# BALOO UPDATE

S2 Resources Ltd ("S2" or the "Company") advises that various studies relating to a potential future mining operation at the Baloo gold deposit on its 100% owned Polar Bear project have been carried out with positive outcomes. Studies completed to date include:

- Metallurgy – comminution, gravity and leach recovery, heap leach testwork
- Geotechnical studies – open pit wall slope design
- Hydrological and water management studies – groundwater quality and dewatering
- Environmental studies – baseline flora and fauna, lake ecology survey and waste rock characterization

**Metallurgical testwork**

Initial metallurgical studies, comprising comminution and leach recovery testwork, have been completed by ALS Metallurgy.

Combined gravity and cyanide leach testwork was undertaken on four representative composite samples of oxide and transition zone material at two different grind sizes (nominal 75 and 106 micron grind sizes). Good metallurgical recoveries were achieved in all material types at a nominal 75 micron grind size, with a significant proportion (21.4% – 45.5%) of the gold being recovered by gravity prior to leaching and overall recoveries after 24 hours of leaching ranging from 89.4% to 98.2%. Results for the four composites are detailed in Table 1 and key points are summarized below:

- Composite 1, comprising oxide zone black shale hosted mineralization: 45.5% gold recovered in a gravity circuit and a total gold recovery of 98.2% after a 24 hour leach
- Composite 2, comprising oxide zone intermediate volcanic hosted mineralization: 23.3% gold recovered in a gravity circuit and a total gold recovery of 95.1% after a 24 hour leach
- Composite 3, comprising transition zone black shale hosted mineralization: 31.2% gold recovered in a gravity circuit and a total gold recovery of 92.6% after a 24 hour leach

- Composite 4, comprising transition zone intermediate volcanic hosted mineralization: 21.4% gold recovered in a gravity circuit and a total gold recovery of 89.4% after a 24 hour leach

Importantly, overall gravity and leach recoveries in the oxide and transition zone black shale hosted mineralization were good, indicating that there is no significant "preg robbing" in this material.

The large proportion of gold recovered by gravity, together with the apparent insensitivity of the overall recoveries to grind size, and the variation in repeatability of head assay grades, suggests that most of the gold is present as free gold and that it is relatively coarse grained.

It is noteworthy that a number of the head grades calculated from the leach testwork were noticeably higher than the assayed head grades. Such a disparity can occur when gold is irregularly distributed and coarse grained ("nuggety" gold) and can result in individual samples, their assays, and the consequent resource estimations potentially under-representing the grade and therefore the contained gold. A program of screen-fire gold assaying of selected Baloo samples is currently underway to further quantify their coarse gold component and what implications this may have for the overall grade and gold content of the Baloo mineralization.

**LEACH TESTWORK: SUMMARY OF RESULTS**

| Test # | Sample ID | Grind Size P80 (µm) | Au Head Grade (g/t) | | Au Extraction (%) | | | | | | Au Tail Grade (g/t) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Assay | Calc. | Gravity | 2-hr | 4-hr | 8-hr | 24-hr | 48-hr | |
| BK8434 | COMPOSITE 1: OXIDE BS | 106 | 3.20/1.66 | 2.91 | 42.4 | 88.7 | 93.0 | 95.3 | 97.8 | 97.8 | 0.07 |
| BK8435 | | 75 | | 2.99 | 45.5 | 89.3 | 94.8 | 95.7 | 98.2 | 98.2 | 0.06 |
| BK8436 | COMPOSITE 2: OXIDE IV | 106 | 1.93/1.98 | 1.74 | 21.9 | 84.1 | 91.3 | 93.0 | 96.1 | 97.1 | 0.05 |
| BK8437 | | 75 | | 2.04 | 23.3 | 86.2 | 92.9 | 92.9 | 95.1 | 97.3 | 0.06 |
| BK8438 | COMPOSITE 3: TRANS BS | 106 | 1.16/1.51 | 1.96 | 39.4 | 80.3 | 87.5 | 90.1 | 92.0 | 93.4 | 0.13 |
| BK8439 | | 75 | | 1.54 | 31.2 | 75.1 | 86.2 | 91.1 | 92.6 | 92.8 | 0.11 |
| BK8440 | COMPOSITE 4: TRANS IV | 106 | 1.96/1.83 | 2.23 | 29.4 | 60.4 | 73.0 | 81.0 | 86.4 | 86.8 | 0.30 |
| BK8441 | | 75 | | 2.13 | 21.4 | 56.1 | 71.6 | 80.5 | 89.4 | 89.4 | 0.23 |

Table 1. Gravity and cyanide leach testwork results for four Baloo composite samples.

**Heap leach testwork**

First pass testwork on the amenability of the Baloo gold mineralization to extraction by heap leaching has also been undertaken in order to assess the potential viability of heap leaching as an alternative option to conventional processing via toll treatment.

