14.6

EL 5138 - FRANCES CREEK
PINE CREEK DISTRICT
NORTHERN TERRITORY

FIRST YEAR OF TENURE
29 JAN 87 - 28 JAN 88

by RA VOOYS

Distribution:
NTDME, Darwin
Dominion Mining Ltd, Perth
Dominion Mining Ltd, Darwin
Geopeko, Sydney

February 1988

cn:WP3/23

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1. SUMMARY

This report is an evaluation of the exploration completed by Dominion Mining Ltd on the 3 blocks of EL 5138 known as FRANCES CREEK during 1987.

EL 5138 was granted 29th January 1987 and forms part of the Golden Dyke Joint Venture (GDJV) area with Peko Wallsend Operations, with Dominion acting as Manager.

The regional geology consists of sediments of the Lower Proterozoic Mt. Partridge and South Alligator Groups folded into tight NNW striking anticlines and synclines which plunge shallowly to the NNW. Axial planar cleavage is relatively strongly imposed upon the rocks.

Dominion has initiated a program of photo-geological mapping, semi-detailed field mapping and sampling, and a review of the previous work in the area, particularly stream sediment sampling by Anaconda Australia Pty Ltd and Geopeko Ltd in 1983 in the earlier days of the GDJV.

No gold mineralisation was located in 1987 within EL 5138. However, it is expected that epigenetic vein stockwork mineralisation as located in the adjacent EL 4759 tenement may occur.

Exploration activity proposed by Dominion for 1988 focuses on better defining the stratigraphy and structure within the EL 5138, and further geochemical sampling. Anomalous areas discovered during 1988 will be followed up with shallow RC drilling.

An exploration budget of not less than $10,000 has been put forward to further evaluate EL 5138 during 1988.

2. INTRODUCTION

Exploration Licence 5138 known as Frances Creek is located on the PINE CREEK 1:100000 SHEET 5270 approximately 30kms due north of Pine Creek township. See Figure 1.

Access is east from Mt. Wells Tin Mine via graded tracks for 13kms, or north from Pine Creek along the improved Frances Creek track for 28kms turning left at Frances Creek Iron Ore mines via exploration and graded pastoral tracks for 16kms.

Topography comprises a series of NW striking ridges and valleys with approximately 80m local relief, which reflect the local geological structure and stratigraphy.

EL 5138 comprising 3 sub-blocks for an area of 997Ha, was granted 29 January 1987 to Dominion Gold Operations Pty. Ltd. The area is subject to the Golden Dyke Joint Venture Agreement between DGO and Peko Wallsend Operations Pty Ltd wherein the current equity stands at approximately 60% DGO and 40% PEKO.

EL 5138 is located immediately adjacent EL 4759 (known as Watts Creek) where GDJV has outlined an area of epigenetic vein stockwork gold mineralisation during 1987 exploration.

