

K KOCH

KOCH CARBON INC

January 19, 1988

Johannes Soyland President
VBI Vesterialen Bergendustri A/S
Fagernesveien 1
Postbolss 416
8501 Narvik
Norway

Dear John,

Thank you for your recent visit and your explanation of the Selvag project which sounds very exciting. We have received the prepared sample of Selvag Magnetite ore which you sent to our Tazewell plant. Our test indicate that this ore should be suitable for our process. Koch Carbon could conditionally be in a position to purchase up to 200,000 nt/year of Magnetite concentrate subject to price and quality considerations. Please keep us informed as to the progress of the Selvag project.

Sincerely,



Mark Wolff
Koch Carbon, Inc.

MAW/clf

OVERSETTELSE:

KOCK CARBON INC.

Brev av 19.01.88

Kjære John.

Takk for besøket og din fremstilling av Selvågprosjektet som hørtet veldig interessant. Vi har mottatt prøven som ble sendt til vår Tazewell verk. Vår analyse indikerer at malmen kan godt brukes av oss som heavy media. Kock Carbon kan være interesert i å kjøpe opptil 200 000 tonn pr. år av Selvåg (Andørja) konsentrat, avhengig av pris, kvalitet og betingelser.

Vær så snill å holde oss informert om prosjektets fremgang.

Med hilsen

Mark Wolff

K KOCH

KOCH CARBON INC

February 25, 1987

Mr. Johannes Soyland
Framnesveg 130
N-8500 Norvik
Norway

Dear Mr. Soyland:

Per our discussion in Wichita 2-16-87, I am sending you this letter to confirm Koch Carbon's interest in having the opportunity to examine the economics and feasibility of the Rodsand iron ore property for the purpose of magnetite production.

Koch Carbon, through one of its subsidiaries, annually purchases between 100,000 and 200,000 NT of high quality magnetite. Should the feasibility study indicate the potential for favorable project economics according to Koch Carbon's internal criteria, Koch may consider the possibility of participating in the expansion and/or operation of the Rodsand mine to supply all or a portion of its annual magnetite requirement.

For us to give adequate consideration to a project of this nature we would expect the feasibility study to cover the complete projected and historical economics for the production of magnetite at Rodsand in addition to the topics listed on the proposed table of contents presented at our meeting.

It is understood that there is no obligation of any kind on the part of Koch Carbon should you provide us with a feasibility study of this nature. Any further involvement in a project such as this will be subject to Koch Industries management approval.

I look forward to hearing from you shortly.

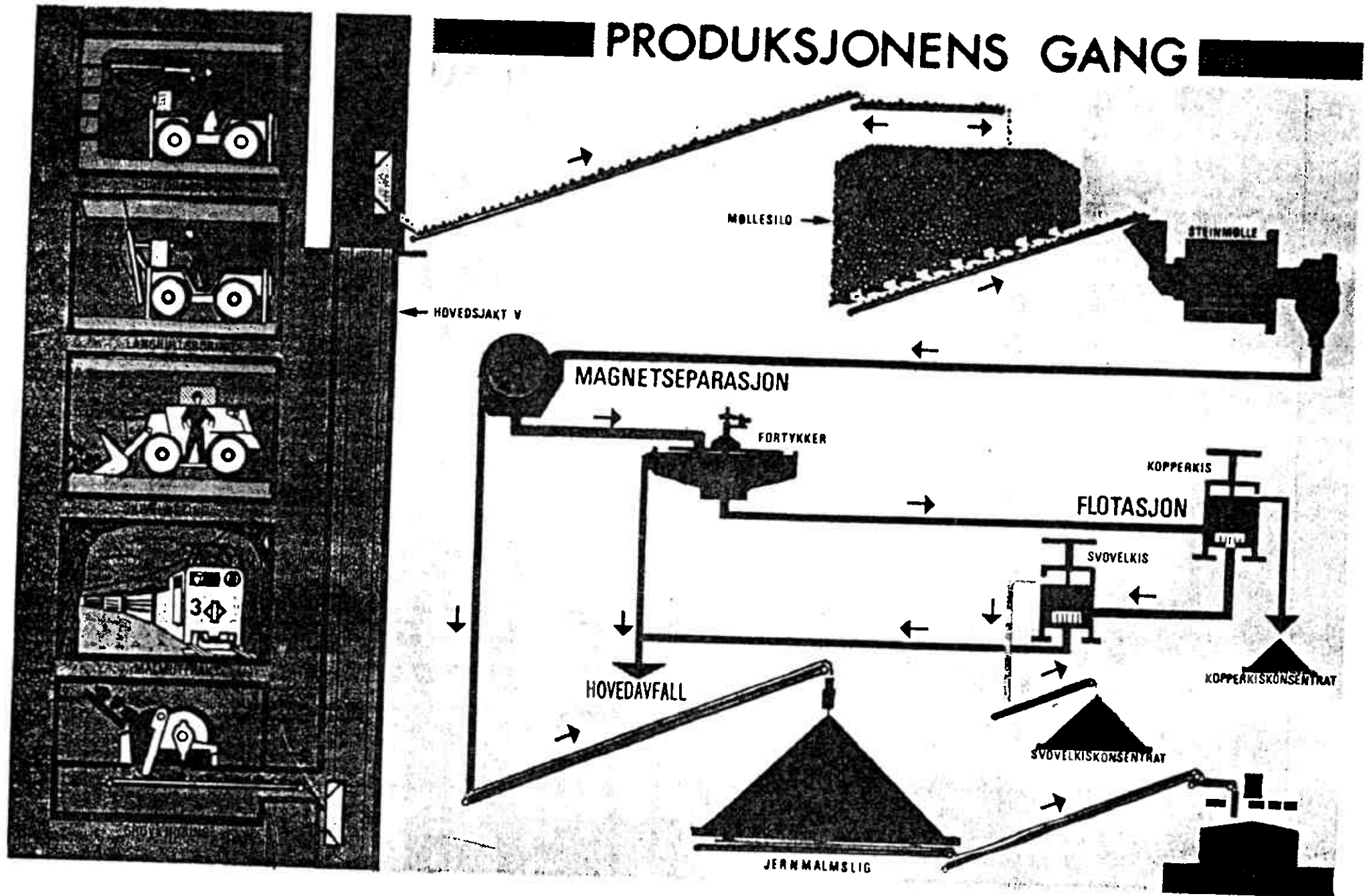
Sincerely,



Mark A. Wolff
Vice President, Coal Supply
Koch Carbon, Inc.

