



# Normandy NFM Limited

N o r m a n d y   T a n a m i   O p e r a t i o n s

annual report

## ANNUAL REPORT FOR MLS8 (THE GRANITES) COVERING WORK UNDERTAKEN FROM 15 MAY 2000 TO 14 MAY 2001

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### VOLUME 1 OF 1

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P.SIVWRIGHT

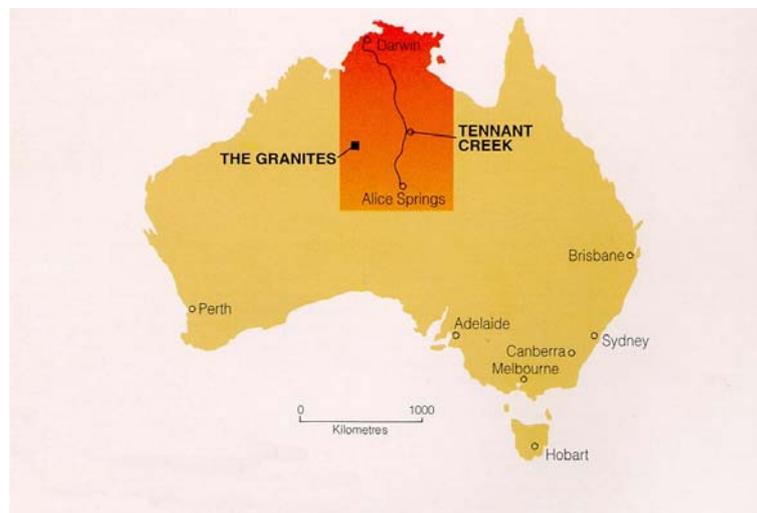
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**Title: Annual Report for MLS8 (The Granites) Covering Work Undertaken From 15 May 2000 To 14 May 2001**

**Report No: Normandy Report No 29108**

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## **SUMMARY**

In the year to May 2001 several new ideas were investigated with limited success. Exploration activity within MLS8 included; -

- Two diamond holes were drilled to test the depth and along strike potential of known mineralisation between Bunkers Hill and Twin Hills area.
- Rotary Air Blast (RAB) programmes were completed at the Ivy West and to the East of Bunkers Hill .
- Geophysical logging of a selection of diamond and RC holes

The probably continuation of the encouraging lithologies at Ivy West requires follow up work and further interpretation. .

A sterilisation programme was also completed at Bunkers Hill in readiness for planned re commencement of mining in late 2001.

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## 1. INTRODUCTION

Gold mineralisation was discovered at The Granites by A. A. Davidson in 1900 (Davidson, 1905) and intermittently worked along 9km of strike until the 1950's, yielding a recorded production of 470kg of gold. The geological environment, pre-existing exploration drilling results and an optimistic view on gold prompted acquisition of the property by Normandy NFM in 1975 (then North Flinders Mines Limited). An agreement was signed with the Central Land Council in August 1983 and drilling commenced in the same month. Production commenced on 1<sup>st</sup> July 1986.

Development and production priorities at the Callie deposit (MLS154) resulted in the suspension of mining activities and a significant reduction of the exploration program at The Granites.

All economically significant mineralisation at The Granites occurs within iron/sulphide silica rich zones adjacent to a major structure. Secondary influences include the presence of cross cutting structures, competency contrasts and favourable geochemistry.

## 2. TENEMENT DETAILS

MLS8 is a single mining tenement comprising an area of 2186 hectares. It is completely surrounded by EL4529, also held by Normandy NFM (Figure 1). Within MLS8 are eleven gold mining leases (GML), listed in Table 1. These leases were all allocated a MLS number for ease of reference. Exemption from work in the GMLs was granted by the Department in accordance with Section 71 of the Mining Ordinance 1939-1979.

MLS8 was granted to Normandy NFM in May 1984, and gold production commenced on 1<sup>st</sup> July 1986. Tenure is held until the year 2009.

