T3 NICHOLSON RIVER

OPEN FILE

STOCKDALE PROSPECTING LIMITED

JOINT VENTURED WITH DOMINION

EXPLORATION LICENCES 4085, 4403

FINAL REPORT 1986

NORTHERN TERRITORY GEOLOGICAL SURVEY

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Title: STOCKDALE PROSPECTING LIMITED FINAL REPORT 1986 EXPLORATION LICENCES 4085, 4403 JOINT VENTURED WITH DOMINION GOLD OPERATIONAL NL (EX-ANAConDA), MT DRUMMOND AREA, NORTHERN TERRITORY

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SUMMARY

EXPLORATION LICENCE NOS: 4085, 4403

DATE GRANTED:
07/07/83 (EL 4085)
28/10/83 (EL 4403)

AREA:
154 blocks; 496 km²

OCCUPANT:
Relinquished by Dominion Gold Operations NL (formerly Anaconda Australia Incorporated) on 29th July, 1986.

OPERATOR:
Stockdale Prospecting Limited

COMMODITIES SOUGHT:
Diamonds

EXPLORATION:
Follow-up stream sampling carried out during 1984 as a result of encouraging results from reconnaissance sampling in the Nicholson River Basin. The samples were affected by the problem of dilution of concentrates by the iron-rich drainages in the area. Failure to recover diamonds or kimberlitic indicator minerals during the 1986 field season sampling programme warrants relinquishment of the exploration licences as of no further interest for diamond exploration.
STOCKDALE PROSPECTING LIMITED FINAL REPORT 1986

EXPLORATION LICENCES 4085, 4403 JOINT VENTURED WITH
DOMINION GOLD OPERATIONAL NL (EX-ANACONDA).

MT DRUMMOND AREA, NORTHERN TERRITORY

1. INTRODUCTION

Exploration Licences 4085 and 4403 are located on the Mt Drummond 1:250,000 map sheet in the north-east of the Northern Territory (Map 1).

Until July, 1986, the licences were held by Dominion Gold Operations NL (formerly Anaconda Australia Incorporated), and operated by Stockdale Prospecting Limited in a joint venture agreement where Stockdale prospected the licence area as part of a regional diamond exploration programme. At the same time a series of samples were collected for geochemical analysis by the joint venture partners. On 29th July, 1986, Dominion relinquished the licences.

Collectively these licences cover an area of 496 km² (154 blocks). A deferral of reduction for the third year of Exploration Licence 4085, applied for in July, 1985, was approved on 7th February, 1986 (Appendix 1).

2. ACCESS

Access to the area by road was poor in the past with one track only passing through from Gallipoli Homestead to the south and another terminating within the area coming from the Musselbrook Mining Camp to the east. This necessitated the use of a helicopter for sampling. Access to this area has been improved by Stockdale dozing a road between Benmarra Station and Soak Creek during the 1985 field season.

3. GEOLOGY

3.1 General

Descriptions of the rock units in the Mt Drummond area are detailed in the Mt Drummond 1:250,000 Geological Series Explanatory Notes (Bureau of Mineral Resources).

The following is condensed and focuses on the area in and around the exploration licences.
3.2 Stratigraphy

The exploration licences occupy part of an area referred to as the Gulf Fall, a term used to describe the area drained by streams which flow into the Gulf of Carpentaria. The Nicholson River and its tributaries drain the area.

The area also includes the west-striking ridges of the Carrara Range Formation (unconformably overlies the low grade metasediments known as the Murphy Metamorphics), a series of clastic sediments and volcanics, and the Bluff Range Beds, clastic and chemical sediments, both of Lower Proterozoic age. Sandstones and siltstones of the South Nicholson Group (Upper Proterozoic) outcrop to the north of the area. Minor siltstone outcrops of probable Lower Cretaceous age are found to the east.

The stratigraphy of the area is summarised in Table 1.

3.3 Structure

The lower Proterozoic Murphy Metamorphic Series are highly folded with dips generally between 60° and vertical. The Carrara Range Formation and Bluff Range Beds are folded on a west-striking axis with an average dip of 25° to the north.

The rocks were gently folded in Upper Proterozoic times, with the sediments of the South Nicholson Group to the east of the area (forming Bluff Range) giving the impression of a broad anticline, though the dips there may be partly depositional. West and west-south-west striking faults are common in the area.

4. ABORIGINAL LAND CLAIM

Exploration licences 4085 and 4403 fall within the Nicholson River Land Grant, an area of approximately 5300 km², comprising seven Aboriginal "estates" and encompassing the China Wall, South Nicholson Basin and the Carrara Range (Map 1).

Because of the previous land claim status, Stockdale obtained information regarding sacred sites in the area and contacted the traditional owners to inform them of the proposed work programme.

