NI 43-101 Technical Report

Pre-Feasibility Study for the PAK Project

Northwestern Ontario, Canada

Prepared for:
Frontier Lithium Inc.

Effective Date: May 31, 2023
Signature Date: July 14, 2023

Prepared by the following Qualified Persons:

- Todd McCracken, P.Geo. .... BBA E&C Inc.
- Bahareh Asi, P.Eng. .... BBA E&C Inc.
- Joanne Robinson, P.Eng. .... BBA E&C Inc.
- David Willock, P.Eng. .... BBA E&C Inc.
- Shane Ghouralal, P.Eng. .... BBA E&C Inc.
- Darlene Nelson, P.Eng. .... WSP Canada Inc.
- Andrew Holloway, P.Eng. .... Halyard Inc.
- Ian Ward, P.Eng. .... Ian Ward Consulting Services
- Ron DeGagne, P.Geo. .... Environmental Application Group

Date and Signature Page

This technical report is effective as of the 31st day of May 2023.

Original signed and sealed on file	July 14, 2023
Todd McCracken, P.Geo. BBA E&C Inc.	Date
Original signed and sealed on file	July 14, 2023
Bahareh Asi, P.Eng. BBA E&C Inc.	Date
Original signed and sealed on file	July 14, 2023
Joanne Robinson, P.Eng. BBA E&C Inc.	Date
Original signed and sealed on file	July 14, 2023
David Willock, P.Eng. BBA E&C Inc.	Date

Original signed and sealed on file	July 14, 2023
Shane Ghouralal, P.Eng. BBA E&C Inc.	Date

Original signed and sealed on file	July 14, 2023
Darlene Nelson, P.Eng. WSP Canada Inc.	Date

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Andrew Holloway, P.Eng. Halyard Inc.	Date

Original signed and sealed on file	July 14, 2023
Ian Ward, P.Eng. Ian Ward Consulting Services	Date

Original signed and sealed on file	July 14, 2023
Ron DeGagne, P.Geo. Environmental Application Group	Date

1010 Lorne Street, Unit 101
Sudbury, ON P3C 4R9
T +1 705 265-1119 F +1 450 464-0901

BBA.CA

CERTIFICATE OF QUALIFIED PERSON

Todd McCracken, P.Geo.

This certificate applies to the NI 43-101 Technical Report titled "PAK Lithium Project Fully Integrated Pre-Feasibility Study", Northwestern Ontario, Canada (the "Technical Report"), prepared for Frontier Lithium Inc., dated July 14, 2023, with an effective date of May 31, 2023.

I, Todd McCracken, P.Geo., as a co-author of the Technical Report, do hereby certify that:

1. I am Senior Geologist and Director of Mining and Geology at BBA E&C Inc., located at 1010 Lorne Street, Unit 101, Sudbury, ON, P3C 4R9.
2. I am a graduate from University of Waterloo in 1992, of Ontario. with a bachelor's degree in Honors Applied Earth Sciences. I have practiced my profession continuously since my graduation.
3. I am a member in good standing of Association of Professional Geoscientists of Ontario and License (PGO No. 0631).
4. My relevant experience includes: 30 years in exploration, operations and consulting, including resource estimation on pegmatite deposits. This also includes 10 years experience overseeing mining studies as department manager.
5. I have read the definition of "Qualified Person" set out in the NI 43-101 – Standards of Disclosure for Mineral Projects ("NI 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 for the purposes of NI 43-101.
6. I am independent of the issuer applying all the tests in Section 1.5 of NI 43-101.
7. I am author and responsible for the preparation of Chapters 1 to 3, 7 to 12, 14, 22, 24 to 27, and Sections 21.1, 21.2, 21.3.1, 21.6, 21.7, 21.8, 21.9.1, 21.9.4, 21.9.5 and 21.10.
8. I personally visited site on October 1 and 2, 2013, July 14 and 15, 2015, February 8 to 10, 2021 and September 12 to 13, 2022. In addition, I visited the core farm located at 2736 Belisle Drive in Val Caron, Ontario several times.
9. I have prior involvement with the PAK Lithium Project that is the subject of the Technical Report. I authored several previous technical reports on the PAK Lithium Project, most recently on May 8, 2023.
10. I have read NI 43-101, and the sections of the Technical Report for which I am responsible have been prepared following NI 43-101 rules and regulations.
11. As at the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading.

Signed and sealed this 14th day of July, 2023.

Original signed and sealed on file

Todd McCracken, P.Geo.
BBA E&C Inc.

10 Carlson Court, Suite 420
Toronto, ON, M9W 6L2
T +1 416 585-2115 F +1 416 585-9683

BBA.CA

CERTIFICATE OF QUALIFIED PERSON

Bahareh Asi, P.Eng.

This certificate applies to the NI 43-101 Technical Report titled "PAK Lithium Project Fully Integrated Pre-Feasibility Study", Northwestern Ontario, Canada (the "Technical Report"), prepared for Frontier Lithium Inc., dated July 14, 2023, with an effective date of May 31, 2023.

I, Bahareh Asi, P. Eng., as a co-author of the Technical Report, do hereby certify that:

1. I am Senior Mining Engineer with the firm BBA E&C Inc., located at 10 Carlson Court, Suite 420, Toronto, ON, M9W 6L2, Canada.
2. I am a graduate in Mining from the Bahonar University of Kerman in 2001, with a Bachelor of Engineering and from Tarbiat Modares University in 2004 with a Master of Engineering. I have been employed in consulting engineering and mining operations since my graduation and practised my profession continuously.
3. I am a member in good standing of the Professional Engineers of Ontario (PEO No: 100203076).
4. My relevant experience includes: The mine engineering for the design, planning and estimation in technical studies and mine operations for numerous mining projects.
5. I have read the definition of "Qualified Person" set out in the NI 43-101 – Standards of Disclosure for Mineral Projects ("NI 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 for the purposes of NI 43-101.
6. I am independent of the issuer applying all the tests in Section 1.5 of NI 43-101.
7. I am author and responsible for the preparation of Chapters 4, 5, 6 and 23. I am also co-author and responsible for the relevant portions of Chapters 1, 2, 3, 25, 26 and 27 of the Technical Report.
8. I have not visited the PAK Property that is the subject of the Technical Report, as it was not required for the purpose of this mandate.
9. I have had no prior involvement with the Property that is the subject of the Technical Report.
10. I have read NI 43-101, and the sections of the Technical Report for which I am responsible have been prepared following NI 43-101 rules and regulations.
11. As at the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading.

Signed and sealed this 14th day of July, 2023.

Original signed and sealed on file

Bahareh Asi, P.Eng.,
BBA E&C Inc.

1010 Lorne Street, Unit 101
10 Carlson Court, Suite 420
Toronto, ON, M9W 6L2
T +1 416 585-2115 F +1 416 484-9683

BBA.CA

CERTIFICATE OF QUALIFIED PERSON

Joanne Robinson, P.Eng.

This certificate applies to the NI 43-101 Technical Report titled "PAK Lithium Project Fully Integrated Pre-Feasibility Study", Northwestern Ontario, Canada (the "Technical Report"), prepared for Frontier Lithium Inc., dated July 14, 2023, with an effective date of May 31, 2023.

I, Joanne Robinson, P.Eng., as a co-author of the Technical Report, do hereby certify that:

1. I am Mining Engineer at BBA E&C Inc., located at 10 Carlson Court, Suite 420, Toronto, ON, M9W 6L2.
2. I am a graduate of Queen's University with a Bachelor of Science in Mining Engineering. I have been working as a mining engineer from 1997 to 2000 and 2004 to present.
3. I am a member in good standing of the Association of Professional Engineers of Ontario (PEO), License Number 100049603.
4. My relevant experience includes 7 years working at various Canadian open pit operations in progressively senior roles doing production engineering, mine design, and mine planning; over 3 years with an open pit mine development project focusing on the pit optimization, mine design, mine planning, cost estimation, and project management; and over 10 years in mine consulting completing the open pit mine design, optimization, planning, mine cost estimation, and cash flow model analyses for a number of technical studies.
5. I have read the definition of "Qualified Person" set out in the NI 43-101 – Standards of Disclosure for Mineral Projects ("NI 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 for the purposes of NI 43-101.
6. I am independent of the issuer applying all the tests in Section 1.5 of NI 43-101.
7. I am author and responsible for the preparation of Chapter 15, and Sections 16.1 through 16.8, 21.3.2, 21.9.2. I am also co-author and responsible for the relevant portions of Chapters 1, 2, 3, 25, 26 and 27 of the Technical Report.
8. I have visited the PAK Property that is the subject of the Technical Report on July 13 and 14, 2015, and September 12 and 13, 2022 as part of this current mandate.
9. I have had no prior involvement with the property that is the subject of the Technical Report.
10. I have read NI 43-101, and the sections of the Technical Report for which I am responsible have been prepared following NI 43-101 rules and regulations.
11. As at the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading.

Signed and sealed this 14th day of July 2023.

Original signed and sealed on file

Joanne Robinson, P.Eng.
BBA E&C Inc.

1010 Lorne Street, Unit 101
Sudbury, ON P3C 4R9
T +1 705 265-1119 F +1 450 464-0901

BBA.CA

CERTIFICATE OF QUALIFIED PERSON

David Willock, P. Eng.

This certificate applies to the NI 43-101 Technical Report titled "PAK Lithium Project Fully Integrated Pre-Feasibility Study", Northwestern Ontario, Canada (the "Technical Report"), prepared for Frontier Lithium Inc., dated July 14, 2023, with an effective date of May 31, 2023.

I, David Willock, P. Eng., as a co-author of the Technical Report, do hereby certify that:

1. I am a Mining Engineer at the consulting firm BBA E&C Inc. located at 1010 Lorne Street, Unit 101, Sudbury, ON P3C 4R9.
2. I am a graduate from Laurentian University in 2000, with a Bachelor of Engineering. I have been employed in mining engineering, operations and projects for over 21 years.
3. I am a member in good standing of Professional Engineers of Ontario (PEO No: 100113931).
4. My relevant experience includes: My relevant experience includes production planning, mine studies, estimation, operations supervision and project execution/construction.
5. I have read the definition of "Qualified Person" set out in the NI 43-101 – Standards of Disclosure for Mineral Projects ("NI 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 for the purposes of NI 43-101.
6. I am independent of the issuer applying all the tests in Section 1.5 of NI 43-101.
7. I am author and responsible for the preparation of Chapter 18, and Sections 21.3.3, and 21.3.4. I am also co-author and responsible for the relevant portions of Chapters 1, 2, 3, 25, 26 and 27 of the Technical Report.
8. I have visited the PAK Property that is the subject of the Technical Report on September 12 and 13, 2022, as part of this current mandate.
9. I have had no prior involvement with the property that is the subject of the Technical Report.
10. I have read NI 43-101, and the sections of the Technical Report for which I am responsible have been prepared following NI 43-101 rules and regulations.
11. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading.

Signed and sealed this 14th day of July 2023.

Original signed and sealed on file

David Willock, P.Eng.
BBA E&C Inc.

10 Carlson Court, Suite 420
Toronto, ON, M9W 6L2
T +1 416 585-2115 F +1 416 585-9683

BBA.CA

CERTIFICATE OF QUALIFIED PERSON

Shane Ghouralal, P.Eng., MBA

This certificate applies to the NI 43-101 Technical Report titled "PAK Lithium Project Fully Integrated Pre-Feasibility Study", Northwestern Ontario, Canada (the "Technical Report"), prepared for Frontier Lithium Inc., dated July 14, 2023, with an effective date of May 31, 2023.

I, Shane Ghouralal, P.Eng., MBA, as a co-author of the Technical Report, do hereby certify that:

1. am Regional Director, Mining and Metals Studies at the consulting firm BBA E&C Inc. located at 10 Carlson Court, Suite 420, Toronto, ON, M9W 6L2.
2. I am a graduate from the University of Waterloo of Ontario in 2011, with a Bachelor of Applied Science degree in Geological Engineering and a Master of Business Administration from Norwich University.
3. I am a member in good standing of the Professional Engineers Ontario (PEO Registration No. 100523537) and Professional Engineers and Geoscientist of Newfoundland and Labrador (PEGNL Registration No. 10197).
4. My relevant experience includes: 13+ years of mining engineering and financial assessments. I am a "Qualified Person" for the purposes of National Instrument 43-101.
5. I have read the definition of "Qualified Person" set out in the NI 43-101 – Standards of Disclosure for Mineral Projects ("NI 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 for the purposes of NI 43-101.
6. I am independent of the issuer applying all the tests in Section 1.5 of NI 43-101.
7. I am an author and responsible for the preparation of Chapter 19. I am also co-author and responsible for the relevant portions of Chapters 1, 3, 25, 26, and 27 of the Technical Report.
8. I have not visited the Property that is the subject of the Technical Report, as it was not required for the purpose of this mandate.
9. I have had no prior involvement with the property that is the subject of the Technical Report.
10. I have read NI 43-101, and the sections of the Technical Report for which I am responsible have been prepared following NI 43-101 rules and regulations.
11. As at the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading.

Signed and sealed this 14th day of July 2023.

Original signed and sealed on file

Shane Ghouralal, P.Eng., MBA,
BBA E&C Inc.

CERTIFICATE OF QUALIFIED PERSON

Darlene Nelson, P.Eng.

This certificate applies to the NI 43-101 Technical Report titled "PAK Lithium Project Fully Integrated Pre-Feasibility Study", Northwestern Ontario, Canada, (the "Technical Report"), prepared for Frontier Lithium Inc., dated July 14, 2023, with an effective date of May 31, 2023.

I, Darlene Nelson, P.Eng., as a co-author of the Technical Report, do hereby certify that:

1. I am a Geotechnical Engineer at WSP Canada Inc., located at 133 King Street W., Suite 203, Brockville, Ontario, K6V 6Z1.
2. I am a graduate of Geological Engineering from Queen's University in 1997.
3. I am a member in good standing of Professional Engineers Ontario (Licence No.: 90460965).
4. My relevant experience includes over 20 years of rock mechanic and geotechnical engineering experience in designs for both underground and open pit mines. I have significant experience in managing geotechnical field investigation and lab testing programs as well as geotechnical logging, rock mass classification, kinematic and numerical modelling, waste dump, and open pit geotechnical design for mining projects in Northern Ontario and worldwide.
5. I have read the definition of "Qualified Person" set out in the NI 43-101 – Standards of Disclosure for Mineral Projects ("NI 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 for the purposes of NI 43-101.
6. I am independent of the issuer applying all the tests in Section 1.5 of NI 43-101.
7. I am author and responsible for the preparation of Section 16.9. I am also co-author and responsible for the relevant portions of Chapters 1, 2, 3, 25, 26 and 27 of the Technical Report.
8. I have visited the PAK Property that is the subject of the Technical Report on September 17 to 20, 2021, and July 22 to 27, 2022 as part of this current mandate.
9. I have had no prior involvement with the property that is the subject of the Technical Report.
10. I have read NI 43-101, and the sections of the Technical Report for which I am responsible have been prepared following NI 43-101 rules and regulations.
11. As at the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading.

Signed and sealed this 14th day of July 2023.

Original signed and sealed on file

Darlene Nelson, P.Eng.
WSP Canada Inc.

HALYARD

212 King St W Suite 501, Toronto, ON M5H 1K5

CERTIFICATE OF QUALIFIED PERSON

Andrew Holloway P.Eng.

This certificate applies to the NI 43-101 Technical Report titled "PAK Lithium Project Fully Integrated Pre-Feasibility Study", Northwestern Ontario, Canada (the "Technical Report"), prepared for Frontier Lithium Inc., dated July 14, 2023, with an effective date of May 31, 2023.

I, Andrew Holloway P.Eng., as a co-author of the Technical Report, do hereby certify that:

1. I am currently employed as Process Director at the engineering firm Halyard Inc. located at 212 King St. West, Suite 501, Toronto, ON M5H 1K5.
2. I graduated from the University of Newcastle upon Tyne, England in 1989 with B.Eng. (Hons) Metallurgy. I have practiced my profession continuously since graduation.
3. I am a registered member in good standing of the Association of Professional Engineers of Ontario, with membership #100082475.
4. My relevant experience with respect to metallurgy and process engineering includes 33 years of experience in the mining sector, working for operating mining companies, engineering companies and mining consultancies. This experience includes 25 years of planning and managing metallurgical testwork programs, including particle sorting, dense medium separation, froth flotation of sulphide and non-sulphide minerals, wet and dry magnetic separation, and other various beneficiation techniques.
5. I have read the definition of "Qualified Person" set out in the NI 43-101 – Standards of Disclosure for Mineral Projects ("NI 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 for the purposes of NI 43-101.
6. I am independent of the issuer applying all the tests in Section 1.5 of NI 43-101.
7. I am author and responsible for the preparation of Sections 13.1 through 13.4, 13.6.1, 17.1, 21.4, 21.5, 21.9.3, and 21.9.6. I am also co-author and responsible for the relevant portions of Chapters 1, 2, 3, 25, 26 and 27 of the Technical Report.
8. I have not visited the PAK Property that is the subject of the Technical Report as it was not required for the purpose of this mandate.
9. I have had no prior involvement with the Property that is the subject of the Technical Report.
10. I have read NI 43-101, and the sections of the Technical Report for which I am responsible have been prepared following NI 43-101 rules and regulations.
11. As at the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading.

Signed and sealed this 14th day of July 2023.

Original signed and sealed on file

Andrew Holloway P.Eng.,
Halyard Inc.

Ian Ward Consulting Services
15 Herbert Avenue, Toronto, Ontario, Canada

CERTIFICATE OF QUALIFIED PERSON

Ian Ward, P.Eng.

This certificate applies to the NI 43-101 Technical Report titled "PAK Lithium Project Fully Integrated Pre-Feasibility Study", Northwestern Ontario, Canada (the "Technical Report"), prepared for Frontier Lithium Inc., dated July 14, 2023, with an effective date of May 31, 2023.

I, Ian Ward, P.Eng., as a co-author of the Technical Report, do hereby certify that:

1. I am self employed and Principal at Ian Ward Consulting Services, located at 15 Herbert Avenue, Toronto, Ontario, Canada.
2. I am a graduate of the University of Birmingham, UK in 1968 with the degree of B.Sc. (Hons) Minerals Engineering.
3. I am a member in good standing of Professional Engineers Ontario (Reg. #48869010). I have worked continuously as a Professional Engineer/metallurgist in the minerals industry, for consulting engineering companies, and as an independent consultant, for the last 46 years since initial registration in 1977.
4. My relevant experience includes management of technical and feasibility studies, processing plant audits and evaluations, management of metallurgical testing programs and the design plus start-up of numerous processing plants. During the last 15 years I have been responsible for supervising a number of metallurgical testing programs, analysing the results and developing plant design criteria based on the selected results.
5. I have read the definition of "Qualified Person" set out in the NI 43-101 – Standards of Disclosure for Mineral Projects ("NI 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 for the purposes of NI 43-101.
6. I am independent of the issuer applying all the tests in Section 1.5 of NI 43-101.
7. I am author and responsible for the preparation of Sections 13.5, 13.6.2 and 17.2. I am also co-author and responsible for the relevant portions of Chapters 1, 2, 3, 25, 26 and 27 of the Technical Report.
8. I have not visited the PAK Property that is the subject of the Technical Report, as it was not required for the purpose of this mandate.
9. I have had no prior involvement with the property that is the subject of the Technical Report.
10. I have read NI 43-101, and the sections of the Technical Report for which I am responsible have been prepared following NI 43-101 rules and regulations.
11. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading.

Signed and sealed this 14th day of July 2023.

Original signed and sealed on file

Ian Ward, P.Eng.
Ian Ward Consulting Services

Environmental Applications Group
2565 Kingsway, Unit 2,
Sudbury, Ontario, P3B 2G1

CERTIFICATE OF QUALIFIED PERSON

Ron C. deGagne, P.Geo.

This certificate applies to the NI 43-101 Technical Report titled "PAK Lithium Project Fully Integrated Pre-Feasibility Study", Northwestern Ontario, Canada (the "Technical Report"), prepared for Frontier Lithium Inc., dated July 14, 2023, with an effective date of May 31, 2023.

I, Ron C. deGagne, P.Geo., as a co-author of the Technical Report, do hereby certify that:

1. I am a Senior Geoscientist at Environmental Applications Group (EAG) Inc., with an office at 2565 Kingsway, Unit 2, Sudbury, Ontario, P3B 2G1.
2. I am a graduate from Sir Sandford Fleming College, Lindsay, Ontario, with a technology diploma in Earth Science (1981) and continuous geoscience working experience since 1995.
3. I am a member in good standing of the Professional Geoscientists of Ontario (License No 0557).
4. My relevant experience includes more than 25 years working for environmental and engineering consultants engaged in the mining industry.
5. I have read the definition of "Qualified Person" set out in the NI 43-101 – Standards of Disclosure for Mineral Projects ("NI 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 for the purposes of NI 43-101.
6. I am independent of the issuer applying all the tests in Section 1.5 of NI 43-101.
7. I am author and responsible for the preparation of Chapter 20. I am also co-author and responsible for the relevant portions of Chapters 1, 2, 25, 26 and 27 of the Technical Report.
8. I have not visited the PAK Property that is the subject of the Technical Report, as it was not required for the purpose of this mandate.
9. I have had no prior involvement with the property that is the subject of the Technical Report.
10. I have read NI 43-101, and the sections of the Technical Report for which I am responsible have been prepared following NI 43-101 rules and regulations.
11. As at the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading.

Signed and sealed this 14th day of July, 2023.

Original signed and sealed on file

Ron C. deGagne, P.Geo.
Environmental Applications Group Inc.

TABLE OF CONTENTS

APPENDICES

LIST OF TABLES

LIST OF FIGURES

List of Abbreviations and Units of Measurement

Abbreviation	Description
$ or CAD	Canadian dollar
$/t	dollars per tonne
%	percent
°	degrees
°C	degrees Celsius
µg	microgram
β	beta
µm	micron
3D	three-dimensional
AACE	American Association of Cost Engineers
ACME	ACME Laboratories
Actlabs	Activation Laboratories
Ag	silver
AGAT	AGAT Laboratories
Ai	abrasion index
Al	aluminum
Al_2O_3	aluminum oxide
amsl	above mean sea level
AMT	Audio Magnetotelluric
As	arsenic
B	billion
Ba	barium
BaO	barium oxide
BBA	BBA E&C Inc.
Be	beryllium
BEV	battery electric vehicle
BFA	bench face angle
BG	battery grade
BGM	bituminous geomembrane
Bi	bismuth
BM	block model
BWI	bond work index
C.ENG.	Chinese engineering company
C	carbon

List of Abbreviations and Units of Measurement

Abbreviation	Description
Ca	calcium
CaO	calcium oxide (quicklime)
Cd	cadmium
CDA	Canadian Dam Association
Ce	cerium
CG	chemical grade
CH	channel
CIM	Canadian Institute of Mining
CIZ	Central Intermediate Zone
Cl	
cm	centimetre
CNAS	China National Accreditation Service
Code	Mine Rehabilitation Code of Ontario, as presented in Ontario Regulation 240/00 (as amended)
Cr_2O_3	chromium oxide
CRM	certified reference material
Cs	cesium
Cs_2O	cesium oxide
Cu	copper
d	day (24 hours)
D_{50}	50% particle size distribution
DCF	discounted cash flow
DDH	diamond drillhole
DEF	diesel exhaust fluid
deg or °	degree
dia or Ø	diameter
DMS	dense media separation
DMZ	de-militarized zone
DSO	direct shipping ore
DTM	digital terrain model
Dy	dysprosium
EA	environmental assessment
EAG	Environmental Applications Group
ECA	environmental compliance approval

List of Abbreviations and Units of Measurement	
Abbreviation	**Description**
EDF	environmental design flood
EM	electromagnetic method
EPCM	engineering, procurement and construction management
Er	erbium
ESDM	emission summary and dispersion model
et al.	and others
ETP	evapotranspiration
Eu	europium
EV	electric vehicles
F	fluorine
F_{80}	80% passing – feed
Fe	iron
$Fe_2(SO_4)_3$	ferric sulphate
Fe_2O_3	iron oxide
$FeAs_2$	loellingite
FeAsS	arsenopyrite
$FeCl_3$	ferric chloride
$FeSO_4$	ferrous sulphate
FIFO	fly-in fly-out
FOB	free on board
FoS	factor of safety
Frontier or the Company	Frontier Lithium Inc.
FTE	full time equivalent
g	gram
G&A	general and administration
Ga	gallium
GAT	gravity amenability test
Gd	gadolinium
Ge	germanium
GET	ground engaging tools
GIS	Geographic Information Systems
GOH	gross operating hours
GPS	Global Positioning System
GSC	Geological Survey of Canada

List of Abbreviations and Units of Measurement	
Abbreviation	**Description**
h	hour (60 minutes)
H_2O	water
H_2SO_4	sulphuric acid
ha	hectare
Hf	hafnium
HLM	Houston Lake Mining
HLS	heavy liquid separation
HMI	human machine interfaces
Ho	holmium
I/O	input/output
ICP-MS	inductively coupled plasma mass spectrometry
ICP-OES	inductively coupled plasma optical emission
ICS	Industrial Control Systems
ID^2	inverse distance square
IESO	Independent Electricity System Operator
In	indium
IRA	US Inflation Reduction Act
IRR	internal rate of return
ISO/IEC	International Organization for Standardization / International Electrotechnical Commission
IT	information technology
IWCS	Ian Ward Consulting Services
K	potassium
K	thousand
K_2O	potassium oxide
kg	kilogram
km	kilometre
km^2	square kilometre
kt	kilotonne
kV	kilovolt
kW	kilowatt
kWh	kilowatt hour per tonne
L	litre
L&P	leaching and purification

List of Abbreviations and Units of Measurement

Abbreviation	Description
La	lanthanum
LCE	lithium carbonate equivalent
LCT	lithium-cesium-tantalum (chapters 7and 8)
LCT	locked cycle test
Li	lithium
Li_2CO_3	lithium carbonate
Li_2O	lithium oxide
$LiAlSi_4O_{10}$	lithium silicate (petatlite)
LiOH	lithium hydroxide
LIZ	Lower Intermediate Zone
LOI	letter of intent
LOM	life of mine
LRC	lithium-rubidium-cesium
Lu	lutetium
m	metre
M	million
m^2	square metre
m^3	cubic metre
masl	metres above sea level
MCC	motor control centres
MECP	Ministry of Environment, Conservation and Parks
MENDM	Ministry of Energy, Northern Development and Mines
mesh	US mesh
Mg	magnesium
mg	milligram
MgO	magnesium oxide
min	minute (60 seconds)
MLAS	Mining Lands Administration System
mm	millimetre
mm	millimetre
Mm^2	Million square metre
Mm^3	Million cubic metre
MMI	mobile metal ion
Mn	manganese

List of Abbreviations and Units of Measurement

Abbreviation	Description
MnO	magnesium oxide
MNR	Ministry of Natural Resources
MNRF	Ministry of Natural Resources and Forestry
Mo	molybdenum
MOE	Ministry of Environment
MOU	memorandum of understanding
MPa	megapascal
MPC	Mine Power Centers
MPSO	MinePlan Schedule Optimizer
MRE	Mineral Resource Estimate
msrp	manufacturer's suggested retail price
Mt	million tonne
MTO	material take-offs
MVA	megavolt amperes
MW	megawatt
N	north
Na_2O	sodium oxide
Na_2S	sodium sulfide
NAD	North American Datum (Topographical Surveying)
NaOH	sodium hydroxide
Nb	niobium
Nb_2O_5	niobium pentoxide
NI	National Instrument
Ni	nickel
NN	nearest neighbour
no.	number
NOH	net operating hours
NPAG	non-potentially acid generating
NPV	net present value
NS	not specified
NSR	net smelter return
OEM	original equipment manufacturer
OGS	Ontario Geological Survey
OK	ordinary kriging

List of Abbreviations and Units of Measurement	
Abbreviation	**Description**
OP	open pit
OT	operational technology
OVB	overburden
P	phosphorus
P_{100}	100% passing – product
P_2O_5	phosphorus pentoxide
P_{80}	80% passing – product
PAG	potentially acid generating
PAK	Pakeagama Lake
Pb	lead
PEA	pre-economic assessment
PFS	pre-feasibility study
pH	potential of hydrogen
PLC	programmable logic controllers
PMP	probable maximum precipitation
PPE	personal protective equipment
ppm	parts per million
PPP	precise point positioning
Pr	praseodymium metal
PV	present value
Q1, Q2, etc.	first quarter, second quarter, etc.
QA/QC	quality assurance/quality control
QP(s)	qualified person(s)
Rb	rubidium
Rb_2O	rubidium oxide
RF	revenue factor
RIO	Remote PLC I/O
RMR	rock mass rating
ROM	run of mine
RQD	rock quality designation
RWI	rod work index
S	sulphur
S.U.	standard unit.
SAG	semi-autogenous grinding

List of Abbreviations and Units of Measurement	
Abbreviation	**Description**
Sb	antimony
Sc	scandium
SG	specific gravity
SGS	SGS Canada Inc.
Si	silicium
SiO_2	silicon dioxide
SiO_3	trioxidosilicate
SLD	single line diagram
SLR	SLR Consulting
Sm	samarium
Sn	tin
SnO_2	tin oxide
SOP	standard operating procedure
SQUI	spodumene + quartz intergrowth
Sr	strontium
SrO	strontium oxide
STPL	stockpile
t	tonne (metric ton / 1,000 kg)
Ta	tantalum
Ta_2O_5	tantalum pentoxide
Tb	terbium
TDC	top-dead-centre
TG	technical grade
Th	thorium
Ti	titanium
TiO_2	titanium dioxide
Tl	thallium
TMF	tailings management facility
tpa	tonnes per annum
tpd	tonnes per day
tph	tonnes per hour
TSF	tailings storage facility
TSS	total suspended solids
U	uranium

List of Abbreviations and Units of Measurement

Abbreviation	Description
U/G	underground
UAV	unmanned aerial vehicle
UCS	unconfined compressive strength
UIZ	upper intermediate zone
US	United States
USD	United States dollar
USMCA	USA-Mexico-Canada Trade Agreement
UTM	Universal Transverse Mercator Coordinate System
V	vanadium
V_2O_5	vanadium oxide
VLF	very low-frequency
VLF-EM	very low-frequency-electromagnetic method
VoIP	voice over Internet Protocol
W	tungsten
W	west
w/w	weight per weight
WBS	work breakdown structure
WHIMS	wet high intensity magnetic separation
wk	week
WRA	waste rock areas
WRP	waste rock piles
WSP	WSP Canada
XPS	Expert Process Solutions
XRF	x-ray fluorescence
XRT	x-ray transmission
y	year (365 days)
Y	yttrium
Zn	zinc

1. Summary

Frontier Lithium Inc. (Frontier) retained BBA E&C Inc. (BBA) to prepare a Preliminary Feasibility Study ("PFS") in accordance with National Instrument 43 101 (NI 43-101) for Frontier's PAK Lithium Project Fully Integrated Pre-Feasibility Study, herein referred to as the "Project", located in northwestern Ontario, Canada.

The PFS encompasses both the PAK and Spark Deposits in a fully integrated operational scenario from mining to chemical production.

This report was prepared by independent consultants: Todd McCracken, P.Geo., of BBA, Bahareh Asi, P.Eng., of BBA, Joanne Robinson, P.Eng., of BBA, David Willock, P.Eng., of BBA, Shane Ghouralal, P.Eng., MBA, of BBA, Darlene Nelson, P.Eng., of WSP, Andrew Holloway, P.Eng., of Halyard Inc., Ian Ward, P.Eng., of Ian Ward Consulting Services, and Ron deGagne, P.Geo., of Environmental Applications Group.

Unless otherwise specified or noted, the units used in this report are metric. Every effort has been made to clearly display the appropriate units being used throughout the report. Coordinates within this report use NAD83 UTM Zone 14N, unless otherwise stated. Currency is in Canadian dollars (CAD or $), unless otherwise noted

The Issue Date of this report is July 14, 2023. The Effective Date of the PAK PFS is May 31, 2023.

1.1 Property Description and Location

The Property is located 175 km north of Red Lake, Ontario in the Red Lake Mining Division, centred around 52°36'N latitude and 93°23'W longitude near Pakeagama Lake.

The Property is composed of three Mining Lease and 1,261 Mining Claims totalling 27,121 hectares.

1.2 Access, Climate, Infrastructure and Physiography

Access to the Property is available year-round if required via the winter road from Red Lake or by float/ski plane.

The climate is typical for the northwest region of Ontario with the average mean annual temperature of 0.9°C. The average daily temperature in summer is from 8.9°C to 19.2°C, while in winter the average range is from -20.3°C to -11.6°C. Average yearly precipitation for the area is 655 mm.

The Property is remotely located with no fixed infrastructure. The Watanynikaneyap powerline is currently under construction and will pass by the western boundary of the Project

The Property is located in an area of variable topographic relief, with a series of ridges and with the extensive development of cliff faces, which parallel the general regional strike of the geology, and surrounded by low-lying areas covered by swamps, lakes, and rivers.

1.3 History

Besides mapping programs by the GSC and OGS from as early as 1886 to 1999, the majority of the exploration completed on the Property is geological mapping, trenching and diamond drilling by Frontier.

1.4 Geological Setting

The Project area is situated along the boundary between the Berens River and Sachigo Subprovinces of the Archean Superior Province.

The three main lithological domains on the Property are the metasedimentary units consisting of pelitic sediments, iron formation, and conglomerate, the mafic metavolcanic unit with intercalated metasedimentary rocks and the Pakeagama Lake peraluminous granite and mica pluton.

There are four mineralized zones identified on the Property to date, which are PAK, Spark, Pennock and Bolt. Mineralization at these zones consists of predominantly K-feldspar, Na-feldspar, Spodumene + Quartz Intergrowth and lithian muscovite.

1.5 Deposit Type

The PAK Project deposit is a highly evolved, granitic, rare-element lithium-cesium-tantalum bearing (“LCT”) complex type, petalite subtype pegmatite similar to the Tanco pegmatite.

1.6 Exploration

Exploration on the Property consists primarily of detailed geological mapping of outcrops and channel sampling prospecting. Channel sampling has been completed on the Property in 2012, 2014, 2015, 217, 2018, 2019, 2020 and 2021.

1.7 Drilling

Thirteen phases of diamond drilling have taken place on the Property since 2013. Drilling has focused on the PAK and Spark Deposits with a total of 33,943.1 m in 131 holes.

1.8 Sample Preparation, Analysis and Security

Sample preparation and analysis of the channel and diamond drill programs has been completed by various independent commercial laboratories. All the laboratories used are certified.

Appropriate QA/QC programs have been in place since 2015 with the use of blanks, duplicates and standards.

1.9 Data Validation

Data validation to support the resource estimation has been conducted over the year. This includes multiple site visits, collar location validation, independent sampling, and database validation.

1.10 Mineral Processing and Metallurgical Testing

Mineral processing design and metallurgical testing have been carried out by various independent firms on representative samples from the PAK and Spark Deposits. Ore domains were first defined mineralogically for the PAK Deposit with metallurgical testing that was expanded to include the Spark Deposit in 2019. The majority of the test work has been completed at bench scale, although a pilot evaluation on a sample from Spark was also completed. Test work has evaluated the efficiency of the main unit processes including sorting, dense medium separation, crushing, grinding, dewatering, flotation and magnetic separation.

Technical and chemical grade spodumene concentrates have successfully been produced from composite samples from both deposits and test work supports the viability of producing lithium hydroxide and lithium carbonate final products using conventional methods.

1.11 Mineral Resources Estimates

Mineral resource estimates have been completed for the PAK and Spark Deposits using industry standard best practices. Surface mapping, channel samples and diamond drilling were used to generate 3D mineral solids for the various mineral domains, with the appropriate compositing and grade capping applied. Estimations were completed with a multi-pass estimation strategy using Ordinary Kriging. The mineral resources were constrained with pit shells using appropriate parameters to be considered as reasonable prospect for eventual economic extraction. Table 1-1 to Table 1-3 summarize the mineral resource estimate.

Table 1-1: PAK Open Pit Mineral Resource Summary

Cut-off	Resource Category	Commodity	Geologic Zone	Tonnes (t)	Li_2O (%)	Ta_2O_5 (ppm)	Cs_2O (%)	Rb_2O (%)	Contained Li_2O (t)
0.6% Li_2O	**Measured**	Lithium	Upper Intermediate Zone (UIZ)	325,200	3.43	59	0.03	0.14	11,154
		Lithium	Lower Intermediate Zone (LIZ)	1,019,400	1.73	105	0.04	0.29	17,636
		Lithium	**Total Lithium Zone**	**1,344,600**	**2.14**	**94**	**0.04**	**0.25**	**28,790**
		Tantalum / Rubidium	Central Intermediate Zone (CIZ)	-	-	-	-	-	-
		Lithium / Tantalum / Rubidium	**Bulk Pegmatite**	**1,344,600**	**2.14**	**94**	**0.04**	**0.25**	**28,790**
0.6% Li_2O	**Indicated**	Lithium	Upper Intermediate Zone (UIZ)	255,400	2.91	75	0.04	0.21	7,432
		Lithium	Lower Intermediate Zone (LIZ)	3,819,900	1.88	99	0.04	0.30	71,814
		Lithium	**Total Lithium Zone**	**4,075,300**	**1.94**	**97**	**0.04**	**0.29**	**79,246**
		Tantalum / Rubidium	Central Intermediate Zone (CIZ)	544,100	1.11	113	0.08	0.63	n/a
		Lithium / Tantalum / Rubidium	**Bulk Pegmatite**	**4,619,400**	**1.72**	**99**	**0.04**	**0.33**	79,246
0.6% Li_2O	**Measured + Indicated**	Lithium	Upper Intermediate Zone (UIZ)	580,600	3.20	65	0.03	0.17	18,587
		Lithium	Lower Intermediate Zone (LIZ)	4,839,300	1.85	100	0.04	0.30	89,450
		Lithium	**Total Lithium Zone**	**5,419,900**	**1.99**	**96**	**0.04**	**0.29**	**108,036**
		Tantalum / Rubidium	Central Intermediate Zone (CIZ)	544,100	1.11	113	0.08	0.63	n/a
		Lithium / Tantalum / Rubidium	**Bulk Pegmatite**	**5,964,000**	**1.81**	**98**	**0.04**	**0.32**	**108,036**
0.6% Li_2O	**Inferred**	Lithium	Upper Intermediate Zone (UIZ)	74,200	2.77	96	0.04	0.25	2,055
		Lithium	Lower Intermediate Zone (LIZ)	528,900	1.86	79	0.02	0.23	9,838
		Lithium	**Total Lithium Zone**	**603,100**	**1.97**	**81**	**0.02**	**0.23**	**11,893**
		Tantalum /Rubidium	Central Intermediate Zone (CIZ)	77,400	1.21	153	0.08	0.51	n/a
		Lithium / Tantalum / Rubidium	**Bulk Pegmatite**	**680,500**	**1.75**	**89**	**0.03**	**0.26**	**11,893**

Table 1-2: PAK Underground Mineral Resource Summary

Cut- off	Resource Category	Commodity	Geologic Zone	Tonnes (t)	Li_2O (%)	Ta_2O_5 (ppm)	Cs_2O (%)	Rb_2O (%)	Contained Li_2O (t)
0.8% Li_2O	**Measured**	Lithium	Upper Intermediate Zone (UIZ)	0	-	-	-	-	0
		Lithium	Lower Intermediate Zone (LIZ)	0	-	-	-	-	0
		Lithium	**Total Lithium Zone**	**0**	**-**	**-**	**-**	**-**	**0**
		Lithium / Tantalum / Rubidium	**Bulk Pegmatite**	**0**	**-**	**-**	**-**	**-**	**0**
0.8% Li_2O	**Indicated**	Lithium	Upper Intermediate Zone (UIZ)	0	-	-	-	-	0
		Lithium	Lower Intermediate Zone (LIZ)	1,261,700	2.15	91	0.04	0.29	27,127
		Lithium	**Total Lithium Zone**	**1,261,700**	**2.15**	**91**	**0.04**	**0.29**	**27,127**
		Tantalum / Rubidium	Central Intermediate Zone (CIZ)	3,830	1.16	143	0.06	0.34	n/a
		Lithium / Tantalum / Rubidium	**Bulk Pegmatite**	**1,265,530**	**2.14**	**91**	**0.04**	**0.29**	**27,127**
0.8% Li_2O	**Measured + Indicated**	Lithium	Upper Intermediate Zone (UIZ)	0	-	-	-	-	0
		Lithium	Lower Intermediate Zone (LIZ)	1,261,700	2.15	91	0.04	0.30	27,127
		Lithium	**Total Lithium Zone**	**1,261,700**	**2.15**	**91**	**0.04**	**0.30**	**27,127**
		Tantalum / Rubidium	Central Intermediate Zone (CIZ)	3,830	1.16	143	0.06	0.34	n/a
		Lithium / Tantalum / Rubidium	**Bulk Pegmatite**	**1,265,530**	**2.14**	**91**	**0.04**	**0.30**	**27,127**
0.8% Li_2O	**Inferred**	Lithium	Upper Intermediate Zone (UIZ)	27,450	4.35	31	0.02	0.10	1,194
		Lithium	Lower Intermediate Zone (LIZ)	2,043,400	2.35	73	0.02	0.25	48,020
		Lithium	**Total Lithium Zone**	**2,070,850**	**2.38**	**72**	**0.02**	**0.25**	**49,214**
		Tantalum /Rubidium	Central Intermediate Zone (CIZ)	6,900	2.03	146	0.12	0.24	n/a
		Lithium / Tantalum / Rubidium	**Bulk Pegmatite**	**2,077,750**	**2.37**	**73**	**0.02**	**0.25**	**49,214**

Table 1-3: Spark Open Pit Mineral Resource Summary

Cut-Off	Resource Classification	Tonnes (t)	Li_2O (%)	Nb_2O_5 (ppm)	Cs_2O (%)	Ta_2O_5 (ppm)	Rb_2O (%)	SnO_2 (ppm)
0.65% Li_2O	Indicated	18,828,000	1.52	84	0.02	112	0.26	61
	Inferred	29,746,000	1.34	77	0.03	116	0.26	74

1.12 Mineral Reserve Estimates

The Mineral Reserve Estimate has been completed on the PAK and Spark Deposits using industry standard best practices. Mineral reserves are based on the engineering and economic analysis described in Chapter 15 of this Technical Report. Changes in the following factors and assumptions may affect the mineral reserve estimate:

- Commodity prices;
- Interpretations of mineralization geometry and continuity of mineralization zones;
- Grade and geology estimation assumptions;
- Geomechanical and hydrogeological assumptions;
- Ability of the mining operation to meet the annual production rate;
- Operating cost assumptions;
- Process plant recoveries;
- Mining loss and dilution assumptions;
- Ability to meet and maintain permitting and environmental license conditions.

BBA prepared the mineral reserve estimate for the Project using Deswik mining software packages and modules for estimating the economic pit limit for the open pit and block model interrogation.

Mineral reserves for the PAK and Spark Deposits incorporate mining dilution and mining loss assumptions for the open pit mining method.

The reference point at which mineral reserves are defined, is the point where the ore is delivered to the concentrator facility, which includes the ROM stockpiles.

The 2023 Mineral Reserve Estimate for the Project includes an overall 22.1 Mt of Probable Mineral Reserves grading 1.55% Li_2O at a cut-off grade of 0.65% Li_2O from the PAK and Spark Deposits, with an overall stripping ratio of 3.7.

1.13 Mining Method

Open pit mining with conventional drill-blast-load-haul is the selected method of extraction for this PFS.

The open pit production period is approximately 24 years. The operation scenario for the PFS involves:

- Mining starts at PAK with the technical grade line at the concentrator plant in Year 1;
- Mining starts at Spark with chemical grade line at the concentrator plant in Year 3;
- Average mining rate of ore and waste over the LOM is approximately 4.6 Mtpa, with a peak of approximately 8.2 Mtpa:
  - 210,000 tpa concentrator plant feed from PAK (technical grade line);
  - 830,000 tpa concentrator plant feed from Spark (chemical grade line);
- The mine plan considers a ramp-up of 30% in Q1, 60% in Q2, 100% in Q3 and Q4 (for technical grade line in Year 1 and chemical grade line in Year 3);
- Li_2O grade range from PAK / technical grade line of 1.5% to 2.0%;
- All ore material from PAK has been designated as technical grade feed;
- All ore material from Spark has been designated as chemical grade feed.

1.14 Recovery Methods

Ore from the PAK and Spark Deposits is processed using the mineral processing flowsheets defined in Chapter 17 to generate technical grade (7.2% Li_2O) and chemical grade (6.0% Li_2O) flotation concentrates. The mineral processing flowsheets described in Chapter 17 have been developed using the laboratory and pilot scale test work described in Chapter 13. The main components of the mineral processing flowsheet include crushing, dense medium separation, grinding, magnetic separation, gravity concentration and flotation.

The chemical grade flotation concentrate will be transported by road to a nearby lithium chemicals conversion plant (“chemicals plant”), where it will be further processed to produce battery grade lithium hydroxide and lithium carbonate products.

1.15 Project Infrastructure

Project infrastructure will exist at two sites: the PAK mine site, and the chemicals plant site.

The PAK site includes: PAK open pit, Spark open pit, rock dumps, concentrator plant complex, tailings management facility, electrical distribution, offices, camp, warehouse, maintenance, effluent treatment, and an airstrip.

The chemicals plant site will be located in the Thunder Bay region and consists of the chemicals plant, analytical facilities and product plus consumable handling infrastructure.

1.16 Market Studies and Contracts

A market study was completed to review the forecasted demand for lithium, the spodumene concentrate pricing, lithium hydroxide and lithium carbonate pricing.

Frontier currently does not have any contracts in place for the sale of technical grade spodumene concentrate, lithium hydroxide or lithium carbonate.

1.17 Environmental Studies, Permitting and Social or Community Impact

Collection of environmental baseline data for the PAK Project has been ongoing since 2016. The baseline studies were designed and implemented to support requirements for future planning and permitting purposes. Frontier has taken an active role in communicating and consulting with the local communities and currently has exploration agreements signed with all four of the surrounding First Nations.

1.18 Capital and Operating Costs

1.18.1 Capital Costs

The capital cost estimate consists of the direct capital costs for the mine, the concentrator facility, the associated mine site infrastructure, and the chemicals plant, and the indirect costs for project construction management services.

Sources for the capital costs include vendor budget quotations, historical data, similar projects, and factors. A currency exchange rate of 1 USD : 1.3 CAD (1 CAD: 0.76932 USD) was used in the capital cost estimate.

The estimate was prepared in accordance with the American Association of Cost Engineers ("AACE") Class 4 Estimate with an expected accuracy of -20% to +30%.

Table 1-4 presents a summary of the estimated capital costs. The cost estimate is divided by the WBS category and split between direct costs and indirect costs. The summary is further divided into the relative stages of the Project:

- Initial Capital refers to:
  - Stage 1
    - Construction of the technical grade line of the concentrator plant;
    - Construction of site infrastructure;
    - Initial purchase of mobile equipment for the commencement of mining at PAK open pit area;
    - Initial construction of the tailings management facility ("TMF").
- Expansion and Sustaining Capital refers to:
  - Stage 2
    - Construction of chemical grade line of the concentrator plant;
    - Initial purchase of mobile equipment for the commencement of mining at Spark open pit area;
    - Any deferred infrastructure construction related to Spark mining area;
    - Construction of the chemicals plant (off-site);
    - TMF expansion.

Table 1-4: Capital Expenditures

Description	Pre-production	Production Phase		Closure Phase	Total
	Y-2 to -1	Y1 to 3	Y4 to 24	Y25+	LOM
	Phase 1				
	Phase 2				
	M$	M$	M$	M$	M$
Direct Costs					
Mine Infrastructure & Equipment	18.6	8.7	59.3	0.0	**86.6**
Concentrator Plant Facility	157.9	74.3	0.0	0.0	**232.2**
TMF	23.2	0.0	24.9	0.0	**48.1**
Site Infrastructure	186.6	18.2	1.6	0.0	**206.4**
Chemicals Plant	0.0	379.2	0.0	0.0	**379.2**
Closure and Reclamation	0.0	22.7	9.1	-14.0	**17.8**
Direct Costs	**386.2**	**503.0**	**95.0**	**-14.0**	**970.2**

Description	Pre-production	Production Phase		Closure Phase	Total
	Y-2 to -1	Y1 to 3	Y4 to 24	Y25+	LOM
	Phase 1				
		Phase 2			
	M$	M$	M$	M$	M$
Indirect Costs					
Owners Cost & Construction Indirect Costs	116.0	155.8	0.0	0.0	**271.8**
Contingency	100.5	131.8	19.0	-2.8	**248.4**
Indirect Costs	**216.5**	**287.5**	**19.0**	**-2.8**	**520.2**
Insurance	5.5	0.0	0.0	0.0	**5.5**
Capital Expenditure	**608.2**	**790.5**	**113.9**	**-16.8**	**1,495.9**

1.18.2 Operating Costs

The estimated operating cost of the PAK Project covers open pit, technical grade and chemical grade concentrator plant, tailings management facilities, mine services and G&A, concentrate hauling, and chemicals plant facility.

The total operating cost is based on a schedule that includes the following:

- PAK mining and technical concentrator operation commences in Year 1;
- Spark mining and chemical concentrator operation commences in Year 3;
- Lithium hydroxide and lithium carbonate plant (Chemicals Plant Facility) operation commences in Year 4;
- Total milled tonnes over the LOM is 22.1M.

The total site operating cost for mining, concentrating and G&A over the LOM is estimated to be $1,943M as shown in Table 1-5. Mining and concentrator processing cost represent 39% and 31% of this total cost respectively. Mine services and G&A represent the remaining 30%.

The total operating processing cost for the chemicals plant over the LOM is estimated to be $2,467M. The total LOM overall operating cost for the mine, concentrator plant, concentrate transport, and chemicals plant processing is $4,841M.

Table 1-5: Total Operating Costs Over Life of Project

Cost Area	Total (M$)	Unit Cost ($/t milled)	Percent of Total
Open Pit Mining	753.5	34.14	16%
Concentrator Processing	610.8	27.67	13%
General & Administrative (G&A)	578.7	26.22	12%
Subtotal Site Operating	**1,943.0**	**88.04**	**40%**
Concentrate Transportation	385.5	17.47	8%
Chemicals Plant	2,467.0	111.78	51%
Transport Losses	45.8	2.07	1%
Total Operating Cost	**4,841.2**	**219.36**	**100%**

The operating cost estimates exclude any allowances for contingencies.

1.19 Economic Analysis

The pre-tax base case financial model results in an internal rate of return ("IRR") of 28.6% and a Net Present Value ("NPV") of $3,365M with a discount rate of 8%. The simple pre-tax payback period is 4.9 years. On an after-tax basis, the base case financial model results in an internal rate of return of 24.1% and an NPV of $2,261M with a discount rate of 8%. The simple after-tax payback period is 4.9 years. These are summarized in Table 1-6.

Table 1-6: Financial Analysis Summary

Description		CAD M	USD M
Pre-Tax	**Discount Rate**		
	8%	**3,365**	**2,588**
	Pre-Tax IRR	28.6%	
	Payback Period (years)	4.9	
After-Tax	**Discount Rate**		
	8%	**2,261**	**1,739**
	After-Tax IRR	24.1%	
	Payback Period (years)	4.9	
	Cumulative Effective Tax Rate	31.7%	

The Project shows positive economics. The Project is most sensitive to the USD:CAD exchange rate, battery grade lithium hydroxide prices, lithium carbonate prices and the capital costs based on the NPV and IRR sensitivities.

It should be noted that carbon dioxide equivalent tonnes have been estimated; however, carbon taxes beyond fully taxed fuel costs, and decarbonization costs and credits have not been applied to the financial model.

1.20 Adjacent Properties

Adjacent properties include gold and nickel-PGE prospects of various junior exploration companies. None of the adjacent properties are at an advanced stage of exploration.

1.21 Other Relevant Data and Information

To the best of the authors' knowledge, there is no other relevant data, additional information or explanation necessary to make the report understandable and not misleading.

1.22 Interpretation and Conclusions

This PFS demonstrates that the PAK Project has the potential to be technically and economically viable as a producer of premium technical grade lithium concentrate, chemical grade concentrate for the production of battery grade lithium hydroxide and battery grade lithium carbonate.

1.23 Recommendations

To advance the PAK Project towards the next stage of Engineering, a two-phase budget is proposed.

Phase 1, estimated at $8.75M, involves additional diamond drilling, bulk sampling, geotechnical/ hydrogeological, mineral processing test work and continued environmental and community liaison.

Phase 2, estimated at $11.6M, includes additional mine optimization, geotechnical/ hydrogeological, mineral processing test work, continued environmental and community liaison and the feasibility study.

2. Introduction

BBA E&C Inc. (BBA), in conjunction with Halyard Inc. (Halyard), WSP Golder (WSP Golder), Ian Ward Consulting Services (IWCS), and Environmental Applications Group (EAG), has prepared this technical report on the Project at the request of Frontier Lithium Inc. (“Frontier” or the "Company").

The purpose of this report is to provide a technical report of the PAK Lithium Project Fully Integrated Pre-Feasibility Study (the "Project") in accordance with the guidelines of the Canadian Securities Administrators National Instrument 43-101 (NI 43-101) and Form 43-101 F1.

2.1 Purpose of Report

The purpose of this report is to publish a technical report on the Pre-Feasibility Study (“PFS”) of the PAK Property summarizing:

- The land tenures, exploration history, and drilling;
- The mineral resource estimates at PAK and Spark deposits;
- The mineral reserve estimates at PAK and Spark deposits;
- A conceptual mine plan at a level to support a PFS;
- Recovery methods and process design at a level to support a PFS;
- The supporting infrastructure including, power, buildings, tailings management facility, chemicals plant, etc. to support the conceptual mine plan;
- The environmental permitting requirements for the Project;
- Capital expenditure and operating expenditure estimates for the Project;
- An economic analysis of the Project;
- Provide recommendations and budget for additional work.

2.2 Terms of Reference

Frontier engaged the services of the authors to write an independent NI 43-101 technical report on the PAK Property in the Red Lake Mining Division of Ontario. This report was prepared following NI 43-101 guidelines, Form NI 43-101F1, and Companion Policy 43 101CP.

2.3 Frontier Lithium

Frontier's corporate offices are located at 2736 Belisle Drive, Val Caron, Ontario, Canada, and the Company is listed on the TSXV under the trading symbol FL, the Frankfurt stock Exchange under the trading symbol HL2 and on the OTC QC under the trading symbol LITOF. Frontier is an emerging lithium mineral and chemicals company.

2.4 Qualification of Consultant

The Consultants preparing this technical report are specialists in the fields of geology, exploration, mineral resource estimation, open pit mining, geotechnical, environmental, permitting, metallurgical testing, mineral processing, processing design, civil, mechanical, electrical, capital and operating cost estimation, and mineral economics.

None of the Consultants or associates employed in the preparation of this report has any beneficial interest in Frontier. The Consultants are not insiders, associates, or affiliates of Frontier. The results of this technical report are not dependent upon any prior agreements concerning the conclusions to be reached, nor are there any undisclosed understandings concerning any future business dealings between Frontier and the Consultants. The Consultants are being paid a fee for their work in accordance with normal professional consulting practice.

2.5 Report Responsibility and Qualified Persons

The following individuals, by virtue of their education, experience, and professional association, are considered Qualified Persons ("QPs") as defined in the NI 43-101 standard, for this report, and are members in good standing of appropriate professional institutions:

- Todd McCracken, P.Geo., Director – Mining & Geology, Central Canada, BBA E&C Inc.;
- Bahareh Asi, P.Eng., Senior Engineer, Mining, BBA E&C Inc.;
- Joanne Robinson, P.Eng., Senior Engineer, Mining, BBA E&C Inc.;
- David Willock, P.Eng., Senior Engineer, Mining, BBA E&C Inc.;
- Shane Ghouralal, P.Eng., Regional Director, Mining and Metals Studies, BBA E&C Inc.;
- Darlene Nelson, P.Eng., Senior Rock Mechanic Engineer, WSP Golder;
- Andrew Holloway, P.Eng., Process Director, Halyard Inc.;
- Ian Ward, P.Eng., Principal at Ian Ward Consulting Services;
- Ron deGagne, P.Geo., Senior Geoscientist, Environmental Applications Group.

The preceding QPs have contributed to the writing of this report and have provided QP certificates, included at the end of this report. The information contained in the certificates outlines the sections in this report for which each QP is responsible. Each QP has also contributed figures, tables and portions of Chapters 1 (Summary), 2, (Introduction), 3 (Reliance on other Experts), 25 (Interpretation and Conclusions), 26 (Recommendations), and 27 (References). Table 2-1 outlines the responsibilities for the various sections of the report and the name of the corresponding Qualified Person.

Table 2-1: Report Responsibility Matrix

Chapter	Title	Company	Qualified Person	Comments and Exceptions
1	Summary	BBA	T. McCracken, P.Geo.	All QPs contributed based on their respective scope of work and the Chapters/Sections under their responsibility.
2	Introduction	BBA	T. McCracken, P.Geo.	All QPs contributed based on their respective scope of work and the Chapters/Sections under their responsibility.
3	Reliance on Other Experts	BBA	T. McCracken, P.Geo.	All QPs contributed based on their respective scope of work and the Chapters/Sections under their responsibility.
4	Property Description and Location	BBA	B. Asi, P.Eng.	
5	Accessibility, Climate, Local Resources, Infrastructure and Physiography	BBA	B. Asi, P.Eng.	
6	History	BBA	B. Asi, P.Eng.	
7	Geological Settings and Mineralization	BBA	T. McCracken, P.Geo.	
8	Deposit Types	BBA	T. McCracken, P.Geo.	
9	Exploration	BBA	T. McCracken, P.Geo.	
10	Drilling	BBA	T. McCracken, P.Geo.	
11	Sample Preparation, Analyses and Security	BBA	T. McCracken, P.Geo.	
12	Data Verification	BBA	T. McCracken, P.Geo.	
13	Mineral Processing and Metallurgical Testing	Halyard	A. Holloway, P.Eng.	Sections 13.1 through 13.4, 13.6.1
		Ian Ward	I. Ward, P.Eng.	Sections 13.5 and 13.6.2
14	Mineral Resource Estimate	BBA	T. McCracken, P.Geo.	

Chapter	Title	Company	Qualified Person	Comments and Exceptions
15	Mineral Reserve Estimate	BBA	J. Robinson, P.Eng.	
16	Mining Methods	BBA	J. Robinson, P.Eng.	Sections 16.1 through 16.8
		WSP	D. Nelson, P.Eng.	Section 16.9
17	Recovery Methods	Halyard	A. Holloway, P.Eng.	Section 17.1
		Ian Ward	I. Ward, P. Eng.	Section 17.2
18	Project Infrastructure	BBA	D. Willock, P.Eng.	
19	Market Studies and Contracts	BBA	S. Ghouralal, P.Eng.	
20	Environmental Studies, Permitting and Social or Community Impact	EAG	R. deGagne, P.Geo.	
21	Capital and Operating Costs	BBA	T. McCracken, P.Geo.	Sections 21.1, 21.2, 21.3.1, 21.6, 21.7, 21.8, 21.9.1, 21.9.4, 21.9.5, and 21.10
		BBA	J. Robinson, P.Eng.	Sections 21.3.2, 21.9.2
		BBA	D. Willock, P.Eng.	Sections 21.3.3, and 21.3.4
		Halyard	A. Holloway, P.Eng.	Sections 21.4, 21.5, 21.9.3, and 21.9.6
22	Economic Analysis	BBA	T. McCracken, P.Geo.	
23	Adjacent Properties	BBA	B. Asi, P.Eng.	
24	Other Relevant Data and Information	BBA	T. McCracken, P.Geo.	
25	Interpretation and Conclusion	BBA	T. McCracken, P.Geo.	All QPs contributed based on their respective scope of work and the Chapters/Sections under their responsibility
26	Recommendation	BBA	T. McCracken, P.Geo.	All QPs contributed based on their respective scope of work and the Chapters/Sections under their responsibility
27	References	BBA	T. McCracken, P.Geo.	All QPs contributed based on their respective scope of work and the Chapters/Sections under their responsibility

2.6 Site Visits

The following bulleted list describes the Qualified Persons who visited the Property, the date of the visit, and the general objective of the visit:

- Mr. Todd McCracken, P.Geo., of BBA visited the site on October 1 and 2, 2013, July 13 and 14, 2015, February 8 to 10, 2021, and September 12 and 13, 2022.
  In addition, Mr. McCracken has visited the core farm located at 2736 Belisle Drive in Val Caron, Ontario, several times to evaluate the geological environment, assess the Property, inspect diamond drill core, validate drill collar locations and confirm the technical and geological information presented herein.
- Ms. Joanne Robinson, P.Eng., of BBA visited the site on July 13 and 14, 2015, and September 12 and 13, 2022 to inspect the topography surrounding the PAK and Spark deposits.
- Mr. David Willock, P.Eng., of BBA visited the site on September 12 and 13, 2022 to inspect the topography surrounding the PAK and Spark deposits.
- Ms. Darlene Nelson, P.Eng., of WSP Golder visited the Property on September 17 to 20, 2021, and July 22 to 27, 2022 to examine the Project setting, the Spark pit location, geotechnical drillhole collar locations and reviewed drill core at the drills and in the core logging facility.

BBA considers the site visits current, per NI 43-101CP, Section 6.2.

2.7 Currency, Units of Measure, and Calculations

Unless otherwise specified or noted, the units used in this report are metric. Every effort has been made to clearly display the appropriate units being used throughout the report.

Coordinates within this report use NAD83 UTM Zone 14N, unless otherwise stated.

Currency is in Canadian dollars (CAD or $), unless otherwise noted.

This report includes technical information that required subsequent calculations to derive subtotals, totals and weighted averages. Such calculations inherently involve a degree of rounding and consequently introduce a margin of error. Where these occur, the QPs consider them immaterial.

2.8 Effective Date

The issue date of this report is July 14, 2023. The effective date of the PAK Lithium Project Fully Integrated PFS is May 31, 2023.

As of the effective date of this report, the authors are not aware of any material fact or material change with respect to the subject matter of this technical report that is not presented herein, or which the omission to disclose could make this report misleading.

2.9 Acknowledgement

BBA and the QPs to the report would like to acknowledge the following individuals for their general support provided during this assignment.

The Project benefited from the specific input of Trevor Walker, Jason Murphy and Garth Drever of Frontier Lithium.

3. Reliance on Other Experts

The QPs (Qualified Persons) have reviewed and analyzed data and reports provided by Frontier, together with publicly available data, drawing its own conclusions augmented by direct field examination.

The QP who prepared this report relied on information provided by experts who are not QPs. The QP believes that it is reasonable to rely on these experts, based on the assumption that the experts have the necessary education, professional designations, and relevant experience on matters relevant to the technical report.

- Todd McCracken, P.Geo., relied upon Garth Drever, P.Geo. Vice President of Exploration for Frontier Lithium for matters pertaining to mineral claims and mining leases as disclosed in Chapter 4 (FL_LandStatus.xls dated January 25, 2021);
- Todd McCracken, P.Geo., has relied upon Graeme Goodall, P. Eng., Vice President of Operations for tax analysis model as disclosed in Chapter 22.

The QPs have assumed, and relied on the fact, that all the information and existing technical documents listed in the References Chapter 27 of this report are accurate and complete in all material aspects. While the QPs reviewed all the available information presented, we cannot guarantee its accuracy and completeness. The QPs reserve the right, but will not be obligated, to revise the report and conclusions, if additional information becomes known subsequent to the date of this report.

4. Property Description and Location

4.1 Location

The Property is located 175 km north of Red Lake, Ontario in the Red Lake Mining Division and is on Crown Land (Figure 4-1). The centre of the Project is located on the National Topographic System map sheet reference is 53C/11 at approximately 52°36'N latitude and 93°23'W longitude near Pakeagama Lake.

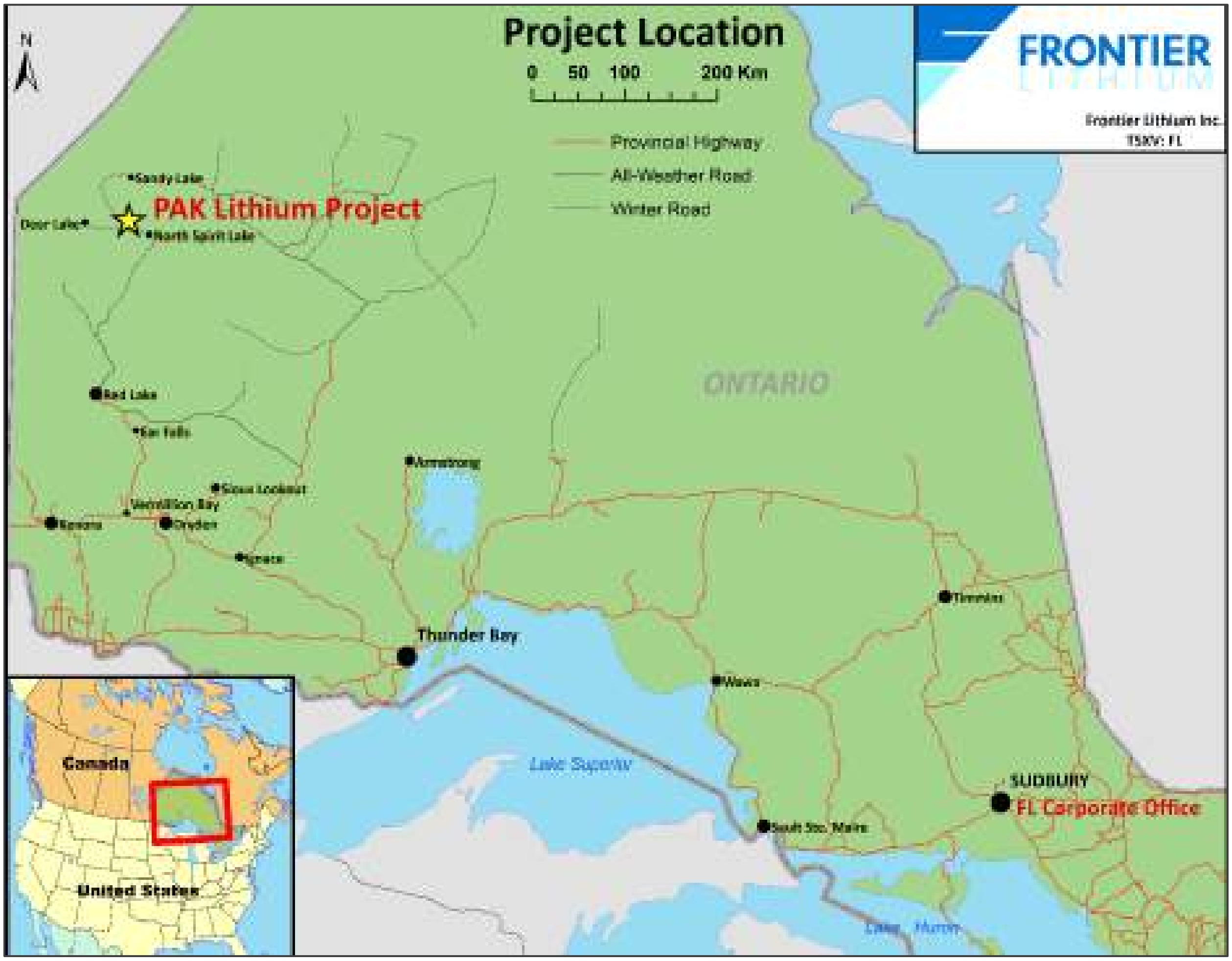


Figure 4-1: Location Map

4.2 Mineral Disposition

The Property is composed of three Mining Leases and 1,261 Mining Claims (1,258 contiguous and one group of three) for a total of 27,120.6 ha as illustrated in Table 4-1 and displayed on the location map in Figure 4-2. All mining claims are currently in good standing. A complete detailed list of the Land Tenure can be found in Appendix A.

The Property is presently owned 100% by Frontier. In March of 1999, Frontier entered into an option agreement to earn a 100% interest in Mining Claim KRL-1232441. Upon complying with the terms of the agreement, Frontier exercised their option and acquired a 100% interest in the claim. In February 2017, the claim was converted to Mining Lease 109669.

On December 8, 2010, Frontier entered into a 6-year agreement with two private individuals, to acquire 100% of three mining claims (each 16-unit claims) collectively called the Pakeagama South-East. In 2015, Frontier completed the earn-in by issuing a total of 500,000 common shares and payment of $110,000.

Fourteen additional claims were staked in 2014 to the northwest and southeast, and in 2015 two more claims were staked to the west to make up the land tenure prior to the Ministry of Energy, Northern Development and Mines ("MENDM") transitioned to their on-line Mining Lands Administration System ("MLAS"). The new system uses cells based on the provincial grid system instead of claims units. Frontier's former legacy claims were subsequently converted into 432 Mining Claim cells and by March 2020, Frontier had acquired an additional 948 claims for a grand total of 1,379 claims totalling 26,826 ha.

4.3 Tenure Rights

The Mining Lease provides both surface rights and the mineral rights. For the remaining claims, the surface rights to the Property currently remain with the Crown. The Ontario Mining Act (2010) grants access to a mineral claim without having the surface rights. The Mining Lease holder has the right to extract minerals subject to additional approvals. Frontier holds three Mining Leases totalling 2,219.3 ha (Table 4-1).

4.4 Royalties and Related Information

A royalty agreement is in place for 17 claim cells to the east of Lease 109669 and adjacent to the south-central part of Lease 110063 (see Figure 4-2) with a 2.5% NSR and the ability to reduce the royalty to 1.0% for $1,500,000. Two additional areas acquired in late 2018 have a 1.5% and 0.5% NSR with the ability to buy out the royalty for $1,000,000 and $500,000 respectively. A single claim group (294.53 ha) along the Flanagan River was acquired in March 2020 has a 1.0% NSR, which can be purchased for $1,000,000.

Table 4-1: Summary of Land Tenure and Royalties

Tenure Type	Land Use Region	Claims - Leases	Area (ha)	NSR Royalty (%)
Mining Lease	Deer Lake	2	458.2	
Mining Lease*	Deer Lake - North Spirit Lake	1	531.2	2.5%
			1,229.9	
Mining Claims	Deer Lake	320	6,255.9	
Mining Claims	Deer Lake - North Spirit Lake	19	334.9	
Mining Claims	Deer Lake - North Spirit Lake	7	96.7	2.5%
Mining Claims	Deer Lake	7	102.0	2.5%
Mining Claims	North Spirit Lake	409	7,965.7	
Mining Claims	North Spirit Lake	3	37.6	2.5%
Mining Claims	North Spirit Lake	1	294.5	1.0%
Mining Claims	Sandy Lake	445	8,699.9	
Mining Claims	Sandy Lake - Deer Lake	13	254.5	
Mining Claims	Sandy Lake	35	683.7	1.5%
Mining Claims	Sandy Lake	2	175.8	0.5%
Total		**1,264**	**27,120.6**	

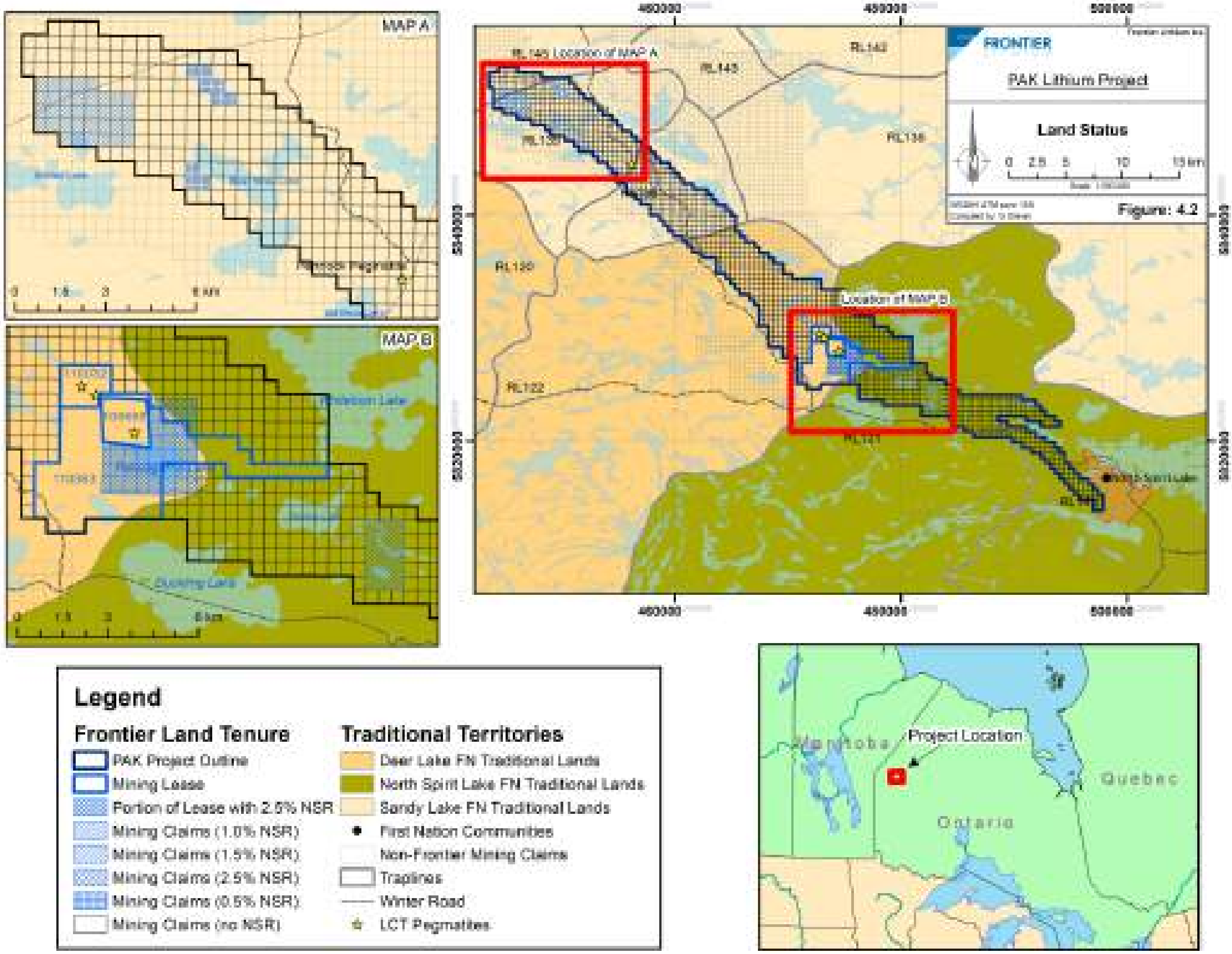


Figure 4-2: Location Map Showing Land Tenure of the PAK Property

4.5 Environmental Liabilities

No industrial activities such as mining or mineral processing have been conducted on the Property. Disturbance on the Property has been limited to a bulk sample pit, drill trails, and drill pad set-ups. The QP did not observe or is not aware of any environmental liabilities on the Property.

4.6 Permits

All permits required to conduct exploration on the Property are current.

4.7 Other Relevant Factors

Exploration Agreements are in place with four of the surrounding communities, whereby the development of the Project will incorporate hiring practices for the employment of the residents of North Spirit Lake, Deer Lake, Sandy Lake, and Keewaywin First Nations and the use of services from the communities.

5. Accessibility, Climate, Local Resources, Infrastructure and Physiography

5.1 Access

Access to the Property is available year-round by chartered ski or float-equipped aircraft from Red Lake, Ontario (175 km) to the south of Pakeagama Lake, with the exception of short periods of time for ice freeze up in the winter and ice breakup in the spring. From mid-January to April, the Property is accessible by all-weather from Red Lake north on the Nungessor Road for approximately 100 km to the North Spirit Lake Winter Road. The Winter Road to North Spirit Lake Community is approximately 110 km. The winter road continues past the community of North Spirit Lake towards the community of Sandy Lake. The turn-off to the Property is approximately 32 km past North Spirit Lake. The winter road is located adjacent to the west side of the claim group (Figure 5-1).

The Project is in a relatively isolated area of northwestern Ontario where infrastructure is limited except for a winter road, which services the communities of Deer Lake, Sandy Lake, and North Spirit Lake.

Bearskin Airlines and Wasaya Air service the nearby communities of Deer Lake, North Spirit Lake, and Sandy Lake with daily flights year-round.

Access to the Property is available year-round if required.

5.2 Climate

Four climate data stations operated by Environment Canada are located at Island Lake in Manitoba, and Red Lake, Pickle Lake and Big Trout Lake in Ontario. The average mean annual temperature is -0.9°C. The daily temperature in summer ranges from 8.9°C to 19.2°C, while in winter temperature ranges from -20.3°C to -11.6°C. The maximum summer temperatures are in the high 20s°C and the minimum winter temperatures are in the mid -40’s°C. Average yearly precipitation for the area is 655 mm (www.climate.weather.gc.ca).

5.3 Local Resources

There is no immediate skilled labour force close to the Property. The location of the Property within northwestern Ontario and its proximity to the Red Lake mining camp and Manitoba ensures that skilled mining personnel can be found.

5.4 Infrastructure

Water sufficient for mining operations is present within the Property. Surface rights sufficient for mining operation have been obtained, and the necessary area for mining and processing infrastructure exist.

Currently no electric power is available on the Property. The Watanynikaneyap powerline, currently under construction, will pass by the western boundary of the Project and is expected to be completed and energized in 2024.

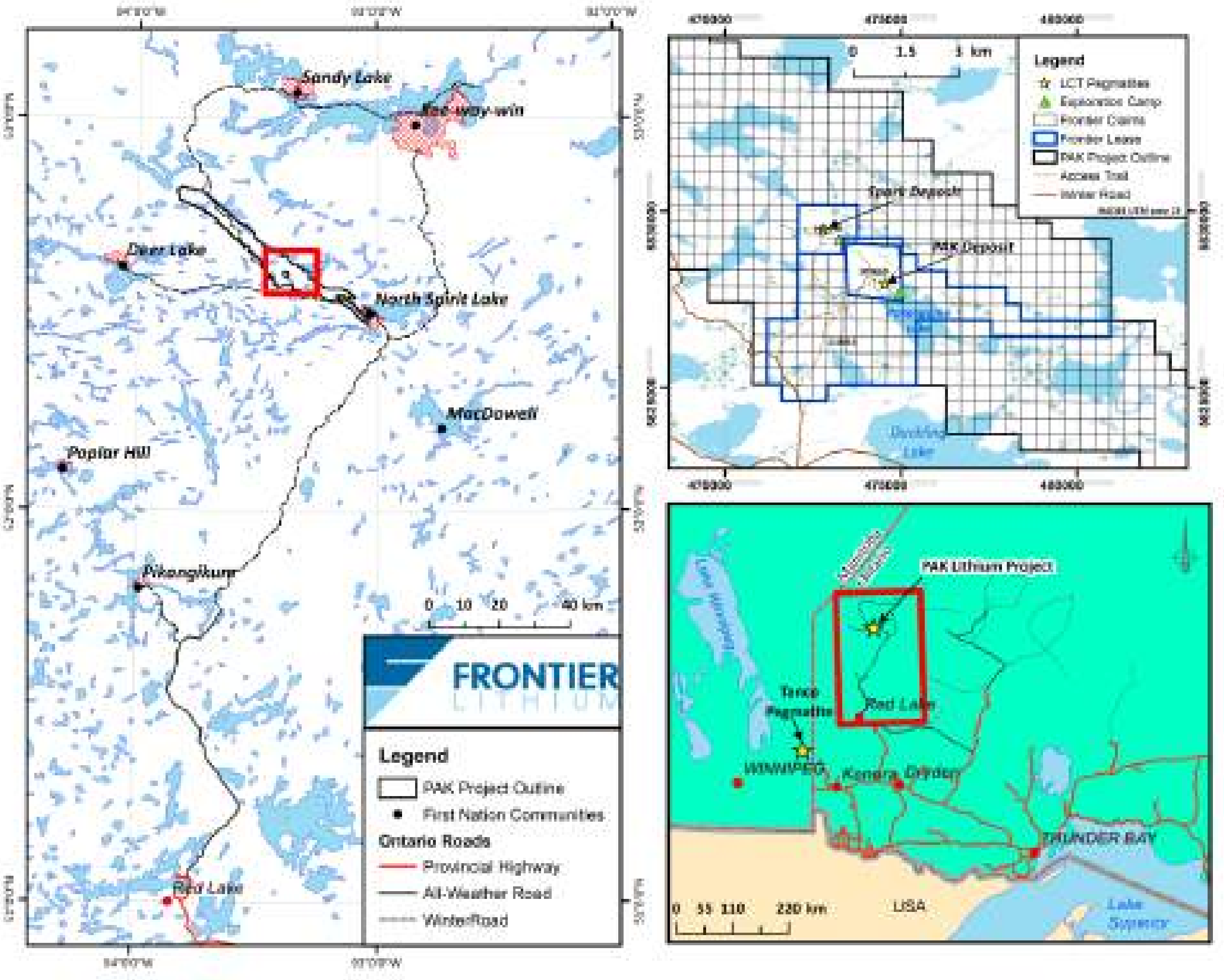


Figure 5-1: Property Access

5.5 Physiography

The Property is in an area of variable topographic relief, with a series of ridges with the extensive development of cliff faces paralleled to the general regional strike of the geology, surrounded by low-lying areas covered by swamps, lakes, and rivers. The mean elevation on the Property is approximately 320 masl.

The Property lies at the northern boundary of the Lac Seul Upland eco-region and the southern boundary of the Hayes River Upland eco-region of the Boreal Shield. The region is classified as having a sub-humid mid-boreal eco-climate (Ecological Stratification Working Group, 1998).

The dominant vegetation is coniferous forest. Higher elevations are covered by stands of jack pine up to 6 m high, while swampy areas are dominated by black spruce. Upland areas are covered with discontinuous deposits of acidic sandy tills, while thin lacustrine clay deposits tend to cap the tills in low-lying areas. The resulting deadfall from a 1995 forest fire inhibits easy foot travel. Another forest fire burned a portion of the Pakeagama Lake project area in 2008, including the area around the pegmatite.

6. History

A. P. Low of the Geological Survey of Canada ("GSC") completed the first geological reconnaissance mapping of the region in 1886. Additional geological surveys were carried out by G. V. Douglas (1925) and M. E. Hurst (1928) of the Ontario Department of Mines.

Most of the exploration activity in the region has been centred on the Favourable and Setting Net Lakes area located 25 km to 40 km to the northwest of the Property. While prospecting, K. C. Murray identified gold in the Favourable Lake area in 1927. The gold property was developed as the Berens River Mine and produced 4,451 kg of gold, 160,926 kg of silver, 2,770 t of lead, and 815,147 kg of zinc from 508,665 t of ore between 1939 and 1948 (Stone, 1998). Subsequent exploration by Golsil Mines Limited, Zahavy Mines Limited, Getty Mines Limited, and Noramco Mines Ltd. was carried out until the early 1990s.

Geological mapping of portions of the region was carried out by Ayres (1970, 1972a). He noted spodumene in a pegmatite dyke and holmquistite within granitic rocks near Setting Net Lake (25 km WNW of Pakeagama Lake). A grab sample from the pegmatite dyke contained 0.52% Li (Ayres, 1972b).

An airborne reconnaissance gamma-ray spectrometer survey was flown over the Pakeagama Lake area in 1977 as part of a regional coverage program by the Ontario Geological Survey ("OGS") and the Geological Survey of Canada ("GSC") in 1979. The survey was flown to a 120 m terrain clearance with 5 km line spacing and a 2.2 km station interval. No significant radiometric anomalies were detected in the immediate vicinity of Pakeagama Lake.

6.1 Ontario Geological Survey Programs

Geological mapping of the region was completed by D. Stone of the OGS in 1990 (Stone et al., 1993; Stone, 1998). Tourmaline-rich samples from the vicinity of Pakeagama Lake returned anomalous levels of lithium, cesium, tantalum, and beryllium during this work. Five rare metal mineral occurrences were detected over a 35 km trend along the Bear Head Lake Fault Zone; however, the Pakeagama Lake Pegmatite occurrence became the main focus of detailed work.

In 1998 and 1999, Dr. F. Breaks and Dr. A. Tindle of the OGS, studied the Pakeagama Pegmatite. Approximately 2,186 analyses had been conducted to establish that the Pakeagama rare metals pegmatite is potentially a world-class pegmatite suggesting the presence of a Tanco type mineralizing system. At the time, the Pakeagama Pegmatite was thought to vary in width from 30 m to 125 m, with a strike length of at least 260 m (open in both directions) that may extend another 300 m to an aplite dyke showing on the shores of Pakeagama Lake.

"The detailed documentation of a variety of tantalum-rich minerals coupled with the presence of pollucite (main cesium ore mineral) renders the Pakeagama Lake Pegmatite and adjoining area one of the best exploration targets for tantalum and cesium in Northwestern Ontario" (Breaks et. al., 1999).

6.2 Historic Exploration

There has been little exploration by publicly traded or private companies prior to Frontier's involvement.

Table 6-1 summarizes the work that has been completed on the Property. The information has been gathered from various assessment reports.

Table 6-1: Property Summary

Year	Company / Organization	Activity	Highlights
1886	GSC	First recorded work	First reconnaissance work.
1926	ODM	Reconnaissance survey	Reconnaissance scale mapping.
1929	ODM	Geological mapping	Reconnaissance scale mapping: gold identified in Favourable Lake area.
1937	ODM	Geological mapping	Gold Property developed as Berens River Mine.
1970-1972	ODM	Geological mapping	Identified spodumene near Net-Setting Lake.
1977	OGS / GSC	Airborne radiometrics	Regional survey; 5 km line spacing at 2.2 km stations. No significant anomalies identified in the Pakeagama Lake area.
1977 -1988	OGS	Geological mapping	Systematic mapping of the region.
1990-1993	OGS	Geological mapping	Identified anomalous Li, Cs, Ta, and Be in tourmaline-rich samples at Pakeagama Lake and discovered five rare metal occurrences over 35 km along the Bear Head Fault Zone.
1998-1999	OGS	Geological mapping - channel sampling	Completed detailed mapping and geochemistry (grab and channel samples) to establish Pakeagama Lake Pegmatite as world class with Tanco-type mineralization. Significant Mineralized Zones were identified (285 ppm Ta_2O_5, 0.59% Rb_2O, 967 ppm Cs_2O, and 1.15% Li_2O over 11.0 m).
1999	HLM	Geological mapping and sampling	Confirmed work completed by the OGS.

Year	Company / Organization	Activity	Highlights
2001	HLM	Ground geophysics	26-km magnetic and VLF survey; the survey was unsuccessful in delineating the pegmatite zone, however, defined the contacts between metasedimentary and granitic rock that contains the pegmatites in overburden covered areas.
2001	EFR	Geological mapping and sampling	Mapped and sampled the area immediately to the northwest of the pegmatite. No anomalies noted.
2001	HLM	Geological sampling (channel sampling)	Identified and confirmed high-grade lithium in the "Core Zone" of 4.5% Li_2O over 13.9 m.
2007	OGS	Airborne Electro-Magnetics	Part of a larger survey flown by Fugro at 200 m line spacing and 120 m terrain clearance. The banded iron formation in the metasediments and the sulphides present in the metavolcanic horizons were well defined by the survey.
2008	HLM	Line cutting - soil sampling	Re-established the grid for mapping the pegmatite and surrounding area. An Enzyme Leach survey was completed showing an apparent continuity of the anomalous zones away from the pegmatite to the southeast and east. This is most apparent with Cs, V, Ta, Li, Ga, and Nb.
2010	HLM	Acquisition of claims by option agreement	Three claims secured the land holdings immediately to the south and east of the pegmatite covering most of Pakeagama Lake.
2011	HLM	MMI soil sample survey	The regional survey was somewhat successful in delineating elevated cesium, lithium, and rubidium MMI concentrations both to the northwest and southeast directions coincident with the assumed orientation of the Pakeagama Lake Pegmatite.
2012	HLM	Channel sampling; staking	Historical and two new channels were sampled across portions of the pegmatite verifying historical grades by using certified standards. Increased land tenure to the southeast along the pluton.
2013	HLM	Phase I diamond drilling; staking	Completed the first diamond drilling on the Property totalling 955 m in six holes. Intersected 154 m wide pegmatite zone grading 1.22% Li_2O, 111 ppm Ta_2O_5, and 0.41% Rb_2O and a high-grade lithium zone of 18 m grading 4.22% Li_2O. Continued staking along the pluton.
2013	HLM	Tree core	Collected 37 tree-core samples during the winter drill program.
2013	HLM	Tree core & Soil Study	Collected 34 tree-core samples and soil samples over the deposit area as an orientation study.

Year	Company / Organization	Activity	Highlights
2013	HLM	Spodumene study	Completed an electron microprobe study confirming low-inherent iron content of the spodumene at the Pakeagama Lake Pegmatite.
2014	HLM	Phase II diamond drilling; staking	Completed 1,489 m in nine holes which confirmed continuity of the high-grade UIZ and extended the strike length and depth extent of the mineralized pegmatite zones. Continued staking to the southeast.
2014	HLM	Tree core & Soil Sampling	Collected soil samples and tree core samples on six lines across the long axis of the PAK Deposit.
2014	HLM	Channel sampling; staking	Completed the twinning of outstanding historical channels and cut two new channels confirming the grades and width of the UIZ at the surface. Staked to the northwest.
2015	HLM	Phase III diamond drilling	Completed 1,641 m in eight holes which confirmed continuity of the grades and extended the strike length and depth extent of the mineralized pegmatite zones.
2015	HLM	Bulk sample of UIZ	In late February and early March, a drill-blast program of 67 holes was completed with an approximately 300 t sample extracted and hauled to Red Lake for crushing and transported to SGS in Lakefield, ON for final processing as a direct shipping ore product (“DSO”) for an industrial test in Europe.
2015	HLM	Initiated baseline sampling, staking	Established water sampling and monitoring stations within the PAK Lithium Project area to be sampled three times annually (spring freshet, late summer, and winter). Also initiated flora and fauna study including species lists. Staked two additional claims along the access trail to the winter road.
2015	HLM	Phase IV diamond drilling	Completed 608 m in two holes which tested the eastern extension of the pegmatite. As predicted, the pegmatite body is continuous and plunging to the east at roughly 45°.
2015	HLM	Channel sampling	Stripped overburden and extended surface exposures of the high-grade UIZ to the WNW and completed 70 m of new channel cuts in eight separate channels.
2016	Frontier	Name change	Company changes name from Houston Lake Mining (“HLM”) to Frontier Lithium.
2016	Frontier	Exploration agreement	Company signs Exploration Agreement with Deer Lake First Nation and Sandy Lake First Nation.

Year	Company / Organization	Activity	Highlights
2016	Frontier	Baseline Environmental Surveys	Continued with Baseline work including flora and fauna studied by Blue Heron Environmental
2016	Frontier	High-Resolution Aerial Photography	Completed high-resolution aerial photography over the northern three quarters of the legacy claim area. Ground control points were established and surveyed which allowed for a digital elevation model for a portion of the surveyed area.
2017	Frontier	Pre-Feasibility Study	Began the process of the PFS with Nordmin as the lead using WSP, Golder, XPS and Blue Heron.
2017	Frontier	Exploration agreement	Company signs Exploration Agreement with North Spirit Lake First Nation.
2017	Frontier	Phase V diamond drilling	Completed 1,032 m in four holes to delineate the eastern plunge of the pegmatite.
2017	Frontier	Tree core & Soil Study	Completed a study of available trees in and around the deposit area and also on two lines to the northwest to test an area of prospective geology away from the deposit.
2017	Frontier	Geological Mapping	Began a process of systematic mapping within the Frontier claims area away from the deposit. Completed a petrographic study on selected hand samples collected.
2017	Frontier	Metallurgical test	Metallurgical test produces a spodumene concentrate with a grade of 7.13% Li_2O.
2017	Frontier	Hydrogeology / geotechnical	Completed 316 m in 28 holes and 576 m in 5 holes for hydrogeology and geotechnical support, respectively for the PFS.
2018	Frontier	Baseline Environmental Surveys	Finished with baseline surveys including areas designated in the PFS. This included aquatic studies plus flora and fauna.
2018	Frontier	Pre-Feasibility Study	Publish results of Pre-Feasibility Study.
2018	Frontier	Geological Mapping	Continued with the geological mapping and discovered the new Spark Pegmatite 2.3 km northwest of the PAK Deposit.
2018	Frontier	Hydrogeology	Completed 194 m in 20 holes for hydrogeology as a result of recommendation from the 2018 PFS.
2018	Frontier	Phase VI Diamond Drilling	Completed a 9-drillhole program totalling 1,221 m focused on delineating the deposit beneath the eastern extension and the near-surface UIZ.
2018	Frontier	Channel Sampling	Completed eight channels on the exposed surface of the Spark Pegmatite.

Year	Company / Organization	Activity	Highlights
2019	Frontier	Phase VII Diamond Drilling	In February, completed drilling to test the Spark Pegmatite with five holes totalling 1,340 m.
2019	Frontier	Phase VIII Diamond Drilling	In August, completed an additional 4 holes totalling 1,159 m on the Spark Pegmatite
2019	Frontier	Channel Sampling	Completed four additional channels on the exposed surface of the Spark Pegmatite.
2019	Frontier	Exploration agreement	Company signs Exploration Agreement with Keewaywin First Nation.
2019	Frontier	Channel Sampling	Completed one channel on the exposed surface of Pennock Pegmatite.
2020	Frontier	Pre-Feasibility Study	Included the Spark Resource mineral estimate within the Pre-Feasibility Study report.
2020	Frontier	Channel Sampling	Completed two channels on the exposed surface of Bolt Pegmatite.
2021	Frontier	Phase IX Diamond Drilling	Completed four delineations and two geo-mechanical holes during February and March for a total of 1,631 m on the Spark Deposit
2021	Frontier	Preliminary Economic Assessment	Completed the Pre-Economic Assessment (“PEA”) for a fully integrated mining, milling and the production of lithium compounds.
2021	Frontier	Surface water monitoring	Continued with the surface water monitoring including sampling and flow measurements.
2021	Frontier	LiDAR Survey	LiDAR was flown over the entire PAK Lithium Project area of 27 km^2 producing a digital elevation model with accuracies of >15 cm vertical and <30 cm horizontal.
2021	Frontier	Phase X Diamond Drilling	Completed four delineations and one geo-mechanical hole between September and October for a total of 1,638 m on the Spark Deposit.
2021	Frontier	Channel Sampling	Completed a third channel on the Bolt Pegmatite and two more channels on the western parts of Spark.
2022	Frontier	Phase XI Diamond Drilling	Completed three delineations and two geo-mechanical holes during February and March for a total of 1,343 m on the Spark Deposit.
2022	SLR	Environmental Baseline Studies	Initiated an environmental audit by SLR and by May began a systematic program of surface and groundwater sampling, aquatic and terrestrial studies.

Year	Company / Organization	Activity	Highlights
2022	Frontier	Phase XII Diamond Drilling	Completed 45 holes including two geo-mechanical holes for a total of 14,641 m on the Spark Pegmatite to ensure sufficient size and grade to proceed with a PFS.
2022	Frontier	Channel Sampling	Completed a channel on the Spark Pegmatite in an area where there was a gap in drilling due to topography - drill accessibility.
2022	Frontier	Regional Mapping	Completed regional scale mapping over the entire PAK Lithium Project. Two mapping crews utilized the same helicopter used to support the Phase XII drill program.
2022	Empulse	AMT (Pulsar) Survey	Completed a ground AMT survey over 15 km^2 covering the PAK, Spark, and Bolt pegmatites.
2022	Axiom	UAV Mag Survey	Completed a UAV Mag survey over 15 km^2 covering the PAK, Spark, and Bolt pegmatites.

6.3 Historical Mineral Resource and Mineral Reserves

The PAK Lithium Project has several historic Mineral Resource Estimates and historic Mineral Reserve Estimates completed since 2014. The historic Mineral Resources and historic Mineral Reserves were classified using the definitions provided by the Canadian Institute of Mining ("CIM") at the time of disclosure. Each historic Mineral Resource and historic Mineral Reserve has a technical report filed by Frontier Lithium and is referenced in Table 6-2.

All the Mineral Resource Estimates and Mineral Reserve Estimates listed below are considered historic and are no longer to be relied upon. Frontier is not treating the historical estimate as current Mineral Resources or Mineral Reserves.

Table 6-2: Historic Mineral Resources and Historic Mineral Reserves

Year	Deposit	Classification	CoG	Tonnes (Mt)	Li_2O (%)	Reference
2014	PAK	Inferred	0.4% Li_2O Eq	5.56	1.95	McCracken, 2014
2015	PAK	Indicated	0.4% Li_2O Eq	1.78	2.20	McCracken, 2015
		Inferred	0.4% Li_2O Eq	5.57	1.87	
2016	PAK	Measured & Indicated	0.4% Li_2O Eq	6.85	1.82	McCracken, 2016
		Inferred	0.4% Li_2O Eq	0.23	1.55	

Year	Deposit	Classification	CoG	Tonnes (Mt)	Li_2O (%)	Reference
2018	PAK	Proven & Probable (O/P)	Not disclosed	4.12	2.06	Boyko et al., 2018
		Probable (U/G)	0.8% Li_2O	1.65	1.84	
2020	PAK	Proven & Probable (O/P)	Not disclosed	4.12	2.06	McCracken et al., 2020
		Probable (U/G)	0.8% Li_2O	1.65	1.84	
	Spark	Indicated	0.65% Li_2O	3.25	1.59	
		Inferred	0.65% Li_2O	12.23	1.36	
2021	PAK	Measured & Indicated (O/P)	0.6% Li_2O	5.42	1.99	McCracken et al., 2021
		Inferred (O/P)	0.6% Li_2O	0.60	1.97	
		Indicated (U/G)	0.8% Li_2O	1.26	2.15	
		Inferred (U/G)	0.8% Li_2O	2.01	2.38	
	Spark	Indicated (O/P)	0.6% Li_2O	3.26	1.59	
		Inferred (O/P)	0.6% Li_2O	15.72	1.31	

7. Geological Setting and Mineralization

7.1 Regional Geology

The Project area is situated along the boundary between the Berens River and Sachigo subprovinces (Card and Ciesielski, 1986; Card, 1990) of the Archean Superior Province of the Canadian Shield (Figure 7-1). These subprovinces comprise a series of relatively isolated volcano-sedimentary (greenstone) belts surrounded by extensive granitic and gneissic suites of rock. The subprovinces are separated by the Bear Head Lake Fault Zone (Figure 7-2).

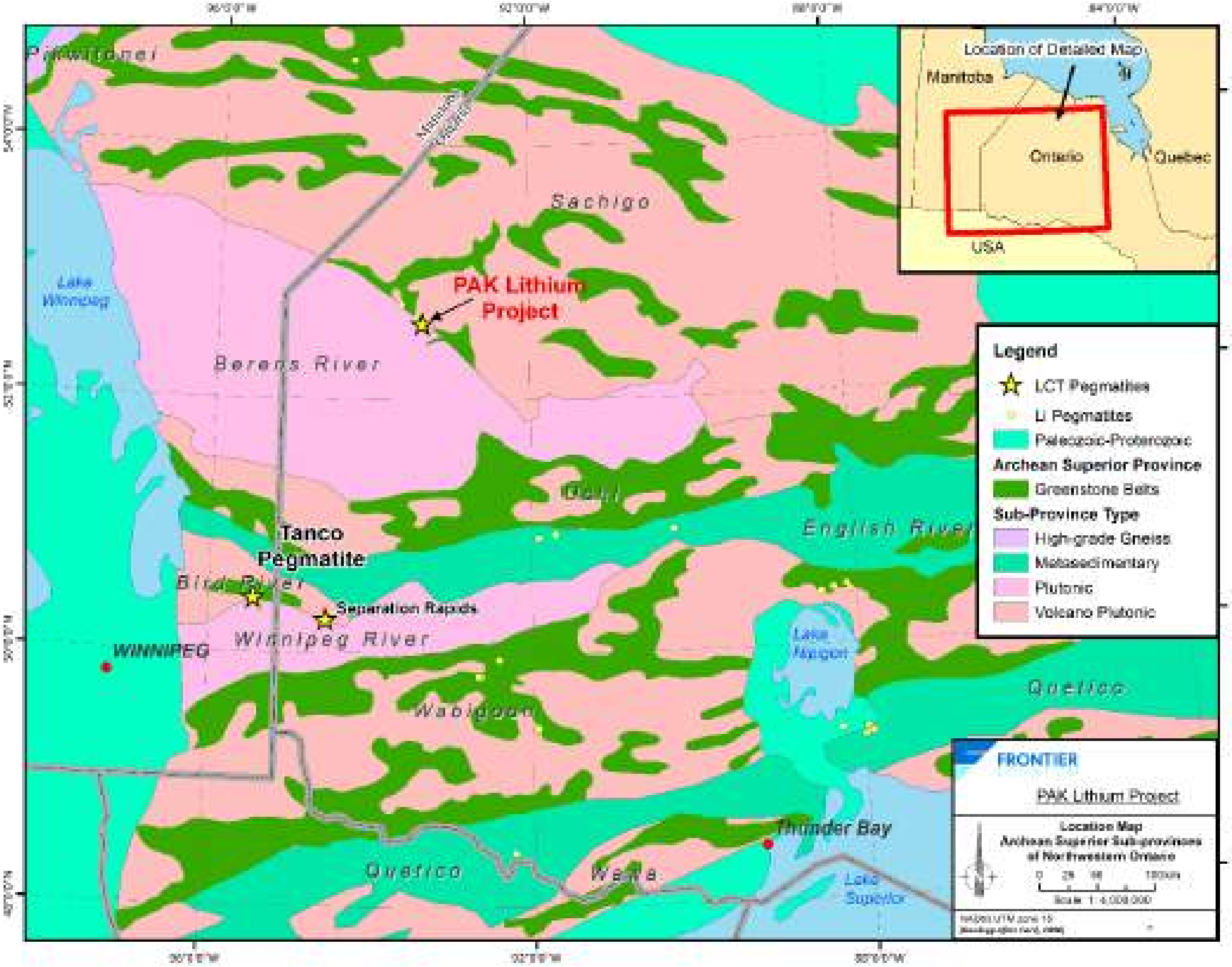


Figure 7-1: Archean Subprovinces

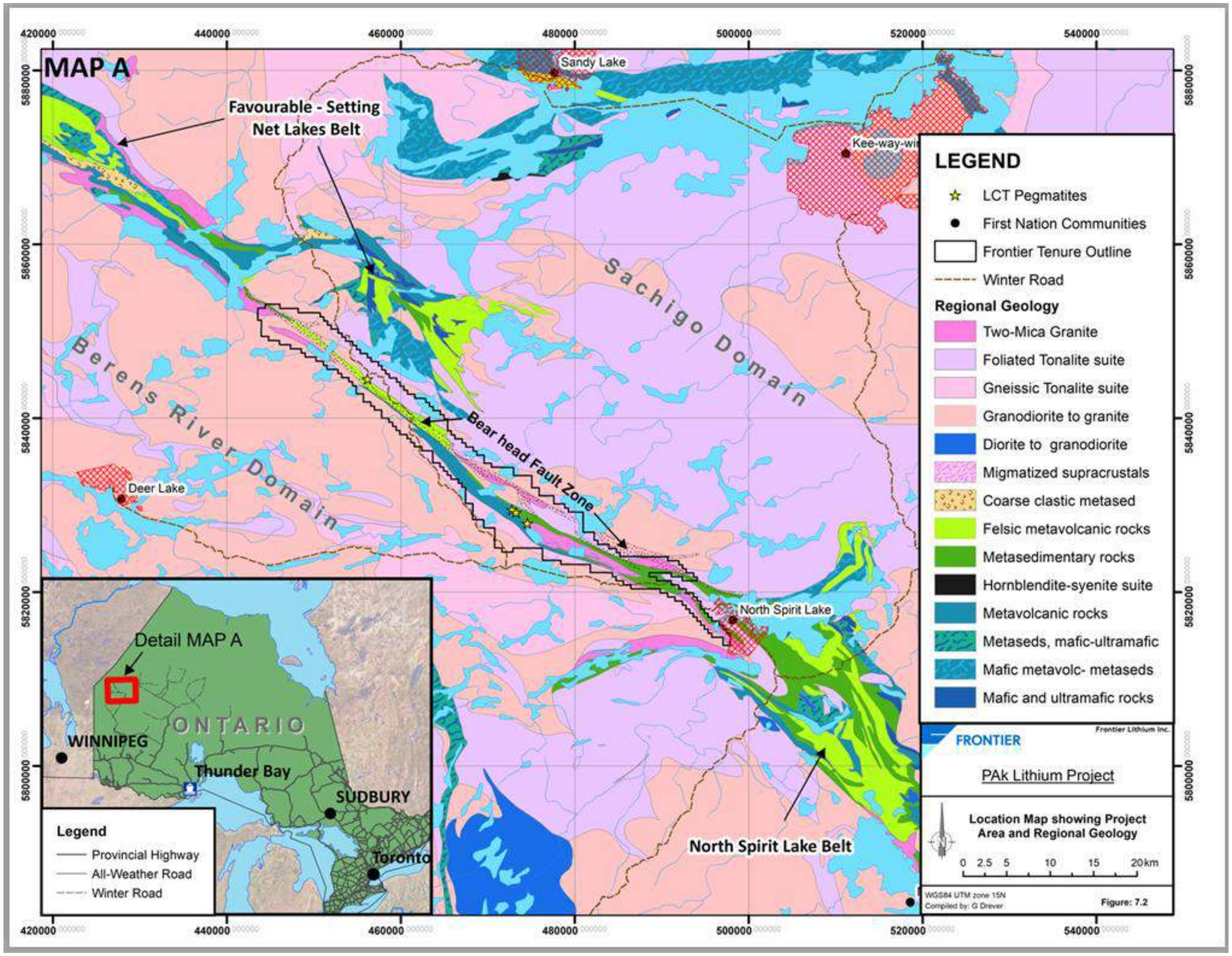


Figure 7-2: Regional Geology

Two of the greenstone belts that are located along the Bear Head Lake Fault Zone are the Favourable Setting Net Lakes and the North Spirit Lake greenstone belts located to the northwest and southeast of the Property, respectively. The belts are connected through the Pakeagama Lake area by the Bear Head Lake Fault system. The main assemblages of volcanic and sedimentary rocks that are identified in each belt are, in part, correlated between the two belts (Stone et al., 1993). The assemblages of the Favourable Lake and North Spirit Lake greenstone belts have been metamorphosed under greenschist facies conditions. However, an increase to amphibolite facies occurs in proximity to the Bear Head Lake Fault Zone. Amphibolite facies is the predominant metamorphic grade in the Project area outside of the greenstone belts.

The Bear Head Lake Fault is the dominant structural feature in the region and has been traced for over 140 km from northwest-southeast. The fault is composed of a several hundred metres thick zone of mylonite. The presence of cataclastites, tension gashes infilled by vuggy quartz-epidote-adularia, and potassic alteration indicate that brittle deformation has been superimposed on the mylonites. A dextral transcurrent dislocation of the Bear Head Lake Fault has been interpreted from microstructures (Germundson, 2008). The regional gneissosity trends northwest-southeast and generally is steeply dipping inward towards the core of the volcano-sedimentary assemblage in the vicinity of Pakeagama Lake. The Bear Head Lake Fault Zone appears to be the locus for a peraluminous suite of granitic plutons. Nine major plutons consisting of two mica granites (fertile granites) are documented over the 140 km strike length of the fault. Fertile granites are interpreted to be the parental rocks that give rise to rare metal pegmatites.

7.2 Project Geology

The area is underlain by the northwestern extension of the North Spirit Lake greenstone belt. The greenstone rocks are approximately 2 km wide in the vicinity of the pegmatites (Figure 7-3).

The greenstone belt is bounded to the north by biotitic tonalities and granites of the Whiteloon Lake Batholith (Sachigo subprovince) and to the south by gneissic granodiorites and granites of the Bear Head Lake Batholith (Berens River subprovince of the Superior Province).

There are three main lithologic domains. To the northeast, rocks with metasedimentary origins are composed of pelitic sediments, iron formation, and conglomerate. The southwest region is comprised dominantly of mafic metavolcanic and related metasedimentary rocks. The elongate, 2.5 by 15 km, Pakeagama Lake peraluminous granite and mica pluton trending northwest-southeast was emplaced along the unconformable contact between metasedimentary and metavolcanic-metasedimentary rocks.

The Pakeagama Lake granitic Pegmatite (PAK Pegmatite) is a highly evolved, zoned, complex-type, petalite-subtype LCT Pegmatite with highly anomalous values of lithium, cesium, tantalum, and rubidium (Breaks et al., 1999). The pegmatite body outcrops near the northwestern margins of the Pakeagama Lake pluton (Figure 7-3). A second pegmatite, the Spark Pegmatite occurs 2.3 km to the northwest close to the contact between the metavolcanics – metasedimentary sequences. Preliminary results suggest lithologic similarities to the PAK Pegmatite. A third pegmatite, Pennock Pegmatite, is located approximately 25 km northwest of Spark. A fourth pegmatite, the Bolt Pegmatite, is located between PAK and Spark.

7.2.1 PAK Pegmatite

On the surface, a metasedimentary sequence with banded iron formation forms an apparent northern boundary to the pegmatite. Muscovite and tourmaline-bearing pegmatites and aplites occur up to 1 km from the main pegmatite mass (Breaks et al., 1999). The PAK Pegmatite is described as the second-largest complex-type petalite subtype pegmatite in Ontario (Breaks et al., 1999).

The relatively fresh-appearing pegmatite has irregular, steeply dipping contacts with the weakly foliated garnet-muscovite-biotite granite host rock. A 130° strike is Inferred from the coincidence of the exposed 260 m strike length, the weak foliation in the host granite, and the general trend of the Bear Head Lake Fault. The pegmatite is open along strike in both directions.

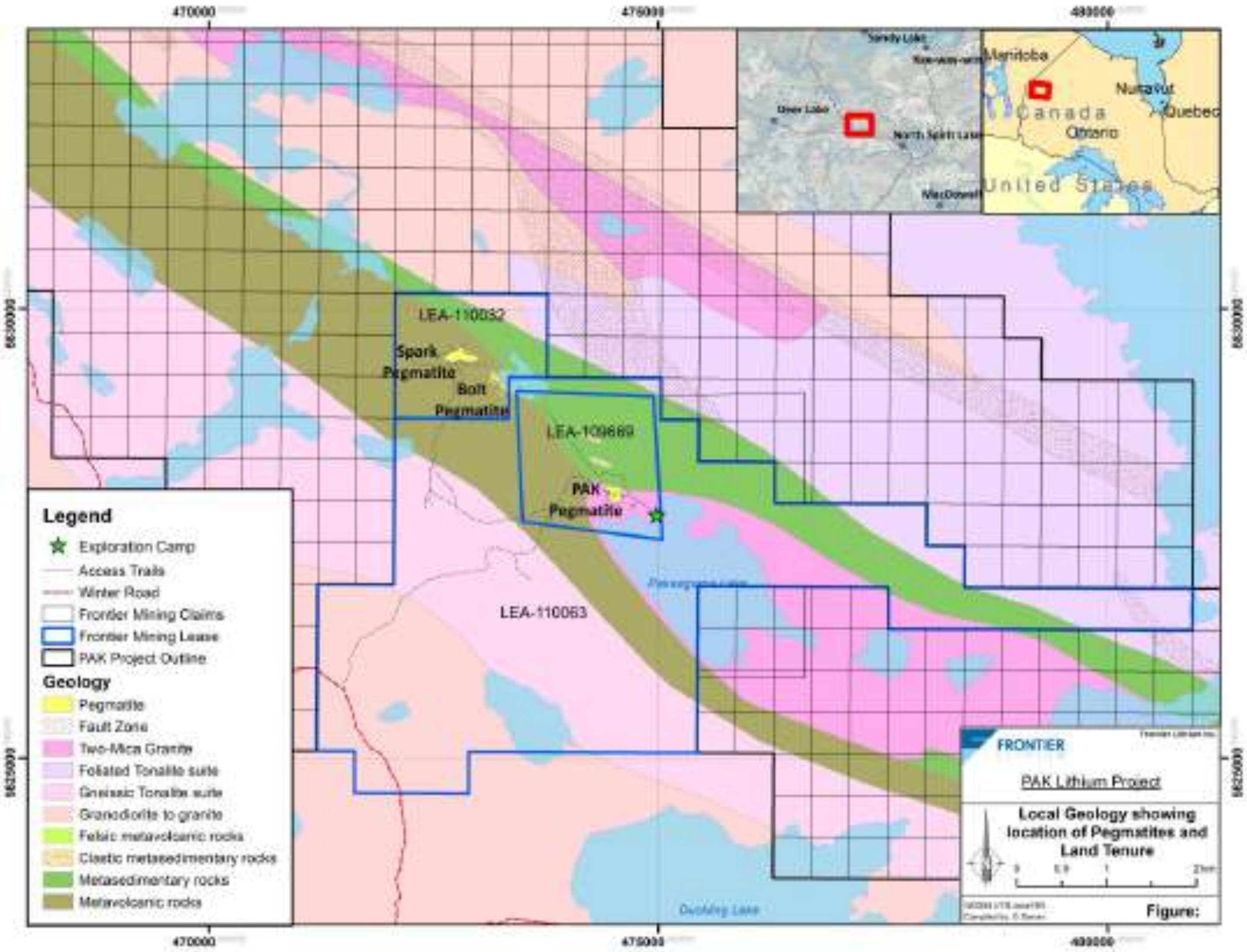


Figure 7-3: Property Geology

The exposed outcrop area was mapped initially by Dr. F. Breaks in 1999, and at least five separate zoned phases were identified (Breaks et al., 1999). More recently, P. Vanstone, former chief geologist at Tanco, was contracted by Frontier and consolidated the pegmatite zones using commonly accepted pegmatite nomenclature and Tanco zone mineralogical criteria. (Figure 7-4). The three main pegmatite zones identified in this work are (from southwest to northwest and perpendicular to the strike of the pegmatite) the Central Intermediate Zone (CIZ – tantalum, rubidium, and cesium enriched), Upper Intermediate Zone (UIZ - lithium and rubidium enriched), and the Lower Intermediate Zone (LIZ – lithium and rubidium enriched). A Lower and Upper Wall Zone has also been described but not included as a separate mapped unit.

To date, six mineralogical zones have been identified in the exposed pegmatite. These zones include a Border Zone, Upper and Lower Wall Zones, and Upper, Central and Lower Intermediate Zones (UIZ, CIZ and LIZ). The zonation and some of the zone alterations display a number of similarities with the Tanco Pegmatite as described by Černý et al. (1998).

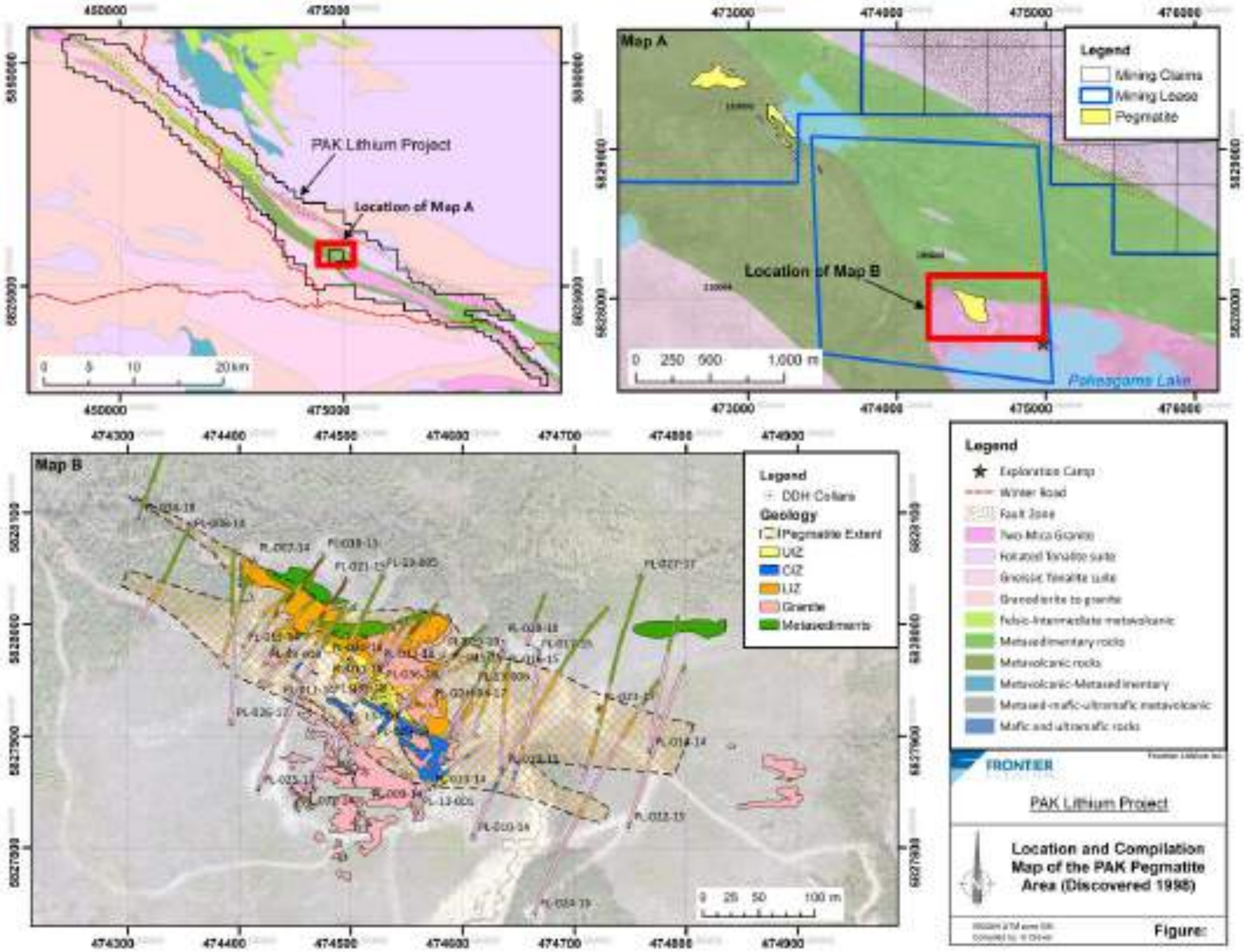


Figure 7-4: Detailed Geology of PAK Pegmatite

7.2.2 Spark Pegmatite

The Spark Pegmatite was discovered on September 17, 2018, during routine geological mapping of the area. The Spark Pegmatite is less complex than the PAK Pegmatite. It appears to be emplaced oblique to the dominant trend and near the contact of the host metavolcanics-metasedimentary sequences. Figure 7-5 is a compilation map showing the surface exposure of the pegmatite. Spodumene-bearing aplite is ubiquitous throughout the pegmatite, with narrow intervals consisting of coarse-grained feldspar-muscovite. A later phase of coarser grained feldspar-quartz-spodumene-muscovite overprints the aplite. At this time, distinct mineralogical zones have not been identified.

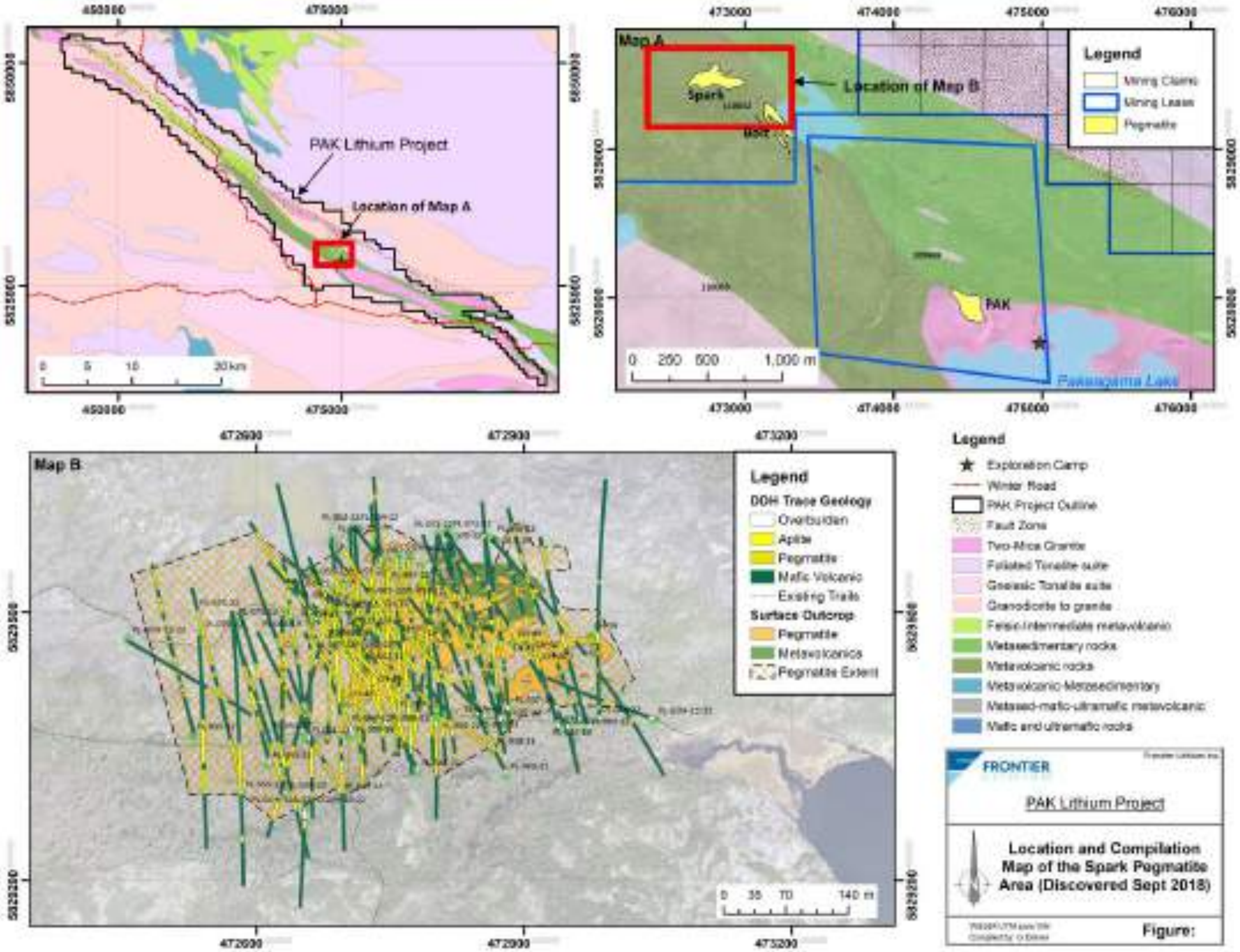


Figure 7-5: Detailed Geology of Spark Pegmatite

7.2.3 Pennock Pegmatite

Immediately after the discovery of the Spark Pegmatite, the historic Pennock showing was investigated in 2018. A 1.5 km-long pegmatite dyke was located, which is intermittently exposed and contains white to light grey spodumene and lepidolite. The dyke is oriented east-west, cross-cutting the main trend of the Bearhead Lake fault and culminates near a 16 m wide exposed “blowout” at the western end. During the drilling program on Spark in July 2019, the support helicopter was used to transport a two-person crew to cut a channel across the main blowout area of the Pennock Pegmatite. Figure 7-6 is a compilation of the Pennock Pegmatite area showing the Li_2O concentrations along the sampled channel.

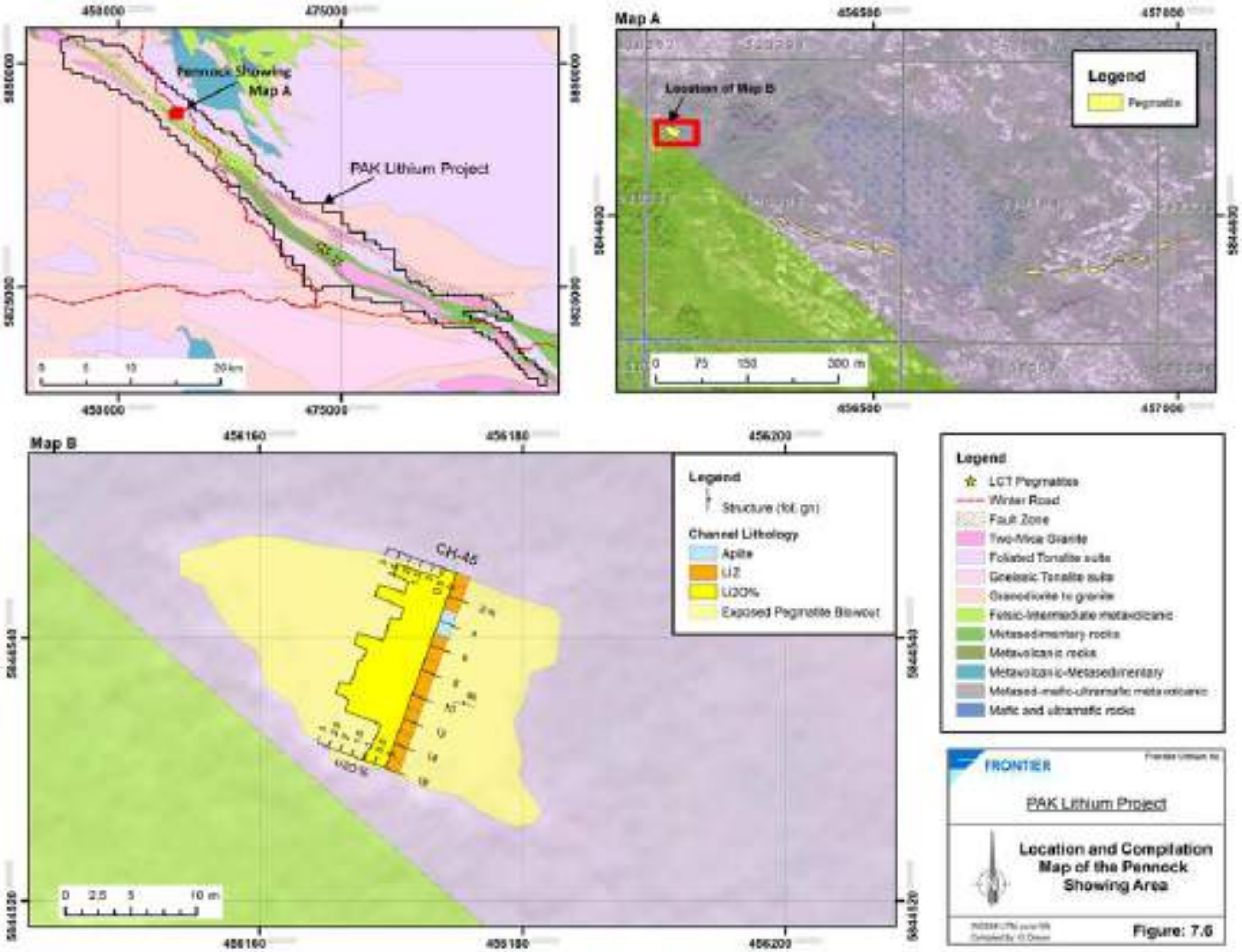


Figure 7-6: Compilation of Pennock Pegmatite

7.2.4 Bolt Pegmatite

In September 2020, several zones of pegmatite were discovered ranging between a few metres to over 50 m wide and traced for at least 600 m along the western side of Unnamed Water Body #1. The pegmatite encountered is generally concordant with the mafic meta-volcanic host rock and oriented sub-vertical. The surface of the pegmatite is typically dark grey, lichen-covered and oxidized making it considerably less conspicuous than the lighter-coloured Spark and PAK Pegmatites.

An easily accessible area towards the southern margin of the main exposure was channelled with two offset channels oriented perpendicular to the main trend of the pegmatite. A mixed zone of pegmatite and metavolcanics (contact zone) occurs near and parallels the shoreline. Figure 7-7 is a compilation of the Bolt Pegmatite area showing the Li_2O concentrations along the sampled channels.

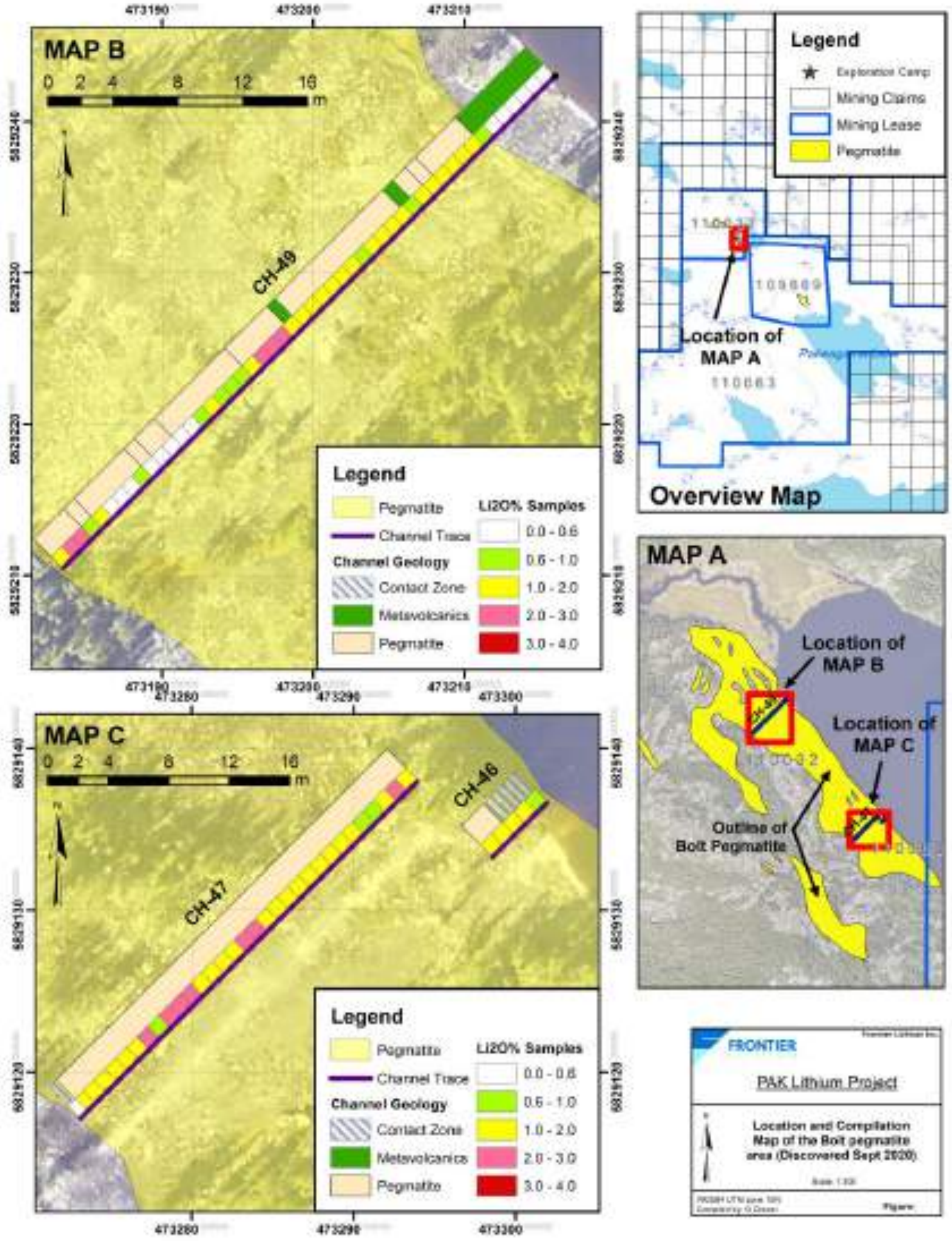


Figure 7-7: Compilation of the Bolt Pegmatite Area

7.3 PAK Pegmatite Mineralization

7.3.1 Upper Intermediate Zone

The Upper Intermediate Zone ("UIZ") represents the lithium zone within the pegmatite and is dominated by Spodumene + Quartz Intergrowth ("SQUI"), a term used to describe an isochemical reversion resulting in the replacement of primary petalite by oriented spodumene + quartz (London, 1984), with lesser grey K-feldspar and primary white spodumene in quartz (Figure 7-8). Phosphate minerals such as montebrasite (Breaks et al., 1999) and apatite, and lithian mica are common accessory minerals.

7.3.2 Central Intermediate Zone

The Central Intermediate Zone ("CIZ") is located in structurally higher portions of the pegmatite and represents the tantalum and rubidium zone of the pegmatite. The CIZ is in contact with both the UIZ and Upper Wall Zone and persists to the southeast edge of the outcrop where it is believed the pegmatite continues under the till cover. To the southeast, the CIZ is intersected by channels CH-1 and CH-7 where it consists of similarly sized fragments of randomly oriented coarse K-feldspar + mica + quartz. Micas appear to alter primary K-feldspar. Blue apatite prisms up to 1 cm wide and several cm's long accompany the mica-rich zones. In the adjoining area to the northeast of CH-7, the K-feldspars are more or less completely replaced with lithian mica + quartz. In this area, veinlets and patches of lepidolite are common. Channel 1 (CH-1) contains the highest tantalum grades found to date in the exposed pegmatite, which persists in the subsurface in drillholes PL13-001 and -006, in addition to high rubidium and elevated cesium grades. To the northwest, channels CH-8 and CH-19 intersect the central portion of the exposed CIZ where it consists of predominantly grey K-feldspar with minor lithian mica + quartz alteration. Drillholes PL13-004 and -003 confirm the extension of the CIZ into the subsurface in this area, where it features notable cm-scale blebs of the rare cesium mineral pollucite, and high tantalum and rubidium grades. Figure 7-9 shows an outcrop and photomicrograph of the CIZ.

7.3.3 Lower Intermediate Zone

The Lower Intermediate Zone ("LIZ") comprises the bulk of the exposed pegmatite and is considered an intermediate stage zone with significant lithium, tantalum and rubidium. The zone comprises predominantly K-feldspar, Na-feldspar, SQUI and lithian muscovite (Figure 7-10). Pollucite also occurs in an intersection of LIZ in drillhole PL13-005. The zone has undergone both ductile and brittle deformation at the apparently structurally lowest portions of the pegmatite. Ductile deformation is manifested as a banded appearance on the surface, where seams of oriented mica provide a planar fabric.

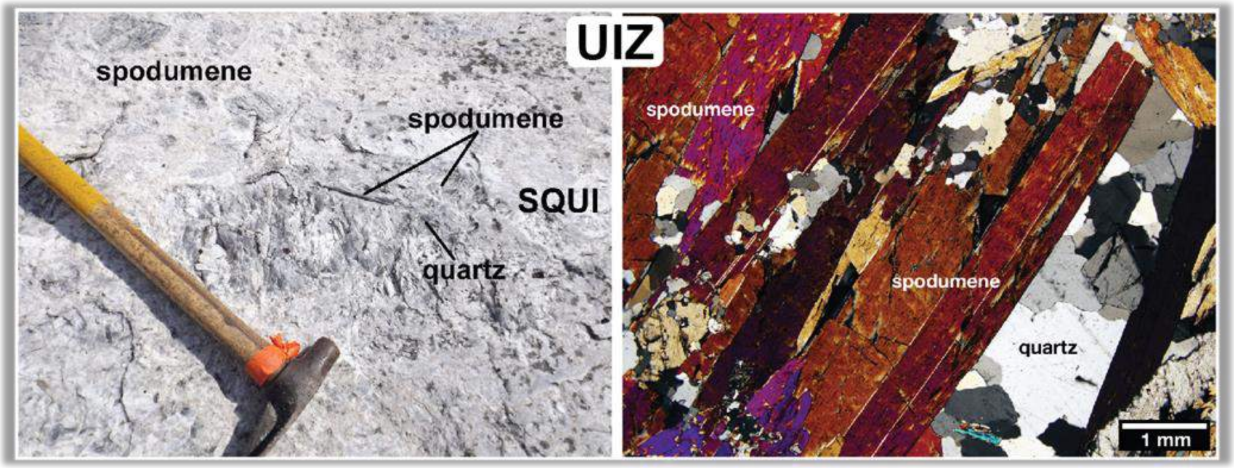


Figure 7-8: Upper Intermediate Zone

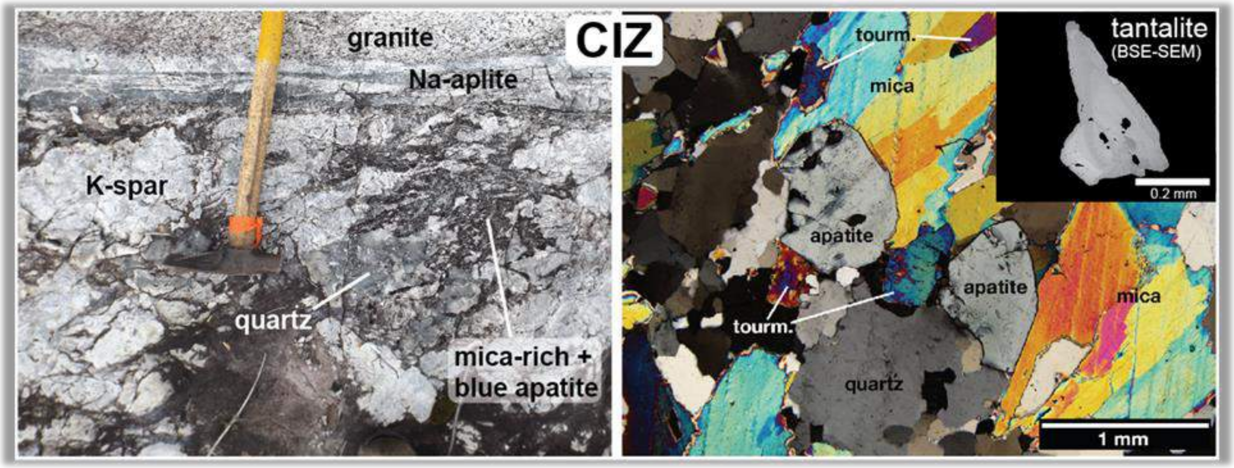


Figure 7-9: Central Intermediate Zone

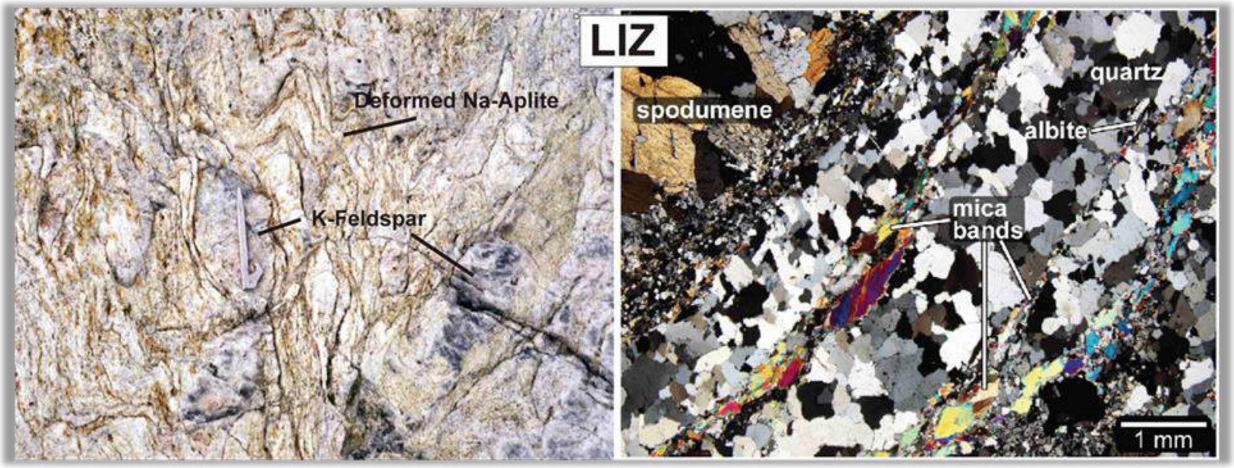


Figure 7-10: Lower Intermediate Zone

7.3.4 Wall Zones

The Wall Zones (upper and lower) of complex LCT type pegmatites are generally characterized by the occurrence of brick-red K-feldspar (perthite) and simple mineralogy (Černý, 2005; Černý and Vanstone 1996). The zone mineralogy is simple, but the brick-red colouration of the K-feldspar is more common in the portion of the pegmatite in close proximity to the metasediments. The same colouration does not generally occur where the pegmatite is in contact with the granite. In this latter case, the sections of Wall Zone display a light to medium grey K-feldspar. It is assumed lower inherent iron levels of the Pakeagama Lake granite, unlike the metasediments, were not sufficient to generate the K-feldspar colour change in the adjoining pegmatite.

The Upper Wall Zone found in the southwest portion of the pegmatite exposure, is in contact with the lithium rich UIZ and is composed of quartz with lesser pale-red coloured K-feldspar, minor phosphates and accessory beryl and lithian mica. The exposure of this zone is limited.

The Lower Wall Zone is mineralogically similar to the Upper Wall Zone. A common feature of the footwall Wall Zone in the more complex LCT-type pegmatites is the presence of bands of sodic aplite (footwall aplite). These sodic bands are generally not common in the Upper Wall Zone. The Pakeagama Lake Pegmatite is somewhat more complex as bands of what appears to be pre-existing banded sodic aplites are found throughout the pegmatite. The contact with the LIZ is gradational and is defined by the general absence of SQUI within the wall zones and the change in colour of the K-feldspars from pale red to the light grey commonly found throughout the pegmatite. Like the LIZ, this zone has undergone deformation.

7.4 Spark Pegmatite Mineralization

Two predominant lithologies occur within the Spark Pegmatite. These are an early aplite that occurs ubiquitously throughout the pegmatite with what appears to be a later phase of coarser-grained feldspar quartz-spodumene-muscovite overprinting the aplite. The aplite ranges from grey to greenish grey to purplish-grey and is dominated by fine albite and quartz. Intervals containing abundant fine- to coarse-grained muscovite are common, and pink garnets a few millimetres in size are common predominantly in the more quartz-rich aplites. Coarse to megacrystic K-feldspar is scattered within the aplite, and spodumene abundance ranges from common to absent. Aplite exposed at the surface and intersected in drill core in the eastern portion of the Spark Pegmatite are conspicuously purple owing to lithian mica. Common accessory minerals in the aplites are black prismatic tourmaline, fluorapatite, and rare coarse-grained loellingite.

The later phase that appears to overprint the aplite at Spark has similar lithology and texture to the Lower Intermediate Zone at PAK and has been geologically classified as such. The LIZ at Spark consists of coarse to megacrystic grey to tan K-feldspar up to 20 cm in size (typically 2 to 5 cm), common to abundant fine to coarse-grained white to light grey spodumene with varying textures, muscovite, and quartz. K-feldspar and quartz show graphic texture in some intersections. Intervals of aplite up to a few metres thick also occur in the LIZ at Spark. Accessory minerals include beryl, black tourmaline, fluoro-apatite and locally arsenopyrite and rare loellingite. Contacts between host metavolcanic rocks and both the aplite and LIZ commonly display a deformed biotite-tourmaline-holmquistite-arsenopyrite contact zone. Greyish white to light grey spodumene occurs throughout the pegmatite varying from fine-grained laths (1-3 mm) to coarse-grained “Jackstraw” texture with crystal laths up to 3 cm in length. Locally megacrystic grey feldspar crystals up to 20 cm occur but typically are 2 cm to 5 cm in size. This later phase has been geologically logged as LIZ because of similarity in texture and composition to the LIZ at the PAK Deposit.

There is a narrow interval (around 3 m thick) present at the surface and in the subsurface of the western portion of the Spark Pegmatite consisting of dark-coloured muscovite, dark grey quartz, megacrystic grey K-feldspar, and common blue apatite. The mineralogy and texture of this interval is similar to the CIZ at PAK.

Both aplite and LIZ at Spark are weakly to moderately deformed with a preferred foliation steeply dipping to sub-vertical and trending 070° to 100°. Outcrops of aplite display tight folds with vertical axial planes.

7.5 Pennock Pegmatite Mineralization

To date the outcrop area has not been mapped in any detail. The main dyke extends 1.5 km in an east-west direction and the channel at the "blowout" on the western end averaged 1.96% Li_2O over the 16 m with a 12 m length averaging 2.35% Li_2O. Much of the exposed surface has textures similar to the SQUI at PAK where the spodumene laths have a preferred orientation rather than random (jackstraw).

7.6 Bolt Pegmatite Mineralization

The Bolt Pegmatite has not yet been mapped in any detail other than the geological logging of the channels and 2023 diamond drillholes. Fine to medium grained, light grey to pale greenish-grey aplite is present throughout the channelled and intersected pegmatite with coarse-grained grey feldspar phenocrysts up to 5 cm occurring locally with lesser amounts of muscovite and black tourmaline. Spodumene crystals, typically less than 3 mm and up to 8 mm, occur ubiquitously throughout the pegmatite. The composition and textures are similar to the Spark Pegmatite.

Drilling thus far has confirmed a subvertical emplacement and a "pinch and swell" nature of the pegmatite along its length. Numerous thin (<1 to 5 m) mafic sheets of host rock are incorporated within portions of the pegmatite body.

8. Deposit Types

Frontier Lithium's target or deposit model is the highly evolved, granitic, rare-element lithium-cesium-tantalum bearing ("LCT") complex type, petalite subtype pegmatite. The Tanco Pegmatite situated in the Bird River belt in southeastern Manitoba, is the best known and a world-class example of this type of deposit model. Figure 8-1 shows the location of the Tanco Pegmatite relative to the geological subprovinces of the western Superior Craton and Pakeagama Lake.

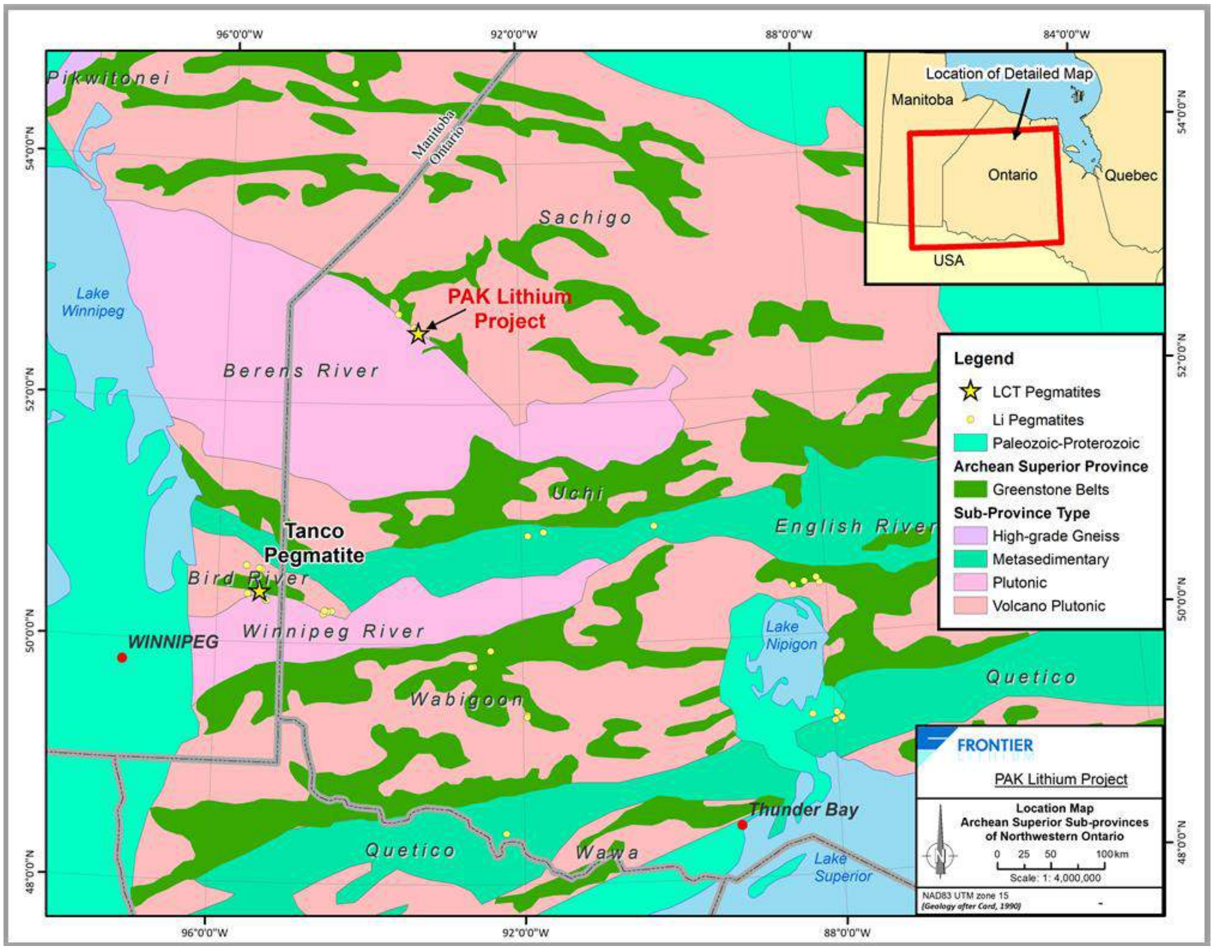
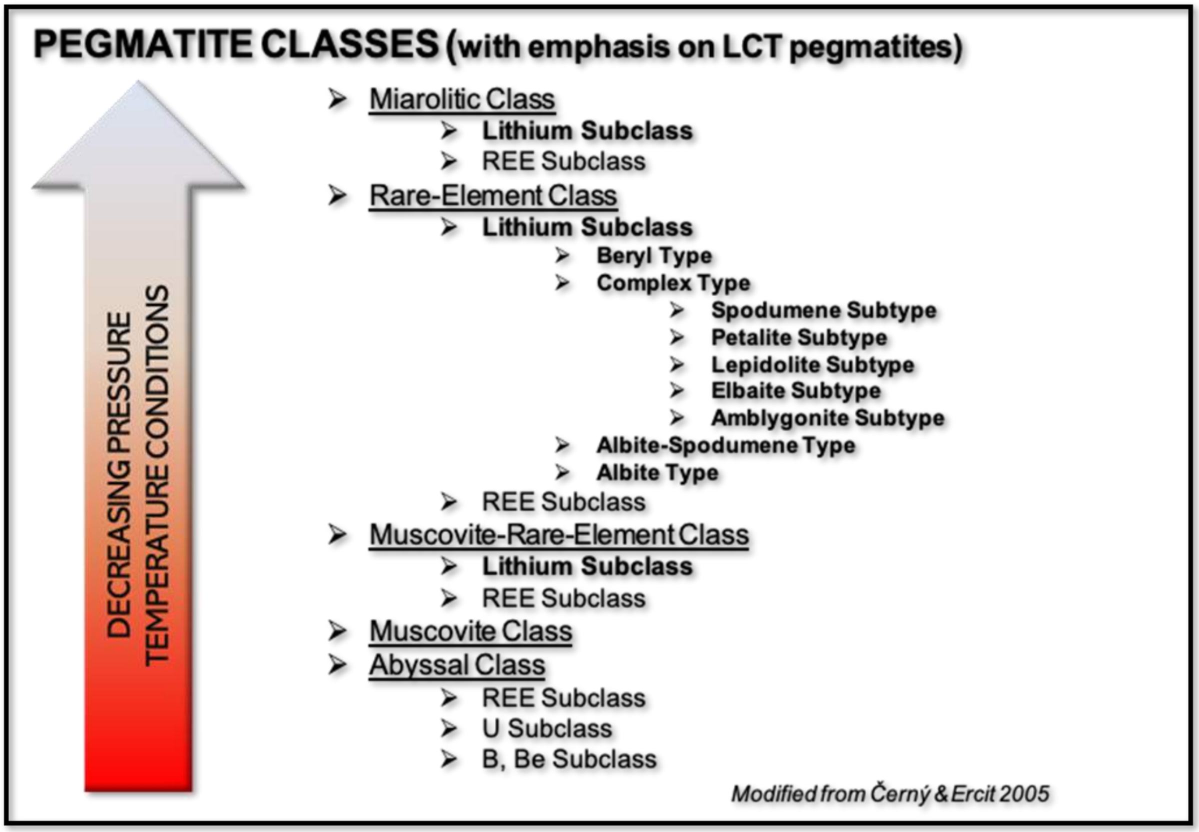


Figure 8-1: Tanco Pegmatite and PAK Pegmatite Location

Granitic pegmatites are relatively common and widespread and have been divided into five classes based on the pressure-temperature conditions that characterize their host rock suites (Černý and Ercit, 2005). Criteria, including mineral assemblages, geochemical signature and conditions of consolidation or combinations thereof, are used to further divide the classes into subclasses, types, and subtypes (Figure 8-2).



PEGMATITE CLASSES (with emphasis on LCT pegmatites)

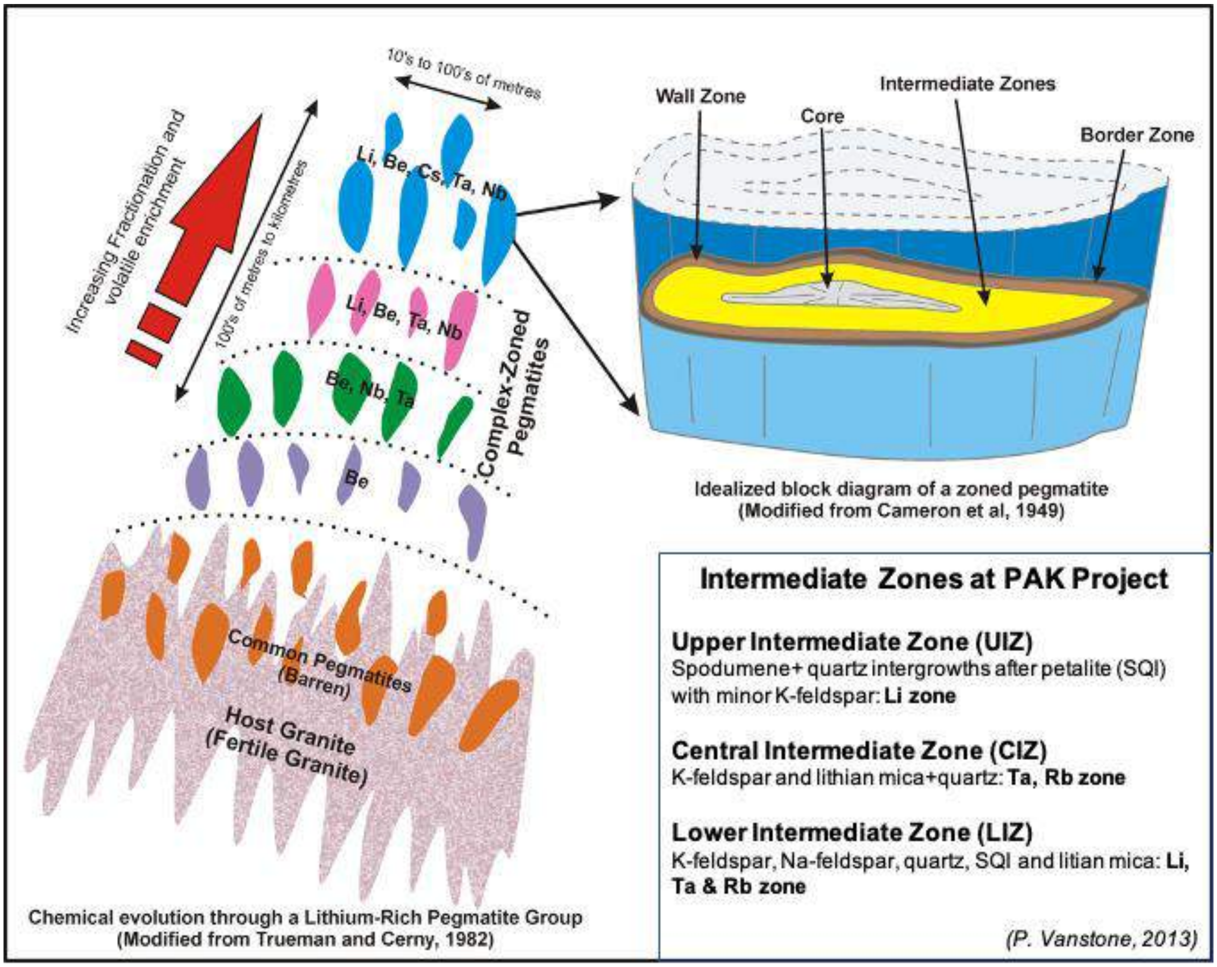
- Miarolitic Class
  - **Lithium Subclass**
  - REE Subclass
- Rare-Element Class
  - **Lithium Subclass**
    - **Beryl Type**
    - **Complex Type**
      - **Spodumene Subtype**
      - **Petalite Subtype**
      - **Lepidolite Subtype**
      - **Elbaite Subtype**
      - **Amblygonite Subtype**
    - **Albite-Spodumene Type**
    - **Albite Type**
  - REE Subclass
- Muscovite-Rare-Element Class
  - **Lithium Subclass**
  - REE Subclass
- Muscovite Class
- Abyssal Class
  - REE Subclass
  - U Subclass
  - B, Be Subclass

Modified from Černý & Ercit 2005

Figure 8-2: Division of Rare Metal Pegmatites

Of the five classes, the rare-element class is the group with the most attractive economic potential and can represent economic sources of tantalum, ceramic grade spodumene, rubidium, and the main cesium ore mineral, pollucite. The lithium rich, rare-element pegmatites are not common and comprise <0.1% of the total known pegmatites (Kesler et al., 2012).

The rare-element class of granitic pegmatites is generated by the differentiation of fertile, S-type granitic plutons. This differentiation process of the parental granite is accompanied by the progressive accumulation of lithophile rare-elements as well as elements such as thallium, tantalum, hafnium, gallium, germanium, boron, fluorine, and phosphorus (Černý and Ercit, 2005). The pegmatite field results when the lithophile rare-element enriched residual melt is expelled from the fertile granite and assuming suitable channels exist, migrates outward and upward away from the granite. A field can be comprised of many pegmatites over a distance of a few kilometres from the source granite. The field itself shows an increasing fractionation moving away from the source granite. Figure 8-3 illustrates this process.



Intermediate Zones at PAK Project

Upper Intermediate Zone (UIZ)
Spodumene+ quartz intergrowths after petalite (SQI) with minor K-feldspar: **Li zone**

Central Intermediate Zone (CIZ)
K-feldspar and lithian mica+quartz: **Ta, Rb zone**

Lower Intermediate Zone (LIZ)
K-feldspar, Na-feldspar, quartz, SQI and litian mica: **Li, Ta & Rb zone**

Figure 8-3: Deposit Model

The internal structure of pegmatites varies from simple or un-zoned to complexly zoned. Zonation, or the lack thereof, provides the starting point for the pegmatite internal anatomy which is largely what distinguishes pegmatites from other ordinary plutonic igneous rocks and is manifested by variations in the spatial distribution of grain size, mineral assemblage, crystal habit, and / or rock fabric.

Pegmatites crystallizing from very highly fractionated melts have the most evolved internal structure. These highly fractionated pegmatitic melts are enriched in fluxes such as H, B, P and F, in addition to water, lithium, rubidium, cesium, tantalum, and beryllium which make the melts less viscous than a granitic melt and thus able to migrate farther from the source pluton (London, 2008).

The complex-type, petalite and spodumene subtype pegmatites are the products of the most highly fractionated melts and as such, are the most complexly zoned with up to eleven different zones characterized by variable textures and mineral modes (Černý, 1991; Černý, 2005). As an example, the Tanco Pegmatite has nine zones and its most notable geochemical anomalies being its high tantalum content along with high cesium and phosphorus contents, the latter two being the hallmark of a pelitic metasedimentary source (London, 2008).

The economic concentrations of the lithophile rare-elements will occur in pegmatites crystallizing from the most highly evolved melts. Some of the lithophile rare-elements may occur in separate zones, which may allow for selective exploitation. Economic tantalum mineralization can be complex and the host mineralogy for rubidium can be different in different zones, but pollucite is the main cesium mineral, and according to Kesler et al. (2012) spodumene is the most economically important lithium mineral.

Figure 8-3 shows the internal zonation of a pegmatite from the outer border zone to the central core zone. The intermediate zones at the Pakeagama Pegmatite appear to be similar to Tanco with respect to mineralogy and concentrations of lithium, tantalum, cesium and rubidium (Vanstone, 2013).

9. Exploration

Chapter 6 of this Technical Report summarizes the historical work completed on the Property. Between 1999 and 2020 Frontier's work was limited to ground geophysical surveys, some detailed mapping, outcrop sampling and orientation geochemical surveys.

Frontier's initial work was in 1999 with geological mapping in the area of the PAK Pegmatite confirming the work previously completed by the Ontario Geological Survey ("OGS"). Later in 2001, 26 km ground geophysics consisting of very low-frequency ("VLF") and magnetic survey coverage was completed at 100 m line spacing over what is currently Mining Lease 109669. The geophysical program successfully identified numerous magnetic-VLF anomalies many of which are coincidental. It was concluded that most moderate to strong coincidental magnetic/VLF anomalies were a result of variations within the sedimentary horizons. The survey defined a number of southeast trending magnetic anomalies that mainly define the underlying thin iron formations within the metasedimentary rocks. These units are both magnetite- and pyrrhotite-bearing horizons. Numerous gossanous outcrops were noted in the areas of high magnetic readings. The Pakeagama Lake granite intrusion has a flat magnetic signature in the range of 58,800 - 58,900 nanoteslas. The survey was unsuccessful in delineating the pegmatite zone; however, the magnetic survey defined a rough outline of the contacts between the meta-sedimentary rocks and the granite that contains the pegmatites in overburden covered areas. Some sulphide/magnetite bearing xenoliths were noted within the granite, near these contacts.

In 2001, Frontier completed overburden stripping of the pegmatite, more detailed mapping and both channel and grab sampling over key zones including twinning of the OGS channel cuts.

In 2008 an orientation enzyme-leach soil survey of the B-horizon was completed with mixed results. Although only 35 samples were collected, when plotted there was continuity of the anomalous zones away from the pegmatite to the southeast and east. This was most apparent with Cs, V, Ta, Li, Ga and Nb.

An orientation Mobile Metal Ion ("MMI") soil survey followed by a semi-regional survey over a 3.2 by 3.2 km area centred roughly on the PAK Pegmatite was completed in 2011. Samples were spaced 150 m apart on lines 250 m apart. The regional survey was somewhat successful in delineating elevated Cs, Li and Rb both to the northwest and southeast directions coincident with the assumed orientation of the PAK Pegmatite.

9.1 PAK Exploration

9.1.1 2012 Channel Program

Since Certified Lithium Standards had not been used during the early sampling by the OGS and during the 2001 channel sampling by Frontier, it was decided to twin most of the channels and insert Certified Standards for Li, Rb and Cs into the sample stream.

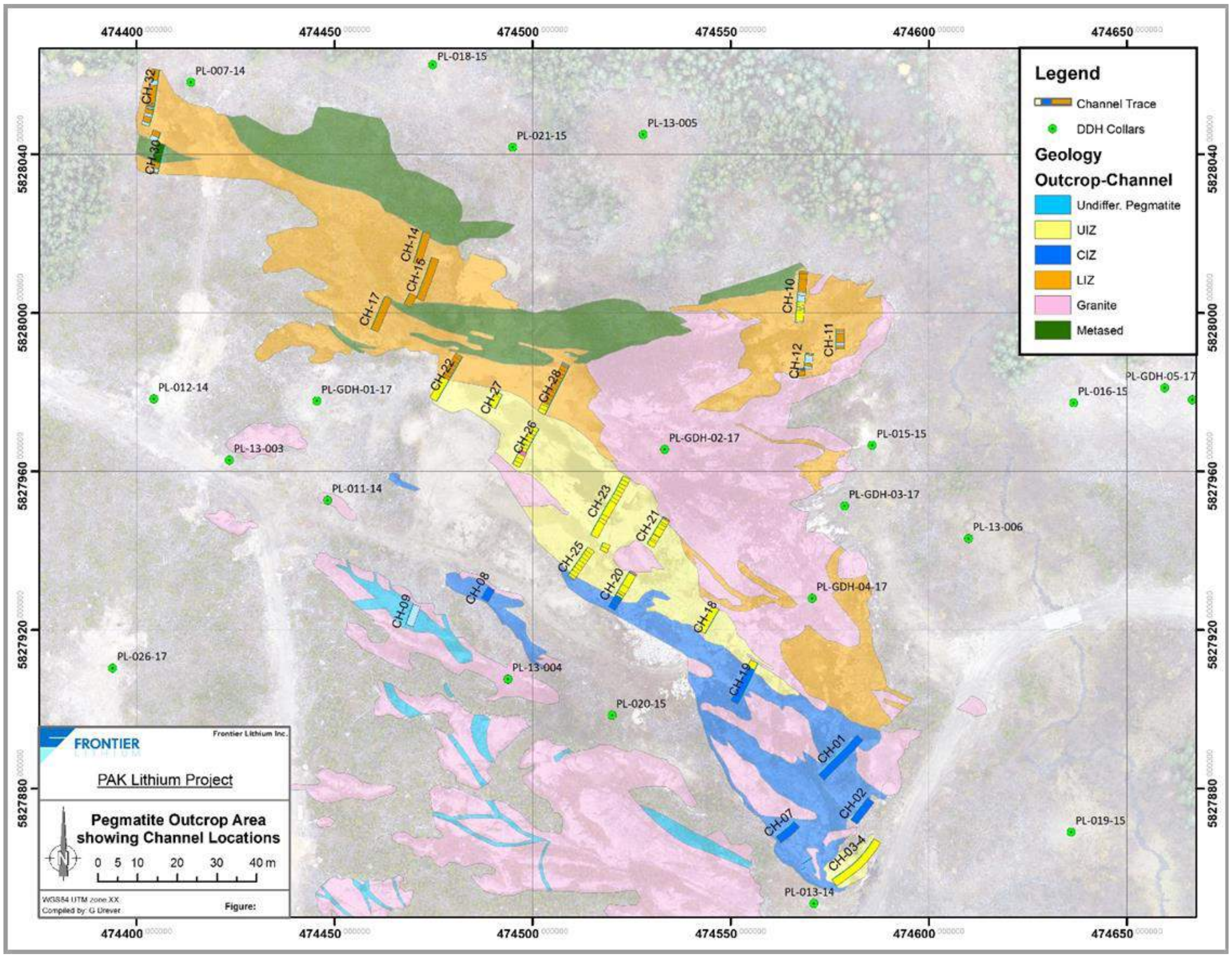


Figure 9-1: PAK Channel Sample Locations

The 2012 channel sampling program on the PAK Pegmatite was initiated to confirm historical results and to add additional information by sampling distinct geologic zones (UIZ, LIZ, and CIZ). In total 79 samples, each approximately 1 m in length, were taken from a total of eight channels of which, two were new channels. Figure 9-1 shows the location of all channels cut on the PAK Pegmatite

Sampling was completed by Frontier personnel along with personnel from Haveman Brothers of Kakabeka Falls, Ontario.

The channels were oriented perpendicular to the strike of the pegmatite's internal mineralogical zones and were cut continuously across the zones. The length of a channel was determined by the width of the pegmatite zone being sampled. The original cuts completed in 2001 consisted of a series of offset channels to achieve a full section across a zone.

The channels were wet-cut approximately 3.5-4 cm wide and 9-10 cm deep with a motorized circular diamond saw. Sample lengths were typically 1 m or less, depending on zone mineralogy and boundaries. After cutting, the channels were washed to mitigate cross-contamination by the cuttings. The samples were then removed using a hammer and chisel. The samples were laid out in order next to the channel and were geologically described, washed, assigned a sample number, and then bagged. The sample number was also etched on a metal tag that was secured to the outcrop at the beginning of each sample cut. The start of each channel was assigned a GPS coordinate and the cut channel assigned a bearing.

Each sample bag was sealed using a plastic zip tie. The polybags were then placed into rice bags, which were then labelled and closed off with zip ties. The individual samples were tied and then placed in rice bags and transported by Houston Lake Mining personnel to the base of operations at the Pakeagama Lake campsite where they were removed to Red Lake by chartered aircraft along with Houston Lake Mining personnel and camp equipment. The bags of samples were shipped to Thunder Bay. In Thunder Bay sample blanks and standards were inserted into the sample stream and then delivered by Houston Lake Mining personnel to ActLabs facilities in Thunder Bay for analysis.

Table 9-1 summarizes the location of the 2012 channels, and Table 9-2 summarizes the results for the 2012 channel program.

Table 9-1: 2012 Channel Location

Channel No.	NAD83 UTM Zone 15N			Azimuth	Length (m)	No. of Samples
	Easting	Northing	Elev. (masl)			
CH-01	474582	5827894	318	220	14.0	18
CH-03-4	4745864	5827867	316	212	15.0	15
CH-07	474566	5827872	321	223	6.0	7
CH-15	474474	5828014	325	198	11.0	11
CH-16	474469	5828005	325	208	3.0	3
CH-17	474463	5828004	326	202	9.0	9
CH-18	474544	5827919	323	30	7.1	8
CH-19	47552	5827901	322	28	11.6	14

Table 9-2: 2012 Channel Results Summary

Channel ID	From (m)	To (m)	Length (m)	Li$_2$O (%)	CS$_2$O (%)	Ta$_2$O$_5$ (ppm)	Nb$_2$O$_5$ (ppm)	SnO$_2$ (ppm)	Rb$_2$O (%)	Zone Sampled
CH-01	0.0	14.0	14.0	1.43	0.052	192	115	131	0.53	CIZ
including	2.0	77.0	5.0	1.33	0.049	139	64	126	0.62	CIZ
including	7.0	11.0	4.0	1.19	0.062	292	198	133	0.52	CIZ
CH-03-4	0.0	15.0	15.0	4.74	0.021	39	12	16	0.07	UIZ
CH-07	0.0	6.0	6.0	1.79	0.040	83	32	129	0.67	CIZ
including	1.0	3.0	2.0	0.20		53	0	19	1.17	CIZ
including	5.0	6.0	1.0	1.61	0.075	217	15	599	0.50	CIZ
CH-15	0.0	11.0	11.0	1.99	0.017	86	79	106	0.26	LIZ
CH-16	0.0	3.0	3.0	3.67	0.010	20	23	26	0.19	LIZ
including	1.0	2.0	1.0	4.50	0.004	22	27	24	0.05	LIZ
CH-17	0.0	9.0	9.0	2.15	0.022	67	66	81	0.34	LIZ
including	2.0	7.0	5.0	2.47	0.017	56	58	65	0.32	LIZ
CH-18	0.0	7.1	7.05	4.20	0.036	40	15	47	0.10	UIZ
Including	1.6	6.6	5.0	4.31	0.037	40	16	50	0.06	UIZ
CH-19	0.0	11.3	11.3	1.95	0.058	87	34	127	0.56	CIZ
Including	0.0	7.0	7.0	1.48	0.067	78	34	117	0.71	CIZ
Including	10.1	11.6	1.5	4.28	0.044	106	19	174	0.11	UIZ

9.1.2 2014 Channel Program

Two new channels (Channel 20 and 21) totalling 18.7 m, were completed in July 2014, along with the twinning of Channels 10 to 13 originally cut in 2001 without a Quality Assurance/Quality Control program (Figure 9-1). A total of 45 samples were collected from 44.3 m of channel cuts.

Sampling was completed by Frontier personnel using the same techniques used during the 2012 sampling program. Once cut and bagged the samples were transported to Val Caron, Ontario where sample blanks and standards were inserted into the sample stream. All samples were then shipped to ACME laboratories in Val-d'Or, Québec for sample preparation prior to completing multi-element analysis at ACME Laboratories in Vancouver, BC.

Table 9-3 summarizes the location of the 2014 channels, and Table 9-4 summarizes the results for the 2014 channel program.

