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**43-101 TECHNICAL REPORT AND RESOURCE ESTIMATE ON THE  
PIVERT-ROSE PROPERTY  
(according to Regulation 43-101 and Form 43-101F1)**

**Project Location**

Latitude: 52° 01' North ; Longitude: -76° 09' West  
NTS 32N/16, 33C/01 and 33C/02  
Province of Québec, Canada

**Prepared for**

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## 1.0 SUMMARY

InnovExplo Inc ("InnovExplo") was commissioned in June 2011 by Jean-Sébastien Lavallée, President of Critical Elements Corporation ("Critical Elements" or "the issuer") to complete a resource estimate and a Technical Report ("the report"), compliant with Regulation 43-101 and Form 43-101F1, on the Pivert-Rose property ("the property") in Québec, Canada. The issuer, Critical Elements Corporation, is a Canadian exploration company listed on the TSX Venture Exchange under the symbol CRE. InnovExplo is an independent Consulting Firm in Mines and Exploration based in Val-d'Or (Québec). The report was prepared for the purpose of providing an updated resource estimate for the Rose deposit on the Pivert-Rose property, as well as recommendations for an exploration program.

The authors, Pierre-Luc Richard, B.Sc., Geo. (OGQ#1119) and Carl Pelletier, B.Sc., Geo. (OGQ#384), completed the report and have reviewed previous surveys and data, and all other relevant information judged adequate and reliable. The authors are Qualified and Independent Persons as defined by Regulation 43-101. The authors performed the previous resource estimate on the Rose deposit. One of the authors, Pierre-Luc Richard, B.Sc., Geo. (OGQ#1119), visited the property on July 13 and 14, 2010 and on July 10, 2011, and also visited the core shack for the Pivert-Rose property on July 12, 2010 and July 21, 2011. On these occasions, he was able to review core intervals, outcrops, geological maps, and drill sites. During this time, the same author was also able to study the mineralization and QA/QC procedures, and to hold several discussions with Jean-Sébastien Lavallée and/or other available representatives of Critical Elements. Both authors have a good knowledge of exploration models, mining, and structural geology.

The southeast boundary of the Pivert-Rose property is approximately 30 km north of the community of Nemiscau in the James Bay area of the province of Québec. The Pivert-Rose property comprises 636 active mining titles covering a total of 33,307 ha. The claims are grouped into five blocks (A to E) of contiguous or partially contiguous claims.

The Pivert-Rose property is located in the northeast part of the Archean Superior Province of the Canadian Shield craton, more precisely within the southern portion of the Middle and Lower Eastmain Greenstone Belt (MLEGB). Although the MLEGB displays a wide variety of lithologies, most of the claims constituting the Pivert-Rose property are underlain by intrusives. Based on the regional geological interpretation of Moukhsil et al. (2007), most of the property is underlain by syntectonic intrusions (2,710 to 2,697 Ma). Late- to post-tectonic intrusions (<2,697 Ma) are also present to a lesser extent.

Mineralization recognized to date on the Pivert-Rose property includes rare-element LCT-type pegmatites (Block A) and molybdenum occurrences (Block A). An iron occurrence (Block B) is also mentioned in the government database. The Rose deposit is the most significant mineralization discovered to date on the property.

Critical Elements started drilling the Pivert-Rose property in late 2009. This report considers a total of 217 holes drilled by the company for a total of 26,176.50 metres. Out of those 217 holes, 202 holes (25,200.90 m) were included in the current Resource Estimate. Other than drilling, Critical Elements also performed some prospecting work on the Pivert-Rose property. Prospecting was limited to the immediate vicinities of the known showings. The work consisted of a visual reconnaissance of pegmatites and sample collection, in addition to outcrop mapping at the Rose deposit only. The exploration and drilling work by Critical Elements since 2009 yielded many significant drill hole intercepts that were used by InnovExplo to improve geological interpretation for the Rose deposit and to confirm the potential of the entire property area for

new discoveries. Mineralization is hosted within outcropping pegmatite dykes subparallel to the surface. The dykes and grades correlate well and show good continuity throughout the sections.

Based on the density of the processed data, the search ellipse criteria and specific interpolation parameters, the authors are of the opinion that the current Mineral Resource Estimate can only be classified as Inferred and Indicated resources. The Estimate follows CIM standards and guidelines for reporting mineral resources and reserves. A minimum mining width of 2 metres (true width) and cut-off grades (“tonne values”) of \$41/t (for the open pit model) and \$66/t (for the underground model) were used for the Mineral Resource Estimate. InnovExplo estimates that the Rose deposit has **Indicated Resources of 26.5 million tonnes grading 0.98% Li<sub>2</sub>O, 163 ppm Ta<sub>2</sub>O<sub>5</sub>, 2,343 ppm Rb, 92 ppm Cs, 128 ppm Be, 66 ppm Ga, and Inferred Resources of 10.7 million tonnes grading 0.86% Li<sub>2</sub>O, 145 ppm Ta<sub>2</sub>O<sub>5</sub>, 1,418 ppm Rb, 74 ppm Cs, 121 ppm Be, 61 ppm Ga.**

The pegmatite dykes at Rose are shallow and subparallel to the surface, representing a significant advantage for this project that should be taken into account when further evaluating its economical potential.

The Rose deposit is currently the most advanced area of the property in terms of exploration, although other identified showings on Block A (Pivert, Pivert-East, Pivert-South, Helico) appear very promising and should be further investigated by either trenching or drilling since they share similarities with the Rose deposit in terms of mineralogy, grades and thickness (according to surface observations). Additional drilling is required to determine the extent of those showings. The historical West-Ell showing should be visited by geologists of Critical Elements to determine whether it could be part of the Rose deposit. This showing, located 300 metres NE of the Hydro showing, was historically described as molybdenum mineralization within veinlets crosscutting a pegmatite dyke.

InnovExplo completed an independent verification of the data (which included grab sampling) and found no indication of anything in the drilling, core handling and sampling procedures, or in the sampling methods and approach, that could have had a negative impact on the reliability of the reported assay results. The Rose deposit is at an advanced stage of exploration and hosts significant lithium and rare-element mineralization. InnovExplo’s preliminary data compilation and review of historical reports concerning the Pivert-Rose property revealed significant potential for the discovery of new lithium-tantalum and rare-element pegmatites over the entire property. The property is strategically positioned in an area known to be associated with this type of mineralization. Although the Rose deposit is at an advanced stage of exploration, the sheer size of the dominantly unexplored remainder of the property leads InnovExplo to consider the majority of the Pivert-Rose property as an early-stage project with great potential for discovering additional mineralization.

InnovExplo recommends additional work to confirm the economic potential of the Rose deposit and the rest of the Pivert-Rose property, which has seen very little exploration in the past. Lateral and depth extensions of the Rose deposit should be investigated. Perpendicular channel samples (perpendicular to the pegmatite margins) could be analyzed and professionally surveyed in order to collect information for a future resource estimate. InnovExplo also recommends that the borders of the Rose pegmatites be systematically sampled over at least one metre since the literature mentions several deposits elsewhere that contain holmquistite (a lithium-magnesium mineral) as a metasomatic replacement mineral along the edges of lithium-rich pegmatites. If anomalous results are obtained, more samples should be collected to provide adequate coverage of the entire metasomatized wall rock.

Preliminary metallurgical testing is recommended on the Rose deposit mineralization. Tests should use a 100-kg composite sample recovered from HQ-size drill core (or from surface samples) and should include a mineralogical evaluation of the mineralization and standard characterization tests (head analysis, comminution and basic environmental testing). Following the metallurgical testing, InnovExplo recommends a pre-feasibility study to determine the potential economic viability of the Mineral Resources. Both open pit and underground scenarios may need to be evaluated for the Rose deposit. A second objective of the pre-feasibility study would be to determine an area for bulk sampling and a cost and time estimate for the bulk sampling program.

InnovExplo also recommends that Critical Elements consider additional drilling on the Pivert, Pivert-East, Pivert South and Helico showings, and perhaps West-Ell, to determine their potential. Drilling a stratigraphic fence NE and SW of the Rose deposit should also be considered to potentially identify other mineralized structures associated with Rose. The authors recommend priority be given to the portion between the Rose and JR areas because they believe it has the strongest potential for new zones. In addition to immediately drilling the known mineralized pegmatites, InnovExplo recommends performing a creek-sediment geochemical survey and a visual satellite photo reconnaissance program covering the entire property to complete the first step in determining which portions of the property should be investigated more closely. The results would determine where systematic geological survey grids should be established and where rock samples should be taken for geochemical analysis.

InnovExplo is of the opinion that the character of the Pivert-Rose property is of sufficient merit to justify the recommended exploration program described below. The program is divided into two (2) phases. Expenditures for **Phase I of the work program are estimated at C\$1,092,500** (including 15% for contingencies). Expenditures for **Phase II of the work program are estimated at C\$4,209,000** (including 15% for contingencies). The **grand total is C\$5,301,500** (including 15% for contingencies). Phase II of the program is contingent upon the success of Phase I.



## 2.0 INTRODUCTION

InnovExplo Inc ("InnovExplo") was commissioned in June 2011 by Jean-Sébastien Lavallée, President of Critical Elements Corporation ("Critical Elements" or "the issuer"), to complete a resource estimate and a Technical Report ("the report") compliant with Regulation 43-101 and Form 43-101F1 on the Pivert-Rose property ("the property") situated in Québec, Canada. The issuer, Critical Elements Corporation, is a Canadian exploration company listed on the TSX Venture Exchange under the symbol CRE. InnovExplo is an independent Consulting Firm in Mines and Exploration based in Val-d'Or (Québec).

The report was prepared for the purpose of providing an updated resource estimate for the Rose deposit on the Pivert-Rose property, as well as recommendations for an exploration program.

InnovExplo has reviewed the data provided by the issuer and/or its agents. InnovExplo has also reviewed other sources of information, such as government databases for mining title status and statutory work.

The authors, Pierre-Luc Richard, B.Sc., Geo. (OGQ#1119) and Carl Pelletier, B.Sc., Geo. (OGQ#384), have completed the report and have reviewed previous surveys and data, and all other relevant information judged adequate and reliable. The authors are Qualified and Independent Persons as defined by Regulation 43-101. Figures were prepared by Marcel Naud of InnovExplo. Venetia Bodycomb of Vee Geoservices provided the linguistic editing.

The authors performed the previous resource estimate on the Rose deposit. One of the authors, Pierre-Luc Richard, B.Sc., Geo. (OGQ#1119), visited the property on July 13 and 14, 2010 and on July 10, 2011, and also visited the core shack for the Pivert-Rose property on July 12, 2010 and July 21, 2011. On these occasions, he was able to review core intervals, outcrops, geological maps, and drill sites. During this time, the same author was able to study the mineralization and QA/QC procedures, and to hold several discussions with Jean-Sébastien Lavallée and/or other available representatives of Critical Elements. Both authors have a good knowledge of exploration models, mining, and structural geology.

InnovExplo conducted a review and appraisal of the information used for this report, and believes the information included in its preparation as well as in its conclusions and recommendations is valid and appropriate considering the status of the project and the purpose for which the report is prepared. The authors have fully researched and documented the conclusions and recommendations made in this report.

Note that Critical Elements Corporation was formally First Gold Exploration, listed on the TSX Venture Exchange under the symbol EFG. The name change occurred in February of 2011.

Grades for Li, Ta, Rb, Cs and Be are given as parts per million (ppm). Table 2.1 provides factors to convert these values into Li<sub>2</sub>O, Li<sub>2</sub>CO<sub>3</sub>, Ta<sub>2</sub>O<sub>5</sub>, Rb<sub>2</sub>O, Cs<sub>2</sub>O and BeO. Note that 10,000 ppm equals 1%.

**Table 2.1 – Conversion factors**

Element	From	To	Multiply by	Example
Lithium	Li	Li <sub>2</sub> O	2.1530	1 ppm Li = 2.1530 ppm Li <sub>2</sub> O
	Li	Li <sub>2</sub> CO <sub>3</sub>	5.3234	1 ppm Li = 5.3240 ppm Li <sub>2</sub> CO <sub>3</sub>
Tantalum	Ta	Ta <sub>2</sub> O <sub>5</sub>	1.2211	1 ppm Ta = 1.2211 ppm Ta <sub>2</sub> O <sub>5</sub>
Rubidium	Rb	Rb <sub>2</sub> O	1.0940	1 ppm Rb = 1.0940 ppm Rb <sub>2</sub> O
Cesium	Cs	Cs <sub>2</sub> O	1.0600	1 ppm Cs = 1.0600 ppm Cs <sub>2</sub> O
Beryllium	Be	BeO	2.7750	1 ppm Be = 2.7750 ppm BeO

### 3.0 RELIANCE ON OTHER EXPERTS

The authors, Qualified and Independent Persons as defined by Regulation 43-101, were commissioned by the issuer to study technical documentation, visit the property, and recommend a work program if warranted. The authors have reviewed the mining titles, status and agreements and technical data supplied to it by the issuer (or its agents) and other sources of public technical information.

The mining titles documentation and present status of the property titles were supplied by Jean-Sébastien Lavallée, President of Critical Elements Corporation. InnovExplo is not qualified to express a legal opinion with respect to the property titles and current ownership, or possible encumbrance status.

Many geological and technical reports on the property were prepared before the implementation of National Instrument 43-101 in 2001 and Regulation 43-101 in 2005. The authors of such reports appear to be qualified and the information prepared to standards acceptable to the exploration community at the time. In some cases, the data is incomplete and does not fully meet the current requirements of Regulation 43-101. Therefore, the authors do not take responsibility for the information provided from such sources but have no reason to infer that the information used in the preparation of this report is invalid or contains misrepresentations.

The authors believe the information included in the preparation of this report and in its conclusions and recommendations is valid and appropriate considering the status of the project and the purpose for which the report is prepared. The project's technical data is judged appropriate for a reasonable progressive economic mineral evaluation of the project.

The authors, by virtue of their technical review of the project's exploration potential, affirm that the work program and recommendations presented in the report are in accordance with Regulation 43-101 and CIM technical standards.

## 4.0 PROPERTY DESCRIPTION AND LOCATION

### 4.1 Location

The southeast boundary of the Pivert-Rose property is approximately 30 km north of the community of Nemiscau in the James Bay area of the province of Québec. The property covers portions of NTS map sheets 32N/16, 33C/01 and 33C/02 (Figs. 4.1 and 5.1) and the approximate UTM coordinates for the geographic centre of the property are 409700E and 5761000N (Zone 18, NAD83).

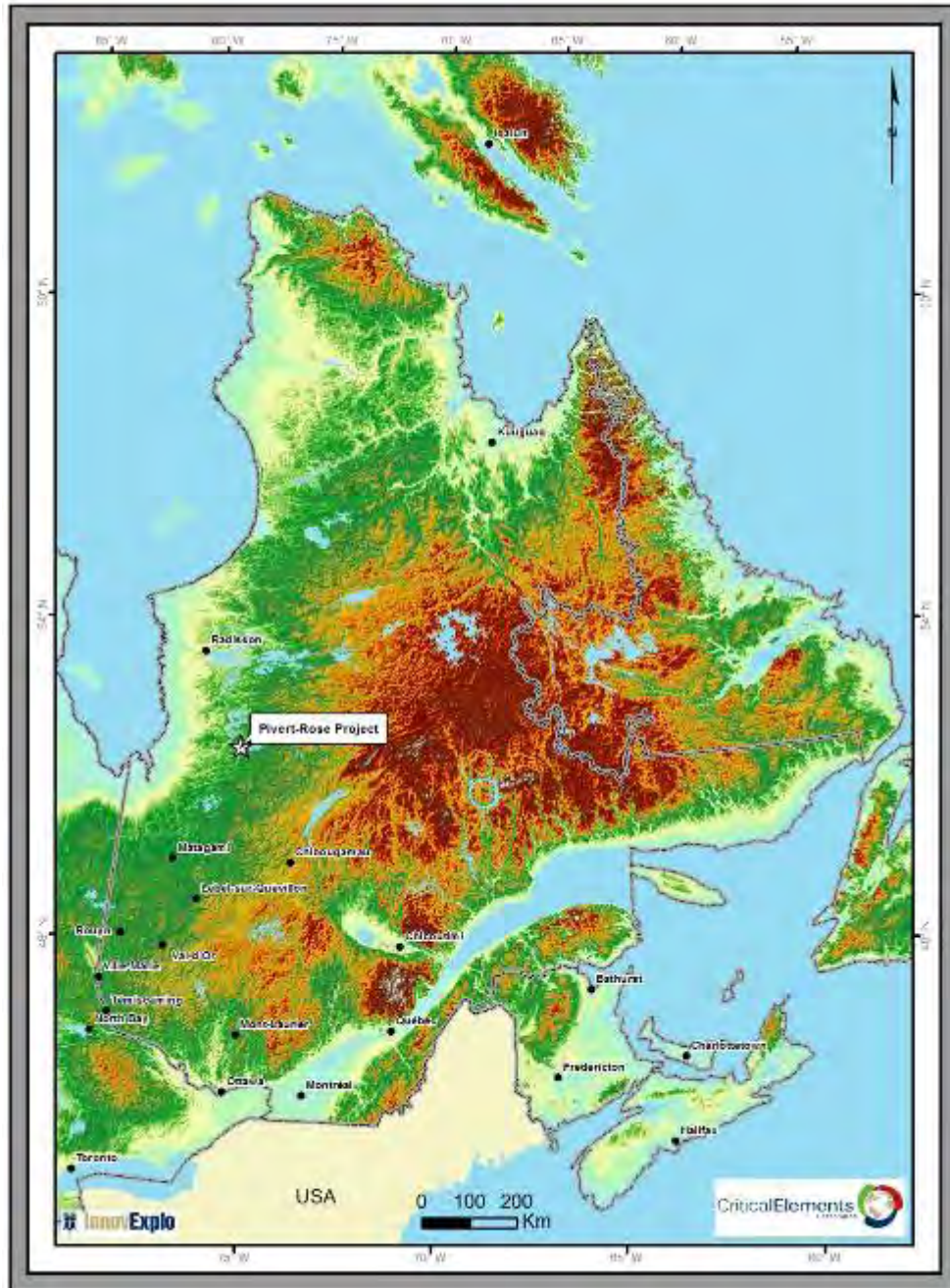


Figure 4.1 – Location of the Pivert-Rose property in the province of Québec

## 4.2 Claim Status

The Pivert-Rose property comprises 636 active mining titles covering a total of 33,307 ha. The claims are grouped into five blocks (A to E) of contiguous or partially contiguous claims (Figs. 4.2 and 4.3). Table 4.1 list the active mining titles. Figure 4.4 shows a more detailed view of Block A where Critical Elements is conducting all its current exploration work and where some of the claims were acquired through an option agreement. Figure 5.2 shows the overall location of the claim block boundaries.

On August 19, 2009, an agreement was reached between First Gold ("the Purchaser"; now Critical Elements Corporation) and Jean-Raymond Lavallée, Jean-Sébastien Lavallée and Fiducie Familiale St-Georges (together "the Vendors") regarding the thirteen (13) claims constituting the Pivert-Rose property at that time. The Rose deposit occurs within those 13 claims. Claims involved in the option agreement are indicated in the last column of Table 4.1 and shown in figures 4.2 and 4.4.

The agreement stipulates that First Gold owns an option to acquire an 85% right, title and interest in and to the Vendors' claims. A net smelter royalty (NSR) of 2% was granted to the Vendors. First Gold was granted the opportunity to purchase half of the royalty for C\$1,000,000. In order to obtain an 85% right, First Gold was required to pay a total of C\$30,000 and a total of 5,000,000 common shares of the company, as well as conduct a minimum of C\$1,800,000 in exploration expenditures distributed over the first three years of the option. The option agreement also stipulates that Consul-Teck will conduct all the work on the property during those three years. In the eventuality that a resource estimate emerges from the Pivert-Rose property demonstrating at least 125,000 tonnes LiO<sub>2</sub> with a minimum cut-off grade of 0.8% LiO<sub>2</sub> for a minimum total of 220,000,000 pounds of LiO<sub>2</sub>, First Gold must give 3,000,000 additional shares of the company to the Vendors.

On October 21, 2010, First Gold announced that it had fulfilled all its obligations under the agreement dated August 19, 2009, and had thus acquired an undivided 85% interest in the Pivert-Rose property. First Gold added that all required cash payments, share issuances and exploration expenditures were made within the stipulated timeframe.

On November 29, 2010, First Gold announced the closing of a transaction with Jean-Sébastien Lavallée (a director and the interim president and chief executive officer of First Gold), Jean-Raymond Lavallée and Fiducie Familiale St-Georges (together "the Vendors") to increase its interest in the Pivert-Rose project from 85% to 100% in consideration of a cash payment of \$225,000 and the issuance of 7,500,000 common shares of First Gold. The Vendors will also retain the previously discussed 2% net smelter return royalty on the property, half of which (1%) can be bought back by First Gold for \$1,000,000.

According to the GESTIM database (Québec's mining title management system), all mining titles comprising the Pivert-Rose property are currently registered to First Gold.

Other than what is discussed in the above transactions, no liens or charges appear to be registered against the Pivert-Rose property.

All claims seem to be in good standing according to the GESTIM database (Québec's mining title management system), although a total of 93 active claims are affected by either hydroelectric facilities or power lines (Figs. 4.2 to 4.4 and Table 4.1).

InnovExplo is not qualified to express any legal opinion with respect to the property titles, current ownership or possible litigation.

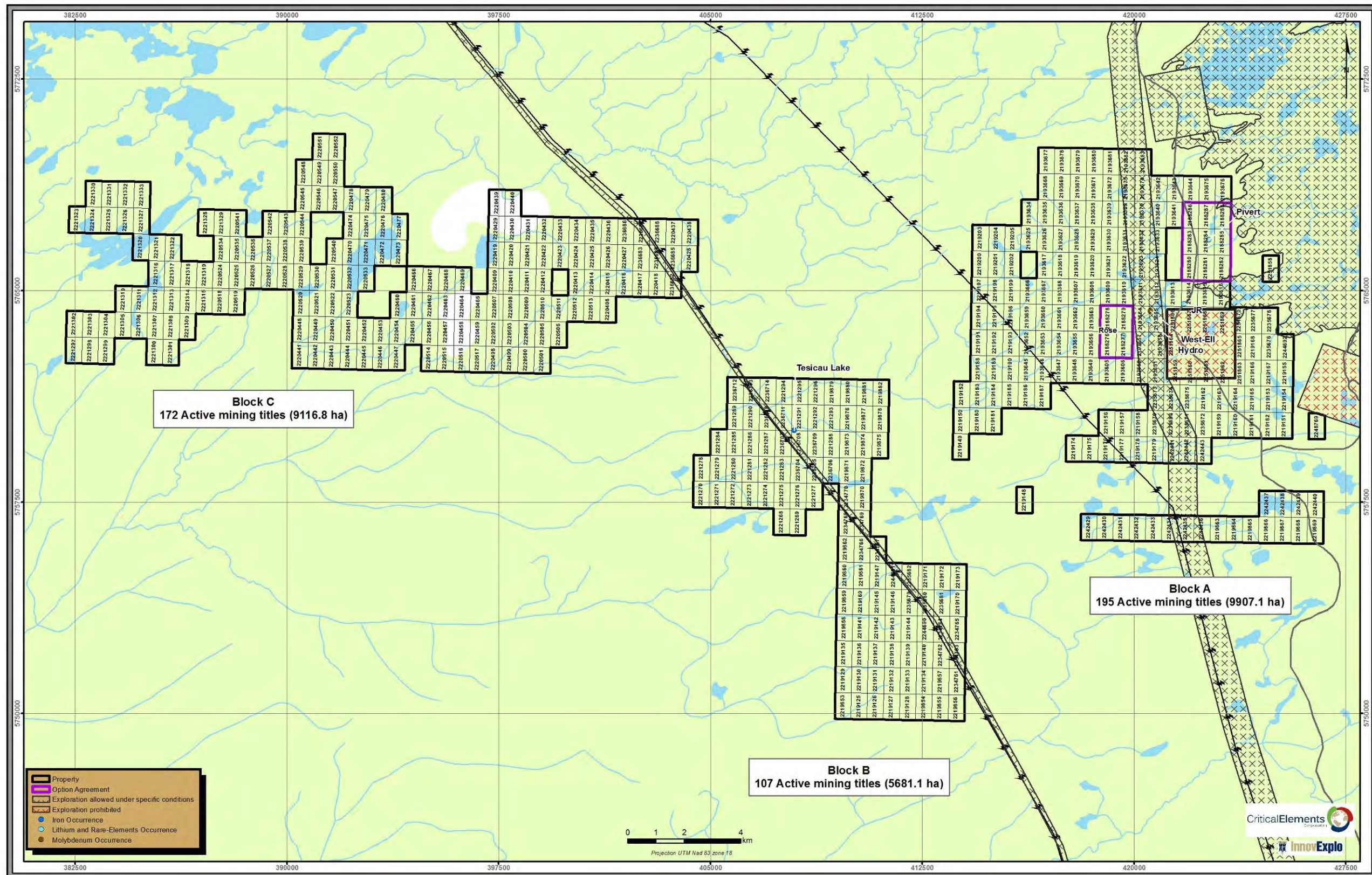


Figure 4.2 – Claims in the east part (A, B and C blocks) of the Pivert-Rose property.

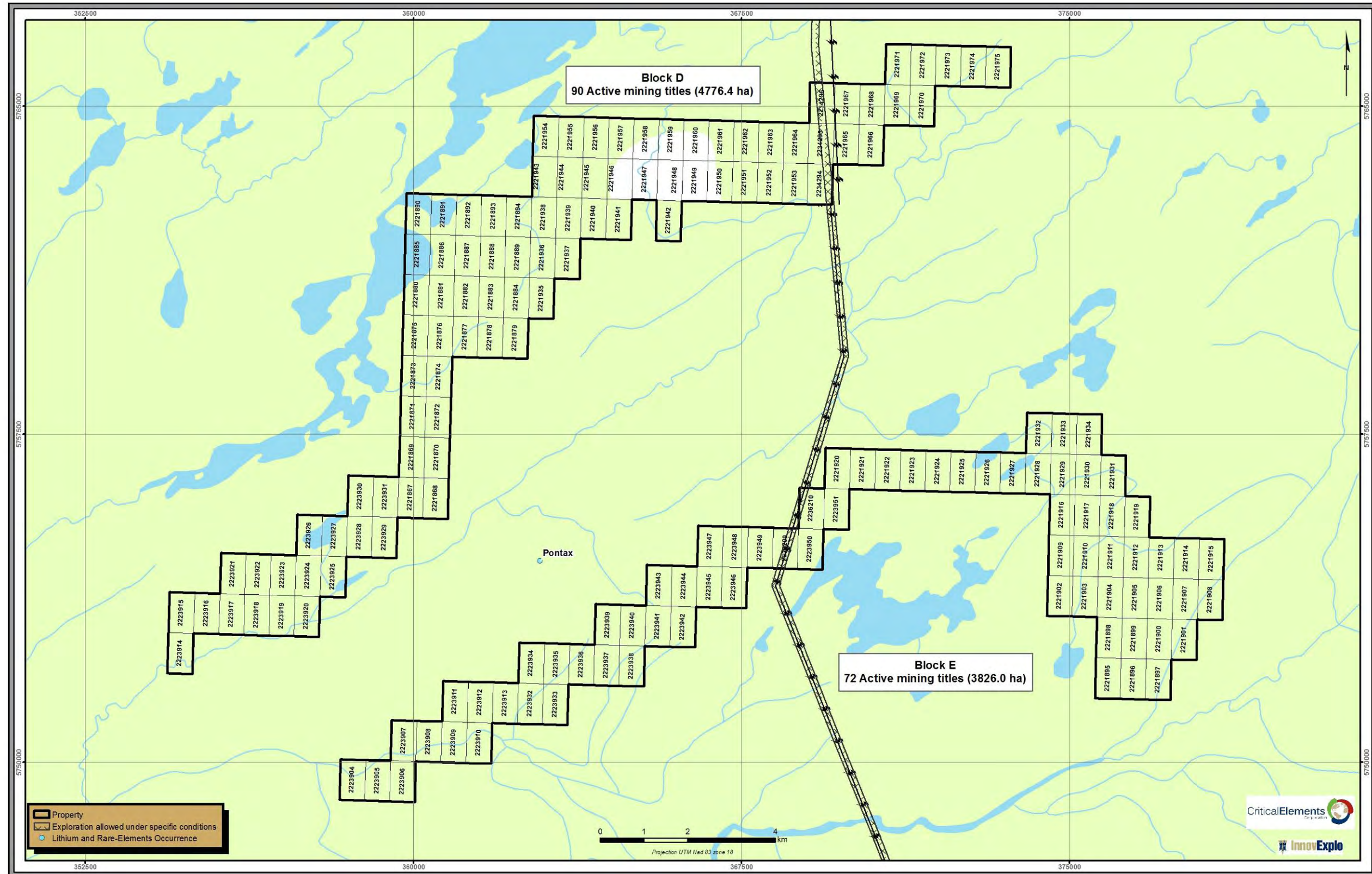


Figure 4.3 – Claims in the west part (D and E blocks) of the Pivert-Rose property.

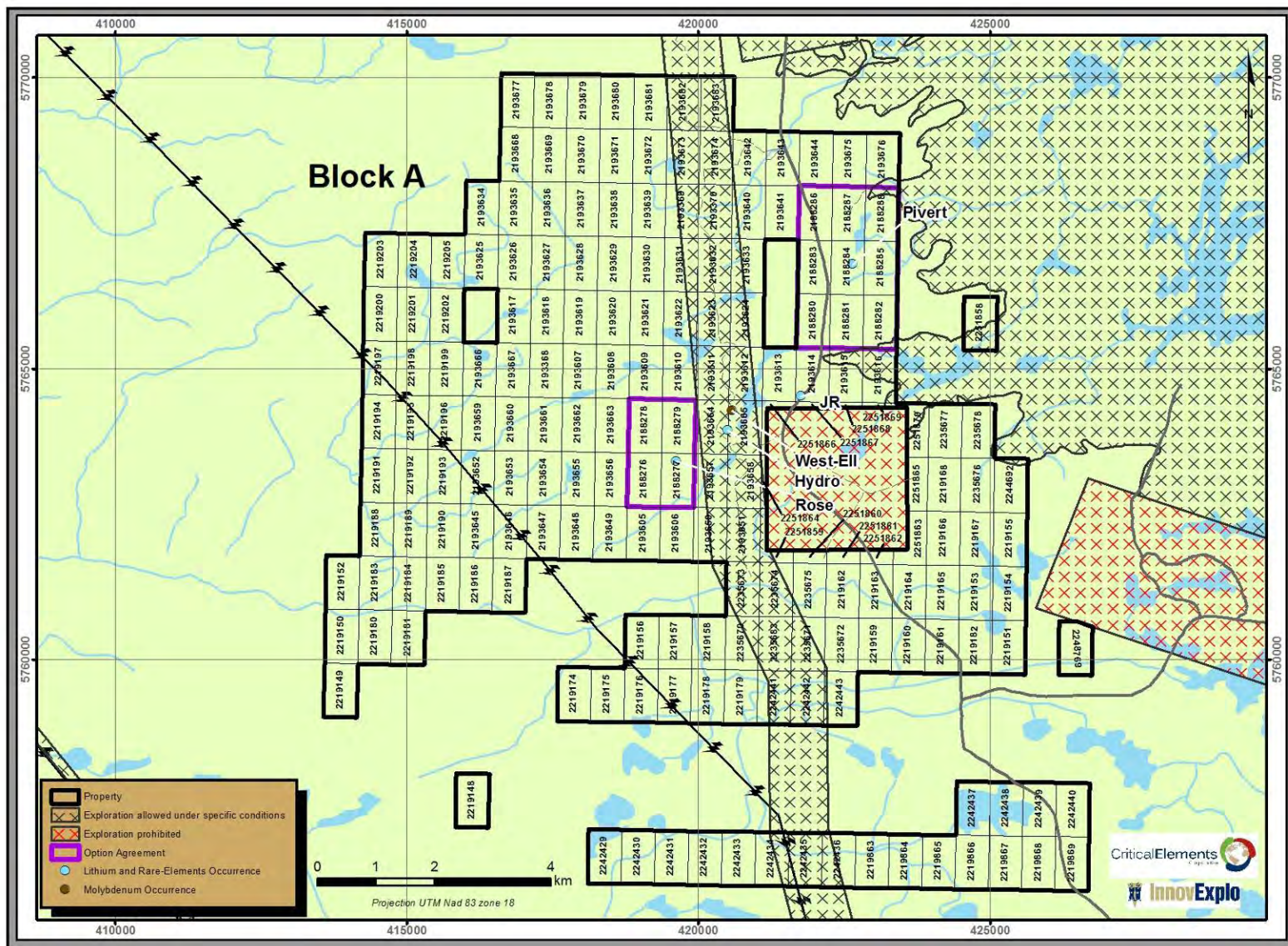


Figure 4.4 – Detailed view of the A Block where Critical Elements is conducting all its current exploration work and where some of the claims were acquired through option agreements.

**Table 4.1 – List of mining titles comprising the Pivert-Rose property (August 8, 2011)**

Title Number	Claim Block	NTS	Status	Area (ha)	Registration date	Expiration date	Registered Owner	Credit declared	Required work for renewal	Comment
2188276	A	33C01	Active	53.0	14/09/2009	13/09/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Royalty attached
2188277	A	33C01	Active	53.0	14/09/2009	13/09/2011	First Gold Exploration inc. (81107)	735,488.00 \$	135.00 \$	Royalty attached
2188278	A	33C01	Active	53.0	14/09/2009	13/09/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Royalty attached
2188279	A	33C01	Active	53.0	14/09/2009	13/09/2011	First Gold Exploration inc. (81107)	65,764.00 \$	135.00 \$	Royalty attached
2188280	A	33C01	Active	52.0	14/09/2009	13/09/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Royalty attached
2188281	A	33C01	Active	52.0	14/09/2009	13/09/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Royalty attached; Affected by hydroelectric facilities
2188282	A	33C01	Active	52.0	14/09/2009	13/09/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Royalty attached; Affected by hydroelectric facilities
2188283	A	33C01	Active	52.0	14/09/2009	13/09/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Royalty attached
2188284	A	33C01	Active	52.0	14/09/2009	13/09/2011	First Gold Exploration inc. (81107)	1,013,018.00 \$	135.00 \$	Royalty attached
2188285	A	33C01	Active	52.0	14/09/2009	13/09/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Royalty attached
2188286	A	33C01	Active	52.0	14/09/2009	13/09/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Royalty attached
2188287	A	33C01	Active	52.0	14/09/2009	13/09/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Royalty attached
2188288	A	33C01	Active	52.0	14/09/2009	13/09/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Royalty attached; Affected by hydroelectric facilities
2193368	A	33C01	Active	53.0	04/11/2009	03/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193369	A	33C01	Active	52.0	04/11/2009	03/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Affected by energy transport line
2193370	A	33C01	Active	52.0	04/11/2009	03/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Affected by energy transport line
2193605	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193606	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193607	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193608	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193609	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193610	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Affected by energy transport line
2193611	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Affected by energy transport line
2193612	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Affected by energy transport line
2193613	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193614	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Affected by hydroelectric facilities
2193615	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Affected by hydroelectric facilities
2193616	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Affected by hydroelectric facilities
2193617	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193618	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193619	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193620	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193621	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193622	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Affected by energy transport line
2193623	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Affected by energy transport line
2193624	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Affected by energy transport line
2193625	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193626	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193627	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193628	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193629	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193630	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193631	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Affected by energy transport line
2193632	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Affected by energy transport line
2193633	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Affected by energy transport line
2193634	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193635	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193636	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193637	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193638	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	



**Table 4.1 (cont'd) – List of mining titles comprising the Pivert-Rose property**

Title Number	Claim Block	NTS	Status	Area (ha)	Registration date	Expiration date	Registered Owner	Credit declared	Required work for renewal	Comment
2193639	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193640	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Affected by energy transport line
2193641	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193642	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Affected by energy transport line
2193643	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193644	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193645	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193646	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193647	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193648	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193649	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193650	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Affected by energy transport line
2193651	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Affected by energy transport line
2193652	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193653	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193654	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193655	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193656	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193657	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	479,318.00 \$	135.00 \$	Affected by energy transport line
2193658	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Affected by energy transport line
2193659	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193660	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193661	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193662	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193663	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193664	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	49,463.00 \$	135.00 \$	Affected by energy transport line
2193665	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Affected by energy transport line
2193666	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193667	A	33C01	Active	53.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193668	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193669	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193670	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193671	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193672	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193673	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Affected by energy transport line
2193674	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Affected by energy transport line
2193675	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193676	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Affected by hydroelectric facilities
2193677	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193678	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193679	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193680	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	
2193681	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Affected by energy transport line
2193682	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Affected by energy transport line
2193683	A	33C01	Active	52.0	05/11/2009	04/11/2011	First Gold Exploration inc. (81107)	- \$	135.00 \$	Affected by energy transport line
2219125	B	32N16	Active	53.0	22/04/2010	21/04/2012	First Gold Exploration inc. (81107)	- \$	1,200.00 \$	
2219126	B	32N16	Active	53.0	22/04/2010	21/04/2012	First Gold Exploration inc. (81107)	- \$	1,200.00 \$	
2219127	B	32N16	Active	53.0	22/04/2010	21/04/2012	First Gold Exploration inc. (81107)	- \$	1,200.00 \$	
2219128	B	32N16	Active	53.0	22/04/2010	21/04/2012	First Gold Exploration inc. (81107)	- \$	1,200.00 \$	
2219129	B	32N16	Active	53.0	22/04/2010	21/04/2012	First Gold Exploration inc. (81107)	- \$	1,200.00 \$	























**Table 4.1 (cont'd) – List of mining titles comprising the Pivert-Rose property**

Title Number	Claim Block	NTS	Status	Area (ha)	Registration date	Expiration date	Registered Owner	Credit declared	Required work for renewal	Comment
2236711	B	32N16	Active	53.0	04/06/2010	03/06/2012	First Gold Exploration inc. (81107)	- \$	1,200.00 \$	Affected by energy transport line
2236712	B	32N16	Active	53.0	04/06/2010	03/06/2012	First Gold Exploration inc. (81107)	- \$	1,200.00 \$	Affected by energy transport line
2236713	B	32N16	Active	53.0	04/06/2010	03/06/2012	First Gold Exploration inc. (81107)	- \$	1,200.00 \$	Affected by energy transport line
2236714	B	32N16	Active	53.0	04/06/2010	03/06/2012	First Gold Exploration inc. (81107)	- \$	1,200.00 \$	Affected by energy transport line
2242429	A	32N16	Active	53.0	27/07/2010	26/07/2012	First Gold Exploration inc. (81107)	- \$	1,200.00 \$	
2242430	A	32N16	Active	53.0	27/07/2010	26/07/2012	First Gold Exploration inc. (81107)	- \$	1,200.00 \$	
2242431	A	32N16	Active	53.0	27/07/2010	26/07/2012	First Gold Exploration inc. (81107)	- \$	1,200.00 \$	
2242432	A	32N16	Active	53.0	27/07/2010	26/07/2012	First Gold Exploration inc. (81107)	- \$	1,200.00 \$	
2242433	A	32N16	Active	53.0	27/07/2010	26/07/2012	First Gold Exploration inc. (81107)	- \$	1,200.00 \$	
2242434	A	32N16	Active	53.0	27/07/2010	26/07/2012	First Gold Exploration inc. (81107)	- \$	1,200.00 \$	Affected by energy transport line
2242435	A	32N16	Active	53.0	27/07/2010	26/07/2012	First Gold Exploration inc. (81107)	- \$	1,200.00 \$	Affected by energy transport line
2242436	A	32N16	Active	53.0	27/07/2010	26/07/2012	First Gold Exploration inc. (81107)	- \$	1,200.00 \$	Affected by energy transport line
2242437	A	32N16	Active	53.0	27/07/2010	26/07/2012	First Gold Exploration inc. (81107)	- \$	1,200.00 \$	
2242438	A	32N16	Active	53.0	27/07/2010	26/07/2012	First Gold Exploration inc. (81107)	- \$	1,200.00 \$	
2242439	A	32N16	Active	53.0	27/07/2010	26/07/2012	First Gold Exploration inc. (81107)	- \$	1,200.00 \$	
2242440	A	32N16	Active	53.0	27/07/2010	26/07/2012	First Gold Exploration inc. (81107)	- \$	1,200.00 \$	
2242441	A	32N16	Active	53.0	27/07/2010	26/07/2012	First Gold Exploration inc. (81107)	- \$	1,200.00 \$	Affected by energy transport line
2242442	A	32N16	Active	53.0	27/07/2010	26/07/2012	First Gold Exploration inc. (81107)	- \$	1,200.00 \$	Affected by energy transport line
2242443	A	32N16	Active	53.0	27/07/2010	26/07/2012	First Gold Exploration inc. (81107)	- \$	1,200.00 \$	Affected by energy transport line
2244690	B	32N16	Active	53.0	05/08/2010	04/08/2012	First Gold Exploration inc. (81107)	- \$	1,200.00 \$	Affected by energy transport line
2244691	B	32N16	Active	53.0	05/08/2010	04/08/2012	First Gold Exploration inc. (81107)	- \$	1,200.00 \$	Affected by energy transport line
2244692	A	33C01	Active	53.0	05/08/2010	04/08/2012	First Gold Exploration inc. (81107)	- \$	135.00 \$	Affected by hydroelectric facilities
2248769	A	32N16	Active	51.0	03/09/2010	02/09/2012	First Gold Exploration inc. (81107)	- \$	1,200.00 \$	
2251858	A	33C01	Active	52.0	29/09/2010	28/09/2012	First Gold Exploration inc. (81107)	- \$	135.00 \$	Affected by hydroelectric facilities
2251859	A	33C01	Active	20.0	29/09/2010	28/09/2012	First Gold Exploration inc. (81107)	- \$	48.00 \$	Affected by energy transport line
2251860	A	33C01	Active	13.0	29/09/2010	28/09/2012	First Gold Exploration inc. (81107)	- \$	48.00 \$	
2251861	A	33C01	Active	13.0	29/09/2010	28/09/2012	First Gold Exploration inc. (81107)	- \$	48.00 \$	
2251862	A	33C01	Active	14.0	29/09/2010	28/09/2012	First Gold Exploration inc. (81107)	- \$	48.00 \$	
2251863	A	33C01	Active	37.0	29/09/2010	28/09/2012	First Gold Exploration inc. (81107)	- \$	120.00 \$	
2251864	A	33C01	Active	8.0	29/09/2010	28/09/2012	First Gold Exploration inc. (81107)	- \$	48.00 \$	Affected by energy transport line
2251865	A	33C01	Active	32.0	29/09/2010	28/09/2012	First Gold Exploration inc. (81107)	- \$	120.00 \$	
2251866	A	33C01	Active	13.0	29/09/2010	28/09/2012	First Gold Exploration inc. (81107)	- \$	48.00 \$	
2251867	A	33C01	Active	6.0	29/09/2010	28/09/2012	First Gold Exploration inc. (81107)	- \$	48.00 \$	
2251868	A	33C01	Active	5.0	29/09/2010	28/09/2012	First Gold Exploration inc. (81107)	- \$	48.00 \$	
2251869	A	33C01	Active	4.0	29/09/2010	28/09/2012	First Gold Exploration inc. (81107)	- \$	48.00 \$	Affected by hydroelectric facilities
2251870	A	33C01	Active	35.0	29/09/2010	28/09/2012	First Gold Exploration inc. (81107)	- \$	120.00 \$	Affected by hydroelectric facilities

## 5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

### 5.1 Accessibility

The southeast boundary of the Pivert-Rose property is approximately 30 km north of the community of Nemiscau in the James Bay area of the province of Québec (Fig. 5.1). The main showings (Pivert and Rose) are easily accessible by driving along La Route du Nord, which is the primary all-season gravel road linking Nemiscau and Chibougamau (approximately 300 km to the SSE), and then by borrowing several well-maintained gravel roads belonging to Hydro-Québec.

Access from Matagami is also possible via provincial highway 109 (known as the James Bay Road) and driving north for 275 km until it reaches La Route du Nord. After an additional 275 km heading east on La Route du Nord, Hydro-Québec roads provide access to the main showings (Fig. 5.1).

The east part of the Rose deposit overlaps the main gravel road. The west part can be reached by walking along a winter road for approximately 1.5 km (Fig. 5.1a). The Hydro showing (now part of the Rose deposit as defined in this report) is reached by following the clearing beneath a major power line (Fig. 5.1b) for approximately 200 m; the showing occurs under the power line. The JR showing (now the east part of the Rose deposit) lies on both sides of the main road (Fig. 5.1c), but the Pivert showing requires walking through the woods for approximately 1 km.

### 5.2 Climate

The climate of the area is sub-arctic. January has the coldest average daily temperature of -21°C, and July is the warmest month with an average daily temperature of 15°C. Snow falls from October until the end of May with peak accumulations of up to 39 and 41 cm in December and January respectively.

### 5.3 Local Resources

The nearest community is Nemiscau, a small Cree community (560 people according to the 2001 Canada census) on the shores of Lac Champion, approximately 50 km south of the Pivert-Rose property. The nearest infrastructure with general services is the Nemiscau Camp, also approximately 50 km south of the property.

The area is serviced by the Nemiscau airport (located halfway between the community and Nemiscau Camp), which provides regular and charter flights.

Hydro-Québec owns some infrastructure and several facilities in the area, including nearby hydro-electric power plants and electrical transmission lines that cross the Pivert-Rose property.



**Figure 5.1 – Access to the Rose, Hydro and JR showings: A) Winter road providing access to the west part of the Rose deposit; B) Power line cutting across the Rose deposit and providing access to the Hydro showing (now part of the Rose deposit); C) JR showing (now part of the Rose deposit) by the side of the main road. Photos taken by author P.-L. Richard.**

#### 5.4 Physiography

Topographic relief in the Pivert-Rose property ranges from 650 to 1,200 metres above sea level. Most of the area is characterized by low ridges and hills flanked by generally flat areas of glacial outwash, swamps, and a few lakes and bogs. The thickness of the overburden is unknown for most of the property, although bedrock does crop out in several places on and in the vicinity of the Pivert showing and the Rose deposit.

