ASX Announcement 25 September 2013

# EXCEPTIONAL GOLD LEACH RECOVERIES CONTINUE

**Resource and Investment NL** (ASX: **RNI**) (**RNI** or the Company) is pleased to announce further exceptional results from the Company's ongoing metallurgical testwork program. The latest results are from oxide and transitional mineralisation at the Peak Hill gold project, which RNI has an option to acquire from Montezuma Mining Company Limited (ASX: MZM).

Gold recoveries and leach kinetics are exceptional, with large scale 7-week column leach tests [(1)] commissioned on Peak Hill pit mineralisation returning **91.2% gold recoveries for oxide material and 65.6% for transitional material**.

These results follow preliminary results for initial bottle roll [(2)] testwork on mineralisation from the Peak Hill pits released to the ASX by Montezuma on 31 July 2013. Recoveries of 85.2% were reported in transitional material. These tests have now been finalised and the oxide composites returned recoveries of 93.4% (Table 1).

The latest results (Table 2) continue to exceed RNI's expectations. The Company's internal business case studies assumed heap leach recoveries of ~65% and the initial bottle rolls, and subsequent column leaches, have in every instance exceeded these internal targets.

## BACKGROUND

In May 2013, RNI commissioned Independent Metallurgical Operations (IMO) to conduct metallurgical testwork and to estimate capital and operational costs to underpin a heap leach project (HLP) based at the Company's 100% owned Grosvenor gold processing plant, 170km north-west of Meekatharra.

Apart from the various resources near the Grosvenor gold plant, this testwork work also encompasses the Peak Hill gold resources as satellite operations. The processing concept is a primary, low-cost heap leach recovery option, with conventional CIL processing as an adjunct and parallel processing pathway. The IMO testwork is part of RNI's strategy to examine potential bulk processing and mining options capable of delivering a low cost gold processing and production pathway, targeting costs of less than $A1,000/oz.

RNI has total gold resources of 1.4Moz at its Grosvenor project, with a further ~550,000oz covered by the option (Table 3) held by the Company to acquire the Peak Hill gold project from Montezuma (Refer RNI ASX announcements dated 27 September 2012 and 21 November 2012).

As announced to the ASX on 16 August 2013, the Grosvenor HLP is targeting **10-17Mt** of oxide and transitional mineralisation.

Details of metallurgical testwork results from RNI's Grosvenor project are included in the 16 August 2013 ASX announcement.

Progress with both pre-feasibility and development studies is at an advanced stage and will be announced when complete. The Horseshoe and remaining Grosvenor column tests are ongoing. Tables 3-5 relate to JORC compliance related to this testwork.

Note: [(1)] [(2)] Refer Table 5

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| Domain | Crush Size | Au Recovery | Duration | Assayed Head | Calculated Head | NaCN Consumption | Lime Consumption |
|---|---|---|---|---|---|---|---|
| | mm | % | Hours | Au g/t | Au g/t | kg/t | kg/t |
| **Montezuma I** | 25 | **85.2** | 192 | 2.42 | 2.12 | 0.2 | 1.7 |
| **Montezuma II** | 25 | **93.4** | 192 | 1.59 | 1.24 | 0.2 | 1.8 |

Table 1: Initial results from bottle rolls from composite samples from Peak Hill (Montezuma) pits

| Domain | Au Recovery | Duration | Assayed Head | Calculated Head | NaCN Consumption | Lime Consumption |
|---|---|---|---|---|---|---|
| | % | Days | Au g/t | Au g/t | kg/t | kg/t |
| **Montezuma I** | **91.2** | 49 | 2.42 | 1.84 | 0.11 | 0 |
| **Montezuma II** | **65.6** | 49 | 1.59 | 1.61 | 0.13 | 0 |

Table 2: Results from column tests from composite samples from Peak Hill (Montezuma) pits

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**Competent Person's Statement**