Table 9-3: 2014 Channel Location

Channel No.	NAD83 UTM Zone 15N			Azimuth	Length (m)	No. of Samples
	Easting	Northing	Elev. (masl)			
CH-10	474566	5828012	323	185	13.0	13
CH-11	474575	5827997	323	180	5.5	5
CH-12	474567	5827991	324	187	4.6	4
CH-13	474565	5827987	324	180	2.5	2
CH-20	474522	5827936	327	215	10.7	12
CH-21	474532	5827948	327	215	8.0	8
CH-10	474566	5828012	323	185	13.0	13

Table 9-4: 2014 Channel Results Summary

Channel ID	From (m)	To (m)	Length (m)	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Zone Sampled
Channel 10	0.0	13.0	13.0	1.34	0.018	101	61	425	0.29	LIZ/UIZ/Aplite
Including	7.0	13.0	6.0	2.64	0.017	50	34	79	0.33	UIZ/Aplite
Including	2.0	8.0	6.0	0.48	0.018	181	103	590	0.27	LIZ/Aplite
Channel 11	0.0	5.0	5.0	2.25	0.028	91	66	133	0.24	LIZ/Aplite
Channel 12	0.0	4.0	4.0	0.49	0.037	158	115	172	0.27	Aplite/LIZ
Channel 13	0.0	2.0	2.0	2.49	0.027	143	111	925	0.21	LIZ/Aplite/UIZ
Channel 20	0.0	10.7	10.7	3.51	0.054	54	20	97	0.24	UIZ/CIZ/granite
Including	1.0	7.1	6.1	4.33	0.033	38	12	32	0.06	UIZ
Including	7.1	10.7	3.6	2.51	0.085	61	20	37	0.56	CIZ
Channel 21	0.0	8.0	8.0	4.46	0.024	26	11	23	0.05	UIZ/granite
Including	0.5	8.0	7.5	4.67	0.018	21	6	17	0.02	UIZ

9.1.3 2015 Channel Program

Eight channels (Channels 22 to 29), totalling 69.8 m, were completed in the summer of 2015 (Figure 9-1). A total of 92 samples were collected. During September 2015, all channel locations were accurately surveyed by Rugged Geomatics Surveying of Kenora, Ontario, who was contracted to complete the survey requirements for conversion of the Mining Claim to Mining Lease.

Sampling was completed by Frontier personnel along with personnel from Chenier Drilling Ltd., Val Caron, Ontario using the same techniques as before. Frontier personnel inserted sample blanks and standards into the sample stream. The polybags were then placed into rice bags, which were then labelled and closed off with zip ties. All samples were then shipped to AGAT laboratories in Rosslyn (Thunder Bay), Ontario for sample preparation and multi-element analysis at their Mississauga facility.

Table 9-5 summarizes the location of the 2015 channels, and Table 9-6 summarizes the results for the 2015 channel program.

Table 9-5: 2015 Channel Location

Channel No.	NAD83 UTM Zone 15N			Azimuth	Length (m)	No. of Samples
	Easting	Northing	Elev. (masl)			
CH-22	474476	5827978	324	30	13.0	13
CH-23	474523	5827959	324	207	17.0	17
CH-24	474518	5827942	324	203	2.0	2
CH-25	474514	5827941	322	215	9.0	10
CH-26	474498	5827965	324	29	7.0	7
CH-27	474491	5827976	323	26	4.0	4
CH-28	474503	5827974	323	27	13.8	16
CH-29	474497	5827966	323	206	4.0	4

Table 9-6: 2015 Channel Results Summary

Channel ID	From (m)	To (m)	Length (m)	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Zone Sampled
Channel 22	0.0	13.0	13.0	3.21	0.062	111	43	51	0.19	UIZ/LIZ
Including	0.0	6.2	6.2	4.21	0.023	51	28	39	0.07	UIZ
Including	6.2	13.0	6.8	2.29	0.098	166	57	62	0.3	LIZ
Channel 23	0.0	17.0	17.0	4.71	0.017	49	13	33	0.05	UIZ
Channel 24	0.0	2.0	2.0	4.2	0.036	111	77	52	0.16	UIZ
Channel 25	0.0	9.0	9.0	3.91	0.057	86	47	74	0.27	UIZ
Channel 26	0.0	7.0	7.0	4.69	0.018	51	13	30	0.02	UIZ
Channel 27	0.0	4.0	4.0	4.59	0.035	67	22	23	0.05	UIZ
Channel 28	0.0	13.8	13.8	2.49	0.036	108	56	131	0.32	LIZ/UIZ
Including	0.0	11.0	11.0	2.29	0.04	114	59	68	0.34	LIZ
Including	11.0	13.4	2.4	3.59	0.02	71	40	63	0.23	UIZ
Channel 29	0.0	4.0	4.0	3.35	0.026	52	36	86	0.11	UIZ/WZ
Including	1.0	4.0	3.0	4.4	0.024	54	36	100	0.08	UIZ

9.1.4 2017 Channel Program

Three channels (Channels 30 to 32), totalling 25.1 m, were completed in the summer of 2017 (Figure 9-1). A total of 26 samples were collected.

Sampling was completed by Frontier personnel using techniques as described earlier.

All samples were then shipped to AGAT laboratories in Rosslyn (Thunder Bay), Ontario for sample preparation and multi-element analysis at their Mississauga facility.

Table 9-7 summarizes the location of the 2017 channels, and Table 9-8 summarizes the results for the 2017 channel program.

Table 9-7: 2017 Channel Location

Channel No.	NAD83 UTM Zone 15N			Azimuth	Length (m)	No. of Samples
	Easting	Northing	Elev. (masl)			
CH-30	474405	5828035	323.8	-10	10.0	7.7
CH-31	474405	5828043	322.5	0	20.0	2.6
CH-32	474403	5828047	322.5	-10	18.0	14.8

Table 9-8: 2017 Channel Results Summary

Channel ID	From (m)	To (m)	Length (m)	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Zone Sampled
CH-30 to 32	0.0	25.1	25.1	1.17	0.014	85	75	75	0.27	LIZ/Metased
CH-30	0.0	2.9	2.9	0.82	0.020	107	89	106	0.32	LIZ
CH-31-32	7.7	25.1	17.4	1.50	0.014	104	79	89	0.33	LIZ/Aplite

9.2 Spark Exploration

Since the Spark Pegmatite is well exposed, channel sampling has been the focus for exploration prior to drilling. Immediately after discovery, channel sampling began with limited geological mapping. The exposed host rock/pegmatite contact was mapped in detail using a georeferenced drone image as a base.

9.2.1 2018 Channel Program

Eight channels (Channels 33 to 40) totalling 236.4 m were completed in the September - October of 2018 (Table 9-2). A total of 265 samples were collected. Sampling was completed by Frontier personnel.

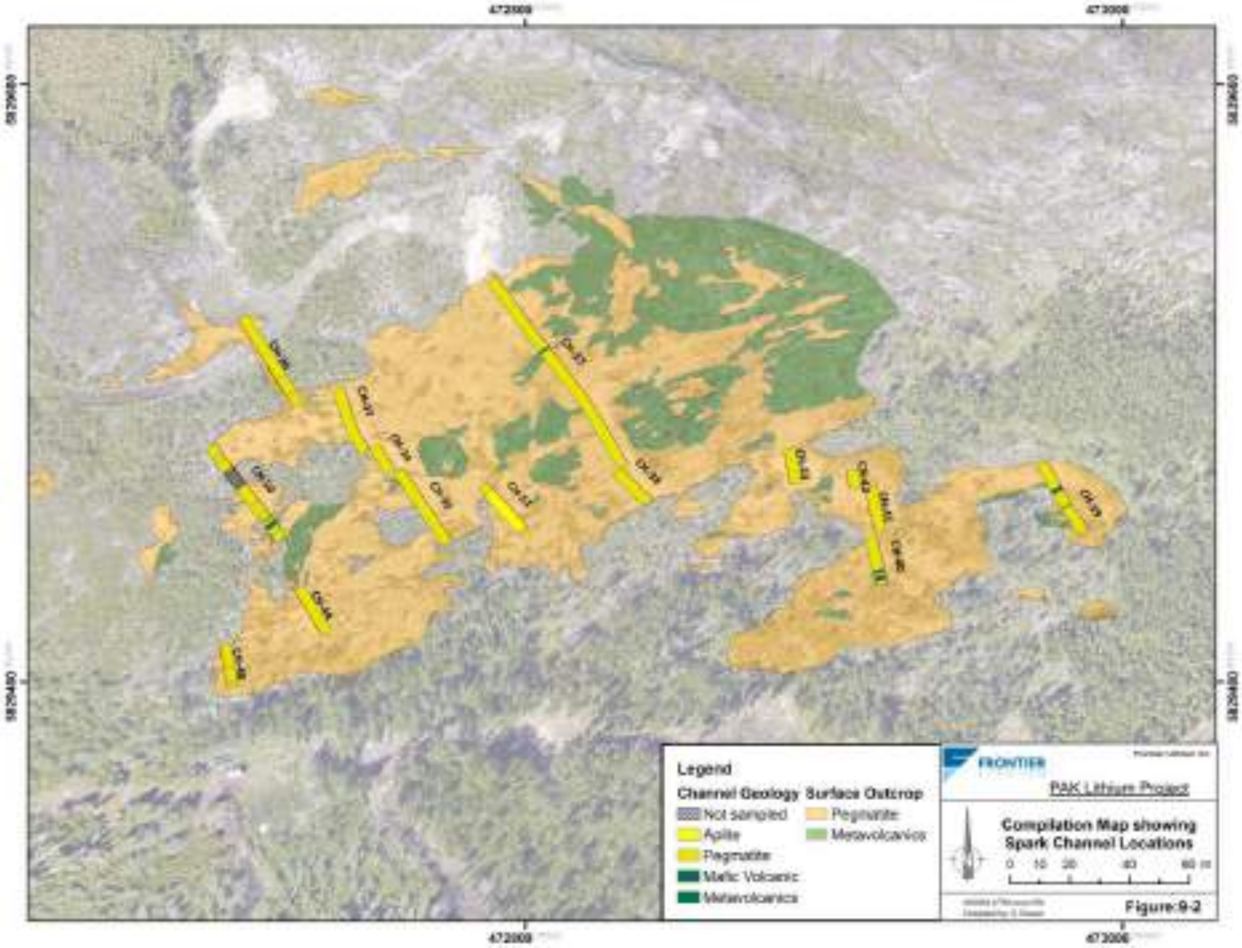


Figure 9-2: PAK Channel Sample Locations

The channels were oriented perpendicular to the strike of the pegmatite's internal mineralogical zones and measured foliation. The length of a channel was determined by the width of the exposed pegmatite zone being sampled. Channel offsets could not be avoided but were minimized.

The channels were wet-cut approximately 3.5 cm to 4 cm wide and 9 cm to 10 cm deep with a motorized circular diamond saw. Sample lengths were typically one metre or less, depending on lithologic boundaries. The same procedure that was used when channelling the PAK Pegmatite was utilized for the Spark channelling. The start, end and locations along each channel were located using a GPS and tape measure.

The channel samples were bagged in the field where field duplicates, sample blanks and standards were inserted. The sample bags were delivered to Red Lake where they were shipped to AGAT's facilities in Timmins for sample preparation prior to analysis at AGAT's facility in Mississauga, Ontario.

Table 9-9 summarizes the location of the 2018 channels, and Table 9-10 summarizes the results for the 2018 channel program.

Table 9-9: 2018 Channel Location

Channel No.	NAD83 UTM Zone 15N			Azimuth	Length (m)	No. of Samples
	Easting	Northing	Elev. (masl)			
CH-33	472739	5829499	357.0	-2	160.0	23
CH-34	472751	5829480	355.9	-2.2	148.0	11
CH-35	472759	5829472	355.1	-12	146.0	30
CH-36	472722	5829492	356.0	-2.2	330.0	35
CH-37	472790	5829536	361.4	-5	142.0	78.5
CH-38	472832	5829472	353.8	-53.7	140.0	16
CH-39	472974	5829474	340.6	-4.4	146.0	26.9
CH-40	472918	5829449	341.0	-6	168.0	16

Table 9-10: 2018 Channel Results Summary

Channel ID	From (m)	To (m)	Length (m)	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Zone Sampled
CH-33	0.0	23.0	23.0	2.08	0.026	118	60	86	0.30	LIZ/Aplite
CH-34	0.0	11.0	11.0	2.39	0.021	173	49	97	0.29	LIZ
CH-35	0.0	30.0	30.0	1.90	0.016	137	46	99	0.31	LIZ/Aplite
CH-36	0.0	35.0	35.0	2.02	0.014	94	49	87	0.24	LIZ/Aplite
CH-37	0.0	78.5	78.5	1.87	0.022	191	81	89	0.30	LIZ/Aplite
CH-38	0.0	16.0	16.0	1.79	0.020	161	82	110	0.28	LIZ/Aplite
CH-39	0.0	26.9	26.9	1.58	0.012	141	50	66	0.23	LIZ/Aplite
CH-40	0.0	16.0	16.0	1.54	0.015	130	108	81	0.29	LIZ/Aplite

9.2.2 2019 Channel Program

Four channels (Channels 41 to 44) totalling 52 m were completed in the summer of 2019 (Figure 9-2). A total of 56 samples were collected.

Sampling was completed by Frontier personnel using the same procedures as before. Channels 41 to 43 filled in the gap between Channel 40 and the bottom end of Channel 38.

Once cut, logged and bagged, the samples were shipped to AGAT's facilities in Timmins for sample preparation prior to analysis at AGAT's facility in Mississauga, Ontario.

Table 9-11 summarizes the location of the 2019 channels, and Table 9-12 summarizes the results for the 2019 channel program.

During August 2019, the channel locations were accurately surveyed by Rugged Geomatics of Kenora, Ontario.

Table 9-11: 2019 Channel Location at Spark

Channel No.	NAD83 UTM Zone 15N			Azimuth	Length (m)	No. of Samples
	Easting	Northing	Elev. (masl)			
CH-41	472917	5829450	341.4	8	347.0	16
CH-42	472908	5829465	344.4	4	352.0	6
CH-43	472889	5829466	345.9	6	348.5	12
CH-44	472732	5829415	349.1	4	328.0	18

Table 9-12: 2019 Channel Results at Spark

Channel ID	From (m)	To (m)	Length (m)	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Zone Sampled
CH-41	0.0	16.0	16.0	1.69	0.017	146	112	88	0.35	Aplite
CH-42	0.0	6.0	6.0	1.58	0.015	142	161	84	0.39	Aplite
CH-43	0.0	12.0	12.0	1.51	0.014	141	117	89	0.34	Aplite
CH-44	0.0	18.0	18.0	1.77	0.017	101	35	77	0.27	Aplite

9.2.3 2021 Channel Program

Two channels (Channels 48 and 50) totalling 54 m were completed in the fall of 2021. A total of 47 samples were collected.

Sampling was completed by Frontier personnel using the same procedures as before. Channels 48 and 50 were cut on the western parts of Spark to confirm grade continuity at the surface.

Once cut, logged and bagged, the samples were shipped to AGAT's facilities in Thunder Bay for sample preparation prior to analysis at AGAT's facility in Mississauga, Ontario. Table 9-13 summarizes the locations of the channels and Table 9-14 summarized the results of the 2021 channel program.

Table 9-13: 2021 Channel Results at Spark

Channel No.	NAD83 UTM Zone 15N			Azimuth	Length (m)	No. of Samples
	Easting	Northing	Elev. (masl)			
CH-48	472700	5829398	342.0	350	15	15
CH-50	472696	5829480	354.8	145	39	32

Table 9-14: 2021 Channel Results at Spark

Channel ID	From (m)	To (m)	Length (m)	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Zone Sampled
CH-48	0.0	15.0	15.0	1.75	0.013	113	97	57	0.29	Pegmatite
CH-50	0.0	10.0	10.0	1.28	0.012	68	105	50	0.23	Aplitic Pegmatite
CH-50	10.0	17.0	7.0	unable to cut section due to overburden						Aplitic Pegmatite
CH-50	17.0	39.0	22.0	1.85	0.017	118	88	52	0.24	Pegmatite with minor metavolcanics

9.2.4 2022 Channel Program

One channel (Channel 51) totalling 21 m was completed in the summer of 2022. A total of 21 samples were collected.

Sampling was completed by Frontier personnel using the same procedures as before. Channel 51 was cut on the eastern part of the main Spark Pegmatite between CH-35 and CH-38 to confirm grade continuity at surface.in an area where the terrain made it difficult to mobilize a diamond drill.

Once cut, logged and bagged, the samples were shipped to AGAT's facilities in Thunder Bay for sample preparation prior to analysis at AGAT's facility in Mississauga, Ontario. Table 9-15 summarizes the locations of the channels and Table 9-16 summarized the results of the 2021 channel program.

Table 9-15: 2022 Channel Results at Spark

Channel No.	NAD83 UTM Zone 15N			Azimuth	Length (m)	No. of Samples
	Easting	Northing	Elev. (masl)			
CH-51	472787	5829467	352.9	138	21	21

Table 9-16: 2022 Channel Results at Spark

Channel ID	From (m)	To (m)	Length (m)	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Zone Sampled
CH-51	0.0	21.0	21	1.92	0.01	122	92	41	0.31	Aplitic Pegmatite

9.3 Pennock Exploration

During the summer of 2018, the Pennock Pegmatite area was visited twice, and some surface grab samples were collected and examined.

9.3.1 2019 Channel Program

One channel (Channel 45) totalling 16 m was completed in the summer of 2019 (Figure 7.6). A total of 16 samples were collected. Once cut, logged and bagged, the samples were shipped to AGAT's facilities in Timmins for sample preparation prior to analysis at AGAT's facility in Mississauga, Ontario.

Table 9-17 summarizes the location of the 2019 channels, and Table 9-18 summarizes the results for the 2019 channelling at Pennock.

Table 9-17: 2019 Channel Location at Pennock

Channel No.	NAD83 UTM Zone 15N			Azimuth	Length (m)	No. of Samples
	Easting	Northing	Elev. (masl)			
CH-45	456175	5844545	332.0	200	0.0	16

Table 9-18: 2019 Channel Results at Pennock

Channel ID	From (m)	To (m)	Length (m)	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Zone Sampled
Channel 45	0.0	16.0	16.0	1.96	0.004	80	23	70	0.22	LIZ/aplite
including	1.0	13.0	12.0	2.35	0.004	58	18	52	0.19	LIZ

9.4 Bolt Exploration

Very preliminary mapping and channel sampling have been conducted on the Bolt Pegmatite during September 2020.

9.4.1 2020 Channel Program

Two channels (Channels 46 and 47) totalling 36.4 m were completed in the summer of 2020 (Figure 7.7). A total of 37 samples were collected. Once cut, logged and bagged, the samples were shipped to AGAT's facilities in Timmins for sample preparation prior to analysis at AGAT's facility in Mississauga, Ontario.

Table 9-19 summarizes the location of the 2020 channels, and Table 9-20 summarizes the results for the 2020 channelling at Bolt.

Table 9-19: 2020 Channel Location

Channel No.	NAD83 UTM Zone 15N			Azimuth	Length (m)	No. of Samples
	Easting	Northing	Elev. (masl)			
CH-46	473302	5829137	325.0	15	225.0	5
CH-47	473294	5829138	325.5	20	225.0	31.4

Table 9-20: 2020 Channel Results

Channel ID	From (m)	To (m)	Length (m)	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Zone Sampled
Channel 46	0.0	5.0	5.0	1.23	0.019	136	63	50	0.23	Aplite/ contact
Channel 47	0.0	31.4	31.4	1.56	0.010	119	91	54	0.22	Aplite/LIZ
including	14.0	25.0	11.0	1.88	0.007	105	90	50	0.21	Aplite/LIZ
Channels 46-47	0.0	36.4	36.4	1.51	0.011	122	88	50	0.22	Aplite/LIZ/ contact

9.4.2 2021 Channel Program

One channel (Channel 49) totalling 49 m was completed during the fall of 2021. Channel 49 was cut 125 m to the northwest of the previous channels. A total of 49 samples were collected.

Sampling was completed by Frontier personnel using the same procedures as before. Once cut, logged and bagged, the samples were shipped to AGAT's facilities in Thunder Bay for sample preparation prior to analysis at AGAT's facility in Mississauga, Ontario.

Table 9-21 summarizes the locations of the channels and Table 9-22 summarized the results of the 2021 channel program.

Table 9-21: 2021 Channel Location at Bolt

Channel No.	NAD83 UTM Zone 15N			Azimuth	Length (m)	No. of Samples
	Easting	Northing	Elev. (masl)			
CH-49	473218	5829244	325.5	225	49	49

Table 9-22: 2021 Channel Results at Bolt

Channel ID	From (m)	To (m)	Length (m)	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Zone Sampled
CH-49	0.0	49.0	49.0	1.14	0.012	87	76	50	0.23	Aplitic Pegmatite minor metavolcanics

9.5 Regional Mapping and Prospecting

During summer drill programs, intermittent regional and detailed scale mapping was completed, however, not until 2022 was any systematic program initiated. During May to September 2022, a regional scale geological mapping and prospecting program was completed simultaneously with Phase XII diamond drill program sharing the helicopter. Figure 9-3 shows the regional coverage over the entire claim group showing details in both the Pennock and Spark areas where additional pegmatites were discovered.

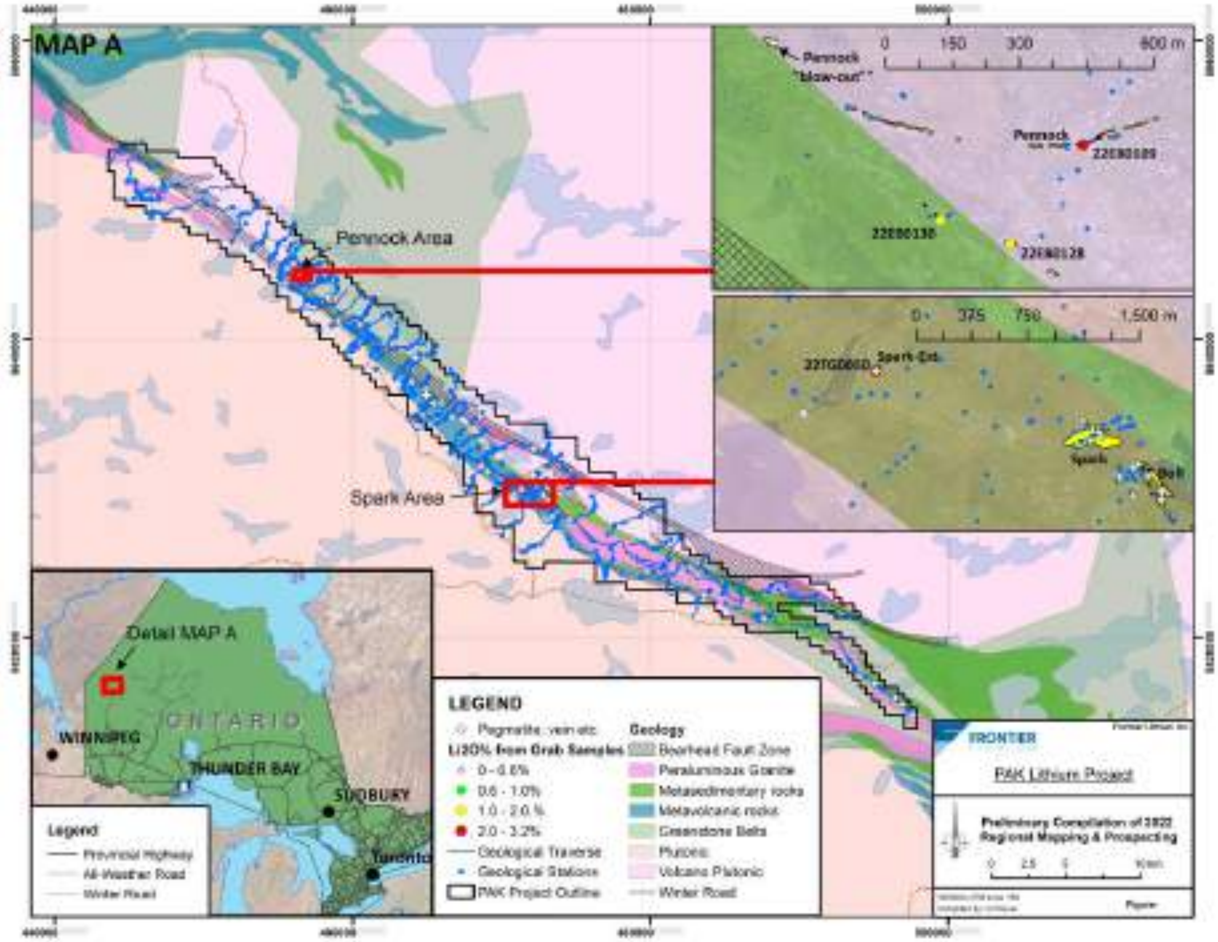


Figure 9-3: Compilation Map Showing Regional Mapping Coverage and Detail at Spark and Pennock

9.6 Geophysics

In 2001 a grid covering the 1,600 m x 1,600 m original claim over the PAK Pegmatite was cut at 100 m line spacing. A ground magnetic survey and a very low-frequency-electromagnetic method ("VLF-EM") survey was completed. Results indicated anomalously high magnetic responses due to banded iron formations within the metasediments on the "footwall" side of the pegmatite to the north and east and sulphide-rich horizons in the flanking metavolcanics to the west. Some structures could be discriminated with the electromagnetic method ("EM") survey and thought to be related Bearhead faulting.

9.6.1 PULSAR Survey

In September 2021 a PULSAR Audio Magnetotelluric ("AMT") survey was completed over the PAK to the Spark area at a 400 m station separation and upgraded to a 200 m station separation during the winter of 2022. Results indicate a strong magnetotelluric response along the granite-mafic contacts in the PAK Deposit area and virtually no significant response at Bolt. The Spark Deposit is clearly imaged and appears to extend to greater depths and further to the west that the surface exposures. Figure 9-4 shows the station coverage of the PULSAR survey on the left overlain on the phase-tensor 3D Inversion. Section A1-A2 is an E-W vertical slice of the 3D phase-tensor inversion showing the Spark response at depth with potential fold structure.

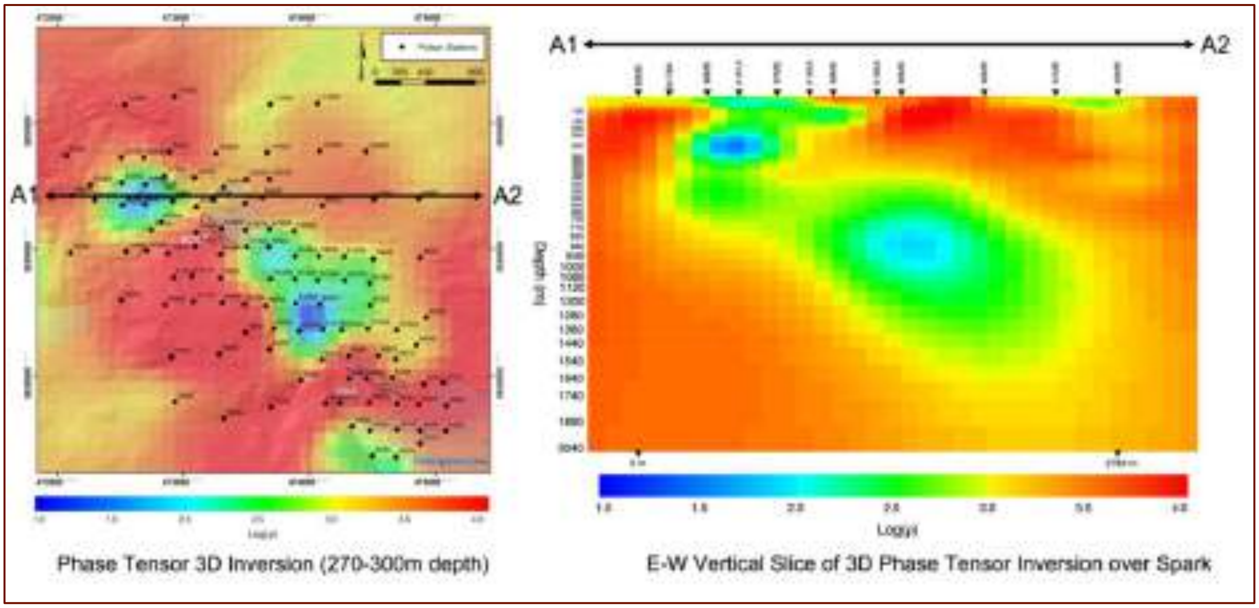


Figure 9-4: PULSAR Survey Coverage showing PT 3D Inversion (270-300 m depth) and E-W Vertical Slice over Spark

9.6.2 UAV Magnetic Survey

In September 2022, an unmanned aerial vehicle ("UAV") magnetic survey was flown over roughly the same area as the PULSAR survey including the new pegmatite discovery to the west-northwest of Spark. A total of 347 line-km of survey were flown at 50 m line spacing. Figure 9-5 displays the results of the total magnetic intensity, which clearly depicts the folding evident in the metavolcanic units wrapping around the north end of Pakeagama Lake converging with the metasedimentary rocks to the east. Also of interest are the magnetic low regions corresponding to the Spark Deposit and the area of coarse conglomerates immediately northeast of PAK.

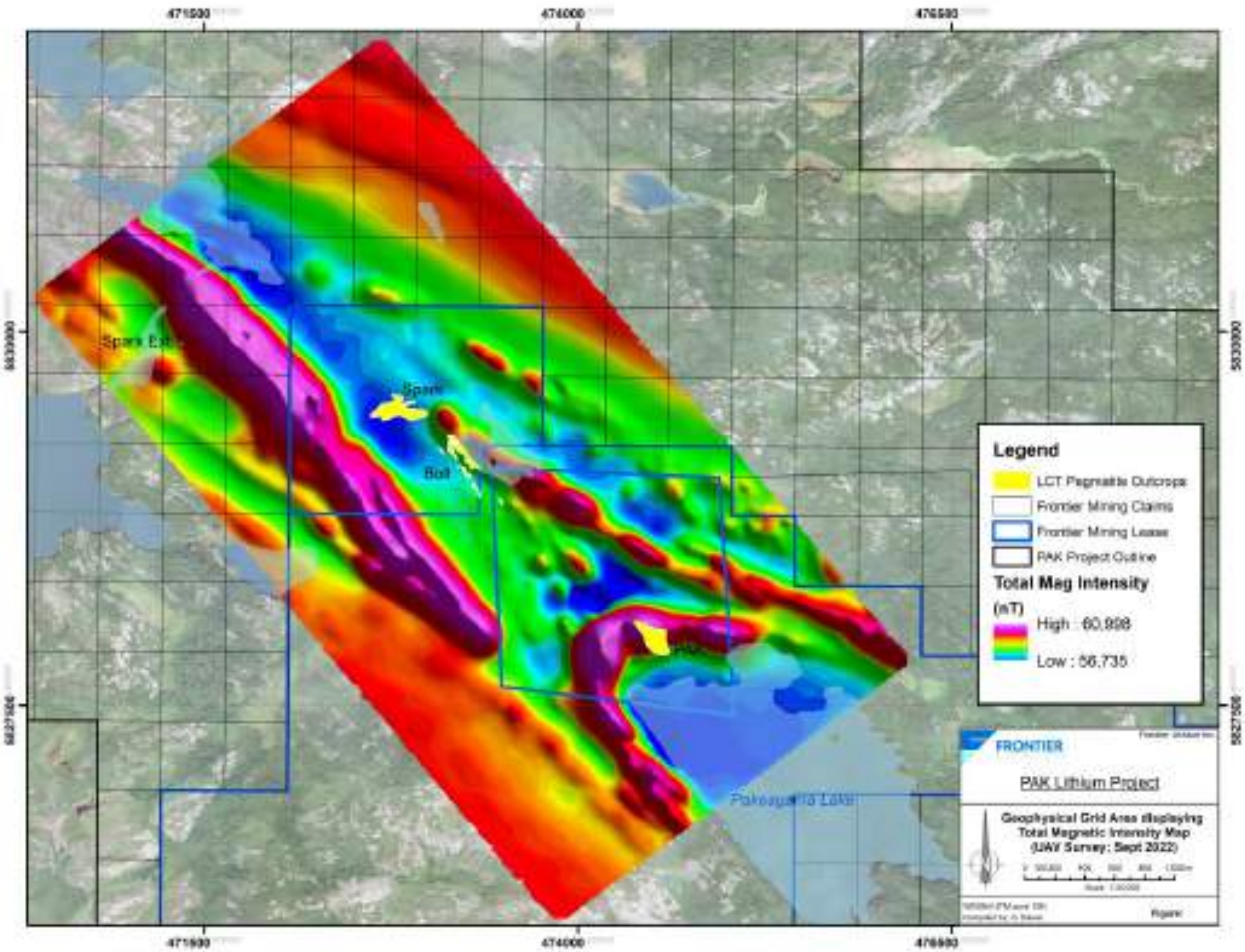


Figure 9-5: Total Magnetic Intensity Map

10. Drilling

Twelve phases of diamond drilling plus a program of geomechanical drilling have been completed on the Property since 2013. Phases I through VI were completed at the PAK Deposit while Phase VII and through XII, which included geo-mechanical drillholes, were completed on the Spark Pegmatite. Table 10-1 provides the collar data for all phases including geo-mechanical. Figure 10-1 illustrates the location of the drill collars at PAK and Spark respectively.

Table 10-1: Drill Collar Summary

	DDH No	Date Drilled		UTM Zone 15N (NAD83)			Collar		Metres Drilled	
		Start	End	Easting	Northing	(masl)	Azim	Dip	Start	End
Phase I	**PL-13-001**	2013-02-20	2013-03-03	474,558	5,827,832	319.5	20	-45	0	213.3
	PL-13-002	2013-02-22	2013-02-24	474,451	5,827,832	323.2	30	-45	0	191
	PL-13-003	2013-02-24	2013-02-25	474,421	5,827,963	327.6	30	-45	0	104
	PL-13-004	2013-02-25	2013-02-27	474,492	5,827,908	325.9	30	-45	0	167
	PL-13-005	2013-02-27	2013-02-28	474,526	5,828,046	320.8	210	-45	0	161
	PL-13-006	2013-03-01	2013-03-02	474,608	5,827,944	316.6	210	-45	0	119
									Total metres drilled	**955.3**
Phase II	**PL-002-14**	2014-02-11	2014-02-14	474,451	5,827,832	323.2	30	-45	191	305
	PL-007-14	2014-02-14	2014-02-18	474,415	5,828,062	320.3	210	-45	0	140
	PL-008-14	2014-02-18	2014-02-20	474,355	5,828,089	320.9	210	-45	0	133.6
	PL-009-14	2014-02-20	2014-02-23	474,555	5,827,838	319.5	45	-45	0	116
	PL-010-14	2014-02-23	2014-02-28	474,609	5,827,807	315.5	20	-45	0	326
	PL-011-14	2014-02-28	2014-03-02	474,451	5,827,959	327.0	30	-45	0	119
	PL-012-14	2014-03-02	2014-03-04	474,403	5,827,979	327.0	30	-45	0	128
	PL-013-14	2014-03-04	2014-03-08	474,571	5,827,851	317.0	20	-60	0	233
	PL-014-14	2014-03-08	2014-03-11	474,768	5,827,885	320.8	7.5	-45	0	179
									Total metres drilled	**1,488.6**
Phase III	**PL-015-15**	2015-02-18	2015-02-22	474,586	5,827,967	316.1	220	-45	0	178.7
	PL-016-15	2015-02-22	2015-02-24	474,637	5,827,977	314.5	210	-60	0	247.5
	PL-017-15	2015-02-24	2015-02-28	474,667	5,827,978	317.5	180	-60	0	267
	PL-018-15	2015-02-28	2015-03-02	474,475	5,828,063	318.6	210	-45	0	171
	PL-019-15	2015-03-02	2015-03-04	474,636	5,827,869	313.2	0	-60	0	195
	PL-020-15	2015-03-04	2015-03-05	474,520	5,827,899	322.1	44	-45	0	198
	PL-021-15	2015-03-06	2015-03-07	474,495	5,828,042	319.3	210	-60	0	163.5
	PL-022-15	2015-03-07	2015-03-10	474,750	5,827,818	315.4	15	-45	0	220.5
									Total metres drilled	**1,641.2**

	DDH No	Date Drilled		UTM Zone 15N (NAD83)			Collar		Metres Drilled	
		Start	End	Easting	Northing	(masl)	Azim	Dip	Start	End
Phase IV	**PL-023-15**	2015-08-28	2015-09-03	474,723	5,827,925	316.8	0	-90	0	255.6
	PL-024-15	2015-09-03	2015-09-09	474,665	5,827,740	314.4	20	-48	0	358
									Total metres drilled	**613.6**
Geomechanical	**GDH-01-17**	2017-02-15	2017-02-19	474,446	5,827,978	324.2	218	-70	0	91.3
	GDH-02-17	2017-02-20	2017-02-22	474,533	5,827,966	322.9	38	-70	0	132.8
	GDH-03-17	2017-02-23	2017-02-25	474,579	5,827,951	316.4	60	-72	0	131.0
	GDH-04-17	2017-03-25	2017-03-01	474,571	5,827,928	320.1	190	-75	0	120.3
	GDH-05-17	2017-09-23	2017-09-24	474,660	5,827,981	317.4	10	-60	0	100.6
									Total metres drilled	**576.0**
Phase V	**PL-023-17**	2017-09-22	2017-09-22	474,723	5,827,925	316.8	0	-90	255.6	289.6
	PL-025-17	2017-09-13	2017-09-18	474,418	5,827,851	320.5	20	-50	0	320
	PL-026-17	2017-09-18	2017-09-22	474,394	5,827,910	320.9	0	-55	0	270
	PL-027-17	2017-09-24	2017-09-28	474,759	5,828,044	317.6	199	-62	0	408.6
									Total metres drilled	**1,032.6**
Phase VI	**PL-028-18**	2018-06-20	2018-06-26	474,636	5,827,986	315.0	196	-75	0	334.4
	PL-029-18	2018-06-26	2018-06-29	474,583	5,827,974	317.4	217	-79	0	291
	PL-030-18	2018-06-29	2018-07-01	474,498	5,827,969	323.5	142	-85	0	222
	PL-031-18	2018-07-01	2018-07-02	474,524	5,827,950	323.6	0	-90	0	24.8
	PL-032-18	2018-07-02	2018-07-02	474,525	5,827,963	323.2	228	41.2	0	48
	PL-033-18	2018-07-02	2018-07-03	474,504	5,827,939	322.7	30	41.5	0	92.3
	PL-034-18	2018-07-03	2018-07-04	474,311	5,828,094	316.0	20	43.5	0	88.3
	PL-035-18	2018-07-04	2018-07-05	474,519	5,827,933	324.3	73	-43	0	54.6
	PL-036-18	2018-07-05	2018-07-06	474,528	5,827,945	323.9	160	-44	0	65.4
									Total metres drilled	**1,220.8**
Phase VII	**PL-037-19**	2019-02-02	2019-02-05	472,885	5,829,391	325.2	325	-41	0	178.8
	PL-038-19	2019-02-06	2019-02-09	472,801	5,829,388	326.2	324	-42	0	288.2
	PL-039-19	2019-02-10	2019-02-11	472,707	5,829,361	326.3	338	-44	0	250.5
	PL-040-19	2019-02-12	2019-02-16	472,961	5,829,378	325.4	338	-43	0	324
	PL-041-19	2019-02-16	2019-02-19	472,785	5,829,553	362.0	174	-45	0	298.5
									Total metres drilled	**1,340.0**
Phase VIII	**PL-042-19**	2019-07-20	2019-07-24	472,706	5,829,593	356.0	174	-45	0	357
	PL-043-19	2019-07-25	2019-07-28	472,859	5,829,586	359.5	171	-42	0	276
	PL-044-19	2019-07-28	2019-07-30	472,631	5,829,499	353.1	180	-44	0	231
	PL-045-19	2019-07-31	2019-08-03	472,882	5,829,388	325.3	331	-45	0	295.5
									Total metres drilled	**1,159.5**

DDH No		Date Drilled		UTM Zone 15N (NAD83)			Collar		Metres Drilled	
		Start	End	Easting	Northing	(masl)	Azim	Dip	Start	End
Phase IX	**PL-046-21**	2021-02-11	2021-02-18	472,781	5,829,321	326.0	330	-47	0	376.2
	PL-047-21	2021-02-18	2021-02-24	472,695	5,829,295	326.0	330	-48	0	298.5
	PL-048-21	2021-02-26	2021-03-08	472,865	5,829,345	326.0	305	-50	0	393
	PL-049-21	2021-03-08	2021-03-19	472,880	5,829,317	326.0	330	-42	0	303.2
	PL-GDH-06-21	2021-02-07	2021-02-10	472,803	5,829,380	326.2	177	-50	12.8	177
	PL-GDH-07-21	2021-02-25	2021-02-26	472,950	5,829,376	325.5	165	-46	12.9	83
	PL-046-21	2021-02-11	2021-02-18	472,781	5,829,321	326.0	330	-47	0	376.2
									Total metres drilled	**1,630.9**
Phase X	**PL-050-21**	2021-09-26	2021-10-03	472,746	5,829,494	359.0	170	-70	0	431
	PL-051-21	2021-10-03	2021-10-23	472,687	5,829,527	358.0	180	-60	0	346.3
	PL-052-21	2021-10-23	2021-10-27	472,815	5,829,593	359.0	160	-50	0	291
	PL-053-21	2021-10-27	2021-11-01	472,766	5,829,566	360.0	177	-55	0	349.5
	PL-GDH-08-21	2021-09-19	2021-09-26	472,746	5,829,496	356.7	355	-60	0	220.5
									Total metres drilled	**1,638.3**
Phase XI	**PL-054-22**	2022-02-25	2022-03-02	472,662	5,829,488	353.5	180.4	-58	0	360.0
	PL-055-22	2022-03-07	2022-03-10	472,631	5,829,296	326.0	343.5	-48.9	0	249.0
	PL-056-22	2022-03-10	2022-03-16	472,583	5,829,297	327.7	347.73	-48.9	0	351.0
	PL-GDH-09-22	2022-03-03	2022-03-06	472,661	5,829,489	353.5	345.7	-45	0	223.5
	PL-GDH-10A-22	2022-03-18	2022-03-19	472,657	5,829,279	326.8	183.5	-46.8	0	159.0
									Total metres drilled	**1,342.5**
Phase XII	**PL-057-22**	2022-05-15	2022-10-01	472,733	5,829,489	355.9	359	-55	0	225
	PL-058-22	2022-05-17	2022-10-03	472,733	5,829,489	355.9	177	-70	0	400
	PL-059-22	2022-05-24	2022-05-28	472,698	5,829,535	356.0	165	-78	0	316
	PL-060-22	2022-05-27	2022-06-04	472,749	5,829,559	360.0	180	-73	0	360
	PL-061-22	2022-05-20	2022-05-27	472,773	5,829,561	360.2	178	-65	0	327
	PL-062-22	2022-05-28	2022-06-05	472,712	5,829,596	356.2	176	-65	0	360
	PL-063-22	2022-06-05	2022-06-10	472,746	5,829,539	360.0	187	-70	0	348.5
	PL-064-22	2022-06-05	2022-06-10	472,712	5,829,596	356.2	141	-65	0	352.5
	PL-065-22	2022-06-10	2022-06-22	472,686	5,829,583	354.0	173	-72	0	330.86
	PL-066-22	2022-06-12	2022-06-27	472,732	5,829,371	325.0	323	-70	0	365.67
	PL-067-22	2022-06-29	2022-07-04	472,778	5,829,383	327.0	315	-70	0	352.5
	PL-068-22	2022-06-22	2022-06-27	472,790	5,829,540	360.0	171	-55	0	343.5
	PL-069-22	2022-07-06	2022-07-15	472,814	5,829,385	326.0	324	-61	0	412.3
	PL-070-22	2022-06-28	2022-07-04	472,805	5,829,588	360.0	184	-54	0	405
	PL-071-22	2022-07-04	2022-07-15	472,805	5,829,588	360.0	160	-52	0	384.6
	PL-072-22	2022-07-15	2022-07-21	472,847	5,829,384	326.0	349	-61	0	386.2
	PL-073-22	2022-07-16	2022-07-23	472,816	5,829,589	360.0	146	-52	0	392

DDH No	Date Drilled		UTM Zone 15N (NAD83)			Collar		Metres Drilled	
	Start	End	Easting	Northing	(masl)	Azim	Dip	Start	End
PL-074-22	2022-07-28	2022-08-02	472,584	5,829,497	354.0	162	-47	0	403.5
PL-075-22	2022-08-01	2022-08-06	472,571	5,829,490	354.0	177	-47	0	408
PL-076-22	2022-07-25	2022-08-05	472,846	5,829,384	326.0	314	-63	0	438
PL-077-22	2022-08-08	2022-08-24	472,864	5,829,390	326.0	354	-56	0	433.38
PL-078-22	2022-08-25	2022-09-01	472,939	5,829,369	326.0	341	-55	0	339.7
PL-079-22	2022-08-06	2022-08-15	472,538	5,829,480	357.0	177	-48	0	417
PL-080-22	2022-08-16	2022-08-23	472,687	5,829,511	354.0	193	-55	0	418.5
PL-081-22	2022-08-24	2022-08-30	472,689	5,829,499	354.0	177	-46	0	367.7
PL-082-22	2022-08-30	2022-09-02	472,718	5,829,455	355.0	6	-61	0	241.5
PL-083-22	2022-09-02	2022-09-06	472,971	5,829,367	326.0	343	-57	0	377.3
PL-084-22	2022-09-07	2022-09-11	472,983	5,829,380	325.0	358	-42	0	327
PL-085-22	2022-09-02	2022-09-05	472,731	5,829,472	354.0	309	-57	0	232
PL-086-22	2022-09-05	2022-09-08	472,731	5,829,472	354.0	162	-46	0	201
PL-087-22	2022-09-08	2022-09-11	472,701	5,829,451	354.0	318	-50	0	213.4
PL-088-22	2022-09-11	2022-09-16	472,706	5,829,453	354.0	173	-46	0	210.7
PL-089-22	2022-09-16	2022-09-17	472,762	5,829,514	360.0	360	-50	0	87
PL-090-22	2022-09-11	2022-09-15	472,746	5,829,371	326.0	334	-45	0	289.4
PL-091-22	2022-09-15	2022-09-18	472,663	5,829,362	327.0	338	-43	0	261.4
PL-092-22	2022-09-17	2022-10-20	472,762	5,829,514	360.0	174	-46	0	274.5
PL-093-22	2022-09-20	2022-09-23	472,614	5,829,329	328.0	345	-47	0	253.6
PL-094-22	2022-09-24	2022-10-01	472,657	5,829,357	326.0	351	-54	0	339
PL-095-22	2022-09-20	2022-09-23	472,785	5,829,531	362.0	165	-44	0	258.6
PL-096-22	2022-09-23	2022-09-30	472,865	5,829,583	359.0	136	-44	0	425.3
PL-097-22	2022-10-03	2022-10-04	472,698	5,829,535	354.0	6	-70	0	12.5
PL-098-22	2022-10-01	2022-10-09	472,756	5,829,387	327.0	317	-58	1	471
PL-099-22	2022-10-09	2022-10-15	472,529	5,829,361	330.0	345	-65	0	477
PL-GDH-11-22	2022-07-22	2022-07-24	473,046	5,829,379	325.0	285	-47	0	173.5
PL-GDH-12-22	2022-07-23	2022-07-25	472,456	5,829,470	358.0	119	-45	0	228
								Total metres drilled	**14,641.5**

	DDH No	Date Drilled		UTM Zone 15N (NAD83)			Collar		Metres Drilled	
		Start	End	Easting	Northing	(masl)	Azim	Dip	Start	End
PAK Hydrogeological-Geomechanical	**PL-GDH-13-23**	2023-02-07	2023-02-12	474,417	5,827,788	318.0	34	-47	0	352.5
	PL-GDH-14-23	2023-02-12	2023-02-13	474,283	5,828,051	319.0	121	-47	0	102.0
	PL-GDH-15-23	2023-02-13	2023-02-16	474,796	5,828,023	323.0	249	-47	0	266.1
	PL-GDH-16-23	2023-02-17	2023-03-23	474,586	5,828,129	324.0	191	-47	0	99.0
	PL-GDH-17-23	2023-02-18	2023-02-23	474,384	5,827,860	321.0	55	-69	0	201.0
	PL-GDH-18-23	2023-03-03	2023-03-05	474,701	5,827,894	317.0	17	-69	0	120.0
	PL-GDH-19-23	2023-03-06	2023-03-11	474,668	5,827,787	316.0	340	-70	0	201.0
	PL-GDH-20-23	2023-02-23	2023-02-28	474,826	5,827,883	320.0	290	-70	0	201.0
	PL-GDH-21-23	2023-02-28	2023-03-03	474,763	5,828,096	325.0	213	-71	0	97.6
	PL-GDH-22-23	2023-03-16	2023-03-21	474,437	5,827,982	325.0	34	-69	0	201.0
	PL-GDH-23-23	2023-03-12	2023-03-15	474,741	5,828,050	319.0	39	-69	0	192.0
									Total metres drilled	**2,033.2**
Bolt: Phase XIII	**PL-103-23**	2023-03-31	2023-04-02	473,126	5,829,159	344.0	41	-43	0	206.0
	PL-104-23	2023-04-02	2023-04-03	473,096	5,829,215	340.0	45	-45	0	163.5
	PL-105-23	2023-04-03	2023-04-04	473,101	5,829,230	340.0	45	45	0	102.0
	PL-106-23	2023-04-04	2023-04-07	473,101	5,829,234	340.0	354	-44	0	360.0
	PL-107-23	2023-04-08	2023-04-15	473,094	5,829,225	340.0	260	-43	0	282.0
	PL-108-23	2023-04-11	2023-04-13	473,095	5,829,228	340.0	300	-45	0	246.0
	PL-109-23	2023-04-16	2023-04-17	473,153	5,829,108	344.0	45	-45	0	213.0
	PL-110-23	2023-04-18	2023-04-19	473,204	5,829,033	351.0	48	-45	0	211.5
	PL-111-23	2023-04-20	2023-04-23	473,221	5,828,937	353.0	45	-45	0	327.0
	PL-112-23	2023-04-23	2023-04-25	473,284	5,828,901	357.1	45	-46	0	248.1
	PL-113-23	2023-04-25	2023-04-28	473,308	5,828,840	360.0	50	-45	0	270.0
									Total metres drilled	**2,629.1**

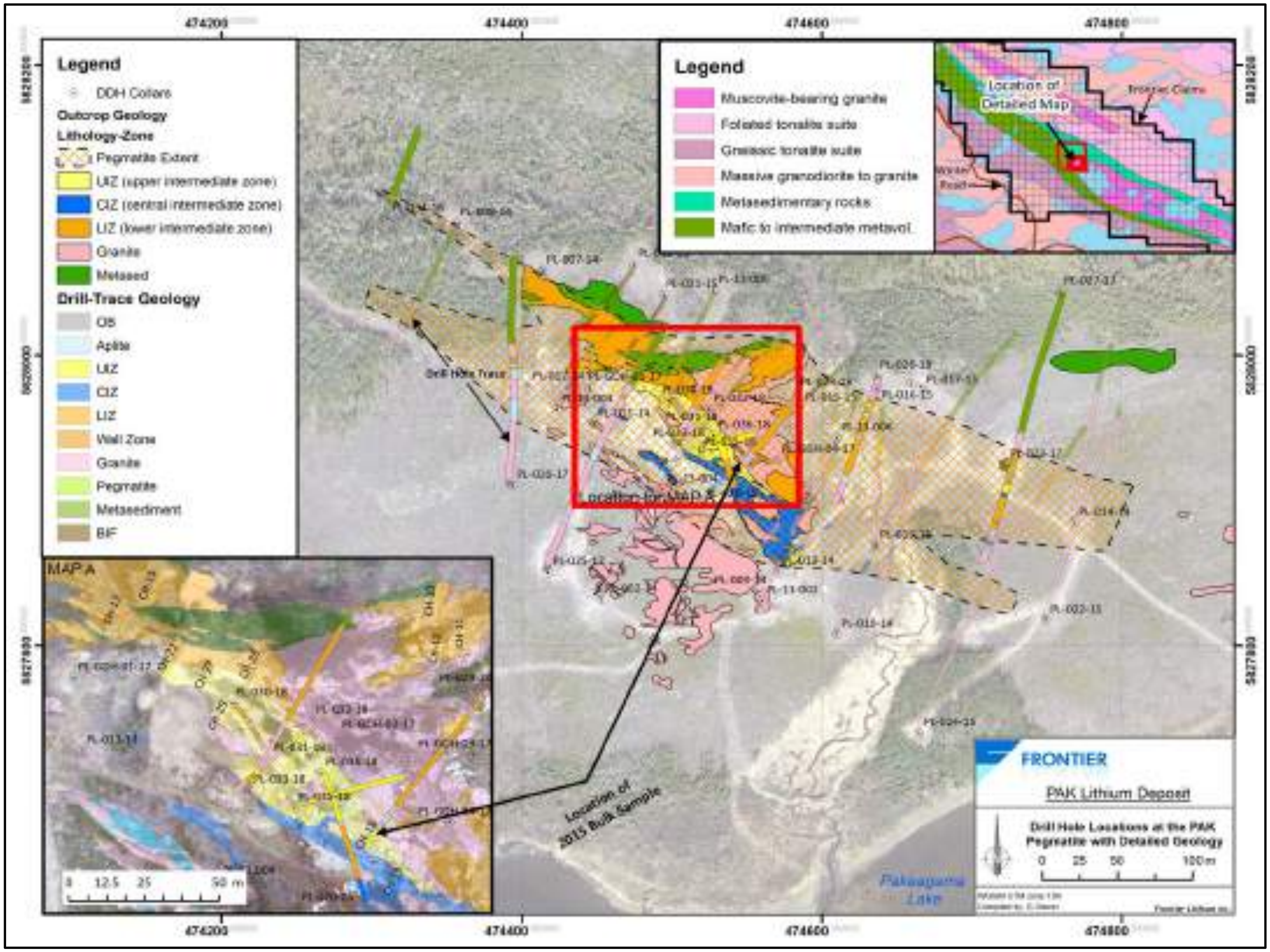


Figure 10-1: PAK Drill Collar Locations

10.1 Phase I

During the period of February 19 to March 3, 2013, Frontier completed a 6-hole diamond drill program, totalling 955 m, as a follow-up to the high-grade mineralization defined in the UIZ, LIZ, and CIZ zones during the 2012 Channel Sample Program. The objectives of the drill program were to determine the orientation, thickness, and zonation of the pegmatite and to refine the mineralogical characterization of these zones by better establishing the lithium, tantalum, cesium and rubidium potential.

Haveman Brothers of Kakabeka Falls, Ontario was contracted to provide camp logistics for the drill program. A 10-person winter camp was established next to the winter road 25 km northwest of the North Spirit Lake community. Element Drilling Ltd. of Gimli, Manitoba was awarded the diamond drilling contract. Drilling was completed using a skid mounted Boyles 37 drill using NQ (47.6 mm) rods for all holes. A D6 Caterpillar moved the drill from camp to the first drill site and between holes. Garth Drever of Frontier supervised the drilling and geological logging of the drill core. Drill core was geologically logged and tagged for sampling in the core logging facility at the campsite.

Under Frontier's QA/QC procedures, the diamond drill contract specified NQ-sized drill core providing a 47.6 mm diameter sample. The drillholes were oriented perpendicular to the strike of the pegmatite and drilled continuously across it.

The locations of the Phase I drill collars are displayed on Figure 10-1. Table 10-2 summarizes the results of the Phase I drill campaign.

Table 10-2: Phase I Drill Results

DDH PL-13-001	**Designed to test extent of pegmatite beneath the enriched UIZ/CIZ zones on surfaces near channel cuts 1 to 7.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Geology**
Li +Cs-Ta-Rb enriched	**38.00**	**192.55**	**154.55**	**1.22**	**0.064**	**111**	**64**	**137**	**0.41**	**LIZ/UIZ**
Ta-Rb-Cs enriched	38.50	97.00	58.50	n/a	0.073	121	65	175	0.55	WZ+CIZ
including	38.50	44.00	5.50	n/a	0.061	241	79	258	0.26	WZ
including	44.00	97.00	53.00	n/a	0.075	108	63	166	0.58	WZ+CIZ
including	72.70	97.00	24.30	n/a	0.059	149	100	125	0.54	CIZ
including	76.00	82.00	6.00	n/a	0.040	206	142	121	0.25	CIZ
Lithium enriched zone:	**97.00**	**192.55**	**95.55**	**1.62**	**0.059**	**105**	**64**	**113**	**0.32**	**LIZ-UIZ**
including	120.00	155.00	35.00	2.44	0.071	105	42	81	0.37	LIZ-UIZ
including	120.00	132.00	12.00	2.93	0.058	108	50	34	0.24	UIZ
including	127.00	132.00	5.00	4.01	0.058	131	45	27	0.10	UIZ
including	132.00	192.55	60.55	1.76	0.054	106	72	146	0.35	LIZ+UIZ

DDH PL-13-002	**Designed to test under pollucite-bearing aplite dyke at the surface and to define the western margin of pegmatite. First of two holes along with DDH PL-13-004, drilled to cross-section the pegmatite. Top of hole was in pegmatite.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Geology**
Ta-Cs enriched	**5.00**	**17.50**	**12.50**	**0.10**	**0.025**	**132**	**59**	**32**	**0.06**	**Pegmatite Dyke**
Rb-Ta-Cs Enriched	**174.00**	**191.00**	**17.00**	**0.86**	**0.044**	**134**	**95**	**115**	**0.36**	**LIZ/Aplite**
including	174.00	185.00	11.00	0.88	0.053	130	82	157	0.51	LIZ

DDH PL-13-003	**Designed to define zonation and to test the economic potential at the WNW extent of the exposed pegmatite in the vicinity of channel cuts 14 to 17.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Geology**
Li + Cs-Ta-Rb enriched	**21.00**	**84.05**	**63.05***	**2.53**	**0.044**	**83**	**58**	**66**	**0.22**	**WZ/CIZ/LIZ/UIZ**
including	21.00	32.00	11.00	n/a	0.097	169	75	163	0.45	WZ/CIZ/LIZ
including	21.00	27.00	6.00	n/a	0.123	209	91	207	0.57	CIZ/LIZ
including	27.00	83.00	56.00	2.61	0.035	70	53	51	0.18	LIZ/UIZ
including	36.00	54.00	18.00	4.22	0.040	41	20	21	0.06	UIZ
including	54.00	84.05	30.05	1.67	0.026	74	60	59	0.23	LIZ

* Zone includes 1.8 m of metasediments not sampled but included as dilution.

DDH PL-13-004	**Along with DDH PL-13-002, the hole layout was designed to define the pegmatite zonation and contacts in the central part of the known pegmatite by cross-sectioning the pegmatite.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Geology**
Total Pegmatite	**14.20**	**130.7***	**116.50**	**0.92**	**0.025**	**56**	**35**	**47**	**0.19**	**WZ/UIZ/CIZ/LIZ/Aplite**
including (Li)	70.30	91.30	21.00	2.74	0.040	85	44	69	0.19	UIZ/LIZ/WZ
including (Li)	70.30	85.00	14.70	3.43	0.035	59	35	65	0.16	UIZ
including (Li-Rb)	55.00	60.55	5.55	1.52	0.064	80	47	74	0.42	LIZ
including (Li-Rb)	120.00	130.70	10.70	1.82	0.023	68	60	70	0.33	LIZ
including (Rb)	14.20	22.00	7.80	n/a	0.072	107	77	84	0.73	CIZ
including (Ta)	30.40	39.00	8.60	n/a	0.036	212	131	192	0.25	CIZ/Aplite

* Zone includes 27.25 m of granite not sampled but included as dilution

DDH PL-13-005	Designed to intersect the metasediment-pegmatite contact from the NNE and to test the extent of the pegmatite towards the granite contact to the SSW.									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Geology**
Li +Ta-Rb Enriched	**65.00**	**144.10**	**79.10**	**1.64**	**0.028**	**116**	**93**	**210**	**0.29**	**LIZ/UIZ**
including	65.00	119.00	54.00	1.79	0.025	78	61	100	0.33	LIZ
including	119.00	125.00	6.00	3.57	0.035	74	37	29	0.18	UIZ
including	125.00	144.10	19.10	0.60	0.034	236	204	577	0.20	LIZ

DDH PL-13-006	Designed to test extent of granitic rock/rafts and pegmatite zonations above the pegmatite zone intersected in hole PL-13-001.									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Geology**
Lithium enriched	**48.50**	**52.85**	**4.35**	**1.80**	**0.048**	**56**	**25**	**42**	**0.22**	**Pegmatites / Granite**
Ta-Rb-Cs-Li enriched	**64.00**	**98.75**	**34.75**	**0.77**	**0.056**	**86**	**53**	**74**	**0.41**	**WZ/CIZ/UIZ /Granite**
including	73.40	96.00	22.60	n/a	0.064	114	69	96	0.53	WZ/CIZ/LIZ
including	75.00	92.00	17.00	n/a	0.071	124	72	108	0.60	CIZ
including	75.00	79.00	4.00	n/a	0.096	60	24	65	0.88	CIZ
including	78.00	86.00	8.00	n/a	0.074	161	99	156	0.63	CIZ
including (Li)	67.00	69.15	2.15	3.87	0.032	79	30	41	0.10	UIZ

10.1.1 Surveying

Collar Survey

Diamond drillhole collar locations were physically marked and flagged prior to drilling. Frontier geologists using hand-held Garmin GPS units, would locate and mark the site based on coordinates predetermined from the detailed geological GIS (Geographic Information System) compilation. Drill collar azimuth was determined by Silva compass and verified by line of sight (outcrop feature, channel cut, etc.).

Frontier personnel verified the position and orientation of the drill once set-up was completed and prior to commencement of drilling.

Casing was left in all holes and an aluminum cap was screwed in place with the drillhole identification engraved on the top of each cap.

In August 2013, Frontier contracted Consbec Inc. to complete GPS surveying of all collars (sub-centimetre accuracy) using a LEICA CS15 field controller and GS15 Smart Antenna (base station) system. Survey points were measured at the top-dead-centre ("TDC") of the cap and TDC of the casing at the casing-surface interface.

Downhole Survey

Downhole orientation surveys measured using a Reflex EZ-Shot® single-shot electronic instrument supplied and operated by Element Drilling personnel.

The first reading was taken at least 6 m past the end of the casing and then at an interval of 50 m until the end of the hole. Readings were recorded by the driller and included the depth, azimuth (magnetic north), inclination, magnetic tool face angle, magnetic field strength, and temperature.

10.1.2 Core Logging Procedure

The following is a summary of the Frontier logging procedure:

- Sample security and chain of custody started with the removal of core from the core tube and boxing of drill core at the drill site;
- The boxed core remained under the custody of the drill contractor until it was transported from the drill to the secure onsite core shack facility by either the drill contractor or one of Frontier's designated personnel;

- At the onsite core shack, core boxes were opened and inspected to ensure correct boxing and labelling of the core by the drill contractor, geologically logged, marked and tagged for sampling, photographed and then re-closed;
- The core was stored securely until moved into the Val Caron facility for sampling and splitting;
- Minimum sample unit was 0.3 m; maximum sample length was 1.7 m. Variations from a standard length of 1.0 m were often necessary to accommodate variations in pegmatite zonation and lithology;
- Each core sample was assigned a tag with a unique identifying number.

10.1.3 Sampling Approach

The following is a summary of Frontier's sampling procedure:

- Core marked for splitting was sawed using a diamond core saw with a mounted jig to assure the core was cut lengthwise into equal halves;
- Half of the cut core was placed in clean individual plastic bags with the appropriate sample tag;
- QA/QC samples were inserted into the sample stream at prescribed intervals. Full description of the QA/QC program is provided in Chapter 11;
- The samples were then placed in rice bags for shipment to an analytical laboratory for quantitative analysis of select elements;
- The remaining half of the core was retained and incorporated into Frontier's secure, offsite core library.

10.2 Phase II Drill Campaign

The Phase II drilling campaign was completed between February 6 and March 14, 2014. A total of eight new holes and one deepened hole were drilled, totalling 1,488.6 m. All holes were inclined at 45 degrees dip with the exception of one hole at -60 degrees. Only two holes were drilled from the north-northeast. All others were drilled from the south-southwest. All holes intersected and traversed the entire width of the pegmatite except for the final hole, PL-014-14, which only intersected granite and metasediments. Hole PL-13-002, which in 2013 was terminated at 191 m in pegmatite, was re-entered and deepened and ended in metasediments at 305 m.

Both camp and diamond drilling equipment were contracted to Element Drilling Ltd. of Gimli, Manitoba. Drilling was completed using a Boyles 37A diamond drill. Holes were drilled using NQ drill rods. Garth Drever of Frontier supervised the drilling and geological logging of the drill core.

The nomenclature of the drillholes was changed since 2013. “PL” still refers to Pakeagama Lake followed by three digits representing the sequence of the holes drilled, followed by the two-digit year so PL-009-14 is the ninth hole drilled on the Pakeagama Lake Project and was drilled in 2014.

The locations of the 2014 drill collars are displayed on Figure 10-1, and Table 10-3 summarizes the results of the 2014 drill campaign.

Table 10-3: Phase II Drill Results

DDH PL-002-14 (PL-13-002)	**In Phase I (PL-13-002 (from 0 to 191 m)) the objective was to test Cs potential under pollucite-bearing aplite dyke at the surface. In Phase II (PL-14-002 (from 191 m to 304 m), the intent was to complete the cross-section of the pegmatite.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Geology**
Ta enriched dyke	**5.00**	**17.50**	**12.50**	**0.10**	**0.025**	**132**	**59**	**32**	**0.06**	**Pegmatite**
Li + Rb-Ta-Cs enriched	**174.00**	**226.00**	**52.00**	**1.10**	**0.039**	**101**	**69**	**126**	**0.29**	**LIZ/Aplite/ Granite**
Li + Rb enriched	**253.40**	**273.00**	**19.60**	**1.92**	**0.012**	**94**	**68**	**75**	**0.31**	**LIZ/Aplite**

DDH PL-007-14	**Designed to test continuity of pegmatite along strike (approximately 56 m WNW of DDH PL-13-003) and collared from NNE.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Geology**
Li + Rb-Sn enriched	**3.60**	**22.60**	**19.00**	**1.07**	**0.010**	**105**	**64**	**427**	**0.24**	**Pegmatite/ Aplite/LIZ**
including	3.60	14.00	10.40	1.80	0.014	92	72	77	0.33	LIZ/Aplite
Lithium Enriched zone	**70.85**	**87.90**	**17.05**	**1.44**	**0.021**	**115**	**97**	**72**	**0.14**	**Aplite/LIZ/UIZ**
including	82.00	87.00	5.00	2.48	0.030	75	61	104	0.22	LIZ/UIZ
Ta-Sn enriched	**99.00**	**120.25**	**21.25**	**0.53**	**0.040**	**188**	**132**	**589**	**0.20**	**Aplite/LIZ/ Granite/UIZ**
including	99.00	112.65	13.65	0.76	0.050	250	187	899	0.25	Aplite/LIZ/UIZ/Granite

DDH PL-008-14	Designed to test continuity of pegmatite along strike (approximately 67 m WNW of DDH PL-007-14) and collared from NNE.									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Geology**
Li-Ta-Cs Enriched	**89.00**	**107.00**	**18.00**	**0.66**	**0.130**	**271**	**126**	**149**	**0.19**	**Aplite/LIZ**
including	89.50	106.00	16.50	0.68	0.133	286	130	159	0.19	Aplite/LIZ
including	89.50	92.00	2.50	1.94	0.640	829	87	156	0.28	Aplite/LIZ
DDH PL-009-14	**Designed to test to the SSE (obliquely) of PL-001-13 to determine if the pegmatite exists beyond the visible surface exposure.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Geology**
Rb-Ta-Cs enriched	**38.50**	**64.60**	**26.10**	**0.81**	**0.100**	**108**	**40**	**242**	**0.78**	**CIZ**
including	42.30	54.65	12.35	0.85	0.110	84	28	318	1.00	CIZ
Rb enriched	**89.25**	**96.50**	**7.25**	**0.62**	**0.100**	**53**	**29**	**52**	**0.95**	**CIZ**
Lithium enriched zone	**100.35**	**106.50**	**6.15**	**1.77**	**0.060**	**131**	**69**	**94**	**0.37**	**LIZ**
DDH PL-010-14	**Designed to test continuity of zoned pegmatite zones along strike (approximately 56 m ESE of DDH PL-13-001 and PL-009-14 where only overburden is observed on the surface.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Geology**
Rb-Cs Enriched	**62.30**	**76.60**	**14.30**	**n/a**	**0.100**	**94**	**38**	**37**	**0.95**	**CIZ**
Li-Cs-Rb enriched	**87.00**	**94.95**	**7.95**	**1.03**	**0.060**	**54**	**45**	**72**	**0.47**	**LIZ**
Li + Cs-Rb-Ta enriched	**168.30**	**229.00**	**60.70**	**2.01**	**0.040**	**108**	**65**	**139**	**0.38**	**LIZ/WZ**
including	171.00	193.00	22.00	2.46	0.050	62	37	82	0.43	LIZ
including	193.00	227.00	34.00	1.82	0.054	146	87	182	0.35	LIZ/WZ

DDH PL-011-14	Designed to test continuity of pegmatite zonation beneath the enriched UIZ/CIZ surface zones near (approx. 25 m ESE) DDH PL-003-13									
Zone	From (m)	To (m)	Width (m)	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Geology
Total Pegmatite	**9.10**	**104.75**	**95.65**	**1.68**	**0.024**	**85**	**59**	**162**	**0.24**	**WZ/CIZ/UIZ/LIZ**
Ta-Rb-Cs enriched	**9.10**	**20.70**	**11.60**	**n/a**	**0.068**	**132**	**69**	**83**	**0.37**	**WZ/CIZ**
including	9.85	14.00	4.15	n/a	0.077	188	123	113	0.38	WZ/CIZ
Lithium enriched zone	**13.00**	**104.75**	**91.75**	**1.69**	**0.021**	**80**	**53**	**156**	**0.22**	**LIZ + UIZ**
including	35.00	47.80	12.80	4.01	0.031	48	33	40	0.10	UIZ
including	54.00	104.75	50.75	1.73	0.023	114	84	274	0.33	LIZ

DDH PL-012-14	Designed to test continuity of pegmatite zonation beneath the enriched UIZ/CIZ surface zones near (approx. 25 m WNW) DDH PL-003-13									
Zone	From (m)	To (m)	Width (m)	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Geology
Li + Cs-Rb enriched	**19.50**	**74.40**	**54.90**	**1.42**	**0.030**	**96**	**76**	**87**	**0.24**	**Aplite/WZ/LIZ/UIZ**
including	19.50	36.45	16.95	1.31	0.036	130	78	146	0.23	WZ/LIZ
including	35.50	44.00	8.50	3.69	0.039	90	54	44	0.24	UIZ/Aplite
Also	102.00	107.20	5.20	2.16	0.012	107	80	50	0.27	Aplite/LIZ

DDH PL-013-14	**Designed to test continuity of zoned pegmatite beneath the enriched UIZ/CIZ zones on the surface near channel cuts 1 to 7 and approximately 60 m under DDH PL-001-13.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Geology**
Total Pegmatite	**15.00**	**217.45**	**202.45**	**1.16**	**0.054**	**75**	**48**	**103**	**0.38**	**WZ/CIZ/UIZ/LIZ/Aplite**
Cs-Rb enriched	**15.00**	**111.80**	**96.80**	**n/a**	**0.073**	**94**	**50**	**138**	**0.52**	**WZ/CIZ/Aplite**
including	15.00	50.25	35.25	n/a	0.109	111	47	209	0.77	WZ/CIZ
Lithium enriched zone	**133.20**	**217.45**	**84.25**	**2.09**	**0.040**	**70**	**55**	**86**	**0.31**	**LIZ/UIZ/Aplite**
including	133.20	182.00	48.80	2.75	0.047	62	44	60	0.33	LIZ/UIZ
including	164.00	182.00	18.00	3.11	0.049	61	36	84	0.37	UIZ

10.2.1 Surveying

Collar Survey

Diamond drillhole collar locations were physically marked and flagged prior to drilling. Frontier geologists using hand-held Garmin GPS units would locate and mark the site based on coordinates predetermined from the detailed geological GIS compilation. Drill collar azimuth was determined by Silva compass and verified by line of sight (outcrop feature, channel cut, etc.).

Frontier personnel verified the position and orientation of the drill once set-up was completed and prior to commencement of drilling.

Casing was left in all holes and an aluminum cap was screwed in place with the drillhole identification engraved on the top of each cap.

Coordinates for collars of all holes drilled in 2014 were measured using a Garmin Rino 610 GPS (averaging function). Elevations were estimated based on proximity to existing surveyed collars and channel samples. The collar coordinates have an accuracy of approximately 2 m.

Downhole Survey

Downhole orientation surveys were measured using a Reflex EZ-Shot® single-shot electronic instrument supplied and operated by Element Drilling personnel. Part way through the 2014 program, the single-shot instrument was replaced with a Reflex EZ-Shot® multi-shot instrument.

For holes measured with the single-shot, the first reading was taken at least 6 m past the end of the casing and then at an interval of 50 m until the end of the hole. Readings were recorded by the driller and included the depth, azimuth (magnetic north), inclination, magnetic tool face angle, magnetic field strength, and temperature. For holes measured with the multi-shot instrument, the survey was completed when pulling rods out of the hole with readings taken at 6 m intervals.

10.2.2 Core Logging Procedure

The following is a summary of the Frontier logging procedure:

- Sample security and chain of custody started with the removal of core from the core tube and boxing of drill core at the drill site;
- The boxed core remained under the custody of the drill contractor until it was transported from the drill to the secure onsite core shack facility by either the drill contractor or one of Frontier’s designated personnel;

- At the onsite core shack, core boxes were opened and inspected to ensure correct boxing and labelling of the core by the drill contractor;
- The drill core was geologically logged, photographed and then marked and tagged for sampling and splitting;
- Each core sample was assigned a tag with a unique identifying number. Sample lengths were typically one metre yet could be less depending on zone mineralogy and boundaries;
- The core was stored securely until moved into the core shack for processing.

10.2.3 Sampling Approach

The following is a summary of Frontier's sampling procedure:

- The core was then re-closed on site and shipped to the company's offsite core splitting facility in Val Caron, Ontario;
- Sample lengths were typically one metre yet could vary somewhat depending on zone mineralogy and boundaries;
- Core marked for splitting was sawed using a diamond core saw with a mounted jig to assure the core was cut lengthwise into equal halves;
- Half of the cut core was placed in clean individual plastic bags with the appropriate sample tag;
- QA/QC samples were inserted into the sample stream at prescribed intervals. Full description of the QA/QC program is provided in Chapter 11;
- The samples were then placed in rice bags for shipment to ACME Laboratories' facility in Val d'Or, Québec for sample preparation prior to completing multi-element analysis at ACME in Vancouver, BC;
- The remaining half of the core was retained and incorporated into Frontier's secure, offsite core library.

10.3 Phase III / Phase IV Drill Campaigns

Phase III began on February 17, 2015 and ended on March 10, 2015. A total of eight holes were drilled totalling 1,641.2 m in Phase III. The Phase IV program began on August 20, 2015 and ended on September 19, 2015. A total of two holes were drilled totalling 608 m in Phase IV.

Both camp and diamond drilling equipment were contracted to Chenier Drilling Ltd. of Val Caron. Drilling was completed using a Hydracore 2000 diamond drill. Holes were drilled using NQ drill rods. Garth Drever of Frontier supervised the drilling and geological logging of the drill core.

The locations of the Phase III and Phase IV drill collars are displayed on Figure 10-1. Table 10-4 summarizes the results of the Phase III and Phase IV drill campaigns.

Table 10-4: Phase III / Phase IV Drill Results

DDH PL-015-15	From the NNE targeting 60 m vertically below channels 18 and 19 and to test the depth extent of the granite/LIZ to the NE of channels 18 and 19. The hole is above DDH-020-15.									
Zone	From (m)	To (m)	Width (m)	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Geology
Lithium enriched zone	**47.40**	**50.00**	**2.60**	**3.86**	**0.011**	**86**	**27**	**35**	**0.05**	**UIZ**
Lithium enriched zone	**68.75**	**73.05**	**4.30**	**1.28**	**0.040**	**185**	**59**	**58**	**0.22**	**UIZ/LIZ**
Rb-Ta-Cs-Sn enriched	**82.60**	**110.30**	**27.70**	**0.59**	**0.062**	**168**	**93**	**316**	**0.49**	**CIZ**
Ta-Cs-Sn enriched	**122.90**	**129.70**	**6.80**	**0.37**	**0.051**	**197**	**40**	**108**	**0.23**	**Aplite**

DDH PL-016-15	Designed to test from the NNE, the thickness of granite beneath hole PL-13-006 and to define the northern boundary of the metasediments intersected at depth in holes PL-13-001 and PL-013-14									
Zone	From (m)	To (m)	Width (m)	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Geology
Li + Ta Enriched	**77.45**	**147.85**	**70.40**	**2.64**	**0.040**	**90**	**39**	**63**	**0.28**	**UIZ/LIZ**
including	89.00	94.00	5.00	0.36	0.025	247	65	115	0.15	Aplite
including	96.00	111.45	15.45	3.68	0.041	79	30	73	0.23	UIZ
Ta-Sn-Rb Enriched	**178.20**	**188.00**	**9.80**	**0.36**	**0.036**	**180**	**164**	**442**	**0.24**	**Aplite/Altered granite**
including	182.85	188.00	5.15	0.51	0.052	293	265	787	0.31	Transition Zone
Ta-Sn-Rb Enriched	**195.35**	**229.00**	**33.65**	**0.49**	**0.048**	**157**	**85**	**328**	**0.29**	**CIZ/Altered Granite**
including	195.35	212.00	16.65	0.47	0.048	180	119	383	0.27	CIZ
including	195.35	200.00	4.65	0.46	0.050	244	164	524	0.28	CIZ

DDH PL-017-15	Designed to test from the NNE, the upward extension of the LIZ intersected in hole PL-010-14.									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Geology**
Li +Rb-Ta-Sn Enriched	**63.00**	**66.80**	**3.80**	**1.94**	**0.034**	**161**	**62**	**230**	**0.46**	**LIZ**
Lithium Enriched	**144.75**	**159.00**	**14.25**	**2.17**	**0.034**	**58**	**28**	**63**	**0.12**	**LIZ/Altered Granite**
including	144.75	156.00	11.25	2.66	0.041	72	33	77	0.13	LIZ
Li +Rb Enriched	**173.30**	**194.60**	**21.30**	**1.60**	**0.095**	**97**	**28**	**79**	**0.41**	**LIZ**
including	173.30	188.60	15.30	2.12	0.096	102	29	85	0.30	LIZ
Ta-Sn-Rb Enriched	**202.10**	**238.70**	**36.60**	**0.51**	**0.060**	**88**	**40**	**123**	**0.21**	**WZ/Granite/Aplite**
including	233.65	238.70	5.05	0.63	0.051	203	88	364	0.30	WZ/Aplite

DDH PL-018-15	Designed to test from the NNE, the continuity of the LIZ above hole PL-13-003 and the UIZ 50 m below. (Scissored PL-012-14; DDH-03 is 25-30 m away to the ESE)									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Geology**
Li + Ta-Rb enriched	**46.60**	**60.20**	**13.60**	**1.60**	**0.014**	**107**	**65**	**70**	**0.29**	**LIZ**
Ta-Rb enriched	**77.60**	**93.40**	**15.80**	**0.54**	**0.022**	**162**	**88**	**85**	**0.26**	**Aplite/LIZ**
Li-Rb enriched	**100.55**	**122.00**	**21.45**	**0.75**	**0.025**	**80**	**57**	**115**	**0.21**	**Aplite/LIZ**
Ta-Cs-Sn enriched	**137.65**	**143.85**	**6.20**	**0.34**	**0.056**	**136**	**89**	**339**	**0.27**	**WZ/CIZ**
Ta-Sn enriched	**160.75**	**168.15**	**7.40**	**0.22**	**0.027**	**144**	**98**	**196**	**0.11**	**Aplite**

DDH PL-019-15	Designed to test from the south, the upward extension of the LIZ intersected in hole PL-010-14 from the south.									
Zone	From (m)	To (m)	Width (m)	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Geology
Li-Ta-Cs-Sn enriched	**45.90**	**52.35**	**6.45**	**1.99**	**0.044**	**204**	**88**	**514**	**0.30**	**LIZ**
Li + Cs-Rb enriched	**103.15**	**173.70**	**70.55**	**2.25**	**0.035**	**77**	**54**	**131**	**0.33**	**LIZ**
including	123.00	134.00	11.00	3.03	0.043	58	40	89	0.31	LIZ/UIZ
including	153.00	170.00	17.00	2.47	0.017	73	57	94	0.25	LIZ

DDH PL-020-15	Targeting from the SSW, 30 m vertically below channel 18 and to test the depth extent of the granite/LIZ to the NE of channels 18 and 19.									
Zone	From (m)	To (m)	Width (m)	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Geology
Li + Cs-Rb enriched	**11.60**	**44.20**	**32.60**	**1.35**	**0.079**	**75**	**30**	**118**	**0.58**	**CIZ/LIZ/UIZ**
including	11.60	36.00	24.40	0.60	0.083	70	25	114	0.69	WZ/CIZ/LIZ
including	36.00	44.20	8.20	3.59	0.067	91	43	132	0.24	UIZ
Lithium enriched	**79.50**	**145.55**	**66.05**	**2.02**	**0.045**	**103**	**61**	**121**	**0.30**	**LIZ/UIZ**
including	80.05	85.90	5.85	4.15	0.050	48	21	65	0.10	UIZ

DDH PL-021-15	Designed to test from the NNE, the continuity of the LIZ above hole PL-011-14 and the UIZ below.									
Zone	From (m)	To (m)	Width (m)	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Geology
Li + Rb enriched	**53.60**	**68.75**	**15.15**	**1.20**	**0.017**	**107**	**61**	**101**	**0.32**	**LIZ**
Li + Rb enriched	**86.20**	**121.20**	**35.00**	**1.24**	**0.024**	**94**	**78**	**100**	**0.26**	**LIZ/Aplite**
Ta-Cs enriched	**128.90**	**149.00**	**20.10**	**0.97**	**0.040**	**129**	**79**	**92**	**0.15**	**Aplite**
including	131.00	146.00	15.00	1.20	0.024	150	97	81	0.13	Aplite

DDH PL-023-15	**The vertical hole was designed to test the hypothesis that the main pegmatite body is plunging to the east under holes PL-014-14 and PL-022-15. The collar was placed in line with the main trend from scissored holes PL-017-15 and PL-019-15 and the tourmaline veinlets/fractures in PL-022-15**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Geology**
Li +Ta-Sn Enriched	**103.25**	**116.80**	**13.55**	**1.14**	**0.037**	**171**	**81**	**264**	**0.24**	**WZ/LIZ/CIZ**
including	103.80	109.25	5.45	1.14	0.028	233	94	150	0.21	WZ/CIZ
including	111.80	116.80	5.00	1.47	0.030	167	93	499	0.26	WZ/CIZ
Lithium enriched	**154.55**	**250.00**	**95.45**	**1.98**	**0.030**	**93**	**68**	**136**	**0.25**	**LIZ/UIZ/Aplite**
including	197.00	209.00	12.00	3.07	0.032	36	35	59	0.30	UIZ/LIZ
including	157.00	180.00	23.00	2.94	0.031	79	54	106	0.23	UIZ/LIZ

DDH PL-024-15	**After successfully intersecting pegmatite in hole PL-023-15, this hole was designed to step back and test the width and attitude of the pegmatite zone on the footwall (metasediment side) and hanging wall (granite side).**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Geology**
Rb-Cs-Ta Enriched	**143.00**	**176.15**	**33.15**	**0.77**	**0.049**	**79**	**59**	**65**	**0.54**	**WZ/Granite/LIZ**
including	143.00	153.15	10.15	0.32	0.081	103	62	94	1.00	WZ
including	159.45	176.15	16.70	1.22	0.036	72	56	59	0.39	LIZ/Granite
Li + Rb-Ta-Cs Enriched	**264.00**	**304.00**	**40.00**	**2.59**	**0.041**	**87**	**71**	**84**	**0.34**	**LIZ/UIZ**
including	265.90	289.00	23.10	3.33	0.046	76	53	72	0.36	UIZ/LIZ
including	265.90	275.00	9.10	3.65	0.037	58	43	39	0.30	UIZ/LIZ

10.3.1 Surveying

Collar Survey

Diamond drillhole collar locations were physically marked and flagged prior to drilling. Frontier geologists using hand-held Garmin GPS units would locate and mark the site based on coordinates predetermined from the detailed geological GIS compilation. Drill collar azimuth was determined by Silva compass and verified by line of sight (outcrop feature, channel cut, etc.).

Frontier personnel verified the position and orientation of the drill once set-up was completed and prior to commencement of drilling.

Casing was left in all holes and an aluminum cap was screwed in place with the drillhole identification engraved on the top of each cap.

Two surveyors were flown from Red Lake to the drill camp at Pakeagama Lake while Phase IV drilling was in progress. They utilized a Total Station GPS system with the Precise Point Positioning ("PPP") Service to establish sub-cm accuracy for survey points. In addition to the claim survey, they surveyed all diamond drillhole collars and new channels plus several of the 2012 and 2014 channels in order to realign the survey points completed in 2013. The coordinates were measured from the TDC of the casing-ground surface contact.

Downhole Survey

Downhole orientation surveys were completed on all holes using the Ranger Discovery Multi-shot instrument with reading taken every 6 m during Phase III, and every 15 m during Phase IV.

The instrument and the operation were provided by Chenier Drilling. Depth, azimuth (magnetic north), inclination, temperature, and magnetic field strength were recorded digitally at each station.

10.3.2 Core Logging Procedure

The following is a summary of Frontier's logging procedure:

- Sample security and chain of custody started with the removal of core from the core tube and boxing of drill core at the drill site;
- The boxed core remained under the custody of the drill contractor until it was transported from the drill to the secure onsite core shack facility by either the drill contractor or one of Frontier's designated personnel;

- At the onsite core shack, core boxes were opened and inspected to ensure correct boxing and labelling of the core by the drill contractor;
- The drill core was geologically logged, photographed and then marked and tagged for sampling and splitting;
- Each core sample was assigned a tag with a unique identifying number. Sample lengths were typically one metre yet could be less depending on zone mineralogy and boundaries;
- The core was stored securely until moved into the core shack for processing.

10.3.3 Sampling Approach

The following is a summary of Frontier's sampling procedure:

- The core was then re-closed on site and shipped to the company's offsite core splitting facility in Val Caron, Ontario during Phase III. During Phase IV, the drill core was cut, and samples stored on site in a locked sea container until ready to be shipped to the laboratory;
- Sample lengths were typically one metre yet, could vary somewhat depending on zone mineralogy and contacts;
- Core marked for splitting was sawed using a diamond core saw with a mounted jig to assure the core was cut lengthwise into equal halves;
- Half of the cut core was placed in clean individual plastic bags with the appropriate sample tag.

QA/QC samples were inserted into the sample stream at prescribed intervals. Full description of the QA/QC program is provided in Chapter 11.

The samples were then placed in rice bags for shipment to Actlab Laboratories' facility (Phase III) in Sudbury, Ontario or AGAT Laboratories' facility (Phase IV) for sample preparation prior to completing multi-element analysis at Actlabs in Ancaster, Ontario (Phase III) or AGAT in Mississauga, Ontario (Phase IV).

The remaining half of the core was retained and incorporated into Frontier's secure, offsite core library.

10.4 GeoMech / Phase V Drill Campaign

The GeoMech drilling campaign was completed between February 15, 2017, and March 1, 2017, for the first four geomechanical holes and September 13, 2017, and September 28, 2017, for the Phase V drill program and the 5th geomechanically hole. Four holes totalling 1,288.2 m were drilled during Phase V as well as five geomechanical holes totalling 576 m were completed during 2017.

The camp utilized was the Property of Frontier while the diamond drilling equipment was contracted to Chenier Drilling Ltd. of Val Caron. Drilling was completed using a Hydracore 2000 diamond drill. Holes were drilled using NQ drill rods. Garth Drever of Frontier supervised the drilling and geological logging of the drill core.

The locations of the GeoMech and Phase V drill collars are displayed on Figure 10-1 Table 10-5 summarizes the results of the 2017 drill campaigns.

Table 10-5: GeoMech / Phase V Drill Results

DDH PL-GDH-01-17	**To characterize the fabric that controls the south walls of the proposed open pit**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Lithium Enriched	**5.9**	**14.4**	**8.5**	**3.14**	**0.06**	**102**	**35**	**41**	**0.40**	**LIZ/Aplite/UIZ**
including	9.0	14.4	5.4	4.18	0.04	84	29	114	0.16	LIZ/UIZ

DDH PL-GDH-02-17	**To characterize the fabric that controls the north walls of the proposed open pit**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Lithium Enriched	**38.3**	**75.3**	**33.9**	**2.09**	**0.02**	**94**	**81**	**111**	**0.28**	**LIZ/Aplite/UIZ**
including	53.0	75.3	22.3	2.56	0.02	71	73	120	0.28	LIZ/UIZ
including	53.0	62.0	9.0	3.22	0.02	51	54	87	0.24	LIZ/UIZ

DDH PL-GDH-03-17	**To characterize the northeast and explore possible pit wall slope angles**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Lithium Enriched	**34.0**	**113.7**	**1.1**	**1.36**	**0.02**	**127**	**92**	**189**	**0.26**	**LIZ/Aplite**
including	55.0	78.8	23.8	2.12	0.01	107	75	81	0.22	LIZ/Aplite
including	59.0	64.0	5.0	3.35	0.01	63	56	39	0.20	LIZ/UIZ

DDH PL-GDH-04-17	**To characterize the southeast wall of the proposed open pit**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Lithium Enriched	**24.8**	**40.0**	**15.3**	**4.32**	**0.02**	**42**	**21**	**69**	**0.04**	**UIZ**
including	25.8	38.5	12.7	4.71	0.01	35	13	75	0.03	UIZ
Rb Ta Enriched	**84.6**	**92.6**	**8.0**	**0.60**	**0.04**	**177**	**114**	**319**	**0.45**	**Aplite/CIZ**
including	89.5	92.6	3.1	0.44	0.07	109	69	140	0.81	CIZ

DDH PL-023-17	Vertical hole PL-023-15 was re-entered and deepened. All data from the 2015 hole was transferred and recorded with the new PL-023-17 hole. Metasediments were intersected at 262.2 m. The metasediments appear altered indicating proximity to the pegmatite intrusion.									
Zone	From (m)	To (m)	Width (m)	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Unit
Lithium Enriched	**105.6**	**119.4**	**13.9**	**1.14**	**0.04**	**171**	**81**	**264**	**0.24**	**LIZ**
Lithium Enriched	**158.4**	**263.0**	**104.6**	**1.95**	**0.03**	**92**	**68**	**135**	**0.25**	**LIZ/UIZ**
including	160.5	213.7	53.2	2.49	0.03	78	62	104	0.27	LIZ/UIZ
including	160.5	174.8	14.3	3.18	0.02	75	52	72	0.22	UIZ/LIZ

DDH PL-025-17	To determine the depth extent under the western end of the deposit to aid with the design of the open pit for final feasibility. Intersected zones of aplite enriched in tantalum and tin.										
Zone	From (m)	To (m)	Width (m)	Horiz. (m)*	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Unit
Ta Enriched	**61.8**	**66.1**	**4.3**	**2.8**	**0.06**	**0.05**	**268**	**112**	**21**	**0.24**	**Aplite**
Ta Enriched	**91.2**	**92.7**	**1.5**	**1.0**	**0.08**	**0.11**	**643**	**121**	**65**	**0.17**	**Aplite**
Ta - Sn Enriched	**208.2**	**208.8**	**0.7**	**0.4**	**0.21**	**0.02**	**145**	**112**	**711**	**0.10**	**Aplite**
Ta Li Enriched	**216.8**	**225.5**	**8.7**	**5.6**	**0.52**	**0.03**	**168**	**111**	**163**	**0.10**	**LIZ/Aplite**

DDH PL-026-17	To determine the depth extent under the western end of the deposit to aid with the design of the open pit for final feasibility. Intersected wider zones of aplite with minor LIZ at depth. All aplite in enriched in tanatum and tin with 6 m of 460 ppm Ta_2O_5 and 1856 ppm SnO_2.										
Zone	From (m)	To (m)	Width (m)	Horiz. (m)*	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Unit
Ta - Sn Enriched	**76.6**	**104.0**	**27.4**	**15.7**	**0.22**	**0.03**	**176**	**160**	**311**	**0.10**	**Aplite**
Ta - Sn Enriched	**127.8**	**145.0**	**17.2**	**9.9**	**0.44**	**0.05**	**293**	**268**	**862**	**0.20**	**Aplite**
including	133.0	139.0	6.0	3.4	0.54	0.07	460	453	1,856	0.27	Aplite
Lithium Enriched	**145.0**	**151.8**	**6.8**	**3.9**	**1.55**	**0.04**	**76**	**70**	**65**	**0.18**	**LIZ**

DDH PL-027-17	**Designed to test the continuity, width and depth extent of the pegmatite near the vertical hole (PL-023-15) drilled in 2015. DDH PL-027-17 was projected to intersect the pegmatite 15 m above the lower extent of the pegmatite in the vertical hole. The vertical hole clipped the NNE edge of the pegmatite.**										
Zone	**From (m)**	**To (m)**	**Width (m)**	**Horiz. (m)***	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Total pegmatite	**237.3**	**356.0**	**118.7**	**55.7**	**2.47**	**0.04**	**78**	**73**	**110**	**0.32**	**LIZ/Aplite/ UIZ**
Lithium Enriched	**287.0**	**340.0**	**53.0**	**24.9**	**3.30**	**0.03**	**63**	**64**	**85**	**0.27**	**LIZ/UIZ**
including	290.0	304.0	14.0	6.6	4.41	0.02	32	25	53	0.12	UIZ
* Based on vertical orientation of pegmatite											

10.4.1 Surveying

Collar Survey

Diamond drillhole collar locations were physically marked and flagged prior to drilling. Frontier geologists using hand-held Garmin GPS units would locate and mark the site based on coordinates predetermined from the detailed geological GIS compilation. Drill collar azimuth was determined by Silva compass and verified by line of sight (outcrop feature, channel cut, etc.).

Frontier personnel verified the position and orientation of the drill once set-up was completed and prior to commencement of drilling.

Casing was left in all holes and an aluminum cap was screwed in place, with the drillhole identification engraved on the top of each cap.

The GeoMech and Phase V collars were picked up based on high-resolution drone imagery with high-precision ground control points. Accuracy is less than 5 cm horizontal and less than 10 cm vertical for the 2017 drilling (based on surveyed collar sample locations).

Downhole Survey

Downhole orientation surveys were completed on all holes using the Ranger Discovery Multi-Shot instrument with reading taken every 6 m to 15 m during Phase V.

The instrument and the operation were provided by Chenier Drilling. Depth, azimuth (magnetic north), inclination, temperature, and magnetic field strength were recorded digitally at each station.

Core Logging Procedure

The following is a summary of Frontier’s logging procedure:

- Sample security and chain of custody started with the removal of core from the core tube and boxing of drill core at the drill site;
- The boxed core remained under the custody of the drill contractor until it was transported from the drill to the secure onsite core shack facility by either the drill contractor or one of Frontier’s designated personnel;
- At the onsite core shack, core boxes were opened and inspected to ensure correct boxing;
- The drill core was geologically logged, photographed and then marked and tagged for sampling and splitting;
- Each core sample was assigned a tag with a unique identifying number. Sample lengths were typically one metre yet could be less depending on zone mineralogy and boundaries.
- The core was stored securely until moved into the core shack for processing.

Sampling Approach

The following is a summary of Frontier's sampling procedure:

- The drill core was cut, and samples stored on site in a locked sea container until ready to be shipped to the laboratory;
- Sample lengths were typically one metre yet could vary somewhat depending on zone mineralogy and contacts;
- Core marked for splitting was sawed using a diamond core saw with a mounted jig to assure the core was cut lengthwise into equal halves;
- Half of the cut core was placed in clean individual plastic bags with the appropriate sample tag;
- QA/QC samples were inserted into the sample stream at prescribed intervals. Full description of the QA/QC program is provided in Chapter 11;
- The samples were then placed in rice bags for shipment to AGAT Laboratories' facility in Mississauga, Ontario for sample preparation and multi-element analysis;
- The remaining half of the core was retained and incorporated into Frontier's secure, offsite core library.

10.4.2 Core Logging Procedure

The following is a summary of the Frontier logging procedure:

- Sample security and chain of custody started with the removal of core from the core tube and boxing of drill core at the drill site;
- The boxed core remained under the custody of the drill contractor until it was transported from the drill to the secure onsite core shack facility by either the drill contractor or one of Frontier's designated personnel;
- At the onsite core shack, core boxes were opened and inspected to ensure correct boxing and labelling of the core by the drill contractor;
- The drill core was geologically logged, photographed and then marked and tagged for sampling and splitting;
- Each core sample was assigned a tag with a unique identifying number. Sample lengths were typically one metre yet could be less depending on zone mineralogy and boundaries;
- The core was stored securely until moved into the core shack for processing.

10.4.3 Sampling Approach

The following is a summary of Frontier's sampling procedure:

- The core was then re-closed on site and shipped to the company's offsite core splitting facility in Val Caron, Ontario during Phase III. During Phase IV, the drill core was cut, and samples stored on site in a locked sea container until ready to be shipped to the laboratory;
- Sample lengths were typically one metre yet could vary somewhat depending on zone mineralogy and contacts;
- Core marked for splitting was sawed using a diamond core saw with a mounted jig to assure the core was cut lengthwise into equal halves;
- Half of the cut core was placed in clean individual plastic bags with the appropriate sample tag.

QA/QC samples were inserted into the sample stream at prescribed intervals. Full description of the QA/QC program is provided in Chapter 11.

The samples were then placed in rice bags for shipment to AGAT Laboratories' Facility for sample preparation prior to completing multi-element analysis at AGAT in Mississauga, Ontario.

The remaining half of the core was retained and incorporated into Frontier's secure core library.

10.5 Phase VI Drill Campaign

The Phase VI drilling campaign was completed between June 20, 2018, to July 6, 2018. A total of nine holes were drilled totalling 1,220.8 m in Phase VI drill program at the PAK Deposit.

Frontier's Exploration camp was used as a base of operation and diamond drilling equipment was contracted to Chenier Drilling Ltd. of Val Caron. Drilling was completed using a Hydracore 2000 diamond drill. Holes were drilled using BTW drill rods. Garth Drever of Frontier supervised the drilling and geological logging of the drill core.

The locations of the Phase VI drill collars are displayed on Figure 10-1. Table 10-6 summarizes the results of the 2018 drill campaigns.

Table 10-6: Phase VI Drill Results

DDH PL-028-18	**Designed to test the continuity of the pegmatite at depth and to upgrade Inferred Resource to Indicated and Measured. Intersected over 220 m of continuous spodumene mineralization. The drillhole appears to pierce the southern hanging wall of the pegmatite and not the bottom.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Horiz. (m)***	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Lithium Enriched	**62.25**	**282**	**219.75**	**56.9**	**2.07**	**0.03**	**99**	**69**	**100**	**0.27**	**LIZ/UIZ/Aplite**
including	72.8	85	12.2	3.2	3.73	0.01	66	50	42	0.16	UIZ
including	168	270	102	26.4	2.45	0.04	93	54	103	0.30	LIZ/Aplite

DDH PL-029-18	**Designed to test the extent of the "heel" between Holes PL-025-17 and PL-028-18 and to upgrade Inferred to Indicated and Measured. The hole potentially intersected the base of the pegmatite. Over 220 m of pegmatite was intersected at an average grade of 1.69% Li2O.**										
Zone	**From (m)**	**To (m)**	**Width (m)**	**Horiz. (m)***	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li and Rb Enriched	**23.15**	**245**	**221.85**	**42.3**	**1.69**	**0.04**	**92**	**72**	**102**	**0.27**	**LIZ/Aplite**
including	59	212	153	29.2	2.20	0.04	85	57	117	0.30	LIZ/Aplite
including	116	212	96	18.3	2.67	0.05	73	43	111	0.35	LIZ/Aplite

DDH PL-030-18	**Designed to test the continuity and extent of the exposed high-grade UIZ on surface near the channels cut in 2015. The hole did not extend into UIZ but rather into "rafts" of granite and significant zones of LIZ**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li and Rb Enriched	**0.4**	**198.6**	**198.2**	**1.43**	**0.04**	**81**	**63**	**46**	**0.22**	**LIZ/Aplite/granite**
including	25.0	162.0	137.0	1.72	0.05	92	60	53	0.27	LIZ/Aplite
including	25.0	70.0	45.0	2.86	0.05	99	45	63	0.33	LIZ

DDH PL-031-18	Designed to test the continuity, width and depth extent of the UIZ closer to Channel 21 and the area of the 2015 Bulk sample. Intersected UIZ from surface down to 14.4 m then into LIZ and granite "rafts". The hole that was terminated at 25 m in granite.									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Lithium Enriched	**0.4**	**24.8**	**24.4**	**2.95**	**0.06**	**31**	**17**	**18**	**0.08**	**UIZ/LIZ/granite**
including	0.4	14.4	14.0	4.32	0.08	35	7	13	0.05	UIZ

DDH PL-032-18	Designed to test the extent of the UIZ zone mapped on surface by drilling from the NNE across the zone. Intersected narrower intervals of UIZ within granite and some LIZ.										
Zone	**From (m)**	**To (m)**	**Width (m)**	**Horiz. (m)***	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Lithium Enriched	**4.9**	**18.1**	**13.2**	**9.9**	**2.99**	**0.02**	**28**	**18**	**19**	**0.08**	**Granite/UIZ/LIZ**
including	7.2	18.1	10.9	8.2	3.42	0.02	30	18	17	0.05	UIZ/granite
including	7.2	13.3	6.2	4.6	4.28	0.01	28	19	20	0.04	UIZ

DDH PL-033-18	Designed to test the extent of the UIZ zone exposed on surface by drilling from the SSW across the zone. Intersected narrower intervals of UIZ near surface as expected then 25 m of granite before intersecting 50 m of LIZ										
Zone	**From (m)**	**To (m)**	**Width (m)**	**Horiz. (m)***	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Lithium Enriched	**3.0**	**11.2**	**8.2**	**6.1**	**3.48**	**0.05**	**44**	**18**	**33**	**0.16**	**UIZ**
Li and Rb Enriched	**36.3**	**86.0**	**49.7**	**37.2**	**1.86**	**0.05**	**121**	**72**	**123**	**0.35**	**LIZ/granite**
including	36.3	46.0	9.7	7.3	3.09	0.07	114	43	45	0.30	LIZ
including	56.0	72.0	16.0	12.0	2.36	0.04	118	82	117	0.33	LIZ

DDH PL-034-18	Designed to test the extent the LIZ intersected in metasediments in hole PL-007-14 and at surface in Channels 30, 31 and 32. Intersected a narrow zone (3 m) of pegmatite near surface with elevated tin and minor spodumene.										
Zone	**From (m)**	**To (m)**	**Width (m)**	**Horiz. (m)***	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Sn Enriched	**19.8**	**22.8**	**3.0**	**2.2**	**0.51**	**0.02**	**112**	**66**	**514**	**0.21**	**pegmatite**

DDH PL-035-18	**Designed to test the extent of the UIZ zone exposed on surface by drilling from west to east across the zone immediately north of the 2015 Bulk sample Pit. Intersected 52.5 m of high-grade UIZ with 1.4 m of granite near surface before ending the hole in granite.**										
Zone	**From (m)**	**To (m)**	**Width (m)**	**Horiz. (m)***	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Lithium Enriched	**1.1**	**52.5**	**51.4**	**37.6**	**4.05**	**0.02**	**28**	**16**	**30**	**0.05**	**UIZ**
including	1.1	50.0	48.9	35.8	4.11	0.02	29	17	31	0.05	UIZ
including	7.5	46.0	38.5	28.2	4.32	0.01	23	9	19	0.03	UIZ
DDH PL-036-18	**Designed to test the extent of the high-grade UIZ near hole PL-031-18 and under the 2015 Bulk sample pit. Intersected 23 m of UIZ grading 4.25% Li2O before intersecting LIZ and ended in Rb enriched CIZ at 65.4 m (1.08% Rb_2O over 12.4 m)**										
Zone	**From (m)**	**To (m)**	**Width (m)**	**Horiz. (m)***	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li and Rb Enriched	**0.0**	**65.4**	**65.4**	**47.0**	**2.38**	**0.05**	**56**	**31**	**110**	**0.43**	**UIZ/LIZ/CIZ**
including	0.0	23.0	23.0	16.5	4.25	0.02	39	16	37	0.06	UIZ
including	53.0	65.4	12.4	8.9	0.43	0.10	62	36	117	1.08	CIZ
* Assuming the Pakeagama Lake pegmatite is vertically oriented the Horizontal distance equals the "true width" when the Azimuth of the drillhole is perpendicular to the strike of the deposit (020 to 030 degrees).											

10.5.1 Surveying

Collar Survey

Diamond drillhole collar locations were physically marked and flagged prior to drilling. Frontier geologists using hand-held Garmin GPS units would locate and mark the site based on coordinates predetermined from the detailed geological GIS compilation. Drill collar azimuth was determined by Silva compass and verified by line of sight (outcrop feature, channel cut, etc.).

Frontier personnel verified the position and orientation of the drill once set-up was completed and prior to commencement of drilling.

Casing was left in all holes and an aluminum cap was screwed in place with the drillhole identification engraved on the top of each cap.

The 2018 collars were picked up based on high-resolution drone imagery with high-precision ground control points. Accuracy is less than 5 cm horizontal and less than 10 cm vertical for the 2018 drilling (based on surveyed control points).

Downhole Survey

Downhole orientation surveys were completed on all holes using a Reflex ACT III oriented core system. Using the Reflex system, the drill core was oriented and marked as it was retrieved at the drill with reading taken every 1.5 m during Phase VI. The instrument and the operation were provided by Chenier Drilling. Depth, azimuth (magnetic north), inclination, temperature, and magnetic field strength were recorded digitally at each station.

Core Logging Procedure

The following is a summary of Frontier's logging procedure:

- Sample security and chain of custody started with the removal of core from the core tube, orientation marking by the drill contractor and boxing of drill core at the drill site;
- The boxed core remained under the custody of the drill contractor until it was transported from the drill to the secure onsite core shack facility by either the drill contractor or one of Frontier's designated personnel;
- At the onsite core shack, core boxes were opened and inspected to ensure correct boxing and labelling of the core by the drill contractor;
- The drill core was geologically logged, photographed and then marked and tagged for sampling and splitting;

- Each core sample was assigned a tag with a unique identifying number. Sample lengths were typically one metre but could be more or less depending on zone mineralogy and boundaries;
- When completed, the boxes were closed and stacked for sampling.

10.5.2 Core Logging Procedure

The following is a summary of Frontier's logging procedure:

- Sample security and chain of custody started with the removal of core from the core tube and boxing of drill core at the drill site;
- The boxed core remained under the custody of the drill contractor until it was transported from the drill to the secure onsite core shack facility by either the drill contractor or one of Frontier's designated personnel;
- At the onsite core shack, core boxes were opened and inspected to ensure correct boxing and labelling of the core by the drill contractor;
- The drill core was geologically logged, photographed and then marked and tagged for sampling and splitting;
- Each core sample was assigned a tag with a unique identifying number. Sample lengths were typically one metre yet could be less depending on zone mineralogy and boundaries;
- The core was stored securely until moved into the core shack for processing.

10.5.3 Sampling Approach

The following is a summary of Frontier's sampling procedure:

- The core boxes requiring sampling were transported to the onsite facility for cutting;
- Core marked for splitting was sawed using a diamond core saw and was cut lengthwise into equal halves;
- Half of the cut core was placed in clean individual plastic bags with the appropriate sample tag;
- QA/QC samples were inserted into the sample stream at prescribed intervals. Full description of the QA/QC program is provided in Chapter 11;
- The samples were then placed in rice bags for shipment to AGAT Laboratories' facility Timmins, Ontario for sample preparation prior to completing multi-element analysis at AGAT's facility in Mississauga, Ontario;
- The remaining half of the core was retained and incorporated into Frontier's secure, onsite core library.

10.6 Phase VII / Phase VIII Drill Campaign

The Phase VII drilling campaign was completed between February 2, 2019, to February 19, 2019, and Phase VIII was completed from July 20, 2019, to August 3, 2019. A total of nine holes were drilled totalling 2,499.5 m in Phase VII and VIII drill programs at the Spark Pegmatite.

Frontier's Exploration camp was used as a base of operation, and the diamond drilling equipment was contracted to Chenier Drilling Ltd. of Val Caron. Drilling was completed using a Hydracore 2000 diamond drill. An Astar B2 helicopter contracted from Panorama Helicopters in Alma, Québec was used to transport the drill crew to and from the drill and to retrieve drill core from the drill. Holes were drilled using BTW drill rods. Mr. Garth Drever of Frontier supervised the drilling and geological logging of the drill core.

The locations of the Phase VII / Phase VIII drill collars are displayed on Figure 10-1. Table 10-7 summarizes the results of the Phase VII / Phase VIII drill campaigns.

Table 10-7: Phase VII / Phase VIII Drill Results

DDH PL-037-19	**Designed to test the extent of the Spark Pegmatite underneath Channels 37 and 38 drilling from the south. Intersected 2 major pegmatite zones plus others, totalling 117.8 m averaging 1.2% Li_2O. Host rock is metavolcanic schist. Hole was abandoned due to "jammed core barrel" and will be lengthened next program.**										
Zone	**From (m)**	**To (m)**	**Width (m)**	**Horiz. (m)***	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li Enriched	**9.8**	**15.6**	**5.8**	**4.4**	**1.12**	**0.01**	**115**	**87**	**80**	**0.38**	**Aplite**
including	9.8	14.0	4.2	3.2	1.21	0.01	110	83	71	0.39	Aplite
Li Enriched	**36.0**	**109.9**	**73.9**	**56.6**	**1.19**	**0.01**	**88**	**77**	**96**	**0.25**	**LIZ**
including	45.6	83.0	37.4	28.7	1.40	0.01	103	80	129	0.29	LIZ
including	97.5	104.5	7.0	5.4	2.17	0.01	71	83	33	0.21	LIZ
Li Enriched	**117.3**	**155.4**	**38.1**	**29.2**	**1.23**	**0.02**	**84**	**82**	**42**	**0.25**	**LIZ**
including	121.0	147.0	26.0	19.9	1.36	0.01	93	98	41	0.29	LIZ
including	121.0	130.0	9.0	6.9	1.55	0.01	81	75	29	0.25	LIZ

DDH PL-038-19	**Designed to test the extent of the Spark Pegmatite underneath Channels 33, 34, 35 and 36 from the south. Intersected 3 major pegmatite zones plus others totalling 215 m averaging 1.4% Li_2O. Intersected a 5.3 m zone (141 m to 146.3 m) of anomalous Ta and Sn (>2,000 ppm Ta_2O_5 and 487 ppm SnO_2). Host rock is metavolcanic schist.**										
Zone	**From (m)**	**To (m)**	**Width (m)**	**Horiz. (m)***	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li Enriched	**16.3**	**37.0**	**20.7**	**15.1**	**1.26**	**0.01**	**79**	**92**	**42**	**0.22**	**LIZ**
Li Enriched	**40.0**	**45.5**	**5.6**	**4.1**	**1.30**	**0.01**	**78**	**74**	**35**	**0.17**	**LIZ**
Li Enriched	**49.2**	**57.9**	**8.7**	**6.4**	**1.63**	**0.01**	**91**	**89**	**39**	**0.27**	**LIZ**
Li-Ta Enriched	**66.0**	**146.3**	**80.3**	**58.7**	**1.58**	**0.04**	**223**	**91**	**75**	**0.28**	**LIZ/CIZ**
including	79.0	141.0	62.0	45.3	1.81	0.02	95	92	45	0.29	LIZ
including	141.0	146.3	5.3	3.8	0.33	0.36	2,085	117	487	0.43	CIZ
Li Enriched	**158.0**	**258.0**	**100.0**	**73.1**	**1.25**	**0.04**	**90**	**80**	**70**	**0.24**	**LIZ/Aplite**
including	196.0	216.0	20.0	14.6	1.83	0.02	95	94	31	0.16	LIZ
including	212.0	216.0	4.0	2.9	3.64	0.01	25	35	17	0.15	LIZ

DDH PL-039-19	**Designed to test the extent of the Spark Pegmatite underneath the western extent of surface-mapped pegmatite from the south. Intersected 2 major pegmatite zones totalling 84.7 m averaging 1.65% Li_2O. Host rock is metavolcanic schist.**										
Zone	**From (m)**	**To (m)**	**Width (m)**	**Horiz. (m)***	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Lithium Enriched	**41.0**	**70.6**	**29.6**	**21.3**	**1.56**	**0.01**	**97**	**100**	**71**	**0.24**	**LIZ**
including	43.0	68.0	25.0	18.0	1.62	0.01	88	100	72	0.24	LIZ
Lithium Enriched	**119.2**	**174.3**	**55.1**	**39.6**	**1.70**	**0.03**	**141**	**85**	**46**	**0.33**	**LIZ**
including	121.0	158.9	37.9	27.2	2.07	0.04	157	49	24	0.38	LIZ
including	124.0	149.0	25.0	18.0	2.32	0.03	143	48	49	0.41	LIZ

DDH PL-040-19	**Designed to test the eastern extent of the Spark Pegmatite underneath Channel 40 from the south. Intersected 3 significant pegmatite zones plus other narrower intervals totalling 155 m averaging 1.46% Li_2O. Much of the intersection below 110 m is elevated in Ta from 200 m to 350 ppm Ta_2O_5. Host rock is metavolcanic schist.**										
Zone	**From (m)**	**To (m)**	**Width (m)**	**Horiz. (m)***	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li Enriched	**74.7**	**103.0**	**28.3**	**20.7**	**1.25**	**0.01**	**139**	**61**	**60**	**0.28**	**LIZ/Aplite**
including	74.7	82.0	7.3	5.3	1.67	0.01	201	95	25	0.22	LIZ
including	93.0	103.0	10.0	7.3	1.78	0.02	196	72	74	0.47	LIZ/Aplite
Li Ta Enriched	**109.9**	**170.6**	**60.8**	**44.4**	**1.29**	**0.02**	**257**	**80**	**84**	**0.26**	**Aplite/LIZ**
including	109.9	152.5	42.7	31.2	1.61	0.02	208	85	91	0.31	Aplite/LIZ
Li Ta Enriched	**190.4**	**222.3**	**31.9**	**23.3**	**1.33**	**0.03**	**222**	**71**	**47**	**0.25**	**LIZ/Aplite**
including	191.5	213.0	21.5	15.7	1.67	0.02	258	73	38	0.23	LIZ/Aplite
including	193.5	205.5	12.0	8.8	2.27	0.01	355	98	31	0.31	LIZ
Li Ta Enriched	**243.7**	**258.1**	**14.5**	**10.6**	**2.49**	**0.10**	**312**	**61**	**141**	**0.67**	**LIZ/Aplite**
including	246.5	258.1	11.6	8.5	3.07	0.12	354	61	165	0.79	LIZ
including	246.5	250.5	3.9	2.9	4.01	0.14	187	22	102	0.50	LIZ
Li Ta Enriched	**282.7**	**302.4**	**19.7**	**14.4**	**1.77**	**0.07**	**336**	**64**	**231**	**0.52**	**LIZ**
including	282.7	295.0	12.3	9.0	2.54	0.10	327	46	232	0.64	LIZ
including	285.0	289.0	4.0	2.9	3.39	0.05	238	36	218	0.48	LIZ

DDH PL-041-19	**Designed to test from the north, the extent of the Spark Pegmatite underneath Channels 37 south towards the collar of DDH PL-038-19. Intersected 62 m of pegmatite at the top of the hole and a 30 m zone 230 m down hole plus narrower intervals totalling 112.6 m averaging 1.73% Li_2O. Host rock is metavolcanic schist.**										
Zone	**From (m)**	**To (m)**	**Width (m)**	**Horiz. (m)***	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li Enriched	**3.7**	**65.9**	**62.2**	**44.0**	**1.92**	**0.03**	**82**	**87**	**57**	**0.26**	**LIZ**
including	3.7	21.0	17.3	12.2	2.45	0.02	43	63	46	0.19	LIZ
including	3.7	11.0	7.3	5.2	3.11	0.01	58	51	26	0.13	LIZ
Li Enriched	**70.2**	**75.9**	**5.6**	**4.0**	**1.55**	**0.01**	**94**	**94**	**55**	**0.27**	**Aplite**
Li Enriched	**102.0**	**116.1**	**14.1**	**10.0**	**1.53**	**0.02**	**170**	**111**	**47**	**0.31**	**Aplite**
Li Enriched	**232.2**	**262.8**	**30.6**	**21.6**	**1.48**	**0.01**	**55**	**97**	**53**	**0.24**	**LIZ**
including	243.0	255.0	12.0	8.5	1.73	0.01	49	88	53	0.24	LIZ

DDH PL-042-19	**Designed to test from the north, the extent of the Spark Pegmatite underneath the exposed northern arm of the pegmatite and Channels 36 south towards the collar of DDH PL-039-19. Intersected predominately pegmatite 55 m to 305 m totalling 231.05 m averaging 1.61% Li_2O. Host rock is metavolcanic schist.**										
Zone	**From (m)**	**To (m)**	**Width (m)**	**Horiz. (m)***	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li Enriched	**55.4**	**114.7**	**59.4**	**42.7**	**1.88**	**0.01**	**106**	**92**	**47**	**0.20**	**LIZ/Aplite**
including	77.0	102.0	25.0	18.0	2.75	0.01	79	65	32	0.17	LIZ/Aplite
Li Enriched	**125.7**	**170.8**	**45.2**	**32.5**	**1.42**	**0.03**	**147**	**79**	**96**	**0.27**	**Aplite/LIZ**
including	127.5	141.5	14.0	10.1	2.30	0.01	156	71	52	0.21	LIZ/Aplite
Li Enriched	**178.7**	**305.3**	**126.6**	**91.0**	**1.55**	**0.01**	**89**	**92**	**44**	**0.26**	**Aplite**
including	178.7	219.0	40.3	29.0	1.84	0.02	113	98	127	0.28	Aplite

DDH PL-043-19	**Designed to test from the north, the extent of the Spark Pegmatite between Channel 37 and DDH PL-040-19 to the east. Intersected three narrow (<25 m) pegmatite zones from 89 m to 178 m totalling 60 m averaging 1.34% Li_2O. Host rock is metavolcanic schist.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Horiz. (m)***	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li Enriched	**89.0**	**100.1**	**11.1**	**8.2**	**0.99**	**0.02**	**280**	**120**	**42**	**0.15**	**Aplite**
including	89.0	95.0	6.0	4.5	1.66	0.03	202	85	50	0.23	Aplite
Li Enriched	**115.7**	**138.8**	**23.2**	**17.2**	**1.34**	**0.02**	**117**	**82**	**113**	**0.35**	**Aplite**
including	124.0	138.8	14.8	11.0	1.55	0.02	129	100	122	0.38	Aplite
Li Enriched	**152.4**	**178.1**	**25.8**	**19.1**	**1.49**	**0.01**	**116**	**87**	**97**	**0.32**	**Aplite**
including	156.0	170.0	14.0	10.4	1.84	0.01	104	85	100	0.36	Aplite

DDH PL-044-19	**Designed to test the extent of the pegmatite west of the DDH PL-039-19 intersection. Intersected predominately pegmatite from 31 m to 106 m totalling 75 m averaging 1.4% Li_2O. Two additional intervals of 12 m and 27.4 m were intersected in spodumene-bearing aplite averaging 0.74% and 0.87% Li_2O respectively. Host rock is a mix of metavolcanic and metasedimentary rock.**										
Zone	**From (m)**	**To (m)**	**Width (m)**	**Horiz. (m)***	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li Enriched	**31.0**	**84.9**	**53.9**	**38.8**	**1.54**	**0.01**	**51**	**64**	**43**	**0.18**	**LIZ/Aplite**
including	31.0	60.0	29.0	20.9	2.54	0.01	44	62	36	0.10	LIZ/Aplite
including	33.0	52.0	19.0	13.7	3.39	0.01	36	50	20	0.08	LIZ
Li Ta Enriched	**90.0**	**106.0**	**16.0**	**11.5**	**1.34**	**0.02**	**200**	**101**	**56**	**0.33**	**LIZ/Aplite**
including	92.0	106.0	14.0	10.1	1.50	0.03	201	90	59	0.37	LIZ
Li Enriched	**148.8**	**160.8**	**12.0**	**8.6**	**0.74**	**0.01**	**79**	**116**	**59**	**0.18**	**Aplite**
including	148.8	156.0	7.2	5.2	1.12	0.01	70	88	49	0.18	Aplite
Li Enriched	**198.0**	**225.4**	**27.4**	**19.7**	**0.87**	**0.01**	**57**	**106**	**56**	**0.15**	**Aplite**
including	200.0	214.0	14.0	10.1	1.32	0.01	51	105	51	0.15	Aplite

DDH PL-045-19	**Designed to extend DDH PL-037-19 that was abandoned. Intersected a 17 m zone of spodumene-bearing aplite from 11.9 m to 29 m averaging 0.78% Li_2O before intersecting predominately pegmatite over 144.2 m (70.8 m to 215 m) averaging 1.4% Li2O. Intersected 11.2 m (175 m to 186.2 m) enriched in Ta, Sn and Rb (659 ppm Ta_2O_5, 520 ppm SnO_2 and 0.88% Rb_2O). Host rock is a mix of metavolcanic and metasedimentary rock.**										
Zone	**From (m)**	**To (m)**	**Width (m)**	**Horiz. (m)***	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li Enriched	**11.9**	**29.0**	**17.1**	**12.1**	**0.78**	**0.01**	**112**	**84**	**173**	**0.21**	**Aplite**
including	17.0	26.0	9.0	6.4	1.21	0.01	127	93	162	0.23	Aplite
Li Enriched	**32.0**	**37.0**	**5.0**	**3.5**	**1.18**	**0.01**	**98**	**92**	**124**	**0.25**	**Aplite**
Li Enriched	**70.8**	**96.0**	**25.2**	**17.8**	**1.48**	**0.01**	**156**	**88**	**101**	**0.34**	**Aplite**
including	79.0	96.0	17.0	12.0	1.61	0.02	163	90	99	0.34	Aplite
Li Enriched	**103.0**	**215.0**	**112.0**	**79.2**	**1.53**	**0.05**	**182**	**89**	**107**	**0.35**	**LIZ/Aplite**
including	130.0	145.0	15.0	10.6	2.47	0.02	108	86	61	0.30	LIZ
including (Ta, Rb)	175.0	186.2	11.2	7.9	1.13	0.25	659	89	520	0.88	Aplite
* Assuming the Spark Pegmatite is vertically oriented the Horizontal distance equals the "true width" when the Azimuth of the drillhole is perpendicular to the strike of the deposit (070 to 090 degrees).											
** Units within the Spark Pegmatite resemble the Lower Intermediate Zone (LIZ) and aplite at the PAK Pegmatite											

10.6.1 Surveying

Collar Survey

Diamond drillhole collar locations were physically marked and flagged prior to drilling. Frontier geologists using hand-held Garmin GPS units would locate and mark the site based on coordinates predetermined from the detailed geological GIS compilation. Drill collar azimuth was determined by Silva compass and verified by line of sight (outcrop feature, channel cut, etc.).

Frontier personnel verified the position and orientation of the drill once set-up was completed and prior to commencement of drilling.

Casing was left in all holes and an aluminum cap was screwed in place with the drillhole identification engraved on the top of each cap.

The 2019 collars were surveyed to sub-centimetre accuracy using total station survey equipment in August 2019 by Rugged Geomatics surveyors based out of Kenora, Ontario.

Downhole Survey

Downhole orientation surveys were completed on all holes using a Reflex ACT III oriented core system. Using the Reflex system, the drill core was oriented and marked as it was retrieved at the drill with reading taken every 1.5 m during Phase VI. The instrument and the operation were provided by Chenier Drilling. Depth, azimuth (magnetic north), inclination, temperature, and magnetic field strength were recorded digitally at each station.

10.6.2 Core Logging Procedure

The following is a summary of Frontier's logging procedure:

- Sample security and chain of custody started with the removal of core from the core tube, orientation marking by the drill contractor and boxing of drill core at the drill site;
- The boxed core remained under the custody of the drill contractor until it was transported from the drill to the secure onsite core shack facility by either the drill contractor or one of Frontier's designated personnel;
- At the onsite core shack, core boxes were opened and inspected to ensure correct boxing and labelling of the core by the drill contractor.
- The drill core was geologically logged, photographed and then marked and tagged for sampling and splitting;

- Each core sample was assigned a tag with a unique identifying number. Sample lengths were typically one metre but could be more or less depending on zone mineralogy and boundaries;
- When completed, the boxes were closed and stacked for sampling.

10.6.3 Sampling Approach

The following is a summary of Frontier's sampling procedure:

- The core boxes requiring sampling were transported to the onsite facility for cutting;
- Core marked for splitting was sawed using a diamond core saw and was cut lengthwise into equal halves;
- Half of the cut core was placed in clean individual plastic bags with the appropriate sample tag;
- QA/QC samples were inserted into the sample stream at prescribed intervals. Full description of the QA/QC program is provided in Chapter 11;
- The samples were then placed in rice bags for shipment to AGAT Laboratories' facility in Thunder Bay or Timmins, Ontario for sample preparation prior to completing multi-element analysis at AGAT's facility in Mississauga, Ontario;
- The remaining half of the core was retained and incorporated into Frontier's secure, onsite core library.

10.7 Phase IX / Phase X Drill Campaign

The Phase IX drilling campaign was completed between February 7, 2021, to March 19, 2019, and Phase X was completed from September 19, 2019, to November 11, 2021. A total of 11 holes were drilled totalling 3,269.2 m in Phase IX and X drill programs at the Spark Pegmatite.

Frontier's Exploration camp was used as a base of operation, and the diamond drilling equipment was contracted to Chenier Drilling Ltd. of Val Caron. Drilling was completed using a Hydracore 2000 diamond drill. A Bell 206 Long Ranger helicopter contracted from Expedition Helicopters out of Cochrane, Ontario was used to transport the drill crew to and from the drill and to retrieve drill core from the drill. Holes were drilled using BTW drill rods. Garth Drever and Alex Croft of Frontier supervised the drilling and geological logging of the drill core.

The locations of the Phase IX / Phase X drill collars are displayed on Figure 10-1 and Table 10-8 summarizes the results of the Phase IX / Phase X drill campaigns.

Table 10-8: Phase IX / Phase X Drill Results

<table>
<tr><th colspan="11">Phase IX</th></tr>
<tr><td>DDH PL-GDH-06-21</td><td colspan="10">To characterize a portion of the south wall of the proposed open pit at Spark. A previously unknown zone of spodumene-bearing Aplite was intersected from the collar to 101 m grading 1.25% Li_2O over the 88.2 m interval.</td></tr>
<tr><th>Zone</th><th>From (m)</th><th>To (m)</th><th>Width (m)</th><th>Li_2O (%)</th><th>Cs_2O (%)</th><th>Ta_2O_5 (ppm)</th><th>Nb_2O_5 (ppm)</th><th>SnO_2 (ppm)</th><th>Rb_2O (%)</th><th>Unit</th></tr>
<tr><td>Lithium Enriched</td><td>12.8</td><td>101.0</td><td>88.2</td><td>1.25</td><td>0.01</td><td>63</td><td>67</td><td>100</td><td>0.27</td><td>Aplite</td></tr>
<tr><td>including</td><td>12.8</td><td>56.0</td><td>43.2</td><td>1.58</td><td>0.01</td><td>61</td><td>59</td><td>97</td><td>0.25</td><td>Aplite</td></tr>
<tr><td>including</td><td>12.8</td><td>24.0</td><td>11.2</td><td>2.22</td><td>0.01</td><td>59</td><td>46</td><td>83</td><td>0.22</td><td>Aplite/LIZ</td></tr>
<tr><td colspan="11"></td></tr>
<tr><td>DDH PL-046-21</td><td colspan="10">Designed to test the area between PL-038-19 and PL-039-19 drilled from the south and hole PL-042-19 drilled from the north. The hole was collared in mafic host rock and intersected mineralized pegmatite from 49.7 m to 370.3 m (320.2 m averaging 1.68% Li_2O) with rare narrow intervals (5 m or less) of Mafic host rock totalling 16.2 m. Spodumene consistently occurs throughout the pegmatite. Included a high-grade 27 m intersection of 3.41% Li_2O from 141 m to 168 m in coarser pegmatite.</td></tr>
<tr><th>Zone</th><th>From (m)</th><th>To (m)</th><th>Width (m)</th><th>Li_2O (%)</th><th>Cs_2O (%)</th><th>Ta_2O_5 (ppm)</th><th>Nb_2O_5 (ppm)</th><th>SnO_2 (ppm)</th><th>Rb_2O (%)</th><th>Unit</th></tr>
<tr><td>Lithium Enriched</td><td>39.0</td><td>44.5</td><td>5.5</td><td>1.04</td><td>0.02</td><td>56</td><td>42</td><td>244</td><td>0.23</td><td>LIZ</td></tr>
<tr><td>Lithium Enriched</td><td>49.7</td><td>370.3</td><td>320.6</td><td>1.68</td><td>0.03</td><td>101</td><td>83</td><td>52</td><td>0.32</td><td>LIZ / Aplite / CIZ</td></tr>
<tr><td>including</td><td>122.0</td><td>333.0</td><td>211.0</td><td>1.97</td><td>0.03</td><td>118</td><td>83</td><td>45</td><td>0.33</td><td>LIZ with minor aplite</td></tr>
<tr><td>including</td><td>138.5</td><td>233.0</td><td>94.5</td><td>2.33</td><td>0.02</td><td>104</td><td>91</td><td>37</td><td>0.32</td><td>LIZ with minor aplite</td></tr>
<tr><td>including</td><td>141.0</td><td>168.0</td><td>27.0</td><td>3.41</td><td>0.01</td><td>75</td><td>66</td><td>36</td><td>0.27</td><td>LIZ</td></tr>
</table>

DDH PL-047-21	**Designed to scissor hole PL-044-19 drilled from the north The hole was located 60 m SSW of the PL-039-19 collar and intersected mostly pegmatite from 14 m to 100 m then a mix of pegmatite (10 m to 25 m intercepts) and host rock before intersecting 78 m metavolcanics to the end of the hole at 298.5 m. Enriched lithium zones rarely exceeded 10 m with the highest grade zone of 2.5% Li_2O over 6.6 m from 195.9 m to 204.8 m. Enriched Tantalum occurs in pegmatite between 196 m and 220 m with 11.5 m from 209.0 m to 220.5 m averaging 961 ppm Ta_2O_5.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li Enriched	**20.0**	**29.0**	**9.0**	**1.34**	**0.01**	**76**	**93**	**56**	**0.22**	**LIZ with minor aplite**
Li Enriched	**159.0**	**174.7**	**15.7**	**0.99**	**0.01**	**90**	**116**	**94**	**0.30**	**CIZ, LIZ**
including	169.0	174.7	5.7	1.61	0.02	68	71	60	0.33	LIZ
Li-Ta Enriched	**195.9**	**204.8**	**8.9**	**2.02**	**0.05**	**363**	**19**	**87**	**0.26**	**LIZ**
including	195.9	202.5	6.6	2.49	0.05	86	4	29	0.30	LIZ
including Li + Ta	201.0	204.1	3.1	1.97	0.06	970	47	212	0.34	LIZ
Li-Ta Enriched	**209.0**	**220.5**	**11.5**	**1.70**	**0.05**	**961**	**80**	**224**	**0.49**	**LIZ with minor aplite**
including Li + Ta	209.1	217.0	7.9	2.33	0.06	874	70	201	0.55	LIZ
including Ta	215.2	220.5	5.3	0.77	0.05	1,564	140	313	0.53	Aplite, LIZ

DDH PL-048-21	Drillhole oriented to the northwest to test the southwest trending orientations of foliations and contacts from previous drilling. The hole was collared in pegmatite and intersected mineralized pegmatite to 381.9 m with narrow intervals (10 m or less) of Mafic host rock totalling 30 m. Spodumene consistently occurs throughout the pegmatite. A total of 340.7 m of pegmatite was intersected averaging 1.68% Li_2O.									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Lithium Enriched	**11.0**	**164.2**	**153.1**	**1.62**	**0.01**	**76**	**102**	**51**	**0.24**	**Aplite /LIZ**
including	25.0	32.5	7.5	2.89	0.01	45	71	42	0.21	LIZ
including	120.0	146.0	26.0	2.36	0.01	78	101	38	0.19	Aplite/LIZ
Lithium Enriched	**172.5**	**198.6**	**26.1**	**1.48**	**0.02**	**106**	**103**	**49**	**0.22**	**Aplite**
Lithium Enriched	**209.5**	**325.7**	**116.2**	**1.68**	**0.01**	**100**	**96**	**37**	**0.27**	**Aplite /LIZ**
including	231.0	255.0	24.0	2.03	0.01	84	82	26	0.24	Aplite /LIZ
Lithium Enriched	**332.7**	**349.3**	**16.6**	**2.14**	**0.02**	**107**	**68**	**49**	**0.20**	**LIZ / Aplite**
including	335.0	343.0	8.0	3.13	0.02	118	56	44	0.20	LIZ
Lithium Enriched	**353.2**	**381.9**	**28.8**	**1.91**	**0.01**	**79**	**82**	**45**	**0.19**	**LIZ / Aplite**
including	377.0	381.9	4.9	2.63	0.01	54	52	38	0.14	LIZ
Entire Hole *	**11.0**	**381.9**	**340.7**	**1.68**	**0.01**	**88**	**97**	**45**	**0.24**	**Aplite /LIZ**

* Not continuous pegmatite (intersection includes 4 mafic zones all <10 m)

DDH PL-049-21	Designed to test the area between PL-037-19 and PL-045-19 drilled from the south and hole PL-041-19 drilled from the north. The hole was collared in mafic host rock and intersected 28 m of mineralized pegmatite from 40.3 m to 68.3 m averaging 1.36% Li_2O then nearly 90 m of mafic host before intersecting 10 m to 40 m pegmatitic zones ranging from 1.1 to 2% Li_2O. The hole was terminated because of early break-up (winter road deteriorated)									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Lithium Enriched	**40.3**	**68.3**	**28.0**	**1.36**	**0.01**	**72**	**108**	**48**	**0.21**	**Aplite**
including	42.0	66.0	24.0	1.45	0.01	73	110	48	0.20	Aplite
Lithium Enriched	**157.4**	**163.5**	**6.1**	**1.17**	**0.01**	**139**	**96**	**57**	**0.26**	**Aplite minor LIZ**
including	159.0	162.0	3.0	1.66	0.01	114	87	54	0.29	Aplite minor LIZ
Lithium Enriched	**213.3**	**228.3**	**15.0**	**1.64**	**0.01**	**104**	**92**	**63**	**0.26**	**LIZ with minor Aplite**
including	216.5	224.0	7.6	2.10	0.01	96	92	66	0.29	LIZ
Li-Ta Enriched	**234.6**	**237.2**	**2.6**	**2.17**	**0.03**	**533**	**338**	**73**	**0.76**	**Aplite**
Lithium Enriched	**243.8**	**282.3**	**38.6**	**1.31**	**0.02**	**121**	**64**	**46**	**0.28**	**LIZ, aplite with minor metavolcanics**
including	243.8	257.3	13.6	1.58	0.02	151	93	53	0.28	LIZ with minor Aplite
including	271.0	281.0	10.0	1.79	0.01	136	61	37	0.33	LIZ
Lithium Enriched	**293.1**	**302.6**	**9.6**	**1.10**	**0.07**	**107**	**66**	**98**	**0.29**	**Aplite with minor metavolcanics**

Phase X										
DDH PL-GDH-08-21	**Designed as both geomechanical and delineation hole to test area between Channel 33 and the pegmatite exposure 70 m to the north and the pit wall at depth. The hole was collared in pegmatite intersecting 96 m of mineralized pegmatite averaging 1.7% Li_2O including 14 m (13 m to 27 m) of 2.8% Li_2O with 498 ppm Ta_2O_5. Intersected narrow zones (3 m to 10 m) from 178 m to 191 m with up to 1.5% Li_2O and 618 ppm Ta_2O_5**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Ta Enriched	**1.0**	**95.5**	**94.5**	**1.71**	**0.03**	**172**	**113**	**61**	**0.35**	**Pegmatite with aplitic horizons**
including	1.0	51.0	50.0	2.20	0.04	239	139	62	0.38	Pegmatite (LIZ)
including	13.0	27.0	14.0	2.80	0.03	498	309	51	0.23	Pegmatite (LIZ)
Ta-Sn Enriched	**177.9**	**180.9**	**3.0**	**0.05**	**0.01**	**618**	**108**	**616**	**0.08**	**Aplite**
Li-Ta-Rb Enriched	**184.2**	**194.2**	**10.0**	**0.94**	**0.03**	**244**	**77**	**116**	**0.55**	**Pegmatite with aplitic horizons**
including	185.0	191.0	6.0	1.49	0.02	181	73	96	0.52	Pegmatite (LIZ)
DDH PL-050-21	**Designed to test continuity of the pegmatite between PL-041-19 and PL-042-19 below channels 33-35 and at a steeper inclination (-70). The hole intersected primarily mineralized pegmatite from surface to 417 m representing a horizontal and vertical distance of 143 m and 392 m respectively. Minor mafic host rock up to 5 m wide occurs with one 11.5 m mafic zone from 154.7 m to 165.3 m. The total pegmatite intersected was 405 m averaging 1.5% Li_2O.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Lithium Enriched	**0.0**	**154.7**	**154.7**	**1.52**	**0.02**	**124**	**95**	**54**	**0.32**	**Aplitic Pegmatite**
including	0.0	36.0	36.0	1.65	0.02	135	91	48	0.33	Aplitic Pegmatite
including	64.0	149.0	85.0	1.85	0.03	116	95	53	0.35	Aplitic Pegmatite
Lithium Enriched	**166.2**	**417.0**	**250.9**	**1.48**	**0.01**	**64**	**86**	**47**	**0.23**	**Pegmatitic Aplite**
including	168.0	369.0	201.0	1.68	0.01	71	86	44	0.23	Pegmatitic Aplite
including	305.0	365.0	60.0	2.00	0.01	45	82	43	0.21	Aplitic Pegmatite

DDH PL-051-21	**Designed to test continuity of the pegmatite between PL-042-19 and PL-044-19 and to “scissor” PL-039-19. The hole intersected predominately pegmatite with intervals of mafic rock a few metres to 25 m wide from surface to 302 m. The total pegmatite intersected between surface to 302 m includes 264 m averaging 1.6% Li_2O. The 100 m section from 190 m to 290 m averaged just over 2.2% Li_2O.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Lithium Enriched	**0.6**	**56.3**	**55.7**	**1.37**	**0.02**	**59**	**74**	**50**	**0.34**	**Pegmatite**
including	0.6	10.0	9.4	1.61	0.02	44	65	59	0.29	Pegmatite
including	36.0	46.0	10.0	2.03	0.01	38	66	50	0.27	Pegmatite
Lithium Enriched	**63.7**	**90.5**	**26.8**	**1.06**	**0.02**	**121**	**113**	**42**	**0.15**	**Aplitic Pegmatite**
including	63.7	81.5	17.8	1.48	0.02	105	98	41	0.16	Aplitic Pegmatite
including	71.0	81.5	10.5	2.14	0.01	89	87	40	0.18	Aplitic Pegmatite
Lithium Enriched	**114.9**	**160.0**	**45.1**	**1.53**	**0.02**	**85**	**69**	**49**	**0.25**	**Pegmatite with minor metavolcanics**
including	114.9	131.0	16.1	1.91	0.01	87	76	44	0.26	Pegmatite
including	149.0	157.0	8.0	1.83	0.03	87	73	53	0.21	Pegmatite
Lithium Enriched	**165.6**	**302.0**	**136.5**	**1.82**	**0.02**	**88**	**91**	**44**	**0.27**	**Pegmatite - Aplite**
including	190.0	290.0	100.0	2.21	0.02	79	86	38	0.26	Aplitic Pegmatite
including	216.0	276.0	60.0	2.50	0.02	84	79	40	0.26	Aplite

DDH PL-052-21	**Designed to test between holes PL-041-19 and PL-043-19 and east of Channels 37 and 38. The hole intersected three main mineralized pegmatite zones (with minor metavolcanic horizons) 21 m to 72 m wide correlating well with zones intersected in PL-043-19 to the east. Li_2O grades are slightly lower at 0.8% Li_2O over 25.3 m (46.5-71.8 m), 1.11% Li_2O over 21.8 m (107.2-129 m) and 1.2% Li_2O over 72.1 m (154.4-226.5 m)**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Lithium Enriched	**46.5**	**71.8**	**25.3**	**0.80**	**0.02**	**72**	**32**	**34**	**0.12**	**Pegmatite/metavolcanic**
including	46.5	51.7	5.2	1.96	0.01	70	33	41	0.12	Pegmatite
Lithium Enriched	107.2	129.0	21.8	1.11	0.04	98	59	100	0.22	Pegmatite with minor metavolcanic
including	112.3	128.3	16.0	1.29	0.03	123	72	124	0.25	Pegmatite with minor metavolcanic
Lithium Enriched	154.4	226.5	72.1	1.20	0.02	90	52	68	0.25	Pegmatite with minor metavolcanic
including	163.3	225.9	62.6	1.29	0.02	93	55	69	0.26	Pegmatite with minor metavolcanic
including	**195.5**	**225.9**	**30.5**	**1.57**	**0.01**	**93**	**53**	**43**	**0.25**	**Pegmatite with minor metavolcanic**
Lithium Enriched	235.5	246.5	11.0	1.10	0.02	99	65	92	0.21	Aplite with minor metavolcanics
including	236.1	242.0	5.9	1.53	0.01	121	65	101	0.22	Aplite

DDH PL-053-21	**Designed to test area west of the metavolcanic intersections in holes DDH-041-19 and PL-049-21. The hole intersected predominately mineralized pegmatite from surface to the end of hole at 330 m with minor metavolcanic horizons typically less than a metre to 7 m. The pegmatite intersection (322.5 m) represents a horizontal width of over 200 m with an average of 1.6% Li_2O.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Lithium Enriched	**1.4**	**106.5**	**105.1**	**1.82**	**0.04**	**98**	**96**	**70**	**0.32**	**Aplitic Pegmatite**
including	11.5	92.0	80.5	2.03	0.04	95	81	67	0.31	Aplitic Pegmatite
including	35.5	67.1	31.6	2.27	0.03	75	95	63	0.27	Pegmatite
Lithium Enriched	**112.0**	**329.4**	**217.4**	**1.54**	**0.02**	**70**	**71**	**45**	**0.22**	**Aplitic Pegmatite**
including	136.7	306.0	169.3	1.64	0.01	74	70	42	0.20	Aplitic Pegmatite
including	270.0	296.0	26.0	2.02	0.01	63	91	44	0.21	Aplite

10.7.1 Surveying

Collar Survey

Diamond drillhole collar locations were physically marked and flagged prior to drilling. Frontier geologists using hand-held Garmin GPS units would locate and mark the site based on coordinates predetermined from the detailed geological GIS compilation. Drill collar azimuth was determined by Silva compass and verified by line of sight (outcrop feature, channel cut, etc.).

Frontier personnel verified the position and orientation of the drill once set-up was completed and prior to commencement of drilling.

Casing was left in all holes and an aluminum cap was screwed in place with the drillhole identification engraved on the top of each cap. After completion of the hole, the collar location was verified within 3 m accuracy by taking a waypoint average using a hand-held Garmin GPS.

The 2021 collars were resurveyed to sub-centimetre accuracy using total station survey equipment in October 2022 by Rugged Geomatics surveyors based out of Kenora, Ontario. However, the survey was not completed until after the block model had been completed, therefore all 2021 collar locations used for the purpose of this report do not reflect the latest survey.

Downhole Survey and Core Orientation

Downhole surveys were completed on all holes using a Reflex EZ-Trac providing depth, magnetic azimuth, dip, temperature, magnetic field strength, and gravity. Single-shot readings were taken while drilling, starting near the collar (9+ m past casing depth) and subsequently every 50 m. After hole completion, a multi-shot reading was taken every 1.5 m. The data was then verified by the geologist and the azimuth was adjusted to true north using the updated declination.

Drill core was oriented and marked as it was retrieved during the drilling process using a Reflex ACT III Oriented Core System. Each core mark was then verified by the geologist for accuracy.

Both the downhole and core orientation tool was operated and provided by the drilling contractor.

10.7.2 Core Logging Procedure

The following is a summary of Frontier's logging procedure:

- Sample security and chain of custody started with the removal of core from the core tube, orientation marking by the drill contractor and boxing of drill core at the drill site;
- The boxed core remained under the custody of the drill contractor until it was transported from the drill to the secure onsite core shack facility by either the drill contractor or one of Frontier's designated personnel;
- At the onsite core shack, core boxes were opened and inspected to ensure correct boxing and labelling of the core by the drill contractor;
- The drill core was geologically logged, photographed and then marked and tagged for sampling and splitting;
- Each core sample was assigned a tag with a unique identifying number. Sample lengths were typically two metres but could be more or less depending on zone mineralogy and boundaries;
- When completed, the boxes were closed and stacked for sampling.

10.7.3 Sampling Approach

The following is a summary of Frontier's sampling procedure:

- The core boxes requiring sampling were transported to the onsite facility for cutting.
- Core marked for splitting was sawed using a diamond core saw and was cut lengthwise into equal halves;
- Half of the cut core was placed in clean individual plastic bags with the appropriate sample tag;
- QA/QC samples were inserted into the sample stream at prescribed intervals. Full description of the QA/QC program is provided in Chapter 11;
- The samples were then placed in rice bags for shipment to AGAT Laboratories' facility in Thunder Bay or Timmins, Ontario for sample preparation prior to completing multi-element analysis at AGAT's facility in Mississauga, Ontario;
- The remaining half of the core was retained and incorporated into Frontier's secure, onsite core library.

10.8 Phase XI / Phase XII Drill Campaign

The Phase XI drilling campaign was completed between February 25, 2022, to March 19, 2022, and the Phase XII was completed from May 15, 2022, to October 15, 2022. A total of 50 holes were drilled totalling 15,983.6 m in Phases XI and XII drill programs at the Spark Pegmatite.

Frontier's Exploration camp was used as a base of operation, and the diamond drilling equipment was contracted to Chenier Drilling Ltd. of Val Caron. Drilling was completed using one Hydracore 2000 diamond drills for Phase XI and two for Phase XII. An Astar 350 BA+ helicopter contracted from Expedition Helicopters out of Cochrane, Ontario was used to transport the drill crew to and from the drill and to retrieve drill core from the drill. Holes were drilled using BTW drill rods. Garth Drever and Alex Croft of Frontier supervised the drilling and geological logging of the drill core.

The locations of the Phase XI / Phase XII drill collars are displayed on Figure 10-1. Table 10-9 summarizes the results of the Phase XI / XII drill campaigns.

Table 10-9: Phase XI / Phase XII Drill Results

PHASE XI										
DDH PL-054-22	**Infill/definition drilling to bring DDH spacing to 30-40 m and to confirm/test en-echelon pegmatite pods at depth in the southwest of the main pegmatite body. Intersected 95 m of 1.13% Li_2O with narrow (16 m to 26 m) of 2.84 and 2.38% Li_2O with associated elevated Ta_2O_5 of up to 200 ppm**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Lithium Enriched	**2.6**	**97.6**	**95.0**	**1.13**	**0.02**	**132**	**78**	**50**	**0.29**	**Aplitic Pegmatite**
including *Ta-enriched*	67.0	93.0	26.0	2.38	0.03	201	72	45	0.44	Pegmatite
including	77.0	93.0	16.0	2.84	0.02	164	68	40	0.28	Pegmatite
Lithium Enriched	**185.2**	**192.2**	**7.0**	**1.55**	**0.01**	**45**	**48**	**30**	**0.19**	**Aplitic Pegmatite**
DDH PL-055-22	**Designed to test the western extent of pegmatite from the south. Intersected predominately an aplitic pegmatite with a 69.5 m intersection averaging 1.39% Li_2O from 16.5 m to 86 m. A highly enriched 22.5 m Tantalum zone was intersected from 180 m to 202.6 m with a grade of 754 ppm Ta_2O_5 with the lower 8.6 m averaging just over 0.1% Ta_2O_5.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Lithium Enriched	**16.5**	**86.0**	**69.5**	**1.39**	**0.01**	**82**	**134**	**49**	**0.17**	**Aplitic Pegmatite**
including	52.5	86.0	33.5	1.80	0.01	38	118	38	0.19	Aplitic Pegmatite
including	62.5	80.0	17.5	2.34	0.01	32	114	32	0.13	Pegmatite
Ta-Li-Rb-Enriched	**180.1**	**202.6**	**22.5**	**0.93**	**0.22**	**754**	**89**	**316**	**0.85**	**Pegmatite**
including	194.0	202.6	8.6	0.92	0.23	1,026	105	402	0.92	Pegmatite

DDH PL-056-22	Continued to test the western extent by stepping out 50 m west of PL-055-22. The hole intersected both an upper (81.5 m) and lower (94.3 m) mineralized pegmatite zones grading 1.35% Li_2O separated by narrower (7.1 m and 12.9 m) aplitic zones with elevated tantalum (up to 536 ppm Ta_2O_5) and rubidium (up to 0.74% Rb_2O). The lower zone (219 m to 313 m) appears to be an en echelon extension of the Spark Deposit.									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**14.5**	**96.0**	**81.5**	**1.35**	**0.02**	**81**	**100**	**44**	**0.21**	**Aplitic Pegmatite**
including	26.5	81.0	54.5	1.74	0.01	75	103	45	0.23	Pegmatite
including	39.0	65.0	26.0	2.45	0.01	65	88	45	0.18	Pegmatite
Li-Ta-Rb-Enriched	**171.0**	**183.9**	**12.9**	**0.98**	**0.13**	**536**	**103**	**222**	**0.74**	**Aplite**
Li-Rb-Enriched	**201.9**	**209.0**	**7.1**	**1.60**	**0.12**	**160**	**47**	**165**	**0.59**	**Aplite**
Li-Ta-Enriched	**219.0**	**313.3**	**94.3**	**1.34**	**0.11**	**157**	**53**	**143**	**0.54**	**Pegmatite**
including	238.1	307.6	69.5	1.60	0.12	160	47	165	0.59	Pegmatite
including	257.7	266.0	8.3	0.87	0.18	304	75	352	0.31	Pegmatite

DDH PL-GDH-09-22	Designed as a Geomechanical test hole; testing north end pit wall midway down and also to define the northern pegmatite contact. Intersected 21 m of 2.46% Li_2O with narrower (10 m to 16 m) of 3.64 and 3.16% Li_2O, respectively. Intersected moderately fractured and broken core from 80 m to 120 m. Majority of core is relatively competent.									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li- Enriched	**3.4**	**24.3**	**20.9**	**2.46**	**0.02**	**55**	**107**	**20**	**0.14**	**Aplitic Pegmatite**
including	3.4	19.4	16.0	3.16	0.01	39	48	19	0.16	Pegmatite
including	9.4	19.4	10.0	3.64	0.01	43	52	16	0.07	Pegmatite

DDH PL-GDH-10A-22	Designed as a Geomechanical test hole for SW pit wall designed to go 40 m past pit wall edge intersected spodumene poor aplite (18.6 m to 31.7 m). Remained of hole is fairly competent mafic volcanics with a 5 m increased fracture zone from 143 m to 147 m.									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li- Poor	**18.6**	**31.7**	**13.1**	**0.17**	**0.01**	**156**	**93**	**55**	**0.10**	**Aplitic pegmatite**

PHASE XII										
DDH PL-057-22	**Designed to define the northern contact of the pegmatite, DDH Intersected 110 m of pegmatite grading 1.76% Li_2O, however, after 32 m of mafic host rock, the hole intersected 30 m of spodumene pegmatite with anomalous Li (1.68% Li_2O), Cs (1.0% Cs_2O), Ta (780 ppm Ta_2O_5) and Rb (0.63% Rb_2O) over the 30 m zone. The hole was terminated due to time constraints and will be extended later in the program.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**0.1**	**110.8**	**110.7**	**1.76**	**0.02**	**124**	**78**	**54**	**0.29**	**Pegmatite**
including	8.0	20.0	12.0	2.26	0.03	194	57	55	0.40	Pegmatite
including	32.0	66.0	34.0	2.06	0.02	129	81	52	0.26	Pegmatite
Li-Cs-Ta-Rb-Enriched	**142.6**	**172.5**	**29.9**	**1.68**	**0.99**	**780**	**44**	**218**	**0.63**	**Pegmatite**
including (Li-Cs)	149.5	159.5	10.0	3.14	2.54	211	13	123	0.34	Pegmatite
including (Ta-Rb)	157.5	172.5	15.0	1.02	0.30	1,355	68	316	0.90	Pegmatite
DDH PL-058-22	**Using the same collar location as PL-057-22, the hole was designed to convert Inferred material at depth. Collared in pegmatite, 36.7 m of pegmatite grading 1.44% Li_2O was intersected before 21.5 m of mafic host rock, then ending with 239.3 m of spodumene pegmatite and aplite averaging 1.3% Li_2O with narrow intervals of 16 m and 18 m averaging just over 2% Li_2O. The hole was terminated in pegmatite due to time constraints and will be extended later in the program.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**1.0**	**37.7**	**36.7**	**1.44**	**0.02**	**190**	**100**	**58**	**0.21**	**Pegmatite**
including	5.0	26.5	21.5	1.82	0.02	240	109	48	0.20	Pegmatite
Li-Enriched	**58.1**	**297.4**	**239.3**	**1.30**	**0.02**	**88**	**93**	**41**	**0.27**	**Pegmatite-aplite**
including	64.0	80.0	16.0	2.01	0.01	127	74	42	0.28	Pegmatite
including	182.0	200.0	18.0	2.21	0.02	80	73	32	0.23	Aplite

DDH PL-059-22	Designed to convert Inferred material by drilling a steep (-78 dip) hole to the west of PL-057-22. Intersected 145 m of pegmatite averaging 1.5% Li_2O out of a total length of 316 m, including 5 narrow (<6 m true width) mafic sheets. Ended with 37 m of aplite with 1.3% Li_2O.									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**1.9**	**79.0**	**77.1**	**1.60**	**0.01**	**44**	**75**	**57**	**0.27**	**Pegmatite-aplite**
including	1.9	37.2	35.3	2.04	0.01	38	66	57	0.30	Pegmatite
including	1.9	10.0	8.1	2.97	0.01	49	61	36	0.16	Pegmatite
Li-Enriched	**142.8**	**161.6**	**18.8**	**1.48**	**0.02**	**74**	**76**	**50**	**0.18**	**Aplite**
Li-Enriched	190.0	227.8	37.8	1.27	0.01	94	73	88	0.23	Pegmatite
Li-Enriched	**253.6**	**266.1**	**12.5**	**1.03**	**0.02**	**132**	**81**	**30**	**0.23**	**Pegmatite**
including	257.1	262.4	5.3	1.42	0.05	96	69	36	0.27	Pegmatite
Li-Enriched	**279.0**	**316.0**	**37.0**	**1.30**	**0.01**	**116**	**87**	**35**	**0.29**	**Aplite**
including	290.0	316.0	26.0	1.52	0.01	103	87	31	0.31	Aplite

DDH PL-060-22	Designed to convert Inferred material by collaring 20 m to the east of the trace of PL-057-22 and targeting the area below Channels 35 and 36. Intersected 357.5 m (entire hole) of pegmatite and aplite averaging 1.63% Li_2O. Some minor mafic sheets occur from 244 m to 251 m and from 333 m to 353 m									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**2.6**	**360.0**	**357.5**	**1.63**	**0.05**	**99**	**80**	**75**	**0.31**	**Pegmatite-aplite**
including (Ta-Sn-Rb)	84.0	112.0	28.0	1.28	0.35	370	86	328	0.62	Aplite-pegmatite
Li-Enriched	**116.0**	**166.0**	**50.0**	**2.24**	**0.03**	**65**	**63**	**59**	**0.27**	**Pegmatite**

DDH PL-061-22	**Collared midway between PL-041-19 and PL-053-21 to convert Inferred material. Intersected 280.7 m of pegmatite grading 1.42% Li_2O (included thin mafic sheets typically <1 m and up to 8 m from 120 m to 165 m: 24 m combined). The hole was terminated in mafic host rock short of the southern lobe of the pegmatite due to time constraints and will be extended later in the program.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**2.0**	**282.7**	**280.7**	**1.42**	**0.04**	**107**	**79**	**63**	**0.27**	**Pegmatite-aplite**
including	11.6	19.3	7.7	2.67	0.01	74	63	29	0.15	Pegmatite
including	140.6	150.0	9.4	2.56	0.03	143	46	64	0.29	Pegmatite
including	**200.0**	**218.0**	**18.0**	**1.86**	**0.02**	**115**	**97**	**54**	**0.29**	**Pegmatite-aplite**
DDH PL-062-22	**Collared north of the Spark Pegmatite in mafic volcanic, PL-062-22 was drilled to convert Inferred material at depth and to provide a northern contact of the Spark Pegmatite. Intersected a total of 180.8 m of 1.55% of Li_2O and thin sheets of mafic rafts within the pegmatite as expected. Hole was terminated in pegmatite due to time constraints and will be extended later in the program.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**120.5**	**208.9**	**88.4**	**1.59**	**0.03**	**150**	**104**	**64**	**0.24**	**Pegmatite, minor mafics**
including	178.0	194.9	16.9	2.19	0.02	114	104	33	0.21	Pegmatite
Li-Enriched	**222.5**	**249.0**	**26.5**	**1.46**	**0.02**	**76**	**78**	**116**	**0.29**	**Pegmatite**
Li-Enriched	**294.0**	**360.0**	**66.0**	**1.54**	**0.02**	**74**	**84**	**38**	**0.25**	**Aplite, minor mafics**

<table>
<tr><td>DDH PL-063-22</td><td colspan="10">Stepped back 50 m to convert Inferred material and to test the pegmatite at depth to the north of PL-058-22. Intersected 145 m of pegmatite grading 1.72% Li_2O, then a series of three mafic sheets (22 m, 22 m and 27 m) separated by 25.4 m of pegmatite averaging 1.58% Li2O and 36 m of aplitic pegmatite averaging 1.42% Li_2O. The hole was terminated in pegmatite due to time constraints and will be extended later in the program.</td></tr>
<tr><td>Zone</td><td>From (m)</td><td>To (m)</td><td>Width (m)</td><td>Li_2O (%)</td><td>Cs_2O (%)</td><td>Ta_2O_5 (ppm)</td><td>Nb_2O_5 (ppm)</td><td>SnO_2 (ppm)</td><td>Rb_2O (%)</td><td>Unit</td></tr>
<tr><td>Li-Enriched</td><td>0.9</td><td>144.9</td><td>144.0</td><td>1.72</td><td>0.03</td><td>99</td><td>86</td><td>53</td><td>0.31</td><td>Pegmatite</td></tr>
<tr><td>including</td><td>20.0</td><td>118.0</td><td>98.0</td><td>1.91</td><td>0.03</td><td>105</td><td>89</td><td>53</td><td>0.31</td><td>Pegmatite</td></tr>
<tr><td>including</td><td>64.0</td><td>74.0</td><td>10.0</td><td>2.82</td><td>0.03</td><td>271</td><td>225</td><td>39</td><td>0.20</td><td>Pegmatite</td></tr>
<tr><td>Li-Enriched</td><td>168.4</td><td>193.8</td><td>25.4</td><td>1.58</td><td>0.03</td><td>105</td><td>84</td><td>56</td><td>0.24</td><td>Pegmatite</td></tr>
<tr><td>including</td><td>180.0</td><td>186.0</td><td>6.0</td><td>2.78</td><td>0.02</td><td>75</td><td>70</td><td>65</td><td>0.21</td><td>Pegmatite</td></tr>
<tr><td>Li-Enriched</td><td>218.0</td><td>254.0</td><td>36.0</td><td>1.42</td><td>0.01</td><td>105</td><td>101</td><td>34</td><td>0.26</td><td>Pegmatite-aplite</td></tr>
<tr><td>Li-Enriched</td><td>280.0</td><td>348.5</td><td>68.5</td><td>1.58</td><td>0.01</td><td>69</td><td>89</td><td>43</td><td>0.27</td><td>Aplite</td></tr>
<tr><td>including</td><td>334.0</td><td>348.5</td><td>14.5</td><td>2.58</td><td>0.01</td><td>65</td><td>85</td><td>35</td><td>0.24</td><td>Aplite</td></tr>
<tr><td colspan="11"></td></tr>
<tr><td>DDH PL-064-22</td><td colspan="10">Designed to define the northern contact of the pegmatite and convert Inferred material at depth between PL-042-19 and Channels 37-38. Intersected 132.9 m of pegmatite from 114.1 m to 247.0 m grading 1.33% Li_2O. Elevated Sn (440 ppm SnO_2) and Rb (0.51% Rb_2O) occur over 7 m from 114 m to 121 m and 10 m of elevated Ta (959 ppm Ta_2O_5) and Nb (602 ppm Nb_2O_5) from 170 m to 180 m. The hole was terminated in pegmatite due to time constraints and will be extended later in the program.</td></tr>
<tr><td>Zone</td><td>From (m)</td><td>To (m)</td><td>Width (m)</td><td>Li_2O (%)</td><td>Cs_2O (%)</td><td>Ta_2O_5 (ppm)</td><td>Nb_2O_5 (ppm)</td><td>SnO_2 (ppm)</td><td>Rb_2O (%)</td><td>Unit</td></tr>
<tr><td>Li-Ta-Nb-Sn-Rb-Enriched</td><td>114.1</td><td>247.0</td><td>132.9</td><td>1.33</td><td>0.04</td><td>158</td><td>121</td><td>85</td><td>0.26</td><td>Pegmatite</td></tr>
<tr><td>including (Sn-Rb)</td><td>114.1</td><td>121.1</td><td>7.0</td><td>1.26</td><td>0.06</td><td>242</td><td>94</td><td>440</td><td>0.51</td><td>Pegmatite</td></tr>
<tr><td>including (Ta-Nb)</td><td>170.0</td><td>180.0</td><td>10.0</td><td>2.74</td><td>0.03</td><td>959</td><td>602</td><td>38</td><td>0.25</td><td>Pegmatite-aplite</td></tr>
<tr><td>Li-Enriched</td><td>296.0</td><td>352.0</td><td>56.0</td><td>0.95</td><td>0.02</td><td>91</td><td>61</td><td>69</td><td>0.24</td><td>Aplite</td></tr>
<tr><td>including</td><td>335.0</td><td>352.0</td><td>17.0</td><td>1.45</td><td>0.02</td><td>123</td><td>61</td><td>101</td><td>0.30</td><td>Aplite</td></tr>
<tr><td colspan="11"></td></tr>
</table>

DDH PL-065-22	Collared north of the Spark Pegmatite in mafic volcanic 30 m west of PL-062-22, PL-065-22 was drilled to convert Inferred material at depth and to provide a northern contact of the Spark Pegmatite. Intersected a total of 171.5 m of 1.57% Li_2O and thin sheets of mafic rafts within the pegmatite as expected. Hole was terminated in pegmatite due to time constraints and will be extended later in the program.									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**112.9**	**184.1**	**71.2**	**1.58**	**0.03**	**109**	**64**	**107**	**0.36**	**Pegmatite, aplite, minor mafics**
Li-Enriched	**190.1**	**221.1**	**31.0**	**1.66**	**0.02**	**85**	**87**	**31**	**0.24**	**Pegmatite-aplite**
Li-Cs-Ta-Rb-Enriched	**241.8**	**287.1**	**45.3**	**1.86**	**1.05**	**327**	**63**	**152**	**0.53**	**Pegmatite-aplite**
including (Li-Cs-Ta-Rb)	241.8	261.0	19.2	2.88	2.23	513	44	195	0.70	Pegmatite
Li-Enriched	**306.8**	**330.9**	**24.1**	**0.90**	**0.02**	**71**	**46**	**43**	**0.16**	**Pegmatite, minor mafics**

DDH PL-066-22	Collared in pegmatite on the southern end of the Spark ore body, PL-066-22 was drilled to convert Inferred material at depth. Intersected 330.7 m of continuous pegmatite at 1.79% Li_2O.									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**12.0**	**342.7**	**330.7**	**1.79**	**0.02**	**67**	**90**	**38**	**0.25**	**Aplite-Pegmatite**
including	89.0	103.0	14.0	2.73	0.01	60	83	35	0.20	Aplite, minor pegmatite
including	159.0	173.0	14.0	2.58	0.01	36	75	19	0.19	Aplite, minor pegmatite
including	191.0	215.0	24.0	2.52	0.03	71	73	52	0.28	Aplite, minor pegmatite

DDH PL-067-22	**Collared in pegmatite on the southern end of the Spark ore body and 40 m east of PL-066-22, the hole was drilled to convert Inferred material at depth intersected 326.6 m of continuous pegmatite averaging 1.92% Li_2O.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**11.4**	**338.0**	**326.6**	**1.92**	**0.01**	**94**	**83**	**31**	**0.25**	**Aplite, minor pegmatite**
including	98.0	148.0	50.0	2.98	0.01	85	64	25	0.18	Aplite

DDH PL-068-22	**Collared near the start of Channel 37 to test the extent of pegmatite and mafic host rock to the east of PL-041-19. Intersected predictable mafic sheets of variable thickness. The upper 46.4 m of pegmatite averaged 2% Li_2O similar to Channel 37. Predominately pegmatite averaging around 1.5% Li_2O from 100 m to 200 m. The southern zone of the pegmatite was intersected from 276 m to 298 m averaging 1.4% Li_2O.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**0.9**	**47.3**	**46.4**	**1.98**	**0.04**	**71**	**69**	**55**	**0.27**	**Aplite-pegmatite**
including	0.9	40.0	39.1	2.17	0.02	52	59	47	0.23	Pegmatite
including	28.0	40.0	12.0	3.00	0.03	32	35	39	0.21	Aplite
including Ta-Enriched	**42.0**	**46.7**	**4.7**	**1.10**	**0.05**	**213**	**146**	**111**	**0.41**	**Pegmatite-aplite**
Li-Ta-Enriched	**59.3**	**66.3**	**7.0**	**1.59**	**0.01**	**174**	**116**	**49**	**0.22**	**Aplite**
Li-Enriched	**100.3**	**147.9**	**47.6**	**1.61**	**0.01**	**106**	**86**	**62**	**0.31**	**Aplite-pegmatite**
Li-Enriched	**151.1**	**163.0**	**11.9**	**1.50**	**0.01**	**100**	**83**	**51**	**0.29**	**Aplite-pegmatite**
Li-Enriched	**171.0**	**200.6**	**29.6**	**1.50**	**0.01**	**94**	**81**	**42**	**0.28**	**Aplite**
Li-Enriched	**276.0**	**298.1**	**22.2**	**1.42**	**0.01**	**50**	**92**	**87**	**0.22**	**Aplite**
including	288.0	296.0	8.0	2.23	0.01	40	79	49	0.22	Aplite

DDH PL-069-22	**Collared in Mafic Volcanic on the southern end of the Spark ore body, PL-069-22 was drilled to convert Inferred material at depth. Intersected 275.3 m of pegmatite at 1.74% Li_2O. Includes a 30 m interval from 348 to 378 averaging 2.32% Li2O.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**85.0**	**182.9**	**97.9**	**1.88**	**0.03**	**173**	**101**	**60**	**0.38**	**Aplite, minor mafics**
Li-Enriched	**196.7**	**310.9**	**114.3**	**1.61**	**0.03**	**148**	**86**	**52**	**0.32**	**Aplite, minor mafics**
Li-Enriched	**332.9**	**396.0**	**63.1**	**1.79**	**0.02**	**141**	**88**	**46**	**0.26**	**Pegmatite-aplite**
including	348.0	378.0	30.0	2.32	0.02	146	81	38	0.28	Pegmatite-aplite

DDH PL-070-22	**Was drilled to test both the northern upper and southern lower contacts with the mafic host rock. Intersected several pegmatitic zones ranging from a few metres to 94 m. PL-070-22 intersected a total of 181.1 m of pegmatite averaging 1.53% Li_2O.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**27.7**	**31.7**	**4.0**	**2.24**	**0.01**	**98**	**59**	**34**	**0.16**	**Aplite**
Li-Enriched	**65.5**	**69.3**	**3.8**	**2.19**	**0.02**	**160**	**63**	**22**	**0.24**	**Pegmatite-aplite**
Li-Enriched	**112.0**	**132.4**	**20.4**	**1.65**	**0.03**	**129**	**96**	**69**	**0.25**	**Aplite-pegmatite**
Li-Enriched	**164.4**	**258.3**	**93.9**	**1.57**	**0.02**	**151**	**88**	**54**	**0.29**	**Aplite, minor mafics**
Li-Enriched	**323.5**	**382.5**	**59.0**	**1.35**	**0.01**	**63**	**93**	**49**	**0.22**	**Aplite**

DDH PL-071-22	Was collared proximal to PL-070-22 and fanned out to the east to test both the northern upper and southern lower contacts with the mafic host rock. As expected, intersected diminishing proportions of pegmatite from west to east with an increase in mafic rafts towards the east. Intersected a total of 107.7 m of pegmatite averaging 1.40% Li2O. Includes 5.4 m from 242.6 m to 248.0 m averaging 663 ppm Ta_2O_5 and 1.3% Li_2O.									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	34.4	41.7	7.4	1.89	0.01	159	80	36	0.19	Pegmatite-aplite
Li-Enriched	98.6	132.6	34.0	1.31	0.02	140	55	65	0.18	Pegmatite, minor mafics
Li-Enriched	153.5	184.0	30.5	1.18	0.02	107	57	70	0.23	Aplite, minor mafics
Li-Enriched	191.0	221.6	30.6	1.62	0.02	118	69	62	0.21	Aplite
Li-Ta-Enriched	242.6	248.0	5.4	1.30	0.02	663	233	151	0.31	Aplite

DDH PL-072-22	Collared in Mafic Volcanic on the southern end of the Spark ore body, 30 m east of PL-069-22, the hole was drilled to convert Inferred material at depth. Intersected 124.1 m of pegmatite averaging 1.55% Li_2O.									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	82.0	102.5	20.5	1.99	0.01	139	69	72	0.22	Pegmatite, minor aplite
Li-Enriched	132.4	191.1	58.7	1.59	0.02	140	69	71	0.20	Pegmatite, minor mafics
Li-Enriched	215.0	241.0	26.0	1.47	0.01	183	93	48	0.17	Aplite
Li-Enriched	263.6	282.4	18.8	1.08	0.03	113	44	60	0.18	Aplite, mafics

DDH PL-073-22	**It was collared proximal to PL-070-22 and PL-071-22 and fanned out to the east to test both the northern upper and southern lower contacts with the mafic host rock. As expected, intersected diminishing proportions of pegmatite from west to east with an increase in mafic rafts towards the east. Intersected a total of 124.5 m of pegmatite averaging 1.38% Li_2O.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**49.2**	**50.6**	**1.4**	**1.58**	**0.03**	**154**	**57**	**52**	**0.14**	**Pegmatite**
Li-Ta-Enriched	**92.2**	**108.1**	**16.0**	**1.02**	**0.05**	**521**	**92**	**62**	**0.22**	**Aplite-minor mafics**
Li-Enriched	**116.4**	**142.4**	**26.0**	**1.15**	**0.04**	**218**	**62**	**64**	**0.18**	**Aplite-minor mafics**
Li-Enriched	**187.3**	**250.7**	**63.5**	**1.65**	**0.02**	**193**	**73**	**83**	**0.27**	**Aplite-minor mafics**
Li-Enriched	**329.7**	**347.4**	**17.7**	**1.06**	**0.01**	**76**	**38**	**45**	**0.19**	**Aplite-minor mafics**

DDH PL-074-22	**Collared in the mafic volcanic host rock 50 m west of PL-044-22, the hole was designed to define the western extent where the main Spark Pegmatite ore body begins to break up into smaller pods separated by mafic rafts.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**87.8**	**112.1**	**24.3**	**2.15**	**0.01**	**73**	**69**	**26**	**0.16**	**Aplite**
including	89.8	100.0	10.2	4.27	0.00	56	50	11	0.06	Aplite
Li-Enriched	**219.8**	**231.2**	**11.4**	**1.84**	**0.01**	**62**	**88**	**29**	**0.23**	**Aplite**

DDH PL-075-22	**Collared in the mafic volcanic host rock 15 m west of PL-074-22, the hole was fanned out further to the west to define the western extent where the main Spark Pegmatite ore body begins to break up and narrow into smaller pods.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**111.7**	**133.7**	**22.0**	**1.55**	**0.03**	**82**	**83**	**55**	**0.19**	**Aplite**
including	111.7	122.2	10.5	2.62	0.01	61	71	23	0.15	Aplite
Li-Enriched	**200.0**	**261.3**	**61.3**	**1.71**	**0.01**	**64**	**110**	**43**	**0.15**	**Aplite**
including	203.3	209.1	5.8	2.37	0.01	40	73	32	0.19	Aplite
including	220.0	228.4	8.3	2.74	0.01	44	74	36	0.11	Aplite

DDH PL-076-22	**Collared in the mafic volcanic host rock in the same location as PL-072-22, the hole was designed to convert Inferred material at depth as well as define a mafic raft on the eastern extent of the main ore body. The hole had to be abandoned in high-grade pegmatite due to tooling falling down the hole.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**100.0**	**438.0**	**338.0**	**1.64**	**0.02**	**140**	**83**	**52**	**0.26**	**Pegmatite-aplite**
including	184.6	199.0	14.4	2.14	0.01	78	83	40	0.26	Pegmatite
including	206.0	274.0	68.0	2.00	0.02	112	84	51	0.30	Pegmatite
including	367.0	379.0	12.0	2.25	0.02	272	124	55	0.26	Aplite
including	420.0	438.0	18.0	1.89	0.02	122	77	54	0.29	Aplite

DDH PL-077-22	Collared in between PL-076-22 and PL-045-19, the hole was designed to define the pegmatite east of the main body where it begins to break up into smaller pods separated by mafic rafts. In total, 159 m of pegmatite was intersected, most of which was mineralized (>1% Li_2O).									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**56.9**	**183.7**	**126.8**	**1.31**	**0.02**	**85**	**70**	**113**	**0.26**	**Pegmatite-Aplite**
including	76.0	102.0	26.0	1.77	0.02	89	70	160	0.28	Pegmatite
Li-Ta-Rb Enriched	**260.2**	**271.3**	**11.1**	**1.79**	**0.31**	**459**	**49**	**122**	**0.68**	**Aplite**
Li-Ta-Rb Enriched	**414.5**	**428.0**	**13.5**	**1.01**	**0.19**	**194**	**37**	**113**	**0.47**	**Aplite**
DDH PL-078-22	**Collared 24 m west of PL-040-19, the hole was designed to define the pegmatite on the east extent of Spark where the pegmatite pods begin to pinch out.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**120.4**	**225.3**	**104.9**	**1.58**	**0.04**	**153**	**64**	**120**	**0.35**	**Aplite**
including	149.0	184.0	35.0	2.39	0.03	208	69	120	0.38	Aplite
Li- Enriched	**246.7**	**280.2**	**33.5**	**1.63**	**0.07**	**186**	**50**	**56**	**0.26**	**Pegmatite**
including	255.5	279.8	24.3	2.04	0.05	256	69	48	0.29	Pegmatite

DDH PL-079-22	Collared in the mafic volcanic host rock 35 m west of PL-075-22, the hole was stepped out to define and cut-off the western extent of the Spark Pegmatite. The results have extended the southern pod of the pegmatite further to the west which remains open.									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**140.4**	**247.5**	**107.0**	**1.37**	**0.01**	**63**	**93**	**47**	**0.19**	**Aplite**
including	158.0	185.9	27.9	1.90	0.01	63	112	46	0.17	Aplite
including	202.4	210.0	7.6	1.99	0.01	61	106	49	0.16	Aplite
including	238.0	247.5	9.4	2.12	0.01	59	108	35	0.09	Aplite

DDH PL-080-22	Collared 16 m south of PL-051-21 of the main Spark Pegmatite, the hole was designed to define the west end where the main ore body begins to break up into smaller pegmatite pods separated by mafic rafts. A total of 190 m of pegmatite was intersected with much of the southern lower intersections barren of spodumene.									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**2.5**	**81.0**	**78.5**	**1.12**	**0.02**	**69**	**83**	**69**	**0.25**	**Aplite-pegmatite**
including	2.5	32.0	29.5	1.75	0.01	44	71	72	0.31	Pegmatite
Li-Enriched	**94.5**	**100.0**	**5.5**	**2.07**	**0.01**	**51**	**27**	**52**	**0.19**	**Pegmatite**
Li-Enriched	**106.0**	**121.1**	**15.1**	**2.20**	**0.03**	**93**	**66**	**75**	**0.42**	**Pegmatite**

DDH PL-081-22	**Collared 13 m south of PL-080-22 on top of the main Spark Pegmatite, the hole was designed to fill in a gap to convert material and to further define the southern contact of the main ore body. The intent was to extend the hole and further define smaller pegmatite pods to the south. A total of 227.3 m of pegmatite was intersected with mostly barren pegmatite below 200 m.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**3.4**	**48.1**	**44.7**	**1.40**	**0.02**	**56**	**74**	**36**	**0.26**	**Aplite-pegmatite**
including	32.9	40.3	7.4	2.98	0.01	71	72	36	0.18	Pegmatite
Li-Enriched	**59.3**	**144.1**	**84.9**	**1.63**	**0.01**	**92**	**87**	**45**	**0.26**	**Aplite**
including	112.5	140.5	28.0	2.06	0.01	86	86	42	0.27	Aplite
Li-Enriched	**162.1**	**198.2**	**36.1**	**1.75**	**0.03**	**78**	**106**	**64**	**0.24**	**Aplite**
including	163.0	189.0	26.0	2.03	0.02	82	109	60	0.27	Aplite

DDH PL-082-22	**Collared on the southern end of CH-50 on top of the main Spark Pegmatite, designed to fill in a gap and define the northern contact of the main ore body.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**0.0**	**25.5**	**25.5**	**1.08**	**0.04**	**43**	**53**	**58**	**0.20**	**Pegmatite**
including	0.0	17.5	17.5	1.35	0.05	43	51	60	0.21	Pegmatite
Li-Enriched	**36.3**	**86.0**	**49.8**	**1.80**	**0.01**	**67**	**82**	**42**	**0.24**	**Pegmatite-Aplite**
including	76.5	86.0	9.5	2.92	0.01	50	54	32	0.20	Aplite-pegmatite
Li-Enriched	**111.7**	**187.3**	**75.7**	**1.70**	**0.02**	**130**	**98**	**71**	**0.29**	**Aplite-pegmatite**
including	123.5	141.0	17.5	2.14	0.03	119	85	106	0.30	Pegmatite

DDH PL-083-22	Collared 32 m east of PL-078-22, the hole was designed to define the pegmatite on the east extent of Spark where the pegmatite pods begin to pinch out.									
Zone	From (m)	To (m)	Width (m)	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Unit
Li-Enriched	**121.4**	**154.9**	**33.5**	**1.67**	**0.04**	**165**	**58**	**109**	**0.29**	**Aplite-Pegmatite**
including	145.0	153.9	8.8	3.09	0.00	322	80	59	0.06	Pegmatite
Li-Enriched	**169.5**	**209.6**	**40.1**	**1.04**	**0.03**	**100**	**42**	**100**	**0.26**	**Aplite**
including	171.9	202.4	30.5	1.19	0.03	107	46	111	0.29	Aplite
Li-Enriched	**316.5**	**361.0**	**44.5**	**1.56**	**0.11**	**202**	**49**	**146**	**0.82**	**Pegmatite-Aplite**
including	337.0	353.8	16.8	2.34	0.09	143	37	93	0.99	Pegmatite

DDH PL-084-22	Collared 18 m east of PL-083-22, the hole was stepped out to cut off the east extent of the Spark Pegmatite. Although the pegmatite is narrowing, it still remains open.									
Zone	From (m)	To (m)	Width (m)	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Unit
Li-Enriched	**14.4**	**20.2**	**5.9**	**2.41**	**0.01**	**73**	**45**	**21**	**0.25**	**Pegmatite**
Li-Enriched	**92.1**	**97.0**	**4.9**	**1.21**	**0.01**	**150**	**79**	**76**	**0.21**	**Aplite**
Li-Enriched	**107.2**	**123.0**	**15.8**	**1.36**	**0.02**	**134**	**71**	**80**	**0.35**	**Aplite**

DDH PL-GDH-11-22	Designed as a geomechanical hole testing the east pit wall, the hole was drilled to provide rock mechanics data for the pit design. The hole intersected one of the eastern pods of the Spark Pegmatite that has pinched out from the main ore body.									
Zone	From (m)	To (m)	Width (m)	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Unit
Li-Enriched	**72.0**	**81.5**	**9.5**	**0.93**	**0.01**	**235**	**78**	**67**	**0.25**	**Aplite**

DDH PL-GDH-12-22	Designed as a geomechanical hole testing the west pit wall, the hole was drilled to provide rock mechanics data for the pit design. The hole intersected one of the western pods of the Spark Pegmatite that has pinched out from the main ore body.									
Zone	From (m)	To (m)	Width (m)	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Unit
Li-Enriched	**153.7**	**183.0**	**29.4**	**1.46**	**0.11**	**252**	**81**	**80**	**0.40**	**Aplite**

DDH PL-085-22	Collared on the main Spark Pegmatite in between PL-057-22 and PL-082-22, hole was designed to provide a northern contact where there was a gap in the model. A total of 86 m of pegmatite was intersected with most of the material near the end of the hole falling below the cut-off grade of 0.65% Li_2O.									
Zone	From (m)	To (m)	Width (m)	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Unit
Li-Enriched	**16.3**	**61.2**	**45.0**	**1.41**	**0.03**	**75**	**73**	**63**	**0.22**	**Aplite-Pegmatite**
Li-Enriched	**81.0**	**87.0**	**6.0**	**1.48**	**0.01**	**92**	**122**	**39**	**0.21**	**Aplite-Pegmatite**

DDH PL-086-22	Collared in the same location as PL-085-22 on the main Spark Pegmatite, hole was drilled in the opposite direction to the south to provide a southern contact where there was a gap in the model. A total of 165 m of pegmatite was intersected, with the last 11 m falling just below the cut-off grade of 0.65% Li_2O.									
Zone	From (m)	To (m)	Width (m)	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Unit
Li-Enriched	**3.7**	**158.0**	**154.3**	**1.69**	**0.01**	**82**	**85**	**52**	**0.27**	**Aplite-Pegmatite**
including	70.0	96.0	26.0	2.15	0.01	77	72	33	0.25	Aplite
including	114.0	126.0	12.0	2.36	0.01	40	54	43	0.25	Aplite

DDH PL-087-22	**Collared 12 m west of PL-082-22, hole was designed to provide a northern contact where there was a gap in the model. A total of 77 m of pegmatite was intersected, with a 12 m section falling below the cut-off grade of 0.65% Li_2O.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**0.5**	**44.4**	**43.9**	**1.62**	**0.03**	**90**	**94**	**61**	**0.25**	**Pegmatite**
including	14.5	38.5	24.0	2.18	0.02	89	98	59	0.27	Pegmatite
Li-Enriched	**60.1**	**75.0**	**14.9**	**1.06**	**0.01**	**99**	**99**	**67**	**0.19**	**Aplite**
Li-Enriched	**106.8**	**112.6**	**5.8**	**2.61**	**0.02**	**56**	**26**	**47**	**0.10**	**Pegmatite**

DDH PL-088-22	**Collared in the same location as PL-087-22 on the main Spark Pegmatite, hole was drilled in the opposite direction to provide a southern contact where there was a gap in the model. A total of 174 m of pegmatite was intersected, including a southern pegmatite pod separated from the main Spark body containing values below the cut-off grade of 0.65% Li_2O.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**0.5**	**127.0**	**126.5**	**1.94**	**0.01**	**85**	**85**	**48**	**0.24**	**Pegmatite-Aplite**
including	4.4	18.5	14.1	2.13	0.01	140	74	64	0.21	Pegmatite-Aplite
including	30.5	40.5	10.0	2.21	0.01	93	86	34	0.23	Pegmatite-Aplite
including	79.2	101.0	21.8	2.58	0.01	56	67	42	0.22	Pegmatite-Aplite
Li-Enriched	**157.3**	**167.0**	**9.8**	**2.01**	**0.02**	**53**	**53**	**101**	**0.23**	**Pegmatite**

DDH PL-089-22	**Collared on the east side of the main Spark Pegmatite in between PL-050-21 and PL-068-22, hole was designed to provide a northern contact where there was a gap in the model. A total of 66 m of pegmatite was intersected.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**0.0**	**65.9**	**65.9**	**1.74**	**0.02**	**79**	**99**	**62**	**0.28**	**Pegmatite-Aplite**
including	34.0	65.9	31.9	2.08	0.02	70	96	64	0.26	Pegmatite-Aplite

DDH PL-090-22	**Collared 14 m east of PL-066-22 south of the Spark Pegmatite, hole was designed to convert Inferred material at depth and to provide a northern contact where there was a gap in the model. A total of 173 m of pegmatite was intersected.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**22.5**	**114.5**	**92.0**	**1.62**	**0.02**	**90**	**102**	**46**	**0.30**	**Pegmatite-Aplite**
including	42.5	48.5	6.0	2.36	0.01	150	130	23	0.30	Pegmatite-Aplite
including	54.5	64.5	10.0	2.11	0.02	119	97	65	0.30	Pegmatite-Aplite
including	82.5	88.5	6.0	2.42	0.01	53	61	31	0.30	Pegmatite-Aplite
including	100.0	106.7	6.7	2.38	0.01	52	86	25	0.25	Pegmatite-Aplite
Li-Enriched	**133.0**	**160.0**	**27.0**	**1.44**	**0.01**	**71**	**74**	**56**	**0.24**	**Pegmatite-Aplite**
Li-Enriched	**174.5**	**214.0**	**39.5**	**1.45**	**0.03**	**94**	**92**	**45**	**0.25**	**Pegmatite-Aplite**
including	174.5	182.5	8.0	2.07	0.03	185	83	67	0.34	Pegmatite-Aplite
including	208.0	214.0	6.0	2.88	0.01	35	56	22	0.12	Pegmatite-Aplite

DDH PL-091-22	**Collared 44 m west of PL-039-19 south of the Spark Pegmatite, the hole was designed to define the western end of the main pegmatite body where it begins to break up separated by mafic rafts. A total of 33 m of pegmatite was intersected.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**108.5**	**126.6**	**18.1**	**1.87**	**0.03**	**168**	**111**	**68**	**0.28**	**Pegmatite**
including	**115.5**	**123.5**	**8.0**	**2.29**	**0.02**	**184**	**130**	**60**	**0.26**	**Pegmatite**
Li-Enriched	**141.8**	**155.5**	**13.7**	**1.88**	**0.03**	**428**	**70**	**134**	**0.20**	**Pegmatite**
including	**150.0**	**153.4**	**3.4**	**2.77**	**0.02**	**199**	**69**	**72**	**0.23**	**Pegmatite**

DDH PL-092-22	**Collared in the same location as PL-089-22, the hole was drilled in the opposite direction to the south, designed to define the eastern end of the main Spark Pegmatite at depth before it begins to break up into smaller pods towards the east. A total of 198 m of pegmatite was intersected.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**0.0**	**35.8**	**35.8**	**1.43**	**0.03**	**156**	**127**	**54**	**0.24**	**Pegmatite-Aplite**
including	**9.8**	**22.0**	**12.2**	**2.08**	**0.02**	**67**	**65**	**46**	**0.24**	**Pegmatite**
Li-Enriched	**58.3**	**228.5**	**170.3**	**1.36**	**0.01**	**62**	**87**	**49**	**0.24**	**Aplite w/ minor mafics rafts**
including	**85.0**	**105.0**	**20.0**	**1.85**	**0.01**	**76**	**96**	**40**	**0.30**	**Aplite**
including	**127.0**	**133.0**	**6.0**	**2.01**	**0.01**	**68**	**91**	**40**	**0.26**	**Aplite**

DDH PL-093-22	**Collared 30 m north of PL-055-22 and 60 m west of PL-091-22, the hole was stepped out to define the western extent of the Spark Pegmatite where it breaks up into smaller pods separated by mafic rafts. A total of 79 m of pegmatite was intersected.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**59.0**	**81.4**	**22.4**	**1.84**	**0.01**	**41**	**70**	**36**	**0.29**	**Pegmatite-Aplite**
including	73.0	79.0	6.0	2.87	0.01	33	54	23	0.21	Pegmatite
Li-Enriched	**91.8**	**159.0**	**67.2**	**1.78**	**0.07**	**149**	**58**	**88**	**0.40**	**Pegmatite-Aplite w/minor mafic**
including	113.5	121.5	8.0	3.27	0.02	245	86	48	0.27	Aplite
including	130.2	159.0	28.8	2.66	0.05	218	57	121	0.54	Pegmatite

DDH PL-094-22	Collared 8 m west of PL-091-22, hole was designed to define the western extent of the Spark Pegmatite where it begins to break up into smaller pods separated by mafic rafts and was also extended to target the recently discovered NW Spark zone. This hole was the first indication that the NW zone (PL-056-22 discovery hole) was connected to the main Spark Pegmatite at depth. A total of 135 m of pegmatite was intersected.									
Zone	From (m)	To (m)	Width (m)	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Unit
Li-Enriched	**43.4**	**49.5**	**6.1**	**1.59**	**0.00**	**62**	**55**	**27**	**0.17**	**Pegmatite w/ minor mafic rafts**
Li-Enriched	**56.2**	**60.5**	**4.3**	**2.46**	**0.01**	**46**	**49**	**55**	**0.19**	**Pegmatite w/ minor mafic rafts**
Li-Enriched	**68.0**	**72.8**	**4.8**	**1.64**	**0.01**	**49**	**28**	**44**	**0.39**	**Pegmatite w/ minor mafic rafts**
Li-Enriched	**145.6**	**159.0**	**13.5**	**1.89**	**0.08**	**83**	**19**	**43**	**0.18**	**Pegmatite w/ minor mafic rafts**
including	150.0	154.5	4.5	3.62	0.00	120	17	43	0.05	Pegmatite
Li-Enriched	**177.4**	**303.3**	**125.9**	**1.51**	**0.04**	**86**	**52**	**66**	**0.33**	**Pegmatite-Aplite w/ minor mafic**
including	181.5	193.5	12.0	2.08	0.05	126	64	73	0.58	Pegmatite-Aplite
including	228.7	238.5	9.8	2.94	0.02	65	32	38	0.22	Pegmatite-Aplite
including	246.5	254.5	8.0	2.95	0.05	73	33	26	0.59	Pegmatite-Aplite
including	270.5	278.5	8.0	2.32	0.01	64	78	56	0.21	Pegmatite-Aplite

DDH PL-095-22	Collared 10 m SW of PL-068-22, hole was designed to further define a mafic raft that splits the Spark Pegmatite on the east end of the main body. A total of 127 m of pegmatite was intersected.									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**0.0**	**49.1**	**49.1**	**1.67**	**0.02**	**83**	**90**	**51**	**0.25**	**Pegmatite-Aplite**
including	6.0	14.0	8.0	2.17	0.02	85	66	27	0.22	Pegmatite-Aplite
including	20.0	30.0	10.0	2.08	0.03	75	78	73	0.24	Pegmatite-Aplite
Li-Enriched	**79.0**	**89.5**	**10.5**	**1.94**	**0.01**	**116**	**70**	**46**	**0.27**	**Pegmatite-Aplite**
Li-Enriched	**131.6**	**155.0**	**23.4**	**1.41**	**0.01**	**67**	**67**	**47**	**0.19**	**Aplite with minor mafics**
Li-Enriched	**212.5**	**234.5**	**22.0**	**1.82**	**0.01**	**54**	**92**	**52**	**0.22**	**Aplite**
including	212.5	218.5	6.0	2.17	0.01	54	91	38	0.20	Aplite

DDH PL-096-22	Collared 6 m east of PL-043-19, hole was stepped out to the east to define the extent of the smaller pegmatite pods that break-up, separated by mafic rafts. Results show that there is still mineable pegmatite to the east as we move away from the main Spark ore body. A total of 106 m of pegmatite was intersected.									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**80.2**	**86.9**	**6.7**	**1.67**	**0.02**	**136**	**57**	**45**	**0.19**	**Pegmatite**
Li-Enriched	**102.0**	**108.4**	**6.4**	**1.57**	**0.02**	**140**	**89**	**138**	**0.36**	**Aplite**
Li-Enriched	**149.9**	**197.3**	**47.5**	**1.51**	**0.02**	**116**	**55**	**100**	**0.28**	**Pegmatite-Aplite w/ minor mafics**
including	173.5	187.5	14.0	1.89	0.02	114	73	170	0.38	Aplite

DDH PL-098-22	**Collared south of the Spark Pegmatite in between PL-090-22 and PL-067-22, hole was designed to follow up on the results of PL-056-22 that initially indicated what appeared to be a new high-grade NW zone. PL-098-22 results have confirmed what was later suggested by PL-094-22, that the NW zone is in fact connected to the main Spark ore body at depth. 398.25 m of pegmatite at 1.88% Li_2O was intersected, including minor dilution from mafic rafts**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**14.4**	**304.8**	**290.4**	**1.87**	**0.03**	**92**	**77**	**53**	**0.28**	**Aplite-pegmatite w/ minor mafics**
including	20.5	38.5	18.0	2.48	0.01	55	72	24	0.20	Aplite-Pegmatite
including	56.5	72.5	16.0	2.43	0.02	71	73	52	0.29	Aplite-Pegmatite
including	78.5	90.5	12.0	2.08	0.01	88	82	53	0.28	Aplite-Pegmatite
including	118.5	128.5	10.0	2.22	0.01	68	89	28	0.22	Aplite-Pegmatite
including	144.5	186.5	42.0	2.00	0.03	123	88	54	0.28	Aplite-Pegmatite
including	244.0	267.4	23.4	3.12	0.03	64	32	40	0.32	Aplite-Pegmatite
including	282.0	298.0	16.0	2.70	0.02	153	87	62	0.31	Aplite-Pegmatite
Li-Enriched	**342.2**	**450.1**	**107.9**	**1.92**	**0.07**	**192**	**69**	**223**	**0.48**	**Aplite-Pegmatite w/ minor mafics**
including	344.0	350.0	6.0	2.52	0.06	234	67	249	0.42	Aplite-Pegmatite
including	370.0	376.0	6.0	2.41	0.08	309	59	143	0.53	Aplite-Pegmatite
including	390.0	428.0	38.0	2.65	0.08	123	53	139	0.53	Aplite-Pegmatite

DDH PL-099-22	**Collared 85 m NW of PL-056-22, hole was designed to follow up results from PL-056, PL-094, and PL-098 whereby the NW zone has been connected to the main ore body at depth. 243 m of pegmatite at 1.58% Li_2O was intersected and has extended the zone at depth further to the west.**									
Zone	**From (m)**	**To (m)**	**Width (m)**	**Li_2O (%)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Nb_2O_5 (ppm)**	**SnO_2 (ppm)**	**Rb_2O (%)**	**Unit**
Li-Enriched	**106.6**	**150.3**	**43.7**	**1.54**	**0.07**	**126**	**34**	**98**	**0.58**	**Pegmatite w/ minor mafics**
including	122.3	131.3	9.0	2.47	0.05	145	42	91	0.51	Pegmatite
Li-Enriched	**167.5**	**211.0**	**43.5**	**1.23**	**0.07**	**198**	**56**	**317**	**0.30**	**Pegmatite-Aplite**
including	193.5	202.2	8.7	2.16	0.03	83	34	259	0.35	Pegmatite
Li-Enriched	**234.3**	**247.7**	**13.4**	**1.38**	**0.24**	**537**	**58**	**169**	**0.52**	**Pegmatite w/ minor mafics**
Li-Enriched	**256.7**	**264.2**	**7.5**	**3.02**	**0.03**	**312**	**52**	**111**	**0.38**	**Pegmatite**
Li-Enriched	**278.2**	**322.6**	**44.4**	**1.70**	**0.06**	**191**	**86**	**162**	**0.42**	**Pegmatite-Aplite**
including	278.2	286.0	7.8	2.27	0.05	313	61	123	0.41	Pegmatite-Aplite
including	294.0	309.0	15.0	2.13	0.06	110	67	149	0.31	Pegmatite-Aplite
Li-Enriched	**338.0**	**369.5**	**31.5**	**2.03**	**0.09**	**194**	**80**	**162**	**0.63**	**Pegmatite**
including	358.0	364.0	6.0	2.68	0.06	267	101	176	0.40	Pegmatite
Li-Enriched	**404.7**	**463.8**	**59.1**	**1.40**	**0.14**	**226**	**94**	**155**	**0.51**	**Pegmatite-Aplite**
including	407.0	413.0	6.0	2.26	0.07	161	72	99	0.90	Pegmatite-Aplite
including	430.0	436.0	6.0	3.25	0.03	58	26	41	0.32	Pegmatite-Aplite

10.8.1 Surveying

Collar Survey

Diamond drillhole collar locations were physically marked and flagged prior to drilling. Frontier geologists using hand-held Garmin GPS units would locate and mark the site based on coordinates predetermined from the detailed geological GIS compilation. During Phase XI, drill collar azimuth was determined by Silva compass and verified by line of sight (outcrop feature, channel cut, etc.). In Phase XII, a Reflex TN14 Gyrocompass was used to line up the collar azimuth and was later replaced with a Reflex North Finder APS unit.

