MINCOR RESOURCES NL
(Mincor Zinc Pty Ltd)
GEORGINA BASIN PROJECT

Final Collaboration Report
EL 25091

19 January 2012
<table>
<thead>
<tr>
<th>Project title</th>
<th>Georgina Basin GBJVDDH05</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicant (Company Name)</td>
<td>Mincor Resources NL</td>
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<td>Granted exploration licence number(s) where this proposal is to be undertaken</td>
<td>EL25091</td>
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<tr>
<td>Proposed type of exploration program for funding (diamond drilling, gravity survey etc)</td>
<td>Diamond drilling</td>
</tr>
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<td>Brief summary of program (total number of metres to be drilled, number of gravity stations, total length of flight lines etc)</td>
<td>Two diamond drill holes, amounting to 1200m in total, to identify detailed stratigraphic sequences west of Putta Putta Fault and south of the Box Hole lead occurrence. The information gathered will be used together with existing deep petroleum drill hole data to refine geological evolution studies and 3-dimensional geological and fluid flow models for the region. This will in turn be used to target potential zinc and lead accumulations, most likely in a Mississippi Valley type setting, possibly leading to the discovery of an entirely new lead – zinc province.</td>
</tr>
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<td>Total direct costs for the program including GST</td>
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<td>Amount of funding requested including GST</td>
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<tr>
<td>Proposed timeframes for commencement and completion of program</td>
<td>June – August 2011</td>
</tr>
<tr>
<td>Names and positions of signatories to the funding contract</td>
<td>Mr David Moore, Managing Director, Mincor Resources NL</td>
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<td>Mr Richard Hatfield, Exploration Manager, Mincor Resources NL</td>
</tr>
<tr>
<td>Signature of applicant</td>
<td></td>
</tr>
<tr>
<td>Date</td>
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</table>
1 Summary

Mincor Zinc applied for exploration leases more than 9000 km² in extent in 2006 to allow exploration for zinc, lead, uranium and gold mineralization. It was first possible to begin field work in 2008, when more than 1000 regionally spaced stream sediment samples were collected and analysed. Work was also begun on numerical modelling of fluid flow characteristics of the basin, and the need for detailed geophysical constraints led to a 2km spaced gravity survey of the entire exploration lease area. This was followed by detailed potential gradient calculations from these data (womring) that allowed definition of linear boundaries. Further analysis of the worm data by specialist consultants led to the identification of likely fault structures. Use of these, together with the recent stratigraphic interpretations of the Northern Territory Geological Survey (NTGS), diamond drill core, and the seismic traverses produced during petroleum exploration in the 1980’s, allowed the assembly of a 3-dimensional model of the basin in Gocad.

Extensive geochemical studies were undertaken in 2009 and 2010, using ionic leach analysis of soil samples collected in traverses across these structures, to confirm evidence of element mobility through fluid flow. Advanced and detailed numerical modelling of the fluid flow history of the basin has been conducted by the Earth Science and Resource Engineering division of CSIRO. This has allowed definition of flow pathways relative to the faults and stratigraphic horizons during the various stress orientations that applied during the Alice Springs Orogeny. Fluid flow was clearly focused into the fault zones which would have allowed transfer from depth into the more permeable lithologies at higher levels, and these are regard to be the principal sites of likely mineralization.

The principal objective of drilling planned for the immediate future is identification of the detailed stratigraphic sequence in the more prospective parts of the southern Georgina Basin. At present there is little knowledge of the stratigraphy and unit dimensions in the area south of the known mineral occurrence at Box Hole, which is close to the major synclinal southern limit of the basin, leading to poor control on structural interpretation. A diamond drill hole to a depth of 600m was expected to provide the understanding of the lithological and structural characteristics essential to realistic conceptual modelling of the mineralization potential in this area, and thus the development of exploration targets elsewhere in the basin. This is the necessary continuum of the work in progress towards identifying a new metallogenic province.
Table of Contents

