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OPEN FILE

EL 7143

ANNUAL EXPLORATION REPORT

To 23rd November 1991

Pine Creek Sheet SD 52.08 Union Reef 14/6-I, 5270.1

Compiled for Northern Gold NL
by Dr Gregor Partington
November 1991

SUMMARY

A first-pass exploration program composed of geological mapping, soil sampling, and a literature review was carried out on EL 7143 to test the area for Au and base metal mineralisation. Results were not encouraging and no areas of significant mineralisation were found in the tenement.

A total of $9,442 was spent on the licence during the anniversary year.

CONTENTS

1 INTRODUCTION

1.1 Title and location

EL 7143 was granted on 2nd of November 1990 to Northern Gold for a period of three years. The licence covers two blocks (54 26 and 54 27) and had an expenditure covenant of $12,000 for the first year of tenure. EL 7143 is located approximately 10 km north west of Pine Creek (Figure 1) within the Cullen Mineral Field. Access to the tenement is via a track to Union Reefs east from the Stuart Highway approximately 10 km north west of Pine Creek and is restricted to four wheel drive vehicles within the tenement due to the rugged nature of the terrain.

This licence was acquired to test for mineralised splays from the Pine Creek Shear Zone similar to that which host the Enterprise gold mine. Immediately to the east of the tenement the Pine Creek shear zone hosts the Union Reef gold mine. Essentially no systematic modern low-level regional reconnaissance had been carried out over the area. The aims of the 1991 exploration program was to structurally map the tenement with the aid of enhanced geophysical data. Emphasis was placed on possible splay structures from the Pine Creek shear zone and locating hanging-wall reverse shears on asymmetric antiforms. Some limited BLEG stream sediment sampling was carried out to test for the source of the alluvial/colluvial resource discovered to the south of the tenement.

1.2 Previous Work

Previous work on the tenement was carried out by Billiton (Creagh, 1990), and consisted of stream sediment sampling, limited quartz vein sampling and a follow-up soil sampling program. No significant mineralisation was encountered. However a small, low grade, alluvial/colluvial resource has been identified to the south of the tenement area and this may have shed from the southern part of the tenement.

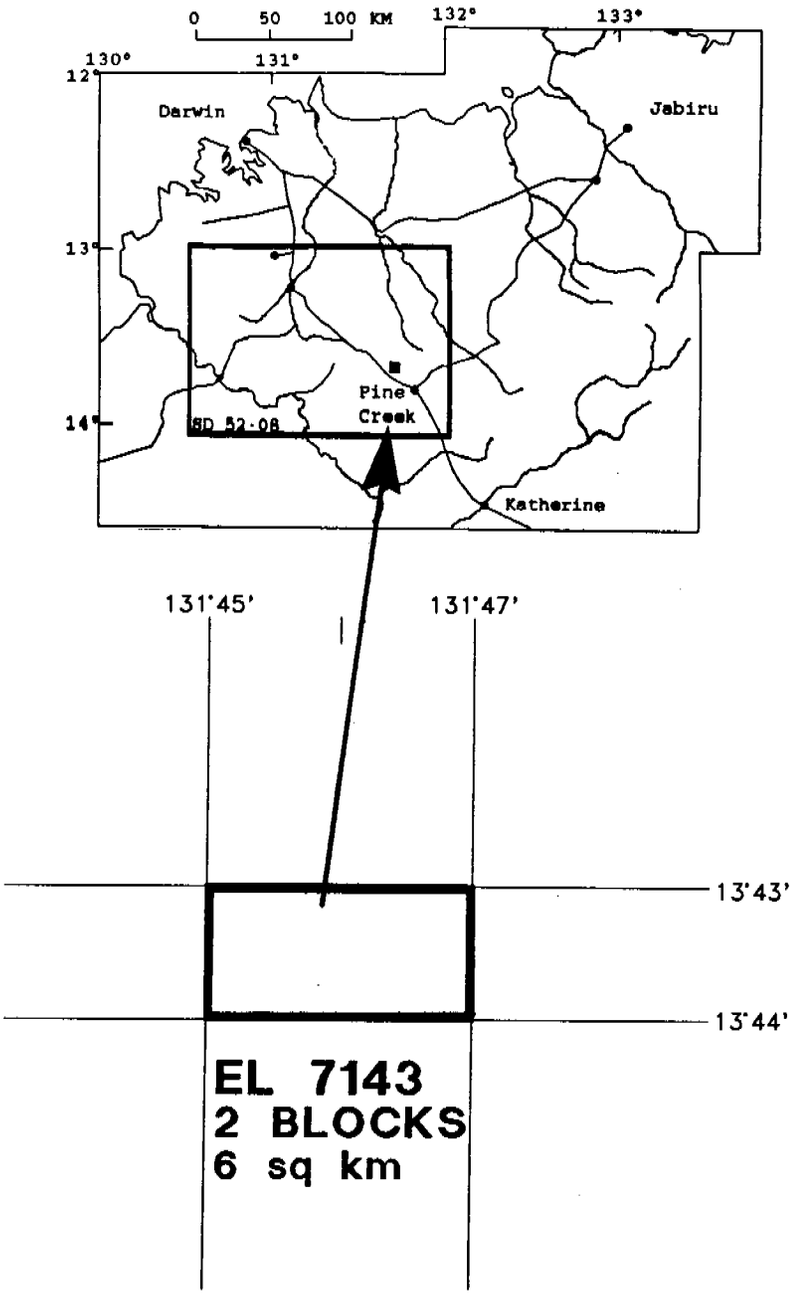
0 50 100 KM
130°
131°
132°
133°
12°
13°
14°
Darwin
Jabiru
Pine Creek
SD 52-08
Katherine
131°45'
131°47'
13°43'
13°44'
EL 7143
2 BLOCKS
6 sq km

