

Rhyolite Ridge Drilling Update and Maiden Ore Reserve

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Highlights

South Basin Resource area showing drill hole and trench locations. The approximate outline of the Indicated Resource is shown in red. The Resource remains open to the north, south and east. UTM Zone 11 (NAD83)

Ore Reserves

EA starter pit

Project Location

Total Resource including Lithium-Only Mineralisation and Lithium-Boron (Searlesite) Mineralisation

Lithium-Boron (Searlesite) Mineralisation

- Drilling at Rhyolite Ridge, Nevada has intercepted shallow, high-grade lithium and boron that may improve cash flow in the first few years of mining by:
 - Increasing boron grades mined
 - Lowering the strip ratio
- Maiden Ore Reserve containing the equivalent of 160,000 tonnes of lithium carbonate and 1.1 million tonnes of boric acid

SYDNEY, Dec. 21, 2018 - Emerging lithium-boron supplier, [Ioneer Ltd.](#) (Ioneer or the Company) (ASX: INR) today announced preliminary drilling results and a maiden Ore Reserve for its 100%-owned Rhyolite Ridge Lithium-Boron Project (Rhyolite Ridge or the Project) in Nevada, USA.

A drilling program comprising approximately 46 holes is being undertaken to upgrade the current lithium-boron (Searlesite) Mineral Resource at Rhyolite Ridge to the Measured category and extend high-grade, shallow mineralisation to the south of the proposed starter pit.

Initial assays have been received from the first nine holes showing:

- Higher boron grades (circa 30%) than currently modelled for the area planned to be mined during the first few years; and
- Extension to the south of shallow, high-grade lithium-boron mineralisation.

The Company released its Rhyolite Ridge Pre-Feasibility Study (PFS) on 23 October 2018. The PFS

included a two-stage mine development – a starter pit covering the first seven years and an expanded pit covering a mine life of over 30 years.

A maiden Ore Reserve has been estimated for the first stage of mine development:

- 15.8 million tonnes at 1,900ppm lithium (equivalent to 1.0% lithium carbonate) and 12,200ppm boron (equivalent to 7.0% boric acid).
- Containing the equivalent of 160,000 tonnes of lithium carbonate and 1.1 million tonnes of boric acid.

The Indicated Mineral Resource comprises 950,000 tonnes of lithium carbonate and 7.5 million tonnes of boric acid (inclusive of the Ore Reserve).

Managing Director of Ioneer, Mr Bernard Rowe, commented:

“These drilling results extend and further confirm high-grade shallow mineralisation at the Rhyolite Ridge Lithium-Boron Project. The strong boron grades within and to the south of the proposed starter pit are likely to provide stronger cash flow in the early years of the Project.

“With the aim of upgrading the current Mineral Resource and extending the shallow lithium-boron mineralisation further to the south, the three rigs currently on site will continue drilling into 2019.

“This work is a fundamental part of the Rhyolite Ridge Definitive Feasibility Study (DFS), which Fluor Corporation has recently commenced.

“The recently completed PFS demonstrated the Project’s scale, long life and potential to become the lowest cost lithium producer in the world as well as the largest lithium producer in the United States with annual production of 20,200 tonnes of lithium carbonate.”

The highly experienced Fluor team has commenced work on the DFS which is scheduled for completion in Q3 2019. The Rhyolite Ridge Mineral Resources and Ore Reserves are planned to be updated during 2019 as part of the DFS process.

Drilling

The 2018-19 drilling program was designed to upgrade and extend the high-grade portion (Searlesite lithium-boron zone) of the current Indicated and Inferred Mineral Resource of 121.4 million tonnes at 1,740ppm lithium (Li) and 1.26% boron (B).

The current Mineral Resource:

- underlies an area approximately 1.2km by 2.3km (2.6km²);
- starts from surface; and
- remains open to the south, east and north.

With the gently dipping Searlesite lithium-boron zone averaging 20m in thickness, extensions to the current resource are likely to add significant near-surface tonnes to the south.

Thirty core holes in the 2018-19 drilling program have been completed to date and assay results from nine holes have been received.

