



# Niuminco Group Limited

*Suite 50, 14 Narabang Way, Austlink Corporate Centre, Belrose NSW  
2085 Australia Tel: (02) 9450 0828 Fax: (02)9450 0877 Email:  
info@niuminco.com.au  
ABN 44 009 163 919*

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SYDNEY, NSW, 2000

## **UPDATE/CLARIFICATION ON HIGH GRADE GOLD-BEARING VEINS AT EDIE CREEK**

Niuminco Group Limited (“Niuminco” or “the Company”) wishes to elaborate on the uncovering of previously unknown very high grade gold-bearing veins in the Ingopae area of Edie Creek, approximately 200 metres south of the camp compound as reported in announcements on 14 September 2018 and 20 September 2018 (see Figure1 below), and provide an update on production from this area over the period 18 September to 2 October, 2018.

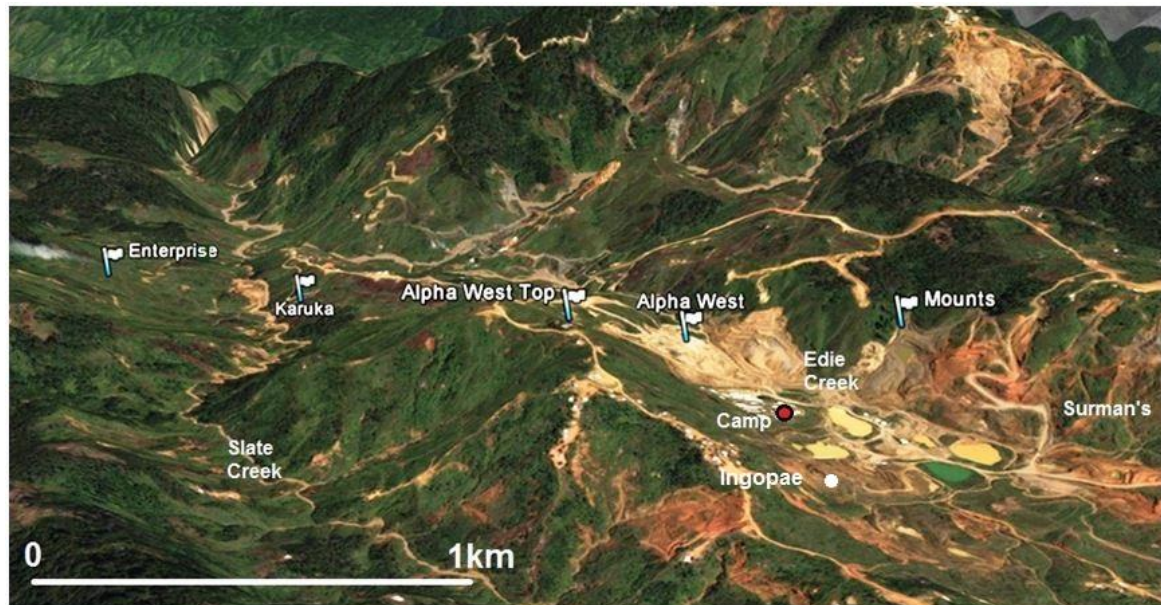
By way of clarification, it is noted that the term “sampling” used in those announcements was not strictly correct as the figures announced are the actual production figures from pilot scale mining and processing operations and the subsequent sale to Niuminco’s gold buyer. The mineralised veins uncovered are within an existing historic and recent mining area, and assessment of adequate grade of material prior to mining was by visual recognition of the veins and the traditional method of panning.



*Figure1: Mining at the newly discovered vein south of the old Ingopae Pit (in the foreground).*

The location of these veins is within the Company’s current mining area, an area of extensive small

pits and other historic workings of the upper Edie Creek valley where small scale mining, including that carried out in recent years by the Company, dates back to the 1930s. They are within 200 metres of the camp/plant site, 100 metres from recent mining to the west of the Ingopae pit and 400 metres from recent mining of the Surmans and Mounts veins as shown on the panoramic view of the gold field in Figure 2 and digital terrain model in Figure 3.



