ASX Announcement

Nowthanna Hill Mineral Resource Estimate for Vanadium and Uranium

AVL updates Uranium Vanadium resource to comply with JORC and facilitate project sale

Highlights:

- The Nowthanna Hill Mineral Resource estimate has been updated to comply with JORC Code 2012 guidelines.
- SRK Consulting (Australasia) Pty Ltd ("SRK") completed the new mineral resource estimate for **uranium (U_3O_8)** and **vanadium (V_2O_5)** on AVL tenements M51/771 and E51/1899.
- The estimate was completed using all data on AVL's tenements as well as the adjacent and surrounding data from the latest Toro Energy ("Toro") 2011 resource (with permission). There has been no material change to the Toro database since the 2011 resource estimation.
- **Vanadium** and **Uranium** are co-mineralised at Nowthanna Hill
- Using a 250 ppm V_2O_5 cutoff the project has an Inferred Mineral Resource of **3.60 million tonnes at 337ppm V_2O_5 (2Mlbs)** on the AVL tenements and is not additive to the uranium mineral resource estimate (see Table 1).
- Using a 200ppm U_3O_8 cutoff the project has an Inferred Mineral Resource of **4.73 million tonnes at 404ppm U_3O_8 (4.2Mlbs)** on the AVL tenements and is not additive to the vanadium mineral resource estimate (see Table 2).
- Nowthanna Hill project is **available for sale or joint venture**. The Project is located on granted mining lease M51/771 with executed native title agreement.

Australian Vanadium Limited (ASX: AVL, "the Company" or AVL") is pleased to announce the completion of an updated Mineral Resource Estimate to JORC Code 2012 estimation standards for the Nowthanna Hill uranium deposit near Meekatharra.

AVL's flagship Australian Vanadium Project is situated nearby and a Pre-Feasibility Study (PFS) was announced to the ASX on 19th December 2018 (ASX:AVL "Gabanintha Pre-Feasibility Study and Maiden Ore Reserve").

31st May 2019

ASX ANNOUNCEMENT

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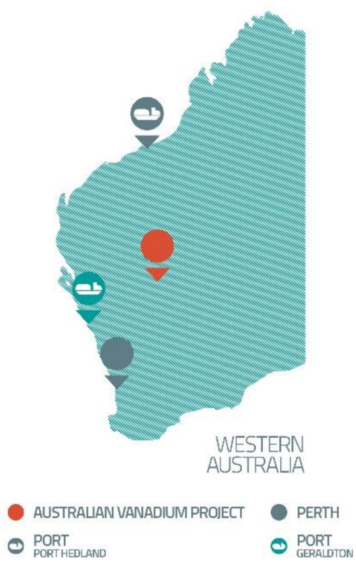
Projects:

The Australian Vanadium Project – Vanadium
Blesberg, South Africa – Feldspar
Nowthanna Hill – Uranium/Vanadium
Coates – Vanadium



Nowthanna Hill contains both uranium and vanadium on tenements M51/771 and E51/1899 which are south and southeast of the Company's vanadium-titanium-iron mineral resource. The Nowthanna Hill resource is contiguous with Toro Energy's Nowthanna Uranium Deposit as shown in Figure 1.

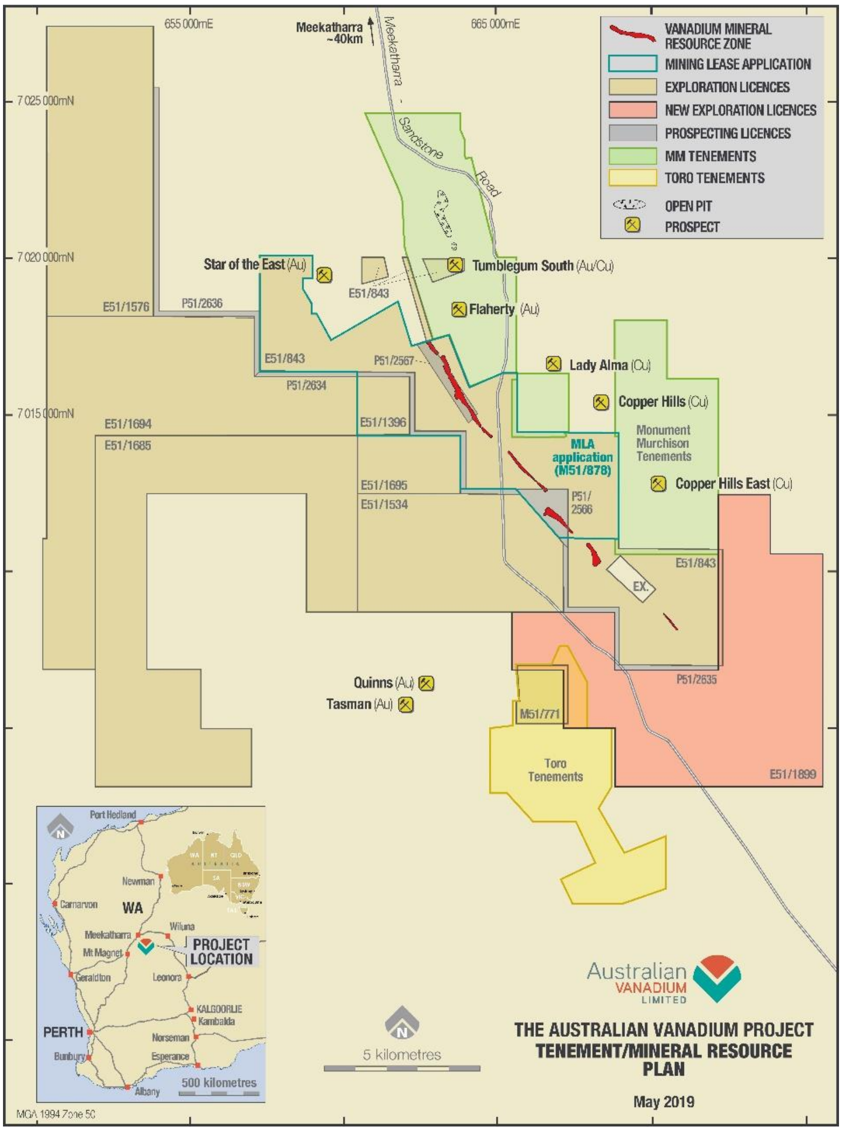


Figure 1 AVL's Australian Vanadium Project and Nowthanna Hill Project Tenements

Managing Director Vincent Algar comments: "The completion of this resource estimate allows the Company to consider the future value of the granted Nowthanna mining licence. The current moratorium on new uranium mine approvals in the state restricts the actions that can be taken by AVL, but may prove valuable in future for consolidation of calcrete resources in the region. Uranium and vanadium can be extracted from processing the mineral carnotite (a uranium, potassium vanadate). New technologies for the treatment of similar resources, such as those being developed by Marenica Energy Limited, may greatly assist in the economics of future extraction.