The boron grades in the first three years of the PFS mine plan average 1.03% boron (equivalent to 5.9% boric acid). Recent drilling results are likely to materially increase the boric acid grade in the first few years of the starter pit. Each 1% increase in the boric acid grade would provide a revenue increase of approximately US\$6/tonne of ore processed (at a boric acid sale price of US\$700/tonne). At the PFS base case processing

rate of 2.6 million tonnes per annum, each 1% increase in the boric acid grade equates to an additional US\$15.6 million of revenue per annum.

The highest lithium grades in the current resource are scheduled to be mined in the early years of the PFS mine plan. The recent drilling has confirmed these strong lithium grades and intercepted near-surface extensions to the south.

Drill hole SBH-58 was drilled to the south of the current Mineral Resource and intercepted 21.3m at 1.08% lithium carbonate and 8.0% boric acid.

Further extending shallow lithium-boron mineralisation to the south has the potential to reduce the strip ratio in the early years of mining. The mining rate in the early years of the project may also be reduced by deferring the need to pre-strip overburden in advance of mining deeper ore.

The table below summarises the assays received to date for the lithium-boron (Searlesite) mineralisation.

Hole Number	Dip/ Azimuth (°)	From (m)	Intercept (m)	ETW (m)	VD (m)	Li (ppm)	Li ₂ CO ₃ (%)	B (%)	H ₃ BO ₃ (%)
Infill holes within Starter Pit									
SBH-43	-45/0	68.6	10.7	10.6	48.5	2,206	1.17	1.31	7.5
SBH-44*	-45/270	97.5	19.8	14.1	68.9	2,014	1.07	1.36	7.8
SBH-45*	-45/180	112.8	42.7	30.2	79.8	2,036	1.08	1.65	9.4
SBH-48*	-60/180	77.7	30.5	26.8	67.3	2,214	1.18	1.47	8.4
SBH-56*	-60/270	108.2	24.4	24.4	93.7	2,264	1.20	1.55	8.9
SBH-57*	-60/225	106.7	33.5	33.5	92.4	2,109	1.12	1.60	9.1
Infill holes outside of Starter Pit									
SBH-55*	-45/0	268.2	32.0	22.7	189.6	1,754	0.93	1.82	10.4
SBH-59*	-45/45	262.1	22.9	19.9	185.3	1,771	0.94	1.99	11.4
Step-out holes outside of current Resource									
SBH-58	-45/180	149.4	21.3	18.5	105.6	2,035	1.08	1.39	8.0

* Further assays for these holes are pending.

Notes: Estimated true widths (ETW) are based on dips measured in core and geological interpretation. Vertical depth (VD) is depth from surface to top of lithium-boron mineralisation. Intersections have been calculated by applying a 0.5% B cut-off. Lithium content expressed in ppm or % Li can be converted into Lithium Carbonate (Li₂CO₃) by multiplying by 5.32 (e.g. – 2,000ppm Li is equivalent to 1.06% LCE). Boron can be converted into boric acid (H₃BO₃) by multiplying by 5.72 (e.g. 1.81% boron is equivalent to 10.36% boric acid).

Drilling has generally intercepted the lithium-boron zone within 100m of surface. Only SBH-55 and SBH-59 intercepted the lithium-boron mineralisation deeper, due to being located down-dip to the east and outside of the starter pit.

The plan linked below shows the outline of the current Mineral Resource and the location of the hole collars for the current drilling program.

<http://www.globenewswire.com/NewsRoom/AttachmentNg/cbdd3279-7490-48b0-844d-36c216541a8b>

Ore Reserves

RPMGlobal USA Inc. (RPM) was engaged by Ioneer to undertake the mining study for the PFS and to

estimate the Ore Reserve.

A conservative approach was taken to the reporting of Ore Reserves at the PFS stage of the Project. To expedite the Project's development, the operation and associated facilities have been constrained to a maximum surface disturbance of 640 acres or one square mile. This allows the project to be considered for permitting under an Environmental Assessment (EA). Subsequently, a detailed schedule has been prepared for mining an initial portion of the deposit, referred to as the starter pit. This constrained starter pit is scheduled to be mined over approximately seven years; however, the mine life is likely to exceed 30 years when removing this constraint and with the necessary permitting approvals. A mining schedule for the current Indicated Resource outside of the starter pit has not yet been prepared at a sufficient level of detail to enable conversion to an Ore Reserve. Thus, the initial Ore Reserves have been estimated only within the area targeted for the starter pit.

