SAVANNA MINERAL RESOURCES PTY LTD
ACN 063 921 960

A wholly owned subsidiary of
MT GRACE RESOURCES NL
ACN 060 774 227

BATCHelor PROJECT
NORTHERN TERRITORY

E.L. 9253

ANNUAL REPORT
FOR PERIOD
12th September 1998 to 11th September 1999
4th Year of Tenure

Compiled by:
B J UREN
October 1999

Copies:
(1) Batchelor
(2) Perth
(3) Department of Mines & Energy

Annual Report EL9253 BJU0006
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Logs of Reverse Circulation Drill Holes showing mineralogical or whole rock geochemical values and base metal and gold values where applicable.
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SUMMARY

Very active exploration has continued on E.L. 9253 in search of good quality magnesite and dolomite suitable for use in the production of magnesium metal.

The title is part of a number of contiguous titles which cover Lower Proterozoic rocks on the SE flank of the Rum Jungle Dome east of the town of Batchelor.

Work has been concentrated on the Coomalie Dolomite which is dominantly magnesite with minor dolomite.

The exploration has consisted of reconnaissance and prospect reverse circulation drilling, rock chip sampling and mapping. A total of 2365m of R.C. drilling was undertaken in 34 holes.

Only limited quantities of good quality magnesite and dolomite were located, but the location of coarse grained crystalline dolomite and several features of the Johnny’s Zoo Prospect add to the understanding of the carbonates in the Coomalie Dolomite.

Several rock chip and soil geochemical anomalies remain untested in the E.L.
1. **INTRODUCTION**

E.L. 9253 is an irregular shaped title centred 7 km east of the town of Batchelor. The Title is part of a block of titles held by Savanna Mineral Resources Pty Ltd which is a wholly owned subsidiary of Mt Grace Resources NL.

This report covers work done in the fourth year of tenure. For details of regional geological setting, exploration undertaken by previous explorers and exploration undertaken in previous years of tenure of this licence reference is made to previous reports on this licence.

The licence is now wholly owned by Savanna Mineral Resources Pty Ltd following acquisition of that share of the licence previously held by Giant's Reef Mining N.L.

Exploration has been directed towards the location of high quality magnesite and dolomite for use in the manufacture of magnesium metal. Mt Grace has a licence to utilise the Heggie metallothermic process to produce magnesium metal. This process involves the use of a plasma arc furnace which requires good quality magnesite and dolomite. Previous exploration on adjoining E.L. 9501 has resulted in the location of an inferred resource of 20.7 mt of magnesite containing 41.9% MgO in the form of carbonate and with 9.1% insolubles (talc and quartz).

All Co-ordinates quoted refer to the AMG-66 datum.

2. **TENEMENT STATUS**

E.L. 9253 was granted on 12 September 1995 to cover parts of 9 graticular blocks. Applications for waiver of the requirement to partially surrender the E.L. have been granted resulting in the E.L. retaining its original size.

The location of the licences shown on figures 1 and 2.

The E.L. is now wholly owned by Savanna Mineral Resources Pty Ltd following the acquisition of the rights previously held by Giant’s Reef Mining N.L. Savanna is a wholly owned subsidiary of Mt Grace Resources NL.

The licence covers freehold land which is accessed from Crater Lake Road and the Batchelor-Stuart Highway road. The latter is a sealed all weather road.

A mineral lease application has been lodged which partly covers E.L. 9253 and partly covers E.L. 9501. The location of this application, MLN-1984, is shown on figure 3.
DATUM is located at 13.03963705° South Latitude
131.0740703° East Longitude
which is equivalent to 13° 02' 22.70" South Latitude
131° 04' 26.66" East Longitude
which is located on the northern boundary of Section 2937,
Hundred of Goyder, 525m @ 265° True bearing from B.M. 2878.
B.M. 2878 is located close to the intersection of the Batchelor
Road and Crater Lake Road.

NOTE: Tenements shown are held by Savanna Mineral Resources Pty Ltd
which is a wholly owned subsidiary of Mt Grace Resources N L

Mt Grace Resources N L
A C N 060 774 227
BATCHelor MAGNESIUM PROJECT
WINCHESTER MLA
Area 357 ha
AMG (AGD 1966) co-ordinates

Author: B J Uren
Scale: 1:50 000
Drawn: E F & P Pappas
Drawing No.: 00908a
Date: 30-6-1996
File Name: 00908a.wor
3. CURRENT WORK

3.1 ROCK CHIP GEOCHEMISTRY

A suite of 13 rock chip samples of dolomite were taken and analysed for major elements and loss on ignition (LOI). The location of these samples is shown on figures 4 and 5 and the results are shown on Table 1.