The Company will be preparing an Information Memorandum for companies interested in the granted uranium mining lease and native title agreement at Nowthanna."

Database

The Nowthanna Hill resource estimate was completed by SRK Consulting using a database containing all historical data on AVL's tenements as well as the adjacent and surrounding data from the latest Toro Energy 2011 resource estimate, with Toro's permission. Toro has reported a Mineral Resource at Nowthanna of 13.5Mt at 399ppm U_3O_8 at a 200ppm cutoff which equates to 11.9Mlbs of uranium, (source: Toro Energy website). The resource estimation and mineral resource statement is confined to the two AVL tenements M51/771 and E51/1899 and excludes the Toro Nowthanna and Nowthanna South deposits, although all historical and Toro data were used in the estimation. See Figure 2 for location of drill collars.

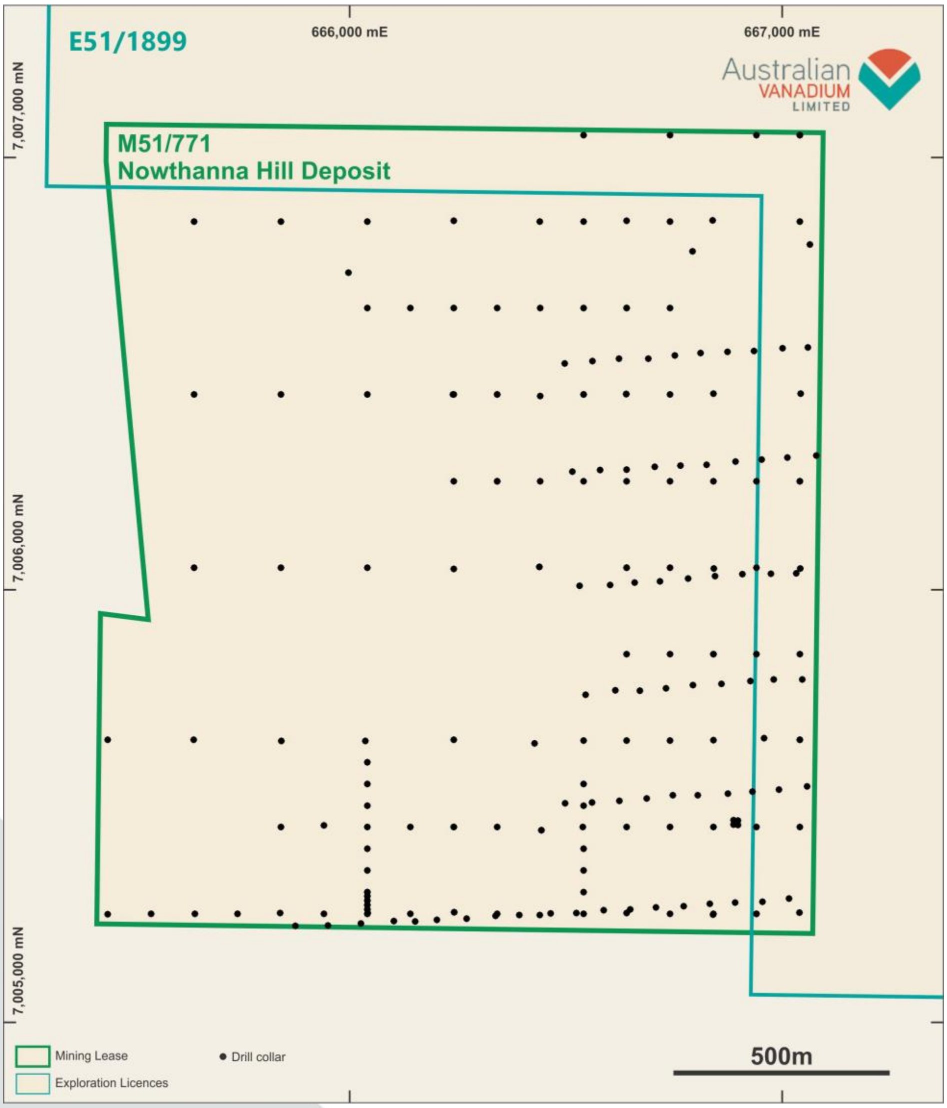


Figure 2 Drill collars on M51/771 and E51/1899 Nowthanna uranium deposit

The collar table contains 1412 drill holes comprising 601 holes with radiometric results only, 547 holes with chemical results only and 106 with both radiometric and chemical results.

Resource Classification

Where both radiometric and chemical results were available, the radiometric results were given priority for grade determination. The reason for this is the greater definition and smaller intervals represented by the radiometric readings compared to an assay sample interval of 1.0m or 1.5m. The difference in volumes between the two sets of samples is a risk factor, but SRK used the combined data sets in the absence of total coverage of chemical data and supported by the consistent geology and sampling practices.

The Mineral Resources have therefore been classified as Inferred Mineral Resources.

Resource Estimations

Vanadium

Vanadium estimation was modelled using Ordinary Kriging (OK) at 50m (X axis) x 100m (Y axis) and 0.5m (Z axis) based on statistical variogram data.

SRK's preferred cutoff for reporting purposes of 250ppm V_2O_5 provides an Inferred Mineral Resource of 3.60 million tonnes at 337ppm V_2O_5 on the AVL tenements.