tb

PRODUKSJONENS GANG



BRYTNING

SSAB

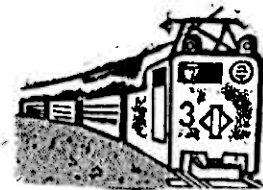
Rana

Sydvaranger

LKAB

AVDEKKING

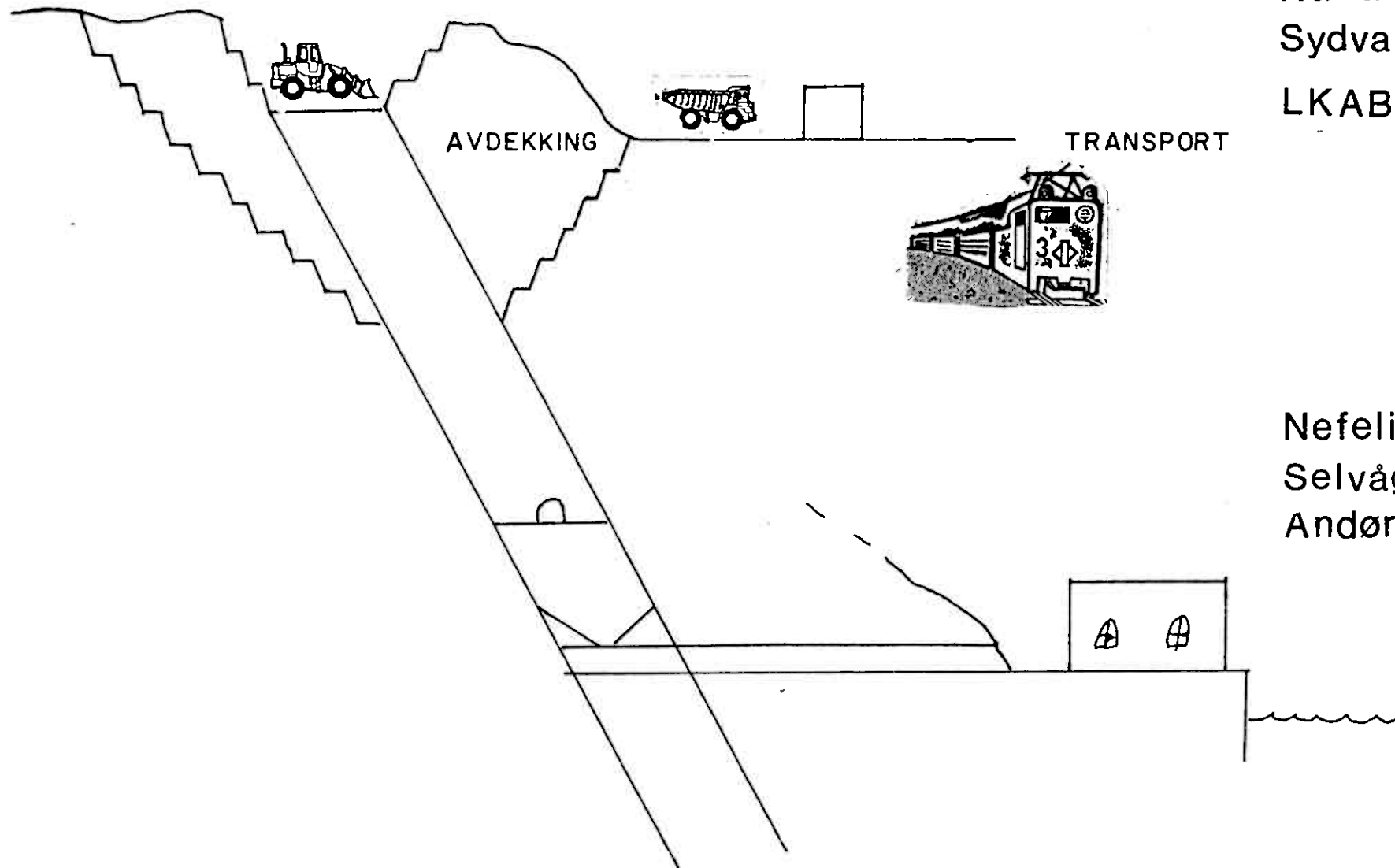
TRANSPORT



Nefelin

Selvåg

Andørja



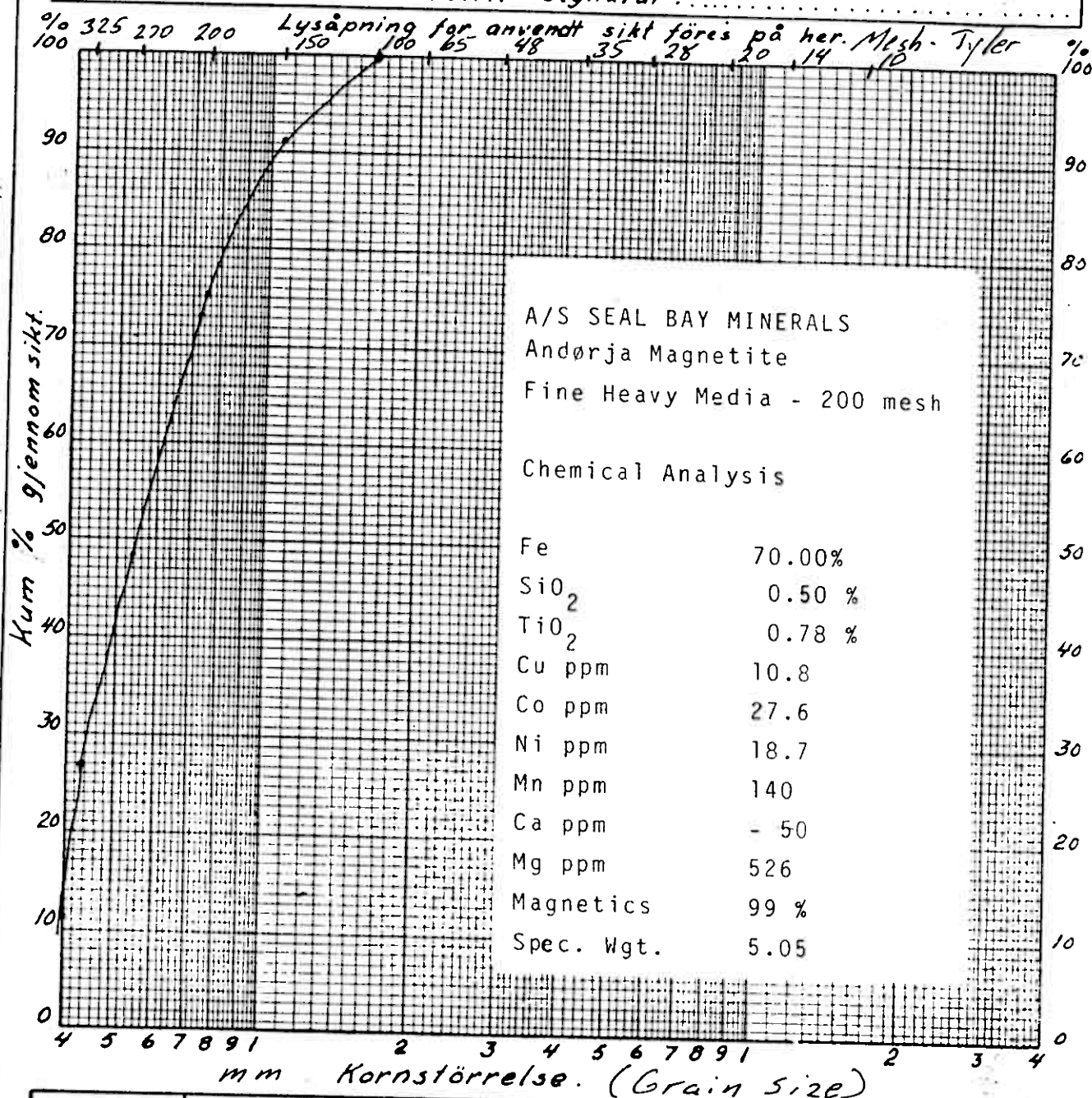
Siktepröve av: ... Screen Analysis

... Andørja ... Fine Heavy Media

Utfört

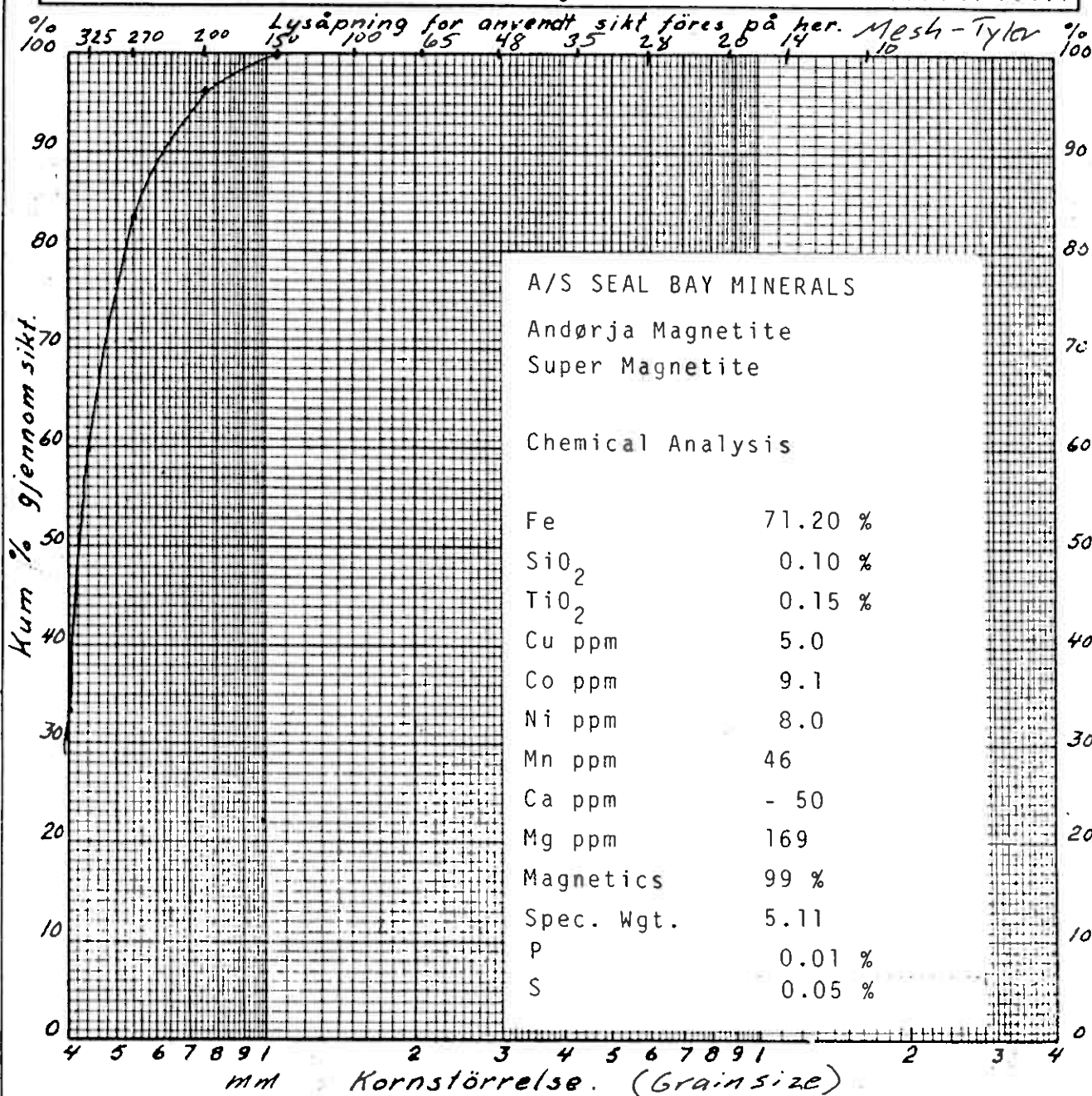
1 - 19

Signatur:



