

Cartier Delivers Positive PEA for Chimo Mine Project Post-Tax NPV5% of CAD\$388M and 20.8% IRR

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Highlights:

- Long term gold price of US\$1,750/oz, Exchange rate of CAD\$1.00 = US\$0.77
- Post-tax NPV_{5%} of CAD\$388M and IRR of 20.8%
- Post-tax payback period of 2.9 years and mine life of 9.7 years
- Capex of CAD\$341M
- Average all-in sustaining cost of US\$755/oz
- Average annual production of 116,900 oz
- 4,500 tpd underground operation
- Average sorted grade of 4.55 g/t Au for mill feed
- Processing plant with capacity of 3,000 tpd and rate of recovery of 93.1%
- Sorting of mineralization increases the grade of material prior to milling operations and recovery rate and also reduces costs of mill construction, material handling, milling and restoration leading to a reduced environmental footprint of mine tailings and thus increasing the social acceptability of the project

VAL-D'OR, Quebec, April 13, 2023 -- [Cartier Resources Inc.](#) (TSX-V: ECR) ("Cartier") is pleased to announce the positive results of the Preliminary Economic Assessment ("PEA"), prepared in accordance with National Instrument 43-101 - Standard of Disclosure for Mineral Projects ("NI 43-101"), on the Chimo Mine Project located 45 km east of the Val-d'Or mining camp.

"The results of the study demonstrate the economic viability of the project as well as several optimization opportunities related to the characteristics of the project. Two drills are in operation on the property and the results continue to increase the size of the gold zones with a view to continuing to increase the project's resources." commented Philippe Cloutier, President and CEO. Adding, that: "strategic solutions are being studied to further push the development of the project."

The study presents an underground mining operation with 280 employees that uses conventional longitudinal and transverse longhole stoping at a mining rate of 4,500 tpd. Mined mineralized material will be sorted using automated sensor-based sorting technology with an expected concentration ratio of 1.85 and a recovery rate of 91.9%.

The sorted mineralized material would then be processed in a concentrator using a gravity separator followed by a carbon-in-leach process with a capacity of 3,000 tpd for an estimated recovery rate of 93.1%. The current plan of operations assumes an average annual production of 116,900 oz for a mine life of 9.7 years.

Financial Analysis

The project requires CAD\$341M of initial capital and CAD\$160M of sustaining capital. Average cash costs of US\$647/oz and all-in sustaining cost of US\$755/oz are expected over the mine life. The financial analysis was performed using a 5% discount rate, a long-term gold price of US\$1750/oz, and an exchange rate of CAD\$1.00:US\$0.77. On a post-tax basis, the project demonstrates an NPV_{5%} of CAD\$388M, an IRR of 20.8% and a payback period of 2.9 years. On a pre-tax basis, the project demonstrates an NPV of CAD\$672M, an IRR of 27.4% and a payback period of 2.5 years.

A summary of project economics is presented in Table 1.

Table 1: Summary of Project Economics

Economical Parameters		
Long term gold price	(US\$)	1750.00
Exchange rate	(CAD\$:US\$)	1.00:0.77
Discount rate	(%)	5
NSR Royalty on Chimo Mine property	(%)	1
GMR Royalty on West Nordeau property	(%)	3
Mining Parameters		
Average grade mined	(g/t)	2.7
Cut-off grade	(g/t)	1.9
Mining rate	(tpd)	4,500
Total tonnage mined	(Mt)	15.8
Mine life	(years)	9.7
Processing Parameters		
Concentration ratio of mineralized material sorted	-	1.85
Recovery rate of mineralized material sorted	(%)	91.9
Average grade of sorted mineralized material	(g/t)	4.6
Processing rate	(tpd)	2,400
Processing capacity	(tpd)	3,000
Total tonnage milled	(Mt)	8.5
Production Parameters		
Average annual production	(oz/year)	116,900
Total production	(oz)	1,157,710
Capital Costs		
Initial capital	(CAD\$M)	341
Sustaining capital	(CAD\$M)	160
Closure and rehabilitation costs	(CAD\$M)	3
Salvage value	(CAD\$M)	5
Operating Costs		
Total operating costs	(CAD\$/t milled)	107
Cash Costs		
Average cash costs	(US\$/oz)	647
Average All-in sustaining cash costs	(US\$/oz)	755
Financial Analysis		
Pre-tax NPV _{5%}	(CAD\$M)	672
Pre-tax IRR	(%)	27.4
Pre-tax payback period	(years)	2.5
Post-tax NPV _{5%}	(CAD\$M)	388
Post-tax IRR	(%)	20.8
Post-tax payback period	(years)	2.9
Profitability Index (Post-tax NPV _{5%} / Initial Capital) -		1.14

