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## Polymetal International plc

Mineral resource estimate for Prognoz silver deposit

Polymetal announces the JORC (2012) Mineral Resource estimate for the Prognoz silver deposit. The fresh estimate upgrades the property's resources to 256 Moz of silver equivalent at 789 g/t.

"In-fill drilling results exceeded our expectations and strengthened our belief that Prognoz may succeed Dukat as one of the largest primary silver deposits in the world", said Vitaly Nesis, Group CEO of Polymetal.

#### **HIGHLIGHTS**

- The new estimate incorporates data from 532 additional diamond drill holes (71,276 m) completed by Polymetal in 2017-2018.
- Compared with the previous Mineral Resource estimate completed by Micon in 2009, Polymetal added lead and
  used higher cut-off grades together with conservative extrapolation parameters to ensure a more robust and reliable
  estimate. As a result, the new estimate in comparison with the previous one has the following key characteristics:
  - Silver equivalent contained totaled 256 Moz at 789 g/t
  - Pure silver contained decreased by 19% from 293 Moz to 237 Moz
  - Average silver grade increased by 25% from 586 g/t to 731 g/t
  - o Average vein width increased by 15% from 1.9 m to 2.2 m
  - o The share of open-pit resources comprises 46%
  - The share of resources within the Indicated category increased from 50% to 61%
  - The share of resources in two largest veins (Main and Swamp) increased from 73% to 80%
- In 2019 Polymetal plans to complete the following work:
  - 24.3 km of diamond drilling to upgrade the existing inferred resources to indicated category. Based on historic experience, the management expects at least 80% conversion rate
  - 15.7 km of diamond drilling to establish new resources on extensions of Main and Swamp Zones along the strike as well as at Lucky, Spring, Faraway, and Sunny veins. Polymetal expects to add at least 60 Moz of contained silver after completing this campaign.
  - Advanced metallurgical testing and detailed geometallurgical mapping of all indicated resources to establish the preferred processing route and tailings storage method. The most likely flowsheet will include both cyanidation and conventional sulfide flotation.
  - Geotechnical studies to establish the basic design criteria for open pit optimization and the selection of underground mining system
  - Comprehensive analysis of potential construction sites and sources of water and construction aggregates

These activities are necessary to complete the Pre-Feasibility Study (PFS) and estimate JORC-compliant ore reserves at Prognoz. The results of the PFS are expected in H1 2020. The delay in timing is largely driven by the need to better understand the limits of oxidation within mineralized material, a key input for the selection of the processing plant design criteria.

#### Prognoz Mineral Resource estimate in accordance with the JORC Code (2012) as at 01 August 2018

	Tonnage		Grade			Content	
	Kt	Ag, g/t	Pb, %	Ag Eq, g/t	Ag, Moz	Pb, Kt	Ag Eq, Moz
Indicated							
Open-pit	2,930	779	2.4	833	73	70.9	79
Underground	2,640	842	1.9	917	71	49.0	78
Total Indicated	5,570	808	2.2	873	145	119.8	156
Inferred							
Open-pit	1,770	610	2.2	660	35	39.7	38
Underground	2,730	650	1.4	682	57	38.2	62
Total Inferred	4,500	635	1.7	673	92	77.9	99
Indicated + Inferred							
Open-pit	4,700	716	2.4	769	108	110.6	116
Underground	5,370	744	1.6	807	128	87.2	140
Total Indicated + Inferred	10,070	731	2.0	789	237	197.8	256

Notes: Mineral Resources are reported on the basis of a 106 g/t Ag cut-off for the open pit component (within an optimized pit shell, based on a US\$ 16/oz silver price), and a 240 g/t Ag cut-off for the underground component (below the pit shell). A Pb price of US\$ 2,200/t was used for the metal equivalent calculation only. For more information please refer to the JORC Table 1 in the appendix.

