

**FINAL REPORT E.L. 4314**

6th December, 1983  
to  
28th November, 1985

Licensee:	Ashton Mining Limited
Operator:	Ashton Mining Limited
Sheet Reference:	Helen Springs (SE 53-10) 1:250,000
Submitted to:	Department of Mines & Energy

**NORTHERN TERRITORY  
GEOLOGICAL SURVEY**

ASHTON MINING LIMITED  
444 Queen Street  
Brisbane. 4000

**CR 86 / 077A**  
February, 1986

ABSTRACT

*During the period 6th December, 1983 to 28th November, 1985, Ashton Mining Limited on behalf of the A.D.E. Joint Venture undertook a loam and gravel sampling survey within E.L. 4314. The work was carried out as part of a larger regional program.*

*Although four small diamonds were recovered from the sampling, the licence area was not regarded as holding as much potential for kimberlites as ground held elsewhere in the Territory by the Joint Venture.*

*It was therefore decided that E.L. 4314 should be surrendered.*

## TABLE OF CONTENTS

	page
ABSTRACT	
1.00 INTRODUCTION ... ..	1
2.00 REGIONAL SAMPLING PROGRAM ... ..	2
2.10 Field Phase	2
2.20 Laboratory Phase	3
3.00 CONCLUSIONS ... ..	5