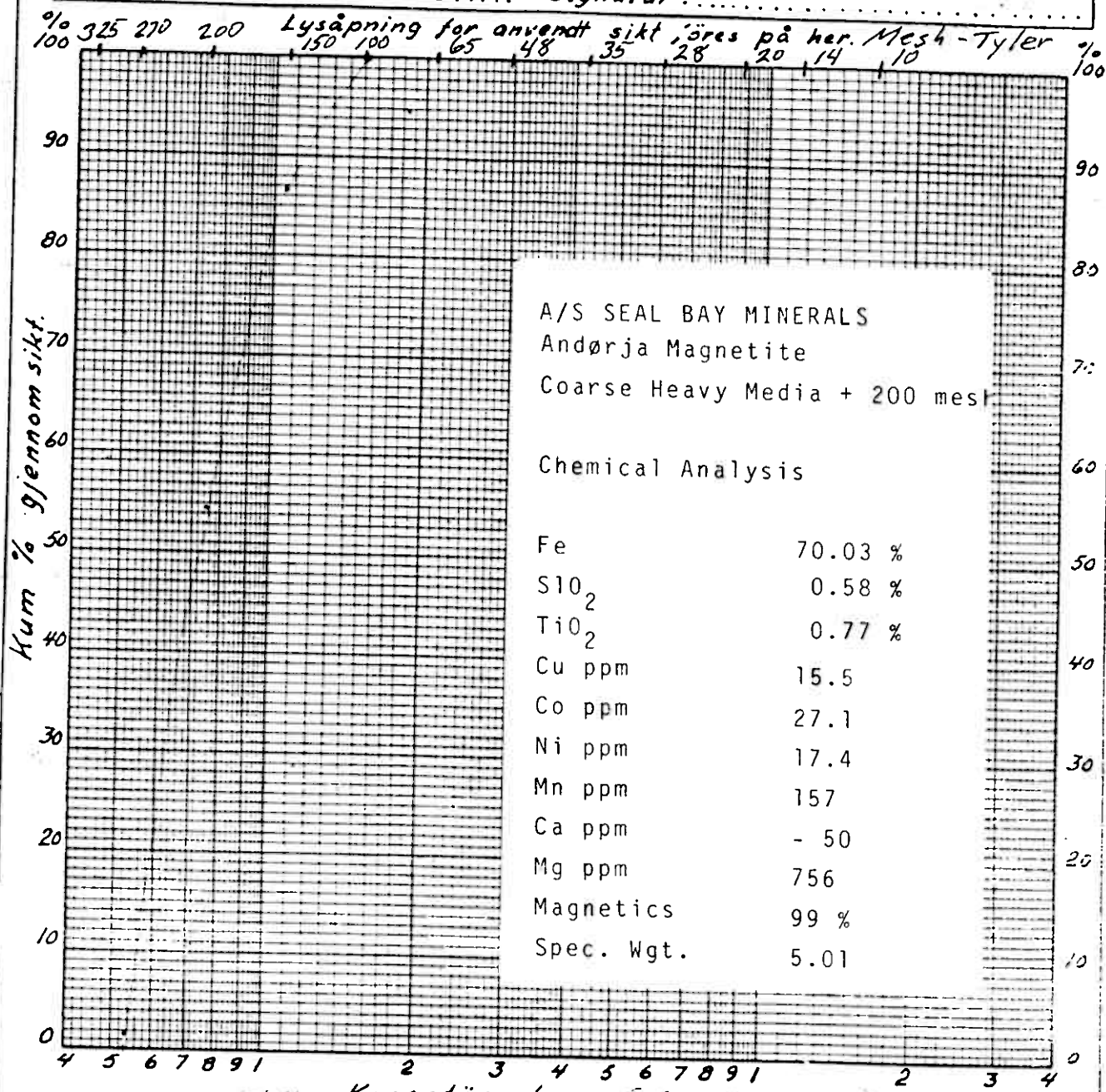
Fraksjon		Tyler Mesh			
-	+		%	%Cum	
	100	6.3	8.4	8.4	
100	150	12.1	16.2	91.3	
150	200	19.9	26.6	75.1	
200	270	16.1	21.5	48.5	
270	325	11.9	15.9	27	
325		8.3	11.1	11.1	
		74.6			
Differens:					
Total:					

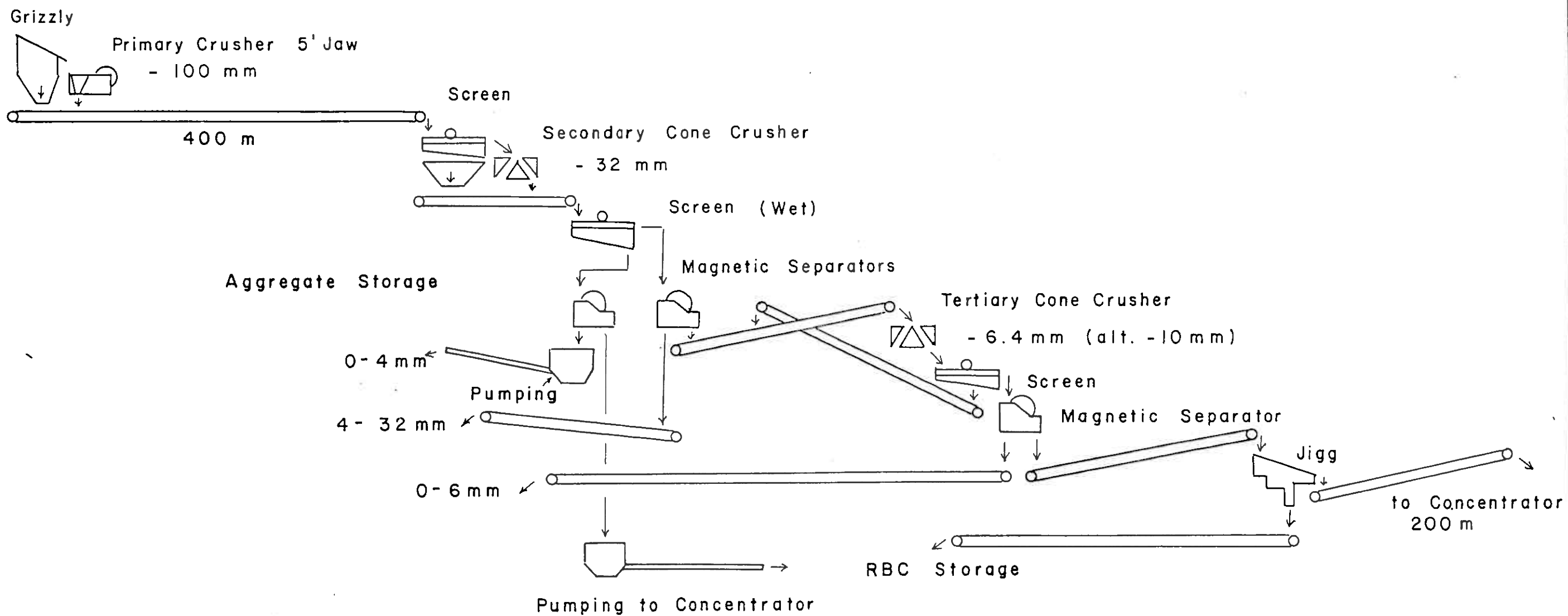
Siktepröve av: *Screen Analysis*
Andørja Super Magnetite
 Utfört *1 - 19* Signatur: _____



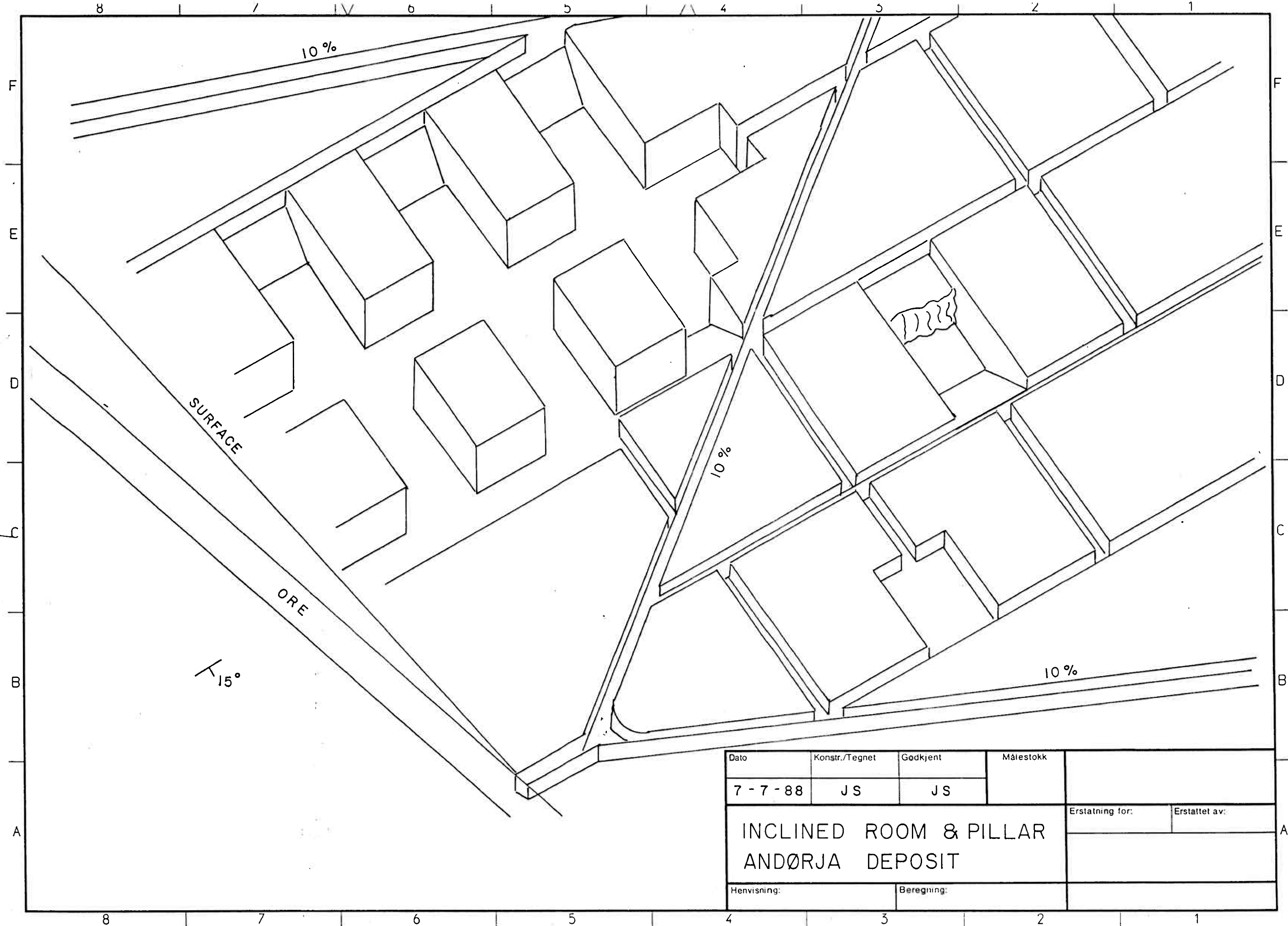
Fraksjon		Tyler-Mesh			
-	+	%	% Cum		
	100	0			
100	150	0.1	3.3	100	
150	200	0.4	13.3	96.5	
200	270	0.7	23.3	83.2	
270	325	0.8	26.6	59.9	
325		1.0	33.3	33.3	
		3.0			
Differens:					
Total :					