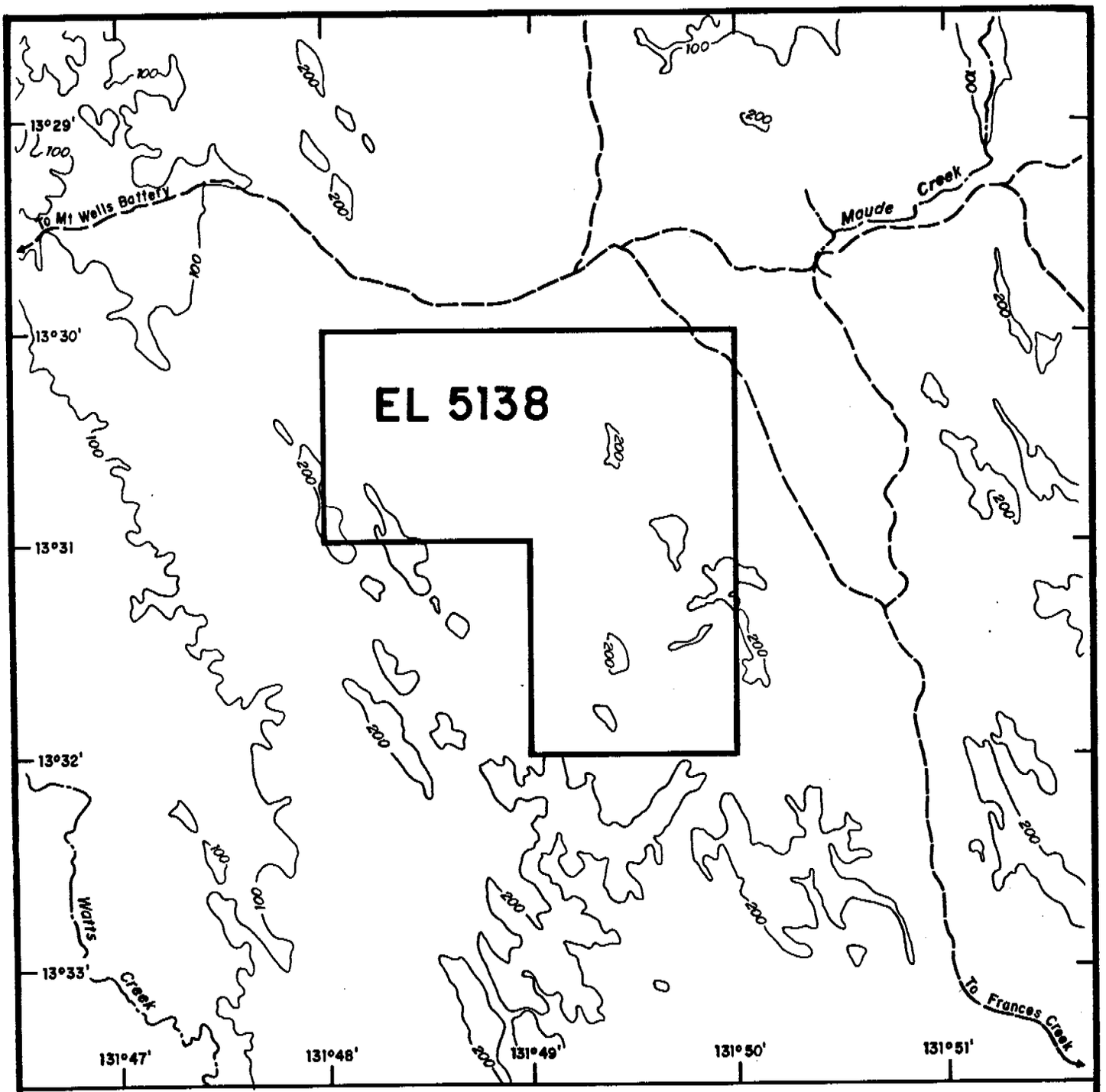
3. 1987 EXPLORATION PROGRAM

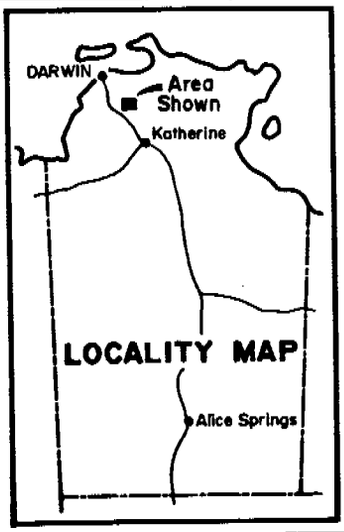
EL 5138 was explored during 1987 as an extension of the work conducted in the adjacent EL 4759 where Dominion is also Manager of exploration. Within EL 5138 the work completed included:-

(i) Photo-geological mapping backed with some semi-detailed field mapping. See Figure 2 for Regional Geology.

(ii) Assaying for gold of some 30 samples comprising:-
  (a) 25m semi-continuous scree and outcrop sampling and
  (b) multiple chip to semi-continuous chip rock outcrop sampling

(iii) Compilation of preliminary 1:10,000 scale maps of the entire EL for:-
  (a) Fact Geology - See Plate 1.
  (b) Interpreted Geology - See Plate 2.
  (c) Geochemistry showing sample location and results - See Plate 3.





