13 March 2018 ASX Code: WCN

# Cobalt-nickel RC drilling program commences at Coglia Well

## **Highlights:**

- Cobalt and nickel RC drilling program commences at Coglia Well
- 3000m program to target cobalt and nickel mineralisation identified in previous drilling including:
  - 28 metres at 0.12% cobalt and 0.55% nickel from 60 metres including
    - 16 metres at 0.16% cobalt and 0.65% nickel
  - 12 metres at 2.2% nickel and 0.06% cobalt from 80 metres including
    - 4 metres at 3% nickel and 0.06% cobalt

White Cliff Minerals Limited ("White Cliff" or the "Company") is pleased to report that the Company has commenced an initial 3000-metre drilling program at its 100%-owned Coglia Well cobalt and nickel project 70km south-east of Laverton in Western Australia's north-eastern goldfields (Figure 2).

The RC drilling program will target areas of higher grade cobalt and nickel mineralisation identified in previous drilling and will seek to extend mineralisation along strike to the south (Figure 1).

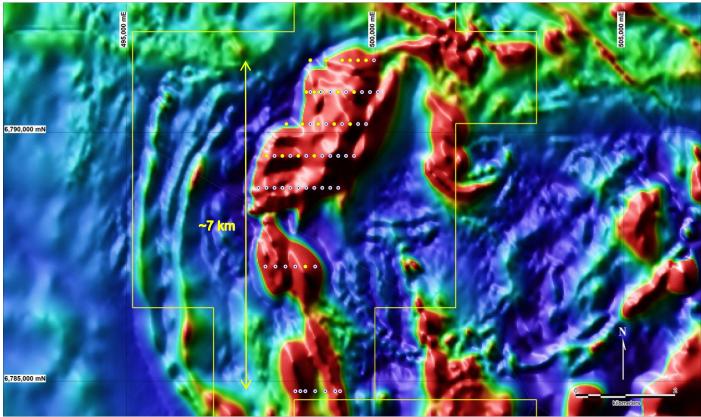
The drilling program covers 6.8 kilometres of strike of the Coglia ultramafic complex and is testing the width of the mineralisation with lines as long at 2 kilometres. The drill lines are spaced 640 metres apart for the northern area and 1.6 and 2.5 kilometres apart in the southern area.

The mineralised unit at Coglia Well extends a further **8 kilometres** to the south within White Cliff tenements then across the tenement boundary to the Irwin Hill cobalt-nickel deposits owned by Glencore.

As announced previously (ASX release 20 Feb 2018), drilling undertaken at Coglia Well in 2016 identified widespread cobalt and nickel mineralisation over an area 2,500 metres long and 500 metres wide with better intersections of:

- 28 metres at 0.12% cobalt and 0.55% nickel from 60 metres including
  - 16 metres at 0.16% cobalt and 0.65% nickel
- 12 metres at 2.18% nickel and 0.06% cobalt including
  - o 4 metres at **2.95% nickel**, 0.06% cobalt

White Cliff Managing Director Todd Hibberd said: "The Company is very pleased to be able to commence drilling at the Coglia Well cobalt and nickel project. The 3000 metre program is aimed at verifying existing results and defining the grade and scale of the cobalt and nickel mineralisation. Success from this drilling will lead to a major drilling campaign to define JORC compliant cobalt and nickel resources".



**Figure 1** Coglia Well cobalt-nickel project planned drill collars (white/blue dots) and existing collars (yellow dots) draped over the magnetic image (first vertical derivative – reduced to poles). Tenement boundaries are in yellow. Bright red magnetic highs are interpreted ultramafic units.

### The Coglia Well Nickel-Cobalt Deposit Background

The Coglia ultramafic complex covers an 11.5 kilometre by 1.5 kilometre area and is part of a 100 kilometre-long trend of ultramafic rock running from Diorite Hill in the north to Mulga Tank in the south. At Coglia Well, approximately 2.5 kilometres of the 11.5 kilometres of strike have been partially drill tested, resulting in the identification of extensive cobalt and nickel mineralisation.

