TECHNICAL REPORT AND PRELIMINARY ECONOMIC ASSESSMENT ON THE ROSE TANTALUM-LITHIUM PROJECT

JAMES BAY AREA, PROVINCE OF QUEBEC

Project Number: 111-52558-00
Effective date: December 10, 2011

GENIVAR Inc. • 1175 Lebourgneuf Boulevard, Suite 300, Québec (Quebec) G2K 0B4
Tel.: 418 623-2254 • Fax: 418 624-1857 • www.genivar.com • Certified ISO 9001:2008

TECHNICAL REPORT AND
PRELIMINARY ECONOMIC ASSESSMENT
ON THE ROSE TANTALUM-LITHIUM PROJECT

JAMES BAY AREA
QUEBEC, CANADA

Prepared for

Critical Elements Corporation

By

GENIVAR Inc.
InnovExplo Inc.
Bumigeme Inc.

Charles Gagnon, Eng., M.Sc, GENIVAR Inc. – Mining Engineer and Qualified Person
Normand Grégoire, Eng., GENIVAR Inc. – Mining Engineer and Qualified Person
France Gauthier, Eng., GENIVAR Inc. – Mining Engineer and Qualified Person
Simon Latulippe, Eng., GENIVAR Inc. – Project Manager and Qualified Person
Carl Pelletier, B.Sc. Geo., InnovExplo Inc.– Geologist and Qualified Person
Florent Baril, Eng., Bumigeme Inc. – Engineer and Qualified Person

Effective date of this Technical Report: December 10, 2011
Project No. 101-52558

Photographs on cover page
Photo 1 Purple spodumene, 2009 drilling campaign (photo credit: Critical Elements Corp.)
Photo 2 Lake 3 that will be dyked, June 2011 site visit (photo credit: Leila Ouahit, GENIVAR Inc.)

1175 Lebourgneuf Blvd., Suite 300 ~ Québec (Quebec) CANADA G2K 0B4
Tel.: 418 780-0878 ~ Fax: 418 780-4182 ~ www.genivar.com

PARTICIPANTS IN THE STUDY

GENIVAR Inc.

Project Management	:	Charles Gagnon, Eng., M.Sc. Qualified Person Olivier Joyal, G.I.T.
Lithium Market Study	:	Normand Grégoire, Eng. Qualified Person
Mining Engineering	:	France Gauthier, Eng. Qualified Person Gabriel Lefebvre
Mining Technique	:	Marc Baillargeon
Water Management	:	Pierre Jean, Eng. Leila Ouahit, Jr. Eng.
Tailings Disposal Infrastructure	:	Simon Latulippe, Eng. Qualified Person
Site Infrastructure	:	Yves Bouchard, Eng. Jean Beauchemin Isabelle Lévesque, Eng.
Permitting	:	Éric Lucas
Economic Analysis	:	Jean-William Laliberté
Environmental Impact	:	Josée Marcoux Mathieu Desjardins
Word Processing	:	Cathia Gamache
InnovExplo Inc. Mineral Resources Estimate	:	Carl Pelletier, B.Sc., Geo. Qualified Person Pierre-Luc Richard, B.Sc., Geo.
Bumigeme Inc. Mineral Processing and Metallurgical Testing	:	Florent Baril, Eng. Qualified Person

To be cited as:

GENIVAR, 2011. *Technical Report and Preliminary Economic Assessment on the Rose Tantalum-Lithium Project, James Bay Area, Quebec.* GENIVAR report to Critical Elements Corporation. 308 p. and appendices.

IMPORTANT NOTICE

This report is prepared as a National Instrument 43-101 Technical Report, in accordance with Form 43-101F1, for Critical Elements Corp. by GENIVAR Inc., InnovExplo Inc. and Bumigeme. The quality of information, conclusions and estimates contained herein is consistent with the level of effort involved in the above consultants' services and is based on: i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this Technical Report. This Technical Report is intended to be used by Critical Elements Corp. subject to the terms and conditions of its contract with GENIVAR. This contract allows Critical Elements Corp. to file this report as a Technical Report with the Canadian Securities Regulatory Authorities pursuant to National Instrument 43-101, Standards of Disclosure for Mineral Projects. Any other use of this report by a third party is at that party's sole risk.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

1. SUMMARY

1.1 Scope of the Mandate

GENIVAR Inc. (GENIVAR) was commissioned in February 2011 by Mr. Jean-Sébastien Lavallée, President and Chief Executive Officer of Critical Elements Corporation (CEC or Critical Elements), to complete an independent Technical Report and Preliminary Economic Assessment (PEA) on the Rose Tantalum-Lithium Project (the Property, Rose Project or Project) in accordance with Regulation 43-101 Standards and Disclosure for Mineral Projects and Form 43 101F1 as amended on June 30, 2011. This Technical Report is based on the most recent data and information available on the Property. It includes an economic analysis of the potential viability of the Mineral Resources of the Project.

The purpose of the PEA, the first economic study undertaken for the Rose Project, consists in evaluating the potential for mining, milling and metallurgical processes for the Project. It includes all necessary infrastructure required for the development of the Project.

This PEA follows an independent Regulation 43-101 compliant Mineral Resource Estimate report prepared by InnovExplo Inc. (InnovExplo) for the Property dated September 7, 2011. This Mineral Resource Estimate report is available on SEDAR, the *System for Electronic Document Analysis and Retrieval* filing system developed for the Canadian Securities Administrators at www.sedar.com.

The economic analysis contained in this Technical Report is based on Indicated Mineral Resources and is preliminary in nature. Inferred Mineral Resources are considered too geologically speculative to have mining and economic considerations applied to them that would enable them to be categorized as Mineral Reserves. There is no certainty that the PEA will be realized.

The technical information and economic parameters used to prepare this Technical Report and PEA are current as of December 10th, 2011, the effective date of the Technical Report. This Technical Report was prepared for CEC by, or under the supervision of, qualified persons of GENIVAR, with contributions from InnovExplo for the geology and the Mineral Resource Estimate, and from Bumigeme Inc. (Bumigeme) for mineral processing and metallurgical testing and recovery methods.

Qualified Persons (QP) as defined in Regulation 43-101 for this Technical Report and PEA include Mr. Charles Gagnon, Eng., M.Sc., Mr. Normand Grégoire, Eng. Mr. Simon Latulippe, Eng., and Ms. France Gauthier, Eng., employees of GENIVAR;

Mr. Florent Baril, Eng., president of Bumigeme and Mr. Carl Pelletier, B.Sc., Geo. of InnovExplo. Mr. Charles Gagnon visited the Rose Property on November 29th, 2011. Mr. Pierre-Luc Richard of InnovExplo visited the Property on July 13 and 14, 2010 and on July 10, 2011 as well as the core shack on July 12, 2010 and July 21, 2011.

The report is addressed to Critical Elements (the issuer). GENIVAR and Bumigeme are independent consulting firms based in Montréal, Quebec. InnovExplo is an independent consulting firm based in Val-d'Or, Québec.

1.2 Conclusions and Recommendations

The parameters used in this Preliminary Economic Assessment include developing a 1,500,000 tpy open-pit mine using diesel hydraulic equipment, construction of a concentrator at the mine site (crushing, grinding, flotation circuits) with a nominal capacity of 4,600 tpd of ore at 90% availability and construction of a lithium carbonate plant at the mine site.

GENIVAR examined the technical and economic aspects of the Rose Project within the level of precision of a Preliminary Economic Assessment and computed a cash flow analysis. The latter was based on metal prices projections made for lithium carbonate but a spot price and a market study were used for tantalum concentrate. As it stands, the Rose Project contains an economic Mineral Resource.

Consequently, GENIVAR concludes that the Rose Project is technically feasible as well as economically viable. The authors of this Technical Report consider the Rose Tantalum-Lithium Project to be sufficiently robust to warrant moving it to the pre-feasibility level.

Table 1-1 presents the main criteria of the Rose Project.

Table 1-1 Major Project Criteria of the Rose Tantalum-Lithium Project.

Item	Unit	Quantity
Production including dilution		
Ta-Li bearing ore (pit only)	tonnes	24,260,534
Diluted metal grades		
Tantalum	ppm	108
Lithium	ppm	4,131
Ta_2O_5	ppm	132
Li_2O	%	0.89
Plant overall recoveries		
Tantalum	%	50
Lithium	%	84.8
Total payable commodities produced		
Ta_2O_5	‘000 kg	1,597
Li_2CO_3	‘000 kg	452,306
Tantalum	‘000 kg	1,308
Lithium	‘000 kg	84,981
Preproduction capital costs (contingency included)		
Site preparation	‘000 CA$	22,102
Mine equipment & Development	‘000 CA$	55,312
Energy & Indirect cost	‘000 CA$	62,590
Surface infrastructures	‘000 CA$	128,581
Total preproduction capital	**‘000 CA$**	**268,584**
Ongoing investment over 17 years	**‘000 CA$**	**36,818**

This PEA is preliminary in nature and includes Indicated Mineral Resources. Inferred Mineral Resources are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves. There is no certainty that the PEA will be realized.

The opinion expressed by GENIVAR in this Technical Report is based on information and data partially provided by Critical Elements and is current at the time of writing. The Technical Report reflects the technical and economic conditions valid at that time. Given the nature of the mining business, these conditions may change over a relatively short period of time. Consequently, actual results may be significantly more or less favourable than those projected herein.

1.3 Property description

The southeast boundary of the Rose property is located at latitude 52°01’02’’N and longitude 76°09’34’’West in the James Bay area of the province of Québec, Canada. The Property is located approximately 30 km north of the community of Nemiscau and 300 km north of Chibougamau. It is accessible via the Route du Nord. The Property lies less than 5 km from the Eastmain 1 hydroelectric facilities.

1.4 Ownership

Critical Elements is a Canadian mining exploration company based in Montreal, Quebec, Canada. The activities of Critical Elements consist in acquiring, exploring, developing and eventually bring into production mineral properties. Critical Elements currently owns exploration properties in the provinces of Quebec and British-Columbia, Canada but has no producing properties. CEC started drilling on the Rose Property in December 2009 and acquired 100% interest in the Rose Tantalum-Lithium Project in November 2010. Shares of Critical Elements trade on the TSX Venture stock exchange, the OTCQX exchange and the Frankfurt stock exchange.

1.5 Geology and mineralization

Mineralization is hosted within outcropping pegmatite dykes subparallel to the surface. The ore body is relatively flat, close to the surface and made of stacked lenses oriented North 296° with an average dip of 15° to the northeast.

The Property consists of a number of en-echelon pegmatites, individually up to 20 m thick, crosscut by centimetric quartz veins. Spodumene and lepidolite (a potassium lithium aluminum silicate) can form centimetric lenses locally making up to 40 per cent of the pegmatites. Grab samples contained up to 0.21% lithium oxide (0.45% Li_2O) and 129 ppm beryllium.

Mineralization recognized to date on the Rose property includes rare element Lithium-Cesium-Tantalum or LCT-type pegmatites and molybdenum occurrences.

1.6 Exploration

Critical Elements started drilling the Rose property in December 2009. This Technical Report and PEA incorporates a Mineral Resources estimate which considered a total of 217 holes drilled by the company for a total of 26,176 metres. Out of those 217 holes, 202 holes (25,200 m) were included in the current mineral resource estimate. In addition to drilling, Critical Elements also performed some prospecting work in the immediate vicinities of the known showings.

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). InnovExplo was granted access to the official results from the ALS Chemex Laboratory.

InnovExplo validated drilling procedures and sample preparation, including a QA/QC protocol, for 217 holes drilled by Critical Elements during the 2009 and 2010 drilling campaigns at its Rose Project as well as the assay results obtained by ALS Chemex Laboratory on 4,631 core samples and found Critical Elements' database for the Rose Project to be valid and reliable. InnovExplo retained 202 holes totalling 25,200 m out of the 217 holes that had been drilled.

InnovExplo considers the Critical Elements database for the Rose Project to be valid and reliable.

1.7 Mineral Resources Estimate

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, InnovExplo is 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.

The Regulation 43-101 compliant Mineral Resources estimate for the Rose Project is dated July 20th, 2011 (Table 1-2) . This is the most recent Mineral Resources estimate for the Rose Project and it comprises Indicated Mineral Resources of 26.5 Mt grading 0.98% Li_2O and 163 ppm Ta_2O_5 and Inferred Mineral Resources of 10.7 Mt grading 0.86% Li_2O and 145 ppm Ta_2O_5. No Mineral Reserves were estimated for the Rose Project.

Table 1-2 Rose Mineral Resources Estimate.

Mineral Resource	Tonnes (x 1,000)	Li_2O (%)	Ta_2O_5 (ppm)	Rb (ppm)	Cs (ppm)	Be (ppm)	Ga (ppm)
Indicated Mineral Resource	26,500	0.98%	163	2,343	92	128	66
Inferred Mineral Resource	10,700	0.86%	145	1,418	74	121	61

1.8 Mining Methods

GENIVAR developed a scenario to mine the Rose Project's Indicated Mineral Resources using a conventional truck and shovel open-pit approach down to a depth of 200 m from surface.

The pit considered in this Technical Report has a length of 1,600 m and a width of 700 m at its widest point. The life of mine plan shows that over 24 million tonnes of ore can be mined over a 17 year period, at an average grade of 0.89% Li_2O and 132 ppm Ta_2O_5. The nominal production rate was estimated at 4,100 tonnes per day (1.5 Mt/year). To access the ore, approximately 169 Mt of waste will need to be removed, resulting in an ore to waste stripping ratio of 7:1.

A geotechnical study is currently in progress. It will provide details concerning the rock quality designation (RQD), joints and rock characterization as well as an understanding of the rock structure and discontinuities. A core oriented geotechnical drilling program was completed in the fall of 2011. It will provide information about the main geological structures and their effects on pit wall stability and help building the initial hydrogeological model, as the presence of groundwater can affect wall stability (pore pressure) and mining operations (explosive, pumping needs, tire wear).

1.9 Infrastructures

The proposed mining scenario includes all infrastructures required to implement it, including a concentrator, carbonate plant, ore pad, waste rock stockpile, tailings disposal infrastructures, power infrastructure, bulk explosives mixing plant, water management facilities complete with a dam across the bottom of Lake 3, access and haulage roads, communications infrastructures and administrative buildings. It was assumed that the workers will be lodging at an existing camp located 30 km north of the Property, consequently no provisions were made for the construction of a mining camp.

A power line is located above the proposed open-pit. Should the Rose Project open-pit be developed as per the proposed plan, then approximately five hydro-electric towers will need to be relocated. If approved, Hydro-Québec will carry out the engineering and construction related with the relocation of the electric towers.

1.10 Mineral Processing

Bumigeme makes the following recommendations:

- Evaluate the possibility of using an electric or plasma furnace in order to reduce the very large fuel transportation costs associated with the current approach.
- Carry-out tantalum recovery process optimization studies to either improve magnetic separation or replace it by another technique with the aim of obtaining a tantalum recovery rate of around 90%.
- Carry-out optimization work on the bicarbonatation and subsequent filtration processes.

1.11 Permitting and Environmental Considerations

Critical Elements has initiated the Environmental Impact Assessment (EIA) process. Baseline studies required for the EIA are currently being completed.

Apart from the EIA study, the Rose Project is subject to a range of municipal, provincial and federal authorizations and permits. Work for those permits has yet to be started.

Preliminary acid-base accounting (ABA) static tests conducted to date indicated that the waste rock is not acid-generating. The information was incorporated into the design parameters and no geomembranes were used for any of the infrastructures costs in this PEA. Additional work needs to be carried out to confirm the assumption that the waste rock and the ore will not be acid generating.

The Property is located on the water divide line; as a result, the Rose Project will impact two water basins. Development will require draining two small lakes and extending the open pit into a third one.

1.12 Capital and operating costs

All components of the Rose Project were developed and estimated to a level of accuracy of at least ± 40%.

Mine capital costs, including estimates from preferred suppliers and contractors, were calculated by GENIVAR. Capital expenditures and sustaining/ongoing investments, including a 10% contingency, are estimated at $305.4 M. Of this amount, $268.4 M will be incurred during the preproduction phase.

Capital costs are in 2011 Canadian dollars, exclude taxes and duties, and make no allowances for escalation.

Pre-production costs are solely related to the critical path and minimal mining development required to reach the production target feed rate of 1,500-tpd at the Spodumene concentrator. Table 1-3 presents a summary of the estimated capital costs for the Rose Project.

Table 1-3 Rose Project Capital Costs Summary.

Items	Pre-production ($ millions)	Ongoing ($ millions)	Total ($ millions)
Site preparation	20.1	2.9	23.0
Mine construction and equipment	50.3	15.9	66.2
Power and communication	13.2	-	13.2
Surface infrastructures	11.3	-	11.3
Process plant (total)	105.6	-	105.6
Indirect	43.7	-	43.7
Closure	-	14.7	14.7
Contingency (10%)	24.4	3.3	27.7
Total	**268.6**	**36.8**	**305.4**

The average unit operating cost over the Life of Mine was estimated at $67.83/tonne milled. The unit operating costs include open pit mining cost ($23.93/t milled), mineral processing cost ($26.22/t milled), and general and administration (G&A) cost ($7.67/t milled).

1.13 Economic analysis

The economic evaluation of the project was conducted using the Internal Rate of Return (IRR) and Net Present Value (NPV) methods. Sensitivity calculations were performed on the Rose Project cash flow by applying a ± 15% variance on lithium and tantalum prices, capital expenditures, and operating costs in 5% increment. It demonstrates that the Rose Project is highly sensitive to changes in lithium carbonate price and has a low sensitivity to fluctuations in the tantalite concentrate price, operating costs and capital expenditures.

The financial analysis was based of price forecasts of US$260/kg for Ta_2O_5 contained in a tantalite concentrate and US$6,000/t for lithium carbonate (Li_2CO_3). The pre-tax IRR of the Rose Project is estimated at 33% (Figure 1-1) and the NPV at $488 million (Figure 1-2) using a discount rate of 8%. The after-tax IRR is estimated at 25% and the NPV at $279 million using a discount rate of 8%. The payback period is estimated at 4.1 years.

Figure 1-1 IRR Sensitivity (Pre-tax, 8% Discount Rate).

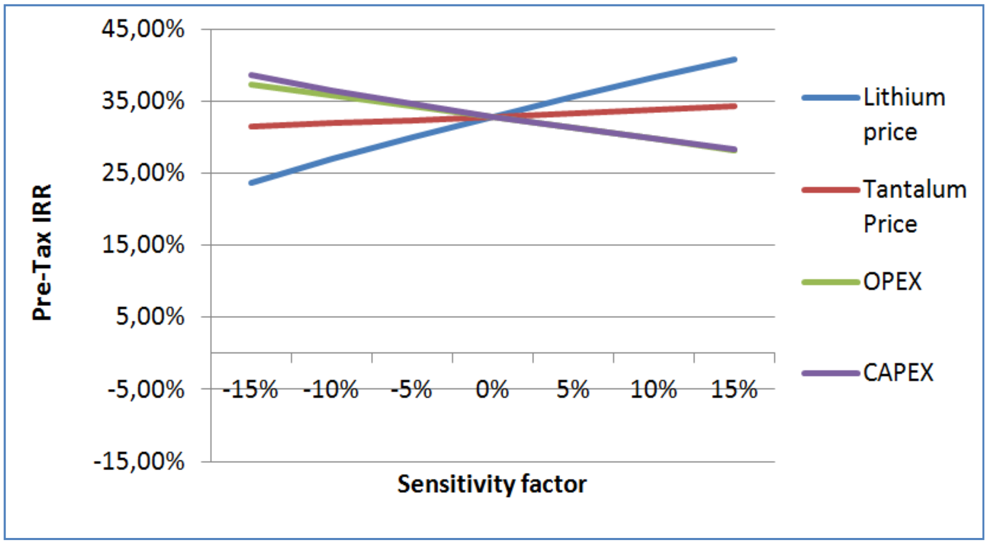
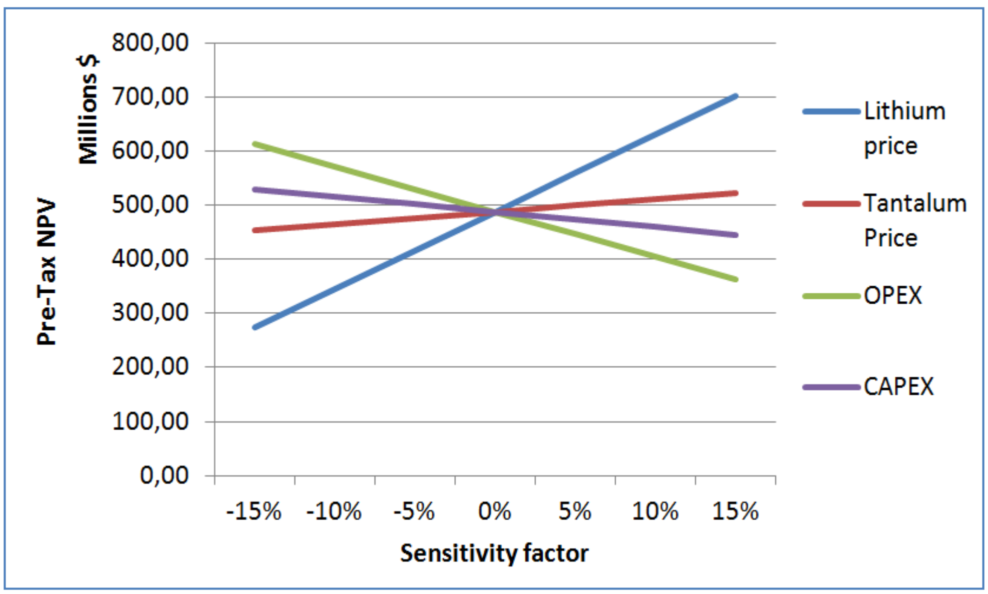


Figure 1-2 NPV Sensitivity (Pre-tax, 8% Discount Rate).



1.14 Risk elements

The economic viability of the Rose Tantalum-Lithium project is conditional upon the realization of metal prices forecasts, a better interpretation of the geological structures forming the deposit, a better understanding of the hydrogeological regime present on the Property, the realization of the forecasted commodity prices and the validation of the proposed mineral processing method.

2. INTRODUCTION

This Technical Report was prepared to support a conceptual study identified as a Preliminary Economic Assessment (PEA) in Quebec's Regulation 43-101 respecting standards of disclosure for mineral projects. The main objective of the PEA is to determine whether the Rose Project has sufficient merit from a technical, environmental and economic point-of-view to justify the investment required for further studies.

2.1 Purpose of the Technical Report and Preliminary Economic Assessment

GENIVAR Inc. was commissioned in February 2011 by Mr. Jean-Sébastien Lavallée, President and Chief Executive Officer of Critical Elements Corporation, to complete an independent Technical Report and Preliminary Economic Assessment on the Rose Tantalum-Lithium Project (the Property, Rose Project or Project). This Technical Report complies with Regulation 43-101 Standards and Disclosure for Mineral Projects (NI 43-101) and Form 43-101F1 as amended on June 30, 2011. It includes an economic analysis of the potential viability of mining the Mineral Resources of the Rose Project.

The purpose of the PEA consisted in evaluating the potential for mining, milling and metallurgical processes of the Rose Project. This PEA took into account all necessary infrastructure required for the development of the Project. The results of the Preliminary Economic Assessment were disclosed by Critical Elements Corporation in a News Release on November 21, 2011.

This PEA is based on developing the Rose Property over a 17-year period using an open-pit mining method from surface down to a depth of 200 meter. It includes building a mineral processing plant and a carbonate plant at the mine site to produce a lithium carbonate concentrate and a tantalum concentrate.

This Technical Report was prepared as a collaborative effort between InnovExplo of Val d'Or, Quebec for the Mineral Resources, Bumigeme of Montreal, Quebec for the Metallurgy and Mineral Processing and GENIVAR of Québec, Quebec for all other aspects of the study including Market Study of Lithium, Infrastructures, Mining, Economic Analysis and Environmental Considerations. It presents the Qualified Persons' findings, conclusions and recommendations.

The economic analysis presented in this Technical Report and Preliminary Economic Assessment is based on Indicated Mineral Resources and is preliminary in nature. Inferred Mineral Resources are considered too geologically speculative to have mining and economic considerations applied to them that would enable them to be categorized as Mineral Reserves. There is no certainty that the PEA will be realized.

2.2 Issuer of the Technical Report

This Technical Report was prepared for Critical Elements Corporation (Critical Elements, CEC), a Canadian mining exploration company based in Montréal, Quebec, Canada. Critical Elements is the issuer of this Technical Report as per Regulation 43-101.

Critical Elements owns Rare Earth elements and tantalum-niobium exploration properties in the provinces of Quebec and British-Columbia, Canada. CEC has not yet determined whether these properties have economically recoverable mineral reserves. It currently has no producing properties.

Critical Elements Corporation is listed on the *Registre des entreprises du Québec* (Registry of Quebec Companies) as:

Name of company:	Corporation Éléments Critiques Critical Elements Corporation
Quebec company number (NEQ):	1164063159
Address:	906 - 505 boul. De Maisonneuve O. Montréal (Québec) H3A 3C2 Canada

Critical Elements Corporation was incorporated under the Canadian Business Corporations Act R.S.C., 1985, c. C-44 on September 11, 2006 which is still in effect. Initially registered as Exploration First Gold Inc., the company changed its name to Critical Elements Corporation on February 18, 2011.

Mr. Jean-Sébastien Lavallée is the president on records of Critical Elements Corporation. The shares of CEC currently trades on the TSX Venture Exchange under the ticker symbol CRE, the American Over-the Counter QX (OTCQX) Exchange under the ticker symbol CRECF and the Frankfurt Exchange under the ticker symbol F12. According to the Registry of Quebec Companies, Critical Elements is a company in good standing, is not under bankruptcy, has never been the object of legal procedures by another company, is not the object of a continuation or transformation and is not the subject of liquidation or dissolution.

The current board of directors and management of CEC, as listed on the company website, comprises:

Jean-Sébastien Lavallée, Geo.:	President and Chief Executive Officer
Nathalie Laurin:	Secretary and Chief Financial Officer
Jenna Hardy, M.Sc., MBA, P.Geo.:	Director
Jean Rainville:	Director
Michel Robert, M.Sc.A., Eng.:	Director

Critical Elements Corporation was registered on SEDAR on September 11, 2006 under the CUSIP Number 320377. Its reporting jurisdictions include: British-Columbia, Alberta and Quebec.

CEC has interests in 11 properties in the province of Quebec including: Matchi-Manitou, Croinor, Rose Tantalum-Lithium, Weres, Seigneurie, Sophie, Reine, J6L1, Lac Sévigny-NE, Gatineau and Melasse. It also has interests in seven (7) properties in the province of British-Columbia: Trident, Kin, IRC, Munroe, Hiren, Claire, and Lindmark. Further details concerning CEC's projects and company structure, including news releases about the Rose Project, can be found on the company website at www.cecorp.ca.

2.3 Qualified Persons

This Technical Report was prepared for CEC, by or under the supervision of Qualified Persons (QPs). GENIVAR, InnovExplo and Bumigeme are responsible for various sections (items) of this Technical Report. The QPs responsible for the preparation of the Technical Report, as defined in Regulation 43–101 and in compliance with Form 43–101F1 are:

1. Mr. Carl Pelletier, B.Sc., Geo., InnovExplo, Val-d'Or, QC.
2. Mr. Florent Baril, Eng., Bumigeme; Montréal, QC.
3. Mr. Charles Gagnon, Eng., M.Sc., GENIVAR, Québec City, QC.
4. Ms. France Gauthier, Eng. GENIVAR, Québec City, QC.
5. Mr. Normand Grégoire, Eng., GENIVAR, Québec City, QC.
6. Mr. Simon Latulippe, Eng. GENIVAR, Québec City, QC.

The QPs' areas of responsibility for the various items of the Technical Report are outlined in Table 2-1.

Table 2-1 Technical Report Area of Responsibilities.

Carl Pelletier	Items 6 to 12 (History; Geological Setting and Mineralization; Deposit Types; Exploration; Drilling; Sample Preparation, Analyses, and Security; Data Verification), Item 14 (Mineral Resource Estimate), and those portions of items 1, 25 and 26 that are based on those items.
Florent Baril	Item 13 (Mineral Processing and Metallurgical Testing), Item 17 (Recovery Methods), input on Item 18 (Project Infrastructure) and item 21 (Capital and Operating Costs), and those portions of items 1, 25 and 26 that are based on those items.
Simon Latulippe	Item 18.3 (Tailings Disposal Infrastructure) and Item 20 (Environmental Studies, Permitting, and Social or Community Impact) and those portions of items 1, 25 and 26 that are based on those items.
Normand Grégoire	Item 19.1 (Market Study on Lithium) and those portions of items 1, 25 and 26 that are based on that item.
France Gauthier	Items 1 to 5 (Summary; Introduction; Reliance on Other Experts; Property Description; and Property Accessibility, Climate, Local resources, Infrastructure and Physiography), Item 19.2 (Tantalum Price), Item 23 (Adjacent Properties), Item 24 (Other Relevant Data), and those portions of items 25 and 26 that are based on those items.
Charles Gagnon	Item 16 (Mining Method), Item 18 (Project Infrastructure), Item 21 (Capital and Operating Costs), Item 22 (Economic Analysis), Item 25 (Interpretation), Item 26 (Recommendations), Item 27 (References) and Item 28 (Date and Signature).

2.4 Terms of Reference

The technical information and economic parameters used to prepare this Technical Report and PEA are current as of the following effective dates:

- Effective date of the Technical Report – December 10, 2011.
- Press release by CEC – November 21, 2011.
- Effective date of the Mineral Resource Estimate – July 20, 2011.

This is the first Preliminary Economic Assessment prepared for the Rose Tantalum-Lithium Project. The PEA was bound by the following parameters:

- A Mineral Resource Estimate comprised of Indicated Mineral Resources of 26.5 Mt grading 0.98% Li_2O, 163 ppm Ta_2O_5, 2,343 ppm Rb, 92 ppm Cs, 128 ppm Be, 66 ppm Ga.
- Inferred Mineral Resources of 10.7 Mt grading 0.86% Li_2O, 145 ppm Ta_2O_5, 1,418 ppm Rb, 74 ppm Cs, 121 ppm Be, 61 ppm Ga. Inferred Mineral Resources were not included in the mining plan.
- Development of a 1,500,000 tpy open-pit mine using diesel hydraulic equipment.
- Construction of a concentrator at the mine site (crushing, grinding, flotation circuits) with a nominal capacity of 4,600 tpd of ore at 90% availability.

- Construction of a lithium carbonate plant (CRM process) at the mine site. A flotation process will be used to concentrate the lithium and tantalum minerals into a high grade mixed concentrate. The tantalite will be separated from this concentrate by high gradient magnetic separation. The non-magnetic fraction containing the lithium mineral (spodumene) will be treated to produce pure lithium carbonate.

In general, project components and costs were developed to a ± 40-50% level of accuracy, commensurate with that of a Preliminary Economic Assessment. Budgetary prices were obtained from various vendors for several items including mining equipment and infrastructure components. As a result, those items have a higher level of accuracy. Other elements of the study were compared to those used in similar projects or estimated from costing manuals.

An exchange rate at par was assumed between the Canadian and the American dollars: US$1.00/CA$ (CA$1.00/US$). The price for tantalum used in this PEA was set at US$260/kg for tantalum concentrate. Based on a review of price forecasts for lithium carbonate completed by GENIVAR in June 2011, the price of lithium carbonate used in this PEA was set at US$6,000/t.

Capital and operating costs were estimated in 2011 Canadian dollars. An economic evaluation of the Rose Project was conducted using the Internal Rate of Return (IRR) and Net Present Value (NPV) methods. Table 2-2 presents the major criteria applicable to the Rose Project.

Sensitivity calculations were performed on the Rose Project cash flow by applying a ± 15% variance on lithium and tantalum prices, capital expenditures, and operating costs in 5% increment.

Table 2-2 Major Project Criteria of the Rose Tantalum-Lithium Project.

Item	Unit	Quantity
Production including dilution		
Ta-Li bearing ore (pit only)	tonnes	24,260,534
Diluted metal grades		
Tantalum	ppm	108
Lithium	ppm	4,131
Ta_2O_5	ppm	132
Li_2O	%	0.89
Plant overall recoveries		
Tantalum	%	50
Lithium	%	84.8
Total payable commodities produced		
Ta_2O_5	‘000 kg	1,597
Li_2CO_3	‘000 kg	452,306
Tantalum	‘000 kg	1,308
Lithium	‘000 kg	84,981
Preproduction capital costs (contingency included)		
Site preparation	‘000 CA$	22,102
Mine equipment & Development	‘000 CA$	55,312
Energy & Indirect cost	‘000 CA$	62,590
Surface infrastructures	‘000 CA$	128,581
Total preproduction capital	**‘000 CA$**	**268,584**
Ongoing investment over 17 years	**‘000 CA$**	**36,818**

2.5 Sources of Information

Mr. Charles Gagnon, Eng., M.Sc., Mining Engineer and Qualified Person for the present Technical Report and Ms. Valérie Fortin, Jr. Eng., Junior Geological Engineer, both employees of GENIVAR visited the Rose Property on November 29th, 2011. There are currently no mining infrastructures on the Rose Property.

During this site visit, the Qualified Person witnessed first-hand the topography and other features of the Rose Property. The terrain is hilly at some places and marshy at others. The vegetation is rather dense throughout the site (Figure 2-1). During that visit, the following items were observed:

- Cree village of Nemaska.
- Hydro-Québec Némiscau electrical installations.
- Hydro-Québec 315 kV electrical power line.
- Site access.
- Lake 1, Lake 2 and Lake 3.
- Drill holes surface markers and casings.

- Pétro-Nord fuel depot.
- A quarry located between Némiscau and the Rose site.
- Némiscau and Eastmain camps.

Figure 2-2 shows a photograph of Mr. Charles Gagnon standing near the 315 kV power line that runs through the Rose Property. The photograph was taken from the drill holes LR-11-158 and LR-10-158.

Figure 2-3 shows a photograph of a drill hole surface marker and casing for LR-11-65 Drill hole coordinates were verified for six (6) holes and those of hole LR-11-65 were recorded as N 52^{o}01'06.6'', W 076 ^{o}09'18.1'', elevation 283 m.

Other GENIVAR employees, including Ms. Leila Ouahit, Jr. Eng., Junior Civil Engineer and Mr. Louis-Marc Bédard, Eng,. Hydrogeologist visited the Rose Property on October 5 and 6, 2011 to carry-out hydrology and climatology work related to the Environmental Impact Assessment of the Rose Project.

Mr. Pierre-Luc Richard of InnovExplo visited the Property on July 13 and 14, 2010 and on July 10, 2011 as well as the core shack on July 12, 2010 and July 21, 2011. Mr. Richard works under the direct supervision of Mr. Carl Pelletier, Geo., B.Sc., and Qualified Person for the present Technical Report.

Figure 2-1 Rose Property Relief.

Figure 2-2 Hydro-Québec's 315 kV Power Line on the Rose Property.

Figure 2-3 Drill hole LR-11-165 with Lake 3 in the Background - Rose Property.

Critical Elements Corp, GENIVAR, InnovExplo and Bumigeme were in constant communication while carrying out the mandate. GENIVAR prepared this Technical Report using the input data provided by CEC and the parties listed in Table 2-1. Between February 2011, date of the signature of the contract relative to this Technical Report between Critical Elements Corp and GENIVAR, and December 13, 2011, date of submittal of the Technical Report by GENIVAR to Critical Elements Corp., discussions and meetings were held on a regular basis between the parties.

A portion of the background information and technical data presented in this Technical Report came from Technical Reports listed below and previously filed on SEDAR for the Rose Property by Critical Elements Corp. No other companies filed NI 43-101 compliant reports or other technical reports concerning the Rose Property on SEDAR.

At the request of Critical Elements, InnovExplo prepared three (3) independent NI 43-101 compliant Technical Reports on the Rose Property which described the on-going exploration work performed on the Rose Property. InnovExplo's Technical Reports are dated as follows:

1. September 30, 2010: Technical Report on the Pivert-Rose Property.
   (This report does not include a Mineral Resources estimate).
2. January 24, 2011: Technical Report on the Pivert-Rose Property.
   (This report includes a Mineral Resources estimate but no Mineral Reserves estimate).
3. September 7, 2011: 43-101 Technical Report and Resource Estimate on the Pivert-Rose Property.
   (This report includes an update of the Mineral Resources estimate dated July 20, 2011 but no Mineral Reserves estimate).

The present Technical Report and PEA is based on the most recent Mineral Resources estimate prepared by InnovExplo for the Rose Property; it is dated July 20, 2011 and presented in InnovExplo's September 7, 2011 Technical Report. InnovExplo's Mineral Resources estimate Technical Report is available on SEDAR, the System for Electronic Document Analysis and Retrieval filing website developed by the Canadian Securities Administrators at www.sedar.com.

Other sources of information are listed at the end of the present Technical Report in Section 27: References.

2.6 Information on Tantalum and Lithium

2.6.1 Tantalum

Tantalum is a rare metal which has an exceedingly high melting point (about 3,000°C), a high resistance to corrosion; it alloys well with other metals, is superconductive for electricity and, most importantly, has an excellent capacity to store and release an electrical charge. About half of the tantalum consumed each year is used in the electronics industry, mainly in capacitors in mobile phones, DVD players, and computers.

Tantalum occurs in a variety of minerals including tantalite $(Fe,Mn)(Ta,Nb)_2O_6$ and columbite $(Fe,Mn)(Nb,Ta)_2O_6$. Tantalite contains 86.17% of tantalum oxide Ta_2O_5. Tantalite (Figure 2-4) is the source of tantalum for the Rose Project.

Tantalum is either extracted from tantalum ore or as a by-product of tin mining.

Figure 2-4 Tantalite (Black Mineral) and Albite (White Mineral).

Source: British Geological Survey. Niobium-tantalum Profile, April 2011.

2.6.2 Lithium

Lithium is a comparatively rare element used as a fluxing agent and in heat-resistant glass and ceramics, mobile phones, high strength-to-weight alloys in aircraft, high-capacity batteries, and medicine. Lithium is extracted either from alkaline brines or mined from lithium minerals such as spodumene, which is the case of the Rose Project. Worldwide, most lithium minerals mined were used directly as ore concentrates in ceramics and glass applications.

As demand for lithium continues to grow, especially for lithium rechargeable batteries, world mine production of lithium carbonate (Li_2CO_3) is forecasted to increase. Between 2005 and 2008, world production of lithium carbonate was about 60,000 t/year. This is forecasted to increase to over 240,000 t/yr in 2015. In June 2011, GENIVAR completed a review of price forecasts and concluded that the price of lithium carbonate should continue rising from an average of US$5,950/t in 2010 to US$6,150/t in 2011 and up to over US$6,700/t in 2015.

2.7 List of abbreviations

Units of measurement used in this Technical Report conform to the SI (metric) system. Table 2-3 presents a list of abbreviations that may be used in this Technical Report.

Table 2-3 List of Abbreviations.

µ	micron	kPa	kilopascal
°C	degree Celsius	kVA	kilovolt-amperes
°F	degree Fahrenheit	kW	kilowatt
µg	microgram	kWh	kilowatt-hour
A	ampere	L	litre
a	annum	L/s	litres per second
bbl	barrels	m	metre
Btu	British thermal unit	M	mega (million)
C $	Canadian dollar	m^2	square metre
cal	calorie	m^3	cubic metre
cfm	cubic feet per minute	min	minute
cm	centimetre	MASL	metres above sea level
cm^2	square centimetre	mm	millimetre
d	day	mph	miles per hour
dia.	diameter	MVA	megavolt-amperes
dmt	dry metric tonne	MW	megawatt
dwt	dead-weight ton	MWh	megawatt-hour
ft	foot	NAD	North American Datum
ft/s	feet per second	m^3/h	cubic metres per hour
ft^2	square foot	opt, oz/st	ounces per short ton
ft^3	cubic foot	oz	troy ounce (31.1035g)
g	gram	oz/dmt	ounces per dry metric tonne
G	giga (billion)	ppm	parts per million
Gal	Imperial gallon	psia	pounds per square inch absolute
g/L	grams per litre	psig	pounds per square inch gauge
g/t	grams per tonne	RL	relative elevation, reference level
gpm	imperial gallons per minute	s	second
gr/ft^3	grains per cubic foot	st	short ton
gr/m^3	grains per cubic metre	stpa	short tons per annum
h	hour	stpd	short tons per day
ha	hectare	t	metric tonne
hp	horsepower	tpa	metric tonnes per annum
in	inch	tpd	metric tonnes per day
in^2	square inch	US $	American dollar
J	joule	USg	American gallon
k	kilo (thousand)	USgpm	American gallons per minute
kcal	kilocalorie	V	volt
kg	kilogram	W	watt
km	kilometre	wmt	wet metric tonne
km/h	kilometres per hour	yd^3	cubic yard
km^2	square kilometre	yr	year

3. RELIANCE ON OTHER EXPERTS

This Technical Report was prepared by GENIVAR, InnovExplo and Bumigeme (the authors) for Critical Elements Corp. The information, conclusions, opinions, and estimates contained herein are based on:

- information available to the authors at the time of preparation of this Technical Report;
- assumptions, conditions, and qualifications as set forth in this Technical Report; and
- data, reports, and other information supplied by Critical Elements Corp.

The authors believe the conclusions and recommendations included in this Technical Report and Preliminary Economic Assessment are in accordance with Regulation 43-101 and CIM standards. The conclusions and recommendations are appropriate to the level of advancement of the Rose Project.

3.1 Limited Disclaimer

Mineral Tenure and Surface Rights

The mining titles documentation and present status of the property titles were reviewed by GENIVAR using the GESTIM database, the Quebec government's mining title management system. GENIVAR is not qualified to express a legal opinion with respect to the property titles and current ownership or possible encumbrance status.

GENIVAR has not reviewed nor independently verified and disclaims responsibility for information pertaining to the mineral tenure, the legal status and ownership of the Rose Project area or underlying property agreements. On these matters, GENIVAR has relied upon the GESTIM database and information contained in the following report prepared by InnovExplo for Critical Elements, which is available on SEDAR:

> *43-101 Technical Report and Resource Estimate on the Pivert-Rose Property* - dated September 7, 2011.

Mineral Processing

The flow sheets and related mineral process assumptions used for the Rose Project were selected by Bumigeme. This study is based on a mineral processing tests performed by This study is based on mineral processing tests performed by Acme Metallurgical Limited on representative composite samples from drill cores and on information from the former lithium carbonate plant operated by the Sullivan mining Group in the 1960's. GENIVAR does not know of any facilities currently using this process on a full scale. GENIVAR offers no guarantees as to the implementation of this process in industry.

Estimates of Costs

In preparing the cost estimates, GENIVAR followed a methodology consistent with the intended level of accuracy, using its professional judgment and reasonable care, and is thus of the opinion that actual costs would fall within the specified margin of error. In many instances, GENIVAR based its cost estimates on vendor's quotes, which is, in its opinion, more precise than usual for a Preliminary Economic Assessment. However, no warranty should be implied as to the accuracy of the cost estimates.

Economic analysis

The economic analysis contained in this Technical Report is based on Indicated Mineral Resources, and is preliminary in nature. Inferred Resources are considered too geologically speculative to have mining and economic considerations applied to them to be categorized as Mineral Reserves. There is no certainty that the production and economic forecasts on which this Technical Report is based will be realized.

3.2 Source of Information from other Experts

Lithium price forecasts were gathered from a market analysis completed by Mr. Normand Grégoire of GENIVAR, a Qualified Person on October 2011. This report provides reference data, analyses, special surveys and overviews of the underlying global macroeconomic outlook for lithium.

Tantalum price forecasts were prepared by CANSource International Ltd. (December 2010) and supplied by Critical Elements. The tantalum price used in this Technical Report corresponds to that published in April 2011 by the British Geological Survey in its Niobium-Tantalum Mineral Profile. GENIVAR did not complete a detailed market study on tantalum prices.

The Mineral Resources estimate used in this Technical Report and Preliminary Economic Assessment was prepared by InnovExplo on July 20, 2011. The Mineral Resources estimate and its validation were both performed under the responsibility of Qualified Persons. GENIVAR did not validate the drillhole database nor any re-assaying of samples. While exercising all reasonable diligence to check and confirm their accuracy, GENIVAR has relied upon data presented by InnovExplo in formulating its opinion on the application of mining parameters to the Rose Project Mineral Resources estimate.

There is no Mineral Reserves Estimate for the Rose Project.

3.3 Extent of Reliance

The purpose of this Technical Report is to provide an independent opinion on the merit of the Rose Project. To that extent, InnovExplo, Bumigeme and GENIVAR are independent of Critical Elements Corp. (the issuer) and any companies related to the issuer. Key individuals working for the issuer are currently employed by corporations involved in the drilling program of the Rose Property and performing metallurgical tests on the Rose Project mineral samples.

InnovExplo has independently verified drilling data provided to it by Consul-Teck Exploration Inc. (Consul-Teck), a company based in Val-d'Or, Quebec, Canada. Mr. Jean-Sébastien Lavallée, Geo., is the Vice-President Project Manager of Consul-Teck and the President of Critical Elements Corp. This information is in the public domain.

Bumigeme has independently verified the metallurgical test results provided to it by Acme Metallurgical Limited (AcmeMet), a company based in Vancouver, British-Columbia, Canada. Mr. Michel Robert, B.A., B.A.Sc, M.A.Sc, Eng. is the President of AcmeMet and a Director of Critical Elements Corp. This information is in the public domain.

3.4 Application of Disclaimer

The opinion expressed by GENIVAR, InnovExplo and Bumigeme in this Technical Report is based on information and data partially provided by Critical Elements and is current at the time of writing. The Technical Report reflects the technical and economic conditions valid at that time. Given the nature of the mining business, these conditions may change over a relatively short period of time. Consequently, actual results may be significantly more or less favourable than those projected herein.

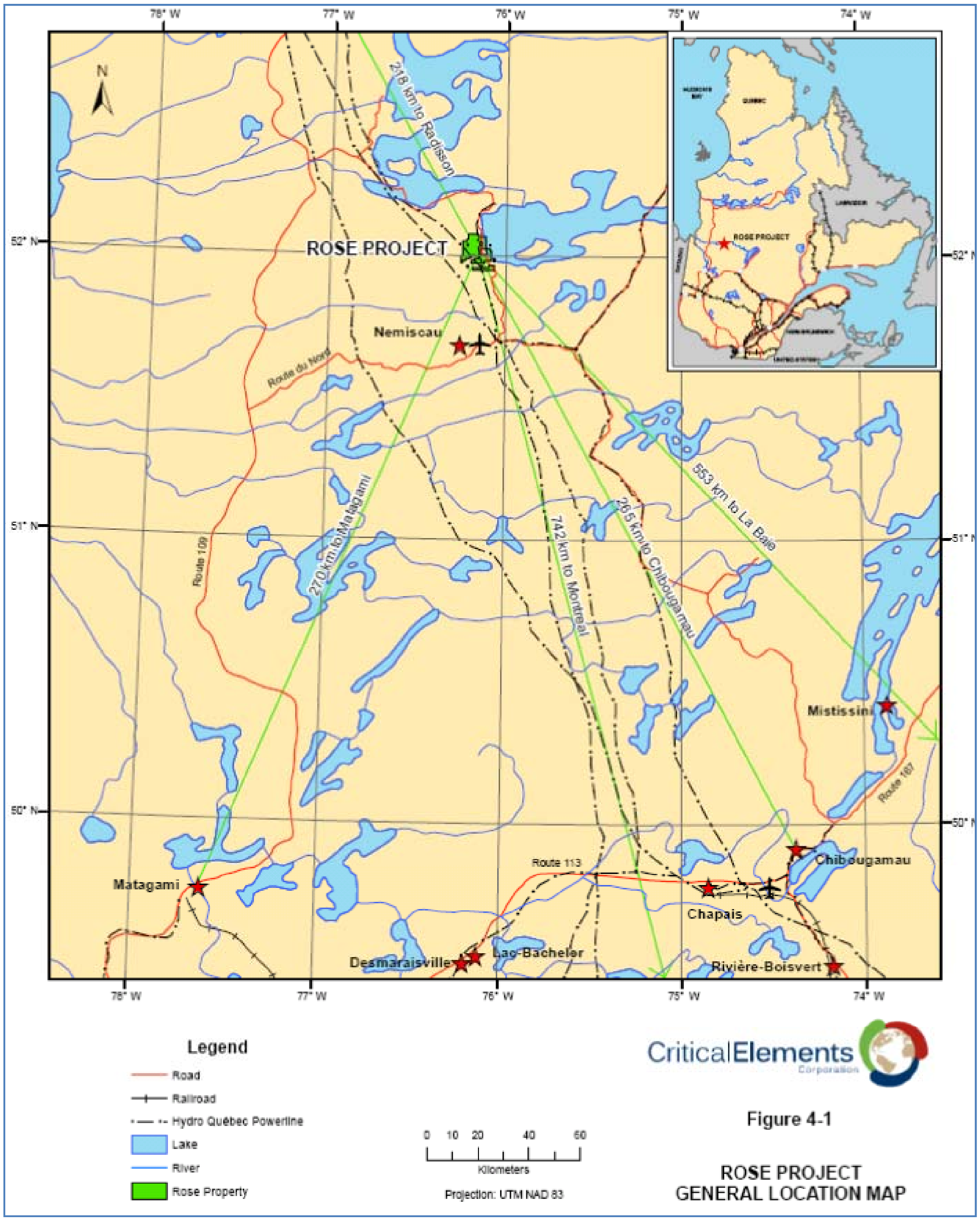
The level of confidence in the Mineral Resources estimate and cost estimates depends upon a number of uncertainties. These uncertainties include, but are not limited to future changes in metal prices and/or production costs, differences in the size, grade and recovery rates of the Mineral Resources from those expected based on available current data, and changes in project parameters.

4. PROPERTY DESCRIPTION AND LOCATION

4.1 Property Location

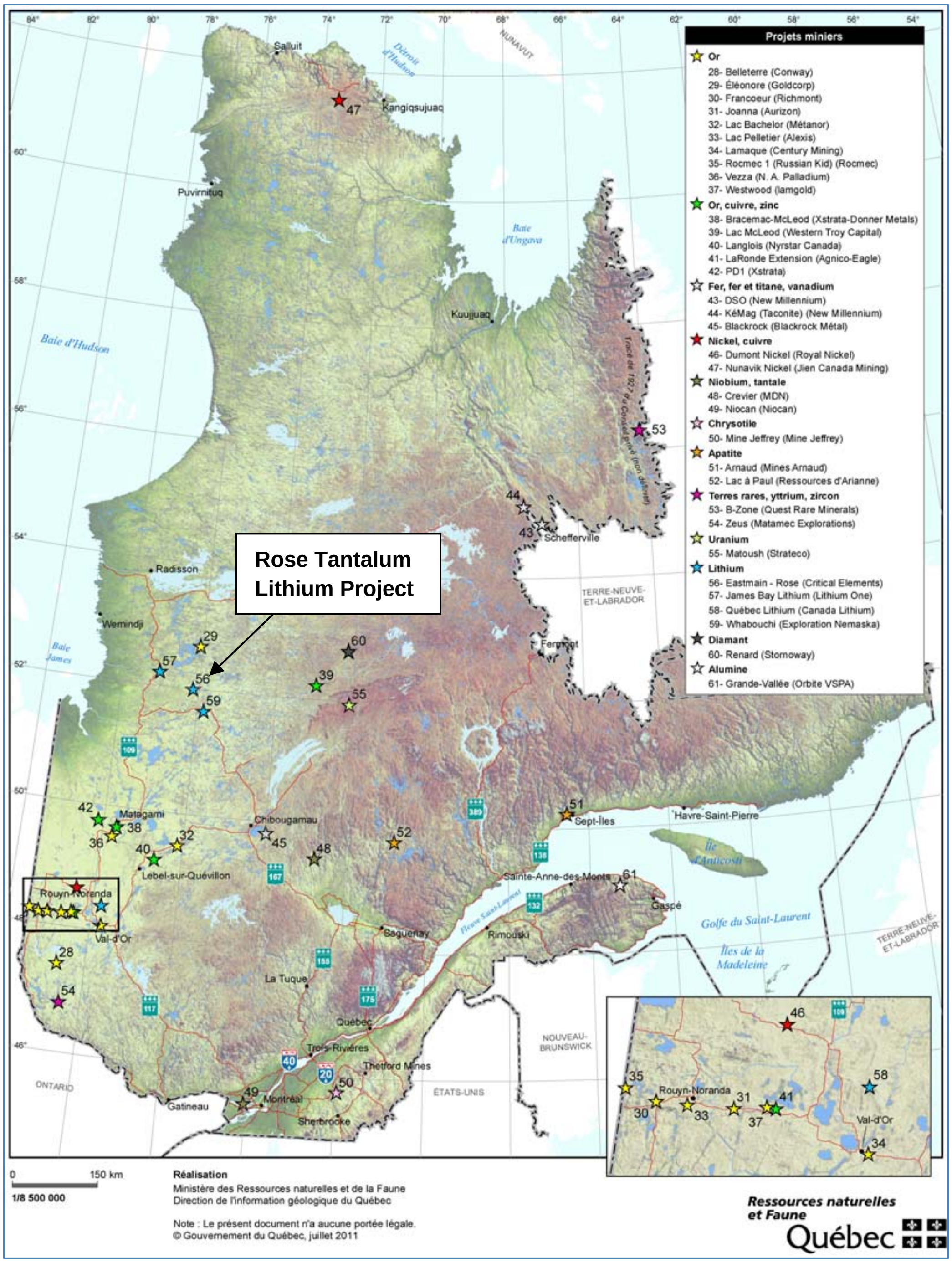
The Rose Property is situated near the geographic center of the province of Quebec; on the western edge of the Eastmain reservoir at latitude 52°01'02'' North and longitude 76°09'34'' West. The closest locality is the community of Nemiscau, some 30 km south of the Property. The Rose Property is located 300 km north of Chibougamau and 400 km north of Matagami (Figure 4-1), within the "PLAN NORD" zone of the Province.

Figure 4-1 Location of the Rose Property within the Province of Quebec.



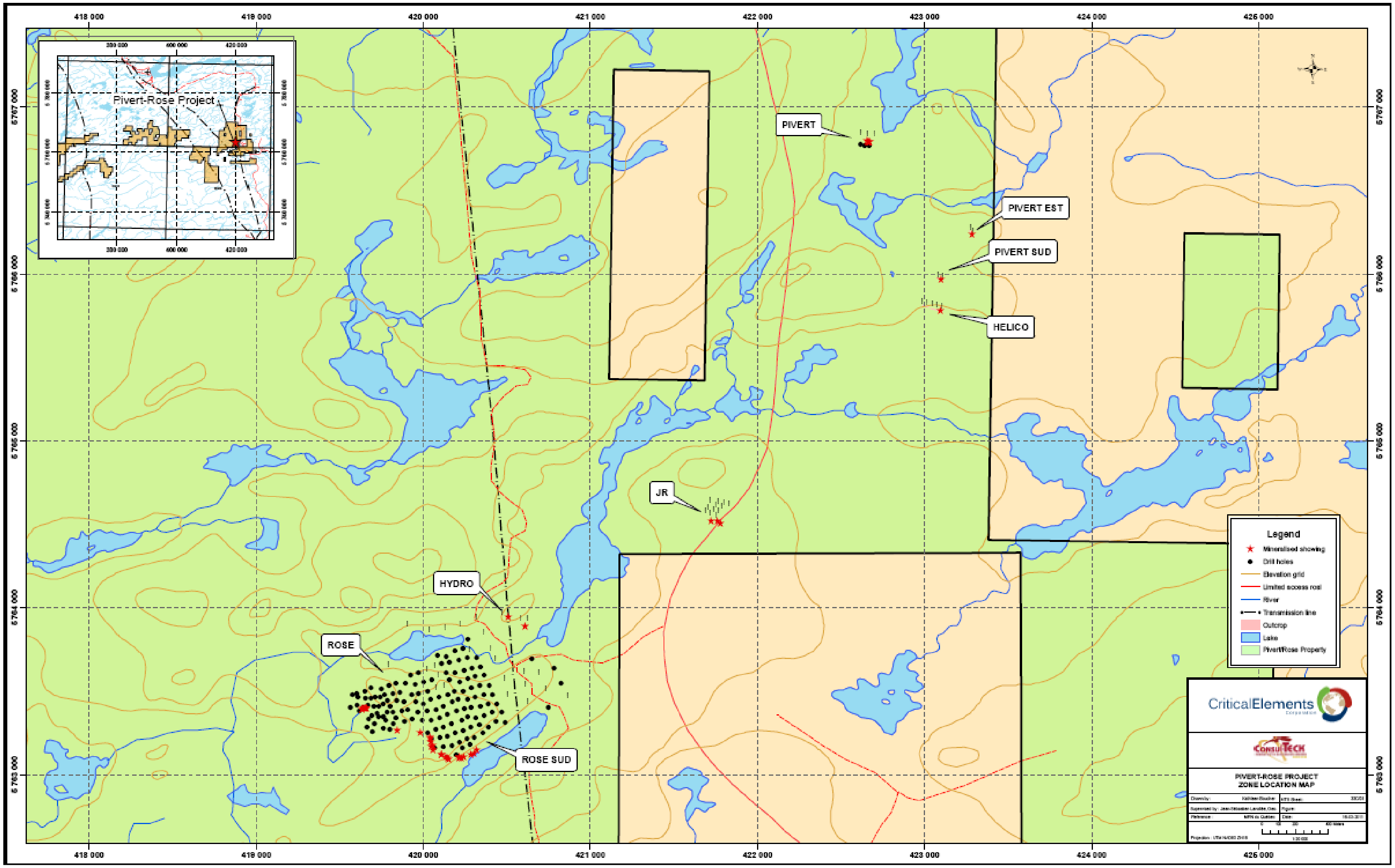
The Rose Tantalum-Lithium Property is identified by a blue star labelled 56 on the *2011 Mining Projects Map* issued by the Government of Quebec (Figure 4-2). Two other (2) lithium projects are located nearby. The three (3) lithium projects lie along a NW-SE direction with the Rose Tantalum-Lithium Project located in the middle, approximately 70 km as the crow flies, south-east of Lithium One Inc.'s *James Bay Lithium Project* and 45 km north-west of Nemaska Lithium Inc.'s *Whabouchi Project*.

Figure 4-2 Government of Quebec's 2011 Mining Projects Map.



The Property covers portions of National Topographic Sheets (NTS) 32N/16, 33C/01 and 33C/02. The approximate Universal Transverse Mercator (UTM) coordinates for the geographic centre of the property are: 409700E and 5761000N (Zone 18, NAD 83) as shown on Figure 4-3. Note that on Figure 4-3, the areas formerly designated as “JR” and “Hydro” have been incorporated into what is designated as the Rose Property in the present Technical Report.

Figure 4-3 Geographic Coordinates of the Rose Property.



4.2 Property Ownership and Agreements

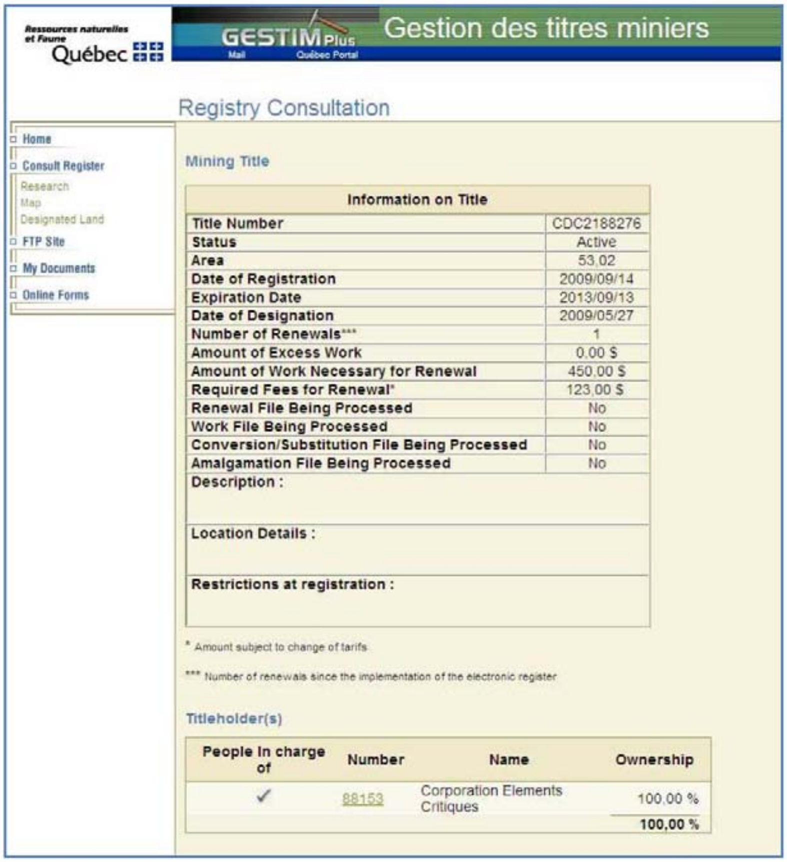
The Pivert-Rose Property comprises 636 active mining titles covering a total of 33,307 ha. The claims are grouped into five (5) blocks of contiguous or partially contiguous claims (Figures 4-4 and 4-5). The mining exploration titles are distributed among the 5 blocks, identified as A to E, as follows:

Table 4-1 Distribution of Exploration Titles.

Block Name	Mining Titles	Surface Area (ha)
A	195	9,907
B	107	5,681
C	172	9,117
D	90	4,776
E	72	3,826
Total	636	33,307

According to the GESTIM database (Quebec government's mining title management system); all mining titles comprising the Rose Property are currently registered to Critical Elements Corporation. An example of mining title ownership for exploration claim 2188276, as listed on the Gestim database, is shown on Figure 4-4 while Figure 4-5 shows that Critical Elements Corporation (*Corporation Éléments Critiques*) is duly registered as Client 88153.

Figure 4-4 Quebec's Government Gestim Database for Mining Title 2188276.


Ressources naturelles et Faune Québec

GESTIM Plus — Gestion des titres miniers

Mail | Québec Portal

Registry Consultation

- Home
- Consult Register
  - Research
  - Map
  - Designated Land
- FTP Site
- My Documents
- Online Forms

Mining Title

Information on Title	
Title Number	CDC2188276
Status	Active
Area	53.02
Date of Registration	2009/09/14
Expiration Date	2013/09/13
Date of Designation	2009/05/27
Number of Renewals***	1
Amount of Excess Work	0.00 $
Amount of Work Necessary for Renewal	450.00 $
Required Fees for Renewal*	123.00 $
Renewal File Being Processed	No
Work File Being Processed	No
Conversion/Substitution File Being Processed	No
Amalgamation File Being Processed	No
Description :	
Location Details :	
Restrictions at registration :	

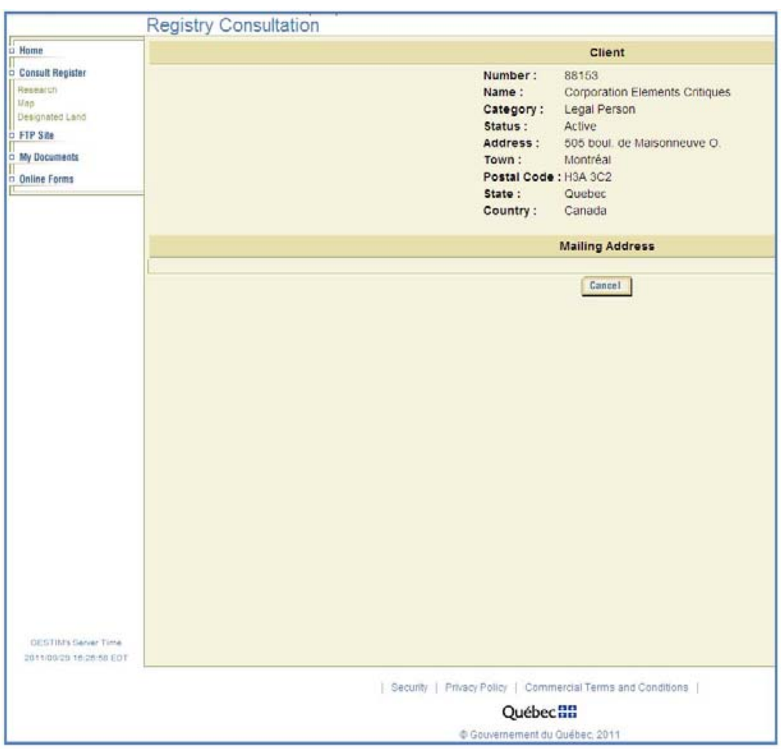
* Amount subject to change of tarifs

*** Number of renewals since the implementation of the electronic register

Titleholder(s)

People In charge of	Number	Name	Ownership
✓	88153	Corporation Elements Critiques	100.00 %
			100.00 %

Figure 4-5 Gestim Database Client 88153.


Registry Consultation

- Home
- Consult Register
  - Research
  - Map
  - Designated Land
- FTP Site
- My Documents
- Online Forms

Client	
Number :	88153
Name :	Corporation Elements Critiques
Category :	Legal Person
Status :	Active
Address :	505 boul. de Maisonneuve O.
Town :	Montréal
Postal Code :	H3A 3C2
State :	Quebec
Country :	Canada

Mailing Address

Cancel

| Security | Privacy Policy | Commercial Terms and Conditions |

Québec

© Gouvernement du Québec, 2011

Figure 4-6 Critical Elements Corp. – Claim Blocks A, B and C.

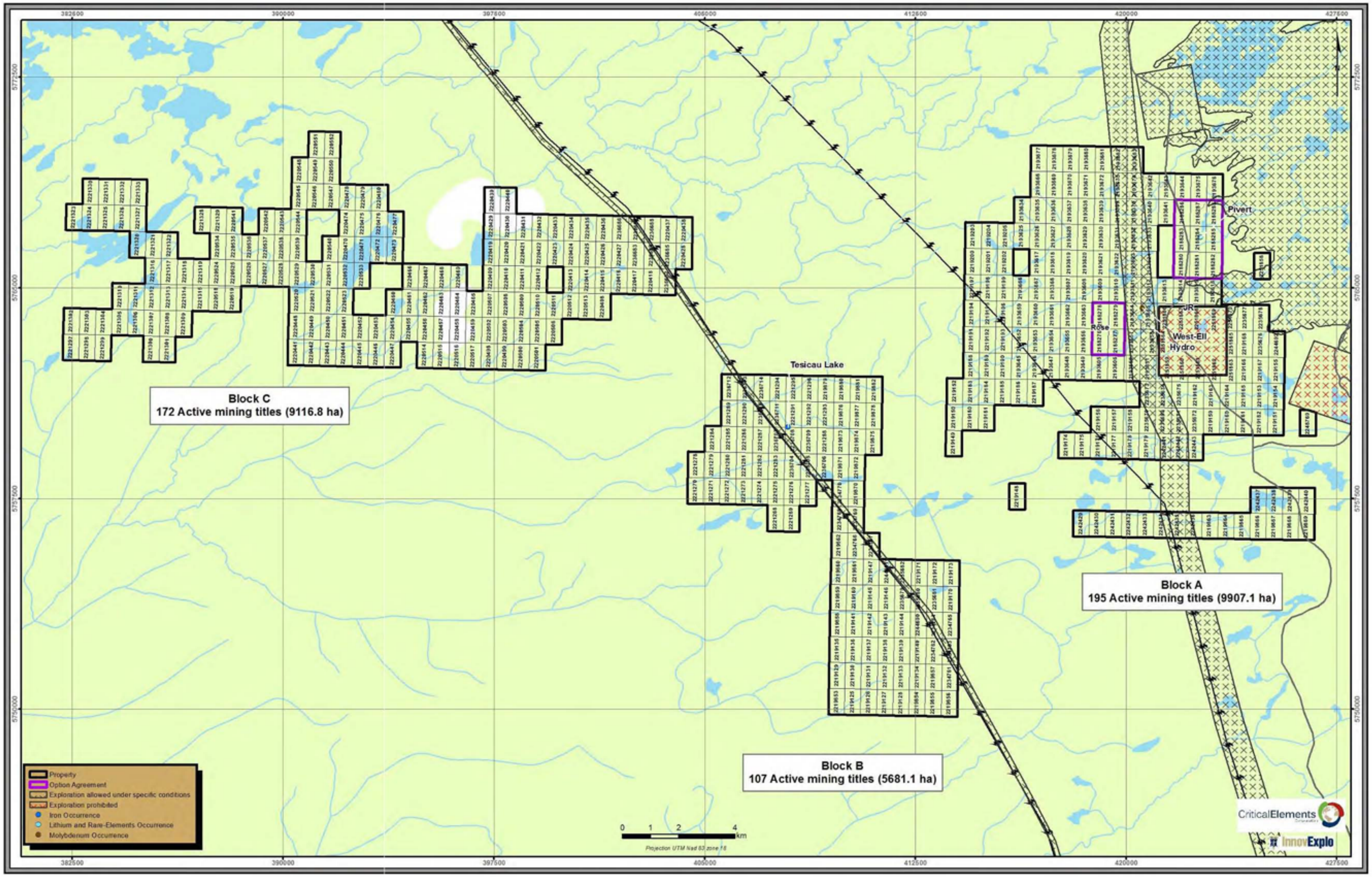
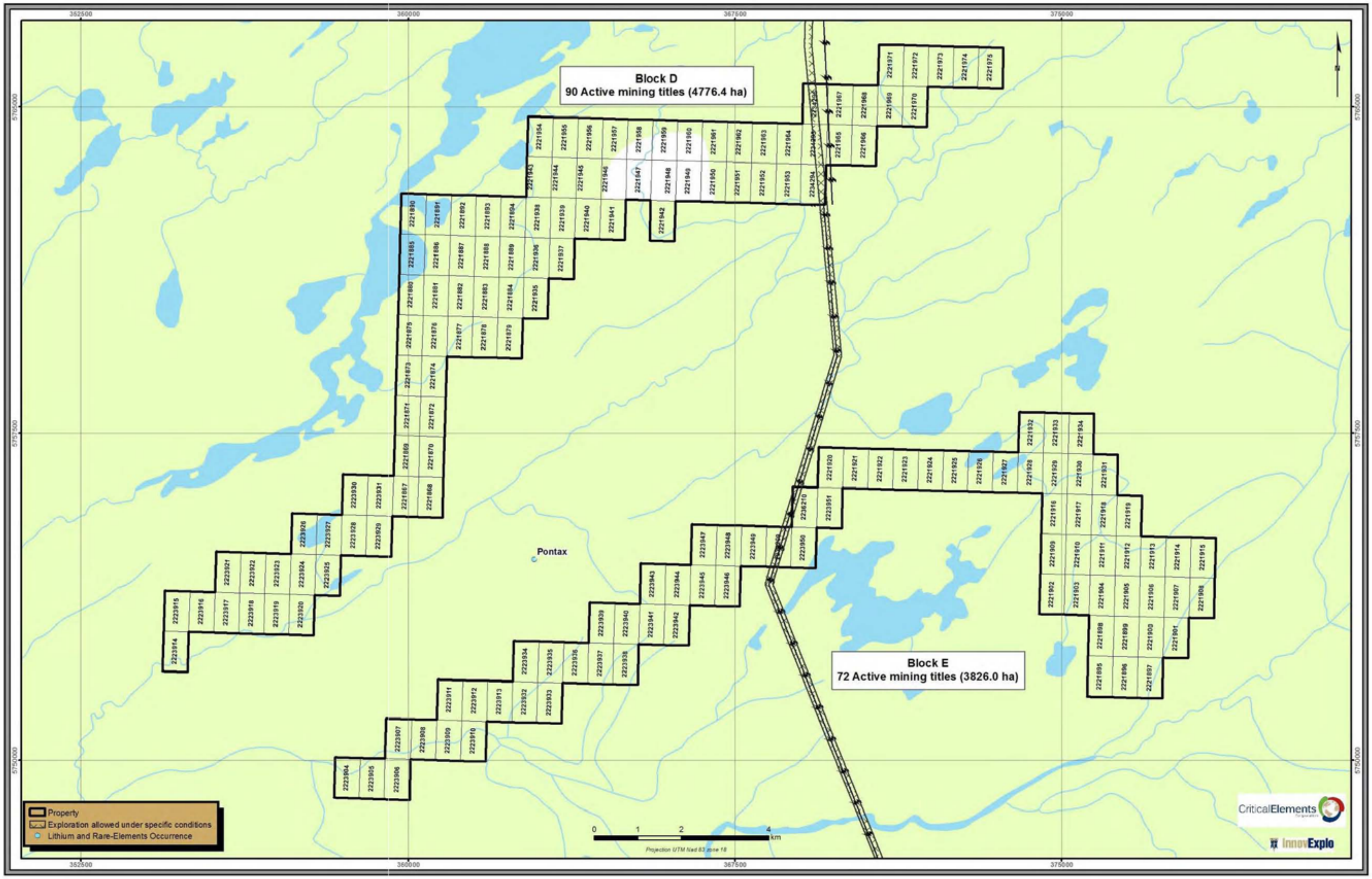


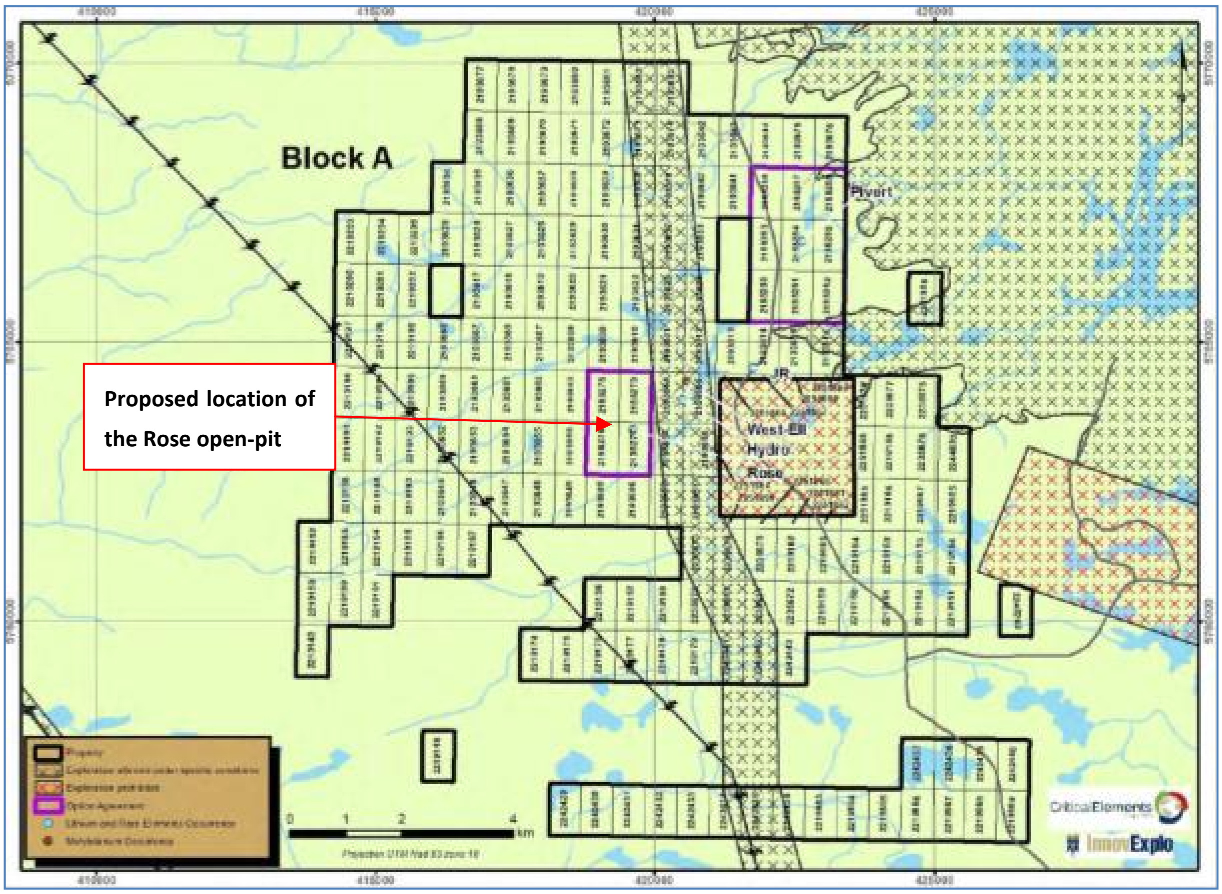
Figure 4-7 Critical Elements Corp. – Claim Blocks D and E.



The proposed open-pit and surface infrastructures for the Rose Project will be located solely within Block A (Figure 4-8). A full listing of the Block A claims owned by Critical Elements Corp. is presented in Appendix A.

In Figure 4-8, a blue dot printed on claim 2188277 identifies the lithium and rare elements occurrence of the Rose Project.

Figure 4-8 Rose Property – Claim Block A.



4.3 Environmental Liabilities

For this Preliminary Economic Assessment (PEA), the mineral resources were assumed to be mined by excavating an open pit to a depth of 200 m. The pit itself will disturb an area of about 920,500 m². The combined pit and infrastructures of the Rose Project will directly impact an area of approximately 8 km^2.

Because the Rose Project is located north of the 52nd parallel, it is automatically subject to an Environmental Impact Assessment (EIA) under chapter II of the Québec *Environment Quality Act* (R.S.Q., c. Q-2) (EQA). The process governing the various stages of the environmental impact assessment program is described in the *Regulation respecting the environmental and social impact assessment and review procedure applicable to the territory of James Bay and Northern Québec* (Q-2, r. 25).

In addition to this Technical Report, GENIVAR was mandated by Critical Elements Corporation to complete the Environmental Impact Assessment for the Rose Project. Preliminary details concerning the Rose Project's EIA are presented in section 20.1: *Environmental Impact Assessment Analysis* of the present Technical Report.

In order to be approved by the Minister of the *Ministère du développement durable, de l'Environnement et des Parcs*, the EIA must demonstrate that all potential adverse environmental effects are non-significant, once appropriate mitigation measures have been taken into account. The assessment of potential environmental risks pertaining to the Project will be completed in matrix format. The highest ranking environmental risks will then be identified along with the corresponding mitigation strategies listed in table format.

Baseline environmental studies pertaining to the Rose Project were initiated in the spring of 2011. These studies are currently ongoing and are expected to be completed by July 2012.

In order to complete the EIA, Critical Elements Corp. must conduct various baseline studies that will establish reference data for the biophysical and social aspects of the study area. The baselines studies undertaken by GENIVAR include:

- Baseline air and noise monitoring
- Climate and hydrology
- Baseline surface water and sediment quality
- Geology
- Hydrogeology
- Baseline terrestrial ecosystems
- Bird populations
- Baseline aquatic ecosystems
- Fish populations
- Benthic invertebrate populations

- Land Use by First Nations
- Baseline Socio-Economic Study
- Archeology
- Landscape
- Site preparation
- Construction phase
- Exploitation phase
- Post production phase
- Positive anticipated effects.

It is worth noting that the development of the proposed open-pit for the Rose Project will require drainage of two (2) small bodies of water, identified as Lake 1 and Lake 2 in Figure 4-9 as well as the partial drainage and the construction of a dyke across Lake 3 at the north-east edge of the pit (Figure 4-10).

Figure 4-9 Location of Lake 1, Lake 2 and Lake 3 within the Rose Property.

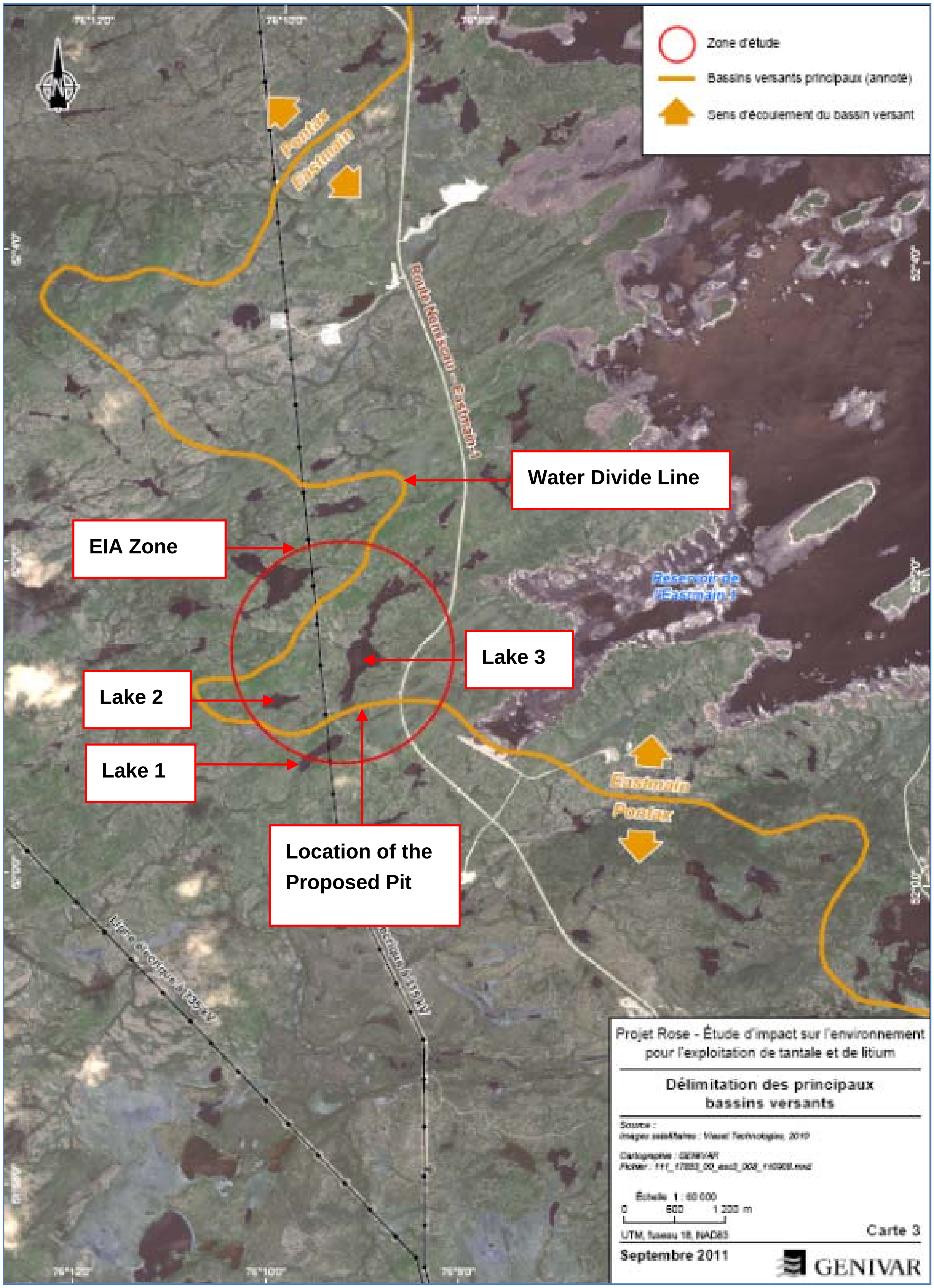
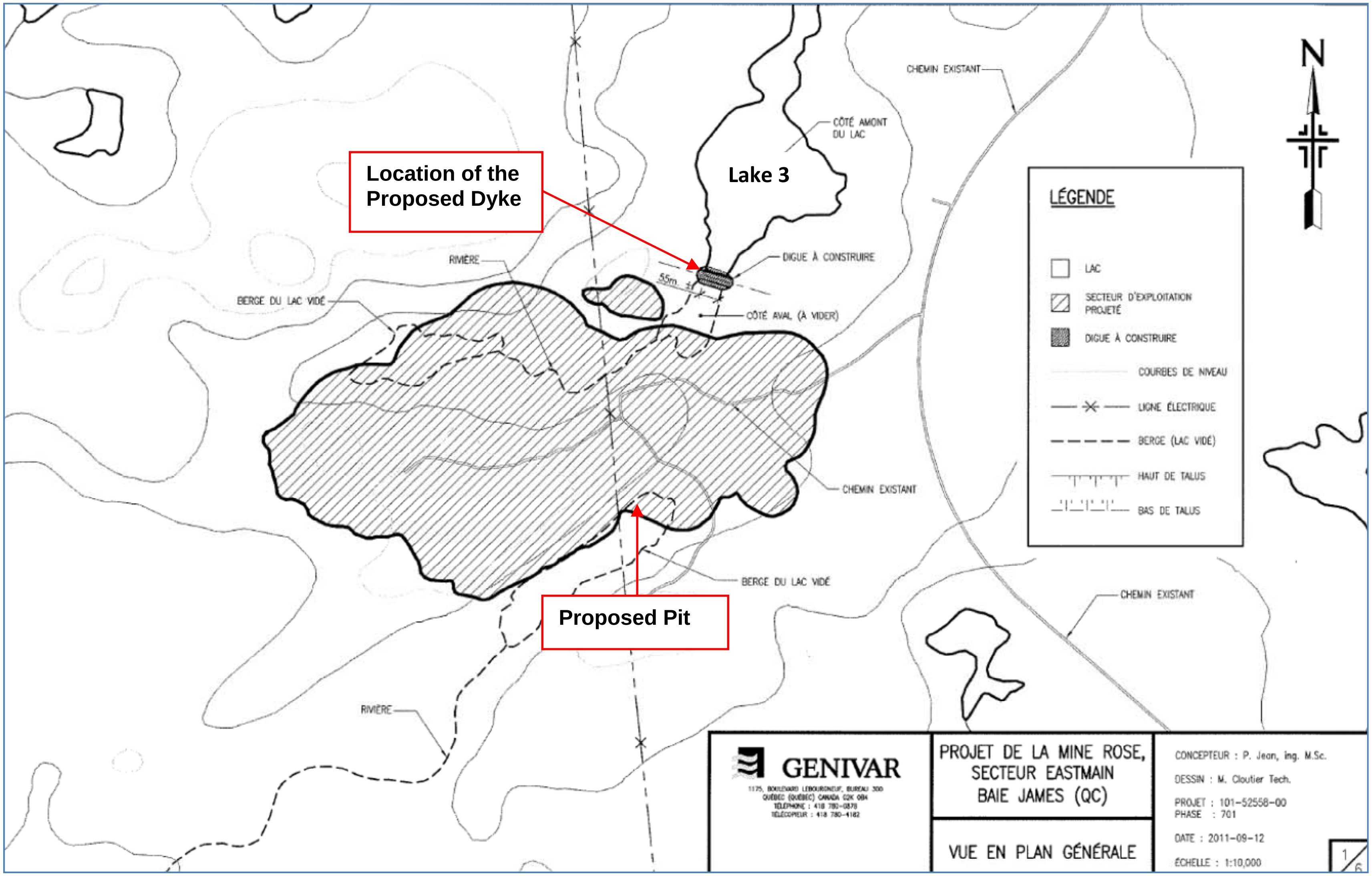


Figure 4-10 Location of the Proposed Dyke Across Lake 3 on the North-East Edge of the Proposed Rose Open-Pit.