The Mineral Resource estimate was prepared by Polymetal and independently audited by SRK Consulting (Russia) Ltd, effective as at 1 August 2018. The review was carried out Robin Simpson, who is employed full-time by SRK Consulting (Russia) Ltd, as a Principal Consultant (Resource Geology). Mr Simpson is a Member of the Australian Institute of Geoscientists (AIG), and has sufficient experience 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" (JORC Code).

#### **LOCATION**

The Prognoz licence is located in the Verkhoyansk municipal district in the Republic of Sakha (Yakutia), part of the Russian Far East. The property is located approximately 450 km from the regional center of Yakutsk (population of 300,000) and approximately 220 km from the municipal center of Batagai (population of 3,700). The site is remote with seasonal access by winter road. There is no infrastructure at or near the property.

#### **GEOLOGY**

The property is located within the Verkhoyansk mobile belt of northeastern Yakutia. Silver-copper-lead-zinc mineralization, represented by quartz-carbonate-sulphide veins, is located in a sequence of sedimentary rocks composed of Triassic sandstones and siltstones. Nine mineralised zones are defined, with Main and Swamp being the largest (strike length of up to 4 km). Mineralized material is partially oxidised with the depth of weathering varying widely dependent on relief and proximity of water table.

#### ABOUT POLYMETAL

Polymetal International (LSE, MOEX: POLY, ADR: AUCOY) (together with its subsidiaries – "Polymetal", the "Company", or the "Group") is the top-20 global gold producer and top-5 global silver producer with assets in Russia, Kazakhstan and Armenia. The Company combines strong growth with a robust dividend yield.

#### **Enquiries**

Media		Investor Relations		
FTI Consulting Leonid Fink Viktor Pomichal	+44 20 3727 1000	Polymetal Evgenia Onuschenko Maryana Nesis	ir@polymetalinternational.com +44 20 7016 9505 (UK)	
Joint Corporate Bro	lave	Michael Vasiliev	+7 812 334 3666 (Russia)	

Polymetal International plc 2

Morgan Stanley

+44 20 7425 8000

**RBC Europe Limited** 

+44 20 7653 4000

Andrew Foster Richard Brown Tristan Lovegrove Marcus Jackson

Panmure Gordon

+44 20 7886 2500

Adam James James Stearns

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#### Appendix: JORC Code Table 1 for Prognoz Deposit

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

#### Criteria

#### Commentary

## Sampling techniques

The database used for Mineral Resource estimation is based on three main phases of sampling:

- 2017-2018 (269 core holes for 34,245m, and 1,042m of channel sampling in trenches)
- 2006-2009 (873 core holes for 78,925m, 4 exploration adits developed to extract metallurgical samples, and 6,207m of channel sampling in trenches and the adits)
- 1990-1998 (66 core holes for 13,872m, and 10,638m of channel sampling in trenches)

#### **Drilling 2017-2018**

- In 2017 and the first quarter of 2018, half-core was sampled. The sampling boundaries were chosen according mineralogical composition, and structural and textural characteristics. Within zones identified by the geologists as mineralised (and for 5m either side into the host rocks), the maximum sampling interval was 1.3 m, the minimum interval was 0.3 m, and the average 0.8 m. For barren rocks, the average sampling length was 3.5 m, with a maximum of 5 m. The samples from the barren intervals were made up of 15-20 evenly-spaced chips with a size of 1-2 cm.
- In the mineralised zones, sample weights range from 2 to 15 kg, with an average of 5 kg. The chip samples from the barren zones average 0.5 kg. Sampling correctness was ensured by weighing of all samples, selective weighing of the retained core halves, and submitting retained halves to primary laboratory for 5% of samples.
- From April 2018, full core was sampled. The average sample weight was 9-11 kg.