*Figure 2: Panoramic view of the Edie Creek Goldfield with Ingopae Pit location at bottom right.*

The veins have been exposed by erosion of overburden, which is partly spoil from past excavation within the Ingopae Pit and partly barren scree from upslope. Niuminco's team have continued to mine this narrow, northeast-southwest trending vein in both directions along strike and deeper down-dip and have unearthed a second parallel vein. Two other veins to the west and one further to the east have been previously mined by Niuminco (see Figure 4 below). The continuing strategy is to progressively expose the vein systems by pilot scale mining to produce cash-flow, and to determine their orientation, strike extent and whether they are of large enough scale to warrant drilling to resource standards.

If, as in this case, the vein is very narrow (100 -200mm) then the vein material is often mined by hand, rather than by excavator to avoid dilution, and the vein material is transported in tubs or loader bucket to the processing/gold room. The waste/very low grade material is separated from the vein material by excavator and/or bulldozer, stockpiled near the vein and then brought to the ROM pad by truck if, after panning, there is the indication that low grade gold is present and may be economic to process.

During the period 18 September to 2 October, 2018 processing of vein and adjacent material took place on 12 of those days with production results as follows:

- **16.2 tonnes of vein material** processed through the barrels (small rod mills) produced **631.3g (20.3 ounces) of gold and 504g (16.2 ounces) of silver** from 2,572g of wet amalgam at an **average grade of 39.97g/t**, and;
- 279 tonnes of low grade/waste material, mined from immediately adjoining the vein, was separately processed through the ball mill on 7 of the 12 days producing only 75.6g (2.4 ounces) of gold in total.

The average grade calculations are arrived at after totaling the actual gold produced and sold over this period, and dividing that figure by the actual volumes of vein material or low grade/ waste material mined and processed over that same period.



Niuminco's staff record, on a daily basis, the amount of vein material and/or low grade/waste that is separately processed either through the barrels (510kg per barrel) or the ball mill (22.5 tonnes per hopper load) and the amount of wet amalgam produced from each. The wet amalgam is then weighed and stored in a safe until retorted, weighed and stored in the safe again after retorting, and then delivered.

The Company's gold buyer is a highly reputable, international precious metals exporting company with an accredited scientific laboratory which smelts and assays the retorted amalgam product that Niuminco delivers. Upon delivery it offers Niuminco the daily USD\$ spot gold price and a daily PNG/USD exchange rate, and then reports the actual amount of gold and silver (and % waste loss) recovered and the sale amount on the same day as delivery.

Niuminco is entitled and able to audit the assays at any time, and payment for the sale is made by EFT transfer to the Company's bank account on the day of the sale, and usually within 3 hours of delivery.

Every day's production, delivery and sale since February 2014 is recorded in the Company's files, and has been the subject of each half-year review and annual audit by the Company's auditors .

