Myrtle Extended Project

ANNUAL REPORT FOR THE PERIOD JUNE 2010 TO JUNE 2011

EL26406

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Date: 8th July 2011
Target Commodities: Zn, Pb, Ag

Bauhinia Downs 250K Mapsheet
Batten and Borroloola 100K Mapsheet
GDA 1994 Zone 53

Distribution: Department of Resources- Minerals and Energy (Northern Territory)
Rox Resources
Teck Australia
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SUMMARY

This document is submitted as an annual report for the Myrtle Extended exploration licence EL26406. Exploration activities for this license year were impacted by a number of factors, including: record 2010/2011 wet season and issues with finding contractors and suppliers.

EL26406 forms part of the greater Myrtle-Reward project area owned by Rox Resources that has now been joint-ventured to Teck Australia Pty Ltd, who will commence field work on the area in 2011. EL26406 is prospective for SEDEX (sediment-hosted) style zinc-lead mineralisation. At the nearby Myrtle prospect, significant SEDEX style zinc-lead deposit has been discovered and defines a resource of 43.6 million tonnes grading 4.09% Zn and 0.95% Pb.

EL 26406 was not managed by Teck for the entire license year, which reduced the work period significantly. Work undertaken was limited to literature searches, database compilation, general research and report preparation.

Work by previous explorers was limited in nature and failed to identify any significant anomalous zinc-lead values. EM conductors and favourable geology may indicate prospective areas for SEDEX style zinc-lead mineralisation and will be investigated during the next tenement year.

Acquisition and re-processing of geophysical data was undertaken and showed up a number of areas worthy of further work, namely the Berjaya Prospect. Examination of old Mines Department reports did not reveal any results of significance.
INTRODUCTION

This report summarises the exploration activities conducted on EL26406 during the reporting period June 2010 to June 2011. EL 26406 is part of an integrated exploration project titled the ‘Myrtle Extended Project’ (also referred to as the Myrtle-Reward Project).

Exploration Licence EL26406 is centred approximately 700 kilometres southeast of Darwin, and some 15km south of the McArthur River zinc-lead mine (Figure 1). The Myrtle Extended project area is immediately northeast of the adjacent Myrtle zinc-lead deposit. During 2008/2009 Rox Resources demonstrated the economic potential of the Myrtle zinc-lead deposit and in 2010 formed a joint venture with the Australian subsidiary of Canadian-based Teck Resources, Teck Australia Pty Ltd to explore the Myrtle project. EL26406 is part of the tenement package included in that joint venture. This report is for the 3rd year of the licence and is the first Annual Report for the tenement prepared by Teck Australia.

During the reporting period, no field activities were undertaken. A literature search, database compilation and summary report of the tenement has been completed with the report attached here as Appendix 1.

LOCATION AND ACCESS

Access to the tenement from Darwin is via the Stuart Highway south to Daly Waters (approximately 550km), thence westward via the Carpentaria Highway to the McArthur River mine (approximately 400km). Alternativley, access from Mount Isa is via the Barkly Highway and then either the Ranken Road or Tablelands Highway to Cape Crawford. Driving time from Mount Isa is typically 8 to 9 hours.

Vehicle access within the tenement is by way of graded station tracks, old exploration tracks and fence lines. Track condition is variable depending upon the season; many areas become waterlogged and boggy during the wet season whilst bulldust rapidly forms in the pale clayey soils during the dry season.

The nearest township is Borroloola, located approximately 110km to the north-northeast by road. Borroloola has a permanent population of about 700 people, the majority of which are indigenous residents.

The McArthur River is the major drainage system in the area, passing through the tenement and all other watercourses within the tenement drain into the river either directly or via major tributaries.

Land use in the local region is predominantly beef cattle grazing on large pastoral holdings. Mining, fishing and tourism are also active within the region. EL 26406 is located entirely within the boundary of the McArthur River Station. The pastoral lease is owned by Mount Isa Mines Pty Ltd, a wholly owned subsidiary of Xstrata PLC and the operator of the McArthur River mine. McArthur River Station is over 8,000km² in area and stocks approximately 10,000 head of beef cattle.
Figure 1: Location of the Reward project
TENURE INFORMATION

Exploration Licence 26406 was granted to Rox Resources Limited on the 18th of June, 2008. The tenement currently consists of 25 sub blocks, covering an area of 80.79 km² (Figures 2 and 3), and is current to the 17th of June 2014 over the same area. The latitude and longitude of EL26406 is shown in Figure 2.

