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Operator Union Extended

Titles/Tenements

MLN'S 775, 776, 777 & 778

MCN'S 570, 571, 697, 698 & 1556

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- **Union Extended Project map [Google Earth]** 1.
- 2. Nine Expenditure Reports, one for each tenement

1.0 EXECUTIVE SUMMARY

This report details activity carried out during 2008 by Ian Genat within the Union Extended Project, MLN's 775, 776, 777 & 778, and MCN's 570, 571, 697, 698 and 1556. Some surveying work across several tenements and remedial rehabilitation on MLN777 were completed during the reporting period. The Union Extended Project has been placed on a care and maintenance regime while surveying and mapping of site infrastructure, historical workings and previous drill intersections of interest are carried out to identify exploration targets.

2.0 LOCATION AND TENURE

The MLN's and MCN's are located 22km North of Pine Creek, in the Union Extended Mine. Access is via a 4km track from the Mt. Wells road. A location map is appended.

MLN's 775 – 778 inclusive were granted to Ian Genat during 1978. MCN's 570 and 571 were granted during 1983, MCN's 697 and 698 were granted during 1984, MCN 1556 was granted during 1987, and MCN's 325, 326 and 875 were transferred during 1993. MCN's 875 and 326 were surrendered at the end of 2006; MCN 325 was sold during 2007.

3.0 GEOLOGY

The tenements are located within the Pine Creek Geosyncline. The geology consists of sheared shales and siltstone of the Lower Proterozoic Burrell Creek Formation with numerous outcrops of intrusive basalt and dolerite. The sediments generally strike in a north to north-westerly direction and dip steeply to the west. The sediments are strongly sheared in a direction parallel to bedding.

Quartz veins are common in the area. They are generally thin (few mm - 10 cm) but increase in intensity and thickness adjacent to and within the shear zone. Veins of 25 to 50cm thicknesses, and in parallel swarms, are common in the shear zone. Most of the veins strike northeast and dip 40° to 60° to the north-west. The continuity of the veins is poor, with 5 to 10mm long 'pinch and swell' controlled lenses.

The presence of shears and well-developed cleavage has made difficult the recognition of the degree and type of folding in the area. Numerous, tight folds have been mapped both to the east and west of the Union Extended Mine (Stuart-Smith et al., 1981) and it is probable that a similar style of folding exists in the mine area. The parallelism of individual beds that have been recognised suggests that the folding is isoclinal. The presence of isoclinal folds has also been inferred by Shields et al. (1967) in the Union Reefs area, 8 km south of the Union Extended Mine.

4.0 PREVIOUS EXPLORATION

4.1 Mines Branch Assisted Exploration

4.1.1 1978

During 1978 the Department of Mines and Energy conducted a diamond-drilling program. The geologist in charge of the operation was A.W. Newton. Three diamond drill holes totalling 270 metres were placed under the old workings on MLN 775. All drill core was geologically logged and 55 split core samples were forwarded to the East Point Laboratories, Department of Transport and Works, for assay. The samples were assayed for gold, silver and bismuth.

<u>D.D.H. 1</u> was depressed 45° on a bearing of 60° magnetic and was designed to test whether gold mineralisation persisted at depth below an area of numerous pits and shafts some 75m north-west of the open pit. The hole intersected interbedded slate and greywacke throughout. Numerous narrow quartz stringers were encountered and two quartz vein systems of note were intersected between 81.0m and 81.9m and between 94.6m and 95.6m. Both vein systems consisted of numerous quartz stringers with inter-bands of slate, the quartz contained minor pyrite. Only one gold assay above the detection limit was noted, this was in the vein system between 81.0m and 81.9m where an assay of 3.5 g/t was recorded over the interval 81.4m to 81.9m.

<u>D.D.H. 2</u> was depressed 50° on a bearing of 60° magnetic and was designed to test whether gold mineralisation continues at depth below the open pit. Siltstone was the main rock type intersected with lesser interbeds of slate and greywacke. An altered basalt sill was intersected between 56.4m and 63.0m. The basalt was commonly veined with carbonate material with minor pyrite and chalcopyrite associated with some of the carbonate veining. A system of narrow quartz veins was intersected between 32.0m and 32.5m. All gold assay results for this drill hole were below the detection limit of 0.2 g/t.

