POSEIDON GOLD LIMITED

FIFTH YEAR
RELINQUISHMENT REPORT FOR
EXPLORATION LICENCE 5133

WHITE HILL PROJECT

FOR THE PERIOD 24/3/91 TO 23/3/92

PREPARED FOR: NORTHERN TERRITORY DEPARTMENT OF MINES AND ENERGY

PREPARED BY: J R SCHUSTERBAUER
(EXPLORATION GEOLOGIST)

JUNE 1992

REPORT NO:

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1.0 SUMMARY

Exploration Licence 5133 (White Hill) was explored for Au ± Cu mineralisation without direct ironstone association under a joint venture agreement between Newmont Australia Limited and Poseidon Gold Limited (formerly Australian Development Limited). The low order BLEG soil geochemical signatures coupled with the lack of identifiable geophysical structures has downgraded the prospectivity of this area. Hence, a decision was made to relinquish the ground.

2.0 LOCATION AND ACCESS

The relinquished portions of EL5133 encompass parts of Phillip Creek and Tennant Creek stations as well as Crown Land on the Stuart Highway which is currently subject to the Warramunga Aboriginal Land Claim. The project area lies 10 kilometres north of Tennant and local access is via station tracks and cleared fencelines, refer Figure 1.

3.0 TENEMENT STATUS

Exploration Licence 5133 is reaching a mature stage and in compliance with sections 26 and 27 of the Mining Act, fifth yearly reductions have been carried out, refer Figure 1. A schedule of the tenement is presented in Appendix 1.

4.0 REGIONAL GEOLOGY

The White Hill project covers parts of the central section of the early Proterozoic Warramunga Group sediments. Dodson and Gardener (1987) subdivide the uppermost formation, previously known as the Carraman Formation, into six numbered greywacke units and two units of acid volcanics known as the Gecko Volcanics and the Warrego Volcanics. This sequence is underlain by acid volcanics and shaley sedimetns of the Bernborough Formation and the Whippet Sandstone which are in turn underlain by greywackes of the unit 1 greywackes of Dodson and Gardener or the Monument Beds of previous authors.

Williams (1987) has suggested that the Whippet sandstone is the lowermost unit of the Warramunga Group and that it unconformably overlies a sequence of greywacke, shale, BIF, chert and acid volcanics which he considers are the equivalent of Division 2 of the Arunta complex by Stuart et al (1984).

Williams (1987) has further proposed an informal subdivision of the Carraman Formation by recognizing low, middle and upper units. The middle unit named the Black Eye Member (thickness up to 3000m) has been delineated on the basis of its magnetic reponse and includes a sequence of haematite shales, quartz porphyries and greywackes with up to 20wt% magnetite. This unit also encloses all known massive magnetite ironstones in the field, some of which are hosts to the major ore bodies including Nobles Nob, Juno and Warrego.

Structure is reasonably complex with three main deformations resulting in moderate to steep open folds oriented ESE-WNW with numerous plunge reversals. Two main periods of faulting are recognised including an earlier development of steep shear zones subparallel to fold axes and a later set of NW-SE faults with major sinistral strike displacements. Folding is thought to have commenced early in the basin's history while some sediments were still only partially consolidated.

The Warramunga Group has been metamorphosed to the greenschist facies and shows evidence of local contact metamorphism against granite contacts, however, the numerous porphyry intrusives have produced minimal contact metamorphic effects.

Two ages of granites occur on the field, the earliest known is the Tennant Creek Granite which occurs mainly on the eastern side of the field and is foliated. The Warrego Granite which occupies the central and western parts of the field post-dates the folding events but carries numerous quartz veins related to the later faulting event. Other intrusives indlude dolerite, syenite and lamprophyre dykes.

Several sets of large quartz veins cut through the field with a north to north-westerly trend and are considered to be low temperature fillings of late stage fractures.

5.0 LOCAL GEOLOGY

The western group of blocks in the tenement (Grey's Bluff) is occupied by the main mass of Tennant Creek Granite intruding to the north, Carraman Formation greywackes, siltstones, tuffs and to the south quartz-feldspar porphyry. Hornfelsing of the sediments has occurred on the southern margin of the granite and the contact zone here is probably south-dipping. North and north-west trending faulting and shearing has been recognised in this area, and late stage faults have been filled with quartz veining. The sediments in the area have moderate to steep southerly dips and are crosscut by small quartz-feldspar porphyry and lamprophyre dykes.

