EL7551 FRANCES CREEK
FINAL REPORT
TO 21ST JANUARY 1993

Distribution:

NTDME
Dominion Mining Ltd, Darwin
Dominion Mining Ltd, Perth

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1. SUMMARY

This report details exploration activities completed by Dominion Gold Operations Pty Ltd (Dominion) on EL7551 for the year ending 21 January 1993. The licence, comprising three (3) graticular blocks was granted to Dominion Gold Operations Pty Ltd on 14 November 1991 for a period of four (4) years. Following consolidation of Dominion's Frances Creek tenements, EL7551 is now held under SEL8032, granted 21 January 1993, for a four (4) year period.

Exploration activities during 1992 consisted of:

- Literature Review
- Acquisition of airborne geophysical data
- Aerial photographic interpretation
- Regional 1:25,000 scale mapping
- Stream sediment sampling
- Rock chip sampling

Stream sediment and limited rock chip sampling failed to locate any anomalous Au or base metal targets worthy of further follow up. Evaluation is still required of recently acquired airborne geophysical data.

Exploration expenditure amounted to $8,986 against a Year 1 covenant of $5,000.

2. INTRODUCTION

2.1 Location and Tenure

EL7551 is located 180km southeast of Darwin and approximately 30km NE from the township of Pine Creek. The tenement can be found on the Pine Creek 1:250,000 scale (Sheet SD52-8), Pine Creek 1:100,000 scale (Sheet 5270) geology sheet and the Union Reef (Sheet 5270-1) topographical series sheet. (Figure 1).

Access to the tenement from Darwin is via the Stuart Highway to Pine Creek, thence via the Kakadu Highway to the Mary River Station turnoff and then via various maintained station tracks. Access can also be gained via unmaintained tracks either from Pine Creek or Mt. Wells. (Figure 2).

The licence, comprising three (3) graticular blocks, was granted to Dominion Gold Operations Pty Ltd on 14 November 1991 for four (4) years.

Consolidation of Dominion tenements in 1993 resulted in EL7551 forming part of SEL8032 on 21 January 1993. Cessation of EL7551 was effective 22 January 1993.

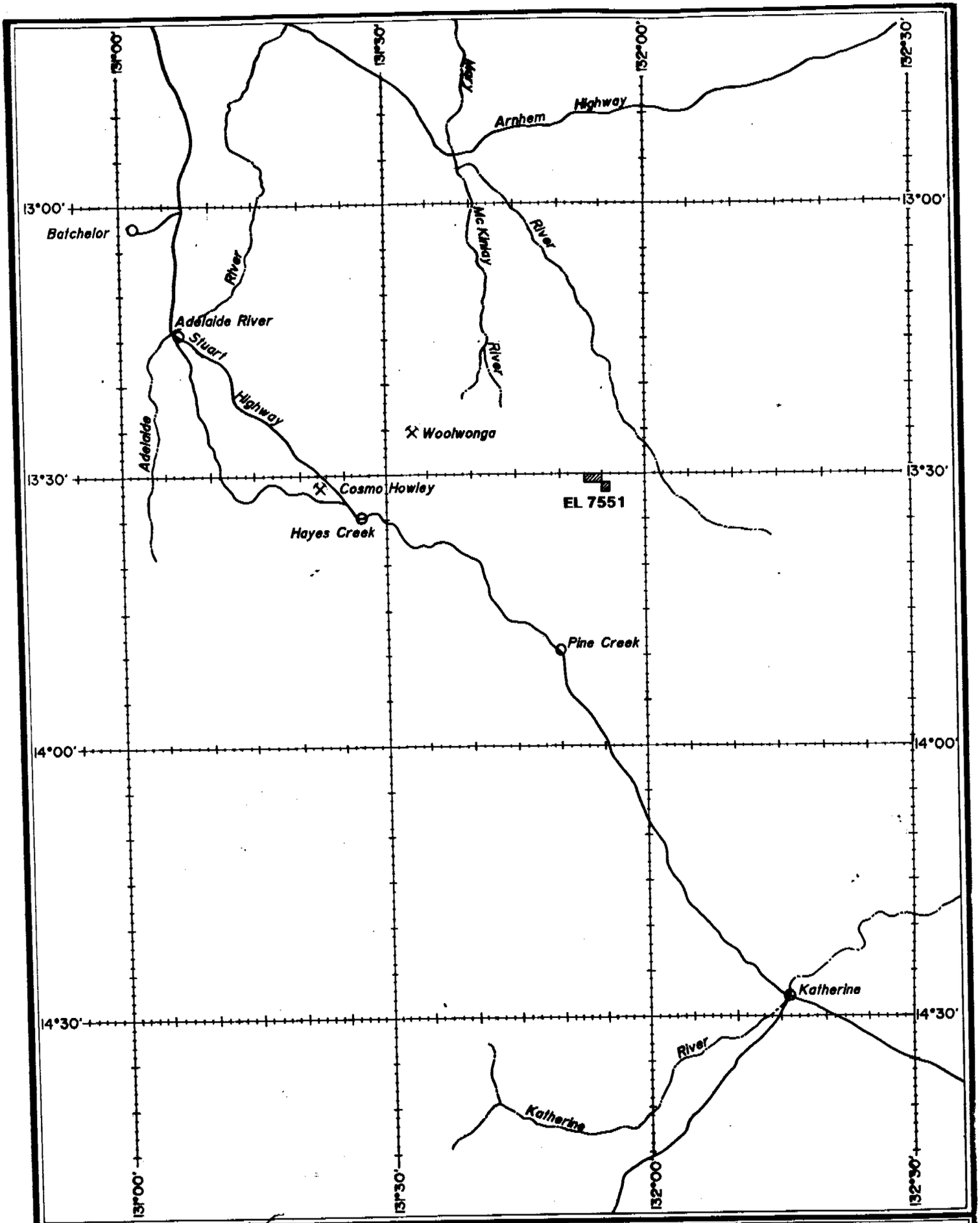
2.2 Climate and Physiography

The Pine Creek Inlier lies within the monsoonal belt of northern Australia and exhibits an average annual rainfall of 1500mm, most of which falls during the wet season from November to April.