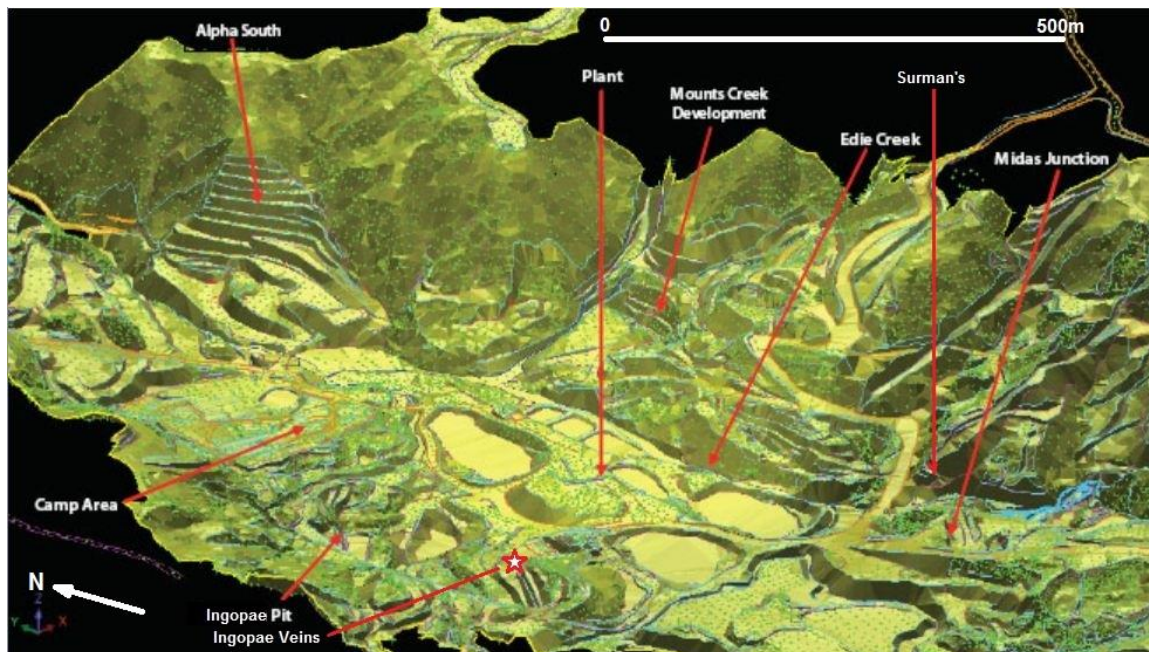
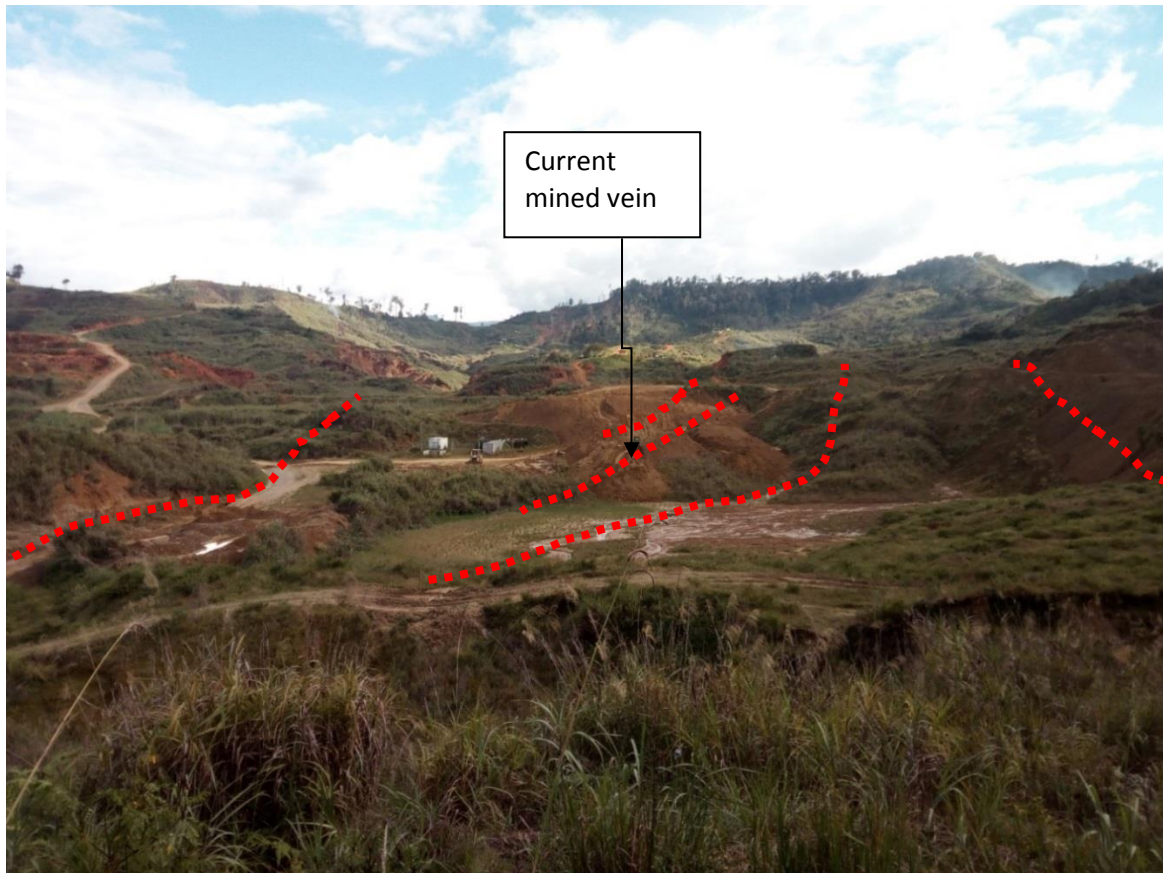