% 325 270 200 Lysåpning for anvendt sikt, føres på her. Mesh-Tyler %
100 150 100 65 48 35 28 20 14 10 100

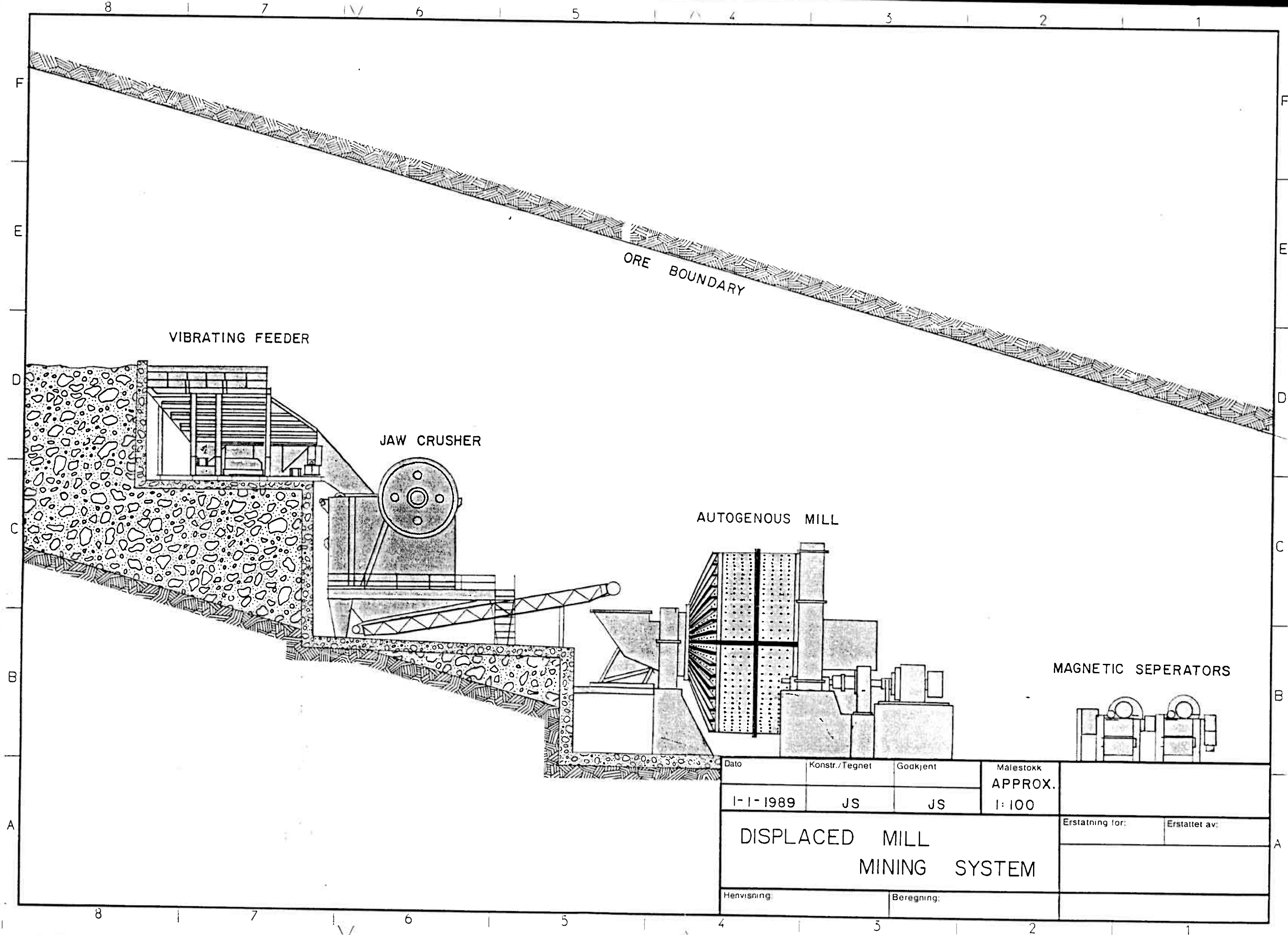
[illegible]



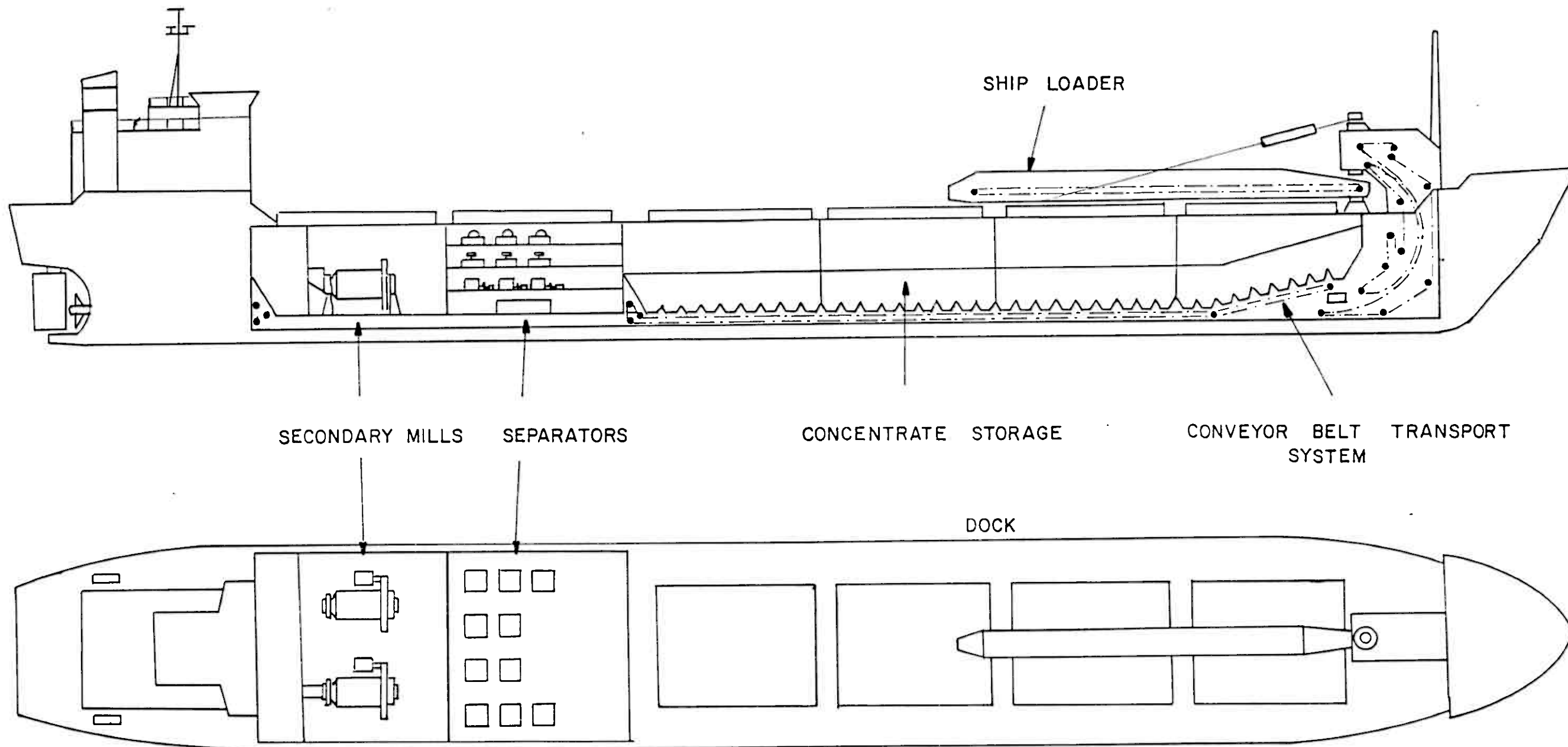
Dato	Konstr./Tegnet	Godkjent	Målestokk	V B I	
31-8-87	JS	JS		Erstatning for:	Erstattet av:
PROPOSED CRUSHING PLANT FLOWSHEET					
Henvisning:		Beregning:		FIG. 63	