Figure 2. Latitude and Longitude of EL26406.
EXPLORATION RATIONALE

The Myrtle Extended Project area is prospective for Proterozoic stratabound Zn-Pb-Ag deposits, similar to the McArthur River deposit. The area is underlain by sediments of the Barney Creek Formation. Several major, basin-controlling faults traverse the area and control low-grade, stratabound sulphide mineralisation.

Teck has commenced a multi-disciplinary exploration strategy in the Myrtle Extended area designed to systematically test geological features and concepts identified through comprehensive targeting exercises.

GEOLOGY

The Reward Project is located within the McArthur Basin, a north-westerly extension of the Proterozoic rocks that comprise the Mt Isa Block (Figure 4). The McArthur Basin hosts numerous base metal and diamond occurrences, the largest of which is the McArthur River zinc-lead deposit 234 million tonnes at 9.3% Zn, 4.1% Pb and 60 g/t Ag. The current mining reserve is 46 million tonnes grading 9.6% Zn, 4.2% Pb and 43 g/t Ag.

The Myrtle prospect is hosted by the same stratigraphic units. And currently has a mineral resource of 43.6 million tonnes at 4.09% Zn, 0.95% Pb (Rox Resources Limited ASX Release 15 March 2010).
Figure 4. Regional Geology.

Exploration Licence 26406 is underlain by several main stratigraphic units, which are summarised below. A brief stratigraphic column of the local geology is:

The Lynott Formation contains thinly bedded and laminated, medium to dark grey, variably pyritic, carbonaceous dolomitic siltstone and minor dolomitic siltstone, sandstone and breccia. Traction current-generated sedimentary structures, load casts and soft sediment slump folds commonly occur within the unit.

The Reward Dolomite in the tenement area is a thick unit comprising massive to (less commonly) thinly bedded dolostone, algal dolostone and dolomitic siltstone with black shaly flakes and fragments of carbonaceous siltstone that conformably overlies the Barney Creek Formation. It also includes monomictic breccia which may be matrix or clast supported. The unit is characterised by chert or dolomitic nodules, which are generally 1-10mm in size. The unit commonly exhibits load casts, water escape structures, sedimentary dykes, soft sediment slump folds and convoluted bedding.

The Barney Creek Formation comprises massive to thinly bedded and laminated, variably pyritic, carbonaceous dolomitic siltstone and minor dolomitic siltstone, sandstone, breccia and tuffaceous siltstone. Interbedded and interlaminated green-grey siltstone and dolostone occurs at the base of the Barney Creek Formation in parts of the Glyde and Myrtle sub-basins. The Barney Creek Formation has been interpreted to have been deposited in a moderate to deep water, reasonably placid environment, dominated by periodic emplacement of dolostone rich turbidites and mass flow units. The Barney Creek Formation includes the target HYC Shale Member, which comprises very thinly laminated pyrite ± sphalerite ± galena mineralisation (as found at the McArthur River and Myrtle deposits) and black, carbonaceous, dolomitic siltstone with minor matrix to clast supported breccia, granular siltstone and sandy siltstone. The upper contact of the HYC Shale is characterised by the appearance of massive to laminated pyritic carbonaceous dolomitic siltstone.

The Teena Dolomite is a thick unit of interbedded massive to laminated, light grey to pinkish grey dolostone, algal and stromatolitic dolostone, dolomitic siltstone, dolomitic breccia and peletal sandstone. The unit conformably overlies the Emmerugga Dolomite and has a gradational upper contact.

The Emmerugga Dolomite is represented in the tenement area by the Mitchell Yard Dolomite, which is the upper part of the unit. It consists of massive light grey dolostone and algal dolostone and minor algal plate breccia. The upper contact is characterised by a change from laminated algal and stromatolitic dolostone (Teena) to massive dolostone (Mitchell Yard).

