

# SEMI-MASSIVE SULPHIDES REVEAL HIGH-GRADE POTENTIAL AT OPUWO

## HIGHLIGHTS

- Semi-massive sulphide mineralisation intersected in deep step out hole (DOFD0077) in resource drilling program.
- Demonstrates significant upside to the scale of the project; extending mineralisation well beyond current Exploration Target depth.
- Visual observations indicate linnaeite (cobalt), chalcopyrite (copper), sphalerite (zinc) and pyrrhotite/pyrite (iron) as the sulphide minerals present.
- Assays for DOFD0077 will be available in approximately 4 weeks.
- Increased intensity of sulphide mineralisation at depth supports the geological team's theory that a feeder zone, or zones, may exist for the extensive mineralisation at Opuwo.
- Downhole electromagnetic (EM) survey to be conducted to search for conductors in the vicinity of DOFD0077.

Celsius Resources Limited ("Celsius" or "the Company") is pleased to provide an update on significant developments at its 95% owned Opuwo Cobalt Project ("Project") in Namibia.

The current drilling program of approximately 15,000 metres is aiming to define the cobalt-copper-zinc resource from surface down to a vertical depth of approximately 200 metres. In order to test the potential upside to the depth of the resource, a single diamond drillhole (DOFD0077) has been drilled approximately 300 metres north of the resource drilling area (Figures 1 and 2).

This hole has intersected the mineralised dolomite ore formation (DOF) at a down hole depth of 488.37 metres (488.4 to 493.6 metres), representing a vertical depth of approximately 380 metres below ground surface (Figure 2). The mineralisation intersected contains intervals that are **semi-massive** and coarse grained in nature, with sulphides visually identified as linnaeite (cobalt), chalcopyrite (copper), sphalerite (zinc), and pyrrhotite (iron) (Figures 3 to 6). Assays for this hole are expected in approximately 4 weeks.

The intersection of mineralisation at this depth demonstrates the upside to the scale of the Project, given that the initial Exploration Target Range, consisting of **between 33 and 41 million tonnes**, grading approximately **0.13% - 0.17% cobalt and 0.45% - 0.65% copper**, was modelled to a depth of 150-250 metres. It is noted that the potential quantity and grade is conceptual in nature, and that there has been insufficient exploration to

P: + 61 8 9226 4500 F: + 61 8 9226 4300 info@celsiusresources.com.au www.celsiusresources.com.au



estimate a Mineral Resource, and it is uncertain if further exploration will result in the estimation of a Mineral Resource. Current and future drill programs are planned to test the Exploration Target. (Refer to previous ASX announcements regarding the Exploration Target)

The increased intensity of sulphide mineralisation in DOFD0077 supports the geological team's theory that a feeder zone, or zones, may exist for the extensive mineralisation at Opuwo, currently identified in drilling by Celsius over more than 15 km of strike length.

Celsius Managing Director, Brendan Borg commented:

"This discovery of deeper and more intense mineralisation is an exciting development for the Project, as it demonstrates significant potential upside to the scale of the mineralised system. This is the first occurrence of semi-massive sulphides at the Project and adds weight to our theory that a more significant feeder system for the mineralisation may exist."

#### Next Steps

The Company's geophysical contractor will mobilise an electromagnetic (EM) tool to allow a survey to be conducted on this drillhole. The aim of the survey will be to search for strong conductors in the vicinity of the hole that may represent massive sulphide mineralisation. Pending positive results, this may be followed by a ground electromagnetic (EM) survey to identify areas for additional deeper drilling.

