

Sandfire Resources America Announces Results of Updated Pre-Feasibility Study for the Johnny Lee Deposit and Updated Mineral Resource for the Lowry Deposit at the Black Butte Copper Project

16.12.2025 | [GlobeNewswire](#)

Updated PFS for the Johnny Lee Deposit and new Mineral Resource estimate for the nearby Lowry Deposit underline the high-grade underground copper potential, with a Probable Mineral Reserve for the Johnny Lee Deposit of 9.5Mt at 2.9% Cu for 270,000t of copper and an 8-year life at the Black Butte Copper Project in Montana, USA, that aligns with the stringent Mine Operating Permit conditions.

WHITE SULPHUR SPRINGS, Mont., Dec. 16, 2025 -- [Sandfire Resources America Inc.](#) ("Sandfire America" or the "Company") is pleased to announce its updated Mineral Resource and Reserve and the results of the Preliminary Feasibility Study Update (the "Study Update" or "PFS") for the Johnny Lee deposit at its Black Butte Copper Project in White Sulphur Springs, Montana, USA, pursuant to National Instrument 43-101 - *Standards of Disclosure for Mineral Projects* ("NI 43-101").

The Study Update relates to Mineral Resources and Reserves associated with the Johnny Lee copper deposit, the cornerstone deposit at the Black Butte Copper Project (the "Johnny Lee Deposit" or the "Project").

The Company is also pleased to announce an updated Mineral Resource for the Lowry copper deposit (the "Lowry Deposit"), which is located approximately 3km south-east of the Johnny Lee Deposit.

Study Update Highlights:

- Average annual post-tax cashflows of US\$78 million per annum for the first five years of operations.
- The Project is forecast to generate US\$2.3 billion in gross revenue and US\$1.0 billion in pre-tax net cashflow during mine operations, based on a copper price of US\$4.70/lb.
- Updated Measured and Indicated Mineral Resource of 18.9 million tonnes at 2.4% copper for 462,000 tonnes of contained copper and Inferred Mineral Resource of 3.4 million tonnes at 1.9% copper for 64,000 tonnes of contained copper completed for the Johnny Lee Deposit.
- Using a Net Smelter Return cut off value of US\$110/t, the Probable Mineral Reserves have increased from 8.8Mt at 2.6% Cu for 230,000 tonnes of contained copper in 2020 to 9.5 million tonnes at 2.9% copper for 270,000 tonnes of contained copper for the 2025 PFS, defined for the Johnny Lee Upper and Lower Copper Zones.
- The Project has been designed in accordance with all standards and obligations required under the Project's stringent Mine Operating Permit conditions.
- The Johnny Lee Deposit underpins an 8-year mine life and is designed to be mined at 1.2 million tonnes of ore per annum, with the processing plant producing ~35,000 tonnes per annum of contained copper in the initial four years of operation.
- Forecast production totaling 1,039,000 dry metric tonnes of copper concentrate containing 234,000 tonnes of copper metal over the life of the mine.
- Average annual production of ~29,000 tonnes of copper metal over an initial 8 year mine life at a direct operating cash cost (C1) of US\$2.56/lb.
- The Project has a pre-tax NPV_{8%} of US\$143 million (IRR=13.6%) and a post-tax NPV_{8%} of US\$99 million (IRR=11.3%).

- With a 10% movement in copper price, which is close to the current spot price for copper, pre-tax NPV_{8%} increases to US\$288 million (IRR=19.4%) with a post-tax NPV_{8%} of US\$217 million (IRR=16.0%).

Construction capital cost of US\$474 million.

- For the Lowry Deposit, located 3km south-east of the Johnny Lee Deposit, a Measured and Indicated Resource of 6.6 million tonnes at 2.4% copper for 154,000 tonnes of contained copper, and Inferred Mineral Resource of 2.8 million tonnes at 2.1% copper for 58,000 tonnes of contained copper has been defined for the 2025 PFS as compared to solely an inferred resource outlined in 2020:
 - The updated Mineral Resource is based on updated geological modeling, resource estimation, classification, and mineralogy/recovery assumptions.
 - The Lowry Deposit is not covered by the current environmental permits and will need to undergo further permitting and approvals process.
- The Study Update economic analysis is based on the Johnny Lee Deposit Mineral Reserves and does not include the Lowry Deposit.

Commenting on the Study Update completion and key outcomes, Sandfire America CEO Lincoln Greenidge stated:

"Today's results mark an important milestone for the Black Butte Copper Project and reaffirm our confidence in the world-class potential of the Johnny Lee and Lowry deposits. The updated PFS confirms Johnny Lee's highest-grade potential of any known undeveloped underground copper deposit in the United States, and it does so while meeting, and in many cases exceeding, the rigorous environmental and operational standards set out in our Mine Operating Permit. This reinforces our longstanding commitment to responsible, modern mining in Montana.

Importantly, the new Mineral Resource estimate for the Lowry Deposit underscores the scale of the broader area and highlights a powerful opportunity for future growth beyond the initial 8-year mine plan. Together, these updates position Black Butte as a strategically significant domestic copper project at a time when U.S. supply of critical minerals has never been more essential.

Our focus now turns to advancing the project through completion of a feasibility study. We remain committed to the development of a modern, environmentally responsible operation that will deliver long-term economic benefits to Meagher County and to the State of Montana, while creating meaningful value for our shareholders."

1. Black Butte Copper Project Overview

The Black Butte Copper Project consists of 7,684 hectares of fee simple lands held under mineral lease by the Company and 1,040 unpatented mining claims on U.S. Forest Service Lands (USFS), leased by the Company, totaling 8,078 hectares. The Black Butte Copper Project is located in south-central Montana in Meagher County, 27 km north of White Sulphur Springs.