<table>
<thead>
<tr>
<th>Lynott Formation</th>
<th>Hot Spring Member</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Caranbirini Member</td>
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<tr>
<td></td>
<td>Reward Dolomite</td>
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<tr>
<td>Barney Creek</td>
<td>HYC Pyritic Shale Member</td>
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<tr>
<td>Formation</td>
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<td>Cooley Dolomite Member</td>
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<td>W-Fold Shale Member</td>
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<td>Teena Dolomite</td>
<td>Coxco Dolomite Member</td>
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<td></td>
<td>Lower undifferentiated member</td>
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<tr>
<td>Emmerugga Dolomite</td>
<td>Mitchell Yard Member</td>
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</tbody>
</table>
PROPOSED WORK

Proposed exploration on EL26406 for the next year includes:

- Literature searches
- Database compilation
- General research
- Report preparation
- Geological mapping
- Rock/soil/stream sediment sampling
- Airborne geophysics
- Ground geophysics
Executive Summary

Berjaya is a relatively underexplored Zn-Pb prospect in the MacArthur River region, 3km west of the Reward Prospect and approximately 20km west of the MacArthur River Mine (H.Y.C). The Berjaya Prospect falls within the Bauhinia Downs (SE 53-3) 1:250 000 scale Geological Sheet area and is covered by AGSO Bulletin 220 (Geology of the Southern MacArthur Basin).

To date most exploration work has been conducted by the Bauhinia Joint Venture (BJV; 1976 to the early 1980s) and by the MacArthur River Joint Venture (MRJV). In 1992 Mt Isa Mines (MIM) farmed into the MRJV and over five years carried out three drilling programs and geochemical and geophysical surveys.

Berjaya was located in 1976 by a geophysical survey, where a number of EM targets were identified over a 3km strike length. The Bauhinia Joint Venture (BJV) identified further IP and soil geochemistry anomalies (up to 1800ppm Pb, 5500ppm Zn). The BJV drilled four diamond holes which intersected several metres of pyritic Reward Dolomite, four 1m intersections contained >1% Zn.

Stream sediment and soil sampling undertaken during the 1993 field season by MIM failed to outline areas of base metal anomalism. Field mapping was however able to delineate the base of the Hot Spring Member/ top of the Caranbirini and confirmed that the base of the Caranbirini Member/ top of the Reward Dolomite contact was under cover. SIROTEM surveys were successful in defining numerous conductive horizons. Subsequent drilling showed that the conductive horizons were pyritic siltstones within the Caranbirini Member, and leached siltstones/clay/groundwater interactions-depending on where soundings were taken.

Diamond drilling by MIM at the Berjaya Prospect in 1995 confirmed that the source of the conductive anomalies was pyritic siltstones or clay/water interactions. Low grade zinc and lead mineralisation was encountered during drilling, best drill results were from PPD16 which returned 5m @ 3.30% Zn and 0.52% Pb. A helicopter borne magnetic survey was conducted in 1996 and showed that mineralisation at Berjaya was associated with a fault zone. Mineralised samples from Berjaya were examined by an external consultant and based on petrology (see CR19770061: SECT04) it was decided that they were related to an MVT system. This assumption downgraded the priority of the Berjaya Prospect as a significant exploration target area.

There has been a hiatus in exploration since the mid-1990s on many of the prospects in the Reward-Myrtle area, it should also be noted that modern exploration techniques have not been applied to many of these prospects. Historical prospects include: Mitchell Yard, Buffalo Lagoon, Barney Creek Basin, Teena and an unnamed prospect in the western area of the Teck/Rox tenements. At this stage I would recommend a literature review of some of the other prospects and reconnaissance level field work in the Berjaya area. Gossanous shales and the southern fault zone in the Berjaya area should be...
investigated. However, based on this literature review, it appears unlikely that the prospect will turn up anything approaching a Teck sized deposit.

Figure 1: Simplified Geological and Prospect Map of the Reward Tenement area. The host rock sequence at the McArthur River zinc-lead mine (Barney Creek Formation) is shown in yellow. Younger rocks are shown in green and older rocks are shown in red. SEE: ROX Review

Previous Exploration

Most of the license areas around the Berjaya have been at least partially covered by reconnaissance level stream sediment and soil sampling since the mid-1970s. The most intensive exploration effort to date was undertaken by Mt. Isa Mines Exploration who drilled 20 percussion and diamond holes, ran several geophysical surveys (helimag, SIROTEM, PROTEM) and conducted soil and stream sediment sampling programs.
BHP Exploration  
*Exploration License 1203*  
1985  
**CR19850254**  
Short report which details the results of re-assaying core from diamond drill hole BJ1, which was drilled by the BJV.