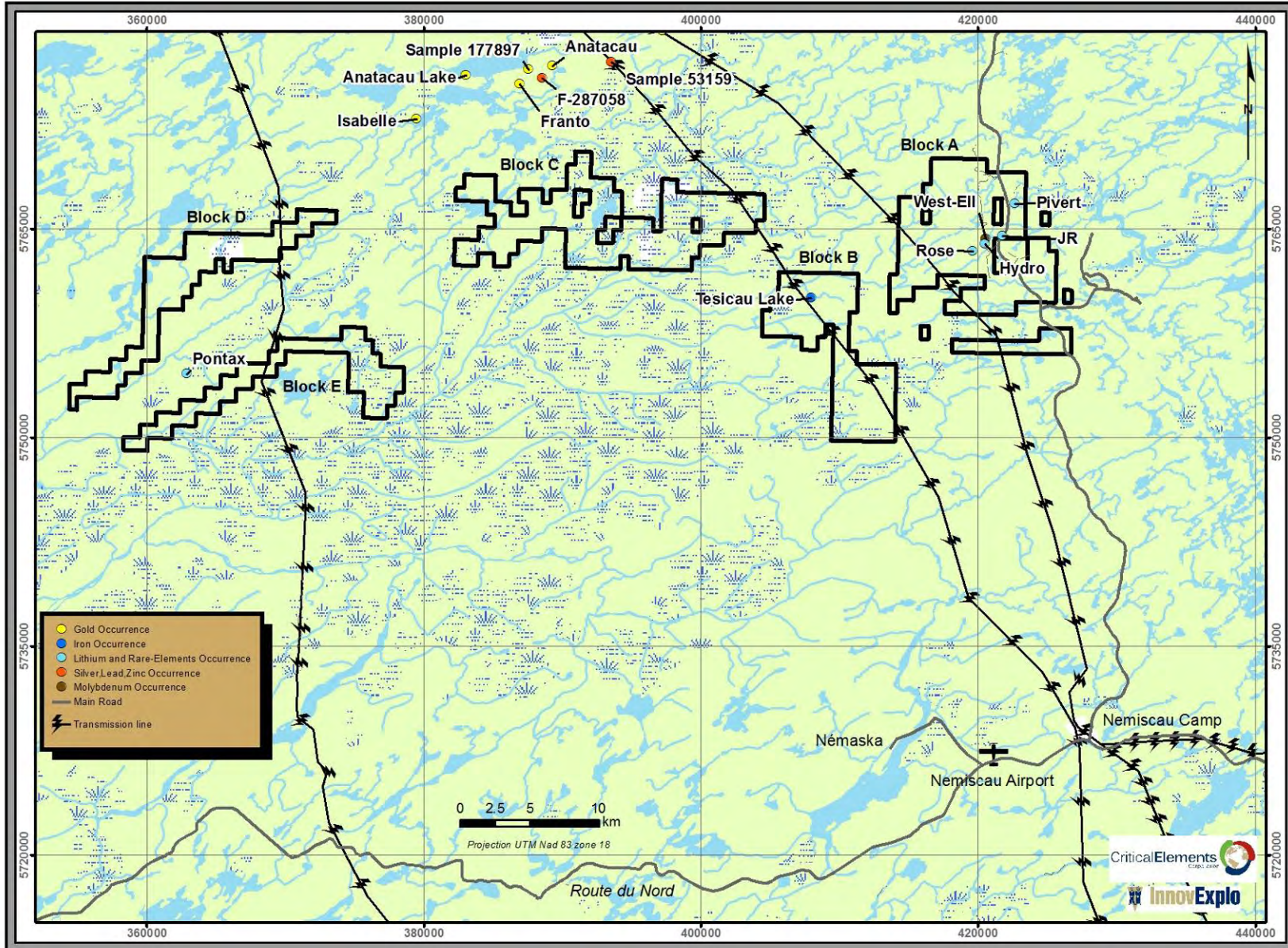


Figure 5.2 – Topography and accessibility of the Pivert-Rose property.

## 6.0 HISTORY

Most of the historical work prior to 2005 consisted of regional surveys conducted by the Government of Québec or by a few mining companies. Recently, there has been a bit more activity from mining companies in the area. Table 6.1 summarizes historical work declared as assessment work by mining companies working on or in the vicinity of the Pivert-Rose property.

Only one historical drill hole is known to have been drilled on the current Pivert-Rose property. Hole 555-09 was drilled by Dios Exploration in 2008 to test a magnetic anomaly. The hole intercepted biotite granitic gneiss followed by feldspar-porphyric diorite. No samples were assayed and the core was left at the drill site.

**Table 6.1 – Historical work on the Pivert-Rose property**

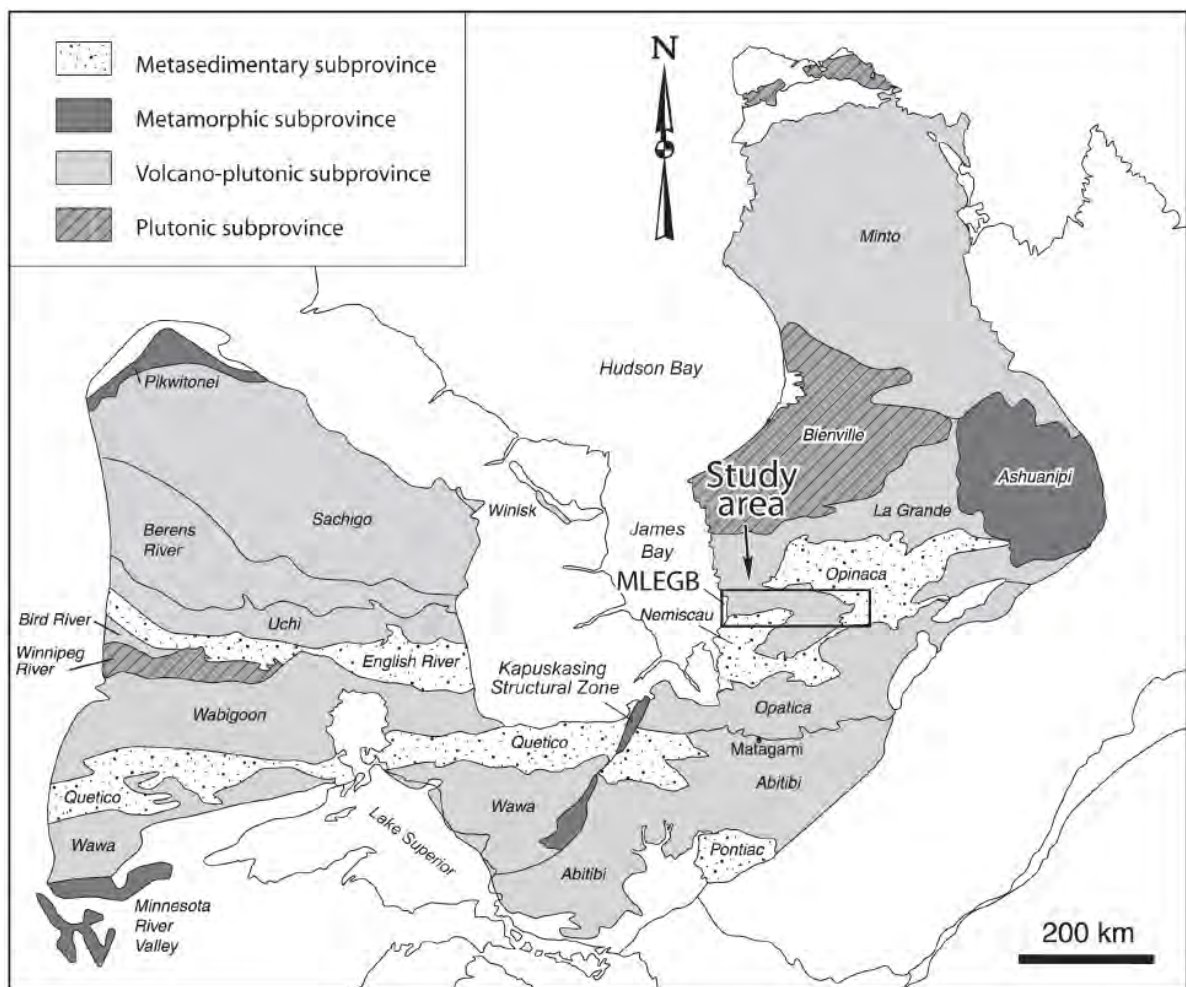
Year	Company	Work	Reference
1936	Dome Mines Ltd.	Geological survey; Drilling (outside the property)	GM 09863-A
1962	MRN	Geological survey	RP 483(A)
1963	MRN	Geological survey	CARTE 1510
1968	MRN	Geological survey	RG 136(A)
		Geological survey	RG 136
1972	Caron, Dufour, Séguin & Associated	Technical evaluation; Compilation	GM 34000
1974	MRN	Geochemistry	DP 419
		Geological survey	DP 278
	SDBJ	Geological survey; Geochemistry	GM 30960
		Geological survey; Ground Geophysics	GM 34071
		Geochemistry	GM 34044
	Technical evaluation	GM 34002	
1975	MRN	Geological survey	DP 329
	SDBJ	Technical evaluation; Compilation	GM 34001
		Geochemistry	GM 34046
		Airborne geophysics	GM 34073
1976	MRN	Geological survey	DP 358
	SDBJ	Geochemistry	GM 34047
1978	MRN	Geological survey	DPV 574
		Geological survey	DPV 585
1979	SDBJ	Technical evaluation	GM 38167
1980	SDBJ	Geological survey; Geochemistry	GM 37998
1985	MRN	Geochemistry	MB 85-11
1990	MSV Resources Inc	Airborne geophysics	GM 49771
1994	MRN	Technical evaluation	PRO 94-05
1995	MRN	Technical evaluation; Geological survey	PRO 95-06
1996	MRN	Geochemistry	MB 96-22
1998	MRN	Geochemistry; Geological survey	MB 98-10
1999	MRN	Compilation; Geological survey	MB 99-35
2000	MRN	Geological survey	RG 2000-04
2003	MRN	Geological survey; Compilation	ET 2002-05
		Geological survey; Compilation	ET 2002-06
2005	De Beers Canada Inc	Airborne geophysics	GM 63031
2006	Cambior Inc	Geochemistry	GM 62452
		Technical evaluation	GM 62451
		Airborne geophysics	GM 62446
		Geochemistry	GM 62356
2007	Dios Exploration Inc and Sirios Resources Inc	Geochemistry	GM 62837
		Geological survey	GM 63046
		Ground and Airborne geophysics	GM 63034
	Iamgold Inc	Geochemistry	GM 63267
	MRN	Compilation	PRO 2007-05
		Compilation	PRO 2007-06
UQAC	Geological survey	ET 2007-01	
2008	Dios Exploration Inc and Sirios Resources Inc	Geochemistry	GM 63475
		Technical evaluation; Geological survey	GM 63467
		Drilling (1 DDH on Block C)	GM 63907
	Iamgold Inc	Geochemistry; Geological survey	GM 63606
	MRN	Compilation	EP 2008-02
		Compilation	PRO 2008-03
		Compilation	PRO 2008-04
	Virginia Mines Inc and Iamgold Inc	Airborne geophysics	GM 63781
2009	MRN	Compilation	EP 2009-02
		Geological survey	RP 483



## 7.0 GEOLOGICAL SETTING AND MINERALIZATION

The Pivert-Rose property is located in the northeast part of the Archean Superior Province (Fig. 7.1) of the Canadian Shield craton, and more precisely within the Middle and Lower Eastmain Greenstone Belt (MLEGB; Fig. 7.1).

Most of this section was borrowed and modified from Card and Poulsen (1998), which provides a thorough description of the regional geology, and from Moukhsil et al. (2007), which synthesizes the geology and metallogensis of the Middle and Lower Eastmain Greenstone Belt. Other sources were also used to complete the description of the geological setting, such as assessment reports, the authors' personal knowledge of the region, and information provided by the issuer.



**Figure 7.1 – Map of the Superior Province showing subdivisions. The study area box indicates the position of the Middle and Lower Eastmain Greenstone Belt (MLEGB). Based on Card and Ciesielski (1986) and Thurston (1991), as modified by Goutier et al. (2002).**

## 7.1 Regional Geological Setting (Archean Superior Province)

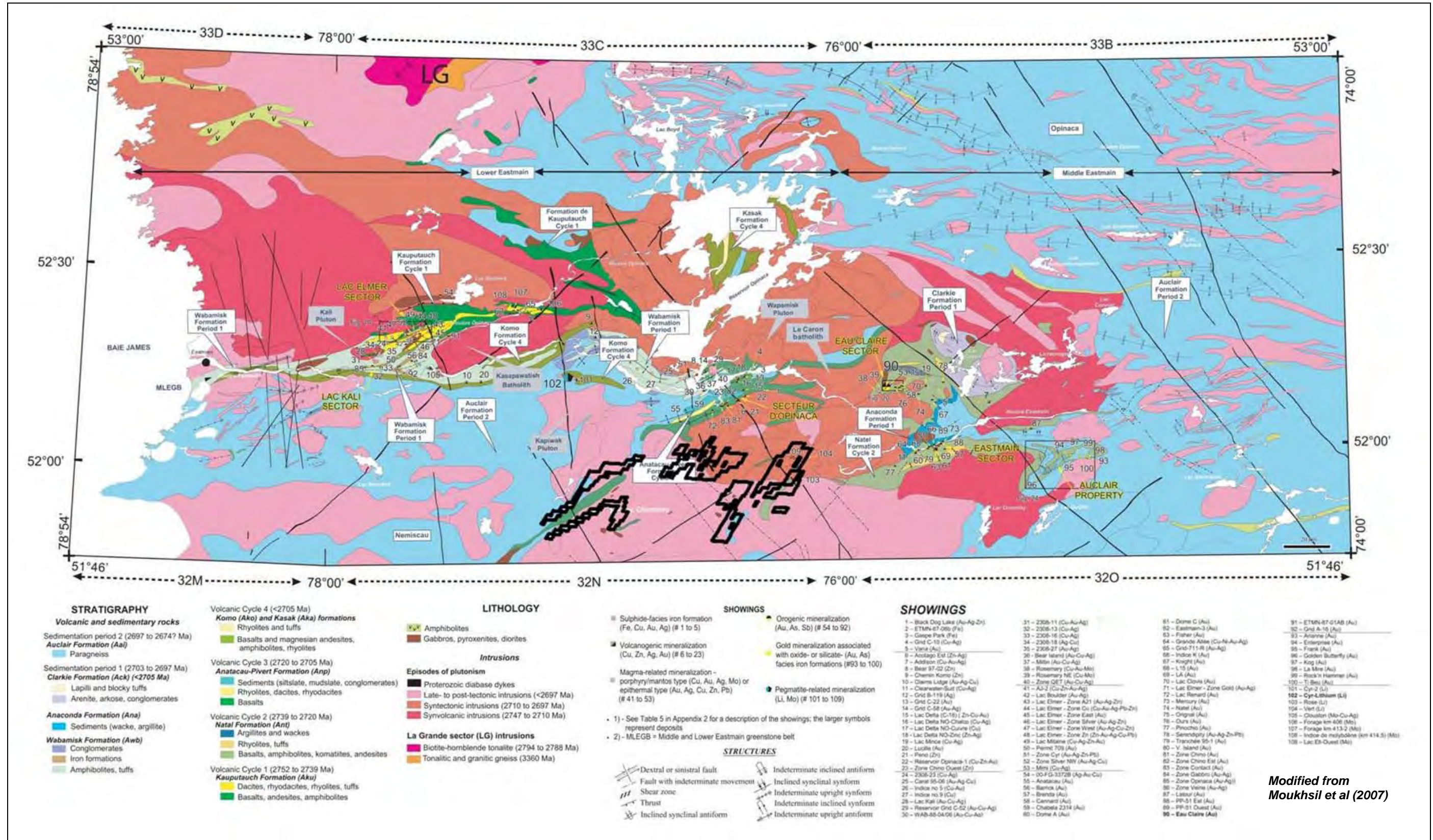
The Archean Superior Province forms the core of the North American continent and is surrounded and truncated on all sides by Proterozoic orogens: the collisional zones along which elements of the Precambrian Canadian Shield were amalgamated (Hoffman, 1988, 1989). The Superior Province represents two million square kilometres free of significant post-Archean cover rocks and deformation (Card and Poulsen, 1998). Tectonic stability has prevailed since ca. 2.6 Ga in large parts of the Superior Province (Percival, 2007). The rocks of the Superior Province are mainly Mesoarchean and Neoproterozoic in age and have been significantly affected by post-Archean deformation only along boundaries with Proterozoic orogens, such as the Trans-Hudson and Grenville orogens, or along major internal fault zones, such as the Kapuskasing Structural Zone. The rest of the Superior Province has remained stable since the end of the Archean (Goodwin et al., 1972).

Proterozoic and younger activity is limited to rifting along the margins, emplacement of numerous mafic dyke swarms (Buchan and Ernst, 2004), compressional re-activation, large scale rotation at ca. 1.9 Ga, and failed rifting at ca 1.1 Ga. With the exception of the northwest and northeast Superior margins that were pervasively deformed and metamorphosed at 1.9 to 1.8 Ga, the craton has escaped ductile deformation. A first-order feature of the Superior Province is its linear subprovinces of distinctive lithological and structural character, accentuated by subparallel boundary faults (e.g., Card and Ciesielski, 1986). Trends in the Superior Province are generally easterly in the south, westerly to northwesterly in the northwest, and northwesterly in the northeast (Fig. 7.1). The southern Superior Province (to latitude 52°N) is a major source of mineral wealth. Owing to its potential for base metals, gold and other commodities, the Superior Province continues to attract mineral exploration in both established and frontier regions.

## 7.2 Local Geological Setting (Middle and Lower Eastmain Greenstone Belt)

The Middle and Lower Eastmain Greenstone Belt (MLEGB) is located in the middle of the James Bay region about 420 km north of Matagami (Figs. 7.1 and 7.2). This greenstone belt trends approximately E-W and extends over an area 300 km long and 10 to 70 km wide (Moukhsil et al., 2007).

The MLEGB consists of volcano-sedimentary rock sequences derived from volcanic eruptions in an oceanic environment (i.e., mid-ocean ridges, oceanic platforms and volcanic arcs) that were subsequently injected by calc-alkaline intrusions of gabbroic to monzogranitic composition. Like the Abitibi Greenstone Belt, the MLEGB has no basement *sensu stricto*. The La Pêche pluton is the oldest intrusion, dated at 2747  $\pm$  3/-2 Ma (Moukhsil and Legault, 2002), compared with 2751  $\pm$  0.6/-0.8 Ma for the Kauputauch Formation (Moukhsil et al., 2001). The volcanism of the Eastmain sector therefore occurred in the absence of an ancient felsic crust (basement *sensu stricto*), as is evidenced by inherited zircon ages from volcanic rocks that range from 2745 to 2713 Ma and from intrusions that cross-cut the MLEGB (2747 to 2723 Ma) (Moukhsil et al., 2001; Moukhsil, 2000). This contrasts sharply with the eruptive setting of the volcanic rocks of the La Grande belt (2800 to 2738 Ma) (Fig. 7.1), which was emplaced in the presence of an ancient (3520 to 2810 Ma) tonalitic protocraton (Goutier et al., 1999a,b and 1998a,b). Proterozoic activity in the MLEGB was limited to the injection of N-S, NW-SE and NE-SW diabase dykes.



Modified from Moukhsil et al (2007)

Figure 7.2 – Map showing the location of the Pivert-Rose property within the geological setting of the Middle and Lower Eastmain belt according to Moukhsil et al., 2007. The approximate location of the Pivert-Rose property is shown in black. The distortion when compared to other figures in this report is due to the different projection used by Moukhsil et al. (2007).

At least three deformation phases can be recognized within the MLEGB (Moukhsil et al., 2007). The first phase (D1), with an estimated age of 2710 to 2697Ma (minimum ages of syntectonic intrusions), is associated with roughly E-W schistosity (S1). The second phase (D2), with an estimated age of 2668 to 2706 Ma (Moukhsil and Legault, 2002), is associated with NE-SW schistosity (S2), which is roughly N-S in several areas. The D2 deformation phase is responsible for the second NNE-SSW shortening in the James Bay area and is probably equivalent to the event that occurred around 2690 Ma in Opinaca (Boily, 1999). The third phase (D3), whose age is estimated at <2668 Ma (age of metamorphism), affects the syn- to post-tectonic intrusions, among others. This deformation phase was non-penetrative and less evident on a regional scale. However, it is more pronounced in the metasedimentary rocks where it trends WNW-ESE to NW-SE. The MLEGB was affected by a set of faults or shear zones. Most of these faults are spatially linked to the mineral occurrences found in the MLEGB. There are three possible orientation systems for the distribution of these structures. The first system runs E-W, the second ENE-WSW and the third NW-SE. Since the principal schistosity (S1) is E-W, Moukhsil et al. (2007) postulate that the E-W-trending faults predate the other faults. The relationship between the two other systems is not clear, but it appears that the NE-SW-trending faults predate the NW-SE-trending faults in the Lake Elmer section (Moukhsil et al., 2007).

There are several major tight to isoclinal regional-scale folds (Moukhsil and Doucet, 1999). Franconi (1978) prepared a synthesis on this topic, concluding that the MLEGB features a large synclinorium with an E-W axis, whose core is occupied by the rocks of Opinaca.

Metamorphism ranges from greenschist facies to amphibolite facies. Gauthier and Laroque (1998) and Moukhsil (2000) identified a metamorphic front characterized by large folds overturned toward the south at the contact between Nemiscau metasediments and the MLEGB volcanics. Contact metamorphism is amphibolite facies especially around syn- to post-tectonic intrusions. Granulite facies has been identified mainly in the middle of the sedimentary basins of Nemiscau and Opinaca. Locally, a few orthopyroxene grains are observed in the paragneisses of the Auclair Formation (Moukhsil and Legault, 2002).

### **7.3 Property (Geological setting of the Pivert-Rose property)**

The Pivert-Rose property is located in the southern portion of the Middle and Lower Eastmain Greenstone Belt (Figs. 7.2 and 7.3).

Although the MLEGB shows a wide variety of rock types, most of the claims constituting the Pivert-Rose property are underlain by intrusive lithologies. Based on the regional geology interpretation of Moukhsil et al. (2007), most of the property is covered by syntectonic intrusions (2,710 to 2,697 Ma). Late- to post-tectonic intrusions (<2,697 Ma) are also present to a lesser extent.

Very limited portions of the Natal Formation (2,739 to 2,720 Ma) may be found in the southeastern claims of Block B as basalts, amphibolites, komatiites and andesites. The paragneiss cropping out in Block D and Block E belong to the Auclair Formation (2,697 to 2,674 Ma), and small portions of the southwestern extension of the Anatacau-Pivert Formation (2,720 to 2,705 Ma) may also be present, consisting mostly of basalts.

Gabbros, pyroxenites and diorites cut across the property geology. The Pivert-Rose property also hosts pegmatites, occurring as irregular but generally continuous lenses within the biotite schists. Historical work in the 1960s by the *Ministère des Ressources naturelles du Québec* ("MRNQ"), followed by additional regional-scale government work, uncovered four (4)

showings on the property, two of which (Rose and Pivert) were recently examined more closely by Critical Elements. Both are showings of pegmatites with lithium and rare-element mineralization.

Other rock types, including gneiss, dacite, quartzite and conglomerate, have also been reported. Lithologies are generally well foliated with a SE orientation, except for the more massive and unfoliated granites and pegmatites.

Mineralization recognized to date on the Pivert-Rose property includes rare-element LCT-type pegmatites (Block A) and molybdenum occurrences (Block A). An iron occurrence (Block B) is also mentioned in the government database.

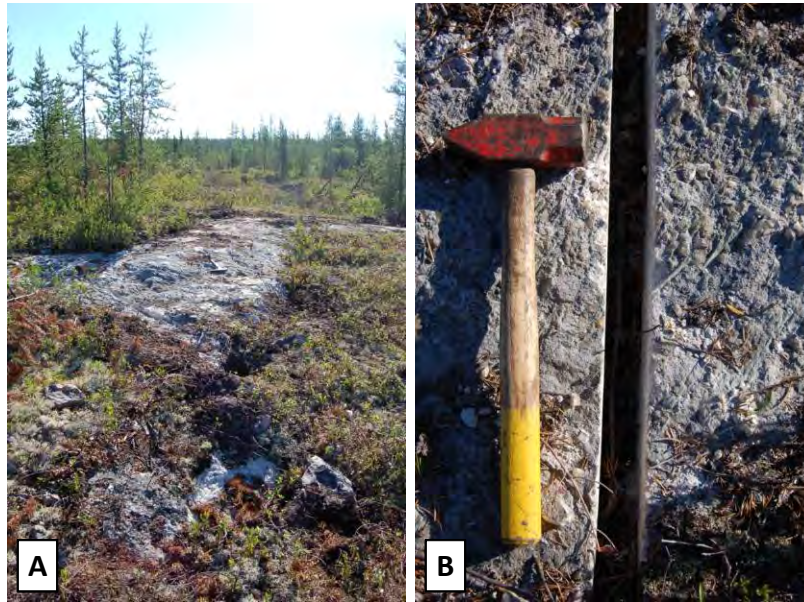
### 7.3.1 Pivert showing

First discovered in 1961 by the MRNQ (*Ministère des Ressources naturelles du Québec*; now MRNF), the Pivert showing was later revisited during the MRNQ's regional mapping program in 2001. The showing is approximately 4.6 km south of Pivert Lake on Block A.

The MRNQ recognized lithium and beryllium mineralization in a pegmatite dyke hosted by paragneiss units. The pegmatite dyke was described as being approximately 10 metres wide and of unknown length because it only cropped out for a few metres. It contains approximately 20% spodumene (lithium aluminum silicate), with crystals up to 20 cm long. Beryl (beryllium aluminum silicate) and molybdenite (molybdenum sulphide) were also noted. A grab sample taken from the MRNQ yielded 1.16% Li and 74 ppm Be.

Critical Elements collected four (4) grab samples from the Pivert showing as discussed in Section 9 (*Exploration*), and drilled six (6) holes as discussed in Section 10 (*Drilling*). The work by Critical Elements added rare elements (Rb, Cs, Ta, Ga) to the original Li-Be mineralization reported by the MRNQ.

Author Pierre-Luc Richard visited the Pivert showing (Figure 7.3) and visually confirmed the presence of mineralization. He determined that the pegmatite dyke was oriented N280/30. The single grab sample collected confirmed the type of mineralization as discussed in Section 12 (*Data verification*).



**Figure 7.3 – The Pivert showing. A) General view of the pegmatite outcrop; B) Closer view of the pegmatite. Photos taken by author P.-L. Richard during a field visit.**

### 7.3.2 Rose deposit

Also discovered in 1961 by the MRNQ and revisited during a regional MRNQ mapping program in 2001, the Rose deposit is approximately 2.3 km southwest of the Pivert showing on Block A.

The MRNQ's 1961 description of the Rose showing mineralization was similar to the description for the Pivert showing: lithium and beryllium in pegmatite dykes hosted by melanocratic gabbro. In contrast to Pivert, where only one pegmatite dyke was recognized at surface, the Rose deposit was described as several pegmatite dykes with one up to 20 metres wide.

The MRNQ reported that spodumene and lepidolite (potassium lithium aluminum silicate) constituted up to 40% of the pegmatites. A grab sample taken by the MRNQ yielded 0.21% Li and 129 ppm Be.

Critical Elements collected 25 grab samples on the Rose deposit as discussed in Section 9 (*Exploration*), and drilled 181 holes as discussed in Section 10 (*Drilling*). The company's work added rare elements (Rb, Cs, Ta, Ga) to the original Li-Be mineralization reported for the Rose showing, just as it did at Pivert.

Author Pierre-Luc Richard visited the Rose deposit (Figure 7.4). He visually confirmed the presence of the mineralization and collected five (5) grab samples, which confirmed the type of mineralization as discussed in Section 12 (*Data verification*). The lengths of the pegmatite dykes could not be determined by surface observations, but recent modelling (as part of the current resource estimate) shows the mineralized pegmatitic dykes oriented N296 with a shallow average dip of 15° to the northeast (locally from 5° to 20°).



**Figure 7.4 – The Rose deposit: A) General view of the Rose pegmatite outcrop; B) Closer view of the Rose pegmatite; C) General view of the Rose South pegmatite outcrop; D) Closer view of the Rose South pegmatite. Photos taken by author P.-L. Richard during a field visit.**

### 7.3.3 JR showing

Discovered by Critical Elements while prospecting in the vicinity of the Rose and Pivert showings, the JR showing is approximately 2.4 km SSW from Pivert. It is easily accessible because it crops out on both sides of the main gravel road.

Critical Elements collected three (3) grab samples from the JR showing as discussed in Section 9 (*Exploration*), and drilled 18 holes as discussed in Section 10 (*Drilling*). The JR showing is very similar to the Rose and Pivert showings in terms of geological context and mineralization. It consists of Li, Be, Rb, Ta, Cs and Ga enrichment within pegmatite dykes. Surface observations were insufficient to determine the length of the dyke because it crops out for only 30 metres.

Author Pierre-Luc Richard visited the JR showing and visually confirmed the presence of mineralization. He determined that the orientation of the pegmatite dyke was similar to that of the Pivert and Rose pegmatites (N280/30). Two grab samples were assayed and confirmed the type of mineralization as discussed in Section 12 (*Data verification*).

The authors consider the JR showing to be part of the Rose deposit now that the area between the Rose deposit and the JR showing has been drilled. The JR showing has therefore been integrated into the Rose deposit in this report.



**Figure 7.5 – The JR showing: A) General view of the pegmatite outcrop on both sides of the main road; B, C) Closer views of the pegmatite on both sides of the main road. Photos taken by author P.-L. Richard during a field visit.**



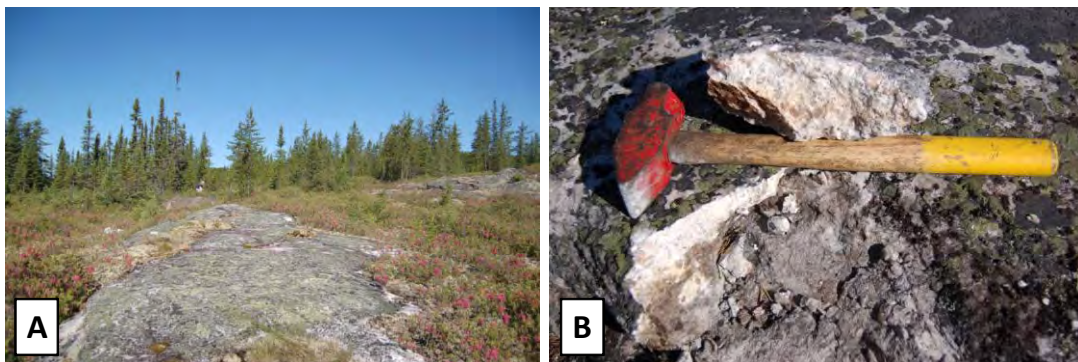
### 7.3.4 Hydro showing

Discovered by Critical Elements while prospecting in the vicinity of the Rose and Pivert showings, the Hydro showing is now included as part of the Rose deposit. Its name comes from the fact that it is located directly under a Hydro-Québec power line.

Critical Elements collected two (2) grab samples from the Hydro showing as discussed in Section 9 (*Exploration*), and drilled three (3) holes as discussed in Section 10 (*Drilling*). Hydro is very similar to the Rose, Pivert and JR showings in terms of geological context and mineralization. It consists of Li, Be, Rb, Ta, Cs and Ga in a pegmatite dyke. Surface observations were insufficient to determine the length of the dyke, but it can be traced for at least 160 metres.

The author believes it is likely that the West-Ell showing—discovered in 1961 by the MRNQ and later revisited in 2001 during a MRNQ regional mapping program—is in fact part of the same outcropping area now referred to as the Hydro showing. The location given for the West-Ell showing (as reported in the government database) is approximately 300 m NNE from the centre of the Hydro showing. The description is of a large outcropping area measuring several hundred square metres. Mineralization was observed in a pegmatite dyke and described as quartz veinlets with approximately 2% molybdenite, spaced about 30 cm apart, and oriented subparallel to the dyke walls. A grab sample taken by the MRNQ yielded 4.08% Mo. The host pegmatite was described as 10 metres wide, but no mention was made about any possible lithium mineralization.

Author Pierre-Luc Richard visited the Hydro showing and visually confirmed the presence of the pegmatite. His observations revealed the orientation of the pegmatite dyke to be similar to the orientations of the Pivert, Rose and JR pegmatites (N280/30). Two grab samples collected by the author confirmed Ta and Be mineralization, but failed to confirm any Li or other rare-element mineralization as discussed in Section 12 (*Data verification*).



**Figure 7.6 – The Hydro showing: A) General view of the pegmatite outcrop; B) Closer view of the pegmatite. Photos taken by author P.-L. Richard during a field visit.**

### 7.3.5 Helico showing

The Helico showing was discovered by Critical Elements while prospecting in the vicinity of the Rose and Pivert showings. It is located approximately 1 km SSE of the Pivert showing.

Critical Elements drilled five (5) holes as discussed in Section 10 (*Drilling*). Helico is very similar to the Rose, Pivert and JR showings in terms of geological context and mineralization. It consists of Li, Be, Rb, Ta, Cs and Ga mineralization in pegmatite dykes. The authors did not visit the Helico showing.

### **7.3.6 Pivert East showing**

The Pivert East showing was discovered by Critical Elements while prospecting in the vicinity of the Rose and Pivert showings. It is located approximately 1 km SE of the Pivert showing.

Critical Elements drilled two (2) holes as discussed in Section 10 (*Drilling*). Pivert East is very similar to the Rose, Pivert and JR showings in terms of geological context and mineralization. It consists of Li, Be, Rb, Ta, Cs and Ga mineralization in pegmatite dykes. The authors did not visit the Pivert East showing.

### **7.3.7 Pivert South showing**

The Pivert South showing was discovered by Critical Elements while prospecting in the vicinity of the Rose and Pivert showings. It is located approximately 1 km SE of the Pivert showing.

Critical Elements drilled two (2) holes as discussed in Section 10 (*Drilling*). Pivert South is very similar to the Rose, Pivert and JR showings in terms of geological context and mineralization. It consists of Li, Be, Rb, Ta, Cs and Ga mineralization in a pegmatite dyke. The authors did not visit the Pivert South showing.

### **7.3.8 Other occurrences**

The MRNF database indicates the presence of another occurrence on the property: the Tesicau iron showing on Block B. Author Pierre-Luc Richard also examined an additional occurrence not mentioned in the government database: a molybdenite- and spodumene-bearing pegmatite dyke on the side of the main gravel road (UTM83, Zone18: 422188E, 5765993N) midway between the Pivert (900 m NE) and JR showings (1.5 km SSW). No samples were analyzed, but it suggests that other occurrences likely exist in the area.



**Figure 7.7 – Example of another pegmatite occurrence in the vicinity of the Rose and Pivert showings (in this case, a road cut). Molybdenite and spodumene were observed in the pegmatite, which cuts through a deformation zone without showing any signs of being affected by it. Photos taken by author P.-L. Richard during a field visit.**

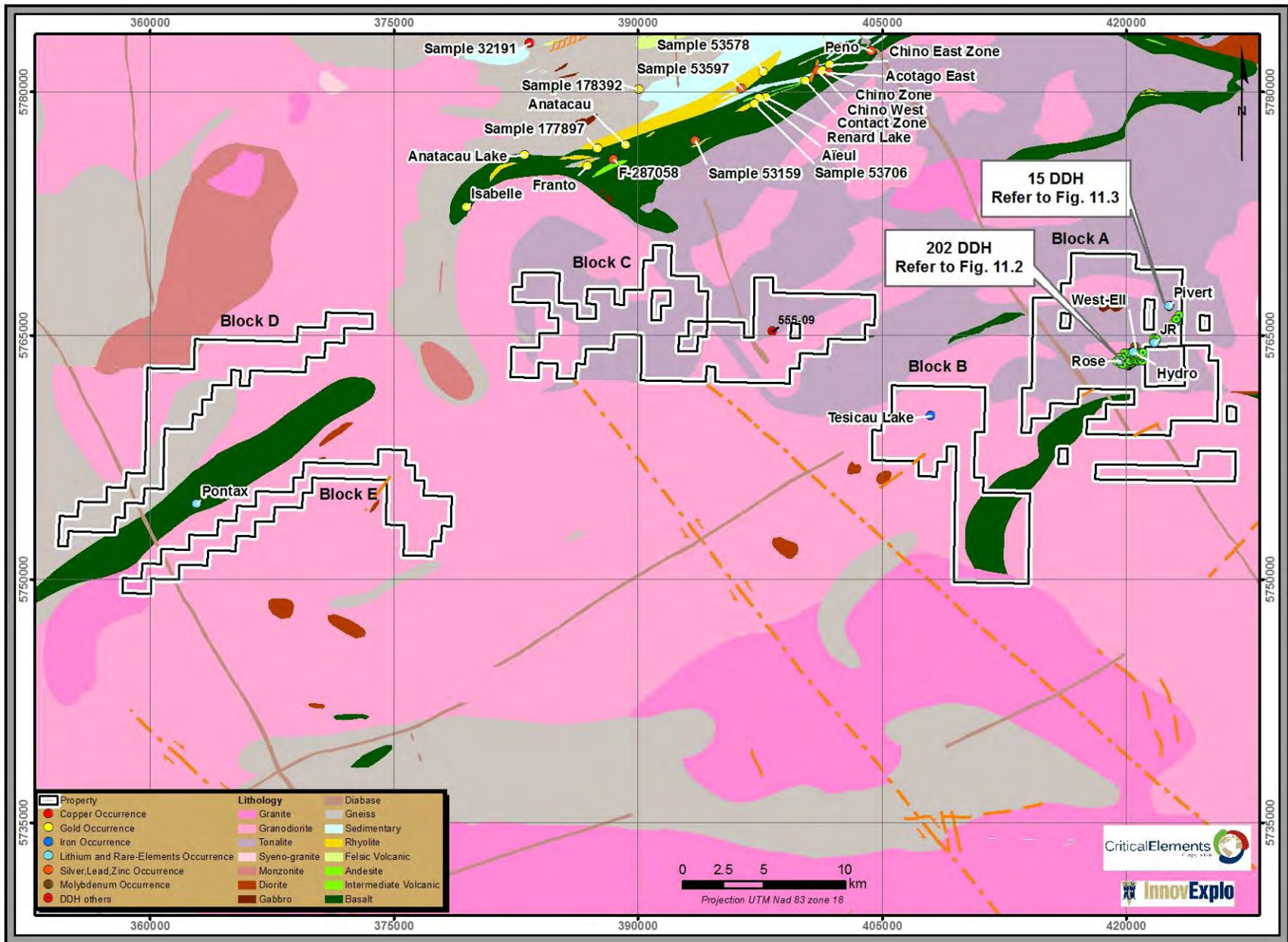


Figure 7.8 – Geology of the Pivert-Rose property area

## 8.0 DEPOSIT TYPES

The Middle and Lower Eastmain Greenstone Belt (MLEGB) contains more than a hundred mineral showings exhibiting a variety of ages, host rocks, styles (disseminated sulphides, massive sulphides, veins and dykes) and metal suites.

The mineral occurrences of the MLEGB have been divided into six types according to Moukhsil et al. (2007):

- 1) Sulphide facies iron formation
- 2) Volcanogenic mineralization
- 3) Magma-related mineralization
- 4) Orogenic mineralization
- 5) Gold-bearing mineralization associated with oxide- or silicate-facies iron formations
- 6) Pegmatite-related mineralization

Types 1 to 3 are associated with an episode of volcanic arc construction (volcanic cycles 1 to 4). Types 4 and 5 are contemporaneous with major deformation events (D1 and D2), whereas Type 6 is associated with post-tectonic intrusions.

Based solely on its geological environment, the Pivert-Rose property has potential for a number of deposit types. However, based on the known discoveries, only the type recognized in type 6 (Rare-Element LCT-type Pegmatite) will be discussed herein.

Pegmatites constitute a category of granite-related ore deposits that are distinct from the magmatic ores disseminated within granites and from hydrothermal assemblages. Granitic pegmatites have been the subject of numerous attempts at classification, but Cerny and Ercit (2005) provided the most recent update. These authors stipulate that, in addition to geochemical composition, the geological location should also be taken into account in the classification of granitic pegmatites, leading to the following division into five classes:

- 1) Abyssal
- 2) Muscovite
- 3) Muscovite – rare-element
- 4) Rare-element
- 5) Mirolitic

Most of these classes can be subdivided into subclasses with fundamentally different geochemical (and in part geological) characteristics. Further subdivision of most subclasses into types and subtypes is based on more subtle differences in geochemical signatures or pressure and temperature conditions of solidification, expressed as different accessory mineral assemblages. The second approach proposed by Cerny and Ercit (2005) is petrogenetic and developed for pegmatites derived by igneous differentiation from plutonic parents. Three families are distinguished:

- 1) An NYF family with progressive accumulation of Nb, Y and F (besides Be, REE, Sc, Ti, Zr, Th and U), fractionated from subaluminous to metaluminous A- and I-type granites that can be generated by a variety of processes involving depleted crust or mantle contributions;
- 2) A peraluminous LCT family marked by prominent accumulation of Li, Cs and Ta

(besides Rb, Be, Sn, B, P and F), derived mainly from S-type granites, less commonly from I-type granites;

- 3) A mixed NYF + LCT family of diverse origins, such as contamination of NYF plutons by digestion of undepleted supracrustal rocks.

## 8.1 General model for rare-element LCT-type pegmatites

Based on the pegmatite classification in Cerny and Ercit (2005) and the assay results from the Pivert-Rose property, the pegmatites recognized to date on the Pivert-Rose property are clearly of the rare-element LCT-type. Thus, only this sub-type will be discussed further.

### 8.1.1 General characteristics

According to Cerny et al. (2005), rare-element pegmatite deposits of the LCT family are encountered in orogens from the early Archean to very recent; i.e., from ~3 Ga (Trumbull, 1995) to 6.8 Ma (Pezzotta, 2000). The granite-pegmatite suites are syn- to late orogenic and related to fold structures, shears and fault systems. The pegmatites vary greatly in form, controlled mainly by the competency of the enclosing rocks, the depth of emplacement, and the tectonic regime during and after emplacement. The pegmatites rarely occur within their parent granites, but in such cases they form swarms or networks of fracture-filling dykes hosted by contraction fractures or structures generated by post-consolidation stresses (e.g., Ginsburg et al., 1979). Most of the deposits are hosted by schists and gneisses, and their shapes vary from lenticular, ellipsoidal, turnip- or mushroom-like forms in plastic environments, to fracture-filling dykes and stocks in brittle host rocks (e.g., Cameron et al., 1949). The length of a mineralized pegmatite intrusion is typically tens to hundreds of metres, but they may attain several kilometres (Greenbushes, Australia; Partington et al., 1995), and interconnected dyke systems are known to be up to 12 km long (Manono, Zaire; Thoreau, 1950).

An important pattern emerges in the generalized scenario and especially in the zoning sequences for individual pegmatite districts (Cameron et al., 1949; Norton, 1983; Cerny et al., 2005). The minerals present in each zonal assemblage decrease in number from the margins (border and wall zones) to the central or latest primary unit, termed the core. Assemblages of the border and wall zones typically consist of quartz-plagioclase-microcline-muscovite-biotite-garnet-tourmaline-(beryl-apatite), and the internal zoning sequence usually ends with nearly monomineralic masses of microcline followed by a monomineralic quartz core. Crystallization along a liquidus surface, wherein the number of coexisting phases increases with decreasing temperature, produces the opposite trend in the sequence of mineral assemblages (e.g., Burnham and Nekvasil, 1986).

The shape and attitude of pegmatite intrusions have considerable control over the internal structure of the deposits (Cerny et al., 2005). Homogeneous bodies are exceptional, and a primary oriented fabric is generally restricted to the albite-spodumene type (e.g., Oyarzabal and Galliski, 1993). The pegmatites are largely concentrically zoned or layered, or they display a combination of both features (Cameron et al., 1949; Beus, 1966; Cerny, 1991b). Concentric patterns typical of substantially three-dimensional bodies can be extensively disturbed in flat pegmatites. Subvertical dykes commonly exhibit telescoping of strongly asymmetric zoning patterns, with the inner zones prominently shifted upward. The zoning progresses from finer grained zones of more or less granitic composition on the

outside to inner zones that exhibit enrichment in rare-element mineralogy and textural diversity, but some are also near-monomineralic.

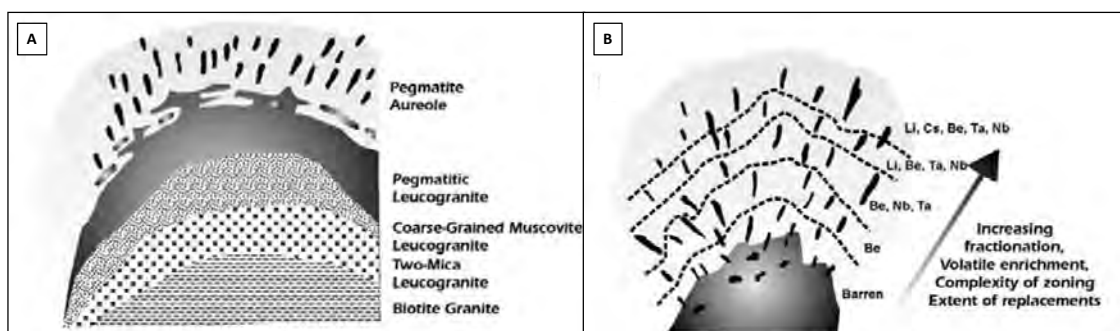
In conjunction with the accumulation of rare-element mineralization in the inner zones, complex pegmatites also show inwardly increasing geochemical fractionation in rock-forming minerals (e.g., Cerny et al. 1985; Cerny, 2005; London, 2005b), which serves as an important exploration guide (e.g., Cerny, 1992a).

More detailed descriptive information on general features of granitic pegmatite deposits, including mineralogy, geochemistry, REE abundances, and fluid inclusion studies can be found in Cameron et al. (1949), Beus (1966), Solodov (1962), Cerny (1989a, 1991b), and Cerny et al. (1998).

### 8.1.2 Emplacement of pegmatite melts

Passive emplacement of pegmatite magma was historically advocated by many authors, but structural-geological analysis contradicts this interpretation (Cerny et al., 2005). Forcible intrusion is indicated in all closely examined cases (Brisbin, 1986) and relevant theoretical considerations and experiments (e.g., Rubin, 1995a, b). Beus (1966) arrived empirically at 2 km for the maximum distance of a pegmatite from its parent granite. In contrast, Baker (1998) considers the magma pressure in the parental chamber sufficient to propel low-viscosity pegmatite melts up to 10 km from the source.