Sensitivity analysis was performed to see the impact on post-tax 5% NPV and post-tax IRR by varying the gold price, operating costs, and capital costs. The results of the sensitivity analysis are presented in Table 2, Table 3 and Table 4, the base case is highlighted in the tables.

Table 2: Gold Price Sensitivity

Variation	Post-Tax NPV _{5%} (CAD\$M)	Post-Tax IRR (%)
1,300	105	9.7
1,400	169	12.4

1,500	233	15.0
1,600	295	17.4
1,700	357	19.7
1,750	388	20.8
1,800	418	21.8
1,900	479	23.9
2,000	539	25.8
2,100	599	27.7
2,200	658	29.5

Table 3: Capital Cost Sensitivity

Variation	Post-Tax NPV _{5%} (CAD\$M)	Post-Tax IRR (%)
-50%	606	42.6
-40%	562	36.3
-30%	518	31.2
-20%	475	27.1
-10%	431	23.7
0%	388	20.8
10%	344	18.2
20%	301	15.9
30%	257	13.9
40%	213	12.0
50%	170	10.4

Table 4: Operating Cost Sensitivity

Variation	Post-Tax NPV _{5%} (CAD\$M)	Post-Tax IRR (%)
-50%	563	26.5
-40%	529	25.4
-30%	494	24.3
-20%	460	23.2
-10%	424	22.0
0%	388	20.8
10%	351	19.4
20%	314	18.1
30%	276	16.7
40%	238	15.2
50%	198	13.6

Mineral Resources

The mineralization of the Chimo Mine Gold System consists of 29 gold zones that are part of 19 gold structures, themselves grouped into 3 gold corridors. The resources in effect as of August 22, 2022 for this gold system, combining the resources of the Chimo Mine property with those of the West Nordeau deposit, are presented below in Table 5. (FIGURE 1):

Table 5: Mineral Resource Estimate

Gold Corridor Cut-off Grade (g/t Au)	Indicated Resources			Inferred Resources	
	Metric Tonnes (t)	Grade (g/t Au)	Troy Ounces (oz Au)	Metric Tonnes (t)	Troy Ounces (oz Au)
North Gold Corridor (>2,0)	1,119,000	3.85	139,000	3,544,000	439,000

Central Gold Corridor (>1,5)	5,565,000	2.96	529,000	2,458,000	2,221,000
South Gold Corridor (>2,0)	444,000	3.61	52,000	3,079,000	217,000
Total	7,128,000	3.14	720,000	28,575,000	633,000

NI 43-101 Mineral Resources Estimate for Chimo Mine and West Nordeau Gold Deposits, Québec, Canada, Vincent Nadeau-Benoit, P.Geo., Alain Carrier, P.Geo., M.Sc. and Marc R. Beauvais, P.Eng., InnovExplo Inc., August 22nd, 2022.

