

## JORC CODE, 2012 EDITION - TABLE 1

## 1.1 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>	<b>5 1</b>
	<ul> <li>meaning of sampling.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> </ul>	• Sample intervals were based upon geological logging and ranged from 0.5 to 3.0m. Prior to GML involvement in the project drilling was typically sampled on 2m intervals. GML's sampling was generally on 1m intervals to assist in better delineating high grade mineralisation within the deposit. Sampling was continuous throughout the mineralised intervals with the right hand side of the core taken. The sampling methodology is considered to be representative and appropriate for the style of mineralisation at Abra
	<ul> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> </ul>	<ul> <li>(poly-metallic lead-zinc-silver-copper-gold).</li> <li>The samples for Abra's 2018 metallurgical test work program were selected from diamond drill holes completed by Galena Mining in 2017 (holes AB70, AB71, AB72 and AB75). Six representative intervals of mineralisation were selected to be submitted for testwork</li> </ul>
	• 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	representing the major mineralisation styles. Three intervals of stratiform Pb-Ag



	commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.	<ul> <li>submitted. Samples were dispatched to ALS Metallurgy in Burnie, Tasmania for metallurgical test work and mineralogical studies.</li> <li>ALS Metallurgy performed comminution (Bond Ball Work Index), grindability, batch floatation for Galena and locked cycle floatation for circuit development.</li> <li>ALS submitted samples for mineralogical assessment at the float grind size.</li> <li>Concentrates generated were analysed for trace elements and classical wet chemistry for lead.</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>Most holes were diamond drilled from surface to minimise hole deviation using HQ diameter and reduced to NQ diameter between 80 and 200m. Diamond drilling was by wireline methods using standards tubes. Completed hole depths range in depth from 400 to 955 m with and average depth of 650m.</li> <li>GML's 2017 drilling was systematically oriented using either a Reflex ACT Mk.3 or TrueCore core orientation system. The bottom of hole was marked on the core as a reference for structural measurements. Only reliable core orientations were used for obtaining structural measurements.</li> </ul>
Drill sample recovery	• Method of recording and assessing core and chip sample recoveries and results assessed.	All diamond core was measured/recorded for drilling recovery by GML staff (and its predecessors).
	<ul> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> </ul>	<ul> <li>Overall core recovery is excellent due to the silicified and competent nature of the rock with core recoveries typically being 100%.</li> </ul>
	• Whether a relationship exists between	<ul> <li>No grade versus recovery sample biases due to loss or gain of material has been identified.</li> </ul>



Louin		sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	All drill core was logged goalogically and goatophoically in detail sufficient to support the
Logging	•	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.	<ul> <li>All drill core was logged geologically and geotechnically in detail sufficient to support the Mineral Resource estimate, mining and metallurgical studies. Logging included lithology, texture, veining, grain size, structure, alteration, hardness, fracture density, RQD, alteration, mineralisation, magnetic response.</li> <li>Core logging was both qualitative and quantitative. Lithological observations were qualitative. All geotechnical observations and core photographs were quantitative.</li> <li>100% of all mineralised core intervals were logged.</li> </ul>
	•	The total length and percentage of the relevant intersections logged.	
Sub- sampling techniques	•	If core, whether cut or sawn and whether quarter, half or all core taken.	<ul> <li>The metallurgical samples were all from ½ NQ diameter core.</li> </ul>
and sample preparation	•	<i>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</i>	<ul> <li>All core was appropriately orientated and marked up for sampling by company geologists prior to core cutting. Sample intervals for the metallurgical test-work were at the same intervals as the original drill hole assay;</li> </ul>
	•	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	<ul> <li>The six composite samples were designed to represent the major mineralisation styles at Abra. Adjacent wall rock samples were included with each composite to represent potential mining dilution. The individual samples from each intervals was submitted to ALS Metallurgy so that they could individually be mineralogically characterised.</li> <li>For each composite individual bagged samples were composited at the laboratory for the metallurgical testwork program.</li> </ul>
	•	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	<ul> <li>Sample sizes were typically 3 to 6 kg (depending on the length of the sample) and are considered appropriate to the fine – medium grained grain size common in the host rock</li> </ul>



	<ul> <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>and galena mineralisation. These were composited into larger bulk composites (70 kg) for the metallurgical testwork program.</li> <li>Sample sizes are appropriate to the grain size of the material being sampled.</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>The assaying methods are appropriate for the style and tenor of mineralisation at Abra.</li> <li>No XRF or other geophysical data is reported here</li> <li>ALS Minerals (a commercial laboratory) applied two methods of assaying, which were Fusion XRF &amp; classic wet chemistry.</li> <li>The lead concentrates generated in the program were analysed by classical wet chemistry to concentrate sales standard.</li> </ul>
Verification of sampling and assaying	• The verification of significant intersections by either independent or alternative company personnel.	<ul> <li>Most historic significant intersections were verified by GML Geologists Angelo Scopel and Don Maclean while completing a core relogging program in 2017</li> <li>Due to the depth to mineralisation no twinned holes have been attempted yet.</li> </ul>



