



HAVILAH RESOURCES NL  
ABN 45 115 281 144



## Maldorky Iron Ore Deposit - Resource Statement

### Havilah Resources

*Havilah Resources NL aims to become a significant producer of copper, gold, cobalt and molybdenum from its 100% owned Kalkaroo, Mutooroo and Benagerie projects, which are at advanced feasibility stage. It holds more than 6,500 km<sup>2</sup> of surrounding tenements in the highly mineralized Curnamona Province of South Australia, where it maintains an active drilling program. Deposits of iron ore, tin and hard rock uranium have been drilled, with good exploration upside. Havilah owns strategic interests in uranium explorer, Curnamona Energy (45.4%) and hot rock geothermal explorer, Geothermal Resources (58%).*

### Issued Capital

82.8 million ordinary shares  
20.15 million listed options  
10.775 million unlisted options

### Contact

Dr Bob Johnson – Chairman  
+ 61 (0)8 83389292

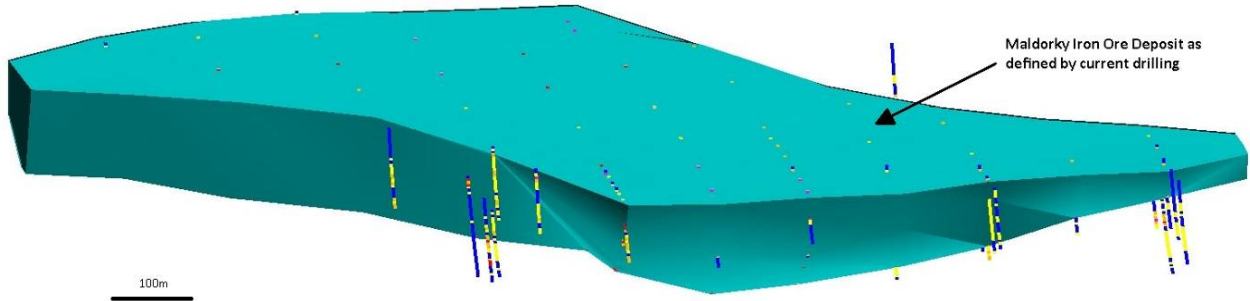
### Highlights

- **Indicated Resource of 147 million tonnes of 30.1% Fe** at Maldorky (applying an 18% Fe cut-off grade).
- This translates to 59 million tonnes of premium grade magnetite-rich product (>60% Fe) containing very low levels of impurity elements, based on rejecting 60% waste material.
- A flat, shallow, orebody covering only 62.4Ha, with minimal internal waste and overburden, exploitable via a simple open pit mine plan.
- Mining can commence from the surface in the richest central part of the orebody to maximize initial returns.
- Only 26 km from railway line, minimizing haulage costs.



Resource drilling at Maldorky

Havilah Resources NL (Havilah – ASX: HAV) advises that based on recent drilling results, its geologists have generated a detailed geological model of the Maldorky iron ore deposit as shown below :



This geological model has formed the basis for an initial JORC resource estimation, using Vulcan 3D software, generating an **Indicated Resource of 147 Mt of 30.1% Fe at a cut-off grade of 18% Fe** as detailed in the following table.

**Maldorky Iron Ore Resource Estimate – June 2011**

<b>Cut-off Grade (Fe%)</b>	<b>Tonnes (to 4 sf)</b>	<b>Average Grade (Fe%)</b>	<b>Average SG</b>
0	172,400,000	27.8	3.61
15%	156,700,000	29.3	3.66
18%	147,800,000	30.1	3.69

