EL27541 MYRTLE EXTENDED
Northern Territory, Australia

Annual Progress Report
for the period ending 23 March 2011

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1. SUMMARY

The Myrtle Extended exploration licence, EL27541 contains prospects for SEDEX (sediment-hosted) style zinc-lead mineralisation and also possible extensions from adjacent mineralisation, such as the Myrtle deposit where a significant SEDEX style zinc-lead deposit has been discovered. The current mineral resource at Myrtle (on an adjacent tenement) is 43.6 million tonnes grading 4.09% Zn, 0.95% Pb at a lower cut-off of 3% Zn + Pb.

EL27541 forms part of the greater Myrtle-Reward project area owned by Rox that has now been joint-ventured to Teck Australia Pty Ltd, who will commence field work on the area in 2011.

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. Examination of old Mines Department reports did not reveal any results of significance.
2. INTRODUCTION

Exploration Licence EL27541 Reward is centred approximately 700 kilometres southeast of the Northern Territory’s capital, Darwin, and some 15km south of the world class McArthur River zinc-lead mine, as shown in Figure 1, below.

Access from Darwin is via the Stuart Highway south to Daly River (approximately 550km), thence westward via the Carpentaria Highway to the McArthur River mine (approximately 400km). Access to the tenement is via the Merlin diamond mine road.

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 McArthur River is the major drainage system in the area, passing through the tenement and all watercourses within the tenement drain into this system either directly or via major tributaries (Figure 2).

Land use in the local region is predominantly beef cattle grazing on large pastoral holdings. Mining, fishing and tourism are also quite active within the region. The Exploration Licence is located
entirely within the boundary of the McArthur River Station pastoral lease, which is owned by Mount Isa Mines Pty Ltd, a wholly owned subsidiary of Xstrata PLC, the operator of the McArthur River mine (which is also on that pastoral holding). McArthur River Station is over 8,000km² in area and stocks approximately 10,000 head of beef cattle.

The region is one of the more sparsely populated areas of the Northern Territory. The actual population varies considerably on a seasonal basis, as tourists, fishermen and local residents vacate the area during the wet season, which invariably brings heavy rain, flooded rivers and frequent cyclones.

The nearest township is Borroloola, which is located some 70km to the north-northeast by road. Borroloola has a permanent population of about 700 people, the majority of which are indigenous residents.

The Myrtle Extended project area comprises the area immediately north-east of the adjacent Myrtle zinc-lead deposit. During 2008 Rox demonstrated the economic potential of the Myrtle zinc-lead deposit, located 20km south of the McArthur River mine. In 2009 further drilling extended the mineral resource and metallurgical test work was undertaken. In 2010 Rox Resources announced a joint venture with the Australian subsidiary of giant Canadian company Teck Resources, Teck Australia Pty Ltd, to explore the Myrtle project and EL27541 is included in that joint venture.

This report is for Year 1 of the licence and is the first Annual Report prepared by Rox for EL 27541.
3. TITLE & TENURE

3.1. Title

Exploration Licence 27541 was granted to Rox Resources Limited on 24 March 2010.

The tenement currently consists of 33 sub blocks, covering an area of 108.65 km$^2$ (Figure 2), and is current to 23 March 2016 over the same area. There is a 30 metre wide easement along a high pressure natural gas pipeline that runs through the western portion of the exploration licence (along the main Carpentaria Highway).

3.2. Tenement Co-ordinates

Commencing at a point being the intersection of latitude 16º31'S longitude 136º00'E, thence east to longitude 136º03'E, north to latitude 16º30'S, east to longitude 136º04'E, north to latitude 16º29'S, east to longitude 136º06'E, south to latitude 16º30'S, east to longitude 136º08'E, south to latitude 16º33'S, east to longitude 136º09'E, south to latitude 16º35'S, west to longitude 136º05'E, north to latitude 16º34'S, west to longitude 136º03'E, north to latitude 16º33'S, west to longitude 136º00'E, and north to the point of commencement, all within the latitudes and longitudes being geodetic and express in terms of the Australian Geodetic Datum as defined on p.4984 of Commonwealth Gazette number 84 dated 6 October 1966.