Dato	Konstr./Tegnet	Godkjent	Målestokk		
7 - 7 - 88	JS	JS			
INCLINED ROOM & PILLAR ANDØRJA DEPOSIT				Erstatning for:	Erstattet av:
Henvisning:		Beregning:			



Dato	Konstr./Tegnet	Godkjent	Målestokk		
1-1-1989	JS	JS	APPROX. 1:100	Erstatning for:	Erstattet av:
DISPLACED MILL MINING SYSTEM					
Henvisning:		Beregning:			



Dato	Konstr./Tegnet	Godkjent	Målestokk		
18-10-88	JS	JS		Erstatning for:	Erstattet av:
SHIP - MOUNTED CONCENTRATOR					
Henvisning:		Beregning:		FIG. I	

A STORRKOPI HD 2 / NS 1402, NS 1417, NS 1415

FINANSIERING

FINANSIERING

Totalt	75	mill.
Seal Bay	19	mill.
DUF	19	mill.
Garanterte Lån	19	mill.
Bank	18	mill.
Nåverdi	75	mill.
Internrente	25 %	
Tilbakebetalingstid	3 1/2	år

Heather-Ridge
2588-F.S. Vaughn Way
Aurora, Colorado 80014
303/750-8461

Miller and Associates

CLINTON L. MILLER
President

17 June, 1988

Dr. Johannes Søyland
Seal Bay Minerals
c/o Bø Kommune
8475 Straumsjøen, Norway

Dear Dr. Søyland,

The Directors and financial advisors of this organization have reviewed your report, of December, 1987, on the Selvag Magnetite Deposit.

We found the report technically sound and the financial presentation attractive — assuming the Government of Norway's assistance will develop as tentatively programmed.

We are discussing your report with several potential investing organizations, with the approach of including an equity participation for this Organization. Please keep me advised as the specific requirements of your project develop.

Very truly yours,


Clinton L. Miller
President

cc: R.P. Miller
Director Finance

Heather Ridge
2588 F.S. Vaughn Way
Aurora, Colorado 80014
303/750-8461

Miller and Associates

Nov.
03 OCT. 1988

CLINTON L. MILLER
President

13 October, 1988

Seal Bay Minerals
c/o Bø Kommune
8475 StraumjØen
Norway

Attention: Dr. Johannes Søyland

Subject: Mining Investment

Gentlemen:

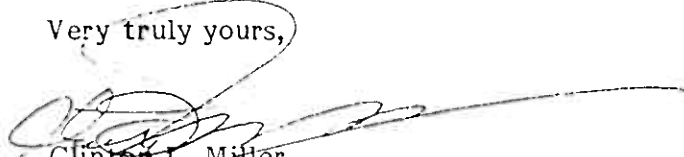
This organization, in association with several other mining investment groups, has been studying your work on developing one or more Magnetite producing facilities in Norway.

We propose, in Association with a selected American group, to provide financing, for an approved project, of up to two million dollars. Our participation will be conditioned on the following aspects:

1. Our evaluation of the specific project or projects presented
2. The ownership level offered
3. The marketing situation
4. The extent to which our groups(s) will participate in Board make-up and decisions.
5. The position of the Norwegian Government concerning foreign ownership and earnings disposal.

We are distinctly interested in the situations presented for review. We are aware of long-term markets which exist for Magnetite products outside the steel industry. We will await a specific suggestion from your organization.

Very truly yours,



Clinton L. Miller
President



STYRET TIL SEAL BAY

EN REPRESENTANT FRA MARKEDSSIDEN

Frank & Schulte, Koch Carbon eller andre

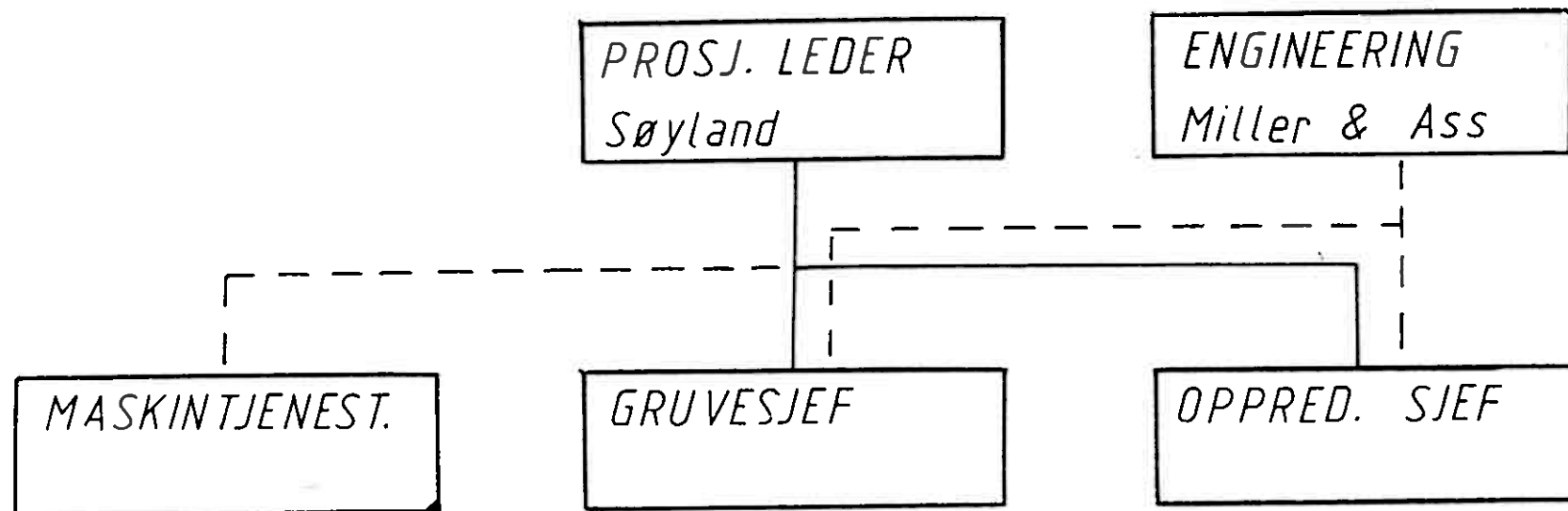
EN REPRESENTANT FRA SAMARBEIDSPARTNEREN

Miller and Associates eller andre

EN REPRESENTANT FRA IBESTAD KOMMUNE

EN REPRESENTANT FRA HVER 25% EIERANDEL

PROSJEKT ORGANISASJON



KOMPETANSER

PROSJEKTLEDER - JOHANNES SØYLAND

Siv. Ing. Berg

Siv. Øk.

Utdanning og erfaring i Bygg og anlegg ved Ing.Våpen
i US Army (Major)

Fagbrev som: Snekker
Mekaniker
Landsmåler

20 år innen bergverk

10 år som sjef/leder innen bergverk

6 år som sjef innen Norsk bergverk

2 år innen produksjon og markedsføring av heavy media

Prosjektleder ved: 2 damprosjekter
1 Oppredningsverk ombyggningsprosjekt
7 bergverksprosjekter
15 malmreserve evalueringer

Driftsleder/sjef ved: 5 bergverksprosjekter

TEKNISK RÅDGIVER - CLINTON L: MILLER

Siv. Ing. Berg - Masters of Mining Engineering

40 år innen bergverk - nesten alle som prosjektleder,
driftssjef eller Adm. Dir.

Erfaring fra USA, Argentina, Peru og Australia

Har vært med på oppbygging eller ombygging av mangfoldig
opprednings- og bergverksprosjekter.

Miller and Associates is a consultant mining firm designed to provide analyses, evaluations, recommendations and assistance with problems relating to the mining industry.

The work of the firm is directed by Clinton L. Miller, President. He retains primary involvement in all requested studies. As required, independent outside consultants with specific expertise in a particular area are brought in for temporary assignments to form a team designed to assist in the resolution of identified problems.

The organization accepts no project participations. Recommendations, as developed, are designed to represent the opinion of objective, senior-level professionals, with related experience in the study underway.

