November 23, 2016

# Ivanhoe Mines announces significant progress in upgrading the Kipushi Zinc-Copper Mine in the Democratic Republic of Congo

## Kipushi's Big Zinc Deposit has an estimated 10.2 million tonnes of Measured and Indicated Mineral Resources grading 34.9% zinc

## Successful planned restoration of production would make Kipushi the world's highest-grade major zinc mine

**KIPUSHI, DEMOCRATIC REPUBLIC OF CONGO — Robert Friedland, Executive Chairman of Ivanhoe Mines (TSX: IVN; OTCQX: IVPAF), and Lars-Eric Johansson, Chief Executive Officer, announced today that excellent progress has been made by Ivanhoe in upgrading and modernizing the Kipushi Mine's shafts, pumping stations and underground infrastructure as part of the plan to prepare the mine for the restart of commercial production. The mine now has clear and safe access to all of the main underground workings, including the Big Zinc Deposit.**

**The current mine redevelopment plan, as outlined in the May 2016 independent, preliminary economic assessment (PEA), includes a two-year construction period with a relatively quick ramp-up to a projected steady-state production of 530,000 tonnes of zinc concentrate per annum. A pre-feasibility study (PFS) is underway to refine the findings of the PEA and to optimize the mine's redevelopment schedule, life-of-mine operating costs and initial capital costs required to bring the mine back into production. Ivanhoe expects to complete the PFS in the second quarter of 2017.**

**"We are working hard to have the mine ready to restart production," said Mr. Friedland. "Given the extremely high zinc grades at Kipushi, the mine has the potential to be one of the world's largest and lowest-cost zinc producers, while also producing significant quantities of copper, silver and germanium. We remain involved in detailed discussions with potential strategic partners and investors relating to the company and our projects, including Kipushi.**

**"We look forward to working with our partner, Gécamines, and the people of the Kipushi area to return the mine to production and start writing the next chapter of Kipushi's long and meaningful history. In the meantime, we welcome international investors and mining analysts to see firsthand the excellent progress our team has made in upgrading the mine's underground infrastructure and to experience an exceptionally rare opportunity to inspect a deposit that is 35% zinc."**

### Rebirth of a Copperbelt legend

**The Kipushi Project is operated by Kipushi Corporation (KICO), a joint venture between Ivanhoe Mines (68%) and Gécamines (32%), the state-owned mining company. The PEA and PFS focus on the mining of Kipushi's Big Zinc Deposit, which has an estimated 10.2 million tonnes of Measured and Indicated Mineral Resources grading 34.9% zinc. This grade is more than twice as high as the Measured and Indicated Mineral Resources of the world's next-highest-grade zinc project, according to Wood Mackenzie, a leading, international industry research and consulting group.**

**KICO has upgraded the operating shafts, winders and underground infrastructure at the Cascade section of the mine, which are expected to serve as alternate personnel and material shafts — as well as a second egress route from the mine (see Figure 1). A new high-volume ventilation fan also has been installed on surface at Shaft 4 to provide fresh air to the underground workings.**