N

CONTOURS IN METRES

0 1 2 3km

1:50000

EL 5138 — FRANCES CREEK

DOMINION MINING LIMITED

PROJECT G.D.J.V.			STATE N.T.
Orig. R.A.V. date 2/88	Drawn S.P. date 2/88	Scale 1:50 000	
Checked	Figure No. 1	Plate No.	Plan No. 2K-T1

3. GEOLOGY

3:1 Regional Geology

The geology of the Pine Creek - McKinlay River region is described by two BMR 1:100,000 geology sheets as compiled by Needham, et al (1979) and Stuart - Smith, Wallace, et al (1980).

EL 5138 - Frances Creek lies within a Lower Proterozoic sequence deposited by a shallow water regime in a geosynclinal basin environment. Following intrusion by conformable dolerite sills, a major period of deformation and regional metamorphism related to batholithic intrusion caused a series of tight, upright to overturned NW trending anticlinoria.

The Lower Proterozoic stratigraphy of EL 5138 is discussed briefly below.

(a) The upper Mt Partridge Group (Wildman Siltstone, Ppw), is a fluviatile sequence whose lithology ranges from phyllitic mudstone, siltstone to minor coarse-grained sandstones. Rare massive hematitic ironstone lenses can also be found in several locations.

The overlying South Alligator Group is dominantly pelitic with chemical sediments and volcanic tuffs indicating a restricted shallow water environment. The basal Koolpin Formation has been subdivided into 3 members.

(b) Lower Koolpin Formation, Psk_1

This unit is defined as purple-grey to grey-brown mudstones with occasional hematitic laminae. Minor chert horizons and laminated SIF are also present. Throughout the EL, the top of this unit is defined as underlying the first thick SIF horizon, while the base of the member overlies a thick dolerite sill. In much of the Tenement the lower Koolpin Formation is not apparent.

(c) Middle Koolpin Formation, Psk_2

The dominant lithologies of this member are strongly ferruginous mudstones, silicified iron formation (SIF), chert nodular horizons, silicic opaline SIF and massive limonitic ironstones.

(d) Upper Koolpin Formation, Psk_3

The base of this member is defined as ferruginous mudstones with recrystallised chert and sugary quartz bands. Overlying this bed is a bleached, grey-white, sericitic mudstone/slate unit, originally a black, cherty carbonaceous mudstone.

(e) The Gerowie Tuff is characterised by siliceous mudstone, cherty volcanic and lithic tuffs with minor carbonaceous mudstones and dark greywackes.

Regional Geology - Cont'd

(f) Overlying the volcanic sediments, the base of the Mt. Bonnie Formation is defined as the Tombstone Greywacke. Within the isolated outcrops, dominant lithologies are greywacke, phyllitic shales, siltstone and minor lithic tuffs, thus indicating a return to deeper water flysch deposition.

(g) Following deposition of the Finniss River Group (not recognised within EL 5138) intrusion by the Zamu Dolerite (Pdz) as generally conformable sills was concentrated in the Koolpin Formation. Major dolerite sills have been mapped at three stratigraphic horizons;
(i) between the Wildman Siltstone and Koolpin Formation,
(ii) between the Middle and Upper Koolpin Formation members, and
(iii) at the Koolpin Formation and Gerowie Tuff contact.

Structural trends within EL 5138 define a series of tight NW trending synclines and anticlines where S_0 may be completely overprinted by a strong S_1 cleavage. In some locations, especially slaty mudstones, a definite S_2 cleavage may be seen as a result of lineaments. One major strike-slip fault displaces stratigraphy.