<u>D.D.H.3</u> was depressed 45° on a bearing of 70° magnetic. The hole was sited about 110m south of the open pit and was designed to intersect any southern extension of gold mineralisation inferred by the general attitude of the workings to the north of the open pit. The hole intersected interbedded chloritic slates and greywacke with two narrow bands of altered igneous material between 9.9m and 11.2m and between 53.5m and 57.2m. The interval 69.0m = 80.5m may represent a broad complex lode system. In the interval there are many quartz stringers containing pyrite, galena and some sphalerite as well some sections of sediment contain sulphide material as blebs or veinlets. However all gold assay results for this drill hole were below the detection limit.

For further details consult Northern Territory Geological Survey Report GS 79/8, by A.W. Newton.

4.1.2 1980

During 1980 A.W. Newton and L. Bagas completed an investigation of the Union Extended gold mine which comprised geological mapping of the lease areas of 1:5000 scale and sampling of the various workings and dumps within the leases. Traces of gold up to 4.6g/t were recorded in a quarter of the samples but no significant concentrations of gold were found in the mine workings or dump.

An I.P. Resistivity Survey was also completed during 1980 in MCN 571 over the lead workings. No report was supplied apart from a hand drawn graph of the results.

4.1.3 1984

Colin Hallenstein completed a Geological Survey of the underground workings during 1984. He mapped the old underground workings that had previously been cleaned out by the tenement holders, and proposed further possible exploration.

For full details consult Northern Territory Geological Survey GS 84/3, by Colin Hallenstein.

4.2 Gold Fields Exploration Pty Ltd

Gold Fields Exploration assayed five rock chip samples from various locations within the subject leases during October 1984. The best result was 0.717ppm Au. Due to the low values returned no further interest was shown.

4.3 Pacific Goldmines NL Exploration

Pacific Goldmines undertook a program of mapping, costeaning and drilling utilising the services of Eupene Exploration Enterprises between 1986 and 1987. The purpose of the work was to delineate a sufficient tonnage of ore to establish a hard rock treatment plant on site or transport high grade ore to Moline where Pacific had established a CIP gold treatment plant.

Results of the work were discouraging. Mineralisation appeared to be confined to a limited strike and to the intersections of a shear and shallow dipping joint system within a favourable coarser grained host rock. The resultant mineralisation was modelled as a steeply dipping pipe like body. The grade of the mineralisation was however, low to moderate (1-6 g/t Au) and appeared from the drilling to be erratic.

Problems were experienced with the drilling. Ore recovery was not as high as anticipated due to the vuggy nature of the quartz veins. Problems with water contamination of a nearby alluvial operation, which would not allow use of drilling additives, added to the difficult drilling conditions. Twelve pre-collared HQ holes were drilled, most of these being in the location of most prior hard rock production. After the conclusion of the program, the results were examined with a view to testing the concept that a large low-grade resource may be present. A model following the familiar Pine Creek Geosyncline style of mineralisation associated with axial plane fracturing associated with tight folding was seen as the most suitable.

It was concluded that such a resource was possible however, additional work was required. Reconnaissance work over the adjacent EL4706 showed no readily definable mineralisation was present and it was allowed to lapse.

For full details refer to the Pacific Goldmines NL, Union Extended Prospect Report.

4.4 Dominion Gold Operations Pty. Ltd. Exploration

Exploration completed by Dominion during 1993 included literature compilation, griding, geological mapping at 1:1 000 scale, rock chip sampling, soil sampling, costeaning, vacuum/air core drilling and RC drilling.

Detailed exploration around the old Union Extended workings identified two distinct areas of anomalous mineralisation, namely the Main Ridge and East Ridge prospects. Mapping and rock chip sampling at East Ridge defined a flat lying quartz vein set with associated fault structures. RC drill testing returned poor results with peak intercepts of 1m @ 14.3 g/t and 1m @ 0.99 g/t Au.

Costeaning across the Main Ridge targeted areas of substantial rock chip anomalies. Peak values of 1m @ 9.39, 1m @ 5.46 g/t Au were received. No RC drilling was undertaken at the prospect.

Soil sampling south of the Union Extended workings identified a number of anomalies including a south trending coherent 2km long anomaly outlined by the 10 pb Au contour. Peak responses of 2.06 and 1.36 ppm Au were received with 20 other values greater than 20 ppb Au. Ground inspection indicates a degree of alluvial contamination.

Vacuum/Air core drill testing of the soil anomaly returned poor results with a maximum value of 15 ppb Au.

For full details refer to the Dominion Mining Ltd., Union Extended Project, Genat Option Report.

