

26 February 2019

# IP SURVEY DEFINES HIGH-PRIORITY DRILL TARGETS AROUND AND UNDER THE MACY MINE

Symbol Mining Limited ('Symbol', the 'Company') (ASX: SL1) is pleased to announce commencement of an Induced Polarisation or IP ground geophysical survey around the Macy Zn-Pb Mine in Nigeria with very encouraging initial results.

Ground IP surveying method is being undertaken by experienced geophysical contractor SAGAX Afrique SA and was chosen to directly target sphalerite mineralisation around the Macy Zn-Pb Mine in the Upper Benue Trough of Nigeria.

Initial results from six lines of Gradient Array IP on east-west grid lines spaced 50m apart situated immediately north of the Macy Pit shows a strongly chargeable and coincident resistive unit, thought to be a response to sphalerite mineralisation, that can be traced on all lines over the 250m strike length (**Figure 1**). No historic drilling has tested this unit in this area. The unit remains open to the north. The survey will cover 4 km<sup>2</sup> over the entire Imperial Joint Venture mining lease area including the extensive workings to the north, the south and at the Aisha Prospect some 2 km to the north of Macy in the next 1.5 months.

Pole-Dipole surveying conducted on three lines in the same area shows a very distinctive chargeable stratigraphic unit(s) below the Macy Pit (**Figure 4**). This chargeable unit or units is likely to contain disseminated sulphides and work is on-going through our geophysical contractor to model the properties of this unit(s) ahead of drilling.

The respective sections of resistivity show a resistive unit (possibly a quartzite unit) that dips gently to the west and is stratigraphically intact, sitting largely above the chargeable unit(s). However, the chargeable unit(s) appears to be discordant in several zones on the section, raising the possibility that faulting is responsible for local enhancements of chargeability within these rocks. This will be tested by future modelling and drilling.

Both the chargeable-resistive unit extending north from the Macy Pit and the west-dipping chargeable unit(s) under the Macy Pit area represent very high priority drill targets.

On the initial IP results Symbol's CEO Mr Tim Wither commented "IP geophysics is commonly being used across the base metals sector to directly target sphalerite mineralisation, and we are extremely encouraged to see high-quality targets appearing very early in the programme in and around the Macy Mine. We are aware that the majority of the historic drilling at Macy was focussed on developing a JORC-compliant resource but little attention has been paid to the surrounding exploration potential of the Benue Trough.

The initial results from the IP survey are really encouraging and we will be developing a drill programme in the near future to test the 250m strike length north of the Macy Pit and the unusual chargeable unit that has been observed below the pit area that we were previously unaware of".

The Macy Pit is 250m in strike length and follow-up drilling is planned over 250m strike on the northern pit extension to test whether the geophysical anomaly is indeed sphalerite mineralisation as thought and if so, to determine whether the grades and widths of mineralisation can support a cut-back of the pit.



Figure 1. Gradient Array, Chargeability, for the first six lines north of the Macy Mine.



**Figure 2**. Gradient Array, Resistivity, for the first six lines north of the Macy Mine. Notice the chargeability and resistivity responses are coincident, suggesting a response from sphalerite mineralisation.



**Figure 3**. Gradient Array, Conductivity, for the first six lines north of the Macy Mine. Note: the coincident resistive and chargeable anomaly and low conductivity is consistent with sphalerite mineralisation.



**Figure 4**. Pole-Dipole IP Chargeability stacked sections looking due north showing a <u>significant</u>, shallow west-dipping chargeable unit below the Macy Pit. The Macy Pit is shown for reference on each section. All historic drilling is shown with a 50m slice width from IP section. The drilling misses all chargeable units or were never logged and sampled (all holes on Section 1061150N were never logged and sampled).



