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Progress reports on exploration on E.L. 43/70,
Arthur River, Tasmania
during 1974 - 1977

P.B. Nye

1977

Mineral Holdings Aust. Pty Ltd

MICROFILMED

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Report on operations on exploration
licence E.L. 43/70 from April
to August (inclusive) 1974

P.B. Nye

September, 1974

Mineral Holdings Aust. Pty Ltd

REPORT ON OPERATIONS ON EXPLORATION LICENCE EL43/70FROM APRIL TO AUGUST (INCLUSIVE) 1974INTRODUCTION

The operations, investigations, etc. in regard to each prospect are described separately below. No reference is made to prospects, etc. on which there were no operations, and on which no additional information was obtained.

LYONS RIVER MAGNESITE

- a) The B.H.P. Co. was supplied with information about this prospect, and arrangements have been made for a visit to it by a B.H.P. geologist after he has completed his investigations at Beaconsfield in Tasmania.
- b) A geological map of the area around the prospect was prepared. A copy is attached.
- c) During a visit abroad, Mr. N.M. Thomas, Director, Mineral Holdings Australia Pty. Ltd., interested the General Refractories Company (European Group) of Vienna in the prospect, and the Company desired a sample for investigation before sending a mining expert to inspect the prospect.
- d) The track to the prospect was cleared of trees, etc. by a bull-dozer. A 25 kilogram sample was obtained by Prospectors Pinner and Goninon from a depth of 2 to 3 feet after breaking the outcrop with explosives. The sample will be sent by airfreight to Vienna early in September.
- e) Reports on the prospect, and specimens of the magnesite were sent to the Financial Mining - Industrial & Shipping Corporation of the Scalistiri Concern in Athens, Greece. Further Mr. N.M. Thomas, during his overseas trip, visited the Scalistiri Concern and discussed the prospect. It was arranged with the Scalistiri Concern that after some bull-dozing was done, a geologist might be sent to inspect the deposit.
- f) The bull-dozing was arranged through Prospector Pinner and supervised by him and completed. Two small areas of magnesite were exposed on the north-eastern side of Lyons River.
- g) Prospecting by Prospectors Pinner and Goninon to the east and north-east of the Lyons River outcrops revealed a few areas of magnesite. They are not necessarily an extension of the Lyons River magnesite, but only preliminary information is available at present.

VICTORY MAGNESITE

- a) A map of this deposit, and another of the surrounding area are being prepared. Prospector Pinner obtained further survey and other information about the area.
- b) During his visit abroad, Mr. Thomas interested the General Refractories Company (European Group) of Vienna in the prospect, and the company asked that a sample be sent to it for investigation before a mining expert was sent to examine the prospect.
- c) The outcrop was broken by explosives by Prospectors Pinner and Goninon to a depth of 3 feet and a 25 kilogram sample obtained. The sample will be sent by airfreight to Vienna early in September.
- d) Reports on, and specimens of, the magnesite were sent to Financial Mining - Industrial & Shipping Corporation of the Scalistiri Concern in Athens.
- e) During his visit overseas, Mr. N.M. Thomas, interested the Scalistiri Company of Athens in the prospect. It was arranged that some bull-dozing would be done before a geologist from the company visits and examines the prospect.
- f) The bull-dozing has been arranged by Prospector Pinner and will be supervised by him when it is done early in September.

ARTHUR RIVER MAGNESITE-DOLOMITE

- a) Arrangements were made for K. Pinner to obtain selected specimens of the magnesite, dolomite and mixed magnesite-dolomite. A suite of these specimens were sent to Financial Mining - Industrial and Shipping Corporation (of the Scalistiri Concern). Copies of reports and maps were also sent to the above company.
- b) While in Athens, Greece, Mr. Thomas visited the Scalistiri Concern, and discussed the Arthur River prospect further with them. It was arranged that after some bull-dozing was done, a geologist would be sent to inspect the deposit. It was found on investigation that bull-dozing would be difficult and not likely to yield further information on the deposit, but, as reported earlier in this Report, bull-dozing was done at the Lyons River and Victory magnesite prospects.
- c) While travelling overseas, Mr. Thomas interested Messrs. W.D. Lakey and W.H. Black of the U.S.A. in this prospect, and supplied copies of reports and maps to them. Their geologists may visit the prospect.

ARTHUR RIVER MAGNESITE-DOLOMITE Cont'd.

- d) While abroad, Mr. Thomas interested the General Refractories Company (European Group) in this deposit, and arrangements were made to supply a sample to the company for investigation before one of its geologists was sent to examine the prospect. It was decided to send two samples, one from the mixed magnesite-dolomite, and the other from one of the small bodies of magnesite in the deposit. Prospectors Pinner and Goninon broke the outcrop to a depth of 3 feet with explosives and obtained two samples each of 25 kilograms. The samples will be sent to Vienna early in September.
- e) Mr. Thomas brought this prospect to the notice of the Hon. the Minister for Minerals and Energy and the Australian Industrial Development Corporation. The Minister referred the matter to the proposed Petroleum and Minerals Authority. In compliance with a letter from the Executive Member (Designate) of the Authority asking for information on the prospect, copies of reports and accompanying maps were supplied to the Executive Member of the Authority.
- f) A report on the possible utilisation of the magnesite was prepared. A copy is attached.

CANN CREEK SILICA

- a) Reports on this prospect, and specimens from it, were sent to the Financial Mining - Industrial and Shipping Corporation (Scalistiri Concern) of Athens, Greece. While abroad, Mr. Thomas visited this Concern to interest it further in this prospect. It was arranged that a Scalistiri geologist would be sent to examine the prospect and the magnesite prospects discussed earlier in this Report, after some bull-dozing had been done on the last named prospects.
- b) While travelling overseas, Mr. Thomas interested Messrs. W.D. Lakey and W.H. Black of the U.S.A. in this prospect, and supplied copies of reports and maps to them. Their geologists may visit the prospect.
- c) After an exchange of correspondence with Mr. Thomas and the sending of a specimen of the silica, Frank and Schulte, optical glass makers of Essen, Germany expressed interest in the Cann Creek silica and suggested that a sample of 50 kilograms be sent for laboratory tests. Arrangements were made for Prospector Pinner to obtain a preliminary sample of 2 kilograms to be sent to Frank and Schulte, pending final arrangements being made in regard to the 50 kilogram sample.

CANN CREEK SILICA

Cont'd.

- d) Swiss Aluminium continued to investigate the possibility of using silica from this prospect in producing and marketing silicon. It stated that the silica appeared to meet basic specifications for silicon, but before proceeding to conduct expensive testing, it desired to examine the feasibility of silicon production.
- e) Mr. Thomas wrote to the Hon. the Minister for Minerals and Energy and also to the Australian Industry Development Corporation about the prospect.

The A.I.D.C. arranged with Consolidated Goldfields of Australia to investigate the prospect. This company was supplied with reports and maps, and arrangements were made for a visit to the prospect. However, the arranged visit has not yet been made by a company representative.

The Hon. the Minister for Minerals and Energy referred the matter to the proposed Petroleum and Minerals Authority. The Executive Member (Designate) asked for information on the prospect and copies of all relevant reports and maps were sent to him.

MEUNNA TRIG. SILICA

- a) While travelling abroad, Mr. Thomas met a Mr. W.T.E. Finan of Teshi-Team Incorporated of Canada and interested him in the above deposit. Mr. Finan later visited Mr. Thomas in Melbourne and arranged for a possible visit to the prospect after returning from the Philippines.
- b) Prospector Pinner sampled the prospect in three places and sent the samples for analysis. The analyses by the Chief Chemist and Metallurgist gave the following results.

Reg. No.	Sample No.	Width Feet	SiO ₂ %
741544	2	24	99.8
741545	3	15	98.7
741546	4	100	99.4

- c) A map was prepared showing the position of the prospect (and also the Poke's Road silica prospect) and the distribution of Crown land, private land and State Forests, etc. around the prospect. A copy is attached.
- d) A sketch plan showing where the samples were taken is being prepared. A preliminary copy is attached.

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POKES ROAD SILICA

- a) When visiting the Meunna Trig. silica to take samples, Prospector Pinner sampled another outcrop of quartzites not far away. Its position is shown on the map showing the Meunna Trig and Pokes Road silica prospects (attached).
- b) The sample was sent to the Chief Chemist and Metallurgist and the result of the analysis was:-

Reg. No.	Sample No.	Silica %
741543	1	99.5

- c) Mr. Finan was interested in this prospect as well as the Meunna Trig. prospect and may visit it.

PREOLENNA COAL

- a) Mr. E. R. Hudson of Industrial & Mining Investigations has not yet visited the coal-bearing area, and an arranged visit by his geologist has not been made. It is understood that Mr. Hudson's company is testing a coal bearing area on the East Coast of Tasmania and that no visit will be made to Preolenna until the East Coast work is completed.
- b) The Mount Lyell Mining & Railway Co. advised that because of the thinness of the seams and their steep dip, the field offered little potential for economic development.
- c) P. & O. Australia Limited maintained its interest and summary information was supplied to a representative. The company has not yet advised if, and when, it will send a representative to examine the field.
- d) Mr. Thomas wrote to the Hon. the Minister for Minerals and Energy about the coal-bearing area, and the Minister referred the matter to the proposed Petroleum and Minerals Authority. The Executive Member (Designate) of the Authority asked for information, and reports and maps were sent to him.

KEITH RIVER IRON FORMATION

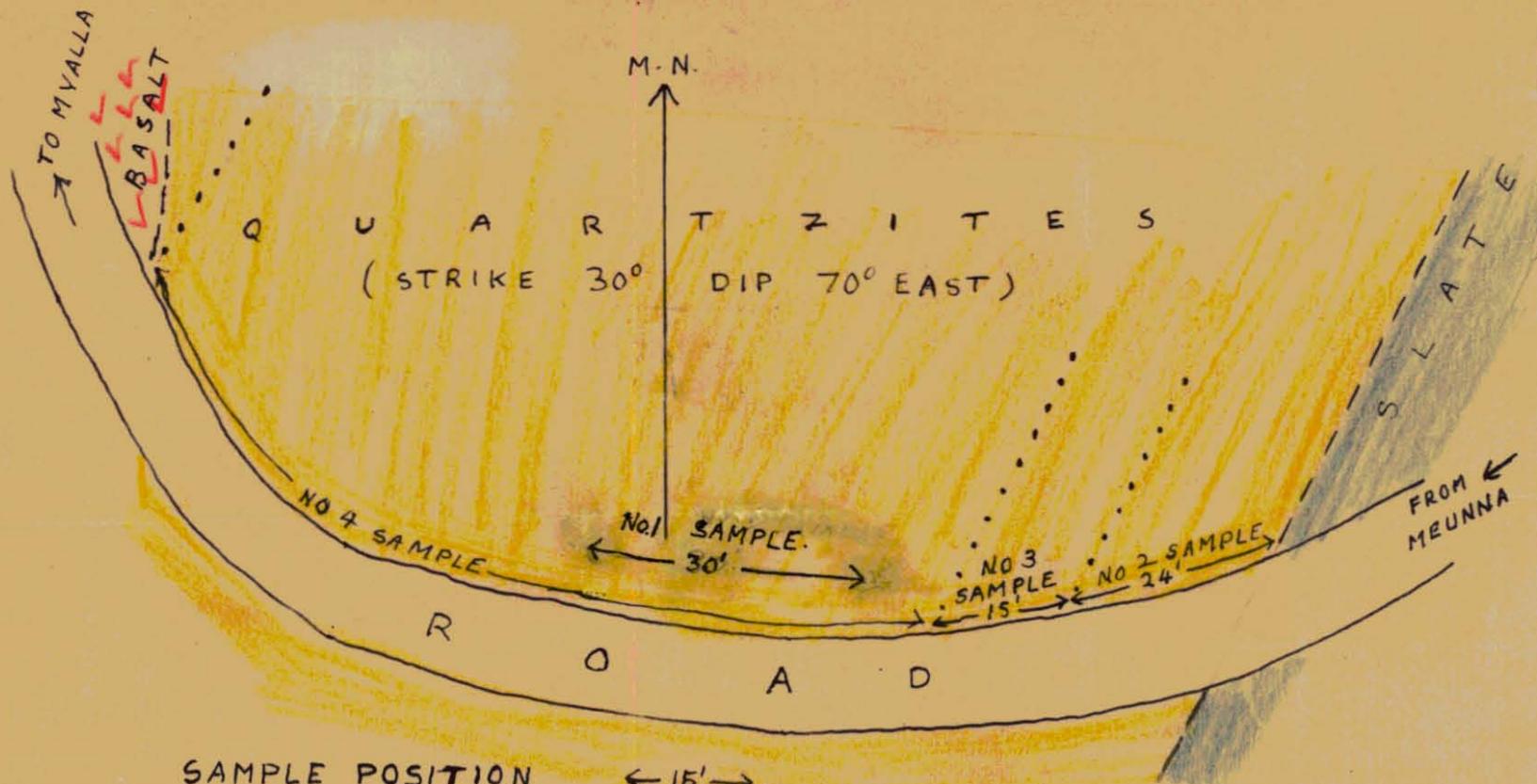
- a) Mount Lyell Mining & Railway Co. advised that the drill cores showed that minor amounts of base metals occur in the formation, but that results to date are not sufficiently encouraging to warrant its involvement at the present time.