The eastern group of blocks is similar to the west in that Tennant Creek Granite occupies the northern portion of the tenements, with hornfelsed Carraman Formation sediments to the south. The late stage north-west trending Quartz Hill Fault displaces the granite contact in the south-west section of the licence. To the east and north-east, outcrop diminishes with increasing soil and aeolian sand cover.

6.0 EXPLORATION PROGRAMME COMPLETED DURING THE PERIOD 4/3/91 TO 23/3/92

From 1987 to 1990 Newmont Australia Limited progressed with a non-model specific exploration programme designed to discover mineralisaiton in non-magnetic structural settings not associated with Tennant Creek style massive ironstone bodies. To this end, Newmont conducted a systematic BLEG soil sampling, geological mapping, aeromagnetic and structural interpretations over the relinquished areas.

6.1 GEOLOGICAL MAPPING

A series of fact geological maps were produced at 1:10,000 scale. The maps were compiled from previous mapping undertaken by Australian Development Limited during the 1970's and field traverses, refer Plates 1-4.

6.2 GEOPHYSICS

6.2.1 *AIRBORNE MAGNETICS*

A low level airborne geophysical survey flown by Austirex International Limited in 1984 was utilised. The data was gridded, enhanced and imaged on Newmont Australia Limited's in-house computer image processing system. An interpretation of the regional structure and geology based on the aeromagnetic data was produced on a regional scale, however no anomalous magnetic responses were identified within the relinquished portions of White Hill.

6.2.2 *GRAVITY SURVEY*

A regional gravity survey incorporating EL5133 is currently being undertaken by Poseidon Gold Limited in the Tennant Creek region and a preliminary 1:50,000 scale Bouger Gravity contour plan has been produced. Prospect scale interpretation of the results has not been attempted at this stage.

6.3 GEOCHEMICAL SURVEY

6.3.1 *REGIONAL BLEG SOIL SAMPLING PROGRAMME*

A regional BLEG soil sampling programme was completed on 500m centres to cover areas of Warramunga Group stratigraphy within the licence area. No anomalous gold values were generated within the relinquished portions of EL5133. Gold assays peaked at 0.85ppb Au, refer Plates 5-8.

6.3.2 *ROCK CHIP SAMPLING PROGRAMME*

Outcrop sampling was conducted on an ad hoc basis during the geological mapping and soil sampling programmes. A total of 9 samples was collected over the relinquished portions of EL5133, refer Plates 5-8.

7.0 REFERENCES

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Annual Report for Exploration Licence 5072 and 5133 White Hill Project and Final Report for Exploration Licence 5072 White Hill Project. Poseidon Gold Limited unpublished report to the NTDME, Darwin.

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Pearson, D F, 1989:
Second Annual Report, White Hill Project Incorporating EL 5067, 5072 and 5133. Northern Territory, Tennant Creek 1:250000 Sheet Volumes 1 and 2. Newmont Australia Limited unpublished report to the NTDME, Darwin.

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Newmont Australia Limited, Australian Development Limited Joint Venture. Exploration Licences 5072 and 5133, White Hill Project Third Annual Report for the period 29 January 1989 to 28 January 1990. Newmont Australia Limited unpublished report to the NTDME, Darwin.

8.0 KEYWORDS

EL 5133, White Hill, Carraman Formation, Tennant Creek Granite, gold, gravity, soil geochemistry.

