MANTLE MINING CORPORATION LIMITED

(ABN 70 107 180 441)

BARKLY PROJECT

Relinquishment Report for the Period
05 Oct 2009 to 04 Oct 2011

For

EL 26037 – Boomerang Creek

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Target Commodities: Phosphate, Base Metals
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Report Date: 13 Dec, 2011
Datum/Zone: GDA94/Zone 53

250k mapsheet: Mt Drummond
100k mapsheet: Mitchiebo, Carrara

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Distribution:
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1. ABSTRACT

This report presents details of work completed by Mantle Mining Corporation (Mantle) on surrendered areas of Exploration License (EL) 27037 during the period of tenure 05 Oct 2009 to 04 Oct 2011. The tenement comprised part Mantle's Barkly Project, covering portions of the Georgina Basin on the Barkly Tableland considered to be prospective for phosphate mineralisation. Potential also exists for the discovery of deposits of base metals, uranium and potash in these areas.

A desktop review of the tenement area was undertaken as part of a regional assessment of Mantle's Barkly Project Area during 2007 and into early 2008. This work provided the basis for a program of field reconnaissance during the 4th quarter of 2008, which did not reveal any obvious signs of mineralisation (P, U, base metals) at any potential sites identified by the desktop studies.

No field work was undertaken on the Barkly Project between December 2008 and August 2009 as Mantle undertook steps to conserve resources and confirm funding as a consequence of the Global Financial Crisis.

During the period late November to early December 2009, a programme of regional reconnaissance drilling completed no drillholes within the relinquished areas. In September 2010, 5 reverse circulation drillholes (BTRC037, 039 –0 41, and 047) were completed for a total of 262 metres.

A total of 262 1-metre split drill samples were collected and submitted for laboratory testing.

The results of this work have indicated that the discovery of a large deposit of phosphate mineralisation was unlikely to be present at shallow depth within the relinquished areas of EL 27037.

2. INTRODUCTION

Mantle Mining Corporation Ltd ("Mantle") was admitted to the Australian Stock Exchange on 22nd November 2006. Mantle Mining is a diversified Australian minerals exploration company with a large portfolio of quality projects across a range of "In High Demand" commodities. These include gold, coal & coal bed methane (hydrocarbon energy), uranium (non hydrocarbon energy) and phosphate.

EL 27037 is located on the Barkly Tableland approximately 350km east-north-east of Tennant Creek and 80km west of the NT-Queensland border (see figures 1 and 2).

EL 27037 is located within the Mt Drummond 1:250,000 map sheet.

The exploration rationale for the EL 27037 is based on prospectivity for phosphate. A watch was also maintained for indications of accumulations of potash, uranium, and potentially base metals.

This report therefore encompasses exploration activities undertaken during the period of tenure of the relinquished areas from 05 Oct 2009 to 04 Oct 2011.

Exploration activities carried out has comprised:

1. Desktop review, field inspection and geological reconnaissance, and compilation of drilling proposal
2. Field reconnaissance to locate the proposed drillhole locations on the ground and to investigate and confirm logistical arrangements for the drilling program.
3. Completion of 5 reverse circulation drillholes within EL 27037 for a total of 262 metres.

3. TENURE

This report covers the results of exploration activities undertaken on EL 27037 located on the Barkly Tablelands in the Northern Territory.

Land affected by these licenses is:
PPL926 – Australian Agricultural Company Limited

The relinquished area of EL 27037 is illustrated on Figure 1, and summary details presented in Figure 2.