**TABLE 1: Tenement Summary**

Title	Name	Hectares	Grant Date	Expiry Date
MLS8	The Granites	2186	15/05/84	14/05/09
MLS134 (GML60)	Shaman Hills	8	29/11/83	31/12/03
MLS135 (GML61)	Bunkers Hill	8	29/11/83	31/12/03
MLS136 (GML62)	Twin Hills 1	8	29/11/83	31/12/03
MLS137 (GML63)	Twin Hills 2	8	29/11/83	31/12/03
MLS138 (GML64)	Bullakitchie 1	8	29/11/83	31/12/03
MLS139 (GML65)	Bullakitchie 2	7.95	29/11/83	31/12/03
MLS140 (GML66)	Long Bottoms	8	29/11/83	31/12/03
MLS141 (GML67)	Golden Shoe 1	7.50	29/11/83	31/12/03
MLS142 (GML68)	Golden Shoe 2	8	29/11/83	31/12/03
MLS143 (GML69)	Quorn 1	8	29/11/83	31/12/03
MLS144 (GML70)	Quorn 2	8	29/11/83	31/12/03

### **3. LOCATION, ACCESS AND PHYSIOGRAPHY**

MLS8 is situated on the Granites (4956) 1:100,000 map sheet. It is located 550km north-west of Alice Springs and 50km south-east of Rabbit Flat, accessed by the Tanami Road which bisects the lease (figure1).

The field camps are located within MLS8 one to service mining personnel (Twin Hills) and the other to support regional exploration staff (Ivy).

The Tanami region is an arid zone and is largely covered by a veneer of windblown sand creating a gently undulating land surface. Cherty iron rich horizons form prominent crests.

### **4. EXPLORATION MINING HISTORY**

Gold was discovered at the Granites by Allan Davidson in 1900 (Davidson, 1905). Prospecting between 1910 and 1932 led to minor production from narrow quartz veins and from limited alluvial and eluvial zones at Bunkers Hill (Ellis, 1927). The discovery of further rich but narrow quartz veins at the Burdekin Duck Deposit on Chapmans Hill, and the occurrence of a small patch of rich alluvial ground nearby produced a brief gold rush in 1932 (Baume, 1933, Madigan, 1944). Charles Chapman took up leases at The Granites in 1932 and for the next twenty years, Chapmans Gold Mines NL (CGM) continued small scale mining at several locations (Bullakitchie, Shoe and near Chapmans Hill). A total of 420kg of gold was produced from the area prior to 1961. Chapmans leases were explored by Anglo Queensland Mining Pty Ltd between 1938 and 1948 outlining a possible resource at Bullakitchie and Shoe of 250 000t at 11.5g/t gold (Hall, 1953). Exploration was also undertaken by Northern Mines Development NL between 1954 and 1955 and later by Geopeko Ltd (between 1965 and 1970) who tested prominent magnetic anomalies at Twin Hills and Ivy.

Normandy NFM acquired the property in 1975 but did not commence exploration until August 1983 due to political and legal constraints (den Dryver, 1984; Ireland and Mayer, 1984). By June 1985 reserves at Bullakitchie and Shoe totaling 1.9m at 8.0g/t had been calculated after the drilling of 57 diamond drillholes and 75 reverse circulation drillholes (Mayer, 1990).

Production commenced on 1<sup>st</sup> July 1986.

During the nine years of mining on this lease 329,931oz of gold were produced from underground and open pit sources.

## 5. REGIONAL GEOLOGY

The Granites Goldfield lies in the eastern part of the Early Proterozoic Granites-Tanami Inlier which is part of the Northern Australian Orogenic Province (Plumb 1990). The Inlier abuts the Arunta Complex to the south and east and is overlapped by younger cover sequences including the extensive Palaeozoic Wiso Basin on its north-eastern margin. To the west, clastic sediments of the Middle Proterozoic Birrindudu Basin overlie and separate the inlier from similar age rocks in the Halls Creek Province.

Tertiary drainage channels now completely filled with alluvial and lacustrine clays and calcrete, are major features of the region. Some drainage profiles are 10km wide and 100m deep, presenting a formidable barrier to mineral exploration.

Gold mineralisation within the Normandy NFM tenement holding occurs within the a sequence of fine to medium-grained turbiditic metagreywackes with lesser amounts of metapelite, graphitic schist, banded iron-formation, chert and basic volcanic rocks referred to as Mt Charles Beds by Blake et al 1979. Owing to their more resistant nature, only the cherts and iron/silica rich units tend to outcrop above the sand plain.

