

6 September 2016

# ASX ANNOUNCEMENT



## SATULINMAKI HIGH GRADE GOLD PROJECT - DRILLING COMMENCED

### Highlights

- **Drilling has commenced on hole SMDD001 at the Satulinmäki gold prospect.**
- **The drilling program will test targets within a series of sub-parallel gold zones defined by historical drill holes including;**
  - **18m at 4.1g/t, including 3m at 9.3g/t and 4m at 10.3g/t in hole R391**
  - **10m at 2.7g/t in hole R416**
- **It is anticipated that 6 holes will be drilled for a total 930m, adjacent to, and deeper than the historical gold intersections.**
- **First gold assay results are expected to be returned in early October.**
- **Drilling at Kietyönmäki Lithium prospect will resume after this initial phase of gold drilling. First assays from Kietyönmäki drilling are expected next week.**

Avalon Minerals Ltd (**ASX: AVI**) ('Avalon') is pleased to report that drilling at the high grade Satulinmäki gold prospect in southern Finland has commenced.

Diamond drill hole SMDD001 has commenced. Six drill holes are planned at Satulinmäki for a total of 930m and these will test interpreted sub-vertical gold mineralised shoots based on historical diamond drilling that was completed by the Geological Survey of Finland (GTK) during the period 2001 - 2005.

The diagrams below show the location of the proposed drill holes, and a cross section and long section which shows the interpreted geometry and model for drill testing.

The drill program will test zones below historical holes that include intersections such as:

- 25.0m @ 3.17 g/t Au from 50m downhole in drill hole R391, including;
  - 3.0m @ 9.3 g/t Au from 54m, and
  - 4.0m @ 10.3 g/t Au from 66m
- 25.0m @ 1.7 g/t Au from 51m downhole in drill hole R413, including;
  - 1.0m @ 9.8 g/t Au from 51.3m, and
  - 1.0m @ 8.6 g/t Au from 62.3m, and
  - 1.0m @ 4.2 g/t Au from 71.3m, and
  - 1.0m @ 6.2 g/t Au from 74.3m
- 3.0m @ 5.9 g/t Au from 33.9m downhole in drill hole R414
- 2.0m @ 1.89 g/t Au at the end of hole in drill hole R414. This hole ended in mineralisation (see figure 3)

### ASX: AVI

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- 10.0m at 2.7 g/t Au from 15m downhole in drill hole R416
- 4.0m @ 5.2 g/t Au from 101.3m downhole in drill hole R419

**It is expected that first assay results from this drilling program will be returned in early-October.**

The historical data, comprising 60 shallow diamond drill holes, has been interpreted and a structural model proposed that comprises a series of sub-parallel NE trending gold bearing quartz veins within altered mafic volcanic schists. It is suggested that the plunge of mineralisation is sub-vertical. If this model is supported by the proposed drilling program then further targets along structural strike will be defined, and the results from the nearby Riukka gold prospect will be reviewed and drill holes proposed for this area.