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	•	The use of twinned holes. Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	<ul> <li>Prior to GML primary geological logging and sampling data was firstly recorded on paper and then entered into electronic files onsite. Electronic copies were transferred periodically to the Perth head office where the master database was administered. Duplicates of the data were kept onsite after validation. Duplicates of all paper copies of sample data were made for site and head office.</li> <li>During GML's 2017 drilling program geological logging and sampling data was firstly recorded on either paper or in a Toughbook computer according to then entered into an electronic Excel and Access database files onsite. Electronic copies are backed up onsite and routinely transferred to the Perth head office. All paper documents are scanned onsite and electronic copies kept. Duplicates of the data are kept in Perth office after validation. Assay data was imported and merged directly from lab digital files in excel then later uploaded in an Access Database. All data has recently been migrated to a Datashed database to ensure data integrity.</li> <li>No adjustments were made to assay data.</li> </ul>
Location of data points	•	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. Specification of the grid system used. Quality and adequacy of topographic control.	<ul> <li>All drill hole collars were surveyed using a DGPS by Haines Surveys (2005), MHR Surveys (2007) and Galt Mining Solutions (2017). DGPS accuracy is within 0.02m.</li> <li>Prior to 2008 diamond holes were routinely surveyed evey 30 to 50m downhole during drilling using an Eastman Single Shot camera. A number of these holes were later gyroscopically surveyed due to the magnetite rich rocks present in some parts of the deposit which renders the Eastman azimuths inaccurate. Some inconsistancies between the Eastman single shot and gyro data was identified in historic reviews, which was largely attributed to incorrect set-up azimuths being provided to the gyro-operators and some poor gyro QAQC controls. The pre-GML dowhole downhole survey data was reviewed and erroneous data discarded or azimuths were corrected to be consistant with neighbour reliable surveying every 30 m while drilling. A north seeking gyro was used to survey all 12 holes drilled by GML in 2017 drilling and 6 historic holes. Drill hole trace acurracy is considered to within several metres downhole (depending on the depth).</li> </ul>



		Data is captured in Map Grid of Australia GDA 94, Zone 50.
		<ul> <li>The topography of the area is very flat. The topographic model used for the resource estimate was generated from DGPS drill collar surveys which is of sufficient accuracy for the resource estimate. A detailed site topographic survey is recommended for future mining studies.</li> <li>Locations of the metallurgical test work samples are shown in the report attached to this table</li> </ul>
Data spacing and distribution	Data spacing for reporting of Exploration Results.	<ul> <li>The footprint of the Abra deposit extends 1,000m east-west along strike and 800m north south. Drill spacing ranges from 150m spaced centres on the periphery to 100 and 50m spacing in the central parts of the deposit. In some small areas drill spacing was close to 50m by 25m. The deposit lies from between 250m and 700 m below surface.</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.	<ul> <li>No resource estimate is reported here. The composites selected for test work were designed to provide spatial coverage of the deposit and mineralisation styles.</li> <li>Half-core samples were composited at ALS Metallurgy to make composite samples representative of run of mine ore.</li> </ul>
	• Whether sample compositing has been applied.	
Orientation of data in relation to geological structure		• Some initial drill holes may have been drilled sub-parallel to mineralised structures which dip steeply to the north but the majority of drill holes are oriented to the south so as to sample possible structures in an unbiased manner. The upper sections of the mineralisation are relatively shallow dipping to the south and can therefore be drilled in either direction.
	<ul> <li>If the relationship between the drilling orientation and the orientation of key mineralized structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</li> </ul>	<ul> <li>It is not considered that there is a significant sampling bias.</li> </ul>



Sample security	•	The measures taken to ensure sample security.	• For GML drilling core was transported to the core yard where it was logged and sampled. Securely sealed sample bulka-bags were either transported by GML staff from the Abra site to Meekatharra for commercial trucking to the laboratory in Perth or trucked directly by GML contractors.
Audits or reviews	•	The results of any audits or reviews of sampling techniques and data.	No audits or reviews of sampling techniques and data have been completed.