The information in this ASX release that relates to **Exploration Results, Mineral Resources and Geometallurgy** is based on information compiled by Mr Albert Thamm, who is a Fellow and Chartered Professional of the Australasian Institute of Mining and Metallurgy. Mr Thamm is Director of Resource and Investment NL and has sufficient experience which is relevant to the style of mineralisation and types of deposit under consideration and to the activities undertaken to qualify as a Competent Person as defined in the 2004 Edition of the Australasian Code of Reporting of Mineral Resources and Ore Reserves. Mr Thamm consents to the inclusion in the release dated 25 September 2013 on the matters based on information in the form and context in which it appears.

**Forward-Looking Statements**

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Any forward-looking statements in this ASX release speak only at the date of issue of this announcement. Subject to any continuing obligations under applicable law and ASX Listing Rules, Resource and Investment NL does not undertake any obligation to update or revise any information or any of the forward-looking statements in this document or any changes in events, conditions or circumstances on which any such forward-looking statement is based.

## Table 3 - Grosvenor Project Resources

*Summary of Project Resources, Resource Classification and metrics - September 2013*

| Project | Cut-off (g/t) | Tonnes(kt) | Grade (Au g/t) | Tonnes(kt) | Grade (Au g/t) | Tonnes(kt) | Grade (Au g/t) | Tonnes(kt) | Grade (Au g/t) | Au Ounces |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Measured | | Indicated | | Inferred | | Total | | |
| Yarlarweelor | 0.5 | | -- | 5,498 | 1.6 | 1,511 | 1.6 | 7,009 | 1.6 | 360,500 |
| Starlight | 1 | | -- | 1,558 | 3 | 924 | 3.4 | 2,482 | 3.2 | 252,500 |
| Starlight Hanging Wall | 1 | -- | -- | 145 | 4.3 | 503 | 2.9 | 648 | 3.2 | 67,500 |
| Twilight | 1 | -- | -- | 1,138 | 2.7 | 316 | 2.6 | 1,454 | 2.7 | 124,700 |
| Ricks | 1 | -- | -- | 232 | 1.9 | 63 | 2.1 | 295 | 2.0 | 18,800 |
| Midnight | 1 | -- | -- | 229 | 2.3 | 124 | 2.7 | 353 | 2.4 | 27,400 |
| Dougies | 1 | -- | -- | 99 | 3.1 | 123 | 2.9 | 222 | 3.0 | 21,500 |
| Eldorado | 0.6 | -- | -- | -- | -- | 386 | 1.4 | 386 | 1.4 | 17,300 |
| Toms & Sams | 1 | 42 | 1.64 | 1,031 | 1.53 | 272 | 1.66 | 1,345 | 1.6 | 67,400 |
| Horseshoe, Cassidy & Pod | 0.5 | | | 1,578 | 2.09 | 792 | 2.3 | 2,370 | 2.2 | 164,600 |
| Nathans | 0.75 | -- | -- | | | 1,081 | 1.9 | 1,081 | 1.9 | 66,900 |
| Callies North | 0.5 | | | 2,326 | 1.43 | 1,527 | 1.10 | 3,854 | 1.3 | 161,000 |
| Labouchere | 1 | | | 278 | 1.7 | 534 | 1.8 | 812 | 1.7 | 45,400 |
| Regent | 0.6 | -- | -- | -- | -- | 328 | 1.4 | 328 | 1.4 | 14,300 |
| TOTAL | | 42 | | 13,834 | | 8,484 | | 22,361 | 2.0 | 1,409,800 |

