

**FORM 51-102F3
MATERIAL CHANGE REPORT**

Item 1 Name and Address of Company

Ivanhoe Mines Ltd. (the “**Company**”, “**Ivanhoe**” or “**Ivanhoe Mines**”) Suite 606, 999 Canada Place
Vancouver, British Columbia Canada, V6C 3E1

Item 2 Date of Material Change

February 14, 2022

Item 3 News Release

A news release with respect to the material change referred to in this report was disseminated through the facilities of a recognized newswire service on February 14, 2022 and subsequently filed under the Company’s profile on the System for Electronic Document Analysis and Retrieval (SEDAR). The statements in the February 14, 2022 news release under the heading “Cautionary statement on forward-looking information” are incorporated into this material change report.

Item 4 Summary of Material Change

On February 14, 2022, Ivanhoe announced that Ivanhoe Mines and Gécamines, the state-owned mining company of the Democratic Republic of Congo (“**DRC**”), signed a new agreement to return the ultra-high-grade Kipushi Mine in the DRC to production. Under the new agreement, by January 25, 2027 Kipushi Holding, 100% owned by Ivanhoe Mines, will transfer sufficient share capital and voting rights in Kipushi Corporation (“**KICO**”) to Gécamines, such that Kipushi Holding will hold 57% of KICO (and the Kipushi Mine) and Gécamines will hold 43%. Once a minimum of the current proven and probable reserves and up to 12 million tonnes has been mined and processed, an additional 37% of the share capital and voting rights in KICO shall be transferred from Kipushi Holding to Gécamines, after which Kipushi Holding and Gécamines will hold 20% and 80%, respectively.

Ivanhoe Mines also announced the results of the Kipushi 2022 Feasibility Study (“**Kipushi 2022 FS**”), with a with two-year development timeline, which will result in Kipushi being the world’s highest-grade major zinc mine, with average grade of 36.4% zinc over the first five years of production. The Kipushi 2022 Feasibility Study shows a life-of-mine average annual zinc production of 240,000 tonnes with C1 cash costs of US\$0.65/lb of payable zinc; an after-tax NPV8% of US\$941 million and an IRR of 41% based on long-term zinc price of US\$1.20/lb, with pre-production capital cost of US\$382 million. At current spot zinc price of approximately US\$1.67/lb after-tax NPV8% is US\$2.3 billion and IRR is 73%. The Kipushi 2022 Feasibility Study is based only on zinc-rich resources, including the renowned Big Zinc Zone. There remains significant potential upside from copper-and silver-rich orebodies with future exploration.

Item 5 Full Description of Material Change

On February 14, 2022, Ivanhoe announced that Ivanhoe Mines and Gécamines, the state-owned mining company of the DRC signed a new agreement to return the ultra-high-grade Kipushi Mine in the DRC to production. Ivanhoe Mines also announced the results of the Kipushi 2022 Feasibility Study,

New Agreement with Gécamines

The new agreement sets out the commercial terms that will form the basis of a new Kipushi joint-venture

agreement establishing a robust framework for the mutually beneficial operation of the Kipushi Mine for years to come, and is subject to execution of definitive documentation.

Highlights of the new agreement between Kipushi Holding, Gécamines and KICO are:

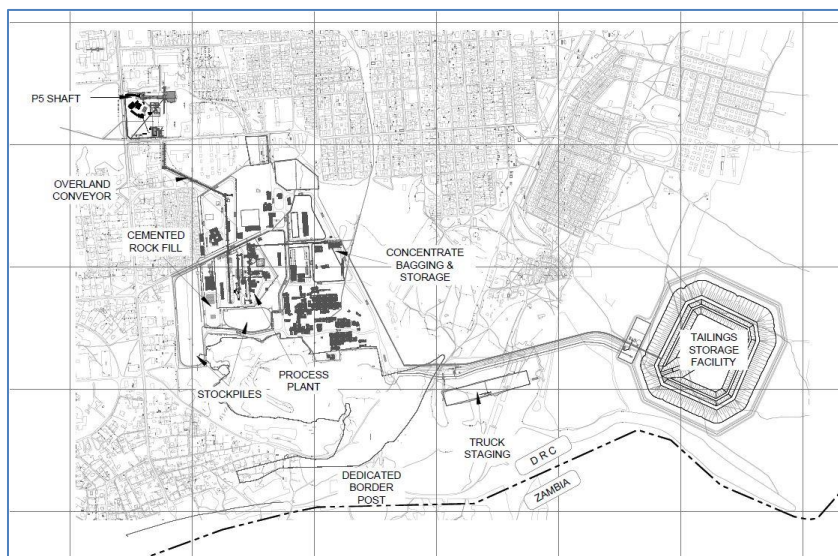
- Kipushi Holding, 100%-owned by Ivanhoe Mines, will transfer 6% of the share capital and voting rights in KICO to Gécamines, after which Kipushi Holding and Gécamines will hold 62% and 38%, respectively.
- From January 25, 2027, 5% of the share capital and voting rights in KICO shall be transferred from Kipushi Holding to Gécamines, after which Kipushi Holding and Gécamines will hold 57% and 43%, respectively.
- In the event that, after the 6% and 5% transfers, part of KICO's share capital is required to be transferred to the State or to any third party pursuant to an applicable legal or regulatory provision, Gécamines shall transfer the number of KICO shares required, and Kipushi Holding shall retain 57% ownership in KICO.
- Once a minimum of the current proven and probable reserves and up to 12 million tonnes has been mined and processed, an additional 37% of the share capital and voting rights in KICO shall be transferred from Kipushi Holding to Gécamines, after which Kipushi Holding and Gécamines will hold 20% and 80%, respectively.
- A new supervisory board and executive committee will be established with appropriate shareholder representation.
- New initiatives will be implemented focusing on the development of Congolese employees, including individual development, the identification of future leaders, succession planning and the promotion of gender equality across the workforce.
- A framework for tendering for the offtake of zinc concentrates produced by the Kipushi Mine has been established, which includes Gécamines' participation.
- Kipushi Holding will continue to fund KICO with the shareholder loan and/or procure financing from third parties for the development of the project. The interest on the shareholder loan will be 6%, which will be applicable from January 1, 2022, on the existing balance and any further advances. Under the terms of the current shareholder loan agreement, the shareholder loan carries interest of LIBOR plus 4%, which is applicable to 80% of the advanced amounts with the remaining 20% interest-free. As of December 31, 2021, the balance of the shareholder loan owing to Kipushi Holding, including accrued interest, was approximately US\$528 million.