Chenier Drilling personnel verified the position and orientation of the drill with Frontier geologists once set-up was completed and prior to commencement of drilling.

Casing was left in all holes and an aluminum cap was screwed in place with the drillhole identification engraved on the top of each cap. After completion of the hole, the collar location was verified within 3 m accuracy by taking a waypoint average using a hand-held Garmin GPS.

The 2022 collars were resurveyed to sub-centimetre accuracy using total station survey equipment in October 2022 by Rugged Geomatics surveyors based out of Kenora, Ontario. However, the survey was not completed until after the block model had been completed, therefore all 2022 collar locations used for the purpose of this report do not reflect the latest survey.

Downhole Survey and Core Orientation

Downhole surveys were completed on all holes using a Reflex EZ-Trac providing depth, magnetic azimuth, dip, temperature, magnetic field strength, and gravity. Single-shot readings were taken while drilling, starting near the collar (9+ m past casing depth) and subsequently every 50 m. After hole completion, a multi-shot reading was taken either every 1.5 m or 3.0 m. The data was then verified by the geologist and the azimuth was adjusted to true north using the updated declination.

Drill core was oriented and marked as it was retrieved during the drilling process using a Reflex ACT III Oriented Core System. Each core mark was then verified by the geologist for accuracy.

Both the downhole and core orientation tool was operated and provided by the drilling contractor.

10.8.2 Core Logging Procedure

The following is a summary of Frontier's logging procedure:

- Sample security and chain of custody started with the removal of core from the core tube, orientation marking by the drill contractor and boxing of drill core at the drill site;
- The boxed core remained under the custody of the drill contractor until it was transported from the drill to the secure onsite core shack facility by either the drill contractor or one of Frontier's designated personnel;
- At the onsite core shack, core boxes were opened and inspected to ensure correct boxing and labelling of the core by the drill contractor;
- The drill core was geologically logged, photographed and then marked and tagged for sampling and splitting;
- Each core sample was assigned a tag with a unique identifying number. Sample lengths were typically two metres but could be more or less depending on zone mineralogy and boundaries;
- When completed, the boxes were closed and stacked for sampling.

10.8.3 Sampling Approach

The following is a summary of Frontier's sampling procedure:

- The core boxes requiring sampling were transported to the onsite facility for cutting;
- Core marked for splitting was sawed using a diamond core saw and was cut lengthwise into equal halves;
- Half of the cut core was placed in clean individual plastic bags with the appropriate sample tag;
- QA/QC samples were inserted into the sample stream at prescribed intervals. Full description of the QA/QC program is provided in Chapter 11;
- The samples were then placed in rice bags for shipment to AGAT Laboratories' facility in Thunder Bay or Timmins, Ontario for sample preparation prior to completing multi-element analysis at AGAT's facility in Mississauga, Ontario or Calgary, Alberta;
- The remaining half of the core was retained and incorporated into Frontier's secure, onsite core library.

10.9 Hydrogeological / Geomechanical Drill Campaign

The hydrogeological and geomechanical drilling campaign started on February 7, 2023, to March 21, 2023, A total of 11 holes were drilled totalling 2,033.2 m in the program.

Frontier's Exploration camp was used as a base of operation, and the diamond drilling equipment was contracted to Chenier Drilling Ltd. of Val Caron. Drilling was completed using a Hydracore 2000 diamond drill. Four-wheel drive vehicles were used to transport the drill crew to and from the drill and to retrieve drill core from the drill. Holes were drilled using BTW drill rods. Garth Drever and Alex Croft of Frontier supervised the drilling and geological logging of the drill core.

The locations of the hydrogeological / geomechanical drill collars are displayed on Figure 10-2.

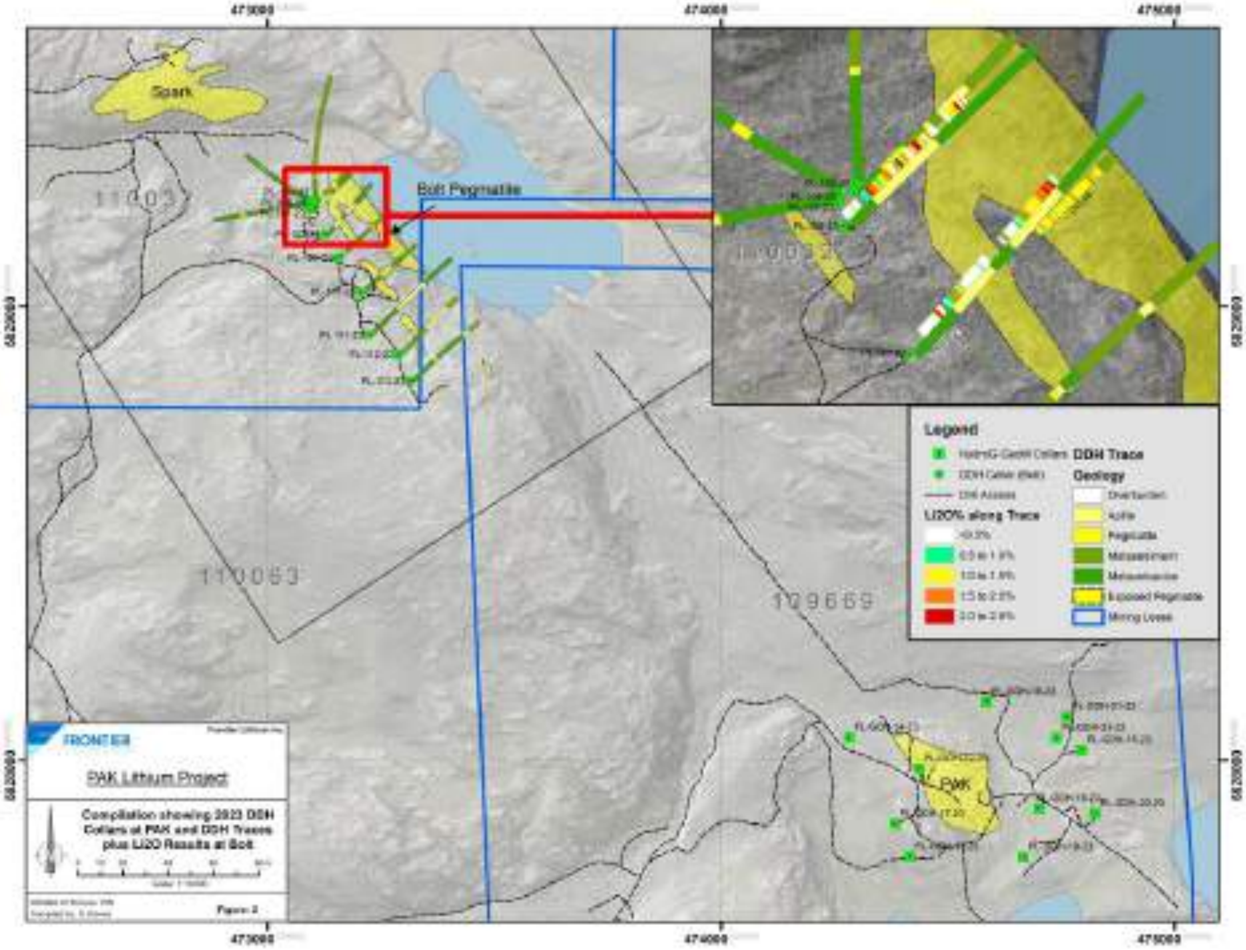


Figure 10-2: Hydrogeology/Geomechanical and Phase XIII Drill Location

10.10 Phase XIII Drill Campaign

The Phase XIII drilling campaign started March 24, 2023 and by April 28th, a total of 2,629.1 m in 11 holes on the Bolt Pegmatite had been completed. Phase XIII drill program is currently on-going.

Frontier's Exploration camp was used as a base of operation, and the diamond drilling equipment was contracted to Chenier Drilling Ltd. of Val Caron. Drilling was completed using a Hydracore 2000 diamond drill. Four-wheel drive vehicles were used to transport the drill crew to and from the drill and to retrieve drill core from the drill. Holes were drilled using BTW drill rods. Garth Drever and Alex Croft of Frontier supervised the drilling and geological logging of the drill core.

The locations of the Phase XIII drill collars are displayed on Figure 10-2. Table 10-10 summarizes available results of the Phase XIII drilling.

Table 10-10: Phase XIII Drill Results

DDH PL-103-23	Accessed area from the Spark trail to the west and drilled to the northwest, targeting the pegmatite beneath Channel 49. Intersected two zones; an upper and lower zone corresponding to the surface exposures with a slight off-set to the west. A total of 60.5 m of mineralized pegmatite was intersected, averaging 1.33% Li_2O									
Zone	From (m)	To (m)	Width (m)	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Unit
Li-Enriched	**28.2**	**31.5**	**3.4**	**1.76**	**0.004**	**67**	**75**	**52**	**0.14**	**Pegmatite-Aplite**
Li-Enriched	37.0	51.0	14.0	1.20	0.012	85	71	86	0.23	Pegmatite-Aplite
Li-Enriched	87.9	131.1	43.2	1.33	0.006	75	81	53	0.25	Pegmatite-Aplite
including	**101.0**	**131.1**	**30.1**	**1.63**	**0.006**	**77**	**76**	**47**	**0.24**	**Pegmatite-Aplite**
including	**119.0**	**131.1**	**12.1**	**1.94**	**0.005**	**86**	**75**	**43**	**0.22**	**Pegmatite-Aplite**
Total Pegmatite			**60.5**	**1.33**	**0.008**	**77**	**78**	**61**	**0.24**	
DDH PL-104-23	Collared 60 m to the northwest of PL-103-23 to test the section towards Spark. An upper 55.5 m pegmatite zone was intersected and offset to the west from the surface mapped exposure as well as a narrower 11.7 m zone from 97.5 to 107.5 m, both averaging around 1.3% Li_2O. In total, 67.2 m of mineralized pegmatite was intersected, averaging 1.33 Li_2O.									
Zone	From (m)	To (m)	Width (m)	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Unit
Li-Enriched	**23.5**	**79.0**	**55.5**	**1.33**	**0.007**	**56**	**62**	**74**	**0.19**	**Pegmatite-Aplite**
including	50.6	70.0	19.4	1.53	0.007	49	48	59	0.19	Pegmatite-Aplite
including	63.3	70.0	6.7	1.92	0.008	59	45	74	0.20	Pegmatite-Aplite
Li-Enriched	**95.9**	**107.5**	**11.7**	**1.36**	**0.018**	**89**	**62**	**59**	**0.21**	**Pegmatite-Aplite**
Total Pegmatite			**67.2**	**1.33**	**0.009**	**62**	**62**	**71**	**0.20**	

10.10.1 Surveying

Collar Survey

Diamond drillhole collar locations were physically marked and flagged prior to drilling. Frontier geologists, using hand-held Garmin GPS units, would locate and mark the site based on coordinates predetermined from the detailed geological GIS compilation. During Phase XI, drill collar azimuth was determined by Silva compass and verified by line of sight (outcrop feature, channel cut, etc.). In Phase XII, a Reflex TN14 Gyrocompass was used to line up the collar azimuth and was later replaced with a Reflex North Finder APS unit.

Chenier Drilling personnel verified the position and orientation of the drill with Frontier geologists once set-up was completed and prior to commencement of drilling.

Casing was left in all holes and an aluminum cap was screwed in place with the drillhole identification engraved on the top of each cap. After completion of the hole, the collar location was verified within 3 m accuracy by taking a waypoint average using a hand-held Garmin GPS.

Downhole Survey and Core Orientation

Downhole surveys were completed on all holes using a Reflex EZ-Trac providing depth, magnetic azimuth, dip, temperature, magnetic field strength, and gravity. Single-shot readings were taken while drilling, starting near the collar (9+ m past casing depth) and subsequently every 50 m. After hole completion, a multi-shot reading was taken either every 1.5 m or 3.0 m. The data was then verified by the geologist and the azimuth was adjusted to true north using the updated declination.

Drill core was oriented and marked as it was retrieved during the drilling process using a Reflex ACT III Oriented Core System. Each core mark was then verified by the geologist for accuracy.

Both the downhole and core orientation tool was operated and provided by the drilling contractor.

10.10.2 Core Logging Procedure

The following is a summary of Frontier's logging procedure:

- Sample security and chain of custody started with the removal of core from the core tube, orientation marking by the drill contractor and boxing of drill core at the drill site;
- The boxed core remained under the custody of the drill contractor until it was transported from the drill to the secure on-site core shack facility by either the drill contractor or one of Frontier's designated personnel;

- At the on-site core shack, core boxes were opened and inspected to ensure correct boxing and labelling of the core by the drill contractor;
- The drill core was geologically logged, photographed and then marked and tagged for sampling and splitting;
- Each core sample was assigned a tag with a unique identifying number. Sample lengths were typically two metres but could be more or less depending on zone mineralogy and boundaries;
- When completed, the boxes were closed and stacked for sampling.

10.10.3 Sampling Approach

The following is a summary of Frontier's sampling procedure:

- The core boxes requiring sampling were transported to the on-site facility for cutting;
- Core marked for splitting was sawed using a diamond core saw and was cut lengthwise into equal halves;
- Half of the cut core was placed in clean individual plastic bags with the appropriate sample tag;
- QA/QC samples were inserted into the sample stream at prescribed intervals. A full description of the QA/QC program is provided in Chapter 11;
- The samples were then placed in rice bags for shipment to AGAT Laboratories' facility in Thunder Bay or Timmins, Ontario for sample preparation prior to completing multi-element analysis at AGAT's facility in Mississauga, Ontario or Calgary, Alberta;
- The remaining half of the core was retained and incorporated into Frontier's secure, on-site core library.

10.11 QP's Opinion

It is the QP's opinion that the drilling and logging procedures put in place by Frontier meet acceptable industry standards and that the information can be used for geological and resource modelling.

11. Sample Preparation, Analyses and Security

11.1 Samples Preparation

11.1.1 2013 Sample Preparation

All channel samples were shipped to Thunder Bay, Ontario. In Thunder Bay, sample blanks and standards were inserted into the sample stream by Frontier personnel and then delivered to the Activation Laboratories ("Actlabs") facility in Thunder Bay for analysis. Actlabs is an ISO (ISO/IEC) 17025 accredited facility and includes CAN-P-1579 (Mineral Analysis).

All diamond drill core samples were shipped from Frontier's Val Caron site to ACME Labs ("ACME") in Vancouver, British Columbia. The Vancouver facility for ACME is ISO 9001:2008 certified.

Table 11-1 summarizes the steps completed in the sample preparation of the channel and diamond drill core samples. At no time was an employee of Frontier involved in the preparation of the samples.

Table 11-1: 2013 Sample Preparation Procedure - ACME

Sample Preparation	ACME Channel Samples	ACME Drill Core Samples
Receiving	Samples were received, sorted in order, dried.	Samples were received, sorted in order, dried.
Crushing and pulverizing	Crush remainder of sample to >90% - 2 mm, pulverize (hardened steel) 250 g to >95% 105 µm.	Crush remainder of sample to >80% - 2 mm, pulverize (ceramic) 250 g to >85% 75 µm.
Cleaning equipment	Cleaner sand was used between each sample.	Cleaner sand was used between each sample.
Sample Prep. Code	RX1-Terminator.	R200-250.

11.1.2 2014 Sample Preparation

All 2014 samples were shipped from Frontier's Val Caron site to ACME Labs in Val-d'Or, Québec for preparation. The sample pulps were then sent to ACME's Vancouver facility for Analysis. Table 11-2 summarizes the steps completed in the sample preparation of the channel and diamond drill core samples. At no time was an employee of Frontier involved in the preparation of the samples.

Table 11-2: 2014 Sample Preparation Procedure - ACME

Sample Preparation	ACME 2014 Drill Core and Channel Samples	Code
Receiving	Samples were received, sorted in order, dried and stage-crushed to 1/2".	CRUPR
Riffle split	Riffle split 1 kg and save.	SPTRF
Crushing and pulverizing	Crush remainder of sample to >80% -2 mm, pulverize (ceramic) 250 g to >85% 75 µm.	PLU-CB
Cleaning equipment	Extra wash with glass between each sample in pulverizer.	PULSW

11.1.3 2015 Sample Preparation

All samples from the 2015 winter Phase III drilling program and production hole samples for the bulk sampling test were shipped from Frontier's Val Caron site to Actlabs facility in Sudbury and Thunder Bay, respectively, for preparation. The sample pulps were then sent to Actlabs' Ancaster, Ontario facility for analysis. Samples from the summer Phase IV drilling program, and the channel sampling were delivered to the AGAT Laboratories ("AGAT") facility in Thunder Bay, Ontario. The sample pulps were then sent to AGAT's facility in Mississauga, Ontario. Table 11-3 summarizes the steps completed in the sample preparation of the diamond drill core samples. At no time was an employee of Frontier involved in the preparation of the samples.

Table 11-3: 2015 Sample Preparation Procedure - Actlabs and AGAT

Process	Actlabs 2015 Winter Program	AGAT 2015 Summer Program
Receiving	Samples were received, sorted in order, dried and crushed to -3 mesh (1/4 inch) and if greater than 2 kg, a 1 kg sample is riffle split and saved.	Samples were received, sorted in order, dried
Crushing and pulverizing	The remainder of the sample is crushed to 80% -10 mesh (2 mm), riffle split and pulverize (mild steel) a 250 g sample to 95% -200 mesh (75 m).	Samples are crushed to 75% -10 mesh (2 mm) and split to 250 g. Samples are pulverized to 85% -200 mesh (75 µm). After drying, samples are shaken on an 80-mesh sieve with the plus fraction stored and the minus fraction sent to the laboratory for analysis.
Cleaning equipment	Actlabs uses white lightning SiO_2 under saturated (no free quartz) material as a cleaner sand between every pulverized sample.	All equipment is cleaned using quartz and air from a compressed air source.

11.1.4 2017 Sample Preparation

Samples from the winter Phase V drilling program were delivered to the AGAT facility in Thunder Bay, Ontario and summer channel sampling program were delivered to the AGAT facility in Thunder Bay, Ontario. The sample pulps were then sent to AGAT's facility in Mississauga, Ontario. Table 11-4 summarizes the steps completed in the sample preparation of the diamond drill core and channel samples. At no time was an employee of Frontier involved in the preparation of the samples.

Table 11-4: 2017 Sample Preparation Procedure - AGAT

Process	AGAT 2017 Winter Program	AGAT 2017 Summer Program
Receiving	Samples were received, sorted in order, dried.	Samples were received, sorted in order, dried.
Crushing and pulverizing	Samples are crushed to 75% -10 mesh (2 mm) and split to 250 g. Samples are pulverized to 85% -200 mesh (75 µm). After drying, samples are shaken on an 80-mesh sieve with the plus fraction stored and the minus fraction sent to the laboratory for analysis.	Samples are crushed to 75% -10 mesh (2 mm) and split to 250 g. Samples are pulverized to 85% -200 mesh (75 µm). After drying, samples are shaken on an 80-mesh sieve with the plus fraction stored and the minus fraction sent to the laboratory for analysis.
Cleaning equipment	All equipment is cleaned using quartz and air from a compressed air source.	All equipment is cleaned using quartz and air from a compressed air source.

11.1.5 2018 Sample Preparation

Samples from the winter Phase VI drilling program and summer channel sampling program were delivered to the AGAT facility in Thunder Bay, Ontario. The sample pulps were then sent to AGAT's facility in Mississauga, Ontario. Table 11-5 summarizes the steps completed in the sample preparation of the diamond drill core and channel samples. At no time was an employee of Frontier involved with the preparation of the samples.

Table 11-5: 2018 Sample Preparation Procedure - AGAT

Process	AGAT 2018 Winter Program	AGAT 2018 Summer Program
Receiving	Samples were received, sorted in order, dried	Samples were received, sorted in order, dried
Crushing and pulverizing	Samples are crushed to 75% -10 mesh (2 mm) and split to 250 g. Samples are pulverized to 85% -200 mesh (75 µm). After drying, samples are shaken on an 80-mesh sieve with the plus fraction stored and the minus fraction sent to the laboratory for analysis.	Samples are crushed to 75% -10 mesh (2 mm) and split to 250 g. Samples are pulverized to 85% -200 mesh (75 µm). After drying, samples are shaken on an 80-mesh sieve with the plus fraction stored and the minus fraction sent to the laboratory for analysis.
Cleaning equipment	All equipment is cleaned using quartz and air from a compressed air source.	All equipment is cleaned using quartz and air from a compressed air source.

11.1.6 2019 Sample Preparation

Samples from the winter Phase VII drilling program, and summer Phase VIII drilling program and channel sampling programs were delivered to the AGAT facility in Val-d'Or, Québec. The sample pulps were then sent to AGAT's facility in Mississauga, Ontario. Table 11-6 summarizes the steps completed in the sample preparation of the diamond drill core samples. At no time was an employee of Frontier involved in the preparation of the samples.

Table 11-6: 2019 Sample Preparation Procedure - AGAT

Process	AGAT 2019 Winter Program	AGAT 2019 Summer Program
Receiving	Samples were received, sorted in order, dried.	Samples were received, sorted in order, dried.
Crushing and pulverizing	Samples are crushed to 75% -10 mesh (2 mm) and split to 250 g. Samples are pulverized to 85% -200 mesh (75 µm). After drying, samples are shaken on an 80-mesh sieve with the plus fraction stored and the minus fraction sent to the laboratory for analysis.	Samples are crushed to 75% -10 mesh (2 mm) and split to 250 g. Samples are pulverized to 85% -200 mesh (75 µm). After drying, samples are shaken on an 80-mesh sieve with the plus fraction stored and the minus fraction sent to the laboratory for analysis.
Cleaning equipment	All equipment is cleaned using quartz and air from a compressed air source.	All equipment is cleaned using quartz and air from a compressed air source.

11.1.7 2020 Sample Preparation

Samples from the summer channel sampling programs were delivered to the AGAT facility in Thunder Bay, Ontario and AGAT internally transferred the sample to the Timmins facility. The sample pulps were then sent to AGAT's facility in Mississauga, Ontario. Table 11-7 summarizes the steps completed in the sample preparation of the channel samples. At no time was an employee of Frontier involved in the preparation of the samples.

Table 11-7: 2020 Sample Preparation Procedure - AGAT

Process	AGAT 2020 Summer Program
Receiving	Samples were received, sorted in order, dried.
Crushing and pulverizing	Samples are crushed to 75% -10 mesh (2 mm) and split to 250 g. Samples are pulverized to 85% -200 mesh (75 µm). After drying, samples are shaken on an 80-mesh sieve with the plus fraction stored and the minus fraction sent to the laboratory for analysis.
Cleaning equipment	All equipment is cleaned using quartz and air from a compressed air source.

11.1.8 2021 Sample Preparation

Samples from the 2021 drilling campaign, including channel sampling, were delivered to the AGAT facility in Thunder Bay, Ontario. The sample pulps were then sent to AGAT's facility in Mississauga, Ontario. Table 11-8 summarizes the steps completed in the sample preparation of the channel samples. At no time was an employee of Frontier involved in the preparation of the samples.

Table 11-8: 2021 Sample Preparation Procedure - AGAT

Process	AGAT 2020 Summer Program
Receiving	Samples were received, sorted in order, dried.
Crushing and pulverizing	Samples are crushed to 75% -10 mesh (2 mm) and split to 250 g. Samples are pulverized to 85% -200 mesh (75 µm). After drying, samples are shaken on an 80-mesh sieve with the plus fraction stored and the minus fraction sent to the laboratory for analysis.
Cleaning equipment	All equipment is cleaned using quartz and air from a compressed air source.

11.1.9 2022 Sample Preparation

Samples from the 2022 drilling campaign, including channel sampling, were delivered to the AGAT facility in Thunder Bay, Ontario. The sample pulps were then sent to AGAT's facility in Mississauga, Ontario or in Calgary, Alberta. Table 11-9 summarizes the steps completed in the sample preparation of the channel samples. At no time was an employee of Frontier involved in the preparation of the samples.

Table 11-9: 2022 Sample Preparation Procedure - AGAT

Process	AGAT 2020 Summer Program
Receiving	Samples were received, sorted in order, dried.
Crushing and pulverizing	Samples are crushed to 75% -10 mesh (2 mm) and split to 250 g. Samples are pulverized to 85% -200 mesh (75 µm). After drying, samples are shaken on an 80-mesh sieve with the plus fraction stored and the minus fraction sent to the laboratory for analysis.
Cleaning equipment	All equipment is cleaned using quartz and air from a compressed air source.

11.1.10 2023 Sample Preparation

Samples from the 2023 drilling campaign, including channel sampling, were delivered to the AGAT facility in Thunder Bay, Ontario. The sample pulps were then sent to AGAT's facility in Mississauga, Ontario or in Calgary, Alberta. Table 11-9 summarizes the steps completed in the sample preparation of the channel samples. At no time was an employee of Frontier involved in the preparation of the samples. Samples from the 2023 drilling program were not in the areas of the mineral resource estimates and do not impact the results of the block models.

Table 11-10: 2023 Sample Preparation Procedure - AGAT

Process	AGAT 2020 Summer Program
Receiving	Samples were received, sorted in order, dried.
Crushing and pulverizing	Samples are crushed to 75% -10 mesh (2 mm) and split to 250 g. Samples are pulverized to 85% -200 mesh (75 µm). After drying, samples are shaken on an 80-mesh sieve with the plus fraction stored and the minus fraction sent to the laboratory for analysis.
Cleaning equipment	All equipment is cleaned using quartz and air from a compressed air source.

11.2 Analytical Procedure

11.2.1 2013 Analytical Procedure

All samples were assayed by an ISO accredited laboratory. Sample blanks along with tantalum, lithium, rubidium, and cesium certified reference material ("CRM") were routinely inserted into the sample stream in accordance with industry recommended practices. Field duplicate samples were also taken in accordance with industry recommended practices.

Table 11-11 summarizes the analytical methods used on the channel and diamond drill core samples. The detection limit for the four elements is summarized in Table 11-12. At no time was an employee of Frontier involved in the analytical process.

Table 11-11: 2013 Analytical Methodology

Analytical Method	Actlabs Channel Samples	ACME Drill Core Samples
ICP-ES with $LiBO_2$ / $Li_2B_4O_7$ flux	Code 8: Al_2O_3, Be, C, CaO, Fe_2O_3, K_2O, LOI, MgO, MnO, Na_2O, P_2O_5, S, Sc, SiO_2, TiO_2, V, Y, Zr	4A: Al_2O_3, C, CaO, Cr_2O_3, Fe_2O_3, K_2O, MgO, MnO, Na_2O, P_2O_5, S, Sc, SiO_2, TiO_2, LOI
ICP-MS with $LiBO_2$ / $Li_2B_4O_7$ flux	Code 8: Ag, As, Ba, Bi, Ce, Co, Cr, Cs, Cu, Dy, Er, Eu, Ga, Gd, Ge, Hf, Ho, In, La, Lu, Mo, Nb, Nd, Ni, Pb, Pr, Rb, Sb, Sm, Sn, Ta, Tb, Th, Tl, Tm, U, Yb, W, Zn	4B: Ba, Be, Co, Ce, Cs, Dy, Eu, Er, Ga, Gd, Hf, Ho, La, Lu, Nb, Nd, Pr, Rb, Sm, Sn, Sr, Ta, Tb, Th, Tl, Tm, U, V, W, Y, Yb, Zn, Zr
ICP-ES with Na_2O_2 fusion	Code 8: Al, As, Be, Ca, Co, Cr, Cu, Fe, K, Li, Mg, MgO, Mn, Ni, Pb, S, Si, Ti, W, Zn	7PF: B and Li
ICP-MS with Na_2O_2 fusion	Code 8: Cs (>1000 ppm) (Code -8)	
XRF with $LiBO_2$ fusion		8X: Cs, Rb, and Ta

Table 11-12: Analytical Detection Limits

Element	Channel Sampling		Diamond Drill Core	
	Detection Limit	Analytical Method	Detection Limit	Analytical Method
Cs	0.5 ppm	ICP-MS	0.01%	XRF
Rb	2.0 ppm	ICP-MS	0.01%	XRF
Ta	0.1 ppm	ICP-MS	10.0 ppm	XRF
Li	0.01%	ICP-OES	0.01%	ICP-MS

11.2.2 2014 Analytical Procedure

The ACME Vancouver Facility is an ISO 9001:2008 certified. Sample blanks along with tantalum, lithium, rubidium, and cesium certified reference material were routinely inserted into the sample stream in accordance with industry recommended practices. Field duplicate samples were also taken in accordance with industry recommended practices.

Table 11-13 summarizes the analytical methods used on the channel and diamond drill core samples. The detection limit for the four elements is summarized in Table 11-14. At no time was an employee of Frontier involved in the analytical process.

Table 11-13: 2014 Analytical Methodology - ACME

Analytical Method	ACME: 2014 Drill Core and Channel Samples	Code
ICP Finish; Lithium metaborate / tetraborate fusion	Standard suite Major Oxides plus Refractory and REE: Al_2O_3, C, CaO, Cr_2O_3, Fe_2O_3, K_2O, MgO, MnO, Na_2O, P_2O_5, S, Sc, SiO_2, TiO_2, LOI, Ba, Be, Co, Ce, Cs, Dy, Eu, Er, Ga, Gd, Hf, Ho, La, Lu Nb, Nd, Pr, Rb, Sm, Sn, Sr, Ta, Tb, Th, Tl, Tm, U, V, W, Y, Yb, Zn, Zr	LF200
ICPES Finish; Peroxide Fusion	Ore grade Li and B	PF370
XRF Finish; Lithium Metaborate/ Tetraborate Fusion	Cs, Rb, and Ta	LF700
Fusion; Specific Ion Electrode	F	GC840

Table 11-14: 2014 Analytical Detection Limits - ACME

Element	Detection Limit	Analytical Method
Cs	0.01%	XRF
Rb	0.01%	XRF
Ta	10.0 ppm	XRF
Li	0.01%	ICP-MS

11.2.3 2015 Analytical Procedure

Both the Actlabs and AGAT facilities are ISO 9001:2008 certified. Sample blanks along with tantalum, lithium, rubidium, and cesium certified reference material were routinely inserted into the sample stream in accordance with industry recommended practices. Field duplicate samples were also taken in accordance with industry recommended practices.

Table 11-15 summarizes the analytical methods used on the channel and diamond drill core samples. The detection limit for the four elements is summarized in Table 11-16. At no time was an employee of Frontier involved in the analytical process.

Table 11-15: 2015 Analytical Methodology - Actlabs and AGAT

Analytical Method	AGAT Drill Core and Channels Samples	Code
ICP-OES/ICP-MS Finish; Sodium Peroxide fusion	Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Dy, Er, Eu, Fe, Ga, Gd, Ge, Hf, Ho, In, K, La, Li, Lu, Mg, Mn, Mo, Nb, Ni, P, Pb, Pr, Rb, S, Sb, Sc, Si, Sm, Sn, Sr, Ta, Tb, Th, Ti, Tl, Tm, U, V, W, Y, Tb, Zn	201-378
ICP-OES Finish; Lithium Borate Fusion	Al_2O_3, BaO, CaO, Cr_2O_3, Fe_2O_3, K_2O, MgO, MnO, Na_2O, P_2O_5, SiO_2, TiO_2, SrO and LOI	201-076
Ion Selective Electrode	F	201-044
LECO	Total C and Total S	201-043

Table 11-16: 2015 Analytical Detection Limits - Actlabs and AGAT

Element	Actlabs Detection Limits and Finish	AGAT Detection Limits and Finish
Cs	0.5 ppm by ICP-MS	0.1 ppm by ICP-MS
Rb	2 ppm by ICP-MS	0.2 ppm by ICP-MS
Ta	0.1 ppm by ICP-MS	0.5 ppm by ICP-MS
Li	0.001% by ICP-OES	10 ppm by ICP-OES

11.2.4 2017 Analytical Procedure

The AGAT facilities are ISO 9001:2008 certified. Sample blanks along with tantalum, lithium, rubidium, and cesium certified reference material were routinely inserted into the sample stream in accordance with industry recommended practices. Field duplicate samples were also taken in accordance with industry recommended practices.

Table 11-17 summarizes the analytical methods used on the channel and diamond drill core samples. The detection limit for the four elements is summarized in Table 11-18. At no time was an employee of Frontier involved in the analytical process.

Table 11-17: 2017 Analytical Methodology - AGAT

Analytical Method	AGAT Drill Core and Channels Samples	Code
ICP-OES/ICP-MS Finish; Sodium Peroxide fusion	Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Dy, Er, Eu, Fe, Ga, Gd, Ge, Hf, Ho, In, K, La, Li, Lu, Mg, Mn, Mo, Nb, Ni, P, Pb, Pr, Rb, S, Sb, Sc, Si, Sm, Sn, Sr, Ta, Tb, Th, Ti, Tl, Tm, U, V, W, Y, Tb, Zn	201-378
ICP-OES Finish; Lithium Borate Fusion	Al_2O_3, BaO, CaO, Cr_2O_3, Fe_2O_3, K_2O, MgO, MnO, Na_2O, P_2O_5, SiO_2, TiO_2, SrO and LOI	201-076
Ion Selective Electrode	F	201-044

Table 11-18: 2017 Analytical Detection Limits - AGAT

Element	AGAT Detection Limits and Finish
Cs	0.1 ppm by ICP-MS
Rb	0.2 ppm by ICP-MS
Ta	0.5 ppm by ICP-MS
Li	10 ppm by ICP-OES

11.2.5 2018 Analytical Procedure

The AGAT facilities are ISO 9001:2008 certified. Sample blanks along with tantalum, lithium, rubidium, and cesium certified reference material were routinely inserted into the sample stream in accordance with industry recommended practices. Field duplicate samples were also taken in accordance with industry recommended practices.

Table 11-19 summarizes the analytical methods used on the channel and diamond drill core samples. The detection limit for the four elements is summarized in Table 11-20. At no time was an employee of Frontier involved in the analytical process.

Table 11-19: 2018 Analytical Methodology - AGAT

Analytical Method	AGAT Drill Core and Channels Samples	Code
ICP-OES/ICP-MS Finish; Sodium Peroxide fusion	Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Dy, Er, Eu, Fe, Ga, Gd, Ge, Hf, Ho, In, K, La, Li, Lu, Mg, Mn, Mo, Nb, Ni, P, Pb, Pr, Rb, S, Sb, Sc, Si, Sm, Sn, Sr, Ta, Tb, Th, Ti, Tl, Tm, U, V, W, Y, Tb, Zn	201-378
ICP-OES Finish; Lithium Borate Fusion	Al_2O_3, BaO, CaO, Cr_2O_3, Fe_2O_3, K_2O, MgO, MnO, Na_2O, P_2O_5, SiO_2, TiO_2, SrO and LOI	201-076
Ion Selective Electrode	F	201-044

Table 11-20: 2018 Analytical Detection Limits - AGAT

Element	AGAT Detection Limits and Finish
Cs	0.1 ppm by ICP-MS
Rb	0.2 ppm by ICP-MS
Ta	0.5 ppm by ICP-MS
Li	10 ppm by ICP-OES

11.2.6 2019 Analytical Procedure

The AGAT facilities are ISO 9001:2008 certified. Sample blanks along with tantalum, lithium, rubidium, and cesium certified reference material were routinely inserted into the sample stream in accordance with industry recommended practices. Field duplicate samples were also taken in accordance with industry recommended practices.

Table 11-21 summarizes the analytical methods used on the channel and diamond drill core samples. The detection limit for the four elements is summarized in Table 11-22. At no time was an employee of Frontier involved in the analytical process.

Table 11-21: 2019 Analytical Methodology - AGAT

Analytical Method	AGAT Drill Core and Channels Samples	Code
ICP-OES/ICP-MS Finish; Sodium Peroxide fusion	Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Dy, Er, Eu, Fe, Ga, Gd, Ge, Hf, Ho, In, K, La, Li, Lu, Mg, Mn, Mo, Nb, Ni, P, Pb, Pr, Rb, S, Sb, Sc, Si, Sm, Sn, Sr, Ta, Tb, Th, Ti, Tl, Tm, U, V, W, Y, Tb, Zn	201-378
ICP-OES Finish; Lithium Borate Fusion	Al_2O_3, BaO, CaO, Cr_2O_3, Fe_2O_3, K_2O, MgO, MnO, Na_2O, P_2O_5, SiO_2, TiO_2, SrO and LOI	201-076
Ion Selective Electrode	F	201-044

Table 11-22: 2019 Analytical Detection Limits - AGAT

Element	AGAT Detection Limits and Finish
Cs	0.1 ppm by ICP-MS
Rb	0.2 ppm by ICP-MS
Ta	0.5 ppm by ICP-MS
Li	10 ppm by ICP-OES

11.2.7 2020 Analytical Procedure

The AGAT facilities are ISO 9001:2008 certified. Sample blanks along with tantalum, lithium, rubidium, and cesium certified reference material were routinely inserted into the sample stream in accordance with industry recommended practices. Field duplicate samples were also taken in accordance with industry recommended practices.

Table 11-21 summarizes the analytical methods used on the channel and diamond drill core samples. The detection limit for the four elements is summarized in Table 11-22. At no time was an employee of Frontier involved in the analytical process.

Table 11-23: 2020 Analytical Methodology - AGAT

Analytical Method	AGAT Drill Core and Channels Samples	Code
ICP-OES/ICP-MS Finish; Sodium Peroxide fusion	Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Dy, Er, Eu, Fe, Ga, Gd, Ge, Hf, Ho, In, K, La, Li, Lu, Mg, Mn, Mo, Nb, Ni, P, Pb, Pr, Rb, S, Sb, Sc, Si, Sm, Sn, Sr, Ta, Tb, Th, Ti, Tl, Tm, U, V, W, Y, Tb, Zn	201-378
ICP-OES Finish; Lithium Borate Fusion	Al_2O_3, BaO, CaO, Cr_2O_3, Fe_2O_3, K_2O, MgO, MnO, Na_2O, P_2O_5, SiO_2, TiO_2, SrO and LOI	201-076
Ion Selective Electrode	F	201-044

Table 11-24: 2020 Analytical Detection Limits - AGAT

Element	AGAT Detection Limits and Finish
Cs	0.1 ppm by ICP-MS
Rb	0.2 ppm by ICP-MS
Ta	0.5 ppm by ICP-MS
Li	10 ppm by ICP-OES

11.2.8 2021 Analytical Procedure

The AGAT facilities are ISO 9001:2008 certified. Sample blanks along with tantalum, lithium, rubidium, and cesium certified reference material were routinely inserted into the sample stream in accordance with industry recommended practices. Field duplicate samples were also taken in accordance with industry recommended practices.

Table 11-25 summarizes the analytical methods used on the channel and diamond drill core samples. The detection limit for the four elements is summarized in Table 11-26. At no time was an employee of Frontier involved in the analytical process.

Table 11-25: 2021 Analytical Methodology - AGAT

Analytical Method	AGAT Drill Core and Channels Samples	Code
ICP-OES/ICP-MS Finish; Sodium Peroxide fusion	Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Dy, Er, Eu, Fe, Ga, Gd, Ge, Hf, Ho, In, K, La, Li, Lu, Mg, Mn, Mo, Nb, Ni, P, Pb, Pr, Rb, S, Sb, Sc, Si, Sm, Sn, Sr, Ta, Tb, Th, Ti, Tl, Tm, U, V, W, Y, Tb, Zn	201-378
ICP-OES Finish; Lithium Borate Fusion	Al_2O_3, BaO, CaO, Cr_2O_3, Fe_2O_3, K_2O, MgO, MnO, Na_2O, P_2O_5, SiO_2, TiO_2, SrO and LOI	201-076
Ion Selective Electrode	F	201-044

Table 11-26: 2021 Analytical Detection Limits - AGAT

Element	AGAT Detection Limits and Finish
Cs	0.1 ppm by ICP-MS
Rb	0.2 ppm by ICP-MS
Ta	0.5 ppm by ICP-MS
Li	10 ppm by ICP-OES

11.2.9 2022 Analytical Procedure

The AGAT facilities are ISO 9001:2008 certified. Sample blanks along with tantalum, lithium, rubidium, and cesium certified reference material were routinely inserted into the sample stream in accordance with industry recommended practices. Field duplicate samples were also taken in accordance with industry recommended practices.

Table 11-27 summarizes the analytical methods used on the channel and diamond drill core samples. The detection limit for the four elements is summarized in Table 11-28. At no time was an employee of Frontier involved in the analytical process.

Table 11-27: 2022 Analytical Methodology - AGAT

Analytical Method	AGAT Drill Core and Channels Samples	Code
ICP-OES/ICP-MS Finish; Sodium Peroxide fusion	Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Dy, Er, Eu, Fe, Ga, Gd, Ge, Hf, Ho, In, K, La, Li, Lu, Mg, Mn, Mo, Nb, Ni, P, Pb, Pr, Rb, S, Sb, Sc, Si, Sm, Sn, Sr, Ta, Tb, Th, Ti, Tl, Tm, U, V, W, Y, Tb, Zn	201-378 238-378
ICP-OES Finish; Lithium Borate Fusion	Al_2O_3, BaO, CaO, Cr_2O_3, Fe_2O_3, K_2O, MgO, MnO, Na_2O, P_2O_5, SiO_2, TiO_2, SrO and LOI	201-076 238-076

Table 11-28: 2022 Analytical Detection Limits - AGAT

Element	AGAT Detection Limits and Finish
Cs	0.1 ppm by ICP-MS
Rb	0.2 ppm by ICP-MS
Ta	0.5 ppm by ICP-MS
Li	10 ppm by ICP-OES

11.2.10 2023 Analytical Procedure

The AGAT facilities are ISO 9001:2008 certified. Sample blanks along with tantalum, lithium, rubidium, and cesium certified reference material were routinely inserted into the sample stream in accordance with industry recommended practices. Field duplicate samples were also taken in accordance with industry recommended practices.

Table 11-27 summarizes the analytical methods used on the channel and diamond drill core samples. The detection limit for the four elements is summarized in Table 11-28. At no time was an employee of Frontier involved in the analytical process. Samples from the 2023 drilling program were not in the areas of the mineral resource estimates and do not impact the results of the block models

Table 11-29: 2023 Analytical Methodology - AGAT

Analytical Method	AGAT Drill Core and Channels Samples	Code
ICP-OES/ICP-MS Finish; Sodium Peroxide fusion	Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Dy, Er, Eu, Fe, Ga, Gd, Ge, Hf, Ho, In, K, La, Li, Lu, Mg, Mn, Mo, Nb, Ni, P, Pb, Pr, Rb, S, Sb, Sc, Si, Sm, Sn, Sr, Ta, Tb, Th, Ti, Tl, Tm, U, V, W, Y, Tb, Zn	201-378 238-378
ICP-OES Finish; Lithium Borate Fusion	Al_2O_3, BaO, CaO, Cr_2O_3, Fe_2O_3, K_2O, MgO, MnO, Na_2O, P_2O_5, SiO_2, TiO_2, SrO and LOI	201-076 238-076

Table 11-30: 2023 Analytical Detection Limits - AGAT

Element	AGAT Detection Limits and Finish
Cs	0.1 ppm by ICP-MS
Rb	0.2 ppm by ICP-MS
Ta	0.5 ppm by ICP-MS
Li	10 ppm by ICP-OES

11.3 Quality Assurance / Quality Control

11.3.1 Blanks

Blank samples were inserted into the sample stream at an approximate interval of every 14 to 22 samples. Lump carbonate to be used as blank material was purchased from Home Hardware in Val Caron for the Phase III program, from Canadian Tire Corp. in Dryden for the Phase IV to Phase VII, and from Home Hardware in Red Lake for Phases VIII to XII.

A failure of a blank is deemed to be three times the detection limit. Sporadic samples had individual fails.

Figure 11-1 charts the blank samples submitted during the various drilling phases at PAK.

Figure 11-2 charts the blank samples submitted during the various drilling phases at Spark.

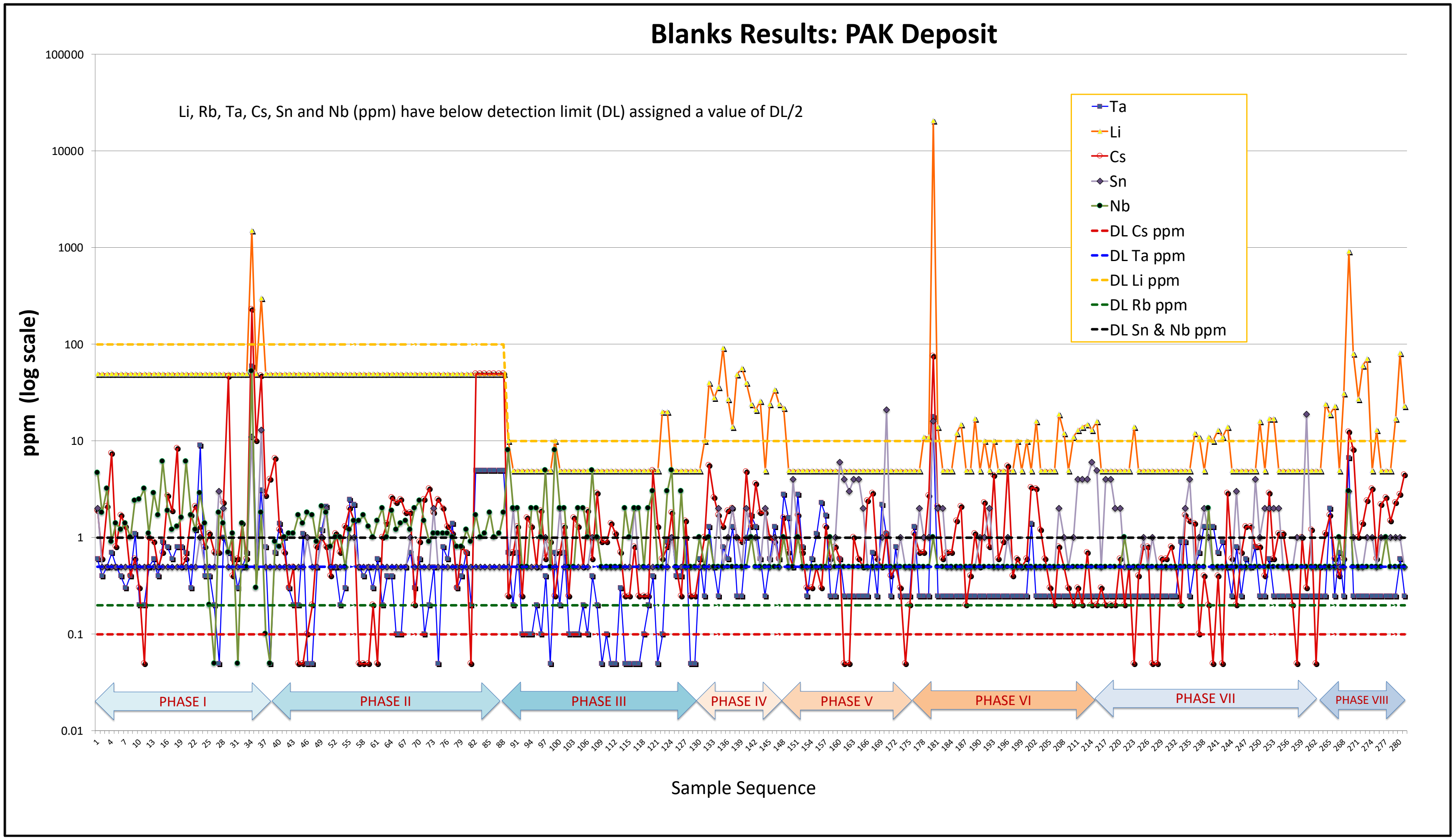


Figure 11-1: PAK Blank Control Samples

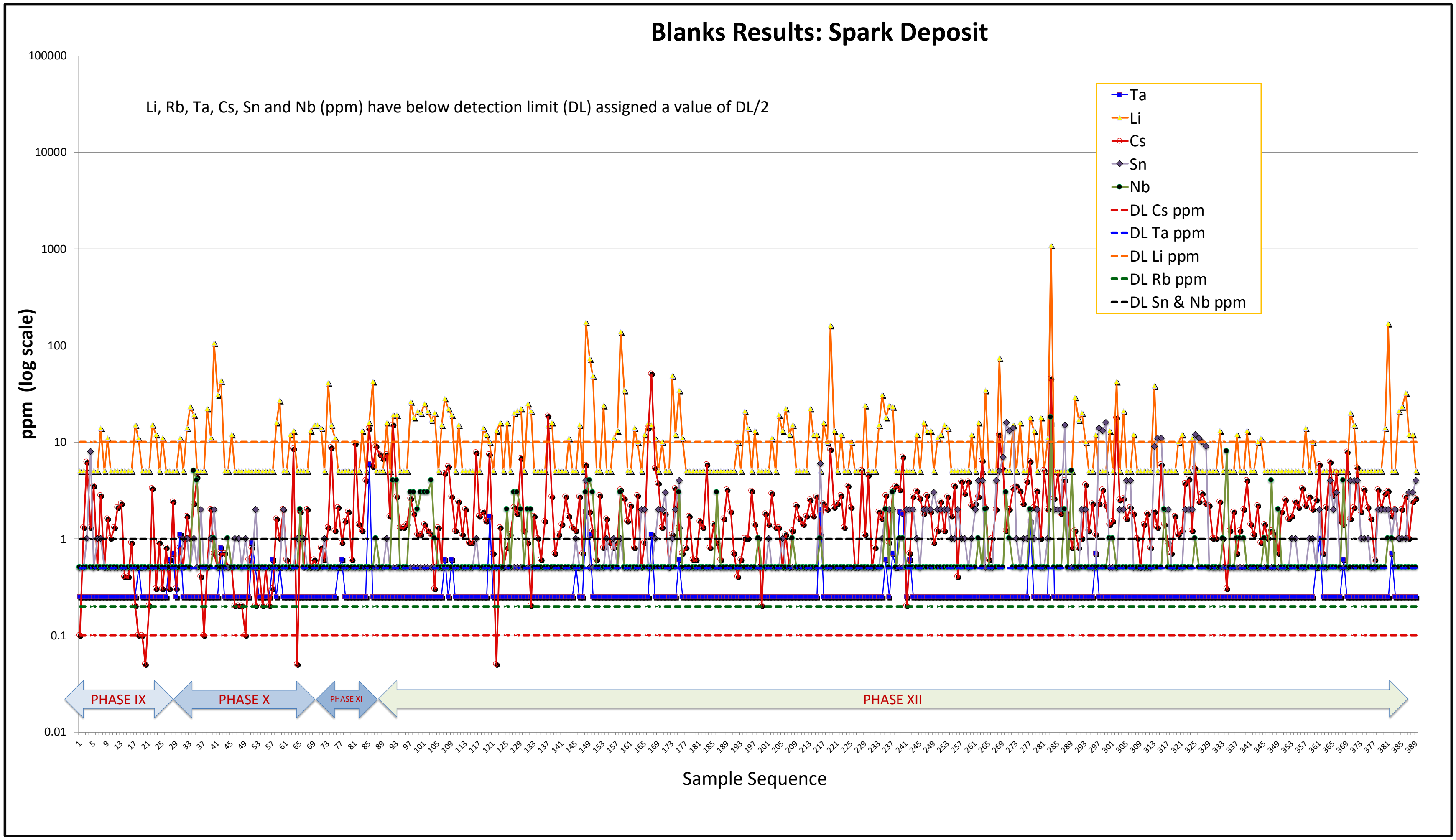


Figure 11-2: Spark Blank Control Samples

11.3.2 Duplicated

A field duplicate is inserted approximately every twentieth sample. The duplicate is generated cutting the half core into quarter core and submitting in separate samples bags with sequential sample numbers. Figure 11-3 displays a good correlation between the original and duplicate sample at both PAK and Spark.

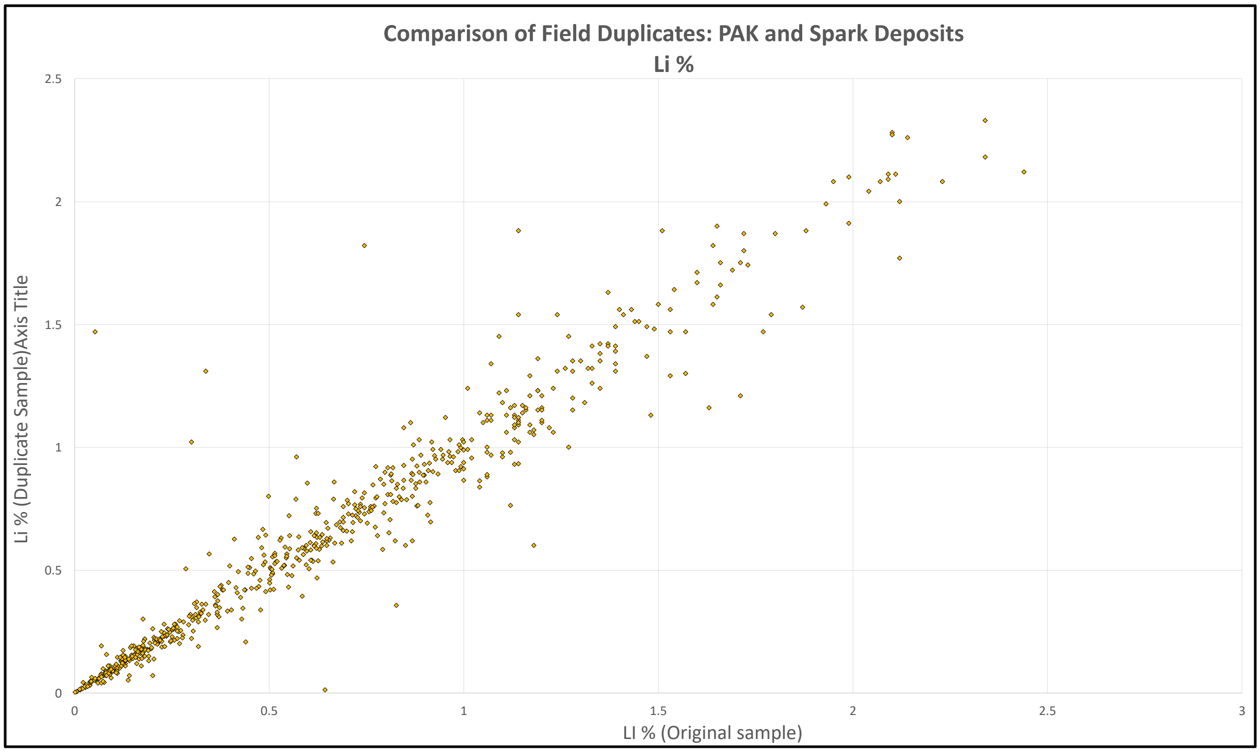


Figure 11-3: Original Versus Duplicate Control Samples

11.3.3 Standards

Frontier developed a set of in-house lithium-rubidium-cesium ("LRC") standards at Actlabs in Ancaster, Ontario, using material from the Tanco Pegmatite. This material was deemed appropriate as both pegmatites have very similar mineralogy with respect to both the economic mineralogy and the matrix. The materials were blended for Li_2O and Cs_2O composition with target compositions for Li and Cs as listed in Table 11-31. No blending was done for the rubidium. The rubidium value is the inherent rubidium from the pollucite (Cs source) and the K-feldspar in the matrix.

Tantalum certified reference material (TAN-01) was purchased from Canmet in Ottawa, Ontario and used during the 2013 drilling program only. The TAN-01 standard is approximately 10 times greater than the average Ta concentration of the pegmatite, so an in-house tantalum standard (PLTA-01) was developed and used during the 2014 drilling and channel sampling. The tantalum value for the PLTA01 reference material is found in Table 11-31.

Table 11-31: Composition of Standards

CRM Designation	Target Composition				Comment
	Li_2O%	Cs_2O%	Rb_2O%	Ta_2O_5%	
LRC-1	0.86	0.66	0.80	-	
LRC-2	2.38	2.23	0.60	-	
LRC-3	3.39	4.34	0.48	-	
LRC-4	3.36	8.49	0.45	-	Insufficient samples to chart
PLTA-01	-	-	0.43	0.02	Insufficient samples to chart

11.3.3.1 LRC-1

A total of 201 samples have been submitted over the twelve phases of drilling. The accuracy of the samples is 2.15% and the precision is 3.49%, well within acceptable industry standards. Starting in Phase X, AGAT adjusted the Standard Operating Procedure ("SOP") of due matrix interference of the sample, the internal standard results were being skewed high. The resulting adjustment improved the accuracy of the results yet induced lower precision (Figure 11-4).

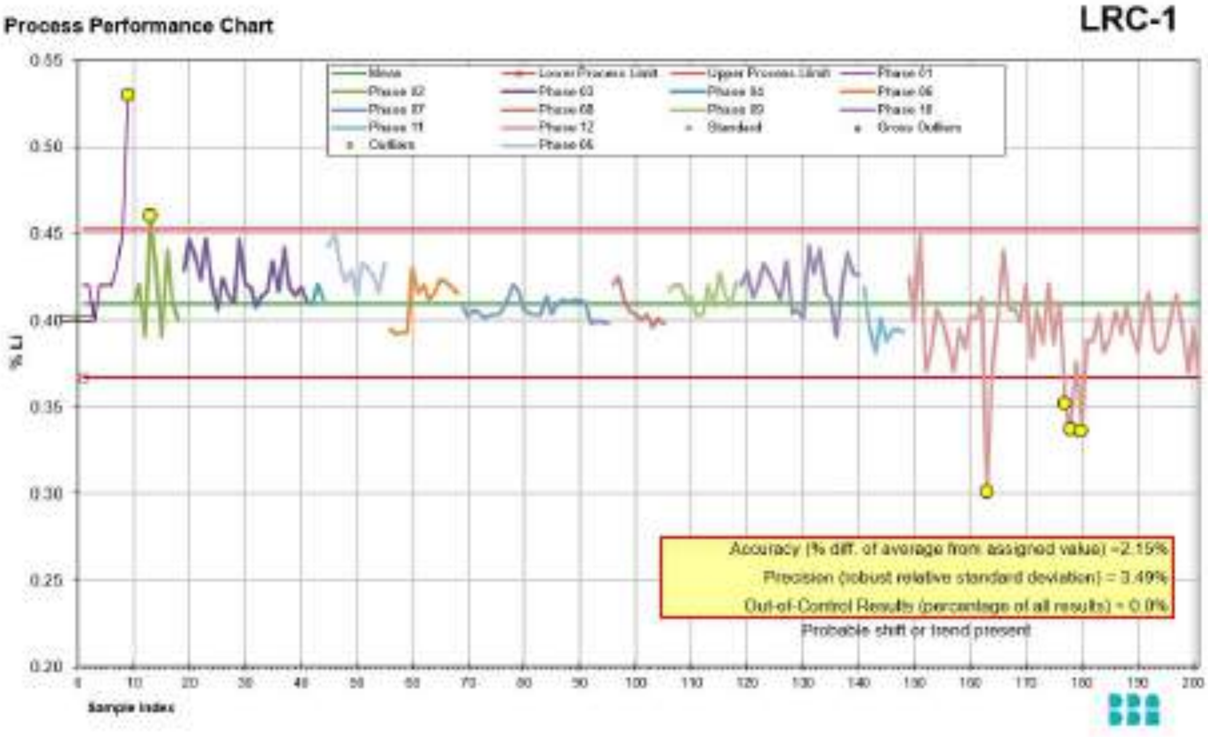


Figure 11-4: LRC-1 Standard Chart

11.3.3.2 LRC-2

A total of 147 samples have been submitted over six phases of drilling. The accuracy of the samples is 0.77% and the precision is 4.189%. Although within acceptable industry standards, the precision is high (Figure 11-5).

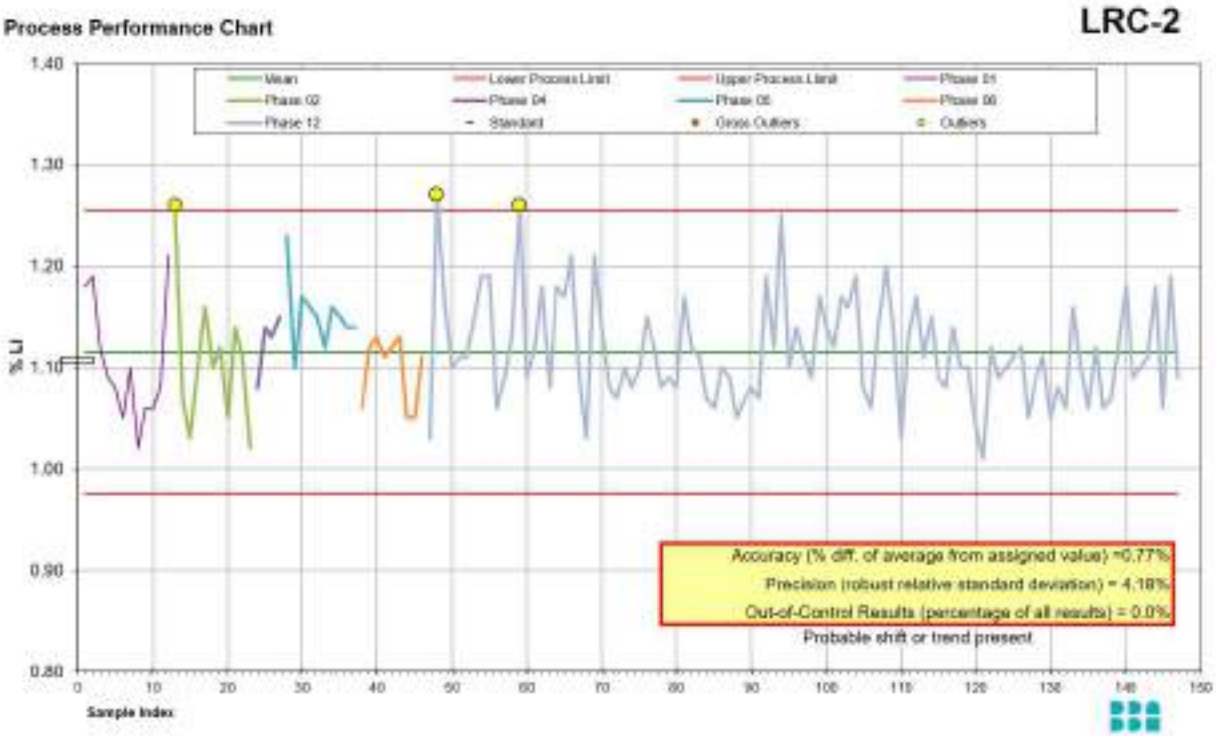


Figure 11-5: LRC-2 Standard Chart

11.3.3.3 LRC-3

A total of 284 samples have been submitted over eleven phases of drilling. The accuracy of the samples is -1.25% and the precision is 3.88%, well within acceptable industry standards. Starting in Phase 10, AGAT adjusted the SOP of due matrix interference of the sample, the internal standard results were being skewed high. The resulting adjustment improved the accuracy of the results yet induced lower precision (Figure 11-6).

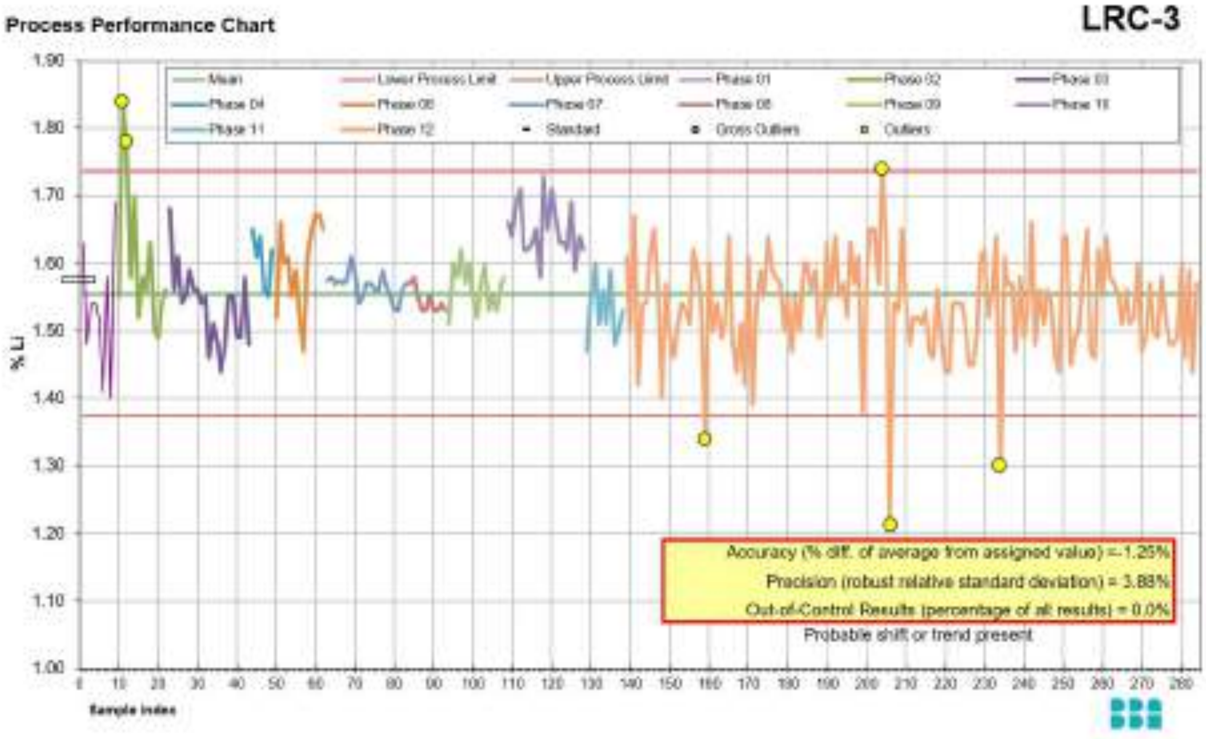


Figure 11-6: LRC-3 Standard Chart

11.4 QP's Opinion

It is the QP's opinion that the sample preparation and analytical procedures put in place by Frontier meet acceptable industry standards and that the information can be used for geological and resource modelling.

12. Data Verification

12.1 Site Investigation

Mr. Todd McCracken, P.Geo., visited the Property on the following dates:

- October 1 to 2, 2013;
- July 13 to 14, 2015;
- February 8 to 10, 2021;
- September 11 to 14, 2022.

Mr. McCracken examined the Project setting, the bulk sample site, the PAK and Spark pit locations, the potential TMF location, the potential routing for the access road, general area for the concentrator plant, office and camps, reviewed numerous drill collar sites, and channel samples. He inspected the geology and the drilling, logging and sampling procedure while on site.

Mr. McCracken also visited the Frontier cutting facility and core storage in Val Caron on September 30, 2013; June 7, 2014; June 20, 2015; and December 19, 2019.

Ms. Joanne Robinson, P.Eng. visited the Property on the following dates:

- July 13 to 14, 2015;
- September 11 to 14, 2022.

Ms. Robinson examined the Project setting, the bulk sample site, the PAK and Spark pit locations, the potential TMF location, the potential routing for the access road and the general area for the concentrator plant, offices and camps.

Mr. David Willock, P.Eng. visited the Property on the following date:

- September 11 to 14, 2022.

Mr. Willock examined the Project setting, the bulk sample site, the PAK and Spark pit locations, the potential TMF location, the potential routing for the access road and the general area for the concentrator plant, offices and camps.

Ms. Darlene Nelson, P.Eng. visited the Property on the following dates:

- September 17 to 20, 2021;
- July 22 to 27, 2022.

Ms. Nelson examined the Project setting, the Spark pit location, geotechnical drillhole collar locations and reviewed drill core at the drills and in the core logging facility.

12.2 Collar Validation

The QP confirmed the locations of six surface borehole collars during the site visit in 2013. The QP collected the collar locations using a handheld GPS unit. All collar locations were located within the acceptable error limit of the handheld GPS unit (Table 12-1).

Table 12-1: 2013 Drill Collar Validation

Collar	Frontier		QP		Difference (m)
	UTM Easting	UTM Northing	UTM Easting	UTM Northing	
PL-13-001	474558	582783,2	474559	5827831	1.4
PL-13-002	474451	5827832	474452	5827831	1.4
PL-13-003	474421	5827963	474422	5827965	2.2
PL-13-004	474492	5827908	474494	5827907	2.2
PL-13-005	474526	5828046	474526	5828043	3.0
PL-13-006	474608	5827944	474610	5827943	2.2

The QP confirmed the locations of 16 surface borehole collars during the site visit in 2015. The QP collected the collar locations using a handheld GPS unit. All collar locations were located within the acceptable error limit of the handheld GPS unit (Table 12-2).

Table 12-2: 2015 Drill Collar Validation

Collar	Frontier		QP		Difference (m)
	Easting	Northing	Easting	Northing	
PL-02-14	474452	5827832	474450	5827833	2.2
PL-07-14	474414	5828058	474418	5828060	4.5
PL-08-14	474356	5828091	474361	5828086	7.1
PL-09-14	474555	5827838	474557	5827835	3.6
PL-10-15	474610	5827809	474604	5827807	6.3
PL-11-14	474448	5827953	474448	5827949	4.0
PL-12-14	474404	5827978	474402	5827980	2.8
PL-13-14	474571	5827851	474569	5827846	5.4
PL-15-15	474586	5827967	474585	5827965	2.2
PL-16-15	474637	5827977	474635	5827975	2.8
PL-17-15	474667	5827978	474667	5827977	1.0

Collar	Frontier		QP		Difference (m)
	Easting	Northing	Easting	Northing	
PL-18-15	474475	5828063	474475	5828063	0.0
PL-19-15	474636	5827869	474629	5827864	8.6
PL-20-15	474520	5827899	474521	5827897	2.2
PL-21-15	474494	5828042	474490	5828039	5.0
PL-22-15	474749	5827817	474749	5827819	2.0

The QP confirmed the locations of six surface borehole collars during the site visit in 2021. The QP collected the collar locations using a handheld GPS unit. All collar locations were located within the acceptable error limit of the handheld GPS unit (Table 12-3).

Table 12-3: 2021 Drill Collar Validation

Collar	Frontier		QP		Difference (m)
	Easting	Northing	Easting	Northing	
PL-039-19	472706	5829361	472704	5829361	2.0
PL-040-19	472961	5829377	472962	5829380	3.2
PL-041-19	472785	5829552	472784	5829550	2.2
PL-042-19	472706	5829593	Could not locate in deep snow		
PL-043-19	472858	5829585	472859	5829585	1.0
PL-044-19	472631	5829499	472629	5829500	2.2
PL-045-19	472881	5829388	472882	5829394	6.1

The QP confirmed the locations of 11 surface borehole collars during the site visit in 2022. The QP collected the collar locations using a handheld GPS unit. All collar locations were located within the acceptable error limit of the handheld GPS unit (Table 12-4).

Table 12-4: 2022 Drill Collar Validation

Collar	Frontier		QP		Difference (m)
	Easting	Northing	Easting	Northing	
PL-38-19	472800	5829387	472797	5829386	4.1
PL-60-22	472749	5829559	472754	5829556	5.8
PL-62-22	472712	5829596	472716	5829594	4.5
PL-65-22	472686	5829583	472689	5829580	4.2
PL-66-22	472732	5829371	472725	5829366	8.6
PL-67-22	472778	5829383	472778	5829376	7.0
PL-72-22	472847	5829384	472856	5829385	9.1
PL-73-22	472816	5829589	472813	5829592	4.2
PL-75-22	472571	5829490	472568	5829491	3.2
PL-80-22	472687	5829511	472689	5829502	9.2
PL-82-22	472718	5829455	472718	5829455	0.0

12.3 Independent Sampling

The QP did not collect any independent samples from drill core or channel samples. Spodumene crystals are easily observed in the drill core and in the exposed outcrop.

12.4 Database Validation

The QP validated 100% of the digital database against the drill logs and assay certificates. No errors were identified.

All assays in the database were converted to oxide values using the conversion available on the British Columbia's Ministry of Energy and Mines website (www.empr.gov.ba.ca). Table 12-5 lists the conversion factors used.

Table 12-5: Conversion Factors

Element	Conversion	Oxide
Cs	1.06	Cs_2O
Rb	1.094	Rb_2O
Ta	1.221	Ta_2O_5
Li	2.153	Li_2O

12.5 QP's Opinion

It is the QP's opinion that the sampling practices of Frontier meet current industry standards. The QP also believes that the sample database provided by Frontier and validated by the QP is suitable to support the Mineral Resource Estimation.

13. Mineral Processing and Metallurgical Test Work

13.1 Introduction

Extensive metallurgical test work has been conducted on a number of samples from the PAK and Spark Deposits between 2016 and 2023. In addition to characterizing the modal mineralogy and liberation characteristics of samples, the test work has allowed the determination of typical comminution and mineral processing behaviour. This information has in turn been used to develop process flowsheets for the production of technical and chemical grade concentrates (detailed in Chapter 17). The test work discussed in this chapter was completed initially at bench scale and was followed up with a pilot scale program in early 2022.

The early rounds of lab scale test work, completed at Expert Process Solutions ("XPS") in Sudbury, were focused primarily on samples of mineralization from the PAK Deposit. In 2021, testing switched to SGS Canada Inc. ("SGS") in Lakefield, and this program examined samples of mineralization from the Spark Deposit before piloting a bulk sample consisting of a Spark and PAK mineralization blend.

13.1.1 PAK Deposit

The PAK Deposit has been delineated into three distinct lithologies including the Upper Intermediate Zone ("UIZ"), Central Intermediate Zone ("CIZ") and Lower Intermediate Zone ("LIZ"). The LIZ encompasses the majority of the deposit and contains a lower lithia content than the UIZ. These zones are shown in plan view in Figure 13-1 (UIZ=yellow, CIZ=blue, LIZ=brown).

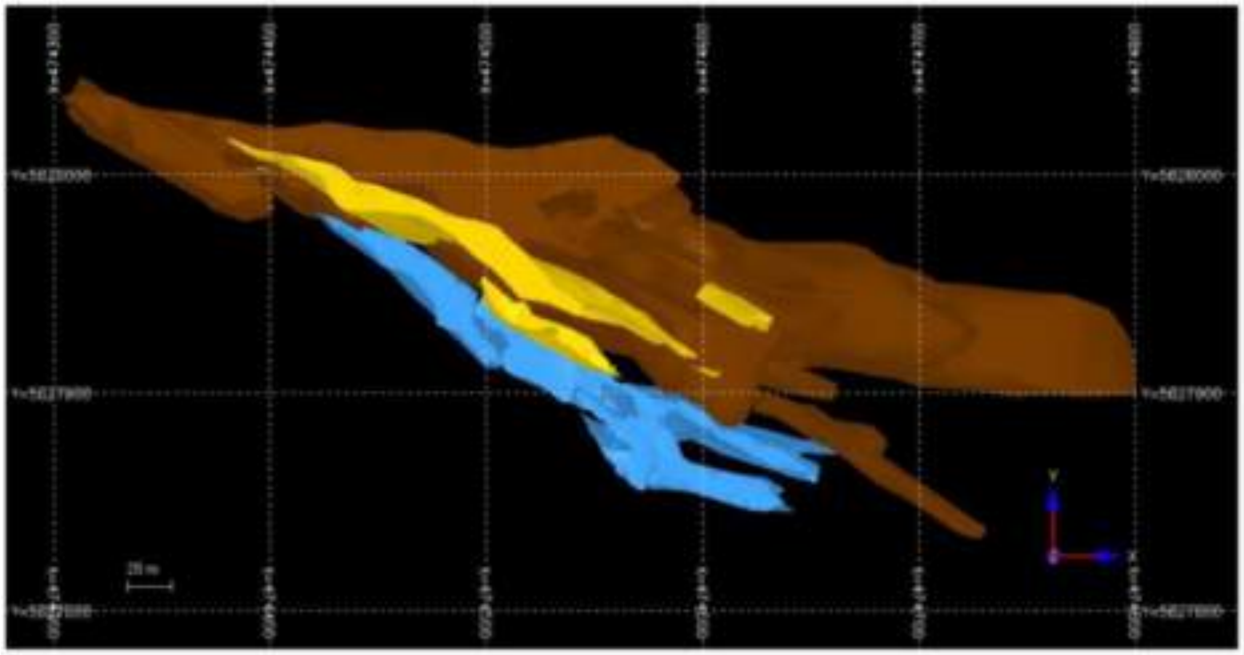


Figure 13-1: PAK Deposit, Pegmatite Zones in Plan View
(Source: SGS Geosol, 2016)

The relatively low-iron content of spodumene within the PAK Deposit makes it suitable for the production of a higher quality, higher value "Technical Grade" concentrate typically used in the glass and ceramic industries.

13.1.2 Spark Deposit

The Spark Deposit contains two lithologies that includes the LIZ, (due to its similarity to the LIZ from the PAK Deposit), and Aplite zones. However, the two lithologies have not been delineated within the deposit at this stage and so the entire Spark Deposit is considered as a single bulk pegmatite unit.

In contrast to PAK mineralization, the slightly higher iron content of spodumene from the Spark Deposit means that this resource is better suited to production of an "SC6" concentrate for use in the lithium chemicals market. The metallurgical development and associated flowsheets for Spark reflect this fundamental difference.

13.2 Historical Test Work (XPS, 2016-2021)

An exploratory program of metallurgical flowsheet development test work was carried out at XPS (Expert Process Solutions) in Sudbury between 2016 and 2019, and this focused primarily on samples from the PAK Deposit. The work details a series of preliminary tests that examine the mineralogy and mineral processing characteristics of numerous composites made up from five main sample (UIZ, CIZ, LIZ, Granite, Metasediment).

13.2.1 Sample Selection (PAK)

Initial sample selection followed the guidance provided by the SGS Geostat Sample Selection Report (Halliday, 2016). Approximately 300 kg of surface to near surface representative material was collected from each of the three main PAK Deposit pegmatite units in 2015 and 2016. The material consisted exclusively of channel cuts for the LIZ, a combination of channel cuts and 12 mm pre-crushed material from drill core samples for the CIZ and blasted rock from two sites (1 t and 300 t bulk sample sites) for the UIZ. In addition to the pegmatite units, drill core was quartered to include material from the granite and metasedimentary host rock (March 2017). The material received for each sample was crushed, blended, and subsampled for initial characterization. Head assays were measured in duplicate and reported as averages, summarized in Table 13-1.

Table 13-1: Bulk Samples for Metallurgical Testing, PAK Deposit (Source: XPS, 2016)

	Composition (%)							Composition (ppm)					
	Li_20	Al_2O_3	SiO_2	Fe_20_3	Na_20	K_20	P_2O_5	Cs	Rb	Ta	Nb	F	B
UIZ	4.68	17.4	77.4	0.11	0.35	0.24	0.11	304	309	14	2	700	20
CIZ	1.23	14.3	75.5	0.30	1.97	4.82	0.62	967	5,925	142	69	9,930	336
LIZ	1.89	16.0	73.3	0.47	2.36	2.78	0.20	271	2,750	135	46	1,275	285
Granite	0.18	13.4	75.7	0.94	3.65	4.27	0.07	425	875	7	12	1,080	71
Metased.	0.17	8.0	62.5	20.7	0.35	0.60	0.16	80	358	8	8	920	320

These main "Unit" samples were used to formulate various composites for early characterization and flowsheet development work. This is reported in detail in various communications from XPS, including several test work options that were ultimately unsuccessful in advancing the flowsheet.

Following on from this exploratory work, a new composite sample of PAK mineralization was created in 2019 (XPS ID: FRON-19) for a program of locked cycle flotation test work. The FRON-19 sample was prepared from 194 drill core intervals selected to represent the early years of mine production (using preliminary mine plans). The 400-kg composite included approximately 5% dilution (granite & metasediments). The FRON-19 composition is summarized in Table 13-2.

Table 13-2: FRON-19 Composition
(Source: Frontier, 2016)

Lithology	# of Samples	% Dist.	Average Li_2O %	Average Fe_2O_3 %
LIZ	120	61.9%	2.03	0.61
BX LIZ	3	1.5%	2.47	0.56
Aplite	28	14.4%	0.84	0.60
Sheared Aplite	1	0.5%	0.90	0.52
UIZ	29	14.9%	3.66	0.51
BX UIZ	1	0.5%	2.22	0.89
Wall Zone	2	1.0%	0.90	0.64
CIZ	3	1.5%	1.54	0.90
Contact Zone	1	0.5%	0.40	1.15
Granite	2	1.0%	0.58	0.92
Sheared Granite	2	1.0%	0.32	0.99
Felsic Metased	2	1.0%	0.28	0.53
Total	**194**	**100%**		

Composite grades are summarized in Table 13-3. A grade of 330 ppm boron represents approximately 1% tourmaline, which was similar to previous samples tested.

Table 13-3: FRON-19 Head Grade
(Source: XPS, 2020)

Sample	Li_2O %	Al_2O_3 %	SiO_2 %	Fe_2O_3 %	Na_2O %	K_2O %	P_2O_5 %
FRON-19	2.10	15.9	73.1	0.38	2.62	2.64	0.30
Sample	**Cs (ppm)**	**Rb (ppm)**	**Ta (ppm)**	**Nb (ppm)**	**F (ppm)**	**B (ppm)**	**As (ppm)**
FRON-19	380	2,892	91	52	1,830	328	164

One further PAK sample was prepared towards the end of the XPS program. FRON-20 was prepared using channel material (70/30 split from Channel 28/Channel 10 respectively) with a total mass of 487 kg. The channel samples were typically coarse and required crushing to -12 mm as part of DMS testing at Sepro, Langley BC.

13.2.2 Sample Selection (Spark)

Two composite samples of Spark mineralization (Spark-1 and Spark-2) were prepared (XPS ID: FRON-21) from coarse pre-crush material from two drillholes (PL-044-19 and PL-045-19).

Spark-1 is comprised of 142 kg of material, with a Li_2O grade of 1.67%, while Spark-2 is comprised of 74 kg of material with a Li_2O grade of 1.80%.

13.2.3 Mineralogy and Lithology (PAK)

Modal mineralogy and mineral liberation characteristics of each pegmatite sample were measured by XPS as part of the initial FRON-10 metallurgical development program. Each sample was crushed to 100% passing 1.7 mm and then screened into four size fractions, namely -1,700/+850 µm, -850/+300 µm, -300/+53 µm, and -53 µm. The following sections outline the results of this mineralogical characterization work.

13.2.3.1 Upper Intermediate Zone

The modal mineralogy for the UIZ sample is summarized in Table 13-4, and this highlights the high concentrations of spodumene and quartz. The spodumene is noted to be highly associated with quartz in intricate intergrowths, termed SQUI, similar to the textures at Tanco's Bernic Lake Mine. This is believed to have been caused from the alteration of primary petalite ($LiAlSi_4O_{10}$) to spodumene ($LiAl(SiO_3)_2$) and quartz (SiO_2) according to the following reaction:

$LiAlSi4O10 \rightarrow LiAl(SiO_3)_2 + 2{\cdot}SiO_2$

**Table 13-4: UIZ Modal Mineralogy
(Source: XPS, 2016)**

	-1,700/+850 µm	-850/+300 µm	-300/+53 µm	-53 µm	Combined
Spodumene	39.8	54.2	66.5	66.0	55.5
Quartz	52.3	42.9	30.0	30.4	40.0
Microcline	0.57	0.17	0.09	0.23	0.26
Albite	1.66	0.89	1.06	0.69	1.14

	-1,700/+850 µm	-850/+300 µm	-300/+53 µm	-53 µm	Combined
Biotite	0.02	0.00	0.00	0.00	0.01
Muscovite	1.59	0.58	0.62	0.80	0.89
Lepidolite	1.34	0.53	0.58	0.50	0.77
Pyrophylite	1.04	0.21	0.12	0.11	0.40
Tourmaline	0.57	0.20	0.09	0.07	0.26
Apatite	0.06	0.03	0.01	0.01	0.03
Montebrasite	0.40	0.24	0.14	0.22	0.25
Other	0.67	0.06	0.74	1.00	0.54

The liberation of spodumene was also assessed and particles were assigned the following liberation classes:

- **Free** – particles containing 100% spodumene;
- **Liberated** – particles containing greater than 95% spodumene, but less than 100%;
- **High-Grade Mids** – particles containing greater than 80% spodumene, but less than 95%;
- **Low-Grade Mids** – particles containing greater than 30% spodumene, but less than 80%;
- **Locked** – particles containing less than 30% spodumene.

The proportion of spodumene particles within these liberation classes in each size fraction is given in Table 13-5. To achieve the grade requirement of 7.2% Li_2O, an average liberation of spodumene of 90% is required (assuming that spodumene contains 8% Li_2O and there is no further dilution from other minerals/particles). Therefore, a grind size in the order of -300 µm (80% passing ~212 µm) is expected to give good performance, which is typically the maximum for conventional spodumene flotation.

Table 13-5: UIZ Spodumene Liberation
(Source: XPS, 2016)

	-1,700/+850 µm	-850/+300 µm	-300/+53 µm	-53 µm	Combined
Locked	2.01	1.07	0.65	0.8	1.17
Low-Grade Mids	48.6	23.9	10.0	4.55	24.5
High-Grade Mids	22.6	23.9	20.6	7.35	21.0
Liberated	26.3	49.9	61.1	47.2	46.7
Free	0.53	1.19	7.58	40.1	6.61

13.2.3.2 Central Intermediate Zone

The modal mineralogy of the CIZ sample is summarized in Table 13-6. As discussed above, the mineralogy of the CIZ zone is quite different from the UIZ as spodumene is a fairly minor component of the sample and lepidolite (a lithium-rich mica) represents a larger proportion of the total lithium.

Table 13-6: CIZ Modal Mineralogy
(Source: XPS, 2016)

	-1,700/+850 µm	-850/+300 µm	-300/+53 µm	-53 µm	Combined
Spodumene	7.03	6.28	6.16	4.17	6.19
Quartz	33.8	42.8	45.4	32.6	40.5
Microcline	20.9	19.9	14.3	23.8	18.4
Albite	11.5	10.9	16.7	17.9	14.0
Biotite	0.10	0.01	0.01	0.07	0.04
Muscovite	6.40	4.90	3.64	5.61	4.87
Lepidolite	16.6	10.9	10.0	12.6	12.1
Pyrophylite	1.56	1.37	0.47	0.25	0.96
Tourmaline	0.31	1.46	1.62	1.02	1.19
Apatite	1.03	1.12	1.02	1.36	1.09
Montebrasite	0.28	0.32	0.68	0.51	0.46
Other	0.41	0.09	0.01	0.13	0.14

The liberation of spodumene in the size fractions of the CIZ sample is summarized in Table 13-7. As the content of spodumene is fairly low in the CIZ sample, it is unsurprising that liberation is poor in comparison to the UIZ. As a result, processing of the CIZ mineralization is expected to require finer grinding and alternative processing methods to successfully produce a lithium concentrate.

Table 13-7: CIZ Spodumene Liberation
(Source: XPS, 2016)

	-1,700/+850 µm	-850/+300 µm	-300/+53 µm	-53 µm	Combined
Locked	6.42	4.35	2.58	16.0	5.43
Low-Grade Mids	50.4	34.0	13.4	9.21	27.7
High-Grade Mids	20.6	25.0	28.3	16.0	24.2
Liberated	22.2	35.1	45.6	22.8	34.6
Free	0.43	1.48	10.1	36.0	8.13

13.2.3.3 Lower Intermediate Zone

The modal mineralogy of the LIZ sample contains a similar mineral assemblage as the UIZ, but spodumene and quartz are present in lower proportions. As can be seen from Table 13-8, spodumene and quartz are still the predominate minerals present in the LIZ sample, but feldspars such as albite and microcline and muscovite mica are present in higher quantities.

Table 13-8: LIZ Modal Mineralogy
(Source: XPS, 2016)

	-1,700/+850 µm	-850/+300 µm	-300/+53 µm	-53 µm	Combined
Spodumene	31.1	29.8	19.9	12.1	24.7
Quartz	29.1	36.3	38.6	36.6	35.2
Microcline	15.4	10.6	8.23	12.9	11.3
Albite	11.6	9.90	21.9	25.4	16.2
Biotite	0.05	0.13	0.18	0.09	0.12
Muscovite	8.90	9.79	8.07	6.54	8.60
Lepidolite	0.93	0.75	0.44	3.47	0.99
Pyrophylite	0.29	0.05	0.46	0.36	0.29
Tourmaline	2.27	2.15	1.76	1.25	1.95
Apatite	0.36	0.34	0.34	1.03	0.42
Montebrasite	0.01	0.00	0.01	0.03	0.01
Other	0.06	0.19	0.17	0.13	0.14

The liberation of spodumene is given in Table 13-9. This highlights a similar liberation range as the UIZ and a grind in the order of -300 (80% passing ~212 µm) is expected to offer good metallurgical performance.

Table 13-9: LIZ Spodumene Liberation
(Source: XPS, 2016)

	-1,700/+850 µm	-850/+300 µm	-300/+53 µm	-53 µm	Combined
Locked	2.25	0.81	0.72	3.35	1.44
Low-Grade Mids	30.4	10.7	7.40	5.89	14.1
High-Grade Mids	23.3	20.6	18.0	8.57	19.0
Liberated	43.1	67.2	64.5	45.8	57.7
Free	0.97	0.72	9.31	36.3	7.75

13.2.3.4 Lithium Deportment

The lithium deportment for each of the three PAK Deposit mineralized zones was measured, using modal mineralogy and mineral composition data (by electron microprobe and laser ablation). The results of this study, summarized in Table 13-10, highlight the fundamental mineralogical differences between the CIZ and UIZ/LIZ samples.

Table 13-10: Spodumene Deportment in PAK Mineralized Zones
(Source: XPS, 2016)

	LIZ	CIZ	UIZ
Spodumene	90.6	37.8	97.7
Lepidolite	2.44	49.7	1.07
Muscovite	2.16	2.04	0.13
Microcline	0.91	2.47	0.01
Tourmaline	3.82	3.90	0.31
Montebrasite	0.06	4.03	0.74

13.2.4 Comminution (PAK)

A number of initial comminution tests were completed on each of the PAK composites as part of the initial XPS metallurgical program. The results of this test work, reported by SGS Lakefield in 2017, are summarized in Table 13-11.

Table 13-11: Comminution Test Results Summary
(Source: SGS, 2017)

Sample Name	JK Parameters		HPi (kWh/t)	RWI (kWh/t)	BWI (kWh/t)[(1)]	AI (g)
	Rel. Dens.	Axb				
UIZ Comp 1	2.93	55	12.2	14.7	17.7	1.078
LIZ Comp 2	2.74	85.2	9.6	9.2	16.1	0.573
CIZ Comp 3	2.69	82.8	10.9	10.2	16.9	0.515

(1) The Bond ball mill work index tests were completed at a closing size of 150 µm.

The comminution data suggests that the CIZ and LIZ samples share similar physical properties, with medium-high Bond ball mill work indices, mid-range abrasion indices and similar JK Parameters. The UIZ sample appears to be more competent, with significantly higher BWI and RWI indices, higher abrasion index and a lower Axb value (lower Axb indicates higher resistance to SAG milling). Additional comminution work, also covering samples of Spark mineralization, is discussed in Section 13.3.3.

13.2.5 Mineral Processing (PAK & Spark)

Work completed as part of the initial XPS flowsheet development program included the consideration of Heavy Liquid and Dense Medium Separation (HLS and DMS), plus various mineral processing techniques (flotation, magnetic separation, desliming). Not all flowsheet combinations were successful, and certain samples were not tested due to early termination of program components.

The chronology of samples (or composites) used by XPS for various mineralogical characterization and metallurgical development work is described via the "FRON-xx" identifiers, with "xx" numbering from 10 to 21 (Table 13-12). Initial development work on early samples (FRON-10 to FRON-18) was exploratory in nature and is, for the most part, excluded from the metallurgical discussions herein. Test work completed on later samples (FRON-19 onwards) was conducted using optimized flowsheets and is more relevant to the Project.

Samples FRON-10 to FRON-20 were from the PAK Deposit while FRON-21 was from the Spark Deposit.

Table 13-12: XPS Test Work Sample Map

Sample Number	Purpose
FRON-10	Original PAK composites, derived from the 300-kg samples collected during 2015/16 and used for initial testing at XPS. Used for initial comminution (SGS) and mineralogical characterization.
FRON-11	Additional deposit-wide composite made up from FRON-10 composites. Used for additional characterization test work.
FRON-12	Material taken from the initial FRON-10 composites, including waste streams. Used for DMS upgrading work.
FRON-13	ID Not used.
FRON-14	Included additional LIZ material from Channel 28, designed to duplicate FRON-12
FRON-15	Additional 300-kg provided to XPS as -12 mm
FRON-16	Variability Samples (H/M/L grade, UIZ with granite, Run of Mine, CG with banded iron). Not used.

Sample Number	Purpose
FRON-17	Small subsample of FRON-16 identified for decrepitation/leaching work.
FRON-18	Material taken from FRON-16 mass, used for roasting/leaching work.
FRON-19	Life of mine composite sample of roughly 400 kg. Used to generate concentrate for downstream characterization.
FRON-20	Pilot plant feed sample.
FRON-21	Used for initial Spark test work, including HLS/DMS and lab scale flotation. Taken from four zones.

The initial XPS characterization work was conducted on the FRON-10 sample set and examined the mineralogy and metallurgical response of the individual PAK lithologies (UIZ, CIZ, and LIZ).

Subsequent development testing was conducted on composite samples beginning with FRON-11 that also included dilution from waste streams including granite and metasediments. Not all FRON-xx samples were used in the development program (e.g. FRON-13, FRON-16).

The work concluded with the program on FRON-21 samples from the Spark Deposit.

Due to the low-iron content of the PAK Deposit spodumene, mineral processing work focused on producing a higher quality technical grade concentrate that is suitable for production of glasses and ceramics, rather than chemical grade concentrate that is destined for producing lithium chemicals primarily used in the manufacture of Li-ion batteries.

Due to the higher quality requirements of the technical grade concentrate, low levels of phosphate and fluoride are problematic and rejection of the minerals containing these elements are required. Phosphate is contained solely in phosphate minerals such as apatite and montebrasite. A major carrier of fluoride is muscovite mica that is present in significant amounts, but also the presence of tourmaline was identified as providing a significant amount of fluoride reporting to concentrate. Rejection of muscovite mica is commonly achieved by hydraulic classification, but pre-flotation with amine collectors has also been found to be effective and used during these studies. Phosphate minerals and tourmaline can be recovered by anionic collectors such as fatty acid that is also used for the flotation of spodumene. Since the same collector is used, pre-flotation of phosphate minerals and tourmaline can inadvertently recover a significant amount of spodumene representing a loss of lithium. The recovery of non-activated spodumene is generally low and XPS found that the addition of starch or dextrin could further reduce losses to the phosphate/tourmaline concentrate.

After several rounds of preliminary test work to develop a suitable flowsheet, acceptable metallurgical performance was demonstrated with the sample tested under FRON-19. The FRON-19 sample involved a 400 kg composite that represented the life of mine average Li_2O head grade of 2.1% and compared well with the 2.06% Li_2O resource grade. As noted above, one concern noted throughout the development testing was the amount of tourmaline in various samples – where the content is indicated by the boron concentration. A grade of 330 ppm boron represents approximately 1% tourmaline, which was similar to previous samples tested.

13.2.5.1 Dense Media Separation Preconcentration (PAK)

The initial stages of FRON-19 flowsheet development work included the use of a dense media separation ("DMS") process to reject barren material and pre-concentrate the spodumene in the stream reporting to flotation. However, the spodumene mineralization at PAK is relatively fine grained compared to other projects and for this reason, production of significant amounts of DMS concentrate has always been challenging, and flowsheets have not been particularly successful.

For the initial DMS processing work, completed at Sepro Minerals Systems in Langley BC, the sample was crushed to 100% passing 12 mm and then screened at 425 µm for fines removal. The +425 µm -12 mm material was processed at a separation SG of 2.65-2.70 using ferrosilicon slurry as heavy media. These initial tests achieved a lithium recovery of 92% into approximately 60% of the mass with the grade of the resultant flotation feed raised from 2.1% to 3.2% Li_2O. Recovery of impurity elements fluoride and boron was similar to mass recovery at 60% and 54%, respectively, and this resulted in a significant decrease in the relative proportion against lithium and may have assisted subsequent flotation performance of the DMS concentrate.

13.2.5.2 Flotation of PAK Samples

The basic XPS flotation flowsheet developed for PAK is summarized in Figure 13-2, which provides an outline the processing steps and conditions (in red) used to produce a technical grade concentrate at lab scale.

Following a desliming stage to remove the primary slimes from concentrator discharge, slurry was passed to a batch concentrator (Knelson) that was used to remove tantalum and also arsenic present as arsenopyrite ($FeAsS$) and loellingite ($FeAs_2$). The Knelson concentrator tailings was passed to the mica and phosphate pre-flotation stages and then to the caustic scrubbing stage for activation of spodumene. Scrubbed slurry reported to a second desliming stage and was treated with caustic solution prior to spodumene rougher flotation. Phosphate and Spodumene cleaning stages were used to limit the losses of lithium and upgrade the spodumene concentrate grade. The spodumene concentrate was further upgraded with wet high intensity magnetic separation ("WHIMS"), which was effective at removing any iron-bearing silicate minerals present from the metasediments in the feed sample.

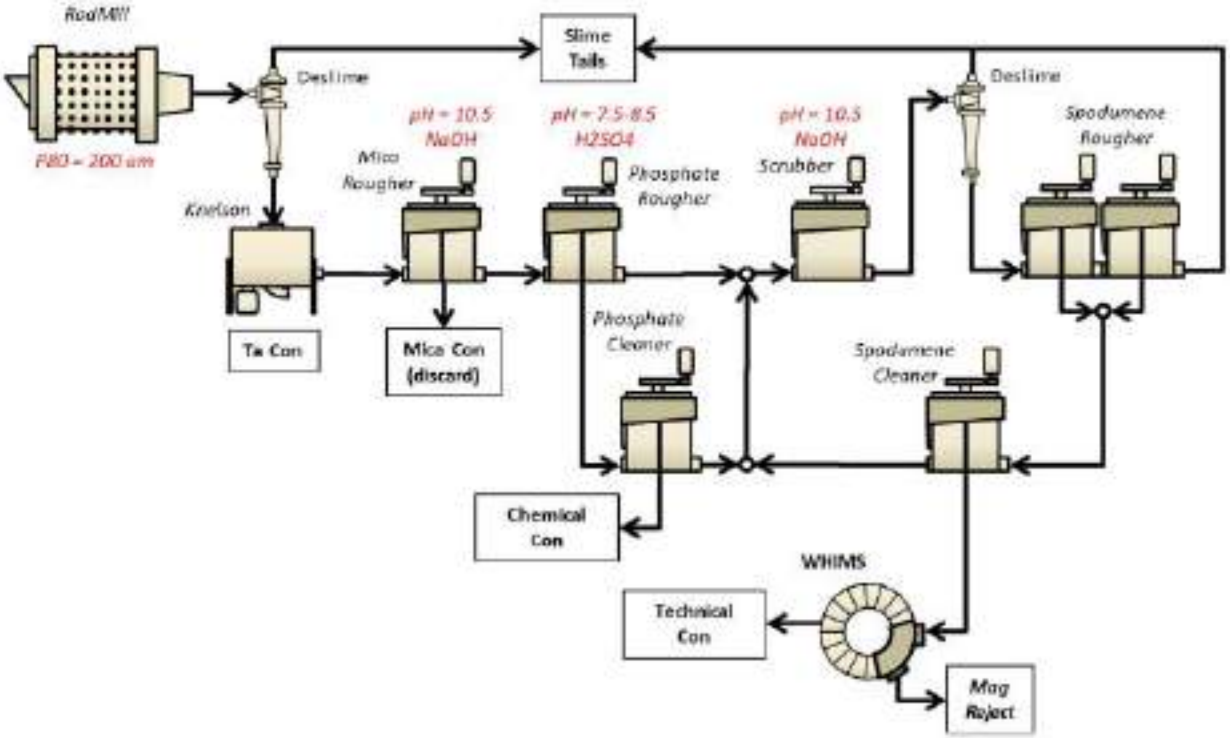


Figure 13-2: FRON-19 PAK Flotation Flowsheet
(Source: XPS, 2017)

The results of locked cycle testing of this processing flowsheet are summarized in Table 13-13. The final spodumene concentrate met the technical concentrate specifications including 7.2% Li_2O and the flowsheet achieved an overall lithium yield (recovery) of 63.7%.

Major sources of lithium losses included the mica concentrate at 10.9%, the phosphate concentrate at 10.4%, DMS rejects at 8.1%, and spodumene rougher tailing at 5.7%.

The low mass recovery to the batch Knelson concentrate resulted in low tantalum and arsenic recovery relative to what might be expected from an industrial circuit. It is customary for batch concentrators to recover low mass and high-grade fractions in gold circuits whereas with other minerals that require higher mass pulls, such as this case, then a continuous concentrator would be more appropriate and much higher tantalum and arsenic recoveries would be possible.

Table 13-13: Overall Metallurgical Results, PAK Deposit
(Source: XPS, 2017)

Stage	Product	Wt %	Assay (%)								Assay (ppm)						
			Li_2O	Al_2O_3	SiO_2	Fe_2O_3	Na_2O	K_2O	CaO	P_2O_5	Cs	Rb	Ta	Nb	F	B	As
Feed		100	2.10	15.9	73.1	0.38	2.62	2.64	0.27	0.30	380	2,892	91	52	1,830	328	164
DMS processing	DMS Reject	40.6	0.42	15.3	71.8	0.34	4.37	4.48	0.26	0.31	462	4,463	99	60	1,802	368	79
	Recalc Plant Head Grade	59.4	3.33	15.7	73.3	0.47	1.41	1.37	0.18	0.26	355	1,882	57	34	1,909	332	96
Primary slimes - Knelson Conc.	Slimes	0.8	2.05	16.2	66.8	1.97	2.01	2.60	0.71	0.69	549	2,958	70	48	5,522	248	211
	Knelson	0.1				4.86							3,741	2,043			22,203
Mica and Phosphate Flotation	Mica Conc.	8.9	2.62	18.9	66.7	1.01	1.39	3.88	0.29	0.40	1,074	6,162	103	62	7,335	307	147
	Phosphate Conc.	3.6	6.26	25.1	55.6	1.51	0.38	1.05	1.68	2.61	266	1,734	59	31	4,028	3,482	100
	High energy slimes	0.6	2.12	13.8	74.1	0.85	2.34	1.71	0.24	0.28	421	1,951	79	32	1,383	122	184
Spodumene Flotation and WHIMS	Spodumene Conc.	19.1	7.60	24.1	64.3	0.42	0.18	0.15	0.05	0.06	103	201	39	31	338	187	102
	Rock Tails	26.3	0.47	7.50	84.8	0.11	2.41	1.41	0.01	0.02	300	1,648	44	20	833	27	6
	Magnetics	0.5	5.73	23.1	53.8	11.9	0.43	0.34	0.60	0.93	150	469	724	747	2,165	3,231	450
	Final Spodumene Conc.	18.6	7.20	24.1	64.6	0.13	0.17	0.14	0.04	0.04	102	194	22	13	292	110	94
Phosphate + Spodumene Conc.		22.2	7.05	24.3	63.1	0.35	0.20	0.29	0.31	0.46	129	444	28	16	898	657	95
Stage	**Product**	**Wt %**	**Distibution (%)**														
			Li_2O	Al_2O_3	SiO_2	Fe_2O_3	Na_2O	K_2O	CaO	P_2O_5	Cs	Rb	Ta	Nb	F	B	As
Feed		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
DMS processing	DMS Reject	40.6	8.1	39.2	39.9	36.8	67.8	68.9		42.2	49.4	62.7	44.1	47.0	40.0	45.7	19.6
	Recalc Plant Head Grade	59.4	91.9	60.8	60.1	63.2	32.2	31.1		57.8	50.6	37.3	55.9	53.0	60.0	54.3	80.4
Primary slimes - Knelson Conc.	Slimes	0.8	0.8	0.9	0.8	4.0	0.6	0.8	2.8	2.1	1.1	0.8	0.8	0.9	2.5	0.6	2.0
	Knelson	0.1				0.9							3.7	3.4			18.4
Mica and Phosphate Flotation	Mica Conc.	8.9	10.9	10.8	10.8	21.7	4.7	13.1	12.1	12.8	24.0	18.7	12.4	12.4	34.9	7.9	14.6
	Phosphate Conc.	3.6	10.4	5.8	5.8	13.0	0.5	1.4	28.5	33.4	2.4	2.1	2.8	2.5	7.7	35.9	4.0
	High energy slimes	0.6	0.6	0.5	0.5	1.2	0.5	0.4	0.7	0.6	0.6	0.4	0.6	0.4	0.4	0.2	1.2
Spodumene Flotation and WHIMS	Spodumene Conc.	19.1	63.7	29.5	29.5	19.1	1.3	1.1	4.7	4.2	4.9	1.3	10.0	13.1	3.5	10.3	21.9
	Rock Tails	26.3	5.7	12.6	12.6	6.9	24.3	14.1	1.0	1.6	19.9	14.8	15.7	12.2	11.8	2.1	1.9
	Magnetics	0.5	1.2	0.7	0.7	13.3	0.1	0.1	1.3	1.5	0.2	0.1	4.5	7.8	0.5	4.3	2.4
	Final Spodumene Conc.	18.6	62.5	28.8	28.8	5.8	1.2	1.0	3.4	2.7	4.7	1.2	5.4	5.3	2.9	5.9	19.5
Phosphate + Spodumene Conc.		22.2	72.9	34.6	34.6	18.8	1.7	2.4	31.9	36.1	7.1	3.3	8.2	7.8	10.6	41.8	23.5

Subsequent testing at XPS utilized the same processing flowsheet as shown in Figure 13-2. FRON-20 was a single composite from the PAK Deposit with a higher Li head assay of 2.52% Li_2O and used to evaluate the flowsheet at pilot scale while producing sufficient concentrate quantities for downstream hydrometallurgical test work.

The FRON-20 sample was preconcentrated using DMS, and the flotation feed was upgraded from 2.52% to 3.72% Li_2O while the mass was reduced from 100% to 61.2%. Lithium recovery for the DMS was 88.9%. From bulk flotation testing consisting of 20 open-circuit flotation tests, a concentrate grading an average of 7.0% Li_2O was produced at a flotation stage-recovery of 87.0% lithium (77.3% global recovery). Due to the lower concentrate grade requirements for hydrometallurgical testing, the flotation performance was evaluated on the basis of rougher flotation only, which appeared to only be required due to the high feed grade.

13.2.5.3 FRON-21 Samples (Spark)

Two samples from the Spark Deposit (Spark 1 and Spark 2) were briefly evaluated using established PAK DMS and flotation test parameters. The head grade of the two spark samples was 1.67% and 1.80% Li_2O, respectively. The DMS performance of the samples proved to be quite poor achieving a lithium recovery 77.8% and 79.1% for Spark 1 and Spark 2, respectively. Flotation stage-recovery for the Spark 1 and Spark 2 samples were 77.2% and 80.3% (60% and 63.5% globally), respectively, at concentrate grade of 6.5% Li_2O in both cases.

Due to the higher iron content of the spodumene, the concentrate arising from Spark testing is not suitable as a technical concentrate and the flotation performance indicated above includes contributions from both the phosphate and spodumene concentrates.

13.3 Current Test Work (SGS Lakefield, 2021-2022)

The SGS program commenced in 2021 under the supervision of Frontier. In this program the Spark Deposit flowsheet was finalized, and the PAK Deposit flowsheet was optimized. The test work program included sample preparation, grindability, heavy liquid separation ("HLS"), dense media separation ("DMS"), dry magnetic separation testing, stage grinding, wet magnetic separation, batch flotation testing, and locked-cycle testing.

The objective of the SGS program was twofold: 1) to re-evaluate DMS and flotation stages developed during the previous test work programs at XPS; and 2) complete a pilot plant to confirm metallurgical performance and produce concentrate for downstream pilot scale hydrometallurgical test work.

The re-evaluation of specific major objectives of the test work was to establish the benefit of DMS as the lithium losses were higher than desired, especially for the Spark samples, and addressing issues in the flotation flowsheet that included, but are not limited to:

- Rearrange the pre-flotation stages to eliminate the use of acid and additional caustic from repetitively raising and lowering pH,
- Take advantage of high-density conditioning for improving performance of the fatty acid collectors,
- Dramatically reduce the use of frother as the amine and fatty acid collectors used generally provide sufficient frothing alone, and
- Utilize WHIMS at the head-end of the flowsheet to reject iron bearing silicate minerals that tend to interfere with spodumene flotation.

The work was designed to support prefeasibility level process designs and included an 80-hour pilot plant (including a 30-hour continuous run), dewatering test work, and environmental characterization of tailings.

13.3.1 Sample Selection

Due to the significant amount of past test work on samples from the PAK Deposit, only a single bulk sample of approximately 2 t was included in this test work program. However, as previous test work on samples from the Spark Deposit was considered preliminary in nature, the test work program included a single bulk sample of approximately 7 t plus a series of five 100-kg variability samples. Bulk sample locations are indicated in Figure 13-3. The Spark variability set included two samples (A-1 and A-2) of the Aplite lithology, containing 1.0% and 1.75% Li_2O, respectively, and three samples (L-1, L-2, and L-3) of the LIZ lithology, containing 1.0%, 1.75%, and 2.5% Li_2O, respectively. The material for these samples was selected by Frontier geologists to represent an anticipated run of mine grade range.

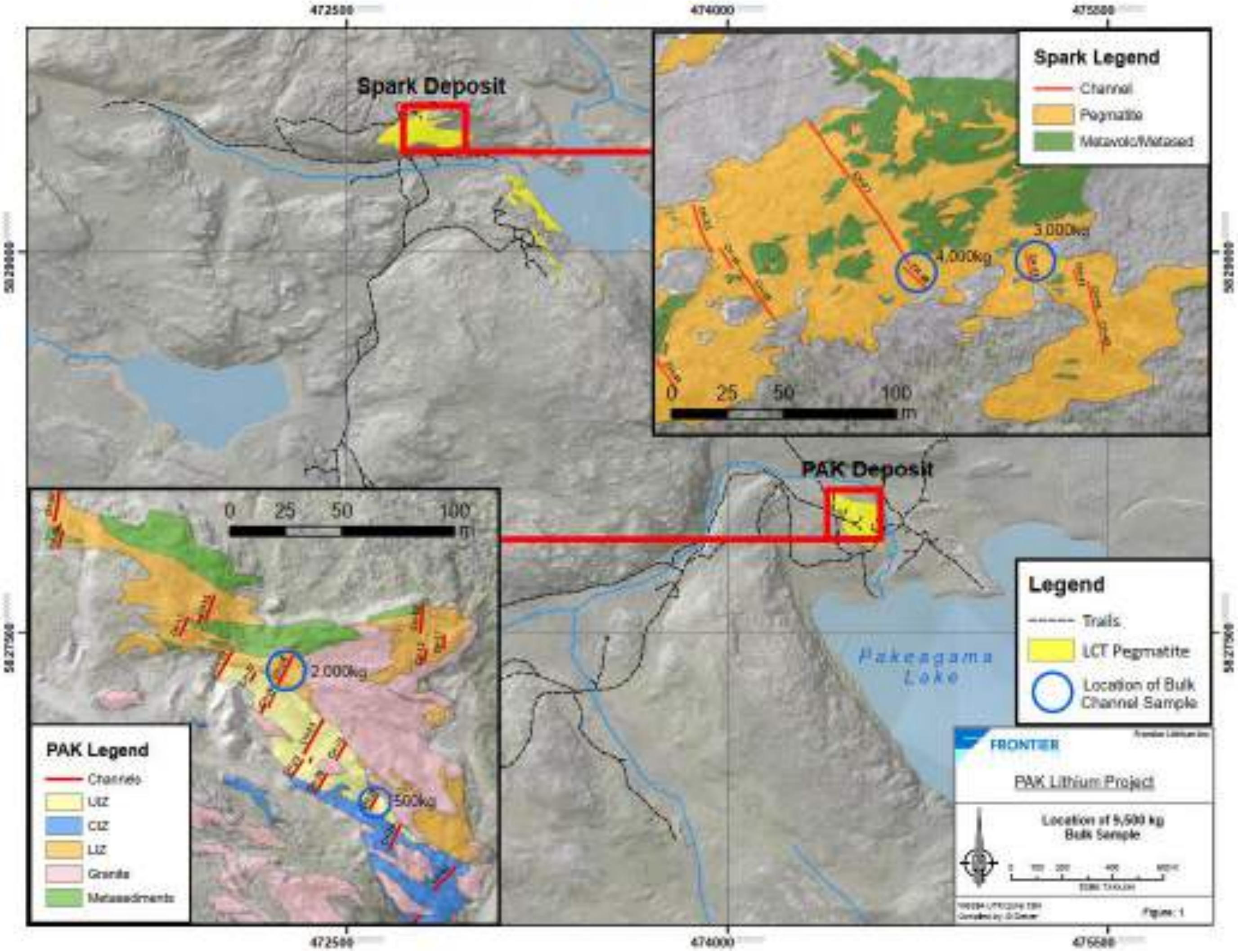


Figure 13-3: Bulk Channel Sample Locations
(Source: Frontier, 2022)

The assays of the samples involved in this test work program are summarized in Table 13-14. The lithium grade was within target for all samples with the PAK bulk sample having a grade of 2.04% Li_2O compared to the resource grade of 2.06% Li_2O, the Spark bulk sample having a grade of 1.66% Li_2O compared to the resource grade of 1.40% Li_2O, and the Spark variability samples were relatively similar to the targeted grades.

Table 13-14: Bulk Samples for Metallurgical Testing, Spark Deposit
(Source: SGS, 2022)

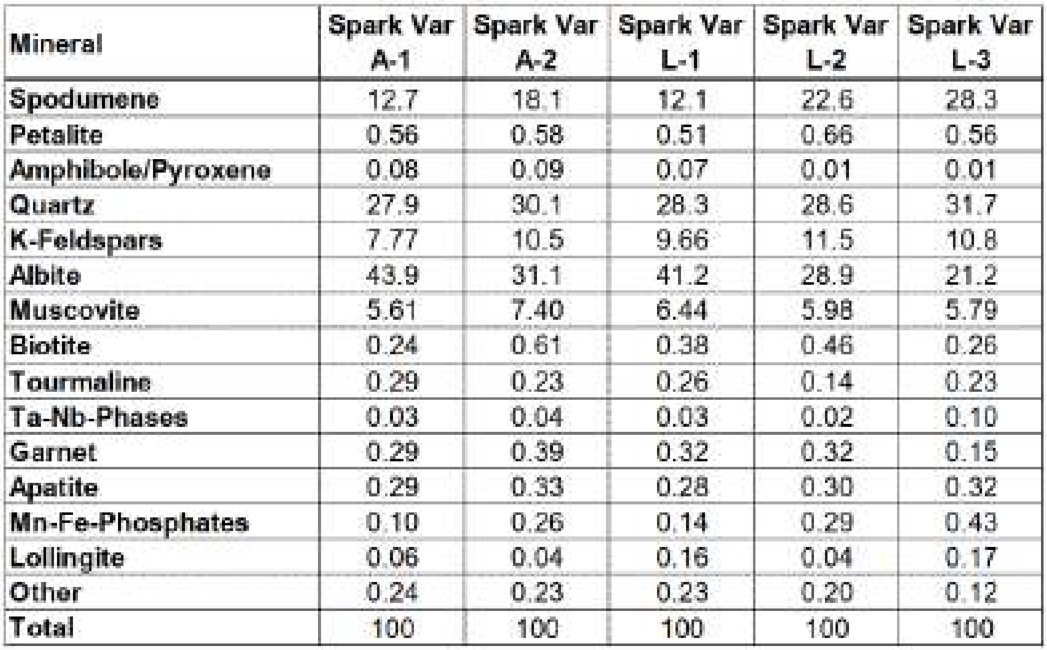
	Composition (%)									
	Li_2O	Al_2O_3	SiO_2	Fe_2O_3	Na_2O	K_2O	P_2O_5	MgO	CaO	MnO
PAK Bulk	2.04	16.4	73.6	0.34	2.81	2.64	0.24	0.04	0.19	0.11
Spark Bulk	1.66	16.2	73.4	0.53	3.73	2.13	0.22	0.16	0.33	0.11
Spark A-1	1.10	16.2	72.4	0.52	4.89	1.96	0.25	0.26	0.44	0.17
Spark A2	1.63	16.1	73.4	0.30	3.61	2.15	0.27	0.15	0.27	0.18
Spark L-1	1.08	16.0	72.6	0.7	4.57	2.22	0.28	0.25	0.50	0.18
Spark L-2	1.68	16.1	73.4	0.44	3.50	2.35	0.26	0.07	0.22	0.18
Spark L-3	2.24	16.4	73.9	0.29	2.43	2.21	0.38	0.06	0.20	0.14

Replicate subsamples were prepared for this study as part of the flotation test program and the same material stage-ground to 100% passing 300 µm was examined mineralogically as utilized for the flotation test work. The subsamples were screened into four size fractions which were examined individually. Combined mineralogical data from the individual fractions is reported in the following section.

13.3.2 Mineralogy and Lithology (Spark)

The modal mineralogy of the samples from the Spark Deposit is summarized in Table 13-15. The Aplite and LIZ mineral assemblages are very similar with major contents of spodumene, quartz, K-feldspar, albite, and muscovite mica. The proportions of the minerals are relative to the lithium grade, which is to be expected.

Table 13-15: Modal Mineralogy, Spark Variability Samples
(Source: SGS, 2022)



Mineral	Spark Var A-1	Spark Var A-2	Spark Var L-1	Spark Var L-2	Spark Var L-3
Spodumene	12.7	18.1	12.1	22.6	28.3
Petalite	0.56	0.58	0.51	0.66	0.56
Amphibole/Pyroxene	0.08	0.09	0.07	0.01	0.01
Quartz	27.9	30.1	28.3	28.6	31.7
K-Feldspars	7.77	10.5	9.66	11.5	10.8
Albite	43.9	31.1	41.2	28.9	21.2
Muscovite	5.61	7.40	6.44	5.98	5.79
Biotite	0.24	0.61	0.38	0.46	0.26
Tourmaline	0.29	0.23	0.26	0.14	0.23
Ta-Nb-Phases	0.03	0.04	0.03	0.02	0.10
Garnet	0.29	0.39	0.32	0.32	0.15
Apatite	0.29	0.33	0.28	0.30	0.32
Mn-Fe-Phosphates	0.10	0.26	0.14	0.29	0.43
Lollingite	0.06	0.04	0.16	0.04	0.17
Other	0.24	0.23	0.23	0.20	0.12
Total	100	100	100	100	100

The liberation of spodumene in the five variability samples are compared in Table 13-16. The liberation classes are differentiated at intervals of 10% indicating the proportion of spodumene contained in individual particles. The liberation for the five samples appears to be related and increases with increasing head grade. For the A1 and L1 samples 75.7% and 77.0% of the particles, respectively, were greater than 80% liberated. This degree of liberation increases to 80.6% and 79.8% for the A2 and L2 samples, respectively, and 86.5% for the L3 sample. The higher degree of liberation will likely improve the performance of the samples with higher grade and recovery.

Table 13-16: Spark Spodumene Liberation
(Source: SGS, 2022)

	A1	A2	L1	L2	L3
<10%	0.63	0.39	0.58	0.36	0.21
≥10% < 20%	0.79	0.66	0.83	0.53	0.28
≥20% < 30%	1.18	0.72	1.08	0.71	0.39
≥30% < 40%	1.58	1.05	1.16	1.15	0.81
≥40% < 50%	2.37	1.88	2.49	1.91	1.35
≥50% < 60%	3.71	2.93	3.73	2.84	2.30

	A1	A2	L1	L2	L3
≥60% < 70%	5.69	5.03	5.63	5.01	3.19
≥70% < 80%	8.29	6.69	7.46	7.75	4.92
≥80% < 90%	10.9	12.5	12.3	12.0	9.14
≥90%	64.8	68.1	64.7	67.8	77.4

The minerals associated with spodumene in the non-liberated particles (<80%) are summarized in Table 13-17. The majority of non-liberated spodumene is associated with complex particles, which are ternary and other higher order particles of various minerals, and binary particles containing quartz. A common mineral assemblage in the complex category were particles with a major amount of spodumene and inclusions of quartz and petalite, which are likely artefacts from the alteration of petalite to spodumene and quartz.

Table 13-17: Spark Spodumene Association
(Source: SGS, 2022)

	A1	A2	L1	L2	L3
Complex	16.5	11.9	14.2	12.8	5.67
Spod:Muscovite	0.16	0.22	0.17	0.13	0.21
Spod:Albite	0.32	0.33	0.50	0.27	0.28
Spod: K-Feldspars	0.24	0.28	0.41	0.27	0.14
Spod: Quartz	3.00	3.26	3.23	3.68	3.51
Spod:Petalite	0.16	0.17	0.17	0.09	0.14
Lib Spod	23.1	23.6	22.9	22.8	15.3
Free Spod	47.3	47.9	49.1	49.9	59.3
Pure Spod	9.23	12.3	9.26	10.1	15.4

13.3.3 Comminution

Comminution tests were completed on seven Spark composites and three PAK composites, using similar methods to those applied in historical test work (Section 13.2.4). The results of these tests are summarized in Table 13-18 and includes the original (2017) results for comparison.

Table 13-18: Additional Comminution Test Results Summary (Source: SGS, 2022)

Sample Name	CWI kWh/t	RWI kWh/t	BWI kWh/t	AI g
PAK UIZ (2017)	-	14.7	17.7	1.078
PAK CIZ (2017)	-	9.2	16.1	0.573
PAK LIZ (2017)	-	10.2	16.9	0.515
PAK Bulk	10.9	8.8	12.4	-
PAK DMS Conc	-	10.5	-	-
PAK HG (UIZ)	-	13.6	-	-
Spark Bulk	9.2	10.4	10.7	0.470
Spark L1	-	10.8	9.2	0.498
Spark L2	-	11.2	10.2	0.548
Spark L3	-	11.3	12.3	0.525
Spark A1	-	11.1	9.4	0.514
Spark A2	-	11.0	9.4	0.539
Spark Comp DMS Conc	-	12.3	10.0	-

The new data compares fairly well, except for the Bond ball mill work index tests conducted in 2017 that indicates the sample is considerably harder, but this was due to the tests being conducted at a closing screen size of 150 µm rather than 300 µm used for the recent tests that is more appropriate of the process.

It is noted that the higher-grade samples such as those from the PAK UIZ and Spark DMS concentrates are harder in terms of rod mill grinding.

13.3.4 Dense Media Separation Evaluation Test Work

The test work conducted in previous studies (XPS, 2017/2018) included DMS preconcentration step in the flowsheet – a common arrangement in the processing of spodumene deposits.

In some circumstances, a significant amount of "direct shippable" spodumene concentrate (greater than 6% Li_2O) can be produced at a relatively coarse size from the DMS process alone. However, for PAK this has not been achieved as the spodumene mineralization is fairly fine with a tendency to associate with quartz in the SQUI intergrowths. For similar reasons, the recovery of spodumene from the DMS step has also been below expectations, with significant spodumene losses noted, especially for the Spark samples. A program of HLS for PAK and Spark was therefore scheduled at SGS, with the option to confirm results using the SGS pilot scale DMS plant.

13.3.4.1 Heavy Liquid Separation Test Work

Samples of the PAK Bulk and five Spark variability composites were tested for DMS amenability using bench scale HLS tests. The HLS test allows assessment of separability performance across a range of densities. Tests are conducted on crushed samples with the fines (-850 µm) mass removed/bypassed. HLS results are then calculated by mathematically recombining the fines bypass mass/metal into the incremental products (i.e., assuming that fines are product, not waste).

The PAK Bulk sample HLS test results are charted in Figure 13-4. Interestingly, a 6% Li_2O concentrate was produced at 3.0 SG (specific gravity) if the fines fraction was excluded, although lithium recovery to this sinks fraction was low at 28%. The concentrate quality did not approach 7.2% Li_2O as would be required for this particular material to make technical grade quality. The fines contributed 28.3% to lithium recovery at a grade of 1.94% Li_2O. The lithium recovery continuously increased with decreasing SG up to the optimal SG of 2.70, at which point mass recovery starts to increase more dramatically. This response is not ideal as the effect of near-density material (i.e., mass within 0.05 SG of the separation SG) may give rise to lower separation efficiencies during day-to-day DMS processing. The predicted loss of lithium to the 2.70 SG Float was 3.6%, and this upgraded the feed to 3.06% Li_2O from 2.04%.

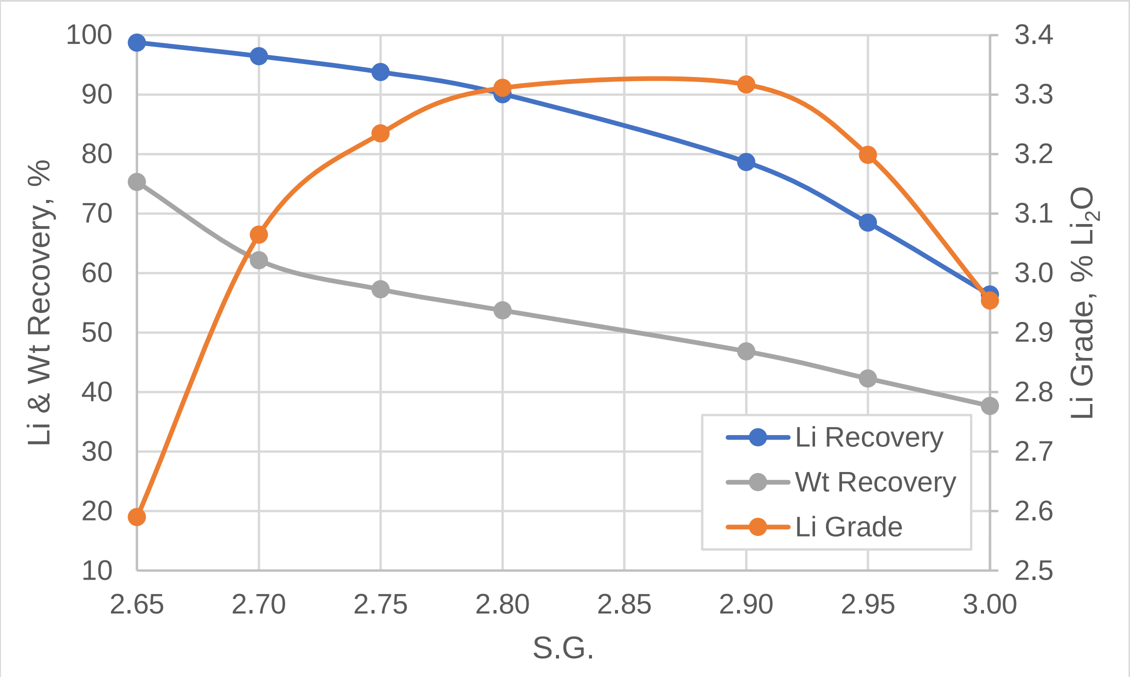


Figure 13-4: Washability Curve – PAK Bulk Sample
(Source: SGS, 2022)

The HLS results from the five Spark variability samples are summarized in Figure 13-5 – Figure 13-9 on the following pages. The samples from the Spark Deposit are noted to exhibit relatively poor performance compared to the PAK Bulk sample, where lithium and mass recovery were quite low at the higher SG's but terminate to a similar level at the lowest SG tested of 2.65. Only the L-3 sample with ~2.5% Li_2O head grade was able to produce a concentrate at >6% Li_2O at 27% recovery. The remaining samples were only able to produce concentrate of 5% Li_2O or less, but recovery was less than 15%.

As concentrates with >6% Li_2O were not able to be produced from either sample, DMS processing will be evaluated from a pre-concentration perspective only.

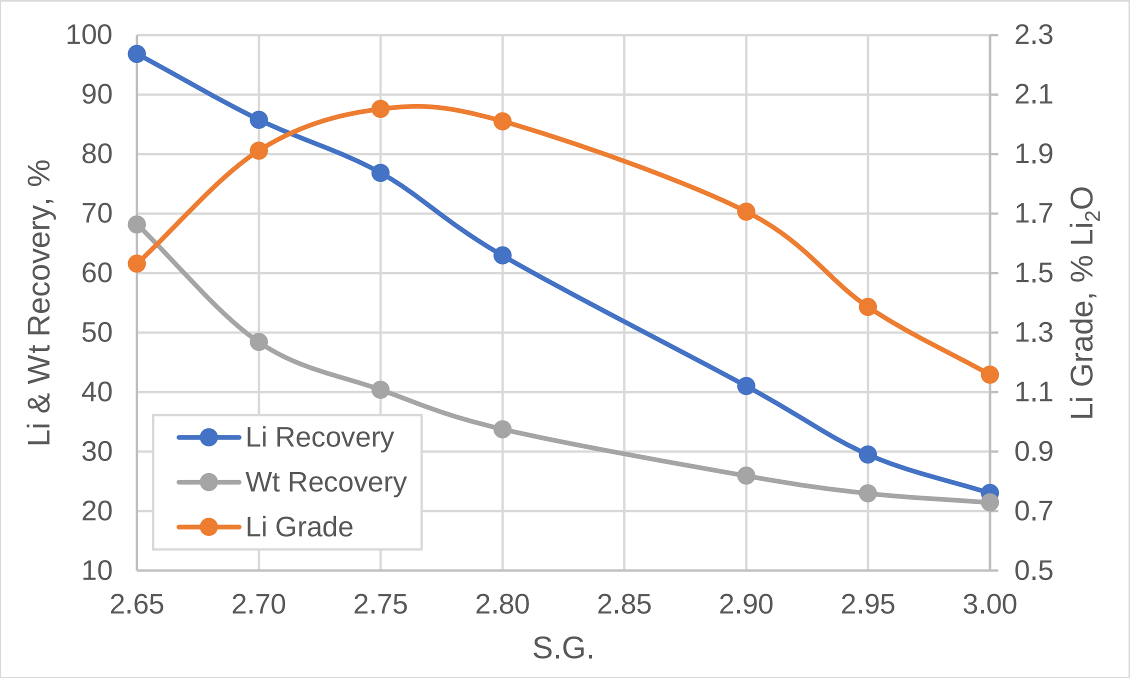


Figure 13-5: Washability Curve – Spark A-1 Sample
(Source: SGS, 2022)

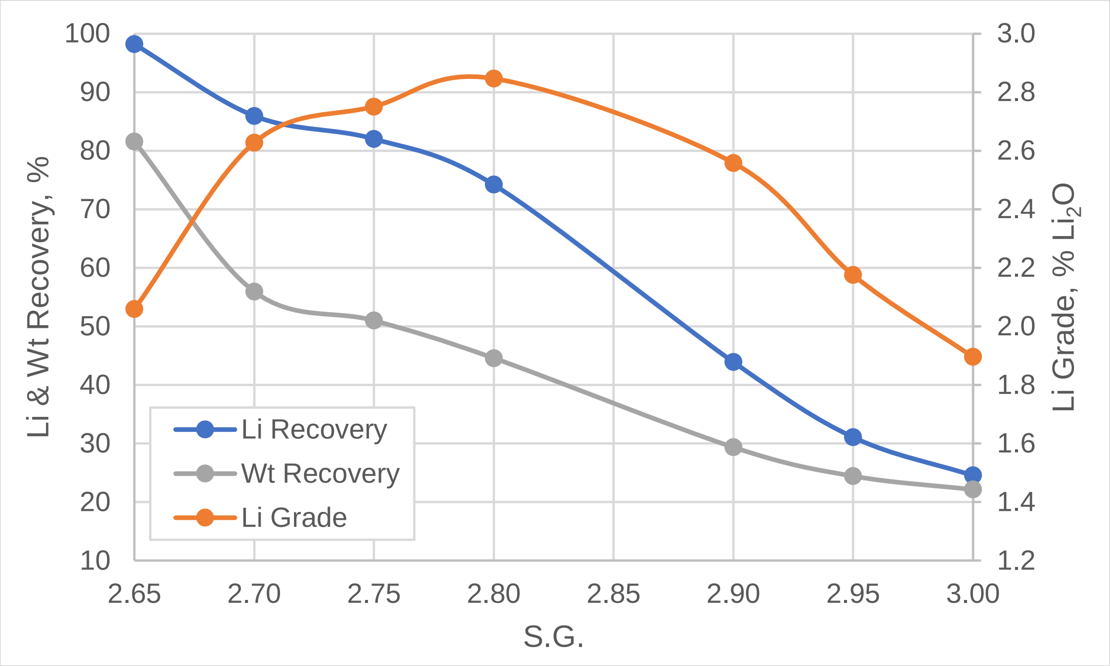


Figure 13-6: Washability Curve – Spark A-2 Sample
(Source: SGS, 2022)

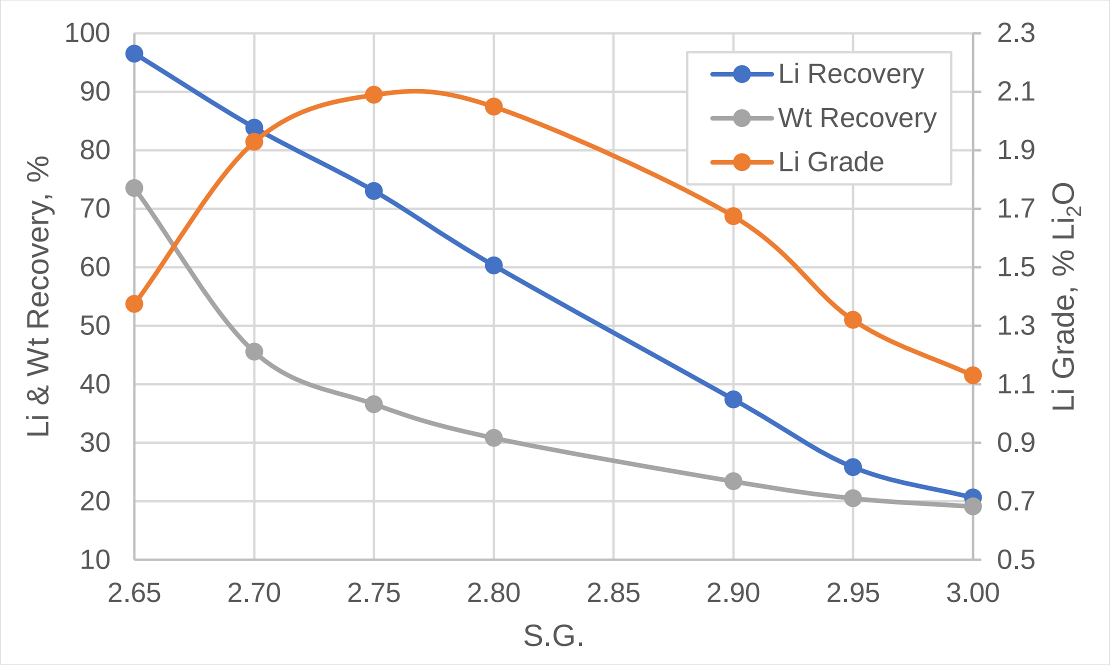


Figure 13-7: Washability Curve – Spark L-1 Sample
(Source: SGS, 2022)

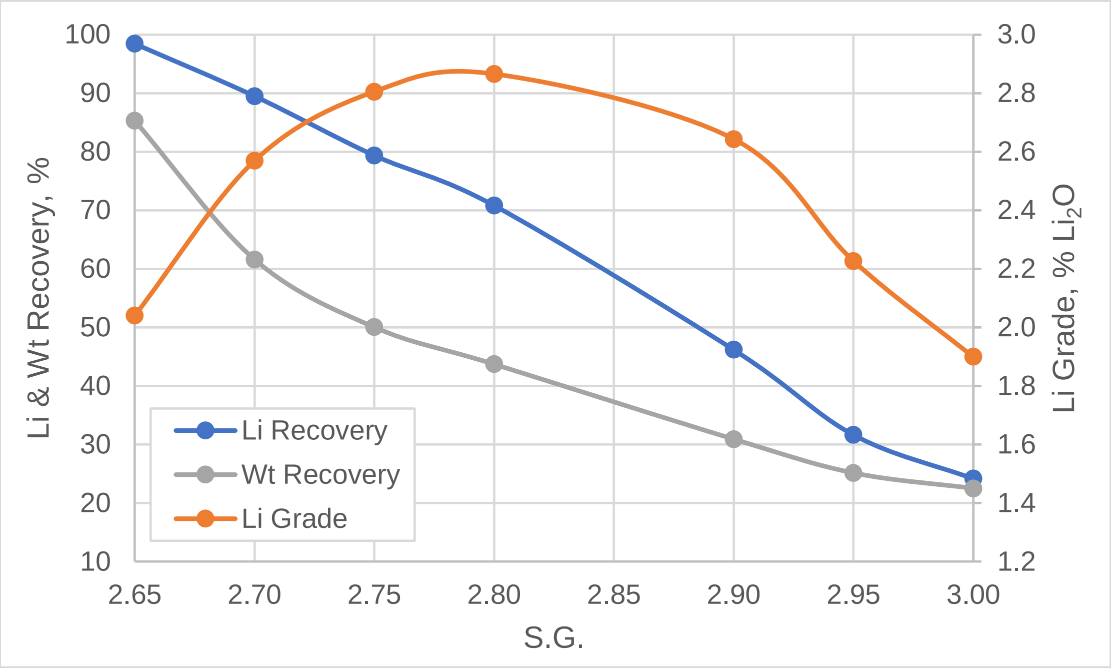


Figure 13-8: Washability Curve – Spark L-2 Sample
(Source: SGS, 2022

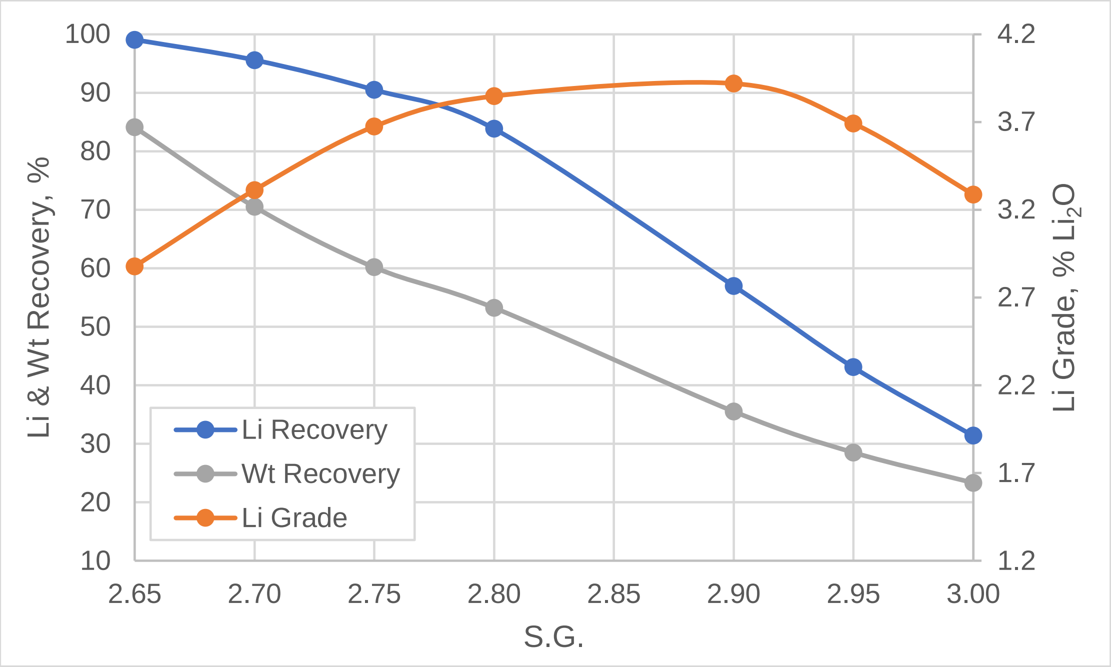


Figure 13-9: Washability Curve – Spark L-3 Sample
(Source: SGS, 2022)

These results from the HLS tests are summarized in Table 13-19 at the separation SG of 2.70 and 2.65, respectively. The Spark LIZ lithology does appear to offer better performance than the Aplite lithology. However, grade also appears to be a factor in the performance of the LIZ samples while the Aplite results appear to be less grade dependent. The performance of the samples was similar at the 2.65 SG at a high level, but the high mass recovery and lower upgrade ratio may make dense media separation difficult to justify.

Table 13-19: HLS Results at 2.70 and 2.65 SG – PAK and Spark (Source: SGS, 2022)

Sample	Head % Li_2O	2.70 SG Concentrate				2.65 SG Concentrate			
		Wt Rec %	Li Rec %	Product %Li_2O	Upgrade Ratio	Wt Rec %	Li Rec %	Product %Li_2O	Upgrade Ratio
PAK Bulk	2.04	62.1	96.4	3.06	1.5	75.3	98.7	2.59	1.4
Spark A-1	1.08	48.4	85.8	1.91	1.8	68.2	96.8	1.53	1.4
Spark A2	1.71	55.9	85.9	2.63	1.5	81.5	98.2	2.06	1.2
Spark L-1	1.05	45.5	83.9	1.93	1.8	73.5	96.5	1.37	1.3
Spark L-2	1.77	61.6	89.5	2.57	1.5	85.3	98.4	2.04	1.2
Spark L-3	2.44	70.5	95.6	3.31	1.4	84.1	99.0	2.88	1.2

In anticipation of DMS testing, and in an effort to conserve remaining sample mass, a single composite ("Spark Master Composite") was prepared for the larger scale DMS tests described below. The composite was prepared using mass from individual variability samples so as to contain the overall proportion of Aplite and LIZ lithology (60:40) and also match the Spark resource grade of 1.36% Li_2O, which was the case at the time of the testing (i.e., prior to the current Resource Estimate update). The recipe used to prepare the Spark Master Composite is given in Table 13-20.

Table 13-20: Spark DMS Master Composite Recipe (Source: Frontier, 2021)

Sample	Wt. %	% Li_2O
Spark A-1	40	1.10
Spark A2	20	1.63
Spark L-1	19	1.08
Spark L-2	13	1.68
Spark L-3	8	2.24
Total	100	1.37

As the HLS response of the individual variability samples is known and as HLS is a static physical separation process (i.e., no significant sample interactions), it is relatively straightforward to predict how this blended composite will perform by mathematically combining the HLS test results of the individual variability samples. The result of such modelling is summarized in Figure 13-10.

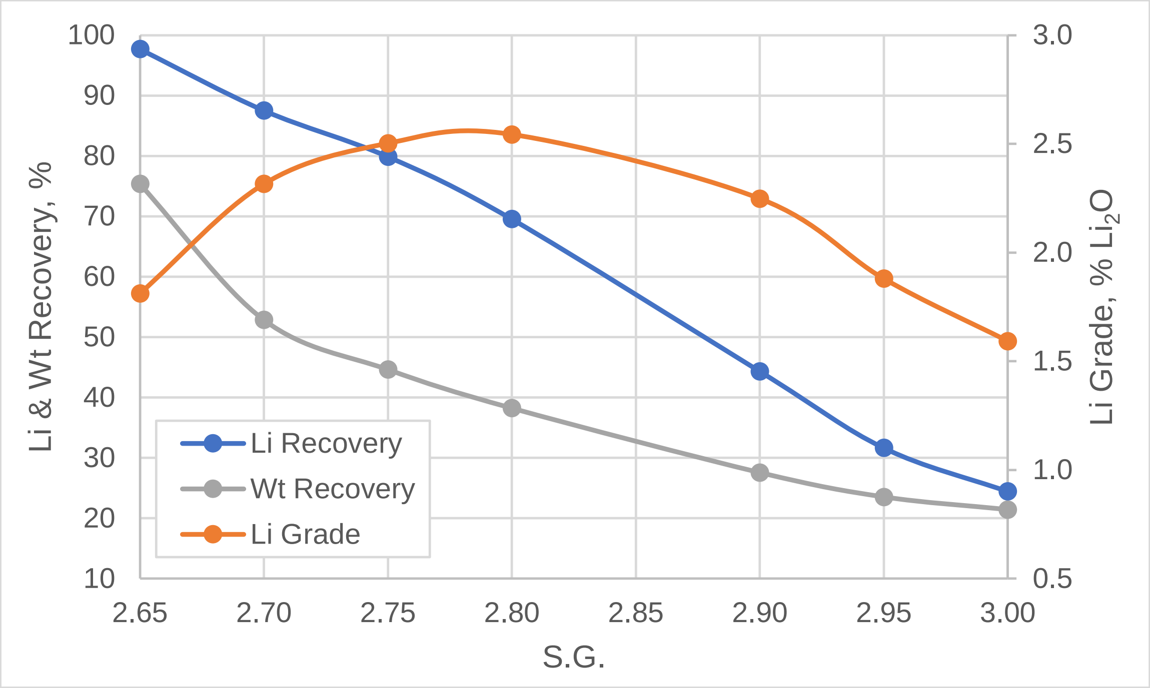


Figure 13-10: Modelled Washability Curve – Spark Master Composite (Source: SGS, 2022)

13.3.4.2 Dense Media Separation Test Work

To provide an accurate assessment of the DMS response of the PAK and Spark composites, pilot scale DMS processing was carried out using the small HM Cyclone plant at SGS. Samples were screened at 0.5 mm with the fines bypassing the DMS separation.

The DM test results for the PAK Bulk sample at a separation SG of 2.70 is summarized in Table 13-21 and compared against the earlier HLS test results in Figure 13-11. The comparison confirms that the DMS performance corresponds quite closely to the HLS test performance.

