# Open File Envelope No. 6221

## EL 1275

## MYRTLE SPRINGS

## PROGRESS REPORTS TO LICENCE EXPIRY/SURRENDER FOR THE PERIOD 26/2/1985 TO 25/2/1986

Submitted by
Commercial Minerals Ltd
1986



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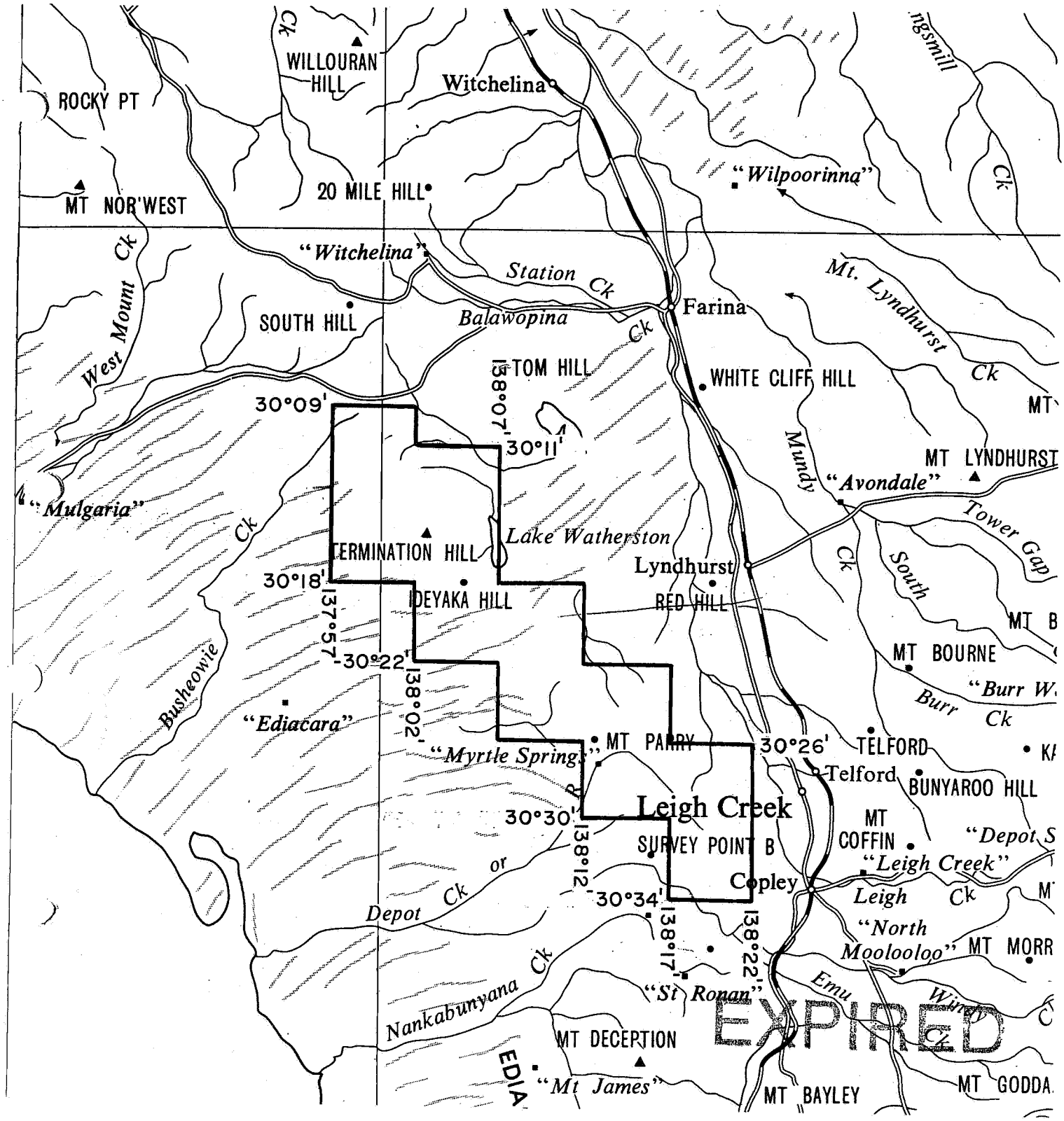
Government of South Australia
Primary Industries and Resources SA

# SCHEDULE A




SCALE 1:500,000

KILOMETRES 10 0 10 20 30 40 50 KILOMETRES

APPLICANT: COMMERCIAL MINERALS LIMITED

DM: 255/84 AREA: 651 square kilometres (approx.)

1:250000 PLANS: ANDAMOOKA, COPLEY

LOCALITY: MYRTLE SPRINGS AREA - Immediately west of Leigh Creek

DATE GRANTED: 26·2·85 DATE EXPIRED: 25·2·86 EL No: 1275

SOUTH AUSTRALIA

DEPARTMENT OF MINES AND ENERGY

# OPEN FILE ENVELOPE NO. 6221

CONTENTS ENVELOPE 6221

TENEMENTS: E.L. 1275.

TENEMENT HOLDER: Commercial Minerals Ltd.

1.

#CNO=0001607 DOC-TYPE: Company rep #DOE=15/09/86

TITLE

#TN=EL1275; #TN=ML5000; Myrtle Springs. Progress reports from 25.5.85 to 25.2.86. #Env=6221

COMPANY

Commercial Minerals Ltd;

AUTHOR

Thynne, D S; #DOP=1986

NOTES

1 fiche, 27 pages; 1 fig, 4 rep, 3 tables,

ABSTRACT

Exploration for magnesite in the Myrtle Springs - Copley region was confined to sampling known magnesite occurrences held under mining lease.

KEYWORDS

#SC=1250; #SC=1345; Industrial minerals; Magnesite; Roasting; Water wells; Silicate analysis; Mine sampling; Skillogalee Dolomite; #TECT=(Adelaide Geosyncline); Assays : CaCO3;CaO;MgCO3;MgO;SiO2;Fe2O3;Al2O3;

LOCALITY

Myrtle Springs magnesite quarry; #250=SI5409 #MAP=COPLEY; #100=6537:3;

000003

COMMERCIAL MINERALS LIMITED

GEOLOGICAL SERVICES DIVISION

# QUARTERLY REPORT NO 1: EXPLORATION LICENCE NO 1275

## PERIOD: THREE MONTHS ENDING 25TH MAY, 1985

## INTRODUCTION

Beds of Proterozoic magnesite conglomerates are extensively developed in the Leigh Creek township-Witchelina Station area on the Copley 1:250,000 sheet (SH54-9). Exploration Licence 1275 covers most of the magnesite sequence between Copley in the south and Termination Hill, south of Witchelina in the north.

## GEOLOGICAL MAPPING

No systematic field work or geological sampling was done during the quarter. A creek section near the southern boundary of Mineral Lease 5001 within the E.L. contains fifty six exposed magnesite conglomerate beds over a stratigraphic interval of approximately 250m. The section was noted during reconnaisance inspection of the magnesite beds in the central section of the E.L.

The magnesite conglomerates are overlain by a thin cover of alluvials south of the Myrtle Springs Homestead access road. The beds reappear in the creek channel, and in areas of higher relief two to three kilometres south of the road.

## WATER SUPPLY DRILLING

Underdale Drillers were contracted to drill a 6 inch (15.24cm) diameter water bore for a water supply to dampen dust created in the magnesite mining operations in M.L.5000. The water bore was drilled to a depth of 73m and is located at 138°14.15"E, 30°26.3"S near the junction of the Myrtle Springs Homestead road and the track to the Mineral Leases. Two water tanks have been instored at the bore.

The company's Warman Scout 250 Universal drilling was used to drill a water bore for stock drinking water for Myrtle Springs Station. The drillhole was not completed due to a mechanical failure on the drillrig. The drillhole is located in the eastern section of the E.L. southwest of an unnamed disused well, and Donaldson and Smith disused wells.

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## DISCUSSION

Myrtle Springs Magnesite is fine grained and porous, with a typical grain size of 10-20um. Most of the magnesite is in the form of disc shaped pebbles. The pebbles in the magnesite conglomerate beds are usually well sorted, but pebble size and matrix content varies from bed to bed. Typically magnesite pebbles have a long axis less than 10mm long. Talc and albite are the main impurity minerals. Dolomite and magnesite both occur in the matrix.

