# PINE CREEK GOLDFIELDS LIMITED

## FINAL REPORT
## WESTERN LEASES

**MCN 2384 - 2398**
**MCN 2430 - 2434**
**MCN 2541 - 2547**
**MCN 2555 - 2557**

## 1991 - 1997

PINE CREEK 1:100,000 MAP SHEET

MARCH 1997



Copies: Department of Mines and Energy
Pine Creek Goldfields Ltd.

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## CONTENTS



## FIGURES

## SUMMARY

The area termed the 'Western Leases' occupies a large area to the west of the Enterprise and Gandys Hill Mine Leases and includes the following mineral claims; MCN2384-2398, MCN2430-2434, MCN2541-2547, MCN2555-2557.

This area is located on the Pine Creek 1:50,000 and Pine Creek Special 1:10,000 scale map sheets.

Exploration over the area has been confined to airphoto interpretation and mapping with no significant mineralisation being delineated. Much of the area consists of granite and colluvium with minor greywacke and siltstone in the eastern portion.

Pine Creek Goldfields Limited acquired the tenements from Arimco NL in 1991.

The area has shown little potential for significant gold mineralisation due to the presence of the granite and the mineral claims have been recommended for relinquishment. This report details all work carried out by Pine Creek Goldfields during the period of tenure to March 1997.


## 1. LOCATION AND TENURE

The Western Leases covers an area of 518 hectares to the west and northwest of the Pine Creek township. These claims border on Pine Creek Goldfields mining leases MLN 1130 and MLN 13.

They are located between latitudes 13°48'S and 13°51'S and longitudes 131°47'E and 131°50'E (figure 1). The majority of the area is contained within the Pine Creek Special 1:10,000 scale map sheet. A small portion on the western edge lies outside this and can be seen on the Pine Creek 1:50,000 scale sheet.

The area consists of low to rolling topography, bordering on an escarpment to the west. Pine

# TENEMENT LOCATION

**MCN2384 - 2398, MCN2430 - 2434**
**MCN2541 - 2547, MCN2555 - 2557**

| | |
|---|---|
| Pine Creek NT | 18.4.97 |
| Scale: 1:10,000 | FIGURE: 1 |
| PINE CREEK GOLDFIELDS LIMITED | |

131°48'E

131°49'E

Darwin

STUART

HIGHWAY

Old Stuart Highway

13°49'S

13°50'S

Pine

Creek

MCN 2433
MCN 2384
MCN 2432
MCN 2385
MCN 2431
MCN 2386
MCN 2430
MCN 2434
MCN 2389
MCN 2387
MCN 2390
MCN 2555
MCN 2388
MCN 2556
MCN 2557
MCN 2391
MCN2392
MCN 2393
MCN 2394
MCN 2395
MCN 2541
MCN 2542
MCN 2396
MCN 2397
MCN 2398
MCN 2543
MCN 2544
MCN 2545
MCN 2546
MCN 2547

Creek flows in an east to southeasterly direction through the claims. Access is northeast from Pine Creek along the Old Stuart Highway and then via numerous tracks throughout the area which give reasonable access to all parts of the claims.

Pine Creek Goldfields acquired the mineral claims from Arimco NL in 1991.