Bauhinia Joint Venture (BJV; operated by Shell Company of Australia)  
*Exploration License 1203*  
1983  
**CR19830018**  
A ground magnetic survey was undertaken in an attempt to locate alluvial covered fault zones in the Berjaya Prospect. Soil sampling identified anomalous Zn and Pb soil geochemistry (peak of 1800ppm Pb and 5500ppm Zn). Rock chips collected from an outcrop of leached gossanous shales thought to belong to the Lynott Formation returned peak values of 620ppm Pb and 3100ppm Zn. Further rock chip samples collected from within the southern fault zone (interpreted as altered Reward Breccia or Barney Creek Formation) returned maximum values of up to 4100ppm PB and 2000ppm Zn.

Bauhinia Joint Venture (BJV; operated by BHP)  
*Exploration Licenses 1203 and 1437*  
1976-1983  
Reports: **CR19790008, CR19800019**  
Located a number of INPUT anomalies, one of which was supported by IP anomalies and soil geochemistry (up to 1800ppm Pb and 5500ppm Zn)  
BJV drilled four diamond holes in the Berjaya Prospect and intersected several metres of pyritic Reward Dolomite, including four 1m sections of >1% Zn.  
Subsequent EM 37 surveys and drilling by the BJV did not identify additional mineralisation.

Mt. Isa Mines Exploration (MIM)  
*Exploration Licenses 5649 and 5787*  
1993-1997  
Reports: **CR19930561, CR19950669, CR19970061**  
Nine N-S trending grid lines were emplaced, approximately 1km apart over the central and eastern portion of the license areas. Two E-W trending grid lines were placed in the western portion of the license areas (straddling the limbs of the Hot Springs anticline). Gridlines were surveyed with SIROTEM ground EM and all defined highly to moderately conductive horizons. Areas around gridlines were mapped at a 1:5000 scale and a regional 1:25000 geological map was also prepared for the Berjaya prospect. For survey parameters refer to report **CR19970061, SECT01**.  
A total of 169 x -80 mesh stream sediment samples were collected (Peak results: 30 ppm Cu, 53 ppm Pb, 85 ppm Zn), this data was also combined with the results of BHP’s 1982 stream sediment and soil traverse sampling programs. Seven rock chip samples were also analysed (Peak results: 290ppm Cu, 56 ppm Pb, 2520ppm Zn)
Three drill programs were run between 1993 and 1997 by MIM (total: 20 percussion/diamond drill holes). Drilling was based on SIROTEM results, mapping and geochemical anomalies, and targeted sub-surface conductors. For more detail see CR19970061, SECT01.

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<tr>
<th>PEAK ASSAY RESULTS</th>
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Infill ground EM (PROTEM) and ground magnetics were conducted along new grid lines between old lines 1 and 3.
Helimag and ground magnetic surveys were carried out over an area which covers the Berjaya prospect. In the Berjaya area strong magnetic features are associated with faults and topographic features (which may follow faults or joints). The mineralized zone lies along the northernmost magnetic feature. A digital terrain model was constructed for the Berjaya area and a comprehensive petrographic study of mineralized material was also undertaken.
Report- **CR19950669: SECT11**
Report: \texttt{CR19950669: SECT11} Additional cross-sections can be found at \texttt{CR19950153: SECT29}
Hot Springs Basin

The basin is approximately 2x7 km and is elongated along a north-south axis. The western margin of the basin is terminated against the Hot Springs Anticline. The northern part of the basin terminates against a fault while the southern margin has a stratigraphic closure. Due to Cretaceous cover the uppermost unit is uncertain however the highest unit observed is the Upper Lynott Formation, below the Donnegan Member. It is expected that the Yalco Formation would be present in the area. No work is known to have been undertaken by the CEC other than that it was included in their detailed 1"=1600' mapping program. The Hot Springs Basin is a large basin with low dips and only minor structural control. There are no outstanding features which highlight the basin a priority target for drilling. The results of a stream sediment sampling program are shown in report CR19720015, Sect06 (pages 5 and 6) and Sect07 (pages 1 and 2). Copper values for the survey were typically 5-10 ppm, Zn values were typically 5-20 ppm and Pb values were 5-30 ppm.
Teck/Rox JV tenements, existing prospects within the JV tenements are boxed in red.
Geological map of the Teck/Rox JV area highlighting zones where limited or no exploration work has been conducted and where lithologies favourable to mineralisation occur.