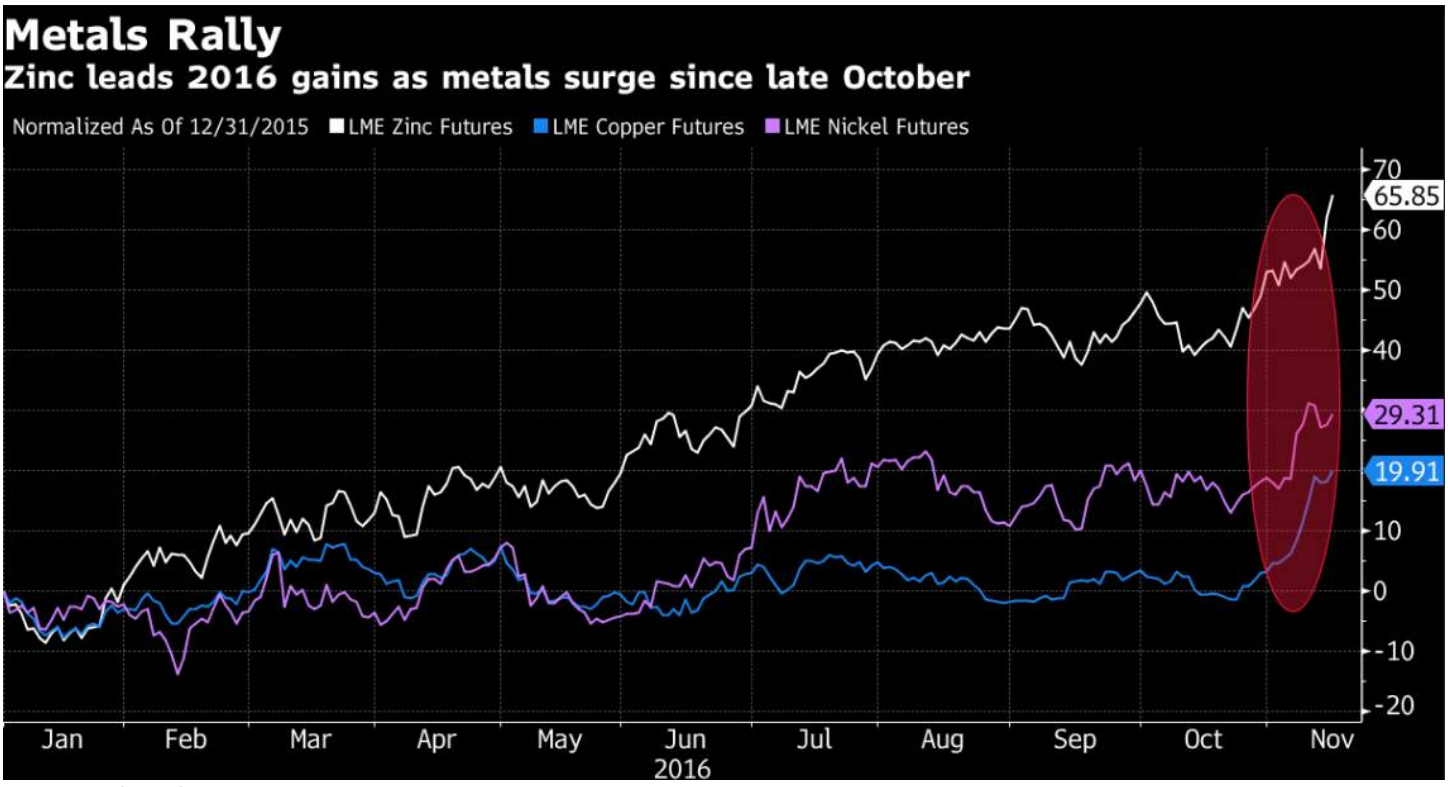
**The main production shaft for the Kipushi Mine, Shaft 5, is in the process of being upgraded and re-commissioned. The main personnel and material winder has been upgraded and modernized to meet western industry standards and safety criteria, and new cages will be installed in 2017. The rock-hoisting winder, which will have a potential annual hoisting capacity of 1.8 million tonnes, is being upgraded and is expected to be fully operational in late 2017.**

**The critical path for the redevelopment of the mine runs through the upgrading of the Shaft 5 rock-hoisting winder, as well as the re-commissioning of the main pumping station at Shaft 5, the underground crusher at the bottom of Shaft 5, the Shaft 5 rock load-out facilities and the restoration of the main haulage way on the 1,150-metre level between the Big Zinc access decline and Shaft 5 (see Figure 1).**

**Shaft 5, which is planned to be the mine's main production shaft, is eight metres in diameter, 1,240 metres deep and approximately 1.5 kilometres from the planned main mining area. The rock hoist and load-out system will be upgraded to western industry standards during 2017 to fully restore the shaft's hoisting capacity. Shaft 5 provides the primary access to the lower levels of the mine, including the Big Zinc Deposit, through the 1,150-metre haulage level and underground ramp decline.**

**The planned primary mining method for the Big Zinc Deposit in the PEA and PFS is sublevel open stoping, with cemented backfill. The crown pillars are expected to be mined once adjacent stopes are backfilled using a pillar-retreat mining method. The Big Zinc Deposit is expected to be accessed via the existing decline and without any significant new development. The main levels are planned to be at 60-metre vertical intervals, with sublevels at 30-metre intervals.**