A suite of syn-to-post deformation dolerites and gabbros frequently invade the carbonaceous rich components of the sequence. Large plutons of mostly undeformed late-to-post orogenic adamellite and minor more mafic variants comprising The Granites Granite suite are widespread throughout the area.

Residual hills of gently folded Carpentarian Gardiner Sandstone unconformably overlie Early Proterozoic lithologies. Younger flat-lying Cambrian Antrim Plateau Basalts are also preserved as platform cover in areas protected from erosional stripping.

Complex, polyphase deformation during the Barramundi Orogeny has affected the entire Granites-Tanami Inlier. It appears to have been largely controlled by two sets of regional scale fundamental crustal fractures that trend NNE and WNW. This is evidenced by the orientation of successive phases of macroscopic folding, shearing and faulting in the region and the consistent sympathetic trends of later tectonic reactivated faults.

Peak metamorphism during the Barramundi Orogeny reached amphibolite facies at The Granites Gold Mine, whilst more generally greenschist facies at Dead Bullock Soak. Contact metamorphic aureoles, commonly identified in pelitic schist units by randomly orientated andalusite porphyroblasts, are well developed at the margins of the post-orogenic granite plutons.

## 6. LEASE GEOLOGY

The Granites derives its name from an impressive cluster of tors that rise to 20m above an otherwise subdued landscape. Westwards from The Granites, an arcuate strike ridge of more resistant units crop out as defined by a line of low hills extending for 9km before disappearing under desert sand plain. This belt of rocks, approximately 200m wide, contains all excavations and mineralisation collectively known as The Granites Goldfield.

The formation exposed has a sub-vertical dip and has undergone several deformation events. Previous work has informally subdivided the main units into Host Unit, Footwall Schist and Hanging Wall Schist; however this terminology can be misleading and more importance should be placed on the geological differences.

The southern units traditionally known as the Footwall Schists are at least 120m thick, comprising biotite, hornblende, andalusite, almandine porphyroblastic finer grained schists with coarser grained quartz, biotite, albite and almandine schist units. Cumingtonite, cordierite rich units and porphyroblasts of almandine garnet are also observed.

The northern units traditionally known as the Hanging Wall Schists are of similar bulk composition to the southern units but with increased graphite content and a finer grain size. Geologically the units are described as a graphite schist with variable proportions of biotite, quartz and andalusite, cordierite and cumingtonite. Ferruginous units containing lensoid pods of garnet schist are also noted.

Between these units lies the mineralised package (traditionally known as the Host Unit) which comprises from north to south: -

0-20m thick quartz, haematite, garnet, amphibolite unit - upper iron silica rich zone

0-5m thick, blocky garnet zone (marker horizon)

0-2m thick, moderately banded laminated zone - lower iron silica rich zone

0-2m thick, blocky garnet zone (marker horizon)

Both pre-metamorphic and post-metamorphic basic to intermediate intrusives invade the sequence. The sequence is sub-vertical and in the absence of firm evidence of facing, is assumed to be young to the north (away from the granite) and variably lateritised.

The mineralised zone is 5 to 35m thick and has been traced by costeaning and shallow drilling for 8.5km from Chapmans Hill to Ivy, although it appears to be consumed by intrusive rocks for up to 2km of strike length. The contact between the mineralised zone and the overlying carbonaceous rich units is usually sharp and distinctive and interpreted to a fault contact. The lower contact is more gradational (over 2 to 3m).

The Granites orebodies are within iron silica rich zones. Some of the ore zones within the mineralised beds comprise a number of steeply plunging ore shoots, eg Bullakitchie, distributed within a structurally thickened portion of this unit. The width of the gold mineralised horizon has been expanded from a characteristic thickness of less than 5m to more than 10m. Individual shoots have a strike length of up to 100m, and a true width of 2 to 15m.

The gold occurs as disseminations in laminated amphibole-quartz and garnet-rich units, frequently accompanied by quartz-carbonate veining and the sulphides pyrrhotite and arsenopyrite. Free gold occurs in association with arsenopyrite and pyrrhotite, with or without quartz-carbonate veining.