KEITH RIVER IRON FORMATION Cont'd.

- b) Mr. E. R. Hudson, of Industrial & Mining Investigations advised that he will not be interested in the Keith River formation in any way until he has arranged successfully for the disposal of the Northern Area of the Savage River.

P. B. Nye
P. B. NYE
MELBOURNE
10TH SEPTEMBER, 1974.

008



SAMPLE POSITION AND LENGTH. ← 15' →
 SAMPLE BOUNDARY
 GEOLOGICAL BOUNDARY - - -

SCALE.
 1 INCH = 20 FEET.

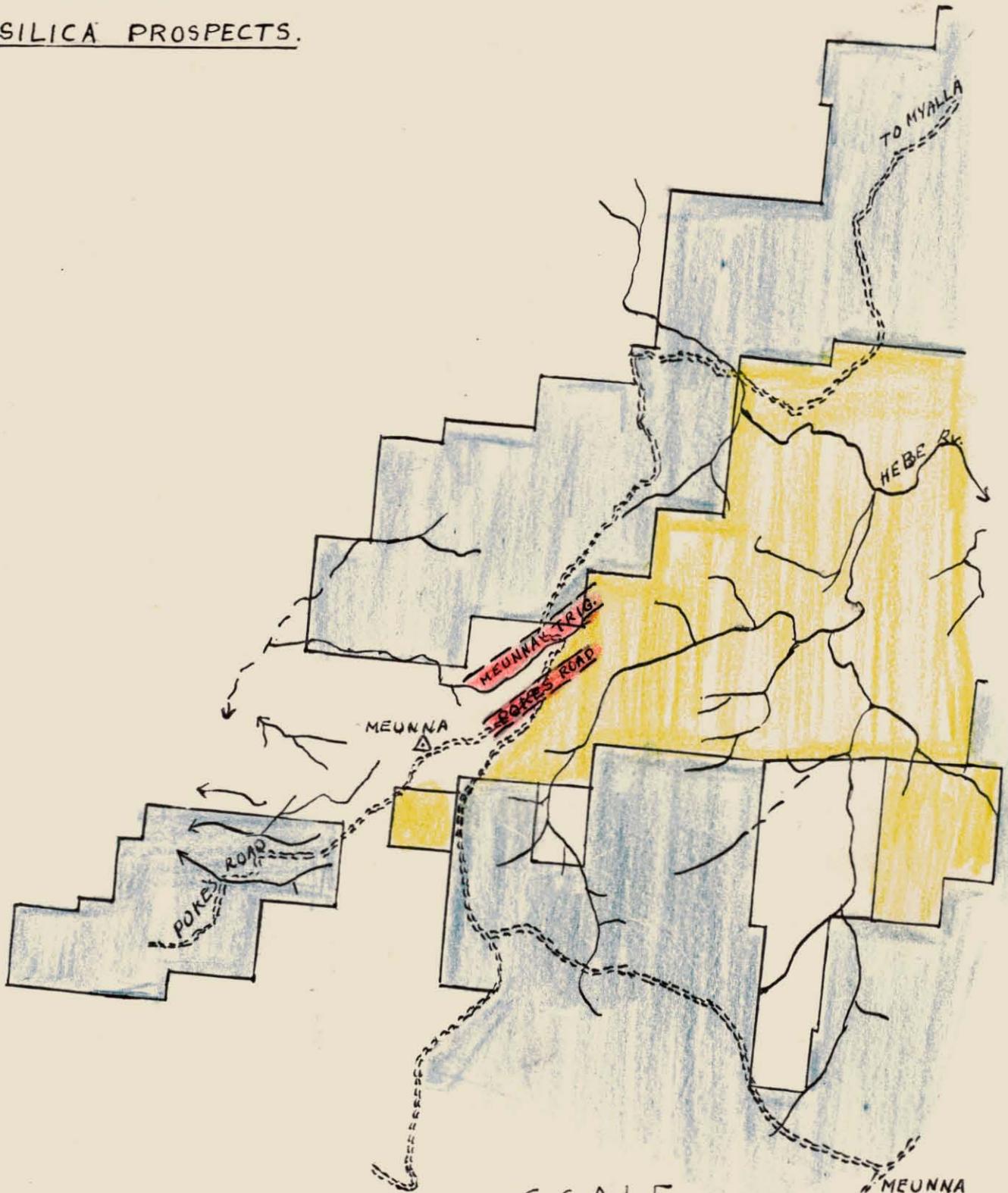
SKETCH PLAN SHOWING SAMPLING
MEUNNA TRIG. SILICA.

BASED ON REPORT
 BY K. FINNER

P. B. Vye
 31/8/74.



SILICA PROSPECTS.



SCALE.

1 INCH = 40 CHAINS.

- SILICA.
- PRIVATE LAND.
- STATE FORESTS, ETC.
- CROWN LAND.

Based on
Forestry Board
and
Report by K. Penner
A. B. V. G.
22/8/74

TO PREOLENNA

010

282011

LEGEND.

TERTIARY (BASALT) PERMIAN PRECAMBRIAN. 

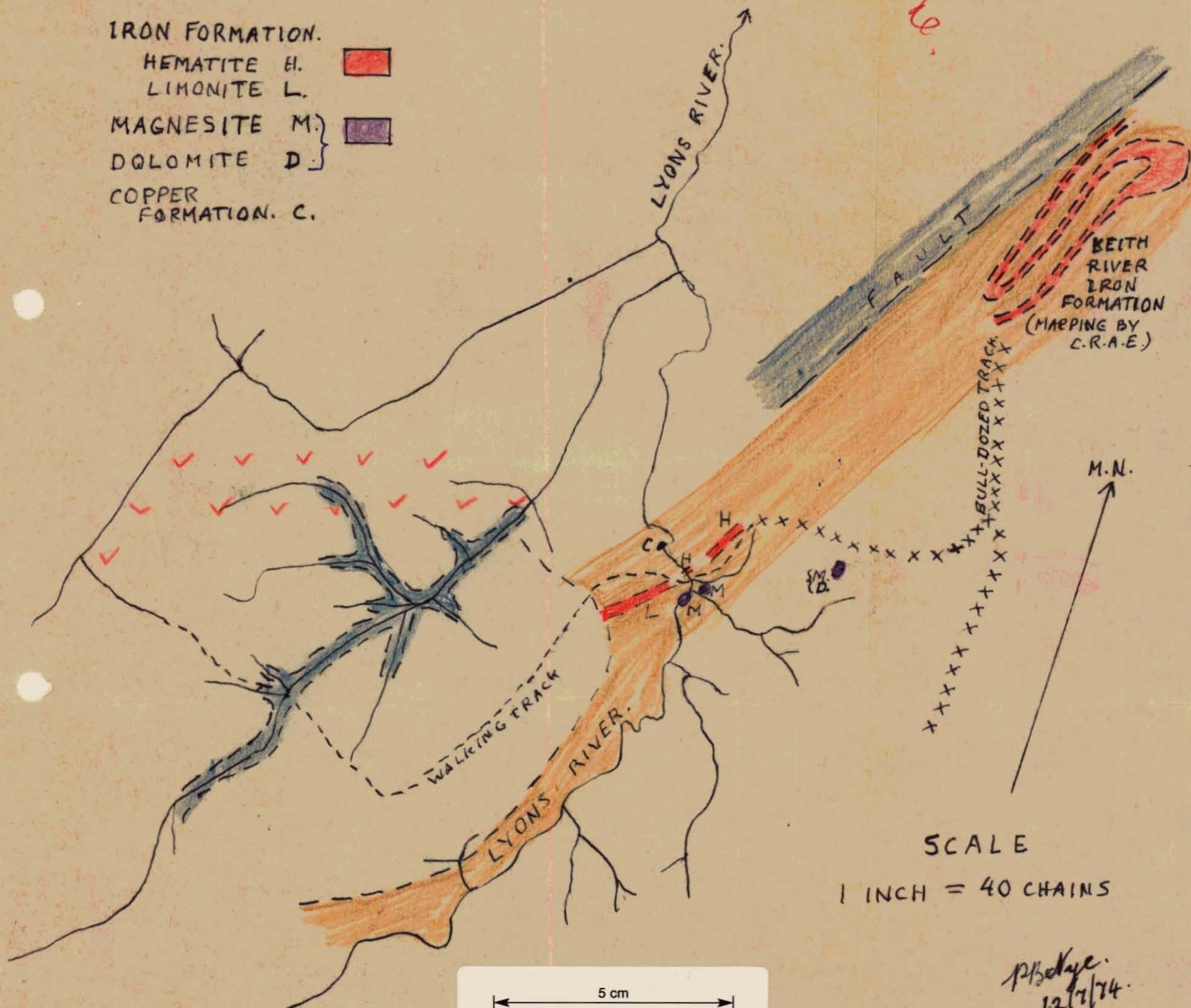
IRON FORMATION.

HEMATITE H. LIMONITE L. MAGNESITE M. DOLomite D. COPPER
FORMATION. C. 

GEOLOGICAL SKETCH MAP.

OF
LYONS RIVER AREA.

(BASED ON MAPPING BY K. PINNER)



011

F.L. A3/70

282012

GM Longin 2x

Radenthein, 1974/12/03
FA/Dr.Ha/HM Nr.2793/74

MAGNESITE TESTS

by GENERAL REFRACTORIES COMPANY
EUROPEAN GROUP.

Report

Ref.: Benefication Trials with Magnesite
Tasmania. FA 1612
Letter 27th August and 3th September

We received four samples 13th of September each about
25-30 kg, coded as follows:

- 1.) Arthur River Main Outcrop
Average Magnesite/Dolomite
- 2.) Arthur River Main Outcrop
Best Grade Magnesite
- 3.) Lyons River Deposit
- 4.) Victory Deposit

The benefication trials (preliminary testes) include:

- Screening
- Heavy-Media Separation
- Flotation

Sintering trials were made also with lumpy ores and
briquetted concentrates.

Results:

a.) Chemical Analysis
(crude ore basis)

Sample	H ₂ O	SiO ₂	Fe ₂ O ₃	Al ₂ O ₃	Mn ₃ O ₄	(calc.) CaO	B ₂ O ₃	TOTAL CalcO ₃	I.L.	mg/kg
1		4,36	1,77	-	0,25	(5.0) 2,80	0,01	11.39	47,80	88.4
2		4,52	0,73	0,10	0,13	6.7 0,39	0,02	6.20	48,65	97.8
3		0,47	0,47	0,20	0,07	13.4 1,92	0,01	4.65	51,55	95.35
4 ^x	4.8	0,2	0,7	0,02	0,14	16.7 0,4	0,03	1.80	51,7	90.20

x calculated

b.) X - R a y - D i f f r a c t o m e t e r

Sample	Impurities
1	Dolomite, Talc, Quartz, Chlorite
2	Dolomite, Talc, Quartz, Chlorite
3	Dolomite, Quartz, Chlorite
4	Dolomite, Quartz

c.) S c r e e n A n a l y s i s 0-25 mm

Caused by mineralogical intergrowth the effect of beneficiation can be neglected.

d.) H M S T r i a l s (3-8 mm)

We tested the grain size 3-8 mm, but the results, crude ore basis below, are related to the initial feed 0-8 mm.

