

## White Rock identifies new geochemical anomalies associated with VMS alteration at its Red Mountain Project in Alaska

**ASX Code: WRM**

**Issued Securities**

Shares: 1,636 million  
Options: 570 million

**Cash on hand (30 Sept 2018)**

\$2.6M

**Market Cap (3 Dec 2018)**

\$9.8M at \$0.006 per share

**Directors & Management**

Brian Phillips  
Non-Executive Chairman

Matthew Gill  
Managing Director &  
Chief Executive Officer

Peter Lester  
Non-Executive Director

Ian Smith  
Non-Executive Director

Jeremy Gray  
Non-Executive Director

Shane Turner  
Company Secretary

Rohan Worland  
Exploration Manager

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- **A detailed regional stream sediment survey identifies 8 high priority geochemical targets for follow-up.**
- **Strong base metal anomalism up to 1.1% zinc in streams indicates high prospectivity for outcropping massive sulphides.**
- **Strong precious metal and other pathfinder elements detected.**
- **Target areas cluster in two distinct areas; west of the known mineralisation at Dry Creek (the southern limb of the Bonnifield syncline) and in the Glacier Creek area with strong sulphide footwall alteration on the northern limb of the Bonnifield syncline.**

White Rock Minerals (“White Rock”) is pleased to announce that it has identified a number of high priority geochemical anomalies within its recently expanded 100% owned Red Mountain high-grade zinc – silver – lead – gold - copper volcanogenic massive sulphide (“VMS”) Project in Alaska.

During the 2018 field season White Rock completed a detailed regional stream sediment program over prospective stratigraphy within the Red Mountain project area. This part of the comprehensive 2018 exploration program was optimised based on the geochem orientation survey completed across known mineralisation at Dry Creek. This “calibration” provided a geochemical signature of base metal and precious metal elements together with other pathfinders to use for future exploration of the VMS prospective stratigraphy on both the northern and southern limbs of the regional Bonnifield syncline.

This 2018 reconnaissance program identified a number of extensive alteration features for future exploration. Some of these extend on surface for several kilometres of strike. The results from the regional stream sampling program have successfully highlighted 8 priority anomalies within the area of alteration (Figure 1), providing areas for immediate focus through follow-up ground reconnaissance, surface sampling and the application of electrical geophysics prior to drill targeting.