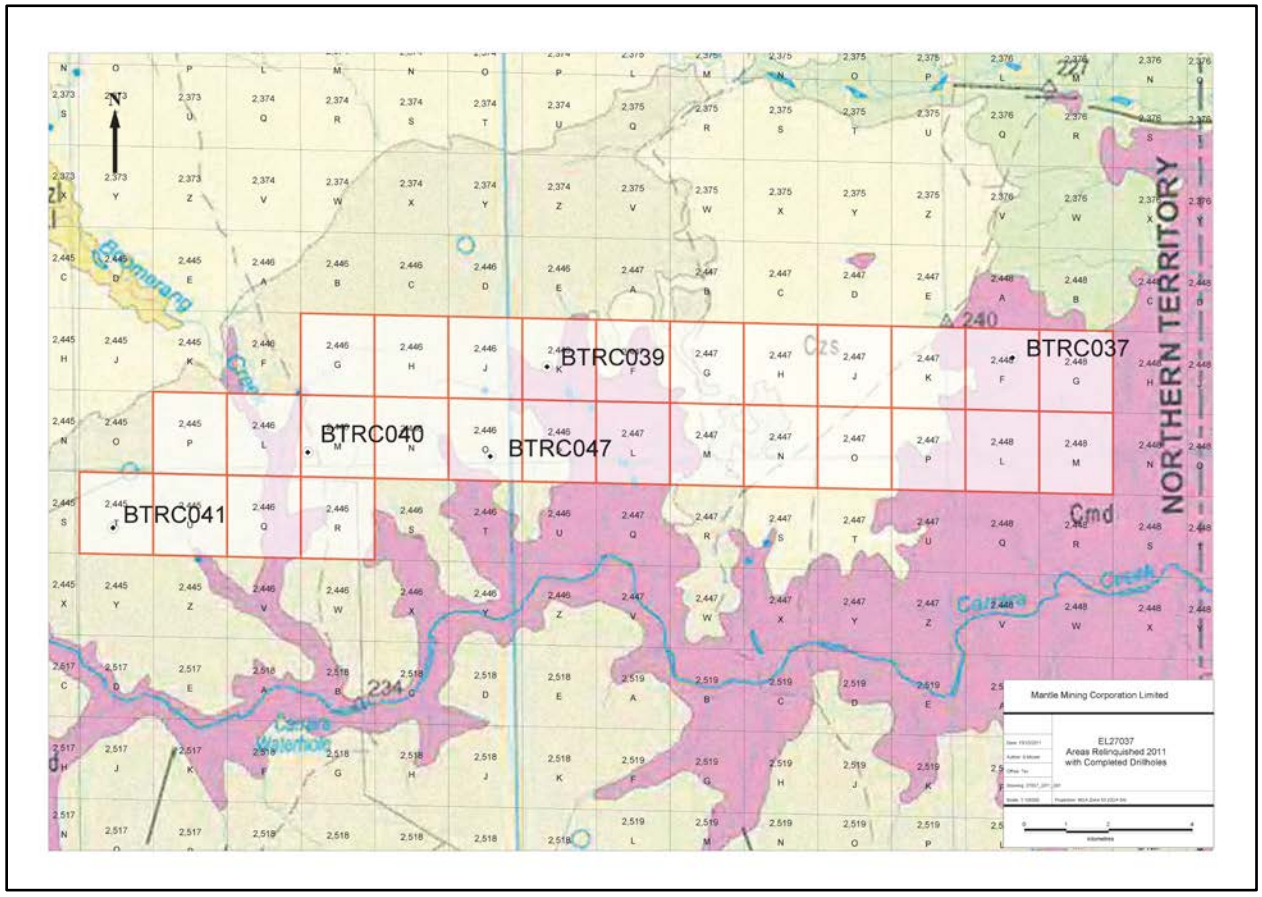

Figure 1: EL 27037 relinquished area with drillhole locations on regional geology.

Figure 2: Summary Original tenement details

EL	Name	Date granted	Expiry date	Blocks (original)
EL27037	Boomerang Creek	05/10/2009	06/10/2015	57

4. GEOLOGY

Parts of the South Nicholson and Georgina basins underlie EL 27037

The South Nicholson Basin straddles the Queensland-Northern Territory border. It contains a Mesoproterozoic sedimentary succession that unconformably overlies Palaeoproterozoic rocks of the Murphy Inlier to the north and Lawn Hill Platform to the north, south and southeast. The basin is unconformably overlain by the Palaeozoic Georgina Basin to the south and southeast and by the Mesozoic Carpentaria Basin to the east in Queensland. The basin-fill predominantly consists of sandstone, siltstone and shale of the South Nicholson Group. This is believed to correlate with the Roper Group in the McArthur Basin (NTGS).