Increasing contents of Li, B, P, F and H<sub>2</sub>O reduce polymerization, increase fluidity and mobility, and enhance thermal stability of pegmatite melts to lower temperatures (Cerny et al., 2005). Thus, the pegmatite melts that are most enriched in volatiles and rare-elements can travel the farthest from their source (Fig. 8.1). This explains the regional zoning of rare-element pegmatites around parental granites (Cerny, 1992b). The Li-rich complex pegmatites in general and the lepidolite-subtype dykes in particular, are invariably the most distal ones relative to the parent plutons (Cerny et al., 2005). These categories of LCT rare-element pegmatites locally appear to be divorced from granites by interplay of host structures and erosional exposure. In individual pegmatite dykes, internal diversity in fluidity promotes geochemical and paragenetic telescoping (e.g., Beus, 1948; Cerny and Lenton, 1995).



**Figure 8.1 – Regional zoning in fertile granites and pegmatites (modified from Cerny, 1991b and Selway et al., 2005): A) Regional zoning of a fertile granite (outwardly fractionated) with an aureole of exterior lithium pegmatites; B) Schematic representation of regional zoning in a cogenetic parent granite and pegmatite group. Pegmatites increase in degree of evolution with increasing distance from the parent granite.**

Pegmatite dykes commonly occur as groups of similar pegmatite-types that originated from the same parent granite intrusion. A pegmatite field can occur over territories of hundreds to thousands of square kilometres when favourable conditions are met. Finally, pegmatite provinces are described as huge terranes characterized by commonality of geologic history that tend to generate arrays of pegmatite fields that are at least loosely related in time, structural style, and mode of origin. A more detailed definition of these terms is given by Cerny et al. (2005):

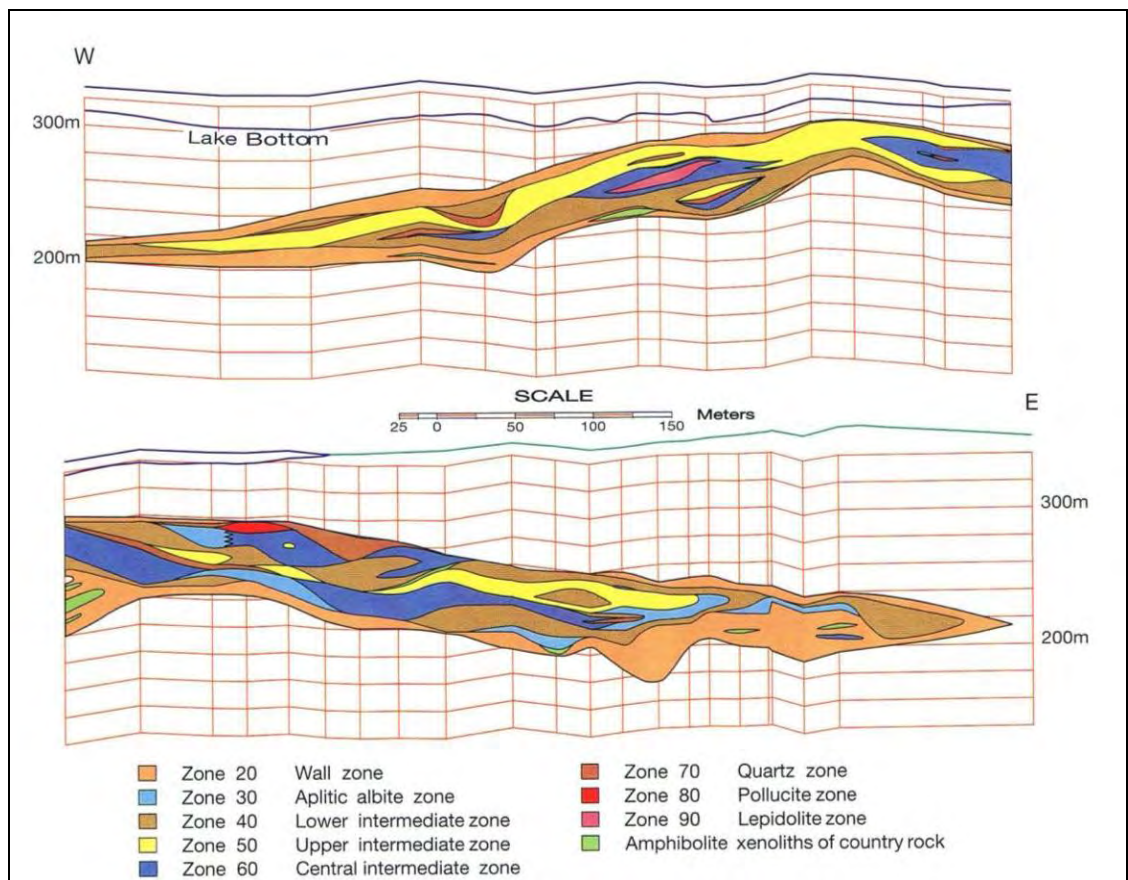
- 1) A pegmatite group is a spatially and genetically coherent pegmatite population, generated by differentiation of a single granitic pluton. Pegmatite dykes interior, marginal, and exterior to a particular fertile granite intrusion may be neatly distributed around the plutonic parent, although asymmetric arrays are much more common (Fig. 8.1; Beus, 1966; Kuzmenko, 1976; Cerny, 1989b, 1990, 1991c; Cerny et al. 2005). Radiometric dating confirms in many cases the link between fertile granites and surrounding pegmatite dykes (e.g., Baadsgaard and Cerny, 1993; Trumbull, 1995; Breaks et al., 2005). The pegmatites tend to show different kinds and degrees of mineralization in a regional zonal pattern, concentric to unidirectional. The common progression from proximal to distal pegmatites is from barren to Be, Be-Nb-Ta, Li-Be-Ta-Nb, and Li-Cs-Be-Ta-(F) assemblages, with B, P, and Sn appearing at (and generally also increasing from) locally different stages. The zoning tends to be particularly strongly developed vertically, with the most evolved pegmatites at the top of the three-dimensional array. Locally, the more evolved pegmatites are relatively late, as they crosscut the primitive dykes (e.g., Cerny, 1991c, 1992b).
- 2) Pegmatite fields are the results of favourable conditions for partial melting that generate fertile granites and are regional in scale, and they commonly lead to intrusion and differentiation of multiple fertile plutons over territories of hundreds to thousands of square kilometres (Cerny et al., 2005). The ensuing pegmatite fields contain granite-pegmatite suites that are more or less closely related, having been mobilized and differentiated from related or identical metamorphic protoliths during a single anatectic event. This results in similarities in mineral assemblages and geochemical signatures of the granite-pegmatite groups.
- 3) Pegmatite provinces are huge terranes characterized by commonality of geologic history that tend to generate arrays of pegmatite fields that are at least loosely related in time, structural style, and mode of origin; geologic provinces locally represent rare-element pegmatite provinces of enormous dimensions (Landes, 1935; Gordiyenko, 1974; Ginsburg et al., 1979; Cerny, 1991a, c).

### 8.1.3 Well-studied pegmatite ore deposits

Two examples of well-studied pegmatite deposits showing similarities with the known Pivert-Rose pegmatites are presented here as a reference. At the current exploration stage of the Pivert-Rose property, the extent of the mineralized pegmatites has not yet been fully investigated. Therefore the authors do not make any assumption that the Pivert-Rose pegmatites are comparable in terms of tonnage and/or grade to the deposits presented in this section. These deposits should be considered in light of their general characteristics and not in terms of their established economic characteristics.



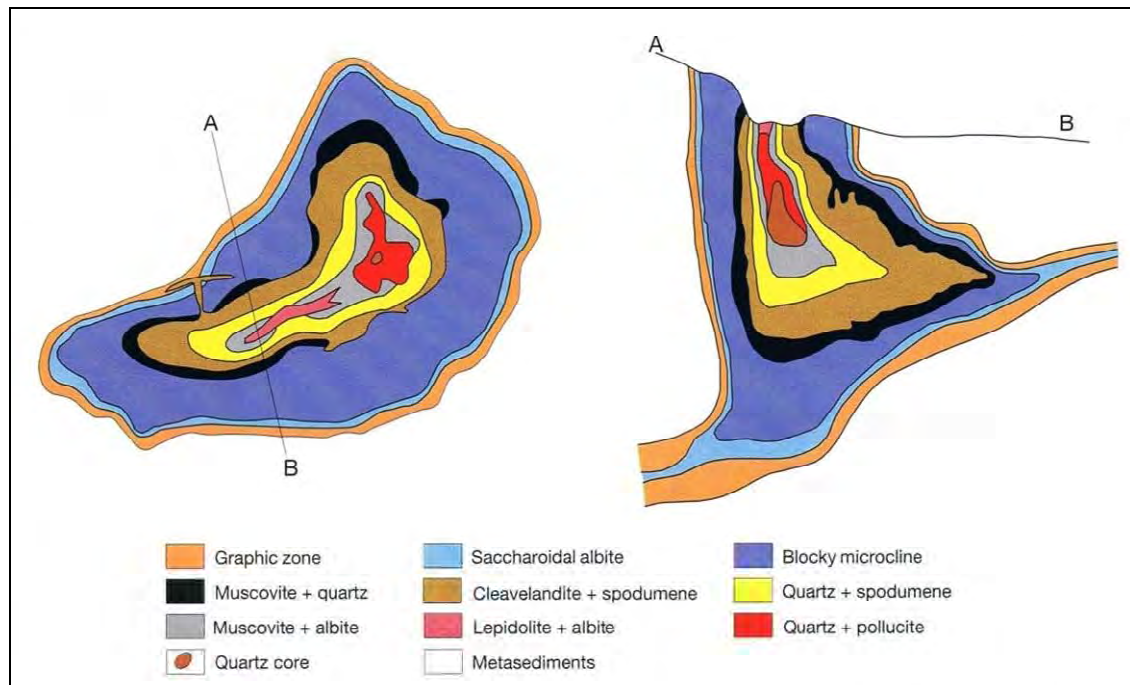
The first example is the extensively studied Tanco deposit (Fig. 8.2) in the Archean Superior Province of the Canadian Shield in southeast Manitoba. It is described in Cerny et al. (1998), Cerny (2005), Stilling et al. (2005) and Cerny et al. (2005). This 2640 Ma pegmatite is completely hidden and forms a subhorizontal lenticular body consisting of four concentric and five layered zones about 1.3 km long (Fig. 8.2; Cerny et al., 2005). It belongs to an extensive series of cogenetic, closely associated pegmatites, but the parent granite is not exposed. However, nearby pegmatite groups of similar character show a clear connection to pegmatitic leucogranites. Near-extreme igneous fractionation of Rb, Cs, Ga, and Ta characterizes Tanco, which is enriched in these metals as well as Li, Be, B, and P, and a variety of industrial minerals. Nevertheless, the overall composition of the pegmatite is close to granitic, despite the assemblage of approximately 100 minerals (Stilling et al., 2005). Petalite, largely decomposed into secondary spodumene + quartz, dominates over minor late primary spodumene and over subordinate amblygonite-montebrazite and lepidolite.



**Figure 8.2 – Longitudinal fence diagram of the west to east section through the Tanco pegmatite (western half above, eastern half below; modified from Stilling et al., 2005; Cerny et al., 2005). The border zone (Zone 10) is too thin to be shown at this scale.**

The second example is the Mongolian Altai 3 deposit (Fig. 8.3), which shows extensive reserves of spodumene (Cerny et al., 2005). Mongolian Altai 3 (also known as Keketuhai, Keketuohai or Koktogai), dated at 330 Ma, is located in the central part of an Altai Caledonian-Hercynian fold belt in northwest China. It belongs to an extensive suite of

cogenetic leucogranites and pegmatites. The pegmatite forms a vertical plug with far-reaching subhorizontal sheets branching from its base (Fig. 8.3). Ten concentric zones show a classic progression from mineralogically simple outer assemblages to complex and then near-monomineralic associations in the interior. Multi-generational minerals show the same progressive fractionation pattern as in the Tanco pegmatite above.



**Figure 8.3 – Horizontal and vertical sections through the Mongolian Altai pegmatite No. 3 (modified from Lu et al., 1997; Cerny et al., 2005). In the horizontal section at left, the pegmatite is approximately 150 X 250 m in size; the scale of the vertical section at right is slightly reduced.**

## 8.2 Rare-element pegmatites from the Superior geological province

Although Selwey et al. (2005) only reviewed the rare-elements pegmatites from the geological Superior Province covering Ontario and Manitoba, and excluded the large portion of the Superior Province covering Québec, the author of this report considers that the study nonetheless applies to the Québec portion of the Superior Province in which the Pivert-Rose property occurs. Therefore, a large portion of the following text has been adapted from Selwey et al. (2005).

According to the review of rare-element pegmatites in the Superior Province by Selwey et al. (2005), rare-element pegmatite dykes within the Superior Province (in Ontario and Manitoba) usually cluster to form pegmatite fields that contain one or two large and highly fractionated pegmatites and numerous small pegmatite dykes. For example, the Bernic Lake pegmatite group, part of the Cat Lake-Winnipeg River pegmatite field in southeastern Manitoba, contains the Tanco pegmatite (1.99 km long x 1.06 km wide x 100 m thick; Stilling, 1998) and eight other smaller, less-fractionated pegmatite dykes (Cerny et al., 1981). The Separation Rapids pegmatite group lies to the east of the Cat Lake–Winnipeg River pegmatite within the same Bird River–Separation Lake metavolcanic belt (Breaks et al., 1975). The Separation

Rapids pegmatite group contains two large highly fractionated pegmatites: Big Whopper (350 m in strike length x 60 m thick) and Big Mack (30 x 100 m; Breaks and Tindle, 1997b; Breaks et al., 1999). The Big Whopper and Big Mack pegmatites are members of the Southwestern pegmatite subgroup, which contains at least 23 additional smaller pegmatite dykes. Additional large pegmatite fields in the Superior Province of Ontario with economic potential include: the Dryden pegmatite field, which includes the highly fractionated Fairservice pegmatite dykes and Tot Lake pegmatite, and the Seymour Lake pegmatite group, which includes the highly fractionated North Aubry and South Aubry pegmatites (Breaks et al., 2003). These pegmatites contain elevated Rb, Cs, Be and Ta contents. The Case pegmatite in northeastern Ontario is unique in that it is a large fractionated pegmatite with no identified associated smaller pegmatite dykes, likely due to thick overburden (Breaks et al., 2003).

Selwey et al. (2005) also report on several geological features that are common among pegmatites of the Superior Province of Ontario (Breaks and Tindle, 2001; Breaks et al., 2003) and Manitoba (Cerny et al., 1981; Cerny et al., 1998):

- 1) The pegmatites tend to occur along subprovincial boundaries. For example, Tanco (Manitoba) and Separation Rapids (Ontario) pegmatites within the Bird Lake–Separation Lake metavolcanic belt occur along the boundary between the English River and Winnipeg River subprovinces; the beryl-phosphate Sandy Creek and McCombe pegmatites and the Lilypad Lake pegmatite field occur along the Uchi–English River subprovincial boundary; the Dryden pegmatite field occurs within the Sioux Lookout Domain along the Winnipeg River–Wabigoon subprovincial boundary; and the North Aubry, South Aubry, and Tebishogeshik pegmatites occur along the English River–Wabigoon subprovincial boundary north of Armstrong.
- 2) Most pegmatites in the Superior Province (in Ontario and Manitoba) occur along subprovince boundaries, except for those that occur within the metasedimentary Quetico Subprovince. Examples of pegmatites occurring in this area from west to east are: Wisa Lake (south of Atikokan), the Georgia Lake pegmatite field (north of Nipigon), and the Lowther Township (south of Hearst) pegmatites.
- 3) Pegmatites are present at greenschist to amphibolite metamorphic grade. In Ontario and Manitoba, pegmatites are absent in the granulite terranes of the Quetico and English River subprovinces.
- 4) Most pegmatites in the Superior Province (Ontario and Manitoba) are genetically derived from a fertile parent granite. The Cat Lake–Winnipeg River pegmatite field (Manitoba) contains six leucogranite intrusions (Greer Lake, Eaglenest Lake, Axial, Rush Lake, Tin Lake and Osis Lake) emplaced along east-trending faults, which are parents to numerous pegmatites (Cerny et al., 1981; Cerny et al., 1998). In contrast, the Tanco pegmatite has no fertile granite outcropping in reasonably close vicinity that could be its potential parent (Cerny et al., 1998). The peraluminous Separation Rapids pluton (4 km wide) is the parent to the Separation Rapids pegmatite field, including Big Whopper and Big Mack pegmatites, north of Kenora, Ontario. The peraluminous Ghost Lake batholiths (80 km wide) is the parent to the Mavis Lake pegmatite group, including the Fairservice pegmatite dykes, north of Dryden, Ontario.
- 5) Highly fractionated spodumene- and petalite- subtype pegmatites are commonly hosted by mafic metavolcanic rocks (amphibolite) in contact with a fertile granite intrusion along subprovincial boundaries, whereas numerous beryl-type pegmatites

are hosted by metasedimentary rocks (metawacke or metapelite) of the Sioux Lookout Domain. Pegmatites within the Quetico Subprovince are hosted by metasedimentary rocks or their fertile granitic parents. For example, the spodumene-subtype Wisa Lake pegmatite is hosted by metasedimentary rocks south of Atikokan, Ontario. The MNW petalite-subtype pegmatite, north of Nipigon, Ontario, is enclosed within a medium-grained biotite-muscovite granite of the MNW stock, which is presumed to be its parent (Pye, 1965). The lepidolite-subtype Lowther Township pegmatite, south of Hearst, Ontario is enclosed within its parent garnet-biotite pegmatitic granite (Breaks et al., 2002). The spodumene-subtype Case pegmatite system is hosted by orbicular biotite tonalite in the southeastern part of the Case batholith north of Cochrane, Ontario, within the Opatika Subprovince.

- 6) Biotite and tourmaline are common minerals within metasomatic aureoles in mafic metavolcanic host rocks to pegmatites. Tourmaline, muscovite, and biotite are common within metasomatic aureoles in metasedimentary host rocks.
- 7) Most of the pegmatites of the Superior Province contain spodumene and/or petalite as the dominant Li mineral, except for the Lilypad Lake, Swole Lake, and Lowther Township pegmatite (all in Ontario), and the Red Cross Lake lithium pegmatite (Manitoba), which have lepidolite as the dominant Li mineral. Amblygonite- and elbaite-dominant pegmatites have not yet been found in the Superior Province, although amblygonite and elbaite occur in the Tanco pegmatite.
- 8) Cesium-rich minerals only occur in the most extremely fractionated pegmatites. Pollucite occurs in the Tanco, Marko's, and Pakeagama petalite-subtype pegmatites, the Tot Lake spodumene-subtype pegmatites, and the Lilypad Lake lepidolite-subtype pegmatites (Teertstra and Cerny, 1995). The Pakeagama pegmatite is located in northwestern Ontario along the Sachigo-Berens River subprovincial boundary. Cesium-rich beryl occurs in the spodumene-subtype North Aubry, South Aubry, Case, Tot Lake, and McCombe pegmatites and the lepidolite-subtype Lowther pegmatite, all in Ontario, and in the Tanco pegmatite, Manitoba.
- 9) Most pegmatites in the Superior Province contain ferro-columbite and manganocolumbite as the dominant Nb-Ta-bearing minerals. Some pegmatites contain manganotantalite as the dominant Ta-oxide mineral, for example the North Aubry, South Aubry, Fairservice, Tot Lake, and Tebishogeshik pegmatites. The Tanco pegmatite contains wodginite as the dominant Ta-oxide mineral. Tantalum-bearing cassiterite is relatively rare in pegmatites of the Superior Province, except for the Separation Rapids and Tanco pegmatites.
- 10) Fine-grained Ta-oxides (e.g., manganotantalite, wodginite, and microlite) commonly occur in the aplite, albitized K-feldspar, mica-rich, and spodumene core zones in pegmatites in the Superior province. At Tanco, Ta mineralization occurs in the albitic aplite zone (30), central intermediate muscovite-quartz after microcline zone (60), and lepidolite zone (90).

## 9.0 EXPLORATION

In addition to drilling (see Section 10), Critical Elements also performed some prospecting work on the Pivert-Rose property although it was limited in scope, being restricted to the vicinities of the Pivert showing and Rose deposit. It focused on the visual reconnaissance of pegmatites and grab sampling at both localities, in addition to outcrop mapping at the Rose deposit only.

A total of 34 grab samples were collected and sent for analysis (Table 9.1). Grades for Li, Ta, Rb, Cs and Be are reported in this section as parts per million (ppm). Table 2.1 provides factors for converting these grades into the alternative reporting format of  $\text{Li}_2\text{O}$ ,  $\text{Ta}_2\text{O}_5$ ,  $\text{Rb}_2\text{O}$ ,  $\text{Cs}_2\text{O}$  and  $\text{BeO}$ .

**Table 9.1 – Grab samples collected on the Pivert-Rose property by Critical Elements**

Sample	Area	UTM83 Zone 18		Li	Rb	Ta	Cs	Be	Ga
		Easting	Northing	ppm	ppm	ppm	ppm	ppm	ppm
26221	Hydro	420509	5763942	7,270	900	110	70	67	92
26222	Hydro	420609	5763891	4,440	580	290	50	227	70
26223	JR	421723	5764524	12,900	490	120	20	57	114
430917	JR	421761	5764522	21,200	390	51	22	90	107
430918	JR	421779	5764508	14,700	1,290	44	50	65	93
430906	Pivert	422655	5766797	9,660	n/a	n/a	n/a	n/a	70
430907	Pivert	422660	5766796	8,020	n/a	n/a	n/a	n/a	60
430908	Pivert	422667	5766794	8,870	n/a	n/a	n/a	n/a	70
430909	Pivert	422672	5766790	454	n/a	n/a	n/a	n/a	50
26201	Rose	420321	5763147	5,700	2,520	79	67	38	75
26202	Rose	420304	5763132	11,500	680	31	45	270	75
26203	Rose	420285	5763124	4,990	4,740	210	150	176	69
26204	Rose	420243	5763110	7,330	1,520	99	67	206	61
26205	Rose	420227	5763098	2,760	1,320	89	45	150	60
26206	Rose	420216	5763105	6,980	1,390	91	64	191	86
26207	Rose	420214	5763099	1,580	2,720	140	110	224	80
26208	Rose	420152	5763095	12,400	660	85	51	117	98
26209	Rose	420144	5763100	10,300	620	80	38	107	107
26210	Rose	420134	5763110	9,810	1,340	74	49	115	81
26211	Rose	420110	5763121	9,490	1,350	80	70	202	82
26212	Rose	420110	5763121	9,320	2,200	170	210	842	74
26213	Rose	420058	5763152	7,080	2,050	140	90	289	81
26214	Rose	420046	5763171	7,210	1,150	190	60	280	65
26215	Rose	420057	5763177	13,300	1,760	220	60	56	110
26216	Rose	420045	5763198	8,160	1,580	88	46	102	88
26217	Rose	420042	5763219	8,800	3,280	61	91	119	72
26218	Rose	420042	5763225	9,510	1,500	60	50	147	79
26219	Rose	419982	5763251	8,580	3,290	490	130	134	92
26220	Rose	419844	5763269	3,870	1,060	220	80	147	68
430901	Rose	419635	5763393	10,200	n/a	n/a	n/a	n/a	70
430902	Rose	419637	5763400	6,220	n/a	n/a	n/a	n/a	70
430903	Rose	419647	5763397	2,840	n/a	n/a	n/a	n/a	90
430904	Rose	419655	5763398	7,140	n/a	n/a	n/a	n/a	80
430905	Rose	419660	5763398	11,500	n/a	n/a	n/a	n/a	80

## 10.0 DRILLING

Critical Elements started drilling the Pivert-Rose property in late 2009. This report considers 217 holes drilled by the company totalling 26,176.50 m. Out of those 217 holes, 202 holes (totalling 25,200.90 m) were included in the current Resource Estimate.

The authors obtained assay certificates from ALS Chemex Laboratory to create an independent database. The authors used the independently compiled database to recalculate the results according to the following rules:

- For Li, two methods were present in the database: ME-MS61 and ME-OG63. ME-OG63 is only available when ME-MS61 shows >10,000 ppm and is a method capable of returning results for higher grades. Therefore, values from ME-OG63 were used when available.
- For Be, two methods were present in the database: ME-MS61 and ME-ICP61a. ME-ICP61a is only available when ME-MS61 shows >500 ppm and is a method capable of returning results for higher grades. Therefore, values from ME-ICP61a were used when available.
- For Rb, two methods were present in the database: ME-MS61 and ME-MS81. When both methods were available, an average of the two methods was applied. In cases where result were >10,000 ppm Rb, the value of 10,000 was applied prior to proceeding with the average.
- For Ta, three methods were present in the database: ME-MS61, ME-MS81 and ME-XRF05. When more than one method was available, an average was applied. In cases where Ta values were >100 ppm using method ME-MS61, the average of ME-MS81 and ME-XRF05 was used. In each instance where this occurred, the results from either ME-MS81 or ME-XRF05 (or both) were available. In cases where Ta values were >10,000 ppm using method ME-XRF05, the value of 10,000 was used.
- For Cs, three methods were present in the database: ME-MS61, ME-MS81 and ME-XRF05. When more than one method was available, an average was applied. In cases where Cs values were >500 ppm using method ME-MS61, the average of ME-MS81 and ME-XRF05 was used. In each instance where this occurred, results from either ME-MS81 or ME-XRF05 (or both) were available.
- For Ga, two methods were present in the database: ME-MS61 and ME-MS81. When both methods were available, an average of the two methods was applied.

Grades for Li, Ta, Rb, Cs and Be are reported in this section as parts per million (ppm). Table 2.1 provides conversion factors for obtaining  $\text{Li}_2\text{O}$ ,  $\text{Ta}_2\text{O}_5$ ,  $\text{Rb}_2\text{O}$ ,  $\text{Cs}_2\text{O}$  and  $\text{BeO}$ , an alternative reporting format for these elements. Note that 10,000 ppm equals 1%.

## 10.1 Drilling on the Pivert showing

Diamond drilling on the Pivert showing is limited to six (6) short holes (NQ core size; total of 507.6 m) completed by Critical Elements in 2009 and 2010 (Table 10.1). The objective of the program was to confirm the continuity of the mineralized pegmatite observed at surface.

The orientations of the six holes varied from N210 to N010 and the dip varied from -45° to -60°.

All holes were supervised, logged and sampled by Consul-Teck. The program produced 96 samples. Hole LP-09-01 returned anomalous values in Li, Cs and Rb, and hole LP-09-02 returned anomalous values in rare elements such as Rb and Cs. Hole LP-09-03 did not intersect any significant values. Holes LP-10-04 and LP-10-06 reported intersected Li, Ta, Rb, Cs, Be and Ga mineralization, while hole LP-10-06 only reported anomalous values.

**Table 10.1 – Critical Elements diamond drill holes on the Pivert showing**

Hole	UTM83 Zone 18		Elevation (m)	Azimuth	Dip	Length (m)
	Easting	Northing				
LP-09-01	422643	5766773	301	10	-45.0	126.00
LP-09-02	422670	5766770	301	10	-45.0	123.00
LP-09-03	422617	5766777	301	10	-45.0	102.60
LP-10-04	422698	5766838	300	210	-60.0	54.00
LP-10-05	422658	5766843	305	190	-60.0	51.00
LP-10-06	422620	5766850	304	210	-60.0	51.00
<b>Total 6 holes:</b>						<b>507.60</b>

## 10.2 Drilling on the Rose deposit

At the time of writing this report, Critical Elements had drilled 202 holes (NQ core size; 25,200.90 m) on the Rose deposit in 2009, 2010 and 2011 (Table 10.2). Holes from the Hydro and JR showings are included in this total because these showings are now considered part of the Rose deposit after drilling effectively expanded the original Rose showing to encompass Hydro and JR.

The original objective of the program was to confirm the continuity of the mineralized pegmatite observed at surface. This objective was quickly upgraded to systematic drilling of the mineralized pegmatite.

Drill holes were supervised, logged and sampled by Consul-Teck. The program produced 4,406 samples.

**Table 10.2 – Critical Elements diamond drill holes on the Rose deposit**

Hole	UTM83 Zone 18		Elevation (m)	Azimuth	Dip	Length (m)
	Easting	Northing				
LR-09-01	419674	5763337	294	335.0	-48.0	126.00
LR-09-02	419638	5763408	295	157.0	-45.0	78.00
LR-09-03	419669	5763417	297	156.0	-44.0	83.20
LR-09-04	419655	5763458	300	155.0	-45.0	114.00
LR-09-05	419692	5763357	294	335.0	-45.0	114.00
LR-09-06	419723	5763371	295	335.0	-46.0	108.00
LR-09-07	419705	5763412	297	335.0	-43.0	114.00
LR-09-08	419733	5763349	296	335.0	-51.0	201.00
LR-09-09	419735	5763411	297	335.0	-47.0	111.00
LR-09-10	419762	5763351	298	335.0	-47.0	108.00
LR-10-11	419763	5763351	299	335.0	-86.0	81.00
LR-10-12	419776	5763325	300	335.0	-78.0	150.00
LR-10-13	419799	5763276	301	335.0	-80.0	84.00
LR-10-14	419822	5763310	303	316.0	-79.0	90.00
LR-10-15	419784	5763374	299	334.0	-79.0	93.00
LR-10-16	419760	5763427	299	324.0	-80.0	102.00
LR-10-17	419762	5763282	300	335.0	-80.0	60.00
LR-10-18	419708	5763306	296	335.0	-80.0	84.00
LR-10-19	419618	5763380	295	335.0	-80.0	87.00
LR-10-20	419837	5763343	303	335.0	-80.0	102.00
LR-10-21	419696	5763259	295	335.0	-80.0	60.00
LR-10-22	419663	5763285	295	335.0	-80.0	60.00
LR-10-23	419820	5763375	302	335.0	-80.0	120.00
LR-10-24	419785	5763446	302	335.0	-79.0	117.00
LR-10-25	419801	5763410	298	335.0	-80.0	102.00
LR-10-26	419769	5763477	305	335.0	-80.0	141.00
LR-10-27	419743	5763468	305	332.0	-79.0	123.00
LR-10-28	419712	5763465	304	335.0	-80.0	117.00
LR-10-29	419688	5763457	302	335.0	-80.0	105.00
LR-10-30	419611	5763468	298	342.0	-80.0	114.00
LR-10-31	419604	5763416	292	345.0	-81.0	105.00
LR-10-32	419564	5763403	292	335.0	-80.0	69.00
LR-10-33	419578	5763479	297	335.0	-79.6	120.00
LR-10-34	419603	5763491	299	342.0	-70.0	141.00
LR-10-35	419649	5763500	304	335.0	-70.0	159.00
LR-10-36	419688	5763520	306	342.0	-70.0	153.00
LR-10-37	419750	5763517	309	335.0	-70.0	138.00
LR-10-38	419794	5763534	308	343.0	-70.0	150.00
LR-10-39	419819	5763485	308	335.0	-80.0	141.00
LR-10-40	419842	5763443	299	331.0	-80.0	123.00
LR-10-41	419872	5763384	306	335.0	-80.0	116.65
LR-10-42	419890	5763320	305	335.0	-79.0	126.00
LR-10-43	419933	5763336	310	318.0	-81.0	129.00
LR-10-44	419908	5763390	308	330.0	-80.0	129.00
LR-10-45	419885	5763439	304	328.0	-80.0	135.00
LR-10-46	419860	5763496	304	335.0	-80.0	150.00
LR-10-47	419836	5763547	303	335.0	-80.0	153.00
LR-10-48	419894	5763546	303	326.0	-80.0	159.00
LR-10-49	419931	5763479	305	335.0	-80.0	156.00
LR-10-50	419955	5763436	308	335.0	-80.0	156.00
LR-10-51	419969	5763378	312	335.0	-80.0	162.00
LR-10-52	419994	5763325	311	335.0	-81.0	105.00
LR-10-53	420050	5763215	309	335.0	-80.0	75.00
LR-10-54	420069	5763160	317	335.0	-79.0	102.00
LR-10-55	420139	5763108	306	335.0	-80.0	51.00
LR-10-56	420199	5763121	306	322.0	-80.0	45.00
LR-10-57	420234	5763160	308	335.0	-80.0	75.00
LR-10-58	420121	5763166	313	336.0	-80.0	45.00
LR-10-59	420099	5763224	308	335.0	-80.0	51.00
LR-10-60	420076	5763274	306	335.0	-80.0	75.00
LR-10-61	420027	5763255	306	335.0	-80.0	51.00
LR-10-62	420048	5763328	310	134.0	-79.0	132.00
LR-10-63	420024	5763381	318	152.0	-81.0	102.00
LR-10-64	420001	5763427	313	154.0	-79.0	165.00
LR-10-65	419973	5763491	302	152.0	-81.0	165.00
LR-10-66	419953	5763541	298	142.0	-80.0	156.00
LR-10-67	419925	5763601	301	155.0	-80.0	174.00
LR-10-68	419973	5763615	298	155.0	-80.0	189.00
LR-10-69	420002	5763557	303	150.0	-80.0	183.00
LR-10-70	420026	5763500	311	142.0	-80.0	102.00
LR-10-71	420098	5763341	313	150.0	-80.0	111.00
LR-10-72	420122	5763283	309	151.0	-81.0	63.00
LR-10-73	420144	5763230	309	155.0	-80.0	54.00
LR-10-74	420172	5763175	310	156.0	-80.0	51.00
LR-10-75	420077	5763391	317	146.0	-80.0	84.00
LR-10-76	420218	5763196	310	146.0	-80.0	51.00
LR-10-77	420193	5763250	310	155.0	-80.0	60.00
LR-10-78	420169	5763306	311	155.0	-80.0	69.00
LR-10-79	420145	5763361	314	155.0	-80.0	87.00
LR-10-80	420121	5763409	318	155.0	-80.0	102.00



**Table 10.2 (cont'd) – Critical Elements diamond drill holes on the Rose deposit**

Hole	UTM83 Zone 18		Elevation (m)	Azimuth	Dip	Length (m)
	Easting	Northing				
LR-10-81	420095	5763468	317	155.0	-80.0	180.00
LR-10-82	420074	5763521	310	155.0	-80.0	171.00
LR-10-83	420051	5763572	303	153.0	-80.0	201.00
LR-10-84	420024	5763629	299	155.0	-80.0	207.00
LR-10-85	420069	5763655	295	136.2	-79.6	228.00
LR-10-86	420089	5763600	305	148.0	-80.0	210.00
LR-10-87	420122	5763535	308	155.0	-80.0	192.00
LR-10-88	420046	5763450	317	136.2	-79.6	99.00
LR-10-89	420148	5763484	313	155.0	-80.0	99.00
LR-10-90	420174	5763436	315	155.0	-80.0	99.00
LR-10-91	420201	5763382	313	155.0	-80.0	87.00
LR-10-92	420230	5763326	313	155.0	-80.0	72.00
LR-10-93	420239	5763264	312	150.0	-80.0	60.00
LR-10-94	420264	5763218	309	150.0	-80.0	42.00
LR-10-95	420281	5763181	306	155.0	-80.0	27.00
LR-10-96	420306	5763226	306	152.0	-80.0	51.00
LR-10-97	420285	5763288	311	155.0	-79.0	99.00
LR-10-98	420267	5763352	312	155.0	-80.0	105.00
LR-10-99	420246	5763396	312	150.0	-80.0	108.00
LR-10-100	420209	5763455	313	155.0	-80.0	105.00
LR-10-101	420185	5763505	309	155.0	-80.0	108.00
LR-10-102	420157	5763573	309	152.0	-79.0	126.00
LR-10-103	420137	5763612	308	155.0	-80.0	144.00
LR-10-104	420108	5763671	295	152.2	-78.1	147.00
LR-10-105	420085	5763719	295	157.5	-80.3	159.00
LR-10-106	420138	5763712	295	155.0	-80.0	183.00
LR-10-107	420156	5763674	295	155.0	-80.0	150.00
LR-10-108	420190	5763609	306	168.0	-79.0	138.00
LR-10-109	420219	5763555	304	145.0	-80.0	138.00
LR-10-110	420239	5763505	308	155.0	-80.0	114.00
LR-10-111	420266	5763449	311	143.0	-80.0	117.00
LR-10-112	420287	5763400	311	155.0	-80.0	114.00
LR-10-113	420315	5763346	310	155.0	-80.0	102.00
LR-10-114	420335	5763301	309	155.0	-80.0	84.00
LR-10-115	420358	5763255	305	155.0	-79.0	63.00
LR-10-116	420390	5763286	305	155.0	-79.0	69.00
LR-10-117	420364	5763358	309	155.0	-80.0	108.00
LR-10-118	420342	5763413	310	155.0	-80.0	114.00
LR-10-119	420311	5763467	308	155.0	-80.0	123.00
LR-10-120	420289	5763522	305	154.0	-80.0	123.00

Hole	UTM83 Zone 18		Elevation (m)	Azimuth	Dip	Length (m)
	Easting	Northing				
LR-10-121	420269	5763578	300	140.0	-80.0	135.00
LR-10-122	420245	5763622	300	152.0	-80.0	135.00
LR-10-123	420214	5763688	293	145.0	-80.0	174.00
LR-10-124	420191	5763741	293	153.0	-80.0	201.00
LR-10-125	420238	5763757	291	145.0	-80.0	204.00
LR-10-126	420265	5763700	291	155.0	-80.0	159.00
LR-10-127	420292	5763639	296	148.0	-80.0	177.00
LR-10-128	420311	5763593	294	152.0	-80.0	135.00
LR-10-129	420340	5763535	303	153.0	-79.0	135.00
LR-10-130	420364	5763477	308	152.0	-80.0	123.00
LR-10-131	420389	5763428	309	142.0	-79.0	120.00
LR-10-132	420412	5763373	307	140.0	-79.0	105.00
LR-10-133	420436	5763319	304	140.0	-80.0	87.00
LR-10-134	420491	5763315	298	154.0	-80.0	90.00
LR-10-135	420470	5763378	305	150.0	-78.0	117.00
LR-10-136	420441	5763427	307	148.0	-77.0	129.00
LR-10-137	420416	5763484	306	144.0	-80.0	132.00
LR-10-138	420395	5763532	304	166.7	-80.4	153.00
LR-10-139	420365	5763599	293	141.0	-79.0	150.00
LR-10-140	420339	5763651	292	157.0	-80.0	201.00
LR-10-141	420319	5763701	289	155.0	-80.0	183.00
LR-10-142	420282	5763745	289	155.0	-80.0	201.00
LR-10-143	420272	5763810	292	155.0	-80.0	228.00
LR-11-144	420502	5763477	306	157.9	-76.1	150.00
LR-11-145	420487	5763569	301	149.7	-74.5	174.00
LR-11-146	420431	5763696	291	148.6	-75.3	201.00
LR-11-147	420406	5763753	290	151.2	-75.5	225.00
LR-11-148	420362	5763846	293	155.9	-74.1	243.00
LR-11-149	420317	5763946	293	158.8	-76.3	276.00
LR-11-150	420223	5763915	296	150.2	-75.2	276.00
LR-11-151	420131	5763881	294	155.2	-76.0	234.00
LR-11-152	420032	5763897	295	154.2	-75.5	252.00
LR-11-153	419902	5763898	295	149.4	-73.3	300.00
LR-11-154	419787	5763659	292	153.4	-76.1	153.00
LR-11-155	420625	5763447	301	155.0	-75.0	150.00
LR-11-156	420612	5763538	301	190.5	-70.6	210.00
LR-11-157	420605	5763620	298	204.4	-71.4	192.00
LR-11-158	420648	5763696	292	197.8	-71.4	186.00
LR-11-159	420689	5763606	301	195.9	-70.7	177.00
LR-11-160	420731	5763515	299	189.3	-70.5	150.00

**Table 10.2 (cont'd) – Critical Elements diamond drill holes on the Rose deposit**

Hole	UTM83 Zone 18		Elevation (m)	Azimuth	Dip	Length (m)
	Easting	Northing				
LR-11-161	420753	5763406	288	199.3	-70.7	126.00
LR-11-162	420863	5763467	289	196.1	-69.4	150.00
LR-11-163	420826	5763552	290	195.0	-69.9	174.00
LR-11-164	420781	5763637	297	192.9	-69.3	219.00
LR-11-165	420742	5763724	290	205.0	-67.7	201.00
LR-11-166	420838	5763754	286	198.6	-68.6	204.00
LR-11-167	420882	5763667	291	188.6	-69.0	183.00
LR-11-168	420923	5763588	292	189.5	-71.0	99.00
LR-11-169	420963	5763490	291	197.0	-68.8	81.00
LR-11-170	421003	5763403	294	186.2	-69.7	84.00
LR-11-171	421021	5763616	294	192.0	-71.4	126.00
LR-11-172	420976	5763723	293	198.6	-69.4	144.00
LR-11-173	420912	5763841	287	194.1	-69.8	180.00
LR-11-174	420966	5763967	287	195.6	-70.5	210.00
LR-11-175	421016	5763860	288	195.6	-69.1	177.00
LR-11-176	421065	5763740	297	196.9	-69.2	132.00
LR-11-177	421078	5763959	288	192.2	-70.8	186.00
LR-11-178	420604	5763841	286	198.2	-68.3	224.05
LR-11-179	419801	5763200	295	10.4	-58.0	102.00
LR-11-180	419436	5763401	290	8.9	-57.8	99.00
LR-11-181	419600	5763620	299	13.7	-59.5	138.00
JR-10-01	421750	5764549	308	210.0	-60.0	54.00
JR-10-02	421720	5764566	307	210.0	-60.0	57.00
JR-10-03	421688	5764579	304	210.0	-60.0	57.00
JR-10-04	421768	5764576	307	210.0	-60.0	48.00
JR-10-05	421736	5764587	304	210.0	-60.0	75.00
JR-10-06	421699	5764603	303	210.0	-60.0	45.00
JR-10-07	421719	5764641	302	210.0	-60.0	45.00
JR-10-08	421751	5764612	303	210.0	-60.0	45.00
JR-10-09	421789	5764603	306	210.0	-60.0	45.00
JR-10-10	421830	5764623	305	210.0	-60.0	45.00
JR-10-11	421798	5764634	303	210.0	-60.0	45.00
JR-10-12	421767	5764638	303	210.0	-60.0	66.00
JR-11-13	421862	5764659	305	210.0	-75.0	75.00
JR-11-14	421816	5764676	303	210.0	-75.0	99.00
JR-11-15	421734	5764720	309	210.0	-75.0	69.00
JR-11-16	421730	5764838	313	210.0	-75.0	84.00
JR-11-17	421818	5764790	309	210.0	-75.0	81.00
JR-11-18	421909	5764748	302	210.0	-75.0	78.00
HD-10-01	420624	5763935	293	210.0	-60.0	51.00

Hole	UTM83 Zone 18		Elevation (m)	Azimuth	Dip	Length (m)
	Easting	Northing				
HD-10-02	420584	5763932	294	210.0	-60.0	54.00
HD-10-03	420473	5763975	298	210.0	-60.0	60.00

<b>Total 202 holes:</b>						<b>25,200.90</b>
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### 10.3 Drilling on other showings

Three other showings were drilled in 2010 (Table 10.3): Five holes totalling 315 m on the Helico showing; two (2) totalling 102 m on the Pivert East showing; and two (2) totalling 102 m on the Pivert South showing.

The original objective of the program was to confirm the continuity of the mineralized pegmatites observed at surface. Drill holes were supervised, logged and sampled by Consul-Teck. The program produced 129 samples.

