

# Flinders' Woxna Graphite Project Delivers Positive Preliminary Economic Assessment

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**Editors Note: There is one figure associated with this press release.**

[Flinders Resources Ltd.](#) ("Flinders") (TSX VENTURE:FDR) is pleased to report positive results from its preliminary economic analysis ("PEA") of the 100%-owned and fully permitted Woxna graphite project in Sweden.

## Financial Highlights

Estimated in the PEA:

- Low start-up capital costs of \$16.7 million<sup>1</sup> ("M") including contingency and working capital
- Average production costs of \$662 per tonne of graphite concentrate
- \$26.6M post tax net present value ("NPV") (8% discount);
- 34% post-tax internal rate of return ("IRR")
- Payback period of 3.9 years
- Conservative average graphite sales price of \$1,199 per tonne used
- Post tax NPV increases to \$37.3M (8% discount) in a sensitivity analysis when 10% higher graphite prices of \$1,318 per tonne are used. (see table 7)

## Operational Highlights

Estimated in the PEA:

- 155,000 tonnes / year of mined material delivered to Run of Mine ("ROM") with 10.3% average graphite head grade
- Design production rate of 16,600 tonnes / year of graphite concentrate
- Excellent graphite recovery of 96%
- 88% to 95% graphite purity and 40% by weight as premium large or extra-large flake graphite
- 13 year mine life
- Stripping ratio of 5.3:1 overall, starting at 4:1

*Mr Martin McFarlane, President and CEO states, "We are very encouraged by the positive results from the Woxna PEA, which demonstrate a very low capital, low operating cost project that generates good returns for shareholders. Flinders' on-going sales of stockpiled flake graphite has enabled us to establish relationships with consumers, providing a firsthand view of the graphite market demand in Europe. The PEA assumes conservative graphite prices and requires an initial capital investment that is an order of magnitude lower than peer projects."*

1. Unless otherwise noted, all monetary figures presented in this document are in United States dollars.

*"The PEA demonstrates Woxna's strengths in the flake graphite market, which include its full operating permit allowing immediate restart, an established processing plant and related mine infrastructure, and close proximity to the European markets. With Canadian \$12.3 million cash on hand as at July 31 2013, Flinders has a substantial portion of the start-up capital available. We thank GBM and our other consultants for their input into this exciting project."*

The PEA was prepared by GBM Minerals Engineering Consultants of the United Kingdom (Mineral Project Engineering), with contributions from Golder Associates AB of Sweden (Mining Plan), Reed Leyton Consulting (Mineral Resource), Aminpro Metallurgical Services of Chile (Metallurgical Test Work and Process Design), Tailings Consultants Scandinavia (TCS) (Tailings Facility Design) and Woxna Graphite AB/[Flinders Resources Ltd.](#) (Project Owners).

## MINERAL RESOURCES

Woxna Graphite AB, Flinders' 100% owned Swedish subsidiary, owns 4 mining concessions over graphite deposits (Kringel, Gropabo, Mattsmyra and Mansberg - the Woxna Project) located along a 40km trend in central Sweden. The PEA considers only one of these deposits, the Kringel deposit. The partially mined Kringel deposit lies adjacent to the processing plant, tailings dam and related infrastructure, and is fully permitted for an immediate restart. Woxna is currently reprocessing graphite and last mined graphite in 2001.

The Kringel mineral resource estimate was completed by independent geologist, Mr. Geoffrey Reed of Reed Leyton Consultants in April 2012. The resource estimate was recalculated for the PEA using more accurate drill hole collar locations and this has resulted in a moderately increased resource tonnage with higher grades.

The recalculated mineral resource at Kringel is drilled across an area approximately 1200 metres ("m") length by 100m to 200m width. Mineralization was intersected on all drill sections and continues to at least 150m below the surface. Mineralization strikes east-west, and dips between 60 and 80 degrees to the south. Mineralization is present as four main and five smaller mineralized bodies. The thickness in the section of the plane is usually more than 10m, but varies between 5m and more than 15m. Mineralization at Kringel remains open along strike and at depth, and geophysical data suggests potential for significant expansion.

