Normandy NFM Limited

NORTH FLINDERS EXPLORATION

annual report

SECOND ANNUAL REPORT FOR THE HIGHLAND ROCKS PROJECT FOR THE 2000 FIELD SEASON

Exploration Licences covered by this report:-

EL 8970	**McLeod**
EL 8971	**Rameriz**
EL 9559	**Highlander**
EL 9562	**Icebox**
EL 9563	**Lowlander**

1:250,000 SHEET REFERENCE:	THE GRANITES	SF52-03
	HIGHLAND ROCKS	SF52-07
	MT THEO	SF52-08
1:100,000 SHEET REFERENCE:	WICKHAM	4855
	HIGHLAND	4955
	MCDIARMID	5055
	THEO	5155

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SUMMARY

This report describes the exploration activity and results obtained from the Highland Rocks Project Area during the second year of tenure to 28 April 2001.

The tenements that comprise The Highland Rocks Project are situated approximately 500km northwest of Alice Springs in the Granites-Tanami region of the Northern Territory. They comprise 5 exploration licences: EL8970, EL8971, EL9559, EL9562 & EL9563.

The work program was dominated by systematic regional surface sampling and vacuum drilling over areas of subcrop and shallow cover across EL's 8970, 8971, 9559 & 9562. Small follow-on prospect-scale programs were also initiated over EL's 8970 & 9559, mainly involving soil sampling and limited RAB drilling. Initial reconnaissance lag and rockchipping was also begun over EL9563. A summary of exploration work carried out on the Highland Rocks Project exploration licences for the 2000 field season is presented in the table overleaf.

1. INTRODUCTION

This report summarises the work carried out by Normandy NFM Limited (NFM) on the 5 exploration licences tabled below, during the period 29/4/00 to 28/4/01. The exploration licences covered by this report are shaded in green on Figure 1.

These exploration licences were combined into a single Project Area by agreement with officers of the Northern Territory Department of Mines and Energy (NTDME) in May 1999.

Table 1 - Highland Rocks Project Exploration Licence Statistics

TENEMENT		DATE OF		NUMBER OF BLOCKS
Number	Name	Grant	Expiry	Current*
EL8970	McLEOD	29/04/99	28/04/05	102
EL8971	RAMERIZ	29/04/99	28/04/05	74
EL9559	HIGHLANDER	29/04/99	28/04/05	304
EL9562	ICEBOX	29/04/99	28/04/05	218
EL9563	LOWLANDER	29/04/99	28/04/05	8
TOTAL				**706**

* as at April 2001

2. LOCATION, INFRASTRUCTURE, ACCESS, SURVEY CONTROL & ENVIRONMENTAL PRACTICE

2.1 Location

The tenements that comprise The Highland Rocks Project are situated approximately 500km northwest of Alice Springs in the Granites-Tanami region of the Northern Territory. These licences are located within the 1:250,000 map sheets SF52-3 (The Granites), SF52-7 (Highland Rocks) and SF52-8 (Mount Theo) as shown on Figure 1.

Geographically, the area lies in the western part of the Tanami Desert, a generally flat and featureless sand-covered landscape of spinifex and low scrub. All tenements within the Project Area are within Aboriginal freehold land.

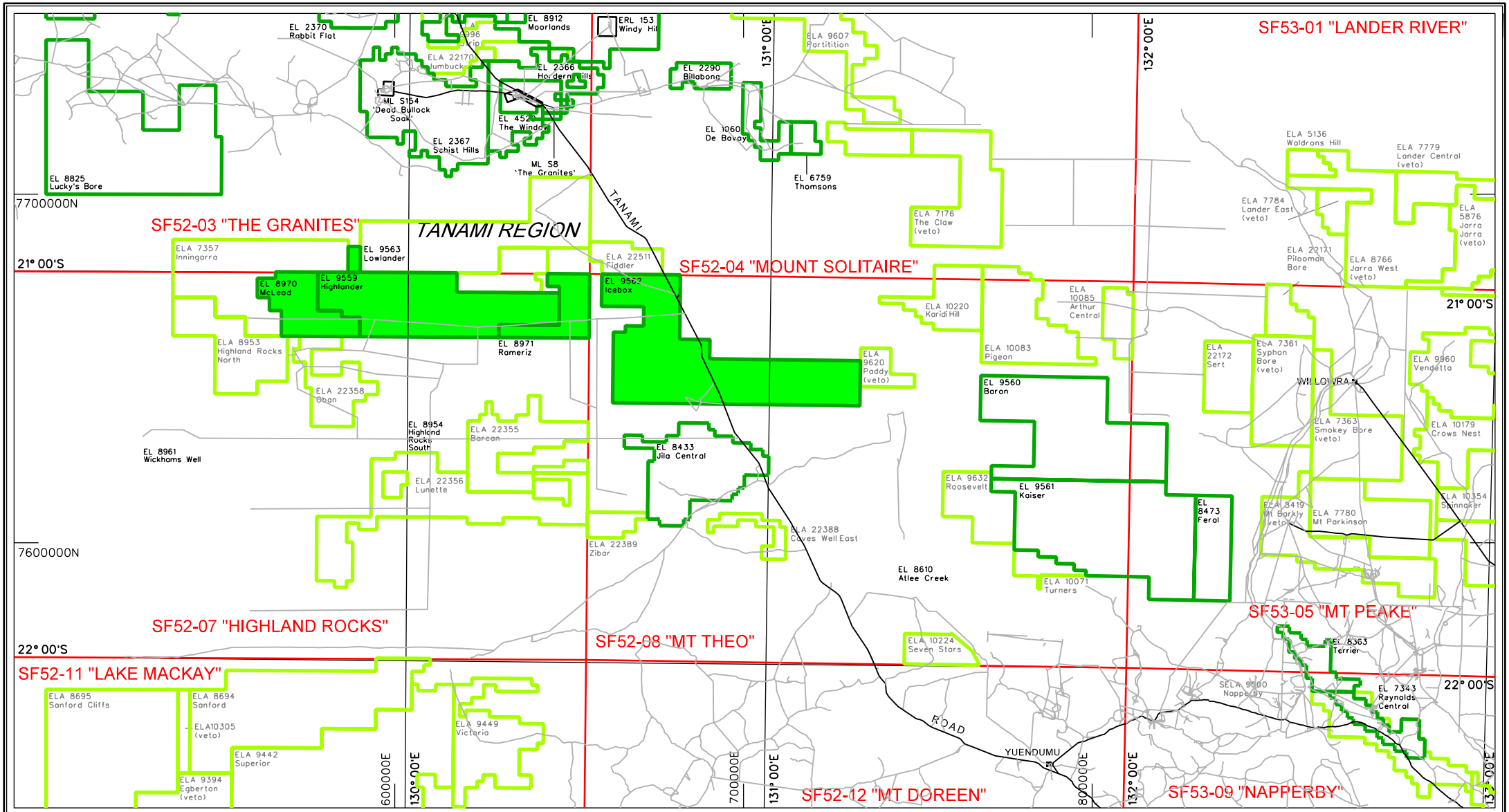
The annual average rainfall is of the order of 200mm, which is mostly derived from summer monsoonal and storm activity. Daily temperatures vary from minima of near freezing in winter to summer maxima of approximately 48°C. The area is devoid of surface water except in small soaks after heavy rain.

2.2 Infrastructure

Prior to the presence of NFM in this part of the Tanami region, infrastructural support was almost completely lacking. Currently supplies are trucked or flown to the permanent camp at The Granites (within EL4529) from Alice Springs. Telephone and fax using microwave links service this camp. Water is provided by two remote borefields. One borefield lies 35km east of The Granites (Billabong) and the other 10km north-east of Dead Bullock Soak. Power is locally generated at exploration bases and mine sites. The nearest settlements are the Rabbit Flat roadhouse 50km to the northwest of The Granites on the Tanami Road and Tanami Downs homestead 60km to the west. The nearest town is Yuendumu some 250km southeast of The Granites on the Tanami Road.

2.3 Access

Access to the area is by air or via the Tanami Highway, which passes through Icebox, the eastern most license. The main track that gives access to the central licenses is the east-west running Escondida track off the Tanami Road (Figure 1).



N
W E
S

0 75km

SCALE 1:1,500,000

UTM Zone 52 (AGD66)

Normandy NFM Limited

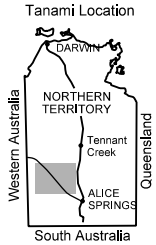
NORTH FLINDERS EXPLORATION

HIGHLAND ROCKS PROJECT TENEMENTS

TENEMENT LOCATION MAP

FIGURE 1
02/05/2001

Tanami Location



...\hlal001.dgn

02/05/2001

2.4 Survey Control

Survey control has yet to be established over these licenses.

2.5 Environmental Practice

Rehabilitation of exploration sites was carried out pursuant to Section 24(e) of the NT Mining Act and in accordance with the Departments "Guidelines for Rehabilitation of Exploration Sites",

- all drillholes were capped or backfilled on completion,
- all drillpads were rehabilitated,
- all costeans were backfilled when no longer required, and
- all grid lines and tracks were rehabilitated when no longer needed.

3. PREVIOUS EXPLORATION

Gold mineralisation was discovered by Davidson in 1900 at a number of sites within the Tanami region. Gold was reported as having been found by Wickham in the 1920's in an area about 75km south west of gold occurrences at the Granites. However, there are no reliable records to substantiate this report. Hossfield, on his journey to Lake Mackay in 1940, collected a single sample consisting of surface stones from low ironstone gravel hills on the eastern margin of the Highland Rocks sheet. The sample returned an assay of 0.15g/t gold and 3.7g/t silver.

The area was mapped by the Bureau of Mineral Resources in the 1960's and 1970's, the results of which constitute the 1:250000 Mt. Theo, Mt. Solitaire, The Granites and Highland Rocks map sheets and explanatory notes. In 1994, the Australian Geological Survey Organisation conducted regolith mapping of the Highland Rocks using airborne gamma-ray and Landsat MSS data.

