Magna Mining Completes Preliminary Economic Assessment on the Crean Hill Project

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Study Demonstrates Base Case 15 Year Mine Life and Significant Potential Synergies with the Shakespeare Project

Sudbury, July 31, 2023 - Magna Mining Inc. (TSXV: NICU) (OTCQB: MGMNF) (FSE: 8YD) ("Magna" or the "Company") is pleased to announce the successful completion of its Preliminary Economic Assessment ("PEA") by Stantec on its 100% owned Crean Hill Nickel Project (the "Project") located in Sudbury, Ontario, Canada.

The Base Case scenario ("Base Case") for the PEA envisions a combination of open pit and underground mining, with Life of Mine ("LOM") potential mineable resource being sold to a third-party existing mill in Sudbury. Initial underground mining would be accessed from a new ramp developed from surface, prior to rehabilitation of the existing shaft to access and hoist from the lower elevations. Resources are mined, crushed, and sampled onsite, then trucked to the third-party mill for processing. An alternative milling scenario was studied comparing the economics of the Base Case with an Alternative Processing scenario ("Alternative Processing") through a future mill at the Company's Shakespeare Project.

Magna Mining CEO Jason Jessup commented: "This Preliminary Economic Assessment demonstrates why we think the Crean Hill Nickel Project has the potential to be the next nickel producing mine in Canada. The results of the Base Case study show positive economics, a long mine life, modest upfront capital cost, and minimal permitting required before commencing advanced exploration development. The Crean Hill Project contains a large potentially mineable resource, and the current PEA schedule has not yet been fully optimized. The next technical study will look at further optimization of cut-off grade, stope design and scheduling to maximize revenues during the first years of mine life. It will incorporate not only the diamond drilling that Magna has completed on Crean Hill since the acquisition in 2022 but also the economics of a fully integrated mining complex with Magna's Shakespeare Project. The results of the Alternative Processing scenario considered in the PEA demonstrate potential robust economics, which makes a compelling case to proceed with this work. This is consistent with Magna's vision of developing a hub and spoke production model in the world class Sudbury nickel mining camp. "

Financial Analysis

Both the Base Case and Alternative Processing use metal prices of US$ 9.50/lb nickel, US$ 3.50/lb copper, US$ 22.00/lb cobalt, US$ 1000/oz platinum, US$ 1800/oz Palladium, US$ 1700/oz gold, and a 1.3 C$/US$ exchange rate (Table 2).

The Base Case generates a pre- tax NPV (8%) of $290.4 million and an Internal Rate of Return ("IRR") of 23.9%, after-tax NPV (8%) is $230.4 million, with an IRR of 23.4%.

The Alternative Processing generates a pre- tax NPV (8%) of $668.8 million and an IRR of 39.6%, after-tax NPV (8%) is $516.1 million, with an IRR of 38.4%.

See Table 1 for a summary of PEA results (all results are reported in Canadian Dollars unless otherwise noted).

Table 1: PEA Summary

	Base Case	Alternative Processing

Total Resource Mined (Tonnes)	20,102,605	28,197,495
UG Resource Mined (Tonnes)	16,274,220	21,791,858
OP Resource Mined (Tonnes)	3,828,385	6,405,636
OP Waste Mined (Tonnes)	29,349,432	37,406,582
Strip Ratio	7.7	5.8
Mine Life (Years)	15	19
Ni in Resource Sold (Million lbs)	276.6	351.2
Cu in Resource Sold (Million lbs)	243.5	309.0
Co in Resource Sold (Million lbs)	9.8	12.5
Pt in Resource Sold (Thousands oz)	367.5	464.8
Pd in Resource Sold (Thousands oz)	401.6	496.8
Au in Resource Sold (Thousands oz)	220.2	273.8
Average NSR (C$/Tonne)	$179.07	$165.20
Operating Cost (C$/Tonne)	$116.57	$88.33
Pre-Tax NPV (8%) (C$ Million)	$290.4	$668.8
Pre-Tax IRR	23.9%	39.6%
Post Tax NPV (8%) (C$ million)	$230.4	$516.1
Post Tax IRR	23.4%	38.4%
Advanced Exploration Capital (C$ million)	$48.4	$47.9
Initial Project Capital (C$ million)	$81.1	$81.3
Sustaining Capital (C$ million)	$248.9	$256.7