Over thirty magnesite conglomerate beds are known in the Copley-Myrtle Springs area. In the Magnesite sequence a typical cycle appears to be dolomite-magnesite shale-magnesite conglomerate. Narrow chert and quartzite beds can occur in the sequence and quartz can occur in the magnesite conglomerates as detrital grains. The magnesite sequence is overlain by dolomite, siltstones, slates and minor quartzites and underlain by siltstones, sandstones, shales and minor dolomites.

Commercial Minerals Ltd. has supplied nearly 30,000mt of Myrtle Springs magnesite to Queensland Alumina Ltd. at Gladstone for purification processes in their production of alumina. A requirement by Q.A.L. is that the silica content remains low (preferably less 2%). Typically sedimentary magnesite deposits contain more than 4.0% silica.

101 samples of Myrtle Springs magnesite from the Mining Operations were analysed for silica and other properties by Amdel between early December 1984 and mid April 1985. Silica content varied from

2.02% to 21.3% with an average of 5.716%

Silica content of the first shipment were as follows

+63mm 4.84%, -63+31.5mm 5.73%, -31.5+11.2mm 6.54%
11.2+6.7mm 6.41%, -6.7+2.0mm 6.3% -2mm 11.73%

In the second shipment the magnesite conglomerates were more selectively mined.

The weighted average silica content of the bulk ship-4.37%
The arithmetic average of the 12 weekly samples 4.21%

## FUTURE PROGRAMME

There is a need to recognise the low silica magnesite conglomerate in the magnesite sequence and map and sample them throughout the Exploration Licence area; to ensure that the best sites can be selected for future mining operations.

Reference. Characterisation and Processing of Myrtle Springs Magnesite (Magnesite C) by the calcination/Carbon Dioxide Leach Process. CSIRO May 1984. J.H. Canterford, M.T. Frost, P.T.L. Koh, M. McCallum, C. Moorrees and G. Tsambourakis.

EXPENDITURE

1. Geological Field cost

2. Laboratory Analyses and consultants

3. Drilling Costs - Commercial Minerals rig 7,500
Underdales rig 5,430

4. Logistics (a percentage of camp and ancillary cost apportioned to exploration)

5. Administration costs (to be apportioned to exploration, includes drafting cost)

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EXPENDITURE p.e. 25.5.85.

| | | |
|---|---|---|
| 1. | Geological Field cost | 1,600 |
| 2. | Laboratory Analyses and consultants | 9,400 |
| 3. | Drilling Costs | 12,900 |
| 4. | Logistics (a percentage of camp and ancillary cost apportioned to exploration) | 1,000 |
| 5. | Administrations costs (to be apportioned to exploration, includes drafting cost) | 2,400 |
| | | 27,300 |

COMMERCIAL MINERALS LIMITED

GEOLOGICAL SERVICES DIVISION

# QUARTERLY REPORT NO 2: EXPLORATION LICENCE NO 1275

PERIOD: THREE MONTHS ENDING 25TH AUGUST, 1985

## INTRODUCTION

Beds of Protertozoic magnesite conglomerates are extensively developed in the Myrtle Springs Formation and Skillogalee Dolomite on the Copley 1:250,000 sheet (SH54-9). Exploration Licence 1275 covers most of the magnesite sequence between Copley township in the south and Termination Hill in the north.

## GEOLOGICAL MAPPING

No field work or magnesite sampling was done during the quarter in the E.L.

## DISCUSSION

The Magnesite sequence strikes N.W. and dip 60 to 80° N.E. Individual Magnesite conglomerates beds appear to be lithologically consistent along strike north of Copley workings (B. Forbes, 1955 and previous departmental reports). It is possible to recognise each individual magnesite conglomerate bed on its textural, width and geochemical characteristics. At Copley Magnesite F.H. Faulding and Co. Ltd. drilled two diamond drillholes in 1947. Both drillholes were inclined at a shallow angle and drilled with a southwest Azimuth. Drillhole 1 intersected 25 magnesite seams. Drillholes proposed are shown in Mineral Review No 85, 1947. Results of costean sampling and correlatable drillhole intersection width and geochemical assays are shown in Mineral Review No 87, 1949. A summary of the results is given in Bulletin No 38 and are as follows:

| | $CaCO_3$% | $MgCO_3$% | $SiO_2$% |
|---|---|---|---|
| Range | 1.8-10.34 | 62.8-94.1 | 5.0-20.0 |
| Average | 5.5 | 81.1 | 13.1 |



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DISCUSSION (cont)

At Myrtle Springs, mid 1984 sampling reflected the following two sets of results:

| Samples analysed by CSIRO | | QAL analyses of early samples | |
|---|---|---|---|
| MgO | 48.26% | MgO | 46.13% |
| CaO | 0.64% | CaO | 0.54% |
| FeO | 0.15% | $Fe_2O_3$ | 0.13% |
| $Al_2O_3$ | 0.10% | $Al_2O_3$ | 0.13% |
| $SiO_2$ | 2.91% | $SiO_2$ | 3.42% |
| $CO_2$ | 47.10% | L.O.I. | 49.18% |
| Total | 99.16 | | 99.53 |

It is considered that the magnesite samples would have been taken from the eastern section of the open cut in Mineral Lease 5000.

Between August 1984 and April 1985 101 samples were analysed by Amdel and 66 samples by Commercial Minerals Moorabbin laboratories of Myrtle Springs magnesite. The sample results are shown in Table 1. The two sets show the date that the results were received. Representative splits in some cases of the same sample have been analysed by both laboratories. The samples are from both in situ and at crusher.

During mining operations between October 1984 and April 1985 the bench face at the open cut was advanced westward. A number of magnesite beds were mined. It is considered that the progressive sample result variation reflects particular magnesite conglomerate beds. Notable are the high silica results in December 1984 and generally higher and consistent MgO values from February 1985 onwards. A wide relatively pure magnesite conglomerate bed has been worked and is exposed at the northern end of the present western bench face.

Tables 2 and 3 show respectively the Chemical analyses of wet sized fraction of the bulk shipment and chemical analyses of weekly production samples for the second shipment of Myrtle Springs Magnesite to Q.A.L. The high silica content of the undersize fraction is of particular note (13.67%). This probably reflects the increase content of Talc in this fraction. (Samples were analysed by Q.A.L.).

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## FUTURE PROGRAMME

During the next quarter it is planned to map the open cuts and trace the wider and lower silica content magnesite beds to the north and south of Mineral Lease 5000.

## EXPENDITURE

1. Geological Field Cost

2. Laboratory analyses and consultants

3. Drilling Costs

4. Logistics (a percentage of camp and ancillary cost apportioned to exploration)

5. Administration costs (to be apportioned to exploration, includes drafting cost)

## FUTURE PROGRAMME

During the next quarter it is planned to map the open cuts and trace the wider and lower silica content magnesite beds to the north and south of Mineral Lease 5000.

EXPENDITURE p.e. 25.8.85.

| | | |
|---|---|---|
| 1. | Geological Field cost | 600 |
| 2. | Laboratory analyses and consultants | 3,300 |
| 3. | Drilling Costs | - |
| 4. | Logistics (a percentage of camp and ancillary cost apportioned to exploration) | - |
| 5. | Administration costs (to be apportioned to exploration, includes drafting cost) | 1,600 |
| | | 5,500 |

TABLE 1

AMDEL AND COMMERCIAL MINERALS LABORATORIES.

ANALYTICAL RESULTS OF MYRTLE SPRINGS

MAGNESITE.