1 Summary .....................................................................................................................................................3
2 Contents ......................................................................................................................................................4
3 Introduction ..................................................................................................................................................5
4 Regional Context ..........................................................................................................................................7
5 Previous Exploration ....................................................................................................................................9
6 Exploration Concept .......................................................................................................................................9
7 Details of Collaborative Program ................................................................................................................13
8 Results and Interpretation ............................................................................................................................14
   8.1 Aboriginal Heritage ..................................................................................................................................14
   8.2 Access .....................................................................................................................................................15
   8.3 Drilling ....................................................................................................................................................15
      GBD001 ..................................................................................................................................................16
      GBD002 ..................................................................................................................................................17
      GBD003 ..................................................................................................................................................18
9 Conclusion ....................................................................................................................................................19
10 References ....................................................................................................................................................19

Table of Figures

Figure 1a: Tenements held (prior to October 2011) by Mincor Zinc in the southern Georgina Basin area, location of cleared (Aboriginal Heritage) drillhole sites. .................................................................................................5
Figure 1b: Georgina Tenement Location Plan - Ground Retained, October 2011. .............................................................6
Figure 2: The inferred faults in the southern Georgina Basin and the Ionic Leach soil chemistry traverses that confirm the presence of fluid flow along structural breaks. Also shown are the locations of the intended diamond drillhole sites and the proposed stratigraphic holes GBJVDDH01 and GBJVDDH05. The Zn anomalism is illustrated by the coloured sample points on the traverses (red points > 2 standard deviations above the norm) and the coloured buffering about the sample lines. In the upper right is the detailed Putta Putta investigation area in which 2000 ionic leach samples were collected within a 100 km² target area. .........................11
Figure 3: The block used in 3 dimensional fluid flow modeling, illustrating the structure and stratigraphy, together with the numerical grid used in the computation. ...........................................................................................................12
Figure 4: For an event in which the principal strain axis is aligned to 70°, the main fluid flow would be in the fault planes, especially at the intersections, and most concentrated in the fault plane close in orientation to the plane of principal shear (the target area studied in detail is outlined in red). ..................................................................................12
Figure 5: An outcome of the detailed modeling is the predicted fluid flow distribution and hence the most like location of mineralization. The distribution of dilational regimes is strongly controlled by the orientation of the stress in combination with the permeability of the different stratigraphic units. ........................................................................13
Figure 6: Stratigraphic locations of proposed drill holes GBJVDDH01 and 05. The final depth of drilling will be determined by stratigraphic markers, with the intention of reaching basement in GBJVDDH01 and the base of the Arthur Creek Formation in GBJVDDH05 (see attached cross section for detailed view). ..................................................14
Photo 1  Clearing of Access Track to GBD002-03 ..............................................................................................15
Photo 2  Clearing of GBD002-03 Drill Pad .........................................................................................................17
Figure 7: Structural Location, GBD001-003 .......................................................................................................18
3 Introduction

Mincor Zinc Pty Ltd, a wholly owned subsidiary of Mincor Resources NL, began work on contiguous exploration leases exceeding 9000 km$^2$ in extent (most recently, in October 2011, reduced to 1568 km$^2$) in the southern Georgina Basin (figures 1a, 1b). This project is aimed at finding an entirely new Mississippi Valley type Zn-Pb mineral province, a development on the fact that the Georgina Basin has many of the requisite characteristics for this type of mineralization, such as age, lithology and structure, an argument supported in Dunster et al., (2007).

The Georgina Basin comprises several sub-basins in which an accumulation of marine sediments from the Neoproterozoic to Ordovician generated a succession of sandstones and carbonate rocks 2–3 km in thickness. Successions of this age and style host significant deposits of Zn and Pb at many localities that provide a significant proportion of the current worldwide resource of these metals.

![Figure 1a: Tenements held (prior to October 2011) by Mincor Zinc in the southern Georgina Basin area, location of cleared (Aboriginal Heritage) drillhole sites.](image-url)
The drill holes proposed in the original Application for Collaborative Support, for the 2011 field season are situated in the vicinity of major faults, identified using the detailed geophysical interpretation, of which the sense and magnitude of displacements are unknown. The owners of the pastoral leases had agreed with access to the proposed drill sites, and Central Land Council clearance was obtained for five possible sites (GBJVDDH01 to GBJVDDH05). The sites GBJVDDH02, 3 and 4 are additional drill targets, but current interpretations require information from sites 1 and 5 before any other drilling can be realistically undertaken. For the purposes of this report, drillholes GBJVDDH01 and GBJVDDH05 were renamed GBD001 and GBD002, with GBD002 abandoned at 143.7m and redrilled 5m to the NW as GBD003.