Table 1 V_2O_5 Inferred Mineral Resource by OK at Nowthanna (globally within AVL tenure)

V_2O_5 cut-off (ppm)	Metal (V_2O_5 t)	Tonnes (Mt)	V_2O_5 Grade (ppm)
0	2,671.9	10.63	251
50	2,671.9	10.63	251
100	2,671.2	10.63	251
150	2,624.1	10.28	255
200	2,285.5	8.42	272
250	**1,212.4**	**3.60**	**337**
300	870.4	2.33	373

Note: The tonnages for the vanadium and uranium mineral resources are not additive in nature and are required to be reported separately

Uranium

Uranium was estimated using Uniform Conditioning modelled on selective mining units at 10m (X axis) x 10m (Y axis) x 0.5m (Z axis).

SRK's preferred cutoff for reporting purposes of 200ppm U_3O_8 provides an Inferred Mineral Resource of 4.73 million tonnes at 404ppm U_3O_8 on the AVL tenements.

Table 2 U_3O_8 Inferred Mineral Resources by cutoff at Nowthanna Hill (globally within AVL tenure)

U_3O_8 cut-off (ppm)	Metal (U_3O_8 t)	Metal (U_3O_8 klb)	Tonnes (Mt)	U_3O_8 Grade (ppm)
0	2559.4	5642.4	10.63	241
50	2533.1	5584.6	9.82	258
100	2399.0	5288.9	8.06	297
150	2169.3	4782.4	6.22	349
200	**1910.0**	**4210.8**	**4.73**	**404**
250	1654.2	3646.9	3.58	462
300	1418.0	3126.2	2.72	521
350	1208.7	2664.7	2.07	583
400	1028.9	2268.3	1.59	646
450	878.2	1936.1	1.24	710
500	753.4	1660.9	0.97	773

Note: The tonnages for the vanadium and uranium mineral resources are not additive in nature and are required to be reported separately.

Summary of Resource Estimate and Reporting Criteria

As per ASX Listing Rule 5.8 and the 2012 JORC reporting guidelines, a summary of material information used to estimate the Mineral Resource is detailed below (for more detail please refer to Table 1, Section 1 to 3 included in Appendix 1).

Geological Interpretation

The Nowthanna Hill uranium-vanadium deposit is located 50km south of Meekatharra in Western Australia and is hosted within calcrete and clay deposits, formed within the inland drainage as a result of the weathering of granites containing high background radiation.

The deposit is similar to the Cogla Downs and Yeelirie uranium deposits of the Murchison and Northern Goldfields. These uranium deposits consist of interbedded lacustrine clays and sands, with calcrete horizons that contain the minerals carnotite and autunite. Carnotite is a uranium-bearing potassium vanadate and autunite is a uranium-bearing calcium-phosphate. At Nowthanna Hill the mineralization is hosted by carnotite and the sequence varies in thickness, but is generally less than 3m thick and within 15m of the surface. Uranium and vanadium mineralisation occur over an extensive surface area within paleo-channels of the Quinn's Lake drainage.

The flat to gently dipping deposit shows strong layering visible in drilling and over long distances between drill holes. The total radiometric and uranium count images show the trace of higher grade uranium areas within the surface channels and some paleo-channels. However, much of the deposit mineralisation is only apparent from chemical data and down-hole radiometric logs within drill holes.

All the drill holes used in the resource estimation were drilled vertically and there is a strong correlation between down-hole width and true thickness, since the intersection angle of the holes with the deposit is close to 90 degrees.

Geological and Grade Continuity

The geological model built by SRK relies on grade contouring using Leapfrog™ software and is applicable to calcrete mineralisation which is ubiquitous across the Nowthanna area.

The grade continuity, reflecting mostly the radiometric values, is generally good. The technique used for estimating U_3O_8 is Uniform Conditioning, based on Ordinary Kriging of 50m × 100m × 0.5m panels and a 10m × 10m × 0.5m Selective Mining Unit ("SMU"). This is a robust estimation method that is well suited to a selective mining approach.

The Uniform Conditioning did not consider the information effect for this study, but this should be accounted for in the Mining studies, as part of the dilution introduced by grade control.

Vanadium is under-represented compared to uranium and is of low grade. No separate modelling of the vanadium mineralisation was performed at this stage and the estimation was limited to the mineralised envelope defined for uranium. Ordinary Kriging of the 50 m × 100 m × 0.5 m panels was used as the data density does not allow for an estimation of recoverable resources to be carried out. Due to concerns regarding the quality of the data, the uranium Mineral Resources have been classified as Inferred in accordance with the JORC Code (2012 Edition) guidelines. The global Inferred Mineral Resources at a 200ppm cut-off are 4.73Mt at 404ppm U_3O_8 for a U_3O_8 metal content of 4.2Mlb.