**Zinc prices are up more than 65% in 2016.**




Source: Bloomberg

**Figure 1. Schematic section of Kipushi Mine.**

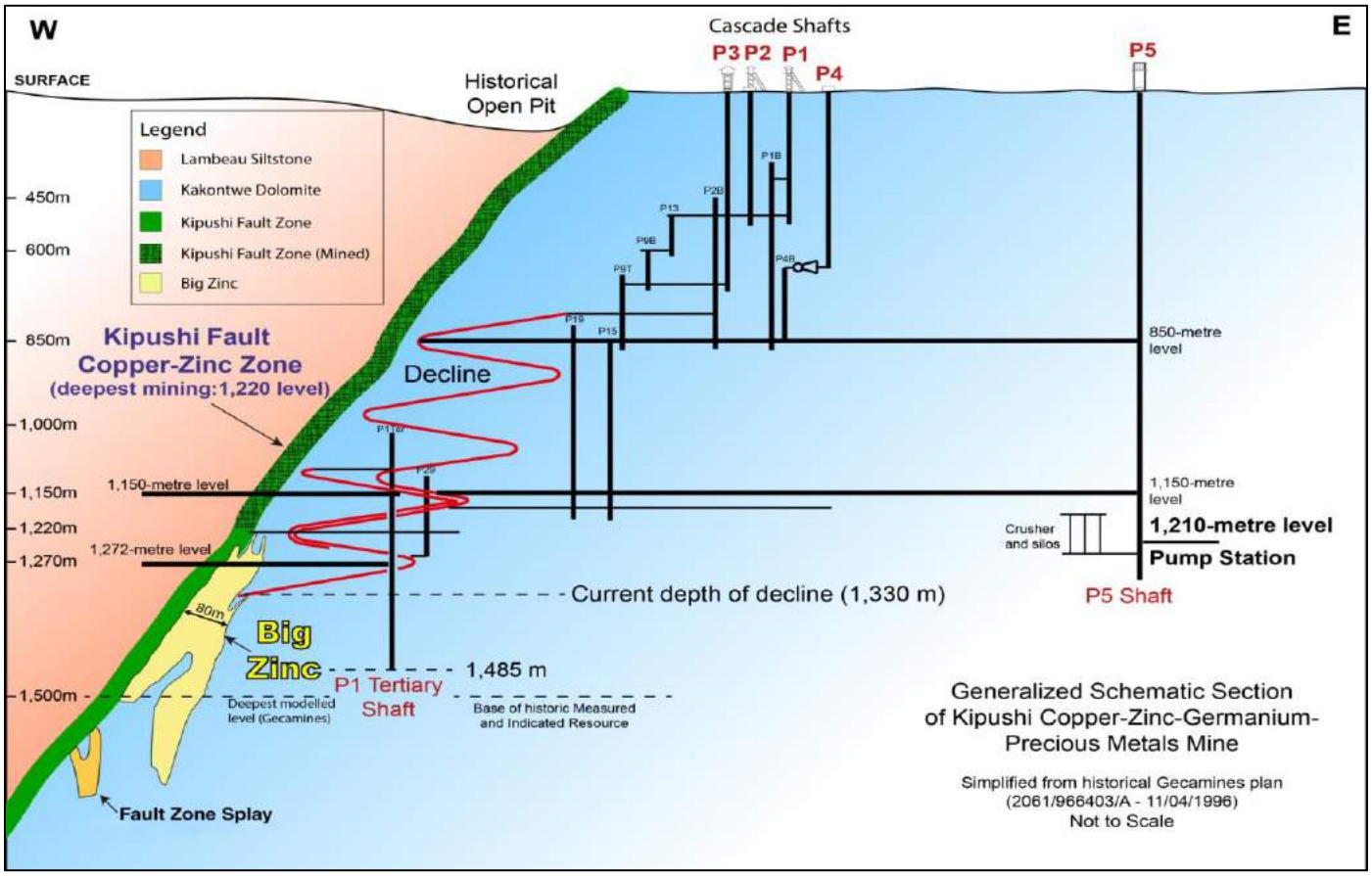
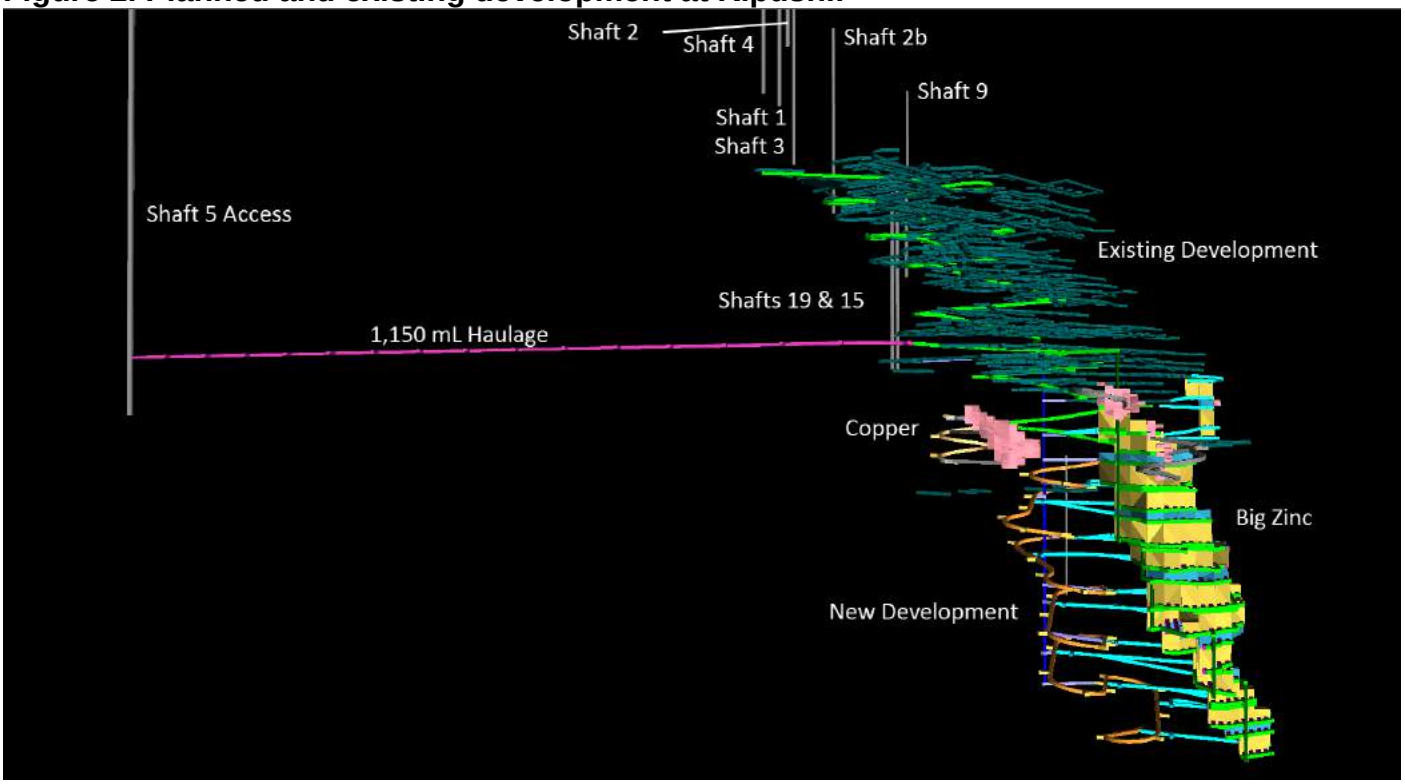



