

ANNUAL REPORT E.L. 2294

7th May, 1980

to

6th May, 1981

Submitted to: Department of Mines and Energy,
Minerals House, Darwin.

on Behalf of: Aberfoyle Exploration Pty. Ltd.

OPEN FILE

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July, 1981.

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ABSTRACT

During the period 7th May, 1980 to 6th May, 1981, Ashton Mining Limited undertook a program of regional gravel sampling in Exploration Licence 2294. A total of ninety-one regional gravel samples and seven follow-up gravel samples, of selected sites, were collected and forwarded to the Company's laboratory in Perth.

The gravel samples were then processed and examined by the laboratory for kimberlite indicator minerals. Chromite grains were identified in fifteen of the samples - one sample also contained a diamond. Follow-up samples, however, failed to show any kimberlite indicator minerals.

During the first term of the licence, an area of approximately 148 square kilometres was voluntarily surrendered. This area has been described in the report entitled "Final Report on Area Relinquished: Exploration Licence 2294 - 7th May, 1980 to 5th March, 1981".

During the coming year, a comprehensive exploration program that includes airborne geophysics, photogeology and geochemistry, will be undertaken.

INTRODUCTION

Exploration Licence 2294 covering an area of 1280.37 square kilometres on the Waterloo 1:250,000 sheet was granted to Aberfoyle Exploration Pty. Ltd. on 7th May, 1980 for a period of twelve months. The licence was voluntarily reduced to 1131.79 square kilometres on 6th March, 1981.

Exploration Licence 2294 is subject of the A.D.E. Joint Venture Agreement between Ashton Mining Limited, Aberfoyle Exploration Pty. Ltd. and A.O.G. Minerals Pty. Ltd., concluded on 9th September, 1980. Ashton Mining Limited is the Manager of the Joint Venture.

Exploration procedures instigated within the licence were aimed at locating possible kimberlite bodies. The principal exploration technique employed was regional gravel sampling.

This report gives a summary of the work carried out in E.L. 2294 during the period 7th May, 1980 to 6th May, 1981. A statement of expenditure covering this period is included in the report.

TENURE

During the period under review, E.L. 2294 was held on behalf of the A.D.E. Joint Venture by Aberfoyle Exploration Pty. Ltd. The licence initially covered 1280.37 square kilometres

E.L. 2294

ABERFOYLE EXPLORATION PTY. LTD.