Additional notes on the resource estimate

1. These mineral resources are not mineral reserves because their economic viability has not been demonstrated. The quantity and grade of Inferred Resources reported in this Mineral Resource Estimate is uncertain in nature and there can be no assurance that any or all of the Inferred Mineral Resources can be converted to Indicated Mineral Resources with further exploration drilling.
2. The mineral resource estimate of complies with the standards and guidelines in effect of the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) as well as the NI 43-101 standard for the publication of mineral resources.
3. The requirement of a reasonable prospect of eventual economic extraction is met by having a minimum modeling width for mineralized zones, a cut-off grade based on reasonable inputs and an economic binding volume that lends itself to a potential scenario of underground extraction for undiluted in-situ resources. The constrained volume was achieved with the Deswik Stope Optimizer ("DSO") using a minimum mining volume of 10 m in width in the longitudinal orientation of the gold zones, by 10 m in height and 2 m in thickness varying up to a maximum of 25 m x 100 m x 15 m. The optimization was carried out using the respective cut-off grade of each of the gold corridors for the indicated and inferred resources. The results of the DSO were then used for the resource estimate statement.
4. The resource estimate is presented for potential underground scenarios at a cut-off grade of 2.0 g/t Au for the North and South Gold Corridors and 1.5 g/t Au for the Central Gold Corridor. The cut-off grade reflects the geometry and actual width of each of the gold corridors. The cut-off grade was calculated using the following main parameters:
 - Gold price of US\$1,612 / oz;
 - Exchange rate of US\$1.34 / CAD\$ per troy ounce;
 - Costs relating to the Central Gold Corridor for:
 - Definition drilling of CAD\$3 / t;
 - Development, mining, transport and milling of CAD\$50.75 / t;
 - Environmental restoration of CAD\$0.75 / t;
 - Costs relating to the North and South Gold Corridors for:
 - Definition drilling of CAD\$6 / t;
 - Development, mining, transport and milling of CAD\$75.50 / t ;
 - Environmental restoration of CAD\$1.50 / t;
 - For the Chimo Mine property (1% NSR): Triple Flag Precious Metals royalty cost of CAD\$20.96 / troy ounce;
 - For the West Nordeau deposit (3% GMR): [Globex Mining Enterprises Inc.](#) royalty cost of CAD\$64.80 / troy ounce;
 - General and administrative costs of CAD\$12 / t.
5. For the Chimo Mine property, the estimate was carried out on 17 3D solids corresponding to the structures constituting the Northern Gold Corridor (structures: 1A, 1B, 2, 3 and 4B), South (structures: 6, 6B, 6C, 6P and 6P2) and Central (structures: 5B, 5B2, 5C, 5M, 5M2, 5N and 6N1) of the Chimo Mine property whose minimum actual thickness is 2.40 m and the average thickness is 7.42 m. For the West Nordeau deposit, 8 structures were modeled using a minimum real thickness of 2.4 m, including 5 structures for the North Gold Corridor and 3 structures for the Central Gold Corridor. The contents of the samples analyzed are used when they are available otherwise in the absence of analytical content, a value of zero is assigned.
6. The density value of 2.90 g/cm³ (to 3.10 g/cm³) supported by measurements, was applied to all gold structures.

7. The estimate for the Chimo Mine property was made from a database made up, as of September 1, 2020, of 3,658 holes totaling 290,419 m drilled, 18,612 deviation measurements as well as 81,413 samples analyzed for gold and collected over a core length of 88,035 m representing 30% of the core length drilled. This database contains 2,383 blank and standard samples, inserted for QA/QC by Cartier between November 1, 2016 and September 1, 2020. This database was validated before starting the resource estimate. The estimate was carried out on 17 mineralized structures, intersected by 67,103 m of drilling, having produced 8,611 different gold intersections.

The estimate of the West Nordeau deposit was made from a database consisting, as of July 12, 2022, of 154 drill holes totaling 55,097 m drilled, 6,873 deviation measurements as well as 18,973 samples analyzed for the gold and collected over a core length of 19,785 m representing 36% of the core length drilled. This database contains 820 blank and standard samples, inserted for QA/QC by previous operators: Chalice Gold Mines Limited and O3 Mining Inc. between March 11, 2017 and March 17, 2020. This database was validated before starting the resource estimate. The estimate was carried out on 8 mineralized structures, intersected by 4,982 m of drilling, having produced 802 different gold intersections.