Johnny Lee Deposit

The Johnny Lee Deposit was discovered by a joint venture between Cominco American Inc. and Utah International in 1985. The Johnny Lee Deposit is comprised of two zones of mineralization: an upper copper zone ("JL UCZ") situated at depths of 40m - 210m below surface and an underlying lower copper zone ("JL LCZ") at depths of 340m - 520m below surface.

A mine operating plan ("MOP") application for the extraction of mineralized rock from both zones of the Johnny Lee Deposit was submitted to the Montana Department of Environmental Quality ("MT DEQ") in December 2015. The application was deemed to be complete and compliant, and a draft MOP permit was issued by the MT DEQ on September 18, 2017. After a full Environmental Impact Statement ("EIS") process, a MT DEQ positive record of decision was received on April 9, 2020, allowing for the development and underground mining of the Johnny Lee Deposit to proceed. On August 14, 2020, the MT DEQ approved the bond posting and issued a Final Mine Operating Permit allowing the Company the right to commence Phase I Development surface construction at the mine site.

Following a 2020 legal challenge to the Mine Operating Permit, on February 26, 2024, the Company received a positive ruling by the Montana Supreme Court reversing a 2021 district court decision and instructed the district judge to have the MT DEQ completely reinstate Tintina Montana Inc.'s Mine Operating Permit of the Black Butte Copper Project. The Montana Supreme Court granted the Company's request for summary judgement allowing the Company to move forward with construction of its highly engineered, underground copper mine. The Company won on all counts in the Montana Supreme Court with a 5-2 decision upholding the 2020 decision of the MT DEQ to allow responsible copper mining at the Black Butte Copper Project.

The MOP proposes underground mining of the Johnny Lee Deposit using a drift and fill mining method and production of a copper concentrate by milling and froth flotation. Mill tailings will be used for underground paste-fill support and the surplus deposited in a double-lined cemented tailings storage facility.

Lowry Deposit

The Lowry Deposit, a similar style copper deposit to the Johnny Lee Deposit, is located approximately 3km to the south-east of the Johnny Lee Deposit. Copper mineralization is primarily hosted in the Lowry Middle Copper Zone ("LMCZ") and Lowry Lower Copper Zone ("LLCZ"), surrounded by a lower grade "halo" of copper mineralization.

For further details about the Project, please go to the Sandfire Resources America Inc. website at www.sandfireamerica.com.

2. Study Update (PFS)

The current study is an underground Pre-Feasibility Study for the Johnny Lee Deposit, building on the prior Preliminary Economic Assessment (PEA, 2013) and the subsequent Feasibility Study completed in 2020, which defined an initial Mineral Reserve for the Johnny Lee Deposit. The Study Update incorporates updated geological and structural models for the JL UCZ and JL LCZ, revised Mineral Resource and Mineral Reserve estimates, updated metallurgical test work and recovery models, integrated with systematic mineralogy and geometallurgical modelling, and updated capital and operating cost estimates and refining charges, using long-term copper price assumptions of US\$4.70/lb.

The Study Update mine plan and economic analysis are based only on the Johnny Lee Deposit Mineral Reserves. The Lowry Deposit is covered by a separate Inferred Mineral Resource estimate and is not included in the current mine plan, production schedule, or economic analysis. Development of the Lowry Deposit would require additional technical studies, environmental review, and permitting.

2.1 Economic Analysis

The Study Update economic analysis is based on the Johnny Lee Deposit Mineral Reserves. The Study Update does NOT include the Lowry Deposit.

The copper price assumption adopted for the base case is US\$4.70/lb. from the start of production.

The Project's post-tax NPV at an 8% discount rate is estimated to be US\$99M with an IRR of 11.3%. Pre-tax NPV at an 8% discount rate is estimated to be US\$143M with an IRR of 13.6%. Initial capital costs are estimated to be US\$474M, and sustaining capital is estimated to be US\$82M. Cash Costs (C1) are estimated to be US\$2.56/lb. of copper. The life-of-mine all-in sustaining cost is estimated to be US\$2.83/lb. of copper. Payback of start-up capital is achieved approximately 4 years from commissioning.

2.2 Johnny Lee Deposit - Mineral Reserves

The Mineral Reserve was prepared in accordance with Canadian Institute of Mining and Metallurgy and

Petroleum ("CIM") Definition Standards and will be supported by the Study Update pursuant to the NI 43-101 "Standards for Disclosure for Mineral Project", to be published and filed on the Company's website and SEDAR+ profile within 45 days.

A net smelter return ("NSR") value was calculated for each block in a geological block model based on metallurgical recovery, grade, price and payability factors. Mine design shapes were generated based on an NSR cut-off value of US\$110/t (operating cost). An NSR cut-off value of US\$45/t (incremental operating cost) was used to determine whether material should be sent to waste or processed. Detailed mine designs were created with dilution and recovery factors applied, mineral resource classification considered plus other modifying factors and economic viability tested. The Mineral Reserve for the Johnny Lee Deposit is shown in Table 1.

Table 1 - Mineral Reserve Johnny Lee Deposit

Class	Diluted Tonnes	Cu Grade	Contained Cu Metal (t)
Proven	-	-	-
Probable	9,500,000	2.9%	270,000
Total	9,500,000	2.9%	270,000

Notes:

1. The Qualified Person for the Mineral Reserve estimate is Shane McLeay FAusIMM.
2. Effective date: November 14, 2025. All Mineral Reserves have been estimated in accordance with CIM definitions, as required under NI 43-101.
3. Mineral Reserves were estimated using a US\$4.70 /lb. Cu price and NSR cut-off values of US\$110/t (operating cost) and US\$45/t (incremental operating cost).
4. Tonnages are rounded to the nearest 100 kt, metal grades are rounded to one decimal place, and metal tonnes are rounded the nearest 10kt. All units are metric.
5. Rounding as required by reporting guidelines may result in summation differences.
6. Average LOM Metallurgical Recovery is 95% for JL LCZ, 78% for JL UCZ, and 86% combined.
7. Mineral Reserves are based on the Mineral Resource estimate effective November 5, 2025.
8. Mineral Reserves are a subset of Mineral Resources.