4:2 Detailed Geology

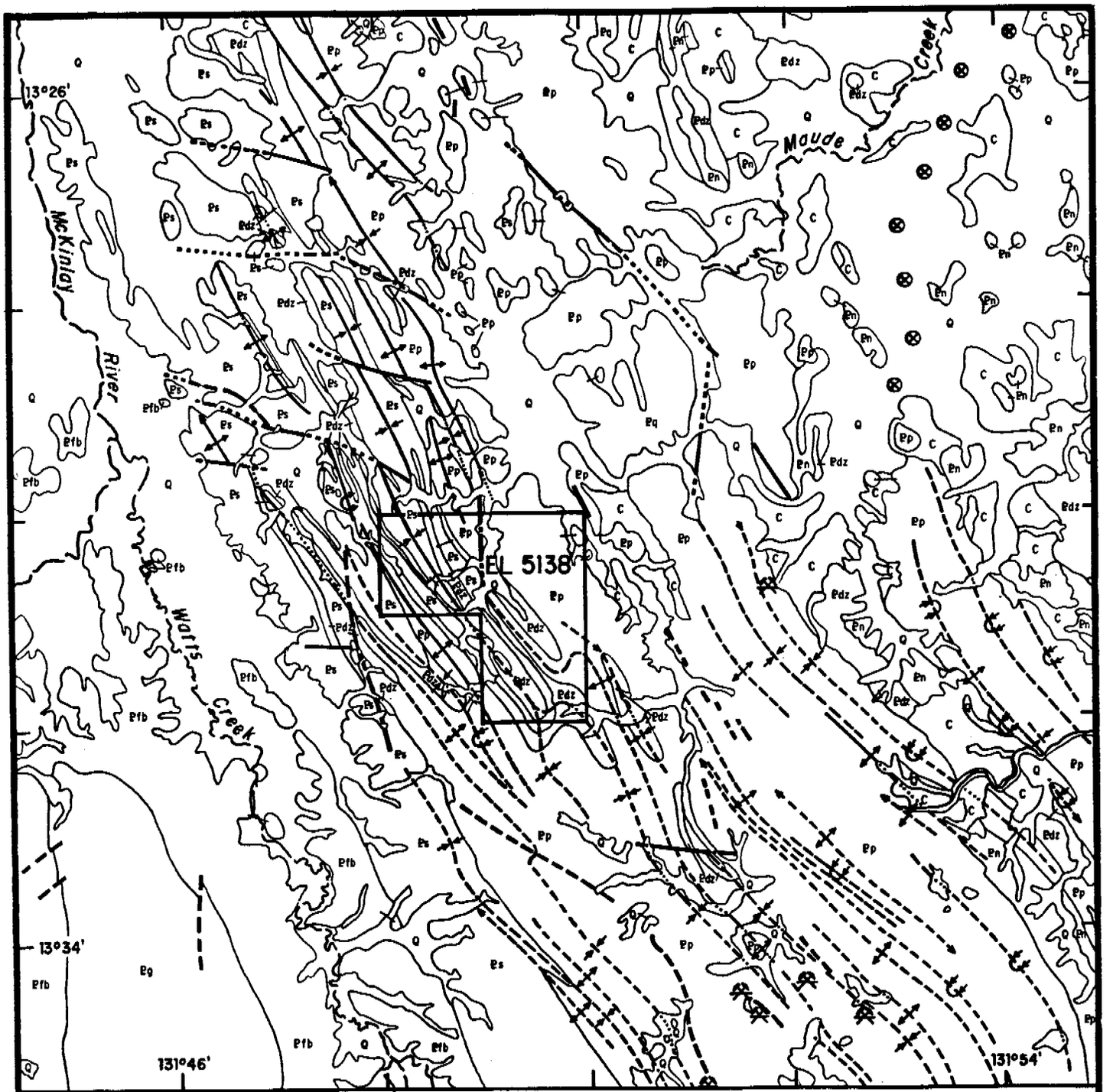
Minor geological work in EL 5138 has been conducted as an extension of the exploration program in the adjacent EL 4759 - Watts Creek area.

Photo interpretive work was conducted at 1:25,000 scale based on aerial photos Pine Creek Run 1 CAG 419 017 23/07/75, Pine Creek Run 2 CAG 419 0109 23/07/75, then reproducing photos at 1:10,000 scale.