Table 2: Metal Prices and Exchange Rate

	$ US / lb or Oz
Nickel	$9.50
Copper	$3.50
Cobalt	$22.00
Platinum	$1,000.00
Palladium	$1,800.00
Gold	$1,700.00
Exchange C$/US$	1.3

Capital and Operating Costs

The Study was prepared in accordance with National Instrument 43-101 (NI 43-101 of the Canadian Securities Administrators). The Base Case capital and operating cost estimates for the Advance Exploration, Project Development and Operation phases of the Project are summarized below in Tables 3-8. Capital costs assume development of a ramp from surface to access initial mining areas and dewatering and rehabilitation of the existing main shaft and selected infrastructure as mining progresses to lower levels.

Operating costs assume contractor surface mining and project period underground development, with owner operated underground development and production during the operating period.

Table 3: Base Case Advanced Exploration Costs

Item	Cost (millions)
ADEX Direct Capital Costs	$20.18
ADEX Indirect Costs	$4.04
ADEX Contingency	$8.47
ADEX Capitalized Operating Costs	$15.68
ADEX Total Capital Costs	$48.36

Table 4: Base Case Costs UG and Open Pit (after Advanced Exploration)

Item	UG Cost (millions)	OP Cost (millions)	Combined Cost (millions)
Project Period Direct Capital Costs	$34.63	$15.42	$50.06
Project Period Indirect Costs	$6.93	$3.08	$10.01

Project Period Contingency	$14.55	$6.48	$21.02
Sustaining Capital Costs	$247.16	$1.70	$248.86
Total Capital Costs	$303.27	$26.69	$329.96
Operating Costs during Project Period	$13.33	$21.57	$34.90
Opex during Operating Period	$1,921.02	$371.70	$2,292.73
Total Operating Costs	$1,934.35	$393.27	$2,327.62
Closure Costs	$5.85	$11.24	$17.09
Royalties	$90.42	$14.42	$104.84
Pre Tax NPV8% (includes ADEX)	$251.99	$38.44	$290.43
Pre Tax IRR (includes ADEX)	22.43%	37.82%	23.91%
Taxes	$146.86	$16.69	$163.29
Post Tax NPV8% (includes ADEX)	$203.02	$26.12	$230.44
Post Tax IRR (includes ADEX)	22.39%	29.62%	23.37%

Table 5: Base Case Capital Costs UG - Detail

Item	Project Period (millions)	Sustaining (millions)	Total (millions)
Development	$20.48	$131.71	$152.19
Infrastructure	$14.15	$115.46	$129.61
Closure	$0.00	$5.85	$5.85
Subtotal	$34.63	$253.01	$287.64
Indirects	$6.93	$0.00	$6.93
Contingency	$14.55	$0.00	$14.55
Total UG Capital Cost	$56.11	$253.01	$309.12

Table 6: Base Case Capital Costs Open Pit - Detail

Item	Project Period (millions)	Sustaining (millions)	Total (millions)
Site Preparation	$1.28	$1.70	$2.98
Existing Waste Rock Pile	$14.15	$0.00	$14.15
Closure	$0.00	$11.24	$11.24
Subtotal	$15.42	$12.94	$28.37
Indirects	$3.08	$0.00	$3.08
Contingency	$6.48	$0.00	$6.48
Total UG Capital Cost	$24.99	$12.94	$37.93

Table 7: Base Case Operating Costs UG - Detail

Item	ADEX (millions)	Project Period (millions)	Operating Period (millions)	Total Operating (millions)	Cost per Tonne of
Mining	$0.63	$3.59	$651.05	$655.27	
Indirects and G & A	$13.06	$6.30	$470.28	$489.64	
Diamond Drilling	$1.06	$1.00	$15.88	$17.94	
Surface Handling and Processing Related	$0.93	$2.44	$783.81	$787.17	
Total Operating Costs	$15.68	$13.33	$1,921.02	$1,950.03	

Table 8: Base Case Operating Costs OP - Detail

Item	ADEX (millions)	Project Period (millions)	Operating Period (millions)	Total Operating (millions)	Cost per Tonne of Mineraliz
Mining - Pit Waste	$0.00	$15.90	$168.18	$184.08	$48.08
Mining - Pit Mineralized Resource	$0.00	$0.65	$23.36	$24.01	$6.27
Processing Related	$0.00	$5.02	$180.16	$185.18	$48.37
Total Operating Costs	$0.00	$21.57	$371.70	$393.27	$102.73