## LIST OF FIGURES

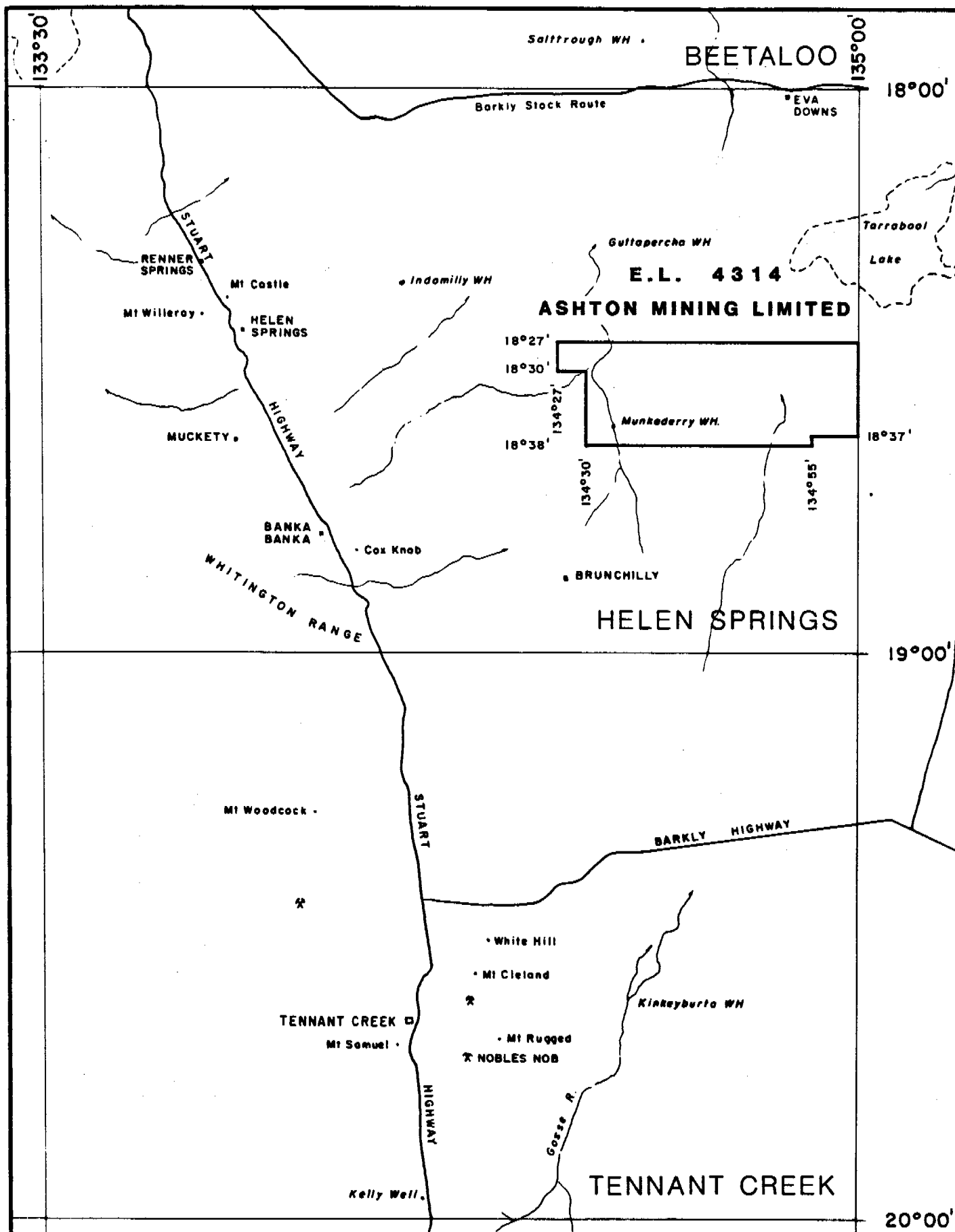
	opposite page
1. Location Map	1

## LIST OF APPENDICES

1. Results of Laboratory Examinations
2. Statement of Expenditure

## LIST OF PLANS

- |                     |             |
|---------------------|-------------|
|                     | back pocket |
| 1. Sample Locations | "           |



**FIGURE 1**  
**LOCATION MAP**

1.00 INTRODUCTION

Exploration Licence 4314 covered an area of 1,075 square kilometres (334 blocks) on the Helen Springs 1:250,000 sheet (refer to Figure 1).

The licence, which was granted to Ashton Mining Limited on 6th December, 1983, was held on behalf of the A.D.E. Joint Venture comprising Ashton Mining Limited, A.O.G. Minerals Limited, Aberfoyle Exploration Pty. Limited and Australian Diamond Exploration N.L. Ashton Mining Limited is the Manager of the Joint Venture.

During the two years of tenure of the licence, a program of regional loam and gravel sampling was undertaken.

This report gives a summary of the work carried out in E.L. 4314 during the period 6th December, 1983 to 28th November, 1985.

A statement of expenditure covering this period is included in the report.

## 2.00 REGIONAL SAMPLING PROGRAM

## 2.10 Field Phase

The gravel sampling program in E.L. 4314 was undertaken as part of a larger regional program in the Helen Springs area.

Prior to the commencement of field work, gravel sample locations were plotted in the office on the Eva Downs, Monmoona and Munkaderry 1:100,000 topographic map sheets so that sample sites tested the available drainage. As drainage in E.L. 4314 is poorly developed, this resulted in only 24 gravel samples being taken within the licence. An additional 27 loam samples were collected in E.L. 4314 to help test the area.

During the field program, individual gravel sample sites were selected on the basis of the quality of the available heavy mineral traps in the vicinity of the preselected site, care being taken to sample the most suitable trap site. Helicopter was the most practical mode of transport as it had the advantage of ease of access and navigation and enabled the geologist to scan the area for suitable trap sites.

Once a suitable gravel sample site was located, approximately 40 kg of gravel were gathered, sieved and the minus 4mm fraction collected for laboratory

examination. Generally the minus 4mm samples weighed 30 to 35 kg. Loam samples, which are surface scrape samples usually weighed 15 to 20 kg.

Prior to the commencement of the sampling work, 1:50,000 scale enlargements of the available photography were secured both for navigation and to allow a photogeological scan of the area. No kimberlite or lamproite type intrusive features were discernable from the air photos.

All sample locations are given on Plan 1.

#### 2.20 Laboratory Phase

The samples were processed at the Ashton Mining Limited laboratory in Perth where they were concentrated by Wilfley Table and heavy liquid separation techniques.

