



# **DIATREME RESOURCES LIMITED**

ABN 33 061 267 061

Subsidiary Companies: Lost Sands Pty Ltd ABN 27 101 269 747

Chalcophile Resources Pty Ltd ABN 41 090 712 217

Regional Exploration Management Pty Ltd ABN 55 093 739 336



ASX Code: DRX

## **Exploration Activities Report**

Quarter ended 31 December 2007

### **Highlights**

#### **HEAVY MINERAL SANDS PROJECTS**

- A “JORC” compliant resource estimation is now well advanced over DRX’s Cyclone HM Prospect – finalisation expected in early February, 2008.
- The Cyclone Prospect is an important heavy mineral discovery within the developing Eucla Basin Heavy Minerals Province.
- DRX’s Eucla Basin discoveries provide encouragement to continue aggressive exploration programs into 2008, commencing in April, 2008.
- Positive results from the collaborative geophysical survey conducted by Image Resources NL at DRX’s Cyclone Prospect.
- Flinders Island HM exploration drilling commenced 30 January 2008.

#### **COPPER/GOLD AND BASE METAL PROJECTS**

- 8,400m of drilling at Clermont and 1,800m at Dooloo Creek planned to commence mid February.
- Final data from the Clermont Helicopter Borne Electro-Magnetic (“VTEM”) survey provided positive results.
- 44 interpreted anomalies to be investigated in the Comstock – Peak Downs block at Clermont.
- Awaiting further assays from a six (6) drill hole RC percussion program completed at Dooloo Creek - 117m of disseminated pyrite mineralization logged in one drill hole.

#### **CORPORATE AND FINANCE**

- Successful acquisition of Garimperos Limited and the completion of a subsequent in specie distribution of Xtreme Resources Limited shares to DRX shareholders.
- \$6.6million in shareholder funds raised through the exercise of approximately 28.9 million options at various prices between 22 and 30 cents.
- Exploration and evaluation expenditure for the quarter totalled approximately \$1.7million with DRX holding \$9.7million cash at end the quarter.

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#### Registered / Principal Office

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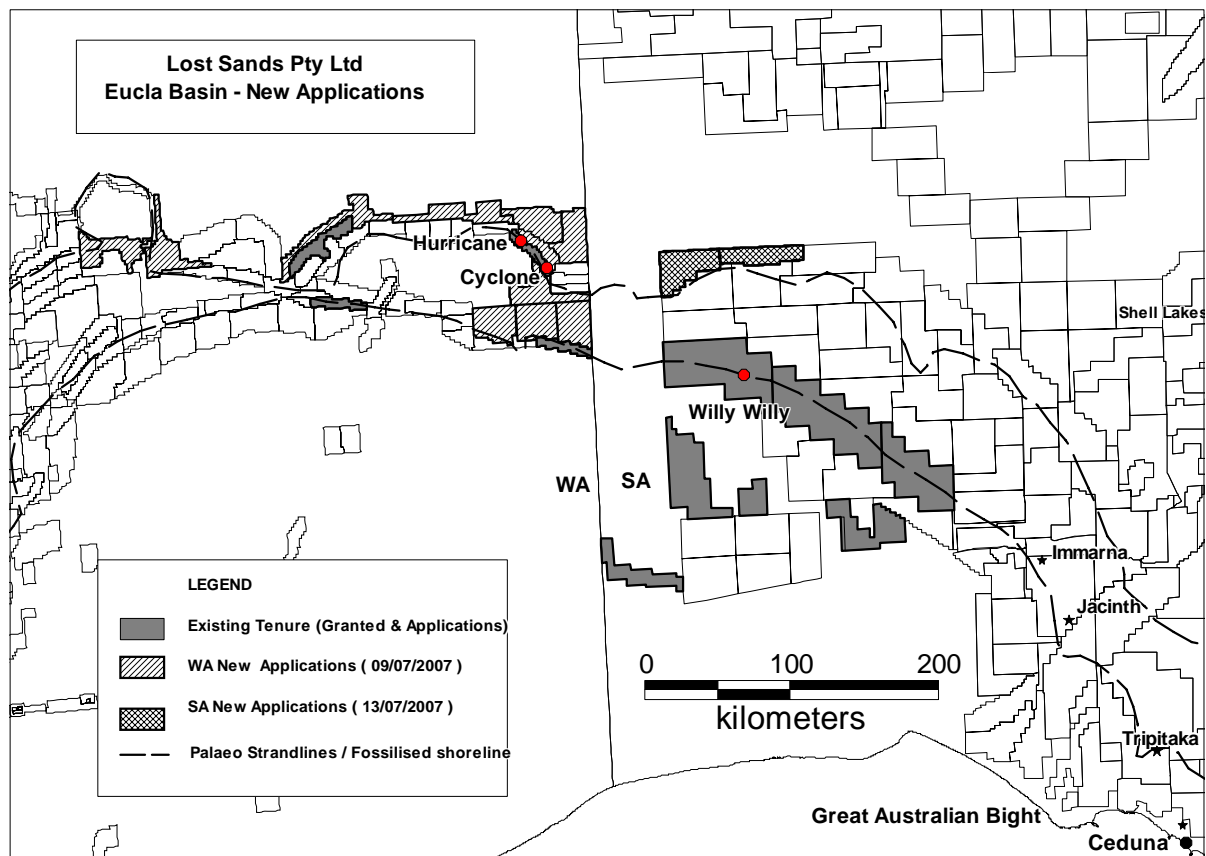
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## EXPLORATION