## 7. ESTIMATED RESOURCES

The remaining resources at MLS8 are indicated in the table below. A reassessment of the resource inventory was carried out during for the June 2000 figures.

**TABLE 2: Summary of Identified Resources (June 2000)**

<b>Deposit</b>	<b>Type</b>	<b>Tonnes</b>	<b>Grade (g/t)</b>	<b>Contained Gold (ounces)</b>
<b><i>Open Pit</i></b>				
Bunkers Hill	Indicated	655 000	3.0	63,183
Quorn	Indicated	700,000	3.3	74,277
		<b>1 355 000</b>		<b>137 460</b>
<b><i>Underground</i></b>				
Quorn	Indicated	528 000	5.4	92,358
		<b>528 000</b>		<b>92 358</b>
<b>TOTAL</b>		<b>1 883 000</b>		<b>229 818</b>

## 8. EXPLORATION OBJECTIVES

The main objective during the year was to enhance and the remaining resources on MLS8, and to test for additional potential along strike and at a moderate depth.

## 9. WORK UNDERTAKEN

### 9.1 Database Improvement

The digital data was converted to an access format and is currently stored as part of an access database which includes data from Dead Bullock Soak , and Titiania at the Normandy NFM Mine Exploration department at DBS. It is accessed through DataShed a front end product to an access database. Data has also be visualised in Datamine and the MapInfo GIS system.

### 9.2 Diamond Drilling Programme between Bunkers and Twin Hills

Two diamond holes were completed to the East of Bunkers Hill to test the continuation and grade of mineralisation at depth of around 100m between Bunkers Hill and Twin Hills.

Two Diamond drillholes, (GCD402 and GCD403) were completed for 555.6m. They were designed to o test the projected host unit between 200 – 250 beneath the surface between Bunkers Hill and Twin Hills camp.

#### 9.2.1 Drilling Procedures

Century drilling provided a Versatile 1000 to drill the planned holes. Ground conditions were good overall with minimal complications encountered throughout the duration of the program. The holes were drilled RC to a predetermined depth between (50 – 60m) using 5.5 “ hammer. The remainders of the holes were drilled NQ core size. Details of the holes are shown in Table 3. The collar locations are shown on Plan 2.

**TABLE 3 – Diamond Drillhole locations at Bunkers – Twin Hills**

Hole Number	Northing (Bunk Grid)	Easting (Bunk Grid)	RL	From	To	Hammer/ core size	Total Depth	Start Date	Finish Date
GCD402	5975.872	54632.272	1394	0	48	5.5”	225.1	10/11/01	15/11/01
				48	225.1	NQ			
GCD403	5601.573	54048.901	1396.2	0	60.4	5.5”	330.5	16/11/01	21/11/01
				60.4	330.5	NQ			

The NNFM Survey Department picked up the drill hole collar positions. Century drillers used a Eastman downhole single shot survey camera. Downhole survey and orientation readings were taken at 30m intervals down the hole, as it was drilled. The location of these two holes is shown on Plan2.

Core from the diamond holes was processed at the Dead Bullock Soak core yard. The core was orientated, marked up, logged, cut and sampled.

#### 9.2.2 Geological procedures

The holes were initially logged onto paper. These paper logs were made available digitally at a later date. Information pertaining to the samples lithological characteristics, geology, mineralogy, alteration type, weathering intensity colour and details of the veining and bedding were collected for each metre. A comments column allowed for further description. A copy of the logging card used by field geologists can be found in Appendix 2. The information was down loaded onto the Granites Gold Mine network and once validated, incorporated into the centralised database. Digital Geological Information is included in Appendix 1. Hard copy cross sections are shown in Plans 5 & 6.

### 9.2.3 Sampling

Half core 1 metre samples were taken using an Almonte automatic core saw. The samples were shipped to Alice Springs and then forward to ALS for crushing and analysis. The upper portions of the holes that were drilled RC were also sampled. Standards were included as the 50th and 100th samples (eg. sample number 1431650).

All samples were sent to ALS in Alice Springs to be analysed for gold by Fire Assay / AAS (Prep 2 FA1 AU) using a 50 gram charge.

