# WesternDesert

# ANNUAL REPORT

## **HOPEFUL STAR MINERAL LEASES**

MLC 624 and MLC 632

## For the Period 1/1/2011 to 31/12/2011

by

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Target Gold, Base Metals February 2012

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## **ABSTRACT**

The Hopeful Star Project consists of two Minerals Leases within the Tennant Creek goldfields on which there are historical "Hopeful Star" and Hopeful Star Extended" workings with an estimated total past production of about 2638 tonnes at a head grade of more than 9g/t gold.

No production has occurred during the current reporting period, however a compilation of historical exploration and the current high gold price has led to the conclusion that drilling is warranted to investigate the potential of the lease to host an open pit-able gold resource. Eight rock chip samples were collected during a reconnaissance field visit, with low levels of gold anomalism reported up to 0.068 g/t.

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## **DIGITAL FILE LISTING**

FileName	Format
HopefulStar_2011_A_01_ReportBody	pdf
HopefulStar_2011_A_02_rockchips	txt
HopefulStar_2011_A_03_rockchipsQAQC	pdf

#### 1. **LOCATION AND ACCESS**

The Hopeful Star Mineral Leases are located only 16km east-northeast of Tennant Creek township and cover a total area of about 9 Ha (Figure 1). The leases are located on the Tennant Creek 1:250,000 Geology Map and lie within Pastoral Lease 1142. Access is via unsealed road from Tennant Creek.

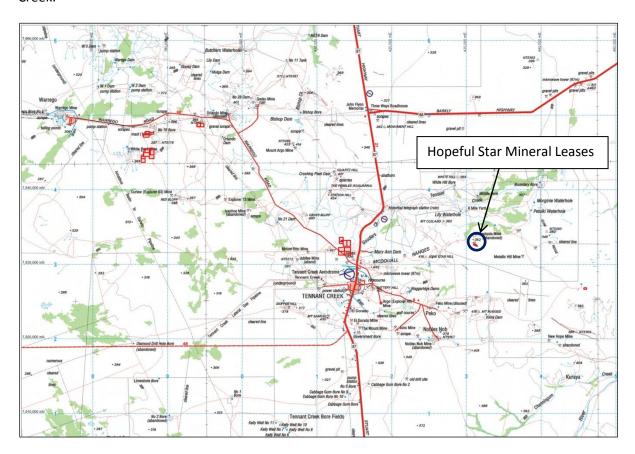


Figure 1: Location of Hopeful Star Mineral Leases

#### 2. **TENURE**

Mineral Leases 624 and 632 were first granted in 1981 (originally as GML813E and GML829E respectively) to local prospectors in Tennant Creek. A lease summary is provided in Table 1. The titleholders have changed hands many times since then, and operated under a number of joint ventures, and culminated in WDR purchasing the tenements from Tennant Creek Gold (NT) Ltd as part of the company float in July 2007. Both leases were renewed together in 2004 and the term of the both leases expired 31/12/2011 and renewal applications have been submitted.

**Table 1: Hopeful Star Lease Summary** 

Lease No.	Lease Name	Area	First Grant	Last Renewal
MLC624	Hopeful Star Extended	5 Ha	27/4/1981	24/11/2004
MLC632	Hopeful Star	4 Ha	31/7/1981	24/11/2004

There is some confusion with regard to the digital version of the precise lease boundary location. The lease corners are well pegged, however they do not correspond with that shown in the NT Department of Resources Titles Division. The digital version on the Titles Information System shows that the old workings do not in fact plot within the leases. Consequently, WDR Ltd arranged for GPS verification of the lease posts, which confirm that that the old workings do indeed fall within the lease boundaries. Both versions of the lease locations are shown in Figure 2. However, there are still some discrepancies in the shapes not matching, which may be due to GPS accuracy (in non-differential mode) or to incorrect posts being measured.