**Figure 5**. Pole-Dipole IP Resistivity stacked sections looking due north showing a significant, shallow westdipping resistive unit(s) below the Macy Pit. The Macy Pit is shown for reference on each section. All historic drilling is shown with a 50m slice width from IP section (all holes on Section 1061150N were never logged and sampled). For further information please visit Symbol Mining website www.symbolmining.com.au or contact us:

### **Investor and Media Enquiries**

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### **Competent Person Statement**

The information in this report that relates to Exploration Results is based on information compiled by Dr Peter Turner who is a Member of the Australasian Institute of Geoscientists (AIG) and a full-time employee of Symbol Mining Ltd. Dr Turner 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'. Dr Turner consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

# ASX / MEDIA ANNOUNCEMENT



# **JORC Code, 2012 Edition – Table 1**

### **Section 1 Sampling Techniques and Data**

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul> <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> </ul>	<ul> <li>SAGAX Afrique SA ('SAGAX') has been contracted to complete a Gradient Array and Pole-Dipole ground Induced Polarisation or IP survey over at least 4 km<sup>2</sup> of ground around the Macy Mine in central Nigeria;</li> <li>Equipment used is IP Transmitter model VIP 4000 (Iris Instruments), IP Receiver model ELREC-Pro (Iris Instruments), Honda EM 65IS 7.0 KVA mobile generator, 14 porous pots (non-polarizable electrodes), 10 Inoxydable steel electrodes and electrical cables and wires.</li> <li>SAGAX is undertaking all QAQC of field data, report writing and providing advice on target modeling;</li> <li>IP surveying: Gradient Array configuration: Lines are East-West, 50m apart from L1060825N to L1061075N. Lines are 350 – 450m long. 10 Electrodes potential dipole of 50m; spacing factor (n) of 10 (n=1 to 10), i.e. Pole-Dipole spacing of 50 to 500m;</li> <li>IP surveying: Pole-Dipole configuration: 3 lines at 1060835N, 1060925N &amp; 1061075N. a = 50m, n=1 to 10. Total line length surveyed = 1200m;</li> <li>Results processed and presented in Geosoft software. Chargeability and Resistivity inversions of the Pole-Dipole data are performed using the DCIP2D software developed by GIF-UBC (Geophysical Interpretations Facilities – University of British Columbia [UBCI)</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>	Not applicable for IP surveying
Drill sample recovery	<ul> <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</li> </ul>	Not applicable for IP surveying

Criteria	JORC Code explanation	Commentary
	and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	
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>	Not applicable for IP surveying
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>	Not applicable for IP surveying
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> </ul>	<ul> <li>Not applicable for IP surveying</li> <li>Equipment used is IP Transmitter model VIP 4000 (Iris Instruments), IP Receiver model ELREC-Pro (Iris Instruments), Honda EM 65IS 7.0 KVA mobile generator, 11 porous pots (unpolarizable electrodes), 10 Inoxydable steel electrodes (at mobile current electrode) and electrical cables and wires. The frequency used of rthe survey was 0.125Hz or 2 second timing. The receiver synchronizes with the signal transmitted from the transmitter and records the data during the off-time. The decay over time of the signal indicates the chargeability properties of the rocks. The receiver electrodes are a non-polarizing, porous pot electrodes filled with copper sulphate solution and partly buried (and in good ground contact) at the receiver station points.</li> </ul>

Criteria	JORC Code explanation	Commentary
	<ul> <li>Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels</li> </ul>	The transmitter electrodes are covered in aluminium foil and are dug into the ground, soaked with water and attached to single multi-strand heavy duty wire to the VIP4000 IP Transmitter.
	of accuracy (ie lack of bias) and precision have been established.	<ul> <li>At least two data readings at each receiver station were taken. Continuous data readings at each receiver were monitored to ensure that each pot was in good contact with the ground.</li> <li>The data acquired each day is downloaded and undergoes quality control in Geosoft beginning with visual inspection of the decay curves for individual channels and the rectification of any false anomalies that are caused by man-made effects like ROM pads, plant and machinery on the mine site. Likewise, anomalous readings are cross-referenced with aerial photographs and daily notes to determine their authenticity.</li> </ul>
Verification of sampling	<ul> <li>The verification of significant intersections by either independent or alternative company personnel.</li> </ul>	Not applicable for IP surveying
and	The use of twinned holes.	Not applicable for IP surveying
assaying	<ul> <li>Documentation of primary data, data entry procedures, data</li> </ul>	<ul> <li>Field data was downloaded from the receiver after each day and</li> </ul>
	verification, data storage (physical and electronic) protocols.	quality control procedures, involving decay curve and anomaly testing procedures, before being loaded into Geosoft for processing.
	<ul> <li>Discuss any adjustment to assay data.</li> </ul>	Not applicable for IP surveying
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> </ul>	<ul> <li>Garmin Map 64s, a hand-held GPS, was used to locate all sampling points for the survey. This method is deemed appropriate for this type of survey being undertaken.</li> <li>All pickups were recorded in WGS84 Datum, UTM Zone 32N</li> </ul>
	Quality and adequacy of topographic control.	<ul> <li>Garmin Map 64s, a hand-held GPS chosen specifically to give slightly better barometric readings to other Garmin handheld GPSs, was used to locate the altitude of all sampling points for the survey.</li> </ul>
Data spacing and distribution	Data spacing for reporting of Exploration Results.	<ul> <li>Six lines of Gradient Array IP configuration were at 50m line spacings. Three lines of Pole-Dipole IP configuration were not consistently spaced and varied at 90m and 125m due to the lines having to be selected through mine infrastructure.</li> </ul>
	• 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.	Not applicable for IP surveying
	Whether sample compositing has been applied.	Not applicable for IP surveying