## 2. GEOLOGY

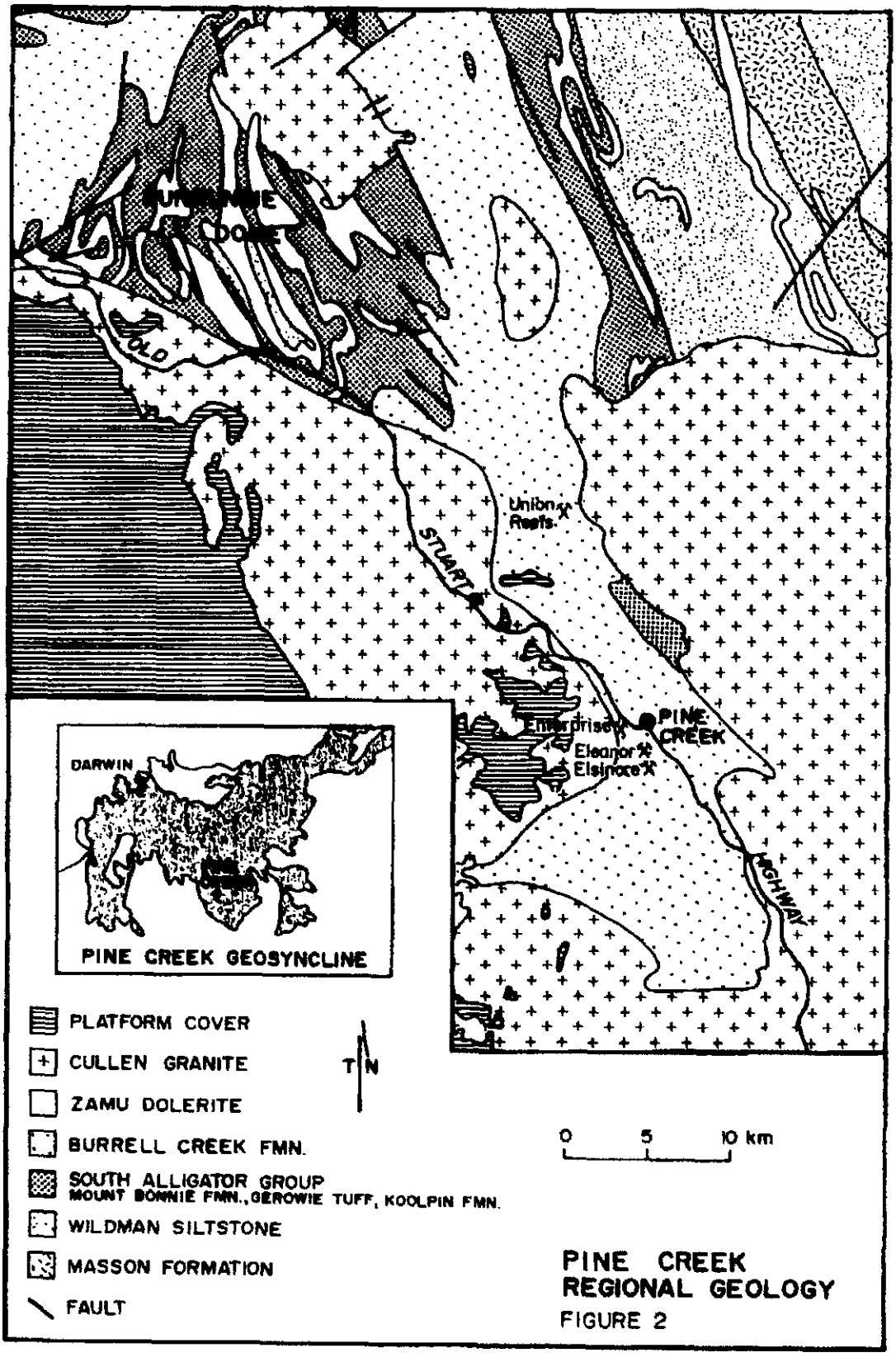
### *2.1 Regional Geology*

The Pine Creek Geosyncline is an elongate belt of Lower Proterozoic rocks up to 14,000m thick. It consists of a succession of predominantly metasediments and metavolcanics intruded by granitic complexes. The depositional environment ranges from shallow marine to supratidal and fluviatile for the majority of the sequence. These sedimentary rocks are deformed and metamorphosed due to the intrusion of numerous granite plutons (the largest of which is the Cullen Batholith) which have a minimum age of about 1,740 million years (figure 2).

Mesozoic sandstone capping (Petrel Formation) forms an elevated tableland to the west of Pine Creek.

The main gold mineralisation at Pine Creek is contained within the Lower Proterozoic sediments of the Burrell Creek Formation, and is related to early Carpentarion (early Middle Proterozoic) granites.