### Eucla Basin Heavy Mineral Sands (Zircon) Project – WA and SA (Lost Sands Pty Ltd - DRX 75% / MSC 25%)

The Company has continued its frontier exploration for heavy minerals (HM) with scout drilling programs within the central Eucla Basin. The majority of drilling was conducted within the Wanna Lakes exploration licence area, focusing on further delineation of the Cyclone (HM) Prospect (Figure 1).



**Figure 1: Eucla Basin HMS Project – WA and SA Tenement Holdings**

Drilling in the Eucla Basin was suspended in late November 2007 for the summer field break. A total of 29,710 metres of drilling were completed during 2007 on the following projects:

| Tenement                        | EL No.   | Number of Holes 2007 | Metres Drilled 2007 | Number of Holes Dec 2007 quarter | Metres Drilled Dec 2007 quarter |
|---------------------------------|----------|----------------------|---------------------|----------------------------------|---------------------------------|
| Wanna Lakes (excluding Cyclone) | E69/1920 | 182                  | 6,616               | 69                               | 2,283                           |
| Cyclone Prospect                | E69/1920 | 337                  | 16,450              | 126                              | 5,880                           |
| Shell Lakes                     | E69/1919 | 13                   | 329                 |                                  |                                 |
| Eucla 3                         | EL 3615  | 35                   | 1,403               | 35                               | 1,403                           |
| Eucla 4                         | EL 3616  | 79                   | 4,912               | 79                               | 4,912                           |
| <b>Totals</b>                   |          | <b>646</b>           | <b>29,710</b>       | <b>309</b>                       | <b>14,478</b>                   |



- **Western Australia**

**Wanna Lakes Project - EL69/1920**

Drilling over the Wanna Lakes tenement (E69/1920) during the quarter concentrated on defining the Cyclone Prospect with additional infill drilling (minimum line spacing of 200 metres) between the 1,000m wide drill lines established in the September 2007 Quarter.

**Cyclone Prospect**

The Cyclone prospect is situated within the south east of the Wanna Lakes tenement, E69/1920. The prospect was discovered in July, 2007 and since discovery has been subject to 337 drill holes and 16,450m of drilling. The prospect is made up of a number of parallel strands separated by lower grade mineralisation occurring over an area of 2.5km wide by 5km long. In November, the Company advised that drilling at the Prospect had been completed for the year and that further HM samples had been despatched for analyses. As previously announced, zircon rich material is dominant within the heavy mineral distribution at the Cyclone Prospect.

**Drilling Assay Results**

The Company's mineral sands exploration over the past four months has concentrated on the collection and compilation of sufficient drilling information to undertake a HM resource estimate on the Cyclone Prospect. Following receipt of the additional HM sample information and a review of total results to date, detailed summaries of drill assay results at both 3.5% and 5.0% HM cut-off grades, as indicated in Tables 1 and 2 below, were generated. This information, along with all lower grade HM information, are being assessed in the development of the proposed "JORC" compliant resource. This initial resource estimation is in final preparation and now expected to be released early next month.