MYRTLE SPRINGS

AMDEL RESULTS

ADELAIDE

000012

| Sample No | Date of Telex | L.O.I. | $CaCO_3$ | CaO | $MgCO_3$ | MgO | acid insoluble matter | Silica |
|---|---|---|---|---|---|---|---|---|
| 2/7A | 11.12.84 | | | | | 46.9 | | 2.29% |
| 3/1 | | | | | | 44.3 | | 6.31% |
| 1/1 | 12.12.84 | | 13.7 | | 74.3 | | | 12.5% |
| 2/8 | | | 12.7 | | 81.1 | | | 7.21% |
| 3/10 | | | 7.92 | | 83.1 | | | 9.95% |
| A | 14.12.84 | 46.1% | 4.46% | 2.5% | 91.8 | 43.9% | | 7.70% |
| B | | 46.2% | 4.82% | 2.7% | 91.8 | 43.9% | | 7.50% |
| 2/9 | 13.12.84 | | 1.28% | | 96.4 | | | 4.24% |
| 3/1A | | | 3.72% | | 89.5 | | | 8.03% |
| 3/1 (1) | 17.12.84 | 45.7% | | 5.4% | | 40.9% | | 6.65% |
| 3/1 (2) | | 44.8% | | 3.57% | | 41.3% | | 8.65% |
| 3/11 | | 48.3% | | 0.33% | | 47.1% | | 3.65% |
| 3/16 | | 46.6% | | 3.03% | | 44.1% | | 6.05% |
| Trial 100 | 10.1.85 | | | 0.52% | | 47.0% | | 2.6% |
| 2/8B 8/1/2 | | | | 8.33% | | 38.5% | | 9.96% |
| Crusher 8/1/3 | | | | 2.14% | | 44.3% | | 5.37% |
| 2/8A 5/1/1 | | | | 7.50% | | 39.7% | | 7.67% |
| Crusher 6/1/1 | | | | 1.02% | | 46.1% | | 4.33% |
| 1/1/6 | 11.1.85 | | | 1.39% | | 45.4% | | 5.54% |
| 10/1/6 | | | | 2.09% | | 45.5% | | 4.80% |
| 11/1/1 3/2A | sent - 24.1.85 printed sheet | | | 6.30% | | 39.0% | | 10.8% |
| 11/1/2 3/2B | | | | 5.33% | | 40.9% | | 9.61% |
| 11/1/3 Crusher | | | | 1.55% | | 45.5% | | 4.58% |
| 12/1/1 Crusher | 17.1.85 | | | 2.65% | | 43.7% | | 7.20% |
| 13/1/1 Crusher | | | | 0.98% | | 46.7% | | 4.89% |
| 15/1/1 3/2C | | | | 7.59% | | 40.0% | | 9.50% |
| 15/1/2 3/2D | | | | 7.26% | | 37.2% | | 17.6% |
| 15/1/3 3/2E | | | | 2.29% | | 45.9% | | 2.47% |
| 15/1/4 2/8C | | | | 8.10% | | 39.0% | | 10.5% |
| 16/1/1 2/8D | 18.1.85 | | | 4.10% | | 43.2% | | 6.09% |
| 16/1/2 2/8E | | | | 3.05% | | 43.9% | | 8.37% |
| 17/1/1 | 23.1.85 | | | 0.48% | | 47.6% | | 2.96% |
| 17/1/2 | | | | 8.26% | | 39.9% | | 5.61% |
| 20/1/1 | 24.1.85 | | | 2.66% | | 44.4% | | 4.75% |
| 21/1/1 | | | | 4.08% | | 43.1% | | 8.90% |
| 22/1/1 | 24.1.85 | | | 1.36% | | 45.6% | | 3.05% |

MYRTLE SPRINGS

AMDEL RESULTS

000013

| Sample No | Date of Telex | L.O.I. | $CaCO_3$ | CaO | $MgCO_3$ | MgO | acid insoluble matter | Silica |
|---|---|---|---|---|---|---|---|---|
| 23/1/1 | 24.1.85 | | | 4.60% | | 42.8% | | 5.50% |
| 23/1/2 | | | | 8.94% | | 38.9% | | 6.15% |
| 23/1/3 | | | | 10.2% | | 38.1% | | 7.60% |
| 23/1/4 | | | | 10.0% | | 39.4% | | 6.80% |
| 24/1/1 | 25.1.85 | | | 5.51% | | 42.4% | | 4.94% |
| 25/1/1 | | | | 4.18% | | 42.5% | | 4.37% |
| 25/1/2 | | | | 0.60% | | 45.1% | | 8.45% |
| 26/1/1 | 30.1.85 | | | 4.37% | | 42.8% | | 3.70% |
| 27/1/1 | | | | 3.22% | | 43.8% | | 3.89% |
| 28/1/1 | | | | 1.41% | | 46.2% | | 2.86% |
| 29/1/1 | | | | 2.71% | | 44.4% | | 3.58% |
| Crusher 30/1/1 | 31.1.85 | | | 3.00% | | 43.7% | | 3.45% |
| 31/1/1 | 1.2.85 | | | 5.23% | | 41.9% | | 4.27% |
| 1/2/1 | 6.2.85 | | | 6.04% | | 41.3% | | 4.02% |
| 2/2/1 | | | | 4.40% | | 42.9% | | 4.59% |
| 3/2/1 | | | | 4.36% | | 43.2% | | 3.47% |
| 4/2/1 | | | | 5.56% | | 42.4% | | 3.88% |
| 5/2/1 | | | | 5.59% | | 41.7% | | 5.82% |
| 5/2/2 2/9/1 | | | | 0.76% | | 47.3% | | 3.02% |
| 6/2/1 | 8.2.85 | | | 21.4% | | 23.1% | | 14.5% |
| 6/2/2 | | | | 23.3% | | 23.5% | | 11.4% |
| 6/2/3 | | | | 2.51% | | 45.4% | | 3.68% |
| 6/2/4 | | | | 2.35% | | 39.3% | | 21.3% |
| 6/2/5 | | | | 2.46% | | 45.5% | | 4.52% |
| 6/2/6 | | | | 3.30% | | 40.3% | | 12.5% |
| 6/2/7 | | | | 0.69% | | 47.3% | | 2.75% |
| 9/2/1 | 12.2.85 | | | 1.14% | | 44.6% | | 3.37% |
| 10/2/1 | | | | 3.89% | | 41.9% | | 5.86% |
| 10/2/2 | | | | 0.38% | | 46.1% | | 2.55% |
| 3/13B 10/2/3 | | | | 0.38% | | 46.0% | | 2.51% |
| 11/2/1 | | | | 2.86% | | 43.1% | | 3.78% |
| 2/9C 11/2/2 | | | | 1.29% | | 43.3% | | 6.31% |
| 11/2/3 | | | | 0.79% | | 44.6% | | 5.17% |
| 12/2/1 | 13.2.85 | | | 2.55% | | 43.9% | | 3.42% |
| 14/2/1 | 15.2.85 | | | 2.17% | | 45.9% | | 3.75% |
| 15/2/1 | 20.2.85 | | | 1.22% | | 45.3% | | 4.50% |
| 16/2/1 | | | | 0.55% | | 46.7% | | 3.13% |
| 17/2/1 | | | | 1.26% | | 45.2% | | 4.21% |
| 18/2/1 | | | | 1.77% | | 45.2% | | 4.22% |