The Mineral Reserves identified in Table 1 comply with CIM definitions and standards for a NI 43- 101 technical report. Detailed information on mining, processing, metallurgical, and other relevant factors demonstrate, at the time of the Study Update, that economic extraction is feasible. The Study Update did not identify any mining, metallurgical, infrastructure or other relevant factors that may materially affect the estimates of the Mineral Reserves or potential production. Table 2 below shows the Mineral Reserves broken out by zone.

Table 2 - Mineral Reserves for the Johnny Lee Deposit by Zone

Zone	Class	Diluted Tonnes	Cu Grade	Contained Cu Metal (Tonnes)
JL UCZ Total	Proven	-	-	-
	Probable	6,700,000	2.2 %	140,000
	Total	6,700,000	2.2 %	140,000
JL LCZ Total	Proven	-	-	-
	Probable	2,800,000	4.6 %	130,000
	Total	2,800,000	4.6 %	130,000
Project Total	Total	9,500,000	2.9%	270,000

Notes:

1. Tonnages are rounded to the nearest 100 kt, metal grades are rounded to one decimal place, and metal tonnes are rounded the nearest 10kt. All units are metric.
2. Rounding as required by reporting guidelines may result in summation differences.
3. Mineral Reserves were estimated using a US\$4.70 /lb. Cu price and NSR cut-off values of US\$110/t (operating cost) and US\$45/t (incremental operating cost).

2.3 Johnny Lee Deposit - Mineral Resource Estimate

The updated Mineral Resource estimate for the Johnny Lee Deposit has been prepared under the supervision of Berkley Tracy, P. Geo (PGO#3024) of SRK Consulting (U.S.), Inc., an independent Qualified Person (QP) under NI 43-101.

A total of 305 drillholes were used to inform the 2025 Johnny Lee Deposit geology model and Mineral Resource estimate including historical and recent drilling between 2010 and present. The Mineral Resource statement is supported by recent updates to the geological modeling, resource estimation, and mineralogy with recovery assumptions in addition to historic drilling, analyses, and studies. Mineralization is hosted in two distinct zones of > 1.2% Cu mineralization, JL UCZ and JL LCZ.

Drillhole intersection spacing in the JL UCZ ranges from 10 - 100 m. The JL UCZ is hosted by dolomitic shale with abundant massive pyrite beds and some dolomite layers.

Many of the drillholes that intersected the JL UCZ were stopped-short of the JL LCZ; consequently, drillhole spacing in the JL LCZ is larger than that of the JL UCZ, ranging from 50 - 200m. The JL LCZ occurs below the Volcano Valley fault. The JL LCZ is hosted by interbedded shale, conglomerate, and pyrite beds at the base of the Newland Formation.

Variable metallurgical recoveries for the JL UCZ required modeling on a block-by-block basis. The JL LCZ has an overall average of 95% recovery. Based on the new test work, the increased recovery values were used in the current calculation of NSR. Mineral Resource classification was assigned to the Johnny Lee Deposit block model by the QP based upon: geological knowledge, continuity of Cu grade within mineralized zones, thickness of the mineralized zones, confidence in the underlying data (logging, assay, and physical testing), spatial continuity as determined through variography for Cu, recovery data, and kriging quality variables (kriging efficiency, slope or regression, average distance to samples, and estimation run pass). Blocks within the JL UCZ and JL LCZ have been categorized consistent with NI 43-101 and the CIM definitions and guidelines. A combination of block scripting and manual smoothing with polylines was used to apply the appropriate block classification of Mineral Resource categories.

Mineral Resources for the Johnny Lee Deposit have been calculated and reported using an economic cut-off value (CoV), as estimated in the resource block model. The Mineral Resource statements are supported by drilling, analyses, geological modelling, and metallurgical studies that determined updated recoveries. The deposits have been classified into Measured, Indicated, and Inferred Mineral resources, as per CIM definitions and are summarized in Table 3.

Table 3 - Johnny Lee Deposit Mineral Resource at US\$45.00/t NSR, effective November 5, 2025 - SRK Consulting (U.S.), Inc.

Mineral Resource Category	Quantity (Mt)	Cu (%)	Total Metal (kt)
Measured + Indicated (M+I) Mineral Resources			
JL UCZ			
Measured	2.3	2.0	46
Indicated	13.8	1.9	261
Sub-Total M+I	16.1	1.9	307
JL LCZ			
Measured	0.5	6.5	34
Indicated	2.3	5.1	121
Sub-Total M+I	2.9	5.4	154
Combined JL UCZ + JL LCZ			
Measured	2.8	2.8	80
Indicated	16.1	2.4	382
Total M+I	18.9	2.4	462
Inferred Mineral Resources			
JL UCZ	2.6	1.5	38

JL LCZ	0.8	3.2	26
Total Inferred	3.4	1.9	64

Source: SRK, 2025

Notes:

1. The effective date of this Mineral Resource is November 5, 2025.
2. The Mineral Resources in this estimate were prepared in accordance with the CIM Standards on Mineral Resources and Reserves, Definitions and Guidelines (CIM, 2014) prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council.
3. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability. Inferred Mineral Resources have a high degree of uncertainty as to their economic and technical feasibility. There is no certainty that all or any part of an Inferred Mineral Resources will be converted to Measured or Indicated Mineral Resources in the future.
4. To demonstrate reasonable prospects for eventual economic extraction, Mineral Resources are reported using an economic NSR cut-off value of US\$45/t, which is approximately equivalent to 0.52% recoverable Cu, based on long-term Cu price assumptions of US\$4.70/lb. and variable recovery and mill processing cost assumptions.
5. Variable metallurgical recovery has been estimated in the JL UCZ on a block basis with a consistent 95% Cu recovery applied to the JL LCZ.
6. There are no known legal, political, environmental, or other risks that could materially affect the potential future development of the Mineral Resources. All Mineral Resources are located within land currently under control or lease to Sandfire Resources America, Inc.
7. All quantities are rounded to the appropriate number of significant figures to reflect the relative accuracy of the estimate; consequently, sums may not add up due to rounding. Cu assay values were capped where appropriate.
8. The Mineral Resources for the JL UCZ and JL LCZ were reviewed and approved by Berkley Tracy, P.Geo (PGO#3024) of SRK Consulting (U.S.), Inc., a Qualified Person as defined by NI 43-101.

