FINAL REPORT TO COMMONWEALTH OF AUSTRALIA

MINES BRANCH

NORTHERN TERRITORY ADMINISTRATION

ON PROSPECTING AUTHORITY 2855

by LE NICKEL (AUSTRALIA) EXPLORATION PTY LTD

Geologist was P. Berger

OPEN FILE
The Seymour Range is formed like most other ranges in the central portion of the Amadeus Basin by an anticlinal structure rising above sandy plains. Aerolian sand dunes are abundant outside the range, the area being located near the southern margin of the Basin, at the edge of the Simpson Desert (Figure 5). The occurrence of aeolian sand could be the reason why geochemical survey was unsuccessful. Proterozoic and cambrian rocks were examined in detail.

A geological survey showed that the facies of most lithological units in the Seymour Range are arenaceous except proterozoic chert breccias and the algal Jay Creek limestone. No metal enrichment was found at the margins of the algal reefs. As the geo-
logical succession is quite uniform and displays oxidized facies, it does not seem to represent a suitable geological environment for economic base metal deposits.

A regional gossan sampling survey was carried and the minor zinc and lead anomalies discovered during the regional stream sediment survey were followed up by geological mapping and geochemical traversing (Figs. 9, 34, 35, 36). Most of the stream sediment anomalies were found to be meaningless (Fig. 52). Some of them like the large lead anomaly in the western part of the range can be tentatively explained by a local increase in the amount of clay material mixed with aeolian sand. Others are certainly associated with manganiferous layers - the Goyder and Ininara Formations. The area was relinquished in December, 1971 as exploration work demonstrated that it had no economic potential for stratiform base metals. Results of geological and geochemical work performed are displayed in the attached figures.

Total Expenditure: $12,382

List of Figures:

Figure 5. Map of areas covered by the 1970 geochemical survey

1:1,000 scale
Figure 9. Portion of the Henbury Sheet Geological Map with super-imposed Results of Geochemical survey - Seymour Range 1:100,000 scale

Figure 34. Detailed Stream sediment and gossan geochemical surveys - Seymour Range copper values 1:46,000 scale

Figure 35. Detailed Stream sediment and gossan geochemical surveys - Seymour Range lead values 1:46,000 scale

Figure 36. Detailed Stream sediment and gossan geochemical surveys - Seymour Range zinc values 1:46,000 scale

Figure 52. Seymour Range. Geochemical and Geological Sections.
MONTHLY REPORT - DECEMBER 1971

SEYMOUR RANGE

A to P 2855

Our ref: NIMEX 44/72H

Final report in preparation.

Costs for November: $1,025
MONTHLY REPORT - NOVEMBER 1971.

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Geological and geochemical surveys were carried out over the three stream sediment anomalies known in the area. In the N.W. portion of the E.L., a large lead anomaly may be associated with a slight increase of background, but no anomalous concentration was revealed by a geochemical section at 25 m. intervals. Other copper-zinc anomalies are due to the presence of wads in siltstone of the Goyder Formation.

Expenditure for September amounted to $573
Expenditure for October amounted to $114
Compiling of documentation and study of aerial photographs was carried out during the month. Planning of subsurface exploration is in progress, it concerns mainly the known lead anomaly in the north-western portion of the range.

Costs for September amounted to $573.
In the northwestern part of the area, a first geochemical section failed to locate the origin of the lead anomaly detected during the 1970 stream sediment survey. Other field work is required and will be undertaken during the next month.

Costs for July were $1414.54. Costs for August will be supplied with September report.
Surface geological reconnaissance and geochemical traversing was resumed in the western part of the area. The investigation mainly concerned the Inindia beds and the contact between the Stairway sandstone and the underlying undifferentiated Cambrion, where a previous stream sediment survey revealed a worked lead anomaly. Twenty-three rock samples and five gossan samples were collected and chemically tested. No geochemical results are as yet available.

A thick lens of pebble-cobble conglomerate is locally exposed at the base of the Stairway sandstone, it passes literally into finely bedded siltstone and sandstone overlying the arenaceous Cambrion (see appendix: stratigraphic column). The Stairway sandstone contains abundant seams and occasional nodules of phosphorite.
All the piece or parcel of land in the Northern Territory of Australia containing an area of 125 square miles more or less, the boundaries of which are described as follows:

Commencing at the intersection of latitude 24 degrees 45 minutes 00 seconds with longitude 133 degrees 05 minutes 00 seconds thence proceeding to the intersection of latitude 24 degrees 45 minutes 00 seconds with longitude 132 degrees 45 minutes 00 seconds thence proceeding to the intersection of latitude 24 degrees 40 minutes 00 seconds with latitude 132 degrees 45 minutes 00 seconds thence proceeding to the intersection of latitude 24 degrees 40 minutes 00 seconds with longitude 132 degrees 45 minutes 00 seconds thence proceeding to the intersection of latitude 24 degrees 40 minutes 00 seconds with longitude 133 degrees 02 minutes 00 seconds thence proceeding to the intersection of latitude 24 degrees 41 minutes 00 seconds with longitude 133 degrees 05 minutes 00 seconds thence proceeding to the intersection of latitude 24 degrees 41 minutes 00 seconds with longitude 133 degrees 05 minutes 00 seconds thence proceeding to the intersection of latitude 24 degrees 41 minutes 00 seconds with longitude 133 degrees 05 minutes 00 seconds excluding therefrom all reserves under section 103 of the Crown Lands Ordinance 1931-1970, all reserves under section 54 of the Lands Acquisition Act 1955-1966 and all reserves under section 147 or 147A of the Mining Ordinance 1939-1969, and all land set aside under any law in force in the Northern Territory for railway or road purposes, all prospecting authorities granted under the Mining Ordinance 1939-1969 and all mining tenements in existence under the Mining Ordinance 1939-1969.