

**14th February 2020**

## **Europa Metals Ltd**

("Europa Metals", the "Company" or the "Group") (AIM, AltX: EUZ)

### **Geotechnical Study Completed, Toral Zn, Pb & Ag Project, Spain**

Europa Metals, the European focused lead-zinc and silver developer, announces the results of its recently completed independent geotechnical study in respect of its wholly owned Toral lead, zinc and silver project ("Toral" or the "Toral Project") situated in the region of Castilla y León, north west Spain.

#### **Highlights:**

- Geotechnical study confirms cut and fill method as best method for mining model
- All development to be contained within the limestone geological footwall
- Estimated size of each mining block 40m although 50m could be achieved
- Geotechnical study is a key component to develop eventual cost estimations at pre-feasibility study ("PFS") level
- Study to be used for next stage of work alongside new metallurgical studies and other project data sets being generated

The Company is pleased to announce completion of a geotechnical study on the Toral Project based on the geotechnical logging of the core drilled previously. The study has been developed by Túneles y Geomecánica, which has a highly experienced geotechnical team with regard to underground and mining works in Spain and South America.

The geotechnical study has provided the Company with important information regarding the cut and fill mining approach outlined in the independent scoping study on Toral, as announced on 10 December 2018.

#### **Further information on the geotechnical study**

The geotechnical study has been based on the geotechnical logging data obtained from the primary logging of all recent drill holes and also through the re-logging of historical drill holes completed by the Company. This large dataset provided all preliminary rudimentary data that could be utilised in initial modelling.

Geotechnical testwork has also been completed on selected drill hole samples; 67 samples in total were utilised and tested at four different laboratories across Spain and the UK. Surface geotechnical data stations were identified to gather data spatially across the Toral deposit, both at surface and underground adits. A total of nine stations were analysed.

The study considered the five main rock units at Toral:

- Orebody
- Limestone
- Carbonaceous Limestone
- Silicified Limestone
- Slate

Two mining methods were considered for analysis: cut and fill (identified as the preferred method in the scoping study) and sub-level stoping. The main objective has been to test the robustness of the mining method selection used in the scoping study and to determine if sub-level stoping offered any benefits above the cut and fill method.

A total of 27 combinations were analysed under finite elements in 2D under the following conditions:

- Mining block area: 40m, 35m, 30m
- Different combination of rock types
- Average depth studied: 600m

#### **Geotechnical conclusions and recommendations**

The geotechnical study recommends that the already selected cut and fill mining method, as presented in the scoping study, in comparison with other methods, would be the best option at this time.

Mining in the slate footwall is anticipated to be the only area that would require systematic sustaining support, with the limestones in the mining hanging wall, requiring less support dependent on the level and type of alteration within the limestone.

The orebody is not highly altered, therefore backfill in these areas would not need to have a cement component as the required conditions for the backfill are not considered too demanding due to the presence of a competent crown pillar.

Utilising a cut and fill method, artificial support would be less systematic and less expensive, mining blocks would be higher and therefore a better recovery ratio obtainable. The size of the mining block would be around 40m, although it is possible to achieve 50m.

Stope height has been estimated based on depth due to the change in tensional rock status with depth:

Up to 600m depth:

- Stopes can achieve 6m to 4m height
- Support system: 10m length in systematic slates (1m grid) and 2-4m occasional in limestone

Deeper than 600 m:

- Stopes will be in the range of 3m height
- Support system: 12-15m length in slates systematic (1m grid) and 4m occasional in limestone

[http://www.rns-pdf.londonstockexchange.com/rns/9858C\\_1-2020-2-13.pdf](http://www.rns-pdf.londonstockexchange.com/rns/9858C_1-2020-2-13.pdf)

Decline reinforcement has been calculated for each rock type and estimation of associated costs can now be calculated using the new rock mass data. More generally, the study has provided the information required to develop cost estimation at PFS level.

