REPORT ON MINERAL LEASE N41
EVELYN MINE, N.T.

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FOR
NICRON RESOURCES LIMITED

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Ranford Hill 5370
Darwin, N.T.
September, 1991
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1. **INTRODUCTION**

Mineral Lease N41 lies within a block of three Mineral Leases located adjacent to the Pine Creek - Kakadu Highway, approximately 4 kms west of the Moline Gold Mine and 35 kms northeast of Pine Creek (see figures 1 and 2).

The leases cover the old Evelyn Ag-Pb-Zn mine which was first worked in the 1880's (Ellis, 1926) and was intermittently operated until 1970 by various syndicates and companies.

A small indicated resource of Pb, Zn, Ag and Au mineralisation was outlined by limited drilling conducted in 1970. The area is considered to be prospective for locating further base metal and precious metal mineralisation.

The aim of this report is to present a summary of the geological work carried out with results over the Evelyn Mine and propose a work programme to further evaluate the lease.
2. **TENURE**

The leases which cover the old Evelyn workings are presently held by Nicron Resources Limited and its subsidiaries, Petrocarb Exploration NL and Lachlan Zinc NL. Nicron Resources Limited is a subsidiary of the Aztec Mining Company Ltd. They were originally granted to United Uranium NL for the purpose of Ag-Pb-Zn mining and were purchased by Nicron Resources Limited in September, 1988.

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<th>Expiry Date</th>
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<td>MLN41 Evelyn No.2</td>
<td>9</td>
<td>22/12/89</td>
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3. SUMMARY

Mineral Lease N41 covers the northern extension of the old Evelyn Ag-Pb-Zn. The mine was first worked in the 1880's (Ellis, 1926) and intermittently operated until 1966 when the total recorded production was 2,200 tons yielding 600 tons of lead and 89,000 ozs of silver (Walpole, 1968). From 1966 to 1970, United Uranium NL mined (underground/open cut) and treated 82,889 tonnes of ore at an average grade of 260 g/t Ag, 5.8% Pb and 6.1% Zn. In 1970, limited diamond drilling was conducted to search for further reserves at Evelyn Mine, however only a small inferred resource of 7,400 tonnes grading 342 g/t Ag, 6.7% Pb and 3.7% Zn was outlined and the leases were purchased by the Nicron Resources Limited and its subsidiaries after United Uranium NL went into receivership.

The Evelyn leases are located on an asymmetrical east-southeast plunging anticline with limestone, pelites, calcareous shales and quartzite of the Lower Proterozoic Koolpin Formation. The ore occurs within a series of discordant and restricted en echelon sulphide filled fractures mainly within the limestone. It is comprised mainly of galena and sphalerite in the primary zone.

Work conducted by the Woodcutters Joint Venture involved extensive literature research and has revealed that much of the original geological data and some of the reports known to have been completed were lost.
4. **CONCLUSIONS**

1) Reserves quoted by United Uranium NL could at best be regarded as Indicated.

2) The leases do have the potential to contain repetitions and extensions of base metal-gold-silver mineralisation.

3) The strike extent of the Evelyn Lode system is restricted to the north and south by east-west trending faults.
5. PREVIOUS WORK

The Evelyn Ag-Pb-Zn Mine was first worked in the 1880's (Ellis, 1926), and intermittently operated until 1966 with a total recorded production of approximately 2,200 tons for 600 tons of lead and 89,000 ozs of silver (Walpole, 1968). Most of the early production was from the oxidised zone of nine separate outcropping lodes. The main shaft was reported to be 35m deep with north and south drives (35m and 43m long respectively) and an eastern cross cut (blocked at 18m) at the 10m level. (Ellis, 1926). The lode was stoped at the 10m level where is was reportedly 5.5m wide (Ellis, 1926). The remaining lodes were worked by surface cuts or shallow shafts.

The Aerial Geological and Geophysical Survey of Northern Australia conducted both potential ratio and self potential surveys over the area which indicated zones of high conductivity northwest of the mine (AGGSNA, Bulletin No. 26).

In 1956, the BMR carried out a geophysical survey utilising electromagnetic, magnetic and self potential methods (BMR Record 1957/101). Six electromagnetic anomalies were located, three of which were considered to be significant. Trenching and some drilling was recommended, however it is not known whether they were carried out. There appeared to be no spatial relationship between the electromagnetic results and the lodes, while weak self potential anomalies were found to be associated with, but limited to the known sulphide lodes.

