

# I-Minerals Completes Pre-Feasibility Study of its Halloysite - Metakaolin Project NPV(10%) US\$48 million and IRR 20% (Before Tax)

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Vancouver, March 3, 2020 - [I-Minerals Inc.](#) (TSXV: IMA) (OTCQB: IMAHF) ("the Company") is pleased to announce that it has received the results of the Pre-Feasibility Study ("PFS") for its Bovill halloysite and metakaolin project. The Bovill Project is strategically located within five miles of state highways with commercial distributions of electricity and natural gas already near the property boundary. The PFS was led by Millcreek Engineering, who were responsible for overall project management and the process plant and infrastructure design (including OPEX and CAPEX) and economic analyses. Other engineering and geological services were provided by Mine Development Associates (mine modelling; ore scheduling; mineral reserve estimation); SRK Consulting (U.S.) Inc. (mineral resource estimation); and, HDR Engineering Inc. (environmental review).

Highlights of the PFS include:

- 20% Pre-Tax IRR; 18% After-Tax IRR
- US\$ 48 million Pre-Tax NPV<sub>10%</sub> ; US\$34 million After-Tax NPV<sub>10%</sub>
- Initial Capital Cost of US\$ 48 million
- Total Life of Operation Capital Costs of US\$54 million
- 25 year mine life with 1:1 strip ratio

The PFS is based on the production of two minerals, halloysite and kaolinite. Two halloysite products are manufactured; 'HalloPure' which is about 70% halloysite and 30% kaolinite and premium quality 'Ultra-HalloPure' which contains greater than 90% halloysite with the balance kaolinite. The quality of Bovill halloysite is regarded as being exceptional and the research on halloysite applications has dramatically increased over the past 5 years involving polymers, filtration, extruded polystyrene insulation, green technology and life sciences. The kaolinite is flash-calcined to produce metakaolin, a Supplementary Cementitious Material ("SCM") and highly reactive pozzolan, that when added to concrete increases strength and durability, reduces permeability, reduces the effect of alkali-silica reactivity and increases resistance to chloride ingress and sulfate attack. By using metakaolin the sustainability of the concrete is increased through longer service life and the carbon footprint is reduced by lowering the quantity of Portland cement. Sand is produced during the production process which meets the specifications of a number of applications including arena sand and USGA-specified bunker and top-dressing sand. There is a potential upside from sale of sand which is not included in the project economics and accordingly the sand is not included in the reserves.

A conservative approach to the build-up of sales has been assumed with full production being achieved in the first quarter of the 5<sup>th</sup> year of operation, as some product applications will require development. There is potential for full production to be achieved earlier which would have a corresponding positive effect on the NPV, IRR and the project payback period.

"After a thorough review of mineral market opportunities, management elected to focus on the production of halloysite and metakaolin as the markets for these minerals are growing or have growth potential as opposed to entering competitive markets where price is the primary differentiator," stated John Theobald, President and CEO of [I-Minerals Inc.](#) "The initial CAPEX at \$48.34 million, including a 15% contingency, is much lower than prior studies reducing financing challenges while the marketing and logistics for two minerals creates a much more manageable enterprise. While we believe the PFS represents a conservative, but realistic view of the project's potential we also see opportunities for improvement including a shortened ramp-up period and a contribution from sand sales. Additionally, we will have the plant capacity to increase sales beyond the modelled levels should metakaolin and halloysite markets grow beyond forecast levels. We have ambitions to be the premier metakaolin operation in the western USA and the largest producer of halloysite in the western hemisphere; the PFS is an important step in achieving these ambitions".

## Statement of Mineral Resources

The resource defined at the Bovill Project is a fine white clay-sand mixture, referred to as "primary clay," that formed through the weathering of a border phase of the Idaho Batholith. During the weathering, the sodium feldspar in the intrusive breaks down to kaolinite +/- halloysite. The primary clay, which forms in place during weathering, provides a feedstock containing kaolinite, and halloysite as well as a quartz- k-spar sand product. The Measured and Indicated Mineral Resources are reported in Table 1. No mining cut-off grade is applied since all material within the pit design shows potential economic viability. Three mineral products are included in the resource: quartz and K-spar sand, kaolinite clay, and halloysite clay.