Drilling has occurred on wide spaced lines generally 650 metres apart with holes spaced at 320 metre intervals. Cobalt and nickel mineralisation occurs on all lines and occurs between 40 and 80 metres depth. Mineralisation has developed in the regolith profile above a weathered ultramafic unit which was originally a dunite (an olivine rich ultramafic rock). A series of existing drill programs (2001-2003) outlined cobalt and nickel mineralisation over a zone approximately 2.5km long by 500 metres wide and 10-15 metres thick (see table 1 for drilling results). Mineralisation is open along strike in both directions. A total of 22 holes have been drilled for 2062 metres but holes drilled in 2001 (MPRC001-008) were not assayed for cobalt.

The cobalt grade appears to increase substantially to the south of the main mineralisation, which is consistent with the grade of Glencore PLC's adjacent Irwin Hills cobalt and nickel deposits which contain 29Mt at 0.11% cobalt and 1% nickel. A single RC hole, MERC005, drilled 2.5 kilometres south of the main mineralisation, encountered 28 metres at 0.12% cobalt and 0.55% nickel. There is a further 7 kilometres of untested prospective ultramafic rock to the tenement boundary adjacent to Glencore's deposit.

Cobalt mineralisation occurs as a shallow layer of manganiferous oxides that form between the smectite clays and the overlying ferruginous clays. High grade cobalt mineralisation typically occurs between 30-50 metres depth and is associated with nickel mineralisation. The cobalt mineralisation generally occurs slightly higher than nickel mineralisation in the regolith profile.

At Coglia Well there is substantial nickel mineralisation and the cobalt mineralisation discussed above has formed from the same processes. The Company believes that the cobalt mineralisation has the potential to economically extractable in its own right. The proximity of the project to Glencore's Murrin-Murrin nickel-cobalt processing plant is likely to strongly impact the possibility of economic development of both the cobalt and nickel mineralisation.

While White Cliff has not yet calculated any mineral resources it is clear that potential exists for a substantial resource. Historic drilling has only tested a small fraction of the mapped ultramafic unit indicating there is potential to locate significant additional mineralisation.

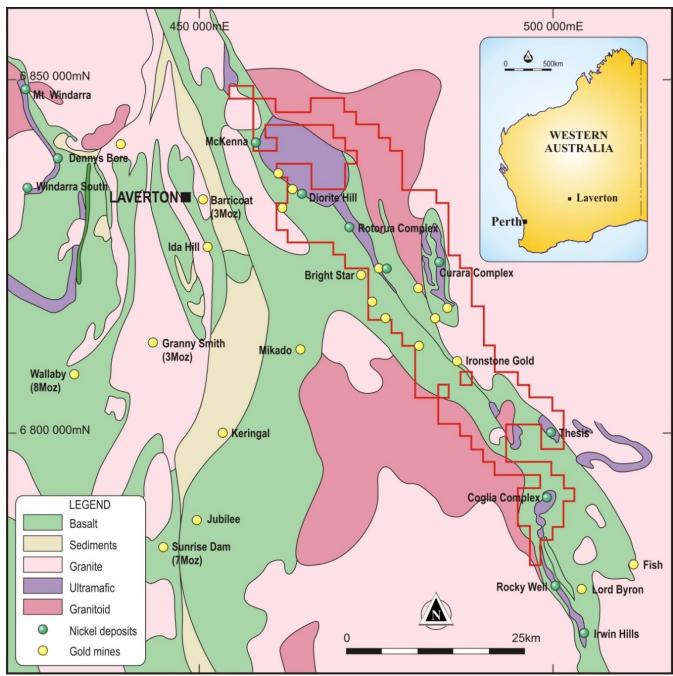


Figure 2 Location map of the tenements at the Merolia Project near Laverton WA showing the Coglia Well complex (lower right)