4.5 Moline Management Pty Ltd

In July 1991 Moline Management conducted an analysis of the oversize stockpiled at the Union Extended, finding that gold grades were, as suspected, very low, possibly due to the high slate content in the oversize. Five 200 litre drums of alluvial oversize were collected from various locations in the oversize stockpile. The material was crushed to minus 10mm and then nominally ground to minus 1mm. Four sub-samples were split from each of the drums (approximately 5kg each) and assayed for gold. The assays ranged from <0.01g/t to 0.19g/t, averaging 0.05g/t.

4.6 Union Extended Exploration

4.6.1 Chinese Shaft

In December 1978 the Chinese Shaft on the old Prospecting Claim was cleaned down to 21.5m, after which the inflow of water was too great for the existing pumps. In July 1980 two diaphragm pumps were purchased and installed down the shaft, allowing the cleanout to proceed down to the 27m level, where inflow of water again defeated the pumps. In October 1980 purchase and installation of a 4" Mono pump allowed the completion of the shaft cleanout to 33.2m. Once the old workings were pumped out, water inflow was approx. 3000gal/hr. With Mines Branch assistance these underground workings were mapped. The details can be found in Colin Hallenstein's report, referred to in 5.1.3 above. Water Resources tested water from this shaft during the 1980's. The results showed levels of arsenic in the water 30 times higher than that allowed for human consumption. Iron levels were three times too high.

4.6.2 Costeaning

In the second half of 1995 nine costeans were cut in various parts of the subject leases and claims. Only the prospective areas in the costeans were sampled and assayed. The assay results are discussed below:

Costean No. 6: An old costean on the Prospecting Claim that was cleaned out and resampled. A total of 15 samples were taken within a distance of 20m. Only two samples registered over 0.5g. Samples from 2.5m to 3.5m gave an assay result of 7.56ppm, and samples from 5.6m to 5.8m gave a result of 1.81ppm.

Costean Nos. 7 & 8: Each of these costeans was cut 3m long to intercept quartz veins. Only the veining was sampled and assayed with results of 0.62ppm and 0.16ppm respectively.

Costean No. 10: An earlier costean on Pender's Hill was cleaned out and re-sampled. Four samples were taken at 1m intervals from within the 14m to 17m marks, averaging 0.15ppm.

Costean Nos 11, 12 and 13 were cut to test for a continuation of the ore body that had been previously worked at the Isabel.

Costean No 11: Five samples were taken at 1m intervals from within the 3m to 8mtr marks, with assays ranging from 0.04ppm to 0.21ppm, averaging 0.09ppm. One sample from the 12.5m mark gave 0.07ppm.

Costean No 12: Three samples at 1m intervals from within the 2m to 5m marks returned assays ranging from 0.16ppm to 1.01ppm, averaging 0.46ppm.

Costean No 13: Five samples at 1m intervals from within the 5m to 10m marks returned assays ranging from 0.03ppm to 0.48ppm, averaging 0.29ppm.

Costean No 14: This costean was cut to intercept quartz veining north of the Prospecting Claim. Seventeen samples were taken at 1m intervals from within the 1m to 18m marks. Assay results ranged from 0.03ppm to 0.37ppm, averaging 0.1ppm.

Costean No. 15: This costean was cut to intercept quartz veining on the north eastern side of the subject leases. Ten samples were taken at various discontinuous intervals up to the 23m mark. Assay results ranged from 0.02ppm to 0.65ppm, averaging 0.17ppm.

4.6.3 Company New Shaft

At the beginning of 1996 a concrete collar was constructed and a headframe erected on the existing Company New Shaft in the old Prospecting Claim. An electric winch was purchased and partially set up in preparation for cleaning out the shaft.

Work on Stage 1 at the Company New Shaft began in November, 2004. Installation of collar infrastructure including knocker lines and safety fences was completed. The shaft was cleaned out with shovel and kibble, and ladder ways progressively installed. A 4kW blower fan with 300mm ventilation bags provided shaft ventilation. The shaft was originally clear to a depth of approx. twenty-four (24) meters. A further five (5) meters were cleaned out to the end of 2004.

Stage 1 of the work on the Company New Shaft was completed during January to March, 2005. The existing shaft was cleaned out with shovel and kibble, and ladder ways installed. Some rock bolting and meshing were installed on weak areas of the walls.

Detailed measurements of the shaft and drive were taken. The shaft measures 34.5 metres deep to the bottom of the sump. Two samples were taken from quartz veins in the walls of the shaft. Assay results were less than 0.2ppm Au for both.

Water pumped from this shaft while it was being cleaned out was sent to the tailings dam through existing piping via the alluvial plant.