2.4 Lowry Deposit - Mineral Resource Estimate

The updated Mineral Resource statement for the Lowry Deposit is summarized in Table 4. The Mineral Resource statement is supported by recent updates to the geological modeling, resource estimation, and mineralogy with recovery assumptions in addition to historic drilling, analyses, and studies. The Lowry Deposit contains no Mineral Reserves and therefore is not included in the Study Update. The Lowry Deposit has a much lower density of drilling than the Johnny Lee Deposit. Mineralization is hosted in two distinct zones of > 1.2% Cu mineralization. These zones are termed the LMCZ and the LLCZ.

A total of 73 drillholes have been used for the Study Update for the Lowry Deposit Mineral Resource. No drilling has been completed in the Lowry area since 2023. Drillhole intersection spacing in the LMCZ ranges from 10 - 100 m.

The LMCZ is hosted by broad zones of dolomitic breccia in interbedded pyrite layers, conglomerate, carbonaceous shale, dolomitic shale and dolomite. Many of the drillholes that intersected the LMCZ were stopped-short of the LLCZ; consequently, drillhole spacing in the LLCZ is larger than that of the LMCZ, ranging from 50 - 200m. The LLCZ occurs below the Volcano Valley Hanging Wall with the mineralized base following the Volcano Valley Footwall Zone. The LLCZ is hosted by interbedded shale, conglomerate, and pyrite beds.

Lowry mineralized intercepts from seven drillholes of the 2021-2022 drilling campaign were used to generate a composite metallurgical sample within the LMCZ and a separate composite within the LLCZ. Selected samples were sent to the Base Metal Labs in Kamloops Canada for rock characterization and recovery testing. The LMCZ composite sample generated a 91% copper recovery with the LLCZ yielding a 94% recovery. For the Lowry Deposit, metallurgical recovery was previously assigned using the mean copper recovery of 86% from prior test work across the deposit. Based on the new test work, the increased recovery values of 91% for the LMCZ and 94% for the LLCZ were used in the current calculation of NSR cut-off values. Mineral Resource classification was assigned to the Lowry Deposit block model by the QP based upon: geological knowledge, continuity of Cu grade within mineralized zones, thickness of the mineralized zones, confidence in the underlying data (logging, assay, and physical testing), spatial continuity as determined through variography for Cu, recovery data, kriging quality variables (kriging efficiency, slope or regression, average distance to samples, and estimation run pass). Blocks within the Lowry Upper Copper

Zone ("LUCZ"), LMCZ and LLCZ have been categorized consistent with NI 43-101 and the CIM definitions and guidelines. A combination of block scripting and manual smoothing with polylines was used to apply the appropriate block classification of Mineral Resource categories.

Mineral Resources for the Lowry Deposit have been calculated and reported using an economic CoV, as estimated in the resource block model. The Mineral Resource statements are supported by drilling, analyses, geological modelling, and metallurgical studies that determined updated recoveries. The deposits have been classified into Measured, Indicated, and Inferred Mineral resources, as per CIM definitions.

Table 4 - Lowry Deposit Mineral Resource at US\$110/t NSR, effective November 5, 2025 - SRK Consulting (U.S.), Inc.

Mineral Resource Category	Quantity (Mt)	Cu (%)	Total Metal (kt)
Measured + Indicated (M+I) Mineral Resources			
Lowry MCZ			
Measured	1.2	2.6	30
Indicated	3.6	2.4	86
Sub-Total M+I	4.8	2.4	116
Lowry LCZ			
Measured	0.1	1.8	1
Indicated	1.7	2.2	37
Sub-Total M+I	1.8	2.1	38
Combined Lowry UCZ + MCZ + LCZ			
Measured	1.2	2.5	31
Indicated	5.3	2.3	123
Total M&I	6.6	2.4	154
Inferred Mineral Resources	?	?	?
Lowry UCZ	1.3	2.3	30
Lowry MCZ	0.9	2.1	18
Lowry LCZ	0.6	1.7	10
Total Inferred	2.8	2.1	58

Source: SRK, 2025

Notes:

1. The effective date of this Mineral Resource is November 5, 2025.
2. The Mineral Resources in this estimate were prepared in accordance with the CIM Standards on Mineral Resources and Reserves, Definitions and Guidelines (CIM, 2014) prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council.
3. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability. Inferred Mineral Resources have a high degree of uncertainty as to their economic and technical feasibility. There is no certainty that all or any part of an Inferred Mineral Resources will be converted to Measured or Indicated Mineral Resources in the future.
4. To demonstrate reasonable prospects for eventual economic extraction, Mineral Resources are reported using an economic NSR cut-off value of US\$110/t, which is approximately equivalent to 1.28% recoverable Cu, based on long-term Cu price assumptions of US\$4.70/lb and variable recovery and mill processing cost assumptions.
5. Metallurgical recovery for Cu has been assigned to the Lowry deposits: 91% for both LUCZ and LMCZ and 94% for LLCZ.
6. There are no known legal, political, environmental, or other risks that could materially affect the potential future development of the Mineral Resources. All Mineral Resources are located within land currently under control or lease to Sandfire Resources America, Inc.
7. All quantities are rounded to the appropriate number of significant figures to reflect the relative accuracy of the estimate; consequently, sums may not add up due to rounding. Cu assay values were capped where appropriate.
8. The Mineral Resources for the LUCZ, LMCZ, and LLCZ were reviewed and approved by Berkley Tracy, P.Ge (PGO#3024) of SRK Consulting (U.S.), Inc., a Qualified Person as defined by NI 43-101.