Figure3: Edie Creek Valley Digital Terrain Model with location of newly discovered high grade vein



*Figure 4: Ingopae Pit area viewed southwards. Known veins highlighted (red).*

Mr. Tracey Lake, Managing Director said:

**“It is pleasing to see the continuation of high grade gold from this vein, and we will proceed to mine this and the nearby veins over the coming weeks, as well as developing and mining the Edie Lode and Surmans vein systems”**

17 October, 2018

Mr. Tracey Lake  
Managing Director

The information in this report that relates to exploration/mining and production results is based on Information reviewed by John Nethery (BSc Dip Ed.) who is a Fellow of the Australasian Institute of Mining and Metallurgy (Chartered Professional) and a Fellow of the Australian Institute of Geoscientists. Mr Nethery is an employee of Nedex Pty Ltd which is a shareholder in the Company and a Director of the Company, and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the “Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves”. Mr Nethery consents to the inclusion in the report of the matters based on this information in the form and context in which it appears.

Niuminco confirms that it is not aware of any new information or data that materially affects the information included in all ASX announcements referenced in this release, and that all material assumptions and technical parameters underpinning the estimates in these announcements continue to apply and have not materially change.

# JORC Code, 2012 Edition – Table 1 report to accompany ASX release

## 12 October 2018 on exploration/mining and production results.

### Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
<i>Sampling techniques</i>	<ul style="list-style-type: none"> <li><i>Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</i></li> <li><i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</i></li> <li><i>Aspects of the determination of mineralisation that are Material to the Public Report.</i></li> <li><i>In cases where ‘industry standard’ work has been done this would be relatively simple (eg ‘reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay’). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.</i></li> </ul>	<ul style="list-style-type: none"> <li>This is reporting a mining exercise. Only qualitative sampling by panning of small amounts of mined vein material and low grade/waste material adjoining the vein was done to establish the presence of free gold before mining, separation of waste and transporting of both vein material and/or waste to the production plant for separate processing.</li> <li>The vein was exposed by removing overburden and adjoining waste material with the use of an excavator and/or a bulldozer.</li> <li>The vein material was predominantly mined by hand or occasionally by using the small, 6-tonne excavator, loaded into tubs, or the bucket of the loader, then transported to the gold room for processing through the barrels or the bedan bowl.</li> <li>The low grade/ waste material adjoining the vein was stockpiled, panned and if showing some visible gold, trucked to the ROM pad for loading into the ball mill feed hopper, and processing through the ball mill.</li> </ul>
<i>Drilling techniques</i>	<ul style="list-style-type: none"> <li><i>Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).</i></li> </ul>	<ul style="list-style-type: none"> <li>No drilling was done.</li> </ul>