MYRTLE SPRINGS

AMDEL RESULTS

000014

| Sample No | Date of Telex | L.O.I. | $CaCO_3$ | CaO | $MgCO_3$ | MgO | acid insoluble matter | Silica |
|---|---|---|---|---|---|---|---|---|
| 80-2-1 | 21.2.85 | | | 1.82% | | 44.9% | | 4.75% |
| 21/2/1 | 25.2.85 | | | 1.35% | | 45.0% | | 4.10% |
| 26/2/1 3/5D | 27.2.85 | | | | | 40.1% | | 13.9% |
| 26/2/2 3/5C | | | | | | 44.5% | | 4.18% |
| 26/2/3 13/3D No 1 | | | | | | 44.6% | | 3.27% |
| 27/2/1 3/6A | 27.2.85 | | | | | 45.6% | | 2.37% |
| 28/2/1 | | | | | | 45.6% | | 3.03% |
| 6/3/1 | 7.3.85 | | | 1.70% | | 44.1% | | 5.90% |
| 7/3/1 | 8.3.85 | | | 1.55% | | 44.5% | | 4.27% |
| 8/3/1 | 11.3.85 | | | 1.83% | | 44.7% | | 4.52% |
| 9/3/1 | 22.3.85 | | | 2.31% | | 42.9% | | 6.0% |
| 10/3/1 | | | | 2.32% | | 43.2% | | 5.51% |
| 11/3/1 | | | | 1.92% | | 44.5% | | 4.66% |
| 12/3/1 | | | | 4.18% | | 40.9% | | 8.03% |
| 14/3/1 | | | | 1.95% | | 44.6% | | 3.90% |
| 17/3/1 | 28.3.85 | | | 1.70% | | 44.5% | | 5.12% |
| 18/3/1 | | | | 1.95% | | 44.6% | | 4.51% |
| 19/3/1 | | | | 1.79% | | 44.6% | | 4.70% |
| 20/3/1 | | | | 2.62% | | 44.2% | | 4.61% |
| 21/3/1 | | | | 1.40% | | 45.6% | | 4.03% |
| 22/3/1 | 18.4.85 | | | 1.11% | | 45.4% | | 2.46% |
| 26/3/1 | | | | 0.45% | | 45.5% | | 2.02% |
| 27/3/1 | | | | 1.32% | | 45.3% | | 3.06% |
| 28/3/1 | | | | 2.98% | | 43.4% | | 3.20% |
| 29/3/1 | | | | 1.52% | | 44.3% | | 3.52% |

MYRTLE SPRINGS

MOORABBIN RESULTS

000015

| Sample No | Date of Telex | L.O.I. | $CaCO_3$ | CaO | $MgCO_3$ | MgO | acid insoluble matter | Silica |
|---|---|---|---|---|---|---|---|---|
| Dolomite | 10.12.84 | 39.02% | 5.2% | | 69.7% | | 23.5% | 15.2% |
| 2/1 | some of results | 44.53% | 3.9% | | 81.1% | | 13.6% | 9.4% |
| 2/2 | on 13.12.84 | 45.05% | 2.7% | | 82.6% | | 11.9% | 7.4% |
| 2/3 | | 47.19% | 5.2% | | 86.6% | | 7.6% | 5.6% |
| 2/4 | | 47.15% | 5.9% | | 85.3% | | 7.7% | 5.4% |
| 2/5 | | 43.88% | 1.4% | | 82.2% | | 15.1% | 9.9% |
| 3/2 | | 42.73% | 6.2% | | 76.8% | | 16.4% | 8.3% |
| 3/3 | 11.12.84 14.12.84 | 43.06% | 5.5% | | 75.1% | | 16.8% | 12.2% |
| 3/4 | 17.12.84 | 43.21% | 3.9% | | 77.8% | | 16.5% | 11.2% |
| 3/5 | | 44.25% | 3.1% | | 79.7% | | 15.0% | 10.1% |
| 3/6 | | 43.56% | 2.7% | | 79.1% | | 15.6% | 9.4% |
| 3/7 | | 43.24% | 3.6% | | 76.5% | | 16.7% | 10.3% |
| 3/8 | 11.12.84 18.12.84 | 44.13% | 1.0% | | 79.1% | | 15.4% | 7.4% |
| 3/9 | | 43.58% | 2.8% | | 79.5% | | 15.7% | 10.2% |
| 3/4A | | 42.74% | 38.3% | | 47.9% | | 10.8% | 3.7% |
| S/P | | | | | | | 7.58% | 4.3% |
| 2/6 | | | | | | | 9.50% | 6.9% |
| 2/7 | | | | | | | 9.48% | 6.3% |
| 2/8 | | | | | | | 13.41% | 7.2% |
| 3/1 | | | | | | | 7.53% | 4.6% |
| 3/10 | 13.12.84 14.12.84 | 43.23% | 3.3% | | 81.1% | | 13.8% | 7.7% |
| 3/11 | | 48.3% (n) 49.04% | 1.0% | | 96.0% | | 3.7% | 1.1% |
| N/E 11/1/85 | 17.1.85 18.1.85 | 48.49% | 3.06% | | 88.7 | | 6.48 | 3.8% |
| L/1 | 17.1.85 | 48.59% | 2.70% | | 89.4 | | 6.64 | 3.9% |
| 2/7A | | 48.39% | 2.80% | | 88.8 | | 6.87 | 3.9% |
| 2/9 | | 48.24% | 3.51% | | 88.0 | | 6.94 | 4.2% |
| 3/1A | | 48.60% | 2.78% | | 89.1 | | 6.28 | 3.8% |
| 3/10A | | 48.49% | 3.06% | | 88.6 | | | |
| 9/1/1 | 30.1.85 | 48.18% | 2.3% | | 89.6 | | 6.5 | 3.9 |
| 2/8A | | 43.37% | 13.2% | | 70.4 | | 14.4 | 9.3 |
| 2/8B | | 43.35% | 13.7% | | 71.3 | | 13.7 | 7.7 |
| 3/2A | | 48.27% | 2.0% | | 90.0 | | 6.2 | 3.9 |
| 3/2B | | 43.35% | 13.1% | | 71.7 | | 14.0 | 8.1 |
| 4/1/1 | | 47.27% | 9.0% | | 81.3% | | 7.5 | 4.9 |
| 2/8C | | 42.60% | 12.0% | | 71.4% | | 16.6 | 11.6 |
| 2/8D | | 47.3% | 9.5% | | 82.2% | | 7.6 | 4.8 |
| 3/2C | | 42.66% | 10.2% | | 71.7% | | 16.6 | 11.6 |
| 3/2D | | 42.67% | 11.1% | | 71.0% | | 16.3 | 11.2 |
| 3/2E | | 42.57% | 10.1% | | 72.4% | | | |

# MYRTLE SPRINGS MAGNESITE

## MOORABBIN RESULTS

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| Sample | Date of Telex or Report | L.O.I. | $CaCO_3$ | CaO | $MgCO_3$ | MgO | acid insoluble matter | Silica | |
|---|---|---|---|---|---|---|---|---|---|
| 1 Large Lump | 20.9.84 | 49.35 | 6.5 | 3.6 | 87.3 | 41.7 | 3.3 | | |
| 2 Med Lump | | 44.63 | 35.8 | 20.0 | 52.6 | 25.2 | 8.4 | | |
| 3 Small Lump | | 46.03 | 5.4 | 3.1 | 80.2 | 38.3 | 11.1 | | |
| Bottom Steatum Crystalline | 12.11.84 | 36.81 | 19.3 | 10.8 | 51.0 | 24.4 | 25.76 | | |
| Middle Steatum Amorphous | | 42.40 | 29.5 | 16.5 | 53.4 | 25.5 | 13.86 | | |
| Top Steatum Amorphous | | 40.55 | 24.4 | 13.7 | 53.1 | 25.4 | 18.88 | | |
| Representative Magnesite sample to be sent to Q.A.L. | 12.11.84 | 45.77 | 5.5 | 3.1 | 83.5 | 39.9 | 11.62 | | |
| No 1 | 21.11.84 | 43.67 | 9.4 | | 74.8 | | | | |
| No 2 | | 47.10 | 5.9 | | 85.4 | | | | |
| Ex Myrtle Springs | 23.8.84 | 49.45 | 1.59 | 0.89 | 93.98 | 44.94 | 3.76 | 2.53 | $Fe_2O_3$ 0.14 |
| High Lode | 28.9.85 | 50.57 | 0.8 | 0.45 | 93.7 | 44.8 | 2.18 | | |
| Low Lode | | 46.65 | 21.97 | 12.31 | 69.6 | 33.3 | 6.57 | | |
| ES14 A | 6.3.85 | 48.0 | 3.6 | 2.0 | 88.7 | 42.4 | 6.8 | 4.1 | |
| ES14 B | | 46.4 | 3.5 | 2.0 (1.95) | 86.0 | 41.1 | 9.1 | 4.3 | |
| 16/2/1 | 8.3.85 | 48.62 | 1.2 | | 91.9 | 6.1 | 3.9 | | |
| 12/2/1 | | 48.48 | 1.6 | | 89.7 | 6.4 | 4.0 | | |
| 10/2/3 3/13B | | 48.49 | 1.6 | | 89.2 | 6.4 | 4.1 | | |
| 17/2/1 | | 48.65 | 2.0 | | 88.9 | 6.4 | 3.7 | | |
| 11/2/2 2/9C | | 48.68 | 2.0 | | 90.3 | 6.0 | 3.5 | | |
| W/E 22/2/85 | 5.3.85 | 48.71 | 1.2 | | 93.6 | | 5.5 | 3.5 | |
| 21/2/1 | 18.3.85 | 48.81 | 2.8 | | 90.4 | | 5.8 | 3.9 | |
| 27/2/1 | | 49.45 | 2.3 | | 93.1 | | 5.3 | 3.8 | |
| 28/2/1 | | 49.36 | 2.0 | | 92.6 | | 4.7 | 3.4 | |
| W/E 22/3/85 | 2.4.85 | 48.83 | 1.5 | | 91.2 | | 6.6 | 4.2 | |
| Sample B | | 48.83 | 1.6 | | 92.5 | | 6.2 | 4.2 | |
| 14/3/1 | | 49.59 | 0.8 | | 91.8 | | 6.5 | 4.0 | |
| 10/3/1 | | 48.90 | 1.2 | | 92.3 | | 6.5 | 4.4 | |
| 20/3/1 | | 48.09 | 1.6 | | 88.6 | | 6.1 | 4.1 | |
| 8/3/1 | | 48.61 | 1.2 | | 91.6 | | 6.3 | 4.2 | |