No records exist of exploration within these licenses prior to granting of the ground to Normandy NFM.

4. EXPLORATION OBJECTIVES

Exploration and mine studies have indicated that gold mineralisation in the region has an association with a range of geological environments. Models of gold occurrence for which the Tanami is believed to be most prospective include:

- Disseminated, stratabound deposits hosted by banded iron formations;
- Discordant stockwork deposits of gold in relatively late stage quartz veins;
- Gold mineralisation in veins hosted by shear zones with strong alteration characteristics;
- Deposits in regolith containing gold concentrated by alluvial, eluvial or alteritic processes.

With these models in mind, the Company's geologists have selected prospective target exploration areas based on regional geological, structural, geophysical and geochemical data.

The detailed assessment of these targets has been undertaken by a range of exploration techniques, designed to reveal the geology of the target area, and the presence of indicator elements, particularly gold itself, in anomalous quantities.

The task has been made difficult by the very extensive cover of windblown sand and other transported material, which conceals the rock and associated soil, typically to a thickness of several metres. This blanket covers as much as 98% of the region. Consequently the exploration process has relied heavily on point samples obtained by drilling and trenching to expose bedrock.

5. GEOLOGY

The Project Area lies astride the Granites - Tanami and Arunta provinces. The relationship between the Granites - Tanami and Arunta provinces is not well understood. Basement metasedimentary sequences in both regions are thought to be lateral equivalents (Blake et al., 1975) and the sequences merge with one another (Stewart et al., 1984).

The Granites - Tanami and the Northern Arunta provinces contain similar rock sequences and share similar Palaeoproterozoic magmatic, metamorphic and deformational histories. Both comprise of a deformed Palaeoproterozoic basement turbiditic sequence of greywacke, quartz sandstone, siltstone, shale, and minor mafic rocks and their moderate to high grade metamorphic equivalents (schist, gneiss, quartzite, amphibolite). The Tanami Block also contains chert, pyritic carbonaceous sediments and ironstone, whereas the Arunta Block has minor calc-silicates and meta-felsic volcanics (felsic orthogneiss).

During the Barramundi Orogeny (1890-1850 Ma, Page and Williams, 1988), the sedimentary sequences in the Arunta were intruded by mafic rocks, deformed and metamorphosed up to amphibolite facies. Granite plutons were emplaced in the closing stages of the Barramundi Orogeny, at about 1820 - 1800 Ma.

In the Arunta province, platform quartzite-shale-carbonate sediments (Reynolds Range Group) unconformably overlie the Barramundi metamorphic rocks and probably represent correlatives of the Hatches Creek Group of the Davenport Province to the north (Blake et al. 1987). Deformation of the Hatches Creek Group preceded granite intrusion at about 1660 Ma (Page and Williams 1988) and involved an early phase of upright northwest-trending folds and a second episode of northeast-trending folds. Faulting, thrusting and metamorphism accompanied both episodes of folding.

The Arunta province remained tectonically active after the Barramundi Orogeny with several metamorphic and deformational events, including the ~1800 Ma Strangways granulite event (Shaw et al, 1984), the 1760-1650 Ma Aileron retrogressive event (Windrim and McCulloch, 1986) and the most recent Carboniferous Alice Springs Orogeny. In the northern Arunta region, significant granitic magmatism occurred at 1780-1770, 1713, 1635 and 1570 Ma.

The basement provinces described above are unconformably overlain by younger, Neoproterozoic and Palaeozoic sediments of the Birrindudu, Wiso, Georgina and Ngalia basins (Wells and Moss, 1983).

6. METHODOLOGY

6.1 Geophysical Surveys

6.1.1 Ground Magnetics

All ground magnetic surveys were effected by Normandy NFM personnel.

Total Magnetic Intensity (TMI) readings were taken at 10m intervals (unless otherwise stated) using a G856 proton precession magnetometer and a pole height of 1.8m. Diurnal measurements were taken using a second magnetometer as a base station, with readings taken every 30 seconds. On completion of the survey, diurnal variations were removed from the data using the MAGPAC program.

Data was collected over the surveyed lines which were pegged every 100m and clearly annotated with the line number and location coordinates. The placement of these traverses was achieved by using a Trimble Global Positioning system.

Details particular to each survey are discussed in the following tenement specific chapters. Line origins are estimated to be within +/-50m of the AMG coordinates listed.

6.2 Geochemical Sampling Techniques/Sample Descriptions

All surficial sample and drillhole sites deriving from the 2000 work program in the Highland Rocks project were located with Garmin GPSII+ units.

6.2.1 SURFACE SAMPLES

CRC (Composite Rock Chip)

A composite technique is adopted whereby approximately 4-5kg of material comprising 10 to 15 grab samples is collected from within a 2m radius of the designated sample site. A description of sample material is recorded in the sample logs.

Lag / DSL (Drill-derived Stone Line)

Lag is any hard surficial material varying from a coarse sand to rock fragments.

The sample is obtained via a shallow surface scrape, sieved to obtain approximately 250g of material and collected into a plastic zip seal bag. The size of the sieved fraction, which is variable from project to project, is listed in the sample logs.

Sample type, quality, description and size is noted at the time of collection and recorded via codes outlined in Appendix 1 of this report.

A DSL sample is a drill derived “buried” lag sample. Other than using a drill rig to bring the sample to surface, collection methods are identical to lag.

SOIL

Soil material is sieved to obtain approximately 200g, with the sieve size varying according to the program, but generally a -180µm fraction is collected. The sample is collected into a plastic zip-seal bag which is enclosed into another to prevent contamination during transport.

BCL/BLEG (Bulk Cyanide Leach/Bulk Leach Extractable Gold)

Many of the low relief areas have variable amounts of drainage sediments (typically arenitic alluvium +/- clay horizons) which are sampled via a bulk cyanide leach. Sufficient soil is sieved to obtain 5kg sample which was double bagged within a plastic liner to prevent cross contamination. Sieve size are recorded in the logs (Appendix1).

Standard BLEG analysis (Au, Ag and Cu) is performed by Genalysis.

The samples may be subcategorised in the NFM database to distinguish sample derivation:

Code	Derivation	Description
VBCL	drill derived	vacuum
SBCL	soil	surface BCL sample

6.2.2 VACUUM DRILLING & SAMPLING

Vacuum drilling is undertaken by Normandy NFM using EDSON 200 series vacuum drill rigs. All holes are plugged and are only marked if positioned on an established grid.

DSL Samples

As described above in lag methodology. The sample is sieved to a +2mm fraction and approximately 250g is collected into a plastic zip seal bag.

VBCL/BOH (Bottom Of Hole) Samples

A perspex tube collects the sample that retains relative downhole depth proportions. The geologist may choose to sample a particular horizon of interest as a selected sample or collect a composite sample. For this reason, sample intervals are variable. Specific sample intervals are listed in the drill hole logs.

6.2.3 RAB and AIRCORE DRILLING & SAMPLING

RAB and aircore drilling was undertaken by Century Drilling Pty Ltd. All holes are rehabilitated on completion of drilling by using available drill spoil to back fill the hole.

Composite Samples

RAB and aircore drillholes are typically composite sampled at 3m intervals where the geology is considered to be prospective. Depending on the program budget, the drillhole may be comprehensively sampled from surface, sampled only at particular lithologies or have been restricted to a bottom of hole sample. Drill spoil is riffle split to obtain 2kg composite samples. While this sample is customarily a 3m composite sample, the sample interval is ultimately left to the geologist's discretion. The sample intervals are clearly documented in the drillhole logs accompanying this report.

7. EL8970 – MCLEOD

The 2000 McLeod work program was dominated by extensive systematic regional vacuum drilling and lag and CRC sampling. This was conducted to provide a coherent geochemical and geological picture over regions of subcrop and shallow cover. A small soil program and orientation survey were also conducted as a prelude to prospect scale soil sampling. A limited number of RAB holes were also drilled to evaluate the regolith and geochemistry over prospective targets. Petrological analysis was carried out on a number of samples from the CRC and drilling programs.

Work for the report period included:

- Lag Sampling 933 samples
- CRC Sampling 468 samples
- Soil 415 samples
- Vacuum Drilling 359 holes for 2790m: 347 VBCL, 298 DSL & 365 BOH samples
- RAB Drilling 16 holes for 852m, 279 samples
- Petrology 9 samples

7.1 Lag Sampling

A total of 933 lag samples were collected across EL8970 during the reporting period, as detailed in Table 2. Only very minor areas were not sampled due to a paucity of sample media and interpreted deeper cover. Samples were collected at a nominal 500 × 500m spacing, however the actual spacings were governed heavily by the abundance of sample media. The lag samples were sieved to the +2mm fraction, and were sent to Genalysis Laboratories for analysis of the elements listed in Table 2. Sample localities are displayed on Figure 7.1.

Results from this program were very encouraging, expanding and defining anomalism highlighted through the 1999 reconnaissance work program. Further details are provided in Section 7.2.

Table 2 - EL8970 Lag Sampling

Sample Numbers	Total	Genalysis Method	Elements Analysed
3193371-3193400 3196686-3196700 3196857-3196900 3197336-3197508, 3197510, 3197513-3197593 3205001-3205515 3205524-3205534 3205537-3205548, 3205550 3205558-3205563, 3205673 3205740-3205776 3205778-3205783 3211945	933	B*ETA	Au (01.ppb)
		A/MS	Th(0.01), Mo(0.1), Sb(0.05), W(0.1), Bi(0.01), Sn(0.1), U(0.01), As(1), Pb(2), Ni(1), Fe(0.01%), Cu(1), Zn(10), Co(0.1), Ag(0.1)
933 samples			

7.2 CRC Sampling

A total of 468 CRC samples were collected opportunistically from outcropping and subcropping areas of interest in tandem with the lag program, as well as during follow-up work. Sample locations are plotted on Figure 7.1. Analytical details are summarised in Table 3.