4.4 Permits

The Rose Project is subject to federal, provincial and municipal permits and authorization requirements. Table 4-2 presents a preliminary compilation of some 49 permits and authorizations that will be required to operate the proposed Rose open-pit mine.

Table 4-2 Permits and Authorization Required for the Proposed Rose Pit.

	Federal – Permits
1	Explosives permit
2	Explosives user magazine licence
3	Final effluent treatment
4	Permits for the handling and use of nuclear probes
5	Storage of chemical products
	MDDEP – Authorization[1]
6	Project notification (Environmental Impact Assessment)
7	Concentrator foundations and plans
8	Administrative buildings foundations and plans
9	Mineral processing plant and refinery
10	Construction of a polishing pond during the pre-production period + Mine water treatment
11	Waterworks intake
12	Feed wells and Catchments of underground water
13	Quarry and Sand pit - Permanent extraction site
14	Mobile concrete plant
15	Development and construction of access roads
16	Site development - Buildings and infrastructures
17	Mining operations (Open-pit)
18	Snow dump
19	Tailings pond
20	Dust collectors
21	Waste water treatment
22	Potable water feed works
23	Oil/water divider / Oily water treatment
24	EOW (Environmental Objectives regarding Waste)
25	Dust collector set-up
26	Attestation of sanitation

Table 4-2 (continued) Permits and Authorization Required for the Proposed Rose Pit.

	Hydro-Québec – Authorization
27	Power line relocation
	MRNF – Permits[2]
28	Forestry intervention for mining activities
29	Forestry intervention for the administrative buildings and concentrator
30	Forestry intervention for a road deviation
31	Forestry intervention for the access road
32	Forestry intervention for the open-pit
33	Forestry intervention for the tailings pond
34	Mining lease
35	Operating lease for sand pits / quarries
36	Lease for government lands
37	Land lease - Administrative buildings and concentrator
38	Land lease - Access road
39	Land lease - Open-pit
40	Land lease - Tailings pond
41	Site authorization - Tailings pond
42	Site authorization - Concentrator
43	Lease - Explosives magazine
44	New access road
45	Permit for the extraction of mineral substances at surface
46	Site authorization - Waste stockpile
	Municipal – Permits
47	Certificate of conformity to municipal regulations
48	Construction permits
	Régie du bâtiment
49	Storage of petroleum products

1 MDDEP: *Ministère du développement durable, de l'Environnement et des Parcs.*

2 MNRF : *Ministère des Ressources naturelles et de la Faune.*

It appears that Critical Elements has been diligentl in applying for the required permits and authorizations as the Project is at the Preliminary Economic Assessment phase and already work is well under way with respect to the Environmental Impact Assessment study.

4.5 Factors Affecting Title, Access or Work on the Property

Title

The Rose Project is adjacent to the Eastmain reservoir. As a result, seven (7) mining claims located within Block A are encumbered by hydroelectric infrastructures while 24 claims are affected by restrictions relative to energy transport lines. These restrictions are listed in the GESTIM database. "X's" identify the claims affected by the restrictions on Figures 4-6 and 4-8. The main restrictions concern two (2) groups of claims located immediately East of the open-pit: the first group of restricted claims pertains to the Reservoir EM1 hydroelectric infrastructures (restriction 14420 – red X) while the second group of restricted claims pertains to the EM1-Nemiscau energy transport line (restriction 7215 – black X).

The surface mining infrastructures were designed to limit the ecological footprint of the Project to the smallest extent possible and will only occupy approximately 22 claims (Table 4-3) within Block A. The pit itself will occupy approximately eight (8) claims. The claims affected by the royalty agreement or the restrictions are identified in the "Comment" column of Table 4-3 and in Appendix A.

A network of mine roads will provide access to the various infrastructures of the Rose Project. These roads will be properly drained and relatively flat and should not pose any access issues. No known issues are foreseen that could impede road access to the Rose Property.

Other than royalty agreement, the stock option agreement discussed previously and the restrictions listed in the Quebec government's mining title management system database outlined above, no liens or charges appear to be registered against the Rose Property. The authors of the present Technical Report are not qualified to express any legal opinion with respect to the property titles, current ownership or possible litigation.

The above information regarding surface rights area was provided by Critical Elements.

Table 4-3 Mining Claims Enclosed within the Footprint of the Rose Project.

Title Number	Claim Block	NTS	Status	Area (ha)	Registered Owner	Comment
2188276	A	33C01	Active	53.0	Critical Elements Corp. (88153)	Royalty attached
2188277	A	33C01	Active	53.0	Critical Elements Corp. (88153)	Royalty attached - Pit
2188279	A	33C01	Active	53.0	Critical Elements Corp. (88153)	Royalty attached - Pit
2193605	A	33C01	Active	53.0	Critical Elements Corp. (88153)	
2193606	A	33C01	Active	53.0	Critical Elements Corp. (88153)	
2193609	A	33C01	Active	53.0	Critical Elements Corp. (88153)	Explosives magazine
2193612	A	33C01	Active	53.0	Critical Elements Corp. (88153)	Affected by energy transport line
2193613	A	33C01	Active	53.0	Critical Elements Corp. (88153)	
2193647	A	33C01	Active	53.0	Critical Elements Corp. (88153)	
2193648	A	33C01	Active	53.0	Critical Elements Corp. (88153)	
2193649	A	33C01	Active	53.0	Critical Elements Corp. (88153)	
2193650	A	33C01	Active	53.0	Critical Elements Corp. (88153)	Affected by energy transport line
2193651	A	33C01	Active	53.0	Critical Elements Corp. (88153)	Affected by energy transport line
2193655	A	33C01	Active	53.0	Critical Elements Corp. (88153)	
2193656	A	33C01	Active	53.0	Critical Elements Corp. (88153)	
2193657	A	33C01	Active	53.0	Critical Elements Corp. (88153)	Affected by energy transport line - Pit
2193658	A	33C01	Active	53.0	Critical Elements Corp. (88153)	Affected by energy transport line - Pit
2193664	A	33C01	Active	53.0	Critical Elements Corp. (88153)	Affected by energy transport line - Pit
2193665	A	33C01	Active	53.0	Critical Elements Corp. (88153)	Affected by energy transport line - Pit
2251864	A	33C01	Active	8.0	Critical Elements Corp. (88153)	Affected by energy transport line - Pit
2251861	A	33C01	Active	13.0	Critical Elements Corp. (88153)	Lodgings facilities
2251866	A	33C01	Active	13.0	Critical Elements Corp. (88153)	Pit

Access

The Rose Property is accessible by driving along the 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. The use of roads belonging to Hydro-Québec is a widespread practice in the region.

Nemaska Airport, Baie James is located along Route du Nord at km 294 about 40 km south of the Rose Property. It was built and is operated by Hydro-Québec to serve their large electrical substations of Nemiscau and Albanel. Air Creebec has scheduled flights to and from this airport.

Taxation

The Quebec Mining Tax Act contains various provisions that allow mine operators to calculate their mining tax or claim a refundable duties credit for losses. Several credits and allowances are available to mining companies including exploration and northern mine credits, credit on duties refundable for losses and a processing allowance that may serve to reduce that base rate, giving the province of Quebec an attractive mining tax rate. However, on March 30, 2010, the Quebec Government announced a major reform of the mining rights system in Quebec, and the reform bill was assented to on June 6, 2011[1].

The salient items included in the new Quebec Mining Tax Act include the following changes[2]:

- Tax rate increase from 12% to 16%,
- Duty calculation method will now use a "mine-by-mine" approach,
- Reduction of the depreciation allowance rate,
- Reduction of the processing allowance,
- Replacement of the additional allowance for a northern mine by an additional allowance for a mine located in northern Quebec,
- Creation of separate cumulative accounts for exploration and for pre- and postproduction mineral deposit evaluation and mine development expenses,
- Reduction of the credit on duties refundable for losses,
- Introduction of new rules concerning the determination of value of precious stones.

---

1 Quebec Exploration 2011 Program.

2 Ernst and Young, Mining and Metal Tax Alert. May 2011.

Work

The Rose Project is subject to the James Bay and Northern Quebec Agreement (JBNQA). Consequently, the development of the Rose Project will incorporate hiring practices for the employment of Cree and Naskapi people residing in the nearby northern communities.

The JBNQA is a land claims agreement that was signed in 1975 by the Government of Québec, the Government of Canada, the Grand Council of the Cree of Québec (GCC) and the Northern Québec Inuit Association. About 20 amendments have been made to the JBNQA since its inception, notably in 1978 to include the Naskapi First Nations who joined the accord through the Northeastern Québec Agreement.

Through the JBNQA, the Aboriginal people exchanged their rights and territorial interests for different rights and benefits specified in the agreements. The Cree whose lands were at the centre of the proposed project and the Inuit further north agreed to joint management of wildlife with the governments of Quebec and Canada.

Among other things, Aboriginal people obtained special membership criteria (redefining Inuit and Cree status), control over local and regional governments, the creation of their own health and school boards, measures for economic and community development, special regimes for police and justice and environmental protection.

The lands were divided into three categories: category I included 14,000 km^2 in and around Aboriginal communities to be controlled solely by residents; category II referred to crown land shared with the Cree (70,000 km^2) and the Inuit (81,600 km^2), exclusively as hunting, fishing and trapping territories; and 1,000,000 km^2 in the remaining category III, approximately two-thirds of the surface area of Quebec, were designated for the exclusive rights of Aboriginal people to use for traditional hunting and harvesting[3].

The Rose Property lies within Category III lands. Category III lands are public lands where Cree communities have certain rights, particularly in regard to specific hunting and harvesting rights but all other rights are shared subject to a joint regulatory scheme[4]. Surface and mineral rights on Category III lands reside with the Government of Québec and are governed by the applicable land use laws and regulations, implemented by the relevant regulatory authorities. Under the terms of

---

3 http://www.thecanadianencyclopedia.com. James Bay and Northern Québec Agreement - The Canadian Encyclopedia. Website accessed on October 5, 2011.

4 http://en.wikipedia.org. James Bay and Northern Quebec Agreement. Website accessed on October 5, 2011.

the JBNQA, lawfully authorized persons have the right to develop Category III lands. However, developers are subject to an environmental and social protection regime, which provides for the protection of the hunting, fishing and trapping rights of the Cree people.

More specifically, the Rose Property lies directly within the trapline area designated as RE1, used by tallyman Ernie Moses of the Eastmain Cree Nation (ECN). The trapline area R19, used by tallyman Matthew Wapachee of the Nemaska Cree Nation (NCN), will also be affected indirectly by the Rose Project through transportation of goods[5].

Critical Elements Corp is committed to building long-term relationships with the Eastmain Cree Nation and the Nemaska Cree Nation. CEC has taken a pro-active approach to community relations through information sessions and Band Council meetings. CEC has initiated discussions and formal meetings were held with the Council of the Eastmain Cree Nation and the Council of the Nemaska Cree Nation in regards to the Rose Property. In addition, CEC presented several public information sessions to the residents of the ECN, to afford them a forum to enquire about the Rose Project. Currently, public information sessions for the residents of the NCN are being prepared. To date, ECN personnel have contributed to the realisation of environmental studies concerning the Rose Project.

As the Rose Project progresses through the various stages of review and development, CEC should work more closely with the Cree Human Resources Development (CHRD) to develop training programs adapted to local workers in the spirit of promoting the local economy. CEC intends to continue providing employment and to develop training opportunities to members of the ECN and NCN communities. Eventually, CEC's commitment to hiring and training members of the ECN and NCN communities should be set into a formal agreement.

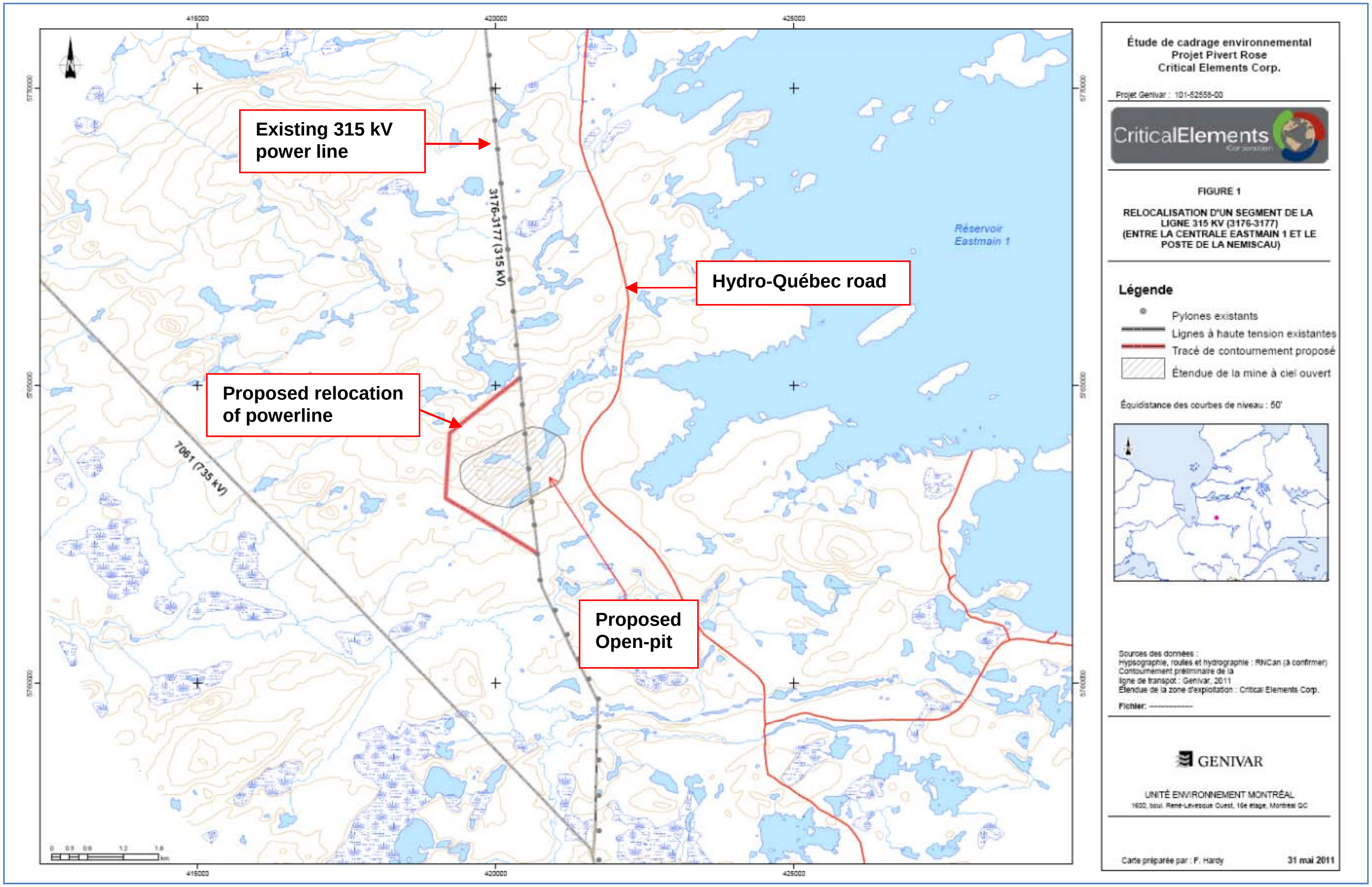
At present, there are no indications that provisions of the JBNQA will pose any problems for the development of the Rose Project.

The eastern edge of the proposed Rose Project open-pit will be located alongside a Hydro-Québec road and hydro-electric transport line (Figure 4-11). The usual precautionary measures during blasting procedures, such as the use of proper stemming within the borehole collars, road signage warning of imminent blasting, banning of radio-transmission during blasting, will need to be applied to prevent damages that could arise from fly rocks.

5 Critical Elements Corp. Communication to GENIVAR. October 5, 2011.

Development of the proposed Rose open-pit into an operating mine will require relocating seven (5) hydro-electric towers on the 3176-3177 line. This main 315 kV production line connects the Eastmain-1 power station to the Nemiscau power station. Three (3) towers are located directly within the footprint of the proposed Rose open-pit. An option would be to relocate the towers west of the proposed pit. The preliminary route shown in Figure 4-12 could serve as a discussion basis with Hydro-Québec. It would require dismantling the existing line on approximately 3.3 km and relocating it further west on about 4.4 km.

Figure 4-11 Proposed Route for the Relocation of the Eastmain-1-Nemiscau Hydro-electric Line.



5. ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRA-STRUCTURE AND PHYSIOGRAPHY

5.1 Accessibility

Road

The Rose Property is accessible via the Route du Nord (North Road), the gravel-top road open year-round which links the Cree village of Nemaska (Nemiscau) and Chibougamau. From Nemaska, a well-maintained gravel road belonging to Hydro-Québec leads directly to the Rose Property.

The Route du Nord is an isolated wilderness road in central Quebec, 407 km long, all of it unpaved. It starts at km 0 in Chibougamau and ends at a junction with the Route de la Baie James (James Bay highway), 275 km north of Matagami. Extensive logging takes place along the southern half of the Route du Nord.

At Route du Nord km 291, a junction with a main gravel road leads to the Eastmain-1 hydro-electric power station. The Rose Property is located some 20 km north of that junction. The east part of the Property overlaps the Eastmain-1 power station road so that the road passes a mere 240 m east of the proposed Rose open-pit. The Property lies less than 5 km south of the Eastmain-1 power station. The west part of the Rose Property can be reached by walking approximately 1.5 km along a winter road.

Airport

The closest airport is located in Nemaska, 30 km south of the Rose Project. The Nemaska airport offers weekday flights to Montréal, via Air Creebec, a regional air carrier. Flight time from Nemaska to Montréal is approximately two and a half hours.

Small craft landing strips are also located at Eastmain 200 km west of the Rose Property and at Waskaganish 250 km west of the Property.

Port

Port facilities are found 200 km west of the Rose Property at Eastmain on the James Bay, and 700 km south of the Rose Property at Grande-Anse on the Saguenay River. The Grande-Anse Marine Terminal is a deep-sea general cargo port facility, open year-round, accredited by the International Ship and Port Facility Code to receive vessels of more than 100,000 deadweight tonnes from abroad.

The Grande-Anse Marine Terminal directly connects with international ocean shipping lines. As a result, it could eventually play an important role in the shipment of raw materials to, and of lithium and tantalum concentrates from, the Rose Project Site.

Railroad

The closest railway is at Chibougamau, linking it with the North-American railroad network.

Figure 5-1 shows the location of Northern Quebec's main roads, airports, ports and railroads.

Figure 5-1 Northern Quebec Main Roads, Airports, Ports and Railroads.

Source: Government of Quebec, Plan Nord 2010.

5.2 Physiography

The Rose Project is located at the 52nd North parallel in Central Quebec, Canada, well south of Nunavik's southern limit. The Property is characterized by a relatively flat topography (Figure 5-2). The relief in the vicinity of the Rose Property consists of rounded hills separated by low vegetation-covered valleys. Elevations range between 200 masl and 300 masl.

Figure 5-2 View of the Rose Property Landscape - Photograph taken by GENIVAR in June 2011.

Source: Government of Quebec, Plan Nord 2010.

The Rose Property lies on the line of demarcation of the Eastmain and Pontax watersheds, identified as an orange line on Figure 4-9. Large orange arrows on Figure 4-9 show the direction of the water flow within each watershed whereas the white line identifies the Nemiscau-Eastmain-1 road.

Several water bodies are found on the Rose Property. The proposed mining plan includes drainage of two small lakes identified as Lake 1 and Lake 2 on Figure 5-3, and the construction of a retaining dyke across the southern tip of Lake 3. The shoreline of these three (3) lakes lies at elevation 290 masl. Lake 1 is located on the south side of the proposed Rose open-pit, Lake 2 on its north-west side and Lake 3 on the north-east side. The dashed yellow line on Figure 5-3 delineates the contour of the proposed Rose open-pit. Further details concerning the proposed retaining dyke across Lake 3 are provided in section 18 of the present Technical Report.

A bathymetric assessment of Lake 1 and Lake 2 revealed that they are small and shallow water bodies. Lake 1 has an elongated oval shape oriented in a general NE-SW direction. Lake 1 is approximately 640 m long by 125 m wide by 3 m at its deepest point (Figure 5-4). Lake 2 has a diamond shape oriented in a general E-W direction. Lake 2 is approximately 480 m long by 200 m wide by 7 m at its deepest point (Figure 5-5). The volume of water contained in Lake 1 is estimated at approximately 90,050 m^3 and that of Lake 2 at 186,300 m^3.

Lake 3 is significantly larger than Lake 1 and Lake 2. It has an irregular shape roughly made of a circular middle extending into two arms along a NE-SW direction. Lake 3 is approximately 1,600 m long by 580 m wide at its widest point by 9 m at its deepest point. However, the average width of Lake 3 is about 130 m. The volume of water contained in Lake 3 is estimated at approximately 1 082 640 m^3.

Figure 5-3 Location of the Proposed Dyke Across Lake 3.

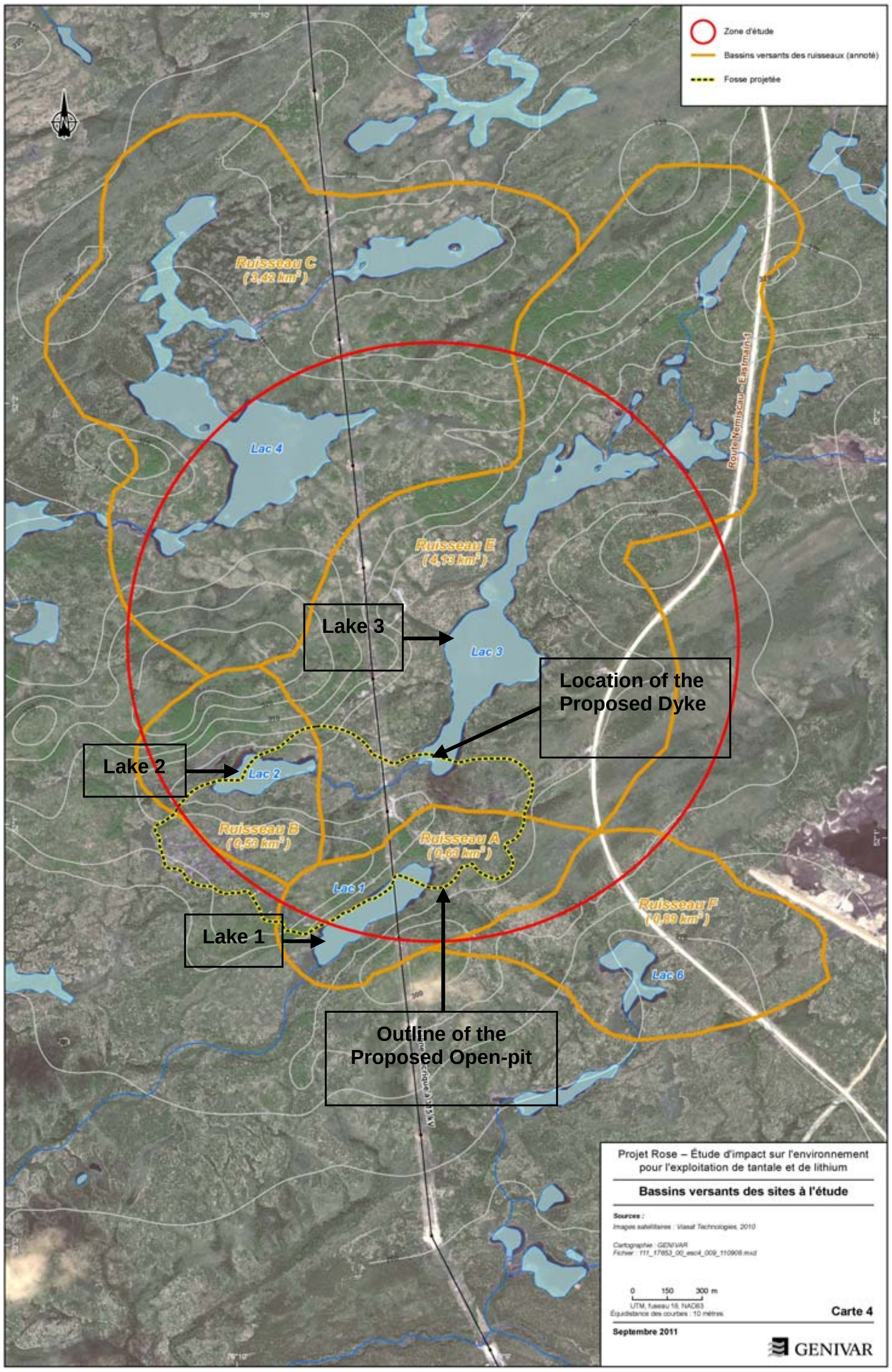


Figure 5-4 Bathymetry of Lake 1 - South of the Proposed Rose Open-Pit.

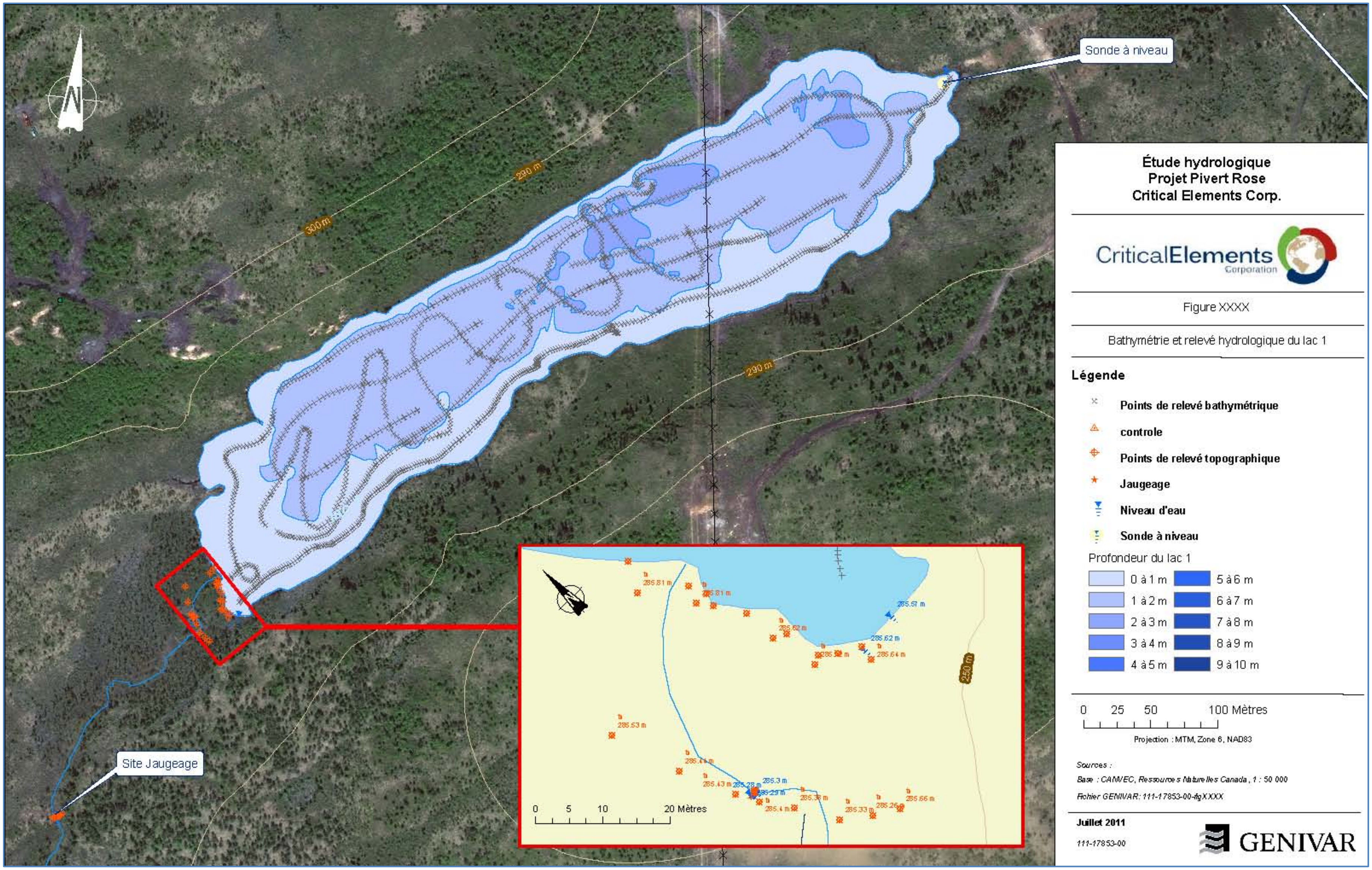
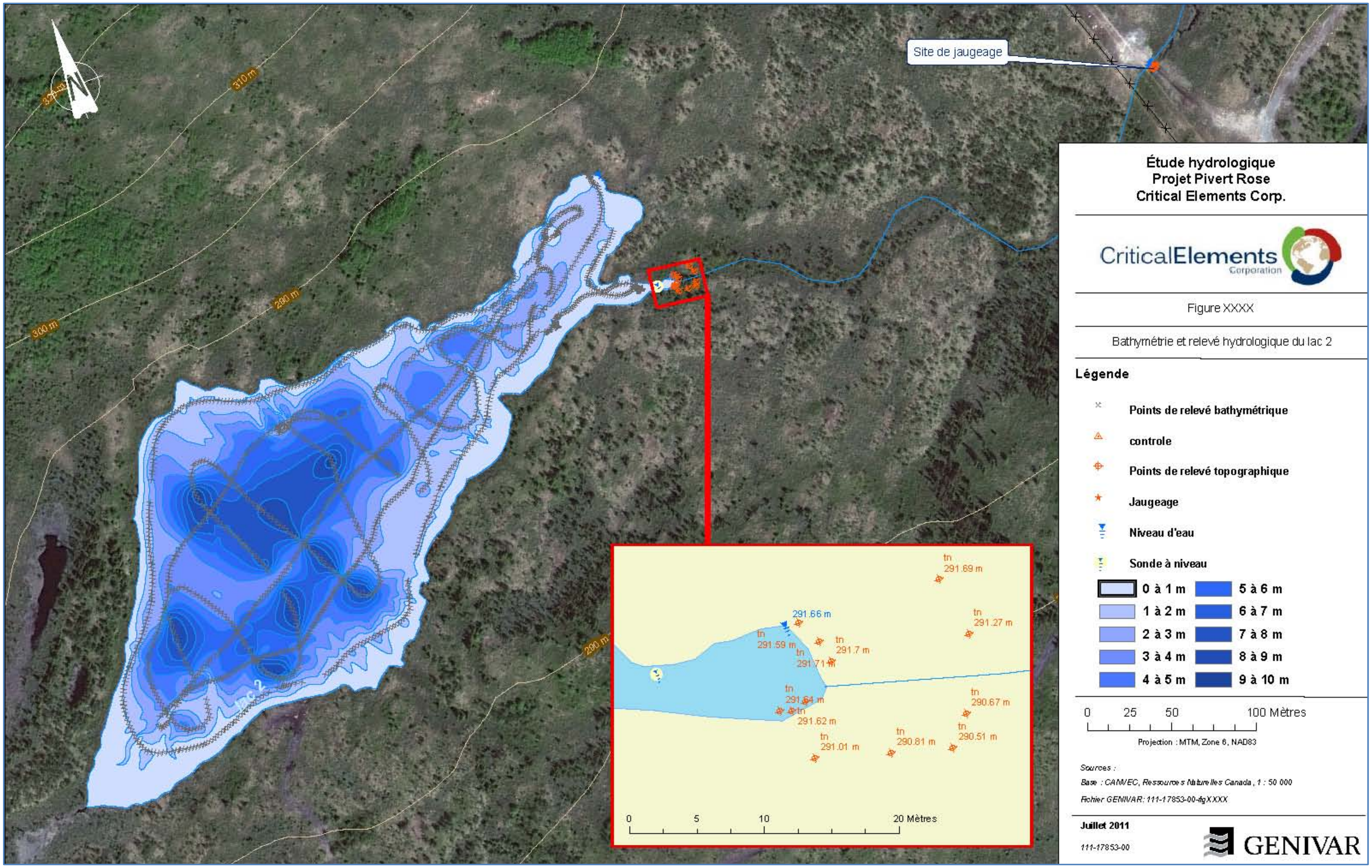


Figure 5-5 Bathymetry of Lake 2 - North-West of the Proposed Rose Open-Pit.



5.3 Fauna and Flora

The vegetation on the Rose Property is typical of the boreal forest (Figure 5-6). Mature black spruce constitutes the predominant tree specie, with occasional birches, poplars, alders and deciduous bushes. The predominance of muskeg and black spruce increases towards the north.

Fauna found in the vicinity of the Rose Property includes moose, bear, fox and caribou, as well as various species of birds.

Figure 5-6 Zones of Vegetation of the Province of Quebec.

5.4 Climate and Operating Season

Because of its continental location approximately 200 km east of James Bay, the Rose Project area receives fewer precipitations than other regions located at similar latitude along the shore. The climate is sub-arctic, characterized by long cold winters and short cool summers. Break-up usually occurs early in June and freeze-up in early November.

Weather conditions have been recorded at three (3) weather stations near the Rose Project at Nemiscau A, Rupert and La Grande Rivière A since 1975 (Table 5-1).

Table 5-1 Weather Stations Located Near the Rose Project.

Weather Station	Latitude	Longitude	Altitude (m)	Distance from the Rose Project (km)	Recording Period
Nemiscau A	51°42'00" N	76°07'00" W	244.5	35	1994-2011
Rupert	51°31'14" N	75°26'26" W	290.0	75	2005-2011
La Grande Rivière A	53°38'00" N	77°42'00" W	194.8	205	1975-2011

Data recorded at the above weather stations include air temperature, wind speed, wind direction, precipitations and relative humidity. Each station records some of the data for part of the year. Details concerning climatic conditions found at the Property will be provided in a separate report currently being prepared for the Environmental Impact Assessment study.

On average, the Project site gets about 440 mm of rain and 260 cm of snow per year. Prevalent winds come from the South-East at an average speed of 19 km/h. Wind speeds are fairly constant over the year, varying between 17 and 20 km/h.

Average annual temperature ranges between -20 C in January and 17 C in July (Table 5-2). The coldest temperature recorded at the Nemiscau A weather station was -47ºC while the warmest was 35 ºC.

The mining plan for the proposed open-pit for the Rose Project is based on a year-round operating season.

Table 5-2 Average Air Temperature Between 1994 and 2010 – Nemiscau A Weather Station.

Month	Average (°C)	Maximum (°C)	Minimum (°C)
January	-19.7	7.0	-47.1
February	-17.5	7.0	-46.9
March	-10.5	13.0	-44.2
April	-0.7	22.5	-28.0
May	8.5	30.1	-8.6
June	14.6	34.2	-3.1
July	16.7	35.3	0.0
August	15.1	31.4	-3.7
September	10.2	28.0	-7.0
October	3.0	24.0	-13.0
November	-4.5	11.8	-29.0
December	-14.0	3.4	-45.3

Source: Environment Canada, 2011.

5.5 Local Resources and Infrastructures

Transport

The Rose Property is accessible via the Route du Nord (North Road), the gravel-top road open year-round which links Nemaska and Chibougamau. From Nemaska, the Nemiscau-Eastmain-1 gravel road leads directly to the Rose Property, passing 240 m east of the proposed Rose open-pit.

The Nemiscau airport offers regular and charter flights. Further details concerning access to the Property are presented in section 5-1 of the present Technical Report.

Local Resources

Limited services are available along the Route du Nord. At km 290, the Cree Construction Company offers fuel and repair services. Also, fuel, food, and lodging can be obtained in the Cree village of Nemaska. Food and lodging are available at the Eastmain-1 power station, provided prior arrangements have been made to that effect with Hydro-Québec.

The nearest large community to the Rose Project is the town of Chibougamau (population: 8,000) located 265 km southeast of the Property (Figures 4-1 and 5-1). Chibougamau is the major supply centre for regional resource-based industries.

Critical Elements maintains an exploration camp on the Rose Property that can accommodate up to six (6) workers. The camp is open year-round and consists of three (3) heated prospector's tents, complete with hot showers and dry sanitary facilities. One tent is used as a kitchen area. Potable water comes from bottled water and power is supplied via fuel generators. All equipment and supplies required for the exploration camp are brought on site via road transportation. Drill core samples are sent directly to Val-d'Or for storage. The Rose Property is not fenced and no other infrastructures are currently found at the site.

Some parts of the Rose Property are serviced by the main Canadian cellular telephone network, in particular around the Rose exploration camp.

Hydro-Québec established the Eastmain-1 camp, 27 km north of the Rose Property, to service the workers' needs during the construction of the Eastmain-1 power station. The Eastmain-1 camp can accommodate the 200 workers who will be needed to mine the Rose Project. As construction of the Eastmain-1 power station is now completed, it is foreseen that Hydro-Québec will no longer need the Eastmain-1 camp for its own use in the near future. Critical Elements is investigating the option of negotiating an agreement to use these facilities to accommodate the Rose Project workers.

Power

Hydro-Québec owns several infrastructures and facilities in the area including a the EM1-Nemiscau 315 kV transmission line, which bisects the proposed Rose open-pit from North to South, and a 735 kV transmission line located some 3.5 km south of the Property. Should the proposed mining plan be implemented, a small portion of the 315 kV hydroelectric power line will need to be relocated for safety reason related to mine blasting operations. Other hydro-electric infrastructures are located immediately east of the proposed open-pit.

The Eastmain-1 hydroelectric power station, located approximately 5 km north of the Rose Property could potentially supply power to a future mine that might be developed on the Property.

Water

Process water may be sourced from local lakes or recirculated from surface facilities such as the containment area. Potable water will consist of bottled water, purchased locally.

6. HISTORY

6.1 Prior Ownership of the Property

Many geological and technical reports on the Property were prepared before the implementation of National Instrument 43-101. InnovExplo reviewed these reports and found that their authors appeared 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. The authors have no known reason to believe that any information used in the preparation of this report is invalid or contains misrepresentations.

Critical Elements started drilling on the Rose Property in December 2009 under the name First Gold Exploration Inc. and acquired 100% interest in the Rose Tantalum-Lithium Project in November 2010 from J.-S. Lavallée, J-R Lavallée and Fiducie Familiale St-Georges. Details concerning the current ownership of the Property are presented in section 4.2 of the present Technical Report.

6.2 Exploration Work Completed by Previous Owners

Geological work done on the Property between 1936 and 2005 consisted of regional surveys conducted by the Government of Quebec or by a few mining companies. Table 6-1 summarizes historical work completed by mining companies on or in the vicinity of the Rose Property.

First discovered in 1961 by the MRNQ (Ministère des Ressources naturelles du Québec; now MRNF), the Rose deposit was later revisited during the MRNQ's regional mapping program in 2001.

Only one historical drill hole is known to have been drilled on the current Rose Property: hole 555-09 was drilled by Dios Exploration in 2008 to test a magnetic anomaly. That hole was located on Block C (Figure 4-6) and is therefore not included in the current delineation of the Rose Project which focuses on Block A. The hole intercepted biotite granitic gneiss followed by feldspar-porphyric diorite. No samples were assayed and the core was left at the drill site.

Mineralization recognized to date on Block A of the Rose property includes rare-element LCT-type pegmatites (rare-element pegmatites enriched in Li, Cs and Ta) and molybdenum occurrences.

Table 6-1 Historical Work Completed on the 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)
1968	MRN	Geological survey	RG 136
1972	Caron, Dufour, Séguin & Associated	Technical evaluation; Compilation	GM 34000
1974	MRN	Geochemistry	DP 419
1974	MRN	Geological survey	DP 278
1974	SDBJ	Geological survey; Geochemistry	GM 30960
1974	SDBJ	Geological survey; Ground Geophysics	GM 34071
1974	SDBJ	Geochemistry	GM 34044
1974	SDBJ	Technical evaluation	GM 34002
1975	MRN	Geological survey	DP 329
1975	SDBJ	Technical evaluation; Compilation	GM 34001
1975	SDBJ	Geochemistry	GM 34046
1975	SDBJ	Airborne geophysics	GM 34073
1976	MRN	Geological survey	DP 358
1976	SDBJ	Geochemistry	GM 34047
1978	MRN	Geological survey	DPV 574
1978	MRN	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
2003	MRN	Geological survey; Compilation	ET 2002-06
2005	De Beers Canada Inc	Airborne geophysics	GM 63031
2006	Cambior Inc	Geochemistry	GM 62452
2006	Cambior Inc	Technical evaluation	GM 62451
2006	Cambior Inc	Airborne geophysics	GM 62446
2006	Cambior Inc	Geochemistry	GM 62356
2007	Dios Exploration Inc and Sirios Resources Inc	Geochemistry	GM 62837
2007	Dios Exploration Inc and Sirios Resources Inc	Geological survey	GM 63046
2007	Dios Exploration Inc and Sirios Resources Inc	Ground and Airborne geophysics	GM 63034
2007	Iamgold Inc	Geochemistry	GM 63267
2007	MRN	Compilation	PRO 2007-05
2007	MRN	Compilation	PRO 2007-06
2007	UQAC	Geological survey	ET 2007-01
2008	Dios Exploration Inc and Sirios Resources Inc	Geochemistry	GM 63475
2008	Dios Exploration Inc and Sirios Resources Inc	Technical evaluation; Geological survey	GM 63467
2008	Dios Exploration Inc and Sirios Resources Inc	Drilling (1 DDH on Block C)	GM 63907
2008	Iamgold Inc	Geochemistry; Geological survey	GM 63606
2008	MRN	Compilation	EP 2008-02
2008	MRN	Compilation	PRO 2008-03
2008	MRN	Compilation	PRO 2008-04
2008	Virginia Mines Inc and Iamgold Inc	Airborne geophysics	GM 63781
2009	MRN	Compilation	EP 2009-02
2009	MRN	Geological survey	RP 483

6.3 Historical Mineral Resources Estimates

On September 30, 2010, InnovExplo prepared a Technical Report on the Pivert-Rose Property which stated that the Rose showing was the most significant mineralization recognized on the Property at that time. The purpose of the September 2010 report was to provide an update on the Pivert-Rose Property, as well as make recommendations for an exploration program. No Mineral Resources estimate was included in that report.

On January 24, 2011, InnovExplo prepared the first NI 43-101 compliant Mineral Resources estimate for the Rose Property, and subsequently revised it on September 7, 2011. Both Mineral Resources estimate reports are available on SEDAR, the *System for Electronic Document Analysis and Retrieval* filing system developed for the Canadian Securities Administrators at www.sedar.com.

The present Technical Report and PEA is based on the latest September 2011 Mineral Resources estimate, which includes Indicated Mineral Resource of 26.5 Mt grading 0.98% Li_2O, 163 ppm Ta_2O_5, 2,343 ppm Rb, 92 ppm Cs, 128 ppm Be, 66 ppm Ga, and Inferred Mineral Resources of 10.7 Mt grading 0.86% Li_2O, 145 ppm Ta_2O_5, 1,418 ppm Rb, 74 ppm Cs, 121 ppm Be, 61 ppm Ga. For ease of comparison, both Mineral Resources estimates prepared to date for the Rose Property are presented in Table 6-2.

Table 6-2 Historical and Current Mineral Resources Estimates for the Rose Property.

Date	Mineral Resources Category	Mt	Li_2O (%)	Ta_2O_5 (ppm)	Rb (ppm)	Cs (ppm)	Be (ppm)	Ga (ppm)
Jan. 2011 (historical)	Indicated	11.4	1.34	135	2,668	106	136	71
	Inferred	2.2	1.27	113	1,529	100	112	70
Sept. 2011 (current)	Indicated	26.5	0.98	163	2,343	92	128	66
	Inferred	10.7	0.86	145	1,418	74	121	61

This report is considered by InnovExplo and GENIVAR to meet the requirements of a Preliminary Economic Assessment as defined in Canadian NI 43-101 Regulations. The economic analysis contained in this Technical Report is based on Indicated Mineral Resources and Inferred Mineral Resources, and is preliminary in nature. Inferred Resources are considered too geologically speculative to have mining and economic considerations applied to them and to be categorized as Mineral Reserves. There is no certainty that the Preliminary Assessment will be realized.

Grade for lithium (Li) is provided as a percentage of Li_2O. Grade for tantalum (Ta) is provided as parts per million (ppm) of tantalum oxide (Ta_2O_5). Grades for rubidium (Rb), cesium (Cs) and beryllium (Be) are given as parts per million. Table 6-3 provides conversion factors for Li_2O, Li_2CO_3, Ta_2O_5, Rb_2O, Cs_2O and BeO. Note that 10,000 ppm equals 1%.

Table 6-3 Unit Conversion Factors.

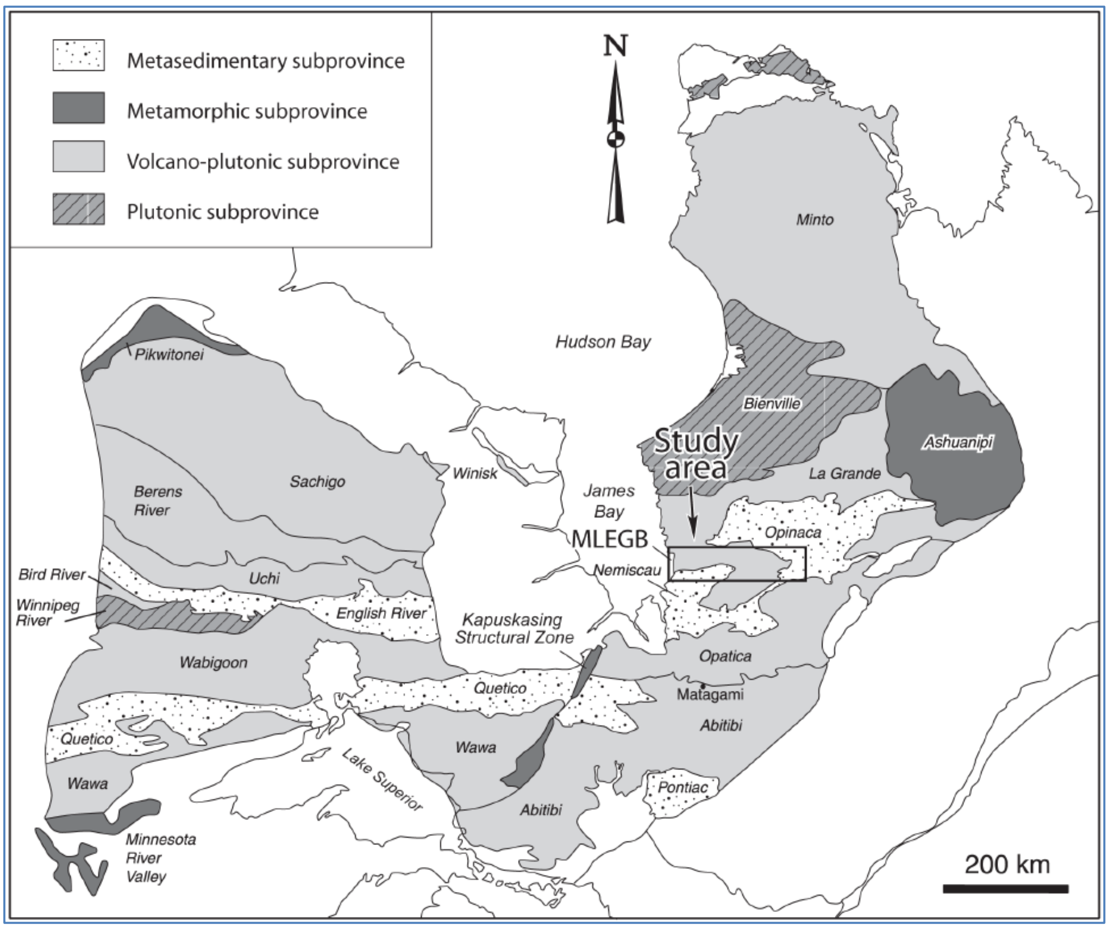
Element	From	To	Multiplied by	Example
Lithium	Li	Li_2O	2.1530	1 ppm Li = 2.1530 ppm Li_2O
	Li	Li_2O_3	5.3234	1 ppm Li = 5.3240 ppm Li_2O_3
Tantalum	Ta	Ta_2O_5	1.2211	1 ppm Ta = 1.2211 ppm Ta_2O_5
Rubidium	Rb	Rb_2O	1.0940	1 ppm Rb = 1.0940 ppm Rb_2O
Cesium	Cs	Cs_2O	1.0600	1 ppm Cs = 1.0600 ppm Cs_2O
Beryllium	Be	BeO	2.7750	1 ppm Be = 2.7750 ppm BeO

7. GEOLOGICAL SETTING AND MINERALIZATION

The Rose property is located in the northeast part of the Archean Superior Province (Figure 7-1) of the Canadian Shield craton, and more precisely within the Middle and Lower Eastmain Greenstone Belt (MLEGB; Figure 7-1). The study area box indicates the position of the Middle and Lower Eastmain Greenstone Belt.

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 metallogenesis 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, InnovExplo's Qualified Persons' knowledge of the region, and information provided by the issuer.

Figure 7-1 Map of the Superior Province Showing Subdivisions[1].



1. Based on Card and Ciesielski (1986) and Thurston (1991), as modified by Goutier et al. (2002).

7.1 Regional Geology

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 Neoarchean 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 north-westerly in the northeast (Figure 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 Geology

The Middle and Lower Eastmain Greenstone Belt is located in the middle of the James Bay region about 420 km north of Matagami (Figure 7-1). 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

2,747 +3/-2 Ma (Moukhsil and Legault, 2002), compared with 2,751 +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 2,745 to 2,713 Ma and from intrusions that cross-cut the MLEGB (2,747 to 2,723 Ma) (Moukhsil et al., 2001; Moukhsil, 2000). This contrasts sharply with the eruptive setting of the volcanic rocks of the La Grande belt (2,800 to 2,738 Ma) (Figure 7-1), which was emplaced in the presence of an ancient (3,520 to 2,810 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.

At least three deformation phases can be recognized within the MLEGB (Moukhsil et al., 2007). The first phase (D1), with an estimated age of 2,710 to 2,697 Ma (minimum ages of syntectonic intrusions), is associated with roughly E-W schistosity (S1). The second phase (D2), with an estimated age of 2,668 to 2,706 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 2,690 Ma in Opatica (Boily, 1999). The third phase (D3), whose age is estimated at <2,668 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 Mineralization

The Rose property is located in the southern portion of the Middle and Lower Eastmain Greenstone Belt (Figure 7-2).

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.

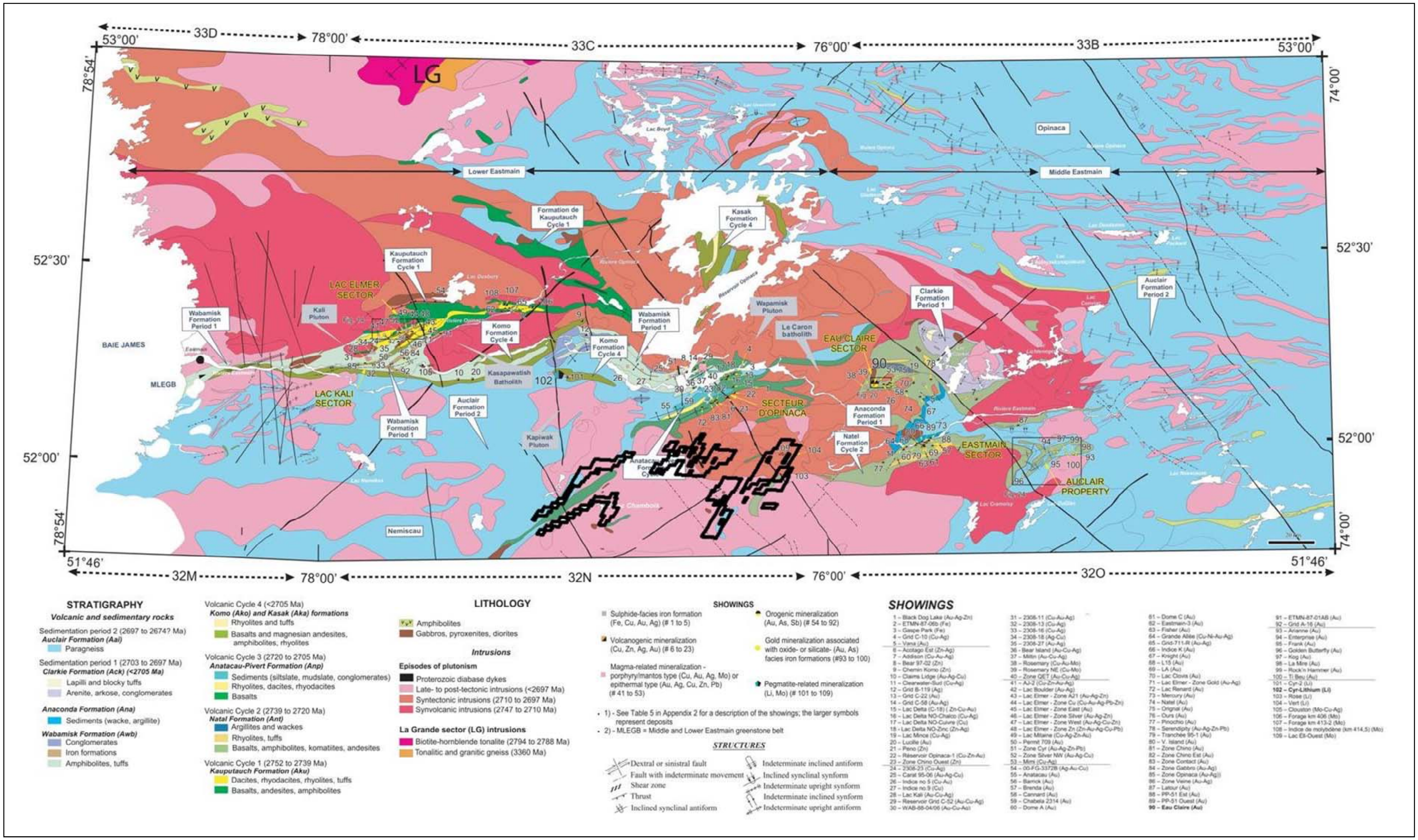
Very limited portions of the Natal Formation (2,739 to 2,720 Ma) may be found in the southeastern claims of Block B as basalts, amphibolites, komatiites and andesites. The paragneiss cropping out in Block D and Block E belong to the Auclair Formation (2,697 to 2,674 Ma), and small portions of the southwestern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

Figure 7-2 Map Showing the Location of the Rose Property within the Geological Setting of the Middle and Lower Eastmain Belt[1].



1. 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).

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 aluminium silicate) and molybdenite (molybdenum sulphide) were also noted. A grab sample taken by 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[1].

1. Photos taken by author P.-L. Richard during a field visit.

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 aluminium 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 Photographs of the Rose Deposit[1].

1. 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.

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 (Figure 7-5).

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 (2) 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 Photographs of the JR Showing[1].

1. 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.

Hydro showing

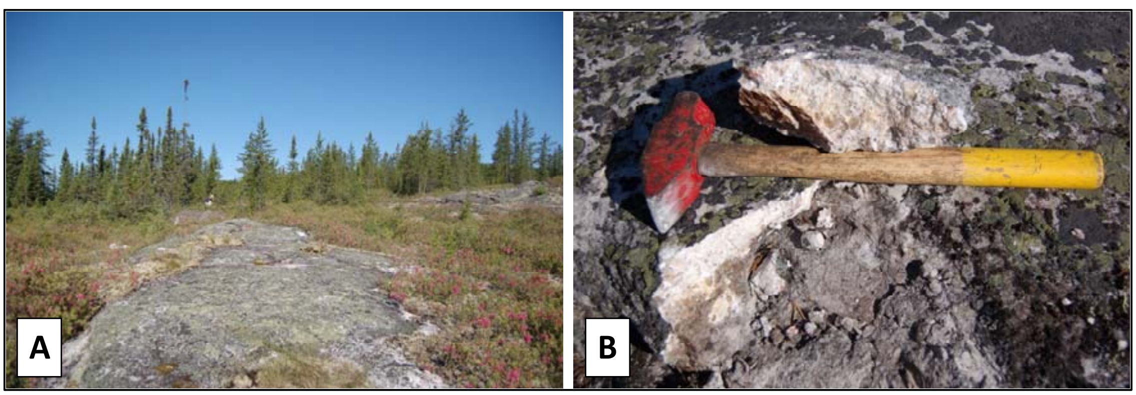
Discovered by Critical Elements while prospecting in the vicinity of the Rose and Pivert showings, the Hydro showing is now included as part of the Rose deposit. Its name comes from the fact that it is located directly under a Hydro-Québec power line (Figure 7-6).

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 (2) 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 Photographs of the Hydro Showing[1].



1. A) General view of the pegmatite outcrop; B) Closer view of the pegmatite. Photos taken by author P.-L. Richard during a field visit.

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.

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.

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.

Other occurrences

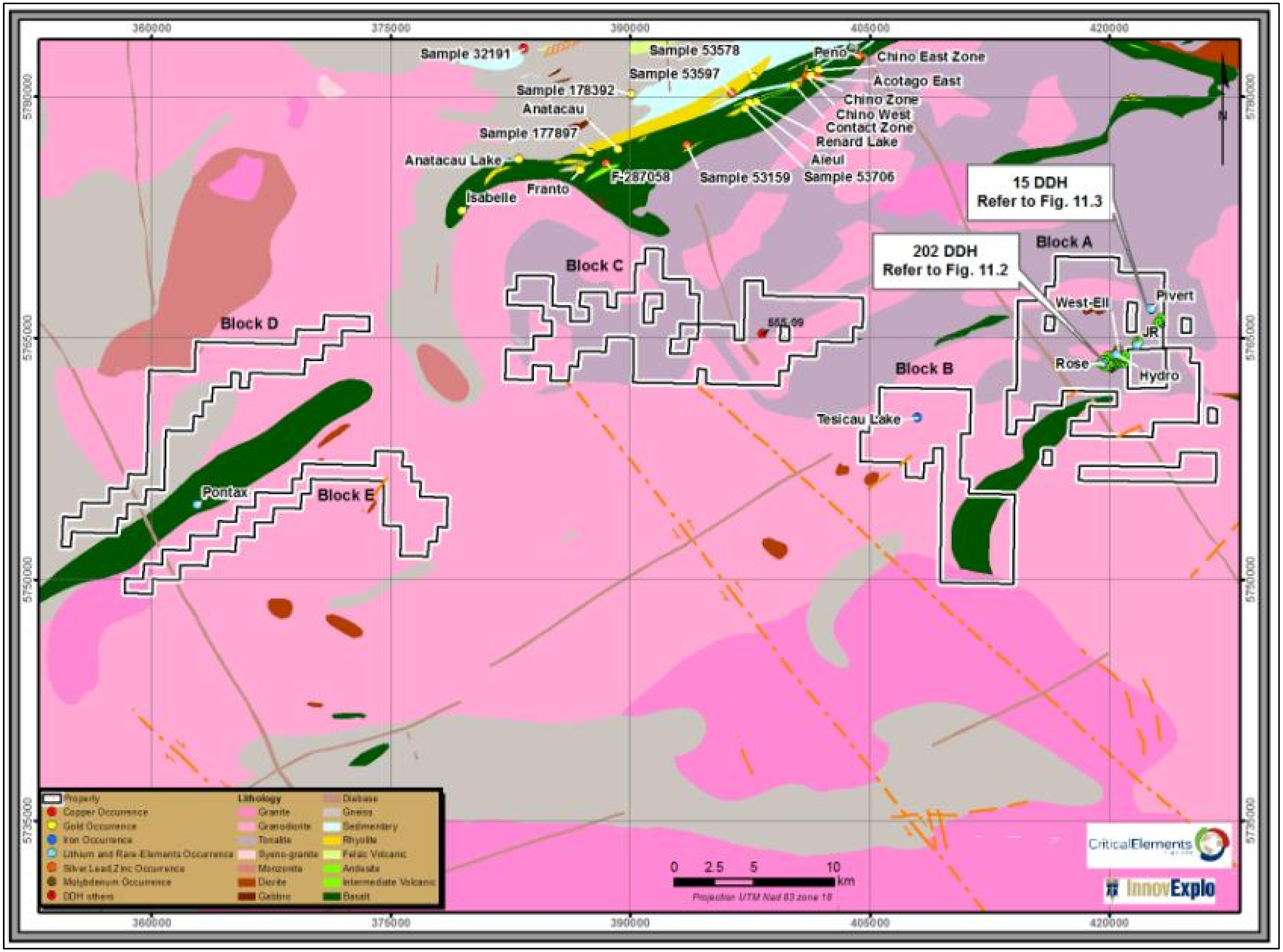
The MRNF database indicates the presence of another occurrence on the property: the Tesicau iron showing on Block B. Author Pierre-Luc Richard also examined an additional occurrence not mentioned in the government database: a molybdenite- and spodumene-bearing pegmatite dyke on the side of the main gravel road (UTM 83, Zone 18: 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)

Figure 7-7 Example of Another Pegmatite Occurrence at a Road Cut in the Vicinity of the Rose and Pivert Showings[1].

1. 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 on next page shows the geology of the Rose Property area complete with the delineation of claim Block A to E. The Rose deposit is situated within Block A.

Figure 7-8 Geology of the Rose Property Area.



8. DEPOSIT TYPES

The Middle and Lower Eastmain Greenstone Belt (MLEGB) contains more than one 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 (6) 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 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 taking into account in the classification of granitic pegmatites, leading to the following division into five(5) classes:

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

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 (3) 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 Rose property, the pegmatites recognized to date on the 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., Oyarzábal 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).

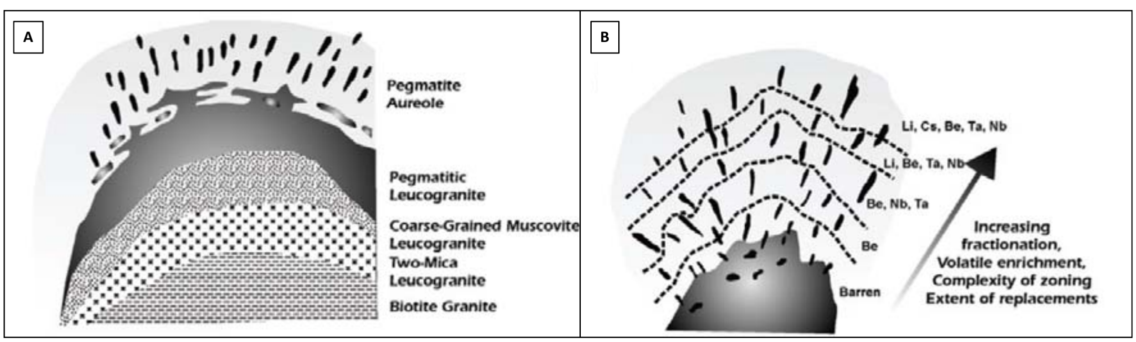
More detailed descriptive information on general features of granitic pegmatite deposits, including mineralogy, geochemistry, REE abundances, and fluid inclusion studies can be found in Cameron et al. (1949), Beus (1966), Solodov (1962), Cerny (1989a, 1991b), and Cerny et al. (1998).

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_2O 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 (Figure 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[1].



1. 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 (Figure 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.

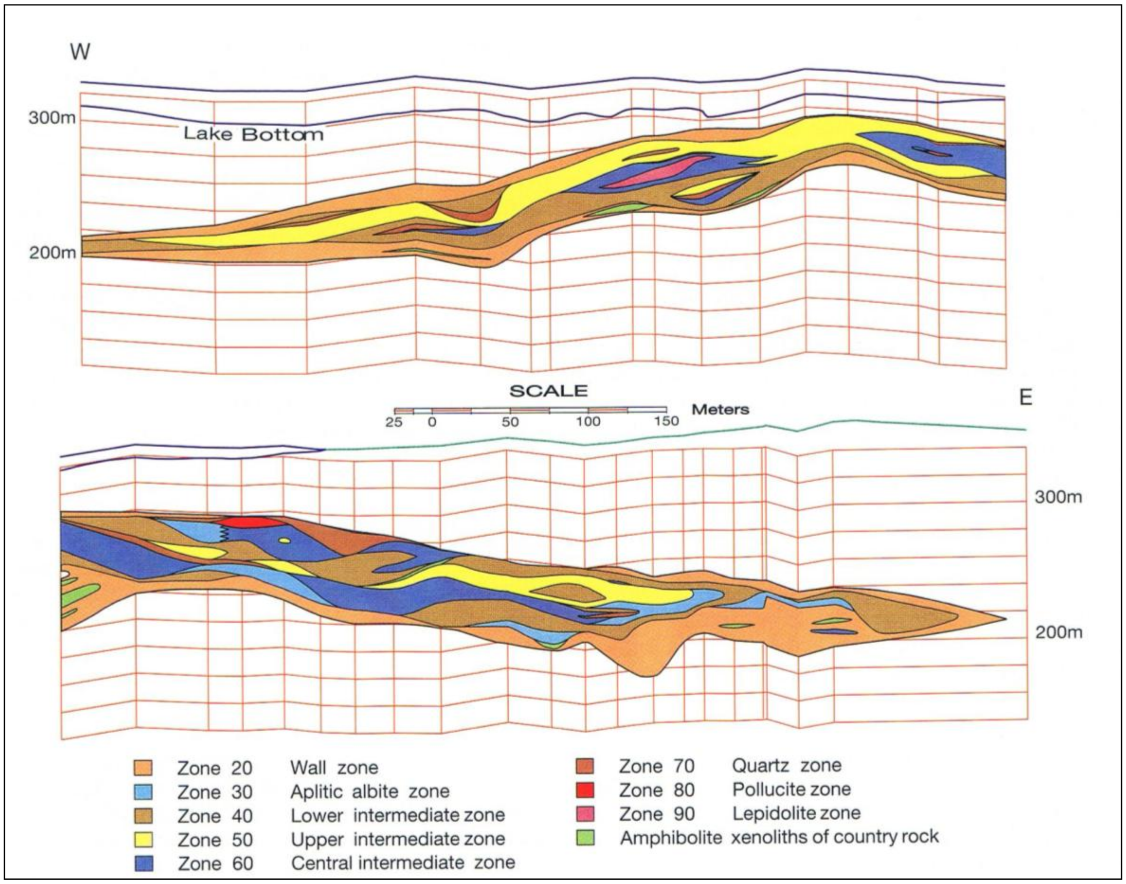
3) Pegmatite provinces are huge terranes characterized by commonality of geologic history that tend to generate arrays of pegmatite fields that are at least loosely related in time, structural style, and mode of origin; geologic provinces locally represent rare-element pegmatite provinces of enormous dimensions (Landes, 1935; Gordiyenko, 1974; Ginsburg et al., 1979; Cerny, 1991a, c).

8.1.3 Well-Studied Pegmatite Ore Deposits

Two (2) examples of well-studied pegmatite deposits showing similarities with the known Rose pegmatites are presented here as a reference. At the current exploration stage of the Rose property, the extent of the mineralized pegmatites has not yet been fully investigated. Therefore the authors do not make any assumption that the 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 (Figure 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 2,640 Ma pegmatite is completely hidden and forms a subhorizontal lenticular body consisting of four concentric and five layered zones about 1.3 km long (Figure 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-montebrasite and lepidolite.

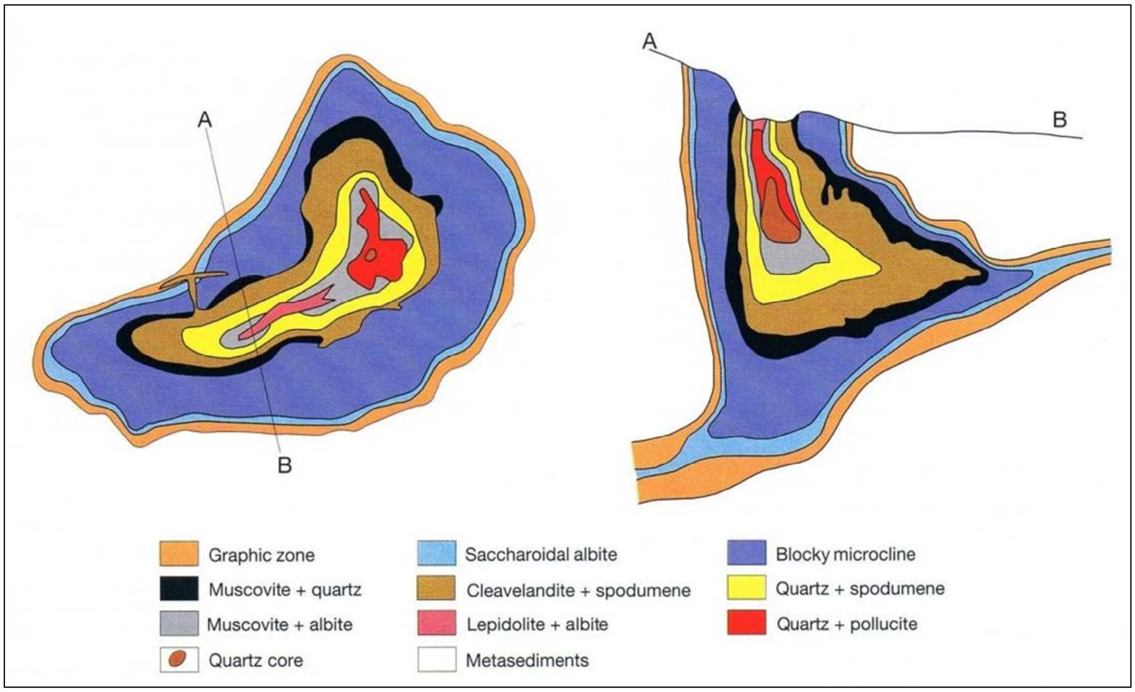
Figure 8-2 Longitudinal Fence Diagram of the West to East Section Through the Tanco Pegmatite[1].



1. 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 (Figure 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 (Figure 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[1].



1. 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 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 (8) 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 (6) 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 Opatica 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 mangano-columbite as the dominant Nb-Ta-bearing minerals. Some pegmatites contain mangano-tantalite 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. EXPLORATION

In addition to drilling (see section 10), Critical Elements also performed some prospecting work on the 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 6-3 provides factors for converting these grades into the alternative reporting format of Li_2O, Ta_2O_5, Rb_2O, Cs_2O and BeO.

Table 9-1 Grab samples Collected on the 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. DRILLING

Critical Elements started drilling the Rose property in December 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 (Figures 10-1 and 10-2).

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 (2) 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 (2) 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 (2) 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 (3) methods were present in the database: ME-MS61, ME-MS81 and ME-XRF05. When more than one (1) 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 (3) methods were present in the database: ME-MS61, ME-MS81 and ME-XRF05. When more than one (1) 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 (2) methods was applied.

Grades for Li, Ta, Rb, Cs and Be are reported in this section as parts per million (ppm). Table 6-3 provides conversion factors for obtaining Li_2O, Ta_2O_5, Rb_2O, Cs_2O and 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 (6) holes varied from N210 to N010 and the dip varied from -45° to -60° (Figure 10-3).

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	Lenght (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
					Total 6 holes:	**507.60**

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	Azimuth	Dip	Length
	Easting	Northing	(m)			(m)
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	Azimuth	Dip	Length
	Easting	Northing	(m)			(m)
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

10.3 Drilling on Other Showings

Three (3) other showings were drilled in 2010 (Table 10-3): five (5) holes totalling 315 m on the Helico showing; two (2) holes totalling 102 m on the Pivert East showing; and two (2) holes 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**	**Lenght (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
					Total 9 holes:	**468.00**

Figure 10-1 Critical Elements Diamond Drill Holes on the Rose Property.

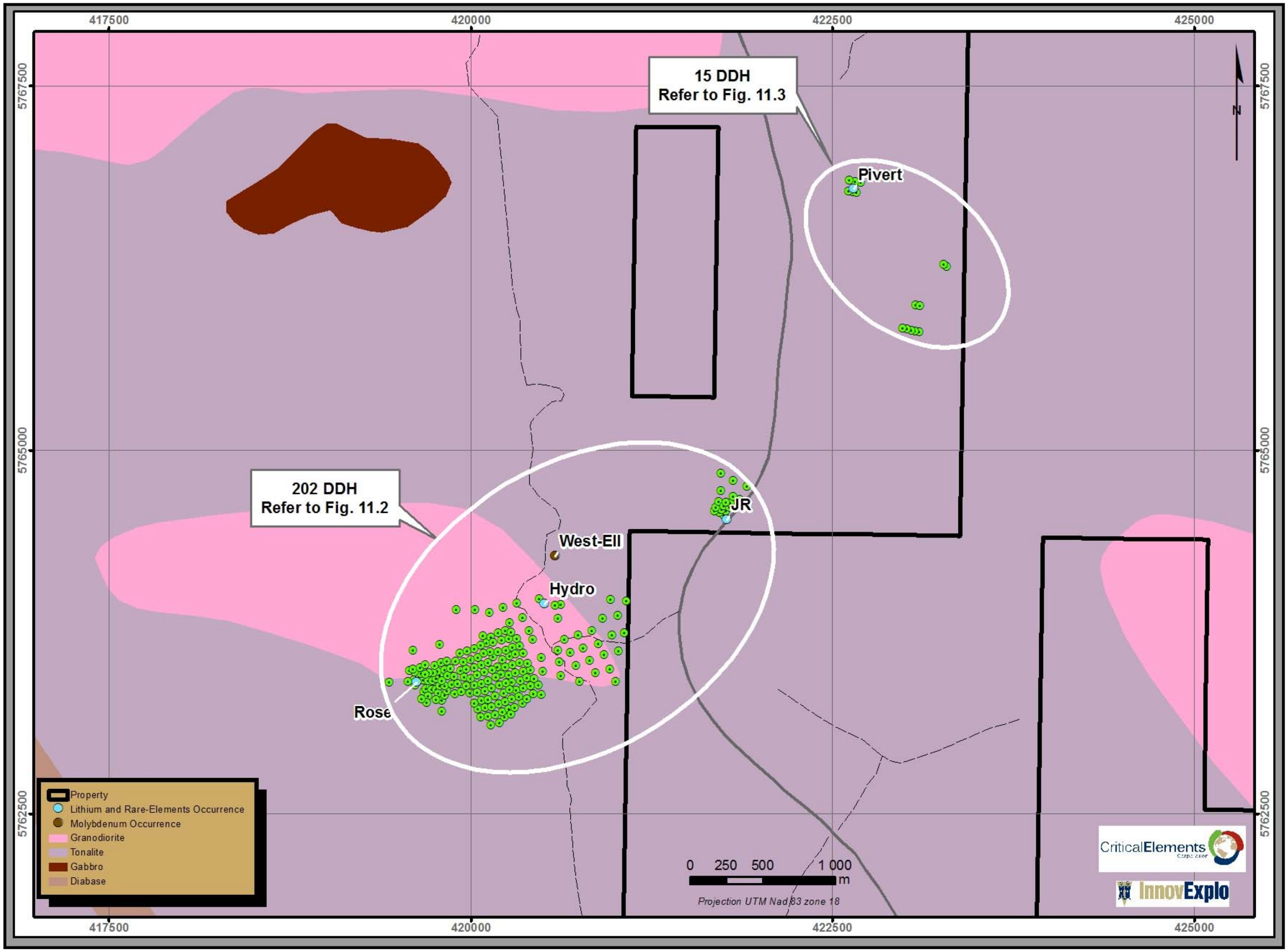


Figure 10-2 Critical Elements Diamond Drill Holes on the Rose Deposit.

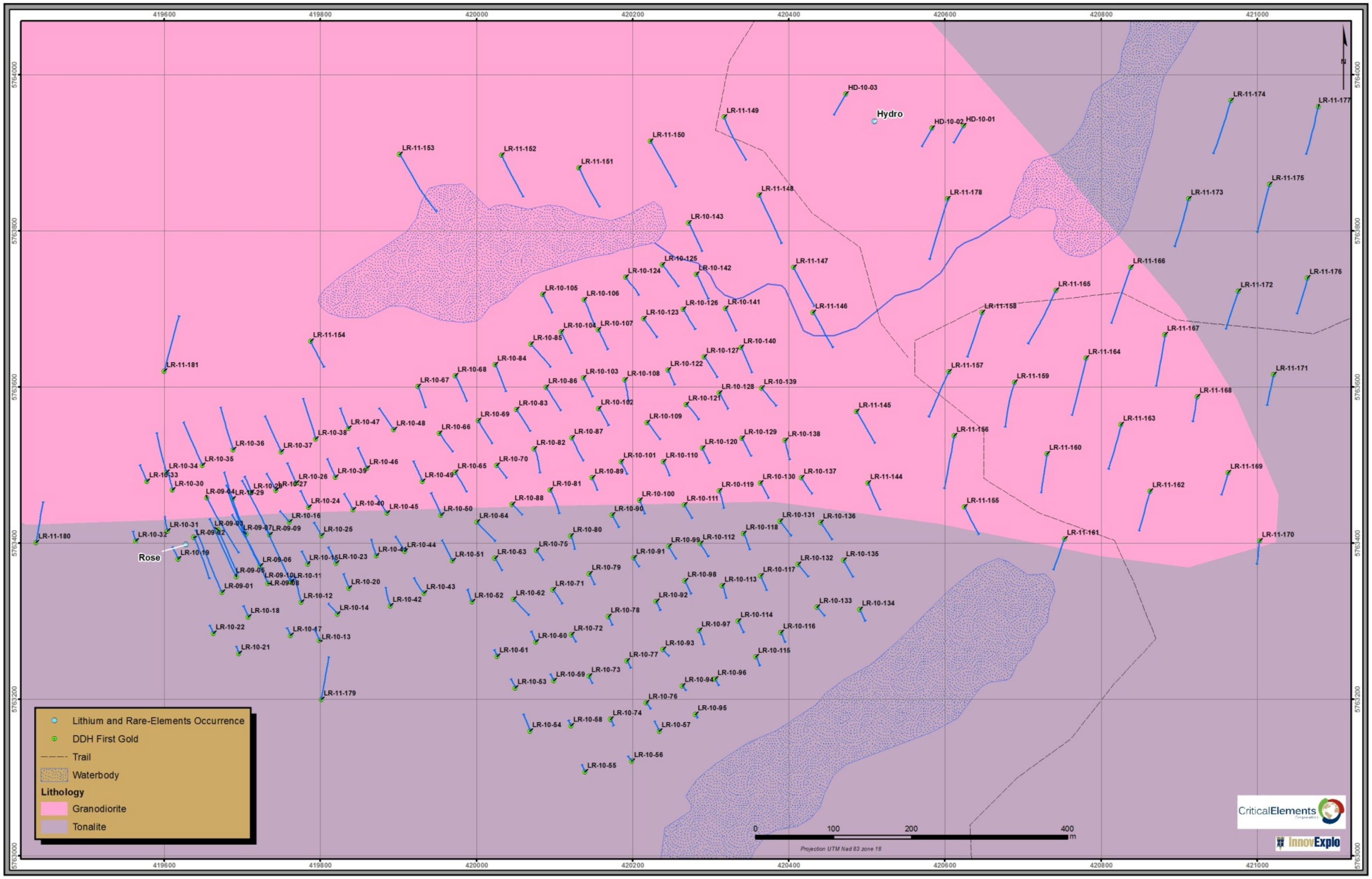


Figure 10-3 Critical Elements Diamond Drill Holes on the Pivert Showing.

11. 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 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 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 being sent 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 InnovExplo'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., 2 mm). 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 (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 ($HClO_4$), nitric (HNO_3), hydrofluoric (HF) and hydrochloric (HCl) 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 $HClO_4$, HF and HNO_3 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^2 (414 MPa). 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 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, which 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 (Figure 11-1; Table 11-2), the only exception being Be and Ta which show less (although reasonable) coherence. Only four (4) blanks (samples 738810, 747847, 883610 and 883661; Table 11-1) returned abnormally high results. After reviewing the weights received at the laboratory, InnovExplo 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 (3) 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.

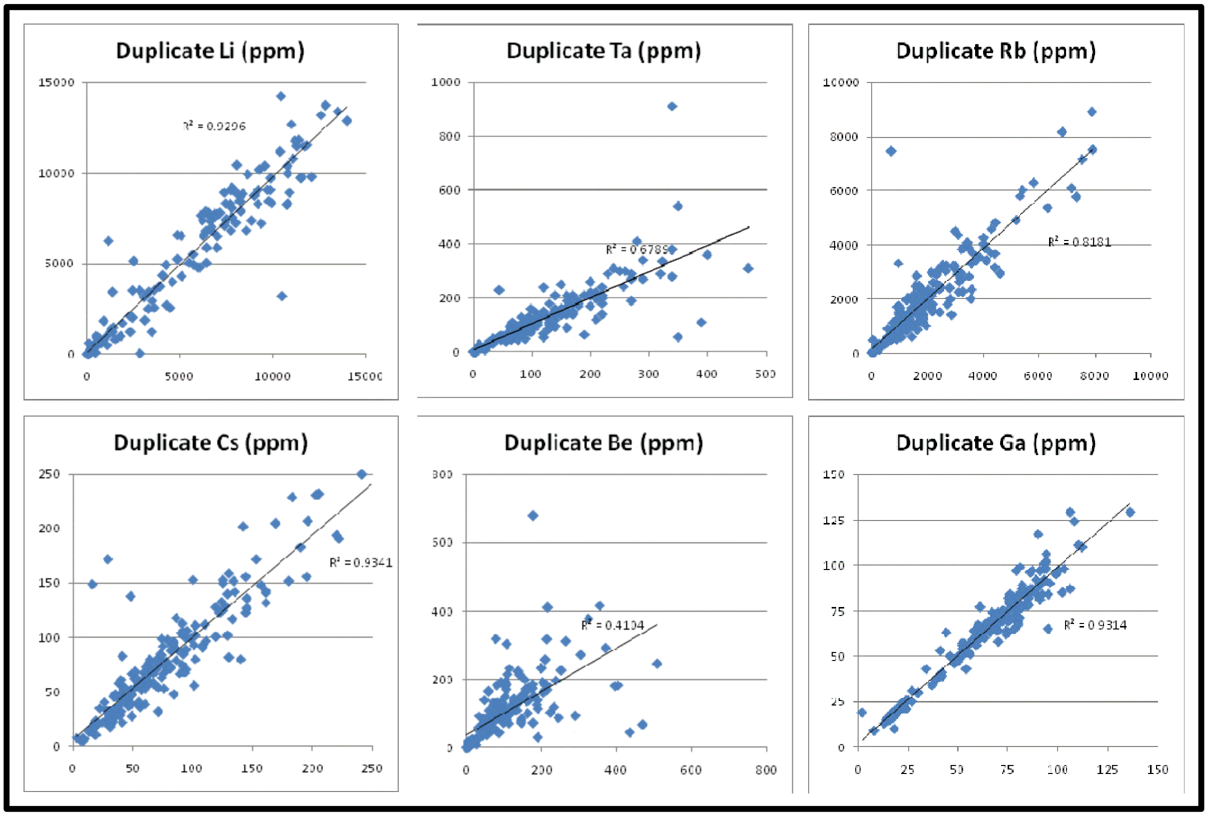


Table 11-1 Verification of Blanks.