All drill sites have been rehabilitated at the conclusion of the work programme.
4 Regional Context

The project tenements were acquired by Mincor Zinc Pty Ltd (a 100% owned subsidiary of Mincor Resources NL) principally for their MVT base metal potential, however the western portions are also considered prospective for SEDEX and Irish Style base metal deposits.

The complex evolutionary history of the polyphase Georgina Basin began during the Neoproterozoic breakup of the Rodinia supercontinent; with development of a northwest-trending transcontinental rift system (this and the following overview are based on Dunster et al, 2007). Extensional sag over surrounding, competent, Archaean–Palaeoproterozoic cratonic nuclei led to sedimentary deposition in several interconnected basins, comprising the great expanse of the Centralian Superbasin.

In the southern Georgina Basin, there are several stratigraphic units representing Neoproterozoic deposition in the complex array of grabens and half-grabens that preceded the Cambrian development of the more extensive marine basin. The Precambrian deposits are not exposed in the project area, but form an important substrate of the basin that provided a likely source of metal enrichment for the fluid flow system, as follows:

- the >800 Ma Plenty Group — a 350m succession dominated by fluviatile siliciclastic rocks but including marine deposits ranging from shallow water stromatolitic carbonates to anoxic deep-marine deposits;
- the >650Ma Aroota Group — comprising the >650m Yardida Tillite and Mount Cornish Formation diamictites;
- the c. 630 Ma Keepera Group — basal glacial outwash (Sun Hill, Black Stump and Oorabra arkoses, which individually range up to 800 m thick) and glacial till (Boko Formation, Little Burke Tillite), overlain by, and are probably partly laterally equivalent to the 450 m-thick intertidal to deeper marine Wonnadinna Dolostone;
- the Ediacaran (550-620 Ma) Mopunga Group — post-glacial sediments consisting of more than 800 m of basal polymict conglomerate and succeeding sandstone, siltstone and minor dolostone.

A major dextral strike-slip zone between the northern and southern blocks in central Australia developed at about 550 Ma as part of the Peterman Orogeny. This tectonism led to uplift of the Musgrave Province and inverted parts of the Centralian Superbasin, probably leading to development of the major troughs and embayments, which accommodated the carbonate dominated succession more than 2 km thick that is exposed in the southern Georgina Basin, successively as follows:

- at the base, Early Cambrian sediments (lower Shadow Group, up to 360 m thick) were deposited in a distal foreland-sag basin;
- the Red Heart Dolostone (typically <20 m, locally up to 92 m thick, upper Shadow Group) accumulated on a carbonate platform, interrupted by a brief hiatus and erosion;
- early Middle Cambrian Narpa Group carbonate platform deposition of the Thorntonia Limestone that extended over most of the basin – typically <100 m thick in the south, but considerably thicker elsewhere. Shale interbeds in the southern basin may represent minor relative subsidence;
- Middle Cambrian subsidence resulted in the widespread marine anoxic shale (0–35 m thick) in the lowermost Arthur Creek Formation. Carbonate deposition then resumed for the remainder of the Arthur Creek Formation and most of the Arrinthrunga Formation, up to 1 km in thickness. Deposition of the Steamboat Sandstone and Eurowie Sandstone Member, very permeable units up to 150 m thick, represent uplift corresponding to the Delamerian Orogeny;
- After a short hiatus, the Cambro–Ordovician Tomahawk Formation accumulated as a shallow marine sandstone and limestone sequence 140–200m thick.
The onset of deformation during the Late Ordovician to Late Carboniferous Alice Springs Orogeny led to faulting and folding and a depositional hiatus of c. 50 Ma, before accumulation of the Devonian Dulcie Sandstones (450-650 m) in a continental aeolian and fluviatile environment. The intermittent and prolonged orogenic activity would have provided a variety of broadly northeast – southwest strain events accompanied by accelerated fluid flow activity and possible mineralization. The sandstone units at the upper stratigraphic levels in combination with the widespread normal and reverse faults provide a scenario of likely mineral deposit development, with particularly favourable loci indicated by the numerical modelling in areas where northeast and northwest trending faults intersect.