Eight samples were also sent to Pontifex and Associates for petrological analysis and the results are submitted in Appendix 3.

In combination with the lag and vacuum drilling programs, this work has identified five significant prospects in the McLeod EL. These have been named the Skye, Minch, Targe, Dirk and Claymore prospects, and are mainly Au +/- As anomalies. These prospects are displayed along with the CRC samples on Figure 7.1.

Table 3 - EL8970 CRC Sample Details.

Sample Numbers	Total	Genalysis Method	Elements Analysed
3050820, 3224268-3224284, 3224291-3224300, 755202-755206, 755208-755300, 757325, 757327-757336, 757338-757397, 787571-787572, 787586-787598, 787601-787755 787776, 787778-787786, 787788-787799, 787841-787884, 787850-787880, 787901-787939, 787997-788000, 757337	468	B*ETA	Au (01.ppb)
		A/MS	Th(0.01), Mo(0.1), Sb(0.05), W(0.1), Bi(0.01), Sn(0.1), U(0.01), As(1), Pb(2), Ni(1), Fe(0.01%), Cu(1), Zn(10), Co(0.1), Ag(0.1)
468 samples			

7.3 Soil Sampling

Two programs of soil sampling were conducted over the license. These involved a 100-20m spaced orientation line at The Minch prospect, and 500 × 50m spaced coverage across the Targe prospect. Sample locations are presented in Figures 7.2 & 7.3, and details are listed in Table 4.

These programs were encouraging, with the Minch line returning a broad strong arsenic peak (peaking at 50.7ppm & 79.2ppm in the –180µm and –75µm fractions respectively). Targe returned numerous low-order Au-anomalous results (1-3ppb).

Table 4 - EL8970 Soil Sampling Details.

Sample Numbers	Mesh size	Total	Prospect	Laboratory	Method	Elements Analysed
3204601-3204695	-180µm	190	Minch	Genalysis	B*ETA	Au (01.ppb)
3204701-3204795	-75µm				B/MS	As (0.5ppm)
3257001-3257225	-180µm	225	Targe	Amdel	ARM1	Au (0.1ppb), Ag(0.01), As(0.5), Bi(0.1), Cu(0.2), Pb(0.2), Sb(0.1), & Zn(0.5)
415 samples						

7.4 Vacuum Drilling

Systematic vacuum drilling was conducted over the lease as an empirical tool to provide further detailed geochemical coverage, as well as an insight into the geology. Drilling was generally conducted at a spacing of 1-2km × 500m, though this varied depending on the depth of cover and the lithologies encountered. Drilling was completed over the majority of the lease, except for a small portion of deep palaeodrainage along the eastern boundary. Drillholes are located on Figure 7.1, with drilling details listed in Table 5.

One Bottom Of Hole sample was sent to Pontifex and Associates for petrological analysis and the results are submitted in Appendix 3.

7.5 RAB Drilling

Sixteen RAB holes were drilled at selected prospects late in the field season in order to assess their regolith profile, geology and bedrock geochemistry. The drilling was conducted at the subsequently named Minch, Dirk, Skye, Targe and Claymore prospects (see Section 7.2), predominantly in the vicinity of Au-anomalous rockchips (generally 100+ ppb). These holes are located in Figure 7.1 and drilling details are provided in Table 6.

Four holes (MCLRB0001-0004) drilled across the soil arsenic peak at the Minch prospect revealed gold depletion above 30m depth, with a strong Au/As correlation at depth. Best results were 30m @ 27ppb Au, with a strong As halo of 100-650ppm continuing to the surface. This anomalism is hosted in shallowly covered (<3m) quartz biotite schists with very minor quartz veining.

The only successful hole over the Dirk anomalism (MCLRB0012: the first was terminated due to excessive ground hardness) intersected 6m @ 138.5ppb Au.

Table 5 - EL8970 Vacuum Drilling Details.

Drillhole ID	Total	Metres	Sample Type	Sample ID	Total	Genalysis Method	Elements Analysed
MCLV0001-0359	359	2970	VBCL	3196701-856 3196901-932 3204103-261	347	MINIBLEG: (CN0.1MS) Cyanide leach / MS	Au (0.01ppb), Ag (0.1ppb) & Cu (0.01)
			DSL	3201801-820 3207703-807 3207901-915 3211442-500 3211901-999	298	B * ETA: Aqua regia leach / enhanced sensitivity graphite furnace AAS	Au (01.ppb)
						A / MS: Multi-acid attack / ICPMS	Th(0.01), Mo(0.1), Sb(0.05), W(0.1), Bi(0.01), Sn(0.1), U(0.01), As(1), Pb(2), Ni(1), Fe(0.01%), Cu(1), Zn(10), Co(0.1), Ag(0.1)
			BOH	3235699-800 3237601-831 3237901-932	365	B * ETA: Aqua regia leach / enhanced sensitivity graphite furnace AAS	Au (01.ppb)
						A/MS	As(1), Cu(1), Zn(10), Ag(0.1)
	359 holes for 2970m						

Table 6 - EL8970 RAB Drilling Details.

Drillhole ID	Azimuth	Dip	Total no. of holes	Metres	Sample ID	Total no. of samples	Amdel Method	Elements Analysed
MCLRB0001-MCLRB0007, MCLRB0005A, MCLRB0012-MCLRB0015	0	-60	16	852m	3224516-600 3111587-780	279	ARM1: Aqua regia digest / ICPMS	Au (0.1ppb), Ag(0.01), As(0.5), Bi(0.1), Cd(0.1), Co(0.2), Cu(0.2), Mo(0.1), Ni(1), Pb(0.2), Sb(0.1), Se(0.5), Te(0.1) & Zn(0.5)
MCLRB0008-MCLRB0011	90	-60						
	16 holes for 852m					**279 samples**		

Normandy NFM Limited

NORMANDY EXPLORATION PTY LTD

Tanami Reconnaissance : Northern Territory

EL 8970 - McLEOD
SAMPLE & DRILLHOLE
LOCALITY PLAN

Transverse Mercator Projection - UTM Zone 52
Australian Geodetic Datum - AGD66

metres
800 0 800 1600 2400 3200

SCALE 1:40,000

DATA BY :	Normandy NFM		PLAN No. :
DATE :	May 2001	AMEND : 23/05/2001	Figure 7.1

LEGEND
- △ CRC Sample
- ◘ Lag Sample
- ○ Vacuum Drillhole
- + RAB Drilling

EL 9559
Highlander

EL 8970
McLeod

ELA 7357
Inningarra

ELA 8953
Highland Rocks
North

ELA 22358
Oban

TARGE
CLAYMORE
DIRK
SKYE
THE MINCH

560000E 565000E 570000E 575000E 580000E 585000E 590000E
7675000N 7670000N 7665000N 7660000N

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570000E 571500E 573000E

7665000N

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3204705 3204605
3204704 3204604
3204703 3204603
3204702 3204602
3204701 3204601

THE MINCH

3204795 3204695
3204793 3204693
3204794 3204694

7663500N

7662000N

570000E 571500E 573000E

N
W E
S

0 300m
SCALE 1:15,000

UTM Zone 52 (AGD66)

Normandy NFM Limited
NORMANDY EXPLORATION PTY LTD

THE MINCH PROSPECT

SOIL SAMPLE LOCALITY PLAN

23/05/2001

FIGURE 7.2

T:\MSDATA\diagram\highland\mnhav001.dgn

568000E 569000E 570000E

7676000N

7675000N

7674000N

3257161 3257160 3257159 3257158 3257157 3257156 3257155 3257154 3257153 3257152 3257151 3257150 3257149 3257148

3257042 3257041 3257040 3257039 3257038 3257037 3257036 3257035 3257034 3257033 3257032 3257031 3257030 3257029 3257028 3257027 3257026 3257025 3257024 3257023 3257022 3257021 3257020 3257018 3257017 3257016 3257015 3257014

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3257119 3257120 3257121 3257122 3257123 3257124 3257125 3257126 3257127 3257128 3257129 3257130 3257131 3257132 3257133 3257134 3257135 3257136 3257137 3257138 3257140 3257141 3257142 3257143 3257144 3257145 3257146 3257147

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3257203 3257202 3257201 3257200 3257199 3257198 3257197 3257196 3257195 3257194 3257193 3257192 3257191 3257190 3257189 3257188 3257187 3257186 3257185

3257205 3257206 3257207 3257208 3257209 3257210 3257211 3257212 3257214 3257215 3257216 3257217 3257218 3257219 3257220 3257221 3257222 3257223 3257224

3257061 3257060 3257059 3257139 3257058 3257057 3257056 3257055 3257054 3257053 3257052 3257051 3257050 3257049 3257048 3257047 3257046 3257045 3257044

3257013 3257012 3257011 3257010 3257009 3257008 3257007 3257006 3257005 3257004 3257003 3257002 3257001

TARGE

74500N

N
W E
S

0 200m
SCALE 1:10,000

UTM Zone 52 (AGD66)

Normandy NFM Limited

NORMANDY EXPLORATION PTY LTD

TARGE PROSPECT

SOIL SAMPLE LOCALITY PLAN

07/05/2001

FIGURE 7.3

T:\MSDATA\diagram\highland\tarv001.dgn

8. EL8971 - RAMERIZ

The Rameriz work program was dominated by extensive systematic regional lag and CRC sampling, and a component of systematic regional vacuum drilling. These programs were conducted to provide a coherent geochemical and geological picture over regions of subcrop and shallow cover. Various ground magnetic traverses were also collected to aid eventual drilling of magnetic features.

Work for the report period included:

- Lag Sampling 531 samples
- CRC Sampling 81 samples
- Ground Magnetics 12.5km
- Vacuum Drilling 52 holes for 415m: 52 VBCL, DSL & BOH samples each
- Petrology 1 sample

8.1 Ground Magnetics Survey

Three lines of ground magnetics were conducted over prominent magnetic features within EL8971. These were designed to aid drill targeting over these features. Line details are provided in Table 7, whilst the results are provided in Appendix 2. Traverses are indicated on Figure 8.1b.