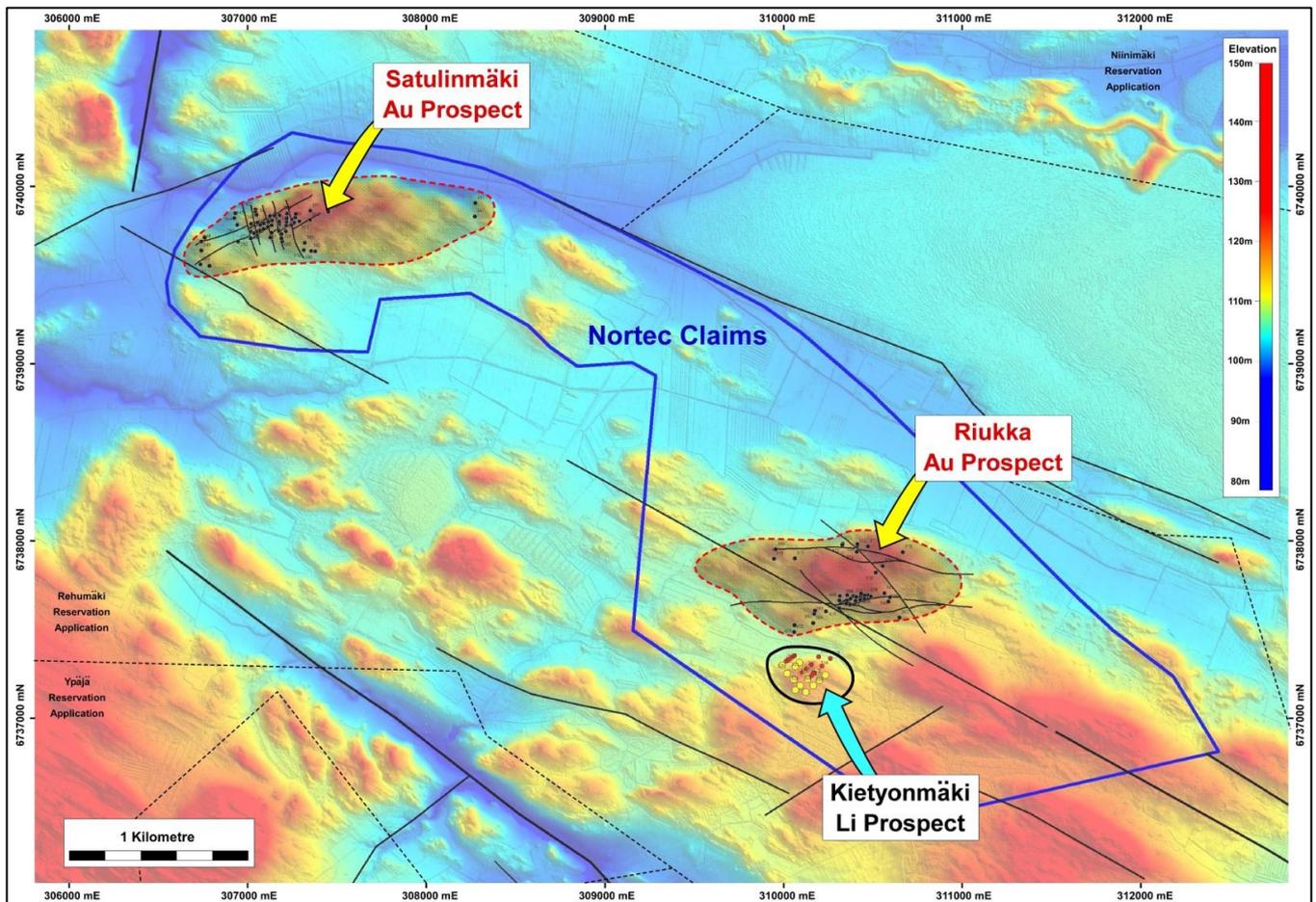


Figure 1: Location of Satulinmäki gold prospect, 4km NW of the Kietyonmaki lithium project