Criteria	JORC Code explanation	Commentary
<i>Drill sample recovery</i>	<ul style="list-style-type: none"> <li>• <i>Method of recording and assessing core and chip sample recoveries and results assessed.</i></li> <li>• <i>Measures taken to maximise sample recovery and ensure representative nature of the samples.</i></li> <li>• <i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>• No core sample recovery, as no drilling was done.</li> </ul>
<i>Logging</i>	<ul style="list-style-type: none"> <li>• <i>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</i></li> <li>• <i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</i></li> <li>• <i>The total length and percentage of the relevant intersections logged.</i></li> </ul>	<ul style="list-style-type: none"> <li>• No core samples logged, as no drilling was done.</li> <li>• The weight of material processed through each of the ball mill and the barrels (or rod mills) is calculated by recording the number of hopper loads processed through the ball mill and the number of barrels processed each day.</li> </ul>
<i>Sub-sampling techniques and sample preparation</i>	<ul style="list-style-type: none"> <li>• <i>If core, whether cut or sawn and whether quarter, half or all core taken.</i></li> <li>• <i>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</i></li> <li>• <i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i></li> <li>• <i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i></li> <li>• <i>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</i></li> <li>• <i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i></li> </ul>	<ul style="list-style-type: none"> <li>• No drill core, as no drilling was done.</li> <li>• The vein material and low grade/waste material were separated during the mining operation as described above and delivered separately to the gold room/processing plant.</li> <li>• The vein material was taken to the gold room for processing through the barrels, where the quantity and weight of material processed and wet amalgam produced is recorded after each barrel or bowl is processed, then tallied on a daily basis</li> <li>• The low grade/waste material was delivered to the ball mill ROM pad, loaded into the feed hopper and then processed through the ball mill and Inline Spinner concentrators before then being amalgamated in the bedan bowl. The quantity and weight of material processed and wet amalgam produced from the ball mill is recorded daily, along with the number of hours that the mill ran.</li> <li>• The recording of each barrel or bowl processed, the daily ball mill volumes and weight and wet amalgam produced is supervised, overseen and checked by the Company's Metallurgist and Processing Manager and/or the Assistant Processing Manager and/or the Mine Manager.</li> </ul>
<i>Quality of assay data and</i>	<ul style="list-style-type: none"> <li>• <i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i></li> <li>• <i>For geophysical tools, spectrometers, handheld XRF</i></li> </ul>	<ul style="list-style-type: none"> <li>• Gold and silver are recovered using mercury amalgamation.</li> <li>• Mercury is added directly into to the barrels (small rod mills) with the vein material and water. The vein material is then milled/processed for 1 to 2 hours, washed out of the barrels by hosing and then the residual amalgamated material has the mercury squeezed out of it. The wet amalgam is then weighed and stored in a safe before being retorted. The retorted material/dore is weighed, stored and then delivered to the Company's gold buyer</li> </ul>