3.3. Sub-block Description

SE53 Block 409 z
410 v
481 d, e, f, g, h, j, k, l, m, n, o, p, t, u
482 a, b, c, f, g, h, l, m, n, q, r, s, t, v, w, x, y

Area = 33 sub-blocks.
4. GEOLOGICAL SETTING

4.1. Regional Geology

The Reward Project is located within the McArthur Basin, a north-westerly extension of the Proterozoic rocks that comprise the Mt Isa Block, which hosts several world class base metal and precious metal deposits (Figure 3). The tenement is located adjacent to the McArthur River mine.

The McArthur Basin comprises Carpentarian and Adelaidean rock units and extends from the Queensland border to the Alligator River in the Northern Territory, including the bulk of Arnhem Land and the western hinterland of the Gulf of Carpentaria.

The basin hosts numerous base metal and diamond occurrences, the largest of which is the McArthur River zinc-lead deposit, which is a world class deposit with a pre-mining resource 227 million tonnes at 9.3% zinc, 4.1% lead and 60 g/t silver (Leach et. al., Economic Geology 100th Anniversary Volume, 2000, pp 561-607). The current mining reserve is 46 million tonnes grading 9.6% zinc, 4.2% lead and 43 g/t silver.

The Myrtle deposit, 20km south of McArthur River, currently has a mineral resource of 43.6 million tonnes at 4.09% zinc, 0.95% lead (Rox Resources Limited ASX Release 15 March 2010).

4.2. Local Geology

Exploration Licence 27541 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).

Geology local to the tenement area is shown on Figure 4, below.
Figure 4: Local geology of Exploration Licence 27541
5. PREVIOUS EXPLORATION ACTIVITY

The area of EL27541 was previously held by Legend International Holdings who undertook exploration work between 4 July 2003 and 3 July 2009 under coverage of EL23515. The area that now comprises EL27541 was then surrendered from EL23515 by Legend. Rox applied for the tenement area in August 2009 and it was granted to Rox in March 2010.

Legend completed one programme of RC drilling (17 holes for 2,167 metres), and a soil sampling programme which consisted of 43 MMI (Mobile Metal Ion) samples and 46 conventional soil samples. No detailed commentary on these exploration results was offered by Legend in their Partial Surrender Report of October 2009, except to state that no significant anomalism was identified in drilling, and that the results from the soil sampling were not sufficiently encouraging to warrant further investigation.

The location of Legend’s drilling and soil sampling is shown in Figure 5.

![Figure 5: Previous Work by Legend (RC holes = black dots, soil samples = red dots)](image)
6. CURRENT EXPLORATION

Rox planned a wide coverage of soil sampling and geological mapping over EL27541. Other planned work also included acquisition and re-processing of existing geophysical surveys and examination of Mines Department Reports.

The soil sampling was postponed pending the negotiation and finalisation of a joint venture agreement, not only over EL27541, but over a number of other tenements owned by the company. The finalisation of the joint venture however, took much longer than expected, and it was not possible to complete the soil sampling planned before the onset of the wet season.

Geological mapping and prospecting was of a reconnaissance nature only, finding access tracks, establishing tenement boundaries and examining rock outcrops in the field.

A joint venture has now been finalised with the Australian subsidiary Canadian giant Teck Resources, Teck Australia Pty Ltd, who will undertake exploration during 2011 over all of Rox’s tenements including EL27541 (see section 7).

6.1. Geophysics

Acquisition and re-processing of geophysics over Exploration Licence 27541 was undertaken by the company’s consultants. A number of images were able to be produced as shown in Figures 6-17, and as listed below.

Figure 6: Landsat Image  
Figure 7: SR Terrain Model (SRTM) Image  
Figure 8: Bouger Residual Gravity Image  
Figure 9: Total Magnetic Intensity (TMI) Image  
Figure 10: Potassium Radiometric Image  
Figure 11: Thorium Radiometric Image  
Figure 12: Uranium Radiometric Image  
Figure 13: Potassium/Thorium Radiometric Image  
Figure 14: Uranium/Thorium Radiometric Image  
Figure 15: Total Count Radiometric Image  
Figure 16: Ternary Radiometric Image  
Figure 17: GEOTEM Channel 12 Image

The path of the McArthur River is very clear on Figure 6 in the western area of EL27541.

The SR Terrain Model (Figure 7) shows several areas of higher elevation probably reflecting the underlying geology of dolomite hills (as per Figure 4).