Sample	Weight (kg)	Be (ppm)	Cs (ppm)	Ga (ppm)	Li (ppm)	Rb (ppm)	Ta (ppm)
4510	0.05	1	1	18	26	50	1
4536	0.04	1	1	18	26	37	0
4561	0.04	1	2	19	28	41	1
4586	0.05	1	1	18	24	44	1
4611	0.04	1	1	18	27	42	1
4636	0.04	1	1	17	24	47	0
4661	0.04	1	1	17	22	47	1
430868	0.06	1	1	18	27	41	1
430882	0.06	1	1	17	50	40	1
430924	0.06	1	2	18	30	41	1
430947	0.04	1	1	15	30	40	1
718435	0.04	1	1	18	28	42	1
718454	0.04	2	2	22	40	60	1
728108	0.04	1	1	12	19	31	0
728138	0.03	1	1	11	18	40	1
728158	0.04	1	1	11	17	30	0
728186	0.03	1	1	12	20	28	0
728211	0.03	1	1	11	12	27	0
728236	0.04	1	1	11	16	32	0
728268	0.03	1	1	12	14	30	0
728292	0.03	1	1	11	13	31	1
728313	0.03	1	1	11	13	28	0
728331	0.03	1	1	11	13	30	0
728357	0.04	1	1	11	13	28	0
728379	0.03	1	1	12	19	30	0
728412	0.03	1	1	11	13	27	0
728434	0.03	1	1	13	25	29	1
728461	0.03	1	1	11	7	27	0
728484	0.04	1	1	10	14	32	0
728516	0.04	1	1	11	16	29	0
728538	0.04	1	1	11	14	27	0
728555	0.03	1	1	11	15	27	0
728581	0.04	1	1	11	20	27	0

Sample	Weight (kg)	Be (ppm)	Cs (ppm)	Ga (ppm)	Li (ppm)	Rb (ppm)	Ta (ppm)
728630	0.03	1	1	12	16	28	0
728656	0.03	1	1	12	13	30	0
728706	0.03	1	1	11	13	27	0
728726	0.03	1	1	12	16	32	1
728765	0.03	1	1	11	14	26	0
728781	0.03	1	1	11	13	25	0
728808	0.03	1	1	11	13	25	0
728835	0.04	1	1	11	14	27	0
728860	0.02	1	1	12	20	27	0
728890	0.03	1	1	11	15	35	0
728906	0.04	1	1	11	15	27	1
738010	0.04	1	1	10	22	31	1
738035	0.04	1	1	11	18	33	0
738061	0.04	1	1	11	25	34	0
738085	0.05	1	1	13	19	27	0
738110	0.05	1	1	13	16	30	0
738136	0.04	1	1	11	17	28	0
738171	0.05	1	1	12	21	32	0
738180	0.05	1	1	12	18	33	0
738210	0.02	1	1	12	16	34	0
738230	0.02	1	1	12	16	35	0
738260	0.04	1	1	12	15	29	0
738280	0.05	1	1	12	16	34	0
738309	0.05	1	1	12	42	28	0
738332	0.04	1	1	12	24	27	0
738360	0.05	1	1	11	29	27	0
738383	0.03	1	1	11	22	29	0
738412	0.04	1	1	12	14	28	1
738432	0.03	1	1	10	19	30	0
738460	0.03	1	1	12	21	27	1
738485	0.03	1	1	13	20	30	0
738507	0.03	1	1	12	18	30	0
738528	0.03	1	1	12	24	27	0

Table 11-1 (continued) Verification of Blanks.

Sample	Weight (kg)	Be (ppm)	Cs (ppm)	Ga (ppm)	Li (ppm)	Rb (ppm)	Ta (ppm)
738558	0.05	1	1	11	17	28	0
738584	0.03	1	1	12	18	25	0
738608	0.05	1	1	12	16	33	0
738633	0.04	1	1	12	19	33	0
738661	0.03	1	1	12	25	33	0
738683	0.03	1	1	11	15	27	0
738706	0.04	1	1	12	26	34	0
738734	0.04	1	1	13	17	27	0
738759	0.04	1	1	12	16	30	0
738786	0.04	1	1	10	23	27	0
738810	0.04	259	75	73	7470	2110	150
738835	0.04	2	1	11	17	34	0
738861	0.04	1	1	11	18	27	0
738881	0.04	1	1	11	18	35	0
738910	0.04	1	2	11	23	31	0
738936	0.04	1	1	12	26	27	0
738958	0.04	1	1	12	15	29	0
738978	0.04	6	7	29	278	126	12
738998	0.04	1	1	12	15	31	0
739218	0.04	1	1	12	20	27	0
739238	0.05	1	1	12	13	31	0
739258	0.04	1	1	12	22	33	0
739278	0.04	1	1	11	17	24	0
739298	0.04	1	1	12	22	37	0
739318	0.04	1	1	12	33	31	1
739338	0.04	1	1	13	19	29	0
739358	0.04	1	1	13	18	29	0
739378	0.04	1	1	12	19	29	0
739398	0.04	1	1	12	22	25	0
739418	0.04	1	1	11	15	28	0
739438	0.03	1	1	11	15	27	0
739458	0.04	1	1	12	18	28	0
739478	0.05	1	1	12	22	28	0

Sample	Weight (kg)	Be (ppm)	Cs (ppm)	Ga (ppm)	Li (ppm)	Rb (ppm)	Ta (ppm)
739498	0.04	1	1	11	20	28	1
739518	0.04	1	1	11	17	28	0
739538	0.04	1	1	13	17	28	0
739558	0.04	1	1	11	16	27	0
739578	0.04	1	1	13	19	33	0
739598	0.02	1	1	11	14	29	0
739618	0.04	1	1	11	15	29	0
739638	0.03	1	1	12	24	27	0
739658	0.04	1	1	11	16	26	0
739678	0.04	1	1	13	25	28	0
739698	0.04	1	1	11	14	33	0
739718	0.04	1	1	12	15	34	0
739738	0.04	1	1	12	15	27	0
739758	0.05	1	1	11	17	26	0
739778	0.04	1	1	11	18	27	0
739798	0.04	1	1	12	16	29	0
739818	0.04	1	1	11	16	27	0
739855	0.05	1	1	11	14	28	0
739879	0.06	1	1	11	14	29	0
739918	0.05	1	1	11	17	29	0
739938	0.04	1	1	9	14	33	0
739958	0.03	1	1	11	18	28	0
739978	0.04	1	1	11	16	31	0
739998	0.04	1	1	11	15	29	1
747560	0.06	1	2	16	23	38	1
747588	0.06	1	1	18	28	51	0
747613	0.06	1	1	16	25	46	0
747635	0.04	1	2	16	27	44	1
747660	0.04	1	1	18	26	42	1
747681	0.04	1	1	14	20	35	0
747707	0.04	1	2	17	29	43	1
747731	0.04	1	1	18	31	47	1
747761	0.04	1	2	18	27	45	1

Table 11-1 (continued) Verification of Blanks.

Sample	Weight (kg)	Be (ppm)	Cs (ppm)	Ga (ppm)	Li (ppm)	Rb (ppm)	Ta (ppm)
747776	0.04	1	2	17	24	43	1
747801	0.05	1	1	16	23	38	1
747825	0.04	1	1	18	24	38	1
747847	0.46	147	70	73	4060	1650	120
747853	0.04	1	1	18	27	39	1
747879	0.05	2	2	19	68	55	1
747905	0.04	1	2	18	34	41	1
747930	0.04	1	1	17	26	45	0
747957	0.04	1	1	17	30	42	1
747981	0.05	1	2	18	27	44	1
883610	0.04	4	58	25	890	283	2
883635	0.04	1	1	9	13	26	1
883661	0.04	117	44	78	8390	1350	105
883685	0.04	1	1	13	19	36	0
883710	0.04	1	1	12	13	26	0
883735	0.04	1	1	12	14	26	0
883760	0.04	1	1	11	15	25	0
883786	0.04	1	1	12	15	27	0
883809	0.04	1	1	12	19	29	1
883834	0.04	1	1	12	11	26	0
883856	0.04	1	1	11	17	26	0
883881	0.04	1	1	11	15	25	0
916124	0.04	1	2	17	24	45	1
916160	0.04	1	1	17	24	45	1
916185	0.04	1	2	18	31	44	1
916212	0.04	1	2	18	54	51	3
916227	0.04	1	1	16	36	47	1
916240	0.04	1	2	18	30	40	1
916257	0.04	1	2	18	26	42	1
916271	0.04	1	2	18	32	43	1
916300	0.04	1	2	19	41	44	1
916327	0.04	1	2	18	36	47	1
916350	0.04	1	1	18	38	43	1

Sample	Weight (kg)	Be (ppm)	Cs (ppm)	Ga (ppm)	Li (ppm)	Rb (ppm)	Ta (ppm)
916387	0.04	1	1	17	35	41	1
916399	0.04	1	1	17	37	43	1
916417	0.04	1	1	17	33	44	2
916450	0.04	1	1	17	28	48	1
916477	0.05	1	2	17	23	48	1
916496	0.04	1	1	17	28	45	2
916526	0.05	1	1	18	27	39	1
916547	0.04	1	1	13	24	34	1
916575	0.04	1	2	19	25	45	2
916596	0.04	1	1	18	30	48	1
916632	0.05	1	1	18	29	48	1
916650	0.04	1	1	17	28	47	1
916678	0.04	1	2	18	30	44	1
916687	0.03	1	1	15	25	40	1
916726	0.05	1	2	17	28	49	1
916749	0.03	1	1	16	26	48	1
916776	0.04	1	2	18	27	47	1
916797	0.04	1	2	17	21	46	1
946554	0.04	1	1	17	27	47	1
946579	0.04	1	1	16	26	46	1
946606	0.04	1	2	17	28	44	1
946633	0.04	1	1	17	26	44	0
946658	0.04	1	2	18	26	47	1
946683	0.05	1	2	17	25	41	1
946709	0.05	1	1	13	16	31	0
946736	0.04	1	1	12	15	30	0
962810	0.03	1	1	12	19	26	0
962835	0.04	1	1	13	14	27	0
962861	0.04	1	1	12	15	27	0
1119406	0.03	1	1	10	11	27	0
1119432	0.04	1	1	12	13	29	0
1119460	0.04	1	9	14	54	126	0
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 (continued) Verification of Core Duplicates.

Sample	DDH	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
728693	LR-11-170	0.92	126	38	80	7410	1110	160
728719	LR-11-168	0.65	68	106	69	78	3250	140
728749	LR-11-169	1.64	170	67	60	2580	1980	79
728771	LR-11-173	1.17	97	111	56	120	3910	240
728795	LR-11-174	1.64	59	67	64	45	2380	72
728823	LR-11-172	1.17	153	80	82	6910	2290	300
728849	LR-11-175	0.56	105	80	69	1250	3130	230
728871	LR-11-176	1.06	13	96	41	44	2250	45
728899	LR-11-177	1.49	258	32	79	67	1080	190
728923	LR-11-178	1.59	2	20	15	178	132	0
738020	LR-10-96	0.90	10	36	21	270	421	1
738045	LR-10-98	1.02	108	98	64	2040	3270	73
738072	LR-10-99	0.48	165	48	69	4010	1420	150
738095	LR-10-100	0.81	143	172	65	3220	7480	65
738117	LR-10-101	1.30	272	94	57	8230	2790	32
738142	LR-10-102	1.37	51	22	84	13750	700	190
738173	LR-10-104	0.47	9	32	31	281	97	10
738195	LR-10-104	1.33	47	61	82	8300	1970	120
738215	LR-10-105	1.76	233	67	66	7470	2290	130
738245	LR-10-106	0.78	36	232	47	1890	8930	51
738271	LR-10-107	0.34	89	39	64	194	1520	140
738295	LR-10-108	1.14	106	60	66	800	800	300
738320	LR-10-108	0.82	107	26	74	3550	630	110
738346	LR-10-109	1.68	233	156	89	9940	1990	46
738372	LR-10-111	0.47	312	152	52	830	5380	120
738395	LR-10-112	1.69	85	207	56	2120	8180	83
738421	LR-10-113	0.87	179	37	78	11850	840	47
738446	LR-10-115	1.05	224	142	69	6710	4040	98
738470	LR-10-116	1.18	1	33	18	830	350	0
738496	LR-10-118	1.16	680	231	66	6550	5790	95
738514	LR-10-119	0.90	76	118	73	960	4370	56

Duplicate	Weight (kg)	Be (ppm)	Cs (ppm)	Ga (ppm)	Li (ppm)	Rb (ppm)	Ta (ppm)
728639	0.77	57	47	48	187	1150	46
728692	1.13	83	47	77	6210	1370	98
728718	0.68	50	95	72	79	2680	140
728748	1.29	215	49	61	3620	1420	85
728770	1.28	116	102	59	143	3450	220
728794	1.29	32	67	58	45	2410	58
728822	1.57	147	64	75	6640	1830	260
728848	0.45	74	70	80	3480	2980	44
728870	1.04	16	84	42	34	2170	38
728898	1.54	211	31	81	81	1090	270
728922	1.59	2	20	15	178	132	0
738019	0.89	11	56	24	292	580	3
738044	1.16	115	79	70	2430	2530	74
738071	0.52	160	84	68	4590	2860	105
738094	1.08	161	29	95	10500	690	190
738116	1.20	305	109	53	7660	3160	34
738141	1.35	67	27	92	12850	670	170
738172	0.42	9	29	27	160	86	5
738194	1.28	46	40	85	9200	1250	130
738214	1.68	201	89	65	7490	3270	95
738244	0.82	44	205	50	3110	7880	65
738270	0.36	60	60	63	304	2430	150
738294	1.25	97	59	65	700	900	250
738319	0.92	122	29	70	3610	820	130
738345	1.76	199	144	82	8650	1630	65
738371	0.47	265	180	52	1510	6300	210
738394	1.62	59	196	59	2310	6820	100
738420	0.92	105	46	77	11400	1250	57
738445	1.19	138	135	68	6830	4000	130
738469	1.20	7	28	19	890	348	4
738495	1.06	178	203	67	5060	7330	140
738513	0.81	100	86	79	580	3100	79

Table 11-2 (continued) 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 (continued) 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 (continued) Verification of Core Duplicates.

Sample	DDH	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
747797	LR-10-54	0.31	74	41	81	10400	1050	220
747822	LR-10-56	1.00	183	63	80	1020	1420	61
747870	LR-10-57	0.84	139	39	77	7890	630	70
747897	LR-10-58	0.74	124	229	60	243	4520	170
747920	LR-10-59	1.21	132	53	67	7570	1360	52
747947	LR-10-62	0.51	79	58	68	172	2610	82
747972	LR-10-62	1.19	3	21	20	442	110	0
747997	LR-10-65	1.15	186	153	67	5890	2870	150
883622	LR-10-77	0.49	136	29	66	82	500	170
883647	LR-10-78	0.93	152	78	71	7260	1980	59
883672	LR-10-79	1.70	3	149	19	620	500	2
883698	LR-10-80	0.69	119	125	60	7040	4830	45
883723	LR-10-81	0.83	73	156	64	3170	6110	290
883747	LR-10-83	1.60	163	72	73	7670	1500	105
883772	LR-10-83	0.35	26	23	71	255	343	105
883796	LR-10-82	0.36	104	29	50	156	251	110
883822	LR-10-84	1.03	183	80	101	1850	2020	120
883848	LR-10-85	0.50	131	205	47	2570	4930	83
883874	LR-10-86	0.64	200	68	62	8260	1520	94
883897	LR-10-87	0.98	123	58	124	69	1450	290
916123	LR-10-12	1.68	69	66	97	12900	1480	180
916159	LR-10-14	1.80	115	159	72	5060	2915	198
916184	LR-10-15	0.92	118	111	85	8330	1680	120
916211	LR-10-16	1.94	115	72	82	9080	1000	160
916226	LR-10-16	1.31	61	75	111	13400	1380	310
916241	LR-10-22	1.53	0	32	16	470	89	0
916256	LR-10-22	1.35	172	128	57	73	1580	110
916270	LR-10-27	2.05	126	54	72	9080	1190	120
916299	LR-10-19	0.72	122	58	99	10200	910	190
916326	LR-10-20	1.78	71	61	88	11500	830	250
916349	LR-10-23	0.98	89	69	90	9990	2180	89

Duplicate	Weight (kg)	Be (ppm)	Cs (ppm)	Ga (ppm)	Li (ppm)	Rb (ppm)	Ta (ppm)
747771	0.47	135	49	87	9710	1000	210
747796	0.34	99	55	91	10800	1290	200
747821	0.89	405	74	75	1800	1160	50
747869	0.87	167	49	82	6390	840	120
747896	0.64	121	183	63	191	2990	200
747919	1.18	91	43	69	7810	1120	58
747946	0.47	147	67	69	200	2200	93
747971	1.32	3	21	19	446	110	1
747996	1.07	177	100	80	7000	1610	170
883621	0.49	162	39	61	83	880	160
883646	0.77	180	70	77	8010	1450	63
883671	1.57	0	16	2	80	53	0
883697	0.70	234	125	60	6710	4430	76
883722	0.76	178	195	69	3070	7160	320
883746	1.70	206	80	70	6120	1590	105
883771	0.37	26	32	81	273	460	130
883795	0.36	96	39	46	211	279	67
883821	1.10	82	102	93	890	2820	92
883847	0.57	96	169	49	4470	5170	82
883873	0.67	156	51	74	10750	960	95
883896	0.90	94	38	108	55	960	230
916122	1.61	42	61	91	14000	1460	180
916158	1.47	124	130	71	5500	2315	210
916183	1.28	123	102	102	10800	1020	110
916210	1.49	191	81	79	9210	880	140
916225	1.21	56	91	110	13500	1680	240
916242	1.61	0	29	17	480	86	0
916255	1.52	158	119	52	71	1460	390
916269	1.55	73	71	69	7820	1730	110
916298	0.99	83	62	81	9280	1260	160
916325	1.82	47	62	90	11700	920	150
916348	1.26	79	52	96	10800	1510	95

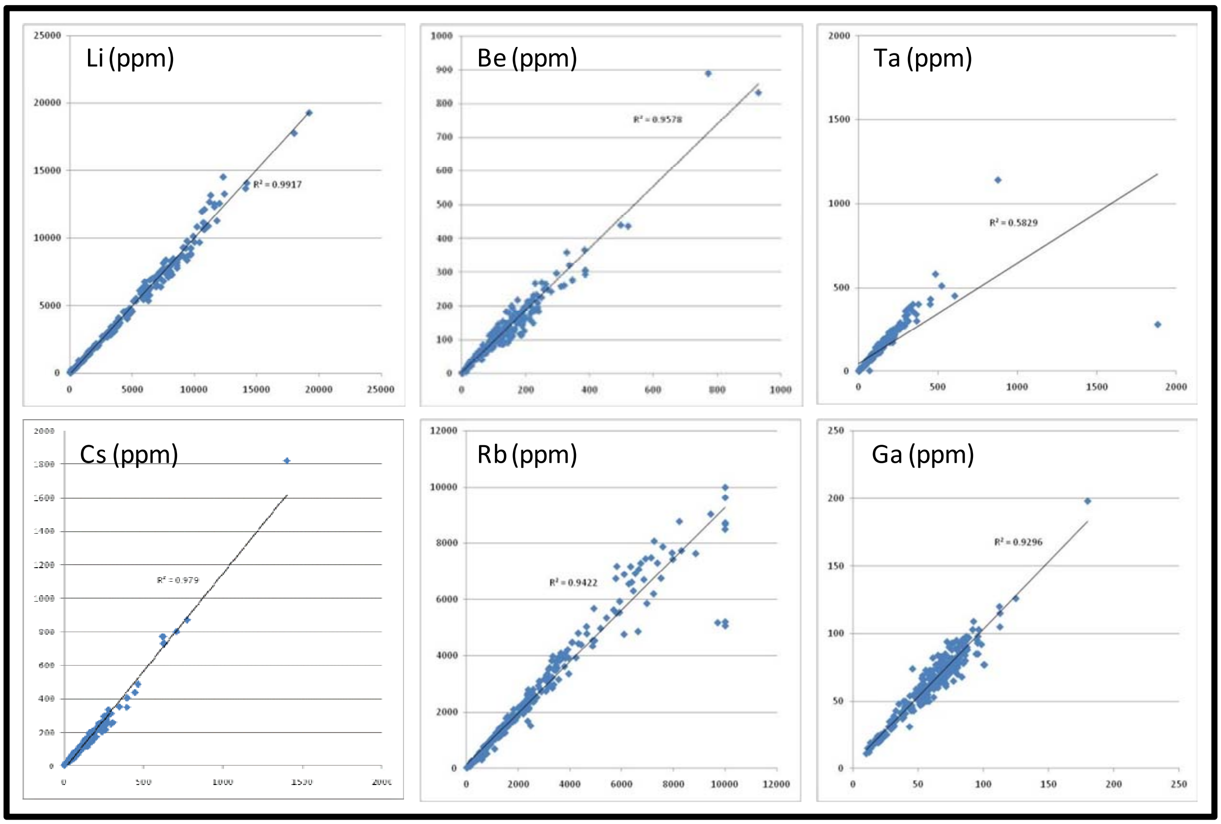
Table 11-2 (continued) Verification of Core Duplicates.

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 (Figure 11-2). 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. InnovExplo therefore conclude that the two (2) sets of assays correlate well.

Figure 11-2 Reassays Performed at a Third Laboratory (Acme; Y-axis) Compared Against Original Assays (X-axis).



12. DATA VERIFICATION

Grades for Li, Ta, Rb, Cs and Be are reported in this section as parts per million (ppm). Refer to Table 6-3 for converting into Li_2O, Ta_2O_5, Rb_2O, Cs_2O, and BeO.

12.1 Historical Work

The historical information used in this report was taken mainly from reports by the Quebec 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 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.

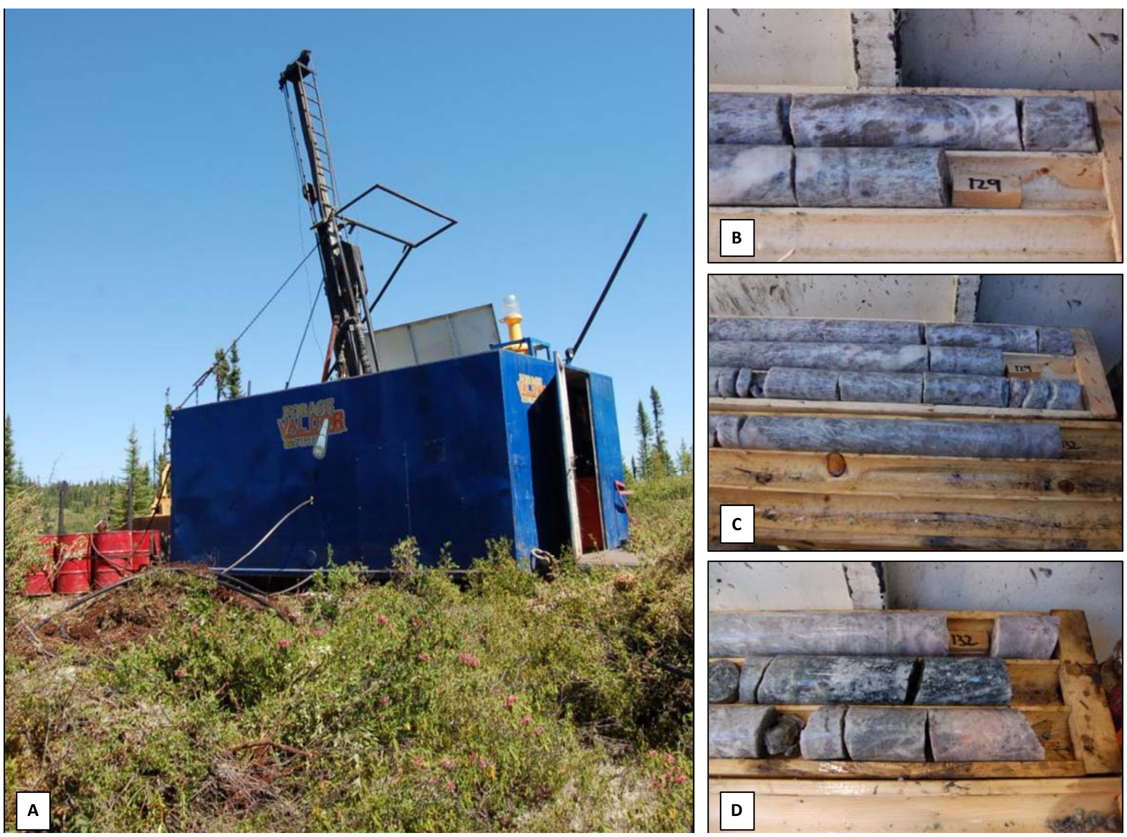
InnovExplo considers the Critical Elements database for the Rose project to be valid and reliable.

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 (Figure 12-1). He visited the drill rig during the site visit and witnessed approximately 9 m 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 (Figures 12-2 and 12-3).

Figure 12-1 Drilling at the Rose Deposit[1].

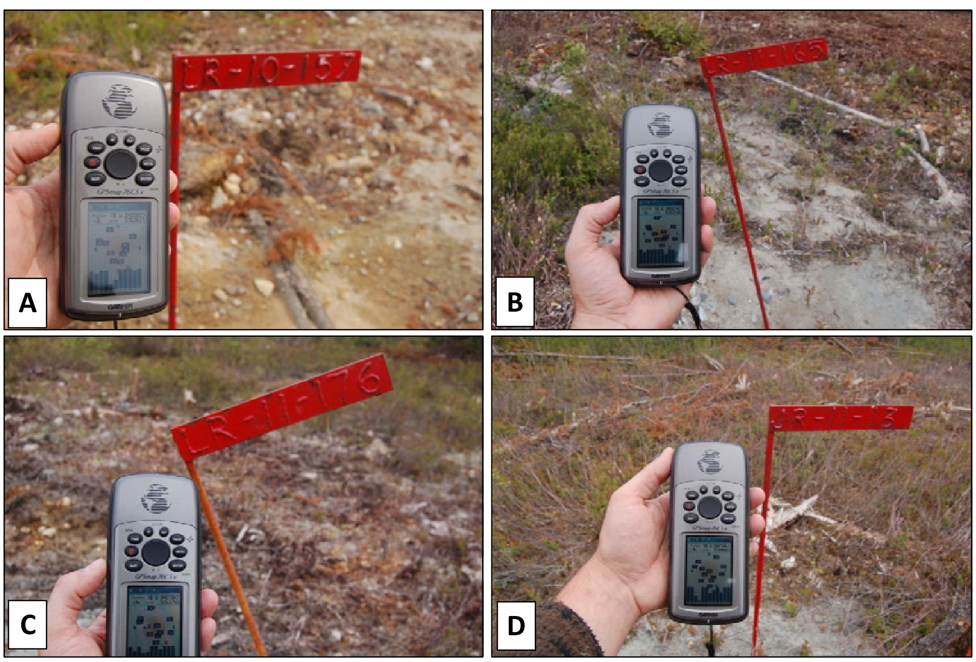


1. A) Drill rig in action on hole LR-10-86 at the time of the field visit; B) to D) Views of the Rose pegmatite in core that was drilled in the author's presence. Photos taken by author P.-L. Richard

Figure 12-2 Photos of Some Casing Locations - 2010 Visit[1].

1. Casing location 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 Casing Locations – 2011 Visit[1].



1. Casing location 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 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.

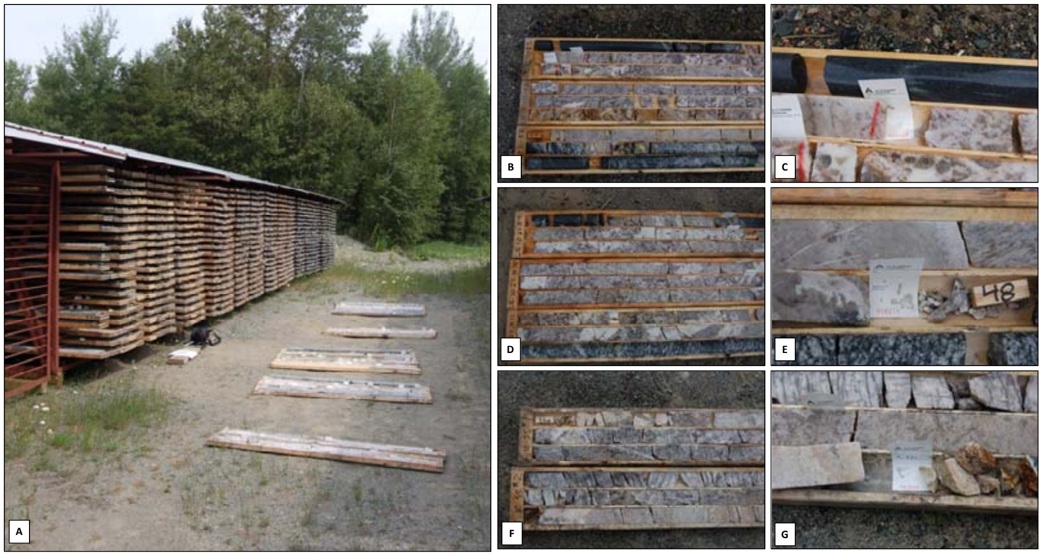
This type of channel sampling was employed in lieu of grab sampling since traditional grab samples are very difficult or impossible to obtain from the smooth, hard outcrops surfaces using a hammer and chisel. However, the channel samples are similar to grab samples in that they are selective by nature 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 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 (Figures 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.

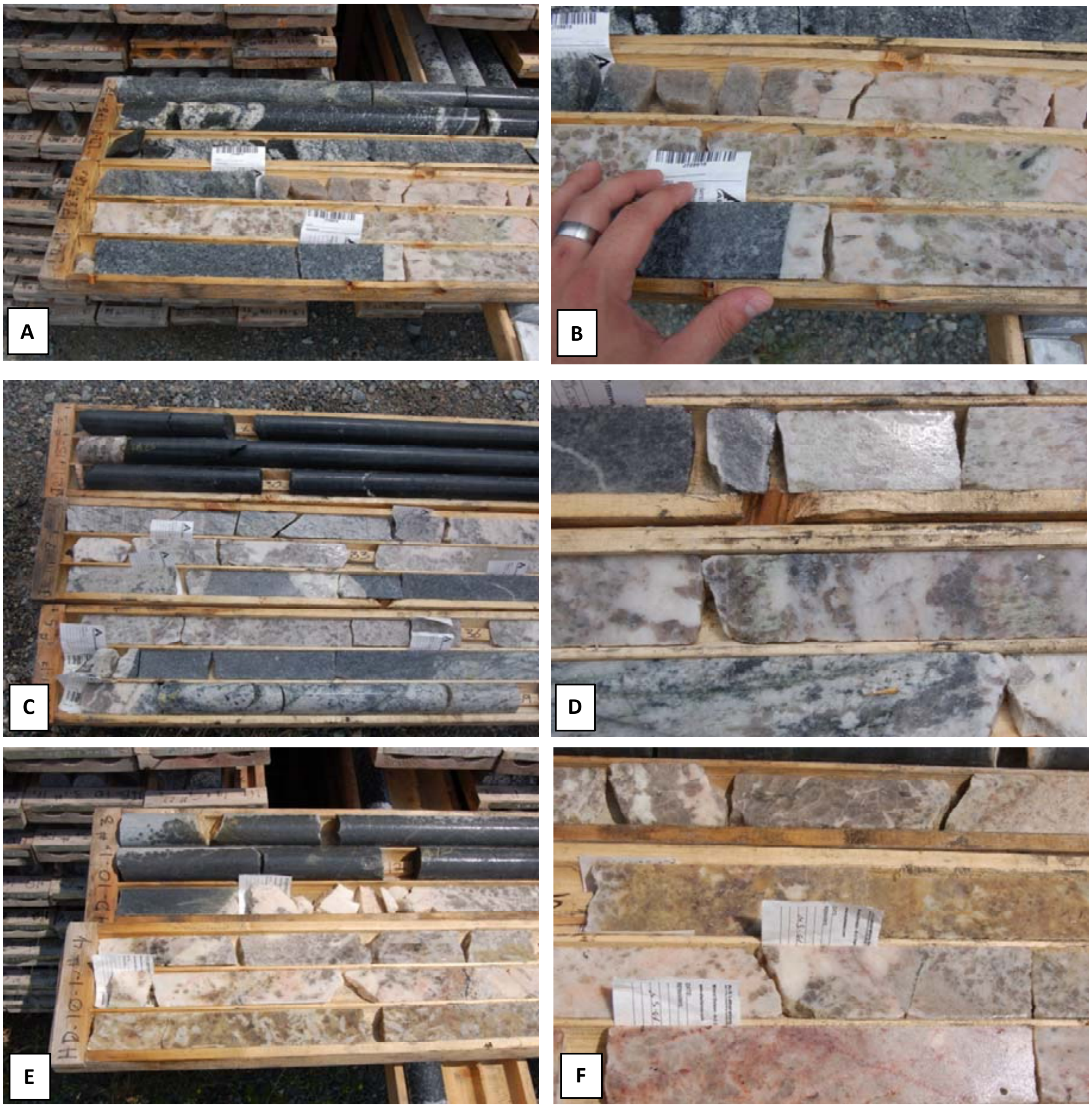
Figure 12-4 Core Verification at the Core Storage Facility in Val-d'Or During the 2010 Visit[1].



1. 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.

The author reviewed and judged adequate the entire path taken by the drill core, from the drill rig to the logging and sampling facility (Figure 12-6).

Figure 12-5 Core Verification at the Core Storage Facility in Val-d'Or During the 2011 Visit[1].



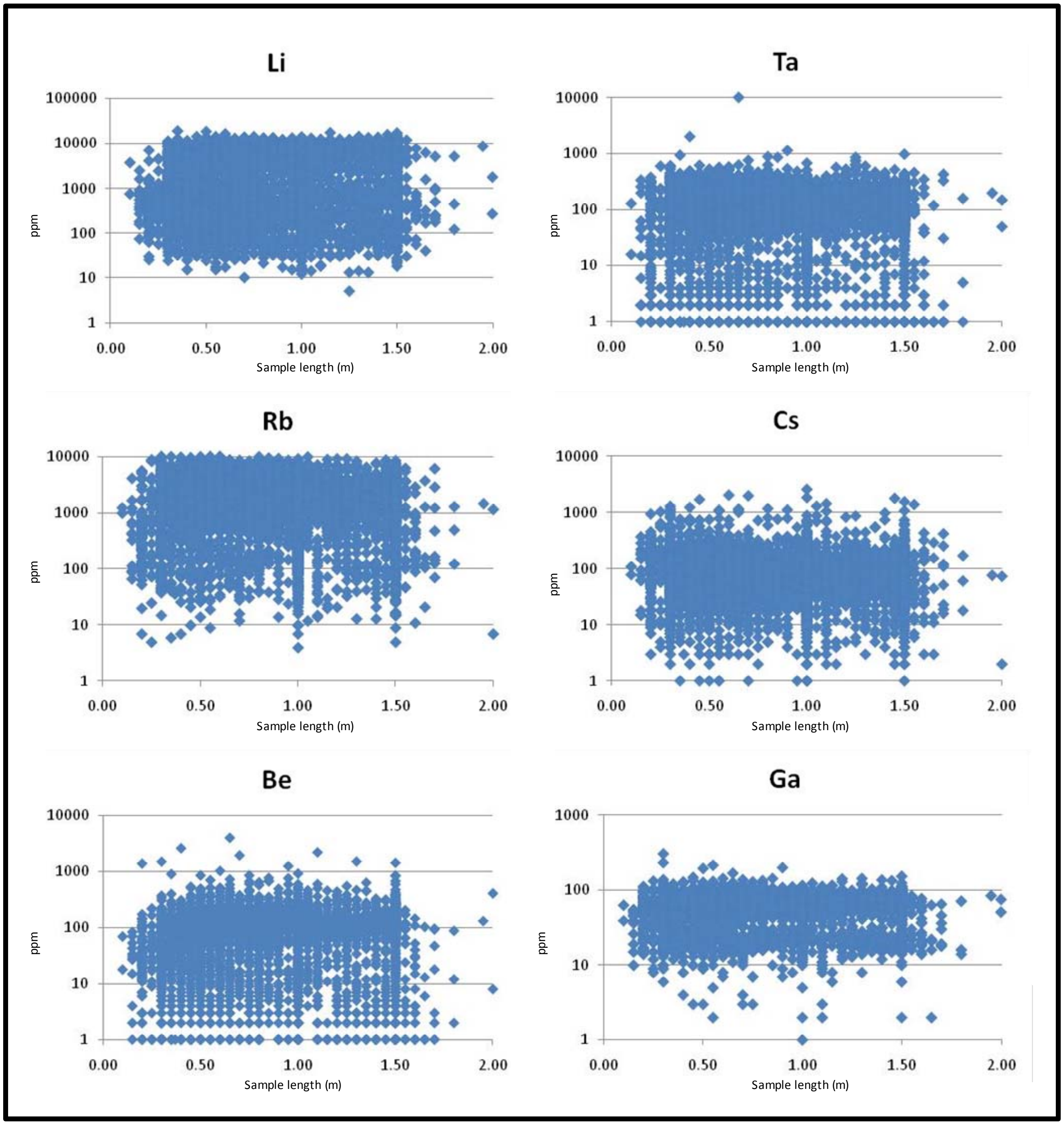
1. A) and B) Hole LR-11-178; C) and D) Hole JR-11-13; E) and F) Hole HD-10-01. Photos taken by author P.-L. Richard.

Figure 12-6 Path of the Core From Drill Rig to Final Storage Facility[1].

1. 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 facilities.

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 (Figure 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[1].

Sample	Showing	UTM83 Zone 18		Li	Rb	Ta	Cs	Be	Ga
		Easting	Northing	ppm	ppm	ppm	ppm	ppm	ppm
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
358005	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

1. Samples independently analyzed as part of data verification for the Rose property.

13. MINERAL PROCESSING AND METALLURGICAL TESTING

Laboratory metallurgical testing was performed at Acme Metallurgical Limited in Vancouver, with additional services from the University of British Columbia.

Mineral process testing was initiated in January 2011. Three composites were prepared for testing, the “ROSE” (main structure), the “ROSE SUD-EST” (Southeast structure) and “TANTALE” (secondary structures with higher tantalum and lower lithium contents). The composites were prepared from all the mineralized drill hole intersections available at the time (intersections above a vertical depth of approximately 100 m), using the corresponding assaying coarse rejects (-6 mesh).

Most of the work was carried out on composite “ROSE” as it is representative of the main structure of the deposit.

Table 13-1 Head Assays.

Composite	Assays	Li (ppm)	Be (ppm)	Rb (ppm)	Ga (ppm)	Ta (ppm)
RSE	Weighted Average from client	6018	150	3105	72	154
ROSE	Weighted Average from client	5382	127	2906	70	219
TANTALE	Weighted Average from client	2376	101	2132	76	289

Table 13.2 Head Assays.

Composite	SiO2 %	Al2O3 %	Fe2O3 %	CaO %	MgO %	Na2O %	K2O %	MnO %	TiO2 %	P2O5 %	Cr2O3 %	Ba %	LOI %	SUM %
RSE	73.4	15.59	0.76	0.15	0.02	4.51	2.31	0.21	0.02	0.03	0	0.01	0.19	97.16
ROSE	74.03	14.86	0.73	0.32	0.07	5.8	1.99	0.15	0.02	0.03	0.01	0.01	0.28	98.26
TANTALE	72.3	15.66	0.9	0.14	0.07	4.27	2.87	0.15	0.01	0.02	0	0.01	0.16	96.52

13.1 Heavy Media Separation

Heavy liquid separation – Separations were done at specific gravity 3.2, 2.9 and 2.7. The main conclusion was that the mineralization would not be amenable to heavy media separation at a coarse crushing size, as sometimes done in the industry. Nevertheless the lithium bearing spodumene is liberated at a grind size of 500 microns, which is excellent for flotation.

13.2 Mineralogical Examination

Mineralogical examination – These examinations were performed on various flotation products from one of the primary tests. The main conclusion is that the tantalum is present as mangano-tantalite in liberated grains of from 50 to 150 microns as well as in small inclusions (< 30 microns) within the spodumene and some in the albite. A few grains of microlite (a calcium tantalite) were identified. The spodumene, feldspars and quartz were mostly liberated as well as the small amount of mica at a coarse grind size of 150 microns. It was not possible to define what was the rubidium containing mineral.

13.3 Flotation

Twenty eight flotation tests were performed on 4 kg batches. Standard conditions used in the industry were tested first at various grind sizes, namely: desliming, flotation with oleic acid as the main collector, followed by up to four stages of cleaning. The process was quickly optimised by using promoter AM-44 as well as oleic acid. With this combination of reagents, the desliming became redundant, the flotation time was shortened and the number of required cleaning stages was reduced to one only for the rougher concentrate and three for the scavenger concentrate. No additional modifier was required either. The optimum grind size was 80% passing 150 microns. The final procedure was repeated in open circuit and in partly closed circuit by recycling the rougher cleaner tails to the scavenger circuit.

The final results obtained (test F-28) are given in Table 13-3.

Table 13-3 Flotation Test F28.

Products	Weight		Assay					Distribution				
			Li2O	Ta	Be	Rb	Ga	Li	Ta	Be	Rb	Ga
	g	%	%	ppm	ppm	ppm	ppm	%	%	%	%	%
Combined Final Concentrate	722.8	19.7	5.86	832	568	1562	142	90.7	84.8	83.6	10.6	43.9
Rougher Cleaner Con	**538.9**	**14.7**	**6.42**	**1010**	**586**	**724**	**133**	**74.2**	**76.7**	**64.3**	**3.7**	**30.6**
Scav. Cleaner Con 3	**183.9**	**5.0**	**4.20**	**311**	**514**	**4018**	**169**	**16.5**	**8.1**	**19.3**	**6.9**	**13.3**
Scav. Cleaner Tail 3	50.5	1.4	1.83	111	297	2952	90	2.0	0.8	3.1	1.4	1.9
Scav. Cleaner Con 2	**234.4**	**6.4**	**3.69**	**268**	**467**	**3788**	**152**	**18.5**	**8.9**	**22.3**	**8.3**	**15.2**
Scav. Cleaner Tail 2	119.4	3.3	0.98	100	151	3130	77	2.5	1.7	3.7	3.5	3.9
Scav. Cleaner Con 1	**353.8**	**9.7**	**2.78**	**211**	**361**	**3566**	**127**	**21.0**	**10.5**	**26.0**	**11.8**	**19.1**
Scav. Cleaner Tail 1	258.1	7.1	0.28	53	48	3177	55	1.5	1.9	2.5	7.7	6.0
Scav. Con	**611.9**	**16.7**	**1.72**	**144**	**229**	**3402**	**96**	**22.6**	**12.5**	**28.5**	**19.5**	**25.2**
Total Concentrate	**1150.8**	**31.4**	**3.92**	**550**	**396**	**2148**	**113**	**96.7**	**89.2**	**92.8**	**23.1**	**55.8**
Scavenger Tail	2509.2	68.6	0.06	31	14	3275	41	3.3	10.8	7.2	76.9	44.2
Calculated Head	**3660.0**	**100.0**	**1.28**	**194**	**134**	**2921**	**64**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Assayed Head			1.28	195	140	2787	61					

13.4 Magnetic Separation

Thirteen High Gradient Wet Magnetic Separation (HGWMS) tests were performed on the flotation concentrate to separate the mangano-tantalite from the spodumene. Results at various total field strength up to 14,000 Gauss, indicated that it was possible to recover approximately 60% of the tantalum contained in the concentrate (50% of tantalum in feed).

13.5 Grindability

Bond Ball Mill Work Index was determined at 13.2 kWH per metric tonne.

14. MINERAL RESOURCE ESTIMATES

14.1 Historical and Previous Mineral Resource Estimates

The current report is based on the Mineral Resources estimate prepared by InnovExplo and published in 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 7th, 2011. This report presented 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_2O, 135 ppm Ta, 2,668 ppm Rb, 106 ppm Cs, 136 ppm Be, 71 ppm Ga, and Inferred Resources of 2,170,000 tonnes grading 1.27% Li_2O, 113 ppm Ta, 1,529 ppm Rb, 100 ppm Cs, 112 ppm Be, 70 ppm Ga, at a cut-off grade of 0.75% Li_2O 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 Mineral Resources as Indicated and a lesser portion as Inferred.

An approach based on multiple zones was used for the current Mineral Resources 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 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).

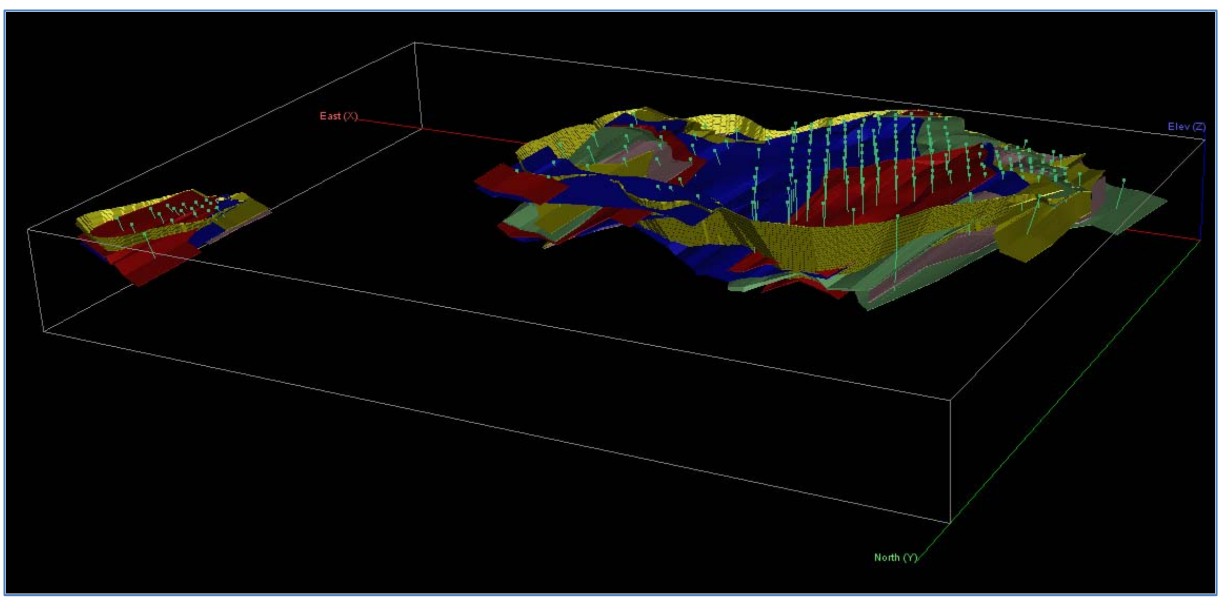
14.4 Domain Interpretation

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[1].



1. All mineralized zones are shown (different colors), as are drill holes (blue) and the pit shell (yellow).

14.5 Assay Data, Verification and Treatment

InnovExplo was 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 (2) 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 (2) 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. Therefore, values from ME-ICP61a were used when available.
- For Rb, two (2) 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 (3) methods were found in the database: ME-MS61, ME-MS81 and ME-XRF05. When more than one (1) 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 (3) methods were found in the database: ME-MS61, ME-MS81 and ME-XRF05. When more than one (1) 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 (2) methods were found in the database: ME-MS61 and ME-MS81. When both methods were available, an average of the two (2) 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 verification and validation performed for this Project.

14.6 Grade Capping and Compositing

Based on the normal histograms of grades in the mineralized zones (Figures 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 for 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 ">10,000 ppm" 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.

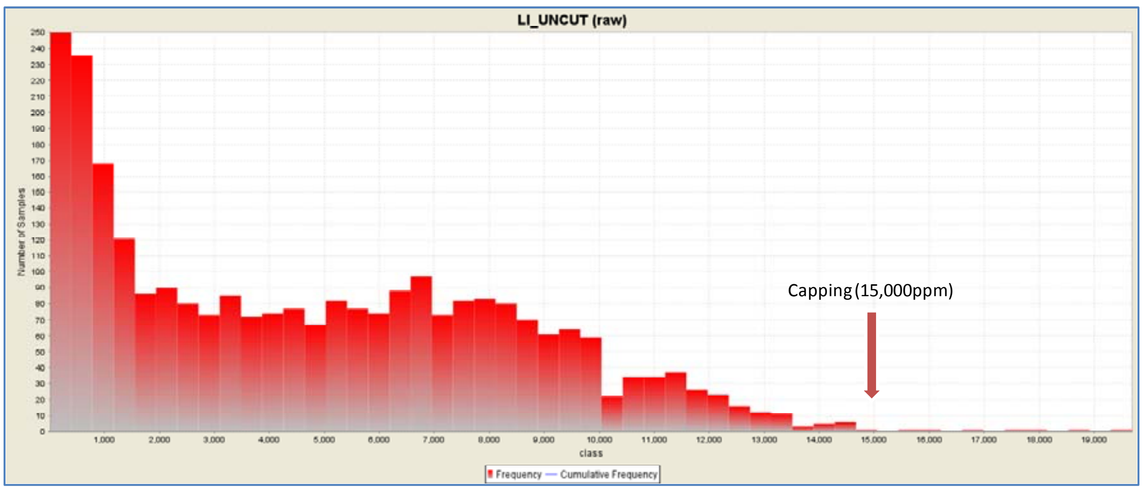


Figure 14-3 Normal Histogram of Ta Grade.

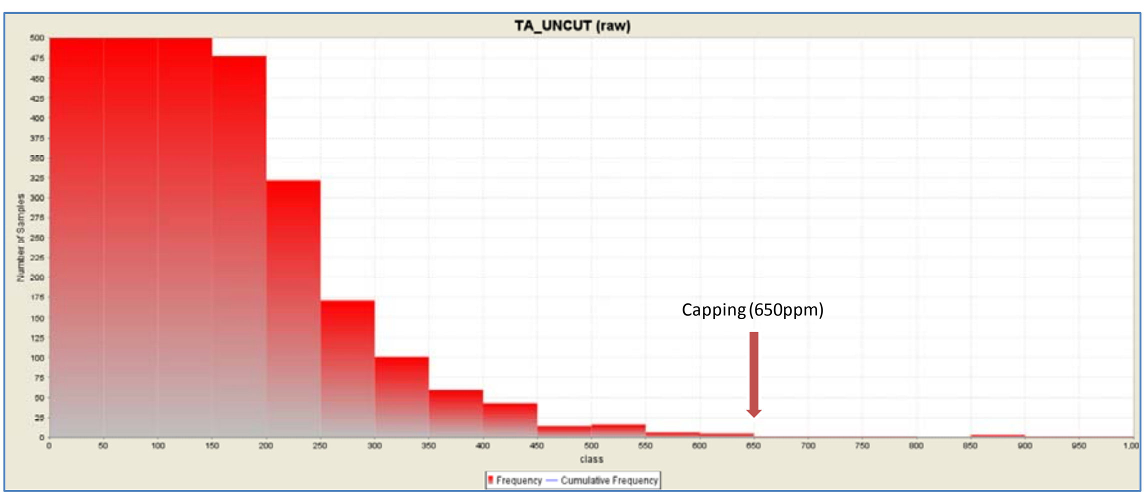


Figure 14-4 Normal Histogram of Cs Grade.

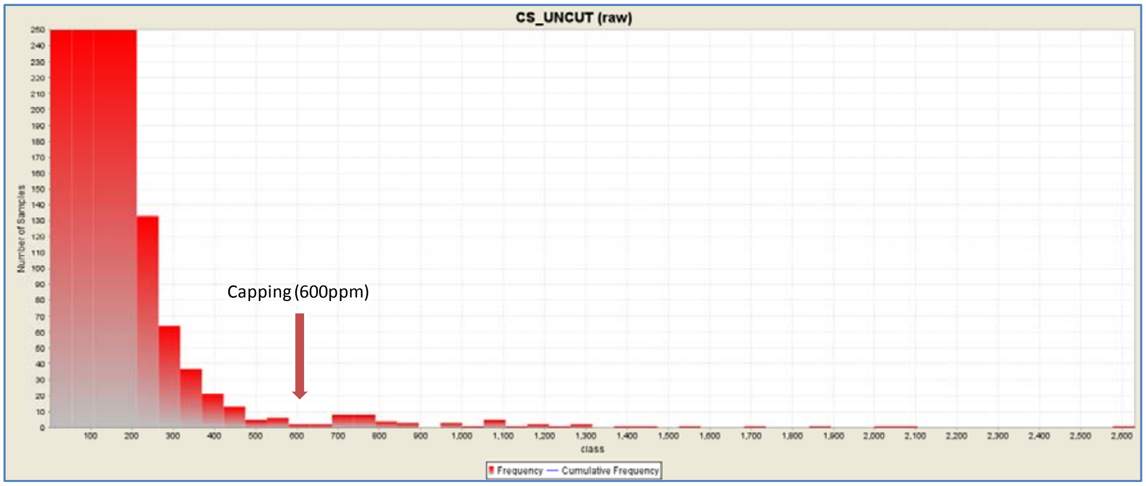


Figure 14-5 Normal Histogram of Be Grade.

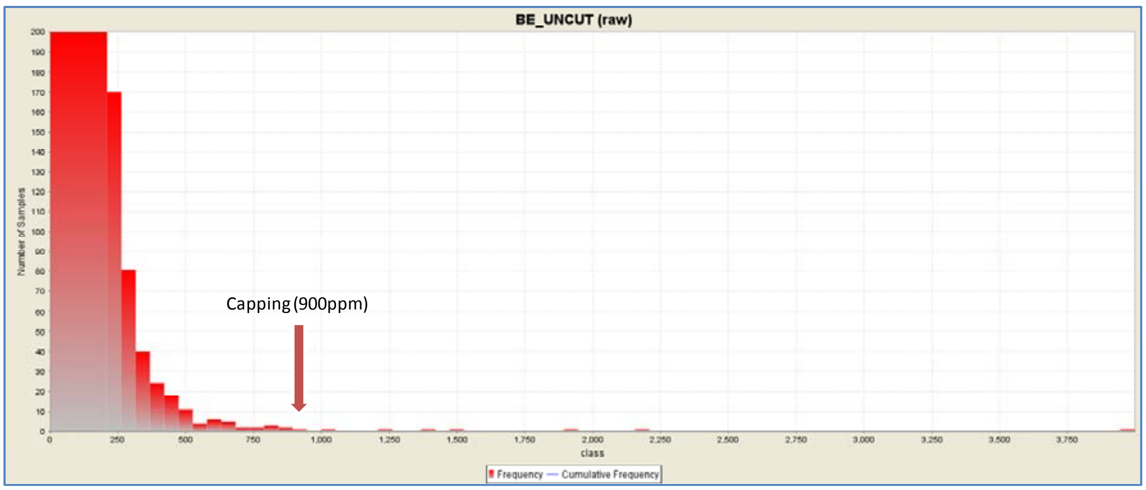


Figure 14-6 Normal Histogram of Ga Grade.

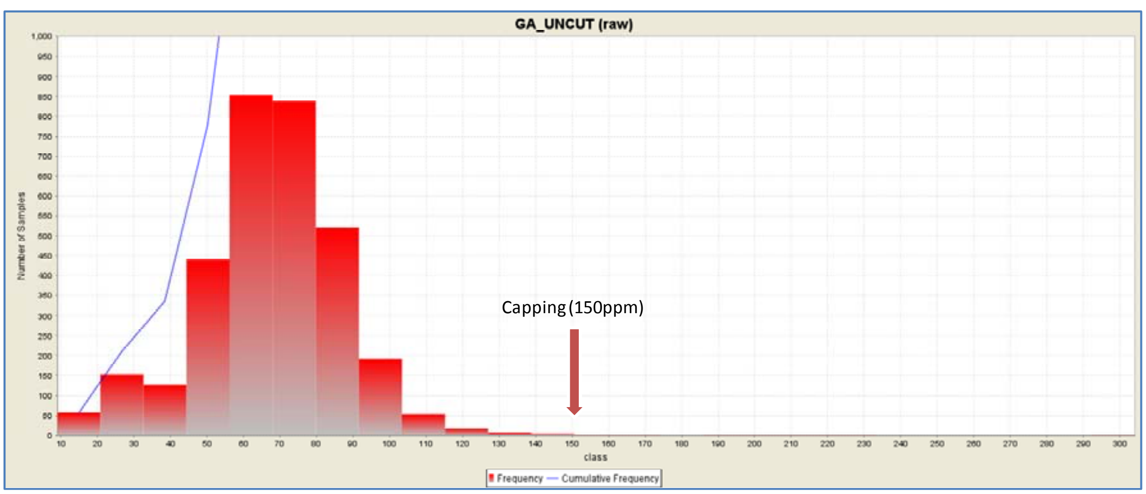
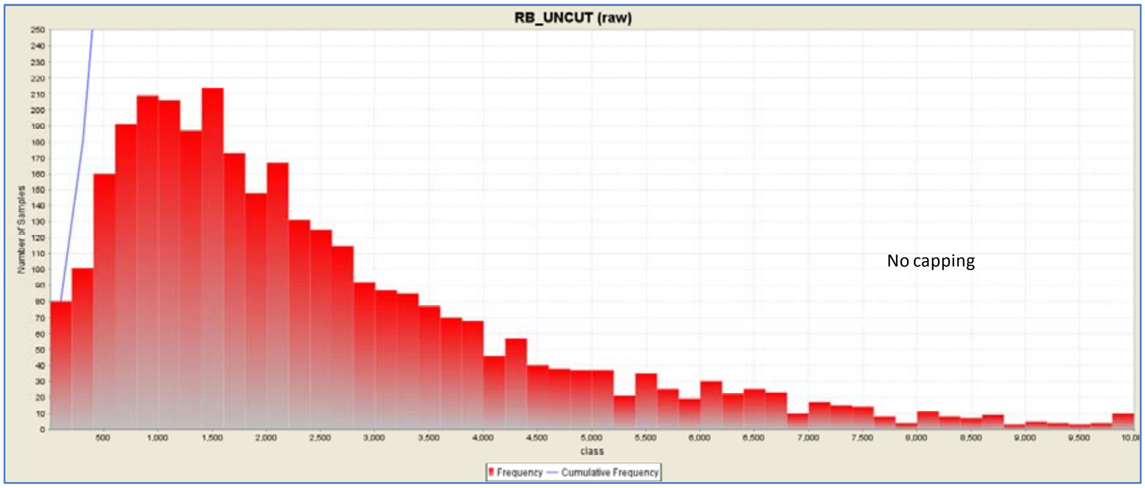


Figure 14-7 Normal Histogram of Rb Grade.



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).

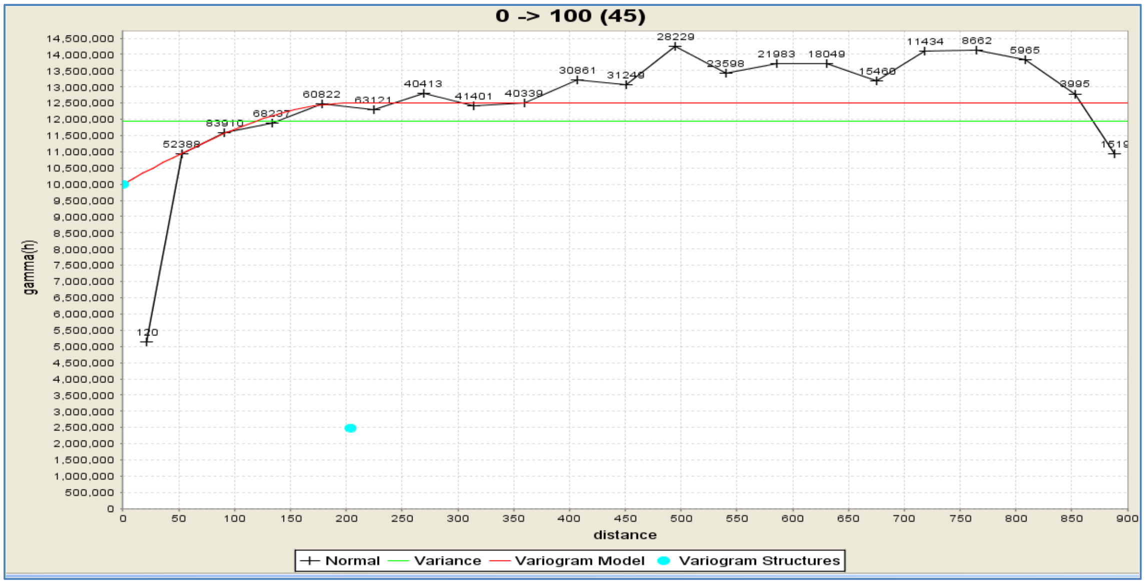


Figure 14-9 Rubidium 3-D Variogram within the Mineralized Zones (Major Axis).

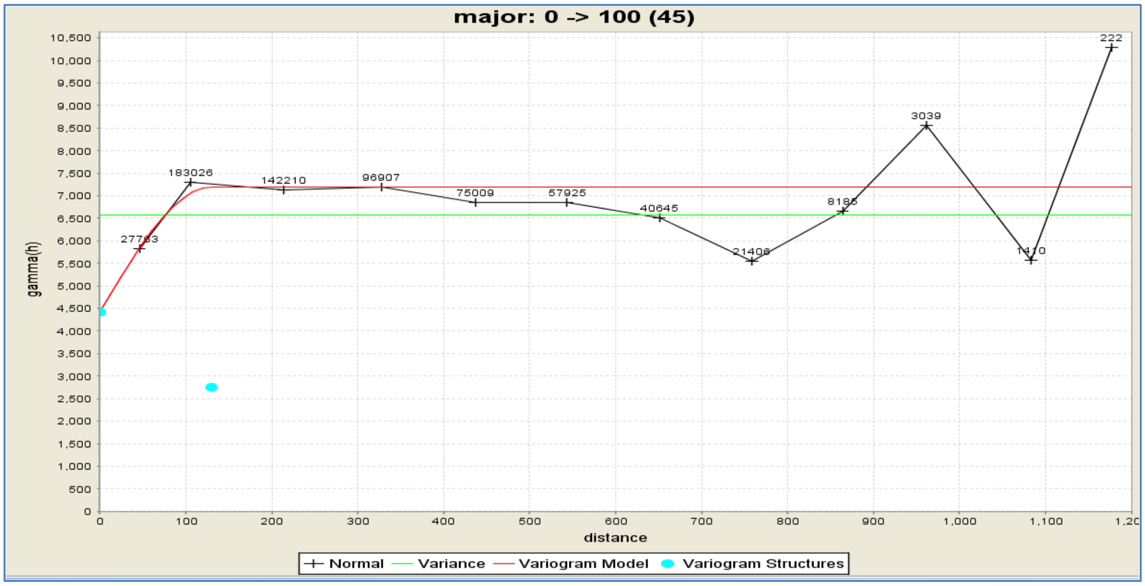


Figure 14-10 Tantalum 3-D Variogram within the Mineralized Zones (Major Axis).

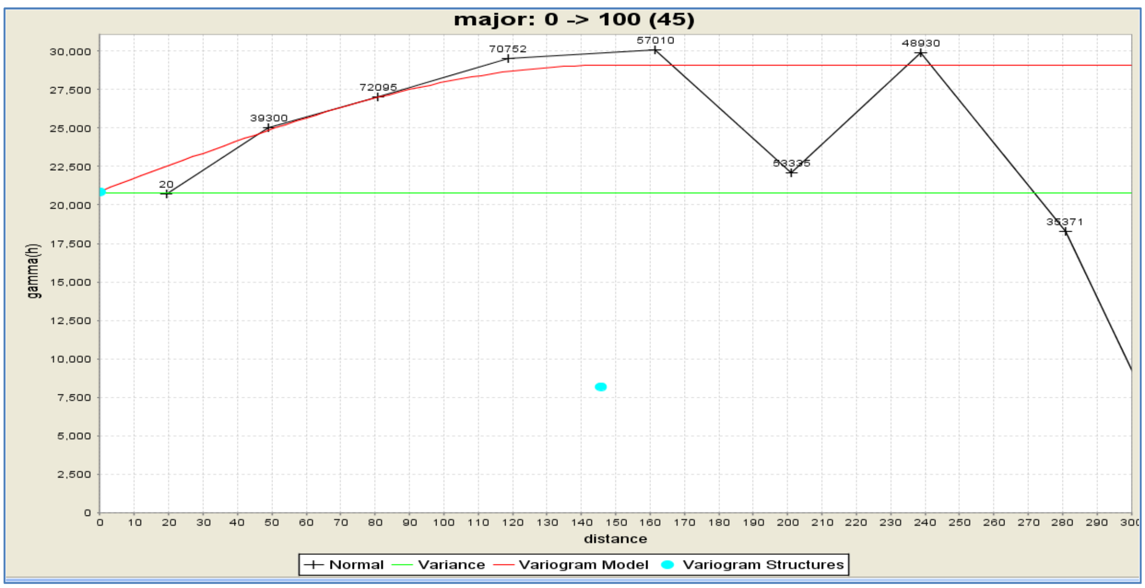


Figure 14-11 Cesium 3-D Variogram within the Mineralized Zones (Major Axis).

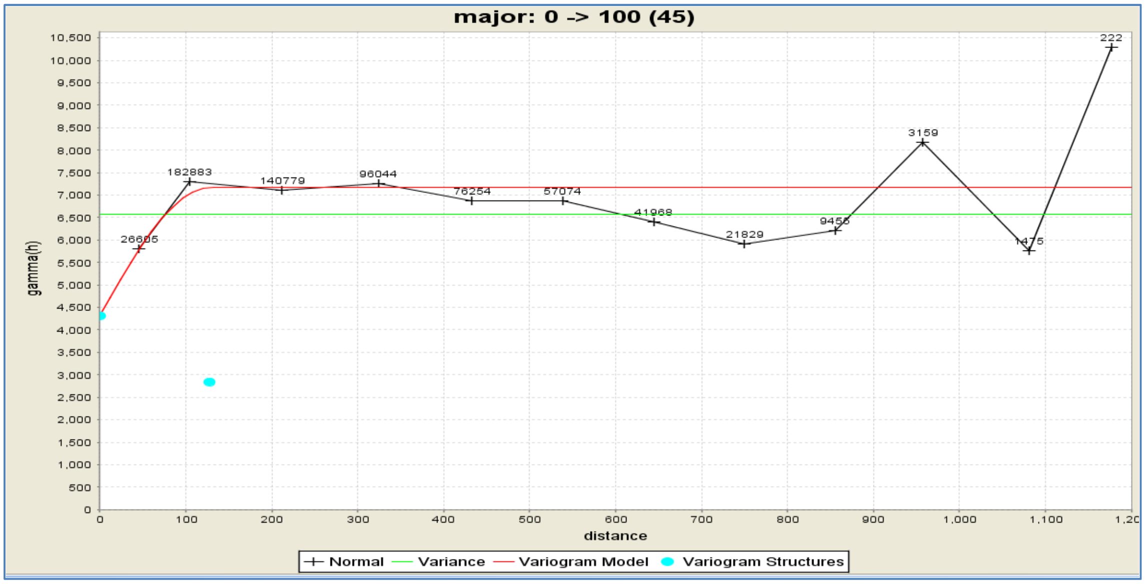


Figure 14-12 Beryllium 3-D Variogram within the Mineralized Zones (Major Axis).

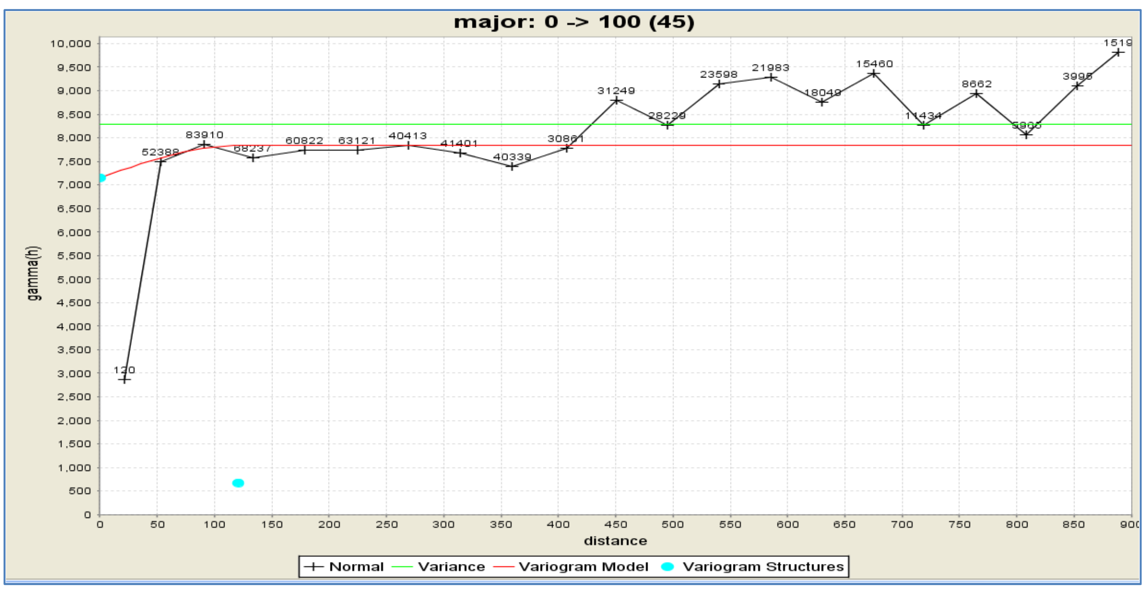
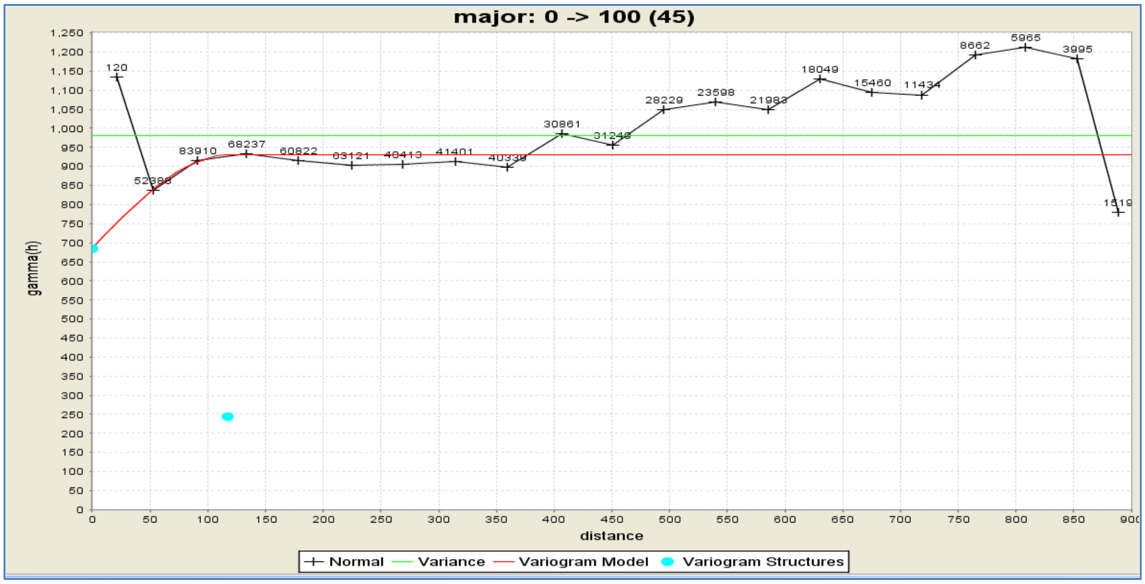


Figure 14-13 Gallium 3-D Variogram within the Mineralized Zones (Major Axis).



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: 200 m x 200 m x 80 m

2) Indicated Ellipse for Li: 50 m x 50 m x 40 m

3) Inferred Ellipse for Ta: 150 m x 80 m x 40 m

4) Indicated Ellipse for Ta: 75 m x 40 m x 20 m

5) Ellipse for Rb: 125 m x 50 m x 50 m

6) Ellipse for Cs: 125 m x 120 m x 50 m

7) Ellipse for Be: 120 m x 100 m x 60 m

8) Ellipse for Ga: 120 m x 100 m x 40 m

14.8 Metallurgical Treatment

No metallurgical testing had been done on rocks from the Rose deposit at the time of estimating the Mineral Resources used in the present Technical 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^3 was derived using 123 samples from the various mineralized zones, with measured values ranging from 2.19 g/cm^3 to 2.86 g/cm^3. 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 the 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 were 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

Mineral 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 Mineral Resources were then retrieved from the Inferred Resources. There is no Measured Mineral Resources 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 (Li_2CO_3) and $317/kg Ta. Prices and OPEX for lithium were taken from GENIVAR’s internal studies for Critical Elements dated June 2011. Prices for tantalum were provided by Critical Elements. 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_2O-equivalent was determined based on lithium and tantalum prices and their respective recovery ratios.

Mineral Resources 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 for this Mineral Resources 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 Resources Classification, Category and Definitions

The Mineral Resources classification definitions used for this Technical 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 Resources estimate can only be classified as Inferred and Indicated Mineral Resources. The estimate follows CIM standards and guidelines for reporting Mineral Resources and Mineral 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 Mineral Resources of 26.5 million tonnes grading 0.98% Li_2O, 163 ppm Ta_2O_5, 2,343 ppm Rb, 92 ppm Cs, 128 ppm Be, 66 ppm Ga, and Inferred Mineral Resources of 10.7 million tonnes grading 0.86% Li_2O, 145 ppm Ta_2O_5, 1,418 ppm Rb, 74 ppm Cs, 121 ppm Be, 61 ppm Ga.** Table 14-1 presents the official resource estimate for the Rose deposit.

Table 14-1 Rose Mineral Resources Estimate.

Rose Resource Estimate dated July 20th, 2011

		Tonnes (x 1,000)	Li2O equivalent (%)	Li2O (%)	Ta2O5 (ppm)	Rb (ppm)	Cs (ppm)	Be (ppm)	Ga (ppm)
Indicated	**Open-pit model**								
	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
	Underground model								
	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
	Total Indicated	**26,500**	**1.30%**	**0.98%**	**163**	**2,343**	**92**	**128**	**66**

		Tonnes (x 1,000)	Li2O equivalent (%)	Li2O (%)	Ta2O5 (ppm)	Rb (ppm)	Cs (ppm)	Be (ppm)	Ga (ppm)
Inferred	**Open-pit model**								
	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
	Underground model								
	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
	Total Inferred	**10,700**	**1.14%**	**0.86%**	**145**	**1,418**	**74**	**121**	**61**

1) The Qualified Persons for this Mineral Resources 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/cm³ 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) Mineral 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_2CO_3) and $317/kg Ta. Prices and OPEX for lithium were taken from GENIVAR's internal studies for Critical Elements, dated June 2011). Prices for tantalum were provided by Critical Elements. 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_2O-equivalent was determined based on lithium and tantalum prices and their respective recovery ratios.
6) Measured Mineral Resources were not estimated. Indicated and Inferred Mineral Resources were evaluated from drill hole results using a block model approach (inverse distance squared interpolation) with 5 m 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 Mineral Resources Sensitivity with Variable Cut-Off for all Zones Combined (Open-Pit Model; Indicated Mineral Resources).

Open-pit model (Indicated Resource)

Zone	Cut-off ($/tonne)	Tonnage (X 1,000)	$/tonne	Li	Ta	Rb	Cs	Be	Ga	Li2O (%)	Ta2O5 (ppm)	Li2O équivalent (%)	$/tonne (Li2O+Ta2O5)
Li Zones	$ 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
	$ 41.00	**23,800**	**128**	**4,867**	**129**	**2,410**	**94**	**131**	**67**	**1.05%**	**157**	**1.35**	**$ 128.06**
	$ 46.00	23,400	130	4,938	129	2,414	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	$ 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
	$ 41.00	**1,900**	**74**	**1,530**	**191**	**1,592**	**80**	**93**	**54**	**0.33%**	**233**	**0.78**	**$ 73.70**
	$ 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 Mineral Resources Sensitivity with Variable Cut-Off for all Zones Combined (Open-Pit Model; Inferred Mineral Resources).

Open-pit model (Inferred Resource)

Zone	Cut-off ($/tonne)	Tonnage (X 1,000)	$/tonne	Li	Ta	Rb	Cs	Be	Ga	Li2O (%)	Ta2O5 (ppm)	Li2O équivalent (%)	$/tonne (Li2O+Ta2O5)
Li Zones	$ 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
	$ 41.00	**7,900**	**116**	**4,400**	**117**	**1,610**	**77**	**126**	**63**	**0.95%**	**143**	**1.22**	**$ 115.95**
	$ 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	$ 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
	$ 41.00	**1,100**	**69**	**1,313**	**190**	**1,079**	**78**	**93**	**54**	**0.28%**	**232**	**0.73**	**$ 68.97**
	$ 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 Mineral Resources Sensitivity with Variable Cut-Off for all Zones Combined (Underground Model; Indicated Mineral Resources).

Underground model (Inferred Resource)

Zone	Cut-off ($/tonne)	Tonnage (X 1,000)	$/tonne	Li	Ta	Rb	Cs	Be	Ga	Li2O (%)	Ta2O5 (ppm)	Li2O équivalent (%)	$/tonne (Li2O+Ta2O5)
Li Zones	$ 4100	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
	$ 5100	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
	$ 6100	1,800	96	3,897	73	753	56	114	54	0.84%	89	101	$ 95.79
	$ 66.00	**1,600**	**99**	**4,066**	**74**	**752**	**55**	**116**	**55**	**0.88%**	**90**	**1.05**	**$ 99.47**
	$ 7100	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
	$ 8100	1,100	111	4,684	70	680	51	119	56	101%	86	1.17	$ 11134
	$ 86.00	1,000	115	4,884	69	645	50	119	56	105%	84	121	$ 115.10
Ta Zones	$ 4100	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
	$ 5100	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
	$ 6100	100	72	568	272	402	84	33	50	0.12%	332	0.76	$ 7190
	$ 66.00	**0**	**73**	**425**	**291**	**256**	**87**	**27**	**50**	**0.09%**	**355**	**0.77**	**$ 73.26**
	$ 7100	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
	$ 8100	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 Mineral Resources Sensitivity with Variable Cut-Off for all Zones Combined (Underground Model; Inferred Mineral Resources).

Underground model (Indicated Resource)

Zone	Cut-off ($/tonne)	Tonnage (X 1,000)	$/tonne	Li	Ta	Rb	Cs	Be	Ga	Li2O (%)	Ta2O5 (ppm)	Li2O équivalent (%)	$/tonne (Li2O+Ta2O5)
Li Zones	$ 4100	1,300	72	1,955	143	1,911	89	110	64	0.42%	174	0.75	$ 7165
	$ 46.00	1,100	76	2,108	147	2,000	87	116	67	0.45%	179	0.80	$ 75.61
	$ 5100	1,000	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
	$ 66.00	**700**	**90**	**2,909**	**140**	**2,098**	**85**	**137**	**72**	**0.63%**	**171**	**0.95**	**$ 90.48**
	$ 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	105	$ 99.68
	$ 8100	400	102	3,679	119	1,999	80	140	71	0.79%	145	107	$ 10164
	$ 86.00	300	108	3,961	123	2,124	83	142	72	0.85%	150	1.14	$ 108.16
Ta Zones	$ 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
	$ 66.00	**100**	**90**	**2,801**	**148**	**2,404**	**108**	**109**	**63**	**0.60%**	**180**	**0.95**	**$ 90.03**
	$ 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	101	$ 96.07
	$ 8100	100	102	3,411	147	2,253	103	115	66	0.73%	179	108	$ 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.

Figure 14-14 shows the casing of hole LR-11-165 with one of the lakes in the background (photo looking NNE; refer to Figure 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 Figure 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. MINERAL RESERVE ESTIMATES

No Mineral Reserves were estimated for the Rose Project.

16. MINING METHODS

16.1 Mining Method

The Rose deposit is made of stacked lenses oriented North 296° having an average dip of 15° to the northeast (varying locally between 5° and 20°). Because the ore body is relatively flat and close to the surface, the Preliminary Economic Assessment of the Rose Lithium Project was based entirely on an open pit operation. A conventional truck and shovel mining method is proposed to mine 193.3 Mt of rock over the life of mine, comprised of 24.3 Mt of ore and 169.0 Mt of waste, for an average stripping ratio of 7:1. Based on a concentrator capacity of 1.5 Mt of ore per year, the life of mine is estimated at 17 years.

For this Technical Report, the mining plan was developed using the best economic pit shell down to a depth of 200 meters.

The possibility of mining deeper horizons of the Rose deposit using an underground mining method will be explored during further studies.

16.1.1 Resource Block Model

The 3D block model for the Rose deposit was provided by InnovExplo to GENIVAR in August 2011 in a Gemcom format. GENIVAR converted it into a Surpac format in order to quantify and evaluate the Rose mineral deposit and plan for the efficient extraction of the mineral resources.

The optimization of the economic pit was solely based on Indicated Mineral Resources, no Inferred Mineral Resources were used to derive the mine plans.

16.1.2 Pit Optimization

The Whittle software was used to complete an economic analysis of the Project. Whittle is a numerical 3D mine optimization tool which uses the Lerch-Grossman algorithm to optimize the pit outline, maximize its profitability and provide annual mining schedules. It was used to generate numerous scenarios and the scenario that optimized the pit geometry and maximized profitability was retained for the Preliminary Economic Assessment (PEA).

Input to the Whittle software included constraints such as geometric requirements, prices, costs, recoveries and scheduling rules. Table 16-1 presents the geometric parameters that were used for the Rose Project pit optimization. The initial geometric parameters were chosen to simplify open pit modeling and are preliminary in nature. A geotechnical analysis of the Rose Project is currently under way and its findings will be used to optimize the bench arrangement and slope angle during further studies.

Table 16-1 Geometric Parameters Used for the Economic Pit.

Parameters	Value
Bench face angle	50°
Benching arrangement	Triple
Overall slope angle	50°
Depth of pit	200 m

Economic parameters used to obtain the optimal economic pit were estimated by GENIVAR and included mining, rehabilitation, processing and recovery costs as well as the selling price of lithium (Table 16-2). The selling price for tantalum was provided by Critical Elements. Costs were either obtained from budgetary estimates provided by suppliers, hands-on knowledge with comparable projects or literature survey.

Table 16-2 Economic Parameters Used for the Economic Pit.

Parameters	Values
Mining Cost	$ 3 per tonne mined
Processing Cost (including G&A)	$ 41 per tonne milled
Selling price of Lithium	$ 32 per kilogram of Lithium (element)
Selling price of Tantalum	$317 per kilogram of Tantalum (element)

The preliminary pit design generated retained for this PEA is illustrated in Figure 16-1 (isometric view) and Figure 16-2 (plan view).

Figure 16-1 Rose Project Economic Pit - Isometric View.

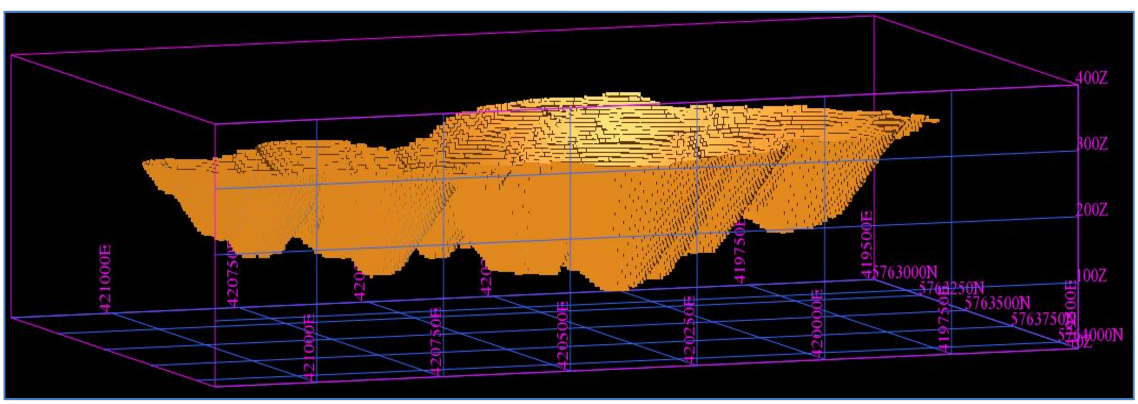
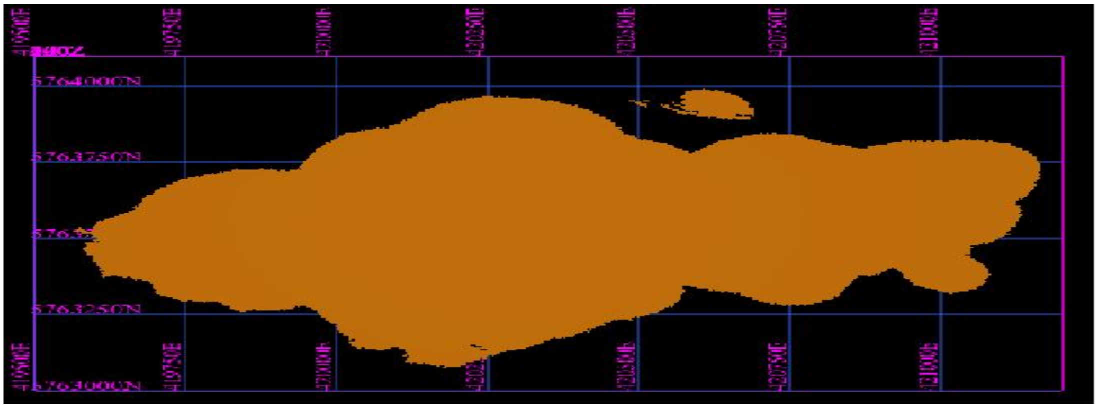


Figure 16-2 Rose Project Economic Pit - Plan View.



16.2 Geotechnical, Hydrological and Other Parameters Relevant to the Pit Design

The economic pit was not designed based on a geotechnical or geomechanical analysis. As mentioned above, a geotechnical study is currently in progress. It will provide details concerning the rock quality designation (RQD), joints and rock characterization as well as an understanding of the rock structure and discontinuities.

A core oriented geotechnical drilling program was completed in the fall of 2011. It will provide information about the main geological structures and their effects on pit wall stability and help building the initial hydrogeological model, as the presence of groundwater can affect wall stability (pore pressure) and mining operations (explosive, pumping needs, tire wear).

A battery of laboratory tests is planned to characterize the rock mass, including Uniaxial Compressive Tests, Triaxial Compressive Resistance Tests, and Brazilian Tests. Results of these tests will improve our understanding of the rock mass behavior as a function of mine induced field stress redistribution. Test results will be used to improve pit design, determine ground support requirements and the ramp dimensions during further studies.

Dewatering and drainage methods should also be discussed in further studies.

