Advanced stage exploration projects

Sukhoi Log

1. Location and history

The Sukhoi Log gold deposit is located in the northern part of the Bodaybo administrative district, Irkutsk Region, close to the Verninskoye mine. The deposit lies 6 km from Kropotkin settlement, which is approximately 130 km northeast of Bodaybo. Bodaybo is located on the Vitim River, which provides seasonal access to the Lena River ports. There is a regular scheduled air service to Bodaybo from the regional capital Irkutsk located 900 km by air, and 1,440 km by road from Bodaybo. Bodaybo is also accessible to the south by a 220 km all-weather gravel road from Taksimo on the Baikal-Amur railway.

The map below shows the location of the Sukhoi Log deposit.

The Sukhoi Log deposit was discovered in 1961 when prospecting and evaluation works were conducted during the Bodaybo expedition at the Sukhoi Log gold field between 1959 and 1963. Following the expedition, an exploration program aimed at developing the full mineral resource potential of the deposit was launched. An extensive exploration program was conducted between 1971 and 1977, which included 210 km of diamond core drilling, three large bulk samples and over 80,000 gold assays. In 1977, Sukhoi Log deposit reserves of categories B+C1+C2 were approved by the GKZ. In 1978 to 1979, the exploration program focused on the Sukhoi Log flanks, which led to the Northwestern section of the Sukhoi Log deposit being identified and assessed to contain reserves of C2 category.

A further feasibility study of Sukhoi Log was undertaken in 1984 and, in the same year, the USSR Government issued a mining claim for the deposit to Lenzoloto. Lenzoloto subsequently applied for and obtained the license for the Sukhoi Log deposit in 1992, with the company being reorganized into CJSC Lenzoloto. In 1994, Star Technology Systems, an Australian mining company and shareholder of Lenzoloto at that time, contracted Steffen Robertson and Kirsten and Bateman Minerals and Industrial, both international mining consultants, to undertake a feasibility study of the deposit.

In 1994-1997, Lenzoloto had been developing the infrastructure of the deposit. However, in 1997 Star Technology Systems failed to comply with the license obligations and ultimately lost its rights to the deposit.

In 1998-1999, the Canadian company Placer Dome INC, in cooperation with the Bodaybo expedition, carried out control drilling, sampling, analytical and technological research within the outline of the B+C1+C2 categorized reserves. These works confirmed the geology, reserves calculation and qualities of the
ores from Sukhoi Log which had initially been noted during the exploration works. Between 1961 to 1999, an aggregate 324 km of drilling has been performed by various expedition programs, while nine engineering studies were completed between 1986-2007.

In 2005-2008, Central Research Geological Prospecting Institute of Non-Ferrous and Precious Metals (“TsNIGRI”) was commissioned by Rosnedra to carry out an audit of the reserves and resources of the Sukhoi Log deposit and to prepare a feasibility study. As a result of the audit, the gold reserves were estimated to be 930.3 mt of ore, grading 2.1 g/t gold for 62.8 moz of contained gold according to the GKZ. The feasibility study assumed annual ore throughput at Sukhoi Log to be 31 mtpa, resulting in an estimated annual production of 1.9 moz of gold.

The Group participated in the auction announced by the Russian government on 2 December 2016 (Decree of the Government of the Russian Federation No. 2550-r dated 30 November 2016) for the Sukhoi Log deposit, one of the 30 largest gold mineral deposits globally in terms of resources according to Metals Focus’ Gold Focus 2016 report. The auction was held on 26 January 2017 and SL Gold, the Company’s indirect subsidiary established to participate in the auction, made the highest bid of RUB 9,406,435,500. On 21 February 2017, further to the Governmental decree No. 260-r dated 15 February 2017 confirming the results of the auction, Rosnedra issued a license for the development of the Sukhoi Log deposit to SL Gold.

The main freight transportation to Sukhoi Log could be carried out by year-round 220 km road from Taksimo railway station, a part of the Baikal-Amur rail line, to Bodaybo and the year-round regional 130 km road from Bodaybo to Kropotkin. These roads are expected to have sufficient capacity to cover the early phases of development of the Sukhoi Log deposit. At later stages of the development, in order to cover large-scale construction and the mine development phase, the road from Bodaybo to Kropotkin will need to be reconstructed, while the construction of a bridge across the Vitim River may also be required.