### Peak Hill Project Resources at 0.8 g/t cut off

### Harmony, Enigma, Durack and Main Pit-Five Ways

| Classification | Material | Tonnes (kt) | Au (g/t) | Au Ounces |
|---|---|---|---|---|
| | Oxide | 1,270 | 1.2 | 50,000 |
| INDICATED | Transitional | 2,940 | 1.4 | 128,000 |
| | Fresh | 4,960 | 1.6 | 252,000 |
| TOTAL INDICATED | | 9,170 | 1.5 | 430,000 |
| | Oxide | 160 | 1 | 5,000 |
| INFERRED | Transitional | 80 | 1.1 | 3,000 |
| | Fresh | 1,510 | 1.6 | 76,000 |
| TOTAL INFERRED | | 1,750 | 1.5 | 84,000 |
| SUBTOTAL | | 10,920 | 1.5 | 514,000 |

### Jubilee Deposit

### Mineral Resources at 1.0 g/t cut-off

| Classification | Material | Tonnes (kt) | Au (g/t) | Au Ounces |
|---|---|---|---|---|
| INDICATED | | 100 | 1.95 | 6,300 |
| INFERRED | | 505 | 2.49 | 40,500 |
| SUBTOTAL | | 605 | 2.41 | 46,800 |

### Combined Global Mineral Resources Estimated for the Peak Hill Project

| Classification | | Tonnes (kt) | Au (g/t) | Au Ounces |
|---|---|---|---|---|
| INDICATED | | 9,270 | 1.5 | 436,000 |
| INFERRED | | 2,255 | 1.7 | 125,000 |
| TOTAL | | 11,525 | 1.5 | 561,000 |

Note: Grade, tonnage and ounces have been rounded and may result in computational discrepancies the above tables.

| Table 4 - JORC Technical disclosure 2013 Geo-metallurgical testwork | | |
|---|---|---|
| **Item** | **JORC Code Commentary** | **RNI Commentary** |
| Sampling techniques | Nature and quality of sampling (e.g. cut channels, random chips etc.) and measures taken to ensure sample representivity. | Channel sampling, within pit. Composites based on oxidation state. Head assays based on subsamples, 40-50g charges for fire assay. TerraSpec ™ alteration (mineral) mapping taken on each and every 1m interval. Innovex and Niton multi-element handheld XRF every one metre. Representivity demonstrated by repeat sample and reference sample assay. Repeat, random re-assay and reference standard re-assay. Sampled by domain, oxide, transitional or fresh. Solution element concentrations measured by AAS. Additional Water quality analysis, pH, buffering, solutes, from pit lakes. |
| Drilling Techniques | Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka etc.) and details (egg. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, etc.). Measures taken to maximise sample recovery and ensure representative nature of the samples. | None. Channel sampled off pit walls. |
| Drill sample recovery | Whether core and chip sample recoveries have been properly recorded and results assessed. Measures taken to maximise sample recovery and ensure representative nature of the samples. In particular whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material. | Percentage and quality recorded. Individual assay runs check sampled. Lab duplicates and repeat triple assays from same 1kg sample for selected gold assayed. |
| Logging | Whether core and chip samples have been logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. Whether logging is qualitative or quantitative in nature. Core (or costean, channel etc.) photography. | Logged onto paper, integrated into Excel and Access and Datashed databases, with separate tables for duplicates, laboratory standards. Analysis of these using Geoacess ™. One metre samples routinely electronically logged with multi-element XRF and routine analysed for alteration mineralogy using Terraspec (TM) short wave infrared spectral analysis. |
| Sub-sampling | If core, whether cut or sawn and whether quarter, half or all core taken. If non-core, whether riffled, tube sampled, rotary split etc. and whether sampled wet or dry. For all sample types, the nature, quality and appropriateness of the sample preparation technique. Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. Measures taken to ensure that the sampling is representative of the in situ material collected. Whether sample sizes are appropriate to the grainsize of the material being sampled. | Sampled dry. Fire assay of 40g sub-samples. Repeat re-assays of separate 40g -50g sub-samples.<br><br>Sample size is industry standard for this type of drilling and testwork. Tails assay completed to re-calculate gold recoveries. Solution gold concentration measured by AAS at stated frequency intervals.<br><br>Water quality sampled from pit lakes. Synthetic water for Horseshoe samples. |
| Quality of assay data and laboratory tests | The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie. lack of bias) and precision have been established. | Metallurgical Testwork was carried out at Metallurgy Pty Ltd. Such tests include intermittent bottle rolls, column leach tests, agglomeration and percolation tests. All of which have full and approved procedures. In all metallurgical tests, site water was utilised. This water was thoroughly analysed prior to testwork (ICP and pH buffering)<br><br>Assay for gold, as well as water quality analysis. Sample head and tails assay at Bureau VERITAS (Canning Vale) Western Australia. Gold by fire assay (FA 40) 40 g charge. The sample(s) have been digested and refluxed with a mixture of acids including nitric, per chloric, hydrofluoric and hydrochloric acid. Testwork on bottle rolls and columns at IMO, Welshpool, WA. All Metallurgical testwork assays were conducted at Bureau VERITAS (Canning Vale). Comprehensive assays were conducted with the same procedure as above and gold only assay with fire assay. |
| Verification of sampling and assaying | The verification of significant intersections by either independent or alternative company personnel. The use of twinned holes. | No twinned holes. Verification and grade analysis by external consultants (IMO). No adjustments to assay data. No twinned holes. Primary documentation paper, stored on site, assays both paper and electronic, overall data stored in DataShed database. |
| Location of data points | Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. Quality and adequacy of topographic control. | Hand held GPS collar location. Downhole camera, every 50m for downhole survey. Lidar, 50cm contours for surface topography, 3cm precision. Data spacing and distribution has already demonstrated geological and grade continuity, this drilling is has targeted metallurgical domains. |
| Data density and distribution | Data density for reporting of exploration results. Whether the data density and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied. Whether sample compositing has been applied. | Drillholes planned to be representative of broad mineralised domains, i.e. oxide, transitional and fresh. Drilling targeted mineralisation domains based on resource model coding. |