The reference material used for the standard samples was supplied by GEOSTATS. There have not been any obvious discrepancies between the results of the standards used and the expected results, although to date there has been no statistical work carried out.

Details of the samples are provided in digital format in Appendix 1.

### 9.2.4 Results

GCD402 started in granite and passed through the expected sequence, with several iron silica rich zones intersected. A basic unit was intersected in the carbonaceous units and the hole finished in micaceous Madigan beds. The bedding direction was consistent. A major carbonaceous rich fault zone was intersected along the non carbonaceous/carbonaceous contact (FW/HW), - as is seen in the pits. The hole intersected the target zone at a shallower depth than anticipated, at 150m. intersected the target zone at around 100m beneath the surface. GCD403 intersected GCD402, was logged during the month.

GCD403 was collared in granite, but only passed through a thin sequence of footwall rock before a fault and the more carbonaceous sequence were intersected. Iron rich quartz zones indicative of mineralisation appear thinner and less encouraging. A summary of intercepts above 0.20g/t Au are summarised in Table 4.

**Table 4 – A summary of intercepts greater than 0.2g/t from GCD402 and GCD403**

Hole	From	To	m	Grade g/t Au	Geology	Comments
GCD402	84	85	1	0.32	GTBI schist, with OR chert bands	
	94	98	6	0.31	Well laminated BIGT schist +epidote	Main lode position
	105	107	2	0.22	Fault with qtz bx	
	111	112	1	0.20	Healed fault zone	
	123	124	1	0.23	Basic intrusive with small fractures	
GCD403	44	45	1	0.48	BI schist in FWS	
	70	71	1	0.21	GTBI schist GT rich	
	72	78	6	0.48	GTCRDBI schist with Fe s2 bands	Main lode position

### 9.3 Geophysical Logging of selected Diamond and RC holes.

Surtron Geophysical came to site in January 2001 and logged 1082.6m in two diamond and 4 RC holes. (Plan 3) The tools used measured natural gamma, magnetic susceptibility, conductivity and resistivity of the surrounding rocks. Geophysical logging techniques were trialed to assess their use in unit identification and in the explanation of the high aeromagnetic reading along the trend of the mineralisation. The results of these logs were plotted up with the unit and gold value in ppm to assess any correlations. These logs are included in Plans 7 – 11.

The holes selected were recent diamond and RC holes chosen to give coverage of the different geological units seen at MLS8. A listing of the hole locations is outlined in Table 3. Plan 3 shows the locations of these holes. Geophysical logging techniques were also trialed down these holes to assess their use in unit identification and in the explanation of the high aeromagnetic reading along the trend of the mineralisation

**Table 5 – Listing of the drill holes in which Geophysical logging occurred.**

Hole Number	Northing	Easting	RL	Grid	Prospect Area
GCD402	5975.872	54632.272	1394	BUNK	Bunkers /Twin Hills
GCD403	5601.573	54048.901	1396.2	BUNK	Bunkers /Twin Hills
GRC827	34690.08	8181.38	1390.26	QUORN	Quorn West
GRC828	34669.33	8226.39	1390.18	QUORN	Quorn West
GRC829	34669.33	8135.28	1393.89	QUORN	Quorn West
GRC845	55275.92	6071.088	1398.91	BUNK	Bunker Pit

### 9.4 RAB drilling Programme at Ivy West

The exploration programme at Ivy West was designed to test for an easterly extension of the mineralisation beyond the Ivy exploration camp. Historical RAB holes had recorded values of up to 3m @ 5.8g/t in Auger hole that had not been fully explained. There is also a 10ppb anomaly over an area 400m x 800m in this area.

An initial programme of 58 RAB holes along 3 lines each 1km apart, was drilled in August of 2001. It was followed up with additional 14 holes. A fence of holes was drilled closer to Ivy camp and one of the other lines was extended, 3679m were drilled at Ivy West.

Plan 4 shows the location of these holes.

#### 9.4.1 Drilling Procedures

Century drilling provided a Timberjack Articulated RAB rig to drill the planned holes. Ground conditions were good overall with minimal complications encountered throughout the duration of the program. The sample was collected using a 4 1/4 face-sampling hammer through a cyclone and into a bucket. A bucket was collected for each metre and the bucket up ended to leave a representative pile of sample for that metre. The sample piles were laid out next to the rig in rows of 12, ready for spear sampling.