The two samples of dolomite taken from the eastern side of Johnny’s Zoo Prospect, 7851 and 7852, (see figure 5) have high SiO₂ and Al₂O₃ and low LOI, MgO and CaO. Chemically these are therefore carbonate bearing shales.

Sample No. 7853 was collected from intensely veined siliceous, porous earthy rock. The location of the sample is shown on figure 4. It was thought that this sample may be a gossan but the results show no elevated base or precious metal values.

Samples 7854 to 7856 were collected from a similar stratigraphic position as 7851 and 7852 to the south of Johnny’s Zoo Prospect. The locations are shown on figure 4 and the results indicate that the rock is a carbonate bearing shale. Sample 7856 has elevated Pb. This stratigraphic position is equivalent to that which hosts the Woodcutter’s and Brown’s mineralisation. The rock did not appear mineralised.

Samples 7858 to 7860 were collected from small outcrops along the fence north of Johnny’s Zoo Prospect. As with previous samples although they appear to be dolomite they are rather carbonate bearing shales. The locations are shown on figure 4.

Samples 7861 and 7864 were collected from a large outcrop of dolomite located N.W. of Crater Lake – see figure 4. Chemically the rock, as elsewhere, is a carbonate bearing shale.

All of these samples except 7853, were collected from the same stratigraphic position and display similar chemical characteristics. The stratigraphic position is at the contact of the Coomalie Dolomite with the Whites Formation and is a transitional lithology. Strictly speaking it is debatable whether these rocks are Whites formation or Coomalie Dolomite.

3.2 JOHNNY’S ZOO PROSPECT

Reconnaissance reverse circulation drilling in the previous report period intersected both good quality dolomite and magnesite on the most N.E. line of holes drilled to that time. This area is called Johnny’s Zoo Prospect and the location is shown on figure 4.

In the previous report period holes MRC-75 and 76 each intersected very fine grained dolomite which had a high CaO/MgO ratio and low SiO₂ and Al₂O₃.
| Sample No | AMG East | AMG North | Al₂O₃ | SiO₂ | TiO₂ | Fe₂O₃ | MnO | CaO | K₂O | MgO | P₂O₅ | SO₃ | Na₂O | L.O.I. | Total | Au ppm | Ag ppm | Co ppm | Cu ppm | Ni ppm | Pb ppm | Zn ppm |
|-----------|---------|---------|-------|------|------|-------|-----|-----|-----|-----|------|-----|-----|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| 7851      | 728350  | 8558940 | 11.92 | 57.21| 0.74 | 3.90  | 0.97 | 5.90| 4.16| 4.20| 0.16 | 0.13 | 0.08 | 10.35 | 99.6  | <0.01  | <2   | 34  | 42  | 35  | 40  | 79  |
| 7852      | 728385  | 8559015 | 11.16 | 48.89| 0.66 | 5.96  | 1.81 | 7.96| 3.83| 5.46| 0.12 | 0.61 | 0.08 | 13.48 | 99.4  | <0.01  | <2   | 31  | 99  | 39  | 61  | 129 |
| 7853      | 728450  | 8559940 | 3.40  | 91.28| 0.16 | 2.08  | 0.36 | 0.05| 0.99| 0.34| -0.01| 0.01 | <0.05| 1.59  | 100.3 | 0.01  | <2   | 11  | 71  | 13  | <5  | 7   |
| 7854      | 728120  | 8558460 | 7.30  | 49.23| 0.41 | 4.37  | 1.68 | 9.97| 2.54| 7.46| 0.07 | 0.02 | <0.05| 16.48 | 99.5  | <0.01  | <2   | 15  | 13  | 22  | 5   | 33  |
| 7855      | 728145  | 8558420 | 4.99  | 48.69| 0.29 | 5.75  | 2.14 | 10.85| 1.00| 8.07| 0.08 | 0.03 | <0.05| 17.77 | 99.6  | <0.01  | <2   | 19  | 13  | 18  | 5   | 33  |
| 7856      | 728000  | 8558370 | 4.97  | 44.93| 0.26 | 5.18  | 1.99 | 12.83| 1.25| 8.45| 0.08 | 0.02 | <0.05| 20.21 | 100.1 | <0.01  | <2   | 5   | 8   | 12  | 438 | 32  |
| 7858      | 728530  | 8559760 | 7.16  | 37.84| 0.43 | 5.48  | 2.56 | 13.75| 2.32| 8.47| 0.09 | 0.13 | 0.07 | 21.21 | 99.4  | <2   | 5   | 8   | 12  | 438 | 32  |
| 7859      | 728545  | 8559765 | 6.21  | 34.33| 0.37 | 4.99  | 3.33 | 15.56| 2.45| 8.69| 0.06 | 0.08 | <0.05| 23.45 | 99.5  | <2   | 5   | 8   | 12  | 438 | 32  |
| 7860      | 728580  | 8559795 | 10.76 | 48.18| 0.64 | 7.00  | 0.78 | 8.75| 4.40| 6.60| 0.09 | 0.08 | 0.45 | 12.07 | 99.7  | <2   | 5   | 8   | 12  | 438 | 32  |
| 7861      | 726170  | 8557160 | 9.69  | 47.90| 0.60 | 6.47  | 1.67 | 8.55| 3.40| 6.71| 0.11 | 0.04 | 0.06 | 14.22 | 99.4  | <2   | 5   | 8   | 12  | 438 | 32  |
| 7862      | 726180  | 8557145 | 11.03 | 52.06| 0.68 | 6.12  | 0.61 | 7.11| 3.75| 6.78| 0.09 | 0.02 | 0.53 | 10.90 | 99.7  | <2   | 5   | 8   | 12  | 438 | 32  |
| 7863      | 726190  | 8557130 | 9.99  | 47.48| 0.62 | 6.95  | 0.77 | 7.39| 2.50| 10.02| 0.08 | 0.01 | <0.05| 13.78 | 99.6  | <2   | 5   | 8   | 12  | 438 | 32  |
| 7864      | 726220  | 8557100 | 10.22 | 44.42| 0.63 | 5.25  | 0.48 | 9.81| 3.30| 8.52| 0.10 | 0.04 | <0.05| 16.76 | 99.5  | <2   | 5   | 8   | 12  | 438 | 32  |
These holes were terminated in dolomite as at the time, the process which was planned to be employed to manufacture magnesium metal did not require dolomite. The dolomite in holes MRC-75 and 76 represented the best quality dolomite known in the Coomalie Dolomite at that time. As good quality dolomite is required for the currently preferred metallurgical process this site was investigated.