Kipushi 2022 Feasibility Study

The Kipushi copper-zinc-germanium-silver mine in the DRC Copperbelt is adjacent to the town of Kipushi and approximately 30 kilometres southwest of Lubumbashi. It is located less than one kilometre from the Zambian border.

The Kipushi 2022 FS is based on transporting concentrate by road from Kipushi to Ndola, Zambia through the Kipushi border post. In June 2019, KICO received approval for a border post dedicated to the mine from the Direction Générale de Migration (DGM), which allows trucks carrying zinc concentrate to mitigate the traffic and standing time of other export routes. From Ndola, concentrate may be transported directly to port as break bulk concentrate via three export corridors including Durban, Walvis Bay and Dar es Salam.

Figure: Kipushi Mine's proposed site layout, showing proximity to the DRC-Zambia border.



Kipushi has a long and storied history as a major producer of copper and zinc. Built and then operated by Union Minière for 42 years, Kipushi began mining a reported 18% copper deposit from a surface open pit in 1924. It was the world's richest copper mine at the time. The Kipushi Mine then transitioned to become Africa's richest underground copper, zinc and germanium mine. State-owned Gécamines gained control of Kipushi in 1967 and operated the mine until 1993, when it was placed on care and maintenance due to a combination of economic and political factors.

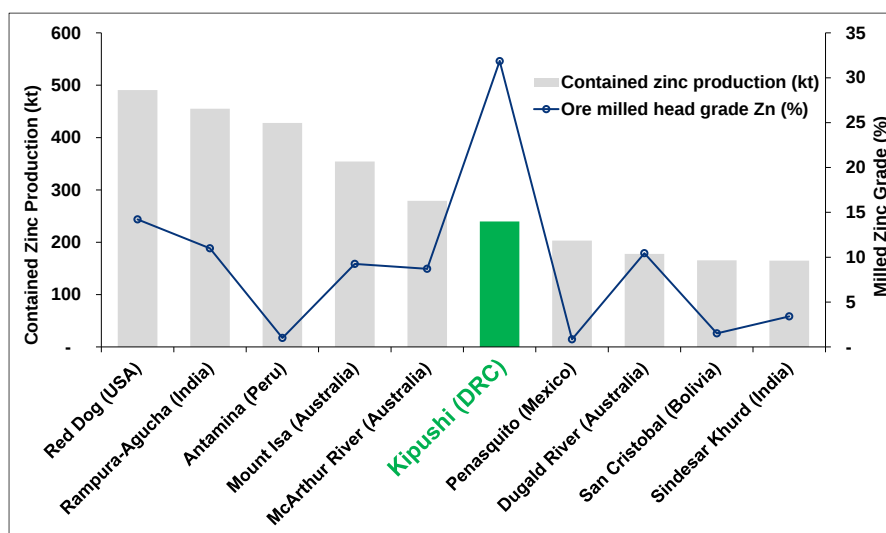
Over a span of 69 years, Kipushi produced a total of 6.6 million tonnes of zinc and 4.0 million tonnes of copper from 60 million tonnes of ore grading 11% zinc and approximately 7% copper. It also produced 278 tonnes of germanium and 12,673 tonnes of lead between 1956 and 1978. There is no formal record of the production of precious metals as the concentrate was shipped to Belgium and the recovery of precious metals remained undisclosed during the colonial era; however, drilling by Ivanhoe Mines has encountered significant silver values within Kipushi's current zinc- and copper-rich deposits.

Before Kipushi was idled, Gécamines discovered the Big Zinc deposit at a depth of approximately 1,250 metres below surface and adjacent to the producing Fault Zone. The Big Zinc Deposit has not been mined and is the initial target for production as outlined in the new feasibility study.

The Kipushi 2022 Feasibility Study builds on the results of the pre-feasibility study published by Ivanhoe Mines in January 2018 ("**Kipushi PFS**"). The redevelopment of Kipushi is based on a two-year construction timeline, which utilizes the significant existing surface and underground infrastructure to allow for substantially lower capital costs than comparable development projects. The estimated pre-production capital cost, including contingency, is US\$382 million.

The Kipushi 2022 FS focuses on the mining of Kipushi's zinc-rich Big Zinc and Southern Zinc zones, with an estimated 11.8 million tonnes of Measured and Indicated Mineral Resources grading 35.3% zinc. Kipushi's exceptional zinc grade is more than twice that of the world's next-highest-grade zinc project, according to Wood Mackenzie, a leading, international industry research and consulting group.

Figure: World's 10 major zinc mines, showing estimated annual zinc production and zinc head grades (ranked by production, 2020).



Source: Wood Mackenzie; January 2022. Note: Wood Mackenzie compared the Kipushi Project's life-of-mine average annual zinc production and zinc head grade of 240,000 tonnes and 31.9%, respectively, against production and zinc head grades estimated in 2020.

The Kipushi 2022 FS does not include any of the copper-rich mineral resources delineated to date and assumes that revenue is attributable to zinc only, with no by-product credits.

The Kipushi 2022 FS envisages the recommencement of underground mining operations, and the construction of a new concentrator facility on surface with annual processing capacity of 800,000 tonnes of ore, producing on average 240,000 tonnes of zinc contained in concentrate.