16.3 Expected Production Rates and Life of Mine

16.3.1 Pit Optimization Results

The pit showing the best Net Present Value (NPV) that could consistently supply 4,100 tonnes per calendar days of ore to the concentrator was selected as the economic pit. A value of 4,100 t/d of ore sent to the concentrator is compatible with Taylor's approach. Mining dilution was set to 0 in Whittle because an internal block dilution, calculated at 22%, was included in the block model. Mining recovery was set at 100% since the ore and waste are easily distinguishable. Because the ore is white and the waste is grey, it was assumed that Critical Element will be able to implement a means to efficiently separate one from the other. This assumption will need to be reassessed during further studies. The total tonnage of waste rock was estimated at 169.0 Mt while the total tonnage of ore was estimated at 24.3 Mt resulting in a stripping ratio of 7:1. Ore will be comprised of 215,698 tonnes of lithium ore ($LiAl(SiO_3)_2$) and 3,193 tonnes of tantalum ore (Ta_2O_5).

16.3.2 Schedule

Planning and scheduling were based on the economic pit outline presented in section 16.1. The mine is expected to produce ore for a period of 17 years (including the pre-production period). The mine schedule was established to allow three (3) simultaneous pushbacks and the use of an ore stock pile. This approach will ensure a constant feed to the mill. Table 16-3 shows annual ore and waste tonnages as well as the estimated annual grade for lithium and tantalum over the life of mine. Figure 16-3 illustrates the mining, milling and stockpile schedules. According to the proposed plan, the greatest annual amount of rock that will be mined was estimated at 15.0 Mt in Year 10 and Year 11 while the lowest amount was estimated at 2.9 Mt in Year 16.

The total quantity of waste rock extracted over the life of mine was estimated at 169.0 Mt. The quantity of waste rock that will need to be stripped to expose the ore will vary from year to year from at little as 1.8 Mt in Year 16 to as much as 13.8 Mt in Year 10.

The total quantity of ore mined over the life of mine was estimated at 24.3 Mt. The tonnage of ore mined will range between a low of 0.8 Mt in Year -1 and a high of 2.0 Mt in Year 4. An ore stockpile will be used as a buffer to store the ore temporarily and to ensure a constant supply of ore to the mill of 1.5 Mt per year. Tonnage in the ore stockpile will be as low as 0.01 Mt in Year 2 and as high as 1.3 Mt in Year 6. At the end of the mine of life, the ore stockpile will be fully depleted.

The stripping ratio will vary between 1.49 in Year 16 and 11.48 in Year 7 with an average stripping ratio of 6.97:1 over the life of mine.

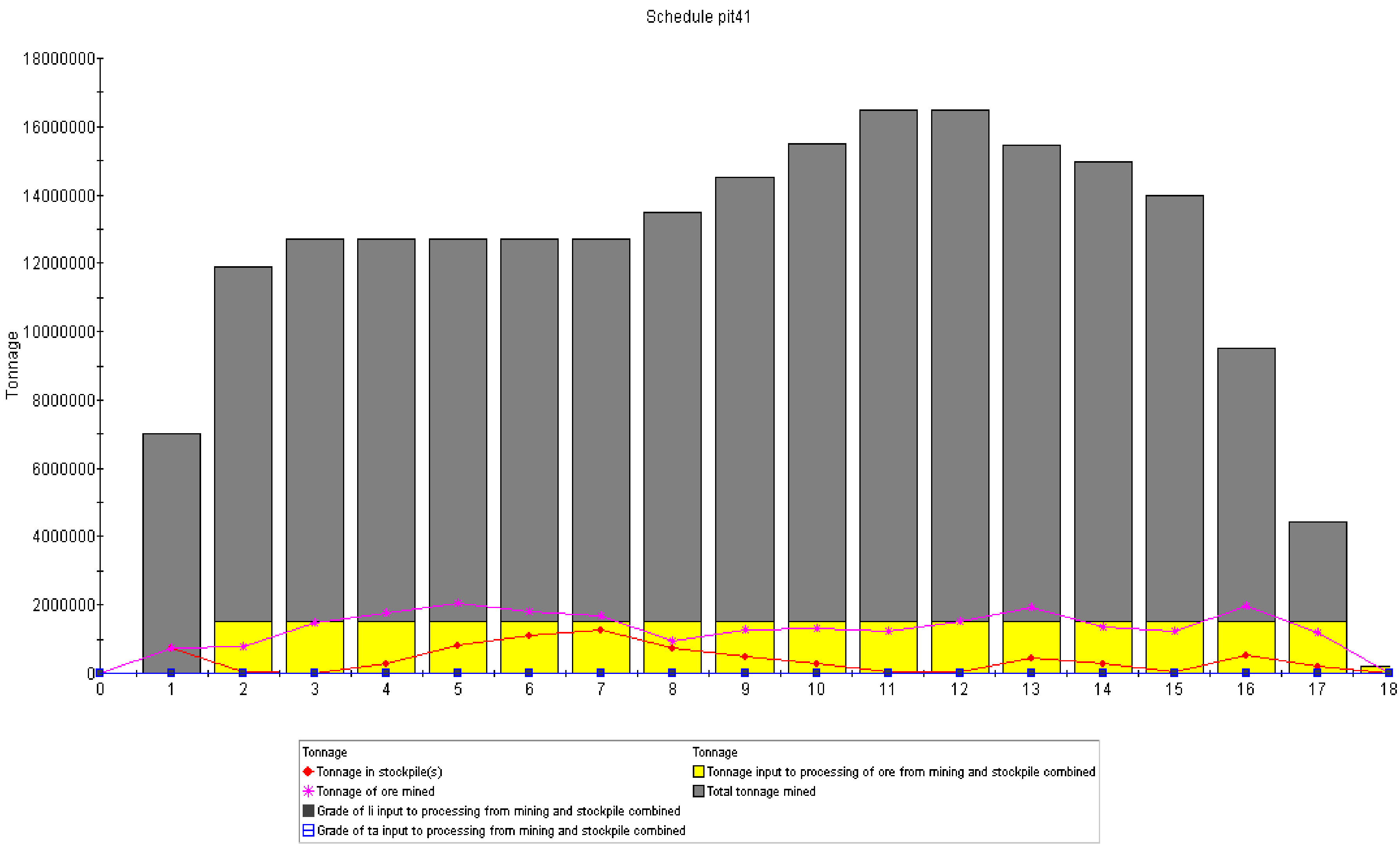
The grade of lithium will vary between 3,308 ppm in Year 10 and 5,275 ppm in Year 3 with an average grade over the life of mine estimated at 4,130 ppm. The grade of tantalum will vary between 69 ppm in Year 16 and 217 ppm in Year-1 with an average grade over the life of mine estimated at 108 ppm.

The dilution grade was estimated at 10% of the average grade for the lithium ore and the tantalum ore. This assumption was based on grade recorded in the core logs.

Table 16-3 Annual Tonnage and Grade for the Rose Project.

Period	Tonnes milled	Tonnes mined	Tonnes waste	Tonnes ore	Tonnes ore stockpile	Strip Ratio	Li Grade mined (ppm)	Ta Grade mined (ppm)
-1	0	7,000,000	6,247,617	752,383	752,383	8.30	3,514.43	216.95
1	1,500,000	10,400,000	9,617,782	782,218	34,601	12.30	4,972.44	118.89
2	1,500,000	11,200,000	9,723,368	1,476,632	11,233	6.58	5,258.94	135.94
3	1,500,000	11,200,000	9,423,061	1,776,939	288,172	5.30	5,275.75	139.58
4	1,500,000	11,200,000	9,157,855	2,042,145	830,317	4.48	4,974.74	132.18
5	1,500,000	11,200,000	9,403,757	1,796,243	1,126,560	5.24	4,582.79	120.30
6	1,500,000	11,200,000	9,521,018	1,678,982	1,305,542	5.67	4,304.22	110.37
7	1,500,000	12,000,000	11,038,425	961,575	767,117	11.48	3,417.86	109.96
8	1,500,000	13,000,000	11,737,229	1,262,771	529,888	9.29	3,382.67	101.75
9	1,500,000	14,000,000	12,700,645	1,299,355	329,243	9.77	3,536.44	100.46
10	1,500,000	15,000,000	13,768,183	1,231,817	61,060	11.18	3,308.94	97.53
11	1,500,000	15,000,000	13,483,523	1,516,477	77,537	8.89	3,555.96	88.05
12	1,500,000	13,975,000	12,059,322	1,915,678	493,215	6.30	3,926.39	89.07
13	1,500,000	13,470,000	12,111,465	1,358,535	351,750	8.92	3,831.99	80.62
14	1,500,000	12,500,000	11,260,009	1,239,991	91,741	9.08	3,410.49	83.49
15	1,500,000	8,000,000	6,014,097	1,985,903	577,644	3.03	3,617.12	78.07
16	1,500,000	2,941,952	1,759,062	1,182,890	260,534	1.49	4,362.40	69.07
17	260 534	0	0	0	0	NA	0.00	0.00
Σ	**24,260,534**	**193,286,952**	**169,026,418**	**24,260,534**	**NA**	**6,97**	**4,130.71**	**107.79**

Figure 16-1 Stockpile Schedule for the Economic Pit.



16.4 Stripping Requirements

The excavation of the open-pit and construction of the infrastructure will require deforesting and stripping the surface overburden. The overburden material is composed of organic material and till sediments which vary in size from sand to gravel to boulder. Fine-grained material such as silts and clays may be found in the deeper layers of the overburden. The overburden covers an area of approximately 939,086m² over the pit shell and its average thickness was estimated at 2 meters. It will be stripped over a 10 year period (between Year 1 and Year 10) using a 6.1 m^3 bucket loader and hauled to the overburden stockpile using two (2) 43-tonne trucks. The overburden will be stored in the overburden stockpile, located next to the waste rock stockpile, until reclamation work closure is carried out at the end of the mine life.

16.5 Mining Fleet

16.5.1 Mining Equipment

The following mining equipment will be used to mine the 10-meter benches:

Drill	Roc L8 (30) for 139.7 mm (5.5 inches) diameter blast holes
Blast	Bulk emulsion explosive Fortis Extra 70
Load	36 m^3 capacity bucket wheel loaders
Haul	136 t payload capacity hauling trucks

It was assumed that a percentage of the waste rock will be used as construction material to build the infrastructures. The bulk of the waste rock will be impounded on the waste rock stockpile. The ore will either be sent to the mill for processing or temporarily stored in the ore stockpile.

It is recommended to use booster sensitive bulk emulsion explosives and electronic detonators. An emulsion explosive is a suitable product for wet blasting application in open cut mines. Blasting parameters for the Rose open-pit are presented in Table 16-4.

Table 16-4 Blasting Parameters for the Rose Project.

Item	Quantity	Units
Hole diameter	139.7	mm
Hole diameter	5.5	inches
Bench height	10	m
Subdrill length	1.0	m
Stemming length	2.4	m
Rock density	2.72	t/m^3
Row burden	4.47	m
Hole Spacing	5.2	m
Rock mass per hole	632.2	t rock/hole
Bulk emulsion density	1.05	g/cm^3
Mass of explosives per hole	138.4	kg explosives/hole
Powder factor	0.22	kg explosive/t rock

It is estimated that between 3 and 15 Mt/year of rock, comprised of 0.7 to 2.0 Mt/year of ore plus 1.8 to 13.8 Mt/year of waste, will be blasted every year. Using a powder factor of 0.22 kg of explosives per tonne of rock, this means that between 0.7 and 3.3 Mkg of explosives will be needed on a yearly basis. Assuming a working period of 365 days per year, the blasting operations will require between about 1,900 and 9,000 kg of explosives per day.

The drilling and blasting plan will be optimized during further studies.

16.5.2 Mining Fleet Selection

The equipment required for the Rose Project is listed in table 16-5. The fleet size was selected with the online Hewitt Equipment Manager services tool and includes a function to manage, schedule and maintain the fleet. Simulations using the Talpac software were then carried out to confirm the results and validate the estimated productivity.

Table 16-5 Mining Equipment List for the Rose Project.

Maximum Number of Units	Mining Equipment	Type
7	Mining truck	785D
1	Water truck	777F
1	Wheel loader (production)	994F
1	Front hydraulic shovel	RH170
1	Wheel loader	IT62H
1	Grader	16M
1	Bulldozer	D9T
3	Drill	Roc L830
1	Mobile fuel/lube truck	82 hp
1	Mechanical field service truck	250 hp
4	Light portable diesel generator	13.6 hp
8	GMC Pickup	Sierra 2500 HD
2	GMC Van	Savana 3500
1	Off road tire service truck	82 hp
1	Backhoe	36 t
2	Overburden truck	740
1	Overburden loader	980H

16.5.3 Manpower

The manpower will vary along the mine life. It is estimated that up to 180 people will be working on the site during the peak production years of the mine (excluding ore processing employees). The mine will be in operation 365 days per year. Table 16-6 shows the estimated manpower requirements based on the proposed fleet of mining equipment and two work shifts per day. The personnel will rotate every two (2) weeks. The professional staff (engineers, technicians and the mine director) will work on a 4-day schedule per week (52 weeks per year). A detailed list of the manpower required to implement the proposed mining plan for the Rose Project is presented in Appendix B.

Table 16-6 Estimated Manpower for the Rose Project.

	Hourly personnel	Staff	Total
Mining	72	0	80
Mechanical	48	0	48
Stripping	12	0	12
Supervision	0	12	12
Engineering	0	16	16
G&A	0	20	20
Total	132	48	180

17. RECOVERY METHODS

The overall mineral processing plant considered in this Technical Report for the treatment of the Rose Tantalum-Lithium ore consist of two separate plants: a concentrator plant and. a lithium carbonate and tantalum recovery plant located at the Rose property.

The metallurgical tests necessary for the PEA were carried out on a balanced composite of all the sections of drilling of the mineral structure of the first 108 holes, therefore quite representative of the structure of the deposit.

The plant is designed to process 192 tph of dry ore (4600 tpd). The equipments availability is 90%. The ROM lithium content is 4023 ppm as Li (0.86% as Li_2O). The overall lithium recovery is 84.8% in lithium carbonate. The current rate of the tantalum recovery process is 50%. Further tests are under process to improve this recovery.

The details are summarised in the Table 17-1 and Table 17-2 below.

Table 17-1 Process Design Criteria and Results (part 1/2).

Designation	Average value	Design value	Unit
Scheduled operating days per year		365	d
Equipment availability			
- Crushing		67	%
- Others		90	%
Plant capacity	4,600	4,800	tpd
Plant feed analysis			
Li_2O	0.86		%
Ta_2O_5	145		ppm
Moisture (assumed)	5		%
Plant recovery			
Flotation	90		%
Lithium carbonate plant recovery	94.2		%
Overall lithium recovery	84.8		%
Tantalum recovery	50		%

Table 17-2 Process Design Criteria and Results (part 2/2).

Annual production		
Spodumene concentrate	200,542	tpy
Lithium carbonate	27,049	tpy
Tantalum oxide	109	tpy

17.1 Concentrator Plant

The concentrator plant is designed to process 1,500,000 tpy. The nominal capacity of the concentrator is 4,600 tpd of mineral at 90% availability. It consists of crushing, grinding and flotation circuit as follows:

17.1.1 Crushing and Grinding Circuit

The crushing and grinding circuit detailed below is illustrated in flowsheet 1/5 (Figure 17-1) at the end of this section.

The Run of Mine (ROM) is transported by 150-tonne trucks and discharged in a 300-tonne hopper equipped with a 600 mm opening stationary grizzly to prevent oversize ore from entering the downstream crusher. The +600 mm fraction is retained on the bars and broken by a rock breaker.

The ore is then reclaimed by an apron feeder feeding a sloped grizzly fitted with a 150 mm opening. This grizzly scalps any fines before feeding a 150 HP (112 kW) jaw crusher at a nominal feed of 300 tph. The product from the crushing circuit (80% minus 150 mm) is sent to a stockpile (10000 tonnes of capacity) via a belt conveyor.

Crushed mineral from the stockpile is then withdrawn by apron feeders and discharged onto a series of two (2) conveyors feeding a 2010 HP (1500 KW) SAG mill equipped with a trommel fitted with 50 mm openings. The under size of which reports to a double deck screen. The screen operates in closed circuit with the SAG mill.

The double deck screen oversize (+2 mm) and the trommel oversize (+50 mm) are combined and conveyed via two (2) conveyors in series to the SAG mill feed.

The double deck screen undersize (-2 mm) is directed to the ball mill discharge pump box at the beginning of the second stage of the grinding process. The slurry formed in the pump box is pumped by two (2) 350 HP (261 kW) slurry pumps (one in operation, one in standby) to a battery of six (6) 500 mm (20 inch) radially-mounted hydro cyclones at a rate of 1000 m^3/h. Theses cyclones operate in a closed circuit with a 3,015 HP (2250 kW) ball mill. The cyclones' under flow (recirculation load assumed to be at 300% of the feed) feed the ball mill. The hydro cyclones overflow (O/F) slurry (80% minus 150 microns) at 30% solids is sent to the rougher conditioner tank at the beginning of flotation process.

It’s worth noting that the ball mill power estimation was based on a Bond work index of 14.1 kWh/t. The same work index is also assumed for the SAG mill power estimation in absence of autogenous work index test value.

17.1.2 Flotation Circuit (Flowsheet 2/5)

The proposed flotation circuit is based on the results of test 27 provided by AcmeMet and contain the following three (3) stages:

- Spodumene Rougher/Scavenger flotation.
- Spodumene Rougher concentrate Cleaner flotation.
- Spodumene Scavenger concentrate first, second and third Cleaners’ flotation.

The flotation circuit detailed below is illustrated in flowsheet 2/5 (Figure 17-2) at the end of this section.

17.1.2.1 Spodumene Rougher/Scavenger Flotation Circuit

The cyclones’ overflow (from the grinding section) is further conditioned in an agitated tank with a promoter at a pulp density of 30% solids. The conditioned slurry then flows into the feed box of eight (8) 14.6 m^3 spodumene rougher flotation cells where a frother is added.

The rougher cells’ tailings combined with the rougher cleaner stage tailings is scavenged using ten (10) 14.6 m^3 mechanical cells before being discharged to the tailings impoundment. The reagents (frother, promoter and collector) are added as required.

17.1.2.2 Spodumene Rougher Concentrate Cleaner Flotation Circuit

Spodumene rougher concentrate flows by gravity to an agitated tank for further conditioning with specific amount of the promoter and the collector mentioned before and then reports to six (6) 14.6 m^3 mechanical flotation cells for further upgrading.

The cleaner rougher flotation concentrate flows by gravity to the flotation concentrate pump box, from where it is pumped to the WHIMS for tantalum recovery. The cleaner rougher flotation tails reports to the scavenger flotation cells.

17.1.2.3 Spodumene Scavenger Concentrate First, Second and Third Scavenger Cleaner Flotation Circuit

The scavenger concentrate is further upgraded in a three-stage cleaning process. In the first stage, six (6) 14.6 m^3 mechanical cells are used. The first cleaner cells tailings are directed to the final tailings pump box where they are mixed with the scavenger cells tails. The first cleaner cells concentrate feed the second cleaner flotation stage for upgrading.

The second scavenging cleaner stage comprises of six (6) 9 m^3 mechanical cells. The second cleaner tails is recirculated back to the first stage, while the concentrate feed the third cleaner stage. The third scavenging cleaner stage comprises of four (4) 9 m^3 mechanical cells. The third cleaner tails is recycled back to the second stage.

17.1.3 Tantalum Recovery Circuit (Flowsheet 2/5)

The flotation concentrates reports to a series of three Wet High Intensity Magnetic Separators (WHIMS). The concentrate passes successively through a rougher and a scavenger in which the separation is processed at 14,500 gauss. The rougher and scavenger tails are combined and cleaned in a cleaner at 5,000 gauss. The tantalum oxide is recovered as the cleaner magnetic concentrate, filtered in a press filter and then weighted and bagged in a 1,000 kg bags. The non magnetic tail consisting of spodumene is reported to a concentrate pump box before being pumped to the thickener.

The tantalum recovery circuit is illustrated in flowsheet 2/5 (Figure 17-2) at the end of this section.

17.1.4 Concentrate Thickening and Filtration (Flowsheet 3/5)

After being separated with its tantalum oxide content, the spodumene concentrate is directed to the 20-meter diameter concentrate thickener. The thickener overflow (water) is removed and recycled to the grinding circuit. The thickened concentrate drawn from the thickener underflow is sent to two (2) parallel vacuum filters for dewatering at approximately 85% solids.

The dewatered concentrate is then directed to the hopper feeding the kiln.

The concentrate thickening and filtration circuit is illustrated in flowsheet 3/5 (Figure 17-3) at the end of this section.

17.1.5 Concentrator Reagents Handling and Storage

Reagents are added to the flotation circuit to enhance selective floatability. The main reagents used in the flotation plant were selected based on AcmeMet laboratory flotation test work (tests 1 to 28). The dosage provided by AcmeMet is used to calculate the required amount of all frother, promoter and collector. These reagents and thickeners' flocculants are mostly received in tank trucks.

All reagents are prepared and stored in a separate self-contained area within the concentrator building and delivered by individual metering pumps or centrifugal pumps to the required addition points. These reagents are prepared using fresh water.

The reagent storage and preparation area is adjacent to the flotation circuit area. A forklift, fitted with a drum handler attachment is used for reagent handling. The reagent system includes unloading and storage facilities, mixing tanks, transfer pumps and feeding equipment.

To ensure containment in the event of an accidental spill, the reagent preparation and storage facility is located within a containment area designed to accommodate the full content of the largest tank. The storage tank is equipped with level indicators and instrumentation to ensure that spills do not occur during normal operation. Appropriate ventilation, fire and safety protection and Material Safety Data Sheet (MSDS) stations is provided at the facility.

Table 17-3 presents an estimate of the quantity of reagents that are required for the spodumene concentrator.

Table 17-3 Annual Quantity of Reagents Required for the Spodumene Concentrator.

Reagents	Consumption	
	kg/m.t. ore	TPY
Promoter	0.55	825,000
Frother	0.12	184,500
Collector	0.43	637,500
Thickener flocculant	0.0028	4.21

17.1.5.1 Promoter

The promoter is used in various sections of the flotation circuit; it is either added to the spodumene rougher conditioner tank, the scavenger conditioner tank, the rougher cleaner conditioner tank and the conditioner tanks of the various scavenger cleaner flotation cells.

The promoter is delivered in liquid form by tank trucks and is stored in a storage tank and pumped undiluted to the different points of addition.

17.1.5.2 Collector

Oleic acid is used in the scavenger flotation, and in the various stages of the scavenger cleaner flotation circuit. Oleic acid is shipped in liquid form by tank trucks, unloaded to a storage tank via an unloading pump and is then stored in a holding tank and distributed in undiluted form to the various addition points of the flotation process via individual metering pumps.

17.1.5.3 Frother

The frother, methyl isobutyl carbinol (MIBC) used during the AcmeMet test 27 or any other equal frother, is delivered in liquid form by tank trucks and unloaded to a storage tank via an unloading pump. Two transfer pumps (one operating and one in standby) feed a head tank. The frother is then fed at controlled rates to the rougher scavenger flotation cells, to the cleaner rougher flotation cells, to the 3 stages of scavenger cleaner flotation cells and the first bulk cleaner feed distributor of the cleaner/scavenger flotation circuit.

17.1.5.4 Flocculant

A series of settling test must be performed to accurately determine the type and consumption rate of flocculant required for both spodumene concentrate and lithium carbonate settling. At this PEA step, consumption rates are estimated referring to our experience with this type of material. The flocculant is shipped in 25 kg bags by trucks, then prepared in a wetting and mixing system, diluted and stored in a holding tank. The flocculant solution is fed to the concentrate thickener feedwell by metering pumps.

17.1.6 Plant Services Utilities

17.1.6.1 Process Water

Process water for this part predominately consists of recycled water from the spodumene concentrate thickener overflow and tailings pond. See material balance sheet for water balance (Table 17-6).

17.1.6.2 Air

Air for the different flotation cells is supplied by an air blower.

17.2 Lithium Carbonate Plant

In the past, the sulphuric acid leach process was used to extract the lithium from the spodumene, a lithium alumino-silicate mineral ($LiAlSi_2O_6$). However, that process also extracted much of the other minerals which were in the spodumene flotation concentrate, rendering the isolation and purification of the lithium carbonate difficult.

The Quebec based research organization CRM studied and piloted an alternate process which allowed for the isolation and purification of the lithium carbonate to be less complicated. This process was evaluated on the pilot scale at CRM research facilities and the process design parameters determined. The same process was used industrially at the plant of the Sullivan Mining Group (Quebec Lithium Corporation) in the 1960's.

This process is based on the transformation of the α-spodumene to β-spodumene in a kiln followed by a leaching of the β -spodumene with sodium carbonate (Na_2CO_3). During the leaching process, lithium carbonate (Li_2CO_3) precipitates in the aqueous solution while the rest of the mineral react with the Na+ to form an hydrated aluminium sodium silicate ($NaAlSi_2O_6 \cdot H_2O$) known as analcite (or analcime), a very stable mineral. To remove the precipitated lithium carbonate from the rest of the solid, it is reacted with carbon dioxide gas (CO_2) under pressure to form lithium bicarbonate ($LiHCO_3$) which is soluble in the aqueous solution. After this stage the slurry is filtered and washed to recover the lithium values in the liquor.

The lithium carbonate solid is finally recovered from the mother liquor by reducing the pressure to atmospheric pressure and heating the liquor to expel the carbon dioxide. This results in the precipitation of the lithium carbonate which is filtered and dried. The spent liquor with lithium values remaining in is recycled back to the lixiviation (leaching) section.

The following description of the lithium carbonate plant is based on the CRM process. The process includes six (6) elementary steps, which are briefly outlined in section 17.2.1 to 17.2.6 below. Steps 1 to 4 are illustrated in flowsheet 4/5 (Figure 17-4) while steps 5 and 6 are illustrated in flowsheet 5/5 (Figure 17-5) at the end of this section.

17.2.1 Decrepitation (Step 1 - Flowsheet 4/5)

Natural spodumene (α-spodumene) is chemically inert, and does not react with sulphuric acid or sodium carbonate. When exposed to heat, α -spodumene converts to β spodumene, which is less dense and more reactive. This step is called decrepitation and is accomplished in a rotary kiln at 1,038°C with a residence time of 40 min.

The production of lithium carbonate from the decrepitated spodumene occurs over several stages which are described briefly below.

17.2.2 Lixiviation (Step 2 - Flowsheet 4/5)

The decrepitated spodumene is mixed with a saturated solution of sodium carbonate. This mixture is fed into two (2) autoclaves equipped with agitators, at a pressure of 310 psi (21.37 bars) at 215°C for 1 hour. The autoclaves are heated by thermo fluid in closed circuit with the boiler. The slurry is cooled by passing it through a first heat exchanger where the filtrate coming from the lithium bicarbonate solution tanks is heated and the slurry cooled. A second heat exchanger allows the slurry to cool further by using liquid CO_2 until its temperature reaches 27°C.

17.2.3 Bicarbonatation (Step 3 - Flowsheet 4/5)

The lithium carbonate formed during the previous step of lixiviation is in solid state and therefore mixed with the non-reacted part of the spodumene (analcite). To remove that lithium carbonate from analcite, it is transformed to lithium bicarbonate which is soluble. Once the product has cooled to 27°C, the slurry is transferred into vertical bicarbonatation vessels at 150 psi pressure. CO_2 is injected into the slurry under pressure. Lithium carbonate is transformed to lithium bicarbonate and dissolves in solution. When the reaction is completed, the slurry is pumped into a large surge tank.

17.2.4 Filtration (Step 4 - Flowsheet 4/5)

The solution passes through a filter press, where the solids are removed, washed with water and repulped before being directed to the tantalum recovery plant. The filtrate reports to a storage tank and is pumped to the lithium carbonate precipitator via the heat exchanger where it cools the autoclave slurry product.

17.2.5 Precipitation (Step 5 - Flowsheet 5/5)

The lithium bicarbonate solution is precipitated in stainless steel vessels equipped with agitators; the temperature is raised to 90°C. Carbon dioxide gas is expelled and lithium carbonate is precipitated. The lithium carbonate slurry is then pumped to the thickener to be thickened.

17.2.6 Filtration and Drying (Step 6 - Flowsheet 5/5)

The thickener underflow is pumped to a vacuum filter, which feed a rotary dryer through a screw feeder. The dryer discharges lithium carbonate in powder form. The lithium carbonate is stored into a silo ready for shipment.

A dust collector system is used to capture any dust formed during this operation.

The vacuum filter's filtrate is stored in a receiver and pumped back to the thickener. The thickener overflow is returned to a storage tank then causticized and returned to the leaching stage. During the causticizing process the excess of sodium carbonate which is transformed to sodium bicarbonate in the bicarbonators is transformed back by addition of caustic soda to sodium carbonate. Recirculating this spent liquor permit recovery of both lithium and sodium carbonate remaining values.

The CO_2 gas removed from the lithium precipitators, the filter feed surge tank and the filtrate tank is recovered by one compressor. A fresh amount of CO_2 liquid passing through a heat exchanger is injected in the compressor to compensate the losing part estimated at 40% of the feed. According to the discussions we have had with some specialists in this area, it's reasonable to predict more than 90% of the used CO_2 to be recovered and recycled.

17.3 Lithium Carbonate Plant Reagents Handling and Storage

Table 17-4 presents an estimate of the quantity of reagents that will be required in the lithium carbonate plant using the CRM process.

Table 17-4 Annual Quantity of Reagents Required for Lithium Carbonate Plant.

Reagents	**Consumption**	
	kg/m.t. ore	**tonne/year**
NaOH	19.86	29,796
Na_2CO_3	21.13	31,698
CO_2	10.37	15,562
Flocculant	0.00065	0.968

The sodium hydroxide is mainly used to produce the soda ash required for leaching section. Therefore the main cost of soda ash is included in the sodium hydroxide cost.

17.3.1 Sodium Carbonate

A large volume of sodium carbonate estimated at 31,700 tpy is required to extract lithium carbonate using the CRM process. Sodium carbonate unit, with a kiln as the main equipment will be built on site. The required sodium hydroxide to produce sodium carbonate and caustisize the spent liquor will be purchased. Anthracite (the selected combustible) during its combustion produces the required CO_2 to make sodium carbonate. The CO_2 required for bicarbonatation section is purchased but the possibility to have it either from anthracite combustion must be prospected. Tests will be conducted to confirm the feasibility and economical strength of this choice compared to the expensive alternative of purchasing both sodium carbonate and CO_2. The Possibility of using the flue gas from the main kiln will be investigated as well.

17.3.2 CO_2

At the actual rate of 60% of CO_2 recovery from the process, the estimated amount of CO_2 required to compensate the loss is approximately 16,000 tpy. However we are optimistic to bring this rate to over 90% and reduce drastically fresh CO_2 need.

17.4 Tantalum Recovery

Tantalum recovery tests based on the Wet High Intensity Magnetic Separation (WHIMS) were conducted on flotation concentrate by the laboratory AcmeMet. The tests were conducted on an Eriez L4 laboratory model. The recovery gained during the first tests is around 50% which is low. Further tests are being conducted to improve the recovery. A proposal for an alternative recovery process made by Bumigeme based on an acidic lixiviation dissolving both tantalum and niobium followed by a selective solvent extraction process is also under study by the AcmeMet laboratory in Vancouver. Heavy media separation approach is also being considered.

17.5 Process Flowsheets

A generalized process schematic to produce both spodumene concentrate and lithium carbonate is illustrated in Figures 17-1 to 17-5. The flotation circuit is based on the flotation tests results provided by AcmeMet while the lithium carbonate circuit is based on the work done by Centre de Recherche Minérale (CRM). The tantalum recovery flowsheet will be provided at the end of laboratory tests.

- Figure 17-1: Flowsheet Diagram – Sheet 1/5 – Crushing and Grinding Circuit.
- Figure 17-2: Flowsheet Diagram– Sheet 2/5 - Flotation Circuit and Tantalum Recovery.
- Figure 17-3: Flowsheet Diagram – Sheet 3/5 – Spodumene Concentrates Filtering and Tantalum Recovery.
- Figure 17-4: Flowsheet Diagram – Sheet 4/5 – Lithium Carbonatation Circuit.
- Figure 17-5: Flowsheet Diagram – Sheet 5/5 – Lithium Precipitation and Drying Circuit.

Figure 17-1 Preliminary Flowsheet Diagram – Sheet 1/5 – Crushing and Grinding Circuit.

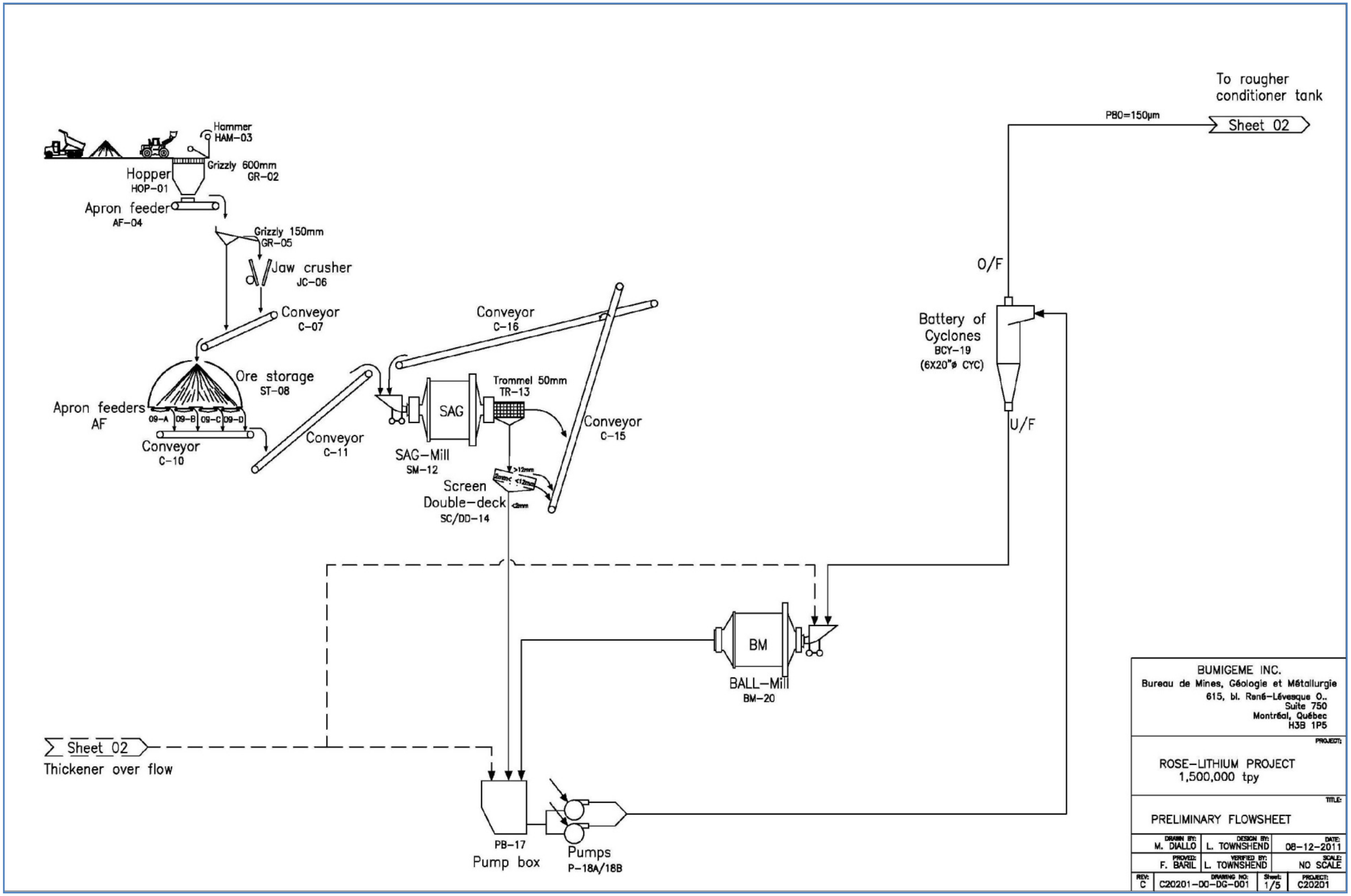


Figure 17-2 Preliminary Flowsheet Diagram – Sheet 2/5 – Spodumene Flotation Circuit and Tantalum Recovery.

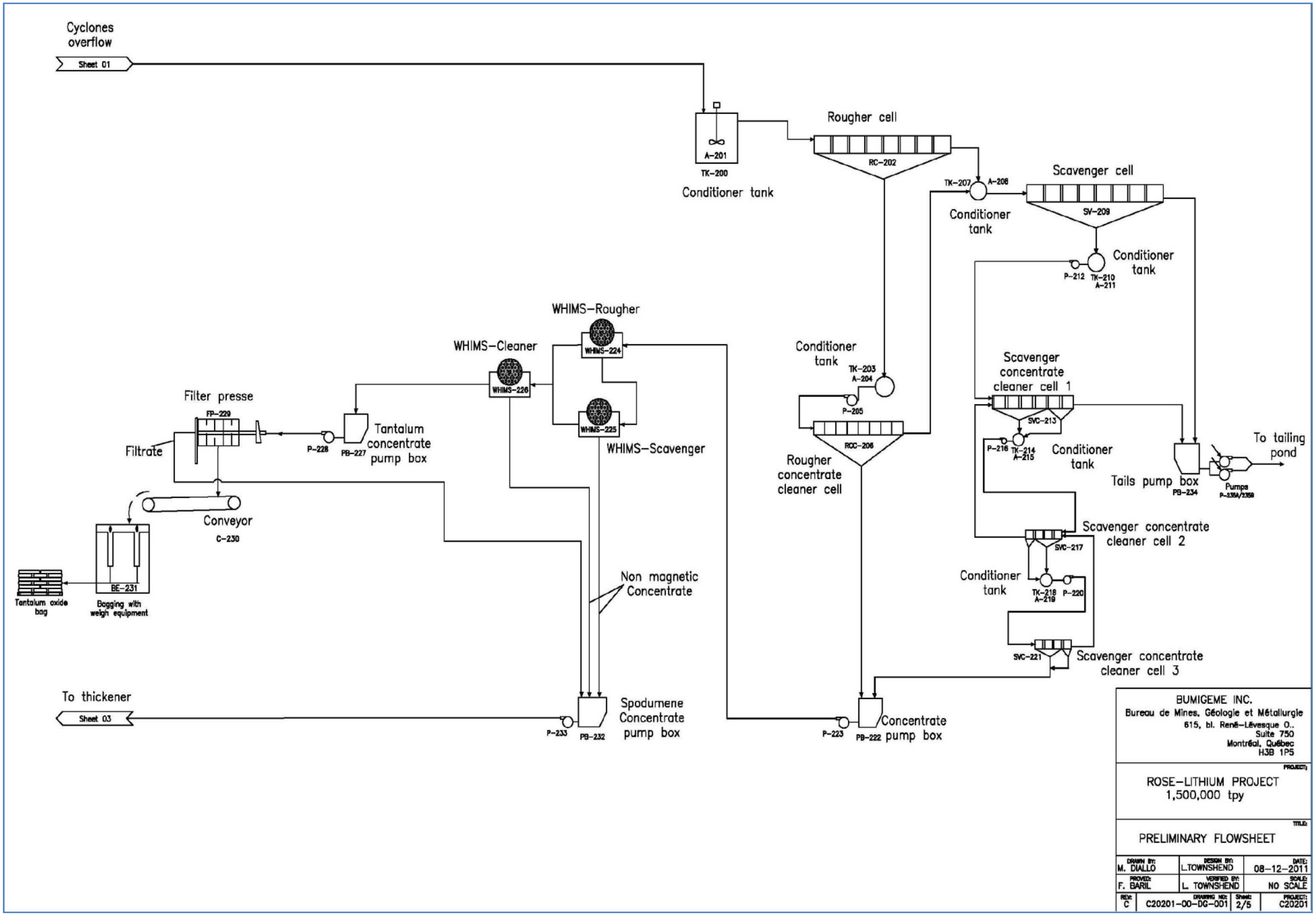


Figure 17-3 Flowsheet Diagram – Sheet 3/5 – Spodumene Concentrate Filtration Circuit.

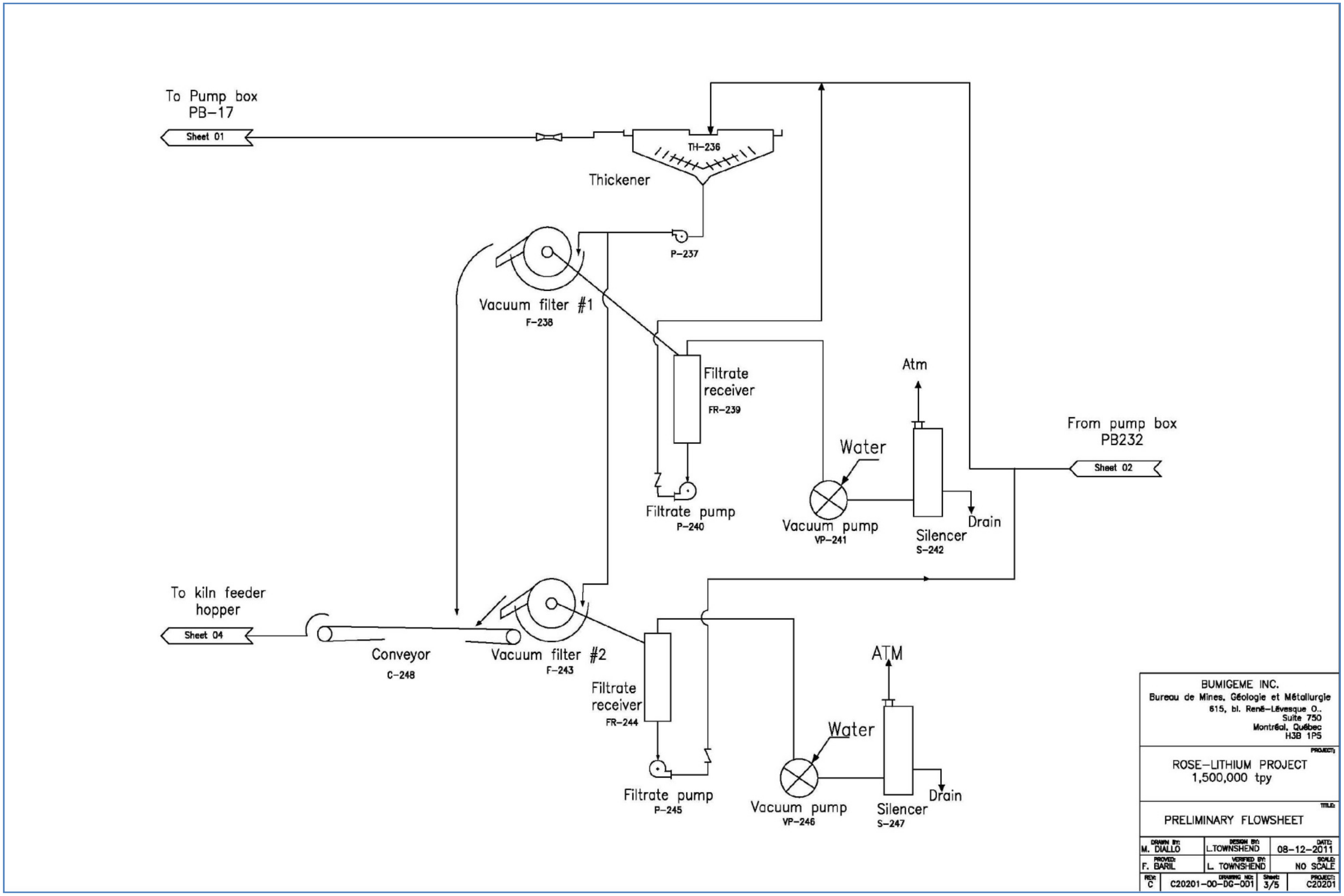


Figure 17-4 Flowsheet Diagram – Sheet 4/5 – Lithium Carbonatation Circuit.

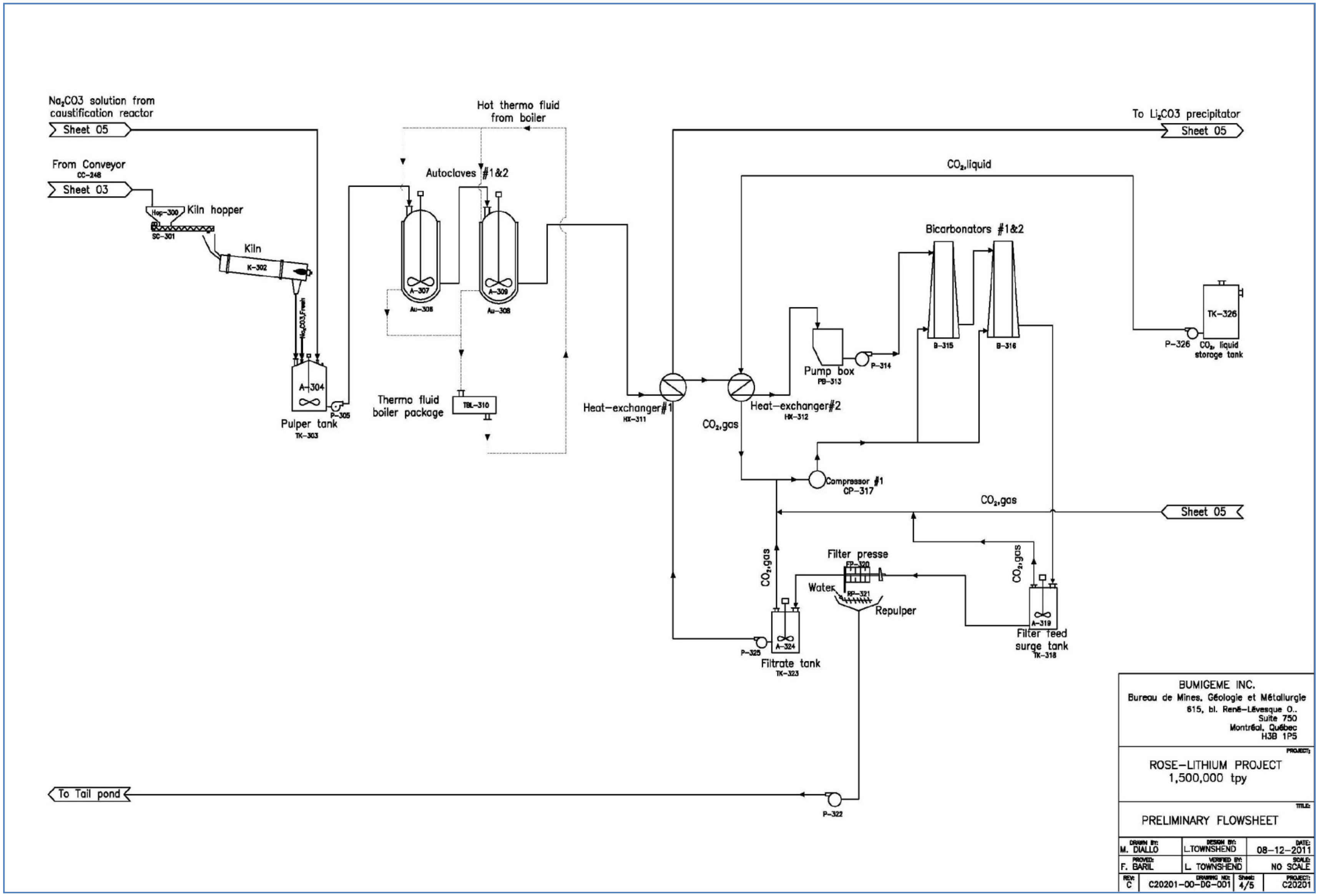
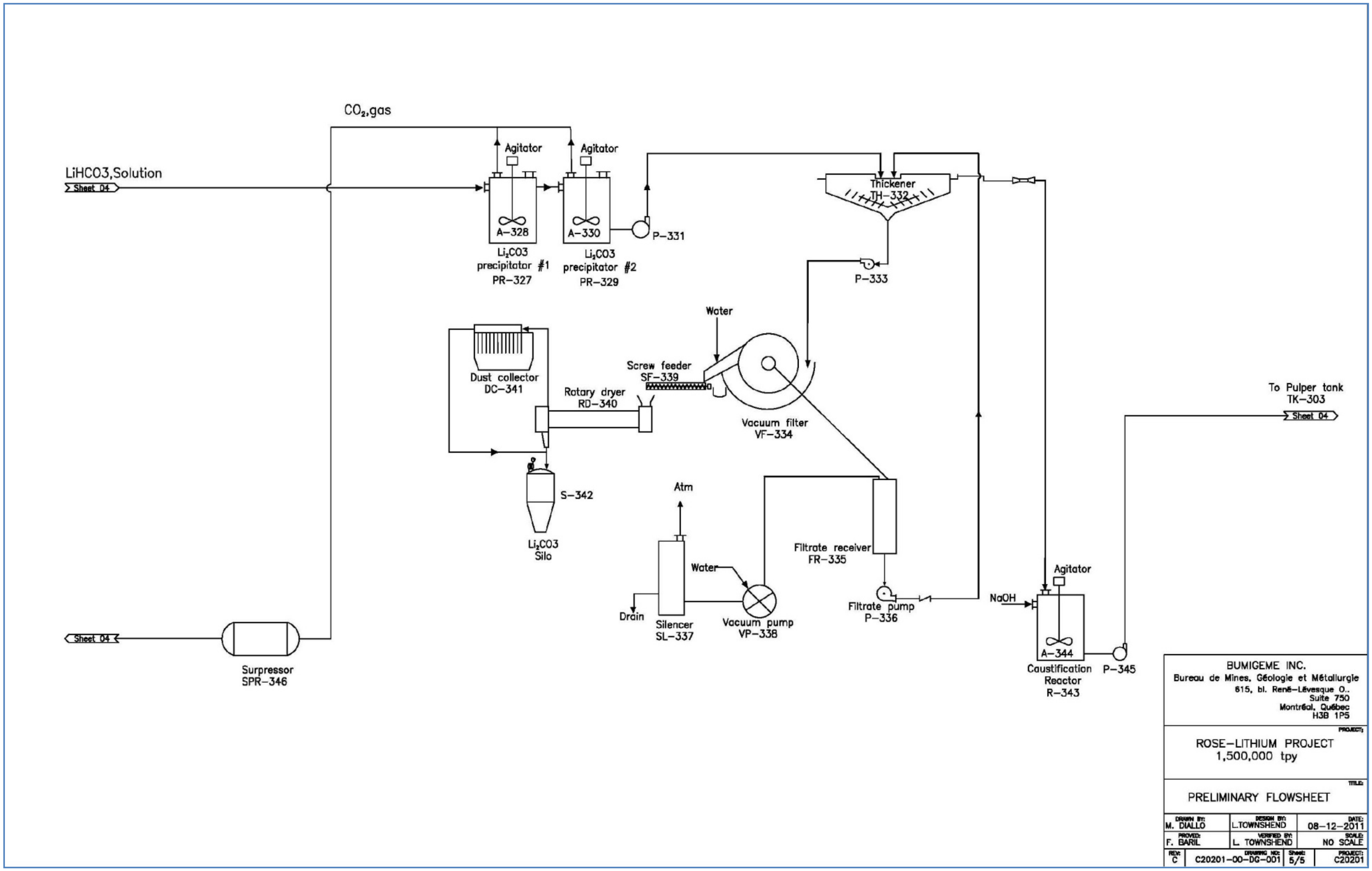


Figure 17-5 Preliminary Flowsheet Diagram – Sheet 5/5 – Lithium Precipitation and Drying Circuit.



17.6 Process Material balance

Table 17-5 presents a material balance for the mineral process.

Table 17-5 Material Balance - Part 1/3 (Crushing and Grinding).

CLIENT GENIVAR	**MINE PROJECT 1,500,000 TONNES**		**BUMIGEME NO: C 20201 CUSTOMER NO:**	**DELIVERED BY BUMIGEME**
	DATE: 20-10-2011	**REVIEW : B**	**ND**	
MADE BY	**CHECKED BY**		**APPROUVED BY**	
M. K. DIALLO	L. TOWNSHEND		F. BARIL	

Identification	**Solid % Feed (Lab test)**	**Ore**			**Water**	**Slurry**				**Water**			
Unit		**tph**	**m^3/h**	**SG**	**m^3/h**	**tph**	**m^3/h**	**SG**	**%solid**	**Sealing**	**Process**	**Clean**	**Other**
Run of mine		200	64.5	3.10	0.0	200.0	64.5	3.10	100%				
JAW CRUSHER													
Day work time Hr	16	312.5	100.8	3.10	0.0	312.5	100.8	3.10	100%				
SAG CIRCUIT													
Run of mine		200	64.5	3.10	0.0	200.0	64.5	3.10	100%				
Screen overflow		40	12.9	3.10	4.4	44.4	17.3	2.56	90%				
SAG-Mill feed		240.0	77.4	3.10	102.9	342.9	180.3	1.90	70%				
Water flow to SAG-Mill					98.4	98.4	98.4	1.00			98.4		
Ball-MILL CIRCUIT													
Water to screen					1.0	1.0	1.0	1.00		1.0			
Screen under flow		200.0	64.5	3.10	99.4	299.4	163.9	1.83	67%				
Cyclones underflow (with 300% of recycling)		600.0	193.5	3.10	323.1	923.1	516.6	1.79	65%				
Ball-MILL discharge		600.0	193.5	3.10	600.0	1200.0	793.5	1.51	50%				
Water to BM					277	276.9	276.9	1.00			277		
Pump box		800.0	258.1	3.10	699.4	1499.4	957.5	1.57	53%				
Cyclone feed		800.0	258.1	3.10	788.2	1588	1046	1.52	50%				
Process water to ball-mill discharge pump box					88.8	88.8	88.8	1.00			88.8		
Cyclone overflow		200.0	64.5	3.10	465.1	665.1	529.6	1.26	30%				

Table 17-5 Material Balance - Part 2/3 (Flotation).

FLOTATION	**Solid %**	**Ore**			**Water**	**Slurry**				**Water (m^3/h)**			
Rougher	**Feed (Lab test)**	**tph**	**m^3/h**	**SG**	**m^3/h**	**tph**	**m^3/h**	**SG**	**% solid**	**Sealing**	**Process**	**Clean**	**Other**
Conditionning tank before rougher		200.0	64.5	3.10	467	666.7	531.2	1.26	30%				
Rougher concentrate to overflow	19%	38.2	12.3	3.10	216	254.7	228.8	1.11	15%				
Additionnal water to improve concentrate flowing					127.3	127.3	127.3	1.00			127.3		
Rougher concentrate out of rougher cell		38.2	12.3	3.10	344	382.0	356.1	1.07	10%				
Rougher underflow		161.8	52.2	3.10	250.2	412.0	302.4	1.36	39%				
Conditionning tank before rougher concentrate cleaner		38.2	12.3	3.10	343.8	382.0	356.1	1.07	10%				
Rougher cleaner concentrate to over flow	14.9%	29.8	9.6	3.10	169	198.7	178.5	1.11	15%				
Additionnal water to improve concentrate flowing					99.3	99.3	99.3	1.00			99.3		
Rougher cleaner concentrate		29.8	9.6	3.10	268	298.0	277.8	1.07	10%				
Rougher cleaner tail		8.4	2.7	3.10	174.9	183.3	177.6	1.03	5%				
Scavenger													
Conditionning tank before scavenger		170.2	54.9	3.10	425	595.3	480.0	1.24	29%				
Water addition					0	0.0	0.0	1.00			0.0		
Scavenger concentrate to overflow	14.4%	28.8	9.3	3.10	163	192.0	172.5	1.11	15%				
Additionnal water to improve concentrate flowing					96.0	96.0	96.0	1.00			96.0		
Scavenger concentrate to 1st scavenger cleaner		28.8	9.3	3.10	259	288.0	268.5	1.07	10%				
Scavenger tail		141.4	45.6	3.10	262	403.3	307.5	1.31	35%				
Conditionning tank before scavenger 1st cleaner		37.2	12.0	3.10	429	466.7	441.5	1.06	10%				
scavenger 1st cleaner concentrate to overflow	8.0%	16	5.2	3.10	91	106.7	95.8	1.11	15%				
Additionnal water to improve concentrate flowing					53.3	53.3	53.3	1.00			53.3		

Table 17-5 Material Balance - Part 2/3 (Flotation - continuation).

FLOTATION	**Solid %**	**Ore**			**Water**	**Slurry**				**Water (m^3/h)**			
Rougher	**Feed (Lab test)**	**tph**	**m^3/h**	**SG**	**m^3/h**	**tph**	**m^3/h**	**SG**	**% solid**	**Sealing**	**Process**	**Clean**	**Other**
1st scv cleaner concentrate to 2nd scv cleaner		16	5.2	3.10	144	160.0	149.2	1.07	10%				
scavenger 1st cleaner tail		21.2	6.8	3.10	339	360.0	345.6	1.04	6%				
Conditionning tank before scavenger 2nd cleaner		16	5.2	3.10	144	160.0	149.2	1.07	10%				
scavenger 2nd cleaner feed		18.8	6.1	3.10	195	213.3	200.6	1.06	9%				
scavenger 2nd cleaner concentrate to overflow	5.2%	10.4	3.4	3.10	59	69.3	62.3	1.11	15%				
Additional water to improve concentrate flowing					34.7	34.7	34.7	1.00			34.7		
2nd scv cleaner concentrate to 3rd scv cleaner		10.4	3.4	3.10	94	104.0	97.0	1.07	10%				
scavenger 2nd cleaner tail		8.4	2.7	3.10	170	178.7	173.0	1.03	5%				
Conditioning tank before scavenger 3rd cleaner		10.4	3.4	3.10	94	104.0	97.0	1.07	10%				
scavenger 3rd cleaner concentrate to overflow	3.8%	7.6	2.5	3.10	43	50.7	45.5	1.11	15%				
Additional water to improve concentrate flowing					25.3	25.3	25.3	1.00			25.3		
3rd scv cleaner concentrate		7.6	2.5	3.10	68	76.0	70.9	1.07	10%				
3rd scv cleaner tail		2.8	0.9	3.10	51	53.3	51.4	1.04	5%				
Total flotation concentrate		37.40	12.1	3.10	337	374.0	348.7	1.07	10%				
Total tail		162.60	52.5	3.10	601	763.3	653.2	1.17	21%				
Water recovered after natural tailing settling	**70%**				**531**	531.0	531.0	1.00			-531.0		

Table 17-5 Material Balance - Part 3/3 (Lithium Carbonate).

LITHIUM CARBONATE CIRCUIT	Solid % Feed (Lab test)	Ore			Water	Slurry				Water (m^3/h)			
Decrepitation (95%)		tph	m^3/h	SG	m^3/h	tph	m^3/h	SG	%solid	Sealing	Process	Clean	Other
Kiln feed		26.74	8.6	3.10	4.7	31.5	13.3	2.36	85%				
PAF	2.04%	0.55	0.2	3.10	0	68.0							
Kiln discharge		26.19	8.4	3.10	0	26.2	8.4	3.10	100%				
Li_2O kiln discharge	5.84%	1.48											
Lixiviation (96%)													
Na_2CO_3 stoech		5.2											
Na_2CO_3 excess of 20%		6.3											
Water for preparation	14%				45	44.9	44.9	1.00				44.9	
Na^+	2.73												
Concentration of Na^+	60.75												
Pulper tank		26.19	8.4	3.10	45	76.2	53.4	1.43	34%				
Autoclave Feed (		26.19	8.4	3.10	45	76.2	53.4	1.43	34%				
Autoclave discharge		37.26	12.0	3.10	43	80.5	55.2	1.46	46%				
Li_2CO_3 formed		3.51											
Loss of Na^+	5.0	2.1837											
Bicarbonatation (92%)													
Bicarbonator feed		37.26	12.0	3.10	43	80.5	55.2	1.46	46%				
CO_2 required for Li_2CO_3 (stoechiometric)		2.09											
CO_2 required for the excess of Na_2CO_3 (stoechiometric)		0.435											
CO_2 required with (50% as excess)		3.79											
CO_2 required with (50% as excess) in m^3/h STP	1.9												
Bicarbonator discharge		34.03	11.0	3.10	43	77.2	54.2	1.43	44%				
Filter press													
Filter F318 feed tank		34.03	11.0	3.10	43	77.2	54.2	1.43	44%				
Filter cake		34.03	11.0	3.10	4	38.1	15.1	2.53	89%				
Repulper													
$LiCO_3$ loss with cake		0.27											

Table 17-5 Material Balance - Part 3/3 (Lithium Carbonate - continuation).

LITHIUM CARBONATE CIRCUIT	Solid % Feed (Lab test)	Ore			Water	Slurry				Water (m^3/h)			
		tph	m^3/h	SG	m^3/h	tph	m^3/h	SG	%solid	Sealing	Process	Clean	Other
Water to filter					7	6.6	6.6	1.00				6.6	
Concentration of Na^+ (g/l)	10.961												
Filtrate		0	0.0	3.10	46	45.7	45.7	1.00					
Li2CO_3 precipitator													
Feed		0	0.0	3.10	46	45.7	45.7	1.00					
Discharge		3.25	1.0	3.10	46	48.9	46.7	1.05	7%				
Thickener													
Feed		3.25	1.0	3.10	46	48.9	46.7	1.05	7%				
Filtrate to thickener					6.3	6.3	6.3	1.00	0%				
Polymer													
Under flow		3.25	1.0	3.10	6	9.3	7.1	1.31	35%				
Over flow					46	46.0	46.0	1.00			-1.0	-44.9	
Drum filter													
Feed		3.25	1.0	3.10	6	9.3	7.1	1.31	35%				
Filter cake		3.25	1.0	3.10	0.6	3.8	1.6	2.36	85%				
Water to filter					0.9	0.9	0.9	1.00				0.9	
Filtrate					6.3	6.3	6.3	1.00					
Concentration of Na^+ (g/l)	9.59												
Na+ loss with cake	0.005												
Caustification													
Feed					46.0	46.0	46.0	1.00					
Out													
Rotary dryer													
Feed		3.25	1.0	3.10	0.6	3.8	1.6	2.36	85%				
Dryer discharge		3.25	1.0	3.10	0	3.2	1.0	3.10	100%				
Concentration of Na^+ (g/l) final	10.8												
Na^+ final (tonne)	0.495												
Na^+ need (tonne)	1.739												
Na_2CO_3 need (tonne)	4.0												

The whole process water need is 900 m^3/h as process water and 55 m^3/h as clean water mainly for spodumene-β repulping after the kiln and filters wash water (Table 17-6). The high recycling rate of process water and the reuse of spent caustisized liquor permit to decrease the net need of water at 36 m^3/h for process water and 10 m^3/h for clean water.

Table 17-6 Water Balance.

	Process water	Clean water
	m^3/h	
Total in	900	55
Recycled	864	45
Net	**36**	**10**
Total Need	**45**	

17.7 Mineral Processing Equipment

Table 17-7 to Table 17-10 present lists of equipment that will be required for the concentrator and the lithium bicarbonatation plant based on the process described above. The costs for these two (2) plants are estimated at approximately 24 millions dollars. The main equipments will consist of one (1) SAG mill (4.1 M$), one (1) ball mill (2.3 M$) and one (1) decrepitation kiln (8.8 M$). Together, these three (3) pieces of equipment will amount for about 62% of the plant equipment cost.

Table 17-7 Mineral Processing Preliminary Equipment List - Part 1/2 (Communition).

CUSTOMER: GENIVAR		MINE PROJECT 1,500,000 TONNES PER YEAR		SUPPLIER BUMIGEME
		DATE: 20-10-2011	REVISION : B	
MADE BY:		VERIFIED BY:		APPROUVED BY:
M.K. DIALLO		L.TOWNSHEND		F. BARIL
		COMMUNITION		
SECTOR No.	**EQUIPMENT No.**	**DESCRIPTION**	**CAPACITY/DIM.**	**POWER (HP)**
1	HOP_01	Hopper run of mine	300 mt	
1	GR_02	Grizzly	600 mm	
1	Ham_03	Hammer	50 t/h/15mx650mm	
1	AP_04	Apron feeder	36" x 18'	30
1	GR_05	Grizzly	150 mm	
1	JC_06	Jaw crusher . Double toggle	42" x 48"	150
1	C_07	Conveyor	610 mm x 200m	50
1	ST_08	Ore storage	10000 mt	
1	AP_09A	Apron feeder	36" x 33'	30
1	AP_09B	Apron feeder	36" x 33'	30
1	AP_09C	Apron feeder	36" x 33'	30
1	AP_09D	Apron feeder	36" x 33'	30
1	C_10	Conveyor	610 mm x 50m	20
1	C_11	Conveyor	610 mm x 25m	15
1	SM_12	SAG_Mill (6"-2")	20' x 9'	2010
1	TR_13	Trommel (50mm) and fall accessories		
1	SC/DD_14	Double deck screen (12mm/ 2mm)	12mm/2mm	40
1	C_15	Conveyor	610 mm x 20m	15
1	C_16	Conveyor	610 mm x 20m	15

Table 17-7 Mineral Processing Preliminary Equipment List - Part 2/2 (Communition - continuation).

COMMUNITION				
SECTOR No.	**EQUIPMENT No.**	**DESCRIPTION**	**CAPACITY/DIM.**	**POWER (HP)**
1	PB_17	Pump box	35 m^3	
1	P_18A/ P_18B	Pumps	1000 m^3/h	350
1	BCY_19	Battery of 6 Cyclones - gMAX20 Krebs	Ø 20"	
1	BM_20	Ball mill (2mm - 150 µm)	14' x 19'	3015
1	SP_21	Sump	Civil work	
1	P_22	Sump pump		10

Table 17-8 Mineral Processing Preliminary Equipment List - Part 1/3 (Flotation).

CUSTOMER: GENIVAR		**MINE PROJECT 1 500 000 TONNES PER YEAR**		**SUPPLIER BUMIGEME**
		DATE: 20-10-2011	**REVISION : B**	
MADE BY:		**VERIFIED BY;**		**APPROUVED BY:**
M.K. DIALLO		L.TOWNSHEND		F. BARIL
		FLOTATION		
SECTOR No.	**EQUIPMENT No.**	**DESCRIPTION**	**CAPACITY/DIM.**	**POWER (HP)**
2	TK_200	Rougher conditioner tank (14' x 20')	84 m^3	
2	A_201	Rougher conditioner tank agitatator (Westpro model AG20-M-30)		30
2	RC_202	Rougher cell		400
2	TK_203	Rougher cleaner conditioner tank (9' x 10')	15 m^3	
2	A_204	Rougher cleaner conditioner tank agitator (Westpro model AG10-M-10)		10
2	P_205	Pump	450 m^3/h	40
2	RCC_206	Rougher concentrate cleaner		300
2	TK_207	Scavenger conditioner tank (14' x 20')	76 m^3	
2	A_208	Scavenger conditioner tank agitatator (Westpro model AG20-M-30)		30
2	SV_209	Scavenger cell		500
2	TK_210	Scavenger concentrate 1st cleaner conditioner tank (9' x 10')	18 m^3	
2	A_211	Scavenger concentrate 1st cleaner conditioner tank agitator (Westpro model AG10-M-10)		10
2	P_212	Pump	300m^3/h	30
2	SVC_213	Scavenger concentrate cleaner 1		300
2	TK_214	Scavenger concentrate 2nd cleaner conditioner tank (6.5' x 8')	6.3 m^3	
2	A_215	Scavenger concentrate 2nd cleaner conditioner tank agitator (Westpro model AG10-M-5)		5
2	P_216	Pump	150 m^3/h	20

Table 17-8 Mineral Processing Preliminary Equipment List - Part 2/3 (Flotation - continuation).

FLOTATION				
SECTOR No.	EQUIPMENT No.	DESCRIPTION	CAPACITY/DIM.	POWER (HP)
2	SVC_217	Scavenger concentrate cleaner 2		180
2	TK_218	Scavenger concentrate 3rd cleaner conditioner tank (6.5' x 8')	5.2	
2	A_219	Scavenger concentrate 3rd cleaner conditioner tank agitator (Westpro model AG10-M-5)		
2	P_220	Pump	100 m^3/h	15
2	SVC_221	Scavenger concentrate cleaner 3		120
2	PB_222	Concentrate pump box	17 m^3	
2	P_223	Pump	380 m^3/h	40
2	WHIMS_224	Wet high intensity rougher		
2	WHIMS_225	Wet high intensity scavenger		
2	WHIMS_226	Wet high intensity cleaner		
2	PB_227	Tantalum oxide concentrate pump box	1 m^3	
2	P_228	Pump		
2	FP_229	Tantalum oxide concentrate filter		
2	C_230	Conveyor	610 mm x 20m	
2	BE_231	Tantalum oxide bagging equipment		
2	PB_232	Spodumene concentrate pump box	17 m^3	
2	P_233	Pump	380 m^3/h	
2	PB_234	Tail pump box	28m^3	
2	P235A/235B35P235B	Pump	750 m^3/h	259
2	TH_236	Thickener		1
2	P_237	Pump	50 m^3/h	15
2	F_238	Vacuum filter #1 (FLSmidth 304L SS)	Ø12' x 16'	5
2	FR_239	Filtrate receiver		
2	P_240	Filtrate pump (Carver-Krogh)	65' total head	5
2	VP_241	Vacuum pump (Nash. Model 2BE450)	7000 acfm	350
2	S_242	Silencer		
2	F_243	Vacuum filter #2 (FLSmidth 304L SS)	Ø12' x 16'	5
2	FR_244	Filtrate receiver		
2	P_245	Filtrate pump (Carver-Krogh)	65' total head	5

Table 17-8 Mineral Processing Preliminary Equipment List - Part 3/3 (Flotation - continuation).

FLOTATION				
SECTOR No.	EQUIPMENT No.	DESCRIPTION	CAPACITY/DIM.	POWER (HP)
2	VP_246	Vacuum pump (Nash. Model 2BE450)	7000 acfm	350
2	S_247	Silencer		
2	C_248	Conveyor	610 mm x 20m	10
2	SPL_249	Feed sampler		
2	SPL_250	Concentrate sampler		
2	SPL_251	Tail sampler		
2	Blw_252	Blower # FLB-1223		200
2	SP_253	Sump		
2	P_254	Sump pump		10

Table 17-9 Mineral Processing Preliminary Equipment List - Part 1/2 (Lithium Carbonate).

CUSTOMER: GENIVAR		MINE PROJECT 1 500 000 TONNES PER YEAR		SUPPLIER BUMIGEME
		DATE: 20-10-2011	REVISION : B	
MADE BY:		VERIFIED BY;		APPROUVED BY:
M.K. DIALLO		L.TOWNSHEND		F. BARIL
		LITHIUM CARBONATE		
SECTOR No.	**EQUIPMENT No.**	**DESCRIPTION**	**CAPACITY/DIM.**	**POWER (HP)**
3	HOP_300	Kiln hopper	40 m^3	
3	SC_301	Kiln screw feeder		10
3	KI_302	Decrepitation kiln (rotary kiln) FLSmidth	Ø4.35m x 51m	365
3	TK_303	Pulper tank	30 m^3	
3	A_304	Pulper tank agitator		4
3	P_305	Pump	74 m^3/h	160
3	AU_306	Autoclave #1		
3	A_307	Agitator		40
3	AU_308	Autoclave #2		
3	A_309	Agitator		40
3	TBL_310	Thermo-fluid boiler package - Estimated		50
3	HX_311	Heat-exchanger #1		
3	HX_312	Heat-exchanger #2		
3	PB_313	Pump box		
3	P_314	Pump	76 m^3/h	120
3	B_315	Bicarbonator #1		
3	B_316	Bicarbonator #2		
3	CP_317	Compressor #2		100
3	TK_318	Filter presse feed surge tank	30 m^3	
3	A_319	Agitator		3
3	FP_320	Filter presse (2 Diemme filters GHT2000.P10) - Estimated	601 m^2	180
3	RP_321	Repulper		30
3	P_322	Pump		75
3	TK_323	Filtrate tank	13 m^3	
3	A_324	Agitator		3
3	P_325	Pump		25
3	TK_326	CO_2 storage tank provided by Airliquid and included in the CO_2 price		
3	PR_327	Precipitator #1		
3	A_328	Agitator		20
3	PR_329	Precipitator #2		
3	A_330	Agitator		20
3	P_331	Pump	66 m^3/h	15

Table 17-9 Mineral Processing Preliminary Equipment List Part 2/2 (Lithium Carbonate - continuation).

LITHIUM CARBONATE				
SECTOR No.	**EQUIPMENT No.**	**DESCRIPTION**	**CAPACITY/DIM.**	**POWER (HP)**
3	TH_332	Thickener	8 m ø	1
3	P_333	Pump	10 m^3/h	7.5
3	VF_334	Vacuum filter (FLSmidth 304L SS)	Ø12' x 16'	5
3	FR_335	Filtrate receiver		
3	P_336	Filtrate pump (Carver-Krogh)	65' total head	5
3	SL_337	Silencer		
3	VP_338	Vacuum pump (Nash. Model 2BE450)	7000 acfm	350
3	SC_339	Screw feeder		10
3	RD_340	Rotary dryer 9Westpro # RD428-CC	4' x 28'	10
3	DC_341	Dust collector		
3	S_342	Lithium carbonate silo	200 t	
3	R_343	Caustification reactor	60 m^3	
3	A_344	Agitator		5
3	P_345	Pump		15
3	SPR_346	Surpressor		30
3	SP_347	Sump		
3	P_348	Sump pump		10

Table 17-10 Mineral Processing Preliminary Equipment List (Water and Reagents).

CUSTOMER: GENIVAR	MINE PROJECT 1 500 000 TONNES PER YEAR			SUPPLIER BUMIGEME
	DATE: 20-10-2011		REVISION : B	
MADE BY:	VERIFIED BY;			APPROUVED BY:
M.K. DIALLO	L. TOWNSHEND			F. BARIL
WATHER AND REAGENTS				
SECTOR No.	**EQUIPMENT No.**	**DESCRIPTION**	**CAPACITY/DIM.**	**POWER (HP)**
4	TK_401	Water Tank	Ø 8.5 m x 9 m	
4	P_402A/402B	Water supplier pumps	700 gal/min	100
4	P_403A/403B	Water distribution pumps	350 gal/min	40
4	TK_404	Caustic soda storage tank	Ø 8 m x 8.5 m	
4	P_405	Cisterns discharge pump	350 gal/min	25
4	P_406A/406B	Caustic soda proportioning pump	7- 15 gal/min	4
4	CBF_407	Combustible storage & distribution facilities (800 m^3)	800 m^3	15
4		Flocculant facilities		15

18. PROJECT INFRASTRUCTURE

The proposed infrastructures for the Rose Project presented in this Technical Report are preliminary in nature because most of them were designed with a level of accuracy commensurate with a scoping study. In general, economic considerations were the main justification underlying the design of an infrastructure; for instance the selection of open-pit versus underground mining. At other times, environmental or regulatory considerations underlay the design of the proposed infrastructure; for example the use of ditches to collect run-off water. Whenever possible, existing facilities were used, for example using existing access roads to the Rose Property.

The project infrastructures considered in this section include the site access infrastructure, explosives mixing plant and storage magazines, concentrator, lithium bicarbonatation plant, tailings disposal infrastructure, ore stockpile, waste stockpile, overburden stockpile, power infrastructure, water supply infrastructure, dyke, water management plan, communications system and administrative office facilities.

Specific considerations impacting the infrastructures of the Rose Project include both positive and constraining factors. The main ones are outlined below.

Positive factors:

1. **Access road**

   The existing Nemiscau-Eastmain-1 road provides year-round access to the Rose Property.

2. **Energy**

   Hydro-Québec's Eastmain-1 hydro-electric installations cuts through the Property and could potentially provide the means to connect the Rose infrastructures to the provincial power grid.

3. **Water**

   Several surface water bodies are found on the Property and could be used as a source for process water.

4. **Concentrator**

   The ore dressing process (crushing, grinding, flotation) proposed for the Rose Project is based on a technology commonly used in industry.

5. **Mining Camp**

   A workers' camp formerly used by Hydro-Québec is located 30 km north of the Property and will be used to provide lodging for the workers eliminating the need to build a mining camp.

Constraining factors:

1. **Power line**

   A power line is located above the proposed open-pit. Should the Rose Project open-pit be developed as per the proposed plan, then about five (5) hydro-electric towers will need to be relocated.

2. **Concentrator**

   Certain pieces of equipment required in the concentrator such as the SAG mill and the ball mill have long shipping delivery delays.

3. **CRM Process**

   The proposed CRM mineral process has been used on a limited basis in industry.

4. **Bicarbonatation Plant**

   The kiln and autoclaves located in the bicarbonatation plant that will be used for the extraction of the metallic concentrates are energy intensive pieces of equipment. The bicarbonators will need to be custom-made.

5. **Transportation**

   The closest railroad service is located 265 km south of the Property. This could have a negative impact on the transportation costs of the concentrate and/or reagents between their points of origin and destination.

6. **Lake 1 and Lake 2**

   Two shallow bodies of water called Lake 1 (southern edge of the pit) and Lake 2 (north-western edge of the pit) encroach on the footprint of the proposed Rose pit and will need to be pumped out.

7. **Lake 3**

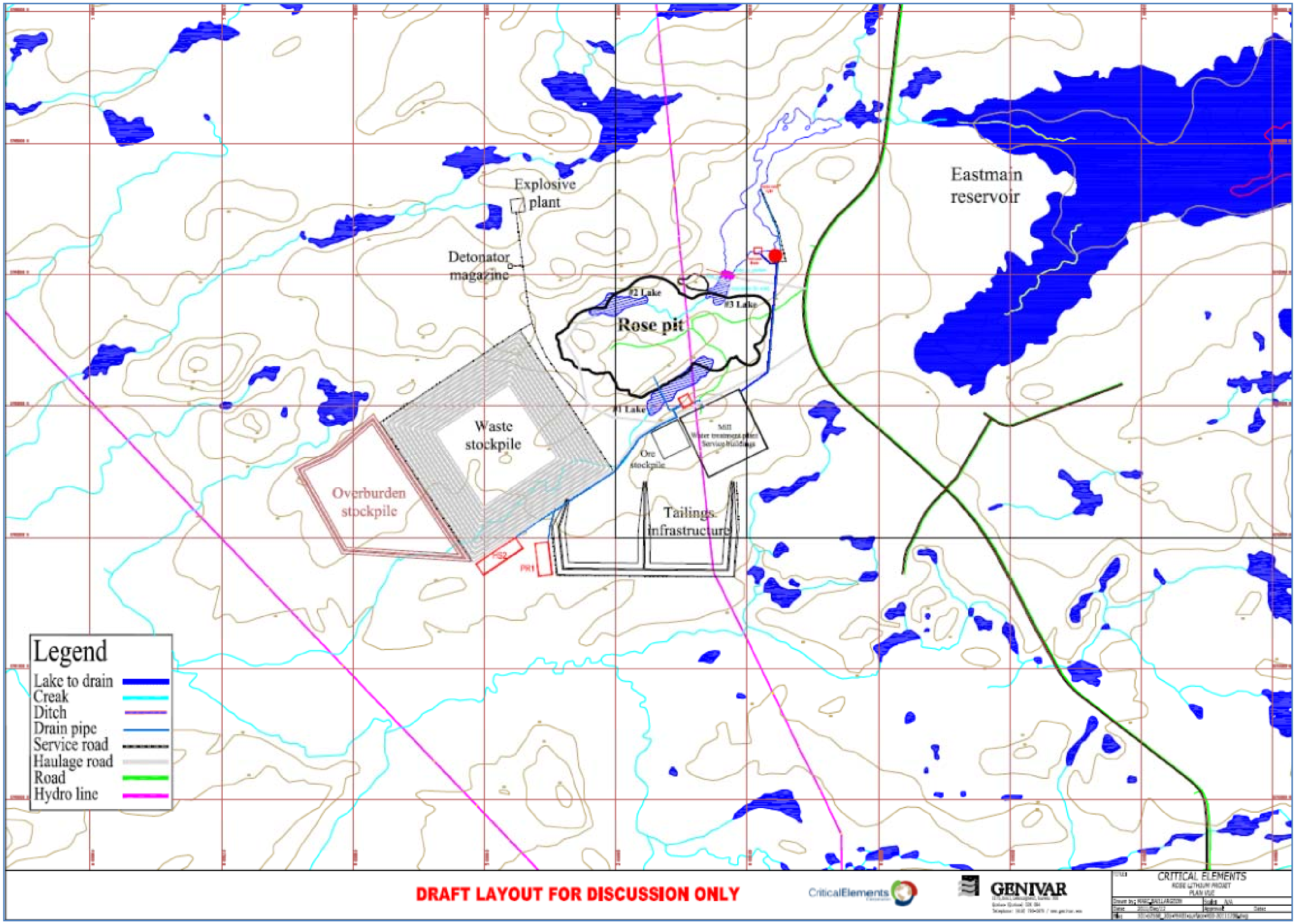
   To prevent water ingress into the proposed pit, a retaining dyke will need to be built across the southern tip of Lake 3 (north-eastern edge of the pit).

8. **Water**

   The Property is located on the water divide line, so the Rose Project will impact two water basins.

Figure 18-1 presents the general surface arrangement for the Rose Project.

Figure 18-1 General Surface Arrangement Plan for the Rose Project.



18.1 Site Access Infrastructures

Details concerning accessibility to the Rose Tantalum-Lithium Project are presented in section 5.1 of the present Technical Report and summarized below. Figure 5-1 shows the location of Northern Quebec's main roads, airports, ports and railroads.

Site Access Road

The Rose Property is accessible via the Route du Nord (North Road), the gravel-top road open year-round which links the Cree village of Nemaska and Chibougamau. From Nemaska, the Eastmain-1 road, a well-maintained gravel road belonging to Hydro-Québec, leads directly to the Rose Property. The Rose Property is located 20 km north of the junction between the Route du Nord and the Eastmain-1 road.

Airport

The closest airport to the Property is located in Nemaska, 30 km south of the Rose Project. The Nemaska airport offers weekday flights to Montreal on a daily basis.

Port

The closest port facilities to the Property are found at La Baie on the Saguenay River, a tributary of the St. Lawrence River. The Grande-Anse Marine Terminal in La Baie is a deep-sea general cargo port facility open year-round, which connects with international ocean shipping lines.

Railroad

The closest railway service to the Property is found in Chibougamau, 265 km south of the Property.

Mine Haulage Roads and Service Roads

A network of unpaved mine haulage roads and service roads will provide access to the various Project infrastructures. The number of roads considered in this PEA was kept to a minimum to minimize costs. Still, proper stripping, excavation and road constructing costs were factored into the Project cost estimate.

We estimated that a total of two (2) surface haulage roads and three (3) service roads will be sufficient to provide access to the various surface infrastructures of the Rose Project.

Haulage roads will be 20-meter wide both within the pit itself and between the pit and other surface facilities. The mine haulage roads will be wide enough to accommodate two 7-meter wide mining trucks side-by-side.

Within the pit, mine haulage roads will most likely be restricted to the southern side of the pit whose slope will follow the dip of the deposit estimated at about 20°. The slope of the north wall of the pit is estimated at approximately 55°, too steep for vehicular traffic. As a result, the ramp will probably proceed in a switch-back fashion from the surface to the bottom of the pit. The design of the ramp (in-pit mine haulage road) will be included with the mining infrastructures at the prefeasibility stage. It is not included in the surface infrastructures of this PEA.

The 150-tonne mining trucks will use a single point of entry, located on the western side of the pit, to gain access and exit the pit. The mining trucks will transport the ore from the pit to an ore stockpile located south of the pit via the surface mine haulage road No. 1. Waste will be hauled to a waste rock stockpile located west of the pit via the surface mine haulage road No. 2.

Ten-meter wide service roads will be used to reach other surface infrastructures. From the Eastmain-1 road, service road No. 3 will provide access to the Rose Property. Service road No. 3 will be generally oriented in an east-west direction and will run between the pit and the concentrator. A fork at the end of service road No. 3 will lead north to the explosives mixing plant and detonator storage magazine via service road No. 4. The south end of the fork will lead to the overburden stockpile located southwest of the waste stockpile via service road No. 5. Table 18-1 summarizes the length of the various surface roads considered in this Technical Report.

Table 18-1 Surface Roads.

Surface Road Purpose	Surface Road Name	Approx. Length (m)
Ore haulage between the pit and ore stockpile	Surface mine haulage road No. 1	1,300
Waste haulage between the pit and waste stockpile	Surface mine haulage road No. 2	452
Main access to the Property	Service road No. 3	920
Access to the explosives plant	Service road No. 4	1,280
Access to the overburden stockpile	Service road No. 5	3,280

18.2 Mineral Processing Plant Infrastructures

The mineral processing infrastructures considered in this Technical Report include two (2) separate plants: a concentrator and a lithium bicarbonatation plant, both located on the Rose Property. Approximately 235,000 t of concentrate will be produced annually. The most advantageous location for the bicarbonatation plant should be optimized at the next stage of the feasibility study.

The concentrator, lithium bicarbonatation plant, water treatment plant and service buildings will be grouped together and located approximately 250 m south of the Rose open-pit. A surface area of approximately 250,000 m^2 has been allocated for their potential location.

The concentrator was designed to process 1,500,000 tpy at a nominal capacity of 4,600 tpd of mineral. Figure 17-1 presents five (5) flow diagrams illustrating the proposed mineral process for the Rose Project. Table 17-3 shows a list of equipment that will be required at the concentrator and the lithium bicarbonatation plant.