The PFS was completed and released in October 2018, however the supporting documentation for the Ore Reserve estimate was only recently finalised. Key production parameters in the PFS are to:

- Process ore at a rate of 2.6 million tonnes per annum over a 30-year period; and
- Produce 20,200 tonnes of lithium carbonate and 173,000 tonnes of boric acid per annum.

The initial Ore Reserve is estimated to total 15.8 million tonnes at 1,900ppm lithium (equivalent to 1.0% lithium carbonate) and 12,200ppm boron (equivalent to 7.0% boric acid).

A table accompanying this announcement is available at

<http://www.globenewswire.com/NewsRoom/AttachmentNg/c9a2a041-ff6f-4dee-b1a1-5a7b5e8d9da5>

Notes:

1. *Tonnages are metric tonnes as contained within the pit design.*
2. *Figures reported are rounded which may result in small tabulation errors.*
3. *Based on ownership at the latest applicable date (100%).*
4. *Marginal cut-off grade defined by a combination of block profitability and boron grade >5,000 ppm.*
5. *Conversion factors - lithium (ppm) was converted into Li_2CO_3 (%) by multiplying by 5.32 and boron (ppm) was converted into H_3BO_3 (%) by multiplying by 5.72.*

The material moved in the starter quarry totals 107.4 million tonnes, comprised of:

- 15.8 million tonnes of ore; and
- 91.6 million tonnes of sub-grade rock (waste and lithium-only mineralisation stockpiled).

This provides a strip ratio for the starter quarry of 5.8:1.

Summary of Ore Reserve Estimate Parameters and Reporting Criteria

The Ore Reserve is based on the Indicated Resources in the October 2018 Mineral Resource estimate at 1,050ppm lithium and 0.5% boron cut-off, released by Ioneer on 23 October 2018. No value was allocated to Inferred Resources which were treated as waste rock.

The host rock for the lithium-boron (searlesite) zone contains low amounts of clay with typically less than 20% carbonate minerals and more than 40% of the sodium borosilicate mineral searlesite. Metallurgical testwork has led to the PFS being predicated on processing the lithium-boron (searlesite) ore and stockpiling the lithium-only mineralisation. For the purposes of the PFS, the process plant feed is mineralisation above a cut-off grade of 0.5% boron.

Study Status

- The outcomes of the Rhyolite Ridge PFS form the basis of the Modifying Factors applied for the Ore Reserve estimate.

Cut-off Parameters

- An economic cut-off and a processing cut-off grade were applied. A cut-off was applied to the boron grade to discern the difference between high clay lithium-bearing minerals and material suitable for processing (predominantly searlesite).
- A combination of a net block profit value and a cut-off grade of 0.5% boron was applied to define the process plant feed. Material that was found to have a positive margin and was above the cut-off is defined as ore.

Mining Factors

- Open cut mine with 5m bench heights.
- Selective mining unit (SMU) of 6.25m (east-west) by 6.25m (north-south) by 5m (height) resulted in a global loss of 4% and global dilution of 9%.
- The geometry and gradational nature of the deposit resulted in the mineralisation diluting the "ore zone"; being at similar or slightly less grade than the ore.

Metallurgical Factors

- Overall recoveries of 81.8% for lithium and 83.5% for boron

Environment

- A Plan of Operations is to be submitted for the Project to be considered for permitting under an Environmental Assessment approval process.

Costs, Revenue Factors and Economics

- Project operating costs (net of boric acid credit) forecast to average US\$1,796/tonne of lithium carbonate, which would make Rhyolite Ridge the world's lowest cost producer of lithium.
- Project initial capital expenditure of US\$600 million.
- Sale prices of US\$10,000/tonne for lithium carbonate and US\$700/tonne for boric acid have been used for PFS mine planning.
- PFS cash flows for the EA Period (first seven years) indicate that the Project has an IRR of 12% and a payback period of 5 years. As it is likely that the Project will continue to operate beyond the EA period, the Project is estimated to have an IRR of 28% for the forecast life-of-mine in the PFS.

The location of the EA starter pit is illustrated in the plan linked below.