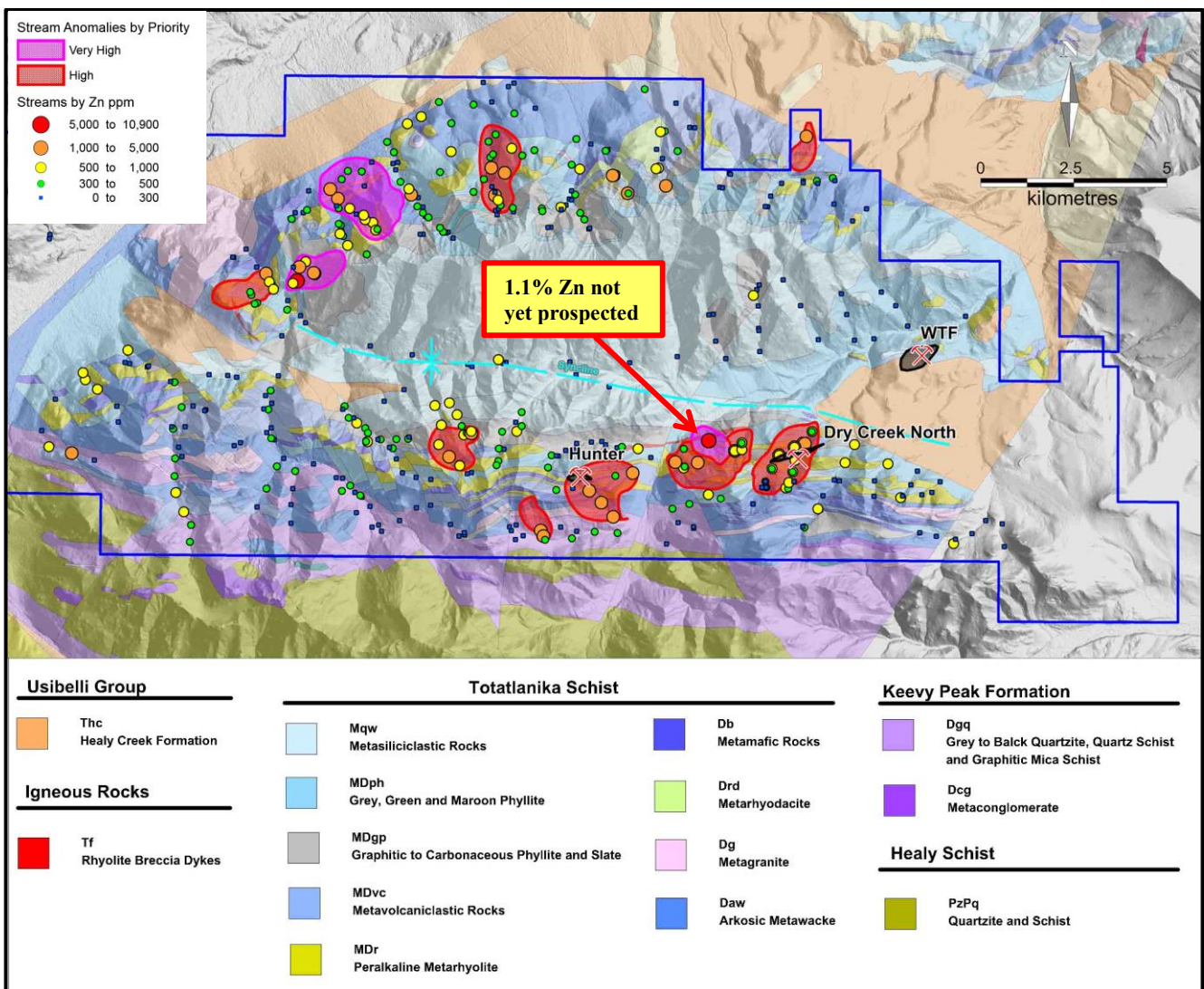
The significance of some of the geochemical anomalies is illustrated by the tenor of anomalism with one stream sample returning 1.1% Zn in an area towards the top of the VMS prospective stratigraphy to the west of the Dry Creek deposit. No previous exploration has prospected the immediate catchment area indicating how prospective the immediate surrounds remain.

In addition, the area of the northern limb known as Glacier Creek displays footwall sulphide alteration that extends for over 10km of strike. The stream sediment survey has identified 4 discrete high priority targets within the area of alteration. Follow-up work will now be able to focus on these discrete areas of anomalism to enable rapid advancement to drill testing in 2019.