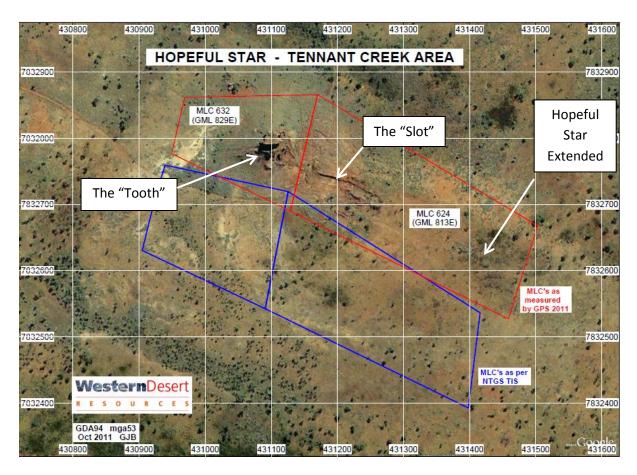


Figure 2: Location of Hopeful Star Mining Leases

## 3. GEOLOGICAL SETTING

The Tennant Creek Goldfield is located within the central Tennant Creek Block of the Paleoproterozoic Tennant Creek Inlier. The oldest rocks of the block are the metasedimentary rocks of the Warramunga Formation, which hosts the ironstone-gold-copper-bismuth mineralisation of the field. The formation is comprised of a sequence of argillaceous sedimentary rocks that includes greywackes, siltstone, shale and units of haematitic-magnetite shale. It has been subjected to three phases of deformation. The first phase formed tight to isoclinal folds with an east-west axis, the second formed west-northwest trending faults and shear zones, and the last, northwest trending faults (Figure 3).

Following deformation and uplift of the basement, the volcanics and volcaniclastics of the Flynn Group were erupted, with intrusion of porphyries and minor granitoids into the Warramunga Formation.

The Au-Cu-Bi mineralisation in the goldfield occurs in transgressive magnetite- and haematite rich bodies within the Warramunga Formation. The bodies, locally referred to as ironstones, have an ellipsoidal to pipelike shape commonly flattened in the direction of the east-west cleavage. Chloriterich pipes of hydrothermal alteration extend vertically below the orebodies. Only a relatively small number of the ironstone bodies in the field, however, are mineralised.

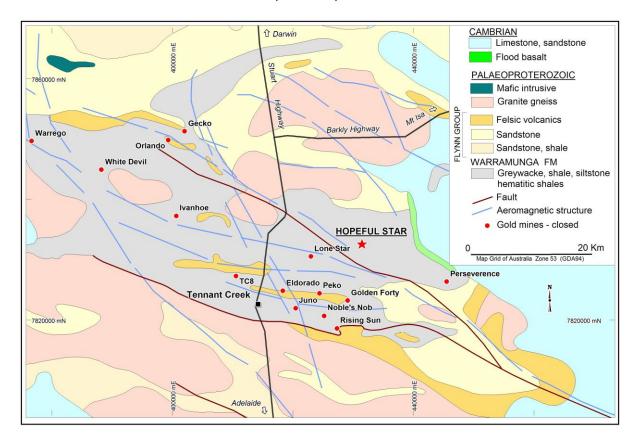


Figure 3: Geological Map of Tennant Creek Area

## 4. PROJECT GEOLOGY

The Hopeful Star tenements are located over rocks of the Warramunga Formation, subcrop of which occurs in the western half of the leases. The Warramunga Formation is folded and cleaved, the fold axis following the regional west-northwest direction. The formation includes shales siltstones and greywackes. Some siltstone units contain fine hematitic banding. The quartz-ironstone breccias contain quartz-jasper-hematite, massive hematite rock, and quartz-hematite variants.

A mineralised shear trends west-northwest through the main workings, and a number of minor faults and shear zones have been mapped in the old workings. Hematitic and kaolinitic alteration is present within, and adjacent to, the shear zone.