Deposit	Feed			Sinks		
	Wght. %	SiO ₂	Fe ₂ O ₃ /CaO	Wght. %	SiO ₂	Fe ₂ O ₃ /CaO
1	100	4, 4	1, 8 / 2, 8	35	1, 8	1, 9 / 0, 5
2	100	4, 5	0, 7 / 0, 4	16	1, 8	0, 7 / 0, 1
3	100	0, 5	0, 5 / 1, 9	49	0, 3	0, 5 / 1, 2

e.) F l o t a t i o n

Sample	Feed			Concentrate		
	Wght. %	SiO ₂	Fe ₂ O ₃ /CaO	Wght. %	SiO ₂	Fe ₂ O ₃ /CaO
1	100	4, 0	1, 9 / 2, 8	77	0, 2	1, 9 / 1, 3
2	100	4, 3	0, 9 / 0, 4	80	0, 9	0, 9 / 0, 5
3	100	0, 4	0, 6 / 1, 9	58	0, 2	0, 6 / 0, 9

Crude ore basis.

f.) S i n t e r i n g - T r i a l s

Sintering conditions (high temperature lab.-kiln):
3350°F/4 hours.

Kind of samples: lumpy ores (-25 mm) and briquetted concentrates (finely ground, ore finely ground and precalcinated).

013

Sample	Descript.	SiO ₂	Fe ₂ O ₃	CaO	C/S	Bulk. Dens.
1	finely ground	0,57	4,25	2,26	4,0	3,41
2	finely ground	1,77	2,05	0,89	0,5	3,25
3	finely ground	0,35	1,69	1,96	5,6	3,31
3	finely ground/precalc.	0,33	1,52	1,94	5,9	3,37
3	lumpy ore	0,77	0,97	3,85	5,0	3,39
4	lumpy ore	0,23	1,78	0,62	2,7	3,13
4	finely ground	0,52	1,60	0,77	1,5	3,01
4	finely ground/precalc.	0,37	1,66	0,72	1,9	3,30

Conclusions:

Preliminary trials showed, referring to the samples tested and her mineralogical characteristics only a beneficiation by flotation seems to be succesful. The sintering behavior of ground concentrates can be considered from good to excellent. The grinding behavior of concentrate is favorable.

The iron content of all samples is beyond limits for a low iron magnesite in sample 1 the iron content is elevated unfortunately.

It must be stressed again that all results only reflect preliminary investigations not permitting final conclusions.

Handwritten signature

Dg.:
GD; FL

014

Report on operations on exploration,
licence No. 43/70 during October, 1974

P.B. Nye

October, 1974

Mineral Holdings Aust. Pty Ltd

015

REPORT ON OPERATIONS ON EXPLORATION LICENCE

282016

NO. 43/70 DURING OCTOBER, 1974

INTRODUCTION

The operations, investigations, etc. in regard to each prospect are described separately below. No reference is made to prospects on which no additional information was obtained.

LYONS RIVER MAGNESITE

- a) A sample was obtained for Mineral Holdings Australia by quartering the below surface sample from which the 25 kilogram sample (regarded by M.H.A. as Sample No. 11) was prepared in September and sent to Vienna.
- b) The M.H.A. sample (now numbered 12) was sent to the Chief Chemist and Metallurgist for analyses, and his Certificate showed the following results:-

Reg. No.	741971
Sample No.	12
Acid insoluble	0.6 per cent
CaO	2.5 per cent
MgO	44.8 per cent
- c) A preliminary plan of this prospect and the magnesite-dolomite to the east was prepared from Pinner's survey notes and other information. It was discussed with Pinner and a final copy is being prepared.
- d) Prospector Pinner showed Mr. I. W. Read of the B.H.P. Company over the magnesite outcrop.
- e) Preliminary arrangements were made for a visit to the prospect during November by a representative of General Refractories Company of Vienna.

MAGNESITE-DOLOMITE EAST OF LYONS RIVER MAGNESITE

- a) As stated in c) under Lyons River Magnesite, a combined plan of the two prospects is being prepared.
- b) A sample was taken from the southern side of the southernmost outcrop as Sample No. 10 Lyons River and sent to the Chief Chemist and Metallurgist for analysis. The sample was mainly magnesite.
- c) Quartzites were present along most of the traverse lines between the magnesite outcrop in B.A. Creek and the magnesite-dolomite to the east. The quartzites appear to represent a zone between the magnesite and the magnesite-dolomite prospects.

VICTORY MAGNESITE

- a) Before the 25 kilogram sample for Vienna was prepared and despatched in September, a small sample for M.H.A. had been obtained from the magnesite by quartering.
- b) The M.H.A. sample has been numbered No. 7 and was sent to the Chief Chemist and Metallurgist for analysis, and his Certificate showed the following results:-

Reg. No.	741970
Sample No.	7
Acid insoluble	0.3 per cent
CaO	0.45 per cent
MgO	46.6 per cent

- c) The results of the analysis by General Refractories of the 50 pound sample sent to Vienna were received and are given below. It is numbered as M.H.A.'s No. 6 sample.

	%
SiO ₂	0.2
Fe ₂ O ₃	0.7
Al ₂ O ₃	0.02
Mn ₃ O ₄	0.14
CaO	0.4
Loss on ignition	51.7
	<u>53.16</u>

The MgO would, by difference, be 46.84 per cent.

- d) The field notes of the survey by Prospector Pinner were received. From these notes and other field notes made some time ago, and using some information and plans of C.R.A.E., two plans have been drawn. A copy of each plan is attached.
- e) Prospector Pinner reported that in order to bull-doze the No. 2 trench, the No. 1 trench was deepened and the bulldozing extended northerly to the site of the No. 2 trench which was then bull-dozed.

In deepening the No. 1 trench, the four northern-most small "outcrops" of magnesite were dug out, and so revealed that they were small and isolated bodies in the "propylite". It was known before the bull-dozing that one at least of these "outcrops" was a small and isolated body.

In No. 2 trench, a similar small and isolated body was revealed. There was a larger exposure of magnesite in the centre of the trench, and a warm spring issues from it. The spring is probably

connected with the one that gave the name of Hot Spring Creek to the small creek near the Victory adit. The larger exposure is possibly an outcrop adjacent to a solution channel in the magnesite.

- f) Arrangements were made for Prospectors Pinner and Goninon to test around the larger exposures in No. 1 and 2 trenches to determine if the exposures extended in depth and joined the Victory magnesite at depth.
- g) Preliminary arrangements were made for a visit to the prospect during November by a representative of General Refractories Company of Vienna.

ARTHUR RIVER MAGNESITE-DOLOMITE

- a) Before the two 25 kilogram samples were prepared in September for despatch to Vienna, two samples were obtained for M.H.A. from the material.
- b) The two M.H.A. samples were sent to the Chief Chemist and Metallurgist for analysis, and his Certificate showed the following results.

	Magnesite-dolomite	Magnesite
Reg. No.	741972	741973
Sample No.	20	22
Acid insoluble	6.6 per cent	7.1 per cent
CaO	4.3 " "	0.35 " "
MgO	39.4 " "	43.4 " "

- c) As indicated in the above table, the samples were taken from:

Average grade magnesite-dolomite
Best grade magnesite

The two M.H.A. samples were numbered 20 and 22, and the two Vienna samples 19 and 21.

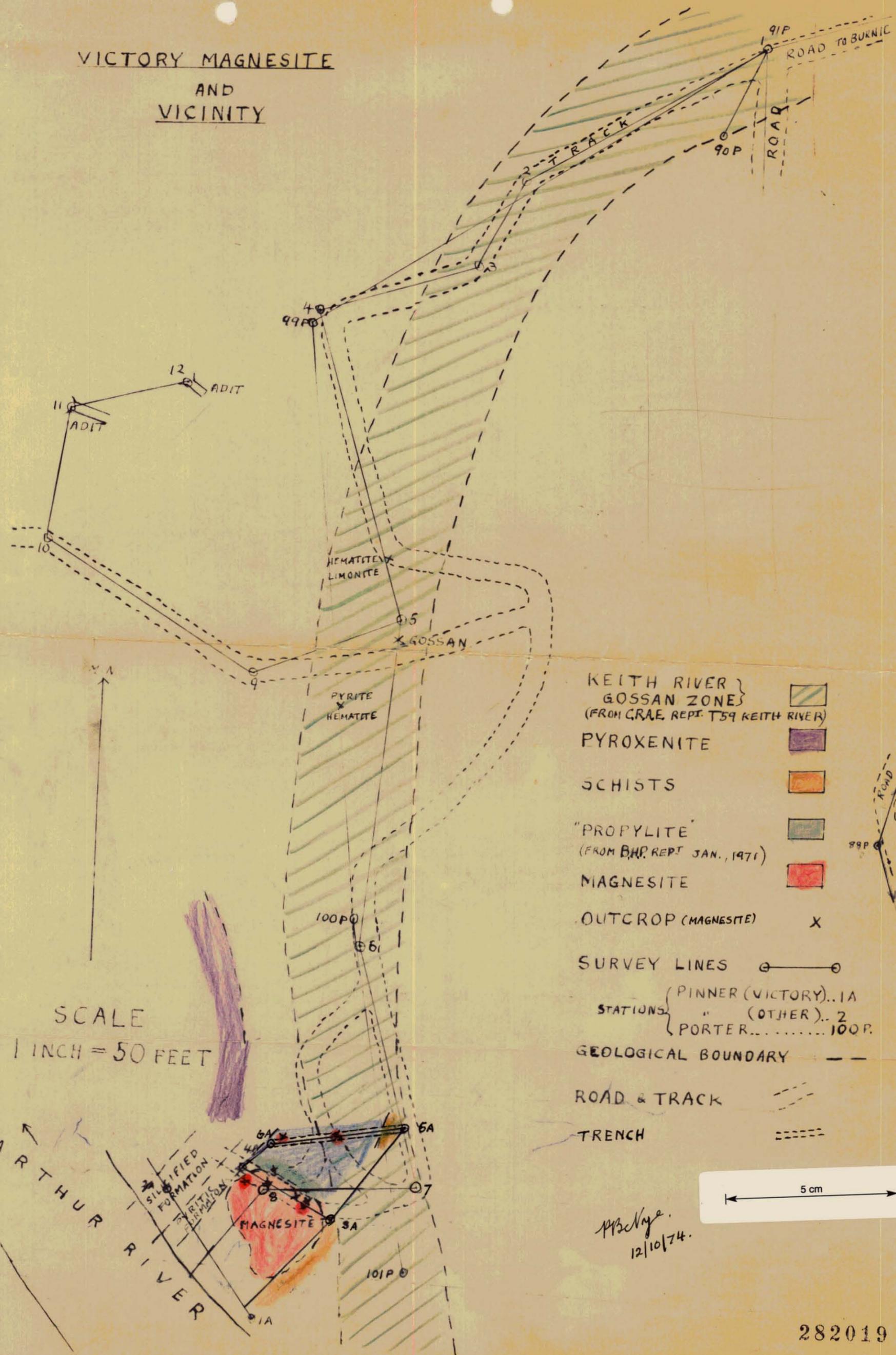
- d) Preliminary arrangements were made for a visit during November to the prospect by a representative of General Refractories Company of Vienna.

P.B. Nye

P.B. NYE
MELBOURNE
21/10/74.