APPENDIX 1

TENEMENT SCHEDULE FOR EL5133

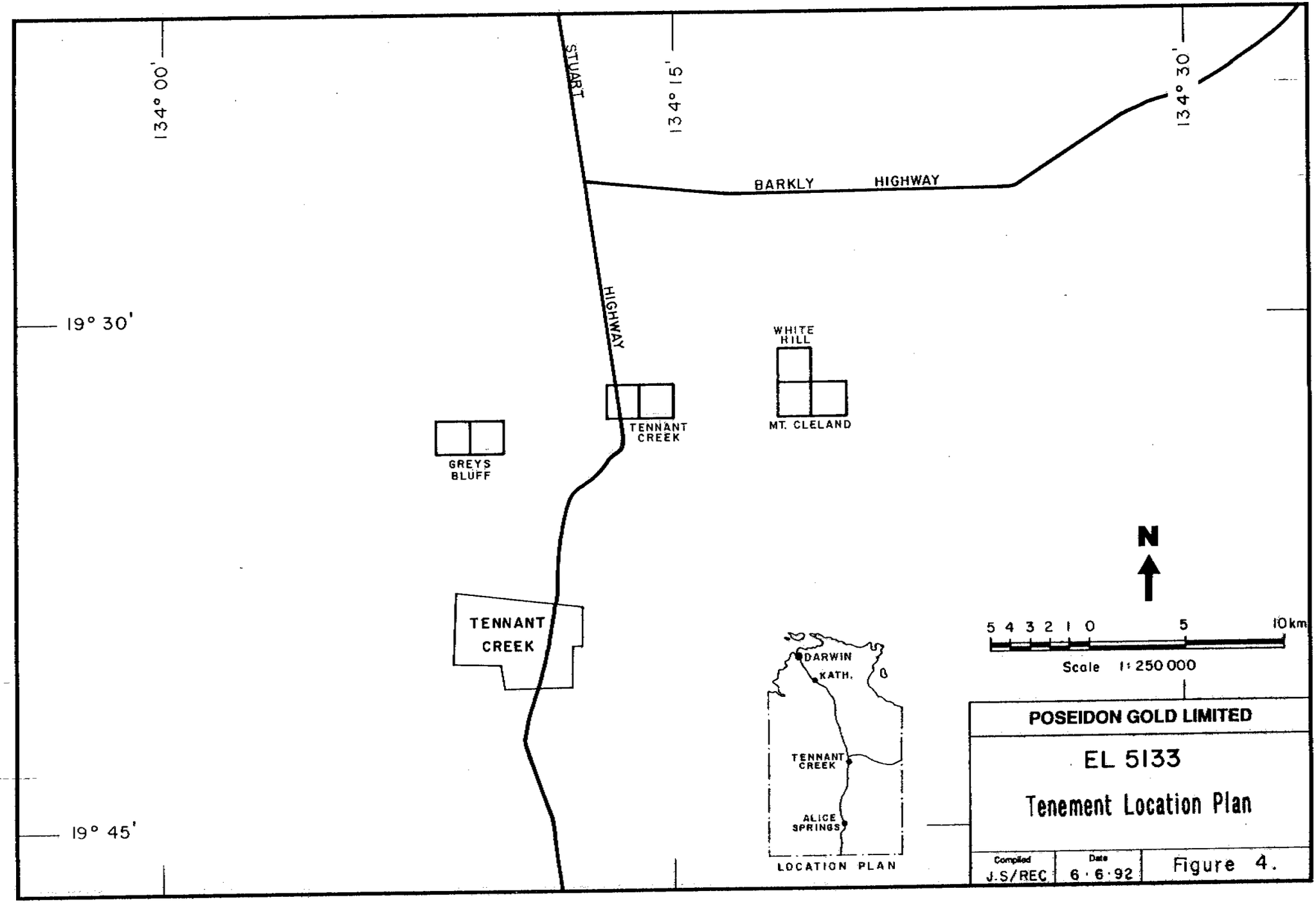
JUNE 1992

APPENDIX 1

TENEMENT SCHEDULE

EL5133

Title Holder	:	Poseidon Gold Limited
Date Granted	:	24/3/87
Expiry Date	:	23/3/93
Area	:	7 blocks (reduced from 14 on 23/2/92)


134° 00'
134° 15'
134° 30'
19° 30'
19° 45'
STUART
HIGHWAY
BARKLY HIGHWAY
WHITE HILL
MT. CLELAND
TENNANT CREEK
GREYS BLUFF
TENNANT CREEK
N
5 4 3 2 1 0 5 10km
Scale 1:250 000
DARWIN
KATH.
TENNANT CREEK
ALICE SPRINGS
LOCATION PLAN
POSEIDON GOLD LIMITED
EL 5133
Tenement Location Plan
Compiled J.S/REC
Date 6·6·92
Figure 4.