Between 1966 and 1970, United Uranium NL mined and treated 82,889 tonnes of ore from the Evelyn Mine at an average grade of 260.2 g/t Ag, 5.8% Pb and 6.1% Zn, from a combination of underground and open cut workings. The underground workings comprised a main shaft and 3 levels at 30m, 67m and 104m over a strike length of approximately 110m.

In September, 1970, three diamond drill holes were drilled from the 104m level to determine the feasibility of developing a 104m level (Cox, 1970). The mineralised intersections are summarised in Table 1. Total ore reserves were calculated to be 7,420 tons with an average grade of 11.2 oz/ton Ag, 6.7% Pb and 3.7% Zn. It was concluded that the tonnage and grade of ore was insufficient to influence plans to phase out production at the Evelyn Mine (Cox, 1970).
At the time of closure, stated reserves indicated by diamond drilling were 7,420 tons @ 342.9 g/t Ag, 6.7% Pb and 3.7% Zn (source: "United Uranium NL, Summary of Holdings").

TABLE 1.
EVELYN DRILL HOLE INTERSECTIONS

<table>
<thead>
<tr>
<th>DRILL HOLE INTERSECTIONS</th>
<th>ASSAY RESULTS</th>
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<tr>
<td>Hole. No.</td>
<td>From-To</td>
</tr>
<tr>
<td>94</td>
<td>24.89m - 25.4m</td>
</tr>
<tr>
<td></td>
<td>24.89m - 26.85m</td>
</tr>
<tr>
<td>95</td>
<td>25.3m - 25.8m</td>
</tr>
<tr>
<td></td>
<td>23.47m - 26.09m</td>
</tr>
<tr>
<td>96</td>
<td>33.35m - 33.83m</td>
</tr>
<tr>
<td></td>
<td>32.79m - 34.14m</td>
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</table>
6. WORK CARRIED OUT

After United Uranium NL went into receivership and Nicron Resources Limited purchased the Evelyn Leases, no subsequent field work was carried out. The mine workings are now backfilled and inaccessible. Detailed literature research has been completed however some reports that are known to have been completed on the area could not be located. In addition, much of the original geological data appears to have been lost. A summary of this literature research is presented in Section 5, "Previous Work" and Section 7, "Geology and Mineralisation".
7. GEOLOGY AND MINERALISATION

The Evelyn Leases are located on an east-southeast plunging anticline with limestones, pelites, calcareous shales and quartzites of the Lower Proterozoic Koolpin Formation. The Cullen granite outcrops approximately 1km to the west (see Figure 3).

The anticlinal structure is asymmetrical, with the southern limb nearly vertical and the northern limb dipping less steeply (see Figure 3). Limestone forms the core of the anticline where it is conformably overlain by interbedded shales and limestones. Higher in the sequence are quartzites and carbonaceous shale. A prominent quartz ironstone breccia outcrops to the south of the mine on Pinnacle Hill and is probably the result of a major east-west trending fault.

The limestones have been severely folded and are highly silicified. Mineralisation occurs within a series of discordant en echelon fractures, mainly within the limestone unit and comprises mainly galena and sphalerite in the primary zone. The ore bodies are commonly bounded by fractures or brecciated carbonate cement with calcite +/- quartz. Alteration mineralogy associated with the ore zones includes tremolite, actinolite, anthophyllite, diopside, garnet and serpentine.

Nine separate lodes have been identified, all of which are relatively small tabular bodies striking approximately north-south and dipping steeply to the east. Most of the mineralisation occurs in seven adjacent lodes which extend north from Pinnacle Hill to a west-northwest trending fault. The largest lode ("Main Lode") was approximately 1-3m wide on the surface and could be traced for approximately 76m (Walpole et al, 1968).

Two smaller lodes (Northwest Evelyn and North Evelyn) occur approximately 360m to the north of the main workings.
8. PROPOSED WORK PROGRAMME

The proposed work programme to evaluate the North Evelyn mineralisation is as follows:-

1) Costeaneing across the North Evelyn lode system and along strike both to the north and south. The costeans should be channel sampled and geologically mapped to identify additional previously unrecognised lode systems.

2) Detailed geological mapping by an experienced geologist familiar with the Woodcutters Mine mineralisation.

3) Dependant upon the results of the geological mapping, conduct a ground EM geophysical survey.

4) Follow-up diamond drilling to test geological and geophysical targets.
9. REFERENCES


BMR Record 1957/101: Geophysical Survey at the Evelyn Mine.


United Uranium NL: Summary of Holdings.

Walpole, B.P., Crohn, P.W., Dunn, P.R. & Randal, M.A., 1968: Geology of the Katherine-Darwin Region, N.T. BMR Bulletin No. 82.