Preliminary testwork on the amenability of an oxide composite and a transition zone composite to heap-leach treatment was also undertaken at two crushing sizes of 6.3mm and 12.5mm over a ten day period. Gold extraction for both composites was 85% for the 6.3mm samples, and 80-82% for the coarser crushed equivalents. Gold recoveries continued to increase to the end of the ten day testing period, indicating that gold extraction may increase further with greater residence time. These results are encouraging, and suggest that the oxide and transition zone of the Baloo mineralization is amenable to heap leach extraction.

| COARSE-CRUSH LEACH TESTWORK: SUMMARY OF RESULTS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Test # | Sample ID | Crush Size (mm) | Au Head Grade (g/t) | | Au Extraction (%) | | | | Au Tail Grade (g/t) |
| | | | Assay | Calc. | 24-hr | 72-hr | 120-hr | 240-hr | |
| BK8579 | OXIDE COMPOSITE | <12.5 | 0.86 | 1.53 | 43.4 | 55.9 | 64.0 | 80.4 | 0.30 |
| BK8580 | | <6.3 | | 1.71 | 61.5 | 72.7 | 78.7 | 85.4 | 0.25 |
| BK8581 | TRANSITION COMPOSITE | <12.5 | 0.78 | 0.84 | 42.7 | 59.4 | 69.8 | 82.0 | 0.15 |
| BK8582 | | <6.3 | | 0.94 | 57.6 | 71.6 | 78.5 | 85.1 | 0.14 |

Table 2. Coarse crush leach testwork results for two Baloo composite samples.

It should be noted that the testwork undertaken to date has used Perth water and that the water that might ultimately be used for processing may vary depending on a variety of potential future treatment options and locations. Water of differing salinity and acidity can affect gold recoveries, leaching times and reagent consumption.

**Geotechnical studies**

An initial geotechnical assessment of the Baloo project has been completed by Peter O'Bryan & Associates, with the overall rock properties in line with the Company's expectations. Should an open pit prove to be economically viable, the study recommends overall pit slope angles through the weathered profile of 43° and 39° for the eastern and western walls of such a pit, assuming adequate depressurization is achieved by prior dewatering. These angles are within the normal range for open pits within the Goldfields and will be used in any future pit optimization studies.

**Hydrology studies**

Initial hydrological testwork, including assessment of core data, short duration permeability pump testing and ground water quality assessment has been completed by AQ2 consultants.

As expected, the ground water in the vicinity of the Baloo deposit is typical for the salt lake drainage systems and aquifers of the Goldfields region, being hypersaline and ranging from 310,000 – 330,000 mg/L TDS (total dissolved solids). Analysis of the groundwater also indicates that arsenic levels are either very low or below detection.

Pump testing estimates potential water in-flow rates of 18 – 37 L/s (litres per second). A preliminary design for a dewatering network has been proposed with up to five water extraction boreholes developed around the perimeter of a potential future pit. Importantly, a lengthy dewatering program is not expected to be required.

**Environmental studies (including waste rock characterisation)**

Environmental studies comprising flora and fauna, lake ecology and waste rock characterisation have been coordinated by MBS Environmental.

Baseline flora and fauna studies undertaken within the Mining Lease Application area, as well as along likely access routes, found no issues likely to impact a potential mining project at Baloo.

A baseline lake ecology survey was also undertaken in the immediate vicinity of the Baloo deposit as well as over the greater Lake Cowan area. The biodiversity and richness of aquatic invertebrates and diatoms of the lake was found to be typical for hypersaline lakes within Australia, with the immediate Baloo area displaying a lower richness than the surrounding area.

Preliminary waste rock characterisation work has, as expected, identified the transitional mineralised material as being potentially acid forming, due to the presence of minor amounts of sulphide minerals in it. This is not unusual, and would require appropriate design and management when constructing a waste dump facility. All materials were classified as saline, but this is not considered an issue for a potential waste dump facility on a salt lake.

**For further information, please contact:**


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**Competent Person's statement**

The metallurgical testwork set out in this report was undertaken on four representative composite samples obtained from the Company's RC and diamond core resource drilling at Baloo. The Exploration Results from that exploration program were announced by the Company on 23 December 2015 and 10 February 2016 (**Exploration Results Announcements**) and an initial Mineral Resource Estimate, based on those Exploration Results, was announced 4 March 2016 (**Baloo Resource Announcement**). The information in this report that relates to:

- Exploration Results is based on, and fairly represents, information compiled by John Bartlett who is an employee of the company, details of which were released on ASX on 23 December 2015 and 10 February 2016. Mr Bartlett is a member of the Australasian Institute of Mining and Metallurgy. Mr Bartlett has sufficient experience of relevance to the style of mineralisation and the types of deposits under consideration, and to the activities undertaken, to qualify as Competent Persons as defined in the 2012 Edition of the Joint Ore Reserves Committee Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code).
- Mineral Resource estimation is based on information compiled by Mr Brian Wolfe, Principal Consultant Geologist – IRS Pty Ltd and Mr Andrew Thompson, an employee and shareholder of the Company. Mr Wolfe and Mr Thompson are members of the Australasian Institute of Mining and Metallurgy and have sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration to qualify as a Competent Person as defined in the JORC

Code. Mr Wolfe and Mr Thompson consent to the inclusion in this report of the matters based on their information in the form and context in which they appear.The Company confirms that it is not aware of any new information or data that materially affects the Exploration Results set out in the Explorations Results Announcements and the Mineral Resources set out in the Baloo Resource Announcement. The Company confirms that all material assumptions and technical parameters underpinning the Mineral Resource Estimate continue to apply and have not materially changed.