VICTORY MAGNESITE
AND
VICINITY

018



SCALE
1 INCH = 50 FEET

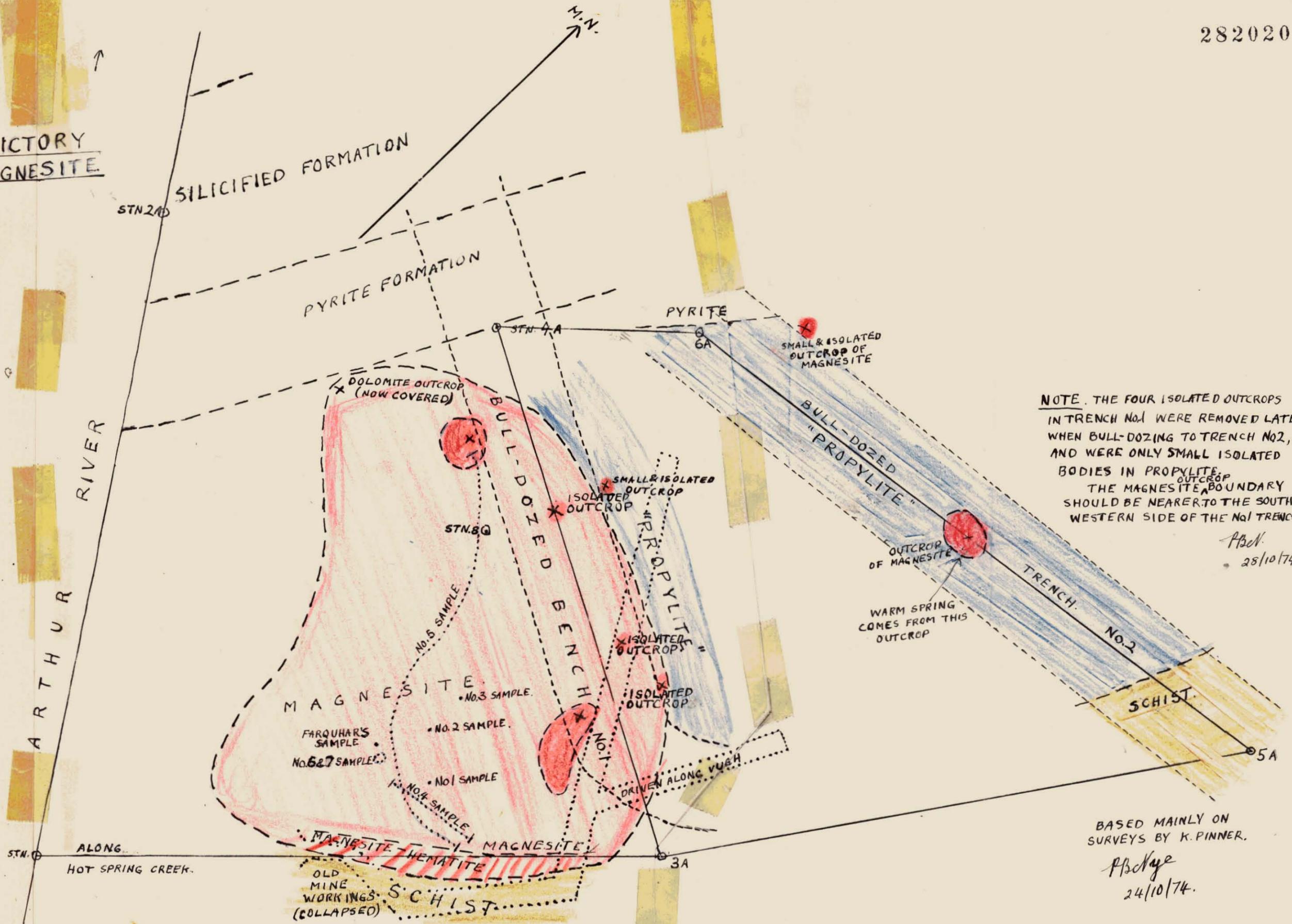
- KEITH RIVER } GOSSAN ZONE (FROM GRAE REPT. T59 KEITH RIVER)
- PYROXENITE
- SCHISTS
- "PROPYLITE" (FROM BHP. REPT. JAN., 1971)
- MAGNESITE
- OUTCROP (MAGNESITE) X
- SURVEY LINES
- STATIONS { PINNER (VICTORY)... 1A
" (OTHER)... 2
PORTER... 100P
- GEOLOGICAL BOUNDARY
- ROAD & TRACK
- TRENCH

5 cm

PP Schuyler
12/10/74.

282019

VICTORY
MAGNESITE



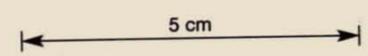
NOTE. THE FOUR ISOLATED OUTCROPS IN TRENCH No.1 WERE REMOVED LATER WHEN BULL-DOZING TO TRENCH No.2, AND WERE ONLY SMALL ISOLATED BODIES IN PROPYLITE. THE MAGNESITE^{OUTCROP} BOUNDARY SHOULD BE NEARER TO THE SOUTH-WESTERN SIDE OF THE No.1 TRENCH.

ABN.
28/10/74

BASED MAINLY ON SURVEYS BY K. PINNER.

ABN.
24/10/74.

1 INCH = 10 FEET



Report on possible geological structures
indicated by drill holes A and A/01,
Arthur River magnesite-dolomite deposit

P.B. Nye

October, 1975

Mineral Holdings Aust. Pty Ltd

E.L. 43/70

REPORT ON POSSIBLE GEOLOGICAL STRUCTURES INDICATED
BY DRILL HOLES A AND A/O 1., ARTHUR RIVER MAGNESITE-
DOLOMITE DEPOSIT

A plate of four cross-sections is attached to this report. The cross-sections are based on information from the following sources:-

1. The plan and two cross-sections (profiles) of 6/7/75 by Dr. Pirkl (for OAMAG).
2. Report on Hole A/O 1. drilled by Anglo-Oriental in 1972.
3. Result of examination by the writer of 13 specimens of core from Hole A drilled by OAMAG.

Four possible structures are shown on the plate of cross-sections. The problems associated with the possible structures are discussed below.

From the surface information and the examination of the specimens of core from Hole A, it is clear that there is a fault between Hole A/O 1, and Hole A with a downthrow to the north, and which has lowered the basal Permian rocks (tillites) and their unconformable junction with the underlying Precambrian rocks (and perhaps magnesite) by 140 feet or more. The problems are the positions of the fault at the surface and in relation to Hole A and it is difficult to determine which is the most probable structure. A detailed geological examination of the surface might yield some information that would eliminate two of the possibilities. A detailed examination of all cores below the Permian rocks and chemical and other examination of the rocks in the cores would also yield useful information.

The structure near the surface in Fig. 1 and 2 could allow for the northerly extension of the magnesite beneath the Permian rocks at shallow depth and with its northern boundary at any place between Hole A/O 1. and the fault and possibly at the fault. The structure near the surface in Fig. 3 and 4 would not allow for any northerly extension of magnesite beneath Permian rocks at shallow depth.

Page Two

In Fig. 1 and 3, the relation near the bottom of Hole A between the Permian rocks and the Precambrian rocks (and perhaps magnesite) is the unconformity.

In Fig. 2 and 4, however, the relation is a faulted one, Hole A having intersected the fault above the unconformity.

The possibility of magnesite being present at, or near, the bottom of Hole A depends on either

- 1) the magnesite extending northwards under the Permian rocks near the surface and the contact being down-faulted to near the bottom of the hole.

or

- 2) the northern boundary of the magnesite dipping northerly from the surface.

or

- 3) the magnesite having extended northerly at east as far as the fault and being situated on the southern side of the fault down to at least the bottom of the hole. This possibility does not seem possible for the structures in Fig. 2 and 4 are showing slate on the south side of the fault.

A detailed examination of all core near the bottom of Hole A, and further investigations might possibly yield additional information about the possible structure at the bottom of Hole A.

In all four possible structures, the main problem is the area on the southern side of the fault, and where in it the northern boundary of the magnesite is situated. At an earlier date, it was considered the the diversion of Hole A to the south would yield some useful information. An investigation of the cross-sections suggests, however that it would be preferable to put down a vertical hole from a point between Hole A and Hole A/O 1.

Although midway between Holes A and A/O 1. might be considered desirable, the best position would be from Hole A/O 1, one-third of the distance between Hole A/O 1., and Hole A. If the structure near the surface is that shown in Fig. 1 and 2, the hole would in about 40 feet prove if the magnesite extends northerly under the Permian rocks. Further if the structure is as shown in Fig. 3 and 4, the hole would intersect the fault at about 60 feet, and if the magnesite is not adjacent to the southern side of the fault, could continue to 160 or 200 feet to try and intersect the northern boundary of the magnesite.

Page Three

Incidentally the suggested hole is about midway between Holes A and C. Such a hole could replace that selected originally as B.

P. B. Nye

P. B. NYE
MELBOURNE
27th October, 1975.

024



E.L. 43/70

282025

DEPARTMENT OF MINES

TELEPHONES:

Metallurgical Research	
Laboratory	44 2431
Mines Inspection	
Explosives and Inflammable Liquids	
Registrar of Mines	32 2101

Launceston Offices
 287 Wellington Street,
 South Launceston,
 Tasmania 7250

9th January, 1976.

Mineral Holdings Aust., Pty. Ltd.,
 C/- Mr. L. Morris,
 P.O. Box 707,
BURNIE, 7320 Tasmania.

c.c. Mr. N. Thomas,
 Mineral Holdings Aust.,
 Pty. Ltd.,
 100 Collins Street,
 Melbourne. Vic.

Dear Sir,

Please find attached results on samples from diamond drill hole AR 'E' stated to be from Osterreichish Amerikanische Magnesite AB drilling on Licence Area E.L. 43/70.

Yours faithfully,

(H.K. Wellington)
Chief Chemist & Metallurgist.

025

282026

MINERAL HOLDINGS N. L.

Reg. No.	Footage		MgO (by diff.)	% Loss on Ignition	% SiO ₂	% CaO	% Fe ₂ O ₃	TOTAL
752063	22'	33'6"	19.27	5.1	71.1	0.03	4.5	80.73
752064	33'6"	43'6"	18.90	6.4	64.2	0.10	10.4	81.10
752065	43'6"	63'6"	29.40	45.7	5.6	16.9	2.4	70.60
752066	63'6"	73'6"	37.40	13.7	39.2	5.3	4.4	62.60
752067	73'6"	83'6"	25.00	10.3	53.6	1.1	10.0	75.00
752068	83'6"	93'6"	20.90	44.8	2.8	27.6	3.9	79.10
752069	93'6"	95'6"	34.17	47.2	0.83	14.3	3.5	65.83
752070	95'6"	100'6"	37.60	48.7	1.1	9.5	3.1	62.40
752071	100'6"	105'6"	30.20	46.1	4.3	16.0	3.4	69.80
752072	105'6"	115'	30.10	46.7	5.0	16.1	2.1	69.90
752073	115'	125'	25.10	45.6	2.8	23.1	3.4	74.90
752074	125'	130'	28.90	47.0	2.0	18.6	3.5	71.10
752075	130'	135'	27.00	44.0	7.7	18.6	2.7	73.00
752076	135'	140'	19.90	44.9	3.3	28.7	3.2	80.10
752077	140'	145'	23.20	34.9	24.5	15.7	1.7	76.80
752078	145'	150'	33.30	44.5	9.0	11.8	1.4	66.70
752079	150'	154'	26.70	47.3	2.3	12.3	1.4	63.30
752080	155'	160'	41.40	49.1	2.5	5.6	1.4	58.60
752081	160'	165'	42.00	48.9	1.9	5.3	1.9	58.00
752082	165'	170'	37.40	47.4	1.3	11.5	2.4	62.60
752083	170'	175'	33.60	42.9	10.3	11.5	1.7	66.40
752084	175'	180'	26.30	36.7	20.0	15.7	1.3	73.70
752085	180'	185'	28.63	39.1	15.1	16.2	0.97	71.37
752086	185'	190'	32.80	41.9	8.5	15.4	1.4	67.20
752087	190'	195'	31.23	38.0	13.9	16.0	0.77	68.67
752088	195'	200'	29.84	37.0	18.7	14.0	0.46	70.16
752089	200'	205'	30.30	39.8	17.0	12.3	0.60	69.70
752089A	205'	210'	30.60	42.8	9.6	15.7	1.3	69.40
752090	210'	215'	34.00	44.8	7.9	11.2	2.1	66.00
752091	215'	217'	32.60	44.5	7.3	13.7	1.9	67.40
752092	223'	225'	38.00	46.1	3.3	8.6	4.0	62.00
752093	225'	230'	34.40	42.1	16.1	5.9	1.5	66.60
752094	230'	235'	41.40	44.1	11.7	2.0	0.74	58.54
752095	235'	240'	43.66	47.1	7.8	0.84	0.60	56.34
752096	240'	245'	42.64	45.6	10.6	0.52	0.64	57.36
752097	245'	250'	40.77	47.9	8.0	2.5	0.83	59.23
752098	250'	255'	36.88	48.0	6.5	7.7	0.92	63.12
752099	255'	260'	26.40	45.0	8.1	19.0	1.5	73.60

Analyses by *M. J. ...*
L. M. Gray
 Fee: \$760-00

H. K. Wellington
 (H.K. Wellington)
 Chief Chemist & Metallurgist.

To go with report on Explosives 21/11/70

282027

DEPARTMENT OF MINES—TASMANIA



LAUNCESTON OFFICES
287 WELLINGTON STREET
SOUTH LAUNCESTON 7250

TELEPHONES:
Metallurgical Research } 44 2431-2
Laboratory } (2 lines)
Mines Inspection }
Explosives & Inflammable Liquids }

7th November, 1975.