#### Channel sampling 2017-2018

- Zones identified as potentially mineralised were sampled with a profile of 5 x 10 cm across the entire mineralisation thickness, extended by 5 m either side into the host rocks. This sampling represents 40% of the length exposed by the trenches. Individual sample lengths range from 0.3 to 1.3 m, with an average length of 0.9 m. The sampling boundaries were chosen according mineralogical composition, and structural and textural characteristics. The unmineralised host rocks were chip sampled, with sampling lengths from 2.2 to 5.0 m, and 4.5 m average.
- The mass of the channel samples equals from 5.0 to 15 kg, average 13.8 kg; the chip samples from the host material range from 0.5 to 1.1 kg, average 0.7 kg.
- · Sampling was carried out under the supervision of a geologist.
- Sampling was done manually with the use of hammer and chisel. weight measurements in the field were a quality control. The discrepancy between actual and theoretical weights did not exceed 10%.
- Representativeness of channel sampling was controlled by parallel channels with a cross-section of 5 x 20 cm.

#### **Drilling 2006-2009**

- Half-core was sampled, and the sampling boundaries were chosen according mineralogical composition, and structural and textural characteristics. The maximum sampling interval was 1.0 m, the minimum interval was 0.3 m.
- All samples were weighed. Sample weights ranged from 0.5 kg to 3.6 kg, with an
  average of 1.7 kg. The actual weight of the core samples was compared against the
  theoretical weight; deviation between actual and theoretical weights did not exceed 20%.

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#### Channel sampling 1990-1998, and 2006-2009

- All areas of hydrothermal alteration, mineralisation, veins, crushing zones and fracture zones uncovered by trenches were channel-sampled. Trench exposures were sampled along the entire length. Channels were cut on the trench walls after thorough cleaning. The channel profiles were 10 x 3 cm.
- The length of channel samples in mineralised zones ranged from 0.2 to 1.2 m, the average was 1.0 m. In unmineralised rocks the sample lengths were up to 5 m. Vein bodies and crushing zones with a thickness of 0.01-0.2 m were sampled by extracting chips from the exposed vein along a length of 1 m and width of 3 cm. Sample weights ranged from 1.6 to 13.5 kg with an average of 8.5 kg.
- Sampling was done manually with the use of hammer and chisel. Weight measurements in the field were a quality control. The discrepancy between actual and theoretical weights did not exceed 10%.

#### **Drilling 1990-1998**

- From 1990 to 1993, half-core was sampled. From 1994 onwards, full core was sampled.
- The average length of core samples was 0.8 m with a range of 0.2 to 1.5 m. Average weight of samples is 5.9 kg.
- Each drill run of core was split into samples according to geological boundaries. For holes with a core recovery of less than 70%, the entire core-barrel was usually taken as one sample, along with the sludge from the same sampling interval.

## Drilling techniques

- Drilling operations for the 2017-2018 campaign were carried out by the contracting
  organization "OGK-Group" JSC, and then by their subsidiary "HGRP" LLC. Drilling machines
  Christensen CS14, Christensen CS5 were used for these works. Hole depths ranged from
  30.0 m to 340 m. The primary diameter used for core drilling was HQ, with NQ occasionally
  used where a reduced diameter was needed for hole completion.
- Drilling during 2006-2009 was performed by SKB-4, ZIF 650, Dimec-262 machines. Hole diameters of HQ and NQ were used.
- Core drilling in 1990-1998 was performed by SKTO-65 machines.
- Drill core was not oriented.

# Drill sample recovery

- For all campaigns, core recovery was quantified by length measurements, with weight
  measurements used as a quality control check. Methods used to maximize recovery included
  reduced air flow, drilling speed and pressure on the drill face, and shorter intervals between
  retrieving the core-barrel.
- For the 2017-2018 campaign, recovery is reported to average 95% in the mineralised zones, and 96% in the host rocks. Holes were re-drilled if recovery in the mineralised zone was below 90%.
- For the 2006-2008 campaign, recovery for all rocks is reported to be mainly in the range of 95-100%, and rarely less than 90%.
- For the 1990-1998 campaign, the average recovery of the mineralised core was 83%, and average recovery in the host rocks was 87%.
- Statistical analysis showed there is no significant correlation between recovery and Ag grade, therefore low recoveries are considered unlikely to be a source of significant bias in the sampling results.