19° 33'

Sericitic hornfels

White granite

+2433

Hornfels outcrop & suboutcrop

White quartz felspar porphyry

Quartz felspar porphyry

+2432

Tors

White fine grained altered granite

40

34/2431

Lamprophyre or dolerite

Conglomerate

Altered porphyry granite

Altered white granite

Quartz felspar porphyry sericitic

45

Scattered outcrop altered white granite

Altered white granite

Scattered white marginal facies granite

Granite

Immature arkose

Silicified conglomerate

Altered marginal granite

Sericitic hornfelses

Phs

70

4429

Greywacke

+4430

EL 5133

Sea rubble

White altered granite

4431

White strongly altered granite

Altered porphyry granite

Lamprophyre ??

Silt

Phs

80

40

65

Approximate margin of granite

Quartz rubble

Small vertical movement

19° 34'

LEGEND

- Strike and Dip of Strata
- Strike and Dip of Strata
- Geological Boundary
- Quartz Vein
- Shear Zone
- Trend Line
- Creek
- Horizontal Strata
- Geological Boundary Concealed, Inferred
- Phs Proterozoic Hematitic Sandstone

LOCATION PLAN

DARWIN

KATH

TENNANT CREEK

ALICE SPRINGS

N

200 0 200 400 600 800m

SCALE 1:10000

CR92/458

GEOLOGICAL DATA ADAPTED FROM ORIGINAL MAPPING BY THE GEOLOGICAL STAFF OF AUSTRALIAN DEVELOPMENT LIMITED

134° 08'

134° 09'

POSEIDON GOLD LIMITED

GREYS BLUFF

PRELIMINARY GEOLOGICAL MAP

Compiled	Date	PLATE NO. 1
[illegible]	6 [illegible] 9.	

19° 32'

EL 5133

+3223

+2349

+2350

+2351

+1425

+1424

+1423

STUART HIGHWAY

Approximate boundary of granite

Pit

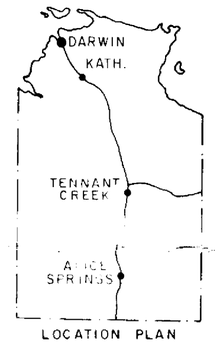
Rocky Range Fault

19° 33'

134° 13'

134° 14'

134° 15'



LOCATION PLAN

N

200 0 200 400 600 800m

SCALE 1:10 000

LEGEND:

Geological Boundary Concealed

Trend Line

GEOLOGICAL DATA ADAPTED FROM ORIGINAL MAPPING BY THE GEOLOGICAL STAFF OF AUSTRALIAN DEVELOPMENT LIMITED

CR92/458

POSEIDON GOLD LIMITED

TENNANT CREEK

PRELIMINARY GEOLOGICAL MAP

Compiled	Date	PLATE NO. 2
[illegible]	6.6.92	

19° 32'

Granite

Ph hornfels

mylonitic breccia

Pxh

Ph hornfels

Ph hornfels

strongly indurated siltstone and sandstone - sheared

hornfels silts and sandstones

+4466

mylonite rubble

Q

Pxh

Ph

65

Pxh

mylonite breccia

+4467

Ph

55

55

Pss

indurated sandstone rubble

indurated sandstone, shale

60

Pss

indurated sediments

Ph

Acute hornfelsed sandstone & shale strongly sheared

+4468

EL 5133

+2357

+2358

+33/2359

19° 33'

134° 18'

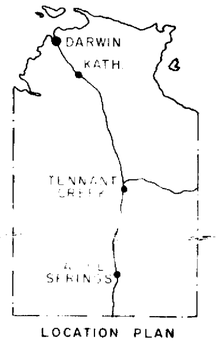
134° 19'

134° 20'

LEGEND.