**Co-operative Geophysical survey with Image Resources NL (ASX: IMA)**

Image Resources completed an 80 line-kilometre orientation ground magnetic survey within the southern part of DRX's EL 69/1920 over the Cyclone Prospect. The survey has revealed a correlation of high amplitude linear NW ground magnetic targets with the higher grade mineralisation intersected by DRX in at least six (6) separate targets. This verifies the interpretation that three (3) palaeo coastlines are present within the Wanna Lakes Project area and provides confidence to DRX for the carrying out of ground magnetic surveys in the search for, as yet, new unidentified mineralisation strands and mineralised strand extensions beyond current drill intersections.

- **South Australia**

Drilling within the South Australian sector commenced 30 October 2007, initially over EL 3616 (Eucla 4) and extended into adjacent EL 3615 (Eucla 3). Field operations were suspended in late November.

**Pre-Prep Laboratory**

DRX has established a "pre-prep" laboratory in Ceduna, South Australia, allowing aircore drill samples to be reliably and accurately pre-treated in preparation for commercial laboratory assaying.

**Table 1: 2007 Drill Assay Results – Cyclone Prospect Summary**  
**Drill intercepts > 4.5m @ 3.5% HM cut-off grade**

| Hole_ID | From (m) | To (m) | Thickness (m) | Average Grade HM (%) | Easting MGA | Northing MGA |
|---------|----------|--------|---------------|----------------------|-------------|--------------|
| WL043   | 16.5     | 22.5   | 6.0           | 5.30                 | 473507      | 6812283      |
| WL118   | 19.5     | 25.5   | 6.0           | 9.19                 | 473393      | 6812221      |
| WL119   | 18.0     | 22.5   | 4.5           | 4.28                 | 473443      | 6812248      |
| WL123   | 12.0     | 18.0   | 6.0           | 6.26                 | 473532      | 6811920      |
| WL209   | 22.5     | 27.0   | 4.5           | 6.92                 | 473496      | 6813047      |
| WL210   | 22.5     | 27.0   | 4.5           | 7.86                 | 473544      | 6813053      |
| WL211   | 19.5     | 25.5   | 6.0           | 9.49                 | 473582      | 6813057      |
| WL212   | 15.0     | 22.5   | 7.5           | 6.98                 | 473651      | 6813001      |
| WL214   | 16.5     | 21.0   | 4.5           | 5.87                 | 473670      | 6813005      |
| WL228   | 18.0     | 24.0   | 6.0           | 4.77                 | 472992      | 6813911      |
| WL229   | 19.5     | 27.0   | 7.5           | 5.53                 | 472945      | 6813895      |
| WL230   | 21.0     | 25.5   | 4.5           | 4.67                 | 472897      | 6813890      |
| WL238   | 19.5     | 25.5   | 6.0           | 5.14                 | 473561      | 6813488      |
| WL250   | 18.0     | 24.0   | 6.0           | 6.07                 | 473720      | 6811519      |
| WL259   | 16.5     | 21.0   | 4.5           | 8.08                 | 474275      | 6810541      |
| WL260   | 15.0     | 21.0   | 6.0           | 6.43                 | 474187      | 6810543      |
| WL261   | 12.0     | 21.0   | 9.0           | 6.97                 | 474094      | 6810550      |
| WL273   | 21.0     | 25.5   | 4.5           | 7.35                 | 474063      | 6811146      |
| WL275   | 21.0     | 27.0   | 6.0           | 11.49                | 473958      | 6811123      |
| WL276   | 22.5     | 28.5   | 6.0           | 7.85                 | 473917      | 6811105      |
| WL277   | 19.5     | 30.0   | 10.5          | 6.31                 | 473873      | 6811089      |
| WL279   | 19.5     | 24.0   | 4.5           | 5.15                 | 473777      | 6811087      |
| WL288   | 22.5     | 27.0   | 4.5           | 7.38                 | 474435      | 6811636      |
| WL305   | 28.5     | 33.0   | 4.5           | 8.69                 | 475508      | 6810537      |
| WL318   | 19.5     | 24.0   | 4.5           | 5.31                 | 473919      | 6812320      |
| WL325   | 21.0     | 25.5   | 4.5           | 5.45                 | 473793      | 6812685      |
| WL335   | 19.5     | 24.0   | 4.5           | 6.59                 | 473817      | 6812795      |
| WL361   | 15.0     | 24.0   | 9.0           | 5.38                 | 473643      | 6812934      |
| WL362   | 18.0     | 22.5   | 4.5           | 8.58                 | 473680      | 6812932      |
| WL363   | 15.0     | 25.5   | 10.5          | 7.10                 | 473614      | 6812989      |
| WL374   | 18.0     | 22.5   | 4.5           | 7.91                 | 474084      | 6812091      |
| WL376   | 19.5     | 24.0   | 4.5           | 4.94                 | 474174      | 6812100      |
| WL380   | 16.5     | 24.0   | 7.5           | 6.47                 | 473979      | 6812481      |
| WL386   | 12.0     | 21.0   | 9.0           | 7.09                 | 473650      | 6812991      |
| WL422   | 21.0     | 25.5   | 4.5           | 10.41                | 474159      | 6812309      |
| WL423   | 18.0     | 24.0   | 6.0           | 7.05                 | 474110      | 6812287      |
| WL432   | 18.0     | 22.5   | 4.5           | 8.38                 | 473768      | 6811520      |
| WL509   | 18.0     | 22.5   | 4.5           | 8.85                 | 473659      | 6811727      |
| WL510   | 16.5     | 21.0   | 4.5           | 6.63                 | 473858      | 6811785      |
| WL511   | 22.5     | 28.5   | 6.0           | 7.92                 | 474289      | 6811891      |
| WL516   | 19.5     | 24.0   | 4.5           | 5.13                 | 474057      | 6810926      |
| WL519   | 24.0     | 28.5   | 4.5           | 4.60                 | 474719      | 6811017      |