Summary of the Kipushi 2022 FS Results:

- The Kipushi 2022 FS evaluates the development of an 800-ktpa underground mine and concentrator, with an increased resource base compared to the PFS, extending the mine life to 14 years.
- Existing surface and underground infrastructure allow for significantly lower capital costs than comparable development projects, with the principal development activity being the construction of a conventional concentrator facility and new supporting infrastructure on surface in a two-year timeline.
- Pre-production capital costs, including contingency, estimated at US\$382 million.
- Life-of-mine average zinc production of 240,000 tonnes per annum, with a zinc grade of 32%, is expected to rank Kipushi among the world's major zinc mines, once in production, with the highest grade by some margin.
- Life-of-mine average C1 cash cost of US\$0.65/lb of zinc is expected to rank Kipushi, once in production, in the second quartile of the cash cost curve for zinc producers globally.
- At a long-term zinc price of US\$1.20/lb, the after-tax net present value ("NPV") at an 8% real discount rate is US\$941 million, with an after-tax real internal rate of return ("IRR") of 40.9% and project payback period of 2.3 years.
- At the spot zinc price of approximately US\$1.67/lb (February 11, 2022), the after-tax NPV8% increased to US\$2,286 million with an after-tax real IRR of 73.5% and project payback period of 1.4 years.

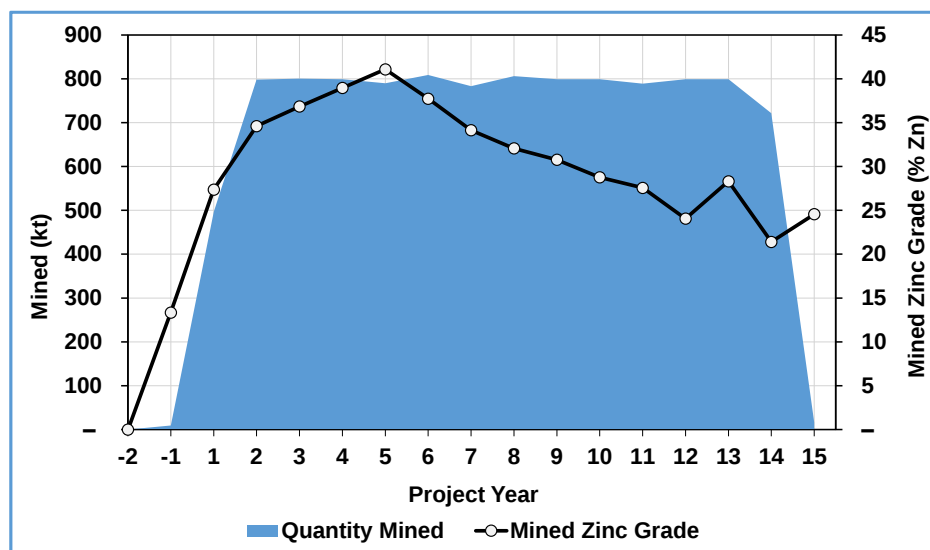
Key projections from the Kipushi 2022 FS

The mine schedule has been designed for a fast ramp up, initially targeting the highest-grade areas of the Big Zinc orebody to meet the annual milling capacity of 800,000 tonnes. The mining production forecasts are shown in the tables below. Mining and processing statistics are shown in figures below.

Table: Mining production statistics.

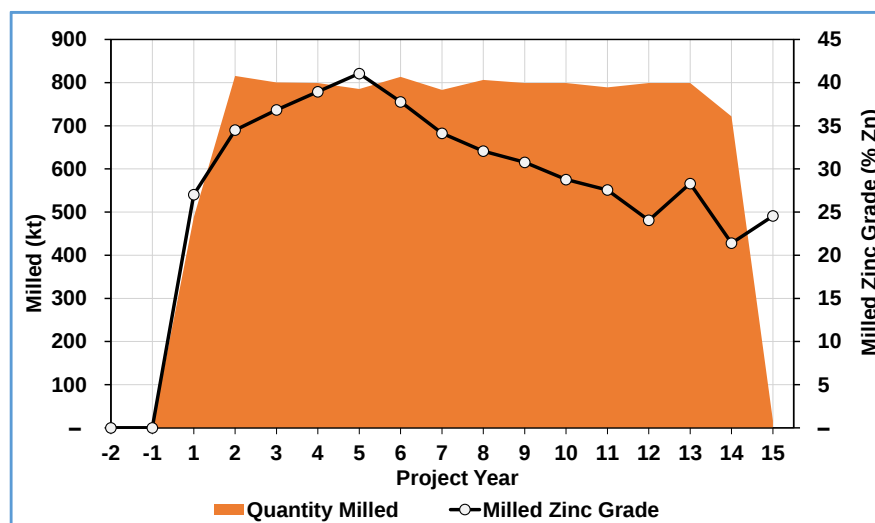
Description	Unit	Total LOM	5-Year Average	LOM Average
Zinc Feed – Tonnes Processed				
Zinc Ore Treated	kt	10,814	792	787
Zinc Feed Grade	%	31.9	36.4	31.9
Zinc Concentrate Recovery	%	95.6	95.9	95.6
Zinc Concentrate Produced	kt (dry)	6,013	508	437
Zinc Concentrate Grade	%	54.8	54.8	54.8
Contained Zinc in Concentrate	kt	3,294	278	240

Figure: Estimated tonnes mined and zinc feed grade.