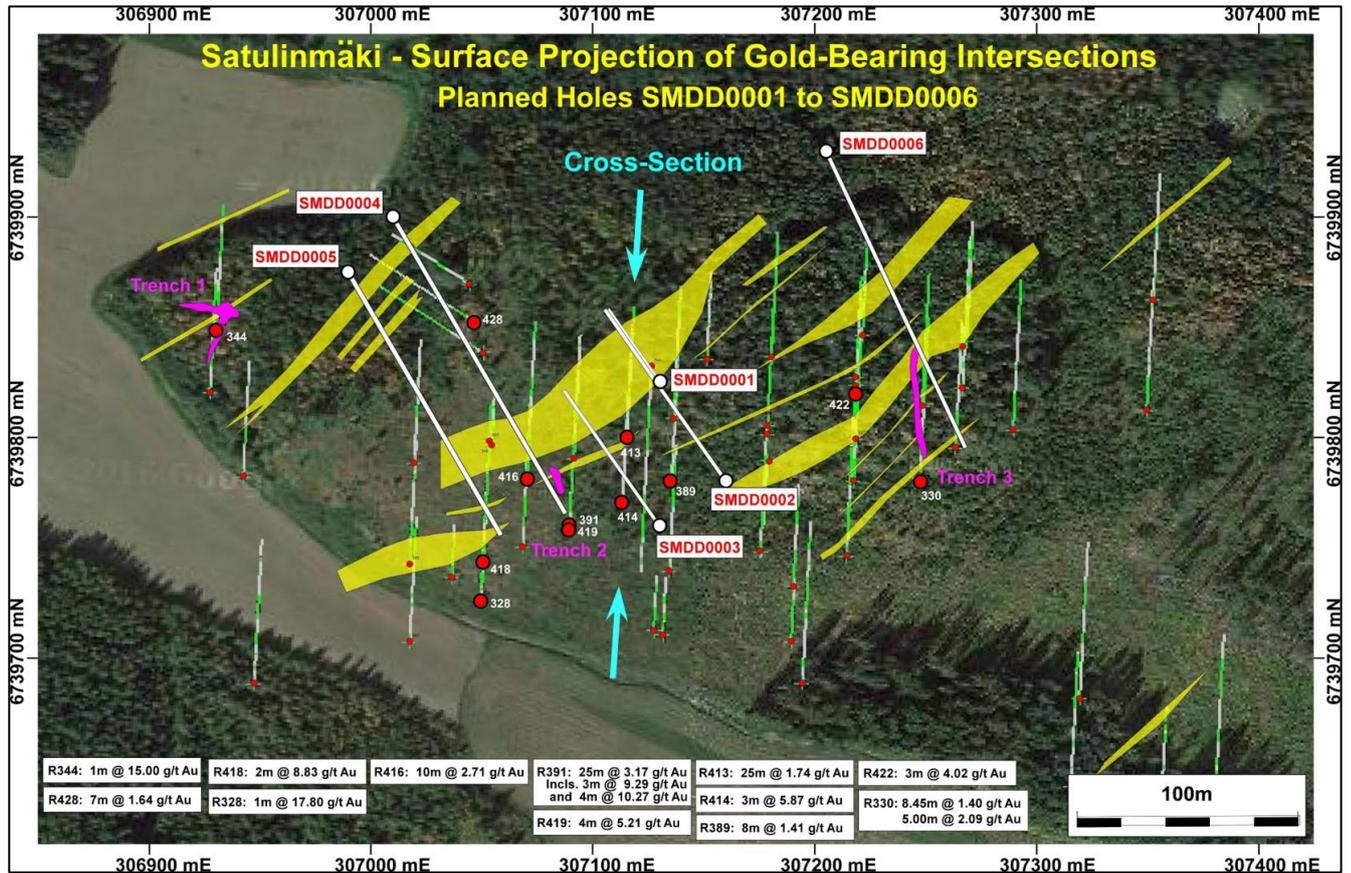


Figure 2: Satulinmäki gold prospect showing interpreted NE trending gold bearing vein systems. Figure 3 cross section is shown through the main target vein. Collar positions of historical holes with red dots and grey, green traces. Proposed holes SMD001 to SMD006 are shown in white.