TABLE 2

CHEMICAL ANALYSIS OF WET SIZED FRACTIONS

| Size Fraction | Mass % Wet | Constituent | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | $SiO_2$ | $Al_2O_3$ | $Fe_2O_3$ | CaO | MgO | L.O.I. (105-1100°C) | MgO as $MgCO_3$ |
| - 50.0 mm + 31.5 mm | 23.7 | 3.74 | 0.13 | 0.15 | 2.33 | 44.80 | 48.68 | 93.71 |
| - 31.5 mm + 16.0 mm | 39.8 | 4.48 | 0.17 | 0.18 | 2.55 | 44.33 | 48.10 | 92.73 |
| - 16.0 mm + 11.2 mm | 16.2 | 4.48 | 0.19 | 0.17 | 2.77 | 44.26 | 48.09 | 92.58 |
| - 11.2 mm + 6.7 mm | 12.8 | 4.16 | 0.23 | 0.31 | 2.59 | 44.31 | 48.21 | 92.69 |
| - 6.7 mm + 2.0 mm | 5.0 | 4.40 | 0.84 | 0.72 | 2.30 | 44.22 | 47.78 | 92.50 |
| - 2.0 mm + 0.425 mm | 1.2 | 4.09 | 0.34 | 1.60 | 2.17 | 44.27 | 47.54 | 92.60 |
| - 0.425 mm | 1.3 | 13.67 | 1.18 | 2.51 | 3.04 | 40.00 | 39.57 | 83.67 |
| Weighted Average | | 4.37 | 0.22 | 0.26 | 2.52 | 44.36 | 48.12 | 92.79 |
| Composite | | 4.14 | 0.34 | 0.28 | 2.48 | 44.36 | 48.28 | 92.79 |

N.B. Samples dried at 105°C before chemical analysis

TABLE 3

CHEMICAL ANALYSIS OF WEEKLY PRODUCTION SAMPLES

MYRTLE SPRINGS, S.A.

| Week Number | Constituent | | | | | | |
|---|---|---|---|---|---|---|---|
| | $SiO_2$ | $Al_2O_3$ | $Fe_2O_3$ | CaO | MgO | L.O.I. (105-1100°C) | MgO as $MgCO_3$ |
| 1 | 4.34 | 0.19 | 0.22 | 1.87 | 44.80 | 48.40 | 93.71 |
| 2 | 4.13 | 0.13 | 0.17 | 2.01 | 44.99 | 48.40 | 94.11 |
| 3 | 4.06 | 0.15 | 0.17 | 3.59 | 43.67 | 48.25 | 91.35 |
| 4 | 3.80 | 0.13 | 0.19 | 3.69 | 43.87 | 48.32 | 91.77 |
| 5 | 4.60 | 0.13 | 0.19 | 4.59 | 42.85 | 47.64 | 89.63 |
| 6 | 4.41 | 0.10 | 0.16 | 2.76 | 44.34 | 48.23 | 92.75 |
| 7 | 3.96 | 0.09 | 0.16 | 1.61 | 45.34 | 48.84 | 94.84 |
| 8 | 4.78 | 0.14 | 0.15 | 1.77 | 45.06 | 48.10 | 94.26 |
| 9 | 4.84 | 0.13 | 0.16 | 1.88 | 44.98 | 48.01 | 94.09 |
| 10 | 5.20 | 0.15 | 0.13 | 2.15 | 44.67 | 47.70 | 93.44 |
| 11 | 3.29 | 0.11 | 0.11 | 1.44 | 45.87 | 49.18 | 95.95 |
| 12 | 3.09 | 0.12 | 0.11 | 1.69 | 45.61 | 49.38 | 95.41 |
| Arithmetic Average | 4.21 | 0.13 | 0.16 | 2.42 | 44.67 | 48.37 | 93.44 |

N.B. Samples dried at 105°C before chemical analysis

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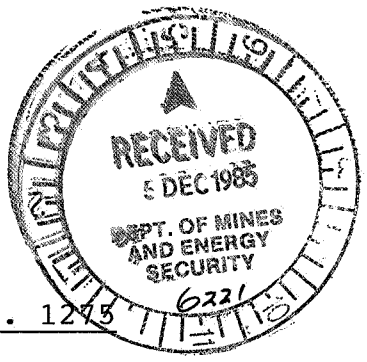


COMMERCIAL MINERALS LIMITED

GEOLOGICAL SERVICES DIVISION

QUARTERLY REPORT NO. 3: EXPLORATION LICENCE NO. 1275

PERIOD: THREE MONTHS ENDING 25TH NOVEMBER, 1985

## 1. INTRODUCTION

At Myrtle Springs there are approximately 12,000 tonnes of magnesite fines (less than 50mm) in two dumps. The dumps were sampled on 5th September to determine quality. Results have not been received.

Approximately 2000 tonnes of magnesite was mined in M.L. 5000 during the quarter. A magnesite conglomerate bed with a greater width than 1.5m was mined. In the footwall section of the bed the matrix is often a dark grey colour, and in zones contain brecciated dark grey and pale grey bands where magnesite pebbles are sparse or absent. Detailed mineralogical, chemical and X.R.D. analyses confirm that the carbonate present in the bands and matrix is magnesite, that the differential colouration is due to bleaching of carbonaceous matter and that talc is the main contaminant mineral.

The world uses approximately 8m tonnes of magnesia annually. Four fifths of this goes into the production of refractories. A bulk sample of Myrtle Springs sample has been collected to test its suitability for calcination. For comparison, samples have been collected of some other South Australian magnesites. Independent, preliminary calcination/carbonic acid leaching comparision tests of several Australian magnesites, including Myrtle Springs has been published by the C.S.I.R.O.

Surveying and tracing of magnesite beds, and the plotting of sample positions mentioned in the first two quarterly reports has not been done.

## 2. SAMPLING

Fourteen samples were collected from the two magnesite dumps of minus 50mm material. Each sample was between five and ten kilograms. The dumps were sampled to determine quality.

Several magnesite conglomerate beds have been mined at Myrtle Springs. Typically two conglomerate types have been mined.

(a) A pale grey matrix and pebble variety where the main carbonate in both is magnesite. The magnesite is fine grained, pebble sizes are typically 2mm to 12mm and talc is the main contaminant along thin films and on pebble, matrix boundaries.

.../2

SAMPLING (cont)

(b) A pale grey magnesite pebble variety with a shade darker grey fine grained matrix, with small dark grey quartz grains and dolomite fragments scattered throughout.

In the footwall section of the Magnesite Conglomerate bed mined during the quarter, magnesite pebbles were enclosed in a variable pale grey and dark grey fine grained matrix which merged into a brecciated zone with pale grey and dark grained bands with no magnesite pebbles. The following three hand specimen types were sent to Central Mineralogical Services for mineralogical examination by X.R.D. and microscope.