A total of 90 diamond drill holes for 6,581m drilled between 1988 and 2012 were included in the current mineral resource estimation. Hole spacing is on a 50 metre by 50 metre drill pattern. A lower cut-off grade of 7% graphite was used as the base case to calculate the resource. Flinders considers the cut-off grade to be conservative.

Classification	Tonnes (Mt)	Graphite ("Cg")
Measured	1.0	10.7%
Indicated	1.8	10.7%
Total	2.8	10.7%

*Table 1 - Kringel Mineral Resource Estimate (7 % Cg lower cut-off grade)*

Cautionary Note: Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. The PEA is preliminary in nature and there is no certainty that the PEA will be realized.

In addition to the Kringel graphite resource, the Gropabo, Mattsmyra and Mansberg flake graphite deposits contain historic resources. These will continue to be classified as historic resources until Flinders has the opportunity to upgrade them to NI43-101 standards. These historic resources are not included in the economic analysis of the PEA.

## MINING

The PEA estimates for the life of the mine ("LOM"):

- Mining costs of \$240/tonne of graphite; \$25.80/tonne to ROM; \$4.1/tonne mined
- Average graphite grade to ROM 10.3%
- Graphite mineralization mined per year 155,000 tonnes
- Average stripping ratio 5.3:1
- Mine life 13 years

Golder Associates AB (Golder) completed the mining study for this PEA. Pit optimisation, pit design and

mine production schedules were performed using industry standard Gemcom Whittle<sup>®</sup>; 4x optimisation software, Maptek Vulcan<sup>®</sup>; and Gemcom Surpac<sup>®</sup>; mine planning software using only graphite under Measured and Indicated mineral resources categories within the provided resource model. The model produced a quantity of mineralized material and waste tonnes, distributed over the life of the mine. Inferred resources were not used in the mining or economic models produced in the PEA.

The model shell was then used to generate operational pit designs. Two distinct open pits were designed around the Whittle shells. The pits included haulage ramps located on the south wall of the pits.

Source	Mineralised Material (Mt)	Graphite Grade %	Waste (Mt)	Total (Mt)	Stripping Ratio
East Pit	8.9	10.5	3.8	4.8	4.4
West Pit	9.3	11.4	5.7	6.6	6.1
Total	1.8	11.0	9.6	11.4	5.3

Table 2: Materials contained in proposed pits

The pits were then scheduled over the LOM by months for the first year, quarters for years 2 and 3 and then annually for the remainder of the life of the project. The Whittle production schedule was set at 100 000 t/a ROM however, for the purposes of economic modelling, the mine throughput was increased to 155,000 t/a ROM, and therefore the Whittle production schedule was accelerated on a pro rata basis accordingly. The waste to mineralised material ratio increases over time due to the depth of the pits and designed strip ratios until the final years when the benches are predominantly mineralised material.

The Company plans to use contract mining and the operating costs were derived from contractor quotes obtained by Golder.

## PROCESSING & RECOVERY

The PEA estimates:

- Processing costs \$662/tonne of graphite concentrate, \$71/tonne of material processed
- Annual average processing rate 155,000 tonnes
- Annual average production 16,600 tonnes of graphite concentrate
- Average graphite recovery 96%

The Woxna project has an existing graphite processing plant which was last fully operated in 2001. A comprehensive metallurgical test work programme by Aminpro led to a new process flow sheet designed by Aminpro and GBM. This flow sheet predicts a significant improvement in quantity, grade and graphite flake size distribution compared to historic production. Engineering under the PEA proposes utilising as much of the existing facilities and infrastructure as possible in line with the new design, to minimise the initial capital cost and enable production to commence in the shortest possible time.

The process flow sheet incorporates conventional mineral processing technology starting with 2 stage crushing of the run-of-mine material followed by grinding in the existing rod mill. The ground product is treated by flash and rougher flotation to maximise the recovery of large flake. The rougher tailings are treated in a scavenger flotation circuit to maximise recovery. The flash and rougher concentrates then undergo 2 stages of regrinding and cleaner flotation while scavenger concentrate has 3 stages of regrinding and cleaner flotation. Most of the flotation section uses new equipment. Graphite concentrate is dewatered in a new filter press then dried in the existing drier. Screening and packing of graphite product largely utilises existing equipment. A new flake product exceeding 250 micron and 94% purity is produced in addition to the graphite grades produced historically.