Figure 1

2 REGIONAL GEOLOGY

EL 7143 is situated within the Pine Creek Geosyncline, a tightly to isoclinally folded sequence of mainly pelitic and psammitic Lower Proterozoic sediments with interlayered tuff units. All the lithologies in the area have been metamorphosed to low, and in places medium grade, metamorphic assemblages. For the purposes of this report the prefix meta is implied, but omitted, from rock names and descriptions. The sequence has been intruded by pre-orogenic dolerite sills of the Zamu Dolerite and a number of late syn-orogenic to post-orogenic Proterozoic granitoids. Largely undeformed Middle and Late Proterozoic, Palaeozoic and Mesozoic strata as well as Cainozoic sediments and laterite overlie the Pine Creek Geosyncline lithologies.

3 EXPLORATION COMPLETED

Northern Gold completed a first-pass exploration program consisting of a literature study from the library of the Department of Mines, interpretation of geophysical data, geological mapping and soil sampling to test the area for gold and basemetal mineralisation. The geology of the tenement and surrounding area is shown on Figure 2.

3.1 Local Geology

The main lithologies in the tenement are the Table Top granite, the Allamber Springs granite and the Burrell Creek formation which comprises medium to fine grained feldspathic greywacke, siltstone, and mudstone. All sedimentary lithologies have been hornfelsed in the vicinity of the granite contacts and commonly contain cordierite and/or andalusite. Regional metamorphism has reached upper greenschist facies and is overprinted by the granite contact metamorphism. The sediments have been folded by at least two folding episodes. F1 has produced tight upright to overturned folds which trend 352° and plunge 26° to the north west. A pervasive cleavage which trends 356 and dips 78° to the south west is axial planar to these folds. Narrow reverse shears on the western limb of