**Figure 2. Planned and existing development at Kipushi.**



## May 2016 PEA findings support Kipushi's rank among the world's major zinc mines

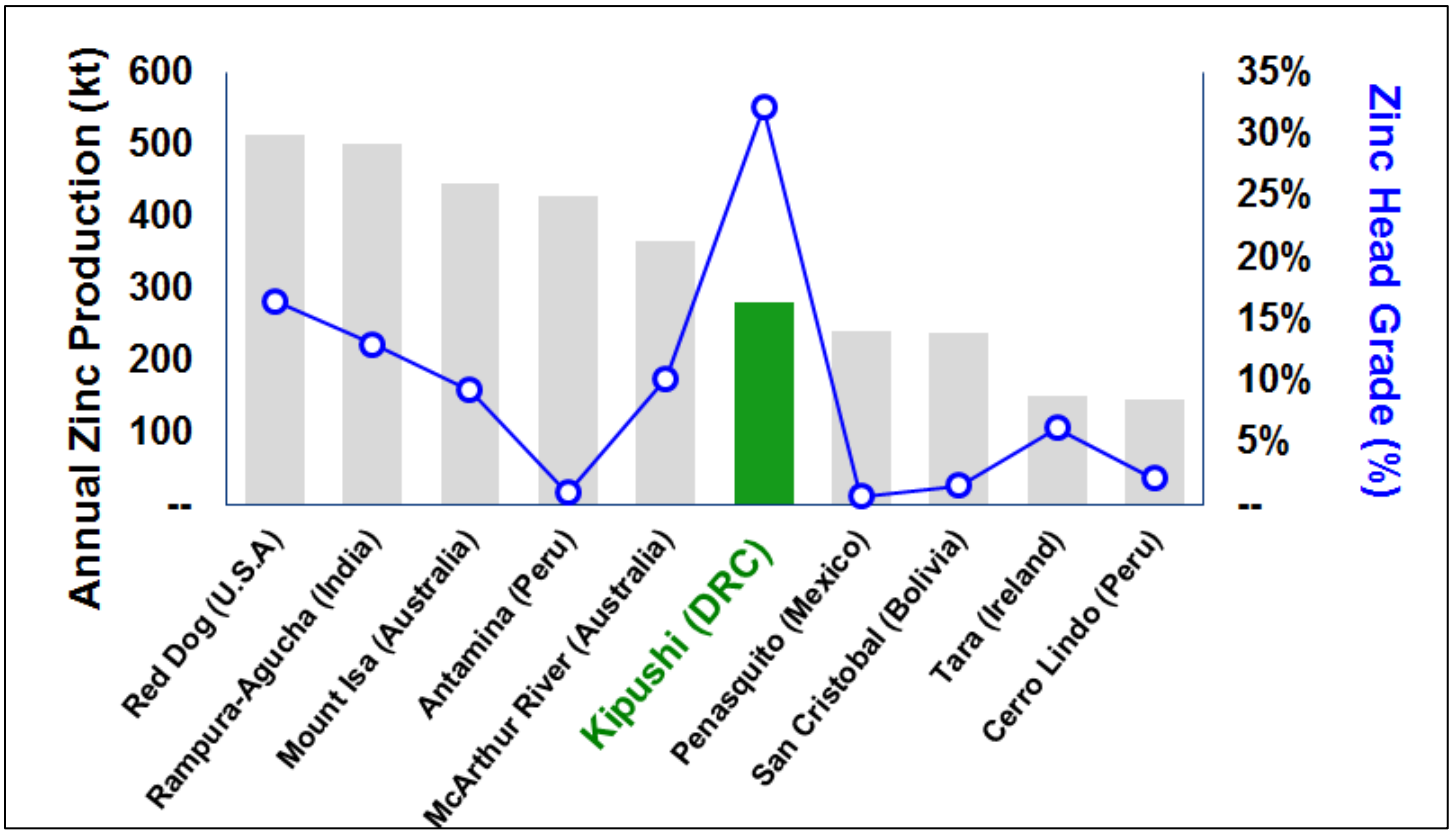
**The independent PEA for the planned redevelopment of the Kipushi zinc-copper mine was published in May 2016 and assumed a base case, long-term zinc price of $2,227 per tonne. It described the redevelopment of Kipushi as an underground mine, producing an average of 530,000 tonnes of zinc concentrate annually over a 10-year mine life at a total cash cost, including copper by-product credits, of approximately US$0.54 per pound of zinc.**