**Laurence Read, Executive Director of Europa Metals, commented:**

*"The completion of the geotechnical study for Toral continues to demonstrate the potential for a new mine located in an established mining region within Europe. Work progresses well across all of our other workstreams and we look forward to announcing a further operational update in due course."*

**Myles Campion, Technical Director of Europa Metals, further commented:** "The new information from the geotechnical report will now be incorporated into our ongoing studies on the Toral deposit. The study has been completed to a PFS standard so we can now start to refine our cost parameters further. We look forward to updating the market on other works and results as they are received."

For further information on the Company, please visit [www.europametals.com](http://www.europametals.com) or contact:

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*The information contained within this announcement is deemed by the Company to constitute inside information as stipulated under the Market Abuse Regulation (EU) No. 596/2014.*

**Notes to Editors**

**Appendix: Further information on the Toral Project**

**JORC (2012) Mineral Resource Estimate**

The Toral Project is a traditional polymetallic (lead-zinc-silver) deposit, which is hosted over 6km of strike length of the prospective Lower Cambrian Vegadeo Limestone formation, that is regionally mineralised along more than 40km of its extent. The deposit represents a carbonate hosted, structurally controlled deposit type, demonstrating fault-controlled contact, vein, carbonate replacement and breccia styles of mineralisation situated close to and along the boundary between footwall slates and hanging wall limestones and dolomites. Sub-ordinate lead-zinc-silver mineralisation also occurs wholly within the hanging wall limestones and dolomites, approaching the contact with the slates.

Historic drill hole re-logging undertaken by the Company in 2018 provided improved geological, structure, alteration and weathering/oxidation information, which was incorporated into the interpreted geological and mineralised models for the current JORC (2012) mineral resource estimate. Surface mapping and remote data interpretation by Europa Metals has enabled the development of an interpreted fault model, also incorporated into the aforementioned updated geological and mineralised models used in the mineral resource estimate.

**The latest mineral resource estimate (as of 25 October 2019) for the Toral deposit comprised, at a 4% cut-off:**

- An Indicated resource of approximately 2.7Mt @ 8.9% Zn Equivalent (including Pb credits), 5% Zn, 4.2% Pb and 32g/t Ag
  - o Including 130,000 tonnes of zinc, 110,000 tonnes of lead and 2.8 million ounces of silver
- An Inferred resource of approximately 16Mt @ 7.2% Zn Equivalent (including Pb credits), 4.5% Zn, 2.9% Pb and 22g/t Ag
  - o Including 690,000 tonnes of zinc, 450,000 tonnes of lead and 11 million ounces of silver
- Total Resources of approximately 18Mt @ 7.4% Zn Equivalent (including Pb credits), 4.5% Zn, 3.1% Pb and 24g/t Ag
  - o Including 830,000 tonnes of zinc, 570,000 tonnes of lead and 14 million ounces of silver

--The latest resource update identified potentially economic mineralisation ranging from surface to approximately 1,100m below surface. The block model currently extends for a strike length of 3,600m and is still open to the east and west along strike and also at depth where it has not yet been closed off.

Cut-Off Zn Eq (PbAg)%	Tonnes (Millions)	Density	Zn Eq (Pb)%	Zn Eq (PbAg)%	Zn %	Pb %	Ag g/t	Contained Zn Tonnes (000s)	Contained Pb Tonnes (000s)	Ag Troy Oz (Millions)
<b>Indicated</b>										
6	2.1	3	10	11	6	4.7	35	120	100	2.4
5	2.3	2.9	9.6	10	5	4.5	34	130	100	2.6
<b>4</b>	<b>2.7</b>	<b>2.9</b>	<b>8.9</b>	<b>9.5</b>	<b>5</b>	<b>4.2</b>	<b>32</b>	<b>130</b>	<b>110</b>	<b>2.8</b>
3	3.0	2.9	8.3	8.9	5	3.9	31	140	120	2.9
<b>Inferred</b>										
6	11	2.9	8.4	8.9	5	3.5	26	550	360	8.8
5	12	2.9	7.9	8.4	5	3.2	24	610	400	9.7
<b>4</b>	<b>16</b>	<b>2.9</b>	<b>7.2</b>	<b>7.6</b>	<b>5</b>	<b>2.9</b>	<b>22</b>	<b>690</b>	<b>450</b>	<b>11</b>
3	18	2.9	6.7	7.1	4	2.7	21	740	480	12
<b>Total</b>										
6	13	2.9	8.7	9.2	5	3.7	28	670	460	11
5	15	2.9	8.2	8.6	5	3.4	26	740	510	12
<b>4</b>	<b>18</b>	<b>2.9</b>	<b>7.4</b>	<b>7.9</b>	<b>5</b>	<b>3.1</b>	<b>24</b>	<b>830</b>	<b>570</b>	<b>14</b>
3	21	2.9	6.9	7.3	4	2.9	22	880	600	15
<b>Transitional Oxide Material Total</b>										
4	3	2.9	5.8	6.3	3	3.2	27	87	97	2.6
<b>Unweathered Fresh Rock Total</b>										
4	15	2.9	7.8	8.2	5	3.1	23	740	470	11