Mining and Infrastructure

Previous mining activity at the Crean Hill site makes this project particularly favorable for revitalization. The

site is located near the Trans-Canada Highway, approximately 35km from Sudbury with access to a well-established supply and service sector focused on the mining industry. The PEA envisions both surface open pit and underground mining. The open pit surface mining has been constrained to not interfere with the existing main shaft to the south and water control dam north of the mineralized zones. Initially underground mining areas will be accessed from a newly developed ramp from surface, and dewatering and rehabilitation of the existing main shaft and selected infrastructure will be completed as mining progresses to lower levels. Surface mining will consist of conventional truck and shovel mining, and underground mining will utilize a combination of conventional longhole and cut and fill stoping. Power lines capable of supporting mining activities are in close proximity to the project, and heating requirements are to be fueled by propane. Mined resource crushing and sampling activities will occur on site prior to shipment to the processing facility. Water treatment is managed onsite utilizing the existing third-party treatment facility.

Figure 1 illustrates the existing development and historical mining, the base case open pit, underground development and stopes. Figure 2 illustrates the LOM production profile and Table 9 summarizes the Base Case production statistics.

Figure 1: Crean Hill Mine Longitudinal Section Showing Existing Workings, Planned Development and Stoping, Looking North.

To view an enhanced version of this graphic, please visit:
https://images.newsfilecorp.com/files/8002/175380_501cd10a44278a6b_010full.jpg

Table 9: Base Case Production Statistics Including Potentially Minable Resources

Item	UG	Open Pit	Combined
Tonnes Mined	16,274,220	3,828,385	20,102,605
Average NSR $/tonne	$190.36	$131.05	$179.07
Ni (%)	0.65	0.53	0.62
Cu (%)	0.58	0.41	0.55
Co (%)	0.02	0.02	0.02
Pt (grams per tonne)	0.62	0.36	0.57
Pd (grams per tonne)	0.71	0.22	0.62
Au (grams per tonne)	0.38	0.17	0.34

The Potentially Mineable Resource is based on NSR cut-off of $43.28/Tonne for open pit mining, $123.50/Tonne for underground longhole stoping, and $134.50/Tonne for underground mechanized cut and fill.

Figure 2: Life of Mine Production Profile

To view an enhanced version of this graphic, please visit:
https://images.newsfilecorp.com/files/8002/175380_501cd10a44278a6b_012full.jpg

Permitting

The Crean Hill project is a brownfield site with existing disturbance and a Closure Plan that has been filed by Vale. Vale retains surface rights to the property and responsibility for the permitting of surface activities. All surface infrastructure for new operations will be captured in an amended closure plan. Other permits that may be required for new future operations would include a new or amended Environmental Compliance Approval (ECA) for air and noise related to crushing and transportation, and for drilling and blasting in a future open pit scenario. An additional ECA will be required for domestic sewage along with a regional health authority authorization. As currently designed in the PEA, there are no requirements for a federal or provincial environmental assessment(s) on site. The PEA assumes that all relevant permits for the commencement of advanced exploration at Crean Hill will be received in Q4, 2023.

Mineral Resources

The PEA potentially mineable resources (Table 9) are a subset of the current Crean Hill Mineral Resource

Inventory (Table 10). Appropriate mining dilution and recoveries were applied to the design stopes depending on mining method used. Current Mineral Resources at Crean Hill were estimated by SGS Geological Services. Mineral Resources include near surface mineralization with potential for open pit mining, as well as higher grade mineralization amenable to conventional underground mining methods. The full technical report, titled "Mineral Resource Estimate for the Denison Ni-Cu-PGE Sulphide Deposit, Denison Project, Sudbury, Ontario, Canada" with an effective date of August 19th, 2022 and a report date of December 14th, 2022, was prepared in accordance with NI 43-101 - Standards of Disclosure for Mineral Projects and is available on SEDAR (www.sedarplus.ca) under the Company's issuer profile.

Table 10: Denison Mineral Resources as of August 19, 2022 (Denison is now referred to as the "Crean Hill Project"). Please see notes on Mineral Resource assumptions, at the end of this release, including metal prices and recoveries used.