The heavy liquid used was tetrabromoethane with a specific gravity of 2.96. The concentrates were then screened into various size fractions, further concentrated, where required, by magnetic and electrostatic separation techniques and a comprehensive grain by grain examination carried out on the minus 1.0mm plus 0.425mm fractions.

Of the 51 samples collected within the licence, 47 contained no detectable kimberlite indicator minerals. The remaining four samples were each found to contain a single microdiamond.

4.

A listing of laboratory results for all the samples is given in Appendix 1.



## 3.00 CONCLUSIONS

Despite the fact that a number of samples were found to contain a microdiamond, the exploration program failed to provide encouragement in locating the presence of a kimberlite pipe within E.L. 4314. This fact together with other disappointing results in the eastern half of the Helen Springs 1:250,000 sheet in general, led the A.D.E. Joint Venture to conclude that exploration efforts should be concentrated in more promising ground held elsewhere in the Territory. Consequently E.L. 4314 was surrendered with effect from 29th November, 1985.

APPENDIX 1.

RESULTS OF LABORATORY EXAMINATIONS

REGIONAL GRAVEL AND LOAM SAMPLES EL 4314

The following fractions of each sample were studied:

-1.0 mm +0.8 mm; denoted by +0.8  
-0.8 mm +0.5 mm; denoted by +0.5  
-0.5 mm +0.425 mm; denoted by +0.4

Sample No	Results	Comments
HEL 216	Nil	
HEL 217	Nil	
HEL 218	Nil	
HEL 219	Nil	
HEL 220	Nil	
HEL 221	1 -0.4 DIAMOND	1 +0.1 x 0.1 STONE, fragment, almost black with part turbid translucent grey, poor quality.
HEL 222	1 -0.4 DIAMOND	1 +0.1 x 0.1 STONE, white, most faces fracture faces with one curved, striated crystal face, one cleavage face.
HEL 223	Nil	
HEL 286	Nil	
HEL 294	Nil	
HEL 295	Nil	

Sample No	Results	Comments
HEL 296	Nil	
HEL 297	Nil	
HEL 298	Nil	
HEL 299	Nil	
HEL 300	Nil	
HEL 302	1 -0.4 DIAMOND	1 +0.2 STONE, clear, flattened, rounded anhedral, colourless, finely textured 'droplet' surface. One small steep 4 sided hole in surface, cleaved and in two parts.
HEL 303	Nil	
HEL 304	Nil	
HEL 325	1 -0.4 DIAMOND	1 +0.25 STONE, clear colourless anhedral fragment, several small inclusions, all surfaces are fracture or cleavage surfaces, elongate.
HEL 326	Nil	
HEL 756	Nil	
HEL 757	Nil	
HEL 758	Nil	
HEL 759	Nil	
HEL 760	Nil	
HEL 761	Nil	

Sample No Results Comments

HEL 762	Nil	
HEL 763	Nil	
HEL 764	Nil	
HEL 765	Nil	
HEL 766	Nil	
HEL 767	Nil	
HEL 768	Nil	
HEL 769	Nil	
HEL 770	Nil	
HEL 771	Nil	
HEL 772	Nil	
HEL 773	Nil	
HEL 774	Nil	
HEL 775	Nil	
HEL 776	Nil	
HEL 777	Nil	
HEL 778	Nil	
HEL 779	Nil	

Sample No                      Results                      Comments

HEL 780                      Nil

HEL 781                      Nil

HEL 782                      Nil

HEL 783                      Nil

HEL 784                      Nil

HEL 785                      Nil

-----

APPENDIX 2.

A.D.E. JOINT VENTURE

EXPLORATION LICENCE NO. 4314

FINAL EXPENDITURE FOR THE PERIOD 6.12.83 TO 28.11.85

	\$
Salaries	5,186
Field & Laboratory Expenses	19,794
Miscellaneous	6,640
	<hr/>
Expenditure:	<u><u>\$31,620</u></u>