**Table 2: 2007 Drill Assay Results – Cyclone Prospect Summary**  
**Drill intercepts > 4.5m @ 5.0% HM cut-off grade**

| Hole_ID | From (m) | To (m) | Thickness (m) | Average Grade HM (%) | Easting MGA | Northing MGA |
|---------|----------|--------|---------------|----------------------|-------------|--------------|
| WL118   | 21.0     | 25.5   | 4.5           | <b>10.63</b>         | 473393      | 6812221      |
| WL123   | 13.5     | 18.0   | 4.5           | <b>6.92</b>          | 473532      | 6811920      |
| WL209   | 22.5     | 27.0   | 4.5           | <b>6.92</b>          | 473496      | 6813047      |
| WL211   | 19.5     | 25.5   | 6.0           | <b>9.49</b>          | 473582      | 6813057      |
| WL259   | 16.5     | 21.0   | 4.5           | <b>8.08</b>          | 474275      | 6810541      |
| WL260   | 15.0     | 19.5   | 4.5           | <b>7.03</b>          | 474187      | 6810543      |
| WL261   | 13.5     | 21.0   | 7.5           | <b>7.48</b>          | 474094      | 6810550      |
| WL275   | 21.0     | 27.0   | 6.0           | <b>11.49</b>         | 473958      | 6811123      |
| WL276   | 22.5     | 27.0   | 4.5           | <b>9.10</b>          | 473917      | 6811105      |
| WL277   | 22.5     | 28.5   | 6.0           | <b>7.87</b>          | 473873      | 6811089      |
| WL305   | 28.5     | 33.0   | 4.5           | <b>8.69</b>          | 475508      | 6810537      |
| WL325   | 21.0     | 25.5   | 4.5           | <b>5.45</b>          | 473793      | 6812685      |
| WL363   | 19.5     | 25.5   | 6.0           | <b>9.22</b>          | 473614      | 6812989      |
| WL380   | 16.5     | 24.0   | 7.5           | <b>6.47</b>          | 473979      | 6812481      |
| WL386   | 15.0     | 21.0   | 6.0           | <b>8.34</b>          | 473650      | 6812991      |
| WL423   | 18.0     | 24.0   | 6.0           | <b>7.05</b>          | 474110      | 6812287      |
| WL432   | 18.0     | 22.5   | 4.5           | <b>8.38</b>          | 473768      | 6811520      |
| WL509   | 18.0     | 22.5   | 4.5           | <b>8.85</b>          | 473659      | 6811727      |

### Future Drilling Programs – Eucla Basin

DRX's early discoveries in the Eucla Basin are providing suitable encouragement to continue aggressive exploration programs into 2008, flowing on from the 2007 program. Such work is expected to recommence in early April 2008, following cultural heritage clearance surveys and drill lines clearing scheduled to commence in March 2008.