Criteria	JORC Code explanation	Commentary
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>The lines of IP surveying were oriented to cross-cut the known mineralization at the Macy Mine at a high angle. Therefore, lines were oriented E-W.</li> <li>Not applicable for IP surveying</li> </ul>
Sample security	The measures taken to ensure sample security.	Not applicable for IP surveying
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	Not applicable for IP surveying

## **Section 2 Reporting of Exploration Results**

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
<i>Mineral tenement and land tenure status</i>	<ul> <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> </ul>	<ul> <li>The IP survey is taking place on mining licence ML27599 which was granted to the Imperial JV Limited on 21/06/2018 and valid for 25 years. Symbol Mining Ltd directly owns 60% of Imperial JV Limited. Furthermore, Symbol Mining Ltd and Goidel Resources Ltd, Symbol's joint venture partner, have agreed to adopt a 50km inclusion zone (area of interest or AOI) around the three principal exploration licences (EL18444, EL18445, EL18448) that surround the mine site, whereby if either party holds, acquires or wishes to acquire a tenement within 50km radius of the Imperial JV Project ('Area of Interest') then the Imperial JV will have the right to acquire those tenements at cost.</li> </ul>
	• 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.	<ul> <li>There are no known impediments or security concerns affecting Symbol's rights over licence ML27599 or any of the other licences that are held in the Imperial JV Limited vehicle</li> </ul>
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Not applicable for IP surveying
Geology	<ul> <li>Deposit type, geological setting and style of mineralisation.</li> </ul>	<ul> <li>Direct analogies are the nearby structurally-hosted Macy Zn-Pb epithermal deposit with sphalerite and galena being the most significant sulphide species of economic interest</li> <li>The potentially larger target sought inside Nigeria's Benue Trough</li> </ul>

Criteria	JORC Code explanation	Commentary
		<ul> <li>where the Imperial JV is operating is a Sedimentary Exhalative or SEDEX-style mineralized system whereby base metals have been deposited concordantly with the sedimentary/volcaniclastic formations during basin development</li> <li>Both deposit styles are thought to occur in the Benue Trough</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>	Not applicable for IP surveying
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 reporting of metal equivalent values should be clearly stated.</li> </ul>	Not applicable for IP surveying
Relationship between mineralisatio n 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>	Not applicable for IP surveying
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>	Not applicable for IP surveying

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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>	Not applicable for IP surveying
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>	Not applicable for IP surveying
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> </ul>	<ul> <li>Continuation of the IP Gradient Array configuration is continuing over 4km2 of the mining licence area and on adjoining licence EL18445 that is controlled by the Imperial JV Limited. IP Pole-Dipole configuration surveying will be completed over all the Macy Mine workings to compliment and add to the existing database to determine the most suitable geophysical targets to drill. 3,000m of drilling has been tentatively planned and budgeted for to test highest priority geophysical targets.</li> </ul>
	<ul> <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>Not applicable for IP surveying at this stage</li> </ul>