

**MLA 95542**

**REPORT FOR THE PERIOD ENDING  
22 AUGUST 2006**

**DJ Horton  
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Copies to: Opal Horizon Limited  
Department of Natural Resources, Mines & Water



*Office Address : Level 2, 87 Wickham Terrace, Spring Hill QLD 4000  
Postal Address : PO Box 10288, Brisbane Adelaide Street QLD, 4000  
Telephone : 61 7 3839 5088 Facsimile : 61 7 3832 5300  
Email : [enquiries@opalhorizon.com](mailto:enquiries@opalhorizon.com) URL : [www.opalhorizon.com](http://www.opalhorizon.com)*

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## **SUMMARY**

EPM 14701 “Lina Glen South” and contiguous EPM 14705 “Lina Glen North” form part of Opal Horizon Limited’s Lina Glen project. The project area lies 40 kilometres west of Jundah in southwestern Queensland. This is the first and final report for the project area.

In the 1880s, the Jundah opalfields provided some of the highest quality precious opal found in the world at that time. While the main workings at Opalville, 4km to the east of the project area, are still being worked, Opal Horizon Limited considered that a previous lack of systematic exploration in the area offered excellent opportunities for the discovery of high-quality opal orebodies at depth, particularly to the west of Opalville.

Following literature review, acquisition of several remotely-sensed datasets and generation and interpretation of Digital Elevation Models (“DEM) from SRTM and Aster imagery, the area was subjected to a major drilling program. This program was specifically designed to ascertain the geological controls to opal mineralisation in the region as well as to define the extent and depth of any mineralisation found. A total of 2,824 metres of exploration drilling was undertaken (157 drillholes) over both tenements.

This work resulted in the discovery of two blind precious opal deposits lacking evidence of surface mineralisation or any other surface feature to indicate their presence at depth. Application for a large mining lease (MLA 95542) was made on 9 August 2006 to cover both of these deposits.

This report describes work undertaken within the area of the Mining Lease application. A separate report has been submitted for the remainder of the project area. A total of 85 holes were drilled within the MLA.

## INTRODUCTION

EPM 14701 “Lina Glen South” and contiguous EPM 14705 “Lina Glen North” form part of Opal Horizon Limited’s Lina Glen project. This is the first and final report for the project area.

### Location and Access

The project area lies 40 kilometres west of Jundah in southwestern Queensland (Fig. 1). Access to the area is via the Jundah – Lina Glen road. Property tracks through Lina Glen and Hayfields stations provide access to most parts of the project area.

### Tenure

EPM 14701 “Lina Glen South” of 4 sub-blocks (12.5 km<sup>2</sup>) and EPM 14705 “Lina Glen North” also of 4 sub-blocks were granted to Opal Horizon Ltd on 23 August 2005 each for a period of 1 year (Tables 1 and 2). Both tenements lie within Restricted Area 258 established for development of the west Jundah opal area.

**Table 1: Graticular Units of EPM 14701 “Lina Glen South”**

<b>1:1 000 000 Sheet</b>	<b>Block No.</b>	<b>Units</b>
Cooper Creek	704	w x y z

**Table 2: Graticular Units of EPM 14705 “Lina Glen North”**

<b>1:1 000 000 Sheet</b>	<b>Block No.</b>	<b>Units</b>
Cooper Creek	704	t u
Cooper Creek	705	q r

The project area is exclusive of two mining leases MLA 95456 and ML 95235 held by other parties (Plan 1).

On 9 August 2006 following completion of the drilling program, Opal Horizon Limited made application for a Mining Lease (MLA 95542 of 54 ha; Plan 1).

## **EXPLORATION RATIONALE**

The sedimentary opal deposits of central Australia occur as stacked horizontal sheets lying within 30 metres vertically of the earth's surface and, as such, are highly-amenable to open-cut mining. The techniques that the Company uses in exploration for opal are similar to those used for modern-day gold or diamond exploration. These techniques involve a combination of geomorphology (eg shuttle radar altimetry) and wide-spaced drilling (using indicator element geochemistry) to vector towards discovery. More importantly, the Company recognises that opal fields in Australia cluster to form extremely large orebodies or "opal centres" (such as Lightning Ridge or Coober Pedy) with an average diameter of 30 km. Each of these centres are capable of producing around \$5 billion worth of opal over their respective mining lives and are extremely attractive exploration targets. Based on detailed geological research, Opal Horizon Limited has identified over 30 potential new opal centres in central Australia, most of which are unexplored. It has acquired exploration tenure over the most prospective of these and is currently exploring them.

The exploration methodologies that the Company has developed allow it to find and accurately delineate opal fields (or "runs) prior to bulk testing and mining. This is something that other explorers have been generally unable to achieve. The relatively shallow depths to the opal-bearing horizons in all of its current project areas are a significant bonus in reducing exploration and open-cut mining costs.