8. High grade capping was carried out from statistical analysis data at each of the gold structures for values varying between 30 g/t Au and 120 g/t Au from the grade of the composites, also using the grade adjacent material or a value of zero when adjacent material has not been analyzed.
9. The underground openings (open or backfilled-cemented mine sites, drifts, raises and shafts) were modeled from transverse and longitudinal sections as well as detailed historical geological and mining plans. Historical underground production has been subtracted from the resource estimate.
10. The Chimo Mine resource estimate was performed using GEOVIA GEMS 6.8.2. Software, from capped and composited analyses, constrained by the modeled structures. The ordinary kriging method was used to interpolate the block model composed of blocks of dimension 5.0 m x 5.0 m x 5.0 m. For the West Nordeau deposit, gold resources were estimated using Leapfrog Edge v.2021.2.5 software from capped and composite analyses, constrained by the modeled structures. The ordinary kriging method was used to interpolate a model with sub-blocks (size of a parent block = 5.0 m x 5.0 m x 5.0 m).
11. The mineral resource estimate presented here is classified as indicated and inferred resources. The indicated category is defined by a minimum of 3 drill holes located within a 25 m radius and the inferred category is defined by a minimum of 2 drill holes located within a 65 m radius, where there is reasonable continuity of geology and gold grades.
12. Ounce troy is metric tons multiplied by grade (g/t) and divided by the constant of 31.10348. The number of tonnes has been rounded to the nearest thousand. Any discrepancy in the totals is due to rounding effects. The rounding complies with the recommendations of NI 43-101.
13. The qualified persons are not aware of any problem related to the environment, permits, mining titles or related to legal, fiscal, socio-political, commercial issues or any other relevant factor not mentioned in this press release, that could have a significant impact on the 2022 mineral resource estimate.

Mining

The PEA presents an underground mining operation that uses conventional longitudinal and transverse longhole stoping at a mining rate of 4,500 tpd over a 9.7-year mine life. A total of 15.8 Mt of mineralized material at an average grade of 2.7 g/t in will be extracted from four different mining sectors (FIGURE 2):

- Chimo Mine Main with 44% of ounces to be mined,
- Chimo Mine Extension (below Chimo Mine) with 11% of ounces to be mined,
- East Chimo Mine with 31% of ounces to mine and,
- West Nordeau with 14% of ounces to be mined.

The different sectors of the mine will be accessed via ramps and drifts to allow the efficient circulation of mobile mining equipment and to satisfy ventilation requirements. The historic three-compartment mineshaft of 914m depth will be rehabilitated to accommodate the installation of a vertical conveyor. Mined mineralized material from the upper portions of the mine will be sent down to the base of the vertical conveyor using material passes and mined material from the lower portions of the mine will be hauled using underground diesel trucks to the same level.

Mineralized material will then be crushed using a jaw crusher and transported to the surface via the vertical conveyor before being sorted using sensor-based sorting technology. Sorted waste will be returned from

surface using a network of waste passes and mixed with cement to be used as backfill.

The mine will be owner-operated, and the mining fleet will be purchased via a lease financing agreement. Supporting underground infrastructure includes, one main pumping station, two ventilation and heating systems and one crushing station.

Processing

Mineralized material from the underground operation would be sorted using automated industrial sorting technology based on RGB and XRT sensors before being transported to the processing plant. The sorter is expected to operate with a concentration ratio of 1.85 a recovery rate of 91.9%. The flow sheet (FIGURE 3) selected for the study, is based on historical metallurgical work which was used in the present study to estimate the recovery rate estimated at 93.1%. The plant is expected to process 2,400 tpd on average over the life of mine but has a processing capacity of 3,000 tpd.

The process plant is a standard carbon-in-leach (CIL) technology with a gravity concentration for gold recovery. The plant includes crushing, grinding, gravity concentration, classification, leach and CIL, and detoxification before deposition into a tailings storage facility. The diagram of the treatment process is illustrated in (FIGURE 3).

Infrastructure and Tailings

The infrastructure includes earthworks, power utilities, water and the buildings/structures supporting the exploitation of the resource. A vertical conveyor will be used for primary hoisting of the resource from underground. It dumps to a run-of-mine stockpile that feeds a crusher/sorter system that is estimated to reject 45% of the hoisted material. The rejects are sent underground through a fill raise and distributed underground for stope support. The upgraded material is stored in a dome where it becomes feed to the processing plant. A confinement area will be constructed to accommodate thickened tailings. FIGURE 4 presents the proposed site layout for the Chimo Mine project.