Outcrop is mainly limited to the area around "The Tooth", which is a prominent conical hill which rises approximately 25m above the surrounding ground surface (Figure 2). The rocks largely consist

of schistose siltstones and shales which have an approximate east-west strike and generally dip to the north at between 50° and 80°. Evidence of folding is confined to an exposed anticlinal axis located about 60m east of the Tooth. The fold plunges shallowly at about 10o towards the ENE. The Tooth itself represents the pallid zone of a lateritic profile.

A number of shears have been mapped in the old workings, within and adjacent to rocks that are hematised and kaolinised. A lens of fault breccia is present on the crest and northern flank of the Tooth. It is composed of quartz-jasper-hematite and includes some massive ironstone material. Another ironstone body subcrops about 90m north-northwest of the Tooth.

The depth of oxidisation has been estimated at about 40m.

## 5. MINING HISTORY

Historical workings consist in total of five shallow shafts, one adit and a small open pit, dotted along the length of the leases. The information below has been sourced from a number of references listed in Section 9 of this report.

The original "Hopeful Star" mine is located on the south side of "The Tooth". The original shaft was 38 feet deep leading to a large east-west aligned stope, which is now collapsed. There is believed to be approximately 70m of underground drives once accessed from the adit.

The recorded production at Hopeful Star is estimated as follows:

- Prior to June 1952, 1641 tonnes of ore were produced which yielded 5,303 grams of gold, for an average grade of about 3.23 g/t Au. Tailings averaged 2.84 g/t, indicating a head grade of about 6.1 g/t Au (Ivanac, 1954).
- Production resumed intermittently between 1969 and 1978, with total recorded tonnage being 997.2 t, treated by the Tennant Creek Battery. It is believed that 383.6t of this total were extracted from shafts located some distance from the original "Hopeful Star" mine. This ore yielded a total of 8450g of fine gold, at an average grade of 22 g/t Au, with tailings averaging 6.7 g/t Au, for a head grade of about 28.7 g/t Au. The remaining 613.6 t is believed to have been dump material from various locations, including dumps from the original "Hopeful Star" mine. This ore yielded 1409g of gold at an average grade of 2.3 g/t Au, with tailings averaging about 0.7 /t Au, for a head grade of about 3g/t Au.

In total therefore, it is calculated that for the total of 2,638.5 t of ore produced from the area, that the average grade was about 5.75g/t Au, with a recovery of 61% (or head grade of 9.4 g/t).

## 6. PREVIOUS EXPLORATION SUMMARY

There has been considerable previous exploration on the Hopeful Star Mining Leases, summarised in Figure 4 and discussed briefly below. Information has been compiled from the references listed in the "References" section of this report.

The first known exploration of the prospect area was by United Uranium NL in 1957. This work was confined to underground sampling of the easternmost pair of shafts at "Hopeful Star Extended" mine, which returned 14g/t over 3.7m width and 18g/t over 3.1m width.

In 1967, the BMR drilled two diamond drill holes totalling 255m underneath the original Hopeful Star mine (the Tooth). The drilling returned a best intersection of 0.3m@ 1.6g/t Au. Nine dump samples were also taken, averaging 1.06 g/t Au. The BMR later drilled 21 shallow vertical percussion holes to the east of the main shaft at what is now known as the "Slot" (Figure 2), for best intersections of 3m@ 29g/t Au and 6m @ 14.5 g/t Au. This latter area was worked to a maximum depth of 11.5m.

In 1970-71, Geotechnics Pty Ltd explored the area for base metals. A grid was constructed and exploration included geological mapping, ground magnetics, bedrock geochemical sampling (on about 120m grid spacing), underground mapping and sampling. Analyses were only for base metals.

In 1987, Tennant Creek Gold Ltd took up the leases and completed 3 RC holes ("HPD" series) totalling 224m with a best intersection of 2m @ 1.71g/t Au.