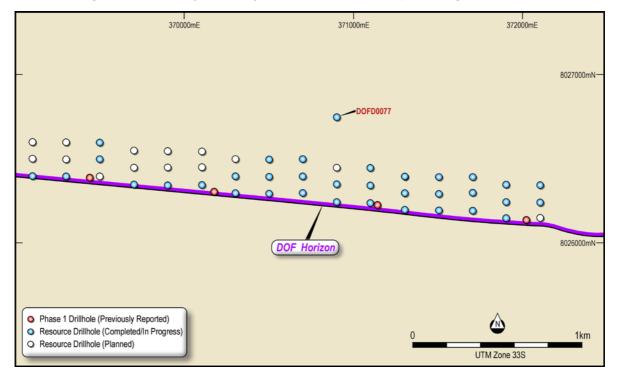


Figure 1: Location of drillhole DOFD0077



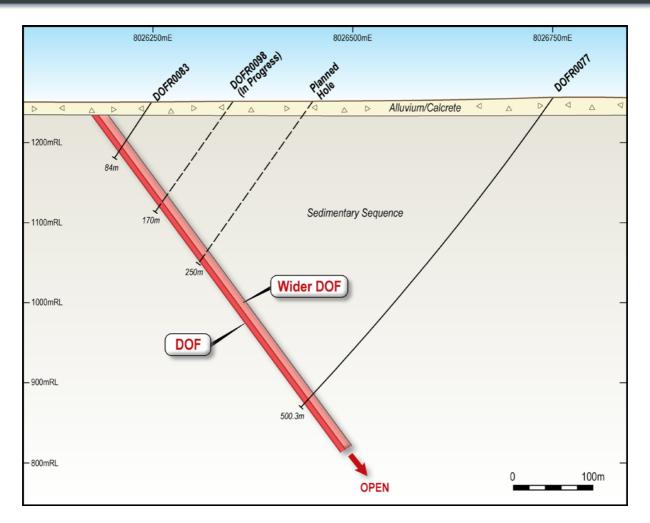


Figure 2: Cross Section 370900E showing DOFD0077 position



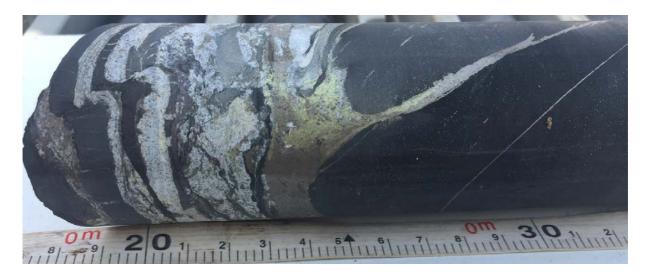


Figure 3: DOFD0077 (492.4 m) - Chalcopyrite-sphalerite-pyrrhotite-linnaeite sulphide mineralisation



Figure 4: DOFD0077 (492.4 m) - Chalcopyrite-sphalerite-pyrrhotite-linnaeite sulphide mineralisation

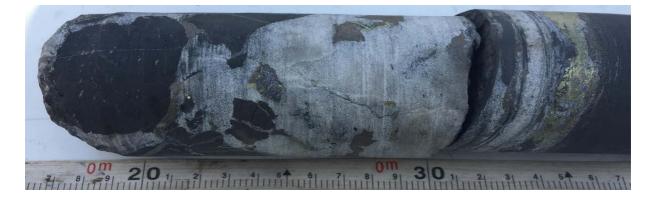


Figure 5: DOFD0077 (492.95 m) - Chalcopyrite-sphalerite-pyrrhotite-linnaeite sulphide mineralisation





Figure 6: DOFD0077 (492.95 m) - Chalcopyrite-sphalerite-pyrrhotite-linnaeite sulphide mineralisation

#### Background on the Opuwo Cobalt Project

The Opuwo Cobalt Project is located in northwestern Namibia, approximately 800 km by road from the capital, Windhoek, and approximately 750 km from the port at Walvis Bay (Figure 7). The Project has excellent infrastructure, with the regional capital of Opuwo approximately 30 km to the south, where services such as accommodation, fuel, supplies, and an airport and hospital are available. Good quality bitumen roads connect Opuwo to Windhoek and Walvis Bay. The Ruacana hydro power station (320 MW), which supplies the majority of Namibia's power, is located nearby, and a 66 kV transmission line passes through the eastern boundary of the Project.