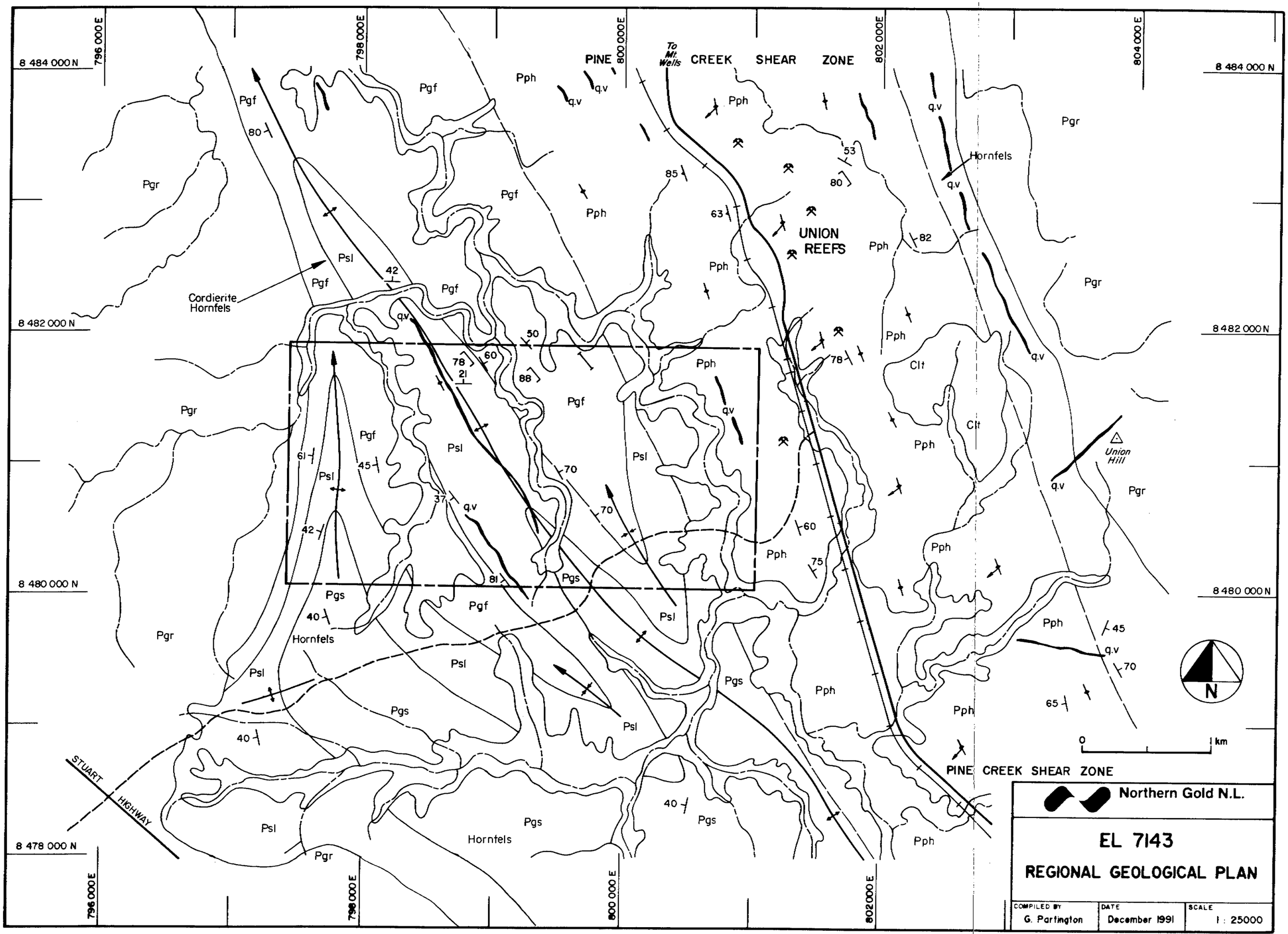
796 000 E
798 000E
800 000E
802 000E
804 000 E
8 484 000 N
8 482 000 N
8 480 000 N
8 478 000 N
PINE CREEK SHEAR ZONE
To Mt. Wells
UNION REEFS
Hornfels
Cordierite Hornfels
Union Hill
STUART HIGHWAY
Pgf
Pgr
Pph
Psl
Pgs
Clt
q.v
N
0
km
Northern Gold N.L.
EL 7143
REGIONAL GEOLOGICAL PLAN
COMPILED BY
G. Partington
DATE
December 1991
SCALE
1 : 25000