The physiography of the area is divided into a number of different units. The lowlands includes the alluvial floodplains of the Alligator, Margaret and Mckinlay Rivers in the north to the plains of the Daly River Basin in the southwest. The plains carry mixed scrubby to open eucalypt woodland and open savannah grasslands.

Granitoid terranes are overlain by undulating sandy rises which usually contain leached skeletal soils and lateritic podsols. Topographic gradients are low with amplitudes of usually 20m. Vegetation is mostly medium to tall semi-deciduous eucalypt woodland.

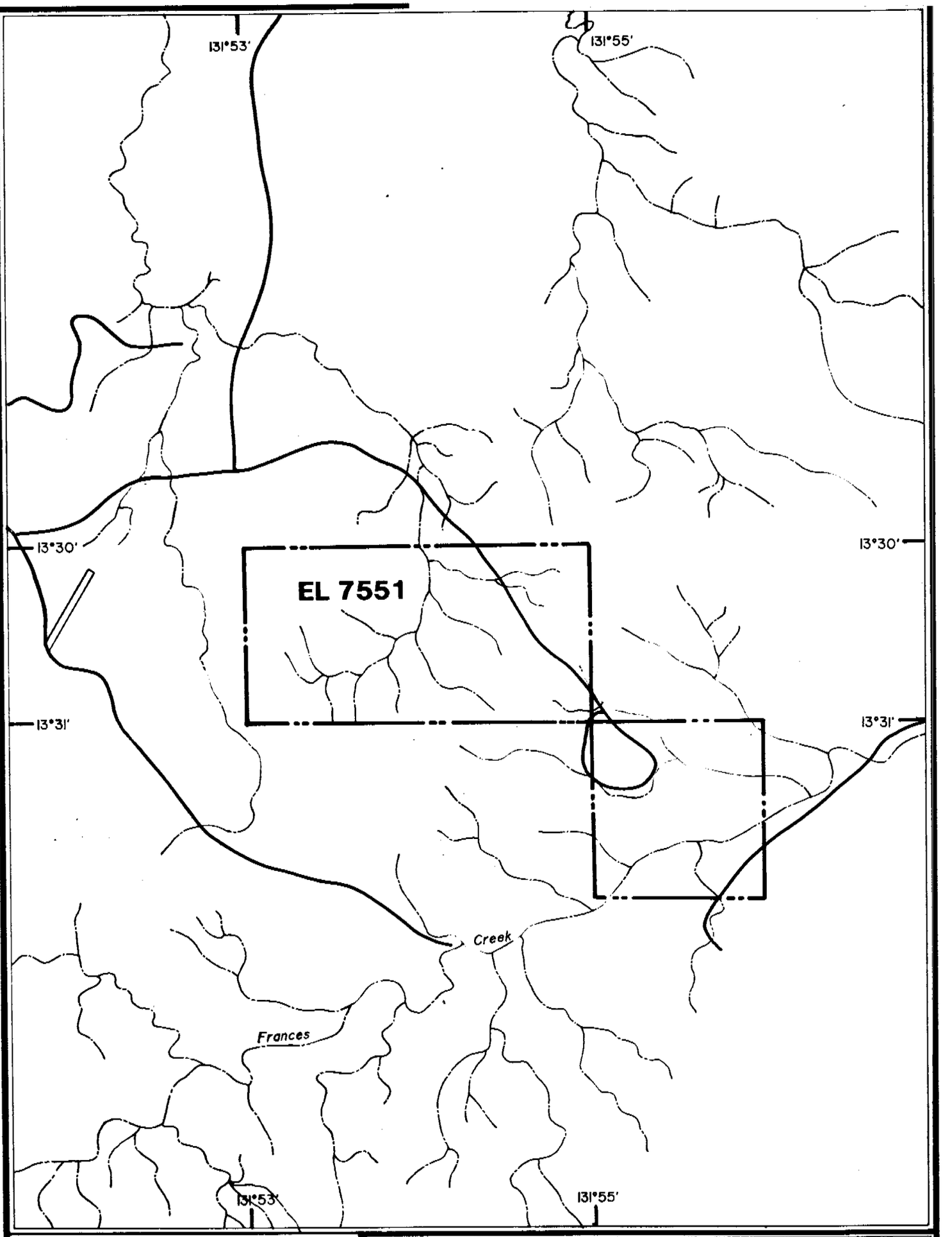
Rock ridges may rise up to 200m elevation above the surrounding plains. Gradients of these ridges are steep and surface boulders and low outcrops are widespread. Mid height woodlands dominate the slopes whilst tall eucalypt forests and dense perennial grasses occupy the dissected creek systems.



EL 7551
TENEMENT LOCATION

PROJECT	N.T. REGIONAL			STATE	N.T.
ORIGINATOR	S.L.	Date 9/92	DRAWN R.L.	Date	9/92
SCALE	1:1000000	FIGURE No:		PLAN No:	2A-T80

Dominion Mining Limited



0 0.5 1 1.5 3 km

EL 7551
TENEMENT LOCATION

PROJECT FRANCES CREEK STATE N.T.