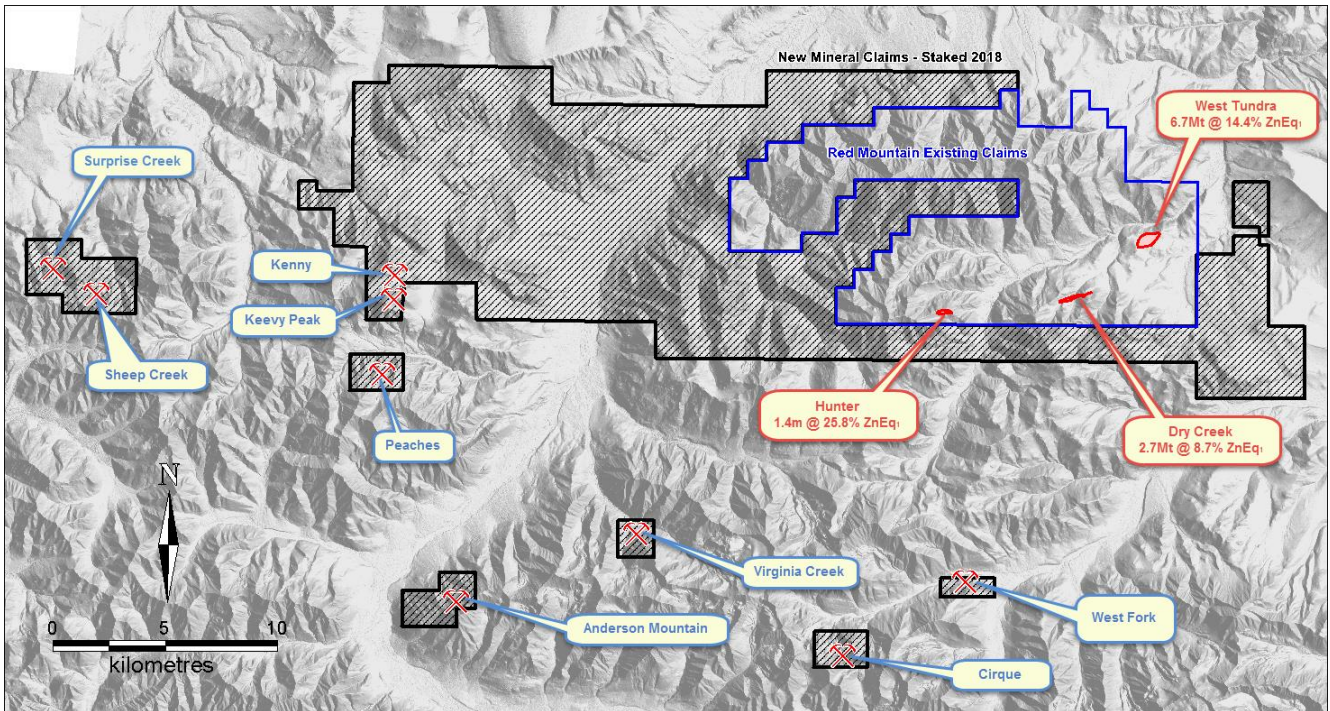
**CEO Matt Gill said** “We recently expanded our tenement footprint three-fold, to now hold a strategic land package of some 475km<sup>2</sup>. This expansion follows a successful first year of field activities for White Rock where drilling intersected multiple high-grade intervals of zinc-silver-lead-gold-copper mineralisation at Dry Creek and West Tundra (ASX Announcements dated 18 June 2018, 4 July 2018 and 20 August 2018). With some drill hole results returning in excess of **17% zinc, 6% lead, 1,000 g/t silver, 6 g/t gold and 1.5% copper**, the 2018 field season also saw three reconnaissance crews out in the field mapping and sampling. The culmination of this work encouraged White Rock to expand its strategic tenement holding to take in more of what has been identified as a highly prospective geological setting.

In addition to this successful drilling campaign, including a new discovery of high-grade zinc-rich VMS mineralisation at the Hunter prospect, we now have the results from our regional stream sediment sampling campaign. These results reinforce our belief that the Red Mountain project could yield a camp of VMS deposits in the year ahead.

Together with the expansion of the tenement package to 475km<sup>2</sup> and coverage of multiple new VMS occurrences throughout the Bonnifield district (Figure 2), White Rock is now poised to advance the project rapidly in 2019 through a second year of aggressive prospecting and drilling.”



**Figure 1:** Location of high priority stream sediment geochemical anomalies on the DGGS geology map (after Freeman et al., 2016) and terrain surface with locations for the Dry Creek and West Tundra Flats VMS deposits, and the recent Hunter VMS discovery.



**Figure 2:** Red Mountain Project tenement outline on terrain map with locations for the Dry Creek and West Tundra Flats VMS deposit Mineral Resources<sup>2</sup>, the new discovery at the Hunter Prospect and outlier VMS prospects.

<sup>1</sup> ZnEq = Zinc equivalent grades are estimated using long-term broker consensus estimates compiled by RFC Ambrian as at 20 March 2017 adjusted for recoveries from historical metallurgical test work and calculated with the formula:  $ZnEq = 100 \times [(Zn\% \times 2,206.7 \times 0.9) + (Pb\% \times 1,922 \times 0.75) + (Cu\% \times 6,274 \times 0.70) + (Ag \text{ g/t} \times (19.68/31.1035) \times 0.70) + (Au \text{ g/t} \times (1,227/31.1035) \times 0.80)] / (2,206.7 \times 0.9)$ . White Rock is of the opinion that all elements included in the metal equivalent calculation have reasonable potential to be recovered and sold.

<sup>2</sup> Refer ASX Announcement 26 April 2017 "Maiden JORC Mineral Resource at White Rock's Red Mountain zinc-silver Project, Alaska."

