ANNUAL REPORT

MINERAL LEASE 1154
"Merlin"

15th June, 1998 to 14th June, 1999

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SUMMARY

During the period 15th June 1998 to 14th June 1999, Ashton Mining Limited carried out an exploration programme over Mineral Lease 1154. This report provides details of work undertaken on the lease during the reporting period.

The continuing exploration programme undertaken by Ashton Mining in this region involves conventional and geochemical sampling, geophysical surveys and drill testing of geophysical anomalies.

Ground Penetrating Radar (GPR) and Seismic Refraction techniques were trialed across the Gareth kimberlite pipe with further work conducted outside the lease area.

Two exploration samples were taken at the M14 anomaly with chromites reported from both samples. An east-west line of soil samples was gathered at this anomaly which were analysed using both Mobile Metal Ion (MMI) and Enzyme Leach techniques. A grid of soil samples was also collected across the Kay/Ector kimberlites and tested with MMI techniques. Although the kimberlites produce a discernible halo no new drill targets have been generated.

Exploration expenditure for MLN 1154 during the reporting period 15th June 1998 to 14th June 1999 amounted to $146,074.
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1.0 INTRODUCTION

This report details exploration activities carried out by Ashton Mining Limited over Mineral Lease 1154 for the period 15th June 1998 to 14th June 1999.

MLN 1154 was granted to Ashton Mining Limited on 15th June 1998 replacing Exploration Retention Licences 141 and 142. The area covered by these ERLs was previously held under title of Substitution Exploration Licence 8630, which replaced the original licences 6424, 7267, 7581, 7859, 7860 and 7861 in July 1995. ERL 141 comprised 736 hectares, and ERL 142, located to the south of ERL 141, comprised 888 hectares. On 17th December 1996, application for a mineral lease was made over the ERLs, covering an area of 2,350 hectares. On granting of the mineral lease the ERLs were automatically surrendered. A tenement location map is shown in figure 1.

The target for exploration by Ashton Mining Limited within this licence is diamond bearing kimberlitic intrusives, and the principal exploration techniques employed have been loam and vegetation sampling, geophysical surveys and drilling.

A statement of expenditure is included in this report.
2.0 DIAMOND EXPLORATION

2.1 Outstanding Results
Laboratory results for drill spoil samples collected in the previous reporting period for ERL 141 and 142 became available. A drill spoil sample was collected from each of thirteen RAB holes drilled to test seven geophysical targets. A total of 242 metres were drilled with no kimberlitic material intersected. All samples reported negative results. Sample and drillhole locations are shown on Plan 1 & 2 submitted with the final report for ERLs 141 and 142 (report number 52275).

Results for the five drill spoil samples that were outstanding in the 1997-1998 annual report for ERL 141 and 142 became available. All samples reported negative results. Samples, along with the corresponding drillhole locations are shown on Plans 3 and 4 of the annual report for the period 13th February 1997 to 12th February 1998 (Report Number 52199).

A complete listing of results is provided in Appendix 1.

2.2 Sampling Programme

2.2.1 M14 Anomaly
Previous sampling over the anomaly referred to as M14 produced seven chromites (BAU 180) while a sample approximately 1km downstream reported sixteen chromites (BAU 167). Two samples
were collected during the reporting period to confirm the earlier positive results. The samples were collected at the only two sites of any significant gravel accumulation in a small drainage flowing northwards into Boomerang Creek. Sample 98087-001 reported 15 chromites while 98087-002 contained 2 chromites.

Sample locations are shown in Plan 1. A full listing of results is provided in Appendix 2.

2.3 Geochemical Sampling

Mobile Metal Ions (MMI) are used to describe ions that move in the weathered zone and are only weakly or loosely attached to the surface of soil particles. Orientation studies were carried out at three areas with two of the surveys completed within MLN1154. One hundred and seventy-two soil samples were taken across the Kay/Ector kimberlites and twenty-one at the M14 anomaly. Samples were collected in accordance with the guidelines supplied by MMI Technology. Samples were taken using an unpainted aluminium scoop at consistent depth interval of between 150mm and 200mm.

Samples (98046-001 to 172 and 216-236) were submitted to MMI Technology for analysis, with the following elements tested: Ni, Mg, Nb, Cr, Co and Pd. Raw data and response ratios are provided in Appendix 3. In addition a further twenty-one duplicate samples (98100-001 to 021) were collected from the M14 anomaly to be analysed using enzyme leach techniques. Results are tabulated in Appendix 4. Sample locations are
shown on Plan 1. The results of the sampling indicate that the kimberlites can be detected with these techniques, however ground investigation has failed to produce additional drill targets.