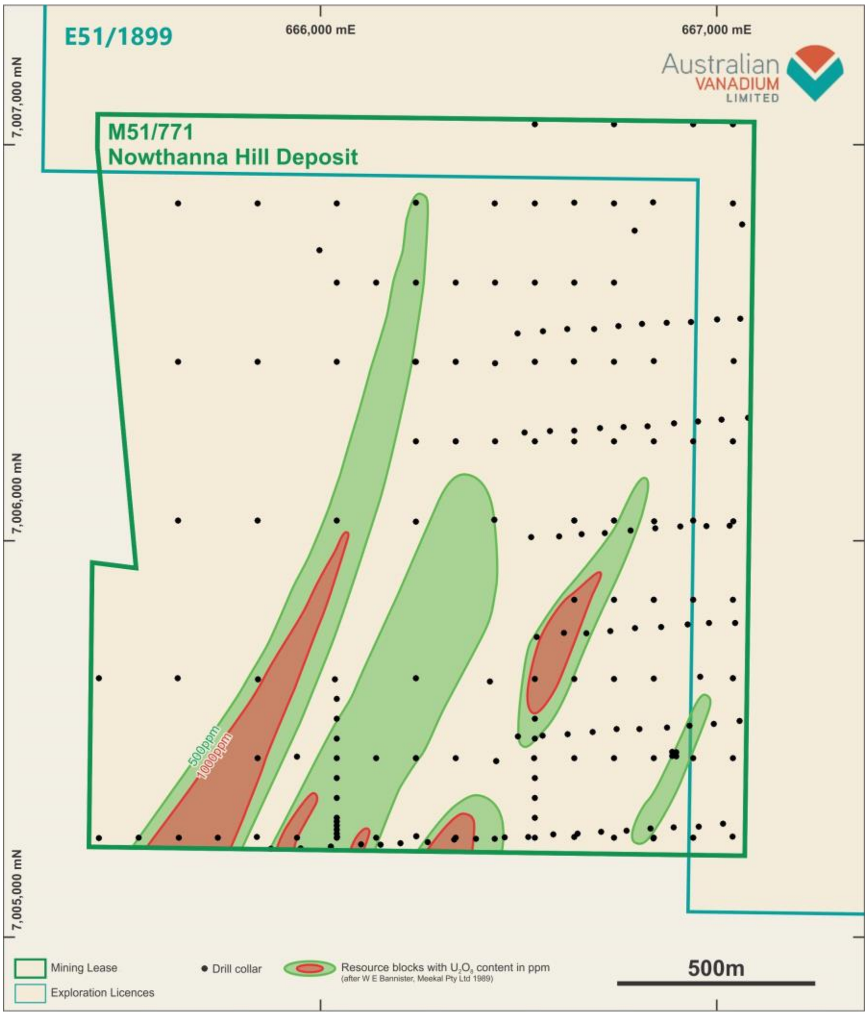


Figure 3 Contour Map of U_3O_8 grade mineralisation within M51/771

Drilling Techniques and Drill Hole Spacing

Aircore (AC), rotary air blast (RAB), reverse circulation (RC) and auger drilling techniques were used at the Nowthanna deposit. Western Mining Corporation (WMC) undertook RAB & RC drilling from 1970 to 1987. Dominion Mining Ltd undertook RAB drilling in 1990-1991. Acclaim Uranium NL undertook RAB & AC drilling in 1997-1998. Impact Minerals Ltd undertook AC drilling in 2006-2007.

The data spacing and distribution (drilling grids, on average, are 100m × 200m, with some infill down to 50m) is considered appropriate for the Mineral Resource estimation procedures and classification of the Nowthanna Mineral Resource.

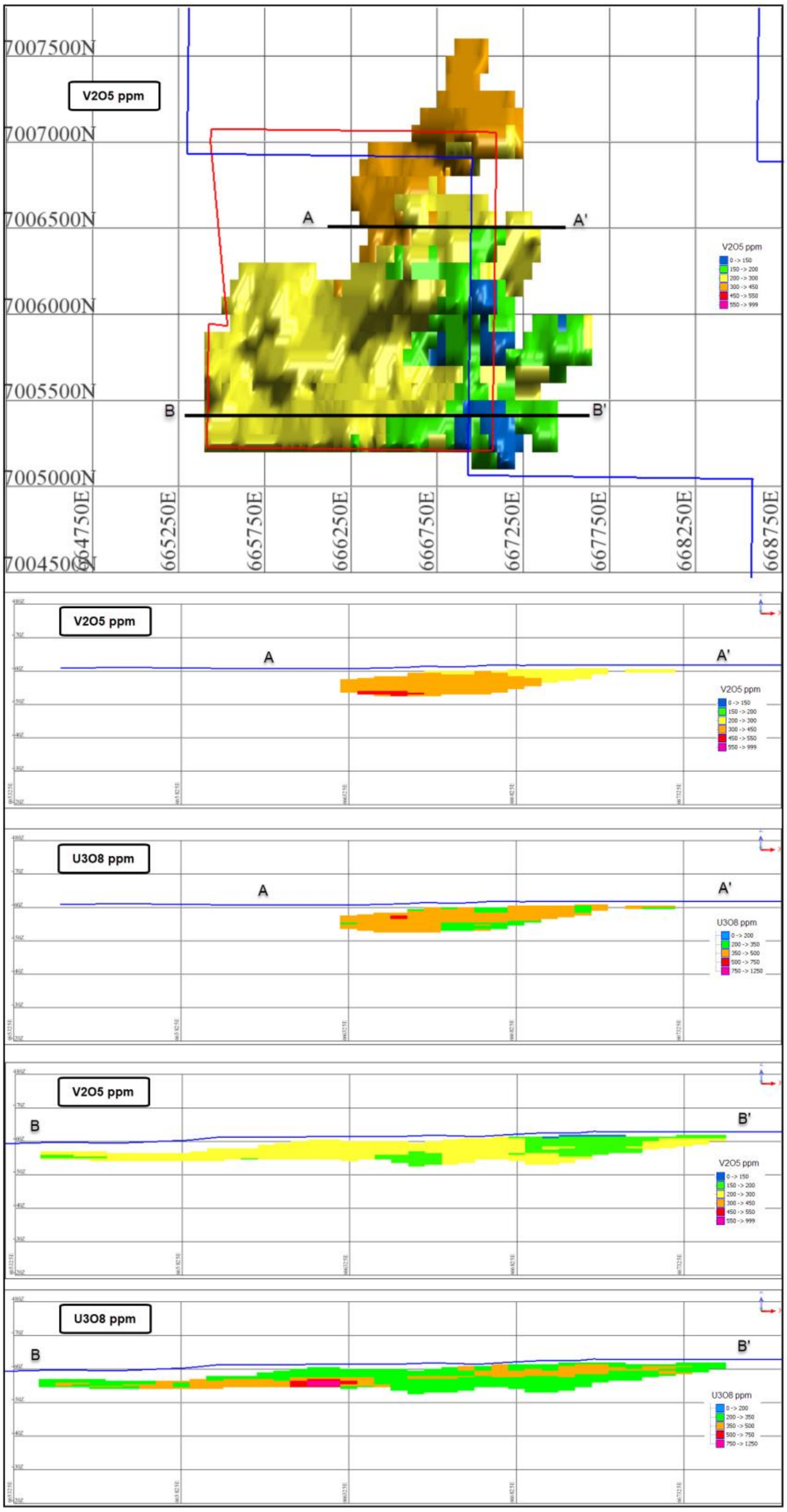


Figure 4 Plan and Sections Through the Nowthanna Hill Deposit Uranium and Vanadium Block Model