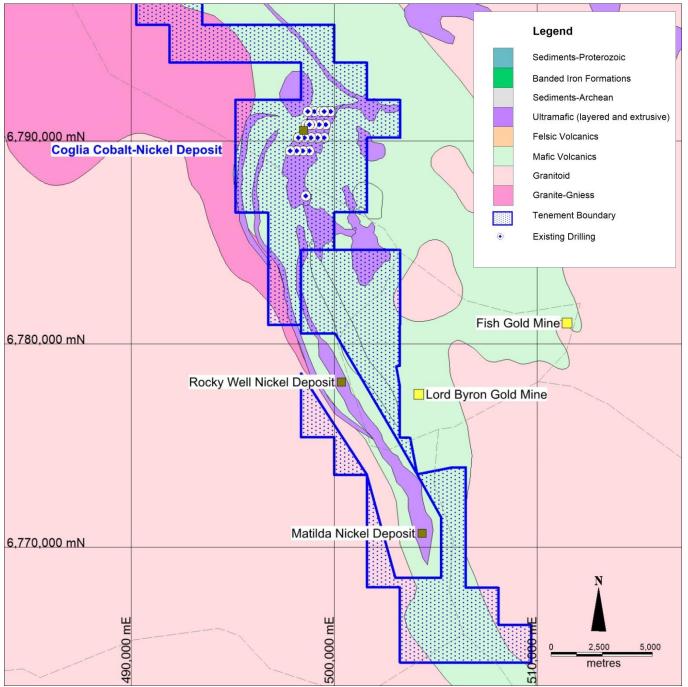


Figure 3 Coglia Well cobalt-nickel project geology map showing historical and White Cliff drilling, geology and local deposits and mines

# **Regional Infrastructure**

The Coglia Well nickel and cobalt deposit occurs in a region hosting multiple mining operations that have substantial existing infrastructure such as roads, telecommunications, power and gas and with access to a skilled mining workforce. The project is located 130km via road from Glencore's Murrin Murrin nickel-cobalt processing plant and is adjacent to their Irwin Hills nickel-cobalt deposit. The region is well serviced by transport services and airports.

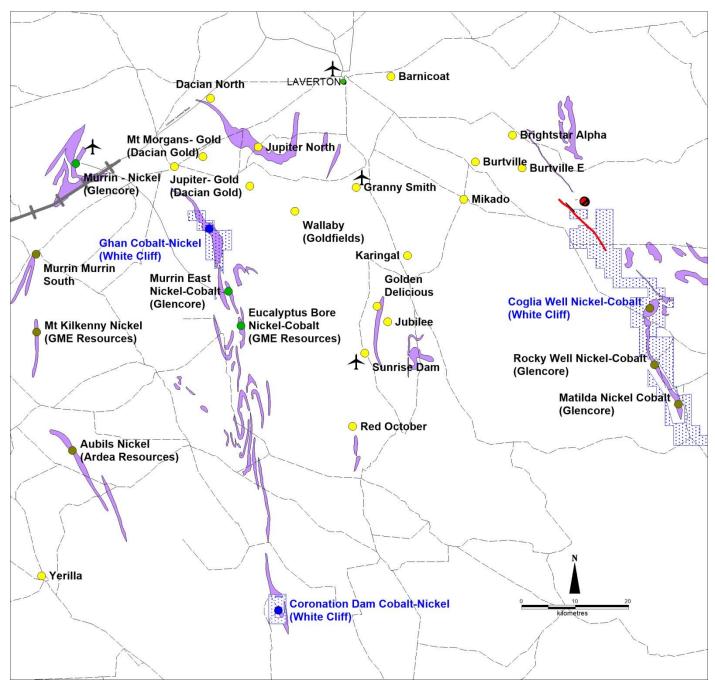


Figure 3 Regional location plan showing main nickel and cobalt deposits and the infrastructure surrounding White Cliff's cobalt-nickel deposits

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### **About White Cliff Minerals Limited**

**Kyrgyz Copper-Gold Project (90%):** The Project contains extensive porphyry related gold and copper mineralisation starting at the surface and extending over several kilometres. Drilling during 2014-6 has defined a **gold deposit** currently containing an inferred resource of 1.8Mt at 5.2 g/t containing 302,000 ounces of gold and 608,000 tonnes at 0.64% copper containing 3870 tonnes of copper. Drilling has also defined a significant **copper deposit** at surface consisting of 10Mt at 0.41% copper containing 40,000 tonnes of copper.

Extensive mineralisation occurs around both deposits demonstrating significant expansion potential. The project is located in the Kyrgyz Republic, 350km west-southwest of the capital city of Bishkek and covers 57 square kilometres. The Chanach project is located in the western part of the Tien Shan Belt, a highly mineralised zone that extending for over 2500 km, from western Uzbekistan, through Tajikistan, Kyrgyz Republic and southern Kazakhstan to western China.