Aircore Drilling planned for 2008 includes:

South Australia 20,000m (including further drilling at the Willy Will Prospect)  
 Western Australia 30,000m (including possible extensions to the Cyclone Prospect)

The Company is seeking to expedite the granting of:

- the prospective Wanna Lakes East exploration licence application, located immediately to the east and north of the Wanna Lakes EL 69/2408, and possibly hosting a back beach and dunal environment to the HM mineralisation at the Cyclone Prospect, and
- the Jubilee Lakes North exploration licence application which covers 40km of a potential strand system situated approximately 100km west of the Wanna Lakes Project.

### Flinders Island Heavy Mineral Sands Project (DRX 100%) - EL 6/2007 and EL 7/2007

Two exploration licences covering an area of 489km<sup>2</sup> have been granted to DRX over the eastern half of Flinders Island, Tasmania, for periods of five years. The area is considered prospective for heavy mineral sand accumulations with the possible addition of tin and gold

During December, a company representative visited the island to talk to stakeholders and to review the initial areas for drilling. The presence of DRX was well received and drilling is scheduled to commence on the 31 January 2008 with an initial 10,000m aircore drilling program.

Flinders Island is 65km long by 30km wide with about one third of the island dominated by ridges of granite with associated small tin fields. The eastern side of the island, where the exploration licences lie, is characterised by an extensive coastal plain with an average width of 13km from west to east. This coastal plain that is considered highly prospective for heavy mineral sand deposits associated with ancient beach systems.

Drilling, which commenced on 30 January, is planned on road verges, and in open paddocks, to an average depth of 50m and spaced between 100m and 1km apart. The first phase of drilling is expected to take four weeks and if encouraging results are obtained during this phase then drilling will be continued to define resources. Wallis Drilling Pty Ltd has been contracted to undertake the drilling and a number of local Flinders Island personnel have been engaged to assist with the island exploration operations.

### **Anabama Copper Project – South Australia (DRX 100%) – EL 3548 and EL 3932**

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A reconnaissance field visit field conducted during December established that the general area has very little surface outcrop and that a large portion of the licences will be potentially covered by calcrete development. Rock chip, calcrete and soil samples were collected and submitted for assay; results are still outstanding.

DRX has applied for Ministerial Approval for the transfer of EL3548 and EL3932 to its copper focussed subsidiary, Chalcophile Resources Pty Ltd. The completion of the purchase agreement announced in September 2007 occurs when the exploration licences have been successfully transferred from Goldrap Pty Ltd to Chalcophile Resources Pty Ltd.

#### **Future work**

To advance the exploration program in a cost effective way the Company contracted GeoTech Airborne Pty Ltd from Perth ([www.geotechairborne.com](http://www.geotechairborne.com)) to conduct a helicopter borne electromagnetic (EM) survey over the tenements using Geotech's Advanced Versatile Time-Domain Electromagnetics ("VTEM") system. The survey, planned over 900 line km at 400m line-spacing, is scheduled to commence late February 2008.

The sub-economic resources at the Anabama Prospect (3.3 million tonnes grading 0.66% copper using a 0.3% cut-off grade) reported by Placer Exploration in 1994 are being reviewed and will be "modernized" with further drilling concurrent with the first phase of DRX's exploration drilling pending the VTEM survey results.

### **Bellfield Base Metals Project – Northern Queensland (DRX 50%, MSC 50%)**

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Final Results from the helicopter borne Versatile Time-Domain Electro-Magnetic ("VTEM") and magnetic survey conducted during the second quarter 2007 are still outstanding; but limited in-house interpretation of the preliminary results has being undertaken. Flagstaff GeoConsultants have been contracted to prepare a detailed interpretation of the final data once received.