In 1989, Metana Minerals in JV with Tennant Creek Gold (NT) Pty Ltd completed a substantial program which included gridding, soil and rock chip sampling, 94 RAB holes (282m), 93 Vacuum holes (198m), five open hole inclined percussion drill holes ("HAT" series totalling 139 metres), RC drilling ("HRC" series- 6 holes totalling 241 metres) and a ground magnetometer survey. The ground magnetic survey on a 20x5m grid over the "Tooth" showed a weak anomaly over the Tooth. Best drilling results at the Tooth were 26m@ 1.04g/t Au from 13m, including 6 m@ 3.92 g/t Au. Channel sampling within the Tooth resulted in a best intersection of 6g/t Au over 2m width and channel sampling of the old workings returned best results of 4m@ 2.8 g/t Au and 4m @ 6.2 g/t Au. The shallow geochemical drilling outlined a broad (150x25m), coherent linear anomaly (Au, Bi, Cu, Pb) which parallels the known trend of mineralisation.

In 1990 after Metana withdrew from the JV, Tennant Creek Gold (NT) Pty Ltd drilled a further 50 Vacuum bedrock holes (100m) on geochemical anomalies and a further two 20m holes ("VDH" series) at the eastern side of the collapsed shaft in the Slot area, from which results included 12m metres averaging 3.8 g/t gold, including 1 metre @ 10.26 g/t gold.

In 1991, Roebuck in JV with North Flinders Mines Ltd re-drilled a further 21 RAB holes (63m) in order to confirm previous results. This work confirmed previous assay grades.

Between 1992 and 1995, 442 vertical RAB holes (totaling 2,098 metres), 28 inclined percussion holes ("HSG" series totaling 1,230 metres) and 3 RC holes (totaling 230 metres) were drilled. The inclined RC holes were drilled on a single north-south traverse west of the Tooth, intersected massive ironstone (up to 5.5 metres wide) with a best result of 2 metres averaging 0.95 g/t gold.

The tenements became part of a JV agreement between PosGold (Normandy Gold Pty Ltd) and Tennant Creek Gold NL in 1996. There is no record of any further exploration being carried out.

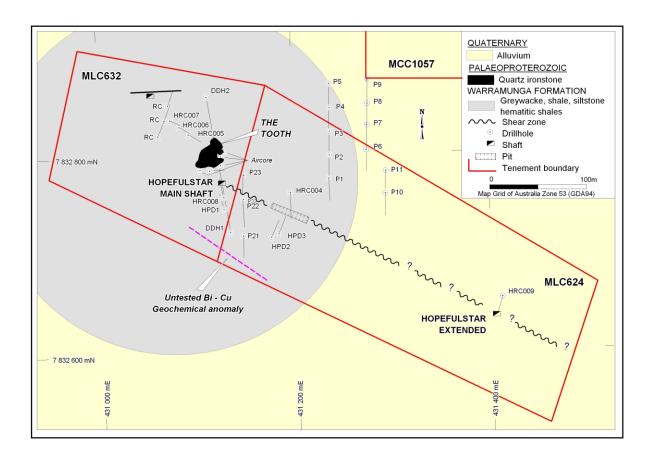


Figure 4: Summary of exploration at Hopeful Star

## 7. EXPLORATION THIS REPORTING PERIOD

Following an internal review of its exploration assets during the year, WDR decided that the tenements which were inherited following corporate activity were of interest given the current gold price.

Work undertaken during the reporting period was predominantly compilation of historical exploration (as described in previous sections) and analysis of the data. An initial field visit by a local contractor was arranged in order to confirm the location of the lease (see Section 2. This confirmed that the digital location was incorrectly plotted on the Titles Information System (TIS website).

A second reconnaissance field trip was undertaken in order to identify logistical and access requirements for exploration activities, during which eight rock chip samples were collected, with low levels of gold anomalism in all samples and a best grade of 0.068g/t. Sample locations are shown in Figure 5 and data is provided in digital format accompanying this report.