MSp 1 A central fine grained dark coloured band from 11 to 22mm wide, between two fine grained pale grey bands each 5 to 6mm wide in sample.

MSp 2 Fragmented pale and dark grey bands similar to that in MSp 1, which merge into magnesite pebble congomerates with a dark grey fine grained matrix.

MSp 3 Magnesite pebble conglomerate with dark grey matrix with a patch of pale grey matrix.

Five samples showing the variations above were sent to this company's Moorabbin Laboratories for chemical analyses.

## 3. RESULTS

No results have been received for the Myrtle Spring dump material. Some of the samples will be mixed prior to testing. The results, as part of Report CMS 85/10/24 for MSp 1, 2 and 3 are as follows:

"The Myrtle Springs magnesite rocks were confirmed as 'magnesite' by X.R.D. powder photography. Differential colouration of these rocks is largely a reflection of the distribution of accessory traces of carbonaceous matter. Sample MSp 1 reflects secondary bleaching of this component. In contrast, the 'magnesite conglomerates' exhibit carbonate matrix concentrations of carbonaceous matter, partly intraformationally reworked and thus also appearing as clasts. The overall distribution is then stratigraphic in character.

These rocks carry accessory proportions of talc and exhibit some evidence of a magnesited dolomite or dolomitic limestone paragenesis."

RESULTS (cont)

MSp 1 (T.S. 54739)

"This sample represents a microcrystalline weakly but variably talcose magnesite rock.

The major constituent is microcrystalline to semi-porcellanous carbonate, sized in the 2 - 15μ range, with a mean around 5 μ. Subtle banding is defined by grain size variations and is enhanced by the distribution of microscopic single flakes and clusters of talc, comprising up to 10% of the rock, with a mode around 2-3%, and partly concentrated into sub- to fine millimetric-scale bands representing bedding traces.

Accessories include traces of chlorite and thinly disseminated variably carbonate-replaced albite crystals (mean 100μ ) of authigenic character. The dark grey areas (hand specimen) include traces of ultrafine carbonaceous matter. Marginal whitish zones are slightly relatively porcellanous (ie. fine grained), with the pale colouration reflecting bleaching of the carbonaceous matter. X.R.D. determinations confirm the carbonate in both (colour) zones as magnesite.

MSp 2 (T.S. 54740)

This sample represents a carbonate-matrixed conglomerate.

The weakly bedded framework comprises poorly sorted (sand- to pebble-sized), sub- to rounded clasts of microcrystalline to semi porcellaneous carbonate rock with accessory to minor proportions of intergrown talc. The majority of clasts are pale grey-white in hand specimen, but these are supplemented by accessory proportions of dark grey, incipiently carbonaceous clasts of relatively fine grained carbonate rock. This phase forms the sparse matrix from which the clasts appear derived as a consequence of intraformational brecciation.

Some clasts exhibit vague relict microtextural evidence of an altered dolomite (or dolomitised limestone) paragenesis. X.R.D. determinations confirm the (clast- and matrix-) carbonate as magnesite.

Sporadic late films of talc are present in this rock, healing irregular microfractures concentrated in the matrix and around margins of clasts.

.../4

RESULTS (cont)

MSp 3 (T.S. 54741)

This "magnesite pebble conglomerate" is essentially quite similar to MSp 2. This rock exhibits a higher proportion of weakly carbonaceous carbonate lithoclasts, and the dark matrix and clast components appear slightly relatively carbonaceous in comparison with MSp 2. The rock includes a centrimetric interbed of incipiently carbonaceous clasts, and paler clasts not infrequently include fine-scale irregular zones of carbonaceous matter-pigmented carbonate.

Carbonaceous clast and matrix components are closely analogous, microtexturally, to the MSp 2 facies; but are virtually devoid of talc.

This rock exhibits sporadic irregular microscale veinlets of carbonate and talc. These features are relatively continuous in comparison with those in MSp 2 and are mildly displacive of sporadic incipient stylolites transecting clasts and the sparse matrix.

X.R.D. confirms both the clast and matrix carbonates as magnesite."

Results of the five geochemical analyses are as follows:

Myrtle Springs samples sent to Melbourne 17th October 1985

| Sample | $MgCO_3$ | $CaCO_3$ | $SiO_2$ | Acid Insol. | Texture |
|---|---|---|---|---|---|
| 1 | 93.1% | 1.2% | 2.4% | 4.2% | Mottled matrix |
| 2 | 85.2% | 1.6% | 8.3% | 13.0% | Dark matrix |
| 3 | 88.0% | 2.0% | 6.4% | 9.7% | Wavy type |
| 4 | 91.8% | 1.6% | 3.4% | 5.8% | Normal (a) |
| 5 | 78.1% | 1.2% | 11.3% | 19.5% | Composite (1,2,3) |

## 4. DISCUSSION

The magnesite bed being mined during the quarter, shows no dark grained quartz grains in hand specimen. Samples submitted for examination do not include type b magnesite conglomerates which have been mined in other magnesite beds. Mineralogy has confirmed that talc may contribute most of the silica content and the main acid insoluble components are ultrafine carbonaceous matter, chlorite and albite.

## DISCUSSION (cont)

Calcination/carbonic acid leaching test will be conducted on Myrtle Springs magnesite and other magnesites from South Australia to test their suitability for the production of magnesia. John H Canterford Et al, 1985 from the C.S.I.R.O. have demonstrated that the crytocrystalline varieties of magnesite are more suitable for calcination than massive crystalline varieties. Myrtle Springs magnesite falls into the former group. In order to produce a reactive calcine from a crystalline magnesite it is essential to control the calcination conditions over a very narrow range of temperatures eg. Savage River.

## 5. EXPENDITURE

| | | |
|---|---|---|
| 1. | Geological Field Cost | 1,200 |
| 2. | Laboratoy analyses and consultants | 488 |
| 3. | Drilling costs | - |
| 4. | Logistics (a percentage of camp and ancillary cost apportioned to exploration) | 480 |
| 5. | Administration costs (to be apportioned to exploration, includes drafting cost) | 1,200 |
| | | 3,368 |

## 6. FUTURE PROGRAMME

To trace and map magnesite beds with particular attention to width, texture, and composition of individual magnesite beds. Surveying of the quarry area still needs to be done to produce a plan showing individual magnesite beds and sample positions.

D S Thynne.

D.S. Thynne
Geologist

Reference: John H Canterford, Peter TL Koh, Christine Moorress and George Tsambourakis 1985. "Magnesia from Magnesite by calcination/carbonic acid leaching: comparison of several Australian Magnesites." Bull Procedure Australias Inst Min Metall. vol 290 No 2 March, 1985.

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COMMERCIAL MINERALS LIMITED

GEOLOGICAL SERVICES DIVISION

# QUARTERLY REPORT NO 4: EXPLORATION LICENCE NO 1275

PERIOD: THREE MONTHS ENDING 25TH FEBRUARY, 1986

## 1. INTRODUCTION

At least fifty magnesite Conglomerate beds are inter-bedded in the Proterozoic Skillogalee Formation between Termination Hill in the North and Leigh Creek South on the Copley 1:250,000 sheet (SH 54-9).
EL 1275 covers an area of approximately 651 sq kms, over the magnesite beds. Several Mineral leases at Myrtle Springs are current within the central section of the EL (M.L's 4149 to 4152, 4998 to 5001). Recent magnesite production (1984 to 1986) has come from three open cuts in ML 5000.

## 2. WORK DONE

No field work was done during the quarter.

There are two "fines" magnesite stockpiles at Myrtle Springs. The magnesite size fraction is minus 10 mm. It is estimated that there is over 10,000 tonnes of magnesite in the two stockpiles. Fourteen samples were collected from the fines to establish grade on 5th September 1985. Results are shown in Table 1 MSF 12 to MSF 14 are from the stockpile on ML 5000 and MPL 18.

Several calcination tests have been done on Myrtle Springs Magnesite. C.S.I.R.O. results have been published in Bull Proc. Australas. Inst. Min. Metall., Vol 290, No 2 May 1985. Properties of calcines from Myrtle Springs magnesite as a function of calcination temperature are as follows:

No sample location ?