<http://www.globenewswire.com/NewsRoom/AttachmentNg/9622f34c-dd33-432c-a0e7-3537a66e505a>

The Rhyolite Ridge Mineral Resources and Ore Reserves are planned to be updated during 2019 as part of the DFS process.

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About ioneer

The Company's 100%-owned Rhyolite Ridge Lithium-Boron Project in Nevada, USA provides a substantial foundation for ioneer to become a responsible and profitable producer of the materials necessary

for a sustainable future.

The Rhyolite Ridge Pre-Feasibility Study demonstrated the Project's scale, long life and potential to become the lowest cost lithium producer in the world as well as the largest lithium producer in the United States.

With forecast annual production of 20,200 tonnes lithium carbonate and 173,000 tonnes boric acid, Rhyolite Ridge will be a globally significant producer of both lithium and boron.

Lithium and boron are both used in a diverse range of everyday items and innovative technologies that are essential to modern life and emerging clean technologies such as electric vehicles.

Competent Persons Statement

The information in this report that relates to Exploration Results is based on information compiled by Bernard Rowe, a Competent Person who is a Member of the Australian Institute of Geoscientists. Bernard Rowe is a shareholder, employee and Managing Director of [loneer Ltd](#). Mr Rowe has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' (JORC Code 2012). Bernard Rowe consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

In respect of Mineral Resources referred to in this report and previously reported by the Company in accordance with JORC Code 2012, the Company confirms that it is not aware of any new information or data that materially affects the information included in the public report titled 'Updated Rhyolite Ridge Mineral Resource Statement' dated 23 October 2018 and released on ASX. Further information regarding the Mineral Resource estimate can be found in that report. All material assumptions and technical parameters underpinning the estimates in the report continue to apply and have not materially changed.

The information in this report that relates to Ore Reserves is based on information compiled and reviewed by Mr Igor Bojanic, who is a Fellow of the Australasian Institute of Mining and Metallurgy, and is an employee of RPM Advisory Services Pty Limited. Mr Igor Bojanic has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which, he has undertaken to qualify as a Competent Person, as defined in JORC Code 2012.

In respect of production targets referred to in this report and previously disclosed, the Company confirms that it is not aware of any new information or data that materially affects the information included in the public report titled 'Outstanding Results from Rhyolite Ridge Pre-Feasibility' dated 23 October 2018. Further information regarding the production estimates can be found in that report. All material assumptions and technical parameters underpinning the estimates in the report continue to apply and have not materially changed.

Appendix 1 – Location of Drill Holes

Hole Number	Northing	Easting	Elevation (m)	Length (m)	Dip (°)	Azimuth (°)
SBH-43	4,184,601	424,159	1,859	210	-45	0
SBH-44	4,184,601	424,159	1,859	146	-45	270
SBH-45	4,184,601	424,159	1,859	165	-45	180
SBH-48	4,184,582	424,316	1,875	121	-60	180
SBH-55	4,184,203	424,527	1,896	329	-45	0
SBH-56	4,184,203	424,527	1,896	155	-60	270
SBH-57	4,184,203	424,527	1,896	159	-60	225
SBH-58	4,184,203	424,527	1,896	303	-45	180
SBH-59	4,184,203	424,527	1,896	305	-45	45

Note: Coordinates are in UTM Zone 11 (NAD27).

A map of the project location is available at
<http://www.globenewswire.com/NewsRoom/AttachmentNg/6778330d-8835-41b5-a330-7b7c3388fabb>

Appendix 2 – Mineral Resource Estimates

October 2018 Mineral Resource Estimate (1,050ppm Li Cut-off)

Total Resource including Lithium-Only Mineralisation and
Lithium-Boron (Searlesite) Mineralisation

A table accompanying this announcement is available at
<http://www.globenewswire.com/NewsRoom/AttachmentNg/59f42ac2-2dcc-4219-964e-41de31905a6c>

October 2018 Mineral Resource Estimate (1,050ppm Li & 0.5% B Cut-off Cut-off)

Lithium-Boron (Searlesite) Mineralisation

A table accompanying this announcement is available at
<http://www.globenewswire.com/NewsRoom/AttachmentNg/59064ab3-3ff4-46fa-a612-6ed2fe068a99>

Note: Mineral Resources quoted in this report are inclusive of Ore Reserves.

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