**Highlights of the PEA included:**

- **After-tax net present value (NPV) at an 8% real discount rate is $533 million.**
- **After-tax real internal rate of return (IRR) is 30.9%.**
- **After-tax project payback period is 2.2 years.**
- **At a long-term zinc price of $2,500 per tonne (which approximates the current spot price of zinc), the after-tax $NPV_{8\%}$ is $794 million.**
- **At a long-term zinc price of $3,000 per tonne, the after-tax $NPV_{8\%}$ is $1.27 billion.**
- **Leveraging existing surface and underground infrastructure significantly lowers the redevelopment capital compared to a greenfield development project, as well as the time required to reinstate production.**
- **Life-of-mine average planned zinc concentrate production of 530,000 dry tonnes per annum (tpa), with a concentrate grade of 53% zinc, is expected to rank Kipushi, once in production, among the world's major zinc mines (see Figure 3, below).**
- **Life-of-mine average cash cost of US$0.54/lb of zinc is expected to rank Kipushi, once in production, in the lower quartile of the cash cost curve for zinc producers globally.**

**Independent research by Wood Mackenzie concluded that the Kipushi Project could be expected to rank among the world's major zinc mines. The PEA for Kipushi's redevelopment was prepared by OreWin Pty. Ltd., of Adelaide, Australia, and the MSA Group (Pty.) Ltd., of Johannesburg, South Africa. All monetary figures subsequently stated in this news release are US dollars (US$), unless otherwise stated. The PEA was prepared in compliance with Canadian National Instrument 43-101 – Standards of Disclosure for Mineral Projects (NI 43-101).**

**Figure 3. World's major zinc mines defined as the world's 10 largest zinc mines, ranked by forecasted production by 2018.**




Source: Wood Mackenzie. Note: Independent research by Wood Mackenzie concludes that at the forecast production and head grade, the Kipushi Project, once in production, will rank among the world's major zinc mines. Wood Mackenzie compared the Kipushi Project's life-of-mine average annual zinc production and zinc head grade of 281,000 tonnes and 32%, respectively, against production and zinc head grade forecasts for 2018.

**Winder operator at Kipushi's Shaft 5.**

**Kipushi's main pumping station at the 1,200-metre level.**

**New electrical control panels at the 1,200-metre level pumping station.**

**New high-volume ventilation fan installed at Kipushi’s Shaft 4 now in full operation.**

**One of the new high-capacity Grifo pumps on the 1,200-metre level.**

**A new electrical subpanel for one of the winders.**

**Table 1. Kipushi zinc-rich Mineral Resource at 7% zinc cut-off grade, January 23, 2016.**

| Zone | Category | Tonnes (millions) | Zn % | Cu % | Pb % | Ag g/t | Co ppm | Ge g/t |
|---|---|---|---|---|---|---|---|---|
| Big Zinc | Measured | 3.59 | 38.39 | 0.67 | 0.36 | 18 | 17 | 54 |
| | Indicated | 6.60 | 32.99 | 0.63 | 1.29 | 20 | 14 | 50 |
| | Inferred | 0.98 | 36.96 | 0.79 | 0.14 | 7 | 16 | 62 |
| Southern Zinc | Indicated | 0.00 | – | – | – | – | – | – |
| | Inferred | 0.89 | 18.70 | 1.61 | 1.70 | 13 | 15 | 43 |
| **Total** | **Measured** | **3.59** | **38.39** | **0.67** | **0.36** | **18** | **17** | **54** |
| | **Indicated** | **6.60** | **32.99** | **0.63** | **1.29** | **20** | **14** | **50** |
| | **Measured & Indicated** | **10.18** | **34.89** | **0.65** | **0.96** | **19** | **15** | **51** |
| | **Inferred** | **1.87** | **28.24** | **1.18** | **0.88** | **10** | **15** | **53** |