**Laverton Gold Project (100%):** The project consists of 136 square kilometres of granted tenements in the Laverton Greenstone belt. The core prospects are Kelly Well and Eight Mile Well located 20km southwest of Laverton in the core of the structurally complex Laverton Tectonic zone immediately north of the Granny Smith Gold Mine (3 MOz) and 7 kilometres north of the Wallaby Gold Mine (7 MOz).

**Merolia Project (100%):** The project consists of 530 square kilometres of the Merolia Greenstone belt and contains extensive ultramafic sequences including the Diorite Hill layered ultramafic complex, the Rotorua ultramafic complex, the Curara ultramafic complex and a 51 kilometre long zone of extrusive ultramafic lava's. The intrusive complexes are prospective for nickel-copper sulphide accumulations possibly with platinum group elements, and the extrusive ultramafic rocks are prospective for nickel sulphide and nickel-cobalt accumulations. The project also contains extensive basalt sequences that are prospective for gold mineralisation including the Ironstone prospect where historical drilling has identified 24m at 8.6g/t gold.

**Coglia Well Cobalt Project (100%):** The project consists of two tenements (238km²) in the Merolia greenstone belt 50km south east of Laverton, WA. The tenements contain extensive ultramafic units that host zones of cobalt mineralisation associated with nickel mineralisation. Historical drilling has identified Cobalt grades including 16 metres at 0.16% cobalt and 0.65% nickel.

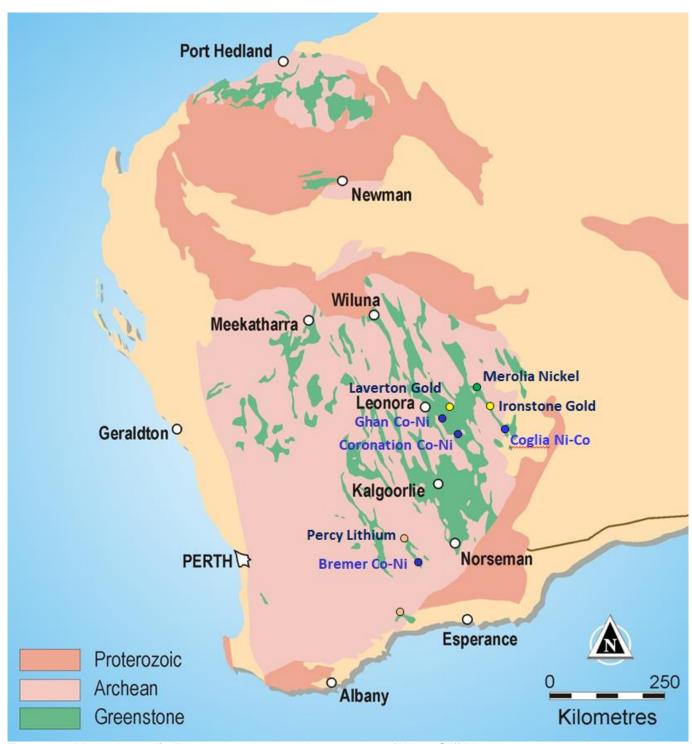
**Coronation Dam Cobalt Project (100%):** The project consists of one tenement (16km²) in the Wiluna-Norseman greenstone belt 50km south of the Murrin East nickel-cobalt mining operation. The tenement contains an extensive ultramafic unit that contains zones of cobalt mineralisation associated with nickel mineralisation. The Cobalt grades range for 0.01% to 0.69% cobalt and occur within the regolith profile above the ultramafic units.

**Ghan Well Cobalt Project (100%):** The project consists of one tenement (39km²) in the Wiluna-Norseman greenstone belt 10km north of the Murrin East nickel-cobalt mining operation. The tenement contains an extensive ultramafic unit that contains zones of cobalt mineralisation associated with nickel mineralisation. The Cobalt grades range for 0.01% to 0.75% cobalt and occur within a zone of manganiferous oxides that form in the regolith profile.

**Bremer Range (100%):** The project covers over 127 square kilometres in the Lake Johnson Greenstone Belt, which contains the Emily Ann and Maggie Hayes nickel sulphide deposits. These mines contain approximately 140,000 tonnes of nickel. The project area has excellent prospectivity for both komatiite associated nickel-cobalt mineralisation and amphibolite facies high-grade gold mineralisation.

