# WESTERN MINING CORPORATION LIMITED EXPLORATION DIVISION

ANNUAL REPORT

ON

E.L. 1656

JUNE 1984 - JUNE 1985

HUGH WARREN Senior Geologist, W.J. & E.E. Fisher Pty. Ltd., Darwin, N.T.

JULY, 1985



NORTHERN TERRITORY GEOLOGICAL SURVEY

CR85/213

# WESTERN MINING CORPORATION LIMITED EXPLORATION DIVISION

#### ANNUAL REPORT ON EXPLORATION

<u>PERIOD</u> : June 18, 1984 - June 17, 1985

TENEMENT : EXPLORATION LICENCE 1656

MINERAL : GOLD

LOCATION : ADELAIDE RIVER, N.T.

PINE CREEK 1: 250,000 Sheet

<u>AUTHOR</u> : H. WARREN

<u>DATE</u> : JULY 1985

#### SUMMARY

Field work completed during the fourth year of the licence included a detailed stream sediment survey of the H22 area, further rock chip sampling of the H21 area, and commencement of remapping at H24. Parts of the licence were also covered by a regional stream sediment sampling program.

Following this work and reassessment of previous results a programme including prospect mapping, geophysical surveys, extensive soil sampling, and some drilling is planned for 1985/86.

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#### 1. <u>INTRODUCTION</u>

This report deals with exploration carried out in the fourth year of EL 1656.

EL 1656 was initially granted to Pan D'Or Mining N.L. on 18th June, 1981, Jimberlana Minerals N.L. having a beneficial interest. In 1982, Euralba Mining Ltd. concluded an agreement with Pan D'Or and Jimberlana to explore the area, and earn a majority interest. Subsequently, W.R. Grace Australia Ltd. concluded an agreement with Euralba, Pan D'Or and Jimberlana to carry out further exploration, and to earn a majority interest.

In January, 1985, the E.L. became part of the Mt. Ringwood Joint Venture between W.R. Grace Australia Ltd. and Western Mining Corporation Ltd., and Western Mining assumed operatorship.

The E.L. is located on the Batchelor 1:100,000 sheet and now consists of two parts: Part A comprises 14 blocks immediately north-east of Adelaide River township; Part B comprises 24 blocks further to the east and encompassing Mt. Foelsche, a portion of Howley Creek, and Wild Horse Hill near 'A' Yards station settlement [Figure 1]. Good access is afforded to most of the area by the Stuart Highway, the Mt. Ringwood Road, and numerous station tracks.

Previous work outlined four areas of gold mineralization which warranted further investigation. Detailed work has been carried out on three of these areas in 1984/85 (H21, H22 and H24), and results over the whole of the E.L. have been reassessed in the light of progress made in other areas subject to the Mt. Ringwood Joint Venture.

## 2. <u>GEOLOGY</u>

The Exploration Licence lies in the western part of the Pine Creek Geosyncline, close to the western margin of the Batchelor Shelf as defined by Stuart-Smith et al. [1979]. Underlying rocks are dominantly siltstones, shales and wackes, with minor ferruginous shale/banded iron formation, and are assigned to the Mt. Bonnie and Burrell Creek Formations. The difficulty of pinpointing a boundary between these intergradationed formations has been discussed by Smith [1983].

Two stages of folding about generally north trending axes are identified by Smith: broad open folds effecting the gross distribution of stratigraphic units and much smaller scale tight folding. Prominent faults are also generally north trending and are commonly associated with bucky quartz veining. The most distinct of these is the Mt. Shoobridge fault which can be traced into the south-east corner of the E.L., and may extend to the north through the H2l area.

Quartz and gossanous quartz veining is widespread in the E.L.

#### 3. PREVIOUS EXPLORATION

Helicopter-borne reconnaissance rock chip sampling carried out in 1982 and 1983 defined a number of gold mineralized areas which required closer investigation. Several of these areas were also highlighted by the photogeological interpretation carried out by L.G. Smith & Co.