DRAWN S.P. Date 4/93 DRAWN R.L. Date 4/93

SCALE 1:50000 FIGURE Nº: 2 PLAN Nº: 2K-Ta4

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3.0 GEOLOGY

3.1 Regional Geology

3.1.1 Regional History

The Pine Creek Inlier is a roughly triangular area of about 66,000km^2 south and east of Darwin, which contain Early Proterozoic metasedimentary rocks resting on a gneissic and granitic Archaean basement. The metasediments represent fluviatile, shallow water,intertidal basinal and flyschoid sequence up to 14km thick within an intracratonic basinal setting (Needham et al, 1980).

During the Top End Orogeny (1870–1780Ma) rocks within the Pine Creek Inlier were metamorphosed to mainly greenschist facies, however, amphibolite facies metamorphic mineral assemblages dominate in the Alligator Rivers region. Known Archaean rocks are restricted to granite–gneiss of the Rum Jungle, Waterhouse and Nanambu complexes which form mantled gneiss domes near the exposed eastern and western margins of the inlier. (Page, et al, 1980).

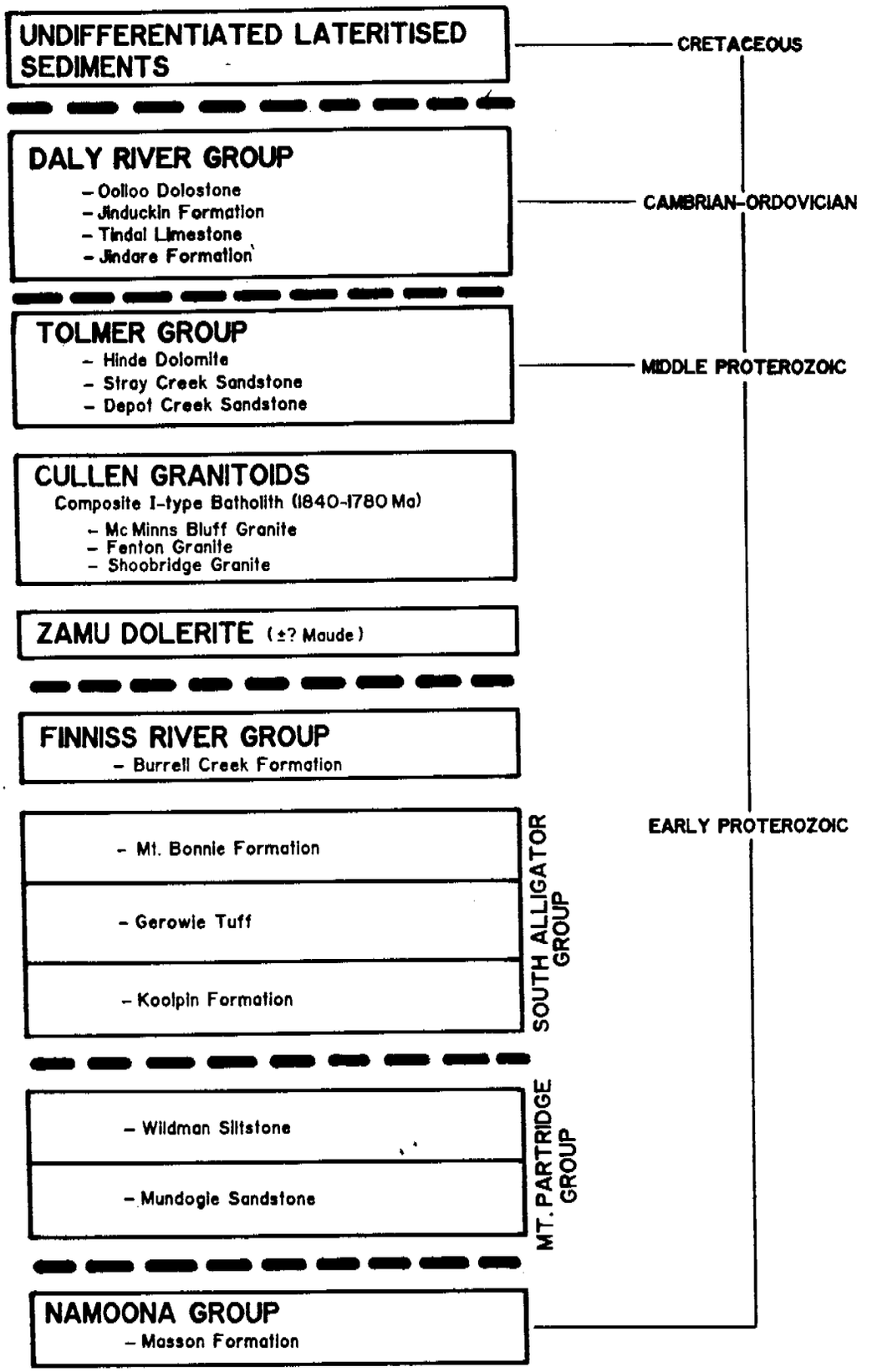
The sedimentary rocks are mainly shale, siltstone, sandstone, conglomerate, carbonate rocks and iron formations. Felsic to mafic volcanism and associated tuffaceous sediments are also present. The sedimentary sequence is intruded by transitional igneous rocks including pre–tectonic dolerite sills and syn to post tectonic granitoid plutons and dolerite lopoliths and dykes. Largely undeformed platform covers of Middle Proterozoic to Mesozoic strata rest on these with marked unconformity. (Figure 3).

Since the Cretaceous the area has generally remained above sea level. The dominant forces which moulded today's landscape were chemical weathering to produce laterite and "cut and fill" modification of the land surface by repeated erosional and aggradational cycles.