There is 10x vertical exaggeration on the sections. U_3O_8 values are from the field smu10_m_200 that is a Leapfrog contour of values greater than 200 ppm, on which SRK quotes the U_3O_8 resource from the 2011 estimation

Figure 5 Operational Drill Rig at the Nowthanna Hill Deposit

Sampling and Sub-Sampling Techniques

- U_3O_8 values are calculated from U values derived from geochemistry and downhole gamma radiation measurements.
- Gamma-derived equivalent U_3O_8 – Dominion Mining used a Scintrex GAD-6 gamma ray spectrometer probe with samples taken at 0.2m intervals.
- Acclaim used a 33mm Auslog natural gamma probe (S691), to measure downhole gamma radiation. Measurements are made every 2cm with a logging speed of approximately 2m per minute.
- Impact Minerals Ltd used a slim line gamma tool with readings taken every 2cm downhole.

Within the mineralised envelope, there are 559 drillholes; 367 have radiometric data only, 115 have chemical data only and 77 have both radiometric and chemical data.

- Prior to the drilling program, all gamma probes were calibrated at the Adelaide Calibration Model pits in Adelaide, South Australia. Probing is done as close as practicable after drilling.
- Gamma measurements are converted to equivalent U_3O_8 values (eU_3O_8) by an algorithm that accounts for the probe and crystal used, density, hole diameter, groundwater (where applicable) and PVC pipe thickness.
- Downhole gamma data are also de-convoluted to more accurately reflect what would be expected in nature for downhole response (gamma curves).
- All gamma data are compared with geochemistry data both via downhole comparison and overall population bivariate analysis and distribution analysis to check for potential error or disequilibrium. To adequately compare with geochemistry, gamma probe data are composited

into 0.5m composites at the same intervals represented by the corresponding geochemical samples.

- Geochemical samples taken are from 0.3m to 9.1m, with the average length being 1–1.5m.
- Acclaim Minerals submitted samples to Ultratrace (Perth) for mixed acid digest with ICP-OES for Al and K, and ICP-MS for Th and U analysis.
- Impact Minerals submitted samples to ALS Chemex for U and V analysis.

Sample Analysis Method

Geochemical samples have previously been analysed with XRF and ICP mass spectrometry. Existing QA/QC data reported included 12 field duplicates, 68 laboratory standards and 39 laboratory repeats for the "QL" drill hole series.

Although the laboratories changed over time for different drilling programmes, the laboratory procedures all appear to be in line with industry standards and appropriate for surficial uranium/vanadium deposits, and the commercial laboratories have been industry recognised and certified.

Samples are dried at 105°C in gas fired ovens for 18-24 hours before RC samples being split 50:50. One portion is retained for future testing, while the other is then crushed and pulverised. Sub-samples are collected to produce a 66g sample that is used to produce a fused bead for XRF based analysing and reporting.

Cut-Off Grades

The grade-tonnage curve shows the sensitivity of the resources to the cut-off grade.

A 200 ppm U_3O_8 cut-off may represent the most likely cut-off compared to similar deposits, but the choice will depend on economic assumptions to be determined by a mining study.

A 250 ppm V_2O_5 cut-off grade is used for the reporting of the vanadium mineral resource, with the tonnage not being additive to the uranium mineral resource estimate.

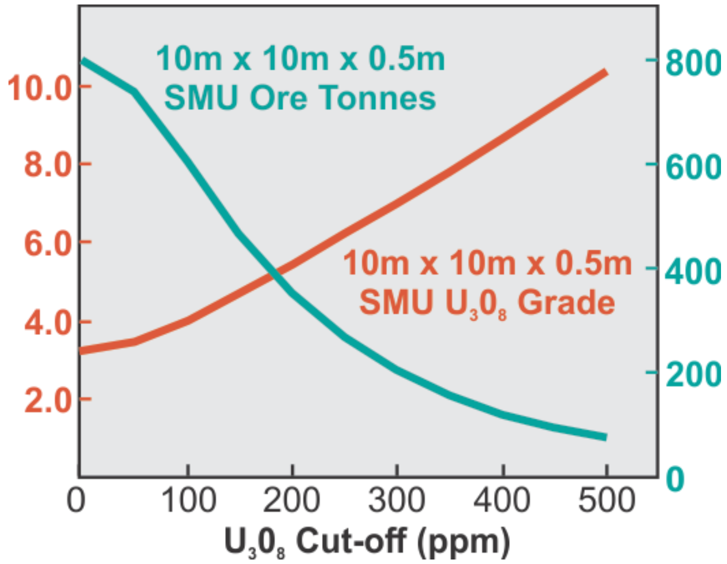


Figure 6 U_3O_8 Grade tonnage curve for Nowthanna Hill Inferred Resource

Estimation Methodology

Vanadium estimation was modelled using Ordinary Kriging (OK) at 50m (X axis) x 100m (Y axis) and 0.5m (Z axis) based on statistical variogram data.

Uranium was estimated using Uniform Conditioning modelled on selective mining units at 10m (X axis) x 10m (Y axis) x 0.5m (Z axis)

A 2,000 ppm U_3O_8 top-cut was used for the uranium Mineral Resource and a top-cut of 1,000 ppm V_2O_5 was utilised for the vanadium Mineral Resource.

Variography is based on Gaussian transformed values of the grade, and back-transformation.

Ordinary Kriging of 50 × 100 × 0.5m panels using the following Kriging neighbourhood parameters:

- Ellipsoid radii 500 × 500 × 1.7 m
- Minimum 8 composites (5 composites for Vanadium)
- Maximum 32 composites
- 8 sectors.

A larger (1,000 × 1,000 × 3.4 m) ellipsoid was used to estimate panels not estimated in the first run.

Validation of the Kriging results by comparison with the composites and swath plots.

Uniform conditioning with 10 × 10 × 0.5 m SMU reflects a more realistic selectivity level.