Table 5 shows the tabulated grade-tonnage curve data to assess the sensitivity of Mineral Resources to

changes in NSR CoV at the Lowry Deposit.

Table 5 - Lowry Mineral Resource Sensitivity by Zone - Measured and Indicated

Lowry Middle Copper Zone			? Lowry Lower Copper Zone		
NSR Cutoff (US\$/t)	Cu (%)	Tonnage (kt)	? NSR Cutoff (US\$/t)	Cu (%)	Tonnage (kt)
15	1.2	15.6	15	0.8	12.3
45	1.5	11.1	45	1.1	6.7
60	1.8	8.5	60	1.5	4.0
75	2.1	6.6	75	1.8	2.9
90	2.3	5.6	90	1.9	2.3
105	2.4	5.0	105	2.1	1.9
120	2.5	4.4	120	2.3	1.5
135	2.7	3.7	135	2.4	1.2
150	2.8	3.2	150	2.5	1.1
165	3.0	2.7	165	2.6	0.9
180	3.2	2.2	180	2.8	0.7
195	3.4	1.7	195	2.9	0.6
210	3.5	1.5	210	3.1	0.4
210	3.7	1.2	225	3.2	0.3

2.5 Comparison to Previous Studies

This updated PFS and accompanying Mineral Resource and Reserve estimates supersede the previous Feasibility Study results released on October 27, 2020 (the "FS") and the Johnny Lee Mineral Resource update announced on October 25, 2019, where applicable. The key changes include: revised geological and structural interpretations for the JL UCZ and JL LCZ, integration of expanded metallurgical and geometallurgical datasets into recovery models for the Johnny Lee Deposit and Lowry Deposit, updated Mineral Resource Estimates for the Johnny Lee Deposit and Lowry Deposit, updated Mineral Reserve for the Johnny Lee Deposit, and updated capital and operating cost estimates for the Johnny Lee deposit reflecting current input assumptions.

The previous Mineral Resource Estimate for the Johnny Lee Deposit was released on October 25, 2019, and the previous Mineral Resource for the Lowry Deposit and Mineral Reserve for the Johnny Lee Deposit were completed in 2020 (effective date October 15, 2020) as part of the Company's FS.

The most significant change in all 2025 estimations is the use of a NSR cut-off value rather than a cut-off grade. A significant positive change in the Johnny Lee Probable Mineral Reserve is from 8.8 Mt at 2.6% Cu (230 kt) in the 2020 estimate to 9.5 Mt at 2.9% Cu (270 kt) in the 2025 estimate. This change is largely underpinned by an increase in the JL LCZ mineral reserve. The 2025 mineral resource updated for Lowry Deposit includes an upgrade in confidence compared with the 2020 Lowry Deposit Mineral Resource estimate which reported only Inferred mineral resource. The 2025 Lowry Deposit Mineral Resource estimate contains Measured and Indicated mineral resources of 6.6 Mt at 2.4% Cu (150 kt).

The total quantity of Mineral Resources for the Johnny Lee Deposit has increased in 2025 from the 2020 statement while the average Cu grade has decreased.

The Johnny Lee Deposit Measured and Indicated resource has grown from 10.6 Mt at 2.9% Cu (390 kt) in 2019 to 18.9 Mt at 2.4 % Cu (460 kt) in 2025.

3. Mining, Processing and Infrastructure

3.1 Mining Methods

The Black Butte Copper Project Johnny Lee deposit contains two zones - the JL UCZ and the JL LCZ. Both

zones are characterized as being high-grade, laying at low angles and with relatively narrow widths. All deposits have anomalous silver and cobalt mineralization; however, copper is the only economic product considered in the Study Update.

Geotechnical data used for the Study Update includes information previously collected by Sandfire America, MD Engineering, and Mining Plus. This data includes drill core logging, QA/QC reviews, structural measurements, and laboratory rock-property testing. As part of the current study update, Entech completed a geotechnical assessment involving reviewing drill core from the JL UCZ, JL LCZ, and planned decline areas, and incorporating both historical logging and new detailed photo-logging undertaken by Entech. Structural data were validated during an Entech site visit and used to characterize the rock mass and assess conditions relevant to the mine design. A 3D geotechnical model was developed combining the logging data and geological models and was utilized for visualization of geotechnical databases, and to determine spatial trends within the data sets. This model was used as a basis to assess the underground mine design and extraction sequence.

The Johnny Lee Deposit will be accessed by a single main ramp driven from surface. The ramp dimensions will be 5.50m wide by 5.85m high and excavated with an arched back. The ramp will be excavated at a maximum gradient of -14.3% from the surface and pass to the east of the JL UCZ and then spirals down to the JL LCZ. Ventilation and secondary egress will be through three main ventilation raises.

All material handling will be by trackless underground equipment with 60-tonne haul trucks hauling ore directly from mining areas to either a surface ore pad or the surface crusher.

Mining methods used include a combination of mechanized drift-and-fill, mainly in the JL UCZ, and mechanized cut-and-fill, mainly in the JL LCZ. All openings will be backfilled with paste backfill to allow for complete extraction of the orebody.

3.2 Mineral Processing and Metallurgical Test Work

Recent metallurgical test work programs undertaken indicated copper concentrate from the JL LCZ by froth flotation recovered 94% to 98% (averaging 96.2%) of the copper resulting in a concentrate grading 23% to 28% copper. A discounted copper recovery of 95% (accounting for ideal laboratory conditions) was applied to mining blocks in the JL LCZ.