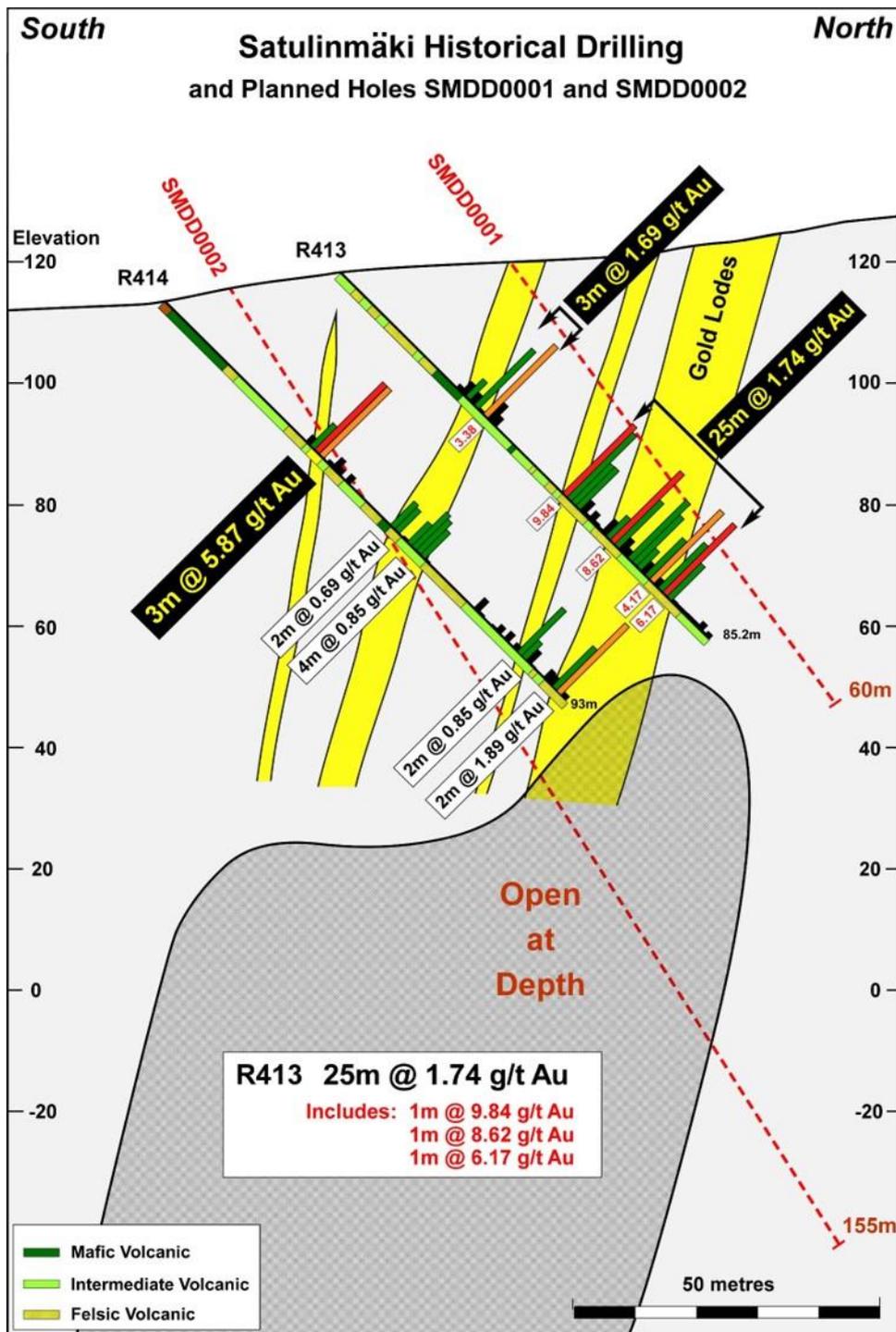


Figure 3: Cross section showing target zone down plunge from mineralised horizons in historical holes R413 and R414.