.../2

| Composition (%) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Temp (°C) | MgO | CaO | $Al_2O_3$ | $Fe_2O_3$ | $SiO_2$ | $CO_2$ | Total | Area ($m^2/g$) | L.O.I. % |
| 600 | 64.99 | 1.08 | 0.10 | 0.30 | 4.26 | 29.84 | 100.57 | 66.1 | 31.6 |
| 700 | 79.91 | 1.29 | 0.15 | 0.30 | 5.26 | 13.43 | 100.34 | 95.9 | 45.5 |
| 800 | 85.39 | 1.28 | 0.15 | 0.33 | 5.65 | 7.65 | 100.45 | 59.6 | 48.1 |
| 900 | 86.88 | 1.29 | 0.17 | 0.33 | 5.66 | 5.40 | 99.73 | 17.5 | 48.5 |
| 1000 | 89.71 | 1.29 | 0.19 | 0.34 | 5.82 | 1.92 | 99.27 | 13.2 | 48.7 |

Source. Table 2 from an unpublished report "Characterization and Processing of Myrtle Springs Magnesite (Magnesite C) by the Calcination/Carbon Dioxide Leach Process.

In each case a calcination time of 1 hour was used.

An independent calcination test conducted during the quarter gave the following results:

| MgO | CaO | $Fe_2O_3$ | $SiO_2$ | L.O.I. | Acid Insolubles | Colour | Reactivity Citric acid (sec) |
|---|---|---|---|---|---|---|---|
| 89.5% | 1.3% | 0.2% | 2.2% | 5.3% | 3.4% | white | 25 |

In the last set of results calcination time and temperature are not known to the writer. MgO content of the calcine is similar to that achieved at a temperature of 1000°C by C.S.I.R.O. The silica content of the two sample sets are significantly different.

The results indicate reactivity is excellent and that the composition of the calcines is such that high-grade magnesia could be formed directly by a limited amount of physical beneficiation. C.S.I.R.O. results note that the surface area of the calcines passes through a maximum for a calcination temperature of about 700°C. Chemical reactivity is directly related to surface area.

## 3. DISCUSSION AND CONCLUSIONS

Very little field work has been done during the tenament of EL 1275. Since October 1984 over 30,000 tonnes of Magnesite have been mined from a number of conglomerate beds in ML 5000. To date there has been no attempt to define which magnesite beds produce the highest grade (and lowest silica and talc content). A geological programme that is urgently required to allow planned mining, is that magnesite Conglomerate morphologies be mapped, noting width and textural types in particular, and to relate this to geochemical and composition results. It is required that a marker bed is defined and that beds are traced along strike, at least in the Myrtle Springs section of the EL in the area of the current Mineral Leases.

Until this is done there can be no guarantee on grade control during further magnesite mining at Myrtle Springs.

## 4. EXPENDITURE

| | | |
|---|---|---|
| 1. | Geological Field Cost | Nil |
| 2. | Laboratory Analyses and Consultants | 1500 |
| 3. | Drilling Cost | Nil |
| 4. | Logistics (A percentage of camp and ancillary cost apportioned to exploration) | Nil |
| 5. | Administration Costs (to be apportioned to exploration, includes drafting cost) | 2500 |
| | | $4000 |

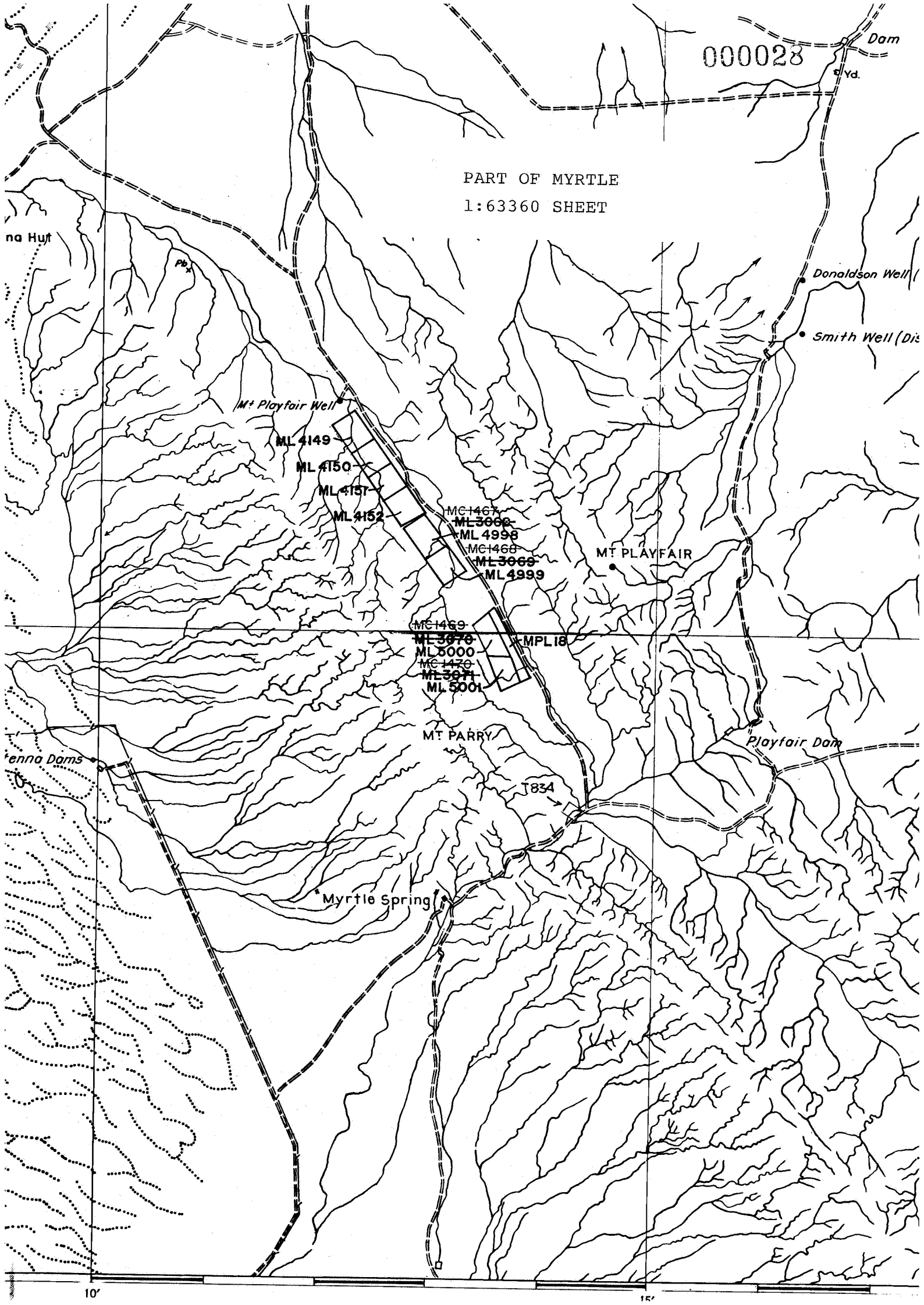
D.S. THYNNE

TABLE I

RESULTS FOR MAGNESITE FINES AT MYRTLE SPRINGS

| SAMPLE | LOSS ON IGNITION% | MAGNESIUM CARBONATE % $MgCO_3$ | CALCIUM CARBONATE % $CaCO_3$ | ACID INSOLUBLE MATTER % | SILICA $SiO_2$ % |
|---|---|---|---|---|---|
| MSF 1 | 46.44 | 83.3 | 7.8 | 9.2 | 5.2 |
| MSF 2 | 45.49 | 78.6 | 7.8 | 12.0 | 6.1 |
| MSF 3 | 46.93 | 86.0 | 5.2 | 8.3 | 5.5 |
| MSF 4 | 45.40 | 83.4 | 6.7 | 11.3 | 7.9 |
| MSFS 1 OF 2 | 46.87 | 85.5 | 6.0 | 8.5 | 4.0 |
| MSFS 2 OF 2 | 46.97 | 87.8 | 5.2 | 8.2 | 3.2 |
| MSFG | 48.22 | 89.8 | 2.7 | 6.3 | 3.8 |
| MSF 7 | 47.17 | 86.8 | 5.1 | 7.8 | 5.0 |
| MSF 8 | 43.45 | 78.4 | 7.1 | 14.6 | 9.8 |
| MSF 9 | 47.49 | 90.3 | 5.5 | 6.8 | 4.7 |
| MSF 10 | 44.11 | 79.8 | 6.3 | 14.4 | 10.1 |
| MSF 11 | 43.67 | 76.9 | 6.7 | 15.2 | 12.7 |
| MSF 12 | 46.69 | 85.8 | 3.9 | 9.5 | 7.4 |
| MSF 13 | 47.07 | 83.9 | 5.5 | 9.0 | 7.0 |
| MSF 14 | 46.37 | 86.9 | 4.4 | 9.7 | 7.5 |
| MSF 7 + 3.00mm | 47.38 | 86.8 | 4.7 | 7.7 | 5.8 |
| MSF 7 - 3+1mm | 46.44 | 83.1 | 5.9 | 9.0 | 7.1 |
| MSF 7 - 1.00mm | 41.25 | 75.6 | 6.0 | 21.1 | 5.7 |