The drilling program was supported by the relative easy access to the proposed drill sites provided by station tracks and presence of existing water bores in the area. The stratigraphic information provided by the proposed drilling will integrate easily with the data accumulated and greatly enhance the understanding of the structural arrangement and physical relations between faults and units of different permeability.

Known base metal prospects and occurrences in the southern Georgina Basin have been thoroughly summarised in Dunster et al (2007). Pb-Zn prospects and mineral occurrences are widespread and occur throughout the succession, from Neoproterozoic siliciclastic rocks to Lower Ordovician carbonate and mixed carbonate-siliciclastic rocks. There is a wide range of mineralisation styles. At the Box Hole occurrence, galena, sphalerite and barite occur along 6.5 km of strike in the Upper Cambrian Arrinhrunga Formation. About 15 t of handpicked ore, averaging 65–70% Pb and 60 g/t Ag was produced from this site about 50 years ago. Mineralisation is stratabound epigenetic replacement and vugh fill in a stromatolitic dolostone, possibly localised by proximity to a feeder fault. The results of recent exploration by Uramet have revealed mineralization of up to 12 m at 2.8% Zn, 0.67% Pb at depths less than 50m (Quarterly Report to ASX, September 2008). At least 6 areas worthy of further investigation were identified but the nature of the mineralization suggests remobilization from possible larger occurrences at depth.

There are other mineral occurrences, mostly in vuggy, siliceous and manganiferous dolostone of the Upper Cambrian Arrinthrunga Formation and the overlying Tomahawk Formation. Concentrations of up to 1500 ppm Zn and 2300 ppm Pb occur in the basal shale unit of the Arthur Creek Formation in drill core from Baldwin 1 at a depth exceeding 800m. This supports the concept of fluid transport of metal ions below this impermeable horizon and contributes to the conceptual modelling of mineralization at shallower levels controlled by structural and stratigraphic factors.
5 Previous Exploration

The project tenements were acquired by Mincor Zinc Pty Ltd (a 100% owned subsidiary of Mincor Resources NL) principally for their MVT base metal potential, however the western portions are also considered prospective for SEDEX and Irish Style base metal deposits.

The exploration for base metals, principally lead and zinc, in the southern Georgina Basin has been undertaken by numerous companies in the last 30 years. An overview is provided in Dunster et al (2007, p. 137-178). The work has involved a variety of geochemical studies of rock chip, soil and stream sediment samples that yielded reports of a variety of anomalies, but generally locality data are poor or the anomalies have been attributed to enrichment in manganiferous regolith material. There has been some largely stratigraphic drilling, such as the two drillholes by CRA Exploration Pty Ltd in 1992 (CR1993-0677). At Tomahawk Creek (DD92TC1 at AMG 579172E, 7530387N), the target was the postulated Chabalowe Formation sabkha facies at depth below the Box Hole workings. This was terminated at 386.8 m without intersecting the anticipated evaporite-bearing horizon, and no promising alteration was observed. The Elcoota Creek drillhole (DD92EC1 at AMG602157E 7547702N) was intended to reach the basal shoal facies of the Arthur Creek Formation, but the hole was terminated at 359.6m after interpretation that the actual depth of the unit was prohibitive.

There has been an abundance of drilling at the Box Hole site by at least 6 different exploration companies. This has largely been directed at the shallow mineralization, and although there are numerous intersections of the mineralization, no plausible estimate of an ore reserve has been possible. Detailed gravity, Induced Polarization, and airborne electromagnetic studies have all been conducted at Box Hole, but have not yielded evidence of substantial mineralization. At the locality of proposed drillhole GBJVDDH5 (GBD002-3 in this report), there has been no recorded historical work.

6 Exploration Concept

The project tenements were acquired by Mincor Zinc Pty Ltd (a 100% owned subsidiary of Mincor Resources NL) principally for their MVT base metal potential, however the western portions are also considered prospective for SEDEX and Irish Style base metal deposits.