The Opuwo Project consists of four Exclusive Prospecting Licences covering approximately 1,470 km<sup>2</sup>.



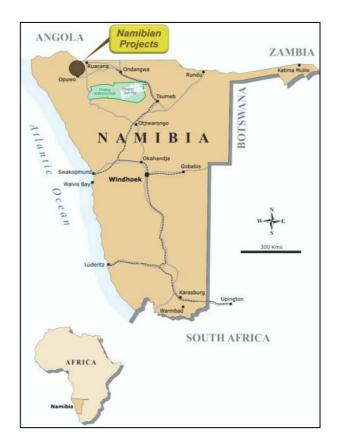


Figure 7: Location of the Opuwo Cobalt Project, Namibia

#### **Celsius Resources Contact Information**

Level 3, 216 St Georges Terrace Perth WA 6000 PO Box 7775 Cloisters Square Perth WA 6850 P: +61 8 9226 4500 F: +61 8 9226 4300 E: info@celsiusresources.com.au www.celsiusresources.com.au

#### **Competent Persons Statement**

Information in this report relating to Exploration Results and Exploration Targets is based on information reviewed by Mr. Brendan Borg, who is a Member of the Australasian Institute of Mining and Metallurgy and Managing Director of Celsius Resources. Mr. Borg 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 by the 2012 Edition of the Australasian Code for reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr. Borg consents to the inclusion of the data in the form and context in which it appears.



### Appendix 1: Resource Drilling Program - Completed/In Progress Holes

	Easting	Northing		Planned	Final	
	(UTM	(UTM	Planned	Azimuth	Depth	
Hole ID	Zone 33S)	Zone 33S)	Dip (deg)	(grid)	(m)	Comment
DOFD0062	370503	8026297	-55	180	92.16	
DOFR0063	372023	8026142	-90	0	60.00	Water Bore
DOFR0064	372107	8026347	-55	180	267.00	
DOFD0065	371902	8026153	-55	180	38.06	
DOFD0066	371900	8026249	-55	180	143.37	
DOFR0067	372100	8026245	-55	180	173.00	
DOFR0068	371702	8026197	-55	180	75.00	
DOFR0069	371707	8026396	-55	180	231.00	
DOFR0070	371702	8026302	-55	180	151.00	
DOFD0071	371901	8026350	-55	180	254.37	
DOFR0072	365177	8026851	-90	0	54.00	Water Bore
DOFR0073	371503	8026397	-55	180	227.00	
DOFR0074	371500	8026197	-55	180	81.00	
DOFR0075	371503	8026295	-55	180	147.00	
DOFR0076	371302	8026199	-55	180	73.00	
DOFD0077	370900	8026750	-55	180	500.34	
DOFR0078	371302	8026298	-55	180	153.00	
DOFR0079	371303	8026398	-55	180	225.00	
DOFD0080	370503	8026398	-55	180	173.16	
DOFR0081	371099	8026243	-55	180	78.00	
DOFR0082	371099	8026347	-55	180	171.00	
DOFR0083	370902	8026248	-55	180	84.00	
DOFR0084	370700	8026301	-55	180	90.00	
DOFD0085	370499	8026499	-55	180	251.18	
DOFR0086	370299	8026297	-55	180	90.00	
DOFR0087	371100	8026450	-55	180	282.00	
DOFR0088	370102	8026348	-55	180	93.00	
DOFR0089	369901	8026347	-55	180	62.00	
DOFR0090	369700	8026350	-55	180	57.00	
DOFR0091	369303	8026400	-55	180	66.00	
DOFR0092	370700	8026400	-55	180	184.00	
DOFR0093	369100	8026400	-55	180	69.00	
DOFD0094	369500	8026600	-55	180	278.42	
DOFR0095	370700	8026500	-55	180	279.00	
DOFR0096	370300	8026400	-55	180	90.00	In Progress
DOFD0097	369500	8026500	-55	180	44.08	In Progress
DOFR0098	370900	8026350	-55	180	3.00	In Progress