4.6.4 Isabel

The existing shaft at the Isabel was partly cleaned out during May, 2005 and completed during December, 2005, using a portable headframe incorporating the mountings for air winches. A steel panel collar was cemented into the shaft walls. Mullock from the shaft was shovelled into a kibble and tipped around the outside of the collar to fill in the void. Some rock bolts were installed to secure weak sections of the shaft walls.

The shaft measured 14.8 meters deep to the bottom of the sump. Five samples were taken from several quartz veins within the walls. Assay results were all less than 0.2ppm Au.

Dewatering: Water from the shaft was pumped back in to the river.

5.0 PREVIOUS MINING

5.1 Lead Workings

During 1979-80 approximately 600 tonne of Galena ore were picked up from a mullock dump beside the old workings on MCN571 and put through the Mt Wells battery. The head grade was approx. 10% Pb with approx. 60% recovery. The concentrate grade was 67% Pb, with just a trace of silver. The old workings were cleaned out and re-timbered. No further work has been done on this area of the mine due to the fall in lead prices.

5.2 Gold Alluvial

Alluvial operations were commenced in September 1982 using a small plant having an average throughput of 7 m³ per hour. The plant consisted of a V-bin from which the dirt was sluiced into a trommel of (approx.) 0.9m diameter by 3m length. A 24" double-cell Inverell Jig was used to concentrate the gold.

In May 1983 a new 20 m³ bin was installed. A few months later a reciprocating plate feeder was added.

In December 1984 the trommel was replaced with a new trommel of 1.8m diameter by 7.3m length, and a second 24" Inverell Jig added. This upgraded the throughput to an average of $13 \text{ m}^3/\text{hr}$.

In April 1986 the reciprocating plate feeder was replaced with an apron feeder. In June 1986 the two Inverell Jigs were replaced with a new three cell tapered jig, further increasing the throughput to an average of 23 m³/hr. In August 1986 a D8H dozer was purchased to push off overburden and to push up the alluvial in preparation for loading and carting.

During June 1989 the alluvial plant was rebuilt on the existing site with an additional two meters of height. The existing main components were used, with the exception of the jig, which was replaced with a 30" Knelson Concentrator. This increased the average throughput to 30 m³/hr, increased the available tailings area, and generally made a tidier, more efficient plant.

Around April 1990 connection to mains power helped to reduce plant operating costs. A new 30 tonne excavator was purchased in June 1990, further improving mining efficiency and reducing mining costs.

With alluvial reserves almost depleted, full time mining ceased at the beginning of 1993. Contracting to other mining companies for exploration earthworks increased to full time during the dry seasons. Alluvial mining has been confined to a few small test parcels since 1993.

Overall approx. 193 342 m³ from the subject leases and claims has been washed, yielding 73 172 g of gold, resulting in an average grade of 0.38g/m³. A further approx. 53 147 m³ of alluvial was mined from other nearby claims along the McKinley River, yielding 18 038 g of gold, averaging 0.34 g/ m³.

During the last quarter of 2004 the worn apron feeder on the alluvial plant was replaced with a plate feeder constructed mainly from materials available on site. Areas of alluvial wash from MCN's 325 and 326 were treated and the pits and access roads rehabilitated.

2800 LCMs of alluvial from MCN326 yielded 1115g Au with an average grade of 0.4g/LCM.

624 LCMs of alluvial from MCN325 yielded 211g Au averaging 0.34g/LCM. 728 LCMs of tailings were retreated yielding 155g Au at 0.2g/LCM.

6.0 WORK CONDUCTED DURING REPORTING PERIOD

6.1 Exploration

Several survey points have been planted and the location of old workings surveyed using our theodolite. These locations have been entered onto the site map that is currently being developed.

7.0 REHABILITATION

Two areas of eluvial workings on MLN777 that had not revegetated well were contourripped early in 2008 to encourage better re-growth.

8.0 PROPOSED WORK PROGRAM

The Union Extended Project has been placed on a care and maintenance regime while surveying and mapping of site infrastructure, historical workings and previous drill intersections of interest are carried out to identify exploration targets.

9.0 ENVIRONMENTAL DISTURBANCE MINIMISATION

Disturbance is minimised by using existing tracks and working within areas previously cleared, where possible.

10.0 REFERENCES

- **10.1** Northern Territory Geological Survey Report GS 79/8, by A.W. Newton.
- 10.2 Northern Territory Geological Survey GS 84/3, by Colin Hallenstein.
- **10.3** Pacific Goldmines NL, Union Extended Prospect Report.
- **10.4** Dominion Mining Ltd., Union Extended Project, Genat Option Report.