2.4 Geophysics

2.4.1 Ground Penetrating Radar (GPR)

In September 1998 ground penetrating radar trials were conducted to test the effectiveness of the tool to exploration and its ability to define the boundaries of known kimberlite pipes. In preparation 5 RAB holes (BH1466-1470) were drilled for a total of 221 metres around the perimeter of the Gareth pipe. A summary is provided in Appendix 5 with drill logs provided in Appendix 6. Drill hole locations are shown on Plan 2.

Although the boundary of the kimberlite pipe can be determined using this method, the instrument does not lend well to exploration. A report on the trials is included in Appendix 7.

2.4.2 Seismic Survey

During the reporting period, a refraction seismic survey was trialed over the Gareth kimberlite pipe. Two test lines and a downhole to surface trial were completed with the data interpreted by Sydney based company, Douglas Partners. The seismic signals were created by small explosive charges laid in pre-drilled holes. None of these holes were logged however drill hole locations are
shown on Plan 2 along with a summary in Appendix 5. The results from these trials are detailed in the report by Douglas Partners, a copy of which is provided in Appendix 8.

2.4.3 Ground Magnetics

During the reporting period 3 detailed magnetic surveys were undertaken. The Bedevere and M14 (Dig21) grids designed to cover anomalous indicator areas, while the Ector grid was designed to test whether detailed ground magnetics could map the boundary and possibly different intrusive events in the pipe. The locations of the surveys are shown in figure 2.

2.4.3.1 Bedevere Survey

A 700 m by 700 m grid was designed to encase the anomalous loam sample results in the Bedevere area. Thirty six traverse lines with a 20 m line separation were completed to give a total line kilometre length of 25.3 km. The following survey specifications were used:

*Magnetometers:* GTL TM4
Geometrics 856 (base station)

*Base Station*
*Reading Interval:* 10 sec
*Sensor Height:* 0.5 m
*Line Separation:* 20 m
*Station Spacing:* 0.5 m
*Line Direction:* North-South
*Positioning:* Fugro Differential with Garmin GPS
*Date of Survey:* September 1998
Data has been diurnally corrected.

The results show a “noisy” lateritic signature over most of the survey area, consolidated pisolitic outcrops were seen on the ground. There is an ellipsoidal zone in the centre of the grid which exhibits a less noisy response, this zone is generally sand covered. There were two “noisy” responses within the zone, one was the response of Bedevere while the other GGMME02 (642320mE, 8142424 mN) a low priority target has been designated for further work. Refer to figures 3 – 5 for the results.

2.4.3.2 M14 (Dig10) Survey

A 400 m by 400 m grid over the M14 EM anomaly was completed with the following specifications:

- **Magnetometers:** GTL TM4
  Geometrics 856 (base station)
- **Base Station**
- **Reading Interval:** 10 sec
- **Sensor Height:** 0.5 m
- **Line Separation:** 20 m
- **Station Spacing:** 0.5 m
- **Line Direction:** North-South
- **Positioning:** Fugro Differential with Garmin GPS
- **Date of Survey:** September 1998

Data has been diurnally corrected. Twenty six traverse lines were completed covering a distance of 13 km.
The data has limited noise in the data, what noise there is, is limited to the south western corner. No classic dipolar magnetic responses were located however one isolated area of “noisy data” was designated for further work. (GGMME08 641130 mE, 8136095 mN) Refer to figures 6 – 8 for the results.

2.4.3.3 Ector Survey

A small detailed survey 300m by 250 m was completed over the Ector pipe to test whether the Analytic Signal was able to locate firstly the boundaries of the pipe and secondly whether variations in the analytic signal could determine different phases in the pipe. A total of 6.6 line kilometres were completed. The following specifications were used for the survey:

Magnetometers: GTL TM4
Geometrics 856 (base station)

Base Station
Reading Interval: 10 sec
Sensor Height: 0.5 m
Line Separation: 10 m
Station Spacing: 0.5 m
Line Direction: North-South
Positioning: Fugro Differential with Garmin GPS

Date of Survey: September 1998

Data has been diurnally corrected.
The results of the survey are shown in figures 9 – 11. Figure 11, the analytic signal data does not appear to have any correlation to the pipe boundaries nor does there appear to be any zoning within the pipe margins.