**Contained metal quantities**

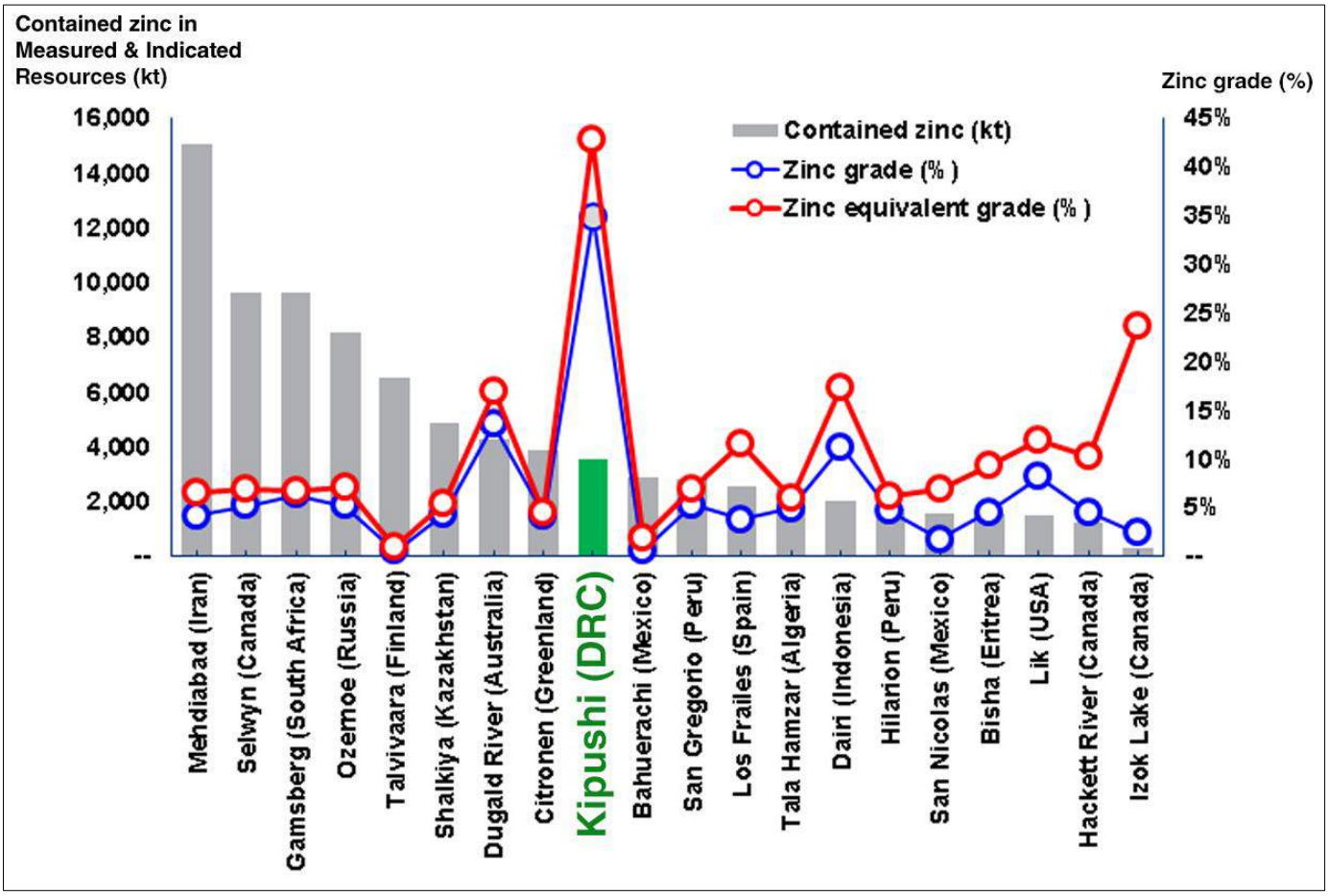
| Zone | Category | Tonnes (millions) | Zn (million lbs) | Cu (million lbs) | Pb (million lbs) | Ag (million oz) | Co (million lbs) | Ge (million oz) |
|---|---|---|---|---|---|---|---|---|
| Big Zinc | Measured | 3.59 | 3,035.8 | 53.1 | 28.7 | 2.08 | 0.13 | 6.18 |
| | Indicated | 6.60 | 4,797.4 | 91.9 | 187.7 | 4.15 | 0.20 | 10.54 |
| | Inferred | 0.98 | 797.2 | 17.1 | 3.0 | 0.23 | 0.03 | 1.96 |
| Southern Zinc | Indicated | 0.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| | Inferred | 0.89 | 368.6 | 31.8 | 33.5 | 0.38 | 0.03 | 1.23 |
| **Total** | **Measured** | **3.59** | **3,035.8** | **53.1** | **28.7** | **2.08** | **0.13** | **6.18** |
| | **Indicated** | **6.60** | **4,797.4** | **91.9** | **187.7** | **4.15** | **0.20** | **10.54** |
| | **Measured & Indicated** | **10.18** | **7,833.3** | **144.9** | **216.4** | **6.22** | **0.33** | **16.71** |
| | **Inferred** | **1.87** | **1,168.7** | **49.6** | **36.8** | **0.61** | **0.06** | **3.21** |