Table 7 - EL8971 Ground Magnetic Traverse details.

Line #	Start AMG easting	Start AMG northing	Finish AMG easting	Finish AMG northing	Length (m)
33	647875	7675450	647875	7677190	1800
46	648300	7671600	648300	7677180	5600
47	649400	7672100	649400	7677170	5100

8.2 Lag Sampling

A total of 531 reconnaissance lag samples were collected from EL8971. Samples were collected at a nominal 500 $\times$ 500m spacing; however the actual spacings were governed heavily by the abundance of sample media. Sampling was conducted over all areas of subcrop and minimal cover within the lease. Thus the interpreted region of deeper palaeodrainage in the central eastern portion of the lease was not sampled. Sample locations are displayed in Figures 8.1a & b.

The lag samples were sieved to the +2mm fraction, and were sent to Genalysis Laboratories for analysis of the elements listed in Table 8.

Unfortunately follow-up lag sampling around the 23.5ppb lag anomaly at 250 $\times$ 250m spacing (where sufficient sample media) failed to verify the result. The highest result from these samples (#3197901-906) was 0.8ppb Au, with the resample at the same location (#3197901) returning 0.4ppb.

Table 8 - EL8971 Reconnaissance Lag Sampling.

Sample Numbers	Total	Genalysis Method	Elements Analysed
3197612-3197614, 3197630-3197632, 3197658-3197663, 3197676-695 3197704-3197715, 3197849, 3197901-3197906, 3205791-3206000 3208001-3208120, 3208122-3208244 3208246-3208271	531	B*ETA A/MS	Au Fe, Co, Ni, Cu, Zn, As, Mo, Ag, Sn, Sb, W, Pb, Bi, Th, U
531 samples			

8.3 CRC Sampling

A total of 81 CRC samples were collected from outcropping and subcropping areas of in tandem with the lag program. Sample locations are plotted on Figures 8.1a & b. Analytical details are summarised in Table 9.

One sample was also sent to Pontifex and Associates for petrological analysis and the results are submitted in Appendix 3.

Table 9 - EL8971 Reconnaissance CRC Sample Details.

Sample Numbers	Total	Genalysis Method	Elements Analysed
3224201-3224267 787983-787996	81	B*ETA A/MS	Au Fe, Co, Ni, Cu, Zn, As, Mo, Ag, Sn, Sb, W, Pb, Bi, Th, U
81 samples			

8.4 Vacuum Drilling

Systematic vacuum drilling was conducted over the lease as an empirical tool to provide further systematic geochemical coverage, as well as an insight into the geology. Drilling was generally conducted at a spacing of 1-2km × 500m, though this varied depending on the depth of cover and the lithologies encountered. Unfortunately due to rig breakdowns, only the northern third of the lease was covered. Drillholes are located in Figure 8.1b with drilling details listed in Table 10.

Table 10 - EL8971 Vacuum Drilling Details.

Drillhole ID	Total	Metres	Sample Type	Sample ID	Total	Genalysis Method	Elements Analysed
RAMV0001 - 0052	52	415	VBCL	3204012 - 3204063	52	MINIBLEG: (CN0.1MS) Cyanide leach / MS	Au (0.01ppb), Ag (0.1ppb) & Cu (0.01)
			DSL	3207612 - 3207663	52	B * ETA: Aqua regia leach / enhanced sensitivity graphite furnace AAS	Au (01.ppb)
						A / MS: Multi-acid attack / ICPMS	Th(0.01), Mo(0.1), Sb(0.05), W(0.1), Bi(0.01), Sn(0.1), U(0.01), As(1), Pb(2), Ni(1), Fe(0.01%), Cu(1), Zn(10), Co(0.1), Ag(0.1)
			BOH	3235601 - 3235652	52	B * ETA: Aqua regia leach / enhanced sensitivity graphite furnace AAS	Au (01.ppb)
						A/MS	As(1), Cu(1), Zn(10), Ag(0.1)
	52 holes for 415m						

630000E 635000E 640000E

7675000N 7670000N 7665000N 7660000N

ELA 9646
Sangster's Bore

MANKEEPER

EL 8971
Rameriz

EL 9559
Highlander

N
W E
S

0 1000m
SCALE 1:50,000

UTM Zone 52 (AGD66)

Normandy NFM Limited
NORMANDY EXPLORATION PTY LTD

EL8971 - RAMERIZ

SAMPLE & DRILLHOLE LOCALITY PLAN

08/05/2001

LEGEND
CRC Sample △
Lag Sample ▢

FIGURE 8.1a

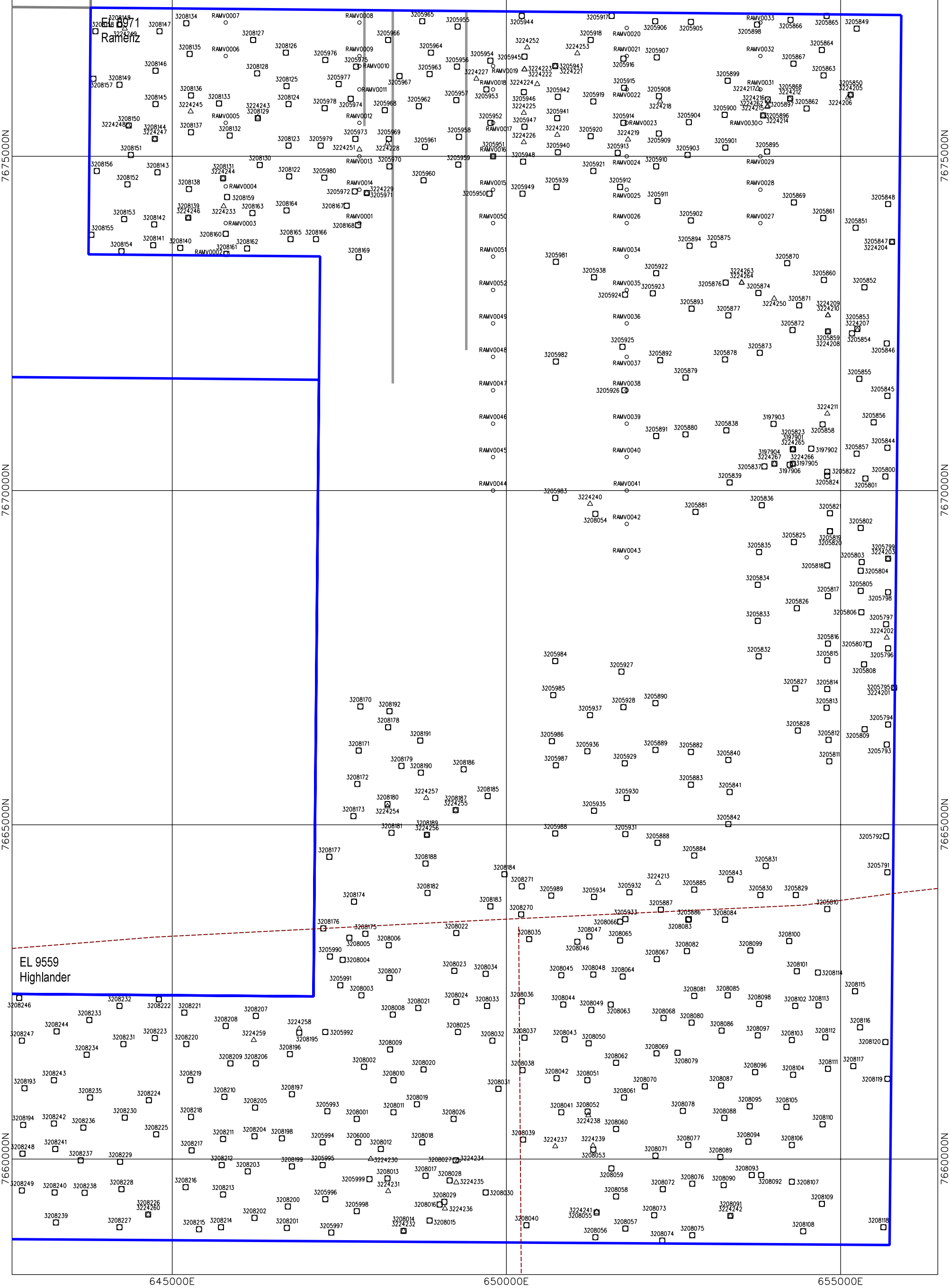
T:\MSDATA\diagram\highland\ramav002.dgn

645000E 650000E 655000E

7675000N 7670000N 7665000N 7660000N

EL 8971
Rameriz

EL 9559
Highlander



N
W E
S

0 2000m
SCALE 1:50,000

UTM Zone 52 (AGD66)

Normandy NFM Limited
NORMANDY EXPLORATION PTY LTD

EL8971 - RAMERIZ

SAMPLE, DRILLHOLE & GROUND MAGNETICS LOCALITY PLAN

08/05/2001

LEGEND
CRC Sample △
Lag Sample □
Vacuum Drillhole ○
Ground Magnetics Traverse —

FIGURE 8.1b

T:\MSDATA\diagram\highland\ramav002.dgn

9. EL9559 - HIGHLANDER

The 2000 Highlander work program was dominated by extensive systematic regional lag and CRC sampling, with more limited vacuum drilling. This was conducted to provide a coherent geochemical and geological picture over regions of subcrop and shallow cover. Various ground magnetic traverses were also collected to aid eventual drilling of magnetic features.

Encouraging CRC results from the subsequently named 'Mankeeper' prospect resulted in a soil sampling both along an orientation line and to provide prospect-scale coverage at this target. This work generated a coherent Au + Cu soil anomaly. A number of regolith RAB holes were drilled across the prospect, with best results of 50m @ 0.42g/t Au. A number of samples from both the RAB and CRC sampling were submitted for petrological analysis.