#### Logging

- Core and channel samples have been logged at a level of detail appropriate to support Mineral Resource estimation, mining studies and metallurgical studies.
- The key logging fields are qualitative in nature.
- All core drilled by Polymetal has been photographed in wet form, and the archive of photographic documentation for core from previous campaigned gives close to 100% coverage.

#### Sub-sampling techniques and sample preparation

- Half-core sampling, with sawing along the axis, was used for most campaigns. The
  exceptions are full-core sampling during 1990-1993, and during the latter part of the 20172018 campaign. Also, for the 2017-2018 campaign, intervals identified as barren (and more
  than 5m from potential mineralisation) were chip sampled instead of core sampled.
- For the 2017-2018 campaign, sample preparation was done by "Verkhoyanskoye Serebro"

- LLC using Rocklabs equipment. The general preparation scheme was: crushing on a Boyd jaw crusher crushing to -3 mm, attrition on a flow mill to -0.5 mm, attrition on a standard mill to a grade -0.074 mm. Appropriate sub-sample weights were calculated according to the Richards-Chechchet formula.
- For the 2006-2009 campaign, samples were prepared on site using crushing equipment from RockLab company. Samples weighing more than 2 kg were split and reduced in accordance with the Richards-Chechchet formula; samples weighing less than 2 kg were processed without splitting. These geochemical samples were then processed by single-stage crushinggrinding cycle to reduce the particle size to under 0.074 mm without further splitting.
- For the 1990-1998 campaign, samples were prepared at the grinding facility of EKL of "Yangeologiya" State Unitary Mining and Geological Enterprise. Samples with a weight up to 13.5 kg were consequently split and reduced at the appropriate stages of grinding in accordance with the Richards-Chechchet formula.
- In the opinion of the Competent Person, the sample preparation techniques are appropriate for the mineralisation characteristics of the deposit, and for the grain size of the material being sampled.
- During the sub-sampling stages, quality control procedures used included duplicates, blanks and size fraction analysis.
- For the samples taken from half-core, sampling of the second half-core was used to ensure representativeness of the in situ-material.

#### Quality of assay data and laboratory tests

- Samples collected by Polymetal in 2017-2018 were analysed in two stages. The first stage was on-site analysis of test aliquots using an ElvaX Geo CEP-01 portable XRF analyser. For samples that returned a grade of >50 g/t Ag, analytical subsamples (250g) were sent for fire assay: SGS Laboratory at Chita was the laboratory used for the initial part of the campaign; later samples were sent to OJSC IRGIREDMET (Irkutsk).
- The samples sent to SGS or IRGIREDMET were analysed by fire assay for Ag and Au, and by AAS for Pb, Zn, Cu, Sb and Mn.
- For the earlier campaigns, the first stage of screening was done using semi-quantitative spectral analysis, XRF analysis, or gamma-activation analysis. Samples selected for fire assay were analysed at JSC Yangeologiya (Batagai) or OJSC IRGIREDMET (Irkutsk).
- SRK reviewed methods and results of the two stages of sample analysis, and considers the
  risk is low that a materially significant proportion of mineralised samples did not proceed to
  the fire assay stage.
- Quality control procedures included the use of certified reference materials, duplicates, blanks, and analysis of check samples by other laboratories. From reviewing the results of the control samples, SRK concluded that acceptable levels of accuracy and precision have been established for the Mineral Resource classifications subsequently applied to the deposit.

# Verification of sampling and assaying

- SRK geologists examined a selection of significant intersections during the 2017 site visit.
- The 2017-2018 campaign included 10 twin holes, to verify the previous drilling. The results
  from the twin holes were sufficiently aligned with the earlier drilling to support a decision to
  include the previous sampling in the current Mineral Resource estimation.
- The systems used at Prognoz for documentation of primary data, data entry, data verification, and data storage followed Polymetal's internal protocols. The work done by Polymetal included conversion of the paper-based information from previous sampling campaigns into the combined digital database. In SRK's opinion, Polymetal's protocols are in accordance with the best practices internationally.
- No adjustments were made to the assay data.