The current power infrastructure at Bodaybo is insufficient to cover the power supply of 120 MW to 200 MW needed for the full-scale production at Sukhoi Log. There are two options available to the Group to supply power to the Sukhoi Log deposit. The first option being considered is the supply of power via the Taksimo Substation from the Unified National Power Grid, located south of the Sukhoi Log deposit, which is due to be launched with a capacity of 180 MW in 2021. The second option being considered is the supply of power to the field from Viluyskie HPP through the Peleduy–Mamakan 220 kV grid project. The commencement of the second phase of the Peleduy–Mamakan 220 kV grid project, which is expected to be completed and subsequently launched with a capacity of 180-340 MW in 2020, will ensure there is sufficient power supply for Sukhoi Log during the construction phase at potentially low capital expenditure due to the expected buyout of the grid by the FGC.

2. **Geology and mineralization**

Sukhoi Log, the largest undeveloped gold deposit in Russia, is located within a complicated regional structure known as the Bodaybo synclinorium. The host rocks comprise alternating beds of carbonaceous and calcareous siltstone, argillites, shales and sandstones. The orebodies of the deposit are structurally controlled by a shear zone along the axis of an anticline, with veinlet, stringer, porphyry, quartz, gold and sulphide mineralization associated with the richest carbon-bearing layers. Gold mineralization occurs both within the pyritic shales and in thin bedding-parallel pyrite-quartz veins, which have been folded by the main deformation. The mineralization covers an area of 3,000 m along strike and 1,500 m across strike. The depth of mineralization ranges from near the surface to between 1,000 m to 1,500 m in depth.

The mineralized zone forms a shallowly dipping tabular body, parallel to the axial plane of the fold, extending for more than 2,000 m along strike and 700 m down dip, forming a centro-symmetric zoning about the axis of the tight, overturned synclinorium. This provides for a low stripping ratio of less than 3.0 t/t.

The adjacent Zapadnoye (Western) deposit had been previously mined from 2004, with the Group suspending its operations in 2011.

3. **Reserves and resources**

Total reserves were estimated by Russian state authorities at 62.8 moz with an average grade of 2.1 g/t (53.3 moz with a grading of 2.0 g/t for open pit mining, and 9.5 moz with a grading of 2.8 g/t for underground mining), as classified according to the Russian Standards (GKZ).
Total Inferred Mineral Resources as at 31 December 2016 were estimated at 887 mt of ore, grading 2.0 g/t gold for 58 moz of contained gold as classified and reported according to the JORC Code.

The Group and AMC have had limited time to review the available data for Sukhoi Log. To reflect the uncertainty that remains until reviews of the resource data and modifying factors are complete, the estimate has been classified and reported according to the JORC Code as an Inferred Mineral Resource. The Group plans a further review of the data used to develop the resource model grade estimates, and it is possible that the resource information currently available and included in this Prospectus with regard to Sukhoi Log may change after this review, perhaps materially.

4. **Next steps**

The Group expects that development of the Sukhoi Log deposit should significantly enhance the Group’s existing production growth profile.

The Company intends to conduct additional exploration works and a feasibility study, which is expected to last for approximately three to four years, supported by international mining and engineering consultants. Based on the results of the feasibility study, the Company will evaluate options to initiate construction activities at Sukhoi Log. See “—Estimated Capital Requirements”) below.

Given that the Sukhoi Log, Verninskoye and Zapadnoye deposits all belong to the Marakan-Tunguska ore cluster and are believed to have a similar mineral and chemical composition, the Group will evaluate the applicability of the processing solutions implemented at Verninskoye to the Sukhoi Log deposit. The Group already has data collected from its operations at Zapadnoye from 2004 to 2011, which has been evaluated for the applicability of Zapadnoye’s processing plant to Sukhoi Log. While in operation, the Zapadnoye processing plant had low recovery rates of below 77 per cent. The drawback of the Zapadnoye process was the absence of the flotation cycle, resulting in a higher loss of gold in gravity tailings. As a result, in 2015, a new method of the processing of ore from Zapadnoye based on the current method used at Verninskoye was developed, with recovery rates of over 90 per cent achieved.

The opportunity to carry out pilot tests at the Verninskoye processing plant, which requires no additional construction capital expenditure, may make it possible to apply the Verninskoye flowsheet model to Sukhoi Log.