Notes:

1. All tabulated data has been rounded and as a result minor computational errors may occur.
2. Mineral Resources that are not Mineral Reserves have no demonstrated economic viability.
3. The Mineral Resource is reported as the total in-situ Mineral Resource.
4. Metal quantities are reported in multiples of Troy Ounces or Avoirdupois Pounds.
5. The cut-off grade calculation was based on the following assumptions: zinc price of $1.02 /lb, mining cost of $50/tonne, processing cost of $10/tonne, G&A and holding cost of $10/tonne, transport of 55% zinc concentrate at $375/tonne, 90% zinc recovery and 85% payable zinc.

**Exploration drilling conducted by Ivanhoe Mines in 2015 sucessfully confirmed that both the Big Zinc Deposit and Fault Zone remain open at depth and to the south. Additional high-grade copper-zinc-germanium mineralization also was discovered in the Fault Zone and in the Fault Zone Splay in the immediate footwall of the Fault Zone.**

**Figure 4. Top 20 zinc projects by contained zinc.**




Source: Wood Mackenzie. Note: All tonnes and metal grades of individual metals used in the equivalency calculation of the above mentioned projects (except for Kipushi) are based on public disclosure and have been compiled by Wood Mackenzie. All metal grades have been converted by Wood Mackenzie to a zinc equivalent grade at price assumptions of $1.01/lb zinc, $2.86/lb copper, $0.91/lb lead, $12.37/lb cobalt, $1,201/oz gold, $17/oz silver and $2,000/kg germanium.

## Existing underground infrastructure and mining

**Historical mining at Kipushi was carried out from surface to approximately 1,220 metres below surface and occurred in three contiguous zones: the North and South zones of the Fault Zone, and the Série Récurrente Zone in the footwall of the fault that is approximately east-west striking and steeply north dipping.**

## Zinc processing by dense-media separation

**The planned process plant is a dense-media separation (DMS) plant, which is expected to include crushing, screening, heavy-liquid separation (HLS) and spirals to produce a high-grade zinc concentrate. DMS is a simple density concentration technique that preliminary testwork has shown yields positive results for the Kipushi material, which has a sufficient density differential between the gangue (predominantly dolomite) and mineralization (sphalerite). DMS washability profiles were evaluated in the laboratory at three feed-crush sizes using a combination of HLS and shaking tables.**

**Preliminary test work results on three crush sizes indicated that the –20-mm crush size resulted in the highest recovery and concentrate grade. This crush size achieved an overall recovery of 95.4% at a concentrate grade of 55.5% zinc.**

## Infrastructure

**The Kipushi Project includes surface mining and processing infrastructure, concentrator, offices, workshops and a connection to the national power grid. Electricity is supplied by the DRC's state power company, Société Nationale d'Electricité (SNEL), from two transmission lines from Lubumbashi. Pylons are in place for a third line.**

**The surface infrastructure is owned by Gécamines. KICO has entered into an agreement to use the surface rights on the Kipushi Project to the extent required for its operations.**

**An abundant supply of process water from the underground dewatering operations is expected to provide adequate water for processing and mining operations.**

## Qualified Person, Quality Control and Assurance

The scientific and technical information in this news release has been reviewed and approved by Stephen Torr, P.Geo., Ivanhoe Mines' Vice President, Project Geology and Evaluation, a Qualified Person under the terms of National Instrument 43-101. Mr. Torr is not independent of Ivanhoe Mines. Mr. Torr has verified the technical data disclosed in this news release.

Ivanhoe has prepared a current independent, NI 43-101-compliant technical report for the Kipushi Project, which is available under the company's SEDAR profile at www.sedar.com and on the company's website at www.ivanhoemines.com. The technical report includes relevant information regarding the effective dates and the assumptions, parameters and methods of the mineral resource estimates on the Kipushi Project cited in this release, as well as information regarding data verification, exploration procedures and other matters relevant to the scientific and technical disclosure contained in this release in respect of the Kipushi Project.