(A) Open Pit Resources

Cut-off Grade	Tonnes	Ni %	Cu %	Co %	Pt g/t	Pd g/t	Au g/t	NiEq %
			Indicated					
0.3% NiEq	16,760,000	0.53	0.49	0.02	0.48	0.37	0.25	1.08
			Inferred					
0.3% NiEq	434,000	0.43	0.49	0.02	0.29	0.14	0.07	0.82

(B) Underground Resources

Cut-off Grade	Tonnes	Ni %	Cu %	Co %	Pt g/t	Pd g/t	Au g/t	NiEq %
			Indicated					
1.1% NiEq	14,531,000	0.96	0.84	0.03	0.88	1.02	0.54	2.07
			Inferred					
1.1% NiEq	1,170,000	0.61	0.46	0.02	0.64	1.09	0.21	1.41

Crean Hill Project Economic Sensitivities

The Crean Hill Project is most sensitive to metal price and metal grade, and least sensitive to project capital cost. Project sensitivities are illustrated in Table 11 and Figure 3.

Table 11: Crean Hill Project Sensitivities - Post-Tax NPV (millions)

Variance	Metal Price	Metal Grade	Capex	Opex
-20%	-$85.4	-$94.6	$272.7	$431.4
-10%	$78.9	$73.7	$251.6	$331.6
Base	$230.4	$230.4	$230.4	$230.4
10%	$363.0	$376.6	$209.3	$127.6
20%	$492.7	$519.3	$188.2	$22.9

Figure 3: Crean Hill Project Sensitivities - Post-Tax NPV (millions)

To view an enhanced version of this graphic, please visit:
https://images.newsfilecorp.com/files/8002/175380_magnaminingfigure3.jpg

Opportunities/Recommendations

The current Base Case results show positive economics, a long mine life, modest upfront capital cost and provide a basis to advance the Crean Hill project to the next stage of technical study. More detailed engineering and optimization of cut-off grade, underground development, stope design and scheduling are recommended. Additional studies will include waste rock geochemistry, additional metallurgical testing, and ore sorting.

Additionally, drilling by Magna since the commencement of the PEA has advanced the understanding of ore

controls and local high-grade mineralization that are not well reflected within the current Crean Hill resources, and which will be incorporated into future Mineral Resource updates (Figure 4). Underground advanced exploration and bulk sampling is recommended to further de-risk the project and provide a better understanding of ore controls, continuity, stope design, dilution, extraction assumptions, and provide material for future test work.

Based on the results of the Alternative Processing portion of the PEA, a Pre-Feasibility Study ("PFS") is recommended, with a focus on further optimization and the integration of the Crean Hill Project with Magna's Shakespeare Project.

Figure 4: Sectional View of 101 FW Zone Recent Drilling and Current Mineral Resource Model. Resource Blocks and Drillhole Intersections Coloured by NiEq. Section Looking East.

To view an enhanced version of this graphic, please visit:
https://images.newsfilecorp.com/files/8002/175380_501cd10a44278a6b_017full.jpg

Figure 4 illustrates an example of recent diamond drilling completed by Magna, that has intersected significant grade mineralization not well represented in the current Mineral Resource model.

Qualified Person

The following Qualified Persons (QPs) oversaw the completion of the work in preparation of the PEA and are responsible for the contents:

Independent QP for Geology and Mineral Resource Estimates

Mr. Allan Armitage, Ph.D., P.Geo., of SGS Geological Services

Mr. Armitage last conducted a personal inspection of the site on May 26, 2022.

Independent QP for Underground Mining and Financial Analysis

Mr. Michael K. Murphy, B.Sc. Engineering (mining), P.Eng. of Stantec Consulting Ltd.

Mr. Murphy last conducted a personal inspection of the site on December 9, 2022.

Independent QP for Open Pit Mining and Financial Analysis

Mr. Christiaan Terblanche, P.Eng, B.Comm, MBA, of Stantec Consulting Ltd.

Mr. Terblanche last conducted a personal inspection of the site on December 9, 2022.

Independent QP for Processing and Recovery

Mr. Gordon Marrs, P.Eng., of XPS, Expert Process Solutions.

Independent QP for Environment

Mr. Sheldon Smith, MES., P.Geo., of Stantec Consulting Ltd.

Mr. Smith last conducted a personal inspection of the site on January 26, 2023.

The QPs have reviewed and approved their relevant section of this press release.

Technical information in this press release has been reviewed and approved by David King, M.Sc., P.Geo. Mr. King is the Senior Vice President, Technical Services for Magna Mining Inc. and is a qualified person under Canadian National Instrument 43-101.