The Sukhoi Log, Verninskoye and Zapadnoye deposits, by virtue of their close proximity, also share numerous synergies which have the potential to create an Irkutsk regional hub through the optimization of processing facilities and making use of potential economies of scale. The utilization of existing transportation routes, logistics and power infrastructure and the Group’s ability to source a skilled workforce from Verninskoye will aid the construction and subsequent operation of the Sukhoi Log mine.

The Company has included below information related to estimated capital requirements, production rate, TCC and AISC for Sukhoi Log on a 100 per cent ownership basis (unadjusted for the proportion not held by the Group at the date of this document). The Group’s actual capital requirements, production rate, TCC and AISC in future periods depend on many factors, cannot be ascertained with any certainty and may differ materially from the below estimates, and no reliance should be placed on these estimates as being indicative of future results. See “Risk Factors” and “Forward-Looking Statements” for a discussion of important factors that could cause the actual results to differ materially from the below estimates. There may also be additional factors or risks of which the Group is currently unaware, which could have the effect set forth above.

**Estimated Capital Requirements**

The Group’s preliminary project schedule for the development of Sukhoi Log contemplates an approximately nine-year period from the commencement of exploration works to the completion of the initial ramp-up of the commissioned mine. This period generally comprises the following stages:

- **Exploration**: in connection with the receipt of the license on 21 February 2017 by SL Gold for the development of Sukhoi Log, the Group expects to carry out approximately 150,000 meters of drilling and assay analysis in the first 2-3 years at Sukhoi Log to confirm the stated mineral reserves according to the GKZ requirements and estimate Mineral Resources according to the JORC Code;
• **Engineering and Processing Study:** concurrently with the exploration, the Group intends to conduct engineering and processing studies in years 1-4, which are expected to include a scoping study, pre-feasibility and feasibility studies, as well as a regulatory project design required for approval of construction of the open pit, processing plant and related infrastructure;

• **Detailed Project Design:** before construction, in collaboration with international mining and engineering consultants, the Group intends to prepare a detailed design of the processing plant and related infrastructure in years 3-5;

• **Construction:** the Group plans to focus on construction of the processing plant and related infrastructure in years 4-8 of the project;

• **Commissioning:** the Group intends to commission the Sukhoi Log processing plant in year 8, with the first production of gold expected in the same year.

For the eight-year period from the anticipated commencement of the development of Sukhoi Log in 2017 to the anticipated commencement of production in 2025, the Group estimates that the required pre-production capital expenditure will amount to approximately US$2.0-2.5 billion. Depending on market conditions, this includes an estimated capital expenditure of approximately US$20 million in 2017, approximately US$50 million in 2018 and approximately US$35 million in 2019, which the Group expects to spend on the exploration program and engineering studies (including, for example, drilling, hiring a technical consultant, and further delineating reserves). The pre-production capital expenditure estimate is based on currently available information to the Group and may increase materially as development progresses. The capital required for the exploration and feasibility study stages of Sukhoi Log is expected to be funded with operating cash flow from production at the Group’s currently operating mines, while construction and commissioning are expected to be funded with non-recourse project financing.

The amount ultimately spent on capital expenditures may be materially higher or lower than the foregoing estimate. Capital expenditure amounts and timing will depend on market conditions, the Group’s cash flow from operations, available financing at the time of the proposed expenditures and various other factors, many of which are beyond the Group’s control.

The Group believes the capital investment during the pre-production period of approximately US$2.0-2.5 billion will fund the installation of the necessary infrastructure, both on-site and off-site, with the capacity to produce approximately 1.6-1.7 moz of gold per annum. Based on the estimated target production rate, the estimated pre-production capital expenditure amounts to US$1.2-1.6 per ounce of gold production. This estimate is based on a high-level analysis of the objects required for the project (i.e., generic lists of items for the processing plant and infrastructure for the assumed capacity), with the cost of the development based on information on the costs of comparable objects and historical pricing data (on a real basis in 2017 terms).

Sustaining capital expenditures over the mine life of Sukhoi Log, assuming the Group realizes its target annual gold production of approximately 1.6-1.7 moz, have been estimated on a real (actual) 2017 basis by the Group to average approximately US$40 million per annum over the life of the mine. This estimate is calculated using the initial capital investment described above and the applicable sustaining capital expenditures of the Group’s existing large-scale open pit assets, scaled up to the Group’s target production rate for Sukhoi Log.