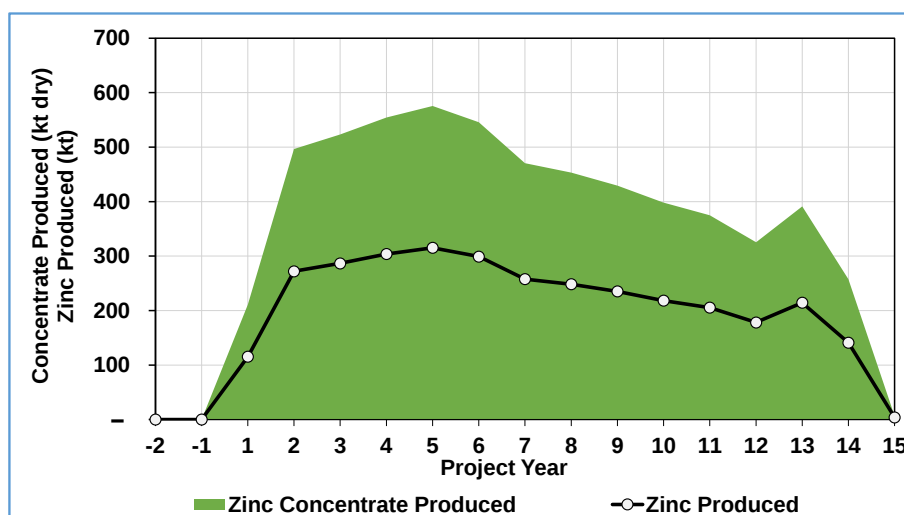
Source: OreWin, 2022

Figure: Estimated tonnes processed and zinc feed grade.



Source: OreWin, 2022

Figure: Zinc concentrate and contained zinc production.



Source: OreWin, 2022

Economic analysis

The cash flow estimates have been prepared on a real basis as at January 1, 2022, and a mid-year discounting is used to calculate the NPV. All monetary figures expressed are US dollars (\$) unless otherwise stated.

The projected financial results for undiscounted and discounted cash flows, at a range of discount rates, IRR and payback are shown in the tables below. The key economic assumptions for the discounted cash flow analyses, the results of NPV sensitivity analysis to a range of zinc prices and zinc treatment charges and a comparison of the Kipushi 2022 FS key results to the Kipushi PFS are shown in the tables below. A chart of the cumulative cash flow is shown in the figure below.

Table: Key financial results.

Description	Discount Rate	Long-Term Price ⁽¹⁾	Spot Price ⁽²⁾
After Tax Net Present Value (US\$M)	Undiscounted	1,946	4,447
	5.0%	1,228	2,900
	8.0%	941	2,286
	10.0%	790	1,964
	12.0%	663	1,695
Internal Rate of Return	–	40.9%	73.5
Payback Period (Years)	–	2.3	1.4

1. Long-term zinc price of US\$1.20/lb.

2. Spot zinc price of US\$1.67/lb (February 11, 2022).

Table: Kipushi 2022 FS key assumptions.

Parameter	Unit	Economic Analysis Assumption
Zinc Price	US\$/lb	1.20
Zinc Treatment Charge	US\$/t concentrate (dry)	190
Transport Cost	US\$/t concentrate (wet)	266

Table: After-tax NPV_{8%} and IRR sensitivity to zinc prices and treatment charges.

Zinc Treatment Charge (US\$/t)	Zinc Price (US\$/lb)								
	0.80	1.00	1.10	1.20	1.30	1.40	1.60	1.80	2.00
100	160	702	922	1,140	1,357	1,574	2,202	3,022	3,830
	15%	33%	40%	47%	53%	59%	73%	88%	101%
130	67	635	855	1,074	1,291	1,508	2,135	2,954	3,757
	11%	31%	38%	45%	51%	57%	71%	86%	100%
160	-26	567	788	1,007	1,225	1,442	2,065	2,885	3,678
	7%	28%	36%	43%	49%	55%	70%	85%	98%
190	-115	486	722	941	1,159	1,376	1,999	2,817	3,586
	1%	26%	34%	41%	47%	54%	68%	83%	97%
220	-206	400	654	874	1,093	1,310	1,932	2,748	3,494
	N/A	23%	31%	39%	45%	52%	66%	82%	95%
250	-300	307	587	808	1,026	1,244	1,866	2,679	3,402
	N/A	20%	29%	37%	44%	50%	65%	80%	94%

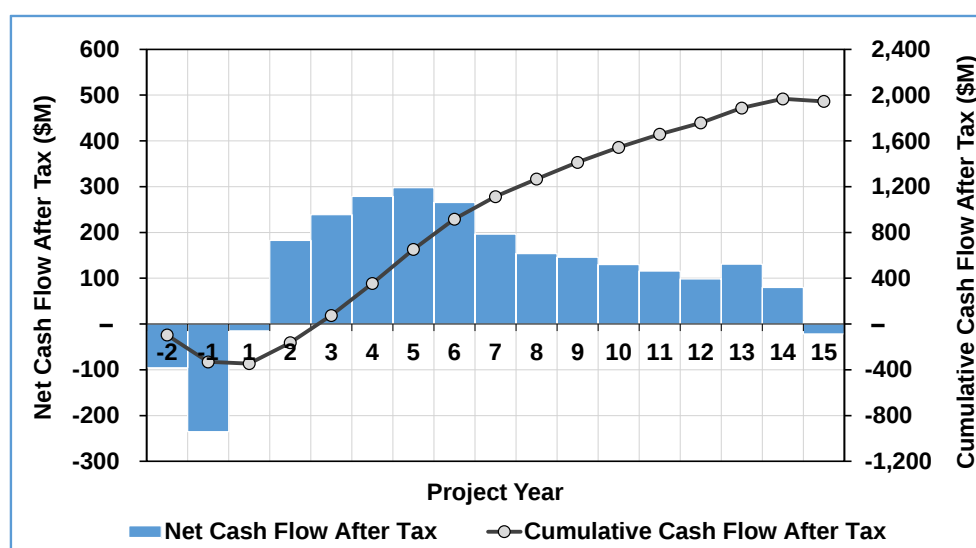
Table: Comparison of results from Kipushi 2022 FS to Kipushi 2017 PFS.