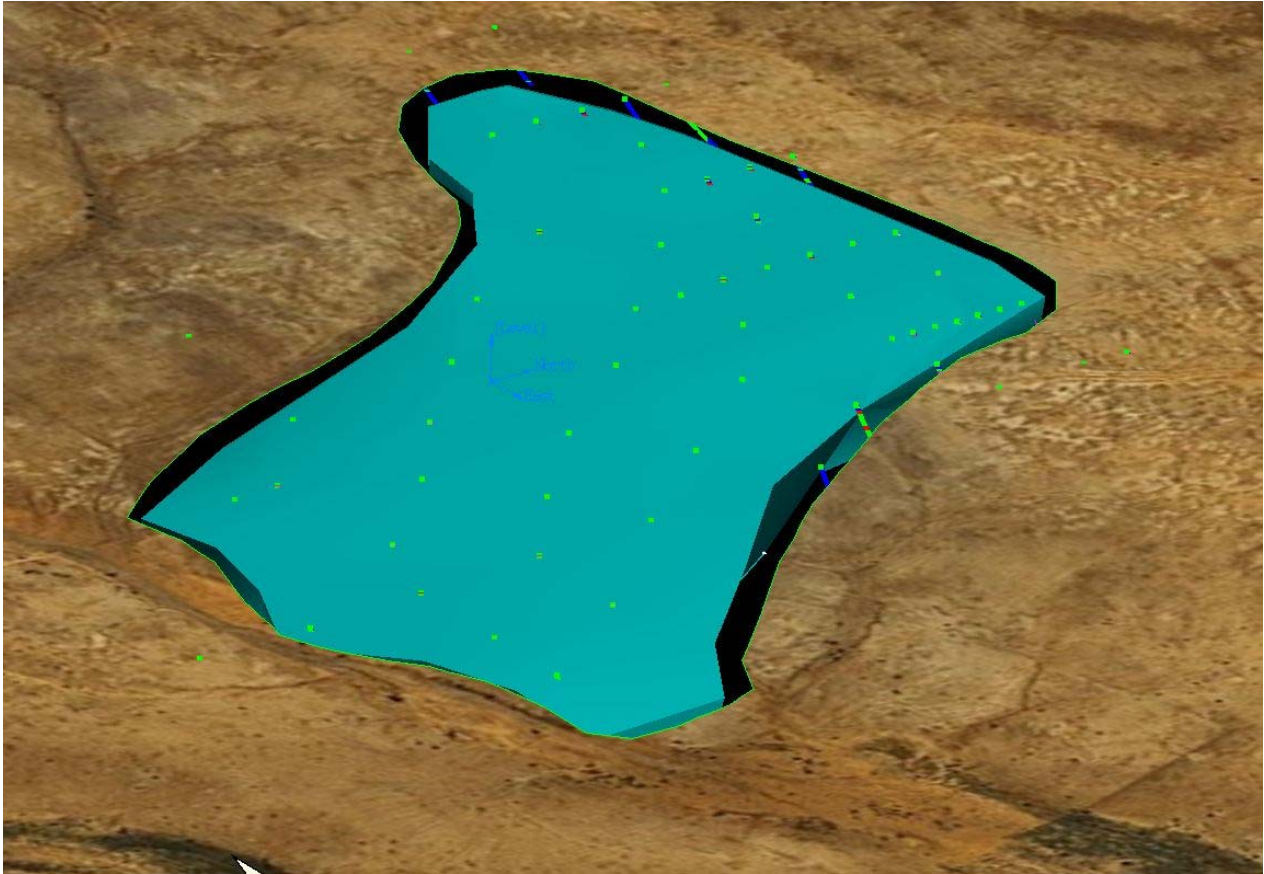
The resource estimate relies on laboratory XRF assay results from 51 Havilah drillholes (total metreage 5379m). The resource block model is constrained by a geological ore envelope, which coincides closely with a natural 15-18% Fe assay boundary. The table at the end of this report summarises the various geological parameters relevant to the resource estimate presented here.

The Indicated Resource category is justified by the high degree of confidence in the continuity of mineralisation, the internal consistency of the assay data and the adequate drill hole spacing for the simple geometric shape. It is anticipated that further drilling will expand the orebody.

The block model was run for zero, 15% and 18% Fe cut-offs within the geological envelope, with results summarised in the above table. A significant feature of the deposit is that the overall resource grade and tonnage is relatively insensitive to the applied cut-off grade. For example, the data in the above table shows that reducing the cut-off grade from 18% to 15% Fe (16.7% decrease) only results in an average grade decrease from 30.1 to 29.3% Fe (2.7% decrease). This mainly arises from the predominance of higher iron grades (>35% Fe) in the deposit and the natural 15-18% Fe assay limit at the deposit boundaries. For the case of the 18% cut-off, the internal waste material is only 14.5% of the total 172.4 Mt for the entire deposit.