Figure 2

Key To Geological Map

Cambrian-Recent Lithologies

- al — Alluvium
- co — Colluvium
- l — Laterite
- do-33 — Dolomite
- l-39 — Limestone
- sl-41 — Siltstone
- s-2 — Sandstone
- c-25 — Conglomerate
- sh-55 — Shale
- ba — Basalt

Proterozoic Lithologies And Their Metamorphic Equivalents

- PU-44 — Upper Proterozoic*
- PM-44 — Middle Proterozoic*
- PL-44 — Lower Proterozoic*
- Pg-13 — Proterozoic Granitoid*
- Pd-45 — Proterozoic Dolerite*
- Pf-58 — Finniss River Group*
- Ps-53 — South Alligator Group*
- Pso-48 — Mt Bonnie Formation*
- Psg-29 — Gerowie Tuff*
- Psk-53 — Koolpin Formation*
- Ppw-3 — Mt Partridge Group*
- Pn-34 — Namoona Group*
- Ar-15 — Rum Jungle Complex*
- Aw-15 — Waterhouse Complex*

- Pyb-47 — Buckshee breccia
- Pdo-42 — Oenpelli dolerite
- Pve-9 — Edith River volcanics
- Pvs-9 — El Sherana Group
- Pgr-13 — Granite
- Pga-13 — Adamellite
- Pgg-13 — Granodiorite
- Pgs-13 — Syenite
- Pdz-45 — Zamu dolerite
- Pgz-45 — Zamu gabbro
- Pgsh-51 — Garnet-mica schist
- Pgm-58 — Greywacke/mudstone
- Pgf-58 — Feldspathic greywacke
- Pgt-58 — Tombstone greywacke
- Pgq-58 — Quartz greywacke
- Pga-58 — Greywacke/siltstone
- Pca-26 — Conglomerate:angular clasts
- Pcr-26 — Conglomerate:rounded clasts
- Psl-7 — Siltstone
- Psg-7 — Siltstone/greywacke
- Pmi-48 — Mudstone/ironstone/chert
- Pmg-61 — Mudstone/greywacke
- Pm-56 — Mudstone
- o o o o — Mudstone nodules
- ——— — Iron stone
- Pcs-29 — Chert/siltstone
- Psc-29 — Siltstone/chert

* Undifferentiated Units
Recent lithologies prefixed: C-Cambrian-Ordovician-Permian, M-Mesozoic

Key To Geological Map

- Pvt-29 — Tuff
- Pqp-9 — Quartz porphyry
- Pdi-9 — Diorite
- Pdl-9 — Lamprophyre
- Psh-54 — Shale
- Pshb-54 — Shale breccia
- Pshc-53 — Carbonaceous shale
- Pshg-53 — Gossanous shale
- Pcm-29 — Massive chert
- Ps-3 — Sandstone
- Pca-34 — Carbonate
- Pph/ — Phyllite/precursor
- Pcl/ — Chlorite schist/precursor
- Pp — Pegmatite

Topographic Symbols

- Mine
- Prospect
- Road
- Creek
- Fence
- Railway
- Track
- Waterhole

* Undifferentiated Units
Recent lithologies prefixed: C-Cambrian-Ordovician-Permian, M-Mesozoic

Geological Symbols

- Shear zone/fault zone
- Shear fabric
- High strain zone
- Foliation
- Cleavage
- Stockwork
- Quartz vein
- Stretching lineation
- Intersection lineation
- Crenulation lineation
- Boudin neck
- Bedding
- F1 fold axes
- F2 fold axes
- Synform/antiform
- Fault
- Vergence
- Younging
- Unconformity
- Fold Vergence

F1 anticlines and associated saddle-reef quartz veins are present in the central part of the tenement. The F1 folds and associated structures have been refolded by a series of east-west trending open folds which have been designated as F2. Both folding events pre-date granite intrusion. The eastern boundary of the tenement is marked by a regional scale high strain zone which comprises phyllite, after greywacke and siltstone, and which forms a distinctive northwest trending anastomosing foliation. This foliation is associated with a vertical stretching lineation and itrafolial folds with fold axes which generally parallel the stretching lineation. This high strain zone is taken to mark the western boundary of the Pine Creek Shear Zone.