Item	Unit	2017 PFS ⁽¹⁾	2022 FS ⁽²⁾
Zinc Ore Processed (Total)			
Ore Processed	kt	8,581	10,814
Feed Grade	%	32.1	31.9
Zinc Ore Processed (LOM Average)			
Ore Processed	kt/yr	780	787
Ore Feed Grade	%	32.1	31.9
Recovery	%	89.6	95.6
Concentrate Produced	kt/yr (dry)	381	437
Concentrate Grade	%	58.9	54.8
Zinc in Concentrate			
Zinc Produced (LOM Average)	Mlb/yr	495	528
Zinc Produced (LOM Average)	kt/yr	225	240
Peak Zinc Production	kt/yr	260	315
Key Financial Results			
Pre-Production Capital	US\$M	337	382
Mine Site Cash Cost	US\$/lb Payable Zn	0.16	0.18
Transport Costs	US\$/lb Payable Zn	0.21	0.28
Treatment & Refining Charges	US\$/lb Payable Zn	0.15	0.19
C1 Cash Cost	US\$/lb Payable Zn	0.53	0.65
Site Operating Costs	US\$/t milled	88	103
Zinc Price Assumption	US\$/lb	1.10	1.20
After-tax NPV8% (US\$M)	US\$M	683	941
After-tax IRR	%	35%	41%
Payback Period	Years	2.2	2.3
Project Life	Years	11.0	13.8

1. Based on a zinc price of US\$1.10/lb and zinc treatment charge of US\$170/t concentrate.

2. Based on a zinc price of US\$1.20/lb and zinc treatment charge of US\$190/t concentrate.

Figure: Projected annual and cumulative cash flow at long-term zinc price assumptions.



Source: OreWin, 2022.

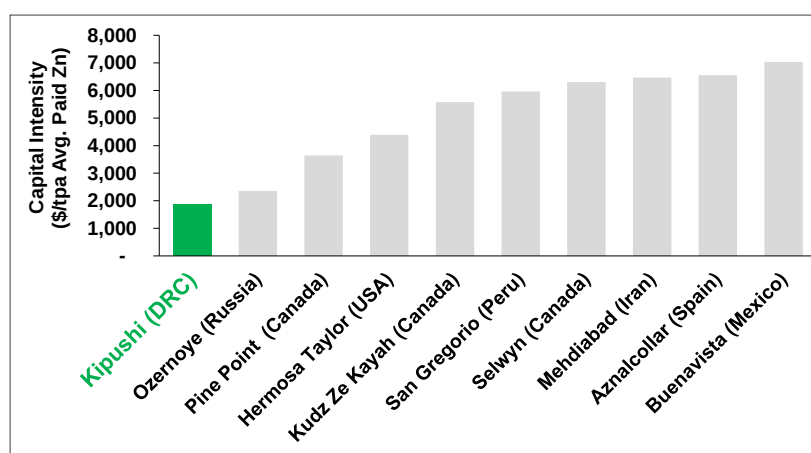
The total capital cost estimates for Kipushi are shown in the table below. Kipushi's estimated low capital

intensity relative to comparable zinc projects identified by Wood Mackenzie is highlighted in the figure below.

Table: Estimated capital costs.

Item	Pre-Production	Production	Total
	(US\$M)	(US\$M)	(US\$M)
Underground Mining			
Mining	154	118	272
Capitalised Pre-Production Mining	17	–	17
Subtotal	171	118	289
Process & Infrastructure			
Process & Infrastructure	82	41	123
Tailings Storage Facility	7	9	15
Capitalised Pre-Production Processing	5	–	5
Subtotal	94	49	143
Closure			
Closure	–	22	22
TSF Closure and Rehabilitation	–	3	3
Subtotal	–	25	25
Indirects & Others			
EPCM	13	–	13
Owners	47	–	47
Capitalised Pre-Production G&A	9	–	9
Customs Duties & VAT	23	-34	-10
Subtotal	93	-34	59
Capital Cost Before Contingency	357	159	516
Contingency (10%)	24	–	24
Capital Cost After Contingency	382	159	540

Figure: Capital intensity for zinc projects.



Source: Wood Mackenzie, January 2022. (based on public disclosure and information gathered in the process of routine research. The Kipushi 2022 FS has not been reviewed by Wood Mackenzie). Note: All comparable “probable”, “possible” and “base case” projects as identified by Wood Mackenzie.

Kipushi’s estimated revenues and operating costs are presented in the table below along with the projected net sales revenue value attributable to each key period of operation. Kipushi’s estimated cash costs are

presented in the table below. Based on data from Wood Mackenzie, life-of-mine average cash cost of US\$0.65/lb of zinc is expected to rank Kipushi, once in production, in the second quartile of the 2020 cash cost curve for zinc producers globally.

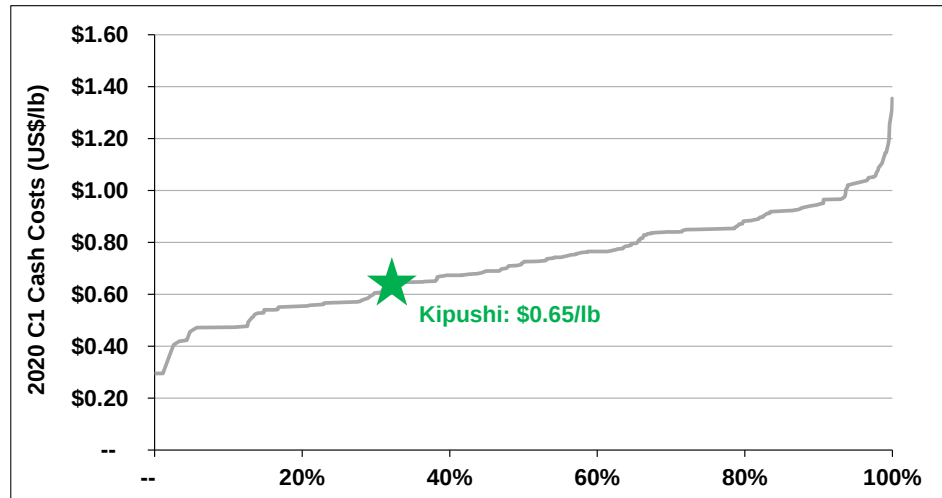
Table: Estimated operating costs and revenues.