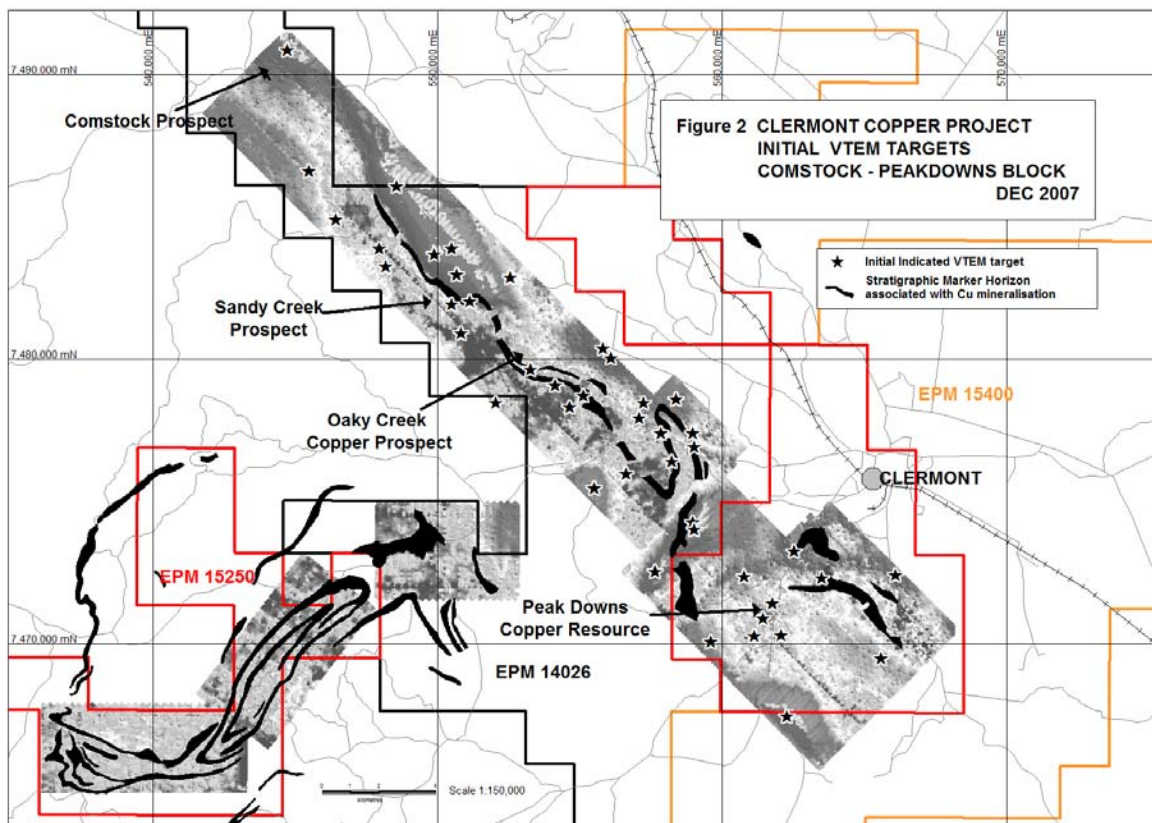
Ministerial approval is still awaited for the granting of EPM 12868 "Bellfield" and EPM 12888 "Gilbert River". The two permits form a roughly rectangular area approximately 63km long by 17km wide (1,100km<sup>2</sup>) and are centred approximately 100 km south of Georgetown.

A reconnaissance helicopter visit over the project area during the quarter was undertaken to establish access and general field conditions in preparation for ground fieldwork.

## **Clermont Copper Project – Central Queensland (DRX 100%)**

In December, the final results from the helicopter borne Versatile Time-Domain Electro-Magnetic (“VTEM”) and magnetic survey conducted during second quarter 2007 were received. Flagstaff GeoConsultants have been contracted to prepare a detailed interpretation of this data.

The survey was designed to identify possible new sub-surface copper mineralization and to provide more detailed information on known targets. Initial interpretation of VTEM Survey Block, covering Comstock to Peak Downs, has identified 44 targets which will be investigated and ground truthed during the first quarter 2008 (Figure 2). It is foreseen that some of these initial targets will be due to cultural influences. However, there is a number of “late channel” anomalies that indicate deeper buried conductors warranting drill testing. Interpretation, modeling and assessment will be ongoing during the first quarter of 2008.



### **Future work**

The Company has contracted Ford Drilling from Rockhampton to commence an 8,400m drilling program on the Clermont Copper Project, this will commence after completion of Dooloo Creek drill program, approximately in early April 2008.

Initial drilling work will concentrate on completing the delayed 2007 drilling program over the Comstock, Sandy Creek and Oaky Creek prospects. Following this drilling it is expected that VTEM generated drill targets would have been assessed and drill sites prepared.



## Dooloo Creek Gold-Copper Project – Southeast Queensland (DRX 100%)

During the quarter, a six (6) hole reverse circulation (RC) drilling program has been completed over the Dooloo Creek Prospect (Figure 3), a very large (4km x 2km) area of anomalous gold-copper mineralization, for a total of 1,104m. A larger drill rig is necessary for deeper follow-up drilling to be conducted in early 2008.