A total of 9 rock-chip samples were collected from quartz veins parallel to the F1 axial planar cleavage and from the hinge zone of anticlines in the area (Fig. 3). These were analysed for Au fire assay.

3.2 Stream Sediment Sampling

A total of 17 stream sediment samples were collected from internal creeks and their tributaries through the tenement (Fig. 3). About 2 kg of sediment sieved to -6mm was collected at each sample site. The stream sediment samples were and submitted to Analabs in Darwin for BLEG Au analysis.

3.3 Geophysics

Northern Gold purchased aerial geophysics of the Pine Creek area from Aerodata. Northern Gold received magnetic, uranium and Potassium data. EL 7143 lies within the area covered by the geophysics. The survey had the following specifications:

Aircraft	Rockwell Shrike Commander 500S
Magnetometer	Scintrex V201 Split Beam Cesium Vapour
	Resolution: 0.04 nanoTesla
	Cycle Rate: 0.2 second
	Sample Interval: 14 meters
Spectrometer	256 Channel Geometrics Exploranium GR800B

797000mE
798000mE
799000mE
800000mE
801000mE
802000mE
8482000mN
8481000mN
8480000mN
EL 7143
15705
15704
15706
15707
15703
15708
15709
15501
15702
240611
15726
15701
15502
15718
240620
240622
240624
240623
15725
15717
240625
240630
240619
15724
15715
15716
15723
15714
15722
240634
241602
240626
15713
15712
15711
240628
15710
240631
241604
240627
240636
15719
240632
240635
Northern Gold NL
EL 7143 Stream Sediment+ and Rock-chip* Location Map
Figure 3
SCALE 1:15000
DATE 10/12/91
SHEET 1 of 1
REF No.
Plotted with MICROMINE

Processed Channels:

Total Count 0.4 - 3.01 MeV

K40 1.37 - 1.56 MeV

Bi214 1.67 - 1.86 MeV

Tl208 3.02 - 6.00

Cosmic 3.02 - 6.00

Volume: 33.56 litres

Cycle Rate: 1.0 second

Sample Interval: 70 meters

Data Acquisition Hewlett Packard 9000 Series Computer Aerodata Digital Data Acquisition System

Flight Line Spacing Traverse Lines: 200 meters

Tie Lines 5000 meters

Flight Line Direction Traverse Lines: 090-270 degrees

Tie Lines: 180-360 degrees

Survey Height 70 meters - mean terrain clearance

Navigation Syledis UHF positioning system.

4 EXPLORATION RESULTS

4.1 Geological Reconnaissance

No splay structures from the Pine Creek shear zone were identified during the mapping (Fig.2). However a 20 metre wide shear zone and associated saddle reef on the western limb of an anticline was located and sampled in the western tenement block. This zone proved to be barren.

4.2 Sampling

Assay results for both stream sediment samples and rock-chip samples are given in Appendix 1 and displayed on Figure 3. Sample results are shown on Figure 4. No consistent stream sediment anomalies or anomalous rock-chip samples were identified. Because of the lack of suitable structures, the poor regional stream results and the poor rock-chip sample results it is recommended that no further work be carried out on this tenement.

4.3 Geophysics

Results of the geophysics were used primarily as imaged processed data for regional interpretation of exploration concepts. These images are not suitable to submit in a individual Licence report as the information affects many other areas and possible future targets. However, a copy of the Total field magnetic intensity contour map of the licence is included as Figure 5.

797000mE
798000mE
799000mE
800000mE
801000mE
802000mE
8482000mN
8481000mN
8480000mN
EL 7143
Northern Gold NL
EL 7143 Stream Sediment+ and Rock-chip Results*
* ppm + ppb
Figure 4
SCALE 1: 15000
DATE 10/12/91
SHEET 1 of 1
REF No.
Plotted with MICROMINE

796000mE 797000mE 798000mE 799000mE 800000mE 801000mE 802000mE 803000mE

8483000mN

8482000mN

8481000mN

8480000mN

8479000mN

8478000mN

EL 7143

Northern Gold NL		
EL 7143 Aeromagnetic Contour Map Figure 5		
SCALE 1: 25000	DATE 10/12/91	SHEET 1 of 1
	REF No.	
	Plotted with MICROMINE	

5 CONCLUSION

The first pass exploration completed on EL 7143 failed to define areas of possible economic mineralisation.