#### Location of data points

- From 2016 to 2018 Polymetal engaged specialist companies NMK LLC, SIPROEN LLC, GINGEO LLC and HGRP LLP to establish reference points over the deposit area, survey historical collars and workings, and collect information to build a topographic model.
- OGK Group was responsible for setting up of Polymetal's boreholes and instrumental surveying of their actual positions after completion of drilling. Hole collars were marked out and georeferenced using a Nikon Npl-322 total station. Surveying accuracy was checked by a Polymetal's surveyor using the Sokkia CX-105L total station. Accuracy of marking and surveying of actual drillhole positions were checked by Polymetal's surveyors on a regular basis.
- Deviation measurements were performed in all Polymetal drill holes. From mid-May 2017, the
  magnetometric inclinometer IMMN 32A was used for directional survey and then the optical
  inclinometer Reflex Maxibor II 210-243 was employed, which enables surveying inside the
  drill pipe string. Survey measurements were taken every 10 m.

Data spacing and distribution	<ul> <li>The grid system used is a local system based on the Pulkovo 1942 datum. NMK LLC developed a key to transform this system to the MSK-14 system (Zone 5, Yakutia). Elevations are reported relative to the Baltic 1977 datum.</li> <li>In SRK's opinion, location data and topographic control are of high quality, and do not impede confidence in the Mineral Resource estimation.</li> <li>Most of the Prognoz deposit is covered by drilling at a spacing of 40m x 40m to 80m x 80m, to a depth of about 200m below surface. The thickest part of the Main zone has 20m x 20m coverage, to a depth of 300m.</li> <li>The spacing and distribution of the data are sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource estimation procedures and classifications applied.</li> <li>Composite samples were used during the 2006-2009 campaign, for the purposes of analyzing grades within the mineralised zones, for elements other than silver (Pb, Zn, Au, Cu, Cd, Bi).</li> </ul>
Orientation of data in relation to geological structure	<ul> <li>The mineralisation generally is steeply dipping (70° or greater). The drill holes are directed perpendicular to the strike, and inclined 55 to 65 degrees in the opposite direction to the dip of the mineralisation</li> <li>For the style of mineralisation at Prognoz, the high angle between the sampling and mineralisation means that there is a low risk of the sampling orientation introducing a material bias.</li> </ul>
Sample security	<ul> <li>The remote location of the site limits the potential for external interference in the exploration activities at Prognoz.</li> <li>The site is under constant guard during exploration, and Polymetal has secure facilities in place for sample storage, and strong protocols to control the transfer of samples from site to the laboratory.</li> </ul>
Audits or reviews	<ul> <li>Work up to 2009 was reviewed by the consulting company Micon. The results of this review are discussed in Micon's technical report, and were taken into account by Micon during the course of preparing the 2009 Mineral Resource estimation for Prognoz.</li> <li>In June 2017 specialists from SRK Consulting (Russia) Ltd, including the Competent Person for the 2018 Mineral Resource estimation update, visited the Prognoz deposit and the office of the management company "Verkhoyanskoye Serebro" in Yakutsk. The scope of this visit included an independent audit of exploration works being conducted at the Prognoz deposit. The overall conclusion from SRK's review was that exploration data for the project were generally collected in line with best practices internationally, and there were no deficiencies that could have a material impact on confidence of the Mineral Resource estimate.</li> </ul>