Follow up work downgraded the importance of some areas, and the 50% reduction carried out in 1983 allowed retention of the most significant rock chip anomalies:

(A) <u>H2l</u> - <u>Wild Horse Hill Area</u> - located in the northeast extremity of the E.L. [Plate 2].

A north-north-east trending belt of massive quartz veining with associated gossanous disseminations and stockwork veining carries anomalous gold over at least 6 km with maximum values of 3.66 and 4.90 g/t. A parallel belt of veining about 1 km west has been only sparsely sampled.

(B)  $\underline{H22}$   $\underline{Area}$  - occupies about 10.5 square kilometres immediately east of the Stuart Highway about 7 km north of Adelaide River township. [Plate 1].

Numerous rock chip samples from this gossanous stockwork yielded gold values in the 0.1 to 1.0 g/t range, with associated arsenic (up to 8.7%), and lead (up to 0.87%).

(C) <u>H23 Area</u> - located about 2 Km south-west of Mt. Foelsche. [Plate 1].

This area, with southward extensions toward Mt. Tymn, was high—lighted by the photogeological work (Smith, 1983), as an area of folded and altered Mt. Bonnie Formation. Six samples of prominent gossanous quartz reefs and stockwork zones over a strike length of 1200m yielded five gold values between 0.42 -5.80 g/t.

(D) <u>H24 Area</u> - located about 5 km east-north-east of Mt. Foelsche. [Plate 2].

A conspicuous poddy gossanous stockwork zone up to 15m wide extends over 275m. The stockwork zone contains lead-arsenic mineralization and associated gold, silver, zinc and antimony, with minor amounts of other metals. Costeaning yielded best gold intersections of 12m averaging 2.9 g/t and 6m averaging 1.25 g/t.

One eastwardly inclined diamond drill hole was targetted at the stockwork but intersected only a thin chloritized shear with associated very weak sulphide veining, and a best gold assay of 0.23 g/t.

(E) An undesignated area, about 3 km north-north-east of Mt. Keppler [Plate 2], returned gold assays 0.1 and 0.63 g/t from two of four quartz vein samples taken over 1800m strike length. The area may be a southerly extension of the H21 - Wild Horse Hill mineralized belt, and was distinguished by the photogeological interpretation as an area of possible interest. This area will henceforth be termed H25.

# 4. 1984/85 EXPLORATION PROGRAMME

# 4.1 <u>H21 Area.</u>

Investigations involved mapping and more detailed rock chip sampling in the region of reconnaissance chip sample H141aA which assayed 3.66 g/t Au. The work was carried out by G.W. Patterson [see Apendix 1] and results are shown on Figure 2.

A total of 15 rock chip samples were taken, the best result being 1.31 g/t Au over 7m. This is from a zone of quartz stockwork veining with minor gossanous pits. There are indications that more widespread stockwork mineralization, possibly with a stronger gossan/sulphide component, may be observed beneath quartz and wacke scree.

The locality is near the southern end of a narrow lkm long north trending zone of weak-moderately outcropping Burrell Creek Formation sediments carrying stockwork quartz veining and disseminated pyrite casts, with scattered outcrops of bucky vein quartz. Similar veining, which outcrops intermittently in a belt extending 5 km south to Wild Horse Hill, on the northern edge of which a 4.90 g/t assay is recorded, has not yet been investigated in detail.

# 4.2 <u>H22 Area.</u>

The area consists of a roughly circular group of rugged hills, deeply dissected by numerous creeks. Diverse lithologies including sandstone, wackes, shale and cherty units are exposed in gullies and on ridges, and probably represent elements of the Burrell Creek and Mount Bonnie Formations, and the Gerowie Tuff. Many outcrops carry quartz vein stockworks, quartz reefs, gossans, and/or disseminated pyrite casts.