It is anticipated that almost all of the 147 Mt Indicated Resource will be mineable, subject to economic factors, based on the favourable shape of the orebody, comparatively uniform grade distribution, and lack of overburden. The central part of the orebody has the consistently highest grades, greatest thicknesses and it also outcrops. These factors highlight the extremely favourable open pit mining characteristics of the Maldorky deposit, as illustrated by the topographic cut-away below.



*3D Cut-away of the topography showing the Maldorky orebody lying just below the surface*

The Maldorky deposit was discovered last year as the result of drilling a prominent magnetic anomaly associated with poorly outcropping Braemar Iron Formation, in an area several kilometres south of the abandoned Radium Hill uranium mine. The deposit is interpreted to have been enhanced by localized thickening of the magnetic iron formation due to the combined influences of extreme shearing and drag folding repetition at this particular locality.

Metallurgical work indicates that the Maldorky iron ore has similar characteristics to those reported by fellow junior explorers in the \*Braemar Iron Alliance, namely :

- Relatively low work index ore.
- Straightforward processing that can upgrade the low grade ore to a premium magnetite rich product, with low levels of unwanted elements (eg. Al, Si, P, Ti, Cr, S).

The Maldorky deposit has several favourable attributes that Havilah believes will make it a particularly attractive mining proposition in the emerging Braemar iron ore province :

- A flat, shallow, orebody covering only 62.4Ha requiring a simple open pit mine plan.
- Lack of overburden and internal waste material resulting in minimal non-ore mining costs.
- Relatively high grade (30%) and high yield (approximately 40% of the ore converted to saleable product), meaning lower unit mining and processing cost per tonne of saleable product.
- Only 26 km from the railway line (the closest of all known Braemar iron ore resources to date), minimizing haulage costs.

Havilah plans to complete definitive metallurgical processing studies over the next six months and to seek an experienced partner who can assist with the process design, process plant construction, finance and end product off-take. To this end, Havilah has recently employed a native Mandarin speaking graduate mining engineer, and secured the services of a senior consultant mining engineer who is well experienced in equipment procurement and project engineering for iron ore projects. Havilah has commenced the mine permitting process, with lodgment of a Mining Lease application and preparation of related documentation.

Dr K R Johnson  
CHAIRMAN (08) 83389292

#### Competent Person Statement

This Mineral Resource Statement has been compiled in the accordance with the guidelines defined in the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code, 2004 Edition). The information in this report has been compiled by Dr Bob Johnson who is a member of the Australasian Institute of Mining and Metallurgy and Dr Chris Giles who is a member of The Australian Institute of Geoscientists. Drs Johnson and Giles are employed by the Company on consulting contracts. They have sufficient experience which is relevant to the style of mineralization and type of deposit under consideration to qualify as Competent Persons as defined in the JORC Code 2004. Drs Johnson and Giles consent to the release of the information compiled in this report in the form and context in which it appears.

*\*The Braemar Iron Alliance is a group of explorers who are exploring and proving iron ore deposits in the northeast of South Australia and adjacent NSW. An announcement regarding the formation of the BIA is attached at the end of this report.*



## Assessment and Reporting Criteria

The following table provides a summary of important criteria related to the assessment and reporting of the Maldorky Iron ore resource.