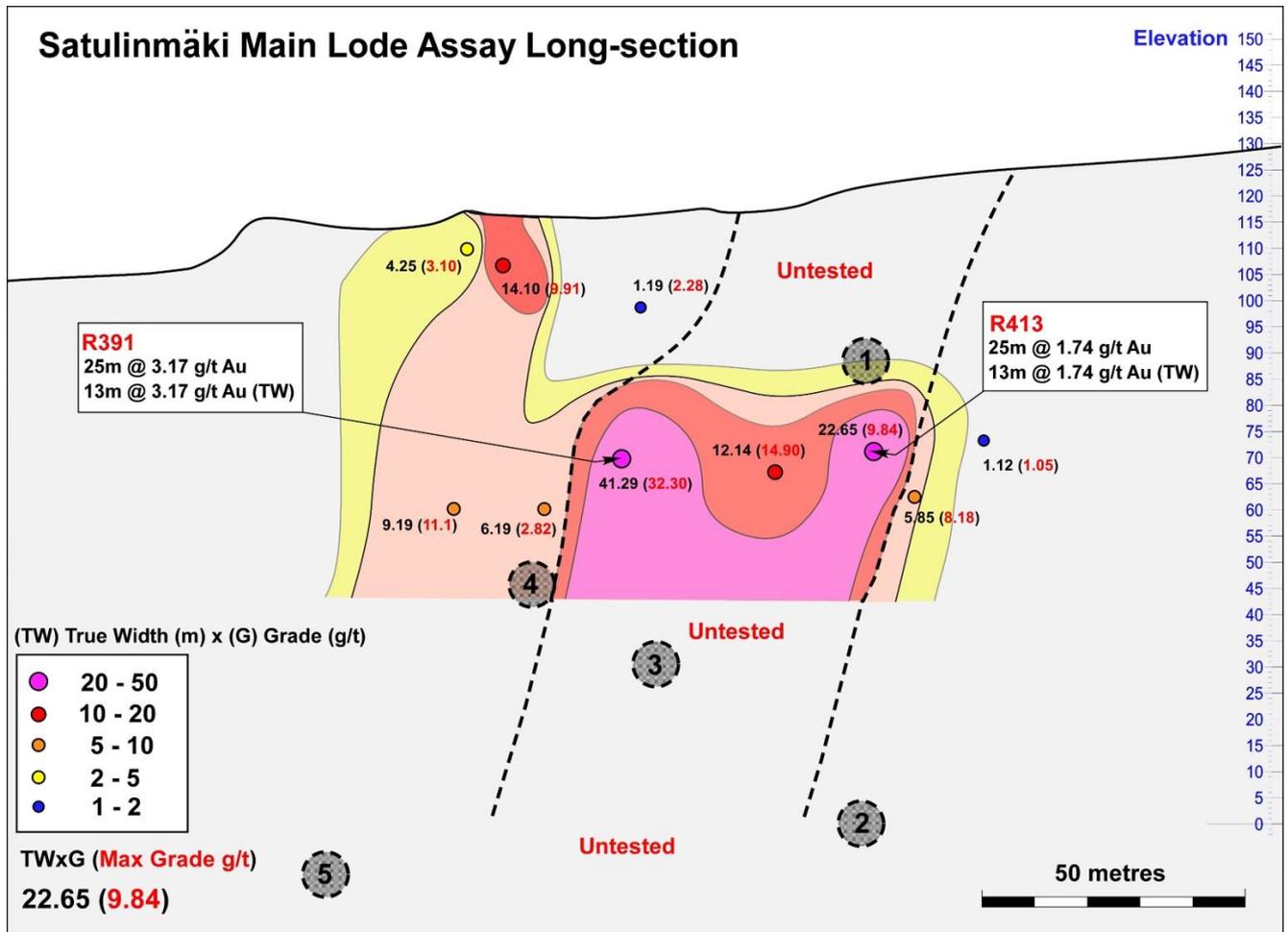


Figure 4: Long section on the main gold bearing zone showing existing shallow historical intersections, and pierce points of the proposed drill holes 1 to 5. The 5 proposed drill holes have also been planned to intersect several sub-parallel gold horizons parallel to this main zone.



## About Avalon

Avalon has an advanced portfolio of exploration and development projects in Scandinavia. The portfolio comprises:

1. The Kietyönmäki lithium pegmatite project in southern Finland which is currently being drill tested. The project is part of an earn-in JV with Canadian company Nortec Minerals, where Avalon can earn up to an 80% interest (see ASX announcement dated 19<sup>th</sup> May 2016). Historical drilling by the Geological Survey of Finland (GTK) identified a high grade lithium pegmatite deposit including diamond drill intersections of up to 18m at 1.8% Li<sub>2</sub>O. Proposed work will deliver a mineral resource estimate and preliminary metallurgical studies by the end of 2016.
2. The Viscaria Copper project in northern Sweden which has a completed Scoping Study and is moving towards PFS and permitting to allow for mine development. The project has a mineral resource estimate of 52.4 Mt at 1.2% Cu, and a Mining Inventory considered for the 2016 Scoping Study Update (see ASX announcement dated 5<sup>th</sup> April 2016) of 18Mt at 1.2% Cu. Considerable exploration upside exists and low technical risk extensional drill targets have been defined to increase the resource estimate.
3. The Satulinmäki and Riukka gold prospects in southern Finland. These prospects have received shallow diamond drilling by GTK and are now the subject of plans for follow-up drilling by Avalon. Intersections include 18m @ 4.1g/t Au from 50m downhole, including 3m @ 9.3g/t Au, and 4m @ 10.3g/t Au in drill hole R391 at Satulinmäki. The Satulinmäki and Riukka gold prospects are included in the earn-in JV with Canadian company Nortec Minerals.
4. A portfolio of early stage lithium exploration projects in Sweden and Finland. These cover areas of documented lithium bearing pegmatite rocks and are being advanced to allow for drill testing in 2017.