#### 9.4.2 Geological procedures

The holes were logged directly onto a HP Jornada computer in the field using Microsoft software (Excel). Information pertaining to the samples regolith affinity, lithological characteristics, geology, mineralogy, alteration type, weathering intensity and colour was collected for each metre. A comments column allowed for further description. A copy of the logging card used by field geologists can be found in Appendix 2. The information was regularly down loaded onto the Granites Gold Mine network

and once validated, incorporated into the database. Digital Geological Information is included in Appendix 1. Hard copy cross sections are shown in Plans 13 & 14.

### 9.4.3 Sampling Procedures

Drilling personnel were involved in collecting samples from the drill rig. One metre samples were collected with the sample quality and return being of high standard. Three metre composite samples were collected using a plastic spear. The sample was placed into a pre numbered calico bag, which was then submitted, to the laboratory in Alice Springs for gold and multi-element analysis. Duplicate splits of the previous sample were taken every 25th and 75th sample (eg. sample number 1431625 is a duplicate of sample number 1431624) giving at least one duplicate sample per hole. Standards were included as the 50th and 100th samples (eg. sample number 1431650).

All samples were sent to ALS in Alice Springs to be analysed for gold by Fire Assay / AAS (Prep 2 FA1 AU) using a 50 gram charge.

The reference material used for the standard samples was supplied by GEOSTATS. There have not been any obvious discrepancies between the results of the standards used and the expected results, although to date there has been no statistical work carried out.

The digital information provided by the lab is included in Appendix 1.

### 9.4.4 Results

A total of 3679m, were drilled at Ivy West. Preliminary logging identified well-laminated fine-grained siltstones and medium to coarse-grained greywackes. Carbonaceous rich units and iron silica rich units were interpreted as part of the mine sequence. Quartz veining and occasional granites/pegmatites were also noted.

The drilling indicated that rocks similar to the mine sequence occurred at the northern end of the drill line immediately east of the haul road. The geology of the other lines were interpreted as quartz sericite rich units of the Madigan Beds. The additional line drilled in November 2000, intersected dolerites and fine- medium grained units. The anomalous results received are included in Table 6.

**Table 6. A summary of the results greater than 20ppb from Ivy West RAB Drilling.**

Hole	From	To	m	Grade g/t Au	Geology	Comments
GNRB001	27	30	3	0.045	Contact of Slst & ironstone	
GNRB001	30	33	3	0.032	Ironstone in FWS	
GNRB002	42	45	3	0.027	FWS in sandstone unit	
GNRB003	24	27	3	0.039	Biotite schist in FWS units	
GNRB069	6	9	3	0.020	Madigan Beds Slst	
GNRB069	48	51	3	0.030	Dolerite	

There still appears to be a continuation of FW & HW units into the Ivy West area, which is encouraging.

## 9.5 RAB Drilling Programme at Bunkers West

The target for this drilling was the Madigan beds outside the main host units as styles of mineralisation in the Tanami area occur outside the traditional ironstone/chert hosts, mainly due to favourable competency contrasts and/or chemistry. A historical review suggested that in previous RAB drilling in the area only 50% intersected "reasonably positive identification of lithology".

The programme was designed to assess the effectiveness of historic holes and increase geological understanding cover a large area. A total of 883m were drilled in 18 holes spaced 200m apart on fences that were 500m apart. Plan 2 shows the locations of these holes.

### 9.5.1 Drilling Procedures

Century drilling provided a Timberjack Articulated RAB rig to drill the planned holes. Ground conditions were good overall with minimal complications encountered throughout the duration of the program. The sample was collected using a 4 1/4 face-sampling hammer through a cyclone and into a bucket. A bucket was collected for each metre and the bucket up ended to leave a representative pile of sample for that metre. The sample piles were laid out next to the rig in rows of 12, ready for spear sampling.

