



Companies Announcement Office
Australian Securities Exchange
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SUCCESSFUL WATER DISCOVERY CYCLONE ZIRCON PROJECT

Diatreme Resources Limited (ASX:DRX) is pleased to report that the Company's initial investigation production water bore (bore), targeting Officer Basin aquifers under the Cyclone area has intersected water flows below 530m.

- The bore was commenced in late October and has now achieved a depth of 628m with drilling to continue to the 800m target depth.
- As at the weekend, an excellent high yielding sandstone aquifer had been intersected below 530m depth. Drilling has encountered 98m of porous fine to very fine porous sandstone beds with good to high permeability.
- The aquifer intersected appears to be part of an extensive Officer Basin aquifer system which has previously been intersected by oil explorers about 80km to the east of the current bore.
- The bore is currently passing through a coarse sand and fine gravel bed with high porosity.
- Drill rig is now converting to mud drilling operations along with the running of suitable bore hole casing.

DRX is buoyed by this initial successful water search so close (virtually on site) to the proposed mineral sands operation. Pump testing, to follow on from bore completion, will provide the Company with a clearer picture of planning requirements for any future production bore field to supply a future mining operation.





The Company's initial investigation production water bore is sited within E69/1920, adjacent to the proposed Cyclone mineral sands mine site. The on-site Hydrogeologist ¹ has reported the total depth of the pilot hole, as at 7 November 2013, to be 627.8m below ground level with drilling continuing toward the target depth of 800m.

The bore has been drilled through the Gunbarrel Basin into the underlying Officer Basin. An excellent high yielding sandstone aquifer was encountered below 530m. Drilling has penetrated 97.8m of porous fine to very fine porous sandstone beds with good to high permeability. The sandstone consists of alternating layers of grey, brown and white friable sandstone. The hardness and thickness of the beds is variable becoming more weathered with depth.

The white sandstone encountered is a quartz arenite and soft with considerable iron staining. The bore is currently passing through a coarse sand and fine gravel bed with very high porosity. Several of these gravel beds have been encountered in this sandstone aquifer at various depths. With the drilling rig no longer able to continue drilling using high pressure air foam circulation, due to the high head and volumes of water to be lifted to clear the hole, it is now converting to mud circulation.

A minor shallow saline aquifer was encountered near the surface and a one (1) litre per second saline aquifer with field conductivity of 27,220 microSiemens/centimetre (uS/cm) was encountered at 80m. The main aquifer has a field conductivity of 16,550 uS/cm.

The current hydrogeological drilling objectives are to drill deeper through the main aquifer:

- to determine if there are less weathered and less friable beds in the main aquifer at depth,
- to determine the thickness and nature of the complete aquifer stratigraphy at this location,
- to provide full penetration of the aquifer and minimise future pumping well losses,
- to provide the information required to design and construct this bore as an investigation production bore which can be used for the water supply for mine and infrastructure development,
- to provide the hydrogeological and drilling data to facilitate design and construction of future production bores.

Planning is in place to ream the top section of the bore and case with 300mm NB steel casing to 330m and pressure cement off the annulus to prevent unstable beds and clay fall-in blocking the main aquifer and casing perforations. A telescopic production casing string will be designed at the completion of drilling through the main aquifer.

It is noted that these weathered friable sandstone aquifers can provide many drilling and bore completion difficulties, particularly in construction and development of high yielding production bores. There exist high yielding stable production bores in similar aquifers in the Amadeus and Georgina Basins in Central Australia. From very limited information available from distant oil exploration bores in the Officer Basin this aquifer appears to be part of an extensive aquifer system.

Following completion of drilling the bore will be cased and developed with air circulation ready for future controlled pump testing. The pump tests will provide the information required on the hydraulic characteristics of the main aquifer to assess potential pumping rates, long term sustainable pumping rates and enable a production bore field to be designed.

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Cyclone Project – Water Bore drilling rig loading a 9m drill rod



Cyclone Project – Groundwater flows from below 530m

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