2.4.4 EM34 Survey

A 600m by 650 m EM34 survey was completed in the Gareth area to more accurately locate a previous survey. The location of the survey is shown in figure 2. 8.3 line kilometres were completed using the following specifications:

- **Instrument**: Geonics EM34
- **Operating Frequency**: 1600 Hz
- **Coil Orientation**: Horizontal Dipole
- **Coil Separation**: 20 m
- **Line Direction**: North - South
- **Line Separation**: 25 m
- **Station Spacing**: 20 m
- **Date of Survey**: May 1999

The data is presented in figures 12- 13. No new targets were located from the survey.

2.5 Drilling

Drill testing of geophysical targets continued in the reporting period, with two targets tested. This programme was undertaken by Jack Schubert drilling Services of Mt Isa, using a Jacro 350 drilling rig. Two RAB holes, BH 1405 & 1406 were drilled for a total of 35 metres. No kimberlitic
material was intersected. Thin Cretaceous cover was interpreted to have been intersected, before termination of the holes in Bukalara sandstone.

A drill spoil sample (98034-023 and 024) was submitted from each hole to Ashton’s Perth laboratory. All drill spoil samples were routinely processed for diamond and indicator minerals. Both samples returned negative results. All sample results are tabulated in Appendix 2. A summary of the drilling is provided in Appendix 5 with the logs included in Appendix 6. Locations are shown on Plan 2.

3.0 LABORATORY PROCEDURES

All samples were dispatched to Ashton Mining Limited’s diamond laboratory located in Perth for routine analysis. All samples were processed using established diamond laboratory techniques to target diamond and heavy mineral content. These techniques include gravity table, heavy liquid separation, magnetic and electrostatic processes. Trained observers and mineralogists using binocular and petrological microscopes then examine the final concentrate.

4.0 EXPLORATION EXPENDITURE

Exploration expenditure for the period 15th June 1998 to 14th June 1999 amounted to $146,075. A detailed breakdown of expenditure is given in Appendix 9.
Ashton Mining Limited

ML 1154
"Merlin Lease"

Geophysical Survey Locations

Figure 2
SURVEY SPECIFICATIONS:
Magnetometers: GTL TM4
Geometrics 856 (base station)
Base Station Reading Interval: 10 sec
Sensor Height: 0.5 m
Line Separation: 20 m
Station Spacing: 0.5 m
Line Direction: North-South
Positioning: Fugro Differential with Garmin GPS
Date of Survey: September 1998
Data has been diurnally corrected.

PROCESSING SPECIFICATIONS:
Data was gridded to a 5 m cell size
Gridded data has been upward continued 10 m
Contour Intervals are 10 nT and 100 nT

Scale 1:5000
50 0 50 100
metres
AGD06 / AMG Zone 53

Ashton Mining Limited
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Bedevere Ground Magnetic Survey
Contour of TMI Upward Continued 10 m
Figure 4
SURVEY SPECIFICATIONS:
Magnetometers: GTL TM4
Geometrics 856 (base station)
Base Station Reading Interval: 10 sec
Sensor Height: 0.5 m
Line Separation: 20 m
Station Spacing: 0.5 m
Line Direction: North-South
Positioning: Fugro Differential with Garmin GPS
Date of Survey: September 1998
Data has been diurnally corrected.

PROCESSING SPECIFICATIONS:
Data was gridded to a 5 m cell size
Analytic Signal is of the gridded TMI

Ashton Mining Limited
ML 1154
"Merlin Lease"
Bedevere Ground Magnetic Survey
Analytic Signal
Figure 5
SURVEY SPECIFICATIONS:
Magnetometers: GTL TM4
Geometrics 856 (base station)
Base Station Reading Interval: 10 sec
Sensor Height: 0.5 m
Line Separation: 20 m
Station Spacing: 0.5 m
Line Direction: North-South
Positioning: Fugro Differential with Garmin GPS
Date of Survey: September 1998
Data has been diurnally corrected.

Ashton Mining Limited
ML 1154
"Merlin Lease"
M14 Ground Magnetic Survey
Traverse Lines
Figure 6
SURVEY SPECIFICATIONS:
Magnetometers: GTL TM4
Geometrics 856 (base station)
Base Station Reading Interval: 10 sec
Sensor Height: 0.5 m
Line Separation: 20 m
Station Spacing: 0.5 m
Line Direction: North-South
Positioning: Fugro Differential with Garmin GPS
Date of Survey: September 1998
Data has been diurnally corrected.