### 9.5.2 Geological procedures

The holes were logged directly onto a HP Jornada computer in the field using Microsoft software (Excel). Information pertaining to the samples regolith affinity, lithological characteristics, geology, mineralogy, alteration type, weathering intensity and colour was collected for each metre. A comments column allowed for further description. A copy of the logging card used by field geologists can be found in Appendix 2. The information was regularly down loaded onto the Granites Gold Mine network and once validated, incorporated into the database. Digital Geological Information is included in Appendix 1. Hard copy cross sections are shown in Plans 15 & 16.

### 9.5.3 Sampling Procedures

Drilling personnel were involved in collecting samples from the drill rig. One metre samples were collected with the sample quality and return being of high standard. Three metre composite samples were collected using a plastic spear. The sample was placed into a pre numbered calico bag, which was then submitted, to the laboratory in Alice Springs for gold and multi-element analysis. Duplicate splits of the previous sample were taken every 25th and 75th sample (eg. sample number 1431625 is a duplicate of sample number 1431624) giving at least one duplicate sample per hole. Standards were included as the 50th and 100th samples (eg. sample number 1431650).

All samples were sent to ALS in Alice Springs to be analysed for gold by Fire Assay / AAS (Prep 2 FA1 AU) using a 50 gram charge.

The reference material used for the standard samples was supplied by GEOSTATS. There have not been any obvious discrepancies between the results of the standards used and the expected results, although to date there has been no statistical work carried out.

The digital information provided by the lab is included in Appendix 1.

### 9.5.4 Results

The drilling improved the knowledge of the geology in the area. Several thin basic units were recognised within what had been interpreted as Madigan Beds. A summary of the results is included in Table 7.

**Table 7. A summary of the result from the broad spaced RAB drilling at Bunkers West**

Hole	From	To	m	Grade g/t Au	Geology
GNRB073	18	27	9	0.38	Iron rich biotite quartz schist

The RAB program in the Bunkers Twin hills area indicated that there was some laterite development in the area, with a mottling noted to a depth of around 12m. No cover sequence was intersected. The best results were received from a GNRB073, a hole 400m to the west of the Bunkers Pit.

## 9.6 Sterilisation Drilling Programme at Bunkers Hill

The Bunkers deposit is due to be mined in September 2001. An allowance for placement of a waste dump is required. After discussions with the CLC the project managers, nominated an area directly along strike to the west as a potential site for a waste dump.

A sterilisation programme was designed to cover the footprint of the designed dump, testing to a depth of 40m vertical.

Drill sections planned 200m apart and took into account previous drilling to minimise costs. Fifty holes (GNRB091 – GNRB140) for 2230 metres were drilled in May 2001. RAB blade and hammer drilling was used with holes drilled to a nominal depth of 50m at an angle of 60 towards the north.

### 9.6.1 Drilling Procedures

Century drilling provided a RAB rig to drill the planned holes. Ground conditions were good overall with minimal complications encountered throughout the duration of the program. The sample was collected using a 4 1/4 face-sampling hammer through a cyclone and into a bucket. A bucket was collected for each metre and the bucket up ended to leave a representative pile of sample for that metre. The sample piles were laid out next to the rig in rows of 12, ready for spear sampling.

### 9.6.2 Geological procedures

The holes were logged onto paper and then entered into a spreadsheet. Information pertaining to the samples regolith affinity, lithological characteristics, geology, alteration type, weathering intensity and colour was collected for each metre. A copy of the logging card used by field geologists can be found in Appendix 2. The information was regularly down loaded onto the Granites Gold Mine network and once validated, incorporated into the database. Digital Geological Information is included in Appendix 1. Hard copy cross sections are shown in Plans 17 & 18.

### 9.6.3 Sampling Procedures

Drilling personnel were involved in collecting samples from the drill rig. One metre samples were collected with the sample quality and return being of high standard. Three metre composite samples were collected using a plastic spear. The sample was placed into a pre numbered calico bag, which was then submitted, to the laboratory in Alice Springs for gold and multi-element analysis. Duplicate splits of the previous sample were taken every 25th and 75th sample (eg. sample number 1431625 is a duplicate of sample number 1431624) giving at least one duplicate sample per hole. Standards were included as the 50th and 100th samples (eg. sample number 1431650).

All samples were sent to ALS in Alice Springs to be analysed for gold by Fire Assay / AAS (Prep 2 FA1 AU) using a 50 gram charge.