Mineral Holdings N.L.,
C/- Mr. L.W. Morris,
P.O. Box 707,
BURNIE, 7320 Tas.

copy to:- Mr. N. Thomas,
11th Floor,
447 Collins Street,
MELBOURNE, 3000
Victoria.

Dear Les,

Dolomite/Magnesite Assays

Following a telephone request from Mr. Thomas I am attaching 3 copies of the results sent you to date and will in future send you four copies of the results.

Yours faithfully,

(H.K. Wellington.)
Chief Chemist & Metallurgist.

027

282028

C O P Y

Mineral Holdings N.L.

Exploration Licence E.L. 43/70

Please find below results on composite samples made from diamond drill core samples supplied and stated to be from Osterreichish Amerikanische Magnesite AG drilling on the above Licence Area in N.W. Tasmania.

Composite Sample	'C' Reg. No.	MgO (by diff.)	% Loss on Ignition	% SiO ₂	% CaO	% Fe ₂ O ₃	% Al ₂ O ₃	
8' - 13'	751466	31.58	42.1	7.2	12.3	2.5	0.11	64.21
13' - 18'	751472	44.50	44.3	5.1	3.9	2.1	<0.1	55.50
18' - 23'	751478	45.90	47.1	4.7	0.6	1.6	<0.1	54.10
23' - 28'	751484	42.70	48.1	2.6	4.2	2.3	<0.1	57.30
28' - 33'	751490	31.50	46.1	3.5	17.1	1.7	<0.1	68.50
33' - 38'	751496	28.50	46.5	1.6	22.8	0.5	<0.1	71.50
38' - 43'	751502	28.50	45.9	2.6	22.4	0.5	<0.1	71.50
43' - 48'	751508	27.70	44.4	6.0	20.7	1.1	<0.1	72.30
48' - 53'	751514	45.00	49.5	2.7	1.0	1.7	<0.1	55.00
53' - 58'	751520	44.70	51.0	0.3	2.7	1.3		55.30
58' - 63'	751526	42.70	49.8	2.5	3.4	1.6		57.30
63' - 68'	751532	45.40	51.2	0.8	1.7	1.1		54.60
68' - 73'	751538	42.90	49.7	2.5	3.5	1.4		57.10
73' - 78'	751544	39.60	48.4	2.0	7.8	2.2		60.40
78' - 83'	751550	43.50	49.3	0.9	3.8	2.5		56.50
83' - 88'	751556	37.40	43.9	12.0	5.8	1.9		62.60
88' - 93'	751562	41.60	46.6	9.3	1.1	1.4		58.40
93' - 98'	751568	40.90	48.2	4.9	4.4	1.7		59.20
98' - 103'	751574	45.30	49.1	2.8	1.7	1.1		54.70
103' - 108'	751580	46.60	48.6	1.9	1.3	1.6		53.40
108' - 113'	751586	44.80	49.7	1.9	2.1	1.5		55.20
113' - 118'	751592	45.10	48.7	3.0	2.2	1.0		54.90
118' - 123'	751598	44.00	49.6	1.8	2.9	1.7		56.00
123' - 128'	751604	43.20	49.9	1.8	3.4	1.7		56.30
128' - 133'	751610	45.80	50.7	0.8	1.2	1.5		54.20
133' - 138'	751616	44.00	49.8	1.0	3.5	1.7		56.00
138' - 143'	751622	44.20	47.6	2.2	4.2	1.8		55.80
156' - 160'	751628	41.20	49.6	1.1	6.9	1.2		58.80

028

Composite Sample	Reg. No.	Moisture	% Loss on Ignition	% SiO ₂	% CaO	% Fe ₂ O ₃	Total
160' - 165'	751634	41.30	50.3	0.7	6.6	1.1	58.70
165' - 170'	751640	42.20	50.1	1.1	5.2	1.4	57.90
170' - 175'	751646	44.30	50.6	0.8	3.3	1.0	55.70
175' - 182'	751654	45.40	49.4	0.9	3.3	1.0	54.60

Analyses by..... *PKG*

Yours faithfully,

H.K.

(H.K. Wellington)
Chief Chemist & Metallurgist.

039



TELEPHONES:

Metallurgical Research
 Laboratory
 Mines Inspection
 Explosives and Inflammable Liquids
 Registrar of Mines 2 2457

4 2431-2
2 Lines

Tasmania

282030

Department of Mines,

Lamington Offices,

287 Wellington Street,

South Lamington 20th November, 1975

Mineral Holdings N.L.,
 G/- Mr. L.W. Morris,
 P.O. Box 707,
 BURNIE, 7320 Tas.

copy to: Mr. N. Thomas,
 11th Floor,
 447 Collins Street,
 MELBURNE, 3000
 Victoria.

Dear Sir,

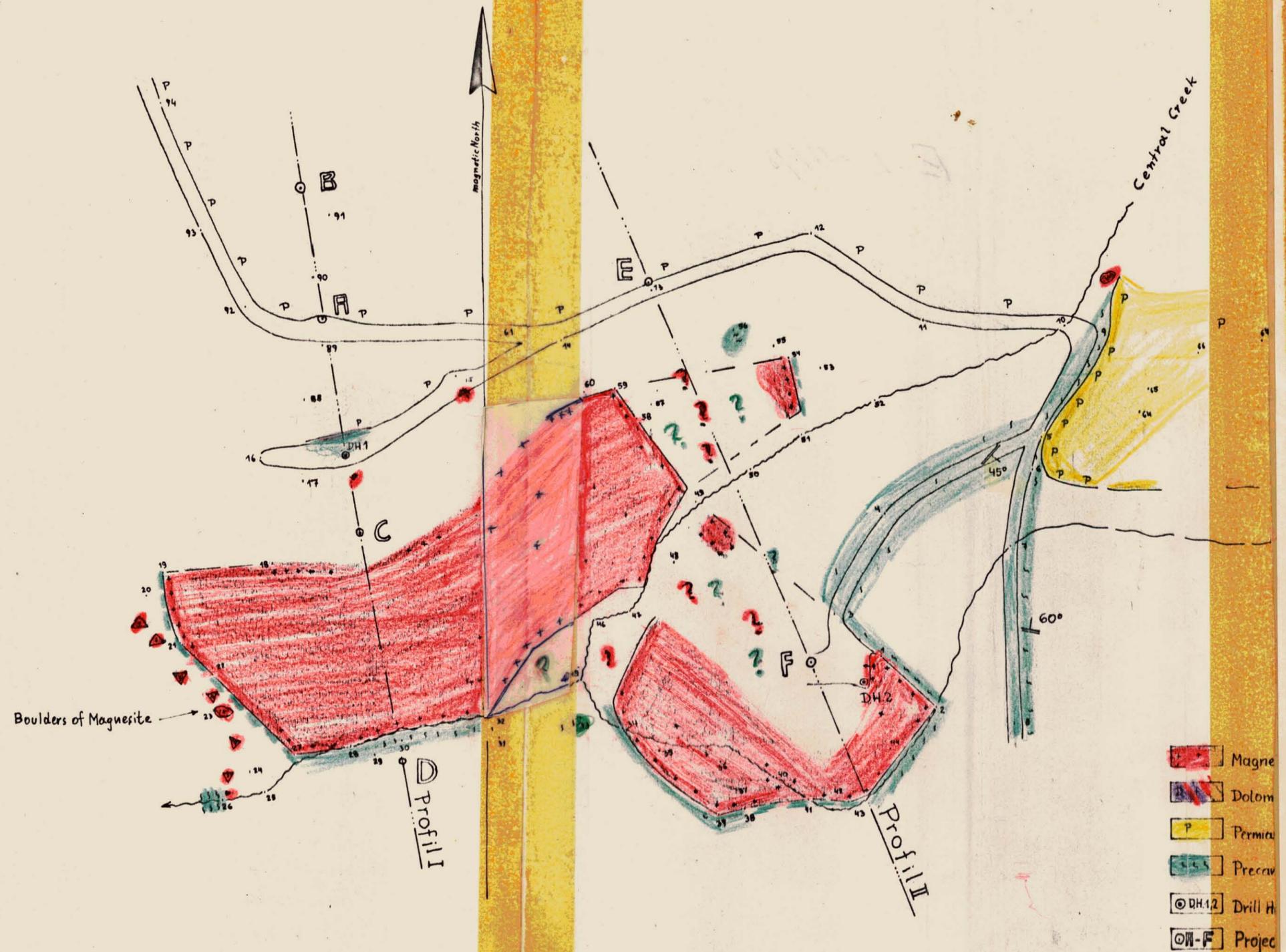
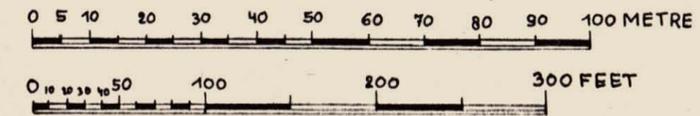
Please find listed below results on samples we received from
 you on 29th October, 1975. (By diff.)