**Estimated TCC and AISC**

The Group estimates that, once production has commenced (expected in year 8), Sukhoi Log’s annual average life-of-mine TCC will be approximately US$400-450 per payable ounce and US$23.1-26.0 per tonne of ore processed, and AISC will be approximately US$430-500 per payable ounce and US$24.9-28.9 per tonne of ore processed.

These ranges are based on a number of assumptions, including those set out below. These assumptions are based on a number of current factors, but no assurance is given that the assumptions are reasonable or reasonably likely to reflect actual conditions and circumstances at the time production is commenced. The ranges estimated above are preliminary estimates and actual TCC or AISC are likely to differ in material
respects from such estimates, while the actual production rate for Sukhoi Log may differ materially from the targeted production rate given above and production may prove to not be economically viable for the Group. In calculating the foregoing TCC and AISC estimates, the Group has used the following assumptions:

- **Production assumptions:**
  - According to the AMC Report, previous Sukhoi Log studies envisage an ore processing rate of 30 mtpa after a ramp-up period of five to ten years. In addition, the FSUE TsNIGRI (2007) study indicated that a mining rate of approximately 100 mtpa is likely to be required to strip ore and waste to maintain a continuous ore feed to the plant in the first phase of the project (approximately 15 years). The Group has assumed such life of mine average production rate implying an approximate stripping ratio of 2.33 t/t in the Inferred Mineral Resource (potential ore) at a cut-off grade of 1.0 g/t. The Group has, therefore, used a life of mine average stripping ratio of 2.33 t/t in the calculation of its estimates; however, the Group recognizes that such estimate is highly preliminary and that stripping ratio is expected to vary at different stages of the mine life. Furthermore, any mining schedule will be dependent on the plant throughput rate, pit size, cut-off grade chosen and stockpiling strategies employed, which are yet to be determined.
  - Based on the FSUE TsNIGRI (2007) study and AMC’s optimization parameters for Mineral Resource estimation, the Group assumed a life of mine average gold recovery of approximately 90 per cent (using direct processing only). The Group has also assumed the life of mine average Mineral Resource grade of 2.0 g/t (at a cut-off grade of 1.0 g/t), excluding mining modifying factors (prior to the inclusion of allowances for mining dilution and losses).
  - The Group assumed that the life of mine average grade in ore processed would be equal to the life of mine average head grade of ore mined.
  - The Group assumed that the average life of mine payability of recovered gold would be 100 per cent given the average gold recovery assumed above accounts for potential losses at refining.
  - The Group also estimated that the approximate life of mine of Sukhoi Log could be in excess of 30 years, based on AMC’s prepared Inferred Mineral Resource estimate for Sukhoi Log as at 31 December 2016 of 58 moz of contained gold and the Group’s management’s estimate of target average annual gold production of approximately 1.6-1.7 moz. This estimate is based on the Group’s assumption that all of the Inferred Mineral Resource eventuates as feed to the processing plant and that there is no further dilution or mining loss; however, this has yet to be confirmed.

- **Macroeconomic and mineral tax assumptions:**
  - The Group assumed a gold price of US$1,250/oz that was used by AMC for the purposes of estimating the Group’s Ore Reserves as at 31 December 2016 (on a real basis in 2017 terms).
  - Mineral tax of 6 per cent of revenue was assumed to be the life-of-mine average, which is the current mineral tax rate in Russia.

- **Direct costs assumptions:**
  - All cost parameters are based on AMC’s optimization parameters for Mineral Resource estimation and assumed to be proxies for life of mine averages (on a real basis on 2017 terms).
  - The Group assumed average mining operating costs of US$1.56 per tonne for the predicted 30 year life of the mine.
  - The Group estimates processing costs of US$15.61 per tonne of ore processed, which is inclusive of processing, general and administrative expenses, and ore mining differential cost.
The Group assumed realization costs (inclusive of refining charge) of US$0.114 per gram of recovered gold.

**Sustaining capital expenditure assumption:**

- The Group assumed the life-of-mine average annual sustaining capital expenditure of US$40 million as per the aforementioned assumptions.