V_2O_5 was estimated on the same 50 × 100 × 0.5m panels using Ordinary Kriging classification criteria.

The uranium and vanadium estimate is classified according to the guidelines of the 2012 JORC Code as Inferred Mineral Resource. The classification has taken into account the relative confidence in tonnage and grade estimations, the reliability of the input data, the Competent Person's confidence in the continuity of geology and grade values and the quality, quantity and distribution of the drill hole and supporting input data.

The amount of QA/QC data available is insufficient for classification of higher resource categories. This will require further validation, including twinning of historical drill holes.

Mining and Metallurgical Assumptions

The only assumption made is the size of the SMU (10 × 10 × 0.5m) for modelling the data. No mining or optimisation studies have been completed at this stage and no assumptions were made in the estimation. This resource estimation did not consider any metallurgical or recovery assumptions due to the lack of data available.

Potential Recovery of Economically Important Minerals

Historical Uranium test work was completed in 1999 by Oretest for Acclaim Uranium NL on two 10kg composite samples from drilling. One sample represented clay ore and the other calcrete ore. Alkaline leach tests identified 93% recovery of uranium from the calcrete sample and 84% recovery from the clay sample (reference WAMEX report A58248). Further metallurgical tests are required to fully assess the optimal uranium processing route.

Assay results from historical drilling were mainly uranium and vanadium and therefore in sufficient quantity to substantiate a resource. No work has yet been completed on the assessment of other minerals that may be present in the deposit. A few samples taken by Acclaim Uranium NL in 1998 indicate that sulphur and molybdenum may be present, and some Acclaim mineralogy microscope work identified gold grains. It is considered that there is potential for other minerals to be present, however, at this stage it is unknown whether any of these are economically recoverable.

The Company is considering the application of the Marenica Energy Uranium U-pgrade™ process to the mineralisation at Nowthanna as having potential to improve the recovery of economically important minerals. The process has the objective of generating a high recovery of vanadium and uranium host minerals (Carnotite) into a low mass, high grade concentrate. Successful test work has been reported using the process by Deep Yellow Limited (ASX:DYL Announcement, 20th May 2016), Paladin Energy at Langer Heinrich (ASX:MEY 26th April 2018 by Marenica Energy), and Toro Energy (ASX:TOE Quarterly Activities Report 30th June 2015). Toro controls the balance of the mineralisation at Nowthanna Hill.

The U-pgrade™ process uses a proprietary combination of standard mineral processing technologies, including screening, scrubbing and gravity in a two-stage concentration circuit. The application of the new process has the potential to reduce capital and operating costs in any future project development.

For further information, please contact:

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About Australian Vanadium

AVL is a resource company focused on vanadium, seeking to offer investors a unique exposure to all aspects of the vanadium value chain – from resource through to steel and energy storage opportunities.

AVL is advancing the development of its world-class Australian Vanadium Project. The Australian Vanadium Project is currently one of the highest-grade vanadium projects being advanced globally with 183.6Mt at 0.76% vanadium pentoxide (V_2O_5), containing a high-grade zone of 96.7Mt at 1% V_2O_5 with an Ore Reserve of 9.82Mt at 1.07% V_2O_5 Proved and 8.42Mt at 1.01% V_2O_5 Probable Resource, reported in compliance with the JORC Code 2012 (see ASX announcement dated 19 December 2018 'Gabanintha Pre-Feasibility Study and Maiden Ore Reserve').

AVL has developed a local production capacity for high-purity vanadium electrolyte, which forms a key component of vanadium redox flow batteries (VRFB).

AVL, through its 100%-owned subsidiary VSUN Energy Pty Ltd, is actively marketing VRFB in Australia.

Competent Person Statement

The Mineral Resource estimation results in this report are based on information compiled by Mr Vincent Algar and reviewed by Messrs Alex Aitken, David Slater and Daniel Guibal. Mr Vincent Algar is a member of the Australasian Institute of Mining and Metallurgy (AusIMM) and a full-time employee of Australian Vanadium Ltd. The data was reviewed by Mr Alex Aitken, who is a Member of the AIG and a full-time employee of SRK Consulting (Australasia) Pty Ltd. The Mineral Resource estimation was completed by Mr Daniel Guibal, who is a Fellow of the AusIMM and an Associate Corporate Consultant of SRK Consulting (Australasia) Pty Ltd. The estimation was peer reviewed by Mr David Slater, who is a member of the AusIMM and a full-time employee of SRK Consulting (Australasia) Pty Ltd.

Mr Daniel Guibal has sufficient experience which is relevant to the style of the mineralisation and type of deposit under consideration, and to the activity being undertaken, to qualify as Competent Person (Mineral Resource estimation) as defined in the 2012 Edition of the JORC Code.

Appendix 1

JORC Code, 2012 Edition – Table 1

Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	• 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. • Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. • 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.	• U_3O_8 values are calculated from U values derived from geochemistry and downhole gamma radiation measurements. • Gamma-derived eU_3O_8 – Dominion Mining used a Scintrex GAD-6 gamma ray spectrometer probe with samples taken at 0.2 m intervals. • Acclaim used a 33 mm Auslog natural gamma probe (S691), to measure downhole gamma radiation. Measurements are made every 2 cm with a logging speed of approximately 2 m per minute. • Impact Minerals Ltd used a slimline gamma tool with readings taken every 2 cm downhole. • In the Toro-reviewed database used by SRK, out of 1,412 drillholes, 601 have radiometric data only, 547 have chemical results only and 106 have both radiometric and geochemical data. • Within the mineralised envelope, there are 559 drillholes; 367 have radiometric data only, 115 have chemical data only and 77 have both radiometric and chemical data. • Prior to the drilling program, all gamma probes were calibrated at the Adelaide Calibration Model pits in Adelaide, South Australia. • Probing is done as close as practicable after drilling. • Gamma measurements are converted to equivalent U_3O_8 values (eU_3O_8) by an algorithm that accounts for the probe and crystal used, density, hole diameter, groundwater (where applicable) and PVC pipe thickness. • Downhole gamma date are also de-convoluted to more accurately reflect what would be expected in nature for downhole response (gamma curves). • All gamma data are compared with geochemistry data both via downhole comparison and overall populations' bivariate analysis and distribution analysis to check for potential error or disequilibrium. To adequately compare with geochemistry, gamma probe data are composited into 0.5 m composites at the same intervals represented by the corresponding geochemical samples.