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

Criteria	Commentary
Mineral tenement and land tenure status	<ul> <li>Silver-polymetallic deposit Prognoz is located in the North-Eastern part of the Republic of Sakha (Yakutia), on the territory of the Verkhoyansk khanate.</li> <li>The only user of mineral resources on the territory of the silver-polymetallic deposit Prognoz is "Prognoz-Serebro" Limited Liability Company. Works at the deposit are carried out under the License number 14002 YaKU BE issued to "Prognoz-Serebro" LLC on 27/03/2007, valid until 09/30/2025, which can be extended until 2039 with a commitment to put a mining enterprise into operation not later than 31/12/2022.</li> <li>The allocated subsoil area has the status of mining lease. The license area is 56.0 km², with a depth limit of 1,500 m below the surface.</li> <li>At the time of reporting, there are no known impediments to obtaining a licence to operate in the area.</li> </ul>
Exploration done by other parties	<ul> <li>Exploration done prior to Polymetal's work, relevant to the 2018 Mineral Resource estimation update, is described above in Section 1 of this table.</li> <li>The 1990-1998 campaign was carried out by State Unitary Mining and Geological enterprise Yangeologiya, culminating in the definition of C2 Reserves (under the Russian classification system).</li> <li>The 2006-2009 campaign was carried out by Buryatzoloto JSC, culminating in the definition of C1 and C2 Reserves (under the Russian classification system), and Indicated and Inferred Mineral Resources (in the estimate prepared by Micon, and classified according to the JORC Code).</li> </ul>

#### Geology The Prognoz silver-polymetallic deposit is located in the upper reaches of the Sytygan Stream, a right tributary of the Nelgese River. The deposit is within a downthrown tectonic block, bounded from the west and east by overthrust faults, and from the north and south by secondary structures of the Sredne-Sartansky Fault. Country rocks are represented by a terrigenous sequence of the Middle Triassic age. The sequence is composed of sandstones with subordinate layers of siltstones and mudstones. Within the deposit area, the sequence forms a north-south trending anticline fold. Intrusive formations within the deposit area are represented by rare acidic dykes and have no impact on the location of mineralised zones. Mineralised crush zones are confined to the east-west striking faults. These zones dip towards north and south at 70-90°, and are composed of sandstones brecciated to a various degree, with quartz-carbonate-sulphide-sulphosalt veinlets. Carbonates are primarily represented by siderite, sulphide-galenite and occasionally by sphalerite. A total of 30 mineralised crushed zones were identified within the deposit. The largest zones are named Main and Swamp. Drill hole The Mineral Resource estimation reported here makes details of individual drill holes and Information trenches immaterial, therefore these results are excluded from this report. Data Individual Exploration Results are not Material and are excluded from this report. aggregation methods Relationship • Individual Exploration Results are not Material and are excluded from this report. between mineralisatio n widths and intercept lengths Diagrams This report refers to a Mineral Resource estimation update based on infill drilling, with no (for any significant discoveries. significant discovery) Balanced Individual Exploration Results are not Material and are excluded from this report. reporting Other During Polymetal's campaign, approximately 400 bulk density measurements, using the substantive method of hydrostatic weighing, were collected from pieces of core (up to 20 cm) exploration representing mineralised and host rocks. data Hydrostatic weighing measurements were also collected during the previous exploration campaigns: 59 measurements from core, and 53 measurements from material extracted from the underground workings during the 2006 - 2009 campaign; 80 measurements during the 1990 - 1998 campaign. In 2017, Polymetal prepared 8 metallurgical samples (total weight 1,709 kg) from retained half core. These samples were analysed by AO Polymetal Engineering. Metallurgical samples were also prepared during the 2006-2009 campaign. Core, channel samples, and material from the underground workings were combined to make a 5 t sample (analysed by IRGIREDMET in Irkutsk) and a 12 t sample (analysed by VNIITSVETMET, Ust-Kamenogorsk, Kazakhstan). Further work Following the effective date of the Mineral Resource estimation reported here (August 1st,

#### Section 3 Estimation and Reporting of Mineral Resources

Criteria	Commentary
Database integrity	<ul> <li>The electronic database is maintained on site, and updated as new information becomes available. A copy of the database is stored at Polymetal's head office in St Petersburg.</li> </ul>

to test depth extensions of the Main and Swamp zones.