**Lake Percy (100%)** The Lake Percy tenement (E63/1222i) contains substantial nickel anomalism associated with outcropping ultramafic units. The Company also holds 100% of the adjacent 20km2 tenement (E63/1793) which also contains untested outcropping ultramafic units.

The Information in this report that relates to exploration results, mineral resources or ore reserves is based on information compiled by Mr Todd Hibberd, who is a member of the Australian Institute of Mining and Metallurgy. Mr Hibberd is a full time employee of the company. Mr Hibberd has sufficient experience which is relevant to the style of mineralisation and type of deposits under consideration and to the activity that he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the `Australian Code for Reporting Exploration Results, Mineral Resources and Ore Reserves (the JORC Code)`. Mr Hibberd consents to the inclusion of this information in the form and context in which it appears in this report.



**Tenement Map - Australia** Regional geology and location plan of White Cliff Minerals Limited exploration projects in the Yilgarn Craton, Western Australia

Appendix 1
The following information is provided to comply with the JORC Code (2012) requirements for the reporting of the Exploration results over the Merolia nickel and copper project.

**Section 1 Sampling Techniques and Data** (Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code Explanation	Commentary
Sampling Techniques	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	This ASX Release reports on exploration results from the Company's exploration program carried out across part of the Merolia project area.  Soil Sampling: None collect  Soil Analysis: None collected  RC Sampling: All samples from the RC drilling are taken as 1m samples. Samples are collected using cone or riffle splitter. Geological logging of RC chips is completed at site with representative chips being stored in drill chip trays.  Moving loop electromagnetic (MLEM) survey: none conducted
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	The sample collar locations are picked up by handheld GPS. Sampling was carried out under standard industry protocols and QAQC procedures
	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.	Samples are sent to Bureau Veritas Laboratories for assaying. Appropriate QAQC samples (standards, blanks and duplicates) are inserted into the sequences as per industry best practice.
Drilling Techniques	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).	Reverse Circulation Drilling, 1800CFM/550PSI compressor, with 133mm (5.25 inch) diameter face sampling hammer bit. Industry standard processes
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed	Calculated volume of 1m RC sample is 36kg based on rock density of 2.6 g/cm3. Sample bags were visually inspected for volume to ensure minimal size variation. Were variability was observed, sample bags were weighed. Sampling was carried out under standard industry protocols and QAQC procedures
	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.	No measures have been deemed necessary  No studies have been carried out
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.	Drill samples have been geologically logged and have been submitted for petrological studies. Samples have been retained and stored. The logging is considered sufficient for JORC compliant resource estimations
	Whether logging is qualitative or quantitative in nature.  Core (or costean, channel, etc) Photography  The total length and percentage of the relevant	Logging is considered qualitative  Refer to text in the main body of the announcement
Sub-sampling techniques and	intersections logged.  If core, whether cut or sawn and whether quarter, half or all core taken.	Not Applicable- no core drilling was carried out
sample preparation	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	Samples were riffle split from 35kg down to 3kg. Where samples were too wet to riffle split, samples were tube sampled.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique	Samples were collected using a face sampling hammer which pulverises the rock to chips. The chips are transported up the inside of the drill rod to the surface cyclone where they are collected in one metre intervals. The one metres sample is riffle split to provide a 2.5-3kg sample for analysis. Industry standard protocols are used and deemed appropriate