The Bouger Residual Gravity Image (Figure 8) really lacks any resolution to be of much use, being based on a 4-11km spaced gravity survey. Some closer spaced gravity is planned for the 2011 field season.

The Total Magnetic Intensity Image (Figure 9) shows up the Emu Fault system in the east and the large deep magnetic highs situated to the west of the McArthur River and Myrtle deposits. These are postulated to be possible heat sources (e.g. mafic rocks) for the hydrothermal systems that drove mineralisation at McArthur River and Myrtle. The area underlying EL27541 is of low total magnetic intensity, however it is possible that hydrothermal fluids generated from the deep heat systems could have found their way into the rocks underlying EL27541.
The Potassium Radiometric Image (Figure 10) shows that the area of EL27541 is underlain by rocks rich in potassium. This would be due to the high amounts of K-feldspar recorded in the Barney Creek Formation and Teena Dolomite.

The Thorium Radiometric Image (Figure 11) does not display any diagnostic features and neither does the Uranium Radiometric Image (Figure 12).

Two images showing radiometric ratios, Potassium/Thorium (Figure 13) and Uranium/Thorium (Figure 14) do not display any features of interest. Figure 13 (K/Th) is dominated by the high K values.

The Total Count Radiometric Image (Figure 15) is dominated by the high potassium readings, and does not display any other features of interest.

The Ternary Radiometric Image (Figure 16) shows the course of the McArthur River well, and also the area of Cambrian sandstones to the east of EL27541.

The GEOTEM Channel 12 image (Figure 17) shows two EM highs located on EL27541 that may be of interest. There are EM highs associated with the McArthur River and Myrtle deposits. These anomalous areas should be checked in the field to see if they reflect favourable underlying stratigraphy.

6.2. Mines Department Reports

Examination of old Mines Department reports did not reveal any work that was relevant or significant to the target commodities of zinc and lead. None of the previous geochemical sampling (stream sediments and soils) had produced any significant results worthy of follow-up, however, it was widespread and of limited value.
**Figure 6: Landsat Image**

**Figure 7: SR Terrain Model (SRTM) Image**
Figure 8: Bouger Residual Gravity Image

Figure 9: Total Magnetic Intensity (TMI) Image
Figure 10: Potassium Radiometric Image

Figure 11: Thorium Radiometric Image
Figure 12: Uranium Radiometric Image

Figure 13: Potassium/Thorium Radiometric Image
Figure 14: Uranium/Thorium Radiometric Image

Figure 15: Total Count Radiometric Image
7. **PLANNED WORK**

The southern area of EL27541 covers possible extensions to the Myrtle deposit, with EM conductors possibly extending to the east (Figure 18). In addition two EM conductors in the eastern portion of EL27541 need to be investigated further.

Many of the EM conductors shown in Figure 18 are associated with drainage systems which is unusual for such late channel EM data, suggesting that these drainages may in fact be related to underlying structures. For example the course of the McArthur River, which is remarkably straight, may in fact follow a number of regional structures, as does Barney Creek.

The EM conductors in the east of EL27541 do not seem related to such drainage structures (and neither is the EM conductor over Myrtle), so these have a chance to be related to underlying geology and/or mineralisation.

![Figure 18: GEOTEM Image showing EM Conductor Axes](image)

Figure 19 shows the EM conductors plotted over geology. Of the two eastern EM conductors, one seems associated with prospective stratigraphy, while the other plots over interpreted footwall Teena Dolomite (and therefore not prospective). These areas need to be checked more thoroughly.
To test for extensions of the Myrtle deposit, Teck Australia plans to undertake a gravity survey at 250 metre and 500 metres centres over a significant area associated with the Myrtle deposit, including some of the southern portions of EL27541. Approximately 250 gravity readings are planned to be taken on EL27541.

In addition, depending on where the final drill collars are determined to be, some diamond drilling may be undertaken on EL27541 if the results from the gravity survey warrant. Regional geological mapping and geochemical sampling are also likely.

8. CONCLUSIONS & RECOMMENDATIONS

EL27541 forms part of the greater Myrtle-Reward project area owned by Rox that has now been joint-ventured to Teck Australia Pty Ltd, who will commence field work on the area in 2011.

Previous work 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.