Table 1: Statement of Measured and Indicated Mineral Resources from the Kelly's Hump and Middle Ridge areas, (as of February 25, 2020)

Classification	Resource Area	Tons (000s)	Kaolinite (%)	Halloysite (%)	Kaolinite Tons (000s)	Halloysite Tons (000s)
Measured	Kelly's Hump	3,540	13.08	3.86	463	137
	Middle Ridge	2,180	10.95	4.15	239	91
	Sub-Total	5,720	12.27	3.97	702	226
Indicated	Kelly's Hump	7,500	14.81	2.77	1,110	208
	Middle Ridge	5,130	17.91	3.61	920	185
	WBL	2,900	13.31	1.62	386	47
	Sub-Total	15,530	15.56	2.83	2,416	440
Measured & Indicated	Kelly's Hump	11,040	14.26	3.12	1,574	344
	Middle Ridge	7,320	15.83	3.77	1,159	276
	WBL	2,900	13.31	1.62	386	47
	Total	21,260	14.67	3.14	3,119	667

The mineral resource model considers 337 core holes totalling 37,512 feet. Drilling depth ranges from 20 to 260 ft., averaging 111 ft. All drill holes have a vertical orientation with hole spacing on approximate 100 or 200 ft. centers. Grade estimations were made using inverse distance squared for all the mineralized domains. Assays were composited to 10 ft. lengths. All estimations are based on a homogeneous block model with dimensions of 20 ft. X 20 ft. X 10 ft. block size based on current drill hole spacing and a potential open pit bench height. The block model is subdivided into four model areas based primarily on the geographic location.

## Results of the Pre-Feasibility Study

The PFS individually tracks the production and sale of two halloysite products and a metakaolin product which yield a weighted-average price of \$810 /ton of products sold. The pricing of the mineral products and associated markets is based on preliminary studies being undertaken by a European company specializing in halloysite research, and a US-based SCM expert on metakaolin.

The mineral reserves delineated from the primary clay represent the largest confirmed deposits of high-quality kaolin and halloysite in the western United States. Initial indicative economics were performed assuming a 25-year market for primary clay products and focusing on those areas of the Resources that contain greater concentrations of halloysite and kaolinite. Mineral Reserves are presented below in Table 2 and production highlights are tabulated in Table 3.

Table 2: Statement of Mineral Reserves, (as of February 25, 2020) All figures thousands of tons\*

To view an enhanced version of Table 2, please visit:  
[https://orders.newsfilecorp.com/files/3237/53040\\_339e7ff294faa987\\_002full.jpg](https://orders.newsfilecorp.com/files/3237/53040_339e7ff294faa987_002full.jpg)

## \* Notes on Mineral Reserves:

- Reserves are based on a \$40.00 NSR cutoff grade and pit designs.
- Rounding of numbers in mineral reserves listed above may cause apparent inconsistencies.
- The reference point for Mineral Reserves is at the plant stockpile.

Table 3: Production Highlights

Parameter	Unit	Value
Average Annual Plant Full Production Rate	tons	132,000
Process Throughput Rate (nominal)	tons of ore per op-day	410
Stripping Ratio	waste: ore	1:1
Proposed Mine Life	years	25 years

The reserves are under a shallow layer of overburden generally less than 20 feet thick. Pits are limited to depths of approximately 70 to 75 feet. Given the physical properties of the primary clay, no drilling or blasting is required. The process flow sheet includes wet screw classification and screen separation of the halloysite and kaolinite clay fraction from the quartz and K-spar sand fraction. The clay fraction is separated into kaolinite and halloysite using hydrocyclone, centrifuge, and proprietary flotation techniques to yield +90% purity halloysite products (the latest analytical results indicate a 96% purity halloysite product from the recent pilot plant).

