ANNUAL REPORT

EL 8388

9 March 1996 – 10 March 1997

EPENARRA PROJECT

1: 250,000  FREW RIVER

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Operator: North Star Resources NL
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1. Summary

This report summarises exploration by North Star Resources N.L. on EL 8388, Epenarra for the year ending 10 March 1997.

Work carried out during the year consisted of a detailed aeromagnetic survey. A total of seven anomalies were selected for follow up. Previous work which prompted this program included:

- Historical research and appraisal of previous exploration data.
- Compilation and computer reprocessing of public domain aeromagnetic data for the region, yielding visually enhanced aeromagnetic imagery.
- Interpretation of the aeromagnetic imagery and selection of specific exploration targets based on previously unrecognised structural and magnetic features.
- Ground magnetic follow-up.

2. Tenement

EL 8388 consists of 136 blocks totaling 149 sq kms, mainly located in the northwest corner of FREW RIVER, 1:250,000 sheet SF 53-5, Northern Territory.

3. Location and Access

The area lies 130 km southeast of the town of Tennant Creek, and 100 km east of the Stuart Highway. The tenement lies mainly within the Epenarra pastoral lease.

Access to the tenement from the Stuart Highway is by a formal gravel road that commences 1 km north of Bonney Well, leading past Kurundi homestead to Epenarra homestead.

4. Exploration Model

At Tennant Creek, gold occurs with iron and copper sulfides in magnetite or hematite-rich (ironstone) lodes, with or without quartz. The mineralised zones are generally found with chlorite alteration envelopes in shears within the Proterozoic Warramunga Group of sedimentary rocks, their distribution suggesting an association with major regional structures. The chloritic alteration indicates a hydrothermal origin.

Magnetite is a common accessory mineral in many of the known lodes, making these detectable by magnetic survey methods. Several significant ore
deposits in the region were initially detected by aeromagnetic and ground magnetic surveys, though at least one deposit (Noble's Nob) was an essentially non-magnetic quartz-hematite lode.

The location of unknown non-magnetic bodies is being addressed in various ways, though magnetic survey methods remain an important exploration tool in the Tennant Creek region.

EL 8388 is one of a group of Exploration Licences taken up by North Star Resources N.L. over peripheral zones of the Tennant Creek field where Warramunga Group rocks have been inferred from regional mapping, but extensive Quaternary soils of Phanerozoic cover have inhibited thorough appraisal by previous explorers.

5. Regional Geological Setting

The tenement area lies along the eastern margin of the Tennant Creek Inlier, an intensely folded, early Proterozoic intra-cratonic basin succession of mainly sedimentary and minor felsic volcanic rocks, intruded by younger granitoids. The inlier forms a north northwest trending belt some 700 km in length which is centered on the town of Tennant Creek. Three distinct sedimentary sub-provinces form the inlier, the oldest being the Tennant Creek Block in the centre of the belt, overlain by younger rocks of the Davenport Province to the south, and the Tomkinson Creek Province to the north.

EL 8388 lies in the northwest corner of the FREW RIVER sheet, an area enclosing the boundary between the southern extension of the Tennant Creek Block, and the northeastern part of the overlying Davenport Province. Flat-lying Cambrian sediments of the Georgina Basin lap onto the Proterozoic from the east.

The oldest rocks are poorly exposed, but have been assigned to the Warramunga Group of greywackes, silt-stones and felsic volcanic of the Tennant Creek Block.

The Warramunga Group is no longer recognised as a single unit, having been subdivided into an older, intensely deformed Warramunga Formation, overlain by a less deformed succession named the Flynn Subgroup. The ore bodies around Tennant Creek are associated with the older unit.

6. Tenement Geology

The bedrock geology of EL 8388 is largely masked by Quaternary soil cover, but on the basis of regional mapping, regional aeromagnetic data and limited outcrop has been interpreted by the NTGS as the southeast extension of the
Warramunga Group of Tennant Creek. Measurements of magnetic susceptibilities have shown that Warramunga rocks are interpreted to occupy a northwest-southeast trending belt over which North Star Resources N.L. took out EL 8388 and other tenements to the west and northwest.

7. Geophysics

A detailed aeromagnetic survey was flown at a height of 50 m, line spacing 150 m in October-November 1996 by Tesla Airborne Geoscience. Specifications of the survey are annexed.

8. Conclusion

The aeromagnetic anomalies selected are of sufficient interest to warrant geochemical follow up. A program of soil sampling for BLEG, involving three traverses per anomaly is in progress.
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