## REFERENCES

Freeman, L. K., Newberry, R. J., Werdon, M. B., Szumigala, D. J., Andrew, J. E. & Athey, J. E., 2016. Preliminary Digital Bedrock Geological Map Data of the Eastern Bonfield Mining District, Fairbanks and Healy Quadrangles, Alaska. Alaska Division of Geological & Geophysical Surveys Preliminary Interpretative Report 2016-03, 8p.

## Competent Persons Statement

The information in this report that relates to exploration results is based on information compiled by Mr Rohan Worland who is a Member of the Australian Institute of Geoscientists and is a consultant to White Rock Minerals Ltd. Mr Worland has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which 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 Worland consents to the inclusion in the report of the matters based on this information in the form and context in which it appears.

For more information about White Rock and its Projects, please visit our website  
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# APPENDIX 1: JORC CODE, 2012 EDITION - TABLE 1

## Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul style="list-style-type: none"> <li>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.</li> <li>Include reference to measures taken to ensure sample representativity and the appropriate calibration of any measurement tools or systems used.</li> <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 (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.</li> </ul>	<ul style="list-style-type: none"> <li>Stream sediment samples are taken from drainages.</li> <li>Stream sediment samples are submitted to ALS (Fairbanks) for preparation and analysis.</li> </ul>
Drilling techniques	<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 (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).</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable as no new drill results are being reported.</li> </ul>
Drill sample recovery	<ul style="list-style-type: none"> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <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>Not applicable as no new drill results are being reported.</li> </ul>
Logging	<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> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable as no new drill results are being reported.</li> </ul>
Sub-sampling techniques and sample preparation	<ul style="list-style-type: none"> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representativity of samples.</li> <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> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul style="list-style-type: none"> <li>Stream sediment samples are submitted to ALS (Fairbanks) and undergo standard industry procedure sample preparation appropriate to the sample type and mineralisation style.</li> <li>Full QAQC system is in place for stream sediment assays to determine accuracy and precision of assays</li> <li>Field duplicate samples are collected.</li> <li>Sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>

Criteria	JORC Code explanation	Commentary
Quality of assay data and laboratory tests	<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> <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> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Stream sediment samples are submitted to ALS (Fairbanks) for analysis by technique Au-MEST44 (50g aqua regia digest with ICP-MS and ICP-AES finish). Over limit samples for Ag, Cu, Pb and Zn are assayed by technique OG46 (0.5g charge by aqua regia digest and ICP-AES or AAS finish).</li> <li>Aqua regia is a partial digestion method and will not digest silicate minerals present in the sample.</li> <li>The nature and quality of the analytical technique is deemed appropriate for the sample type and the mineralisation style.</li> <li>Full QAQC system is in place for stream sediment sample assays including blanks and standards (relevant certified reference material). Acceptable levels of accuracy and precision have been established.</li> </ul>
Verification of sampling and assaying	<ul style="list-style-type: none"> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<ul style="list-style-type: none"> <li>Sample information is documented in field notebooks and subsequently entered into the digital database.</li> <li>Stream sediment assay results are downloaded directly from ALS and merged into the database.</li> <li>All hard copy data is filed and stored. Digital data is filed and stored with routine local and remote backups.</li> <li>No adjustment to assay data is undertaken.</li> </ul>
Location of data points	<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> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul style="list-style-type: none"> <li>Sample locations are collected using a handheld GPS (accuracy +/- 5m).</li> <li>All sample locations are UTM (NAD27 for Alaska Zone 6 datum).</li> </ul>
Data spacing and distribution	<ul style="list-style-type: none"> <li>Data spacing for reporting of Exploration Results.</li> <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> <li>Whether sample compositing has been applied.</li> </ul>	<ul style="list-style-type: none"> <li>Data spacing is variable and appropriate to the purpose of sample survey type.</li> <li>Sample compositing is not applicable in reporting exploration results.</li> </ul>
Orientation of data in relation to geological structure	<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> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable</li> </ul>
Sample security	<ul style="list-style-type: none"> <li>The measures taken to ensure sample security.</li> </ul>	<ul style="list-style-type: none"> <li>Stream sediment samples are secured in bags with a security seal that is verified on receipt by ALS using a chain of custody form.</li> </ul>
Audits or reviews	<ul style="list-style-type: none"> <li>The results of any audits or reviews of sampling techniques and data.</li> </ul>	<ul style="list-style-type: none"> <li>No audits or reviews have been completed to date.</li> </ul>