The Mincor Zinc project has set about identifying the potential for development of mineralization through generating a three dimensional model of the basin, then using the structural and stratigraphic relations, and petrophysical characteristics of the lithological units, to conduct numerical modelling of fluid flow history under different tectonic situations. The presence of some mineralization at Box Hole and the widespread distribution of galena and sphalerite occurrences, coupled with the nature of the basin stratigraphy and age, strongly support the possibility of Mississippi Valley type Zn-Pb mineral deposits. If it is determined that the stratigraphic sequence south of Box Hole includes units such as the evaporite bearing units recognised in drill core from areas to the north (such as Hunt1) and highly permeable interlayers, then the numerical modelling may allow further definition of targets. The magnitude and sense of displacement on faults between the Dulcie trough to the south and the exposures in the Putta Putta area to the north is essential to this modelling and can only be realistically determined by drilling to a depth that is likely to intersect distinctive marker units in the sequence.
A considerable amount of work has been conducted to identify faults with a history of fluid flow. This has been done by the collection of 8000 soil samples along traverses of 50m spaced samples across the interpreted fault lines, with analysis performed using the Ionic Leach process developed by ALS Chemex laboratories in which a time controlled, ph-buffered dissolution is followed by ICP mass spectrometric analyses to concentrations lower than 10 ppb for 58 elements. This allows recognition of anomalous elemental concentrations on grain surfaces and the presence of such anomalies beneath moderately stable regolith surfaces. Structural breaks inferred from geophysical data have been confirmed in many areas by the presence of elevated mobile elements derived from the granite gneiss terrain underlying the basin. Elevated Zn values also correspond to the inferred fault lines in some localities, and these areas are currently being subjected to more detailed sampling on grids to identify potential seepage from blind mineralization (Figure 2 and the accompanying regional map).

The numerical modelling of fluid flow through the Georgina Basin sedimentary succession has used the petrophysical characteristics compiled in Dunster et al (2007) together with the lithological sequence generated from the 3 dimensional basin models to identify the favoured pathways. These are equivalent to the areas of dilation in terms of strain during the applied, oriented stress regime. The stress orientation was varied from NNE to ENE and this yielded a variety of dilational effects – in view of the complexity of this modelling, block models of limited extent were processed. Figure 3 illustrates the model block extracted from the 3D model of the basin for a particular target area, with appropriately oriented faults. Displacement on Putta Putta fault was taken as the apparent vertical displacement between the Arthur Creek Formation in Hunt1 and Baldwin1 drill holes. The effects of shear strain and volumetric compression on the fluid flow are illustrated in Figure 4. The fluid flow from the fault planes is influenced by the nature of the rock types, with greater flow in units that are more permeable. The predominately carbonate succession does include high permeability sandstone units that would have been aquifers, and low permeability shale units that would have been barriers to fluid flow. This is evident in the cross section through the model (Figure 5) and illustrates the importance of a detailed knowledge of the stratigraphy.
Figure 2: The inferred faults in the southern Georgina Basin and the Ionic Leach soil chemistry traverses that confirm the presence of fluid flow along structural breaks. Also shown are the locations of the intended diamond drillhole sites and the proposed stratigraphic holes GBJVDDH01 and GBJVDDH05. The Zn anomalism is illustrated by the coloured sample points on the traverses (red points > 2 standard deviations above the norm) and the coloured buffering about the sample lines. In the upper right is the detailed Putta Putta investigation area in which 2000 ionic leach samples were collected within a 100 km² target area.
Figure 3: The block used in 3 dimensional fluid flow modeling, illustrating the structure and stratigraphy, together with the numerical grid used in the computation.

Shear Strain  Volumetric  Integrated fluid

Figure 4: For an event in which the principal strain axis is aligned to 70°, the main fluid flow would be in the fault planes, especially at the intersections, and most concentrated in the fault plane close in orientation to the plane of principal shear (the target area studied in detail is outlined in red).
Fluid-flow-velocity (vector) plots on section

Figure 5: An outcome of the detailed modeling is the predicted fluid flow distribution and hence the most likely location of mineralization. The distribution of dilational regimes is strongly controlled by the orientation of the stress in combination with the permeability of the different stratigraphic units.

7 Details of Collaborative Program

It was proposed that the geological sequence should be investigated entirely by diamond drilling so as to provide core through all of the stratigraphic units intersected. The location of the drillholes are shown in the attached cross-section created using existing logs from holes Hunt1 and HUC7 and the 3 dimensional basin models.