**Table 10.3 – Critical Elements diamond drill holes on the property’s other known showings**

Hole	UTM83 Zone 18		Elevation (m)	Azimuth	Dip	Length (m)
	Easting	Northing				
HE-10-01	423105	5765809	293	190	-60.0	51.00
HE-10-02	423074	5765814	292	190	-60.0	60.00
HE-10-03	423046	5765818	292	190	-60.0	51.00
HE-10-04	423016	5765830	292	190	-60.0	51.00
HE-10-05	422987	5765835	292	190	-60.0	51.00
PE-10-01	423291	5766260	300	190	-60.0	51.00
PE-10-02	423275	5766276	300	190	-60.0	51.00
PS-10-01	423079	5765996	300	190	-60.0	51.00
PS-10-02	423108	5765989	300	190	-60.0	51.00
<b>Total 9 holes:</b>						<b>468.00</b>

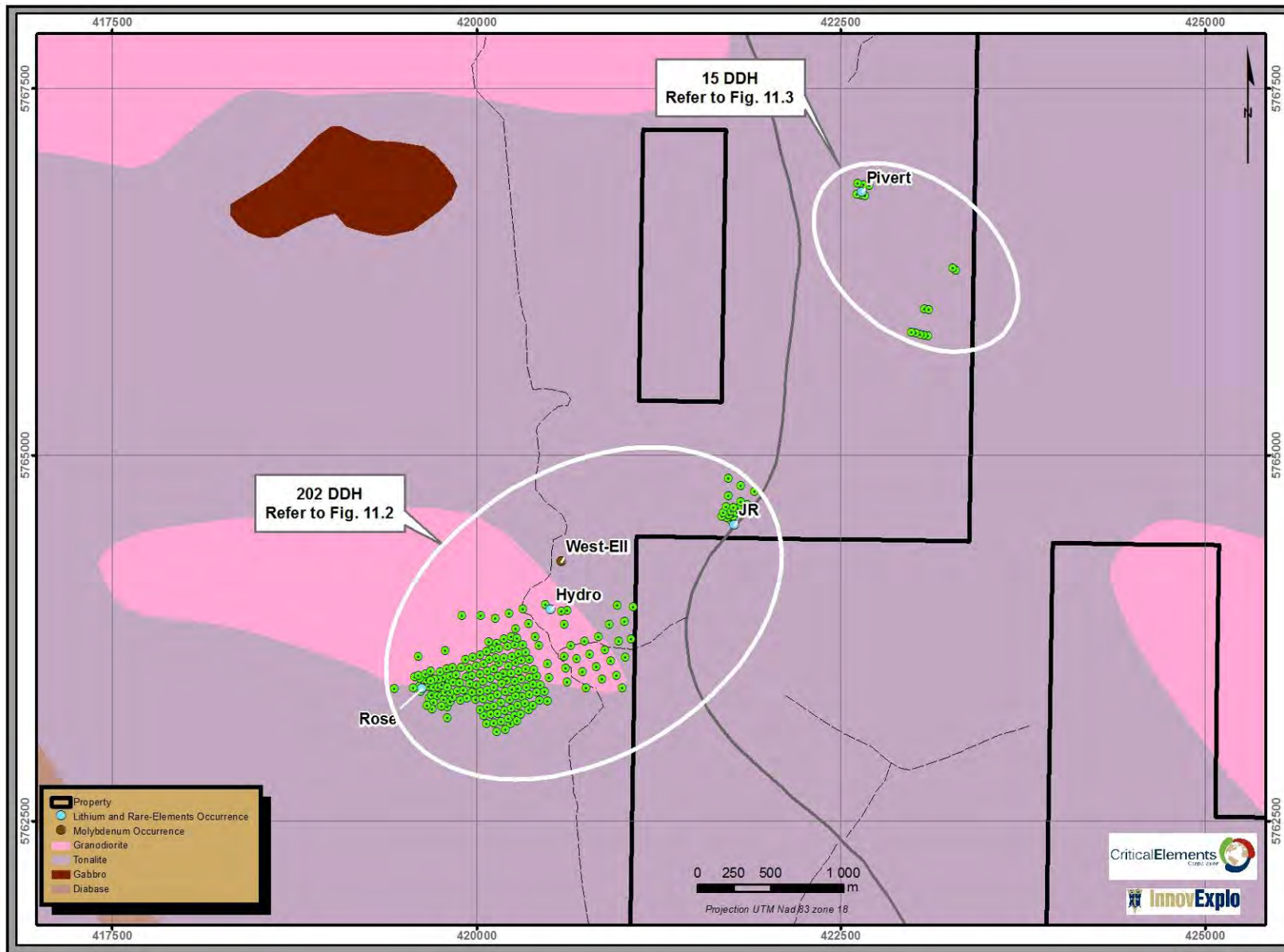


Figure 10.1 – Critical Elements diamond drill holes on the Pivert-Rose property

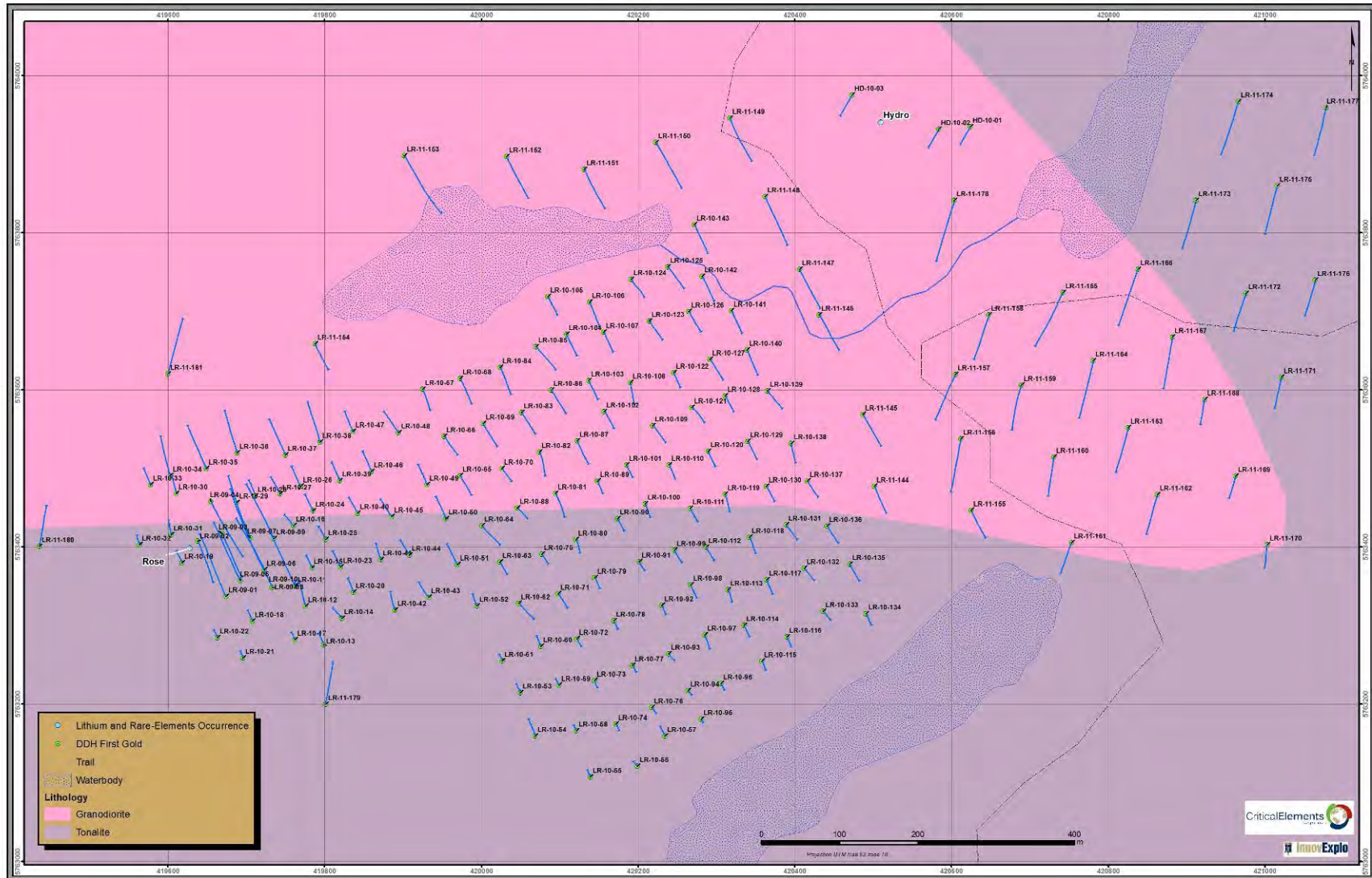


Figure 10.2 – Critical Elements diamond drill holes on the Rose deposit

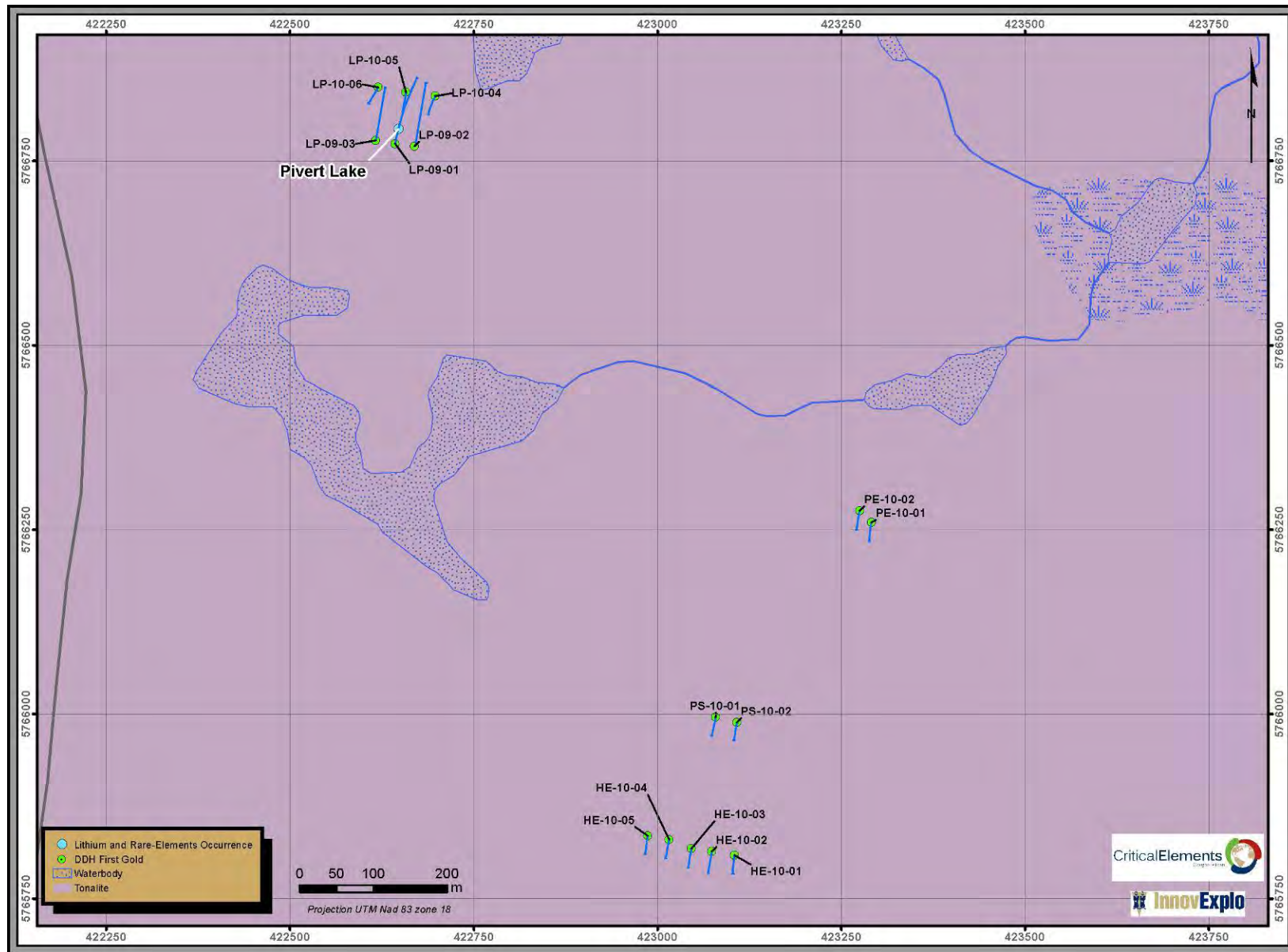


Figure 10.3 – Critical Elements diamond drill holes on the Pivert showing

## 11.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

### 11.1 Sampling method and approach

The following drill core and channel sampling method and approach was established by Consul-Teck.

The drill core is boxed, covered and sealed at the drill rig and moved to the side of the main gravel road by the drillers, where they are piled either on the ground or on a trailer. Consul-Teck personnel then carry the boxes once or twice a week to the core logging and sample preparation facility in Val d'Or.

After being examined and described (logged), the core is sampled according to an established protocol. The core of the selected section is first cut in half using a typical table-feed circular rock saw, with one half put aside for eventual shipment to the laboratory. The second half of the core is put back in its place in the core box, and a tag bearing the same number is placed at the end of the sawed core halves forming the sampled length. Core sample intervals are selected based on the presence of favourable geological units (pegmatite) and placed into sample bags before being shipped to the assay lab.

Channel samples collected from the Pivert-Rose property by Critical Elements have been referred to in company press releases as “non-chosen grab samples” because the collection process differs from traditional channel sampling. Unlike traditional channel samples, they are not necessarily perpendicular to the interpreted strike of the pegmatite and they are of variable lengths. This type of channel sampling was employed in lieu of grab sampling since traditional grabs are very difficult or impossible to obtain from the smooth, hard outcrops surfaces using a hammer and chisel. The resulting samples, however, are similar to grab samples in that they are selective by nature and unlikely to represent average grades. The purpose of such sampling was to rapidly determine whether mineralization is constant throughout the outcropping pegmatite. Author Pierre-Luc Richard examined some of the channel sampling sites during a visit to the Pivert-Rose property. The channels were approximately 5 cm wide and cut with a motorized circular saw to a depth of approximately 5 cm. Most were approximately one metre (1 m) long and entirely within the pegmatite dyke. As mentioned above, they were not necessarily perpendicular to the interpreted strike of the pegmatite. According to the issuer, samples were placed whole into bags before sending to the laboratory.

Most core samples range in length from 0.10 to 2.00 m, with only a few exceptions exceeding 2.00 m. This is discussed further in Section 12 (*Data verification*).

Every pegmatite unit was systematically sampled. Based on the author's observation of the core, samples collected by diamond drilling are generally intact with little possibility of loss due to wash out and are considered to be of good quality. Overall, the author considers the drill core sample recovery from mineralized zones to be representative.

Consul-Teck's core logging facility in Val-d'Or was used for the drilling program. Consul-Teck defined the sample preparation, analysis and security protocols for the Critical Elements drilling programs. Assays were mostly performed at the independent and accredited ALS-Chemex laboratory in Val-d'Or, but nine (9) of the first grab samples (430901 to 430909) were sent to Techni-Lab S.G.B Abitibi Inc in Ste-Germaine-Boulé, Québec.

After logging and sampling at Consul-Teck's Val-d'Or facility, samples are delivered to the laboratory by Consul-Teck personnel.

Upon arrival at the ALS-Chemex laboratories (ALS), the samples are dried then crushed (jaw crushers) to 70% passing 10 mesh (i.e., 2mm). Samples are then riffle-split (Jones riffle splitters) to reduce the sample size for pulverization to a maximum of 1 kg. The 1-kg samples are then pulverized (ring and puck) to 85% passing 200 mesh (i.e., 75 µm). Analytical protocols require that all samples be analyzed for 48 elements by the Ultra-Trace Level method using ICP MS and ICP-AES (ALS internal code ME-MS61).

The ALS protocol for this type of analysis stipulates that a prepared sample (0.25 g) is digested by perchloric, nitric, hydrofluoric and hydrochloric acids. The residue is topped up with dilute hydrochloric acid and analyzed by inductively coupled plasma–atomic emission spectrometry (ICP-AES). Following this analysis, the results are reviewed for high concentrations of bismuth, mercury, molybdenum, silver or tungsten and diluted accordingly. Samples with high concentrations are then analyzed by inductively coupled plasma–mass spectrometry (ICP-MS). Results are corrected for spectral inter-element interferences. ALS notes that although the four-acid digestion is able to dissolve most minerals, it is described as “near-total digestion” because not all elements may be quantitatively extracted, depending on the sample matrix.

In cases where Li is higher than the detection limit of the ME-MS61 method, selected samples are then analyzed using the ALS Ore Grade Lithium method by four-acid digestion with ICP-AES finish (ALS internal code Li-OG63). Approximately 0.4 g is first digested with HClO<sub>4</sub>, HF and HNO<sub>3</sub> until dryness. The residue is subsequently re-digested in concentrated HCl, cooled and topped up to volume. The samples are analyzed for Li by ICP-AES spectroscopy.

In cases where Ta and/or Cs are higher than the detection limit of the ME-MS61 method, selected samples are then analyzed using the ALS Pressed Pellet Geochemical Procedure method (ALS internal code ME-XRF05). A finely ground sample powder (10-g minimum) is mixed with a few drops of liquid binder (Polyvinyl Alcohol) and then transferred into an aluminum cap. The sample is subsequently compressed in a pellet press at approximately 30 tons/in<sup>2</sup>. After pressing, the pellet is dried to remove the solvent and analyzed by WDXRF spectrometry for the desired elements.

In addition to the regular sampling and assaying of samples, Consul-Teck externally initiates additional quality control protocols by preparing various duplicate samples to evaluate the precision (i.e., reproducibility) and accuracy (i.e., correctness) of the values reported. According to the company database, a total of 192 samples from the Pivert-Rose property were duplicated. In addition, 198 blank samples were inserted in the batches sent to the laboratory to verify that contamination did not occur during the preparation process. ALS Chemex also conducts internal quality control protocols.

The laboratory delivered the results in electronic format, sent by e-mail only to Jean-Sébastien Lavallée. Assay results were then transferred directly into the Critical Elements database.

There is no indication of anything in the drilling, core handling and sampling procedures, or in the sampling methods and approach, that could have had a negative impact on the reliability of the reported assay results.



## 11.2 Critical Elements Quality Control

The quality control database for drill core assays contains 198 blank and 192 core duplicate samples that were sent to ALS Chemex Laboratories as part of the program. Core duplicates are quarter-splits using what is left in the box after taking the original half-split sample. Certified Standards were not included in the sample protocol.

According to the database, not every hole had blanks and/or core duplicates, but the majority did (Tables 11.1 and 11.2).

Field duplicates returned values similar to the original assays (Fig. 11.2; Table 11.2), the only exception being Be and Ta which show less (although reasonable) coherence. Only four blanks (samples 738810, 747847, 883610 and 883661; Table 11.1) returned abnormally high results. After reviewing the weights received at the laboratory, the authors came to the conclusion that there must have been a mistake in the tag identification of sample 747847 rather than a laboratory issue. However, the three batches containing samples 738810, 883610 and 883661 should be quarter-split and reassayed with new blanks and duplicates. With the exception of those three suspicious batches, there were no signs of significant contamination.

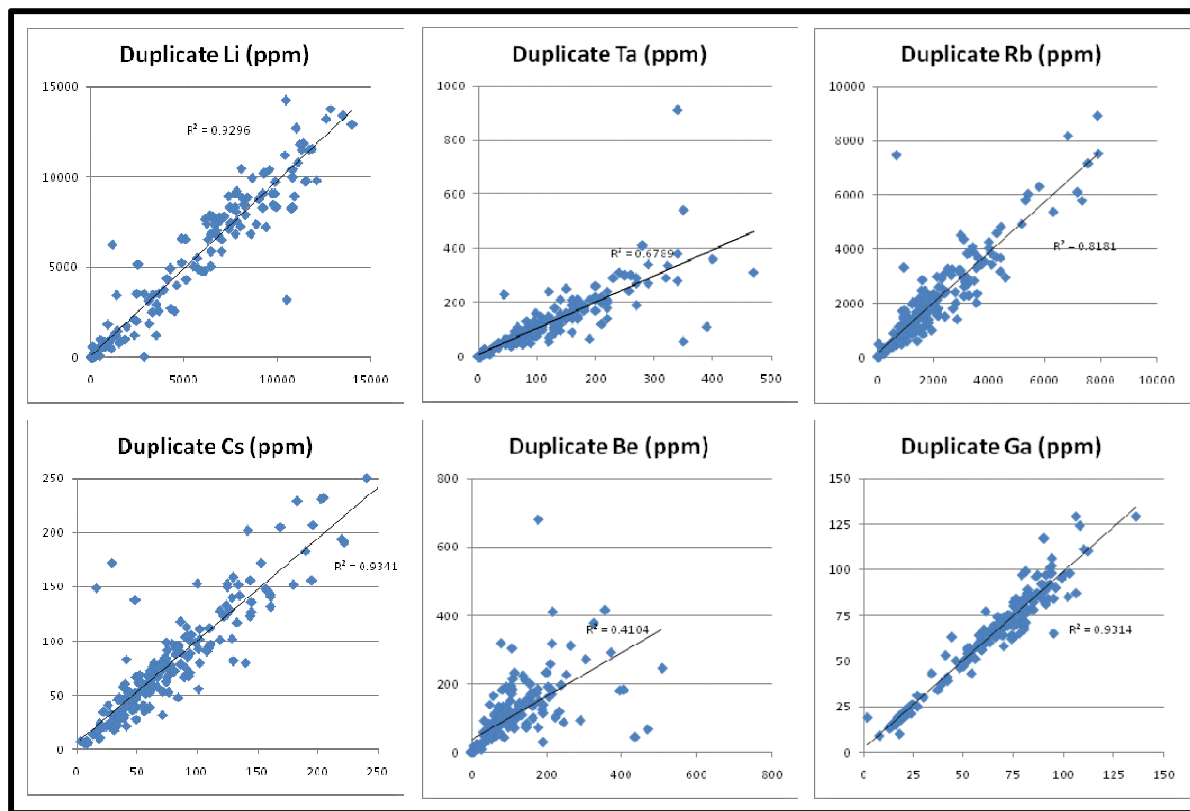


Figure 11.1 – Verification of core duplicates

**Table 11.1 – Verification of blanks**

Sample	Weight (kg)	Be (ppm)	Cs (ppm)	Ga (ppm)	Li (ppm)	Rb (ppm)	Ta (ppm)	Sample	Weight (kg)	Be (ppm)	Cs (ppm)	Ga (ppm)	Li (ppm)	Rb (ppm)	Ta (ppm)
4510	0.05	1	1	18	26	50	1	728630	0.03	1	1	12	16	28	0
4536	0.04	1	1	18	26	37	0	728656	0.03	1	1	12	13	30	0
4561	0.04	1	2	19	28	41	1	728706	0.03	1	1	11	13	27	0
4586	0.05	1	1	18	24	44	1	728726	0.03	1	1	12	16	32	1
4611	0.04	1	1	18	27	42	1	728765	0.03	1	1	11	14	26	0
4636	0.04	1	1	17	24	47	0	728781	0.03	1	1	11	13	25	0
4661	0.04	1	1	17	22	47	1	728808	0.03	1	1	11	13	25	0
430868	0.06	1	1	18	27	41	1	728835	0.04	1	1	11	14	27	0
430882	0.06	1	1	17	50	40	1	728860	0.02	1	1	12	20	27	0
430924	0.06	1	2	18	30	41	1	728890	0.03	1	1	11	15	35	0
430947	0.04	1	1	15	30	40	1	728906	0.04	1	1	11	15	27	1
718435	0.04	1	1	18	28	42	1	738010	0.04	1	1	10	22	31	1
718454	0.04	2	2	22	40	60	1	738035	0.04	1	1	11	18	33	0
728108	0.04	1	1	12	19	31	0	738061	0.04	1	1	11	25	34	0
728138	0.03	1	1	11	18	40	1	738085	0.05	1	1	13	19	27	0
728158	0.04	1	1	11	17	30	0	738110	0.05	1	1	13	16	30	0
728186	0.03	1	1	12	20	28	0	738136	0.04	1	1	11	17	28	0
728211	0.03	1	1	11	12	27	0	738171	0.05	1	1	12	21	32	0
728236	0.04	1	1	11	16	32	0	738180	0.05	1	1	12	18	33	0
728268	0.03	1	1	12	14	30	0	738210	0.02	1	1	12	16	34	0
728292	0.03	1	1	11	13	31	1	738230	0.02	1	1	12	16	35	0
728313	0.03	1	1	11	13	28	0	738260	0.04	1	1	12	15	29	0
728331	0.03	1	1	11	13	30	0	738280	0.05	1	1	12	16	34	0
728357	0.04	1	1	11	13	28	0	738309	0.05	1	1	12	42	28	0
728379	0.03	1	1	12	19	30	0	738332	0.04	1	1	12	24	27	0
728412	0.03	1	1	11	13	27	0	738360	0.05	1	1	11	29	27	0
728434	0.03	1	1	13	25	29	1	738383	0.03	1	1	11	22	29	0
728461	0.03	1	1	11	7	27	0	738412	0.04	1	1	12	14	28	1
728484	0.04	1	1	10	14	32	0	738432	0.03	1	1	10	19	30	0
728516	0.04	1	1	11	16	29	0	738460	0.03	1	1	12	21	27	1
728538	0.04	1	1	11	14	27	0	738485	0.03	1	1	13	20	30	0
728555	0.03	1	1	11	15	27	0	738507	0.03	1	1	12	18	30	0
728581	0.04	1	1	11	20	27	0	738528	0.03	1	1	12	24	27	0

**Table 11.1 (cont'd) – Verification of blanks**

Sample	Weight (kg)	Be (ppm)	Cs (ppm)	Ga (ppm)	Li (ppm)	Rb (ppm)	Ta (ppm)	Sample	Weight (kg)	Be (ppm)	Cs (ppm)	Ga (ppm)	Li (ppm)	Rb (ppm)	Ta (ppm)
738558	0.05	1	1	11	17	28	0	739498	0.04	1	1	11	20	28	1
738584	0.03	1	1	12	18	25	0	739518	0.04	1	1	11	17	28	0
738608	0.05	1	1	12	16	33	0	739538	0.04	1	1	13	17	28	0
738633	0.04	1	1	12	19	33	0	739558	0.04	1	1	11	16	27	0
738661	0.03	1	1	12	25	33	0	739578	0.04	1	1	13	19	33	0
738683	0.03	1	1	11	15	27	0	739598	0.02	1	1	11	14	29	0
738706	0.04	1	1	12	26	34	0	739618	0.04	1	1	11	15	29	0
738734	0.04	1	1	13	17	27	0	739638	0.03	1	1	12	24	27	0
738759	0.04	1	1	12	16	30	0	739658	0.04	1	1	11	16	26	0
738786	0.04	1	1	10	23	27	0	739678	0.04	1	1	13	25	28	0
738810	0.04	259	75	73	7470	2110	150	739698	0.04	1	1	11	14	33	0
738835	0.04	2	1	11	17	34	0	739718	0.04	1	1	12	15	34	0
738861	0.04	1	1	11	18	27	0	739738	0.04	1	1	12	15	27	0
738881	0.04	1	1	11	18	35	0	739758	0.05	1	1	11	17	26	0
738910	0.04	1	2	11	23	31	0	739778	0.04	1	1	11	18	27	0
738936	0.04	1	1	12	26	27	0	739798	0.04	1	1	12	16	29	0
738958	0.04	1	1	12	15	29	0	739818	0.04	1	1	11	16	27	0
738978	0.04	6	7	29	278	126	12	739855	0.05	1	1	11	14	28	0
738998	0.04	1	1	12	15	31	0	739879	0.06	1	1	11	14	29	0
739218	0.04	1	1	12	20	27	0	739918	0.05	1	1	11	17	29	0
739238	0.05	1	1	12	13	31	0	739938	0.04	1	1	9	14	33	0
739258	0.04	1	1	12	22	33	0	739958	0.03	1	1	11	18	28	0
739278	0.04	1	1	11	17	24	0	739978	0.04	1	1	11	16	31	0
739298	0.04	1	1	12	22	37	0	739998	0.04	1	1	11	15	29	1
739318	0.04	1	1	12	33	31	1	747560	0.06	1	2	16	23	38	1
739338	0.04	1	1	13	19	29	0	747588	0.06	1	1	18	28	51	0
739358	0.04	1	1	13	18	29	0	747613	0.06	1	1	16	25	46	0
739378	0.04	1	1	12	19	29	0	747635	0.04	1	2	16	27	44	1
739398	0.04	1	1	12	22	25	0	747660	0.04	1	1	18	26	42	1
739418	0.04	1	1	11	15	28	0	747681	0.04	1	1	14	20	35	0
739438	0.03	1	1	11	15	27	0	747707	0.04	1	2	17	29	43	1
739458	0.04	1	1	12	18	28	0	747731	0.04	1	1	18	31	47	1
739478	0.05	1	1	12	22	28	0	747761	0.04	1	2	18	27	45	1

**Table 11.1 (cont'd) – Verification of blanks**

Sample	Weight (kg)	Be (ppm)	Cs (ppm)	Ga (ppm)	Li (ppm)	Rb (ppm)	Ta (ppm)	Sample	Weight (kg)	Be (ppm)	Cs (ppm)	Ga (ppm)	Li (ppm)	Rb (ppm)	Ta (ppm)
747776	0.04	1	2	17	24	43	1	916387	0.04	1	1	17	35	41	1
747801	0.05	1	1	16	23	38	1	916399	0.04	1	1	17	37	43	1
747825	0.04	1	1	18	24	38	1	916417	0.04	1	1	17	33	44	2
747847	0.46	147	70	73	4060	1650	120	916450	0.04	1	1	17	28	48	1
747853	0.04	1	1	18	27	39	1	916477	0.05	1	2	17	23	48	1
747879	0.05	2	2	19	68	55	1	916496	0.04	1	1	17	28	45	2
747905	0.04	1	2	18	34	41	1	916526	0.05	1	1	18	27	39	1
747930	0.04	1	1	17	26	45	0	916547	0.04	1	1	13	24	34	1
747957	0.04	1	1	17	30	42	1	916575	0.04	1	2	19	25	45	2
747981	0.05	1	2	18	27	44	1	916596	0.04	1	1	18	30	48	1
883610	0.04	4	58	25	890	283	2	916632	0.05	1	1	18	29	48	1
883635	0.04	1	1	9	13	26	1	916650	0.04	1	1	17	28	47	1
883661	0.04	117	44	78	8390	1350	105	916678	0.04	1	2	18	30	44	1
883685	0.04	1	1	13	19	36	0	916687	0.03	1	1	15	25	40	1
883710	0.04	1	1	12	13	26	0	916726	0.05	1	2	17	28	49	1
883735	0.04	1	1	12	14	26	0	916749	0.03	1	1	16	26	48	1
883760	0.04	1	1	11	15	25	0	916776	0.04	1	2	18	27	47	1
883786	0.04	1	1	12	15	27	0	916797	0.04	1	2	17	21	46	1
883809	0.04	1	1	12	19	29	1	946554	0.04	1	1	17	27	47	1
883834	0.04	1	1	12	11	26	0	946579	0.04	1	1	16	26	46	1
883856	0.04	1	1	11	17	26	0	946606	0.04	1	2	17	28	44	1
883881	0.04	1	1	11	15	25	0	946633	0.04	1	1	17	26	44	0
916124	0.04	1	2	17	24	45	1	946658	0.04	1	2	18	26	47	1
916160	0.04	1	1	17	24	45	1	946683	0.05	1	2	17	25	41	1
916185	0.04	1	2	18	31	44	1	946709	0.05	1	1	13	16	31	0
916212	0.04	1	2	18	54	51	3	946736	0.04	1	1	12	15	30	0
916227	0.04	1	1	16	36	47	1	962810	0.03	1	1	12	19	26	0
916240	0.04	1	2	18	30	40	1	962835	0.04	1	1	13	14	27	0
916257	0.04	1	2	18	26	42	1	962861	0.04	1	1	12	15	27	0
916271	0.04	1	2	18	32	43	1	1119406	0.03	1	1	10	11	27	0
916300	0.04	1	2	19	41	44	1	1119432	0.04	1	1	12	13	29	0
916327	0.04	1	2	18	36	47	1	1119460	0.04	1	9	14	54	126	0
916350	0.04	1	1	18	38	43	1	1119485	0.04	1	1	12	24	28	0

**Table 11.2 – Verification of core duplicates**

Sample	DDH	Weight (kg)	Be (ppm)	Cs (ppm)	Ga (ppm)	Li (ppm)	Rb (ppm)	Ta (ppm)	Duplicate	Weight (kg)	Be (ppm)	Cs (ppm)	Ga (ppm)	Li (ppm)	Rb (ppm)	Ta (ppm)
4512	LR-10-64	0.80	39	21	86	23	470	280	4511	0.70	41	32	85	10	690	340
4538	LR-10-66	1.20	304	150	64	5890	4600	210	4537	1.08	108	125	65	6440	4280	160
4563	LR-10-66	0.88	1	14	14	116	29	1	4562	0.95	1	13	14	116	28	1
4588	LR-10-70	1.13	38	85	84	55	2940	170	4587	1.01	55	92	85	51	3080	180
4613	LR-10-71	1.41	134	46	92	11550	1370	76	4612	1.12	73	36	93	11850	1230	96
4638	LR-10-72	1.09	13	253	26	1240	520	28	4637	1.19	14	264	24	1360	490	10
4663	LR-10-73	0.49	8	79	53	379	1690	75	4662	0.55	9	74	41	254	1430	65
430867	LR-10-43	1.84	144	95	87	7750	1390	105	430866	1.89	128	83	82	7010	1220	100
430881	LR-10-45	1.76	215	83	75	9800	1720	110	430880	1.87	110	41	79	12100	900	100
430923	LR-10-46	1.78	174	123	79	7830	2730	120	430922	1.70	176	144	76	6520	3230	140
430946	LR-10-47	1.57	378	100	129	11200	810	160	430945	1.45	326	94	136	10400	890	150
718434	LR-10-49	1.60	101	71	92	8320	780	210	718433	1.67	76	78	89	7710	970	220
718453	LR-10-52	1.14	85	117	56	3540	3710	80	718452	0.84	92	133	59	2440	4270	93
728110	LR-11-150	0.58	20	21	15	53	56	1	728109	0.65	21	29	16	67	80	3
728140	LR-11-151	1.12	2	57	16	520	315	1	728139	1.17	3	55	16	500	307	2
728160	LR-11-151	0.61	10	5	77	32	170	270	728159	0.79	27	8	61	63	199	290
728188	LR-11-155	0.54	93	191	56	1250	6310	45	728187	0.52	34	222	52	2320	5800	38
728215	LR-11-153	0.94	94	58	78	760	2360	61	728214	1.12	291	64	84	730	2020	69
728238	LR-11-156	0.58	227	48	72	7630	1390	110	728237	0.58	253	49	75	6610	1150	84
728271	LR-11-158	1.40	15	11	64	109	139	75	728270	1.31	20	18	74	113	264	83
728294	LR-11-159	0.75	4	8	9	69	50	2	728293	0.73	6	3	8	38	32	1
728317	LR-11-162	0.83	137	54	72	870	2050	88	728316	0.82	126	43	70	670	1540	130
728336	LR-11-162	0.50	4	24	13	185	85	1	728335	0.41	5	19	13	191	78	1
728369	LR-11-163	1.11	13	710	25	1390	3220	10	728368	1.12	14	700	24	1290	2990	6
728389	LR-11-163	1.75	67	48	84	8930	1570	200	728388	1.92	63	35	89	10900	1020	220
728421	LR-11-164	1.25	23	740	43	1490	1990	24	728420	1.15	18	740	34	1420	1870	9
728442	LR-11-164	0.69	19	172	69	53	3560	310	728441	0.50	6	153	65	56	3840	470
728469	JR-11-14	1.68	113	25	64	9740	334	98	728468	1.82	117	28	65	11500	387	88
728493	JR-11-13	0.40	14	42	34	226	1140	56	728492	0.40	12	42	37	183	1310	350
728524	JR-11-17	1.26	5	76	24	680	373	4	728523	1.22	5	73	22	620	345	5
728544	JR-11-18	1.02	84	71	62	4940	2360	36	728543	0.84	45	94	59	4240	3580	26
728566	LR-11-165	1.00	173	6	65	31	26	210	728565	1.01	163	6	62	40	29	210

**Table 11.2 (cont'd) – Verification of core duplicates**

Sample	DDH	Weight (kg)	Be (ppm)	Cs (ppm)	Ga (ppm)	Li (ppm)	Rb (ppm)	Ta (ppm)	Duplicate	Weight (kg)	Be (ppm)	Cs (ppm)	Ga (ppm)	Li (ppm)	Rb (ppm)	Ta (ppm)
728640	LR-11-167	0.91	51	38	46	157	1050	53	728639	0.77	57	47	48	187	1150	46
728693	LR-11-170	0.92	126	38	80	7410	1110	160	728692	1.13	83	47	77	6210	1370	98
728719	LR-11-168	0.65	68	106	69	78	3250	140	728718	0.68	50	95	72	79	2680	140
728749	LR-11-169	1.64	170	67	60	2580	1980	79	728748	1.29	215	49	61	3620	1420	85
728771	LR-11-173	1.17	97	111	56	120	3910	240	728770	1.28	116	102	59	143	3450	220
728795	LR-11-174	1.64	59	67	64	45	2380	72	728794	1.29	32	67	58	45	2410	58
728823	LR-11-172	1.17	153	80	82	6910	2290	300	728822	1.57	147	64	75	6640	1830	260
728849	LR-11-175	0.56	105	80	69	1250	3130	230	728848	0.45	74	70	80	3480	2980	44
728871	LR-11-176	1.06	13	96	41	44	2250	45	728870	1.04	16	84	42	34	2170	38
728899	LR-11-177	1.49	258	32	79	67	1080	190	728898	1.54	211	31	81	81	1090	270
728923	LR-11-178	1.59	2	20	15	178	132	0	728922	1.59	2	20	15	178	132	0
738020	LR-10-96	0.90	10	36	21	270	421	1	738019	0.89	11	56	24	292	580	3
738045	LR-10-98	1.02	108	98	64	2040	3270	73	738044	1.16	115	79	70	2430	2530	74
738072	LR-10-99	0.48	165	48	69	4010	1420	150	738071	0.52	160	84	68	4590	2860	105
738095	LR-10-100	0.81	143	172	65	3220	7480	65	738094	1.08	161	29	95	10500	690	190
738117	LR-10-101	1.30	272	94	57	8230	2790	32	738116	1.20	305	109	53	7660	3160	34
738142	LR-10-102	1.37	51	22	84	13750	700	190	738141	1.35	67	27	92	12850	670	170
738173	LR-10-104	0.47	9	32	31	281	97	10	738172	0.42	9	29	27	160	86	5
738195	LR-10-104	1.33	47	61	82	8300	1970	120	738194	1.28	46	40	85	9200	1250	130
738215	LR-10-105	1.76	233	67	66	7470	2290	130	738214	1.68	201	89	65	7490	3270	95
738245	LR-10-106	0.78	36	232	47	1890	8930	51	738244	0.82	44	205	50	3110	7880	65
738271	LR-10-107	0.34	89	39	64	194	1520	140	738270	0.36	60	60	63	304	2430	150
738295	LR-10-108	1.14	106	60	66	800	800	300	738294	1.25	97	59	65	700	900	250
738320	LR-10-108	0.82	107	26	74	3550	630	110	738319	0.92	122	29	70	3610	820	130
738346	LR-10-109	1.68	233	156	89	9940	1990	46	738345	1.76	199	144	82	8650	1630	65
738372	LR-10-111	0.47	312	152	52	830	5380	120	738371	0.47	265	180	52	1510	6300	210
738395	LR-10-112	1.69	85	207	56	2120	8180	83	738394	1.62	59	196	59	2310	6820	100
738421	LR-10-113	0.87	179	37	78	11850	840	47	738420	0.92	105	46	77	11400	1250	57
738446	LR-10-115	1.05	224	142	69	6710	4040	98	738445	1.19	138	135	68	6830	4000	130
738470	LR-10-116	1.18	1	33	18	830	350	0	738469	1.20	7	28	19	890	348	4
738496	LR-10-118	1.16	680	231	66	6550	5790	95	738495	1.06	178	203	67	5060	7330	140
738514	LR-10-119	0.90	76	118	73	960	4370	56	738513	0.81	100	86	79	580	3100	79

**Table 11.2 (cont'd) – Verification of core duplicates**

Sample	DDH	Weight (kg)	Be (ppm)	Cs (ppm)	Ga (ppm)	Li (ppm)	Rb (ppm)	Ta (ppm)	Duplicate	Weight (kg)	Be (ppm)	Cs (ppm)	Ga (ppm)	Li (ppm)	Rb (ppm)	Ta (ppm)
738547	LR-10-121	1.33	109	57	70	7390	680	50	738546	1.36	80	56	67	7490	840	50
738569	LR-10-121	0.76	71	152	52	2960	6040	51	738568	0.66	114	134	54	3500	5400	49
738597	LR-10-122	1.16	3	37	21	710	361	2	738596	1.15	1	38	20	720	254	1
738622	LR-10-124	1.35	416	44	68	8860	770	53	738621	1.28	356	45	64	8380	1020	65
738646	LR-10-125	0.64	146	79	83	6590	2420	45	738645	0.82	147	86	80	4860	2790	47
738672	LR-10-125	0.59	90	28	70	86	940	63	738671	0.64	95	35	76	95	790	72
738696	LR-10-123	1.43	318	47	72	8330	1100	71	738695	1.35	215	39	72	7450	1020	79
738722	LR-10-127	0.95	68	70	65	57	3050	75	738721	1.19	470	67	59	2840	2650	99
738746	LR-10-128	0.97	319	133	83	65	3880	190	738745	1.21	79	124	77	43	4060	160
738773	LR-10-130	1.00	103	54	59	5050	2240	43	738772	1.04	224	59	60	6430	2140	54
738795	LR-10-131	1.58	101	53	77	6840	1800	59	738794	1.71	164	51	82	7740	1610	44
738821	LR-10-135	0.84	31	148	51	107	7170	55	738820	0.86	191	157	56	460	7540	120
738848	LR-10-133	0.39	106	89	75	7770	3890	93	738847	0.42	86	94	80	6880	3300	62
738869	LR-10-134	1.36	79	92	84	9780	2990	140	738868	1.37	102	75	83	11550	2140	120
738892	LR-10-136	1.38	232	53	63	8350	1530	49	738891	1.21	115	42	75	9930	1350	89
738920	LR-10-138	1.05	100	22	63	8770	620	21	738919	0.60	90	41	66	9000	1440	23
738946	LR-10-139	0.83	192	75	64	4330	2960	52	738945	0.78	204	76	65	5090	3210	34
738980	LR-10-140	0.94	6	8	30	283	162	10	738979	0.86	7	8	30	286	158	11
739000	LR-10-140	1.24	11	136	25	710	540	4	738999	1.40	9	145	23	780	590	1
739220	LR-10-141	0.60	49	28	97	9070	1020	140	739219	0.62	83	49	87	7720	1950	150
739240	LR-10-142	0.71	17	194	50	1220	650	0	739239	0.60	16	220	50	1220	750	1
739260	LR-10-142	0.98	150	52	74	6550	1890	120	739259	1.05	104	57	67	6260	2080	96
739280	LR-10-143	0.65	2	77	20	650	248	1	739279	0.51	2	63	18	600	162	1
739300	LR-10-143	0.96	94	35	68	9730	1290	55	739299	1.14	65	35	70	9880	1360	45
739320	JR-10-01	1.12	411	153	71	4800	4270	140	739319	1.03	217	125	78	6080	4000	160
739340	JR-10-02	0.75	246	141	60	4940	5810	140	739339	0.65	509	161	60	5730	5310	170
739360	JR-10-03	0.82	3	18	16	371	180	1	739359	0.92	2	16	16	313	237	1
739380	JR-10-04	0.62	181	56	75	7350	1560	63	739379	0.58	396	101	72	6650	2170	47
739400	JR-10-05	0.40	214	101	96	10450	2270	290	739399	0.49	142	119	86	8060	3110	270
739420	JR-10-05	0.56	5	46	19	430	274	1	739419	0.41	5	34	17	354	212	1
739440	JR-10-07	0.67	8	95	16	105	1140	16	739439	0.74	7	84	15	111	1010	10
739460	JR-10-08	0.57	197	63	73	122	1200	210	739459	0.66	239	61	69	151	840	170



**Table 11.2 (cont'd) – Verification of core duplicates**

Sample	DDH	Weight (kg)	Be (ppm)	Cs (ppm)	Ga (ppm)	Li (ppm)	Rb (ppm)	Ta (ppm)	Duplicate	Weight (kg)	Be (ppm)	Cs (ppm)	Ga (ppm)	Li (ppm)	Rb (ppm)	Ta (ppm)
739480	JR-10-08	1.05	47	32	85	1000	1820	210	739479	0.82	36	40	83	480	2180	190
739500	JR-10-09	1.06	110	55	79	8080	1720	120	739499	0.99	61	57	80	7790	2120	93
739520	JR-10-10	0.83	10	104	20	395	1330	7	739519	1.00	10	90	20	338	1250	20
739540	JR-10-11	0.91	134	82	56	5260	2020	130	739539	0.79	84	130	55	4860	3550	82
739560	JR-10-12	0.62	140	99	59	510	2430	180	739559	0.43	191	98	57	1080	2480	130
739580	JR-10-12	0.87	85	39	67	4380	1510	88	739579	0.92	148	55	69	4060	1680	130
739600	HD-10-01	0.53	5	11	10	96	88	1	739599	0.69	9	19	18	165	127	1
739620	HD-10-03	0.60	57	32	50	33	870	130	739619	0.68	53	71	52	33	1640	130
739640	LP-10-05	0.51	10	242	25	1080	730	3	739639	0.55	10	279	27	1120	830	5
739660	LP-10-06	0.26	2	69	20	419	134	2	739659	0.22	2	62	19	387	115	2
739680	LP-10-04	0.51	92	67	61	540	1530	92	739679	0.51	92	75	60	377	1710	71
739700	HE-10-02	0.27	12	112	37	630	1210	12	739699	0.39	18	110	39	760	1000	16
739720	HE-10-03	0.36	2	93	15	670	388	1	739719	0.38	2	83	14	650	394	1
739740	HE-10-05	0.77	194	237	129	110	2960	410	739739	0.85	105	318	106	110	4590	280
739760	PE-10-01	0.88	1	7	19	168	54	1	739759	0.85	1	9	20	226	65	1
739780	PE-10-02	0.37	1	46	19	410	140	1	739779	0.30	1	42	19	372	120	1
739800	PS-10-02	0.33	1	69	23	520	184	1	739799	0.22	1	65	21	490	172	1
739820	PS-10-02	0.56	99	22	40	39	161	540	739819	0.51	79	24	41	43	160	350
739866	LR-11-144	1.20	6	18	21	520	220	1	739865	1.22	5	18	22	510	235	4
739892	LR-11-145	1.19	3	41	20	630	178	0	739891	1.33	3	26	19	550	187	1
739920	LR-11-146	1.41	292	78	64	6530	3240	130	739919	1.62	372	78	63	7020	2920	110
739940	LR-11-147	0.67	44	23	67	9220	610	26	739939	0.71	88	33	60	7810	1060	22
739960	LR-11-148	1.27	26	68	58	16	3080	190	739959	1.25	25	59	70	67	2390	180
739980	LR-11-148	1.16	99	75	53	49	4090	38	739979	1.49	89	64	54	139	3420	56
740000	LR-11-149	0.56	25	35	52	125	1770	81	739999	0.76	16	22	55	181	970	87
747585	LR-10-44	0.58	185	52	84	8460	910	140	747584	0.78	108	48	95	9780	580	150
747625	LR-10-48	0.43	110	138	63	5160	3330	92	747624	0.35	99	48	44	2500	950	96
747640	LR-10-48	0.47	54	143	65	4810	3440	240	747639	0.49	70	161	68	5940	4100	120
747672	LR-10-50	0.65	184	99	68	7390	2050	270	747671	0.85	214	74	80	8860	1290	270
747693	LR-10-50	0.44	140	85	64	6260	1560	120	747692	0.32	49	73	58	1140	2190	130
747719	LR-10-51	1.20	5	129	22	500	800	5	747718	1.15	5	127	23	480	720	8
747749	LR-10-51	0.65	109	62	78	8940	1140	200	747748	0.61	132	51	77	7390	770	170