Description	Total (US\$M)	5-Year Average	LOM Average
		(\$/t Milled)	
Revenue			
Gross Sales Revenue	7,408	790	685
Less Realization Costs			
Transport Costs	1,757	187	162
Treatment & Refining Charges	1,142	122	106
Royalties	405	43	37
Total Realization Costs	3,305	352	306
Net Sales Revenue	4,103	438	379
Less Site Operating Costs			
Mining	634	61	59
Processing	248	23	23
Tailings Storage Facility	9	1	1
General & Administration	201	20	19
Customs Duties - Opex	19	2	2
Total	1,111	107	103
Operating Margin	2,992	331	277
Operating Margin (%)	40	42	40

Table: Estimated cash costs.

Description	5-Year Average	LOM Average
	(US\$/lb Payable Zinc)	
Mine Site Cash Cost	0.16	0.18
Transport Costs	0.28	0.28
Treatment & Refining Charges	0.19	0.19
C1 Cash Cost	0.63	0.65
Royalties & Export Tax	0.07	0.07
Total Cash Costs	0.70	0.72

Figure: Zinc mine pro-rata C1 cash costs, 2020.



Source: Wood Mackenzie, January 2022 (based on public disclosure and information gathered in the process of routine research. The Kipushi 2022 FS has not been reviewed by Wood Mackenzie).

Note: Represents C1 pro-rata cash costs which reflect the direct cash costs of producing paid metal incorporating mining, processing and offsite realization costs, having made appropriate allowance for the co-product revenue streams.

Kipushi Mineral Resources

The Mineral Resource estimate was prepared in accordance with the 2014 CIM definition standards, incorporated by reference into Canadian National Instrument 43-101 – *Standards of Disclosure for Mineral Projects*.

The estimate was based on the results of the 58 drill holes completed at Kipushi by Ivanhoe Mines in 2017, 84 drill holes completed by Ivanhoe Mines prior to 2016, and an additional 107 historical holes drilled by Gécamines. The Mineral Resource estimate continues to have an effective date from June 2018 and is unchanged as a result of the feasibility study. Mineral Resource estimates were completed below the 1,150-metre-level on the Big Zinc Zone, Southern Zinc Zone, Fault Zone, Fault Zone Splay and Série Récurrente Zone.

The Mineral Resources were categorized either as zinc-rich resources or copper-rich resources, depending on the most abundant metal. The Big Zinc and Southern Zinc zones have been tabulated using zinc cut-off of 7% and are shown below; the Fault Zone, the Fault Zone Splay and Série Récurrente Zone have been tabulated using copper cut-off of 1.5%, and are shown further below.

For the zinc-rich zones, the Mineral Resource is reported at a base-case cut-off grade of 7.0% zinc and the copper-rich zones at a base-case cut-off grade of 1.5% copper. Given the considerable revenue that could be obtained from the additional metals in each zone, MSA considers that mineralization at these cut-off grades will satisfy reasonable prospects for economic extraction.

Table: Kipushi zinc-rich Mineral Resource at 7% zinc cut-off grade, June 14, 2018

Zone	Category	Tonnes (millions)	Zn %	Cu %	Pb %	Ag g/t	Co ppm	Ge g/t
Big Zinc	Measured	3.65	39.87	0.65	0.35	18	18	56
	Indicated	7.25	34.36	0.62	1.29	19	12	53
	Inferred	0.98	35.32	1.18	0.09	8	15	62
Southern Zinc	Indicated	0.88	24.52	2.97	1.95	75	6	188
	Inferred	0.16	24.37	1.64	1.20	38	6	61
Total	Measured	3.65	39.87	0.65	0.35	18	18	56
	Indicated	8.13	33.30	0.87	1.36	25	11	68
	Measured & Indicated	11.78	35.34	0.80	1.05	23	13	64
	Inferred	1.14	33.77	1.24	0.24	12	14	62
Contained metal quantities								
Zone	Category	Tonnes (millions)	Zn (Mlb)	Cu (Mlb)	Pb (Mlb)	Ag (Moz)	Co (Mlb)	Ge (Moz)
Big Zinc	Measured	3.65	3,210.6	52.3	27.8	2.06	0.14	6.60
	Indicated	7.25	5,489.0	98.7	206.6	4.48	0.19	12.43
	Inferred	0.98	764.0	25.5	1.9	0.26	0.03	1.96
Southern Zinc	Indicated	0.88	476.5	57.6	37.8	2.11	0.01	5.34
	Inferred	0.16	86.7	5.8	4.3	0.20	0.00	0.32
Total	Measured	3.65	3,210.6	52.3	27.8	2.06	0.14	6.60
	Indicated	8.13	5,965.5	156.4	244.4	6.59	0.20	17.77
	Measured & Indicated	11.78	9,176.0	208.6	272.2	8.65	0.34	24.36
	Inferred	1.14	850.7	31.3	6.2	0.46	0.04	2.28

Notes:

- The effective date of the Mineral Resource is June 14, 2018.*
- All tabulated data has been rounded and as a result minor computational errors may occur.*
- Mineral Resources which are not Mineral Reserves have no demonstrated economic viability.*
- The Mineral Resource is reported as the total in-situ Mineral Resource.*
- Metal quantities are reported in multiples of Troy Ounces or Avoirdupois Pounds.*
- The cut-off grade calculation was based on the following assumptions: zinc price of US\$1.0/lb, mining cost of US\$50/tonne, processing cost of US\$10/tonne, G&A and holding cost of US\$10/tonne, transport of 55% zinc concentrate at US\$210/tonne, 90% zinc recovery and 85% payable zinc.*

Table: Kipushi copper-rich Mineral Resource at 1.5% copper cut-off grade, June 14, 2018.