3.1.2 Structure

During the Top End Orogeny, the Early Proterozoic sediments, volcanics and dolerite were intensely deformed and regionally metamorphosed, resulting in tight to isoclinal folding and extensive faulting. Two phases of folding have been recognised. The older F_1 folds are tight to isoclinal folds with northwest to northeast trending axial planes. A penetrative slatey cleavage is present in pelitic rocks and a less prominent spaced fracture cleavage in sandstone. The younger F_2 folds are widely spaced, open types with east to west trending axial planes. Both folding events pre date granitoid intrusions. (Figure 4).

STRATIGRAPHIC COLUMN



	CULLEN MINERAL FIELD STRATIGRAPHIC RELATIONS
	PROJECT — STATE N.T.
	ORIGINATOR F.F. — Date 5/91 — DRAWN R.L. — Date 5/91
© Dominion Mining Limited	SCALE 3 — PLAN No: 2A - G100

REGIONAL STRUCTURE – PINE CREEK INLIER

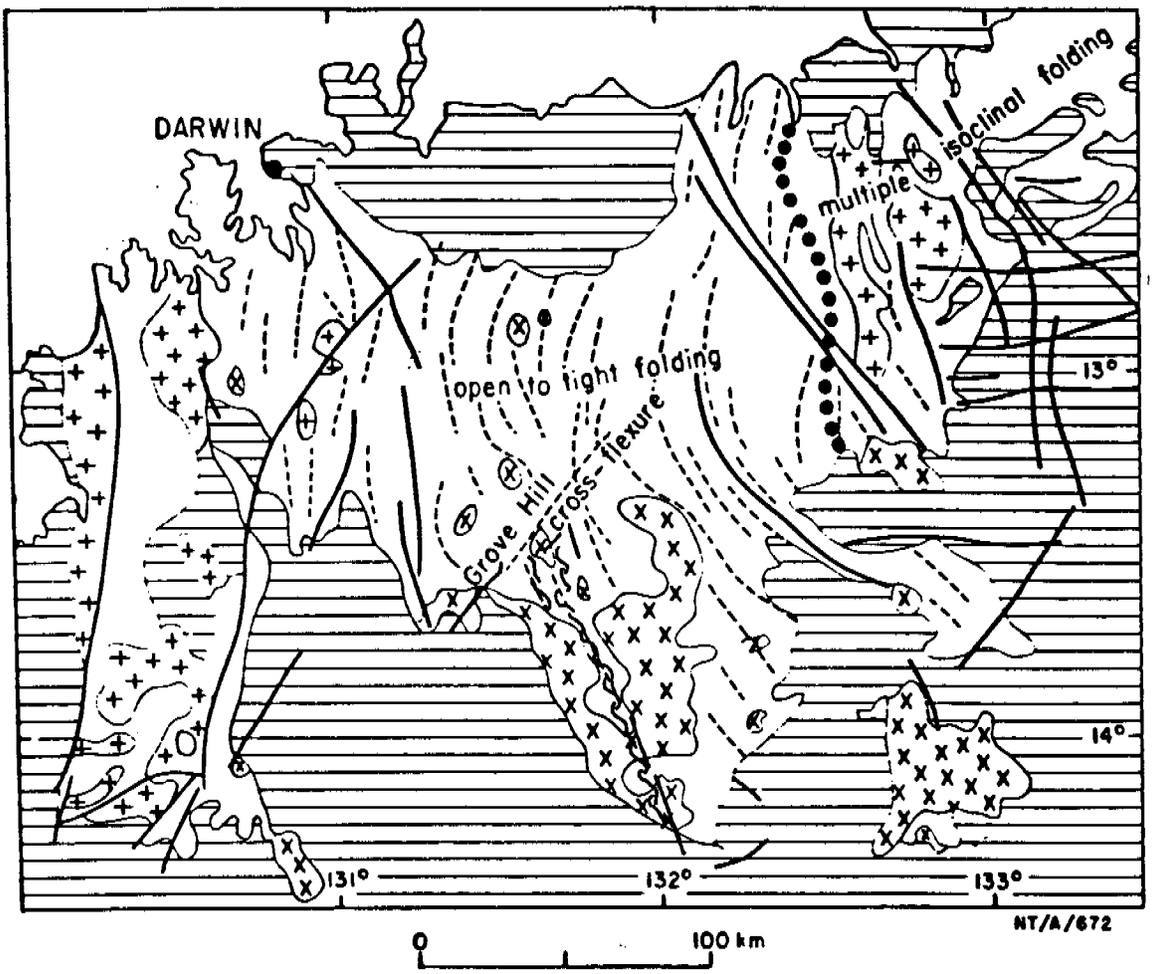


FIGURE 4

3.1.2 Structure (Cont'd)

Regional folding is locally modified by the major SE trending Noonamah – Katherine lineament zone, which consists of a 20 to 25km wide zone of shearing and folding with coincident gravity and magnetic anomalies. In the Pine Creek area the lineament is represented by the Pine Creek shear zone, which contains numerous aligned tight folds and shears and which hosts a concentration of gold occurrences. (Needham and Stuart-Smith, 1984a).

3.1.3 Metamorphism

All the Early Proterozoic rocks have been both regionally metamorphosed to greenschist facies and contact metamorphosed by the syn orogenic to post orogenic granitoids. The regional metamorphic grade ranges from predominantly lower greenschist to amphibolite facies in the NE of Pine Creek Inlier. Table 1 shows the characteristic metamorphic mineral assemblages for various rock types. Regional metamorphism is contemporaneous with regional deformation of the sedimentary pile during the Top End Orogeny. Throughout most of the area, regional metamorphism of pelitic rocks produced fine grained sericite and quartz. Sandstones usually exhibited fractured and/or strained quartz grains and minor sericite, chlorite and muscovite. (Figure 5).