Previous test work on the JL UCZ composites showed a wide range of copper recoveries (62% to 91%) at concentrate grades of 19% to 24% copper. Mineralogical investigation of the JL UCZ metallurgical composites indicated that copper sulfide liberation was the primary metric that defined metallurgical performance. A variable recovery model was applied to the JL UCZ mining blocks based on the distribution of 113 mineralogy samples results and predicted metallurgical recovery.

Metallurgical test work has demonstrated that there are no reductions in copper recovery to concentrate from the JL UCZ or JL LCZ ore by blending and processing the blend using the flowsheet optimized for JL UCZ ore.

Analyses of the copper concentrates from variability testing of the JL UCZ composites have reported potentially deleterious levels of arsenic. Various arsenic containing minerals have been identified through mineralogical analysis, with only some associated with copper reporting to concentrate. All samples tested from the JL LCZ showed low arsenic in copper concentrate. Arsenic is forecast to range between 1,900 to 7,520 ppm in copper concentrate over the life of the project.

3.3 Recovery Methods

The metallurgical test work results were used as the basis for the process plant design criteria and flowsheet development. The test work indicates that the copper in the JL UCZ and JL LCZ can be recovered to a concentrate by crushing, grinding, and froth flotation processes. The JL UCZ ore requires a fine primary grind (38 µm P80) and a very fine regrind (10-15 µm P80) of the rougher concentrate to achieve optimized concentrate grade and copper recoveries. The JL LCZ ore does not require such fine grinds to achieve

optimized recoveries. However, as it will be blended with JL UCZ, the blended ore will be treated using the process as optimized for JL UCZ ore. Metallurgical test work has demonstrated that there are no reductions in copper recovery to concentrate from JL UCZ or JL LCZ ore by blending and processing the blend using the flowsheet optimized for JL UCZ ore. The key process parameters are given in Table 6.

Table 6 - Key process outcomes for the Study Update

Key Criteria	Process Value
Annual Throughput (t/a)	1,200,000
Operating Hours	8,059
Primary Grind Size (P80 micron)	38
Concentrate Re grind Size (P80 micron)	10-15
Copper Concentrate Grade Target (%)	22.5
LOM Copper Recovery (%)	86
LOM Concentrate Produced (t/a)	130,000

3.4 Infrastructure

The layout and surface footprint of all above ground infrastructure for the Project has been designed as part of the MOP application submitted to the MT DEQ. The ground infrastructure in the MOP includes access roads, site roads, mine portal, ventilation raises, processing plant, reclamation stockpiles, temporary waste rock storage, cemented tailings facility, process water pond, contact water pond, non-contact water reservoir, sub-surface infiltration gallery, power lines, pipelines, workshops, store, offices and parking.

4. Capital and Operating Costs

4.1 Capital Cost Estimates

The Project capital cost estimate developed for the Study Update is based upon an Engineer, Procure and Construction Management ("EPCM") approach for the construction and commissioning of the Project facilities. This includes mine, plant and infrastructure, the process plant and infrastructure, general mine infrastructure and roads.

A capital cost of US\$474 million, including contingency, has been developed for the Project and includes all costs before the commencement of production. The capital costs have been estimated to a $\pm 25\%$ accuracy. The breakdown of the Project capital is given in Table 7.

Table 7 - Project capital cost breakdown

Area	Capital Cost US\$M
Mining	US\$155
Process and Infrastructure	US\$293
Owner Costs	US\$26
Total Project	US\$474

4.2 Mining Operating Costs

Operating costs were estimated based on applying fixed and variable estimates to the mine plan schedule physicals. Specifically, the costs were based on contractor request for quotation responses for pre-production activities in the first 36 months of the mine plan, and owner-operator cost estimates in the subsequent production phase, built up from first principle estimates and supplier quotations. Annual operating costs and costs per tonne mined have been estimated. The average underground mining operating costs, excluding capitalized pre-production costs, is US\$79M per annum (during the production phase), or US\$66/t ore mined.

4.3 Process Plant Operating Costs

Operating costs have been developed using the parameters specified in the process design criteria. Annual operating costs and costs per tonne milled have been developed. Operating costs for the treatment plant have been estimated to an accuracy of $\pm 25\%$.

The processing operating cost estimate has been developed on the basis of a process plant feed tonnage of 1.2 million tonnes per annum. The processing operating cost estimate is US\$46 million per annum or US\$38 per tonne milled.

5. Environmental, Legal and Socioeconomic Considerations

5.1 Environmental

The Company conducted exploration under Exploration License #00710 issued by the MT DEQ. Regulations include the bonding of exploration disturbances to ensure reclamation is completed. The Company currently has an obligated bond of US\$442,147 and a surety bond of US\$607,419, totaling US\$1,049,566 in bonds, for the reclamation of the 2024/2025 JL LCZ and earlier drill programs. These obligations will be released when the reclamation is completed by the Company and inspected and approved by the MT DEQ. In addition, there are approximately 53 ground water wells (37 monitoring wells/test wells, 1 water well, and 15 piezometers) currently in place that will ultimately need to be removed during closure and reclamation.

Potential short- and long-term impacts caused by mining activities were evaluated from several perspectives: impacts to the environment during operation and closure, issues or impacts that could materially affect the mine's ability to extract the Mineral Reserves, and socio-economic impacts.

Potential impacts to the environment were addressed in detail in the Environmental Impact Statement (MT DEQ, 2019 and 2020).