**Table 2:** Summary of mineral resources for the Toral property reported at a 4.0% Zn equivalent cut-off grade (including Pb and Ag credits) and estimated grade and tonnages at the various cut-off grades. Figures are rounded to reflect the accuracy of the estimate and as such totals may not cast.

**Notes:**

1. No mineral reserve calculations have been undertaken. Mineral resources that are not mineral reserves do not have demonstrated economic viability.
2. Numbers are rounded to reflect the fact that an Estimate of Resources was reported as stipulated by JORC 2012. Rounding of numbers may result in differences in calculated totals and averages. All tonnes are metric tonnes.
3. Zn equivalent calculations were based on 3 year trailing average price statistics obtained from the London Metal Exchange and London Bullion Market Association giving an average Zn price of US\$2,780/t, Pb price of US\$2,200/t and Ag price of US\$16.4/oz. Recovery and selling factors were incorporated into the calculation of Zn Eq values. It is the Company's opinion that all the elements included in the metal equivalents calculation (Zinc, Lead and Silver) have a reasonable potential to be recovered and sold.
4. Zn Eq (PbAg)% is the calculated Zn equivalent incorporating silver credits as well as lead and is the parameter used to define the cut-off grade used for reporting resources ( $Zn\ Eq\ (PbAg)\% = Zn + Pb*0.935 + Ag*0.018$ ).
5. Zn Eq is the calculated Zn equivalent using lead credits and does not include silver credits ( $Zn\ Eq = Zn + Pb*0.935$ ).
6. The mineral resource estimate set out above for the zinc, lead and silver mineralisation in the Toral project area is based on a 3D geologic model and wireframe restricted block model that integrated the exploration work on the Toral project up to 30 September 2019. The block model used uniform cell size of 50x4x50m to best suit the orientation of the mineralisation and sample spacing. The block model was rotated by 20° in plan view to best match the trend of mineralisation. Sub cells were applied to better fit the wireframe solid models and preserve accurate volume as much as possible. Cells were interpolated at the parent block scale using an ordinary kriging.
7. Top cuts were applied to the composite assay grades for 20% Zn, 17% Pb and 125 g/t Ag, any value above the top cut value was reduced to that grade.
8. The Indicated and Inferred mineral resource category for the Toral lead-zinc-silver project set out in Table 2 (at cut-off grades  $\geq 4\%$  Zn Equivalent) comply with the resource definitions as described in the Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves. The JORC Code, 2012 Edition. Prepared by: The Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia (JORC).
9. The tonnes and grades reported at a cut-off grade of 3% Zn equivalent are below the economic cut-off grade of 4% and

as such should not be considered mineral resources, they are shown here for comparison purposes only.

### Bulk density

The resource database contains 2,373 bulk density measurements, with a total of 177 within the mineralised wireframe.

The mean for the mineralised domain transitional zone is 2.75 g/cm<sup>3</sup> and the mean for the mineralised domain fresh material is 2.85 g/cm<sup>3</sup>. A broad linear relationship between Pb+Zn grade and bulk density was identified from scattergrams and the formula  $2.75 + 0.02(\text{Pb}+\text{Zn}\%)$  used to estimate block density within the block model.

