



AVALON

ADVANCED MATERIALS INC.

An Emerging Canadian Producer of Lithium

March 20, 2017

Donald S. Bubar, President & CEO

TSX:AVL

OTCQX:AVLNF



Safe Harbour Statement

Forward looking information

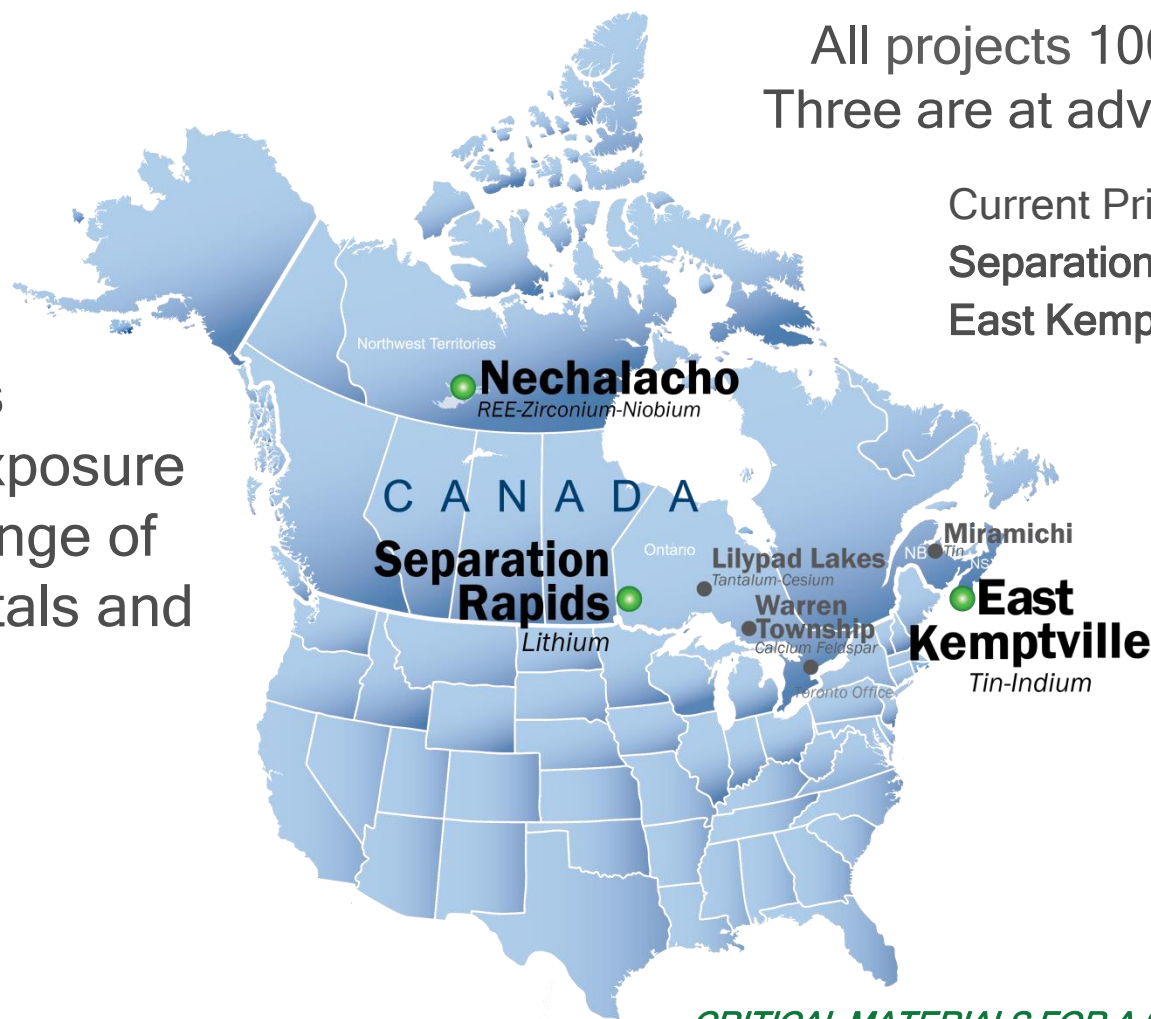
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Specialty Metals and Minerals *Project Pipeline*

Avalon offers
diversified exposure
to a broad range of
specialty metals and
minerals

All projects 100% owned
Three are at advanced stage

Current Priorities are:
Separation Rapids Lithium
East Kemptville Tin-Indium



Capital Structure

(as at March 13, 2017)