Reg. No.	D.D. Hole	Footage	MgO	CaO	%Fe, O.	%SiO ₂	%L.O. I
751692	AR "D"	40' - 45'	47.74	1.8	0.84	0.62	49.0 52.26
693	" "	45' - 50'	46.30	0.9	1.1	1.3	50.4 53.70
694	" "	50' - 55'	49.62	4.8	1.1	0.98	43.5 50.38
751695	" "	55' - 60'	45.03	4.8	1.3	0.37	49.5 54.97
696	" "	75' - 80'	44.19	6.2	0.99	0.42	48.2 53.81
697	" "	80' - 85'	45.19	5.1	0.96	0.35	48.4 54.81
698	" "	85' - 90'	43.28	6.2	0.92	1.5	48.1 56.72
699	" "	90' - 95'	48.04	1.8	0.96	0.3	48.9 51.96
751700	" "	95' - 100'	42.20	6.6	1.4	3.9	45.9 57.80
701	" "	100' - 105'	43.30	2.1	1.5	2.3	45.0 51.70
702	" "	105' - 110'	36.30	9.2	2.4	8.2	43.9 63.70
703	" "	110' - 115'	35.20	18.8	1.3	3.5	43.2 66.80
704	" "	115' - 120'	27.90	16.5	1.2	16.6	37.8 72.10
751705	" "	120' - 125'	32.50	12.9	2.5	9.5	42.6 67.50
706	" "	125' - 130'	33.50	9.7	2.6	12.0	42.2 66.50
707	" "	130' - 135'	35.30	8.1	1.8	12.4	42.4 64.70
708	" "	135' - 140'	38.50	9.7	2.5	3.7	45.6 61.50
709	" "	140' - 145'	36.50	14.3	2.5	2.1	44.6 63.50
751710	" "	145' - 150'	40.44	9.0	2.7	0.86	47.0 59.56
711	" "	150' - 155'	36.50	15.7	2.1	1.6	44.1 63.50
712	" "	155' - 160'	34.20	16.5	1.1	5.7	42.5 65.80
713	" "	160' - 165'	41.20	6.3	2.5	7.8	42.2 58.80
714	" "	165' - 170'	38.70	10.1	4.0	5.2	42.0 61.30
751715	" "	170' - 175'	36.60	11.8	2.6	3.9	45.1 63.40
716	" "	175' - 180'	38.50	10.1	2.0	2.4	47.0 61.50
717	" "	180' - 185'	40.80	3.6	2.0	5.2	48.4 59.20
718	" "	185' - 190'	40.70	6.3	2.1	3.3	47.6 59.30
719	" "	190' - 195'	34.00	16.2	1.0	13.1	35.7 66.00

Analyses by *[Signature]*

Fee: \$560-00

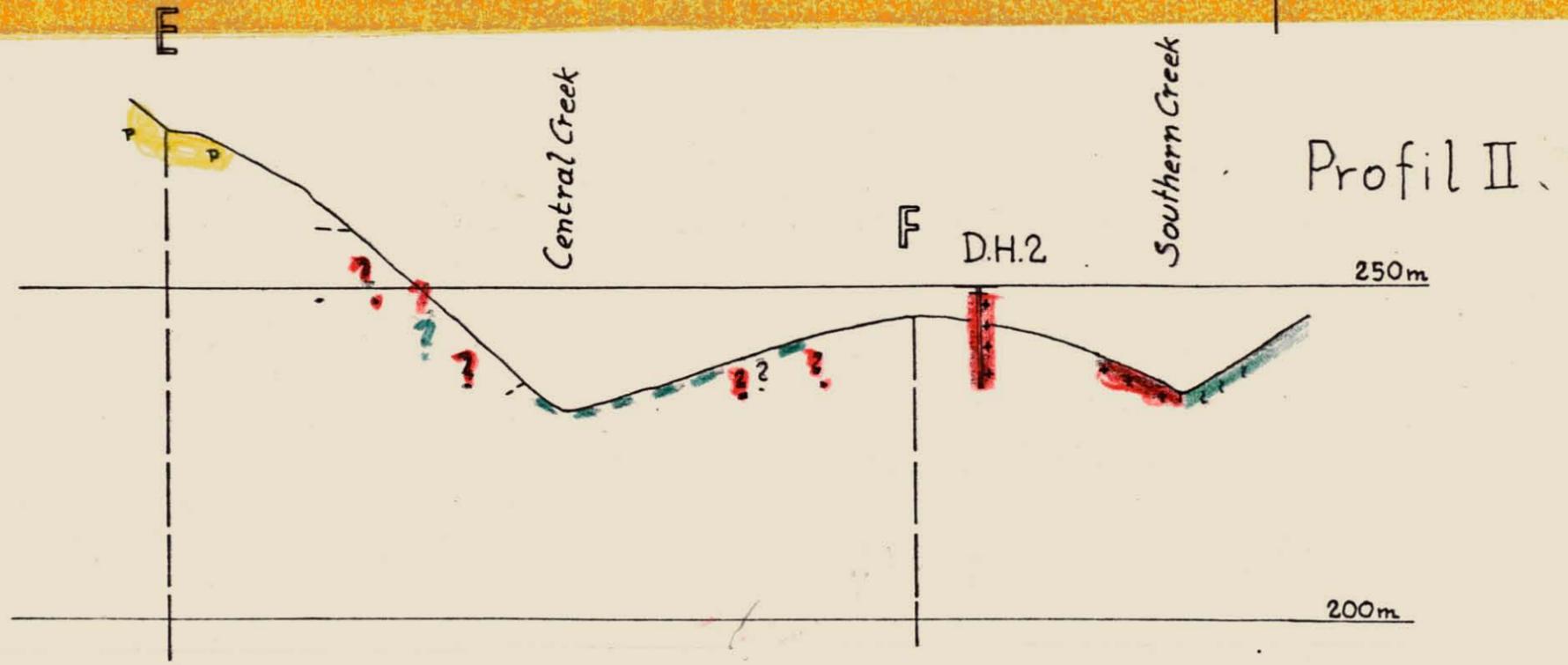
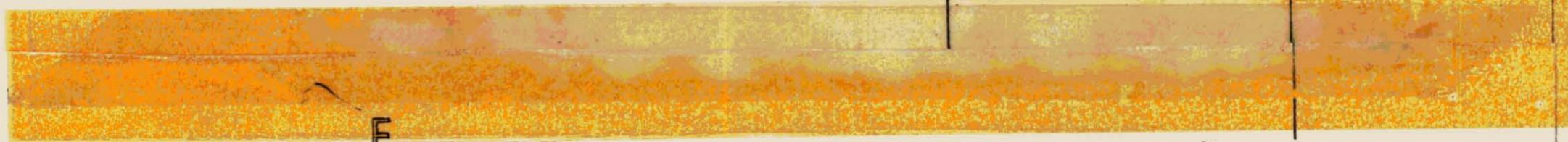
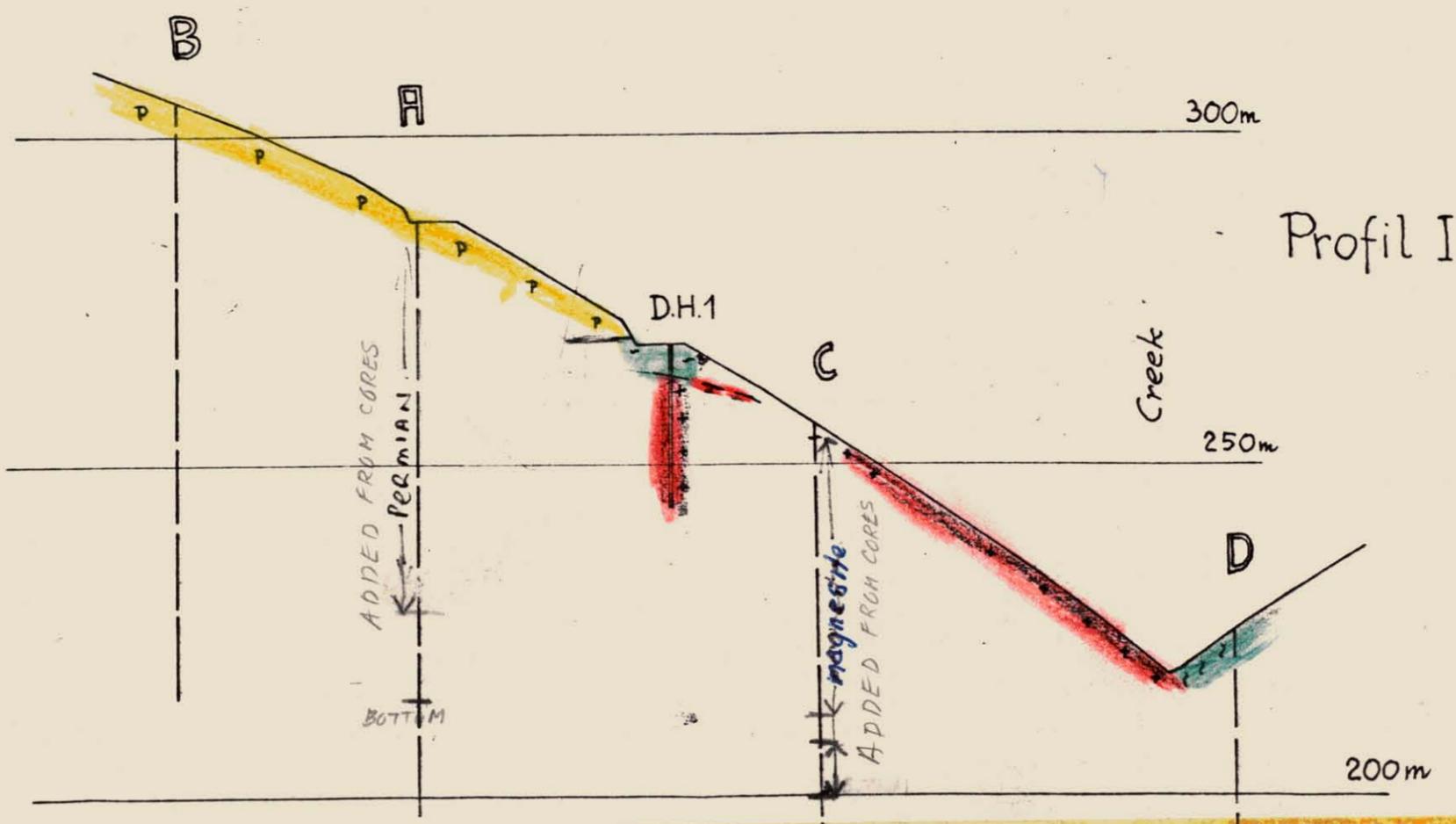
[Signature]
 (H.K. Wellington)
 Chief Chemist & Metallurgist.



- Magnesite (with Dolomite contaminated)
- Dolomite with Magnesite
- Permian sediments (Tillite)
- Precambrian (Schists etc.)
- DH.1,2 Drill Holes
- A-F Projected Drill Holes

ARTHUR RIVER MAGNE.
 MAIN BODY AND EASTERN BODY.
 1:1000

Burnie, 6.7.75. Dr



5 cm

N ← S

0 5 10 20 30 40 50 60 70 80 90 100 METRE

0 20 40 50 100 200 300 FEET

ARTHUR RIVER MAGNESITE: SECTIONS THROUGH THE MAIN BODY 1:1.000

Burnie, 6.7.75. Dr. Patel

282032

032

E.L. 4370

282033

REPORT ON EXAMINATION OF SPECIMENS OF CORE
FROM OAMAG'S DRILL HOLE A, ARTHUR RIVER
MAGNESITE-DOLOMITE DEPOSIT, AND POSSIBLE
GEOLOGICAL STRUCTURES INDICATED BY THE INFORMATION OBTAINED

In order to try and determine the geological structure revealed by Hole A, an application was made by Mineral Holdings to Mr. L. W. Morris, who is in charge of the drilling for OAMAG for a short term loan of some specimens of core from the hole. Mr. Morris approved the loan, and the samples were received on 30th September and returned on 3rd October.

The positions in the hole from which specimens were taken and the results of the examination of the specimens are described below.

No. of Specimen	Depth Feet	Descriptions
1A	50	weathered sedimentary rock with a fine-grained matrix and a few small angular fragments in it.
2A	75	dark coloured rock like specimen 1 with a few small angular fragments in it.
6A	88	dark coloured tillite with many fragments in it.
3A	100	similar to specimen 2.
4A	125.5	tillite with a dark matrix.
5A	150	similar to specimen 4.
7A	156	tillite
8A	163	pieces from core and mainly of the rounded and angular fragments in the tillite. One piece was a black slate, two were quartzites and four were of a soft, weathered rock somewhat resembling specimen 11.
9A	180	buff-coloured tillite with coarse rounded and angular fragments

033

No. of Specimen	Depth Feet	Description
13A	192	buff-coloured tillite with light and dark fragments in it.
10A	200	soft dirty white rock with dark grey patches in it, resembling a weathered (or otherwise altered) shale or slate.
11A	223	soft, buff-coloured non-granular rock, appearing granular in places but probably a result of weathering and/or other alteration. Chemical analysis needed including determination of carbonate.
12	222 to 223	completely weathered or altered type containing cellular limonite. Contains some quartz and a soft, buff-coloured material.

From 0 to 192 feet, the rocks are Permian tillites. The surface weathering extends to between 50 and 75 feet. The tillites have a dark matrix from about 75 to 156 feet, and are buff-coloured between 180 and 192 feet.

The rocks at and below 200 feet are probably basement rocks (Precambrian) and on which the Permian tillites rest unconformably. At 200 feet the rock is probably weathered (or otherwise altered) dark grey slate. The alteration is probably weathering at, and below, a former land surface. Specimen 12 probably represents a completely altered and oxidised rock or formation that contains pyrite and quartz.