Table 13-21: DMS Results for PAK Bulk Sample
(Source: SGS, 2022)

	Product	Weight		Assays (%)											Distribution (%)									
		kg	%	Li	Li_2O	SiO_2	Al_2O_3	Fe_2O_3	CaO	Na_2O	K_2O	P_2O_5	As	F	Li	SiO_2	Al_2O_3	Fe_2O_3	CaO	Na_2O	K_2O	P_2O_5	As	F
Bulk PAK SG 2.70	DMS Sink	666	35.9	1.82	3.91	73.0	19.1	0.22	0.13	0.89	1.18	0.18	0.010	0.10	75.1	35.5	41.0	30.0	28.8	10.81	15.19	29.3	32.3	33.1
	DMS Float	786	42.3	0.12	0.26	73.0	15.3	0.23	0.17	4.46	4.61	0.24	0.006	0.12	5.84	41.9	38.7	37.0	44.4	63.9	70.0	46.1	22.8	46.9
	U/S -0.5 mm	406	21.8	0.76	1.63	76.4	15.6	0.40	0.20	3.41	1.89	0.25	0.023	0.099	19.1	22.6	20.3	33.0	26.8	25.3	14.8	24.7	44.9	19.9
	Head (cal)	1859	100	0.87	1.87	73.7	16.7	0.26	0.16	2.95	2.79	0.22	0.011	0.11	100	100	100	100	100	100	100	100	100	100
	Head (dir.)			0.95	2.04	73.6	16.4	0.34	0.19	2.81	2.64	0.24	0.015	0.11										
	Flotation Feed		57.7	1.42	3.05	74.3	17.8	0.29	0.16	1.85	1.45	0.21	0.015	0.10	94.2	58.1	61.3	63.0	55.6	36.1	30.0	53.9	77.2	53.1

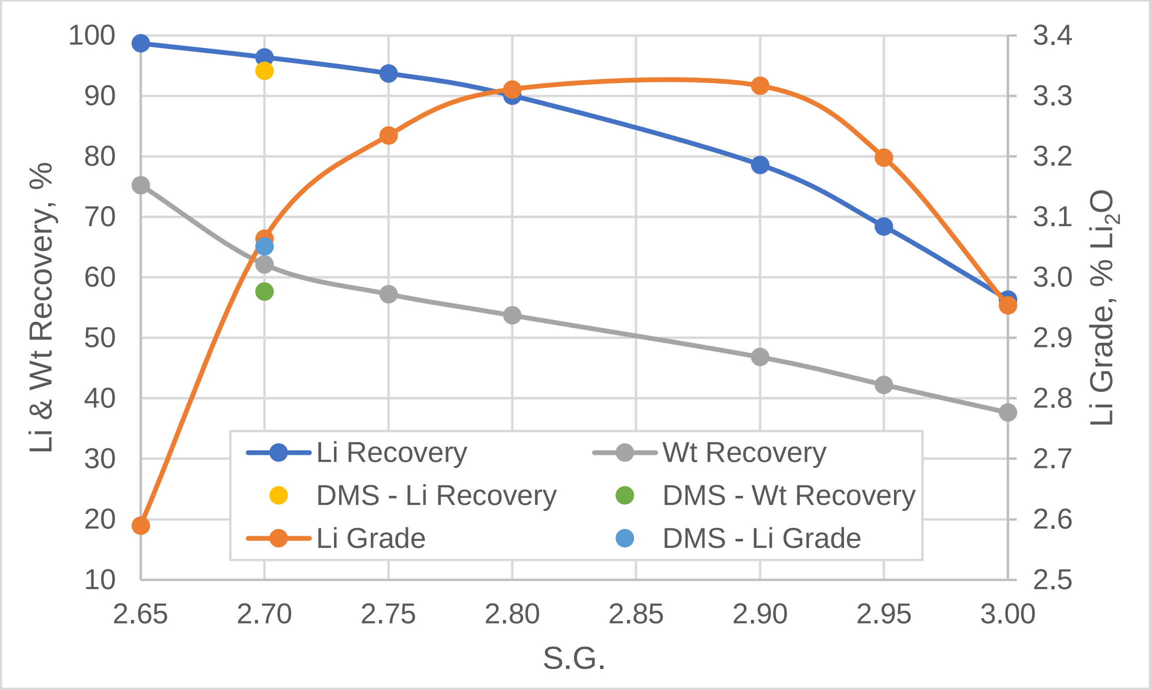


Figure 13-11: DMS vs HLS Performance – PAK Bulk Sample
(Source: SGS, 2022)

The HLS performance of the PAK Deposit is likely sufficient to justify DMS processing, but the choice is not as straightforward for the Spark Deposit. Comparing the performance of the Spark Master Composite at 2.70 SG, a good upgrade ratio was obtained, but the losses of lithium during DMS processing are likely too high to produce an overall benefit. Operating DMS at a lower SG, such as 2.65, will improve lithium recovery but the mass rejection and upgrade ratio may be too low to result in a significant benefit to demonstrate justification for using the technology.

The results from DMS processing of the Spark Master Composite sample at a separation SG of 2.70 is summarized in Table 13-22 and compared against the HLS results in Figure 13-12. In comparison with the HLS data, it appears the separation was conducted closer to 2.68 SG, rather than 2.70 and resulted in a significant discrepancy from the targeted grade highlighting the risk of operating at such a low density.

Table 13-22: DMS Results for Spark Master Composite, SG 2.70
(Source: SGS, 2022)

Product	Weight		Assays (%)											Distribution (%)									
	kg	%	Li	Li_2O	SiO_2	Al_2O_3	Fe_2O_3	MgO	CaO	Na_2O	K_2O	P_2O_5	MnO	Li	SiO_2	Al_2O_3	Fe_2O_3	MgO	CaO	Na_2O	K_2O	P_2O_5	MnO
DMS Sink	40.2	40.9	1.09	2.34	73.4	16.9	0.78	0.35	0.52	2.66	1.66	0.27	0.20	71.8	41.1	42.7	55.6	66.1	53.3	25.5	32.5	41.9	50.6
DMS Float	39.9	40.7	0.16	0.34	72.6	15.7	0.32	0.06	0.27	6.01	2.49	0.24	0.11	10.5	40.4	39.4	22.7	11.3	27.5	57.2	48.5	37.0	27.7
U/S -0.5 mm	18.0	18.4	0.60	1.28	73.3	15.7	0.68	0.27	0.42	4.03	2.15	0.30	0.19	17.7	18.5	17.8	21.8	22.6	19.2	17.3	18.9	21.1	21.7
Head (cal.)	98.1	100	0.62	1.34	73.1	16.2	0.57	0.22	0.40	4.28	2.09	0.26	0.16	100	100	100	100	100	100	100	100	100	100
Head (dir.)			0.64	1.37	72.9	16.1	0.49	0.20	0.37	4.20	2.12	0.27	0.17										
Flotation Feed		59.3	0.94	2.02	73.4	16.5	0.75	0.32	0.49	3.09	1.81	0.28	0.20	89.5	59.6	60.6	77.3	88.7	72.5	42.8	51.5	63.0	72.3

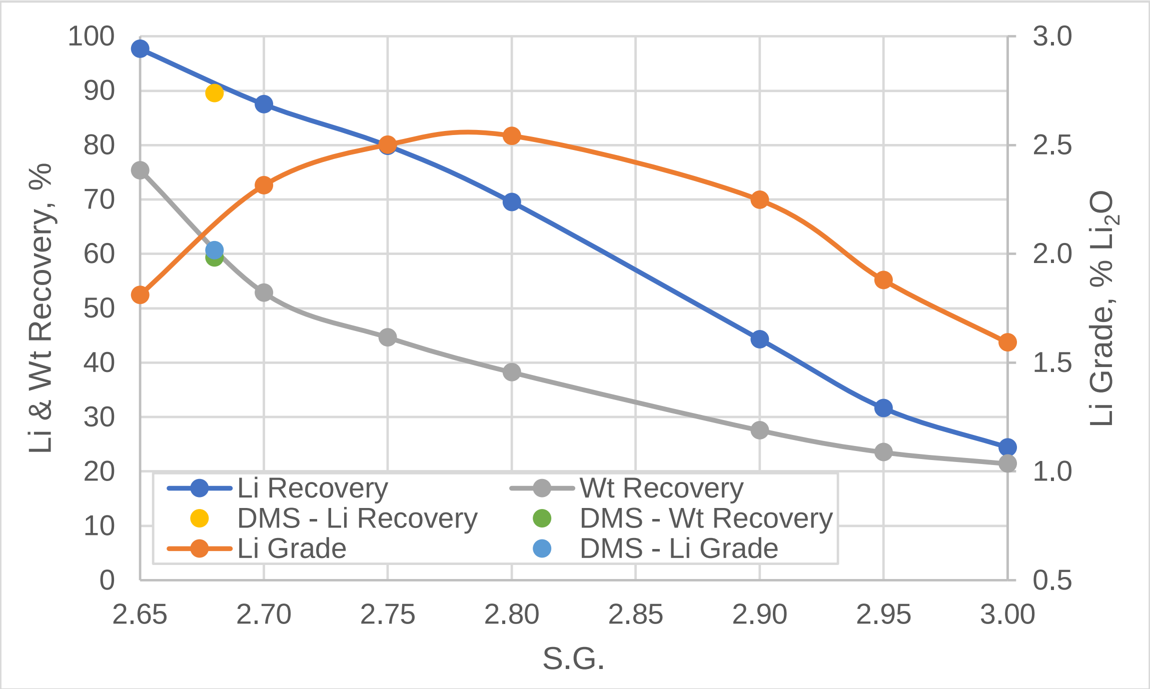


Figure 13-12: DMS vs HLS Performance – Spark Master Composite
(Source: SGS, 2022)

To properly evaluate the performance of a “DMS processed” Spark Master Composite flotation feed at two different SG’s, it would be necessary to run material through the DMS plant at the two SG’s producing separate Flotation Feed samples for comparison with the direct flotation performance. This testing was judged to be beyond the scope of PFS testing (primarily due to sample availability) and so proxies for the upgraded flotation feed performance were sought. Coincidentally, the predicted grade of DMS upgraded flotation feed (after 2.65 SG DMS) was similar to the head grade of the A-2 and L-2 samples. Thus, the results from the direct flotation test work of the A-2 and L-2 samples were used to assist the prediction of Spark overall circuit performance with a 2.65 SG DMS cut.

13.3.5 Beneficiation Test Work

Earlier test work (XPS, 2018) established the use of centrifugal gravity concentration as a means to recover tantalum while simultaneously rejecting arsenic from samples of PAK mineralization.

Wet high intensity magnetic separation (“WHIMS”) was also expected to be beneficial prior to flotation, as the removal of mafic host rock from the flotation feed has potential to: 1) improved spodumene flotation performance; and 2) recover tantalum and arsenic.

Both beneficiation techniques were assessed in the SGS test work program.

13.3.5.1 WHIMS Testing

The WHIMS test results are summarized in Figure 13-13, which plots mass vs recovery curves over a range of magnetic intensities (5,000, 8,000, 10,000, and 15,000 Gauss). Of note, the recovery of tantalum (yellow line) and phosphate (light blue line) increased substantially at 15,000 Gauss. Calcium (from the phosphate minerals) and magnesium (likely present from hornblende and other mafic minerals) were also recovered well, which is desirable.

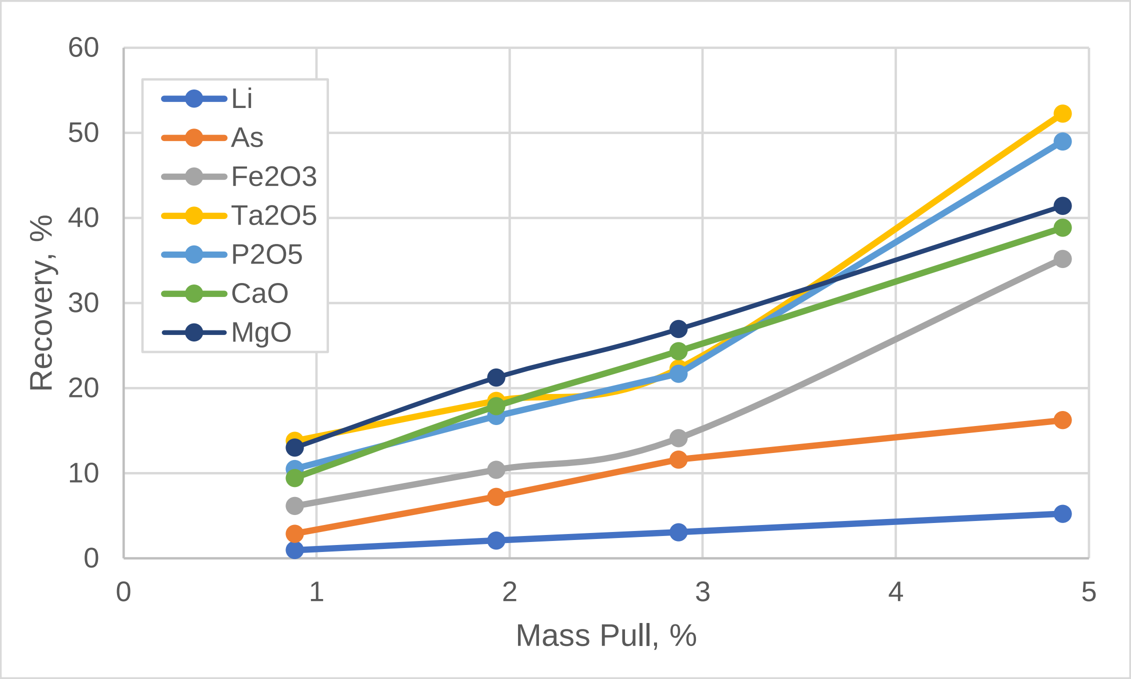


Figure 13-13: WHIMS Performance on Conc Production- Spark Sample
(Source: SGS, 2022)

13.3.5.2 Gravity Concentration

The results from a gravity amenability test ("GAT") test are summarized in Figure 13-14 where arsenic was recovered effectively along with a similar amount of tantalum as recovered during the WHIMS test. Most importantly, the recovery of other elements (except a small proportion of iron that was likely associated with the arsenic minerals) was very low and indicates that the joint application of centrifugal gravity concentration and WHIMS separations will be required for an effective processing flowsheet.

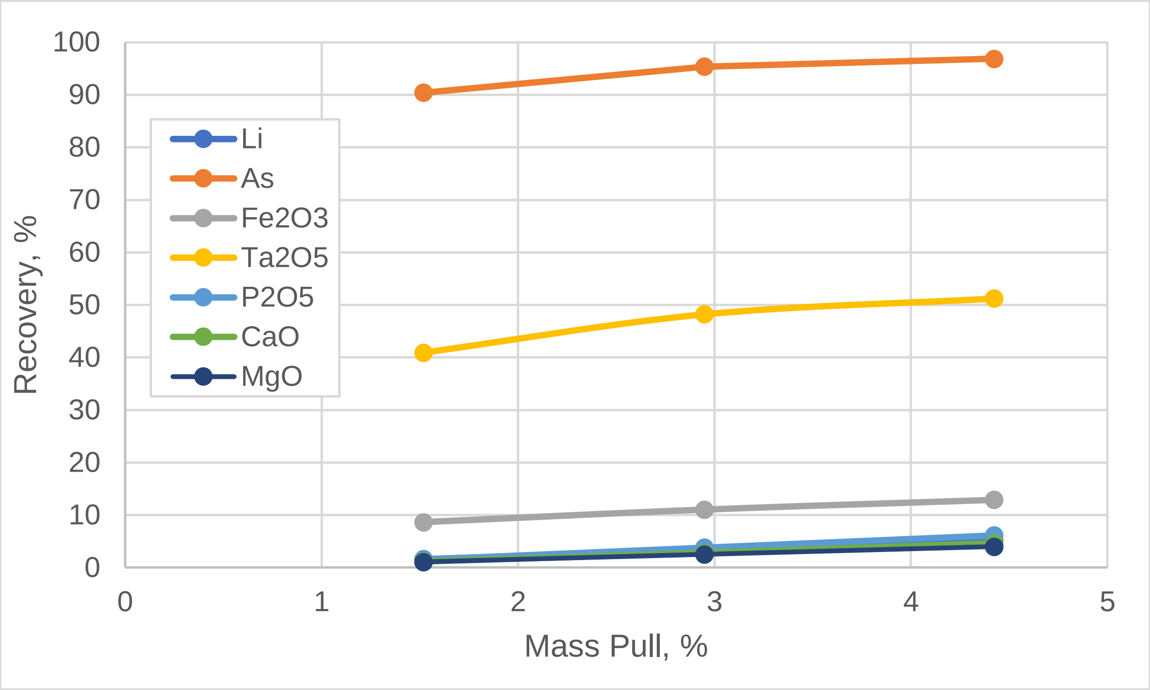


Figure 13-14: Centrifugal Gravity Performance on Conc Production Spark Sample (Source: SGS, 2022)

13.3.6 Flotation Test Work

Revised conceptual flowsheets were designed as part of this updated program that included many of the same unit operations tested previously at XPS but reorganized in an effort to improve performance or remedy potential operational issues. The two conceptual flowsheets used in this program to produce chemical and technical grade concentrates are shown in Figure 13-15 and Figure 13-16 respectively.

The flowsheets are relatively complex and include a number of unit operations other than flotation including, crushing, sensor-based particle sorting, grinding, gravity separation, and magnetic separation that are discussed in the previous sections. The PAK and Spark flowsheets are very similar except for the inclusion of the arsenic and phosphate/tourmaline flotation stages being included in the SC7.2 technical grade concentrate flowsheet. The arsenic and phosphate/tourmaline flotation stages are not included in the SC6.0 chemical grade concentrate as these elements are not expected to affect the downstream processing of the concentrate to produce lithium chemicals.

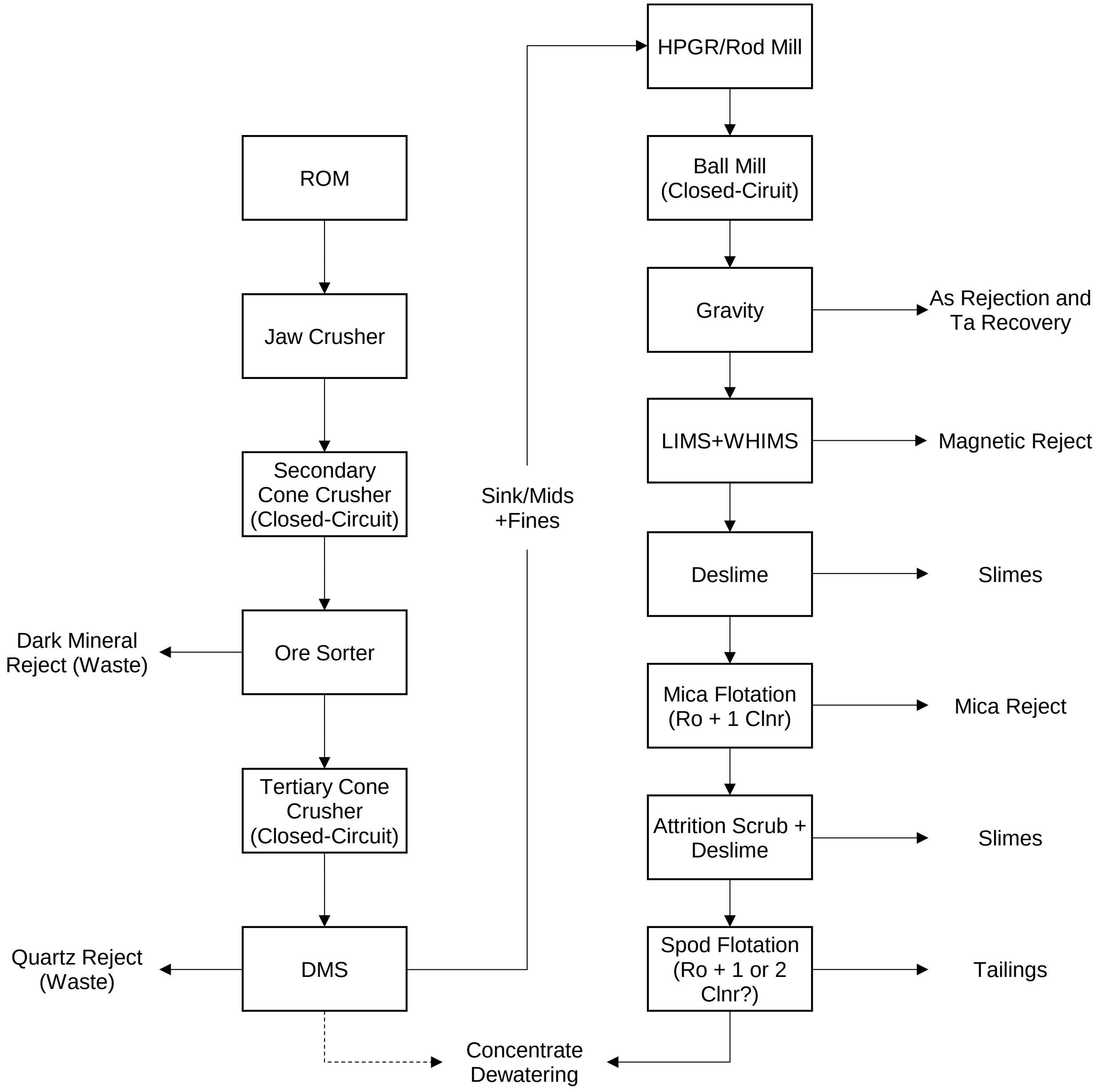


Figure 13-15: Conceptual SC6.0 – Chemical Grade Flowsheet
(Source: Frontier, 2022)

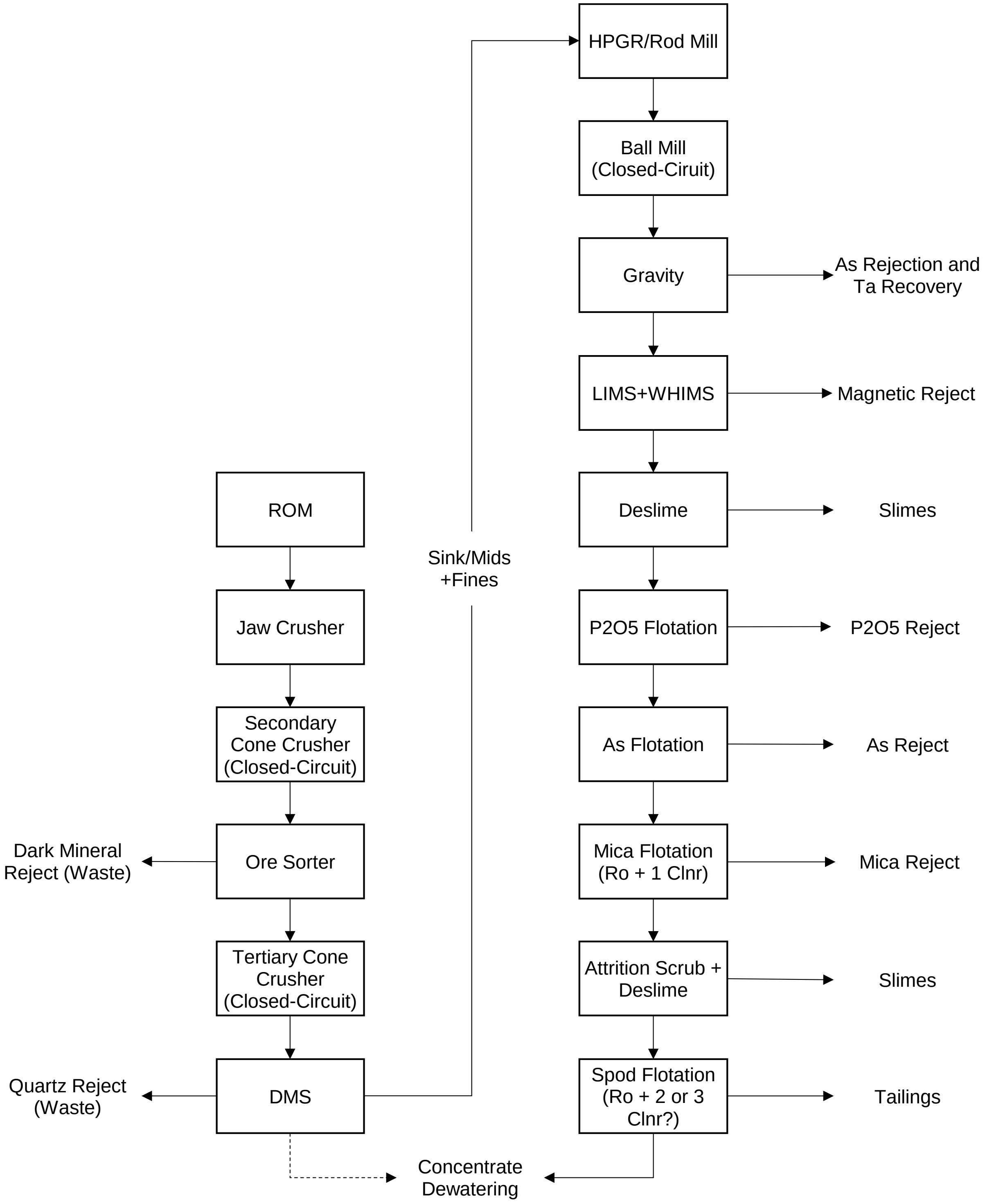


Figure 13-16: Conceptual SC7.2 – Technical Grade Flowsheet
(Source: Frontier, 2022)

Gravity separation using a continuous centrifugal gravity concentrator and magnetic separation was moved ahead of the primary desliming stage as these unit operations contribute a significant amount of water to the flowsheet and are generally well suited to directly process materials with modest slimes/clay content as found in material from the PAK project.

The planned pre-flotation stages to reject mica, arsenic, and phosphate/tourmaline in the case of the technical grade concentrate flowsheet will be conducted following the primary desliming stage. Following the pre-flotation stage(s), the tailings (i.e., feed to spodumene flotation circuit) will be dewatered and subjected to an attrition scrubber operated under caustic conditions to activate the spodumene for flotation. The scrubber discharge was diluted for desliming to remove the caustic and other reagents and fines that may interfere with spodumene flotation. The deslimed slurry was conditioned with fatty acid collector at high density and then subjected to spodumene rougher and cleaner flotation stages.

A series of flotation tests were conducted using the PAK Bulk sample that followed the SC7.2 flowsheet and the Spark variability, Master Composite and Bulk samples that followed the SC6.0 flowsheet.

The initial test series with the PAK Bulk sample were denoted as tests F1, F2, and F3. The material used for the test work was prepared by stage-grinding 24 kg of material crushed to 100% passing 6 mesh (3.35 mm) to pass 35 mesh (300 µm) resulting in a K80 of approximately 200 µm. The 24 kg of material was passed through a Knelson MD-3 laboratory scale concentrator and repassed until a mass pull of approximately 3% was attained. The concentrate from the individual passes through the Knelson were combined, weighed, and submitted for assay. The tailings from the Knelson were dewatered and split into 2-kg test charges for flotation testing. Each flotation test included the remaining magnetic separation and flotation stages included in the flowsheet. It was confirmed during these tests that arsenic flotation was not required.

Additional tests were completed that included F9 being conducted with the PAK sample with alternate conditions from test F3 and tests F10 and F13 being conducted on the DMS concentrate of the PAK bulk sample. The Knelson portion of the procedure was included in tests F10 and F13 using 2,090 g samples to account for the amount of concentrate removed by the Knelson to match the weight tested with previous tests. Test F9 attempted to improve the overall recovery of lithium from increasing the depressant dosage applied during the phosphate pre-flotation stage and collector dosage applied during the spodumene flotation stage. Similarly, tests F10 and F13 varied in the amount of collector added during the spodumene flotation stage where 750 g/t was initially used in test F10 but found to be insufficient. 1,000 g/t was subsequently used in test F13, and this achieved significantly better performance.

The results from the tests are summarized in Table 13-23 where the lithium losses to the pre-spodumene flotation stages, proportion of lithium reporting to the spodumene flotation stage, the lithium stage recovery, and calculated overall lithium recovery. The phosphate flotation stage was found to be the source of significant variability when DMS was not included, and the dosage of depressant was found to be critical. Following DMS processing, the losses to the magnetic fraction, slimes and phosphate concentrate were substantially lower, but the losses to the Knelson concentrate and slimes were at a similar level. This resulted in a greater proportion of lithium reporting to the flotation circuit, where stage recovery was similar, giving a higher overall circuit recovery. Further, it was noted that flotation concentrates of 7.5% Li_2O were possible after DMS upgrading (F10, F13) – substantially higher than the 7.2% produced when DMS was not included (F1-3, F9).

This indicates that DMS offers an overall benefit and is a firm recommendation for the PAK flowsheet.

Table 13-23: PAK Flotation Test Summary
(Source: SGS, 2022)

Test	Feed	Li Losses						Feed to Li Circuit	Conc % Li_2O	Li Stage Rec	Overall Li Rec
		DMS	Knelson	Mags	Phos	Mica	Slimes				
F1	ROM	-	3.9	5.6	1.0	2.9	3.9	83.2	7.23	89.7	74.6
F2	ROM	-	3.9	5.0	7.1	3.2	4.3	77.3	7.15	83.0	64.1
F3	ROM	-	3.9	5.1	3.8	3.0	4.6	80.3	7.21	87.3	70.1
F9	ROM	-	3.9	4.6	4.7	3.6	4.7	79.2	7.13	93.5	74.0
F10	DMS	5.6	3.8	2.8	1.6	2.1	4.0	80.9	7.56	89.1	72.0
F13	DMS	5.6	4.3	1.7	1.2	2.0	4.9	81.1	7.53	93.5	75.9

* Knelson conducted prior to flotation tests F1, F2, F3, and F9. Was included in flotation tests F10 and F13

** DMS conducted prior to flotation tests F10 and F13.

A locked cycle test was completed on a PAK DMS concentrate sample, following the flowsheet shown in Figure 13-17 and Figure 13-18, except with an additional spodumene cleaning stage. The results of this test are summarized in Table 13-24, and indicate that a concentrate above target grade of 7.30% Li_2O and can be produced with stage recovery of 83.1%. When DMS circuit losses are considered, then this equates to a global circuit recovery of 78.4% Li_2O recovery.

Table 13-24: PAK Locked Cycle Test Summary
(Source: SGS, 2022)

Product	Weight		Assays %											Global Distribution %									
	g	%	Li	Li_2O	SiO_2	Al_2O_3	K_2O	Na_2O	CaO	P_2O_5	MgO	MnO	Fe_2O_3	Li	SiO_2	Al_2O_3	K_2O	Na_2O	CaO	P_2O_5	MgO	MnO	Fe_2O_3
Li Cl Conc	4610	37.4	3.39	7.30	68.1	25.9	0.12	0.24	0.10	0.07	0.02	0.05	0.15	83.1	33.2	58.2	3.4	5.6	15.9	12.4	24.8	15.7	10.6
Li 1st ClTail	396	3.2	0.31	0.66	87.2	9.72	1.39	3.06	0.10	0.05	0.04	0.03	0.32	0.6	3.6	1.9	3.4	6.2	1.4	0.7	3.8	0.8	2.0
Li Ro Tail	5168	41.9	0.06	0.12	89.2	7.33	1.51	2.79	0.10	0.04	0.01	0.01	0.26	1.6	48.7	18.5	48.7	73.7	17.8	8.2	12.3	5.0	20.8
Phos Conc	95.6	0.78	1.69	3.63	50.5	20.8	2.59	0.93	5.68	6.26	0.10	0.45	1.07	0.9	0.5	1.0	1.5	0.5	18.7	22.3	2.1	3.1	1.6
Mica Ro Conc.	572	4.64	0.65	1.39	56.0	27.9	7.62	0.84	0.20	0.11	0.06	0.18	1.31	2.0	3.4	7.8	27.1	2.5	3.9	2.3	7.6	7.5	11.7
Mag Sep Conc.	295	2.39	1.62	3.49	55.8	18.9	1.94	0.91	2.32	3.63	0.16	2.19	6.85	2.5	1.7	2.7	3.6	1.4	23.6	39.8	10.8	47.2	31.3
Knelson Conc.	541	4.4	1.86	4.01	72.1	17.8	1.08	1.28	0.27	0.24	0.03	0.26	1.14	5.4	4.1	4.7	3.6	3.5	5.1	4.8	3.2	10.1	9.5
Slime 2	335	2.7	1.18	2.54	70.4	16.9	1.90	2.02	0.60	0.34	0.29	0.23	1.21	2.1	2.5	2.8	3.9	3.5	6.9	4.2	21.7	5.7	6.3
Slime 1	312	2.5	1.12	2.41	70.2	17.0	2.43	2.02	0.62	0.46	0.20	0.21	1.28	1.9	2.3	2.6	4.7	3.2	6.7	5.3	13.7	4.8	6.2
Head (Calc.)	12323	100	1.53	3.29	76.9	16.6	1.31	1.58	0.24	0.22	0.04	0.11	0.52	100	100	100	100	100	100	100	100	100	100
Head (Dir.)			1.53	3.29	74.6	16.9	1.31	1.64	0.16	0.04	0.11	0.20	0.46										
Combined Slimes	646	5.24	1.15	2.48	70.3	17.0	2.15	2.02	0.61	0.40	0.25	0.22	1.24	3.9	4.8	5.3	8.7	6.7	13.6	9.5	35.3	10.5	12.5
Mag Sep Conc.	295	2.39	1.62	3.49	55.8	18.9	1.94	0.91	2.32	3.63	0.16	2.19	6.85	2.5	1.7	2.7	3.6	1.4	23.6	39.8	10.8	47.2	31.3
Mica Conc.	572	4.64	0.65	1.39	56.0	27.9	7.62	0.84	0.20	0.11	0.06	0.18	1.31	2.0	3.4	7.8	27.1	2.5	3.9	2.3	7.6	7.5	11.7
Slime 1	312	2.53	1.12	2.41	70.2	17.0	2.43	2.02	0.62	0.46	0.20	0.21	1.28	1.9	2.3	2.6	4.7	3.2	6.7	5.3	13.7	4.8	6.2
Li Conc.	4,610	37.41	3.39	7.30	68.1	25.9	0.12	0.24	0.10	0.07	0.02	0.05	0.15	83.1	33.2	58.2	3.4	5.6	15.9	12.4	24.8	15.7	10.6

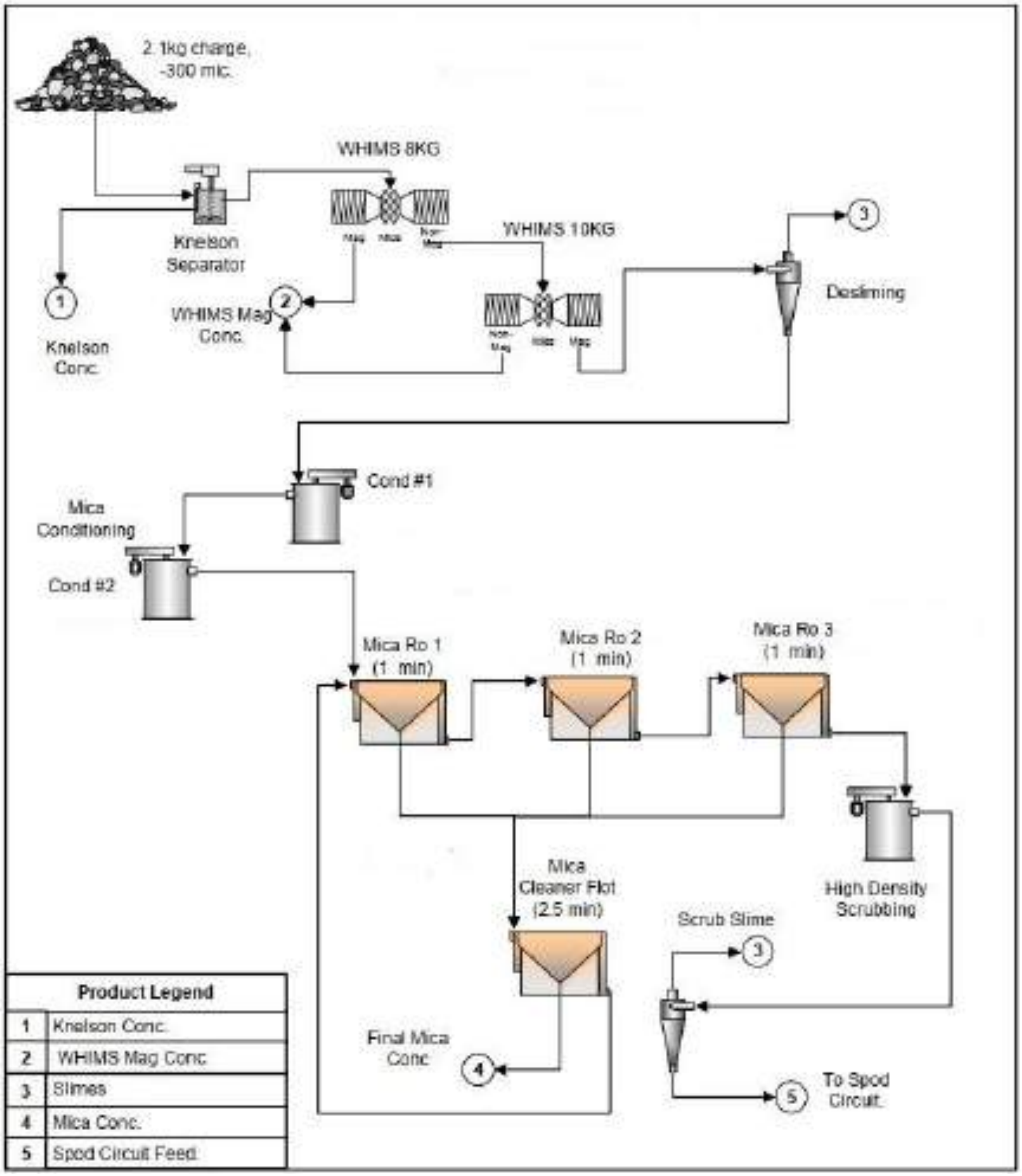


Figure 13-17: LCT Flowsheet 1 of 2
(Source: SGS, 2022)

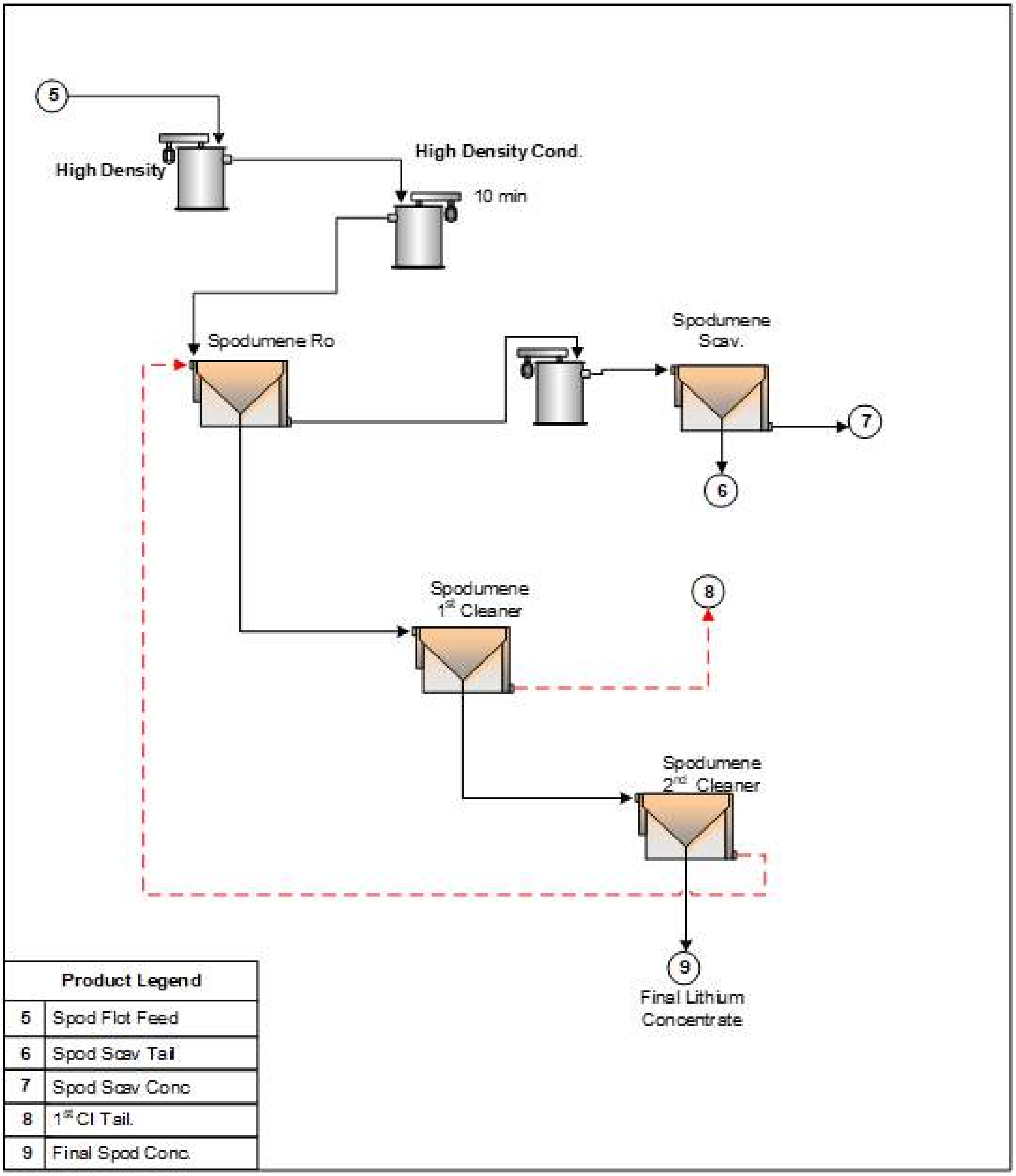


Figure 13-18: LCT Flowsheet 2 of 2
(Source: SGS, 2022)

The Spark Variability and DMS concentrate of the Master Composite samples were subjected to similar flotation tests (F4 to F8 and F11), except processing with the Knelson concentrator was omitted to simplify the test procedure as the arsenic and tantalum has no impact on the metallurgical performance or quality of the SC6.0 concentrate. The results from these first flotation tests are summarized in Figure 13-19 and highlight a strong dependence of head grade on flotation performance.

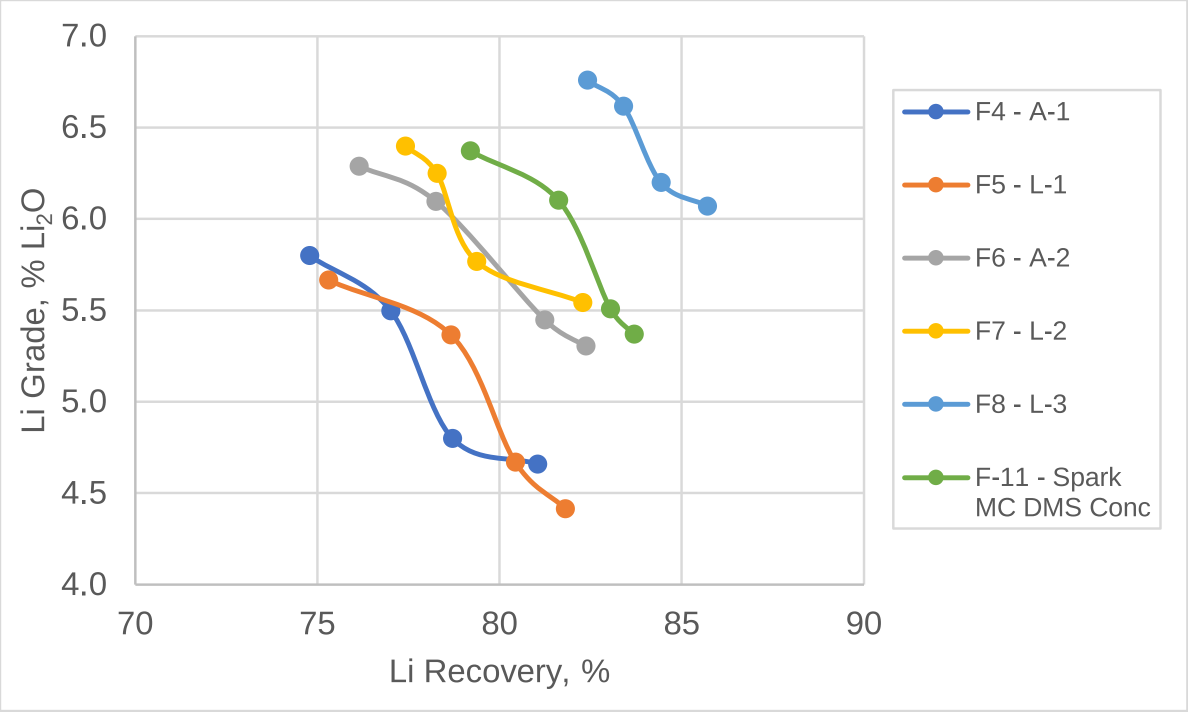


Figure 13-19: Spark Sample Flotation Test Performance
(Source: SGS, 2022)

In contrast to the Spark variability samples, the Spark Master Composite sample was subjected to DMS processing prior to flotation, and so the lithium losses associated with DMS must be considered in any comparisons. The MC result including DMS recovery is summarized in Table 13-25 and shows that the high DMS losses reduce the global recovery compared to direct flotation of the ROM material.

Table 13-25: Spark Flotation Test Summary
(Source: SGS, 2022)

Test	Sample	Head Grade	Conc Grade	Flotation Recovery	DMS Recovery	Global Recovery
F4	A-1	1.09	5.80	74.8	-	74.8
F5	L-1	1.00	5.67	75.3	-	75.3
F6	A-2	1.62	6.29	76.1	-	76.1
F7	L-2	1.72	6.40	77.4	-	77.4
F8	L-3	2.34	6.76	82.4	-	82.4
F11	Spark MC	2.05	6.10	79.2	89.5	70.9

Using the HLS data for the Spark Master Composite samples and relationship of recovery and head grade from flotation testing of the individual samples, the overall recovery from DMS and flotation processing was determined for separation SG's ranging from 2.70 to 2.65. The results of this modelling are given in Table 13-26. The lithium recovery from direct flotation of the Spark Master Composite containing 1.37% Li_2O is estimated to be 76.3%, same from DMS processing at 2.65 SG. In contrast to the PAK Deposit, there is no overall benefit associated with DMS processing for the Spark material.

Table 13-26: Spark Combined DMS + Flotation Performance
(Source: SGS, 2022)

DMS S.G.	DMS Li Recovery	Float Feed Grade, % Li_2O	Float Li Recovery	Overall Recovery
2.70	86.7	2.26	80.7	70.0
2.69	88.8	2.16	80.2	71.3
2.68	91.0	2.07	79.7	72.6
2.67	93.1	1.97	79.2	73.8
2.66	95.3	1.88	78.8	75.0
2.65	97.4	1.78	78.3	76.3

In preparation for the pilot plant, two batch flotation tests and a locked cycle test were conducted on the Spark Bulk sample. The tests were conducted with similar conditions and the locked cycle test ("LCT") was conducted following the flowsheet summarized in Figure 13-17 and Figure 13-18. The Spodumene Scavenger stage was only included in the test for diagnostic purposes and was not intended to be used in the pilot plant.

The results from the LCT are summarized in Table 13-27 and the performance of batch test F14 and the LCT are compared with the other Spark samples in Figure 13-20 where it is seen that the performance is similar to the A2 and L2 samples. This is to be expected due to the similar head grade, and the LCT lands on the previously established grade-recovery curve.

Table 13-27: Spark Bulk Sample LCT Results
(Source: SGS, 2022)

Product	Wt %	Assays, %										Global Distribution, %									
		Li_2O	SiO_2	Al_2O_3	K_2O	Na_2O	CaO	P_2O_5	MgO	MnO	Fe_2O_3	Li	SiO_2	Al_2O_3	K_2O	Na_2O	CaO	P_2O_5	MgO	MnO	Fe_2O_3
Li Cl Conc	20.2	6.15	65.9	24.4	0.27	0.61	0.49	0.27	0.08	0.07	0.44	78.1	18.2	30.7	2.5	3.3	26.2	24.5	9.8	13.6	13.7
Li 1st ClTail	4.2	0.37	78.1	12.8	1.96	4.96	0.21	0.08	0.06	0.04	0.35	1.0	4.5	3.4	3.8	5.6	2.3	1.6	1.6	1.5	2.3
Li Ro Tail	58.6	0.15	78.4	12.6	2.45	5.01	0.06	0.07	0.03	0.03	0.16	5.5	62.7	45.8	65.4	78.2	9.7	17.3	11.8	14.3	14.7
2nd Slime	3.2	1.11	70.7	16.2	2.81	4.26	0.73	0.41	0.31	0.16	0.88	2.2	3.0	3.2	4.0	3.6	6.1	5.7	5.9	4.7	4.3
Mica Ro Conc.	3.4	1.03	51.2	29.5	8.48	0.90	0.12	0.09	0.14	0.26	1.62	2.2	2.4	6.3	13.2	0.8	1.0	1.3	2.8	8.0	8.5
1st Slime	3.9	1.01	68.5	17.0	3.24	4.06	0.88	0.55	0.32	0.23	1.44	2.5	3.6	4.1	5.7	4.2	8.9	9.5	7.4	8.3	8.6
Combined Mag Conc.	2.8	1.59	53.9	15.9	1.90	1.91	5.64	2.82	3.10	1.49	9.02	2.8	2.1	2.8	2.5	1.4	41.9	35.4	53.1	38.8	39.4
Knelson Conc.	3.6	2.48	70.0	17.2	1.72	2.99	0.41	0.30	0.34	0.32	1.53	5.7	3.5	3.9	2.9	2.9	3.9	4.8	7.5	10.7	8.6
Head (Calc.)	100	1.59	73.3	16.1	2.19	3.75	0.38	0.23	0.17	0.11	0.65	100	100	100	100	100	100	100	100	100	100
Head (Dir.)		1.66	73.3	16.2	2.25	3.70	0.45	0.24	0.17	0.10	0.82										
Combined Slimes	7.0	1.05	69.5	16.6	3.05	4.15	0.81	0.49	0.31	0.20	1.19	4.6	6.7	7.3	9.8	7.8	14.9	15.1	13.3	13.0	12.8
Mag Sep Conc.	2.8	1.59	53.9	15.9	1.90	1.91	5.64	2.82	3.10	1.49	9.02	2.8	2.1	2.8	2.5	1.4	41.9	35.4	53.1	38.8	39.4
Mica Conc.	3.4	1.03	51.2	29.5	8.48	0.90	0.12	0.09	0.14	0.26	1.62	2.2	2.4	6.3	13.2	0.8	1.0	1.3	2.8	8.0	8.5
Knelson Conc.	3.6	2.48	70.0	17.2	1.72	2.99	0.41	0.30	0.34	0.32	1.53	5.7	3.5	3.9	2.9	2.9	3.9	4.8	7.5	10.7	8.6
Li Conc.	20.2	6.15	65.9	24.4	0.27	0.61	0.49	0.27	0.08	0.07	0.44	78.1	18.2	30.7	2.5	3.3	26.2	24.5	9.8	13.6	13.7

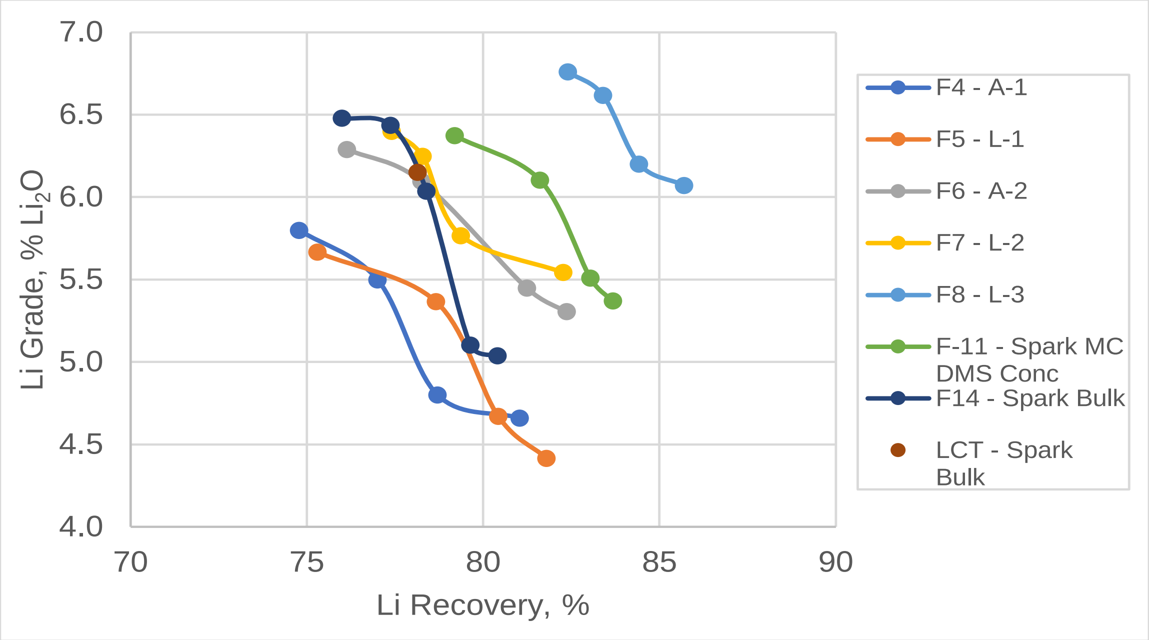


Figure 13-20: Spark Bulk Sample Performance
(Source: SGS, 2022)

Following confirmation that DMS was not beneficial to processing mineralization from the Spark Deposit, direct flotation testing of the Master Composite sample proceeded with a batch flotation test and a locked cycle test. Batch test F18 was completed and achieved a concentrate grade of 6.13% Li_2O at a recovery of 79.2%. This test did not include the Knelson Concentrator and resulted in the higher recovery. The results from the LCT are summarized in Table 13-28 and a similar recovery of 79.5% was achieved, but the concentrate grade was slightly lower at 5.88% Li_2O.

Table 13-28: Spark Master Composite LCT Results
(Source: SGS, 2022)

Product	Wt %	Assays %										Global Distribution %									
		Li_2O	SiO_2	Al_2O_3	K_2O	Na_2O	CaO	P_2O_5	MgO	MnO	Fe_2O_3	Li	SiO_2	Al_2O_3	K_2O	Na_2O	CaO	P_2O_5	MgO	MnO	Fe_2O_3
Li Cl Conc	18.0	5.88	66.3	23.4	0.35	0.74	0.64	0.40	0.11	0.08	0.32	79.5	16.3	26.2	3.0	3.1	29.9	27.1	9.9	8.5	9.6
Li 1st ClTail	3.7	0.53	76.7	13.9	1.80	5.31	0.22	0.09	0.12	0.04	0.24	1.5	3.9	3.2	3.2	4.6	2.1	1.2	2.2	0.8	1.5
Li Ro Tail	58.4	0.09	78.5	12.9	1.99	5.68	0.09	0.06	0.04	0.02	0.18	3.9	62.6	46.8	56.1	76.5	14.2	12.6	12.3	7.2	17.9
2nd Slime	2.1	0.92	72.1	15.5	2.14	4.85	0.95	0.24	0.36	0.07	0.50	1.5	2.1	2.0	2.2	2.4	5.3	1.9	3.7	1.0	1.8
Mica Ro Conc.	7.3	0.91	60.5	23.5	5.89	2.63	0.32	0.20	0.31	0.15	1.32	5.0	6.0	10.7	20.7	4.4	6.2	5.5	11.2	6.9	16.0
1st Slime	7.3	0.83	70.3	16.5	2.78	4.76	0.60	0.31	0.42	0.11	0.81	4.6	7.0	7.5	9.8	8.0	11.5	8.6	14.8	4.9	9.8
Combined Mag Conc.	3.2	1.75	49.3	18.3	3.23	1.44	3.73	3.55	2.96	3.63	8.18	4.2	2.1	3.6	4.9	1.1	30.9	43.0	45.9	70.8	43.4
Head (Calc.)	100	1.33	73.2	16.1	2.08	4.34	0.38	0.26	0.21	0.16	0.60	100	100	100	100	100	100	100	100	100	100
		1.33	73.7	16.2	2.07	4.31	0.37	0.26	0.21	0.17	0.65										
Combined Slimes	9.4	0.85	70.7	16.3	2.64	4.78	0.68	0.29	0.40	0.10	0.74	6.0	9.1	9.5	12.0	10.4	16.7	10.6	18.5	5.9	11.6
Mag Sep Conc.	3.2	1.75	49.3	18.3	3.23	1.44	3.73	3.55	2.96	3.63	8.2	4.2	2.1	3.6	4.9	1.1	30.9	43.0	45.9	70.8	43.4
Mica Conc.	7.3	0.91	60.5	23.5	5.89	2.63	0.32	0.20	0.31	0.15	1.3	5.0	6.0	10.7	20.7	4.4	6.2	5.5	11.2	6.9	16.0
Li Conc.	18.0	5.88	66.3	23.4	0.35	0.74	0.64	0.40	0.11	0.08	0.3	79.5	16.3	26.2	3.0	3.1	29.9	27.1	9.9	8.5	9.6

13.3.7 Pilot Plant Campaign

An 80-hour pilot plant campaign was completed, in which a bulk sample of material from both Spark and PAK Deposits was processed. The proportion of PAK material in this sample was 11% and a larger proportion of DMS Float was added to mimic adding a lower grade material to reduce the grade of the sample from 1.66% Li_2O to target 1.54% Li_2O, which is closer to the resource grade. Also, additional mafic material was added to bring the dilution up to 4% (from 2% in the sample used for the locked cycle test), which increased the content of iron from 0.65% Fe_2O_3 to a target of 0.75% Fe_2O_3.

The assays of the pilot plant feed sample are summarized in Table 13-29 and show that lithium and iron grades are similar to those targeted (i.e., 1.57% Li_2O and 0.80% Fe_2O_3).

Table 13-29: Pilot Plant Feed Sample Assays (Source: SGS, 2022)

Assay, %														
Li_2O	SiO_2	Al_2O_3	Fe_2O_3	MgO	CaO	Na_2O	K_2O	TiO_2	P_2O_5	MnO	Cr_2O_3	V_2O_5	LOI	Sum
1.57	72.8	16.3	0.80	0.31	0.61	3.66	2.34	0.02	0.24	0.11	0.0	<0.01	0.64	**97.8**

The pilot plant flowsheet was similar to the LCT flowsheet and is summarized in Figure 13-21 and Figure 13-22.

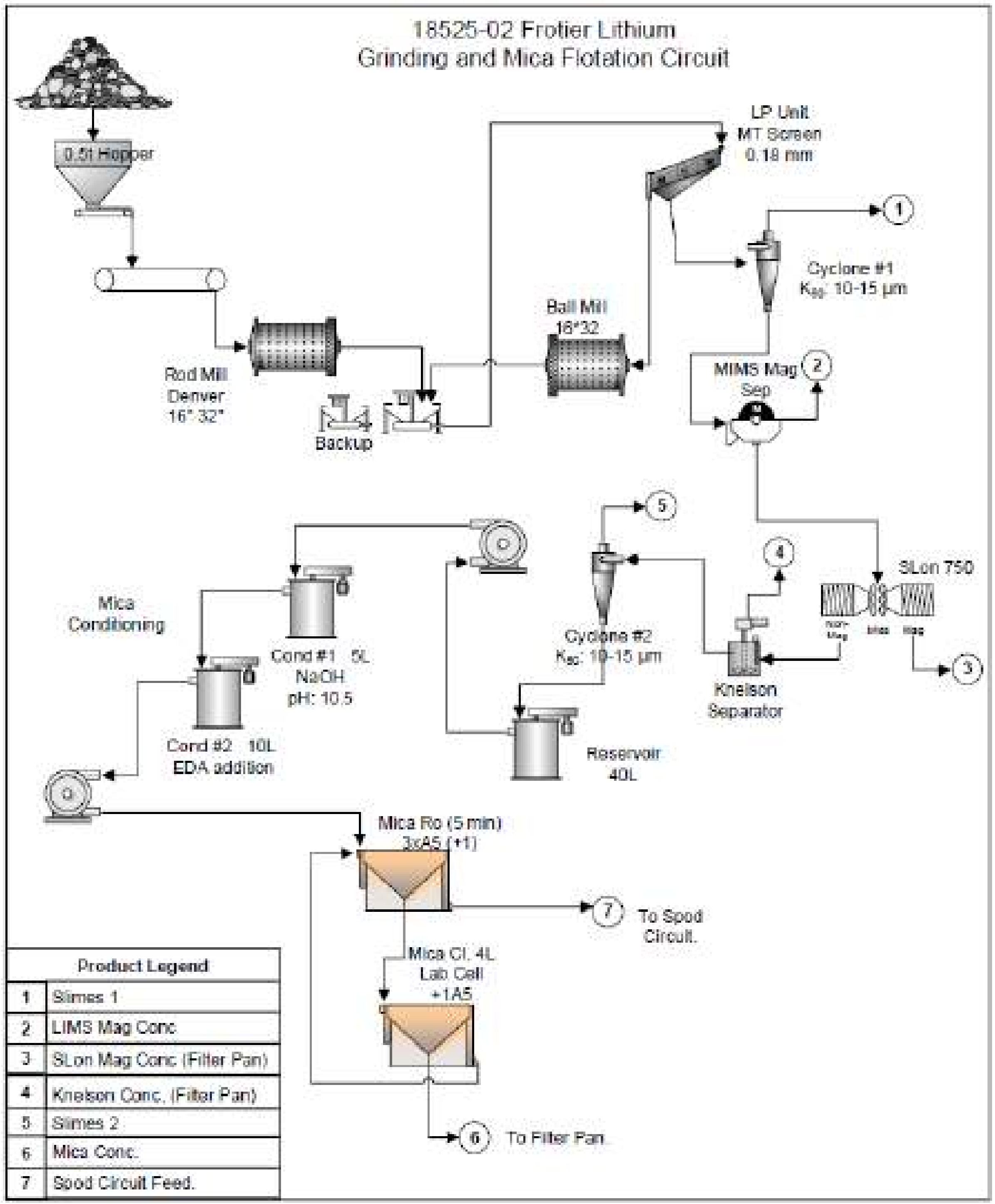


Figure 13-21: Pilot Plant Flowsheet (1 of 2)
(Source: SGS, 2022)

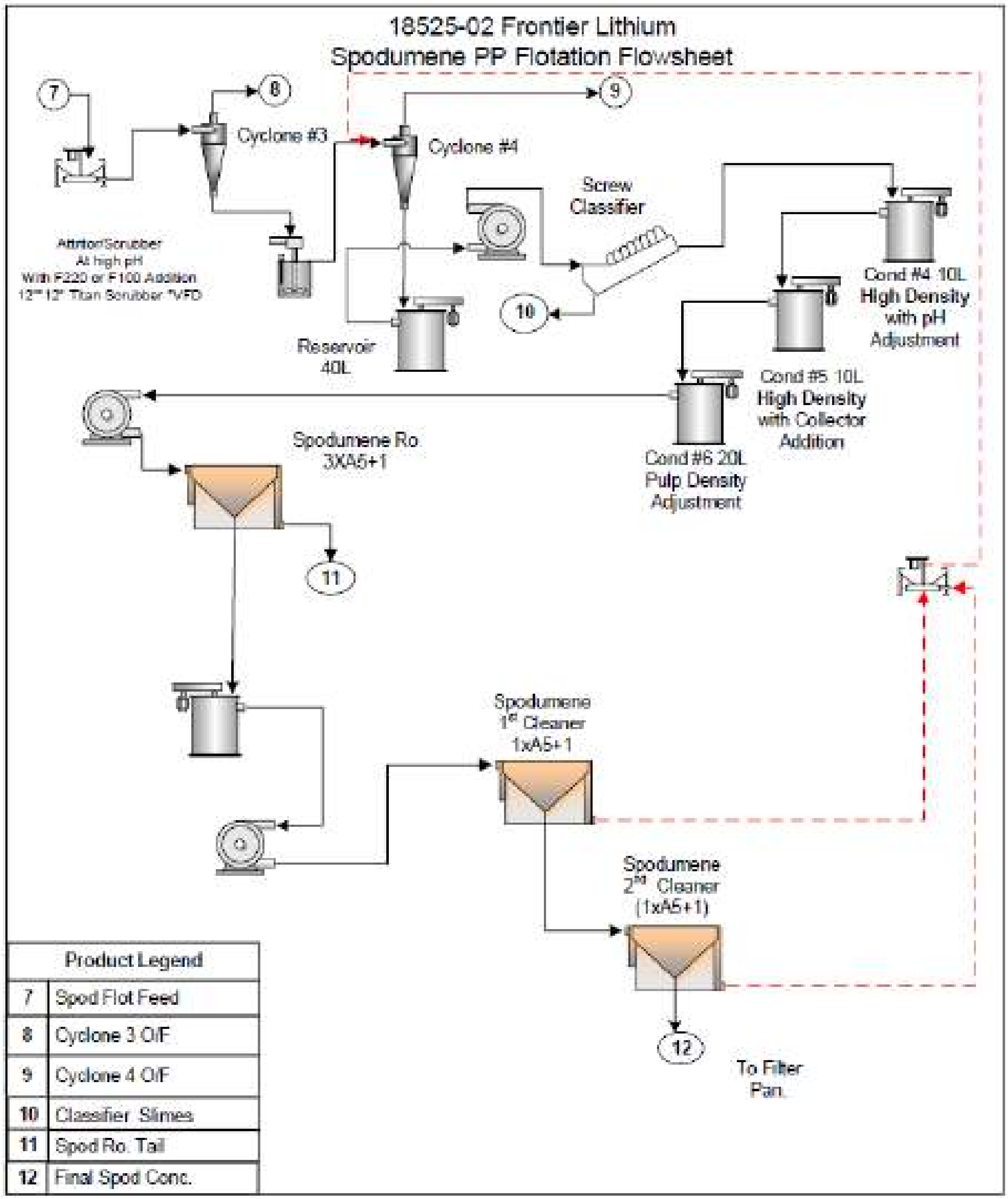


Figure 13-22: Pilot Plant Flowsheet (2 of 2)
(Source: SGS, 2022)

The pilot plant was conducted over eight shifts (denoted as FPP-01 to FPP-08), and following a period of commissioning, desirable performance was achieved during FPP-05 through to FPP-08. All shifts produced concentrate over 5.5% Li_2O and averaged 5.95% Li_2O over the entire pilot production period. The more dramatic improvements attained over the pilot program was an average lithium recovery greater than 70% during shifts PPF-05 to PPF-08 and recovery in PPF-08 of 76.3% at a concentrate grade of 6.03% Li_2O.

Over the course of piloting, a total of 930 kg of concentrate was produced at average of 5.95% Li_2O. A lot of 500 kg was prepared at a grade of 6.13% Li_2O and supplied for downstream hydrometallurgical conversion test work and pilot plant. The overall analysis of the 500-kg concentrate lot is summarized in Table 13-30.

Table 13-30: Pilot Plant Concentrate Sample Assays
(Source: SGS, 2022)

Assay, %														
Li_2O	SiO_2	Al_2O_3	Fe_2O_3	MgO	CaO	Na_2O	K_2O	TiO_2	P_2O_5	MnO	Cr_2O_3	V_2O_5	LOI	Sum
6.13	64.7	24.3	0.76	0.36	0.94	0.62	0.25	0.03	0.35	0.12	<0.01	<0.01	0.97	**93.4**

Assay, ppm				Spec
As	Cs	Rb	Cl	Grav
182	81	296	37	3.07

13.3.8 Gravity Concentrate Downstream Processing

The Knelson concentrate produced during the pilot plant was collected and subjected to test work to evaluate the production of a tantalum concentrate and the recovery of entrained spodumene.

In addition to tantalum, the Knelson concentrator recovered a number of high-density minerals including arsenic bearing minerals loellingite and arsenopyrite, and separation of these will be required before a saleable tantalum concentrate can be achieved.

The grade of the Knelson concentrate was relatively low, containing a significant amount of lithium, and further upgrading will be required before Ta/As separation can be attempted. The density difference between the heavy tantalum and arsenic minerals and silicate minerals, including spodumene, was large enough that concentration by spiral concentrator was thought to be feasible. Shaking table testing was conducted as a proxy for the spiral concentrator, and an initial scoping test conducted using a Mozley Table this gave reasonable results. A larger scale test using a Wilfley Table was therefore completed, with Wilfley Table concentrate further upgraded using a Mozley Table and then WHIMS to attempt separation of the tantalum and arsenic.

The results from the Wilfley Table test are summarized in Table 13-31.

Table 13-31: Wilfley Table Test Results
(Source: SGS, 2022)

Fraction	Product	Weight		Assays %							Distribution %						
		g	%	Ta	As	Li_2O	SiO_2	Al_2O	Fe_2O_3	MnO	Ta	As	Li_2O	SiO_2	Al_2O	Fe_2O_3	MnO
+125 mic Fraction	Wilfley Table Conc	140	0.4	3.76	39.5	0.47	5.86	2.19	30.5	1.64	10.2	12.7	0.1	0.0	0.0	9.5	4.5
	Wilfley Table Midds	314	0.8	1.63	21.4	1.98	39.0	10.7	16.7	1.36	9.9	15.4	0.7	0.4	0.5	11.7	8.4
	Wilfley Table Tails #1	472	1.2	0.38	1.92	3.27	73.2	18.3	2.37	0.35	3.4	2.1	1.6	1.2	1.4	2.5	3.3
	Wilfley Table Tails #2	24,964	63.6	0.05	0.78	2.82	74.7	17.7	0.61	0.09	24.2	45.0	74.9	66.0	69.2	34.2	44.3
-125 mic Fraction	Wilfley Table Conc	197	0.5	7.37	34.1	0.32	5.39	1.66	27.9	2.17	28.2	15.5	0.1	0.0	0.1	12.2	8.4
	Wilfley Table Midds	95	0.2	2.78	24.3	1.18	16.0	5.45	24.2	2.31	5.1	5.3	0.1	0.1	0.1	5.1	4.3
	Wilfley Table Tails #1	478	1.2	0.75	1.98	2.80	65.2	15.4	4.48	0.60	7.0	2.2	1.4	1.1	1.2	4.8	5.6
	Wilfley Table Tails #2	12,593	32.1	0.05	0.06	1.57	69.8	14.0	0.71	0.09	11.9	1.9	21.1	31.1	27.6	20.0	21.1
	Calc Head	39,251	100	0.13	1.11	2.39	72.0	16.3	1.14	0.13	100	100	100	100	100	100	100
	Dir. Head			0.19	0.75	2.49	71.2	17.2	1.07	0.15							

For diagnostic purposes, the testing was conducted on coarse (+125 µm) and fine (-125 µm) fractions, which approximately halved the mass to each test. The fines fraction was able to produce a tantalum concentrate of 35% Ta_2O_5 and 0.35% As, which is slightly above the 0.25% target. It is possible that the target can be reached upon further stages of WHIMS. A fairly high stage recovery of 85% was achieved. The coarse fraction did not perform as well with low tantalum grade, high arsenic grade and poor recovery. These issues are typical of poor liberation and diagnostic mineralogy plus further test work would be required to improve these results.

13.3.9 Ore Sorting Test Work

Iron-bearing mafic minerals are generally dark grey or black and can be rejected at a relatively coarse size using modern sensor-based sorting equipment. The dark mafic minerals offer very good contrast to the much lighter (almost white) pegmatite, suggesting that optical sensor-based separations should be effective. The mafic minerals generally also contain a fair amount of iron that can be detected by X-ray transmission ("XRT") sensors. The mafic minerals tend to interfere with spodumene flotation, so removal of these from the run of mine stream provides a number of metallurgical advantages, leading to a simpler processing circuit with no requirement for washing.

Although rejection of mafic minerals is not expected to be as crucial to the production of chemical grade concentrates as it is to the technical grade product, particle sorting is still considered a requirement for effective processing of Spark feedstock as well as the PAK material.

To date, two sorting assessments have been completed by Tomra Sorting Solutions ("Tomra"). In May 2021, a First Inspection test program was completed, consisting of static measurement of drill core specimens from the main lithologies (LIZ, Aplite, and mafic host rock from the Spark Deposit and LIZ, CIZ, UIZ, granite, and metasediments from the PAK Deposit). The initial assessment confirmed that XRT sensors were able to differentiate the valuable lithologies (LIZ and Aplite from Spark and LIZ, CIZ, and UIZ from PAK) from the mafic host rock and metasediments. The former contained virtually only low-density elements such as Li, Na, Si, Al, K, while the latter contained mainly high-density elements such as Fe. The granite lithology did show some medium density elements such as Ca, but they are not considered to represent minerals that are overly deleterious to the process.

In October 2022, Tomra conducted a Performance Test, in which a bulk sample from Spark was tested using a continuous, industrial scale "COM" series sorting machine. These tests are conducted to verify the efficiency of separations under typical industrial conditions, and the results can be used to predict full scale performance.

The sample sent from SGS consisted of six drums of crushed/screened Spark sample with an estimated waste dilution level of 12% (w/w). The sample was prepared for sorting by removing fines generated in transit (-17 mesh), and screening into size fractions as listed below. Screening is necessary to obtain the correct particle size ratio (approximately 1:3), which allows a more uniform bed thickness for XRT sorting. No pre-washing is required for XRT measurement as the sensing does penetrate the surface.

- -12 mm to bypasses sorting;
- +12 mm -35 mm for sorting;
- +35 mm for sorting.

Combining the screen fraction masses with assays from individual sorting tests, reconstituted head grades are derived. These are given in Table 13-32.

Table 13-32: Spark Bulk Sample Grade Distribution (Source: Tomra, 2022)

Size Fraction	Mass (kg)	Mass (%)	% Li_2O	% SiO_2	% Al_2O_3	% Fe_2O_3
-12 mm	41.2	2.4	0.99	70.40	14.70	1.59
+12 -35 mm	250.1	14.8	1.25	71.97	14.91	1.39
+35 mm	1,393.5	82.7	1.47	71.66	15.15	2.11
Total	**1,684.8**	**100.0**	**1.42**	**71.68**	**15.11**	**1.99**

Sorting was conducted in two passes – giving a better sense of upgrading vs recovery/rejection of elements for each size fraction. Results are given in Table 13-33 and Table 13-34.

Table 13-33: XRT Sorting Results, Coarse (+35 mm) Fraction
(Source: Tomra, 2022)

Product	Desc	Mass (%)	Assay (%)				Distribution (%)			
			Li_2O	SiO_2	Al_2O_3	Fe_2O_3	Li_2O	SiO_2	Al_2O_3	Fe_2O_3
Eject 1	Pure Waste	11.5	0.7	51.6	14.1	12.4	5.2	8.3	10.7	67.8
Eject 2	Low-Grade	2.8	0.3	64.3	15.0	4.7	0.5	2.5	2.8	6.2
Keep	Final Product	85.7	1.6	74.6	15.3	0.6	94.3	89.2	86.5	26.0
Head	Feed Sample	100.0	1.5	71.7	15.2	2.1	100.0	100.0	100.0	100.0

Table 13-34: XRT Sorting Results, Fine (+12 mm -35 mm) Fraction
(Source: Tomra, 2022)

Product	Desc	Mass (%)	Assay (%)				Distribution (%)			
			Li_2O	SiO_2	Al_2O_3	Fe_2O_3	Li_2O	SiO_2	Al_2O_3	Fe_2O_3
Eject 1	Pure Waste	5.1	0.6	52.0	14.5	12.3	2.6	3.7	4.9	45.0
Eject 2	Low-Grade	3.2	0.4	59.6	15.8	5.9	0.9	2.6	3.3	13.4
Keep	Final Product	91.8	1.3	73.5	14.9	0.6	96.4	93.7	91.7	41.6
Head	Feed Sample	100.0	1.2	72.0	14.9	1.4	100.0	100.0	100.0	100.0

Clearly, the dilutive material (and contained iron) is rejected effectively by the XRT sorter, while maintaining high recoveries of lithium.

If the -12 mm sorter bypass material is recombined with the sorted product, then overall separation performance can be calculated, as summarized in Table 13-35.

Table 13-35: Overall Tomra Sorting Results – Including Fines

Desc	Mass (%)	Assay (%)				Distribution (%)			
		Li_2O	SiO_2	Al_2O_3	Fe_2O_3	Li_2O	SiO_2	Al_2O_3	Fe_2O_3
+35 mm Sorter Keeps	70.9	1.60	75	15.3	0.6	80.1	73.8	71.8	21.8
+12/-35 mm Sorter Keeps	13.6	1.30	74	14.9	0.6	12.5	14.0	13.4	4.2
-12 mm Fines Bypass	2.43	0.99	70	14.7	1.59	1.7	2.4	2.4	2.0
Concentrator Feed	**87.0**	**1.54**	**74**	**15.2**	**0.63**	**94.3**	**90.1**	**87.6**	**27.9**
Combined rejects	13.0	0.61	54	14.3	10.8	5.7	9.9	12.4	72.1
ROM Feed Sample	100.0	1.42	72	15.1	1.96	100.0	100.0	100.0	100.0

Concentrator feed is upgraded from 1.42% Li_2O to 1.52% Li_2O with an associated drop in iron (as Fe_2O_3) content from 1.96% to 0.63%. Overall lithium recovery is 94.3%.

13.4 Metallurgical Projection

Metallurgical recoveries for PAK and Spark mineralization have been estimated using a combination of ore sorting test work, DMS test work and flotation test work. PAK utilizes a DMS preconcentration step to increase lithium grades to the concentrator plant, whereas this step was observed to be less efficient for Spark and therefore omitted from that flowsheet. Locked cycle flotation test work conducted most recently at SGS in Lakefield, Ontario, has been used as the basis for the performance projections used in reserve calculations and the financial analysis.

13.4.1 PAK

The PAK process flowsheet includes several unit operations that can incur lithium losses. The SGS locked cycle tests quantify most of these, and preconcentration (sorting plus DMS) test work covers the rest. Finally, the QP has included a modest scale-up allowance to accommodate possible efficiency losses during full scale operation. A summary of the lithium losses estimated through the stages of processing is given in Table 13-36.

Table 13-36: Distribution of Lithium Losses (PAK)

Operation	Estimated Li Losses (%)	Cumulative Recovery (%)
Run of Mine	-	100.0
Ore Sorting	0.12	99.9
DMS	4.14	95.7
Desliming	4.49	91.3
Gravity Concentration	6.21	85.1
LIMS/WHIMS	2.88	82.2
Phosphate Flotation	1.04	81.1
Mica Flotation	2.30	78.8
Spodumene Flotation	2.53	76.3

Note that for the SGS locked cycle test, the spodumene product grade slightly exceeded the technical specification (7.3% Li_2O vs 7.2% target), providing confidence that this high grade can be achieved. Variations in ROM head grade would be the result of variations in host rock dilution, and the effective removal of this material by preconcentration units (XRT sorting and DMS) will attenuate variation in concentrator feed grade while also raising it slightly. The PFS outlines a mine plan with ROM grades ranging from 1.38% Li_2O to 2.53% Li_2O and this should result in a concentrator feed grade range of 1.48% Li_2O to 2.03% Li_2O.

The use of an average lithium recovery of 76.0% across the planned range of PAK head grades is considered appropriate for the PFS.

13.4.2 Spark

The Spark process flowsheet is similar to the PAK flowsheet, although in test work the DMS unit operation was found to be less effective for this deposit and therefore excluded. Phosphate flotation is also not required for the commercial grade product, and this unit operation is also excluded from the Spark flowsheet. The Spark SGS locked cycle test and the recent TOMRA sorting work helps to quantify the lithium losses. As with PAK, the QP has included a modest scale-up allowance to accommodate possible efficiency losses during full scale operation. An overall balance is given in Table 13-37.

Table 13-37: Distribution of Lithium Losses (Spark)

Operation	Li Losses (%)	Cumulative Recovery (%)
Run of Mine	-	100.0
Ore Sorting	2.07	97.9
Desliming	5.29	92.6
Gravity Concentration	1.64	91.0
LIMS/WHIMS	3.22	87.8
Mica Flotation	2.53	85.3
Spodumene Flotation	7.48	77.8

Spark performance is similar to PAK, with increased losses at the back end of the flowsheet. The performance interpretation utilizes pilot plant data as well as locked cycle data.

The use of an average lithium recovery of 78.0% across the planned range of Spark head grades is considered appropriate for the PFS.

13.5 Chemical Products Generation Testing Summary

A quantity of drill core samples from the Frontier Lithium property has been processed during a metallurgical testing program at SGS and which has generated a large quantity of spodumene concentrate containing close to 6% Li_2O as described in Section 13.3. A portion of this product has been submitted to unit testing at a laboratory in China operated by a Chinese engineering company (referred to in this document as C.ENG.) with experience in designing or operating plants for production of the commercial end products of interest, being lithium carbonate and lithium hydroxide. The first phase of testing, as reported in this document, will be followed by pilot plant testing. This initial phase of testing, which used a conventional process based on sulphuric acid dissolution proves that final products of commercially suitable purity can be produced using conventional conditions and processes, and indicates reagent consumptions, roasting temperatures, and times for complete reaction etc. Details and results of this testing are contained in a report dated March 5, 2023 and describe work completed during 2022 ((“Unit Test Report”, April 15, 2023, by C.ENG. (C.ENG., 2023)). Chemical analysis of products during the program was conducted by the Changsha Research Institute of Mining and Metallurgy, which operates a CNAS (China National Accreditation Service for Conformity Assessment) Accredited Analysis Laboratory (equivalent to ISO/IEC 17025:2017).

Approximately 500 kg of spodumene concentrate containing the target of approximately 6% Li_20, produced at SGS, was shipped to C.ENG. in China for testing. Initial work included confirmation of compound assays as shown in Table 13-38 and other significant properties as noted:

- XRD analysis showed that 79.3% of the lithium occurs as spodumene;
- Particle size of the product is 90% passing 300 microns;
- Thermal analysis showed an endothermic peak at 1,050°C, indicating that at this temperature *alpha* spodumene starts conversion to *beta* spodumene.

The testing process to be used was a series of stages in each of which the optimum conditions were to be determined, ending in separation to two products (lithium carbonate and lithium hydroxide) and upgrading of these to commercial grades. The stages are shown in Figure 13-23.

Table 13-38: Comparative Sample Composition
(Source: C.ENG., 2023)

Compound	Unit	At SGS	At C.ENG.
Li_2O	%	6.13	6.39
SiO_2	%	64.7	64.36
Al_2O_3	%	24.3	22.29
Fe_2O_3	%	0.76	0.48
MgO	%	0.36	0.40
CaO	%	0.94	0.71
Na_2O	%	0.62	0.64
K_2O	%	0.25	0.26
TiO_2	%	0.03	0.038
P_2O_5	%	0.35	0.038
MnO	%	0.12	0.19
Cr_2O_3	%	<0.01	0.02
V_2O_5	%	<0.01	<0.01
LOI	%	0.97	-
Sum(1)	%	99.53	98.7
TOC	%	0.23	0.45
F	%	0.037	0.048
S	%	<0.01	<0.01
Cs	g/t	81	56.7
Rb	g/t	296	290
Cl	g/t	37	58
Spec. Gravity		3.07	N.D.

(1) Li_2O calculated based on Li assay, Sum includes Li_2O but not value for Li.

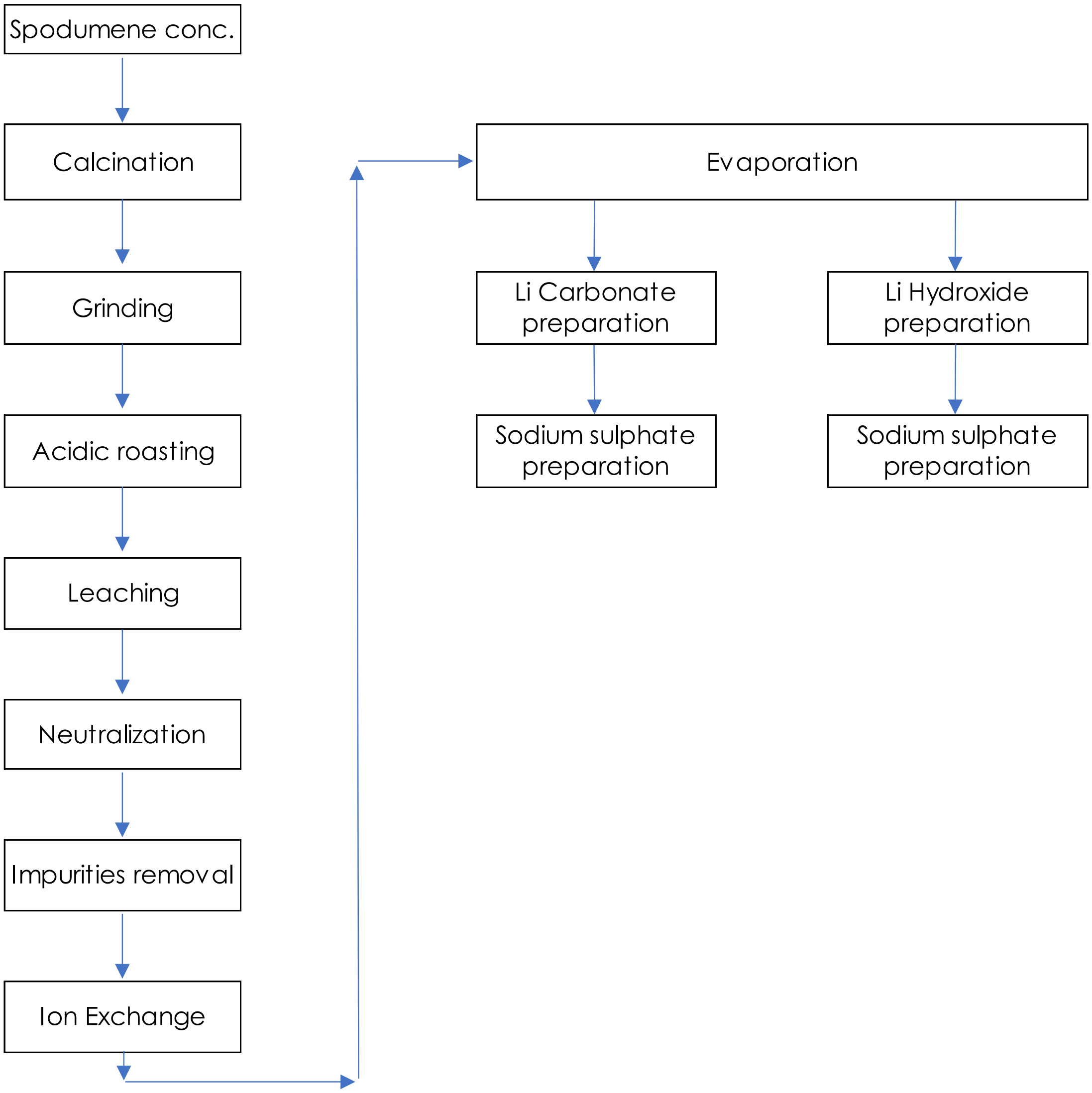


Figure 13-23: Testing Stages Used

Details of each stage of testing noted in Figure 13-23 and the results obtained are presented in the following sections.

13.5.1 Calcination

The object of calcination is to convert monoclinic a-spodumene, which is soluble in hydrofluoric acid only, into tetragonal β-spodumene, which is soluble in sulphuric acid. The calcination temperature required is known to be approximately 1,100°C and the testing explored a range of temperatures and measured the β-spodumene content of the product in order to select the optimum temperature. The calcination was conducted in a muffle furnace for 4 hours duration. Results are shown in Table 13-39, which shows the highest transformation at 1,150°C, only slightly better than results at 1,100°C and 1,200°C.

Table 13-39: Calcination Temperature Tests
(Source: C.ENG., 2023)

Sample ID	Calcination temperature °C	Calcination time h	Pre-calcination mass g	Total Li %	β-Spodumene content %	Conversion rate %
C1	Concentrate	-	-	2.97	0.048	-
C11	1,050	4	100	2.91	2.83	97.3
C12	1,100	4	100	2.94	2.88	98.0
C13	1,150	4	100	2.93	2.90	99.9
C14	1,200	4	100	2.99	2.94	98.3

The optimum duration time of calcination was also investigated using a range of times between 0.5 to 5 hours at a temperature of 1,100°C, and results compared on the basis of % conversion to β-Spodumene. Results are illustrated in Figure 13-24. What appears to be the optimum was discounted by C.ENG., since one data point at 1hour appeared abnormal, and the selected preferred time was 4 hours in the muffle furnace, noting that an industrial application would probably use a rotary kiln, which would be more efficient.

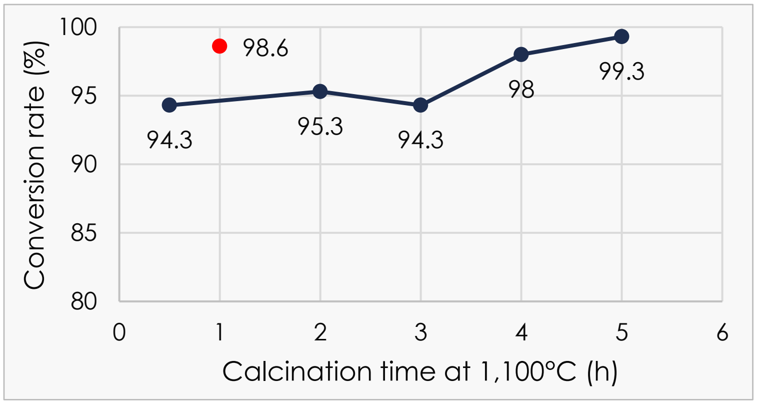


Figure 13-24: Comparison of calcination time
(Source: C.ENG., 2023)

13.5.2 Grinding

Grinding of the calcined spodumene is required to remove lumps formed in calcination and to reduce extreme particle size to ensure optimal leaching time and efficiency. A small ball mill was used for the testing for times of 10 to 50 minutes duration. And the sample material had been calcined. Test results are shown in Figure 13-25., expressed size being in 200 mesh, equivalent to 74 microns.

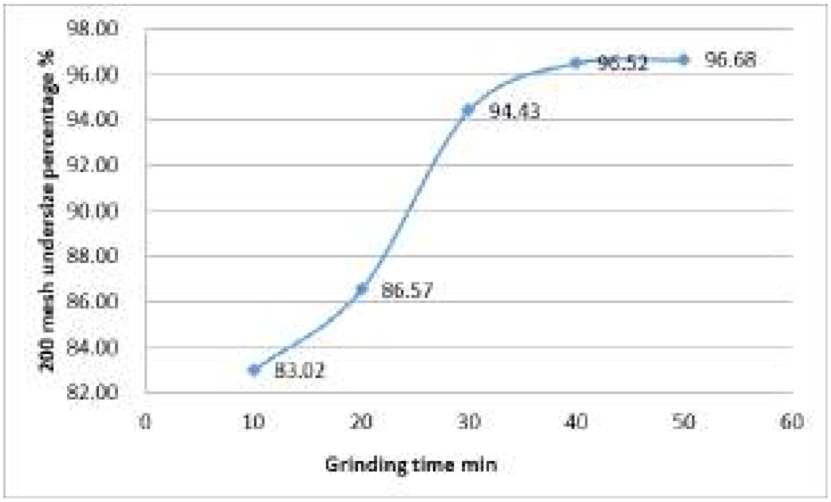


Figure 13-25: Grinding time comparison
(Source: C.ENG., 2023)

Based on these results, the optimum time was recommended to be 30-40 minutes.

13.5.3 Acid Roasting

Testing to determine best conditions for acid roasting, where the calcine is roasted together with addition of sulphuric acid, were performed to study a range of roasting temperatures and acid-solid ratios. The acid roasting is required to convert the spodumene to lithium sulphate which can be leached. Material to be tested had undergone calcination at 1,100°C for 2 hours and grinding to reduce coarse particles.

The range of temperatures tested was 250-340°C at 2 hours of roasting duration and the effect measured by the quantity of soluble lithium (presumably lithium sulphate) generated as a proportion of total lithium in the feed. Table 13-40 shows the conversion at the range of temperatures tested, and comparison is shown in Figure 13-26. While the highest temperature (340°C) gave the highest conversion, C.ENG. emphasized that this was a higher temperature than normally used in industrial applications, probably due to the muffle furnace static conditions versus a rotary kiln.

Table 13-40: Conversion Rate to Soluble Lithium Versus Temperature (Source: C.ENG., 2023)

Temperature °C	Sample No.	Total lithium after acid roasting %	Soluble lithium after acid roasting %	Conversion rate %
250	C39	2.26	2.02	89.4
280	C310	2.32	2.10	90.5
310	C311-2	2.23	2.09	93.7
340	C312	2.26	2.13	94.2

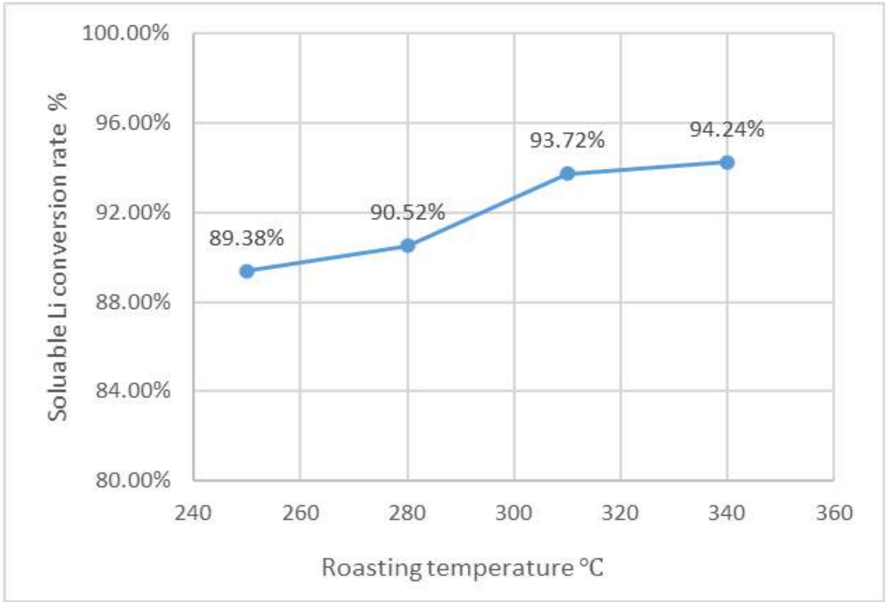


Figure 13-26: Soluble Lithium Conversion for Temperature Range (Source: C.ENG., 2023)

The roasting time was tested in order to evaluate the optimum time required, at the target temperature. To attain the best conversion rate to lithium sulphate. Times of 1-4 hours were compared at the fixed roasting temperature of 250°C, again not the optimum temperature established in other tests with this roasting stage. Results are shown in Table 13-41, indicating the best conversion with the maximum roasting duration of 4 hours.

Table 13-41: Roasting Time Effect on Lithium Conversion to Sulphate
(Source: C.ENG., 2023)

Roasting time h	Sample No.	Total lithium after acid roasting %	Soluble lithium after acid roasting %	Conversion ratio %
1	C313	2.31	1.76	76.2
2	C314	2.16	1.91	88.4
3	C315	2.25	1.97	87.6
4	C316	2.24	2.14	95.5

The acid addition to the roasting stage was examined based on the level of soluble lithium after standard roasting conditions of 250 and 2 hours. These tests were conducted in a different sequence than some other tests which explains why 2 hours was selected for acid addition evaluation versus the time shown in parallel tests of 4 hours. However, the results are still valid for demonstration of acid requirements. Results in Table 13-42 and Figure 13-27 indicate that an acid addition ratio (acid: solid) of 0.45 is preferred.

Table 13-42: Acid Addition Level in Roasting and Lithium Conversion
(Source: C.ENG., 2023)

Sample No.	Total lithium after acid roasting	Soluble lithium after acid roasting	Conversion rate
C35	2.64	1.54	58.3
C36	2.42	2.19	90.5
C37	2.3	2.09	90.9
C38	2.03	1.98	97.5

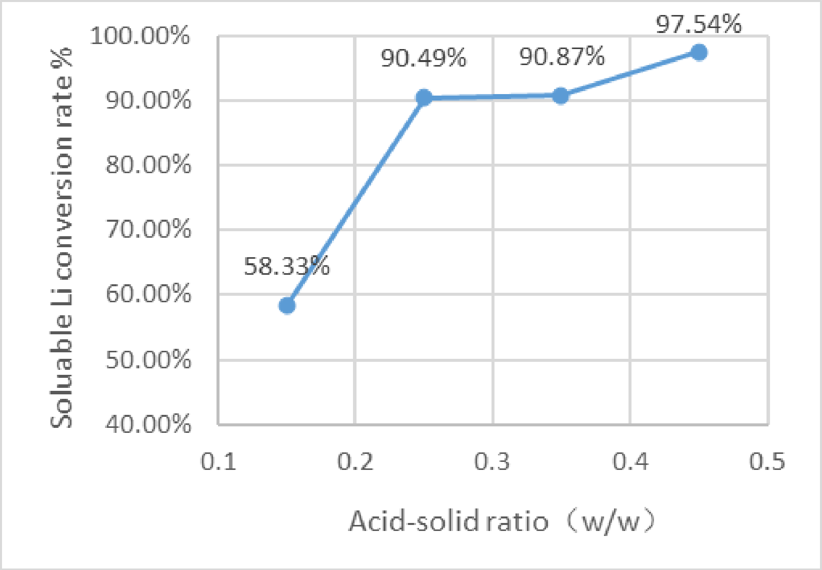


Figure 13-27: Acid Addition Level Effect on Lithium Conversion (Source: C.ENG., 2023)

Repeat testing of the acid requirements in roasting was conducted by measuring actual lithium leaching rate for each acid addition level, and results are shown in Figure 13-28. This shows that the optimum acid addition level (acid: solid) based on the latter tests was 0.45:1.

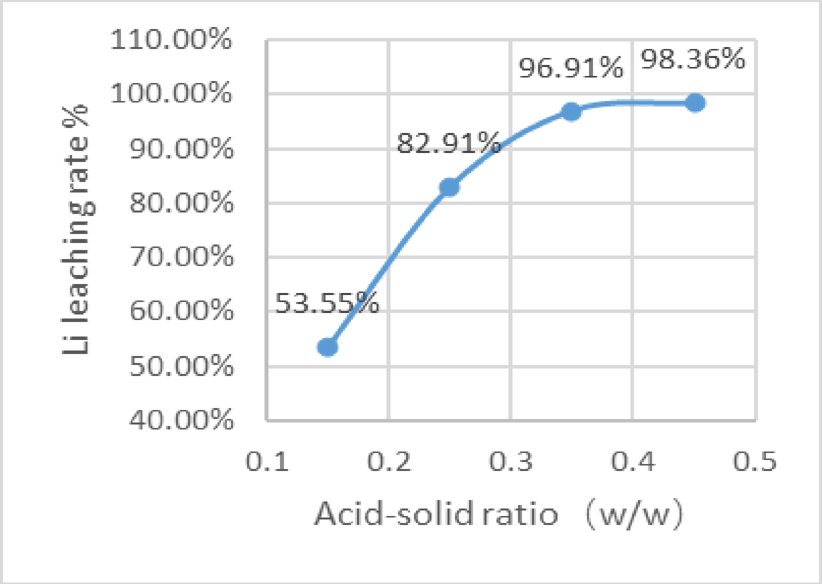


Figure 13-28: Acid Addition Level Effect on Lithium Conversion (Source: C.ENG., 2023)

13.5.4 Leaching

A series of leaching tests was completed in order to identify the ideal conditions for leaching the roasted product including variables of temperature, time and liquid : solid ratio, as listed in Table 13-43.

Table 13-43: Leaching Tests Variables
(Source: C.ENG., 2023)

Condition	Unit	Parameter
Calcination temperature	°C	1,100
Calcination time	h	2
Acid solid ratio	w/w	0.25
Roasting temperature	°C	250
Acid roasting time	h	2
Liquid solid ratio	w/w	2:1, 3:1, 4:1, 5:1
Leaching temperature	°C	30, 40, 50, 60
Leaching time	h	1, 2, 3, 4
Agitation speed	rpm	200

As seen in the testing of variables for the acid roasting stage, the acid: solid ratio employed for these tests of 0.25 :1 was not the optimum condition and hence leach recoveries of lithium were not the maximum possible. However, the tests did show the optimum condition for leach temperature and little variation due to liquid :solid ratio or time, as shown in Figure 13-29, Figure 13-30 and Figure 13-31.

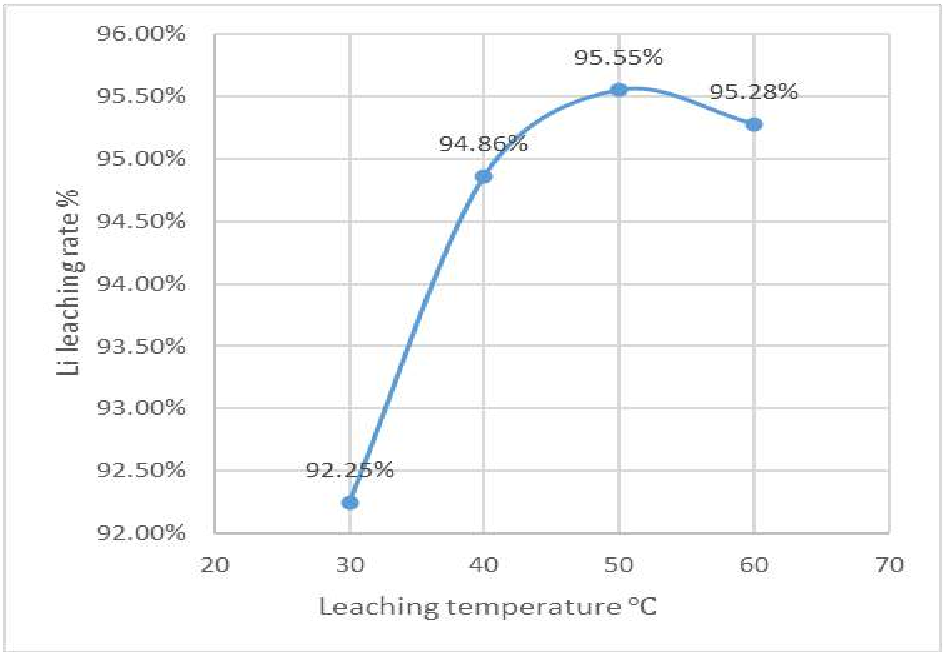


Figure 13-29: Leaching Temperature Effect on Leach Extraction (Source: C.ENG., 2023)

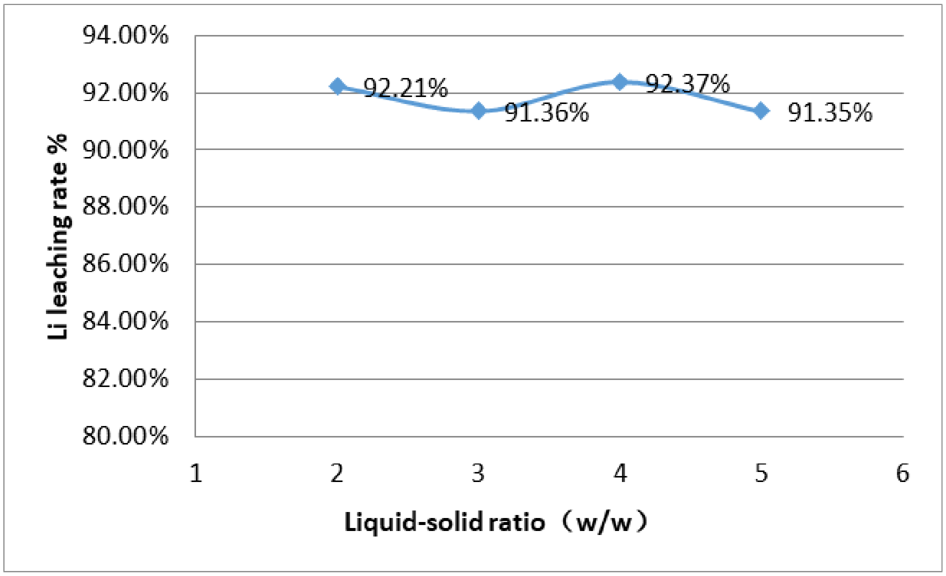


Figure 13-30: Liquid – Solid Ratio Effect on Leach Extraction (Source: C.ENG., 2023)

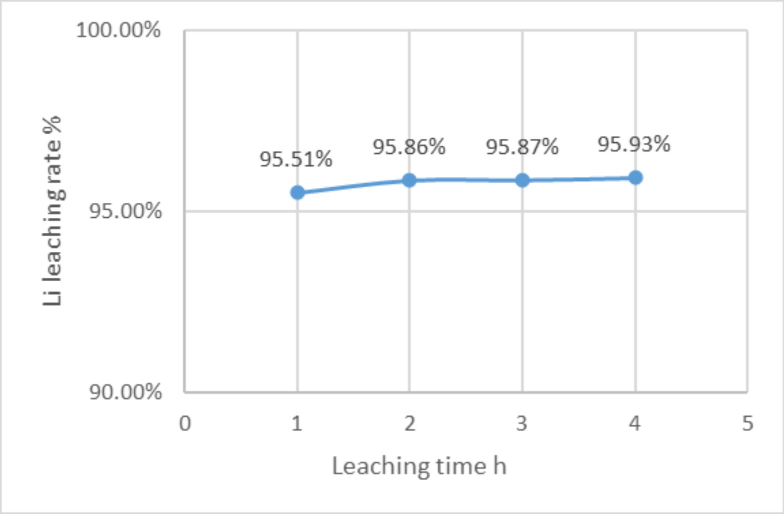


Figure 13-31: Leaching Time Effect on Leach Extraction (Source: C.ENG., 2023)

13.5.5 Neutralization

After leaching, the solution contains high levels of iron, aluminum, calcium and magnesium. Initial solution purification is by addition of lime to raise the pH and reduce the iron and aluminum content. Tests conducted on a typical leachate showed that lime addition to achieve a final pH of 5-6 would produce optimum results as shown in Figure 13-32.

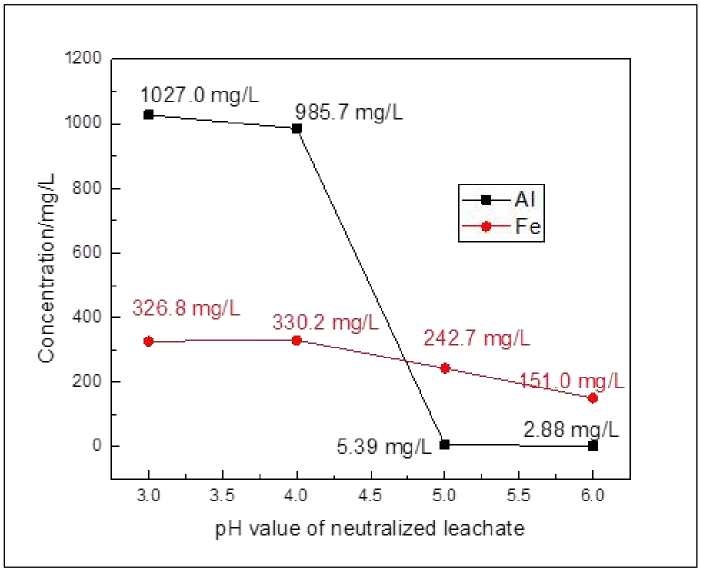


Figure 13-32: pH Value Effect on Leachate Purification (Source: C.ENG., 2023)

13.5.6 Impurities Removal

The removal of impurities from the leachate solution prior to extracting lithium products is required and significant testing was conducted on leaching solution produced in the prior testing stage. Much of the iron and aluminum was removed from solution during the neutralization stage but significant levels of calcium and magnesium remained. Treatment with sodium hydroxide solution (50 wt% NaOH) and sodium carbonate solution (300 g/L) was tested with multiple dosage conditions. Solutions from the leaching at 1.5: 1 liquid to solid ratio were tested with various addition levels of sodium hydroxide solution (1, 1.1, 1.2, 1.4, 1.6 times theoretical requirement) followed by sodium carbonate solution (1, 1.2, 1.6, 2, 3, 4 times theoretical requirement). In both cases the theoretical requirement was based on the level of Ca/Mg impurities. A range of sodium hydroxide solution concentrations between 5 and 50% was also tested.

Overall, similar reductions of calcium and magnesium were obtained with a variety of test conditions. A typical leachate quality after treatment (in this case with 50% NaOH solution at different addition levels), is shown in Table 13-44.

Table 13-44: Chemical Analysis of Solution After Ca & Mg Removal
(Source: C.ENG., 2023)

Sample No.	Li g/L	Al mg/L	Fe mg/L	Ca mg/L	Mg mg/L	Si mg/L
CBU-5D-1	13.02	<0.5	<0.5	9.72	2.97	14.34
CBU-5D-2	12.49	<0.5	<0.5	11.87	2.05	15.95
CBU-5D-3	11.48	<0.5	<0.5	8.87	19.89	17.84
CBU-5D-4	10.52	<0.5	<0.5	20.25	8.44	27.35
CBU-5D-5	12.36	<0.5	<0.5	8.28	3.3	18.08

Further removal of calcium and magnesium was recommended to ensure the required quality of the final lithium products and this was to be done by ion exchange as described in the following section.

13.5.7 Ion Exchange for Final Solution Impurities Removal

A series of tests with ion exchange was conducted to determine the best conditions for final calcium and magnesium removal from the leachate generated after initial removal of Ca and Mg from the leach solution using sodium hydroxide and sodium carbonate. A sample was generated, using the optimum conditions for the leach stage and Ca/Mg removal stage, for the ion exchange tests, with properties as shown in Table 13-45. It is notable that the Ca and Mg content are significantly lower than the results from the preliminary caustic removal test series since these prior tests were done to examine separate conditions for dosage and concentration. The solution selected for the ion exchange feed was apparently generated using optimum conditions for Ca and Mg preliminary removal. Therefore, the ion exchange testing results should be applicable for identifying the best conditions of flow and time.

Table 13-45:Chemical Composition of Impurity Removal Solution for Ion Exchange (Source: C.ENG., 2023)

Sample No.	Li g/L	Al mg/L	Fe mg/L	Ca mg/L	Mg mg/L
C6D-2	13.990	0.047	0.9	0.731	0.447

The conclusions from the testing were that a flow rate of 4 bed volumes/h (BV/h) and a time period of less than 30 hours were optimal for the removal of Ca and Mg. Resin desorption was best achieved at 12 BV/h. Resin regeneration was best at 4 BV/h compared with higher flowrates of 5 and 6 BV/h.

In order to reduce solution volume and provide a practical level of lithium concentration in the process solution, after solution treatment in ion exchange a stage of evaporation is required. Results from before and after evaporation to 1/3 of the original solution volume are shown in Table 13-46. The result is a solution with a lithium content of >30 g/L.

Table 13-46: Composition of Lithium Solution Before and After Evaporation (Source: C.ENG., 2023)

Sample No.	Li g/L	Li_2O g/L	Ca mg/L	Fe mg/L	Al mg/L	Mg mg/L
Before evaporation C700	12.69	27.32	0.32	<0.01	0.22	0.23
After evaporation C803	32.28	69.49	9.39	0.13	0.23	1.2

13.5.8 Lithium Carbonate Preparation

Testing to identify the best conditions for lithium carbonate production by precipitation from the ion exchange product solution and the purity of the projected product was conducted. The process involves heating of the lithium bearing solution and precipitation by the addition of sodium carbonate. Variables tested were the temperature of the solution, the quantity of sodium carbonate required and reaction time. The precipitation rate for lithium carbonate under different temperatures is shown in Table 13-47, which shows a slight improvement at the highest temperature.

Table 13-47: Temperature for Precipitation of Lithium Carbonate (Source: C.ENG., 2023)

Reaction temperature ℃	Sample No.	Crystallization rate %	Purity of lithium carbonate %
80	C83-1	81.53	97.49
85	C83-2	81.93	97.15
90	C83-3	82.02	97.59
95	C83-4	84.52	97.39

Sodium carbonate dosage was examined in another test series which showed the best result at 1.2 times the theoretical dosage and purity of the precipitate at around 97% for all conditions, shown in Table 13-48.

Table 13-48: Sodium Carbonate Dosage for Precipitation of Lithium Carbonate (Source: C.ENG., 2023)

Sample No.	Dosage of sodium carbonate -	Crystallization rate %	Purity of lithium carbonate %
C81-1	1	64.74	97.06
C81-2	1.05	68.14	97.22
C81-3	1.1	69.18	96.23
C81-4	1.2	76.95	97.52

The reaction time for precipitation was tested for times from 1 to 3 hours using the established best cases for temperature and sodium carbonate addition. The crystallization rate measured was similar for both 1 and 3 hours at 75-77% of total, but was higher at 2.5 hours, which was assumed by C.ENG. to be an error.

The crystalline product from an optimum test was examined to determine purity. The reported value of 97.22% was lower than the level required for battery grade product so further purification was examined using carbon dioxide. Product analyses are shown in Table 13-49.

Table 13-49: Chemical Composition of Primary Crystalline Lithium Carbonate (Source: C.ENG., 2023)

Composition	Content, %
Li_2CO_3	97.22
Li	18.27
Fe	<0.0003
Al	0.00046
Mg	0.004
Ca	0.0011
K	0.0024
Na	0.15
Si	0.0048
CO_3^{2-}	78.95
SO_4^{2-}	1.38
Cl	<0.001

Carbon dioxide testing included examination of gas flowrate, temperature and gas blowing time. Lithium carbonate at 97.2% purity was dissolved/slurried in water and CO_2 gas was blown into the solution under a range of conditions to produce $LiHCO_3$, lithium bicarbonate. A purer form of lithium carbonate was then precipitated. All tests produced the final lithium carbonate purity of between 99.4 to 99.8% which is likely within analysis variability range. The longest CO_2 addition time of 2 hours did produce the highest value of 99.8% lithium carbonate.

13.5.9 Lithium Hydroxide Preparation

Production of lithium hydroxide from lithium sulphate involves addition of sodium hydroxide NaOH followed by freezing crystallization of mirabilite (sodium sulphate $Na_2SO_4.10H_2O$) and further evaporative crystallization stages to generate solid lithium hydroxide of required purity. The flow scheme is shown in Figure 13-33.

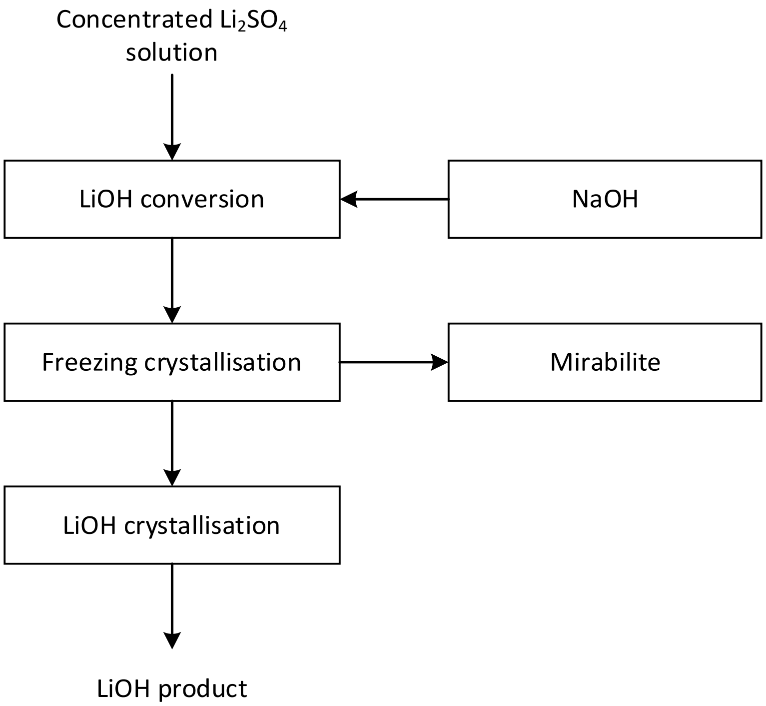


Figure 13-33: Process stages to generate lithium hydroxide (Source: C.ENG., 2023)

After sodium hydroxide solution at 50% concentration was added and mixed with the lithium sulphate solution, the resulting causticizing solution was cooled in two stages to crystallize sodium sulphate (mirabilite): one stage at a cooling temperature of -5°C, cooled and crystallized, and then filtered to obtain mirabilite. After filtration, the solution was again cooled and crystallized in a secondary stage at -10°C. The crystallization time used in both stages were 4 hours. The filtered crystals of mirabilite were dissolved, and sodium sulphate crystals were obtained by evaporation crystallization.

The remaining solution containing lithium hydroxide was evaporated and crystallized twice to prepare lithium hydroxide crystals. The initial evaporation and crystallization stage produced coarse-grained lithium hydroxide solids. This product was dissolved in deionized water and evaporated and crystallized a second time to obtain the final lithium hydroxide product.

For crystallization of lithium hydroxide, the final product after two stages of evaporative crystallization contained only 52.99% lithium hydroxide which was low, judged to be due to incomplete mirabilite removal and small scale testing. Complete product analysis is shown in Table 13-50.

Table 13-50: Compositions of Lithium Hydroxide Sample After Two-Stage Crystallization (Source: C.ENG., 2023)

Sample No.	LiOH %	Li %	Na %	Al %	Mg %	K %	Fe %	Ca %	Si %
C93-Li-2 Crystallization	52.99	16.03	1.01	0.0014	0.001	0.014	<0.001	<0.001	0.1

A further test series (C9A1) was conducted in order to obtain a better quality of lithium hydroxide, following the same stages and conditions as in the previous tests. In this case it appeared that mirabilite removal was much improved and the final lithium hydroxide products in first and second stage crystallization reached 38.89% and 53.69% LiOH purity respectively. Final product analysis is shown in Table 13-51. C.ENG concluded that the 53.69% purity was lower than required commercially due likely to inadequate vacuum evaporation of the crystals and hence a high water content.

Table 13-51: Final Lithium Hydroxide Crystal Analysis (Source: C.ENG., 2023)

Sample No.	LiOH %	Na %	Al %	Mg %	K %	Fe %	Ca %
C9A1-Li-2 LiOH Crystal	53.69	0.0015	<0.0002	<0.0002	0.0039	<0.0010	<0.0010

13.5.10 Confirmatory Testing

A second phase of testing was conducted, using what were determined to be the optimum conditions in each stage of processing, based on the results obtained in the initial phase of testing. The object was to confirm suitable test conditions and resulting product quality. The selected conditions are listed in Table 13-52.

Table 13-52: Confirmatory Testing Conditions Used (Source: C.ENG., 2023)

Process	Condition	Parameter
Calcination	Calcination temperature, ℃	1,100
	Calcination time, h	2
Grinding	Grinding time, min	40
Roasting	Roasting temperature, °C	250
	Acidification roasting time	2

Process	Condition	Parameter
Leaching	Leaching time /h	1
	Agitation speed/rpm	200
Impurities removal	Dosage- Theoretical quantity multiple of 50 wt% NaOH	1.0-1.3
	Dosage- Theoretical quantity multiple of 300 g/L Na_2CO_3	2.0-3.5
Ion exchange	Ion exchange flow rate	4BV/h
Evaporation	Volume ratio of concentrated liquid	1:3
Preparation of lithium carbonate	Temperature of preparation of lithium carbonate, °C	90~95
Preparation of lithium hydroxide	Freezing temperature, °C	-1 to-5, -7 to-10
	Dosage of sodium hydroxide relative to the theoretical amount of Li element	1 times excess ~8wt%
	Evaporation crystallization of lithium hydroxide	2 times

Testing commenced using seven batches of 17.5 kg each treated in parallel to suit the test equipment sizes available. After each stage the products were combined and then divided again to suit the next phase according to equipment capacity.

Leaching solution achieved the target of 13-14 g/L of lithium although wash solution content was high. Calcium and magnesium content levels were similar to those demonstrated in prior testing, as shown in Table 13-53 (Leach as L and wash as X).

Table 13-53: Composition of Leach and Wash Solutions (Source: C.ENG., 2023)

Test No.	Li g/L	Al mg/L	Fe mg/L	Ca mg/L	Mg mg/L
C302L	14.236	0.52	3.96	350.91	170.87
C303L	14.355	0.51	1.58	395.87	170.9
C304L	14.153	0.57	1.45	403.29	199.61
C305L	13.463	2.09	1.00	373.74	155.29
C306L	14.123	0.59	0.75	406.61	154.38
C302X	7.9087	0.55	1.8	357.56	106.68
C303X	8.2983	0.71	1.46	358.37	98.75
C304X	7.798	0.5	1.42	393.24	103.18
C305X	8.1556	0.49	8.33	354.92	91.43
C306X	8.0816	1.72	8.34	353.24	91.72

The removal of calcium and magnesium from the leach solution produced lithium content in solution in the range of 13-14 g/L as shown in Table 13-54. Also, levels of Ca and Mg are lower than in initial testing.

Table 13-54: Main Chemical Content of Solution After Ca and Mg Removal (Source: C.ENG., 2023)

No.	Li g/L	Al mg/L	Fe mg/L	Ca mg/L	Mg mg/L
C402	13.522	1.19	1.41	1.13	0.49
C403	14.213	0.05	0.01	1.38	0.4
C404	13.983	0.1	0.01	1.93	0.57
C405	13.932	0.46	0.01	1.74	0.16
C406	12.996	0.08	0.01	1.71	0.38

Ion exchange tests after Ca and Mg removal were similarly improved over initial tests, as shown in Table 13-55.

Table 13-55: Main Chemical Components of Solution After Ion Exchange (Source: C.ENG., 2023)

Sample No.	Li g/L	Al mg/L	Fe mg/L	Ca mg/L	Mg mg/L	K mg/L	Si mg/L	Mn mg/L
C502	11.98	0.91	1.08	0.49	0.37	51.11	11.62	0.09
C503	14.15	0.07	0.02	0.12	0.48	51.33	8.26	< 0.01
C504	13.62	0.12	0.02	0.45	0.9	52.08	7.13	< 0.01
C505	13.03	< 0.5	< 0.5	< 0.5	< 0.5	37.93	21.11	< 0.5
C506	12.4	< 0.5	< 0.5	2.77	0.61	33.8	9.95	< 0.5

It was concluded that the lithium content of the solution after ion exchange was not high enough for downstream reactions and therefore the solution was evaporated to approximately 1/3 of the original volume. The resulting solution contained in the five tests between 32-41 g/L lithium.

From the solutions produced, lithium carbonate was generated by addition of sodium carbonate, at a solution temperature of ~95°C as per the optimum test conditions developed in the initial testing. Results are shown in Table 13-56 for primary product and in Table 13-57 for the final products after upgrading with carbon dioxide blown into a solution of the primary lithium carbonate, which resulted in meeting battery grade requirements as shown.

Table 13-56: Primary Lithium Carbonate Results
(Source: C.ENG., 2023)

Test No.	Li_2CO_3 %	Al %	Ca %	Cl %	Fe %	K %	Mg %	Na %	Si %
C8A1-1	93.23	<0.0002	0.0034	0.002	<0.0001	<0.0001	0.0015	1.23	0.0033
C8A1-2	97.4	<0.0002	0.0033	0.0023	<0.0001	<0.0001	0.0013	0.25	0.0021
C8A1-3	99.28	<0.0002	0.0043	<0.0001	<0.0001	<0.0001	0.0014	0.086	0.002

Table 13-57: Composition of the Final Lithium Carbonate Sample (% Values)
(Source: C.ENG., 2023)

	Li_2CO_3	Na	Mg	Ca	K	Fe	Zn	Cu	Pb	Si	Al	Mn	Ni	SO_4	Cl^-
YS/T582-2013	≥99.5	0.025	0.008	0.005	0.001	0.001	0.0003	0.0003	0.0003	0.003	0.001	0.0003	0.001	0.08	0.003
Li_2CO_3 Product	99.8	0.020	<0.0001	0.0047	<0.0001	0.0009	<0.0001	<0.0001	<0.0001	0.0025	0.0008	<0.0001	<0.0001	0.077	0.0026

Testing of the processes to produce lithium hydroxide was conducted using the conditions established as favourable from the earlier work. These included two stages of freezing crystallization to remove sodium sulphate, and two stages of evaporative crystallization to produce the final lithium hydroxide. The sodium sulphate quality was good at over 99% in two tests and 98% in the third. Lithium hydroxide quality as shown in Table 13-58 reached the quality requirement of battery grade product.

Table 13-58: Composition of the Final Lithium Hydroxide Sample (% Values)
(Source: C.ENG., 2023)

	LiOH	Na	K	Fe	Ca	Cu	Mg	Mn	Si	Cl^-	SO_4	CO_3	B
GB/T26008-2020	56.5-57.5	0.005	0.003	0.0007	0.002	0.0001	0.001	0.001	0.005	0.002	0.008	0.4	0.005
$LiOH \cdot H_2O$ product	56.95	0.004	0.00063	0.0003	0.0063	<0.0002	0.0004	<0.0001	0.0002	0.0028	<0.005	0.18	<0.0001

13.5.11 Conclusions

Extensive testing to produce lithium commercial products has been conducted using a typical spodumene concentrate containing over 6% Li_2O produced in the SGS facility from a representative sample of the deposit.

The testing to produce final lithium products was based on unit operations typically used in the industry and with the objective to identify optimum conditions.

Initial testing to examine ranges of conditions such as time, temperature, solution strength, solution dosing was followed by confirmatory testing using the optimum conditions established in the initial stages. The confirmatory testing indicated slightly improved results for final products.

Treatment steps included calcination, grinding, acid roasting to produce soluble lithium sulphate. The recovery of lithium to this phase was approximately 94% of the raw feed content.

Further testing steps to extract lithium by leaching and to remove impurities, mainly calcium and magnesium, by precipitation and ion exchange, were successful in achieving required grade but recovery was not possible to determine due to recycle products in unit testing not being reprocessed. Evaporation of the final liquid product produced a grade of above 30 g/L lithium in the sulphate form.

Final tests were completed to produce both lithium carbonate and lithium hydroxide in parallel tests using crystallization for final products. The final grades achieved, of lithium carbonate at 99.8% purity, and lithium hydroxide at 56.08% purity, were above the required minimum grades for commercial battery grade specifications.

The design recoveries of lithium to final products of carbonate and hydroxide, at grades meeting battery specifications, are selected from the optimum test results available to date, together with allowances for recovery from recycle streams which were not included in the laboratory calculations. A summary of the design recovery values is shown in Table 13-59.

Table 13-59: Lithium Recovery per Stage and Total

Stage	Li Rec %
Calcination	98.0
Roast and Leach	98.4
Neutralization	97.6
Ca/Mg removal	99.3
Ion Exchange	98.3
Evaporation	98.9
Carbonate Generation	97.4
Hydroxide Generation	97.3
Overall recovery to Carbonate	**88.4**
Overall recovery to Hydroxide	**88.3**

13.6 QP Comments

13.6.1 Sections 13.1 to 13.4

A number of metallurgical test work programs have been completed on multiple samples of mineralization from the PAK and Spark Deposits. These date back to 2016 and are reasonably comprehensive in nature. The results of this work have been used to assist with the mineralogical characterization of PAK and Spark Deposits, and to develop and partially optimize the mineral processing flowsheet used for recovery of lithium concentrates.

The QP was not directly involved in the selection of samples for metallurgical test work, nor the test work itself. However, the QP has performed a detailed review of the work, including discussions with Frontier metallurgical engineers with particular focus on the current (2021-22) test work program carried out at SGS. Having completed this review, the QP is satisfied that for both PAK and Spark, the samples selected are representative of the various types and styes of mineralization and each mineral deposit as a whole.

13.6.2 Section 13.5

A detailed test program to examine lithium chemical products generation has been completed in China, using large samples of spodumene concentrate generated in the pilot plant testing in Canada during 2021-2022. The testing examined a range of conditions for each stage of the process based on known industrial plant design and the QP is satisfied that optimum conditions were identified. This initial testing however did not account for recovery from products which would normally be recycled, and the overall recovery calculation includes estimated values from the recycle streams that would be obtained in the operating plant.

The QP was not involved in the selection of samples nor in the test work program, but is satisfied that the feed samples represent typical plant products expected from the PAK Project, and that the chemical products generation testing has adequately examined on an initial basis the process required to generate acceptable final products.

14. Mineral Resource Estimate

14.1 PAK Resource Estimate

The QP completed a resource estimation of the PAK Property. The effective date of the resource is February 28, 2023.

14.1.1 Database

Frontier maintains all borehole data in a Microsoft Access® relational database. Header, surveys, assays, and lithology information are saved as individual tables in the database. The database information in CSV format was provided to the QP originally on December 17, 2015, with an updated dataset provided on November 27, 2017.

The database contains 34 boreholes, 67 rotary blastholes, and 31 channels. There are a total of 2,401 assays records in the database, with 2,009 samples from the boreholes 195 samples from rotary blastholes, and 197 samples from the channels. The channel data was reviewed and incorporated into the borehole dataset as a form of boreholes. Table 14-1 summarizes the borehole and trench data within each geological unit.

The resource estimation was conducted using Surpac™ version 6.7.1.

Table 14-1: Database Summary

	Number of Drillholes	Length
Project Total	**132**	**7,460**
Channel samples	31	244
Other samples (PLP)	67	294
Boreholes	34	6,922
Host Rock (h)		
UIZ - Channel samples	12	75
UIZ - Boreholes	12	374
UIZ - PLP	57	267
CIZ - Channel samples	9	59
CIZ - Boreholes	9	459
CIZ - PLP	12	54
LIZ - Channel samples	12	89
LIZ - Boreholes	25	2,388

	Number of Drillholes	Length
Aplite - Channel samples	4	11
Aplite - Boreholes	19	326
BX UIZ - Boreholes	1	28
Granite - Channel samples	3	2
Granite - Boreholes	35	3,761
Metasediment - Channel samples	2	5
Metasediment - Boreholes	17	211
OVB - Boreholes	33	143
PEG - Boreholes	2	11
TZ - Boreholes	1	1
WZ - Channel samples	2	1
WZ-Boreholes	3	26

14.1.2 Specific Gravity

Frontier collected a total of 1,541 samples from the 14-diamond drillholes for specific gravity (“SG”) measurements.

Frontier used the following procedure to determine the average SG for each the mineral domains.

- Sample selected for SG measurement;
- The Borehole ID, row number, From, To and rock type were entered into a spreadsheet;
- The sample was weighted dry on the scale;
- The sample was then weighted submerged saturated in tab water at a constant 22 °C;
- The specific gravity is determined using the following equation:

$$SG = \frac{Wd}{(Wd - Ws)/CF}$$

Wd = Dry Weight, Ws = Submerged Weight, CF = correction factor for water temperature

Figure 14-1 illustrates the SG measuring set up employed by Frontier during this round of SG data collection. Table 14-2 summarizes the results of the SG measurements.

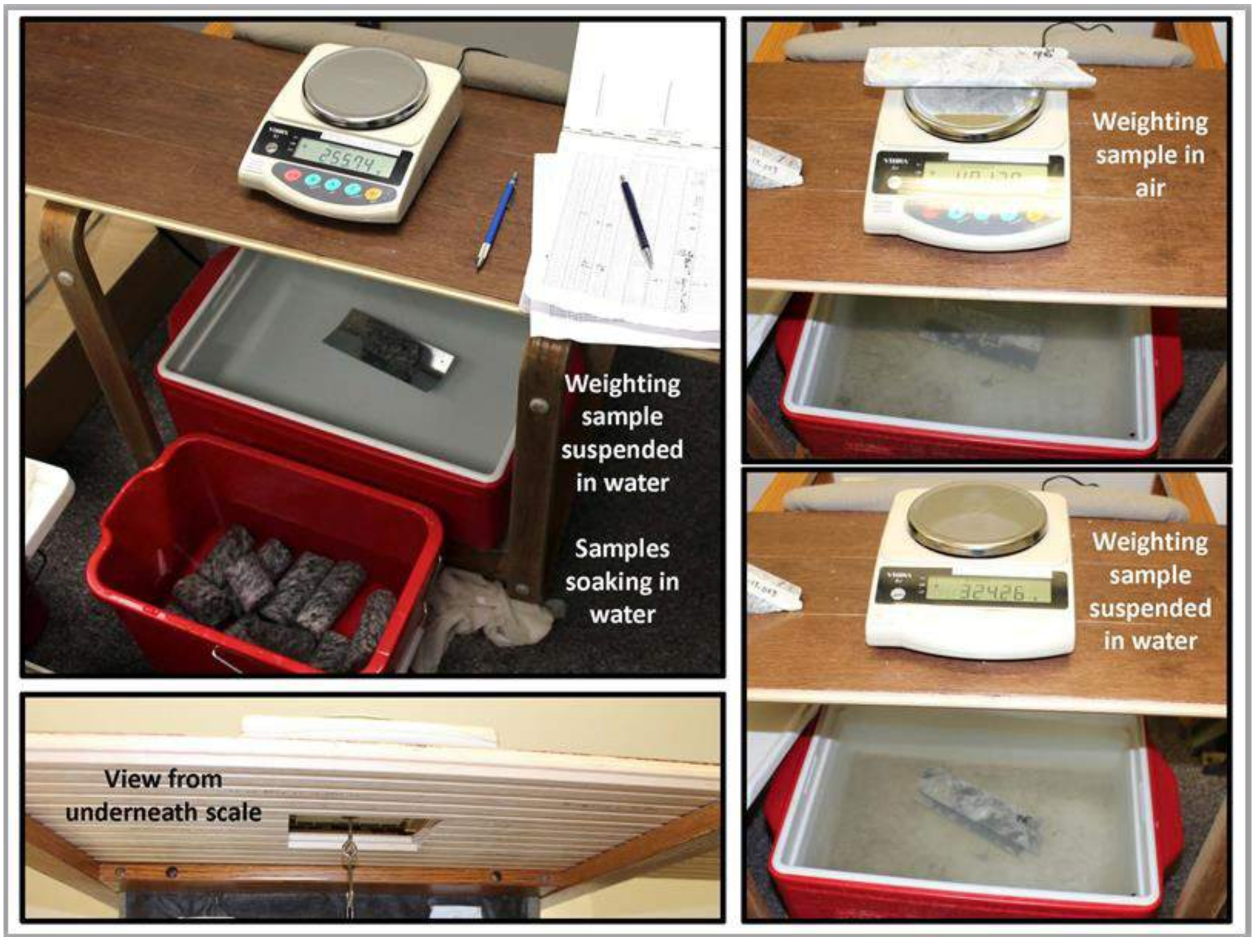


Figure 14-1: Specific Gravity Station

Table 14-2: PAK Specific Gravity Summary

Lithology	No. of Samples	Avg Rock Density
CIZ	148	2.66
UIZ	76	2.86
LIZ	218	2.75
Aplite	144	2.69
Granite	570	2.64
Metasediment	271	2.95

14.1.3 Topographic Data

Topographic data was generated as a Digital Terrain Model ("DTM") created using contour lines generated from a combination of the total station survey data completed in August 2013, 1:50,000 scale topographic data, and photographic images collected in July 2014 with a PX4-700 UAV (unmanned airborne vehicle).

The area covered by the DTM is sufficient to cover the area defined by the current resource model (Figure 14-2).

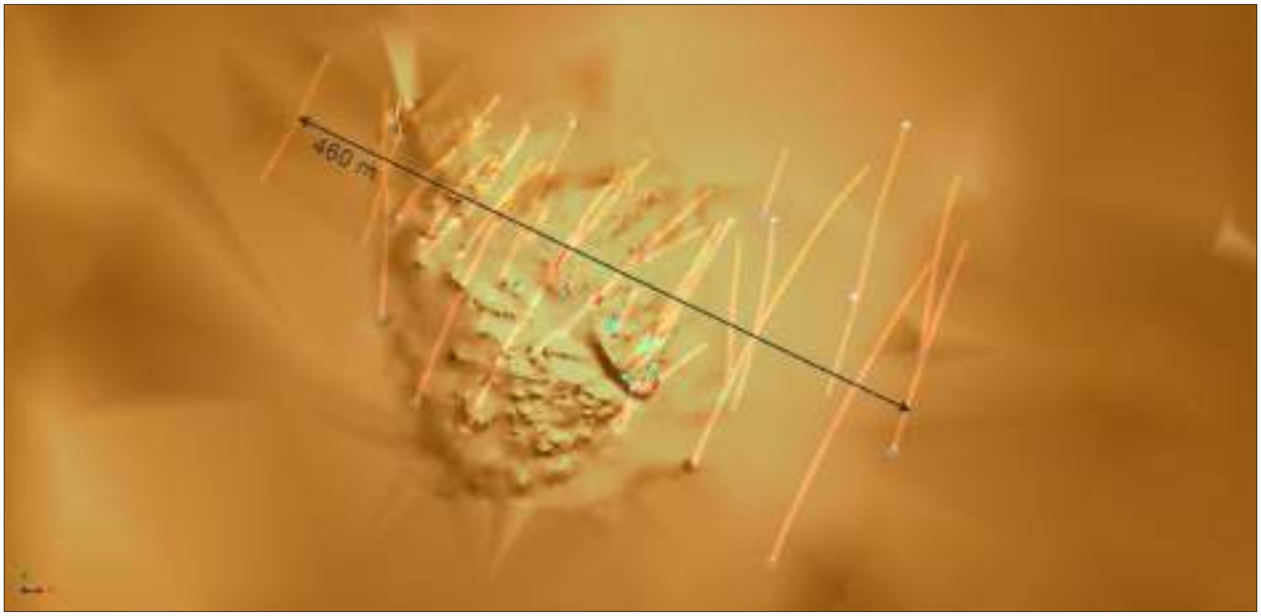


Figure 14-2: PAK Topographic Image

14.1.4 Geological Interpretation

Three-dimensional wireframe models of mineralization were developed in Surpac™ by the QP. The wireframes were based on the geological interpretation of the zones as distinct domains and not strictly on grade intervals.

Sectional interpretations were completed in Surpac™ version 6.7.1 software, and these interpretations were linked with control strings and triangulated to build three-dimensional solids. Table 14-3 tabulates the solids and associated volumes. The solids were validated in the Surpac™ software and no errors were found.

The modelling is broken into three separate zones; LIZ, UIZ, and CIZ. The UIZ and CIZ were wireframed as separate and distinct solids. The LIZ was generated to cover the bulk of the pegmatite and surrounds the UIZ and CIZ to ensure that no voids existed between solids. Figure 14-3 to Figure 14-8 illustrate the model solid for each of the domains.

The wireframes extend at depth, below the deepest diamond drillholes. This is to provide a target for future exploration. The resource model did not estimate grades into the full volume of the wireframes due to sheer size of the wireframes.

The non-assayed intervals were assigned void (-) value.

Table 14-3: Wireframe Summary

Domain	Minimum X	Maximum X	Minimum Y	Maximum Y	Minimum Z	Maximum Z	Surface Area (m^2)	Volume (m^3)
APLITE	474,389.47	474,517.14	5,827,873.52	5,828,012.59	190	348.554	70,824	173,452
CIZ	474,421.51	474,666.42	5,827,843.28	5,827,983.09	110	340	27,692	404,874
LIZ 1	474,264.46	474,945.83	5,827,833.53	5,828,162.04	-30	340	684,720	5,086,662
LIZ 2	474,264.46	474,945.83	5,827,971.27	5,828,162.04	135.493	340	324,688	1,975,813
UIZ	474,380.13	474,760.58	5,827,900.06	5,828,016.75	44.107	330	90,025	246,698
METASEDIMENT	474,237.75	474,940.85	5,827,918.35	5,828,154.06	20	350	606,350	17,395,893

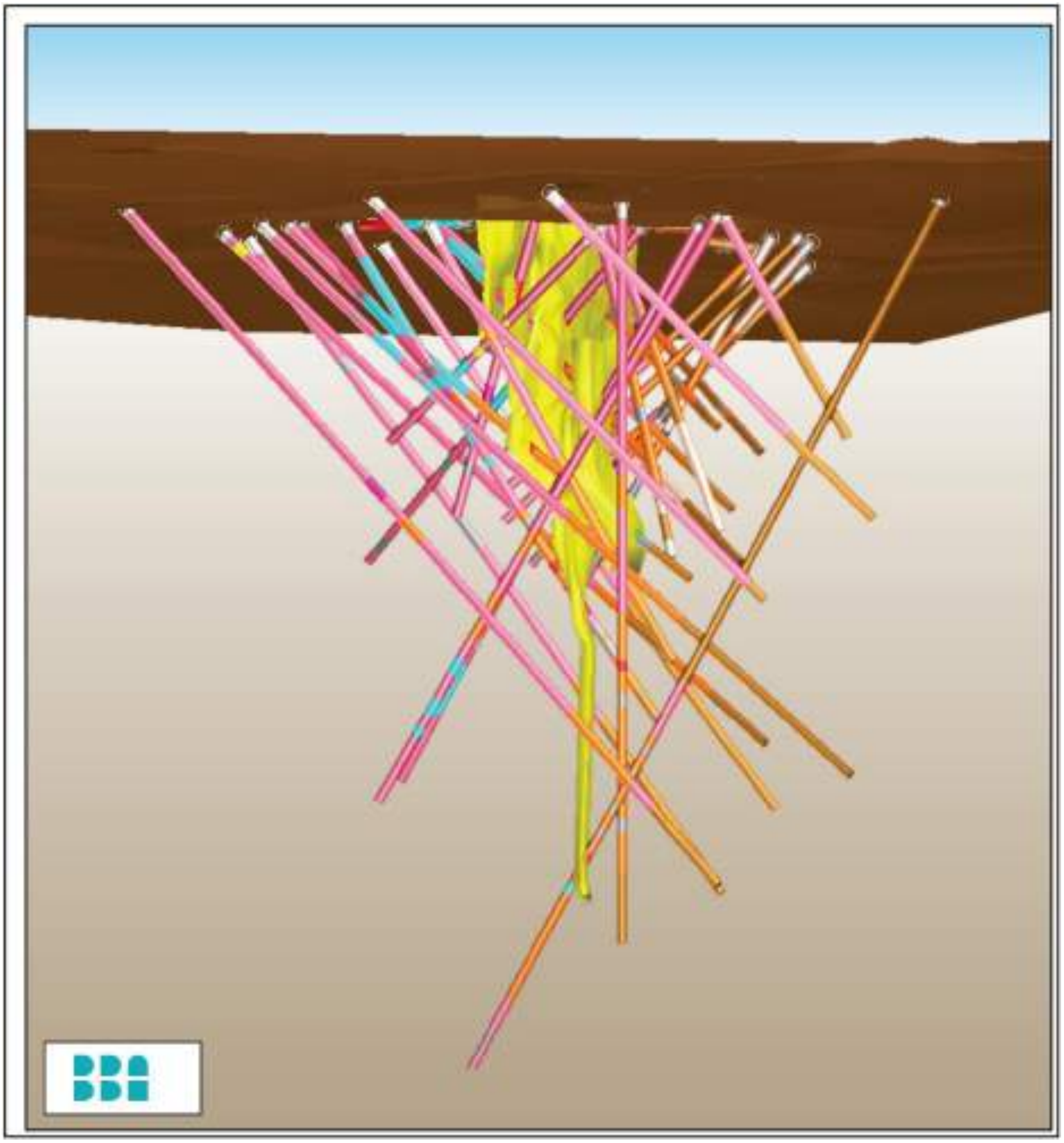


Figure 14-3: UIZ Wireframe (Looking Southeast - Not to Scale)

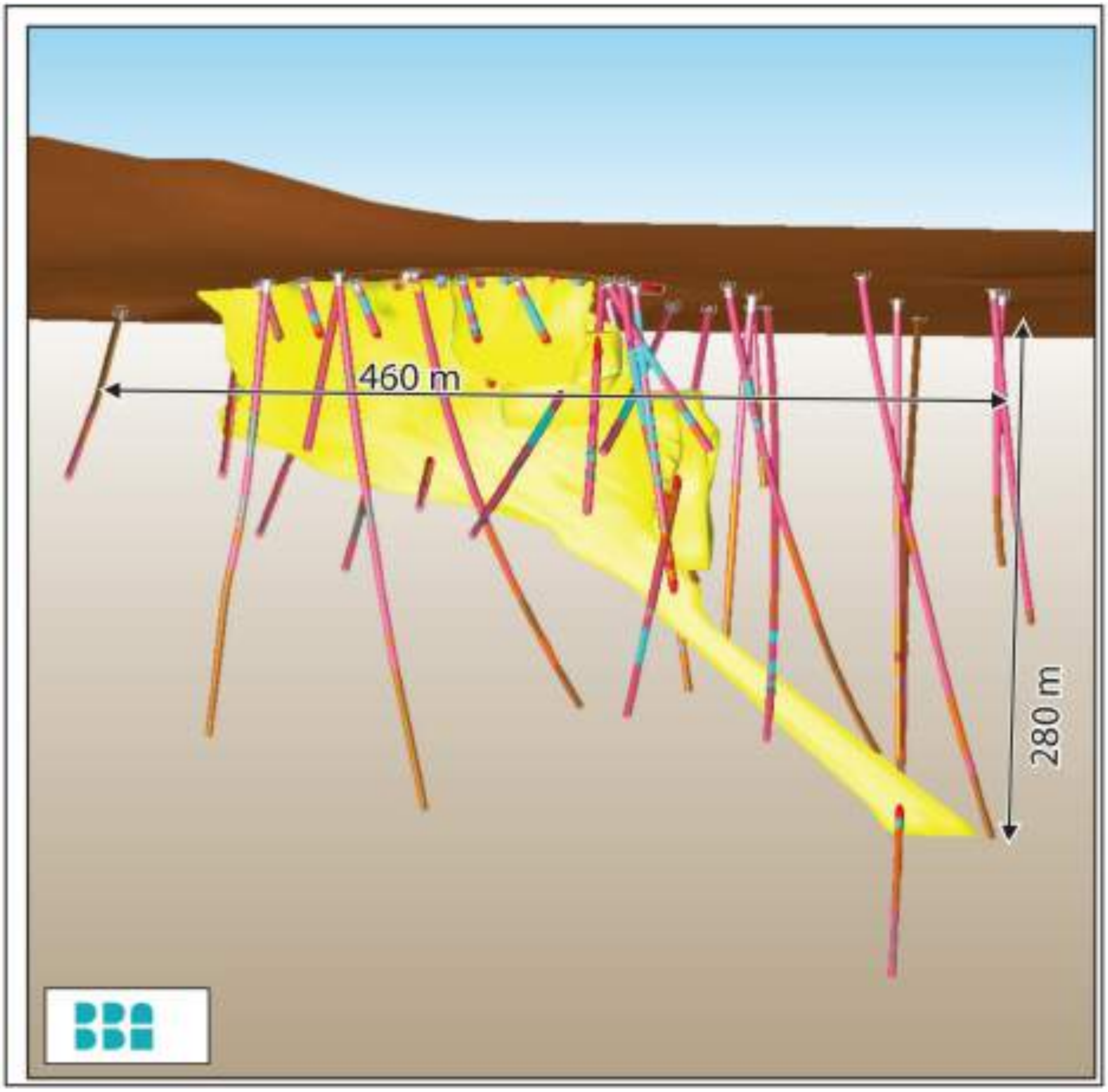


Figure 14-4: UIZ Wireframe (Looking Northwest - Not to Scale)

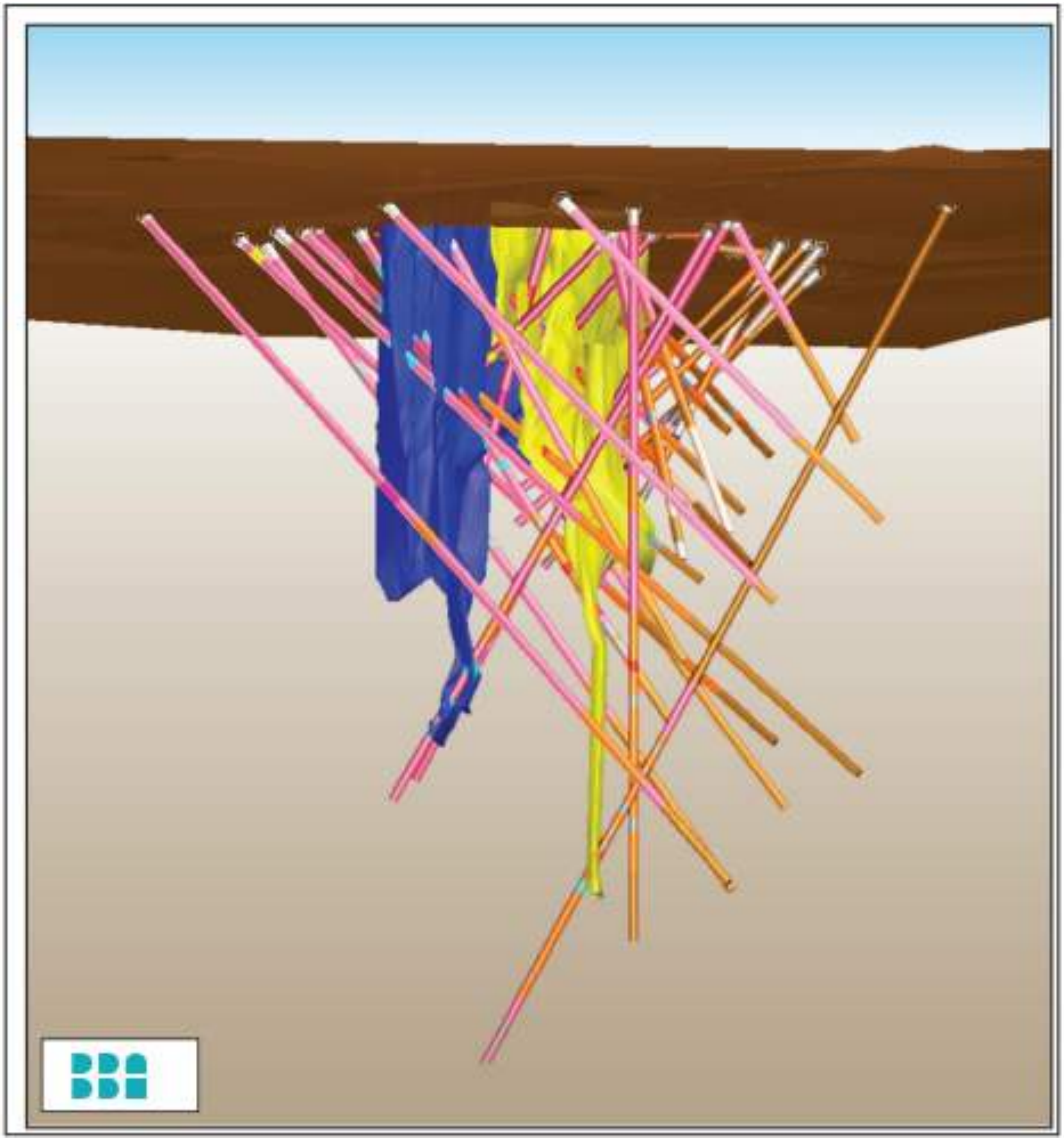


Figure 14-5: CIZ Wireframe (Looking Southeast - Not to Scale)

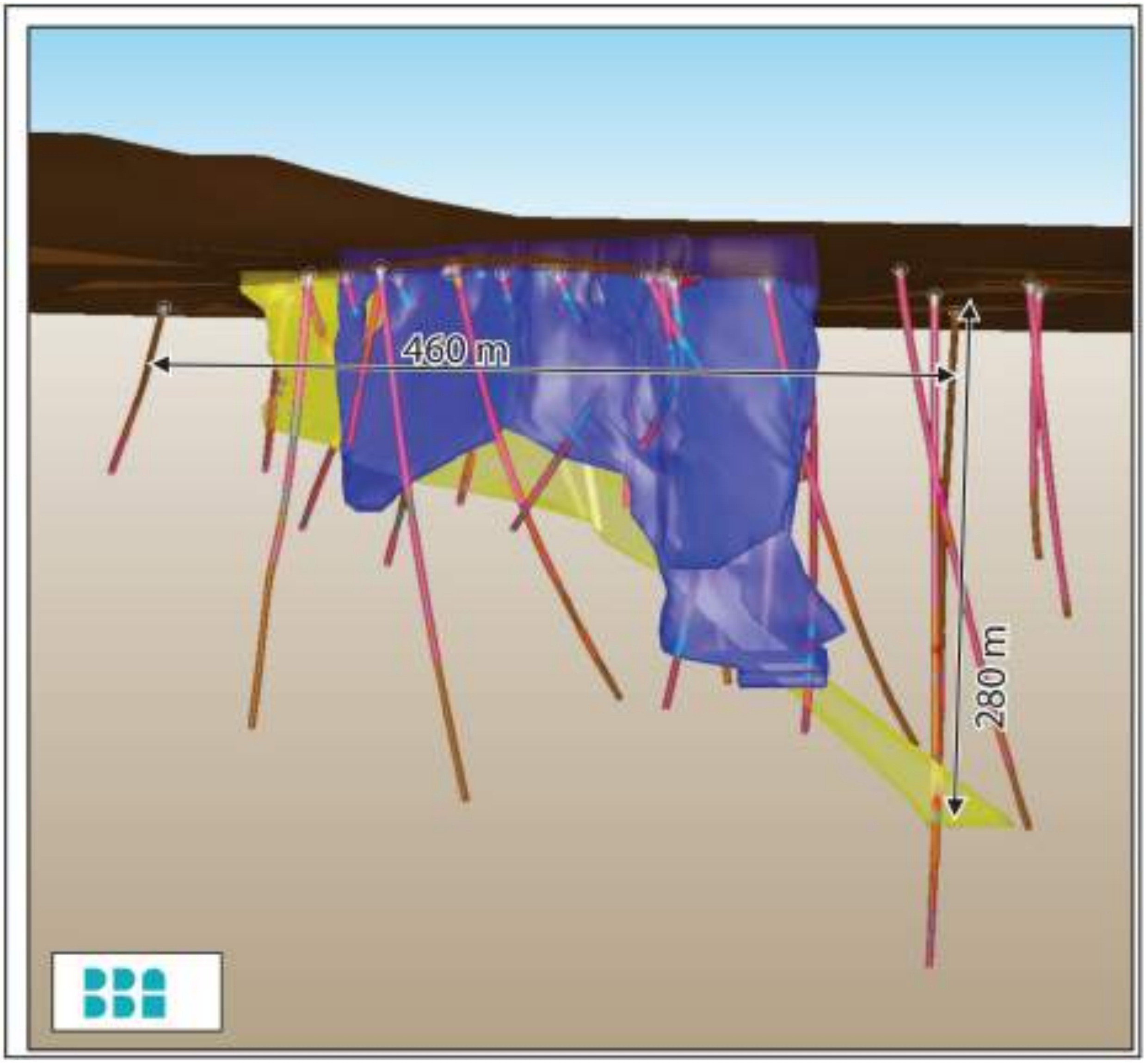


Figure 14-6: CIZ Wireframe (Looking Northeast - Not to Scale)

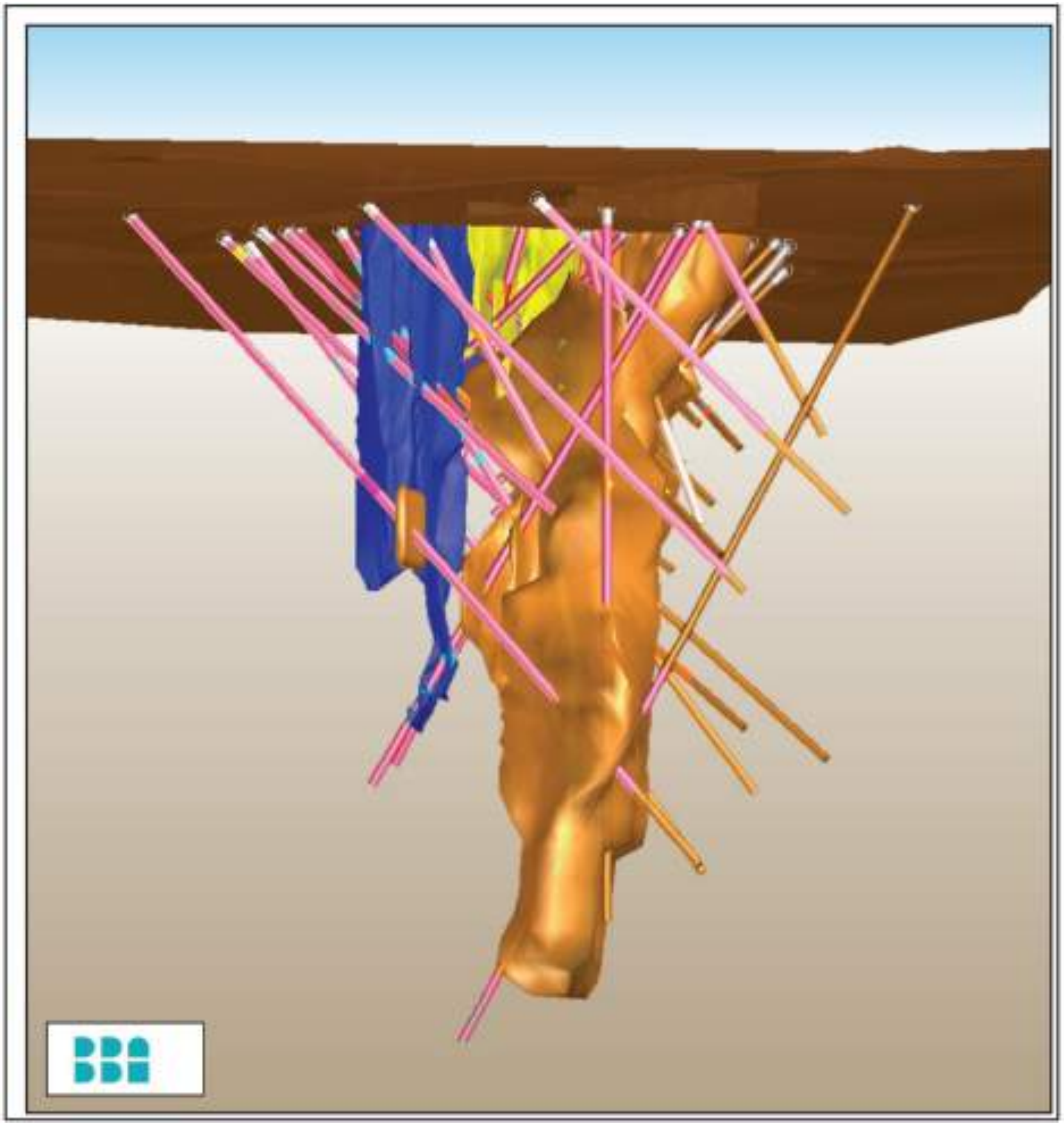


Figure 14-7: LIZ Wireframe (Looking Southwest – Not to Scale)

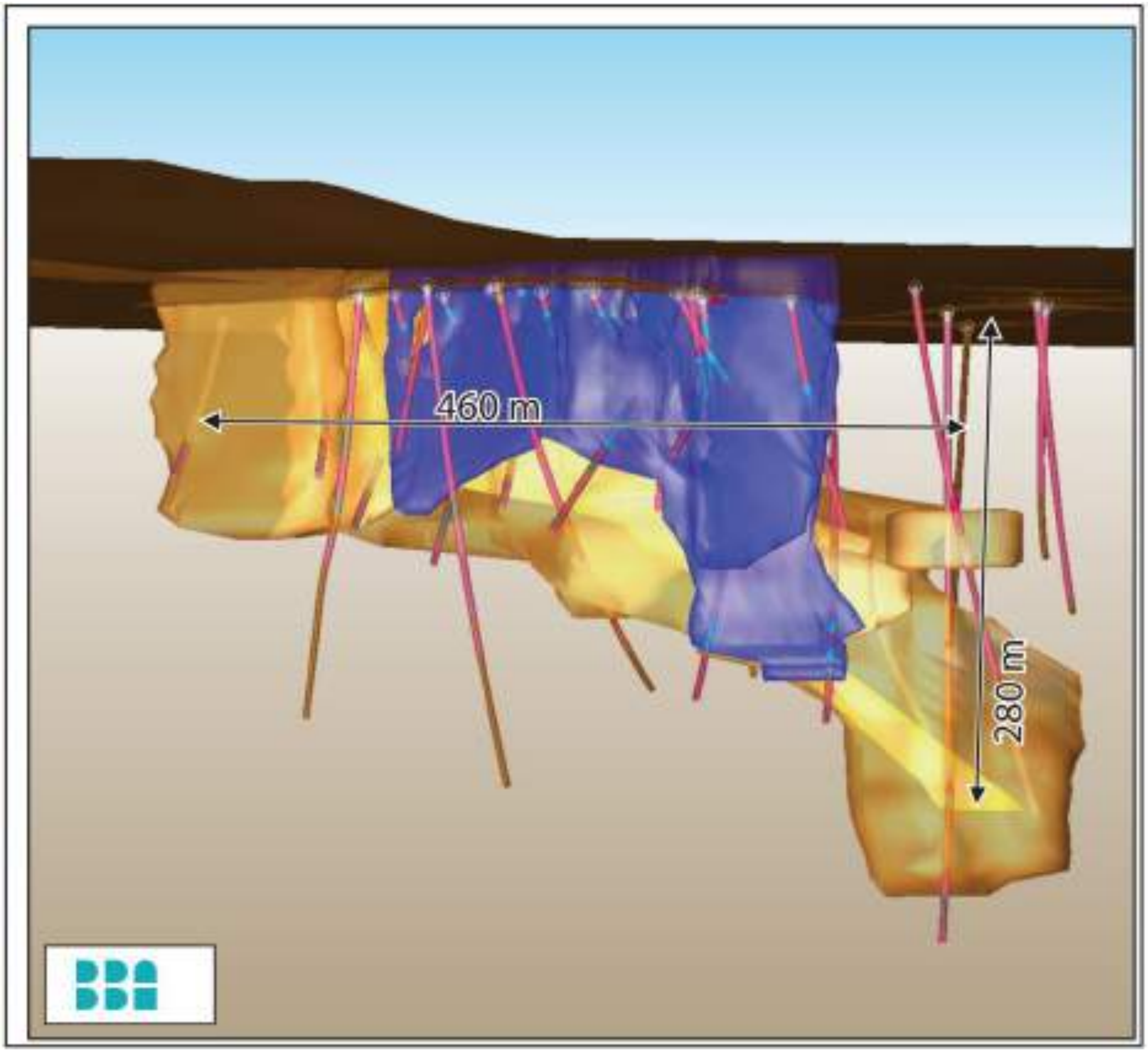


Figure 14-8: LIZ Wireframe (Looking Northeast – Not to Scale)

14.1.5 Exploratory Data Analysis

14.1.5.1 Assays

The three domains included in the Mineral Resource were sampled by a total of 2,089 Li_2O assays, and 1,892 samples for Rb_2O, Ta_2O_5 and Cs_2O. The assay intervals within each mineral domain were captured using a Surpac™ routine to flag the intercept into a new table in the database. These intervals were reviewed to ensure all the proper assay intervals were properly captured. Table 14-4 summarizes the basic statistics for the assays' intervals for each of the mineral domains on the Property.

Table 14-4: Sample Summary by Domain

Domain	Field	No of Records	Minimum	Maximum	Mean	Standard Deviation
CIZ	Li_2O (%)	390	0.108	4.435	0.902	0.885
	Rb_2O (%)	356	0.022	1.269	0.594	0.319
	Ta_2O_5 (ppm)	356	1.709	387.089	115.759	78.629
	Cs_2O (%)	348	0.005	0.456	0.079	0.04
LIZ	Li_2O (%)	1263	0.043	4.887	1.829	1.221
	Rb_2O (%)	1263	0.007	1.115	0.299	0.184
	Ta_2O_5 (ppm)	1263	1.587	1653.234	101.989	84.242
	Cs_2O (%)	1263	0.004	0.341	0.037	0.028
UIZ	Li_2O (%)	436	0.086	5.769	3.585	1.268
	Rb_2O (%)	273	0.007	0.92	0.175	0.171
	Ta_2O_5 (ppm)	273	5.617	308.913	66.689	51.428
	Cs_2O (%)	273	0.004	0.265	0.035	0.026

14.1.5.2 Compositing

Compositing of all the assay data within the various domains was completed on downhole intervals honouring the interpretation of the geological solids. Statistics indicate that a majority of the samples were collected at 1 m intervals.

Surpac™ uses a length weighted option which allows all the composite segments less than 0.75 m to be used in the estimate on a length weighted basis. Table 14-5 summarizes the statistics for the boreholes after compositing.

Table 14-5: Compositing Summary by Domain

Domain	Field	No of Records	Minimum	Maximum	Mean	Standard Deviation
CIZ	Li_2O (%)	411	0.108	4.435	0.962	0.917
	Rb_2O (%)	356	0.026	1.181	0.598	0.295
	Ta_2O_5 (ppm)	356	2.105	387.089	116.236	69.472
	Cs_2O (%)	348	0.011	0.286	0.079	0.034
LIZ	Li_2O (%)	1234	0.043	4.887	1.837	1.106
	Rb_2O (%)	1234	0.011	1.063	0.301	0.16
	Ta_2O_5 (ppm)	1234	6.105	880.829	101.183	67.933
	Cs_2O (%)	1234	0.004	0.247	0.037	0.025
UIZ	Li_2O (%)	529	0.209	5.343	3.654	1.168
	Rb_2O (%)	529	0.008	0.92	0.173	0.158
	Ta_2O_5 (ppm)	259	6.105	274.725	66.304	48.176
	Cs_2O (%)	259	0.00400	0.172	0.035	0.022

14.1.5.3 Grade Capping

Raw assay data for each domain was examined individually to assess the amount of metal that is bias from high-grade assays. A combination of viewing the histogram and cumulative frequency plots was used to assist in the determination if grade capping was required on each element in each domain.

The QP elected to apply a variable top cut by element by domain based on the analysis of the data. Table 14-6 summarizes the results of the capping procedure.

Table 14-6: Grade Capping Summary by Domain

Domain	Field	No of Records	Minimum	Maximum	Mean	Standard Deviation	No. of Records Capped
CIZ	Li_2O (%) Uncapped	411	0.108	4.435	0.962	0.917	
	Li_2O (%) Capped	411	0.108	4.396	1.003	0.984	9
	Rb_2O (%) - Uncapped	356	0.026	1.181	0.598	0.295	
	Rb_2O (%) - Capped	356	0.025	1.136	0.589	0.299	8
	Ta_2O_5 (ppm) - Uncapped	356	2.105	387.089	116.236	69.472	
	Ta_2O_5 (ppm) - Capped	356	2.105	292.166	114.050	67.820	8
	Cs_2O (%) - Uncapped	348	0.011	0.286	0.079	0.034	
	Cs_2O (%) - Capped	348	0.008	0.156	0.078	0.032	8.000
LIZ	Li_2O (%) Uncapped	1,234	0.043	4.887	1.837	1.106	
	Li_2O (%) Capped	1,234	0.043	4.176	1.831	1.093	25
	Rb_2O (%) - Uncapped	1,222	0.011	1.063	0.299	0.158	
	Rb_2O (%) - Capped	1,222	0.011	0.710	0.297	0.152	23
	Ta_2O_5 (ppm) - Uncapped	1,234	6.105	880.829	101.183	67.933	
	Ta_2O_5 (ppm) - Capped	1,234	6.105	291.373	99.606	60.043	25
	Cs_2O (%) - Uncapped	1,234	0.004	0.247	0.037	0.025	
	Cs_2O (%) - Capped	1,234	0.004	0.2467	0.036746	0.025381	25
UIZ	Li_2O (%) Uncapped	529	0.209	5.343	3.654	1.168	
	Li_2O (%) Capped	529	0.209	4.951	3.640	1.163	13
	Rb_2O (%) - Uncapped	529	0.008	0.92	0.173	0.158	
	Rb_2O (%) - Capped	259	0.008	0.551	0.173	0.149	6
	Ta_2O_5 (ppm) - Uncapped	259	6.105	274.725	66.304	48.176	
	Ta_2O_5 (ppm) - Capped	259	6.105	206.898	66.40696	44.46113	6
	Cs_2O (%) - Uncapped	259	0.004	0.172	0.035	0.022	
	Cs_2O (%) - Capped	259	0.00400	0.094	0.035	0.020	5.000

14.1.5.4 Spatial Analysis

Variograms for lithium were created for each domain in order to be used to search ellipse dimensions. Currently, The QP is of the opinion that additional samples are required before kriging would be an effective estimation method.

The variography for the Project was determined using Surpac™ version 6.8 software. Each domain was modelled for lithium, rubidium, tantalum, and cesium using a downhole variogram to determine nugget effect, then a pair-wise variogram was used to determine spatial continuity in the domains.

Even though the samples were flagged for each of the mineralized domains, the variograms for the two domains were so similar that the same variogram could be used for the two domains. It was deemed appropriate to use an anisotropic variogram for the updated resource estimation. Table 14-7 summarizes the results of the variogram model for each element in each domain. The variogram rotation and maximum range governed the search ellipse rotation and size.

Table 14-7: Variogram Summary

Domain	Element	Geostats Parameters				
		Nugget	Sill		Range	
			1st S	2nd S	1st S	2nd S
CIZ	Li_2O	0.391	0.395	0.341	27.604	105.875
	Rb_2O	0.003	0.017	0.000	108.496	0.000
	Ta_2O_5	316.719	2345.783	3202.499	44.381	89.833
	Cs_2O	0.000	0.000	0.003	48.522	115.947
LIZ	Li_2O	0.391	0.395	0.341	27.604	105.875
	Rb_2O	0.003	0.017	0.000	108.496	0.000
	Ta_2O_5	316.719	2345.783	3202.499	44.381	89.833
	Cs_2O	0.000	0.000	0.003	48.522	115.947
UIZ	Li_2O	0.391	0.395	0.341	28	105.875
	Rb_2O	0.003	0.017	0.000	108.496	0.000
	Ta_2O_5	316.719	2345.783	3202.499	44.381	89.833
	Cs_2O	0.000	0.000	0.003	48.522	115.947

14.1.6 Resource Block Model

Individual block models were established in Surpac™ for each of the mineral domains using one parent model as the origin. The model was not rotated.

A block size of 2.5 m x 2.5 m x 2.5 m was selected in order to accommodate a small-scale open pit mining potential. Sub-blocking of the block was not used.

Table 14-8 summarizes details of the parent block model.

Table 14-8: Summary of Parent Block Model

Parameter	Data
Minimum X Coordinate	474200
Minimum Y Coordinate	5827800
Minimum Z Coordinate	80
Maximum X Coordinate	474900
Maximum Y Coordinate	5828240
Maximum Z Coordinate	400
Block Size (m)	2.5 x 2.5 x 2.5
Rotation	0
Sub-block	none
Total No. Blocks	6,307,840

14.1.6.1 Estimation Parameters

The interpolations of the zones were completed using the estimation methods nearest neighbour ("NN"), ordinary kriging ("OK")and inverse distance squared ("ID^2"). The estimations were designed for a single pass. In each estimation, a minimum and maximum number of samples were required as well as a maximum number of samples from a borehole in order to satisfy the estimation criteria. All estimation passes used the capped and composted dataset for the appropriate domain being estimated.

An anisotropic search ellipse was used for the estimation. Only the samples within the domain wireframe were used in the estimation. The result is that the search ellipse will not locate samples outside the domain wireframe. Table 14-9 summarizes the search ellipse size and rotations, and Table 14-10 summarizes the interpolation criteria for each domain.

Table 14-9: Search Ellipse Summary

Domain	Elements	Bearing	Plunge	Dip	Major Axis	Semi-major Axis	Minor axis	Anisotropy Ratio	
								Major / Semi-major	Major / Minor
CIZ	Li_2O	115.00	0.00	-80.00	105.88	75.41	28.72	1.40	3.69
	Rb_2O	320.00	0.00	80.00	108.50	62.18	25.84	1.75	4.20
	Ta_2O_5	202.27	67.73	0.00	89.83	55.04	33.85	1.63	2.65
	Cs_2O	177.63	-47.73	65.00	115.95	55.00	29.78	2.11	3.89
LIZ	Li_2O	115.00	0.00	-80.00	105.88	75.41	28.72	1.40	3.69
	Rb_2O	320.00	0.00	80.00	108.50	62.18	25.84	1.75	4.20
	Ta_2O_5	202.27	67.73	0.00	89.83	55.04	33.85	1.63	2.65
	Cs_2O	177.63	-47.73	65.00	115.95	55.00	29.78	2.11	3.89
UIZ	Li_2O	115.00	0.00	-80.00	105.88	75.41	28.72	1.40	3.69
	Rb_2O	320.00	0.00	80.00	108.50	62.18	25.84	1.75	4.20
	Ta_2O_5	202.27	67.73	0.00	89.83	55.04	33.85	1.63	2.65
	Cs_2O	177.63	-47.73	65.00	115.95	55.00	29.78	2.11	3.89

Table 14-10: Estimation Criteria Summary

Domain	Estimation Pass No.	Search Ellipse Factor	Minimum No. of Composites	Maximum No. of Composites	Maximum No. of Composites per BH
CIZ	1	0.25	4	15	2
	2	0.5	4	15	2
	3	0.75	3	15	2
	4	1.5	2	15	2
LIZ	1	0.25	4	15	2
	2	0.5	4	15	2
	3	0.75	3	15	2
	4	1.5	2	15	2
UIZ	1	0.25	4	15	2
	2	0.5	4	15	2
	3	0.75	3	15	2
	4	1.5	2	15	2

14.1.7 Resource Classification

Several factors are considered in the definition of a resource classification:

- NI 43-101 requirements;
- Canadian Institute of Mining, Metallurgy and Petroleum ("CIM") Estimation of Mineral Resource and Mineral Reserve Best Practice Guidelines;
- Author's experience with intrusion hosted deposits;
- Spatial continuity based on the assays within the drillholes;
- Understanding of the geology of the deposit; and,
- Drillhole and channel spacing, and the estimation runs required to estimate the grades in a block.

Material in the block model is considered Measured when:

- Li_2O is greater than 0;
- The Z coordinate is greater than or equal to 270;
- The block was estimated in the first two passes; and
- The block does not have a rock code of 520 (CIZ).

Material in the block model is considered Indicated when:

- Li_2O is greater than 0;
- The block was estimated in the first three passes; and
- The block has not been classified as Measured.

Material in the block model is considered Inferred when:

- All remaining blocks not assigned to Measured or Indicated.

No environmental, permitting, legal, title, taxation, socio-economic, marketing, or other relevant issues are known to the QP that may affect the estimate of Mineral Resources. Mineral Reserves can only be estimated on the basis of an economic evaluation that is used in a preliminary Feasibility Study or a Feasibility Study of a mineral project; thus, no reserves have been estimated. As per NI 43-101, Mineral Resources which are not Mineral Reserves, do not have to demonstrate economic viability.