6 REFERENCES

Creagh, C.J., 1990. EL. 6485 - Union Reef West first and final report. NTGS report No. CR90/364.

7 EXPENDITURE

Expenditure on EL 7143 during the anniversary year totalled $9,442. Details of this expenditure are listed below as Table 1.

Field Expenses	$337
Assays	$348
Consumables	$75
Drafting and Computing	$224
Mapping and aerial photography	$300
Report Preparation	$300
Motor Vehicle Costs	$470
Wages and Salaries	$5,500
SUBTOTAL	**$7,554**
10% N.T. Administration	$755
15% Head Office Administration	$1,133
TOTAL	**$9,442**

Table 1.

8 PROPOSED PROGRAM

Because of the disappointing results the tenement will be surrendered.

Appendix 1

Soil sample assay results

ANALABS

A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

Phone (089)472355

Cnr Coonawarra & Mataram St Winnellie NT

Fax (089)843984

ANALYTICAL REPORT No. 10755.21.05506

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:

Northern Gold N.L.
c/- Post Office
Adelaide River
NT 0896

ORDER No.	PROJECT
N 01042	

DATE RECEIVED	RESULTS REQUIRED
20/09/91	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES
4	30/09/91	1

TOTAL No. OF SAMPLES: 74

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
15701/9,15501/05	RO Prep : GP019,GP009	Au,Au(R),Au(S)/GG313
15710/69	SO Prep :	Au,Au(R),Au(S)/GA340

REMARKS

RESULTS TO

Attn. Michelle Stokes
Northern Gold N.L.
c/- Post Office
Adelaide River
NT 0896

RESULTS TO

RESULTS TO

ANALABS

A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	110755.21.05506	30/09/91	N 01042	1 OF 4

TUBE No.	SAMPLE No.	Au	Au	Au(R)	Au(S)	Au(R)	Au(S)			
1	15501	0.013	-	-	-	-	-			
2	15502	<0.005	-	-	-	-	-			
3			-	-	-	-	-			
4			-	-	-	-	-			
5			-	-	-	-	-			
6			-	-	-	-	-			
7	15702	<0.005	-	-	-	-	-			
8	15703	0.010	-	-	-	-	-			
9	15704	0.007	-	-	-	-	-			
10	15705	0.007	-	-	-	-	-			
11	15706	0.006	-	-	-	-	-			
12	15707	<0.005	-	<0.005	-	-	-			
13	15708	<0.005	-	-	-	-	-			
14	15709	0.007	-	-	-	-	-			
15	15710	-	0.43	-	-	-	-			
16	15711	-	10.93	-	-	-	-			
17	15712	-	0.15	-	-	-	-			
18	15713	-	1.00	-	-	-	-			
19	15714	-	1.00	-	-	-	-			
20	15715	-	0.34	-	-	-	-			
21	15716	-	0.35	-	-	-	-			
22	15717	-	0.15	-	-	-	-			
23	15718	-	0.31	-	-	-	-			
24	15719	-	0.21	-	-	-	-			
25	15720	-	0.26	-	-	-	-			

Results in ppm unless otherwise specified
T = element present, but concentration too low to measure
X = element concentration is below detection limit

AUTHORISED OFFICER R van Blommestein

ANALABS

A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	110755.21.05506	30/09/91	N 01042	2 OF 4

TUBE No.	SAMPLE No.	Au	Au	Au(R)	Au(S)	Au(R)	Au(S)			
1	15721	-	0.81	-	-	-	-			
2	15722	-	<0.15	-	-	-	<0.15			
3	15723	-	<0.15	-	-	-	-			
4	15724	-	0.29	-	-	-	-			
5	15725	-	<0.15	-	-	-	-			
[illegible]	15726	-	<0.15	-	-	-	-			