Criteria	JORC Code Explanation	Commentary
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples	At this stage of the exploration no sub sampling is undertaken
	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	The whole sample collected is pulverised to 75um in a ring mill and a 200g sub-sample is collected. A 2-30 gram sub sample of the pulverised sample is analysed. Field duplicates are not routinely collected
	Whether sample sizes are appropriate to the grain size of the material being sampled	The sample sizes are considered to be appropriate to correctly represent the sought after mineralisation style
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.	The analytical techniques used Aqua Regia digest multi element suite with ICP/OES finish, suitable for the reconnaissance style sampling undertaken.
	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.	Samples were analysed with a Innovex portable XRF instrument using a 60 second analysis time. Calibration checks were carried out against a nickel standard every 50 samples. Samples were tested three times and the average reading recorded. The standard deviation of the three reading has been recorded
	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	A selection the samples have had the XRF results repeated a second time to verify and elevated samples will be checked against Laboratory analysis. The Laboratory will analyse the samples via Aqua Regia with ICP-OES finish.
Verification of	The verification of significant intersections by either	Laboratory QAQC involves the use of internal lab standards using certified reference material, blanks, splits and replicates as part of the in house procedures.  Significant intersections in drill samples have been
sampling and assaying	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	verified by an executive director of the Company  Not Applicable Primary data was collected using a set of standard Excel templates on paper and re-entered into laptop computers. The information was sent to WCN in-house database manager for validation and compilation into an Access database.
	Discuss any adjustment to assay data	No adjustments or calibrations were made to any assay data used in this report.
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.	Sample locations were recorded using handheld Garmin GPS. Elevation values were in AHD RL and values recorded within the database. Expected accuracy is + or - 5 m for easting, northing and 10m for elevation coordinates.  No down hole surveying techniques were used due to the
	Specification of the grid system used.	sampling methods used. The grid system is MGA_GDA94 (zone 51)
	Quality and adequacy of topographic control.	Topographic surface uses handheld GPS elevation data, which is adequate at the current stage of the project.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	The nominal drill sample spacing is 1 metre down hole. Each drill hole targets a specific target so there is no nominal drill spacing
	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.	The mineralised domains have not yet demonstrated sufficient continuity in both geological and grade continuity to support the definition of Mineral Resource and Reserves, and the classifications applied under the 2012 JORC Code.
Orientation of data in relation to geological	Whether sample compositing has been applied.  Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which	Not applicable  The soil sampling method is used to provide a surface sample only.
structure	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	No orientation based sampling bias has been identified in the data at this point.
Sample security	The measures taken to ensure sample security.	Sample security is managed by the Company. Since at this stage these are field analyses, no sample transit security has been necessary.
Audits of reviews	The results of any audits or reviews of sampling	The Company carries out its own internal data audits. No

Criteria	JORC Code Explanation	Commentary
	techniques and data.	problems have been detected.

Section 2 Reporting of Exploration Results (Criteria listed in the preceding section also apply to this section.)

Criteria	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	The sample positions occur is located within Exploration Licenses E38/2693 which are 100% owned by White Cliff Minerals Limited or a subsidiary  The tenements are in good standing and no known
	along with any known impediments to obtaining a licence to operate in the area.	impediments exist.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Extensive historical exploration for platinum, gold and nickel mineralisation has been carried out by Placer Dome, WMC, Comet resources and their predecessors. Occurrences of nickel laterite mineralisation were identified but was deemed uneconomic
Geology	Deposit type, geological setting and style of mineralisation.	The geological setting is of Archaean aged mafic and ultramafic sequences intruded by mafic to felsic porphyries and granitoids. Mineralisation is mostly situated within the regolith profile of the ultramafic units. The rocks are strongly talc-carbonate altered. Metamorphism is mid-upper Greenschist facies. The target mineralisation has yet to be identified but is analogous to Kambalda or Sally Malay style or nickel sulphide deposits.
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 drill holes:  easting and northing of the drill hole collar elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar dip and azimuth of the hole down hole length and interception depth hole length.	Drilling detailed in Tables 1-2 in the main body of the announcement
	If the exclusion of this information is justified on the basis that the information is not	
Data Aggregation methods	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.  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	No length weighting has been applied due to the nature of the sampling technique. No top-cuts have been applied.  Not applicable for the sampling methods used.  No metal equivalent values are used for reporting
	equivalent values should be clearly stated	exploration results.
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 drill hole angle is known, its nature should be reported. If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').	The sampling technique used defines a surficial geochemical expression. No information is attainable relating to the geometry of any mineralisation based on these results.
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 drill hole collar locations and appropriate sectional views`	Refer to figs. in the body of text.
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	All results above 0.5% nickel are 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.	NIL
Further Work	The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling). Diagrams clearly highlighting the areas	RAB/AC drilling will be used to further define the nature and extent of the geochemical anomalism, and to gain lithological information.

Criteria	Explanation	Commentary
	of possible extensions, including the main geological	
	interpretations and future drilling areas, provided this	
	information is not commercially sensitive.	