Canada - TSX: AVL	
United States - OTCQX: AVLNF	
Frankfurt- OU5	
Shares Outstanding	Common: 189,344,660 Preferred: 500
Fully Diluted	219.7 million (19.1 mill. wts @avg. \$0.39, 11.2 mill. opts @avg. \$0.55, various expiry dates over 5 years)
Market Capitalization	CAD\$34 million (S/O @ \$0.18)
Recent Price Range	CAD\$0.16 - \$0.20
52 Week High / Low	CAD\$0.33 - \$0.13
Cash Reserves	CAD\$3.0 million
Shareholders	Insiders (15%), Institutional (15%) Retail (70%)
Institutional Investors	UBS, CPP, Hancock, Lind, Marquest & others
Analyst Coverage	Secutor, RB Milestone Group

Nemaska Lithium

A lithium equity comparable

**Nemaska Lithium
(NMX-TSX)**
FS Complete. Pilot Plant
stage. Prod. in 2018
Market Cap: CAD \$420m

*Both companies are
developing hard rock
deposits in Canada*



Avalon Advanced Materials
PEA complete. Pilot plant in
2018. Prod. in 2020-21
Market Cap: CAD \$34m



A strategic approach to building new lithium production through...

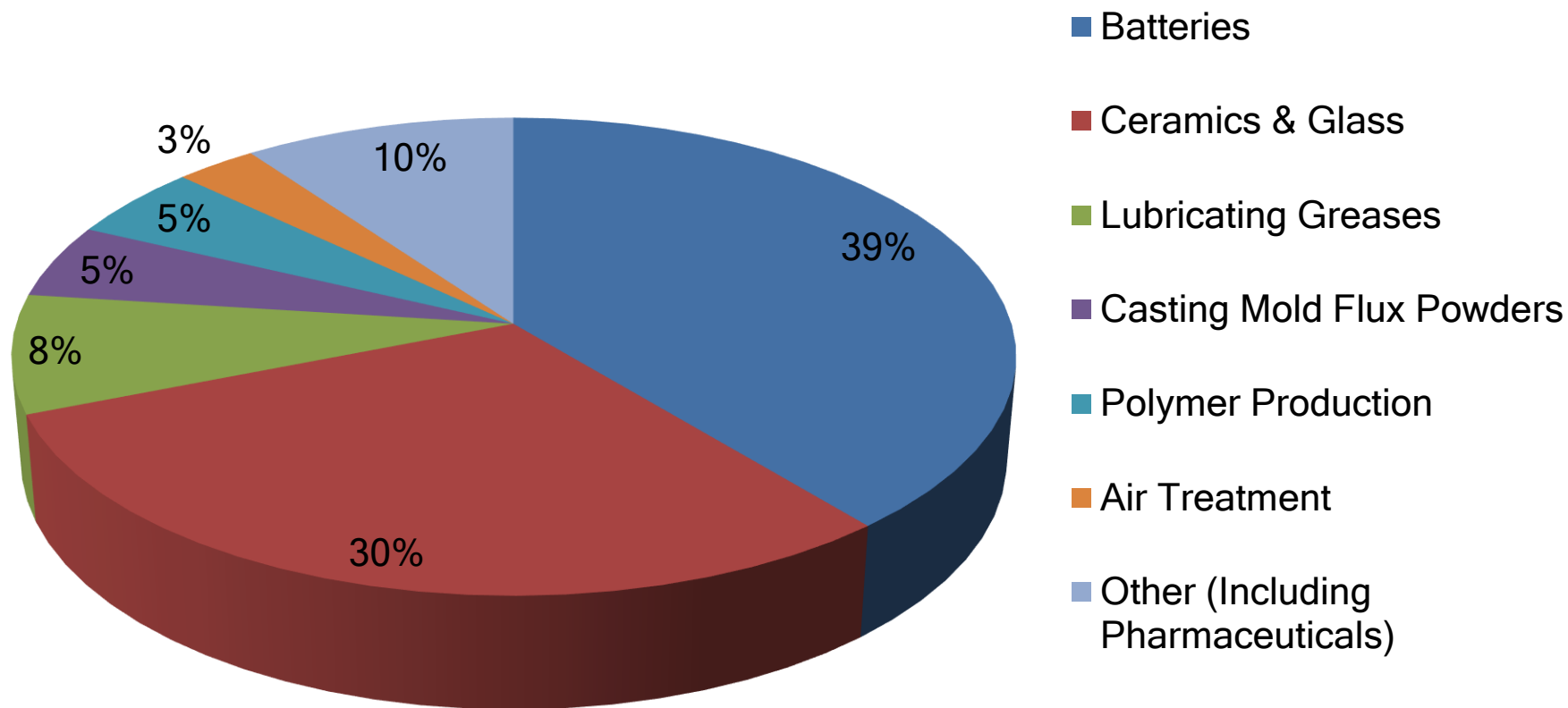
- **Product design:** working with our customers to create the best quality products to serve their needs at attractive prices
- **Innovative metallurgy:** Designing an efficient process flowsheet to produce the best quality product at the lowest cost
- **Staged development:** Start with a demonstration plant to prove process and scale up after products specs are optimized
- **Minimizing environmental impacts:** recycling of reagents and creating markets for by-products
- **Sustainable development:** Utilize renewable energy and maximize use of the ore body