| | | |
|---|---|---|
| Orientation of data in relation to geological structure | Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sample bias, this should be assessed and reported if material. | Vertical to improve sample recovery. |
| Sample security | Measures undertaken to ensure sample security and integrity. | Sealed bags, dispatch by third party contractor, in-company reconciliation with laboratory assay returns.<br><br>Upon sample receival, all samples were checked off against clients' records with weights and sample description noted in the sample receipt. Samples were kept separate and followed an agreed testwork flowsheet. At all times samples were contained or covered with plastic bags. During tests, each test was duly labelled. All assays were completed at the certified Bureau VERITAS |
| Audits and review | The results of any audits or reviews of sampling techniques and data. | Database compilation into Data-shed for data integrity. Program review by external consultants.<br>See notes 1 and 2, Table 5, below. |
| Mineral tenement and land tenure status | Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. In particular the security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area. | M52/35, M52/56, M52/474, M52/297. 100% Peak Hill Metals Pty Ltd M52/801, 85% Peak Hill Metals Pty Ltd, 15% Horseshoe Gold Mine Pty Ltd. |
| Exploration done by other parties | Acknowledgement and appraisal of exploration by other parties. | Drilled by RAB, RC and diamond coring, assayed gold only, various parties not limited to Eagle Gold, Gleneagle, Perilya, Homestake Australia and Dominion Mining. (Table 5, below) |
| Geology | Deposit type, geological setting and style of mineralisation. | Paleoproterozoic age oxide gold and base metal mineralisation. Structurally controlled and structurally remobilised. Primary intermediate sulphur epithermal mineralisation related to bimodal felsic and mafic volcanism. Oxide gold mineralisation in deeply weathered regolith. |
| Data aggregation methods | In reporting exploration results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually material and should be stated. Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail. The assumptions used for any reporting of metal equivalent values should be clearly stated. | Where triplicate assays for gold reported, average of these. All other assays are single assays. Samples composited by oxidation domain as is returned data to achieve suitable mass for met testwork at this scale.<br><br>All tested drill core intervals were determined with the assistance of RNI geological and mining representatives. These intervals were selected based on mineralogy, lithology and grade to ensure the most representative sample was selected for metallurgical testwork. |
| Relationship between mineralisation widths and intercepts lengths | These relationships are particularly important in the reporting of exploration results. If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. If it is not known and only the down-hole lengths are reported, there should be a clear statement to this effect (e.g. 'downhole length, true width not known'). | Where reported, all reported intersection lengths are down hole. |
| Diagrams | Where possible, maps and sections (with scales) and tabulations of intercepts should be included for any material discovery being reported if such diagrams significantly clarify the report. | Included in commentary above. |
| Balanced reporting | Where comprehensive reporting of all exploration results is not practicable, representative reporting of both low and high grades and/or widths should be practised to avoid misleading reporting of exploration results. | All gold grades reported. |
| Other substantive exploration data | Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples - size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances. | Routine mineral mapping using Terraspec ™ SWIR technology |