If, as described above, there is an unconformity between Permian and Precambrian rocks at a depth between 192 and 200 feet, there must be a fault which, at the surface, is situated between OAMAG Hole A and Anglo-Oriental Hole 1. The fault would have a downthrow to the north of about 140 feet. It is problematical as to whether this fault has been intersected in Hole A or not.

If the fault was intersected in Hole A above the unconformity, then the Permian - Precambrian junction would be a faulted one. The unconformity would be at a greater depth than between 192 and 200 feet, and the downthrow of the fault would be greater than 140 feet; the fault would then probably be the main fault that has been mapped at the surface over a considerable length.

034

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Page Three

Another possibility is that the fault was, or would be, cut at a depth below the unconformity. If intersected in the hole, it would probably be between 223 and 233 feet, and the soft ground and cavity in that zone could be associated with the fault.

P. B. Nye

P. B. NYE
MELBOURNE
7/10/75.

035

282036

Report on operations on exploration
licence No. 43/70 during March and April, 1976

P.B. Nye

May, 1976

Mineral Holdings Aust. Pty Ltd

036

REPORT ON OPERATIONS ON EXPLORATION LICENCE

NO. 43/70 DURING MARCH AND APRIL, 1976.

INTRODUCTION

The main investigation was consideration of all available information on the geology, drilling results, assay results, etc. of the Arthur River magnesite-dolomite deposit in order to determine the structure, dimensions, grade and other factors associated with that deposit.

ARTHUR RIVER MAGNESITE-DOLOMITE DEPOSIT

a) In accordance with instructions given to him, Mr. K. Pinner made a detailed examination of the rock outcrops along the line of OAMAG's Profile II, and submitted a plan showing the distribution of Permian rocks, magnesite-dolomite and Pre-Cambrian schists along that line. This information was required to assist in the preparation of a geological section along that line.

b) A detailed study of OAMAG's report on the results of their drilling campaign and on the Arthur River deposit is being continued.

c) Geological Section along OAMAG's Profile II

With only one deep hole (OAMAG E) and one shallow hole (A.O/2) on, and near, the line, there is insufficient information to enable a geological section to be prepared with certainty. Nevertheless, a section has been prepared to show a possible structure and a copy is attached.

The section is based on

- i) information from OAMAG Hole E and Australian Oriental Hole A.O/2.
- ii) information from surface surveys of outcrops, etc.
- iii) analogy with the structure proved on Profile I by Holes C and D, particularly in regard to the strike and dip of the footwall of the deposits and other features.

If additional information is obtained, it could result in re-consideration of the geological structure shown in the Section.

d) Hole A

In response to a request from Mineral Holdings Australia for information about the bottom sample of Hole A, OAMAG sent the following information in their letter of 29th April.

"The chemical analyses of this sample made clear that no magnesite or dolomite exists in the bottom of Hole A.

SiO2	27.66%	MgO	0.34%
Fe2O3	51.40%	L on I	12.01%
Al2O3	5.66%	SO3	0.89%
CaO	0.04%	Total	98.00% "

In the report for September, 1975 reference was made to specimens from 223 feet and from 222 to 223 feet. The above analysis contains 51.40% of Fe2O3 and 27.66% of silica and suggests that the sample represented material from 222 to 223 feet which was described as containing cellular limonite with some quartz and a soft buff material. My interest was not in that specimen, but in the soft buff material from 233 feet, and I suggested an analysis including carbonate for that material, but apparently it has not been done.

The information about the rocks in the bottom of this hole still remains incomplete.

e) Pyroxenite

The drilling by OAMAG proved the existence of pyroxenite at the following places

- a) In hole C, a thickness of 11 feet between 144 and 155 feet, which is 28 feet above the footwall of the magnesite-dolomite deposit.
- b) In hole E, a thickness of 6.5 feet between 217 and 223.5 feet, which is 36.5 feet above the footwall of the magnesite-dolomite deposit.
- c) In hole E, pyroxenite formed the footwall of the magnesite-dolomite deposit, and was penetrated for 36.5 feet.

038

The bands of pyroxenite intersected in holes C and E are probably part of one and the same band, and the band is generally parallel to the footwall of the magnesite-dolomite deposit.

The pyroxenite referred to above was reported in the driller's logs but the determinations were made by Mr. K. Pinner for the drillers.

As stated in the Report for October, 1975, Mr. K. Pinner found a rock that is probably a pyroxenite. It was situated about 250 feet to the west of hole D.

A letter from OAMAG of 29th April contained the following statement

"We also tested the Pyroxenite samples of hole C and the Victory outcrop. Mineralogical and x-ray research work both gave the same results. The Pyroxenite of Arthur River deposit (hole C) and the one of Victory are of the same genesis with equal mineral components and petrographic structure."

The same rock type (pyroxenite) is therefore present at the Arthur River and Victory prospects and magnesite-dolomite and magnesite respectively are associated with it.

SILICA

As stated in his letter of application of 8th April, Mr. N. M. Thomas approached on behalf of Mineral Holdings Australia some 17 companies with the object of interesting them in the utilisation of the material in the deposits and prospects of Mineral Holdings Australia. The proposed utilisation was described in the letter by Mr. N.M. Thomas of 29th March.

Broken Hill Proprietary Company stated that they were interested only in the silica deposits, and negotiations have been started between B.H.P. and M.H.A. in connection with an agreement whereby B.H.P. will test the silica deposits on M.H.A.'s E.L.43/70.

M.H.A.'S GROUP OF MINERAL DEPOSITS AND PROSPECTS

As a result of the approaches to companies described under the section on Silica, Conzinc Riotinto Australia has become interested in the group of deposits.

MAGNESITE DEPOSITS

- a) The Veitscher Magnesitwerke Company of Austria sent its representative, Dr. N. Mitsch, to Australia to visit the magnesite deposits of M.H.A. The deposits were visited between between 2nd and 6th April, but neither the report nor the decision regarding the deposits has yet been received by M.H.A.
- b) In Monthly Reports for November and December, 1974, and January, 1975 and April and May, 1975, information was given on the zone containing the magnesite deposits on E.L.43/70. A Licence (E.L.4/75) was taken up by Hellyer Mining and Exploration Pty. Ltd. on the south-westerly extension of the zone, and a large outcrop of magnesite was recently found by Hellyer at the head of the Donaldson River. This discovery tends to verify the existence of the magnesite-bearing zone as determined by M.H.A.

P. B. Nye
P. B. NYE
MELBOURNE
22/5/76

Report on operations and investigations
on exploration licence No. 43/70
between September and December (inclusive) 1976

P.B. Nye

January, 1977

Mineral Holdings Aust. Pty Ltd

042

REPORT ON OPERATIONS AND INVESTIGATIONS ON
EXPLORATION LICENCE NO. 43/70 BETWEEN
SEPTEMBER AND DECEMBER (INCLUSIVE) 1976

INTRODUCTION

The operations on E.L.43/70 and the investigations, etc. on the mineral prospects and deposits on the E.L. are described separately for each prospect and deposit.

1. Arthur River Magnesite-Dolomite Deposit

(a) The Iron Content and its Possible Removal

The Director of the Tasmanian Department of Mines, Mr. J. G. Symons, notified Mineral Holdings Australia that he had asked the Mineral Chemistry Division of C.S.I.R.O. to investigate possible methods of removing the iron from the Arthur River magnesite-dolomite deposit, and that C.S.I.R.O. had agreed to undertake some research. The Director of Mines asked M.H.A. to provide the Division with representative samples of appropriate material.

ok'd 11

M.H.A. suggested to the Director that it would select and forward to the Division some samples from the drill cores, but the Director indicated that some outcrop samples should also be sent. Accordingly, three samples from the drill cores and two outcrop samples from the Arthur River deposit, and one outcrop sample from the Victory magnesite deposit, were sent to the Division. Information about the samples and analyses of the material in the samples were also sent.

Telephoned inquiries by M.H.A. to the Division have revealed that the investigation is proceeding and that some sections of it have been completed and that a report will be issued in the near future.

(b) Anglo-Oriental Drill Holes 1 and 2

A copy of the analyses of the samples from the two holes for MgO (as made by Amdel) was sent with the Report on E.L.43/70 for May, 1972. — ?

The residues of the ground samples were obtained from Amdel in 1975.

The residues were examined visually by M.H.A. and it was found that the colour decreased with depth from pale brown to pale buff, and this was considered to be due possibly to decrease in secondary oxides of iron (limonite, etc.) with depth. A copy of a report thereon accompanied the Report on E.L.43/70 of February and March, 1975. | ?

The residues of the samples were later sent to O.A.M.A.G. and analyses of the samples were made. A copy of the result of the analyses are attached.

The O.A.M.A.G. results for Fe₂O₃ show that, if one high figure for Fe₂O₃ in each hole is ignored, there is a general decrease in the Fe₂O₃ content with depth, the decrease being from about 4.0% to 3.0% in hole 1 and from about 4.5% to 4.0% for hole 2. Hole 1 is 24.4 metres deep and hole 2 is 15.2 metres deep, and both holes therefore show about the same general rate of decrease in Fe₂O₃ content with depth. This decrease is probably due largely to the natural distribution of iron throughout the magnesite-dolomite deposit.

The Fe₂O₃ figures in the O.A.M.A.G. analyses are total Fe₂O₃ ones and give no check of the distribution in depth of the limonite, etc. that it was thought, might result from the oxidation of the iron in the iron-bearing minerals. The range in iron content throughout the magnesite-dolomite body would be greater than any effect of the oxidation of iron in minerals in the body, and the results of any oxidation would therefore be masked.

It is possible that a small amount of limonite exists in the upper part of the body as a result of the oxidation of the iron in the iron bearing minerals in the body. However, the colouration described in the Report for February and March 1975 is almost certainly not due solely to limonite. The O.A.M.A.G. drilling showed that some of the magnesite is very light brown in colour, and this factor would have to be taken into consideration in trying to account for the change in colour with depth in the residues of the samples from A/O holes 1 and 2.

(c) General Considerations of Results of Analyses of A/O Holes 1 and 2.

The results of analyses of samples from Holes A/O 1 and A/O 2 showed that the two holes intersected low grade magnesite-dolomite. This low grade is caused by the large amounts of impurities (Fe_2O_3 and SiO_2) present and also by the CaO content being fairly high.

The following statements about the contents of Fe_2O_3 , SiO_2 , CaO and MgO are based on Table 2 attached to the Report for May and June, 1976.

The Fe_2O_3 content was about twice that in OAMAG Holes C, D and E.

The SiO_2 content in Hole A/O 2 was higher than that in all sections of OAMAG Holes C, D and E, and that in Hole A/O 1 was probably close to the averages of all sections in OAMAG Holes C, D and E.

The CaO content in Hole A/O 2 was higher than that in OAMAG Holes C, D and E, excepting two sections in Hole E, but that in Hole A/O 1 was probably close to the average of all sections of Holes C, D and E.

The MgO contents were low and only in two sections in A/O Hole 1 were the contents above 40% and only in two sections in Hole A/O 2 above 30%.

(d) Possible Use for neutralising acid wastes, solutions, etc.

Mr. N. M. Thomas (accompanied by Mr. K.J. Rees representing Minerals Pty. Ltd.) discussed with Mr. J. Cooper, Production Manager of North-West Acid Pty. Ltd., the possibility of using the magnesite from the Arthur River deposit, to neutralise acid wastes, etc.

Mr. Cooper stated that if the magnesite was suitable, he would consider installing a ball mill to grind the magnesite.

A 20 lb. sample was taken by Mr. K. Pinner from the place where sample M.1 was taken in the 1970 sampling. The sample was sent to Launceston for grinding to -100 mesh in the Department of Mines Laboratory. The sample had an MgO content of 44.3% as determined by the Mines Department Laboratory.

Half the ground sample was sent to North-West Acid for testing and the other half to Mineral Holdings in Melbourne. The ground sample had a white colour.