Lithium Demand by Application:

Batteries now dominate but ceramics and glass remain a major market



Source: USGS Jan 2017

Lithium Chemicals for Batteries:

where the growth is

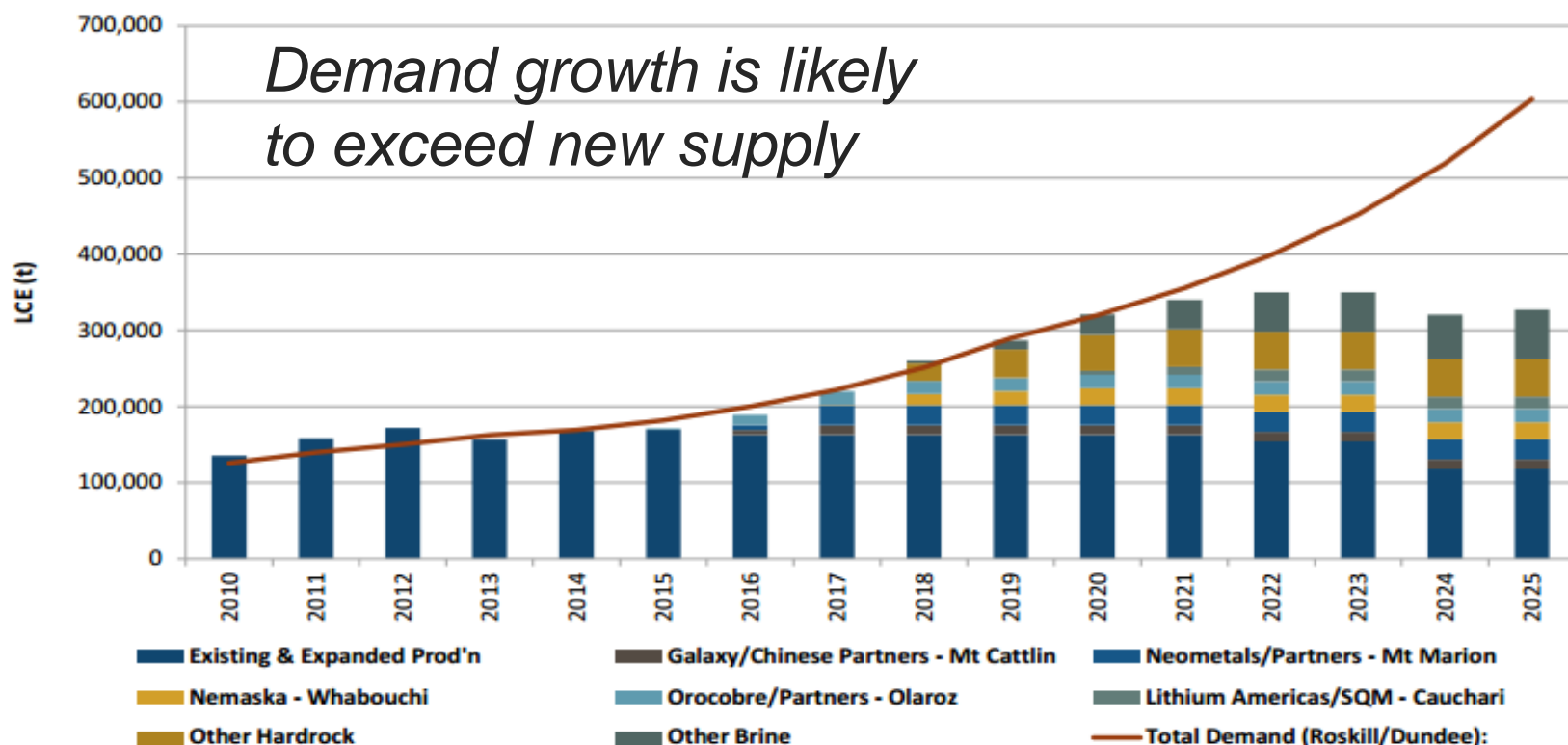
- Rechargeable battery cathodes are the main demand for lithium chemicals
 - **Lithium carbonate** (traditional product)
 - **Lithium hydroxide** (new chemistries)
 - **Lithium metal** (solid state batteries)
 - Demand for increasing purities (>99.9%) to achieve optimal battery performance
- By 2020, rechargeable batteries will account for +/- 50% of total lithium demand (currently 35%)
- Total lithium demand is forecast to increase at 10-40% CAGR creating new lithium demand for 500k - 900k LCE over 10 years
- *Forecasts mostly based on EV uptake, not including stationary energy storage systems*