The organization's activities involve international studies relating to strategic and precious metal areas, and economic-financial analyses and reviews including:

1. Exploration Project Direction and Reviews
2. Placer Mining Evaluations
3. Mining Approaches and Feasibility Studies -
Underground and Open Pit
4. Mining and Metallurgical Problems - Reviews
5. Financial Analyses and Investment Development -
- Cost Studies and Estimates
6. Market Studies
7. Equipment Search and Evaluation

Heather Ridge
2588-F.S. Vaughn Way
Aurora, Colorado 80014
303/750-8461

Miller and Associates

CLINTON L. MILLER

RESUME

mining engineering
project management

mine management
exploration management

EDUCATION

Montana School of Mines, Butte, Montana: B.S. Mining Engineering, 1947
Montana School of Mines, Butte, Montana: Engineer of Mines (M.S.), 1959

PROFESSIONAL HISTORY

Miller and Associates, Aurora, Colorado, President, 1983-Present.
Woodward-Clyde Consultants, Denver, Colorado, Associate and Vice President, Mining Division, 1978-1983.
Earth Resources Company, DeLamar Silver Mine, DeLamar, Idaho, Resident Manager, 1977.
Sunshine Mining Company, Kellogg, Idaho, Vice President and General Manager of Western Operations, 1974-1976.
Magma Copper Company, Superior, Arizona, General Manager, Superior Division, 1972-1974.
St. Joe Minerals Corp., Australia, Assistant to the President and Corporate Representative, 1971-1972.
St. Joe Minerals Corp., Peru, Vice President and Director of Cia. Minerales Santander, 1963-1970.
St. Joe Minerals Corp., Argentina, Manager, 1958-1963.
St. Joe Minerals Corp., Argentina, Assistant Manager, 1956-1958.
Vermont Copper Company, Vermont, Superintendent of Mining and Maintenance, 1952-1956.
Warren Foundry and Pipe, Dover, New Jersey, Mine Superintendent, 1950-1952.
Coeur D'Alene District, Idaho, Mining Engineer and Supervisor, 1947-1950.

REPRESENTATIVE EXPERIENCE

Mr. Miller is an Engineer of Mines with over 40 years of broad experience, in the United States and overseas, involving both underground and open pit mining operations. He speaks, reads and writes Spanish.

In his latest position he directs a small, senior-staffed international consulting firm designed to identify, evaluate and resolve mineral industry related problems.

His responsibilities as an Associate of Woodward-Clyde Consultants included the development of business contacts throughout the mining industry with particular emphasis on Latin America. Projects directed included coal, hard-rock and placer operations from design and direction of exploration projects through project evaluation and assistance with expansion planning. This included broad international experience.

CLINTON L. MILLER

Page Two

He has been responsible for the design of new projects, construction and post-construction refinement of projects, and the direction of statewide and overseas properties at all levels. He has directed the expansion of existing mining operations and their conversion from open pit to underground. He has modified, and directed the conversion of new extraction approaches with subsequent gains in safety and production. He has been responsible for reversing the finances of operations which were losing money. He has served as an expert witness on mining matters.

He has been involved, as a mining executive and consultant, in the direction of exploration and development activities related to operations in the United States, Argentina, Peru, Bolivia, Chile, Costa Rica, Mexico, Honduras, Guinea, South Africa and Australia. These projects have included underground, open pit and placer extraction responsibilities on four continents.

During his period of executive responsibility in Latin America, he was responsible for replacing foreign staff members with local professionals in all areas. This development approach heightened local morale and improved Corporate-National relations.

He has managed metallurgical plants and has been responsible for the sale of mineral concentrates and precious metal bullion to outlets in both the United States and overseas. This included the ocean shipment of important tonnages. He has worked with a senior research group on metallurgical problem studies.

AFFILIATIONS

Member, Society of Mining Engineers of AIME
Councillor, Mining and Metallurgical Society
Trustee, Northwest Mining Association
Member, Mining Club, New York City
Member, American Club, Buenos Aires, Argentina
Member, Club National, Lima, Peru
Member, The Australasian Institute of Mining and Metallurgy
Member, Export Council, U.S. Department of Commerce

Heather Ridge
2588-F S. Vaughn Way
Aurora, Colorado 80014
303/750-8461

Miller and Associates

ADVISORY BOARD

Australia	Dr. Peter Howard	Private
Chile	Ing. Sergio Chavez	Bechtel
Bolivia	Lic. Hugo Zenteno	Ambol
Argentina	Ing. M.J. Rossetti	Aguilar, St. Joe
Peru	Sr. Pedro Romero	Santander, St. Joe

DIRECTORS AND BANKING/FINANCIAL ADVISORS

Roger P. Miller	CITIBANK - NYC
Thomas P. Kane	Manufacturers Hanover - NYC

DIRECTOR - HUMAN RESOURCES/LABOR RELATIONS

Donald O. Miller	Cyprus Mines
------------------	--------------

ADVISOR - MINE PLANT EQUIPMENT, CONSTRUCTION

Phillip R. Miller	Private
-------------------	---------

OF COUNSEL

John Dickson	Saunders, Snyder, Ross and Dickson
--------------	------------------------------------

CLIENT ORGANIZATIONS

Research Technology Associates Metallurgical Problem Studies	Boulder, Colorado
Sunshine Mining Co. Property Evaluations - U.S. and South America Silver, Gold	Boise, Idaho
AMAX - Rosario Resources Engineering Operating Studies - Honduras	Greenwich, Connecticut
Kennecott Mining Project Evaluations - U.S.	Salt Lake City, Utah
Coeur d'Alene Mines Property Analyses - U.S.	Coeur d' Alene, Idaho
Day Mines Organizational Analyses, Economic Studies - U.S., Columbia, Bolivia	Wallace, Idaho
Various Mining Project Evaluations - Bolivia, Argentina, Peru, Chile	Spokane, Washington
Fouad Haji Abbis Placer Gold, Diamond Studies - Guinea	Dubai, U.A.E.

BEMANNINGSLISTE

STILLING	ANTALL	LØNN
Administrasjon		
Disponent	1	420.000
Kontorsjef	1	250.000
Kontordame	1	190.000
Gruve		
Gruvesjef	1	275.000
Geolog	1	250.000
Borer (2x2)	4	225.000
Maskinfører (2x2)	4	225.000
Oppredningsverk		
Oppredningssjef	1	275.000
Kjemiker	1	225.000
Vedlikeholdsformann	2	250.000
Formann	3	250.000
Knuseoperatør	6	190.000
Oppredningsoperatør	6	190.000
Mekaniker	2	225.000
Elektriker	1	225.000
SUM	35	

INVESTERINGSBUDSJETT

Nok, X 1000

Gruve-Knuseverket

Åpninger

Tunnel (200m, 5x5, á Nok 6000) 1.200

Knuseverket (15x15x30m, 6750m³ á Nok 45) 304

Fundementering 500

Produkt silo 304

Utstyr

Knuser 1.000

Mater 200

møll 1.000

Transportband 200

Magnetseperator 200

Ror 500

Pumper 200

Båtlaster 3.000

Installasjon 2.000

Elektriske 5.000

Ventilasjon 200

Kontor brakk 500

Reservedeler

Vannforsyning 1.000

Konsentratsilo 2.000

Engineering 2.000

Uforutsatt 3.000

Totalt 26.083

SKIPSMONTERT OPPREDNINGSVERK 50.000

DRIFTSBUDSJETT

VED BRUK AV FOSDALEN

PRODUKSJON / SALG FOB GRUVA NOK x 1000

Magnetitt	
Heavy Media (100.000 mtn. x Nok. 200)	20.000
Superslig (50.000 mtn. x Nok. 300)	15.000
RBC (50.000 mtn. x Nok. 400)	20.000
Totalt	55.000

PRODUKSJONSKOSTNADER

Bryting og knusing (entreprenør) (600.000 mtn. x Nok. 15)	9.000
Knuseverket	
Reservedeler	2.000
Energi	2.000
Lønn	3.090
Transport til Fosdalen	9.000
Oppredningsverk (kontrakt)	6.000

ADMINISTRASJON

Markedsføring	5.000
Administrasjon	5.000
Renter	1.900

Produksjonskostnader	42.990
Brutto Overskudd	12.010
Avskrivninger	1.900
Netto Overskudd	10.110