Including the approved MOP, 28 permits and plans require approval from federal, Montana State, or Meagher County authorities. These permits and plans cover water quality, water rights, potable water supply, wetlands and streambed preservation, aquatics monitoring, dam safety, sewerage disposal, air quality, invasive vegetation, tribal communications, cultural resources, community impact, mining infrastructure, mining operations and emergency response. To date, 23 permits and plans have been approved, including the MOP, and work has been initiated on one of the five outstanding permits/plans, that being plans for a transmission line to site. The outstanding permits/plans involve potable water, sewage disposal, explosives permit, and hazardous waste identification.

5.2 Legal

The MOP was designed to meet the requirements of the Montana Metal Mine Reclamation Act and the rules and regulations governing the act. Additional permits, including a Montana Pollutant Discharge Elimination System ("MPDES"), were obtained through the MT DEQ.

Compliance with the applicable legal requirements is demonstrated by the MT DEQ's approval of the following: MOP, Air Quality Permit, MPDES and construction storm water permit. A draft Environmental Impact Statement was published by the MT DEQ on March 11, 2019, as required under the Montana Environmental Policy Act, and finalized on March 13, 2020. Subsequently, the MT DEQ issued a Record of Decision for the mine on April 9, 2020, identifying MT DEQ's decision, the reasons for the decision and special conditions surrounding the decision and its implementation.

As previously reported, following the 2020 legal challenge to the MOP, on February 26, 2024, the Company received a positive ruling by the Montana Supreme Court reversing a 2021 district court decision and instructed the district judge to have the MT DEQ completely reinstate Tintina Montana Inc.'s Mine Operating Permit for the Black Butte Copper Project. The Montana Supreme Court granted the Company's request for

summary judgement allowing the Company to move forward with construction of its highly engineered, underground copper mine. The Company won on all counts in the Montana Supreme Court with a 5-2 decision upholding the 2020 decision of the MT DEQ to allow copper mining at the Black Butte Copper Project.

Regarding required water rights, on March 13, 2020, the DNRC issued Preliminary Determinations ("PDGs") granting the requested water right changes. During the following appeal period, six parties filed objections to the PDGs - these were the Newlan Creek Water Users Association, the Montana Fish Wildlife and Parks, and four conservation groups (collectively, the "Objectors") who filed a joint objection. The Objectors raised issues of legal availability, adverse effects, and adequacy of proposed diversions. Additionally, the objectors challenged current Montana law and requested that mine water discharged from the mine would be classified as beneficial use and so would require additional mitigation.

On January 2, 2025, the Montana Supreme Court in a 5-2 decision ruled in favor of Tintina Montana and the DNRC affirming the district court's determination that mine dewatering is not a beneficial use of water.

As of this date, there are no remaining legal challenges related to the project with both Montana Supreme Court decisions being in favor of the Company.

5.3 Socioeconomic

The Project is expected to provide significant direct and indirect employment and economic benefits to Meagher County and the State of Montana, while operating under stringent environmental and social standards.

6. Qualified Persons

The technical information contained in this news release related to the Johnny Lee Deposit has been reviewed and approved by Berkley Tracy, P.Geo (PGO #3024) of SRK Consulting (U.S.), Inc., Shane McLeay FAusIMM of Entech, Patrick Williamson, PG QP of INTERA Inc., and Deepak Malhotra Ph.D. RM-SME of DM Consulting. LLC. Messrs. Tracy, McLeay and Malhotra are Qualified Persons, as defined in NI 43-101 for Mineral Resources, Mineral Reserves and metallurgical processing respectively. Messrs. Tracy, McLeay, Williamson, and Malhotra are independent of the Company. For additional detailed information on the key assumptions, parameters and methods used to estimate the Mineral Reserves, along with other information about the Johnny Lee Deposit, please refer to the PFS to be filed.

The technical information contained in this news release related to the Lowry Deposit has been reviewed and approved by Messrs. Tracy and Malhotra. The Mineral Resource block model and estimation for the Lowry Deposit was reviewed and accepted by Messrs. Tracy and Malhotra acting as Qualified Persons for Mineral Resources. The final Mineral Resource classification and calculations were performed by Mr. Tracy using Leapfrog Geo™ and Leapfrog Edge™ software. Domaining of copper mineralization was performed by Sandfire America staff using Leapfrog Geo™ software and reviewed by the qualified persons.

The Qualified Persons referred to above have verified the data disclosed in this news release, including sampling, analytical, and test data underlying the information or opinions contained in this news release.

7. Technical Report Filing

The Company will file the PFS, with an effective date of November 5, 2025, on SEDAR+ at www.sedarplus.ca within 45 days of this news release. Investors are encouraged to read the PFS in its entirety.

Contact Information: Sandfire Resources America Inc. Nancy Schlepp, VP of Communications and Government Relations Mobile: 406-224-8180 Office: 406-547-3466 Email: nschlepp@sandfireamerica.com

Sandfire Resources America Inc. is a mineral exploration and development company focused on advancing the Black Butte Copper Project, a high-grade underground copper project located in Meagher County, Montana, USA. The Company's vision is to develop a modern, environmentally responsible underground copper mine that delivers long-term benefits to its shareholders, local communities, and the State of Montana. Additional information on Sandfire Resources America Inc. can be viewed on SEDAR+ under the Company's profile at www.sedarplus.ca or on Sandfire Resources America Inc.'s website at www.sandfireamerica.com

Cautionary Note Regarding Forward-Looking Statements: Certain disclosures in this document constitute "forward looking information" within the meaning of Canadian securities legislation, including, but not limited to, statements regarding: the Mineral Resource and Mineral Reserve estimates; the PFS, including the results and timing of the filing thereof and the PFS representing a viable development option for the Project; the proposed mining plans and recovery methods; estimates of capital; statements regarding construction, operations and sustaining costs; estimates of all other costs and payments; the estimated amount of future production, both produced and metal recoveries; cash flow; internal rate of return (IRR); pre- and post-net present value; mine life; payback; gross sales; the employment and economic benefits expected to be derived from the Project; economic returns and statements related to the future plans of the Company.