Tesla's Home of the future: *Solar roof and Powerwall storage*



A global supply-demand imbalance is looming

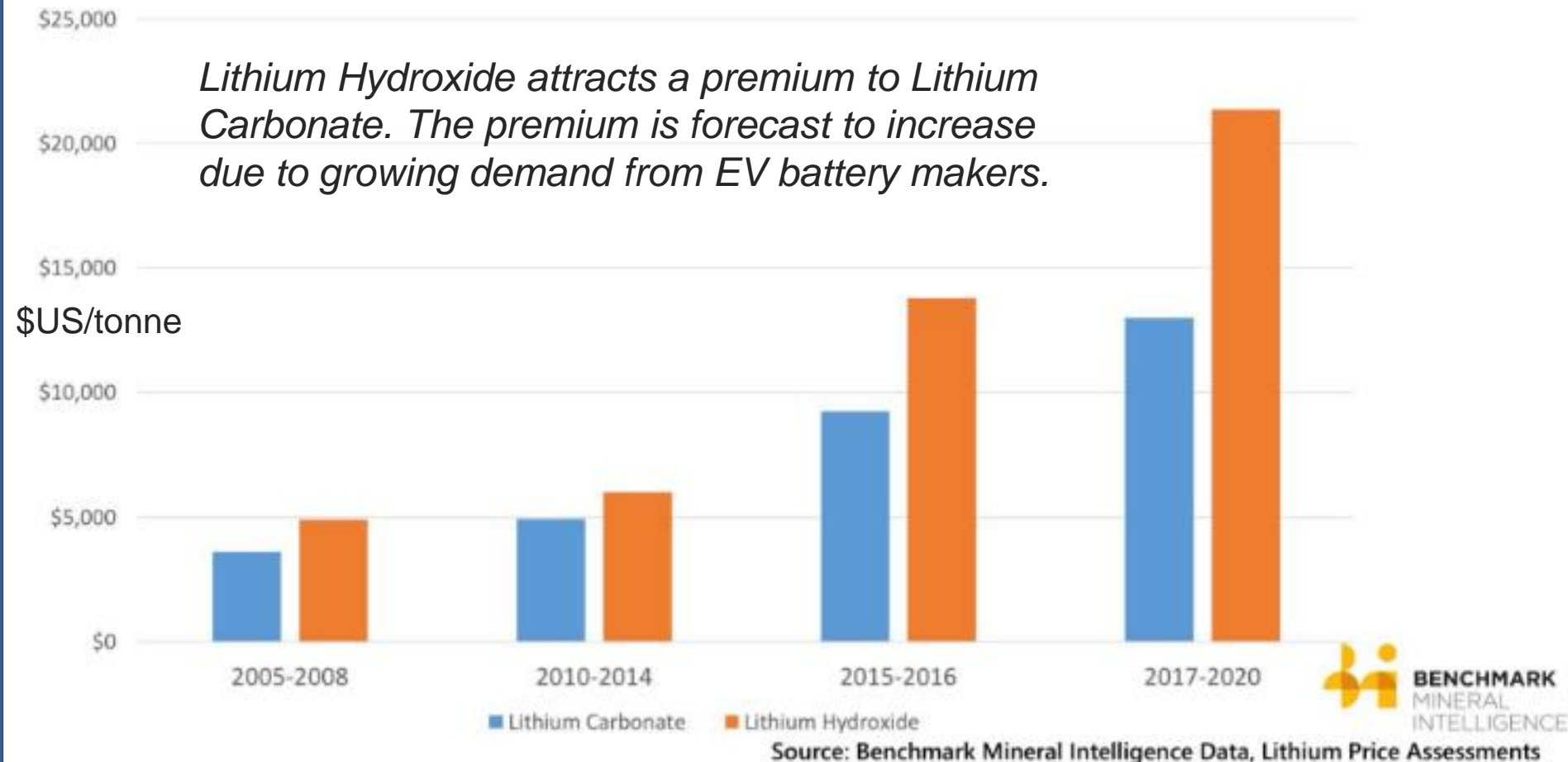


Source: Dundee Capital Markets, Roskill

Supply forecasts base on Producer estimates but delays are likely

...creating upward pressure on lithium chemical prices

Lithium Hydroxide attracts a premium to Lithium Carbonate. The premium is forecast to increase due to growing demand from EV battery makers.