Contact metamorphism largely overprints regional metamorphism indicating syn-post deformation. The contact metamorphic aureole is primarily albite-epidote hornfels with a narrower inner continuous zone of hornblende hornfels. K-feldspar-cordierite hornfels is present immediately adjacent to the granitoids. The contact metamorphic aureole varies in width from a minimum distance of 500m to up to 15km – 20km. In general, granitoids with steeply dipping margins will produce a narrower contact aureole whilst relatively shallow, flat lying granitoids will produce a more extensive contact aureole, although the extent of a contact aureole can be significantly wider or narrower under different temperature – pressure regimes.

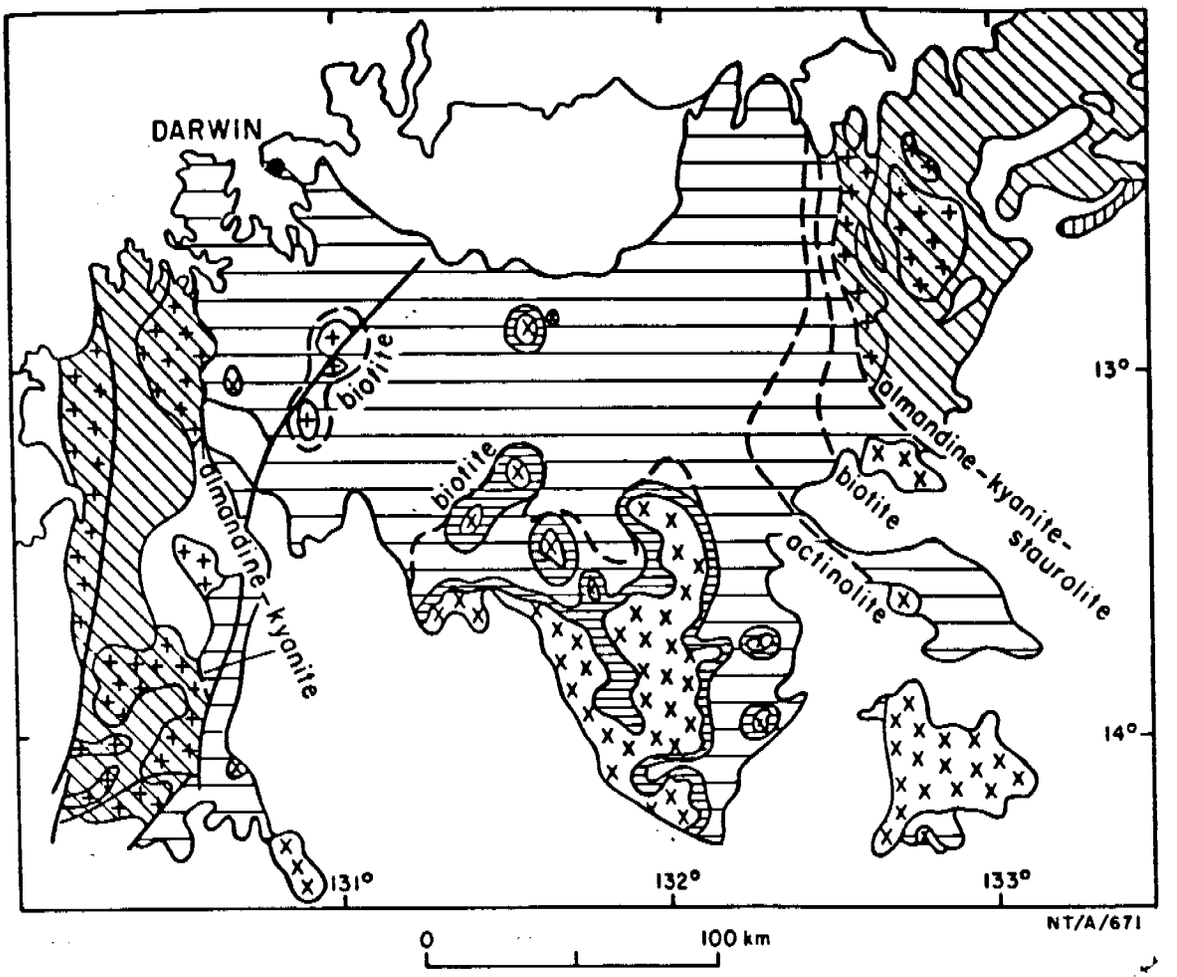
TABLE 1 CHARACTERISTIC METAMORPHIC MINERAL ASSEMBLAGES

Rock Type	*Regional Metamorphism*		*Contact Metamorphism*		
	Lower Greenschist	Upper Greenschist	Albite–epidote Hornfels Facies	Hornblende Hornfels Facies	K-feldspar–cordierite Hornfels Facies
Pelitic rocks	Sericite + quartz	Biotite + muscovite + quartz	Muscovite ± biotite ± chiastolite ± quartz	Muscovite + biotite ± cordierite ± albite ± quartz	Cordierite + andalusite + K-feldspar + biotite + quartz
Quartzose and feldspathic sandstone	Sericite/ muscovite + chlorite		Muscovite + quartz ± albite ± biotite	— ditto —	
Greywacke	Sericite + chlorite + epidote		Muscovite + biotite + quartz ± K-feldspar ± albite ± epidote ± actinolite	Muscovite + K-feldspar + quartz ± albite ± biotite	
Tuff	Chlorite + sericite + quartz	Biotite + muscovite + quartz	Muscovite + quartz ± biotite ± albite ± K-feldspar	— ditto —	
Carbonate rocks	Dolomite + quartz	Tremolite + garnet + biotite + quartz	Calcite + tremolite + epidote Calcite + tremolite + zoisite + sphene + quartz Tremolite + biotite + quartz	Grossular + calcite Diopside + quartz	
Dolerite	Chlorite + sericite + epidote + zeolites	Actinolite + biotite	Actinolite + biotite + epidote + clinozoisite	Hornblende + biotite + plagioclase + K-feldspar ± calcite ± sphene	