| | | |
|---|---|---|
| Further work | The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling). | Ongoing column tests, variability tests. Samples were selected from designated zones for metallurgical evaluation to understand any variations throughout the resource with the assistance of RNI geological personnel. Numerous heap leaching treatment options have been evaluated specific to each domain. |

**Table 5 - Description of metallurgical testwork**

| Bottle roll tests[2] | Column leach tests[1] |
|---|---|
| Intermittent bottle rolls are utilised to provide an indication of an ores leach kinetics and total gold recovery in a heap leach operation. Ores are representatively blended and then crushed to a desired top size before being placed in a bottle with site water, lime and cyanide to achieve the desired density, pH and cyanide concentration respectively. Unlike a continuous bottle roll replicating a CIL operation, the bottle is only turned for approximately thirty seconds every two hours ensuring minimal autogenous grinding yet effective mixing. At pre-determined times, samples are taken from the bottle to have the gold solution assayed using AAS and the cyanide concentration and pH measured. Cyanide and lime is added accordingly to maintain desired levels.<br><br>When it is apparent that the gold has completed leaching, by observing a plateau in gold concentration in solution, the bottle roll is terminated. The leached slurry is filtered through a pressure filter whereby the solution is captured and assayed and after three fresh water flushes, the solids are dried then sampled and sent to a certified laboratory for duplicate fire assay. In addition to assaying the total residue, a representative sample is split out and sized into appropriate size fractions for individual assay. This determines the distribution of gold per size fraction. By assaying the final leach solution and residue and by calculating the amount of gold removed from the bottle roll during sampling, the rate of gold recovery and total recovery can be calculated. | Once an ore is found to display acceptable leach kinetics and overall gold recovery, its performance in a column is warranted as a column more closely represents actual heap operation. An ore is crushed to a desired top size then agglomerated with an optimised cement and moisture concentration determined from previous agglomeration and percolation tests. These agglomerates are allowed to cure for 48hrs before being carefully loaded into a 2 metre high, 150mm diameter column on top of a free draining media within a calico bag. After the initial height of the agglomerates has been marked, the column begins to be irrigated at a set rate (typically 10L/m2/hr). During the operation of the column the leach solution draining from the column is collected in a bucket below. This solution has its volume measured and gold assayed using AAS. This indicates how much gold is leached in a set period, typically three times per week. The leach solution is then contacted with activated carbon to remove the gold from solution prior to being pumped back to the top of the column with a calculated amount of cyanide and lime added to maintain leach conditions. Once the gold in the leach solution has dropped below detectable limits for at least one week indicating no further gold is being leached, the column is allowed to rest for two days then flushed with site water until there is no free cyanide in solution. The solids in the columns are then removed carefully before being dried then split for overall residue and size by assay. The leach kinetics and overall gold recovery is then calculated by determining how much gold leached into solution and remained in the solids. |