Support was obtained for stratigraphic drill holes GBJVDDH01 (renamed GBD001), located at MGA53 602400E 7538000N and GBJVDDH05 (renamed GBD002-03), located (at MGA53 584400E 7517000 N). Both holes were planned to be vertical, and intended to attain the base of the Arthur Creek Formation. The drilling was planned to recover NQ core as completely as possible, however drilling difficulties necessitated the re-drilling of GBD002 (as GBD003) and the use of HQ coring in the fractured upper part of the hole. Based on other drill holes through the Georgina Basin sequence, near total recovery was anticipated, and except for the upper part of GBD002, was achieved.

The core was initially marked up and stratigraphically logged on site, however due to the rapid progress of the double-shift drill operation; the core was ultimately transported to Alice Springs for further detailed logging (GBD001, GBD003 only) and quarter core sampling of any intervals of interest. Intervals of interest are those considered favorable for mineralization, such as contact areas (with strong lithological contrast), or those lengths in which possible sulphide mineralization is identified. All samples ultimately analyzed will represent intervals of 1 m or less. Analyses will be conducted by ALS CHEMEX using aqua regia digestion, followed by ICPAES and ICPMS analysis to provide high quality results for zinc (2), lead (0.2), copper (0.2), silver (0.01), and arsenic (0.1) – all detection limits shown in brackets as parts per million. Other elements will be analyzed if warranted.

The core has been made available for research purposes (NTGS Hylogger Program).

As no significant sulphide mineralization was encountered, the proposed down-hole electromagnetic (DHEM) studies were not initiated. Such DHEM studies are routinely carried out by Mincor in nickel and copper prospects in Western Australia and New South Wales respectively, generally with common success at delineating ore bodies.
Figure 6: Stratigraphic locations of proposed drill holes GBJVDDH01 and 05. The final depth of drilling will be determined by stratigraphic markers, with the intention of reaching basement in GBJVDDH01 and the base of the Arthur Creek Formation in GBJVDDH05 (see attached cross section for detailed view).

8 Results and Interpretation

As discussed, previous exploration activities conducted by Mincor Zinc Pty Ltd, including structural and geophysical interpretation and fluid-flow modelling, were used in conjunction with soil geochemistry and culminated in the identification of a number of priority drill targets for MVT-style base metal mineralization. Two of these targets were planned to be drilled in mid 2011, however this drilling and all other planned field activities had to be postponed until September-October due firstly, to heavy unseasonal rainfall that severely restricted access to the area, and secondly by restricted drill rig availability.

8.1 Aboriginal Heritage

Heritage clearances were systematically obtained through the CLC for all the originally proposed five (5) diamond drill holes discussed in the previous reporting periods. A map of all the proposed drilling sites was provided to CLC, who then delegated an anthropologist to consult with the traditional owners. Site inspections were made to confirm that there are no sensitive sites in the areas to be drilled.
8.2 Access

The photos below show the area before and after the clearing of the access track into the GBD002 drill site. Whilst drill sites have been rehabilitated, the access tracks remain open pending discussion with Pastoralists and Aboriginal Traditional Owners.

![Photo 1: Clearing of Access Track to GBD002-03]

8.3 Drilling

A total of three (3) stratigraphic diamond drillholes (figure 7) were drilled at Georgina, with two of these (GBD001 and GBD003) completed to their target depth of 600m (Table 2); drilling was conducted between the 1-17 October, for a total of 1345.28 metres. Due to budget restrictions, no sampling for assay has been conducted to date.

The drill holes intersected a generally fine grained siliciclastic sequence of greenish to grey laminated calcareous siltstone and shale (calcilutites) with lesser buff-grey calcareous sandstones (calcirudites), and vughy dolomitic (evaporitic) limestones of the Arrinthrunga and Chabalowe Formations; evidence in GBD001 indicates that the Arrinthrunga and Chabalowe Formations interfinger. The significant thickness of finely laminated calcareous siltstone and grey-black carbonaceous shale (with minor limestone) intersected at the base of GBD003 is interpreted as belonging to the Arthur Creek Formation.
The holes failed to intersect any significant alteration within the target Arthur Creek Formation, with only minor pyritic zones (e.g. 371.5m and 447m in GBD001); however some zones of interest were noted. The upper part of the Chabalowe Formation in GBD001 is typically vuggy with some coarse dolomite and calcite crystals infilling the vugs; this may represent late stage hydrothermal alteration. Silicification of limestone is noted between 210-286m in GBD001 (Arrinthrunga?) and 326-396 in GBD003 (Chabalowe or Arrinthrunga). Bleaching is pronounced between 150-165m in GBD001 (Chabalowe).