4.1 Traditional Owners

Most of the Traditional Owners are resident at either Doomadgee Mission, Mt Isa or Robinson River Station. However, some of the traditional Owners live within the land grant during the dry season. Their principal camp, known as Nujaburra, is located on the banks of the Nicholson River at reference 145 090 (Seigal 1:100,000 sheet). Other permanent camps are located on the Seigal, Dry and Cleanskin Creeks.
4.2 Agreement

Prior to commencement of the 1984 work season an agreement was drawn up between the Traditional Owners and Stockdale with the Northern Land Council acting on behalf of the Traditional Owners. The agreement covered the provisional work to be carried out in the area whereby the social interests of, and sacred sites belonging to, the people were protected. A working relationship between Stockdale and the local people was established.

The agreement was signed on July 3rd, 1984 and allows for periodic reviews to ensure good liaison with the Aboriginal communities (See Appendix 1 in 1st Annual Report on Exploration Licences 4384 - 4386, 4390 and 4392).

4.3 Sacred Sites

Sacred site information was obtained from the Sacred Sites Protection Authority, Darwin. Further information was acquired from the Traditional Owners. An elected representative for each estate was employed as an aboriginal guide to facilitate proper clearance of all sacred sites on each 1:100,000 map sheet prior to commencement of field work. Clearance of both the 1984 and 1986 work programmes was carried out to the mutual satisfaction of both the aboriginal community and Stockdale.

5. FIELD WORK

5.1 1983 Field Season

Reconnaissance Sampling

Reconnaissance sampling commenced in 1983 as part of Stockdale's regional exploration programme. During that period one stream sample (T9325) was collected over the area of the exploration licences (Map 2). This sample failed to yield diamonds or kimberlitic indicator minerals. Encouraging results from areas adjacent to these exploration licences indicated the need for more detailed follow-up.

5.2 1984 Field Season

Follow-up Stream Sampling

The follow-up sampling programme carried out in 1984 for improved target definition resulted in a total of 22 stream samples being collected within the areas of the two exploration licences.

Approximately 100 litres of screened material was collected from each site. The material was then bagged and despatched to Darwin to await concentration at the regional treatment plant.
During this treatment stage it was discovered that iron-rich material in the drainages had diluted heavy mineral concentrations to a great extent, putting a question mark on the quality of the results would be forthcoming. Concentrates recovered were despatched to Stockdale's laboratory in Melbourne for further treatment and examination.

Sample Results

As a result of problems encountered during the commissioning period of the new Darwin Treatment Plant, results from the 1984 field sampling programme did not become available until July, 1985. Only two out of the 22 samples yielded indicator minerals (V2076 and V2078). These mineral grains were identified as being ilmenites of non-kimberlitic origin and therefore were of no further interest.

5.3 1985 Field Season

Field work

As a follow-up to the discovery of the sampling problem outlined in Part 5.2 it was decided to re-sample certain of the drainages during the 1985 field season. To allow Stockdale to do this and fulfil the legal requirements, a deferral of reduction for the third year of Exploration Licence 4085 was applied for in July, 1985. The planned field work was postponed until the grant of deferral of 7th February, 1986. As a result, no field work was carried out during 1985.

Geomorphological and Landsat Studies

A geomorphological and Landsat study of the region was initiated by Stockdale's Research and Technical Services (RATS) section in Melbourne. The work was designed to assist with interpretation of sampling results and the interpretation of the geological history of the region.

In summary, the studies concluded that during the late Cretaceous, drainages flowed across the region in a north/north-east direction towards the present Gulf of Carpentaria. The formation of the Barkly Tablelands in early-mid Tertiary was associated with post-Cretaceous movement along a north-west/south-east upwarp zone extending through the China Wall area causing marked changes in drainage. The drainages were further affected by subsequent minor flexuring and cutting back to the west by the Nicholson River.

5.4 1986 Field Season

Re-sampling

To complete this stage of sampling eight stream sediment samples were taken in the headwaters of South Nicholson Creek and Musselbrook Creek during May, 1986 as indicated on Map 3.

Samples were hand excavated and transported by helicopter, and
forwarded to Darwin for heavy mineral concentration. The concentrates were sent to Melbourne for final examination in the head office laboratory.

Sample Results

Detailed examination of concentrates failed to locate any diamonds or kimberlitic minerals.

6. CONCLUSION

1. No diamonds or kimberlitic indicator minerals were found during the reconnaissance, follow-up and re-sampling programmes.

2. Interpretation of the region as a whole has indicated that the prospectivity of exploration licences 4085 and 4403 for diamondiferous deposits is so reduced as to warrant their relinquishment.

7. PERSONNEL

The 1984/1986 sampling programme in this area involved the following personnel:

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<td>Fieldhands</td>
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<td>Cook</td>
<td>5   3</td>
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<td>Flight Crew</td>
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8. EXPENDITURE

Final expenditure of $103630 has been allocated for the licences as shown in Table 2.

I.J. MACFARLANE
DARWIN
29TH AUGUST, 1986

M.R. MARX
Chief Geologist, North
## Table 2: Expenditure

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JE: OFG182