North-West Acid Pty. Ltd. tested the sample and a copy of their report is attached. The magnesite was only mildly reactive, but calcined magnesite offered some prospect of success. However, the use of the calcined magnesite was not sufficiently attractive to offset the cost of calcining the magnesite. Unfortunately a sample of silica sent for other reasons was tested in the same way as the magnesite and was naturally declared completely unreactive.

2. Silica

(a) Silica (General)

As stated in the Report for July and August, an agreement with B.H.P. was signed; and the agreement provided for the testing by drilling of three silica prospects on E.L.43/70.

B.H.P. started the submission of monthly reports with that for October attached. B.H.P. reported that the prospects had been examined in order to select drill sites in accessible areas and that it expected that drilling would start in November.

In the Report for November, it was stated that outcrop examination and drill site location had been completed and that access to drill sites had been arranged but that shipping hold-ups of drilling equipment to Tasmania had delayed the start of drilling.

The Report for December has not been received but Mr. Thomas was informed orally by B.H.P. that about 20 holes had been drilled to a maximum depth of about 20 metres on three deposits including Maynes Creek and Pokes Road deposits, and that a report would be furnished in January.

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A copy of each of the two B.H.P. reports are attached.

(b)

Cann Creek Silica

As stated in the Report for May and June, 1976, Minerals Pty. Ltd. had tested samples from this deposit, and it was considered that the ground silica could be marketed on the mainland.

In pursuance of this policy, Mr. N. M. Thomas and Mr. K.J. Rees (representative for Minerals Pty. Ltd.) visited the field and also interviewed Mr. J. Cooper, Production Manager, North-West Acid Pty. Ltd. Mr. Cooper stated that, if tests of the silica (and also the Arthur River magnesite) were suitable, he would consider the installation of a mill to grind both materials.

While the party was in the field, Mr. K. Pinner took a 20 lb. sample of white silica from a few places in the quarry on the deposit. The sample was sent to the Mines Department Laboratory in Launceston and was ground to -100 mesh. It was analysed in the Laboratory and a HF loss of 99.3% was reported. ?

The ground sample was divided, 10 lb. being sent to M.H.A. in Melbourne, and 10 lb. to the North-West Acid company.

The sample received in Melbourne was slightly greyish in colour. On reference to Mr. Wellington, M.H.A. was informed that the sample had been ground in a steel mill and the hardness of the silica may have caused some abrasion. It was arranged that another 10 lb. sample be obtained by Mr. K. Pinner and sent to M.H.A. in Melbourne. It has been arranged that the sample will be ground by C.S.I.R.O. in a porcelain mill.

The 10 lb. sample sent to North-West Acid was unfortunately tested along with the magnesite sample to determine if it would neutralise acid products.

(c) Pokes Road Silica

By arrangement, Mr. K. Pinner took a 10 lb. sample and sent it to Melbourne. The sample has been received.

3. Keith River Iron Formation

(a) Magnetite in the Formation

Savage River Mines. Mr. Gardiner of this company was shown by Mr. K. Pinner, the cores of C.R.A.E.'s Nos. 1 and 2 drill holes, and he examined them in detail. He was also shown over the Keith River Iron Formation. The company has not reported on the prospect, but Mr. N.M. Thomas stated that in discussions with the company representatives, the General Manager said the company would like to put percussion drill holes into the Keith River Iron Formation.

(b) Pyrite in Keith River Iron Formation

Mr. N. M. Thomas stated that in discussions, Mr. John Cooper of North-West Acid said that, if the magnetite in the Formation were mined, he would be interested as he could possibly take the pyrite which is in the Formation.

4. Coal(a) British Petroleum Co. of Australia Ltd.

This company was approached by Mr. N.M. Thomas about the coal at Preolenna.

A representative, Mr. Osman, discussed the matter with me. The B.P. interest was in the possibility of the occurrence of thick beds of coal below the thin seams near the surface as is the case at Blair Athol in Queensland and Collie in Western Australia.

All available information was supplied to B.P. but the company apparently considered that there was no possibility of the occurrence of thick seams at depth, and does not propose to continue its investigations.

5. Amphibolite Dyke with Magnetite

Information about this was included in the Report for May and June, 1976.

Mr. N. M. Thomas arranged that a sample would be taken by Mr. K. Pinner from the logger's quarry, and submitted it to Savage River Mines to ascertain if the company had any use for the material. No information has been received from the company.

P. B. Nye

P. B. NYE
MELBOURNE
25/1/77

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Assay Results Percussion Drill holes I and II from the
Main Body Arthur River by ÖAMAG:

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A) Drill hole I +)

Depth	SiO ₂	Fe ₂ O ₃	Al ₂ O ₃	Mn ₃ O ₄	Cr ₂ O ₃	CaO	MgO	L.o.J.
3,05-4,6m	1,33%	3,18%	0,06%	0,25%	0,01%	18,98%	28,89%	47,30%
4,6-6,1m	7,46%	4,55%	0,36%	0,40%	0,00%	2,93%	38,69%	45,61%
6,1-7,6m	9,27%	3,08%	0,04%	0,30%	0,00%	2,02%	40,81%	44,48%
7,6-9,15m	8,40%	3,32%	0,10%	0,28%	0,00%	7,08%	35,74%	45,08%
9,15-10,7m	3,36%	3,96%	0,09%	0,32%	0,00%	6,04%	38,15%	48,08%
10,7-12,2m	5,68%	3,64%	0,06%	0,31%	0,00%	5,02%	38,32%	46,97%
12,2-13,7m	10,01%	2,87%	0,02%	0,29%	0,00%	2,86%	38,58%	45,37%
13,7-15,2m	9,18%	3,05%	0,01%	0,28%	0,00%	2,27%	39,26%	45,95%
15,2-16,8m	4,98%	2,91%	0,07%	0,26%	0,01%	3,98%	40,35%	47,44%
16,8-18,3m	4,94%	3,49%	0,00%	0,31%	0,00%	7,46%	36,63%	47,17%
18,3-19,8m	5,89%	8,26%	0,00%	0,58%	0,02%	21,82%	18,16%	45,27%
19,8-21,3m	1,65%	3,61%	0,00%	0,30%	0,00%	14,10%	32,53%	47,81%
21,3-24,4m	1,01%	2,86%	0,00%	0,24%	0,00%	25,11%	24,09%	46,69%

B) Drill hole II ++)

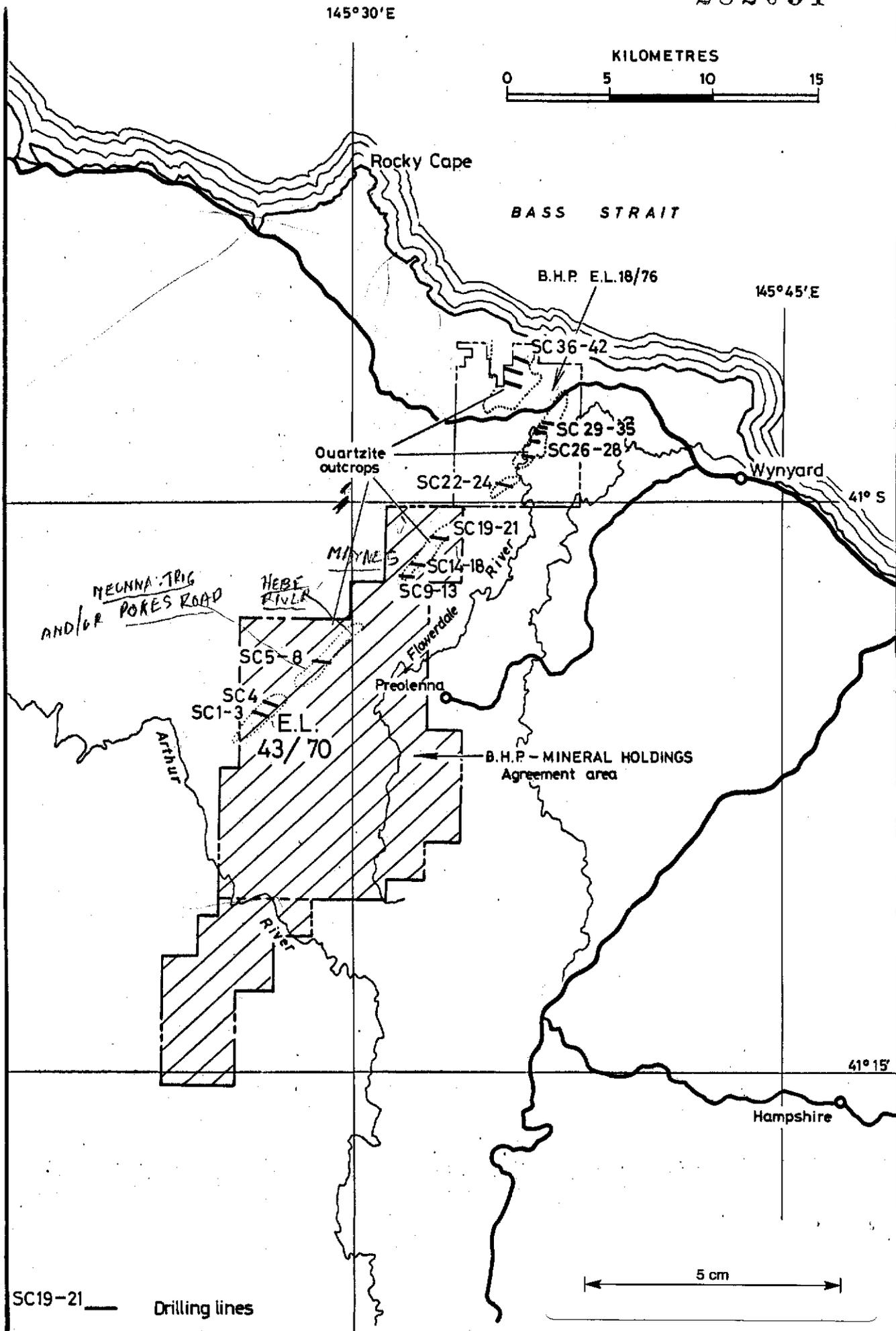
Depth	SiO ₂	Fe ₂ O ₃	Al ₂ O ₃	Mn ₃ O ₄	Cr ₂ O ₃	CaO	MgO	L.o.J.
0,0-1,5m	68,00%	16,74%	4,74%	0,84%	0,00%	0,16%	0,58%	8,94%
1,5-3,05m	21,16%	4,64%	0,40%	0,41%	0,00%	12,96%	23,45%	36,98%
3,05-4,6m	19,96%	4,32%	0,44%	0,35%	0,00%	12,87%	24,06%	38,00%
4,6-6,1m	13,23%	3,48%	0,30%	0,28%	0,00%	11,79%	28,98%	41,94%
6,1-7,6m	12,47%	4,08%	0,31%	0,30%	0,00%	9,60%	30,69%	42,55%
7,6-9,15m	9,33%	3,84%	0,22%	0,30%	0,00%	11,62%	30,36%	44,33%
9,15-10,7m	5,31%	4,37%	0,01%	0,31%	0,00%	18,26%	28,69%	43,05%
10,7-12,2m	8,62%	4,08%	0,15%	0,28%	0,00%	14,30%	28,52%	44,05%
12,2-13,7m	14,03%	3,44%	0,08%	0,24%	0,00%	15,08%	25,84%	41,29%
13,7-15,2m	9,73%	7,07%	0,00%	0,47%	0,12%	11,82%	25,24%	45,55%

Footnote +) Analysenbericht ÖAMAG Radenthein Nr. 253, 253a) umgerechnet
 Probennummer 15/3099 - 3111') auf
 ++) Analysenbericht ÖAMAG Radenthein Nr. 253b) Rohstein
 Probennummer 15/3112 - 3120

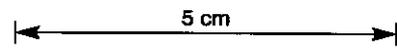
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145°30'E

KILOMETRES



SC19-21 — Drilling lines



Centre
Melbourne

Date
10-8-76

THE BROKEN HILL PROPRIETARY CO. LTD.

PLAN. B.H.P. - MINERAL HOLDINGS AGREEMENT AREA

Project No.

Drawing No.
A4-1723A