Criteria	Status
Sampling Techniques, Assay Data, Drilling Details	
Havilah drillholes used in resource estimation	<ul style="list-style-type: none"> <li>51 RC holes totalling 5,379m, drilled by Havilah Resources, were used in defining the resource. There were no previous drillholes in the region prior to Havilah's work.</li> </ul>
Drilling techniques	<ul style="list-style-type: none"> <li>All RC holes were drilled using standard face sampling hammers with bit sizes ranging from 121mm to 133mm.</li> </ul>
Sampling techniques	<ul style="list-style-type: none"> <li>Havilah RC samples were collected at 1m intervals. All bagged samples were initially assayed with a calibrated Niton XRF analyzer, with three separate 15 second readings being averaged for each sample.</li> <li>For intervals assaying over 15% Fe, approximately 0.75kg of sample was collected from each sample bag by either riffle splitting or spear (no measurable method induced difference was detected) and composited over a 3m interval to produce 2-3kg assay samples. The composite samples were sent to the lab, where they were dried and pulverized in a mixer mill. A disk was prepared from the pulp for Fusion XRF analysis.</li> </ul>
Drill sample recovery	<ul style="list-style-type: none"> <li>Havilah RC sample quality &amp; recovery was continuously logged ; overall both were excellent. In the rare instances when sample quality was unacceptable the cause was high water flow in extremely fractured rock.</li> </ul>
Logging	<ul style="list-style-type: none"> <li>All Havilah RC holes were logged by experienced geologists with the data directly entered into a digital logging system, from where the data was uploaded into an Excel spreadsheet.</li> <li>All Havilah drill chip trays are stored at Havilah's camp at Yarramba Station.</li> </ul>
Quality of assay data and laboratory tests	<ul style="list-style-type: none"> <li>Havilah samples were assayed by ALS via the Fusion XRF method. This provided a complete whole rock XRF analysis for each sample.</li> <li>Havilah monitored assay data accuracy and precision via least squares regression analysis comparing ALS results with the Niton XRF field results. Overall correlation of results was extremely good with correlation coefficients typically exceeding 0.9. When scatter occurred it frequently related to wet samples. The Niton results are consistently 1-4% lower than the ALS results; this difference is attributed to: the moisture in the field samples, attenuation by the plastic sample bags, and variability of the distance between the sample and Niton probe.</li> <li>No data quality issues were identified.</li> </ul>
Verification of drilling methods and sampling	<ul style="list-style-type: none"> <li>The only drilling technique used was RC ; no specific twinned diamond core holes were drilled. Given the relatively high iron contents in the ore zone (&gt;15%) it is difficult to see how there could be significant variation between drilling methods, provided recoveries were at all times acceptable.</li> </ul>
Location of drillholes	<ul style="list-style-type: none"> <li>Havilah's drillhole collar coordinates were surveyed in UTM coordinates using a differential GPS system with an x:y:z accuracy better than 20cm:20cm:40cm.</li> <li>Havilah's RC holes were surveyed using a digital multi shot survey camera, at nominal 10m intervals downhole.</li> </ul>

Drillhole spacing and distribution	<ul style="list-style-type: none"> <li>Initially Havilah's RC drillholes were spaced at 50m intervals on lines 100m apart. Once the orebody's horizontal nature and continuity were realized, the holes were drilled on a staggered 100mx100m grid.</li> <li>Resource drilling is predominantly concentrated between 464700E and 465800E and between 6413700N and 6412800N.</li> </ul>
<b>Estimating and Reporting of Mineral Resources</b>	
Database integrity	<ul style="list-style-type: none"> <li>Havilah's database was progressively built up as new data was added to it, and quality control checks were made. Examination of the database has not revealed any issues that could significantly affect the current resource estimation.</li> </ul>
Geological interpretation	<ul style="list-style-type: none"> <li>The Maldorky iron ore resource is hosted by the regionally extensive Neoproterozoic Braemar Iron Formation. It is normally steeply to shallowly dipping and may be up to 200m thick, comprising multiple iron formation and interbedded tillite horizons.</li> <li>The subhorizontal nature of the deposit and apparent thickening of the Braemar Iron Formation at Maldorky are interpreted to have resulted from the combined influence of tight drag folding and shearing.</li> </ul>
Estimation and Modelling Techniques	<ul style="list-style-type: none"> <li>Polygons and hence triangulations are based on interpretations completed on nominal 100m sections.</li> <li>Triangulated interpretations were generated based on geological criteria and a natural assay break at around 15-18% Fe.</li> <li>The block model was constructed with parent blocks of 20mE by 20mN by 10mRL with sub blocks available to a minimum of 2mE by 2mN by 1mRL.</li> <li>Inverse distance was used to estimate Fe grades and specific gravity.</li> <li>Multiple estimation passes with varying search neighbourhood sizes were run to ensure the accuracy of the result.</li> <li>The search directions for each estimation were aligned with relevant geological correlations and distances based on drill hole spacing.</li> <li>3m assay composites were used with length weighting used in estimation.</li> <li>A minimum of 2 and maximum of 10 composites were used per estimate.</li> </ul>
Moisture	<ul style="list-style-type: none"> <li>Tonnes have been estimated on a dry basis.</li> </ul>
Cut-off parameters	<ul style="list-style-type: none"> <li>The bounding ore envelope was largely defined by geological and assay criteria.</li> <li>The block modeller calculated the volumes and average grades within the bounding ore envelope for Fe cut-offs of 0%, 15% and 18%.</li> </ul>
Bulk density	<ul style="list-style-type: none"> <li>Density values were measured by Optimet Laboratories in their Adelaide lab for samples with a range of iron contents. From this, an iron density relationship was established, and each block was assigned a density based on its iron content.</li> </ul>
Classification	<ul style="list-style-type: none"> <li>Mineral resources have been classified as Indicated based on the overall high quality of the drillhole samples and assay data, and high degree of confidence in the continuity of mineralisation balanced against the drill hole spacing (100mx100m).</li> <li>The orebody is both continuous and predictable. There is little apparent inherent variability in the grades, even at this drill spacing, and there appears to be a natural orebody wide grade cut-off or discontinuity at 15-18% Fe.</li> </ul>