Separation Rapids Lithium

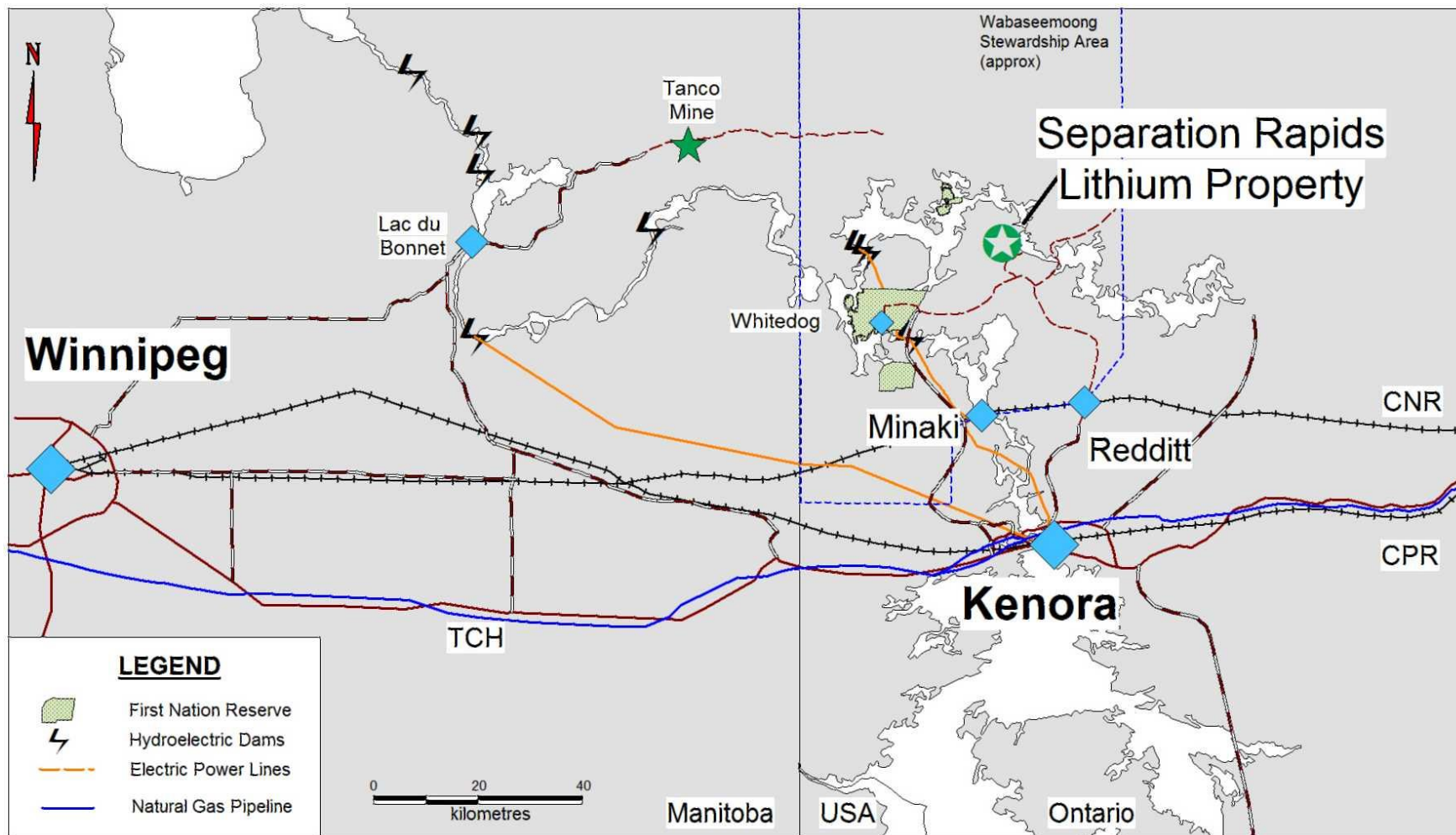
*A large lithium pegmatite deposit discovered in 1996 enriched in **petalite** and lepidolite*

Large, high quality resource amenable to open pit mining

- Secure Tenure under a Mining Lease
- 100% Ownership
- Road accessible, proximity to clean hydro-power
- Strong community support including First Nations
- No toxic waste materials