Infrastructures within the concentrator will comprise the equipment necessary for the crushing, grinding and flotation circuits. The major components of the crushing and grinding circuits will include two (2) grizzlies, one (1) jaw crusher, apron feeders, one (1) SAG mill, one (1) ball mill, a battery of six (6) hydrocyclones, and various conveyors, hoppers, screens and pumps. The flotation circuits will include six (6) banks of flotation cells, a thickener, a conveyor, two (2) vacuum filters, various conditioning and holding tanks, and transfer pumps.

All reagents used for ore dressing will be prepared and stored in a separate, self-contained area within the concentrator and delivered by individual metering pumps or centrifugal pumps to the required addition points. The reagent storage and preparation area will be adjacent to the flotation circuit area. A forklift, fitted with a drum handler attachment, will be used for reagent handling. The reagent system will include unloading and storage facilities, mixing tanks, transfer pumps, and feeding equipment.

To ensure containment in the event of an accidental spill, the reagent preparation and storage facility will be located within a containment area designed to accommodate the full content of the largest tank. The storage tanks will be equipped with line indicators and instrumentation to ensure that spills do not occur during normal operation. Appropriate ventilation, fire and safety protection and Material Safety Data Sheet (MSDS) stations will be provided at the facility.

Air for the different flotation cells will be supplied by air blowers.

The lithium concentrate will be transported from the concentrator to the lithium bicarbonatation plant via a conveyor. Infrastructures within the bicarbonatation plant will comprise the equipment necessary for the decrepitation, carbonatation, bicarbonatation, filtration, precipitation, ore drying and CO_2 drying circuits. All seven (7) circuits of the bicarbonatation plant will require piping and transfer pumps. Table 18-2 presents a summary of the major components of these circuits.

Table 18-2 Bicarbonatation Plant Major Components.

Step	Circuit	Major Component
1.	Decrepitation	• 1 hopper • 1 kiln • various conveyors
2.	Carbonatation	• 1 pulper tank • 2 autoclaves • 1 thermo fluid boiler package
3.	Bicarbonatation	• 2 heat exchangers • 2 bicarbonators • 1 liquid CO_2 handling equipment
4.	Filtration	• 1 press filter • 1 repulper • various tanks
5.	Precipitation	• 2 precipitator tanks • 1 thickener • 1 caustification reactor
6.	Ore drying	• 1 vacuum filter • 1 rotary drier • 1 dust collector • various holding tanks
7.	CO_2 drying	• 1 CO_2 dryer • 1 heat exchanger, • 1 liquid CO_2 holding tank • 1 compressor • 1 condenser.

It is noteworthy to mention that the bicarbonators will need to be custom-made.

All reagents required in the lithium bicarbonatation plant will be shipped and stored in liquid form. It is proposed to produce the sodium carbonate on-site from the concentrate and coal. In this PEA, we considered that reagents required at the concentrator and lithium bicarbonatation plant will be transported to the Rose site by trucks and stored in silos prior to on-site mixing.

At the prefeasibility study, transportation of reagents via railroad hopper cars, as opposed to trucks, should be investigated. Because no railroad reaches the Rose Property, selecting a railway delivery approach would entail relocating the bicarbonatation plant elsewhere. This may be advantageous from a transportation costs point-of-view but it may not be the best option from a socio-economic, manpower and regulatory point-of-view.

18.3 Tailings Disposal Infrastructure

The tailings disposal infrastructures will consist of one (1) tailings disposal facility subdivided into two (2) cells and a network of pumps and connecting pipes. The tailings disposal facility will be located approximately 650 m south of the pit and adjacent to the concentrator. Tailings from the concentrator will be routed to the tailings disposal facility via pipelines. The tailings disposal facility will cover a surface area of approximately 1 km^2, sufficient to hold the 8.7 Mm^3 of tailings that will be generated by the concentrator. It will be surrounded by approximately 2,075 m of drainage ditches.

Details concerning the assessment of the seismic risk, geotechnical study, tailings properties and geochemistry and protection of underground water related to the design of the tailings disposal infrastructure are included in *Section 20: Environmental Studies, Permitting, and Social or Community Impact* of the present Technical Report.

18.3.1 <u>Tailings Management</u>

The volume of tailings generated by the concentrator was estimated at 16 Mm^3. Tailings that will be generated by the bicarbonatation plant were excluded from the tailings disposal facility preliminary design and will need to be assessed at the next stage of the study. The capital costs estimate of the Project includes only Year 1 and Year 2 of the berm construction. Consequently, the berm raise required to hold all the tailings generated by the Project will be managed as an operating cost over the mine life. It was assumed that transporting waste rock to the tailings facility for berm construction would cost the same amount as transporting it to the waste rock stockpile.

In accordance with the *Directive 019*, the tailings disposal facility was located at least 60 m from a water body, did not encroach on peat bogs, took advantage of the local topography, respected the limits of the Rose property, and minimized the distance over which the tailings will need to be transported between the various mining infrastructures. The tailings disposal facility is shown on Figure 18-1.

At the next stage of the study, at least two (2) more options regarding the location of the disposal facility should be examined within a 10 km radius. The findings of this assessment should be recorded in a technical note, as required by the regulations, and should describe the following items:

- Tailings characteristics;
- Conditions of the underlying soil and rock mass;
- Validate the imperviousness requirements;
- Management method;
- Classification of the hydrogeological formations;
- Predict maximum concentrations in underground water and in the surrounding environment.

Finally, the ratio between the volume of tailings and the volume of the dykes of the tailings disposal facility should be optimized, which could modify the configuration currently envisioned.

18.3.2 Lay-out and Operation

The lay-out of the tailings disposal facility considered in this PEA took into account the following parameters:

- The tailings disposal facility will be divided into two (2) parts to facilitate water management while in operation and progressive closure at the end of the mine life (Figure 18-2).
- The two (2) parts will be built along a slope in order to take advantage of the natural topography for the confinement of the tailings.
- The tailing disposal facility will be built in phases; waste rock from the open-pit will be used to construct the dykes of the tailings disposal facility.

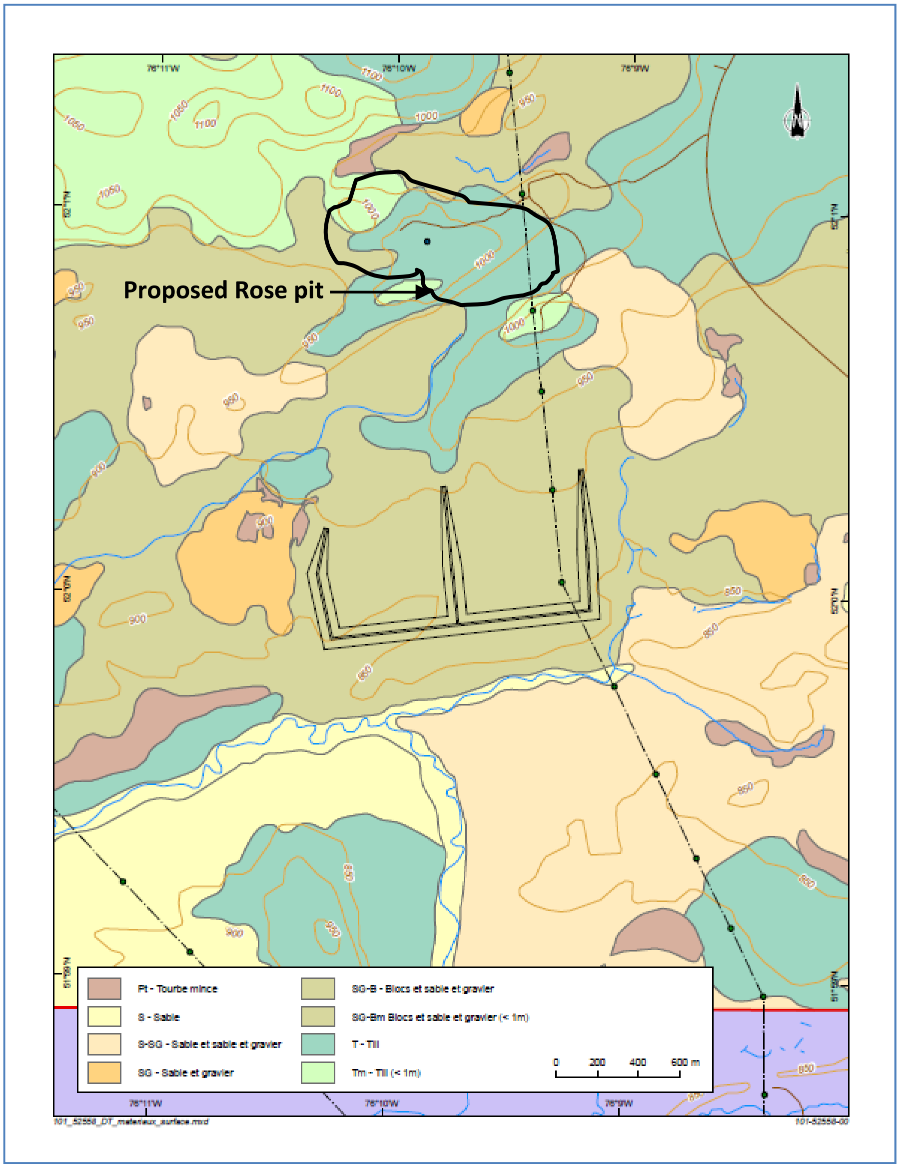
For this PEA, it was assumed that the ground underlying the tailings disposal infrastructures is competent. Consequently, the tailings disposal option retained for the Rose Project did not include any geomembranes. It was assumed that the tailings will be deposited directly on the bedrock.

18.3.3 Tailings Facility Dyke Construction Material

Waste rock from the open-pit will be used to build the dykes of the tailings disposal facility. Preliminary results for the Acid Base Accounting (ABA) tests (refer to Section 20) showed that the waste rock is not acid generating. These tests were performed to ensure that the waste rock used to build the tailings impoundment dykes and other Rose Project infrastructures will have no negative environmental impacts.

Based on the proposed mineral process, it may be possible to use the dry tailings themselves to increase the height of the dykes. In such cases, the tailings should be processed through a cyclone to sort out the coarse particle size greater than 150 microns. Cycloning is already included in the current mineral processing plan of the Rose Project concentrator. According to Bumigeme, up to 20% of the tailings volume could potentially be used as construction material to increase the height of the tailings' dyke. An additional benefit would be the reduction of the tailings disposal facility surface area. If this option is retained, additional tests will be required to validate the stability of a dyke whose height will be increased with greater than 150 microns cycloned material.

Figure 18-2 Tailings Disposal Facility – Plan View.



18.3.4 Stability Analysis

Once the results of the geotechnical campaign are known, a stability analysis of the tailings' dykes should be undertaken.

18.3.5 Recommendations for the Next Stage of the Project

The following items should be investigated during the prefeasibility study of the Rose Project:

- Detailed topographic measurements (contour line at every 1.0 m).
- Geotechnical investigation: at least 10 holes should be drilled (eight holes where the tailings disposal facility will be located, and two holes at the center of each section to determine the stratigraphy and in-situ geotechnical properties of the soil.
- Full geochemical program on the waste rock and the mine tailings.
- Mechanical properties and availability of construction materials.
- Determination of the underground water classification for the hydrogeological study.
- Validate the requirements (needs) to protect the underground water.
- Optimization of the ratio of the tailings volume to the dyke volume in order to optimize the height of the dykes.
- Full particle size analysis of the tailings.
- Determination of the physical parameters of the tailings (void index, density index, permeability, solids density, plasticity index, etc.).
- Determination of the swell factor, and the bearing capacity, sliding factor, dynamic load in order to establish a safety factor.
- Determination of the dykes design parameters.
- Detailed mineralogical assessment of the tailings.
- Optimization of the water management system surrounding the tailings disposal facility during the operation of the mine.
- Validation of the location of the tailings disposal facility.

18.4 Ore Stockpile

A small ore stockpile will be erected between the open-pit and the concentrator. It will serve as a buffer to provide a temporary but continuous ore supply to the concentrator. The ore stockpile will be connected to the open-pit via the surface mine haulage No. 1.

The ore stockpile will abut the concentrator. It will be located as close as possible to the open-pit in order to benefit from the following advantages:

1. Reduced haulage distance to reduce operational costs (labour, vehicle, maintenance, fuel, etc.).
2. Reduction of Green House Gases (GHG).
3. Improved site safety (lower risk of transportation accidents associated with shorter haulage distances).
4. Reduced on-site haul road construction, therefore reducing environmental impacts.

The ore stockpile will be located approximately 300 m south of the open-pit and at least 60 m from water bodies. The main design parameters of the ore stockpile were as follows:

- Bench height: 10 m
- Bench width: 10 m
- Overall slope: 3H:1V
- Inter-ramp slope: 2H :1V
- Material specific gravity: 2.71
- Swell factor: 35-50%
- Foundation type: Sand (SW) and Gravel (GW)
- Expected that ore will lixiviate contaminated water.

The ore stockpile will extend over a surface area of approximately 50,000 m^2 for a total height of approximately 30 m, which is a reasonable height given that it is a temporary storage infrastructure with separate area for various ore grades.

The proposed ore stockpile will have a storage capacity of 1.3 Mt representing approximately one (1) year of buffer. It was assumed that waste rock will be used to build part of the ore stockpile foundations. It was assumed that part of the waste rock will be inert (no acid rock drainage, no contaminated neutral drainage) and therefore suitable for infrastructures construction. The hydrogeological conditions of the ore stockpile site were based on the geomorphological map of the area.

The foundation underneath the ore stockpile should be covered with an impermeable geomembrane and protection sand, unless it is proven that the ore is chemically inert or that the foundation ground is completely impermeable and will channel water towards the surrounding ditch. Geomorphological map interpretation of the area determined that the ground is covered with permeable sand and gravel at surface. Currently a 1,080 meter-long drainage ditch is planned around the ore stockpile.

The ore stockpile is a non-permanent infrastructure. At the end of the life of mine, it should be completely depleted so that the land may be returned to its initial appearance as part of the mine closure plan.

18.5 Waste Rock Stockpile

A waste rock stockpile will be erected south-west of the proposed open-pit. It will serve as a permanent storage infrastructure for the waste rock extracted from the open-pit. The waste rock stockpile will be connected to the open-pit via the surface mine haulage No. 2.

Similar to the ore stockpile, the waste rock stockpile will be located as close as possible to the open-pit in order to benefit from the following advantages:

1. Reduced haulage distance to reduce operational costs (labour, vehicle, maintenance, fuel, etc.).
2. Reduction of Green House Gases (GHG).
3. Improved site safety (lower risk of transportation accidents associated with shorter haulage distances).
4. Reduced on-site haul road construction, therefore reducing environmental impacts.

The toe of the waste rock stockpile will be located 150 m west of the open-pit and at least 60 m from water bodies. The main design parameters of the waste rock stockpile were similar to those used for the design of the ore stockpile, namely:

- Bench height: 10 m
- Bench width: 10 m

- Overall slope: 3H:1V
- Inter-ramp slope: 2H :1V
- Material specific gravity: 2.71
- Swell factor: 35-50%
- Foundation type: Sand (SW) & Gravel (GW)
- Waste rock will lixiviate contaminated water.

The waste rock stockpile will be a large infrastructure covering a surface area of approximately 1.6 km^2; it will have a final height of approximately 100 m. This height was chosen for this preliminary economic assessment in order to reduce the footprint of the structure. Eventually, stability analyses and stakeholders consultations will dictate the design height of the structure to be built. Table 18-3 shows the estimated waste rock stockpile area as a function of the total bench height.

Table 18-3 Waste Stockpile Height and Surface Area.

Waste Rock Stockpile Total Bench Height (m)	**Waste Rock Stockpile Surface Area (m^2)**
10	11,500,000
20	5,900,000
30	4,100,000
40	3,200,000
50	2,700,000
60	2,400,000
70	2,100,000
80	2,000,000
90	1,900,000
100	1,600,000

The proposed waste rock stockpile will have a storage capacity of approximately 170 Mt (approximately 81 Mm^3). That will be sufficient to store the waste rock excavated over the proposed Life of Mine (17 years) considered in this Preliminary Economic Assessment. In order to provide a conservative estimate for the waste rock stockpile area, it was assumed that all waste rock will be placed in the waste rock stockpile.

In reality, some waste rock will most likely be used for the construction of the infrastructures, including the foundations of the waste stockpile itself. The assumption that some waste rock will be used for construction purposes was factored into the waste stockpile cost estimate. Geochemical data are not yet available for the waste rock and only a portion of the waste rock was considered inert (no acid rock drainage, no contaminated neutral drainage) and therefore suitable for infrastructures construction. The hydrogeological conditions of the ore stockpile site were based on the geomorphological map of the area.

Preliminary geomorphological interpretation of the site indicated that the surface of the ground is covered with permeable sand and gravel. The waste rock stockpile configuration should maximize water flow through the inert rock portion in order to ensure that the most reactive rock is placed in the dry sections of the stockpile. Such configuration will likely minimize the lixiviation of contaminants and reduce the oxygen flow through the waste stockpile, thereby reducing lixiviation-related high operation costs and ultimately closure costs at the end of the life of mine.

For the PEA, it was assumed that the waste rock will be chemically inert and that the foundation ground will be completely impermeable and will channel all water towards the surrounding collection ditch. This assumption will need to be validated during the prefeasibility study.

A 5.0 km-long drainage ditch will surround the waste rock stockpile. It will capture run-off water and then channel it to a holding pond for storage. The holding pond will be approximately 36,100 m^2 and will be located at the south-eastern edge of the waste rock stockpile.

18.6 Overburden Stockpile

Overburden stripped during the construction of the various Rose infrastructures will be set aside in an overburden stockpile. At the end of the mining activities, the overburden contained in the overburden stockpile will be used for the remediation work to restore the site as part of the mine closure plan.

The overburden stockpile will be located south-west of the waste rock stockpile, about 2.0 km from the open-pit and 60 m from water bodies. No protective cover and no water drainage ditches were planned for the overburden stockpile.

Care was taken to locate the overburden stockpile as close as possible to the proposed open-pit while avoiding interfering with other on-site infrastructures. The proposed location for the overburden stockpile will provide the following advantages:

1. Reduced haulage distance to reduce operational costs (labour, vehicle, maintenance, fuel, etc.).
2. Reduction of Green House Gases (GHG).

3. Improved site safety (lower risk of transportation accidents associated with shorter haulage distances).
4. Reduced on-site haulage road construction, therefore reducing environmental impacts.

The capacity of the proposed overburden stockpile was estimated at 7.6 Mt (5.1 Mm^3), sufficient to store all the overburden that will be excavated over the Life of Mine (17 years).

The main design parameters of the overburden stockpile are as follows:

- Bench height: 10 m
- Unit weight: 13 kN/m^3
- Swell factor: 20-30%
- Foundation type: Sand (SW) & Gravel (GW)

The overburden stockpile will extend over a surface area of approximately 760,000 m^2. The final height of the overburden stockpile was estimated at approximately 20 m.

18.7 Overview of Power Infrastructure

Various energy sources were examined for the operation of the kiln and coal was retained as the best option at this time. With the exception of the kiln, electricity will be used to satisfy the energy requirements of the Rose Project infrastructures and equipment. Quantity and cost of energy were factored into the operating costs estimate of the Rose Project.

This section focuses on the Rose Project electrical power needs based on the assumptions that the ore will be entirely mined via an open-pit approach using a non-electric mining fleet, and that both the concentrator and the bicarbonatation plant will be located on the Rose Property.

The total power requirements for the Rose Project, including the concentrator, bicarbonatation plant, water management facilities, explosives mixing plant, mechanical shops, administrative buildings and telecommunication and ancillary installations was estimated at approximately 12 megawatts.

This power estimate was calculated based on the power ratings of the major pieces of equipment illustrated on the flowsheets of section 17 of the present Technical Report. The greatest demand in electrical power will come from the SAG mill which will be equipped with a 2,010 HP motor and the ball mill which will be fitted with a 3,015 HP motor. Owing to the heavy demand of these two (2) mills, electrical power needed at the concentrator will be much greater than that needed at the bicarbonatation plant. Roughly speaking electrical power between the two processing facilities will be split 85% for the concentrator and 15% for the bicarbonatation plant.

A 315 kV electrical transport line, owned by Hydro-Québec, runs North-South over the eastern side of the Rose Property, right above the open-pit outline considered in this PEA. This 315 kV transport line is a main power distribution line supplying industrial, commercial, institutional and individual consumers. Failure of a 315 kV power line affects a large number of people. Therefore, the risk of power shortage associated with this type of power line is very low.

To meet the anticipated electrical power needs of the Rose Project, it is proposed to install two 12 MW electrical transformers feeding off Hydro-Québec's 315 kV main power line and 4.16 kV electrical substations. One of the two 12 MW electrical transformers will be used as the main transformer while the other one will act as back-up in the event of a breakdown of the main unit.

Each transformer will be protected by a circuit breaker fitted with isolating switches located upstream and downstream of the transformers. A 315 kV measuring device will be installed upstream of each transformer, and the readings from both transformers will be combined.

The back-up transformer will feed a 4.16 kV substation equipped with a main breaker and a tie circuit breaker to ensure continuous supply in the event of a breakdown with either of the two main transformers. From that substation, a 4.16 kV motor control centre will supply electrical power to the main motors and feeders will supply 4,160/600 volts secondary substations that will be distributed to the various infrastructures of the Rose Project.

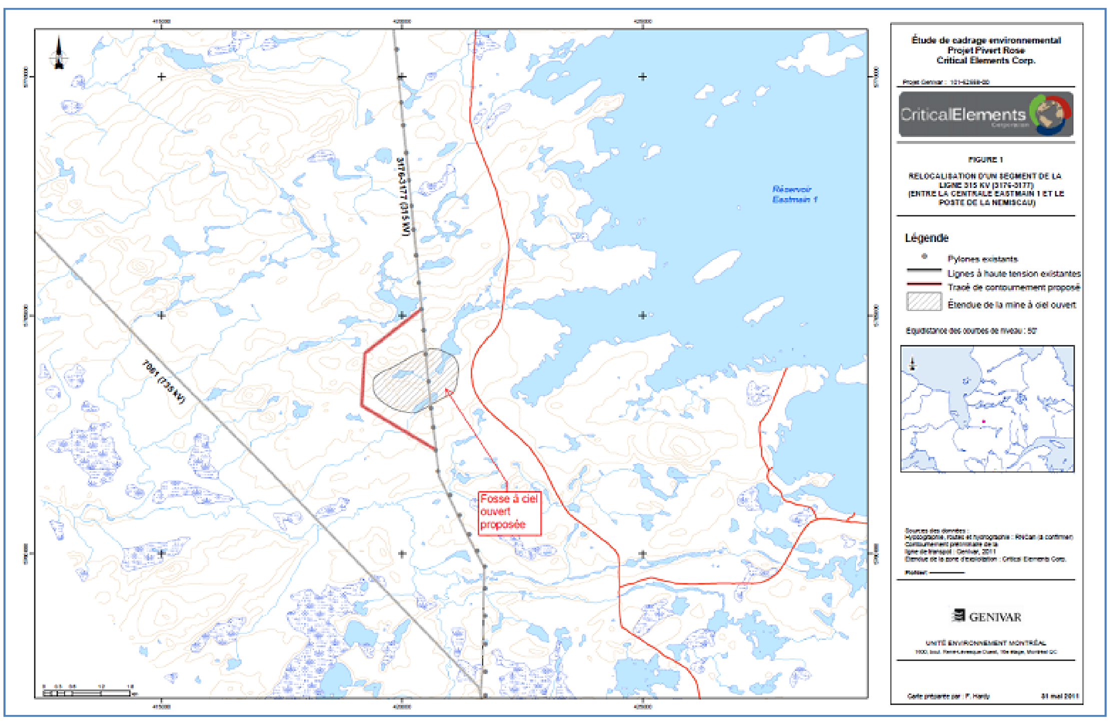
The manner in which a 315 kV power station must be built is detailed in Hydro-Quebec's list of specifications F22 and into the document *"Exigences techniques pour les installations de client raccordées au réseau de transport d'Hydro-Québec"*[1].

1 Technical requirements applicable to client's installations connected to Hydro-Québec's electrical energy transportation network (Free translation).

The fact that the proposed open-pit is located immediately below a main 315 kV power line will need to be addressed in future studies. Such power lines generate stray and parasitic currents by induction, capacitance or otherwise that may pose a safety risk to workers and equipment. It may be necessary to relocate a number of electrical towers or otherwise devise a plan satisfactory to ensure safety of the mining operations.

Should it be required to relocate electrical towers, then the work will be designed and carried out by Hydro-Québec and the costs borne by Critical Elements according a specific schedule of fees. The number of electrical towers that may need to be relocated has yet to be determined but a potential relocation route is shown on figure 18-3. As a cautionary approach, it was assumed in this PEA that five (5) electrical towers will need to be relocated.

Figure 18-3 Electrical Towers Potential Relocation Plan.



18.8 Water Management Infrastructure

Water management infrastructures will be put in place to supply process water and collect wash water from the various plants. The water management infrastructures will consist of a network of pumps, PVC water pipes, drainage ditches and storage reservoirs as shown on the general surface arrangement plan (Figure 18-1).

At this stage of the study, it is assumed that run-off water from the waste rock and ore stockpiles as well as the tailings disposal facility will flow into drainage ditches but that no water management infrastructures were required for the overburden stockpile.

The water intake will be located at the south end of Lake 3, which is situated north of the proposed open-pit. At the next stage of the study, bathymetric data from Lake 3 should be used to validate the location of the water intake. The treated water will be returned to Lake 3 at an outlet located approximately 500 m north of the fresh water intake point.

Process water will be needed at the concentrator, the bicarbonatation plant, and the explosives mixing plant. Wash water will be generated by the same plants as well as by the mechanical shops, service buildings and administrative offices. Wash water from all the Project's infrastructures will be pumped into storage reservoirs and then treated before being discharged into Lake 3. A water monitoring plan will be implemented at the site as described in section 20.3 of the present Technical Report.

Based on preliminary soil test results for 14 metals, it is expected that run-off water from the overburden stockpile will contain no contaminants; consequently, no drainage ditches were assumed around the overburden stockpile. Still, this assumption will need to be reassessed at the next stage of the study to ensure compliance with applicable regulations.

Drinking water will be supplied as bottled water.

18.8.1 Hydrology

As part of the climatology survey commissioned for the Environmental Impact Study, a review of data collected from weather stations located near the Rose Project was undertaken. The *La Grande Rivière A* weather station is located 200 km north of the Project site and is the only station providing a full range of precipitation data over long periods of time. Two (2) weather stations, Nemiscau and Rupert, are located closer to the Rose site, namely at 35 and 75 km respectively from the study area, but only record precipitations for a few months of the year. Despite its distance from the Rose Project site, and in order to validate the use of data from the *La Grande Rivière A* weather station for the Rose Project, GENIVAR completed a comparative data study between the Nemiscau, Rupert and *La Grande Rivière A*. It showed that precipitations recorded at *La Grande Rivière A* weather station underestimate precipitations recorded at the Rose site by approximately 15%. This finding was incorporated into the design of the water management infrastructures of the Rose Project.

18.8.2 Topography and Soil Characteristics

Topographical maps at 1 : 50,000 scale are currently available for the Rose site. Details shown at that scale are not sufficient for proper design of the drainage ditches. Although, it should be emphasized that such design goes beyond the usual scope of a Preliminary Economic Assessment study. Photo interpretation is ongoing to improve the accuracy of the topography.

A map of surface deposits (peat, sand, gravel, till) for the Environmental Impact Study area was also available and is shown on figure 18-4.

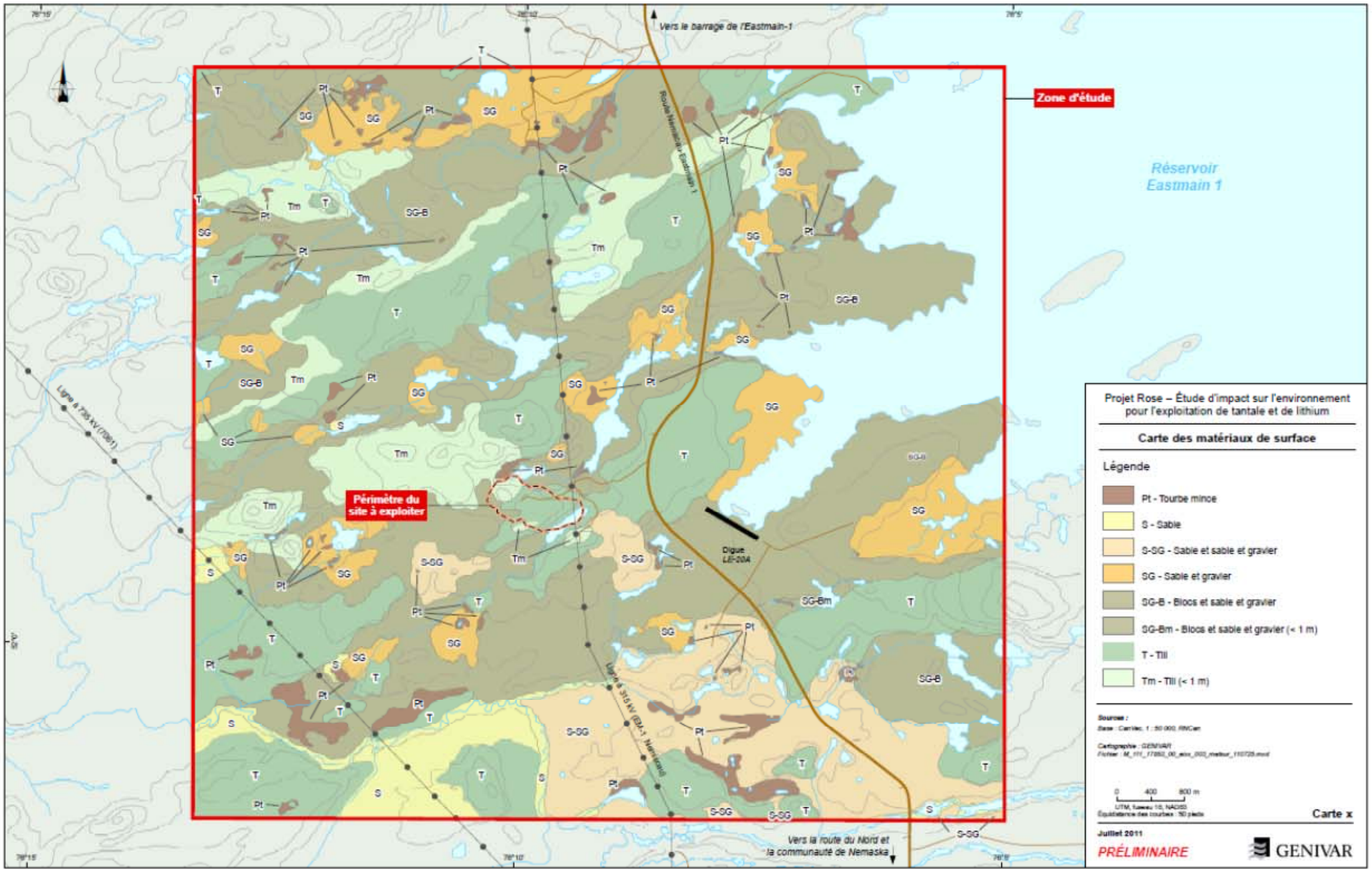
Optimistic criteria were used for the design of the water management infrastructures presented in this Technical Report. Preliminary ABA tests indicate that the waste rock and the ore will not be acid generating. It was assumed that basins and drainage ditches surrounding the waste rock stockpile, the ore stockpile and the tailings disposal facility will require no geomembranes.

In particular, preliminary soil analyses were within the prescribed tolerance range. It was assumed that run-off water from the overburden stockpile will pose no contamination risk. It was also assumed that run-off water from the waste rock stockpile and the tailings disposal facility will not contaminate the run-off water from the overburden stockpile. Based on these hypotheses, no water management infrastructures were planned for the overburden stockpile. As further soil and rock test results become available, these assumptions will need to be validated.

As per section 2.2.3 of the *Directive 019 "Every mining operator must strive to recycle used water* as *much as possible and keep final liquid waste to a minimum."* Consequently, it is recommended to recycle run-off water accumulated into the various holding basins as process water for the concentrator. A pumping system will route reused water from the holding basins to the final water settling reservoir located neat the concentrator.

The holding basins were designed to contain the 100-year summer flood line plus a 1-meter freeboard.

Figure 18-4 Map of Surface Deposit for the Environmental Impact Study Area of the Rose Project.



18.8.3 Water Management Infrastructures Dimensions

The water management infrastructures are shown in red on Figure 18-5 and include the following components:

- Holding basin HS2 - south of the waste rock stockpile.
- Holding basin PR1 - west of the tailings disposal facility.
- Settling and finishing basin – north of the concentrator.
- Fresh water intake basin – south of Lake 3.
- Drainage ditches around the waste rock stockpile, the ore stockpile and the tailings disposal facility.
- Overflow protection pipes.

18.8.3.1 Mining Infrastructures Drainage Ditches

A total of 8.2 km of drainage ditches will be required around the waste rock stockpile, the ore stockpile and the tailings disposal facility. The dimensions of the drainage ditches were estimated based on the above-mentioned criteria and took into account the properties of the Eastmain and Pontaz watersheds. In this PEA, the ground beneath the mining infrastructures was considered to be perfectly competent. It was assumed that no infiltration through the drainage surface area would occur; hence the surface run-off factor was set at 100%. A maximum water run-off speed of 3 m/s was used. Table 18-4 presents a summary of the drainage ditches dimensions.

Table 18-4 Drainage Ditches Preliminary Dimensions*.

Drainage Ditch	Watershed	Qp	Drainage Area	Height*	Width at toe	Length
	(km^2)	m^3/s)	(m^2)	(m)	(m)	(m)
Waste rock stockpile	1.56	60	20	3	2.5	5,000
Tailings disposal facility	0.72	12	9	2	1.5	2,076
Ore stockpile	0.20	4	3	1	1.5	1,080

* Minimum required values. The depth of a drainage ditch may be greater due to local topography.

For costing purposes, the drainage ditches were sized to meet the needs of the drainage area. The slope of the drainage ditch bench was set at 1.5:1 and the average longitudinal slope at 1%.

18.8.3.1 Holding Basins

Considering the volume of waste water to be stored and the topography of the terrain, it is recommended to build two (2) holding basins, identified as HS2 and PR1 on figure 18-6. Red arrows around the waste rock stockpile and the tailings disposal facility show the anticipated direction of flow of the run-off water. The dimensions of the holding basins are outlined in Table 18-5.

Table 18-5 Waste Water Holding Basins Preliminary Dimensions.

Waste water holding basin	Run-off water volume to be stored	Basin Surface Area	Basin Volume including freeboard
	(m^3)	(m^2)	(m^3)
HS2	143,704	30,625	153,125
PR1	66,240	22,100	88,400

A waste water settling basin and a waste water control basin were also planned. The waste water settling basin was sized to supply process to the concentrator for a period of 25 days. A waste water settling basin of 20,400 m^3 will supply 34 m^3/h of process water to the concentrator. It should be noted, that process water will predominately consist of supernatant water from the spodumene concentrate thickener. Also, all reagents will be prepared using fresh water.

Dimensioning of the waste water control basin should be undertaken at the next stage of the study when the dilution factors are established. A rough estimate of the waste water control basin cost was used in the overall water management cost estimate.

18.8.4 Pumping System During Production

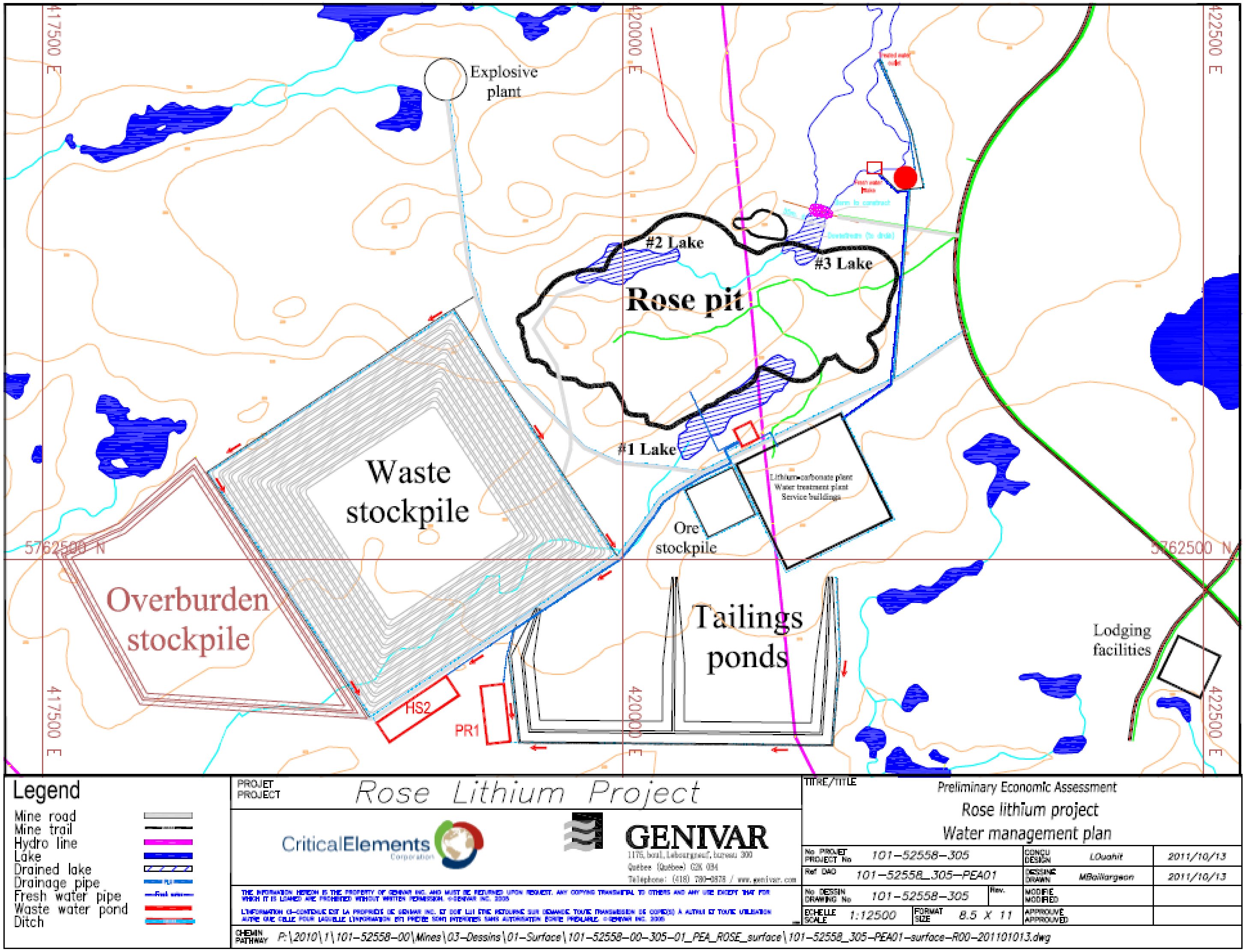
Waste water collected in the holding basins will be pumped via PVC DR-25 pipes into the settling basin. The pumps should be able to completely drain their respective basin within a one-month period. It is recommended to bury the overflow pipes as the installation of such pipes at surface requires special infrastructures making the installation cost at surface as expensive as buried pipes. A total of 3.9 km of overflow pipes will be needed.

The volume of waste water that will collect in the pit is unknown at this time and will be determined during the hydrogeology study. A rough estimate of pit water pumping cost was used in the overall water management cost estimate.

18.8.5 Pumping System During Preproduction

Lake-1 and Lake 2 will need to be drained in order to excavate the open-pit. The combined volume of water in these two (2) water bodies is approximately 276,350 m^3. A rough estimate of the cost for the submersible pumps needed to drain the water bodies was included in the overall water management cost estimate.

Figure 18-5 Water Management Infrastructures.



18.9 Dykes

The Rose Project will include the excavation of an open-pit down to a depth of 200 m from surface over an area of about 920,500 m. The location of the proposed open-pit will affect three (3) bodies of water identified as Lake 1, Lake 2 and Lake 3 on the general surface arrangement plan (figure 18-1) and the Google Earth photos shown in figures 4-9 and 5-3. As mentioned in section 5.2, a bathymetric assessment of Lake 1 (figure 5-4) and Lake 2 (figure 5-5) revealed that they are small and shallow water bodies whereas Lake 3 is a significantly larger body of water.

Lake 1 is located on the south side of the proposed open-pit. It is approximately 640 m long by 125 m wide by 3 m at its deepest point and contains about 90,050 m^3 of water.

Lake 2 is located on the north-west side of the proposed open-pit. It is approximately 480 m long by 200 m wide by 7 m at its deepest point and contains about 186,300 m^3 of water.

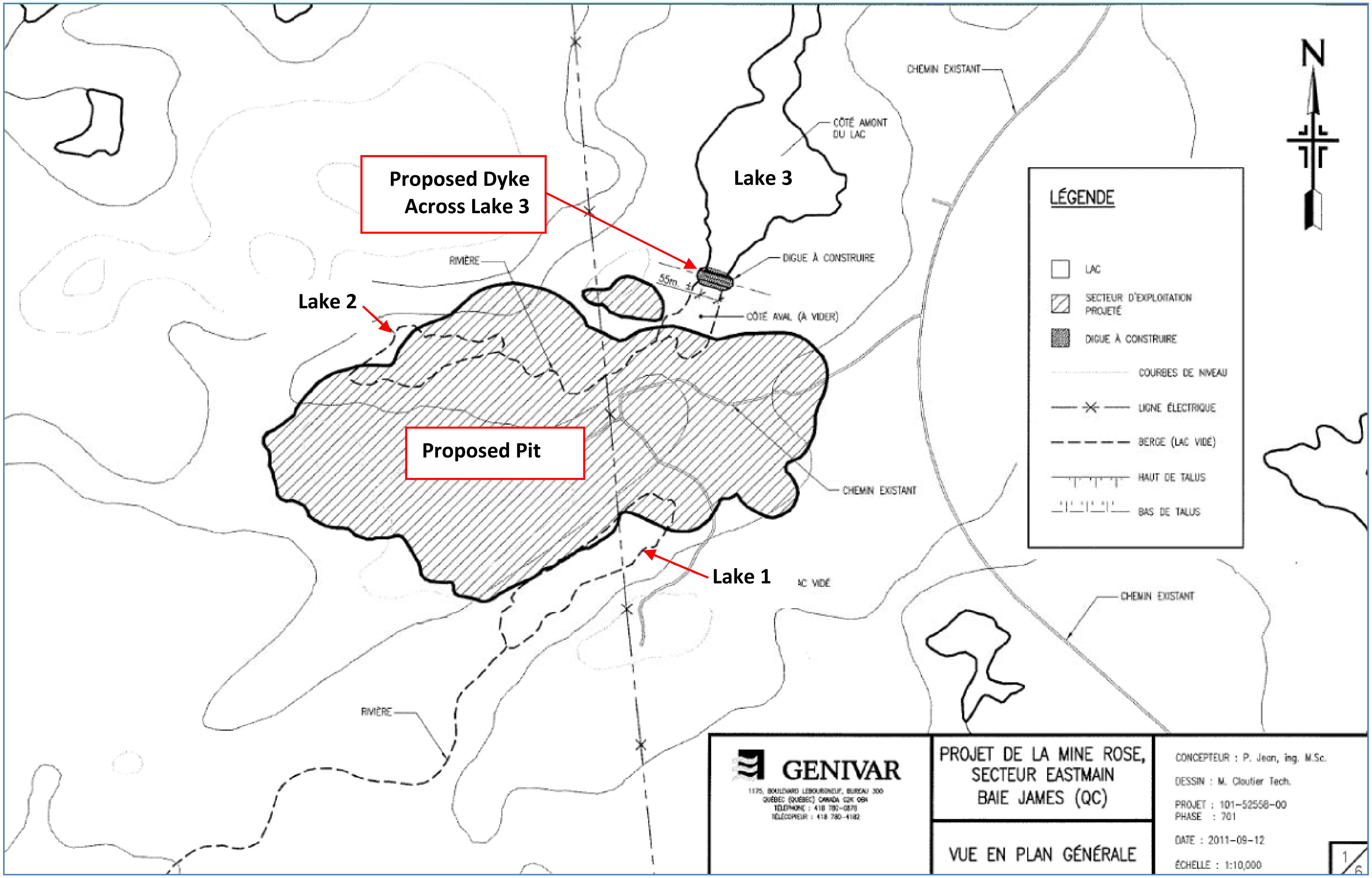
Lake 3 is located on the north-east side of the proposed open-pit. It is approximately 1,600 m long by 580 m wide at its widest point by 9 m at its deepest point. The volume of water contained in Lake 3 is estimated at about 525,650 m^3, a bathymetric survey of the Lake 3 should be undertaken to confirm its volume.

The development of the proposed open-pit will require drainage of Lake 1 and Lake 2. A 60 meter-wide dyke will be built at the narrowest section of Lake 3. The dyke constructed across Lake 3 will result in a cut off between the upstream side of the lake which will be preserved and the downstream side which will be drained out.

For ease of reference, figure 18-6 duplicates figure 4-10 and shows the location of the three lakes and the proposed dyke in relation to the open pit limits.

Exfiltration from the dyke will be recovered by means of pumping wells located at safe points between the dyke and the open pit. Those pumping wells will work almost all year long to keep the groundwater table lower that the pit bottom. These wells will have a major regional impact on the groundwater table.

Figure 18-6 Location of the Proposed Dyke across Lake 3.



Aside from preliminary photo interpretation around the Lake 3 indicating sand and gravel deposits with boulders, no geological information is available about the soil conditions beneath it. Consequently, three (3) types of dykes were examined for this PEA. They are designated as option A, B and C and defined as follows.

Option A: Slurry Trench
Slurry trench for silty sand or sandy silt deposits.

Option B: Sheet Piling
Sheet piling for permeable granular soils without coarse elements such as pebbles and boulders.

Option C: Dumped Screened Moraine
Screened-moraine fill dumped in the water for deposits containing pebbles and boulders.

The dyke should be located at least 100 m away from the edge of the open-pit. The height of the dyke and the thickness of the underlying deposit were arbitrarily set at 7 m because neither bathymetry nor geotechnical investigation were carried out on this part of Lake 3.

Details of the construction for the three (3) types of dykes are presented in Appendix C.

18.10 Water Quality Control

18.10.1 Fresh Water

Potable water will consist of bottled water.

Fresh process water and water for the fire trucks will be pumped from Lake 3 into a reservoir located at the water treatment plant. The lake water will be treated using a microfiltration or ultra filtration process and then disinfected before being distributed to the mining infrastructures.

18.10.2 Waste Water Treatment and Disposal System

The mining operations will generate two (2) categories of waste water:

- Sanitary water, which will come from the concentrator, bicarbonatation plant and administrative offices. The waste water will be treated by an ultra filtration system. The effluent could be reused for raw process water.

- Mining effluent from dewatering of the open-pit (infiltration and storm water) and dewatering of mineral processing. A settling pond will be constructed to decant all mining effluent. The effluent of the pond will be pumped through a microfiltration process. A portion of the treated water will be reused for raw process water.

In Québec, technical requirements for sanitary waste water treatment systems are defined in the *Regulation Respecting Wastewater Disposal for Isolated Dwellings.* The information is consistent with guidelines published by the Québec provincial ministry (MDDEP) for a mining operation employing 200 people.

In Québec, the primary source of information concerning limits for mining effluent is the *Directive 019*, which is used during the permitting process to define enforceable limits for metals (arsenic, lead, zinc, iron, nickel, and copper), cyanides, pH, suspended solids and hydrocarbons. It is anticipated that residence time in the settling reservoir will be sufficient to allow suspended solids to settle at the bottom of the reservoir without the need for chemical additives.

18.11 Explosives Mixing Plant

The Rose Project is located 300 km north of Chibougamau and could be considered a remote site from the point-of-view of explosives transportation. Although, roadways are in good condition, long travelling distances to the Rose property coupled with unpredictable winter conditions advocated for the construction of a bulk explosives manufacturing plant on the Rose site. Raw materials used in the manufacturing of explosives can be stored in larger quantities than pre-mixed explosives. The on-site explosives manufacturing option increases the security of the explosive supply and facilitate product inventory. For these reasons, the on-site explosives manufacturing option was retained for the present study.

During the preproduction period, temporary explosives storage magazines will be required on the Rose property for the construction work. One magazine will be used to store packaged explosives and the other for electronic detonators and related products.

During the production period, non-explosive raw materials will be delivered by trucks to the Rose site and stored in holding tanks located in the manufacturing plant. The raw materials will be mixed in the explosives manufacturing plant to produce booster-sensitive bulk explosives that will be transferred into specially-designed explosives delivery trucks.

The explosive manufacturing site will consist of one (1) manufacturing building, one (1) garage capable of accommodating three (3) bulk explosives delivery trucks, one (1) wash bay, an office and a service area. Quality process water in sufficient quantity will be needed for explosives manufacturing. Potable water and a septic system will also be needed for the plant operators.

The explosive manufacturing site will be located north of the open-pit and at least 1 km from any work sites such as the waste rock stockpile and water pumping stations. The footprint of the explosive manufacturing site will be approximately 10,000 m^2, wide enough to accommodate the movement of raw material delivery trucks and bulk explosives trucks. The manufacturing plant itself will occupy a surface area of about 400 m^2 and will have concrete floors. A system will be needed to collect and treat non-explosive waste, including used oils and lubricants.

For security reasons, the explosive manufacturing site will be completely fenced off and its access controlled electronically. A communication system will be required between the explosives manufacturing site and the Rose administrative office and between the explosives delivery trucks and the manufacturing site. Access to a certified truck scale will also be needed.

Qualified employees hired by the explosives manufacturer will operate both the bulk explosives manufacturing plant and the delivery trucks. They will drive the bulk explosives delivery trucks on the blasting bench and load the explosives into the boreholes. At the end of the shift, unused bulk explosives will be left for storage in the delivery trucks, which will be parked in the explosives manufacturing site garage.

During the production period, a permanent detonator storage magazine will be required on site. It will be located approximately about 400 m south-west of the explosives manufacturing plant.

Costs related with the construction and operation of an explosives manufacturing site on the Rose property were included in this Preliminary Economic Assessment. At the next stage of the study, a detailed trade-off evaluation should be done to compare the costs of on-site explosives manufacturing to those of purchasing pre-mixed explosives.

18.12 Communications System

A fiber optics-based communication system was designed to accommodate 150 workers and will include the following components:

- Fiber optic cables site.
- Connection panels and distribution network.
- IP phones system including an Ethernet server.
- IP phones.
- Telephone wiring site.
- VHF/UHF system radio (walkie-talkie).
- Internet system.
- Video system.

The optical fibers will be installed on power distribution poles. The entire site will have coverage from a local Ethernet network distributed through aerial fiber optics between the site facilities and via category 6 copper wiring inside the buildings.

An IP-type phone system will make use of the Ethernet network. Two(2) Ethernet jacks are planned in each office or room requiring a phone and an access to the local Ethernet network.

The communication towers will be installed near the administrative complex where the major telecommunication devices will be located.

The UHF/VHF radio system will be used to control surface activities inside and around the open pit. Communications will be established via 50 portable radios.

The internet system connection in the administrative buildings may be set up either as a 10 Mbit/second micro-wave link between Nemiscau and the site or via a receptor satellite system installed at the site itself. The installation costs for these two internet systems are similar.

The micro-wave link is the preferred option because the quality of the bandwidth of the satellite system is lower in terms of capacity and reaction time. The internet connection type will be validated during the prefeasibility study.

The video system will be comprised of IP security cameras.

18.13 General Service Infrastructures

Other service infrastructures required at the Rose Project include:

- Administration offices complete with parking.
- Gate building and truck scale.
- Mechanical shops.
- Fuel storage facilities
- Site fencing.
- Site lighting.

No workers' camp will be necessary as workers will be lodged at an existing camp located 30 km from the Project site.

The administration offices and the gate building will be constructed using pre-fabricated modular units.

The 1,400-m^2 administrative office complex will be made of 7 modular units and will include 16 private offices and 20 open offices. Two (2) meeting rooms are planned to accommodate up to 30 and 16 people respectively. A parking lot for employees and contractors' private vehicles will be located outside the controlled area, near the entrance gate and administrative complex. The parking will be lit and equipped with electric sockets. It will accommodate about 100 vehicles.

The gate building will be made of 1 modular unit and will be located at the main entrance to the site. It will include a gate control, video and communication system.

The mechanical shop area will include a dry house (change room) for the workers, a warehouse, a garage for the mobile equipment, and shops for carpentry, mechanical, electrical and other services. They will be made of pre-engineered steel buildings.

The maintenance shop will be fitted with doors wide enough to accommodate the main pieces of mining equipment. It will also be equipped with a 5-tonne bridge crane. The maintenance shop will also require supplies and spare parts storage containers

Details regarding the mining equipment cleaning system, such as a water tank, high pressure cleaner and an oil separator for waste water should be investigated at the next stage of the study.

Both the open-pit and the explosives mixing plant will be fenced off as required by Quebec's *Regulation respecting occupational health and safety in mines*. The site itself will be fenced.

Fuel storage will be required for the mining equipment. This will most likely consist of a double-wall storage tank. Specifications for the fuel storage tank should be investigated at the next stage of the study. A service truck will be used for fuel delivery to the mining equipment.

A solid waste disposal area will be required on site and should be further detailed at the next stage of the study.

Lighting for the site was factored into the cost estimate.

19. MARKET STUDIES AND CONTRACTS

19.1 Lithium Market Overview

This PEA is based on the premise that the lithium production from the Rose Project will be sold as lithium carbonate (Li_2CO_3) obtained through the processing of a spodumene concentrate. The main driver of developing Li_2CO_3 markets is the production of rechargeable batteries. Such batteries are already common in portable electronic devices (phones, computers, PDA – Personal Digital Assistants). Developments in the transportation industry (cars and e-bikes) are rapidly increasing the demand for Li_2CO_3, a raw material used in the production of lithium batteries.

The following section presents the highlights of a commodity price projection forecast report prepared by Normand Grégoire, Eng for Critical Elements on June 8, 2011. Mr. Grégoire is a qualified person as defined by National Instrument 43-101. The original document entitled *Price Forecast – Lithium Carbonate Rose Tantalum-Lithium Project* can be found in Appendix D to the present Technical Report.

Important note:

Li_2CO_3 prices are not formally published as is the case for several metals or agricultural commodities. There is no published spot or contract price for Li_2CO_3.

The following forecast was compiled from various sources, including presentations made by specialists at congresses, analysts' research reports, and data taken from advanced production projects, including one in Australia (Galaxy Resources) whose mining production has recently begun.

19.1.1 Lithium Specification Requirements

Pure lithium carbonate contains 18.79% lithium. Its typical analysis is, however, reported as the oxide form Li_2O (lithia), at 40.44%. Typical "battery grade" purity is considered to be 99.5% pure or more (up to 99.99% or more). This typical purity is higher than the concentration of several existing commercial technical grades currently sold for the mix of present uses for Li_2CO_3.

Therefore, prices obtained for Li_2CO_3 used in energy applications may be higher than those compiled for Li_2CO_3 in general. There is currently no way to discriminate actual battery grade prices. Literature reports that higher purity of the LI_2CO_3 will bring in price premiums, but there is not enough information to quantify such premiums. Higher purity refers to grades of Li_2CO_3 than can reach 99.99% and above. Several technical grades of Li_2CO_3, with a lower 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.

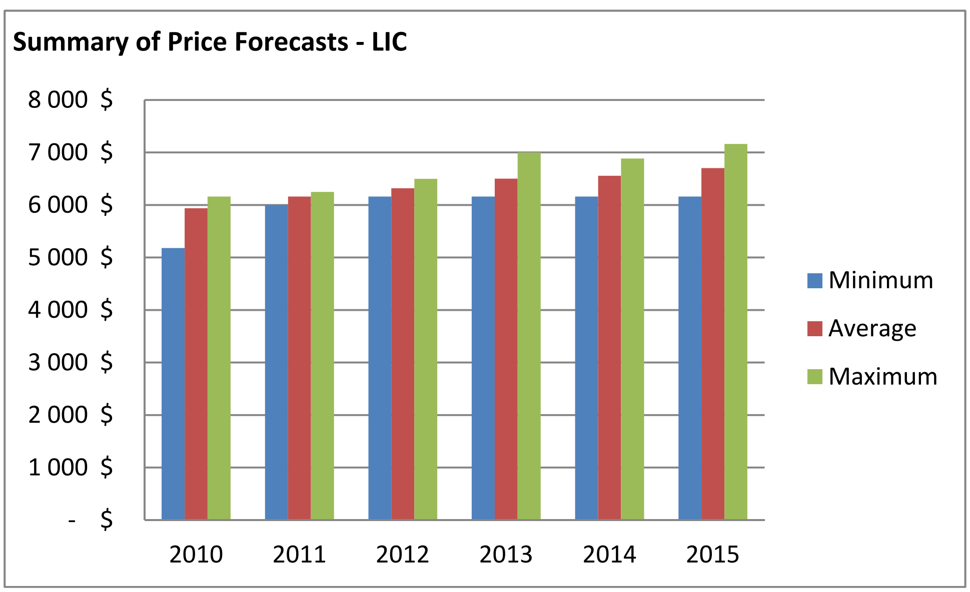
19.1.2 Lithium Price Projections

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. During the last two years, a report published by Roskill Information Services in early 2009 (The Economics of Lithium, 11^{th} edition 2009[1]) was often cited by various parties as the basis for predictions of Li_2CO_3 prices.

Another frequently cited source is a series of reports and presentations on an advanced project by Galaxy Resources Ltd[2]. whose current spodumene production of 17,000 t/y is sold in China to existing Li_2CO_3 producers (converters).

Public information available on the Quebec Lithium project, as well as an advanced project from brines in Argentina were also compiled. Available data suggest a minimum price of US$6,000/t for the year 2011, a maximum value of US$6,250/t, and an average of US$6,162/t. Figure 19-1 illustrates the values predicted by the sources consulted for the period 2010 to 2015.

Figure 19-1 Lithium Carbonate Price Forecasts (US$/t – 2010 to 2015).



1 http://www.roskill.com/reports/minor-and-light-metals/lithium
2 http://www.galaxyresources.com.au/

Up to 2009, prices for Li2CO3 showed wide variations ranging between less than US$2,000/t to more than US$5,000/t.

Lithium carbonate prices recorded before the 2008-2009 crisis showed a gradual increase to more than US$5,000/t for all grades . Because the typical purity of the Li_2CO_3 required for battery manufacturing is especially high, it is reasonable to assume that sales in this emerging energy market might have been at unit prices above these average prices, which were increasing towards the US$,6000/t level in 2009-2010:

Source	2009-2010 prices (US$/t)
Chilean exports	$5,000
US imports	$4,500
US exports	$6,000
World exports	$5,500 – 6,000
World imports	$5,500

Recent forecasts from various 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).

Based on the preliminary market review for price of lithium carbonate, Qualified Persons GENIVAR recommends using a price of US$6,000/t of lithium carbonate as a base case for the financial analysis of the Rose Project.

19.1.3 Lithium Demand Forecast

The driving force behind the development of new mining projects and expansions at existing Li_2CO_3 producers is the expected growth in demand for lithium from the battery sector. Lithium can carry large amounts of energy and store much power in a small and lightweight battery pack, more than batteries based on other more common materials such as lead, nickel and cadmium. Lithium batteries are not only gaining favour due to low heavy metal content, but also because of longer life, fast recharge rates and high power/weight ratios compared to traditional lead-acid, nickel-cadmium (NiCad) and nickel metal hydride (NiMH) rechargeable units.

The forecasted significant increase in lithium demand will come from the development of lithium batteries used in electric and hybrid cars. These cars will require sufficient power-storage capacity to make the concept an attractive alternative to conventional power sources and reduce the consumption of fossil fuels.

Current market development for vehicle batteries is considering various combinations: hybrid vehicles (HV), plug-in hybrids (PHV) and fully electrical vehicles (EV). The amount of lithium needed for batteries increases with the reliance on full electric power. For example, lithium carbonate equivalent (LCE) requirements are in the order of 2 kg (HV), 15 kg (PHV) and 22 kg (EV) per vehicle, respectively.

The production of some selected electrode materials can use other forms of lithium such as lithium hydroxide, but lithium carbonate is by far the main form of lithium compound required for battery applications. Supplying such additional amounts of lithium carbonate/compounds will require expansions and construction of new mining facilities, in a context where there are currently a limited number of producers. Table 19-1 shows the average quantities of Li_2CO_3 imported by the nine (9) most important importers between 2005 and 2010.

There is also a significant development in the use of lithium batteries in "e-bikes", especially in Asia. Electric bicycles/scooters (e-bikes) are a form of bicycle powered by an electric motor. They are particularly common in China, with an estimated fleet of 120 - 140 million units in 2010, and annual sales approaching 30 M units/year. Sales are expanding in several countries.

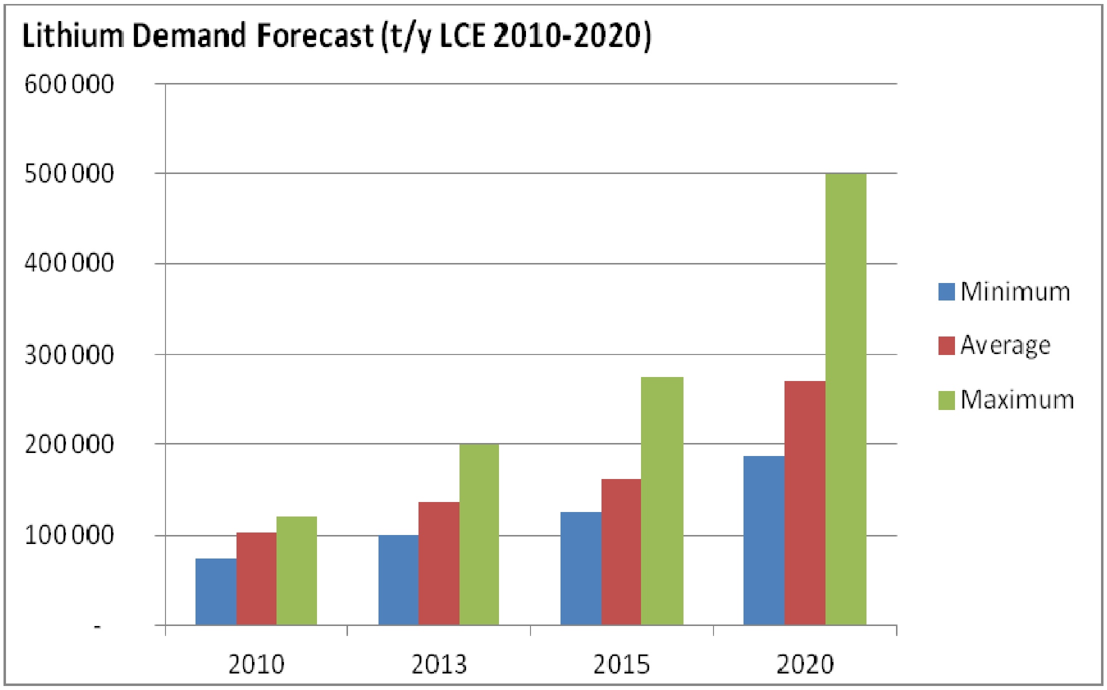
Table 19-1 Annual Li_2CO_3 2005-2010 Imports and 2010 Imports (t/y).

	t/y		**2010 t**	**Tendency**
USA	14 247	27%	9 495	Decrease
Japan	12 220	23%	14 029	Increase
Germany	7 204	13%	6 485	Stable
China	5 317	10%	6 398	Increase
Korea	5 020	9%	11 000	Increase
Belgium	4 913	9%	4 185	Stable
Canada	1 723	3%	1 459	Stable
Italy	1 511	3%	1 123	Stable
France	1 253	2%	1 225	Stable
Total - 9 countries	**53,408**	**100%**	**55,399**	

Demand for lithium is expected to grow rapidly from about 100,000 t/y (LCE) to more than 250,000 t/y in the next 20 years. Depending on the actual success of hybrid/electric car sales, some sources suggest a growth to more than 300,000 t/y and up to 500,000 t/y.

Estimation of current demand, in terms of lithium carbonate equivalent, represents an average of about 100,000 t/y. It is forecasted to increase to an average of 270,000 t/y in 2020, with minimum and maximum estimates between 187,000 and 500,000 t/y respectively (Figure 19-2). The average demand projection would require new world production of some 170,000 t/y in terms of lithium carbonate production, in addition to the current annual production of about 100,000. This represents an annual compound increase of more than 10%, much higher than historic growth rates.

Figure 19-2 Lithium Demand Forecasts (t/y LCE 2010-2020).



Byron Capital Markets broke down its lithium forecast according to its main application. This forecast, presented at the 3rd Lithium Supply & Markets (LSM'11) in January 2011, is reproduced in table 19-2 for the period 2011 – 2020.

Out of an additional demand of about 171,000 t/y, more than half (90,000 t) of this increase is expected to be related to batteries applications, with most (62,000 t) for lithium batteries used in the transportation sector.

Table 19-2 Demand Forecast - Byron Capital Markets.

					Delta 2020-2011		
	2011	**2014**	**2017**	**2020**	**Tons**	**% 9 years**	**%/y**
Ceramics/Glass	28 915	33 154	38 380	44 430	15 515	53,7%	4,89%
Small Batteries *	**28 168**	**35 484**	**44 700**	**56 309**	**28 141**	**99,9%**	**8,00%**
Greases	12 092	13 602	15 300	17 211	5 119	42,3%	4,00%
Aluminum	6 233	7 012	7 887	8 872	2 639	42,3%	4,00%
Air Conditioning **	5 783	6 506	7 318	8 232	2 449	42,3%	4,00%
Casting	7 448	8 378	9 424	10 601	3 153	42,3%	4,00%
Others	20 779	23 373	26 292	29 575	8 796	42,3%	4,00%
Solar (thermal)	-	4 500	8 748	11 020	11 020		16,10%
Nuclear	-	-	175	22 718	22 718		406,34%
Grid Storage ***	10	2 200	8 400	9 724	9 714	97140,0%	114,77%
Batteries - Transport ******	**2 180**	**15 900**	**41 700**	**64 150**	**61 970**	**2842,7%**	**45,61%**
Total	111 608	150 109	208 324	282 842	171 234	153,4%	4,76%
Batteries	**30 348**	**51 384**	**86 400**	**120 459**	**90 111**	**296,9%**	**7,14%**
	27,19%	**34,23%**	**41,47%**	**42,59%**	**53%**		

Units: tons of carbonate de lithium equivalent

* Batteries for small electronics appliances (consumer products)

** Air drying in air conditioning and refrigeration units

*** Developing market for high power batteries in power grids (especially thermal power, solar and wind energy)

**** Hybrids, plug-in hybrids, electric vehicles, e-bikes

19.2 Tantalum Market Overview

Demand for tantalum is mainly driven by the electronics industry where it is an essential component in a wide range of consumer products.

According to the Belgium-based Tantalum-Niobium International Study Center, there are no official or published prices for tantalum or niobium minerals, as these metals are not traded on any metal exchange (London Metal Exchange or other). The price is determined by negotiation between buyer and seller.

The tantalum price used in this Technical Report corresponds to that published in April 2011 by the British Geological Survey (BSG) in its Niobium-Tantalum Mineral Profile. The BSG quoted a price of US$120/lb for tantalum concentrate[3], equivalent to US$265/kg which is within the range of the CA$260/kg used by GENIVAR for the financial analysis of the Rose Project.

3 www.mineralsUK.com, Downloads, Mineral Profiles, Niobium-Tantalum, page 22.

The price forecast of US$260/kg for Ta_2O_5 contained in a tantalite concentrate matches with the value of US$317/kg for tantalum metal used by InnovExplo in their latest Mineral Resources Estimate published on September 7, 2011. On mass basis, tantalum (Ta) constitutes 82% of tantalite (Ta_2O_5) and that conversion was used to obtain the value of US$260/kg for Ta_2O_5.

In addition to price quotes, the BSG Niobium-Tantalum Mineral Profile provides details on the mineralogy, mineral deposits, processing, uses, production and development of tantalum projects around the world.

GENIVAR did not complete a detailed market study on tantalum prices for the Preliminary Economic Assessment of the Rose Project and neither for the Mineral Resources Estimate prepared by InnovExplo on September 7, 2011.

However, in December 2010, CANSource International Ltd. prepared a document entitled *Tantalum Market Update* in which they recommended using a price of $150/lb, equivalent to $330/kg, for raw tantalum concentrate market price.

20. ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

It should be noted that usually the Environmental Impact Assessment (EIA) process is initiated later in the economic feasibility process. It is rare to have on-hand baseline environmental data gathered for the EIA while carrying out a Preliminary Economic Assessment (PEA).

In the case of the Rose Project, a decision was made early on to initiate the EIA process before the completion of the PEA. As a result, preliminary data from the EIA baseline study were made available to the PEA team, who endeavored to incorporate it as much as possible into their work. This was particularly à propos while locating the various infrastructures of the Rose Project, such as the tailings disposal site and the waste rock stockpile.

The EIA process is discussed below. Data from the EIA should be available in 2012.

20.1 Environmental Impact Assessment

Because of its northern location (at the 52^{nd} parallel), the Rose Project is automatically subject to an Environmental Impact Assessment (EIA) under chapter II of the Québec Environment Quality Act (R.S.Q., c. Q-2) (EQA). This process is well described in the Regulation respecting the environmental and social impact assessment and review procedure applicable to the territory of James Bay and Northern Québec (Q-2, r. 25).

According to the collaboration agreement between Canada and Quebec, the EIA process in the province of Quebec is initiated when the Proponent submits the project notice to the *Ministère du Développement Durable, Environnement et Parcs* (MDDEP) who then transmits the project notice to the Canadian Environmental Assessment Agency (CEAA). On the James Bay territory and south of the 55^{th} parallel, the project notice is analyzed by an evaluation committee called “COMEV”. The COMEV will gather comments from concerned federal authorities and prepare the guidelines for the preparation of the EIA by the Proponent.

The EIA prepared by the Proponent is then presented to an examination committee called “COMEX”. The COMEX has the responsibility of analyzing the EIA, requesting complementary information if necessary, and conducting the public hearings.

In order to be approved by the Minister responsible for the MDDEP, the EIA must demonstrate that all potential adverse environmental effects are non-significant, once appropriate mitigation measures have been taken into account. The assessment of potential environmental risks pertaining to the Project is completed in matrix format. The highest ranking environmental risks will then be identified along with corresponding mitigation strategies and listed in table format.

In order to complete the EIA, the Proponent must conduct various baseline studies that will establish reference data for the biophysical and social aspects of the study area. More information on the ongoing baseline studies is presented in the following section of this report.

20.1.1 Baseline Information Required for the Preparation of an Environmental Assessment

Baseline environmental studies pertaining to the Rose Project were initiated in the spring of 2011. These studies are currently ongoing and are expected to be completed by July 2012. A full Environment Impact Assessment study for the Rose Project is expected to be completed in 2012.

Although a considerable amount of information on the study area is available from past studies that were completed for Hydro-Québec's projects, such as flooding of Eastmain-1 reservoir and construction of the power line, specific baseline studies were warranted to obtain data on site specific elements. Most of the collected data from the ongoing baseline studies have yet to be compiled; therefore results cannot be presented in this Technical Report. Nevertheless, the following section summarizes the different baseline studies that are being completed for the EIA and presents preliminary results that are available.

Baseline Air and Noise Monitoring

The objective of this baseline study is to establish existing air quality and noise levels in the study area. Field data collection was completed in August 2011. Noise data was collected with a sound level meter at different locations within the study area, following standards outlined in *Directive 019 for the mining industry* (MDDEP, 2005). Air quality data was collected with an air sampler. Total suspended particulate (TSP) and metal concentration in dust were measured and should be used as baseline reference.

Climate and Hydrology

The EIA study area of the Rose Project is located within two (2) vast watersheds of the James Bay territory. The northeastern corner of the study area drains into the

Eastmain River while the southwestern half drains into the Pontax River (Figure 4-9). Due to this elevated topographical position, stream flows within the study area are considerably low.

Data about local climate and the existing hydrology of pre-selected water bodies were compiled in order to evaluate dilution potential of mine effluent and impacts of mining infrastructures on the hydrological regime of existing streams and lakes. Water flow was measured in early July 2011 on five (5) potentially affected streams of the EIA study area. A water level meter was then installed on each of the five (5) streams along with a rain gauge to analyze the relationship between rainfall and the hydrological regime. This data should be used to determine the mean, maximum and minimum flow rates of these streams.

Baseline Surface Water and Sediment Quality

Existing surface water and sediment quality in seven (7) different water bodies of the EIA study area was collected in June 2011, at high water levels. Surface water quality was also collected at low water levels, in August 2011. The objective of this study was to establish the baseline physical and chemical parameters of different lakes that may be affected by the Rose Project activities.

Geology

Surface geology was mapped using available air photos and existing data. Bedrock geology was documented in reports which were based on-site investigations conducted by Critical Elements Corporation. Mineralogy of the Mineral Resource is well documented in National Instrument compliant Technical Reports prepared by InnovExplo.

Hydrogeology

A complete hydrogeological study will be completed between October 2011 and June 2012. This study will determine baseline conditions such as ground water flow direction, hydrogeological formations, probable weakness zones in the bedrock, and permeability of bedrock. The outcome of the study will help evaluate the potential impacts of the mining activities on groundwater and propose an appropriate monitoring plan.

Baseline Terrestrial Ecosystems

A terrestrial ecosystem characterization of the EIA study area was completed in June 2011. The scope of the study was to identify terrestrial and wetland ecosystems, surface drainage and potential plant species at risk. Preliminary results conclude that terrestrial and wetland ecosystems within the EIA study area are typical of the region. Pine stands dominate the terrestrial landscape while spruce bogs are the principal wetland ecosystem observed. No plant species at risk were observed during the field surveys that were completed.

Bird Populations

Bird populations within the EIA study area should be evaluated through three (3) field surveys that will be conducted between May and July 2012. The surveys will focus on waterfowls and other aquatic birds, on birds of prey, and on sparrows and other terrestrial birds. The objectives of the surveys are to identify nesting birds within the study area, species at risk and their habitats as well as existing birds of prey nests.

Baseline Aquatic Ecosystems

Aquatic ecosystems of seven (7) different lakes and five (5) different streams were characterized in June and August 2011. Available fish habitat of each of these water bodies has been described with information such as type of flow, streambed and lakebed composition, and vegetation.

Fish Populations

Fish populations were estimated in six (6) different lakes and four (4) different streams located within the EIA study area, through scientific fishing activities conducted in June and August 2011. Preliminary results indicate that none of these aquatic ecosystems sustain populations of rare fish as designated by the federal *Species at Risk Act* or the provincial *Act respecting threatened or vulnerable species* (E-12.01). Sport fishing species were identified, such as brook trout, walleye, and northern pike.

Benthic Invertebrate Populations

Benthic invertebrate populations were estimated in six (6) different lakes through sediment sampling conducted in June 2011.

Land Use by First Nations

Two aboriginal communities are concerned by the Rose Project, the Cree Nation of Eastmain and the Cree Nation of Nemaska. Stretching across 10 km around the Project site, the EIA study area reaches four (4) traplines: R16, R19, RE1 and R10.
The period under review for the aboriginals' land use study covers some twenty (20) years, which includes the recent past (from year 2000 up to this day) and the coming ten (10) years.

The inventory has begun with a literature review and a gathering of the information and data concerning the Eastmain and Nemaska communities, including the land use within the project limits. Results from the land use surveys made by GENIVAR on behalf of Hydro-Québec and SEBJ among the tallymen and their family in different Cree communities in the context of Hydro-Quebec projects were used, as well as official sources of documentation from government publications, agencies or Cree communities.

Semi structured interviews with the tallymen and their family (4 traplines) will be conducted. The interviews will allow a documentation of the:

- Knowledge of the Rose Project;
- Use of the EIA study area:
    - Main users of the study area (group composition, number of families involved, and links between the users);
    - Activities: hunting, fishing, trapping, gathering, others, what species, in what season (period), duration of stays;
    - Relative importance of resources/activities (hunting, fishing, trapping) and recent evolution of the resources populations. Factors of change of the resources population;
    - Campsites, cabins, tents in the study area;
    - How are the camps and/or the activity areas reached (transportation means, travelling routes);
    - Birth sites, burial sites or other valued sites in the study area;
    - Community used sites, number of users, when, for what activities;
    - Foreseen use of the study area, any planned development in the study area by the trapline users;
    - Other development going on the trapline (cumulative impacts); such as tourism, mining, forestry, outfitting;
- Impacts of the mining development on the territory;
- Recommendations or suggestion;
- Concerns, expectations or questions regarding the Rose Mining Project.

Also, three (3) group meetings (focus groups) will be held in the Eastmain Community as well as in the Nemaska Community with women, men and youth. The meetings will allow a documentation of the:

- Knowledge of the Rose Project;
- Mining development on the territory (positive and negative impacts);
- Social impacts (social problems, family and social cohesion, life quality, community values, others);
- Economic impacts and employment situation;
- Land use of the study area;
- Concerns, expectations, questions regarding the project.

In addition, interviews will be conducted amongst stakeholders from the two (2) communities, notably the ones who are in relation with economic development, youth, training and social aspects.

Through these interviews and meetings, a portrait of the Eastmain and Nemaska's land use will be drawn and concerns about the Project from land users and members of the two (2) communities will be gathered.

Meetings in the Cree communities are scheduled in January 2012.

Baseline Socio-Economic Study

The methodology used to characterize the human environment is first based on documentary references (research and identification) in order to gather secondary data required to prepare a portrait of the study area which includes the Rose Project site.

The information gathered through the documentation review should be supplemented and updated, where required, through interviews with representatives of relevant organizations such as:

- Municipality of James Bay;
- "Conférence régionale des élus de la Baie-James";
- Economic development agencies;
- Ministère des Ressources naturelles et de la Faune (MRNF);
- Ministère du Développement Durable, Environnement et Parcs (MDDEP);
- Regional touristic associations.

Other organizations and agencies could be identified in the course of the study. Data collected during the above mentioned activities will be analyzed. The results of the inventories and surveys and their interpretation, as well as synthesis maps, will cover the following aspects:

- Administrative framework and land tenure;
- Territorial planning and development;
- Population and regional economy;
- Social and economic profile;
- Land use;
- Land use planning and development projects;
- Infrastructures;
- Local and regional concerns.

Archeology

The archaeological study should begin with the identification of known archaeological and heritage features in the study area. This initial phase should include a review of existing potential studies in the study area and its vicinity. Archaeological studies carried out for the Eastmain hydroelectric project should be used.

In the second phase, sites showing the greatest probability of containing archaeological remains produced by ancient human occupations should be selected.

The archaeological study should be based on this knowledge and on two (2) major sets of criteria. The first set of criteria should include topological criteria referring to the position of archaeological sites and the organization (structure) of the geographic space. The second set of criteria should include topographical criteria, including the study area's morphological and topographical features. Aerial photographs should be used to delimit areas having good settlements qualities typically consisting of flat or gently sloping surfaces with adequate drainage.

The theoretical potential should be compared with recent developments visible from aerial photos.

The archeological study should be completed by the end of 2011. If necessary, a site visit should be made in spring 2012 to validate information.

Landscape

A landscape study should be conducted in order to analyse how the project will affect the surrounding region. Within the study area, landscape units will be identified based on specific criteria such as terrain elevation, vegetation, project visibility from roads or nearby rivers. A landscape architect should visit the study area to collect information.

Based on the visual study's result, simulations of the project should be used to illustrate and assess the impact on the surrounding area.

20.1.2 Preliminary Anticipated Effects of the Rose Project

At this preliminary stage of the environmental impact assessment, the principal sources of information related to the Rose Project are as follows:

Site Preparation Phase

Several transmission towers from the Eastmain-1 315kV power line will need to be relocated and/or elevated because they located directly above the extraction zone. A transformation station and possibly a new power line will need to be built to provide energy to the industrial complex.

Construction Phase

Workers presence on the worksite will be a source of impact. Tree cutting and surface scraping will need to be completed to expose the mineral of the pit and prepare the construction of the tailings management facility and the waste rock stockpile. Temporary and permanent access roads will be built as well as buildings and mining infrastructures. These activities will lead to a loss of terrestrial and possibly of wetland habitat that will require compensation measures.

Production Phase

Open pit mining will be a source of impact on multiple levels: pumping of mine water, surface drainage alterations, blasting activities, landscape modifications, sound produced by machinery, and potential effects on air quality. At the final stage of the mine, the footprint of the open pit will overlap with three small lakes located in the area. Other potential effects of mining will come from tailings management, ore treatment, effluent treatment, waste dump management, transportation of goods to and from the mine site on the existing road system, handling and storage of dangerous goods, as well as management of all waste produced on site.

Post Production Phase

Potential effects that will come from the post-production phase of the Project are tied to the use of machinery and the potential emission of contaminants such as noise and dust.

Positive Anticipated Effects

The Project will promote the creation of a new drive in the Cree communities of Eastmain and Nemaska. Positive effects identified thus far include:

- Increased demand for goods and services at local and regional levels during the various phases of the Project;
- Contract attribution to qualified regional entrepreneurs during the construction phase;
- Contract attribution to local suppliers during the production phase;
- Job creation during the production phase;
- Potential to become an important rare metals Project, it could constitute a great technology showcase for Québec and Canada;
- The Rose Project will generate significant tax revenues to the community, to the region, to the province and to the federal government;
- Over the long term, the Rose Project will have a positive regional impact on mining exploration and development projects.

20.2 Tailings Characteristics and Disposal Requirements

The proposed plan for the tailings disposal infrastructures is presented in section 18.3 of this Technical Report.

Environmental considerations relative to tailings are outlined below.

20.2.1 Seismic Risk

The Rose site is located at latitude 52°North and 76°10’’ West. The seismic risk estimate for that area was taken from data published by the Ministry of Natural Resources of Canada (RNC, 2011). Peak ground horizontal accelerations for the Rose site are summarized in Table 20-1.

Table 20-1 Peak Ground Horizontal Accelerations for the Rose Site.

Probability of exceeding the value in 50 years	40%	10%	5%	2%
Recurring period (years)	1:100	1: 475	1: 1000	1: 2475
Maximum ground acceleration (g)	0.003	0.011	0.019	0.036

The values that will be used in the final design of the dykes for the tailings disposal facility should take this parameter into account.

20.2.2 Geotechnical Study

Geotechnical studies to assess the ground conditions at the site of the proposed tailings disposal facility have already been planned but have yet to be carried out. The selection of the site and design of the peripheral dykes will need to be optimized when that information becomes available.

Tests will be necessary to assess the geotechnical characteristics of the foundations of both the tailings impoundment area itself and, in particular, on the tailings retaining dykes.

20.2.3 Tailings Properties

The following tailings properties were provided by Critical Elements:

Pulp density: 1.15 (19% solids)
Particle-size distribution: P_{80} = 150 µm
pH: 7.1 to 7.6

Chemical composition:

Li2O	**%**	0,06
SiO_2	**%**	77,54
Al_2O_3	%	12,75
Fe_2O_3	**%**	< 0,04
Na_2O	**%**	5,90
K_2O	**%**	2,55
CaO	**%**	0,19
MgO	%	0,01
MnO	**%**	< 0,01
S	**%**	< 0,02
Ta	**ppm**	31
Be	**ppm**	14
Rb	**ppm**	3275
Ga	**ppm**	41

The mineralogical composition of the ore was described in the National Instrument 43-101 compliant report prepared by InnovExplo for Critical Elements on September 7, 2011. The ore consists of a spodumene and lepidolite bearing pegmatite. Spodumene is a silicate of lithium aluminum ($LiAlSi_2O_6$) belonging to the pyroxene group while lepidolite is a silicate of the mica group ($K(Li,Al)\ Si_4O_{10}\ (F,OH)_2$). Pegmatites are granite-related ore deposits made of plutonic rocks displaying exceptionally large crystals.

Tailings from the concentrator will contain a proportion of these minerals once the metals of interest have been concentrated which will be similar to the chemical composition listed above.

20.2.4 Geochemistry

Acid Base Accounting (ABA) static tests were performed on 12 waste rock samples by AcmeMet, a testing laboratory located in Vancouver, British-Columbia. The composite samples were taken from several sections of the deposit to ensure a good representativeness. The waste rock samples consisted of gneiss, schist, rhyolite, amphibolite, arkose and sandstone. The modified Sobek method was used and analytical procedures followed the protocol outlined in the "*Field and Laboratory Methods Applicable to Overburden and Minesoils*" EPA 600/2-78-054, 1978. It should be noted that AcmeMet is not independent from Critical Elements and that analytical procedures and results from that laboratory were verified by Bumigeme, an independent firm from Critical Elements. Preliminary results from the ABA static tests dated October 27, 2011 show that waste rock from the Rose Project are not acid generating. Only one (1) result (identified as Intrusive mafic) showed a ratio of 2.4. Kinetic test results between 1 and 3 are considered to be in a "grey area" and require further testing for confirmation.

These analyses provide information as to the level of protection needed to protect the underground water while designing the tailings/waste rock disposal facility. Depending on the ground conditions, geomembranes, clay, till, or other components may be used to line the bottom of the waste rock or tailings disposal facility.

Tests results obtained to date met with expectations since the Rose deposit contains no sulphides, such as pyrite, which could act as a potential source of acid generation during the alteration process. Furthermore, minerals found in the Rose deposit contain no heavy metals such as copper (Cu), nickel (Ni), lead (Pb), and zinc (Zn) which are often linked with environmental leaching issues even under neutral pH conditions (6 to 8). Even if it is not expected, tests will be required to confirm the absence of metal leaching. These tests have been initiated by Critical Elements.