Fact Geology was recorded by traverse mapping along controlled survey lines. (See Plate 1)

Data from traverse mapping aided photogeological mapping to produce an Interpretive Geology map. (See Plate 2)

Sampling was conducted in conjunction with traverse mapping. Sample types included spot rock chip, multiple grab, and continuous chip. Sample locations and results from 1987 work are shown on the Geochemical map, as are locations and results of previous joint Anaconda/Geopeko Sampling (Radford and Rolfe, 1983). (See Plate 3)



LEGEND

C-Q	CAINOZOIC AND QUATERNARY SEDIMENTS
Phk	KATHERINE RIVER GROUP
Pg	CULLEN BATHOLITH
Pdz	ZAMU DOLERITE
Pfb	FINNISS RIVER GROUP
Ps	SOUTH ALLIGATOR GROUP
Pp	MOUNT PARTRIDGE GROUP
Pn	NAMOONA GROUP

- Geological Boundry
- Anticline
- Syncline
- Overturned Anticline
- Overturned Syncline
- Fault
- River, Creek
- Mine (abandoned)
- Drillhole, DD-diamond

N

0 1 2 3 4 5

1:100 000

REGIONAL GEOLOGY FOR EL 5138

DOMINION MINING LIMITED

PROJECT G.D.J.V.			STATE N.T.
Orig. R.A.V. date 2/88	Drawn S.P. date 2/88	Scale 1:100 000	
Checked	Figure No. 2	Plate No.	Plan No. 2K-61

5. 1987 EXPENDITURE

Contractor Fees	$ 1,212.50
Assays	$ 435.00
Motor Vehicle	$ 1,696.84
Field Supplies/Consumeables	$ 180.00
Drafting	$ 220.00
Salary and Wages	$ 1,087.00
Property - Rents	$ 105.00
Administration	$ 551.45
TOTAL	$ 5,487.79

6. CONCLUSIONS AND RECOMMENDATIONS

The 1987 program has been of a very preliminary nature.

Indications from the evaluation work conducted on EL 4759 during 1987 are that both the stratigraphic sequences and structural folding styles that host the quartz stockwork mineralisation there may be repeated in EL 5138.

It is proposed to conduct the following exploration program in 1988:-

1. Further Photo-geological and field mapping at 1:25,000 scale.

2. Systematic stream sediment and rock chip sampling to supplement 1. above.

3. Compilation of
   - Geological Fact Map 1:10,000 scale
   - Geochemical Assay Map 1:10,000 scale
   - Geological Interpretation Map 1:10,000 scale

If encouraging prospects are delineated by 1 - 3 above then:

4. Gridding and detailed mapping and sampling, including soil/scree chip sampling over 25m intervals.

5. Costeaning (minimum 250 line metres) and detailed mapping and sampling thereof.

If 4 and 5 above continue to indicate zones of anomalous mineralisation, then:

6. Mobilization of RC Percussion Rig from drill program at EL 4759 with preliminary scout drilling of anomalies.

To complete the above program, a proposed budget of not less than $10,000 has been allocated for 1988.

6. BIBLIOGRAPHY, REFERENCE

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Walpole B.P.; Crohn P.W.; Dunn P.R.; Randal M.A. (1968):
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Aerial Photography, 1:25,000 CAG/C419, Run 1, No's 014 to 019, 23/07/75.

EL4759

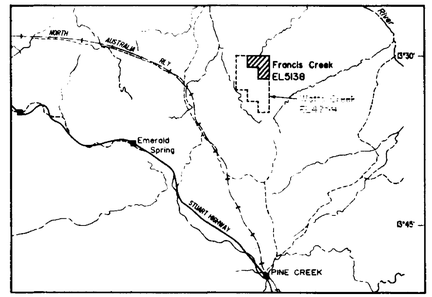
EL5138

Psk

Ppw

Camp

LOCALITY



LEGEND

Pso	*Mount Bonnie Formation*
Psg	*Gerowie Tuff*
Psk	*Koolpin Formation*
Ppw	*Wildmon Siltstone*

Siliceous and tuffaceous mudstone
Mudstone
Siltstone
Sandstone
Chert nodular horizon
Siliceous mudstone
Carbonaceous mudstone
Kaolinite
Dolerite
Breccia
Quartz
Massive ironstone

Geological boundary
Fault
Bedding
Cleavage
Anticline
Syncline
Quartz stockwork veins
Track
Shaft

DOMINION MINING LIMITED

PROJECT : **GOLDEN DYKE J.V.**

PROSPECT : **FRANCES CREEK EL5138** | **N.T.**

FACT GEOLOGY

0 100 200 300 400 metres

ORIGINATOR : N.B. & A.M.S.	SCALE : 1:10000
Date : 3/88	DRAWN : P.M.B. Date : 3/88
REVISION : Date :	PLATE No : 1
REVISION : Date :	PLAN No : 2K-G1