The Georgina Basin is a 330 000 km2 erosional remnant of a series of originally interconnected central Australian intracratonic basins, including the Savory, Officer, Ngalia and Amadeus Basins, which range from Neoproterozoic to Palaeozoic. The Georgina Basin covers most of the central-eastern Northern Territory and extends into Queensland. In excess of 1.5 km of Neoproterozoic sedimentary rocks are preserved in downfaulted blocks and half-grabens on the southern margin of the Georgina Basin in the Northern Territory. Depocentres and synclines contain up to 2.2 km of Cambrian to Devonian section. The southern region contains the thickest basinal successions, and demonstrates the strongest structuring related to distal effects of the 320Ma Alice Springs Orogeny. In contrast to the southern region, the central Georgina Basin, north of latitude 21°S, contains a relatively thin stratigraphic succession, up to 450 m thick, deposited on a tectonically quiescent platform. Deposition in the central region commenced with a marine transgression in the early Middle Cambrian and may have extended into the Late Cambrian. This central platform has been subdivided into an eastern Undilla Sub-basin and a western Barkly Sub-basin, separated by the Alexandria-Wonarah Basement High. The northern Georgina Basin is largely concealed beneath Mesozoic sedimentary rocks of the Dunmarra Basin (NTGS).

Locally overlying the Palaeozoic rocks are thin deposits of flat lying late Palaeogene (c. 25Ma) limestone. Thin deposits of Cretaceous marine sediments also locally occur on the northern margin of the Barkly Tableland (Edgoose, 2003).

Economic phosphate deposits in Middle Cambrian Georgina Basin rocks are being mined at Duchess in Queensland. In the Northern Territory several deposits of collophane mudstone and pelletal phosphorite have been identified in sedimentary intervals on the Alexandria-Wonarah Basement High. These deposits average about 16% P2O5. Minemakers Limited has a 72 Mt phosphate resource at the Wonarah deposit on the Alexandria-Wonarah Basement High. Smaller deposits are known at Alexandria, Alroy and Buchanan Creek (NTGS), southwest of EL 27037.

5. EXPLORATION ACTIVITIES 05/10/09 – 04/12/10

Exploration within the relinquished area of EL 27037 has comprised:

- Desktop review of historical data and including regional radiometric, geophysical, and DTM datasets and field reconnaissance of target areas identified from this work.
- Desktop planning to develop a broad spaced drilling pattern to test the areas covered by EL 27037 for potential phosphate mineralisation to a nominal depth of 50 metres, with regional reconnaissance to ground-truth proposed drillhole locations and confirm access and logistics,
- Completion of 5 reverse circulation drillholes for a total of 262 metres within the relinquished area.

5.1 Regional Desktop Studies and Field Reconnaissance 05 Oct 2009 to 04 Oct 2011

Exploration activities carried during the first year comprised:

- Desktop study integrating airborne radiometrics and magnetics, gravity,geology, elevation and topography datasets (Stamoulis, V., Chrysoar Exploration, 2008), Appendix VII
- Field reconnaissance and sampling to inspect targets located by the desktop study (K. Lindsay-Park, CSA Global Pty Ltd, Report No. 259.2008), Appendix VII
- A report "Regional Assessment and Exploration Model" (K. Lindsay-Park, CSA Global Pty Ltd, Report No. 275.2008), Appendix VII

Office-based desktop studies were undertaken to identify targets, provide a regional assessment and development of exploration models, and include a review of historical drilling and phosphate mineralisation in the region.

Targets identified by the Desktop studies were investigated by field reconnaissance program to examine target geology and collect geochemical samples.

No significant mineralisation was located, however, the exploration models generated and the review of historical data, gave a better insight into the areas of better prospectivity.