Work for the report period included:

- Lag Sampling 501 samples
- CRC Sampling 121 samples
- Soil Sampling 638 samples
- Ground Magnetics 24.3km
- Vacuum Drilling 55 holes for 609m: 55 VBCL, 42 DSL & 57 BOH samples
- RAB Drilling 23 holes for 1281m, 427 samples
- Petrology 5 samples

9.1 Ground Magnetics Survey

Eleven lines of ground magnetics were conducted over prominent magnetic features within EL9559. These were designed to aid drill targeting over these features. Line details are provided in Table 11, traverses are displayed on Figures 9.1b & 9.2b, whilst the results are provided in Appendix 2.

Table 11 - EL9559 Ground Magnetic Traverse Details.

Line #	Start AMG easting	Finish AMG easting	Start AMG northing	Finish AMG northing	Length (m)
23	626740	626740	7662480	7664540	1700
24	628760	628760	7662380	7664578	2200
125	630740	630740	7664900	7663001	1900
25	630740	630740	7667340	7665840	1500
26	632740	632740	7667340	7664641	2670
27	635720	63572	7665031	7667628	2598
28	637730	637730	7667940	7665342	2600
29	638700	638700	7666040	7667838	1800
30	640740	640740	7669450	7666651	2800
31	643750	643750	7668260	7671058	2800
32	645740	645740	7671690	7669390	2300

9.2 Lag Sampling

A total of 543 reconnaissance lag samples were collected from EL9559. Sample locations are displayed in Figures 9.1a & b. Samples were collected at a nominal 500 × 500m spacing; however the actual spacings were governed heavily by the abundance of sample media. Coverage of the lease was patchy due to time constraints and extensive regions of interpreted deeper cover. As illustrated in Figures 9.1a & b, sampling was conducted in the western, eastern and southern extremities of the lease.

The lag samples were sieved to the +2mm fraction, and were sent to Genalysis Laboratories for analysis of the elements listed in Table 12.

Table 12 - EL9559 Reconnaissance Lag Sampling.

Sample Numbers	Total	Genalysis Method	Elements Analysed
3197601-611, 615-629, 633-657, 664-675, 696-703, 716-720, 801-848, 850-900 3201701-3201800 3208245, 3208272-3208304 3205518, 3205523 3205551-557, 564-672, 674-739, 777, 784-790	501	B*ETA	Au
		A/MS	Fe, Co, Ni, Cu, Zn, As, Mo, Ag, Sn, Sb, W, Pb, Bi, Th, U
501 samples			

9.3 CRC Sampling

A total of 121 CRC samples were collected from outcropping and subcropping areas in tandem with the lag sampling, as well as during follow-up work. Sample locations are plotted on Figures 9.2a & b. Analytical details are summarised in Table 13.

This work produced some significant results in the region of the subsequently named 'Mankeeper' prospect towards the eastern end of the lease.

Table 13 - EL9559 Reconnaissance CRC Sample Details.

Sample Numbers	Total	Genalysis Method	Elements Analysed
787801-787840 787845-787849 7879881-787894 787940-787982 3237977-3237995	121	B*ETA	Au
		A/MS	Fe, Co, Ni, Cu, Zn, As, Mo, Ag, Sn, Sb, W, Pb, Bi, Th, U
121 samples			

9.4 Soil Sampling

Two soil programs were conducted in the Highlander lease, both at the Mankeeper prospect. Sample locations are illustrated in Figure 9.3. A soil orientation line was collected across the best CRC results in order to assess the effectiveness of various analytical techniques at this locality. These samples (3241708-3241725) were collected at 20m spacings along AMG 636400E, and sieved to the -180µm fraction. They were then analysed by a number of different methods, as detailed in Table 14. All techniques revealed a small but distinct peak at 7666380N, with peak values of 2.6-3.3ppb Au.

Subsequently, 620 samples (3255001 - 3255620) were collected on a 500m × 50m spacing across the Mankeeper region in order to identify the orientation of anomalism. Analytical details are provided in Table 14. This revealed an 800m long NW-SE orientated Au (1-4ppb) + Cu (+7ppm) anomaly coincident with a regional magnetic trend.

Table 14 - EL9559 Soil Sampling Details.

Sample Numbers	Total	Mesh size	Laboratory	Method	Elements Analysed
3241708 - 3241725	18	-180µm	Genalysis	B*ETA	Au (01.ppb)
				B/MS	As (0.5ppm)
				MINIBLEG	Au (0.01ppb), Ag (0.01) & Cu (0.01)
			Amdel	ARM1	Au (0.1ppb), Ag(0.01), As(0.5), Bi(0.1), Cu(0.2), Pb(0.2), Sb(0.1), & Zn(0.5)
3255001 - 3255620	620	-180µm	Amdel	ARM1	As above
				Selected reassaying by ACE1	Au (0.05ppb), Ag (0.5ppb) & Cu (5ppb)
638 samples					

9.5 Vacuum Drilling

Systematic vacuum drilling was conducted over portions of the lease as an empirical tool to provide further systematic geochemical coverage, as well as an insight into the geology. Drilling was generally conducted at a spacing of 1-2km × 500m, though this varied depending on the depth of cover and the lithologies encountered. Only a very minor amount of vacuum drilling was conducted due to the interpreted depth of cover and rig breakdowns, at the western and eastern extremities of the lease.

Drillholes are located on Figures 9.2a & b, with drilling details listed in Table 15.

The results from this were subdued, with only isolated low-order anomalous results from the VBCL, DSL & BOH samples. However, the limited number of holes leaves significant areas untested. The main lithologies intersected were granites, especially in the western portion of the lease.

Table 15 - EL9559 Vacuum sampling details.

Drillhole ID	Total	Metres	Sample Type	Sample ID	Total	Genalysis Method	Elements Analysed
HIV0001 - 0055	55	609	VBCL	3204001 – 3204011 3204262 - 3204305	55	MINIBLEG: (CN0.1MS) Cyanide leach / MS	Au (0.01ppb), Ag (0.1ppb) & Cu (0.01)
			DSL	3207601 – 3207611 3207916 – 3207945 3257933	42	B * ETA: Aqua regia leach / enhanced sensitivity graphite furnace AAS	Au (01.ppb)
						A / MS: Multi-acid attack / ICPMS	Th(0.01), Mo(0.1), Sb(0.05), W(0.1), Bi(0.01), Sn(0.1), U(0.01), As(1), Pb(2), Ni(1), Fe(0.01%), Cu(1), Zn(10), Co(0.1), Ag(0.1)
			BOH	3235588 – 3235600 3237933 - 3237976	57	B * ETA: Aqua regia leach / enhanced sensitivity graphite furnace AAS	Au (01.ppb)
						A/MS	As(1), Cu(1), Zn(10), Ag(0.1)
55 holes for 609m,					**154 samples**		

9.6 RAB Drilling

The Highlander RAB drilling program was focussed on assessing the regolith and bedrock geochemistry over the Mankeeper prospect. A total of 22 RAB holes were drilled on DME-approved traverse lines, whilst one hole (HIRB0021) was granted special approval by the DME to be drilled off an approved traverse on the Mankeeper prospect due to anomalous CRC results. Holes are located in Figures 9.1a & b, with drilling and analysis details provided in Table 16.

Five samples were also sent to Pontifex and Associates for petrological anaylsis and the results are submitted in Appendix 3.

Table 16 - EL9559 RAB Sampling Details.

Drillhole ID	Azimuth	Dip	Total	Metres	Sample ID	Total	Laboratory	Method	Elements Analysed
HIRB0002 – HIRB0004	0	-90	23	1281m	3150789 – 3151000 3224301 - 3224515	427	Amdel	ARM1: Aqua regia digest / ICPMS	Au (0.1ppb), Ag(0.01), As(0.5), Bi(0.1), Cd(0.1), Co(0.2), Cu(0.2), Mo(0.1), Ni(1), Pb(0.2), Sb(0.1), Se(0.5), Te(0.1) & Zn(0.5)
HIRB0005- HIRB0024	0	-60							
	23 holes for 1281m					**427 samples**			

580000E 590000E 600000E 610000E

7680000N 7670000N 7660000N

ELA 7357
Inningarra

EL 9563
Lowlander

ELA 9646
Sangster's Bore

EL 9559
Highlander

EL 8970
McLeod

ELA 22358
Inningarra

LEGEND
Lag Sample
RAB Drillhole

N W E S
0 2000m
SCALE 1:100,000

UTM Zone 52 (AGD66)

Normandy NFM Limited
NORMANDY EXPLORATION PTY LTD

EL 9559 - HIGHLANDER

Lag Sample & RAB Drillhole Locality Plan

04/05/2001

FIGURE 9.1a

T:\MSDATA\diagram\highland\higav002.dgn

620000E 630000E 640000E 650000E

7680000N

7670000N

7660000N

Numerous small dry lakes

ELA 22758
Conner

EL 8971
Rameriz

Average height of sandridges 6 metres

Average height of sandridges 6 metres

EL 9559
Highlander

N
W E
S
0 2000m
SCALE 1:100,000

UTM Zone 52 (AGD66)

LEGEND
Lag Sample
RAB Drillhole
Ground Magnetics Traverse

Normandy NFM Limited
NORMANDY EXPLORATION PTY LTD

EL9559 - HIGHLANDER

Lag Sample, RAB Drillhole &
Ground Magnetics Traverse Locality Plan

04/05/2001

FIGURE 9.1b

T:\MSDATA\diagram\highland\higav002.dgn

580000E 590000E 600000E 610000E

7680000N 7670000N 7660000N

Average height of sandridges 5 metres

ELA 7357
Inningarra

EL 9563
Lowlander

ELA 9646
Sangster's Bore

EL 9559
Highlander

Average height of sandridges 9 metres

EL 8970
McLeod

ELA 22358
Inningarra

HIV0044 HIV0043 HIV0040 HIV0039 HIV0042 HIV0041 HIV0045 HIV0038 HIV0046 HIV0037 HIV0034 HIV0033 HIV0035 HIV0031 HIV0047 HIV0032 HIV0036 HIV0027 HIV0030 HIV0049 HIV0055 HIV0026 HIV0048 HIV0028 HIV0025 HIV0050 HIV0054 HIV0051 HIV0024 HIV0052 HIV0053 HIV0023 HIV0022 HIV0015 HIV0017 HIV0014 HIV0016 HIV0013 HIV0012 HIV0021 HIV0020 HIV0019 HIV0018