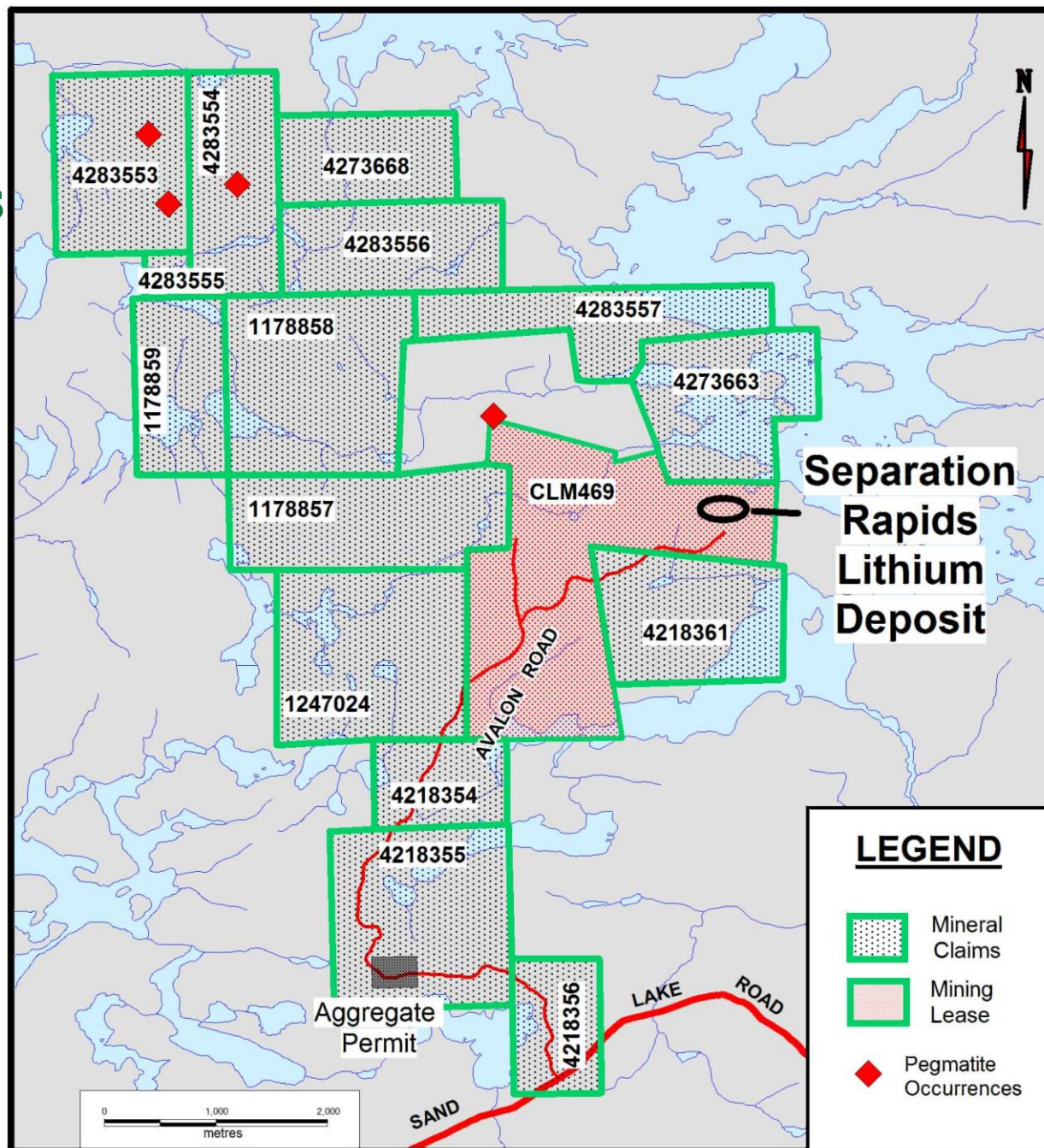


Separation Rapids is located close to transportation and power infrastructure



Separation Rapids Mineral Tenure

*Including new claims
acquired from GoldON.
These provide additional
resource potential*



Separation Rapids 2015-16 Work program: *making lithium battery materials from petalite*



- \$1.8 million program in fiscal 2016
- Pilot plant on 30 tonne ore sample to produce one tonne of high purity petalite concentrate
- Product quality confirmed for glass-ceramics
- Potential by-products identified (feldspar)
- Market studies for battery industry completed
- Hydromet process to produce high purity (99.9%) **lithium hydroxide** product from petalite developed.
- Positive battery materials PEA prepared on petalite resource



2016 PEA Model (petalite only scenario) *confirmed low cost to make lithium hydroxide*

- Assumes open pit mining at 950,000 tpy with concentrator at site to recover petalite and hydromet plant in Kenora to make Li hydroxide
- Based on 9.63 million tonne resource @1.30%Li₂O
- Min. 10 year life lithium, 20 years for feldspars
- 14,500 tpy lithium hydroxide & 100,000 tpy feldspars
- Prices: US\$11,000/tonne LiOH and US\$170/tonne feldspar
- **Average lithium hydroxide production cost: US\$4900/tonne**
- IRR: 19% pre-tax, 16% after-tax
- NPV (8% Discount rate): C\$343 million pre-tax, C\$228 million after-tax
- CAPEX: C\$514 million (including C\$93 million in contingencies and sustaining capital) F/X US\$1.00 = CAD\$1.30

Note the PEA is preliminary, includes inferred mineral resources considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves. There is no certainty that the preliminary economic assessment will be realized.

Separation Rapids

Lithium Testwork Update

Lithium Hydroxide work

- Crystals sent to NRC for evaluation as battery feed- 80% IRAP funding. Results pending.