Reports of the work undertaken by Chrysoar and CSA Global, with details of samples and spectrometer data, are presented within Appendix VII.

Internal project reviews completed by Mantle Mining Corporation (Hornabrook, 2008 and 2009) considered historical phosphate exploration programmes with particular attention to historical drilling data and compilation of a common stratigraphy across Mantle's tenement areas.

A program of field reconnaissance of the Barkly Project area was undertaken by Mantle personnel during September, 2009. The primary aim of this work was to ground truth the proposed drillhole locations and where necessary re-locate the proposed locations to positions adjacent to accessible tracks and provide revised coordinates. All holes were sited at least 150 metres from the station tracks. This work also confirmed logistical issues such as where the drilling crew will camp, water supply, access to fuel, sample transport, etc. The landholders at Mittiebah and Alexandria were willing to assist and

permission was granted to set up camp adjacent to Mittiebah Homestead (permanent water and reduced fire risk) and at Rankin Store (water supply, access to work areas and proximity to the Barkly Highway).

All navigable tracks, gates, waterbores, and proposed drillhole locations were documented using a handheld Garmin GPSmap 60CSx GPS unit. All hole locations were marked with a wooden stake to facilitate site location during the drilling program.

Appendix I includes a topographic maps of EL 27037 upon which the GPS waypoint locations and access tracks have been plotted. Waypoint point data is included in Appendix II.

5.2 Drillhole Planning

A short program of broad spaced reverse circulation drilling was undertaken within the relinquished area of EL27037 during September 2010.

Planning of drillholes was undertaken with the aim of testing broad areas of the Barkly Project to a nominal depth of 50 metres vertical seeking confirmation of areas likely to be favourable for phosphate mineralisation and those areas where economic accumulations of phosphate are potentially present at shallow depth.

Hornabrook (2009) indicates that work by Mines International in the late 1960's to early 1970's, to the northeast of EL 27035, considered the thin phosphate intersections found were in coarse sandstones and that relatively finer medium to coarse lithologies down dip into the basin may provide a relatively quieter sedimentary environment more favourable for greater thicknesses of phosphate deposition. Potential may also exist for material from sites of phosphate deposition to have slumped into deeper and finer sediments. The location of EL27037 was considered to have potential for these scenarios to occur.

Public domain magnetics and gravity geophysical survey data was referenced when designing the drillhole program. Magnetics TMI, Magnetic Depths, and Barkly Gravity images were acquired from the Northern Territory Geological Survey (NTGS) Geophysical Image Web Server (GIWS) in EWS format. While recognizing that the large scale features evident on these regional datasets may not directly impact the outcomes from the relatively shallow drilling program being proposed; it was considered that near surface influences of these features on the overlying stratigraphy may be relevant.

Consideration was also given to accessibility given the difficulty of driving over the cracking black soils that cover much of the tenement areas. To avoid unnecessary land disturbances it was decided not to undertake clearing of access with a dozer or grader and instead locate the drillholes adjacent to existing station tracks. Given the broad drillhole spacing, large features evident in the geophysical data, and the scale of deposit sought, it was possible to target locations of interest from sites along existing station tracks.

The location of the five drillholes completed are illustrated relative to the published surface geology in Figure 1.

5.3 Drilling Program

Five (5) reverse circulation drillholes were completed within the relinquished area of EL 27037. Drilling was completed by MLM Drilling using a Multipurpose EVH drilling rig set up for R/C. All drillholes were completed using a 4 ½ inch diameter bit. The drilling was supervised by a Contract Project Geologist and Senior Field Assistants from Map to Mine, Townsville. Map to Mine also provided full camp facilities and additional field personnel.

Drillhole locations are illustrated in Figure 1. Drillhole collar details are presented below and in Appendix III. All drillholes were accessed from existing station tracks and collars were sited at least 150 metres from these tracks.