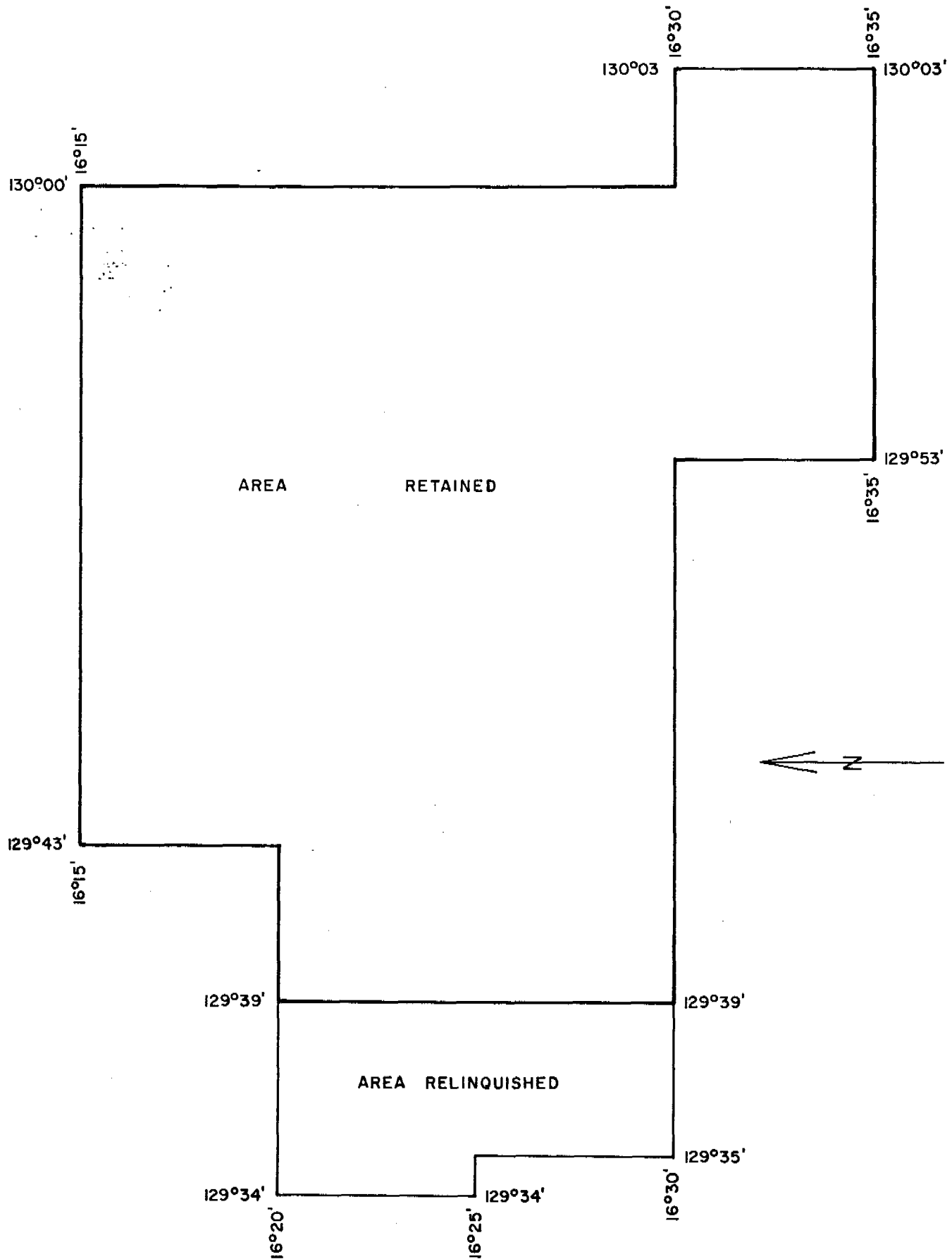


FIGURE 1

and the original area is outlined in Figure 1 and described fully below:

Commencing at the intersection of latitude 16 degrees 15 minutes with longitude 129 degrees 43 minutes thence proceeding to the intersection of latitude 16 degrees 15 minutes with longitude 130 degrees 00 minutes thence proceeding to the intersection of latitude 16 degrees 30 minutes with longitude 130 degrees 00 minutes thence proceeding to the intersection of latitude 16 degrees 30 minutes with longitude 130 degrees 03 minutes thence proceeding to the intersection of latitude 16 degrees 35 minutes with longitude 130 degrees 03 minutes thence proceeding to the intersection of latitude 16 degrees 35 minutes with longitude 129 degrees 53 minutes thence proceeding to the intersection of latitude 16 degrees 30 minutes with longitude 129 degrees 53 minutes thence proceeding to the intersection of latitude 16 degrees 30 minutes with longitude 129 degrees 35 minutes thence proceeding to the intersection of latitude 16 degrees 25 minutes with longitude 129 degrees 35 minutes thence proceeding to the intersection of latitude 16 degrees 25 minutes with longitude 129 degrees 34 minutes thence proceeding to the intersection of latitude 16 degrees 20 minutes with longitude 129 degrees 34 minutes thence proceeding to the intersection of latitude 16 degrees 20 minutes with longitude 129 degrees 43 minutes thence proceeding to the intersection of latitude 16 degrees 15 minutes with longitude 129 degrees 43 minutes, subject to all applications for mining tenements and excluding therefrom all mining tenements granted or registered and all reserves included within the definition of "reserve" in section 7 of the *Mining Act*.

Exploration Licence 2294 was voluntarily reduced to 1131.79 square kilometres on 6th March, 1981. The area surrendered is shown in Figure 1.

An application for the renewal of the licence for twelve months from 7th May, 1981 is currently under review by the Department of Mines and Energy.

LOCATION AND ACCESS

Exploration Licence 2294 is located in the area surrounding Kildurk Homestead. The licence occurs on the southern

half of the Kildurk 1:100,000 topographic sheet and the northeast and northwest corners of the Kimon and Wickham River 1:100,000 topographic sheets, respectively.

Vehicular access to the licence is very limited. The only roads in E.L. 2294 are station tracks leading from Kildurk Homestead that serve the area west of the West Baines River. Access to the other parts of the licence is by means of cross country driving.