14.1.8 Mineral Resource Tabulation

The resource reported is effective as of February 28, 2023, and has been tabulated in terms of a pit constrained Li_2O cut-off grade of 0.60%. The PAK underground resource is based on the material below the pit and within contiguous mining shape with 0.80% Li_2O cut-off.

Table 14-11 summarizes the parameters used to develop the constraints and cut-off grades for a reasonable prospect of economic extraction.

Table 14-11: Parameters for Reasonable Prospect of Economic Extraction

Parameter	Open Pit	Underground
Mining cost (CAD/t)	5.60	38.00
Processing cost (CAD/t)	36.00	36.00
G&A cost (CAD/t)	10.00	10.00
Pit angle (degree)	51.7	
U/G Stope Height (min - max) (m)		15 - 50
U/G Stope Length (min - max) (m)		10 - 20
U/G Stope Width (mine - max) (m)		5 - 25
Mine Dilution (%)	5	5
Mine Recovery (%)	95	85
LHM (USD/t)	13,800.00	13,800.00
Selling cost ($/t) LHM	1,000.00	1,000.00
Exchange Rate	0.77	0.77
Metallurgical Recovery (%)	80	90
Li_2O cut-off grade (%)	0.60	0.80

Although a bulk pegmatite is likely the method of extraction, the breakeven cut-off grade would be approximately 0.3%, a cut-off of 0.60% Li_2O was selected for final Mineral Resource tabulation for the open pit and 0.80% Li_2O as the cut-off for the Mineral Resource tabulation for underground. (Table 14-12 and Table 14-13).

Note that although the CIZ reports an Li_2O grade, the source of the lithium is not spodumene. The CIZ is a potential source of tantalum with additional evaluation. Therefore, the Mineral Resource reports no contained Li_2O in the CIZ and is reported as a separate line item. The Bulk Pegmatite grade does not include the lithium content from the CIZ.

Table 14-12: PAK Open Pit Mineral Resource Summary

Cut-off	Resource Category	Commodity	Geologic Zone	Tonnes (t)	Li_2O (%)	Ta_2O_5 (ppm)	Cs_2O (%)	Rb_2O (%)	Contained Li_2O (t)
0.6% Li_2O	**Measured**	Lithium	Upper Intermediate Zone (UIZ)	325,200	3.43	59	0.03	0.14	11,154
		Lithium	Lower Intermediate Zone (LIZ)	1,019,400	1.73	105	0.04	0.29	17,636
		Lithium	**Total Lithium Zone**	**1,344,600**	**2.14**	**94**	**0.04**	**0.25**	**28,790**
		Lithium / Tantalum / Rubidium	**Bulk Pegmatite**	**1,344,600**	**2.14**	**94**	**0.04**	**0.25**	**28,790**
0.6% Li_2O	**Indicated**	Lithium	Upper Intermediate Zone (UIZ)	255,400	2.91	75	0.04	0.21	7,432
		Lithium	Lower Intermediate Zone (LIZ)	3,819,900	1.88	99	0.04	0.30	71,814
		Lithium	**Total Lithium Zone**	**4,075,300**	**1.94**	**97**	**0.04**	**0.29**	**79,246**
		Tantalum / Rubidium	Central Intermediate Zone (CIZ)	544,100	1.11	113	0.08	0.63	n/a
		Lithium / Tantalum / Rubidium	**Bulk Pegmatite**	**4,619,400**	**1.72**	**99**	**0.04**	**0.33**	79,246
0.6% Li_2O	**Measured + Indicated**	Lithium	Upper Intermediate Zone (UIZ)	580,600	3.20	65	0.03	0.17	18,587
		Lithium	Lower Intermediate Zone (LIZ)	4,839,300	1.85	100	0.04	0.30	89,450
		Lithium	**Total Lithium Zone**	**5,419,900**	**1.99**	**96**	**0.04**	**0.29**	**108,036**
		Tantalum / Rubidium	Central Intermediate Zone (CIZ)	544,100	1.11	113	0.08	0.63	n/a
		Lithium / Tantalum / Rubidium	**Bulk Pegmatite**	**5,964,000**	**1.81**	**98**	**0.04**	**0.32**	108,036
0.6% Li_2O	**Inferred**	Lithium	Upper Intermediate Zone (UIZ)	74,200	2.77	96	0.04	0.25	2,055
		Lithium	Lower Intermediate Zone (LIZ)	528,900	1.86	79	0.02	0.23	9,838
		Lithium	**Total Lithium Zone**	**603,100**	**1.97**	**81**	**0.02**	**0.23**	11,893
		Tantalum /Rubidium	Central Intermediate Zone (CIZ)	77,400	1.21	153	0.08	0.51	n/a
		Lithium / Tantalum / Rubidium	**Bulk Pegmatite**	**680,500**	**1.75**	**89**	**0.03**	**0.26**	11,893

Table 14-13: PAK Underground Mineral Resource Summary

Cut-off	Resource Category	Commodity	Geologic Zone	Tonnes (t)	Li_2O (%)	Ta_2O_5 (ppm)	Cs_2O (%)	Rb_2O (%)	Contained Li_2O (t)
0.8% Li_2O	**Measured**	Lithium	Upper Intermediate Zone (UIZ)	0	-	-	-	-	0
		Lithium	Lower Intermediate Zone (LIZ)	0	-	-	-	-	0
		Lithium	**Total Lithium Zone**	**0**	**-**	**-**	**-**	**-**	**0**
		Lithium / Tantalum / Rubidium	**Bulk Pegmatite**	**0**	**-**	**-**	**-**	**-**	**0**
0.8% Li_2O	**Indicated**	Lithium	Upper Intermediate Zone (UIZ)	0	-	-	-	-	0
		Lithium	Lower Intermediate Zone (LIZ)	1,261,700	2.15	91	0.04	0.29	27,127
		Lithium	**Total Lithium Zone**	**1,261,700**	**2.15**	**91**	**0.04**	**0.29**	**27,127**
		Tantalum / Rubidium	Central Intermediate Zone (CIZ)	3,830	1.16	143	0.06	0.34	n/a
		Lithium / Tantalum / Rubidium	**Bulk Pegmatite**	**1,265,530**	**2.14**	**91**	**0.04**	**0.29**	27,127
0.8% Li_2O	**Measured + Indicated**	Lithium	Upper Intermediate Zone (UIZ)	0	-	-	-	-	0
		Lithium	Lower Intermediate Zone (LIZ)	1,261,700	2.15	91	0.04	0.30	27,127
		Lithium	**Total Lithium Zone**	**1,261,700**	**2.15**	**91**	**0.04**	**0.30**	**27,127**
		Tantalum / Rubidium	Central Intermediate Zone (CIZ)	3,830	1.16	143	0.06	0.34	n/a
		Lithium / Tantalum / Rubidium	**Bulk Pegmatite**	**1,265,530**	**2.14**	**91**	**0.04**	**0.30**	27,127
0.8% Li_2O	**Inferred**	Lithium	Upper Intermediate Zone (UIZ)	27,450	4.35	31	0.02	0.10	1,194
		Lithium	Lower Intermediate Zone (LIZ)	2,043,400	2.35	73	0.02	0.25	48,020
		Lithium	**Total Lithium Zone**	**2,070,850**	**2.38**	**72**	**0.02**	**0.25**	49,214
		Tantalum /Rubidium	Central Intermediate Zone (CIZ)	6,900	2.03	146	0.12	0.24	n/a
		Lithium / Tantalum / Rubidium	**Bulk Pegmatite**	**2,077,750**	**2.37**	**73**	**0.02**	**0.25**	49,214

14.1.9 Validation

The PAK model was validated by three methods:

1. Visual comparison of colour-coded block model grades with composite grades on section;
2. Comparison of the global mean block grades for ID^2, NN, and composites;
3. Swath plots.

14.1.9.1 Visual Validation

The visual comparisons of block model grades with composite grades for each of the zones show a reasonable correlation between the values (Figure 14-9 to Figure 14-11). No significant discrepancies were apparent from the sections reviewed, yet grade smoothing is apparent in some of the lower elevations due to the distance between drill samples being broader in these regions.

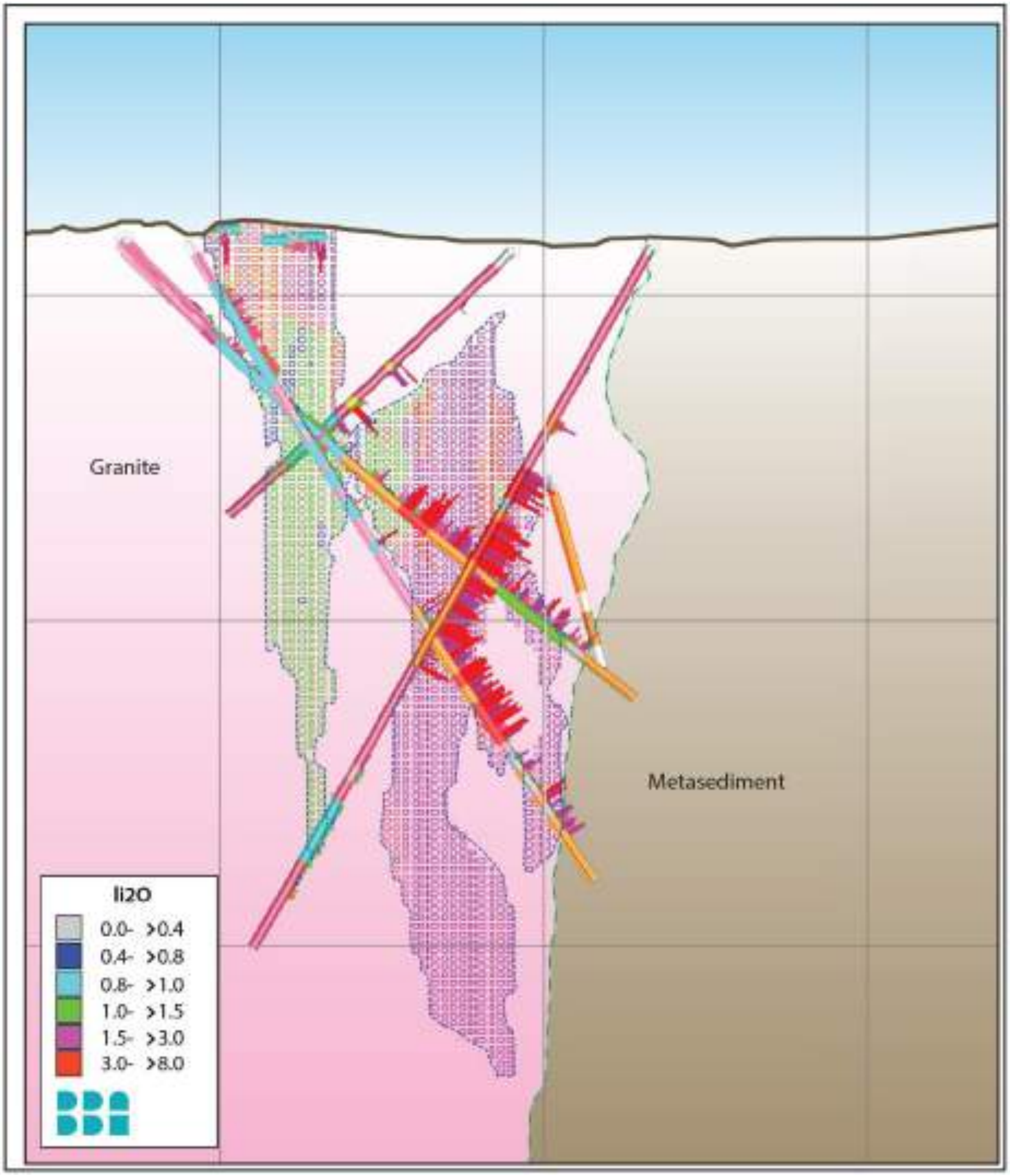


Figure 14-9: PAK Validation Section 00SE

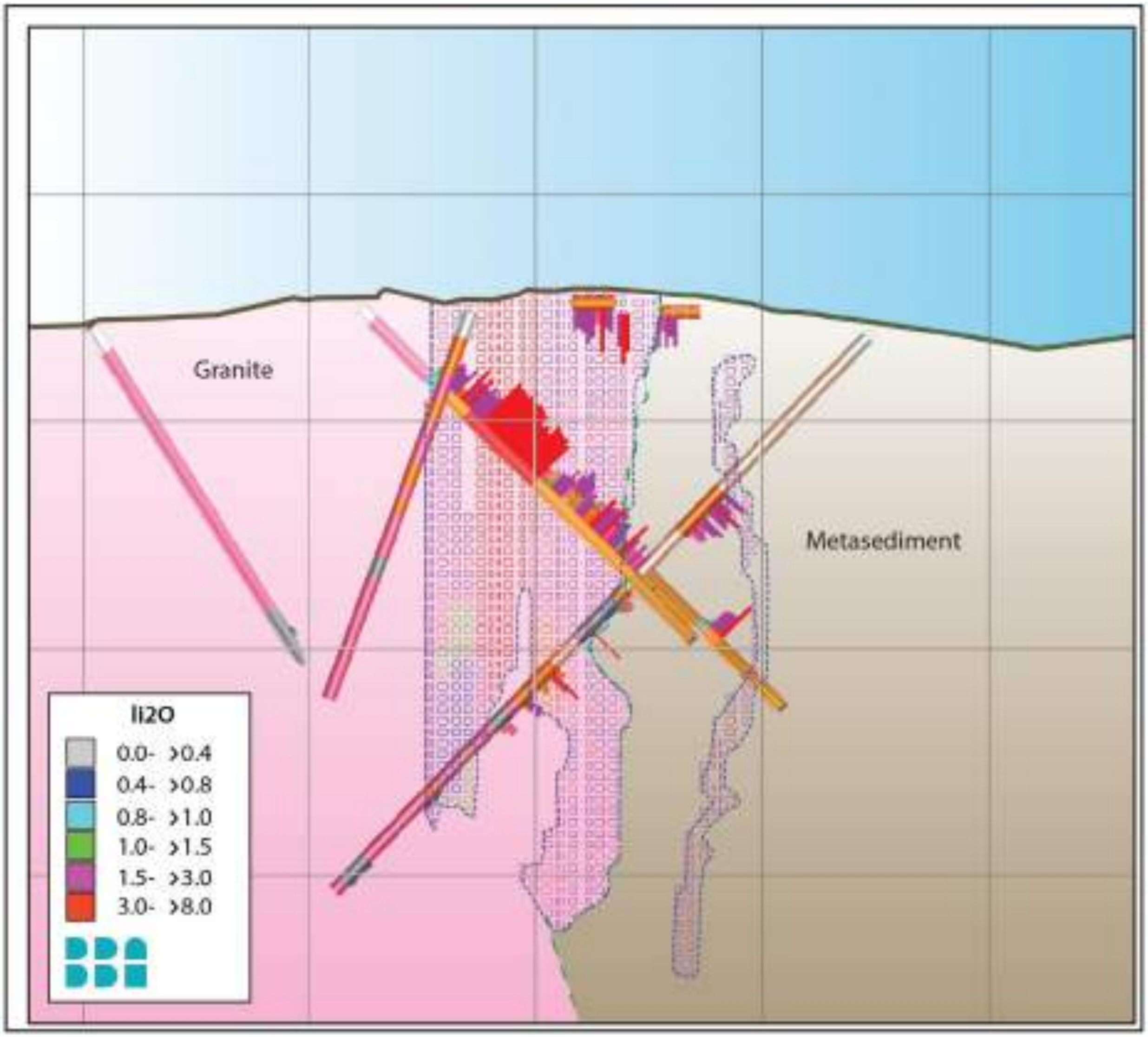


Figure 14-10: PAK Validation Section 050 NW

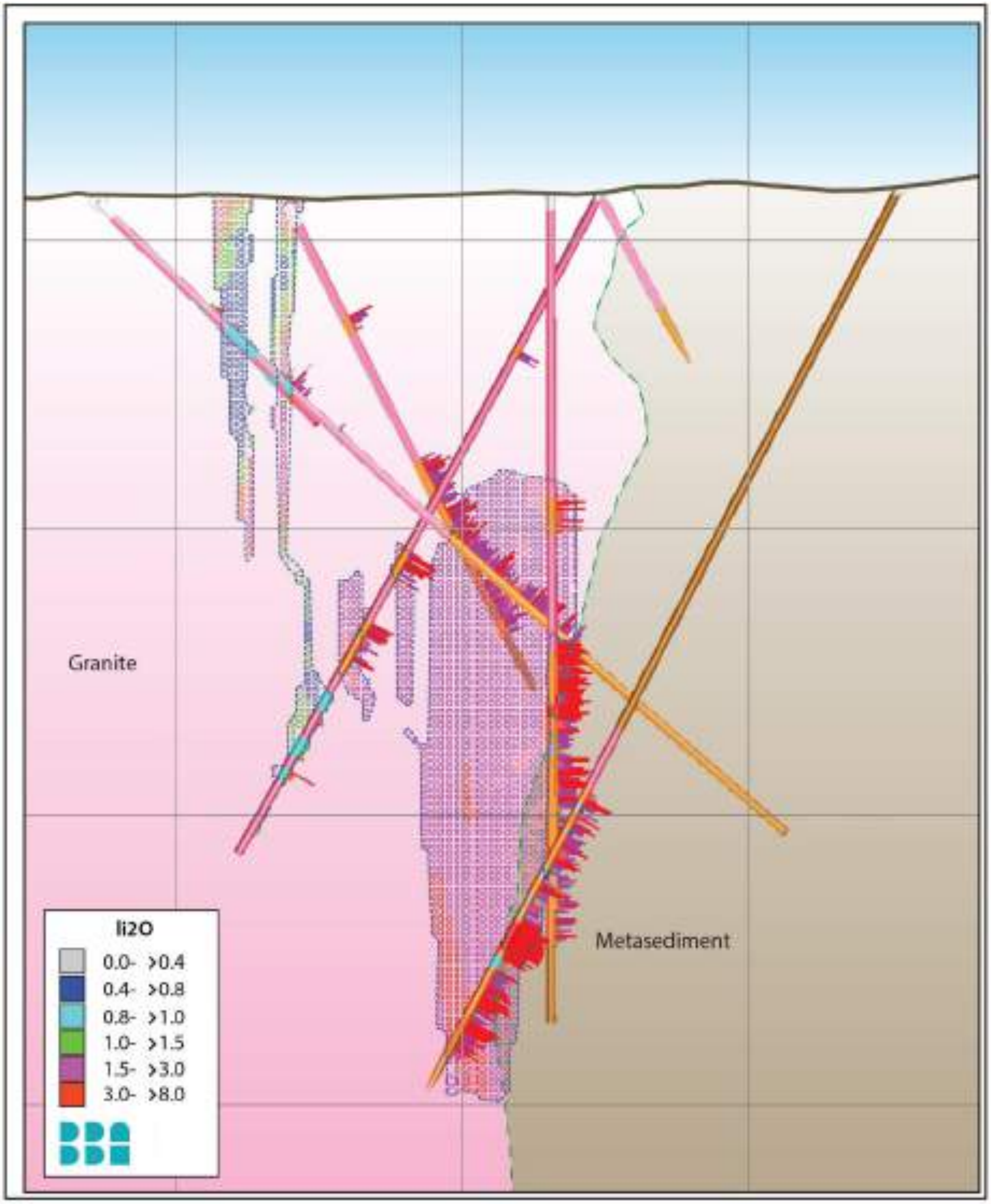


Figure 14-11: PAK Validation Section 150 SE

14.1.9.2 Global Comparison

The global block model statistics for the ID^2 model was compared to the global NN and OK model values as well as the composite capped drillhole data. Table 14-14 shows this comparison of the global estimates for the three estimation method calculations. In general, the ID^2, NN, and OK results are lower than the drillhole dataset. Larger discrepancies are reflected as a result of lower drill density in some portions of the model. There is a degree of smoothing apparent when compared to the diamond drill statistics. Comparisons were made using all blocks at 0% Li2O cut-off.

Table 14-14: Global Comparison

Domain	Elements	DDH	NN	ID^2	OK
CIZ	Li_2O (%)	0.96	0.83	0.85	0.83
	Rb_2O (%)	0.59	0.54	0.57	0.58
	Ta_2O_5 (ppm)	115	119	118	120
	Cs_2O (%)	0.08	0.07	0.08	0.08
LIZ	Li_2O (%)	1.84	1.80	1.78	1.80
	Rb_2O (%)	0.30	0.29	0.30	0.30
	Ta_2O_5 (ppm)	101	105	108	106
	Cs_2O (%)	0.04	0.04	0.04	0.04
UIZ	Li_2O (%)	3.65	3.46	3.57	3.57
	Rb_2O (%)	0.18	0.16	0.16	0.16
	Ta_2O_5 (ppm)	67	65	62	66
	Cs_2O (%)	0.04	0.03	0.04	0.03

14.1.9.3 Swath Plots

Figure 14-12 to Figure 14-15 display the comparison between ID^2 estimate with the NN estimate and the drillhole composites in a swath plot format.

As expected, there is a strong degree of grade smoothing with the ID^2 methodology. In general, the ID^2 model has similar trends as the boreholes.

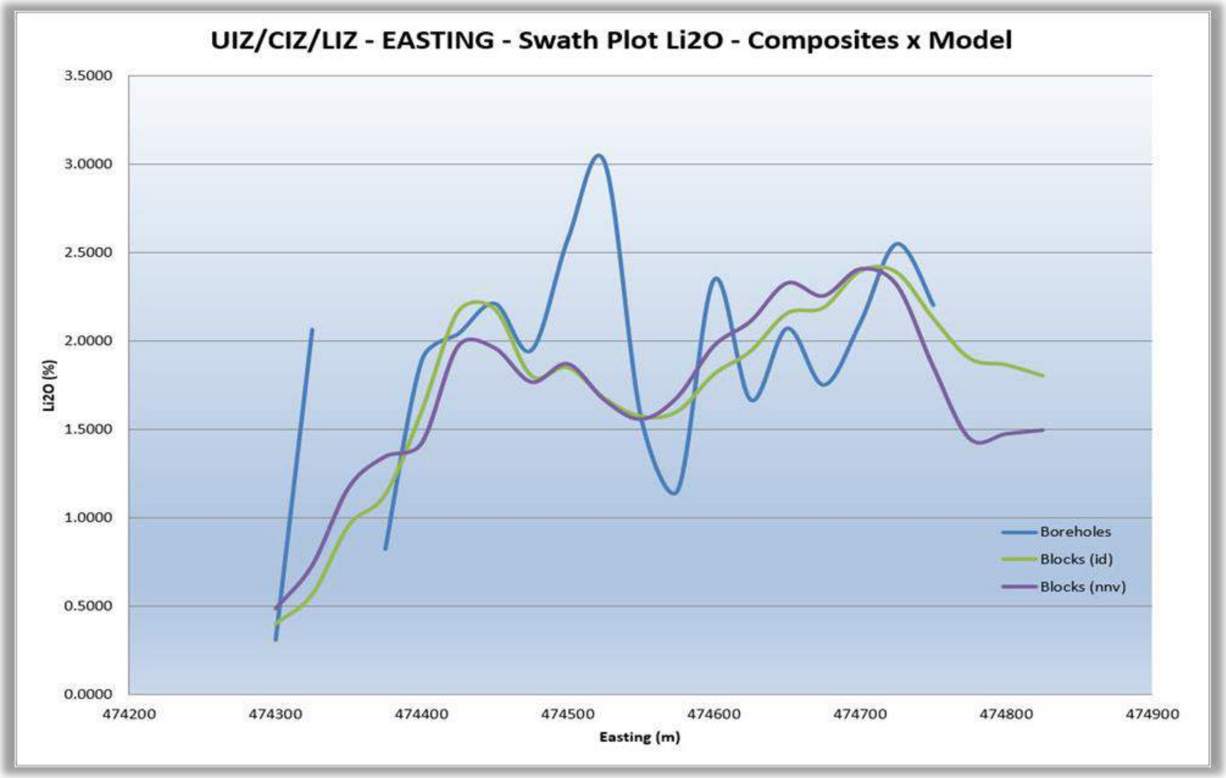


Figure 14-12: Li_2O Swath Plot

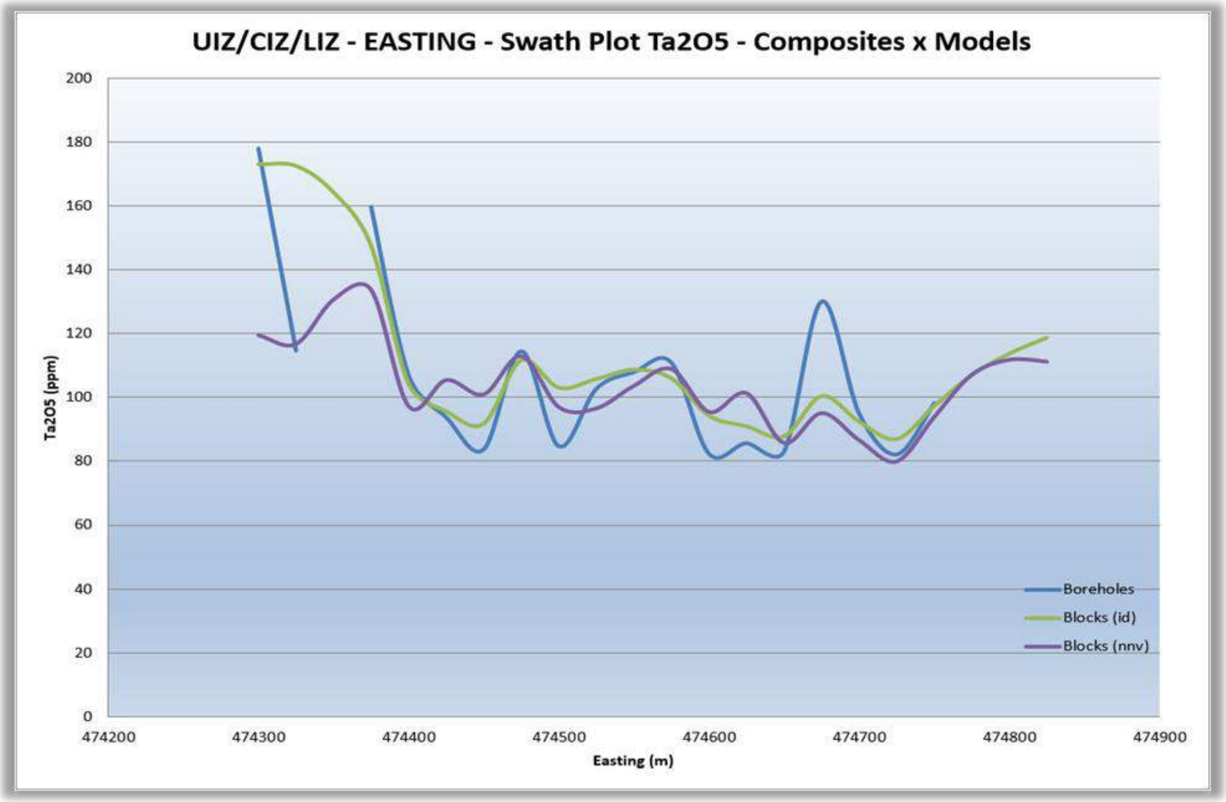


Figure 14-13 Ta_2O_5 Swath Plot

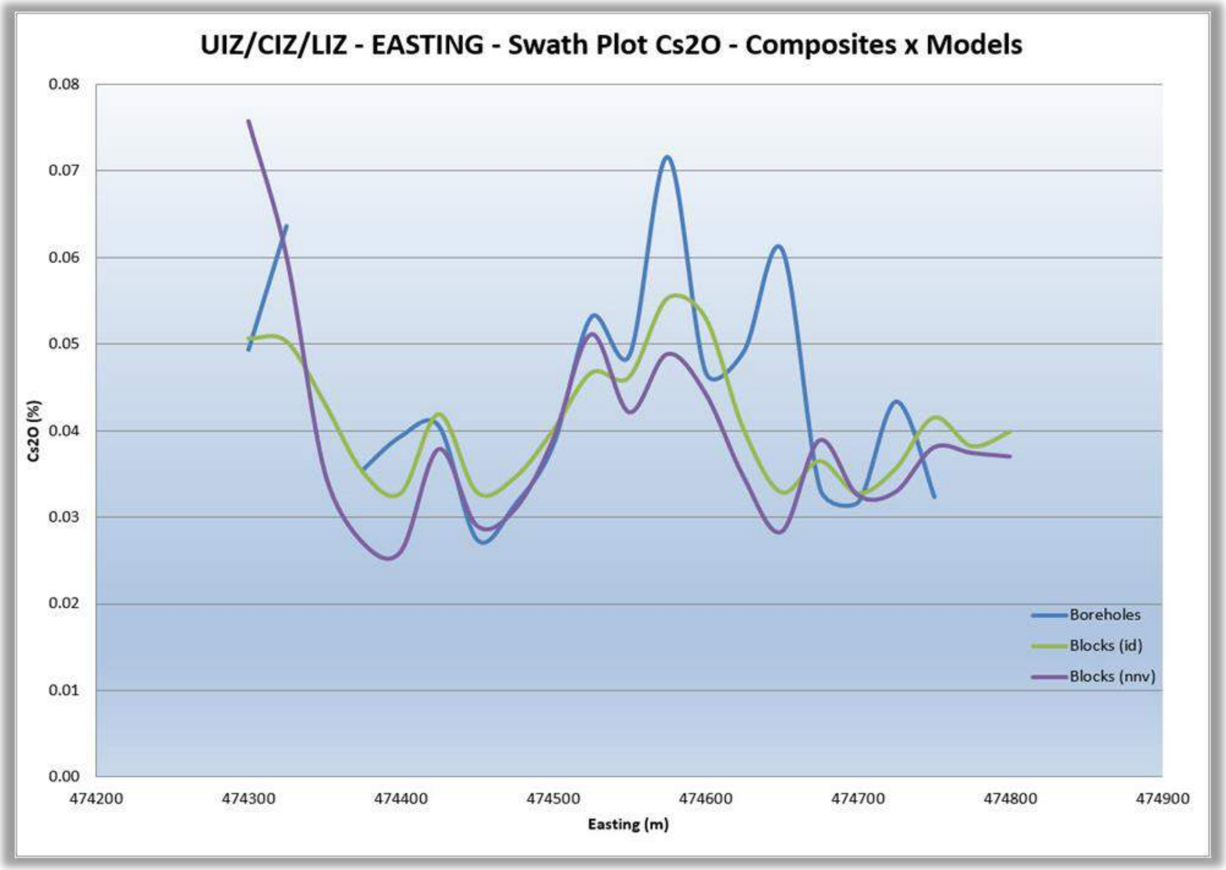


Figure 14-14: Cs_2O Swath Plot

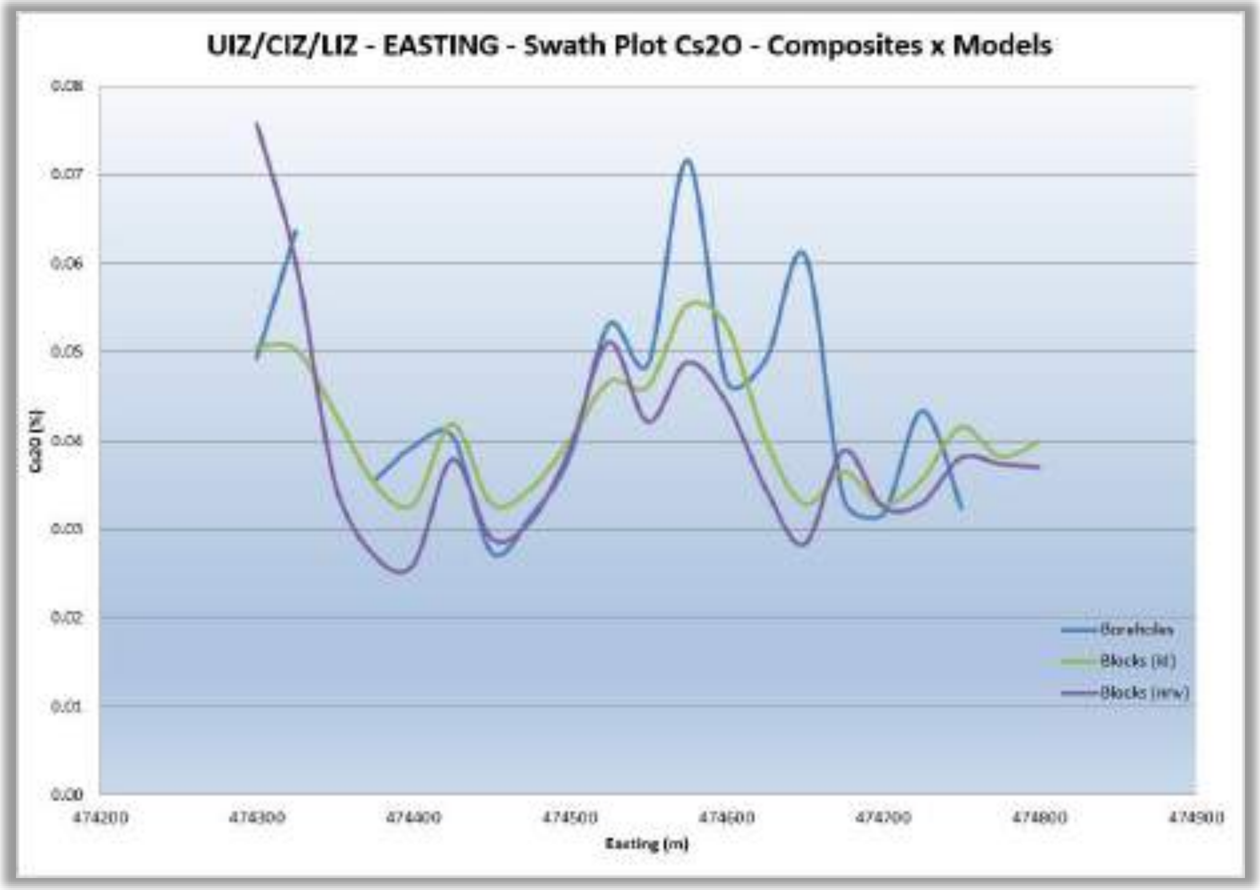


Figure 14-15: Rb_2O Swath Plot

14.1.10 Previous Estimates

Frontier had commissioned WSP to generate a resource estimate in 2015 (McCracken, 2015). The 2105 estimate was based on 21 channels and 15 diamond drillholes.

Table 14-15 compares the basic parameters of the previous 2015 estimate with the current NI 43-101 compliant resource.

Table 14-15: Comparison of Parameters

Parameters	2015 Resource	2018 Resource
Number of Drillholes	24	34
Number of Channels	29	31
Number of Samples	1,888	2,174
Volume of UIZ (m^3)	232,070	246,698
Volume of CIZ (m^3)	498,653	404,874
Volume of LIZ (m^3)	2,577,191	1,975,813
Grade Capping Li_2O (%)	UIZ - 4.75, CIZ - 2.00, LIZ - 3.92	UIZ - 4.95, CIZ - 4.40, LIZ - 4.18
Grade Capping Ta_2O_5 (ppm)	UIZ - 118, CIZ - 211, LIZ - 472	UIZ - 206, CIZ - 292, LIZ - 291
Block Size	2.5 x 2.5 x 2.5	2.5 x 2.5 x 2.5

The factors that led to the differences between the current Mineral Resource model and the WSP 2015 resource model were the addition of drilling to the dataset which resulted in modifications to the domain solids which in turn resulted in volume changes and a changed estimation strategy.

14.2 Spark Resource Estimate

The QP completed a resource estimation of the Spark Deposit. The effective date of the resource is February 28, 2023.

14.2.1 Database

Frontier maintains all borehole data in a Microsoft Access® relational database. Header, surveys, assays, and lithology information are saved as individual tables in the database. The database information in CSV format was provided to the QP originally on October 12, 2022, with an updated dataset provided on October 27, 2022.

The database contains 71 boreholes and 15 channels. There are a total of 5,104 assay records in the database. The channel data was reviewed and incorporated into the borehole dataset as a form of boreholes. Table 14-16 summarizes the borehole and trench data.

Table 14-16: Spark Summary of Borehole and Trench Data

	Number of Drillholes	Length
Project Total	86	22,238
Channel samples	15	363
Boreholes	71	21,875

14.2.2 Specific Gravity"

Frontier collected a total of 2,458 samples from diamond drillholes for specific gravity ("SG") measurements. Frontier used the following procedure to determine the SG for each the mineral domains.

- Sample selected for SG measurement;
- The Borehole ID, row number, From, To and rock type were entered into a spreadsheet;
- The sample was weighted dry on the scale;
- The sample was then weighted submerged saturated in tap water at a constant 22 °C;
- The specific gravity is determined using the following equation:

$$SG = \frac{Wd}{(Wd - Ws)/CF}$$

Wd = Dry Weight, Ws = Submerged Weight, CF = correction factor for water temperature

Figure 14-1 illustrates the SG measuring set up employed by Frontier during this round of SG data collection.

Table 14-17 summarizes the results of the SG measurements.

Table 14-17: Spark Specific Gravity Summary

Lithology	No. of Samples	Median Rock Density
Pegmatite	699	2.74
Aplite	767	2.70
Metavolcanics	992	3.02

14.2.3 Topography

Topographic data was generated as a Digital Terrain Model ("DTM") created using contour lines generated from a combination of the total station survey data completed in August 2019, and photographic images collected by DJI Phantom 4 Pro drone taken in October 2018 (unmanned airborne vehicle "UAV"). To extend the coverage for the pit shell, imagery from a May 2016 drone survey was stitched to the detailed image.

The area covered by the DTM is sufficient to cover the area defined by the current resource model (Figure 14-16).

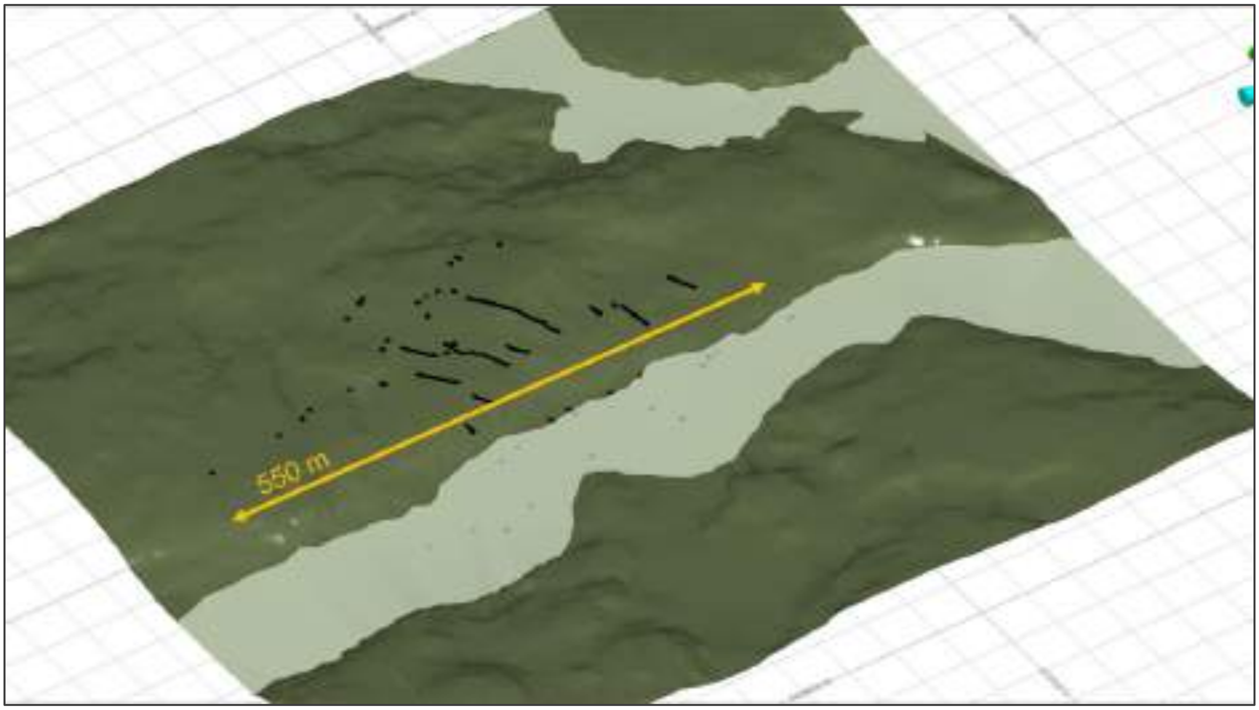


Figure 14-16: Spark Topographic Image

14.2.4 Geology Interpretation

A three-dimensional wireframe model of mineralization was developed in Datamine Studio RM™ by the QP. The wireframe was based on the geological interpretation of the zone as a distinct domain and not strictly on grade intervals.

Sectional interpretations were completed in Datamine Studio RM™ 64 Bit version 1.12.112.0 software, and these interpretations were linked with control strings and triangulated to build the three-dimensional solid. Table 14-18 tabulates the solid and associated volume. The solid was validated in the Datamine™ software, and no errors were found.

The modelling developed a single zone to cover the bulk of the pegmatite. The non-assayed intervals of metavolcanics within the solid were assigned a default value of half-detection limit for all elements.

Figure 14-17 and Figure 14-18 illustrate the modelled solid.

The wireframes extend at depth, below the deepest diamond drillholes. This is to provide a target for future exploration. The resource model did not estimate grades into the full volume of the wireframes due to sheer size of the wireframes.

Table 14-18: Spark Wireframe Summary

Domain	Minimum X	Maximum X	Minimum Y	Maximum Y	Minimum Z	Maximum Z	Surface Area (m^2)	Volume (m^3)
Spark Solid	472,472.20	473,034.08	5,829,269.46	5,829,590.25	-91.41	370	1,417,701	25,012,473

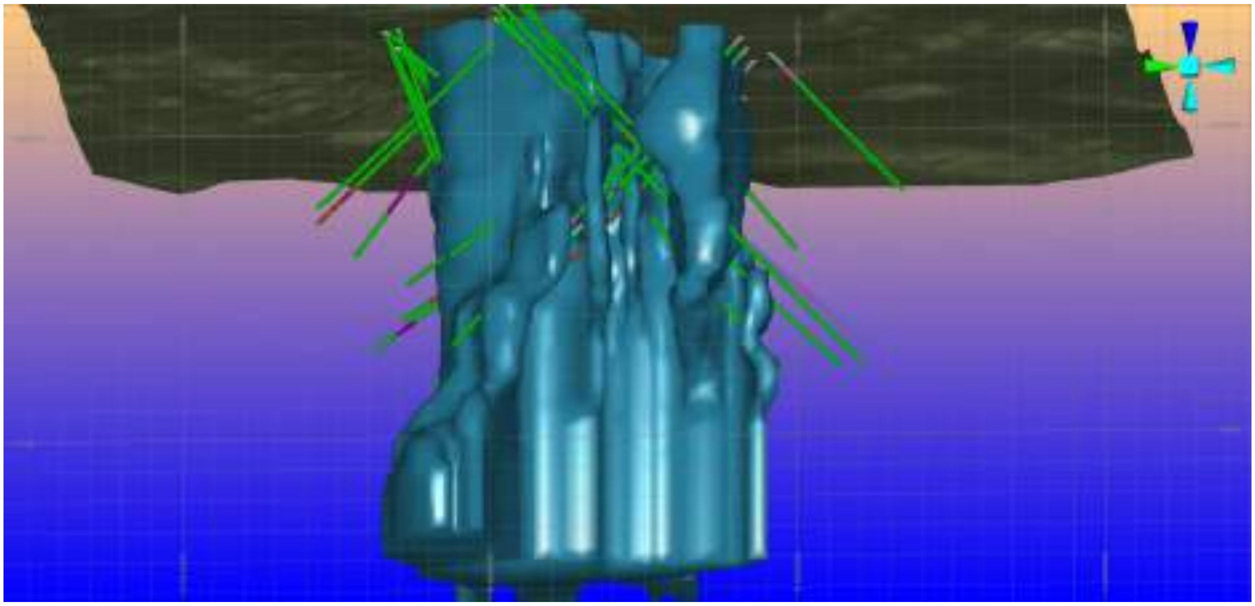


Figure 14-17: Spark Wireframe (Looking East)

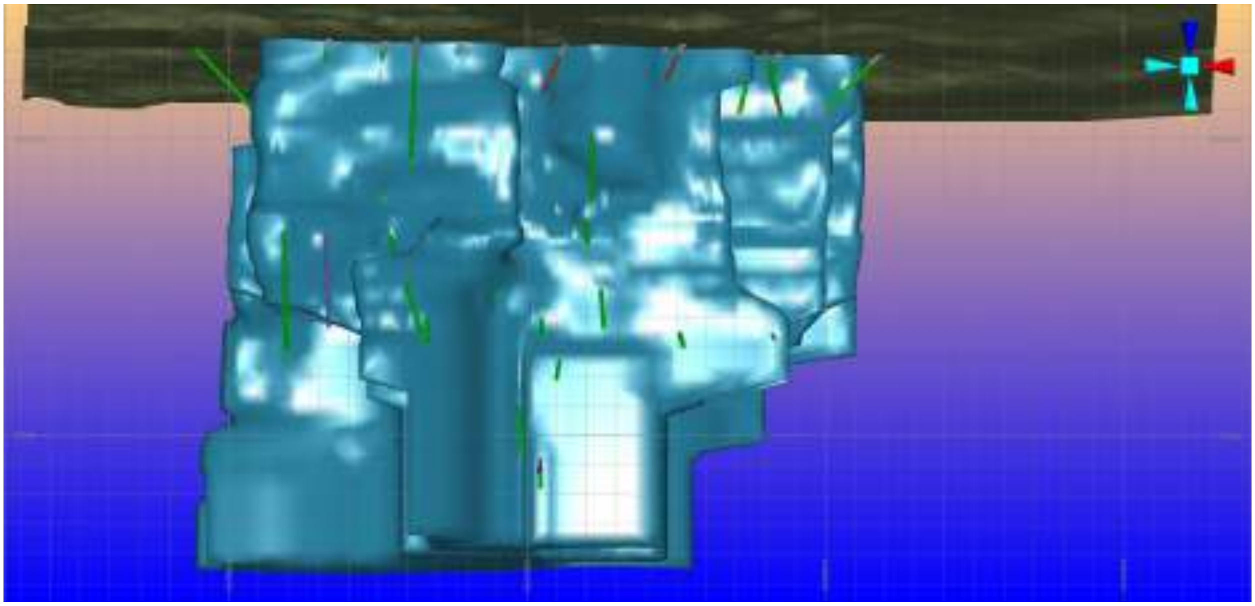


Figure 14-18: Spark Wireframe (Looking North)

14.2.5 Exploratory Data Analysis

14.2.5.1 Assays

The domain included in the Spark Mineral Resource was sampled by a total of 5,104 Li_2O, Cs_2O, Rb_2O, SnO_2, Nb_2O_5 and Fe assays. The assay intervals within the mineral domain were captured using a Datamine™ routine to flag the intercept into a new table in the database. These intervals were reviewed to ensure all the proper assay intervals were properly captured. Table 14-19 summarizes the basic statistics for the assay intervals within the Spark mineral domain.

Table 14-19: Spark Sample Summary

Domain	Field	No of Records	Minimum	Maximum	Mean	Standard Deviation
Spark	Length (m)	5629	0.020	16.40	1.71	0.70
	Li_2O (%)	5104	0.001	5.21	1.50	0.87
	Cs_2O (%)	5104	0.000	6.03	0.03	0.14
	Rb_2O (%)	5104	0.000	1.83	0.27	0.15
	SnO_2 (ppm)	5104	0.635	2094.84	62.86	72.42
	Ta_2O_5 (ppm)	5104	0.305	5336.21	116.63	158.21
	Nb_2O_5 (ppm)	5104	0.715	2660.73	86.67	55.71
	Fe (%)	5104	0.030	10.90	1.05	1.84

14.2.5.2 Compositing

Compositing of all the assay data within the domain was completed on downhole intervals honouring the interpretation of the geological solids. Statistics indicate that a majority of the samples were collected at 1 m intervals. Composites were generated at 2 m best fit option, allowing all the material to be used in the compositing process. Table 14-20 summarizes the statistics for the boreholes after compositing.

Table 14-20: Spark Composite Summary

Domain	Field	No of Records	Minimum	Maximum	Mean	Standard Deviation
Spark	Li_2O (%)	4260	0.01	5.13	1.52	0.79
	Cs_2O (%)	4260	0.00	5.74	0.03	0.15
	Rb_2O (%)	4260	0.00	1.82	0.27	0.13
	SnO_2 (ppm)	4260	1.33	1355.07	61.88	64.37
	Nb_2O_5 (ppm)	4260	0.31	4362.91	114.92	143.33
	Ta_2O_5 (ppm)	4260	0.72	2660.73	87.21	54.41
	Fe (%)	4260	0.06	10.50	1.00	1.58

14.2.5.3 Grade Capping

The composite assay data for each element within the domain was examined to assess the amount of metal that is bias from high-grade assays. A combination of viewing the histogram, QQ, and cumulative frequency plots were used to assist in determining if grade capping was required on each element in the domain.

The QP applied a top cut for each element summarizes in Table 14-21.

Table 14-21: Spark Grade Capping Summary

Domain	Field	No of Records	Minimum	Maximum	Mean	Standard Deviation	Samples Capped
Spark	Li_2O (%) - Uncapped	4260	0.01	5.13	1.52	0.79	
	Li_2O (%) - Capped	4260	0.01	5.13	1.52	0.79	0
	Cs_2O (%) - Uncapped	4260	0.00	5.74	0.03	0.15	
	Cs_2O (%) - Capped	4260	0.00	1.50	0.03	0.07	5
	Rb_2O (%) - Uncapped	4260	0.00	1.82	0.27	0.13	
	Rb_2O (%) - Capped	4260	0.00	1.82	0.27	0.13	0
	SnO_2 (ppm) - Uncapped	4260	1.33	1355.07	61.88	64.37	
	SnO_2 (ppm) - Capped	4260	1.33	500.00	60.83	51.46	12
	Ta_2O_5 (ppm) - Uncapped	4260	0.31	4362.91	114.92	143.33	
	Ta_2O_5 (ppm) - Capped	4260	0.31	1600.00	113.53	113.70	3
	Nb_2O_5 (ppm) - Uncapped	4260	0.72	2660.73	87.21	54.41	
	Nb_2O_5 (ppm) - Capped	4260	0.72	450.00	86.54	35.92	5
	Fe (%) - Uncapped	4260	0.06	10.50	1.00	1.58	
	Fe (%) - Capped	4260	0.06	10.50	1.00	1.58	0

14.2.5.4 Spatial Analysis

Variograms for each element were created to be used to generate the search ellipse dimensions. The variograms were also used to assign kriging weights during the estimation process.

The variography for Spark was determined using Snowden Supervisor™ version 8.14.1 software. Each element was modelled using a downhole variogram to determine nugget effect, then a spherical pair-wise variogram was used to determine spatial continuity in the domain.

Table 14-22 summarizes the results of the variogram models for each element. The variogram rotation and maximum range governed the search ellipse rotation and size.

Table 14-22: Spark Variogram Summary

Domain	Element	Nugget	Structure 1				Structure 2			
			1st S	2nd S	3rd S	4th S	1st S	2nd S	3rd S	4th S
Spark	Li_2O (%)	0.11	55	35	35	0.49	125	75	45	0.4
	Cs_2O (%)	0.02	80	60	45	0.27	100	80	50	0.71
	Rb_2O (%)	0.057	75	60	10	0.61	140	65	40	0.333
	SnO_2 (ppm)	0.03	106	70.00	10.00	0.5	145	125	90	0.47
	Nb_2O_5 (ppm)	0.03	60	50	15	0.15	85	75	25	0.82
	Ta_2O_5 (ppm)	0.17	131.00	63.00	22.00	0.814	132	447	25	0.016
	Fe (%)	0.11	55.00	35.00	35.00	0.49	125	75	45	0.4

14.2.6 Resource Block Model

A separate block model was established in Datamine Studio RM™ for the Spark Deposit. The model was not rotated.

A block size of 5 m x 5 m x 5 m was selected in order to accommodate a small-scale open pit mining potential. Sub-blocking of the block was used to further divided the blocks to fill the volume.

Table 14-23 summarizes details of the parent block model.

Table 14-23: Spark Parent Model

Parameter	Data
X Origin	472400
Y Origin	5829100
Z Origin	-100
Block Size (m)	5 x 5 x 5
No. Blocks (X Y Z)	160 120 100
Rotation	0
Sub-block	2 (1.25 x 1.25 x 1.25)

14.2.6.1 Estimation Parameters

An anisotropic search ellipse was used for the estimation. Only the samples within the domain wireframe were used in the estimation.

The interpolations of the zones were completed using the estimation methods ordinary kriging ("OK"), nearest neighbour ("NN"), and inverse distance squared ("ID^2"). The estimations were designed for multiple passes. In each estimation pass, a minimum and maximum number of samples were required as well as a maximum number of samples from a borehole in order to satisfy the estimation criteria.

Table 14-24 summarizes the search ellipse size and rotations, and Table 14-25 summarizes the interpolation criteria.

Table 14-24: Spark Search Ellipse Summary

Domain	Elements	Bearing	Plunge	Dip	Major Axis	Semi-major Axis	Minor Axis
Spark	Li_2O (%)	160	100	-90	63	38	23
	Cs_2O (%)	160	100	-90	50	40	25
	Rb_2O (%)	160	100	-90	70	33	20
	SnO_2 (ppm)	160	100	-90	73	63	45
	Ta_2O_5 (ppm)	160	100	-90	43	38	13
	Nb_2O_5 (ppm)	160	100	-90	58	40	20
	Fe (%)	160	100	-90	63	38	23

Table 14-25: Spark Estimation Strategy

Domain	Estimation Pass No.	Search Ellipse Factor	Minimum No. of Composites	Maximum No. of Composites	Maximum No. of Composites per BH
Spark	1	1	6	15	3
	2	1.6	6	15	3
	3	2	6	15	3

14.2.7 Resource Classification

Several factors are considered in the definition of a resource classification:

- NI 43-101 requirements;
- Canadian Institute of Mining, Metallurgy and Petroleum ("CIM") Estimation of Mineral Resource and Mineral Reserve Best Practice Guidelines (CIM 2019);
- Author's experience with pegmatite deposits;
- Spatial continuity based of the assays within the drillholes and channels;
- Understanding of the geology of the deposit; and
- Drillhole and channel spacing, and the estimation runs required to estimate the grades in a block.

A wireframe was created taking the points above into consideration to capture the Mineral Resource classified as Indicated (Figure 14-19). All remaining blocks are classified as Inferred. No material in the block model was considered as Measured.

No environmental, permitting, legal, title, taxation, socio-economic, marketing, or other relevant issues are known to the QP that may affect the estimate of Mineral Resources. Mineral Reserves can only be estimated on the basis of an economic evaluation that is used in a preliminary Feasibility Study or a Feasibility Study of a mineral project; thus, no reserves have been estimated. As per NI 43-101, Mineral Resources which are not Mineral Reserves do not have to demonstrate economic viability.

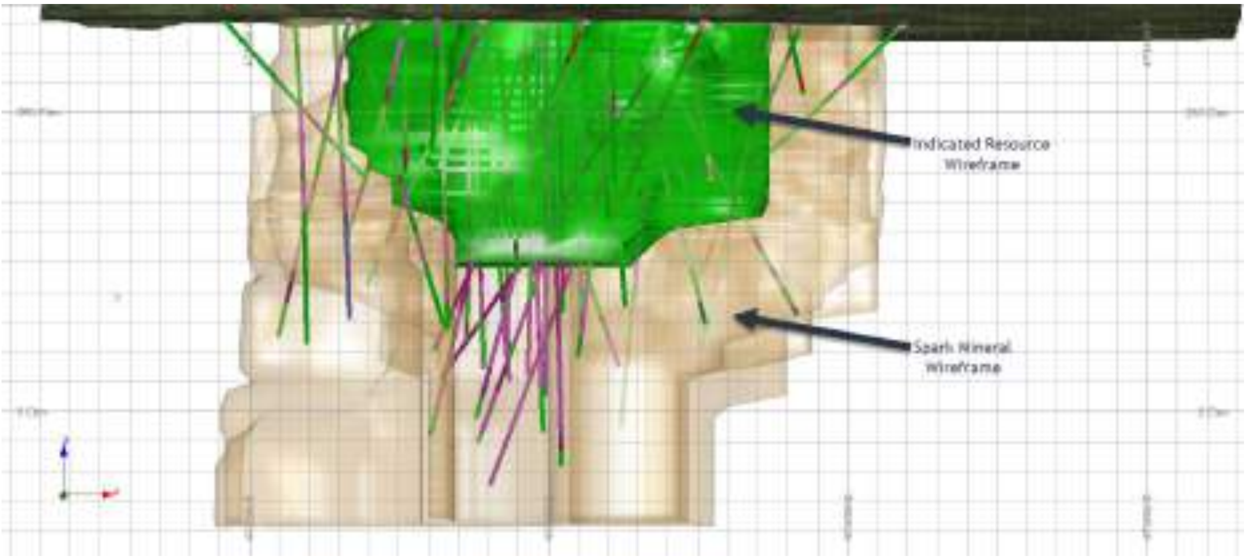


Figure 14-19: Spark Pegmatite Indicated Resource Wireframe

14.2.8 Mineral Resource Tabulation

The effective date of the Mineral Resource is February 28, 2023 and has been tabulated in terms of an Li_2O cut-off grade of 0.65%. The Mineral Resources are constrained using the same parameters used for PAK (Table 14-26)

Table 14-26: Spark Pit Shell Parameters

Input	Variable
Mining cost (CAD/t)	5.60
Processing cost (CAD/t)	36.00
G&A cost (CAD/t)	10.00
Pit angle (degree)	51.70
Mine Dilution (%)	3
Mine Recovery (%)	97
6% Li_2O Spodumene Concentrate (USD/t)	1,500.00
Selling cost ($/t of Li Hydroxide)	1,000.00
Exchange Rate	0.77
Metallurgical Recovery (%)	78
Li_2O cut-off grade (%)	0.65

Although a bulk pegmatite is likely the method of extraction, the breakeven cut-off grade would be approximately 0.3%, a cut-off of 0.65% Li_2O was selected for final Mineral Resource tabulation for the open pit. The Mineral Resource constrained within a pit shell is summarized in Table 14-27.

Table 14-27: Spark Mineral Resource Summary

Cut-Off	Resource Classification	Tonnes (t)	Li_2O (%)	Nb_2O_5 (ppm)	Cs_2O (%)	Ta_2O_5 (ppm)	Rb_2O (%)	SnO_2 (ppm)
0.65% Li_2O	Indicated	18,828,000	1.52	84	0.02	112	0.26	61
	Inferred	29,746,000	1.34	77	0.03	116	0.26	74

A Mineral Resource was prepared in accordance with NI 43-101 and the CIM Definition Standards (2019). Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. This estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, sociopolitical, marketing, or other relevant issues.

14.2.9 Validation

The Spark model was validated by three methods:

1. Visual comparison of colour-coded block model grades with composite grades on section;
2. Comparison of the global mean block grades for ID^2, NN, and composites;
3. Swath plots.

14.2.9.1 Visual validation

The visual comparisons of block model grades with composite grades for each of the zones show a reasonable correlation between the values (Figure 14-20 and Figure 14-21). No significant discrepancies were apparent from the sections reviewed, yet grade smoothing is apparent in some of the lower elevations due to the distance between drill samples being broader in these regions.

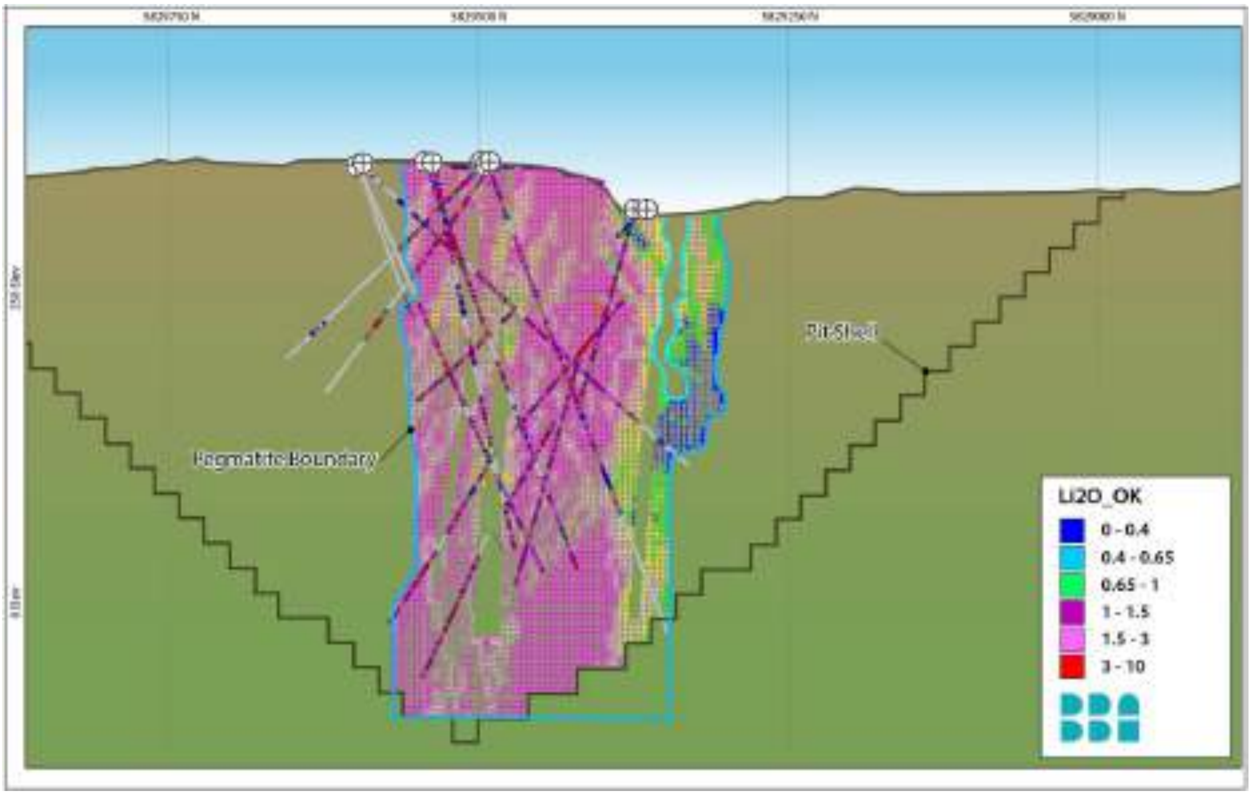


Figure 14-20: 2023 Model Validation (Centre of Deposit)

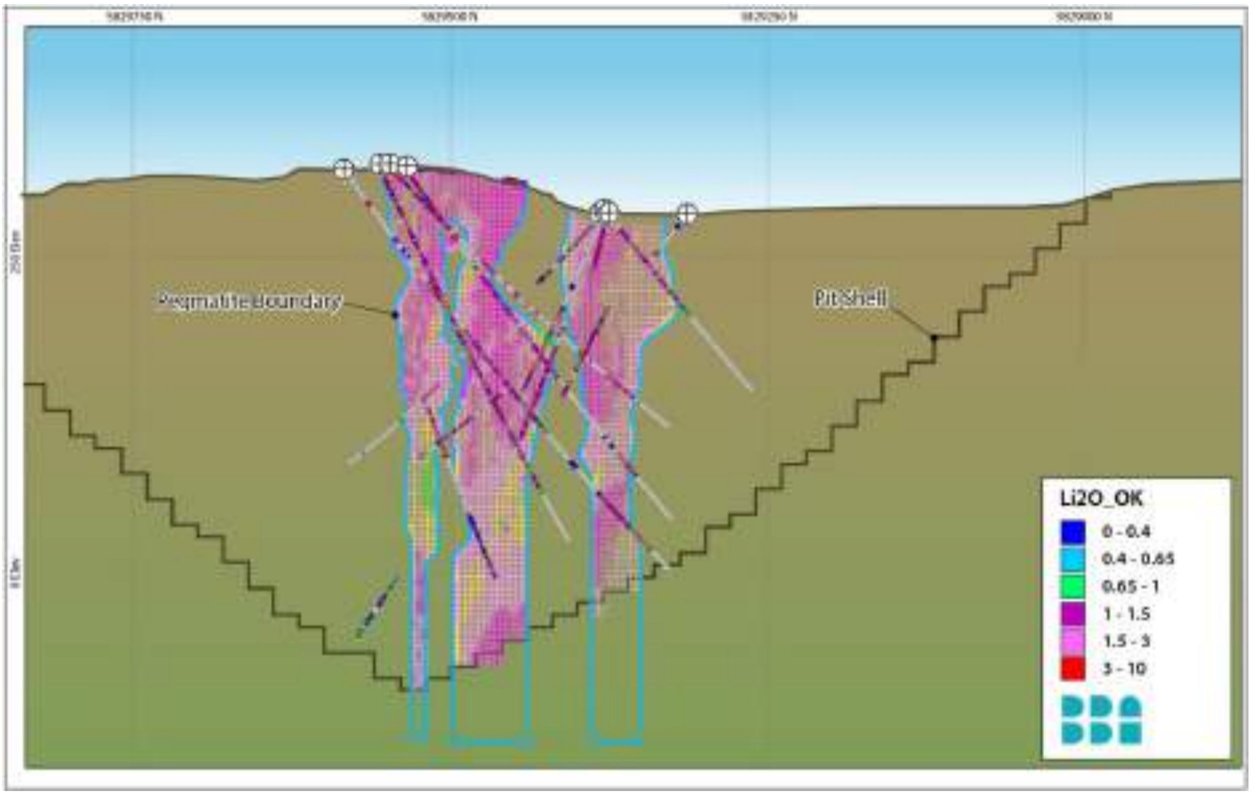


Figure 14-21: 2023 Model Validation (North End of Deposit)

14.2.9.2 Global Comparison

The global block model statistics for the OK model was compared to the global NN and ID^2 model values as well as the composite capped drillhole data. Table 14-28 shows this comparison of the global estimates for the three estimation method calculations. In general, the OK, ID^2, and NN results are lower than the drillhole dataset. Larger discrepancies are reflected as a result of lower drill density in some portions of the model. There is a degree of smoothing apparent when compared to the diamond drill statistics. Comparisons were made using all blocks at 0% Li_2O cut-off.

Table 14-28: Spark Global Statistics

Domain	Element	DDH	NN	ID^2	OK
Spark	Li_2O (%)	1.52	1.14	1.18	1.16
	Cs_2O (%)	0.03	0.02	0.03	0.02
	Rb_2O (%)	0.27	0.24	0.25	0.24
	SnO_2 (ppm)	60.83	81.54	78.21	78.87
	Ta_2O_5 (ppm)	113.53	120.46	119.67	120.56
	Nb_2O_5 (ppm)	86.54	77.05	78.60	78.92
	Fe (%)	1.00	1.00	1.00	1.01

14.2.9.3 Swath Plots

Figure 14-22 and Figure 14-23 display the comparison between OK estimate with the ID^2 and NN estimates, and the drillhole composites in a swath plot format.

As expected, there is a strong correlation between the three estimation methods and the composite drill data.

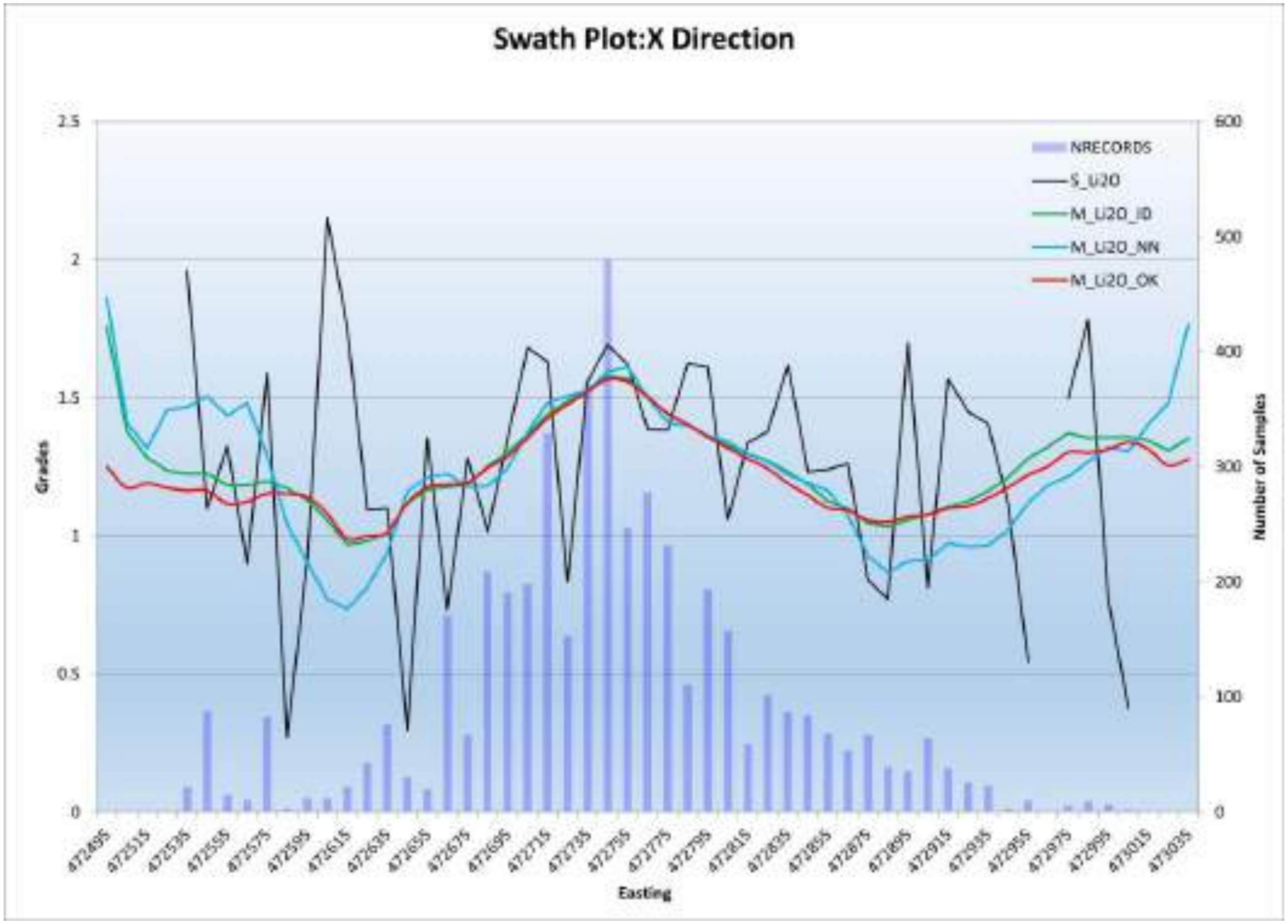


Figure 14-22: Spark Li_2O Easting Swath

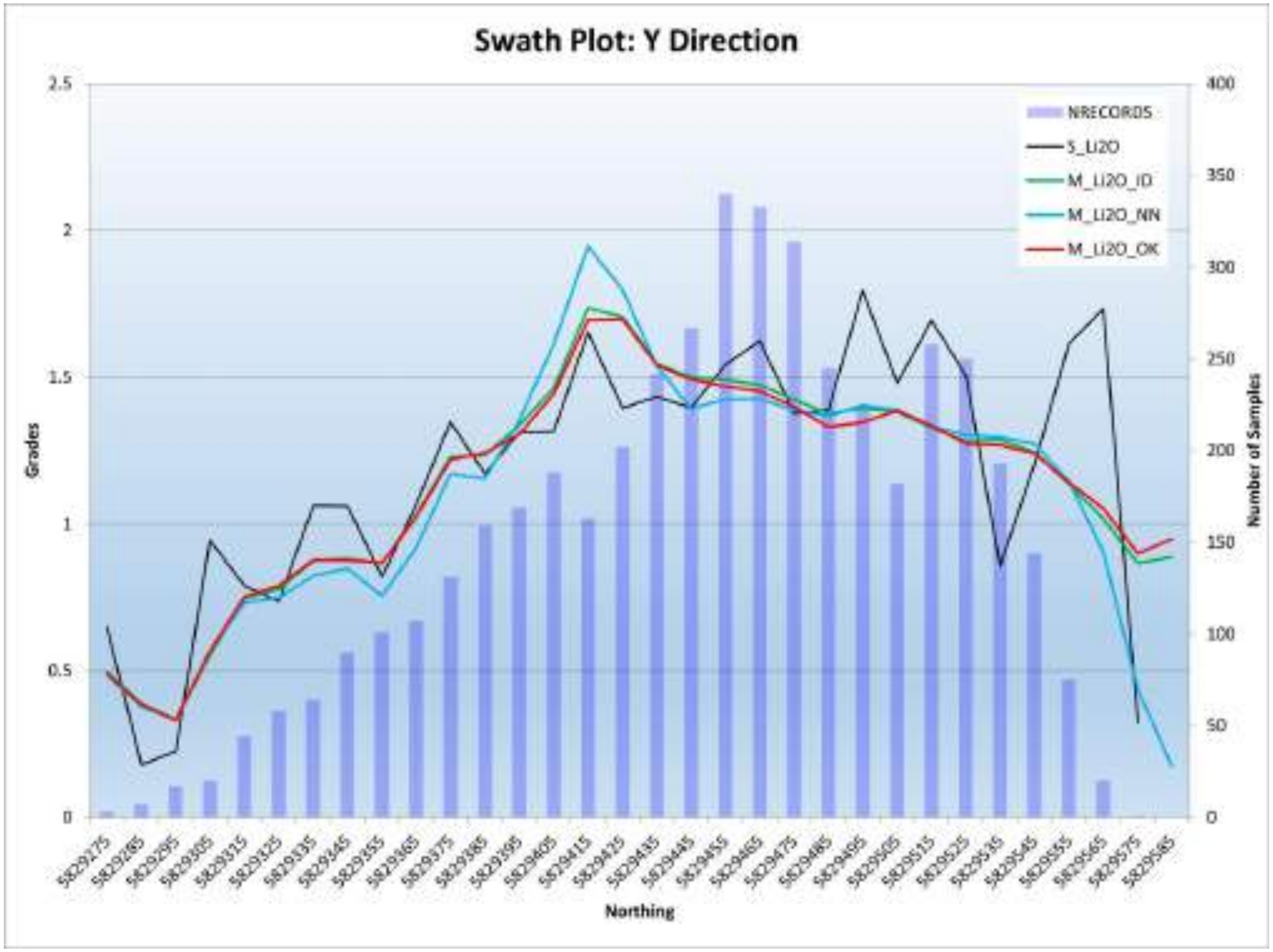


Figure 14-23: Spark Li_2O North Swath

14.2.10 Previous Estimate

A comparison between the previous Mineral Resource Statement in 2022 and the current Mineral Resource Statement in 2023 reveals an overall increase in the resource tonnages and Li_2O grades in both the Indicated and Inferred categories. There are several differences between the 2022 and 2023 Mineral Resource statements including, yet not limited to:

- 37 additional drillholes for 56% increase in the metres from the previous Mineral Resource;
- One additional channel for a 6% increase in the metres from the previous Mineral Resource;
- 226 additional bulk density samples for an increase of 41% from the previous Mineral Resource;
- Improved confidence in the geology.

Table 14-29 compares the 2023 pit constrained Mineral Resource with the 2022 pit constrained Mineral Resource.

Table 14-29: Pit Constrained Mineral Resource Comparison 2022-2023

Spark 2023 Mineral Resource Estimate								
Cut-Off	**Resource Classification**	**Tonnes (t)**	**Li_2O (%)**	**Nb_2O_5 (ppm)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Rb_2O (%)**	**SnO_2 (ppm)**
0.65% Li_2O	Indicated	18,828,000	1.52	84	0.02	112	0.26	61
	Inferred	29,746,000	1.34	77	0.03	116	0.26	74
Spark 2022 Mineral Resource Estimate								
Cut-Off	**Resource Classification**	**Tonnes (t)**	**Li_2O (%)**	**Nb_2O_5 (ppm)**	**Cs_2O (%)**	**Ta_2O_5 (ppm)**	**Rb_2O (%)**	**SnO_2 (ppm)**
0.70% Li_2O	Indicated	14,414,000	1.40	82	0.02	114	0.25	56
	Inferred	18,118,000	1.37	80	0.02	105	0.23	61

15. Mineral Reserve Estimate

15.1 Introduction

NI 43-101 defines the terms "Mineral Reserve", "Probable Mineral Reserve" and "Proven Mineral Reserve" have the meanings ascribed to those terms by the Canadian Institute of Mining, Metallurgy and Petroleum, as the CIM Definition Standards on Mineral Resources and Mineral Reserves (May 2014) and the CIM Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines (2019).

A **Mineral Reserve** is the economically mineable part of a measured and/or indicated mineral resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at Pre-Feasibility or Feasibility level as appropriate that include application of modifying factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified.

Modifying factors are considerations used to convert mineral resources to mineral reserves. These include, but are not restricted to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social, and governmental factors.

A **Probable Mineral Reserve** is the economically mineable part of an indicated, and in some circumstances, a measured mineral resource. The confidence in the modifying factors applying to a probable mineral reserve is lower than that applying to a proven mineral reserve.

A **Proven Mineral Reserve** is the economically mineable part of a measured mineral resource. A proven mineral reserve implies a high degree of confidence in the modifying factors. Application of the proven mineral reserve category implies that the Qualified Person has the highest degree of confidence in the estimate with the consequent expectation in the minds of the readers of the report.

Changes in the following factors and assumptions may affect the Mineral Reserve Estimate:

- Commodity prices;
- Interpretations of mineralization geometry and continuity of mineralization zones;
- Grade and geology estimation assumptions;
- Geomechanical and hydrogeological assumptions;
- Ability of the mining operation to meet the annual production rate;
- Operating cost assumptions;
- Concentrator plant recoveries;
- Mining loss and dilution assumptions;
- Ability to meet and maintain permitting and environmental license conditions.

15.2 Mineral Reserve Estimate

BBA prepared a Mineral Reserve Estimate for the Project using Deswik mining software packages and modules for estimating the economic pit limit for the open pit and block model interrogation.

The mineral reserve estimate for the PAK Project is based on the resource block models estimated by BBA and described in Chapter 14. The PAK Project consists of the PAK Deposit (PAK) and the Spark Deposit (Spark).

Mineral reserves for the PAK Project incorporate mining dilution and mining loss assumptions for the open pit mining method.

The reference point at which mineral reserves are defined, is the point where the ore is delivered to the concentrator plant facility, which includes the ROM stockpiles.

Table 15-1 presents the estimated mineral reserves for the PAK Project.

Table 15-1: Mineral Reserve Estimate for PAK

Category	Area	Li_2O Cut-off Grade (%)	Diluted Tonnage (t)	Diluted Li_2O Grade (%)
Probable Mineral Reserve	PAK	0.65	4,041,000	1.79
Probable Mineral Reserve	Spark	0.65	18,028,000	1.50
Probable Mineral Reserve	Overall Total	0.65	22,069,000	1.55

Notes:

1. The independent and Qualified Person for the mineral reserve estimate, as defined by NI 43-101, is Joanne Robinson, P.Eng. of BBA E&C Inc.
2. The effective date of the mineral reserves estimate is February 28, 2023.
3. The mineral reserve estimate is based on constant metallurgical recovery assumptions: 76% for technical grade concentrate, 78% for chemical grade concentrate, 88% for Li Hydroxide.
4. The mineral reserve estimate is based on commodity prices assumptions of: USD3,000/t for 7.2% Li_2O technical grade concentrate, USD1,500/t for 6.0% Li_2O chemical grade concentrate, and USD20,000/t produced of battery grade lithium hydroxide.
5. The mineral reserve was derived from a pit limit analysis and detailed pit design using measured and indicated resources and a cut-off grade of 0.65% Li_2O.
6. For PAK, the mineral reserve estimate incorporates mining dilution and mining loss assumptions through re-blocking to a block size of 3 m x 3 m x 5 m. Approximately 6.3% dilution at 0.24% Li_2O and 5.9% mining loss were incorporated.
7. For Spark, the mineral reserve estimate incorporates mining dilution and mining loss assumptions through regularizing to a block size of 5 m x 5 m x 5 m. Approximately 2.4% dilution at 0.35% Li_2O and 3.1% mining loss were incorporated.
8. PAK mineral reserves are based on a pit design with a 6.1 stripping ratio.
9. Spark mineral reserves are based on a pit design with a 3.2 stripping ratio.

The following subsections outline the procedures used to estimate the mineral reserves.

15.3 Open Pit Mine Design

Conventional open pit mining methods will be used to extract a portion of the PAK Project. This method was selected considering the PAK Deposit's size, shape, orientation, and proximity to the surface. Drilling, blasting, loading, and hauling will be used to mine the open pit material within the designed pit to meet the mine production schedule.

The following subsections detail the aspects of the pit design (Robinson and Asi, 2023a).

15.3.1 Pit Limit Analysis

Economic pit limits were determined using Deswik mining planning software which uses the pseudoflow algorithm. The algorithm progressively identifies economic blocks, taking into account waste stripping that results in a highest possible total value mined within the open pit shell, subject to the specified pit slope constraints.

The pit limit analysis was evaluated on the PAK Project using the measured and indicated mineral resources.

15.3.1.1 Input Parameters

A 3D geological block model and other economical and operational variables are used as inputs in the software program. These variables include overall pit slope angle, mining costs, processing costs, selling costs, metal prices, metal recoveries, and other variables listed in Table 15-2.

Although these parameters are not necessarily final, a reasonable degree of accuracy is required since the analysis is an iterative process. The economic parameters used at the time of the pit limit analysis may not necessarily conform to those stated in the economic model.

Table 15-2: Pit Limit Analysis Parameters

Parameter	Unit	Value
Revenue		
Li_2O @7.2% Technical Grade	USD/t Conc.	3,000
Li_2O @6.0% Chemical Grade	USD/t Conc.	1,500
Battery Grade Li Hydroxide	USD/t produced	20,000
Selling Cost	$/t produced	1,000
Economics		
Currency	$	CAN dollars
Exchange Rate	n/a	1 USD = 1.29 CAD
Discount rate	%	8
Cost basis		
Mining		
Ore Mining	$/t mined	5.16
Waste Mining	$/t mined	4.54
Overburden Mining	$/t mined	2.2
Incremental Mining Cost[1]	$/t mined per 10 m bench	0.10
Processing and G&A		
Ore Crushing Cost	$/t milled	6.90
Processing Cost – Chemical Line	$/t milled	18.76
Processing Cost – Technical Line	$/t milled	21.57
Mine Services[2]	$/t milled	40.24
G&A	$/t milled	3.52
Sustaining Capital	$/t milled	7.58
Chemicals Plant Cost	$/t milled	94.71
Recoveries		
Metallurgical Recovery (Technical Grade)	%	76
Metallurgical Recovery (Chemical Grade)	%	78
Metallurgical Recovery (Li Hydroxide)	%	88
Factor Chemical Conc to Li Hydroxide	n/a	1/(6.74*0.872)
Cut-Off Grade		
PAK	% Li_2O	0.65
Operating parameters		
Mining Dilution – PAK	%	~8%
Mining Loss – PAK	%	~7%
Mining Dilution – Spark	%	~3%
Mining Loss – Spark	%	~3%

Parameter	Unit	Value
Pit Slope Parameters		
Operating Bench Height	m	10
Berm Frequency	m	2
Berm Width	m	8.5
Overall Slope Angle – PAK	degree	45
Overall Slope Angle – Spark	degree	43
Haul Road Width Double Lane – PAK	m	16.5
Haul Road Width Double Lane – Spark	m	22.0
Boundary Constraints		
PAK Pit Limit from Pakeagama Lake	m	120
Spark Pit Limit from Unnamed Waterbody 1	m	100
Throughput Rates		
Technical Grade Feed	tpa	246,400
Chemical Grade Feed	tpa	918,400

[1] An incremental mining cost of $0.10/t per 10 m bench, below ~50 m depth, was applied to the analysis.

[2] Includes dewatering for pit, compressed air, diesel & propane, electrical power & communication, camp services, concentrate storage & transport, water treatment.

Figure 15-1 illustrates the general process path for the PAK Deposit that was considered for the pit limit analysis.

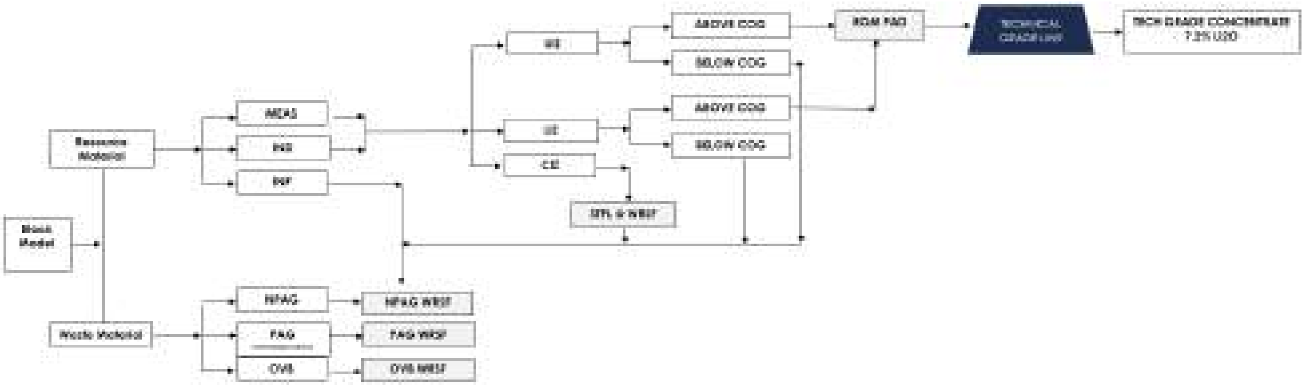


Figure 15-1: General Process Path Description - PAK

Figure 15-2 illustrates the general process path for the Spark Deposit that was considered for the pit limit analysis.

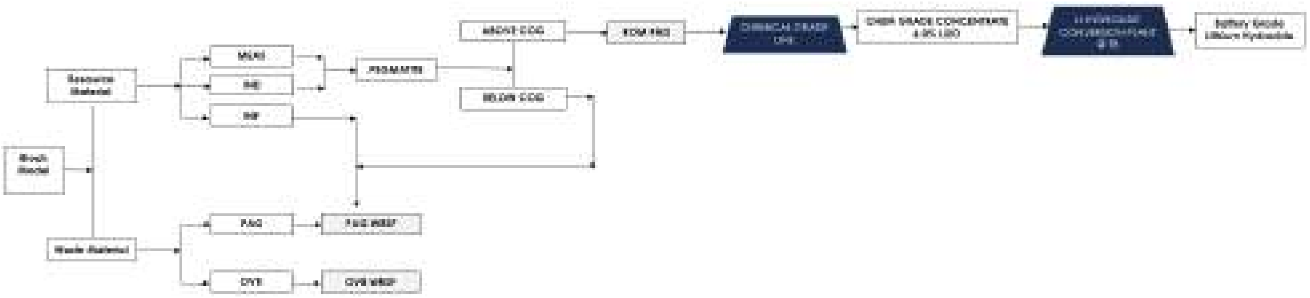


Figure 15-2: General Process Path Description - Spark

Mining Block Model – PAK, for Pit Limit Analysis

The resource model was provided with 2.5 m x 2.5 m x 2.5 m block cell size, as a means of improving the resolution of the model at geological boundaries. This cell size is designed to maximize the resolution of the in situ boundaries of the mineralization in the mineral resource model. The resource block model was used as the basis for creating the mining model for the pit limit analysis, with the following edits:

- Granite coded blocks on the northern side of the model were recoded to metasediment;
- Framework was extended in the south direction:
  - Number of cells in Y direction changed from 176 to 256;
  - New blocks were assigned granite attributes.
- Model Origin of 474,200 X, 5,827,600 Y, -50 Z, no rotation

The block model uses the NAD 27, UTM Zone 15 n coordinates. The pit optimization and design were completed using the same coordinate system.

The initial re-blocking method for PAK, which was used for the pit limit analysis task, re-blocked the resource model (2.5 m x 2.5 m x 2.5 m) to a 5 m x 5 m x 5 m block size using Deswik.CAD. The 5 m x 5 m x 5 m was selected to align with expected mining equipment, selectivity, and pit configuration.

The codes for resource categories and rock codes (Measured, Indicated, and Inferred and granite, metasediment, UIZ, LIZ, etc.) were applied to blocks in the re-blocked model based on which code had the greatest volume (majority) from the resource model.

Grades from the resource model were applied to the re-blocked model on a mass weighted average basis.

The re-blocking of the PAK resource model to 5 m x 5 m x 5 m incorporated approximately 7.9% dilution at 0.25% Li_2O and 6.8% mining loss. No additional factors were applied.

Mining Block Model – Spark

The resource model was created with 5 m x 5 m x 5 m parent block cell size with sub-celling to 1.25 m x 1.25 m x 1.25 m, as a means of improving the resolution of the model at geological boundaries. This cell size is designed to maximize the resolution of the in-situ boundaries of the mineralization in the mineral resource model. The resource block model was used as the basis for creating the mining mode for the pit limit analysis, with the following edits:

- Framework was extended in the north direction:
  - Number of cells in X direction changed from 160 to 170;
  - Number of cells in Y direction changed from 120 to 150;

- New blocks were assigned the following attribute values:
  - Zone = 98;
  - Density = 3.02.
- Model Origin of 472,350 X, 5,829,100 Y, -100 Z, no rotation

The block model uses the NAD 27, UTM Zone 15 n coordinates. The pit optimization and design were completed using the same coordinate system.

Block model was regularized to a block size of 5 m wide x 5 m long x 5 m high using Deswik.CAD. The 5 m x 5 m x 5 m was selected to align with mining equipment, selectivity, and pit configuration.

The codes for resource categories (measured, indicated, and inferred) and rock codes (0, 1, 98, 99, etc.) were applied to blocks in the regularized model based on which code had the greatest volume (majority) from the resource model.

Grades from the resource model were applied to the regularized model on a mass weighted average basis.

The regularization of the Spark resource model to 5 m x 5 m x 5 m incorporated approximately 3.1% dilution at 0.42% Li_2O and 3.0% mining loss. No additional factors were applied.

Overall Slope Angle

The overall slope angle assumptions for the pit limit analysis were established following the geotechnical parameter recommendations presented in the following reports:

- PAK – report prepared by Golder (now WSP) in May 2018 for the 2018 pre-feasibility study and titled "PAK Lithium Geotechnical Drilling and Prefeasibility Slope Design Recommendations" (report ref: 1665648 R-Rev0 FLI Phase 2 31May_18.pdf) (Golder, 2018);
- Report prepared by WSP (report ref: 211-10534-00 FRONTIER_PAK Geotech Sectors_DC-001_R0.pdf) (WSP, 211-10534).

Table 15-3 tabulates the parameters used to estimate the overall slope angle, while Figure 15-3 shows geotechnical sectors for PAK.

Table 15-3: Overall Slope Angle Estimation – PAK

Parameter	Unit	Sector A	Sector B	Sector C	Sector D	
Bench Face Angle	°	70	75	75	70	75
Working Bench Height	m	10				
Safety Berm Width	m	8.5				
Berm Frequency		2				
Bench Height	m	20				
Inter-ramp Slope Angle	°	51.7	55.3	55.3	51.7	55.3
Slope Height	m	170				
Slope Width	m	134	118	118	134	118
Number of Ramps, 2-Lane	#	2				
Ramp Width, 2-Lane	m	16.5				
Total Extra Width for Ramps	m	33				
Overall Slope, depth	m	170				
Overall Slope, width	m	167	151	151	167	151
Overall Slope Angle	°	45	48	48	45	48
Overall Slope Angle Used in Pit Limit Analysis	°	45				

For Sector D, BBA used the 70° bench face angle and 51.7° inter-ramp angle. For the pit limit analysis, the lowest estimated overall slope angle was used.

The in-pit haulage roads assumed for the pit limit analysis were 16.5 m wide to accommodate double lane width for 40 t class haul trucks.

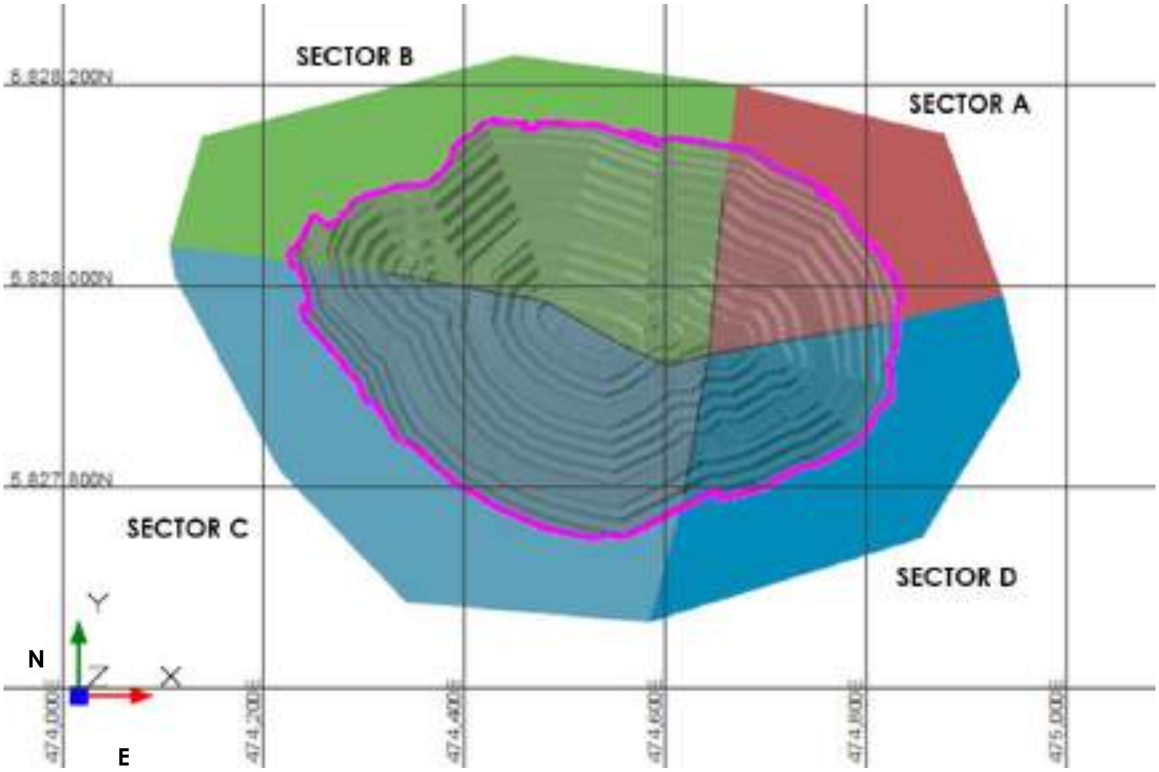


Figure 15-3: Geotechnical Sectors – PAK

Table 15-4 tabulates the parameters used to estimate the overall slope angle, while Figure 15-4 shows geotechnical sectors for Spark.

Table 15-4: Overall Slope Angle Estimation – Spark

Parameter	Unit	Sector A	Sector B	Sector C
Bench Face Angle	°	67	69	75
Working Bench Height	m		10	
Safety Berm Width	m		8.5	
Berm Frequency			2	
Bench Height	m		20	
Inter-ramp Slope Angle	°	50	51	55
Slope Height	m		200	
Slope Width	m	170	162	139
Number of Ramps, 2-Lane	m		2	
Ramp Width, 2-Lane	m		22	
Total Extra Width from Ramps	m		44	

Parameter	Unit	Sector A	Sector B	Sector C
Overall Slope, depth	m		200	
Overall Slope, width	m	214	206	183
Overall Slope Angle	°	43	44	48
Overall Slope Angle Used in Pit Limit Analysis	°		43	

For the pit limit analysis, the lowest estimated overall slope angle was used.

The in-pit haulage roads assumed for the pit limit analysis were 22 m wide to accommodate double lane width for 64 t class haul trucks.

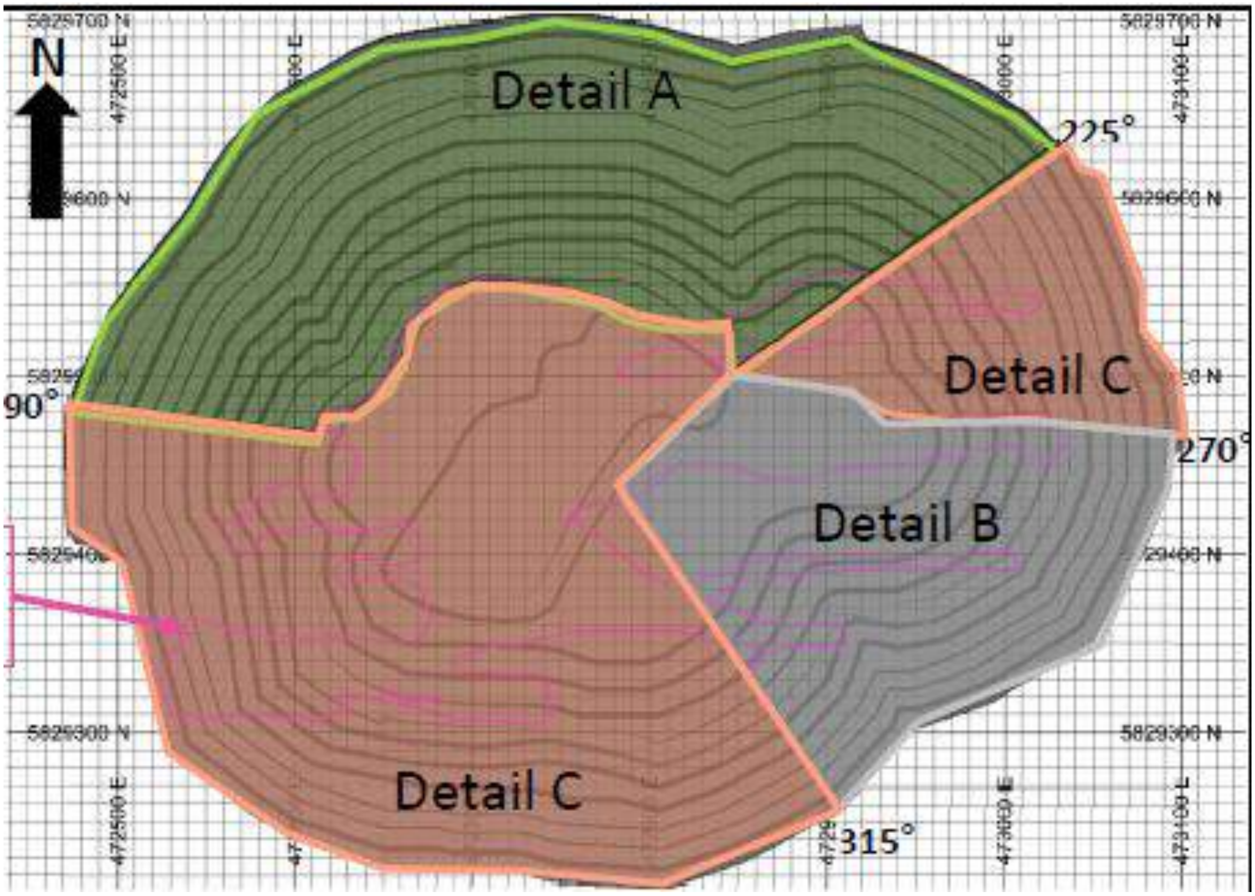


Figure 15-4: Geotechnical Sectors – Spark
(Source: WSP 2022)

Operating Costs

The operating costs are preliminary and are used for pit limit analysis, mine planning, and mineral reserve estimate purposes. Detailed operating costs are developed based on a detailed mine design and plan and discussed in Chapter 21.

The basis for the operating costs for the pit limit analysis are the results of the previous PEA study (McCracken et al., 2021).

Metallurgical Recovery

The assumptions for the metallurgical recoveries are based on constant recovery assumptions provided by Frontier.

Commodity Price

The selling price used for the pit optimization work was based on preliminary PFS prices for 7.2% Li_2O technical grade concentrate, 6.0% Li_2O chemical grade concentrate, and battery grade lithium hydroxide product. Preliminary selling prices were provided by Frontier.

The revenue for the pit limit analysis is based on producing the final products of technical grade concentrate and battery grade lithium hydroxide.

Boundary Constraints

The following boundary constraints were used in the pit limit analysis:

- A 120 m (X-Y) offset from Pakeagama Lake for PAK;
- A 100 m (X-Y) offset from Unnamed Waterbody 1 for Spark.

Cut-off Grade

To classify the material contained within the open pit limits as material for processing or material for waste, the milling cut-off grade is used. This break-even cut-off grade is calculated to cover the costs of processing, general and administrative costs, and selling costs using the economic and technical parameters listed in Table 15-2. Indicated and/or measured mineral resource material contained within the pit shell and above the cut-off grade is classified as potential mill feed ("PMF"), while resource material below the cut-off grade is classified as waste.

The cut-off grade estimated for the Project is 0.65% Li_2O. This grade is higher than the calculated break-even cut-off grade using the parameters in Table 15-2. The calculated cut-off grade is in the range of 0.35% Li_2O for chemical grade, 0.39% Li_2O for battery grade lithium hydroxide and in the range of 0.22% Li_2O for technical grade.

15.3.1.2 Pit Limit Analysis Results

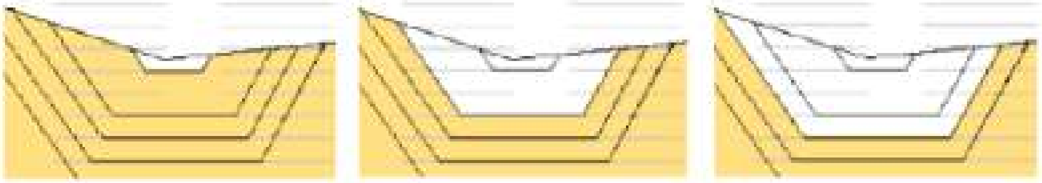
The pit limit analysis process results in a series of nested pit shells, each corresponding to a revenue factor ("RF"). The RF scales the metal prices only, and no costs are factored by the RF. The RF 1 corresponds to the selling prices listed in Table 15-2.

Table 15-5, Figure 15-5, and Figure 15-6 summarize the nested pit shell results for the PAK Deposit at a selection of revenue factors.

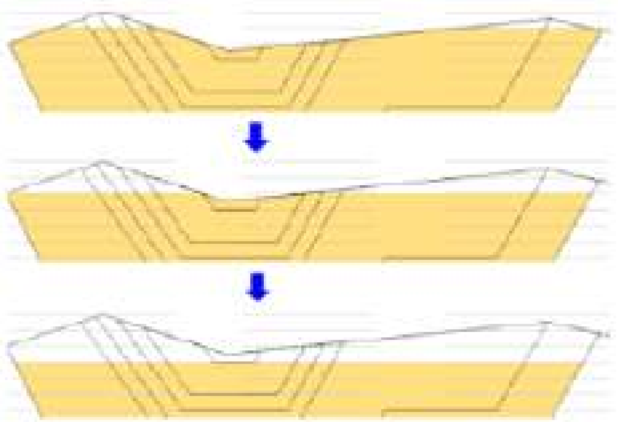
Table 15-6, Figure 15-7, and Figure 15-8 summarize the nested pit shell results for the Spark Deposit at a selection of revenue factors.

Three lines or categories of the discounted cash flow ("DCF") are represented on the tables and figures listed above.

The Best Case DCF consists of mining out nested Pit Shell 1, the smallest pit, and then mining out each subsequent pit shell from the top down, before starting the next pit shell. This schedule is seldom feasible because the pushbacks are usually too narrow. Its usefulness lies in setting an upper limit to the achievable Present Value ("PV").



The Worst-Case DCF consists of mining each bench completely before starting on the next bench. This schedule's usefulness lies in setting a lower limit to the Present Value.



If, as is sometimes the case, worst case and best case DCF differ by only a few percent then, for that pit, mining sequence and phasing is relatively unimportant from an economic point of view.

Note that the DCF value shown in the pit limit analysis results tables and figures is used only as a guide in pit shell selection. The actual net present value of the Project is estimated in the Economic Analysis section of this report.

PAK Pit Limit Results

Observations from the PAK pit limit analysis results include:

- The highest value on the Average DCF line corresponds to Pit Shell RF0.60;
- The incremental increases in ore tonnes and DCF value are minimal between RF0.36 and RF1.0 pit shells;
- Difference between Best Case and Worst-Case DCF is about 5%, indicating that phasing will have small impact on net present value ("NPV") result;
- Recommended pit shell to be used as a guide for detailed ultimate pit design is between RF0.36 and RF0.60.

Table 15-5: PAK Pit Limit – Nested Pit Shell Results

Revenue Factor	Ore						Waste			Discounted Cash Flow		
	Tonnes (kt)	Li2O Grade (%)	Technical Grade (kt)	Li2O Grade (%)	Chemical Grade (kt)	Li2O Grade (%)	Tonnes (kt)	Overall Stripping Ratio	Incremental Stripping Ratio	Best Case (M$)	Worst Case (M$)	Average Case (M$)
0.10	431.3	2.71	431.3	2.71	0.0	0.00	295.1	0.7	0.7	396	396	396
0.12	744.6	2.44	744.6	2.44	0.0	0.00	669.9	0.9	1.2	586	582	584
0.14	1,072.9	2.24	1,072.9	2.24	0.0	0.00	1,274.7	1.2	1.8	738	727	733
0.16	2,242.4	1.94	2,242.4	1.94	0.0	0.00	5,603.2	2.5	3.7	1,116	1,095	1,105
0.24	3,752.2	1.81	3,752.2	1.81	0.0	0.00	16,679.2	4.4	10.5	1,425	1,369	1,397
0.26	3,839.4	1.80	3,839.4	1.80	0.0	0.00	17,863.2	4.7	13.6	1,437	1,378	1,407
0.28	3,893.9	1.79	3,893.9	1.79	0.0	0.00	18,474.6	4.7	11.2	1,443	1,381	1,412
0.36	4,108.1	1.77	4,108.1	1.77	0.0	0.00	22,360.7	5.4	18.4	1,466	1,393	1,430
0.46	4,179.0	1.76	4,179.0	1.76	0.0	0.00	24,144.4	5.8	13.4	1,472	1,394	1,433
0.56	4,197.0	1.76	4,197.0	1.76	0.0	0.00	24,717.2	5.9	23.4	1,473	1,394	1,433
0.58	4,203.5	1.76	4,203.5	1.76	0.0	0.00	24,867.2	5.9	23.1	1,473	1,393	1,433
0.60	**4,222.3**	**1.76**	**4,222.3**	**1.76**	**0.0**	**0.00**	**25,658.4**	**6.1**	**42.2**	**1,474**	**1,393**	**1,433**
0.62	4,223.7	1.76	4,223.7	1.76	0.0	0.00	25,694.3	6.1	26.3	1,474	1,393	1,433
0.64	4,228.1	1.76	4,228.1	1.76	0.0	0.00	25,894.7	6.1	45.3	1,474	1,392	1,433
0.66	4,229.1	1.76	4,229.1	1.76	0.0	0.00	25,925.9	6.1	30.9	1,474	1,392	1,433
0.68	4,238.6	1.75	4,238.6	1.75	0.0	0.00	26,256.5	6.2	34.6	1,475	1,392	1,433
0.70	4,240.0	1.75	4,240.0	1.75	0.0	0.00	26,305.7	6.2	36.6	1,475	1,392	1,433
0.74	4,246.1	1.75	4,246.1	1.75	0.0	0.00	26,583.8	6.3	45.4	1,475	1,391	1,433
0.76	4,252.6	1.75	4,252.6	1.75	0.0	0.00	26,830.3	6.3	38.0	1,475	1,391	1,433
0.92	4,265.2	1.75	4,265.2	1.75	0.0	0.00	27,650.8	6.5	66.5	1,475	1,389	1,432
0.98	4,267.3	1.75	4,267.3	1.75	0.0	0.00	27,767.2	6.5	37.2	1,475	1,389	1,432
1.00	**4,267.3**	**1.75**	**4,267.3**	**1.75**	**0.0**	**0.00**	**27,767.2**	**6.5**	**0.0**	**1,475**	**1,389**	**1,432**

RF = 1.0 pit shell shown in OLIVE, Highest DCF pit shell and BBA selected pit shell shown in RED.

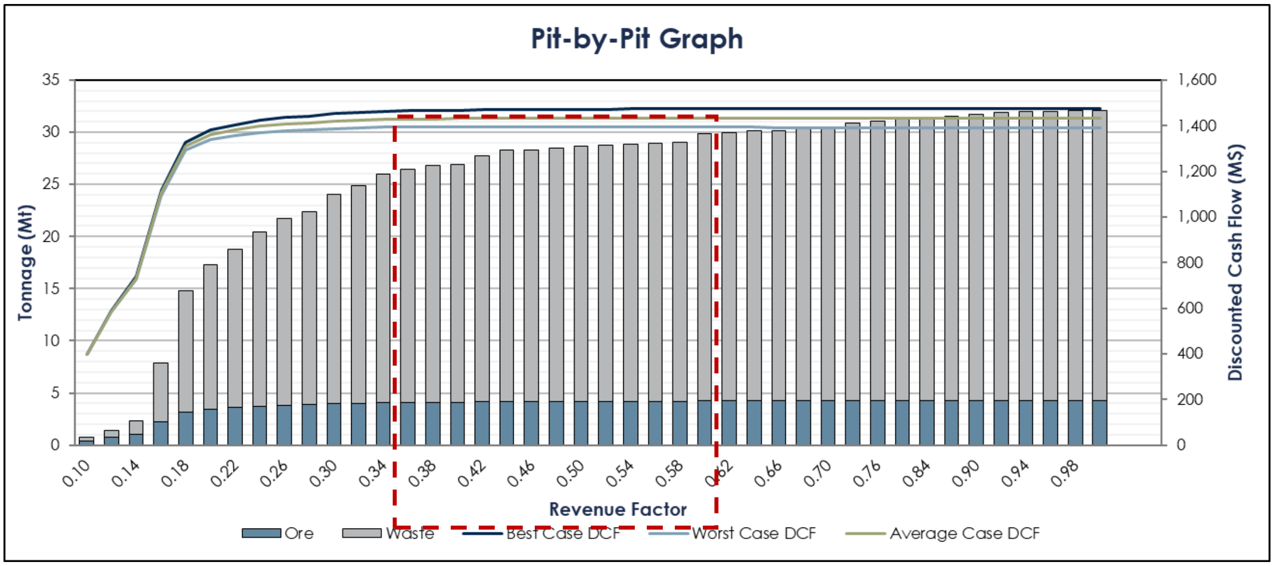


Figure 15-5: PAK Pit-by-Pit Graph

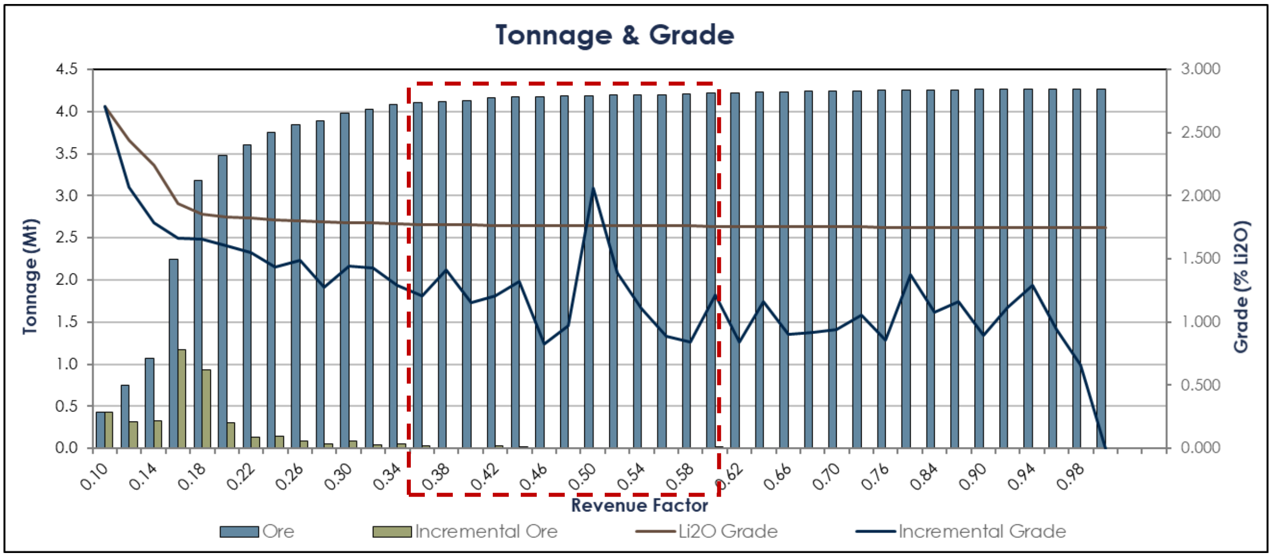


Figure 15-6: PAK Pit-by-Pit Graph, Showing Incremental Differences

Spark Pit Limit Results

Observations from the Spark pit limit analysis results include:

- The highest value on the Average DCF line corresponds to Pit Shell RF0.65;
- The incremental increases in ore tonnes and DCF value are minimal between RF0.30 and RF1.0 pit shells;

- Difference between Best Case and Worst Case DCF is about <5%, indicating that phasing will have small impact on NPV result.

Table 15-6: Spark Pit Limit – Nested Pit Shell Results

	Ore		Waste			Discounted Cash Flow		
Revenue Factor	Tonnes (kt)	Li2O Grade (%)	Tonnes (kt)	Overall Stripping Ratio	Incremental Stripping Ratio	Best Case (M$)	Worst Case (M$)	Average Case (M$)
0.13	1.0	2.92	0.0	0.0	0.0	1	1	1
0.20	769.7	1.99	155.6	0.2	0.2	583	582	583
0.25	4,219.4	1.70	2,456.0	0.6	0.8	2,285	2,257	2,271
0.26	7,526.1	1.61	6,564.3	0.9	1.2	3,350	3,306	3,328
0.27	8,874.7	1.59	9,289.9	1.0	2.0	3,696	3,635	3,665
0.28	12,134.1	1.54	17,675.4	1.5	2.6	4,351	4,252	4,302
0.29	13,639.4	1.53	23,716.1	1.7	4.0	4,602	4,484	4,543
0.30	16,312.7	1.52	38,616.2	2.4	5.6	4,969	4,813	4,891
0.35	17,653.5	1.51	50,297.2	2.8	10.2	5,121	4,940	5,031
0.40	18,097.3	1.51	56,042.5	3.1	14.3	5,162	4,969	5,065
0.45	18,261.5	1.50	59,429.6	3.3	23.7	5,175	4,976	5,076
0.50	**18,406.2**	**1.50**	**62,977.5**	**3.4**	**26.9**	**5,185**	**4,980**	**5,082**
0.56	18,483.9	1.50	64,689.2	3.5	24.5	5,190	4,981	5,085
0.60	18,545.7	1.50	67,121.4	3.6	24.0	5,193	4,980	5,087
0.64	18,556.1	1.50	67,406.6	3.6	27.4	5,194	4,980	5,087
0.65	**18,558.1**	**1.50**	**67,500.2**	**3.6**	**46.0**	**5,194**	**4,980**	**5,087**
0.70	18,564.9	1.50	67,797.4	3.7	44.0	5,194	4,980	5,087
0.80	18,593.9	1.50	69,565.9	3.7	65.6	5,195	4,978	5,086
0.89	18,600.3	1.50	69,815.7	3.8	37.9	5,195	4,977	5,086
0.98	18,604.2	1.50	70,089.7	3.8	70.8	5,195	4,977	5,086
0.99	18,606.4	1.50	70,211.4	3.8	55.9	5,195	4,977	5,086
1.00	**18,606.4**	**1.50**	**70,211.4**	**3.8**	**0.0**	**5,195**	**4,977**	**5,086**

Highest DCF pit shell is shown in BLUE, RF = 1.0 pit shell shown in OLIVE, BBA selected pit shell shown in RED.

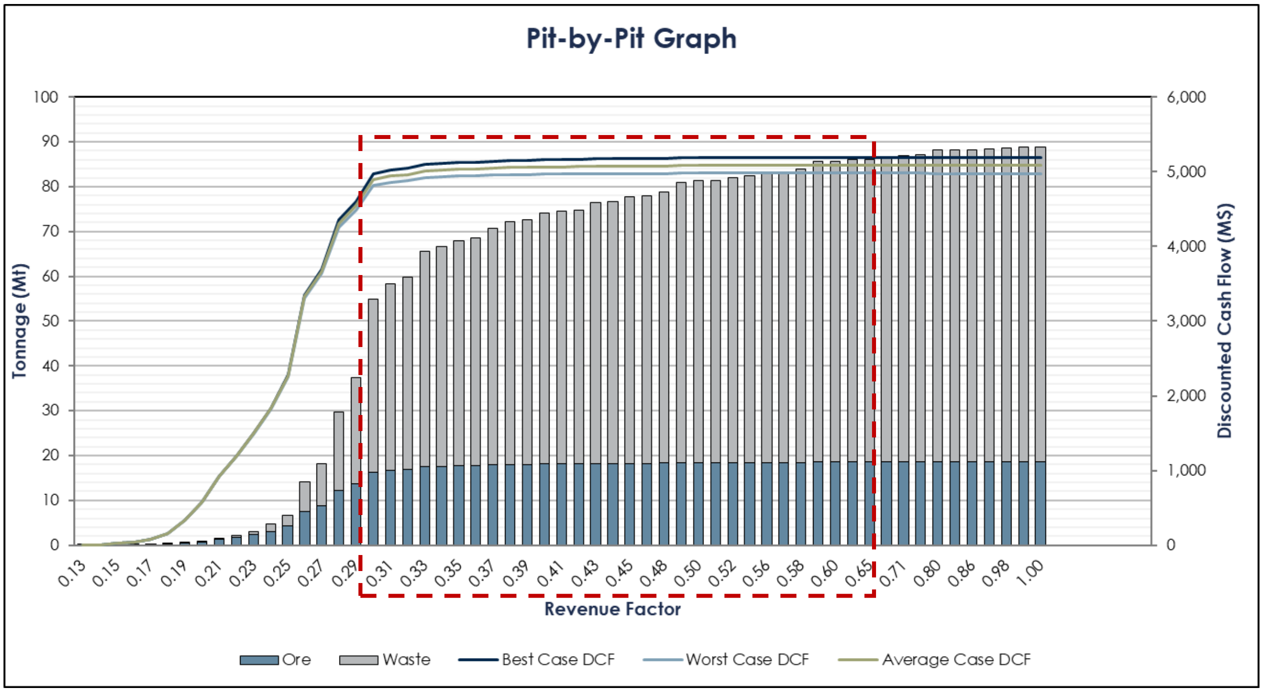


Figure 15-7: Spark Pit-by-Pit Graph

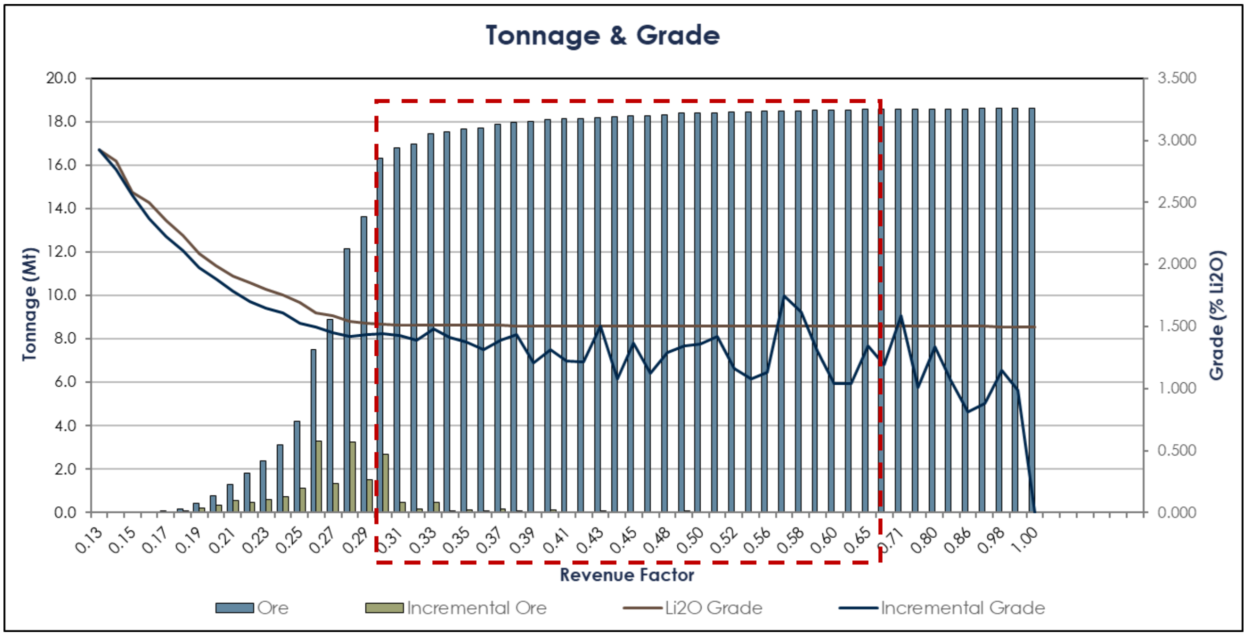


Figure 15-8: Spark Pit-by-Pit Graph, Showing Incremental Differences

Recommendations from Pit Limit Analysis

- Recommended Pit Shell to be used as a guide for PAK ultimate pit design is RF0.60;
- Recommended Pit Shell to be used as a guide for an Initial Starter Pit at PAK (Phase 1) is RF0.14, which corresponds to approximately 3-5 years ore tonnage;
- Recommended Pit Shell to be used as a guide for Spark ultimate pit design is RF0.50;
- Recommended Pit Shell to be used as a guide for an Initial Starter Pit at Spark (Phase 1) is RF0.25, which corresponds to approximately 3-5 years ore tonnage.

15.3.2 Open Pit Design Criteria

15.3.2.1 Mining Dilution and Loss – PAK

The mineral resources are based on a 2.5 m x 2.5 m x 2.5 m resource model block size. To create the mining model, which is assumed to incorporate mining dilution and loss, the resource model was re-blocked to a larger block size. For the pit limit analysis, a 5 m x 5 m x 5 m block size was initially selected as the mining unit size. As the mine planning progressed, the PAK mining model was re-blocked to a 3 m x 3 m x 5 m mining unit size for the mine planning and mineral reserve estimation. The mining unit size of 3 m x 3 m x 5 m, which accounts for planned open pit mine operating conditions, was selected to align with mining equipment, selectivity, and pit configuration.

In re-blocking the resource model to a diluted mining model, the following approach was taken:

- Material fields (Rock Code, Resource Category) were estimated on majority codes;
- Grade attributes (Li_2O, Ta_2O_5, etc.) were estimated by mass weighted average.

To quantify the impact of the re-blocking, the following approach was taken:

- An ore solid was created on the measured and indicated blocks of UIZ and LIZ mineralization at the Li_2O cut-off grade of 0.65% from the mining model;
- The current PFS pit design and the Project topography surface were used as boundary constraints for final reporting;
- In initial and preliminary estimates, the 2021 PEA pit design was used to constrain the results for reporting;

- The mining model ore solid was interrogated against the resource model (2.5 m x 2.5 m x 2.5 m) to estimate the amount of dilution and mining recovery incorporated into the mining model as a result of re-blocking using the following formulas:

$$Dilution\ (\%) = \frac{Waste\ tonnes\ (2.5x2.5x2.5)\ in\ "Reblocked\ (3x3x5)\ Ore"solid}{Ore\ \&\ waste\ tonnes\ (2.5x2.5x2.5)\ in\ "Reblocked\ (3x3x5)\ Ore"solid}\ x\ 100$$

$$Mining\ Recovery\ (\%) = \frac{Ore\ tonnes\ (2.5x2.5x2.5)\ in\ "Reblocked\ (3x3x5)\ Ore"solid}{Global\ sub\ block\ resource\ tonnes\ (2.5x2.5x2.5)}\ x\ 100$$

$$Ore\ Loss\ (\%) = 100 - Mining\ Recovery$$

Table 15-7 tabulates the dilution and loss estimate at the Li_2O% cut-off grade.

Table 15-7: PAK Mining Dilution and Loss Results

Cut-off Grade	Dilution %	Dilution Grade % Li_2O	Mining Recovery %	Mining Loss %
0.65% Li_2O	6.3	0.24	94.1	5.9

15.3.2.2 Mining Dilution and Loss – Spark

The mineral resources are based on the resource model with a 5 m x 5 m x 5 m parent block size with subcelling to 1.25 m x 1.25 m x 1.25 m block size. For mine planning, these blocks have been regularized to a mining unit size of 5 m x 5 m x 5 m, which accounts for planned open pit mine operating conditions. The 5 m x 5 m x 5 m was selected to align with mining equipment, selectivity, and pit configuration.

In regularizing the resource model to a diluted mining model, the following approach was taken:

- Material fields (Zone, Resource Category) were estimated on majority codes;
- Grade attributes (Li_2O, Ta_2O_5, etc.) were estimated by mass weighted average;

To quantify the impact of the regularization, the following approach was taken:

- An ore solid was created from the regularized mining block model using the indicated blocks of Zone 1 (pegmatite) mineralization at Li_2O cut-off grade of 0.65%;
- The current PFS pit design and the Project topography surface were used as boundary constraints for final reporting;

- In initial and preliminary estimates, the 2021 PEA pit design was used to constrain the results for reporting;
- The mining model ore solid was interrogated against the resource model (subcelled) to estimate the amount of dilution and mining recovery incorporated into the mining model as a result of regularization using the following formulas:

$$Dilution\ (\%) = \frac{Waste\ tonnes\ (subcelled)\ in\ "Regularized\ (5x5x5)\ \text{Ore}"\ solid}{Ore\ \&\ waste\ tonnes\ (subcelled)\ in\ "Regularized\ (5x5x5)\text{Ore}"\ solid} x\ 100$$

$$Mining\ Recovery\ (\%) = \frac{Ore\ tonnes\ (subcelled)\ in\ "Regularized\ (5x5x5)\ \text{Ore}"\ solid}{Global\ sub\ block\ resource\ tonnes\ (subcelled)} x\ 100$$

$$Ore\ Loss\ (\%) = 100 - Mining\ Recovery$$

Table 15-8 tabulates the dilution and loss estimate at 0.65 Li_2O% cut-off grade.

Table 15-8: Spark Mining Dilution and Loss Results

Cut-off Grade	Dilution %	Dilution Grade % Li_2O	Mining Recovery %	Mining Loss %
0.65% Li_2O	2.4	0.35	96.9	3.1

15.3.2.3 Bench Design

PAK Slope Design Parameters

The benching parameters were established following the geotechnical parameter recommendations presented in the report prepared by Golder (Now WSP) in May 2018 for the 2018 pre-feasibility study and titled "PAK Lithium Geotechnical Drilling and Prefeasibility Slope Design Recommendations" (report ref: 1665648 R-Rev0 FLI Phase 2 31May_18.pdf) (Golder, 2018).

Table 15-9 tabulates the parameters used for the pit design, while Figure 15-9 shows geotechnical sectors.

Table 15-9: Bench Design Parameters

Parameter	Unit	Sector A	Sector B*		Sector C	Sector D
Bench Face Angle ("BFA")	°	70	70	75	75	75
Working Bench Height	m	10				
Safety Berm Width	m	8.5				
Berm Frequency		2				
Bench Height	m	20				
Inter-Ramp Slope Angle	°	51.7	51.7	55.3	55.3	55.3

* BBA used 70° and 51.7° for BFA and inter-ramp slope angle for Sector B

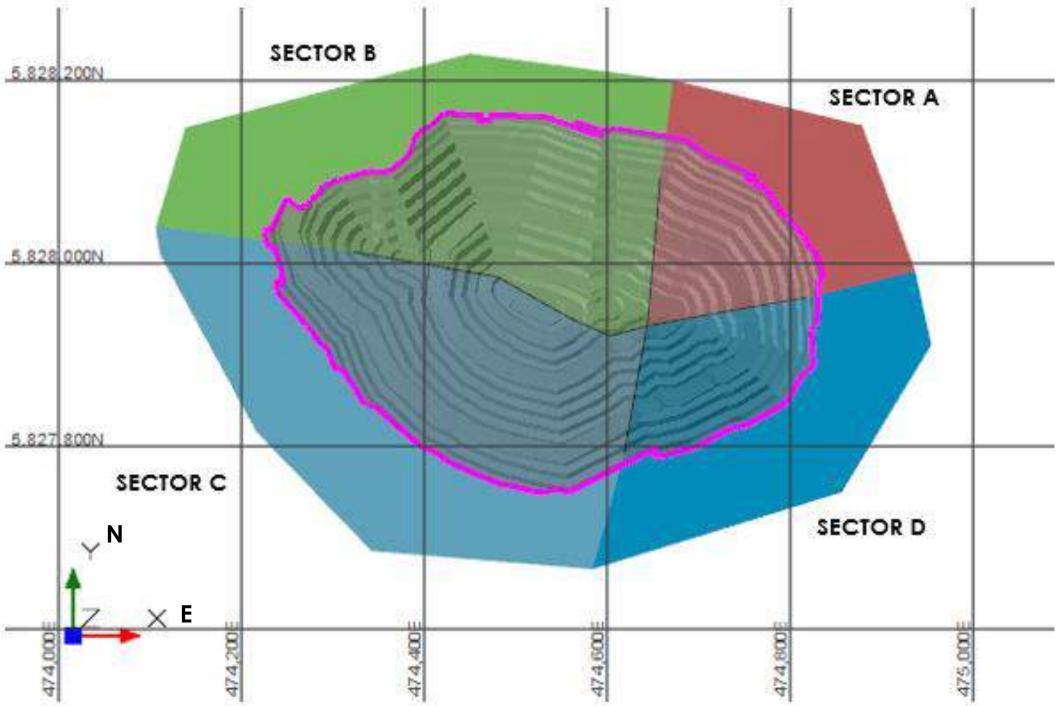


Figure 15-9: Geotechnical Sectors, PAK

For slopes greater than 150 m in height, not transacted by a ramp, a wider catch bench width of 15 m is recommended every 150 m vertical separation starting at 75 m from the top of the pit as a safety control on rock fall.

The pit design did not produce slopes greater than 150 m in height, not transacted by a ramp.

For slopes that are in overburden, an overall slope angle of 25° was applied.

Spark Slope Design Parameters

The benching parameters were established following the geotechnical parameter recommendations presented in the report prepared by WSP in October 2022 for the 2022 pre-feasibility study and titled "Spark Open Pit Pre-Feasibility Level Slope Recommendations" (report ref: 211-10534-00 FRONTIER_PAK Geotech Sectors_DC-001_R0.pdf) (WSP, 2022c).

Table 15-10 tabulates the parameters used for the pit design, while Figure 15-10 shows geotechnical sectors.

Table 15-10: Bench Design Parameters

Parameter	Units	Sector A	Sector B	Sector C	Sector D
Bench Face Angle	°	67	69	75	75
Working Bench Height	m	10			
Safety Berm Width	m	8.5			
Berm Frequency		2			
Bench Height	m	20			
Inter-ramp Slope Angle	°	50	51	55	55

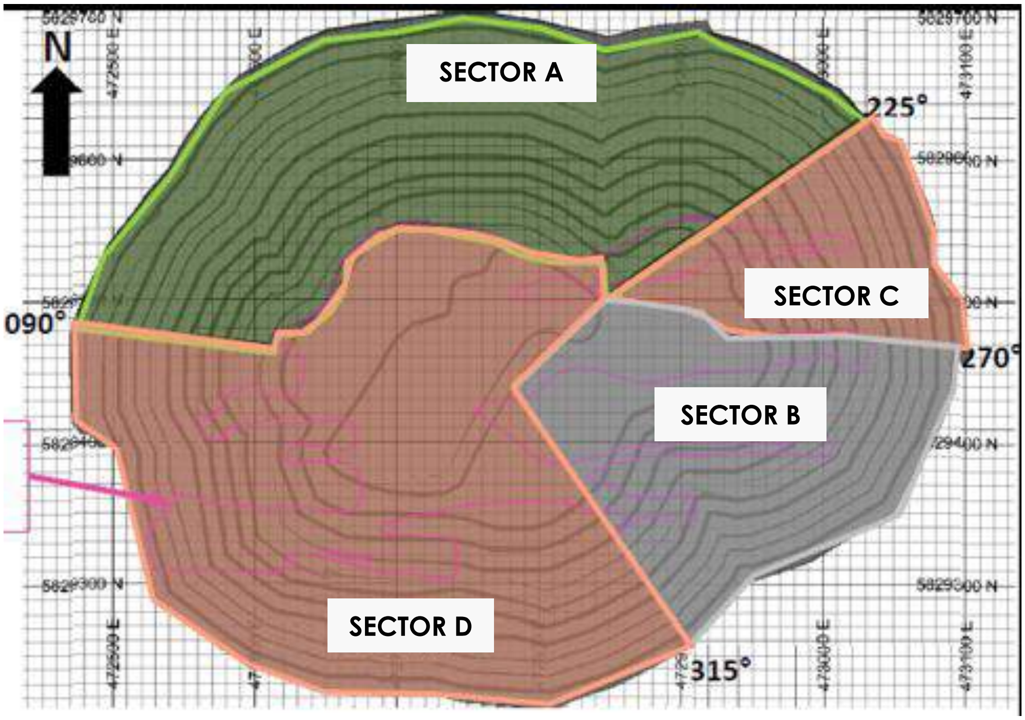


Figure 15-10: Geotechnical Sectors, Spark

A geotechnical berm 15 m wide should be included in the slope mid-height where four or five benches (4 m to 5 x 20 m) are stacked to provide design flexibility and operational adjustments.

The pit design includes a geotechnical berm at the 235 bench level.

For slopes that are in overburden, an overall slope angle of 25° was applied.

15.3.2.4 Haul Ramp Design

The haul ramp design is based on the largest truck planned for PAK Project. For the PFS level study, the largest haul truck planned for PAK area is a 40-tonne articulated truck. A Caterpillar CAT745 is the model example. For Spark area, a 64-tonne rigid frame haul truck was planned. A Caterpillar CAT775 is the model example for establishing the design criteria.

Figure 15-11 and Figure 15-12 illustrate the typical haul ramp profile. Table 15-11 summarizes the haul ramp width calculation that has been used in the pit and pushback designs. The final three benches in the ultimate pit are designed with single lane haul ramp.

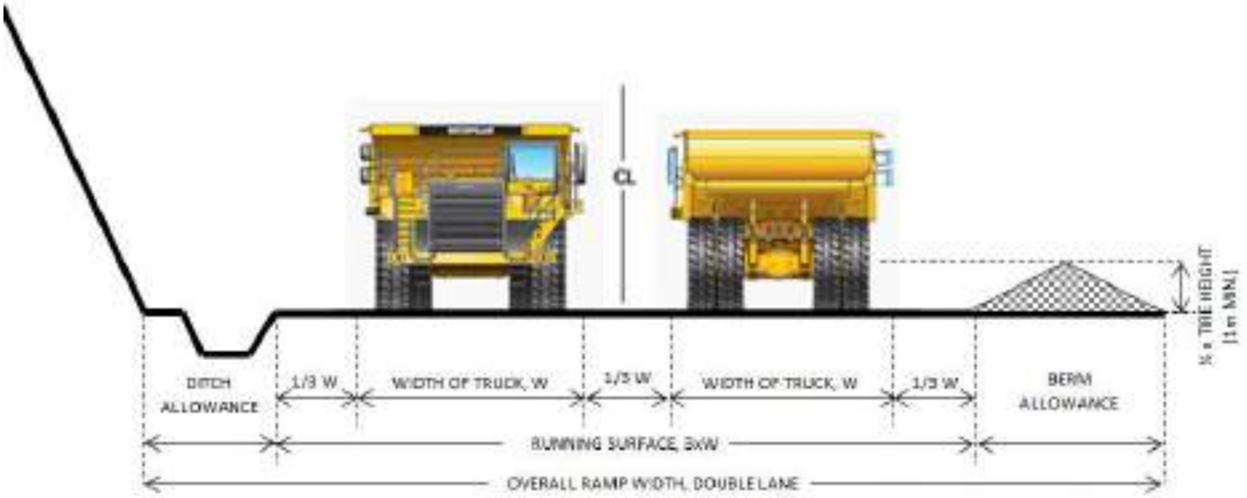


Figure 15-11: Haul Ramp Design Section, Double Lane

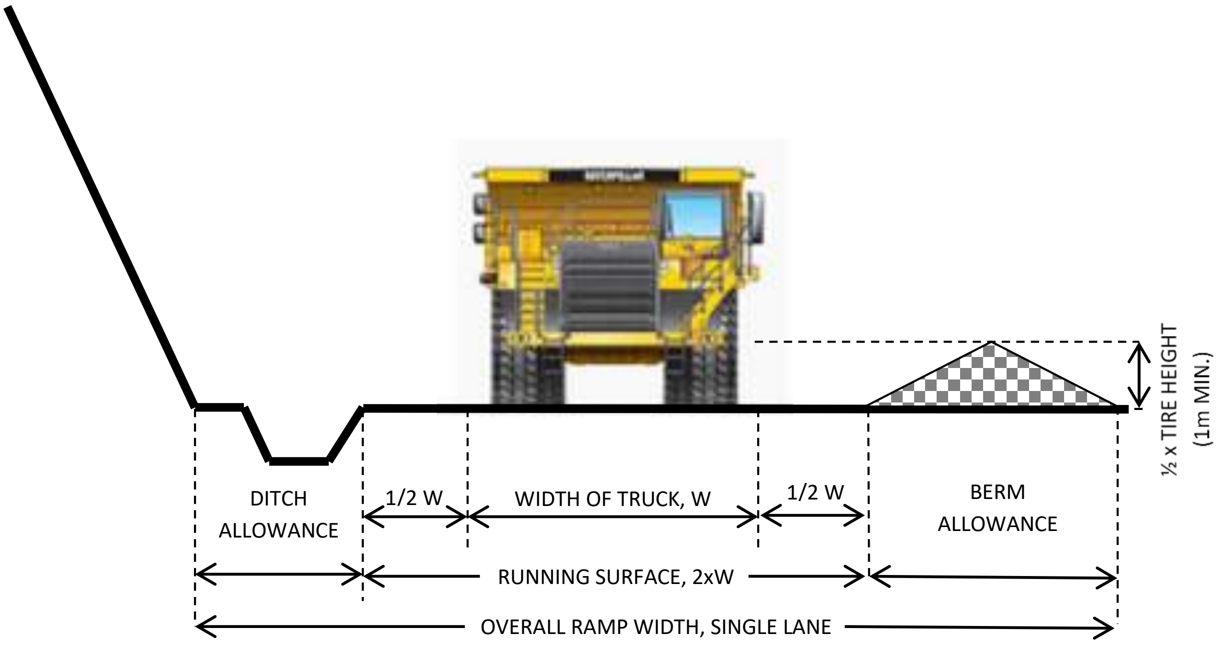


Figure 15-12: Haul Ramp Design Section, Single Lane

Table 15-11: Haul Ramp Width Calculation

Haul Truck Parameters	Unit	PAK	Spark
Model		CAT745	CAT775
		CAT	CAT
		Articulated	Rigid
Payload (T, Heaped 2:1))		41-tonne	64-tonne
Operating Width, W	m	3.8	5.7
Width Factor (of Truck Width)			
Double Lane		3x	3x
Single Lane		2x	2x
Running Surface Double Lane	m	11.4	17.1
Running Surface Single Lane	m	7.6	11.4
Tire Type		29.5R25	24.00R35
Tire Overall Diameter	m	1.9	2.2
Factor (of Tire Size)		0.5x	0.5x
Berm Height (Calculated)	m	0.9	1.1
Berm Height (Minimum)	m	1.0	1.1
Slope	degree	37	37

Haul Truck Parameters	Unit	PAK	Spark
Berm Width	m	2.7	2.9
Additional Allowance	m	0.0	0.0
Road Berm Allowance	m	2.7	2.9
Drainage Ditch Depth	m	0.5	0.5
Drainage Ditch Bottom Width	m	0.3	0.3
Slope (H:V)		1.5:1	1.5:1
Ditch Width	m	1.8	1.8
Allowance From Toe	m	0.3	0.3
Road Drainage Allowance	m	2.1	2.1
Total Ramp Width Double Lane	m	16.5	22.0
Total Ramp Width Single Lane	m	12.5	16.5
Ramp Gradient	%	10	10

15.3.2.5 Other Criteria

The pushback width is the approximate distance between phase designs. The proposed minimum pushback width is the sum of the minimum double-side loading width and the haul road width, for a total minimum width of 50 m and 40 m (rounded up) for Spark and PAK respectively.

A minimum mining width of 20 m has been considered in the pit and phase designs.

To reduce the strip ratio, access ramps have not been designed to the bottom bench of the ultimate pit. When mining the final bench, the trucks are positioned on the bench crest rather than on the floor. Figure 15-13 illustrates this operating scenario, commonly referred to as a “good-bye” cut. This final bench is 5 m high.

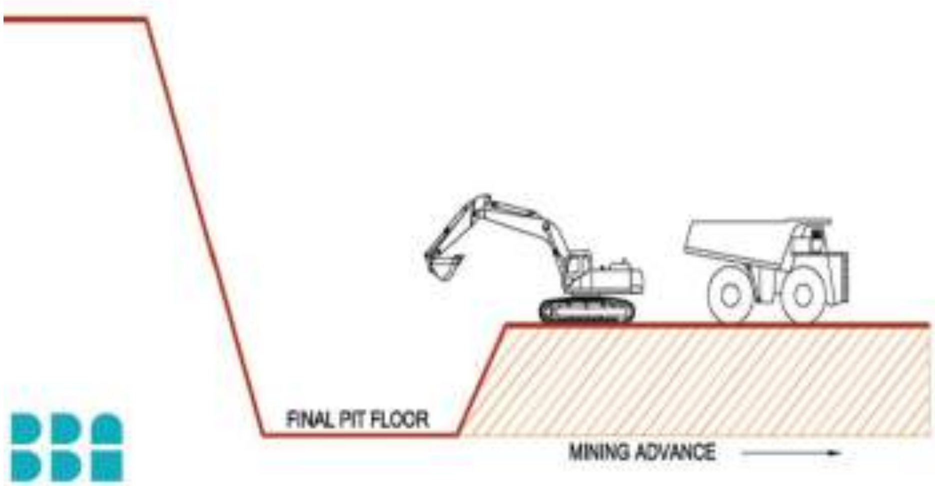


Figure 15-13: Final Bench Access

15.3.3 Pit Design – PAK

15.3.3.1 Ultimate

The ultimate PFS pit design for the PAK Deposit is shown in Figure 15-14.

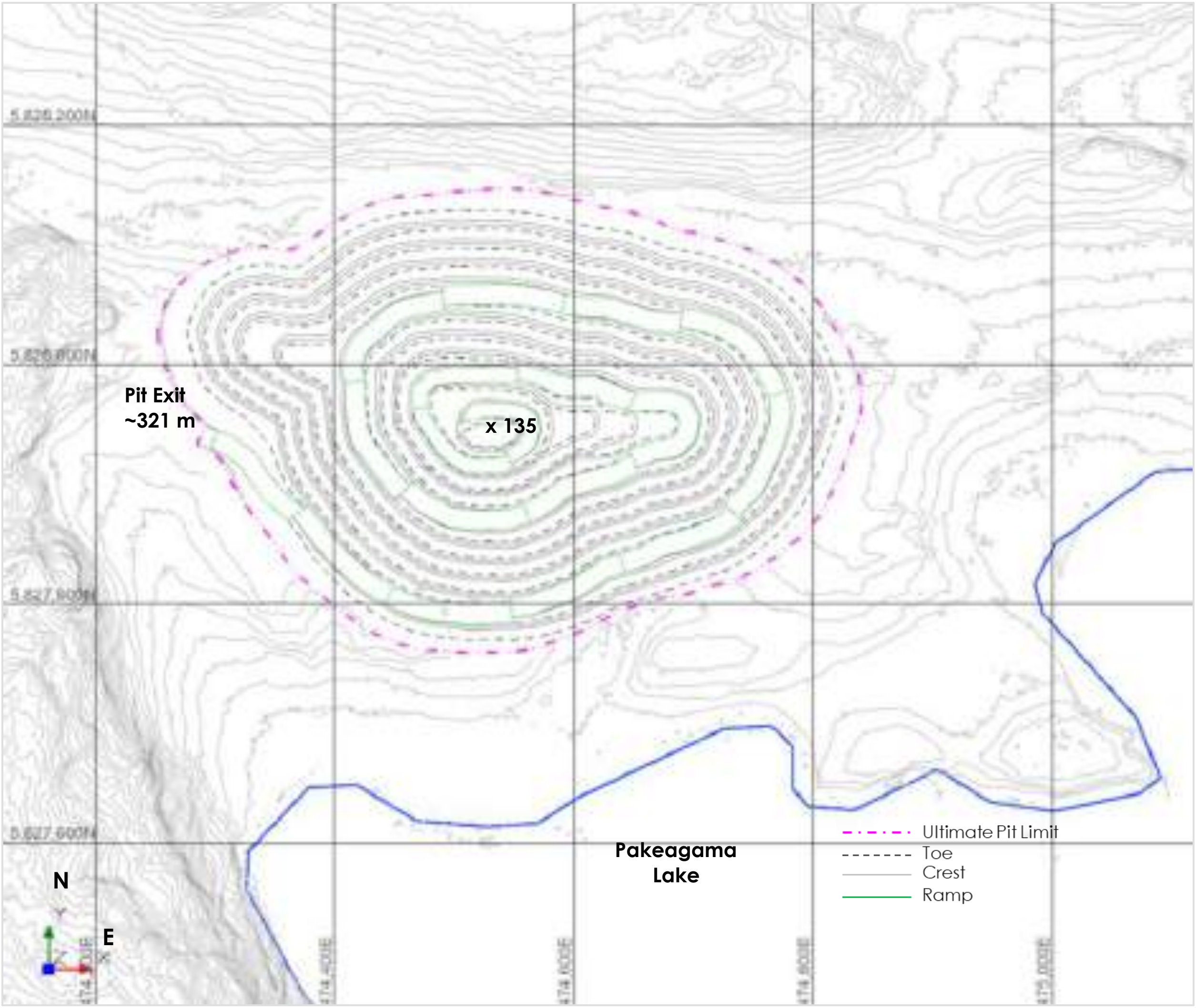


Figure 15-14: Ultimate Pit Design, PAK

Based on the above parameters, the ultimate pit design for the PAK Deposit results in the following:

Table 15-12: General Pit Statistics, PAK

Item	Units	Value
Pit Top Elevation	m	322
Pit Bottom Elevation	m	135
Pit Depth	m	187
Volume of Pit	m^3	10,873,000
Area of Pit Top	m^2	168,000
Perimeter at the Top of the Pit	m	1,555
Length from East to West	m	590
Length from North to South	m	395

The contents within the ultimate pit design are shown in Table 15-13. The numbers are reported from re-blocked block model and thus are deemed to include mining dilution and loss.

Table 15-13: Pit Inventory, PAK

Rock Type	Resource Category	Tonnage (kt)	Li_2O Grade (%)	Rb_2O Grade (%)	Cs_2O Grade (%)	Ta_2O_5 Grade (ppm)
Concentrator Plant Feed	**Measured & Indicated**	**4,041**	**1.79**	**0.26**	**0.04**	**95.04**
UIZ	Measured & Indicated	574	2.86	0.17	0.03	65.34
LIZ	Measured & Indicated	3,467	1.62	0.28	0.04	99.96
Waste Rock	--	**24,534**	**0.09**	**0.03**	**0.00**	**7.52**
Overburden	--	630	0.01	0.00	0.00	0.52
Aplite	--	311	0.04	0.00	0.00	1.67
Granite	--	13,307	0.03	0.01	0.00	1.89
Metasediment	--	7,939	0.01	0.00	0.00	0.62
CIZ	--	898	0.80	0.56	0.07	99.32
LIZ	0	754	0.01	0.00	0.00	1.46
UIZ	Inf.	55	2.31	0.23	0.03	91.86
LIZ	Inf.	417	1.70	0.21	0.02	80.41
LIZ	Measured & Indicated*	224	0.48	0.19	0.03	110.84
Total Mined		**28,575**				
Strip Ratio		**6.1**				

* Below cut-off grade.

The estimated mining dilution and loss contained within the PFS Pit Design, based on re-blocking model to 3 m x 3 m x 5 m block size, is approximately 6.3% dilution at 0.24% Li_2O and 5.9% mining loss.

15.3.3.2 Phases

Two phases have been proposed for the PFS study. The phases were guided by the pit limit analysis results. The starter pit was selected to provide approximately 5 years of ore tonnage and was guided by pit shell RF 0.14. Phase 2 was guided by RF 0.16. Table 15-14 tabulates the incremental tonnages and grades of the phases. Figure 15-15 and Figure 15-16 illustrate graphically the phase design.

Table 15-14: Pit Phases Inventory, PAK

Rock Type	Resource Category	Phase 1		Phase 2		Phase 3	
		Tonnage (kt)	Li_2O (%)	Tonnage (kt)	Li_2O (%)	Tonnage (kt)	Li_2O (%)
Concentrator Plant Feed	Measured & Indicated	**1,184**	**2.14**	**1,009**	**1.61**	**1,848**	**1.67**
UIZ	Measured & Indicated	364	3.06	110	2.68	100	2.29
LIZ	Measured & Indicated	820	1.73	900	1.48	1,747	1.63
Waste Rock	--	**2,471**	**0.21**	**4,816**	**0.09**	**17,247**	**0.07**
Overburden	--	159	0.03	213	0.00	259	0.00
Aplite	--	94	0.08	0	0.00	217	0.02
Granite	--	1,538	0.09	2,595	0.02	9,175	0.02
Metasediment	--	350	0.05	1,363	0.01	6,226	0.01
CIZ	--	273	1.04	428	0.65	197	0.80
LIZ	0	2	0.05	128	0.01	624	0.01
UIZ	Inf	8	1.40	11	2.10	36	2.57
LIZ	Inf	31	1.64	23	1.79	362	1.69
LIZ	Measured & Indicated*	17	0.54	56	0.52	151	0.45
Total Mined (kt)		**3,655**		**5,826**		**19,095**	
Strip Ratio		**2.1**		**4.8**		**9.3**	

* Below cut-off grade.

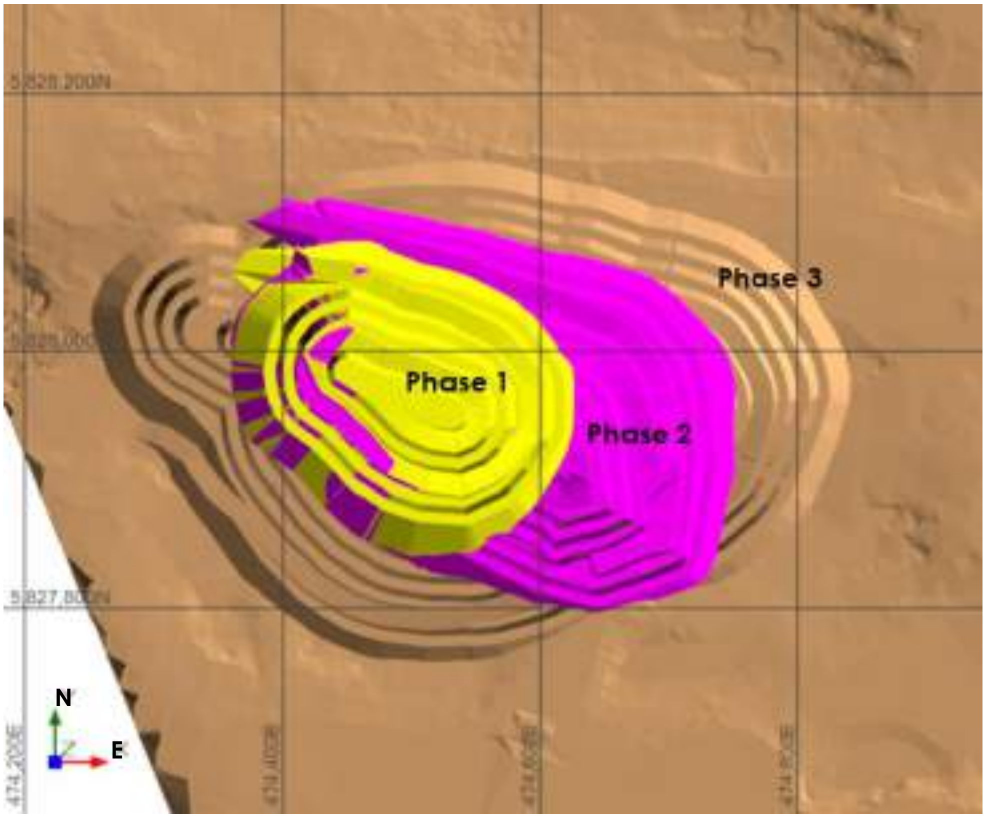
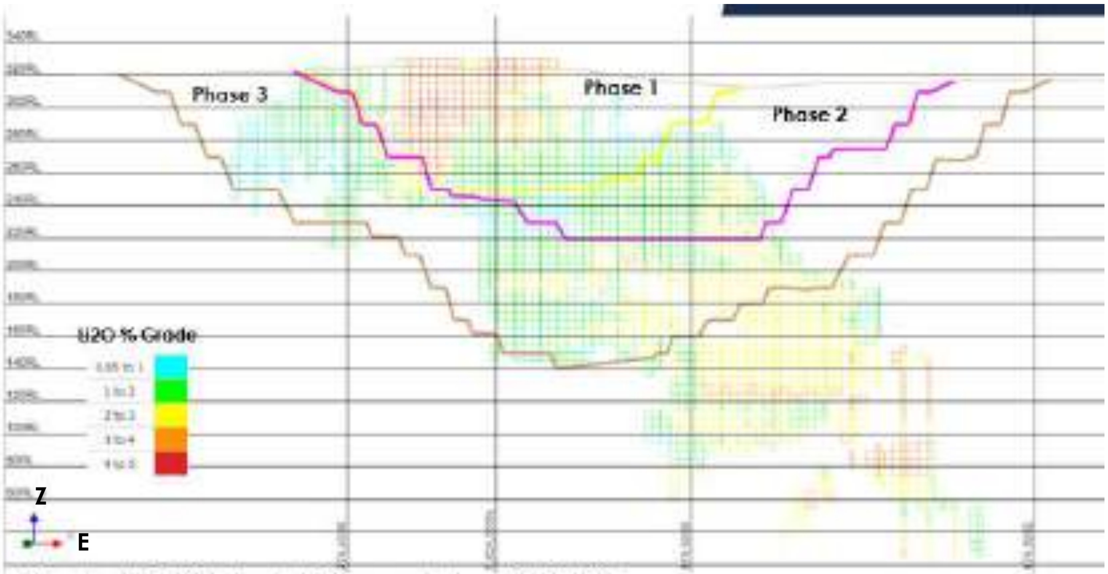


Figure 15-15: Phase Design – PAK – Plan View



* Showing UIZ & LIZ, Indicated & Measured, above 0.65% Li2O

Figure 15-16: Phase Design – PAK – Long Section View

15.3.4 Pit Design – Spark

15.3.4.1 Ultimate

The ultimate PFS pit design for the Spark Deposit is shown in Figure 15-17.

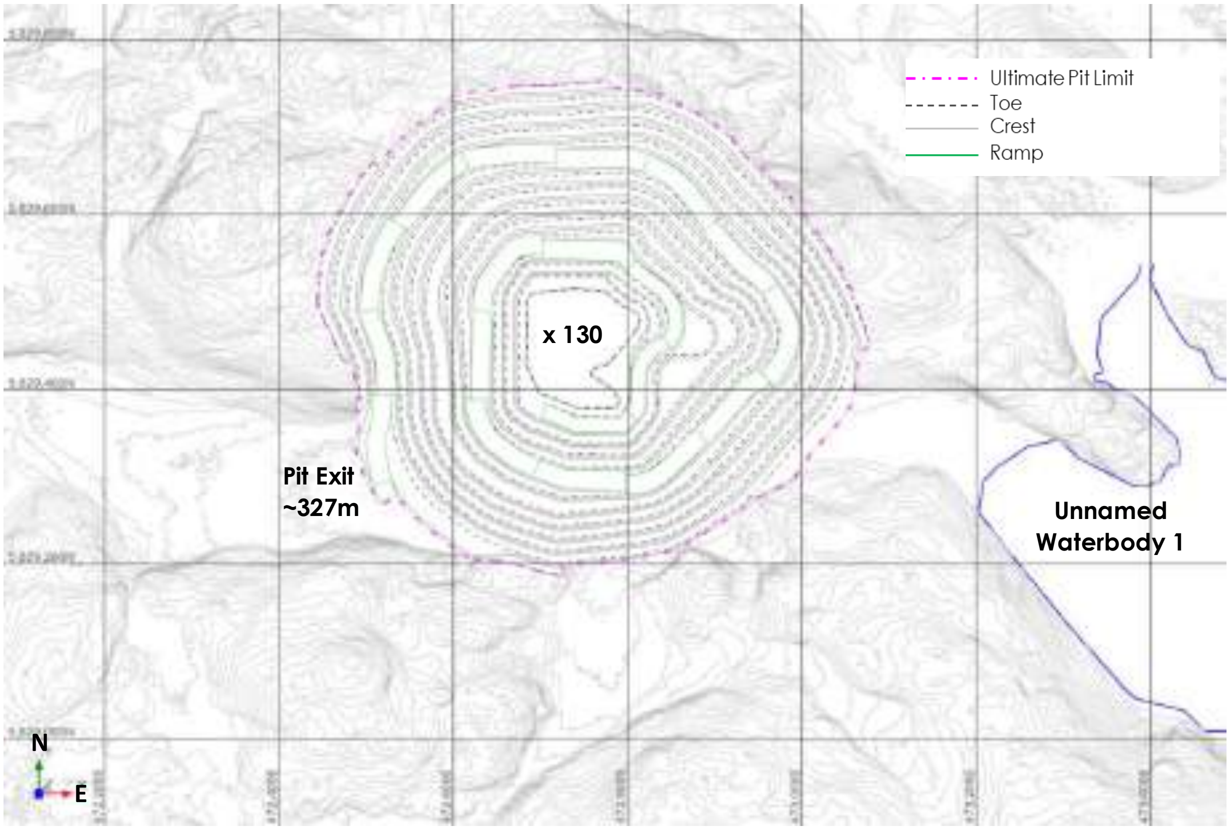


Figure 15-17: Ultimate Pit Design, Spark

Based on the above parameters, the ultimate pit design for the Spark Deposit results in the following:

Table 15-15: General Pit Statistics, Spark

Item	Unit	Value
Pit Top Elevation	m	364
Pit Bottom Elevation	m	130
Pit Depth	m	234
Volume of Pit	m^3	26,000,000
Area of Pit Top	m^2	265,900
Perimeter at the Top of the Pit	m	1,985
Length from East to West	m	635
Length from North to South	m	565

The contents within the ultimate pit design are shown in Table 15-16. The numbers are reported from re-blocked block model and thus are deemed to include mining dilution and loss.

Table 15-16: Pit Inventory, Spark

Rock Type	Resource Category	Tonnage (kt)	Li_2O Grade (%)	Cs_2O Grade (%)	Fe Grade (%)	Nb_2O_5 Grade (ppm)	Rb_2O Grade (%)	SnO_2 Grade (ppm)	Ta_2O_5 Grade (ppm)
Concentrator Plant Feed	**Ind.**	**18,028**	**1.50**	**0.02**	**0.97**	**83.56**	**0.26**	**60.57**	**110.70**
Pegmatite	Ind.	18,028	1.50	0.02	0.97	83.56	0.26	60.57	110.70
Waste Rock	--	**56,814**							
Overburden	--	780	0.01	0.00	0.05	1.27	0.00	1.06	1.32
Waste Rock	--	49,008	0.11	0.04	3.49	42.73	0.15	68.43	115.18
Pegmatite	Inf., Ind.*	7,026	0.98	0.02	1.08	85.98	0.21	65.97	109.19
Total Mined		**74,842**							
Strip Ratio		**3.2**							

* Below cut-off grade.

The estimated mining dilution and loss contained within the PFS Pit Design, based on regularizing model to 5 m x 5 m x 5 m block size, is approximately 2.4% dilution at 0.35% Li_2O and 3.1% mining loss.

15.3.4.2 Phases

Two phases have been proposed for the PFS study. The phases were guided by the pit limit analysis results. The starter pit was selected to provide approximately 3 to 5 years of ore tonnage and was guided by pit shell RF 0.18. Phase 2 was guided by RF 0.21. Table 15-17 tabulates the incremental tonnages and grades of the phases. Figure 15-18 and Figure 15-19 graphically illustrates the phase design.

Table 15-17: Pit Phases Inventory, Spark

Rock Type	Resource Category	Phase 1		Phase 2		Phase 3	
		Tonnage (kt)	Li_2O Grade (%)	Tonnage (kt)	Li_2O Grade (%)	Tonnage (kt)	Li_2O Grade (%)
Concentrator Plant Feed	**Ind.**	**3,778**	**1.65**	**6,732**	**1.45**	**7,518**	**1.47**
Pegmatite	Ind.	3,778	1.65	6,732	1.45	7,518	1.47
Waste Rock	**--**	**2,105**		**15,153**		**39,547**	
Overburden	--	38	0.03	417	0.02	325	0.00
Waste Rock	--	1,814	0.19	12,434	0.12	34,760	0.10
Pegmatite	Inf., Ind.*	253	1.03	2,312	0.84	4,461	1.04
Total Mined		**5,883**		**21,895**		**47,064**	
Strip Ratio		**0.6**		**2.3**		**5.3**	

* Below cut-off grade.

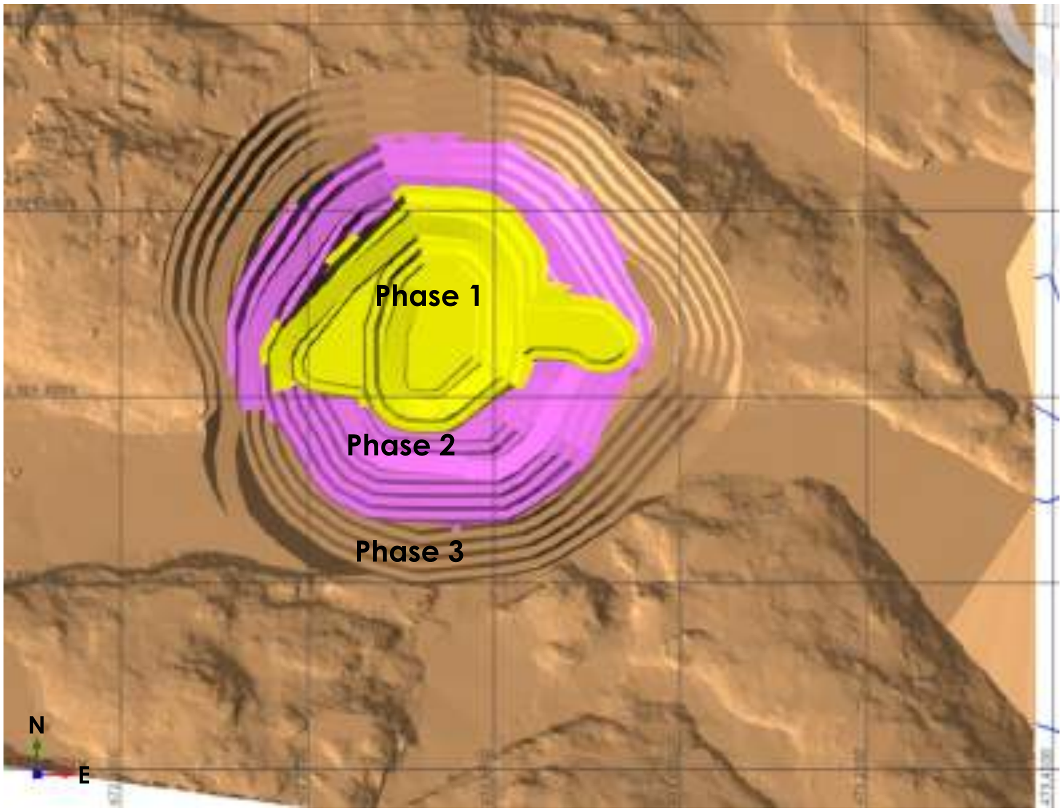


Figure 15-18: Phase Design – Spark – Plan View

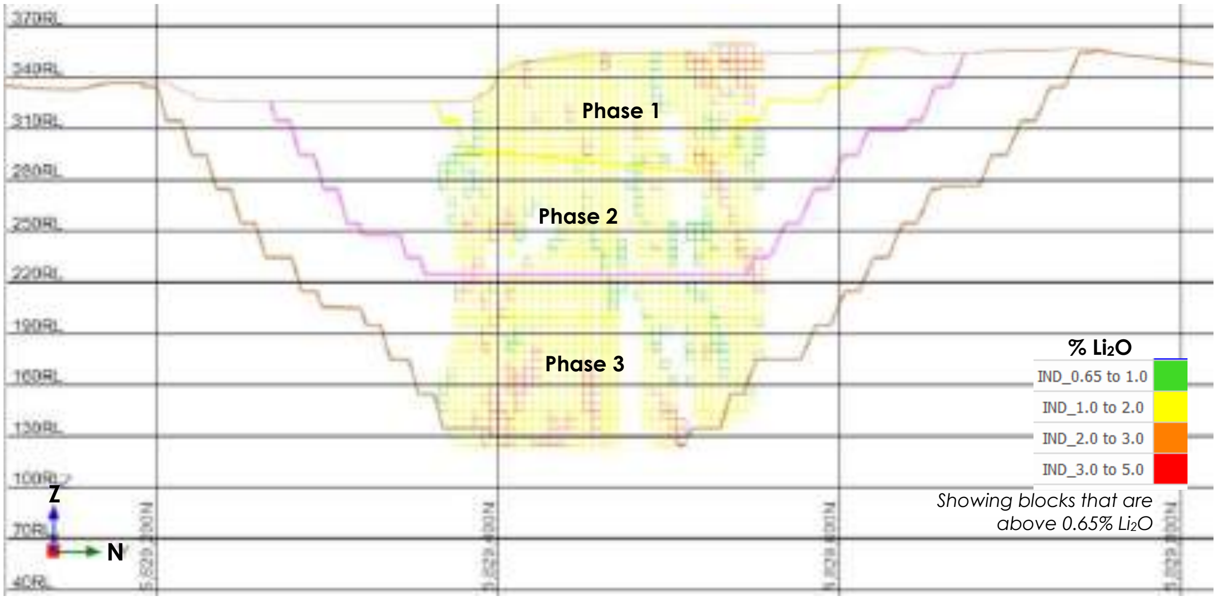


Figure 15-19: Phase Design – Spark – Section View (472700E, Looking West)

16. Mining Methods

16.1 Introduction

This chapter outlines the parameters and procedures used by BBA (Robinson and Asi, 2023b), to perform the PFS level mine planning work for the Project at a proposed concentrator plant feed production rate of 210,000 tpa for technical grade material and 830,000 tpa for chemical grade material.

The PFS mine plan utilizes the Mineral Reserve described in Chapter 15.

Open pit mining was considered a viable option for the study given that the mineralization is on or near surface.

Open pit mining will include conventional drilling and blasting with a combination of a backhoe type excavator and front-end loader type excavator loading broken rock into haul trucks, which will haul the material from the bench to the crusher, ROM stockpile or waste stockpiling areas depending on the material type. Ancillary equipment includes dozers, graders, and various maintenance, support, service and utility vehicles.

This technical report considers an owner operator scenario with a contractor for drilling and blasting activities.

16.2 Open Pit Mining Quantities

The contents within the PAK ultimate pit design are shown in Table 16-1. The numbers are reported from re-blocked block model and thus are deemed to include mining dilution and loss.

Table 16-1: Pit Inventory, PAK

Rock Type	Tonnage (kt)	Li_2O Grade (%)	Rb_2O Grade (%)	Cs_2O Grade (%)	Ta_2O_5 Grade (ppm)
Concentrator Plant Feed	**4,041**	**1.79**	**0.26**	**0.04**	**95.04**
UIZ	574	2.86	0.17	0.03	65.34
LIZ	3,467	1.62	0.28	0.04	99.96
Waste Rock	**24,534**	**0.09**	**0.03**	**0.00**	**7.52**
Overburden	630	0.01	0.00	0.00	0.52
Aplite	311	0.04	0.00	0.00	1.67
Granite	13,307	0.03	0.01	0.00	1.89

Rock Type	Tonnage (kt)	Li_2O Grade (%)	Rb_2O Grade (%)	Cs_2O Grade (%)	Ta_2O_5 Grade (ppm)
Metasediment	7,939	0.01	0.00	0.00	0.62
CIZ	898	0.80	0.56	0.07	99.32
LIZ	754	0.01	0.00	0.00	1.46
UIZ	55	2.31	0.23	0.03	91.86
LIZ	417	1.70	0.21	0.02	80.41
LIZ	224	0.48	0.19	0.03	110.84
Total Mined	**28,575**				
Strip Ratio	**6.1**				

The estimated mining dilution and loss contained within the PAK PFS Pit Design, based on re-blocking model to 3 m x 3 m x 5 m block size, is approximately 6.3% dilution at 0.24% Li_2O and 5.9% mining loss.

The contents within the Spark ultimate pit design are shown in Table 16-2. The numbers are reported from regularized block model and thus are deemed to include mining dilution and loss.

Table 16-2: Pit Inventory, Spark

Rock Type	Tonnage (kt)	Li_2O Grade (%)	Cs_2O Grade (%)	Fe Grade (%)	Nb_2O_5 Grade (ppm)	Rb_2O Grade (%)	SnO_2 Grade (ppm)	Ta_2O_5 Grade (ppm)
Concentrator Plant Feed	**18,028**	**1.50**	**0.02**	**0.97**	**83.56**	**0.26**	**60.57**	**110.70**
Pegmatite	18,028	1.50	0.02	0.97	83.56	0.26	60.57	110.70
Waste Rock	**56,814**							
Overburden	780	0.01	0.00	0.05	1.27	0.00	1.06	1.32
Waste Rock	49,008	0.11	0.04	3.49	42.73	0.15	68.43	115.18
Pegmatite	7,026	0.98	0.02	1.08	85.98	0.21	65.97	109.19
Total Mined	**74,842**							
Strip Ratio	3.2							

The estimated mining dilution and loss contained within the Spark PFS pit design, based on regularizing model to 5 m x 5 m x 5 m block size, is approximately 2.4% dilution at 0.35% Li_2O and 3.1% mining loss.

16.3 Mine Rock Storage Facilities

Overburden and waste rock material from the Project will be stored in designated waste rock and overburden stockpiles. The waste rock and overburden piles satisfy the required tonnages originating from the open pit, including the swell factors for each material type.

Geotechnical slope stability recommendations were provided by WSP (WSP, 2022a and 2022b).

Table 16-3 and Table 16-4 tabulate the design criteria for the waste storage facilities.

Figure 16-1 to Figure 16-4 illustrate the design criteria for the waste storage facilities.