The nominal throughput of the plant is 155,000 tonne/year based on the maximum rate that can be milled in the existing rod mill. There is potential to significantly increase throughput by using an existing re-grinding mill as a ball mill in the primary milling circuit along with commensurate expansions of the flotation, drying, screening and packing sections. An expansion of capacity would be considered once markets permit.

## GRAPHITE MARKETS, PRICES & SALES REVENUE

The European graphite market is estimated to consume approximately 20% of the global demand for natural flake graphite of circa 500 000 tonnes/year. Today more than 90% of Europe's graphite demand is imported, mainly from China.

The Woxna graphite project will primarily target the European graphite market due to its proximity to Sweden, short transit times and low transport costs. At 16,600 tonnes/year, the design production volume in the Woxna PEA is deliberately sized so that graphite sales may be readily absorbed into the European market without creating an oversupply situation. Further expansion of the Woxna graphite project is possible and will be evaluated when European market conditions permit.

Graphite prices have risen considerably since the Woxna mine was last operated in 2001. In 2010, following a long period of flat prices, graphite prices, particularly for flake grades, rose rapidly as a result of a surge in demand due to restocking, growth from China and lithium batteries. Simultaneously, the imposition of taxes and permits on Chinese graphite exports restricted supply. Graphite prices peaked in 2012 and eased to today be approximately double the level seen in 2001. Graphite market commentators predict that prices may be approaching the bottom and with signs of economic recovery in the USA and the worst of the recession behind Europe, graphite prices may again strengthen.

Graphite is not an openly traded mineral with prices negotiated privately between customers and producers under spot or term contracts. The sale price used in the PEA was based on graphite prices published by Industrial Minerals magazine ("IM").

It has been common practice to use a 24 month trailing average graphite price in graphite PEAs. The Woxna PEA utilized a 12 month trailing average graphite price so as to exclude the peak price period occurring in 2011/12. Applying Woxna's planned product distribution to IM's 12 month trailing average graphite prices produces an average selling price of \$1,199/tonne for the Woxna PEA. This selling price is considered to be conservative when compared to the 24 month trailing average graphite price of \$1,548/tonne or prices used in other graphite project PEAs.

Size (um)	Purity	Proportion of Production	1 year trailing average (\$/t)	Annual Quantity (t)	Revenue (\$M/year)
+ 250	95 %	18 %	1 824	2 990	5.5
+ 180, - 250	94 %	22 %	1 526	3 650	5.6
+ 100, - 180	92 %	28 %	1 009	4 650	4.7
- 100	88 %	32 %	787	5 310	4.2
Average / Total			1 199	16 600	20.0

Table 3: Woxna average sale price and revenue estimated in the PEA

## INFRASTRUCTURE AND PERMITS

The Woxna mine site is fully permitted and has a partially exploited open pit, waste rock dump areas, mine site roads, processing facility, tailings management facility and clarification ponds. Woxna is connected to public roads and has a sufficient water and electricity supply.

Modest upgrades are contemplated to the infrastructure with the most significant change being the upgrade of the tailings storage facility to both increase its capacity and improve environmental performance to current best practice. As this work has to be performed when the ground is not frozen, this task is the critical item in a re-start schedule.

The Woxna project is fully permitted to extract 100,000 tonnes / annum of mineralised rock for processing. The PEA proposes increasing production to 155,000 tonnes / annum of mineralised rock. The PEA assumes that production can commence under the existing permit (concession) while an increase in capacity is sought. Expanded capacity is assumed in the second year once the permit is obtained.