**Media Release**

Monday May 23, 2011

**New alliance formed in SA-NSW border area by  
iron explorers on the Braemar Iron Formation**

A consortium of iron ore explorers within an iron ore province west of Broken Hill and stretching across the border area of South Australia and New South Wales has formed an alliance to promote common infrastructure development for mining and to advance their common interests.

Announcing today the creation of the *Braemar Iron Alliance* (Alliance), spokesman, Mr Andrew Woskett, identified strong alignment between a number of listed and privately owned mineral exploration companies with tenements along the extensive Braemar Iron Formation.

The Formation stretches for approximately 250km from Peterborough in SA to Broken Hill in NSW. It is rapidly emerging as potentially Australia's next major iron ore province (Refer Figure 1).

The Alliance comprises ASX-listed companies Carpentaria Exploration, Havilah Resources, Minotaur Exploration, Royal Resources and U3O8 and private companies, Sinosteel PepinNini Curnamona Management, Bonython Metals Group and Wentworth Metal Group.

All are actively exploring to define iron ore deposits within the Braemar Iron Formation.

Mr Woskett said Alliance members see the potential for 20 to 40 billion tonnes of mineable deposits throughout the Braemar Iron Formation, containing magnetite, a primary form of iron ore.

"The presence of iron mineralisation has been recognised since the 1960s but only in the past few years, with the impetus of higher iron ore prices, have explorers actively sought to define the province's resources to the Australian JORC standard," Mr Woskett said.

*(Joint Ore Reserves Committee (JORC) Code is a Code of practice which sets minimum standards for public reporting in Australia and New Zealand of Exploration Results, Mineral Resources and Ore Reserves).*

Thus far, Carpentaria and Royal have successfully reported iron-based JORC resource estimates.

Minotaur and Havilah are currently working towards initial JORC resource reports across their magnetite prospects.

“Alliance members are confident in the iron potential for the area, based on extensive drill programs and recent definition of JORC resources,” Mr Woskett said.

“The excellent regional potential has encouraged the Alliance members to look towards their future infrastructure needs, both individually and as a group,” he said.

“The Alliance has a common interest in the need for a major deep water port facility on South Australia’s Spencer Gulf, approximately 150 kilometres immediately west of the Alliance area, plus power, water and transport infrastructure throughout the entire Braemar iron province.”

The *Braemar Iron Alliance* will provide a focus for representation to the South Australian, New South Wales and Federal Governments as well as private infrastructure providers, so that a coordinated and cohesive approach to development planning can commence.

Further, the Alliance will work with the South Australian Chamber of Mines and Energy (SACOME) to ensure a consistent message is delivered to government. In the short term, the Alliance will work under the SACOME umbrella, until its own corporate structure is formalised. Alliance members acknowledge the practical support of SACOME in bringing the parties together in a short space of time.