REPRODUCED FROM:

STUART-SMITH,P.G.,NEEDHAM,R.S.,BAGAS,L.,& WALLACE,D.A.,1987--PINE CREEK NORTHERN TERRITORY (SHEET 5270). BUREAU of MINERAL RESOURCES, AUSTRALIA 1:100 000 GEOLOGICAL MAP AND COMMENTARY

REGIONAL METAMORPHISM – PINE CREEK INLIER



Lower Proterozoic

- Contact metamorphics
- Greenschist facies
- Amphibolite facies
- Granulite facies
- Mesozoic to Carpentarian sediments
- Late orogenic granite
- Archaean complexes
- biotite — Isograd

FIGURE 5

3.2 Local Geology

The stratigraphy of the Frances Creek area comprises Early Proterozoic metasediments including Mundogie Formation and Wildman Siltstone. Mapping by the BMR indicates significant outcrop of underlying Masson Formation mapped in structural highs and lows and always in valleys. Nowhere in the mapped area did distinct lithologies of Masson Formation outcrop. In broad terms, the Frances Creek stratigraphy consist of uppermost carbonaceous metasiltstones intruded by dolerite sills which corresponds to the Wildman Siltstone. Underlying this sequence are carbonaceous metasiltstones which contain quartzite beds of various thickness. Lower most are carbonaceous sand/siltstones containing coarse ferruginous conglomeratic quartzite units. These underlying units correspond to the Mundogie Formation. The occurrence of the first quartzite horizon in the upper part of the sequence marks the transition from Wildman Siltstone to Mundogie Formation. Frances Creek Geology is presented in Figure 6.

1:25,000 regional mapping has defined folded and faulted Mundogie Formation metasediments characterised by NW–SE trending quartzite strike ridges. The low, gently undulating area to the north and east comprises faulted and folded schists and metadolerites.

Predominantly quartz veining is present within the dolerites and schists and to a lessor extent within the folded quartzite units.

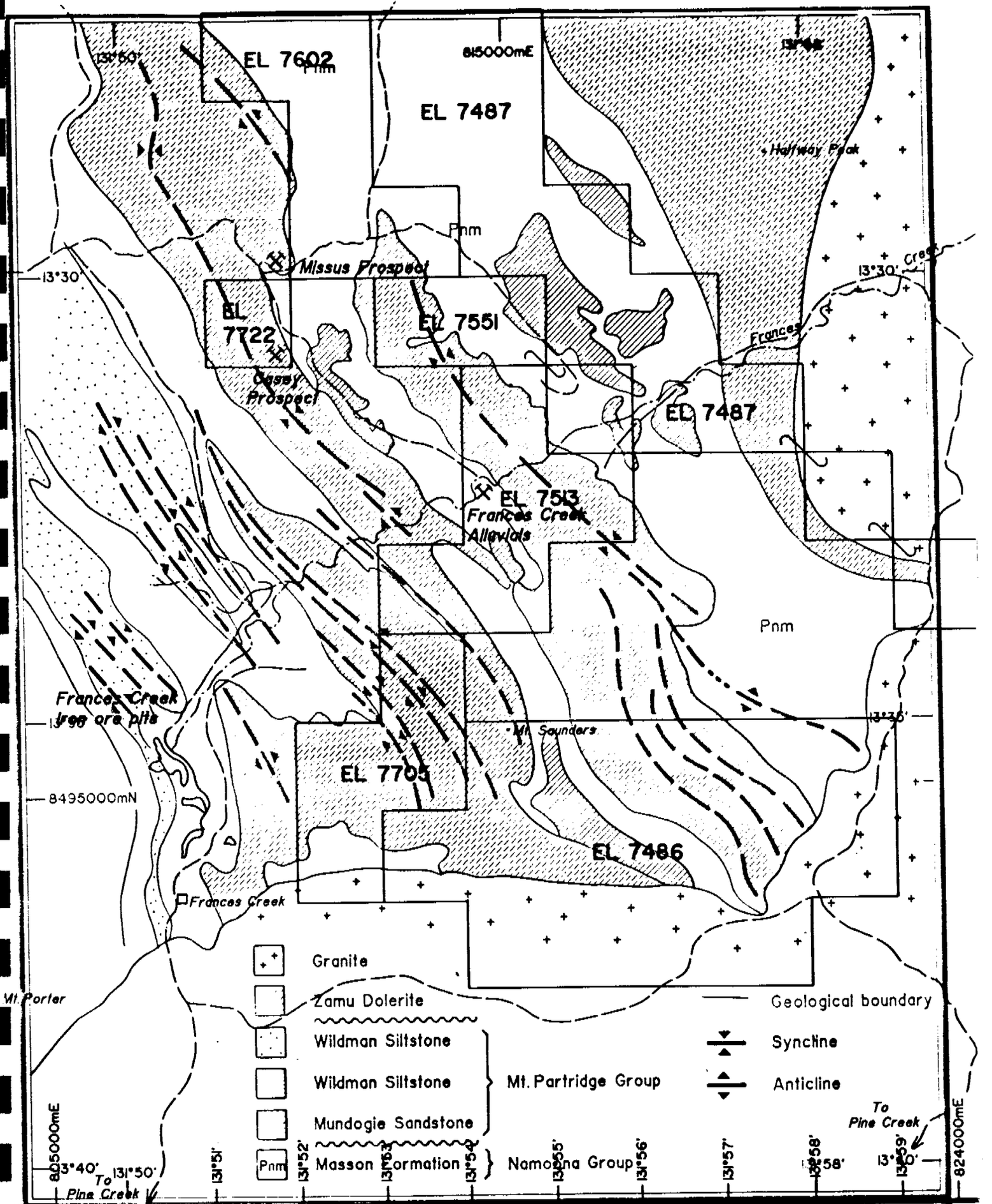
4. 1992 EXPLORATION ACTIVITIES

4.1 Aerial Photography

During April 1992, Dominion purchased colour air photos at 1:25,000 scale from Austlig in Canberra. The relevant air photo runs are:

	Film No.	Run No.	Frame No.
McKinlay River	CAG/C 400	Run 13	022–031
Pine Creek	CAG/C 419	Run 1	006–015

See Plate 1 flight diagram.



FRANCES CREEK GEOLOGY

PROJECT FRANCES CREEK			STATE N.T.
ORIGINATOR S.P.	Date 4/92	DRAWN R.L.	Date 4/92
SCALE 1:100000	FIGURE No: 6		PLAN No: 2K-G6

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4.2 Geophysics

During August 1992, Dominion commissioned Aerodata to fly airborne magnetics and radiometrics over the Frances Creek tenement areas. The area was flown during October 1992.

Preliminary data was recently received and interpretation is underway.

4.3 Stream Sediment Sampling

A regional stream sediment sampling program was conducted by Dominion in various campaigns over the period June to September 1992.

Stream sediment samples were collected from active sediment laden drainages emanating from within the licence. Sample density averaged 1 sample/2km^2. Two sample sizes were collected:

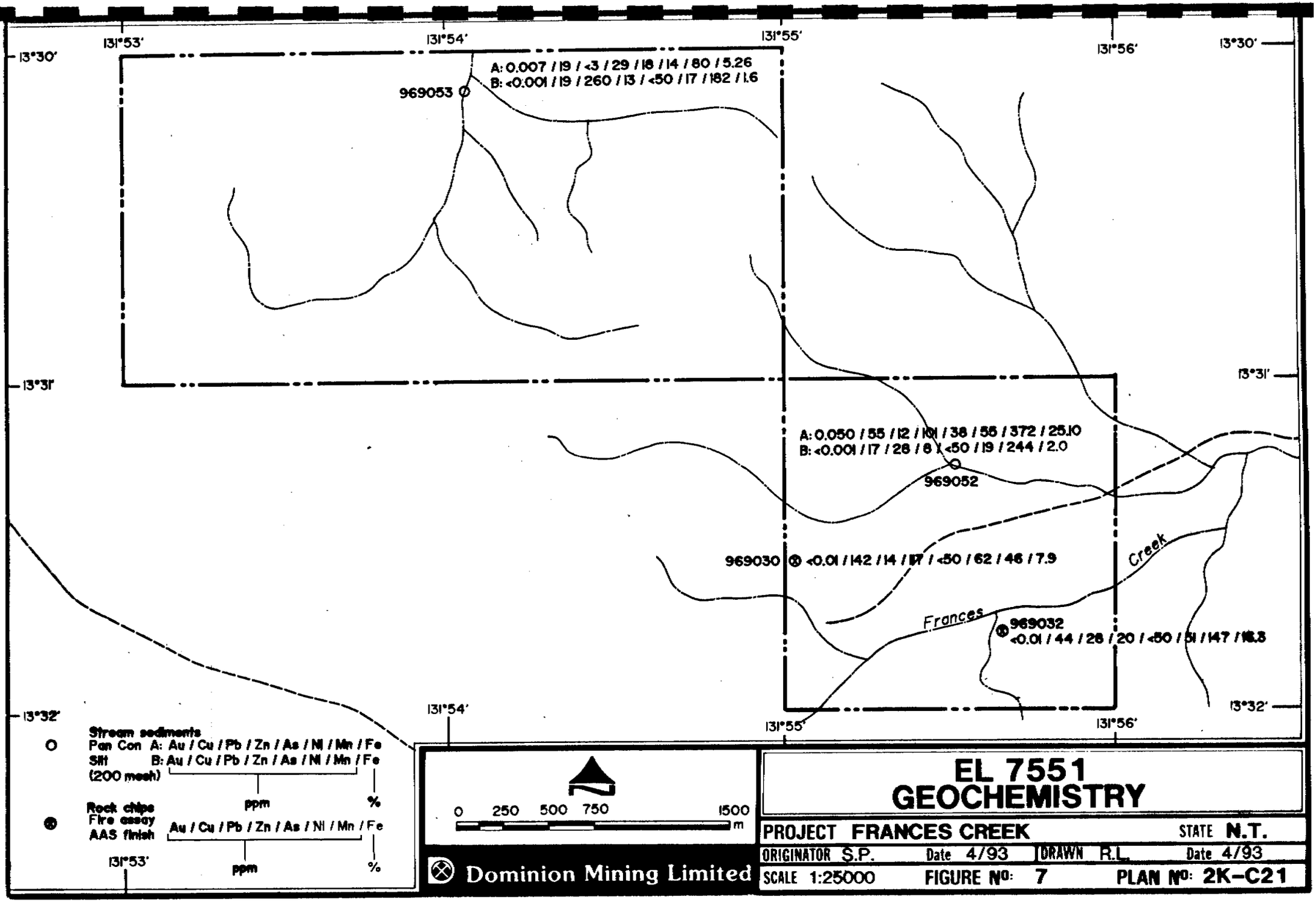
i) -20# silt fraction, 2-3kg, sieved to pass -80# in the laboratory
ii) pan concentrate, approximately 100g

Samples were dispatched to Analabs - Darwin where they were analysed by the following methods:

Au:	30 gram Aqua/Regia Digest, Carbon Rod Finish
Cu,Pb,Zn,As,Ni,Fe,Mn:	Aqua Regia Digest, AAS Finish

A total of 3 stream sediment samples were collected from active sediment laden drainages emanating from the licence. A best result of 50 ppb Au was returned from a pan concentrate (Sample No. 969052) whilst the silt size fraction returned 1 ppb Au.