EL4759

EL5138

Psk

Psk

Psk

Ppw_2

Psk_3

Ppw_2

Ppw_2

Psk_3

Psk_3

Psk

Ppw_2

Psk

F F

8506000mN

13° 30'S

8505000mN

13° 31' 8504000mN

8503000mN

13° 32'

8502000mE

8503000mE

8504000mE

8505000mE

8506000mE

8507000mE

8508000mE

131° 47'

131° 48'

131° 49'

131° 50'

131° 51'

6506000mN

13° 30'

8505000mN

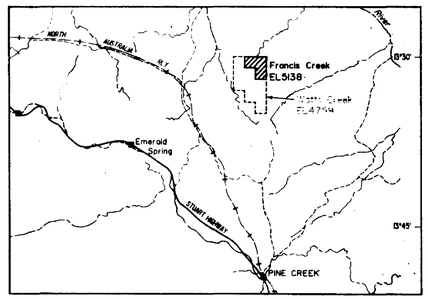
8504000mN

13° 31'

8503000mN

13° 32'

LOCALITY



LEGEND

- Pso — Mt. Bonnie Formation
- Psg — Gerowie Tuff
- Psk_3 — 3 upper
- Psk_2 — 2 middle
- Psk_1 — 1 lower — Koolpin Formation
- Zamu Dolerite
- Ppw_2 — 2 middle
- Ppw_1 — 1 lower — Wildman Siltstone
- Syncline axis, definite (inferred)
- F F — Fault, definite (inferred)

DOMINION MINING LIMITED

PROJECT : GOLDEN DYKE J.V.

PROSPECT : FRANCES CREEK EL5138 | N.T.

INTERPRETED GEOLOGY

CR807 32

0 100 200 300 400 metres

ORIGINATOR : N.B. & A.M.S.		SCALE : 1:10000	
Date : 3/88		DRAWN : P.M.B.	Date : 3/88
REVISION :	Date :	PLATE No :	2
REVISION :	Date :	PLAN No :	2K-G2

EL4759

EL5138

68484 (0.03)

68485 (0.02)

CS2 103898

99691 (0.01)

103895

103896

CS2 103890

101365 (0.025)

101365 (<0.005)

101367 (0.010)

0.189

0.144

0.138

<0.001

0.003

101371 (<0.005)

<0.001

101372 (<0.005)

101373 (0.045)

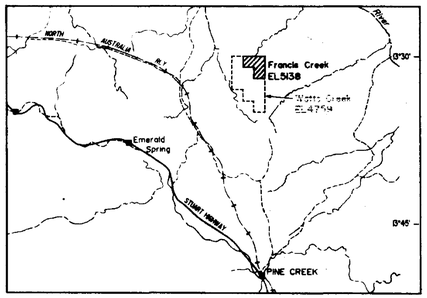
101374 (<0.005)

0.018

101376 (<0.005)

101375 (<0.005)

LOCALITY



LEGEND

- Lease boundary
- Spot samples
- Costean
- Sample line
- A4 Alluvial sample
- × Geopeko stream sediment results
- 99681(0.59) Sample number, (Au ppm)
- CS2 Control sample

80100mE 131° 47'E 80200mE 80300mE 131° 48' 80400mE 80500mE 131° 49' 80600mE 131° 50' 80700mE 80800mE 131° 51'

8506000mN 13° 30'S. 8505000mN 13° 31' 8504000mN 8503000mN 13° 32' 8502000mN

8506000mN 13° 30' 8505000mN 8504000mN 13° 31' 8503000mN 13° 32'

DOMINION MINING LIMITED

PROJECT :	GOLDEN DYKE J.V.
PROSPECT :	FRANCES CREEK EL5138 — N.T.

GEOCHEM SAMPLE LOCATION

CH 83/ 32

0 100 200 300 400 metres

ORIGINATOR :	N.B. & A.M.S.	SCALE :	1:10000
Date :	3/88	DRAWN : P.M.B.	Date : 3/88
REVISION :	Date :	PLATE NO :	3
REVISION :	Date :	PLAN NO :	2K-C1