Lithium Metal test work

- Successful chlorination of petalite to produce lithium metal by electro-refining



Lepidico work on Lepidolite

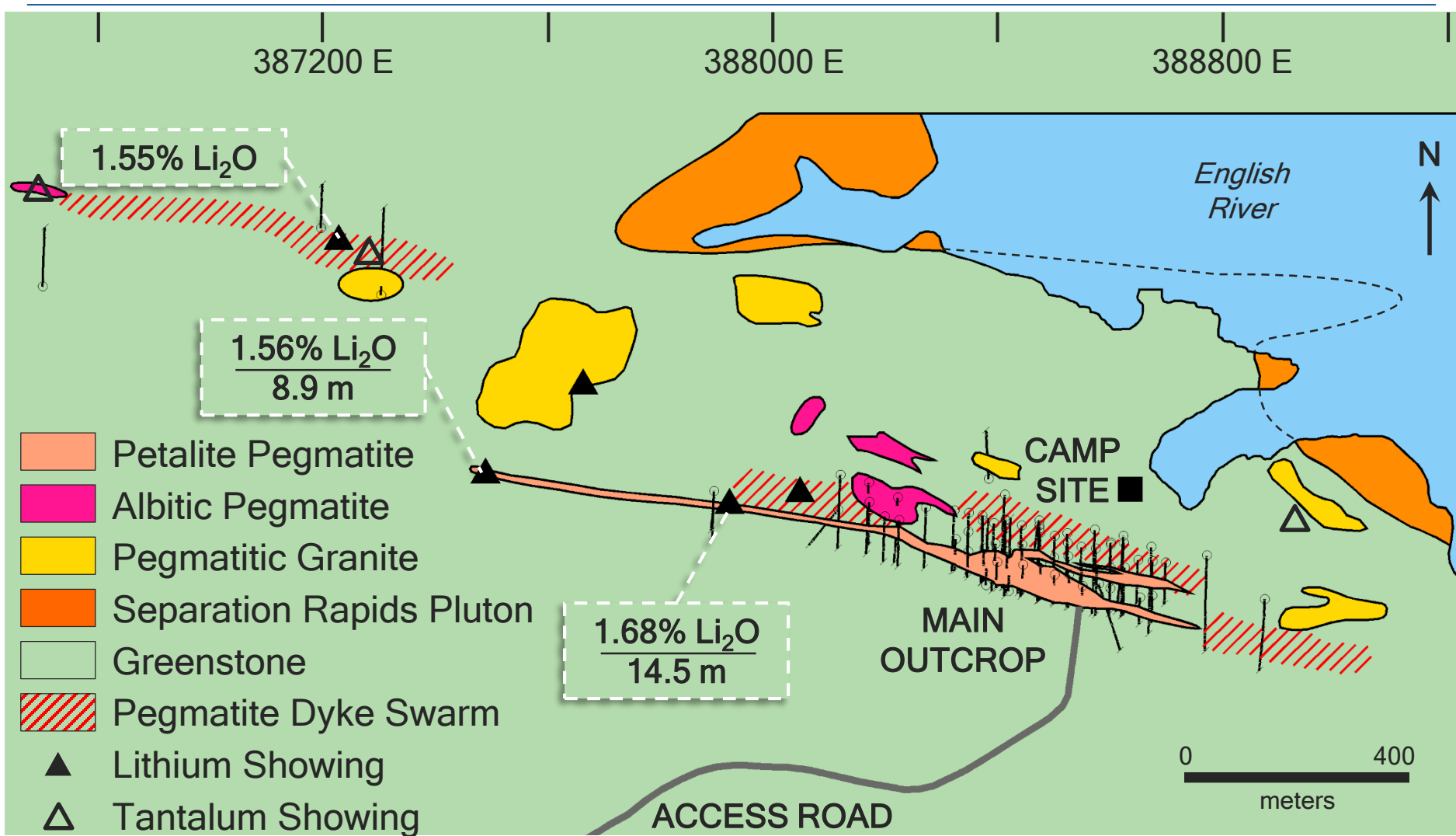
- Tested recovery process on sample of lepidolite ore from Separation Rapids
- Flotation testing produced 96% Li recovery into 40% of mass
- Concentrate = 2.1% Li (4.5% Li_2O), 3.3% Rb, 6% K, 250ppm Ta, 518ppm Cs)
- Treatment of this concentrate using Lepidico's L-Max leaching process produced a 99.88% pure lithium carbonate product
- Process also recovered 98% of the cesium and rubidium

Potential Lithium Product Suite

- **Petalite concentrate** for the glass-ceramics industry
- **Lithium hydroxide** from petalite using Avalon's process
- **Lithium carbonate** from petalite via conventional technology
- **Lithium metal** from petalite using a chlorination process
- **Lepidolite concentrate** for production of lithium chemicals
- **Lithium carbonate** from lepidolite using Australian process
- **Lithium chemicals** from lepidolite using other processes, with by-product **rubidium** and **cesium** chemicals production
- Other by-products include **feldspar** and **tantalum**

Further testwork and economic analyses to be conducted over next 6 months to identify optimal product mix and demo plant design data

Separation Rapids Property Geology & Exploration Targets



Separation Rapids Project

Future Milestones

2017-18

- Identify customers for Li chemical products
- Piloting of lithium chemicals process
- Continue glass-ceramics market development
- Drilling to increase mineral resources
- Complete new Technical Report
- **Establish 50,000 tpy demonstration plant to define products and markets and serve as interim small-scale production facility**
- Complete engineering & Feasibility Study

2019-20: Production scale-up

2020-21: Begin full scale commercial operations



Please note that the projected timeline is reliant on a positive Feasibility Study as well as offtake commitments, project financing, and timely receipt of all permits and environmental approvals.