755272 787829 787830 787831 787832 787840 787839 787838 787837 787834 787833 787836 787835 787828 787824 HIV0029 787823 787826 787825 787827 787822 787819 787817 787818 787820 787821 787816 787810 787809 787811 787812 787813 787814 787815 787804 787805 787803 787806 787807 787808 787801 787802 787942 787943 787944 787940

N
W E
S
0 2000m
SCALE 1:100,000

UTM Zone 52 (AGD66)

LEGEND
CRC Sample △
Vacuum Drillhole ○

Normandy NFM Limited
NORMANDY EXPLORATION PTY LTD

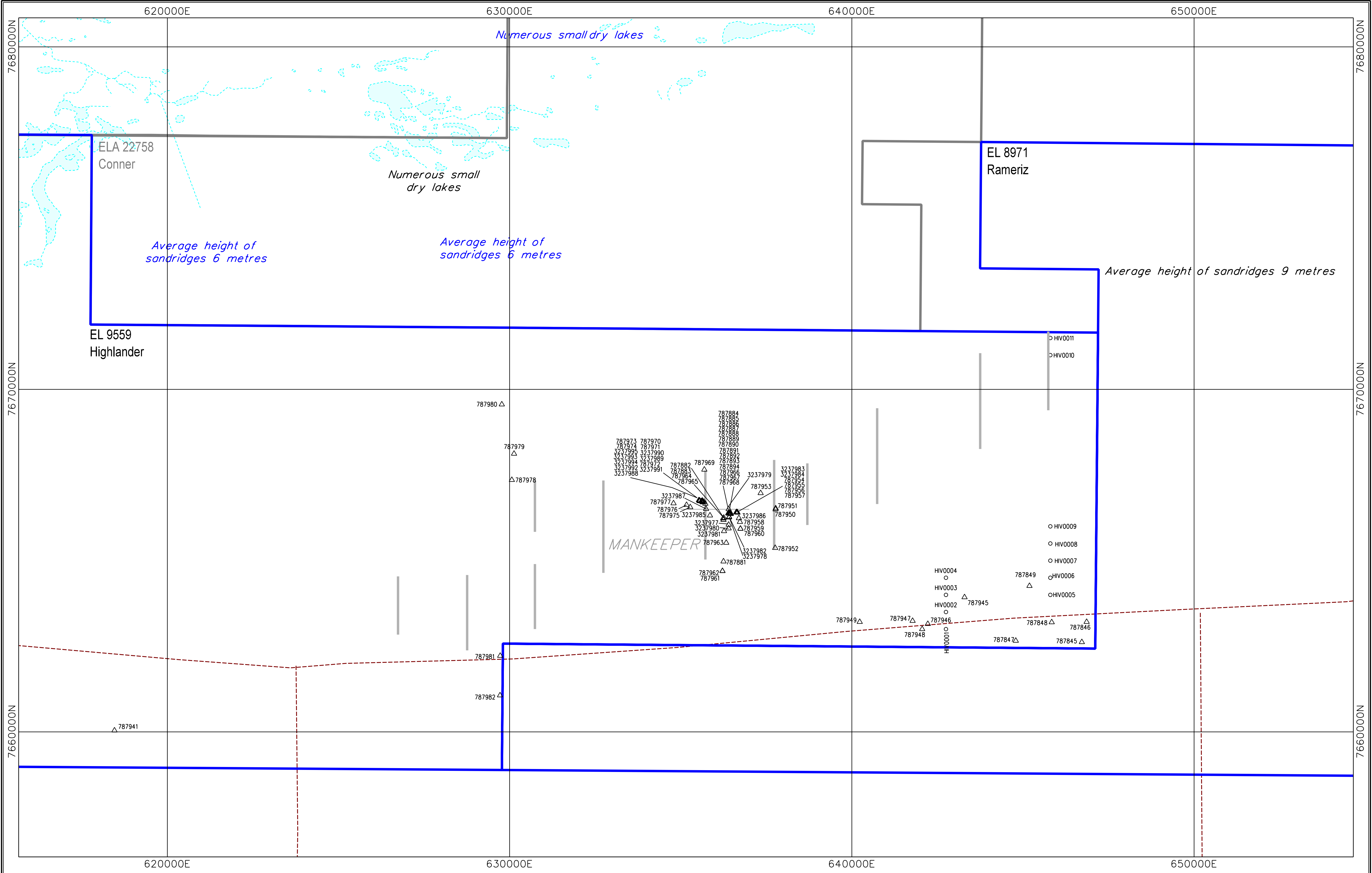
EL 9559 - HIGHLANDER

CRC Sample & Vacuum Drillhole Locality Plan

23/05/2001

FIGURE 9.2a

T:\MSDATA\diagram\highland\higav003.dgn



N
W E
S

0 2000m
SCALE 1:100,000

UTM Zone 52 (AGD66)

LEGEND
CRC Sample △
Vacuum Drillhole ○
Ground Magnetics Traverse —

Normandy NFM Limited
NORMANDY EXPLORATION PTY LTD

EL9559 - HIGHLANDER

CRC Sample, Vacuum Drillhole &
Ground Magnetics Traverse Locality Plan

04/05/2001

FIGURE 9.2b

T:\MSDATA\diagram\highland\higav003.dgn

634000E 636000E 638000E 640000E

7668000N

7666000N

7664000N

34800E

66500N

MANKEEPER

3255049 3255048 3255047 3255046 3255045 3255044 3255043 3255042 3255041 3255040 3255039 3255038 3255037 3255036 3255035 3255034 3255033 3255032 3255031 3255030 3255029 3255028 3255027 3255026 3255025 3255024 3255023 3255022 3255021 3255020 3255019 3255018 3255017 3255016 3255015 3255014

3255013 3255012 3255011 3255010 3255009 3255008 3255007 3255006 3255005 3255004 3255003 3255002 3255001

3255050 3255051 3255052 3255053 3255054 3255055 3255056 3255057 3255058 3255059 3255060 3255061 3255062 3255063 3255064 3255065 3255066 3255067 3255068 3255069 3255070 3255071 3255072 3255073 3255074 3255075 3255076 3255077 3255078 3255079 3255080 3255081 3255082 3255083 3255084 3255085

3255086 3255087 3255088 3255089 3255090 3255091 3255092 3255093 3255094 3255095 3255096 3255097 3255098

3255154 3255153 3255152 3255151 3255150 3255149 3255148 3255147 3255146 3255145 3255144 3255143 3255142 3255141 3255140 3255139 3255138 3255137 3255136 3255135 3255134 3255133 3255132 3255131 3255130 3255129 3255128 3255127 3255126 3255125 3255124 3255123 3255122 3255121 3255120 3255119

3255118 3255117 3255116 3255115 3255114 3255113 3255112 3255111 3255110 3255109 3255108 3255107 3255106 3255105 3255104 3255103 3255102 3255101 3255100 3255099

3255155 3255156 3255157 3255158 3255159 3255160 3255161 3255162 3255163 3255164 3255165 3255166 3255167 3255168 3255169 3255170 3255171 3255172 3255173 3255174 3255175 3255176 3255177 3255178 3255179 3255180 3255181 3255182 3255183 3255184 3255185 3255186 3255187 3255188 3255189 3255190

3241708 3241709 3241710 3241711 3241712 3241713 3241714 3241715 3241716 3241717 3241718 3241719 3241720 3241721 3241722 3241723 3241724 3241725

3255191 3255192 3255193 3255194 3255195 3255196 3255197 3255198 3255199 3255200 3255201 3255202 3255203

3255292 3255291 3255290 3255289 3255288 3255287 3255286 3255285 3255284 3255283 3255282 3255281 3255280 3255279 3255278 3255277 3255276 3255275 3255274 3255273 3255272 3255271 3255270 3255269 3255268 3255267 3255266 3255265 3255264 3255263 3255262 3255261 3255260 3255259 3255258 3255257 3255256 3255255 3255254 3255253 3255252 3255251 3255250 3255249 3255248 3255247 3255246 3255245 3255244 3255243 3255242 3255241 3255240 3255239 3255238 3255237 3255236 3255235 3255234 3255233 3255232 3255231 3255230 3255229 3255228 3255227 3255226 3255225 3255224 3255223 3255222 3255221 3255220 3255219 3255218 3255217 3255216 3255215 3255214 3255213 3255212 3255211 3255210 3255209 3255208 3255207 3255206 3255205 3255204

3255293 3255294 3255295 3255296 3255297 3255298 3255299 3255300 3255301 3255302 3255303 3255304 3255305 3255306 3255307 3255308 3255309 3255310 3255311 3255312 3255313 3255314 3255315 3255316 3255317 3255318 3255319 3255320 3255321 3255322 3255323 3255324 3255325 3255326 3255327 3255328 3255329 3255330 3255331 3255332 3255333 3255334 3255335 3255336 3255337 3255338 3255339 3255340 3255341