The Group has used the following methodology to calculate the indicative TCC and AISC estimates:

- TCC calculation is defined as follows:
  - *On US$/oz basis:* the sum of the aggregate direct costs and mineral extraction tax divided by the life of mine average payable gold production.
  - *On US$/t ore processed basis:* the sum of the aggregate direct costs and mineral extraction tax divided by the life of mine average tonnes of ore processed.

- AISC calculation is defined as follows:
  - *On US$/oz basis:* the sum of the aggregate direct costs, mineral extraction tax and sustaining capital expenditure divided by the life of mine average payable gold production.
  - *On US$/t ore processed basis:* the sum of the aggregate direct costs, mineral extraction tax and sustaining capital expenditure divided by the life of mine average tonnes of ore processed.

Where:

- Life of mine average payable gold production is defined as:
  - Life of mine average gold contained in ore processed multiplied by the average life of mine recovery rate multiplied by the average life of mine payability, and expressed in koz.
  - Life of mine average gold contained in ore processed is in turn defined as the average life of mine head grade multiplied by the average life of mine ore processing rate, and expressed in koz.

- Aggregate direct costs are defined as:
  - The sum of the mining costs, the processing costs and the realization costs, expressed in millions of U.S. dollars.

- Mineral extraction tax is defined as:
  - Assumed real (in 2017 terms) gold price multiplied by the life of mine average payable gold production multiplied by the Russian mineral tax rate, expressed in millions of U.S. dollars.

The above estimates represent the Group’s preliminary estimates based on publicly available information related to Sukhoi Log and the Group’s preliminary project schedule estimate for the development of Sukhoi Log. Actual capital expenditures, operating costs, TCC and AISC are dependent on the further exploration and study of Sukhoi Log, the results of which are likely to alter the Group’s current development plans for the operation of Sukhoi Log and, consequently, the actual costs involved to a material extent. Furthermore, capital expenditures, production rate, construction and operating costs, TCC and AISC are subject to market and other factors which cannot be predicted, including the levels of inflation, the price of gold, the exchange rates, the interest rates and the cost and availability of financing, and the costs of labor, raw and other materials, equipment and services used in construction and operations. As a result, actual capital expenditures, production rate, construction and operating costs, TCC and AISC are likely to vary from the Group’s current preliminary estimates, potentially significantly.
**Chertovo Koryto**

1. **Location and history**

The Chertovo Koryto gold deposit is located in the Irkutsk region in the northwest part of the Bodaybinskiy administrative district, approximately 200 km northeast of the regional center of Bodaybo and approximately 100 km away from the currently producing Verninskoye deposit. The Chertovo Koryto deposit lies in a mountainous area where several gold rich placer deposits have been exploited.

The map below shows the location of the Chertovo Koryto deposit.

The Chertovo Koryto deposit was discovered in 1962. In 2004, the Group acquired Tonoda, which holds the license for the Chertovo Koryto deposit, and exploration works on the deposit were conducted from 2006 to 2008. In 2011, the Group tested the heap leaching production at the Chertovo Koryto.

2. **Geology and mineralization**

Gold mineralization occurs in gold-bearing quartz-sulphide veins and associated with disseminated sulphide minerals (pyrite, pyrrhotite and arsenopyrite) within the sedimentary rocks. Minor chalcopyrite, sphalerite, galena and bornite sulphides are also recorded. The overall mineralized zone dips generally 10° to 20° towards the west, with many drillhole intercepts of 80 m to over 100 m in thickness. All mineralization is considered to be fresh or primary from near-surface below a thin layer of soil or alluvial material.

Gold occurs principally as native gold particles; however, there is a small proportion of refractory gold. Gold particles show a close relationship with sulphide minerals and coarse quartz grains.

3. **Reserves and resources**

Total Proved and Probable Ore Reserves at Chertovo Koryto as at 31 December 2016 were estimated to be 62 mt of ore, grading 1.5 g/t gold for 3.1 moz of contained gold as classified and reported according to the JORC Code.