A detailed stream sediment sampling programme was carried out in July by G.W. Patterson [See Appendix 2], in an attempt to define more clearly centres of mineralization within the extensive mineralized zone. 142 samples of active sediment were collected from 141 localities, one locality being sampled twice. Samples were sieved on site to minus 60 mesh, and locations were plotted on 1: 25,000 scale coloured air-photos.

The minus 60 mesh samples were analysed for gold and arsenic, Au by fire assay (detection 0.005 ppm), and As by AAS after perchloric acid digestion (detection 50 ppm). Results are shown on Figure 3. Au values range from below detection to 0.155 ppm, with most below 0.055 ppm. As values range from below detection to 550 ppm with most values below 250 ppm. Determination of statistically anomalous values has not been carried out, but preliminary 'eye-balling' of results indicates a marked concentration of higher Au and As values in the central part of the area around the headwaters of a large north-west flowing creek.

# 4. 1984/85 EXPLORATION PROGRAMME Continued ...

4.3 <u>H24 Area.</u>

Detailed re-mapping of this prospect is in progress. Preliminary results suggest that the outcropping gossan dips to the east at between 54 and 81 degrees. Thus the diamond drill hole, completed in 1983, may have failed to test the lode. Trial ground magnetic traversing detected a small (about 30nT) anomaly over the gossan.

A selected sample of the gossan (Sample No. AA 892791), assayed 1.17 g/t Au.

4.4 General.

Ground work outside the areas discussed above was limited to an inspection of the area south-east of H23. Several bucky quartz veins with associated poorly outcropping stockwork systems were noted. A single sample of a quartz stockwork in coarse grained quartz wacke (AA 892805 Plate 2) assayed less than 0.02 g/t Au.

A helicopter-borne regional stream sediment sampling programme was carried out in late May, sample density being 1 sample per square kilometre. Samples were sieved to minus 200 mesh, and this fraction will be analysed for low level gold, with the major aim of detecting any weakly outcropping mineralization which may have been overlooked by previous rock chip sampling. Included in the survey area were those parts of EL 1656, mainly the western and southern portions, where streams are reasonably well defined. Results of this work are not yet available.

## 5. PROPOSED WORK - 1985/86

An assessment by Western Mining Corporation, of the main prospects discussed above, will be carried out early in the year, with follow up sampling and geophysical work where appropriate. This work will be extended to areas of interest defined by the stream sediment survey and by complementary reconnaissance sampling of residual soils to be carried out in areas of subdued topography. Some drilling will be carried out if the results of this assessment are encouraging.

Estimated cost of this programme is as follows:-

Geology	\$15,000
Geophysics	\$10,000
Geochemical	\$ 5,000
Analytical	\$11,000
Drilling	\$ 6,000
Total	\$47,000
	=======

Administration costs have been redistributed throughout each category.

# 6. EXPENDITURE

# W.R. GRACE AUSTRALIA LTD. MINERAL EXPLORATION VENTURE EXPLORATION OPERATING EXPENSES

# EL 1656

# PERIOD: 18.06.84 - 17.06.85

ADMINISTRATION	<b>\$</b>
Auditors Remuneration	173
Consultants, Financial & Tax	146
Data Processing (Accounting)	
Electrical Light & Power	198
Financial Controller	166
Insurances: General & Workers Comp	90
Legal Fees	542
Mining Engineering Supervision	2151
Payroll Tax	2255
Postage, Courier, Bank Charges	220
Printing & Stationery	200
Rent & Storage	283
Secretarial & Bookkeeping	984
Staff Recruitment	1186
Telephone, Radio, Telex	_36
Travelling	330
Office Miscellaneous	791
Promotion & Representation Costs	<del>-</del>
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DRILLING, TRENCHING & ASSAYING	
Assaying	2250
Contract Grading	2259
Contract Drafting	10/5
Contract Gridding & Surveying	1245
Core Cutting/Storage Contractor	
Core & Sample Storage	272
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Drilling: Diamond/Percussion/Auger	- · · · · · · · · · · · · · · · · · · ·
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FIELD & CAMP EXPENDITURES	
Camp Cook Contractor	125
Camp Construction	125
Field Rations & Supplies	70
Field Camp Equipment Amenities	70
Fuel & Oil	25
Helicopter Hire	720
Plant & Equipment Hire	<del>-</del>
Motor Vehicle Expenses	178
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Consumables & Operating Supplies	236
Repairs & Maintenance	555
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Motor Vehicle Lease	224