3254432 3254431 3254430 3254429 3254428 3254427 3254426 3254425 3254424 3254423 3254422 3254421 3254420 3254419 3254418 3254417 3254416 3254415 3254414 3254413 3254412 3254411 3254410 3254409 3254408 3254407 3254406 3254405 3254404 3254403 3254402 3254401 3254400 3255399 3255398 3255397 3255396 3255395 3255394 3255393 3255392 3255391 3255390 3255389 3255388 3255387 3255386 3255385 3255384 3255383 3255382 3255381 3255380 3255379 3255378 3255377 3255376 3255375 3255374 3255373 3255372 3255371 3255370 3255369 3255368 3255367 3255366 3255365 3255364 3255363 3255362 3255361 3255360 3255359 3255358 3255357 3255356 3255355 3255354 3255353 3255352 3255351 3255350 3255349 3255348 3255347 3255346 3255345 3255344 3255343 3255342

3254433 3254434 3254435 3254436 3254437 3254438 3254439 3254440 3254441 3254442 3254443 3254444 3254445 3254446 3254447 3254448 3254449 3254450 3254451 3254452 3254453 3254454 3254455 3254456 3254457 3254458 3254459 3254460 3254461 3254462 3254463 3254464 3254465 3254466 3254467 3254468 3254469 3254470 3254471 3254472 3254473 3254474 3254475 3254476 3254477 3254478 3254479 3254480

3254481 3254482 3254483 3254484 3254485 3254486 3254487 3254488

3255549 3255548 3255547 3255546 3255545 3255544 3255543 3255542 3255541 3255540 3255539 3255538 3255537 3255536 3255535 3255534 3255533 3255532 3255531 3255530 3255529 3255528 3255527 3255526 3255525 3255524 3255523 3255522 3255521 3255520 3255519 3255518 3255517 3255516 3255515 3255514 3255513 3255512 3255511 3255510 3255509 3255508 3255507 3255506 3255505 3255504 3255503 3255502 3255501 3255500 3255499 3255498 3255497 3255496 3255495 3255494 3255493 3255492 3255491 3255490 3255489

3255550 3255551 3255552 3255553 3255554 3255555 3255556 3255557 3255558 3255559 3255560 3255561 3255562 3255563 3255564 3255565 3255566 3255567 3255568 3255569 3255570 3255571 3255572 3255573 3255574 3255575 3255576 3255577 3255578 3255579 3255580 3255581 3255582 3255583 3255584 3255585 3255586 3255587 3255588 3255589 3255590 3255591 3255592 3255593 3255594 3255595 3255596 3255597 3255598 3255599 3255600 3255601 3255602 3255603 3255604 3255605 3255606 3255607 3255608 3255609 3255610 3255611 3255612 3255613 3255614 3255615 3255616 3255617 3255618 3255619 3255620

634000E 636000E 638000E 640000E

N

W E

S

0 400m

SCALE 1:20,000

UTM Zone 52 (AGD66)

LEGEND

SBCL Sample

SOIL Sample

Normandy NFM Limited

NORMANDY EXPLORATION PTY LTD

MANKEEPER PROSPECT

SAMPLE LOCALITY PLAN

23/05/2001

FIGURE 9.3

T:\MSDATA\diagram\highland\mnkav001.dgn

10. EL9562 – ICEBOX

The majority of the work program was focussed on aircore drilling / assessment of magnetic targets under deeper cover. A minor ground magnetic survey was carried out to assist in this targeting. A program of lag and CRC sampling was also conducted to extend the regional surficial sampling instigated in 1999. A limited program of regional vacuum drilling was also conducted. The latter two programs were designed to provide a coherent geochemical and geological picture over regions of subcrop and shallow cover.

Work for the report period included:

- Lag Sampling 94 samples
- CRC Sampling 2 samples
- Ground Magnetics 13.4km
- Vacuum Drilling 30 holes for 385m: 30 VBCL, 28 DSL & 27 BOH samples
- Aircore Drilling 51 holes for 2888m, 964 samples

10.1 Ground Magnetics Survey

Three lines of ground magnetics were conducted over prominent magnetic features within EL9562. These were designed to aid drill targeting over these features. Line details are provided in Table 17, whilst the results are provided in Appendix 2.

Table 17 - EL9562 Ground Magnetic Traverse Details.

Line #	Start AMG easting	Start AMG northing	Finish AMG easting	Finish AMG northing	Length (m)
37	667650	667650	7671650	7677000	5350
38	669600	669600	7671200	7676975	5775
42	681500	681500	7673750	7676050	2300

10.2 Lag Sampling

Continuing with the extensive regional surficial sampling program instigated in 1999, 94 lag samples were collected at a nominal 500 × 500m spacing; however the actual spacings were governed heavily by the abundance of sample media. Sample locations are displayed in Figure 10.1. Due to time constraints, the remaining areas of the lease considered amenable to this method were not sampled.

The lag samples were sieved to the +2mm fraction, and were sent to Genalysis Laboratories for analysis of the elements listed in Table 18.

No results of significance were returned from this program.

Table 18- EL9562 Reconnaissance Lag Sampling.

Sample Numbers	Total	Genalysis Method	Elements Analysed
3201901 - 3201994	94	B*ETA A/MS	Au Fe, Co, Ni, Cu, Zn, As, Mo, Ag, Sn, Sb, W, Pb, Bi, Th, U
94 samples			

10.3 CRC Sampling

Continuing with the extensive regional surficial sampling program instigated in 1999, 2 CRC samples were collected opportunistically in tandem with the lag sampling program. Sample locations are plotted on Figure 10.1, and analytical details are summarised in Table 19. No results of significance were returned from this program.

Table 19 - EL9562 Reconnaissance CRC Sample Details.

Sample Numbers	Total	Genalysis Method	Elements Analysed
787599 - 787600	2	B*ETA A/MS	Au Fe, Co, Ni, Cu, Zn, As, Mo, Ag, Sn, Sb, W, Pb, Bi, Th, U
2 samples			

10.4 Vacuum Drilling

Due to time constraints, only 30 vacuum holes were drilled in the north-western corner of the license. This was conducted as an empirical tool to provide further systematic geochemical coverage, as well as an insight into the geology. Drilling was generally conducted at a spacing of 1-2km × 500m, though this varied depending on the depth of cover and the lithologies encountered. These holes are located in Figure 10.1, with analytical and drilling details presented in Table 20.

This work returned a number of low-order anomalous results along the western lease boundary.

Table 20 - EL9562 Reconnaissance Vacuum Drilling Details.

Drillhole ID	Total	Metres	Sample Type	Sample ID	Total	Genalysis Method	Elements Analysed
ICV0001 - 0030	30	385	VBCL	3204064 – 3204067 3204306 - 3204331	30	MINIBLEG: (CN0.1MS) Cyanide leach / MS	Au (0.01ppb), Ag (0.1ppb) & Cu (0.01)
			DSL	3207664 – 3207667 3207808 - 3207831	28	B * ETA: Aqua regia leach / enhanced sensitivity graphite furnace AAS	Au (01.ppb)
						A / MS: Multi-acid attack / ICPMS	Th(0.01), Mo(0.1), Sb(0.05), W(0.1), Bi(0.01), Sn(0.1), U(0.01), As(1), Pb(2), Ni(1), Fe(0.01%), Cu(1), Zn(10), Co(0.1), Ag(0.1)
			BOH	3235655 – 3235664 3237832 - 3237848	27	B * ETA: Aqua regia leach / enhanced sensitivity graphite furnace AAS	Au (01.ppb)
						A/MS	As(1), Cu(1), Zn(10), Ag(0.1)
	30 holes for 385m						

10.5 Aircore Drilling

An intense program of aircore drilling was conducted across various magnetic targets under interpreted deeper cover. This was aimed at assessing the prospectivity of these targets prior to ground relinquishment through evaluation of bedrock geology, geochemistry and the regolith profile.

A total of 51 holes were drilled across the license, generally as solitary holes along prominent regional magnetic features. A number of these were targeted by the ground magnetic profiles collected during the year (see Section 10.3). Hole locations are displayed on Figure 10.1, with drilling and analytical details provided in Table 21.

Best results from this work were 2m @ 53ppb Au from 78m BOH (ICAC0104) and 35ppm As (ICAC0128). Significant depths of cover were intersected.

Table 21 - EL9562 Reconnaissance Aircore Sampling Details.

Drillhole ID	Azimuth	Dip	Total	Metres	Sample ID	Total	Amdel Method	Elements Analysed
ICAC0097-ICAC0147	0	-90	51	2888m	3222001 - 3222964	964	ARM1: Aqua regia digest / ICPMS	Au (0.1ppb), Ag(0.01), As(0.5), Bi(0.1), Cd(0.1), Co(0.2), Cu(0.2), Mo(0.1), Ni(1), Pb(0.2), Sb(0.1), Se(0.5), Te(0.1) & Zn(0.5)
	51 holes for 2888m					**964 samples**		

Normandy NFM Limited

NORMANDY EXPLORATION PTY LTD

Tanami Reconnaissance : Northern Territory

EL9562 - ICEBOX

Sample, Drillhole & Ground Magnetics Traverse Locality Plan

Transverse Mercator Projection - UTM Zone 52
Australian Geodetic Datum - AGD66

metres 2000 0 2000 4000 6000 8000

SCALE 1:100,000

DATA BY : NORMANDY EXPLORATION | PLAN No. : Figure 10.1

DATE : MAY 2001 | AMEND : 07/05/2001

660000E 670000E 680000E 690000E 700000E 710000E 720000E 730000E

7680000N 7670000N 7660000N 7650000N 7640000N

LEGEND
- CRC Sample
- Lag Sample
- Vacuum Drillhole
- Aircore Drillhole
- Ground Magnetics Traverse

ELA 22511 Fiddler

EL 9562 Icebox

ELA 9620 Paddy (veto)

Average height of sandridges 7 metres

Average height of sandridges 5 metres

Refrigerator Bore

TANAMI ROAD

Rocky ridge

. MCDIARMID HILL 453

Claypans

Renahans Bore

Puyurru

11. EL9563 - LOWLANDER

EL 9563 is located on the northern boundary of the Highlander EL (9559). Unfortunately access to the lease is significantly hindered by the large E-W trending dunes along this boundary. In particular the asymmetrical nature of these dunes, with steeper northern slopes than southern, presented a formidable obstacle on the return journey, even in a Toyota Landcruiser. Rig access to this ground will be impossible until the Inningarra lease is granted, allowing access from the west.