## 1.2 Section 2 Reporting of Exploration Results

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

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	Lease M52/0776 and Exploration Licence E52/1455. A 3.0% Net Smelter Royalty exists over leases M52/0776 and E52/1455. Miscellaneous licences G52/286 and L52/021 are also held 100% by Abra Mining and these fall within
	<ul> <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>	
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	<ul> <li>Initial exploration around the Abra deposit by Amoco Minerals in 1974 but they failed to discover the Abra deposit when testing the significant magnetic anomaly associated with the mineralisation. Geopeko Limited entered into a JV with Amoco in 1980 and drilled the discovery hole in 1981. In total they drilled 8 diamond core holes (AB1-11) before being taken over by North Limited which did not complete any exploration. In 1995 RGC Exploration joint ventured in and drilled another deep diamond core hole (AB22A) with a daughter hole wedged from it (AB22B). Both North and RGC were subject to</li> </ul>



		•	<ul> <li>takeovers and the tenement was relinquished in 1999. Old City Nominees Pty Ltd, a private company, the acquired the ground and subsequently vended the project into Abra Mining Limited (AML).</li> <li>AML resumed drilling in 2005 and has completed all holes between and including AB23-59. Abra Mining drilled out the main extents of the deposit and completed various drilling programs focussing on establishing a high tonnage, low grade lead resource that would be amenable to bulk underground mining. Preliminary mining, geotechnical and metallurgical studies were completed.</li> </ul>
		•	ABL was subsequently taken over in 2011 by Chinese company Hunan Nonferrous Metals' Australian subsidiary, HNC Resources Pty Ltd (HNC), following a lengthy acquisition process. Two diamond holes were drilled in 2012 HNC divested the project in 2016. Galena Mining acquired the project in 2017 and floated on the ASX.
		•	Historic exploration work on the project is of a very high standard and the data sets generated are appropriate for use in the mineral resource estimate.
Geology	• Deposit type, geological setting and style of mineralisation.	•	The Abra deposit lies within sediments of the Proterozoic Edmund Group. Abra is a base metal replacement-style deposit hosted by sediments. The primary economic metal is lead. Silver, copper, zinc and gold are also present but are of much lower tenor.
		•	The deposit can be divided into two main parts. The upper "Apron" zone comprises strata-form massive and disseminated lead- sulphides (galena) and minor copper sulphides (chalcopyrite) within a highly altered sequence of clastic and dolomitic sediments. Alteration products include jasperlitic rich sediments (the "Red Zone") and a distinctive stratiform zone of hematite-magnetite alteration (the "Black Zone". The Apron zone extends for 1,000m



		along strike, 700m down dip and dips gently south.
		• The "Core" zone underlies the Apron and comprises an elongate funnel shaped body of hydrothermal breccias, veining and intense alteration overprinting gently south dipping sediments. The veining and breccia zones in the Core typically dip steeply to the north. High grade lead sulphide mineralisation is predominantly hosted in intensely veined zones. High grade zinc sulphide mineralisation (sphalerite) is found in the central parts of the Core. Copper (chalcopyrite) and gold mineralisation is sporadically found throughout the upper parts of the Core zone but forms coherent body at the base of Core. The core zones extends from 300 to 750m below surface and can be traced for 400m along strike.
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> </ul>	<ul> <li>The Abra Base Metal Deposit database contains 77 holes for 46,424m of drilling (14,137 samples) from diamond drilling programs completed at Abra from 1981 until 2017. Of this 12 holes (8,024m) were drilled by Galena Mining Limited (GML).</li> <li>The composite samples for metallurgy were taken from drill holes AB70, AB71 and AB72 and AB75. All drill hole information has been previously reported to the ASX and its exclusion here does not detract from the understanding of this report.</li> </ul>
	• 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.	
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> </ul>	<ul> <li>No exploration results are reported in this report</li> <li>Non aggregated exploration data is reported here</li> </ul>
	<b>o</b>	No metal equivalents are reported here



	•	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.		
	•	The assumptions used for any reporting of metal equivalent values should be clearly stated.		
Relationship between mineralisatio n widths and	•	These relationships are particularly important in the reporting of Exploration Results.	•	No exploration results are reported here. The upper strata-bound mineralisation is gently dipping and drilling intercepts are typically close to true width.
intercept lengths	•	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	•	The lower vein-hosted mineralisation is generally steeply dipping and drilling intercepts are greater than the true width of the mineralisation
	•	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').		
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.	•	Appropriate diagrams are included with this report showing the spatial location of the metallurgical samples.
Balanced reporting	•	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	•	No exploration results are reported here.



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.	<ul> <li>Quantitative optical mineralogy examination of five (5) composites of Abra's (lead) mineralized material was conducted by McArthur Ore Deposits Assessments Pty Ltd (MODA). This found the Abra galena to be quite coarse-grained and free of any elevated deleterious elements.</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>Further Scoping and Pre-feasibility level studies (PFS) are recommended. These studies will examine such aspects as:         <ul> <li>Mining methods</li> <li>Geotechnical</li> <li>Hydrology</li> <li>Metallurgy</li> <li>Plant and infrastructure design</li> <li>Transport and shipping</li> <li>Environmental studies</li> <li>Social impact studies</li> </ul> </li> <li>Additional metallurgy testwork Is recommended to assess ore variability.</li> </ul>