Outcrops of very coarsely crystalline, blocky, massive, white magnesite occurs in a sub-circular shaped area with a diameter of 150m. This area is bound to the east by finely and well bedded fine grained dolomite which strikes between 008° and 042° and dips 80°E. Elsewhere the outcrops of magnesite are fringed by outcrops of silicified and highly weathered carbonate which has a distinctive coarsely brecciated knobby weathered surface. A geological map presented as figure 5.

Hole MRC-138 was drilled adjacent to MRC-75 which was a shallow hole and could not be re-entered. The dolomite intersected in MRC-138 was interlayered with magnesite and had disappointingly high SiO₂. This fine grained dolomite is thought to be represented on surface by the coarsely brecciated, silicified rock.

Hole MRC-145 located 80m N of 138 intersected fine grained dolomite which mostly has high SiO₂ content but some low SiO₂ intervals were present. Hole 146, located 80m to the east of 145, intersected a large cave at shallow depth and hole 147, located 80m west of 145 intersected deep cover.

Hole MRC-140, located 80m S of MRC-138, intersected interbedded magnesite and dolomite with high SiO₂ content. Hole MRC-141 intersected good quality magnesite at the top of the hole then dolomite with a high SiO₂ content whilst MRC-142 intersected magnesite with elevated to high SiO₂.

All of holes MRC-139, 143, 144 and 148 penetrated think cover and failed to reach bedrock.

Overall the work at Johnny’s Zoo Prospect was disappointing due to the high silica contents and the restricted size of the area of shallow bedrock. However small quantities of good quality magnesite and dolomite may be available if more intensive drilling were undertaken. This is not recommended as effort should be spent on an area which promises a large tonnage of good quality material.

The Johnny’s Zoo Prospect has several interesting features:

- It demonstrates that dolomite does occur within the Coomalie dolomite unit and that it can be of good quality,
- The magnesite at the prospect is nearly devoid of talc. This is an unusual feature in the district as far as is known. The reconnaissance holes on traverses N and S of the prospect have similarly very low talc.
- The magnesite is all white and grey in colour and lacks the red-brown colours also present at Winchester. Consequently the Fe₂O₃ content is
significantly lower than at Winchester. This is however not a unique feature.

- The sub-circular shape of the magnesite body at Johnny’s Zoo Prospect within dolomite is peculiar and may be suggestive of an alteration pipe. This is a unique feature in the district as far as is known.

3.3 Reconnaissance R C Drilling

During the period an additional 3 reconnaissance traverses of RC drilling have been completed to supplement those drilled in the previous quarter. The location of these traverses is shown on figure 4.

