ANNUAL REPORT
ON EXPLORATION OVER
EXPLORATION LICENCE NO. 1346
MINES BRANCH
GEOLOGICAL LIBRARY
ALICE SPRINGS AREA
NORTHERN TERRITORY
COVERING THE PERIOD
16 MARCH 1978 TO 15 MARCH 1979
OPEN FILE
PERTH
MAY 1979
SUMMARY

This report covers the second year of tenure for EL 1346 which is located 70 km southwest of Alice Springs and covers part of the Orange Creek Syncline.

Exploration is being conducted for sandstone-type uranium deposits.

UAL activity was confined to compilation and assessment of results involving a regional Track-Etch programme and the geochemistry of bottom-hole samples.

A statement of Expenditure is included in this report.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUMMARY</td>
<td>ii</td>
</tr>
<tr>
<td>TABLE OF CONTENTS</td>
<td>ii</td>
</tr>
<tr>
<td>LIST OF MAPS</td>
<td>iii</td>
</tr>
<tr>
<td>1.   INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>2.   LOCATION</td>
<td>1</td>
</tr>
<tr>
<td>3.   GEOLOGY</td>
<td>1</td>
</tr>
<tr>
<td>4.   INVESTIGATIONS AND RESULTS</td>
<td>2</td>
</tr>
<tr>
<td>4.1  Geological Mapping</td>
<td>2</td>
</tr>
<tr>
<td>4.2  Gridding</td>
<td>2</td>
</tr>
<tr>
<td>4.3  Vacuum Drilling</td>
<td>2</td>
</tr>
<tr>
<td>4.4  Track-Etch</td>
<td>2</td>
</tr>
<tr>
<td>4.5  Geochemistry</td>
<td>3</td>
</tr>
<tr>
<td>5.   FUTURE PROGRAMME</td>
<td>3</td>
</tr>
<tr>
<td>6.   STATEMENT OF EXPENDITURE</td>
<td>3</td>
</tr>
<tr>
<td>7.   OTHER DETAILS</td>
<td>4</td>
</tr>
<tr>
<td>7.1  Personnel</td>
<td>4</td>
</tr>
<tr>
<td>7.2  Instruments</td>
<td>4</td>
</tr>
<tr>
<td>Map</td>
<td>Description</td>
</tr>
<tr>
<td>-----</td>
<td>-------------</td>
</tr>
<tr>
<td>1</td>
<td>Orange Creek Syncline, Vacuum and Percussion Drilling</td>
</tr>
<tr>
<td>2</td>
<td>Track-Etch Radon Contour Map Orange Creek Syncline, Scale 1:100,000</td>
</tr>
<tr>
<td>3</td>
<td>Relationship of Track-Etch Results to U₃O₈ assays, Scale 1:100,000</td>
</tr>
<tr>
<td>4</td>
<td>Orange Creek Syncline, Vacuum and Percussion Drilling, U₃O₈ Assays</td>
</tr>
<tr>
<td>5</td>
<td>Geology Orange Creek Syncline</td>
</tr>
</tbody>
</table>
1. INTRODUCTION

EL 1346 was granted to Uranerz Australia Pty.Ltd. (UAL) on 16 March 1977. The area held is 351.31 square miles (909.54 km\(^2\)). This is the second annual report on all operations carried out by UAL complying with section 38 0 (3) of the Northern Territory Mining Ordinance. A renewal for the third year of tenure has been submitted.

The tenement is one of many contiguous exploraton licences being worked in a 50:50 joint venture with Carpentaria Exploration Company Pty.Ltd. UAL is the operator.

Field-work is being carried out from a base in Alice Springs.

2. LOCATION

The area is situated about 70 km southwest of Alice Springs on the HENBURY-RODINGA 1:250,000 Sheets between latitudes 24°00' - 24°15'S and longitudes 133°45' - 134°00'E.