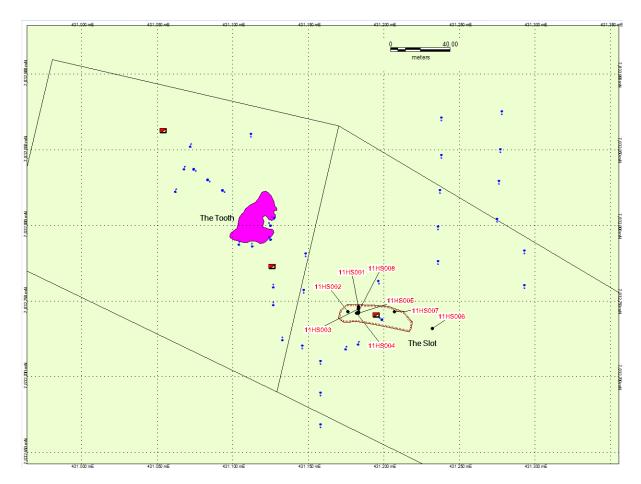


Figure 5: Rock chip sample Locations

### 8. CONCLUSION AND RECOMMENDATIONS

On first pass assessment, the amount of previous work appears to be significant, with five shafts located along the length of the leases and many drill holes. However, the extent of these workings has been rather limited, having tested only a very small strike length of the mineralised shears, and to limited depths (above 20m). The majority of drill holes are shallow RAB holes to only a few metres depth, which only tested a very small part of the weathering profile, and suffered from surface drainage contamination of grade. The quantity of bedrock testing is very limited- the deepest drilling has tested the mineralised shear in one location to a vertical depth of only 75m (Figure 6). High grades have been encountered near surface in all the development, but the primary zone has not been identified. It is likely that supergene enrichment has caused the near surface high grades, and it is equally likely that some of the deeper drilling has intersected the leached (barren) zone beneath.

In terms of remaining targets, Tennant Creek Gold NT Pty Ltd identified a possible heap leach situation to recover low grade gold remaining beneath the Tooth (Figure 6). Further targets may be presented by repetition of ore zones formed by the two opposing fault sets (steep northerly and moderate-steep southerly dipping). These faults blocks could result in significant ore blocks below and adjacent to the current workings. Existence of these fault blocks has been not been evaluated in past drilling.

Two of Metana's bedrock geochemical anomalies remain untested to date, which potentially indicates the presence of more mineralised shears. The area between the "Slot" and Hopeful Star Extended is another area which has not been tested with drilling (approximately 200m strike length).

Prior to further on-ground exploration, the lease boundaries need to be accurately surveyed and historical data needs to be digitised to undertake 3D interpretation. An RC drilling program will be designed early in 2012 to test some of the identified targets and pending renewal of the leases and necessary approvals, it is anticipated that drilling will be able to commence next year.

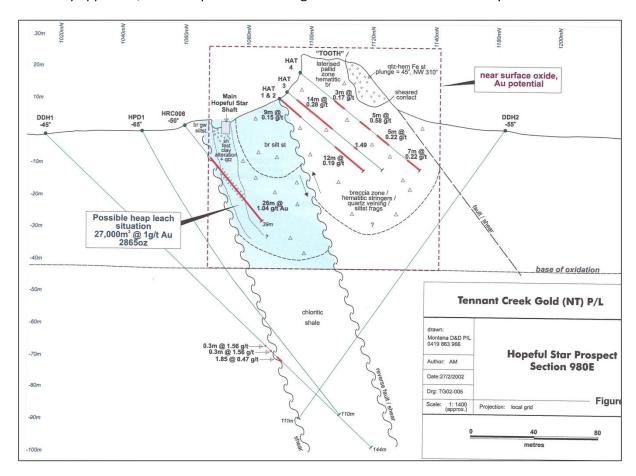


Figure 6: Cross section beneath The Tooth showing potential heap leach target

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