**For further information please visit [www.avalonminerals.com.au](http://www.avalonminerals.com.au) or contact:**

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**APPENDIX 1**

*The following Table and Sections are provided to ensure compliance with the JORC Code (2012 Edition)*

**TABLE 1 – Section 1: Sampling Techniques and Data**

Criteria	JORC Code explanation	Commentary
<b>Sampling techniques</b>	<ul style="list-style-type: none"> <li>Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as downhole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.</li> </ul>	<ul style="list-style-type: none"> <li>The results announced here are from historical diamond drill core samples drilled during the period 2001 to 2005 by the Geological Survey of Finland (GTK) and 6 of the 60 holes were subsequently selectively re-logged and re-sampled by Nortec Minerals Corp (see Nortec announcement March 1<sup>st</sup>, 2011). At Satulinmäki 60 drill holes were completed by GTK and Nortec’s check sampling was from 6 drill holes, R329, 330, 334, 340, 385 and 386.</li> </ul>
	<ul style="list-style-type: none"> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> </ul>	<ul style="list-style-type: none"> <li>No reports of core recovery have been sighted.</li> </ul>
	<ul style="list-style-type: none"> <li>Aspects of the determination of mineralisation that are Material to the Public Report. In cases where ‘industry standard’ work has been done this would be relatively simple (e.g. ‘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 (e.g. submarine nodules) may warrant disclosure of detailed information.</li> </ul>	<ul style="list-style-type: none"> <li>Diamond drilling was used to obtain ~1m samples from which 3-5 kg were sent to the laboratory to be pulverised to produce a 250g sample. Then a 50g portion of this sample was used for gold and multi-element analysis.</li> </ul>
<b>Drilling techniques</b>	<ul style="list-style-type: none"> <li>Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. 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).</li> </ul>	<ul style="list-style-type: none"> <li>Diamond drill core.</li> </ul>
<b>Drill sample recovery</b>	<ul style="list-style-type: none"> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> </ul>	<ul style="list-style-type: none"> <li>Diamond core recovery data for this historical drilling has not been sighted.</li> </ul>
	<ul style="list-style-type: none"> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> </ul>	<ul style="list-style-type: none"> <li>Details of geological logs suggest good core recovery.</li> </ul>
	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>No relationship between sample recovery and grade has been established.</li> </ul>