3. GEOLOGY

EL 1346 covers an area of the Orange Creek Syncline which is a large scale structural feature in the northeastern part of the Amadeus Basin. The basin sediments range in age from Pre-cambrian to Palaeozoic and Tertiary. The Devonian sequence is principally composed of clastic rocks. These are mainly coarse to medium-grained sandstones with occasional pebbly conglomeratic beds, siltstone and mudstone lenses. These form the Pertnjara Group of which the Undandita Member and Brewer Conglomerate area formations.

The Undandita Member sandstone is the host rock for all the known uranium mineralization. It was deposited in a fluviatile, braided channel environment. Exposures throughout the area are lacking, but the sequence is estimated to attain a maximum thickness of 1000 m.
4. INVESTIGATIONS AND RESULTS

4.1 Geological Mapping

Three hundred square kilometers were geologically mapped, using photo interpretation and identification of downhole chip samples. This work commenced in March and was completed in August 1978.

The area consists mainly of typically coarse-grained Undandita sandstone with scattered pebbles common. Grain size appears to decrease to the south and occasionally graded bedding is observed. Bedding planes are shallow and variable according to their position within the syncline (Map 5).

4.2 Gridding

A total of 6.2 km infill gridding was completed. The lines were oriented east-west. Stations were established at 100 m intervals as control for future vacuum drilling.

4.3 Vacuum Drilling

All 100 vacuum drillholes totalling 675.5 m completed on EL 1346 are shown on Map 1. Results from this work have been reported previously.

4.4 Track-Etch

The contoured results of the Track-Etch survey in the regional vacuum drillholes are shown on Map 2. Four from a total of 89 analysed cups had Track-Etch values greater than four times standard deviation above background (Map 3).

The highest Track-Etch anomaly of 9.0 x bg was found in drillhole VH 57 which was drilled at the lower boundary of the reduced horizon.

The Track-Etch anomalies were investigated by carborne traverses using a Sintrex GAM-1 spectrometer. Areas surrounding anomalous
holes were checked for outcrops and footborne-traversed within a 100 m radius of each hole. Carbone traverses were carried out further afield of each in the course of searching for outcrops.

4.5 Geochemistry

Only one vacuum drillhole (VH 72) had a bottom hole assay value more than twice the standard deviation above background (Map 3).

5. FUTURE PROGRAMME

Because of the extremely complex geology involved in the search for sandstone-type uranium mineralization, it has been decided to concentrate our efforts on exploration licences held over the Missionary Syncline. This work will take the form of a percussion/diamond drilling programme expected to cost over $250,000. Results obtained will be then applied to exploration licences held on the Orange Creek Syncline. Geological mapping will continue.

Estimated minimum expenditure will be $5,000.

6. EXPLORATION LICENCE NO. 1346

STATEMENT OF EXPENDITURE

Salaries and Wages 7,670.70
Drilling Contractors 1,332.00
Field operating costs including consumables, rents, vehicle operating and repairs, air-fares, freight etc. 9,322.54
Depreciation of vehicles and geophysical instruments, consultant fees, management and distribution of Head Office costs 2,382.28

$20,707.52

Covering the period from 16th March 1978 to 15th March 1979.
7. **OTHER DETAILS**

7.1 **Personnel**

- **Exploration Manager** — Dr. D.O. Zimmerman
- **Chief Geologist** — Dr. P. Adamek
- **Project Geologist** — Mr. M. Tylich
- **Geologist** — Mr. J. Brigden
- **Geologist** — Mr. I. Faris
- **Geologist (CEC)** — Mr. A. Piper
- **Senior Field Assistant** — Mr. J. Wilkie
- **Technician** — Mr. V. Goodfellow
- **Field Assistant** — Mr. T. Cummins

7.2 **Instruments**

- 2 SRAT SPP-2 scintillometers No's 1105, 1501
- 1 McPhar TV-5 downhole logging unit No. 570-02
- 1 radon monitor S/No. 005
- 1 GAM-1 spectrometer No. 506078
- 1 Mt. Sopris 2500 downhole logging unit
- 1 UV mineral light
- 2 pairs of Walkie-Talkie radios
- 3 plastic chains 100 m
- 3 plastic chains 50 m
- 1 Topofil
- 1 Theodolite No. 97082