INVESTIGATIONS UNDERTAKEN

During the period under review, a field program involving the collection of ninety-one regional gravel samples was undertaken.

Gravel sampling was considered the most effective exploration method for the location of kimberlites within the licence as there is a well developed drainage pattern over most of the area, with the degree of relief and outcrop conditions providing potential for suitable heavy mineral trapsites within the drainage system.

Prior to the commencement of field work, gravel sample locations were plotted in the office on the Kildurk, Kimon and Wickham River 1:100,000 sheets so that sample sites were approximately six kilometres apart and distributed uniformly over the area.

During the field program, individual 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 advantages of ease of access and navigation and enabled the geologist to scan the area for suitable trap sites.

Once a suitable sample site was located, approximately 40 kg of gravel were gathered, sieved and the minus 4 mm fraction collected for laboratory examination. Generally the minus 4 mm samples weighed 25 - 30 kg. The sample sites were accurately plotted in the field on a prepared 1:100,000 base plan. Within E.L. 2294 a total of 91 regional gravel samples were collected corresponding to a sample density of one sample per 14.07 square kilometres. A series of seven follow-up gravel samples were also collected from selected sites within the licence. Sample locations are given in Plan 1.

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 1.0 mm plus 0.425 mm fraction.

Of the ninety-one regional gravel samples processed, seventy-six contained no detectable kimberlite indicator minerals. Chromite grains were identified in the remainder but these were considered to be of non-kimberlitic origin. One sample (WAT 509) also contained a diamond. However, resampling of the WAT 509 site and potential trapsites further upstream yielded negative results.

A complete listing of results of the laboratory examinations is shown in Appendices 1 and 2. Appendix 1 lists the results of samples in the relinquished portion of the licence (as reported in "Final Report on Area Relinquished : E.L. 2294"), while Appendix 2 lists the results of samples collected within the area retained by Aberfoyle Exploration Pty. Ltd.

CONCLUSIONS

Although the seven follow-up samples collected to date have been unsuccessful in repeating the result for WAT 509, the occurrence of a diamond is nevertheless regarded as encouraging.

Consequently a detailed program involving airborne geophysics, photogeology and geochemistry has been planned for the coming term.

APPENDIX 1.

RESULTS OF LABORATORY EXAMINATIONS : AREA RELINQUISHED

The following fractions of each sample were studied:

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

Sample No.	Results	Comments
WAT 525	70 +0.5 Chromite 500 + 0.425 "	Very Fresh-Fresh, anhedral, subhedral, finely pitted or smooth matte surfaces. Some coarsely pitted subvitreous. Some finely stepped high sheen with fine grained intergrowths on surface. Soft to hard brittle streak.
WAT 526	Nil	
WAT 527	12 +0.5 Chromite 100 +0.425 "	Fresh, mostly rounded or subrounded, finely pitted or 'cokey' matte to subvitreous surfaces. Rare euhedral grain with flat faces, zoned or growth features on truncated surfaces.
WAT 528	19 +0.425 Chromite	Fresh, anhedral, rounded, smooth, fine or coarsely pitted matte surfaces, vitreous cores.
WAT 610	2 +0.5 Chromite 33 +0.425 "	Fresh, subhedral, some anhedral rounded. Fine or coarsely pitted matte surfaces. Some smooth, subvitreous, some truncated, zoned. Vitreous cores, very hard streak.
WAT 611	14 +0.5 Chromite 65 +0.425 "	Fresh/Worn, euhedral to anhedral, rounded. Fine to coarse pitting, matte surfaces, vitreous cores.
WAT 612	10 +0.5 Chromite 74 +0.425 "	Fresh-Fresh/Worn, euhedral to anhedral, rounded. Fine to coarse pitting, matte surfaces, vitreous cores.
WAT 615	6 +0.425 Chromite	Fresh/Worn, anhedral, irregular holed and pitted surfaces, matte to subvitreous lustre, some convex vitreous patches.
WAT 616	Nil	
WAT 617	Nil	
WAT 618	Nil	

Sample No.	Results	Comments
WAT 619	3 +0.425 Chromite	Fresh/Worn, rounded, pitted cokey surfaces, subvitreous or matte lustre, vitreous core.
WAT 620	2 +0.5 Chromite 5 +0.425 "	Fresh/Worn, rounded, pitted cokey surfaces, subvitreous or matte lustre, vitreous core.