**Table 11.2 (cont'd) – Verification of core duplicates**

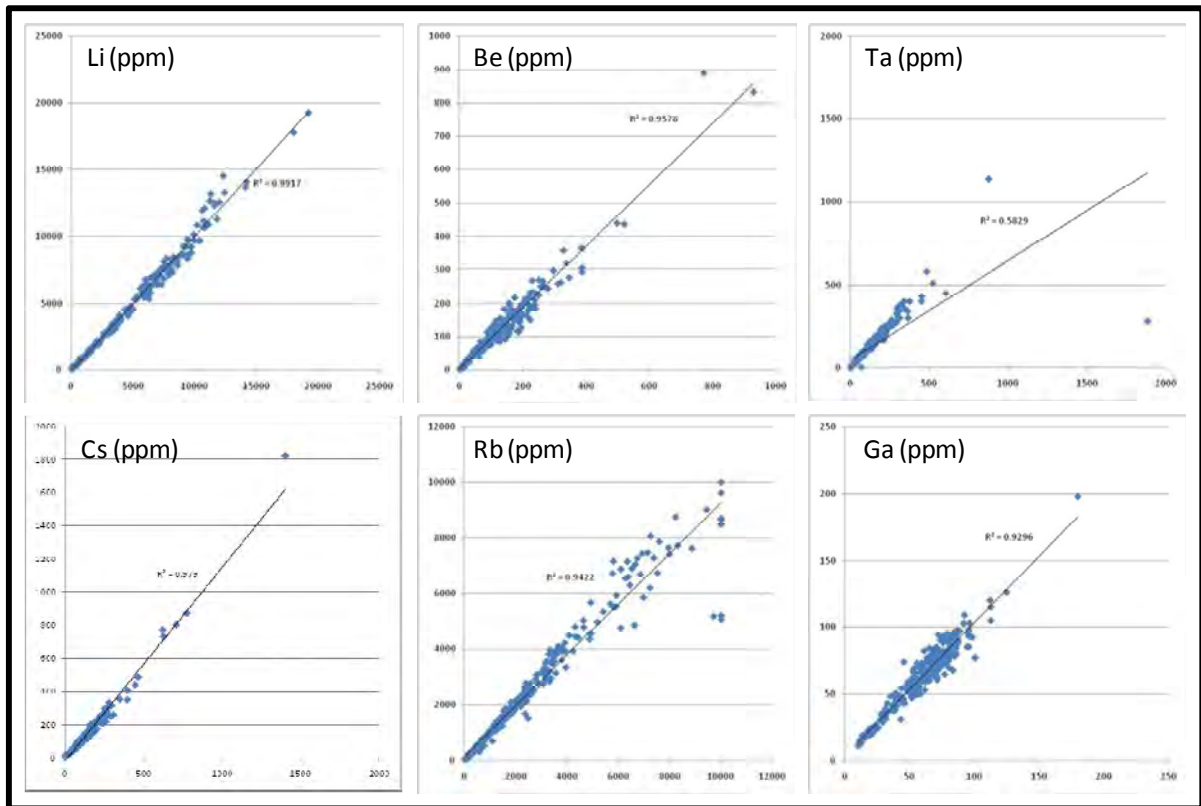
Sample	DDH	Weight (kg)	Be (ppm)	Cs (ppm)	Ga (ppm)	Li (ppm)	Rb (ppm)	Ta (ppm)	Duplicate	Weight (kg)	Be (ppm)	Cs (ppm)	Ga (ppm)	Li (ppm)	Rb (ppm)	Ta (ppm)
747772	LR-10-53	0.37	110	47	87	9090	900	220	747771	0.47	135	49	87	9710	1000	210
747797	LR-10-54	0.31	74	41	81	10400	1050	220	747796	0.34	99	55	91	10800	1290	200
747822	LR-10-56	1.00	183	63	80	1020	1420	61	747821	0.89	405	74	75	1800	1160	50
747870	LR-10-57	0.84	139	39	77	7890	630	70	747869	0.87	167	49	82	6390	840	120
747897	LR-10-58	0.74	124	229	60	243	4520	170	747896	0.64	121	183	63	191	2990	200
747920	LR-10-59	1.21	132	53	67	7570	1360	52	747919	1.18	91	43	69	7810	1120	58
747947	LR-10-62	0.51	79	58	68	172	2610	82	747946	0.47	147	67	69	200	2200	93
747972	LR-10-62	1.19	3	21	20	442	110	0	747971	1.32	3	21	19	446	110	1
747997	LR-10-65	1.15	186	153	67	5890	2870	150	747996	1.07	177	100	80	7000	1610	170
883622	LR-10-77	0.49	136	29	66	82	500	170	883621	0.49	162	39	61	83	880	160
883647	LR-10-78	0.93	152	78	71	7260	1980	59	883646	0.77	180	70	77	8010	1450	63
883672	LR-10-79	1.70	3	149	19	620	500	2	883671	1.57	0	16	2	80	53	0
883698	LR-10-80	0.69	119	125	60	7040	4830	45	883697	0.70	234	125	60	6710	4430	76
883723	LR-10-81	0.83	73	156	64	3170	6110	290	883722	0.76	178	195	69	3070	7160	320
883747	LR-10-83	1.60	163	72	73	7670	1500	105	883746	1.70	206	80	70	6120	1590	105
883772	LR-10-83	0.35	26	23	71	255	343	105	883771	0.37	26	32	81	273	460	130
883796	LR-10-82	0.36	104	29	50	156	251	110	883795	0.36	96	39	46	211	279	67
883822	LR-10-84	1.03	183	80	101	1850	2020	120	883821	1.10	82	102	93	890	2820	92
883848	LR-10-85	0.50	131	205	47	2570	4930	83	883847	0.57	96	169	49	4470	5170	82
883874	LR-10-86	0.64	200	68	62	8260	1520	94	883873	0.67	156	51	74	10750	960	95
883897	LR-10-87	0.98	123	58	124	69	1450	290	883896	0.90	94	38	108	55	960	230
916123	LR-10-12	1.68	69	66	97	12900	1480	180	916122	1.61	42	61	91	14000	1460	180
916159	LR-10-14	1.80	115	159	72	5060	2915	198	916158	1.47	124	130	71	5500	2315	210
916184	LR-10-15	0.92	118	111	85	8330	1680	120	916183	1.28	123	102	102	10800	1020	110
916211	LR-10-16	1.94	115	72	82	9080	1000	160	916210	1.49	191	81	79	9210	880	140
916226	LR-10-16	1.31	61	75	111	13400	1380	310	916225	1.21	56	91	110	13500	1680	240
916241	LR-10-22	1.53	0	32	16	470	89	0	916242	1.61	0	29	17	480	86	0
916256	LR-10-22	1.35	172	128	57	73	1580	110	916255	1.52	158	119	52	71	1460	390
916270	LR-10-27	2.05	126	54	72	9080	1190	120	916269	1.55	73	71	69	7820	1730	110
916299	LR-10-19	0.72	122	58	99	10200	910	190	916298	0.99	83	62	81	9280	1260	160
916326	LR-10-20	1.78	71	61	88	11500	830	250	916325	1.82	47	62	90	11700	920	150
916349	LR-10-23	0.98	89	69	90	9990	2180	89	916348	1.26	79	52	96	10800	1510	95

**Table 11.2 (cont'd) – Verification of core duplicates**

Sample	DDH	Weight (kg)	Be (ppm)	Cs (ppm)	Ga (ppm)	Li (ppm)	Rb (ppm)	Ta (ppm)	Duplicate	Weight (kg)	Be (ppm)	Cs (ppm)	Ga (ppm)	Li (ppm)	Rb (ppm)	Ta (ppm)
916386	LR-10-24	1.79	82	53	85	10400	1413	114	916383	1.53	72	76	81	9580	1850	136
916398	LR-10-24	1.69	192	97	95	10800	1278	336	916397	1.78	93	111	99	11100	1848	323
916416	LR-10-25	1.10	59	84	65	6850	2475	242	916415	1.68	73	74	78	8570	1578	257
916449	LR-10-26	1.07	127	63	80	8440	1330	110	916448	1.11	134	60	77	8230	1190	110
916476	LR-10-28	1.24	171	105	54	3460	2630	210	916475	1.60	107	92	52	1370	3130	140
916495	LR-10-29	1.67	79	60	98	13200	680	360	916494	1.38	77	53	103	12600	700	400
916525	LR-10-30	0.78	112	127	98	3540	2840	90	916524	0.76	82	145	93	2840	3480	160
916546	LR-10-31	1.18	88	88	87	7230	2480	150	916545	1.46	246	82	106	9380	1700	160
916574	LR-10-34	1.77	82	202	87	2720	3850	380	916570	1.59	109	142	82	4270	3220	340
916595	LR-10-35	1.68	95	132	97	12700	1600	150	916594	1.79	83	161	79	11000	2150	120
916631	LR-10-36	1.37	29	113	110	11500	2430	140	916630	1.45	34	91	112	11300	1720	220
916649	LR-10-37	1.38	73	73	66	3460	1850	260	916648	1.41	147	81	60	3310	1630	200
916677	LR-10-38	1.10	126	102	97	9080	2550	180	916676	1.23	189	102	100	9860	2340	170
916686	LR-10-39	1.36	84	40	106	11800	1080	200	916685	1.37	48	48	94	11200	1530	220
916725	LR-10-40	1.68	109	140	66	7120	3720	130	916724	2.03	91	129	66	7390	3600	110
916748	LR-10-41	1.67	143	123	79	8480	3320	210	916747	1.84	127	122	84	8210	3560	200
916775	LR-10-42	1.72	116	93	69	5520	1380	140	916774	1.40	119	101	75	5700	1250	140
916796	LR-09-06	1.21	21	63	98	18	1150	910	916795	1.13	12	53	94	14	1050	340
946568	LR-10-67	1.26	45	80	82	10200	1720	150	946567	1.51	436	140	76	9260	1880	140
946593	LR-10-68	0.61	20	18	78	26	389	190	946592	0.55	26	31	85	59	530	170
946622	LR-10-68	0.85	71	89	84	6820	1020	96	946621	0.79	53	87	76	6410	1430	87
946648	LR-10-69	0.33	43	560	39	1730	3460	18	946647	0.34	46	570	42	1900	3750	18
946672	LR-10-69	0.31	12	431	102	820	2200	90	946671	0.35	8	540	94	910	1890	83
946697	LR-10-74	1.12	2	53	26	590	330	11	946696	1.13	2	60	25	590	331	6
946724	LR-10-75	1.14	105	71	76	2520	2140	160	946723	1.18	83	69	76	3290	2140	150
946749	LR-10-77	0.32	11	183	43	670	510	65	946748	0.32	13	190	54	640	510	82
962821	LR-10-90	1.07	105	68	87	7590	1810	100	962820	0.80	76	93	86	6920	2710	110
962845	LR-10-92	0.50	17	73	117	14250	2240	340	962844	0.51	20	61	90	10450	1730	290
962870	LR-10-94	1.33	127	41	90	8840	850	84	962869	1.29	95	42	92	8120	940	79
1119421	LR-10-87	0.71	131	250	73	3750	7530	180	1119420	0.89	136	241	69	3910	7910	220
1119465	LR-10-88	1.60	114	102	70	7910	3680	94	1119464	1.63	112	129	68	8270	4410	76
1119490	LR-10-89	1.26	166	91	75	7820	3180	120	1119489	1.10	59	108	73	7160	4410	103

Approximately 10% of the Rose deposit samples sent to ALS Chemex Laboratories were sent to a third laboratory in November 2010 to confirm the values. Critical Elements chose Acme Analytical Laboratories Ltd and the results were obtained on November 26, 2010 via electronic transmission.

The third laboratory's values for the pulp reassays are similar to the original assays (Fig. 11.9). At first glance it might appear that this is not true for the Ta results, which show an R-squared value of 0.58, but note that the value becomes 0.9618 if the outlier sample (in the lower-right corner of the chart) is omitted from the database. The authors therefore conclude that the two sets of assays correlate well.



**Figure 11.2 – Reassays performed at a third laboratory (Acme; Y-axis) compared against original assays (X-axis).**

## 12.0 DATA VERIFICATION

Grades for Li, Ta, Rb, Cs and Be are reported in this section as parts per million (ppm). Refer to Table 2.1 for converting into  $\text{Li}_2\text{O}$ ,  $\text{Ta}_2\text{O}_5$ ,  $\text{Rb}_2\text{O}$ ,  $\text{Cs}_2\text{O}$ , and  $\text{BeO}$ .

### 12.1 Historical Work

The historical information used in this report was taken mainly from reports by the Québec government's geological survey as part of its large regional programs. Little information is available about sample preparation or analytical and security procedures for the historical work in the reviewed documents, but InnovExplo assumes that the exploration activities conducted by the government were in accordance with prevailing industry standards at the time.

Only one historical drill hole is reported for the current Pivert-Rose property. There was therefore no historical database for the author to validate.

### 12.2 Critical Elements Database

The Critical Elements ACCESS database comprises 217 NQ-size diamond drill holes totalling 26,176.5 metres. A total of 4,631 core samples (4,406 from the Rose deposit and 225 from the Pivert, Pivert-East, Pivert-South and Helico showings) are included, as well as 390 QA/QC samples (blanks and duplicates).

The author was granted access to the official results from the ALS Chemex Laboratory for all holes and grab samples discussed in this report (holes LR-09-01 to LR-11-181; JR-10-01 to JR-11-18; HD-10-01 to HD-10-03; LP-09-01 to LP-10-06; HE-10-01 to HE-10-05; PE-10-01 to PE-10-02; PS-10-01 to PS-10-02). The author downloaded every certificate directly from the laboratory and built the tables presented in this report using the information contained therein. Very few errors were noted in the database, and these were considered minor and of the type normally encountered in a project database. None of the observed errors would affect the integrity of the database, and it is considered to be of very good overall quality.

InnovExplo considers the Critical Elements database for the Pivert-Rose project to be valid and reliable.

### 12.3 Critical Elements diamond drilling

Every collar on the Rose deposit was professionally surveyed. Most of the other collars were surveyed using a handheld GPS. The surveys conducted on the Rose deposit are considered adequate for the purpose of a resource estimate. The great majority of the holes were surveyed by a Flexit instrument (single shots approximately every 60 m).

Drilling was underway (hole LR-10-86) when author Pierre-Luc Richard first visited the site on July 13, 2010 (Fig. 12.1). He visited the drill rig during the site visit and witnessed approximately 9 metres of core being pulled from underground. He also observed spodumene in the core section. There was no active drill rig on site during the second visit in July 2011. The author was able to confirm the location of many casings using a handheld GPS during both visits (Figs. 12.2 and 12.3).

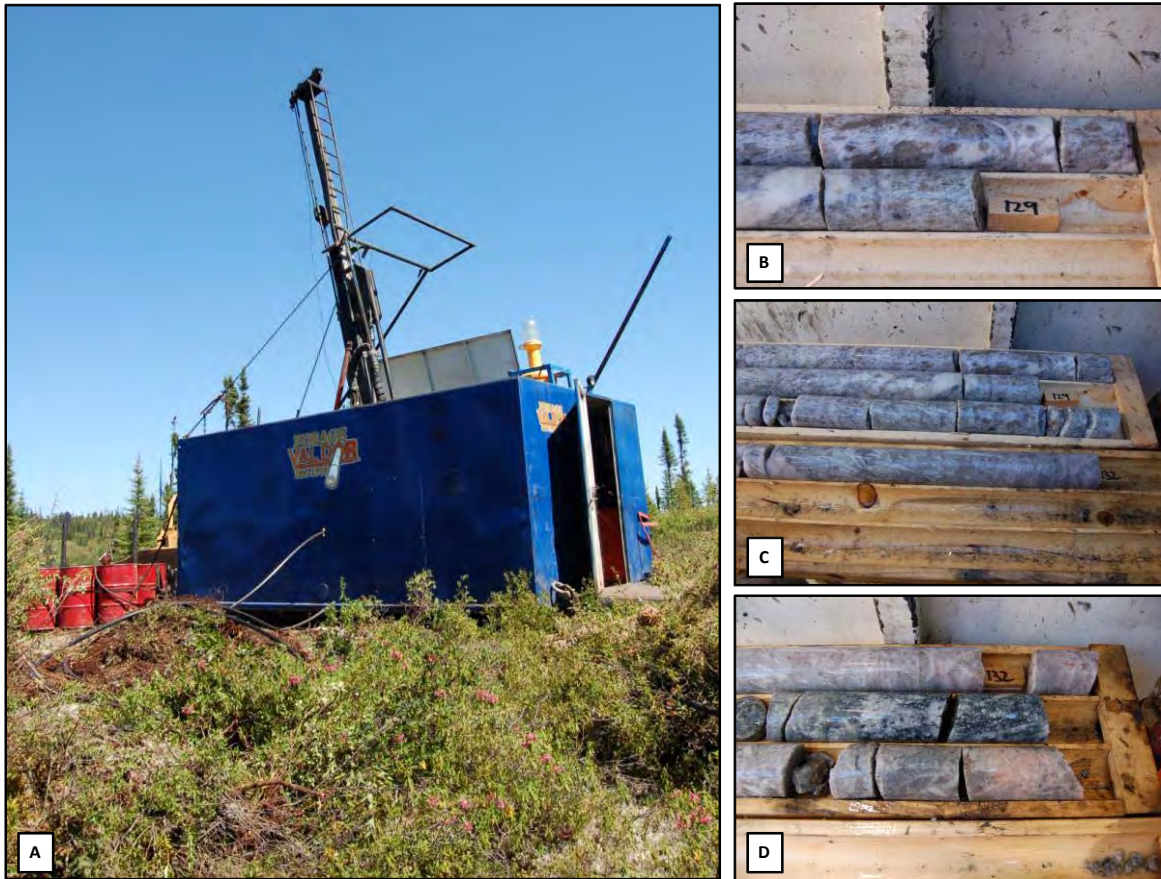


Figure 12.1 – Drilling at the Rose deposit: A) Drill rig in action on hole LR-10-86 at the time of the field visit; B) to D) Views of the Rose pegmatite in core that was drilled in the author’s presence. Photos taken by author P.-L. Richard.

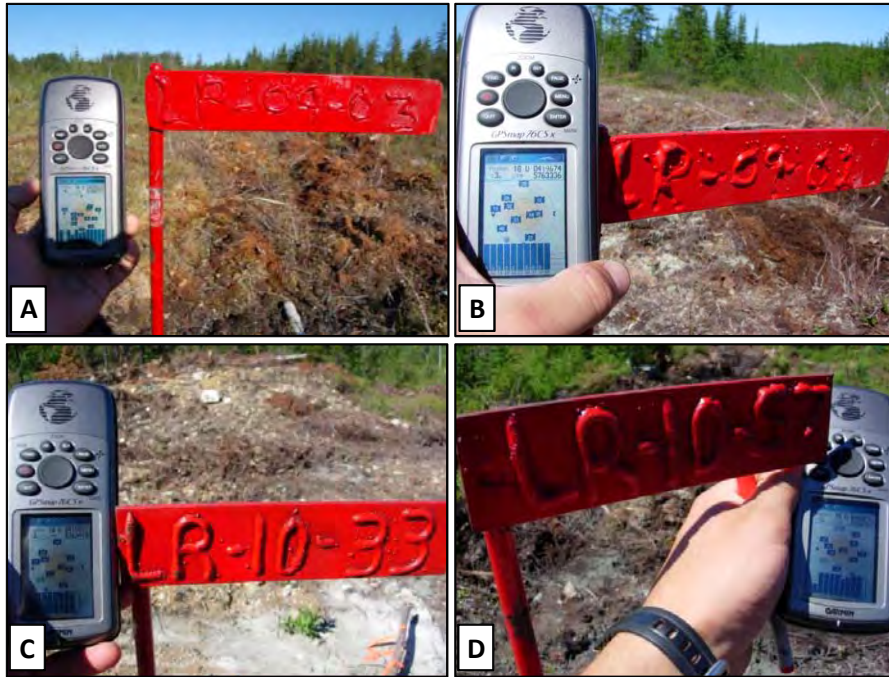


Figure 12.2 – Photos of some of the casing locations that were verified on the Pivert-Rose property during the first site visit in 2010: A) LP-09-03; B) LR-09-02; C) LR-10-33; D) LR-10-57.

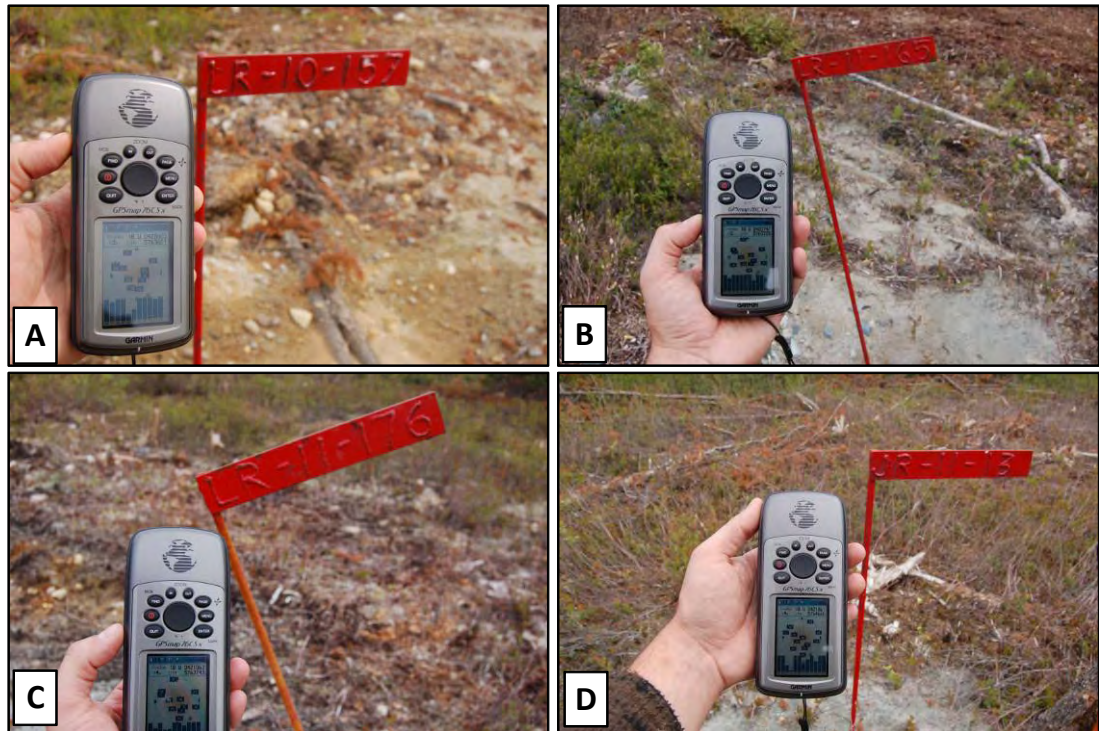


Figure 12.3 – Photos of some of the casing locations that were verified on the Pivert-Rose property during the second site visit in 2011: A) LR-10-157; B) LR-11-165; C) LR-11-176; D) JR-11-13.

## 12.4 Critical Elements outcrop sampling

As discussed in Section 11, Critical Elements refers to channel samples from the Pivert-Rose property as “non-chosen grab samples” in company press releases because the collection process differs from traditional channel sampling. Unlike traditional channel samples, they are not necessarily perpendicular to the interpreted strike of the pegmatite and they are of variable lengths.

This type of channel sampling was employed in lieu of grab sampling since traditional grab samples are very difficult or impossible to obtain from the smooth, hard outcrops surfaces using a hammer and chisel. However, the channel samples are similar to grab samples in that they are selective by nature and unlikely to represent average grades. The purpose of such sampling is to rapidly determine whether mineralization is constant throughout the outcropping pegmatite.

For this reason, channel samples collected on the Pivert-Rose project to date should be considered as grab samples and *not* be taken into account in any future resource estimates, even with proper surveying.

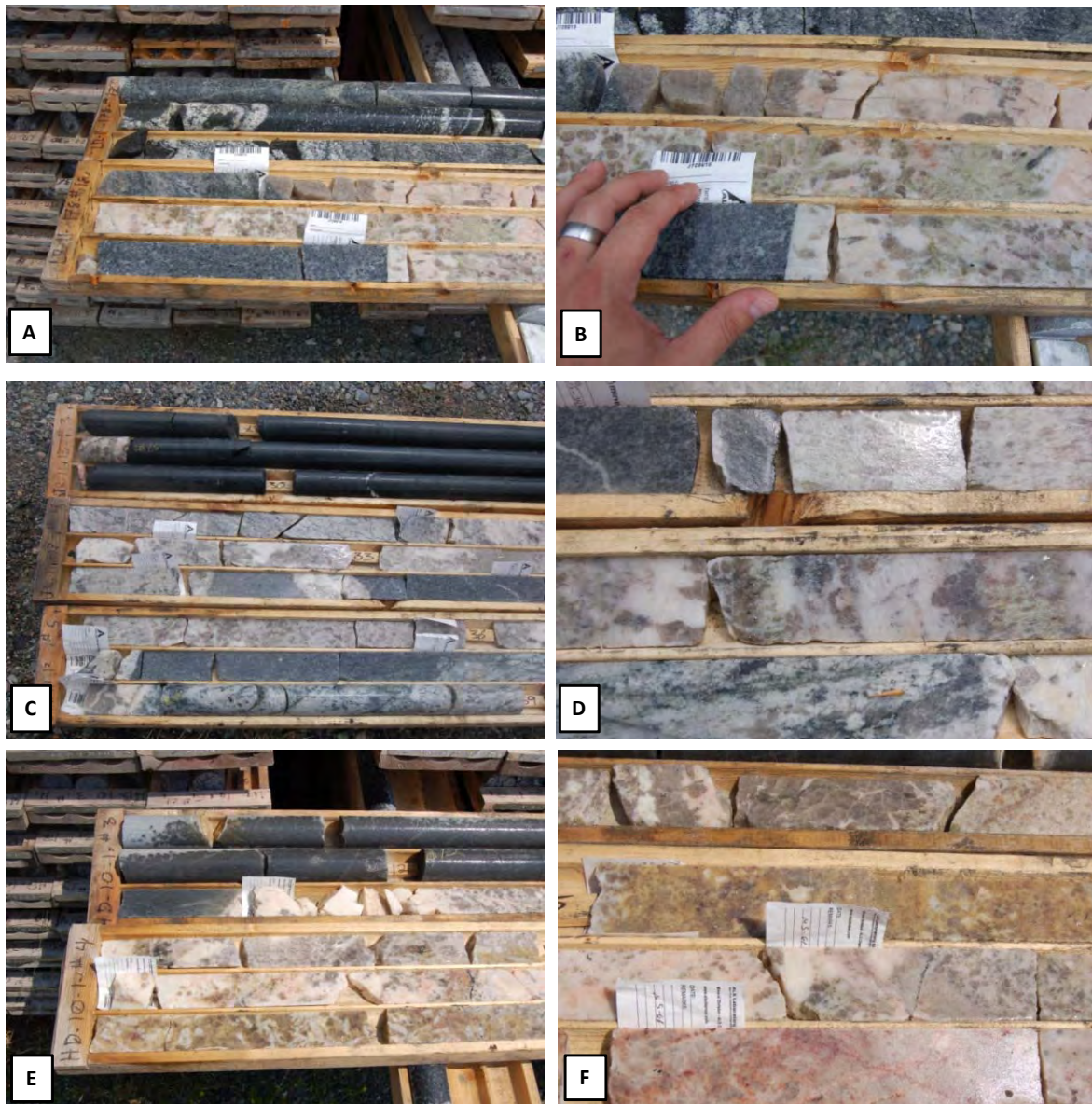
## 12.5 Critical Elements sampling and assaying procedures

InnovExplo reviewed several mineralized core sections while visiting the core storage facility in Val-d’Or (Figs. 12.4 and 12.5). All core boxes were labelled and properly stored outside. Sample tags, located at the end of each sample, were still present in the boxes. Marks on the bottom of the box were also found, indicating sample intervals. It was possible to validate sample numbers and confirm the presence of spodumene for each of the samples in the mineralized zones.



**Figure 12.4 – Core verification at the core storage facility in Val-d’Or during the first visit in 2010: A) General view of the facility and some of the boxes that were examined; B) and C) Hole LR-10-11; D) and E) Hole LR-10-27; F) and G) Hole LR-10-55. Photos taken by author P.-L. Richard.**





**Figure 12.5 – Core verification at the core storage facility in Val-d’Or during the second visit in 2011: A) and B) Hole LR-11-178; C) and D) Hole JR-11-13; E) and F) Hole HD-10-01. Photos taken by author P.-L. Richard.**

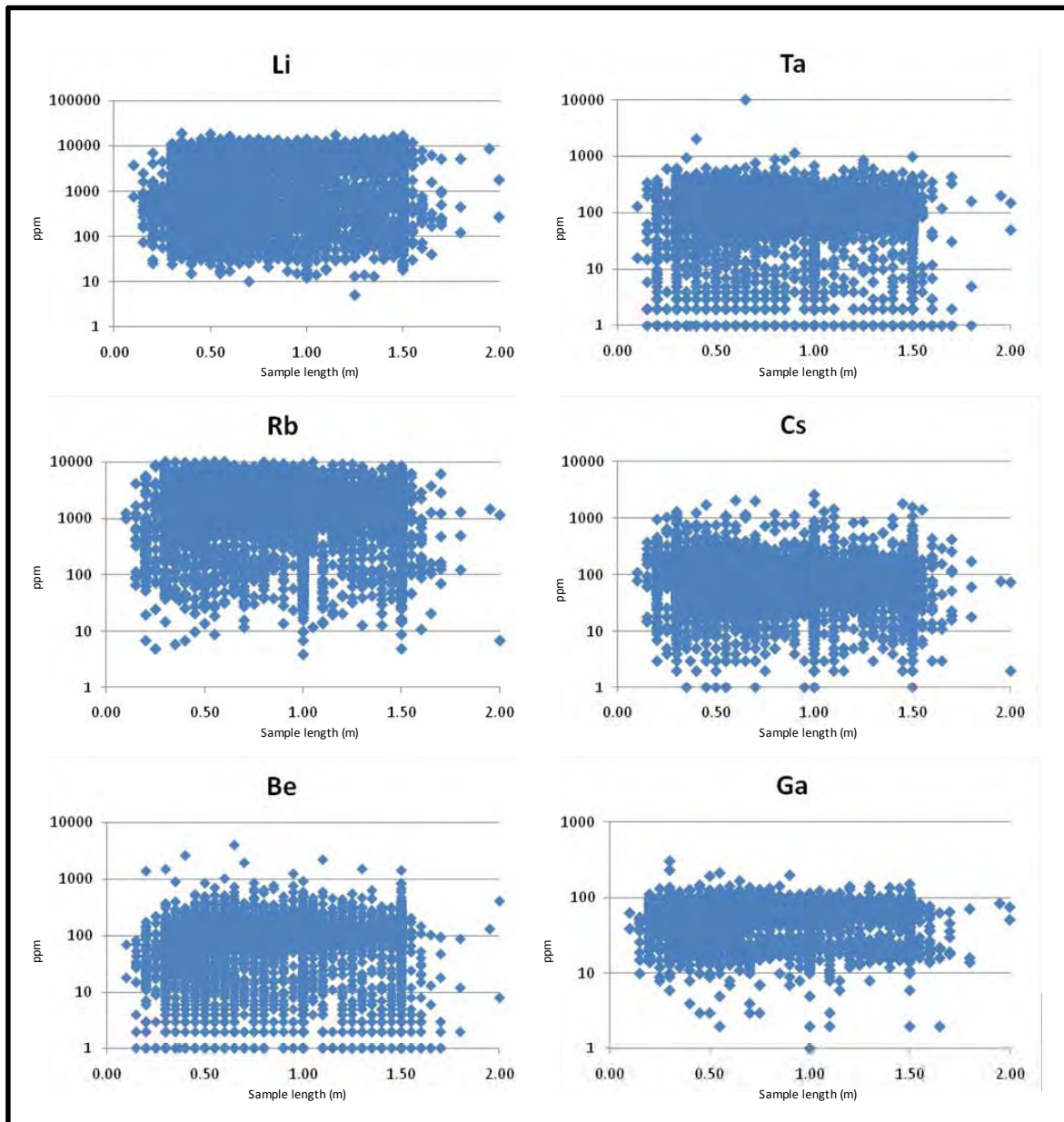
The author reviewed and judged adequate the entire path taken by the drill core, from the drill rig to the logging and sampling facility (Fig. 12.6).

Core sample lengths were also reviewed by the author. After Critical Elements made corrections, only six (6) of the 4,633 reviewed samples from the Rose deposit were found to be more than 2.00 metres long (3.75 m being the maximum), and 728 were less than 0.50 metre. The smallest sample was 0.10 metres long.



**Figure 12.6 – Path of the core from drill rig to final storage facility: A) Drill rig on the Rose deposit; B) Core carefully boxed and ready for transport by Consul-Teck personnel to the Val-d’Or facility; C) Consul-Teck logging facility where the core is logged and marked for sampling; D) Core splitter used to sample the core; E) Half-core bagged by Consul-Teck personnel and later shipped to the assay laboratory; F) Core adequately stored outside in roofed-racks. Photos taken by author P.-L. Richard during his visit of the property and Val-d’Or facility.**

The authors confirmed that the grade versus sample length graph shows a very homogeneous distribution for all elements considered (Li, Ta, Rb, Cs, Be, Ga), without any detectable bias due to small interval sampling (Fig. 12.7). A comparison of grade versus sample length seemed appropriate considering more than 15% (728) of the 4,633 samples in the database are less than 0.50 metre long. This kind of sampling procedure can sometimes conceal high grade values derived from small samples by spreading them over longer composite intervals when a suitable capping grade has not been applied.



**Figure 12.7 – Verification of grade versus sample length for Critical Elements drill holes (logarithmic scale).**

## 12.6 InnovExplo's grab sampling

During the first site visit, InnovExplo collected twelve (12) grab samples for the purpose of conducting an independent analysis. Samples were collected, bagged and delivered to ALS Chemex Laboratory by one of the authors. Table 12.1 presents the results for those samples.

The goal of this verification was to confirm the presence of the reported Li, Be, Ta, Cs, Rb and Ga mineralization. Mineralization-level values were successfully obtained for all of the visited showings, except Hydro: samples from this showing failed to yield significant results for Li, with only Ta returning significant levels (>100 ppm). However, the author is of the opinion that all showings presented in this report truly contain Li and rare-element mineralization, and grab samples are unlikely to represent average grades.

**Table 12.1 – Samples collected by InnovExplo and independently analyzed as part of data verification for the Pivert-Rose property**

Sample	Showing	UTM83 Zone 18		Li ppm	Be ppm	Ta ppm	Cs ppm	Rb ppm	Ga ppm
		Easting	Northing						
58001	Pivert	422649	5766795	5,570	38	45	44	1420	64
58002	Hydro	420487	5763947	136	214	>100	23	171	61
58003	Hydro	420600	5763893	28	204	>100	22	510	60
58004	Rose	419628	5763381	7,950	128	>100	155	3650	68
58005	Rose	419601	5763387	> 10 000	171	>100	122	3260	84
58006	Rose	419628	5763468	55	16	>100	37	1140	69
58007	Rose	419597	5763496	111	123	36	57	1470	34
58008	Rose	419692	5763373	7,100	96	>100	121	3660	95
58009	Rose	420044	5763217	> 10 000	133	100	47	1260	78
58010	Rose	420047	5763174	4,320	127	45	104	3140	57
58011	JR	421764	5764520	9,870	172	>100	54	1360	75
58012	JR	421777	5764505	7,150	305	57	121	4170	68

### **13.0 MINERAL PROCESSING AND METALLURGICAL TESTING**

No mineral processing or metallurgical testing has been done on the Pivert-Rose property at the time this report was being prepared.

## 14.0 MINERAL RESOURCE ESTIMATES

### 14.1 Historical and previous Mineral Resource Estimates

This report represents an update to InnovExplo's 43-101-compliant Mineral Resource Estimate for the Rose deposit published in January 2011. Results of that first estimate were Indicated Resources of 11,436,000 tonnes grading 1.34% Li<sub>2</sub>O, 135ppm Ta, 2,668ppm Rb, 106ppm Cs, 136ppm Be, 71ppm Ga, and Inferred Resources of 2,170,000 tonnes grading 1.27% Li<sub>2</sub>O, 113ppm Ta, 1,529ppm Rb, 100ppm Cs, 112ppm Be, 70ppm Ga, at a cut-off grade of 0.75% Li<sub>2</sub>O for both. No historical (pre-43-101) resource estimates are available for the property.

### 14.2 Methodology

The Mineral Resource Estimate detailed in this report was made using 3-D modelling and block model interpolation for a 1,800-metre strike length corridor of the Rose deposit from section 100 to section 1,900, and down to a vertical depth of 300 metres below surface.

InnovExplo developed an interpretation for the Rose deposit using transverse sections spaced 50 metres apart. The drill hole spacing and geological continuity are, for most of the deposit, sufficient to classify the bulk of the resource as Indicated and a lesser portion as Inferred.

An approach based on multiple zones was used for the current Resource Estimate. Lithium-rich and tantalum-rich zones were interpreted based on the dominant element. InnovExplo defined 10 lithium-dominant zones and 13 tantalum-dominant zones based on geological and grade continuity. Most of the tantalum-rich zones contain significant lithium grades and most of the lithium-rich zones contain significant tantalum grades.

A pit shell (Figure 14.1) was created in Whittle to determine the portion of the resource to be included in the open-pit model. All remaining blocks were considered as part of the underground model.

### 14.3 Drill hole database

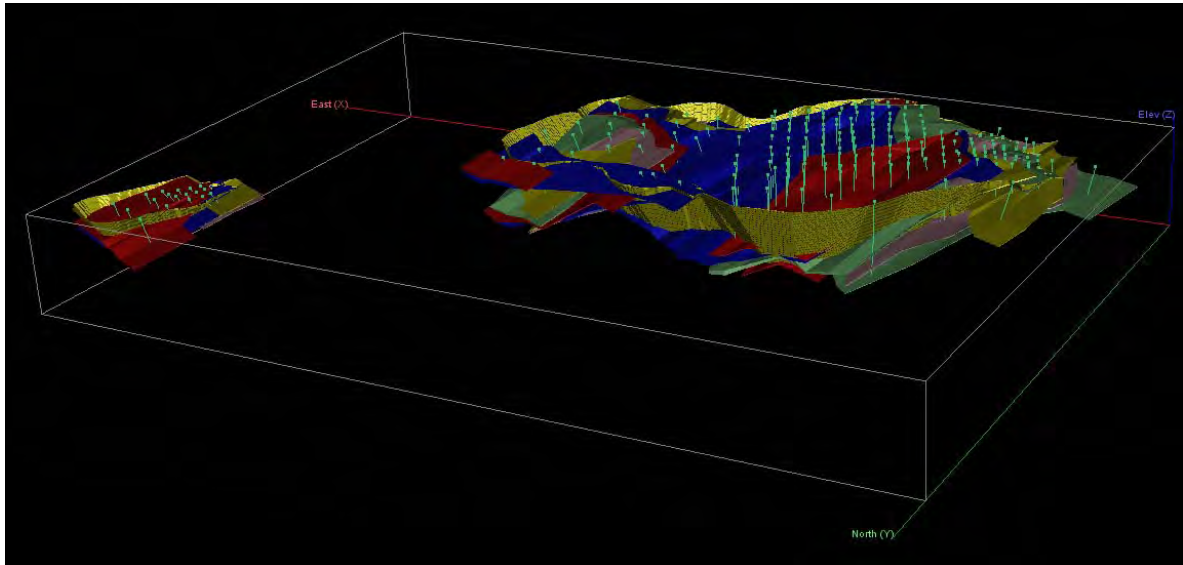
Critical Elements provided InnovExplo with a Gems diamond drill hole database for the Pivert-Rose property. The Rose deposit database contained 202 surface diamond drill holes with coded lithologies from drill core logs. All 202 available holes from the Rose deposit were considered (this total includes holes from the JR and the Hydro showings, which now form part of the Rose deposit).

### 14.4 Domain interpretation

It was necessary to construct twenty-three (23) different domain wireframe solid models to properly control the grade interpolation within the corresponding mineralized zones.

The interpretation of the mineralized envelopes was based solely on lithium and tantalum grades and did not take into account other elements (Rb, Cs, Ga, Be). However, these other elements were interpolated inside the mineralized envelopes.

Figure 14.1 presents an isometric view of the mineralized-zone model developed along a 1.8-kilometre strike length. The wireframe solids of the mineralized-zone model were created in Gems based on an interpretation projected onto sections spaced every 50 metres across the 1.8-kilometre strike length, and then using tie lines between sections to complete the wireframes for each solid.



**Figure 14.1 – Northwest-facing isometric view of the mineralized zones in the Rose deposit. All mineralized zones are shown (different colors), as are drill holes (blue) and the pit shell (yellow)**

#### 14.5 Assay data, verification and treatment

The authors were granted access to the official results from ALS Chemex Laboratory for all holes used in the resource estimate. The authors downloaded every certificate directly from the laboratory and built the Gems database using the information contained therein.

As discussed in Drilling (section 10), the authors recalculated the results using their independently compiled database according to the following rules:

- For Li, two methods were found in the database: ME-MS61 and ME-OG63. ME-OG63 is a method capable of returning results for higher grades and was only used when ME-MS61 yielded >10,000 ppm. Therefore, values from ME-OG63 were used when available.
- For Be, two methods were found in the database: ME-MS61 and ME-ICP61a. ME-ICP61a is a method capable of returning results for higher grades and was only used when ME-MS61 yielded >500 ppm and. Therefore, values from ME-ICP61a were used when available.
- For Rb, two methods were found in the database: ME-MS61 and ME-MS81. When both methods were available, an average of the two methods was applied. In cases where result were >10,000 ppm Rb, a value of 10,000 was applied prior to proceeding with the average.

- For Ta, three methods were found in the database: ME-MS61, ME-MS81 and ME-XRF05. When more than one method was available, an average was applied. In cases where Ta values were >100 ppm using method ME-MS61, the average of ME-MS81 and ME-XRF05 was used. In each instance where this occurred, the results from ME-MS81 or ME-XRF05 or both were available. In cases where Ta values were >10,000 ppm using method ME-XRF05, a value of 10,000 was applied.
- For Cs, three methods were found in the database: ME-MS61, ME-MS81 and ME-XRF05. When more than one method was available, an average was applied. In cases where Cs values were >500 ppm using method ME-MS61, the average of ME-MS81 and ME-XRF05 was used. In each instance where this occurred, results from ME-MS81 or ME-XRF05 or both were available.
- For Ga, two methods were found in the database: ME-MS61 and ME-MS81. When both methods were available, an average of the two methods was applied.

The results (in ppm) were then rounded to the closest integer and included in the Gems database. The reader is invited to consult the Data Verification section (Section 12) for a complete description of the verifications and validations performed for this project.

#### 14.6 Grade capping and compositing

Based on the normal histograms of grades in the mineralized zones (Figs. 14.2 to 14.7), a capping value was attributed to each of the six (6) elements considered in this resource estimate: 7 samples were cut to 15,000 ppm Li; 11 samples to 650 ppm Ta; 49 samples to 600 ppm Cs; 8 samples to 900 ppm Be; and 6 samples to 150 ppm Ga. The histogram of Rb grades does not display any significant breaks that would suggest a capping grade, although there were nine (9) values over 10,000 ppm (indicated as “>10,000ppm” in the laboratory certificates) that were not reassayed. A value of 10,000 ppm is therefore used as the capping grade for Rb.