The prospect is interpreted to resemble the upper part of a Mount Morgan style mineralization system, having similar host rock age and lithologies, and sulphide geochemistry and mineralization styles.

### RC Holes completed in 2007:

| Hole ID | Easting<br>MGA | Northing<br>MGA | AZMITH (deg) | DIP<br>(deg) | Depth<br>(m) |
|---------|----------------|-----------------|--------------|--------------|--------------|
| DCRC01  | 311790         | 7281200         | 315          | 60           | 198          |
| DCRC02  | 311712         | 7281252         | 315          | 60           | 189          |
| DCRC03  | 311395         | 7281249         | 135          | 60           | 198          |
| DCRC04  | 311924         | 7281716         | 315          | 60           | 198          |
| DCRC05  | 311812         | 7281753         | 315          | 60           | 198          |
| DCRC06  | 311724         | 7281801         | 315          | 60           | 123          |

The RC chip samples have been composited every 2m with a total of 560 samples submitted to ALS Chemex in Townsville for gold and multi-suite element analysis.

Drill hole DCRC01 assay results returned broad low order gold mineralization over most of the hole. The best intersection was 0.64g/t Au over 4m, from 147m to 151m, including 1.19 g/t Au (146ppm Cu) over 2m from 147 to 149m. Best copper assay returned was 247ppm over 2m from 53m. There does appear to be a slight elevation in reported copper assays towards the end the hole. Also, disseminated pyrite mineralisation was observed in drill hole DCRC06, downhole from 6m to the end of hole at 123m.

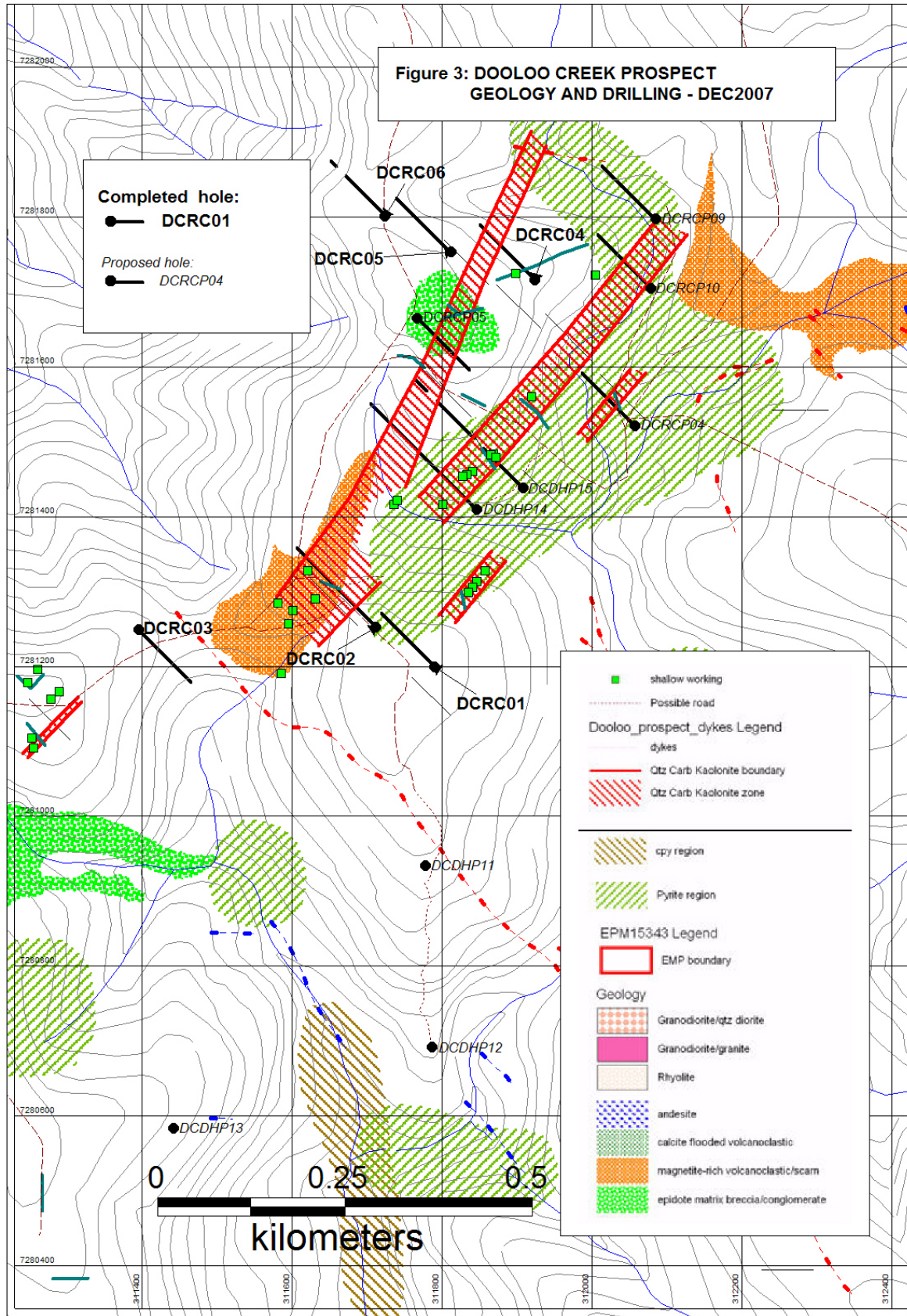
Assay results from drill holes DCRC02 to DCRC06 have not yet been received.