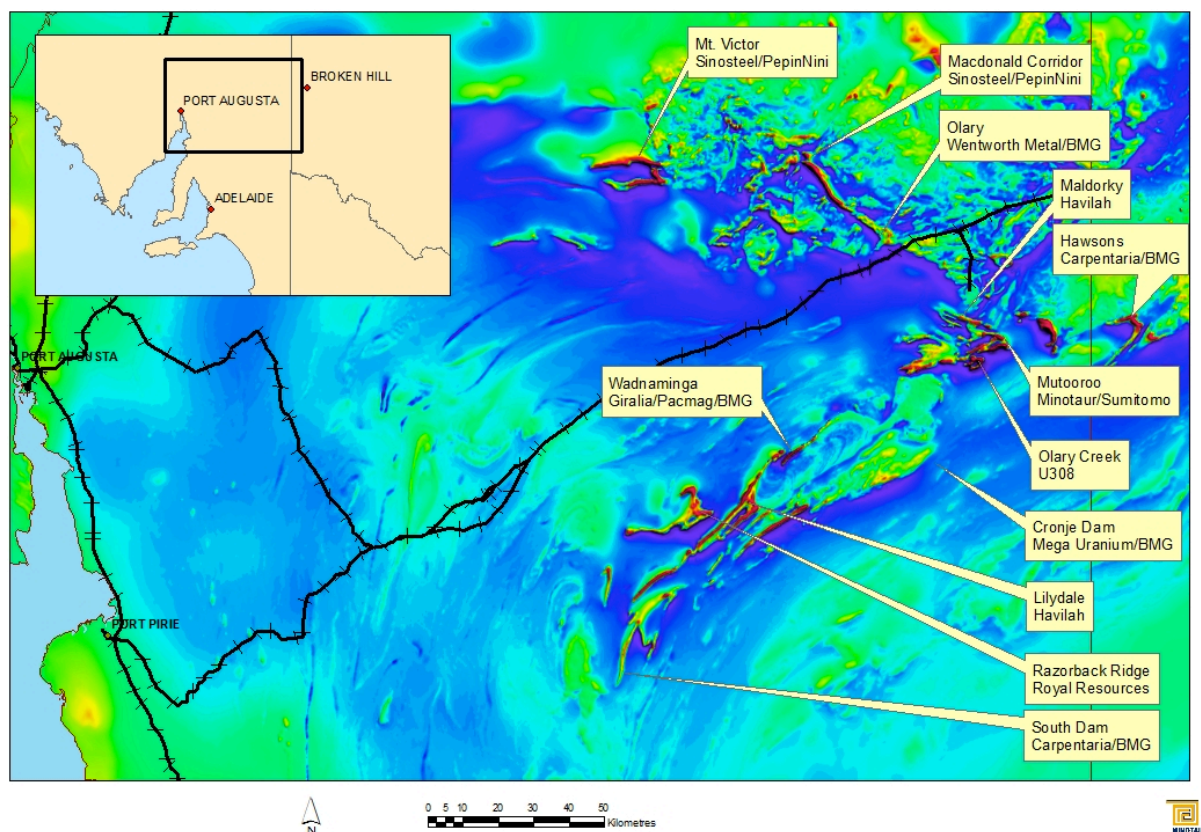
Announcing the formation of the *Braemar Iron Alliance* today at the Broken Hill Mining and Energy Symposium, Mr Woskett said it provides a focal point for industry participants to work in close consultation with local government throughout the Braemar iron province, on the northern Yorke Peninsula and Upper Spencer Gulf and with prospective infrastructure developers and providers.

He indicated that if all of the anticipated projects proceed to development, an investment mix of A\$6 billion or more could be foreseen over the forthcoming decade, bringing significant jobs and downstream opportunities to the regions involved.

For further information, please contact:

**Andrew Woskett**  
Minotaur Exploration Ltd  
08 8366 6000  
0458 555 470





*Figure 1: Regional distribution of the Braemar Iron Formation, identified as dark red areas on the regional Total Magnetic Intensity image, with locations of various current drilling projects indicated*

Key: Project Name  
Tenement Holder/JV partner