Hole_IDE_WGS94Z53	N_WGS94Z53	RL	EOH	Dip	Azimuth_True		Azimuth_Magnetic
BTRC037	808,620	7,921,800	245	65	-90	360	352
BTRC039	797,533	7,921,540	272	57	-90	360	352
BTRC040	791,802	7,919,581	260	55	-90	360	352
BTRC041	787,138	7,917,849	252	60	-90	360	352
BTRC047	796,149	7,919,508	241	25	-90	360	352

One metre samples were collected from all drillholes. Samples were collected in plastic bags from a cyclone-mounted splitter that provided an assay sample of approximately $1/5^{th}$ volume and the remainder in a single large plastic bag.

All drillholes were rehabilitated following drilling by filling the hole with cuttings from the discarded bulk 1 metre sample bags. The top 2-3 metres of backfill were compacted and the cuttings mounded to allow for subsidence. Care was taken to ensure that the uppermost intervals were returned to the top of the drillhole and that the interval 0-1m was always on top.

Details of drillhole coordinates, drill logs, laboratory analyses, and lithcodes information, are included in Appendices III to VI.

Samples were sent to ALS (Townsville) for phosphate suite (oxide) analyses by fusion XRF. No significant phosphate values were reported and all samples returned <0.01% P^2O^5.

5.3.1 Drillhole Logging and Sampling

All drillholes have been geologically logged at 1 meter intervals, consistent with the sampling intervals. Drill logging data is presented in Appendix IV and the geology lithcodes used are defined in Appendix VI.

Individual drill samples were pulverized and a split taken for compilation into 4-metre composite samples for analysis at the laboratory. Where insufficient samples were available to make up a composite sample, the remaining 1, 2, or 3 samples were analysed individually. Appendix V identifies the individual and composite samples. The laboratory phosphate analyses were done using a fused disk XRF method that, in addition to phosphate, also provided a suite of element oxides relevant to phosphate resources. Laboratory analytical data is presented in Appendix V.

6. CONCLUSIONS AND RECOMMENDATIONS

Programs of desktop data review, follow-up reconnaissance and reverse circulation were completed within the relinquished area of EL 27037. This is considered a positive outcome given that field operations during 2009 were constrained by GFC impacts on the Company.

The drilling completed within the relinquished area of EL 27037 has intersected no significant phosphate values in five drillholes. The broad area of coverage and lack of 'ore-grade' values suggests that a deposit of potentially economic grade and volume is unlikely to be present within the relinquished areas. If a narrow ribbon deposit such as found at Alroy, Buchanan Dam and Alexandria to the south is present then it would have to run between the drillholes completed. A regional close spaced program of drilling would be required to confirm or negate the presence of such a body of mineralisation; however a significant accumulation of phosphate in close proximity is not apparent from the drillholes completed.

The lack of broad spaced phosphate mineralisation supported by ore-grade intersections has downgraded the prospectivity for an economic phosphate deposit at shallow depth within the relinquished area of EL 27037.

7. REFERENCES

Lindsay-Park, K., 2008	Regional Assessment and Exploration Model, Barkly Project	CSA Global Pty Ltd Report No. 275.2008 for Mantle Mining Corporation Ltd
Stamoulis,V., 2008	Field Prepatory Work (Desktop Remote Sensing study)	Chrysoar Exploration
Edgoose, C.J., 2003	Barkly Tableland Region, Northern Territory	CRC LEME 2003
Smith, K.G., 1972	Stratigraphy of the Georgina Basin.	B.M.R. Bulletin 111
NTGS	Georgina Basin	Northern Territory Government - NTGS web site
Hornabrook, A. (Nov,2008)	Review of Phosphate in the Georgina Basin	Internal Mantle Mining Corporation Limited Monthly Report
Hornabrook, A (Jan 2009)	Previous drillhole phosphate intersections in current tenement areas	Internal Mantle Mining Corporation Limited Monthly Report
Lindsay-Park, K., 2008	First Annual Report for ELs 26018, 26019, 26020, and 26021, Barkly Region, Northern Territory, Dec 2008	CSA Global Pty Ltd Report for Mantle Mining Corporation Ltd