## About Ivanhoe Mines

Ivanhoe Mines is advancing its three principal projects in Sub-Saharan Africa: Mine development at the **Platreef** platinum-palladium-gold-nickel-copper discovery on the Northern Limb of South Africa's Bushveld Complex; mine development and exploration at the **Kamoa-Kakula** Copper Project on the Central African Copperbelt in the DRC; and upgrading at the historic, high-grade **Kipushi** zinc-copper-lead-germanium mine, also on the DRC's Copperbelt. For details, visit www.ivanhoemines.com.

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**Cautionary statement on forward-looking information**

Statements in this news release that are forward-looking statements are subject to various risks and uncertainties concerning the specific factors disclosed here and elsewhere in the company's periodic filings with Canadian securities regulators. When used in this document, the words such as "could," "plan," "estimate," "expect," "intend," "may," "potential," "should" and similar expressions, are forward-looking statements. Information provided in this document is necessarily summarized and may not contain all available material information.

All of the results of the Kipushi 2016 PEA represent forward-looking information and statements. Other statements in this news release that constitute forward-looking statements or information include, but are not limited to: (1) statements about the goal of preparing the Kipushi Mine for the restart of commercial production; (2) statements regarding the mine has the potential to be one of the largest and lowest-cost zinc producers, also while producing significant quantities of copper, silver and germanium; (3) statements regarding the rock hoisting winder will have a potential annual hoisting capacity of 1.8 million tonnes per annum and is expected to be fully operational later in 2017; (4) statements regarding the planned mining methods and access for the Big Zinc Deposit; (5) statements regarding the Big Zinc is expected to be accessed via the existing decline and without any significant new development and that the main levels are planned to be at 60-metre vertical intervals, with sublevels at 30-metre intervals; (6) statements regarding process water from the underground dewatering operations is expected to provide adequate water for processing and mining operations; (7) statements regarding projected steady-state production of 530,000 tonnes of zinc concentrate per annum; and (8) statements regarding the re-commissioning of the Shaft 5 main pumping station, load-out facilities, and main haulage way at the 1,150-metre level.

The forward-looking information and statements also includes metal price assumptions, cash flow forecasts, projected capital and operating costs, metal recoveries, mine life and production rates, and other assumptions used in the Kipushi 2016 PEA. Readers are cautioned that actual results may vary from those presented.

All such forward-looking information and statements are based on certain assumptions and analyses made by Ivanhoe Mines' management in light of their experience and perception of historical trends, current conditions and expected future developments, as well as other factors management believe are appropriate in the circumstances. These statements, however, are subject to a variety of risks and uncertainties and other factors that could cause actual events or results to differ materially from those projected in the forward-looking information or statements including, but not limited to, unexpected changes in laws, rules or regulations, or their enforcement by applicable authorities; the failure of parties to contracts to perform as agreed; social or labour unrest; changes in commodity prices; unexpected failure or inadequacy of infrastructure, or delays in the refurbishment or development of infrastructure, and the failure of exploration programs or other studies to deliver anticipated results or results that would justify and support continued studies, development or operations. Other important factors that could cause actual results to differ from these forward-looking statements also include those described under the heading "Risk Factors" in the company's most recently filed MD&A as well as in the most recent Annual Information Form filed by Ivanhoe Mines. Readers are cautioned not to place undue reliance on forward-looking information or statements.

This news release also contains references to estimates of Mineral Resources. The estimation of Mineral Resources is inherently uncertain and involves subjective judgments about many relevant factors. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. The accuracy of any such estimates is a function of the quantity and quality of available data, and of the assumptions made and judgments used in engineering and geological interpretation, which may prove to be unreliable and depend, to a certain extent, upon the analysis of drilling results and statistical inferences that may ultimately prove to be inaccurate. Mineral Resource estimates may have to be re-estimated based on, among other things: (i) fluctuations in zinc, copper, or other mineral prices; (ii) results of drilling; (iii) results of metallurgical testing and other studies; (iv) changes to proposed mining operations, including dilution; (v) the evaluation of mine plans subsequent to the date of any estimates; and (vi) the possible failure to receive required permits, approvals and licences.

Although the forward-looking statements contained in this release are based upon what management of the company believes are reasonable assumptions, the company cannot assure investors that actual results will be consistent with these forward-looking statements. These forward-looking statements are made as of the date of this release and are expressly qualified in their entirety by this cautionary statement. Subject to applicable securities laws, the company does not assume any obligation to update or revise the forward-looking statements contained herein to reflect events or circumstances occurring after the date of this release.