The Pine Creek gold deposits are typical of the vein type gold deposits which occur in the Burrell Creek Formation within a major NNW-SSE trending lineament (Pine Creek Shear Zone). This lineament extends from Katherine in the south to Noonamah in the north. Several gold and base metal deposits are located along this lineament. The Pine Creek Shear Zone is characterised by tightly folded and faulted metasediments with some strike-slip faulting. The host rocks to




**PINE CREEK REGIONAL GEOLOGY**

FIGURE 2

mineralisation in this area are greywacke, slate and siltstone.

Locally, a well-bedded succession of metamorphosed rocks (shale, siltstone, greywacke, quartzite, spotted hornfels sediments and pebble conglomerate) are folded into southerly pitching anticlines which can be traced for over 3km. Bedding strikes approximately 310°-320° magnetic, and limbs of the anticlines dip at 60°-80°. The rocks are siliceous, chloritic and fine to medium grained. Within the sediments and generally parallel to bedding are a number of massive mineralised quartz reefs. The anticlinal saddle reefs are usually concordant to bedding and have the same plunge as the anticlinal axes.

Sulphide minerals that have been recognised at Pine Creek include ; pyrite, arsenopyrite, pyrrhotite, galena, sphalerite, chalcopyrite, bismuthinite, tetrahedrite, covellite and marcasite. Gold occurs in places as discrete accumulations and also as inclusions in arsenopyrite and pyrrhotite, and as intergrowths with bismuthinite in massive pyrrhotite. Some pyrrhotite is recrystallised to pyrite and can also contain gold.

### *2.2 Local Geology*

Granite outcrop from the Cullen Batholith and colluvium covers the majority of the claim area (figure 3). The eastern edge of the area is underlain by consistently west dipping medium to coarse grained greywacke with minor grit and siltstone. A small sandstone escarpment (Petrel Formation) is located on the western edge of the area overlying the granite.

Quartz veining in the area is minimal and is associated with minor faulting or occurs as bed parallel veining. Two rock chip samples returned assays of 0.92g/t and 0.7g/t Au. The higher result is associated with a small white quartz subcrop. The lower assay was returned from float of vitreous white to grey quartz containing minor arsenopyrite. These results were considered to be isolated and confined to local veining only (Dufty, 1991). Barren quartz float is present within the area of granite. No significant mineralisation was outlined and the area is considered to have

804000mE

131°49'E

8471000mN

13°49'S

Cs

LEGEND

- X Cullen Batholith
- greywacke
- siltstone
- sample location (Au ppm)
- quartz vein
- bedding dip
- escarpment
- Cs colluvium

0.79

0.04

0.01

0.05

0.01

0.92

0 100 200 300 600 m

PINE CREEK GOLDFIELDS LIMITED

# LOCAL GEOLOGY

PROJECT: WESTERN LEASES STATE: NT

DATE: MARCH 1998 DRAWN Date

SCALE: 1:10,000 FIGURE No. 3

limited potential for substantial gold mineralisation.

## 3. EXPLORATION HISTORY

The area has undergone minimal exploration activity. Previous work carried out by Arimco NL appears to have been limited to ground reconnaissance work and surveying of lease pegs. The majority of their exploration work was concentrated on the Gandys Hill Leases to the east of this area.

Subsequent work by Pine Creek Goldfields has consisted of airphoto interpretation and mapping. Mapping by Dufty (1991) in the southeast corner of the area indicated that greywacke was the main sediment type. Minor quartz veining was present as bed parallel white to grey quartz blows or associated with faults.

Brief mapping of the area has also been undertaken by Marjoribanks (1991) and to a lesser extent Fawckner (1991). No significant mineralisation was delineated.

No exploration has been carried out since Pine Creek Goldfields ceased mining in 1994.

## 4. RECOMMENDATIONS

No further work is recommended for the Wester Lease Area.

## 5. REFERENCES

Dufty, M., 1991. Mapping of the Western Portion of MLN 13. Pine Creek Goldfields internal memorandum.

Fawcett, C.J., 1994. Pine Creek Goldfields Limited, Annual Report, Western Leases, MCN 2384-2398, MCN 2430-2434, MCN 2541-2547, MCN 2555-2557, MCN 184. Unpublished report to the NTDME.

Fawckner, J.F., 1991. Report on 1:25,000 scale mapping of the Pine Creek Corridor. Pine Creek Goldfields internal report.