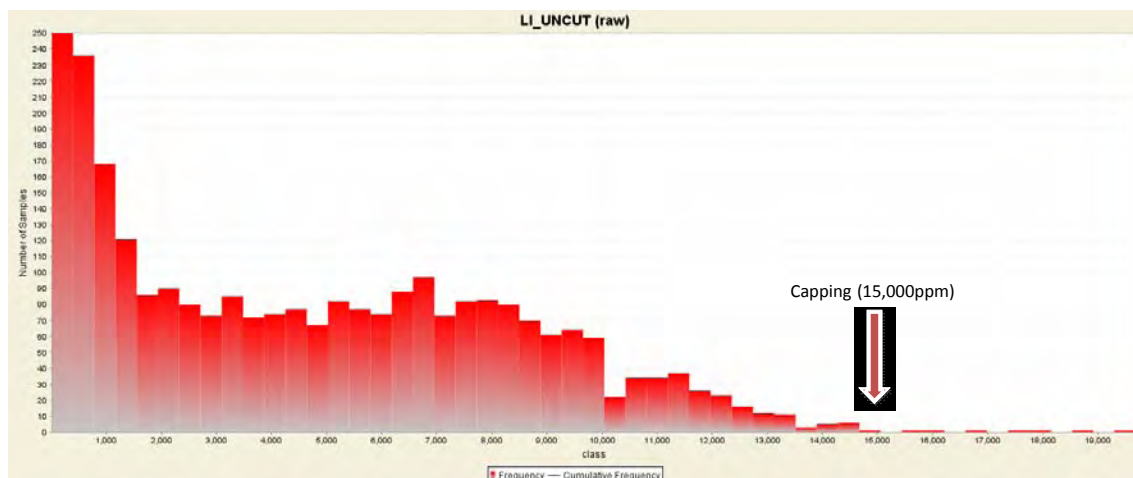


Figure 14.2 – Normal histogram of Li grade



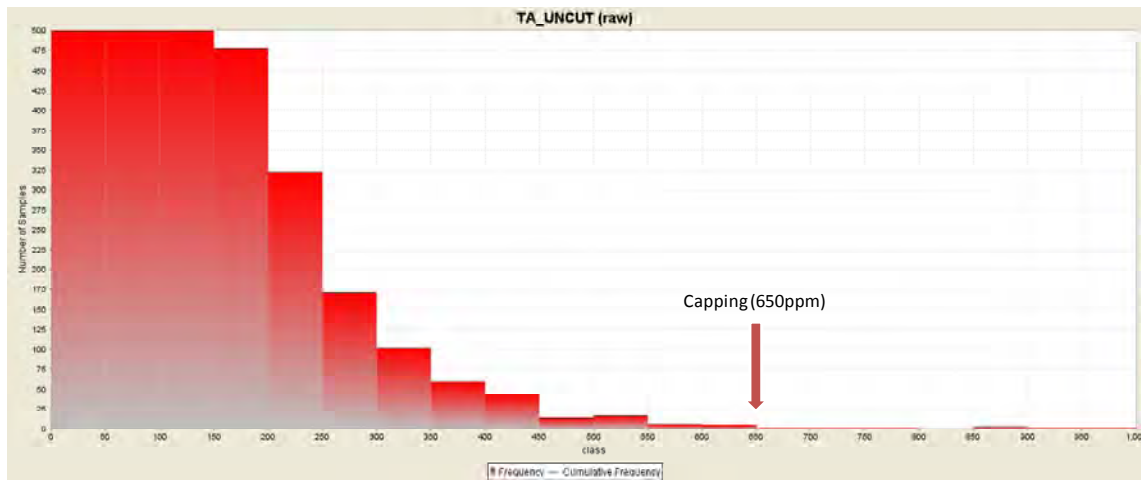


Figure 14.3 – Normal histogram of Ta grade

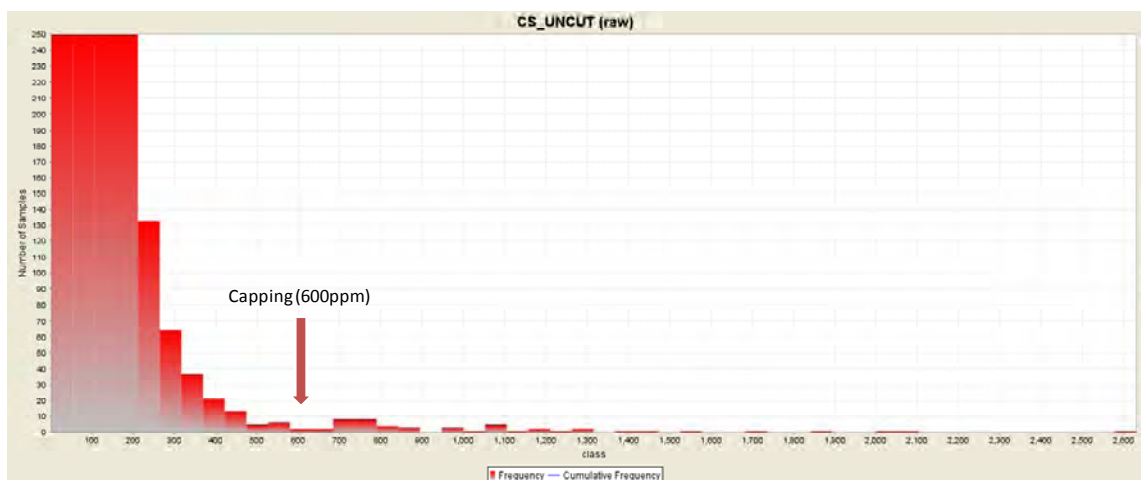


Figure 14.4 – Normal histogram of Cs grade

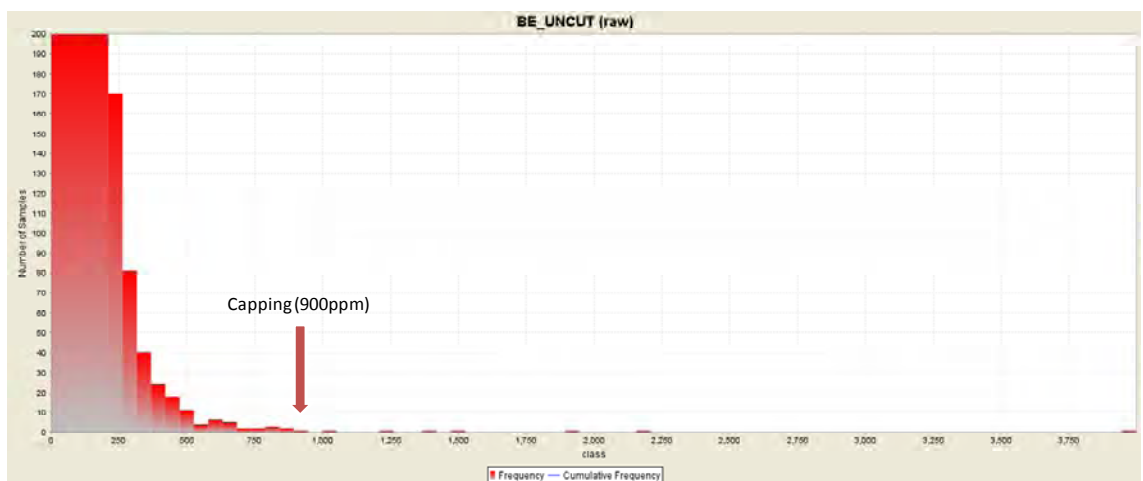
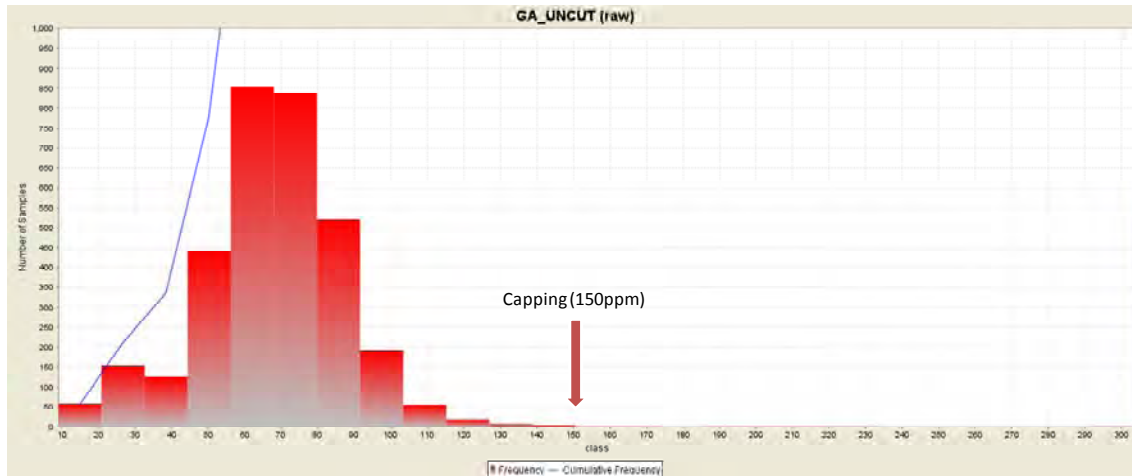
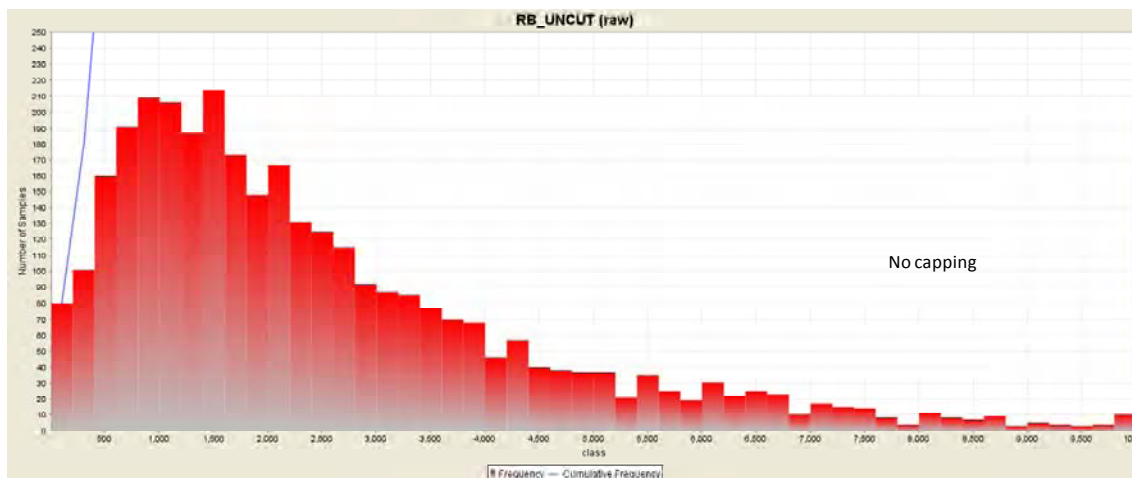


Figure 14.5 – Normal histogram of Be grade



**Figure 14.6 – Normal histogram of Ga grade**



**Figure 14.7 – Normal histogram of Rb grade**

To minimize any bias introduced by the variable sample lengths, assays were composited to equal lengths of 1 metre each within all intervals defining the mineralized zones. All composites generated within an assayed interval were considered, and no grades were assigned to missing sample intervals.

### 14.7 Variography

Three-dimensional directional-specific variography was completed for every element considered using 1-metre equal-length assay composites for populations confined to the mineralized-zone solids. The best-fit major axes of the variograms for the Rose deposit are shown below as figures 14.8 to 14.13.



Figure 14.8 – Lithium 3-D variogram within the mineralized zones (major axis).

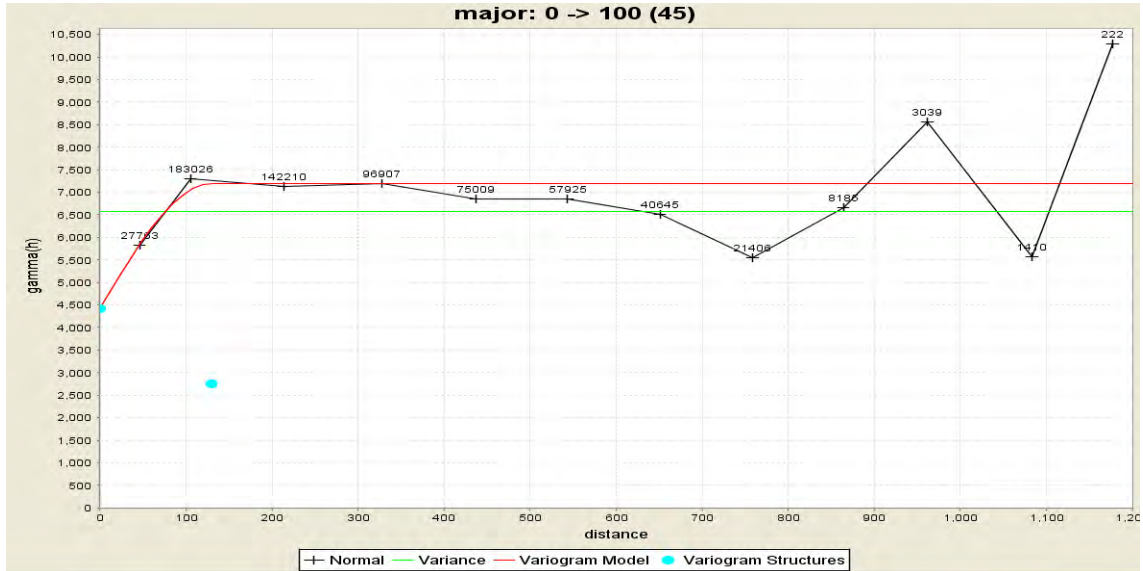


Figure 14.9 – Rubidium 3-D variogram within the mineralized zones (major axis).

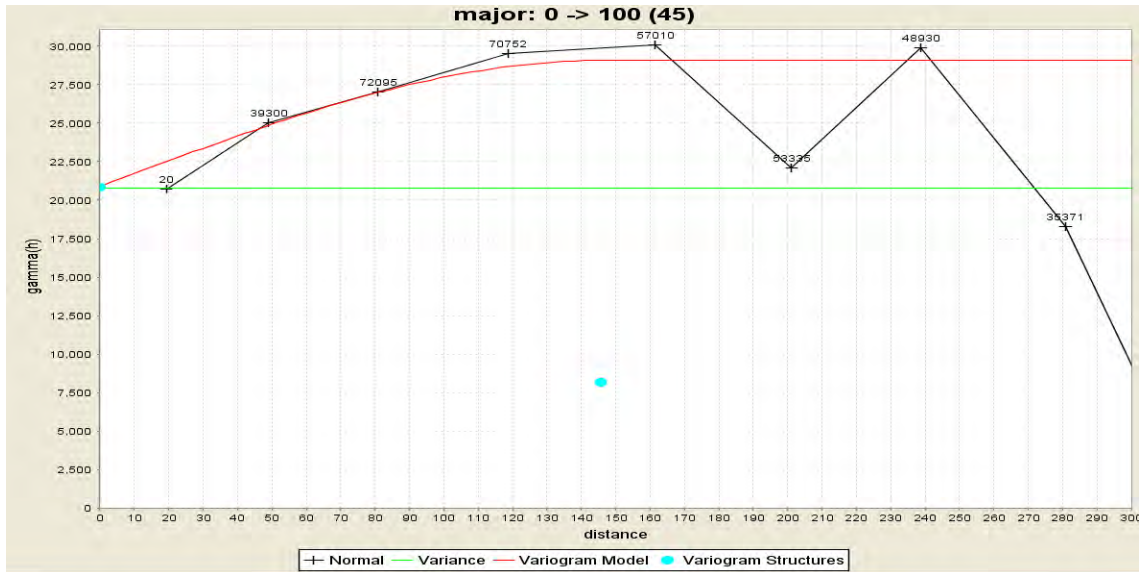


Figure 14.10 – Tantalum 3-D variogram within the mineralized zones (major axis).



Figure 14.11 – Cesium 3-D variogram within the mineralized zones (major axis).

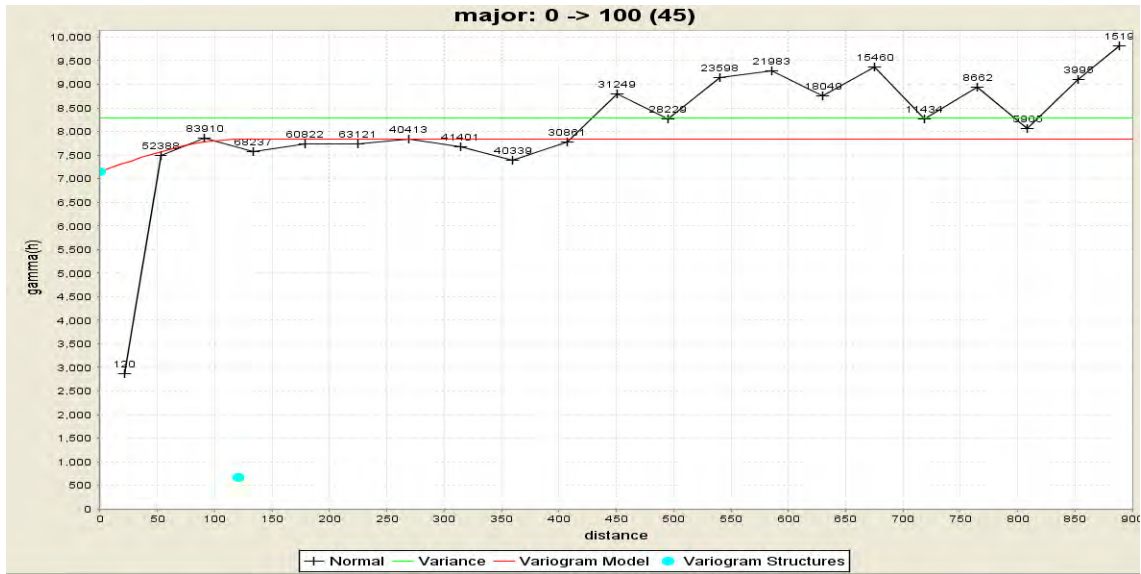


Figure 14.12 – Beryllium 3-D variogram within the mineralized zones (major axis).

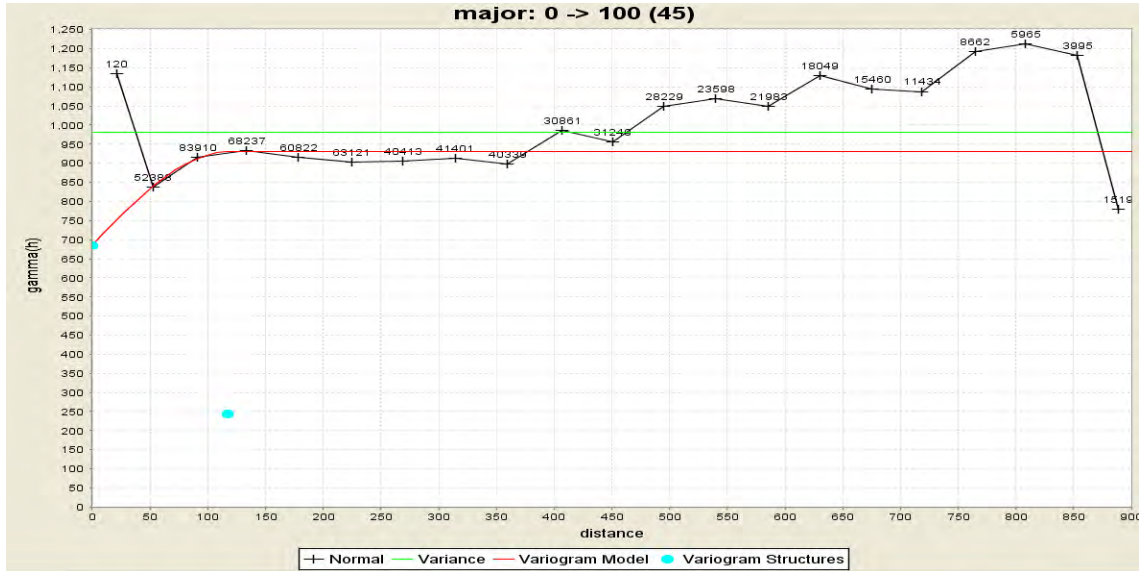


Figure 14.13 – Gallium 3-D variogram within the mineralized zones (major axis).

Results of the 3-D variographic investigations correlate with geological features of the deposit. The 3-D directional-specific investigations yielded the best-fit model along an orientation that roughly corresponds to the strike and dip of the mineralized zones. Some changes were introduced to the best-fit model in accordance with the geological model.

The 3-D variography combined with the modified best-fit model produces eight (8) specific ellipses:

- 1) Inferred Ellipse for Li: 200m x 200m x 80m
- 2) Indicated Ellipse for Li: 50m x 50m x 40m
- 3) Inferred Ellipse for Ta: 150m x 80m x 40m
- 4) Indicated Ellipse for Ta: 75m x 40m x 20m
- 5) Ellipse for Rb: 125m x 50m x 50m
- 6) Ellipse for Cs: 125m x 120m x 50m
- 7) Ellipse for Be: 120m x 100m x 60m
- 8) Ellipse for Ga: 120m x 100m x 40m

#### **14.8 Metallurgical treatment**

No metallurgical testing has been done on rocks from the Rose deposit at the time of report.

#### **14.9 Density**

A density value was determined using drill hole samples for the purposes of the current resource estimate. A density of 2.71 g/cm<sup>3</sup> was derived using 123 samples from the various mineralized zones, with measured values ranging from 2.19 g/cm<sup>3</sup> to 2.86 g/cm<sup>3</sup>. Densities were measured by ALS Chemex Laboratories. This value was assigned to all mineralized zones for the current Resource Estimate.

#### **14.10 Block model geometry**

A block model was established to include the entire 1.8-kilometre segment of known mineralization to a depth of 300 metres below surface. The limits of the block model are as follows:

- 530 columns x 5 m each
- 550 rows x 5 m each
- 100 levels x 5 m each

The block model is oriented parallel to mineralization along an azimuth of N296. The individual block cells have dimensions of 5 metres long (X-axis) by 5 metres wide (Y) by 5 metres vertical (Z).

#### **14.11 Mineralized-envelope block model**

All blocks greater than 0.001% within the mineralized zones were assigned a rock code corresponding to the mineralized-zone solids. A percent block model was then generated

reflecting the proportion of each block inside these solids. The percent block model was used in the resource estimation process. All blocks in the mineralized-envelopes were coded using respective mineralized zone rock codes. All remaining blocks were assigned code "0" for waste rock. The calculation was then performed on each zone, with the respective calculated ellipses constrained only by the respective mineralized zone.

#### **14.12 Grade block model**

A grade model was interpolated using the 1-metre composites calculated from assay to produce the best possible grade estimate for the defined resources in the various mineralized zones. Interpolation profiles were established for grade estimation in the grade model. The inverse distance squared method was performed.

A point-area workspace providing the X, Y, Z and assay data points was used for block interpolation in the grade model. The 1-metre assay composites were specified for all blocks inside the mineralized-zone solids. The composite points in each of the point-area files were assigned rock and block codes corresponding to the respective mineralized zone. The interpolation profiles specify a single target and sample rock code (the mineralized-zone solid), thus establishing hard boundaries based on the zone and preventing an estimation of block grades using sample points outside this zone. The respective search/interpolation ellipse orientations and ranges defined in the interpolation profiles used for grade estimation correspond to those developed in the section on Variography (14.7).

Other specifications for controlling grade estimation are as follows:

- Inverse distance squared interpolation method for data points;
- Minimum of two (2) and maximum of twelve (12) sample points in the search ellipse for interpolation;
- Capping on assays before compositing.

#### **14.13 Resource category block model**

Resources in the Inferred category were identified by the interpolation process based on search ellipse criteria and specific interpolation parameters. Resources in the Indicated category were then identified by the interpolation process based on search ellipse criteria and specific interpolation parameters. Indicated Resources were then retrieved from the Inferred Resources. There is no Measured category for the Rose deposit resource at this stage of exploration. Only blocks having an assigned rock code were interpolated for grade and resource categories.

#### **14.14 Determination of cut-off grade**

Resources were compiled using a cut-off grade established on a "tonne value" of \$41 (open-pit model) and \$66 (underground model) based on the current assessment of resource and market conditions. The "tonne value" considers a 64% recovery for lithium and a 70% recovery for tantalum. Prices were set at \$6,000/t lithium carbonate ( $\text{Li}_2\text{CO}_3$ ) and \$317/kg Ta. Prices and OPEX were taken from GENIVAR's internal studies for Critical Elements dated June 2011; Appendices II and III). No valuation was included for any of the other elements. The cut-off used must be re-evaluated in light of prevailing market prices for lithium and tantalum as well as exchange rates, recovery, and mining costs. The possibility of recovering other elements should also be considered.  $\text{Li}_2\text{O}$ -equivalent was determined based on lithium and tantalum prices and their respective recovery ratios.

Resource estimates are also presented for different cut-off grades. While the \$41/t cut-off is the official cut-off for the open pit model of this resource estimate, and \$66/t is the official cut-off for the underground model (based on the current resource estimation and market conditions), other cut-offs are presented from \$26/t to \$71/t for the open-pit model (Tables 14.2 and 14.3) and from \$41/t to \$86/t for the underground model (Tables 14.4 and 14.5).

#### 14.15 Mineral Resource classification, category and definitions

The resource classification definitions used for this report are those published by the Canadian Institute of Mining, Metallurgy and Petroleum in their document “CIM Standards on Mineral Resources and Reserves: Definitions and Guidelines”.

**Measured Mineral Resource:** that part of a Mineral Resource for which quantity, grade or quality, densities, shape, physical characteristics are so well established that they can be estimated with confidence sufficient to allow the appropriate application of technical and economic parameters, to support production planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough to confirm both geological and grade continuity.

**Indicated Mineral Resource:** that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters, to support mine planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough for geological and grade continuity to be reasonably assumed.

**Inferred Mineral Resource:** that part of a Mineral Resource for which quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling, and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes.

#### 14.16 Resource estimation

Based on the density of the processed data, the search ellipse criteria, and the specific interpolation parameters, the authors are of the opinion that the current Mineral Resource Estimate can only be classified as Inferred and Indicated resources. The estimate follows CIM standards and guidelines for reporting mineral resources and reserves. A minimum mining width of 2 metres (true width) and a cut-off grade of \$41/t (for the open pit model) and \$66/t (for the underground model) were used for the Mineral Resource Estimate.

InnovExplo estimates that the Rose deposit has **Indicated Resources of 26.5 million tonnes grading 0.98% Li<sub>2</sub>O, 163 ppm Ta<sub>2</sub>O<sub>5</sub>, 2,343 ppm Rb, 92 ppm Cs, 128 ppm Be, 66 ppm Ga**, and **Inferred Resources of 10.7 million tonnes grading 0.86% Li<sub>2</sub>O, 145ppm Ta<sub>2</sub>O<sub>5</sub>, 1,418ppm Rb, 74ppm Cs, 121ppm Be, 61ppm Ga**. Table 14.1 presents the official resource estimate for the Rose deposit.



**Table 14.1 – Rose Resource Estimate**
Rose Resource Estimate dated July 20th, 2011

		<b>Tonnes (x 1,000)</b>	<b>Li<sub>2</sub>O equivalent (%)</b>	<b>Li<sub>2</sub>O (%)</b>	<b>Ta<sub>2</sub>O<sub>5</sub> (ppm)</b>	<b>Rb (ppm)</b>	<b>Cs (ppm)</b>	<b>Be (ppm)</b>	<b>Ga (ppm)</b>
<b>Indicated</b>	<b>Open-pit model</b>								
	Lithium Zones	23,800	1.35%	1.05%	157	2,410	94	131	67
	Tantalum Zones	1,900	0.78%	0.33%	233	1,592	80	93	54
	<b>Underground model</b>								
	Lithium Zones	700	0.95%	0.63%	171	2,098	85	137	72
	Tantalum Zones	100	0.95%	0.60%	180	2,404	108	109	63
	<b>Total Indicated</b>	<b>26,500</b>	<b>1.30%</b>	<b>0.98%</b>	<b>163</b>	<b>2,343</b>	<b>92</b>	<b>128</b>	<b>66</b>
<b>Inferred</b>	<b>Open-pit model</b>								
	Lithium Zones	7,900	1.22%	0.95%	143	1,610	77	126	63
	Tantalum Zones	1,100	0.73%	0.28%	232	1,079	78	93	54
	<b>Underground model</b>								
	Lithium Zones	1,600	1.05%	0.88%	90	752	55	116	55
	Tantalum Zones	100	0.77%	0.09%	355	256	87	27	50
	<b>Total Inferred</b>	<b>10,700</b>	<b>1.14%</b>	<b>0.86%</b>	<b>145</b>	<b>1,418</b>	<b>74</b>	<b>121</b>	<b>61</b>

- 1) The Qualified People for this Mineral Resource Estimate, as defined by National Regulation 43-101, are Pierre-Luc Richard, B.Sc.,Geo. and Carl Pelletier, B.Sc.,Geo., both of InnovExplo Inc, and the effective date of the estimate is July 20, 2011. Regulation 43-101 and CIM definitions were followed.
- 2) These Mineral Resources are not Mineral Reserves, having no demonstrable economic viability.
- 3) Results are presented undiluted and in situ, and some resource blocks may be locked in pillars. The entire “open-pit model” resource is contained within a pit shell established by InnovExplo. The estimate includes twenty-three (23) zones (10 zones are categorized as lithium-dominant and 13 as tantalum-dominant). The resource estimate covers the drilled area of the Rose deposit and includes the drilled JR and Hydro showings. Totals may not sum correctly due to rounding.
- 4) The resource modelling used data from surface NQ drill core samples collected by First Gold Exploration (now Critical Elements Corporation): 10 DDH in 2009, 148 DDH in 2010, and 44 DDH in 2011. The total is 202 DDH for 25,201 metres of drilling, and 4,406 sampled assays. A fixed density of 2.71 g/cm<sup>3</sup> was used based on the average density measured in mineralized lithologies. A minimum width of 2.0 metres was applied, using the grade of the adjacent material when assayed or value of zero when not assayed. Based on appropriate statistics, capping was fixed at 15,000 ppm for lithium, 650 ppm for tantalum, 10,000 ppm for rubidium, 600 ppm for cesium, 900 ppm for beryllium, and 150 ppm for gallium. Raw assays were composited (after being capped) using 1.00-metre drill hole intervals.
- 5) Resources were compiled using a cut-off grade established on a “tonne value” of \$41 (open-pit model) and \$66 (underground model) based on the current resource estimation and market conditions. The “tonne value” considers a 64% recovery for lithium and a 70% recovery for tantalum. Prices were set at \$6,000/t lithium carbonate (Li<sub>2</sub>CO<sub>3</sub>) and \$317/kg Ta. Prices and OPEX were taken from GENIVAR’s internal studies for Critical Elements, dated June 2011). No valuation was included for any of the other elements. The cut-off used must be re-evaluated in light of prevailing market prices for lithium and tantalum, as well as exchange rates, recovery, and mining costs. The possibility of recovering other elements should also be considered. Li<sub>2</sub>O-equivalent was determined based on lithium and tantalum prices and their respective recovery ratios.
- 6) Measured Resources were not estimated. Indicated and Inferred Resources were evaluated from drill hole results using a block model approach (inverse distance squared interpolation) with 5m blocks in GEMS software (version 6.2.4). The interpolation was constrained within twenty-four (24) individual 3D solids (one of the solids did not produce any tons at the established cut-off).
- 7) Calculations used metric units (metres, tonnes and ppm). Results are rounded to reflect their estimated nature. Tonnes are rounded to 100,000. Grades reported in percent are rounded to two decimals, while grades reported in parts per million (ppm) are rounded to the closest integer.

**Table 14.2 – Rose resource sensitivity with variable cut-off for all zones combined (open-pit model; Indicated resource)**

Open-pit model (Indicated Resource)													
Li Zones	Cut-off (\$/tonne)	Tonnage (X 1,000)	\$/tonne	Li	Ta	Rb	Cs	Be	Ga	Li2O (%)	Ta2O5 (ppm)	Li2O équivalent (%)	\$/tonne (Li2O+Ta2O5)
	\$ 26.00	24,300	126	4,775	128	2,387	93	129	67	1.03%	156	1.33	\$ 126.01
	\$ 31.00	24,100	127	4,811	128	2,398	93	130	67	1.04%	157	1.34	\$ 126.82
	\$ 36.00	24,000	127	4,833	129	2,404	93	130	67	1.04%	157	1.34	\$ 127.31
	<b>\$ 41.00</b>	<b>23,800</b>	<b>128</b>	<b>4,867</b>	<b>129</b>	<b>2,410</b>	<b>94</b>	<b>131</b>	<b>67</b>	<b>1.05%</b>	<b>157</b>	<b>1.35</b>	<b>\$ 128.06</b>
	\$ 46.00	23,400	130	4,938	129	2,444	94	132	67	1.06%	158	1.36	\$ 129.56
	\$ 51.00	23,000	131	4,994	130	2,421	94	132	68	1.08%	158	1.38	\$ 130.83
	\$ 56.00	22,600	132	5,057	130	2,423	94	133	68	1.09%	159	1.39	\$ 132.20
	\$ 61.00	22,400	133	5,090	130	2,428	94	133	68	1.10%	159	1.40	\$ 132.91
	\$ 66.00	21,900	134	5,164	130	2,436	95	134	68	1.11%	159	1.42	\$ 134.48
	\$ 71.00	21,400	136	5,245	130	2,444	95	134	68	1.13%	159	1.43	\$ 136.17
Ta Zones	Cut-off (\$/tonne)	Tonnage (X 1,000)	\$/tonne	Li	Ta	Rb	Cs	Be	Ga	Li2O (%)	Ta2O5 (ppm)	Li2O équivalent (%)	\$/tonne (Li2O+Ta2O5)
	\$ 26.00	2,700	62	1,142	172	1,480	74	88	51	0.25%	210	0.65	\$ 61.52
	\$ 31.00	2,400	66	1,260	180	1,525	77	91	52	0.27%	220	0.69	\$ 65.72
	\$ 36.00	2,200	69	1,358	185	1,528	78	91	52	0.29%	226	0.73	\$ 68.90
	<b>\$ 41.00</b>	<b>1,900</b>	<b>74</b>	<b>1,530</b>	<b>191</b>	<b>1,592</b>	<b>80</b>	<b>93</b>	<b>54</b>	<b>0.33%</b>	<b>233</b>	<b>0.78</b>	<b>\$ 73.70</b>
	\$ 46.00	1,600	79	1,741	198	1,664	81	92	55	0.37%	241	0.84	\$ 79.44
	\$ 51.00	1,500	82	1,816	201	1,700	82	94	55	0.39%	245	0.86	\$ 81.64
	\$ 56.00	1,300	87	1,959	210	1,757	84	94	56	0.42%	256	0.91	\$ 86.53
	\$ 61.00	1,100	92	2,087	223	1,841	87	95	58	0.45%	273	0.97	\$ 92.19
	\$ 66.00	900	98	2,335	228	1,862	91	98	60	0.50%	279	1.04	\$ 98.38
	\$ 71.00	700	105	2,634	231	1,828	94	96	62	0.57%	282	1.11	\$ 105.09

**Table 14.3 – Rose resource sensitivity with variable cut-off for all zones combined (open-pit model; Inferred resource)**

Open-pit model (Inferred Resource)													
Li Zones	Cut-off (\$/tonne)	Tonnage (X 1000)	\$/tonne	Li	Ta	Rb	Cs	Be	Ga	Li2O (%)	Ta2O5 (ppm)	Li2O équivalent (%)	\$/tonne (Li2O+Ta2O5)
	\$ 26.00	8,100	113	4,277	117	1,601	76	124	62	0.92%	143	1.19	\$ 113.33
	\$ 31.00	8,000	114	4,321	117	1,606	76	125	62	0.93%	143	1.20	\$ 114.30
	\$ 36.00	8,000	115	4,355	117	1,609	77	126	63	0.94%	143	1.21	\$ 115.02
	<b>\$ 41.00</b>	<b>7,900</b>	<b>116</b>	<b>4,400</b>	<b>117</b>	<b>1,610</b>	<b>77</b>	<b>126</b>	<b>63</b>	<b>0.95%</b>	<b>143</b>	<b>1.22</b>	<b>\$ 115.95</b>
	\$ 46.00	7,700	117	4,455	118	1,612	77	128	63	0.96%	143	1.23	\$ 117.13
	\$ 51.00	7,600	118	4,496	118	1,616	77	128	63	0.97%	144	1.24	\$ 118.03
	\$ 56.00	7,500	119	4,552	118	1,616	78	129	63	0.98%	144	1.26	\$ 119.23
	\$ 61.00	7,300	121	4,618	118	1,615	78	130	64	0.99%	144	1.27	\$ 120.61
	\$ 66.00	7,100	122	4,693	118	1,622	78	131	64	1.01%	145	1.29	\$ 122.20
\$ 71.00	7,000	123	4,754	119	1,629	78	132	64	1.02%	145	1.30	\$ 123.49	
Ta Zones	Cut-off (\$/tonne)	Tonnage (X 1000)	\$/tonne	Li	Ta	Rb	Cs	Be	Ga	Li2O (%)	Ta2O5 (ppm)	Li2O équivalent (%)	\$/tonne (Li2O+Ta2O5)
	\$ 26.00	1,700	57	999	164	1,008	71	92	50	0.22%	200	0.60	\$ 56.85
	\$ 31.00	1,500	60	1,095	171	1,043	75	96	52	0.24%	209	0.64	\$ 60.36
	\$ 36.00	1,200	65	1,231	182	1,082	76	94	53	0.26%	222	0.69	\$ 65.47
	<b>\$ 41.00</b>	<b>1,100</b>	<b>69</b>	<b>1,313</b>	<b>190</b>	<b>1,079</b>	<b>78</b>	<b>93</b>	<b>54</b>	<b>0.28%</b>	<b>232</b>	<b>0.73</b>	<b>\$ 68.97</b>
	\$ 46.00	1,000	72	1,374	197	1,051	79	92	55	0.30%	241	0.76	\$ 71.83
	\$ 51.00	900	75	1,439	205	1,068	80	93	56	0.31%	250	0.79	\$ 74.85
	\$ 56.00	700	79	1,526	217	1,074	83	93	58	0.33%	265	0.83	\$ 79.26
	\$ 61.00	600	84	1,614	231	1,065	89	97	60	0.35%	282	0.89	\$ 84.15
	\$ 66.00	500	87	1,666	237	1,040	90	100	61	0.36%	289	0.91	\$ 86.58
\$ 71.00	400	90	1,782	241	1,008	91	104	61	0.38%	295	0.95	\$ 90.01	

**Table 14.4 – Rose resource sensitivity with variable cut-off for all zones combined (underground model; Indicated resource)**

Underground model (Inferred Resource)													
Li Zones	Cut-off (\$/tonne)	Tonnage (X 1000)	\$/tonne	Li	Ta	Rb	Cs	Be	Ga	Li2O (%)	Ta2O5 (ppm)	Li2O équivalent (%)	\$/tonne (Li2O+Ta2O5)
	\$ 41.00	2,500	83	3,252	75	738	57	102	51	0.70%	92	0.88	\$ 83.12
	\$ 46.00	2,300	87	3,435	77	762	56	108	52	0.74%	94	0.92	\$ 87.25
	\$ 51.00	2,100	90	3,550	77	760	56	110	53	0.76%	95	0.95	\$ 89.75
	\$ 56.00	1,900	93	3,779	73	758	56	113	53	0.81%	89	0.98	\$ 93.50
	\$ 61.00	1,800	96	3,897	73	753	56	114	54	0.84%	89	1.01	\$ 95.79
	<b>\$ 66.00</b>	<b>1,600</b>	<b>99</b>	<b>4,066</b>	<b>74</b>	<b>752</b>	<b>55</b>	<b>116</b>	<b>55</b>	<b>0.88%</b>	<b>90</b>	<b>1.05</b>	<b>\$ 99.47</b>
	\$ 71.00	1,400	105	4,336	72	739	54	117	55	0.93%	88	1.10	\$ 104.61
	\$ 76.00	1,200	108	4,519	72	733	53	119	56	0.97%	88	1.14	\$ 108.37
	\$ 81.00	1,100	111	4,684	70	680	51	119	56	1.01%	86	1.17	\$ 111.34
\$ 86.00	1,000	115	4,884	69	645	50	119	56	1.05%	84	1.21	\$ 115.10	
Ta Zones	Cut-off (\$/tonne)	Tonnage (X 1000)	\$/tonne	Li	Ta	Rb	Cs	Be	Ga	Li2O (%)	Ta2O5 (ppm)	Li2O équivalent (%)	\$/tonne (Li2O+Ta2O5)
	\$ 41.00	400	50	623	168	586	53	95	47	0.13%	205	0.53	\$ 50.00
	\$ 46.00	200	57	1,015	164	612	64	87	47	0.22%	200	0.60	\$ 57.17
	\$ 51.00	200	60	914	186	686	67	78	48	0.20%	228	0.63	\$ 60.06
	\$ 56.00	100	70	724	247	477	79	41	48	0.16%	301	0.73	\$ 69.57
	\$ 61.00	100	72	568	272	402	84	33	50	0.12%	332	0.76	\$ 71.90
	<b>\$ 66.00</b>	<b>0</b>	<b>73</b>	<b>425</b>	<b>291</b>	<b>256</b>	<b>87</b>	<b>27</b>	<b>50</b>	<b>0.09%</b>	<b>355</b>	<b>0.77</b>	<b>\$ 73.26</b>
	\$ 71.00	0	75	394	300	162	89	23	49	0.08%	366	0.79	\$ 74.64
	\$ 76.00	0	81	533	317	18	50	31	55	0.11%	387	0.85	\$ 81.15
	\$ 81.00	0	88	2,372	179	137	56	88	60	0.51%	219	0.93	\$ 88.26
\$ 86.00	0	92	2,778	160	248	43	72	60	0.60%	195	0.97	\$ 92.23	

**Table 14.5 – Rose resource sensitivity with variable cut-off for all zones combined (underground model; Inferred resource)**

Underground model (Indicated Resource)													
	Li Zones									Ta Zones			
	Cut-off (\$/tonne)	Tonnage (X 1000)	\$/tonne	Li	Ta	Rb	Cs	Be	Ga	Li2O (%)	Ta2O5 (ppm)	Li2O équivalent (%)	\$/tonne (Li2O+Ta2O5)
	\$ 4100	1300	72	1955	143	1911	89	110	64	0.42%	174	0.75	\$ 7165
	\$ 46.00	1100	76	2,108	147	2,000	87	116	67	0.45%	179	0.80	\$ 75.61
	\$ 5100	1000	79	2,266	147	2,078	87	122	68	0.49%	180	0.83	\$ 78.95
	\$ 56.00	800	85	2,640	138	2,104	88	131	71	0.57%	169	0.89	\$ 84.70
	\$ 6100	800	86	2,733	136	2,115	86	133	71	0.59%	167	0.91	\$ 86.14
	<b>\$ 66.00</b>	<b>700</b>	<b>90</b>	<b>2,909</b>	<b>140</b>	<b>2,098</b>	<b>85</b>	<b>137</b>	<b>72</b>	<b>0.63%</b>	<b>171</b>	<b>0.95</b>	<b>\$ 90.48</b>
	\$ 7100	600	94	3,073	141	2,076	84	139	72	0.66%	172	0.99	\$ 94.10
	\$ 76.00	500	100	3,522	125	2,023	84	139	71	0.76%	152	1.05	\$ 99.68
	\$ 8100	400	102	3,679	119	1,999	80	140	71	0.79%	145	1.07	\$ 101.64
	\$ 86.00	300	108	3,961	123	2,124	83	142	72	0.85%	150	1.14	\$ 108.16
	\$ 4100	400	57	1,049	159	1,712	75	106	54	0.23%	195	0.60	\$ 56.84
	\$ 46.00	200	75	2,114	145	2,016	92	95	57	0.46%	177	0.79	\$ 75.38
	\$ 5100	100	80	2,351	146	2,153	97	100	59	0.51%	178	0.85	\$ 80.38
	\$ 56.00	100	84	2,548	144	2,282	103	104	61	0.55%	176	0.89	\$ 84.12
	\$ 6100	100	88	2,692	147	2,377	107	108	63	0.58%	179	0.92	\$ 87.61
	<b>\$ 66.00</b>	<b>100</b>	<b>90</b>	<b>2,801</b>	<b>148</b>	<b>2,404</b>	<b>108</b>	<b>109</b>	<b>63</b>	<b>0.60%</b>	<b>180</b>	<b>0.95</b>	<b>\$ 90.03</b>
	\$ 7100	100	93	2,912	150	2,423	110	111	65	0.63%	183	0.98	\$ 92.83
	\$ 76.00	100	96	3,089	148	2,404	108	113	65	0.67%	181	1.01	\$ 96.07
	\$ 8100	100	102	3,411	147	2,253	103	115	66	0.73%	179	1.08	\$ 102.32
	\$ 86.00	0	106	3,596	147	2,215	102	117	66	0.77%	179	1.12	\$ 106.07

#### 14.17 Other Relevant Data and Information

While visiting the Rose deposit on July 21, 2011, the author Pierre-Luc Richard witnessed firsthand the close proximity of lakes and the presence of a major energy power line that crosses directly over the deposit. Although no economic assessment has been prepared for the Rose deposit thus far, the authors are of the opinion that these features could have a significant impact on project costs and this issue should therefore be examined by any future economic studies.

Figure 14.14 shows the casing of hole LR-11-165 with one of the lakes in the background (photo looking NNE; refer to Fig. 10.2 for the location). Figure 10.2 also shows other lakes in the area.

Figure 14.15 shows the casing of hole LR-10-157 with an energy power line in the background (photo looking SW; refer to Fig. 10.2 for the location). The energy power line trends roughly NNW.



**Figure 14.14 – One of the lakes in close proximity to the Rose deposit, near the casing for hole LR-11-165.**



**Figure 14.15 – Major power line near the casing for hole LR-10-157 (foreground). The power line cuts across the Rose deposit.**

## **15.0 MINERAL RESERVE ESTIMATES**

Mineral reserves have not yet been outlined on the Pivert-Rose property.

## **16.0 MINNING METHODS**

No preliminary economic assessments, pre-feasibility studies, or feasibility studies have been performed for the Rose deposit under the terms of Regulation 43-101. Therefore, mining methods cannot be discussed at this stage of the project.

## **17.0 RECOVERY METHODS**

No preliminary economic assessments, pre-feasibility studies, or feasibility studies have been performed for the Rose deposit under the terms of Regulation 43-101. Therefore, recovery methods cannot be discussed at this stage of the project.

## **18.0 PROJECT INFRASTRUCTURE**

No preliminary economic assessments, pre-feasibility studies, or feasibility studies have been performed for the Rose deposit under the terms of Regulation 43-101. Therefore, project infrastructure cannot be discussed at this stage of the project.

## **19.0 MARKET STUDIES AND CONTRACTS**

No preliminary economic assessments, pre-feasibility studies, or feasibility studies have been performed for the Rose deposit under the terms of Regulation 43-101. Therefore, market studies and contracts cannot be discussed at this stage of the project.

## **20.0 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT**

No preliminary economic assessments, pre-feasibility studies, or feasibility studies have been performed for the Rose deposit under the terms of Regulation 43-101. Therefore, environmental studies, permitting, and social or community impacts cannot be discussed at this stage of the project.

## **21.0 CAPITAL AND OPERATING COSTS**

No preliminary economic assessments, pre-feasibility studies, or feasibility studies have been performed for the Rose deposit under the terms of Regulation 43-101. Therefore, capital and operating costs cannot be discussed at this stage of the project.

## **22.0 ECONOMIC ANALYSIS**

No preliminary economic assessments, pre-feasibility studies, or feasibility studies have been performed for the Rose deposit under the terms of Regulation 43-101. Therefore, economic analysis cannot be discussed at this stage of the project.