Zone	Category	Tonnes (millions)	Cu %	Zn %	Pb %	Ag g/t	Co ppm	Ge g/t
Fault Zone	Measured	0.14	2.74	1.52	0.04	16	77	21
	Indicated	1.22	4.11	3.32	0.09	21	96	30
	Inferred	0.20	3.11	2.58	0.07	18	43	23
Série Récurrente	Indicated	0.93	4.14	2.43	0.02	23	50	4
	Inferred	0.03	1.81	0.06	0.00	8	52	0.3
Fault Zone Splay	Inferred	0.21	4.91	19.84	0.01	21	107	93
Total	Measured	0.14	2.74	1.52	0.04	16	77	21
	Indicated	2.15	4.12	2.94	0.06	22	76	19
	Measured & Indicated	2.29	4.03	2.85	0.06	21	76	19
	Inferred	0.44	3.89	10.77	0.04	19	75	55
Contained metal quantities								
Zone	Category	Tonnes (millions)	Cu (Mlb)	Zn (Mlb)	Pb (Mlb)	Ag (Moz)	Co (Mlb)	Ge (Moz)
Fault Zone	Measured	0.14	8.5	4.7	0.1	0.07	0.02	0.09
	Indicated	1.22	110.8	89.7	2.5	0.82	0.26	1.19
	Inferred	0.20	13.4	11.1	0.3	0.12	0.02	0.14
Série Récurrente	Indicated	0.93	84.6	49.8	0.5	0.69	0.10	0.12
	Inferred	0.03	1.3	0.04	0.0	0.01	0.00	0.00
Fault Zone Splay	Inferred	0.21	23.2	93.7	0.1	0.14	0.05	0.64
Total	Measured	0.14	8.5	4.7	0.1	0.07	0.02	0.09
	Indicated	2.15	195.4	139.4	3.0	1.51	0.36	1.31
	Measured & Indicated	2.29	204.0	144.2	3.1	1.58	0.39	1.40
	Inferred	0.44	37.9	104.9	0.4	0.27	0.07	0.78

Notes:

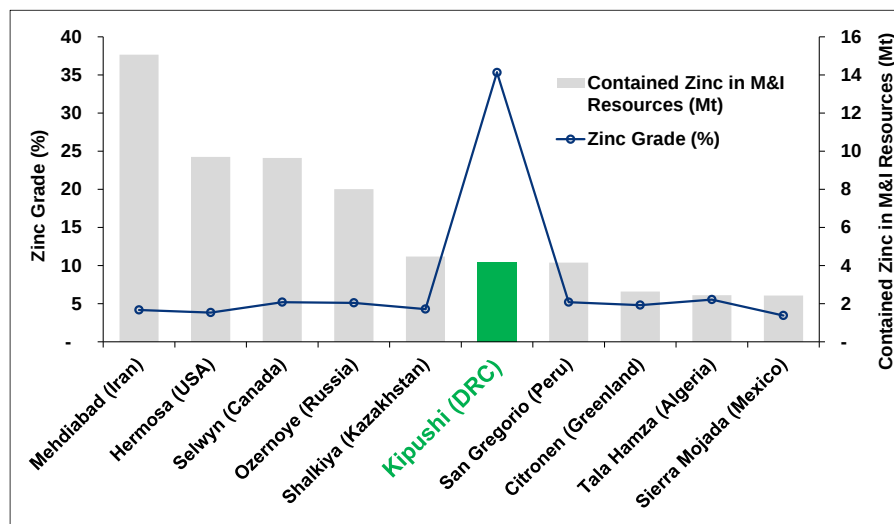
- 1. The effective date of the Mineral Resource is June 14, 2018.*
- 2. All tabulated data has been rounded and as a result minor computational errors may occur.*
- 3. Mineral Resources which are not Mineral Reserves have no demonstrated economic viability.*
- 4. The Mineral Resource is reported as the total in-situ Mineral Resource.*
- 5. Metal quantities are reported in multiples of Troy Ounces or Avoirdupois Pounds.*
- 6. The cut-off grade calculation was based on the following assumptions: copper price of US\$3.0/lb, mining cost of US\$50/tonne, processing cost of US\$10/tonne, G&A and holding cost of US\$10/tonne, 90% copper recovery and 96% payable copper.*

Ivanhoe's 2017 infill and confirmation drilling in the Southern Zinc Zone confirmed the high tenor of this mineralized zone (tenor is the percentage of minerals that is actual metal to be extracted), which is characterized by high zinc, copper, lead and silver grades.

The polymetallic style of mineralization in the Southern Zinc is very similar to historical Kipushi production, with a clear zonation of copper-rich to zinc-rich zones. Using a zinc cut-off of 7%, the

Southern Zinc Zone contains 0.88 million tonnes of Indicated Mineral resources at a grade of 24.5% zinc, 2.97% copper, 1.95% lead and 75 g/t silver. Additional Inferred Mineral resources in this zone are 0.16 million tonnes at a grade of 24.37% zinc, 1.64% copper, 1.2% lead and 38 g/t silver.

Figure: World's top 10 zinc projects, by contained zinc.



Source: Wood Mackenzie, January 2022. 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 Wood Mackenzie's respective long-term price assumptions.

The Kipushi 2022 Mineral Reserve Statement has been estimated by Qualified Person Bernard Peters, Technical Director – Mining, OreWin Pty Ltd, using the 2014 CIM Definition Standards. The Mineral Reserve is based on the June 14, 2018 Mineral Resource. The effective date of the Mineral Reserve statement is February 14, 2022. The table below shows the total Proven and Probable Mineral Reserves of Kipushi.