The *Directive 019 sur l'industrie minière*[1] issued by of the Quebec's *Ministère du Développement durable, Environnement et Parcs*[2] (MDDEP) recommends carrying out other geochemical tests such as metal leaching tests. As stated in its 2005 version, the *Directive 019* is a tool commonly used for the analysis of mining projects requiring a certificate of authorization as per section 22 of the Quebec law titled *Loi sur la qualité de l'environnement* (Law on Environment Quality[3]).

Criteria outlined in the *Directive 019* apply to the Rose Project and were used in the preliminary design of the proposed tailings/waste rock disposal infrastructures described in this Technical Report.

As a precautionary measure, a scan for metals should be carried out, analysed and then compared to Quebec's surface water quality criteria. The province has established specific standards regarding beryllium (Be) and lithium (Li) contents to prevent water contamination. As for other parameters, criteria relative to mining waste outlined in the *Directive 019* from the MDDEP should be followed.

Laboratoire AGAT Limitée (AGAT) completed a series of tests for 14 metals (silver, arsenic, barium, cadmium, cobalt, chromium, copper, tin, manganese, molybdenum, nickel, lead, selenium, and zinc) on 3 soil samples taken from the proposed sites for the Rose Project open-pit, waste rock stockpile and tailings disposal facility. The inductively coupled plasma atomic emission spectroscopy (ICP-AES) test was used to detect all metals, except silver and arsenic and selenium. The soil samples were also tested for sulphur content and pH level.

The certificates of analysis issued by AGAT on October 13, 2011 showed that test results for all metals were within specifications. The concentrations of heavy metals were below the threshold listed in the MDDEP's General Criteria A of the Policy Regarding Soil Protection and Rehabilitation of Contaminated Lands[4] (*Critère générique A de la Politique de protection des sols et de réhabilitation des terrains contaminés*).

Laboratoire AGAT Limitée is a division of AGAT Laboratories, a specialized science and laboratory service provider with 12 scientific divisions that offer full-service solutions to multiple industry types including the mining sector. AGAT is located in Ville St-Laurent, Québec and is independent of Critical Elements. AGAT's mining

1 Guideline 019 on the mining industry (Unofficial translation).
2 Ministry of Sustainable development, Environment and Parks (Unofficial translation).
3 Unofficial translation.
4 Unofficial translation.

geochemistry laboratory is accredited to ISO 17025 by the Standards Council of Canada (SCC). Certificates of analysis performed by AGAT are password-protected and duly signed by a chemist according to a procedure compliant with the requirements of ISO 17025:2005 accreditation standards required by CALA, CCN and the MDDEP. CALA stands for the Canadian Association for Laboratory Accreditation Inc., a not-for-profit Canadian laboratory accreditation body.

Test results with respect to sulphur were also below Criteria A. Thus, this soil can be used, stockpiled, or incorporated into construction material at the Rose Project site without restriction. Additional tests will be required to respect quantity/volume ratio from the MDDEP guidelines.

20.2.5 Protection of Underground Water

Taking into account the ban on constructing tailings/waste rock storage areas over a Class I aquifer, *Directive 019 includes* three (3) types of protective measures applicable to underground water, as follows:

- Storage area for low risk mine tailings requiring no leak proofing measures;
- Storage area requiring Line A leak proofing measures;
- Storage area for high risk mine tailings requiring Line B leak proofing measures.

Given the tailings chemical composition presented above and that the assumption that waste rock at the Rose site is not acid generating, the design of the tailings disposal facility was based on the assumption that the tailings will present a low risk for underground water. Further investigations into the classification of the aquifer are needed to validate this assumption with the hydrogeological assessment.

Run-off water will be collected into drainage ditches surrounding the tailings/waste rock disposal facility and then routed toward the water treatment plant.

At the end of the life of mine, a low permeability protective cover will be put over the tailings to prevent wind erosion and to avoid sloughing or dyke breakage. This protective cover will be made of a membrane layered with granular material and earth that will contain a minimum of organic matter. This approach will facilitate the revegetation efforts included in the mine closure plan.

The synthetic material used to leak-proof the tailings disposal facility may be modified during the subsequent stages of the Project as more information becomes available regarding the properties of the waste rock and the characteristics of the aquifer and the tailings themselves.

20.2.6 Regulations Pertaining to the Water Management Infrastructure

Regulations pertaining to run-off water from mining project infrastructures are outlined in the *Directive 19* issued by the MDDEP. In summary, run-off water from mining infrastructures must be collected into drainage ditches excavated around mining infrastructures. Water quality criteria at discharge points into the environment are outlined in section 2.1.1.1 of *Directive 19*. Specific water quality criteria should be adhered to prior to discharging treated water into the surrounding environment.

Hydraulic design criteria relative to mine tailings/waste rock disposal facilities are listed in section 2.9.3 of *Directive 19* which states that: “If mine tailings are acid-generating, contain cyanides or are at high risk, then freeboard on the settling ponds must be based on the 1,000 year flood line. At the very least, and for all other types of mine tailings, the freeboard on the settling ponds must be based on the 100 year flood line. The flood line shall be based on critical rainfall levels from one the following two (2) options:

- 6-hour rainfall period;
- 24-hour rainfall period.”[5]

The various ditches of the Project were designed according to a combination of the 24-hour rainfall event, with a recurrence of 1 in 100 years, and a corresponding snowmelt intensity based on a theory presented by Viessman & Lewis (2003).

The storage areas were designed using a summer flood with a recurrence of 1 in 100 years. No snowmelt was considered for this event. A freeboard of 1 meter was nonetheless added to the perimeter dykes.

A preliminary assessment on the Probable Maximum Rain Level should be undertaken at the next stage of the study to validate the conservative approach used in the design of the drainage and water storage infrastructures of the Rose Project.

Finally, section 2.1.3 of *Directive 019* concerns the flow rate of the final effluent and stipulates that “In the case of a mineral concentration plant whose used water will be stored over a long period, it is recommended to keep the discharge flow rate to a minimum and to progressively spread it over the longest possible time to adapt it to the receiving environment.”[6]

5 Free translation.

6 Free translation.

20.2.7 Run-off Water Quality

The quality of run-off water from the waste rock, ore and overburden stockpiles and the tailings disposal facility has yet to be determined.

As mentioned above, preliminary soil test results for 14 metals indicated the presence of no contaminants. Cost estimation for the water management infrastructure is based on the hypothesis that the overburden stockpile will contain no contaminants.

20.3 Site Monitoring and Water Management Requirements

Water management infrastructures proposed for the Rose Project are discussed in sections 18.8 of the present Technical Report and include preliminary data on:

- Regulations pertaining to the water management infrastructure,
- Run-off water quality,
- Hydrology,
- Topography and soil characteristics,
- Water management infrastructures dimensions,
- Mining infrastructures drainage ditches,
- Holding basins,
- Pumping system during production.

Details concerning the proposed dyke across the southern tip of Lake 3 are presented in section 18.9.

20.3.1 Fresh Water

According to the current plan, fresh process water and water for fire suppression will be pumped from Lake 3 into a reservoir at the water treatment plant.

It is recommended to recycle run-off water accumulated into the various holding basins as process water for the concentrator. A pumping system will route reused water from the holding basins to the final water settling reservoir.

The water will be treated with a microfiltration or ultra filtration process and then disinfected before being distributed to the mining complex.

Potable water will be provided as bottled water across the Rose site.

20.3.2 Waste Water Treatment and Disposal Scheme

The operation of the Rose mine will generate two (2) categories of waste water:

1. Sanitary water, which will come from the mining complex. The waste water will be treated by an ultra filtration system. The effluent could be reused for raw process water.
2. Mining effluent, which will represent the excess water from various contributions such as dewatering of open-pit (infiltration and storm water) and mineral processing effluent. A tailings management infrastructure (section 18.3) will be constructed to decant all mineral processing effluents. These effluents will be pumped through a microfiltration process. A portion of the treated water should be reused as raw process water.

In Québec, technical requirements for sanitary wastewater treatment systems are defined in the Regulation Respecting Wastewater Disposal for Isolated Dwellings. The *Directive 019 issued by the Ministère du Développement Durable, Environnement et Parcs* (MDDEP) constitutes the primary source of information concerning limits of mining effluents. The *Directive 019* will be used during the permitting process to define enforceable limits for metals (arsenic, lead, zinc, iron, nickel, and copper), cyanides, pH, suspended solids and hydrocarbons.

It is anticipated that residence time in the tailings management infrastructure will be sufficient to allow suspended solids to settle at the bottom of the tailings facility without requiring chemical additives.

20.4 Preliminary Permitting Requirements

Apart from the environmental impact assessment process, the Rose Project is subject to a range of municipal, provincial and federal authorizations and permits. A preliminary list of required permits and authorizations is presented below.

20.4.1 Municipal requirements

- A certificate of conformity to regulation of the Municipality of James Bay is required in order to submit authorization requests under section 32 of the Environment Quality Act (R.S.Q., c. Q-2) and certificates of authorization requests under section 22 of the Environment Quality Act (EQA).
- Construction permits are required from the Municipality of James Bay before starting construction work.

Sections 22 and 32 of the EQA read as follows:

"ENVIRONMENT QUALITY ACT
CHAPTER I - PROVISIONS OF GENERAL APPLICATION
DIVISION IV - PROTECTION OF THE ENVIRONMENT

22. No one may erect or alter a structure, undertake to operate an industry, carry on an activity or use an industrial process or increase the production of any goods or services if it seems likely that this will result in an emission, deposit, issuance or discharge of contaminants into the environment or a change in the quality of the environment, unless he first obtains from the Minister a certificate of authorization.

However, no one may erect or alter any structure, carry out any works or projects, undertake to operate any industry, carry on any activity or use any industrial process or increase the production of any goods or services in a constant or intermittent watercourse, a lake, pond, marsh, swamp or bog, unless he first obtains a certificate of authorization from the Minister.

The application for authorization must include the plans and specifications of the structure or project to use the industrial process, operate the industry or increase production and must contain a description of the apparatus or activity contemplated, indicate its precise location and include a detailed evaluation in accordance with the regulations of the Government of the quantity or concentration of contaminants expected to be emitted, deposited, issued or discharged into the environment through the proposed activity.

The Minister may also require from the applicant any supplementary information, research or assessment statement he may consider necessary to understand the impact the project will have on the environment and to decide on its acceptability, unless the project has already been the subject of a certificate of authorization issued under section 31.5, 31.6, 134 or 189, of an authorization issued under section 167 or 203 or of a certificate of exemption from the assessment and review procedure issued under section 154 or 189."

"ENVIRONMENT QUALITY ACT

CHAPTER I - PROVISIONS OF GENERAL APPLICATION

DIVISION V - WATER RESOURCE PROTECTION AND MANAGEMENT

4. — WATERWORKS, SEWERS AND WATER TREATMENT

Authorization.
32. No one may establish waterworks, a water supply intake or water purification appliances or carry out work respecting sewers or the installation of devices for the treatment of waste water before submitting the plans and specifications to the Minister and obtaining his authorization.

Such authorization shall also be required for work on reconstruction, extension of old installations and connections between the conduits of a public system and those of a private system.

Amendment.
The Minister may, where an application for authorization is referred to him, require any amendment he considers necessary to the plans and specifications submitted.

Exception.
This section does not apply to the holder of a depollution attestation who installs wastewater treatment devices in any industrial establishment for which an attestation was issued to him."

20.4.2 Provincial requirements

Certificates of authorization are required from the MDDEP under section 22 of the EQA for the following elements of the Rose Project. Some requests may combine two or more of these elements:

- Certificate of authorization for the overburden stockpile.
- Certificate of authorization for the tailings management facility.
- Certificate of authorization for the waste rock stockpile.
- Certificate of authorization for construction of access roads.
- Certificate of authorization for mine production.
- Certificate of authorization for the concentrator and dust collector.
- Certificate of authorization for the bicarbonatation plant and dust collector.
- Certificate of authorization for pit and quarry operation.
- Certificate of authorization for a mobile concrete plant.
- Certificate of authorization for a snow dump.
- Certificate of authorization for the explosives manufacturing plant.

- Certificate of authorization for effluent treatment facilities.

Authorizations are required from the MDDEP under section 32 of the EQA:

- Authorization for effluent treatment facilities.
- Request for effluent discharge objectives.
- Authorization for surface water intake.
- Authorization for groundwater intake.
- Authorization for water/oil separation system.

Forest management permits are required from the *Ministère des Ressources naturelles et de la Faune* (MRNF) under section 20 of the Forest Act (R.S.Q., c. F-4.1) for deforestation of the following sites. These sites may be combined in one or more requests to the MRNF.

- Forest management permit for access road construction.
- Forest management permit for overburden storage site.
- Forest management permit for waste rock site.
- Forest management permit for tailings management facility.
- Forest management permit for mine exploitation site.
- Forest management permit for plants and other buildings.

A mining lease to extract is required from the MRNF under section 100 of the Mining Act (R.S.Q., c. M-13.1).

A lease to mine surface mineral substances is required from the MNRF under section 140 of the Mining Act (R.S.Q., c. M-13.1).

Crown land leases are required from MNRF under section 239 of the Mining Act (R.S.Q., c. M-13.1):

- Lease for access roads.
- Lease for overburden site.
- Lease for waste rock site.
- Lease for tailings management facility.
- Lease for plants and other buildings.

A crown land lease for the explosives manufacturing plant and magazine sites is required from the MNRF under section 47 of the Act respecting the Lands in the Domain of the State (R.S.Q., c. T-8.1).

A permit to possess explosives is required from the Ministry of Public Security (MPS) under section 2 of the Explosives Act (R.S.Q., c. E-22).

An authorization for plant and mill locations is required from the MNRF under section 240 of the Mining Act (R.S.Q., c. M-13.1).

An authorization for the location of the tailings management facility is required from the MNRF under section 241 of the Mining Act (R.S.Q., c. M-13.1).

20.4.3 Federal requirements

Licenses for the explosives manufacturing plant and magazine are required from the Ministry of Natural Resources (MNR) under section 7 of the Explosives Act (R.S.C., 1985, c. E-17).

An approval to work in navigable waters will be required from the Ministry of Transport (MOT) under section 5 of the Navigable Waters Protection Act (R.S.C., 1985, c. N-22).

An authorization to work in fish habitat will be required from the Department of Fisheries and Oceans (DFO) under section 35 of the Fisheries Act (R.S.C., 1895, c. F-14).

An authorization to discharge effluent will be required from the Department of Fisheries and Oceans (DFO) under section 36 of the Fisheries Act (R.S.C., 1895, c. F-14).

A license to possess a nuclear probe will be required from the Canadian Nuclear Safety Commission (CNSC) under section 26 of the Nuclear Safety and Control Act (S.C. 1997, c. 9).

A permit to store chemicals will be required from the Minister of Environment (MOE) under section 3 of the Environmental Emergency Regulations (SOR/2003-307) pertaining to the Canadian Environmental Protection Act (S.C. 1999, c. 33).

20.4.4 Status of Permit Applications

The permit application process for the Rose Project has not been initiated yet.

20.4.5 Reclamation Bonds Requirements

At this point in time, it is foreseen that two types of surety bond will be required to provide a financial guarantee against environmental reclamation work costs. First, a financial guarantee equal to 70% of the Closure Plan costs will need to be posted. Further details regarding the Closure Plan are presented in section 20.6 of this Technical Report. Second, a bond will be required to set money aside for compensatory work related to the loss of aquatic habitats. The amount of that bond varies from project to project and may reach as much as 20 $\$/m^2$ of lost habitat. In the case of the Rose Project, a preliminary assessment of the area that could lead to a loss of aquatic habitat was estimated between 15 and 20 hectares[7] suggesting that the bond required may range between 3 and 4 M$.

20.5 Overview of Social Impacts of the Project

The construction and operation of a mining project may modify the host territory environment and generate impacts that will affect land users and communities. In the case of the Rose Project, the nearest community is the Cree village of Nemaska located some 30 km south of the property. Initially, the potential consequences of developing a mine in a remote area inhabited by indigenous people can be categorized into two (2) impact groups:

Land Use Impacts

- Loss of campsites.
- Loss of trapping grounds and trapping resources.
- Loss of income.
- Loss of hunting areas.
- Decline in game quality and quantity.
- Concern or worry related to the perception of potential contamination of the environment.
- Disturbances due to increased presence of other users.

---

7 1 hectare = 100 m x100 m.

- Loss of safety related to increased traffic, and to the presence of workers and other users.

Social Impacts

- Enhancement of well-being (possibility of well paid employment).
- Increased motivation to complete school to enhance chances of employment.
- Job creation for the youth.
- Modification of social relations among community members (loss of community spirit, individualism, etc.).
- Increased social problems related to the modification of the way of living (alcoholism, use of drugs, etc.).
- Feeling of loss related to the clash between the traditional Cree livelihood system based on hunting, fishing and trapping and wage-paying jobs.
- Feeling of insecurity due to the presence of strangers.
- Feeling of insecurity related to the perception of potential environmental contamination (water, air, soil).
- Manpower recruiting difficulties for the community's services and businesses because of the mine's job conditions.
- Better understanding or conflicts between the Crees and non-Cree people due to increased contacts.

It will be possible to quantify and qualify these potential consequences through the inventories, analyses and consultations that will be undertaken in the Eastmain and Nemaska communities.

20.5.1 Status of Negotiations with Local Communities

In 2009, the Cree People of Eeyou Istchee have developed a mining policy which provides guiding principles for the conduct of mineral exploration and mining activities on the Cree territory.

The guiding principle of the Cree of Eeyou Istchee mining policy is as follows:

"The Cree Government will support and promote the development of mineral resources within the territory of Eeyou Istchee that provide long term social and economic benefits for the Cree and that address sustainable development within the larger context of natural resources management and the environmental and social protection regime in the Territory."

As mentioned earlier, Critical Elements Corporation has taken a pro-active approach to community relations through information sessions and Band Council meetings. Critical Elements has initiated discussions and formal meetings were held with the Council of the Eastmain Cree Nation (ECN) and the Council of the Nemaska Cree Nation (NCN) in regards to the Rose Property. In addition, Critical Elements has presented several public information sessions to the residents of the ECN to provide them with a forum to enquire about the Rose Project. To date, residents of the ECN have contributed to the realisation of environmental studies concerning the Rose Project.

Public information sessions for the members of the NCN are being prepared and discussions with Cree representatives are scheduled for January 2012.

As the Rose Project progresses through the various stages of review and development, Critical Elements will work more closely with the Cree Human Resources Development (CHRD) to develop training programs adapted to local workers in the spirit of promoting the local economy. Critical Elements intends to continue providing employment and to develop training opportunities to members of the ECN and NCN communities. Eventually, Critical Elements' commitment to hiring and training members of the ECN and NCN communities will be set into a formal agreement.

20.6 Preliminary Mine Closure

At the cessation of mining activities, the ore stockpile of the Rose Project should be fully depleted. The soil quality and the drainage ditches should be characterized to provide for their proper management. The restoration work should also include levelling the ground, scarifying the road and the former ore stockpile ground surfaces and planting various plant species to not only ensure a gravity flow towards the receiving environment, but also to restore the area to its natural appearance.

20.6.1 Dismantling Buildings and Other Infrastructures

Some buildings and infrastructures specifically erected for the operation of the mine should be dismantled to retrofit the site to a state compatible with the surrounding environment. Other infrastructures should be maintained for the benefit of the local communities or as preventive measures against interventions that could have a negative on the environment.

20.6.2 Dismantling Work

During the dismantling operations and disposal of the Project buildings, all buildings and surface infrastructures not required for the closure plan follow-up process should be taken apart by a certified contractor. Waste material resulting from the dismantling operations should be buried or transported to authorized recycling points located in the southern part of the province.

During the dismantling operations of the buildings and surface infrastructures, restoration work should include the following activities:

- Salvageable material and equipment should be set aside and then either given or sold to recycling points. If members of the local population express an interest in these items, then Critical Elements should encourage the creation of an agency responsible to give a second life to these residual items.
- Any process, production or service equipment, such as silos, reservoirs, tanks, pipes and pumps should be drained and cleaned. The wash water should be collected for treatment (settling, water/oil separation if needed) before being discharged into the environment.
- Any equipment containing oils or other potentially contaminating liquids such as electrical equipment and vehicles should be drained and cleaned before being discarded. Used oils should be recycled as heating oils to heat the remaining buildings.
- Management of chemical products, waste materials, and dangerous goods should be carried out safely according to regulations in effect. All solids, liquids, pulps and sludges located inside the buildings should be characterized, if needed, and their disposal sites should be approved by the Project environment representative.
- The walls and floors of the buildings should be cleaned, if needed, before the buildings are dismantled. The wash water should be collected for treatment (settling, water/oil separation if needed) before being discharged into the environment.

20.6.3 Foundations

Light buildings such as the water treatment facility should be erected on rock/fill foundations or triangular supports.

Buildings needing more stability such as the concentrator should be laid over piles buried in the ground.

20.6.4 Dismantling of Transportation Infrastructures

The main access roads are located on public lands and are included in the public domain administered by the MNRF. Thus, these roads will be excluded from the mine closure procedures of the Rose Project. Only the haulage and access roads located on the Rose property itself should be dismantled or scarified.

20.6.5 Dump Site

A dump site will probably be needed. This should be investigated during the prefeasibility study.

20.6.6 Exploration Camp

At the end of the Life of Mine of the Rose Project, all mining exploration camps should be offered to the local communities. If the communities do not express an interest in acquiring them, then all exploration camps should be dismantled and the demolition materials sorted out for recycling or disposal.

20.6.7 Heavy Mobile and Stationary Surface Equipment

Whenever possible, heavy mobile and stationary surface equipment should be sold on the used equipment market. The remaining unwanted equipment can be sold as scrap metal or disposed of at designated dump sites.

Heavy mobile and stationary surface equipment located in the open-pit should be hauled outside the pit, drained of any liquids, and tagged as either saleable or scrap. Excessively worn or old parts should be sent to scrap metal recyclers or disposed of at designated dump sites.

20.6.8 Quarry and Sand Pits

All quarries and sand pits used as sources of raw construction materials, or for the maintenance of the Rose Project infrastructures should be graded and reclaimed. The restoration plan should meet with the requirements prescribed for quarries and sand pits.

Rubbish and unusable material, and pieces of equipment should be collected and disposed of or recycled.

The slopes of the quarries and sand pits should be stabilised to prevent soil cave-in and erosion.

20.6.9 New and Used Controlled Products

20.6.9.1 Petroleum Products

Petroleum products, fuels, diesel, oils and greases should be spent out at the end of the Life of Mine. Otherwise, they should be sold or given to the local communities. The company should ensure that the persons to whom they give or sell these products will be able to handle them properly in compliance with the regulations in place.

All petroleum products reservoirs and associated piping used on site to store should be drained, cleaned and dismantled. Soils contiguous to the reservoirs or containers should be characterized and corrective measures should be taken in compliance with the Policy on the protection of soils and the rehabilitation of contaminated lands.

20.6.9.2 Chemical Products

All reagents and other chemical products should be spent at the end of the Life of Mine, except those required for water treatment during the environmental post closure follow-up period. Residual reagents and chemical products not required for that purpose should be put into properly labelled containers and transported to the southern region of the province of Québec for recycling at approved sites.

20.6.9.3 Residual Dangerous Goods

Management of residual dangerous goods is regulated and the disposal of such products must be done in compliance with the Regulations on dangerous goods of the Quebec Law of the Quality of the Environment (LQE).

No residual hazardous materials shall be found on the property after the cessation of the mining operations of the Rose Project. All used oils should be burnt as heating oil, and the other residual dangerous goods should be collected, packaged, labelled and transported to the southern region of the province of Québec for elimination at approved sites.

20.6.9.4 Residual Non Dangerous Materials

Residual non dangerous materials generated by the mining operations should be sorted out, recyclable materials should be sent to an authorized recycling facility, flammable materials should be burnt and non combustible materials and ashes should be transported to a dump site.

20.6.10 Soils and Contaminated Materials

Despite the measures that will be put in place by Critical Elements to minimize that risk, incidents associated with handling of petroleum products or other chemical products is likely to occur, especially at the following sites:

- petroleum products storage facility;
- point of use locations of petroleum products;
- reagents and chemical products storage facility;
- near plants and mechanical shops;
- near the concentrate loading station;
- on the road linking the plant to the tailings disposal facility.

An assessment of the soil quality at these potentially contaminated sites should be completed. Corrective measures should be applied in compliance with applicable regulations. Contaminated soils should be transported to approved sites, as required.

20.6.11 Financial Guarantee

The calendar for the financial guarantees of the Rose Project Closure Plan should be established according to the table included in the *Guide de restauration des sites miniers.* The items affected by the Closure Plan will require a financial guarantee equal to 70% of the Closure Plan costs for the tailings disposal facility, waste stockpile and environmental post-closure follow-up surveys.

21. COST ESTIMATES

21.1 Capital Costs

Capital expenditures and ongoing investments for the Rose Project, including a 10% contingency, are estimated at $305.4 million, of which $268.6 million will occur during the pre-production period.

Pre-production costs are solely related to the critical path and minimal mining development required to reach the production target feed rate of 1,500-tpd at the Spodumene concentrator. These costs are in 2011 Canadian dollars, exclude taxes and duties, and make no allowances for escalation. Pre-production capital costs include the costs to prepare the open pit mine, install the water management infrastructures, purchase the mobile equipment, build the mineral processing plants (concentrator and carbonate plant), site facilities and infrastructures, tailings management infrastructures, indirect costs and contingency. The pre-production period will span the two (2) years immediately prior to the start of production.

Based on preliminary acid-base accounting tests (ABA) completed by ACME MET Laboratory that showed no indication of contamination, it was assumed that the waste rock will not be acid-generating and that no other contaminants will be leaching from the waste rock, ore, tailings and overburden. Leaching tests will be required during the prefeasibility study to confirm this assumption.

Capital costs (direct and indirect) for the Spodumene concentrator and Lithium carbonate plant were estimated by Bumigeme.

All other costs were estimated by GENIVAR using budgetary supplier's quotes (explosives manufacturing plant, equipment fleet, transportation costs), dedicated estimation software (Hewitt mobile equipment cost estimator, Talpac), costing manuals (Mine Cost Services Manual, Caterpillar manual), literature review (contingencies), regulatory requirements (mine closure costs, permits) and hands-on experience (office infrastructures).

Indirect costs include a 10% allowance for EPCM (Engineering, Procurement and Construction Management), permits application, workers' accommodations, surface equipment services, insurance, personnel transportation, owner costs, spare parts, mine consultant and indirect labor costs (administration, security, Human Resources, and Information Technology).

Expenses for metallurgical testing, prefeasibility study, feasibility study, environmental studies and project financing are not included in this Technical Report capital costs estimate. Table 21-1 presents a summary of the estimated capital costs for the Rose Project.

Table 21-1 Rose Project Capital Costs Summary.

Items	Pre-production ($ millions)	Ongoing ($ millions)	Total ($ millions)
Site preparation	20.1	2.9	23.0
Mine construction and equipment	50.3	15.9	66.2
Power and communication	13.2	-	13.2
Surface infrastructures	11.3	-	11.3
Process plant (total)	105.6	-	105.6
Indirect	43.7	-	43.7
Closure	-	14.7	14.7
Contingency (10%)	24.4	3.3	27.7
Total	**268.6**	**36.8**	**305.4**

Ongoing investment includes the construction of a dam across Lake 3, purchasing of some mining equipment, closure cost and a closure guarantee.

21.1.1 Site Preparation Capital Costs

Site preparation costs for the Rose Project are estimated at $23.0 million, of which $2.9 million will occur during the pre-production period.

Site preparation consists of constructing the access roads to the site, the water management facilities and other civil work. Table 21-2 provides a breakdown of capital costs for the site preparation cost items. These will be mostly incurred during the pre-production period.

Table 21-2 Rose Project Site Preparation Capital Costs.

Site preparation items	Pre-production ($ millions)	Ongoing ($ millions)	Total ($ millions)
Access road	1.5	-	1.5
Overburden removal and deforestation	3.6	-	3.6
Water management & Dam construction	9.5	2.9	12.4
Water treatment facilities	5.0	-	5.0
Other (fencing, parking, fuel storage, lighting)	0.5	-	-
Total	**20.1**	**2.9**	**23.0**

The access road cost item includes the costs for the access road to the mine site, the mining road between the pit and the explosives manufacturing plant, the ore haulage road between the pit and the ore pad, and the waste haulage road between pit and the waste rock stockpile. Overburden removal consists of stripping the minimal amount of overburden at the proposed sites for the waste rock pad, ore pad and open-pit necessary to start the Project.

Water management consists of pumping out Lake 1 and Lake 2, building a dam on Lake 3, and purchasing and installing dykes and water tanks for water control.

Water treatment facilities cost item includes the costs for the pumping station for the industrial water that will be required at the mineral processing plants, explosives manufacturing plant, mining operation and dry facilities (change room for the workers). It also includes the ultra filtration systems for the industrial wastewater treatment.

The Other cost item includes fencing for the site, parking, lighting and fuel storage.

21.1.2 Mining Capital Costs

Mining capital costs for the Rose Project are estimated at $66.2 million, of which $50.3 million will occur during the pre-production period.

Mining capital costs consist of purchasing the mining equipment fleet and the surface equipment required to start production. It also includes labor, fuel, maintenance and explosives costs for the two (2) pre-production years. Table 21-3 shows the mining capital costs.

Table 21-3 Rose Project Mining Capital Costs.

Mining items	Pre-production ($ millions)	Ongoing ($ millions)	Total ($ millions)
Mobile equipment	28.0	15.9	43.9
Pre-production labour	12.0	-	12.0
Pre-production explosives	6.3	-	6.3
Pre-production fuel and maintenance	4.0	-	4.0
Total	**50.3**	**15.9**	**66.2**

The mobile equipment fleet was selected by Hewitt based on the forecasted annual mine production. The cost for the overburden removal equipment, which will be used during the production period, was also estimated by Hewitt. They also provided purchase prices and operating costs for each piece of equipment. The mining fleet was validated with *Talpac*, a cycle time simulator software. Table 21-4 presents the mining fleet capital and operating costs.

Pre-production labor cost was established to match with the mobile equipment requirements. Explosive costs were provided by Orica.

Table 21.4 Rose Project Mobile Equipment Capital Costs and Purchase Year.

	Type	CAPEX ($ millions)	OPEX ($/h)	Total units	Purchase Year										
					-1	0	1	2	3	4	5	6	7	8	9
Mining truck	785D	2.8	207	7	2	1			1			1		1	1
Water truck	777F	1.6	148	1	1										
Wheel loader (prod.)	994F	4.7	345	1	1										
Front hydraulic shovel	RH170	7.3	725	1	1										
Wheel loader	IT62H	0.3	28	2	1										1
Grader	16M	0.8	91	2	1										1
Bulldozer	D9T	1.0	102	2	1										1
Drill	Roc L830	0.1	80	3	2	1									
Mobile field fuel/lube truck	82 hp	0.08	11	1	1										
Mechanic field service truck	250 hp	0.07	10	1	1										
Light portable diesel compressor	13.6 hp	0.025	2.5	4	4										
Compactor + miscellaneous	-	2.0	90	1	0					1					
GMC pickup	Sierra 2500 HD	0.05	4.5	8	4	4									
GMC van	Savana 3500	0.06	4.5	2	2										
Off road tire service truck	82 hp	0.17	15	2	2										
Backhoe	36 t	0.3	68	1		1									
Overburden truck	740	0.6	108	4	3					1					
Overburden loader	980H	0.4	89	1	1										

21.1.3 Power and Communication Capital Costs

Electrical power capital costs for the Rose Project are estimated at $12.0 million, and will all occur during pre-production Year-2.

The power system capital cost comprises the costs of moving five (5) Hydro-Québec high voltage electrical towers, construction of electrical sub-stations and on-site electrical distribution power lines. Power costs were calculated by GENIVAR's electrical engineering group and Hydro-Québec (power line relocation).

Table 21-5 presents the details of the electrical power infrastructures costs and work required to bring the Project into operation. Table 21-5 does not include power costs related to the mineral processing plants, which are included in the milling costs.

Table 21-5 Rose Project Electrical Power Capital Costs.

Power Items	Pre-production ($ millions)
Power line - Site electrical distribution	1.5
HQ Power line relocation	5.0
Electrical sub-station 315 KVA	5.5
Total	**12.0**

Communication capital costs for the Rose Project are estimated at $1.2 million, and will all occur during pre-production Year-2.

Costs related to the communication system were also developed by GENIVAR's electrical engineering group. Table 21-6 shows the details of the capital costs for the communication system. It includes materials and labor costs.

Table 21-6 Rose Project Communication System Capital Costs.

Communication Items	Pre-production ($)
Optic fiber	60,000
Connecting panel and distribution network (fiber & copper)	100,000
Phone system (IP phone server and licences)	375,000
IP phones	170,000
Onsite phone wiring	90,000
Radiocommunication system VHF/UHF	118,000
Ethernet system	120,000
Video system	130,000
Total	**1,163,000**

21.1.4 Surface Infrastructures Capital Costs

Surface infrastructures capital costs for the Rose Project are estimated at $11.3 million, and will all occur during pre-production Year-2.

Surface infrastructures include all on-site buildings except the explosive manufacturing plant (provided by the suppliers and included in the explosive price), the Spodumene concentrator and the Lithium carbonate plant. Construction of the tailings management facility is also included in the pre-production infrastructures capital costs.

Table 21-7 Rose Project Infrastructures Capital Costs.

Surfaces Infrastructures Items	Pre-production ($ millions)
Dry for the workers	0.84
General surface building	0.25
Administration building	1.26
Shop building	2.3
Service for building	0.19
Tailings management facility	6.5
Total	**11.3**

All buildings will be made of modular units. Design and prices were provided by *"La Forêt de demain"*, a company based in Amos, Quebec.

The proposed preliminary approach for the construction of the tailings management facility consists of building it in two (2) phases. Initially, a tailings impoundment basin capable of containing about 40% of the total volume of tailings expected over the LOM will be built together with the ditches. Subsequently, the tailings infrastructure dam will be raised. Dam raising and maintenance costs will be included in the operating costs.

21.1.5 Mineral Processing Plants Capital Costs

The capital costs for the Rose Project mineral processing plants are estimated at $105.6 million, divided between $47.5 million for the Spodumene concentrator and $58.1 million for the Lithium carbonate plant. These costs will all occur during pre-production Year-2.

Mineral processing plants capital costs were provided by Bumigeme. Details of the capital costs for both plants are presented in Table 21-8.

Table 21-8 Rose Project Concentrator and Carbonate Plant Capital Costs.

Items	Spodumene Concentrator ($ millions)	Lithium Carbonate Plant ($ millions)
Equipment cost	16.7	19.7
Installation	5.8	6.9
Civil & Structure	3.3	3.9
Power	5.8	6.9
Piping	4.2	6.9
Spare parts	1.2	1.4
Transport	2.4	2.9
Miscellaneous	8.1	9.5
Total	**47.5**	**58.1**

The Spodumene concentrator and the Lithium carbonate plant were designed for a daily production capacity of 4,566 tonnes.

21.1.6 Indirect Capital Costs

Indirect costs for the Rose Project are estimated at $43.7 million, and will occur during pre-production Year-2 and production Year 1.

Indirect costs include the items listed in Table 21-9. Those items include the cost of indirect labor (administration, security, HR and IT), off-site accommodations to lodge the workers, surface services equipment, personnel transportation, mine consultant, insurance, and permits required for the first two years of pre-production.

Indirect costs also include the EPCM (10% of total capital costs), owner cost (4% of total capital costs) and spare parts costs (1% of total capital costs).

Table 21-9 Rose Project Indirect Capital Costs.

Indirect Costs Items	Pre-production ($ millions)
Labor (Administration, Security, HR, Health & Safety, IT)	5.6
Accommodation	4.2
Surface services (equipment)	0.4
Personnel transportation - Airplane Charter & Bus	2.1
Insurance	0.3
Permits application	0.5
EPCM (10%)	20.1
Owner cost (4%)	8.0
Spare parts (1%)	2.0
Mine consultant	0.5
Total	**43.7**

21.1.7 Closure Capital Costs

Mine closure costs for the Rose Project are estimated at $14.7 million spread over the Life of Mine.

The closure costs presented in this Technical Report are preliminary in nature and will need to be detailed during the prefeasibility study. The closure plan is based on the mine closure guidebook published by the Quebec's *Ministère du Développement durable, de l'Environnement et des parcs* entitled "*Guide et modalités de préparation du plan et exigences générales en matière de restauration des sites miniers au Québec".* Table 21-10 presents a summary of the mine closure capital costs estimate.

Table 21-10 Rose Project Preliminary Mine Closure Costs.

Closure Costs Items	**Cost ($ millions)**
Securing places	0.2
Buildings and equipment demolition	5.5
Waste pad restoration	5.0
Concentrates storage area restoration	0.4
Tailings recovery (HDPE + sand + soil + seed)	2.5
HDPE pipes 3.1 kilometers (mill park)	0.1
Restoration of pits	1.0
Total	**14.7**

The mine closure costs estimate does not include costs related with the polishing pond and post closure mine water treatment costs.

The mine closure costs were included as ongoing capital costs, not as a pre-production capital cost item. The financial guarantee must provide for 70% of the restoration costs associated with the stockpiling and tailings disposal areas (waste rock and ore pads, tailings management facility). This amount will be set aside between Year 4 and the end of the mine life. The residual amount needed was attributed at the end of the Life of Mine (LOM).

21.2 Operating Costs

The average unit operating cost over the LOM was estimated at $67.83/tonne milled. The unit operating costs include open pit mining cost ($23.93/t milled), mineral processing cost ($26.22/t milled), and general and administration (G&A) cost ($7.67/t milled).

GENIVAR estimated the open pit mining operating costs and the G&A operating costs (which include surface services). Bumigeme provided the mineral processing operating costs. Operating costs for the Rose Project are summarized in Table 21-11.

Table 21-11 Rose Project Operating Costs.

Items	Unit Costs ($ per tonne milled)
Open pit	23.93
Spodumene concentrator	16.07
Lithium carbonate plant	20.15
General and Administration	7.67
Total	**67.82**

Items listed in Table 21-11 include labor costs, which were estimated based on the manpower that will be necessary to operate the proposed mobile mining fleet and stationary equipment. Mining production rates and productivity as well as equipment mechanical availability and utilization factors were taken into account in the operating cost estimate. Annual salary projections were based on current mining industry standards. A global manpower list is presented in Appendix B of this Technical Report.

Fuel cost was assumed at $0.90/litre.

21.2.1 Open Pit Mining Operating Costs

Average open-pit mining operating costs are estimated at $23.93 per tonne milled.

Open pit mining operating costs include manpower, equipment and fuel costs. Drilling operating costs are estimated at $1.36/t milled, blasting at $3.91/t milled, loading and hauling at $9.75/t milled, and services at $8.91/t milled.

Mining operating costs consist of removing the waste and ore from the pit. Note that the overburden removal cost is included in the G&A costs. Table 21-12 presents the open-pit mining operating costs.

Table 21-12 Rose Project Open-Pit Mining Operating Costs.

Items	Unit Costs ($ per tonne milled)
Loading and Hauling	9.75
Production drilling	1.36
Blasting	3.91
Services	8.91
Total	**23.93**

Production drilling operating costs were provided by Atlas Copco for the Roc L830 surface drill and include replacement parts and fuel. In addition to this amount, operator's salaries were added for two (2) drills for the first three (3) years of mining, then for three (3) drills between Year 4 and Year 15, and for only one (1) drill for the remaining production period.

Loading and hauling costs (maintenance and fuel) were provided by Kiewit for the truck model CAT785D, wheel loader model CAT994F, front hydraulic shovel TEREX-RH170 and backhoe shovel model 36t. The mining truck and shovel fleet was validated using the *Talpac* simulator software with input from Kiewit's technical personnel. Table 21-13 presents an estimate of the mine hauling and loading fleet composition over the Life of Mine. The hourly operating costs estimate prepared by Kiewit is presented in Appendix E of this Technical Report.

Table 21-13 Rose Project Loading and Hauling Fleet Over the LOM.

Items	YEARS																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Mining Truck 785D	2	3	3	3	4	4	4	5	5	6	7	7	7	7	7	5	2
Loader 994F	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Shovel RH170	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Shovel backhoe	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Open-pit blasting operating costs include supplier fees to have an on-site explosive manufacturing plant and the costs of the bulk explosives themselves. Explosives costs were based on quotations provided by Orica Limited, and include costs to make bulk emulsion explosives on the Rose Property and purchase costs for the initiating explosives products and accessories (detonation cords, boosters, connectors and electronic detonators). The average explosive operating cost is estimated at $3.91/tonne.

Details of the explosive plant fixed fees (provided by Orica) are presented in Tables 21-14 (equipment) and 21-15 (labor).

Table 21-14 Rose Project Explosive Plant Equipment Fees.

Description	Qty	$/month/unit	$/month	Cost/yr
Plant monthly fee	1	$117,500	$117,500	$1,410,000
MMU	1	$5,147	$5,147	$61,764
Plant monthly operating	1	$33,203	$33,203	$398,436
Total				**$1,870,200**

Monthly explosives plant operating fee includes 2 pick-up trucks, plant maintenance, rolling stock maintenance, employee travel, and operating supplies. Loaders and hole stemming material are extra.

Table 21-15 Rose Project Explosive Plant Labor Costs.

Description	Total	Qty/ Rotation	Monthly Rate/ Person	Comments	Cost/Year
Plant operator	2	1	$11,150	1 per shift 7-7 schedule	$267,600
Site supervisor	2	1	$14,934	1 per shift 7-7 schedule	$358,416
MMU operator	2	1	$10,775	2 per shift 7-7 schedule	$258,600
Blaster	2	1	$11,775	2 per shift 7-7 schedule	$282,600
Blaster helper	4	2	$10,775	4 per shift 7-7 schedule	$517,200
Total					**$1,684,416**

Total annual fixed explosives operating costs are estimated at $3.6 million. Variable explosives fees will depend according to the quantity of explosives required per tonne of rock. Table 21-16 presents the variable explosives costs.

Table 21-16 Rose Project Variable Explosives Costs.

	Bulk			**Qty/Hole**	**Price/Hole**
Fortis Extra 70	(70/30 Blend)	kg	$0.75	144.85	$108.64
Fortis Extra 100	100% emulsion	kg	$0.75		$0.00
	Accessories				$0.00
Pentex D16/454	454 g	unit	4.45 $	2	$8.90
i-kon RX	20m	unit	28.70 $		$0.00
i-kon	15m	unit	25.25 $		$0.00
Exel XT	15m	unit	8.82 $	1	$8.82
Cordtex 18	1200m	m	0.39 $	6	$2.34
Exel Noiseless LEL Det	100m	unit	52.00 $		$0.00
MS Connectors	All delays	unit	4.54 $	0.2	$0.91
Harness Wire	400m/spool	spool	59.97 $	0.02	$1.20
				Price/hole	**$130.81**
		Explosive (variable)		**Price/t**	**$0.23**

Services costs include mechanical, electrical and maintenance equipment and labor costs. Equipment operating costs were provided by Kiewitt. The service equipment labor cost was based on the proposed equipment fleet and took into account the required mechanical and electrical personnel needed to maintain the fleet in good shape. Table 21-17 presents details of the service equipment fleet over the LOM.

A global service equipment manpower list is included in Appendix B.

Table 21-17 Rose Project Service Equipment Fleet Over the LOM.

Items	YEARS																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Water Truck 777F	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Bulldozer D9T	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mobile field fuel/lube truck	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mechanic field service truck	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Portable diesel compressor	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Tailings maintenance & compaction equipment	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1
GMC Pickup	4	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	4
GMC Van	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Off road tire service truck	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

21.2.2 Mineral Processing Operating Costs

Mineral processing operating costs were estimated by Bumigeme. They include operating costs for the Spodumene concentrator and the Lithium carbonate plant. Mineral processing operating costs are estimated at $16.07/t. ore for the Spodumene concentrator plus $20.15/t. ore for the Lithium carbonate plant.

Mineral processing operating costs include manpower, reagents, wear parts and electrical power for the Spodumene concentrator and the Lithium carbonate plant. Details of operating costs for both mineral processing plants are presented in Table 21-18.

Table 21-18 Rose Project Mineral Processing Operating Costs.

			Spodumene Concentrator		Lithium Carbonate Plant	
Manpower Total		Total Employees		**Annual Cost**		**Annual Cost**
		58	31	$2,810,000	27	$2,450,000
		Specific Cost	**$/m.t. Ore**	1.87		1.63
Reagents	**Consumption**	**Unit Price**	**Annual Consumption**	**Annual Cost**	**Annual Consumption**	**Annual Cost**
	kg/m.t. ore	**$/kg**	**Tonne/Year**	**$/Year**	**Tonne/Year**	**$/Year**
Promoter	**0.55**	11.29	825	$9,314,250	-	
Frother	**0.12**	5.85	185	$1,079,325	-	
Collector	**0.43**	5.36	638	$3,417,000	-	
Flocculant	0.0035	4.50	4	$18,934	0.97	$4,354
Caustic soda (dry)	20.08	0.45			30,115	$13,401,189
CO_2 liquid	10.37	0.40			15,562	$6,224,705
			Total	**$13,829,509**		**$19,630,248**
		Specific Cost	**$/m.t. Ore**	9.22		13.09
Fuel (Anthracite)	**T/m.t. ore**	**$/T**	**m^3/year**	**$/year**	**m^3/year**	**$/year**
	0.02	0.26			29,627	**$7,702,985**
		Specific Cost	**$/mt, Ore**	0,00		5.14
Wear parts	**Consumption**	**Unit Price**	**Annual Consumption**	**Annual Cost**	**Annual Consumption**	**Annual Cost**
Ball consumption	**kg/t. ore**	**$/kg**	**Tonne/Year**	**$/Year**	**Tonne/Year**	**$/Year**
	0.8	1.5	1,200	$1,800,000		
Liners		**$/Set**	**Set/Year**	**$/Year**	**Set/Year**	**$/Year**
SAG-Mill		$380,000	1	$380,000		
Ball-Mill		$70,000	0.5	$35,000		
Other consumables and operating supplies				$3,000,000		
			Total	**$5,215,000**		**0.00**
		Specific Cost	**$/m.t. Ore**	3.48		0.00
Energy			**Total**	**$2,255,272**		**$449,111**
		Specific Cost	**$/m.t. Ore**	1.50		0.30
		Total Specific Cost	**$/t. Ore**	**16.07**		**20.15**

21.2.3 General and Administration (G&A) Operating Costs

G&A operating costs were estimated by GENIVAR at $7.68/tonne milled and include labor costs for administration, Human Resources, Information Technology, and surface services. They also include energy costs, workers' transportation costs, and insurance costs. A summary of the G&A operating costs is presented in Table 21-19.

Table 21-19 Rose Project G&A Operating Costs.

G&A Operating Costs Items	Unit Costs ($ per tonne milled)
Labor (Administration, HR, IT, etc.)	2.84
Energy	0.24
Surface services	1.19
Workers transportation - Airplane Charter & Bus	0.70
Insurance	0.11
Workers accommodation	2.05
Miscellaneous	0.55
Total	**7.68**

General and administration labor costs include surface equipment manpower costs for the tractor and grader. They also include overburden equipment manpower costs for the loader (CAT980H) and hauling trucks (CAT740). Overburden equipment manpower costs are included in the G&A operating costs because overburden removal applies to the whole property, not only to the overburden located over the open-pit. Appendix B of this Technical Report includes the G&A manpower requirements.

The G&A energy cost item includes heating and lighting costs for the buildings (offices, mechanical shop and dry) and for the pumping stations. Energy costs for the Spodumene concentrator and the Lithium carbonate plant are not included in this section.

Surface services operating costs include the surface mobile equipment operating costs. Table 21-20 presents the surface mobile equipment list.

Table 21-20 Rose Project Surface Equipment List Over the LOM.

Items	YEARS																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Wheel Loader IT62H	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Grader 16M	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Overburden truck 740	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1
Overburden loader 980H	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Workers' transportation operating costs include the costs for two (2) airplane charter flights per week between Val-d'Or and Nemaska, Quebec. Charter flight costs were provided by *Air Creebec* and were based on a 56 passenger aircraft (Dash 8 – Series 300). It was assumed that ground transportation will be provided by a local supplier.

Based on equivalent projects, insurance operating costs were assumed at $150,000 per year. Formal quotes from insurance suppliers should be obtained during the prefeasibility study.

It was assumed that the Nemiscau Cree Camp (formerly owned by Hydro-Québec) will be used to provide workers' accommodation. A lodging fee of $80 per employee per day was assumed for a total amount $2.9 million per year. A formal quote for the workers' accommodations should be obtained during the prefeasibility study.

The miscellaneous operating cost item comprises the first year of production EPCM ($0.5 million). It also includes an owner lump sum of $0.5 million per year of production and a mine consultant lump sum of $0.25 million per year.

22. ECONOMIC ANALYSIS

The economic evaluation of the Rose Project was conducted using the Internal Rate of Return (IRR) and Net Present Value (NPV) methods. All costs are in 2011 Canadian dollars, with no allowances for inflation or escalation.

The financial analysis was based of price forecasts of US$260/kg for Ta_2O_5 contained in a tantalite concentrate and US$6,000/t for lithium carbonate (Li_2CO_3).

The pre-tax IRR of the Rose Project is estimated at 33% and the NPV at $488 million using a discount rate of 8%. The after-tax IRR is estimated at 25% and the NPV at $279 million using a discount rate of 8%.

The payback period is estimated at 4.1 years.

A sensitivity analysis was completed on the Rose Project cash flow using a ± 15% variance on commodities prices, capital expenditures, and operating costs. It demonstrates that the Rose Project is highly sensitive to changes in lithium carbonate price and has a low sensitivity to fluctuations in the tantalite concentrate price, operating costs and capital expenditures.

22.1 Main Economic Assumptions

The economic analysis for the Rose Project consists of the technical and cost assumptions outlined previously, together with the economic assumptions and the estimated operating and capital costs described in section 21.

The economic analysis is based on the Life of Mine outlined in section 21, which is comprised of 2 years of pre-production followed by 17 years of production. Capital costs investments will be incurred but no ore will be mined during the preproduction Year -2. During the pre-production Year -1, further capital costs investments will be made but ore will be mined and stockpiled while the construction of the concentrator is being completed.

The economic analysis is based on estimated pre-production capital costs of $268.6 million and sustaining capital costs (on-going investment) of $36.8 million for total capital costs of $305.4 over the life of mine (LOM). Calculations include contingencies of 10% and assumed parity between the Canadian and the American dollars.

The Year -2 was discounted using a discount rate of 1. This approach was based on the assumption that the additional discount costs will be included in the financing costs (risk).

Operating costs were estimated at $67.65/tonne of ore milled.

The net value per tonne of ore was estimated based on the following assumptions.

- Exchange rate of US$1 = CA$1.
- Lithium (Li_2CO_3) price of CA$6,000 per tonne.
- Tantalum (Ta_2O_5) price of CA$259,623 per tonne, equivalent to US$260/kg.
- Lithium processing recovery rate of 84.8%.
- Tantalum processing recovery rate of 50%.

22.2 Preliminary Cash Flow Forecasts

The cash flow projections were calculated using yearly estimates for mining production rates, operating costs (OPEX) and capital costs (CAPEX). The analysis was carried out on both a pre-tax and an after-tax basis. The sum of all annual undiscounted pre-tax cash flow adds up to approximately $1,078 million over the LOM as shown in Table 22-1.

The simple payback period is 4.1 years, as seen in Figure 22-1. The simple payback period is equal to the sum of two time periods: the first period is equal to the point where the undiscounted cash flow curve crosses the X-axis, which occurs after 2.1 years; the second period is equal to 2 years and represents the pre-production time frame (Year-2 and Year-1) during which investment will be incurred before the mill becomes operational.

Figure 22-1 Cumulative Pre-tax Cash Flow.

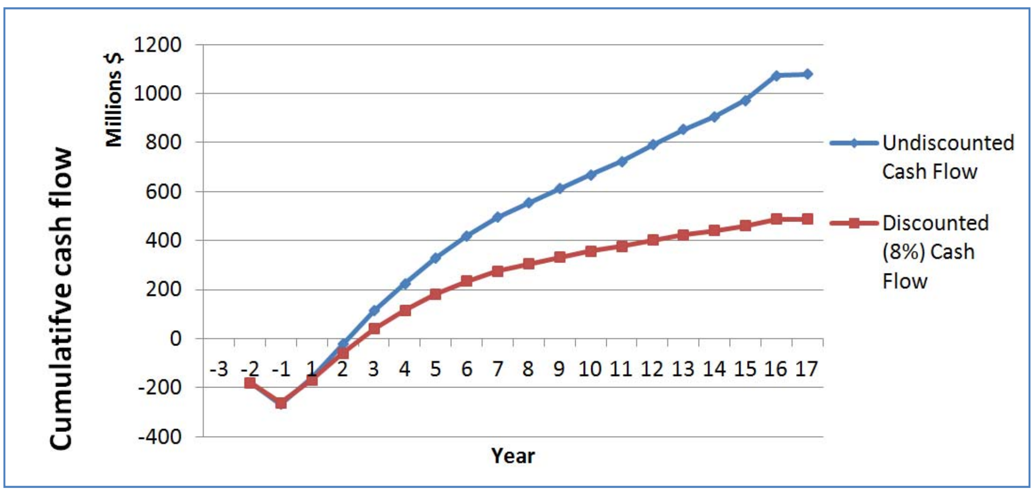


Table 22-1 Rose Project Cash Flow.

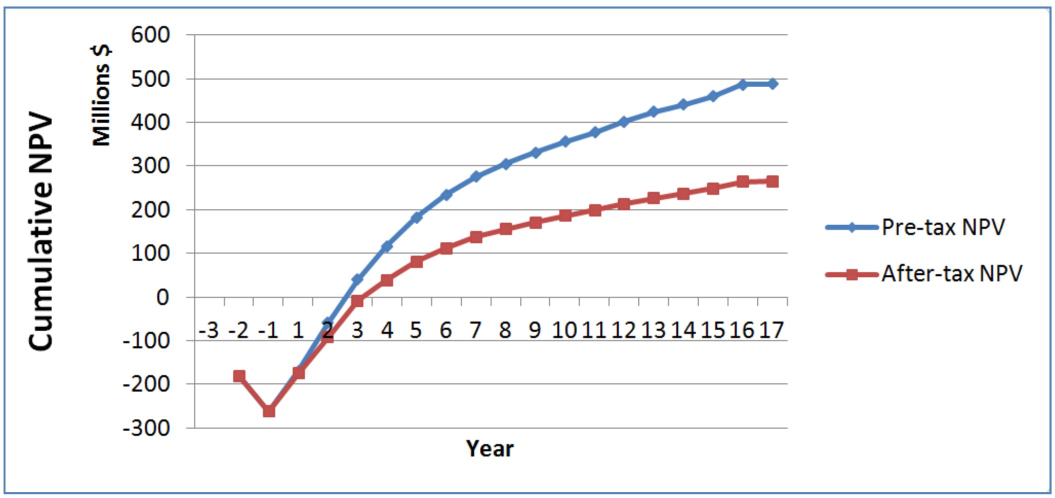
OPERATING COSTS																					
Mine	$	0	0	0	31 253 991	33 578 123	34 365 352	36 369 343	36 369 343	36 369 343	38 168 353	38 398 127	40 243 092	41 588 857	41 588 857	41 353 338	41 237 303	40 802 699	29 776 999	19 115 089	
Concentrator	$	0	0	0	24 109 781	24 109 781	24 109 781	24 109 781	24 109 781	24 109 781	24 109 781	24 109 781	24 109 781	24 109 781	24 109 781	24 109 781	24 109 781	24 109 781	24 109 781	24 109 781	4 187 612
Refinery	$	0	0	0	30 232 344	30 232 344	30 232 344	30 232 344	30 232 344	30 232 344	30 232 344	30 232 344	30 232 344	30 232 344	30 232 344	30 232 344	30 232 344	30 232 344	30 232 344	30 232 344	5 251 036
General & Administration	$	0	0	0	12 057 428	12 050 789	12 050 789	12 050 789	12 050 789	12 050 789	12 050 789	12 050 789	12 050 789	11 465 807	10 934 096	10 934 096	10 934 096	9 906 896	9 745 967	8 474 406	5 334 130
Total	$	0	0	0	97 653 543	99 971 037	100 758 266	102 762 257	102 762 257	102 762 257	104 561 267	104 791 041	106 636 005	107 396 788	106 865 077	106 629 559	106 513 523	105 051 720	93 865 091	81 931 620	14 772 777
	$/t				65,10	66,65	67,17	68,51	68,51	68,51	69,71	69,86	71,09	71,60	71,24	71,09	71,01	70,03	62,58	54,62	56,70
SALES																					
Lithium Carbonate unit value	$/t	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000
Sales of lithium carbonate	$	0	0	0	173 673 083	212 554 347	214 341 563	202 112 076	186 187 967	174 870 344	159 674 428	146 827 187	150 789 710	145 593 459	144 470 601	159 520 081	156 434 903	142 907 457	146 955 058	171 392 977	25 984 742
Realization costs for Li_2CO_3 and Ta_2O_5	$	0	0	0	6 340 101	7 759 498	7 824 742	7 378 293	6 796 968	6 383 808	5 829 066	5 360 066	5 504 721	5 315 027	5 274 036	5 823 432	5 710 805	5 216 972	5 364 734	6 256 863	948 598
Net return ("NSR") for Li_2CO_3	$	0	0	0	167 332 982	204 794 849	206 516 821	194 733 783	179 390 999	168 486 537	153 845 362	141 467 121	145 284 988	140 278 432	139 196 564	153 696 649	150 724 099	137 690 485	141 590 324	165 136 114	25 036 144
Tantalite unit value ($/kg Ta_2O_5)	$/kg	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260
Sales of Tantalite	$	0	0	0	39 421 788	32 619 339	33 184 702	31 425 352	28 600 882	26 240 024	27 749 793	25 207 471	24 784 986	24 516 226	20 933 444	21 175 949	19 465 932	20 280 527	18 560 699	17 000 099	3 327 967
Net return ("NSR") for Ta_2O_5	$	0	0	0	39 421 788	32 619 339	33 184 702	31 425 352	28 600 882	26 240 024	27 749 793	25 207 471	24 784 986	24 516 226	20 933 444	21 175 949	19 465 932	20 280 527	18 560 699	17 000 099	3 327 967
Total Net Return ("NSR")	$	0	0	0	206 754 770	237 414 187	239 701 522	226 159 134	207 991 881	194 726 561	181 595 155	166 674 592	170 069 974	164 794 658	160 130 009	174 872 598	170 190 031	157 971 012	160 151 023	182 136 213	28 364 111
CASH FLOW																					
Operating Income	$	0	0	0	206 754 770	237 414 187	239 701 522	226 159 134	207 991 881	194 726 561	181 595 155	166 674 592	170 069 974	164 794 658	160 130 009	174 872 598	170 190 031	157 971 012	160 151 023	182 136 213	28 364 111
Operating Costs	$	0	0	0	97 653 543	99 971 037	100 758 266	102 762 257	102 762 257	102 762 257	104 561 267	104 791 041	106 636 005	107 396 788	106 865 077	106 629 559	106 513 523	105 051 720	93 865 091	81 931 620	14 772 777
Ratio (Income/Cost)	$/$	0	0	0	2,117	2,375	2,379	2,201	2,024	1,895	1,737	1,591	1,595	1,534	1,498	1,640	1,598	1,504	1,706	2,223	1,920
Net Operating results	$	0	0	0	109 101 227	137 443 150	138 943 257	123 396 878	105 229 624	91 964 304	77 033 888	61 883 551	63 433 969	57 397 870	53 264 931	68 243 039	63 676 508	52 919 292	66 285 933	100 204 593	13 591 334
Investment	$	0	180 538	88 045 038	0	0	3 070 020	12 106 557	216 306	3 286 325	216 306	3 286 325	5 639 736	216 306	216 306	216 306	216 306	216 306	216 306	216 306	7 481 933
Pre-Tax Cash Flow	$	0	(180 538	(88 045 038)	109 101 227	137 443 150	135 873 237	111 290 321	105 013 318	88 677 978	76 817 582	58 597 226	57 794 233	57 181 564	53 048 626	68 026 734	63 460 202	52 702 987	66 069 627	99 988 287	6 109 401
Québec Mining duties	$	0	0	0	0	15 491 529	9 088 826	15 443 220	13 436 305	11 796 385	9 892 652	7 660 830	7 930 495	7 240 163	6 771 704	9 303 168	8 667 000	7 011 980	9 196 936	14 656 328	925 647
Taxes	$	0	0	0	7 507 528	14 757 736	10 535 963	24 518 346	21 514 774	21 910 947	18 276 217	14 667 959	14 845 502	13 319 153	12 460 973	16 074 978	15 068 531	12 589 227	15 775 683	23 789 981	1 362 463
After Tax Cash Flow	$	0	(180 538	(88 045 038)	101 593 699	107 193 885	116 248 447	71 328 755	70 062 238	54 970 646	48 648 714	36 268 438	35 018 236	36 622 248	33 815 949	42 648 588	39 724 670	33 101 780	41 097 007	61 541 978	3 821 291
Cumulative After Tax Cash Flow	$	0	(180 538	(268 583 815)	(166 990 117)	(59 796 232)	56 452 216	127 780 971	197 843 210	252 813 856	301 462 570	337 731 008	372 749 243	409 371 491	443 187 440	485 836 028	525 560 699	558 662 478	599 759 486	661 301 463	665 122 755

22.3 Net Present Value, Internal Rate of Return and Payback Period of Capital

The Net Present Value (NPV) method was used to convert the cash flows of capital expenditures, operating costs and revenues occurring throughout the Project to equivalent single sums at present time using a discount rate of 8%. In the present analysis, the IRR and NPV were calculated on the Rose Project cash flows before royalty payment. However, a 2% net smelter return royalty payment to the vendors involved in the November 29, 2010 agreement with First Gold Exploration, as Critical Elements Corporation was known at the time, should be integrated to the prefeasibility study (refer to section 4.2).

Assuming a discount rate of 8%, the Rose Project has a potential pre-tax NPV of about $488.4 million as shown on Figure 22-2. The corresponding IRR is equal to 33%.

Figure 22-2 Cumulative NPV at a Discount Rate of 8%.



The NPV were calculated as of the beginning of Year-1 on net cash flow. For the preliminary economical analysis, the Year -2 was discounted using a discount rate of 1. This approach was based on the assumption that the additional discount costs, by applying a discount factor, will be included in the financing costs as a risk management. However, it has no impact on the IRR which remains at 33%.

Varying the discount rate will affect the pre-tax NPV as shown in Table 22-2. Increasing the discount rate from 8 to 10% decreases the pre-tax NPV from $488 to $403 million. So, a 25% increase in the discount rate results in a 17% reduction in the pre-tax NPV. On the other hand, decreasing the discount from 8 to 5% increases the pre-tax NPV from $488 to $651 million. In that case, a 37% improvement in the discount rate results in a 33% increase in the pre-tax NPV.

Table 22-2 Effects of the Discount Rates on the Rose Project NPV.

Discount Factor	NPV (before taxes)	NPV (after taxes)
0%	$1,078,611,885	$665,122,755
5%	$651,789, 479	$387,145,131
8%	$488,360,406	$279,358,227
10%	$403,744,658	$223,097,949
12%	$333,626,451	$176,175,210

22.4 Overview of Taxes, Royalties and Other Government Levies

A fiscal analysis was completed using the taxation rates shown in Table 22-3.

Table 22-3 Taxation Rates.

Tax	Rate
Federal corporate income tax (as of January 1st, 2012)	15%
Quebec corporate income tax	11.9%
Quebec capital tax	0%
Quebec mining duties (as of January 1st, 2012)	16%

The calculations also considered the federal tax deductions associated with various categories of capital expenses and specific provincial allowances such as the depreciation allowance, the processing allowance and the credit on duties refundable for losses. At an 8% discount rate, the base case yields a total estimated payment of $258 million in federal and provincial corporate income taxes over the life of mine. In addition, an estimated $154 million in provincial mining duties will have to be paid. This results in a total effective tax rate of 30% on operating profits over the life of mine. Taking into account federal and provincial corporate income taxes, provincial capital tax and provincial mining duties, the after-tax NPV is estimated at $279 million and the after-tax IRR at 25% at a discount rate of 8%. Moreover, the simple after-tax payback period is increased by 0.4 year from 4.1 to 4.5 years. These results are summarized below:

Table 22-4 NPV, IRR and Paypack Period Summary.

Discount Rate of 8%	Pre-tax	After-tax
Net Present Value	$488 million	$279 million
Internal Rate of Return	33%	25%
Payback period	4.1 years	4.5 years

22.5 Sensitivity Analysis

Sensitivity calculations were performed on the base case cash flow by applying a range of variation of ± 15% against lithium prices, tantalum prices, operating costs and capital costs at an 8% discount rate and on a pre-tax basis. The impacts of varying the aforementioned parameters on the IRR and NPV are shown graphically in Figures 22-3 and 22-4.

The sensitivity analysis demonstrates that the Rose Project is highly sensitive to changes in lithium carbonate price and has a low sensitivity to fluctuations in the tantalite concentrate price, operating costs and capital expenditures. Sensitivity results on the NPV and the IRR are shown in Table 22-5 and illustrated in Figures 22-3 and 22-4.

Table 22-5 Sensitivity Analysis.

Sensitivity Factor	Lithium Price		Tantalum Price		Operating costs		Capital Costs	
	NPV ($)	IRR (%)	NPV ($)	IRR (%)	NPV ($)	IRR (%)	NPV ($)	IRR (%)
-15%	273.24M	23.80	454,11M	31.47	614.42M	37.31	530.57M	38.66
-10%	344.94M	27.02	465.52M	31.96	572.40M	35.89	516.50M	36.58
-5%	416.65M	30.06	476.94M	32.45	530.38M	34.43	502.43M	34.68
0%	488.36M	32.94	488.36M	32.94	488.36M	32.94	488.36M	32.94
5%	560.07M	35.69	499.78M	33.42	446.34M	31.39	474.29M	31.33
10%	631.78M	38.33	511.20M	33.90	404.32M	29.80	460.22M	29.84
15%	703.48M	40.89	522.62M	34.37	362.30M	28.14	446.15M	28.46

Figure 22-3 NPV Sensitivity (Pre-tax, 8% Discount Rate).

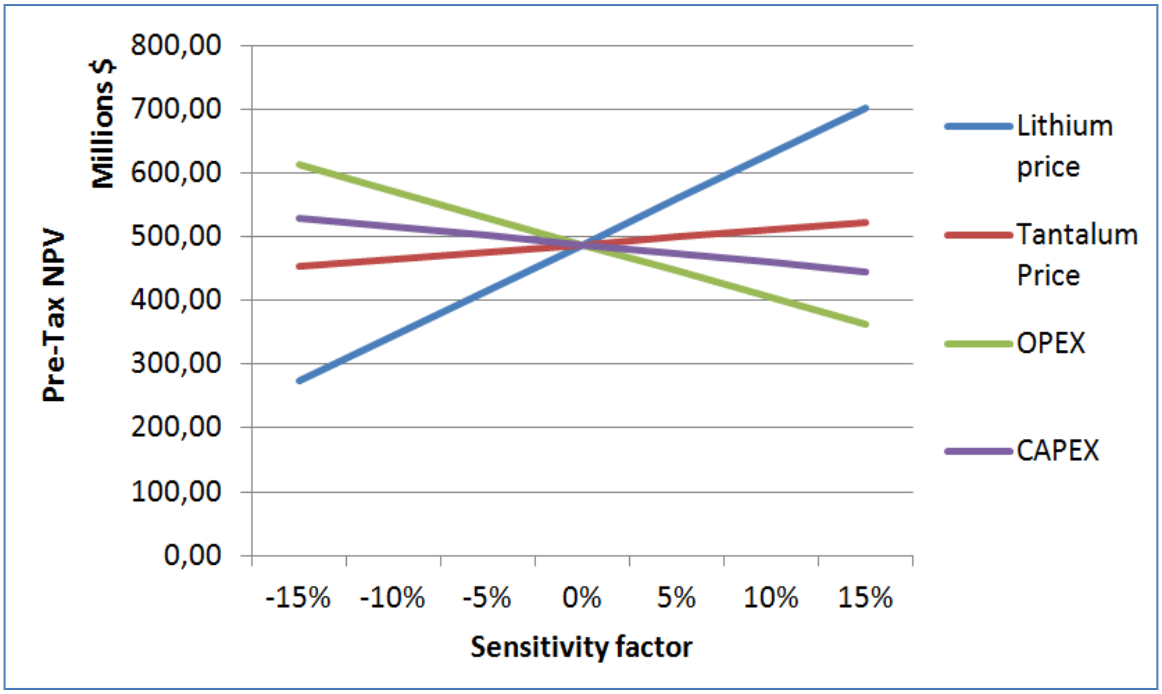
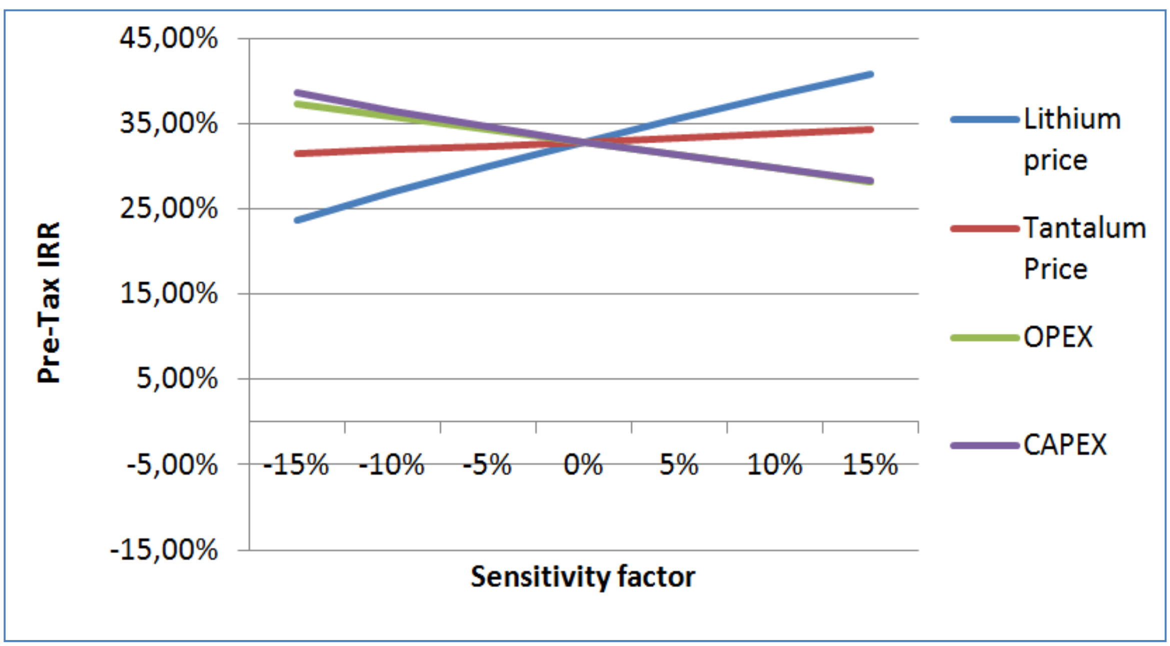


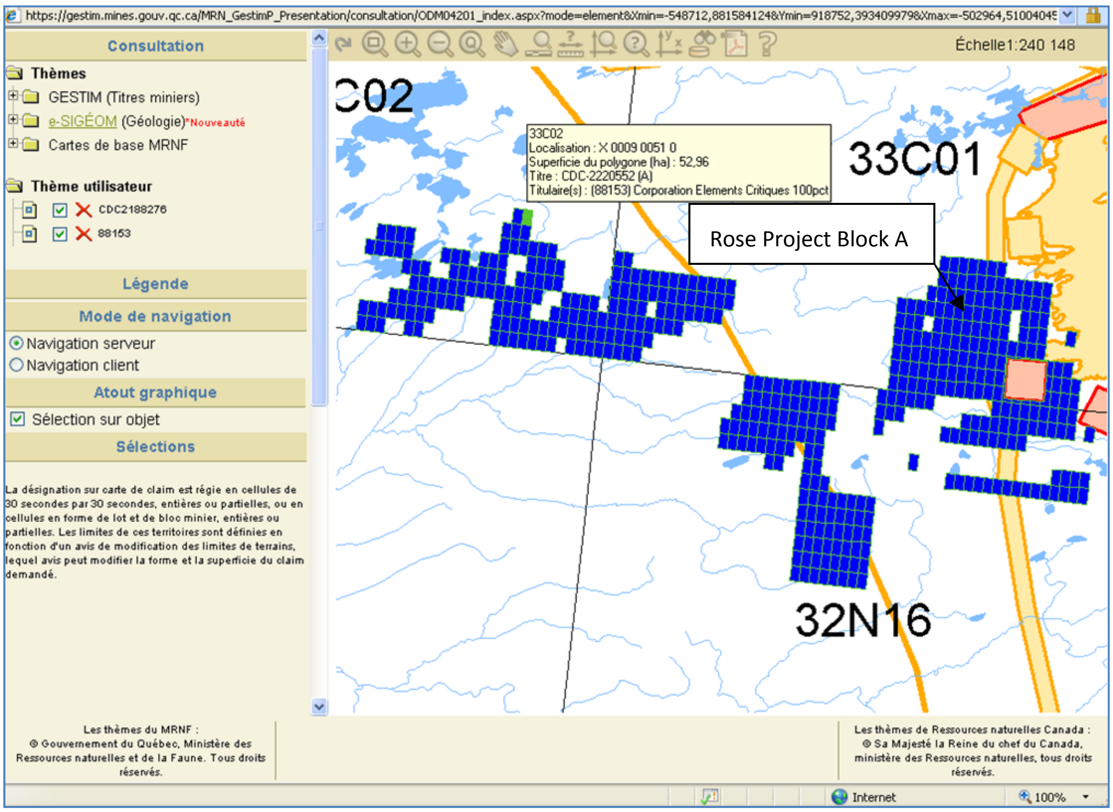
Figure 22-4 IRR Sensitivity (Pre-tax, 8% Discount Rate).



23. ADJACENT PROPERTIES

The Rose Tantalum-Lithium Project is located within “Block A” of Critical Elements’ mining claims illustrated on the province of Quebec’s *Gestim* sheet 33C01 (Figure 23-1). The southern boundary of the Rose Project corresponds to the line dividing *Gestim’s* sheet 33C01 and sheet 32N16.

Figure 23-1 Rose Project Block A Mining Claims.



The mining project closest to the Rose Property (Project 56 on Figure 4-2) is the *Éléonore Project* (Project 29 on Figure 4-2), an underground gold project currently being developed by Goldcorp located some 70 km north of the Rose Property.

There are two (2) other lithium mining projects located within a 70 km radius of the Rose Property. The *Whabouchi Project* (Project 59 on Figure 4-2), owned by Nemaska Lithium Inc., is located about 45 km southeast of the Rose Property. The *James Bay Lithium Project (*Project 57 on Figure 4-2), owned by Lithium One Inc., is located about 70 km northwest of the Rose Property. These three (3) lithium projects (*Rose, Whabouchi* and *James Bay Lithium*) are roughly aligned along a NW-SE trend centered on the 52nd parallel (Figure 4-2).

23.1 Publicly Disclosed Information on Adjacent Properties

Critical Elements has diligently performed work on its Block A mining claims, drilling in excess of 2.3 M$ on the Rose Project's claims (Table 23-1).

Table 23-1 Work Performed on the Rose Project Block A Mining Claims.

Title No.	Status	Titleholder	Registration	Expiration	Excess Work Credits	Work Required	NTS/SMS
CDC 2188284	Active	Corporation Elements Critiques (88153) (100%)	2009/09/14	2013/09/13	1 010 588,50 $	450,00 $	33C01
CDC 2188277	Active	Corporation Elements Critiques (88153) (100%)	2009/09/14	2013/09/13	729 278,81 $	450,00 $	33C01
CDC 2193657	Active	Corporation Elements Critiques (88153) (100%)	2009/11/05	2013/11/04	479 183,36 $	450,00 $	33C01
CDC 2188279	Active	Corporation Elements Critiques (88153) (100%)	2009/09/14	2013/09/13	63 874,00 $	450,00 $	33C01
CDC 2193664	Active	Corporation Elements Critiques (88153) (100%)	2009/11/05	2013/11/04	49 328,51 $	450,00 $	33C01

The mining claims surrounding the Rose Project's are held by the various individuals and corporations listed in Table 23-2.

Table 23-2 Mining Claims Surrounding the Rose Tantalum-Lithium Project.

Gestim holder identification number	Mining claim holder	Location of claims relative to the Rose Property
85511	Bonterra Resources Inc.	Northwest
6172	Geotest Corporation	West
85534	Alix Resources Corp.	North
19124	Specogna Marino	North
5139	Ressources Jourdan Inc.	East and South
86420	Marcotte Laurian	Southwest
85527	9187-1400 Québec Inc.	Southeast
86226	0891076 BC Ltd.	South
1126	Griesbach Glenn	South
86167	Services Iminesco Inc.	South
308	Brassard Bertrand	Northeast

A preliminary review of the entities listed in Table 23-2 showed that none have reported work on claims located within the *Gestim*'s map sheet 33C01.

A survey of the *Gestim* database showed that there are no mining properties adjacent to the Rose Tantalum-Lithium Project.

23.1.1 Source of Information

Gestim is a public register of mining rights maintained by the *Ministère des Ressources naturelles et de la Faune* and available on the Government of Quebec's website at gestim.mines.gouv.qc.ca. In addition to identifying the holders of mining claims, the *Gestim* database specifies encumbrances affecting the type of work that may be undertaken on certain portions of land. In the case of the Rose Project, several such encumbrances are linked to Hydro-Québec's Eastmain hydro-electric infrastructures. Encumbrances are numbered and designated as "*contraintes*" in the *Gestim* database. The three (3) main "*contraintes*" surrounding the Rose Project are "*contraintes 14420, 6120 and 7215*", shown as red blocks in Figures 23-2 to 23-4.

Figure 23-2 *Contrainte 14420 – Aménagement hydroélectrique*[1].

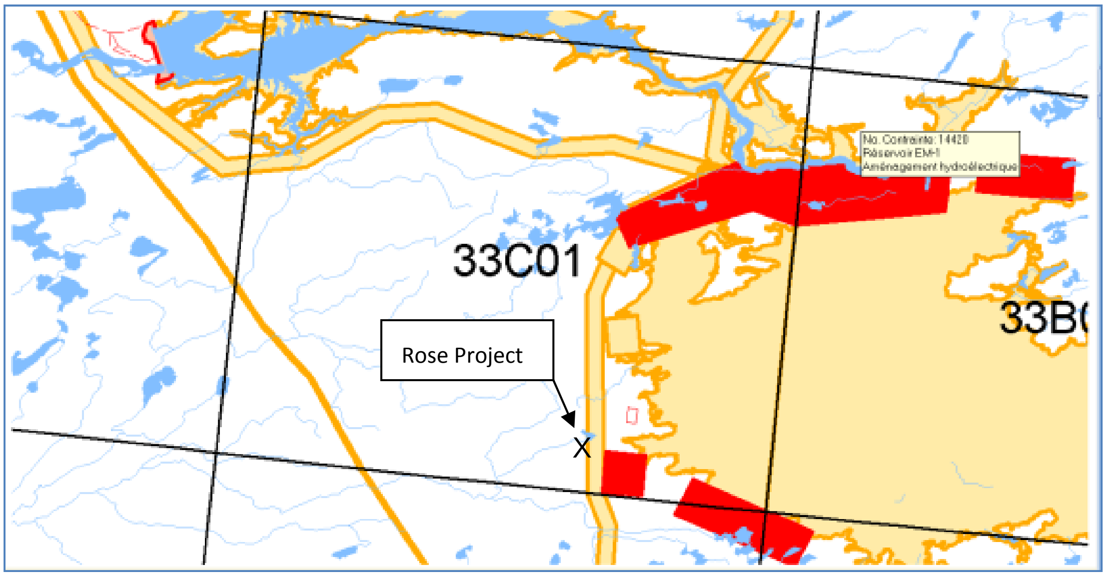
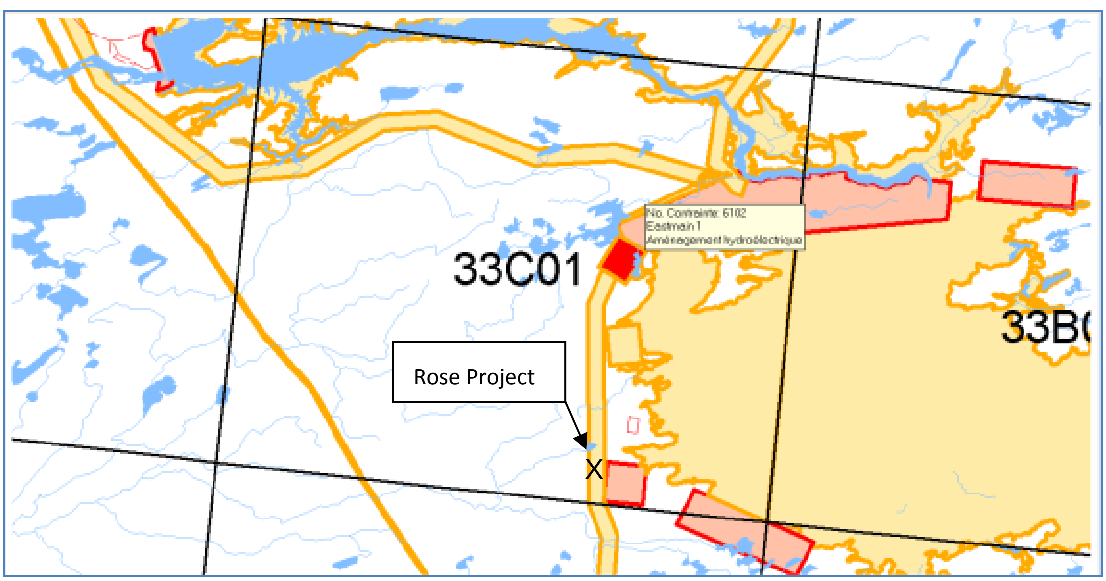
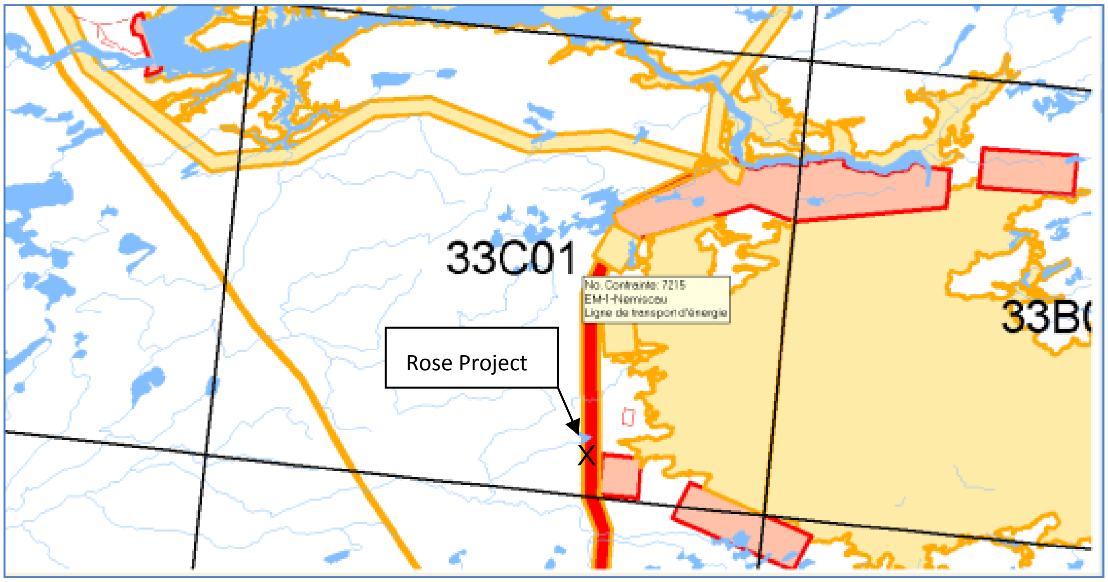


Figure 23-3 *Contrainte 6120 – Aménagement hydroélectrique.*



1 Hydro-electric infrastructure. Free Translation.

Figure 23-4 *Contrainte 7215 – Ligne de transport d'énergie*[2].



23.2 Statement on Publicly Disclosed Information

A scan of the websites of the corporations listed in Table 23-2 revealed that Bonterra Resources (www.bonterraresources.com), Alix Resources (alixresources.com) and Ressources Jourdan (www.jourdan.ca) all refer to the proximity of their mining claims to that of Critical Elements' Rose Project. However, none of these companies have disclosed any Mineral Resources.

Strictly speaking the Nemaska Lithium (www.nemaskalithium.com) and Lithium One (www.lithium1.com) projects are not "adjacent" to the Rose Project. However, given the nature of their work, it is worth mentioning that both companies have disclosed Mineral Resources, but no Mineral Reserves, for their respective spodumene-bearing pegmatites projects on their website and on SEDAR.

The *Whabouchi Project* contains Measured Mineral Resources of 11.3 Mt grading 1.58% Li_2O, Indicated Mineral Resources of 13.8 Mt grading 1.50% Li_2O and Inferred Mineral Resources of 4.4 Mt grading 1.51% Li_2O (SGS Geostat, July 2011).