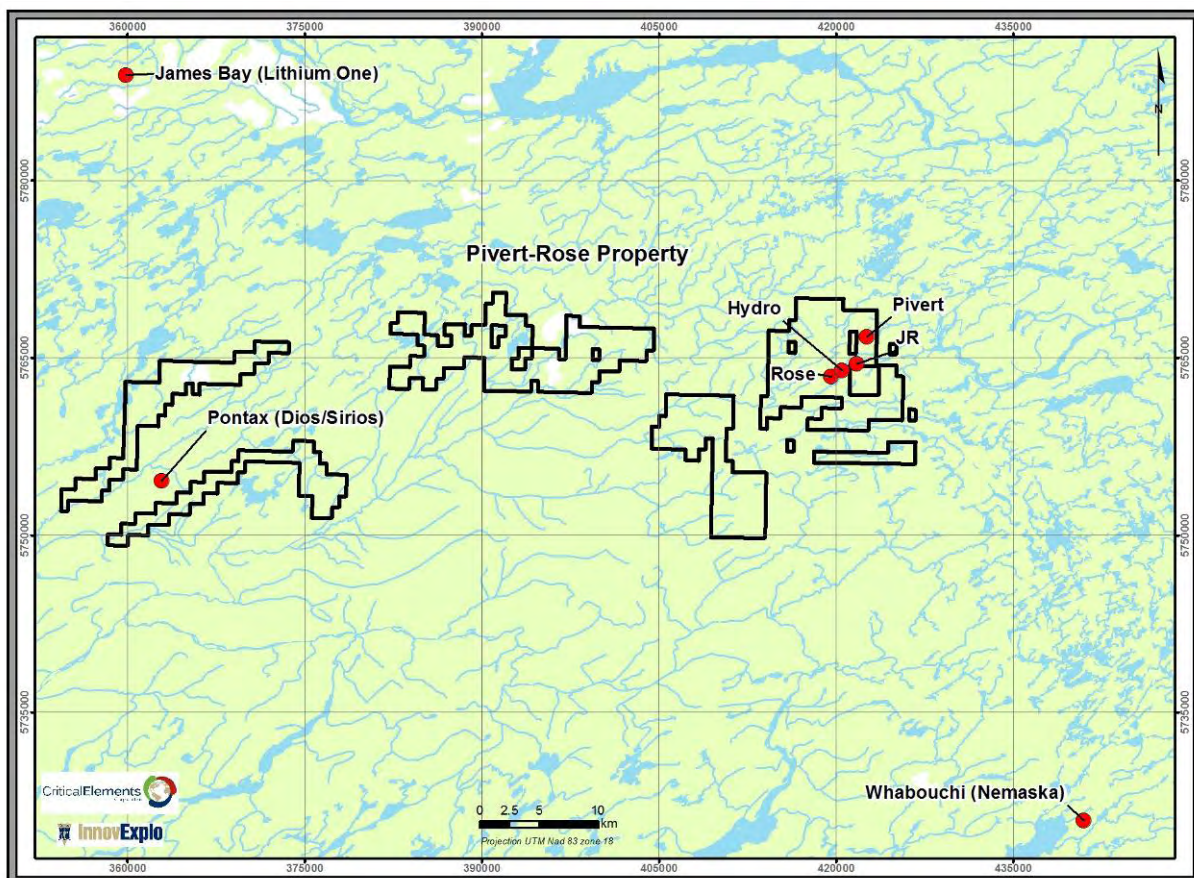
### 23.0 ADJACENT PROPERTIES

The Pivert-Rose property is almost completely surrounded by land held by several different companies or prospectors (Fig. 23.1). Only the area adjacent to the northwest part of Block D and the southeast part of Block E are available for staking.

The only similar showing recognized in the immediate vicinity of the Pivert-Rose property is Pontax, belonging to Dios-Sirios and situated between blocks D and E (Figs. 23.1 and 23.2). The Pontax showing contains lithium and rare-element mineralization within pegmatite dykes as reported on the owner's website.

Two other lithium deposits (Whabouchi and James Bay) have been found in the general area around the Pivert-Rose property. Whabouchi is owned by Nemaska Exploration Inc, and James Bay is owned by Lithium One Inc.

Several other types of showings (copper, gold, silver, lead, zinc) are present several kilometres north of the Pivert-Rose property (Fig. 23.2).



**Figure 23.1 – Lithium occurrences in the vicinity of the Pivert-Rose property**



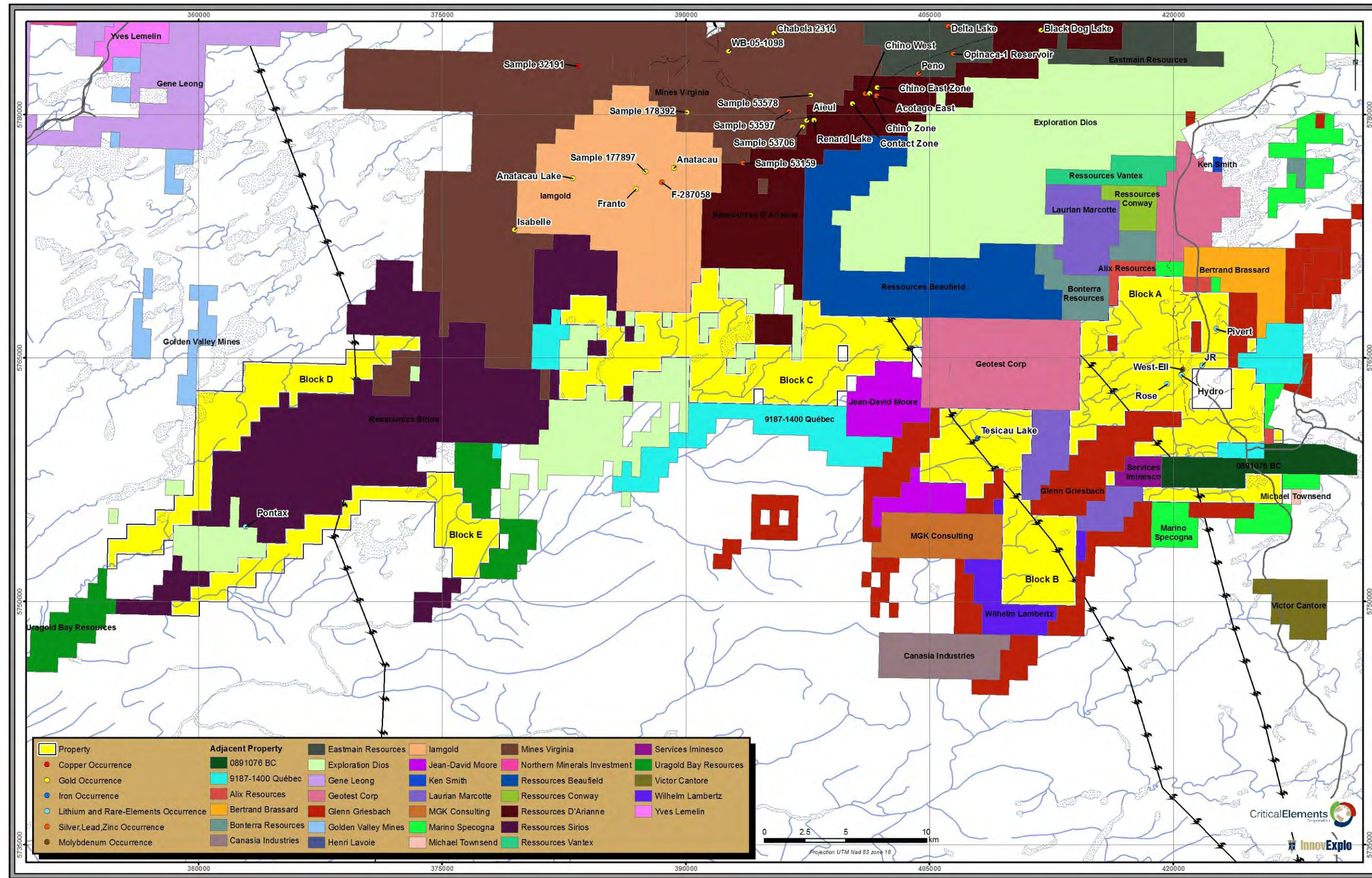


Figure 23.2 – Properties and mineral occurrences in the vicinity of the Pivert-Rose property according to GESTIM and SIGEOM.

## 24.0 OTHER RELEVANT DATA AND INFORMATION

There is no other relevant information to be included in this report.

## 25.0 INTERPRETATION AND CONCLUSION

The Rose deposit is at an advanced stage of exploration and hosts significant lithium, tantalum and other rare-element mineralization. A total of 202 drill holes were considered for the resource estimate presented in this report. Another fifteen (15) holes were drilled on other showings on the property, but were not included in the estimate.

Based on the density of the processed data, the search ellipse criteria, and the specific interpolation parameters, the authors are of the opinion that the current Mineral Resource Estimate can only be classified as Inferred and Indicated resources. The estimate follows CIM standards and guidelines for reporting mineral resources and reserves. A minimum mining width of 2 metres (true width) and cut-off grades (“tonne values”) of \$41/t (for the open pit model) and \$66/t (for the underground model) were used for the Mineral Resource Estimate. InnovExplo estimates that the Rose deposit has **Indicated Resources of 26.5 million tonnes grading 0.98% Li<sub>2</sub>O, 163 ppm Ta<sub>2</sub>O<sub>5</sub>, 2,343 ppm Rb, 92 ppm Cs, 128 ppm Be, 66 ppm Ga, and Inferred Resources of 10.7 million tonnes grading 0.86% Li<sub>2</sub>O, 145 ppm Ta<sub>2</sub>O<sub>5</sub>, 1,418 ppm Rb, 74 ppm Cs, 121 ppm Be, 61 ppm Ga.**

The mineralized pegmatitic dykes are oriented N296 and show a shallow average dip of 15° to the northeast (locally from 5° to 20°). The Mineral Resource Estimate detailed in this report was made using 3-D modelling and block model interpolation for a 1,800-metre strike-length corridor of the Rose deposit from section 100 to section 1,900, and down to a vertical depth of 300 metres below surface. InnovExplo developed an interpretation for the Rose deposit using transverse sections spaced 50 metres apart. The spacing between drill holes and the geological continuity are, for most of the deposit, sufficient to classify the bulk of the resource as Indicated with a lesser portion as Inferred.

An approach based on multiple zones was used for the current Mineral Resource Estimate. Lithium-rich and tantalum-rich zones were interpreted based on the dominant element. InnovExplo defined 10 lithium-dominant zones and 13 tantalum-dominant zones based on geological and grade continuity. Most of the tantalum-rich zones contain significant lithium grades and most of the lithium-rich zones contain significant tantalum grades. A pit shell (see Figure 14.1) was created in Whittle to determine the portion of the resource to be included in the open-pit model. All remaining blocks were considered as part of the underground model.

The interpretation of the mineralized envelopes was based solely on lithium and tantalum grades and did not take into account other elements (Rb, Cs, Ga, Be). However, these other elements were interpolated inside the mineralized envelopes.

There is considerable potential to increase tonnage with additional drilling of the known pegmatitic dykes at depth and along strike. In addition, the current geological setting suggests that there is reasonable potential to identify new zones in the immediate environment. Further drilling at the Rose deposit should be performed using an orientation of N206 and a dip of -60°. All pegmatitic dykes observed to date at other showings on the property share the same orientation as the Rose deposit; drilling should therefore also be oriented N206 with a dip of -60° on these showings.

Dykes and grades correlate well and show good continuity throughout the sections. Pegmatite dykes at Rose are shallow and subparallel to the surface, representing a significant advantage for this project that should be taken into account when further evaluating its economical potential. The exploration and drilling work by Critical Elements since 2009 yielded many significant drill hole intercepts that were used by InnovExplo to improve the geological interpretation for the Rose deposit and to confirm the potential of the entire property area for new discoveries.

The Rose deposit is currently the most advanced area of the property in terms of exploration, although other identified showings on Block A (Pivert, Pivert-East, Pivert-South, Helico) appear very promising and should be further investigated by either trenching or drilling since they share similarities with the Rose deposit in terms of mineralogy, grades and thickness (according to surface observations). Additional drilling is required to determine the extent of those showings. The historical West-Ell showing should be visited by Critical Elements Corporation's geologists to determine whether it could be part of the Rose deposit. This showing, reportedly 300 metres NE of the Hydro showing, was historically described as molybdenum mineralization in veinlets crosscutting a pegmatite dyke.

As discussed in Deposit Types (section 8), the regional zoning of pegmatites around parental granites has been well documented (ex. Cerny, 1992b). Li-rich complex pegmatites are invariably the most distal ones relative to the parent plutons (Cerny et al., 2005). This suggests that new discoveries in the area of Rose, Pivert, Pivert-East, Pivert-South and Helico should host similar mineralization. InnovExplo's preliminary data compilation and review of historical reports concerning the Pivert-Rose property revealed significant potential for the discovery of new lithium-tantalum and rare-element pegmatites over the entire property. The property is strategically positioned in an area known to be associated with this type of mineralization. Although the Rose deposit is at an advanced stage of exploration, the sheer size of the dominantly unexplored remainder of the property leads InnovExplo to consider the majority of the Pivert-Rose property as an early-stage project with great potential for discovering additional mineralization.

## 26.0 RECOMMENDATIONS

InnovExplo recommends additional work to confirm the economic potential of the Rose deposit and the rest of the Pivert-Rose property, which has seen very little exploration in the past.

Lateral and depth extensions of the Rose deposit should be investigated. Perpendicular channel samples (perpendicular to the pegmatite margins) could be analyzed and professionally surveyed in order to collect information for a future resource estimate. InnovExplo also recommends that the borders of the Rose pegmatites be systematically sampled over at least one metre since the literature mentions several deposits elsewhere that contain holmquistite (a lithium-magnesium mineral) as a metasomatic replacement mineral along the edges of lithium-rich pegmatites. If anomalous results are obtained, more samples should be collected to provide adequate coverage of the entire metasomatized wall rock.

Preliminary metallurgical testing is recommended on the Rose deposit mineralization. Tests should use a 100-kg composite sample recovered from HQ-size drill core (or from surface samples) and should include a mineralogical evaluation of the mineralization and standard characterization tests (head analysis, comminution and basic environmental testing). Following metallurgical testing, InnovExplo recommends a pre-feasibility study to determine the potential economic viability of the Mineral Resources. Both open pit and underground scenarios may need to be evaluated for the Rose deposit. A second objective of the pre-feasibility study would be to determine an area for bulk sampling and a cost-time estimate for the bulk sampling program.

InnovExplo also recommends that Critical Elements consider additional drilling on the Pivert, Pivert-East, Pivert South and Helico showings, and perhaps West-Ell, to determine their potential. Drilling a stratigraphic fence NE and SW of the Rose deposit should also be considered to potentially identify other mineralized structures associated with Rose. The authors recommend priority be given to the portion between the Rose and JR areas because they believe it has the strongest potential for new zones. In addition to immediately drilling the known mineralized pegmatites, InnovExplo recommends performing a creek-sediment geochemistry survey and a visual satellite photo reconnaissance program covering the entire property to complete the first step in determining which portions of the property should be investigated more closely. The results would determine where systematic geological survey grids should be established and where rock samples should be taken for geochemical analysis.

The following discussion on a regional- to property-scale exploration program is largely borrowed from Selway et al. (2005), which provides exploration guidelines for targets and contexts similar to those on the Pivert-Rose property. Based on the conclusions of Selway et al., any exploration project for rare-element pegmatites in the Superior Province should begin with an examination of a regional geology map. Rare-element pegmatites occur along large regional-scale faults in terranes metamorphosed to greenschist and amphibolite facies. They commonly have mafic metavolcanic or metasedimentary host rocks and are located near peraluminous granite plutons ( $A/CNK > 1.0$ ). If no peraluminous parent granites crop out in the area, then a litho-geochemical survey of the Li, Rb, Cs and B contents in mafic metavolcanic and metasedimentary rocks should be performed to identify metasomatized host rocks.

If a peraluminous granite pluton has been identified, then the next step is to determine if the pluton is barren or fertile. Bulk whole-rock samples of granites and aplites should be collected to determine their rare-element content. Fertile granites have rare-element contents at least three times that of average granites in the upper continental crust. Fertile granites have  $Mg/Li < 10$  and  $Nb/Ta < 8$ . Potassium feldspar tends to be pink and medium grained in barren granites, but

in potassic pegmatite and rare-element pegmatites, it tends to be white (but also may be grey, pink, or peach) and blocky (>5 cm). Muscovite in a barren granite tends to be silver-coloured and medium-grained, whereas muscovite in fertile granites tends to be green and coarse grained (>2 cm across). Fertile granites have accessory garnet, tourmaline, fluorapatite, and/or cordierite, which are absent in barren granites. Graphic textures are common in fertile granites and consist of intergrowths of K-feldspar + quartz, muscovite + quartz, tourmaline + quartz, and rarely garnet + quartz.

Once a fertile granite pluton has been identified, the geographic direction in which it is fractionating must be determined. With increasing fractionation, the fertile granite changes in composition from biotite granite to two-mica leucogranite to coarse-grained muscovite leucogranite and finally to pegmatitic leucogranite with intercalated layers of potassic pegmatite and sodic aplite. The mica assemblage changes from biotite-only to biotite+muscovite to muscovite-only. Beryl and ferro-columbite occur in the most fractionated parts of the fertile granite. Key fractionation indicators can be plotted on a map of the pluton to determine the fractionation direction: for example, the presence of tourmaline, beryl and ferro-columbite; Mn content in garnet; Rb content in bulk K-feldspar; and Mg/Li and Nb/Ta ratios in bulk whole-rock samples.

Rare-element pegmatites may be found at the furthest extent of these physical and chemical fractionation trends. The residual fractionated granitic melt that remains after crystallization of a fertile granite intrusion can intrude along fractures in the host rock to form pegmatite dykes. With increasing distance from the parent fertile granite, the pegmatite dykes will contain the following index minerals:

- 1) Beryl;
- 2) Beryl and ferro-columbite;
- 3) Beryl, tantalite (ferro-tantalite or mangano-tantalite), and Li-rich aluminosilicates (such as petalite or spodumene);
- 4) Beryl, manganotantalite, Li-rich aluminosilicates, and pollucite.

Pegmatite dykes with the most economic potential for Li-Cs-Ta deposits occur the greatest distance (up to 10 km) from the parent granite. Metasomatized host rocks are an indication of a rare-element pegmatite nearby, because pegmatitic fluids commonly alter the composition of the host rocks.

Metasomatic aureoles can be identified by their geochemistry: they contain elevated Li, Rb, Cs, B and F contents. Anomalies from a systematic litho-geochemical survey should indicate metasomatized host rocks in close proximity to pegmatite dykes. Metasomatic aureoles can also be identified by their mineralogy: the presence of tourmaline, (Rb,Cs)-enriched biotite, holmquistite, muscovite, and rarely garnet. Purple holmquistite is a good indicator mineral, because it usually occurs within 10 m of a rare-element pegmatite (London, 1986).

Compositions of bulk K-feldspar and muscovite are excellent exploration tools because these minerals are common in barren granite, fertile granite and rare-element pegmatites. The Rb and Cs contents increase in K-feldspar and muscovite with increasing fractionation of the granitic melt. Pegmatites with the highest degree of fractionation (and thus the most economic potential for Li-Cs-Ta) contain blocky K-feldspar with >3,000 ppm Rb, K/Rb < 30, and >100 ppm Cs. Pegmatites with the most economic potential usually contain coarse-grained green muscovite with >2,000 ppm Li, >10,000 ppm Rb, >500 ppm Cs, and >65 ppm Ta. Pegmatite samples

containing muscovite with >65 ppm Ta have a high probability of containing Ta-Nb mineralization (Gordiyenko, 1971).

Once a pegmatite dyke has been located, the next step is to assess its degree of fractionation and thus its potential for containing Ta mineralization. Bulk whole-rock analysis of pegmatitic and aplite zones will contain elevated rare-element contents (e.g., Li, Rb, Cs, Nb, Ta, Sn) in highly evolved pegmatites. Pegmatites with Ta mineralization usually also contain Li-rich minerals (e.g., spodumene, petalite, lepidolite, elbaite, amblygonite, lithiophilite, eucryptite) and may contain Cs-rich minerals (e.g., pollucite, Cs-rich beryl). Pegmatites with Cs-rich minerals have a greater probability of containing economic Ta mineralization than pegmatites without Cs-rich minerals.

InnovExplo is of the opinion that the character of the Pivert-Rose property is of sufficient merit to justify the recommended exploration program described below. The program is divided into two (2) phases. Expenditures for **Phase I of the work program are estimated at C\$1,092,500** (including 15% for contingencies). Expenditures for **Phase II of the work program are estimated at C\$4,209,000** (including 15% for contingencies). The **grand total is C\$5,301,500** (including 15% for contingencies). Phase II of the program is contingent upon the success of Phase I.

## **Phase I – Metallurgical Testing and Pre-feasibility on Rose; Regional Prospecting**

### Phase 1a) Metallurgical testing on Rose

Preliminary metallurgical testing is recommended on mineralized rocks from the Rose deposit. Tests should use a 100-kg composite sample recovered from HQ-size drill core (or from surface samples) and should include a mineralogical evaluation of the mineralization and standard characterization tests (head analysis, comminution and basic environmental testing).

### Phase 1b) Pre-feasibility on Rose

InnovExplo recommends a pre-feasibility study to determine the potential economic viability of the Mineral Resource. Both open pit and underground scenarios may need to be evaluated for the Rose deposit. A second objective of the pre-feasibility study would be to determine an area for bulk sampling and a cost and time estimate for the bulk sampling program.

### Phase 1c) Regional survey

Systematic grids should be ground-prospected on the large and relatively unexplored Pivert-Rose property. Using a 250-m grid, samples of every outcropping intrusion should be assayed in order to determine their fertility. Every pegmatite should be sampled regardless of any pre-defined grid. Creek sediments could also be collected and assayed. It is estimated that this would take a total of 35 days with four (4) prospectors and a helicopter.

## **Phase II – Drilling on Rose and Other Targets Elsewhere on the Property**

### Phase 2a) Drilling on Rose

The objective of drilling on Rose during Phase 2 is to continue to investigate the potential lateral and depth extensions. A total of 15,000 metres in approximately 100 holes is recommended.

Phase 2b) Delimitation drilling on showings other than Rose

The objective of delimitation drilling on showings other than Rose is to continue to investigate their potential lateral and depth extensions. Positive results from delimitation drilling could potentially lead to a resource estimate on these showings. A total of 5,000 metres in approximately 50 holes is recommended at this stage for the best targets defined during Phase 1.

Phase 2c) Drilling new regional exploration targets on the property

Drilling should be considered for any new mineralization recognized during the regional survey presented in Phase 1. The number of metres will be determined by the number of targets, but InnovExplo estimates approximately 1,500 metres in ±15 holes for drilling the best targets.

Phase 2d) New 43-101 Technical Report with updated Resource Estimate

A new 43-101 Resource Estimate and Pre-feasibility Study should be produced after completion of Phase 2. The report should include an updated Mineral Resource Estimate taking into consideration all new drilled areas.

**Table 20.1 – Budget estimate for the Phase I and II work programs**

Phase 1 - Work Program Metallurgical Testing and Pre-feasibility on Rose; Regional Prospecting		Pivert-Rose Property	
		Description	Cost
1a	Metallurgical testing on Rose		\$ 50,000
1b	Pre-feasibility study on Rose		\$ 250,000
1c	Regional survey (geology and geochemistry)		\$ 650,000
	<i>Contingencies (~ 15%)</i>		\$ 142,500
<b>Phase 1 subtotal</b>			<b>C\$ 1,092,500</b>
Phase 2 - Work Program Delimitation and Exploration Drilling, Metallurgical Testing, and Scoping study		Pivert-Rose Property	
		Description	Cost
2a	Drilling on Rose (all-inclusive, \$150 per metre)	15,000 m	\$ 2,250,000
2b	Delimitation on showings other than Rose (all-inclusive, \$150 per metre)	5,000 m	\$ 750,000
2c	Drilling new regional targets (all-inclusive, \$240 per metre)	1,500 m	\$ 360,000
2d	Updated 43-101 Resource Estimate and Pre-feasibility		\$ 300,000
	<i>Contingencies (~ 15%)</i>		\$ 549,000
<b>Phase 2 subtotal</b>			<b>C\$ 4,209,000</b>
<b>TOTAL (Phase 1 and Phase 2)</b>			<b><u>C\$ 5,301,500</u></b>

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## 28.0 SIGNATURE PAGE

### **43-101 TECHNICAL REPORT AND RESOURCE ESTIMATE ON THE PIVERT-ROSE PROPERTY (according to Regulation 43-101 and Form 43-101F1)**

Prepared for

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Signed at Val-d'Or, on September 7, 2011

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Signed at Val-d'Or, on September 7, 2011

## CERTIFICATE OF AUTHOR – Pierre-Luc Richard

I, Pierre-Luc Richard, Geo. (OGQ no. 1119) do hereby certify that:

1. I am a geologist of InnovExplo Inc, 560-B 3ième avenue, Val d'Or, Québec, Canada, J9P 1S4.
2. I graduated with a degree in geology from the University of Québec in Montreal in 2004.
3. I am a member in good standing of the Ordre des Géologues du Québec (OGQ, no. 1119).
4. I have worked as a geologist for a total of seven years since my graduation from university.
5. I have read the definition of “qualified person” set out in Regulation 43-101 and certify that by reason of my education, affiliation with a professional association (as defined in Regulation 43-101) and past relevant work experience, I fulfill the requirements to be a “qualified person” for the purposes of Regulation 43-101.
6. I am responsible for the preparation of the technical report titled 43-101 TECHNICAL REPORT AND RESOURCE ESTIMATE ON THE PIVERT-ROSE PROPERTY (according to Regulation 43-101 and Form 43-101F1) and dated September 7, 2011 (the “Technical Report”) relating to the Pivert-Rose property. I visited the Pivert-Rose property on July 10, 2011 and the core shacks for the Pivert-Rose property on July 21, 2011.
7. I have not had prior involvement with the property that is the subject of the Technical Report.
8. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.
9. I am independent of the issuer applying all of the tests in section 1.5 of Regulation 43-101.
10. I have read Regulation 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
11. <sup>1</sup> I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 7 day of September, 2011.

*(signed and sealed on original)*

Pierre-Luc Richard, B.Sc.,Geo.

<sup>1</sup> If an issuer is using this certificate to accompany a technical report that it will file only with the exchange, then the exchange recommends that this paragraph is included in the certificate.



## CERTIFICATE OF AUTHOR – Carl Pelletier

I, Carl Pelletier, Geo. (OGQ, no. 384) do hereby certify that:

- 1) I am Consulting Geologist of: InnovExplo Inc, 560-B 3e Avenue, Val d'Or, Québec, Canada, J9P 1S4.
- 2) I graduated with a Bachelor of Geology degree from Université du Québec à Montréal (Montréal, Québec) in 1992, and I initiated a Master's degree at the same university for which I completed the course program but not the thesis.
- 3) I am a member of the Ordre des Géologues du Québec (OGQ, no. 384), APGO (Ontario) and of the Canadian Institute of Mines, Harricana Section.
- 4) I have worked as a geologist for a total of 18 years since my graduation from university. My mining expertise has been acquired in the Silidor, Géant Dormant, Bousquet II, Sigma-Lamaque and Beaufor mines, whereas my exploration experience has been acquired with Cambior Inc. and McWatters Mining Inc. I have been a consulting geologist for InnovExplo inc. since February 2004.
- 5) I have read the definition of “qualified person” set out in Regulation 43-101 and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfill the requirements to be a “qualified person”.
- 6) I am responsible for supervising the preparation of the mineral resource estimate and the technical report titled 43-101 TECHNICAL REPORT AND RESOURCE ESTIMATE ON THE PIVERT-ROSE PROPERTY (according to Regulation 43-101 and Form 43-101F1) and dated September 7, 2011 (the “Technical Report”) relating to the Pivert-Rose property. I have never visited the Pivert-Rose property.
- 7) I have not had prior involvement with the property that is the subject of the Technical Report.
- 8) I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.
- 9) I am independent of the issuer applying all of the tests in section 1.5 of Regulation 43-101.
- 10) I have read Regulation 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
- 11) <sup>1</sup> I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 7 day of September, 2011.

*(signed and sealed on original)*

Carl Pelletier, B.Sc.,Geo.

<sup>1</sup> If an issuer is using this certificate to accompany a technical report that it will file only with the exchange, then the exchange recommends that this paragraph is included in the certificate.

## **APPENDIX I UNITS, CONVERSION FACTORS, ABBREVIATIONS**

## Units

Units in this report are metric unless otherwise specified. Precious metal content is reported in gram of metal per metric ton (g/t Au or Ag) except otherwise stated. Tonnage figures are dry metric tons unless otherwise stated. The ounces are in Troy ounces.

### Abbreviation used

°C	Degrees Celsius	oz	Troy ounces
g	Grams	oz/t	Ounces per short tons
ha	Hectares	g/t	Grams per metric tons
kg	Kilograms	ppb	Part per billion
km	Kilometres	ppm	Part per million
masl	Metres above sea level	st	Short tons
mm	Millimetres	t	Metric tons
'	Feet	\$	Canadian dollars

### Conversion factors for measurements

Imperial Unit	Multiplied by	Metric Unit
1 inch	25.4	mm
1 foot	0.305	m
1 acre	0.405	ha
1 ounce (troy)	31.103	g
1 pound (avdp)	0.454	kg
1 ton (short)	0.907	t
1 ounce (troy) / t (short)	34.286	g/t

**APPENDIX II  
PRICE FORECAST – LITHIUM CARBONATE  
PREPARED BY GENIVAR FOR CRITICAL ELEMENTS CORPORATION  
JUNE 8, 2011**



PRICE FORECAST – LITHIUM CARBONATE  
ROSE TANTALUM-LITHIUM PROJECT

PRICE FORECAST – LITHIUM CARBONATE  
ROSE TANTALUM-LITHIUM PROJECT

Prepared

by

GENIVAR Inc.

for

Critical Elements Corporation



Normand Grégoire, Eng.  
Project Manager  
June 8, 2011  
101-52558-00

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# 1. INTRODUCTION

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## 1.1 Context

Critical Elements Corporation is developing the Rose property for lithium and tantalum production.

Lithium production is forecast to be as lithium carbonate ( $\text{Li}_2\text{CO}_3$ )<sup>1</sup> obtained through the processing of a spodumene concentrate.

The main driver of developing LIC markets is the production of rechargeable batteries. Such batteries are already common in portable electronic applications (phones, computers, PDA – Personal Digital Assistants). New developments in the transportation industry (cars and so-called ebikes<sup>2</sup>) are rapidly increasing demand for LIC, a raw material in the production of lithium batteries using various technologies.

The following forecast has been assembled as a preliminary forecast of LIC prices to support the preparation of a resources statement. It is not to be considered as a full forecast assembled as part of a formal market analysis, but only as a compilation, from various sources, of forecasts for the next few years.

Recent prices are also presented, to highlight past progression of LIC prices.

### ***Important Note:***

LIC prices are not formally fixed or published like is the case for several metals or agricultural commodities for examples. There is no published spot or contract price. Since there is, until now, a very limited pool of producers, typical contractual prices are not known with precision. A full scope market study, referring in part to information published by specialised research groups and/or actual communications with buyers and potential buyers, will be necessary to fully support the financial analysis of a mining/processing project.

The following forecast has been assembled from various sources, including presentations by specialists in various congresses, analysts research reports, and data from advanced production projects, including one in Australia (Galaxy Resources) whose mining production has recently begun, to be soon accompanied by downstream production of LIC for the target energy market.

---

1 Lithium carbonate will be abbreviated LIC in this text. The acronym is fairly abundant in technical literature.  
2 “Ebikes” designates a variety of electric-propulsion bikes, scooters and motorcycles.

## 1.2 Lithium Carbonate

Pure lithium carbonate contains 18.79% lithium. Its typical analysis is however reported as the oxide form Li<sub>2</sub>O (lithia), at 40.44%.

Typical “battery grade” purity is considered to be 99.5% pure or more (up to 99,99% +). This typical purity is higher than the concentration of several commercial technical grades for the mix of uses for LIC. Therefore, prices obtained for LIC used in energy applications may be higher than those compiled below for LIC in general. There is no way to discriminate actual battery grade prices.

Literature reports that higher purity of the LIC will bring in price premiums, but there is not enough information to quantify such premiums. Higher purity refers to grades of LIC than can reach 99.99% and more.

As a reference, Table 1.1 illustrates reported analysis of battery grade LIC from various sources.

Table 1.1 Battery Grade Lithium Carbonate – Typical Analyses.

Component	Unit	SQM Chile	Chemetall	FMC Lithium	Canada Lithium Pilot plant*	Galaxy**
Li <sub>2</sub> CO <sub>3</sub>	%	99.200	99.400	99.500	> 99.9	> 99.5
Chloride - Cl	%	0.010	0.010	0.010	< 0.001	0.030
Sulphate - SO <sub>4</sub>	%	0.030	0.040	0.100		0.080
Sodium - Na	%	0.060	0.060	0.050	< 0.012	0.025
Potassium - K	%	0.005	0.0003			0.001
Calcium - Ca	%	0.010	0.010	0.040	< 0.07	0.005
Magnesium - Mg	%	0.010	0.004		< 0.0015	0.010
Iron - Fe	%	0.001	0.0007	0.0005	< 0.03	0.001
Nickel - Ni	%	0.001		0.0006		
Copper - Cu	%	0.001		0.0005		0.001
Lead - Pb	%	0.001				0.001
Aluminum - Al	%	0.001		0.001		0.005
Chromium - Cr	%	0.001				
Zinc - Zn	%	0.001		0.0005		
Nitrogen - N	%					
Sulphur - S	%				< 0.001	
Manganese - Mn	%					0.001

\* Press release Sept. 21, 2010.

\*\* [http://www.galaxyresources.com.au/project\\_jiangsu.shtml](http://www.galaxyresources.com.au/project_jiangsu.shtml)

Several technical grades of LIC, with purity of about 99%, are offered by most suppliers.

Over and above lithium carbonate concentration, specific content of various impurities can also influence actual pricing. Specific effect of purity and impurities cannot be determined, as they are probably confidential contractual information.

## 2. LITHIUM CARBONATE PRICES

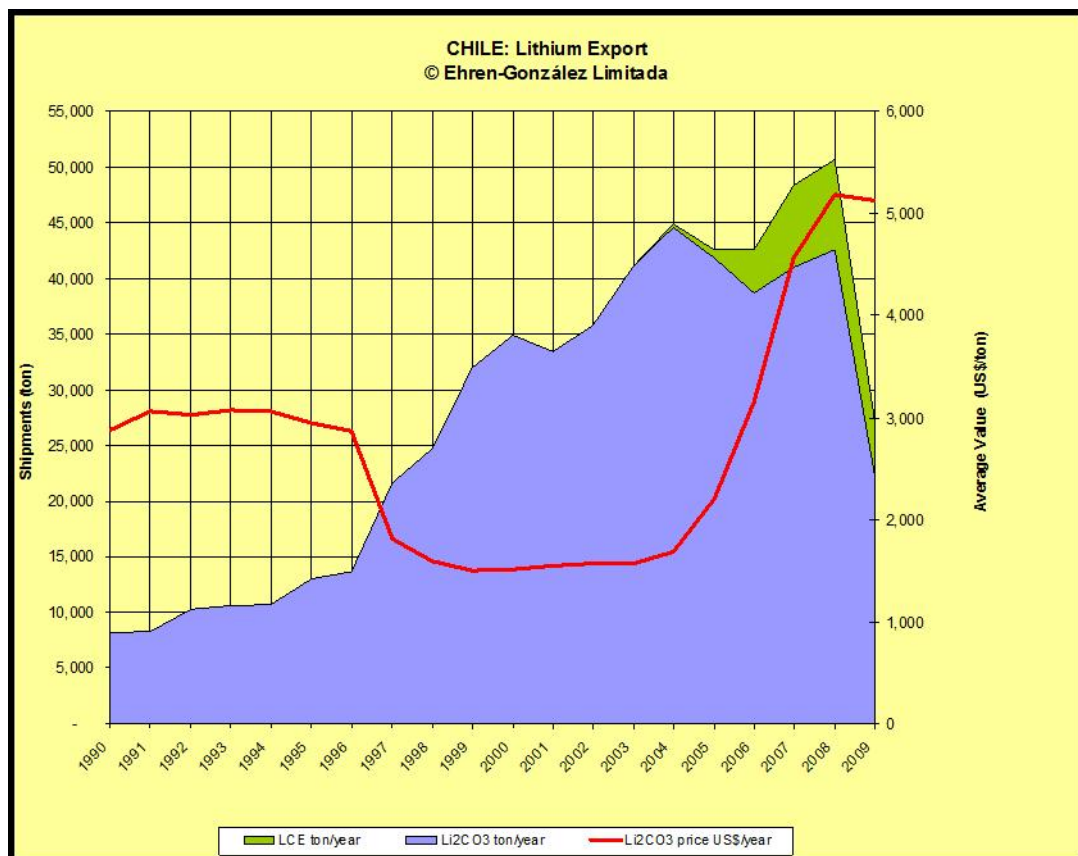
### 2.1 Recent Prices

Past prices for LIC show very wide variations, between less than US\$2000/t and more than US\$5000/t until 2009.

#### 2.1.1 Exports of Lithium Carbonate from Chile

Figure 2.1 shows the reported unit value of exported LIC by SQM and Chemetall SQM in Chile, the largest producers in the world.

Figure 2.1 Price of Exported Lithium Carbonate – Chile (1990-2009).



Source: [http://www.lithiumsite.com/Lithium\\_Market.html](http://www.lithiumsite.com/Lithium_Market.html)

#### 2.1.2 US Trade of Lithium Carbonate

Since US trade is important, we also compiled import and export data for the period of 2001-2010<sup>3</sup>.

<sup>3</sup> Data for 2001-2009 is from US Geological Survey (USGS). Data for 2010 is from United Nations Comtrade database.

Figures 2.2 to 2.5 present salient data for unit prices and traded quantities. Imports data reflects typical technical grades imported essentially from Argentina and Chile (more than 99% of annual quantities).

Figure 2.2 Unit Values – US Imports of Lithium Carbonate (US\$/t 2001-2010).

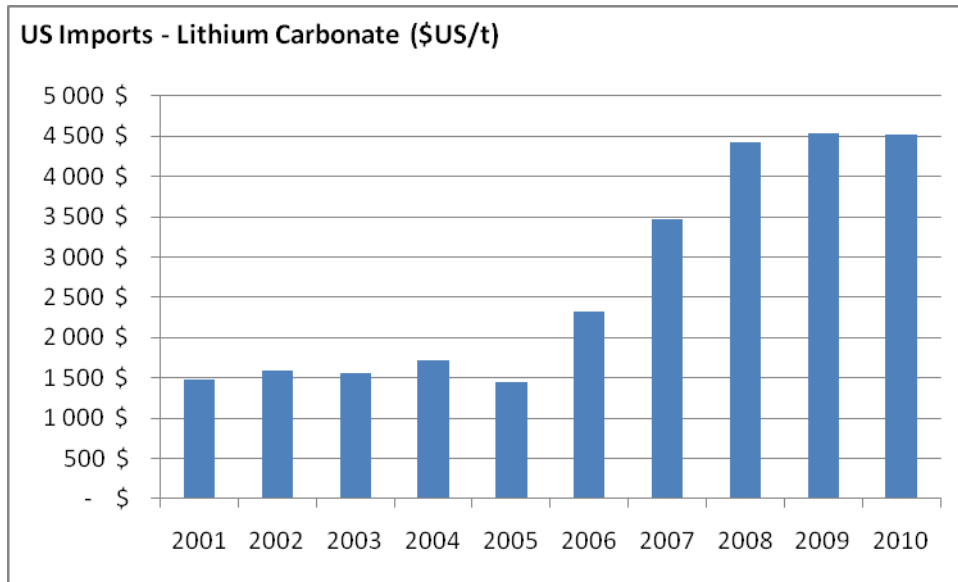


Figure 2.3 US Imports of Lithium Carbonate (t/y 2001-2010).

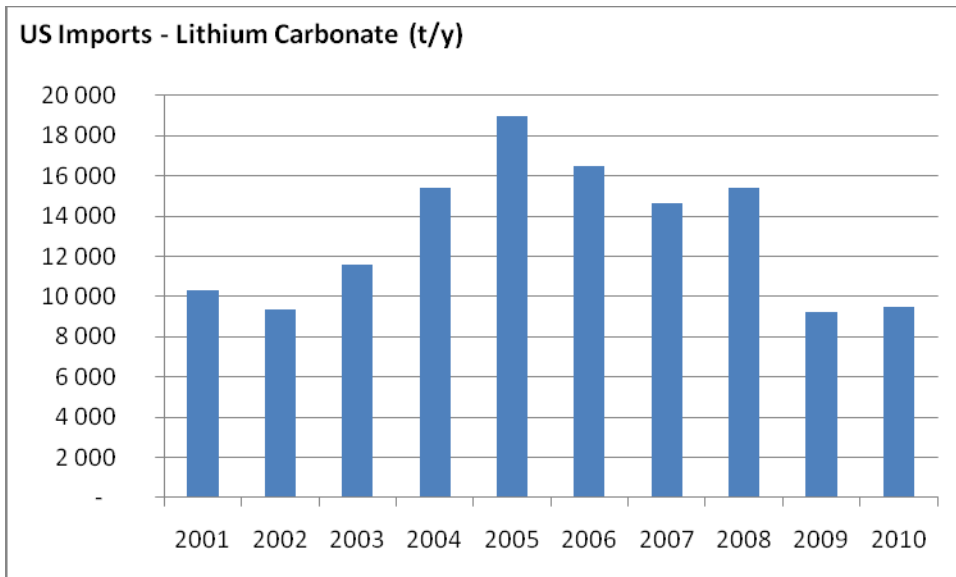


Figure 2.2 shows the tendency for prices to rise since 2006, without a significant effect from the 2008-2009 economic crisis, which resulted in an important reduction in US imports (Figure 2.3) and exports (which are not very significant – Figure 2.5).

Figure 2.4 Unit Values – US Exports of Lithium Carbonate (US\$/t 2001-2010).

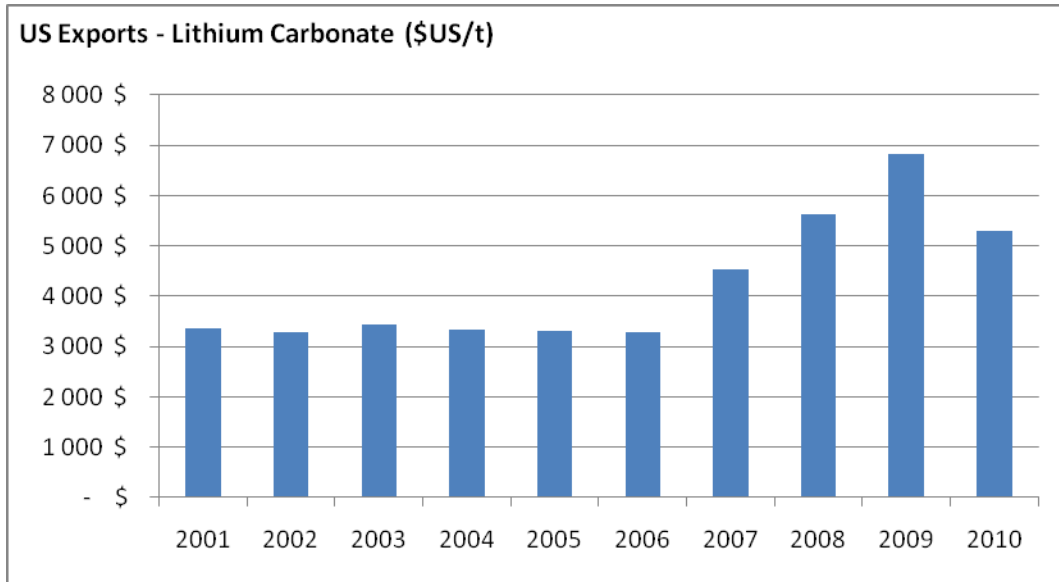
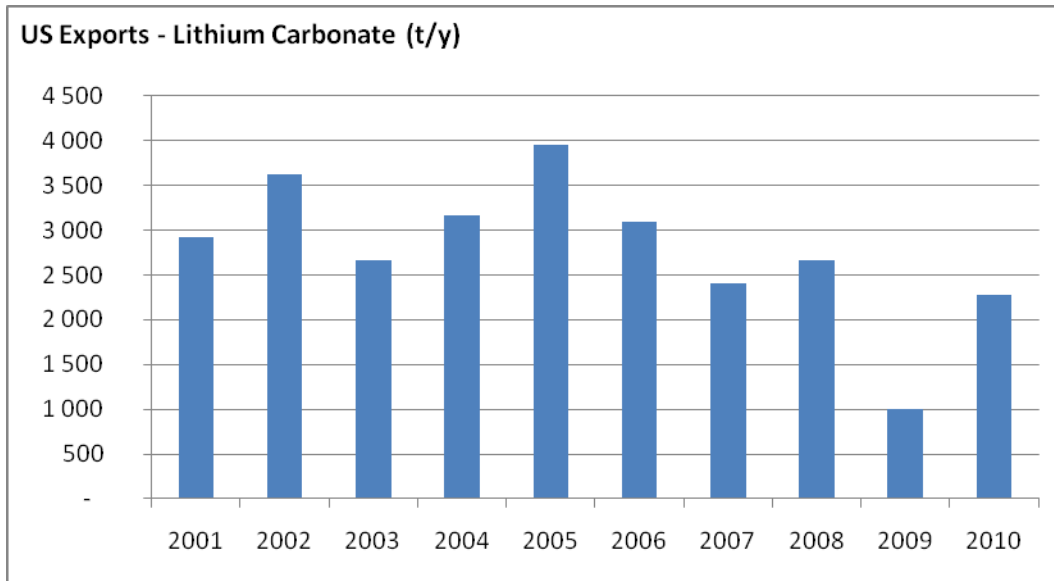


Figure 2.5 US Exports of Lithium Carbonate (t/y 2001-2010).



Export data illustrates the same tendency of increasing unit values (Figure 2.4). The value of exported LIC is higher than the material imported in the USA, possibly reflecting the added purity of additional processing of imported technical carbonate, and/or the likely higher purity from domestically produced LIC.

Chemetall Foote produces lithium carbonate in the USA, from brines in Nevada; Chemetall Foote's subsidiary in Chile, Sociedad Chilena de Litio Ltda., is also a major source of lithium carbonate imported in the USA. Since this Chilean production imported in the USA is somewhat a "captive" production, the posted price of this portion of US imports may be lower than the price from other suppliers for LIC in a "non-captive" context.

### 2.1.3 Recent World Trade of Lithium Carbonate

Recent trade data for lithium carbonate is available from a database maintained by the United Nations (UN Comtrade). Most countries report their imports and exports for lithium carbonate. This data includes pharmaceutical LIC, whose unit value is higher (roughly double). However, the quantities involved are extremely low, so the calculated unit price essentially reflects technical grades of LIC.

Trade data for the main exporting and importing countries has been compiled for the period of 2005-2010. At the time of writing, 2010 data was still incomplete.

Reported world trade involves a limited number of countries:

- Exporting countries; 6 of them are responsible for about 99% of reported exports: Chile, Argentina, Belgium, China, USA and Germany. In the case of Belgium, USA and Germany, some of the LIC can be re-processed LIC or (Belgium) re-exported material.
- Importing countries; 9 of them are responsible for about 95% of reported imports: Japan, USA, Germany, Korea, Belgium, China, France, Canada and Italy. Belgium is essentially a re-exporter.

Figures 2.6 and 2.7 illustrate the unit prices and quantities exported by the main exporters from 2005 to 2010. Data for 2010 is incomplete at the time of writing. The illustrated tendency for prices is a constant rise approaching US\$6000/t.

Exported quantities, before the 2008-2009 economic crisis, were about 60,000 t/y from the 6 listed countries. Chile and Argentina represents about 63% and 14% of quantities reported respectively, and the USA an additional 7%.