Experienced Management Team and Board of Directors

MANAGEMENT

- Donald S. Bubar, P.Geo.
President & CEO
- Jim Andersen, CA, CPA
V.P. Finance, CFO & Corporate Secretary
- David Marsh, FAusIMM (CP)
Senior V.P. Metallurgy & Technology Development
- Bill Mercer, Ph.D., P.Geo.
V.P. Exploration
- Pierre Neatby, BA Econ
V.P. Sales and Marketing
- Mark Wiseman, B.Sc., MBA
V.P. Sustainability
- Cindy Hu, CA, CPA
Controller
- Brian St. Louis, BA, G.Dip Public Policy
Manager, Government Affairs

- Melanie Smith, LLB
Senior Legal Counsel
- Ron Malashewski, P.Eng (AB)
Manager, Investor Relations

BOARD OF DIRECTORS

- Brian D. MacEachen, C.A.
Chairman and Audit Committee Chair
- Donald S. Bubar, P.Geo. *CEO*
- Alan Ferry, CFA
Governance/Compensation Committee Chair
- Kenneth Thomas, Ph.D., P. Eng.
- Jane Pagel, M.Sc.



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Separation Rapids Mineral Resources

using 0.6% Li₂O Cut-off Grade (October 21, 2016)

Based on 1998-2001 drilling for Petalite & Tantalum

Class	Tonnes	Li ₂ O	Total Feldspar	Ta ₂ O ₅	Cs ₂ O	Rb ₂ O
	(Mt)	(%)	(%)	(%)	(%)	(%)
Measured	4.03	1.32	39	0.006	0.017	0.343
Indicated	3.97	1.26	39	0.007	0.025	0.362
Measured plus Indicated	8.00	1.29	39	0.006	0.021	0.352
Inferred	1.63	1.42	39	0.008	0.016	0.360

Notes:

1. CIM Definition Standards for Mineral Resources and Mineral Reserves, 10 May, 2014 were followed for this mineral resource estimate.
2. The Qualified Person for this mineral resource is David Trueman, Ph.D., P.Geo. (MB).
3. The resource estimate is constrained by a 3D geologic model of the mineralized material delineated in drilling programs completed in 1998-2001 for petalite.
4. Assay intervals for Li₂O, Ta₂O₅, Cs₂O and Rb₂O were interpolated using the Inverse Distance Weighted method to create a 3D block model.
5. The resource cut-off grade of 0.6% Li₂O was chosen to capture mineralization that is potentially amenable to mining, mineral concentration and off-site processing.
6. Li, Ta, Cs and Rb were originally analysed on all samples at XRAL Laboratory (Thunder Bay, Ontario) utilizing ICP (Li, Ta) and AA (Rb and Cs) and check analyses completed at CHEMEX Laboratory (Don Mills, Ontario) utilizing AA (Li) and ICP (Rb).
7. As well as due diligence to verify historic data, Avalon completed additional check analyses of historic drill core in 2016 utilizing ALS Laboratory (Vancouver) with a combination of fusion and ICP (method CCP-PKG01). Included as QAQC procedures was a lithium rock standard within the check analysis batches.
8. Total Feldspar is the total of potassium feldspar (microcline) and sodium feldspar (albite) and the value reflects the mean and median value of all samples with quantitative mineralogy determined.
9. The percentage Total Feldspar is based on analyses completed utilizing X-Ray Diffraction and Qemscan instrumentation on samples representing all lithological subunits of the mineral deposit. These analyses were completed at Carleton University in 1999 (XRD) and ALS Global Laboratory in 2016 (XRD and Qemscan, Kamloops). This is supported by quantitative mineralogy of metallurgical samples determined at SGS (Lakefield) and Anzplan (Germany)
10. All figures are rounded to reflect the relative accuracy of the estimates. Summation of individual columns may not add-up due to rounding.
11. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability. There is no certainty that all or any part of the Mineral Resource will be converted into Mineral Reserves.

Simplified Process Flowsheet

Pegmatite Ore Feed- Unit 6

A,B,C

Petalite
Lepidolite
Li-muscovite
Spodumene
Rb-K'spar
Albite
Quartz

Pegmatite Ore Feed- Unit 6D

Lepidolite
Li-muscovite
Spodumene
Rb-K'spar
Albite
Quartz