ANALYSED BY COMMERCIAL MINERALS LTD., MELBOURNE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MT PLAYFAIR
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Myrtle Spring
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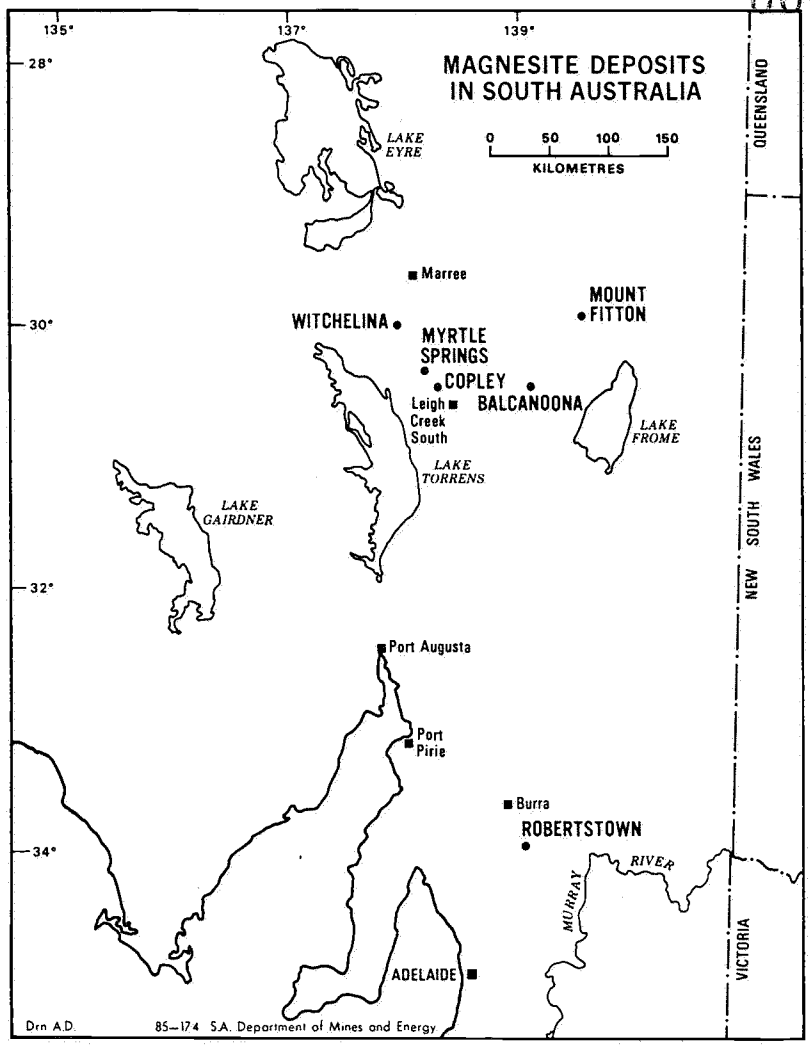


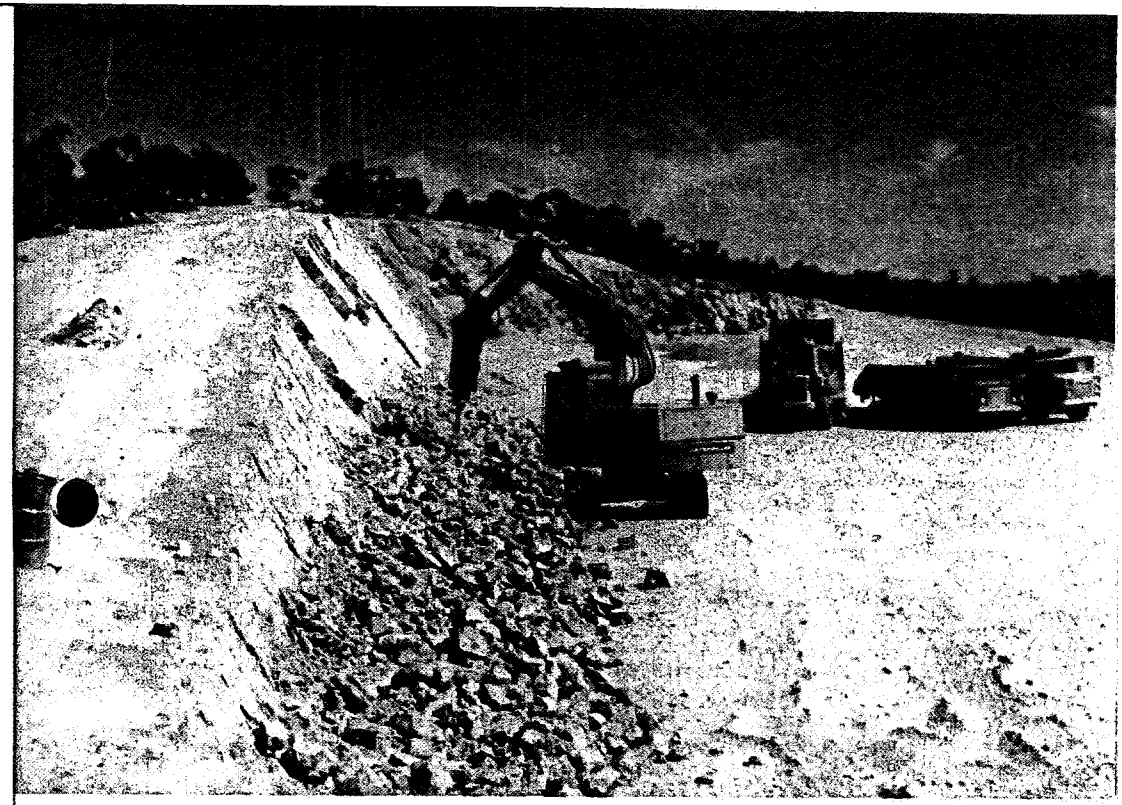

*Magnesite quarry at Myrtle Springs (Neg. 34407).*

In September 1984, Commercial Minerals Ltd, formerly Steetley Industries (Aust.) Ltd, signed a contract to supply 10 000 tonnes of magnesite to aluminium smelters at Gladstone (Queensland) to be used as a filter and purefier for processing water. Magnesite is calcined to caustic calcined magnesia which has the unusual property of a positive surface charge when suspended in water. This property enables water to be filtered, neutralised and softened with the removal of Fe, $SiO_2$, F, colloids, algae and organics.

Future market potential for magnesite usage in Australian aluminium smelters may reach 70 000 tonnes per annum.

Three new quarries have been developed at Myrtle Springs on Mineral Leases 3070 and 3071, exposing thirteen magnesite beds up to 2 m thick. In September-October, 13 000 tonnes were mined and trucked to Whyalla, and approximately 2000 tonnes were stockpiled on site. Magnesite was shipped to Queensland in the TNT *Capricornia*, which at 75 105 dwt, is the largest ship to berth at the BHP Ltd Whyalla terminal.



MIQ No. 36 December 1984.