Total Measured and Indicated and Inferred Mineral Resources as at 31 December 2016 were estimated at 75 mt of ore, grading 1.5 g/t gold for 3.6 moz of contained gold as classified and reported according to the JORC Code.
4. **Next steps**

The Group is planning to develop the Chertovo Koryto deposit via open pit operations and a processing plant employing gravity concentration option with a capacity of up to 3.5 mtpa of ore. The preliminary production schedule anticipates the launch of processing at Chertovo Koryto to be in approximately 62 months; at least half of this period will be required to establish a road connection and to prepare the site for future construction. As Chertovo Koryto is currently connected to Verninskoye by tracks, which renders the site inaccessible in the winter months and constitutes a 9 to 12 hour journey, the success of the project is dependent on the construction of a new 134 km all-weather road from Chertovo Koryto to Verninskoye. The site will be powered by the nearby Peleduy–Sukhoy Log line, requiring only the construction of a short spur line and high-voltage switchyard. The Group expects that total capital expenditure for the development of Chertovo Koryto, including the construction of the process plant and infrastructure, will amount to approximately US$275-325 million.

Once commenced, the Group expects that Chertovo Koryto could produce an average 120-130 thousand ounces of gold per year over an 18 year mine life with an average TCC of US$350/oz to US$450/oz. As a result of the close proximity of the recently-acquired Sukhoi Log deposit to Chertovo Koryto, the strategy and timeline of the development of the latter may be adjusted to exploit synergies in the coordinated development of both assets.

In addition, the Company is evaluating the option of incorporating the planned Chertovo Koryto open pit operations in the existing infrastructure of the Irkutsk business unit to create an Irkutsk mining hub development using the platform of established Verninskoye operations as a processing hub for the neighboring deposits, including Sukhoi Log and potentially Zapadnoye.
Early stage exploration projects

**Poputninskoye**

1. **Location and history**

The Poputninskoye deposit (which is the largest and the most advanced deposit of the Razdolinsky ore cluster) is located in the Krasnoyarsk region. The Poputninskoye deposit is located near Razdolinsk settlement and 15 km to 24 km from Motygino settlement.

The map below shows the location of the Poputninskoye deposit.

The Group acquired the license for the Poputninskoye deposit in 2005. The Group has been conducting exploration works at the Poputninskoye deposit since 2006. In 2012-2013, the Group performed an exploration and scoping study at the Poputninskoye deposit. The Poputninskoye deposit and Panimba deposit, which also belongs to the Group, have a similar quality of refractory sulphide ores, such that the two deposits can be treated by a single processing unit.

In the middle of 2015, the pilot program was launched on the Poputninskoye deposit to confirm the deposit’s prospects and define the optimal technology for ore treatment. During pilot mining at the Poputninskoye deposit, the Group produced 4 and 5 thousand ounces of doré gold in 2015 and 2016, respectively. In order to obtain further information on the ore characteristics, mining at Poputninskoye switched focus to oxide ores in 2015, before being switched to sulphide ores in 2016.

2. **Geology and mineralization**

The Razdolinsky mineralization area hosts the Poputninskoye deposit and eight additional prospects and exploration areas. These additional prospects are Antoninovskoye, Rudnichnoye, Svetloye, Zmeinoye, Ust-Bogolubovskoye, Perevalnoye, Osinovoye and Zapadnoye. The Poputninskoye deposit area is predominantly composed of Proterozoic, Early Riphean middle subformation of Kordinaskaya formation, which is a part of the Panimba volcanic-sedimentary unit. The Poputninsky intrusive has a 150 m to 300 m wide U-shape that
strikes for 2 km. The Razdolinskoie mineralization has been regionally metamorphosed to green-schist facies. The gold mineralization of the Poputninskoye deposit is related to sericite (muscovite)-chlorite schists of a low-temperature metamorphic stage that is common for the gold mineralization along the Yenisey Ridge. The Poputninskoye deposit mineralization zones are represented by disseminated, vein disseminated sulphide mineralization in mica-carbonate-quartz, fuchsite-quartz-carbonate and carbonate-chlorite-quartz-plagioclase metasomatic rocks.

The Zmeinoye deposit comprises quartz vein and stringer type gold and sulphide mineralization. Mineralization is localized in the quartz-sericite, quartz-sericite-chlorite and quartz-mica schist exposed in varying degrees of hydrothermal-metasomatic alteration. Primary sulphides are mainly pyrite and arsenopyrite. The main zone is approximately 50 m thick and steeply dipping. Mineralization was traced over a distance of 800 m on the surface, based on litho-geochemistry and geophysical data and is known to extend to a depth of more than 100 m.