- Strike and Dip of Strata
- Strike and Dip of Cleavage
- Geological Boundary Concealed
- q+ Quartz Vein

GEOLOGICAL DATA ADAPTED FROM ORIGINAL MAPPING BY THE GEOLOGICAL STAFF OF AUSTRALIAN DEVELOPMENT LIMITED



LOCATION PLAN

N

200 0 200 400 600 800m

SCALE 1:10000

CR92/458

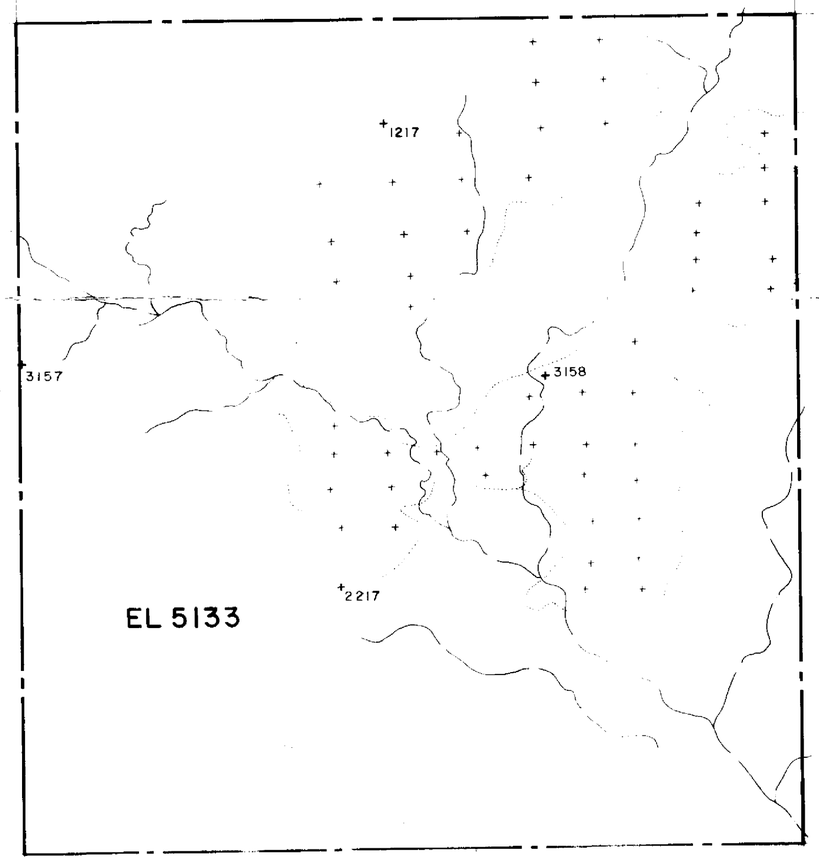
POSEIDON GOLD LIMITED

MT. CLELAND

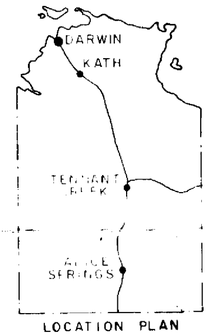
PRELIMINARY GEOLOGICAL MAP

Compiled	Date	PLATE NO. 3
J.S. REC	6.6.92	

19° 31'



19° 32'



LOCATION PLAN

N

LEGEND:

- Creek
- Geologic boundary concealed
- + + + Horizontal strata

200 0 200 400 600 800m

SCALE 1:10 000

CR92/458

GEOLOGICAL DATA ADAPTED FROM ORIGINAL MAPPING BY THE GEOLOGICAL STAFF OF AUSTRALIAN DEVELOPMENT LIMITED

134° 18'

134° 19'

POSEIDON GOLD LIMITED

WHITE HILL

PRELIMINARY GEOLOGICAL MAP

PLATE NO. 4

19° 33'

66043 0.48 | 74673 0.35 | 74670 0.27 | [illegible] 36 | 74672 0.30 | 74660 0.13 | 74657 0.34

66042 0.41 | [illegible] | 405936/17 <0.02 + 74669 [illegible] | [illegible] | 74668 64 | 74661 [illegible] | 74656 .40

66041 0.86 + 405936/9 <0.008 | 65629 [illegible] 28 | 65630 0.57 | [illegible] 33 | 74665 0.38 | 74666 [illegible] | 74655 0.41

EL 5133

69648 0.22 | 66039 0.15 | 69647 0.63 | 405936/7 <0.008 405936/8 <0.008 + 66040 0.64 | 65632 0.35 | 65631 0.54 | [illegible] 67 | 405936/18 <0.02 + 74664 0.95 | 74663 0.23 | 74654 0.33 + 405936/16 <0.02

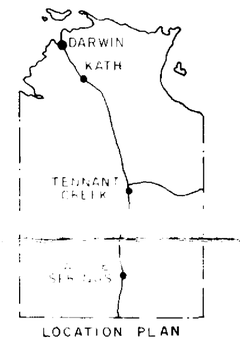
19° 34'