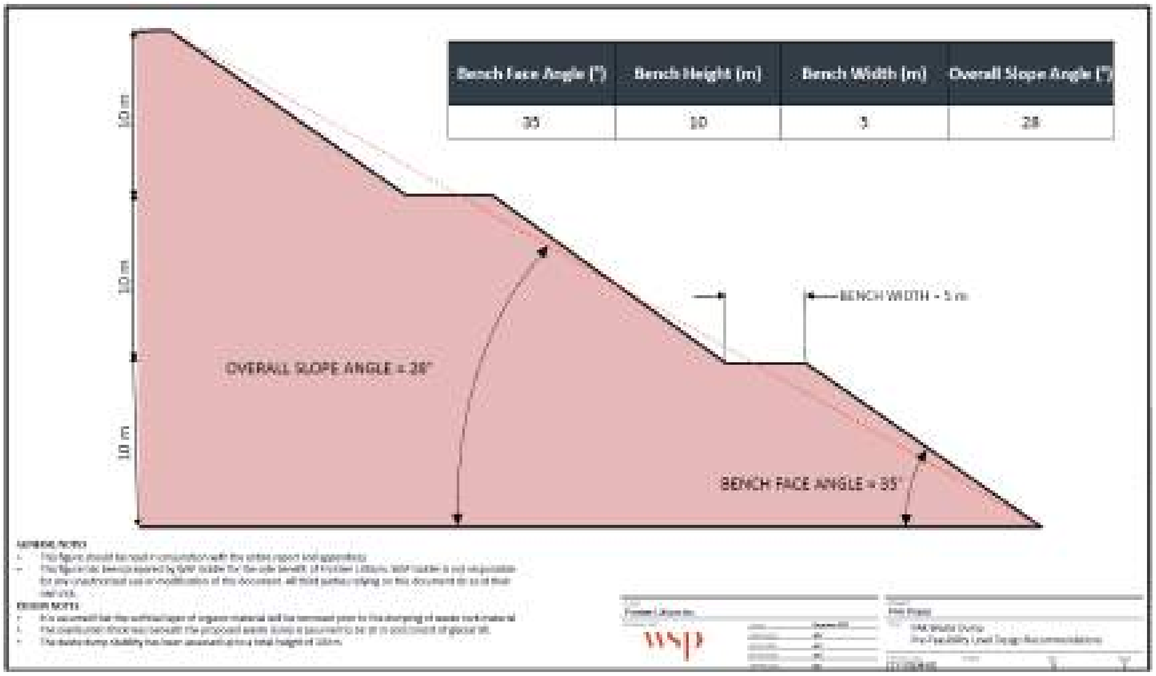
Table 16-3: Mine Rock Storage Facilities Design Criteria

Item Description	Unit	PAK Value	Spark Value
Lift Height	m	10	10
Lift Face Angle	deg	35	35
Berm Width	m	5	5
Maximum Height	m	100	100
Overall Slope	deg	28	28
Ramp Width	m	16.5	22
Ramp Gradient	%	10	10

Table 16-4: Overburden Storage Facilities Design Criteria

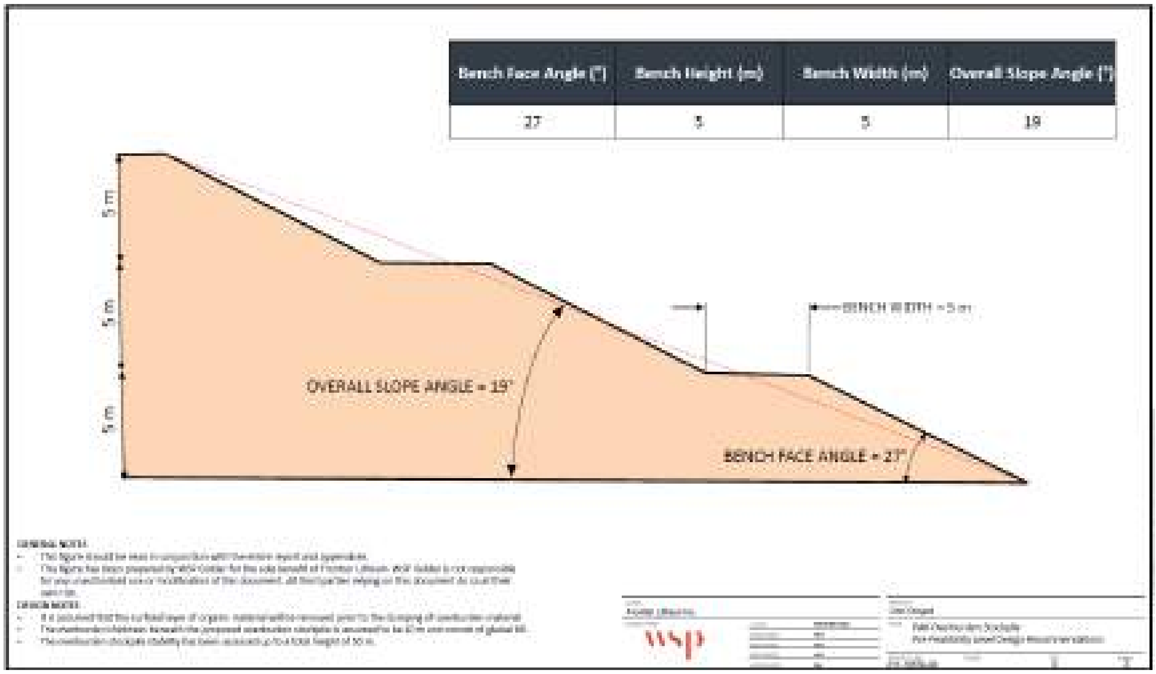
Item Description	Unit	PAK Value	Spark Value
Lift Height	m	5	5
Lift Face Angle	deg	27	27
Berm Width	m	5	5
Maximum Height	m	50	50
Overall Slope	deg	19	19
Ramp Width	m	16.5	22
Ramp Gradient	%	10	10

For Spark, WSP recommends ensuring that the slope of the foundation profile at the toe is less than 5 degrees to ensure stability.



Bench Face Angle (°)	Bench Height (m)	Bench Width (m)	Overall Slope Angle (°)
35	10	5	28

Figure 16-1: Slope Design Criteria for PAK Mine Rock Stockpiles
(Source: WSP)



Bench Face Angle (°)	Bench Height (m)	Bench Width (m)	Overall Slope Angle (°)
27	5	5	19

Figure 16-2: Slope Design Criteria for PAK Overburden Stockpiles
(Source: WSP)

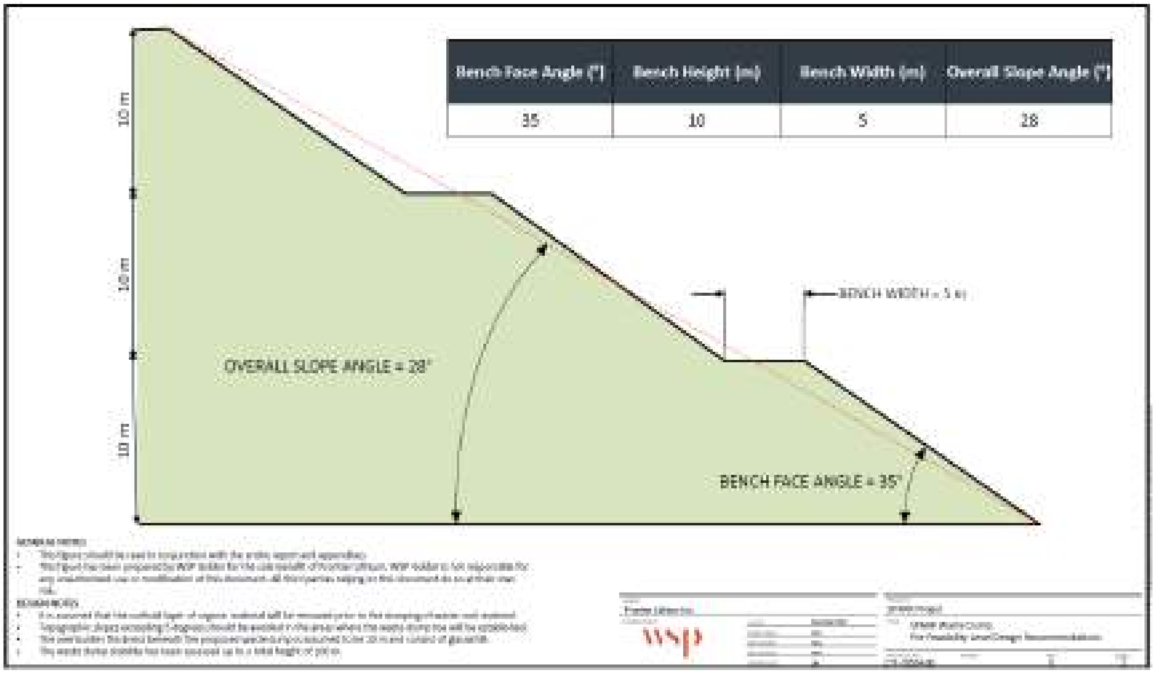


Figure 16-3: Slope Design Criteria for Spark Mine Rock Stockpiles
(Source: WSP)

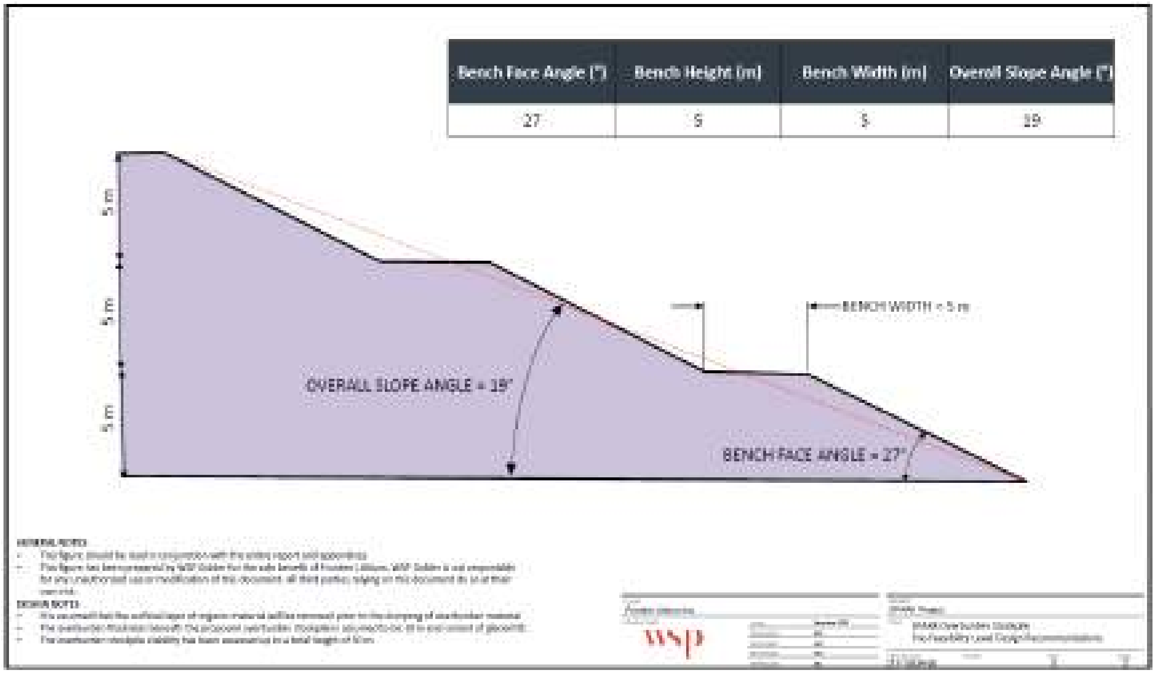


Figure 16-4: Slope Design Criteria for Spark Overburden Stockpiles
(Source: WSP)

16.3.1 PAK Area

Waste rock generated from the open pit will require the development of waste rock storage areas. The waste generated from the open pit includes waste rock and overburden ("OVB").

The proposed mine plan will generate approximately 23.9 million tonnes of waste rock material, which excludes overburden. Assuming a swell factor of 30%, a volume of 11.8 million m^3 of waste storage is required.

The stockpile ("STPL") size requirements are provided in Table 16-5 and Table 16-6. The storage capacity has been designed to accommodate waste rock generated from the open pit operations.

Four stockpiling areas are required:

- CIZ STPL: stores non-potentially acid generating rock:
  - Material identified as CIZ would be directed to this stockpile;
  - CIZ material is mineralized material that is currently not recoverable with the current concentrator plant flowsheet.
- PAG STPL: stores potentially acid generating ("PAG") rock:
  - Material identified as metasediment would be directed to this stockpile.
- NPAG STPL: stores non-potentially acid generating ("NPAG") rock:
  - Material identified as granite and other remaining rock types.
- OVB STPL: stores overburden material.

Table 16-5: Mine Rock Stockpile Design Capacity

Item Description	Unit	CIZ STPL	PAG STPL	NPAG STPL
Waste Rock Tonnage	t	897,900	7,937,600	15,068,500
Contingency	%	0	0	0
Waste Rock Tonnage to Store	t	897,900	7,937,600	15,068,500
Waste Rock SG		2.66	2.60	2.64
Waste Rock Volume to Store	m^3	338,000	3,053,000	5,708,000
Swell	%	30	30	30
Total Waste Rock Volume Capacity Needed	m^3	**439,400**	**3,968,900**	**7,420,400**

Item Description	Unit	CIZ STPL	PAG STPL	NPAG STPL
Designed Capacity	m^3	583,000	4,004,000	7,884,000
Max Lift	m	357	395	409
Lowest Elevation	m	327	325	318
Footprint Area	m^2	39,000	140,290	210,940
Surface Area	m^2	43,425	159,480	240,820
Perimeter	m	770	1,575	1,805

Table 16-6: Overburden Stockpile Design Capacity

Item Description	Unit	OVB STPL
Volume of overburden in Pit Design, from BM	m^3	300,000
Contingency	%	50
Total Estimate Volume to Store	m^3	**450,000**
Swell	%	20
Estimated Volume Capacity Needed	m^3	**540,000**
Designed Capacity	m^3	594,900
Max Lift	m	336
Lowest Elevation	m	315
Footprint Area	m^2	49,225
Surface Area	m^2	51,945
Perimeter	m	845

A fifth stockpiling area is planned at the PAK area to store concentrator plant rejects from the ore sorters and DMS. The design capacity for the concentrator plant Rejects STPL was based on the following annual tonnages and a 25-year production life:

- Approximately 2,695 t Ore Sorter Waste from PAK;
- Approximately 82,922 t DMS rejects from PAK;
- Approximately 59,341 t Ore Sorter Waste from Spark.

Table 16-7 tabulates the design capacity estimated.

Table 16-7: Concentrator Plant Reject Stockpile Design Capacity

	Unit	Rejects STPL
Total Estimate Volume to Store	m^3	**2,043,000**
Swell	%	20
Estimated Volume Capacity Needed	m^3	**2,451,600**
Designed Capacity	m^3	2,713,000
Max Lift	m	366
Lowest Elevation	m	326
Footprint Area	m^2	113,460
Surface Area	m^2	124,335
Perimeter	m	1,310

Due to the iterative nature of mine design and planning, the estimated amount of rejects in the final mine plan was reduced from an earlier version upon which the stockpile design was completed. As such, there is opportunity to reduce the footprint of the concentrator Plant Rejects stockpile.

Figure 16-5 to Figure 16-7 illustrate the waste storage facilities at the PAK area.

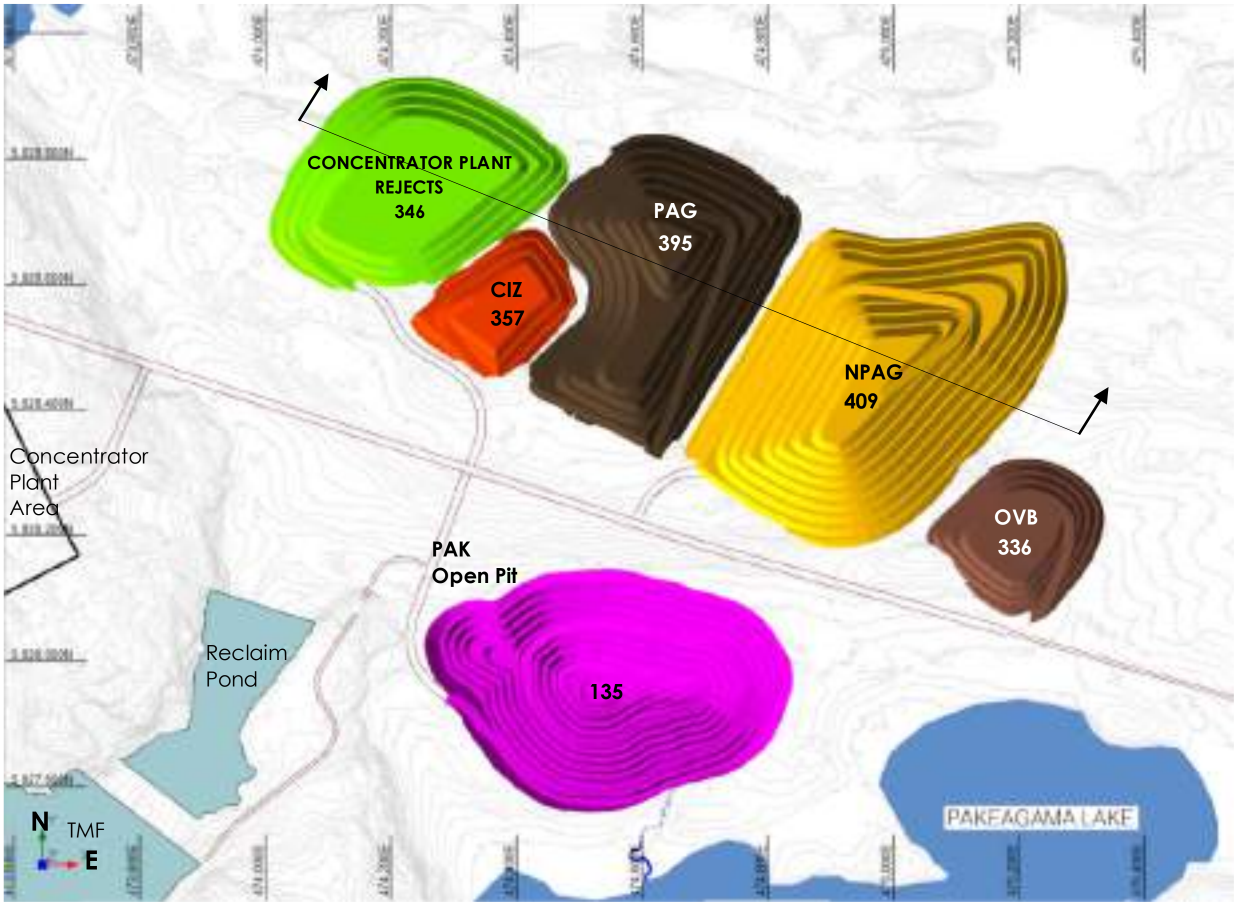


Figure 16-5: Plan View of PAK Mine Rock Stockpiles

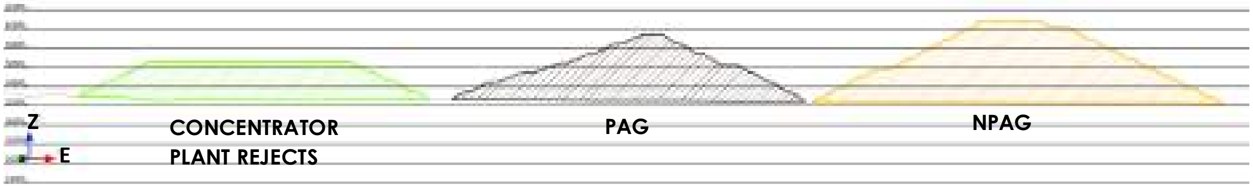


Figure 16-6: Section View of PAK Mine Rock Stockpiles

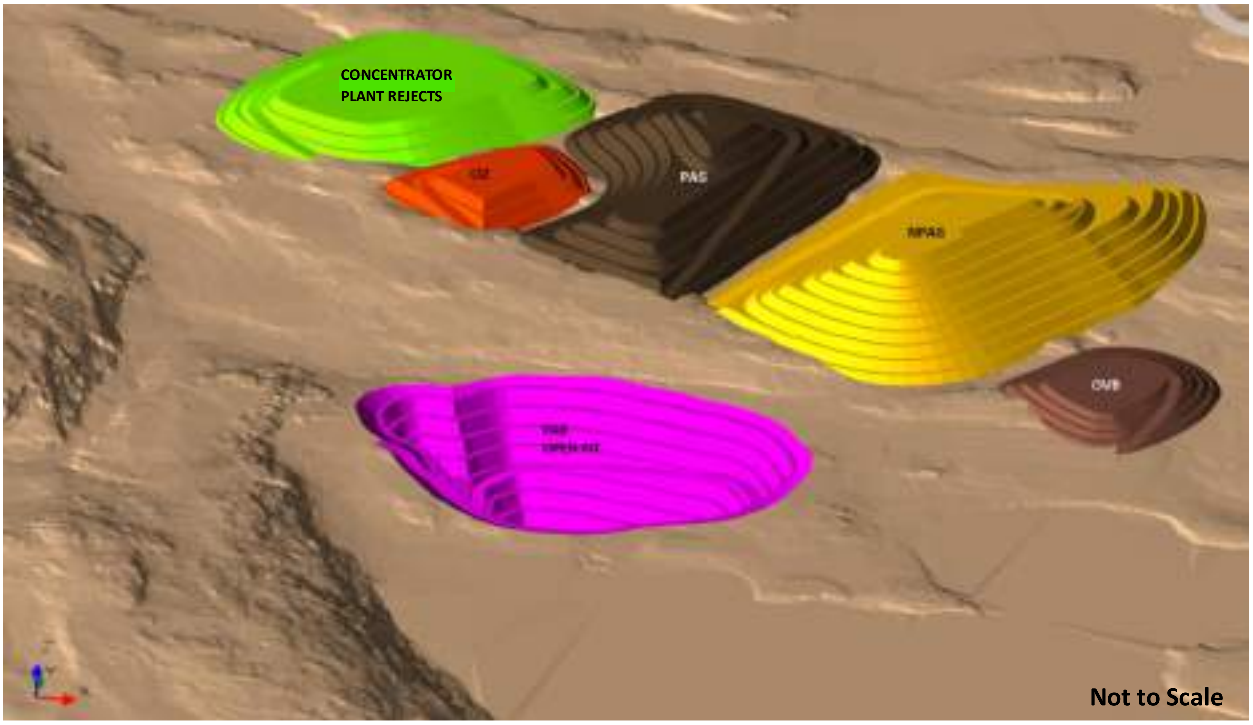


Figure 16-7: Isometric View of PAK Mine Rock Stockpiles

16.3.2 Spark Area

Waste rock generated from the open pit will require the development of waste rock storage areas. The waste generated from the open pit includes waste rock and overburden.

The proposed mine plan will generate approximately 56.0 million tonnes of waste rock material, which excludes overburden. Assuming a swell factor of 30%, a volume of 24.7 million m^3 of waste storage is required.

The stockpile size requirements are provided in Table 16-8 and Table 16-9. The storage capacity has been designed to accommodate waste rock generated from the open pit operations.

Two stockpiling areas are required:

- PAG STPL: stores potentially acid generating rock:
  - All waste rock material from Spark open pit is currently identified as potentially acid generating rock.
- OVB STPL: stores overburden material.

Table 16-8: Mine Rock Stockpile Design Capacity

Item	Unit	PAG STPL
Waste Rock Tonnage	t	56,034,000
Contingency	%	0
Waste Rock Tonnage to Store	t	56,034,000
Waste Rock SG	-	2.95
Waste Rock Volume to Store	m^3	18,995,000
Swell (including compaction)	%	30
Total Waste Rock Volume Capacity Needed	**m^3**	**24,693,500**
Designed Capacity	m^3	24,817,000
Max Lift	m	422
Lowest Elevation	m	322.7
Footprint Area	m^2	531,330
Surface Area	m^2	598,350
Perimeter	m	3,345

Table 16-9: Overburden Stockpile Design Capacity

Item	Unit	OVB STPL
Volume of OVB in Pit Design, from BM	m^3	462,700
Contingency	%	30
Total Estimate Volume to Store	**m^3**	**602,000**
Swell	%	20
Estimated Volume Capacity Needed	**m^3**	**730,000**
Designed Capacity	m^3	767,000
Max Lift	m	356
Lowest Elevation	m	328
Footprint Area	m^2	59,975
Surface Area	m^2	60,415
Perimeter	m	975

Figure 16-8 to Figure 16-10 illustrate the waste storage facilities at the Spark area.

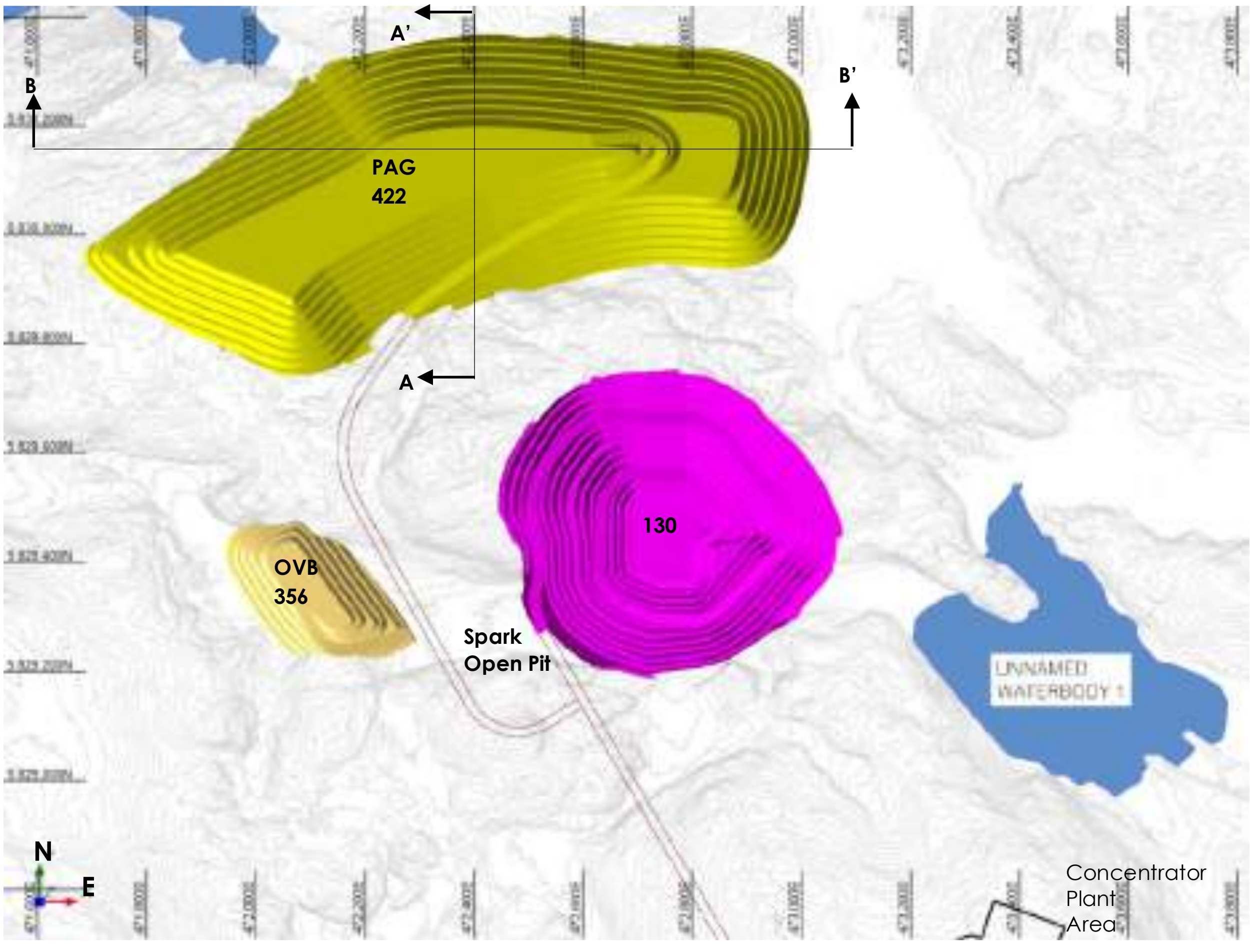
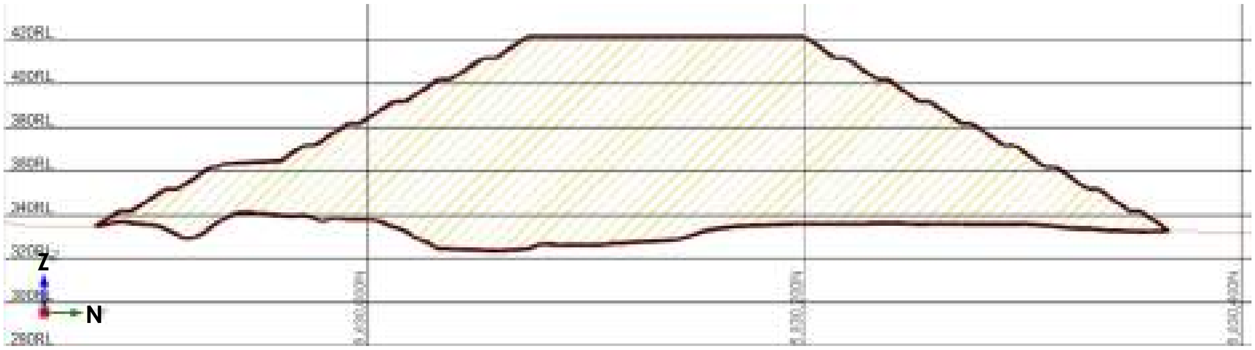


Figure 16-8: Plan View of Spark Mine Rock Stockpiles

SECTION A-A’



SECTION B-B’

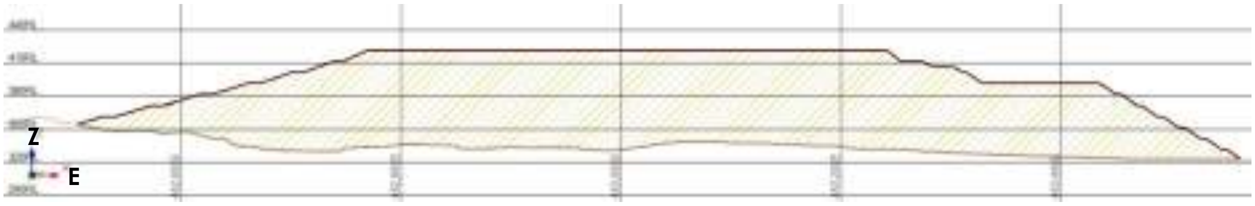


Figure 16-9: Section View of Spark Mine Rock Stockpile

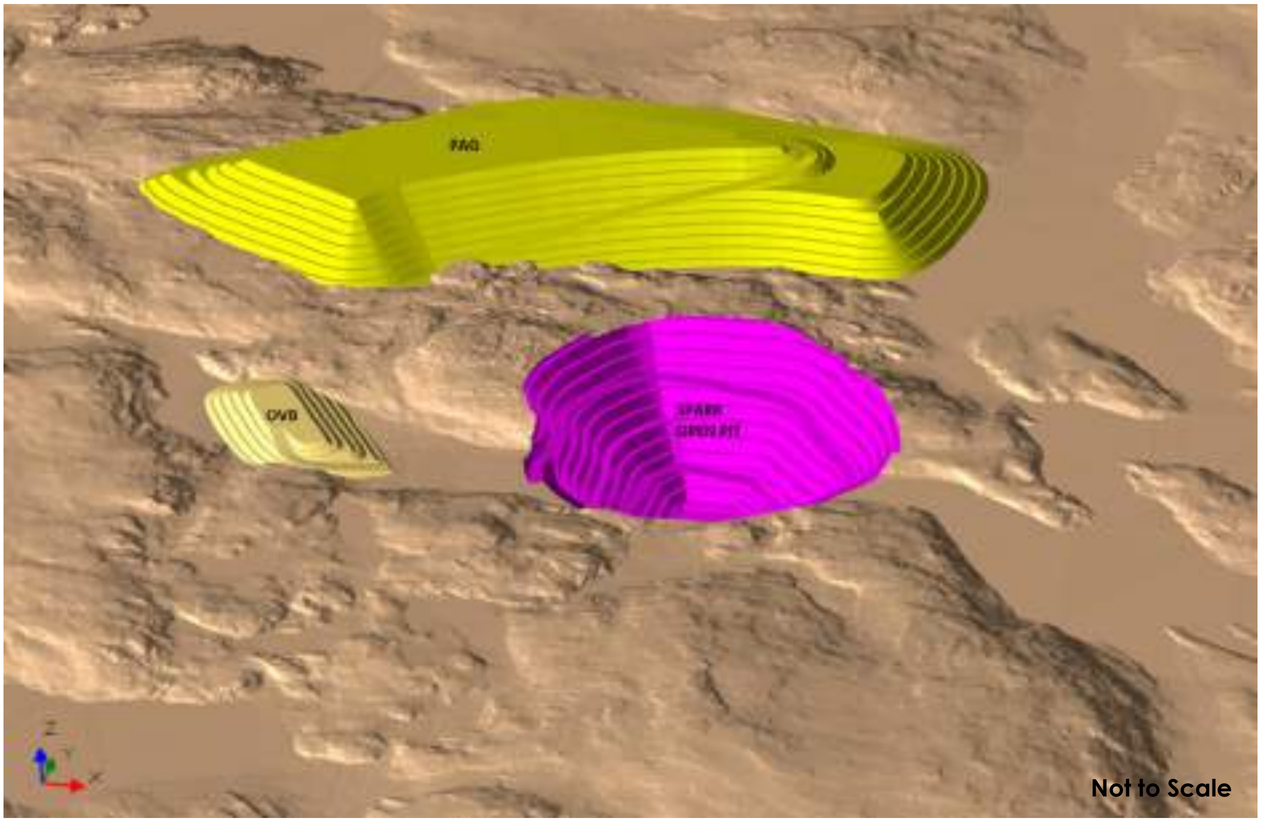


Figure 16-10: Isometric View of Spark Mine Rock Stockpiles

The mine rock storage facilities and the topsoil/overburden stockpile as shown on Figure 16-5 and Figure 16-8 will have a perimeter ditching to capture water runoff.

16.4 Life of Mine Production Schedule

The life of mine ("LOM") production schedule for the open pit areas has been prepared using the MinePlan Schedule Optimizer ("MPSO") tool in the Hexagon™ MinePlan 3D software. Provided with economic input parameters and operational constraints such as phase sequencing, maximum bench sink rates, and mining and milling capacities, the software determines the optimal mining sequence and ore stockpiling strategy which maximizes the present value ("PV") of the mine production plan.

The overall objective of the mine scheduling and planning process is to maximize Project PV while achieving the processing plant objectives and targets. Generally, this is done by delaying the overburden and waste rock removal activities, e.g., costs for as long as possible. This objective is taken into consideration during all phases of the mine design and mine planning.

A mine production schedule was developed based on the following assumptions and criteria:

- 210,000 tpa concentrator feed from PAK (technical grade line);
- 830,000 tpa concentrator feed from Spark (chemical grade line);
- Li_2O grade range from PAK / technical grade line of 1.5% to 2.0%;
- The mine plan considers a ramp-up of 30% in Q1, 60% in Q2, 100% in Q3 & Q4 (for technical grade line in Year 1 and chemical grade line in Year 3);
- A maximum sink rate of eight benches (80 m) per year was considered;
- First 2 years of production scheduled on quarterly basis, annual basis afterward;
- Mining starts at PAK with technical grade line at the concentrator plant facility in Year 1;
- Mining starts at Spark with chemical grade line at the concentrator plant facility in Year 3;
- The mine plan considers the economic inputs that were used for the pit limit analysis;
- All ore material from PAK has been designated as technical grade feed;
- All ore material from Spark has been designated as chemical grade feed;
- ROM stockpiles were considered with a soft constraint of 50,000 t capacity for both a chemical grade stockpile and technical grade stockpile. However, to meet the technical line grade range, a higher stockpiling capacity is required in the early mine life to be able to blend the higher grade UIZ material that is available early in the mine life with lower grade LIZ later in the mine life;
- Schedule constraint order of priority:
  - Concentrator plant feed tonnage;
  - Technical line grade range;
  - Total mined tonnage per area;
  - ROM stockpiling balance.

The mine plan has been developed in order to meet plant feed requirements according to general best open pit mine practices such as equipment fleet smoothing and maximizing NPV.

A pre-production stripping period at the PAK open pit was not deemed necessary due to the low tonnages to be mined/milled and the availability of the ore at surface. Waste rock from the pits were not planned to be required for construction material.

Table 16-10 and Table 16-11 tabulate the LOM production plan.

Table 16-10: LOM Production Schedule (Years 1 to 10)

Column Label	Unit	Total LOM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Schedule Period			Y	QTR	QTR	QTR	QTR	QTR	QTR	QTR	QTR	Y	Y	Y	Y	Y	Y	Y	Y
Mining Year			**-1**	**1**	**1**	**1**	**1**	**2**	**2**	**2**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Year Label			Y-1	Y1	Y1	Y1	Y1	Y2	Y2	Y2	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Period Label			PRE	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Months Per Period			12	3	3	3	3	3	3	3	3	12	12	12	12	12	12	12	12
Days Per Period			365	90	91	92	92	90	91	92	92	365	365	365	365	365	365	365	365
Concentrator Plant Production Plan																			
Technical Grade Feed	kt	**4,041**	0.0	15.8	31.5	52.5	52.5	52.5	52.5	52.5	52.5	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0
	% Li_2O	**1.79**	0.00	2.11	2.00	2.00	2.06	2.06	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.85	1.88	1.67	1.56
Chemical Grade Feed	kt	**18,028**	0	0	0	0	0	0	0	0	0	601.8	830.0	830.0	830.0	830.0	830.0	830.0	830.0
	% Li_2O	**1.50**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.79	1.68	1.63	1.59	1.59	1.43	1.44	1.43
Mine Production Plan																			
PAK																			
Waste Tonnes Mined	kt	**24,534**	0.0	54.2	187.8	184.8	126.5	224.9	335.2	306.2	332.3	1,640.4	1,674.8	1,108.2	1,430.9	804.5	1,040.8	1,289.2	1,927.3
Ore Tonnes Mined	kt	**4,041**	0.0	45.8	46.0	46.8	70.6	75.1	64.8	84.2	52.8	234.8	198.2	168.9	178.8	195.5	209.2	210.8	210.0
Ore Grade Mined	% Li_2O	**1.79**	0.00	2.53	2.45	2.10	2.40	2.46	2.24	2.08	2.01	2.16	1.89	1.86	1.74	1.64	1.56	1.66	1.56
Total Tonnes Mined	kt	**28,575**	0.0	100.0	233.7	231.6	197.1	300.0	400.0	390.4	385.1	1,875.1	1,873.0	1,277.1	1,609.7	1,000.0	1,250.0	1,500.0	2,137.3
Strip Ratio	kt	**6.1**	0.0	1.2	4.1	3.9	1.8	3.0	5.2	3.6	6.3	7.0	8.5	6.6	8.0	4.1	5.0	6.1	9.2
Spark																			
Waste Tonnes Mined	kt	**56,813**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	677.7	678.9	1,155.0	1,635.0	2,919.6	4,329.9	4,361.2	4,370.0
Ore Tonnes Mined	kt	**18,028**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	601.8	830.0	845.0	865.0	781.1	870.1	838.8	830.0
Ore Grade Mined	% Li_2O	**1.50**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.79	1.68	1.63	1.59	1.59	1.42	1.44	1.43
Total Tonnes Mined	kt	**74,841**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,279.4	1,508.9	2,000.0	2,500.0	3,700.7	5,200.0	5,200.0	5,200.0
Strip Ratio	kt	**3.2**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.8	1.4	1.9	3.7	5.0	5.2	5.3
Total																			
Waste Tonnes Mined	kt	**81,347**	0.0	54.2	187.8	184.8	126.5	224.9	335.2	306.2	332.3	2,318.1	2,353.7	2,263.2	3,065.9	3,724.2	5,370.7	5,650.4	6,297.3
Ore Tonnes Mined	kt	**22,069**	0.0	45.8	46.0	46.8	70.6	75.1	64.8	84.2	52.8	836.5	1,028.2	1,013.9	1,043.8	976.5	1,079.3	1,049.6	1,040.0
Ore Grade Mined	% Li_2O	**1.55**	0.00	2.53	2.45	2.10	2.40	2.46	2.24	2.08	2.01	1.89	1.72	1.66	1.61	1.60	1.44	1.48	1.46
Total Tonnes Mined	kt	**103,416**	0.0	100.0	233.7	231.6	197.1	300.0	400.0	390.4	385.1	3,154.6	3,381.9	3,277.1	4,109.7	4,700.7	6,450.0	6,700.0	7,337.3
Strip Ratio	kt	**3.7**	0.0	1.2	4.1	3.9	1.8	3.0	5.2	3.6	6.3	2.8	2.3	2.2	2.9	3.8	5.0	5.4	6.1
Material Rehandle																			
Tech STPL To Crusher	kt	**359**	0.0	0.0	0.0	10.8	0.0	0.7	4.3	0.0	0.0	10.3	33.6	79.7	31.2	26.0	38.6	0.0	0.0
Chem STPL To Crusher	kt	**185**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0
Rejects To STPL	kt	**2,908**	0.0	6.3	12.6	21.1	21.1	21.1	21.1	21.1	21.1	127.2	143.5	143.5	143.5	143.5	143.5	143.5	143.5

Table 16-11: LOM Production Schedule (Years 11 to 24)

Column Label	Unit	Total LOM	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Schedule Period			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Mining Year			**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
Year Label			Y11	Y12	Y13	Y14	Y15	Y16	Y17	Y18	Y19	Y20	Y21	Y22	Y23	Y24
Period Label			Y11	Y12	Y13	Y14	Y15	Y16	Y17	Y18	Y19	Y20	Y21	Y22	Y23	Y24
Months Per Period			12	12	12	12	12	12	12	12	12	12	12	12	12	12
Days Per Period			365	365	365	365	365	365	365	365	365	365	365	365	365	365
Concentrator Plant Production Plan																
Technical Grade Feed	kt	**4,041**	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	109.0	0	0	0	0
	% Li_2O	**1.79**	1.50	1.50	1.50	1.68	1.73	2.00	1.96	1.72	1.72	1.48	0.00	0.00	0.00	0.00
Chemical Grade Feed	kt	**18,028**	830.0	830.0	830.0	830.0	830.0	830.0	830.0	830.0	830.0	830.0	830.0	830.0	830.0	826.5
	% Li_2O	**1.50**	1.41	1.46	1.44	1.46	1.47	1.34	1.51	1.50	1.49	1.46	1.47	1.51	1.51	1.53
Mine Production Plan																
PAK																
Waste Tonnes Mined	kt	**24,534**	2,838.3	2,685.5	2,524.3	1,606.7	690.2	301.8	464.4	453.7	259.9	41.1	0.0	0.0	0.0	0.0
Ore Tonnes Mined	kt	**4,041**	161.7	218.6	228.7	231.0	210.0	198.2	221.8	197.9	208.6	72.5	0.0	0.0	0.0	0.0
Ore Grade Mined	% Li_2O	**1.79**	1.55	1.57	1.38	1.64	1.73	2.07	1.94	1.75	1.72	1.52	0.00	0.00	0.00	0.00
Total Tonnes Mined	kt	**28,575**	3,000.0	2,904.1	2,753.1	1,837.7	900.2	500.0	686.2	651.6	468.5	113.6	0.0	0.0	0.0	0.0
Strip Ratio	kt	**6.1**	17.6	12.3	11.0	7.0	3.3	1.5	2.1	2.3	1.2	0.6	0.0	0.0	0.0	0.0
Spark																
Waste Tonnes Mined	kt	**56,813**	4,370.0	4,370.0	4,670.0	5,170.0	4,670.0	5,222.6	2,205.0	1,897.7	999.6	1,187.5	853.1	518.6	392.7	159.1
Ore Tonnes Mined	kt	**18,028**	830.0	830.0	830.0	830.0	830.0	780.0	846.8	830.7	830.0	812.5	830.0	880.0	830.0	776.5
Ore Grade Mined	% Li_2O	**1.50**	1.41	1.46	1.44	1.46	1.47	1.35	1.50	1.50	1.49	1.46	1.47	1.50	1.51	1.53
Total Tonnes Mined	kt	**74,841**	5,200.0	5,200.0	5,500.0	6,000.0	5,500.0	6,002.6	3,051.8	2,728.4	1,829.6	2,000.0	1,683.1	1,398.6	1,222.7	935.6
Strip Ratio	kt	**3.2**	5.3	5.3	5.6	6.2	5.6	6.7	2.6	2.3	1.2	1.5	1.0	0.6	0.5	0.2
Total																
Waste Tonnes Mined	kt	**81,347**	7,208.3	7,055.5	7,194.3	6,776.7	5,360.2	5,524.5	2,669.4	2,351.4	1,259.5	1,228.6	853.1	518.6	392.7	159.1
Ore Tonnes Mined	kt	**22,069**	991.7	1,048.6	1,058.7	1,061.0	1,040.0	978.2	1,068.7	1,028.6	1,038.6	885.0	830.0	880.0	830.0	776.5
Ore Grade Mined	% Li_2O	**1.55**	1.43	1.48	1.42	1.50	1.52	1.49	1.59	1.55	1.54	1.47	1.47	1.50	1.51	1.53
Total Tonnes Mined	kt	**103,416**	8,200.0	8,104.1	8,253.1	7,837.7	6,400.2	6,502.6	3,738.1	3,380.0	2,298.1	2,113.6	1,683.1	1,398.6	1,222.7	935.6
Strip Ratio	kt	**3.7**	7.3	6.7	6.8	6.4	5.2	5.6	2.5	2.3	1.2	1.4	1.0	0.6	0.5	0.2
Material Rehandle																
Tech STPL To Crusher	kt	**359**	48.3	1.7	10.2	0.0	0.0	13.9	0.0	12.1	1.4	36.5	0.0	0.0	0.0	0.0
Chem STPL To Crusher	kt	**185**	0.0	0.0	0.4	0.7	0.0	50.0	0.0	0.0	16.8	17.5	0.0	0.0	0.0	50.0
Rejects To STPL	kt	**2,908**	143.5	143.5	143.5	143.5	143.5	143.5	143.5	143.5	143.5	103.0	59.2	59.2	59.2	59.0

Figure 16-11 to Figure 16-20 graphically show the LOM production plan.

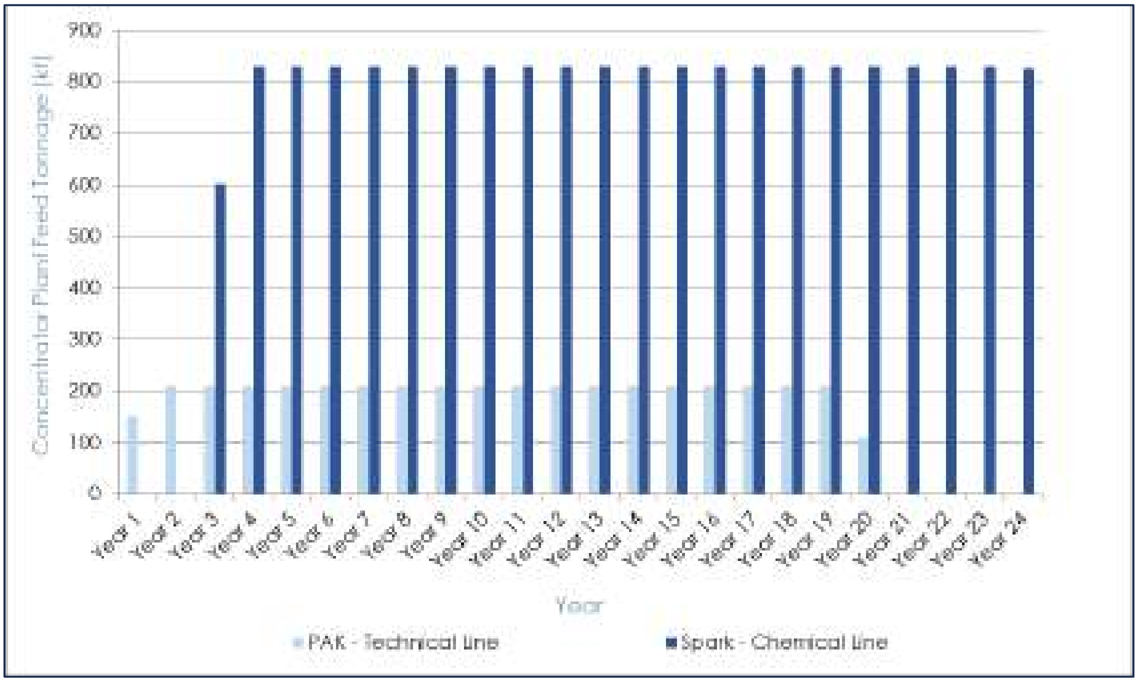


Figure 16-11: LOM Schedule – Concentrator Plant Feed Tonnage (Annualized)

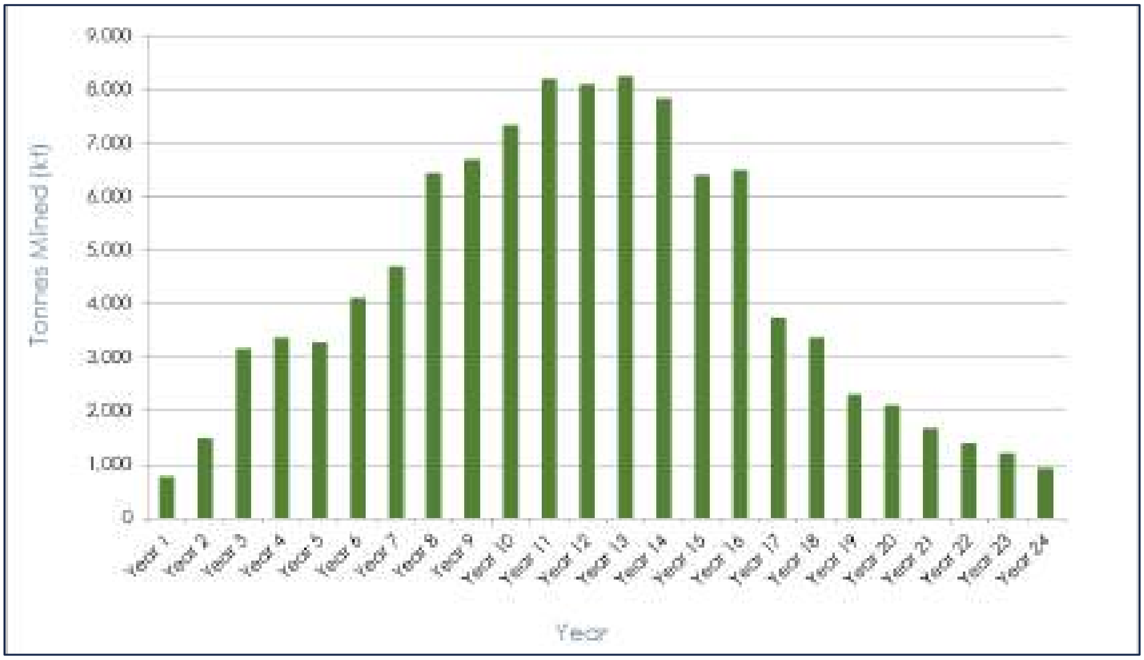


Figure 16-12: LOM Schedule – Total Material Mined (Annualized)

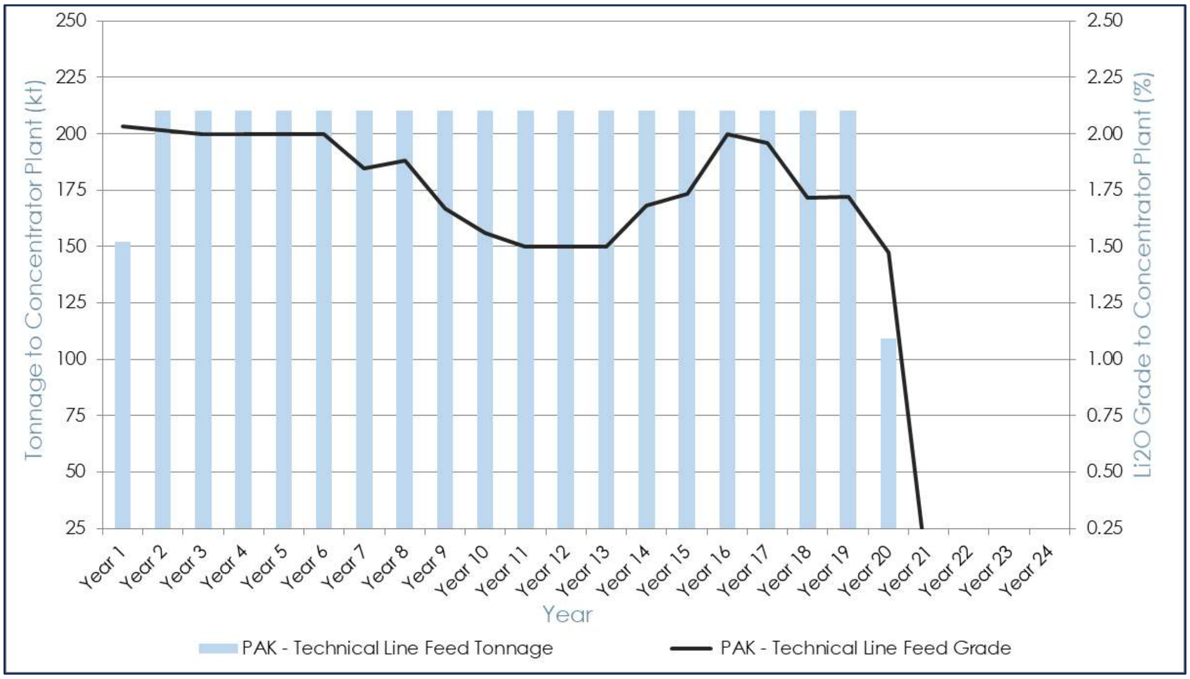


Figure 16-13: LOM Schedule – PAK Technical Line, Tonnes & Grade to Concentrator Plant

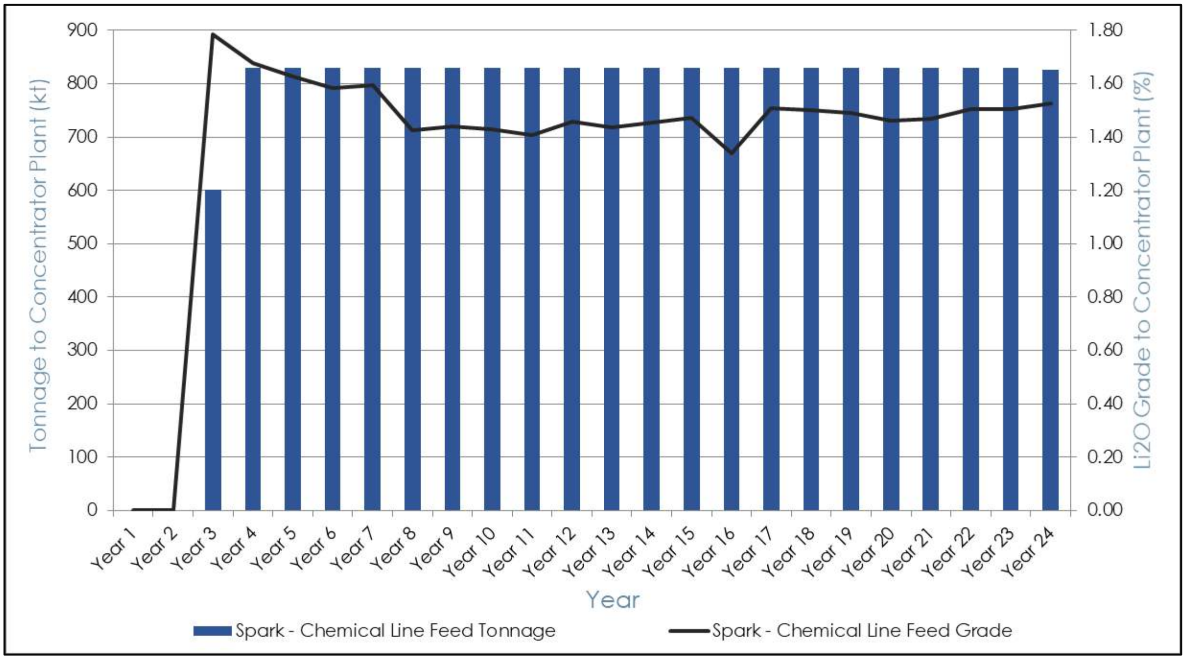


Figure 16-14: LOM Schedule – Spark Chemical Line, Tonnes & Grade to Concentrator Plant

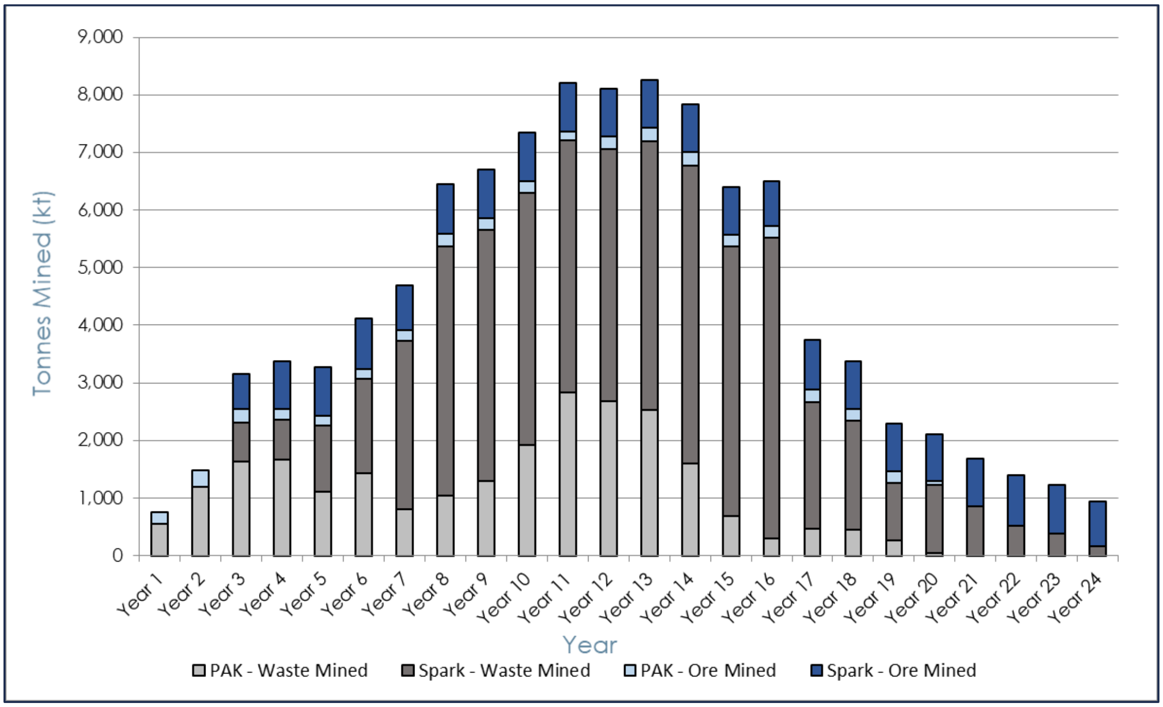


Figure 16-15: LOM Schedule – Total Material Mined by Pit & Material Type

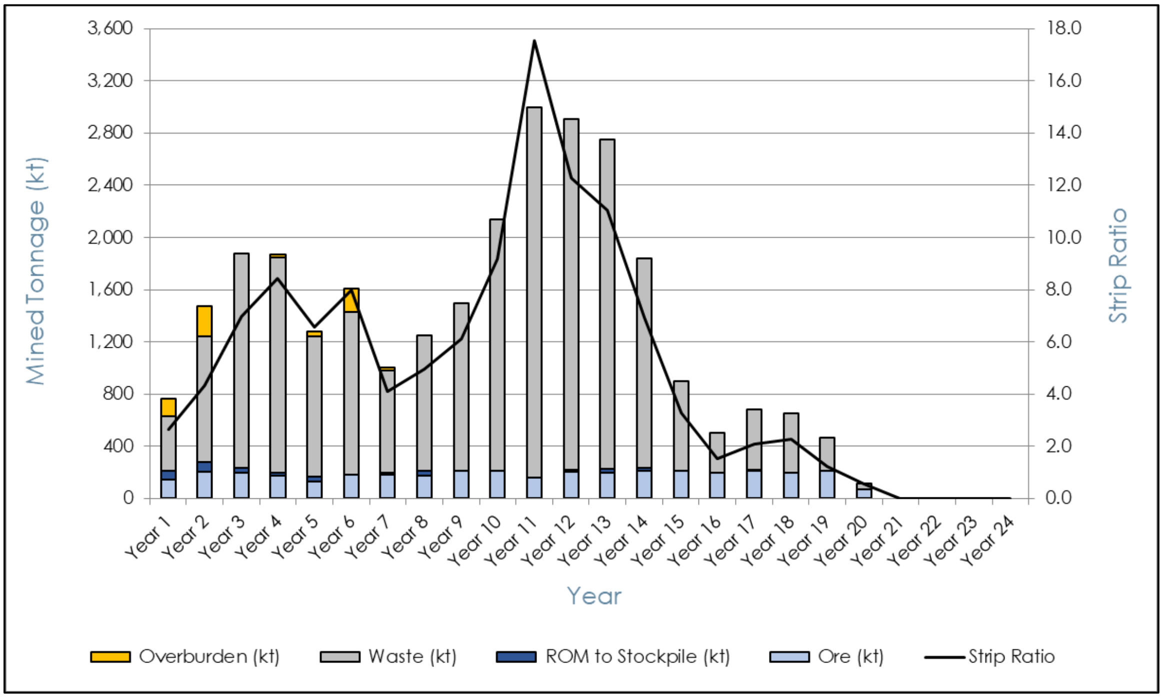


Figure 16-16: LOM Schedule – PAK Total Material Mined by Material Type

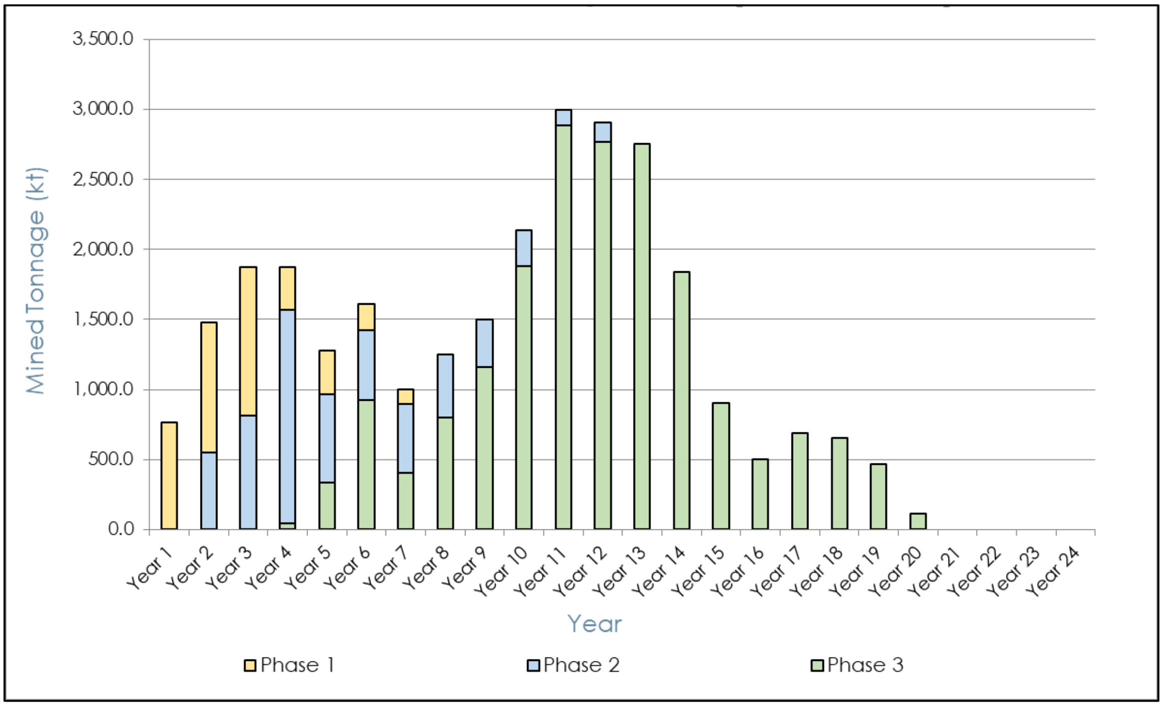


Figure 16-17: LOM Schedule – PAK Total Material Mined by Phase

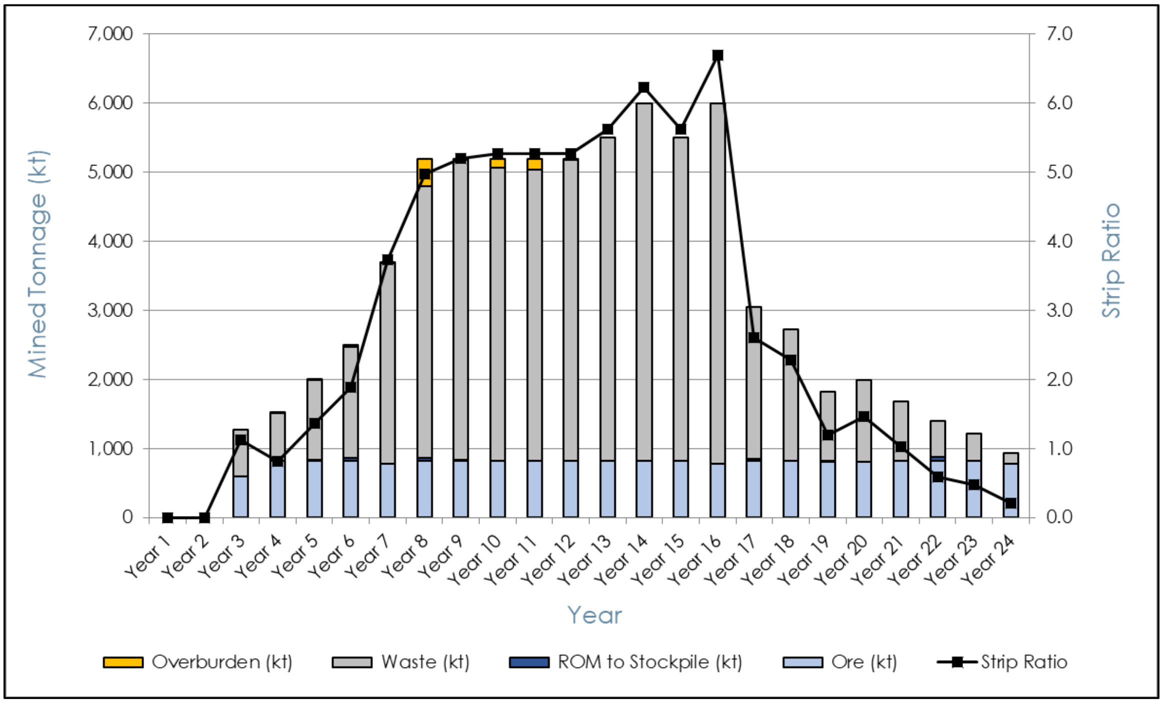


Figure 16-18: LOM Schedule – Spark Total Material Mined by Material Type

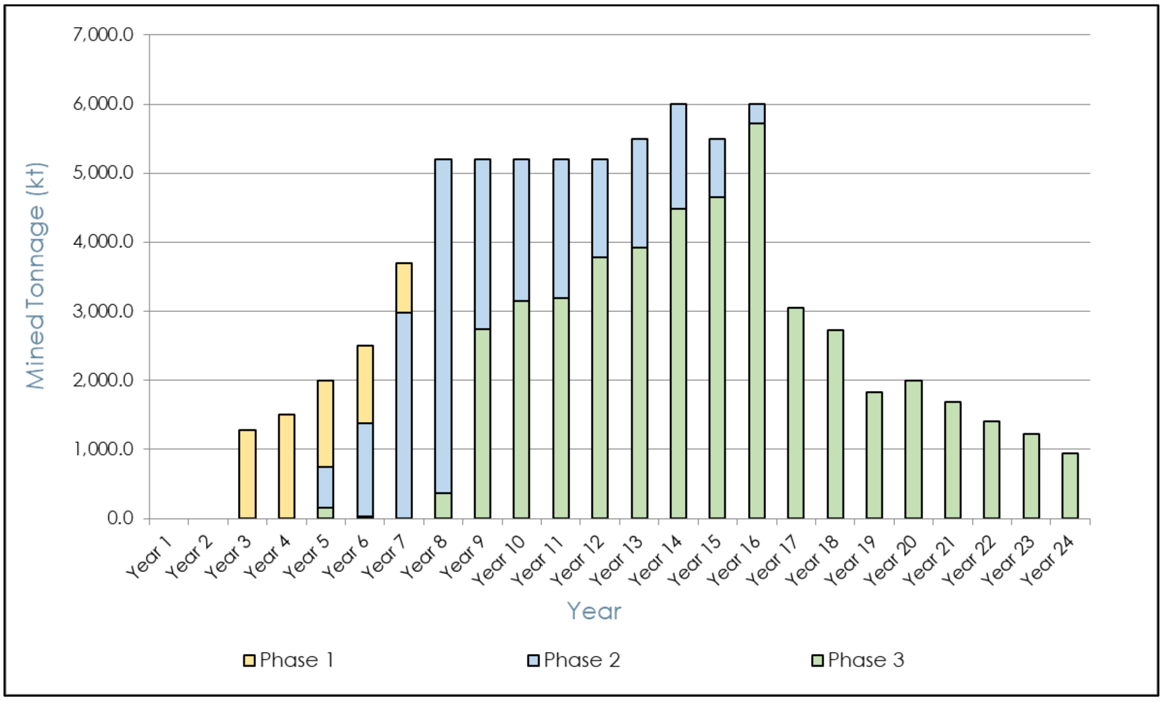


Figure 16-19: LOM Schedule – Spark Total Material Mined by Phase

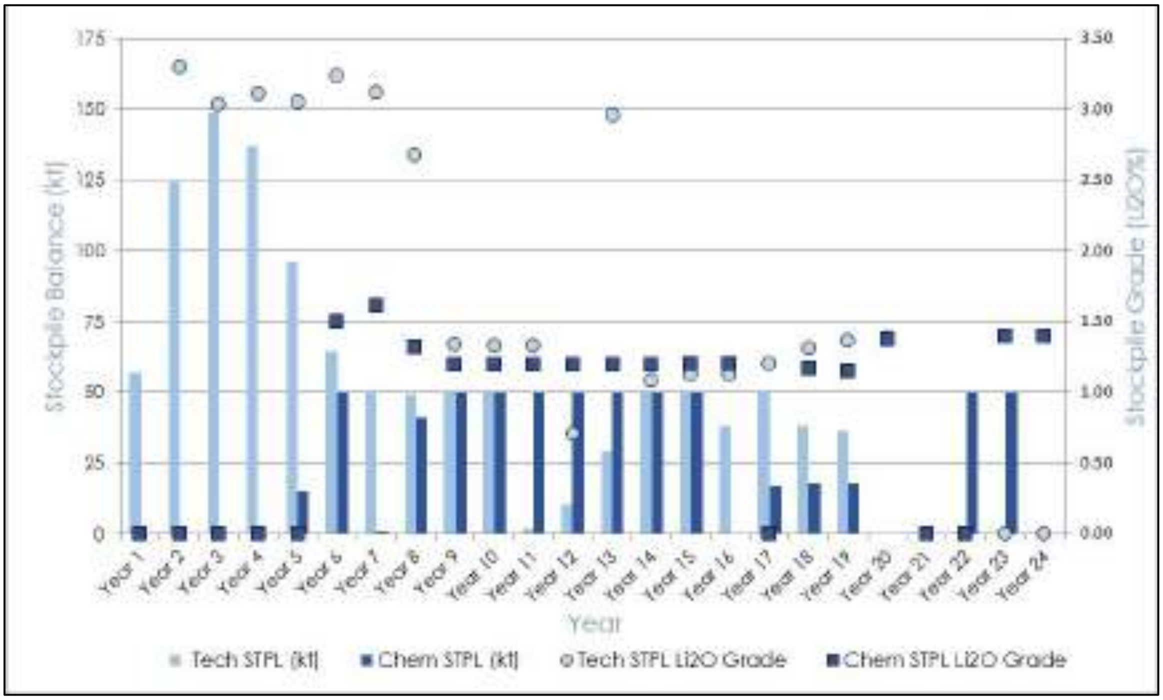


Figure 16-20: LOM Schedule – ROM Stockpile Balance

Table 16-12 shows the maximum footprint estimated for each of the ROM stockpiles. The maximum footprint estimated for stockpiling is based on:

- 5 m height, 3H:1V slope, 2 t/m^3 density.

Table 16-12: ROM Stockpiling Requirements

Description	Unit	Technical Stockpile	Chemical Stockpile
Peak Tonnage to Stockpile	t	148,656	50,000
Peak Volume to Stockpile	m^3	74,328	25,000
Approximate Dimensions			
Length (L)	m	140	100
Width (W)	m	135	75
Height	m	5	5

16.5 Mining Sequence

Figure 16-21 through Figure 16-34 depict the estimated progression of the PAK and Spark open pits, on an annual basis for select years.

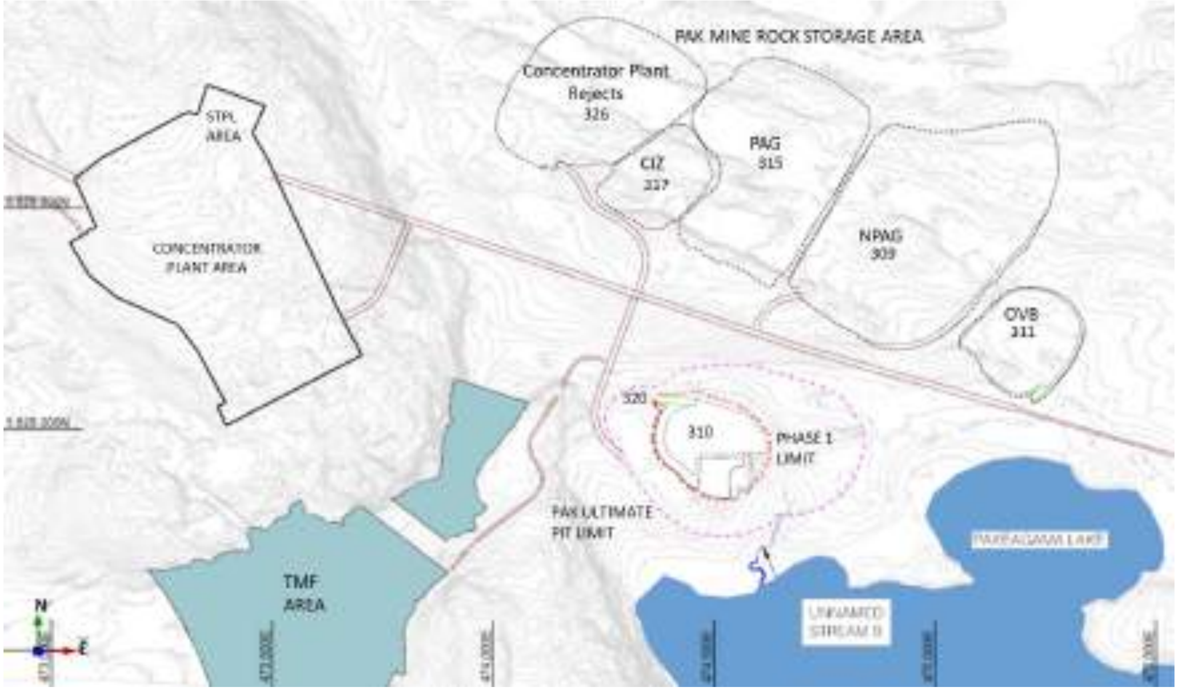


Figure 16-21: End of Year 1 Progression Plan, PAK

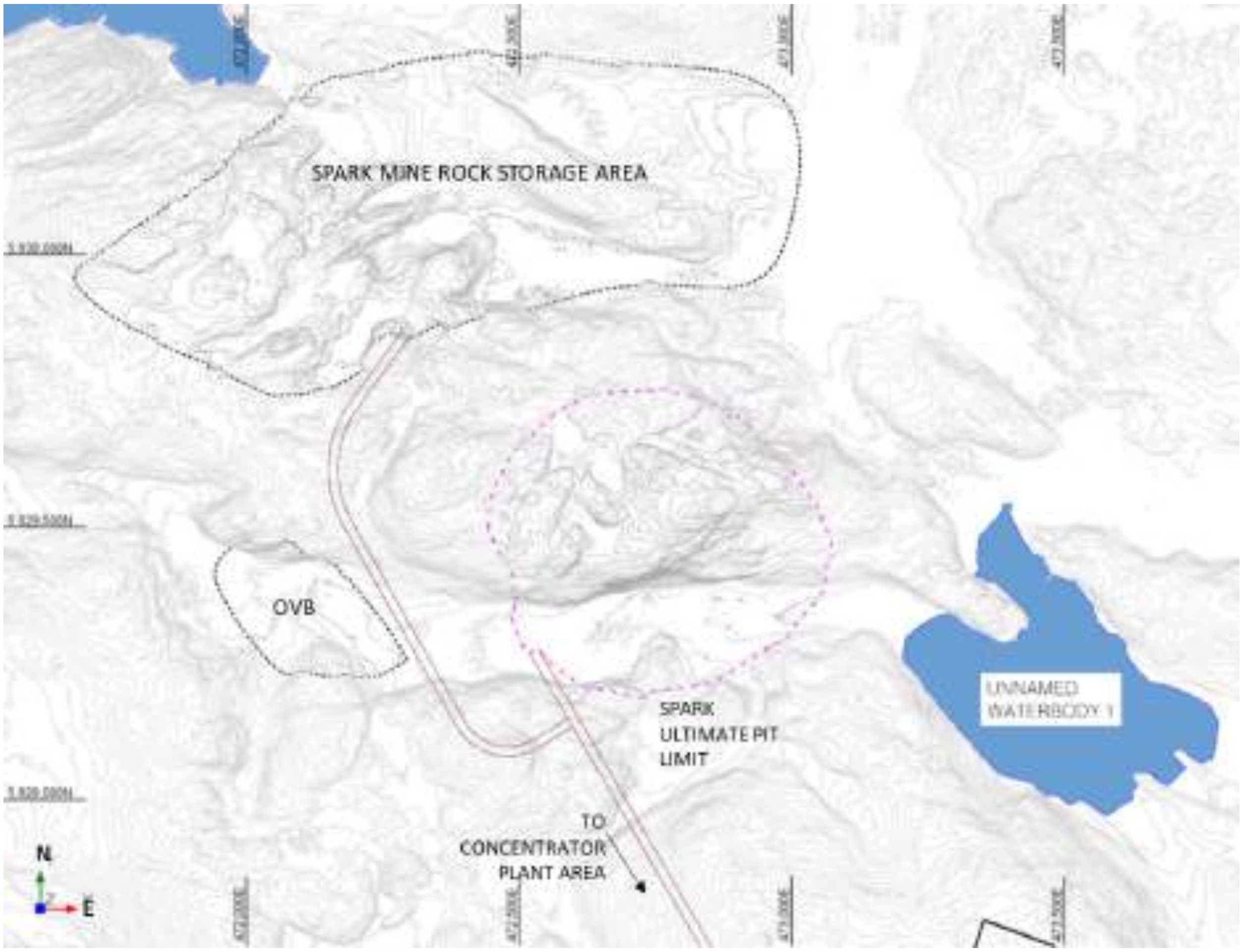


Figure 16-22: End of Year 1 Progression Plan, Spark

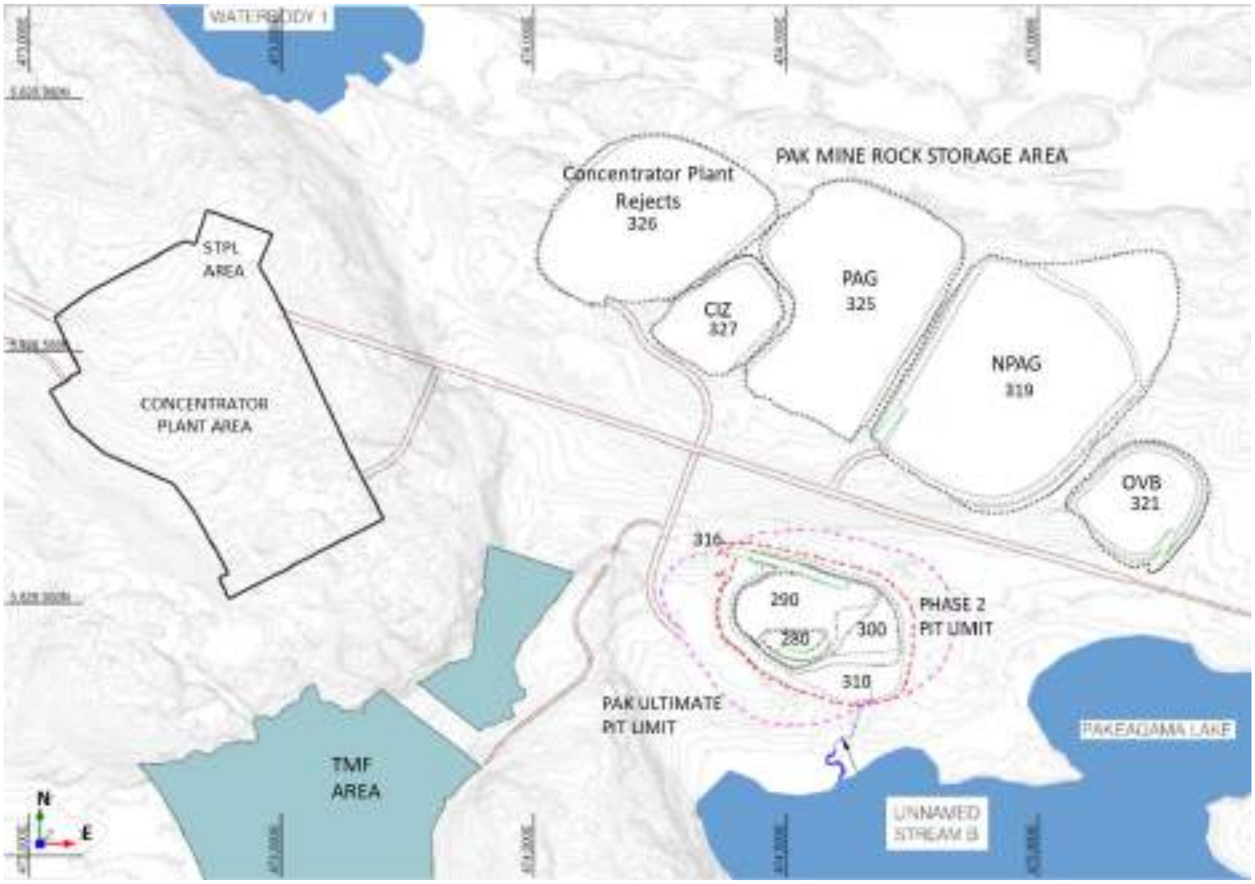


Figure 16-23: End of Year 3 Progression Plan, PAK

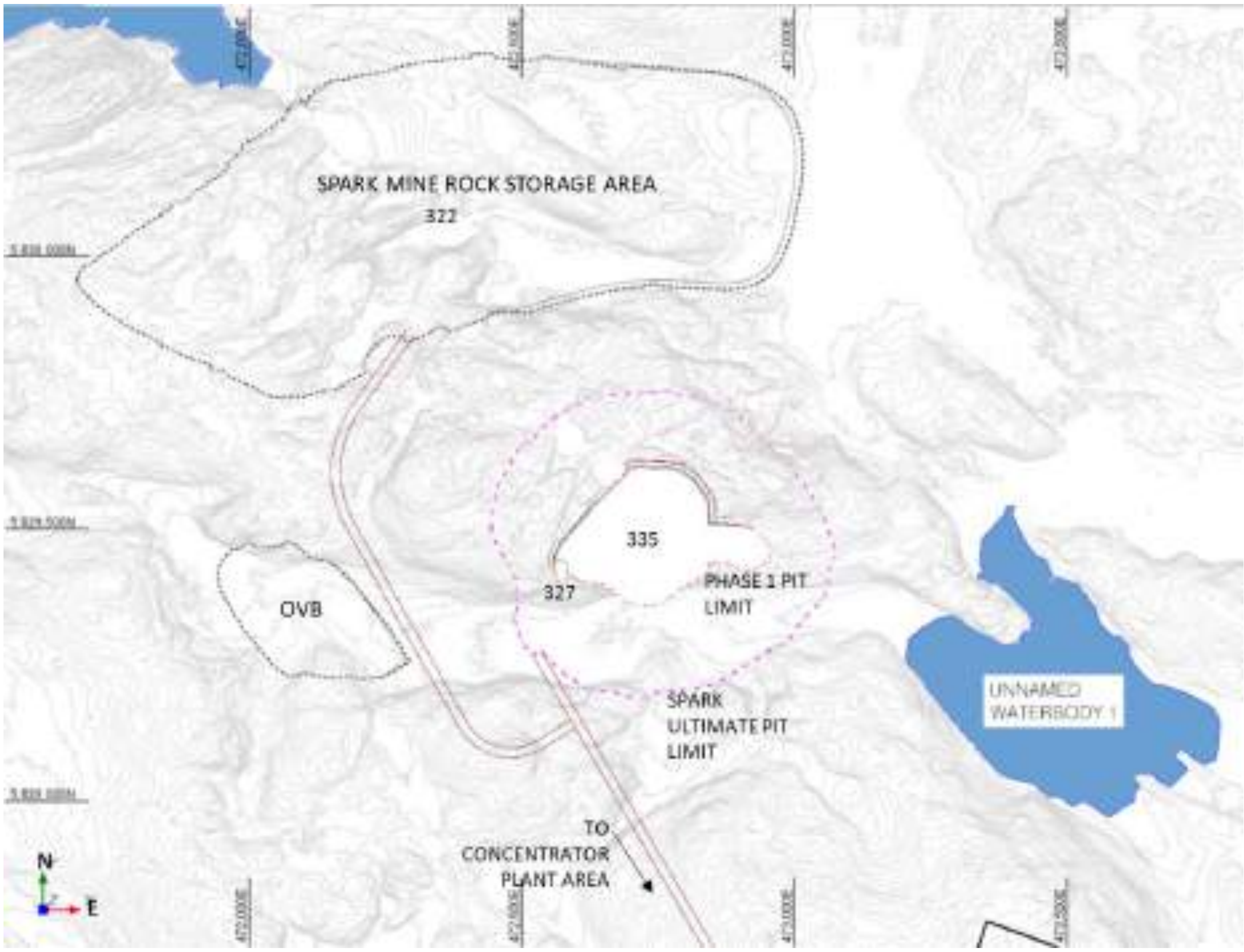


Figure 16-24: End of Year 3 Progression Plan, Spark

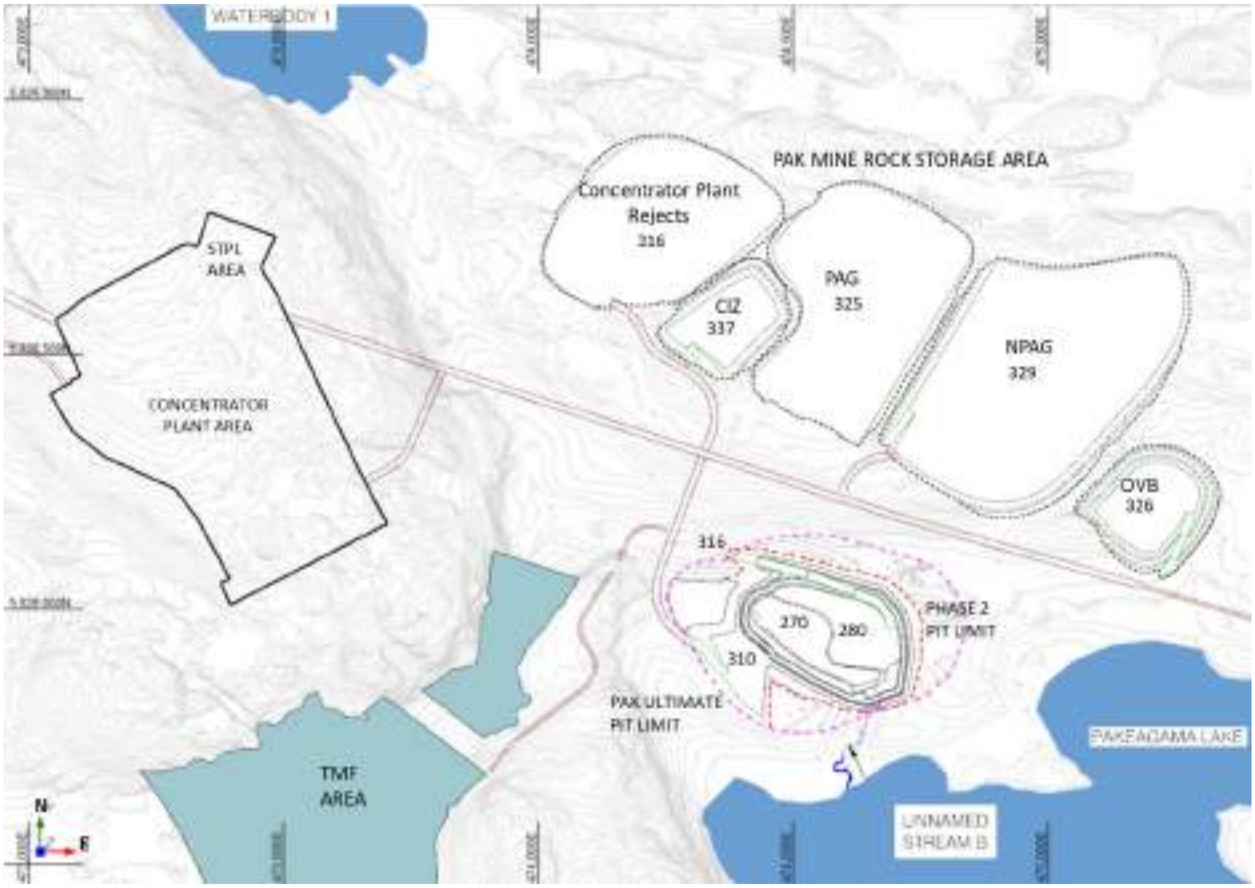


Figure 16-25: End of Year 5 Progression Plan, PAK

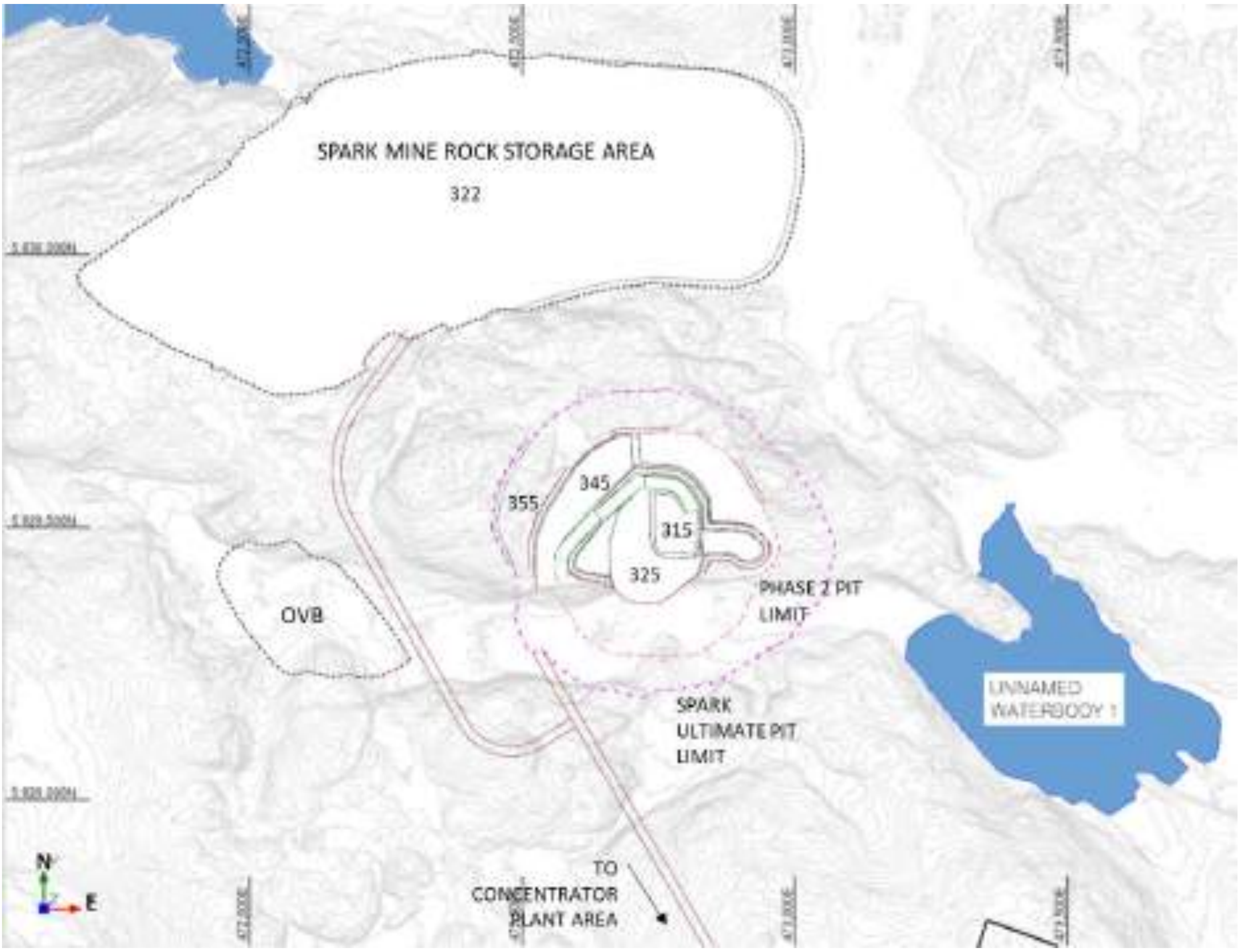


Figure 16-26: End of Year 5 Progression Plan, Spark

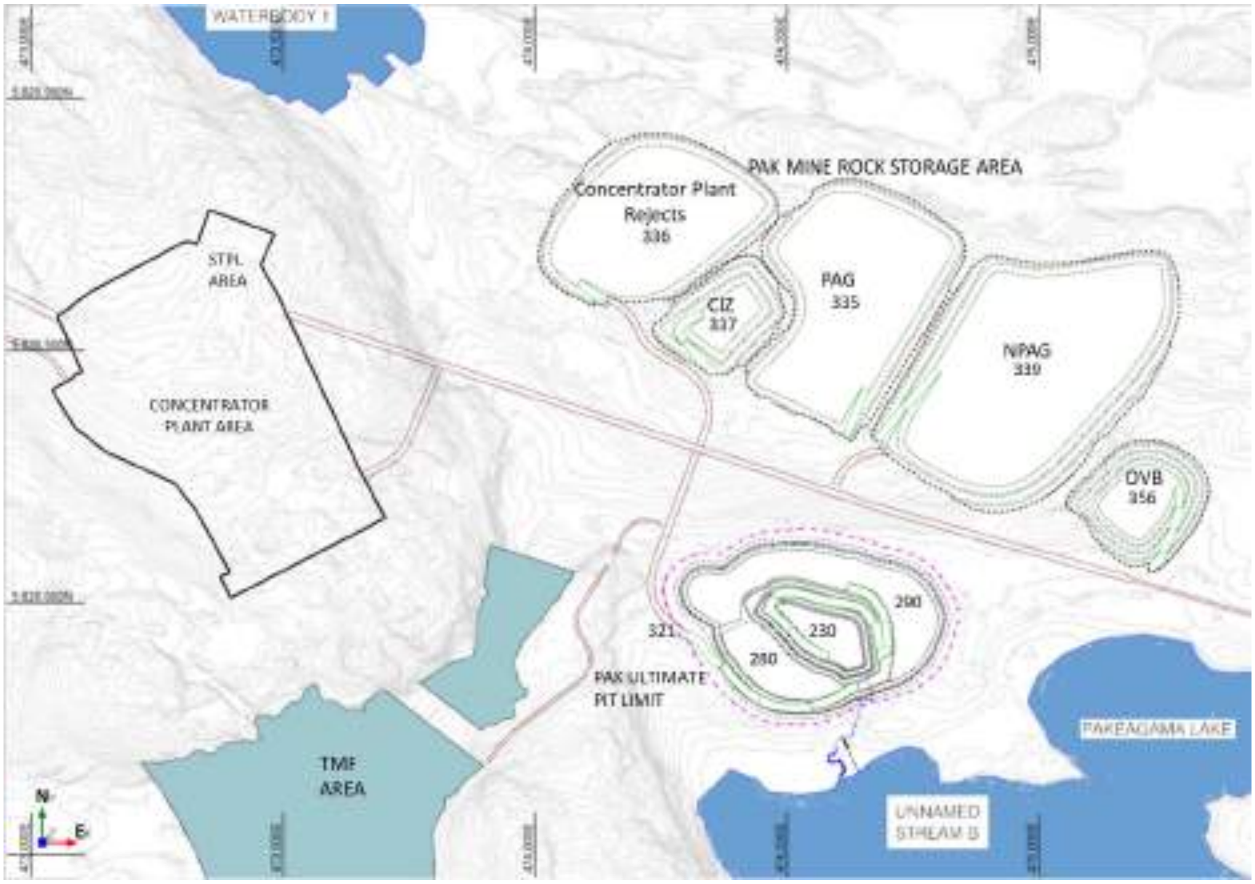


Figure 16-27: End of Year 10 Progression Plan, PAK

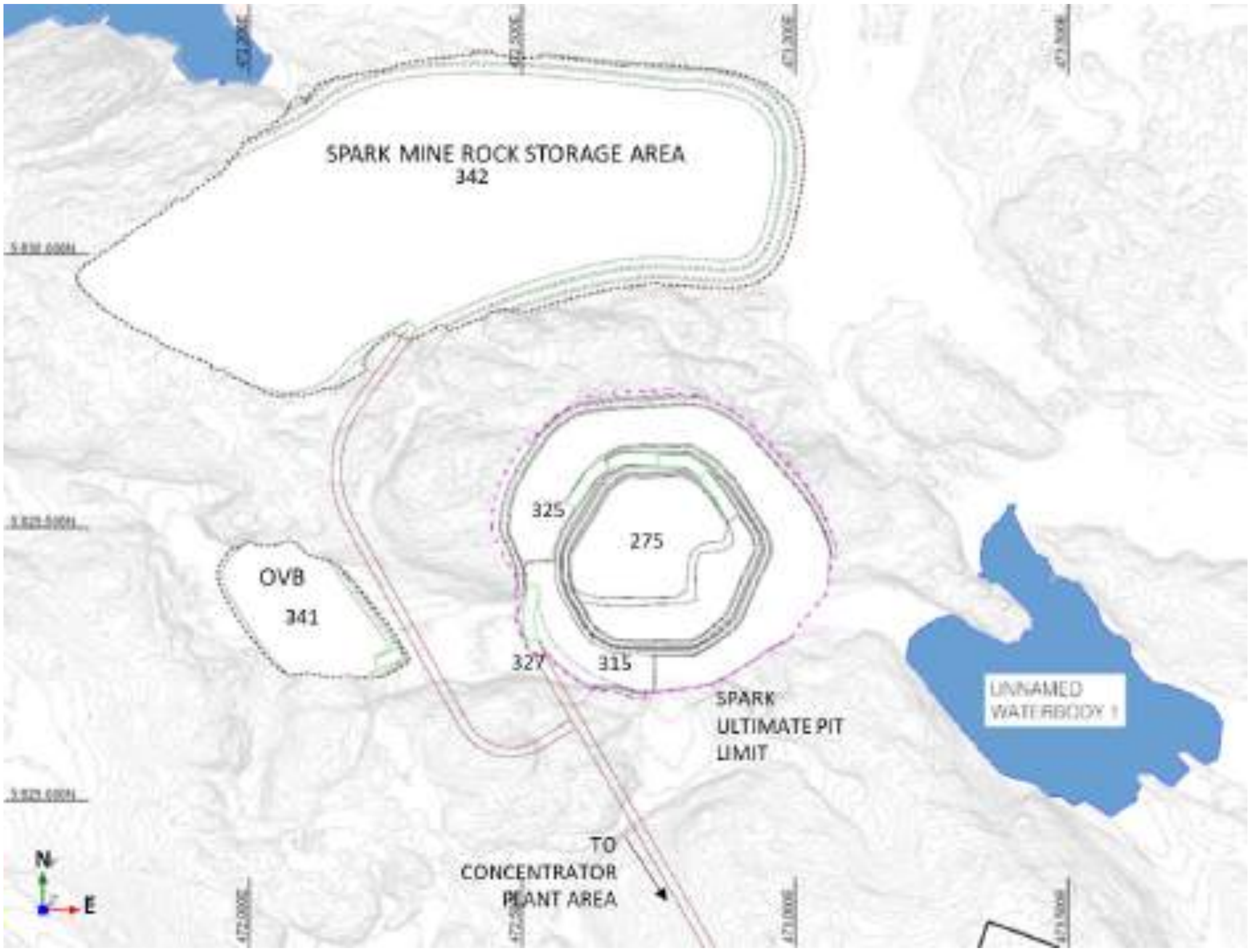


Figure 16-28: End of Year 10 Progression Plan, Spark

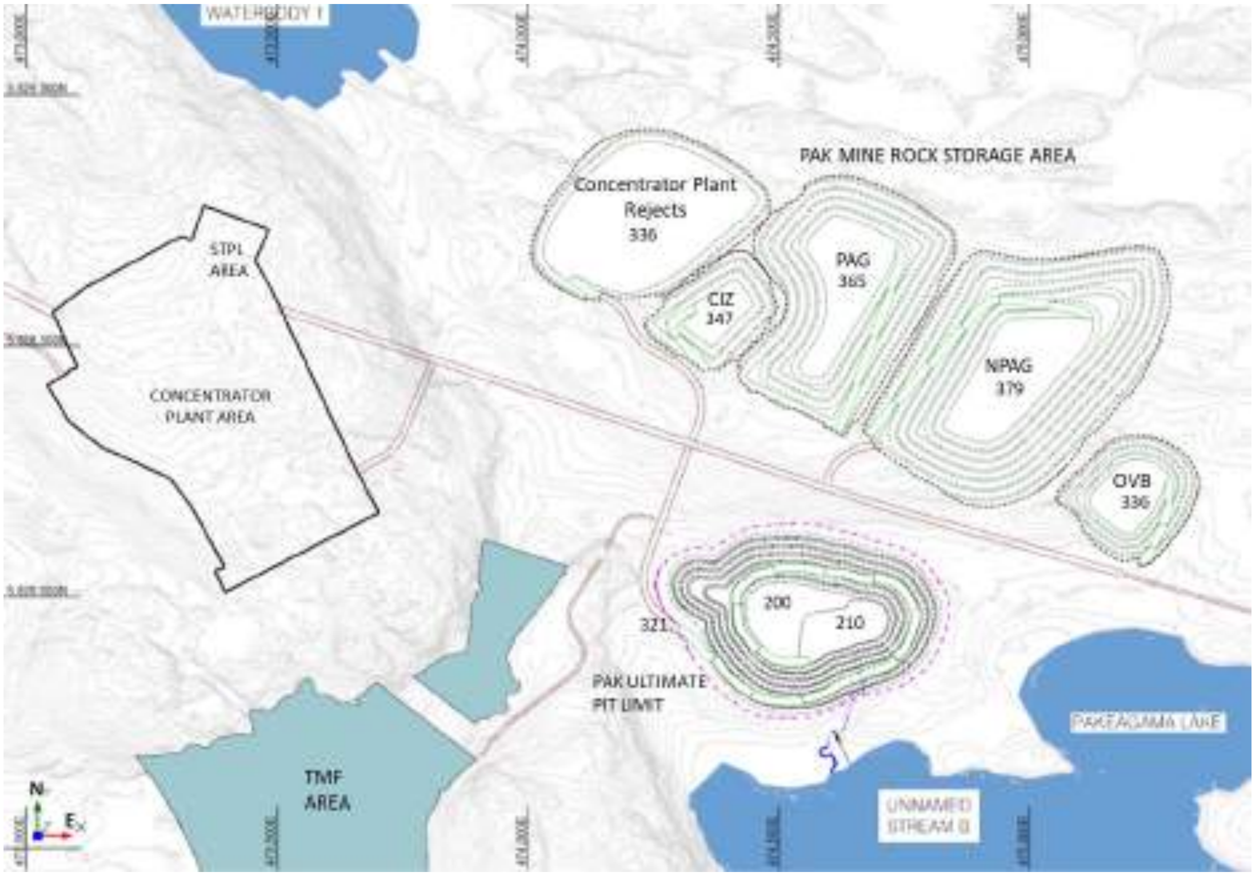


Figure 16-29: End of Year 15 Progression Plan, PAK

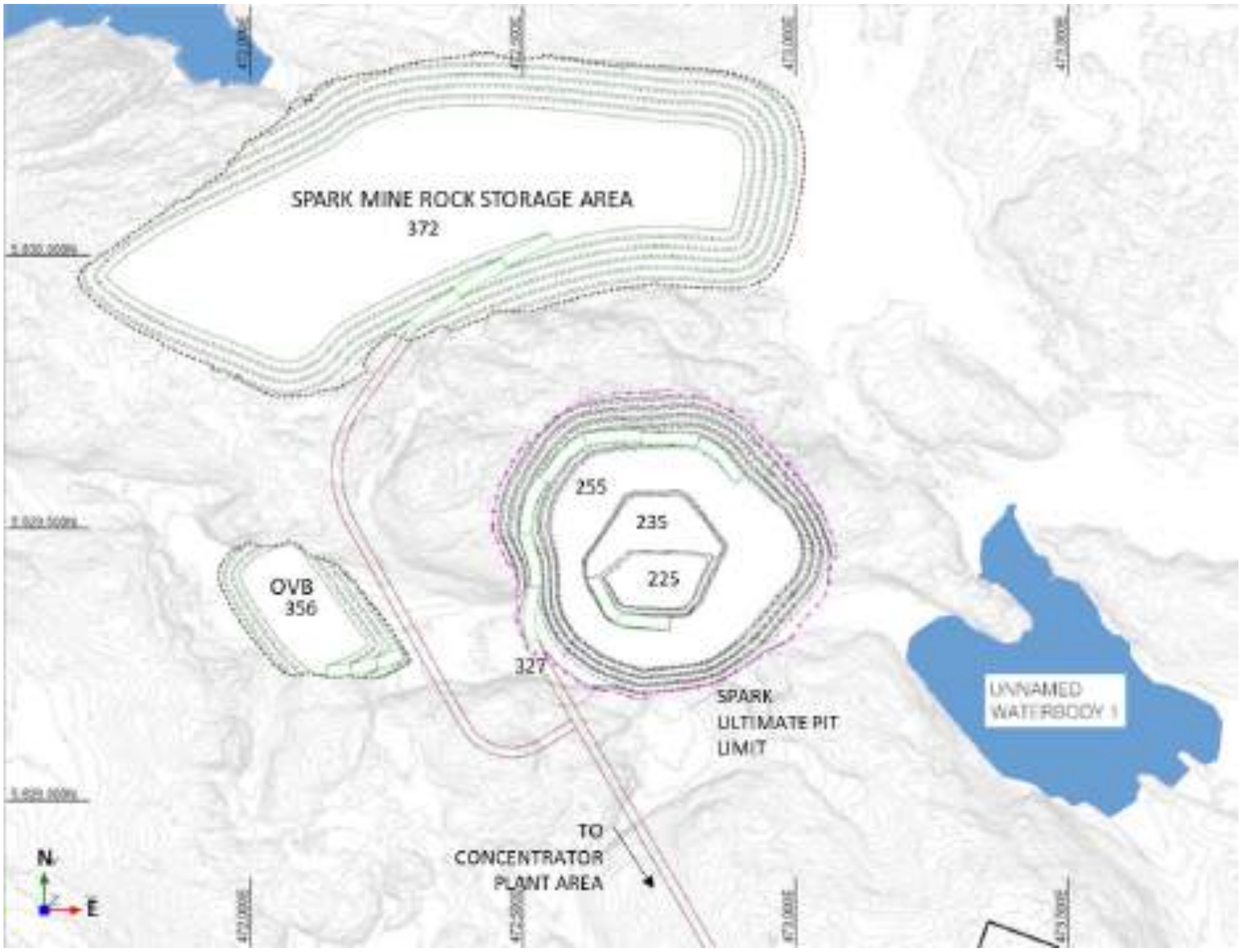


Figure 16-30: End of Year 15 Progression Plan, Spark

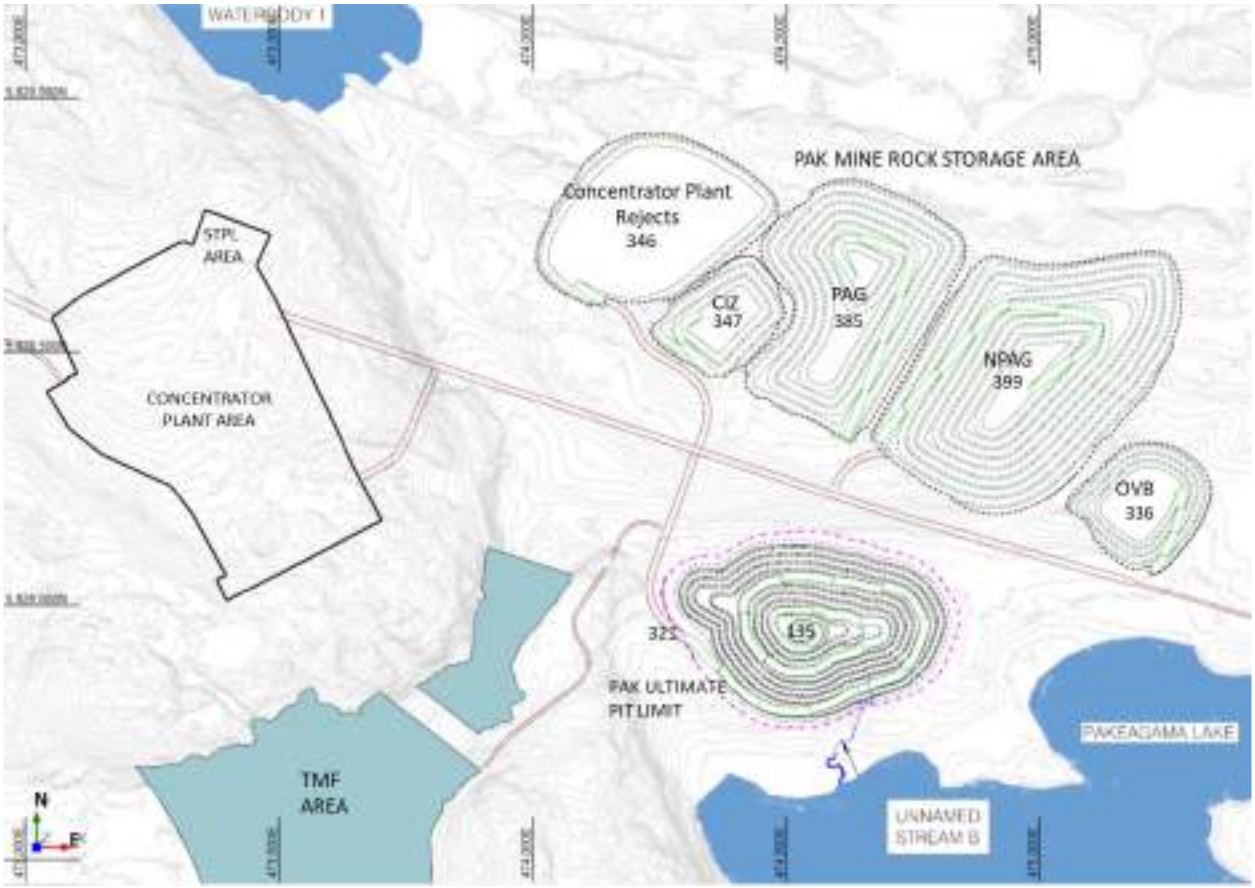


Figure 16-31: End of Year 20 Progression Plan, PAK

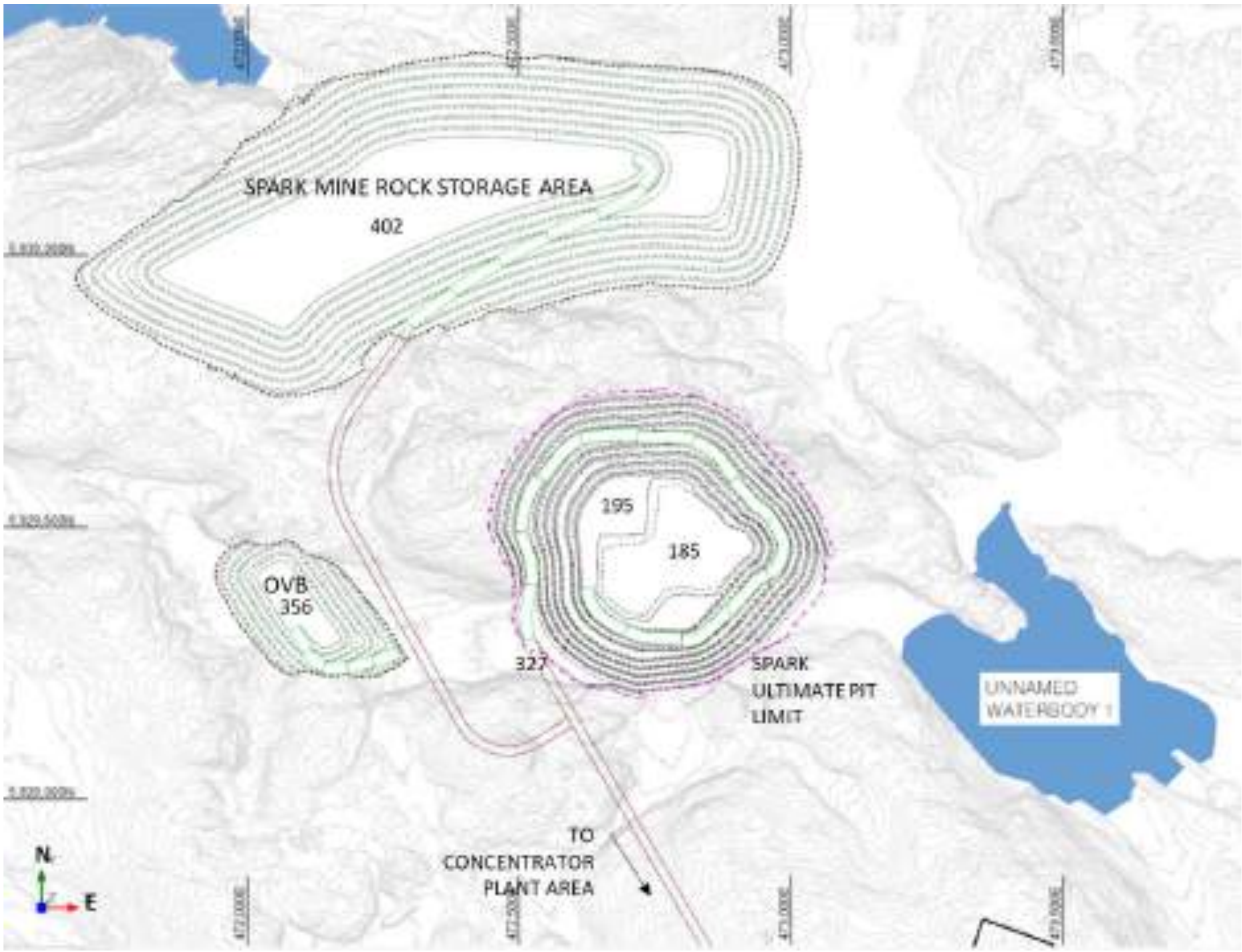


Figure 16-32: End of Year 20 Progression Plan, Spark

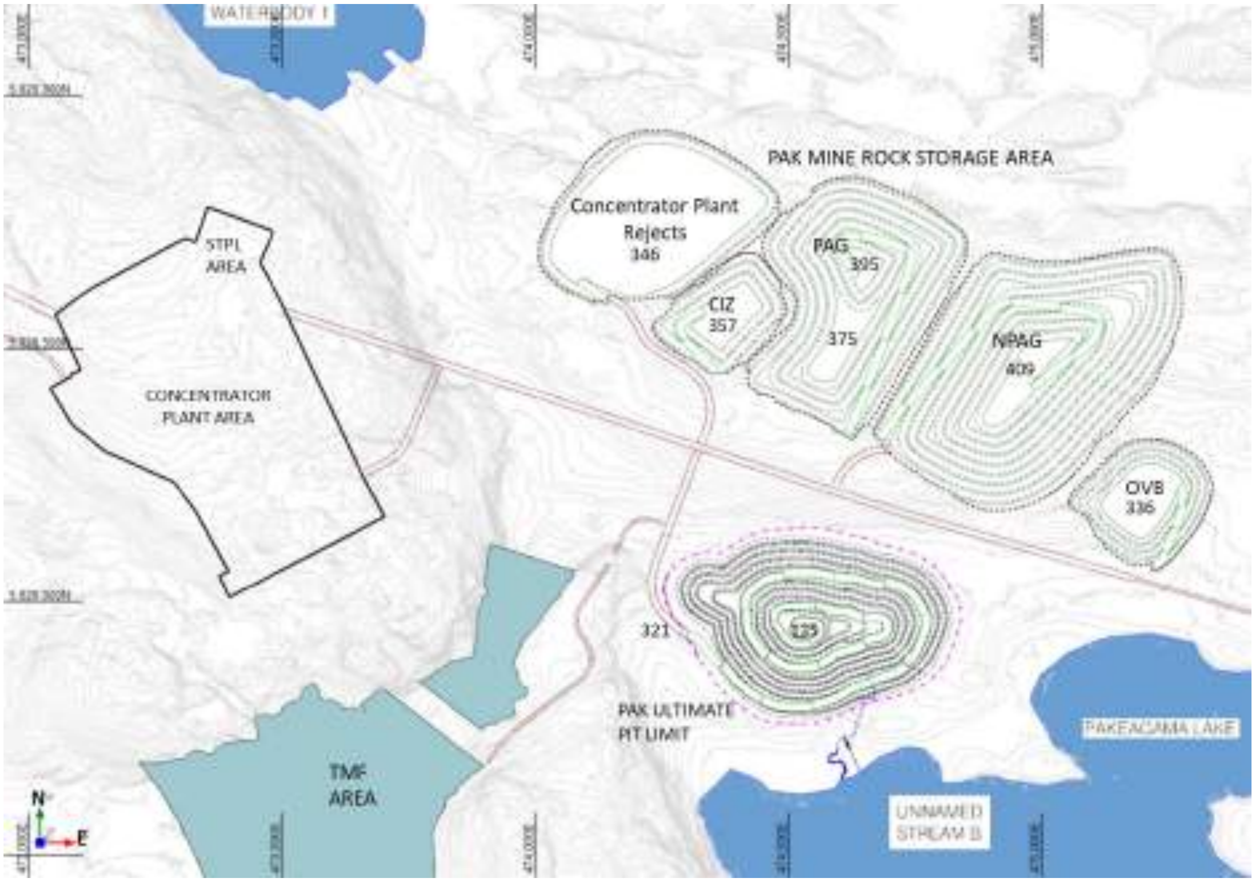


Figure 16-33: End of Year 24 Progression Plan, PAK

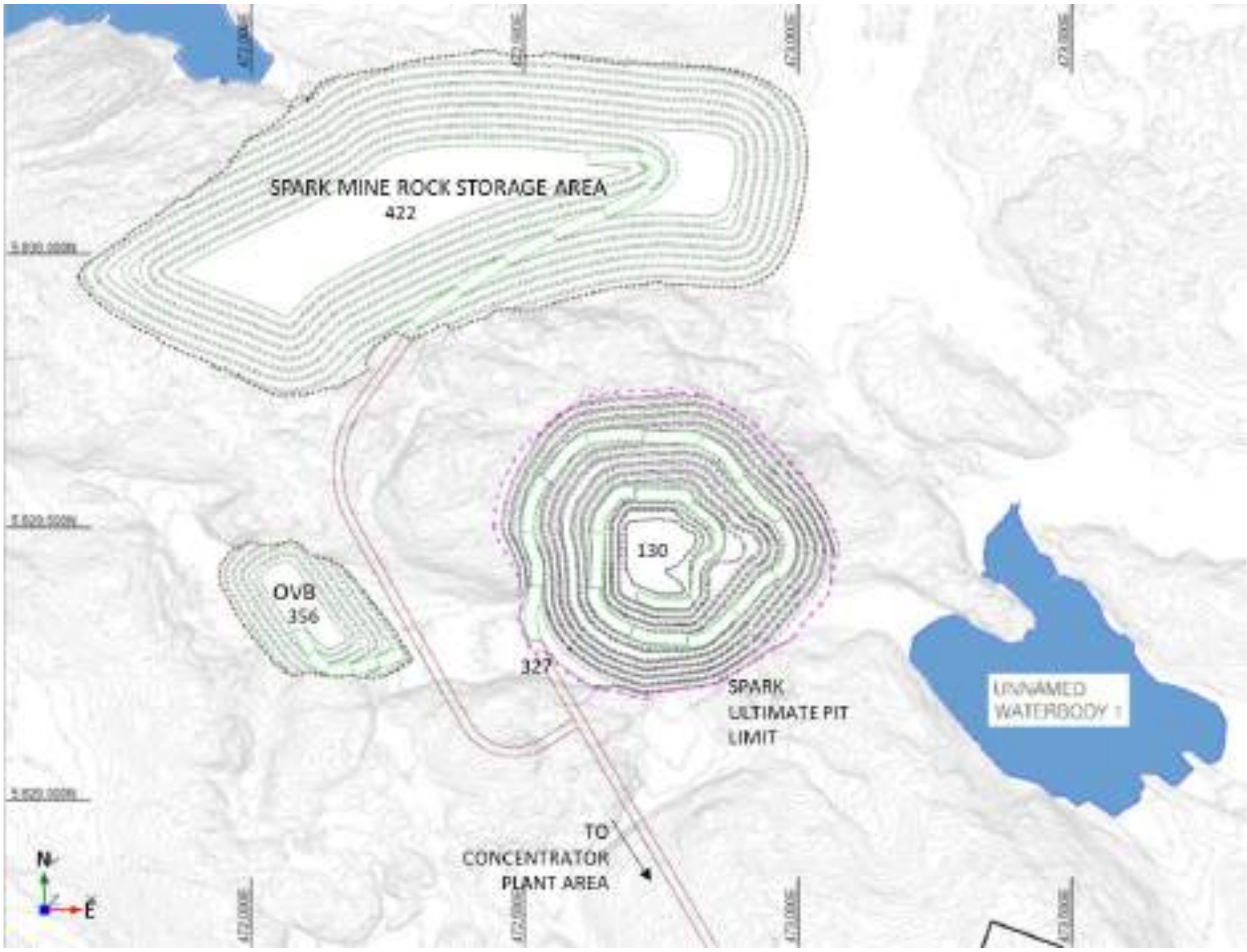


Figure 16-34: End of Year 24 Progression Plan, Spark

16.6 Open Pit Equipment Fleet

The following section discusses the fleet requirements that were estimated to carry out the open pit mine production plan. This section includes indicative parameters for drilling, blasting, loading, and hauling. The objective of equipment selection for this level of study is to produce an estimate of costs suitable for a PFS level study and not necessarily to design an optimized equipment fleet.

Although the rock density varies across the site and by rock type, the fleet calculations consider the average densities in the mineral reserves, which are 2.75 t/m^3 for ore, 2.86 t/m^3 for waste rock, and 1.9 t/m^3 for overburden.

All mining equipment will be diesel-powered.

For purposes of estimating typical fleet requirements, all equipment is assumed to be owned, operated and maintained by Frontier, with the exception of Drilling and Blasting Plant & Equipment.

Open pit mine operations are based on 365 days per year and correspond to operations running 2 x 12 hour shifts per day, 7 days per week, with the assumption that 35 operating days will be lost on average due to inclement weather and non-production days.

The selection of the primary fleet is based on the following parameters:

- Operating hours;
- Mechanical availability;
- Use of availability;
- Haulage distances;
- Cycle time;
- Truck speed;
- Equipment productivity.

The primary mining fleet consists of the following:

- The primary loading equipment for overburden, waste rock and ore consist of up to two diesel hydraulic excavators with a rated bucket capacity of 3.8 m^3 and 5.2 m^3 and up to two 6.7 m^3 front-end loaders.
- The haul truck fleet is based on two sizes of trucks. An articulated 40 t truck is planned at PAK, while a 64 t rigid frame truck is planned at Spark. The haul trucks have been sized to provide a good match to the waste loading units. The initial haul truck fleet consists of two 40 t trucks at PAK and will increase to a peak of six trucks in Years 12 and 13. At Spark, the initial haul truck fleet consists of two 64 t trucks and will increase to a peak of eight in Year 16.

Equipment Utilization Model

Table 16-13 and Table 16-14 presents the assumptions used in estimating the annual equipment production hours.

Table 16-13: Annual Hours Estimate

Item Descriptions	Loading Ore	Loading Waste	Hauling Ore	Hauling Waste
Calendar Days	365	365	365	365
Unscheduled Days	35	35	35	35
Total Scheduled Mining Days	330	330	330	330
Shifts per Day	1	2	1	2
Hours per Shift	12	12	12	12
Hours per Day	12	24	12	24
Total Schedule Hours	3,960	7,920	3,960	7,920
MA%	85	85	85	85
Down Time	594	1,188	594	1,188
Available Time	3,366	6,732	3,366	6,732
Standby Time	448	896	471	942
Utilized Time (GOH)	2,918	5,836	2,895	5,790
Operating Delays	730	973	482	965
Operating Time (NOH)	2,189	4,864	2,412	4,825

Table 16-14: Estimate for Operating Delays

Delays	Unit	Loading	Hauling
Shift change, Inspection, Start Up	hours/shift	0.25	0.25
Lunch Breaks, Breaks	hours/shift	1.00	1.00
Fuel, Lube, Service	hours/shift	0.17	0.25
Weather Delays	hours/shift	incl. in days	incl. in days
Blast Delays	hours/shift	0.10	0.10
No Operator / Other	hours/shift	0.08	0.08
Operating Efficiency (delays)	min/h	45	50

Drilling and Blasting

The drill and blast activities for the Project are to be undertaken by a contractor.

For purposes of cost estimating for the PFS study, the following assumptions were used by the contractor:

- The ore zones will be drilled using 4-inch diameter holes on a drilling pattern of 10 ft x 11 ft burden, 10 m bench, providing a powder factor of 1.0 kg/m^3.
- Waste rock areas will be drilled using 6.75-inch diameter holes on 10 m bench, providing a powder factor of 1.0 kg/m^3.

Blasting will be executed under contract with an explosives supplier that will supply the blasting materials and technology, as well as the equipment to store and deliver the explosives products. The explosives ingredients will be delivered to the mine site in containers by the explosives supplier.

It is assumed that wall control drill and blast methods will be required for final walls.

For the purposes of estimating the requirements, it has been assumed that the overburden material will be free digging.

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

Loading and Hauling

A backhoe type hydraulic excavator was envisioned for the ore loading. A 3.8 m^3 bucket capacity was assumed when estimating the ore loading fleet requirements at PAK and a 5.2 m^3 bucket capacity was assumed when estimating the ore loading fleet requirements at Spark. A front-end loader type of excavator was envisioned for the waste loading. A 6.7 m^3 bucket capacity was assumed when estimating the waste loading fleet requirements.

Loading fleet numbers have been estimated on first principles based on the operating hours required to achieve the production schedule, calculated by cycle times, and estimates of the equipment's rated capacities and productivities. The loading unit productivity assumptions are listed in Table 16-15.

Table 16-15: Loading and Hauling Productivity Calculations

Item Descriptions	Unit	Loading Ore		Loading waste		Loading OVB	
Example Model Excavator Type	model	EX374	EX395	CAT988	CAT988	CAT988	CAT988
Bucket Capacity	m³	3.8	5.2	6.7	6.7	6.7	6.7
	t	6.8	9.4	12.0	12.0	12.0	12.0
Example Model Haul Truck	model	CAT745	CAT775	CAT745	CAT775	CAT745	CAT775
Effective Payload	t	38.3	59.7	38.3	59.7	38.3	59.7
Dry Density (Avg)	t/m³	2.75	2.75	2.86	2.86	1.90	1.90
Swell Factor	-	1.40	1.40	1.40	1.40	1.20	1.20
Moisture	%	5	5	5	5	5	5
Fill Factor	%	85	85	83	83	87	87
Effective Bucket Capacity	m³	3.23	4.42	5.59	5.59	5.83	5.83
Tonnes / Pass	t/pass	6.7	9.1	12.0	12.0	9.7	9.7
No. of Passes	quantity	6.0	7.0	4.0	5.0	4.0	7.0
First Bucket Dump time	sec	3.0	3.0	3.0	3.0	3.0	3.0
Subsequent Bucket Cycle Time	sec	40.0	40.0	45.0	45.0	45.0	45.0
Truck Spot Time	sec	30.0	30.0	30.0	30.0	30.0	30.0
Total Load Time	min	3.9	4.6	2.8	3.6	2.8	5.1
Maximum Truck Loads per hour	loads/hour	15.5	13.2	21.4	16.9	21.4	11.9
Maximum Productivity	wet t/NOH	591	788	820	1,010	820	710
	dry t/NOH	565	748	779	959	779	674

Haul truck fleet numbers have been estimated on first principles based on the operating hours required to achieve the production schedule, calculated cycle times, and estimates of the equipment's rated capacities and productivities. Haul cycle times were estimated using MineSight MPSO software.

In the MineSight software, haul routes were traced according to mining centroids for the various cuts on every bench (and material). Subsequently, with these centroid distances and the respective tonnage per cut (per material) mined, the weighted and averaged distances were calculated.

For waste hauls, centroid and up-ramp distances were traced for the waste pile locations and ROM crusher/stockpile location.

Haulage travel speeds for the trucks were based on data within the MPSO database. A maximum speed of 40 km/h and 25 km/h in-pit were applied.

For each material type, the calculated cycle times were calculated based upon round-trip haulage profiles, the haul truck speeds, and on load/spot/dump times determined for each material. A graph showing the trend of cycle time over the LOM for each material type is shown in Figure 16-35.

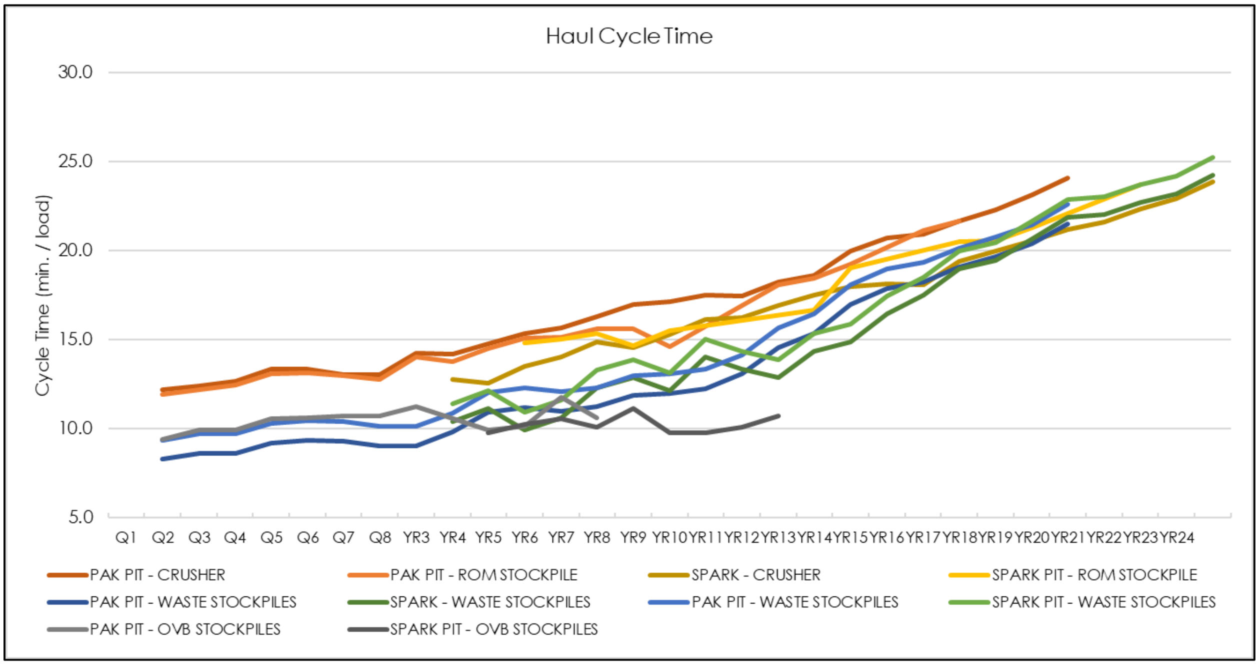


Figure 16-35: Haul Cycle Times

Other assumptions for the haul cycles include:

- 3% rolling resistance;
- loading time calculated from excavator type, including spot time;
- 1.2 min for dumping time, including spot time.

Auxiliary Equipment

To complement the primary mining equipment fleet, a list of auxiliary and support equipment was developed by BBA based on experience in similar open pit mining operations. The requirements for auxiliary support equipment were determined primarily based on the scale of the operation, the size and number of active waste rock stockpiles and length of haul roads to be maintained. The list excludes Drilling & Blasting auxiliary equipment as these would be provided by a contractor.

Table 16-16: Estimated List of Ancillary Mine Equipment

Auxiliary and Support Equipment	No. of Units
Track Dozer	2
Wheel Dozer	1
Road Grader	2
Wheel Loader – ROM	1
Water Truck	1
Utility Excavator	1
Utility Loader	1
Maintenance Field & Service Trucks	1
Fuel/Lube Truck	1
Tire Handler	1
Light Vehicles	9
Crew Buses	1
Portable Light Towers	up to 8
In-pit Sump Dewatering Pumps	up to 4

Table 16-17 provides the number of equipment units estimated to be operating on an annual basis.

Table 16-17: Pit Equipment List

Pit Operations Equipment List		Pre	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15	Y16	Y17	Y18	Y19	Y20	Y21	Y22	Y23	Y24	Y25
Major Equipment																											
Haul Trucks - Type 1	CAT745	0	2	3	3	3	3	3	3	3	3	3	5	6	6	5	2	2	2	2	2	2	1	1	1	1	0
Haul Trucks - Type 2	CAT775	0	0	0	2	3	3	3	4	5	5	5	5	5	7	7	7	8	5	5	4	4	4	4	4	4	0
Excavator - Type 1	EX374	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0
Excavator - Type 2	EX395	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Excavator - Type 3	CAT988	0	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	0
Production Drill - Type 1	CONTRACTOR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Support Equipment																											
Track Dozer	CAT D9	0	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	0
Wheel Dozer	CAT 824K	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Road Grader	CAT14	0	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	0
Wheel Loader - Rom Pad	CAT 980	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Utility Loader	CAT 972	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Utility Excavator	CAT 352	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Water Truck / Sand Spreader	CAT 745 WATER	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Lighting Plant		0	4	4	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	4	4	4	4	0
Service Equipment																											
Fuel & Lube Truck	CAT745 FUEL/LUBE	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Mechanic Service Truck		0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Lowboy		0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Transport Bus - Crew		0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Light Vehicles		0	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	0
In-pit Sump Pump		0	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	4	4	4	2	2	2	2	0
Tire Service Truck		0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0

16.7 Open Pit Mine Personnel Requirements

The personnel requirement for the open pit mine includes the hourly staff working in open pit operations that are required for the operation and maintenance of the equipment involved with or supporting mining activities, as well as the salaried engineering, geology and supervisory staff.

The number of operators required for the major mining equipment (loading and hauling) was determined according to the number of operating units and number of rotations during which the equipment is in operation. Most of the operators for the major mine equipment are based on a four-crew rotation. Mine maintenance personnel requirements were determined based on a ratio to the pit equipment operators.

The mine labour is based on operating crews on a 14-day on 14-day off rotation.

Table 16-18: Estimated List of Open Pit Personnel

Pit Operations Labour List		Pre	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15	Y16	Y17	Y18	Y19	Y20	Y21	Y22	Y23	Y24	Y25
Mine Operations		**0**	**27**	**45**	**59**	**61**	**63**	**65**	**67**	**71**	**73**	**77**	**83**	**87**	**93**	**89**	**75**	**77**	**67**	**67**	**63**	**65**	**51**	**51**	**51**	**47**	**0**
Mine Superintendent	Cross-shift with Tech Super.	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Pit Supervisor		0	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	0
Training		0	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	0	0
Mine Clerk		0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0
Equipment Operators		0	14	30	40	42	44	46	48	52	54	58	64	68	74	70	56	58	48	48	44	46	36	36	36	36	0
Labourer		0	4	4	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	4	4	4	4	0
Driller		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drill Helper		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Blaster		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Blaster Helper		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mine Maintenance		**0**	**7**	**9**	**13**	**13**	**13**	**13**	**13**	**15**	**15**	**17**	**19**	**21**	**23**	**21**	**17**	**17**	**13**	**13**	**13**	**13**	**11**	**11**	**11**	**11**	**0**
Maintenance Superintendent	Use Concentrator Plant Super.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Supervisor		0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0
Maintenance Planner	No Cross Shift	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Maintenance Crew	Mechanics, Electricians, Welders, Labourers, etc. build up to max	0	4	6	10	10	10	10	10	12	12	14	16	18	20	18	14	14	10	10	10	10	8	8	8	8	0
Technical Services		**0**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**0**
Technical Services Manager		0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Mining Engineer		0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0
Project Engineer / Geotechnical Engineer	No Cross Shift	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Geologist		0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0
Sampler		0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0
Surveyor		0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0
Total Pit Operations		**0**	**44**	**64**	**82**	**84**	**86**	**88**	**90**	**96**	**98**	**104**	**112**	**118**	**126**	**120**	**102**	**104**	**90**	**90**	**86**	**88**	**72**	**72**	**72**	**68**	**0**

16.8 Pit Dewatering

The progressive development of the open pits will result in increasing water infiltration from precipitation and groundwater inflows. As the pits deepen and increase in footprint, it will be necessary to control water inflow through the construction of in-pit dewatering systems such as drainage ditches, in-pit sumps, pipelines and pumps.

In the pit, dewatering sumps are to be utilized to contain groundwater and storm water run-off, which would be pumped directly to a settling pond.

An allowance has been included in the open pit capital and operating costs for in-pit dewatering through in-pit sumps. In-pit dewatering will be accomplished by diesel driven pumps for the calculated water inflow and will be stationed at the pit floor sump. As the pits get deeper, booster pumps ae expected to be required when the elevation passes approximately 160 m. Water will be pumped through high-density polyethylene pipe of appropriate diameter and discharged into a settling pond to allow for settlement of suspended solids to meet environmental requirements.

Groundwater inflows were estimated for PAK and Spark pits at the PFS Level. For reference, the methodology, all parameters used as well as the complete and detailed results can be found in the full Hydrogeological report from BBA dated March 29, 2023 (Piciacchia et al., 2023).

To serve as a comparison to previously existing dewatering estimates made by Golder, BBA built a first, simplified analytical prediction tool using the available data around PAK Pit and Spark Pit. The following assumptions were made:

- Calculations are based on Darcy's Law.
- **Surface areas** are interpolated each year for both pits as a linear function of their final planned cross-sections. The total surface area is further subdivided into up to three sub-cross-sections (the Overburden, the Upper Bedrock, and the Lower Bedrock) according to the advancing depth of the pits over the years.
- **Hydraulic gradients** are calculated differently depending on the hydrogeological units. For the Overburden, it is a static, average value calculated using available values of piezometry. For the Upper and Lower Bedrock, gradients are assumed to be driven by a combination of the pit depths and their proximity to Pakeagama Lake and Un-named Waterbody #1, and thus are recalculated each step as the pits reach deeper levels.
- **Hydraulic conductivities** for the Overburden around PAK Pit and Spark Pit were obtained by averaging all available values. For the Upper and Lower Bedrock, the original hypothesis of 10^{-6} m/s and 10^{-7} m/s postulated by Golder in their calculations was reused for this analytical model.

Using the above-mentioned assumptions, annual dewatering flowrates for both pits were calculated over a period of 18 years for PAK Pit and 21 years for Spark Pit. The results are presented in Figure 16-36. For PAK Pit, the estimates culminate at 1,185 m³/day at the end of the pit's life and for Spark, it culminates at 1,702 m³/day. Both estimates are comparable to Golder's, and well within the same order of magnitude.

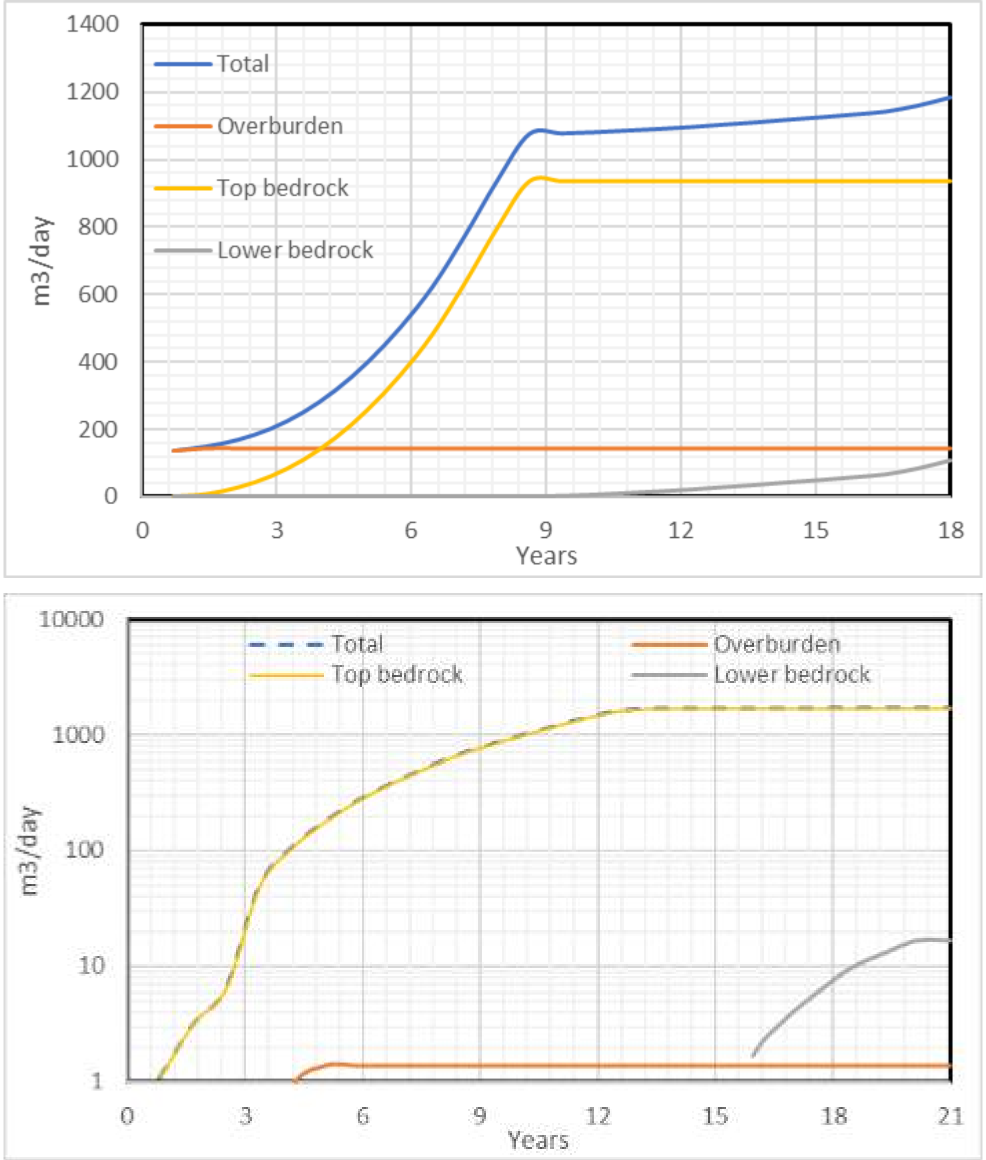


Figure 16-36: Analytical Dewatering Flowrates Estimates for PAK Pit (top) and Spark Pit (bottom) by Year

After the initial round of comparison against Golder's analytical model, BBA built a second more precise and robust, 3D finite element model of the region surrounding PAK Pit constructed in FeFlow. This second model, because it is more complex and data-driven than the analytical tool, could not be extended to include Spark Pit, which is not sufficiently characterized as of this PFS. It shows that the overburden contributes only minimally to the total dewatering flowrate after the first 2 years. At the end, it is the Lower Bedrock that contributes the most, 1,217 m³/day, while the Upper Bedrock contributes the remaining 335 m³/day, for a total of 1,561 m³/day. Figure 16-37: shows the annual dewatering flowrates according to the numerical simulations.

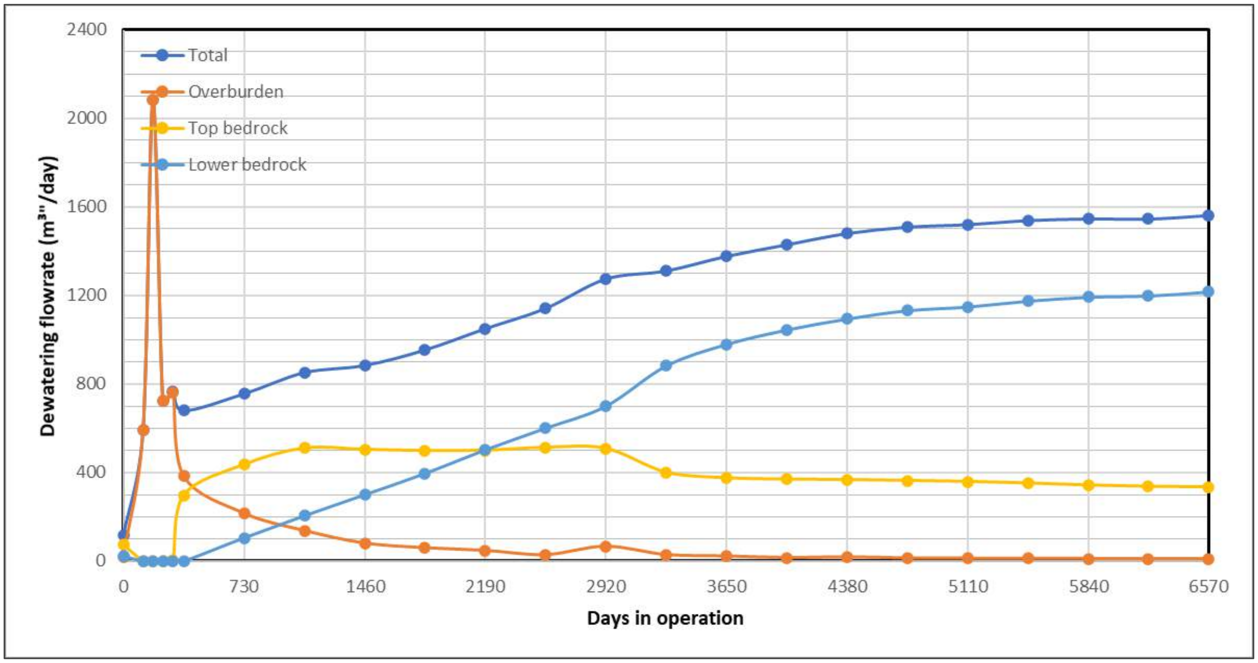


Figure 16-37: Numerical Model's Yearly Dewatering Flowrates

16.9 Geotechnical Evaluation

A PFS geotechnical evaluation for the PAK Project was completed by Golder (now WSP) in 2018. WSP completed the PFS geotechnical evaluation for the Spark project in 2023, in addition to the waste rock dump and overburden piles for both the PAK and Spark projects.

Both the PAK and Spark lithium deposits can be described as mineralized sub-vertical pegmatite plutonic intrusions within metasedimentary and metavolcanic host rock.

The geotechnical evaluation provides the life of mine geotechnical design parameters derived from the characterization of the rock mass and geological discontinuities for the proposed open pits and waste dumps.

The field investigation for the PAK Deposit was completed in February 2017 and involved drilling four geotechnical boreholes within the PEA shell. For the Spark Deposit, seven geotechnical holes were completed within the proposed PFS shell. All holes were geomechanically logged at the Project site to inform on subsurface geotechnical characterization of the rock slopes.

Rock core samples were selected to determine Unconfined Compressive Strength ("UCS") and direct shear strength of the discontinuity surfaces. A design friction angle was determined for the pits considering the testing results and the various lithological units. For both sites, all rock types are typically very strong (UCS >100 MPa) with moderate joint spacing. The rock was determined as average good quality rock for both rock quality designation ("RQD") and RMR89 (Rock Mass Rating) Classification systems. Given the competency (high RMR and strength), global rock mass failure is not a concern. Stope designs (inter-ramp angles) will be controlled by the geometry of achievable benches and major structures adversely oriented with respect to pit walls.

Discontinuity sets and associated orientations were assessed and used to define various geotechnical domains within the proposed pits. Kinematic analyses were completed to determine the potential failure modes within the various domains of the proposed pit.

Limit equilibrium analyses were completed to determine both the overall pit walls and waste dump stability, including overburden stockpiles. Several hydrogeological scenarios, including completely dewatered, fully saturated, and partially dewatered were considered in the global stability analyses. The overall pit wall stability was analyzed for varying rock strengths and blast damage scenarios. The waste dump stability was analyzed considering bedrock strength, various strengths of waste rock materials and overburden characteristics to ensure an acceptable resultant factor of safety.

Bench face angle, bench widths, and inter-ramp angle were determined for the pit walls. The recommended inter-ramp angles for the Project vary from 50.0°to 55.3° based on a 200-m pit depth for PAK and a 210-m pit depth for Spark.

The full intent of the field program was to provide in situ parameters for the ultimate open pit design. Data provided in the field logging program was sufficient for the level of study, however, further studies are recommended for data collection and optimization of geotechnical design parameters for future studies.

17. Recovery Methods

The mineral processing operation will be located at the PAK mine site approximately 175 km north of Red Lake. The ore mined from the PAK and Spark deposits will be processed in separate concentrator plants for the designated purpose of producing 7.2% Li_2O technical grade and 6.0% Li_2O chemical grade concentrates, respectively. Due to the different objectives of the processing flowsheets, and the delayed timing for producing chemical grade concentrate, it was necessary to separate the two operations as additional equipment and facilities will be required such as the fine ore bin and concentrate dewatering and storage areas. The separate operations allow for a more efficient operation with greater flexibility. This approach also allows phasing of the Project to allow construction and operation of the smaller scale technical concentrate operation ahead of the larger tonnage chemical concentrate operation. It is anticipated that transportation of the annual production of technical grade concentrate will be feasible using the current seasonal winter road. This option for transportation of the chemical grade concentrate production will not be feasible and construction of an all-season road is required.

All throughput and mass balance calculations used as the basis of design were based on an average production of mill feed to produce 40,000 tonnes per annum (“tpa”) of technical grade concentrate and 160,000 tpa of chemical grade concentrate, with the latter designed to supply a 20,000 tpa LCE (lithium carbonate equivalent) chemicals plant.

The downstream chemicals plant will be constructed in a Great Lakes port city in Northern Ontario. Due to the current market bifurcation between battery chemistries in industry, the ability to produce both lithium hydroxide and lithium carbonate will be facilitated in the plant.

17.1 Concentrator Plants

The two spodumene concentrator plants will be constructed as a single facility and will be located at the mine site. The concentrators are strategically located between the PAK and Spark deposits, taking efficient ore hauling and operation into consideration. A general arrangement plan is provided in Figure 17-1.

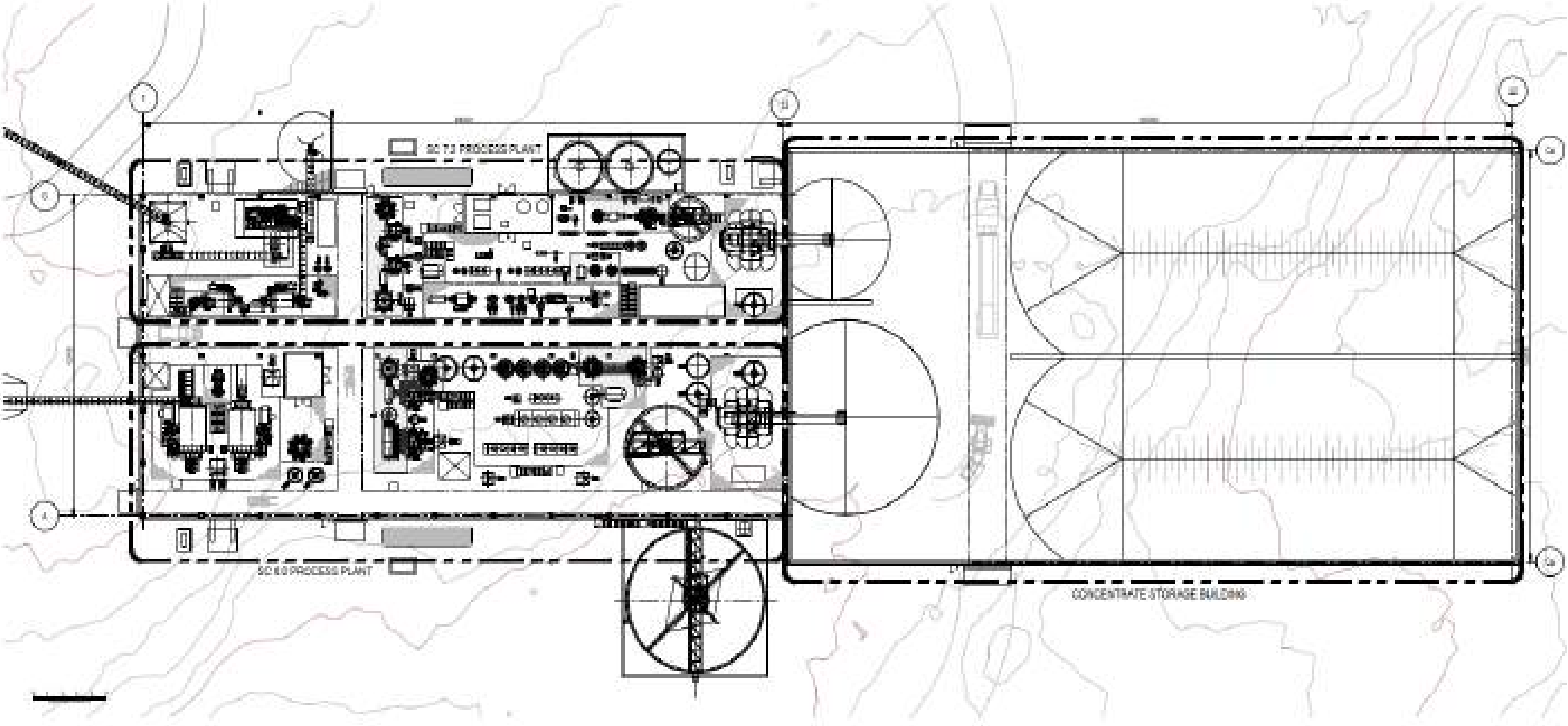


Figure 17-1: Mill Concentrator and Storage Building for SC 6.0 and SC 7.2 – Plan View

17.1.1 Concentrator Flowsheet Development

Chapter 13 of this report provides a summary of the metallurgical test work to date. The most recent phase of metallurgical testing was completed at SGS Canada to investigate new conceptual flowsheets, which included samples from the fairly recent Spark deposit discovery and samples from the PAK deposit that had been revisited to optimize the flowsheet and conditions. The test work involved a bulk sample from the Spark deposit along with a series of variability samples. Testing of the Spark bulk sample involved a pilot plant that produced sufficient material for conducting downstream test work of the hydrometallurgical process required to produce lithium chemicals. As there was a considerable amount of past testing completed with samples from the PAK deposit, only a single bulk sample was provided for the program that involved DMS processing and locked cycle testing.

The metallurgical test work results confirmed the suitability of the new conceptual flowsheets. The process design provides design parameters for the production and storage of spodumene concentrate in the Concentrator facilities on site.

General processing plant descriptions are provided within this chapter. The development of viable flowsheets for the production of technical and chemical grade spodumene concentrates served as the basis for both the mill design model and capital cost estimate. Subsequently, information from the resultant mill concentrator models as well as vendor budget pricing contribute to the overall capital and operating cost estimates presented in Chapter 21.

17.1.2 Process Design Criteria – Concentrator Plants

The throughput and mass balance calculations used as the basis of design for the technical grade concentrator were based on the average production of 40,000 tpa of technical grade concentrate (7.2% Li_2O). In the criteria it is assumed that all solid masses, typically tonnes, are dry and metric unless stated otherwise. At the average head grade of 1.79% Li_2O, this level of production requires processing 207,360 tpa with an average daily production of 568 tpd (26 tph) assuming 92% availability. Preconcentration of the ore using dense media separation ("DMS") rejects up to 40% of the ROM, thereby reducing the comminution and flotation throughput to 15 tph on a design basis.

The throughput and mass balance calculations used as the basis of design for the chemical grade concentrator were based on the average production of 160,000 tpa of chemical grade concentrate (6.0% Li_2O). At the average head grade of 1.50% Li_2O, this level of production requires processing 766,505 tpa of feed and an average daily production of 2,100 tpd (95 tph) assuming 92% availability. The metallurgical test work indicated that the Spark ore is not suitable for preconcentration using DMS.

The overall Process Design Basis is summarized in Table 17-1 and Table 17-2. Simplified flowsheets are presented in Figure 17-2 and Figure 17-3. The following sections describe the planned plant, its equipment and operation.

Table 17-1: Concentrator Process Design Basis - Technical Grade

Concentrator Plant Mass Ballance – Technical Grade										
Unit Operation	**Stream**	**Solids (tph)**	**Solids SG**	**Solids (m^3/h)**	**Water (m^3/h)**	**Total (tph)**	**Total (m^3/h)**	**Pulp SG**	**% Solids**	**Notes**
Fresh Feed - Ore	TG ROM Feed	32.6	2.73	11.9	1.7	34.3	13.7	2.51	95.0	-
DMS Screen	TG Feed Prep Screen U/S	4.1	2.73	1.5	38.4	42.5	39.9	1.07	9.7	-
	TG DMS Screen Feed	25.7	2.73	9.4	1.4	27.1	10.8	2.51	95.0	-
	TG DMS Water Feed	0.0	2.73	0.0	40.9	40.9	40.9	1.00	0.0	-
DMS Separation	TG DMS Sinks	11.3	2.73	4.1	2.0	13.3	6.1	2.17	85.0	-
	TG DMS Floats	10.3	2.73	3.8	1.8	12.1	5.6	2.17	85.0	Discard Material
	TG DMS Effluent	0.0	2.73	0.0	40.0	40.0	40.0	1.00	0.0	-
Grinding	TG Rod Mill Head Water	0.0	2.73	0.0	2.9	2.9	2.9	1.00	0.0	-
	TG Rod Mill Discharge Undersize	11.3	2.73	4.1	4.9	16.2	9.0	1.80	70.0	-
	TG Ball Mill Head Water	0.0	2.73	0.0	0.0	0.0	0.0	1.00	0.0	-
	TG Ball Mill Discharge Undersize	23.2	2.73	8.5	10.4	33.5	18.8	1.78	69.1	-
Desliming	TG Hydrosizer Feed Tank Water	0.0	2.73	0.0	42.1	42.1	42.1	1.00	0.0	-
	TG Hydrosizer Feed	38.6	2.73	14.1	95.7	134.3	109.8	1.22	28.7	-
	TG Hydrosizer Underflow	23.2	2.73	8.5	10.4	33.5	18.8	1.78	69.1	-
	TG Hydrosizer Cyclone Overflow	1.0	2.73	0.4	87.7	88.7	88.1	1.01	1.1	-
	TG Hydrosizer Cyclone Underflow	14.4	2.73	5.3	9.6	24.1	14.9	1.61	60.0	-
Ta Removal	TG Gravity Concentrator Feed	14.4	2.73	5.3	33.7	48.1	39.0	1.23	30.0	-
	TG Gravity Concentrator Fluidization Water	0.0	2.73	0.0	8.0	8.0	8.0	1.00	0.0	-
	TG Gravity Concentrator Ta Concentrate	0.6	2.73	0.2	0.9	1.4	1.1	1.34	40.0	-
	TG Gravity Concentrator Tails	13.9	2.73	5.1	40.8	54.7	45.9	1.19	25.3	-
Flotation	TG Phos. Rougher Flotation Feed	13.2	2.73	4.8	24.5	37.8	29.4	1.29	35.0	-
	TG Phos. Rougher Tails	13.1	2.73	4.8	24.7	37.8	29.5	1.28	34.7	-
	TG Phos. Cleaner Concentrate	0.1	2.73	0.0	0.3	0.5	0.4	1.19	25.0	Discard Material
	TG Phos. Cleaner Tails	0.0	2.73	0.0	0.1	0.1	0.1	1.19	25.0	-
	TG Mica Rougher Flotation Feed	13.1	2.73	4.8	26.6	39.7	31.4	1.26	33.0	-
	TG Mica Rougher Tails	12.3	2.73	4.5	24.8	37.2	29.4	1.27	33.2	-
	TG Mica Cleaner Concentrate	0.8	2.73	0.3	2.3	3.0	2.5	1.19	25.0	Discard Material

Concentrator Plant Mass Ballance – Technical Grade										
Unit Operation	**Stream**	**Solids (tph)**	**Solids SG**	**Solids (m³/h)**	**Water (m³/h)**	**Total (tph)**	**Total (m³/h)**	**Pulp SG**	**% Solids**	**Notes**
	TG Mica Cleaner Tails	0.0	2.73	0.0	0.6	0.6	0.6	1.02	3.8	-
	TG Spod. Rougher Flot Feed	13.4	2.73	4.9	24.8	38.2	29.7	1.29	35.0	-
	TG Spod. Rougher Tails	6.3	2.73	2.3	3.6	9.9	5.9	1.68	63.8	-
	TG Spod. 1st Cleaner Total Feed	7.8	2.73	2.8	36.1	43.9	39.0	1.13	17.7	-
	TG Spod. 3rd Cleaner Concentrate + Water	5.9	2.73	2.2	13.0	19.0	15.2	1.25	31.3	-
Tailings Thickener	TG Tails Pump Discharge	9.0	2.73	3.3	264.3	273.3	267.6	1.02	3.3	-
TG Concentrate Dewatering	TG Spod. Final Concentrate	5.9	2.73	2.2	13.8	19.7	16.0	1.23	29.8	-
	TG Conc Thickener U/F	5.9	2.73	2.2	4.8	10.7	7.0	1.54	55.0	-
	TG Conc Filter Press Cake	5.9	2.73	2.2	0.6	6.5	2.7	2.36	91.0	-

Table 17-2: Concentrator Process Design Basis - Chemical Grade

Concentrator Plant Mass Balance - Chemical Grade										
Unit Operation	**Stream**	**Solids (tph)**	**Solids SG**	**Solids (m^3/h)**	**Water (m^3/h)**	**Total (tph)**	**Total (m^3/h)**	**Pulp SG**	**% Solids**	**Notes**
Fresh Feed - Ore	CG ROM Feed	128.9	2.76	46.7	6.8	135.7	53.5	2.54	95.0	-
Grinding	CG ROD Mill Head Water	0.0	2.76	0.0	35.8	35.8	35.8	1.00	0.0	-
	CG ROD Mill Discharge Undersize	95.1	2.76	34.5	40.8	135.9	75.2	1.81	70.0	-
	CG Ball Mill Head Water	0.0	2.76	0.0	0.0	0.0	0.0	1.00	0.0	-
	CG Ball Mill Discharge Undersize	142.7	2.76	51.7	63.7	206.4	115.4	1.79	69.1	-
Desliming	CG Hydrosizer Feed Tank Water	0.0	2.76	0.0	655.5	655.5	655.5	1.00	0.0	-
	CG Hydrosizer Feed	237.8	2.76	86.1	760.0	997.8	846.2	1.18	23.8	-
	CG Hydrosizer Underflow	142.7	2.76	51.7	63.7	206.4	115.4	1.79	69.1	-
	CG Hydrosizer Cyclone Overflow	6.2	2.76	2.2	726.2	732.4	728.5	1.01	0.8	-
	CG Hydrosizer Cyclone Underflow	88.9	2.76	32.2	59.3	148.2	91.5	1.62	60.0	-
Ta Removal	CG Gravity Concentrator Feed	93.1	2.76	33.7	217.3	310.4	251.0	1.24	30.0	-
	CG Gravity Concentrator Fluidization Water	0.0	2.76	0.0	20.0	20.0	20.0	1.00	0.0	-
	CG Gravity Concentrator Ta Concentrate	3.7	2.76	1.3	14.9	18.6	16.2	1.15	20.0	-
	CG Gravity Concentrator Tails	89.4	2.76	32.4	222.4	311.8	254.8	1.22	28.7	-
Flotation	CG Mica Rougher Flotation Feed	79.1	2.76	28.6	146.8	225.9	175.5	1.29	35.0	-
	CG Mica Rougher Tails	74.5	2.76	27.0	130.6	205.1	157.6	1.30	36.3	-
	CG Mica Cleaner Concentrate	4.6	2.76	1.7	20.3	24.8	21.9	1.13	18.4	Discard Material
	CG Mica Cleaner Tails	0.1	2.76	0.0	2.5	2.7	2.6	1.03	5.0	-
	CG Spod. Rougher Flot Feed	78.0	2.76	28.3	144.9	222.9	173.2	1.29	35.0	-
	CG Spod. Rougher Tails	53.5	2.76	19.4	71.3	124.8	90.7	1.38	42.9	-
	CG Spod. Rougher Concentrate + Water	24.5	2.76	8.9	75.6	100.1	84.5	1.19	24.5	-
	CG Spod. 2nd Cleaner Concentrate + Water	20.2	2.76	7.3	62.7	82.9	70.0	1.18	24.4	-
Tailings Thickener	CG Tails Pump Discharge	75.4	2.76	27.3	1282.8	1358.2	1310.1	1.04	5.5	-
TG Concentrate Dewatering	CG Spod. 2nd Cleaner Concentrate	20.2	2.76	7.3	60.7	80.9	68.0	1.19	25.0	-
	CG Conc Thickener U/F	20.2	2.76	7.3	16.6	36.8	23.9	1.54	55.0	-
	CG Conc Filter Press Cake	20.2	2.76	7.3	2.0	22.2	9.3	2.38	91.0	-

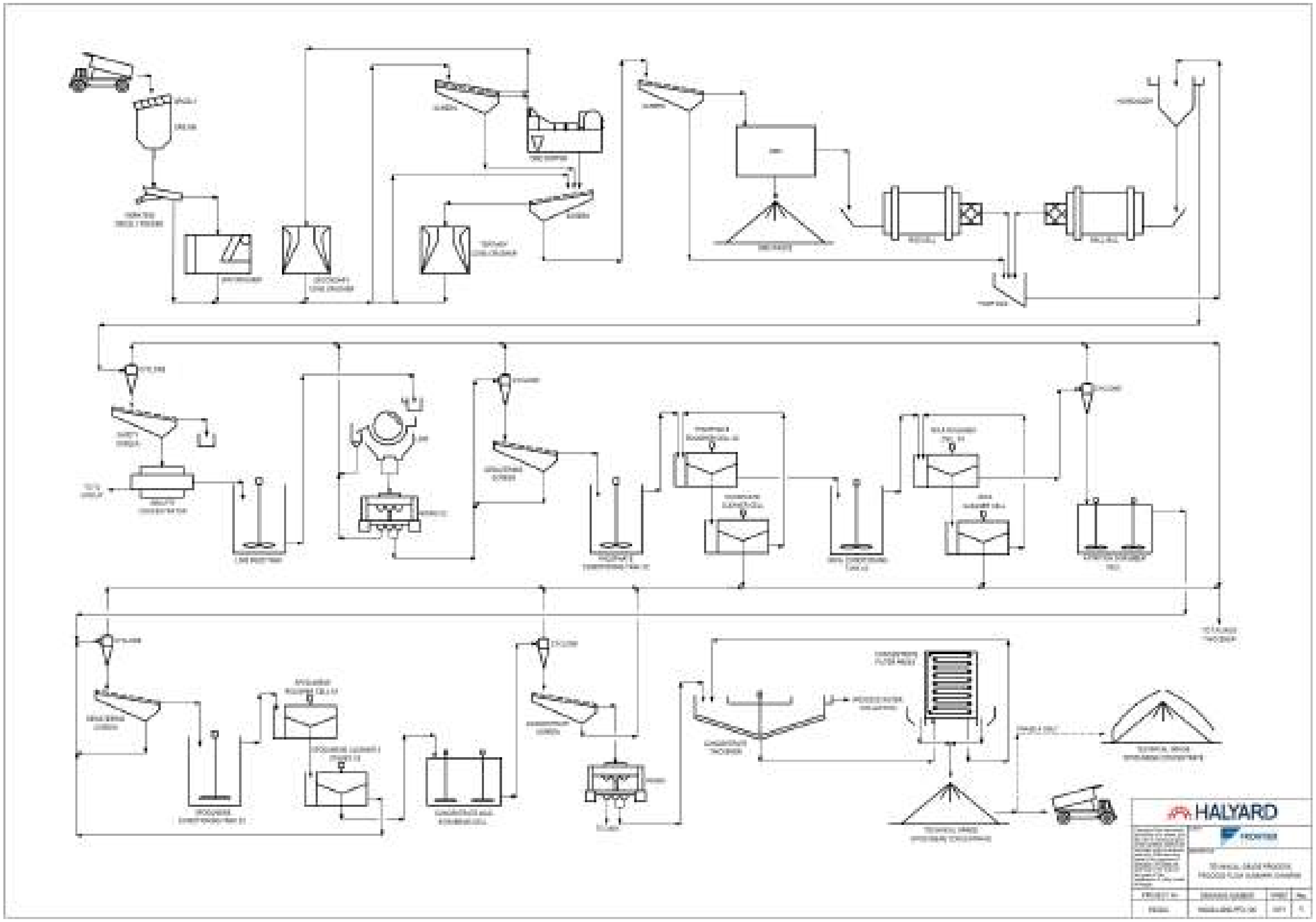


Figure 17-2: Technical Grade Plant - Overall Process Flow Diagram

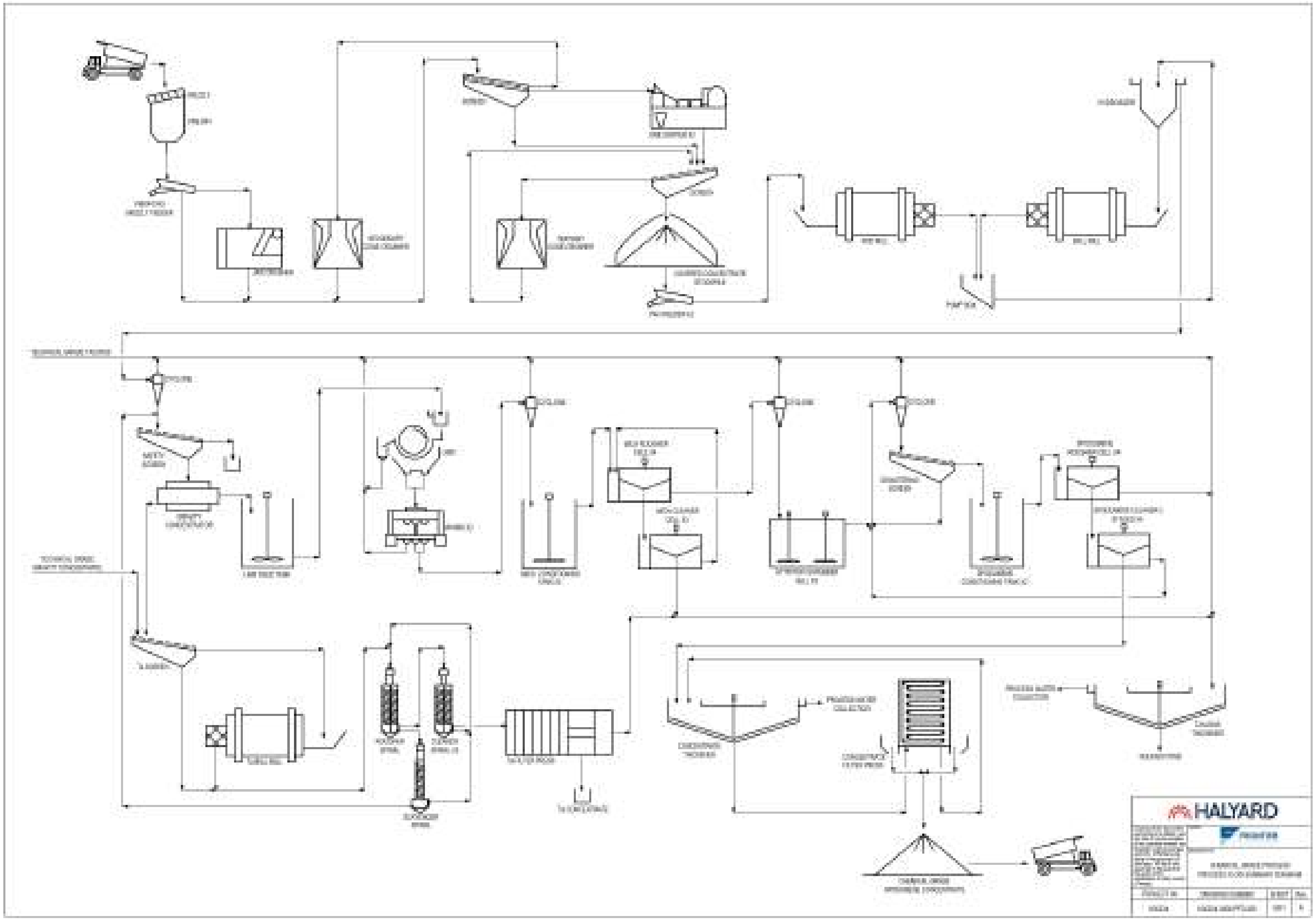


Figure 17-3: Chemical Grade Plant - Overall Process Flow Diagram

17.1.3 Crushing and Ore Sorting

Each concentrator circuit will be serviced by a dedicated crushing plant that starts with the dedicated hopper and primary crusher, a separate line for each ore type, and which also includes particle ore sorting after the secondary crushing stage to remove the mafic mineralization

The crushing circuits are designed to reduce ROM ore with an approximate moisture content of 2% and a F_{80} of 400 mm to feed the concentrator at a P_{100} of 13 mm for the PAK circuit and 19 mm for the Spark circuit. The inclusion of ore sorting in the crushing circuits allows rejection of the majority of the mafic minerals that are detrimental to the flotation operation.