Drilling techniques	• Drill type (e.g. 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.).	• Aircore (AC), rotary air blast (RAB), reverse circulation (RC) and auger drilling techniques were used at the Nowthanna deposit.

Criteria	JORC Code explanation	Commentary
		• Western Mining Corporation (WMC) undertook RAB & RC drilling from 1970 to 1987. • Dominion Mining Ltd undertook RAB drilling in 1990-1991. • Acclaim Uranium NL undertook RAB & AC drilling in 1997-1998. • Impact Minerals Ltd undertook AC drilling in 2006-2007.
Drill sample recovery	• Method of recording and assessing core and chip sample recoveries and results assessed. • Measures taken to maximise sample recovery and ensure representative nature of the samples. • 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.	• Historical drill sample recovery data has not been reviewed as part of this resource update.
Logging	• 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. • Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography. • The total length and percentage of the relevant intersections logged.	• Geology is not used in the resource estimation process. The reason for this is the mineralisation has been found to correlated more closely to groundwater and depth from surface than to any geological unit.

Sub-sampling techniques and sample preparation	• 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, including for instance results for field duplicate/second-half sampling. • Whether sample sizes are appropriate to the grain size of the material being sampled.	• Geochemical samples taken are from 0.3 m to 9.1 m, with the average length being 1–1.5 m. • Acclaim Minerals submitted samples to Ultratrace (Perth) for mixed acid digest with ICP-OES for Al and K, and ICP-MS for Th and U analysis. • Impact Minerals submitted samples to ALS Chemex for U and V analysis.

Criteria	JORC Code explanation	Commentary
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. • 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. • 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.	• Geochemical samples have previously been analysed with XRF and ICP mass spectrometry. • Existing QA/QC data reported and analysed by Optiro in its February 2010 report included 12 field duplicates, 68 laboratory standards and 39 laboratory repeats for the “QL” hole series. • The amount of QA/QC data available is insufficient for classification of higher resource categories. This will require further validation, including twinning of historical drill holes.

Verification of sampling and assaying	• The verification of significant intersections by either independent or alternative company personnel. • The use of twinned holes. • Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. • Discuss any adjustment to assay data.	• No validation of samples has been undertaken for this study. Prior validation was done by Toro and SRK in 2011, and there is no new data since 2011.
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. • Specification of the grid system used. • Quality and adequacy of topographic control.	• Drill hole collar location completed by handheld GPS. • Coordinates system used is MGA94 Zone 50.
Data spacing and distribution	• Data spacing for reporting of Exploration Results. • 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. • Whether sample compositing has been applied.	• The data spacing and distribution (drilling grids, on average, are 100 m × 200 m), with some infilling down to 50 m is considered appropriate for the Mineral Resource estimation procedures and classification of the Nowthanna Mineral Resource. • Radiometric samples composited to 0.5 m
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 sampling bias, this should be assessed and reported if material.	• Sampling is non-subjective downhole sampling from surface at 2 cm intervals for gamma probe data or 0.3.–1.5 m for the geochemical samples. • No bias suspected; mineralisation is horizontal, and drilling is vertical, cutting mineralisation approximately at right angles.

Criteria	JORC Code explanation	Commentary
Sample security	• The measures taken to ensure sample security.	• No historical data on sample security are available.
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	• A database review was carried out by Optiro Pty Ltd for Impact Minerals Ltd in 2010. • The review indicated the data is adequate for an 'Inferred MRE' and further QAQC is required to be completed, including the use of standards, field blanks and field duplicates. A program of RC drilling to twin historical data was proposed.

Section 2 Reporting of Exploration Results

(Criteria listed in section 1 also apply to this section.)

Criteria	JORC Code explanation	Commentary
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. • 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.	• Australian Vanadium Ltd's tenure associated with the Nowthanna deposit are ML51/771 and E51/1899. • ML51/771 is a granted tenement held by Australian Vanadium Ltd. • E51/1899 is a granted tenement held by Australian Vanadium Ltd.
Exploration done by other parties	• Acknowledgment and appraisal of exploration by other parties.	• Exploration at Nowthanna has been completed by Western Mining Corporation, Meekal Pty, Ltd, Dominion Mining Limited, Acclaim Uranium Ltd, Impact Minerals NL and Toro Energy Ltd.
Geology	• Deposit type, geological setting and style of mineralisation.	• Nowthanna is a calcrete uranium deposit with mineralisation occurring as carnotite within silicified layers and carbonate-rich sandy clays.

Criteria	JORC Code explanation	Commentary
Drill hole Information	• A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drillholes: • easting and northing of the drillhole collar • elevation or RL (Reduced Level – elevation above sea level in metres) of the drillhole collar • dip and azimuth of the hole • downhole length and interception depth • hole length. • 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.	• Drill hole data are stored in a Microsoft Access database, with tables including collar, assay, geology, radiometric/ gamma logs. • All drill holes are vertical. • There are 1,412 drill holes in the Nowthanna database. Within the global mineralisation model, 559 holes remain.

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.	• No Exploration Results have been reported.
Relationship between mineralisation widths and intercept lengths	• These relationships are particularly important in the reporting of Exploration Results. • If the geometry of the mineralisation with respect to the drillhole angle is known, its nature should be reported. • If it is not known and only the downhole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	• No Exploration Results have been reported.
Diagrams	• 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 drillhole collar locations and appropriate sectional views.	• See body of report for plans.

Criteria	JORC Code explanation	Commentary
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 practiced to avoid misleading reporting of Exploration Results.	• No Exploration Results have been 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.	• No Exploration Results have been reported.

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). • Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	• No further extensional drilling is currently planned.