Criteria	JORC Code explanation	Commentary
<b>Logging</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Drill samples were logged for lithology. No further studies were undertaken.</li> </ul>
	<ul style="list-style-type: none"> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.</li> </ul>	<ul style="list-style-type: none"> <li>Drill samples were logged for lithology and hence logging is qualitative. Core was photographed and selected intervals have been viewed.</li> </ul>
	<ul style="list-style-type: none"> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<ul style="list-style-type: none"> <li>All drill holes were logged in full from start to finish of the hole, based on historical reports. Nortec then re-logged selected intervals.</li> </ul>
<b>Sub-sampling techniques and sample preparation</b>	<ul style="list-style-type: none"> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> </ul>	<ul style="list-style-type: none"> <li>Half core was sampled and the remaining core is stored in GTK's core storage facility. The core was logged at GTK's Loppi core archive. After logging the core was cut in half by saw for those holes drilled between 2002 and 2005, and by hand splitter for holes drilled in 2001.</li> </ul>
	<ul style="list-style-type: none"> <li>If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.</li> </ul>	<ul style="list-style-type: none"> <li>Core samples.</li> </ul>
	<ul style="list-style-type: none"> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> </ul>	<ul style="list-style-type: none"> <li>The whole half-core sample was ground by a swing mill at GTK's Kuopio or Rovaniemi laboratories. The analyses were undertaken at GTK's Espoo and Rovaniemi laboratories. Assays by Nortec were submitted to ALS Chemex in Outokumpu for Ore grade Gold by fire assay with an AAS finish (FA-AAS)..</li> </ul>
	<ul style="list-style-type: none"> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> </ul>	<ul style="list-style-type: none"> <li>There is no record of specific QAQC processes during the historical drilling or on the check assays, although assays from both GTK and Nortec were consistent with one another hence providing confidence in the results.</li> </ul>
	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>No record of these procedures.</li> </ul>
	<ul style="list-style-type: none"> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul style="list-style-type: none"> <li>Sample sizes are considered to be appropriate and correctly represent the style and type of mineralisation.</li> </ul>
<b>Quality of assay data and laboratory tests</b>	<ul style="list-style-type: none"> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> </ul>	<ul style="list-style-type: none"> <li>The major method used by GTK was fire assay (plus ICP-AES) from a 50 gram subsample (method code 705P). Gold from the first drill cores (DH 326-DH331) was analysed by GFAAS from aqua regia leach Hg-coprecipitation and using 20g subsamples (method 522U). In addition, ICP-AES analyses by partial leaching (aqua regia digestion, method code 511P) were used for samples from holes D326-D347 and ICP-MS analyses from holes D379-D389.</li> <li>Samples taken by Nortec were submitted to ALS Chemex in Outokumpu for Ore grade Gold by fire assay with an AAS finish (FA-AAS). Best intercepts</li> </ul>

Criteria	JORC Code explanation	Commentary
		were calculated using a cut-off grade of 0.4g/t Gold and a maximum internal waste of 2 metres.
	<ul style="list-style-type: none"> <li>For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</li> </ul>	<ul style="list-style-type: none"> <li>No handheld XRF measurements were taken on this hole.</li> </ul>
	<ul style="list-style-type: none"> <li>Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.</li> </ul>	<ul style="list-style-type: none"> <li>Re-sampling by Nortec confirmed earlier assay results received by the Geological Survey of Finland (GTK).</li> </ul>
<b>Verification of sampling and assaying</b>	<ul style="list-style-type: none"> <li>The verification of significant intersections by either independent or alternative company personnel.</li> </ul>	<ul style="list-style-type: none"> <li>Verification of GTK results by subsequent sampling by Nortec.</li> </ul>
	<ul style="list-style-type: none"> <li>The use of twinned holes.</li> </ul>	<ul style="list-style-type: none"> <li>Twin holes have not been drilled in this area.</li> </ul>
	<ul style="list-style-type: none"> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> </ul>	<ul style="list-style-type: none"> <li>Nortec data and the Finnish Geological Survey (GTK) data have been sighted in reports.</li> </ul>
	<ul style="list-style-type: none"> <li>Discuss any adjustment to assay data.</li> </ul>	<ul style="list-style-type: none"> <li>Assay data were not adjusted.</li> </ul>
<b>Location of data points</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Hole locations are shown on detailed maps from GTK 2006 report Kärkkäinen et. al.</li> </ul>
	<ul style="list-style-type: none"> <li>Specification of the grid system used.</li> </ul>	<ul style="list-style-type: none"> <li>The current projection used for map preparation in Finland is ETRS-TM35FIN, with Datum EUREF89</li> </ul>
	<ul style="list-style-type: none"> <li>Quality and adequacy of topographic control.</li> </ul>	<ul style="list-style-type: none"> <li>No reports of topographic control have been sighted.</li> </ul>
<b>Data spacing and distribution</b>	<ul style="list-style-type: none"> <li>Data spacing for reporting of Exploration Results.</li> </ul>	<ul style="list-style-type: none"> <li>The historical drilling was comprised of 60 drill holes on multiple traverses at approximately 10 and 40m apart.</li> </ul>
	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Sufficient continuity in both geology and mineralisation has been established based on geological mapping and cross-section representation.</li> </ul>
	<ul style="list-style-type: none"> <li>Whether sample compositing has been applied.</li> </ul>	<ul style="list-style-type: none"> <li>No sample compositing was done.</li> </ul>
<b>Orientation of data in relation</b>	<ul style="list-style-type: none"> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> </ul>	<ul style="list-style-type: none"> <li>Drilling orientations were considered appropriate for the interpreted structures controlling mineralisation.</li> </ul>