The aim of this drilling was primarily to locate good quality dolomite and secondly to locate good quality magnesite.

Holes MRC-160 to 162 were located north of Crater Lake Road in such a way as to create a traverse which included holes RJ-4 and RJ-6 drilled by BMR in 1973 (Johnston et al., 1979). Hole RJ-6 intersected magnesite whilst RJ-4 intersected White’s Formation. Holes 160 and 161 intersected magnesite under fairly deep cover. The magnesite had quite high quartz and low talc content. Hole 162 intersected good quality but cavernous magnesite under moderately deep cover. The hole was terminated in a cave.

A traverse constituted of MRC-163 to MRC-165 was located N.E. of the traverse constituted of MRC-30 to 38 which was drilled in the previous report period. MRC-38 had intersected a highly siliceous dolomite, or probably more correctly a carbonate bearing shale. MRC-163 intersected non-carbonate bearing shale under deep cover. Holes MRC-164 and 165 intersected "dolomite" similar to that in MRC-38 under shallow cover. Minor sulphide intersected in MRC-164 did not contain any significant base metals or gold.

A traverse constituted of holes MRC-166 to 171 was located south of Johnny’s Zoo Prospect. Holes MRC-166 and 167 intersected magnesite with abundant quartz but not talc at shallow depths. Hole 168 intersected an alternating sequence of magnesite and dolomite at shallow depth. Both magnesite and dolomite have abundant SiO₂. Hole 169 intersected alternating magnesite and dolomite with high SiO₂ content after passing through a peculiar silica cap rock/gossan. The latter contained elevated values of Co, Ni and Zn and may warrant follow up. Hole 170 intersected deeply weathered shale underlain by magnesite with a high Quartz content. The final hole on the traverse, MRC-171, intersected thick cover before entering cavernous magnesite. No samples were taken for analysis as the sample quality was poor.

The final and northern most traverse was located north of Johnny’s Zoo Prospect and constituted of holes MRC-202 to 207. MRC-202 intersected deeply weathered coarse grained as crystalline carbonate which is usually magnesite but which has roughly 50/50 MgO and CaO and is therefore dolomite. Such material is not uncommon at the Winchester Prospect where it is known as "Dolomite B". As is typical at Winchester this intersection has a high SiO₂ content. This is the only location that this material has been found
away from Winchester. Hole 203 intersected very highly siliceous magnesite with no talc, under shallow cover whilst MRC-204 intersected highly siliceous magnesite. Hole MRC-205 intersected highly siliceous dolomite under deep cover and cave infill. The two most easterly holes on this traverse, MRC-205 and 207 drilled through deep cover and failed to reach bedrock.

3.4 Holes Peripheral to Winchester Prospect

Reverse circulation holes MRC-99, 104, 110, 119 and 120 were drilled as part of the evaluation of the Winchester Prospect which dominantly is covered by E.L. 9501. The logs for these holes are presented in Appendix I.

4. REHABILITATION

As was done last period reverse circulation holes were capped with stout P.V.C. caps with breather holes immediately after drilling was completed.

During the year the following holes had the P.V.C. collars cut off well below ground surface and a conical concrete plug fitted:

MRC-7, 10 – 14, 30 – 42, 62, 63, 87, 88 146

The plastic bags from these holes have also been removed. A special device has been manufactured to enable easy extraction of P.V.C. collars once they have been cut off below ground surface.

As activity slows on the project with the onset of the wet season holes that have been drilled in 1999 will be rehabilitated.

5. CONCLUSIONS AND RECOMMENDATIONS

Work to date indicates that there is limited potential to locate good quality dolomite and magnesite on the E.L.

The E.L. remains highly prospective for base metal mineralisation along the Coomalie Dolomite/White’s Formation contact and this and previously reported untested geochemical anomalies remain to be tested. The geochemically elevated possible gossan intersected in MRC-169 should be considered for follow-up.
6. **EXPENDITURE**

*Expenditure for Period 12.9.98 to 11.9.99*

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7. **PROGRAMME FOR 1999 – 2000**

In the forthcoming year work will be is largely aimed at assessing the known base metal and gold anomalies.

The expected expenditure is:

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$21,000

*Annual Report EL9253 BU0096*
8. Reference

Johnson, K., Hone I.G., Ingram J.A. & Crick I.H., 1979
Stratigraphic Drilling in the Rum Jungle Area, N.T.
1973-74: Geological & Geophysical Results
Bureau of Mineral Resources; Geology & Geophysics,
Record 1979/89.