DRIFTSBUDSJETT

VED BRUK AV SKIPSMONTERT VERK

PRODUKSJON / SALG FOB GRUVA

NOK x 1000

Magnetitt

Heavy Media
Superslig
RBC

20.000

15.000

20.000

Totalt

55.000

PRODUKSJONSKOSTNADER

Bryting og knusing

9.000

Oppredningsverk

Reservedeler

4.000

Energi

4.300

Lønn

4.705

ADMINISTRASJON

Markedsføring

5.000

Administrasjon

5.000

Renter

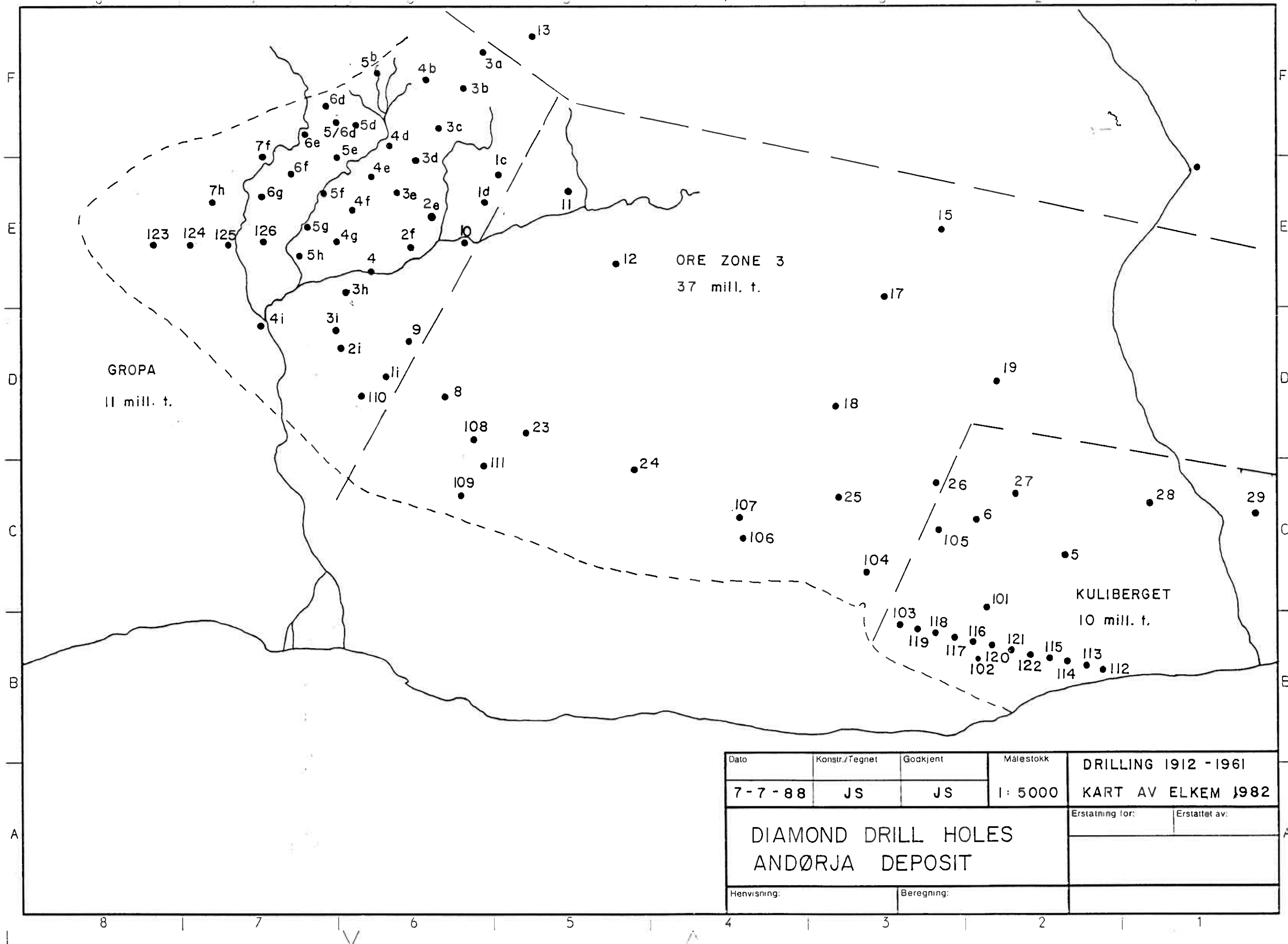
3.700

Produksjonskostnader 35.705

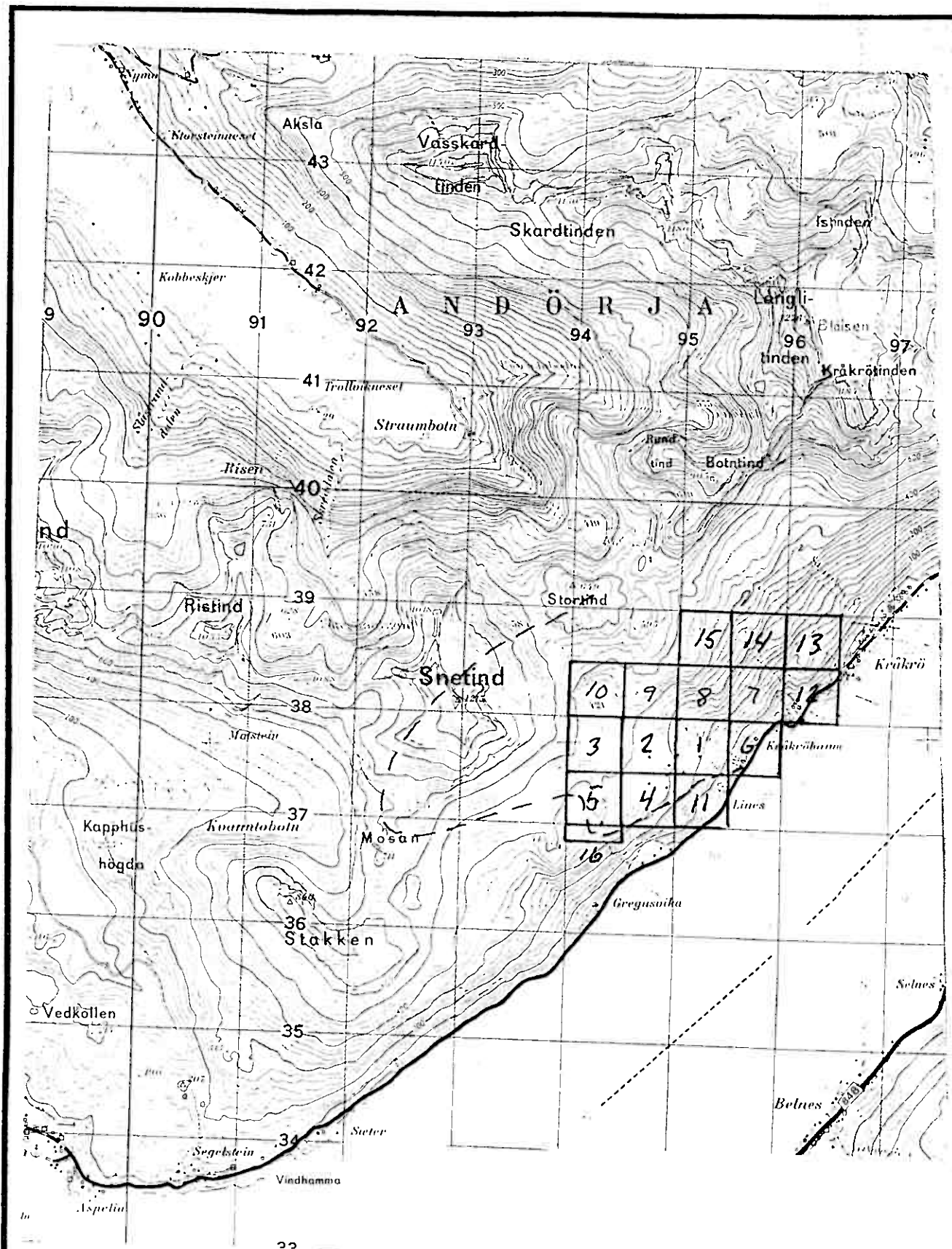
Brutto Overskudd 19.295

Avskrivninger 7.500

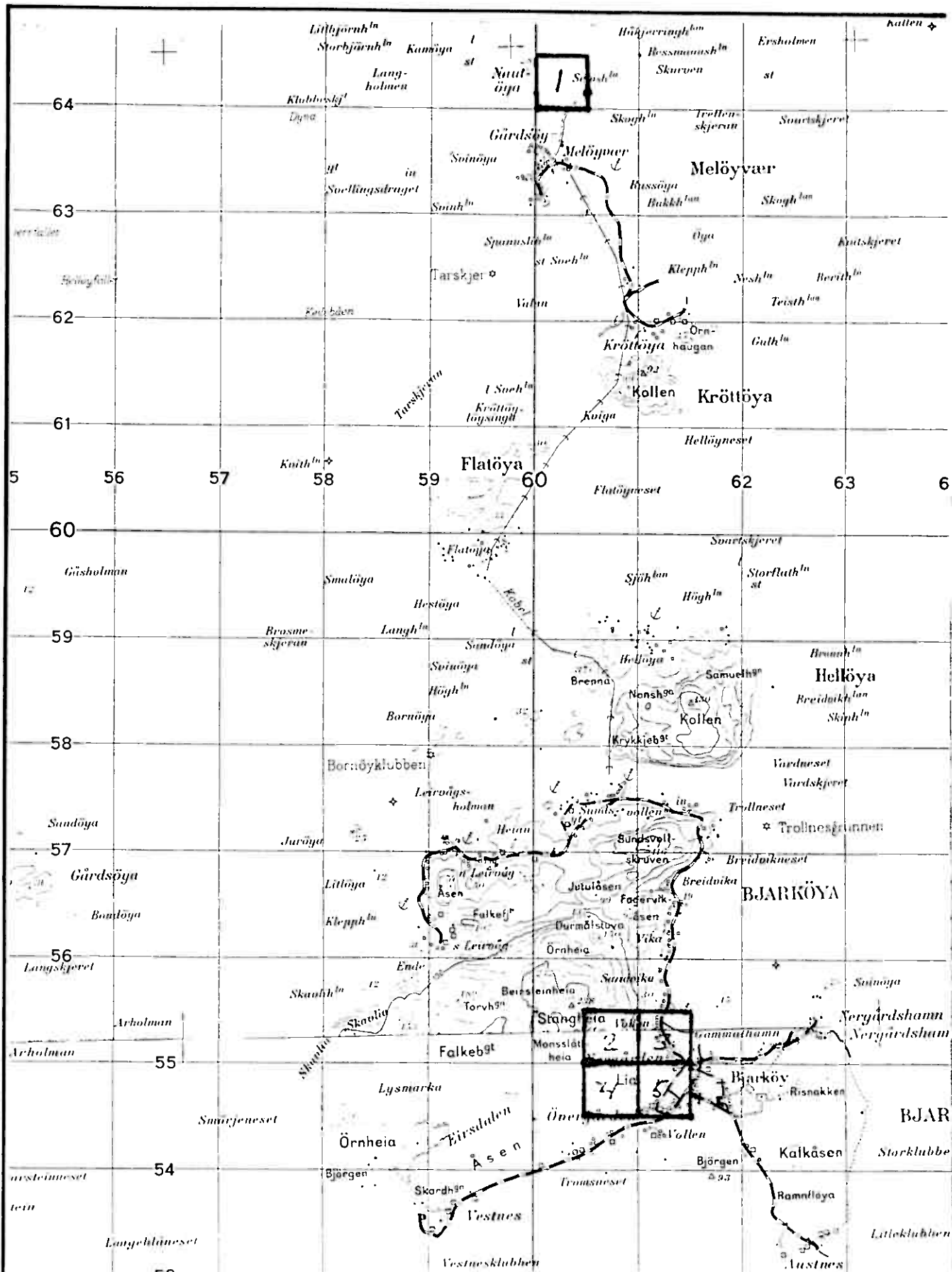
Netto Overskudd 11.795



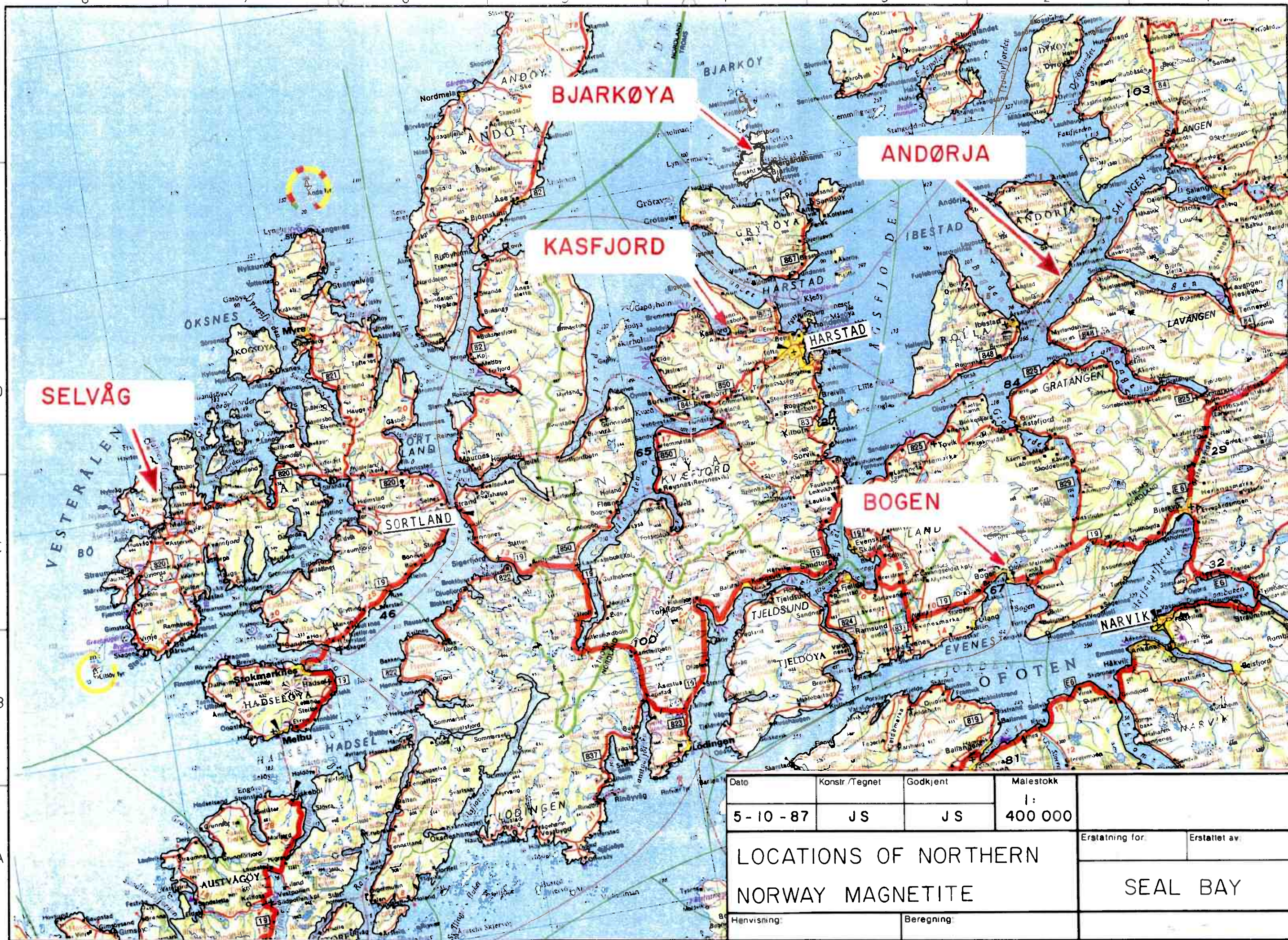
Dato	Konstr./Tegnet	Godkjent	Målestokk	DRILLING 1912 - 1961	
7-7-88	JS	JS	1:5000	KART AV ELKEM 1982	
DIAMOND DRILL HOLES ANDØRJA DEPOSIT				Erstatning for:	Erstattet av:
Henvisning:		Beregning:			



Dato 23-6-88	Konstr./Tegnet JS	Tracet	Målestokk 1: 50 000	1352 I	
Kontroll	Stand.kontroll	Godkjent JS			
CLAIM LOCATIONS ANDØRJA DEPOSIT				Erstatning for:	Erstattet av:
				SEAL BAY	
Henviising:		Beregning:			



Date	Konstr / Tegnet	Godkjent	Målestokk	1331 Ju / 1331 Ju	
20-10-88	JS	JS	1:50 000		
CLAIM LOCATION MAP BJARKØYA CLAIMS				Erstatning for	Erstattet av
				SEAL BAY	
Hendvisning			Beregning		



Dato	Konstr /Tegnet	Godkjent	Maalestokk		
5 - 10 - 87	JS	JS	1: 400 000	Erstattet for	Erstattet av
LOCATIONS OF NORTHERN NORWAY MAGNETITE				SEAL BAY	
Henvising:		Beregning:			





Dato	Konstr. Tegnet	Godkjent	Målestokk		
7 - 2 - 89	JS	JS	400.000	Erstatning for	Erstattet av
LOCATIONS OF WESTERN NORWAY MAGNETITE				SEAL BAY	
Henvisning		Beregning			



- Allotone (skjævne) lagrekker av metasedimenter og gneiser (prekambrisk, eokambrisk (?) og kambro-silurisk alder)**
(Bergartene ikke stratigrafisk ordnet.)
- Øverste tektoniske enheter (Straumsbotn-dekket på Hinøy, Nlingen-dekket (?) i det sentrale Ofoten, øvre dekke i Indre Troms.)