Criteria	JORC Code explanation	Commentary
<i>laboratory tests</i>	<p><i>instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</i></p> <ul style="list-style-type: none"> <li><i>Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</i></li> </ul>	<ul style="list-style-type: none"> <li>The quantity of mercury used in each barrel is also recorded. The material that has been washed from the barrels is captured/stored in a concrete drain and sump and then reprocessed through using the same processing operation. This is known as ‘regrinding’ and the wet amalgam produced is again recorded, weighed and stored, before retorting and delivery.</li> <li>Concentrate from the ball mill and spinners is placed in the bedan bowl, mercury and water are added and after grinding the residual amalgamated material treated the same way as the barrel material</li> </ul>
<i>Verification of sampling and assaying</i>	<ul style="list-style-type: none"> <li><i>The verification of significant intersections by either independent or alternative company personnel.</i></li> <li><i>The use of twinned holes.</i></li> <li><i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i></li> <li><i>Discuss any adjustment to assay data.</i></li> </ul>	<ul style="list-style-type: none"> <li>The wet amalgam produced is recorded separately for each barrel processed and reprocessed (reground), and for each bedan bowl of ball mill concentrate or other vein material processed , and these are tallied and recorded on a daily basis.</li> <li>The total amount of wet and retorted amalgam is then recorded when a delivery and sale is to be made and the gold buyer smelts the retoted dore, and reports the quantity of gold and silver produced form that delivery batch</li> <li>This data is from the buyer’s laboratory which can be audited if required</li> </ul>
<i>Location of data points</i>	<ul style="list-style-type: none"> <li><i>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.</i></li> <li><i>Specification of the grid system used.</i></li> <li><i>Quality and adequacy of topographic control.</i></li> </ul>	<ul style="list-style-type: none"> <li>Mine extraction site is recorded by DGPS</li> </ul>
<i>Data spacing and distribution</i>	<ul style="list-style-type: none"> <li><i>Data spacing for reporting of Exploration Results.</i></li> <li><i>Whether the data spacing 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.</i></li> <li><i>Whether sample compositina has been applied.</i></li> </ul>	<ul style="list-style-type: none"> <li>As these are mining production results,, the distribution of, and area from which the vein material is recovered is not accurately recorded, but as the material and amalgam produced is recorded from separate batches, and on individual days, grade variations can be calculated , but are reported as an “average” over certain periods.</li> </ul>
<i>Orientation of data in relation to geological structure</i>	<ul style="list-style-type: none"> <li><i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i></li> <li><i>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</i></li> </ul>	<ul style="list-style-type: none"> <li>These are the results of on-going mining operations, no drilling programs are currently underway in this area.</li> </ul>

Criteria	JORC Code explanation	Commentary
<i>Sample security</i>	<ul style="list-style-type: none"> <li><i>The measures taken to ensure sample security.</i></li> </ul>	<ul style="list-style-type: none"> <li>Chain of custody is managed by Niuminco. Material is supervised from mining through production to sale of production.</li> </ul>
<i>Audits or reviews</i>	<ul style="list-style-type: none"> <li><i>The results of any audits or reviews of sampling techniques and data.</i></li> </ul>	<ul style="list-style-type: none"> <li>No audits or reviews have been carried out at this stage, but are always available to be undertaken.</li> </ul>

## Section 2 Reporting of Exploration/Mining Production Results

Criteria	JORC Code explanation	Commentary
<i>Mineral tenement and land tenure status</i>	<ul style="list-style-type: none"> <li><i>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.</i></li> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>The results reported relate to mining carried out within Mining Lease Number 462. This is one of the contiguous Mining Leases held by Niuminco collectively known as the Edie Creek Leases. They are ML, 144, 380, 384 - 392, 402 - 410, 444 - 446 &amp; 462. The Leases are issued under the Authority of the PNG Mining Act (1992).</li> <li>Niuminco holds an 100% interest in the ML's.</li> <li>A royalty on production of Kina10/oz up to 20,000oz and Kina5/oz is payable to Barrick in ML 144.(2.5 Kina are approximately equal to 1\$Aus).</li> <li>The tenements are in good standing and no known impediments exist.</li> </ul>