Sample locations and assay results are shown on Figure 7.



EL 7551
GEOCHEMISTRY

PROJECT FRANCES CREEK			STATE N.T.
ORIGINATOR S.P.	Date 4/93	DRAWN R.L.	Date 4/93
SCALE 1:25000	FIGURE Nº: 7		PLAN Nº: 2K-C21

4.4 Rock Chip Sampling

Rock chip sampling was conducted during the course of the field season. A total of two (2) samples comprising 3–4kgs of material were collected and dispatched to Analabs – Darwin for Au analysis and Cu, Pb, Zn, Ni, As, Fe and Mn determinations. Methods used are as follows:

Au:	30 grams Fire Assay, AAS Finish (GG309)
Cu, Pb, Zn, Ni, As, Fe, Mn:	Aqua Regia Digest, AAS Finish (GA140)

Both samples returned results below detection limit (<0.01 ppm Au). Results are presented in Figure 7.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Exploration activities conducted during 1992 within EL7487 included aerial photographic interpretation and reconnaissance mapping at 1:25,000 scale, acquisition of airborne magnetics and radiometrics data, stream sediment sampling and rock chip sampling.

Regional stream sediment sampling and rock chip sampling failed to locate any significant Au or base metal anomalism.

Proposed Programme:

- Evaluation of newly acquired airborne geophysical data.

6.0 EXPENDITURE

Exploration expenditure for EL7551 to 21 January 1993 amounted to $8,986 against a covenant of $5,000. The high expenditure reflects the relatively high cost in acquisition and interpretation of geophysical data.

EL7551 EXPENDITURE

	EL7551 $
Assays	856
Aerial Photography	70
Geophysics	1,319
Drilling: RAB	-
Data Acquisition	-
Equipment	167
Salaries & Wages	2,978
Travel & Accomm	909
Vehicles	462
Field Supplies/Equip	50
Camp Rental/Prov.	844
Draft & Computing	407
Darwin Office	496
	8,558
Administration (5%)	428
TOTALS	**8,986**

7.0 REFERENCES

NEEDHAM, R.S., CRICK, I.H. and STUART-SMITH, P.G. 1980

Regional geology of the Pine Creek Geosyncline. In Ferguson, J, and Goleby, A.B. (Editors) - Uranium in the Pine Creek Geosyncline. International Atomic Energy Agency, Vienna, pp1-22.

NEEDHAM, R.S. and STUART-SMITH, P.G. 1984a

Geology of the Pine Creek Geosyncline, 1:500,000 Geological map. Bureau of Mineral Resources, Australia.

PAGE, R.W., COMPSTON, W. and NEEDHAM, R.S. 1980

Geochronology and evolution of the late - Archaean basement and Proterozoic rocks in the Alligator Rivers Uranium Field, NT, Australia. In Ferguson, J. and Goleby, A.G., (Editors) - Uranium in the Pine Creek Geosyncline. International Atomic Energy Agency, Vienna, pp39-68.

EL 7602

EL 7487

EL 7551

EL 7722

EL 7513

EL 7705

EL 7486

RUN 12 CAG/C 400 — 006, 022, 098

RUN 13 CAG/C 400 — 020, 026, 030, 031

RUN 1 CAG/C 419 — 010, 015

RUN 2 CAG/C 419 — 109, 113, 117

RUN 3 CAG/C 418 — 014, 090, 007

RUN 4 CAG/C 416 — 115, 120, 124

To Mt. George

To Mary River Homestead

Halfway Peak

Mary River

McVilly River

To Mt. Wells

Frances Creek

Mine

Wells Creek

Frances Creek Homestead

Mt. Porter

Nellie Creek

To Union Reefs

To Pine Creek

13°25' 13°26' 13°27' 13°28' 13°29' 13°30' 13°31' 13°32' 13°33' 13°34' 13°35' 13°36' 13°37' 13°38' 13°39' 13°40'

13°45' 13°46' 13°47' 13°48' 13°49' 13°50' 13°51' 13°52' 13°53' 13°54' 13°55' 13°56' 13°57' 13°58' 13°59' 132°00'

800000mE 805000mE 810000mE 815000mE 820000mE

8515000mN 8510000mN 8505000mN 8500000mN 8495000mN 8490000mN

Dominion Mining Limited

PROJECT: FRANCES CREEK

PROSPECT: N.T.

FRANCES CREEK DISTRICT FLIGHT DIAGRAM

0 0.5 1 2 3 4 km

ORIGINATOR: S.P. Date: 5/92 | SCALE: 1:50000 | DRAWN: R.L. Date: 5/92

REVISION: Date: | PLATE No: |

REVISION: Date: | PLAN No: 2K-Pg1

LEGEND

- Creek / river
- Road / track
- Air photo centre

FILM	RUN	FRAMES	DATE	SCALE
CAG/C 400	12	097-106	23.6.74	1:25000
	13	022-031	23.6.74	1:25000
CAG/C 419	1	006-015	23.7.75	1:25000
	2	109-117	23.7.75	1:25000
CAG/C 418	3	007-014	22.7.75	1:25000
CAG/C 416	4	116-124	21.7.75	1:25000