Appendix 2: The following tables are provided to ensure compliance with the JORC Code (2012) requirements for the reporting of Exploration Results for the Opuwo Cobalt Project

#### Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	minerals under investigation, such as	<ul> <li>Reverse Circulation (RC) and Diamond Core (DC) drilling using standard equipment.</li> <li>Sampling was undertaken at one metre intervals for RC and based on lithology/mineralisation changes for DC.</li> <li>Drilling designed to intersect the DOF horizon based on mapped or interpreted location.</li> </ul>
Drilling techniques	<ul> <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> <li>Reverse circulation (RC) percussion and oriented Diamond Core (DC).</li> </ul>
Drill sample recovery		<ul> <li>Recovery generally recorded as good, with poor recovery in a small number of samples due to groundwater.</li> </ul>



Criteria	JORC Code explanation	Commentary
Logging	<ul> <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> <li>Drilling logged in detail on a metre by metre basis for RC and on lithology/mineralisation for DC.</li> <li>Lithology, alteration and oxidation logged qualitatively.</li> <li>Sulphide and quartz vein content logged quantitatively.</li> <li>All DC holes are photographed, as are RC representative chip rays.</li> <li>A Niton portable XRF analyser is used to assist in determining mineralised horizons.</li> </ul>
Sub-sampling techniques and sample preparation	<ul> <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 representivity 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> <li>RC drill samples split using a rig mounted cone splitter.</li> <li>Diamond Core is cut using a core saw. Generally, half core is submitted to the laboratory, except where a duplicate is taken, in which case quarter core is submitted for each.</li> <li>Field duplicates collected to confirm representivity of sampling from both RC and DC drilling.</li> </ul>
Quality of assay data and laboratory tests	<ul> <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> <li>Samples were prepared at Activation Laboratories Limited (ACTLABS) Windhoek laboratory, and assayed at ACTLABS in Ancaster, Canada. A total acid digestion sample preparation method and ICP finish were utilised.</li> <li>No geophysical tools were used to determine any element concentration in these results.</li> <li>A Niton hand held XRF analyser is used to assist in selection of samples to be sent to the laboratory.</li> <li>The drilling program included field duplicates, standards and blanks that were inserted into the drill sequence, in addition to the standard QA/QC samples and procedures used by the laboratory. No abnormalities were detected.</li> </ul>
Verification of sampling and assaying	<ul> <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,</li> </ul>	<ul> <li>Mineralised zones reported in assays correspond approximately with the zones as logged in the field, and the tenor of grades is consistent with previous drilling and surface sampling.</li> <li>Several RC/DC twin holes have been completed, and do not show any systematic bias towards one drilling method or another. Further twin holes</li> </ul>



Criteria	JORC Code explanation	Commentary
	<ul><li>data storage (physical and electronic) protocols.</li><li>Discuss any adjustment to assay data.</li></ul>	<ul> <li>will be completed as part of the current drilling program.</li> <li>An electronic database containing collars, geological logging and assays is maintained by the Company.</li> <li>No adjustment to assay data has been made.</li> </ul>
Location of data points	<ul> <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> <li>All sampling located initially by hand held GPS.</li> <li>UTM grid WGS84 Zone 33 (South).</li> <li>Holes are surveyed using Differential GPS (DGPS) prior to resource modelling.</li> <li>Down hole surveys to measure hole deviation are being routinely completed.</li> </ul>
Data spacing and distribution	<ul> <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> <li>Drill spacing in the initial phase of drilling was approximately every 500 – 1,000 metres along the strike of the DOF horizon (based on mapping / interpretation).</li> <li>Current closer spaced drilling is on a nominal 200 metres x 100 metres grid.</li> <li>Optimum drill spacing to delineate a Mineral Resource, and the category of that resource, is not yet confirmed. This will be determined by consultant resource geologists from assay data / assessment of grade variability.</li> </ul>
Orientation of data in relation to geological structure	<ul> <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> <li>Drilling of angled holes aimed to test perpendicular to DOF horizon. All resource holes are angled at 55 degrees, which, based on visual observations in the drill core, intersects the mineralisation approximately perpendicular.</li> <li>Further drilling will more accurately define the orientation of the geological features and mineralisation and enable any biases to be determined.</li> </ul>
Sample security	The measures taken to ensure sample security.	Drill samples delivered to laboratory by senior Celsius or Gecko Namibia staff.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	A review of drilling methods and sampling procedures has been undertaken by the Company's external Resource Geologists. No significant issues were identified.