Forward-looking statements include statements that are predictive in nature, are reliant on future events or conditions, or include words such as "expects", "potential", "anticipates", "plans", "believes", "considers", "significant", "intends", "targets", "estimates", "seeks", "attempts", "assumes", and other similar expressions.

In making these forward-looking statements, the Company has applied certain factors and assumptions that the Company believes are reasonable, including those assumptions previously set out in this news release and the following assumptions: that the Company will receive required regulatory approvals; the Company's successful advancement of the Black Butte Copper Project; the expected positive results from the Project based on the estimates and findings contained in the PFS, including current metal prices and economic factors; that the Company will continue to have access to sufficient funding to execute its plans; that the Company is able to procure equipment and supplies in sufficient quantities and on a timely basis; that the Company's exploration and development activities on the Black Butte Copper Project will not be affected by actions of environmental activists or other special interest groups; that the results of exploration and development activities will be consistent with management's expectations; that the assumptions underlying internal rates of return and net present value are valid; that capital costs and sustaining costs will be as estimated; that the assumptions underlying Mineral Resource and Mineral Reserve estimates are valid; that no unforeseen accident, fire, ground instability, flooding, labor disruption, equipment failure, metallurgical, environmental or other events that could delay or increase the cost of development will occur; that the current price and demand for copper and other metals will be sustained or will improve; that general business and economic conditions will not change in a materially adverse manner; and the continuity of economic and political conditions and operations of the Company.

However, the forward-looking statements in this document are subject to numerous risks, uncertainties and other factors, including factors relating to the Company's operation as a mineral exploration and development company and the Black Butte Copper Project, that may cause future results to differ materially from those expressed or implied in such forward-looking statements, including those risks previously set out in this news release and the following risks: the risk that any of the assumptions on which the forward looking information is based prove to be incorrect or invalid; the risk of unexpected variations in Mineral Resources and Mineral Reserves, grade or recovery rates; the possibility of cost overruns or unanticipated costs and expenses; uncertainties relating to the availability and costs of financing needed in the future; risks that actual costs of restoration activities are greater than expected and that changes in Project parameters as plans continue to be refined result in increased costs; results of exploration and development activities will not be consistent with management's expectations; uncertainties involved in the interpretation of drilling results and geological tests; delays in obtaining or inability to obtain required government or other regulatory approvals or financing, failure of plant, equipment or processes to operate as anticipated; the risk of accidents, labor disputes, inclement or hazardous weather conditions, unusual or unexpected geological conditions, ground control problems, earthquakes, and flooding; interference with the Company's plans, including exploration or development activities, by environmental activists or other special interest groups; inability to procure equipment and supplies in sufficient quantities and on a timely basis; the risk that estimated costs will be higher than anticipated and the risk that the proposed mine plan and recoveries will not be achieved, the risks disclosed in the Company's most recently filed Management Discussion and Analysis and the Company's other continuous disclosure filing filed under the Company's profile at www.sedarplus.ca and all of the other risks generally associated with the development and operation of mining facilities.

There can be no assurance that such statements will prove to be accurate, and actual results and future events could differ materially from those anticipated in such statements. Readers are cautioned not to place undue reliance on forward-looking statements. The Company does not intend, and expressly disclaims any intention or obligation to, update or revise any forward-looking statements whether as a result of new information, future events or otherwise, except as required by law.

CAUTIONARY NOTE TO US READERS. *As a Canadian reporting issuer, the Company is subject to rules, policies and regulations issued by Canadian regulatory authorities and is required to provide detailed information regarding its properties in accordance with NI 43-101 and CIM definitions and standards which categories of resources are recognized by Canadian regulations but are not recognized by the United States Securities and Exchange Commission ("SEC").*

The SEC allows mining companies, in their filings with the SEC, to disclose only those mineral deposits they can economically and legally extract or produce. Accordingly, information contained in this News Release regarding our mineral deposits may not be comparable to similar information made public by U.S. companies subject to the reporting and disclosure requirements under the United States federal securities laws and the rules and regulations of the SEC thereunder.

Neither the TSX Venture Exchange nor its Regulation Services Provider (as that term is defined in the policies of the TSX Venture Exchange) accepts responsibility for the adequacy or accuracy of this release.

Dieser Artikel stammt von [Rohstoff-Welt.de](https://www.rohstoff-welt.de)

Die URL für diesen Artikel lautet:

<https://www.rohstoff-welt.de/news/715781--Sandfire-Resources-America-Announces-Results-of-Updated-Pre-Feasibility-Study-for-the-Johnny-Lee-Deposit-and>

Für den Inhalt des Beitrages ist allein der Autor verantwortlich bzw. die aufgeführte Quelle. Bild- oder Filmrechte liegen beim Autor/Quelle bzw. bei der vom ihm benannten Quelle. Bei Übersetzungen können Fehler nicht ausgeschlossen werden. Der vertretene Standpunkt eines Autors spiegelt generell nicht die Meinung des Webseiten-Betreibers wieder. Mittels der Veröffentlichung will dieser lediglich ein pluralistisches Meinungsbild darstellen. Direkte oder indirekte Aussagen in einem Beitrag stellen keinerlei Aufforderung zum Kauf-/Verkauf von Wertpapieren dar. Wir wehren uns gegen jede Form von Hass, Diskriminierung und Verletzung der Menschenwürde. Beachten Sie bitte auch unsere [AGB/Disclaimer](#)!

Die Reproduktion, Modifikation oder Verwendung der Inhalte ganz oder teilweise ohne schriftliche Genehmigung ist untersagt!
Alle Angaben ohne Gewähr! Copyright © by Rohstoff-Welt.de -1999-2025. Es gelten unsere [AGB](#) und [Datenschutzrichtlinien](#).