2018), Polymetal have planned a further 23,600m of core drilling, and 2,455m of trenching. This sampling is primarily designed to infill parts of the Glavanaya zone, with the objective of supporting an upgrade of the classification from Inferred to Indicated, and

- Logging is done directly into computers, using AGR software, which removes the possibility of transcription errors during manual entry of paper logs into electronic format.
- SRK compared the contents of the database to a selection of primary information, and found no inconsistencies during these verification checks.
- The database has been uploaded and reviewed using several pieces of mining software, by both Polymetal and SRK. These programs have automated functions to check for inconsistencies and absent information. The database delivered to SRK was found to be clean, with no significant errors detected by SRK's modelling software.

#### Site visits

 In 2017 specialists from SRK Consulting (Russia) Ltd, including the Competent Person for this 2018 Mineral Resource estimation update, visited the Prognoz deposit (June 6-8, 2017) and the office of the management company "Verkhoyanskoye Serebro" in Yakutsk (June 5 and 9, 2017).

## Geological interpretation

- The contacts of the mineralised zones are sharp, can usually be at least approximately located by logging, and are clearly identified by sampling results.
- A nominal Ag threshold of 100 g/t was used to define the contacts of the mineralisation zones. The contacts are not sensitive to moderate variations in this choice of threshold.
- The amount and spacing of information available does not leave room for interpretations to substantially differ from the general east-west striking, steeply dipping orientation used to model the mineralised zones.
- Where there are two or more subparallel mineralised zones, separated by only a few metres
  of waste, then there is sometimes scope to model alternative correlations between
  intersections, but such alternative interpretations would have no substantial effect on the
  overall Mineral Resource estimation.

#### Dimensions

- About 30 steeply-dipping, approximately east-west striking, mineralised zones have been identified within the deposit. The two largest zones are Main (4,500m strike length) and Swamp (3,150m strike length). The other zones have strike lengths down to a few hundred metres.
- Thicknesses mostly range from tens of centimetres to several metres. The thickest parts of the Main zone are up to 25m.
- The mineralised zones are covered by no more than a few metres of alluvium.
- The depth limit of the larger mineralised zones is not reached by the drilling coverage (which mostly extends up to 200m or 300m below surface).

# Estimation and modelling techniques

- Modelling and estimation was carried out using Leapfrog GEO, Datamine, and Micromine software.
- Grade estimation was by Ordinary Kriging, from 1m composites, into 10m x 2m x10m blocks.
- Estimation was constrained by hard boundaries, to within a wireframe interpretation of the mineralised zones, modelled based on a nominal 100 g/t Ag threshold.
- Prior to estimation, the blocks and composites for each separate zone were flattened into a simple planar configuration.
- The elements estimated were silver, gold, lead, and zinc. Separate variogram models were prepared for each element in each mineralised domain.
- Grade capping was applied to the silver and leap composites, based on probability plots, quantile analysis, and review of coefficient of variation statistics. The capping thresholds chosen varied by the component segments of the mineralised zones, but usually between 1 and 10% of the composites within each segment were capped.
- For Main, the effect of capping was to reduce the mean composite grade from 785 g/t Ag to 732 g/t Ag, and from 2.93% Pb to 2.79% Pb.
- For Swamp, the effect of capping was to reduce the mean composite grade from 974 g/t Ag to 856 g/t Ag, and from 1.72% Pb to 1.64% Pb.
- A multi-pass search was used for estimation. The radii of the search ellipsoid for the first pass were 30m x 30m in the flattened plane of the mineralisation, and 1.5m perpendicular to this plane (Y-direction). The minimum number of samples required was 5, and two drill holes. No maximum was set.
- The subsequent search passes were multiples of the first pass radii, at factors of 1.5, 2.5, 4 and 50.
- The results of the estimation were validated visually and statistically by Polymetal and SRK.
- SRK prepared check estimates, using 2D Ordinary Kriging, for several of the largest domains, and found the results to be acceptably close to the Polymetal estimates.