Figure 2.6 Unit Price for Recent World Exports – Selected Countries (US\$/t).

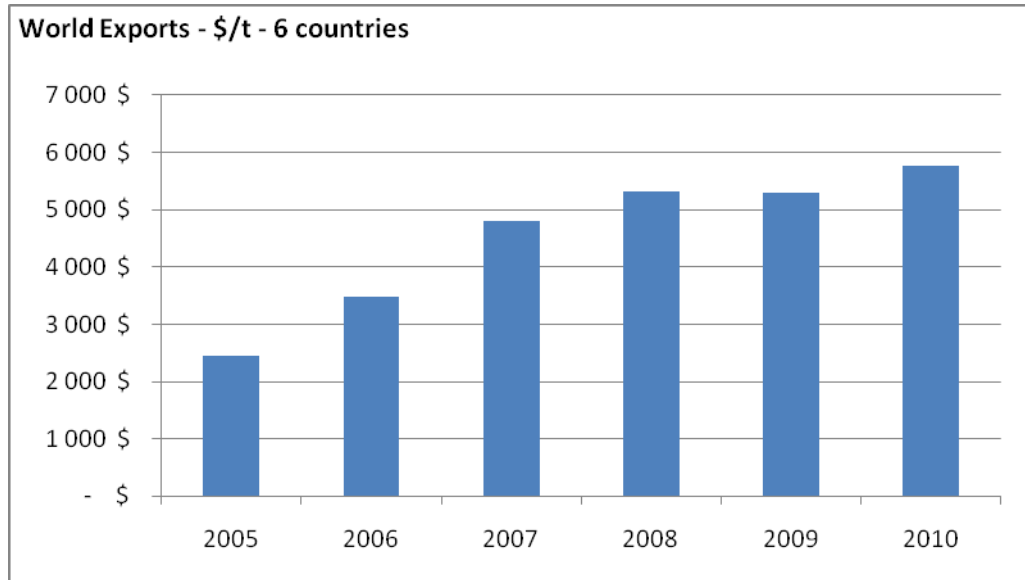
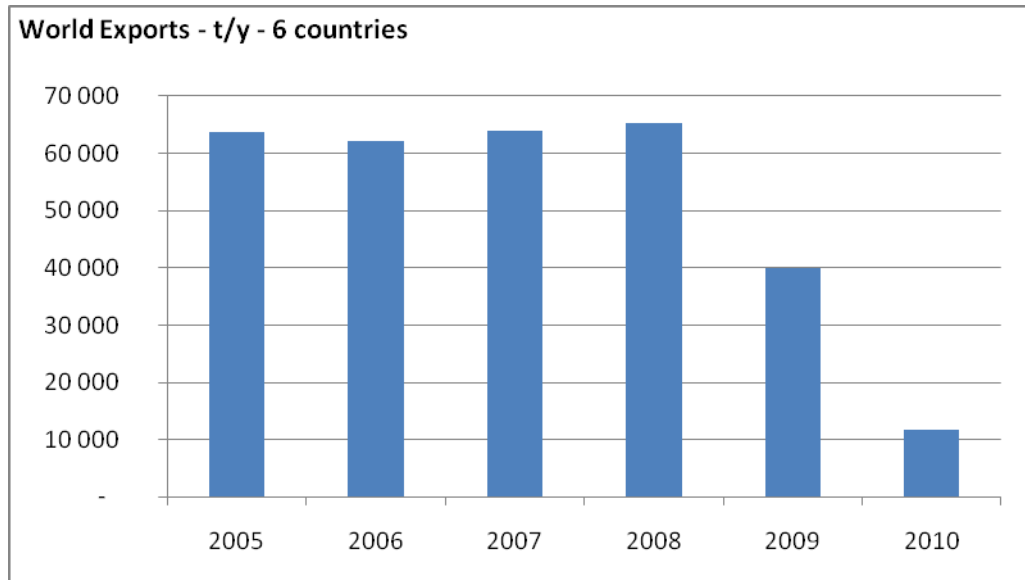


Figure 2.7 Recent World Exports – Selected Countries (t/y).



Imported quantities and unit values for the 9 countries listed above are shown in Figures 2.8 and 2.9. Data for 2010 is incomplete at the time of writing. The illustrated tendency for prices is also constant rise approaching US\$6000/t in 2009. Missing data (about 70% of typical annual quantities are unreported at the time of writing) does not permit to correctly assess the average value for 2010 yet.

Figure 2.8 Unit Price for Recent World Imports – Selected Countries (US\$/t).

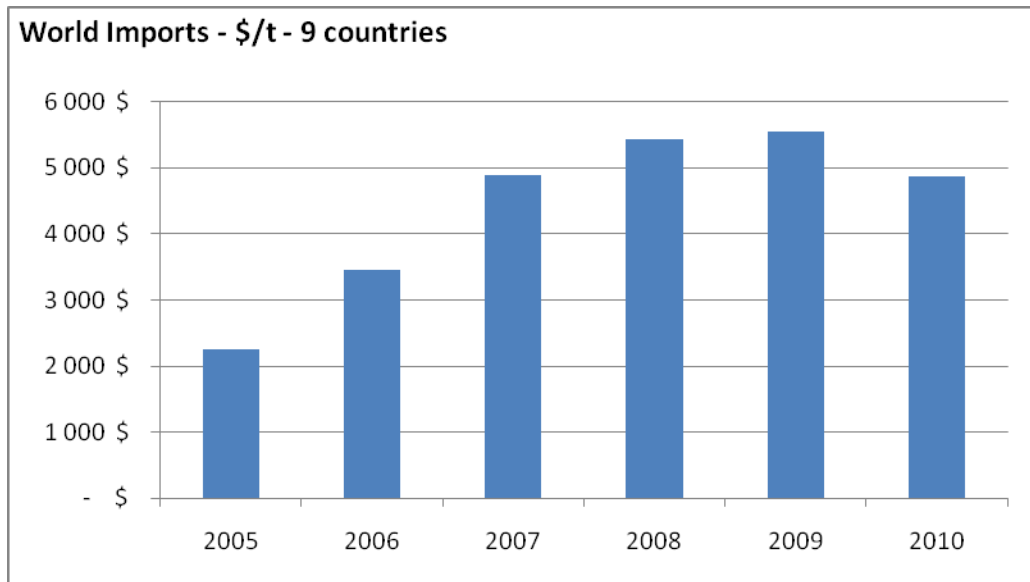
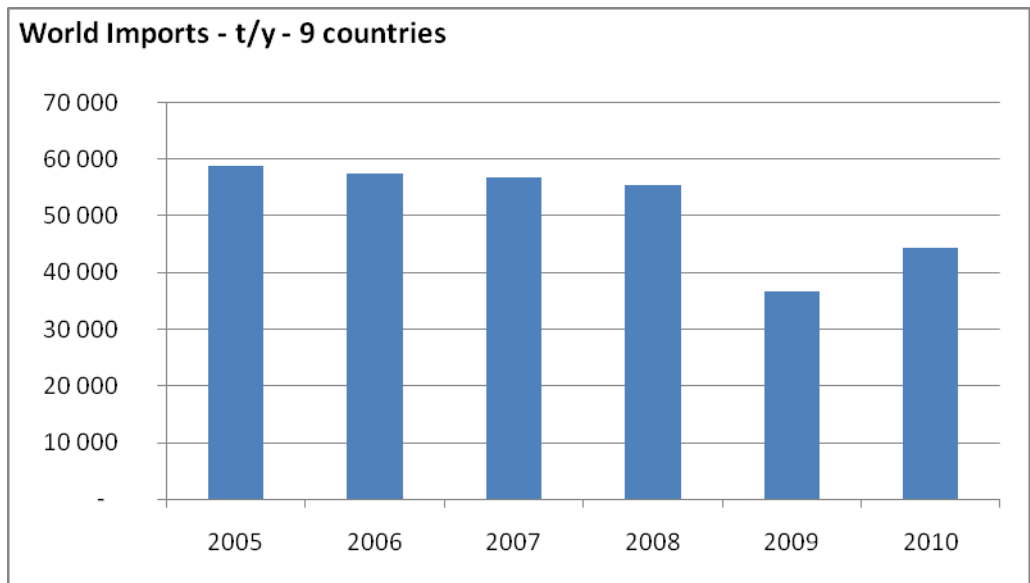


Figure 2.9 Recent World Imports – Selected Countries (t/y).





The main importers (2005-2009) were:

Japan	22%
USA	29%
Germany	14%
Korea	7%
Belgium	10%
China	10%
	<hr/>
	91%

## 2.2 Future Prices Forecasts

Several forecasts for future prices of lithium carbonate have been published, either in research studies, various presentations in meetings, or as part of the feasibility analysis of mining projects.

A report published by Roskill Information Services in early 2009 (*The Economics of Lithium*, 11th edition 2009<sup>4</sup>) has often been used by various parties as the basis for predictions of prices in the last two years. It contained a forecast until year 2013. Its main author made a presentation, in late 2010, in a congress on Lithium Supply and Markets. The price forecast in this presentation is the oldest of those compiled by GENIVAR in the present survey.

Another frequently cited source is a series of reports and presentations on an advanced project by Galaxy Resources Ltd. in Australia<sup>5</sup>. This spodumene mine has recently begun commercial production to feed a 17,000 t/y LIC plant in China. This plant will begin production soon, but meanwhile, the current spodumene production is sold in China to existing LIC producers (converters).

We have also compiled public information available on the Quebec Lithium project, as well as an advanced project from brines in Argentina.

Table 2.1 presents a summary of forecast prices, to 2015, together with relevant information on the listed projects.

The table also includes the data on recent prices which was used in sections 2.1.2 and 2.1.3 above.

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4 <http://www.roskill.com/reports/minor-and-light-metals/lithium>

5 <http://www.galaxyresources.com.au/>

Table 2.1 Compilation of Price Forecasts for Lithium Carbonate.

Source	Project	Price - Li <sub>2</sub> CO <sub>3</sub> - US\$/t					Notes	
		2010	2011	2012	2013	2014		2015
<b>Forecasts</b>								
0	Roskill Information Services January 2010	\$ 6 000,00	\$ 6 250,00	\$ 6 500,00	\$ 7 000,00			Values read from figure on slide 27/28 of Roskill's presentation.
1	Galaxy Resources Limited November 2010	\$5500-6000						Price is reported as higher for better grades (+ US\$3k/t for 99.9% pure). Prices are forecast to increase due to technological advances, and strong environmental policies in China. This mine began production of spodumene concentrate in late 2010; it will be transformed in lithium carbonate in a plant in China (17,000 tpa), whose construction is well advanced.
2	Galaxy Resources Limited December 2010	\$ 6 000,00	\$ 6 120,00	\$ 6 242,00	\$ 6 367,00			
3	Canada Lithium Corp. February 2011	\$ 5 875,00						
4	Galaxy Resources Limited February 2011	\$ 6 000,00	\$ 6 120,00	\$ 6 242,40	\$ 6 367,25	\$ 6 494,59	\$ 6 624,48	Price for lithium carbonate at A\$6,000 per ton starting FY2010, and price escalation of 2% per year for the life of the mine i.e. 16 years. <i>Note: Parity between A\$ and US\$ has been assumed.</i>
5	Galaxy Resources Limited October 2010	\$ 6 000,00	\$ 6 000,00	\$ 6 367,00	\$ 6 622,00	\$ 6 887,00	\$ 7 162,00	4% growth rate assumed.
6	Galaxy Resources Limited April 2010	\$ 6 120,00	\$ 6 242,00	\$ 6 367,00	\$ 6 495,00	\$ 6 624,00	\$ 6 757,00	2% growth rate assumed.
7	Galaxy Resources Limited January & May 2011	\$ 6 120,00	\$ 6 242,00	\$ 6 367,00	\$ 6 495,00	\$ 6 624,00	\$ 6 757,00	2% growth rate assumed.
8	General market review February 2011	\$ 5 180,50					\$ 6 757,00	Lithium carbonate (USA large contracts) is currently at US\$5,070-US\$5,291/t. The CAGR of Li carbonate 2005-2009 was 6.2%, with 2.0% forecast for 2010-2014 (Source: ASX:GXY). By 2015, nominal prices are expected to approach those seen before the GFC (2007, US\$6,731/t; 2015, US\$6,757/t) - GFC: Global Financial Crisis.
9	Orocobre - Salar de Olaroz Project May 2011	\$ 6 160,00	\$ 6 160,00	\$ 6 160,00	\$ 6 160,00	\$ 6 160,00	\$ 6 160,00	Slide 15/22. Roskill forecast for this project for 2011-2025. Roskill Consulting Group Ltd. ('Roskill') of London, United Kingdom, was contracted to provide independent advice on the lithium and potash markets and future price forecasts. Roskill has provided Orocobre with a forecast of annual high, low and average price forecasts for lithium carbonate and potash for years 2011 to 2025. The average price forecast for battery grade lithium carbonate is US\$6160 per tonne and US\$592 per tonne for Potash.
		Minimum	\$ 5 180,50	\$ 6 000,00	\$ 6 160,00	\$ 6 160,00	\$ 6 160,00	\$ 6 160,00
		Average	\$ 5 939,50	\$ 6 162,00	\$ 6 320,77	\$ 6 500,89	\$ 6 557,92	\$ 6 702,91
		Maximum	\$ 6 160,00	\$ 6 250,00	\$ 6 500,00	\$ 7 000,00	\$ 6 887,00	\$ 7 162,00
		Standard Deviation	\$ 297,63	\$ 91,58	\$ 113,08	\$ 263,26	\$ 264,28	\$ 322,63

Recent prices	2005	2006	2007	2008	2009	2010	
10 US Imports - Lithium Carbonate - US\$/t	\$ 1 455,03	\$ 2 315,15	\$ 3 465,75	\$ 4 428,57	\$ 4 529,73	\$ 4 524,11	
Tons	18 950	16 500	14 650	15 425	9 250	9 495	
11 US Exports - Lithium Carbonate - US\$/t	\$ 3 308,08	\$ 3 290,32	\$ 4 541,67	\$ 5 639,10	\$ 6 834,17	\$ 5 300,00	
Tons	3 960	3 100	2 400	2 660	995	2 277	
12 World Imports - Lithium Carbonate							
Selection - 9 countries - Tons/year *	58 903	57 476	56 669	55 435	36 564	44 399	2010 Korea missing typically 5000 t 30 M\$.
Selection - 9 countries - M US\$/year *	\$ 133,20	\$ 198,21	\$ 276,68	\$ 301,18	\$ 202,48	\$ 215,72	2010 data represents about 90 % of typical annual quantities and values.
Selection - 9 countries - US\$/t *	\$ 2 261,38	\$ 3 448,50	\$ 4 882,35	\$ 5 433,05	\$ 5 537,78	\$ 4 858,61	
13 World Exports - Lithium Carbonate							
Selection - 6 countries - Tons/year **	63 780	62 234	63 904	65 295	39 919	11 832	2010 Chile Argentina missing.
Selection - 6 countries - M US\$/year **	\$ 156,75	\$ 216,18	\$ 306,15	\$ 347,61	\$ 211,47	\$ 68,13	2010 data represents less than 30 % of typical annual quantities and values.
Selection - 6 countries - US\$/t **	\$ 2 457,70	\$ 3 473,67	\$ 4 790,77	\$ 5 323,71	\$ 5 297,40	\$ 5 758,47	

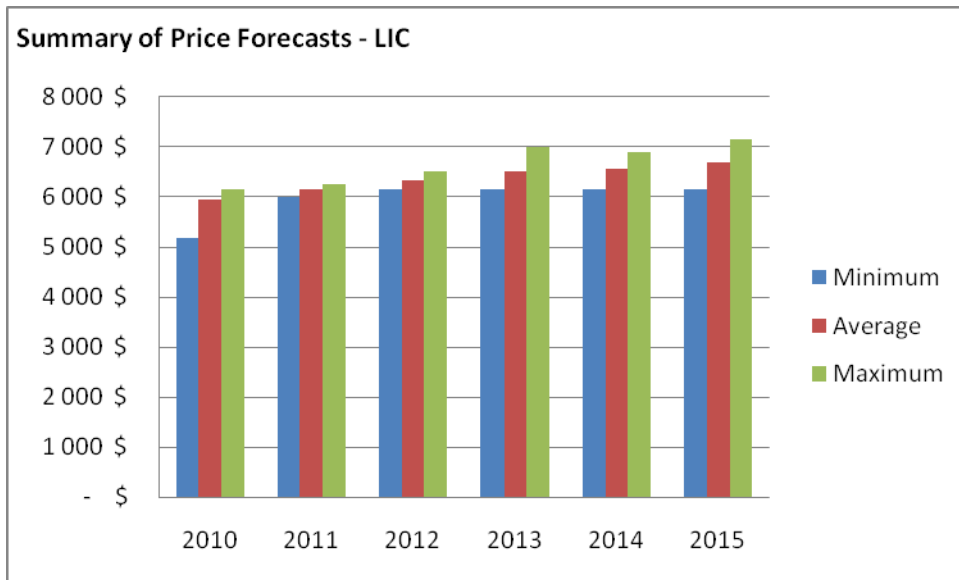
- 0 The lithium market: 2009 review and outlook**  
Presentation - Lithium Supply & Markets Congress - Las Vegas 26-28 January 2010  
<http://www.roskill.com/media/Roskill%20LSM10.pdf>
- 1 Resource Capital Research - Rare and Minor Metals Company Review, 4Q10**  
<http://www.galaxyresources.com.au/documents/GXY-RCR.pdf>
- 2 Independent Investment Research**  
<http://galaxyresources.com.au/documents/IndependentResearchGalaxyDec10.pdf>
- 3 Lithium: Driving Our Growth - Presentation**  
<http://www.canadalithium.com/i/pdf/Presentation.pdf>
- 4 RB Milestone Group Research Report- Galaxy Resources Ltd**  
<http://www.galaxylithium.com/documents/MilestoneGroupResearchonGalaxyResources09Feb2011.pdf>
- 5 Helmsec Global Capital Limited**  
<http://www.galaxylithium.com/documents/GXY-HelmsecResearchReportOct2010.pdf>
- 6 Galaxy Corporate Presentation - April 2010**  
[http://www.galaxyresources.com.au/documents/PresCompanyPresentationAprRoadshow100413ASX\\_000.pdf](http://www.galaxyresources.com.au/documents/PresCompanyPresentationAprRoadshow100413ASX_000.pdf)
- 7 Galaxy Corporate Presentations - January & May 2011**  
<http://www.galaxyresources.com.au/documents/PresAnnualGeneralMeeting13May11ASX.pdf>  
<http://www.galaxyresources.com.au/documents/PresCompanyTorontoLithiumJan10.pdf>
- 8 Resource Capital Research - Rare and Minor Metals Company Review, March Q 2011**  
Market Update: Lithium  
[http://www.andrievski.com/pdf/Rare\\_and\\_Minor\\_Metals\\_Company\\_Review\\_Exploration\\_Development\\_&\\_Production.pdf](http://www.andrievski.com/pdf/Rare_and_Minor_Metals_Company_Review_Exploration_Development_&_Production.pdf)
- 9 Definitive Feasibility Study - Salar de Olaroz lithium-potash brine project - Argentina.**  
May 2011  
Roskill forecast for lithium carbonate  
<http://green.tmcnet.com/news/2011/05/05/5490094.htm>  
[http://www.orocobre.com.au/PDF/4May2011\\_DFS%20Presentation.pdf](http://www.orocobre.com.au/PDF/4May2011_DFS%20Presentation.pdf)  
[http://www.orocobre.com.au/PDF/4May2011\\_DFS%20Results.pdf](http://www.orocobre.com.au/PDF/4May2011_DFS%20Results.pdf)  
TECHNICAL REPORT ON THE SALAR DE OLARAZ LITHIUM-POTASH PROJECT, May 13, 2011, filed on SEDAR

- Notes on recent prices**
- 10/11 US Trade data** compiled from US Geological Survey's annual Mineral Yearbook, Lithium chapter
- 12 \* Selection 9 countries (World Imports)**  
Japan, USA, Germany, Korea, Belgium, China, France, Canada and Italy  
Represent about 95% of world imports  
Compiled from United Nations Comtrade data for selected countries - 2010 data incomplete at the time of compilation
- 13 \*\* Selection 6 countries (World Exports)**  
Chile, Argentina, Belgium, China, USA and Germany  
Represent about 99% of world exports  
Compiled from United Nations Comtrade data for selected countries - 2010 data incomplete at the time of compilation

Available data suggests a minimum price of US\$6000/t for the year 2011, a maximum value of US\$6250/t, and an average of US\$6162/t.

Figure 2.10 illustrates the values predicted by the sources consulted for the period from 2010 to 2015.

Figure 2.10 Summary of Price Forecasts (US\$ /t – 2010 to 2015).



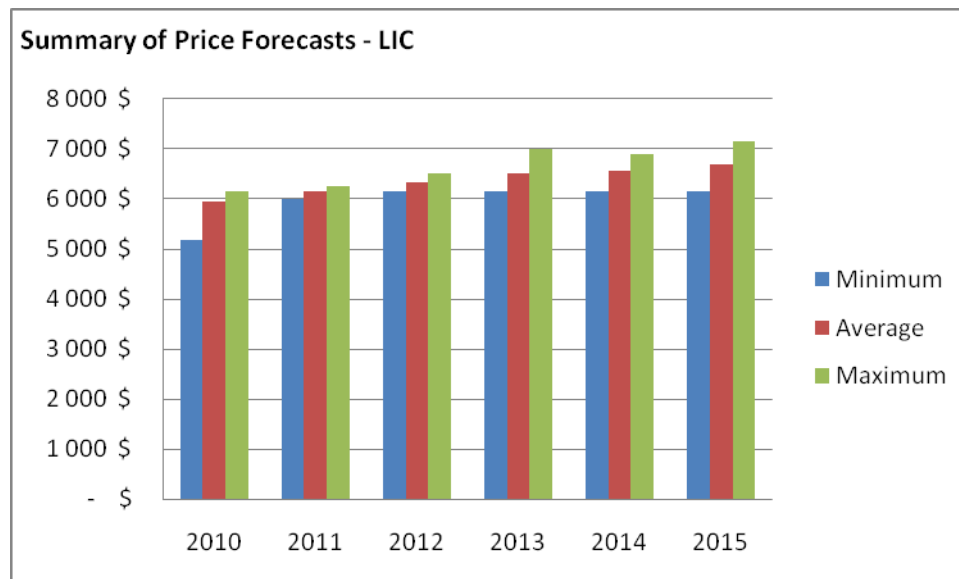
Source: Table 2.1.

### 3. CONCLUSION

Recent prices for lithium carbonates, before the 2008-2009 crisis, showed a gradual increase towards US\$4500-5000/t for all grades of lithium carbonate. Since typical purity of the LIC required for battery manufacturing is especially high, it is realistic to assume that sales in this emerging energy market might have been at unit prices above these average prices, which were approaching the US\$6000/t level in 2009-2010:

Source	2009-2010 prices (US\$/t)	Section
Chilean exports	\$5 000	2.1.1
US imports	\$4 500	2.1.2
US exports	\$6 000	2.1.2
World exports	\$5 500 - 6 000	2.1.3
World imports	\$5 500	2.1.3

Forecasts from different recent sources suggest a tendency for prices to increase. This mostly results from significant predicted increases in demand related to the rapid development of energy applications (rechargeable lithium batteries for transportation applications in particular).



Source: Table 2.1.

**Based on this preliminary market review for price of lithium carbonate, GENIVAR recommends that a basic price of US\$6000/t be considered for the purpose of the lithium resource estimation as of June 2011.**

**APPENDIX III  
PRELIMINARY ESTIMATION – OPERATING COST  
PREPARED BY GENIVAR FOR CRITICAL ELEMENTS CORPORATION  
JUNE 23, 2011**

<b>Project No.:</b>	101-52558-00	<b>Date:</b>	June 23, 2011
<b>Title:</b>	Preliminary Estimation – Operating Cost		
<b>Subject:</b>	Rose Lithium-Tantalum Mining Project		
<b>Addressee:</b>	Critical Elements Corporation		

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## Attachments (as separate electronic files)

- Typical Sections and Plan (Open-pit)
- Tables and Figures

## **1.0 INTRODUCTION**

This technical memorandum presents a preliminary estimation of operating costs (Opex) for the Rose Lithium-Tantalum mining project.

As per the May 24<sup>th</sup> discussion:

Its purpose is to estimate an Opex value for ore extracted by open-pit mining and another one for ore extracted by underground mining using the room and pillar mining method. These costs are to be used for the sole purpose of establishing cut-off grades in the process on an-ongoing resource estimation. They cannot be considered as elements of a feasibility analysis due to the very preliminary nature of the information they are based on.

Each Opex is to be based on a project where:

- 1,5 Mtpy (4000 tpd) of ore is processed in a flotation mill (2 products: spodumene and a tantalum concentrate)
- The spodumene concentrate is transformed into carbonate ( $\text{Li}_2\text{CO}_3$ ). The tantalum concentrate is assumed not to be subjected to further processing.

No final open-pit depth or overall Waste/Ore (W/O) ratio were specified. Therefore, this preliminary analysis will assess a final pit where Opex becomes the same as for the room & pillar operation. This would determine the moment in the mine's life when there would be a transition to underground (UG) mining.

The result would be an Opex value equal for the two mining methods, and the tonnage of ore obtained by each one.

Note to the reader: for simplicity of preparing this memo and ease of reading, we have assembled tables and figures as separate files.

## **2.0 BASIC MINE PARAMETERS**

The following sections summarise the parameters used to perform the preliminary estimate.

### **2.1 BASIC PROJECT PARAMETERS**

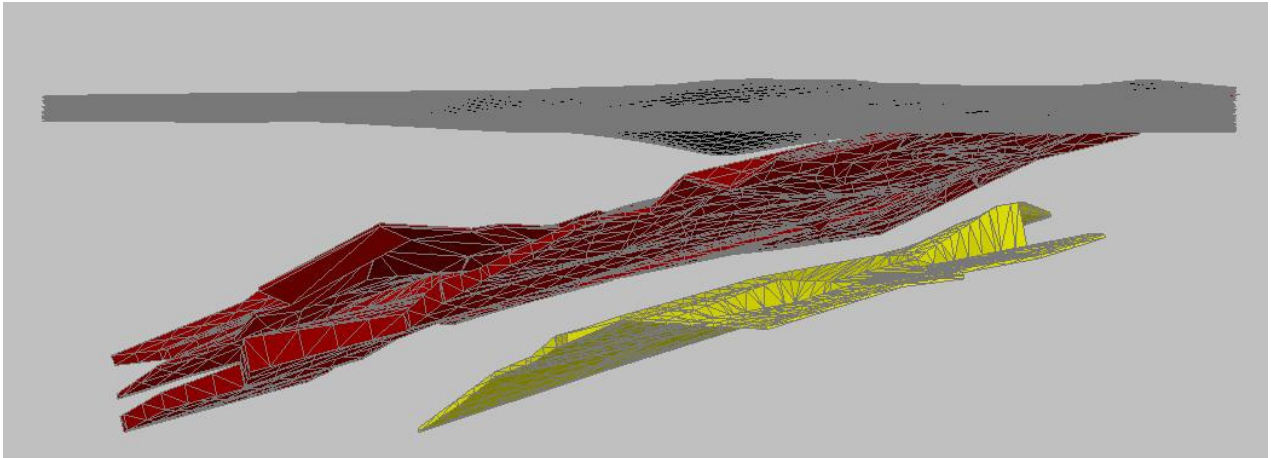
**Table 2.1.1** presents assumed variables for ore grade (1,30%  $\text{Li}_2\text{O}$ ), and recoveries for spodumene flotation and conversion to the carbonate (80% each). Carbonate grade is assumed to be 99,5%.

Expected annual carbonate production would be about 31 000 t.

No assumptions for tantalum grade/recovery/production is available at this time. Lithium data will be used to estimate overall Opex.

## 2.2 OPEN-PIT MINING

The following figure illustrates the basic layout of the lithium-tantalum deposit, as transmitted by InnovExplo Inc. on June 1<sup>st</sup>, 2011 (.dxf file).



Part of the mineralization lends itself to an open-pit mining method. Deeper zones are likely to be economically recovered using an underground extraction method. Uncut resources are roughly estimated at 14 Mt.

Basic design of open-pits of various depths was performed using basic parameters:

<b>Parameter</b>	<b>Value</b>
Bench height	10
Berm width	3
Ramp width	19,5
Steep wall angle	50-70°

Ramp width (19,5 m) is prescribed to be 3 times as wide as the dimension of the largest equipment circulating on this road.

Likewise, berm width (3 m) is to be one-third of bench height in a short-duration open-pit mining operation.

Bench and overall slope angles were arbitrarily fixed, in the absence of geomechanical data. The host rocks (granodiorite and tonalite) are normally competent. In this context, overall walls, on the



north side of the simulated pits, were examined at angles between 50° and 70°. A geomechanical study will be required for the analysis of economic pits.

**Table 2.2.1** presents a description of 15 scenarios (different depths and wall angles) which were tested to estimate tonnages of ore and waste rock.

Based on preliminary operating costs estimations (section 3), pit scenario 15 is the one that is close to an ultimate pit where remaining ore would be mined by the underground room & pillar method. Given the very preliminary nature of this work, no optimization work was performed to improve recovery or estimate dilution and ore losses.

Various sections (100 m separation) and a plan view of this pit scenario are appended.

This pit is 100 m deep, and permits the recovery of 6,7 Mt of ore (about half of the estimated ore tonnage) at a stripping ratio of 6,7 tons of waste per ton of ore. This is equivalent to about 4½ years of mill feed. Waste tonnage for this scenario is about 45 Mt.

**Important note:**

**Using available topographical maps<sup>1</sup>, this open-pit scenario, as well as several of the others, encroaches on two waterbodies to the north and the south. These waterbodies pose an environmental and financial challenge.**

**No adjustments to operating cost were made regarding the presence and impacts of these two lakes. In the event that mineralization would stretch towards the north-east, another yet larger waterbody could be a concern.**

Provincial « *Règlement sur la santé et la sécurité du travail dans les mines. Loi sur la santé et la sécurité du travail; c. S-2.1, r. 19.1* »<sup>2</sup> has requirements (articles 77 – underground mining - and 78 – open-pit mining) regarding the excavation of an open-pit mine less than 100 metres from a body of water. Such a situation requires technical studies for soils, rock to be excavated, surface pillar, and hydrogeology. The results of these studies may have an impact on operating costs, independently from the cost of eventually draining/pumping water.

### 2.3 UNDERGROUND MINING

Part of the deeper ore will be recovered by underground extraction, once the open-pit Opex becomes higher than the cost of the underground approach.

Room and pillar mining was specified as the selected method<sup>3</sup>.

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<sup>1</sup> We used location maps available on Critical Elements Corporation's website :

<http://www.cec corp.ca/documents/fr/Zones.pdf> and

[http://www.cec corp.ca/documents/fr/pivert\\_rose\\_location\\_map\\_new.pdf](http://www.cec corp.ca/documents/fr/pivert_rose_location_map_new.pdf)

<sup>2</sup> Regulation respecting occupational health and safety in mines

<sup>3</sup> May 24, 2011 meeting

The method is applicable in stopes whose minimal height has been assumed to be 2 m.

Pillars will be left between excavated stopes. Based on conceptual parameters in the InfoMine Mine Cost Service models, pillar length has been selected as 6,9 m, with a width of 5,1 m. Estimated ore loss is about 17%.

Actual dimensions and ore recovery need to be based on a geomechanical assessment. Several mining faces will need to be developed to maintain the mining rate.

When a block model is available to support a more precise mining analysis, other underground mining methods, like sublevel stoping, might be analysed for zones where the dykes's thickness is sufficient to permit a higher productivity and lower Opex.

The operating cost associated with the conceptual room and pillar mining is presented in section 3.2.2. It is based on a cost model. No actual design was performed at this stage of the Rose project.

### **3.0 OPERATING COST ESTIMATION**

Given the lack of initial data (including a block model) and the short time available, estimation of Opex has been based on three analyses, depending on the actual Opex component considered:

- Examination of publicly available reports on the feasibility of mining projects.
- Use of cost models in InfoMine USA, Inc. Mining Cost Service. The most recent version was used to estimate costs for open-pit mining, room & pillar underground extraction, and ore processing by flotation (2 products). Adjustment for Canadian salaries were made where appropriate to reflect manpower costs that are higher in Eastern Canada by a factor of roughly 15% as compared to US wages used in each model. Because of the level of detail presented by InfoMine's reference, no adjustment could be performed, however, for the lower Canadian cost for electric power. This adjustment could result in lower estimation in the case of ore processing, where power demand is significant.
- GENIVAR's own preliminary Opex estimation for open-pit mining, based on an equipment selection (Talpac software) and a typical manpower list (and associated salaries). A diesel fuel price of 0.90 \$/L was used.
- In the case of conversion of spodumene to carbonate, there is no other reference than a recent press release by Canada Lithium Inc. (June 13, 2011), which provided a unit cost per ton of carbonate from their soon to be published updated feasibility analysis.

#### **3.1 BASIS: RECENT PROJECTS (SEDAR REPORTS)**

We have extracted cost data from a series of recent projects whose reports are available on SEDAR as public information.

The projects include:

- Nemaska's Wabouchi (spodumene concentrate)
- Canada Lithium's Quebec Lithium (lithium carbonate)
- MDN's Anita (Crevier) (niobium/tantalum)
- Stornoway Diamond' Foxtrot (diamond)
- Avalon Ventures's Thor Lake (rare earths)
- Western Troy Capital Resources's MacLeod (copper-molybdenum)
- Royal Nickel Corp.'s Dumont (nickel)
- Aurizon Mines' Joanna (gold)
- Capstone Mining' Minto Phase V (copper-gold).

**Table 3.1.1** summarises salient facts from these projects as presented in the reports. Costs are reported for the date the report was issued.

The reports used are:

1 Technical Report NI 43-101 on the Preliminary Economic Assessment of the Whabouchi Spodumene Deposit of Nemaska Exploration Inc.; Equapolar Consultants Limited - March 5, 2011

2 Press release June 13, 2011 on revised Feasibility Study; <http://www.canadalithium.com/fr/> (section News)

3 Technical Report on the Feasibility Study for the Quebec Lithium Project La Corne Township, Quebec; Technology Management Group, submitted January 5, 2011

4 Technical Report 43-101 on the Pre-Feasibility Study for the Quebec Lithium Project; Hardie, Live, Palumbo, submitted May 5, 2010

5 Technical Report - Quebec Lithium Property, La Corne Township, Quebec; Submitted April 12, 2010 and November 22, 2010

6 NI 43-101 Technical Report Preliminary Economic Assessment of the Crevier Niobium Project; Met-Chem Canada, submitted March 2010

7 Updated Technical Report on the Preliminary Assessment of the Renard Project, Québec, Canada; Scott Wilson Roscoe Postle Associates Inc., submitted May 5, 2010

8 Preliminary Economic Assessment on the Thor Lake Rare Metals Project, NWT; Wardrop, submitted June 2007 (North Zone costs in table)

9 Preliminary Assessment of the Macleod Lake Project, Québec, Canada Scott Wilson Roscoe Postle Associates Inc., submitted April 24, 2008

10 A Preliminary Assessment Of The Dumont Property Launay And Trécesson Townships, Quebec, Canada; Micon International Ltd., submitted September 30, 2010

11 Technical Report NI 43-101 Pre-Feasibility Study for the Hosco Deposit Joanna Gold Project (Rouyn-Noranda, Quebec); BBA, submitted December 22, 2009

12 Minto Phase V Preliminary Feasibility Study Technical Report; SRK Consulting, submitted March 2011

**Table 3.1.2** is a compilation of mining and G&A costs from these reports:

- Indexed to 2011 using InfoMine Cost Service Index as indicated;
- Mining costs are all reported on a basis of mined rock, be it ore or waste, to remove the W/O variable when costs are reported on a per ton of ore basis. Costs reported in US\$ in 2010 or 2011 have not been modified, since the exchange rates (US\$ vs CA\$) are very close to parity.

**Table 3.1.3** and the accompanying graphs illustrates the range of open-pit mining costs on a /t of ore basis, and a /t of mined rock basis. **Table 3.1.4** and the accompanying graph limit the data to projects whose daily ore capacity is in the range of 3000 to 4000 tpd.

Both sets of data suggest an open-pit unit cost in the order of 2.50 \$ per ton of rock (ore and waste) mined.

**Table 3.1.5** and graph illustrates the milling costs for the projects where flotation is used as a primary means of concentration. A cost in the 11.00 – 12.00 \$/t is suggested by the few data available.

**Table 3.1.6** presents available data for General and Administration (G&A) costs. The wide ranging costs reflect projects with very different locations (remote vs near infrastructures) as well as differing composition of G&A costs used by the authors of the various studies. Based on the remoteness of the project and the likely need for camp accommodations, a cost of 4.00\$/t is retained for the purpose of the preliminary cost estimation.

### **3.2 BASIS: INFOMINE MINE COST MODELS**

The most recent versions of cost models published by InfoMine USA, Inc. (Mining Cost Service) have been used to estimate costs for open-pit mining, room and pillar extraction, and flotation for the production of two mineral products.

Administration costs in the various models were deducted, in order not to duplicate its cost with the one estimated from data in table 3.1.6. Likewise, adjustments to labor costs were made for Canadian salaries in Eastern Canada, which tend to be higher (by some 15%) than those used in the models (typical salaries for hourly paid US mine workers). Section 3.6 will present the adjustment basis.

InfoMines's costs models do not present enough details on electrical power consumption to permit a correction for the lower Canadian cost/kWh. US cost per kWh is about twice the Canadian one. The main reduction would apply to the processing circuits, where power demand is more substantial.

### 3.2.1 Costs models – Open-pit Mining

InfoMine models for open-pit mining range from 250 tpd to 80 000 tpd. Each model provides costs for various stripping ratios: 1/1, 2/1, 4/1 and 8/1.

**Figure 3.2.1** show the resulting mining cost, in US\$ per tonne, 2010, and on a **/t of daily ore production** basis.

In order to interpolate between tonnages (between the reported 2000 tpd and 5000 tpd values) and other stripping ratios, these costs were recalculated on a **/t of mined rock** basis:

Model 4000 tpd 2010 US\$ per tonne		
W/O	US\$/t ore	US\$ /t mined
1	<b>7,84 \$</b>	3,92 \$
2	<b>10,79 \$</b>	3,60 \$
4	<b>16,95 \$</b>	3,39 \$
8	<b>29,26 \$</b>	3,25 \$
	Average US\$ 2010	<b>3,54 \$</b>
	<b>Average US\$ 2011</b>	<b>3,79 \$</b>

The average US\$/t price of 2010, indexed to 2011, suggests that each ton of rock (ore and waste rock) extracted would cost 3.79 US\$. Parity with the Canadian currency is assumed.

### 3.2.2 Costs models – Room and Pillar Mining

InfoMine's room and pillar model is for daily ore tonnages of 1800, 8000 and 14 000 tpd.

**Table 3.2.1** presents the original cost data (administration cost deducted) and the correction for Eastern Canada salaries. Interpolation at 4000 tpd and indexation to 2011 suggest a cost per ton of ore of 25.00\$.

### 3.2.3 Costs models – Concentration by Flotation (2 products)

InfoMine's models for flotation (2 products) range from a daily throughput of 20 tons up to 80 000 tons.

**Table 3.2.2** shows the original data (2010 US\$, administration cost deducted) corrected for Canadian salaries (hourly paid employees) and indexed to 2011. The retained price is 12.00 \$/t of processed ore.

### 3.2.4 Costs Model – Conversion of Spodumene to Lithium Carbonate

There is no reference for this conversion process by the pyrometallurgical/hydrometallurgical process.

Technical reports published so far by Canada Lithium Inc. did not provide a separate price for conversion, this cost being agglomerated into a global one including flotation.

A recent press release (June 13, 2011) for the recently updated feasibility analysis provided the only reference available at this time. The 1205 US\$/t  $\text{Li}_2\text{CO}_3$  indicated, applied to the expected carbonate production of 31 046 tpy (Table 2.2.1) results in a cost per ton of ore of 25.00 \$/t. Table 3.4.1 will summarise the calculation.

### 3.2.5 Adjustments to Labor Costs – Canadian Salaries

Base wages used in InfoMine's models are based on salaries in US mines. InfoMine also reports salaries for Canadian mines, on an Eastern Canada and Western Canada mines basis.

When comparing US and Canadian hourly wages, a higher cost for Canadian workers is observed.

**Table 3.2.3** presents details for comparable hourly personnel in underground and surface operations, and a few ones in processing plants. A typical listing from a Quebec underground mine (740 000 tpy, employing a total of 290 persons, and hourly paid workers members of a union) is also provided.

Based on the information in the table, a 15% increase of the labor cost component was used in the models of sections 3.2.1 to 3.2.3 above.

### ***Note on manpower***

Based on InfoMine's cost models and GENIVAR simulation of the base case pit (section 3.3 below), approximate manning for the project as defined would be`

- Open-pit operation (standalone): Total of 188 persons (132 hourly + 56 salaried)
- Room and pillar operation (standalone): Total of 189 persons (121 hourly + 68 salaried)
- Flotation plant: Total of 62 persons (46 hourly + 15 salaried)
- Conversion plant: no estimation available. A synergy with the flotation plant might be possible for a few job functions.

## 3.3 GENIVAR'S PRELIMINARY ESTIMATION – OPEN-PIT MINING

### 3.3.1 Mining Equipment Operating Cost

A list of mining equipment was prepared for a daily mining rate of 30 800 tpd (ore and waste rock) corresponding to pit scenario 15 (stripping ratio of 6,7).

Simulations were performed with the Talpac software to establish the requirements for haul trucks, and the remaining equipment was selected to match the hauling fleet characteristics and provide support machinery.

Detailed operating costs for each type of equipment was obtained from InfoMine's Mine & Mill Equipment Cost 2006. Operating costs have been indexed to 2011 and the geographic location of the project. The diesel fuel price was fixed to 0.90 \$/L.

The basic requirements retained are:

Haul Trucks (60 t)	7
Shovels	2
Wheel Loader	1
Drills	2
Tractor	1
Dozer	1
Compactor	1
Grader	1
Water Truck	1
Pickups	6
Mechanical field service truck	1
Mobile fuel truck	1

The equipment operating cost (excluding labor) has been estimated at 0.78 \$/tmined.

### 3.3.2 Supplies and Materials Costs

Requirement and costs of blasting supplies and drilling consumables were evaluated from InfoMine's CostMine for a milling production of 4,000 tonnes per day and a stripping ratio of 6.7:1. The operating cost of primary supplies is 0.54 \$/tmined.

<b>Supplies &amp; Materials</b>			
<b>Items</b>	<b>Quantity</b>	<b>Cost/unit</b>	<b>Cost/day</b>
Bulk Explosive (kg/d)	9 532	1,06 \$	10 103,40 \$
Caps (caps/d)	636	3,15 \$	2 002,48 \$
Drill Bits (bits/d)	1,1458	100,00 \$	114,58 \$
Detonation Cord (m/d)	6 789	0,63 \$	4 297,17 \$
<b>Daily Total Cost</b>			<b>16 517,64 \$</b>
<b>Cost/t mined</b>			<b>0,54 \$/t mined</b>

### 3.3.3 Labor Costs

Personnel requirements were evaluated according to a standard northern mining schedule, the equipment list and basic needs to the standard open-pit mining operation. The project needs 132 hourly workers and 56 salaried employees. The overall operating labor cost is estimated at 1.29 \$/tmined.

### 3.3.4 Sundry Items Costs

Sundry items for operation and maintenance were also evaluated from the CostMine reference, for a milling production of 4000 tpd and a stripping ratio of 6.7:1. The operating cost of sundry items is 0.32 \$/tmined.

### 3.3.5 Summary – GENIVAR Estimation of Open-pit Opex

The total opex estimated for the 4000 tpd/6,7 stripping ratio scenario is 2.93 \$/t mined, or 22.56 \$ per ton of processed ore

<b>Mining operating cost item</b>	<b>Costs</b>
Equipment operation	0,78 \$/t mined
Supplies & materials	0,54 \$/t mined
Labor	1,29 \$/t mined
Sundry items	<u>0,32 \$/t mined</u>
<b>Mining operating cost</b>	<b>2,93 \$/t mined</b>

## 3.4 SUMMARY: OPERATING COST ESTIMATION

**Table 3.4.1** summarises the various costs estimations together with basic project parameters.

The table summarises the various estimates described in the preceding sections with the cost retained for each project component. A summary for open-pit and underground operation appears at the bottom of the table.

Total operating costs estimates for the underground operation amount to 66.00 \$/t (milled). At the estimated 3.00 \$/t cost for mining one ton in the open-pit (ore and waste rock), the break-even cost with the room and pillar operation is for a stripping ratio of 7,33/1. At a lower UG Opex, the stripping ratio would be lower, so more tonnage would end up being extracted by underground mining.

This global price is driven by the underground Opex. The feasibility analysis, using the updated block model, will need to consider any underground approach that could result in a lower Opex. For example, thicker zones that could be extracted by a longhole mining approach present a potential of cost reduction that could reach several \$/t. It cannot be quantified at this time.



From preliminary information available (verbal information from Critical Elements Corp.'s President), recent exploration work suggests the addition of new ore tonnage amenable to open-pit mining. This could also improve project economics.

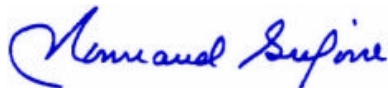
#### 4.0 CONCLUSION

At the present state of knowledge of the Rose Lithium-Tantalum project, ore will have to be extracted by a mix of surface and underground mining. The upcoming resource statement may expand significantly the extent of mineralization to be subjected to a feasibility-type analysis. The preliminary estimation in this technical note is based on an incomplete knowledge of the final deposit.

At this stage, and with the specified room & pillar underground method, the estimated cost of the operation is 66.00\$ per ton of ore processed. The resulting open-pit operation would reach a stripping ratio of 7,33 before mining switches to an underground operation. In practice, this transition could be accelerated so ore is actually extracted by both methods concurrently for a certain time, but the final unit cost would remain the same if open-pit mining stops at the above stripping ratio.

The main cost saving possibility is assessing other means of extracting ore from the underground operation which would be less costly. New mineralized zones that would be closer to the surface would also result in more ore extracted at a lower cost.

For the purpose of establishing cut-off grades, GENIVAR recommends to use a unit cost of 66.00\$ per ton of ore processed.



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