Nevertheless, a minor amount of surficial reconnaissance work was carried out as listed below.

Work for the report period included:

- Lag Sampling 10 samples
- CRC Sampling 17 samples

11.1 Lag Sampling

The 10 lag samples collected constituted the first samples on this ground. Samples were sieved to the +2mm fraction. Sample locations are presented on Figure 11.1, with analytical details listed in Table 22.

No results of interest were returned from this work.

Table 22 - EL9563 Reconnaissance Lag Sampling.

Sample Numbers	Total	Genalysis Method	Elements Analysed
3197597-3197600 3205516-3205517 3205519-3205522	10	B*ETA A/MS	Au Fe, Co, Ni, Cu, Zn, As, Mo, Ag, Sn, Sb, W, Pb, Bi, Th, U
10 samples			

11.2 CRC Sampling

Seventeen CRC samples were collected in tandem with the lag reconnaissance program. These were dominantly silcrete and calcrete material, and were thought to be largely unrepresentative of bedrock. A significant depth of cover is therefore interpreted throughout the lease. Samples are located on Figure 11.1, with analytical details presented in Table 23.

No results of merit were returned from this work.

Table 23 - EL9563 Reconnaissance CRC Sample Details.

Sample Numbers	Total	Genalysis Method	Elements Analysed
787756-757 787759-762 787764-766 787768-775	17	B*ETA A/MS	Au Fe, Co, Ni, Cu, Zn, As, Mo, Ag, Sn, Sb, W, Pb, Bi, Th, U
17 samples			

585000E 587500E 590000E

ELA 7357
Inningarra

ELA 9646
Sangster's Bore

EL 9563
Lowlander

EL 9559
Highlander

7685000N
7682500N
7680000N
7677500N

787766
787765
787764
787768
787762
787761
787769
787760
787770
787759
787757
3205517
3205519
787771
3205516
3205520
787775
787772
787773
787774
3197600
3197599
3205521
3197598
3197597
3205522

N
W E
S
0 500m
SCALE 1:25,000

UTM Zone 52 (AGD66)

Normandy NFM Limited
NORMANDY EXPLORATION PTY LTD

EL9563 - LOWLANDER

SAMPLE LOCALITY PLAN

MAY 2001

LEGEND
CRC Sample △
Lag Sample ▢

FIGURE 11.1

T:\MSDATA\diagram\highland\lowav001.dgn

12. REFERENCE LIST / ANNUAL REPORT BIBLIOGRAPHY

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REPORTS TO THE NTDME

Zdziarski, A. & Whittaker, E., 2000. First Annual Report fro the Highland Rocks Project for the 1999 Field Season. Normandy NFM Ltd. RN26545

APPENDIX 1: DIGITAL DATA (CD)

&

APPENDIX 2: GEOPHYSICAL SURVEY RESULTS

APPENDIX 3: PETROLOGICAL SAMPLE DESCRIPTIONS

Report #	Author	Date	Work	Geo	Prospect				Notes
Petrology #	Count	ID	Type	NFM	Sample #	From	To	Easting	Northing	Description

Highland Rocks

EL8970 McLeod

P7979 PU 14/06/2000 TS EW McLeod (EL)

P06528	1		OC	787657			787657	3196864	Quartz-clay-limonite altered, fine-grained schist with variously altered porphyroblasts and smaller crystals. This may have been an amphibole-chlorite-biotite schist, but this is uncertain and the metamorphic history is unclear.
P06529	1		OC				570790	7673344	Banded and irregularly folded marble-calc-silicate/potassic calc-silicate rock with dominant calcite, subordinate clinopyroxene, wollastonite, minor garnet , plagioclase, microcline and sphene. (Amphibolite facies to hoornblende [or pyroxene] hornfels grade, metamorphosed impure limestone).
P06530	2		OC				572961	7664981	Mesobanded and microbanded sequence of intercalated chert with subordinate metaferruginous 'claystone' which incorporates numerous authigenic tourmaline grains and rare barite. Minor limonitised to leached crosscutting veinlets.
P06534	1		DC	3237744	3.6	5.4	571750	7673000	Hornblende-bearing, two-pyroxene mafic granulite with weak retrogression to actinolite/hornblende and cummingtonite.
P06535	2		OC	3224299			568758	7661523	Breccia of quartz fragments in a tourmaline-rich matrix with later quartz veins. Metamorphic grade uncertain.
P06536	3		OC	787997			572291	7674448	Chips of deformed coarse to medium grained augen gneiss, with quartz, plagioclase and minor microcline, locally flooded by limonite, locally with accessory graphite and veins of manganese oxide. Other chips of finer and more equigranular geniss with microcline, quartz, altered biotite, accessory graphite and lenses of manganese oxide, passing into clay and limonite-flooded chips. Some quartz veins occur. Thes chips may be partly meta-igneous and partly metasediments (pelite with potassic alteration?). Metamorphic grade is possibly amphibolite facies.
P06537	1		OC	787871			571115	7675149	Quartz-rich gneiss with minor graphite including quartz-poor layers largely replaced by carbonate flooding related to calcrete. Patchy fine limonitic boxwork in carbonate veins may replace fine crystalline carbonate possibly earlier than the calcrete (?hydrothermal). Interpreted as a metasediment but of uncertain exact genesis and grade.

Report # / Petrology #	Author	Date	Work Count	ID	Geo Type	NFM	Prospect Sample #	From To	Easting	Northing	Notes Description
EL8971				**Ramirez**							
P7993	**PO**	**21/07/2000**	**TS**		**EJW**		**Ramirez (EL)**				***Ramirez and McLeod prospects***
P06531			1		OC		3224263		653518	7673107	Silcrete with abundant grains of quartz, and minor fragments of quartzite, incorporated within a cement of hematite and extremely fine clouded possible quartz-anatase-zircon.
P06532			2		OC		787922		568012	7674683	Massive stressed, irregularly inequigranular vein quartz, incorporating minor localised graphite within lenses with microcrystalline quartz or kaolin, also along stylolite-like veins, probably as relict metasedimentary fragments (but possibly hydrothermal graphite) +/- limonite.
P06533			3		OC		755227		568740	7673550	Medium grained metagabbro with abundant largely seriticised plagioclase, recrystallised tremolite and minor residual brown hornblende. Accessory ilmenite, limonite apparently after pyrite, also minor patches of barite rimmed by prehnite.

Report # / Petrology #	Author	Count	Date / ID	Work Type	Geo NFM	Prospect Sample #	From	To	Easting	Northing	Notes Description
EL9559			**Highlander**								
P8033	**PU**		**20/10/2000**	**TS**	**EJW**	**Highlander (EL)**					
P06538		1	HIRB004	DC			51	54	635720	7666660	Layered microcline-biotite-plagioclase-garnet schist with apatite and graphite. The plagioclase has all been replaced by sericite, and the rock seems to have been enriched in potassium. The polished section is supergene granular pyrite, melnikovite pyrite, limonite and clay.
P06539		1	HIRB021	DC		3224422	24	27	636400	7666365	Fine-grained amphibolite with plagioclase > brownish green hornblende and accessory sphene. Minor tremolite-epidote-sericite alteration scattered and in veins, accessory limonite-clay pseudomorphs of possible sulphide and late prrehnite veins.
P06540		2	HIRB021	DC		3224429	45	48	636400	7666365	Chips with areas of amphibolite as in the previous sample with weak to strong regression indicated by tremolite-actinolite +/- epidote and sericite-clouded plagioclase. Lenses and veins of epidote are present with limonite-clay patches and hydrothermal apatite in the veins, with limonite flooding adjacent to one vein. There is also a chip of vein quartz.
P06541		3	HIRB021	DC		3224431	51	54	636400	7666365	Four chips - amphibolite passing into tremolite-epidote-sericite rich, retrogressed assemblages with clay-prehnite altered biotite in one chip. Four chips - quartz-rich to carbonaceous and sericite rich metasediments with fresh to limonitised carbonate and disseminated tourmaline. Two chips - vein quartz with rare microspherulite graphite.
P06542		4	HIRB021	DC		3224437	69	72	636400	7666365	Five chips:- weakly retrogressed schistose amphibolite with minor tremolite-actinolite and epidote, linmonite-lined fractures and limonite after sulphide +/- carbonate. One chip:- quartz-rich metasandstone with plagioclase, micrtocline, biotite and apatite. One chip:- Pegmatite with quartz, plagioclase and very minor microcline.

Petrology Report Numbers are suffixed with a, b, c etc to enable classification into project areas.
For example, the existence of Report Nos. P1234, P1234a and P1234b indicates that samples described in the report are from three distinct prospect areas.

BIBLIOGRAPHIC DATA SHEET

REPORT NUMBER:	28005
REPORT TITLE:	Second Annual Report for the Highland Rocks Project for the 2000 Field Season
PROSPECT NAME:	Highland Rocks, McLeod, Highlander, Icebox, Lowlander, Rameriz, Mankeeper, The Minch, Targe
TENEMENT NUMBERS:	EL.s 8970, 8971, 9559, 9562, 9563
OWNER/JV PARTNERS:	Normandy NFM Ltd 100%
COMMODITIES:	Gold
TECTONIC UNITS:	Tanami Inlier, Arunta Inlier
STRATIGRAPHIC UNITS:	Davidson Beds
1:250,000 MAPSHEET/S:	The Granites SF52-3 Highland Rocks SF52-7 Mt Theo SF52-8
1:100,000 MAPSHEET/S:	Wickham 4855 Highland 4955 McDiarmid 5055 Theo 5155
KEYWORDS:	RAB Drilling, Aircore Drilling, Vacuum Drilling, Reconnaissance, Lag Sampling, Rock Chip Sampling, Soil Sampling, Geophysics, Ground Magnetics Survey, Orientation Survey