APPENDIX 2.

RESULTS OF LABORATORY EXAMINATIONS. AREA RETAINED

The following fractions of each sample were studied:

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

Sample No.	Results	Comments
WAT 102	Nil	
WAT 103	Nil	
WAT 478	Nil	
WAT 479	Nil	
WAT 480	Nil	
WAT 496	Nil	
WAT 501	Nil	
WAT 502	Nil	
WAT 503	Nil	
WAT 504	Nil	
WAT 505	Nil	
WAT 506	Nil	
WAT 507	Nil	
WAT 508	Nil	
WAT 509	1 +0.425 diamond	White octa-dodecahedron. Heavily textured with growth lines, ragged apices. No fluorescence, no resorption grooves.
	2 -0.425 chromite	Fresh, finely pitted even surface matte lustre, submetallic in some positions, vitreous fracture.
WAT 510	Nil	

Sample No.	Results	Comments
WAT 621	Nil	
WAT 622	3 +0.5 chromite 13 +0.425 "	Fresh, mainly anhedral. Some finely pitted matte to subvitreous surfaces, some coarsely pitted. Vitreous convex patches, vitreous fracture.
WAT 623	1 +0.425 chromite	Fresh, subhedral, finely pitted irregular matte surfaces, relict patches of smooth matte face, truncated and grooved.
WAT 624	1 +0.5 chromite 5 +0.425 "	Fresh, euhedral rounded, pitted matte surfaces, vitreous core, some grooves.
WAT 625	1 +0.5 chromite 1 +0.425 "	Fresh, one subhedral, rounded edges, other anhedral. Matte pitted surfaces, vitreous fracture, rare groove.
WAT 626	Nil	
WAT 810	Nil	
WAT 811	Nil	
WAT 812	Nil	
WAT 813	Nil	
WAT 905	Nil	
WAT 906	Nil	
WAT 907	Nil	
WAT 908	Nil	
WAT 909	Nil	
WAT 910	Nil	
WAT 911	Nil	
WAT 912	Nil	
WAT 913	Nil	
WAT 914	Nil	
WAT 915	Nil	

Sample No.	Results	Comments
WAT 916	Nil	
WAT 917	Nil	
WAT 918	Nil	
WAT 919	Nil	
WAT 920	Nil	
WAT 921	Nil	
WAT 922	Nil	
WAT 923	Nil	
WAT 924	Nil	
WAT 925	Nil	
WAT 926	Nil	
WAT 928	Nil	
WAT 929	Nil	
WAT 930	Nil	
WAT 931	Nil	
WAT 932	Nil	
WAT 933	1 +0.425 chromite	Fresh/Worn, subhedral, rounded. Dull matte irregular and shallowly pitted surfaces, truncated zoned subvitreous core.
WAT 934	Nil	
WAT 935	Nil	
WAT 936	Nil	
WAT 938	Nil	
WAT 939	Nil	
WAT 1041	Nil	
WAT 1042	Nil	
WAT 1043	Nil	

Sample No.	Results	Comments
WAT 1044	Nil	
WAT 1045	Nil	
WAT 1046	Nil	
WAT 1047	Nil	
WAT 1049	Nil	
WAT 1053	Nil	
WAT 1054	Nil	
WAT 1055	Nil	
WAT 1056	Nil	
WAT 1057	Nil	
WAT 1058	Nil	
WAT 1059	Nil	
WAT 1060	Nil	
WAT 1061	Nil	
WAT 1062	Nil	
WAT 1178	Nil	
WAT 1179	Nil	
WAT 1180	Nil	
WAT 1181	Nil	
WAT 1182	Nil	
WAT 1183	Nil	
WAT 1242	Nil	
WAT 511	Nil	

APPENDIX 3.

A.D.E. JOINT VENTURE

EXPLORATION LICENCE NO. 2294

EXPENDITURE for the year ended 6th May 1981

	\$
Salaries	4,400
Field & Laboratory Expenses	16,129
Miscellaneous	3,640
Expenditure for year	<u>24,169</u>

Date Licence Granted: 7.5.80

J.P.C: 6/7/81