### Table 2 Drilling Summary

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<th>Hole #</th>
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<th>Start</th>
<th>End</th>
<th>Depth</th>
<th>Az</th>
<th>Dip</th>
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<td>GBD001</td>
<td>Putta Putta</td>
<td>1/10</td>
<td>7/10</td>
<td>600.76</td>
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<td>90°</td>
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<tr>
<td>GBD002</td>
<td>Tomahawk1</td>
<td>7/10</td>
<td>10/10</td>
<td>143.7</td>
<td>0°</td>
<td>90°</td>
<td>Abandoned</td>
</tr>
<tr>
<td>GBD003</td>
<td>Tomahawk2</td>
<td>13/10</td>
<td>19/10</td>
<td>600.82</td>
<td>0°</td>
<td>90°</td>
<td>Redrill of GBD002</td>
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<tr>
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<td></td>
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<td>1345.28</td>
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</table>

Table 3 below summarises the ten (10) samples collected by JOGMEC for petrographic analysis in Japan; reporting on this study will be submitted separately to the NTGS.

### Table 3 Drill Sample Summary

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<td>NQ ¼ Core</td>
<td>121.95</td>
<td>122.15</td>
<td>Vughy fenestral limestone</td>
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<tr>
<td>GBD001</td>
<td>NQ ¼ Core</td>
<td>152.15</td>
<td>152.20</td>
<td>Chert fragment in bleached dolomitic limestone</td>
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<td>GBD001</td>
<td>NQ ¼ Core</td>
<td>225.90</td>
<td>226.00</td>
<td>Granular (fenestral?) limestone</td>
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<td>GBD003</td>
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<td>253.30</td>
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<td>Ooidal (oolitic) limestone</td>
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<td>264.65</td>
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<td>282.40</td>
<td>282.50</td>
<td>Vughy stylolitic limestone</td>
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<td>GBD003</td>
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<td>411.75</td>
<td>Laminated calcareous siltstone (calcilutite)</td>
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<tr>
<td>GBD003</td>
<td>NQ ¼ Core</td>
<td>414.00</td>
<td>414.12</td>
<td>Anhydrite fragments in calcilutite</td>
</tr>
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<td>GBD003</td>
<td>NQ ¼ Core</td>
<td>437.72</td>
<td>437.80</td>
<td>Ooidal (oolitic) limestone</td>
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<tr>
<td>GBD003</td>
<td>NQ ¼ Core</td>
<td>454.10</td>
<td>454.20</td>
<td>Hematitic (jarositic) laminated calcareous siltstone</td>
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</tbody>
</table>

A brief discussion of lithologies encountered in the drill holes is presented below, with more detailed lithological descriptions provided in drill logs (in Appendix); drillhole locations are shown on the structural plan (figure 7) below:

**GBD001**

This stratigraphic drill hole was collared just west of a NS splay off the Putta Putta Fault (location figure 7, fluid flow analysis in figures 3, 4), and in an area of moderately anomalous (ionic leach) Zn in soils.

The hole was originally inferred to have drilled through a 57m thickness of the basal Hagen Member of the Chabalowe Formation before passing into a thick laminated grey to black (calcareous) siltstone-shale sequence of Arthur Creek Formation from 290.5m to 600.76m (EOH). On review of the core it was concluded that this section was more likely to be Arrinthrunga Formation interfingerling with the Chabalowe Formation. Lithologies observed were predominantly silicified (partly evaporitic) dolomised nodular limestone between 234-290.5m; this is unlikely to be Hagen Member which is defined as an arkosic conglomerate developed on Proterozoic granite or crystalline basement.