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STUART - SMITH, P.G., WILLS, K., CRICK, I.H. & NEEDHAM, R.S. [1979]:
Evolution of the Pine Creek Geosyncline. In
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SMITH, L.G., [1983]: Report on Photogeological Study of Exploration Licence 1656. Unpublished report for W.J. & E.E. Fisher on behalf of W.R. Grace Australia Ltd.

## APPENDIX 1

# EL 1656, H21 AREA

An area within EL 1656 north of 'A' Yards near the Tortilla Plats-Mt Ringwood road was examined to follow-up some previously recorded anomalous gold values. The only locality of interest is in the vicinity of a water tank about 5 kilometres NNE of 'A' Yards. Previous surface sample H141aA had

The locality is near the southern end of a narrow 1 kilometre long north trending zone of Burrell Creek sediments carrying stockwork quartz veining and disseminated pyrite casts. Significant gold was found in fifteen samples, mostly chip samples of outcrop with minor scree. The highest value, 1.31 g/t, was from a 7 metre width of stockwork veining. Sample values and sampling detail are shown on the attached 1:25,000 scale plan and 1:2,500 scale inset.

#### REPORT ON STREAM SEDIMENT SAMPLING

H22 AREA, EL 1656

AUTHOR: G.W. PATTERSON

#### SUMMARY & CONCLUSIONS

A stream sediment sampling programme involving 141 sample localities was carried out over an area of about 10.5km<sup>2</sup> within EL 1656.

It was demonstrated that a substantial quantity of active sediment can be obtained by on-site sieving to -60 mesh.

Analyses possibly indicate a zone of associated gold and arsenic occurrence in the central part of the area covered.

#### INTRODUCTION

Widespread mineralisation characterized by intense quartz veining, sulphide boxworks and disseminated pyrite casts had previously returned some anomalous gold and arsenic values from rock samples in a well-drained area of Burrell Creek sediments on Stapleton Creek north of Adelaide River.

A stream sediment sampling programme was planned in an attempt to more clearly define the anomalous zones. Some delay was encountered in contacting the landowner and obtaining permission for the survey. The work was completed in seven days during July.

#### SAMPLING PROGRAMME

The area covered consists of a roughly circular group of rugged hills east of the Stuart Highway. The terrain is well dissected by numerous creeks which require traversing on foot. Burrell Creek sandstones and shales, frequently carrying quartz vein stockworks, quartz reefs, gossans and disseminated pyrite casts are well exposed in gullies and on ridges.

Although access is difficult in the lower reaches of the creeks due to a heavy grass, weed and burr cover, the upper reaches are reasonably accessible. Active sediment, although frequently scarce in rocky gullies, was obtained throughout. Samples were sieved on site to minus 60 mesh.

142 samples were collected from 141 localities, one locality having been sampled twice. Sample localities were plotted using 1:25,000 scale coloured air-photographs.

The minus 60 mesh samples were analysed for gold and arsenic, Au by fire assay at 0.005 ppm (5 ppb) and As by AAS after perchloric acid digestion. Au values range to 155 ppb, with most below 55 ppb. As values range to 550 ppm with most values below 300 ppm. Figures require statistical analysis to determine truly anomalous values, but preliminary 'eye-balling' of results suggest that best coincidence of higher Au and As values is confined to the central part of the area. This is in the headwaters of the largest north-flowing creek.

July, 1984.