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- The previous (Micon 2009) estimation was also available as a check.
- No mining has occurred at Prognoz, therefore no production records are available for comparison.
- No deleterious elements or non-grade variables of economic significance were estimated.
- Within the blocks estimated by Ordinary Kriging, the estimates were not further processed to account for likely selective mining units.
- The elements were estimated independently, and no methods based on correlations (eg. Co-kriging) were employed.
- The geological interpretation, of strong structural control on mineralisation by the steeply dipping fault zones, set the choice of estimation domains with hard boundaries.

#### Moisture

 Tonnages are estimated on a dry basis. Moisture content measurements, based on weight difference after drying, and averaged by rock type, are in the range of 1 to 5%.

## Cut-off parameters

The Mineral Resources are reported on the basis of a 106 g/t Ag cut-off for the open pit
component (within an optimized pit shell, based on a USD 16/oz silver price), and a 240 g/t
Ag cut-off for the underground component (below the pit shell). The detailed costs and
assumptions used for the optimization and cut-off grade calculation are presented in Table
2-1 of this report.

# Mining factors or assumptions

No substantial mining study has yet been undertaken. It is assumed that mineralised material can be extracted by widely used open pit and underground mining methods, and that the continuity, and typical width of the major mineralised zones (several metres), means that no special considerations need to be made at the Mineral Resource stage in regard to dilution and minimum mining width.

# Metallurgical factors or assumptions

• Metallurgical samples were collected by Polymetal and during the 2006-2009 campaign. The results from testing these samples indicate that silver and lead will be amenable to extraction by applying widely used processing technologies. Silver recoveries are forecast to be 90.2% for the open pit component of the Mineral Resource and 88.2% for the underground component. For lead, the open pit and underground recoveries are forecast to be 45.0% and 76.5% respectively. The silver recoveries are used as input parameters for the resource pit shell optimization and cut-off grade calculations. Silver and lead recoveries are used for metal equivalent calculations.

# Environmen-tal factors or assumptions

No substantial environmental studies have yet been undertaken for the project. For the purposes of reporting Mineral Resources, it is assumed that environmental constraints do not pose a material risk to the project proceeding, and that viable solutions will be found for storing waste and process residue.

#### **Bulk density**

- The database of bulk density data contains several hundred measurements on core pieces, using the hydrostatic weighing method, collected by Polymetal and during earlier campaigns. The core used for these measurements come from locations sufficiently dispersed through the deposit for the database to be considered representative of the deposit.
- The dry bulk density factors used for converting Mineral Resource volumes into tonnes are based on the average of the measurements for each mineralisation or host rock type. For the mineralised zones, the following dry bulk densities are used:
- Main 3.18 g/cm<sup>3</sup>
- Swamp: 3.21 g/cm<sup>3</sup>
- South: 3.12 g/cm<sup>3</sup>
- Tikhaya and Vesennyaya: 3.26 g/cm<sup>3</sup>
- Other Mineralised zones: 3.18 g/cm<sup>3</sup>
- For host rocks, eight different types are coded; the two major types are sandstone and siltstone, both with an estimated dry bulk density of 2.69 g/cm<sup>3</sup>

#### Classification

- The mineralised domains within the block model were classified based on wireframes, prepared by Polymetal, of the boundary between Indicated and Inferred. The position of the boundary was set so that the Indicated component corresponded to zones where most blocks had been estimated in the first pass of kriging (the 30m x 30m x 1.5m search).
- No Measured component was defined.
- In choosing the classification criteria, appropriate account has been taken of all relevant factors (estimation confidence, reliability of input data, confidence in continuity of geology and grade, quantity and spacing of the data).
- The classification appropriately reflects the Competent Person's view of the deposit.

# Audits or reviews The work done by Polymetal to prepare this Mineral Resource estimation update was reviewed by Robin Simpson, a Principal Consultant from SRK Consulting (Russia) Ltd. He accepts the responsibility of Competent Person for this Mineral Resource estimation update. Discussion of relative accuracy and confidence level in the Mineral Resource is sufficiently described by the Indicated and Inferred classifications applied to the block model and resource statement for the deposit. The deposit has not been mined, so no production data are available for comparison to the Mineral Resource estimate.