The hole was completed in thinly laminated black carbonaceous shale of the Arthur Creek Formation, and was possibly within 100m or so of the targeted “Hot Shale”-Thorntonia Limestone contact.
GBD002

This stratigraphic drill hole was planned to intersect an interpreted upthrown block where the target Arthur Creek Formation (basal “Hot Shale”) Thorntonia Limestone contact may occur within 500m of the surface (possible geological section in figure 6); the hole is sited close to the intersection of two faults; a possibly fertile NE structure (Putta Putta Fault) and a NNW fault which trends towards the Boxhole Pb-prospect. Moderately anomalous (ionic leach) Zn values were returned from soils in the vicinity of the drill collar.

The hole was abandoned (due to extreme broken ground conditions) at 143.7m in fine grained laminated quartz siltstone, possibly of the Chabalowe Formation. The hole was subsequently re-drilled as GBD003 (see below).
Collared 10m SW of GBD002 (figure 7 above), this drill hole was also targeted to intersect an upthrown block where the Arthur Creek Formation (basal “Hot Shale”) - Thorntonia Limestone contact was expected to occur relatively close to the surface; the hole is sited close to the intersection of two faults; a possibly fertile NE structure (Putta Putta Fault) and a NNW fault which trends towards the Boxhole Pb-prospect. Moderately anomalous (ionic leach) Zn values were returned from soils in the vicinity of the drill collar.

The hole is interpreted to have been collared in Arrinthrunga Formation before passing into Chabalowe Formation at around 128m; however due to the adoption of mud-roller drilling techniques to 133.62m there was very poor sample recovery in this section of the hole.

The cored portion of the hole appears to have predominantly stayed in laminated dolomitic siltstones of the Chabalowe Formation, although noticeable silicification (326-396m) and also lesser stromatolitic limestone (261.5-268.5m) suggest that there is interfingering with the Arrinthrunga Formation, as seen in GBD001.

The hole was completed at 600.82m in dolomitic limestone of the Chabalowe Formation and the target Arthur Creek Formation was not reached.
9 Conclusion

Whilst the anticipated direct cost of drilling was $230 000 comprising 1200m at current contract rates, the redrilling of GBD002 resulted in additional expenditure with final cost for the ~1350m actually drilled being $300,000; mobilization, track preparation, camp costs and rehabilitation amounted to an additional $100,000.

Whilst the drillholes were essentially stratigraphic in nature, preliminary field analysis of the drill core, and follow-up inspections of the core at the NTGS Core Library in Alice Springs has been disappointing and have revealed no significant sulphide mineralisation. A summary of key conclusions follows:

- Depths to the target Arthur Creek Formation basal “Hot Shale” horizon (as seen in Baldwin 1) are in excess of the 600m drilling depths attained.
- GBD001 may have been terminated within 100m of the target depth, but intersected only minor sulphides (pyrite) at 371.5 and 447m within carbonaceous black shales. Minor bleaching within Chabalowe Formation siliciclastics was noted between 150-165m, but this may be supergene.
- GBD003 did not reach the target Arthur Creek Formation, and contained no visible sulphides. It is likely that the sense of movement on faults in this area is the opposite to that shown in figure 5, and the hole may have been targeted over a downthrown block, or in an area of substantial thickening of the Chabalowe Formation. Pink-orange (possibly hydrothermal) dolomite crystals lining cavities in Chabalowe Formation dolomitic limestone are noted between 200-201m and 286-287. Moderate silicification occurs in mixed siliciclastics and dolomitic limestone between 320-390m also in Chabalowe Formation. Minor hematite veins and patches occur at 453m (with possible jarosite) and also between 525-530m in possible Upper Arthur Creek Formation.

The lack of visible (coarse) base metal sulphides is disappointing, however this does not preclude the presence of mineralisation, particularly of fine grained sphalerite which can be difficult to visually identify. The general lack of key alteration indicators (veining, brecciation, strong hydrothermal dolomitisation)

Due to budget constraints (as a consequence of the Japanese Tsunami and Fukushima recovery costs), assaying (or portable XRF measurement) of the core has been deferred. It is anticipated that NTGS HiLogger spectral scanning of the core will provide some guidance for future sampling strategy.

10 References

APPENDICES TO REPORT

Drill Hole Lithological logs (excel files attached)

- GBD001
- GBD002
- GBD003

MCR Drilling Codes for Sedimentary Rocks