ROM ore is transported by truck from the open pits and dumped into a grizzly/hopper prior to the respective primary crusher. Oversized material is reduced with a hydraulic rock breaker installed at the truck dump/grizzly.

The primary jaw crusher reduces the ROM ore to a P_{80} size of 78 mm. The primary crusher is a jaw-type, with an average operating capacity of 20 tph for the PAK plant and 92 tph for the Spark plant. A belt magnet is located on the secondary screen conveyors to remove tramp ferrous material entrained in the ore before it reports to the secondary and tertiary crushers.

From the primary crusher, crushed ore drops onto a triple-deck screen for Spark and double-deck screen for PAK, which classifies undersize to bypass the secondary crusher. For the Spark crushing plant, apertures for the screens are selected at 50 mm, 25 mm and 13 mm. The +50 mm material reports to the secondary crusher in closed-circuit, with the -50/+25 mm and -25/+13 mm fractions reporting to their respective ore sorter. For the PAK crushing plant, apertures of 38 mm and 13 mm are selected. The +38 mm reports to the secondary crusher with -38/+13 mm reporting to the single ore sorter. The secondary crushers are a cone type, with a predicted operating capacity of 122 tph for the Spark crushing plant and 65 tph for the PAK crushing plant. The secondary cone crushers are expected to have a closed side setting of 38 mm.

The ore sorting product reports to the tertiary crusher to complete crushing to the -13 mm for feeding the rod mill in the Spark concentrator and DMS plant in the case of the PAK concentrator. The tertiary crusher feed screen size is selected at 13 mm. Screen oversize material reports to the tertiary crusher. The tertiary crusher is a cone type, with a predicted operating capacity of 131 tph for the Spark crushing plant and 37 tph for the PAK crushing plant. The tertiary cone crushers are expected to have a closed side setting of 15 mm.

For the Spark plant, the tertiary screen undersize reports to the load-out conveyor that carries the ore through a heated gallery to a 1,000 t capacity fine ore stockpile located ahead of to the concentrator building. For the PAK plant, the conveyor delivers material to the 250 t capacity fine ore bin located within the concentrator building.

A baghouse collects dust at the ore transfer points within the crushing buildings, and discharges collected dust to a slurry box to be pumped to the rod mill.

17.1.4 Fine Ore Storage

The fine ore storage stockpile (Spark) and bin (PAK) for the concentrators are designed to provide storage of crushed ore prior to feeding the concentrator, and surge capacity between the crushing circuit and concentrator in order to allow for different maintenance requirements.

Ore discharged from the crushing circuit is conveyed to the fine ore storage bin. The Spark fine ore stockpile has a design capacity of 1,000 t to provide for at least 2 days worth of concentrator operating capability. Ore is extracted from the stockpile by reclaim feeders at a controlled rate to the rod mill feed conveyor.

The PAK fine ore bin has a design capacity of 250 t to provide for 2 days worth of concentrator operating capability. Ore is extracted by reclaim feeders at a controlled rate to feed the rod mill feed conveyor. The ore bin is located within the concentrator building to avoid potential freezing of the bin contents during winter months.

17.1.5 Dense Media Separation

A DMS circuit is incorporated at the front end of the PAK concentrator facility as a method to remove barren felsic material ahead of flotation. It also provides a reduction of the comminution energy required and upgrading the mill feed that improves performance.

A single-stage DMS circuit is included, based on test work and pro-forma calculations that set the DMS Plant design parameters to:

- DMS plant nominal feed rate: 22 tph;
- DMS plant nominal feed size range: -13/+0.8 mm;
- DMS separator d_{50} cut-point specific gravity: 2.70 SG;
- Medium: a mixture of milled ferrosilicon and magnetite.

The DMS feed preparation screen oversize (> 0.8 mm) reports to a DMS cyclone. Underflow from the cyclone reports to the grinding circuit and overflow feeds the integral floats screen and reports to the DMS waste stockpile.

The DMS feed screen undersize reports to the grinding circuit.

17.1.6 Grinding and Desliming

The grinding circuit is designed to produce feed slurry fine enough for effective Flotation.

It employs a conventional rod\ball mill circuit operating in closed-circuit to attain a final product size P_{80} of 200 µm for feed to flotation.

Product of the ball mill is pumped to the first phase desliming cyclone cluster. Cyclone overflows are classified as slimes (<10 µm) and are rejected to the tailings thickener. The cyclone underflow feeds a centrifugal gravity separator employed to recover tantalum.

17.1.7 Tantalum Removal/Concentration

The tantalum recovery process allows for the production of a saleable tantalum by-product.

A centrifugal gravity separator produces an initial gravity concentrate that is further upgraded by a series of spiral gravity separators. The recovered tantalum concentrate is then dewatered and bagged for sale as a by-product.

Tantalum concentration rejects are returned to the main circuit for spodumene recovery.

17.1.8 Magnetic Separation and Dewatering Cyclone

Wet high-intensity magnetic separation ("WHIMS") allows for the rejection of the mafic minerals and tramp iron from the flotation feed. The mafic minerals possess paramagnetic properties due to the low-level iron content and can be recovered using high magnetic intensities. The designed magnetic separation circuit includes primary and secondary WHIMS units.

The non-magnetic fraction reports to a dewatering cyclone to reject residual slimes and water added by the centrifugal gravity concentrator and WHIMS units. The magnetic fraction is rejected to the tailings thickener.

17.1.9 PAK Flotation Circuit

The PAK ore will be utilized to produce the high-grade technical grade concentrate at 7.2% Li_2O. Along with the high-grade of lithium in the concentrate that needs to be produced, there are a number of impurities such as phosphate and iron that need to be rejected to meet stringent commercial specifications.

17.1.9.1 Phosphate Flotation Circuit

The phosphate flotation circuit is employed to remove phosphate minerals ahead of spodumene flotation, which would report to the spodumene concentrate causing the impurities to exceed the technical grade concentrate specification.

The phosphate flotation circuit is fed by the deslimed slurry after magnetic separation together with fatty acid collector and the slurry is conditioned at high-density prior to flotation. The circuit consists of a rougher bank of cells along with a cleaner bank to recover spodumene lost due to entrainment in the rougher cell froth. The phosphate cleaner tails combined with the phosphate rougher tails stream reports to the mica flotation circuit. Flotation is conducted at natural pH.

17.1.9.2 Mica Flotation Circuit

The mica flotation circuit is employed to remove undesirable mica that has a tendency to report to the final spodumene concentrate and reduce concentrate grade.

The mica flotation circuit consists of a rougher bank of cells along with a cleaner bank to recover spodumene lost due to entrainment in the froth. Flotation is conducted at a pH of 10.5 and is controlled by addition of sodium hydroxide (NaOH) solution.

The mica concentrate reports to the tailings thickener for disposal. The combined mica rougher/cleaner tails proceed for further processing.

17.1.9.3 Caustic Attrition Scrubbing and Dewatering Circuit

Spodumene flotation requires attrition scrubbing of the feed materials at high pH conditions to clean the mineral surfaces and activate the aluminium sites for flotation. Combined mica rougher and cleaner tailings slurry is first partially dewatered by hydrocyclones, to allow for increased conditioning efficiency. Dewatering cyclone underflow feeds a series of attrition scrubber tanks. The attrition circuit discharge slurry is diluted with fresh process water to displace the caustic solution and the slimes removed by cycloning. The cyclone underflow slurry passes via a dewatering screen prior to feeding the high-density spodumene conditioning tanks.

The dewatering fines and slimes cyclone overflow are sent to the tailings thickener for disposal.

17.1.9.4 Spodumene Flotation Circuit

The spodumene flotation circuit is employed to produce the spodumene concentrate.

The Spodumene flotation circuit consists of a rougher bank and three stages of cleaning to produce the high-grade 7.2% Li_2O concentrate. The circuit is fed with the high-density slurry from the caustic attrition scrubber stage via the high-density conditioning tanks. The pH is controlled with soda ash. The rougher concentrate reports to the first stage cleaner cells. The rougher tailings and 1st cleaner tailings are rejected and sent to the tailings thickener for disposal. The 2nd and 3rd cleaner tailings are recirculated to the previous cleaning stage to maximize recovery of the spodumene in these high-grade streams. The final spodumene concentrate reports to the concentrate magnetic separation stage

17.1.9.5 Concentrate Magnetic Separation

The spodumene final cleaner flotation concentrate is conditioned at acidic conditions to strip the fatty acid from the mineral surface, then dewatered and diluted with fresh process water. The resulting slurry is then fed to a final WHIMS stage to remove magnetic iron bearing minerals and any tramp iron originating from wear in the process equipment.

The magnetic material recovered is sent to the tailings thickener while the upgraded concentrate reports to the concentrate dewatering circuit (described in Section 17.1.11).

17.1.10 Spark Flotation Circuit

The Spark ore, due to the higher iron content in the spodumene, is not suitable for producing a technical grade concentrate and will be utilized to produce a chemical grade concentrate that will ultimately be used to produce commercially valuable lithium chemicals.

The standard grade of concentrate targeted is 6% Li_2O (SC6).

17.1.10.1 Mica Flotation Circuit

The mica flotation circuit is employed to remove undesirable mica that has a tendency to report to the final concentrate and reduce concentrate grade.

The mica flotation circuit consists of a rougher bank of cells and a cleaner bank to reduce spodumene losses due to entrainment in the rougher concentrate froth. Flotation is conducted at a pH of 10.5 and is controlled by addition of sodium hydroxide (NaOH) solution.

The mica concentrate reports to the tailings thickener for disposal. The combined mica rougher and cleaner flotation tails proceed for further upgrading of the spodumene content.

17.1.10.2 Caustic Scrubbing and Dewatering Circuit

The feed to spodumene flotation requires attrition scrubbing at high pH to clean the mineral surfaces and activate the aluminium sites for flotation. Combined mica rougher and cleaner tailings slurry is first partially dewatered by hydrocyclones, to allow for increased conditioning efficiency. Dewatering cyclone underflow feeds a series of attrition scrubber tanks. The attrition circuit discharge slurry is diluted with fresh process water to displace the caustic solution and the slimes removed by cycloning. The cyclone underflow passes via a dewatering screen prior to feeding the high-density spodumene conditioning tanks.

The dewatering fines and slimes cyclone overflow are sent to the tailings thickener for disposal.

17.1.10.3 Spodumene Flotation Circuit

The spodumene flotation circuit is employed to produce the spodumene concentrate.

The spodumene flotation circuit consists of a rougher bank and two stages of cleaning to produce the chemical grade 6.0% Li_2O concentrate. The circuit is fed with the high-density slurry from the caustic attrition scrubber stage via the high-density conditioning tanks. The pH is controlled by soda ash. The rougher concentrate reports to the first stage cleaner cells. The rougher tailings and 1st cleaner tailings are rejected and sent to the tailings thickener for disposal. The 2nd cleaner tailings are recirculated to the previous cleaning stage to maximize the recovery of the high-grade spodumene. The final spodumene concentrate reports to the concentrate dewatering circuit, since additional magnetic separation is not required to meet specifications.

17.1.11 Concentrate Thickening, Dewatering and Storage

Each PAK and Spark concentrator flowsheet includes a dedicated spodumene concentrate thickening and filtration circuit that is required to dewater each concentrate in preparation for storage and transportation off-site.

The concentrates from technical and chemical grade spodumene flotation circuits are each fed to the designated high-rate concentrate thickener, where the feed slurry is mixed with flocculant and thickened to a target solids concentration of 60-65% w/w.

Thickened concentrate is pumped to its designated filter feed holding tank prior to being pumped to the concentrate filter, with the final product targeting a moisture content of 8-10% w/w.

The filtrate is recirculated to the thickener and the thickener overflow is collected and recycled to the process water system.

The filter cake from each concentrator drops into the concentrate storage bunker which is sized for multiple days of storage. For the initial production period of producing only technical grade concentrate and transportation using the winter road, the concentrate will be moved to a 40,000-t storage facility to be stored during the interim periods of road unavailability.

17.1.12 Tailings Dewatering

For both the PAK and Spark concentrators, the tailings from the various sources are pumped to a designated final tailings pumpbox to feed the tailings thickener. A single tailings thickener services both concentrators. During the initial technical grade concentrate production phase, a smaller diameter thickener is used but this will ultimately be dedicated for use as the Spark chemical grade concentrate thickener.

The thickened tailings slurry is pumped to the tailings management facility ("TMF") and the thickener overflow is pumped to the reclaim water pond.

17.1.13 Reagents

Reagents will be stored dry onsite prior to batches being prepared and stored in a separate area of the PAK and Spark concentrator facilities for distribution to the process.

17.1.14 Assay and Metallurgical Laboratory

The assay and metallurgical laboratory facilities will include all necessary equipment to crush, filter, dry and pulverize mine and concentrator samples in order to prepare them for assay, perform all digestions and analytical procedures required for tracking concentrator feed head grades (using mine samples), and perform all digestions and analytical procedures required for tracking the day-to-day metallurgical performance of the concentrator facility.

17.1.15 Water Supply

Three sources of water will be used for the mine site. Fresh water from the adjacent lake and treated water is used for systems requiring clean water such as pump gland and cooling water circuits and for preparing reagents. Process water is used for general process requirements, and make-up to the process water tank can be any of, or a mix of, reclaim water, treated water, and/or fresh water as required.

Fresh water is supplied to a common fire water storage tank from the water treatment plant located adjacent to the concentrator building.

One potable water supply system for the entire mine/mill site and camp, is located adjacent to the concentrator. Potable water is treated (filtration, UV disinfection, and chlorination), stored and distributed to the various buildings on site.

17.2 Lithium Chemicals Conversion Plant

The chemical grade concentrate will be transported by truck and further processed at a Lithium Chemicals Conversion Plant (chemicals plant) located in or near a Great Lakes port city in Northern Ontario.

Frontier has completed the full plant design based on AACE Class 4 limits for the commercial chemicals plant. The 3D model generated from the plant design can be seen in Figure 17-4.

The plant is designed to produce 20,000 tpa of lithium carbonate equivalent (“LCE”), which will require a concentrate processing rate of 160,000 tpa. The process will produce both lithium hydroxide and lithium carbonate at a 60/40 ratio.

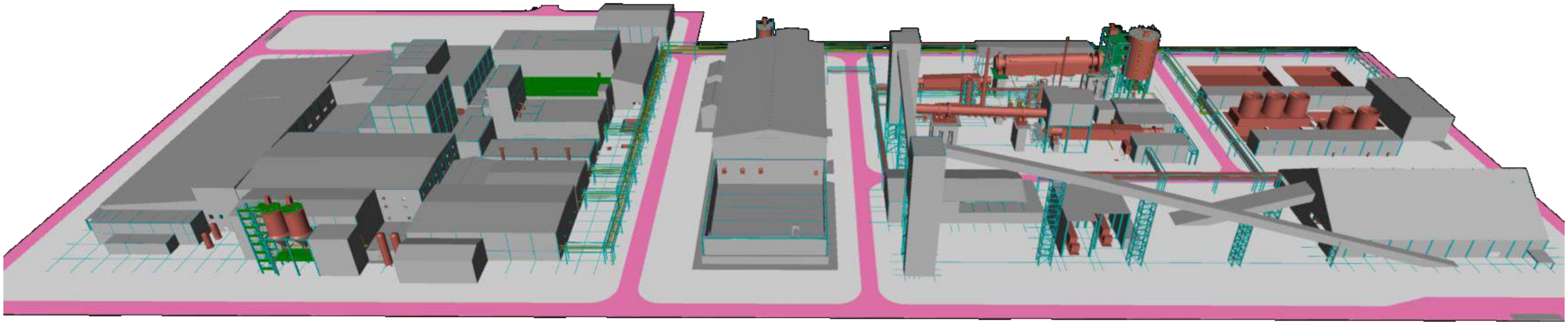


Figure 17-4: Commercial Chemicals Plant 3D Model

17.2.1 Process Design Criteria – Chemicals Plant

A simplified process flow diagram of the lithium chemicals conversion process is summarized in Figure 17-5. To achieve this production output, 160,000 tpa of chemical grade spodumene (6.0% Li_2O) will be received by truck from the mine site concentrator.

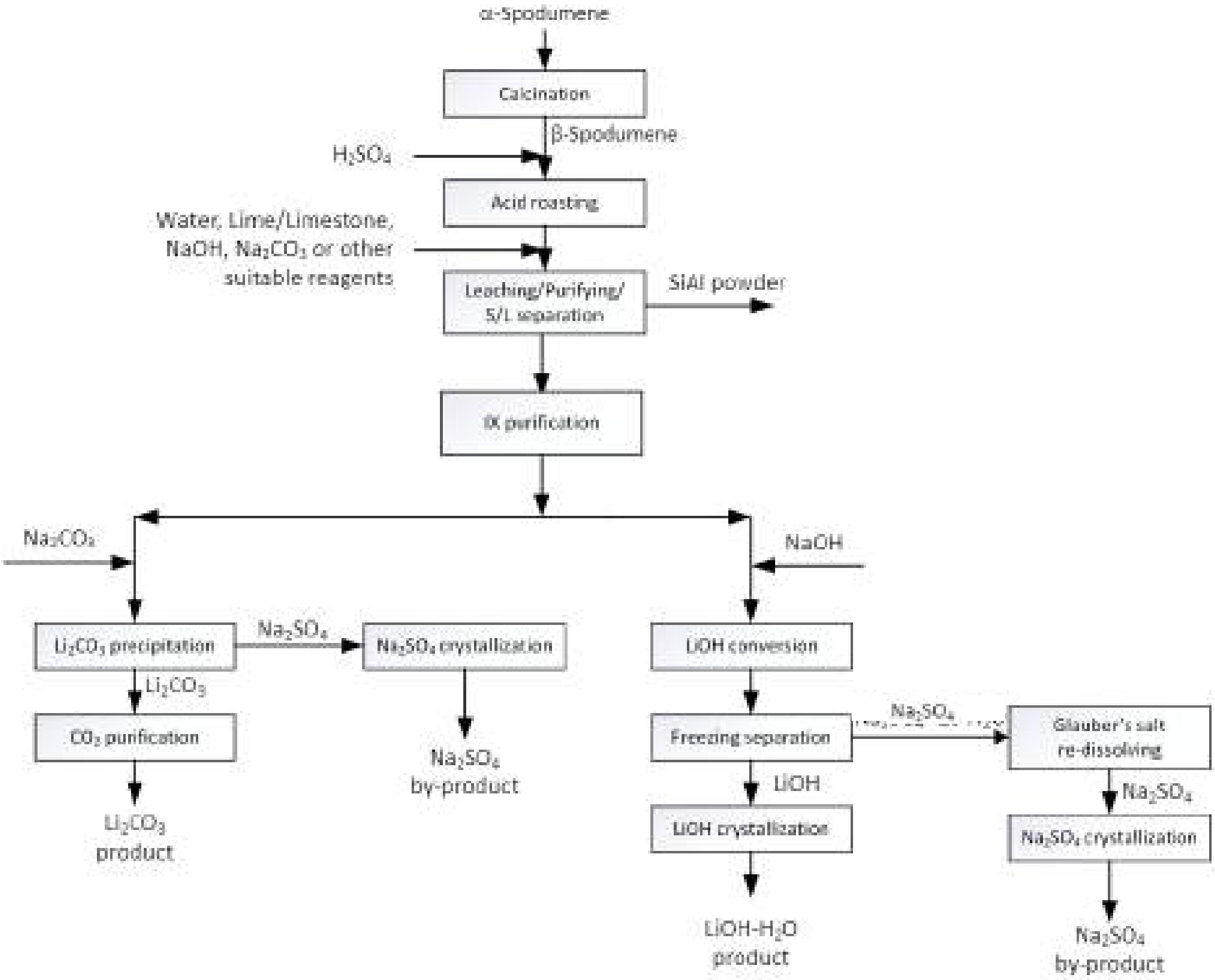


Figure 17-5: Lithium Chemicals Conversion Process Flow Diagram

17.2.2 Spodumene Concentrate Storage/Plant Feed

The spodumene concentrate storage facility incorporates a truck scale, a truck offloading site, and a concentrate storage building.

The conversion plant is fed from the storage area via a belt conveyor equipped with a weigh scale to control feed rate and track conversion plant production.

17.2.3 Alpha-Spodumene Conversion and Acid Roasting

The chemical grade concentrate as delivered contains Spodumene as chemically inert alpha-spodumene, which requires conversion to beta-spodumene in order to be leached and converted to the required products.

Conversion of the received concentrate, by calcining, is performed using a natural gas fired, refractory-lined rotary kiln, equipped with dust control systems and designed to calcine the feed at a temperature of or close to 1,100°C. The product from the kiln is cooled by a water-cooled rotary cooler.

The cooled product containing almost all spodumene as beta-spodumene is ground in a conventional dry grinding ball mill to reduce any lumps created during calcination or any very oversized particles, with a target top size approximately of 200 mesh or 75 microns.

The ground product then is fed together with addition of acid to an indirect heated kiln with a target temperature of around 250°C and several hours of residence time in order to maximize the conversion of the beta-spodumene to lithium sulphate which can be leached in the next stage.

17.2.4 Lithium Leaching and Solution Purification

The converted roaster product is leached to extract soluble lithium in a series of tanks under controlled temperature, pH and residence time in order to obtain maximum leaching performance. Raising of the pH by controlled limestone addition ensures that the levels of aluminium and iron in solution are kept at a minimum. Further neutralization is conducted using sodium hydroxide and soda ash solutions in order to reduce the levels of calcium and magnesium in solution.

Following precipitation of calcium and magnesium, ion exchange is used to remove further amounts of impurity divalent metals, such as calcium and magnesium.

The purified solution is upgraded to optimize the lithium concentration using evaporation for each stream feeding either the hydroxide or carbonate product circuit, and with a target concentration of 30 g/L lithium content. Each lithium hydroxide and lithium carbonate circuit has a dedicated evaporator.

17.2.5 Lithium Carbonate Production

The upgraded solution is reacted with sodium carbonate solution to precipitate lithium carbonate which produces an intermediate product below battery grade. Sodium is removed from the barren solution as sodium sulphate prior to the solution being recirculated.

The product is dewatered, repulped with fresh water and further purified using carbon dioxide addition to produce soluble lithium bicarbonate and filtration for removal of impurities. The final stage is by heating the solution to precipitate the lithium carbonate to the optimum battery grade product. Recycle streams in these circuits are retreated to ensure maximum recovery. The final product is filtered, dried and packaged for transport to markets.

17.2.6 Lithium Hydroxide Production

For the production of lithium hydroxide, the solution after ion exchange and evaporation feeds a circuit where sodium hydroxide solution is added and two stages of cooling are used to produce and remove from the solution sodium sulphate in the crystalline form of Glauber's salt (mirabilite, $Na_2SO_4 \cdot 10H_2O$). The Glauber's salt is purified to marketable grade upon repulping and crystallization using an evaporative crystallizer. The Glauber's salt is transformed into anhydrous sodium sulphate upon drying, and is then packaged for sale.

After the removal of the mirabilite, the resulting solution is evaporated in two stages to produce crystalline lithium hydroxide monohydrate solids of battery grade. The final product is recovered from the solution by filtration and is then dried and packaged for shipment.

18. Project Infrastructure

Chapter 18 describes the infrastructure for the PAK site, located approximately 175 km north of Red Lake. The infrastructure was developed to support the concentrator plant facility operating 365 days per year at a concentrator plant feed rate of 2,850 tpd from the PAK and Spark open pits combined, with an emphasis on providing the most economical design possible. Therefore any significant increase in future throughput will require modification of several items.

The overall site layout showing the location of the two open pits, the concentrator plant facility, and the supporting infrastructure is provided on Figure 18-1.

The chemicals plant facility will be located off-site in the Thunder Bay region and is described in Section 17.2. Refer to Chapter 17 for the location, site services, buildings, rail siding, marine shipping and communications. Administrative process workforce such as procurement and finance will be located at the chemicals plant facility site.

All other corporate functions related to the Project will be based out of the head office located in Val Caron, ON.

The infrastructure required for the PAK site will include:

- Site development and access road;
- Site Structures and Installations;
- Concentrator plant;
- Electrical site reticulation and generated power;
- Mine rock storage;
- Water management;
- Domestic and potable water treatment;
- Tailings management facility (“TMF”);
- Effluent treatment;
- Cybersecurity for industrial control systems.

The proposed layout of the PAK Lithium Project site is shown on Figure 18-1. The Site Plan presents the overall infrastructure of the Project. The drawing shows the haul roads, open pits, TMF, concentrator plant facility, generator complex with tank farm, including the camp, office, maintenance shop, with related services for mine rock storage areas, water treatment, landfill, and the airstrip.

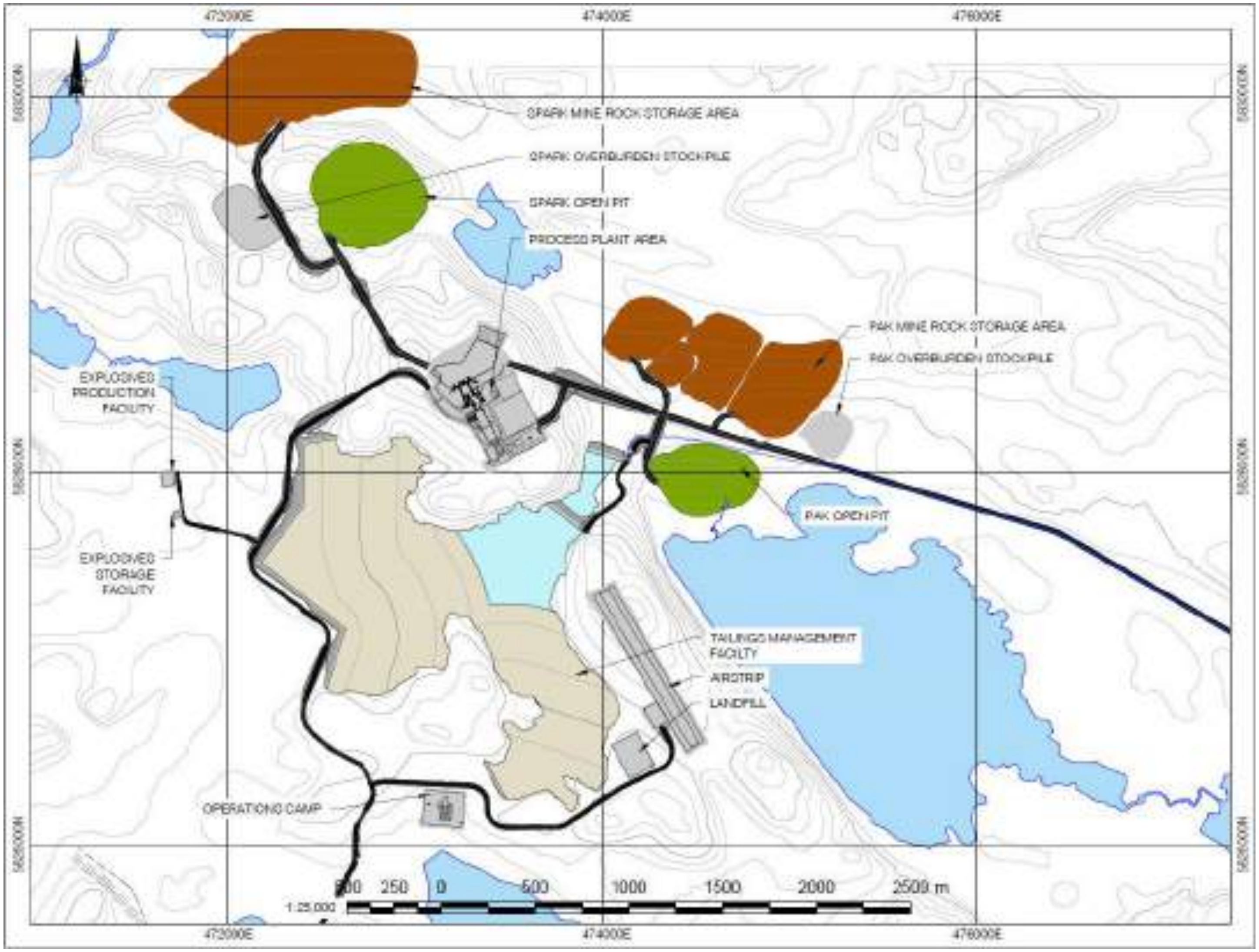


Figure 18-1: PAK Lithium Project Site

18.1 Site Development and Access

Multiple haul roads are planned to be constructed on the site for transporting ore and waste from the mines to their designated destinations. The haul roads will also connect to the crusher and mine services facilities. Service roads are to be constructed to allow for vehicle traffic to the explosives facility, camps, airstrip, discharge point, reclaim pond and mine water treatment facility.

Care has been taken to maintain a clear separation of on-highway vehicles, namely light vehicles, buses and semi-trucks, from mine operations equipment. This separation reduces risks as well as process delays due to excessive traffic on haulage roads.

Outside of the concentrator plant and TMF areas, there will be approximately 6.5 km of service roads that are primarily used by on-highway trucks and light vehicles. These roads extend from the access control gate to the explosives storage area, operations camp area, airstrip and concentrator plant. These roads are designed to accommodate a variety of design vehicles as shown in Table 18-1. These service roads will have a width of either 6 m or 8 m, depending on their application.

Connecting the two mines to their respective mine rock storage areas and to the ROM pad area will be approximately 4.4 km of haulage roads. These haulage roads are designed to accommodate equipment of various sizes, as shown in Table 18-1, and will have a width of either 13.2 m (PAK) or 17.6 m (Spark).

There will be approximately 7.6 km of service road that is not accessible by on-highway traffic. These roads will access the water treatment plant adjacent to the reclaim pond and provide access to construct and maintain the treated water discharge piping from the water treatment plant to the Flanagan River. The service road for water pipe will be nearly 7 km in length, have a total width of 9.5 m, with 6 m for the roadway and 3.5 m for the pipe corridor.

Table 18-1: Design Vehicle List

Road type	Vehicle
Main Access Roads	WB20 Semi-trailer
Service Roads	Pick-up trucks
Mine Hauling Roads	60-Ton Class (Spark site) Articulated 40-Ton Class (PAK site)
Crusher Area Roads	60-Ton Class
Mine Garage Pad and Wash Bay	60-Ton Class
Camp Area	Bus and pick-up trucks

18.2 Site Structures and Installations

Site structures and installations at the PAK site includes all necessary buildings and installations to support construction and operation activities throughout the Project lifecycle.

These site facilities include the following:

- Airstrip;
- Access gate;
- Construction laydown area;
- Construction camp facility;
- Operations camp facility;
- Fuel storage and dispensing;
- Truck scale;
- Fire protection;
- Landfill with incinerator;
- Site offices;
- Dry facility;
- Mobile maintenance facility;
- Fixed plant/electrical maintenance shop;
- Core shack;
- Assay laboratory;
- Mobile maintenance facilities.

Much of the Project infrastructure is located in a central complex around the Concentrator Plant as shown in Figure 18-2.

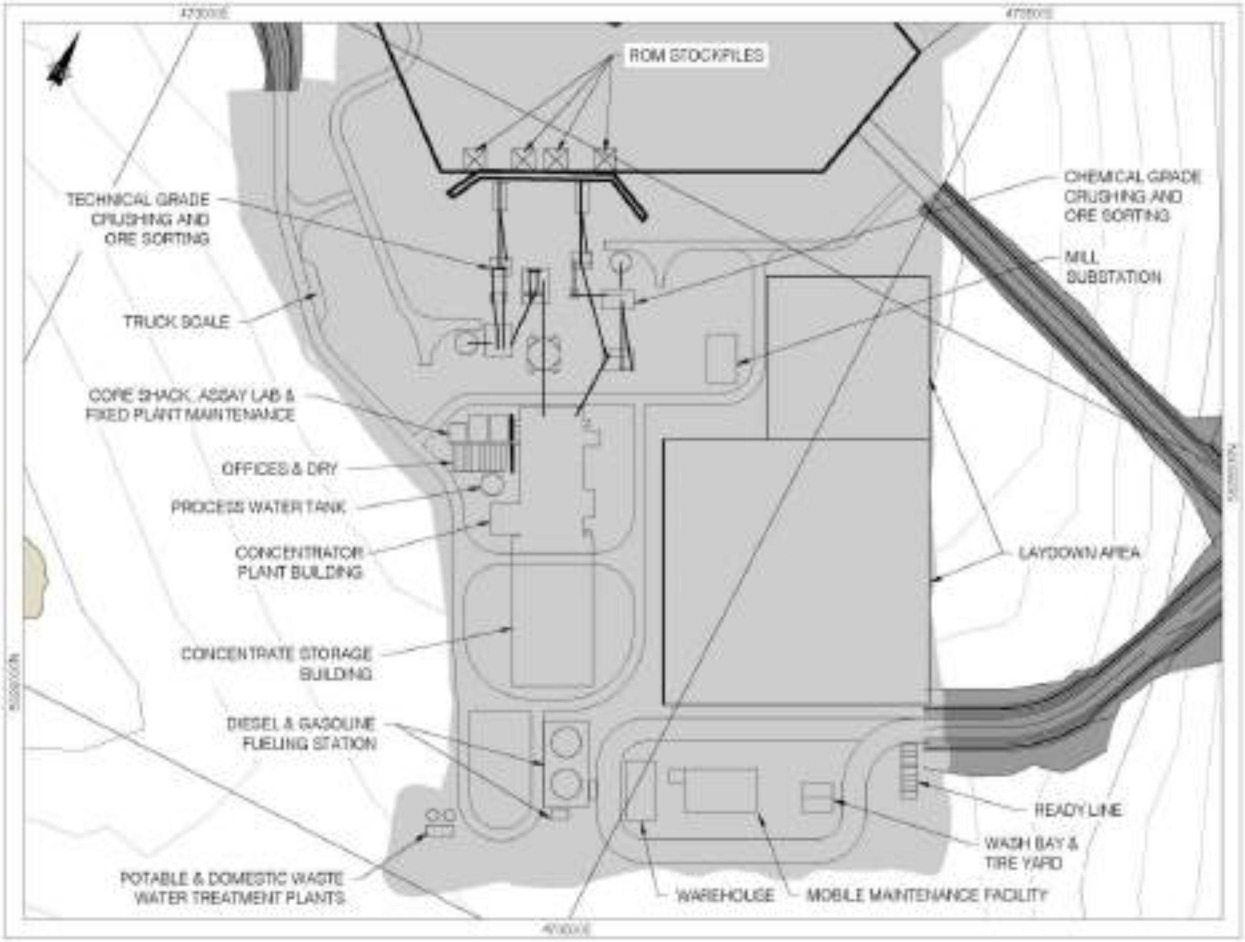


Figure 18-2: Central Complex Infrastructure

18.2.1 Airstrip

The site will have an airstrip with a finished surface of 950 m x 50 m, and an apron area of 120 m x 80 m for transfer of people, baggage, and supplies into and out of the aircraft. All vegetation will be cleared to a width of 250 m for the length of the finished surface.

The airstrip will serve as the primary means of access during the initial stages of construction on site and will remain in place following the construction of the all-weather access road. It is suitable for aircraft up to and including Beech 1900 and De Havilland Dash 8-100.

An insulated and heated structure at the airstrip will house de-icing and anti-icing equipment. This equipment consists of cart mounted, self contained sprayer units and drums of de-icing and anti-icing fluids. This equipment is intended to be deployed in emergency situations or when inclement weather would otherwise strand an aircraft on site.

18.2.2 Remotely Controlled Gate

In order to maintain security and prevent public access to the site, a remotely controlled access gate will be installed on the site access road approximately 1 km before the camp/airstrip road.

This gate will be remotely controlled from the site office area and will not have an attendant.

18.2.3 Construction Laydown Area

A significant amount of construction will take place on site prior to the completion of the all-season road, most notably the Technical Grade Concentrator plant. During this stage of the Project, all equipment and materials required for the following construction season will be delivered to site by winter/snow road.

For equipment and materials, a flat gravel laydown area of 32,400 m^2 will be built to the east of the concentrator plant facility site as well as an area of 12,100 m^2 to the east of the crushing plant area that will be reserved for stockpiling of construction aggregate materials.

18.2.4 Construction Camp

It is anticipated that construction activities will require a workforce of up to 300 on site.

For this purpose, Frontier has purchased an existing camp facility known as “Knox Camp”, as can be seen on Figure 18-3, originally erected to house workers for the construction of new electrical transmission lines in the area.

Figure 18-3: Aerial View of the Knox Camp

This camp is established with existing food preparation, dining area, potable water and wastewater systems in place.

The Knox Camp is located approximately 5 km southwest of the PAK site and is immediately adjacent to the existing winter road. This road will be improved to allow travel to and from site year-round.

While it does not currently have enough beds to accommodate the peak workforce projections, the CAPEX estimate will include the purchase and installation of an additional 180 modular dormitory rooms that will be erected at the Knox site.

This camp will be temporary in nature. The new dormitories will have shared washrooms and will remain constantly in use (vacated and cleaned for each rotation).

18.2.5 Operations Camp

The operations camp will consist of a new modular installation, to be constructed at the southern extent of the site as shown in Figure 18-1.

The layout includes 400 beds arranged in four, three storey tall wings connected by a corridor. Rooms will be dedicated to individuals and will remain vacant while alternate work crews are off-site.

Heating of the operations camp will be electric.

Each room, the layout of which can be seen in Figure 18-4, will have its own washroom with a shower.

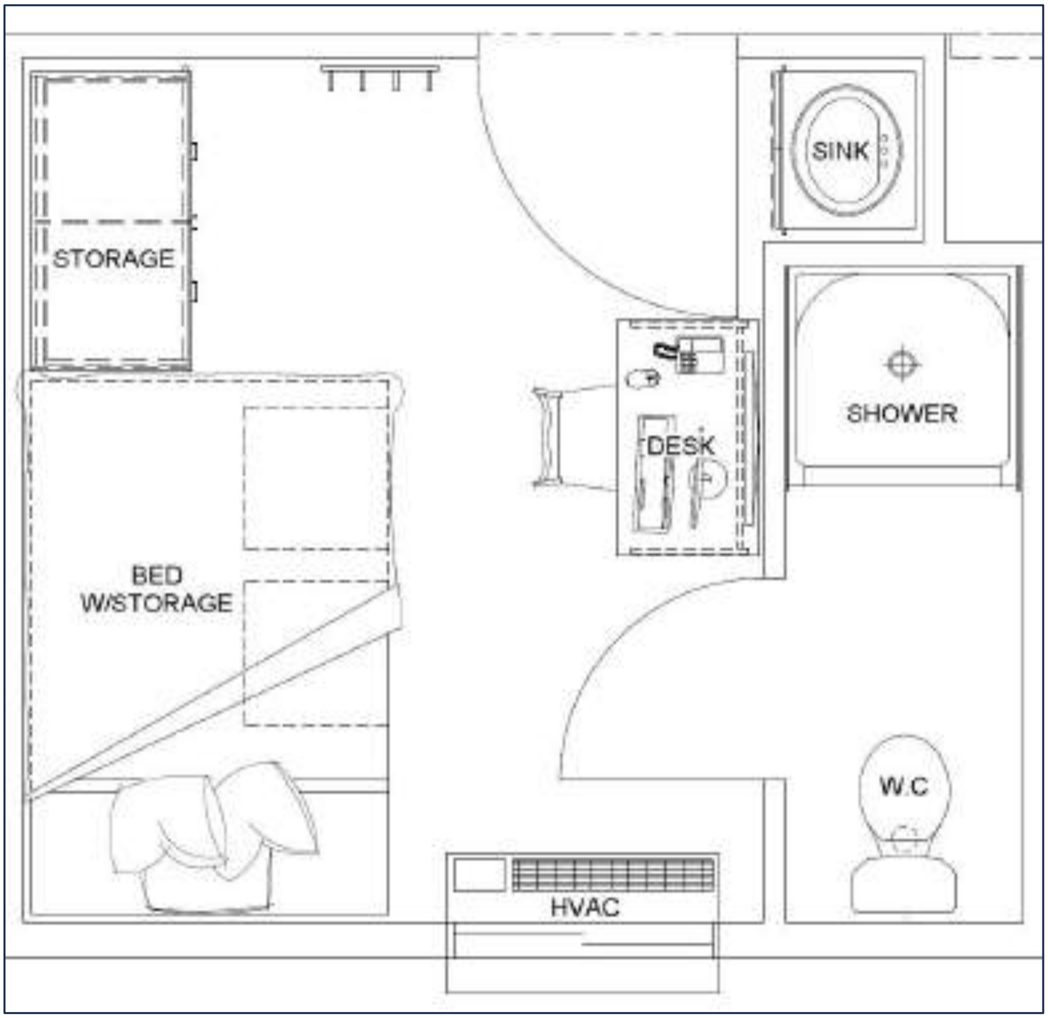


Figure 18-4: Typical Operations Camp Room Layout
(Figure not to scale)

Shared facilities for the operations camp, as shown on Figure 18-5, will include the following:

- Welcome center: five modular units
  - Camp management offices;
  - Convenience store;
  - Reception desk;
  - Luggage staging area;
  - Security office.
- Commercial laundry facility: two modular units;
- Cafeteria: 15 modular units
  - Food storage and preparation areas;
  - Dining area.
- Recreation centre: five modular units
  - Fitness area;
  - Recreation hall.

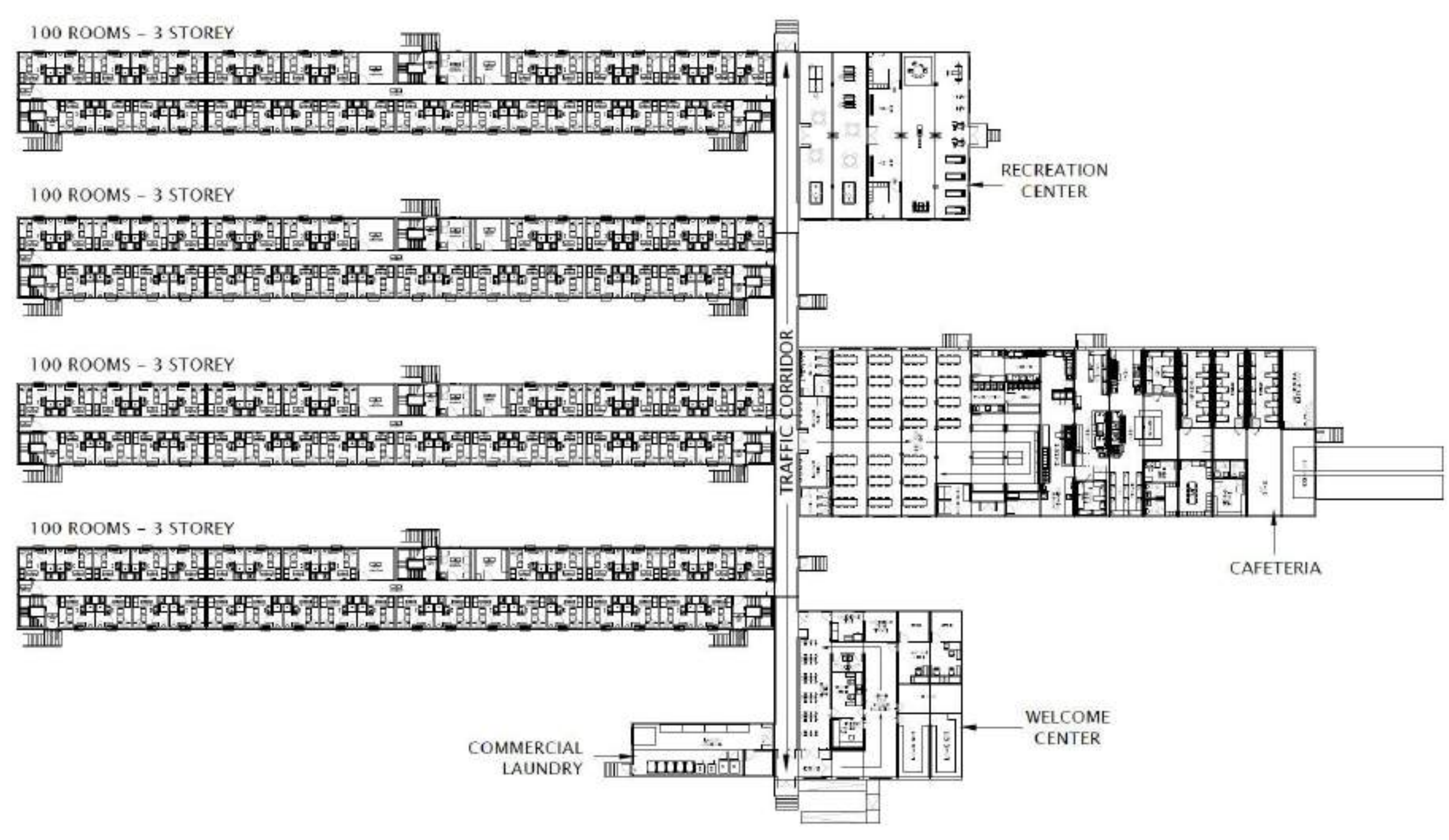


Figure 18-5: Operations Camp Layout
(Figure not to scale)

18.2.6 Fuel Storage and Dispensing

During the early stages of operation, prior to completion of the all-weather road, sufficient volumes of diesel fuel will be required on site to support a full year as fuel will be delivered to site by winter/snow road.

Care was taken to segregate on-highway traffic from the mine equipment. The fuel storage and dispensing area will be located south of the concentrator plant facility. This location allows for convenient dispensing of diesel fuel to both on-highway and mine equipment while eliminating the need for them to operate simultaneously in the same area.

The fuel storage and dispensing installation includes:

- 3.5 million litre diesel fuel tank;
- Powered fuel offloading equipment;
- High speed fuel dispensing system for haulage trucks;
- Splash filling fuel dispensing system for support equipment;
- DEF storage and dispensing;
- 24,000 litres double walled gasoline tank;
- Gasoline dispensing pump.

The diesel fuel equipment will be house in two modified 40 ft sea containers with one for diesel fuel offloading and dispensing equipment and the other for DEF dispensing and storage tank.

18.2.7 Truck Scale

A 100-tonne capacity truck scale will be installed for on-highway vehicles. This scale will have a 27.4 m x 3.3 m deck, which can accommodate any vehicle that can legally travel over the road in Ontario.

The primary purpose of this scale is to accurately weigh the concentrate leaving site; however, it will also be useful to quantify and verify other materials arriving at or departing from site as well as ensuring load restrictions are not exceeded.

The scale will be equipped with a local ticket printer as well as provisions to communicate readings to the office complex.

It should be noted that this scale will not be easily accessible or scaled to accommodate mine haulage trucks or equipment.

18.2.8 Fire Protection

The process water tank situated west of the concentrator plant facility will have a portion of its total volume allocated to fire protection purposes.

A total of 16 fire hydrants will be installed around the crushing plant, concentrator plant and maintenance facilities.

18.2.9 Landfill Area

The landfill will have a total footprint of 30,000 m^2 and be equipped with an incinerator.

This landfill will be used to store waste until the completion of the all-weather road after which waste material will be hauled off-site.

The incinerator will be used to dispose of any hazardous waste, reduce the overall volume of waste generated as well as to destroy the solid waste generated from the domestic water treatment plants at both the central site and camp areas.

18.2.10 Site Offices

Site offices that will be located on the west side of the concentrator plant facility. An enclosed corridor will connect the offices to the concentrator plant facility structure to reduce exposure of the workforce to inclement weather and slippery conditions.

Administrative process workforce such as procurement and finance will be located at the chemicals plant facility site.

The office complex, as seen in Figure 18-6, will consist of four connected modular units adjacent to the dry facility and will house:

- Site management and supervision offices
- Security and First aid rooms;
- Mine engineering area;
- Mine geology area;
- Mine rescue room;
- Training room;
- Meeting room.

It should be noted that additional office space has been provided for mobile maintenance, electrical and fixed-plant maintenance, the core shack, and the assay laboratory outside of the main site office structure.

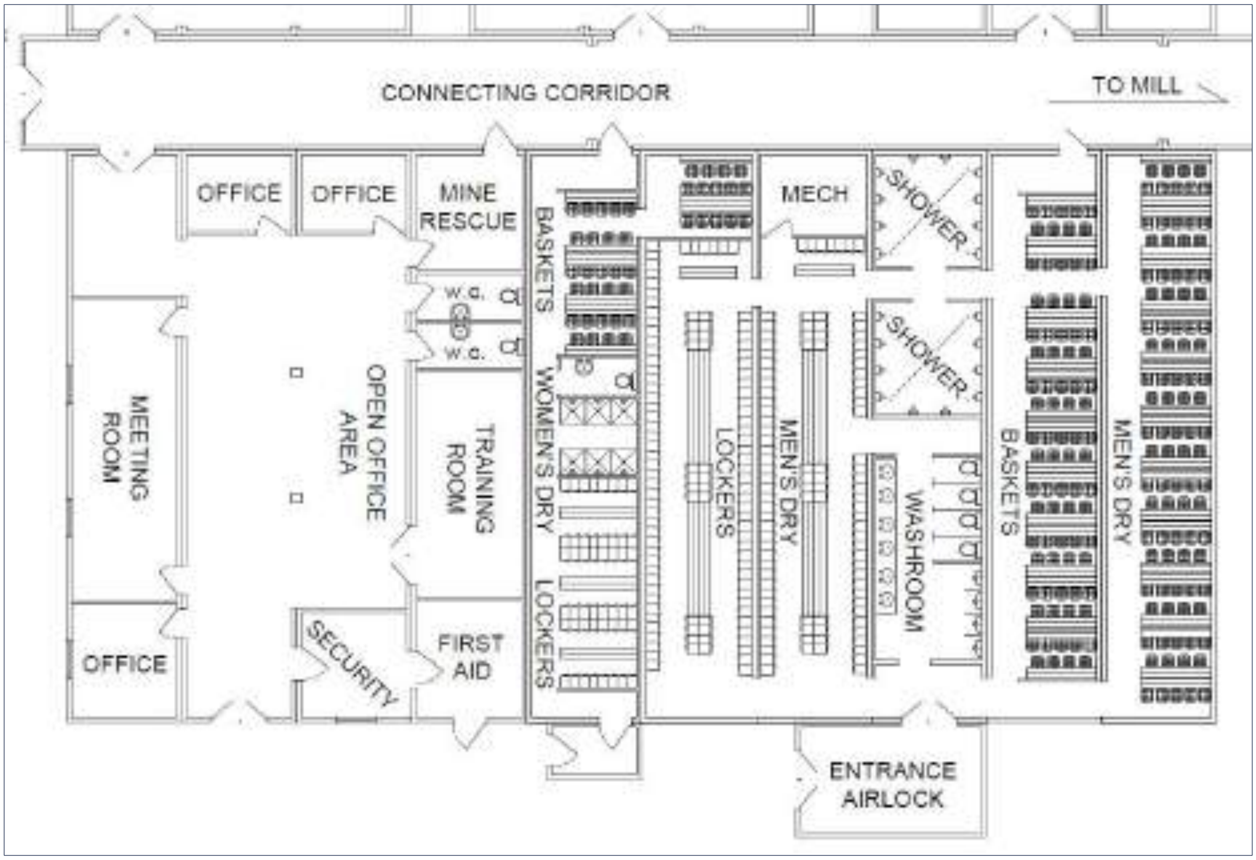


Figure 18-6: Site Office and Dry Facility
(Figure not to scale)

18.2.11 Mine/Plant Dry Facility

The dry facility for the operations and maintenance workforce will be housed in six connected modular units attached directly to the office complex and connected to the concentrator plant facility via enclosed corridor as shown in Figure 18-6.

The dry is scaled to accommodate a total of 250 employees and will serve the mines, maintenance and concentrator plant facility workforce. Start and end times for work groups will be offset slightly to reduce the number of individuals passing through the dry at any given time.

The dry will consist of:

- Dry baskets: 2.5 modules;
- Lockers: 2.5 modules;
- Showers/washrooms: 1 module.

18.2.12 Fixed Plant Maintenance Shop/Offices

The concentrator plant facility structure does not include any provision for electrical and fixed plant maintenance workforce, tools and equipment. Three 18.3 m x 3 m modular units have been included, as shown in Figure 18-7, adjacent to the concentrator plant facility structure and attached to it via enclosed corridor.

This structure will provide space for offices as well as storage of tools and small equipment necessary to maintain the crushing plant and concentrator plant facility.

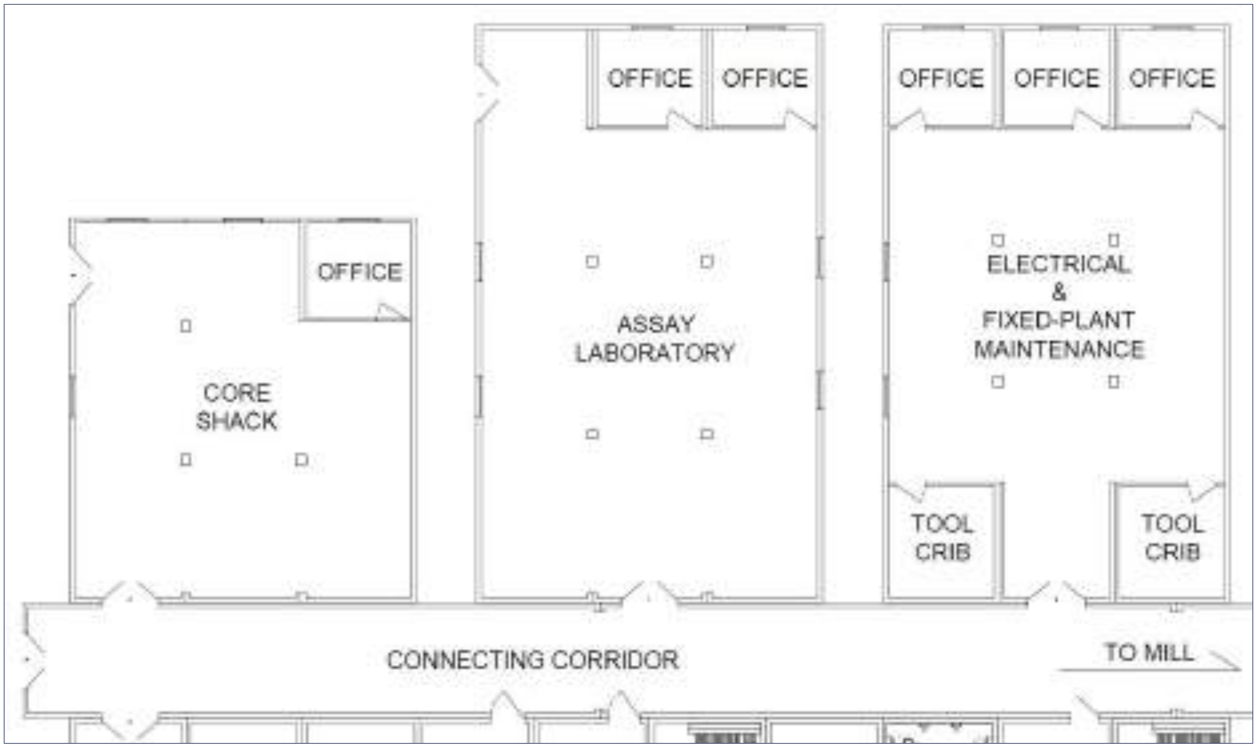


Figure 18-7: Layout of Core Shack, Assay Lab, and Fixed Plant Maintenance
(Figure not to scale)

18.2.13 Assay Lab

An assay lab will be required to support exploration/geology activities as well as mining and concentrator plant operations. Three 18.3 m x 3 m modular units have been included, as shown in Figure 18-7, next to the fixed plant maintenance structure and attached to the enclosed corridor.

The lab equipment and technicians will be provided by a third party as a service to ensure that results are independent and impartial.

18.2.14 Core Shack

To support ongoing geological work a 12 m x 12 m modular structure, as shown in Figure 18-7, has been included to house a core shack. It will be located next to the assay laboratory and attached to the enclosed corridor.

It will be equipped with racking, tables and equipment to allow for cutting and logging of core as well as sample preparation.

18.2.15 Mobile Maintenance Facilities

The mobile maintenance facility is composed of a workshop, wash bay, warehouse and outside laydown/storage areas.

The main shop area will be a 30 m x 50 m insulated steel structure with a concrete floor. There will be three bays, each with a 7.5 m wide x 8 m tall door and, and two overhead cranes, one 40 t and one 20 t capacity to assist with manipulation of components and assemblies.

An office, lunchroom and washroom will be housed in an attached 10 m x 10 m insulated steel structure attached to the shop’s western corner.

The three main bays will be grouped together towards the east end of the structure, leaving working space available for the repair of fixed plant/process equipment should the need arise.

A stand alone 10 m x 20 m wash bay structure will be situated east of the mobile shop, and a 20 m x 40 m insulated and heated fabric structure located west of the shop will provide climate-controlled warehouse space.

18.3 Concentrator Plant Facility

The concentrator plant facility, which includes all crushing, sorting, and concentrator facilities necessary to produce both technical and chemical grade concentrates, is centrally located between the two open pits. To reduce the overall footprint as well as the need for workers to be exposed to the elements, the main site offices, dry facility, assay lab, core shack and fixed plant maintenance shop/office are physically connected to the concentrator plant facility with much of the supporting infrastructure located close by. The layout takes advantage of the topography in order to have the ROM pad arrangement at the correct elevation relative to the primary crushers.

Haulage trucks arriving from the open pits will have the option to dump directly to the crusher or to stockpiles from which loaders will feed an appropriate blend of material into the plants.

With its crushing and sorting equipment, concentrator plant and enclosed concentrate storage structure, the concentrator plant facility has a footprint of approximately 23,500 m^2 on a central site of approximately 260,000 m^2.

Haulage distances to the primary crushers from the PAK and Spark open pits are approximately 1.5 km and 1.1 Km respectively.

Refer to Chapter 17 for more detail.

18.4 Electrical Site Reticulation and Diesel Power Generation

18.4.1 Electrical Load

The total electrical demand load of the mine site is estimated to be about 19 MVA during open pit mining operations.

This estimated electrical demand is based on the concentrator plant facility load, construction/operation camps and auxiliary building loads, open pit load, and ancillary loads.

18.4.2 Power Generation

Diesel power generation is to be used as the primary power source during construction of the concentrator plant facility and mine site. Prior to the start of production, electrical power will be sourced from the Ontario Independent Electricity System Operator (“IESO”) Controlled grid through the proposed Wataynikaneyap transmission system, which will route close to site, and is expected to be completed in 2024. New 115 kV overhead lines will be installed to tap off from the Wataynikaneyap transmission line and routed to the main site substation.

One 1,500 kW 600 V diesel generator will be installed near the concentrator plant substation to provide power to the critical loads in case of a power outage.

18.4.3 Main Substation and Site Power Distribution

One high voltage electrical substation (hereafter "main substation") will be built to provide the required power to the entire project site. The preliminary location of the main substation is adjacent to the proposed access road for the mine site and inside the remote-controlled gate. The final location of the main substation shall be at least 500 m away, but no more than 2 km from the new Wataynikaneyap transmission line.

The main substation will include the following equipment:

- Steel structure for utility overhead line termination and outdoor 115 kV circuit breaker;
- Substation transformer skid 20/25 MVA, 115 kV/13.8 kV and accessories;
- A substation E-house (modularized, assembled and tested off site) complete with a 15 kV switchgear, protective relaying, dry type 13.8 kV/600 V transformer and 600 V MCC;
- Substation P&C, synchronization and network cabinets.

From the 15 kV switchgear, the power will be distributed to all loads within the mining site. Due to their locations, some of the loads will be fed directly from the main substations 15 kV switchgear, which includes the construction and operation camps, explosive plant, and airstrip. The main substation will also supply power to the concentrator plant substation.

Overhead lines at 13.8 kV will be used for most of the power distribution within the mine site.

Mine power centres ("MPC") will be installed near the load locations to step down the voltage from 13.8 kV to 600 V and distribute the power for the associated loads. For the smaller loads, more cost effective, pole mounted transformers will be used.

18.4.4 Concentrator Plant Substation

The concentrator plant substation will be located close to the concentrator plant facility to reduce the total cable runs. It will include a prefabricated E-Room contain 15 kV switchgear to receive power supply from the main substation.

The concentrator plant substation will supply power to the concentrator plant facility and nearby areas, including the Spark open pit area, PAK open pit area, water treatment area, etc.

The concentrator plant facility will have two E-Rooms, one for the chemical grade concentrator and one for the technical grade concentrator. Each E-Room requires one 5 kV feeder.

Two liquid-filled transformers will be installed outside the substation. The transformers will step down the 13.8 kV supply voltage from the substation to 4.16 kV, then 5 kV overhead lines will be installed from the transformers to supply power to the concentrator plant facility E-Rooms.

The substation E-Room will also be equipped with a 600 V switchgear. The 600 V switchgear is fed from the 15 kV switchgear inside the same E-Room via a dry-type step down transformer.

The 600 V switchgear is backed up by a 600 V diesel powered emergency generator, which will be located outside the substation E-Room. The 600 V switchgear will feed power to the emergency motor control centres ("MCCs") in the concentrator plant facility E-Rooms to provide power to the critical loads in case of a power outage.

Plant equipment utilization voltages are provided in Table 18-2.

Table 18-2: Power Utilization Voltages

Plant Equipment	Voltage
Motors & VFDs for Ball Mill and Rod Mill	4,000 V/3P
All Other Motors & VFDs	575 V/3P
Small Drives Below 0.5 HP	120 V/1P
Electrical Heaters Over 2 kW	600 V/3P
Electrical Heaters Up to 1.8 kW	120 V/1P
Lighting – LED	120 V/1P
Small Power & Instrumentation	120 V/1P
Heat Tracing	120 V or 208 V/1P
Welding Receptacles	600 V/3P

18.4.5 Site-Wide Communications

The mine site will employ a site-wide communication system based on a single mode fibre optic backbone. VoIP telephones, intranet/internet access, and control system network connectivity will be integrated into this fiber backbone so that these systems can be accessible anywhere on site. Broadband internet access will be purchased from a satellite internet service provider. The corporate network (intranet) will be isolated from the control system network via a firewalled DMZ (de-militarized zone) network.

18.5 Mine Rock Storage Facilities

Each open pit will have a dedicated mine rock storage area. These storage areas have been situated to minimize haulage distances while accounting for topography to provide adequate volume for the materials to be generated. The stockpiled/reclamation materials will be utilized for rehabilitation applications upon open pit closure.

Refer to Chapter 16 for details of the mine rock storage facilities.

18.6 Water Management

18.6.1 Water Management Plan

The general water management plan developed for the Project aims to:

- Divert all clean water (non-contaminated water) off-site;
- Manage water by collecting, draining, and containing runoff from all sources including:
    - Surface infrastructure;
    - Mine rock storage areas;
    - Open pits.
- Treat all contaminated water before releasing it to the environment;
- Discharge treated water to a location where adequate flow is present for dilution.

18.6.2 Projected Infrastructure for Water Management

PAK water management infrastructure is composed of:

- Three clean water ditches that surround the tailings storage area, concentrator plant facility and the open pits;
- Three contact water ditches that surround the mine rock storage area's divert all clean water (non-contaminated water) off-site;
- One retention basin at Spark mine rock storage area;
- One pumping basin at PAK mine rock storage area;
- A supernatant pond on the tailings storage area;
- One reclaimed pond.

All water collected at the mine rock storage areas (for Spark and PAK sectors) and from the open pits will be pumped to the reclaim pond from which water will be drawn for concentrator operations. During a normal year 2.4 Mm^3 of water will be treated and released to the environment.

18.6.3 Design Criteria for Basins and Ditches

The flood design criteria for the retention and pumping basins are the following:

- The Spark mine rock storage area basin and the reclaim pond will be able to store 100-year recurrence 24-h rainfall combined with a 100-year recurrence snowmelt, with the water from rainfall being stored and the snowmelt being treated simultaneously as it arrives at the basin;
- The PAK mine rock storage area pumping basin will be able to manage a 100-year recurrence 24-h rainfall.

The design criteria applying to the ditches for the mine rock storage areas are presented below and are based on a design rainfall of a 100-year recurrence as per the Drainage Water Management Manual – Ministry of Transportation of Ontario (MTO, 2008):

- Minimum depth 1.0 m;
- Minimum base width 1.0 m;
- Minimum freeboard 0.3 m;
- Minimum velocity 0.5 m/s;
- Lateral slopes 2H:1V;
- Riprap is evaluated according to water velocity.

An increase of 18% of the precipitations are applied to consider the risks and impacts related to climate change.

18.6.4 Operational Water Balance

An operational water balance was performed for different hydrological conditions: normal, wet and dry years. The following parameters were considered:

- Using 'Red Lake A' meteorological station, the total annual precipitation is 686.4 mm with 515.6 mm rainfall and 170.8 mm snowfall (Environment Canada);
- It is assumed that the snowmelt occurs from mid-April to mid-May;
- The potential evapotranspiration ("ETP") is 521.4 mm and it was calculated using the Thorntwait formula. It is assumed that the stockpile and the mine pit have respective rates of 70% and 50% that of the ETP;
- It is assumed that the ice cover of the basins is 1.0 m thick and forms from mid-December to mid-April;
- The groundwater flows at Spark and PAK pits are 1,702 m^3/h and 1,500 m^3/h respectively and are assumed to be constant during the life of mine.

The resulting flow diagram and the main outcomes of the water balance are presented in and Figure 18-8.

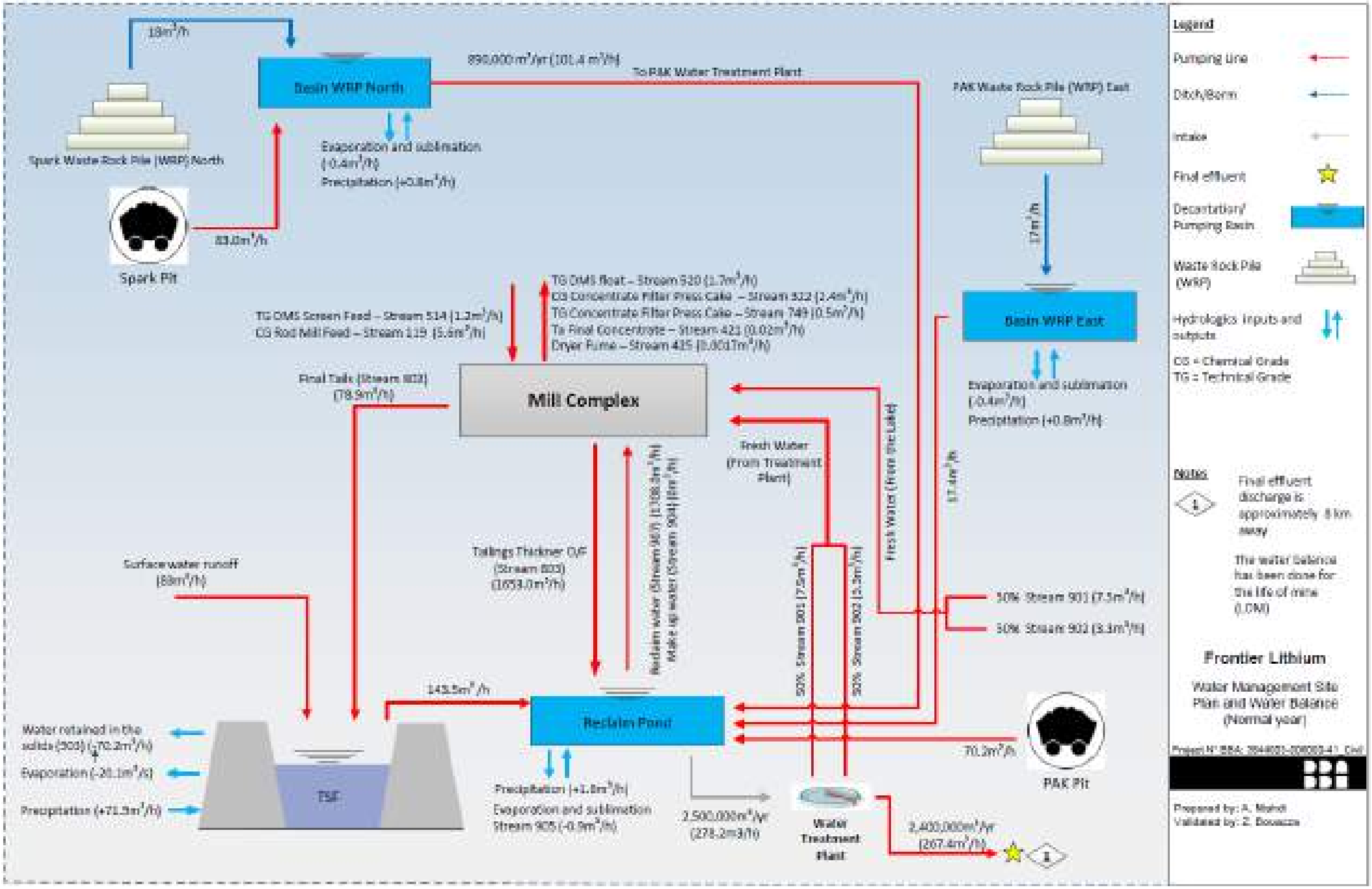


Figure 18-8: LOM Water Balance for Normal Year

18.6.5 Basin Sizing and Design

Four basins are required to manage PAK contact water (Table 18-3):

- Spark mine rock storage area basin requires a storage volume of 59,000 m^3;
- PAK mine rock storage area pumping basin requires a volume of 39,000 m^3;
- The supernatant pond is designed to handle a maximum of 400,000 m^3 water, water is to be transferred to the reclaim pond at a yearly average rate 143.5 m^3/h;
- Reclaim pond with 220,000 m^3 of storage.

The capacity of the basins takes into consideration the operation of a water treatment plant with a design capacity of 0.43 m^3/s.

Table 18-3: Capacity of the Basins and Ponds

Infrastructure	Unit	Volume
Spark Mine Rock Storage Area Basin	m^3	59,000
PAK Mine Rock Storage Area Basin	m^3	39,000
Supernatant Pond (Tailings Storage Area)	m^3	400,000
Reclaim Pond	m^3	220,000

18.7 Domestic and Potable Water Treatment Plants

18.7.1 Domestic Wastewater Treatment Plants

Domestic wastewater treatment plants will be used to treat all domestic wastewater on site coming from the construction and operations camps, concentrator plant facility, and operational facilities. Each wastewater treatment plant will be housed in modified shipping containers. A membrane bioreactor process is proposed to treat the domestic wastewater and to bring it to a water quality level compliant with the "Metal and Diamond Mining Effluent Regulations (SOR/2002-222)" to be discharged to a nearby water course. Design flowrates for the domestic wastewater treatment plants are shown in Table 18-4.

Table 18-4: Domestic Wastewater Treatment Plant – Design Criteria

Location	Average Flows (m^3/d)	Maximum Flows (m^3/d)
Operations Camp	62.5	94
Construction Camp	78.8	118
Operational Site (Dry Facility, Office, Maintenance Shop and Concentrator Plant Facility)	15.5	23.0

A typical layout of a bioreactor membrane facility in modified shipping containers is shown in Figure 18-9.

The main components of the systems are:

- Oxidation reactors by air addition;
- Air blowers;
- Membrane bioreactors and accessories for the maintenance of the membrane, such as chemical dosing systems, water and chemical tanks and pumps used for the membrane washing system.

Figure 18-9: Typical Layout of a Membrane Bioreactors System Set Up in Containers

For the construction camp, equipment rental opportunities should be considered and analyzed for the duration of this operation phase for the domestic wastewater treatment unit.

18.7.2 Potable Water Treatment Plants

Potable water treatment plants will be used to provide the construction and operations camps, the concentrator plant facility and operational facilities. Potable water treatment plants will be housed in modified shipping containers. Reverse Osmosis process is proposed to treat nearby watercourse to Ontario drinking water standards (set out in Schedule 1, 2 and 3) of the Safe Drinking Water Act, 2002. Design flowrates for the potable water treatment plants are shown in Table 18-5.

Table 18-5: Potable Water Treatment Plant – Design Criteria

Location	Average Flow (m^3/d)	Maximum Flow (m^3/d)
Operations Camp	69.4	104
Construction Camp	87.5	131
Operational Site (Dry Facility, Office, Maintenance Shop and Concentrator Plant Facility)	17.2	26

A typical layout of a reverse osmosis treatment facility in containers is shown in Figure 18-10.

The main components of the system are:

- Pre-treatment systems;
- Reverse osmosis membranes;
- Pumps.

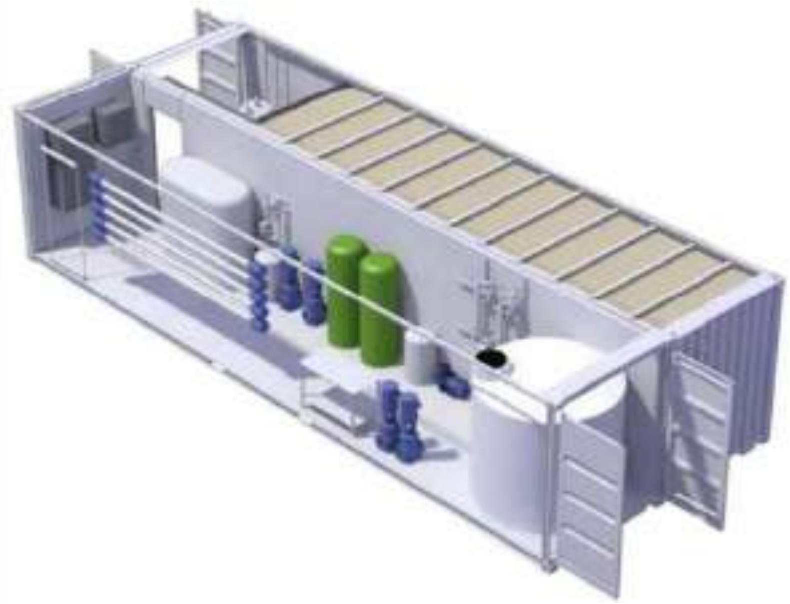


Figure 18-10: Typical Layout of a Reverse Osmosis Water Treatment Plant Set Up in a Container

For the construction camp, equipment rental opportunities should be considered and analyzed for the duration of this operation phase for the potable water treatment unit.

18.8 Tailings Management Facility

Tailings management at the PAK Project will be achieved using the conventional slurry technology and hydraulic deposition approach. The tailings slurry produced at the concentrator plant facility will be pumped and conveyed by a pipeline to the designed tailings storage area. A conceptual design for the tailings management component includes:

- LOM tailings storage area layout;
- Tailings impoundment and water retention structures;
- Related water management infrastructure;
- Conceptual deposition (filling) plans and construction sequences.

18.8.1 General Design Considerations

At this stage of the Project, limited information is available regarding tailings characterization as well as factual geotechnical conditions for the PAK Project site, particularly on the tailings storage area. The performed conceptual design considers information from different sources. The principal references for the conceptual design of the tailings management facility are:

- PAK Prefeasibility Study, Golder Report 1783629 Rev0, April 18, 2018 (Golder, 2018a);
- Baseline Hydrogeology Report, Golder Report 1662929 Rev0, June 2018 (Golder, 2018b);
- Geotechnical / Hydrogeological Prefeasibility Investigation – Factual Summary, Golder Draft Report 1894050, April 19, 2018 (Golder, 2018c).

Design assumptions were made, and they will need to be confirmed in the future stage of the Project. The following considerations have been identified:

- The tailings slurry produced by the concentrator plant facility will be transported by pipeline to the tailings storage area.
- Deposition will occur from the perimeter of the facility, and retention structures will be built in stages as required.
- A supernatant pond is expected to be created at the eastern area of the facility.
- Drainage from tailings will be transferred to the reclaim pond and then returned to the concentrator plant facility by pumping. A barge will be required for supernatant pond water management.

- Tailings are considered non-acid generating and not-metal leaching material. Validation of tailings geochemistry is ongoing. Additional test work and tailings geochemical analysis will provide Frontier with a better understanding of the geochemical properties of the tailings. The use of a geomembrane over the footprint of the entire tailings storage area is not defined at this stage, as such it has been identified as a project risk.
- The new facility has been designed to store a total of 14.9 Mt of tailings, which corresponds to a life of mine ("LOM") of 24 years with anticipated tailings production shown in Table 18-6. The capacity of tailings storage area has been evaluated at a conceptual level and will need to be validated in further stages of the Project.

18.8.2 Tailings Production and Characteristics

The mining plan indicates a peak annual tailings production of approximately 1,900 tpd. There will be a ramp up period from Year 0 to Year 5, and then production is expected to be relatively consistent from Year 5 to Year 20, followed by a slight decrease in production until Year 24. Table 18-6 shows the expected daily and yearly production as well as the cumulative produced tailings in tonnes and cubic metres (see also Figure 18-12). The facility was designed to store 14.9 Mt of tailings.

The physical properties of the deposit tailings are not available at this stage of the Project and the following assumptions were made for the preliminary geotechnical analysis of the facility:

- Tailings beach slope: 100H:0.5V (0.5%) above the water and 100H:1V (1%) under the water (slurry assumed to be 50% solids by weight as a conservative basis for this design).
- The grain size distributions indicate that tailings can be considered as fine-grained sand material.
- The specific gravity of tailings is taken as 2.73 while the void ratio of deposited tailings is considered as 1.0.
- Future deposited and settled tailings will have a density ranging from approximately 1.2 t/m³ to 1.5 t/m³. For volumetric calculations, as well as for conceptual stability analysis, a compacted in-place density of about 1.3 t/m³ has been used. With this density, the resulting storage volume is 11.4 Mm³.
- Tailings are considered as non-acid generating and non-metal leaching material.

Table 18-6: Tailings Production – Required Capacity of Tailings Storage Area

Period	Produced Tailings		Cumulative Produced Tailings	Tailings to Storage Area per Period (@1.3 t/m^3)	Tailings Cumulative Volume at Storage Area
(year)	(tpd)	(tpy)	(t)	(m^3)	(m^3)
1	0.00	0	0	0	0
2	170	60,700	60,700	46,700	46,700
3	230	83,700	144,400	64,400	111,100
4	1,440	526,200	670,700	404,800	515,900
5	**1,900**	**694,100**	**1,364,800**	**533,900**	**1,049,800**
6	1,900	694,100	2,058,900	533,900	1,583,800
7	1,900	694,100	2,753,000	533,900	2,117,700
8	1,900	694,100	3,447,100	533,900	2,651,600
9	1,900	694,100	4,141,200	533,900	3,185,500
10	1,900	694,100	4,835,300	533,900	3,719,400
11	1,900	694,100	5,529,400	533,900	4,253,400
12	**1,900**	**694,100**	**6,223,500**	**533,900**	**4,787,300**
13	1,900	694,100	6,917,600	533,900	5,321,200
14	1,900	694,100	7,611,600	533,900	5,855,100
15	1,900	694,100	8,305,700	533,900	6,389,000
16	1,900	694,100	8,999,800	533,900	6,923,000
17	1,900	694,100	9,693,900	533,900	7,456,900
18	1,900	694,100	10,388,000	533,900	7,990,800
19	1,900	694,100	11,082,100	533,920	8,524,700
20	**1,900**	**694,100**	**11,776,200**	**533,900**	**9,058,600**
21	1,790	653,800	12,430,000	502,900	9,561,600
22	1,670	610,400	13,040,400	469,500	10,031,100
23	1,670	610,400	13,650,800	469,500	10,500,600
24	1,670	610,400	14,261,100	469,500	10,970,100
25	**1,670**	**607,800**	**14,868,900**	**467,500**	**11,437,600**
Total	**-**	**14,868,900**	**-**	**11,437,600**	**-**

Numbers may not add due to rounding

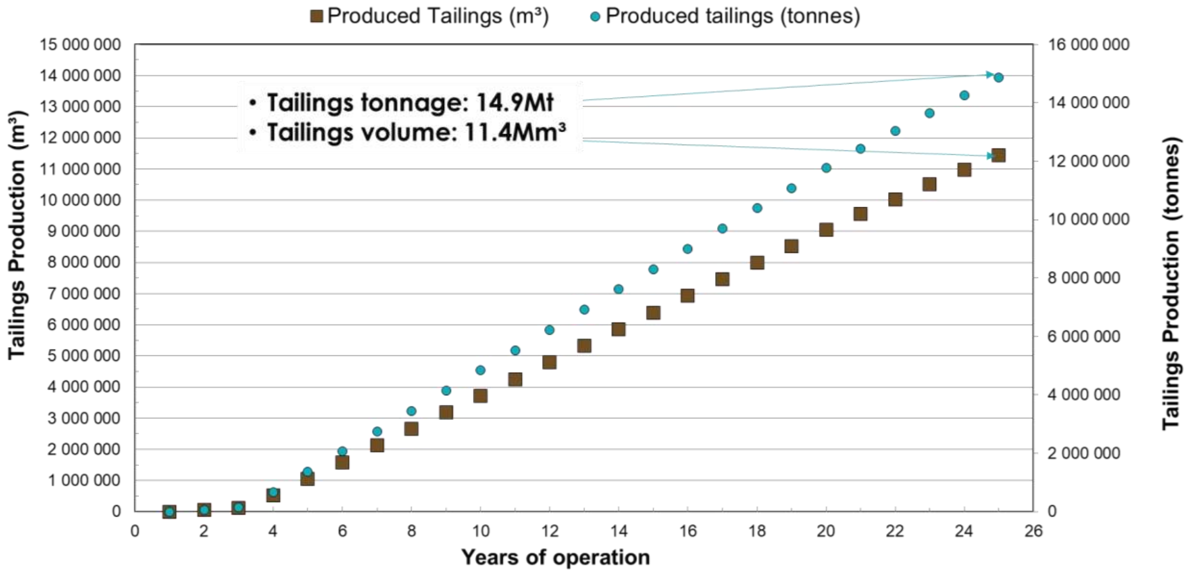


Figure 18-11: Cumulative Tailings Production

18.8.3 Tailings Storage Area Location

The site chosen for the tailings storage area (Figure 18-1) takes advantage of the natural topography to create a storage area capable of accommodating tailings generated over the full LOM with some contingency volume. The valley, located south of both PAK and Spark mines, has several benefits such as:

- Volumetric Compliance: Sufficient volume is available to accommodate 14.9 Mt of tailings resulting from the current LOM.
- Natural Containment: Only three containment structures are required to achieve the required volume and their combined length is only 23% of the final perimeter of the tailings storage area.
- Additional Capacity: Should additional ore be identified in the future the capacity of the tailings storage area could be increased by 30%.
- Site Integration: High ground north of the tailings storage area will accommodate the concentrator plant facility and central site infrastructure. The portion of the valley that extends northeast, near the PAK mine pit, creates an ideal location for the reclaim pond which is central to the site water management plan.
- Future Mining: The footprint of the tailings storage area does not encroach on the trend of mineralized outcrops that extend southeast from the Spark pit area.

Containment structures that retain solids are typically referred to as dikes while those designed specifically to retain water are referred to as dams. While the downstream reclaim pond structure will primarily retain water, all of these structures will be referred to as dikes to simplify nomenclature for the purposes of this report. The design work was completed in compliance with CDA guidelines, under which dams and dikes are designed with similar procedures and the same level of importance.

18.8.4 Tailings Storage Infrastructure

The design of the tailings storage area is comprised of the following infrastructure:

- Confinement structures:
  - West Dike (1,800 m);
  - South Dike (233 m);
  - East Dike (267 m);
  - Reclaim pond dike (212 m).
- Footprint of 189 ha for tailings storage;
- A supernatant pond of 400,000 m^3 capacity;
- A reclaim pond of 220,000 m^3 capacity;
- A network of perimeter roads, in different sections, the slurry pipeline will follow this road.

Details of the main components of tailings storage area are provided in the following sections.

18.8.4.1 Retention Structures of Tailings Storage Area

The tailings storage area will be enclosed by a perimeter dike. It is planned to be built in four stages (Years 1, 4, 11, and 19) by the downstream method. During the 24-year operation, dike rises will be required according to the tailings deposition. Dike alignment has been chosen considering topography, using natural ridges to reduce dike material volumes. Table 18-7 presents the development of tailing storage capacity over the life of mine.

Table 18-7: Tailings Storage Area Development

Construction Period	Dike – Elevation (masl)				Generated Tailings Storage Capacity (Mm^3)
	West	East	South	Reclaim Pond	
Year -1	334.5	334.0	-	333.5	2.06
Year 4	339.5	338.0	-		5.80
Year 11	343.0	341.5	-		10.15
Year 19	347.0	344.5	347.0		15.87

A starter dike will be constructed. Dike raises will retain the same design elements as the starter dike. The main characteristics of this structure are presented in Figure 18-12.

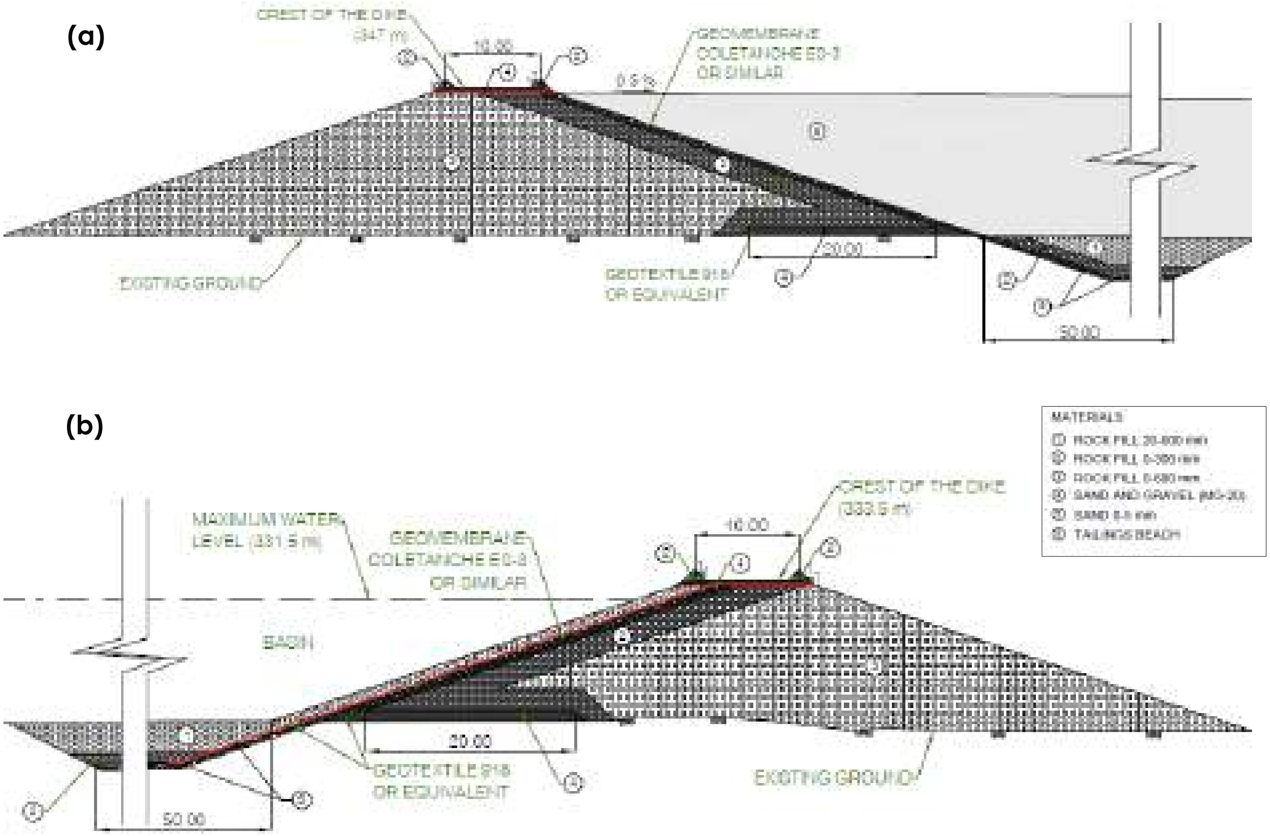


Figure 18-12: Typical Cross-Section of Perimeter Dike
(a) Upstream Facing Tailings; (b) Upstream Facing Water

Conceptual dike parameters are described as follows:

- Geometry: crest width of 10 m, with a slope (upstream and downstream) of 3H:1V.
- The main construction material of dikes is waste rock fill, and the imperviousness is ensured with an impervious bituminous geomembrane (BGM Coletanche ES-3 or similar).
- The construction material is assumed sufficient either from quarry source or from the open pit waste rock. The construction material is assumed to be non-leaching and non-acid generating.
- Transition layers between the waste rock fill and the geomembrane bedding layer are required.

- A seepage collection ditch will be excavated at the downstream toe of each dike. Seepage will drain to sumps and then be pumped to the settling pond.
- A sand layer is to be used as protection material for geomembrane within the dike cross-section.
- It was decided that, at this stage, the installation of a geomembrane beneath the tailings storage area will not be included.
- Dam foundation filter design was incorporated.

The ultimate design elevations, provided in metres above sea level ("masl"), of perimeter dikes are shown in Table 18-8.

Table 18-8: Summary of Final Dike Elevations

Containment Structure	Minimum Elevation (masl)	Minimum Elevation (masl)	Dike Height (m)
West Dike	331	347	16
East Dike	314	344.5	30.5
South Dike	344	347	3
Reclaim Pond Dike	313.5	333.5	20

A preliminary stability analysis was carried out based upon assumed geotechnical properties of the foundation soil and dike materials. The assessment considered static analysis for short and long-term conditions, as well as pseudo-static analysis, both using limit equilibrium method. The results of the slope stability analysis showed that the East and West dikes, in proposed configurations, satisfy the minimum factor of safety requirements adopted by Frontier (1.5 for short-term and long-term, 1.1 for pseudo-static).

18.8.4.2 Tailings Storage Area

At project completion and life of mine, the total surface that will be occupied by the tailings storage area and its confinement structures will be approximately 189 ha. The layout of the tailings storage area showing facility configuration, its limits, and main components are shown in Figure 18-13. It is important to note that an additional capacity of about 30% has been integrated in the PFS design, yielding a potential total storage capacity of 19.59 Mt tailings (or 15.07 Mm^3).

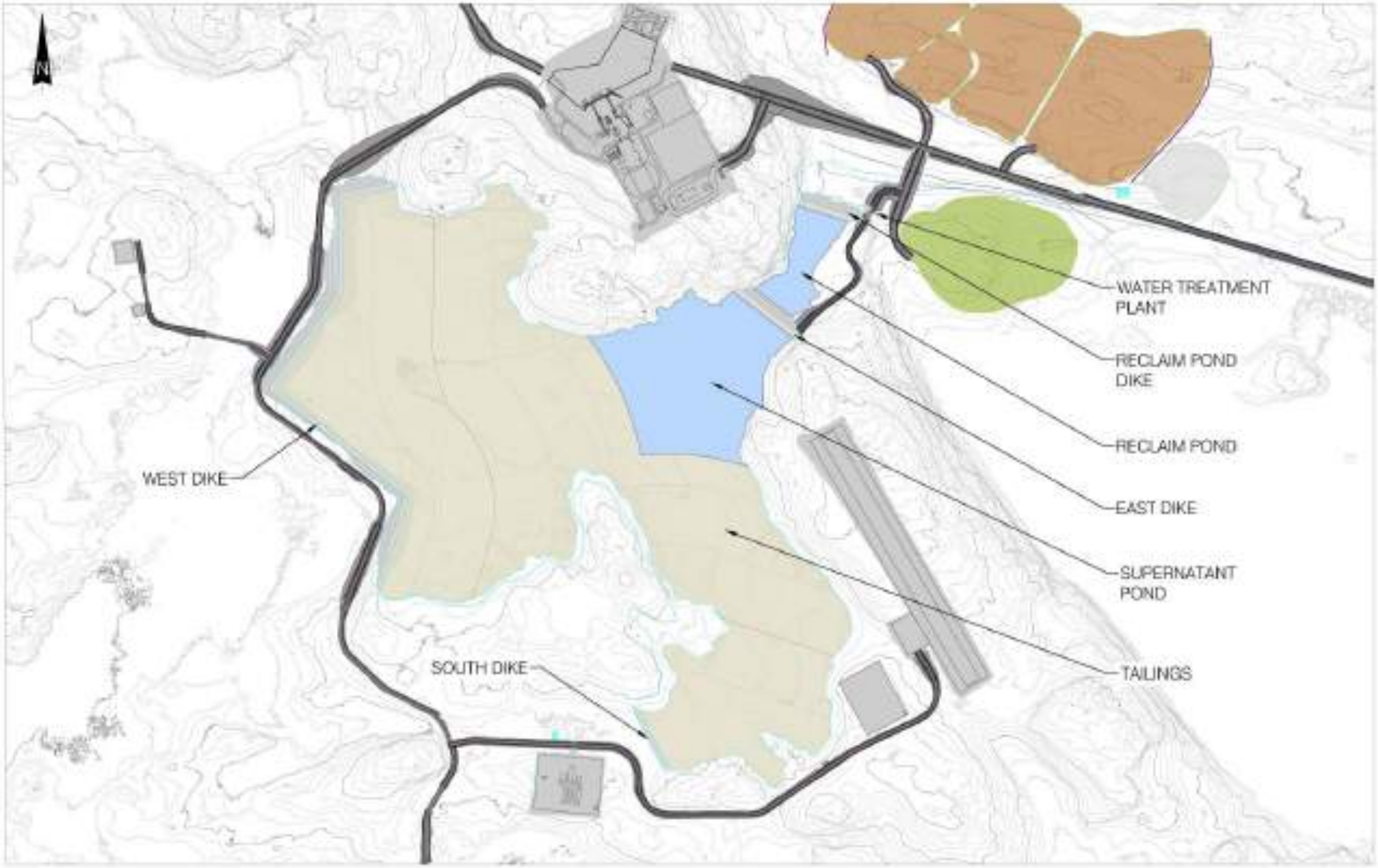


Figure 18-13: General Layout of Tailings Storage Area

18.8.4.3 Supernatant Pond and Reclaim Pond

Drainage from the tailings tends to flow towards the northeast and will be contained by the East Dike. Following tailings deposition, a supernatant pond will be created, as shown in Figure 18-13. The purpose of this pond is to collect water from the slurry, allow for tailings sedimentation, and recycle water for use in the process.

The supernatant pond is designed to handle a maximum volume of 400,000 m^3. At LOM, the maximum water elevation expected in this pond is 342.5 m. This pond will serve as the main source for recycled water in the process.

A barge will be required for supernatant pond water management. Water is to be pumped from the tailings storage area and conveyed to the reclaim pond. The storage capacity of the reclaim pond is 220,000 m^3. The maximum water elevation expected at this pond is 331.5 m. The water storage at the reclaim pond will be used for concentrator operations, while the excess water at the reclaim pond will be treated prior to being released to the environment.

18.8.5 Tailings Management Facility Service Roads

Construction and operation of the tailings and water management infrastructure will require the use of service roads:

- Service roads related to tailings operation are aligned with the West Dike and in proximity of the South Dike. This road can be connected to the existing local network;
- Designed to accommodate pick-up trucks with a maximum grade of 8% and a curve radius of 50 m;
- The corridor of the service road has a width of 6 m with 3.5 m pipe corridor dedicated to tailings pipeline.

18.8.6 Tailings Deposition Strategy

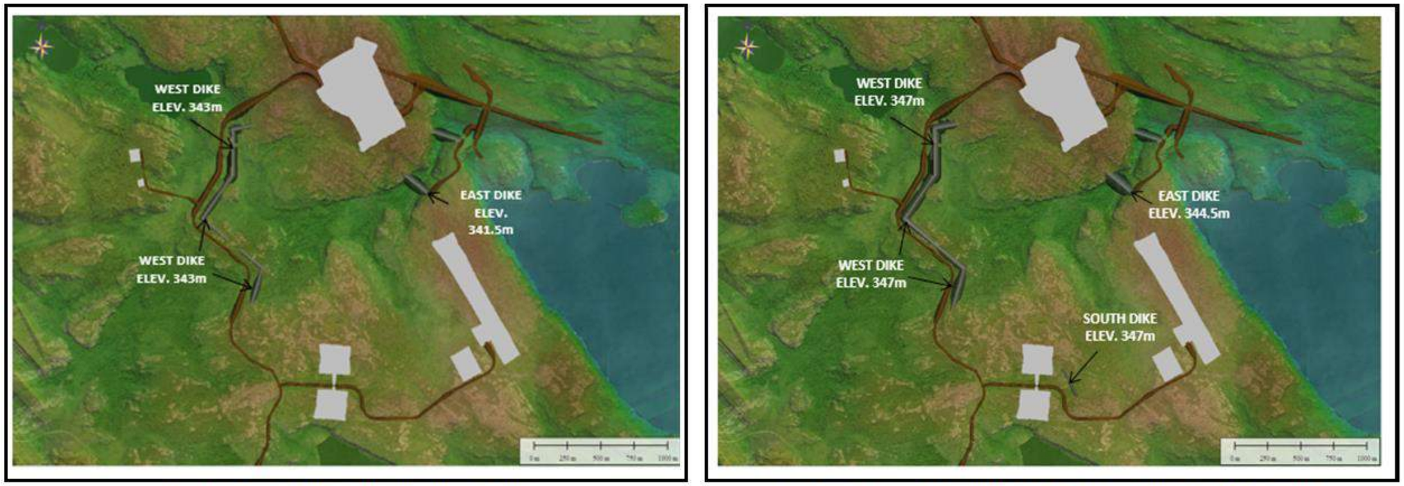
Tailings deposition concept is based on concentrator plant production and material characteristics discussed in Section 18.8.2. The following considerations have been used for deposition planning:

- Slurry will be transported via a surface delivery pipeline, from the concentrator plant facility to the tailings storage area.
- The development sequence requires the construction of the perimeter dike prior to tailings deposition. At least four construction stages (Years 1, 4, 11 and 19) and tailings storage area footprint expansions are expected.

- Tailings will be discharged from deposition points along the crest of perimeter dikes. Concentrating deposition at the western and southern side of the facility will facilitate the formation of the tailings beach and will provide distance and time to the tailings for settling.
- From the discharge points, a deposition beach of 0.5% slope (average) is expected to be created. It is assumed that the sub-aqueous tailings may form a steeper slope of approximately 1%. A supernatant pond will be created at the northeast section of the tailings storage area. Its location and depth will change accordingly with tailings placement.
- Operational freeboards are assumed at minimum 0.5 m in sections where the perimeter dike is in contact with the tailings beach area, and minimum 1.5 m at the dike section in contact with the supernatant pond and reclaim pond.
- Emergency spillways for the East Dike and supernatant pond dike are required. Spillways are to be constructed/excavated outside of the final footprint of the dike structure and adjacent to the northeast extremity of the dikes.
- The tailings deposition was modelled for different intervals throughout the Project (Piciacchia and Vides, 2023). Deposition scenarios also considered different slurry discharge locations. The selected strategy and the development stages of the tailings storage area are shown in Figure 18-14, which illustrates the sequence of dike construction, and Figure 18-15, which illustrates the sequence of tailings deposition.

YEAR (-1) - CONSTRUCTION - START

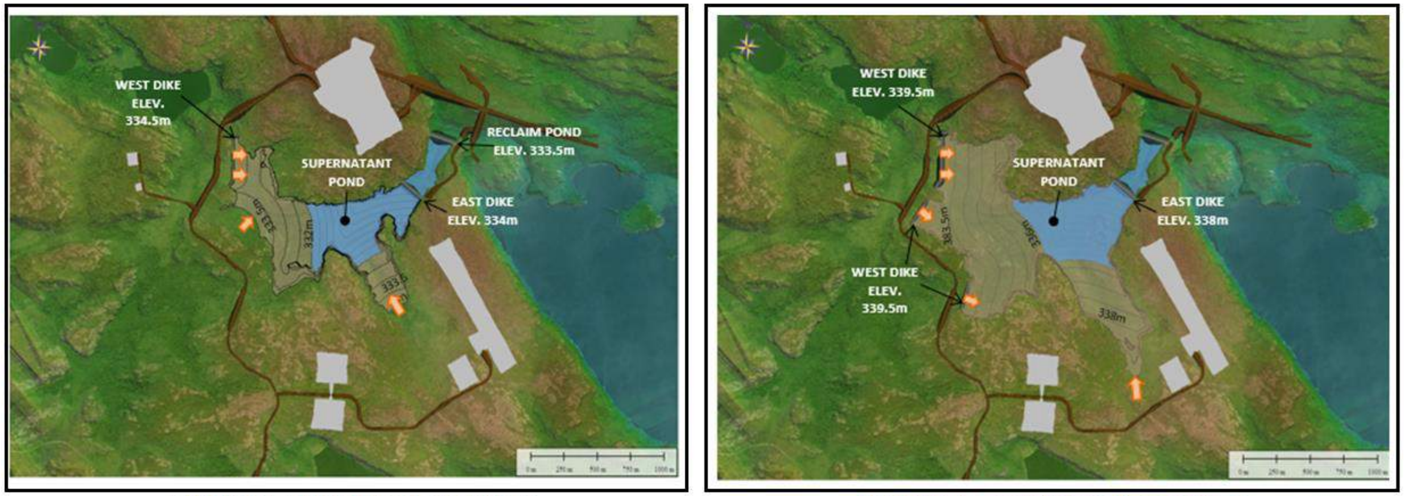
YEAR 4 - CONSTRUCTION - EXTENSION AND RAISE



YEAR 11 - CONSTRUCTION - RAISE

YEAR 19 - CONSTRUCTION - EXTENSION AND RAISE

Figure 18-14: Construction Sequence of Tailings Storage Area



AT YEAR 6 - DEPOSITION: 1.58 Mm³ AT YEAR 13 - DEPOSITION: 5.32 Mm³

AT YEAR 22 - DEPOSITION: 10.03 Mm³ AT YEAR 25 - DEPOSITION: 11.40 Mm³ (Capacity: 15.87Mm³)

Figure 18-15: Deposition Sequence of Tailings Storage Area

18.8.7 Stability Analysis (East and West Dikes)

Stability analysis has been performed in both static and pseudo-static conditions for critical sections of the most important retention structures of the tailings storage area, the East and West dikes.

The preliminary results of the slope stability analysis are presented in Table 18-9 and the detail is provided in a separate document (Piciacchia and Yang, 2023). With the proposed configurations and optimizations, the obtained factors of safety show that the stability of both retention structures meet the minimum required values from the Canadian Dam Association. Stabilization berms should be used to ensure the stability of the West Dike under the static and pseudo-static conditions.

Table 18-9: Factor of Safety of the Slope Stability Analysis

Dikes	Static		Pseudo-static
	Short term Criterion = 1.5	Long term Criterion = 1.5	Short term Criterion = 1.1
East (Profile 1)	1.5 (Optimized)	1.9 (Optimized)	1.2 (Optimized)
West (Profile 2)	1.5 (Optimized)	2.9 (Optimized)	1.1 (Circular)

18.9 Effluent Treatment

18.9.1 Collected Contact Drainage Water Characterization and Effluent Water Limits

The following sections summarize the assumptions regarding collected contact drainage water quantity and quality and effluent water limits before discharging to the environment, based on currently available information.

18.9.1.1 Collected Contact Drainage Water Quantity

Contact water will be collected from numerous sources across the site with all collected water pumped to the reclaim pond. A considerable portion of the water collected is pumped back to the concentrator plant facility as process water with the excess being treated prior to being released into the Flanagan River, which is just over 7 km east of the water treatment plant. The average flow rates for all site water movement anticipated in a normal year are shown in Figure 18-8.

A maximum operating capacity of 37,200 m^3/d (0.43 m^3/s) has been assumed for the purpose of the collected contact water treatment plant design. The contact water from both PAK and Spark areas will be treated in one location.

The water treatment system will treat 2.5 Mm^3/y from the reclaim pond that collects water from all sources on site. The system is expected to operate year-round, 24 hours/day and 7 days/week. Table 18-10 lists parameters of concern with their corresponding effluent limits. The treated effluent will be discharged into the Flanagan River, which is the nearest waterway with sufficient flow to ensure that treated water is adequately diluted and there is no risk of localized accumulation of contaminants.

18.9.1.2 Collected Contact Drainage Water Quality and Effluent Water Limits

Assumptions regarding collected contact drainage water quality are as follows:

- Based on the geochemical characterization work for the PAK and Spark deposits to date, the metals that are anticipated to have elevated concentrations are listed in Table 18-10;
- Based on benchmarking of open pit operations that use emulsion rather than ANFO and diligently follow Good Housekeeping practices (e.g., turn off fill hose while moving between blastholes), the concentration of ammonia in open pit dewatering will meet effluent limits without any treatment. If ANFO is used instead of emulsion, the collected contact drainage water treatment system will need to be reassessed to consider treating the ammonia content;
- The reagents that will be used in the concentrator plant facility are listed below:
    - Sodium sulphide (Na_2S);
    - Sodium hydroxide ($NaOH$);
    - Flocculant polymer;
    - Iron-based coagulant (e.g.: ferric sulphate ($Fe_2(SO_4)_3$), ferrous sulphate ($FeSO_4$) or ferric chloride ($FeCl_3$));
    - Sulphuric acid (H_2SO_4).

Based on these assumptions, the influent water quality is shown in Table 18-10.

The effluent will be discharged into Flanagan River. The receiver effluent limits have been determined in accordance with the MDMER regulations and are listed in Table 18-10.

Table 18-10: Collected Contact Drainage Water Quality and Effluent Water Limits

Parameter	Unit	Collected Contact Drainage Water	Effluent Limits (Discharge Target to Flanagan River)
pH	S.U.	-	6.0 - 9.5
Total Suspended Solids ("TSS")	mg/L	-	15
Unionized Ammonia	µg N/L	74	500
Phosphorus	µg/L	380	NS(1)
Arsenic	µg/L	333	100
Copper	µg/L	-	100
Cyanide	µg/L	-	500
Lead	µg/L	-	80
Nickel	µg/L	-	250
Zinc	µg/L	-	400
Antimony	µg/L	59	NS(1)
Cobalt	µg/L	4	NS(1)
Acute Lethality Test – Rainbow Trout	ATU	-	≤ 1
Acute Lethality Test – Daphnia Magna	ATU	-	≤ 1

(1) NS= No specified target in regulations

18.9.2 Collected Contact Drainage Water Treatment Plant Process

The values listed in Table 18-10 indicate that two primary contaminants to be treated are total suspended solids ("TSS") and arsenic removal.

A clarifier will be required to reduce the TSS to less than the 15 mg/L limit. The use of a clarifier will provide additional benefits in that it will remove some other contaminants; however, the removal of arsenic, primarily caused by metal leaching from the tailings, will require the addition of an iron coprecipitation step prior to the effluent being introduced to the clarifier for solid/liquid separation.

An additional polishing step downstream of the clarifier will be required on an occasional basis, as per operating data to adjust pH and remove the remaining TSS.

The process flowsheet is provided in Figure 18-16 and is summarized below:

- Contact water will flow from the reclaim pond into the arsenic reaction tank, where specific predetermined chemicals will be added to convert arsenic into settleable form. The tank will mix and homogenize the water before the next step;
- This conditioned wastewater will then flow into the next stage where additional chemicals will be added to co-precipitate arsenic with iron coagulant and increase the particles weight with flocculant to improve the particles settleability. This conditioned wastewater will flow into the stilling well of a circular mechanical clarifier where liquid-solid separation will take place;
- In the clarifier, the floc formed in the upstream steps will settle out to the bottom where it will be conveyed by a scraper to a centered discharge point, from where the settled sludge will be removed for dewatering with filter presses and disposed off to the TMF. Filtrate liberated by the filter press dewatering process will be returned to the reclaim pond by gravity or by pumping. The clear supernatant produced by the settling process will exit the clarifier and flow into the downstream filtration step and pump tank;
- The clear supernatant will be filtered by a set of disc filters and flow to the pump tank. In the pump tank, the pH will be monitored and adjusted to ensure it is within regulatory limits, then the treated water will be pumped into the Flanagan River discharge point.

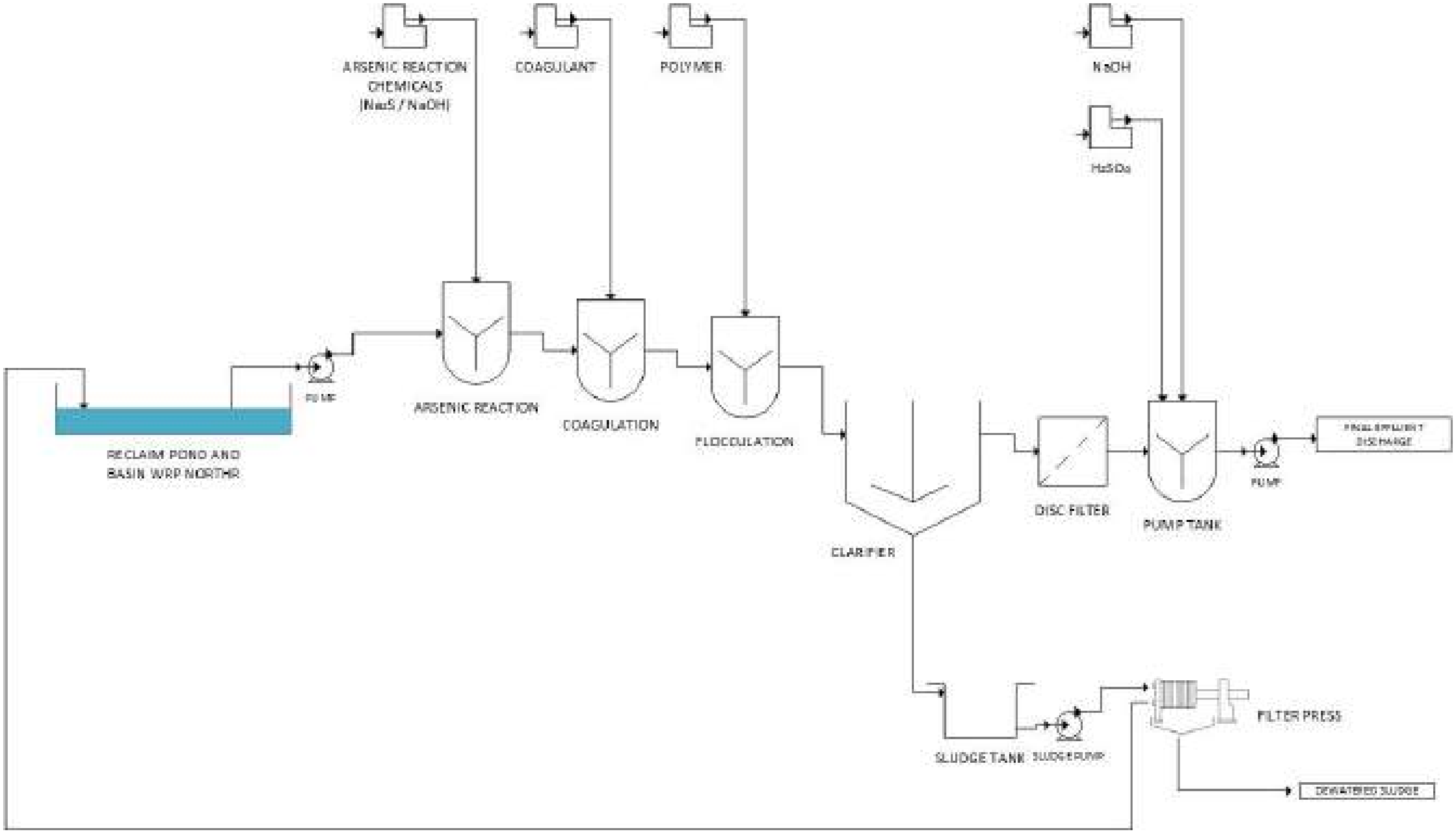


Figure 18-16: Collected Contact Drainage Water Treatment Plant Process Flowsheet

18.10 Cybersecurity for Industrial Control Systems

Frontier recognizes that the evolving threats related to cybersecurity are key concerns for their business and operations.

To mitigate this risk, Frontier has a unique opportunity to infuse strong cybersecurity principles from the inception and through the whole lifecycle of the PAK mining facilities Industrial Control Systems ("ICS").

By adopting a "cybersecurity by design" approach early on, Frontier can effectively balance the costs involved while reaching a compelling level of protection for the ICS assets. At the earliest stage of the Project during the engineering phase, key design criteria for ICS with cybersecurity in mind will be enforced on strategic vendors. Procured packages from OEMs, shaped with ICS cybersecurity considerations at the design level, will offer state of the art cyber defense capabilities.

At the operational readiness stage, extensive vulnerability testing will occur to ensure any unforeseen cybersecurity gaps are resolved in the whole ICS architecture during construction and commissioning. In parallel, a comprehensive ICS cybersecurity program will be established to ensure sustainment considerations are met when full production is achieved. An evolving program is the cornerstone of a successful and capable ICS cybersecurity posture. Beyond policies and procedures, the cybersecurity program will be incarnate by dedicated ICS cybersecurity performing various sustainment activities and user awareness training.

By doing so, Frontier mitigates the disruption likelihood of its mining operations through a cyber incident. If a disruption happens, Frontier will have systems in place to minimize the impact of the disruption.

19. Market Studies and Contracts

19.1 Lithium Market Overview

Lithium is a highly valued mineral due to its use in rechargeable batteries, which are used in electric vehicles and other electronic devices. Lithium can be extracted from various sources using different methods.

The common methods used to extract lithium are as follows:

1. Brine Extraction: This is the most common method used to extract lithium, particularly in South America. Brine is pumped from underground reservoirs and evaporated to concentrate the lithium salts, which are then converted using chemical processes.
2. Hard Rock Mining: Lithium can also be extracted from hard rock deposits, such as spodumene, lepidolite, and petalite. The rock is mined, crushed, and then treated with chemicals to extract the lithium.
3. Geothermal Extraction: This is a newer method of extracting lithium that involves extracting lithium from geothermal fluids. The fluids are pumped from geothermal reservoirs, and the lithium is extracted using ion exchange or other chemical processes.
4. Clay Extraction: Lithium can also be extracted from clay deposits, which are found in various regions around the world. The clay is mined, crushed, and then treated with chemicals to extract the lithium.
5. Recycling: Lithium can be extracted from used lithium-ion batteries through a recycling process. The batteries are shredded, and the metals, including lithium, are extracted using chemical and mechanical processes.

Spodumene is a mineral that is used as a primary source of lithium, to produce lithium chemicals such as lithium carbonate and lithium hydroxide. The majority of the world's spodumene reserves are located in Australia, Canada, and South America. Other significant spodumene producers include Brazil, China, Zimbabwe, and Finland.

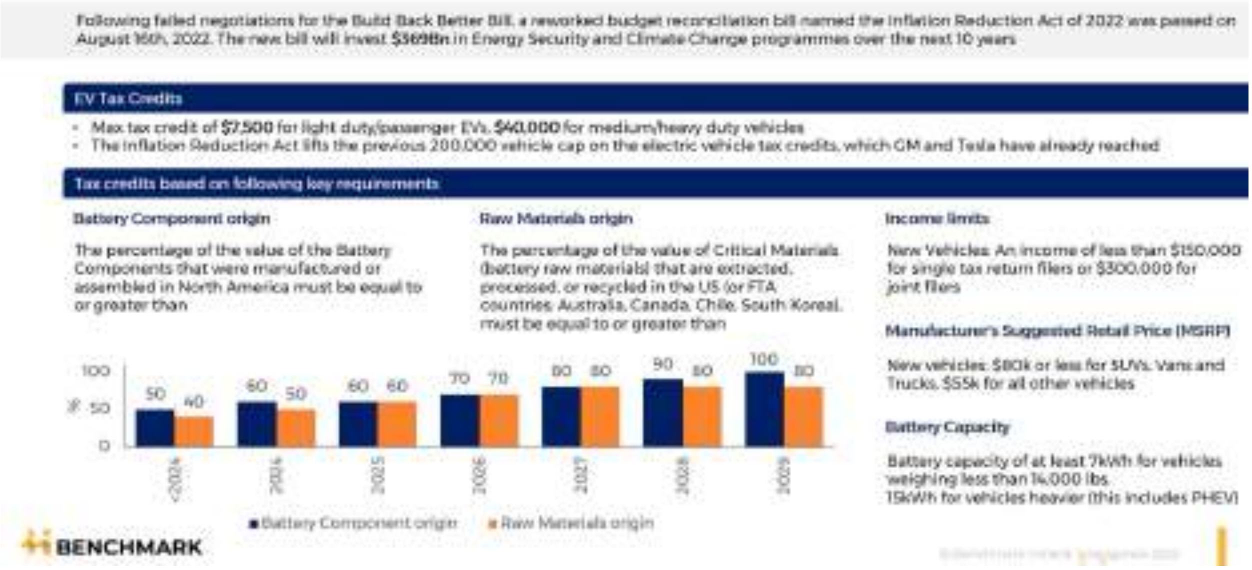
The world supply of spodumene can vary depending on various factors such as mining and production activities, market demand, and geopolitical events. As of April 2023 , the world supply of spodumene is produced in Australia (Chew, 2023). Australia's Greenbushes lithium mine is the world's largest producer of spodumene, accounting for approximately 30% of the world's total spodumene production, 1.34 million tpa of chemical and technical grade concentrates.

The supply and demand for each form of lithium can vary depending on a variety of factors, such as market demand, geopolitical events, and mining operations. However, some general trends include:

- Technical Grade Lithium Spodumene: This is a type of lithium concentrate that is mined from spodumene ores. It is typically used in the glass and ceramic industries. The supply of technical grade lithium spodumene can be affected by the availability of a high purity spodumene with low iron content. The demand for technical grade lithium spodumene is affected by the production of lithium carbonate or lithium hydroxide, which are used to manufacture lithium-ion batteries;
- Chemical Grade Spodumene: This is a high-quality lithium concentrate. It is used as a feedstock for producing lithium compounds such as lithium carbonate and lithium hydroxide. The demand for chemical grade spodumene is typically driven by the demand for lithium hydroxide, which is used in the production of high-performance lithium-ion batteries;
- Lithium Hydroxide: This is a type of lithium compound that is used as a cathode material in the production of high-performance lithium-ion batteries. The demand for lithium hydroxide is driven by the growth of the electric vehicle market, as well as the demand for other energy storage applications.

Lithium has received a substantial support from the North American market from the US Inflation Reduction Act ("IRA") (117th Congress (2021-2022), 2022). The IRA has directed lithium to be produced in the North America and the resulting supply chain to the end products. The primary product for the North American market is electric vehicles ("EV"). Figure 19-1 describes the overview of the IRA's impact for EV. The US government subsidies and consumer incentives have moved forward for the longevity of the EV industry and the raw materials required to produce them.

There is a disconnect between the supply and demand for lithium cathodes in North America due to the current lack of secondary transformation plants and Li-based cathode production outside of China, Korea and Japan. Lithium hydroxide produced from spodumene from North America is shipped to China for battery production.



Following failed negotiations for the Build Back Better Bill, a reworked budget reconciliation bill named the Inflation Reduction Act of 2022 was passed on August 16th, 2022. The new bill will invest **$369Bn** in Energy Security and Climate Change programmes over the next 10 years

EV Tax Credits

- Max tax credit of **$7,500** for light duty/passenger EVs, **$40,000** for medium/heavy duty vehicles
- The Inflation Reduction Act lifts the previous 200,000 vehicle cap on the electric vehicle tax credits, which GM and Tesla have already reached

Tax credits based on following key requirements

Battery Component origin

The percentage of the value of the Battery Components that were manufactured or assembled in North America must be equal to or greater than

Raw Materials origin

The percentage of the value of Critical Materials (battery raw materials) that are extracted, processed, or recycled in the US (or FTA countries: Australia, Canada, Chile, South Korea), must be equal to or greater than

Income limits

New Vehicles: An income of less than $150,000 for single tax return filers or $300,000 for joint filers

Manufacturer's Suggested Retail Price (MSRP)

New vehicles: $80k or less for SUVs, Vans and Trucks, $55k for all other vehicles

Battery Capacity

Battery capacity of at least 7kWh for vehicles weighing less than 14,000 lbs
15kWh for vehicles heavier (this includes PHEV)

Figure 19-1: IRA Description Required for the EV Market
(Benchmark Minerals, 2023)

According to some industry reports (KPMG, 2022), the demand for lithium is expected to increase significantly over the next decade, driven by the growth of the electric vehicle market. It is estimated that the electric vehicle market will require more than 1 Mt of lithium carbonate equivalent by 2025 and up to 2.4 Mt by 2030.

In addition to the electric vehicle market, the demand for lithium is also expected to increase in other applications, such as energy storage systems for renewable energy, grid-scale energy storage, and portable electronics.

19.2 Lithium Supply and Demand

Lithium is a key component of rechargeable batteries used in electric vehicles and energy storage systems, making it an important resource in the transition to renewable energy. The demand for lithium has been growing rapidly in recent years, driven by the increasing adoption of electric vehicles and the deployment of large-scale energy storage systems.

There are several different forms of lithium products traded on the market, including lithium carbonate, lithium hydroxide, and spodumene concentrate. The prices of these products can vary depending on factors such as the quality and purity of the product, the source of the material, and the level of demand in the market.

In recent years, the price of lithium has been volatile due to fluctuations in supply and demand. At times, the price of lithium has soared due to a shortage of supply caused by increased demand from the electric vehicle industry, while at other times, the price has dropped due to oversupply or weaker demand.

Overall, the lithium market is expected to continue to grow in the coming years as demand for electric vehicles and energy storage systems increases. However, the market will likely remain volatile due to supply and demand imbalances and fluctuations in the global economy.

Frontier has completed an analysis of projected chemical and technical grade spodumene concentrates and lithium hydroxide monohydrate pricing. The average prices used for future sales of lithium concentrates and battery-quality lithium hydroxide monohydrate was developed by reviewing pricing data generated from publicly disclosed data collected from industry analysts, experts and lithium peer companies.

Analysis suggests that such concentrate prices are likely to remain robust, and that, despite varying prices for lithium chemicals, prices of concentrate should remain strong compared to historical levels as margin is transferred from the converters in China, that process spodumene into lithium chemicals, to the producers of the feedstock in order for incentive pricing to take place for the increased demand in the market. This is a pattern that has been seen repeated in basic commodities such as iron ore through to critical materials such as rare earths.

The spodumene reserves that are currently quantified are shown the Figure 19-2.

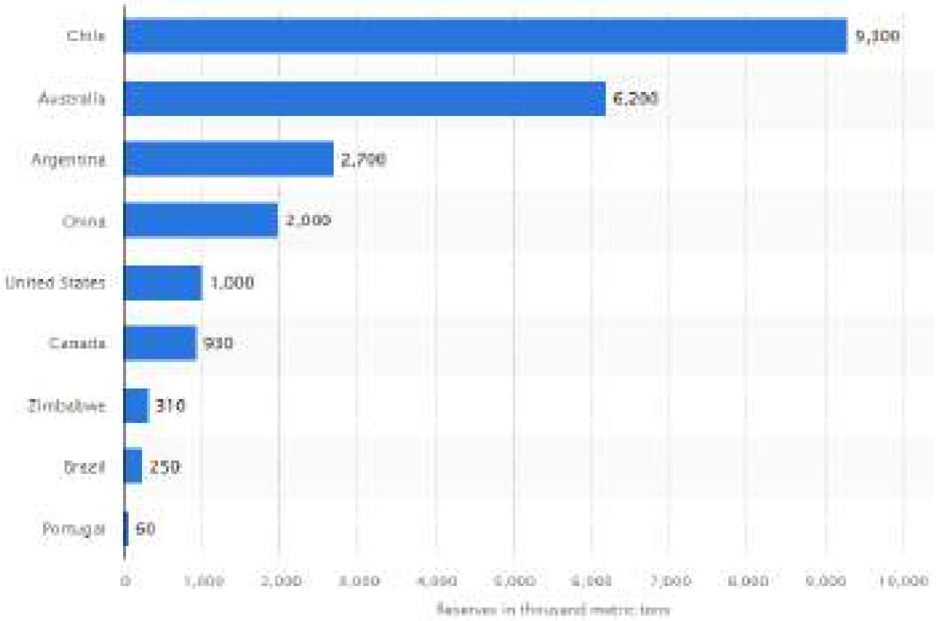


Figure 19-2: Spodumene Reserves
(Garside, 2023)

The refined lithium production by type of deposit is shown in Figure 19-3.

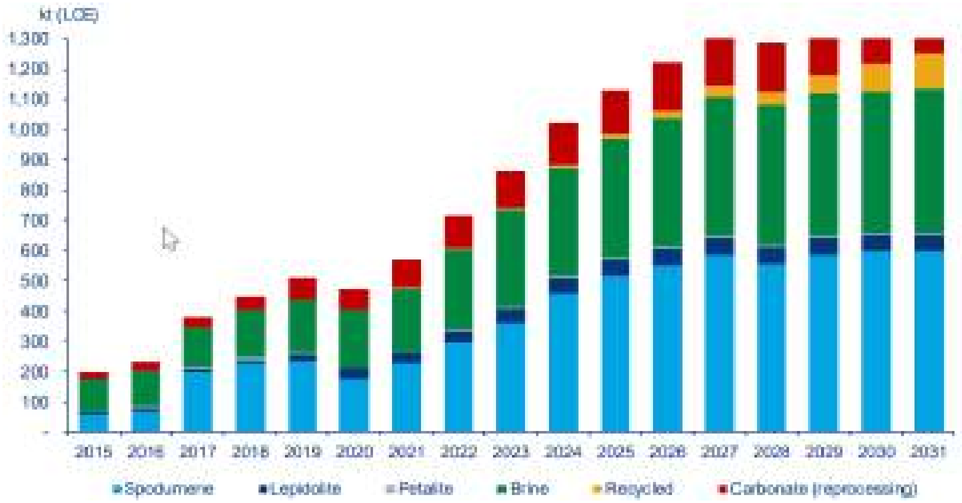


Figure 19-3: Refined Lithium Production by Deposit (Roskill – Wood Mackenzie)

The demand for lithium is mostly driven by battery electric vehicles ("BEVs"). It is estimated that there will be 32M BEVs in 2030. The supply of lithium for these vehicles comes from both high and low risk projects. The majority, approximately 15.4M BEVs, are aligned with high and medium risk supply, leaving only 11.2M BEVs to be supplied by low risk projects. Figure 19-4 shows the 2303 BEV demand and supply with the associated deposit type and project type.

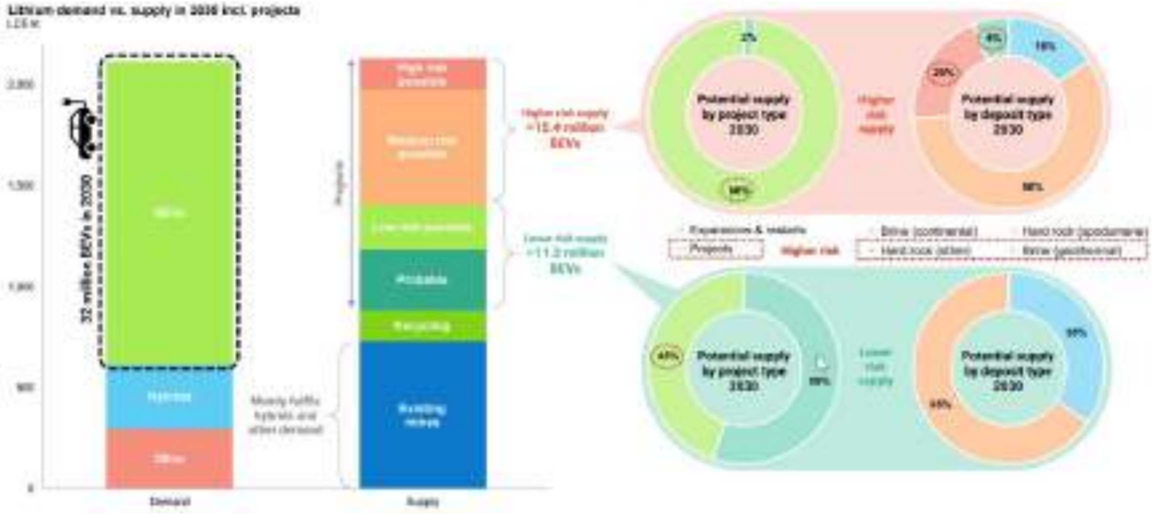


Figure 19-4: Lithium Demand and Supply in 2030 with Projects (SFA Oxford, 2022)

19.3 Lithium Hydroxide Plants in North America

The following is a list of current lithium hydroxide plants in North America:

1. Albemarle's operates a lithium hydroxide plant in Silver Peak, Nevada. This is their only lithium hydroxide plant currently in operation in North America. The company also has plans to expand its lithium hydroxide production capacity in the region.
2. Livent Corporation operates a lithium hydroxide plant in Bessemer City, North Carolina, which began commercial operations in 2020. The company plans to expand its lithium hydroxide production capacity to meet the growing demand for electric vehicle batteries.
3. Lithium Americas is developing the Thacker Pass lithium project in Nevada, which includes plans for a lithium hydroxide plant. Once completed, the plant is expected to have an annual production capacity of up to 60,000 tonnes of lithium hydroxide.

Frontier plans to process the spodumene concentrate produced from the PAK Project to lithium carbonate and lithium hydroxide in a refinery located in the northern Great Lakes region of North America.

19.4 Lithium Concentrate Price and LiOH Price Assumptions

Lithium is a key component in batteries for EVs, as well as in many other electronic devices. The demand for lithium has increased significantly in recent years due to the growing popularity of EVs and the global push towards cleaner energy. As a result, lithium prices have experienced significant volatility in the past few years, with a notable surge in prices during 2017-2018, followed by a decline in 2019-2020, and a recovery in 2021.

Historical average prices for technical grade spodumene, chemical grade spodumene, and lithium hydroxide are presented below:

1. Technical Grade Concentrate Prices:

Technical grade concentrate refers to the raw lithium ore that has been mined and processed to remove impurities. Technical grade concentrate typically has less impurities in the concentrate than chemical grade concentrate. Technical grade concentrate prices can fluctuate significantly depending on global supply and demand. The price of technical grade concentrate has been driven higher due to the demand and pricing of chemical grade concentrate and associated lithium chemicals.

2. Chemical Grade Concentrate Prices:

Chemical grade concentrate refers to the raw lithium ore that has been mined and processed to remove impurities. Historically, the average price of chemical grade concentrate has ranged from $800 to $1,500 per tonne (Canaccord Genuity Research, 2022). Like technical grade concentrate, these prices can vary based on global supply and demand. The historical price of spodumene concentrate is shown in green in Figure 19-5.

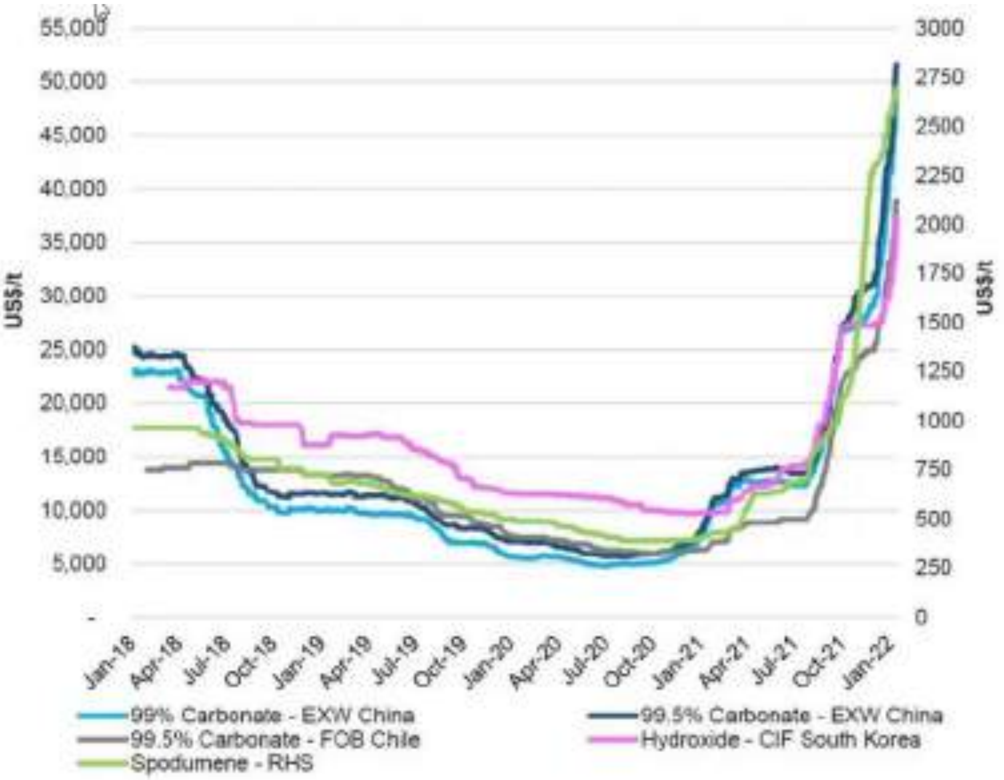


Figure 19-5: Lithium Products - Historical Average Prices (Canaccord Genuity Research, 2022)

3. Lithium Hydroxide Prices:

Lithium hydroxide is a key component used in the production of lithium-ion batteries. Historically, the average price of lithium hydroxide has varied between $10,000 and $20,000 per tonne (Benchmark Minerals, 2023). However, these prices have also fluctuated significantly based on market demand and supply. Lithium hydroxide is a high-purity lithium compound used primarily in the production of cathode materials for EV batteries. According to United States Geological Survey, Mineral Commodity Summaries, spot lithium hydroxide prices in China (free on board) increased from approximately $35,300 per ton in January to about $78,000 per ton in November (Jaskula, 2023). The price of lithium hydroxide has been rising due to the increasing demand for EVs and the limited availability of the material.

The supply of lithium is currently dominated by a few major producers, such as Albemarle, SQM, and Ganfeng Lithium. However, new lithium projects are being developed in various regions to meet the growing demand. Overall, the lithium market is expected to continue to experience volatility due to factors such as supply chain disruptions, changing government policies, and fluctuations in demand for EVs.

According to data from Benchmark Mineral Intelligence (Benchmark Minerals, 2023), a leading provider of lithium market analysis, the average price of lithium hydroxide in 2012 was approximately $6,000 per tonne, and it fluctuated around this level until 2015. However, starting in 2016, prices began to rise rapidly due to increasing demand for lithium-ion batteries for electric vehicles and energy storage systems.

The average price of lithium hydroxide surged to over $20,000 per tonne in 2018 and 2019, driven by a tight supply-demand balance in the lithium market. However, prices began to decline in 2020 as the COVID-19 pandemic disrupted global demand for electric vehicles and other lithium-ion battery applications.

As of early 2021, the average price of lithium hydroxide was around $8,500 per tonne, according to Benchmark Mineral Intelligence. However, it is important to note that lithium prices can be highly volatile and subject to rapid changes depending on supply and demand conditions such as EVs, Gigafactories, and other technological developments requirements.

The average lithium hydroxide prices over the last 10 years have varied greatly due to fluctuations in supply and demand, as well as changes in production costs and global economic conditions. A summary of the average annual prices for lithium hydroxide over the past 10 years based on available data is shown in Table 19-1.

Table 19-1: Average LiOH Prices from 2013 - 2021

Year	LiOH Price Average Range (USD/t)
2013	$6,000 - $7,000
2014	$5,500 - $6,500
2015	$5,000 - $6,000
2016	$7,000 - $8,000
2017	$11,000 - $12,000
2018	$14,000 - $15,000
2019	$11,000 - $13,000
2020	$9,000 - $10,000
2021	$14,000 - $16, 000
2022	$39,900

The forecast for lithium chemical shows surging prices to fulfill the BEV demand due to the supply deficit. Figure 19-6 shows the battery-grade lithium chemical forecasted to 2026.

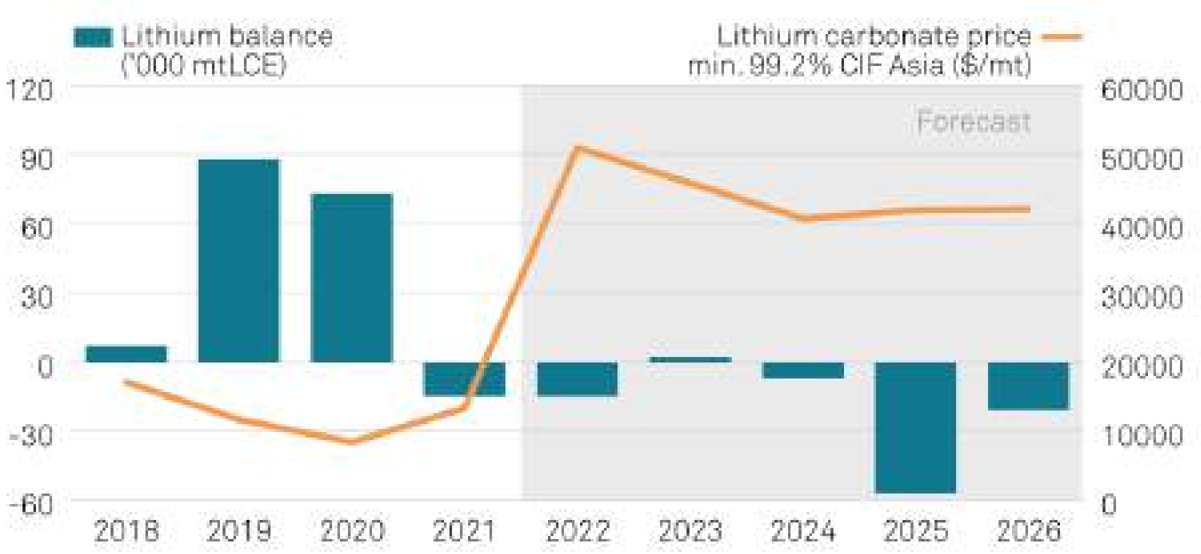


Figure 19-6: Lithium Chemical Price Forecast
(S&P Global , 2022)

The concentrate and lithium hydroxide prices are based on research from mining and metals forecasting agency's public details, banking institution forecast and technical reports. The spread of the information shows the volatility in the market from the supply and demand. Table 19-2 to Table 19-4 shows the extrapolation of real data and forecasts for selecting a realistic price point for Frontier Lithium PAK Project.

Table 19-2: Lithium Prices Forecast from Contract Prices from and Wood Mackenzie Q3 - 2022

	Source	Average	LT	2022	2023	2024	2025	2026	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Spodumene (USD/t)	Woodmac Q3-2022	**1,869**	**1,414**	3,356	4,114	3,034	2,410	2,150	2,150	2,100	1,809	1,614	1,421	1,414	1,414	1,414	1,414	1,414	1,414	1,414	1,414	1,414	1,414

Table 19-3: Spodumene Concentrate Price Outlook, 2021-2031 by Roskill - Wood Mackenzie

Prices	2021	2022	2,023	2024	2025	2026	2027	2028	2029	2030	2031
CIF Asia (USD/t)											
Contract	839	933	1,059	803	835	912	987	1,058	1,040	1,108	1,173
Spot	1,196	1,399	1,380	1,133	1,160	1,186	1,256	1,235	1,301	1,364	1,425
FOB Montreal (USD/t)											
Contract	773	884	1,011	754	785	862	936	1,007	988	1,056	1,121
Spot	1,130	1,350	1,332	1,084	1,110	1,136	1,205	1,184	1,249	1,312	1,373

Table 19-4; Market Research for Lithium Prices from Technical Report, Research Groups and Mining and Metal Forecasts from Banking Institutions

Commodity Prices	Chemical Grade ("CG") 6% (USD/t)	Battery Grade ("BG") LiOH (USD/t)	LCE (USD/t)
Roch Tech (Georgia Lake PFS 2022)	1,500		
Rock Tech (Guben Converter BPS 2022)	1,532	25,038	
Piedmont Lithium 2020 PFS		12,910	
Piedmont Lithium 2023 DFS	1,600	26,000	
Cannacord Genuity (Q4 2022 Lithium Note)	1,500	22,500	
Critical Elements PFS (Rose Lithium) 2022	\$1.852 (5.5% Li2O), \$4,039 (6% Li2O)		
Sigma Lithium (Expansion Study) 2022	2,056		
American Lithium TLC PEA 2023			20,000
NAL PFS 2022	1,242		
James Bay FS 2022	1,020		
Keliber DFS 2022		24,936	
Woodmac Q3-2022 (Long Term)[1]	1,414		
CIBC Forecast (Long Term)[2]			17,143

- Due to the market volatility, the numbers can fluctuate after the forecast;
- Contract prices are taken as-is and as provided by the data received;
- Technical grade ("TG") at 7.2% is an assumed and anticipated premium to chemical grade of 122% of the TG price;
- Contract pricing is approximately 20% lower than the spot price.

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[1] Prices were provided from a current 2023 study using Q3-2022 Wood Mackenzie Mark Price Forecast.
[2] CIBC Global Mining Group Analyst Consensus Commodity Price Forecasts Jan 03, 2023.

From the assessment of the concentrate prices, it is recommended that Frontier uses a conservative long-term price outlook based on contract prices rather than spot prices (Table 19-5).

Table 19-5: Concentrate and LiOH Prices Recommendation

Product	Premium	Price (USD/t)
Chemical Grade		1,350
Technical Grade	122%	3,000
Lithium Hydroxide (LiOH)		22,000
Lithium Carbonate (Li_2CO_3)		20,500

Sources:

- https://www.prnewswire.com/news-releases/rock-tech-lithium-completes-bankable-project-study-for-its-guben-converter-project-301668625.html
- https://www.cecorp.ca/wp-content/uploads/2022-06-13-news-release-CRE.pdf
- https://www.newswire.ca/news-releases/sigma-lithium-achieves-outstanding-project-expansion-and-financing-milestones-increases-mineral-reserves-by-63-triples-npv-to-us-15-3-billion-and-secures-us-100-million-debt-financing-882140270.html

Based on internal market intelligence and the recent published long-term pricing of relevant peer projects (Table 19-4), Frontier has elected to maintain the more conservative numbers of Table 19-5, despite the recent run-up in spot lithium hydroxide prices.

19.4.1 Selling Costs

The assumption is that offtake agreements will be in place with free on board ("FOB") transport to the buyer, and marketing staff position will be within the owner's operating cost. A zero-cost selling price is applied to the Project.

19.5 Contracts

There were no offtake agreements, Memorandums of Understanding ("MOU"), Letters of Intent ("LOI"), or future selling contracts used in this Project.

20. Environmental Studies, Permitting and Social or Community Impact

Frontier initiated its first environmental baseline studies in 2015, while it continued with its exploration program. In 2022, with a team of subject matter experts, Frontier developed an expanded environmental baseline program and initiated data collection, a long-lead requirement of government in advance of project permitting. The program is ongoing and includes the areas of study listed below:

- Surface Water Quality and Hydrology;
- Hydrogeology;
- Geochemistry;
- Terrestrial Biology;
- Aquatic Biology;
- Air Quality;
- Archaeology;
- Traditional Land and Resource Use.

The baseline studies allow for the characterization of the biophysical environment prior to development. In addition, they can be used as a basis for the predictions of potential environmental impacts and appropriate mitigation can be incorporated into the development plan to minimize those impacts. Baseline study findings are generally described in further detail in Nordmin (2018). Work to date has not identified any biophysical or cultural heritage values that pose a material constraint to development. There are no known environmental liabilities at the Property.

Consistent with its' Indigenous Principles, Frontier recognizes the importance of developing and maintaining strong relationships with Indigenous people advanced through shared values of honesty, respect and open communication. During the Frontier's 14 years in the area, it has focussed its efforts on building relationships with the proximal First Nation communities of Deer Lake, North Spirit Lake, Sandy Lake, and Keewaywin. It has provided Project updates, discussed the Project with chiefs and councils, and hosted tours and community engagement sessions. Frontier has exploration agreements in place with the four proximal nations that structures the relationship and the exchange of information and conveys benefits to the communities, such as employment, and support for joint venture businesses. Frontier also has an active scholarship program for each First Nation and provides community donations and sponsorships.

There are several candidate brownfield industrial sites and serviced industrial sites in northwestern Ontario that are capable of hosting the chemicals plant. Once a location is selected, an evaluation would be required to determine any permit and potential baseline data requirements.

20.1 Permitting

The environmental assessment ("EA") and permitting framework for metal mining in Canada is well established. The EA processes provide a mechanism for reviewing projects to assess potential impacts to the environment. A comprehensive permitting process is completed to allow operations to proceed. The project is then regulated through all phases (construction, operation, closure, and post-closure) by both federal and provincial agencies. This section summarizes permitting requirements for the Project.

20.1.1 Federal Impact Assessment Requirements

The production rates for the mine and concentrator plant are below the thresholds in Chapter 18 of the Physical Activities Regulations made under the *Impact Assessment Act*, as summarized below.

- Maximum ore production capacity of the mine is below 5,000 tonnes per day.
- Maximum ore input capacity to the concentrator plant is below 5,000 tonnes per day.

Other physical activities that can be subject to a federal impact assessment include transportation facilities (Sections 46 to 55) and water projects (Sections 58 to 61), but these components of the Project are below the applicable thresholds.

The Project is not required to complete a federal impact assessment. However, in unique cases under Section 9(1) of the *Impact Assessment Act*, the Minister of Environment and Climate Change Canada may designate a physical activity that is not prescribed by the Physical Activities Regulations if, in their opinion, either the carrying out of that physical activity may cause adverse effects within federal jurisdiction or adverse direct or incidental effects, or public concerns related to those effects warrant the designation.

20.1.2 Provincial EA Requirements for Mine and Concentrator Plant

The Project will need to complete the class EA processes listed below, as may be amended in the future by the provincial government.

- Class EA for Resource Stewardship and Facility Development, in accordance with the Ministry of Natural Resources (MNR, 2003), in advance of issuing permits for timber harvesting, water crossings, road construction off of mining leases, online dikes and aggregate pit development off of mining leases.
- Class EA for any land tenure decisions, administered by Ministry of Mines.

- Category B Class EA is required under the Electricity Projects Regulation (O. Regulation 116/01) to connect to the 115 kV provincial grid that will be established near the Property as part of the Watay Power Project https://www.wataypower.ca/.
- Category B Class EA is required under the Electricity Projects Regulation (O. Regulation 116/01) for the use of diesel generators (≥1 MW and <5 MW cumulative capacity). The Project will need less than 5 MW of diesel-fired generation on a temporary basis until the grid connection is established, avoiding the need for an individual provincial EA.

20.1.3 Provincial EA Requirements for Chemicals Plant

There are no EA requirements for the chemicals plant, assuming it is situated at a serviced industrial site with suitable zoning.

Interested parties may make a designation request to the Ministry of the Environment, Conservation and Parks ("MECP") to have a project referred to an individual EA. The MECP assesses the merits of the request and may make a recommendation to the Minister, as outlined on the MECP website in the Environmental Assessments under Designating Regulations and Voluntary Agreements.

20.1.4 Permit Requirements for Mine and Concentrator Plant

The provincial government permits that are anticipated to be required for the mine and concentrator plant are listed in Table 20-1. The federal government permits that are anticipated to be required for the mine and concentrator plant at the Property are listed in Table 20-2. Frontier, or their designated consultant will consult with government agencies as planning progresses to confirm permit requirements.

20.1.5 Permit Requirements for Chemicals Plant

There are numerous candidate sites that are capable of hosting the chemicals plant. As planning progresses for the chemicals plant and candidate sites are further evaluated, environmental/impact assessment and permit requirements will be confirmed. Base case permit requirements for a chemicals processing plant at an existing, serviced site in Ontario are listed in Table 20-3.

Table 20-1: Provincial Permits for Mine and Concentrator Plant

Permit	Applicable Act	Responsible Agency	Description
Permit to Take Water	*Ontario Water Resources Act*	MECP	Freshwater taking of more than 50,000L/day
			Mine dewatering of more than 50,000L/day
			Other areas (construction minor takings during construction for dewatering etc.)
Environmental Compliance Approval	*Environmental Protection Act*		Surface water diversion ditches, Frontier will consult MECP if this water taking would be approved by the sewage works ECA as generally suggested on page 13 of MOE (2005)
			Sewage works including but not limited to the TMF, runoff and seepage collection pond & sumps, domestic sewage treatment and water treatment discharging into the environment
			Air/Noise, including but not limited to air emissions and noise, such as concentrator plant processes, assay lab emissions, on-site generators, fugitive dust, mining activities and on-site works
Species at Risk Overall Benefits Permit	*Endangered Species Act*		Waste Disposal Site, for operation of a small (<40,000 m^3) landfill for disposal of solid, non-hazardous waste
			Control of activities related to Species at Risk to be fully defined in consultation with Ministry
Work Permit / Letter of Authority	*Lakes and Rivers Improvement Act, Public Lands Act*	MNRF	Required for upgrade of road on Crown land (beyond surface rights leases) and new water crossings over Crown owned riverbeds
Land Use Permit / Sale of Crown Land / License of Occupation (lake bottom)	*Public Lands Act*		To obtain tenure for long-term facilities on Crown land, such as shoreline structures (freshwater pumphouse intake, water discharge pipeline) and linear developments such as power lines, roads and pipeline corridors
Forest Resource License	*Crown Forest Sustainability Act*		Harvest timber with development footprint
Authority to Haul			Hauling of merchantable timber

Permit	Applicable Act	Responsible Agency	Description
Aggregate Resource License	*Aggregate Resource Act*		🟩 Extraction of sand and gravel
Various Permits	*Various*		🟩 Scientific collection permits (including fish collection, and salvage)
Location Approval and Plans & Specifications Approval	*Lakes and Rivers Improvement Act*		🟩 Online dikes for Tailings Management Facility and seepage collection dikes
Compliance with Land Use Plan or Exemption from Prohibition on New Development (MNRF)	*Far North Act*		Compliance with Land Use Plan or Exemption from Prohibition on New Development. There are proposed legislative amendments that are anticipated to remove or streamline this process. The applicability of this legislation and any permit requirements should be re-visited at the time of Project execution
Closure Plan	*Mining Act*	Mines	🟩 For mine construction/production and eventual decommissioning of the Project
Approval to refine outside Canada			🟧 Required to refine or treat ore outside Canada, as per Section 91 of *Mining Act*
Mining Leases			🟩 Required land tenure to allow mining and development
Location Approval and Plans & Specifications Approval	*Lakes and Rivers Improvement Act*		🟩 Off-line Tailings Management Facility and seepage collection dikes
Entrance Permit	*Public Transportation and Highway Improvement Act; Highway Traffic Act*	MTO	🟧 If upgrades are required to existing entrance points onto provincial highways, an Entrance Permit will be required
Encroachment Permit	*Public Transportation and Highway Improvement Act; Highway Traffic Act*		Encroachment Permit not required as no work proposed within the MTO corridor (*i.e.*, power line, pipeline)
Review Letter	*Heritage Act*	MTC	Confirmation that appropriate archeological studies and mitigation, if required, have been completed for the Project

Footnotes: 🟩 *Interpreted to be a required permit* 🟧 *Interpreted as a potential permit requirement and further discussion is required with government agency*

Table 20-2: Federal Permits for Mine and Concentrator Plant

Permit	Applicable Act	Responsible Agency	Description
Harmful Alteration, Disruption or Destruction of Fish Habitat,	*Fisheries Act*	Fisheries and Oceans Canada	Effects of mine dewatering on fish-bearing surface water features under evaluation
Schedule 2 Listing, Metal Mining Effluent Regulation	*Fisheries Act*	Environment and Climate Change Canada	Overprinting of water frequented by fish by tailings and mine rock stockpiles (or other deleterious material) will require a listing under Schedule 2 of the *Metal and Diamond Mine Effluent Regulations*, pursuant to the *Fisheries Act*
Works in Navigable Waters	*Navigation Protection Act* *(formerly Navigable Waters Protection Act)*	Transport Canada	Authorizations for crossings and/or work in navigable waterway
Manufacturing, storage, and transportation of explosives	*Explosives Act*	Natural Resources Canada	On-site explosives production facility and on-site product storage. Required setbacks are defined in National Standard of Canada Explosives Quantity – Distances CAN/BNQ 2910-510/2015
Migratory Birds	*Migratory Birds Convention Act*	Environment and Climate Change Canada	Prohibition, harm, or disturbance to migratory birds Qualified consultant has been engaged to develop mitigation measures to ensure no harm or disturbance to migratory birds
Transportation of Dangerous Goods	*Transportation of Dangerous Goods Act*	Transport Canada	There are no unique dangerous goods used at the Project. The Project also uses conventional fuels (diesel, gasoline, natural gas, propane) and commercially available welding gases
Species at Risk	*Species at Risk Act*	Environment and Climate Change Canada	Harm, or disturbance to species as designated under the *Species at Risk Act*
Radioisotope License	Nuclear Safety Control Act	Canadian Nuclear Safety Commission	Authorization for nuclear density gauges / X-ray analyzer

Footnotes: 🟩 *Interpreted to be a required permit* 🟧 *Interpreted as a potential permit requirement and further discussion is required with government agency*

Table 20-3: Permits for Chemicals Plant

Government	Permit	Applicable Act	Responsible Agency	Description
Provincial	Permit to Take Water	*Ontario Water Resources Act*	MECP	Water taking of more than 50,000L/day, unless water supply is procured from the municipality
	Environmental Compliance Approval	*Environmental Protection Act*		Sewage Works including but not limited to the lined impoundment to contain residue and process water, runoff and seepage collection, domestic sewage treatment and water treatment discharging into the environment
				Air/Noise, including but not limited to air emissions and noise
				Waste Disposal Site, for operation of a small (<40,000 m^3) landfill for disposal of solid, non-hazardous waste
	Species at Risk Overall Benefits Permit	*Endangered Species Act*		Control of activities related to Species at Risk to be fully defined once a site is selected
	Entrance Permit	*Public Transportation and Highway Improvement Act; Highway Traffic Act*	MTO	Upgrades to existing highway entrances to accommodate increased traffic
	Work Permit / Letter of Authority	*Public Lands Act*	Mines	Potential upgrades to a port facility
	Closure Plan	*Mining Act*		Required for plant construction, operation, and eventual decommissioning
	Approval to refine outside Canada			Required to refine or treat ore outside Canada, as per Section 91 of Mining Act
	Location Approval and Plans & Specifications Approval	*Lakes and Rivers Improvement Act*		Lined impoundment to contain process residue and process water

Government	Permit	Applicable Act	Responsible Agency	Description
Federal	Harmful Alteration, Disruption or Destruction of Fish Habitat	*Fisheries Act*	Fisheries and Oceans Canada	Potential upgrades to port facility
	Works in Navigable Waters	*Navigation Protection Act* *(formerly Navigable Waters Protection Act)*	Transport Canada	Potential upgrades to port facility
Municipal	Building Permits	*Ontario Building Code*	Municipality (to be determined based on selected site)	Required for applicable structures
	Zoning Designation / Re-Zoning	*Planning Act* and Municipal By-Laws (to be determined based on selected site)		Potential requirement if the zoning designation of the selected site is not compatible with an industrial land use

Note: An evaluation will be required for potential EA requirements under the Electricity Projects Regulation (O. Regulation 116/01) and possible approvals from the Ontario Energy Board for potential upgrades to electricity and natural gas service. A review regarding the applicability of *Ontario's Clean Water Act* and the *Building More Mines Act* will need to be undertaken when candidate sites are evaluated.

20.2 Environmental Aspects and Sensitivities

Consistent with Frontier's values and aligned with the values of First Nations communities, the preservation of the nature environment and its functions are a priority for the company. Emphasis has been placed on site wide runoff water collection, maximizing water recycling where practical to limit consumption, and fugitive dust and noise to minimize the potential for impacts including those that could affect traditional uses and treaty rights.

Although the evaluation of candidate sites for the chemicals plant remains in progress, environmental aspects that will require management have been identified and are discussed herein.

20.2.1 Mine and Concentrator Plant

Environmental aspects that will be managed are described in the sections below.

20.2.1.1 Waste Rock

Waste rock will be used for construction purposes at the Project site. Surplus waste rock will be placed within the perimeter runoff and seepage collection system. Waste rock lifts will be placed with stable embankment slopes that are adequate for long-term physical stability so no further work will be required at closure.

Potentially acid generating waste rock will be identified and segregated using lithology and sulphur content, so that it can be managed in accordance with an appropriate management plan.

Geochemical characterization work to date indicates that tailings are not potentially acid generating due to low sulphur content (~0.04% weight) and that metal leaching risk is low at ambient (near neutral) pH.

20.2.1.2 Tailings Management

Pertinent design aspects of the Tailings Management Facility ("TMF") are described below:

- Embankments will be constructed using waste rock and locally sourced aggregate, which have no chemical stability concerns. Embankments will be designed to meet the required Factors of Safety against potential failure modes;
- The TMF reclaim pond combined with the effluent treatment plant are designed to withstand a 30-day duration, 1 in 100 year rain on snow Environmental Design Flood ("EDF") event without an unplanned release (i.e., TMF can contain and discharge the resultant runoff via the effluent treatment plant);

- The TMF will have an engineered spillway to prevent a potential dike failure due to overtopping during a Probable Maximum Precipitation ("PMP") event.

During tailings deposition, discharge points will be frequently re-located to maximize the size of the wetted surface, to minimize fugitive dust and permanent ice lensing. In addition, tackifier and/or binder may be added to tailings prior to deposition in the TMF to bind particles together and minimize entrainment by wind.

The TMF will be constructed, operated, maintained and monitored in accordance with the Guide to the Management of Tailings Facilities from the Mining Association of Canada (MAC, 2017), and a site-specific Operation, Maintenance and Surveillance Manual.

Geochemical characterization work to date indicates that tailings are not potentially acid generating due to low sulphur content (~0.04% weight) and that metal leaching risk is low at ambient (near neutral) pH (Quentin, 2021).

20.2.1.3 Water Discharge

Water discharge will be minimized by recycling water to the extent practical using industry standard practices. Surplus water that is not needed for processing will be treated using a multi-stage treatment plant and discharged to the Flanagan River, which has been determined to be an appropriate receiver in accordance with the Ministry of Environment (MOE, 1994).

Operational strategies that will be employed to help meet effluent criteria include good blasting practices in the mine to minimize ammonia with aeration and biological oxidation of ammonia in ponds to prevent elevated nitrite and solubilization of phosphorus from sediment under anoxic conditions.

20.2.1.4 Fugitive Dust

Air emission sources will comprise diesel-fired equipment, diesel generators, combustion heating units, as well as fugitive dust emissions from vehicle operation, the TMF, crushing, and on-surface material handling typically associated with a mining and milling operation. Practices to minimize fugitive dust are listed below:

- Minimize vehicle speed and travel time, use dust suppressants on travelled roads, minimize track-out of fines from material handling areas;
- Minimize coarse mineralized-material stockpile size, enclose the fine-mineralized-material stockpile, and use buildings and treelines as windbreaks to the maximum extent practical;
- Frequent relocation of the tailings discharge to maintain a wetted tailings surface;

- Tackifier could be added to deposited tailings to bind together the tailings solids and prevent entrainment by wind;
- Enclose material transfer points to prevent exposure to wind and use water sprays to suppress dust;
- Other applicable best practices listed in Environment Canada (2009).

Frontier will develop and implement a management plan for controlling fugitive dust. Fugitive dust is considered in the site-wide emission summary and dispersion modelling ("ESDM") report that is prepared to support the Air Environmental Compliance Approval ("ECA") amendment application listed in Table 20-1. The ESDM report demonstrates compliance with MECP air quality criteria during worst-case scenarios.

20.2.2 Chemicals Plant

As planning progresses for the chemicals plant and candidate sites are further evaluated, environmental aspects and sensitivities will be evaluated, and management plans developed. Environmental aspects for the chemicals plant that will be managed are summarized below.

- Traffic;
- Noise;
- Fugitive dust;
- Management of process residue.

20.3 Social and Community

The PAK Lithium Project can be split broadly into two components – mine and concentrator plant, and the chemicals plant. The mine and concentrator plant are located in northwestern Ontario approximately 175 km north of Red Lake, in a region traditionally inhabited by the Oji-Cree people. The proposed mine and concentrator plant will be located on the traditional territory of Deer Lake First Nation, a community of approximately 1,250 people about 45 km northwest of the Project. North Spirit Lake First Nation, that holds adjacent trapping territories to those of Deer Lake First Nation, expressed an interest in the area of Pakeagama Lake. Its' interest is acknowledged within the Deer Lake Draft Community Based Land Use Plan. North Spirit Lake First Nation is a community of approximately 275 people located about 26 km southeast of the Project.

The Property where the mine and concentrator plant are planned is north of the Whitefeather Forest Sustainable Forest License area and hosts wilderness, forestry and mineral exploration land uses.

The location for the chemicals plant has not been determined. As part of the evaluation of alternative candidate sites for the chemicals plant, Frontier will engage the host Indigenous communities, government agencies and stakeholders to solicit input and identify concerns or comments. Once a candidate site is selected, Frontier plans thorough discussions with the host community to resolve any concerns and determine how the host community wishes to participate in the development.

20.3.1 Indigenous Consultation

Aboriginal and treaty rights of Indigenous communities are protected under Section 35 of Canada's *Constitution Act*. The federal and provincial governments share the duty to consult Indigenous communities regarding developments such as this Project as part of the environmental/impact assessment and approvals process.

The Ministry of Mines will provide guidance to Frontier regarding the consultation that is required for the Project and the aspects of the consultation process that will be delegated to Frontier. Frontier will then prepare an Indigenous Consultation Work Plan as a collaborative approach jointly with the four proximal communities in accordance with the requirements of the *Mining Act*, while endeavouring to meet the consultation requirements of the other involved government agencies.

Frontier has communicated and consulted with proximal First Nations during the exploration phase of mining. This has included meetings with Chiefs and councils, tours of the Project, information sharing and community engagement sessions. Frontier has signed agreements with each of the four First Nation communities of Deer Lake, North Spirit Lake, Sandy Lake and Keewaywin. In addition, Frontier regularly recruits, hires and provides training to community members at its Project, engages companies that joint venture with proximal First Nation communities and has provided annual scholarships to students in each of the four First Nations.

20.3.2 Public Consultation

Consultation with the local and regional communities has commenced and will continue as the Project progresses. This will include meeting with the municipal and provincial government as well as other parties. This consultation will include meetings, public information sessions and other communications to ensure stakeholders are aware of Frontier's proposed activities and concerns can be resolved in an efficient manner.

20.4 Closure

In order for the Project to proceed to development, closure plans will be developed that meet requirements of Ontario Regulation 240/00 (refer to Table 20-1) and are consistent with any traditional land uses and occupancy by Indigenous communities.

A closure plan outlines how the Project lands will be rehabilitated to a productive post-closure land use that is physically and chemically stable. It meets the requirements of the *Mine Rehabilitation Code of Ontario* (“Code”) and describes the costs associated with doing so, as well as implementing a monitoring program. Closure plans must be amended periodically during the life of a mine if material changes are made.

To ensure that the rehabilitation work outlined in a closure plan is successfully performed, financial assurance equal to the estimated cost of the rehabilitation work must be provided by the proponent to be held in trust by the Ministry of Mines. Financial assurance must be included with the submission of a closure plan.

20.4.1 Mine and Concentrator Plant

General elements of the closure plan for the mine and concentrator plant are summarized below:

- Buildings, infrastructure, and equipment that are not required for water management will be removed and salvaged, recycled or disposed of. Contractor owned items and leased items will be removed by the respective owners.
- Any contaminated soil will be managed in accordance with MECP requirements.
- The development footprint will be scarified, and fill embankments will be sloped for long-term physical stability. Soil from a local soil stockpile will be placed over the site and the area that will be re-vegetated consistent with the proportions of vegetation to rock exposure seen at the site prior to project-related disturbance. Revegetation will use a suitable seed mix prior to planting seedlings consistent with the surrounding plant community. The proportion of rock exposure and vegetation cover will conform to the local landscape.
- Open pits will be flooded following any potential in-pit backfilling during the production phase to manage development rock. Boulder fencing will be constructed along any high walls.
- Waste rock piles will be built with overall embankment slopes that are adequate for long-term physical stability so that no re-contouring is required at closure. Available stockpiled soil will be used to vegetate waste rock piles as practical to conform to the local landscape. Waste rock types that pose a chemical stability risk will be managed in accordance with the management plan that will be developed as part of the closure plan.

- The TMF will be dewatered, covered with a lift of soil that is tilled in and seeded to ensure physical stability. Dikes will be decommissioned so that runoff can drain from the stabilized TMF once runoff meets water quality criteria.
- Perimeter runoff and seepage collection system will be decommissioned after impounded runoff meets water quality criteria.
- Final removal of power distribution and water management infrastructure once active water management is no longer required.
- Roads will be rehabilitated in general accordance with the MNR (1995) as removed from use. Roads that are not requested to remain in place by the Ministry of Natural Resources and Forestry ("MNRF"), a First Nation or a third party will be removed in accordance with the MNR (1995) and any supplemental guidance from the MNRF, with financial assurance provided in the closure plan.

Frontier is committed to ongoing consultation with Indigenous Communities on closure plan strategies and concepts, and will be consistent with regulatory requirements.

20.4.2 Chemicals Plant

Closure of the chemicals plant will require the removal of Frontier's infrastructure that will not be transferred to a third party, as well as the restoration of the site in accordance with the Code for physical and chemical stability to support an acceptable land use post closure.

Consultation with local and Indigenous people and communities will occur, as per the desires of Frontier and as is consistent with regulatory requirements in that jurisdiction.

21. Capital and Operating Costs

This chapter presents the costs incorporated into the Project's economic analysis.

21.1 Introduction

The PAK Pre-Feasibility Study ("PFS") includes the development of two open pit deposits, PAK and Spark, as well as the construction of an on-site processing facilities including technical grade ("TG") and chemical grade ("CG") production lines and the required infrastructure.

The main components of the Project include:

- Two open pits (PAK and Spark);
- Mine rock storage areas;
- Run of mine ("ROM") stockpiles;
- Concentrator plant facility
    - Technical grade feed of 210,000 tpa;
    - Chemical grade feed of 830,000 tpa;
- Tailings management facility ("TMF");
- Transmission line;
- Mine access road;
- Buildings and supporting infrastructure;
- Airstrip;
- Mine water treatment facility;
- Sewage treatment facility;
- Water supply and distribution system;
- Explosives storage.

Concentrate will be transported to a new, purpose-built chemicals plant at an off-site location in the Thunder Bay region for the final stages of processing to produce market grade lithium chemicals.

Responsibility for the cost estimates has been divided amongst the study contributors as follows:

- Open pit mining capital and operating cost estimates by BBA;
- Concentrator plant capital and operating cost estimates by Halyard;
- Site infrastructure capital and operating cost estimates by BBA;

- Chemicals plant capital and operating cost estimates by Halyard;
- Site closure capital cost estimate by BBA;
- Indirect capital cost estimates by BBA.

The capital and operating costs are reported in Q1 2023 Canadian Dollars ("$").

21.2 Capital Costs – Summary

21.2.1 Summary of Results

The capital cost estimate consists of the direct capital costs for the mine, the concentrator plant facility, the associated mine site infrastructure, and the chemicals plant, and the indirect costs for project construction management services.

Sources for the capital costs include vendor budget quotations, historical data, similar projects, and factors. A currency exchange rate of 1 USD : 1.3 CAD (1 CAD: 0.76932 USD) was used in the capital cost estimate.

The estimate was prepared in accordance with the American Association of Cost Engineers ("AACE") Class 4 Estimate with an expected accuracy of -20% to +30%.

Table 21-1 presents a summary of the estimated capital costs. The cost estimate is divided by the WBS category and split between direct costs and indirect costs. The summary is further divided into the relative stages of the Project:

- Initial Capital refers to:
  - Stage 1
    - Construction of technical grade line of the concentrator plant;
    - Construction of site infrastructure;
    - Initial purchase of mobile equipment for the commencement of mining at PAK open pit area;
    - TMF initial construction.
- Expansion and Sustaining Capital refers to:
  - Stage 2
    - Construction of chemical grade line of the concentrator plant;
    - Initial purchase of mobile equipment for the commencement of mining at Spark open pit area;
    - Any deferred infrastructure construction related to Spark mining area;
    - Construction of chemicals plant (off-site);
    - TMF expansion.

Table 21-1: Capital Expenditures

Description	Pre-production	Production Phase		Closure Phase	Total
	Y-2 to -1	Y1 to 3	Y4 to 24	Y25+	LOM
	Phase 1				
		Phase 2			
	M$	M$	M$	M$	M$
Direct Costs					
Mine Infrastructure & Equipment	18.6	8.7	59.3	0.0	**86.6**
Concentrator Plant Facility	157.9	74.3	0.0	0.0	**232.2**
TMF	23.2	0.0	24.9	0.0	**48.1**
Site Infrastructure	186.6	18.2	1.6	0.0	**206.4**
Chemicals Plant	0.0	379.2	0.0	0.0	**379.2**
Closure and Reclamation	0.0	22.7	9.1	-14.0	**17.8**
Direct Costs	**386.2**	**503.0**	**95.0**	**-14.0**	**970.2**
Indirect Costs					
Owners Cost & Construction Indirect Costs	116.0	155.8	0.0	0.0	**271.8**
Contingency	100.5	131.8	19.0	-2.8	**248.4**
Indirect Costs	**216.5**	**287.5**	**19.0**	**-2.8**	**520.2**
Insurance	5.5	0.0	0.0	0.0	**5.5**
Capital Expenditure	**608.2**	**790.5**	**113.9**	**-16.8**	**1,495.9**

21.2.2 Major Exclusions

The following items are excluded from this capital cost estimate:

- All federal and provincial sales taxes;
- Any impact from new government regulations;
- All costs incurred as a result of extreme weather conditions;
- Force majeure;
- Major strikes;
- Sunk costs for equipment already purchased by Frontier;
- Contaminated soil excavation / disposal / removal;
- Miscellaneous hazardous waste disposal / removal;
- Any extra costs that might be incurred to advance engineering, construction or delivery of equipment and materials or premiums necessary to procure items in short supply;
- Government (federal / provincial / regional) incentives;
- Capitalized interest.

21.3 Capital Cost – Mine Site and Infrastructure

21.3.1 Pricing and Quantity Basis

Material costs are based on quotes received from major manufacturers, with minor equipment costs established from the estimating database with adjustments if necessary. Labour rates are based on the Project cut-off date, with hourly rates based on conditions in Red Lake.

Material take-offs ("MTOs") are aligned with the work breakdown structure ("WBS") with the relevant quantities captured within the sub-areas and/or subsections and identified with the suitable commodity from the work elements coding structure.

Allowances for waste, fabrication losses or breakage are applied to the unit price. Table 21-2 illustrates general guidelines used for applying growth and waste allowances.

Table 21-2: Growth and Waste Allowances

Commodity	Growth (on MTO)	Growth (on pricing)	Waste (on material)
Civil	10%	none	none
Concrete	10%	none	3%
Steel	5% growth 10% connect	none	none
Mechanical and electrical equipment	none	none	none
Mechanical (ductwork, plate work)	10%	none	5%
Piping	15%	none	5%
Wire and cable	10%	none	5%

Table 21-3 summarizes the origin of costs for the capital estimate (excluding concentrator plant and chemicals plant).