Capital and Operating Costs

The project requires CAD\$341M of initial capital as broken down in Table 6 and CAD\$160M of sustaining capital. Closure costs are estimated at CAD\$3M with equipment salvage value estimated at CAD\$5M. Operating costs are estimated at CAD\$107 per tonne milled. Average cash costs of US\$647/oz and all-in sustaining cost of US\$755/oz are expected over the mine life. The financial model also includes CAD\$25M in working capital requirements.

Table 6: Capital Cost Breakdown

Item	Initial Capital (CAD\$M)
Mine development, infrastructure, and equipment	96.9
Processing plant	112.7
Surface infrastructure, environment, and equipment	92.5
Capitalized revenue	(62.0)
Capitalized operating cost	101.1
Total	341.2

Conclusions and Recommendations

The PEA has demonstrated the economic viability the Chimo Mine project.

The recommendations describe the work for continued development of the project. This work includes exploration drilling, delineation, and definition of mineralized zones in order to increase the resources as well as their level of confidence. Recommendations also include industrial sorting tests of mineralized material, metallurgical tests, engineering optimization (trade-off) studies and environmental baseline characterization work.

Independence and responsibilities

The PEA was prepared by independent consulting firms with their respective responsibilities broken down in Table 7.

Table 7: Consulting Firms with Respective Responsibilities

Consulting Firm	Area of Responsibility
InnovExplo Inc.	<ul style="list-style-type: none">● Mineral resource estimate● Mine design and scheduling● Mine capital and operating cost estimates● G&A cost estimates● Financial analysis
A-Z Mining Professionals Ltd.	<ul style="list-style-type: none">● Surface infrastructure design● Capital cost estimates
Bumigeme Inc.	<ul style="list-style-type: none">● Process plant design● Process plant capital and operating cost estimates
Responsible Mining Solutions	<ul style="list-style-type: none">● Tailings management facility design● Capital cost estimates

Qualified Persons

Corporate

The geological information (scientific and technical in nature) of the Company in this news release was reviewed by Mr. Gaétan Lavallière, P.Geo., Ph.D, Cartier's Vice-President, and Mr. Ronan Déroff, P.Geo, M.Sc., Senior Geologist, Project Manager and Geomatician, both qualified persons as defined in NI 43-101. Mr. Lavallière approved the geological information (scientific and technical in nature) contained in this press release.

Mineral Resources Estimate

The qualified persons independent of the issuer, responsible for estimating the mineral resources of the Chimo Mine property and the Nordeau West deposit (effective as of August 22, 2022), within the meaning of NI 43-101, are Mr. Vincent Nadeau-Benoit, P.Geo., Alain Carrier P.Geo., M.Sc, and Marc R. Beauvais from the firm InnovExplo Inc. Mr. Nadeau-Benoit, Carrier and Beauvais declare that they have read this press release and that the scientific and technical information relating to the mineral resources estimate presented therein is correct.

Preliminary Economic Assessment

The qualified persons independent of the issuer, responsible for the Preliminary Economic Assessment (this Press Release), within the meaning of NI 43-101, are Mr. Marc R. Beauvais, P.Eng. of InnovExplo, Mr. Eric Hinton, P.Eng. of A-Z Mining Professionals, Mr. Florent Baril of Bumigeme et Mr. Eric Sellars, P. Eng. de Responsible Mining Solutions. Mr. Beauvais, Hinton, Baril and Sellars declare that they have read this press release and that the scientific and technical information relating to the resource estimate presented therein is correct.

About Cartier

[Cartier Resources Inc.](#) was founded in 2006 and is an advanced gold project exploration company based in Val-d'Or. The company's projects are all located in Quebec, which has consistently ranked as one of the world's best mining jurisdictions. Cartier is advancing the development of its flagship Chimo Mine Project. The Company has a strong cash position exceeding \$4.0 M and a significant corporate and institutional endorsement, including Agnico Eagle Mines, O3 Mining and Quebec investment funds.

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