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	• Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes. • Data validation procedures used.	• SRK completed a random check on the samples used in the composite data and raw data provided by Australian Vanadium Ltd. • Data validation cross-check of U ppm conversion to U_3O_8 ppm was completed on ~19 drill holes. No issues were found in the conversion of U to U_3O_8 in the geochemical samples
Site visits	• Comment on any site visits undertaken by the Competent Person and the outcome of those visits. • If no site visits have been undertaken indicate why this is the case.	• SRK has not conducted a site visit as this resource update is based on historical information with limited data available at site. • A site visit is not seen as material to this resource update.
Geological interpretation	• Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit. • Nature of the data used and of any assumptions made. • The effect, if any, of alternative interpretations on Mineral Resource estimation. • The use of geology in guiding and controlling Mineral Resource estimation. • The factors affecting continuity both of grade and geology.	• Mineralisation is independent of the logged geological intervals from drilling. The mineralised zones were modelled using Leapfrog™ software with an 80 ppm U_3O_8 threshold. The U mineralisation models were also used for the V estimate. • For each drill hole, the highest and lowest occurrences of ≥80 ppm samples were identified, and these points were exported as two .csv files to Leapfrog™ for modelling the upper and lower bounding surfaces of the sub-horizontal mineralised layer. The x, y, and z points in the .csv files were converted to hanging wall and footwall wireframes using the "Combined Interpolants" and "Vein Modelling" functions in Leapfrog™. The "Offset to Points" option was chosen during building these surfaces to ensure the triangulations snapped to the sample boundaries. • A 2D points file, based on the maximum U_3O_8 grade in each hole, was also imported into Leapfrog™. This file contained an indicator variable: 1 if the maximum was ≥80 ppm U_3O_8, and 0 otherwise. In Leapfrog™, a z-dimension was added by draping the points on to a surface midway between the hanging wall and footwall surfaces. • In Leapfrog™, the indicators were contoured at a 0.5 probability threshold, to create a lateral constraint on the mineralisation envelope. • The lateral constraint was intersected with the hanging wall and footwall surfaces to produce the overall constraining envelope.
Dimensions	• The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	• Total extension is about 3 km × 6 km and is very close to surface. The thickness varies from 0.5 m to 9 m, with an average of 3 m.

Criteria	JORC Code explanation	Commentary
Estimation and modelling techniques	• The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen, include a description of computer software and parameters used. • The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data. • The assumptions made regarding recovery of by-products. • Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation). • In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed. • Any assumptions behind modelling of selective mining units. • Any assumptions about correlation between variables. • Description of how the geological interpretation was used to control the resource estimates. • Discussion of basis for using or not using grade cutting or capping. • The process of validation, the checking process used, the comparison of model data to drillhole data, and use of reconciliation data if available.	• Details of the estimation technique are given in the main body of the report and are considered appropriate for the mineralisation style seen. • Statistical analysis of 0.5 m composites in the mineralisation model was undertaken. A 2,000 ppm U3O8 top-cut was used. A top cut of 1000 ppm V2O5 was used • Variography based on Gaussian transformed values of the grade, and back-transformation. • Ordinary Kriging of 50 × 100 × 0.5 m panels using the following Kriging neighbourhood parameters: – ellipsoid radii 500 × 500 × 1.7 m – minimum 8 composites – maximum 32 composites – 8 sectors. • A larger (1,000 × 1,000 × 3.4 m) ellipsoid was used to estimate panels not estimated in the first run. • Validation of the Kriging results by comparison with the composites and swath plots. • Uniform conditioning with 10 × 10 × 0.5 m SMU reflects a more realistic selectivity level. • V_2O_5 was estimated on the same 50 × 100 ×0.5 m panels using Ordinary Kriging with similar parameters to the U_3O_8 estimate (But with a minimum of 5 composites used).
Moisture	• Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	• The resource estimates are expressed on a dry tonnage basis, and the in- situ moisture content has not been estimated. A constant density of 1.5 t/m3 was used.

Cut-off parameters	• The basis of the adopted cut-off grade(s) or quality parameters applied.	• Grade-tonnage curve shows the sensitivity of the resources to the cut-off grade. • A 200 ppm U_3O_8 cut-off may represent the most likely cut-off compared to similar deposits, but the choice will depend on economic assumptions to be determined by a mining study. • A 250 ppm V_2O_5 cut-off was utilised for reporting V_2O_5 resource to correlate it with the uranium mineral resource due to the reduced nature of vanadium assays, further sampling and studies may lead to a different cut-off.

Criteria	JORC Code explanation	Commentary
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	• The only assumption made is the size of the SMU (10 × 10 × 0.5 m).
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	• Consideration of the extraction of the vanadium and uranium from the carnotite mineralisation by the various acid treatment techniques such as the Haynes-Engle Process, has been applied to the vanadium mineral resource estimate. • These techniques are yet to be tested on Nowthanna mineralisation to evaluate the potential recovery of vanadium.

Environmental factors or assumptions	Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	• Not considered at this stage.
Bulk density	• Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples. • The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit. • Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	• A constant density of 1.5 t/m^3 was used for converting volumes to tonnages. • This value was used based on experience and knowledge of SRK of similar styled mineralisation with resource estimates completed previously for Toro Energy.

Criteria	JORC Code explanation	Commentary
Classification	• The basis for the classification of the Mineral Resources into varying confidence categories. • Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data). • Whether the result appropriately reflects the Competent Person's view of the deposit.	• Resources are classified as Inferred; drill spacing insufficient to evaluate the continuity of the mineralisation. • There is uncertainty with respect to the relationship between geochemistry data and eU_3O_8 (possible bias). • The Competent Persons are satisfied with this classification, which reflects the degree of knowledge of the mineralisation.

Audits or reviews	• The results of any audits or reviews of Mineral Resource estimates.	• The current estimate is consistent with SRK's 2011 resource estimate. • The quality of the estimation, as measured by the slope of regression obtained in panel Kriging is poor. This is consistent with the resource being classified in the Inferred Mineral Resource category.
Discussion of relative accuracy/ confidence	• Where appropriate, a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate. • The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. • These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	• Accuracy and confidence is reflected in the Mineral Resource classification of Inferred applied to estimate. • These are global estimates and are not suitable for detailed mine planning purposes.

Section 4 Estimation and Reporting of Ore Reserves

No Reserves have been reported, therefore this section is not applicable.