### Preliminary independent metallurgical test results from Wardell Armstrong International ("WAI") (December 2019).

Overview of sample and metallurgical testwork carried out by WAI:

- Grind calibration tests to assess the Bond Abrasion, Rod and Ball work indices and uniaxial compressive strength;
- First open flotation tests, optimisation of grind size, float cleaning tests and rougher regrind testing;
- Petrographic/mineralogical and scanning electron microscope (SEM) work;
- First/single locked cycle testing; and
- A series of comminution tests were undertaken to investigate the crushing and grinding characteristics of the sample. The testing conducted investigated conventional crushing technologies, the results of which are summarised in the following table:

Comminution Testwork Results		
Comminution Test	Units	Value
Unconfined Compressive Strength (UCS)	MPa	51.8
Bond Abrasion Index	-	0.5227
Bond Rod Mill Work Index	kWh/t	12.69
Bond Ball Mill Work Index	kWh/t	9.83

### Flotation Testwork

A series of tests were undertaken to investigate the recovery of lead and zinc to separate concentrates by means of froth flotation. The testing conducted consisted of: eight rougher flotation tests, four first-stage cleaner flotation tests, six three-stage cleaner flotation tests and a single locked cycle flotation test.

The results of the locked cycle test are summarised below.

Table 3: Locked cycle flotation test results

Product	Mass (%)	Assay			Recovery (%)		
		Pb (%)	Zn (%)	Ag (ppm)	Pb	Zn	Ag
Pb Cl 3 Conc	2.5	57.47	10.06	1,457	84.30	9.65	90.35
Zn Cl 3 Conc	3.4	1.16	55.78	38.6	2.25	70.71	3.17
Zn Cl 1 Scav Tailings	5.3	1.74	2.89	28.8	5.36	5.82	3.76
Zn Ro Tailings	88.8	0.16	0.41	1.3	8.09	13.82	2.73
Feed	100.0	1.73	2.65	40.9	100.00	100.00	100.00

The locked cycle test achieved a lead recovery of 84.3% to a concentrate grading 57.5% Pb and a zinc recovery of 70.7% to a concentrate grading 55.8% Zn. 90.3% of the silver was also recovered to the lead concentrate at a grade of 1,457ppm Ag.

### Economic highlights from the Company's selected development scenario

Estimated economic forecasts for the Toral Project based on the current level of work (+/-30%) from the Scoping Study (December 2018) comprise:

- US\$110 million net present value (NPV) using a discount rate of 8%;
- 24.4% internal rate of return (IRR);
- Estimated US\$33 million CAPEX for a proposed 450ktpa design capacity plant, including associated auxiliary costs, with infrastructure being situated near portal entrance on the north side of the deposit;
- Estimated total CAPEX of US\$110 million;
- US\$25 per tonne indicative OPEX processing cost at steady state conditions;
- US\$36 per tonne indicative OPEX mining cost utilising mechanised cut and fill; and
- 15-year production plan, with significant potential for extension.

### Basis for announcing economics

The factors that lead the Company to believe that it has a reasonable basis for announcing a production target and forecast financial information are detailed in the Scoping Study and can be summarised as follows:

Three conceptual underground mining development and production scenarios were considered and developed throughout the Scoping Study, resulting in the identification of a preferred scenario, highlights from which are set out below:

- decline ramp access to the north of the deposit, targeting mine production within the higher-grade core towards the centre of the planned mining blocks;
- entry to mine via a principal decline reaching various levels;
- series of internal mining inclined ramps constructed to access levels;
- mechanised cut and fill (MCAF) mining method proposed;
- 4x4 metre mine standard development size;
- a ventilation raise would be drilled (raise-bored) to provide both adequate ambient conditions underground and a second, emergency means of access/egress into the mine;
- ore transported to a flotation process plant by conveyor or haul truck from the mine and crushed to a suitable product for milling;
- milled ore floated by standard flotation technology to provide lead and zinc concentrate, with silver probably reporting to the lead concentrate for sale as a combined product; and
- 4% Zn Eq cut-off used with potential for mine life extension.

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