Criteria	JORC Code explanation	Commentary
Exploration done by other parties	<ul style="list-style-type: none"> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<ul style="list-style-type: none"> <li>Gold lodes were originally discovered in the area by individual prospectors in the mid 1920's. Mining has been conducted at Edie lode for almost 90 years and approximately 75,000 oz has been produced.</li> <li>Renison Goldfields Consolidated drilled 2 diamond holes in 1988 and conducted surface geochemical sampling. The sampling protocols employed are similar to those currently used by Niuminco, are of standard industry practice employing geochemical analysis of sawn half core, and are deemed appropriate for epithermal gold mineralisation. ANALABS laboratories were used for Au analyses. Method GG334; 30g sample, aqua regia digest, carbon rod.</li> <li>Niuminco are unable to verify the integrity of the sampling and assay protocols of a 12 hole program carried out by Edie Creek Mining in JV with Wayburn Resources in 1997. Until the results can be verified, the results will be deemed as a geochemical indicator guide to mineralisation.</li> <li>Sampling of core from the Niuminco 2010-2011 drill program followed identical sampling protocols as those currently used. Samples were dispatched to ALS Townsville for analysis. Assay method for Au assays was screen fire assay on all of the oversize fraction and two samples each of 30g of the undersize fraction. Other elements by ICP.</li> <li>Mincor carried out drilling, geochemistry and geophysics on the ML's during a JV with Niuminco from 2011 - 2013. The drilling and geochemical program followed identical sampling protocols to those of Niuminco in its 2010-2011 and current campaign. Intertek Lae completed the analytical work.</li> </ul>
Geology	<ul style="list-style-type: none"> <li>Deposit type, geological setting and style of mineralisation.</li> </ul>	<ul style="list-style-type: none"> <li>Mineralisation at Edie Creek is classified as low sulphidation epithermal gold-silver-quartz-carbonate mineralisation in an island arc setting.</li> </ul>
Drill hole Information	<ul style="list-style-type: none"> <li>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all</li> </ul>	<ul style="list-style-type: none"> <li>No drilling was done</li> </ul>

Criteria	JORC Code explanation	Commentary
	<p><i>drill holes:</i></p> <ul style="list-style-type: none"> <li>○ <i>easting and northing of the drill hole collar</i></li> <li>○ <i>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</i></li> <li>○ <i>dip and azimuth of the hole</i></li> <li>○ <i>down hole length and interception depth</i></li> <li>○ <i>hole length.</i></li> </ul> <ul style="list-style-type: none"> <li>● <i>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</i></li> </ul>	
<i>Data aggregation methods</i>	<ul style="list-style-type: none"> <li>● <i>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.</i></li> <li>● <i>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.</i></li> <li>● <i>The assumptions used for any reporting of metal equivalent values should be clearly stated.</i></li> </ul>	<ul style="list-style-type: none"> <li>● No reporting of metal equivalents is used.</li> <li>● The gold and silver figures recorded are the actual gold and silver produced and sold on any given day and are provided by the Company's gold buyer following their smelting and assaying of the delivered dore.</li> <li>● The average grade of the gold reported for, or over, a certain period/number of days is calculated by dividing the quantity of gold produced and sold for that period by the respective weights of the vein material and waste material processed in that same period. The proportional split between the gold produced from the vein material and the low grade/waste material is calculated by using the same direct proportion of wet amalgam produced from each material over that period.</li> </ul>
<i>Relationship between mineralisation widths and intercept lengths</i>	<ul style="list-style-type: none"> <li>● <i>These relationships are particularly important in the reporting of Exploration Results.</i></li> <li>● <i>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</i></li> <li>● <i>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').</i></li> </ul>	<ul style="list-style-type: none"> <li>● The geometry of the mineralized material is incompletely known and determination of that is partly the reason for the shallow mining extraction .</li> </ul>

Criteria	JORC Code explanation	Commentary
<i>Diagrams</i>	<ul style="list-style-type: none"> <li>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</li> </ul>	<ul style="list-style-type: none"> <li>Refer to previous reports. This update does not require sections.</li> </ul>
<i>Balanced reporting</i>	<ul style="list-style-type: none"> <li>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.</li> </ul>	<ul style="list-style-type: none"> <li>Broad surface geochemical exploration results are reported as being anomalous or not. Subdivision into specific class intervals will be tabled. Reporting of continuous significant surface assays, and assays to 50m below the surface, use no Au cut-off. No top cut has been applied.</li> </ul>
<i>Other substantive exploration data</i>	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>
<i>Further work</i>	<ul style="list-style-type: none"> <li>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large- scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	<ul style="list-style-type: none"> <li>Niuminco will carry out a scout drilling program over known veins, and gold anomalous rock/channel chip samples within the Edie Creek leases that are determined by excavation to be of adequate size and grade to warrant such a program .</li> </ul>