The reference material used for the standard samples was supplied by GEOSTATS. There have not been any obvious discrepancies between the results of the standards used and the expected results, although to date there has been no statistical work carried out.

The digital information provided by the lab is included in Appendix 1.

### 9.6.4 Results

The drilling identified an anomaly 200m from the western end of the current Bunkers Pit. Three additional RAB holes were drilled around the original anomalous hole as follow up. The results are tabulated in Table 8.

The location of the holes is shown on Plan 2 and the cross sections included in Plans 17 & 18.

The values are outside the main ore zone and are in the equivalent position to the sporadic mineralisation observed outside the main ore zone in the Bunkers Pit and is not unexpected. Historically this has been observed throughout the pit and in areas where it exists by itself in the pit, it is not deemed mineable. The anomaly is a narrow zone; of limited strike extent, which would not been conducive to the planned mining methods

Based on the result of the above it is highly unlikely that this anomalous zone represents a mineable ore body or extension to the currently planned pit. Likewise, the limited strike extent and the history of sporadic mineralisation adjacent to the main lode in Bunkers, suggest that further drilling is unlikely to significantly alter this conclusion.

Therefore, the area was considered sterilised.

**Table 8 A summary of the results of the sterilisation drilling at Bunkers Hill.**

Hole	From	To	m	Grade g/t Au	Geology	Comments
GNRB093	8	20	12	3.5	Quartz veining in graphite schist	
GNRB094	42	46	4	0.42	Amp/bio schist with trace of graphite	Main Lode position
GNRB101	14	24	10	0.54	Fe schist, 20% chert/qtz	
incl	22	24	2	1.79		
GNRB137	0	4	4	0.35	Soil	Follow up of 12m at 3.5g/t in GNRB093
GNRB137	32	34	2	0.55	Graphite schist with trace qtz	Follow up of 12m at 3.5g/t in GNRB093
GNRB139	32	34	2	1.08	Main Host Unit, fe/sil rich	Follow up of 12m at 3.5g/t in GNRB093
GNRB140	18	28	10	2.4	Limonite, sil and foliated.	Follow up of 12m at 3.5g/t in GNRB093
incl	20	24	4	5.35	Contact with basic?	Follow up of 12m at 3.5g/t in GNRB093
GNRB140	38	48	10	0.33	Highly silicified tr qtz.	Follow up of 12m at 3.5g/t in GNRB093

## 10. Conclusions and Recommendations

During the year several new ideas were investigated with limited success. The probable continuation of the encouraging lithologies at Ivy West requires follow up work and further interpretation.

The remaining resources on MLS8 have been validated and more realistic future the various pits has been determined. Re commencement of mining is planned for Bunkers Hill in late 2001. Quorn pit is currently being de watered and additional drilling is planned for the pit floor to further asses the remaining resource.

Shoe pit is currently being back filled with tailings.

## 11. EXPENDITURE INCURRED FOR THE REPORTING PERIOD

TABLE 9: Details of Exploration Expenditure for the Year to 30<sup>th</sup> May 2001

<b>COST CENTRE</b>	<b>May 2000-May 2001</b>
Employee Costs	\$184,380
Operating Costs	\$108,180
Diamond Drilling	\$63,644
RC Drilling	\$16,434
RAB Drilling	\$45,700.25
Drill Sample Analysis	\$34,731
Consumables	\$6,374.78
IT Equipment	\$1 154.10
Geophysics	\$3,370.50
Equipment Hire	\$2,015
<b>TOTAL \$</b>	<b>\$464,830</b>

## 12. REFERENCE LIST

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### Reports to NT DME

- Walter, M & Longmire, R.A., 1999. *Annual Report for MLS8 (The Granites) covering work undertaken from 15<sup>th</sup> May 1998 to 14 May 1999*. Normandy Report No: 50042.
- Sivwright, P & Sieradzki, S, 2000. *Annual Report for MLS8 (The Granites) covering work undertaken from 15<sup>th</sup> May 1999 to 14 May 2000*. Normandy Report No: 27105

# **APPENDIX ONE**

## **A CD OF DIGITAL DATA**

# **APPENDIX TWO**

## **GEOLOGY LOGGING CODE SHEET**