134° 08' | 134° 09' | 134° 10'

LEGEND

74827 0.27 — BLEG sample number, Au ppb

+ 405935/1 <0.02 — Rock chip sample number, Au ppm



N

200 0 200 400 600 800m

SCALE 1 10 000

CR92/458

POSEIDON GOLD LIMITED

GREYS BLUFF

BLEG & ROCK CHIP SAMPLING (Au)

Compiled	Date	PLATE NO. 5
[illegible]	6 6 92	

19° 32'

19° 33'

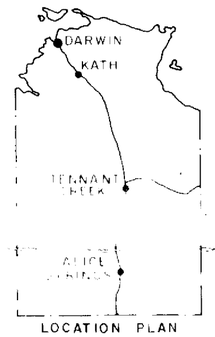
134° 13'

134° 14'

134° 15'

EL 5133

74615 0.32
74604 0.44
74602 0.85
74603 0.71
74614 0.34
74605 0.53
74625 0.63
74601 0.66
67278 0.37
74613 0.32
74606 0.71
67282 0.28
67281 0.45
67277 0.45



LOCATION PLAN

N

200 0 200 400 600 800m

SCALE 1:10 000

CR92/458

LEGEND

74627 0.27 — BLEG sample number, Au ppb

+ 40959 5/1 <0.02 — Rock chip sample number, Au ppm

POSEIDON GOLD LIMITED

TENNANT CREEK

BLEG & ROCK CHIP SAMPLING (Au)

Compiled	Date	PLATE NO. 6
J.S. REC	6.6.92	

19° 32'

67250 0.29 | 67251 0.16 | 67252 0.25 | 67247 0.28 | 67246 0.11 | 67253 0.25 | 67254 0.09 | 67255 0.17 | 67256 0.11

67276

67271 0.22 | 67270 0.28 | 67269 0.22 | 67245 0.16 | 67260 0.15 | 67268 0.30 | 67274 | 67259 | 67257 0.32

EL 5133

67238 0.20 | 67273 0.13 | 67272 0.22 | 67244 0.17 | 67261 0.13 | 67267 0.20 | 67266 0.20 | 67265 0.06

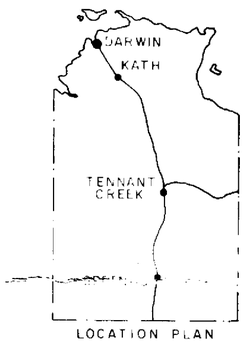
67239 0.21 | 67240 0.31 | 67241 0.23 | 67242 0.30 | 67243 0.15 | 67262 0.18 | 67263 0.18 | 67264 0.36

19° 33'

134° 18'

134° 19'

134° 20'



LOCATION PLAN

N

200 0 200 400 600 800m

SCALE 1:10 000

CR92/458

LEGEND

74827 0.27 — BLEG sample number, Au ppb

405936/7 <0.02 — Rock chip sample number, Au ppm

POSEIDON GOLD LIMITED

MT. CLELAND

BLEG & ROCK CHIP SAMPLING (Au)

Compiled	Date	PLATE NO. 7
J S / REC	6 6 92	

19° 31'

EL 5133

74829 0.32

74828 0.42

74827 0.27

415936/6

415936/7

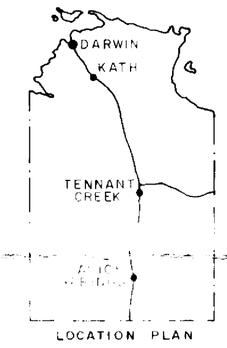
415936/8

Sample Numbers 415936/6-8
returned Below Limit of Detection

19° 32'

134° 18'

134° 19'



LOCATION PLAN

N

200 0 200 400 600 800m

SCALE 1 10 000

CR92/458

LEGEND

74827 0.27 — BLEG sample number, Au ppb

415936/7 <0.02 — Rock chip sample number, Au ppm

POSEIDON GOLD LIMITED

WHITE HILL

BLEG & ROCK CHIP SAMPLING (Au)

Compiled	Date	PLATE NO. 8
J.S./R.F.	F. 6.92	