### Future work

The Company has contracted Ford Drilling from Rockhampton to complete the drilling program, inclusive of three (3) RC holes for 600m and 3 diamond core (DH) holes for 1,200m. Drilling is scheduled to commence mid February 2008, weather permitting.

### Proposed Drill holes in 2008:

| Proposed<br>Hole | TYPE | Easting<br>MGA | Northing<br>MGA | AZMITH<br>(deg) | DIP<br>(deg) | Depth<br>(m) |
|------------------|------|----------------|-----------------|-----------------|--------------|--------------|
| DCRCP04          | RC   | 312058         | 7 281521        | 315             | 60           | 200          |
| DCRCP05          | RC   | 311767         | 7 281665        | 135             | 60           | 200          |
| DCRCP10          | RC   | 312079         | 7 281705        | 315             | 60           | 200          |
| DCDHP11          | DH   | 311778         | 7 280934        | 0               | Vert         | 400          |
| DCDHP12          | DH   | 311442         | 7 280584        | 0               | Vert         | 400          |
| DCDHP13          | DH   | 311847         | 7 281409        | 0               | Vert         | 400          |





## **CORPORATE AND FINANCE**

### **In Specie Distribution - Xtreme Resources Limited ("XRL")**

Shareholder approval was given at the general meeting held on 4 October 2007 for shareholders to receive an "in specie" distribution, on a 1 for 4 basis, of shares in DRX's wholly owned subsidiary, XRL. At the meeting approval was also given for XRL to acquire all the issued shares in Garimperos Limited, a company which holds a:

- tin resource at Summer Hill (Mt Garnet, north Queensland) of 15 Mt grading 0.5% tin, and
- crushing mill, concentration plant and small smelter adjacent to the resource.

### **Company Options**

During the quarter, the Company raised \$6,645,870 in shareholder funds through the exercise of 28,897,340 options at various prices between 22 and 30 cents. During the same period, 8,127,493 options exercisable at 22 cents and 3,000,000 at 47 cents lapsed.

### **General**

Exploration and evaluation expenditure for the quarter totalled \$1,745,000. The Company held \$9,707,000 cash at the end the quarter. Exploration and evaluation expenditure during this quarter was significantly higher than previously estimated due to the availability of drilling rigs for work being conducted in the Eucla Basin and Dooloo Creek Projects and due to the purchase of company assets in preparation for future work during 2008.

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Dated 31 January 2008

**Anthony J Fawdon**  
Executive Chairman/CEO

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The information in this report, insofar as it relates to Exploration Results from the Company's mineral sands projects, is based on information compiled by Mr David Jelley, of David Jelley Pty Ltd, who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Jelley has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he has undertaken to qualify as a Competent Person as defined in the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Jelley consents to the inclusion in the report of the matters based on the information in the form and context in which it appears.

The information in this report, insofar as it relates to Exploration Results and Mineral Resources from the Company's copper and base metal projects, is based on information compiled by Diatreme Resources Ltd staff and reviewed by Mr Henning Coetzee, a fulltime employee of the Company, who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Coetzee has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he has undertaken to qualify as a Competent Person as defined in the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Coetzee consents to the inclusion in the report of the matters based on the information in the form and context in which it appears.