

**28 February 2020**

## **Europa Metals Ltd**

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

### **Initial Hydrogeological Study Completed and First Water Monitoring Stations Established, Toral Pb, Zn & Ag Project, Spain**

Europa Metals, the European focused lead-zinc and silver developer, is pleased to announce the results from a recently completed conceptual hydrogeological study and an update on the water monitoring programme 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:**

- Objectives of the Company's hydrogeological programme:
  - o Monitor local baseline conditions at Toral to assess the project's potential impact on the area;
  - o Analyse water conditions within the potential future mining area; and
  - o Interpret data and use conclusions for updated project economics which will ultimately form part of a proposed full mine development application;
- 8 piezometers for monitoring local water conditions now in place at Toral and first baseline data received - monitoring expected to be run on a quarterly basis;
- Initial hydrogeological study concluded:
  - o Project hosted in limestones but does not have developed levels of drainage created from the dissolution of sedimentary material (likely seal against the surrounding water table);
  - o 245.55l/s flow across the proposed mineable project area falls well within acceptable levels for economic mine development; further work, including a borehole test, will need to be undertaken to enable a pre-feasibility study ("PFS");
- Future project operations deemed unlikely to have a detectable influence on the Sil River located in the immediate vicinity.

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

*"Assessing water conditions is a crucial component of any mine development proposition. The monitoring of local water conditions from the newly installed piezometers will enable us to model and understand the existing local hydrogeological conditions to thereby ensure that the correct mine development decisions are undertaken for Toral, with reference to project location.*

*"The results from the initial conceptual hydrogeological study on the Toral Project are positive, outlining a water management scenario that falls well within acceptable boundaries for mine development in terms of economic viability and environmental management. Additional work will need to be undertaken in order to test the conceptual study's findings, but the initial results indicate that Toral should have limited impact on the local water conditions and that it does not suffer from any significant water issues that could impact on the future economic development of the project."*

#### **Installation of piezometers**

The Company is pleased to announce that eight piezometers for monitoring water conditions in and around the Toral Project area have been installed as part of a planned quarterly monitoring programme.

Beginning this month, the water level in the network in the immediate vicinity of Toral has been monitored via both the piezometers and through readings taken from water levels in the neighbouring surface streams. During 2020, the Company intends to increase its confidence level in the current hydrogeological model by installing additional piezometers and undertaking pumping testwork to confirm current assumptions.

The planned piezometer programme for 2020 follows the recommendations of an initial conceptual

hydrogeological study, which was commissioned by the Company as part of an ongoing overall hydrogeological programme. The study was completed by independent consultants, Ingeniería y Consultoría en Recursos del Subsuelo, S.L, and assessed the following parameters:

- Permeability of the area where the project is anticipated to be developed;
- Future monitoring of the piezometric network;
- Inflow expected during potential future mining works; and
- Flow direction and time.

### **Principal conclusions of initial conceptual hydrogeological study**

Although the Toral Project is hosted in limestones, it does not demonstrate a highly developed karst or endokarst system (i.e. a drainage system created from the dissolution of sedimentary rock, sometimes incorporating sinkholes and caves) that could drain to the local water table.

Distinct zones within the limestone were also clearly identified:

1. Vadose area: developed between the surface and the water table. The drainage is free, by gravity, and forms an underground run-off driven by vertical direction that transfers the surface recharge to the saturated area.
2. Saturated or groundwater area: constitutes the watered area of the system below the water table, of which two areas can be differentiated:
  - a. Shallow area: an area approximately 60-100m thick below the water table that is possibly reduced towards the head of the system, which is characterised by greater karstification and, therefore, permeability ( $2.3 \times 10^{-6}$  m/s). It is the most transmissive level of the saturated area of the karst; and
  - b. Deep area: characterised by a drastic decrease in the density of karstification and, therefore, of permeability ( $1.3 \times 10^{-8}$  m/s), as compared to the abovementioned shallow area.

The proposed future underground mine at the Toral Project would be located mostly in the saturated area, below the shallow water table and reaching the deep area between 300 metres above and 300 metres below sea level. Underground water contributions are expected to occur within this saturated area but, as the underground water will tend to decrease at depth (as demonstrated by the permeability of the area), potential mining operations have been assessed as being within manageable operating parameters. To identify a possible increase in the permeability induced by a change in the water levels and a change in the hydraulic gradient, a piezometric monitoring programme has been implemented in advance of the mine's development.

There are smaller mining voids located to the east of the deposit and at higher altitudes (>400 metres above sea level). Potential mining areas could open up in the vadose area of the karst such that typical problems associated with underground contributions would not be expected. In any event, drainage would be affected naturally by gravity.

The underground contribution that the future mine would receive in the most likely permeability scenario has been estimated. For modelling purposes, the average permeability range for the whole system has been considered at around  $10^{-7}$  m/s given the very nature of the karst medium. Although the permeability of the in-depth massif is in the order of  $10^{-8}$  -  $10^{-9}$  m/s, the probability of intercepting collecting structures or karst ducts requires consideration of higher assembly permeabilities as a precautionary principle.

The estimated underground contribution to all projected extraction work reaches 245.55 l/s in the most likely scenario. Such estimate assumes that the Sil River acts as a constant level edge, meaning that the contribution comes from the reserves of the aquifer system and would include the possible induced infiltration from the river.

The initial study also posits that the relationship between the potential underground works and the Sil River will be largely limited, as a result of:

- No work being carried out in the shallow area of the saturated area in the surroundings of the river;
- The presence of an important low permeability area between the river and the nearest potential mining works;
- The connections that can be made occurring through isolated elements with the function of drainage (ducts and collecting fractures), such that they can also be detected in advance during the works and measures taken to avoid and/or tackle preferential hydraulic connections; and
- The depression generated by pumping having no detectable influence on the Sil River, given the difference in the order of magnitude of the estimated mining pumping flows and the Sil River (l/s vs.  $m^3/s$ ).

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

4	18	2.9	7.4	7.9	5	3.1	24	830	570	14
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 1:** 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  $2.75 + 0.02(Pb+Zn\%)$  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:

<b>Comminution Testwork Results</b>		
<b>Comminution Test</b>	<b>Units</b>	<b>Value</b>
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 2: Locked cycle flotation test results**

<b>Product</b>	<b>Assay</b>				<b>Recovery (%)</b>		
	<b>Mass (%)</b>	<b>Pb (%)</b>	<b>Zn (%)</b>	<b>Ag (ppm)</b>	<b>Pb</b>	<b>Zn</b>	<b>Ag</b>
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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