PROCESSING SPECIFICATIONS:
Data was gridded to a 5 m cell size
Gridded data has been upward continued 10 m
Contour Intervals are 1 nT and 10 nT

Ashton Mining Limited
ML 1154
"Merlin Lease"
M14 Ground Magnetic Survey
Contours of TMI upward continued 10m
Figure 7
SURVEY SPECIFICATIONS:
Magnetometers: GTL TM4
Geometrics 856 (base station)
Base Station Reading Interval: 10 sec
Sensor Height: 0.5 m
Line Separation: 20 m
Station Spacing: 0.5 m
Line Direction: North-South
Positioning: Fugro Differential with Garmin GPS
Date of Survey: September 1998
Data has been diurnally corrected.

PROCESSING SPECIFICATIONS:
Data was gridded to a 5 m cell size
Analytic Signal is of the gridded TMI
SURVEY SPECIFICATIONS:
Magnetometers: GTL TM4
Geometrics 856 (base station)
Base Station Reading Interval: 10 sec
Sensor Height: 0.5 m
Line Separation: 10 m
Station Spacing: 0.5 m
Line Direction: North-South
Positioning: Fugro Differential with Garmin GPS
Date of Survey: September 1998
Data has been diurnally corrected.
SURVEY SPECIFICATIONS:
Magnetometers: GTL TM4
Geometrics 856 (base station)
Base Station Reading Interval: 10 sec
Sensor Height: 0.5 m
Line Separation: 10 m
Station Spacing: 0.5 m
Line Direction: North-South
Positioning: Fugro Differential with Garmin GPS
Date of Survey: September 1998
Data has been diurnally corrected.

PROCESSING SPECIFICATIONS:
Data was gridded to a 2.5 m cell size
Gridded data has been upward continued 20 m
Contour Intervals are 2 nT and 20 nT

Scale 1:2000
25 50
0 25
metres
AGD66 / AMG zone 53

Ashton Mining Limited

ML 1154
"Merlin Lease"
Ector Ground Magnetic Survey
Contours of TMI upward continued 20 m

Figure 10
SURVEY SPECIFICATIONS:
Magnetometers: GTL TM4
Geometrics 856 (base station)
Base Station Reading Interval: 10 sec
Sensor Height: 0.5 m
Line Separation: 10 m
Station Spacing: 0.5 m
Line Direction: North-South
Positioning: Fugro Differential with Garmin GPS
Date of Survey: September 1998
Data has been diurnally corrected.

PROCESSING SPECIFICATIONS:
Data was gridded to a 2.5 m cell size
Analytic Signal is of the gridded TMI

Ashton Mining Limited
ML 1154
"Merlin Lease"
Ector Ground Magnetic Survey
Analytic Signal
Figure 11
SURVEY SPECIFICATIONS:
Instrument: Geonics EM34
Operating Frequency: 1600 Hz
Coil Orientation: Horizontal Dipole
Coil Separation: 20 m
Line Direction: East - West
Line Separation: 50 m
Station Spacing: 20 m
Date of Survey: May 1999

Ashton Mining Limited
ML 1154
"Merlin Lease"
Gareth EM34 Survey
Traverse Lines
Figure 12
SURVEY SPECIFICATIONS:
Instrument: Geonics EM34
Operating Frequency: 1600 Hz
Coil Orientation: Horizontal Dipole
Coil Separation: 20 m
Line Direction: East - West
Line Separation: 50 m
Station Spacing: 20 m
Date of Survey: May 1999

PROCESSING SPECIFICATIONS:
Data was gridded to a 10 m cell size
Contour Intervals are 1 mmho/m and 10 mmho/m

Ashton Mining Limited
ML 1154
"Merlin Lease"
Gareth EM34 Survey
Contour Plot
Figure 13
5.0 CONCLUSIONS AND RECOMMENDATIONS

The area covered by MLN 1154 contains the Merlin pipes, making this area highly prospective for the discovery of further kimberlites. Results are encouraging and further follow-up is recommended, aimed at delineating additional pipes in the Merlin project area.

A programme to conduct gravity and electromagnetic surveys has been planned for the next reporting period to test previously identified geophysical and indicator targets within the lease. Follow-up work will, in the majority, involve drill testing of anomalies proven with these techniques.

6.0 REFERENCES