## **GEOLOGY AND MINERALISATION**

The Lina Glen project area is underlain almost entirely by chemically altered (leached, silicified and ferruginised) sediments of the Late Cretaceous Winton Formation (Fig 2). In this area these sediments comprise calcareous sandstone, mudstone, and siltstone with rare coal.

The sediments dip shallowly (~5°) to the south-southeast. The northern part of the project area is characterised by widespread mesa development where these beds crop out. The eastern part of the project area is overlain by thick silcrete.

Opal mineralisation is widespread within the project area (Plan 1) although two main areas are recognised. These are known as Lina Glen and Gold & Black.

## **MINING HISTORY & PREVIOUS EXPLORATION**

In the 1880s, the Jundah opalfields provided some of the highest quality precious opal found in the world at that time. The principal producing opalfield in the Jundah area is Opalville which is situated less than 4km east of the project area. Two smaller occurrences within the project area, now known as Lina Glen and Gold & Black (Plan 1), were discovered in the 1880s but were small producers until the advent of bulldozers and jackhammers in opal mining in the 1960s. The Lina Glen deposit is now a large open cut although production ceased some years ago. No records are available to ascertain the value of opal produced from both deposits.

Three previous Exploration Permits for Minerals have been over various portions of the Lina Glen project. These include EPM's 10422, 10841 and 10703. The reports on these tenements suggest that exploration consisted of ground inspections and trenching although maps showing the location of said trenches were not included in the reports.

## WORK CONDUCTED

Work conducted during the twelve month period of tenure includes:

1. a literature review of past exploration
2. acquisition of aerial photography, satellite imagery and generation of two Digital Elevation Models (DEM's) over the tenements
3. analysis and interpretation of the DEM's, aerial photography and satellite imagery
4. 2,824 metres of exploration drilling (157 drillholes) using a specially modified RAB rig.

This report describes work undertaken within the area covered by the Mining Lease application but excludes the results from the rest of the project area. A separate report has been submitted detailing these results. A total of 85 holes were drilled within the MLA.

The high resolution Quickbird satellite imagery covering both the project area and the MLA is shown on Plans 2 and 3, respectively.

The location of drill holes is shown on Plan 4 and the drill logs are contained in Appendix 1. The rig used was GEMCO RAB rig (120mm hole) with a specially designed cyclone to collect and separate coarser grained drill chips. The holes were logged by a geologist who was able to continually modify the drill program during execution according to the results obtained. In this way the controls to mineralisation in this region were established and these were then used to locate new areas of mineralisation.

Drilling established that most of the mineralisation in this area is associated with old palaeo-drainages which drained south into an inland sea present immediately to the south of the MLA and the Lina Glen workings. The palaeo-drainage which hosts the mineralisation within the MLA is characterised by a north-northeast zone of claystone (now the site of a modern-day drainage which drains to the north). On either side of this drainage, multiple lenses of claystone extend out into the old river valley. The alternate sequences of sandstone and claystone provide ideal hosts to opal mineralisation. Opal Horizon Limited found two areas of mineralisation, one on either side of the palaeo-channel. The deposit to the northwest is called Raindance while that to the southeast is called The Big Girl (Plan 5).

Faulting plays a major role in the localisation of opal mineralisation. The dominant controlling direction for opal mineralisation in the project area is northeast. However, The Big Girl deposit occurs in the northwest quadrant of the intersection of two faults, northeast and north-northeast.

The Big Girl Prospect, discovered in early May is over 200m long and averages approximately 60m wide. Precious opal mineralisation occurs in multiple sub-horizontal levels from 8.5m depth to 26m depth. Most of the drillholes into this prospect intersected highly-prized red opal.

The Raindance Prospect was discovered in early June 2006. It is approximately 400m long and averages 80 m wide. Unlike its sister prospect, it has one consistent sub-horizontal opal level extending over its entire length. Local multiple upper and lower levels are also present. The deepest opal found was at 13.5m. One portion of the prospect (170m x 80m) appears to be very rich with an extraordinarily high quantity of gem-grade material consistently recovered during drilling.

While multiple opal horizons are present in both deposits, they appear to share a common stratigraphy in that they occur roughly on the same horizon on either side of the palaeo-channel. This horizon dips to the south-southeast at approximately 5 degrees and crops out to the northwest of Raindance (Plan 5). No opal is present at the surface although the outcrop zone is iron-rich.

In both prospects, drilling indicates the presence of precious opal in ironstone pipes and seams (a feature of this region) although ironstone boulder opal was only found at The Big Girl Prospect. While ironstone boulders were not found from the drilling at Raindance, this does not mean that they are not present there. Finding precious opal-rich ironstone boulders in any opal deposit in this region is akin to finding large gold nuggets in a gold deposit; a difficult proposition using a small diameter (120mm) drill hole and widely spaced holes.

## REFERENCES

HORTON, D.J., 2002: Australian sedimentary opal – why is Australia unique? *Australian Gemmologist*, 21, 287-294.

## APPENDIX 1: DRILL LOGS