The Panimba and Razdolinskoie ore cluster deposits have a similar quality of refractory sulphide ores.

3. **Reserves and resources**

Total Measured and Indicated and Inferred Mineral Resources for Poputninskoye as at 31 December 2016 were estimated at 42 mt or ore, grading 3.2 g/t gold for 4.3 moz of contained gold as classified and reported according to the JORC Code.

Total Measured and Indicated and Inferred Resources for Zmeinoye as at 31 December 2016 were estimated at 2.9 mt of ore, grading 4.6 g/t gold for 0.43 moz of contained gold as classified and reported according to the JORC Code (2004).

4. **Next steps**

Several options are currently being evaluated by the Group for Razdolinskoie, including agreements with neighboring third party mines or building a small mill and selling concentrate to off-takers.

**Panimba**

1. **Location and history**

The Panimba deposit is located within the Severo-Yeniseysk district of the Krasnoyarsk region, approximately 115 km from Krasnoyarsk city, next to the main highway Severo-Yeniseysk – Krasnoyarsk.
The map below shows the location of the Panimba deposit.

The Group acquired the license for the Panimba deposit in 2004. The Group has been conducting exploration works at the Panimba deposit since 2005. In 2010, field work at Panimba was undertaken and a feasibility study was submitted to the Russian regulators, which presented a mineral reserve statement and an economic analysis of the project. In 2012-2013, the Group performed an exploration and scoping study at the Panimba deposit. The Panimba deposit and the Razdolinskoye deposit, which also belongs to the Group, have a similar quality of refractory sulphide ores, such that the two deposits can be treated by a single processing unit.

2. **Geology and mineralization**

The Panimba gold deposit occurs in an area of complex folding and five distinct mineralized zones. Of these zones, the Mikhailovsky and Zolotoye zones are considered to be the most important, whereas the Tavlik and Shalokit zones, which are more recent discoveries, are currently the least explored.

The Mikhailovsky Zone was divided into three orebodies (M1 to M3) which are mostly composed of mylonitised and cataclastic finely nodular carbonaceous-quartz-sericite schist, heavily silicified, and with up to 10 per cent sulphide content. Mineralization tends to be disseminated, although there are quartz stringers that are typically thin (1 mm to 15 mm), sinuous and oriented in various directions. The stringers commonly carry sulphide mineralization comprising of pyrite, pyrrhotite and arsenopyrite and finely disseminated gold. Ore zones tend to be sinuous and vary in strike length (tens to hundreds of meters), thickness (up to 50 m) and dip extent.

The Zolotoye zone is an assemblage of cross-cutting quartz veins and stringers which are generally concordant with the main structural elements in the area. The mineralization has been likened to a linear stockwork deposit, although with a complex morphology. Mineralization was traced to over 600 m depth. In total, some six ore zones and 33 lenses have been identified to date.
3. **Reserves and resources**

Total Measured and Indicated and Inferred Mineral Resources at Panimba as at 31 December 2016 were estimated at 40 mt of ore, grading 2.0 g/t gold for 2.6 moz of contained gold as classified and reported according to the JORC Code (2004).

**Bamskoye**

1. **Location and history**

The Bamskoye gold deposit is located 120 km north of Tynda, the principal city of the Tyndinskogo area of northeastern Amur region, eastern Siberia; and 80 km away on a year-round road to the Khorogochi rail station.

The map below shows the location of the Bamskoye deposit.

Gold mineralization at the Bamskoye deposit was located in 1979 through regional geochemical surveys, while follow-up work between 1985 and 1989 identified the mineral potential of the gold deposit. In 1990-2003, the detailed exploration work was conducted together with the commissioning of a trial open pit and heap leaching operation at Apsakan satellite. In 2005, the Group acquired the license for the Bamskoye deposit at the state auction. Between 2006 and 2008, the Group completed extensive exploration works and a resource model, as well as conducted multiple metallurgical tests. In 2009, the Bamskoye deposit reserves were approved by the GKZ and, due to the significant reserve base, was assigned strategic status. In 2010-2014, the Group obtained the necessary permits for further exploration and development of Bamskoye from the Russian government.

In May 2015, the Group received the approval from the Russian Government with a detailed schedule of the exploration and mining works planned at the Bamskoye deposit. In late 2015, the second stage of the exploration program of Bamskoye was initiated and is due to be completed in 2017.