#### Section 2 Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary		
Mineral tenement and	<ul> <li>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties,</li> </ul>	<ul> <li>The Opuwo Cobalt Project comprises four Exclusive Prospective Licences EPLs 4346, 4350, 4351 and 4540, currently undergoing the transfer process to a subsidiary of the Company.</li> <li>EPL 4346 is undergoing the renewal process for a further two year term</li> </ul>		



Criteria	JORC Code explanation	Commentary
land tenure status	<ul> <li>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>	from June 2017.
Exploration done by other parties	<ul> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	• Previous work carried out by Kunene Resources includes geological mapping, outcrop sampling, soil sampling, high resolution magnetic and radiometric data and hyperspectral data. Two holes were drilled in 2015, which intersected cobalt, copper and zinc mineralisation.
Geology	<ul> <li>Deposit type, geological setting and style of mineralisation.</li> </ul>	<ul> <li>Copper-cobalt mineralisation is developed in a sedimentary package of likely Nosib succession. Arkose quartzitic sandstones and conglomerates of the footwall Nosib Formation are exposed to the west and southwest</li> <li>The upper Nosib or Ombombo Formation consists of a sequence of finely intercalated siltstones and shales with minor sandstone, marlstone, limestone and dolostone layers.</li> </ul>
Drill hole Information	<ul> <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> <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>	All information detailed in Appendix 1. Drillholes are yet to be accurately surveyed using DGPS.
Data aggregation methods	<ul> <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</li> </ul>	<ul> <li>Simple length weighted averages were used for reporting of significant intercepts. Significant intercepts were reported using a cutoff grade of 0.05% (or 500 ppm) cobalt.</li> </ul>



Criteria	JORC Code explanation	Commentary
	reporting of metal equivalent values should be clearly stated.	
Relationship between mineralisation widths and intercept lengths	<ul> <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> <li>Orientation of drilling vs dip of DOF horizon likely means that the downhole length reported for angled holes (-55 degrees) approximates true width. Holes drilled straight (-90 degrees) would overestimate true thickness.</li> <li>More accurate determination of the orientations and thickness of mineralisation will be possible with further drilling and geological modelling.</li> </ul>
Diagrams	<ul> <li>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</li> </ul>	Refer Figures 1 and 2.
Balanced reporting	<ul> <li>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.</li> </ul>	All holes have been reported in Appendix 1.
Other substantive exploration data	<ul> <li>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</li> </ul>	<ul> <li>Geophysical and geological datasets detailed in previous releases.</li> <li>Aeromagnetic data is used as a guide to determining the presence of the mineralised horizon where it is not outcropping.</li> </ul>
Further work	<ul> <li>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	<ul> <li>Planned further work detailed in this, and previous releases, and in figures.</li> <li>Closer spaced drilling is currently being undertaken at the DOF Prospect, with the aim of delineating a Mineral Resource.</li> <li>Exploration on other parts of the Project will comprise geophysical surveys and surface sampling to define targets for further drilling.</li> </ul>