Technical-economics indicate an NPV<sub>10%</sub> of US\$48 million on a pre-tax basis and NPV<sub>10%</sub> of US\$ 34 million on an after-tax basis, with a pre-tax IRR of 20% and an after tax IRR of 18%. Payback will occur during the 6<sup>th</sup> year from pre-development. Economic results are summarized in Table 4 below.

Table 4: Economic Results\*

Description	LoM Value	LoM Value	Unit Cost <sup>1</sup>	Unit Cost <sup>2</sup>	Unit Cost <sup>3</sup>
	Pre-Tax (US\$Millions)	After-Tax (US\$Millions)	(US\$/ton) total	(US\$/ton) Mill feed	(US\$/ton) product
Gross Revenue	597,638	597,638	94.49	192.04	809.81
Royalties (5% sales)	29,882	29,882	4.72	9.60	40.49
Net Revenue	567,756	567,756	89.76	182.44	769.32
Mining Costs	36,125	36,125	5.71	11.61	48.95
Processing Costs	164,963	164,963	26.08	53.01	223.53
G&A Costs	36,234	36,234	5.73	11.64	49.10
Closure / Reclamation Costs	7,219	7,219			
Operating Costs	244,541	244,541	38.66	78.58	331.36
Contractor Capital	1,323	1,323	0.21	0.43	1.79
Owners Operations Capital	2,943	2,943	0.47	0.95	3.99
Plant & Equipment	37,772	37,772	5.97	12.14	51.18
Contingency	6,306	6,306	1.00	2.03	8.54
Sustaining Capital	5,881	5,881	0.93	1.89	7.97
LoM Capital	54,225	54,225	8.57	17.42	73.48
Taxes		62,779	9.93	20.17	85.07
Subtotal Capital & Tax	54,225	117,004	18.50	37.60	158.54
CASH FLOW	268,989	206,210			
NPV <sub>6%</sub>	\$97,242	\$72,379			
NPV <sub>10%</sub>	\$48,281	\$33,743			
NPV <sub>14%</sub>	\$20,831	\$11,848			
IRR	20%	18%			

\* Differences in totals and subtotals are due to rounding, and are not material to the results presented.

1 Total tons are combined tons waste stripped, and primary clay mined

2 Total tons of primary clay mined sent to plant. Does not include tons of waste stripped

3. Average cost per ton of mineral product produced

The NI 43-101 Technical Report is being completed by Millcreek Engineering, SRK Consulting (U.S.) Inc., Mine Development Associates in conformity with CIM's "Estimation of Mineral Resource and Mineral Reserves Best Practices," and will be reported in conformance with NI 43-101 regulations. The report will be

filed on SEDAR (at [www.sedar.com](http://www.sedar.com)). All values presented in this press release are in US imperial units and Q4 2019 U.S. dollars.

Steven Kerr, P.G, (Principal (Geology)) of Millcreek Engineering validated the geologic model and resource estimation results reported herein. He is the Qualified Person ("QP") responsible for the resource estimation methodology and the resource statement.

Mine Development Associates, a division of RESPEC, completed the mineral reserve estimation including pit optimizations, and pit and dump designs, and production schedule for ore and waste. MDA also developed operating and capital mining costs. The QP responsible for mineral reserves and mining costs is Thomas L. Dyer, PE., MDA Principal Engineer

The economic results for the PFS were completed by Millcreek Engineering, with Alister Horn, MMSA (QP) (Principal (Mining)) being the QP responsible for the economic analysis. Rainer Stephenson, MMSA (QP) (Senior Process Engineer) of MillCreek Engineering is the QP responsible for all process and metallurgical content.

All QPs have reviewed and approved the content of this release and are independent of the issuer applying all of the tests in Section 1.5 of NI 43-101.

[I-Minerals Inc.](#)

per: "John Theobald"

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