2 Power transmission line. Free Translation.

The *Lithium One Project* contains Indicated Mineral Resources of 11.8 Mt grading 1.30% Li_2O and Inferred Mineral Resources of 10.5 Mt grading 1.20% Li_2O (SRK Consulting, December 2010).

By comparison, the Rose Project contains Indicated Mineral Resources of 26.5 Mt grading 0.98% Li_2O and Inferred Mineral Resources of 10.7 Mt grading 1.14% Li_2O (InnovExplo, September 2011).

24. OTHER RELEVANT DATA AND INFORMATION

GENIVAR is not aware of any additional information relevant for inclusion in this section. Therefore, this Technical Report provides the reader with sufficient data and information for a clear understanding of the Rose Project.

25. INTERPRETATION AND CONCLUSIONS

25.1 Results Analysis

The Rose Tantalum-Lithium Project, wholly-owned by Critical Elements Corporation, is located 300 km north of Chibougamau in Northern Quebec. The ore body is relatively flat, close to the surface and made of stacked lenses oriented North 296° with an average dip of 15° to the northeast.

InnovExplo validated drilling procedures and sample preparation, including a QA/QC protocol, for 217 holes drilled by Critical Elements during the 2009 and 2010 drilling campaigns at its Rose Project as well as the assay results obtained by ALS Chemex Laboratory on 4,631 core samples and found Critical Elements' database for the Rose Project to be valid and reliable. InnovExplo retained 202 holes totalling 25,200 m out of the 217 holes that had been drilled and then prepared a Regulation 43-101 compliant Mineral Resources estimate for the Rose Project dated July 20th, 2011. This is the most recent Mineral Resources estimate for the Rose Project and it comprises Indicated Mineral Resources of 26.5 Mt grading 0.98% Li_2O and 163 ppm Ta_2O_5 and Inferred Mineral Resources of 10.7 Mt grading 0.86% Li_2O and 145 ppm Ta_2O_5. No Mineral Reserves were estimated for the Rose Project.

GENIVAR generated an economic open-pit outline using the Gemcom Whittle software to mine the Rose Project lithium and tantalum Mineral Resources and prepared this Regulation 43-101 compliant Technical Report, which presents the first Preliminary Economic Assessment (PEA) for the Rose Tantalum-Lithium Project. The Rose Project components and costs were developed to a ± 40-50% level of accuracy, commensurate with that of a PEA.

GENIVAR completed an independent commodity price projection forecast report for lithium on June 8, 2011, which recommended using a price of US$6,000/t for lithium carbonate as a base case for the financial analysis of the Rose Project. GENIVAR did not complete a market study to forecast the price of the tantalum concentrate, rather a price of US$260/kg was used in line with the value cited in the Mineral Profile for Niobium-Tantalum published by the British Geological Survey in April 2011. This price is supported by a tantalum market study completed CANSource International Ltd.

Based on these commodity prices, GENIVAR developed a scenario to mine the Rose Project's Indicated Mineral Resources using a conventional truck and shovel open-pit approach down to a depth of 200 m from surface. The pit considered in this Technical Report has a length of 1,600 m and a width of 700 m at its widest point.

The proposed mining scenario includes all infrastructures required to implement it. The life of mine plan shows that over 24 million tonnes of ore can be mined over a 17 year period, at an average grade of 0.89% Li_2O and 132 ppm Ta_2O_5. The nominal production rate was estimated at 4,100 tonnes per day (1.5 Mt/year). To access the ore, approximately 169 Mt of waste will need to be removed, resulting in an ore to waste stripping ratio of 7:1.

Bumigeme reviewed the metallurgical testing procedures used by AcmeMet Laboratory and proposed a mineral processing method to produce a lithium carbonate concentrate and a tantalum oxide concentrate using the bicarbonatation process developed by the *Centre de recherches minérales* in Quebec.

GENIVAR reviewed available information on environmental, permitting and social factors related to the Rose Project and outlined the parameters that will need to be addressed in order to meet the *Directive 019* of the Government of Quebec's *Ministère du Développement durable, Environnement et Parcs* and to implement a Mine Closure Plan in accordance with the *Guide de restauration des sites miniers.*

This Technical Report complies with Regulation 43-101 Standards and Disclosure for Mineral Projects and Form 43-101F1 as amended on June 30, 2011. It was prepared by Qualified Persons independent of Critical Elements and includes an economic analysis which indicates that positive economic results can be obtained from mining the Rose-Lithium Mine Project Indicated Mineral Resources.

25.2 Risks and Opportunities Analysis

GENIVAR, Bumigeme and InnovExplo reviewed the Rose Lithium Project at the level of a Preliminary Assessment using industry standard methods and procedures and concluded that, under the base case assumptions, the Project has potential economic viability. In our opinion, the Rose Project should advance to the pre-feasibility stage.

While completing this Preliminary Economic Assessment for the Rose Project, some assumptions were made which will need to be validated during the pre-feasibility study.

In addition, while various aspects of the Rose Project are fairly well defined, several aspects of the Project require extensive work to bring the Rose Project to the next level of the economic study cycle. The main risks factors associated with the Rose Project are outlined below.

Geology and Mineral Resources

A geological interpretation of the structural discontinuities of the deposit was not available at the time of drawing the proposed open-pit outline. Risks associated with geological discontinuities include ground instability, which in turn may affect recovery rate and site safety.

A geotechnical study is currently in progress. It is necessary to provide details concerning the rock quality designation, joints and rock characterization as well as an understanding of the rock structure and discontinuities.

Environment

In order to identify all potential environmental risks pertaining to the Project, Human Health and Ecological Risk Assessments will need to be conducted during the pre-feasibility study. The assessments should be completed in full matrices, with the highest ranking environmental risks being identified along with the corresponding abatement strategies.

Preliminary acid-base accounting (ABA) static tests conducted to date indicated that the waste rock is not acid-generating. The information was incorporated into the design of the waste pad, ore pad, tailings management facilities and surface water collectors system and no geomembranes were used for any of these infrastructures in the PEA. Additional work needs to be carried out to confirm the assumption that the waste rock and the ore will not be acid generating.

The Property is located on the water divide line; as a result, the Rose Project will impact two water basins.

In GENIVAR's opinion, environmental matters related to the Rose Project are reasonably uncomplicated and Critical Element Corporation is proceeding to address them. Development will require draining two small lakes and extending the open pit into a third one. Although, this type of work has been permitted at other mines in Canada, it does have some potential to complicate the permitting process.

Markets

The forecasted increase in lithium carbonate is mainly driven by the projected increase for lithium batteries used in electric vehicles. There is a risk that the development of electric vehicles may not increase as fast as expected.

Tantalum concentrate does not trade on the open-market. Its price is difficult to validate. Most studies rely on data posted on the internet. This presents a risk of data reliability. A market study was completed in December 2010 by CANSource International Ltd.

Mining

The Rose Project was assessed for open pit mining only and showed reasonable economic viability. The use of an underground mining method combined with an open-pit approach should be addressed in the pre-feasibility study. This could increase the recovery rate of the Mineral Resources and reduce the environmental footprint of the Project.

A geotechnical study is currently in progress. It will provide details concerning the rock quality designation (RQD), joints and rock characterization as well as an understanding of the rock structure and discontinuities. A core oriented geotechnical drilling program was completed in the fall of 2011. It will provide information about the main geological structures and their effects on pit wall stability and help building the initial hydrogeological model, as the presence of groundwater can affect wall stability (pore pressure) and mining operations (explosive, pumping needs, tire wear).

Geotechnical and hydrogeological assessments are needed to define the geological structures of the deposit. The results of these studies are required improve our understanding of the rock mass behavior as a function of mine induced field stress redistribution. Test results will be used to improve pit design, determine ground support requirements and the ramp dimensions as well as the dimensions of underground stopes during the pre-feasibility study.

Economical Analysis

Cash-flow presented in the current Technical Report is subject to issues which could affect the profitability of the Rose Project such as delays in the relocation of the power line (see next paragraph), discounted factor and construction period.

Infrastructures

A power line is located above the proposed open-pit. Should the Rose Project open-pit be developed as per the proposed plan, then we estimate that five (5) hydro-electric towers will need to be relocated. This situation is currently being reviewed by Hydro-Québec (HQ) and this could delay the start of the Project. If approved, HQ will carry out the engineering and construction related with the relocation of the electric towers.

The selected sites for the various infrastructures proposed in this PEA were based on preliminary topographical and hydrogeological data. Investigations on the physical aspects of the Property are currently in progress and should be used to confirm the location of the various infrastructures.

25.3 Conclusions

The financial analysis of the Rose Project was based on price forecasts of US$260/kg for tantalum concentrate (Ta_2O_5) and US$6,000/t for lithium carbonate (Li_2CO_3).

The Internal Rate of Return (IRR) of the Rose Project is estimated at 25% after tax, with a Net Present Value (NPV) of $279 million at an 8% rate of return as shown in table below.

Discount Factor	NPV (before taxes)	NPV (after taxes)
0.0%	$1,078,611,885	$665,122,755
5.0%	$651,789,479	$387,145,131
8.0%	$488,360,406	$279,358,227
10.0%	$403,744,658	$223,097,949
12.0%	$333,626,451	$176,175,210

The payback period is estimated at 4.1 years.

The economic analysis is based on estimated pre-production capital costs of $268.6 million and operating costs of $67.65/tonne of ore milled. Ongoing capital investment was estimated at $36.8 million. Calculations include contingencies of 10% and assumed parity between the Canadian and the American dollars. Preproduction costs are entirely linked to the minimal development work required to reach the production rate target of 4,100 tonnes per day (1.5 Mt/year).

Sensitivity calculations were performed on the Rose Project cash flow by applying a ± 15% variance on lithium and tantalum prices, capital expenditures, and operating costs in 5% increment. It demonstrates that the Rose Project is highly sensitive to changes in lithium carbonate price and has a low sensitivity to fluctuations in the tantalite concentrate price, operating costs and capital expenditures.

Lithium, bicarbonate production is projected to total 452.3 Mkg of lithium concentrate and 1.6 Mkg of tantalum concentrate. Details concerning the Rose Project are summarized below.

Item	Unit	Quantity
Production including dilution		
Ta-Li bearing ore (pit only)	tonnes	24,260,534
Diluted metal grades		
Tantalum	ppm	108
Lithium	ppm	4,131
Ta_2O_5	ppm	132
Li_2O	%	0.89
Plant overall recoveries		
Tantalum	%	50
Lithium	%	84.8
Total payable commodities produced		
Ta_2O_5	'000 kg	1,597
Li_2CO_3	'000 kg	452,306
Tantalum	'000 kg	1,308
Lithium	'000 kg	84,981
Preproduction capital costs (contingency included)		
Site preparation	'000 CA$	22,102
Mine equipment & Development	'000 CA$	55,312
Energy & Indirect cost	'000 CA$	62,590
Surface infrastructures	'000 CA$	128,581
Total preproduction capital	**'000 CA$**	**268,584**
Ongoing investment over 17 years	**'000 CA$**	**36,818**

GENIVAR examined the technical and economic aspects of the Rose Project within the level of precision achieved herein and computed a cash flow analysis. The latter was based on metal prices projections made for lithium carbonate but a spot price was used for tantalum concentrate. As it stands, the Rose Project contains an economic Mineral Resources.

Consequently, GENIVAR concludes that the Rose Project is technically feasible as well as economically viable. The economic viability is conditional upon the realization of metal prices forecasts, a better interpretation of the geological structures forming the deposit, a better understanding of the hydrogeological regime present on the Property, the realization of the forecasted commodity prices and the validation of the proposed mineral processing method.

The authors of this Technical Report consider the Rose Tantalum-Lithium Project to be sufficiently robust to warrant moving it to the pre-feasibility level.

This PEA is preliminary in nature and includes Indicated Mineral Resources. Inferred Mineral Resources are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves. There is no certainty that the PEA will be realized.

26. RECOMMENDATIONS

This Preliminary Economic Assessment showed positive economical results for the Rose Tantalum-Lithium Project. Therefore, the authors of this Technical Report consider the Rose Tantalum-Lithium Project to be sufficiently robust to warrant moving it to the pre-feasibility level.

The following recommendations should be considered to support the pre-feasibility study and licensing process:

Property

- Obtain detailed topographical data for the Rose Property.
- Complete a detailed hydrogeology study.
- Complete a detailed geotechnical study.

Mining

- Carry-out a geological interpretation of structures and discontinuities. The outcome may affect the shape of the ore body.
- Establish the Mineral Reserves.
- Investigate using an underground approach (the Room and Pillar method is a good candidate).
- Determine operating costs for the underground mining method.
- Determine the optimum depth of the pit to reduce the environmental footprint.
- Re-evaluate the optimal pit lay-out (Whittle) according to:
    - optimized final pit angle;
    - optimized costs;
    - revised recovery and dilution factors based on geotechnical and hydrogeological findings.
- Refine the pre-production schedule for overburden and waste rock stripping and soil disposal.
- Produce a detailed operating schedule (Ore Versus Waste removal – optimum).
- Update the mining equipment fleet according to the pre-feasibility mining scenario (open pit and underground).

Mineral Processing

- Evaluate the possibility of using an electric or plasma furnace in order to reduce the very large fuel transportation costs associated with the current approach.
- Carry-out tantalum recovery process optimization studies to either improve magnetic separation or replace it by another technique with the aim of obtaining a tantalum recovery rate of around 90%.
- Carry-out optimization work on the bicarbonatation and subsequent filtration processes.

Infrastructures

- Continue discussions with Hydro-Québec regarding the relocation of the electric power line which runs over the proposed open-pit.
- Refine the location of the main infrastructures using the updated topographical, hydrogeological and geotechnical data.
- Carry-out a trade-off analysis for the location of the bicarbonate plant. Three potential locations should be evaluated:
    - Rose site;
    - Chibougamau;
    - Ville de La Baie or other towns in the Saguenay area located near a railroad.
- Improve the design of the ore pad, waste rock stockpile and tailings management infrastructures using:
    - new mining approach (may affect the quantity of ore, waste and tailings);
    - foundation parameters;
    - geotechnical parameters;
    - soil and water contamination potential.
- Prepare preliminary lay-outs for the service buildings and General Arrangements.
- Prepare preliminary lay-outs for the surface water management system facilities according to:
    - new mining approach (may affect the footprint of the Project);
    - detailed topographical data;
    - potential of soil and water contamination.
- Investigate the bathymetry of Lake 3 to refine the design of the fresh water intake facilities and the dam (if required) across the Lake 3.

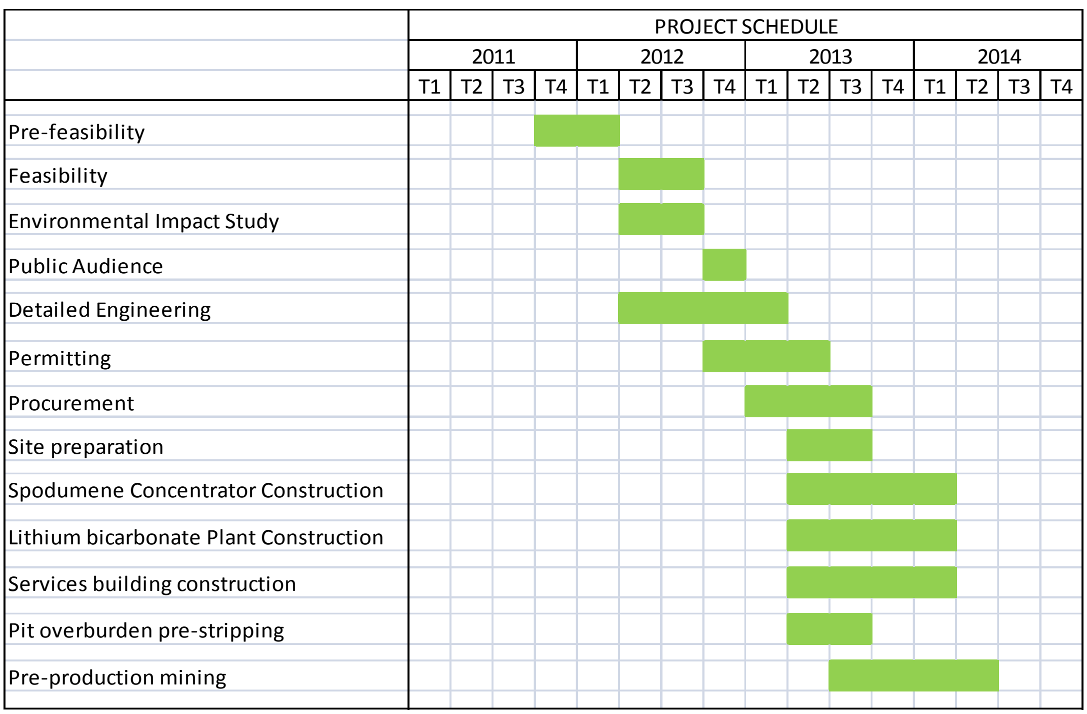
- Investigate the need for a solid waste dump site.
- Prepare preliminary lay-outs for the open-pit pumping system for the new mining approach (estimate the volume of water coming into the pit and the volume of surface water).
- Provide details concerning the truck scale at gate.

Environment and Social Considerations

- Complete the environmental studies required to the permitting of the Rose Project.
- Flesh out the mine closure plan.
- Continue public consultations with the First Nations.

Figure 26-1 presents a draft schedule for future work needed to develop the Rose Project to the pre-production level. From an optimistic point of view, the Rose Project could be in full production by the second quarter of 2014.

Figure 26-1 Rose Project Potential Schedule – From PEA to Pre-production.



Costs associated with moving the Rose Project to the pre-feasibility level are listed in Table 26-1.

Table 26-1 Rose Project Potential Schedule – From PEA to Pre-feasibility.

Item	Estimated Cost
Topographical Study	$50,000
Geotechnical Study	$150,000
Hydrogeological Study	$365,000
Metallurgical Test Work	$250,000
Environmental Baseline Monitoring (include bathymetry and permitting)	$1,000,000
Bicarbonate plant location trade-off	$50,000
Pre-feasibility Study	$500,000

The level of accuracy of a pre-feasibility study is usually considered to be in the range of 30% and that of a feasibility study around 10-15%.

Should Critical Elements opt to proceed directly with a feasibility study rather than with the recommended pre-feasibility study, then the level of accuracy for the work required for the next stage of work will need to be increased accordingly. This might lead to potential cost savings and may reduce the time needed to complete the work to a feasibility level.

27. REFERENCES

ANCTIL, F., NICOLAS, M. and V.D. HOANG. 1998. *Analyse régionale des crues journalières de la province de Québec*. Canadian Journal of Civil Engineering. Vol. 25 : p. 360-369.

ANCTIL, F., ROUSSELLE, J., and LAUZON,.N. 2005. *Hydrologie.* Presses Internationales Polytechnique

ASIAN METAL. September 21, 2011. *Company web site at* www.asianmetal.com

AUSTRALIAN RESEARCH, INDEPENDENT INVESTMENT RESEARCH. Dec. 2010. *Galaxy Resources. Poised for Growth.* http://galaxyresources.com.au/documents/IndependentResearchGalaxyDec10.pdf

AUTORITÉ DES MARCHÉS FINANCIERS. June 30, 2011. *Regulation 43-101 respecting standards of disclosure for mineral projects.* RRQ, c V-1.1, r 15, (Securities Act), Regulations of Quebec.

BRITISH GEOLOGICAL SURVEY. April 2011. *Niobium-tantalum Mineral Profile.* Natural Environment Research Council.

BYRON CAPITAL MARKETS. Jan. 2011. *More Than Batteries …lithium use in the future*. Presentation at Lithium Supply & Markets 2011, Toronto.

CANADA LITHIUM CORP. 2011. *Lithium: Driving Our Growth.* Presentation. http://www.canadalithium.com/i/pdf/Presentation.pdf

CANADIAN DAM ASSOCIATION. 1999. *Dam Safety Guidelines.*

CANADIAN NUCLEAR SAFETY COMMISSION. 1997. *Nuclear Safety and Control Act* (S.C. 1997, c. 9), article 26.

CANSOURCE INTERNATIONAL LTD. December 2010. *Tantalum Market Update - Commerce Resources Corp - Blue River Tantalum Niobium Project.*

CATERPILLAR INC. 2010. *Caterpillar Performance Handbook*.

CENTRE D'EXPERTISE HYDRIQUE DU QUÉBEC (CEHQ). 2005. *Débits d'étiage aux stations hydrométriques du Québec.* http://www.cehq.gouv.qc.ca/debit-etiage/index.htm

CENTRE D'EXPERTISE HYDRIQUE DU QUÉBEC. 2008. *Loi sur la sécurité des barrages*. L.R.Q., chapitre S-3.1.01.

CENTRE D'EXPERTISE HYDRIQUE DU QUÉBEC. 2008. *Règlement sur la sécurité des barrages.* c. S-3.1.01, r. 1

CHEMETALL. Jan. 2011. *Meeting tomorrow's demand.* Presentation at Lithium Supply & Markets 2011, Toronto

CNRC. 1990. *Hydrologie des crues au Canada – Guide de planification et de conception.* Conseil national de recherche Canada, Ottawa.

CRITICAL ELEMENTS CORPORATION. September 12, 2011. *Company web site at* http://www.cecorp.ca/en/

DEPARTMENT OF FISHERIES AND OCEANS. 1985. *Fisheries Act* (R.S.C., 1985, c. F-14), article 35.

ÉDITEUR OFFICIEL DU QUÉBEC. Septembre 2011. *Regulation respecting waste water disposal systems for isolated dwellings.* Environment Quality Act c. Q-2, r. 22 (R.S.Q., c. Q-2, ss. 20, 31, 46, 66, 70, 86, 87, 109.1 and 124.1).

ÉDITEUR OFFICIEL DU QUÉBEC. July 1, 2011. *Mining Act, RSQ*, c M-13.1.

ÉDITEUR OFFICIEL DU QUÉBEC. December 1, 1997. *An Act respecting explosives*, RSQ, c E-22.

ÉDITEUR OFFICIEL DU QUÉBEC. 1993. *Regulation respecting occupational health and safety in mines.* 1993 GOQ 2, 1757, 2603 and 2769

ÉDITEUR OFFICIEL DU QUÉBEC. 1996. *Forest Act*, RSQ, c F-4.1

ÉDITEUR OFFICIEL DU QUÉBEC. 2010. *An Act respecting the lands in the domain of the State,* RSQ, c T-8.1.

ÉDITEUR OFFICIEL DU QUÉBEC. 2011. *An Act respecting threatened or vulnerable species*, RSQ, c E-12.01.

ENVIRONNEMENT CANADA. 2006. *Normales et moyennes climatiques au Canada 1971-2000*. www.climate.weatheroffice.ec.gc.ca/climate_normals/index_f.html.

ENVIRONNEMENT CANADA. 2010a. *Archives nationales d'information et de données climatologiques.* www.climat.meteo.gc.ca/climateData/canada_f.html

ENVIRONNEMENT CANADA. 2010b. *Fichiers IDF pour le Canada*. www.climat.meteo.gc.ca/prods_servs/index_f.html

FMC LITHIUM. 2011. *Lithium Growth in the Energy Storage Market.* Presentation Green Metals 2011. http://www.fmclithium.com/Portals/FMCLithiumEnergy/Content/Docs/FMC%20Presentation%20Green%20Metals%20Conference%20Apr11.pdf

FMC LITHIUM. Jan. 2011. *FMC's Commitment to Meet the Changing Demands of the Global Lithium Market*. Presentation at Lithium Supply & Markets 2011, Toronto.

GALAXY RESOURCES. Web site: http://www.galaxyresources.com.au/

GALAXY RESOURCES LTD. April 2010. *Galaxy Corporate Presentation*. http://www.galaxyresources.com.au/documents/PresCompanyPresentationAprRoadshow100413ASX_000.pdf

GALAXY RESOURCES LTD. Feb. 2011. *RB Milestone Group Research Report.* http://www.galaxylithium.com/documents/MilestoneGroupResearchonGalaxyResources09Feb2011.pdf

GALAXY RESOURCES LTD. Jan. and May 2011. *Galaxy Corporate Presentations.* http://www.galaxyresources.com.au/documents/PresAnnualGeneralMeeting13May11ASX.pdf
http://www.galaxyresources.com.au/documents/PresCompanyTorontoLithiumJan10.pdf

GOUVERNEMENT DU QUEBEC. 2000. *Carte de dépôts de surface – Lac Gras – 23B/6*. Carte préparée par le Service des inventaires forestiers, Ministère des Forêts.

GOVERNMENT OF CANADA. *Navigable Waters Protection Act*, RSC 1985, c N-22.

GREEN TECHNOLOGY. May 2011. *Definitive Feasibility Study - Salar de Olaroz lithium-potash brine project - Argentina.* Roskill Information Service Ltd. 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%20Results.pdf

HELMSEC GLOBAL CAPITAL LIMITED. Oct. 2010. *Helmec Global Capital Limited Research Report*.
http://www.galaxylithium.com/documents/GXY-HelmsecResearchReport Oct2010.pdf

HYDRO-QUÉBEC. Mars 2006. *Exigences techniques pour les installations de client raccordées au réseau de transport d'Hydro-Québec.*

INRS-ETE. 2002. *Logiciel Hyfran, version 1.1.* Chaire en hydrologie statistique CRSNG/Hydro-Québec/Alcan.

KOUIDER, A. 2003. *Analyse fréquentielle locale des crues au Québec*. Mémoire, Université du Québec, INRS-ÉTÉ. 66 pages et annexes.

LEE, JONATHAN AND BYRON, DR. JON HYKAWY. Jan. 2011. *Lithium Growth – More than Just Batteries*. Capital Markets. Presentation at Lithium Supply & Markets 2011, Toronto (Slide 21/23).

MACINTOSH ENGINEERING. May 2003. *The Hard Rock Miner's Handbook*, Edition 3.

MESSIER, F., ANCTIL, F. ET B. BEAULIEU. 2007. *Échelonnage de la crue journalière pour des bassins versants de superficie entre 10 et 360 km^2 au Québec*. Canadian Journal of Civil Engineering. Vol. 34 : p. 631-636.

METAL BULLETIN. 2011. *Metal Bulletin/Industrial Minerals. Lithium Reality Check.*
http://www.indmin.com/Article/2797553/Lithium-reality-check.html
http://www.byroncapitalmarkets.com/wp-content/uploads/2011/04/IM-Lithium-feature.pdf

METAL PAGES. September 27, 2011. *Web site at* www.metal-pages.com

METAL PRICES. September 27, 2011. *Web site at* www.metalprices.com.

MINISTÈRE DES RESSOURCES NATURELLES ET DE LA FAUNE. Gouvernement du Québec. 2011. *Taux d'imposition*. http://www.mrn.gouv.qc.ca/mines/fiscalite/fiscalite-regime-imposition.jsp

MINISTERE DES RESSOURCES NATURELLES ET DE LA FAUNE. September 29, 2011. *Gestim: Registre des droits miniers, réels et immobiliers du Québec.* Gouvernement du Québec. www.mrn.gouv.qc.ca.

MINISTÈRE DES TRANSPORTS DU QUÉBEC. 2004. *Guide de conception des ponceaux. Guides et manuels techniques*.

MINISTÈRE DU DÉVELOPPEMENT DURABLE, DE L'ENVIRONNEMENT ET DES PARCS. Gouvernement du Québec. Avril 2005. *Directive 019 sur l'industrie minière.*

MINISTÈRE DU DÉVELOPPEMENT DURABLE, DE L'ENVIRONNEMENT ET DES PARCS. Gouvernement du Québec. 2011. *Environment Quality Act* (R.S.Q., c. Q-2), chapter II: "Environmental Impact Assessment".

MINISTÈRE DU DÉVELOPPEMENT DURABLE, DE L'ENVIRONNEMENT ET DES PARCS. Gouvernement du Québec. August 15, 2003. *Regulation respecting the environmental and social impact assessment and review procedure applicable to the territory of James Bay and Northern Québec* (Q-2, r. 25).

MINISTRY OF ENVIRONMENT. Government of Canada. 1999. *Environmental Emergency Regulations* (SOR/2003-307), article 3 pertaining to the *Canadian Environmental Protection Act* (S.C. 1999, c. 33).

MINISTRY OF JUSTICE. Government of Canada. November 2011. *Species at Risk Act* (S.C. 2002, c. 29).

NATURAL RESOURCES CANADA. Government of Canada. *Seismic Hazard Calculations.* 2011.

OROCOBRE LIMITED. 2010. *The Lithium Market.* http://www.orocobre.com/Lithium_Market.htm

OROCOBRE LIMITED. Oct. 2010. *The Next Low Cost Lithium Producer.* http://www.orocobre.com.au/PDF/ASX_20Oct10_Company%20 Presentation.pdf

PRICEWATERHOUSECOOPERS LLP. December 21, 2010. *Digging deeper-Canadian mining taxation.* www.pwc.com/ca/canmininigtax

RESOURCE CAPITAL RESEARCH. Nov. 2010. *Rare and Minor Metals Company Review*, 4Q10. http://www.galaxyresources.com.au/documents/GXY-RCR.pdf

RESOURCE CAPITAL RESEARCH. March 2011. *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

REVENU QUÉBEC. September 21, 2011. *Registre des entreprises du Quebec.* www.registreentreprises.gouv.qc.ca/en.

REVENU QUÉBEC. 2011. *Taux d'imposition.* http://www.revenuquebec.ca/fr/entreprise/impot/societes/taux_imposition.aspx

http://www.revenuquebec.ca/fr/entreprise/impot/societes/declaration/taxes/reduct_taxe.aspx

http://www.cra-arc.gc.ca/tx/bsnss/tpcs/crprtns/rts-fra.html

ROSKILL INFORMATION SERVICES LTD. 2009. *The Economics of Lithium*. 11th edition. http://www.roskill.com/reports/minor-and-light-metals/lithium

ROSKILL INFORMATION SERVICES LTD. 2010. *The lithium market: 2009 review and outlook*. Robert Baylis, Manager – Industrial Minerals Research. http://www.roskill.com/media/Roskill%20LSM10.pdf

ROSKILL INFORMATION SERVICES LTD. Jan. 2010. *The lithium market: 2009 review and outlook.* Robert Baylis Manager – Industrial Minerals Research. Presentation at: Lithium Supply & Markets, Las Vegas. http://www.slideshare.net/robertbaylis/the-lithium-market-2010-review-and-outlook

SIGNUMBOX. Jan. 2011. *Why securing a battery-grade lithium source is so important?* Presentation at Lithium Supply & Markets 2011, Toronto.

TALISON LITHIUM. April 2011. *Talison Lithium Presentation at 2011 Electric Metals Conference.* http://www.talisonlithium.com/media/16980/talison%20lithium%20-%20byron%20electric%20metals%20conference%202011.pdf

TALISON LITHIUM. Oct. 2011. *Talison Lithium Investor Presentation.* http://www.talisonlithium.com/media/17813/talison%20lithium%20investor%20presentation_oct%202011.pdf

TRU GROUP. Jan. 2011. *Shocking Future Battering the Lithium Industry through 2020.* Presentation at Lithium Supply & Markets 2011, Toronto.

VIESSMAN, W. et L.LEWIS, W. 2003. *Introduction to Hydrology.* Fifth Edition, Pearson Education, Inc.

WESTERN MINE ENGINEERING INC. 2011. *Mine and Mill Equipment Costs an Estimator's Guide.*

28. SIGNATURE AND EFFECTIVE DATE

The effective date of this technical report, titled *Technical Report and Preliminary Economic Assessment on the Rose Tantalum-Lithium Project*, is December 10, 2011; it was prepared and signed by the following authors:

Signed in Québec City, Quebec
December 13, 2011

Charles Gagnon, Eng., M.Sc.
Mining Engineer - Mining and Geology
GENIVAR Inc.

Signed in Val-d'Or, Quebec
December 13, 2011

Carl Pelletier, Geo., B.Sc.
Director – Geologist Consultant
InnovExplo Inc.

Signed in Québec City, Quebec
December 13, 2011

Normand Grégoire, Eng.
Project Director – Environment, Mining and Geology
GENIVAR Inc.

Signed in Québec City, Quebec
December 13, 2011

France Gauthier, Eng.
Mining Engineer – Mining and Geology
GENIVAR Inc.

Signed in Québec City, Quebec
December 13, 2011

Simon Latulippe, Eng.
Project Manager – Environment
GENIVAR Inc.

Signed in Montreal, Quebec
December 13, 2011

Florent Baril, Eng.
Bumigème Inc.

29. CERTIFICATES OF QUALIFICATIONS

CHARLES GAGNON

I, Charles Gagnon, Eng., M.Sc., do hereby certify that:

(a) I am currently employed as a Mining Engineer by:

GENIVAR Inc.
1175 Lebourgneuf Blvd., Suite 300
Québec, Quebec CANADA G2K 0B4

(b) I am a co-author of this technical report entitled "*Technical Report and Preliminary Economic Assessment on the Rose Tantalum-Lithium Project*" bearing the effective date of December 10, 2011 to which this certificate of qualifications applies.

(c) I graduated with a Master's degree in Mining and Mineralurgy Engineering (M.Sc.), Mine Ventilation, from Laval University, Québec, Canada in 2005. In addition, I have obtained a Bachelor of Engineering degree in the Cooperative Program in Mining Engineering and Mineral Processing (B.Eng.) from Laval University, in 2002.

I am a registered professional engineer with the *Ordre des Ingénieurs du Québec* (License No. 130730).

I have worked as a mining engineer on a continuous basis for 8 years since my graduation from university, mainly providing services to the mining industry as a consultant. My relevant experience for the purpose of this technical report includes project management, mineral resources and mineral reserves estimation, mine planning, mining equipment selection, cost estimation and feasibility studies for large mining corporations.

I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

(d) I visited the Rose Lithium Project property of Critical Elements Corporation on November 29, 2011.

(e) I am responsible for the preparation of the following items of this technical report:

Items 15 and 16, 18 (except 18.3), 21, 22 and 25 to 27.

(f) I am independent of the issuer (Critical Elements Corporation) applying the tests set out in Part 1.5 of NI 43-101.

(g) I have had no prior involvement with the property that is the subject of this technical report.

(h) I have read National Instrument 43-101 and Form 43-101F1, and this technical report has been prepared in compliance with that instrument and that form.

(i) As of December 10, 2011, the effective date of this technical report, to the best of my knowledge, information, and belief, this technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Dated this December 13, 2011.

[sign and sealed]

Charles Gagnon, Eng., M.Sc.
Mining Engineer
GENIVAR Inc.

NORMAND GRÉGOIRE

I, Normand Grégoire, Eng., Project Manager, do hereby certify that:

(a) I am currently employed as a Senior Mining Engineer by:

GENIVAR Inc.
5355 des Gradins Blvd.
Québec, Quebec CANADA G2J 1C8

(b) I am a co-author of this technical report entitled "*Technical Report and Preliminary Economic Assessment on the Rose Tantalum-Lithium Project*" bearing the effective date of December 10, 2011 to which this certificate of qualifications applies.

(c) I graduated with a Bachelor's degree in Mining Engineering from Laval University, Québec, Canada in 1974.

I am a registered professional engineer with the *Ordre des Ingénieurs du Québec* (License No. 25710).

I have worked as a mining engineer on a continuous basis for since my graduation from university, mainly providing services to the mining industry as a consultant for the last 25 years. My relevant experience for the purpose of this technical report includes project management, economic and market studies, environmental studies, and feasibility studies of mining projects.

I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

(d) I did not visit the Rose Lithium Project property of Critical Elements Corporation.

(e) I am responsible for the preparation of the following items of this technical report:

Item 19.1.

(f) I am independent of the issuer (Critical Elements Corporation) applying the tests set out in Part 1.5 of NI 43-101.

(g) I have had no prior involvement with the property that is the subject of this technical report.

(h) I have read National Instrument 43-101 and Form 43-101F1, and this technical report has been prepared in compliance with that instrument and that form.

(i) As of December 10, 2011, the effective date of this technical report, to the best of my knowledge, information, and belief, this technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Dated this December 13, 2011

[sign and sealed]

INGÉNIEUR · ENGINEER
NORMAND GRÉGOIRE
25710
QUÉBEC

Normand Grégoire, Eng.
Project Manager
GENIVAR Inc.

FRANCE GAUTHIER

I, France Gauthier, Mining Engineer, do hereby certify that:

(a) I am currently employed as a Mining Engineer by:

GENIVAR Inc.
1175 Lebourgneuf Blvd., Suite 300
Québec, Quebec CANADA G2K 0B4

(b) I am a co-author of this technical report entitled "*Technical Report and Preliminary Economic Assessment on the Rose Tantalum-Lithium Project*" bearing the effective date of December 10, 2011 to which this certificate of qualifications applies.

(c) I graduated with a Bachelor's degree in Mining Engineering from McGill University, Montréal, Canada, in 1985. I also obtained a Bachelor's degree in Education (Mathematics, Sciences and Technology) from York University, Toronto, Canada, in 2000 and a Certificate in Financial Planning from the Seneca College of Applied Arts and Technology, Toronto, Canada, in 2005.

I am a registered professional engineer with the *Ordre des Ingénieurs du Québec* (License No. 42074).

I have worked as a mining engineer for 16 years since my graduation from university. I have been providing services to the mining industry as an explosives specialist for 11 years and as a consultant for 5 years. My relevant experience for the purpose of this technical report includes regulatory compliance, National Instrument 43-101 compliant technical reports for open-pit and underground mines, process audit, project management, economic studies, and feasibility studies of mining projects.

I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

(d) I have not visited the Rose Lithium Project property of Critical Elements Corporation.

(e) I am responsible for the preparation of the following items of this technical report:

Items 1 to 5, 19.2, 23 and 24.

(f) I am independent of the issuer (Critical Elements Corporation) applying the tests set out in Part 1.5 of NI 43-101.

(g) I have had no prior involvement with the property that is the subject of this technical report.

(h) I have read National Instrument 43-101 and Form 43-101F1, and this technical report has been prepared in compliance with that instrument and that form.

(i) As of December 10, 2011 the effective date of this technical report, to the best of my knowledge, information, and belief, this technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Dated this December 13, 2011.

[sign and sealed]

France Gauthier, Eng.
Mining Engineer
GENIVAR Inc.

SIMON LATULIPPE

I, Simon Latulippe, Geological Engineer and Project Manager, do hereby certify that:

(a) I am currently employed as an Engineer and Project Manager by:

GENIVAR Inc.
5355 des Gradins Blvd.
Québec, Quebec CANADA G2J 1C8

(b) I am a co-author of this technical report entitled "*Technical Report and Preliminary Economic Assessment on the Rose Tantalum-Lithium Project*" bearing the effective date of December 10, 2011 to which this certificate of qualifications applies.

(c) I graduated with a Bachelor's degree in Geological Engineering from Laval University, Québec, Canada in 1998.

I am a registered professional engineer with the *Ordre des Ingénieurs du Québec* (License No. 121692).

I have worked as a geological engineer on a continuous basis for 13 years since my graduation from university, mainly providing services to the environment industry as a consultant. My relevant experience for the purpose of this technical report includes environmental studies, characterization and monitoring, soil and groundwater treatment, site tests and design, Mine site reclamation projects as water management and tailings leader, Mine Closure plans design and mine projects permitting leader.

I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

(d) I have not visited the Rose Lithium Project property of Critical Elements Corporation.

(e) I am responsible for the preparation of the following items of this technical report:

Items 18.3 and 20.

(f) I am independent of the issuer (Critical Elements Corporation) applying the tests set out in Part 1.5 of NI 43-101.

(g) I have had no prior involvement with the property that is the subject of this technical report.

(h) I have read National Instrument 43-101 and Form 43-101F1, and this technical report has been prepared in compliance with that instrument and that form.

(i) As of December 10, 2011, the effective date of this technical report, to the best of my knowledge, information, and belief, this technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Dated this December 13, 2011.

[sign and sealed]

Simon Latulippe, Eng.
Project Manager
GENIVAR Inc.

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 the supervision and the preparation of items 6 to 12 and 14 of the report titled Technical Report and Preliminary Economic Assessment on the Rose Tantalum-Lithium Project and dated December 10, 2011 (the "Technical Report") relating to the Pivert-Rose property. I have never visited the Pivert-Rose property.

7) I was 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.

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) 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 10th day of December, 2011.

GÉOLOGUE / GEOLOGIST * CARL PELLETIER # 384 * QUÉBEC

Carl Pelletier, B.Sc.,Geo.

[1] 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

FLORENT BARIL, ENG. B.SC.

I, Florent Baril, B.Sc., Senior Metallurgical Engineer and President of:

Bumigeme Inc.
615 René-Lévesque Blvd West
Suite 750
Montréal, Québec H3B 1P5

Do hereby certify that:

1. I reside at 624 Jean Deslauriers, Condo 17, Bouchervillle, Québec J4B 8P5.
2. I am a graduate of Laval University, Québec with a B.Sc. Degree in Metallurgy (1954), and I have practiced my profession for over 50 years.
3. I am a member of the "Ordre des Ingénieurs du Québec" (#6972).
4. I am the Founding Owner and President of Bumigeme Inc., a firm of consulting engineers which has been incorporated in 1994.
5. I have not visited the Rose Tantalum-Lithium Project property of the Critical Elements Corporation for the preparation of this study.
6. I have read the definition of "qualified person" set out in the National Instrument Standard 43-101 (NI 43-101) and certify that as a result of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purpose of NI 43-101.
7. I have participated in the preparation of the report entitled "Technical Economic Assessment on the Rose Tantalum-Lithium Project" bearing the effective date of December 10, 2011, to which this certificate of qualification applies, and was responsible for item 17 and collaborate to item 13.
8. I am independant of the issuer (Critical Elements Corporation) as set out in Part 1.5 of NI 43-101.
9. As of the date of this Certificate and to the best of my knowledge, the information contained in this Technical Report are of a scientific and technical nature as requested, and can be mentioned in a technical report.
10. Neither I, nor any affiliated entity of mine, is at present, under an agreement, arrangement or understanding or expects to become, an insider, associate, affiliated entity or employee of Critical Elements Corporation. or any associated or affiliate entities.

December 10, 2011

(Signed) « Florent Baril, Eng. »

INGÉNIEUR · ENGINEER
FLORENT BARIL
6972
QUÉBEC

Florent Baril, Eng.
President
Bumigeme Inc.

APPENDIX A

Mining Claims

Appendix A

(related to section 4.2)

List of Block A Mining Titles Comprising the Pivert-Rose Property (October 5, 2011)

Title Number	Claim Block	NTS	Status	Area (ha)	Registered Owner	Comment
2188276	A	33C01	Active	53.0	Critical Elements Inc. (88153)	Royalty attached
2188277	A	33C01	Active	53.0	Critical Elements Inc. (88153)	Royalty attached
2188278	A	33C01	Active	53.0	Critical Elements Inc. (88153)	Royalty attached
2188279	A	33C01	Active	53.0	Critical Elements Inc. (88153)	Royalty attached
2188280	A	33C01	Active	52.0	Critical Elements Inc. (88153)	Royalty attached
2188281	A	33C01	Active	52.0	Critical Elements Inc. (88153)	Royalty attached; affected by hydroelectric facilities
2188282	A	33C01	Active	52.0	Critical Elements Inc. (88153)	Royalty attached; affected by hydroelectric facilities
2188283	A	33C01	Active	52.0	Critical Elements Inc. (88153)	Royalty attached
2188284	A	33C01	Active	52.0	Critical Elements Inc. (88153)	Royalty attached
2188285	A	33C01	Active	52.0	Critical Elements Inc. (88153)	Royalty attached
2188286	A	33C01	Active	52.0	Critical Elements Inc. (88153)	Royalty attached
2188287	A	33C01	Active	52.0	Critical Elements Inc. (88153)	Royalty attached
2188288	A	33C01	Active	52.0	Critical Elements Inc. (88153)	Royalty attached; affected by hydroelectric facilities
2193368	A	33C01	Active	53.0	Critical Elements Inc. (88153)	
2193369	A	33C01	Active	52.0	Critical Elements Inc. (88153)	Affected by energy transport line
2193370	A	33C01	Active	52.0	Critical Elements Inc. (88153)	Affected by energy transport line
2193605	A	33C01	Active	53.0	Critical Elements Inc. (88153)	
2193606	A	33C01	Active	53.0	Critical Elements Inc. (88153)	
2193607	A	33C01	Active	53.0	Critical Elements Inc. (88153)	
2193608	A	33C01	Active	53.0	Critical Elements Inc. (88153)	
2193609	A	33C01	Active	53.0	Critical Elements Inc. (88153)	

List of Block A Mining Titles Comprising the Pivert-Rose Property (October 5, 2011) (continued)

Title Number	Claim Block	NTS	Status	Area (ha)	Registered Owner	Comment
2193610	A	33C01	Active	53.0	Critical Elements Inc. (88153)	Affected by energy transport line
2193611	A	33C01	Active	53.0	Critical Elements Inc. (88153)	Affected by energy transport line
2193612	A	33C01	Active	53.0	Critical Elements Inc. (88153)	Affected by energy transport line
2193613	A	33C01	Active	53.0	Critical Elements Inc. (88153)	
2193614	A	33C01	Active	53.0	Critical Elements Inc. (88153)	Affected by hydroelectric facilities
2193615	A	33C01	Active	53.0	Critical Elements Inc. (88153)	Affected by hydroelectric facilities
2193616	A	33C01	Active	53.0	Critical Elements Inc. (88153)	Affected by hydroelectric facilities
2193617	A	33C01	Active	52.0	Critical Elements Inc. (88153)	
2193618	A	33C01	Active	52.0	Critical Elements Inc. (88153)	
2193619	A	33C01	Active	52.0	Critical Elements Inc. (88153)	
2193620	A	33C01	Active	52.0	Critical Elements Inc. (88153)	
2193621	A	33C01	Active	52.0	Critical Elements Inc. (88153)	
2193622	A	33C01	Active	52.0	Critical Elements Inc. (88153)	Affected by energy transport line
2193623	A	33C01	Active	52.0	Critical Elements Inc. (88153)	Affected by energy transport line
2193624	A	33C01	Active	52.0	Critical Elements Inc. (88153)	Affected by energy transport line
2193625	A	33C01	Active	52.0	Critical Elements Inc. (88153)	
2193626	A	33C01	Active	52.0	Critical Elements Inc. (88153)	
2193627	A	33C01	Active	52.0	Critical Elements Inc. (88153)	
2193628	A	33C01	Active	52.0	Critical Elements Inc. (88153)	
2193629	A	33C01	Active	52.0	Critical Elements Inc. (88153)	
2193630	A	33C01	Active	52.0	Critical Elements Inc. (88153)	
2193631	A	33C01	Active	52.0	Critical Elements Inc. (88153)	Affected by energy transport line
2193632	A	33C01	Active	52.0	Critical Elements Inc. (88153)	Affected by energy transport line
2193633	A	33C01	Active	52.0	Critical Elements Inc. (88153)	Affected by energy transport line
2193634	A	33C01	Active	52.0	Critical Elements Inc. (88153)	

List of Block A Mining Titles Comprising the Pivert-Rose Property (October 5, 2011) (continued)

Title Number	Claim Block	NTS	Status	Area (ha)	Registered Owner	Comment
2193635	A	33C01	Active	52.0	Critical Elements Inc. (88153)	
2193636	A	33C01	Active	52.0	Critical Elements Inc. (88153)	
2193637	A	33C01	Active	52.0	Critical Elements Inc. (88153)	
2193638	A	33C01	Active	52.0	Critical Elements Inc. (88153)	
2193639	A	33C01	Active	52.0	Critical Elements Inc. (88153)	
2193640	A	33C01	Active	52.0	Critical Elements Inc. (88153)	Affected by energy transport line
2193641	A	33C01	Active	52.0	Critical Elements Inc. (88153)	
2193642	A	33C01	Active	52.0	Critical Elements Inc. (88153)	Affected by energy transport line
2193643	A	33C01	Active	52.0	Critical Elements Inc. (88153)	
2193644	A	33C01	Active	52.0	Critical Elements Inc. (88153)	
2193645	A	33C01	Active	53.0	Critical Elements Inc. (88153)	
2193646	A	33C01	Active	53.0	Critical Elements Inc. (88153)	
2193647	A	33C01	Active	53.0	Critical Elements Inc. (88153)	
2193648	A	33C01	Active	53.0	Critical Elements Inc. (88153)	
2193649	A	33C01	Active	53.0	Critical Elements Inc. (88153)	
2193650	A	33C01	Active	53.0	Critical Elements Inc. (88153)	Affected by energy transport line
2193651	A	33C01	Active	53.0	Critical Elements Inc. (88153)	Affected by energy transport line
2193652	A	33C01	Active	53.0	Critical Elements Inc. (88153)	
2193653	A	33C01	Active	53.0	Critical Elements Inc. (88153)	
2193654	A	33C01	Active	53.0	Critical Elements Inc. (88153)	
2193655	A	33C01	Active	53.0	Critical Elements Inc. (88153)	
2193656	A	33C01	Active	53.0	Critical Elements Inc. (88153)	
2193657	A	33C01	Active	53.0	Critical Elements Inc. (88153)	Affected by energy transport line
2193658	A	33C01	Active	53.0	Critical Elements Inc. (88153)	Affected by energy transport line
2193659	A	33C01	Active	53.0	Critical Elements Inc. (88153)	

List of Block A Mining Titles Comprising the Pivert-Rose Property (October 5, 2011) (continued)

Title Number	Claim Block	NTS	Status	Area (ha)	Registered Owner	Comment
2193660	A	33C01	Active	53.0	Critical Elements Inc. (88153)	
2193661	A	33C01	Active	53.0	Critical Elements Inc. (88153)	
2193662	A	33C01	Active	53.0	Critical Elements Inc. (88153)	
2193663	A	33C01	Active	53.0	Critical Elements Inc. (88153)	
2193664	A	33C01	Active	53.0	Critical Elements Inc. (88153)	Affected by energy transport line
2193665	A	33C01	Active	53.0	Critical Elements Inc. (88153)	Affected by energy transport line
2193666	A	33C01	Active	53.0	Critical Elements Inc. (88153)	
2193667	A	33C01	Active	53.0	Critical Elements Inc. (88153)	
2193668	A	33C01	Active	52.0	Critical Elements Inc. (88153)	
2193669	A	33C01	Active	52.0	Critical Elements Inc. (88153)	
2193670	A	33C01	Active	52.0	Critical Elements Inc. (88153)	
2193671	A	33C01	Active	52.0	Critical Elements Inc. (88153)	
2193672	A	33C01	Active	52.0	Critical Elements Inc. (88153)	
2193673	A	33C01	Active	52.0	Critical Elements Inc. (88153)	Affected by energy transport line
2193674	A	33C01	Active	52.0	Critical Elements Inc. (88153)	Affected by energy transport line
2193675	A	33C01	Active	52.0	Critical Elements Inc. (88153)	
2193676	A	33C01	Active	52.0	Critical Elements Inc. (88153)	Affected by hydroelectric facilities
2193677	A	33C01	Active	52.0	Critical Elements Inc. (88153)	
2193678	A	33C01	Active	52.0	Critical Elements Inc. (88153)	
2193679	A	33C01	Active	52.0	Critical Elements Inc. (88153)	
2193680	A	33C01	Active	52.0	Critical Elements Inc. (88153)	
2193681	A	33C01	Active	52.0	Critical Elements Inc. (88153)	Affected by energy transport line
2193682	A	33C01	Active	52.0	Critical Elements Inc. (88153)	Affected by energy transport line
2193683	A	33C01	Active	52.0	Critical Elements Inc. (88153)	Affected by energy transport line

APPENDIX B

Manpower Requirements

APPENDIX B - Manpower Requirements.

	Annual salaries	Departement	Workers (total)																
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Mining																			
Haul Truck Driver	124 800 $	Hauling-Tramming	8	12	12	12	16	16	16	20	20	24	28	28	28	28	28	20	8
Shovel Operator	139 200 $	Hauling-Tramming	2	4	6	6	6	6	6	6	6	6	6	6	6	6	6	6	4
Loader Operator	139 200 $	Hauling-Tramming	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	2
Drill Operator	139 200 $	Mining Drilling	8	8	8	12	12	12	12	12	12	12	12	12	12	12	12	4	4
*Tractor Operator	117 600 $	G&A	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Bulldozer Operator	117 600 $	Mining Services	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
*Grader Operator	134 400 $	G&A	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Fuel Truck Operator	117 600 $	Mining Services	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Water Truck Operator	117 600 $	Mining Services	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Blaster	144 000 $	Mining Services	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Laborer	108 000 $	Mining Services	4	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	4
Mechanical																			
Mechanic	136 800 $	Mining Services	8	12	12	12	12	12	12	12	12	12	12	12	12	12	12	8	8
Electrician	148 800 $	Mining Services	8	12	12	12	12	12	12	12	12	12	12	12	12	12	12	8	8
Maintenance Worker	112 800 $	Mining Services	16	24	24	24	24	24	24	24	24	24	24	24	24	24	24	16	12
Supervision																			
Mine Foreman	162 000 $	Mining Services	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Electric Foreman	162 000 $	Mining Services	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Maintenance Foreman	162 000 $	Mining Services	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mine Captain (4-3)	180 000 $	Mining Services	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mine Superintendent (4-3)	210 000 $	Mining Services	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Maintenance Superintendent (4-3)	210 000 $	Mining Services	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Technical Superintendant	210 000 $	Mining Services	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Engineering																			
Engineer (4-3)	162 000 $	Mining Services	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1
Geologist (4-3)	144 000 $	Mining Services	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1
Technician / surveyor (4-3)	120 000 $	Mining Services	7	12	12	12	12	12	12	12	12	12	12	12	12	12	12	8	2
G&A																			
Accountant (4-3)	126 000 $	G&A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mine Director (4-3)	240 000 $	G&A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Cleck (4-3)	78 000 $	G&A	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2
Purchasing Agent (4-3)	126 000 $	G&A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Security Guard	84 000 $	G&A	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Laborer	84 000 $	G&A	4	4	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Mining trainer & HS (4-3)	84 000 $	G&A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
TI	108 000 $	G&A	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
HR (4-3)	96 000 $	G&A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Striping																			
Loader Operator	139 200 $	G&A	4	4	4	4	4	4	4	4	4	4	2	2	2	2	2	2	0
Haul Truck Driver	124 800 $	G&A	8	8	8	8	8	8	8	8	8	8	2	2	2	2	2	2	0
Spodume Concentrator and Lithium Carbonate plant																			
Superintendant *	156 250 $	Process	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Shift Boss	112 500 $	Process	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Metallurgists	111 250 $	Process	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Chief operators_Conc.	107 500 $	Process	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Chief operators_Carb.	107 500 $	Process	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Laborers	81 250 $	Process	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Crushing operators	90 000 $	Process	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Packaging	81 250 $	Process	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Laboratory																			
Chief chemist *	111 250 $	Process	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Senior analyst	90 000 $	Process	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Analysis technicians	81 250 $	Process	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Samples preparators	68 750 $	Process	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Mechanics	90 000 $	Process	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Electricians	90 000 $	Process	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Drivers	68 750 $	Process	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

APPENDIX C

Dyke Construction Details

APPENDIX C - DYKE CONSTRUCTION DETAILS

This Appendix C refers to Section 18.9: Dykes of the Technical Report.

A 60 meter-wide dyke will be built at the narrowest section of Lake 3. Three (3) types of dykes were examined for this Preliminary Economic Assessment (PEA). They are designated as options A, B and C and defined as follows.

Option A: Slurry Trench Dyke
Slurry trench for silty sand or sandy silt deposits (Plan view: Figure C-1 and cross-section: Figure C-3).

Option B: Sheet Piling Dyke
Sheet piling for permeable granular soils without coarse elements such as pebbles and boulders (Plan view: Figure C-1 and cross-section: Figure C-4).

Option C: Dumped Screened Moraine Dyke
Screened-moraine fill dumped in the water for deposits containing pebbles and boulders (Plan view: Figure C-2 and cross-section: Figure C-5).

The dyke should be located at least 100 m away from the edge of the open-pit. The height of the dyke and the thickness of the underlying deposit were arbitrarily set at 7 m because no bathymetry survey and no geotechnical investigation were carried out on this part of Lake 3.

The volume of material necessary to build the dyke based on option A is essentially identical to that of option B because the two infrastructures have the same geometry.

B.1 <u>Option A and Option B</u>

The construction of a dyke based on options A and B will involve the following five (5) steps:

- <u>Step 1:</u> Installation of silt fences in the water to retain fine sediments within the construction area, thus avoiding any detrimental consequences on aquatic wildlife.
- <u>Step 2:</u> Riprap fill (0-1,000 mm grain size, graded) dumped in the lake on the upstream side.
- <u>Step 3:</u> Riprap fill (0-1,000 mm grain size, graded) dumped in the lake on the downstream side, in a manner that the distance between the two (2) fills will be minimized to 1 m only on the bottom of the lake. Then, a layer of 0-150 mm grain size riprap will be dumped on the internal side of both riprap fills (1 m of thickness). A geotextile will be placed on the surface of each 0-150 mm-size layer.

- Step 4: The V-shape space between the two (2) riprap fills will be filled with sand or screened moraine dumped in the water, in order to get a reachable crest for the heavy equipment required for the cut-off operation.
- Step 5: Execution of the cut-off (slurry trench or sheet piling) in the center of the dyke, down to the bedrock, presumed to be at about 14 m underneath of the crest of the dyke.

Assuming a 7 meter-high dyke, including a freeboard of 1.5 m, the width of the crest will be approximately 25 m while the width of the dyke at the bottom of the lake will be approximately 53 m. Slopes on both the upstream and downstream sides will be inclined at 2H:1V or 26.5°. The cut-off will be 14 m deep and its length will reach about 75 m on the center line of the dyke.

B.2 Option C

Option C might be unsuitable if the soil contains boulders too permeable to allow efficient drainage of the downstream side of the Lake 3 towards the open-pit. If suitable, the construction of a dyke based on option C will involve the following four (4) steps:

- Step 1: As per options A and B, installation of silt fences in water.
- Step 2: Riprap fill (0-1,000 mm grain size, graded) dumped in the lake on the upstream side.
- Step 3: A layer of 0-150 mm grain size riprap will be dumped on the upstream side of the riprap fill (1 m of thickness). A geotextile will be placed on the surface of this 0-150 mm-size layer.
- Step 4: A screened moraine fill will be dumped on the upstream side of the dyke, in order to get a slope of 5H:1V. This fill will act as a hydraulic barrier between the upstream side and the downstream side of the dyke, in a manner that the flow path beneath the construction will be long enough to avoid any seepage on the downstream side. Therefore, a prerequisite to ensure the viability of option C is a low hydraulic conductivity of the underlying soil deposit.

Assuming a 7 meter-high dyke, including a freeboard of 1.5 m, the width of the crest will be approximately 6 m while the width of the dyke at the bottom of the lake will be approximately 55 m. Slopes on upstream and downstream sides will be inclined at 5H:1V (11.3°) and 2H:1V (26.5°) respectively. No cut-off is required for this option.

B.3 Dyke Construction Material

The quantity and type of materials required to build the dyke across Lake 3 will depend on which of the three design options will be retained.

In summary, options A and B will require a total volume estimated at 21,400 m^3, riprap and screened-moraine materials combined. Option C will need a total volume of 16,900 m^3, all material combined. Cut-offs in options A and B will require a total vertical area of slurry trench (option A) or sheet piling (option B) reaching about 1,400 m^2. Finally, 1,725 m^2 of geotextile will be required for options A and B and half as much for option C.

Based on cost, option C is the best solution but it may be an unsuitable solution if the hydraulic conductivity of the soil deposit beneath Lake 3 is too high. Should the soil beneath Lake 3 be composed of fine-grained soils thus providing a low hydraulic conductivity, then option C becomes the best option from both a technical and an economic point-of-view.

Option B is clearly the most expensive solution but it could be the only one feasible if the natural soil deposit beneath the dyke is permeable.

Finally, option A might be interesting if the soil deposit present a moderate permeability.

The following data shall be collected at the next stage of the Rose Project:

- An investigation of the bathymetry of the bottom of Lake 3 on the proposed site of the dyke and at least 20 m of both sides.
- A complete geotechnical investigation of the soil deposit beneath Lake 3 using at least four conventional boreholes (two on Lake 3 itself and two on the abutments). Soil sampling and compactness measurement, boulder incidence and in-situ permeability testing will be required for the soil deposit, and then, bedrock characterization.

Cost estimate for the proposed dyke across Lake 3 included in this PEA were based on unit prices provided by a contractor who is familiar with that kind of work in the James Bay territory. However, little information was available about the field conditions, especially about the location of borrow pits and the length of access roads and ditches that will be needed to reach them. The prefeasibility study will improve the accuracy of this estimate.

Figure C-1 Dyke Across Lake 3 - Typical Plan View – Options A and B.

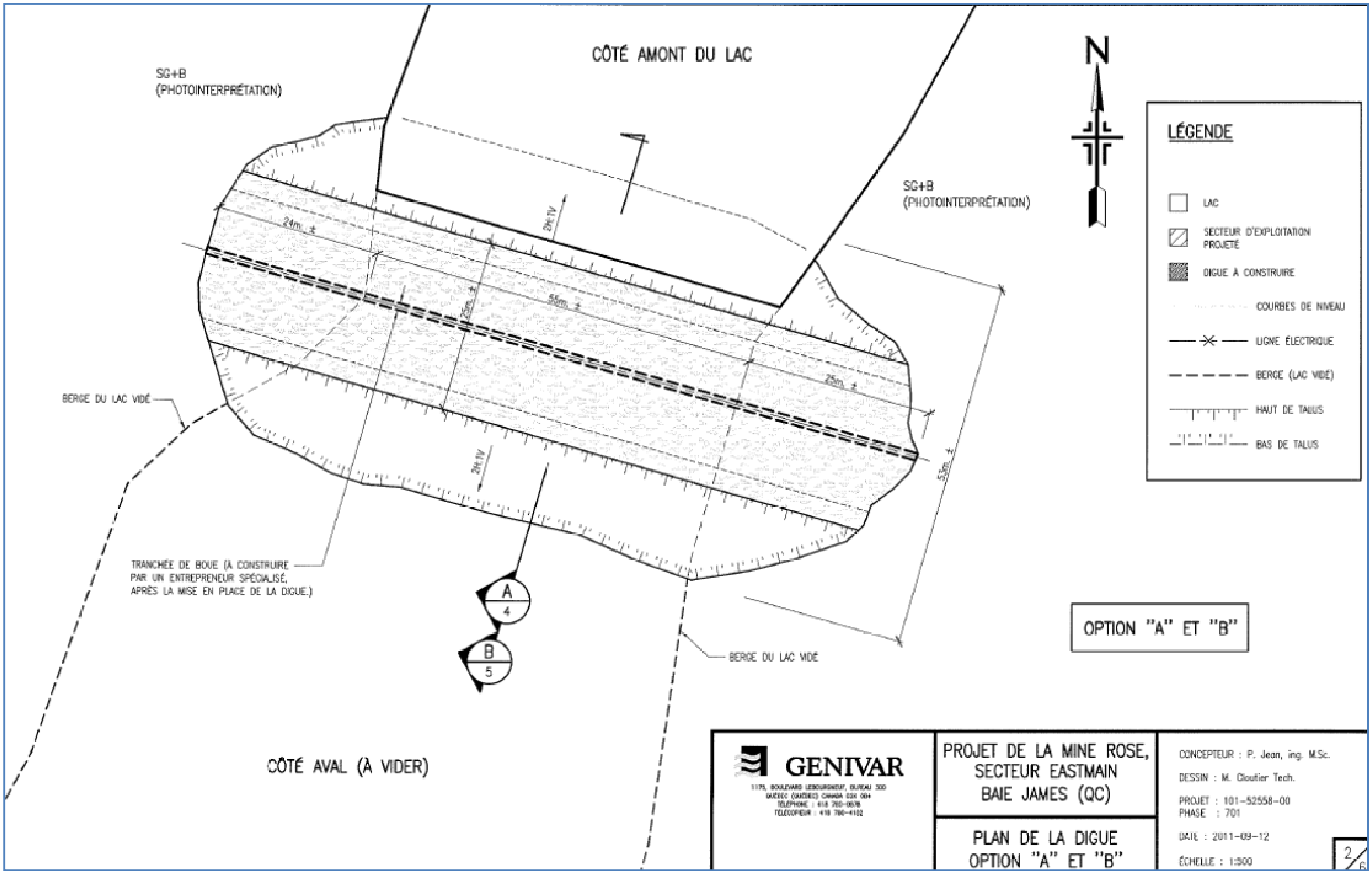


Figure C-2 Dyke Across Lake 3 - Typical Plan View – Option C.

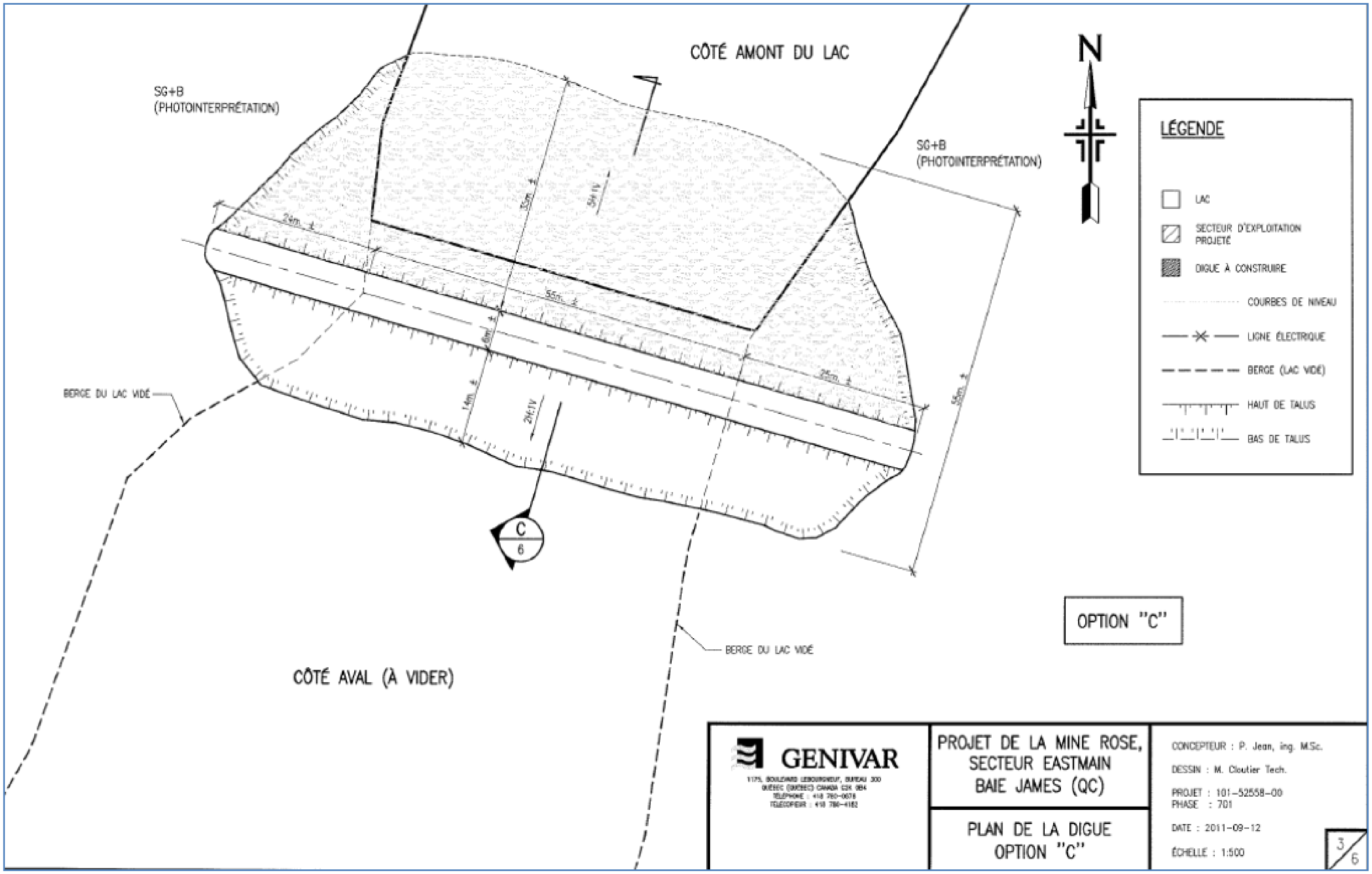


Figure C-3 Dyke Across Lake 3 - Typical Cross-section - Option A.

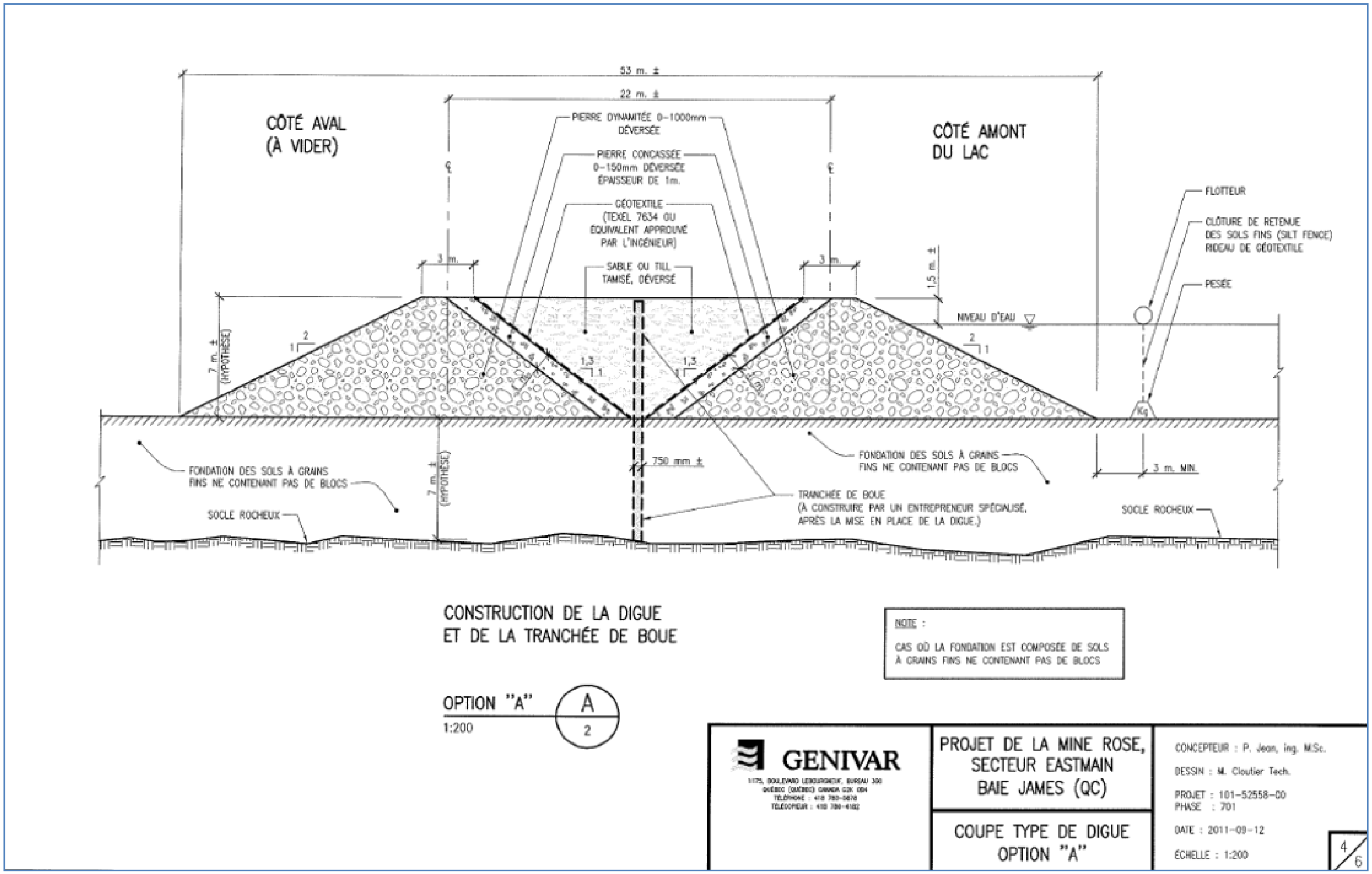


Figure C-4 Dyke Across Lake 3 - Typical Cross-section - Option B.

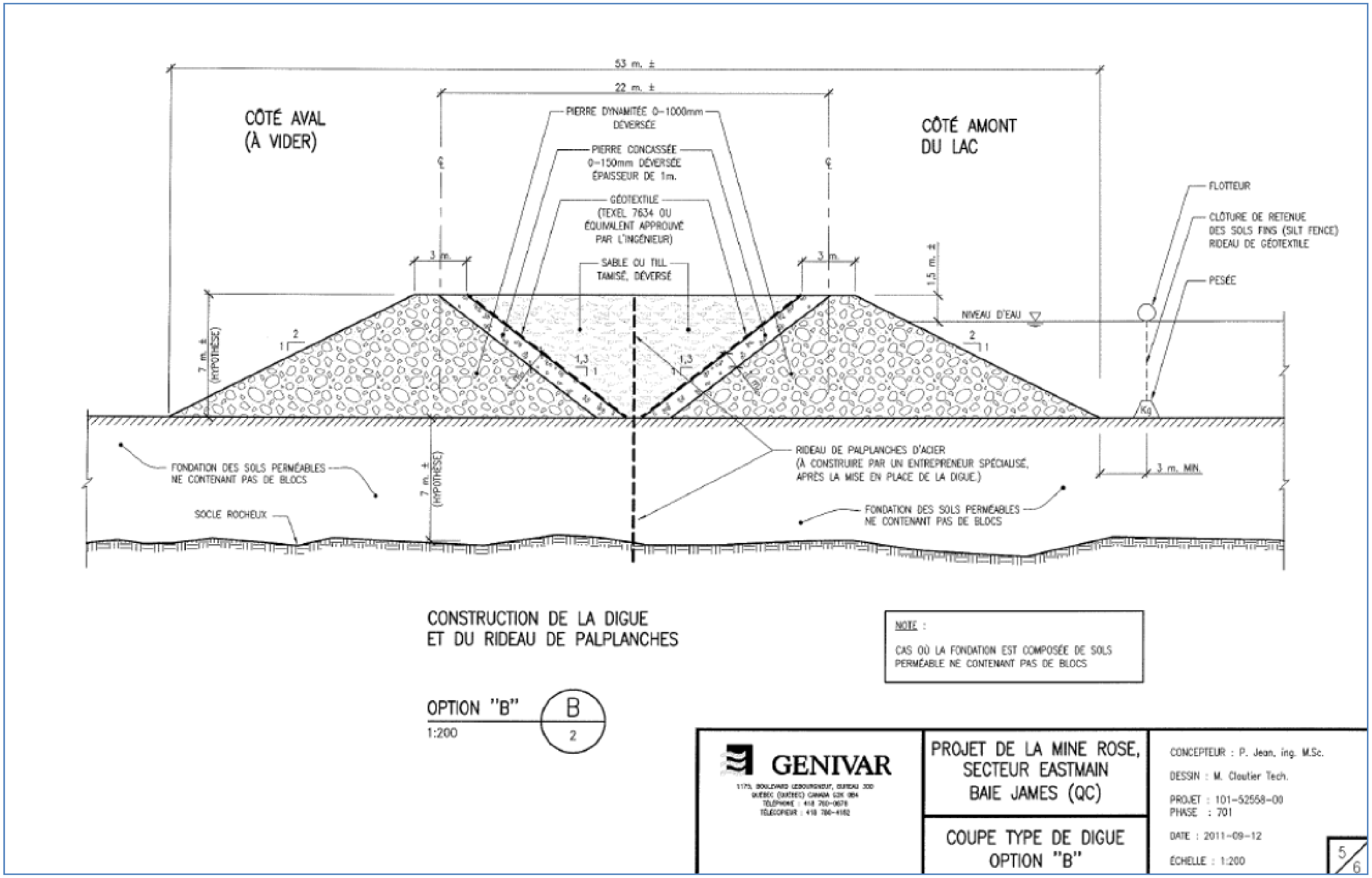
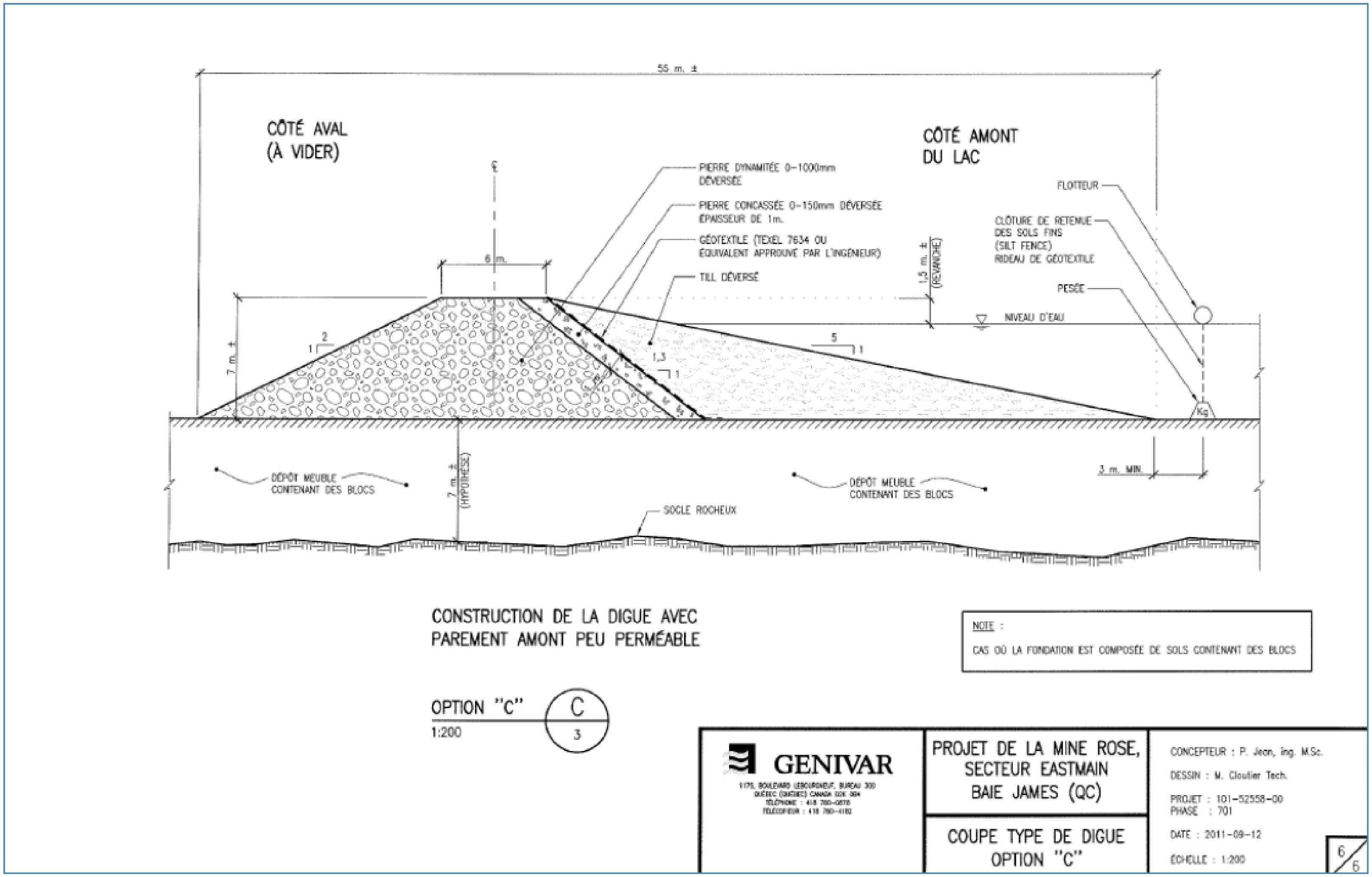


Figure C-5 Dyke Across Lake 3 - Typical Cross-section - Option C.



APPENDIX D

Commodity Price Projections

GENIVAR

APPENDIX D

COMMODITY PRICE PROJECTIONS

1175 Lebourgneuf Blvd., Suite 300 ~ Québec (Quebec) CANADA G2K 0B4

Tel.: 418 780-0878 ~ Fax: 418 780-4182 ~ www.genivar.com

TABLE OF CONTENTS

Page

LIST OF TABLES

LIST OF FIGURES

19.1 Market Overview – Lithium Carbonate

19.1.1 Commodity Price Projections - Lithium Carbonate

19.1.1.1 Context

Lithium production is forecast to be as lithium carbonate (Li_2CO_3)[1] 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 e-bikes[2]) are rapidly increasing demand for LIC, a raw material in the production of lithium batteries using various technologies.

The following forecast is a compilation, from various sources for expected prices over 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 example. 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.

The following forecast as 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 E-bikes designate a variety of electric-propulsion bikes, scooters and motorcycles. Sales are especially important in Asia, with more than 100 million units on roads and sales approaching 30 M new units per year in this country alone.

19.1.1.2 Lithium Carbonate

Pure lithium carbonate contains 18.79% lithium. Its typical analysis is, however, reported as the oxide form Li_2O (lithia), at 40.44%.

Typical “battery grade” purity is considered to be 99.5% pure or more (up to 99.99% or more). This typical purity is higher than the concentration of several existing commercial technical grades currently sold for the mix of present 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 currently 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 19-1-1 illustrates reported analysis of battery grade LIC from various sources.

Table 19-1-1 Battery Grade Lithium Carbonate – Typical Analyses.

Component	Unit	SQM Chile	Chemetall	FMC Lithium	Canada Lithium Pilot plant*	Galaxy**
Li_2CO_3	%	99,200	99,400	99,500	> 99,9	> 99,5
Chloride - Cl	%	0,010	0,010	0,010	< 0,001	0,030
Sulphate - SO_4	%	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

Several technical grades of LIC, with a lower 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.

19.1.2 Lithium Carbonate Prices

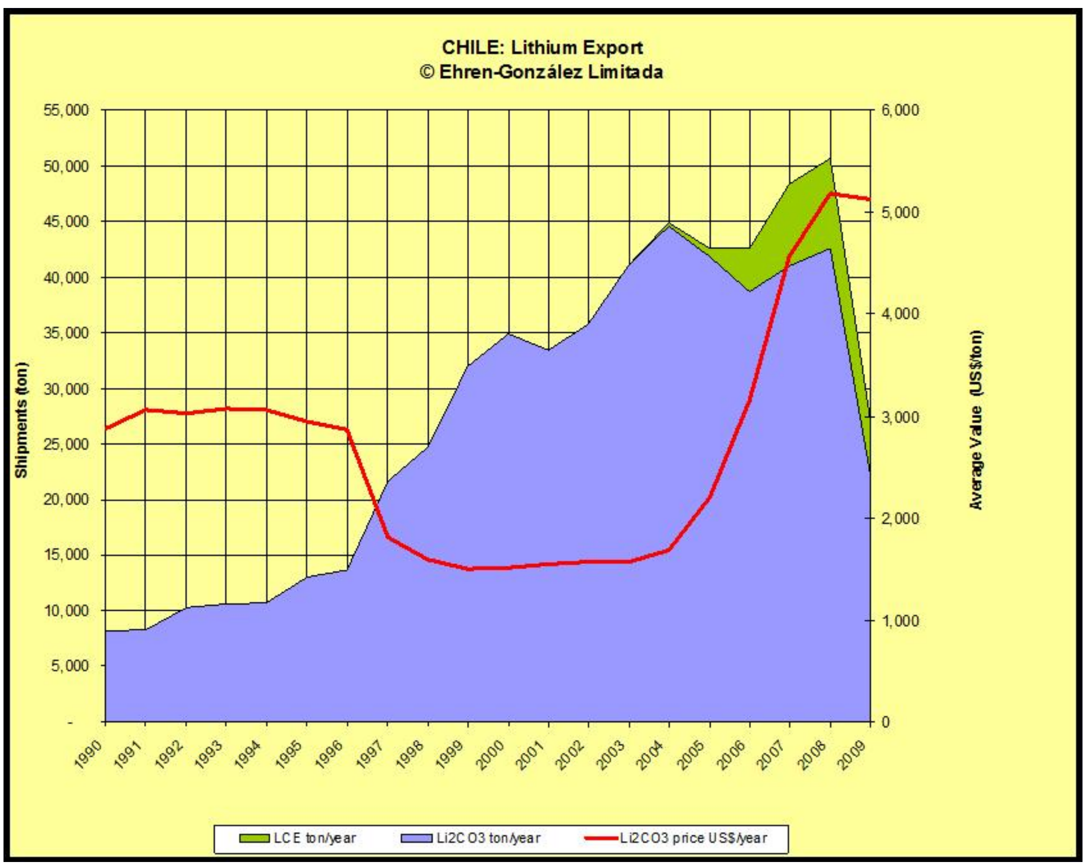
19.1.2.1 Recent Prices

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

19.1.2.2 Exports of Lithium Carbonate from Chile

Figure 19-1-1 shows the reported unit value of exported LIC by SQM and Chemetall SQM in Chile, the largest producers in the world, accounting for about ¾ of world exports.

Figure 19-1-1 Price of Exported Lithium Carbonate – Chile (1990-2009).



Source: http://www.lithiumsite.com/Lithium_Market.html

19.1.2.3 US Trade of Lithium Carbonate

Since US trade is important, we also compiled import and export data for the period 2001-2010[3]. Figures 19-1-2 to 19-1-5 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). LIC of battery grade purity might command higher prices than those shown.

Figure 19-1-2 Unit Values – US Imports of Lithium Carbonate (US$/t 2001-2010).