## Section 2 Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>The Red Mountain Project comprises 754 mining and leasehold locations in the State of Alaska ('the Tenements').</li> <li>The Tenements are owned by White Rock (RM) Inc., a 100% owned subsidiary of Atlas Resources Pty Ltd, which in turn is a 100% owned subsidiary of White Rock Minerals Ltd.</li> <li>The Tenements are subject to an agreement with Metallogeny Inc, that requires further cash payments of US\$850,000 over 3 years. The agreement also includes a net smelter return royalty payment to Metallogeny Inc. of 2% NSR with the option to reduce this to 1% NSR for US\$1,000,000.</li> <li>The Tenements are subject to an agreement with Sandfire Resources NL ("Sandfire") whereby Sandfire have an exclusive option to enter an earn-in joint venture</li> </ul>

Criteria	JORC Code explanation	Commentary
		<p>agreement, which option may be exercised prior to 31 December 2018. If the option is exercised Sandfire can earn 51% by funding A\$20 million over four years, with a minimum expenditure of A\$6 million during the first year. Sandfire can then earn 70% by electing to fund a further \$A10 million and delivering a pre-feasibility study over an additional two years, with an option to extend the time period a further year under certain circumstances. White Rock can elect to contribute at 30% or if not Sandfire can sole fund to earn 80% by completing a definitive feasibility study. White Rock can elect to contribute at 20% or if not Sandfire can earn 90% by sole funding to production with White Rock's retained interest of 10% earned from project cash flow.</p> <ul style="list-style-type: none"> <li>All of the Tenements are current and in good standing.</li> </ul>
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>The Red Mountain project has seen significant exploration conducted by Resource Associates of Alaska Inc. ("RAA"), Getty Mining Company ("Getty"), Phelps Dodge Corporation ("Phelps Dodge"), Houston Oil and Minerals Exploration Company ("HOMEX"), Inmet Mining Corporation ("Inmet"), Grayd Resource Corporation ("Grayd") and Atna Resources Ltd ("Atna").</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>Volcanogenic massive sulphide ("VMS") mineralisation located in the Bonnifield District, located in the western extension of the Yukon Tanana terrane.</li> <li>The regional geology consists of an east-west trending schist belt of Precambrian and Palaeozoic meta-sedimentary and volcanic rocks. The schist is intruded by Cretaceous granitic rocks along with Tertiary dikes and plugs of intermediate to mafic composition. Tertiary and Quaternary sedimentary rocks with coal bearing horizons cover portions of the older rocks. The VMS mineralisation is most commonly located in the upper portions of the Totatlanika Schist and the Wood River assemblage, which are of Carboniferous to Devonian age.</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 Material drill holes: <ul 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> </ul> </li> <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>Not applicable as no new drill results are being reported.</li> </ul>
Data aggregation methods	<ul style="list-style-type: none"> <li>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.</li> <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> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	<ul style="list-style-type: none"> <li>No aggregation methods were used in the reporting of results.</li> </ul>
Relationship between mineralisation widths and intercept lengths	<ul style="list-style-type: none"> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>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').</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable as the results being reported do not relate to widths or intercept lengths of mineralisation.</li> </ul>

Criteria	JORC Code explanation	Commentary
<i>Diagrams</i>	<ul style="list-style-type: none"> <li>• <i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Appropriate maps are included in the body of the report.</li> </ul>
<i>Balanced reporting</i>	<ul style="list-style-type: none"> <li>• <i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Maps showing individual sample locations are included in the report.</li> <li>• All results considered significant are reported.</li> </ul>
<i>Other substantive exploration data</i>	<ul style="list-style-type: none"> <li>• <i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Other relevant and material information has been reported in this and earlier reports.</li> </ul>
<i>Further work</i>	<ul style="list-style-type: none"> <li>• <i>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</i></li> <li>• <i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Follow-up work will be incorporated in plans for the 2019 field season.</li> </ul>