Criteria	JORC Code explanation	Commentary
<b>to geological structure</b>	<ul style="list-style-type: none"> <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>The company does not believe that any sample bias had been introduced which could have a material effect.</li> </ul>
<b>Sample security</b>	<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>Nortec's sampling procedures indicate individual samples were given due attention.</li> </ul>
<b>Audits or reviews</b>	<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 were completed.</li> </ul>

**TABLE 1 – Section 2: Exploration Results**

Criteria	JORC Code explanation	Commentary
<b>Mineral tenement and land tenure status</b>	<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> </ul>	<ul style="list-style-type: none"> <li>The Satulinmäki gold occurrence is covered by approved exploration claims, under the Finnish Mining Act.</li> </ul>
	<ul style="list-style-type: none"> <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>Exploration claims are valid and are held by Nortec Minerals Corp. Avalon has a joint venture with Nortec to explore the claims.</li> </ul>
<b>Exploration done by other parties</b>	<ul style="list-style-type: none"> <li><i>Acknowledgment and appraisal of exploration by other parties.</i></li> </ul>	<ul style="list-style-type: none"> <li>The historic drilling at Satulinmäki was undertaken by the Finnish Geological Survey in 1985, and was re-logged and re-sampled by Nortec Minerals Corp. in 2010.</li> </ul>
<b>Geology</b>	<ul style="list-style-type: none"> <li><i>Deposit type, geological setting and style of mineralisation.</i></li> </ul>	<ul style="list-style-type: none"> <li>The Satulinmäki gold occurrence is interpreted to be an orogenic gold system hosted by a series of quartz veins.</li> </ul>

Criteria	JORC Code explanation	Commentary
<b>Drill hole Information</b>	<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 Material drill holes:               <ol style="list-style-type: none"> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>Details of the drill holes discussed in this announcement are referenced to Nortec Minerals Corp reports at <a href="http://www.nortecminerals.com/index.php">http://www.nortecminerals.com/index.php</a>.</li> <li>60 drill holes were completed by GTK on multiple traverses. Holes were drilled at mainly -45 degree angles. The deepest hole was to 139.2m EOH at -60 degrees which tested to ~100m below surface.</li> </ul>
	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Information included above.</li> </ul>
<b>Data aggregation methods</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>The Weighted Averaging method is used to calculate drill hole intersections for the gold grade based on the assay results received, and the down hole width of the assayed interval.</li> </ul>
	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Weighted averaging method used.</li> </ul>
	<ul style="list-style-type: none"> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	<ul style="list-style-type: none"> <li>Metal Equivalents have not been applied.</li> </ul>
<b>Relationship between mineralisation widths and intercept lengths</b>	<ul style="list-style-type: none"> <li>If the geometry of the mineralisation with respect to the drill-hole angle is known, its nature should be reported.</li> </ul>	<ul style="list-style-type: none"> <li>The orientations of the mineralised horizons is interpreted to be sub-vertical based on geological mapping and cross-sectional interpretation.</li> </ul>
	<ul style="list-style-type: none"> <li>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').</li> </ul>	<ul style="list-style-type: none"> <li>See above – estimated true widths are approximately 60% of intersected widths based on cross section construction.</li> </ul>
<b>Diagrams</b>	<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>Reporting of historical holes only. No significant discovery reported here.</li> </ul>

Criteria	JORC Code explanation	Commentary
<b>Balanced reporting</b>	<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>Historical results only and this is stated in the text</li> </ul>
<b>Other substantive exploration data</b>	<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>No other significant geological data has been reviewed at this stage.</li> </ul>
<b>Further work</b>	<ul style="list-style-type: none"> <li>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> </ul>	<ul style="list-style-type: none"> <li>Comprehensive data compilation is ongoing. The GTK have extensive open file data available. Field work is ongoing during 2016, with follow-up drilling expected in Q4 2016.</li> </ul>
	<ul style="list-style-type: none"> <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>Additional exploration reservation areas have been applied for which cover the interpreted extensions of the prospective domains.</li> </ul>