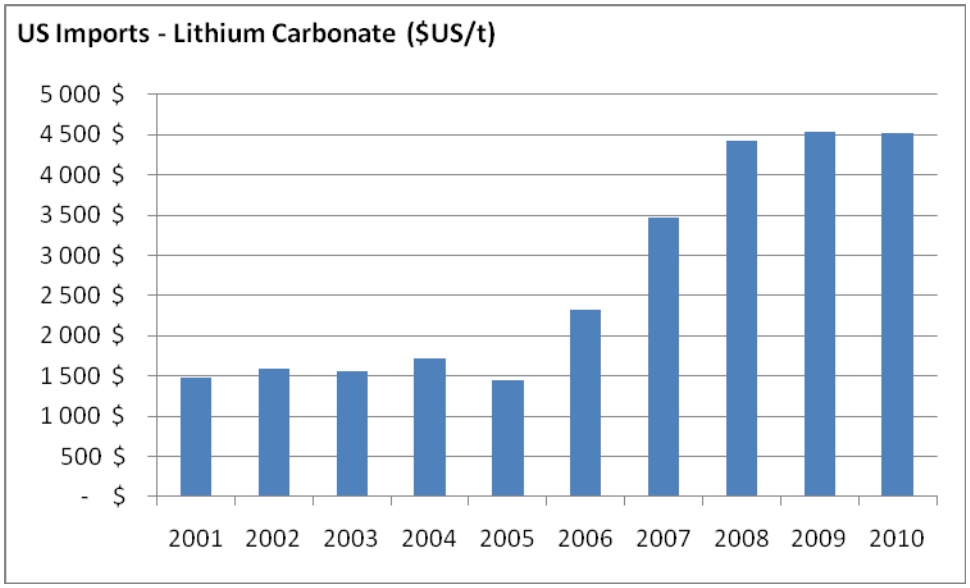


Figure 19-1-2 shows the tendency for prices to rise since 2006, without a significant effect from the 2008-2009 economic crisis, which resulted in an important reduction in US imports (Figure 19-1-3), and exports (which are not very significant – Figure 19-1-5).

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

Figure 19-1-3 US Imports of Lithium Carbonate (t/y 2001-2010).

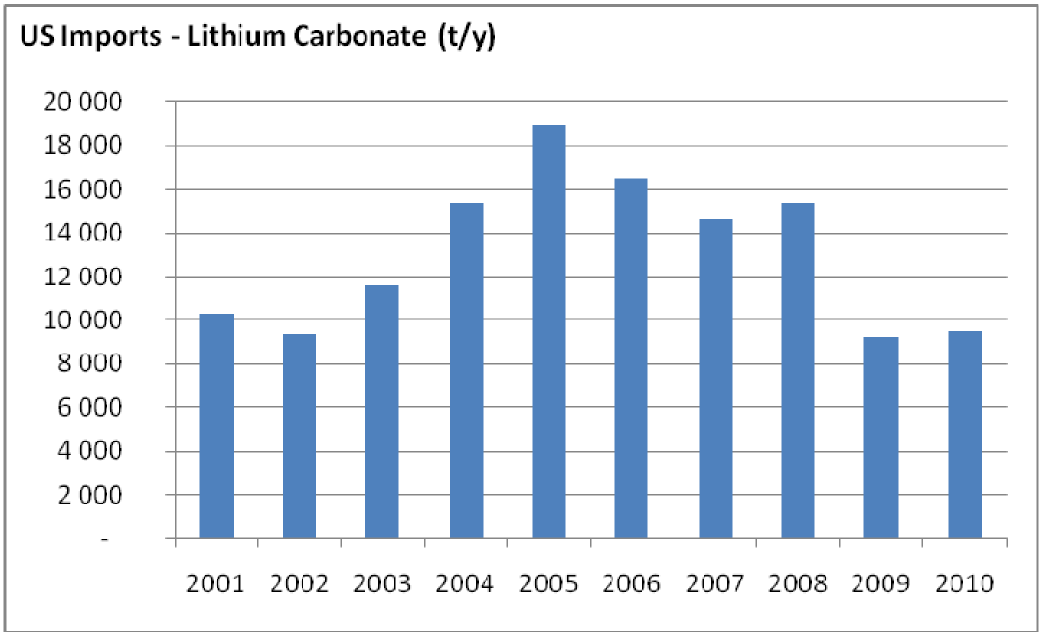


Figure 19-1-4 Unit Values – US Exports of Lithium Carbonate US$/t 2001-2010).

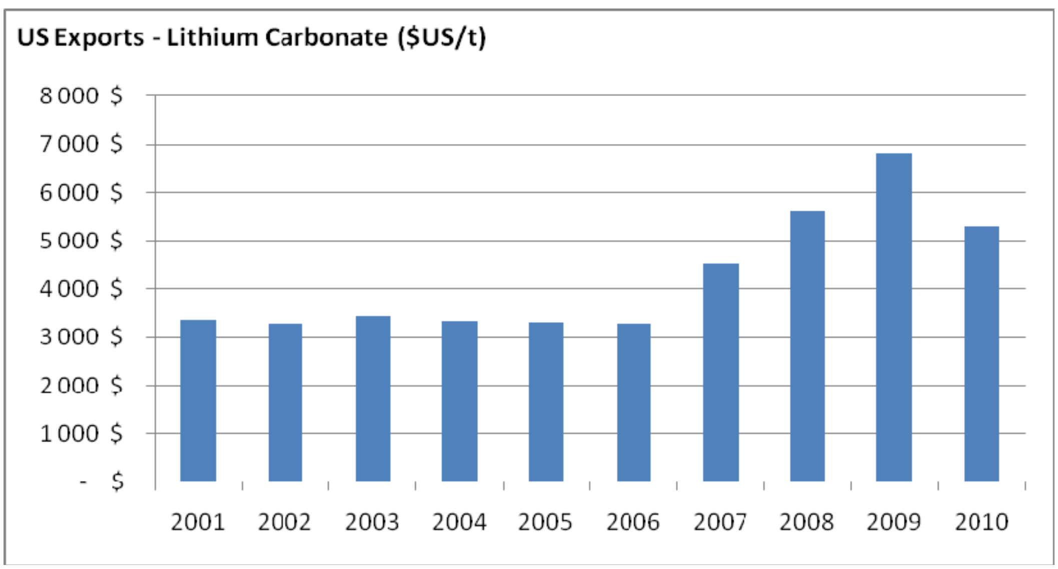
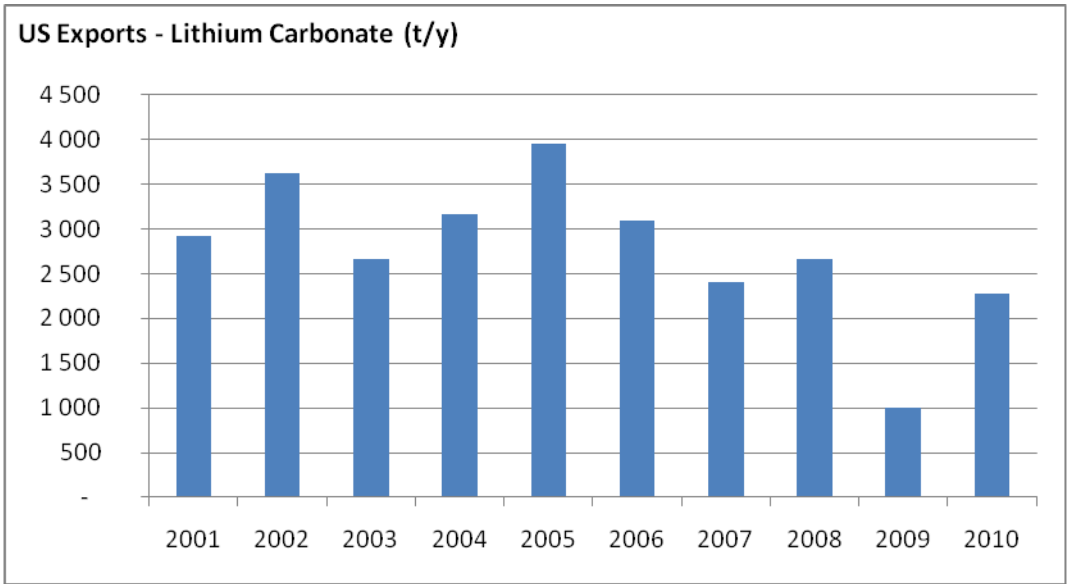


Figure 19-1-5 US Exports of Lithium Carbonate (t/y 2001-2010)



Export data illustrate the same tendency of increasing unit values (Figure 19-1-4). 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.

19.1.2.4 Recent World Trade of Lithium Carbonate

Recent trade data for lithium carbonate is available from a database maintained by the Unided 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 reported unit prices mostly reflect technical grades of LIC.

Trade date for the main exporting and importing countries has been compiled for the period of 2005-2010. At the time of writing, some 2010 data was still incomplete for imports by the Republic of Korea (South Korea), a significant importer.

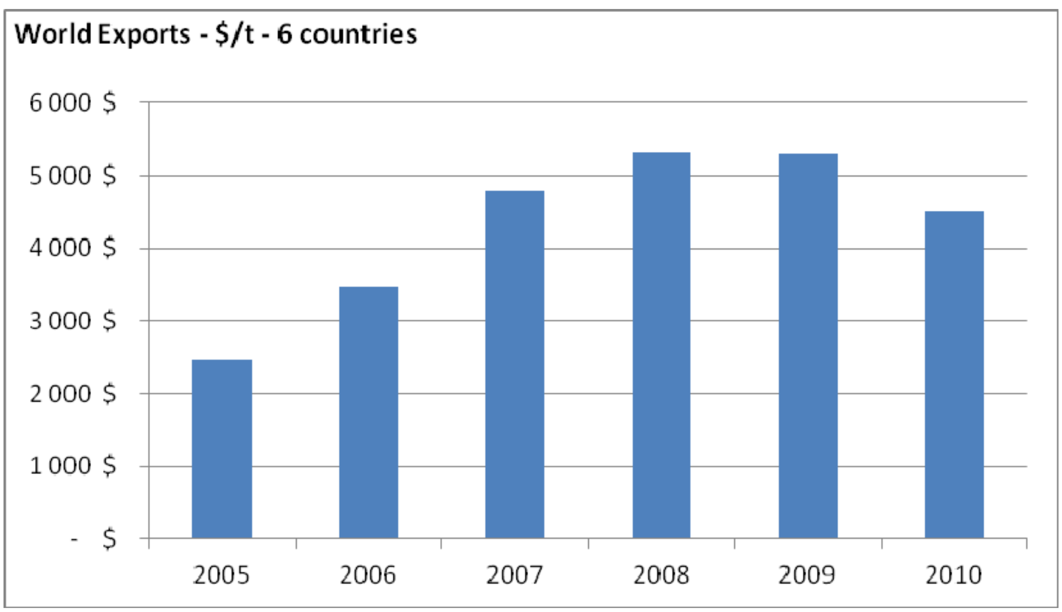
Reported world trade for LIC involves a limited number of countries:

- 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 (in the case of 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 19-1-6 and 19-1-7 illustrate the unit prices and quantities exported by the 6 main exporters from 2005 to 2010. The illustrated tendency for prices is a constant rise above US$5000/t, followed by a contraction in 2010 resulting from the temporary contraction of the financial crisis (refered to in the literature as the GFC – Global Financial Crisis).

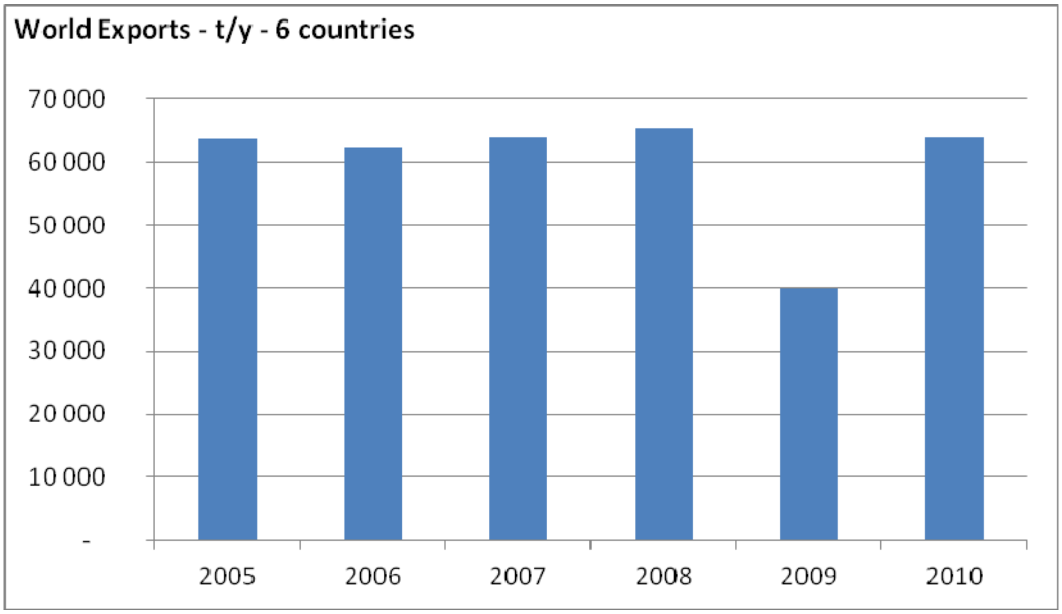
Since LIC is mostly sold under contracts (one year seems to be typical), the effect of the 2009 slowdown can actually be seen only on prices for 2010, upon renewal of contract agreements.

Figure 19-1-6 Unit Price for Recent World Exports – 6 Selected Countries (US$/t).



Exported quantities, before the 2008-2009 economic crisis, were about 60,000 t/y from the 6 listed countries. Chile and Argentina represent about 63% and 14% of quantities reported respectively, and the USA an additional 7%. Exported quantities climbed back to more than 60,000 t in 2010.

Figure 19-1-7 Recent World Exports – 6 Selected Countries (t/y).



Trade prices for 2011 will only be available in fall 2012.

However, the return of exported quantities to pre-crisis levels and recent price adjustments by suppliers are very likely to have pushed LIC prices for exports up:

- In June, FMC Lithium announced that effective July 1, 2011, or as contracts permit, it would increase prices 20 percent for lithium carbonate and between 15 and 25 percent, depending on product grade, for a range of lithium products, including lithium hydroxide, lithium chloride, specialty lithium salts and lithium battery metal[4].
- Another major supplier, Chemetall (Lithium Division) also announced a similar increase in prices for LIC and other lithium salts, as well as for battery-grade lithium metal[5].

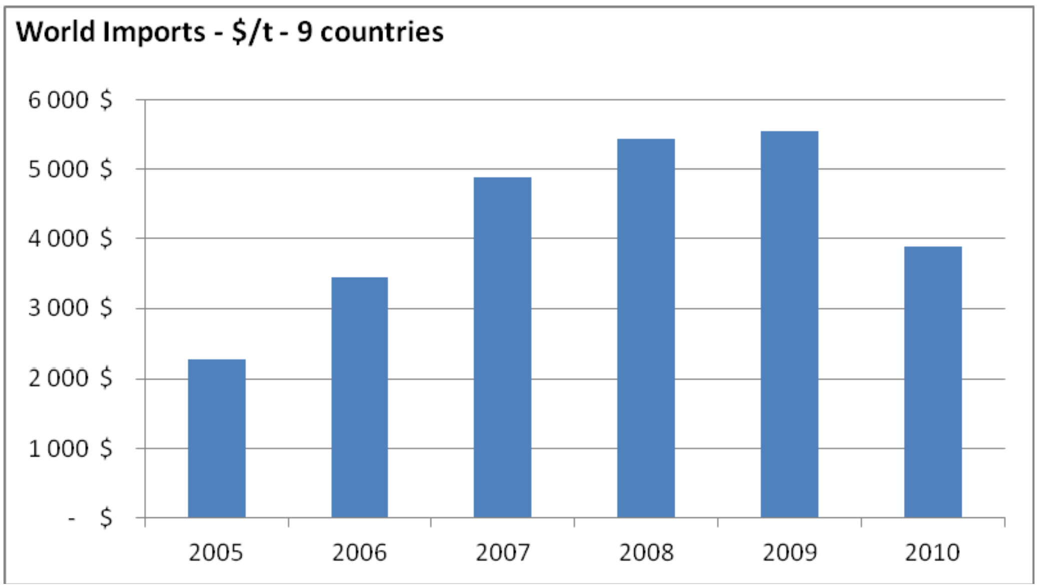
4 http://phx.corporate-ir.net/phoenix.zhtml?c=117919&p=irol-newsArticle&ID=1579509&highlight=

5 http://www.chemetalllithium.com/en/news/company-news/company-news/archive/2011/06/meldung/chemetall-lithium-division-announces-global-price.html?tx_ttnews%5Bday%5D=16&cHash=259e462f0ecd6b908a4be0862c987f1c

Imported quantities and unit values for the 9 importing countries listed above are shown in Figures 19-1-8 and 19-1-9. Data for 2010 is incomplete at the time of writing, for South Korea, whose imports until 2009 were steadily increasing to more than 5000 t/y, at a unit price of more than US$6000/t. For 2010, the only information currently available[6] is a doubling of imported quantities, to 11,000 tons, which is the quantity included in the data for Figure 19-1-9.

The illustrated tendency for prices is also constant rise towards US$6000/t before the 2009 slowdown impacted prices in 2010, when contracts were renegociated. As mentioned above, price increases were implemented by major suppliers in 2011.

Figure 19-1-8 Unit Price for Recent World Imports – 9 Selected Countries (US$/t).



6 http://www.greencarcongress.com/2011/07/comibol-20110731.html

Figure 19-1-9 Recent World Imports – 9 Selected Countries (t/y).

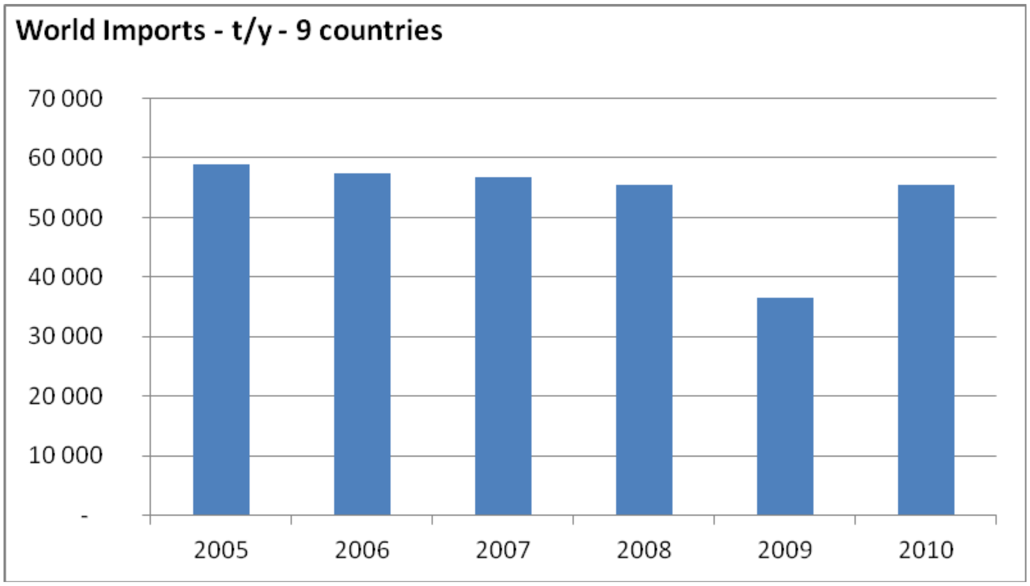


Table 19-1-2 shows the average quantities of imported LIC for the 9 most important importers, and the data reported for 2010.

Table 19-1-2 Average Annual and 2010 LIC Imports 2005-2010 (t/y).

	t/y		**2010 t**	**Tendency**
USA	14 247	27%	9 495	Decrease
Japan	12 220	23%	14 029	Increase
Germany	7 204	13%	6 485	Stable
China	5 317	10%	6 398	Increase
Korea	5 020	9%	11 000	Increase
Belgium	4 913	9%	4 185	Stable
Canada	1 723	3%	1 459	Stable
Italy	1 511	3%	1 123	Stable
France	1 253	2%	1 225	Stable
Total - 9 countries	**53 408**	**100%**	**55 399**	

19.1.3 Future Prices Forecasts – Lithium Carbonate

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[7]) 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.

7 http://www.roskill.com/reports/minor-and-light-metals/lithium

Its main author also made a presentation, in early 2010, in a congress on Lithium Supply and Markets[8]. The price forecast in his 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[9]. This spodumene mine has recently begun commercial production to feed a 17,000 t/y LIC plant in China. This plant will begin LIC 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 19-1-3 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 presented in sections 19.1.2.1 and 19.1.2.3 above.

[8] http://www.roskill.com/media/Roskill%20LSM10.pdf

[9] http://www.galaxyresources.com.au/

Table 19-1-3 Compilation of Price Forecasts for Lithium Carbonate.

Preliminary Price Forecast - Lithium Carbonate
Critical Elements Corp. - Rose Lithium Project

Source	Project	Price - Li_2CO_3 - $US/t						Notes
		2010	**2011**	**2012**	**2013**	**2014**	**2015**	**Notes**
Forecasts								
0	Roskill Information Services	6 000 $	6 250 $	6 500 $	7 000 $			Values read from figure on slide 27/28 of Roskill's presentation
	January 2010							
1	Galaxy Resources Limited	5500-6000 $						Price is reported as higher for better grades (+ US$3k/t for 99.9% pure)
	November 2010							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	6 000 $	6 120 $	6 242 $	6 367 $			
	December 2010							
3	Canada Lithium Corp.	5 875 $						
	February 2011							
4	Galaxy Resources Limited	6 000 $	6 120 $	6 242 $	6 367 $	6 495 $	6 624 $	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.
	February 2011							*Note: Parity between $A and $US has been assumed*
5	Galaxy Resources Limited	6 000 $	6 000 $	6 367 $	6 622 $	6 887 $	7 162 $	4% growth rate assumed
	October 2010							
6	Galaxy Resources Limited	6 120 $	6 242 $	6 367 $	6 495 $	6 624 $	6 757 $	2% growth rate assumed
	April 2010							
7	Galaxy Resources Limited	6 120 $	6 242 $	6 367 $	6 495 $	6 624 $	6 757 $	2% growth rate assumed
	January & May 2011							
8	General market review	5 181 $					6 757 $	Lithium carbonate (USA large contracts) is currently at US$5,070-US$5,291/t.
	February 2011							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	6 160 $	6 160 $	6 160 $	6 160 $	6 160 $	6 160 $	Slide 15/22
	May 2011							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	5 181 $	**6 000 $**	6 160 $	6 160 $	6 160 $	6 160 $	
	Average	**5 940 $**	**6 162 $**	**6 321 $**	**6 501 $**	**6 558 $**	**6 703 $**	
	Maximum	6 160 $	**6 250 $**	6 500 $	7 000 $	6 887 $	7 162 $	
	Standard Deviation	298 $	92 $	113 $	263 $	264 $	323 $	
Recent prices		2005	2006	2007	2008	2009	2010	
10	US Imports - Lithium Carbonate - $US/t	1 455 $	2 315 $	3 466 $	4 429 $	4 530 $	4 524 $	
	Tons	*18 950*	*16 500*	*14 650*	*15 425*	*9 250*	*9 495*	
11	US Exports - Lithium Carbonate - $US/t	3 308 $	3 290 $	4 542 $	5 639 $	6 834 $	5 300 $	
	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	*55 399*	*Missing 2010 Korea data estimated at 11 000 t worth 49,5 M$*
	Selection - 9 countries - M$US/year *	133 $	198 $	277 $	301 $	202 $	*265 $*	*Missing 2010 Korea data estimated at 11 000 t worth 49,5 M$*
	Selection - 9 countries - $US/t *	2 261 $	3 448 $	4 882 $	5 433 $	5 538 $	*4 783 $*	
13	World Exports - Lithium Carbonate							
	Selection - 6 countries - Tons/year **	63 780	62 234	63 904	65 295	39 919	64 049	
	Selection - 6 countries - M$US/year **	157 $	216 $	306 $	348 $	211 $	290 $	
	Selection - 6 countries - $US/t **	2 458 $	3 474 $	4 791 $	5 324 $	5 297 $	4 528 $	

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

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

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%20Results.pdf
TECHNICAL REPORT ON THE SALAR DE OLAROZ 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

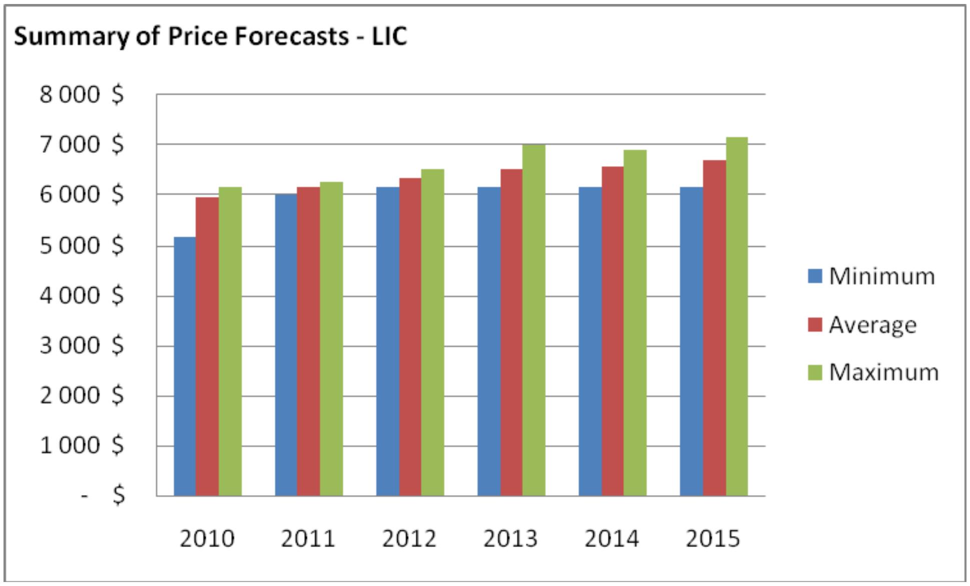
12 * Selection 9 countries (World Imports)
Japan, USA, Germany, Korea, Belgium, China, France, Canada and Italy
Represent about 95% of world imports
Compiled from United Nations Comtrade data for selected countries - 2010 data about 80% complete at time of compilation

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 100% complete for selected countries at time of compilation

Available data suggest 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 19-1-10 illustrates the values predicted by the sources consulted for the period 2010 to 2015.

Figure 19-1-10 Summary of Price Forecasts (US$/t – 2010 to 2015).



Source: Table 19-1-3.

19.1.4 Conclusion – Lithium Carbonate Prices

Recent prices for lithium carbonates, before the 2008-2009 crisis, showed a gradual increase to more than US$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 increasing towards the US$6000/t level in 2009-2010:

Source	2009-2010 prices (US$/t)	Section
Chilean exports	$5 000	19.1.2.2
US imports	$4 500	19.1.2.3
US exports	$6 000	19.1.2.3
World exports	$5 500 - 6 000	19.1.2.4
World imports	$5 500	19.1.2.4

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).

Based on this preliminary market review for price of lithium carbonate, GENIVAR recommends that a price of US$6000/t is considered as a base case for the financial analysis of the project.

19.1.5 Market Sales Development – Lithium Carbonate

19.1.5.1 Vehicle Batteries Fuelling Market Developments

Lithium carbonate is currently produced by a small number of producers in the USA, Chile and Argentina, the main sources from raw materials (mineral concentrates or brines).

Demand and supply are tightly balanced today, with the bulk of production coming from SQM in Chile (some 40,000 t/y of lithium carbonate equivalent), Talison in Australia (about 30,000 t/y as spodumene concentrates), Chemetall (± 30,000 t/y) in Chile and FMC Lithium in Argentina (10,000 – 15,000 t/y). Chemetall also produces lithium carbonate and compounds in the USA (Nevada), but production figures are not available.

China has a large number of producers, mostly from spodumene concentrates imported from Australia, a major world producer. Current lithium carbonate production capacity in China (from minerals) was estimated by the US Geological Survey to be 41,000 t/y; however, 2009 production was estimated to be about 15,000 t, well below capacity. Additional lithium carbonate was imported into China from Argentina and Chile to supply batteries manufacturers (Table 19-1-3).

The driving force behind both new project developments and expansions at existing producers is the expected growth in demand for lithium from the battery sector. The reason for increased lithium use in batteries is its chemical reactivity. Lithium can carry large amounts of energy and store much power in a small and lightweight battery pack, more than batteries based on other more common materials like lead, nickel and/or cadmium.

Li batteries are not only gaining favour due to low heavy metal content, but also because of longer life, fast recharge and high power/weight ratios compared to traditional lead-acid, nickel-cadmium (NiCad) and nickel hydride (NiMH) rechargeable units.

Until recently, most of the demand for lithium has come from small-scale battery applications. However, the predicted significant increase in demand will come from the development of electric and hybrid cars. These cars will require sufficient power-storage capacity to make the concept an attractive alternative to conventional power sources and reduce the consumption of fossil fuels.

Current market development for vehicle batteries is considering various combinations: hybrids vehicles (HV), plug-in hybrids (PHV) and fully electrical vehicles (EV). Most car manufacturers are developing new models that fall into one or more of these categories.

The amount of lithium needed for batteries will increase with greater reliance on full electric power. As an order of magnitude, lithium carbonate equivalent (LCE) requirements can be of the order of 2 kg (HV), 15 kg (PHV) and 22 kg (EV) per vehicle, respectively. Examples are the recently introduced:

- Chevy Volt PHV: 16 kWh battery, using about 10 kg LCE;
- Nissan EV Leaf: 24 kWh battery, about 21 kg LCE.

There is also a significant development in the use of lithium batteries in so-called “e-bikes”, especially in Asia. Electric bicycles/scooters (e-bikes) are some form of bicycles with an electric motor used to power the vehicle. They are particularly common in China, with an estimated fleet of 120 – 140 million units in 2010, and annual sales approaching 30 M units/year. Sales are expanding in several countries.

19.1.5.2 Political Incentives - Development of Electric Vehicles

In addition to car manufacturers developing some forms of hybrid or EV, there are political incentives to favour the development of such vehicles. Some are based on environmental reasons (decrease of greenhouse gases emissions) and/or on an objective to decrease dependency on fossil fuels. Countries with some form of incentive include Canada, more than 15 countries in Europe, Japan, and the USA[10].

In the USA, the American Recovery and Reinvestment Act of 2009 (Recovery Act) is an economic stimulus package signed into law on February 17, 2009, by President Barack Obama. Its primary objective is to save and create jobs and also to invest in infrastructure, education, health, and “green” energy.

10 http://en.wikipedia.org/wiki/Government_incentives_for_plug-in_electric_vehicles

One component of the Act is an investment of US$2.4 billion to help develop a domestic battery and electric vehicle industries. The Li-ion battery supply chain alone (material manufacture- recycle) received some US$940M in grant money. In his 2011 State of the Union address, President Obama also called for putting one million electric vehicles on the road by 2015, while putting forward a goal aimed at building US leadership in technologies that reduce dependence on oil.

Electric vehicles have been designated as a key pathway for reducing petroleum dependence, enhancing environmental stewardship and promoting transportation sustainability, while creating jobs and economic growth.

To achieve these benefits and reach the goal, the US Government has proposed a new effort that supports advanced technology vehicle adoption through improvements to tax credits in current law, investments in R&D and competitive programs to encourage communities to invest in infrastructure supporting these vehicles.

Loans and grants have been provided to match private investments to build electric vehicle factories and support other that produce batteries, motors, and other EV components. A short term objective was to build the capacity to produce 50,000 EV batteries/year by the end of 2011 and 500,000 EV batteries/year by December 2014.

Part of the US strategy is aimed at resulting in a jump-start of the US industry for auto batteries, which is currently dominated by Asian suppliers.

19.1.5.3 Projected Demand for Lithium

Several sources have presented forecasts for the future demand of lithium. Some recent ones were presented at the 3rd Lithium Supply & Markets (LSM'11) congress organized by Metal Bulletin/Industrial Minerals in Toronto, in January 2011[11]. Others were prepared as presentations by various parties, including producers and developers of projects for lithium minerals/compounds.

Table 19-1-4 summarizes recent forecasts from 9 sources until year 2020, including estimates of demand in the 2010-2011 period.

11 http://www.metalbulletin.com/EventDetails/0/3691/Event.html?eventcookielogin=Login&cookielogin=1

Table 19-1-4 Lithium Demand Forecasts.

Reporter	2010-2011 t/y LCE	2013 t/y LCE	2015 t/y LCE	2020 t/y LCE	Source	
Roskill	113 000	148 000	135 000 - 200 000	220 000 - 300 000	Roskill	
SignumBox	103 000	125 000	150 000	252 500	FMC Lithium 1	
SignumBox	106 000		133 000	187 000	SignumBox	
FMC Lithium	90 000	110 000	127 000	265 000	FMC Lithium 2	
Talison Lithium	103 000			252 500	Talison Lithium 1	
Talison Lithium	115 000	180 000 - 200 000	225 000 - 275 000	375 000 - 500 000	Talison Lithium 2	
Chemetall	120 000		155 000 - 190 000	218 000 - 326 000	Chemetall	
TRU Group	75 000	100 000	125 000	222 500	TRU Group	
Metal Bulletin				190 000 - 380 000	Metal Bulletin	
Byron Capital Markets	105 000			282 841	Byron	
					Increase	
					10 years	Annual
Minimum	75 000	100 000	125 000	187 000	149,3%	9,57%
Maximum	120 000	200 000	275 000	500 000	316,7%	15,34%
Average	**103 000**	**135 000**	**162 000**	**270 000**	**162,1%**	**10,12%**

LCE: Lithium carbonate equivalent

Sources: Table 19-1-4

Roskill

- The lithium market: - 2009 review and outlook Robert Baylis Manager – Industrial Minerals Research Roskill Information Services Ltd.
  Presentation at: Lithium Supply & Markets - Las Vegas, January 2010
  http://www.slideshare.net/robertbaylis/the-lithium-market-2010-review-and-outlook
- Orocobre - The Lithium Market
  http://www.orocobre.com/Lithium_Market.htm
- Orocobre - The Next Low Cost Lithium Producer
  http://www.orocobre.com.au/PDF/ASX_20Oct10_Company%20Presentation.pdf

SignumBox

Why securing a battery-grade lithium source is so important?
Presentation at Lithium Supply & Markets 2011
Toronto January 2011

FMC Lithium 1

Lithium Growth in the Energy Storage Market
Presentation Green Metals 2011
http://www.fmclithium.com/Portals/FMCLithiumEnergy/Content/Docs/FMC%20Presentation%20Green%20Metals%20Conference%20Apr11.pdf

FMC Lithium 2

FMC's Commitment to Meet the Changing Demands of the Global Lithium Market
Presentation at Lithium Supply & Markets 2011
Toronto January 2011

Table 19-1-4 Lithium Demand Forecasts (sources continued).

Talison Lithium 1
Talison Lithium Presentation at 2011 Electric Metals Conference - April 12 2011
http://www.talisonlithium.com/media/16980/talison%20lithium%20-%20byron%20electric%20metals%20conference%202011.pdf

Talison Lithium 2
Talison Lithium Investor Presentation October 2011
http://www.talisonlithium.com/media/17813/talison%20lithium%20investor%20presentation_oct%202011.pdf

Chemetall
Meeting tomorrow's demand
Presentation at Lithium Supply & Markets 2011
Toronto January 2011

TRU Group
Shocking Future Battering the Lithium Industry through 2020
Presentation at Lithium Supply & Markets 2011
Toronto January 2011

Metal Bulletin
Metal Bulletin/Industrial Minerals
Lithium Reality Check
http://www.indmin.com/Article/2797553/Lithium-reality-check.html
http://www.byroncapitalmarkets.com/wp-content/uploads/2011/04/IM-Lithium-feature.pdf

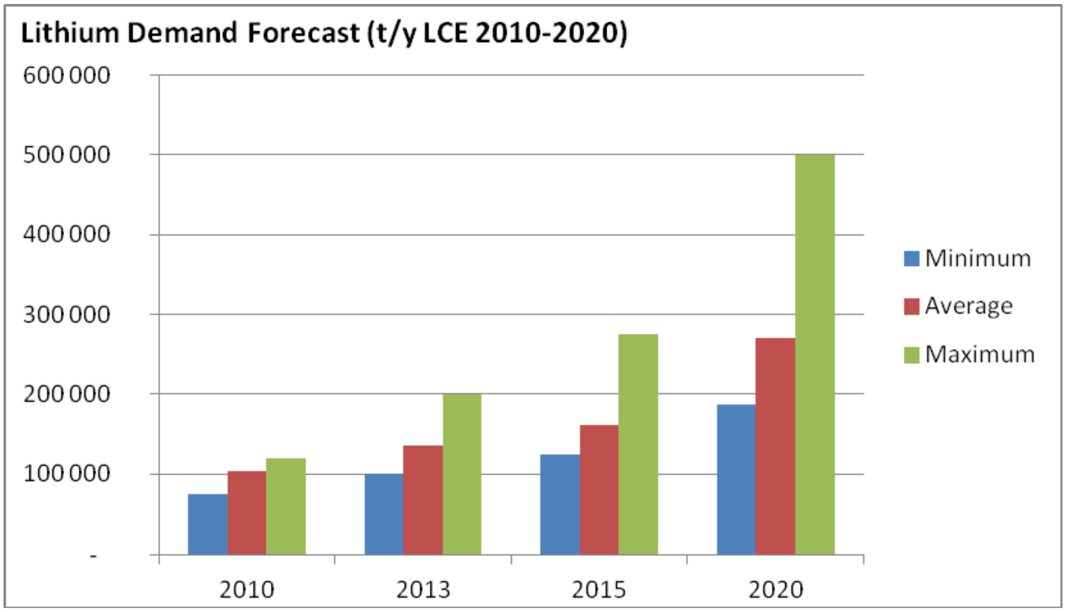
Byron Capital Markets
More Than Batteries …lithium use in the future
Presentation at Lithium Supply & Markets 2011
Toronto January 2011
Details of Byron's forecast are presented in Table 19-1-5

Estimation of current demand, in terms of lithium carbonate equivalent, represents an average of about 100,000 t/y. It is forecast to increase to an average of 270,000 t/y in 2020, with minimum and maximum estimates between 187,000 and 500,000 t/y respectively (Figure 19-1-11). The average demand projection would require new world production of some 170,000 t/y in terms of lithium carbonate production, in addition to the current annual production of about 100,000. This represents an annual compound increase of more than 10%, much higher than historic growth rates.

Byron Capital Markets, responsible for the last forecast in Table 19-1-4, has presented details of their projections, by main application, for lithium demand. This forecast, presented at the 3rd Lithium Supply & Markets (LSM'11) last January, is reproduced in Table 19-1-5 for the period 2011 – 2020.

Out of an additional demand of about 171,000 t/y, more than half (90,000 t) of this increase is expected to be related to batteries applications, with most (62,000 t) for lithium batteries for use in transport uses.

Figure 19-1-11 Lithium Demand Forecasts (t/y LCE 2010-2020).



Source: Table 19-1-4

Table 19-1-5 Demand Forecast - Byron Capital Markets.

					Delta 2020-2011		
	2011	**2014**	**2017**	**2020**	**Tons**	**% 9 years**	**%/y**
Ceramics/Glass	28 915	33 154	38 380	44 430	15 515	53,7%	4,89%
Small Batteries *	**28 168**	**35 484**	**44 700**	**56 309**	**28 141**	**99,9%**	**8,00%**
Greases	12 092	13 602	15 300	17 211	5 119	42,3%	4,00%
Aluminum	6 233	7 012	7 887	8 872	2 639	42,3%	4,00%
Air Conditioning **	5 783	6 506	7 318	8 232	2 449	42,3%	4,00%
Casting	7 448	8 378	9 424	10 601	3 153	42,3%	4,00%
Others	20 779	23 373	26 292	29 575	8 796	42,3%	4,00%
Solar (thermal)	-	4 500	8 748	11 020	11 020		16,10%
Nuclear	-	-	175	22 718	22 718		406,34%
Grid Storage ***	10	2 200	8 400	9 724	9 714	97140,0%	114,77%
Batteries - Transport ****	**2 180**	**15 900**	**41 700**	**64 150**	**61 970**	**2842,7%**	**45,61%**
Total	111 608	150 109	208 324	282 842	171 234	153,4%	4,76%
Batteries	**30 348**	**51 384**	**86 400**	**120 459**	**90 111**	**296,9%**	**7,14%**
	27,19%	**34,23%**	**41,47%**	**42,59%**	**53%**		

Units: tons of carbonate de lithium equivalent

* Batteries for small electronics appliances (consumer products)

** Air drying in air conditioning and refrigeration units

*** Developing market for high power batteries in power grids (especially thermal power, solar and wind energy)

**** Hybrids, plug-in hybrids, electric vehicles, e-bikes

Source Lithium Growth – More than Just Batteries; Jonathan Lee and Dr. Jon Hykawy
Byron Capital Markets - Presentation at Lithium Supply & Markets 2011
Toronto January 2011 - Slide 21/23

Other significant developments (Table 19-1-5) are expected in nuclear applications and large power batteries for grid use, for which the required material is typically lithium carbonate.

Some of lithium's properties (low melting point, very high thermal expansion coefficient, and the ability to absorb neutrons) are the basis of interesting concepts that could lead to the increase of demand by the nuclear industry.

Another significant development is forecast in glass and ceramics production, where traditional use is mostly for the mineral forms (concentrates), although lithium carbonate can also be used.

Data from Table 19-1-5 has been reinterpreted as distribution of applications for lithium, with additional data by Chemetall for 2010. The data shows the shift of use towards the production of batteries, which could account for more than 40% of total use by 2020.

Table 19-1-6 Demand Forecasts – Distribution of Uses.

	Byron Capital Markets		**Chemetall**
	2011	**2020**	**2010**
Ceramics/Glass	25,9%	15,71%	31,0%
Small Batteries *	**25,2%**	**19,91%**	
Greases	10,8%	6,09%	9,0%
Aluminum	5,6%	3,14%	6,0%
Air Conditioning **	5,2%	2,91%	6,0%
Casting	6,7%	3,75%	4,0%
Others	18,6%	10,46%	21,0%
Solar (thermal)	0,0%	3,90%	0,0%
Nuclear	0,0%	8,03%	0,0%
Grid Storage ***	0,0%	3,44%	
Batteries - Transport ****	**2,0%**	**22,68%**	
Total	100,0%	100,00%	100,0%
Batteries	**27,2%**	**42,59%**	**23,0%**

19.1.5.4 Need for New Lithium Production

Expected demand for lithium is expected to grow rapidly from about 100,000 t/y (LCE) to more than 250,000 t/y in the next 20 years. Depending on the actual success of hybrid/electric car sales, some sources suggest a growth to more than 300,000 t/y and up to 500,000 t/y.

The production of some selected electrode materials can use other forms like lithium hydroxide, but lithium carbonate is by far the main form of lithium compound required for battery applications.

Supplying such additional amounts of lithium carbonate/compounds will require expansions and construction of new mining facilities, in a context where there are currently a limited number of producers.

APPENDIX E

Load and Haul Operating Cost Estimate

Appendix E

MACHINE OWNING & OPERATING COST

Hewitt CAT

Customer:

Basic Hypothesis		Description						
Interest Rate	8.00%	Machine	CAMION OHT	CAMION OHT	CHARGEUSE	CHARGEUSE	NIVELEUSE	TTT
Insurance Cost	1.00%	Model	777F	785D	IT62H	994F	16M	D9T
Fuel Cost $CDN	$0.90	Engine	C32	3512B	C7	3516B	C13	C18
Exchange (CAN-US):	1.00	Power Net (HP)	938	1348	211	1463	297	410
Include Labour:	N	Operating Weight (kg)	163000	250000	19000	194000	26000	48000
		Rated Payload (Mton)	90	134	6.4	35		
Application		Application severity (A-B-C)	B-C	B-C	B	C	B	B-C
A- Light		Estimated ownership Period (Year)	10	10	5	15	10	10
B- Medium		Estimated usage (hour/year)	6,500	6,500	3,000	4,333	3,000	3,000
C- Severe		Ownership usage (Total hour)	65,000	65,000	15,000	65,000	30,000	30,000
		Residual Value	5%	5%	5%	5%	5%	5%
		Date	jan 2011	jan 2011	jan 2011	jan 2011	jan 2011	jan 2011
CAPEX								
Owning Cost	Cost with standard attachment	$Can	1,400,000 $ X	2,500,000 $ X	250,000 $ X	4,000,000 $ X	810,000 $ X	1,000,000 $ X
	Transport	$Can	75,000 $ X	110,000 $ X	7,000 $ X	320,000 $ X	12,000 $ X	22,000 $ X
	Assembly	$Can	24,000 $ X	34,125 $ X				
	Tires cost (all)	$Can	81,900 $	146,802 $	15,400 $	385,019 $	23,064 $	0 $
	Cost less tires	$Can	1,417,100 $	2,497,323 $	241,600 $	3,934,981 $	798,936 $	1,022,000 $
	Residual Value at the end ($)	$Can	70,855 $	124,866 $	12,080 $	196,749 $	39,947 $	51,100 $
	Ownership cost	$Can	1,346,245 $	2,372,457 $	229,520 $	3,738,232 $	758,989 $	970,900 $
	Cost per Hour	$Can/hr	20.71 $	36.50 $	15.30 $	57.51 $	25.30 $	32.36 $
Interest Cost	Interest Rate		8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
	Interest Cost per hour	$Can/hr	9.48 $	16.92 $	4.00 $	39.38 $	11.88 $	14.67 $
Insurance Cost	Insurance rate		1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
	Insurance Cost per hour	$Can/hr	1.18 $	2.12 $	0.50 $	4.92 $	1.49 $	1.83 $
Rental Cost	Rental Rate per month		0 $	0 $	0 $	0 $	0 $	0 $
	Included hours per month		1	1	1	1	1	1
	Rental cost per hour	$Can/hr	- $	- $	- $	- $	- $	- $
TOTAL CAPEX		**$Can/hre**	**31.37 $**	**55.54 $**	**19.80 $**	**101.82 $**	**38.66 $**	**48.86 $**
OPEX								
Fuel	Fuel Cost ($/l)	$Can	0.90 $	0.90 $	0.90 $	0.90 $	0.90 $	0.90 $
	Work Load		Low/Medium/High	Low/Medium/High	Low/Medium/High	Low/Medium/High	Low/Medium/High	Low/Medium/High
	Consumption (lit/hr)	Low	46	67	10.7	105	24.8	36.7
		Medium	65	95	13.6 X	141.5 X	33.5 X	49.8 X
		High	84 X	122 X	17.1	178.5 X	42.3	63 X
	Coût horaire	$Can/hr	75.60 $	109.80 $	12.24 $	144.00 $	30.15 $	50.76 $
Preventive	Maintenance Frequency	(hrs)	500	500	500	500	500	500
Maintenance	PM period considered		6000	2000	2000	2000	2000	2000
(PM)	PM Cost no Labour per period		37,081.00 $ X	19,336.00 $ X	4,456.00 $ X	36,355.00 $ X	4,905.00 $ X	6,322.00 $ X
	PM Cost with Labour per period		54,429.00 $	25,974.00 $	8,075.00 $	45,528.00 $	8,374.00 $	10,240.00 $
	Consumable Items (grease-wiper-bulb-etc)		1.55 $	2.42 $	0.56 $	4.54 $	0.61 $	0.79 $
	Coût horaire	$Can/hre	7.73 $	12.09 $	2.79 $	22.72 $	3.07 $	3.95 $
Tire	Number		6	6	4	4	6	
	Designation		2700 R 49 XDTA4**	3300 R 51 XDTA4**	23.5R25 XHA	55/80 R 57 XMINE D2 **	23.5 R 25 XHA2 *	
	Tire Replacement Cost	$Can	13,650 $ X	24,467 $ X	3,850 $ X	96,255 $ X	3,844 $ X	0 $
	Tire life		4000	6000	4000	6000	4000	1
	Maintenance Cost	40000	2.05$	3.67$	0.39$	9.63$	0.58$	0.00$
	Cost per hour	$Can/hr	22.52$	28.14$	4.24$	73.80$	6.34$	0.00$
Undercarriage	Impact							0.3
Wear Cost	Abrasiveness							0.2
	Z factor							0.5
	Total field factor from PHB		0	0	0	0	0	1
	Base factor from PHB	US$						10.90 $
	Exchange rate		1.00	1.00	1.00	1.00	1.00	1.00
	Cost per hour no Labour	$Can/hr	- $	- $	- $	- $	- $	7.63 $ X
	Cost per hour with 30% Labour	$Can/hr	- $	- $	- $	- $	- $	- $
REPAIR RESERVE:	Multiplication factor (Abuses and life)		2.00	2.00	1.00	2.00	2.00	2.00
	Cost/hr from PHB 31	US$	18.00 $	22.00 $	8.00 $	28.00 $	11.00 $	14.00 $
Source 1:	Labour Fraction include above		45%	40%	40%	25%	35%	30%
PHB 31 (2001)	Correction factor from Year 2001	1.34	1.34	1.34	1.34	1.34	1.34	1.34
	Exchange Rate		1.00	1.00	1.00	1.00	1.00	1.00
	RR no Labour	$Can/hr	26.53	35.38	6.43	56.28	19.16	26.26
	RR with Labour	$Can/hr	48.24	58.96	10.72	75.04	29.48	37.52
Source 2:	Builder Hour Cost no Labour	$Can/hr	33.78 $ X	45.19 $ X	14.24 $ X	49.74 $ X	21.30 $ X	31.27 $ X
Builder Files	Builder Hour Cost with Labour	$Can/hr	0.00 $	0.00 $	0.00 $	0.00 $	0.00 $	0.00 $
	Period for Builder Cost Analysis		60000	60000	15000	30000	30000	30000
	Work Intensity ; Low/Medium/High	%-%-%	10/80/10	10/80/10	40/40/20	20/40/40	20/60/20	20/40/40
	Cost per Hour Repair Reserve	$Can/hr	33.78 $	45.19 $	7.12 $	49.74 $	21.30 $	31.27 $
Specific Wear	GET ABRASION LOW	Can$			1.08 $	32.80 $	18.31 $	5.06 $
	No Labour MEDIUM				1.44 $ X	43.73 $	24.42 $	6.75 $
	HIGH				1.80 $	54.67 $ X	30.52 $ X	8.44 $ X
	GET LOW	Can$			1.55 $	46.86 $	26.16 $	7.23 $
	With Labour MEDIUM				2.06 $	62.48 $	34.88 $	9.64 $
	HIGH				2.58 $	78.09 $	43.60 $	12.05 $
	Truck Body no Labour	Can$	8.21 $ X	11.45 $ X				
	Truck Body with Labour	Can$	8.60 $	12.01 $				
	Total	$Can/hr	8.21 $	11.45 $	1.44 $	54.67 $	30.52 $	8.44 $
TOTAL OPEX LESS FUEL		***$Can/hr***	**72.24 $**	**96.86 $**	**15.58 $**	**200.92 $**	**61.23 $**	**51.29 $**
TOTAL OPEX		***$Can/hr***	**147.84 $**	**206.66 $**	**27.82 $**	**344.92 $**	**91.38 $**	**102.05 $**
TOTAL CAPEX + OPEX	(NO OPERATOR)	***$Can/hr***	**179.21 $**	**262.20 $**	**47.62 $**	**446.74 $**	**130.04 $**	**150.91 $**

1- Prices are budgetary and not valid for sales
2-Prices are based on the specified exchange rate and could vary
3-Only basics accessories, attachements and warranties is included
4-Prices are subject to by-annual increase from the manufacturer
5- FOB Customer
6-Only valid inside Hewitt terrritory

MACHINE OWNING & OPERATING COST

Hewitt CAT

Customer:

Basic Hypothesis		Description	FS		FS	
Interest Rate	8.00%	Machine	FS		FS	
Insurance Cost	1.00%	Model	RH120		RH170	
Fuel Cost $CDN	$0.90	Engine	2X C27		2X C32	
Exchange (CAN-US):	1.00	Power Net (HP)	1530		2032	
Include Labour:	N	Operating Weight (kg)	284000		395000	
		Rated Payload (Mton)	27		33	
Application		Application severity (A-B-C)	B-C		B-C	
A- Light		Estimated ownership Period (Year)	10		10	
B- Medium		Estimated usage (hour/year)	6,500		6,500	
C- Severe		Ownership usage (Total hour)	65,000		65,000	
		Residual Value	5%		5%	
		Date	jan 2011		jan 2011	
CAPEX						
Owning Cost	Cost with standard attachment	$Can	5,000,000 $	X	6,800,000 $	X
	Transport	$Can	200,000 $	X	300,000 $	X
	Assembly	$Can	150,000 $	X	200,000 $	X
	Tires cost (all)	$Can	0 $		0 $	
	Cost less tires	$Can	5,350,000 $		7,300,000 $	
	Residual Value at the end ($)	$Can	267,500 $		365,000 $	
	Ownership cost	$Can	5,082,500 $		6,935,000 $	
	Cost per Hour	$Can/hr	78.19 $		106.69 $	
Interest Cost	Interest Rate		8.00%		8.00%	
	Interest Cost per hour	$Can/hr	33.85 $		46.03 $	
Insurance Cost	Insurance rate		1.0%		1.0%	
	Insurance Cost per hour	$Can/hr	4.23 $		5.75 $	
Rental Cost	Rental Rate per month		0 $		0 $	
	Included hours per month		1		1	
	Rental cost per hour	$Can/hr	- $		- $	
TOTAL CAPEX		**$Can/hre**	**116.27 $**		**158.48 $**	
OPEX						
Fuel	Fuel Cost ($/l)	$Can	0.90 $		0.90 $	
	Work Load		Low/Medium/High		Low/Medium/High	
	Consumption (lit/hr)	Low	133		193	
		Medium	175	X	254	X
		High	213	X	309	X
	Coût horaire	$Can/hr	174.60 $		253.35 $	
Preventive Maintenance (PM)	Maintenance Frequency	(hrs)	250		250	
	PM period considered		60000		5000	
	PM Cost no Labour per period		1,517,133.00 $	X	209,436.00 $	X
	PM Cost with Labour per period				260,753.00 $	
	Consumable Items (grease-wiper-bulb-etc)		6.32 $		10.47 $	
	Coût horaire	$Can/hre	31.61 $		52.36 $	
Tire	Number					
	Designation					
	Tire Replacement Cost	$Can				
	Tire life					
	Maintenance Cost	40000	0.00$		0.00$	
	Cost per hour	$Can/hr	0.00$		0.00$	
Undercarriage Wear Cost	Impact					
	Abrasiveness					
	Z factor					
	Total field factor from PHB		0		0	
	Base factor from PHB	US$				
	Exchange rate		1.00		1.00	
	Cost per hour no Labour	$Can/hr	- $		- $	
	Cost per hour with 30% Labour	$Can/hr	- $		- $	
REPAIR RESERVE:	Multiplication factor (Abuses and life)		2.00		2.00	
Source 1: PHB 31 (2001)	Cost/hr from PHB 31	US$				
	Labour Fraction include above					
	Correction factor from Year 2001	1.34				
	Exchange Rate		1.00		1.00	
	RR no Labour	$Can/hr	0.00		0.00	
	RR with Labour	$Can/hr	0.00		0.00	
Source 2: Builder Files	Builder Hour Cost no Labour	$Can/hr	227.55 $	X	293.93 $	X
	Builder Hour Cost with Labour	$Can/hr	0.00 $		0.00 $	
	Period for Builder Cost Analysis		60000		60000	
	Work Intensity ; Low/Medium/High	%-%-%	10/30/60		10/30/60	
	Cost per Hour Repair Reserve	$Can/hr	227.55 $		293.93 $	
Specific Wear	GET ABRASION LOW	Can$	53.42 $		75.23 $	
	No Labour MEDIUM		71.23 $		100.30 $	
	HIGH		89.04 $	X	125.38 $	X
	GET LOW	Can$	76.32 $		107.47 $	
	With Labour MEDIUM		101.76 $		143.29 $	
	HIGH		127.20 $		179.11 $	
	Truck Body no Labour	Can$				
	Truck Body with Labour	Can$				
	Total	$Can/hr	89.04 $		125.38 $	
TOTAL OPEX LESS FUEL		***$Can/hr***	**348.19 $**		**471.67 $**	
TOTAL OPEX		***$Can/hr***	**522.79 $**		**725.02 $**	
TOTAL CAPEX + OPEX	(NO OPERATOR)	***$Can/hr***	**639.06 $**		**883.49 $**	

1- Prices are budgetary and not valid for sales
2-Prices are based on the specified exchange rate and could vary
3-Only basics accessories, attachements and warranties is included
4-Prices are subject to by-annual increase from the manufacturer
5- FOB Customer
6-Only valid inside Hewitt terrritory

Project:	Rose Lithium	July 2011
Par	Yves Laquerre	

FPC FLEET AND COST ANALYSIS SUMMARY

2014 – Preproduction

SITES	Fleet	MATERIAL	Haul (m)	Reserves kton	Planned Qty (kt)	Planned Est. Day/y	FPC Result Result Day/y	mt/hr	785F	RH170	$/ton	Fuel mt/lit	Fuel lit/mt
ORE	A	Ore											0.00
	B												0.00
	C												0.00
WASTE	A	Waste											0.00
	B												0.00
	C												0.00
	A												0.00
	B												0.00
	C												0.00
	A												0.00
	B												0.00
	C												0.00
	A												0.00
	B												0.00
	C												0.00
	A												0.00
	B												0.00
	C												0.00
	A												0.00
	B												0.00
	C												0.00
	A												0.00
	B												0.00
	C												0.00

2015 – Year 1

Sites / Fleet	Planned Qty (kt)	Planned Est. Day/y	FPC Result Result Day/y	mt/hr	785F	RH170	$/ton	Fuel mt/lit	Fuel lit/mt
ORE A	1,093	39	29	2,094	3	0.92	0.54	9.53	0.10
ORE B									0.00
ORE C									0.00
WASTE A	9,148	326	254	2,001	3	0.82	0.59	7.91	0.13
WASTE B									0.00
WASTE C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00

2016 – Year 2

Sites / Fleet	Planned Qty (kt)	Planned Est. Day/y	FPC Result Result Day/y	mt/hr	785F	RH170	$/ton	Fuel mt/lit	Fuel lit/mt
ORE A	863	27	24	1,998	3	0.82	0.59	7.92	0.13
ORE B									0.00
ORE C									0.00
WASTE A	10,658	338	320	1,850	3	0.74	0.64	6.73	0.15
WASTE B									0.00
WASTE C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00

2017 – Year 3

Sites / Fleet	Planned Qty (kt)	Planned Est. Day/y	FPC Result Result Day/y	mt/hr	785F	RH170	$/ton	Fuel mt/lit	Fuel lit/mt
ORE A	1,946	55	46	2,350	4	1.06	0.57	7.30	0.14
ORE B									0.00
ORE C									0.00
WASTE A	10,855	310	266	2,267	4	0.96	0.60	6.36	0.16
WASTE B									0.00
WASTE C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00

2018 – Year 4

Sites / Fleet	Planned Qty (kt)	Planned Est. Day/y	FPC Result Result Day/y	mt/hr	785F	RH170	$/ton	Fuel mt/lit	Fuel lit/mt	Plan… Qty (kt)
ORE A	2,351	62	59	2,214	4	0.97	0.60	6.44	0.16	
ORE B									0.00	
ORE C									0.00	
WASTE A	11,474	303	299	2,132	4	0.88	0.65	5.66	0.18	
WASTE B									0.00	
WASTE C									0.00	
A									0.00	
B									0.00	
C									0.00	
A									0.00	
B									0.00	
C									0.00	
A									0.00	
B									0.00	
C									0.00	
A									0.00	
B									0.00	
C									0.00	
A									0.00	
B									0.00	
C									0.00	
A									0.00	
B									0.00	
C									0.00	

Hours Operation/Day		Day/Year	
Ore	18	Fleet A	365
Waste	18	Fleet B	365
Overburden	18	Fleet C	365

General Informations

Same color = Same fleet

Owning and Operating Cost

Truck	785F	$96.86	/hr no fuel
Loader Diesel	RH170	$725.02	/hr with fuel
Fuel Cost /liter		$0.90	

Fleet A

Period	mt / Year	Day / Year	Day / Year	Truck X Day	Nb. Truck	Day Usage	Nb. Loader	Truck KiloLit	Fuel 000 $	/year	/mt
Preproduction	0	0	0	0	2	0	0	0	0	$0 /year	$0.00 /mt
Year 1	10,241	365	283	849	3	283	0.8307	1271.2	1,144	$5,987,540 /year	$0.58 /mt
Year 2	11,521	365	344	1032	3	344	0.746	1692.6	1,523	$7,330,290 /year	$0.64 /mt
Year 3	12,801	365	312	1248	4	312	0.9752	1973.3	1,776	$7,622,220 /year	$0.60 /mt
Year 4	13,825	365	358	1432	4	358	0.8953	2392.3	2,153	$8,868,700 /year	$0.64 /mt
	0										

Fleet B

Period	mt / Year	Day / Year	Day / Year	Truck X Day	Nb. Truck	Day Usage	Nb. Loader	Truck KiloLit	Fuel 000 $	/year	/mt
Preproduction	0	0	0	0	0	0	0	0	0	$0 /year	$0.00 /mt
Year 1	0	0	0	0	0	0	0	0	0	$0 /year	$0.00 /mt
Year 2	0	0	0	0	0	0	0	0	0	$0 /year	$0.00 /mt
Year 3	0	0	0	0	0	0	0	0	0	$0 /year	$0.00 /mt
Year 4	0	0	0	0	0	0	0	0	0	$0 /year	$0.00 /mt
	0										

Fleet C

Period	mt / Year	Day / Year	Day / Year	Truck X Day	Nb. Truck	Day Usage	Nb. Loader	Truck KiloLit	Fuel 000 $	/year	/mt
Preproduction	0	0	0	0	0	0	0	0	0	$0 /year	$0.00 /mt
Year 1	0	0	0	0	0	0	0	0	0	$0 /year	$0.00 /mt
Year 2	0	0	0	0	0	0	0	0	0	$0 /year	$0.00 /mt
Year 3	0	0	0	0	0	0	0	0	0	$0 /year	$0.00 /mt
Year 4	0	0	0	0	2	0	0	0	0	$0 /year	$0.00 /mt
	0										

Total Cost Fleet A+B+C

$29,808,750

Total Units

Period	Truck 785F: Truck X Day	Nb. Units	Day Usage	Truck Kilolit	Fuel 000 $	Loader RH170: Units/ year	Nb. Units
Preproduction	0	2	0	0	0	0.0	1
Year 1	849	3	283	1,271	1,144	0.8	1
Year 2	1,032	3	344	1,693	1,523	0.7	1
Year 3	1,248	4	312	1,973	1,776	1.0	1
Year 4	1,432	4	358	2,392	2,153	0.9	1
Tru… / Loa…							

FPC FLEET AND COST ANALYSIS SUMMARY

Project: Rose Lithium — July 2011

Par Yves Laquerre

Hewitt CAT

SITES	Fleet	MATERIAL	Haul (m)	Reserves kton	2019 Year 5 (ned) Est. Day/y	FPC Result Result Day/y	mt/hr	785F	RH170	$/ton	Fuel mt/lit	Fuel lit/mt
ORE	A	Ore										0.00
	B											0.00
	C											0.00
WASTE	A	Waste										0.00
	B											0.00
	C											0.00
	A											0.00
	B											0.00
	C											0.00
	A											0.00
	B											0.00
	C											0.00
	A											0.00
	B											0.00
	C											0.00
	A											0.00
	B											0.00
	C											0.00
	A											0.00
	B											0.00
	C											0.00
	A											0.00
	B											0.00
	C											0.00

2020 — Year 6

Fleet	Planned Qty (kt)	Planned Est. Day/y	FPC Result Result Day/y	mt/hr	785F	RH170	$/ton	Fuel mt/lit	Fuel lit/mt
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00

2021 — Year 7

Fleet	Planned Qty (kt)	Planned Est. Day/y	FPC Result Result Day/y	mt/hr	785F	RH170	$/ton	Fuel mt/lit	Fuel lit/mt
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00

2022 — Year 8

Fleet	Planned Qty (kt)	Planned Est. Day/y	FPC Result Result Day/y	mt/hr	785F	RH170	$/ton	Fuel mt/lit	Fuel lit/mt
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00

2023 — Year 9

Fleet	Planned Qty (kt)	Planned Est. Day/y	FPC Result Result Day/y	mt/hr	785F	RH170	$/ton	Fuel mt/lit	Fuel lit/mt
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00
A									0.00
B									0.00
C									0.00

Fleet	Planned Qty (kt)	Est. Day/y
A		
B		
C		
A		
B		
C		
A		
B		
C		
A		
B		
C		
A		
B		
C		
A		
B		
C		
A		
B		
C		
A		
B		
C		

Hours Operation/Day		Day/Year	
Ore	18	Fleet A	365
Waste	18	Fleet B	365
Overburden	18	Fleet C	365

General Informations

Same color = Same fleet

Owning and Operating Cost

Truck	785F	$96.86 /hr no fuel
Loader Diesel	RH170	$725.02 /hr with fuel
Fuel Cost /liter		$0.90

Fleet A

Year	mt / Year	Day / Year	Day / Year	Truck X Day	Nb. Truck	Day Usage	Nb. Loader	Truck KiloLit	Fuel 000 $	Cost /year	Cost /mt
2019		0	0	0	0	0	0	0	0	$0 /year	$0.00 /mt
2020	0	0	0	0	0	0	0	0	0	$0 /year	$0.00 /mt
2021	0	0	0	0	0	0	0	0	0	$0 /year	$0.00 /mt
2022	0	0	0	0	0	0	0	0	0	$0 /year	$0.00 /mt
2023	0	0	0	0	0	0	0	0	0	$0 /year	$0.00 /mt
	0	0									

Fleet B

Year	mt / Year	Day / Year	Day / Year	Truck X Day	Nb. Truck	Day Usage	Nb. Loader	Truck KiloLit	Fuel 000 $	Cost /year	Cost /mt
2019		0	0	0	0	0	0	0	0	$0 /year	$0.00 /mt
2020	0	0	0	0	0	0	0	0	0	$0 /year	$0.00 /mt
2021	0	0	0	0	0	0	0	0	0	$0 /year	$0.00 /mt
2022	0	0	0	0	0	0	0	0	0	$0 /year	$0.00 /mt
2023	0	0	0	0	0	0	0	0	0	$0 /year	$0.00 /mt
	0	0									

Fleet C

Year	mt / Year	Day / Year	Day / Year	Truck X Day	Nb. Truck	Day Usage	Nb. Loader	Truck KiloLit	Fuel 000 $	Cost /year	Cost /mt
2019		0	0	0	0	0	0	0	0	$0 /year	$0.00 /mt
2020	0	0	0	0	0	0	0	0	0	$0 /year	$0.00 /mt
2021	0	0	0	0	0	0	0	0	0	$0 /year	$0.00 /mt
2022	0	0	0	0	0	0	0	0	0	$0 /year	$0.00 /mt
2023	0	0	0	0	0	0	0	0	0	$0 /year	$0.00 /mt
	0	0									

Total Cost Fleet A+B+C

$29,808,750

Total Units

Year	Truck	Truck X Day	Nb. Units	Day Usage	Truck Kilolit	Fuel 000 $	Loader	Units/ year	Nb. Units
2019	785F	0	8	0	0	0	RH170	0.0	2
2020	785F	0	9	0	0	0	RH170	0.0	2
2021	785F	0	11	0	0	0	RH170	0.0	2
2022	785F	0	11	0	0	0	RH170	0.0	2
2023	785F	0	11	0	0	0	RH170	0.0	2
	Truck						Loader		

FPC FLEET AND COST ANALYSIS SUMMARY

Project: Rose Lithium July 2011

Par Yves Laquerre

SITES	Fleet	MATERIAL	Haul (m)	Reserves	2024						
					Year 10						
				Reserves	FPC Result						
					Result		785F	RH170		Fuel	
				kton	Day/y	mt/hr			$/ton	mt/lit	lit/mt
ORE	A	Ore									0.00
	B										0.00
	C										0.00
WASTE	A	Waste									0.00
	B										0.00
	C										0.00
	A										0.00
	B										0.00
	C										0.00
	A										0.00
	B										0.00
	C										0.00
	A										0.00
	B										0.00
	C										0.00
	A										0.00
	B										0.00
	C										0.00
	A										0.00
	B										0.00
	C										0.00
	A										0.00
	B										0.00
	C										0.00

SITES	Fleet	2025								
		Year 11								
		Planned		FPC Result						
		Qty	Est.	Result		785F	RH170		Fuel	
		(kt)	Day/y	Day/y	mt/hr			$/ton	mt/lit	lit/mt
ORE	A									0.00
	B									0.00
	C									0.00
WASTE	A									0.00
	B									0.00
	C									0.00
	A									0.00
	B									0.00
	C									0.00
	A									0.00
	B									0.00
	C									0.00
	A									0.00
	B									0.00
	C									0.00
	A									0.00
	B									0.00
	C									0.00
	A									0.00
	B									0.00
	C									0.00
	A									0.00
	B									0.00
	C									0.00

SITES	Fleet	2026								
		Year 12								
		Planned		FPC Result						
		Qty	Est.	Result		785F	RH170		Fuel	
		(kt)	Day/y	Day/y	mt/hr			$/ton	mt/lit	lit/mt
ORE	A									0.00
	B									0.00
	C									0.00
WASTE	A									0.00
	B									0.00
	C									0.00
	A									0.00
	B									0.00
	C									0.00
	A									0.00
	B									0.00
	C									0.00
	A									0.00
	B									0.00
	C									0.00
	A									0.00
	B									0.00
	C									0.00
	A									0.00
	B									0.00
	C									0.00
	A									0.00
	B									0.00
	C									0.00

SITES	Fleet	2027								
		Year 13								
		Planned		FPC Result						
		Qty	Est.	Result		785F	RH170		Fuel	
		(kt)	Day/y	Day/y	mt/hr			$/ton	mt/lit	lit/mt
ORE	A									0.00
	B									0.00
	C									0.00
WASTE	A									0.00
	B									0.00
	C									0.00
	A									0.00
	B									0.00
	C									0.00
	A									0.00
	B									0.00
	C									0.00
	A									0.00
	B									0.00
	C									0.00
	A									0.00
	B									0.00
	C									0.00
	A									0.00
	B									0.00
	C									0.00
	A									0.00
	B									0.00
	C									0.00

SITES	Fleet	2028											
		Year 14											
		Planned		FPC Result							Planned		
		Qty	Est.	Result		785F	RH170		Fuel		Qty	Est.	Result
		(kt)	Day/y	Day/y	mt/hr			$/ton	mt/lit	lit/mt	(kt)	Day/y	Day/y
ORE	A									0.00			
	B									0.00			
	C									0.00			
WASTE	A									0.00			
	B									0.00			
	C									0.00			
	A									0.00			
	B									0.00			
	C									0.00			
	A									0.00			
	B									0.00			
	C									0.00			
	A									0.00			
	B									0.00			
	C									0.00			
	A									0.00			
	B									0.00			
	C									0.00			
	A									0.00			
	B									0.00			
	C									0.00			
	A									0.00			
	B									0.00			
	C									0.00			

Hours Operation/Day		Day/Year	
Ore	18	Fleet A	365
Waste	18	Fleet B	365
Overburden	18	Fleet C	365

General Informations

Same color = Same fleet

Owning and Operating Cost

Truck	785F	$96.86 /hr no fuel
Loader Diesel	RH170	$725.02 /hr with fuel
Fuel Cost /liter		$0.90

Fleet	2024 Day / Year	Truck X Day	Nb. Truck	Day Usage	Nb. Loader	Truck KiloLit	Fuel 000 $
A	0	0	0	0	0	0	0
				$0 /year			
				$0.00 /mt			
B	0	0	0	0	0	0	0
				$0 /year			
				$0.00 /mt			
C	0	0	0	0	0	0	0
				$0 /year			
				$0.00 /mt			

Fleet	Year	mt / Year	Day / Year	Day / Year	Truck X Day	Nb. Truck	Day Usage	Nb. Loader	Truck KiloLit	Fuel 000 $
A	2025	0	0	0	0	3	0	0	0	0
							$0 /year			
							$0.00 /mt			
B	2025	0	0	0	0	6	0	0	0	0
							$0 /year			
							$0.00 /mt			
C	2025	0	0	0	0	2	0	0	0	0
							$0 /year			
							$0.00 /mt			
A	2026	0	0	0	0	6	0	0	0	0
							$0 /year			
							$0.00 /mt			
B	2026	0	0	0	0	5	0	0	0	0
							$0 /year			
							$0.00 /mt			
C	2026	0	0	0	0	2	0	0	0	0
							$0 /year			
							$0.00 /mt			
A	2027	0	0	0	0	6	0	0	0	0
							$0 /year			
							$0.00 /mt			
B	2027	0	0	0	0		0	0	0	0
							$0 /year			
							$0.00 /mt			
C	2027	0	0	0	0	0	0	0	0	0
							$0 /year			
							$0.00 /mt			
A	2028	0	0	0	0	5	0	0	0	0
							$0 /year			
							$0.00 /mt			
B	2028	0	0	0	0		0	0	0	0
							$0 /year			
							$0.00 /mt			
C	2028	0	0	0	0	0	0	0	0	0
							$0 /year			
							$0.00 /mt			
A		0	0	0						
B		0	0	0						
C		0	0	0						

Total Cost Fleet A+B+C

$29,808,750

Total Units

Year			Truck X Day	Nb. Units	Day Usage	Truck Kilolit	Fuel 000 $
2024		785F	0	9	0	0	0
			Units/ year	Nb. Units			
2024		RH170	0.0	2			
2025	Truck	785F	0	9	0	0	0
			Units/ year	Nb. Units			
2025	Loader	RH170	0.0	2			
2026	Truck	785F	0	8	0	0	0
			Units/ year	Nb. Units			
2026	Loader	RH170	0.0	2			
2027	Truck	785F	0	6	0	0	0
			Units/ year	Nb. Units			
2027	Loader	RH170	0.0	1			
2028	Truck	785F	0	5	0	0	0
			Units/ year	Nb. Units			
2028	Loader	RH170	0.0	1			
	Truck	78					
	Loader	RH					

Project:	Rose Lithium	July 2011	
Par	Yves Laquerre		2029
			Year 15
		Reserves	FPC Result

SITES	Fleet	MATERIAL	Haul (m)	kton		785F	RH170			Fuel
					mt/hr			$/ton		lit/mt
ORE	A	Ore								0.00
	B									0.00
	C									0.00
WASTE	A	Waste								0.00
	B									0.00
	C									0.00
	A									0.00
	B									0.00
	C									0.00
	A									0.00
	B									0.00
	C									0.00
	A									0.00
	B									0.00
	C									0.00
	A									0.00
	B									0.00
	C									0.00
	A									0.00
	B									0.00
	C									0.00
	A									0.00
	B									0.00
	C									0.00

Hours Operation/Day		Day/Year	
Ore	18	Fleet A	365
Waste	18	Fleet B	365
Overburden	18	Fleet C	365

General Informations	
Same color = Same fleet	

Owning and Operating Cost			
Truck	785F	$96.86	/hr no fuel
Loader Diesel	RH170	$725.02	/hr with fuel
Fuel Cost /liter		$0.90	

	Truck X Day	Nb. Truck	Day Usage	Nb. Loader	Truck KiloLit	Fuel 000 $
A	0	3	0	0	0	0
		$0 /year				
		$0.00 /mt				

	Truck X Day	Nb. Truck	Day Usage	Nb. Loader	Truck KiloLit	Fuel 000 $
B	0		0	0	0	0
		$0 /year				
		$0.00 /mt				

	Truck X Day	Nb. Truck	Day Usage	Nb. Loader	Truck KiloLit	Fuel 000 $
C	0	2	0	0	0	0
		$0 /year				
		$0.00 /mt				

Total Cost Fleet A+B+C
$29,808,750

Total Units		Truck X Day	Nb. Units	Day Usage	Truck Kilolit	Fuel 000 $
	5F	0	3	0	0	0
	170	Units/ year	Nb. Units			
		0.0	1			

GENIVAR

To: The directors of Critical Elements Corporation
The *Autorité des marchés financiers*
The Alberta Securities Commission
The British Columbia Securities Commission
The Superintendent of Securities, Government Services of Newfoundland and Labrador
The Superintendent of Securities, Department of Justice, Government of Northwest Territories
The Manitoba Securities Commission
The New Brunswick Securities Commission
The Nova Scotia Securities Commission
The Ontario Securities Commission
The Superintendent of Securities, Department of Justice, Nunavut
The Superintendent of Securities, Yukon
The Superintendent of Securities, Consumer, Corporate and Insurance Services, Office of the Attorney General, Prince Edward Island
The Saskatchewan Financial Services Commission
The Toronto Stock Exchange
The TSX Venture Exchange

Subject: Critical Elements Corporation
News Release and Filing of Technical Report

I hereby consent to the public filing by Critical Elements Corporation of the report bearing the effective date of December 10, 2011 and entitled "*Technical Report and Preliminary Economical Assessment on the Rose Tantalum-Lithium Project, James Bay Area, Province of Quebec*" (the "Report") with all of the Canadian Securities regulatory authorities having jurisdiction and with the System for Electronic Document Analysis and Retrieval (SEDAR), and to extracts from, or a summary of, the Report in written disclosure filed or being filed by Critical Elements Corporation.

I hereby confirm that I have read the written disclosure contained in Critical Elements Corporation's News Release dated November 21, 2011 and that it fairly and accurately represents the information in the Report that supports the disclosure.

Dated this 19th day of December, 2011.

GENIVAR Inc.

Simon Latulippe, Eng.
Project Manager – Environment
GENIVAR Inc.

1175 Lebourgneuf Blvd., Suite 300, Québec (Quebec) Canada G2K 0B4
Telephone: 418 780-0878 ~ Fax: 418 780-4182 ~ www.genivar.com

GENIVAR

To: The directors of Critical Elements Corporation
The *Autorité des marchés financiers*
The Alberta Securities Commission
The British Columbia Securities Commission
The Superintendent of Securities, Government Services of Newfoundland and Labrador
The Superintendent of Securities, Department of Justice, Government of Northwest Territories
The Manitoba Securities Commission
The New Brunswick Securities Commission
The Nova Scotia Securities Commission
The Ontario Securities Commission
The Superintendent of Securities, Department of Justice, Nunavut
The Superintendent of Securities, Yukon
The Superintendent of Securities, Consumer, Corporate and Insurance Services, Office of the Attorney General, Prince Edward Island
The Saskatchewan Financial Services Commission
The Toronto Stock Exchange
The TSX Venture Exchange

Subject: Critical Elements Corporation
News Release and Filing of Technical Report

I hereby consent to the public filing by Critical Elements Corporation of the report bearing the effective date of December 10, 2011 and entitled "*Technical Report and Preliminary Economical Assessment on the Rose Tantalum-Lithium Project, James Bay Area, Province of Quebec*" (the "Report") with all of the Canadian Securities regulatory authorities having jurisdiction and with the System for Electronic Document Analysis and Retrieval (SEDAR), and to extracts from, or a summary of, the Report in written disclosure filed or being filed by Critical Elements Corporation.

I hereby confirm that I have read the written disclosure contained in Critical Elements Corporation's News Release dated November 21, 2011 and that it fairly and accurately represents the information in the Report that supports the disclosure.

Dated this 19th day of December, 2011.

GENIVAR Inc.

INGÉNIEUR · ENGINEER
NORMAND GRÉGOIRE
25710
QUÉBEC

Normand Grégoire, Eng.
Project Director – Environment, Mining and Geology
GENIVAR Inc.

GENIVAR

To: The directors of Critical Elements Corporation
The *Autorité des marchés financiers*
The Alberta Securities Commission
The British Columbia Securities Commission
The Superintendent of Securities, Government Services of Newfoundland and Labrador
The Superintendent of Securities, Department of Justice, Government of Northwest Territories
The Manitoba Securities Commission
The New Brunswick Securities Commission
The Nova Scotia Securities Commission
The Ontario Securities Commission
The Superintendent of Securities, Department of Justice, Nunavut
The Superintendent of Securities, Yukon
The Superintendent of Securities, Consumer, Corporate and Insurance Services, Office of the Attorney General, Prince Edward Island
The Saskatchewan Financial Services Commission
The Toronto Stock Exchange
The TSX Venture Exchange

Subject: Critical Elements Corporation
News Release and Filing of Technical Report

I hereby consent to the public filing by Critical Elements Corporation of the report bearing the effective date of December 10, 2011 and entitled "*Technical Report and Preliminary Economical Assessment on the Rose Tantalum-Lithium Project, James Bay Area, Province of Quebec*" (the "Report") with all of the Canadian Securities regulatory authorities having jurisdiction and with the System for Electronic Document Analysis and Retrieval (SEDAR), and to extracts from, or a summary of, the Report in written disclosure filed or being filed by Critical Elements Corporation.

I hereby confirm that I have read the written disclosure contained in Critical Elements Corporation's News Release dated November 21, 2011 and that it fairly and accurately represents the information in the Report that supports the disclosure.

Dated this 19th day of December, 2011.

GENIVAR Inc.

France Gauthier, Eng.

France Gauthier, Eng.
Mining Engineer – Mining and Geology
GENIVAR Inc.

CONSENT OF FLORENT BARIL, Metallurgical Engineer

Bumigeme Inc.
615 René-Lévesque Blvd West,
Suite 750
Montréal, Québec H3B 1P5
Telephone: (514) 843-6565
Fax: (514) 843-6508
E-Mail: fbaril@bumigeme.com

Subject: **Technical Report and Preliminary Economic Assessment of the Rose Tantalum-Lithium Project**

I, Florent Baril, P. Eng., do hereby consent to the filing, by Critical Elements Corporation, of the Technical Report and Preliminary Economic Assessment of the Rose Tantalum-Lithium Project, dated December 10, 2011 (Technical Report), with all regulatory authorities and stock exchange.

As per Section 8.3 of the National Instrument NI 43-101 Respecting Standards of Disclosure for Mineral Projects, I, Florent Baril, do hereby consent to the filing of the Technical Report, extracts, or a summary of the Technical Report by Critical Elements Corporation.

Montréal, Québec
December 10, 2011

Signed:

F Baril, Eng.
President
Bumigeme Inc.

CONSENT OF QUALIFIED PERSON

To :

SEDAR
Autorité des Marchés Financiers
Ontario Securities Commission
Manitoba Securities Commission
Saskatchewan Financial Services Commission (Securities Division)
Alberta Securities Commission
British Columbia Securities Commission
New Brunswick Securities Commission
Nova Scotia Securities Commission
Commission of Newfoundland and Labrador
Registrar of Securities, Prince Edward Island
Registrar of Securities, Government of Yukon Territory
Registrar of Securities, Government of Nunavut
Government of Norwest Territories
The TSX Venture Exchange

Pursuant to Regulation 43-101 / National Instrument 43-101, I, Carl Pelletier, P. Geo., a qualified person within the meaning of the Regulation 43-101 / National Instrument 43-101 and responsible for the supervision and the preparation of items 6 to 12 and 14, do hereby consent to the filing, with the regulatory authorities referred to above and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the technical report titled the "Technical Report and Preliminary Economic Assessment on the Rose Tantalum-Lithium Project" dated December 10, 2011 (the "Technical Report") prepared for Critical Elements (the "Company").

This letter is solely for information in connection with the filing of the Technical Report, and is not to be referred to in whole or in part for any other purpose.

Signature of Qualified Person on December 21, 2011.

GEOLOGUE / GEOLOGIST
CARL PELLETIER
384
QUÉBEC

Carl Pelletier, B. Sc., P. Geo
InnovExplo Inc.
560-B, 3e avenue, Val-d'Or,
Québec, Canada, J9P 1S4

Stamped by Carl Pelletier
Geo, Québec.

GENIVAR

To: The directors of Critical Elements Corporation
The *Autorité des marchés financiers*
The Alberta Securities Commission
The British Columbia Securities Commission
The Superintendent of Securities, Government Services of Newfoundland and Labrador
The Superintendent of Securities, Department of Justice, Government of Northwest Territories
The Manitoba Securities Commission
The New Brunswick Securities Commission
The Nova Scotia Securities Commission
The Ontario Securities Commission
The Superintendent of Securities, Department of Justice, Nunavut
The Superintendent of Securities, Yukon
The Superintendent of Securities, Consumer, Corporate and Insurance Services, Office of the Attorney General, Prince Edward Island
The Saskatchewan Financial Services Commission
The Toronto Stock Exchange
The TSX Venture Exchange

Subject: Critical Elements Corporation
News Release and Filing of Technical Report

I hereby consent to the public filing by Critical Elements Corporation of the report bearing the effective date of December 10, 2011 and entitled "*Technical Report and Preliminary Economical Assessment on the Rose Tantalum-Lithium Project, James Bay Area, Province of Quebec*" (the "Report") with all of the Canadian Securities regulatory authorities having jurisdiction and with the System for Electronic Document Analysis and Retrieval (SEDAR), and to extracts from, or a summary of, the Report in written disclosure filed or being filed by Critical Elements Corporation.

I hereby confirm that I have read the written disclosure contained in Critical Elements Corporation's News Release dated November 21, 2011 and that it fairly and accurately represents the information in the Report that supports the disclosure.

Dated this 19th day of December, 2011.

GENIVAR Inc.

Charles Gagnon, ing. 19-12-2011

Charles Gagnon, Eng., M.Sc.
Mining Engineer - Mining and Geology
GENIVAR Inc.