Table: Kipushi 2022 FS Mineral Reserve Statement

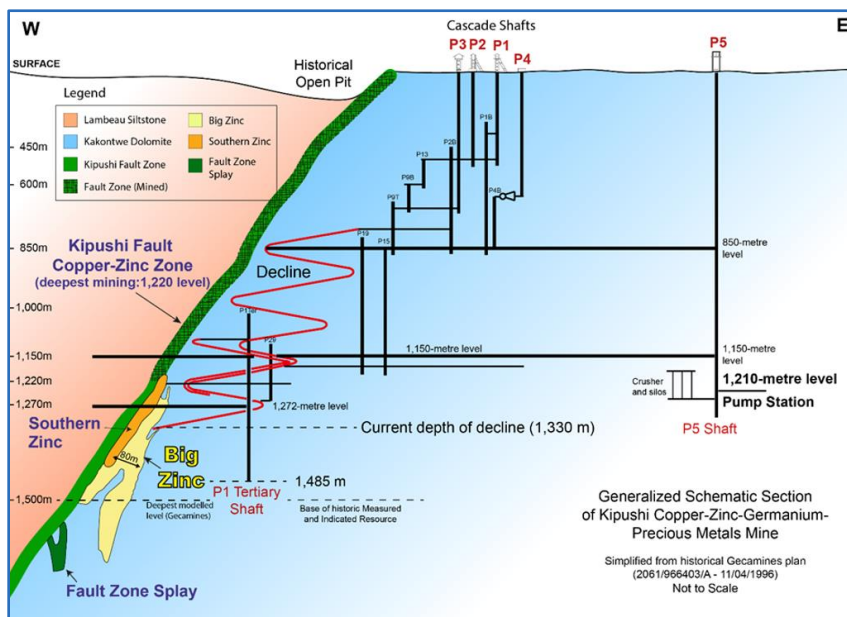
Category	Tonnage (Mt)	Zinc (%)	Zinc (Contained kt)
Proven Mineral Reserve	3.33	37.4	1,246
Probable Mineral Reserve	7.48	29.4	2,199
Total Mineral Reserve	10.81	31.9	3,445

Notes:

1. The effective date of the Mineral Reserves is February 14, 2022.
2. Net Smelter Return (NSR) is used to define the Mineral Reserve cut offs, therefore cut off is denominated in \$/t. By definition, the cut off is the point at which the costs are equal to the NSR. An elevated cut-off grade of US\$135/t NSR was used to define the mining shapes. The marginal cut-off grade has been calculated to be US\$50/t NSR. The NSR for cut off was calculated using a zinc price of US\$1.10/lb zinc and a treatment charge of US\$170/t concentrate.
3. The Kipushi 2022 FS Mineral Reserve is based on a zinc price of \$1.10/lb Zn and a treatment charge of \$170/t concentrate, while the economic analysis to demonstrate the Kipushi 2022 FS Mineral Reserve has used a zinc price of US\$1.20/lb and a treatment charge of US\$190/t concentrate.
4. Only Measured Mineral Resources were used to report Proven Mineral Reserves and only Indicated Mineral Resources were used to report Probable Mineral Reserves.

5. Mineral Reserves reported above were not additive to the Mineral Resources and are quoted on a 100% project basis.
6. The Mineral Reserve is based on the June 14, 2018 Mineral Resource.
7. Totals may not match due to rounding.
8. The Proven and Probable Reserve estimate has been reported to conform with the CIM Standards on Mineral Resources (CIM, 2005) of the Canadian Institute of Mining, Metallurgy and Petroleum (CIM).

Figure: Schematic section of Kipushi Mine.



Qualified Persons and NI 43-101 Technical Report

The following companies have undertaken work in preparation of the Kipushi 2022 FS:

- 1) OreWin – Overall report preparation, mining, Mineral Reserve estimation and economic analysis.
- 2) MSA Group – Resource and geology.
- 3) SRK Consulting – Mine geotechnical recommendations.
- 4) METC Engineering – Plant and surface infrastructure.

The independent Qualified Persons responsible for preparing the Kipushi 2022 FS, on which the technical report will be based, are Bernard Peters (OreWin); William Joughin (SRK Consulting); John Edwards (METC Engineering); and Michael Robertson and Jeremy Witley (MSA Group). Each Qualified Person has reviewed and approved the information in this material change report relevant to the portion of the Kipushi 2022 FS for which they are responsible.

Other scientific and technical information in this material change report has been reviewed and approved by Stephen Torr, P.Geo., Ivanhoe Mines' Vice President, Geosciences, a Qualified Person under the terms of NI 43-101. Mr. Torr is not considered independent under NI 43-101 as he is the Vice President, Geosciences of Ivanhoe Mines. Mr. Torr has verified the technical data disclosed in this material change report.

Ivanhoe Mines maintains a comprehensive chain of custody and QA-QC program on assays from its Kipushi Project. Half-sawn core was processed either at its preparation laboratory in Kamoia, DRC, or its exploration preparation laboratory in Kolwezi, DRC. Prepared samples then were shipped to Bureau Veritas Minerals (BVM) Laboratories in Australia for external assay. Industry-standard certified reference materials and blanks were inserted into the sample stream prior to dispatch to BVM. Ivanhoe Mines' QA-

QC program has been set up in consultation with MSA Group (Pty.) Ltd., of Johannesburg.

Information on sample preparation, analyses and security is contained in the Kipushi Project NI 43-101 Technical Report dated January 25, 2018, filed on SEDAR at www.sedar.com and on the Ivanhoe Mines website at www.ivanhoemines.com.

Item 6 Reliance on subsection 7.1(2) of National Instrument 51-102

Not applicable.

Item 7 Omitted Information

No confidential information has been omitted from this material change report.

Item 8 Executive Officer

For further information, please contact Mary Vincelli, Vice President, Compliance and Corporate Secretary of the Company, at +1 604 331 9882.

Item 9 Date of Report

February 24, 2022