Notes on Mineral Resource Assumptions:

[1]The classification of the current Mineral Resource Estimate into Indicated and Inferred is consistent with current 2014 CIM Definition Standards - For Mineral Resources and Mineral Reserves.
[2]All figures are rounded to reflect the relative accuracy of the estimate and numbers may not add due to rounding.
[3]All Resources are presented undiluted and in situ, constrained by continuous 3D wireframe models, and are considered to have reasonable prospects for eventual economic extraction.
[4]Mineral resources which are not mineral reserves do not have demonstrated economic viability. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.
[5]It is envisioned that parts of the Denison deposit (now referred to as "Crean Hill") may be mined using open pit mining methods. In-pit mineral resources are reported at a cut-off grade of 0.3 % NiEq within a conceptual pit shell.
[6]The results from the pit optimization are used solely for the purpose of testing the "reasonable prospects for economic extraction" by an open pit and do not represent an attempt to estimate mineral reserves. There are no mineral reserves on the Property. The results are used as a guide to assist in the preparation of a Mineral Resource statement and to select an appropriate resource reporting cut-off grade.
[7]Underground (below-pit) Mineral Resources are estimated from the bottom of the pit and are reported at a base case cut-off grade of 1.1 % NiEq. The underground Mineral Resource grade blocks were quantified above the base case cut-off grade, below the constraining pit shell and within the constraining mineralized wireframes. At this base case cut-off grade the deposit shows good deposit continuity with limited orphaned blocks. Any orphaned blocks are connected within the models by lower grade blocks.
[8]Based on the size, shape, location and orientation of the Denison deposit (now referred to as "Crean Hill"), it is envisioned that the deposit may be mined using longhole open stoping (a bulk mining method that has long been utilized in the Sudbury region).
[9]High grade capping was done on 10 ft (3.05 m) composite data.
[10]Bulk density values were determined based on physical test work from each deposit model and waste model.
[11]NiEq cut-off grades are based on metal prices of $8.50/lb Ni, $3.75/lb Cu, $22.00/lb Co, $1000/oz Pt, $2000/oz Pd and $1,750/oz Au and considers metal recoveries of 78% for Ni, 95.5% for copper, 56% for Co, 69.2% for Pt, 68% for Pd and 67.7% for Au.
[12]The in-pit base case cut-off grade of 0.3% NiEq considers a mining cost of US$2.50/t rock and processing, treatment and refining, transportation and G&A cost of US$38.00/t mineralized material, and an overall pit slope of 55 degrees. The below-pit base case cut-off grade of 1.1 % NiEq considers a mining cost of US$80.00/t rock and processing, treatment and refining, transportation and G&A cost of US$42.50/t mineralized material.
[13]The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.

About Magna Mining Inc.

Magna Mining is an exploration and development company focused on nickel, copper and PGM projects in the Sudbury Region of Ontario, Canada. The Company's flagship assets are the past producing Shakespeare and Crean Hill Mines. The Shakespeare Mine is a feasibility stage project which has major permits for the construction of a 4,500 tonne per day open pit mine, processing plant and tailings storage facility and is surrounded by a contiguous 180km^2 prospective land package. Crean Hill is a past producing nickel, copper and PGM mine with a technical report dated August 2022. Additional information about the Company is available on SEDAR (www.sedarplus.ca) and on the Company's website (www.magnamining.com).

For further information, please contact:
Jason Jessup

Chief Executive Officer
or
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Senior Vice President
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Cautionary Statement

This press release contains certain forward-looking information or forward-looking statements as defined in applicable securities laws. Forward-looking statements are not historical facts and are subject to several risks and uncertainties beyond the Company's control, including statements regarding the production at the Shakespeare and Crean HIll Mines, the economic and operational potential of the Shakespeare and Crean Hill Mines, potential acquisitions, plans to complete exploration programs, potential mineralization, exploration results and statements regarding beliefs, plans, expectations, or intentions of the Company. Resource exploration and development is highly speculative, characterized by several significant risks, which even a combination of careful evaluation, experience and knowledge may not eliminate. All forward-looking statements herein are qualified by this cautionary statement. Accordingly, readers should not place undue reliance on forward-looking statements. The Company undertakes no obligation to update publicly or otherwise revise any forward-looking statements whether as a result of new information or future events or otherwise, except as may be required by law.

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