## CAPITAL & OPERATING COSTS, FINANCIAL ASSUMPTIONS & SENSITIVITY

Item	Cost \$M
Mining	0.2
Processing	6.4
Tailings and Water Management	2.9
Infrastructure	1.0
Direct Capital	10.5
Indirect Capital including Contingency	3.8
Working Capital	2.4
Total	16.7

Table 4: Initial Capital Breakdown

Item	Cost \$/ tonne
Mining	240
Reagent	18
Labour	217
Grinding Media	17
Power	37
G&A	34
Fuel	39
Maintenance	49
Tailings Management	10
Total	662

Table 5: LOM Average operating cost breakdown per tonne graphite concentrate

Item	Value
Plant availability	85%
Swedish Kronor: US \$ exchange rate	6.54
Swedish corporation tax rate	22%
End of mine life rehabilitation cost	\$6.0M
Discount rate	8%
Historical loss and depreciation carry forward	\$8.7M

Table 6: Key financial model assumptions

Item	Base Case		+ 10% Case		-10% Case	
	Value	NPV (\$M)	Value	NPV (\$M)	Value	NPV (\$M)
Graphite Price \$/t	1 199	26.6	1 319	37.3	1 079	15.9
Exchange Rate	6.54	26.6	7.19	32.0	5.89	20.0
Capex \$M	16.7	26.6	18.4	24.8	15.0	28.5
Mining Costs \$/t Cg	240	26.6	264	24.5	216	28.7
Labour Costs \$/t Cg	217	26.6	239	24.7	196	28.6

Table 7: Woxna Project Financial Sensitivity (8% discount rate)

## WOXNA PROJECT LOCATION

The Woxna project is located some 8 kilometres ("km") WNW of the town of Edsbyn in the Kingdom of Sweden, approximately 3.5 hour drive north of Stockholm. Access is via 10 km of all-weather forest road from Highway 301.

To view the figure associated with this press release, please visit the following link:

<http://media3.marketwire.com/docs/flin0903.pdf>

A National Instruments 43-101 Technical Report for the Woxna PEA will be posted on Flinders' website at [www.flindersresources.com](http://www.flindersresources.com) and filed on SEDAR at [www.sedar.com](http://www.sedar.com) within 45 days following this news release.

## Quality Control and Assurance

Chris Stinton, BSc (Hons) (Minerals Engineering), CEng MIMMM, Senior Process Engineer with GBM Minerals Engineering Consultants of the United Kingdom, an independent consultant to the Company, is the qualified person as defined under National Instrument NI 43-10 and has reviewed and approved the PEA disclosure within this release.

Geoffrey Reed of Reed Leyton Consulting completed the verification of data on which the Kringel Resource Estimate was based. This verification included an assessment of QA/QC data, sample preparation and assay methodologies, density data, data inputs and survey data used in the estimate. Data was validated by using field checks, statistical methods and evaluating the Company's protocols.

On behalf of the Board

Martin McFarlane, President and CEO

Certain information set out in this news release may constitute forward-looking statements or forward-looking information within the meaning of applicable securities laws (collectively, "Forward-Looking Statements"). All statements, other than statements of historical fact, that address activities, events or developments that the Company believes, expects or anticipates will or may occur in the future including the PEA are Forward-Looking Statements. Forward-Looking Statements are often, but not always, identified by the use of words such as "seek," "anticipate," "believe," "plan," "estimate," "expect," and "intend" and statements that an event or result "may," "will," "can," "should," "could," or "might" occur or be achieved and other similar expressions. Forward-Looking Statements are based upon the opinions and expectations of the Company based on information currently available to the Company. Forward-Looking Statements are subject to a number of factors, risks and uncertainties that may cause the actual results of the Company to differ materially from those discussed in the Forward-Looking Statements including, among other things, the Company has yet to generate a profit from its activities; there can be no guarantee that the estimates of quantities or qualities of minerals disclosed in the Company's public record will be economically recoverable; uncertainties relating to the availability and costs of financing needed in the future; competition with other companies within the mining industry; the success of the Company is largely dependent upon the performance of its directors and officers and the Company's ability to attract and train key personnel; changes in world metal markets and equity markets beyond the Company's control; the PEA mineral resources are, in the large part, estimates and no assurance can be given that the anticipated tonnages and grades will be achieved or that the indicated level of recovery will be realized; production rates and capital and other costs may vary significantly from estimates; unexpected geological conditions; delays in obtaining or failure to obtain necessary permits and approvals from government authorities; all phases of a mining business present environmental and safety risks and hazards and are subject to environmental and safety regulation, and rehabilitation and restitution costs; the Company does not maintain insurance against environmental risks; and management of the Company have experience in mineral exploration but may lack all or some of the necessary technical training and experience to successfully develop and operate a mine.

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