- Finkornige gneiser (meta-arkose, foliert granitt etc.)
 - Kvartsitt
 - Marmor, vesentlig kalkspatmarmor
 - Glimmerskifre
 - Glimmerskifre, marmor, amfibolitt etc. ("blandet formasjon")
 - Glimmerskifre og glimmergneiser
- Mellomste tektoniske enhet ("Seve - Keli - dekkekomplekset")**
- Kvartsitt (Rottåsen - Gullfjell skal være uten sorte prikker)
 - Meta-arkose og gneiser av usikker opprinnelse
 - Marmor, vesentlig kalkspatmarmor
 - Kalkspat- og dolomittmarmor, farvebåndet
 - Melkedalen kalkspatmarmor
 - Uttynnende marmorlag i skifer
 - Kalkglimmerskifer
 - Polymikt konglomerat med kalkspatholdig grunnmasse
 - Glimmerskifer med hornblendeporfyroblaster
 - Grafitførende glimmerskifer
 - Glimmerskifre, marmor, amfibolitt etc. ("blandet formasjon")
 - Glimmerskifre og glimmergneiser
 - Gneiser (bl.a. øyegneis)
 - Jernmalmag
 - Glimmerskifre ofte fyllonitter
 - Granitt og gneisgranitt (prekambrisk alder)
 - Syenittisk gneis (prekambrisk alder)
- Underste tektoniske enhet.**
- Båndet, feltspatførende kvartsskifer ("hårdskifer"), kvartsitt, kloritt-glimmerskifer, grafittskifer og mylonitt
 - Granittakiritt (nedknust granitt)
 - Kvartsskifer med lag og linser av dolomitt
 - Dolomitt, tett, flintaktig, i linser og lag
 - Kalkspatmarmor
 - Glimmerskifre, dels med tynne marmorlag
- Autoktone sedimenter (Dividal-gruppen) - (underkambrisk alder)**
- Umetamorf eller lavmetamorf leirskifer, siltstein og sandstein
 - Basalkonglomerat og sandstein
- Grunnfjell (prekambrisk alder)**
- Grunnfjellsbergarter, udiffrensier, vesentlig granitt og syenitt
 - Granitt og granodioritt, grovkornig til middelskornig

Dato	Konstr./Tegnet	Godkjent	Målestokk	NGU map "NARVIK"	
7-2-89	JS	JS	1:250 000	Erstatning for	Erstattet av
REGIONAL GEOLOGY OF NORTHERN DEPOSITS				SEAL BAY	
Henvising		Beregning			