Table 21-3: Origin of Cost

Origin of Prices	Mobile & Operational Equipment (M$)	Representation
Budget Quotation	88.9	91%
Database	8.7	9%
Estimated	n/a	n/a
Total Equipment Costs	**$97.6M**	**100%**

21.3.1.1 Earthworks

Civil unit costs are based on recent BBA projects and studies. MTOs were developed by BBA based on PFS drawings.

Earthworks are priced using unit rates from BBA's historical data for the local conditions.

21.3.1.2 Concrete

Concrete quantities are estimated from preliminary design calculations and sketches or 3D model, where applicable.

Concrete cast-in place pricing rates are built-up for each type of concrete with formwork and rebar densities based on historical data (where no engineering information is available). Rebar pricing includes supply and shop fabrication as part of the material price. The cost of concrete supply is based on informal pricing received from local supplied or batch plant operator.

21.3.1.3 Structural and Pre-Engineered Buildings

Budgetary pricing was obtained for pre-engineered buildings.

Structural steel fabrication costs are based on in-house pricing based on recent project information.

21.3.1.4 Mechanical

The equipment scope for the estimate is defined by the Project master equipment list.

The costs of primary and secondary equipment are based on budgetary quotes from equipment vendors as well as firmed price quotes from the Frontier Lithium Supply Chain.

Freight costs, packing and transportation for the equipment to the plant site are included in the direct cost.

Mechanical works include equipment, materials, and labour for the following:

- Major mechanical equipment;
- Equipment insulation (if required);
- Installation construction materials.

21.3.1.5 Process Piping

A detailed piping line list / MTO for all processes and utility piping was prepared. Pricing is based on informal quotes and or recent historical price data.

Piping installation hours are based on BBA database using an aggregate of the total installation labour-hours (by pipe specification) required for a typical piping line including all fittings, flanges, hangers, etc. The resulting total costs are based on a typical all-inclusive run of 100 linear feet converted to metric units thereafter.

Piping and insulation work includes materials and labour for the following items:

- Large bore piping and insulation (2.5" Ø and larger);
- Small bore piping and insulation (2" Ø and smaller);
- Piping tie-ins;
- Piping insulation (if required);
- Piping heat tracing (if required).

Piping costs include exterior shop fabrication of pre-spooled pieces, delivery to site, site installation of prefabricated spool pieces, field welds, hangers supply and installation, miscellaneous steel for pipe supports, etc. Manual valves are priced separately.

21.3.1.6 Electrical

The quantity and sizing of major electrical equipment was specified in an electrical equipment list. Electrical distribution quantities were evaluated based on electrical layout drawings, site electrical distribution layout, main substation layout, motor lists, cable lists, and single line diagrams.

Power and control cables are priced based on estimated quantities. The cost of bulk materials pricing are from BBA's historical data. Major electrical equipment costs are supported by budgetary quotations by established suppliers.

Costs for fire detection and communication systems are included as per similar industrial projects.

21.3.1.7 Instrumentation

All process control costs are based on preliminary quantity take-offs developed by BBA for field instruments; installation materials take-offs were performed by BBA. Pricing information was gathered from recent BBA studies, vendor budgetary estimates, as well as from firm price quotes from the Frontier Lithium Supply Chain.

Instrumentation work includes materials and labour for the following:

- Field instruments and valves;
- Instrument cabling, trays, etc.;
- Instrument tubing;
- Programming.

21.3.1.8 Labour / Construction Costs

Surface Construction is confined to all site infrastructure items.

Work Schedule

Installation labour costs are based on a 70-hour (7 x 10) work week deploying a single day shift and a rotation of 2 weeks in and 1 week out.

Labour Rates

Wage rates for crafts were established in accordance with applicable collective agreements for 2022. Double time is considered after 8 hours per day and weekends.

Composite crew wage rates were established for each commodity based on a craft mix comprised of foreman, journeymen, apprentices and general labour across all construction trades. The composite crew rates include the following costs:

- Wages and fringe benefits;
- Unemployment insurance and workmen's compensation;
- Construction contractor's site management, supervision, construction engineering and surveying, quality control, accounting, timekeeping, purchasing, etc.;
- Mobilization & demobilization of contractor items and personnel;
- Construction contractor's home office costs and profit;
- Small tools;
- Consumables;
- Ownership and operational costs of construction equipment (inclusive of fuel);
- Large erection cranes >100 t are shown separately when not identified as subcontracts;
- Construction workers have reasonable and direct access to the work site;
- Construction costs are based on the work being done by competent contractors according to the preliminary contract strategy defined in the report;
- Contracts will be awarded through the conventional tendering process on a competitive basis;

- Night shift premiums are excluded from the estimate;
- Shift work premiums are excluded;
- Travel and living allowances are included in the estimate;
- Board and lodging costs are included in the estimate;
- Scaffolding costs are included in the estimate;
- Labour availability is presently adequate for the area labour pool; no premiums are included to attract and retain qualified workers during the planned construction period.

Labour Hours and Productivity

Direct field labour is the skilled and unskilled labour required to install the permanent plant equipment and bulk materials at the Project site. Unit installation hours are exclusive of contractor non-manual labour (site supervisors, accountants, clerks) and indirect manual labour, which are captured in the composite crew rates.

The following items were considered when developing the labour productivity factors:

- Site location
- Extended overtime
- Type of contract
- Access to work area
- Height – Scaffolding
- Availability of skilled workers
- Labour turnover
- Inspection + QA / QC
- Sophisticated specifications
- Materials + Equipment – Handling
- Weather conditions
- Scattered items of work
- Complexity
- Overcrowded / Tight work areas
- Efficiency
- Supervision
- Revamps / Connections / Tie-ins
- Fast-track requirements
- Safety / Security

Mobile Equipment

Mobile equipment requirements are based on the cycle time calculations and procurement plan reviewed with the Frontier team. Pricing is based on Frontier Lithium Supply Chain and/or recent BBA projects and quotes.

21.3.2 Mining Equipment

The capital estimate for the mining equipment includes items related to the purchase of the mining mobile equipment fleet for the open pit operations, maintenance, and the mine support equipment.

Estimates for mining equipment are based on the mining fleet equipment schedules and either the equipment pricing provided by vendors for supply, delivery, assembly, and commissioning or from historical data. The equipment list is provided in Table 21-4 and the Initial Mining Equipment Capital cost is projected at $18.6M.

Table 21-4: Mine Equipment Capital List

Equipment	Machine Class	Example Model	Peak Units	Initial Capital Purchase (K$)	Sustaining Capital Purchase (K$)	Sustaining Capital Replacement Cost (K$)
Excavator	~3.8 m³	CAT374	1	1,407	0	0
Excavator	~5.2 m³	CAT395	1	0	1,821	0
Front End Loader	4.7 - 13 m³	CAT988	2	1,596	1,596	1,596
Front End Loader	4.0 - 14.5 m³	CAT980	1	803	0	0
Haul Truck	40 t	CAT745	6	2,236	4,473	0
Haul Truck	64 t	CAT775	8	0	13,313	6,656
Dozer - Track	477 hp	CAT D9	2	2,005	2,005	4,011
Dozer - Wheel	5.0 - 10.6 m³	CAT824	1	1,275	0	1,275
Grader	14 Ft	CAT14	2	1,044	1,044	2,089
Utility Loader	--	CAT972	1	737	0	0
Utility Excavator	--	CAT352	1	911	0	911
Water Truck	--	CAT 745	1	859	0	0
Fuel / Lube Truck	--	--	1	1,710	0	1,710
Mechanic Service Truck	--	--	1	268	0	268
Tire Service Vehicle	--	--	1	712	0	712
Lowboy	--	--	1	958	0	0
Light Plant	--	--	8	43	43	214

Equipment	Machine Class	Example Model	Peak Units	Initial Capital Purchase (K$)	Sustaining Capital Purchase (K$)	Sustaining Capital Replacement Cost (K$)
Crew Vans	--	--	1	257	0	257
Light Vehicles	--	--	9	824	0	2,472
Emergency Vehicles	--	--	2	428	0	0
In-pit Sump Pumps	--	--	5	685	1,027	1,712
Technical Services Equipment	--	--	--	244	109	676
Total				**18,579**	**25,432**	**23,547**

An additional $19.0M has been estimated as sustaining capital for overhaul maintenance of mine mobile fleet.

21.3.3 Tailings Management Facility

Table 21-5 summarizes the tailing management facility capital cost estimate.

Table 21-5: Summary of Capital Cost, Area 4000

Description	Initial Capital (K$)	Sustaining Capital (K$)	Total Capital (K$)
Direct Costs			
TMF - Material Handling	1,201	--	1,201
TMF - Tailings Pond and Dikes	21,965	24,921	46,886
Direct Costs	**23,166**	**24,921**	**48,088**

21.3.4 Mine Infrastructure

Table 21-6 summarizes the mine infrastructure direct capital cost estimate.

Table 21-6: Summary of Capital Cost

Description	Initial Capital (K$)	Sustaining Capital (K$)	Total Capital (K$)
Direct Costs			
Site Preparation	34,902	--	**34,902**
PAK Water Management	381	--	**381**
Spark Water Management	--	343	**343**
Roads	33,825	--	**33,825**
Water Treatment	21,522	--	**21,522**
Utilities / Services	22,471	--	**22,471**
Electrical	22,216	--	**22,216**
Buildings	48,236	17,817	**66,053**
Airstrip	283	--	**283**
Mobile Fleet	613	1,630	**2,243**
Cybersecurity for Industrial Control System	2,127	--	**2,127**
Direct Costs	**186,577**	**19,790**	**206,367**

21.3.4.1 Water Management

PAK and Spark water management items include:

- Clearing and grubbing;
- Mass earth excavation;
- Geotextile under rip rap unstable wetted areas;
- Slope Protection - Rip Rap;
- Safety berm protection for slopes >3 m, 1 m high, slopes 2:1.

21.3.4.2 Access Roads

Access roads include the following site roads:

- Plant site main access road;
- Service road to airstrip;
- Service road to explosives facility;

- Haul road to Spark pit;
- Haul road to Spark mine rock stockpile area;
- Haul road to PAK pit;
- Haul road to maintenance facility;
- Haul road to PAK mine rock stockpile area;
- Service road to water discharge point;
- Service road to water treatment facility.

The permanent all-weather road is considered outside of the Project as it is a provincially funded project.

21.3.4.3 Water Treatment

Table 21-7 summarizes the components of Water Treatment.

Table 21-7: Summary of Capital Cost, Water Treatment

Description	Initial Capital (K$)	Sustaining Capital (K$)	Total Capital (K$)
Direct Costs			
Site Effluent Treatment System	17,923	--	**17,923**
Potable Water Treatment System	1,408	--	**1,408**
Sewage Treatment System	2,191	--	**2,191**
Direct Costs	**21,522**	**0**	**21,522**

21.3.4.4 Utilities and Services

Table 21-8 summarizes the components of Utilities and Services.

Table 21-8: Summary of Capital Cost, Utilities and Services

Description	Initial Capital (K$)	Sustaining Capital (K$)	Total Capital (K$)
Direct Costs			
Utilities / Services	16,893	--	**16,893**
Fuel Storage and Dispensing	5,578	--	**5,578**
Direct Costs	**22,471**	**0**	**22,471**

21.3.4.5 Electrical

Table 21-9 summarizes the components of Electrical.

Table 21-9: Summary of Capital Cost, Electrical

Description	Initial Capital (K$)	Sustaining Capital (K$)	Total Capital (K$)
Direct Costs			
Electrical Distribution	13,339	--	**13,339**
Electrical Room	5,489	--	**5,489**
Electrical (transformer, outdoor lighting and etc.)	3,389	--	**3,389**
Direct Costs	**22,216**	**0**	**22,216**

21.3.4.6 Buildings

Buildings include dormitories, cafeteria, truck shop, camp welcome centre/offices, dry facility, recreation centre, warehouse, site management offices, industrial/electrical maintenance office/shop, assay laboratory, core shack, overhead crane, commercial laundry, wash bay, pumps, etc. The cost of the buildings is estimated based on the material take-offs by engineering and quotes from vendors.

21.3.4.7 Airstrip

Airstrip includes allowance and provisions for buildings, maintenance equipment (de-icing) and outdoor lighting. The estimate is completed based on similar projects.

21.3.4.8 Mobile Fleet

The mobile fleet includes the purchase and replacement of site mobile equipment not covered within the mining mobile fleet or within the concentrator plant mobile fleet. Table 21-10 lists the mobile equipment covered within Area 5800.

Table 21-10: List of Mobile Equipment

Site Services Mobile Equipment	Number of Units
Rough Terrain Forklift	1
Wash Bay Skid Steer	1
Passenger Vehicle / Bus	1
Light Vehicles	5

Equipment replacement costs are estimated based on the following:

- Light vehicles are replaced every 7 years;
- Other equipment (not covered in Mining or Milling) is replaced once during the life of mine ("LOM");
- Freight assumptions included are based on 7% of purchase price.

21.3.4.9 Cybersecurity for Industrial Control System

Industrial control system is estimated based on the Information Technology ("IT") & Operational Technology ("OT") procedures and initial rollouts as well as software procurement.

21.4 Capital Cost – Concentrator Plant

21.4.1 Pricing and Quantity Basis

The concentrator plant capital estimate is derived from first principles using preliminary design documents, including inter alia, the process design criteria, mass balance, mechanical equipment listing, and process flow diagrams (refer to Chapter 17). The majority of mechanical equipment costs are derived from budget quotations received from vendors, whilst other minor cost items were derived from Halyard's historical cost database. Earthworks, concrete, structural steel, piping, electrical and instrumentation costs were all estimated independently, as described herein.

All quantity/cost estimates were aligned with the Project WBS, and the relevant data captured within sub-areas and/or subsections and tagged by commodity according to the work elements coding structure.

Labour rates are based on the Project cut-off date, with hourly rates based on conditions in Red Lake.

Allowances for waste, fabrication losses or breakage were applied to the majority of unit prices.

21.4.1.1 Mechanical Equipment

Concentrator plant mechanical equipment scope is defined primarily by the mechanical equipment list, and the sizing/specifications given within the list form the basis for mechanical equipment cost estimating. The costs of many equipment items are derived from budgetary quotes supplied specifically for the PFS by established equipment vendors. Multiple quotations were obtained for major equipment items. Smaller/secondary equipment item costs are estimated using in-house database information. 82.4% of the overall mechanical equipment supply budget (Phase 1 and Phase 2) is derived from budget quotation data, with the remainder from database information.

Costs for packing and transportation of the equipment to the plant site are included in the indirect capital budget.

Installation materials and labour costs for equipment installation were estimated and included in the total mechanical works budget.

21.4.1.2 Earthworks and Concrete

Civil unit rates were estimated using information from historical project information and recent Halyard studies. MTOs were calculated using the PFS site drawings.

Earthworks have been priced using project-wide unit rates from BBA's historical data for the local conditions.

Concrete quantities were estimated using preliminary design calculations together with the 2D plant layout drawings developed for this PFS. Concrete rates were built-up for each type of concrete with formwork and rebar densities based on historical project data for similar structures. Rebar pricing included supply and shop fabrication as part of the material price. The cost of concrete supply was based on informal pricing received from local supplied or batch plant operator.

21.4.1.3 Structural and Pre-Engineered Buildings

The 6,600 m^2 concentrator building was sized and specified as part of the concentrator plant layout drawing package, and MTOs developed using Halyard's in-house engineering. Unit rates were determined using budget quotes and/or internal database rates. The storage building costs were developed from layout drawings and budget quotations.

21.4.1.4 Process Piping

Process piping for the concentrator was estimated as a factor of the mechanical equipment supply cost, based on benchmarking similar projects and in-house databases. Factored costs were divided into the two implementation phases.

21.4.1.5 Electrical and Instrumentation

Single line diagrams ("SLDs") were developed for the concentrator plant, using specifications from the mechanical equipment list. The SLD's were used to outline the overall electrical design and define the electrical equipment list. Power cable sizes and quantities were based on estimated load power requirements, whilst the plant layout drawings were used to estimate cable lengths and cable tray quantities. Established lighting calculated were applied to determine the quantity of light fittings.

Power and control cables are priced based on estimated quantities. The cost of bulk materials pricing were derived using a combination of historical data and quoted costs.

The cost of major electrical equipment (E-houses, switchgear, transformers, variable frequency drives, motor control centres and auto transfer switches) were supported by budgetary quotations by established suppliers. For minor equipment, prices were obtained using historical project data.

The concentrator plant instrumentation costs (including the plant control system) were factored from the direct costs based on benchmarking. Costs were split according to the two development phases.

21.4.2 Concentrator Plant

The concentrator plant was designed from first principles by Halyard and has been configured for implementation in two phases, timed to fit with mine production ramp up plans.

In Q4 of Year -1, the technical grade concentrator is commissioned, complete with all buildings (including the area designed to house the SC6.0 plant). The total direct capital cost of $151.33M is required for Phase 1.

Phase 1 capital costs (excluding indirect costs and contingency) are broken down by area in Table 21-11:

Table 21-11: Summary of Direct Capital Cost, TG Concentrator Costs

Description	Phase 1 Capital (K$)
Infrastructure – Buildings	11,350
Concentrator – General	25,490
Concentrator – Building	11,267
Concentrator – Crushing & Coarse Ore Stockpile	63,870
Concentrator – Grinding	11,479
Concentrator – Flotation	16,869
Concentrator – Thickening & Tailings pumping	130
Concentrator – Filtration	4,172
Concentrator – Concentrate Storage	5,944
Concentrator – Reagents	686
Concentrator – Services	72
Direct Costs	**151,329**

The chemical grade concentrate (SC6.0) plant is scheduled for commercial production in Year 3 of operations (Phase 2). Additional CAPEX requirements for Phase 2 total $80.9M (excluding indirect costs and contingency) are summarized in Table 21-12.

Table 21-12: Summary of Direct Capital Cost, CG Concentrator Costs

Description	Phase 2 Capital (K$)
Infrastructure – Buildings	0
Concentrator – General	6,592
Concentrator – Building	0
Concentrator – Crushing & Coarse Ore Stockpile	37,274
Concentrator – Grinding	15,262
Concentrator – Flotation	9,277
Concentrator – Thickening & Tailings pumping	2,203
Concentrator – Filtration	4,654
Concentrator – Concentrate Storage	0
Concentrator – Reagents	1,141
Concentrator – Services	4,463
Direct Costs	**80,866**

21.5 Capital Cost – Chemicals Conversion Plant

21.5.1 Pricing and Quantity Basis

The Chemicals Conversion Plant ("chemicals plant") facility costs were completed by a Chinese engineering company ("C.ENG.") and subsequently reviewed and verified by Halyard Inc. Cost estimates have been prepared from first principles, with process design documents used to generate detailed MTOs for mechanical equipment, structural steel, concrete, piping, electrical and instrumentation items.

The QP was not directly involved in the development of the chemicals plant process flowsheet, nor the subsequent capital estimating exercise but the QP has performed a detailed review of the C.ENG. deliverables, including discussions with Frontier management and metallurgical engineers. Having completed this review, the QP is satisfied that the estimate meets the general requirements for an AACE Class 4 estimate and is therefore suitable for the purposes of this PFS.

The chemicals plant construction and operation is scheduled to commence in Q1-Year 2.

21.5.2 Chemicals Plant

The chemicals plant direct capital cost including hydroxide and carbonate (chemical) plant design, supply erection and commissioning, is estimated at $379M and is a major cost component in the capital expenditure of the Project. Using a similar approach to the concentrator plant, the chemicals plant design is built from first principals (Chapter 17) with process designs and specifications used as a basis for the capital cost estimate. Documents such as the process design criteria, mechanical equipment list and process flowsheets are key references describing the scope of supply.

Direct capital costs for the chemicals plant were developed using a blend of budget quoted costs and factored cost approach.

Details of the chemicals plant direct capital costs are provided in Table 21-13.

Table 21-13: Breakdown of Chemicals Plant Direct Capital Cost by Area

Description	Labour hours	Labour Cost (K$)	Material Cost (K$)	Equipment Cost (K$)	Total Direct (K$)
Building & Site Infrastructure	2,139	1,268	11,696	3,500	16,464
Pyrometallurgical Plant & Water Handling	405,754	62,161	40,524	29,180	131,865
Leaching & Purification Plant	139,233	21,736	12,109	14,748	48,593
Hydromet Plant	413,678	64,587	47,242	70,482	182,311
Total (Direct CAPEX)	**960,804**	**149,752**	**111,571**	**117,910**	**379,233**

Costs are broken down further in the following subsections.

21.5.2.1 Building and General Site Infrastructure

Allowances were made for the purchase of suitable industrial land ($8M), and for the materials and labour required to construct the following chemicals plant :

- Chemical lab ($4.5M);
- Office building ($0.6M);
- Fire protection systems ($3.4M).

Giving a total cost of $16,5M direct CAPEX in this area.

21.5.2.2 Pyrometallurgical Plant and Water Handling

Quantities and unit costs were determined for various process steps within this area, including the following:

- Concentrate storage and Feeding ($18.4M);
- Calcination and acid roasting ($28.4M);
- Denitration circuit ($0.8M);
- Acid & Alkali Tank Farm ($2.0M);
- Water Circuit ($32.6M):
  - Calcination kiln cooling;
  - Raw water;
  - Cooling/softened water;
  - Wastewater treatment;
  - Rainwater storage;
  - Emergency water pond.
- Utilities and MCC ($7.8M);
- Area-wide structural steel ($41.9M).

Giving a total cost of $131.9M direct CAPEX in this plant area.

Mechanical equipment costs, electrical/instrumentation costs and piping costs were built up by area from first principles using budget quotations and C.ENG. in-house data for individual equipment items. Civils/concrete and structural steel budgets were derived using higher level estimates per unit area or volume. Platework was included in the mechanical listing.

21.5.2.3 Leaching and Purification Plant

Quantities and unit costs were determined for various process areas within this area, including the following water treatment areas:

- Leaching & purification ($33.7M);
- Calcium carbonate storage/dosing ($1.4M);
- Area-wide structural steel ($13.5M).

Giving a total cost of $48.6M direct CAPEX in this plant area.

Mechanical equipment costs, electrical/instrumentation costs and piping were built up by area from first principles using budget quotations and C.ENG. in house data for individual equipment items. Civils/concrete and structural steel budgets were all derived using higher level estimates per unit area or volume. Platework was included in the mechanical listing.

21.5.2.4 Hydromet Plant

Quantities and unit costs were determined for various process areas within this area, including the following water treatment areas:

- Leaching, purification-evaporation ($9.0M);
- Lithium carbonate circuit ($11.9M);
- Lithium hydroxide circuit ($31.0M);
- Sodium sulphate removal ($12.0M);
- Reagents ($8.2M);
- Auxiliaries, including MCCs, product storage, warehouse, maintenance workshop, central control room and testing centre ($17.1M);
- Utilities, including main substation, boiler, warehouse, natural gas, compressed air etc. ($6.9M);
- Area-wide structural steel ($86.2M).

Giving a total cost of $182.3M direct CAPEX in this area.

Mechanical equipment costs, electrical/instrumentation costs and piping were built up by area from first principles using budget quotations and C.ENG. in house data for individual equipment items. Civils/concrete and structural steel budgets were all derived using higher level estimates per unit area or volume. Platework was included in the mechanical listing.

21.6 Capital Cost – Site Closure and Reclamation

Closure of the PAK Project will be governed by the *Ontario Mining Act* and its associated regulations and codes under Ontario Regulation 240/00. The objective of closure is to return the Project site to a naturalized and productive condition after mining is complete "Naturalized and productive" is interpreted to mean a rehabilitated site without infrastructure (unless otherwise negotiated), and one that, while different from the existing environment, is capable of supporting plant, wildlife and fish communities, and other applicable land uses.

Conventional methods of closure are expected to be employed at the site. The closure measures for the tailings impoundment will be designed to physically stabilize the tailings surface to prevent erosion and dust generation. The Spark and PAK pits will be allowed to flood, and the natural flow will be re-established to the extent practical. Revegetation will be carried out using non-invasive native plant species. Monitoring, at appropriate sampling locations, including those established during baseline studies and operations, will be conducted after closure to confirm the performance of the closure measures.

Closure costs are estimated based on this approach and are included in the sustaining capital and financial analysis sections of this report.

Reclamation and closure costs at the mine site are estimated to total approximately $33.9M, including closure monitoring. An additional $10M for the chemicals plant site is also estimated. These costs are based on estimates prepared for earlier studies on other similar projects, scaled to suit the current Project concept, and excludes allowances for contingency.

Unexpected geotechnical and hydrogeological conditions from what was assumed in the mine designs, including water management during construction, mine operations, and post mine closure, unexpected social risks, could result in higher closure costs and unanticipated closure requirements.

Table 21-14 summarizes the closure and reclamation estimated costs.

Table 21-14: Closure and Reclamation Capital Estimate Summary

Description	Estimated Cost (K$)
Closure at LOM - Remove Facilities, Equipment and Site Rehabilitation	
Mine and Related Facilities Closure	
Ore Stockpiles and Mine Rock Areas	5,732
Open Pit Mine Filling	0
Open Pit Mine Equipment	1,704
Open Pit Mine Infrastructure	1,481
Mine Site Infrastructure, Building and Facilities Demolition and Closure	
Site Area Preparation, Regrading and Revegetation	1,000
On-Site Roads	1,459
Construction and Operations Camp Accommodations Area	2,000
On-Site Bulk Storage	98
On-Site Utilities	400
On-Site Communications	60
On-Site Power Supply and Distribution	307
Offices and Personnel Buildings	221
Laboratories, Shops and Warehousing	500
Concentrator Plant Facility	
Ore Handling Facilities	1,242
Concentrator Plant	2,000
Tailings and Water Management	
Runoff, Erosion and Sediment Control	255
Tailings Management Facility	2,500
Storm Water/Mine Water Pond	845
Seepage Ponds and Restoration of Natural Drainage	1,333
Polishing Pond and Water Reclaim Pond	1,000
Off-Site Facilities	
Main Power Line	557
Water Supply	100
Site Services and Project Indirect costs for Mine Closure Construction	3,047
Site Operations, Maintenance and Monitoring	
During Permitting, Engineering and Construction (Excluded)	0
During Mine Operations (Excluded)	0
During Closure (2 Years)	2,456
Site OM&M Pending Pit Filling Completion (Estimated at 10 Years)	1,000
Site OM&M for an Indefinite Period (Estimated at 10 Years)	2,556

Description	Estimated Cost (K$)
Chemicals Plant Closure	
Site Facilities Closure	2,000
Site Infrastructure, Building and Facilities Demolition and Closure	2,000
Chemicals Plant	2,000
Storage Facilities	2,000
Off-Site Facilities	1,000
Site Services and Closure Project Indirect Costs	600
Site Monitoring (Post Closure)	500
Total	**43,953**

21.7 Sustaining Capital

The total capital estimate (Table 21-1) includes a total of $94.6M which has been estimated as sustaining capital (direct cost estimate). Sustaining capital costs include the purchase of new open pit ("OP") mobile mining equipment after the initial capital expenditure (fleet additions), purchasing new mobile equipment as replacement units, and for mobile mining equipment overhaul expenditures. Sustaining capital items also include the replacement of G&A mobile equipment and the TMF embankment staged expansion. The resulting sustaining capital costs are outlined in Table 21-15.

Table 21-15: Mining and Infrastructure Sustaining Capital Estimate Summary

Description	LOM (K$)	Unit Cost ($/t milled)
OP – Mobile Fleet Additions	25,323	1.15
OP – Mobile Fleet Replacements	22,871	1.04
OP – Mobile Fleet Overhaul	19,027	0.86
OP – Other	785	0.04
GA – Equipment Replacement	1,630	0.07
TMF – Tailings Facility Expansion	24,921	1.13
Total Sustaining Capital Estimate (Direct Costs)	**94,556**	**4.28**

21.8 Indirect Costs

Table 21-16 summarizes the indirect capital cost estimate included in the study.

Table 21-16: Summary of Indirect Capital Cost

Description	Pre-production Phase Y-2 to -1	Production Phase Y1 to 3	Production Phase Y4 to 24	Closure Phase Y25+	Total LOM
	(K$)	(K$)	(K$)	(K$)	(K$)
Indirect Costs					
Owner's Costs	30,900	36,281	0	0	**67,180**
EPCM Services	51,087	56,649	0	0	**107,736**
Temporary Facilities & Utilities	14,041	27,210	0	0	**41,252**
POV & Mechanical Acceptance	2,953	4,898	0	0	**7,851**
Commissioning Spare Parts	1,969	3,265	0	0	**5,234**
Operating Spare Parts	--	3,537	0	0	**3,537**
Initial Fill	984	1,633	0	0	**2,617**
Freight	9,510	19,591	0	0	**29,101**
Vendor Representatives	1,477	2,687	0	0	**4,164**
Camp & Catering	3,128	0	0	0	**3,128**
Subtotal Indirect Costs	**116,050**	**155,751**	**0**	**0**	**271,801**
Contingency	100,458	131,757	18,991	-2,803	**248,404**
Total Indirect Costs	**216,508**	**287,508**	**18,991**	**-2,803**	**520,204**

21.8.1 Owner's Cost

The allowance for Owner's costs is estimated as 8% of direct capital cost estimate.

The following represents a list of items that BBA considers are included in Owner's costs:

- Owner's project management team costs;
- Information technology and other technology project expenses;
- Land acquisition and rights of way;
- Environmental permitting, monitoring, water and soil analysis, etc.;
- Allowance for upgrade of any off-site facilities;
- Removal and disposal of unknown hazardous materials;
- Capitalized interest;

- Cost of working capital;
- Capital and operating spares;
- Owner's Project Office (other than space provided by the EPCM Contractor's site construction office) including rent, communications, furniture and equipment, and office supplies;
- Taxes and duties;
- Performance bonds;
- Commissioning & Start-up salaries & expenses;
- Training of plant operating personnel & Training Centre;
- First nations and community affairs;
- Owner's s legal costs;
- Owner's marketing costs;
- Financing costs;
- Currency hedging;
- Owner's raw material consumption during commissioning;
- Owner's Contingency.

21.8.2 Engineering, Procurement and Construction Management ("EPCM")

The allowance for EPCM services is estimated as 15% of the direct capital cost of the concentrator plant and 12% of remaining direct capital cost estimate for the site and chemicals plant.

The construction management account includes all expenses incurred by the construction management team while performing the necessary on-site services. These costs generally include, but are not limited to, the following:

- Construction Manager;
- Contracts Coordinators;
- Site Safety Coordinators;
- Construction Scheduling and Reporting;
- Quality Control Coordinator;
- Document Control and Clerical Services;
- Cost Control and Site Purchasing;
- Material Control;
- Temporary Construction Facilities and Expenses.

21.8.3 Other Construction Indirect Costs

Table 21-17: Other Construction Indirect Costs Capital Costs

Indirect Cost Item	Mining Equipment	Concentrator Plant Facility	TMF and Mine Infrastructure	Chemicals Plant
Temporary Facilities & Utilities	2% of direct capital cost	6% of direct capital cost	2% of direct capital cost	6% of direct capital cost
Commissioning Services – POV	3% of the value of equipment	3% of the value of equipment	3% of the value of equipment	3% of the value of equipment
Commissioning Spare Parts	2% of the value of equipment	2% of the value of equipment	2% of the value of equipment	2% of the value of equipment
Operating Spare Parts	--	--	--	3% of the value of equipment
Initial Fill	1% of the value of equipment	1% of the value of equipment	1% of the value of equipment	1% of the value of equipment
Freight	Incl. in Mine Equipment Purchase Price	12% of the value of equipment	12% of the value of equipment	12% of the value of equipment
Vendor Representatives	1.5% of the value of equipment	1.5% of the value of equipment	1.5% of the value of equipment	1.7% of the value of equipment

The construction indirect cost account represents the typical site construction management team and contractor's site area preparation, hook-ups, fencing, etc. The estimated total is based on the following:

- Warehousing facilities;
- Construction management crew trailer facilities;
- Material reception logistics and personnel;
- General fire watch services;
- Snow clearing;
- Sanitary facilities and consumables;
- Prepared laydown areas;
- Concentrator showers and locker facilities;
- Contractor utilities hook-up;
- Concentrator first aid facilities and personnel;
- General site safety and security, including traffic control.

21.8.3.1 Vendor Representatives

The commissioning and start-up account cover for the services rendered by contractor`s personnel at site for the actual commissioning phase of the Project. Major equipment manufacturer's assistance during the erection, commissioning and start-up phases of the Project is also included in this account.

21.8.3.2 Freight

Freight costs are included in the indirect cost accounts. In general terms all non-mechanical bulk material pricing is inclusive of freight to the site. Freight costs for each of the major purchase packages will be evaluated based on optional quoted shipping costs and/or information provided by vendors and historical data to establish shipping weights, volumes and container quantities. Ocean and or trucking rates will be applied in consideration of the point of origin. Port and demurrage charges will be established as a function of the container quantity and/or percentage of shipping costs.

21.8.3.3 Spare Parts

The cost of spare parts for pre-operational testing, commissioning & start-up, and 1-year operating is established as a percentage of equipment costs.

21.8.3.4 Major Equipment Rentals

A provision for major equipment rental costs is included in the estimate; it is based on an allowance with no definition at this stage of the Project development.

21.8.3.5 Temporary Construction Camp

The construction camp and catering services cost is estimated based on an estimate of the peak requirements at site.

21.8.4 Contingency

Contingency is an integral part of the estimate and can best be described as an allowance for undefined items or cost elements that will be incurred, within the defined project scope, but that cannot be explicitly foreseen due to a lack of detailed or accurate information.

Contingency has been applied as follows:

- Mining Equipment: 20% on direct and indirect costs;
- Concentrator Plant Facility: 20% on direct and indirect costs;
- Tailings Management Facility: 20% on direct and indirect costs;
- Mine Site and Infrastructure: 20% on direct and indirect costs;
- Chemicals Plant: 20% on direct and indirect costs;
- Site Closure and Reclamation: 20% on direct costs;
- Sustaining Capital: 20% on direct costs.

Contingency analysis does not consider project risk, currency fluctuations, escalation beyond predicted rates, or costs due to potential scope changes or labour disruptions.

21.9 Operating Costs

21.9.1 Operating Cost – Summary

This section provides information on the estimated operating costs of the PAK Lithium Project and covers open pit, technical grade and chemical grade concentrator plant facilities, tailings management facilities, mine services and G&A, concentrate hauling, and chemicals plant.

The total operating costs are based on:

- PAK mining and technical concentrator plant operations commences in Year 1;
- Spark mining and chemical concentrator plant operations commences in Year 3;
- Battery grade lithium hydroxide and carbonate plant (chemicals plant) operation commences in Year 4;
- Total milled tonnes over the LOM is 22.1M.

The total site operating costs for mine and concentrator over the LOM are estimated to be $1,943M as shown in Table 21-18. Mining and mill processing cost represent 39% and 31% of this total cost respectively. Mine services and G&A represent the remaining 30%.

The total operating processing costs for the chemicals plant over the LOM are estimated to be $2,467M. The total LOM overall Operating cost for the mine, concentrator plant, concentrate transport, and chemicals plant processing is $4,841M.

Table 21-18: Total Operating Costs Over Life of Project

Cost Area	Total (M$)	Unit Cost ($/t milled)	Percent of Total
Open Pit Mining	753.5	34.14	16%
Concentrator Processing	610.8	27.67	13%
General & Administrative (G&A)	578.7	26.22	12%
Subtotal Site Operating	**1,943.0**	**88.04**	**40%**
Concentrate Transportation	385.5	17.47	8%
Chemicals Plant	2,467.0	111.78	51%
Transport losses	45.8	2.07	1%
Total Operating Cost	**4,841.2**	**219.36**	**100%**

The operating cost estimates exclude any allowances for contingencies.

21.9.2 Mining Operating Cost Estimate

Mining operating costs have been developed based on the mining plan for the Project.

Mining operating costs are built up from first principles. Inputs are derived from vendor quotations and historical data. This includes quoted cost and consumption rates for such inputs as fuel, lubes, fluids, tires, undercarriage, ground engaging tools ("GET"), machine parts, machine major components, and operating and maintenance labour.

Mining operating costs averaged over the life of the operation are estimated at $7.29/t of material mined. A breakdown of mining operating costs is provided in Table 21-19 and Table 21-20.

Table 21-19: Breakdown of Average LOM Mining Operating Costs

Cost Area	LOM (K$)	Unit Cost ($/t mined)	Percentage of Total
Drilling & Blasting	270,159	2.61	36%
Loading	39,151	0.38	5%
Hauling	78,305	0.76	10%
Support Equipment	101,019	0.98	13%
Labour	252,638	2.44	34%
Mine General	12,263	0.12	2%
Total Mining Operating Costs	**753,535**	**7.29**	**100%**

Table 21-20: Alternative Breakdown of Average LOM Mining Operating Costs

Cost Area	LOM (K$)	Unit Cost ($/t mined)	Percentage of Total
Fuel	108,028	1.04	14%
Fluids	6,690	0.06	1%
Tires / Undercarriage	22,493	0.22	3%
GET / Bucket / Truck Body / Parts	30,985	0.30	4%
Maintenance and Repair	50,279	0.49	7%
Labour	252,638	2.44	34%
Other	12,263	0.12	2%
Drill & Blast Contractor	270,159	2.61	36%
Total Mining Operating Costs	**753,535**	**7.29**	**100%**

21.9.2.1 Equipment Cost

Equipment costs have been estimated by BBA based on experience, historical data on similar projects, as well as OEM budgetary quote information. OEM budgetary information is based on Q4 2022. Equipment costs include:

- Fuel;
- Lube/fluids:
  - Fluids estimate does not include consumables (fuel/DEF/grease). All other fluids for regular maintenance are included (oils/coolant/etc.);
  - Allowance for grease consumption.
- Tires/undercarriage:
  - Tires estimate is based on manufacturer's suggested retail price ("MSRP") tire pricing, without labour for installation;
  - Undercarriage estimate is based on Toromont parts for regular undercarriage maintenance and replacement.
- GET/ bucket / truck body:
  - Includes reconditioning, supplies, and wear item replacement at regular intervals. Based on an average hard rock application.
- Parts;
- Maintenance & Repair:
  - Includes parts for planned maintenance (no fluids), and includes all major component replacements at planned intervals;
  - Overhaul costs have been estimated based upon 35% – 45% of purchase price and expended at approximately ½ the life (typically 18,000 hours) for major equipment. Overhaul costs are categorized as sustaining capital.

21.9.2.2 Equipment Fuel Cost

Diesel fuel is used to operate mine trucks, shovels, loaders, drills, dozers and other mine equipment. Fuel consumption was estimated for each year of operation based on equipment specifications and equipment utilization. The price of diesel fuel is assumed to be:

- $1.90/litre delivered to site ($1.80/litre + $0.10/litre for delivery);
- Diesel exhaust fluid (“DEF”) is estimated at 3% and $1.15/litre for an additional $0.03/litre.

21.9.2.3 Stockpile Reclaim

Over the life of the open pit mine operation, a technical grade stockpile and chemical grade stockpile is accumulated in the vicinity of the ROM crusher. The purpose of the stockpiles is for blending and to have material available if ore is not available from the pits. The material will be reclaimed by front-end loader and trammed to the ROM crusher.

Concentrator rejects from the ore sorters and DMS will also require rehandling from the concentrator area to the concentrator rejects stockpile near the PAK area. Stockpile reclaim costs are included within the Support and Hauling areas.

21.9.2.4 Drilling and Blasting Cost

Drilling and blasting costs for ore and waste rock were provided by Contractor quote.

Unit costs are estimated to include emulsion product, initiation systems which include detonation cord, boosters, and electric detonators, delivery of the product to the site, site storage, delivery of the product to the hole, hole loading and shooting blasts, necessary equipment and facilities (pickup trucks, blasting trucks, stemming loader, storage facilities, magazine, garage, trailers, and fencing). The unit costs also include such items as mobilization and crew rotation for an all inclusive-type estimate.

Wall control drilling and blasting is estimated at 6% of production costs.

21.9.2.5 Labour Cost

Labour requirements were estimated to support the mine plan developed in this Study. The labour rates for salaried and hourly personnel were estimated by BBA from benchmarking similar positions with BBA’s database of projects and experience in the region as well as with publicly available Canadian Salary Guides. It should be noted that all salaries and wages estimated include the entire labour burden (e.g., benefits, insurance, etc.) as well as allowances for overtime and bonus.

The overall labour burden ranged between 35% and 44%, depending on position. Salaries exclude fly-in fly-out ("FIFO") and accommodation costs which are included in the G&A.

The mine labour is based on operating crews on a 14 day on 14 days off rotation.

21.9.2.6 Mine General and Miscellaneous Cost

This item includes allowances for costs for such items as technical services consulting, specialized mining software, equipment rental, and pit dewatering (Table 21-21). Personal protective equipment ("PPE") is considered included in the overall labour burden assumptions and ore grade control is included in the G&A operating cost estimate.

Table 21-21: Other Cost Assumptions

Description	Source	Unit	Value
Pit Dewatering Miscellaneous	BBA	$/year	75,000
Ore Grade Control	BBA	$/t of ore	Incl. in G&A
Miscellaneous Allowance	BBA	$/year	250,000
Technical Services Consulting Allowance	BBA	$/year	200,000

21.9.3 Concentrator Plant Operating Cost Estimate

The concentrator plant operating cost was developed with the Project development plan in mind, namely that the processing facilities will be phased in to meet mine plan requirements:

- Phase 1 – Technical grade concentrator plant operating alone from Year 1 to Year 2.
- Phase 2 – Chemical grade concentrator plant added in Year 3.
- Phase 3 – Offsite chemicals plant added in Year 4.

Therefore the operating costs vary considerably from year to year, dependent on the production phasing and the tonnage treated. In Year 1, prior to the startup of the chemical grade concentrator, the technical grade concentrator will process feed at a rate of 210,000 tonnes per annum ("tpa"), to produce SC7.2 concentrate at a cost of $66.47 per tonne milled.

As the mining of the Spark deposit commences, and the Phase 2 SC6.0 concentrator plant is commissioned, concentrator feed from Spark will be processed at 830,000 tpa, and SC6.0 concentrate will be produced at a cost of $23.83 per tonne milled.

Together, the CG and TG concentrator plants will process 1,040,000 tpa with an overall/combined operating cost of $27.60 per tonne milled.

Operating costs were derived from first principles, and summarized in the following cost categories:

21.9.3.1 Concentrator Plant Labour

Concentrator plant labour staffing levels is determined using Halyard's in house database and experience with similar operations. Project wide labour rates are used on the understanding that these are based on similar operations in Northern Ontario.

21.9.3.2 Power

The cost of power for various concentrator operations was determined from first principles, using calculated power draw and demand load data to estimate overall power draw for the plant. Quotes for power unit rates were used to calculate overall power costs. Phase 1 operations consume power at a rate of approximately 8.9 MWh p.a. and these increase by 23.3 MWh p.a. when Phase 2 is implemented.

21.9.3.3 Concentrator Plant Equipment Maintenance

Concentrator Plant maintenance costs are factored from the mechanical equipment supply costs. Factors are applied on a per-area basis, using established ratios from Halyard's internal project database. These typically run in the 4-6% range.

21.9.3.4 Reagents, Grinding Media & Liners

The cost of reagents and other consumables is calculated using throughput data, metallurgical test work and recent budget quotations from reagent suppliers.

Reagents include flotation chemicals such as EDA (quartz collector), F220 (dispersant), FA2 (fatty acid collector), MIBC (frother), Na2CO3 (soda ash), NaOH (Sodium hydroxide), and dewatering aids such as magnafloc 10 (flocculant). Reagent unit costs were determined using supplier quotations.

Grinding balls and rods are added to the concentrators on an ongoing basis and calculated using vendor data and metallurgical test work. Grinding media unit costs were determined using supplier quotations.

Crusher and concentrator liners are replaced on a routine basis and consumption rates are calculated using vendor data and metallurgical test work. Liner unit costs were determined using supplier quotations and Halyard database costs.

21.9.3.5 Concentrator Plant General and Safety

Safety and G&A costs were determined based on labour force numbers and reference costs.

The estimated annual and unit cost estimates are shown in Table 21-22, using the following major unit cost assumptions:

- Fuel costs at $1.90/litre delivered to site;
- Electricity price of $0.093/kWh;
- Currency exchange rate of 1 USD : 1.3 CAD.

Table 21-22: Estimated Annual and Unit Concentrator Operating Costs

Cost Area	Year 1 – 2		Year 3+					
	TG Concentrator Operating		TG & CG Concentrators Operating					
			TG Concentrator		CG Concentrator		Total	
	Annual (K$)	$/t milled	Annual (K$)	$/t milled	Annual (K$)	$/t milled	Annual (K$)	$/t milled
Labour	8,772	41.77	4,497	21.42	8,697	10.48	13,194	12.69
Power (Electrical)	831	3.96	755	3.69	2,165	2.61	2,940	2.83
Maintenance (Mechanical & E&I)	1,407	6.70	1,278	6.09	2,501	3.01	3,779	3.63
Reagents	1,088	5.18	1,084	5.16	2,979	3.59	4,063	3.91
G&A	395	1.88	125	0.60	570	0.69	695	0.67
Safety Equipment & Training	241	1.15	133	0.63	231	0.28	364	0.35
Lab Services	134	0.64	197	0.94	181	0.22	378	0.36
Grinding Media & Liners	464	2.21	459	2.19	1,355	1.63	1,814	1.74
Mobile Equipment	628	2.99	392	1.87	1,119	1.35	1,511	1.45
Total	**13,959**	**66.47**	**8,941**	**42.58**	**19,799**	**23.85**	**28,740**	**27.63**

21.9.4 General & Administrative ("G&A") and Site Services

G&A costs are expenses not directly related to the production of concentrate and include expense items that are not covered in mining, milling/processing, and transportation costs. The site services costs over the LOM are estimated to average $26.22/t of processed concentrator feed (Table 21-23).

Table 21-23: Average G&A and Site Services Operating Costs

Cost Area	Total (K$)	Unit cost ($/t milled)	Percentage of Total
G&A Labour	112,039	5.08	19%
G&A Expenses	147,115	6.67	25%
Site Services	82,115	3.72	15%
Employee Accommodation and Crew Rotation	237,421	10.76	41%
Total G&A Operating Cost	**578,690**	**26.22**	**100%**

The G&A and site services costs have been categorized into the following categories:

- G&A Labour
  - Includes personnel listed in Table 21-24;
  - Labour costs are estimated based on a preliminary staffing plan estimate for the G&A Area based on BBA's experience with similar projects. Personnel of the G&A Area will work under a rotation system of 10 hours per shift, 14 days on and 14 days off;
  - The labour rates for salaried and hourly personnel are estimated by BBA from benchmarking similar positions with BBA's database of projects and experience in the region as well as with publicly available Canadian Salary Guides. It should be noted that all salaries and wages estimated include the entire labour burden (e.g., benefits, insurance, etc.) as well as allowances for overtime and bonus. The overall labour burden varies between 35% and 44%, depending on position;
  - PPE is included in the overall labour burden assumptions;
  - Salaries exclude FIFO and accommodation costs, which are included in separate item in G&A.
- G&A Expenses
  - Includes allowances for items such as, but not limited to:
    - Communications/IT/computers/cybersecurity;
    - Medical and first aid supplies;
    - Office supplies;
    - Freight;
    - Insurance;
    - Memberships, audits, recruitment, legal;
    - Access roads maintenance;
    - Mobile vehicles;
    - Agreement payments;
    - Consultants and equipment rental.

- Site Services
  - Includes:
    - Power and heating costs not included in the concentrator plant facility;
    - Water treatment for potable water system, domestic water system, and site effluent treatment system;
    - Surface water pumping.
    - On-site Assay Laboratory services based on vendor quote from Q1 2023.
- Employee accommodations and crew rotation expenses
  - Includes:
    - Cost item based on overall site labour estimate shown in Table 21-25;
    - Seven positions in G&A are considered off-site and do not require employee accommodations or crew rotation considerations;
    - Employee accommodation estimated based on vendor quote from Q1 2023 for camp catering, housekeeping, and janitorial services;
    - Crew rotation expenses based on approximately $20,800/person/year corresponding to 13 round trips per employee.

Table 21-24: Estimated List of G&A Personnel

Position	Number
Total G&A Area	**38**
Administration	**3**
General Manager	1
Administrative Assistant	2
Human Resources	**4**
HR Manager	1
HR Staff	1
Community Liaison	2
Accounting	**2**
Controller / Accountant	1
Payroll Coordinator	1
Warehouse	**7**
Purchasing (Buyer)	1
Forklift Operator / Material Coordinator	4
Warehouse Staff	2
Health & Safety	**4**
Security Staff	4
IT Technology	**6**
IT Coordinator	2
OT Specialist	4
Environmental	**4**
Environmental Technician	2
Water Treatment Operator	2
Site Services	**8**
Site Services Manager / Supervisor	2
Site Service Crew	6

Note: This table only includes the PAK site with corporate. Chemicals plant personnel is not included.

Table 21-25: Overall PAK Site Labour Personnel

	Year 1	Year 3	Year 10	Year 13	Year 20	Year 24
General & Administrative	**36**	**38**	**38**	**38**	**38**	**36**
Administration	3	3	3	3	3	3
Human Resources	4	4	4	4	4	4
Accounting	2	2	2	2	2	2
Warehouse	7	7	7	7	7	7
Health & Safety	4	4	4	4	4	4
IT Technology	6	6	6	6	6	6
Environmental	4	4	4	4	4	4
Site Services	6	8	8	8	8	6
Contract Services	**10**	**10**	**10**	**10**	**10**	**10**
Mining	**44**	**82**	**104**	**126**	**88**	**68**
Pit Operations	27	59	77	93	65	47
Mine Maintenance	7	13	17	23	13	11
Technical Services	10	10	10	10	10	10
Concentrator	**71**	**110**	**110**	**110**	**110**	**69**
Maintenance	25	45	45	45	45	28
Operators	34	52	52	52	52	30
Supervision	7	6	6	6	6	6
Technical	5	7	7	7	7	5
Site Labour Total (number)	**161**	**240**	**262**	**284**	**246**	**183**

21.9.5 Concentrate Transport

For concentrate hauling from the mine site to the chemicals plant, cost estimates are based on budget proposal obtained from transporters.

Table 21-26: Concentrate Haulage Costs

Cost Area	Total (K$)	Unit Cost ($/t milled)
Concentrate Transportation	385,497	17.47
Transport Losses	45,793	2.07
Total Concentrate Haulage	**431,290**	**19.54**

21.9.6 Chemicals Plant

Table 21-27: Chemicals Plant Operating Cost Estimate

Cost Area	Annual Cost (K$)	Unit Cost ($/t SC6)	Unit Cost ($/t LCE)
Fixed Costs			
Process Labour (Incl. G&A, incl. Assay Lab):			
Salaried	3,587	23	177
Hourly	15,794	101	778
Tools/Equipment/Safety Supplies	217	1.4	11
Maintenance parts (fixed component)	1,238	7.9	61
Contracts (support/maintenance, fixed cost)	248	1.6	12
Training	427	2.7	21
Power (fixed component)	3,497	22	172
Natural Gas (fixed component)	1,717	11	85
Other G&A Costs	6,104	39	301
Assay/General Laboratory - Plant Costs			
Assaying	200	1.3	10
Misc., incl. mineralogy	280	1.8	14
Subtotal Fixed Costs	**33,308**	**213**	**1,641**
Variable Costs			
Power (variable component)	10,491	67	517
Nat Gas for Process (boiler, etc.)	12,557	80	619
Reagents & other consumables	48,449	310	2,387
Maintenance parts (Variable component)	3,960	25	195
In-Plant Piping Replacement, lubricants	198	1.3	10
Contracts (support/maintenance, variable)	350	2.2	17
Water and/or Water Treatment	14	0.1	1
Abnormal/miscellaneous Items & contingencies	250	1.6	12
Subtotal Variable Costs	**76,269**	**488**	**3,757**
Total Cost Estimate	**109,577**	**701**	**5,398**

21.10 Other Cost Items

21.10.1 Transport Losses

Transport losses are the losses of product from movement by transport or shipment. The losses are applied as a direct factor loss to the revenue. The transport losses used for the technical grade concentrate and the chemical grade concentrate are 0.5% based on the methods used for loading the concentrates and losses during transport and unloading the concentrates. The transportation loss factor was determined from experiences of peers and common industry practice.

21.10.2 Concentrate Transport Costs

The transport costs from the concentrator site to Thunder Bay is calculated using at $165/h, with 20 h round trip carrying 40 t is $82.50/t. The transport price is inflated at 3% per annum for 4 years, giving a concentrate transport cost of $90/t.

21.10.3 Selling Costs

The assumption is that offtake agreements will be in place with free on board (“FOB”) transport to the buyer and marketing staff position will be within the owners operating cost. A zero-cost selling price is applied to the Project.

21.10.4 Insurances

Insurances are applied throughout the life of the Project. The insurance provides security for the inherent project life cycle risk. The insurance required for the initial capital costs and expansion capital costs are shown in Table 21-28. The insurance costs were provided from a budgetary quote.

Table 21-28: Insurance Required for Initial and Expansion Capital Costs

Description	Year -2 (K$)	Year -1 (K$)	Year 1 (K$)	Year 2 (K$)	Year 3 (K$)
Construction 'All Risks Phase/Operation 'All Risks'	2,916	Included Y2	2,916	1,199	1,289
Construction Wrap Up/Operational Liability	600	Included Y2	600	645	638
Construction Delay in Start Up/ Business Interruption	1,564	Included Y2	1,564	487	670
Marine Cargo Physical Damage	120	Included Y2	120	59	69
Director & Officers Insurance	100	100	200	200	200
Employment Practices Liability	10	10	20	20	20
Commercial Auto	-	-	95	95	95
Cyber Liability	8	8	30	30	30
Crime/Fidelity	5	10	15	15	15
Total	**5,323**	**128**	**2,751**	**3,026**	**3,216**

21.10.5 Working Capital

The working capital for the Project has deferred revenue and payments the following year. The amount of unearned revenue includes both a "cost of delivery" component and an "operating profit" component. The Project is therefore at a zero-working capital costs as all the liabilities are paid by the revenues the following year.

21.10.6 Salvage Value

The salvage value is factored at 10% of the mine, concentrator and chemicals plant equipment. The salvage value is $33M for the equipment assets after the life of the operation. The salvage value factor was determined from experiences of peers and common industry practice.

22. Economic Analysis

22.1 Overview

The economic/financial assessment of the PAK Project was carried out using a discounted cash flow approach on a pre-tax basis, with a technical grade ("TG") spodumene concentrate, chemical grade ("CG") spodumene concentrate, lithium hydroxide and lithium carbonate prices. The product sales prices and the cost estimates are in Canadian dollars (CAD or $) unless otherwise stated. An exchange rate of 0.77 USD per 1.00 CAD was assumed to convert USD market price projections. No provision was made for the effects of inflation. Current Canadian tax regulations were applied to assess the corporate tax liabilities by a third party.

The internal rate of return ("IRR") on total investment was calculated based on 100% equity financing. The net present value ("NPV") was calculated from the cash flow generated by the Project, based on a discount rate of 8%. The payback period, based on the undiscounted annual cash flow of the Project, is also indicated as a financial measure. The payback period starts after the initial capital is spent for the start of the concentrator plant production. Furthermore, a sensitivity analysis has been performed for the pre-tax base case and after-tax base case to assess the impact of variations in commodity prices, exchange rates, initial capital costs, sustaining costs and operating costs on NPV and IRR.

After-tax analysis was completed by a third-party accounting firm contracted through Frontier. The QP is not a tax expert and is relying on other experts for the completion of the tax analysis model as disclosed in Chapter 3.

22.2 Cautionary Statement

Certain information and statements contained in this section and in the report are "forward-looking" in nature. Forward-looking statements include, but are not limited to, statements with respect to the economic and study parameters of the Project; mineral resource estimates, mineral reserve estimates; the cost and timing of any development of the Project; the proposed mine plan and mining methods; dilution and extraction recoveries; processing method and rates and production rates; projected metallurgical recovery rates; infrastructure requirements; capital, operating and sustaining cost estimates; the projected life of mine and other expected attributes of the Project; the NPV and IRR and payback period of capital; working capital; future metal prices; the timing of the environmental assessment process; changes to the Project configuration that may be requested as a result of stakeholder or government input to the environmental assessment process; government regulations and permitting timelines; estimates of reclamation obligations; requirements for additional capital; environmental risks; and general business and economic conditions.

All forward-looking statements in this report are necessarily based on opinions and estimates made as of the date such statements are made and are subject to important risk factors and uncertainties, many of which cannot be controlled or predicted.

22.3 General Assumptions

General assumptions regarding the economic analysis disclosed in this report, where applicable. In addition to, and subject to, such specific assumptions discussed in more detail elsewhere in this report, the economic analysis is subject to the following assumptions:

- There being no significant disruptions affecting the development and operation of the Project.
- The availability of certain consumables and services and the prices for power and other key supplies being approximately consistent with assumptions in the report.
- Labour and material costs being approximately consistent with assumptions in the report.
- The timelines for prior consultation and baseline data collection being generally consistent with PFS assumptions, and permitting and arrangements with stakeholders being consistent with current expectations as outlined in the report.
- All environmental approvals, required permits, licenses and authorizations will be obtained from the relevant governments and other relevant stakeholders.
- Additional carbon taxes, beyond those included in the fully taxed fuel costs, have been excluded by the third party.
- The Project has been evaluated on an after-tax basis. It must be noted that there are many potential complex factors that affect the taxation of a mining project. The taxes, depletion, and depreciation calculations in the PFS economic analysis are simplified and are intended only to give a general indication of the potential tax implications; like the rest of the PFS economics, they are only preliminary.
- The timelines for exploration and development activities on the Project.
- Assumptions made in Mineral Reserve/Inventory estimate and the financial analysis based on that estimate, including, but not limited to, geological interpretation, grades, commodity price assumptions, extraction and mining recovery rates, geotechnical, hydrological and hydrogeological assumptions, capital and operating cost estimates, and general marketing, political, business and economic conditions.
- The production schedules and financial analysis annualized cash flow tables are presented with conceptual years shown. Years shown in these tables are for illustrative purposes only. If additional mining, technical, and engineering studies are conducted, these may alter the Project assumptions as discussed in this report and may result in changes to the calendar timelines.

- Discounting begins in Year 1 at the beginning of the year after initial capital spend.
- Revenue received starts the year after production begins, due to logistic constrains with the winter road and the start up of the chemicals plant.
- Tonnes of concentrate are in dry tonnes.
- Open-pit mining production begins in the first quarter "Q1" in Year 1, there is no pre-production mining in the Project.
- Commercial concentrator plant production start-up is scheduled to begin in the third quarter ("Q3") of Year 1 at the PAK for the technical grade concentrate and in Year 3 for the Spark, chemical grade concentrate. The first full year of production is therefore Year 4, with both production lines operating at full nameplate capacity.
- The base case prices used for the Project are shown in Table 22-1.

Table 22-1: Commodity Prices

Commodity Prices	Unit	Price
Technical Grade ("TG") Conc. 7.2% Li	USD/t	3,000
Chemical Grade ("CG") Conc. 6% Li	USD/t	1,350
Battery Grade $LiOH.H_2O$	USD/t	22,000
Battery Grade Li_2CO_3	USD/t	20,500

- BBA is using reasonable prices for the current market and forecast.
- The United States to Canadian dollar exchange rate has been assumed to be 0.77 USD : 1.00 CAD over the life of mine (CAD:USD exchange rate of 1.30).
- All cost estimates are in constant Q1 2023 Canadian dollars with no inflation or escalation factors taken into account.
- Class specific Capital Cost Allowance rates are used for the purpose of determining the allowable taxable income was performed by a third-party accounting firm.
- Final rehabilitation and closure costs are started in Year 15, 10 years before the end of site operations.
- Project revenue is derived from the sale of TG 7.2% spodumene concentrate and lithium hydroxide and lithium carbonate.
- Exploration costs for growth are excluded from the economic assessment.
- Royalties – Frontier's Spark and PAK open pits are not subjected to royalty payments.
- All projects related payments and reimbursements incurred prior to Q1 – Year-1 are considered sunk costs.

This financial analysis was performed on a pre-tax basis. The after-tax basis was performed by an external tax consultant and the results were provided to BBA. Table 22-2 shows the key parameters and assumptions basis used in the Project.

Table 22-2: Summary of Parameters and Assumptions Basis

Parameters	Unit	Value
Physicals		
Convert to Wet Conc. (from dry), mass		1.09
Li Hydroxide Conc. Yield from SC 6%	%	60
Li Carbonate Conc. Yield from SC 6%	%	40
Exchange Rate		
Exchange	USD/CAD	0.77
Exchange	CAD/USD	1.30
Discount Rate		
Discount Rate	%	8
Commodity Prices		
Technical Grade (TG) 7.2%	USD/tonne	3,000
Chemical Grade (CG) 6%	USD/tonne	1,350
BG LiOH, .H_2O	USD/tonne	22,000
BG Li_2CO_3	USD/tonne	20,500
Recovery		
TG Plant Recovery	%	76
CG Plant Recovery	%	78
Factor for Chem Conc. to Li Hydroxide	%	16.86
Lithium Hydroxide Recovery	%	88
Factor for Chem Conc. to Li Carbonate	%	14.84
Lithium Carbonate Recovery	%	88
Operating Costs		
TG Concentrate Transport	$/t conc.	90
CG Concentrate Transport	$/t conc.	90
Chemicals Plant Processing Costs	$/t conc.	701.22

22.4 Concentrates and Battery Products Production

The Project will produce 22 Mt of economic concentrator feed. The concentrator feed will produce 3.5 Mt of chemical grade ("CG") 6.0% concentrate and will produce 765,000 t of technical grade ("TG") 7.2% concentrate on the PAK Lithium Project site.

The TG concentrate will be produced first on site for 20 years at an average annual production of 38,250 tpa. TG concentrate production is mined and processed on site to be sold for the ceramics supply chain.

The CG concentrate will be produced after the site expansion and will begin in the third year of production. The CG concentrate will be produced on site and transported to the chemicals plant for producing the two battery grade ("BG") products. The BG products are produced starting in the fourth year of site production and continuing for 22 years.

The lithium hydroxide average annual production will be 14,905 tpa for a total production of 313,000 produced at the chemicals plant. Lithium carbonate average annual production will be 8,762 tpa for a total production of 184,000 t produced at the chemicals plant.

The average annual lithium carbonate equivalent ("LCE") production is 18,400 tpa for a total LOM production of 459,000 t at the chemicals plant. Table 22-3 shows the summary of the average annual production and the total production for the products of the Project.

Table 22-3: Average Annual Production and Total Products Produced in the Project

Product	Average Production (tpa)	Total Production (tonnes)
Technical Grade @ 7.2% Concentrate	38,250	765,000
BG Lithium Hydroxide	14,905	313,000
BG Lithium Carbonate	8,762	184,000
LCE	21,857	459,000

Figure 22-1 shows the TG concentrate and CG concentrate production at the Project mine and concentrator site.

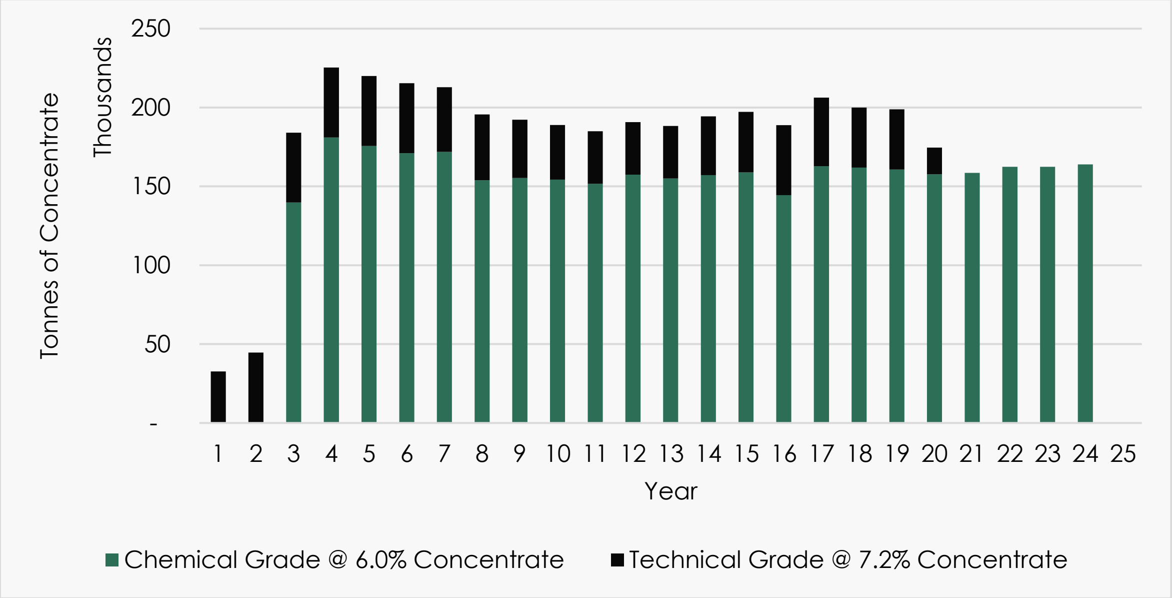

Figure 22-1: TG Concentrate, and CG Concentrate Production at the Project Mine and Concentrator Site

The battery grade products, lithium hydroxide and lithium carbonate, are produced in Year 4 to Year 25 at the chemicals plant, as shown in Figure 22-2.

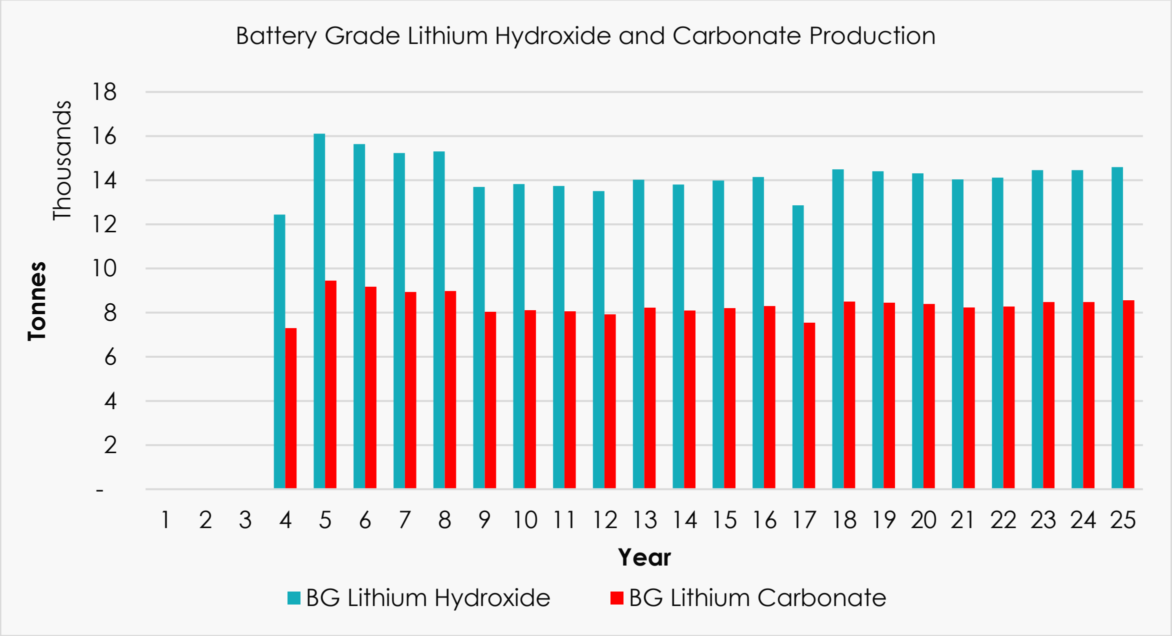

Figure 22-2: Battery Grade Products, Lithium Hydroxide, and Lithium Carbonate Production at the Chemicals Plant

22.5 Capital and Sustaining Costs

The Project capital costs are phased for the schedule of the operations. The capital costs are allocated as initial capital (pre-production), expansion capital, sustaining capital and closure and reclamation costs.

The initial capital includes site infrastructure, mining equipment capital, and the technical grade concentrator. The expansion capital includes the chemical grade concentrator and chemicals plant. The sustaining capital includes the mine mobile equipment purchases, replacement and overhauls, site upgrades and tailings management facility ("TMF") expansion. Table 22-4 shows the capital expenditures summary.

Table 22-4: Capital Expenditures Summary

Capital Costs	CAD M
Initial Capital, Direct Cost Estimate	392
Initial Capital Indirect Costs and Contingency	217
Total Initial Capital Costs	**608**
Expansion Capital, Direct Cost Estimate	472
Expansion Capital Indirect Costs and Contingency	278
Total Expansion Capital Costs	**749**
LOM Sustaining Capital	95
LOM Sustaining Capital, Indirect Costs and Contingency	23
Total LOM Sustaining Capital	**117**
Reclamation and Closure Costs (Including Salvage Value)	21
LOM Total Capital	**1,496**

Figure 22-3 shows the capital costs allocation used in the Project Financial Model.

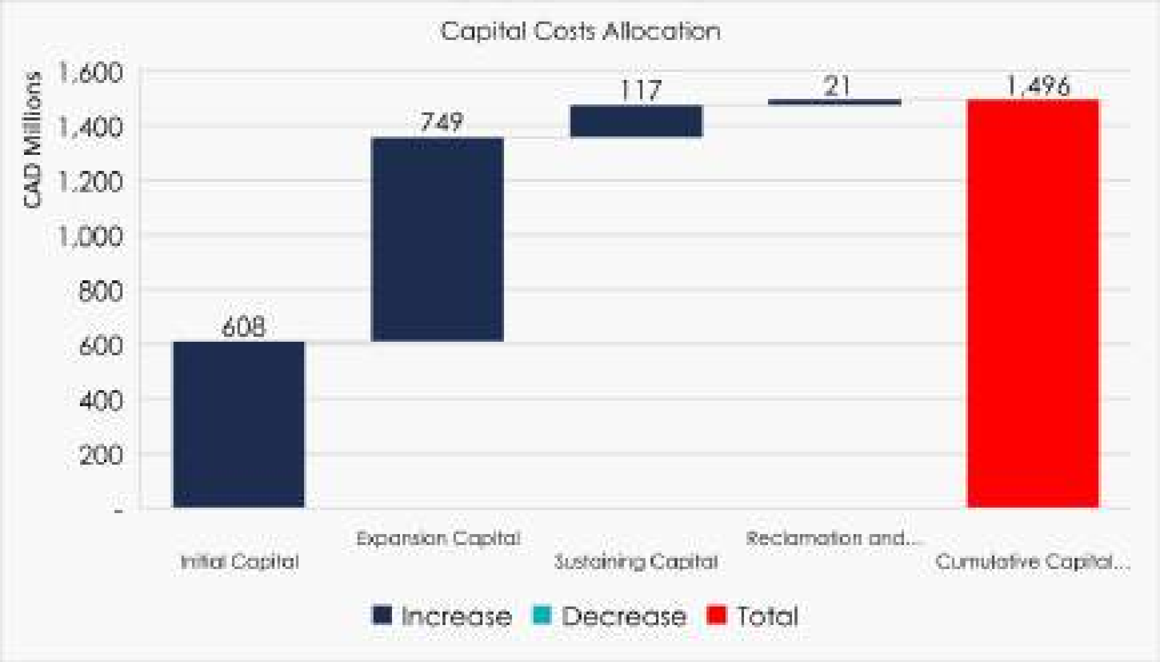

Figure 22-3: Capital Costs Allocation

The contingency used for the capital expenditures is 20%. The initial capital spend is in Year -1 and Year -2 and the expansion capital spend is in Year 1 to Year 3. Details of the capital costs are provided in Chapter 21. All capital costs (pre-production, expansion, sustaining, reclamation and closure) for the Project are distributed against the development schedule to support the economic cash flow model. Figure 22-4 presents the planned annual and cumulative LOM capital cost profile.

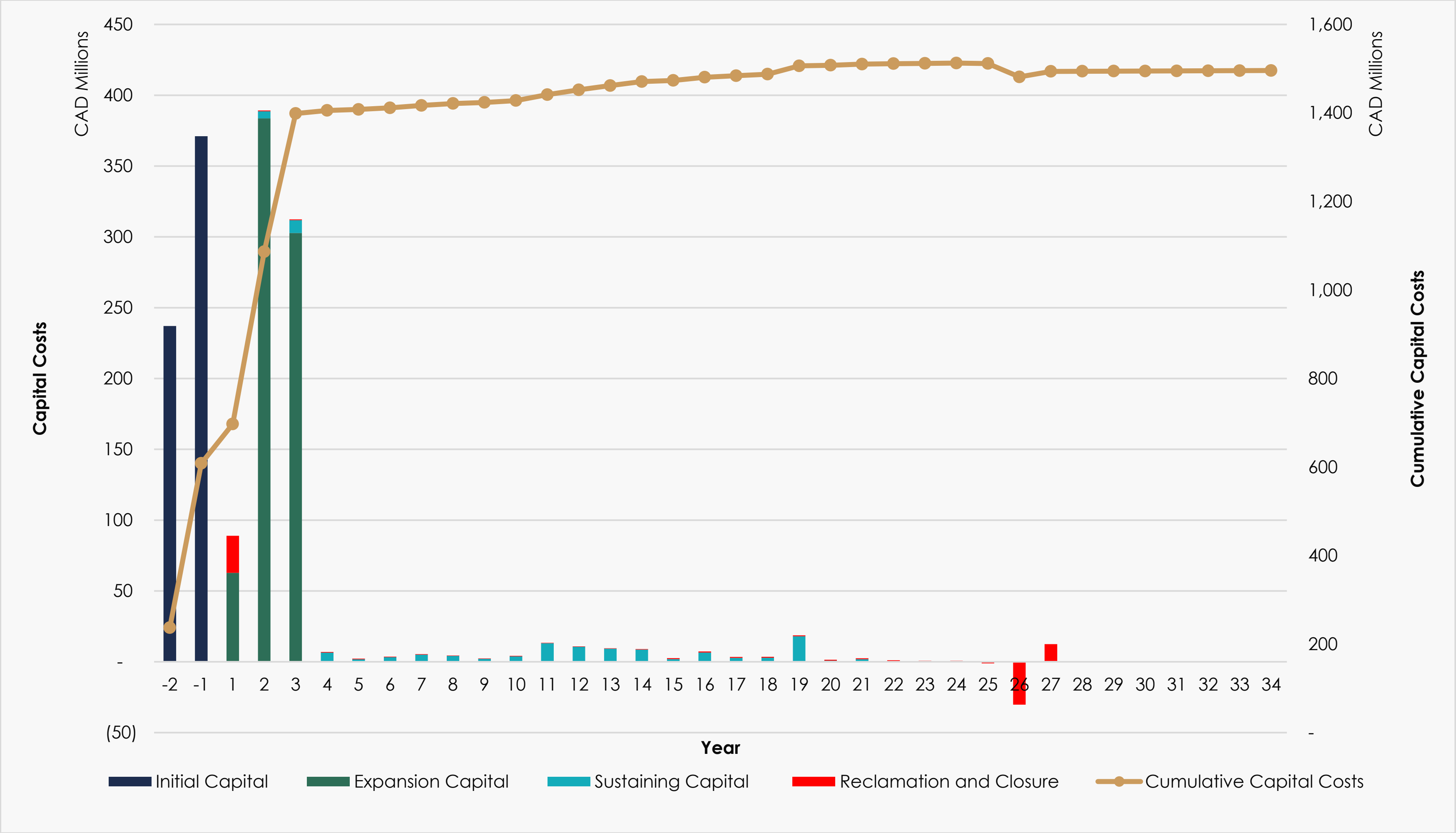

Figure 22-4: Overall Capital Costs Profile

22.6 Working Capital

The working capital for the Project is represented by deferring revenue and payments to the following year. The amount of unearned revenue includes both a "cost of delivery" component and an "operating profit" component. The Project is therefore at a zero-working capital costs as all the liabilities are paid by the revenues on the following year.

22.7 Salvage Value

The salvage value is factored at 10% of the mine, concentrator and chemicals plant equipment. The salvage value is $33M for the equipment assets after the life of the operation. The salvage value factor was determined from experiences of peers and common industry practice.

22.8 Royalties

There are no royalties on the area of the designed open pits. Frontier owns 100% of the disturbance area and mineral rights for the Project. The financial model reflects no royalty payments.

22.9 Taxation

The Project is subject to federal income tax, provincial income tax, and provincial mining tax ("Crown royalty"). Third party taxation experts preformed the tax calculations. Carbon taxes have not been applied in the financial model as the fuel costs are fully taxed.

The current Canadian tax system applicable to Mineral Resource Income was used to assess the annual tax liabilities for the Project. This consists of federal and provincial corporate taxes, as well as the provincial mining tax. The federal corporate tax currently applicable over the operating life of the Project is 15% of taxable income while the provincial corporate tax is 10% of the operational profit, and the provincial mining tax is 5% of the operational profit.

The tax calculations are underpinned by the following key assumptions:

- The Project is held 100% by a corporate entity and the after-tax analysis does not attempt to reflect any future changes in corporate structure or property ownership.
- Assumed 100% equity financing and therefore does not require interest and financing expenses.
- Class specific Capital Cost Allowance rates are used for the purpose of determining the allowable taxable income.

- Actual taxes payable will be affected by corporate activities, and current and future tax benefits have not been considered.

The combined effect on the Project of all taxes, including the elements described above, is an approximate cumulative effective tax rate of 31.7%, based on Project Earnings. It is anticipated, based on the Project assumptions that Frontier will pay approximately $3,328M in tax payments over the life of the Project. Table 22-5 shows the summary of taxes and the effective tax rate for the LOM.

Table 22-5: Summary of Taxes

Taxes	Value (CAD M)
Federal Corporate Income Tax	1,664.0
Provincial Corporate Income Tax	1,109.3
Mining Tax	554.7
Total Taxes	**3,328.0**
Cumulative Effective tax rate	**31.7%**

22.10 Financial Analysis Summary

An 8% discount rate was applied to the cash flow to derive the NPV for the Project on a pre-tax and after-tax basis. Cash flows have been discounted to Q1, Year 1 of production under the assumption that major Project financing would be carried out at this time. The summary of the financial evaluation for the base case of the Project is presented in Table 22-6.

The pre-tax base case financial model results in an internal rate of return of 28.6% and an NPV of $3,365M with a discount rate of 8%. The simple pre-tax payback period is 4.9 years. On an after-tax basis, the base case financial model results in an internal rate of return of 24.1% and an NPV of $2,261M with a discount rate of 8%. The simple after-tax payback period is 4.9 years.

Table 22-6 Financial Analysis Summary

Description		CAD M	USD M
Pre-Tax	**Discount Rate**		
	0%	10,501	8,078
	5%	5,057	3,890
	8%	**3,365**	**2,588**
	10%	2,582	1,986
	15%	1,326	1,020
	Pre-Tax IRR	28.6%	
	Payback Period	4.9 years	
After-Tax	**Discount Rate**		
	0%	7,776	5,982
	5%	3,438	2,645
	8%	**2,261**	**1,739**
	10%	1,712	1,317
	15%	821	632
	After-Tax IRR	24.1%	
	Payback Period	4.9 years	
	Cumulative Effective Tax Rate	31.7%	

The summary of the Project discounted cash flow financial model (pre-tax and after-tax) is presented in Table 22-7: Financial Model Summary.

Table 22-7: Financial Model Summary

	Unit	Year	-2	-1	1	2	3	4	5	6	7	8	9	10	11-15	16-20	21-25	26-30	31-34
Physicals		**Total**																	
Tonnes Chemical Grade Feed to CG Concentrator	kt	**18,028**	-	-	-	-	602	830	830	830	830	830	830	830	4,150	4,150	3,316	-	-
Grade - Chemical	% Li_2O	**1.50%**	-	-	-	-	1.79%	1.68%	1.63%	1.59%	1.59%	1.43%	1.44%	1.43%	1.45%	1.46%	1.50%	-	-
Tonnes Technical Grade Feed to TG Concentrator	kt	**4,041**	-	-	152	210	210	210	210	210	210	210	210	210	1,050	949	-	-	-
Grade - Technical	% Li_2O	**1.79%**	-	-	2.03%	2.01%	2.00%	2.00%	2.00%	2.00%	1.85%	1.88%	1.67%	1.56%	1.58%	1.81%	-	-	-
Total Concentrator Feed	kt	**22,069**	-	-	152	210	812	1,040	1,040	1,040	1,040	1,040	1,040	1,040	5,200	5,099	3,316	-	-
Average Grade	% Li_2O	**1.55%**	-	-	2.03%	2.01%	1.84%	1.74%	1.70%	1.67%	1.64%	1.52%	1.49%	1.46%	1.47%	1.52%	1.50%	-	-
Waste Mined	kt	**81,347**	-	-	553	1,199	2,318	2,354	2,263	3,066	3,724	5,371	5,650	6,297	33,595	13,033	1,924	-	-
Overall Stripping Ratio (w:o)		**3.69**	-	-	2.64	4.33	2.77	2.29	2.23	2.94	3.81	4.98	5.38	6.06	6.46	3.57	0.73	-	-
Recovery																			
Contained Li_2O - Feed for Chemical Concentrate	kt	**270.6**	-	-	-	-	10.8	13.9	13.5	13.2	13.2	11.8	11.9	11.9	60	61	50	-	-
Contained Li_2O - Feed for Technical Concentrate	kt	**72.5**	-	-	3.1	4.2	4.2	4.2	4.2	4.2	3.9	4.0	3.5	3.3	17	17	-	-	-
Recovered Metal - Chemical (100% Li_2O)	kt	**211.1**	-	-	-	-	8.4	10.9	10.5	10.3	10.3	9.2	9.3	9.3	47	47	39	-	-
Recovered Metal - Technical (100% Li_2O)	kt	**55.1**	-	-	2.4	3.2	3.2	3.2	3.2	3.2	2.9	3.0	2.7	2.5	13	13	-	-	-
Products																			
Chemical Grade @ 6.0% Concentrate Tonnes	kt	**3,518.1**	-	-	-	-	139.8	181.0	175.7	171.1	171.9	153.9	155.3	154.3	780.3	787.6	647	-	-
Technical Grade @ 7.2% Concentrate Tonnes	kt	**765.2**	-	-	32.6	44.6	44.3	44.3	44.3	44.3	41.0	41.7	37.0	34.6	175.4	180.9	-	-	-
BG Lithium Hydroxide Tonnes Produced	kt	**313.2**	-	-	-	-	-	12.4	16.1	15.6	15.2	15.3	13.7	13.8	69.1	70.2	72	-	-
BG Lithium Carbonate Tonnes Produced	kt	**183.7**	-	-	-	-	-	7.3	9.5	9.2	8.9	9.0	8.0	8.1	40.5	41.2	42	-	-
LCE	kt	**459.3**	-	-	-	-	-	18.2	23.6	22.9	22.3	22.4	20.1	20.3	101.3	103.0	105.1	-	-
Tailings	kt	**17,786.1**	-	-	119.6	165.4	627.7	814.7	820.0	824.6	827.2	844.4	847.7	851.1	4,244.3	4,130.4	2,669.2	-	-
Gross Revenue																			
TG_7.2% Li_2O Conc. Sales	$M	**2,984.3**	-	-	-	127.3	347.0	172.9	172.9	172.9	159.7	162.6	144.1	134.9	684.2	705.6	-	-	-
Lithium Hydroxide ($LiOH-H_2O$) Sales	$M	**8,957.1**	-	-	-	-	-	355.8	460.8	447.2	435.6	437.6	391.8	395.5	1,975.0	2,008.3	2,049.5	-	-
Lithium Carbonate Sales	$M	**4,896.5**	-	-	-	-	-	194.5	251.9	244.5	238.1	239.2	214.2	216.2	1,079.7	1,097.9	1,120.4	-	-
Total Sales	$M	**16,837.9**	-	-	-	127.3	347.0	723.3	885.6	864.6	833.4	839.5	750.1	746.6	3,738.9	3,811.8	3,169.8	-	-
Deductions																			
Concentrate Transport (Technical Grade)	$M	**68.9**	-	-	2.9	4.0	4.0	4.0	4.0	4.0	3.7	3.8	3.3	3.1	15.8	16.3	-	-	-
Transport Losses (TG)	$M	**14.9**	-	-	0.6	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.7	0.7	3.4	3.5	-	-	-
Concentrate Transport (Chemical Grade)	$M	**316.6**	-	-	-	-	12.6	16.3	15.8	15.4	15.5	13.8	14.0	13.9	70.2	70.9	58.3	-	-
Transport Losses (CG)	$M	**30.9**	-	-	-	-	1.2	1.6	1.5	1.5	1.5	1.4	1.4	1.4	6.8	6.9	5.7	-	-
Total Deductions	$M	**431.3**	-	-	3.6	4.9	18.7	22.7	22.2	21.8	21.5	19.8	19.4	19.0	96.3	97.6	63.9	-	-
Revenue	**$M**	**16,406.59**	**-**	**-**	**(3.6)**	**122.4**	**328.4**	**700.5**	**863.4**	**842.8**	**811.9**	**819.7**	**730.7**	**727.5**	**3,642.6**	**3,714.2**	**3,105.9**	**-**	**-**

	Unit	Year	-2	-1	1	2	3	4	5	6	7	8	9	10	11-15	16-20	21-25	26-30	31-34
Capital Expenditures			**Initial**		**Expansion**														
Infrastructure	$M	**137.9**	58.5	61.3	-	18.2	-	-	-	-	-	-	-	-	-	-	-	-	-
Mobile Fleet	$M	**19.2**	-	19.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Treatment	$M	**21.5**	10.8	10.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tailings Management	$M	**23.2**	11.0	12.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Power	$M	**22.2**	11.1	11.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utilities	$M	**22.5**	11.2	11.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TG Concentrator	$M	**157.9**	79.0	79.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CG Concentrator	$M	**74.3**	-	-	37.1	37.1	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemicals Plant	$M	**379.2**	-	-	-	189.6	189.6	-	-	-	-	-	-	-	-	-	-	-	-
Insurance	$M	**5.5**	5.3	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indirect Costs	$M	**271.8**	-	116.0	15.2	77.9	62.7	-	-	-	-	-	-	-	-	-	-	-	-
Contingency	$M	**222.3**	50.2	50.2	10.5	60.9	50.5	-	-	-	-	-	-	-	-	-	-	-	-
Total Capital Costs	$M	**1,357.5**	237.1	371.1	62.8	383.7	302.8	-	-	-	-	-	-	-	-	-	-	-	-
Operating Costs																			
Mining	$M	**753.5**	-	-	10.4	16.1	26.1	27.6	27.8	30.3	32.7	38.4	40.2	43.2	233.0	154.1	73.8	-	-
G&A	$M	**578.7**	-	-	20.5	21.7	25.2	25.4	25.6	25.0	25.2	25.4	25.2	25.3	126.2	122.5	85.5	-	-
Concentrator OPEX 7.2 TG	$M	**180.7**	-	-	10.1	14.0	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	44.7	40.4	-	-	-
Concentrator OPEX 6.0 CG	$M	**430.0**	-	-	-	-	14.4	19.8	19.8	19.8	19.8	19.8	19.8	19.8	99.0	99.0	79.1	-	-
Chemicals Plant Process	$M	**2,467.0**	-	-	-	-	-	98.0	126.9	123.2	120.0	120.5	107.9	108.9	544.0	553.1	564.5	-	-
Total Operating Costs	$M	**4,409.9**	-	-	41.0	51.7	74.6	179.7	209.0	207.2	206.6	213.1	202.0	206.2	1,046.8	969.2	802.8	-	-
Sustaining Capital Costs																			
Mobile Fleet Additions	$M	**25.3**	-	-	-	1.1	7.5	1.7	1.0	-	1.7	1.7	-	1.6	6.7	2.3	-	-	-
Mobile Fleet Replacements	$M	**22.9**	-	-	-	-	-	-	0.0	-	0.9	0.0	0.3	0.8	16.3	3.6	0.9	-	-
Mobile Fleet Overhauls	$M	**19.0**	-	-	-	-	-	-	0.3	2.7	1.1	1.7	1.4	0.7	5.5	4.8	0.7	-	-
OP Other	$M	**0.8**	-	-	-	-	-	0.1	-	-	0.2	0.0	-	0.1	0.2	0.1	-	-	-
G&A - Equipment Replacement	$M	**1.6**	-	-	-	-	-	-	-	-	0.3	-	-	-	1.0	-	0.3	-	-
TMF - Expansion	$M	**24.9**	-	-	-	-	-	3.5	-	-	-	-	-	-	6.4	15.0	-	-	-
Contingency	$M	**22.5**	-	-	-	3.9	1.5	1.1	0.3	0.5	0.8	0.7	0.4	0.6	7.2	5.2	0.4	-	-
Total Sustaining Capital Costs	$M	**117.1**	-	-	-	5.0	9.0	6.4	1.7	3.3	5.0	4.2	2.1	3.8	43.4	31.0	2.2	-	-

	Unit	Year	-2	-1	1	2	3	4	5	6	7	8	9	10	11-15	16-20	21-25	26-30	31-34
Closure and Reclamation Costs																			
Closure Bond	$M	**6.9**	-	-	21.8	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	1.4	1.4	(20.7)	-	-
Salvage	$M	**(33.1)**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(33.1)	-
Closure Cost Spend	$M	**41.4**	-	-	-	-	-	-	-	-	-	-	-	-	0.3	1.5	21.8	17.8	-
Monitoring	$M	**2.6**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3	1.3	1.0
Contingency	$M	**3.6**	-	-	4.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.6	0.3	(2.8)	0.2
Total Closure and Reclamation	$M	**21.3**	-	-	26.2	0.5	0.5	0.5	0.5	0.3	0.3	0.3	0.3	0.3	2.0	3.4	1.7	(16.9)	1.2
EBITDA	$M	**11,964.8**			(44.6)	70.7	253.7	520.8	654.4	635.7	605.4	606.7	528.6	521.4	2,595.4	2,743.5	2,280.9	(19.0)	(1.0)
PRE-TAX Cash Flow	$M	**10,500.8**	(237.1)	(371.1)	(133.5)	(318.5)	(58.6)	513.9	652.2	632.1	600.0	602.2	526.2	517.2	2,550.3	2,710.6	2,299.2	16.9	(1.2)
Cumulative Pre-Tax Cash Flow	$M		(237.1)	(608.2)	(741.7)	(1,060.2)	(1,118.8)	(605.0)	47.2	679.3	1,279.3	1,881.4	2,407.7	2,924.9	5,475.2	8,185.8	10,485.0	10,501.9	10,500.8
Taxes																			
Federal Corporate Income Tax	$M	**1,666.4**	-	-	-	(20.0)	(47.8)	(8.8)	77.1	97.8	94.8	90.0	90.3	78.9	379.0	413.7	339.2	82.3	(0.2)
Provincial Corporate Income Tax	$M	**1,110.9**	-	-	-	(13.4)	(31.8)	(5.9)	51.4	65.2	63.2	60.0	60.2	52.6	252.6	275.8	226.1	54.9	(0.1)
Mining Tax	$M	**555.5**	-	-	-	(6.7)	(15.9)	(2.9)	25.7	32.6	31.6	30.0	30.1	26.3	126.3	137.9	113.1	27.4	(0.1)
Total Taxes	$M	**3,332.8**	-	-	-	(40.1)	(95.5)	(17.6)	154.2	195.6	189.6	180.0	180.7	157.9	757.9	827.4	678.4	164.6	(0.4)
After-Tax Cash Flow	$M		(237.1)	(371.1)	(133.5)	(278.4)	37.0	531.5	498.0	436.4	410.4	422.2	345.6	359.4	1,792.3	1,883.2	1,620.8	(147.7)	(0.8)
Cumulative After-Tax Cash Flow		**7,187.3**	(237.1)	(608.2)	(741.7)	(1,020.2)	(983.2)	(451.8)	46.2	482.7	893.0	1,315.2	1,660.8	2,020.1	3,812.5	5,695.7	7,316.5	7,187.3	-

Discount Rate	8%
Pre-Tax NPV	
Payback Period (years)	**4.93**
0%	10,500.8
5%	5,056.9
8%	**3,364.7**
10%	2,581.7
15%	1,325.5
Pre-Tax IRR	**28.6%**
After-Tax NPV	
Payback Period (years)	**4.91**
0%	7,776.2
5%	3,438.3
8%	**2,261.1**
10%	1,711.7
15%	821.1
After-Tax IRR	**24.1%**

The cumulative cash flow projection for pre-tax and after-tax basis are shown in Figure 22-5.

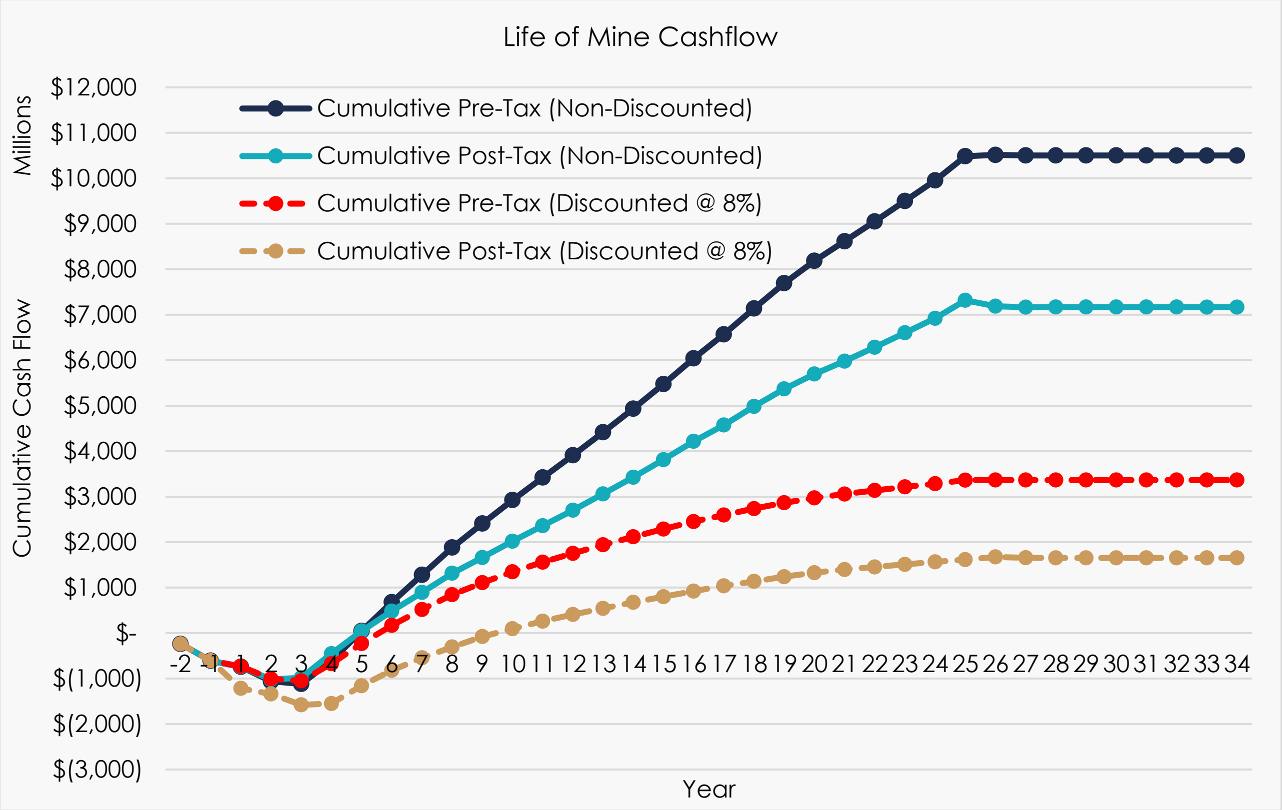

Figure 22-5: Life of Mine Pre-Tax and After-Tax Cumulative Cash Flow Projection

22.11 Production Costs

The production costs for the LOM are summarized in Table 22-8. The operating costs related to battery grade material is $9,663 per tonne of LCE. The battery grade operating cost includes mining, G&A, CG concentrator, transportation and chemicals plant.

Table 22-8: LOM Production Costs Summary

Description	LOM	Unit
Products Production		
Technical Grade @ 7.2% Concentrate	765	kt
BG Lithium Hydroxide Produced	313	kt
BG Lithium Carbonate Produced	184	kt
LCE	459	kt
Capital Costs		
▪ Initial Capital, Direct Cost Estimate	392	$M CAD
▪ Initial Capital Indirect Costs and Contingency	217	$M CAD
Total Initial Capital Costs	**608**	**$M CAD**
▪ Expansion Capital, Direct Cost Estimate	472	$M CAD
▪ Expansion Capital Indirect Costs and Contingency	278	$M CAD
Total Expansion Capital Costs	**749**	**$M CAD**
▪ LOM Sustaining Capital	95	$M CAD
▪ LOM Sustaining Capital, Indirect Costs and Contingency	23	$M CAD
Total LOM Sustaining Capital	**117**	**$M CAD**
Reclamation and Closure Costs	21	$M CAD
LOM Total Capital	**1,496**	**$M CAD**
Operating Costs		
▪ O/P Mining	753.5	$M CAD
▪ G&A	578.7	$M CAD
▪ Concentrator OPEX 7.2 TG	180.7	$M CAD
▪ Concentrator OPEX 6.0 CG	430.0	$M CAD
▪ Chemicals Plant Process	2,467.0	$M CAD
Total Operating Costs	**4,409.9**	**$M** CAD
Costs ($/LCE tonne)		
Operating Costs	9,663	$ CAD/LCE tonne

22.12 Value Drivers

The Project value drivers graphically show the Project areas value and areas of high spend that can be reviewed for further study and optimization. The Project value shows that, besides the initial capital and expansion capital drivers, the chemicals plant processing costs and the taxes are the key drivers of the Project. Figure 22-6 shows the value drivers for the Project.

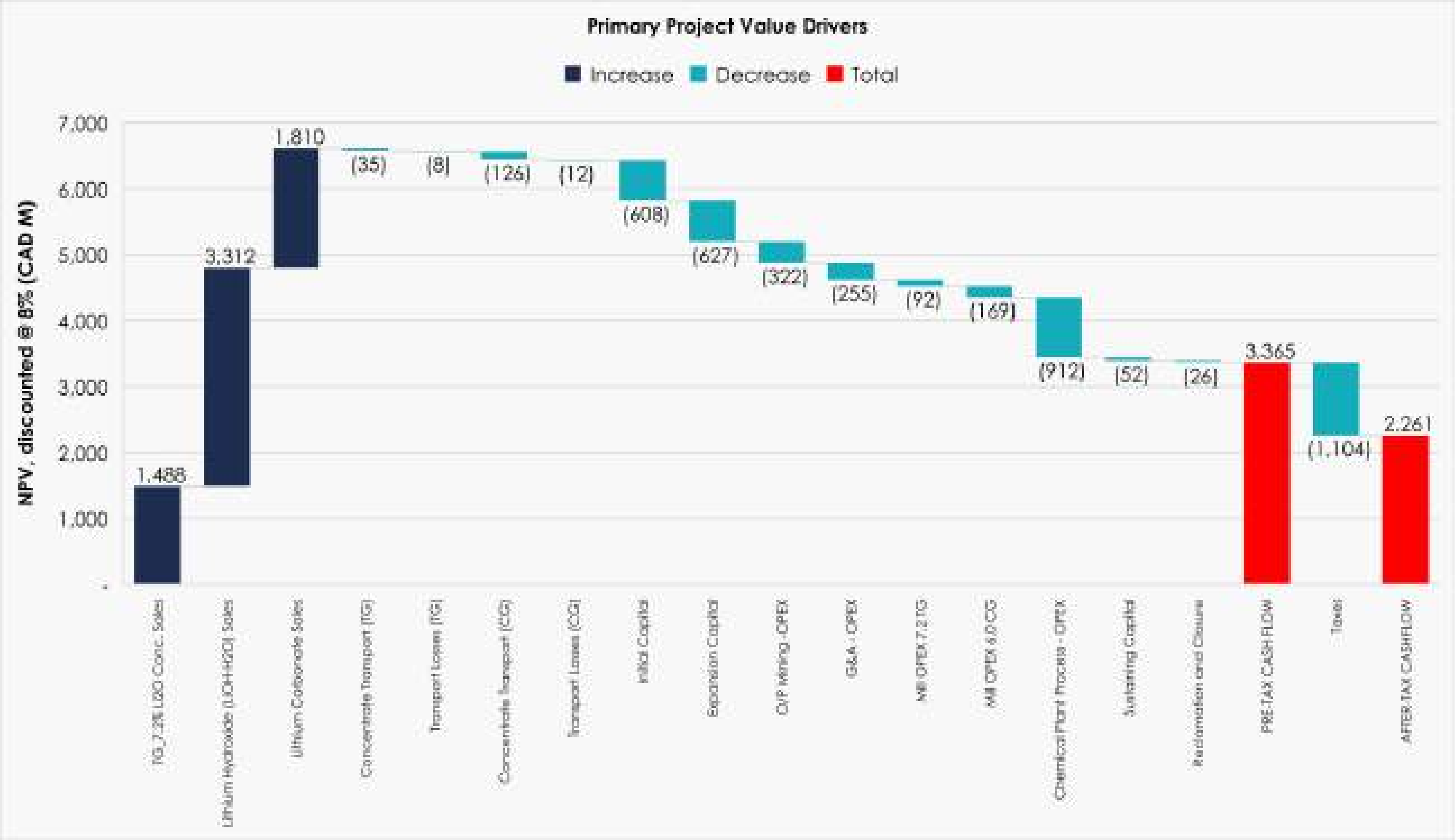

Figure 22-6: Value Drivers

22.13 Sensitivity Analysis

A financial sensitivity analysis was performed on the base case after-tax cash flow NPV (8%) and IRR of the Project, considering variations in salable products (TG 7.2% concentrate, BG LiOH and BG Li_2CO_3 prices, exchange rate, capital costs, sustaining capital costs and operating costs. For the base case assumptions refer to Table 22-2. The after-tax results for the Project IRR and NPV based on the sensitivity analysis are presented in Table 22-8 through Table 22-15. The summary of the after-tax NPV (8%) and IRR are shown in Table 22-16 and Table 22-17 and shown graphically in Figure 22-7 and Figure 22-8. Table 22-8 through Table 22-15 presents the Project NPV at a range of discount rates from 0% to 15% and sensitivities from -30% to +30%. The NPV (8%), which is the base case, is bolded in the tables below.

Table 22-9: NPV Sensitivity Results TG Price

Technical Grade 7.2% Price							
Variation	-30%	-20%	-10%	**0%**	10%	20%	30%
TG Price (USD)	$2,100	$2,400	$2,700	**$3,000**	$3,300	$3,600	$3,900
Discount Rate							
0%	$7,149	$7,358	$7,567	**$7,776**	$7,985	$8,194	$8,403
5%	$3,035	$3,169	$3,304	**$3,438**	$3,573	$3,707	$3,842
8%	**$1,939**	**$2,046**	**$2,154**	**$2,261**	**$2,369**	**$2,476**	**$2,583**
10%	$1,430	$1,524	$1,618	**$1,712**	$1,806	$1,899	$1,993
15%	$612	$681	$751	**$821**	$891	$961	$1,030
Payback Period	5.4	5.2	5.0	**4.9**	4.8	4.7	4.6
IRR	21.6%	22.4%	23.2%	**24.1%**	24.9%	25.7%	26.6%

Table 22-10: NPV Sensitivity Results Lithium Hydroxide Price

BG LiOH Price							
Variation	-30%	-20%	-10%	**0%**	10%	20%	30%
LiOH Price (USD)	$15,400	$17,600	$19,800	**$22,000**	$24,200	$26,400	$28,600
Discount Rate							
0%	$5,895	$6,522	$7,149	**$7,776**	$8,403	$9,030	$9,657
5%	$2,444	$2,775	$3,107	**$3,438**	$3,770	$4,101	$4,433
8%	**$1,544**	**$1,783**	**$2,022**	**$2,261**	**$2,500**	**$2,739**	**$2,979**
10%	$1,123	$1,319	$1,515	**$1,712**	$1,908	$2,104	$2,301
15%	$440	$567	$694	**$821**	$948	$1,075	$1,202
Payback Period	5.5	5.3	5.1	**4.9**	4.8	4.7	4.6
IRR	20.1%	21.5%	22.8%	**24.1%**	25.3%	26.4%	27.5%

Table 22-11: NPV Sensitivity Results Lithium Carbonate Price

BG Li_2CO_3 Price							
Variation	-30%	-20%	-10%	**0%**	10%	20%	30%
Li_2CO_3 Price (USD)	$14,350	$16,400	$18,450	**$20,500**	$22,550	$24,600	$26,650
Discount Rate							
0%	$6,748	$7,091	$7,433	**$7,776**	$8,119	$8,462	$8,804
5%	$2,895	$3,076	$3,257	**$3,438**	$3,620	$3,801	$3,982
8%	**$1,869**	**$2,000**	**$2,130**	**$2,261**	**$2,392**	**$2,523**	**$2,653**
10%	$1,390	$1,497	$1,604	**$1,712**	$1,819	$1,926	$2,034
15%	$613	$682	$752	**$821**	$890	$960	$1,029
Payback Period	5.2	5.1	5.0	**4.9**	4.8	4.8	4.7
IRR	22.0%	22.7%	23.4%	**24.1%**	24.7%	25.4%	26.0%

Table 22-12: NPV Sensitivity Results Exchange Rate

Exchange Rate (US: CAD)							
Variation	-30%	-20%	-10%	**0%**	10%	20%	30%
Exchange Rate (USD: CAD)	0.91	1.04	1.17	**1.30**	1.43	1.56	1.69
Discount Rate							
0%	$4,240	$5,419	$6,598	**$7,776**	$8,955	$10,133	$11,312
5%	$1,497	$2,144	$2,791	**$3,438**	$4,085	$4,733	$5,380
8%	**$829**	**$1,306**	**$1,784**	**$2,261**	**$2,738**	**$3,216**	**$3,693**
10%	$520	$917	$1,314	**$1,712**	$2,109	$2,507	$2,904
15%	$23	$289	$555	**$821**	$1,087	$1,353	$1,619
Payback Period	6.9	5.9	5.3	**4.9**	4.6	4.4	4.2
IRR	14.8%	18.2%	21.3%	**24.1%**	26.7%	29.2%	31.5%

Table 22-13: NPV Sensitivity Results Capital Costs

Capital Costs							
Variation	30%	20%	10%	**0%**	-10%	-20%	-30%
Capital Costs	$1,764.71	$1,628.97	$1,493.22	**$1,357.47**	$1,221.73	$1,085.98	$950.23
Discount Rate							
0%	$7,619	$7,671	$7,724	**$7,776**	$7,829	$7,881	$7,934
5%	$3,112	$3,221	$3,330	**$3,438**	$3,547	$3,656	$3,764
8%	**$1,943**	**$2,049**	**$2,155**	**$2,261**	**$2,367**	**$2,473**	**$2,580**
10%	$1,398	$1,503	$1,607	**$1,712**	$1,816	$1,921	$2,025
15%	$518	$619	$720	**$821**	$922	$1,023	$1,124
Payback Period	5.7	5.4	5.2	**4.9**	4.7	4.5	4.2
IRR	19.5%	20.9%	22.4%	**24.1%**	26.1%	28.4%	31.2%

Table 22-14: NPV Sensitivity Results Sustaining Capital Costs

Sustaining Capital							
Variation	30%	20%	10%	**0%**	-10%	-20%	-30%
Sustaining Capital	$152.23	$140.52	$128.81	**$117.10**	$105.39	$93.68	$81.97
Discount Rate							
0%	$7,752	$7,760	$7,768	**$7,776**	$7,784	$7,793	$7,801
5%	$3,424	$3,428	$3,433	**$3,438**	$3,443	$3,448	$3,453
8%	**$2,250**	**$2,254**	**$2,257**	**$2,261**	**$2,265**	**$2,269**	**$2,272**
10%	$1,702	$1,705	$1,709	**$1,712**	$1,715	$1,718	$1,721
15%	$814	$817	$819	**$821**	$823	$826	$828
Payback Period	4.9	4.9	4.9	**4.9**	4.9	4.9	4.9
IRR	24.0%	24.0%	24.1%	**24.1%**	24.1%	24.1%	24.2%

Table 22-15: NPV Sensitivity Results Operating Costs

Operating Cost							
Variation	30%	20%	10%	**0%**	-10%	-20%	-30%
Operating Cost	$5,733	$5,292	$4,851	**$4,410**	$3,969	$3,528	$3,087
Discount Rate							
0%	$6,850	$7,159	$7,468	**$7,776**	$8,085	$8,394	$8,702
5%	$2,926	$3,097	$3,268	**$3,438**	$3,609	$3,780	$3,950
8%	**$1,882**	**$2,008**	**$2,135**	**$2,261**	**$2,387**	**$2,514**	**$2,640**
10%	$1,395	$1,501	$1,606	**$1,712**	$1,817	$1,923	$2,028
15%	$608	$679	$750	**$821**	$892	$963	$1,035
Payback Period	5.2	5.1	5.0	**4.9**	4.8	4.7	4.7
IRR	21.8%	22.6%	23.3%	**24.1%**	24.8%	25.5%	0.3

The sensitivity analysis reveals that the USD: CAD exchange rate and BG LiOH price have the most significant influence on both NPV and IRR compared to the other parameters, based on the ranges evaluated. Other notable sensitivities are BG Li_2CO_3 price and the TG 7.2% price. The capital costs show significant influence on the IRR. The Project is less sensitive to changes in sustaining capital costs and operating costs.

Overall, the NPV and IRR of the Project is positive over the range of values used for the sensitivity analysis when the sensitivities are analyzed individually.

Table 22-16: Summary of NPV Sensitivity Results

Item	**Results**						
Discount Rate:	**8%**						
After-Tax Net Present Value (NPV) @ 8% (CAD M)	**-30%**	**-20%**	**-10%**	**0%**	**10%**	**20%**	**30%**
Chemical Grade	1,151	1,521	1,891	2,261	2,631	3,001	3,371
Technical Grade	1,939	2,046	2,154	2,261	2,369	3,662	3,811
Metal Price (USD) Chemical Grade (CG) 6%	2,261	2,261	2,261	2,261	2,261	2,261	2,261
Metal Price (USD) Technical Grade (TG) 7.2%	1,939	2,046	2,154	2,261	2,369	2,476	2,583
Metal Price (USD) BG LiOH	1,544	1,783	2,022	2,261	2,500	2,739	2,979
Metal Price (USD) BG Li_2CO_3	1,869	2,000	2,130	2,261	2,392	2,523	2,653
Exchange Rate (USD: CAD)	829	1,306	1,784	2,261	2,738	3,216	3,693
Capital Costs	2,580	2,473	2,367	2,261	2,155	2,049	1,943
Sustaining Capital	2,272	2,269	2,265	2,261	2,257	2,254	2,250
Operating Cost	2,640	2,514	2,387	2,261	2,135	2,008	1,882

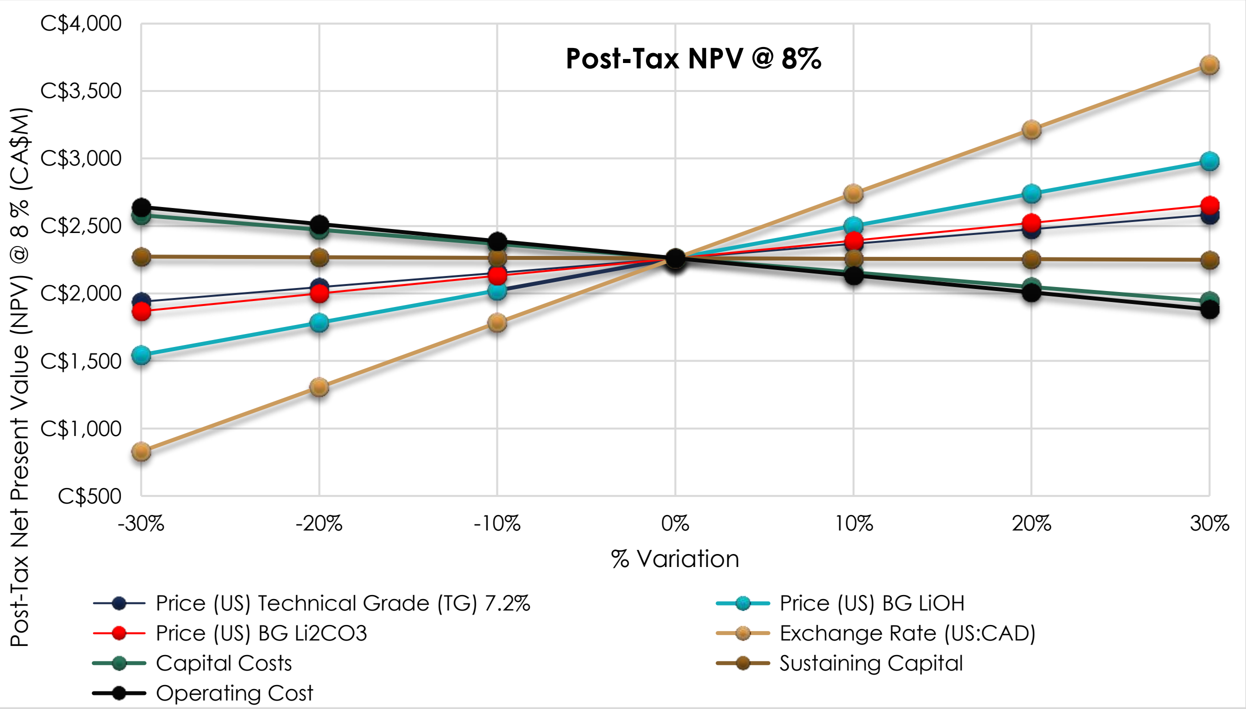

Figure 22-7: Sensitivity Analysis of Net Present Value (After-Tax) to Financial Variables

Table 22-17: Summary of IRR Sensitivity Results

Item	Results						
Discount Rate:	**8%**						
After-Tax Net Present NPV) @ 8 % (CAD M)	**-30%**	**-20%**	**-10%**	**0%**	**10%**	**20%**	**30%**
Chemical Grade	17.6%	20.0%	22.1%	24.1%	25.9%	27.6%	29.2%
Technical Grade	21.6%	22.4%	23.2%	24.1%	24.9%	25.7%	26.6%
Metal Price (USD) Chemical Grade (CG) 6%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%
Metal Price (USD) Technical Grade (TG) 7.2%	21.6%	22.4%	23.2%	24.1%	24.9%	25.7%	26.6%
Metal Price (USD) BG LiOH	20.1%	21.5%	22.8%	24.1%	25.3%	26.4%	27.5%
Metal Price (USD) BG Li_2CO_3	22.0%	22.7%	23.4%	24.1%	24.7%	25.4%	26.0%
Exchange Rate (USD:CAD)	14.8%	18.2%	21.3%	24.1%	26.7%	29.2%	31.5%
Capital Costs	31.2%	28.4%	26.1%	24.1%	22.4%	20.9%	19.5%
Sustaining Capital	24.2%	24.1%	24.1%	24.1%	24.1%	24.0%	24.0%
Operating Cost	26.3%	25.5%	24.8%	24.1%	23.3%	22.6%	21.8%

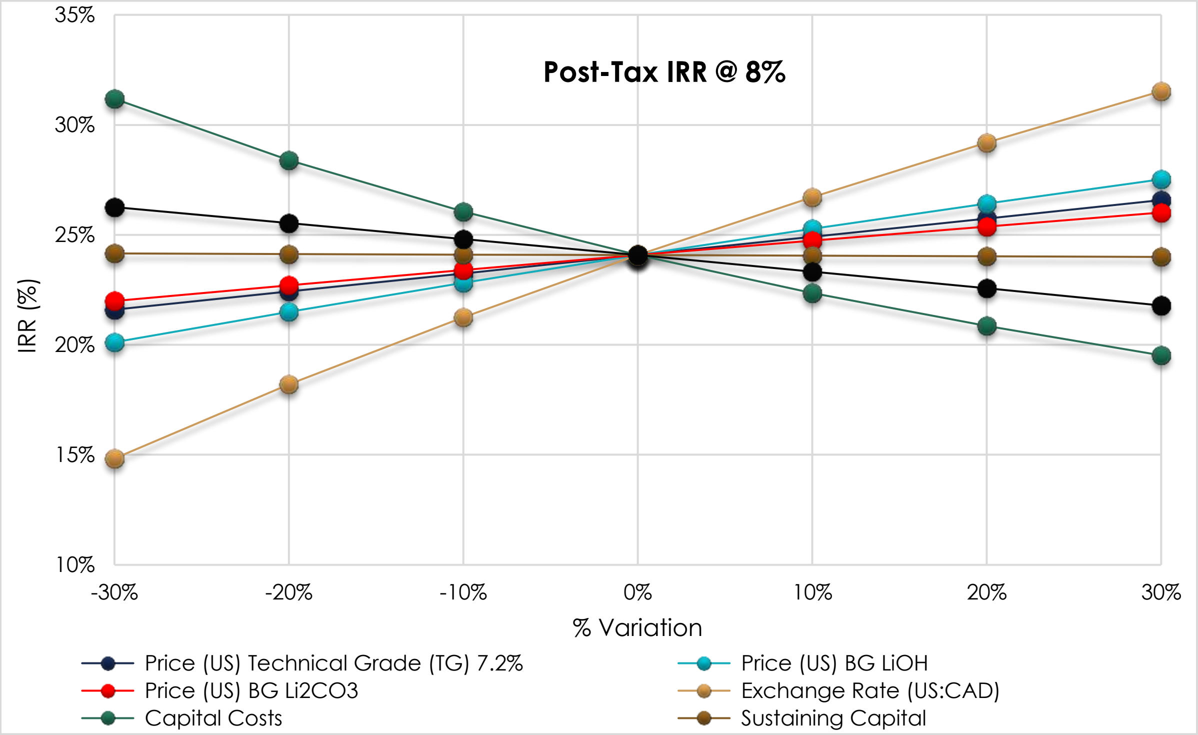

Figure 22-8: Sensitivity Analysis of Internal Rate of Return (After-Tax) to Financial Variables

23. Adjacent Properties

Figure 23-1 shows the Land Tenure in the area as of February 22, 2023.

Two groups of private individuals, P. English – EMX Properties, and M. Romanik have staked claims adjacent to the Frontier claims to the southeast near the Flanagan River and Margot Lake. Currently no work has been filed for assessment on any of these properties.

In September 2020, Golden Share Resources announced that they had entered into a binding agreement with Midex Resources Ltd., a private Ontario Junior Resource company, to sell 100% of its interest in the Berens River Project including the past producing Berens River Gold Mine. In November 2020, Midex Resources added claims adjacent to the northwest end of the Frontier claim block in the Favourable Lake and Setting-Net Lake area extending their Berens River project land package. There has been no recent reported work on these claim units. These claims are targeting gold, silver and base metal exploration.

Rockex Limited holds 47 claim units approximately 38 km southeast of the PAK Pegmatite, on the south shore of North Spirit Lake. There are no public records of any recent work by Rockex on this Project. These claims are targeting nickel-PGE exploration.

Other project areas more distant, include Gold Canyon-Guyana Frontier Mining’s silver-gold project northwest of Midex’s Property and the Goldfields and S2 Minerals gold properties in the Sandy Lake area.

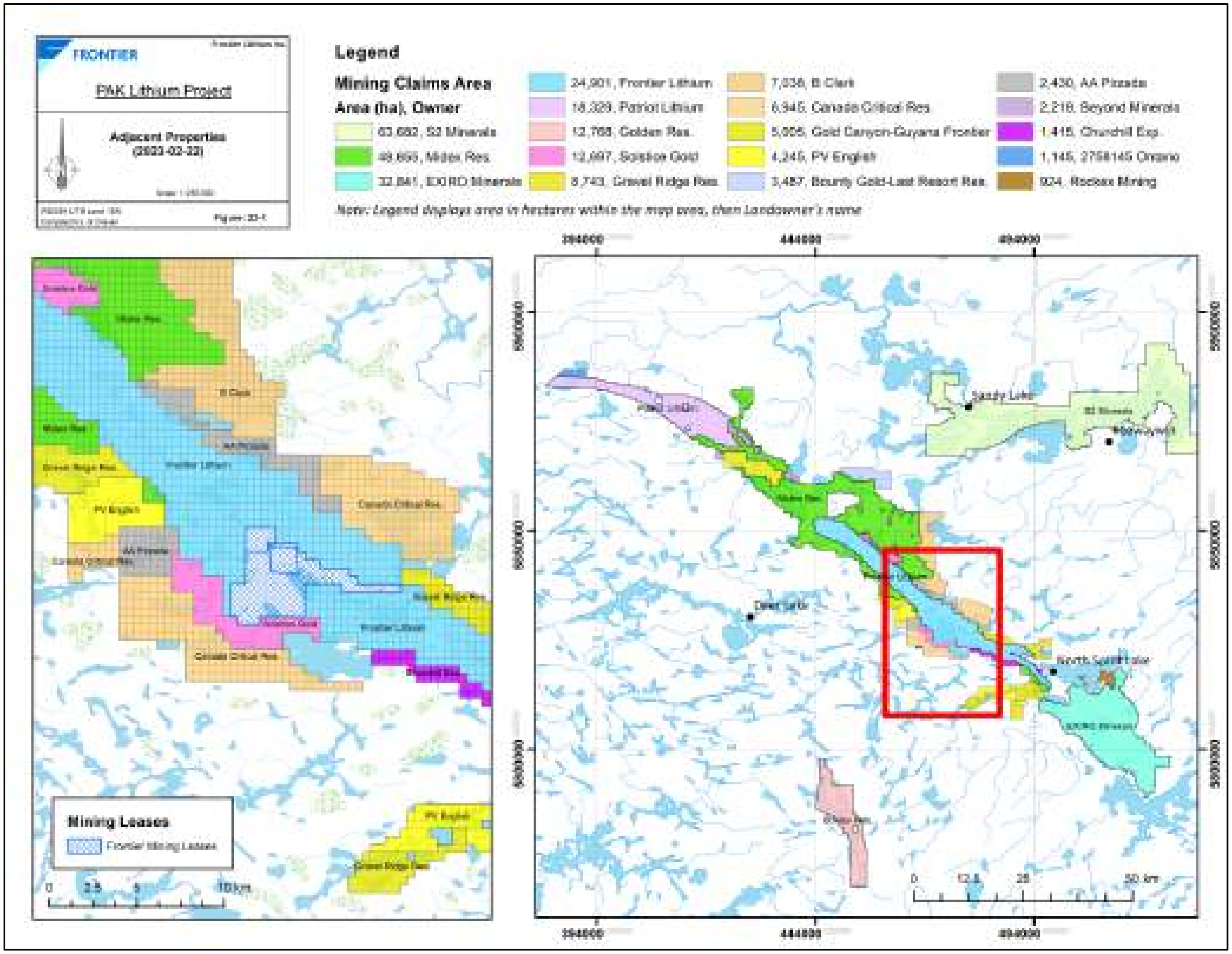

Figure 23-1: Land Tenure in the Area as of February 22, 2023

24. Other Relevant Data and Information

24.1 Project Execution Plan

The high-level execution plan presented here is conceptual in nature. In general, the Project is expected to proceed to feasibility study following the completion of the current pre-feasibility study. If positive results are realized in the feasibility study, the Project will proceed to early works on site and authorization of the EPC (engineering, procurement, and construction) contract placement for the execution of the Project. The concentrator plant will be constructed in phases in the following order:

- Phase 1: technical concentrate plant and general mine infrastructure;
- Phase 2: chemical concentrate plant and chemicals plant (off-site).

The Project execution milestones at the PAK mine site and chemicals plant (off-site) are as follows:

- Feasibility study;
- Demonstration plant construction and operation;
- PAK mine site and project permits and approvals;
- Chemicals plant permits and approvals;
- Front end engineering and design and procurement of long lead items;
- On site early works for site establishment and temporary infrastructure;
- Engineering, Procurement and Construction (“EPC”) contract placement;
- Initial construction deliveries to site using the winter road;
- Mine development;
- Infrastructure construction;
- Technical concentrate plant construction;
- All weather road construction (by others);
- Chemical concentrate plant construction;
- Technical concentrate plant commissioning and operations;
- Chemical concentrate plant commissioning and operations;
- Chemicals plant (off-site) construction;
- Chemicals plant commissioning and operations.

24.1.1 Management

The overall management of the Project activities will be the responsibility of Frontier. Frontier will award an EPC contract for the engineering, procurement and construction phase of the execution of the concentrator plant and infrastructure at the PAK mine site. The EPC firm will report directly to the Frontier project sponsor.

It is expected that off-site infrastructure including the chemicals plant will be awarded as an EPC package and contracted separately from the PAK site project works.

24.1.2 Engineering and Procurement

The feasibility study will identify equipment and packages that will benefit from early engineering design. Potential early engineering work will include the following during the FEED or EPC phases:

- Location and specification of the comminution system to make best use of the topography of the land near the mine site. Advancing the engineering and procurement of the major equipment associated with comminution will facilitate designs to advance and contracts to be placed on long lead items.
- Identify earthworks and civil works construction contractors during the feasibility phase. Early works on site will include temporary access roads, water and sewage treatment plants and accommodations for the construction phase.

Identify construction power needs during the feasibility phase. Temporary power for early works to be specified and procured to support earthworks and civil works.

24.1.3 Construction Management

Construction works will be scheduled as each trade's involvement in the Project commences.

Early works construction include the following major tasks:

- Owner's construction contractor for site establishment and construction of temporary infrastructure;
- Civil and earthworks contractor for bulk site clearing and grading;
- Electrical contractor for installation of primary power (Phase 1);
- Mechanical (mechanics, pipe fitters, riggers) contractor for infrastructure equipment installation (sewage and water treatment plants, facilities such as trailers, fuel farm, etc.).

The construction of these items shall be closely planned to ensure the winter road access is utilized to its maximum potential.

Since the PAK site is in a remote location, it is assumed that temporary, and eventually permanent, accommodations will be constructed for construction and operations use.

The contractors will be responsible for construction trailers and services they deem necessary. A mobilization period has been allowed for the contractor to secure the necessary workforce and equipment needed.

The construction activities will ramp up during the development of the mine, infrastructure installation and concentrator plant construction. Major tasks during this phase include:

- Civil works contractor for ponds, access roads and ditching around site;
- Electrical contractor for permanent power for infrastructure, mine and concentrator plant (Phase 2);

Mechanical contractor for permanent accommodations, warehouse, mine/concentrator dry, overland pipelines, and concentrator plant construction.

24.2 Project Execution Schedule

The start and end dates displayed in the schedule may not be indicative of actual start and finish dates, rather gives the reader an overview of the duration of various tasks.

A Level 2 Detailed Project Execution Schedule has been developed based on information and options developed as part of the PAK Lithium Pre-Feasibility Study. The high-level schedule is shown in Figure 24-1. The overall project schedule will inform key project decisions and ensure that targets for all areas of the Project are met throughout each phase.

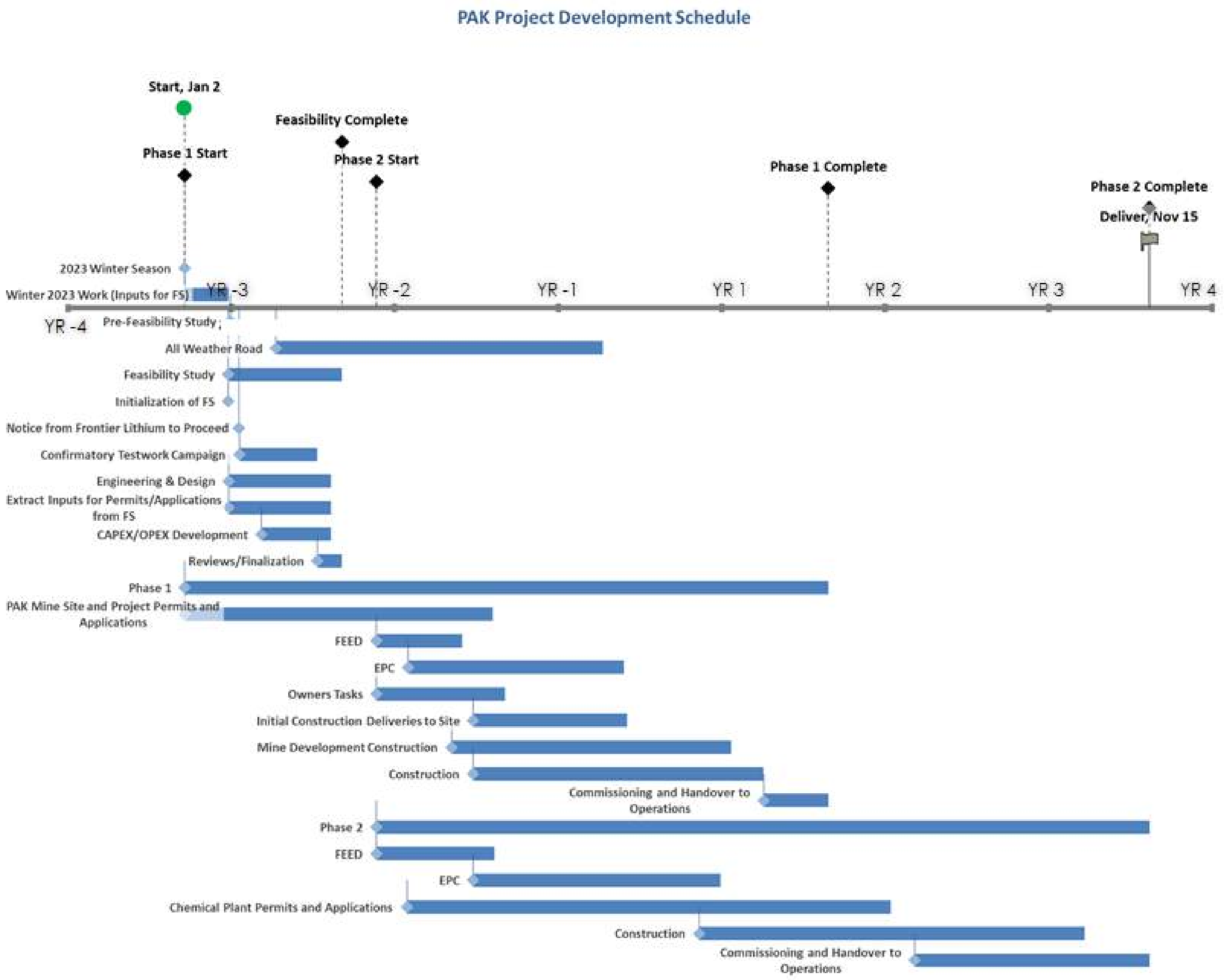

Figure 24-1: Project Development Schedule

The schedule was developed using information and expertise provided by the various Qualified Persons that supported the overall PFS Project. Durations and required scope to be completed was entirely provided by the various QPs and the Owner's team.

The schedule was also reviewed by the various QPs and the Owner's team. The Project features a peak staffing of just over 275 full-time equivalents ("FTEs") and has two peaks due to the various work fronts and timing. The first peak is 181 FTEs due primarily to the site infrastructure and technical grade concentrator construction. The second peak is 275 FTEs and is due to the chemical concentrator and chemicals plant construction ramp up. The FTE histogram can be seen in Figure 24-2.

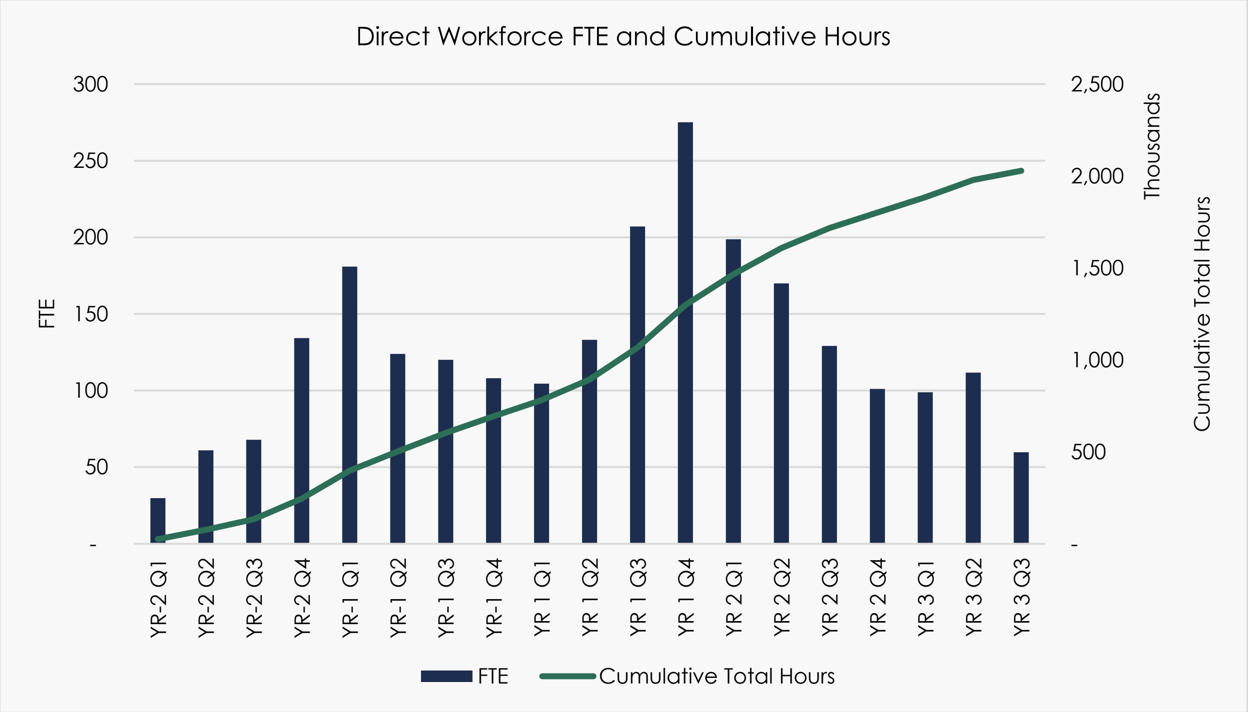

Figure 24-2: Construction Total Labour Requirements

FTE - The calculation of full-time equivalent is an employee's scheduled hours divided by the employer's hours for a full-time workweek.

The following assumptions are made as part of the schedule development process:

- Construction, and commissioning activities are based on a 7-day week, 10 hours per day working calendar;
- All durations and activities were based on the project estimate and information provided by each QP;

- All permitting targets were provided by the Owner's team representatives;
- Care was taken to limit the number of constraints and to ensure the schedule is logically driven with as little lag as possible.

The critical path of the project schedule flows through the procurement of engineering services, concentration and the chemicals plant equipment and mining equipment and its installation. Specifically featured on the critical path is the technical grade concentrator to be complete for concentrator feed in Year 1 Q2, chemical grade concentrator Year 2 Q3 and the chemicals plant Year 2 Q4.

For a full list of completion milestones refer to Table 24-1, which includes the Project milestone table. The overall program length is approximately 56 months.

It is important to note that as the Project progresses, the schedule will be further refined and detailed.

Table 24-1: Key Project Milestones

Milestones	Date
Start, January 2	Year -5 Q4
Feasibility Complete	Year -4 Q3
Phase 1 Start	Year -2 Q4
Phase 1 Complete	Year -1 Q4
Phase 2 Start	Year -1 Q4
Phase 2 Complete	Year 3 Q4
All Products Operations	Year 4 Q1

25. Interpretation and Conclusions

25.1 Property Description and Location

The Property is located 175 km north of Red Lake, Ontario in the Red Lake Mining Division and is on Crown Land. The centre of the Project is located on the National Topographic System map sheet reference is 53C/11 at approximately 52°36'N latitude and 93°23'W longitude near Pakeagama Lake. The Property is composed of three Mining Leases and 1,261 Mining Claims (1,258 contiguous and three groups of un-surveyed claim units) for a total of 27,120.6 ha.

A royalty agreement is in place for 17 claim cells to the east of Lease 109669 and adjacent to the south-central part of Lease 110063 with a 2.5% NSR and the ability to reduce the royalty to 1.0% for $1,500,000. Two additional areas have a 1.5% and 0.5% NSR with the ability to buy out the royalty for $1,000,000 and $500,000 respectively. A single claim group along the Flanagan River has a 1.0% NSR, which can be purchased for $1,000,000.

25.2 Accessibility, Climate, Local Resources, Infrastructure and Physiography

Access to the Property is available year-round by chartered aircraft from Red Lake, Ontario and by all-weather road/winter road from Red Lake north on the Nungessor Road for approximately 100 km to the North Spirit Lake Winter Road. The turn-off to the Property is approximately 32 km past North Spirit Lake.

The climate is typical northern boreal with warm summers and cold winters.

There is no immediate skilled labour close to the Property.

There is sufficient water for mining operations within the Property. Surface rights sufficient for mining operation have been obtained. Currently no electric power is available on the Property. The Watanynikaneyap powerline, currently under construction, will pass by the western boundary of the Project and is expected to be completed and energized in 2024.

The dominant vegetation is coniferous forest.

25.3 History

Frontier has been actively exploring on the Property since 1999 completing geological mapping, airborne and ground geophysics, channel sampling, and diamond drilling.

25.4 Geology

The Project area is situated along the boundary between the Berens River and Sachigo subprovinces of the Archean Superior Province of the Canadian Shield.

The Project is underlain by three main lithologic domains. To the northeast, rocks with metasedimentary origins are composed of pelitic sediments, iron formation, and conglomerate. The southwest region is comprised dominantly of mafic metavolcanic and related metasedimentary rocks. The elongate, 2.5 km by 15 km, Pakeagama Lake peraluminous granite and mica pluton trending northwest-southeast was emplaced along the unconformable contact between metasedimentary and metavolcanic-metasedimentary rocks. The Pakeagama Lake granitic Pegmatite is a highly evolved, zoned, complex-type, petalite-subtype LCT Pegmatite with highly anomalous values of lithium, cesium, tantalum, and rubidium.

25.5 Deposit Type

Frontier's target or deposit model is the highly evolved, granitic, rare-element lithium-cesium-tantalum bearing ("LCT") complex type, petalite subtype pegmatite.

25.6 Exploration

In addition to geological mapping, Frontier has completed several phases of channel sampling and geophysics. The channel samples at PAK and Spark have been collected with a documented procedure acceptable to use in the mineral resource estimates for the PAK and Spark Deposits.

25.7 Drilling

Twelve phases of diamond drilling plus a program of geomechanical drilling have been completed on the Property since 2013. Phases I through VI were completed at the PAK Deposit while Phases VII through XII, which included geomechanical drillholes, were completed on the Spark Deposit.

Core logging and sampling procedures completed during the twelve phases of drilling met industry best practices and the data is acceptable to use in the mineral resource estimates for PAK and Spark.

25.8 Sample Preparation, Analyses and Security

Samples were prepped and analyzed at Activation Laboratories in 2013 and 2014 and at AGAT from 2015 to 2022. Both laboratories are accredited facilities. AGAT completed the analysis using ICP-OES/ICP-MS Finish; Sodium Peroxide fusion.

Frontier maintained a quality assurance / quality control program during channel sampling and drilling programs.

25.9 Data Validation

Various QPs have validated data by conducting site investigations, reviewing drill core and confirming drill collar locations.

25.10 Mineral Processing and Metallurgical Test Work

Extensive metallurgical test work has been conducted on a number of samples from the PAK and Spark deposits between 2016 and 2023. In addition to characterizing the modal mineralogy and liberation characteristics of samples, the test work has allowed the determination of typical comminution and mineral processing behaviour.

The PAK process flowsheet includes a number of unit operations including ore sorting, DMS, desliming, gravity concentrations, LIMS and various floatation stages to yield an estimated lithium recovery of 76.3% to the spodumene concentrate.

The Spark process flowsheet is similar to the PAK flowsheet, yet excludes the DMS unit and phosphate flotation to yield an estimated lithium recovery of 77.8% to the spodumene concentrate.

Extensive testing of the chemical process to produce both lithium carbonate and lithium hydroxide in parallel tests using crystallisation for final products has been conducted using a typical spodumene concentrate containing over 6% Li_2O. The final grades achieved of lithium carbonate at 99.8% purity, and lithium hydroxide monohydrate at 56.08% (LiOH%) purity, were above the required minimum grades for commercial battery grade specifications. The projected industrial lithium recovery to lithium carbonate and lithium hydroxide monohydrate products, allowing for recycle streams not included in the unit testing, was 88.4% and 88.3% respectively.

25.11 Mineral Resources

The mineral resource estimate for the PAK deposit is based on 34 boreholes, 67 rotary blastholes, and 31 channels. Three mineral domains were modelled in three dimensions using Surpac software. Mineral estimating was completed by ordinary kriging. Using a cut-off of 0.6% Li_2O, the pit constrained Measured and Indicated Mineral Resource totalled 5.4 Mt at 1.99% Li_2O with an additional pit constrained Inferred Mineral Resource of 0.6 Mt at 1.97% Li_2O. Below the pit shell there is a Measured and Indicated Mineral Resource totalling 1.3 Mt at 2.15% Li_2O with an additional Inferred Mineral Resource of 2.1 Mt at 2.38% Li_2O using a cut-off of 0.8% Li_2O.

The mineral resource estimate for the Spark Deposit is based on 71 boreholes and 15 channels. Three mineral domains were modelled in three dimensions using Datamine software. Mineral estimating was completed by ordinary kriging. Using a cut-off of 0.65% Li_2O, the pit constrained Indicated Mineral Resource totals 18.8 Mt at 1.52% Li_2O with an additional pit constrained Inferred Mineral Resource of 29.7 Mt at 1.34% Li_2O.

25.12 Mineral Reserve

BBA prepared a mineral reserve estimate for the Project using Deswik mining software packages and modules for estimating the economic pit limit for the open pit and block model interrogation.

Mineral reserves for the PAK Project incorporate mining dilution and mining loss assumptions for the open pit mining method.

The reference point at which mineral reserves are defined is where the ore is delivered to the concentrator plant facility, which includes the ROM stockpiles.

Following the detailed design of the ultimate pit and LOM schedule with the cut-off grade of 0.65% Li_2O, a total of 22.1 Mt of Probable Mineral Reserves grading 1.55% Li_2O is estimated for the PAK and Spark Deposits, with an overall stripping ratio of 3.7.

Changes in the following factors and assumptions may affect the mineral reserve estimate:

- Commodity prices;
- Interpretations of mineralization geometry and continuity of mineralization zones;
- Grade and geology estimation assumptions;
- Geomechanical and hydrogeological assumptions;
- Ability of the mining operation to meet the annual production rate;
- Operating cost assumptions;
- Mill concentrator recoveries;
- Mining loss and dilution assumptions;
- Ability to meet and maintain permitting and environmental license conditions.

25.13 Mining Methods

Conventional open pit mining methods will be used to mine the material within the designed open pits of the PAK and Spark Deposits. This method was selected considering the deposits' proximity to the surface.

Open pit mining will include drilling and blasting with a combination of a backhoe-type excavator and front-end loader-type excavator loading blasted material into haul trucks, which will haul the material from the bench to the designated destination of the crusher, ROM stockpile, or mine waste rock stockpiles, depending on the material type. Support equipment includes dozers, graders, utility loaders, water truck, and service vehicles.

A pre-production stripping period has not been scheduled for the Project due to the low tonnages to be mined/milled at the beginning and the availability of the ore at surface. As well, mine rock from the pits was not planned to be required for construction material.

The open pit production period is approximately 24 years. The operation scenario for the PFS involves:

- Mining starts at PAK with the technical grade line at the concentrator plant facility in Year 1;
- Mining starts at Spark with chemical grade line at the concentrator plant facility in Year 3;
- Average mining rate of ore and waste over the LOM is approximately 4.6 Mtpa, with a peak of approximately 8.2 Mtpa:
  - 210,000 tpa concentrator feed from PAK (technical grade line);
  - 830,000 tpa concentrator feed from Spark (chemical grade line);
- The mine plan considers a ramp-up of 30% in Q1, 60% in Q2, 100% in Q3 & Q4 (for technical grade line in Year 1 and chemical grade line in Year 3);
- Li_2O grade range from PAK to feed the technical grade line of 1.5% to 2.0%;
- All ore material from PAK has been designated as technical grade feed;
- All ore material from Spark has been designated as chemical grade feed.

25.14 Recovery Methods

The two spodumene concentrator plants will be constructed as a single facility and will be located at the mine site. The PAK ore will be utilized to produce the high-grade technical grade concentrate at 7.2% Li_2O. Along with the high-grade of lithium in the concentrate that needs to be produced, there are several impurities such as phosphate and iron that need to be rejected to meet stringent commercial specifications. The Spark ore, due to the higher iron content in the spodumene, is not suitable for producing a technical grade concentrate and will be utilized to produce a chemical grade concentrate that will ultimately be used to produce commercially valuable lithium chemicals.

The chemical grade concentrate produced from the Spark ore will be transported by truck and further processed at a Lithium Chemicals Conversion Plant (chemicals plant) located in or near a Great Lakes port city in Northern Ontario. The plant is designed to produce 20,000 tpa of lithium carbonate equivalent (“LCE”), which will require a chemicals plant feed rate of 160,000 tpa. The process will produce both lithium hydroxide and lithium carbonate at a 60/40 ratio.

25.15 Project Infrastructure

The infrastructure required for the PAK site will include:

- Site development and access road;
- Site Structures and Installations:
  - Airstrip;
  - Remotely controlled access gate;
  - Construction laydown area;
  - Construction camp;
  - Operations camp;
  - Fuel storage and dispensing;
  - Truck scale;
  - Fire protection;
  - Landfill;
  - Site offices;
  - Mine/plant dry facility;
  - Flix plant maintenance shops;
  - Assay lab;
  - Core shack;
  - Mobile maintenance facility.

- Concentrator plant;
- Electrical site reticulation and generated power;
- Mine rock storage;
- Water management;
- Domestic and potable water treatment;
- Tailings management facility ("TMF");
- Effluent treatment;

When possible, the site infrastructure was designed and estimated based on using modular components.

25.16 Market Studies and Contracts

The supply and demand for each form of lithium product can vary depending on a variety of factors, such as market demand, geopolitical events, and mining operations. There is a disconnect between the supply and demand for lithium cathodes in North America due to the current lack of secondary transformation plants and Li-based cathode production outside of China, Korea and Japan.

There are several different forms of lithium products traded on the market, including lithium carbonate, lithium hydroxide, and spodumene concentrate. The prices of these products can vary depending on factors such as the quality and purity of the product, the source of the material, and the level of demand in the market.

In recent years, the price of lithium products has been volatile due to fluctuations in supply and demand. At times, the price of lithium products has soared due to a shortage of supply caused by increased demand from the electric vehicle industry, while at other times, the price has dropped due to oversupply or weaker demand.

Overall, the lithium market is expected to continue to grow in the coming years as demand for electric vehicles and energy storage systems increases. However, the market will likely remain volatile due to supply and demand imbalances and fluctuations in the global economy.

Frontier does not have any offtake agreements, Memorandums of Understanding ("MOU"), Letters of Intent ("LOI"), or future selling contracts used in this Project.

25.17 Environmental Studies, Permitting and Social or Community Impact

Frontier initiated environmental baseline studies beginning in 2016 and data collection is ongoing at the Property.

Cumulatively, the baseline studies that are being completed to support permitting requirements for the mine and concentrator plant include the areas of study listed below:

- Surface Water Quality and Hydrology;
- Hydrogeology;
- Geochemistry;
- Terrestrial Biology;
- Aquatic Biology;
- Air Quality;
- Archaeology;
- Traditional Land and Resource Use.

The Project is not required to complete a federal impact assessment. However, the Minister of Environment and Climate Change may designate a physical activity that is not prescribed by the Physical Activities Regulations if, in their opinion, either the carrying out of that physical activity may cause direct or incidental adverse effects within federal jurisdiction, or public concerns related to those effects warrant the designation.

The Project will need to complete the Provincial class EA for the mine site. There are no EA requirements for the chemicals plant, assuming it is situated at a serviced industrial site with suitable zoning.

The mine site is in the traditional territory of Deer Lake and North Spirit Lake First Nations. Emphasis has been placed on controlling water taking, as well as discharges of water, fugitive dust and noise to minimize the potential for off-site impacts that could affect traditional uses and treaty rights. Although the evaluation of candidate sites for the chemicals plant remains in progress, environmental aspects that will require management have been identified.

25.18 Capital and Operating Costs

The capital cost estimate consists of the direct capital costs for the mine, the concentrator plant facility, the associated mine site infrastructure, and the chemicals plant, and the indirect costs for project construction management services.

The concentrator facility capital estimate is derived from first principles using preliminary design documents, including the process design criteria, mass balance, mechanical equipment listing, and process flow diagrams.

Material costs are based on quotes received from major manufacturers, with minor equipment costs established from the estimating database with adjustments if necessary. Labour rates are based on the Project cut-off date, with hourly rates based on conditions in Red Lake.

The total capital estimate including in-directs and contingency is summarized in Table 25-1.

Table 25-1: Capital Expenditures

Description	Pre-production	Production Phase		Closure Phase	Total
	Y-2 to -1	Y1 to 3	Y4 to 24	Y25+	LOM
	Phase 1				
		Phase 2			
	M$	M$	M$	M$	M$
Direct Costs					
Mine Infrastructure & Equipment	18.6	8.7	59.3	0.0	**86.6**
Concentrator Plant Facility	157.9	74.3	0.0	0.0	**232.2**
TMF	23.2	0.0	24.9	0.0	**48.1**
Site Infrastructure	186.6	18.2	1.6	0.0	**206.4**
Chemicals Plant	0.0	379.2	0.0	0.0	**379.2**
Closure and Reclamation	0.0	22.7	9.1	-14.0	**17.8**
Direct Costs	**386.2**	**503.0**	**95.0**	**-14.0**	**970.2**
Indirect Costs					
Owners Cost & Construction Indirect Costs	116.0	155.8	0.0	0.0	**271.8**
Contingency	100.5	131.8	19.0	-2.8	**248.4**
Indirect Costs	**216.5**	**287.5**	**19.0**	**-2.8**	**520.2**
Insurance	5.5	0.0	0.0	0.0	**5.5**
Capital Expenditure	**608.2**	**790.5**	**113.9**	**-16.8**	**1,495.9**

The total operating costs are based on:

- PAK mining and technical grade concentrator operation commences in Year 1;
- Spark mining and chemical grade concentrator operation commences in Year 3;
- Battery grade lithium hydroxide and carbonate plant (chemicals plant facility) operation commences in Year 4;
- Total concentrator feed tonnes over the LOM is 22.1 Mt.

The total operating for the Project is summarized in Table 25-2.

Table 25-2: Total Operating Costs Over Life of Project

Cost Area	Total (M$)	Unit Cost ($/t milled)	Percent of Total
Open Pit Mining	753.5	34.14	16%
Concentrator Plant	610.8	27.67	13%
General & Administrative (G&A)	578.7	26.22	12%
Subtotal Site Operating	**1,943.0**	**88.04**	**40%**
Concentrate Transportation	385.5	17.47	8%
Chemicals Plant	2,467.0	111.78	51%
Transport losses	45.8	2.07	1%
Total Operating Cost	**4,841.2**	**219.36**	**100%**

25.19 Project Economics

The pre-tax base case financial model resulted in an internal rate of return of 28.6% and an NPV of $3,365M with a discount rate of 8%. The simple pre-tax payback period is 4.9 years. On an after-tax basis, the base case financial model resulted in an internal rate of return of 24.1% and an NPV of $2,261M with a discount rate of 8%. The simple after-tax payback period is 4.9 years.

Table 25-3 Financial Analysis Summary

Description		CAD M	USD M
Pre-Tax	**Discount Rate**		
	0%	10,501	8,078
	5%	5,057	3,890
	8%	**3,365**	**2,588**
	10%	2,582	1,986
	15%	1,326	1,020
	Pre-Tax IRR	28.6%	
	Payback Period (years)	4.9	

Description		CAD M	USD M
After-Tax	**Discount Rate**		
	0%	7,776	5,982
	5%	3,438	2,645
	8%	**2,261**	**1,739**
	10%	1,712	1,317
	15%	821	632
	After-Tax IRR	24.1%	
	Payback Period (years)	4.9	
	Cumulative Effective Tax Rate	31.7%	

The Project shows positive economics. The Project is most sensitive to the USD:CAD exchange rate, BG LiOH prices and the capital costs based on the NPV and IRR sensitivities.

It should be noted that carbon taxes and decarbonization costs and credits have not been applied to the financial model.

25.20 Adjacent Properties

A number of mineral claims have been staked around the Project. No adjacent property is at an advanced exploration stage.

25.21 Opportunities

The QPs, as authors of this Technical Report have noted the following opportunities:

25.21.1 Geology

- Underground mineral resources at PAK have not been included in the mine plan;
- Conversion of the Inferred Mineral Resource below the Spark pit to Indicated or Measured Mineral Resource will allow the pit shell to be increased;
- Delineation of mineralization at Bolt mineral;
- Delineation of mineralization at Pennock mineral potential.

25.21.2 Mining

- All of Spark mine waste rock material was categorized as PAG rock. Additional geochemical information would be required to determine if the material can be divided into separate piles thus reducing the potential for additional metal leaching.
- Although only open pit mining has been evaluated in this study, underground mining could be an option to mine deeper portions of the mineralized zones.

25.21.3 Process

- Optimize the overall production plan (mine/concentrator plant/chemicals plant).

25.21.4 Infrastructure

- Understanding annual fuel consumption may lead to decreased storage requirement;
- Optimize internal road designs.

25.22 Risks

The QPs, as authors of this Technical Report have noted that the main risks to the Project success would be the following:

25.22.1 Geology

- Structures around PAK and Spark deposits are not well defined.

25.22.2 Mining

- Lead time for equipment to begin production;
- Large scale slope failure;
- The 120m and 100m exclusion zone around Pakeagama Lake and Unnamed waterbody 1, respectively, and whether it is sufficient to avoid water infiltrating the pit. Hydrogeological and geotechnical studies will be required.

25.22.3 Process

- Complete pilot plant of the chemicals plant design.

25.22.4 Infrastructure

- The potential for excessive groundwater inflows that are not anticipated;
- The condition and availability of the winter road;
- Geotechnical investigations of all roads and building to be completed;
- Availability of skilled labour during the construction phase;
- Operational challenge related to the effluent discharge pipe to the Flanagan River;
- Construction camp auxiliary system such as potable water and septic system can handle the increase in labour force;
- Understanding the water quality to be treated as part of the final effluent discharge;
- Understanding the water quality to be treated as part of the potable water intake;
- The geochemistry of the tailings may require the installation of a geomembrane;
- Any expansion in the production profile would impact camp, office and changeroom sizing.

25.22.5 Environmental, Social and Governance

- Changes in environmental regulations;
- First Nations agreements.

25.22.6 Economics

- Capital costs can potentially increase given low domestic experience related to building lithium chemicals plants in northern climate conditions;
- There are no contracts, MOUs or LOIs in place for site construction, products sales and equipment;
- There were no offtake agreements or contracts for the products selling prices used in the Project;
- The Project is most sensitive to the exchange rate (USD:CAD) and LiOH prices;
- Brine Lithium extraction is receiving support from oil and gas conglomerates, potential to increase lithium supply and decrease prices due the substantial capital available by those companies to move forward with research and development and executing projects;
- No carbon taxes beyond the fully taxed fuel costs or decarbonization costs or credits have been applied in this Project.

26. Recommendations

The results of this PFS demonstrate that the PAK Lithium Project has the potential to be technically and economically viable as a producer of premium technical grade concentrate, battery grade lithium hydroxide and battery grade lithium carbonate.

Two separate exploration programs are proposed. The successful completion of Phase 1 will have an impact on how Phase 2 is conducted.

26.1 Phase 1

Phase 1 is designed to enhance the Project leading towards a Feasibility Study. The budget of $8.75 million is estimated to complete the Phase 1 program. Table 26-1 summarizes the Phase 1 budget.

Table 26-1: Phase 1 Budget Summary

Task	Estimated Cost (CAD) Phase 1
Geology & Exploration	1,000,000
Bulk Sampling	100,000
Geotech and Hydrogeology	300,000
Environmental, Permitting and Community Relations	3,500,000
Mineral Processing	350,000
Engineering	3,500,000
Total	**8,750,000**

26.1.1 Geology

- Continue drilling the mineralized zone at Spark to increase confidence in the mineral resource.
- Characterize the mineral zonation at Spark to determine mineralogical and geochemical similarities and potential contrasts with the PAK Deposit.
- Further evaluate the potential mineralogical and geochemical zonation that may be present within the Spark Pegmatite.
- Update mineral resource models.

26.1.2 Exploration Drilling

Recommendations are to test the western extension of the Spark Pegmatite with particular emphasis on the southwestern extension as well as the northwestern zone intersected at depth where the spodumene crystal morphology, including colour, suggests low impurity. The northwestern zone also has higher lithium grades and pockets rich in cesium and tantalum.

Additional drilling at Bolt to determine continuity, depth extent and potential association with Spark and/or PAK.

26.1.3 Mining

- Define optimum size and area required to complete a test mining scenario to evaluate the economics for mining in an area without an all-season road.

26.1.4 Metallurgy and Processing

- Future metallurgical test work should be scheduled to firm up the overall performance envelope definition for the mineral processing flowsheets at PAK and Spark, which is not expected to change significantly in future studies. A program of variability sampling and bench-scale testing for both deposits is recommended for Phase 1, as this helps to mitigate risk related to feasibility study metallurgical performance predictions. Recommended work includes a program of locked cycle testing ("LCT") on composite PAK/Spark samples to verify and optimize concentrator process flowsheet.
- A comprehensive program of sampling, metallurgical test work and products characterization. It is recommended that individual samples selected to highlight compositional variation be tested, in addition to production composites (Y1, Y2, Y3-5, etc.) that accurately reflect latest mine production plans. Lab scale variability testing would confirm the performance of all flowsheet unit operations, including DMS (via HLS tests), grinding, gravity concentration, magnetic separation, flotation and dewatering.
- Additional Spark SC6.0 concentrate will be required for the chemicals plant design detail.

26.1.5 Hydrogeological and Geomechanical Drilling

During February and March 2023, both hydrogeological and geomechanical drilling was completed at the PAK Deposit. To meet the requirements of the upcoming feasibility study, hydrogeological and geomechanical drilling will be required at the PAK and Spark Deposits.

26.1.6 Dike Design Considerations

It is important to note that this preliminary assessment was performed to confirm the technical feasibility and probable conformity of the chosen concept. The following works are recommended in further stages of the Project:

- Geotechnical investigation along the perimeter dikes, particularly at the critical sections of the South Dike and West Dike.
- Geotechnical characterization of dike foundation and construction materials, particularly the soft clay present under the planned location of the dike.
- Stability analysis for the South Dike and reclaim pond dike.
- Additional stability analysis for the West Dike (towards the south portion).
- Additional analysis for the East Dike subject to blasting loads due to its proximity to the open pit.
- Liquefaction potential analysis.

26.1.7 Environmental, Permitting and Community Relations

- Complete a Project Description for the Project for permitting purposes.
- Continue the environmental baseline study program, including expanding the program to encompass the full extent of the Spark pegmatite area, completing stage 2 archeology study and the traditional land and resource use study.
- Continue to engage local Indigenous communities.
- Develop detailed mine closure plan with associated costs.

26.1.8 Economics Analysis

- Obtain offtake agreements or contracts for the TG concentrate selling prices.
- Validate transport costs with direct quotes.
- Ensure contracts have FOB as shown in the cash flow model.
- Apply carbon taxes and credits, and decarbonization plans for the next project phase.

26.2 Phase 2

Phase 2 is designed to collect the data required to commence a feasibility study including engineering.

The budget for Phase 2 is estimated to be $11.6 million. Table 26-2 summarizes the Phase 2 budget.

Table 26-2: Phase 2 Budget Summary

Task	Estimated Cost (CAD) Phase 2
Mining	50,000
Geotechnical and Hydrogeology	350,000
Environmental, Permitting and Community Relations	500,000
Processing	1,250,000
Engineering and Feasibility Study	9,400,000
Total	**$11,550,000**

26.2.1 Mining

- Enlarge pit design to get as close as geotechnically possible to Pakeagama Lake.
- Complete detailed surface geological mapping to refine stratigraphy, structural setting and characterize mineralization.

26.2.2 Metallurgy and Processing

- A pilot plant campaign is recommended for PAK to allow extended continuous flowsheet operation and generation of product for technical grade characterization and marketing. Ideally, the bulk sample for piloting would include representative dilution levels and would be preconcentrated (Sorting plus DMS) prior to the remaining mineral processing operations.
- An additional Spark pilot run is also required to provide feedstock for a chemicals plant optimization program.
- Complete proof of concept development work to produce lithium hydroxide for thorough evaluation of chemical grade concentrate alternatives.

26.2.3 Geotechnical and Hydrogeology

- Address the gaps in the geotechnical coverage caused by the expansion of the proposed open pit shell with the interpretation and new geotechnical drilling. This includes the eastern and western extents of the pit walls as well as the pit bottom.
- Develop a water management plan for collecting surface water/overburden/shallow top of the bedrock runoff and seepage in sumps on the pit floor.
- Conduct drilling at the Spark area for water data collection and calculation of water in pit flows.
- Update the geologic model with the emphasis on identifying potential major structures.
- Review the TMF design and undertake further study on the tailings storage area's capacity.
- Conduct geotechnical studies for the proposed Spark open pit to determine geotechnical pit design parameters, the waste rock and stripped surface organics pile designs, overall dump height slope angle, maximum bench lifts and safe face slope angles.

26.2.4 Civil

- Conduct a complete geotechnical study in each planned infrastructure area and for each segment of road to properly identify depth of bedrock and quality of overburden material, in order to obtain site specific geotechnical recommendations for accurate design of site preparation and infrastructure.

26.2.5 Feasibility Study

- Update the Project engineering to a feasibility level design, using the Project Pre-Feasibility Study as a base.
- Complete the Feasibility Study.

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Appendix A:
List of the Land Tenure

Frontier Lithium Inc. Complete List of Land Tenure; PAK Lithium Project

Tenure ID	Due	Status	Area (ha)	NSR %	Work Required	Owner	%age	Division	Township - Area
Mining Lease									
LEA-109669	2023-03-01	Active	242.2		Lease Payment	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
LEA-110032	2023-04-01	Active	215.9		Lease Payment	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
LEA-110063	2023-08-01	Active	1 761.1		Lease Payment	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
		subtotal	**2 219.2**						
Boundary Cell Mining Claim									
100298	2024-02-21	Active	16.7		$200	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
101572	2024-03-19	Active	4.4		$200	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
101683	2024-02-21	Active	15.7		$200	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
116174	2024-02-21	Active	15.9		$200	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
127613	2024-02-21	Active	3.6		$200	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
154540	2023-08-12	Active	11.8	2.5	$200	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
172535	2023-08-12	Active	15.2	2.5	$200	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
208750	2024-03-19	Active	7.8		$200	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
221291	2023-08-12	Active	15.5	2.5	$200	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
229589	2024-02-21	Active	3.7		$200	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
230554	2023-08-12	Active	16.0	2.5	$200	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
241426	2023-08-12	Active	11.2	2.5	$200	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
266838	2024-03-19	Active	7.2		$200	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
274771	2024-03-19	Active	9.7		$200	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
278577	2023-08-12	Active	3.7	2.5	$200	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
287851	2023-08-12	Active	9.9	2.5	$200	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
295643	2024-03-19	Active	4.1		$200	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
309438	2023-08-12	Active	3.9	2.5	$200	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
310731	2024-03-19	Active	8.4		$200	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
315461	2023-08-12	Active	16.0	2.5	$200	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
315462	2023-08-12	Active	2.9	2.5	$200	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
325236	2023-08-12	Active	12.4	2.5	$200	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
		subtotal	**215.8**		**$4 400**				
Multi-cell Mining Claim									
522222	2024-05-27	Active	58.6	0.5	$1 200	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA, SETTING NET LAKE AREA
531510	2023-09-15	Active	117.2	0.5	$2 400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA, SETTING NET LAKE AREA
532153	2023-10-02	Active	294.5	1	$6 000	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA, PAKEAGAMA LAKE AREA
		subtotal	**470.3**		**$9 600**				

Frontier Lithium Inc. Complete List of Land Tenure; PAK Lithium Project

Tenure ID	Due	Status	Area (ha)	NSR %	Work Required	Owner	%age	Division	Township - Area
Single Cell Mining Claim									
100101	2026-09-25	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
100150	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA, MECHITA LAKE AREA
100151	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
100272	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
100296	2024-02-21	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
100297	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
100606	2025-09-25	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
101000	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
101372	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
101373	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
101831	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
101832	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
101853	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
102018	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
102019	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
102031	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
102112	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
102113	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
102148	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
102572	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
115078	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
115772	2023-09-25	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA, MECHITA LAKE AREA
115773	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
115774	2023-09-25	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
115775	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
116046	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
116047	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
116343	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
116468	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
116469	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
116470	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
116497	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
116498	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
116499	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
116687	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
117145	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
117146	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
117175	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
120427	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
120470	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
120471	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA, MECHITA LAKE AREA
120472	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
121729	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA, MECHITA LAKE AREA
122335	2024-02-21	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
123022	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
123027	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
123720	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
124440	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
125578	2024-09-25	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
125616	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
125617	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
126222	2023-09-25	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA

Frontier Lithium Inc. Complete List of Land Tenure; PAK Lithium Project

Tenure ID	Due	Status	Area (ha)	NSR %	Work Required	Owner	%age	Division	Township - Area
127570	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
128325	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
129021	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
129653	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
132648	2024-06-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
142071	2023-09-25	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
142072	2023-09-25	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA, MECHITA LAKE AREA
142073	2023-09-25	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
142118	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
142119	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
143495	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
143496	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
144798	2024-02-21	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
149256	2024-06-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
151738	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
152940	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
154541	2023-08-12	Active	19.6	2.5	$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
154798	2023-09-25	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
154801	2024-06-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
154897	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
156867	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
156868	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
157586	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
157587	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
157588	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
158797	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
158821	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
158822	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
158823	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
158834	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
158937	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
158938	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
159573	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
159589	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
161615	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
162880	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
163617	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
164843	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
164924	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
165598	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
165629	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
165630	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
167547	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
167632	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
169559	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
177635	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
177767	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
178439	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
178965	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
179698	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
179699	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
180454	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
180455	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA

Frontier Lithium Inc. Complete List of Land Tenure; PAK Lithium Project

Tenure ID	Due	Status	Area (ha)	NSR %	Work Required	Owner	%age	Division	Township - Area
182354	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
193337	2023-08-12	Active	19.6	2.5	$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
194142	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
194178	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
194837	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
194868	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
196920	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
197364	2024-06-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
198240	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
200164	2024-09-25	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
200835	2023-09-25	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA, MECHITA LAKE AREA
200836	2023-09-25	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA, MECHITA LAKE AREA
202188	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
202719	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
203403	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
203404	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
203429	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
204105	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
204106	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
204121	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
204131	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
204935	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
204936	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
205395	2024-06-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
208194	2023-09-25	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA, MECHITA LAKE AREA
208747	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
208748	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
208749	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
208895	2025-09-25	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
208896	2023-09-25	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
211493	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
212205	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
212229	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
212238	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
212239	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
212240	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
212810	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
212811	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
212838	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
213503	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
213553	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA, MECHITA LAKE AREA
214791	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
214908	2024-02-21	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
215043	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
215044	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
215045	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
215046	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
215750	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
216311	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
216312	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
216319	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
217496	2024-06-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
220318	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA, MECHITA LAKE AREA

Frontier Lithium Inc. Complete List of Land Tenure; PAK Lithium Project

Tenure ID	Due	Status	Area (ha)	NSR %	Work Required	Owner	%age	Division	Township - Area
220961	2023-09-25	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
221608	2024-06-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
222309	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
222335	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
223543	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
224219	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
224220	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
224246	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
224854	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
225551	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA, MECHITA LAKE AREA
227024	2023-09-25	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
227613	2024-09-25	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
227614	2023-09-25	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
230306	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
230555	2023-08-12	Active	19.6	2.5	$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
231010	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
231011	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
231012	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
231013	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
231014	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
231015	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
231640	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
231641	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
232307	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
232308	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
233555	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
234344	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
234349	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
257580	2024-06-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
258258	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
258259	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
259478	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
259507	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
260153	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
260178	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
260186	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
260187	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
260266	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
260809	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
264968	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
264969	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
266728	2023-09-25	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
266793	2023-09-25	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA, MECHITA LAKE AREA
266837	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA, MECHITA LAKE AREA
268175	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
268176	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
268198	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
268205	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
268306	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
268942	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
268943	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
268963	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
268998	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA

Frontier Lithium Inc. Complete List of Land Tenure; PAK Lithium Project

Tenure ID	Due	Status	Area (ha)	NSR %	Work Required	Owner	%age	Division	Township - Area
268999	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA, MECHITA LAKE AREA
270218	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
270219	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
270220	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA, MECHITA LAKE AREA
270927	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
270989	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
271396	2024-06-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
272221	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
272222	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
274770	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA, MECHITA LAKE AREA
275412	2023-09-25	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
276766	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
276790	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
276791	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
277511	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
277512	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
277513	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
278576	2023-08-12	Active	19.6	2.5	$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
279035	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
279569	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
280329	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
280358	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
280359	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
280360	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
281006	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
281574	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
281575	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA, MECHITA LAKE AREA
283610	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
288859	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
295617	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
297536	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
297537	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
297557	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
297558	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
297568	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
297633	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
298308	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
298324	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
300711	2024-06-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
302658	2027-09-25	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
308080	2023-08-12	Active	19.6	2.5	$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
309437	2023-08-12	Active	19.6	2.5	$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
310688	2025-09-25	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
310689	2023-09-25	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA, MECHITA LAKE AREA
310730	2024-03-19	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
312787	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
312788	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
313366	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
313367	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
314094	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
314658	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
314665	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
314733	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA

Frontier Lithium Inc. Complete List of Land Tenure; PAK Lithium Project

Tenure ID	Due	Status	Area (ha)	NSR %	Work Required	Owner	%age	Division	Township - Area
314734	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
314735	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
314759	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
323434	2024-09-25	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA, MECHITA LAKE AREA
325450	2024-02-21	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
326132	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
326133	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
326134	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
326830	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
326863	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
326870	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
328162	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
328163	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
330195	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
330196	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
339938	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
339939	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
339956	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
339957	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
339997	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
339998	2024-01-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
341968	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
341969	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
342028	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
343959	2024-02-22	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
529505	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529506	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529507	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529508	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529509	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529510	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529511	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529512	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529513	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529514	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529515	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529516	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529517	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529518	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529519	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529520	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529521	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529522	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529523	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529524	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529525	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529526	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529527	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529528	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529529	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529530	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529531	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529532	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA

Frontier Lithium Inc. Complete List of Land Tenure; PAK Lithium Project

Tenure ID	Due	Status	Area (ha)	NSR %	Work Required	Owner	%age	Division	Township - Area
529533	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529534	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529535	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529536	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529537	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529538	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
529539	2023-08-26	Active	19.5	1.5	$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
530288	2023-08-28	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA, SETTING NET CREEK AREA
530289	2023-08-28	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
530290	2023-08-28	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
530291	2023-08-28	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
530292	2023-08-28	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA, SETTING NET CREEK AREA
530293	2023-08-28	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
530294	2023-08-28	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA, SETTING NET CREEK AREA
530295	2023-08-28	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
530296	2023-08-28	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
530297	2023-08-28	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
530298	2023-08-28	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
530299	2023-08-28	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
530300	2023-08-28	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
530301	2023-08-28	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA, SETTING NET CREEK AREA
530302	2023-08-28	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
530303	2023-08-28	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
530304	2023-08-28	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
530305	2023-08-28	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
530306	2023-08-28	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA, SETTING NET CREEK AREA
530307	2023-08-28	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
532916	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532917	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532918	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532919	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532920	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532921	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532922	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532923	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532924	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532925	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532926	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532927	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532928	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532929	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532930	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532931	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532932	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532933	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532934	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532935	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532936	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532937	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532938	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532939	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532940	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532941	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA

Frontier Lithium Inc. Complete List of Land Tenure; PAK Lithium Project

Tenure ID	Due	Status	Area (ha)	NSR %	Work Required	Owner	%age	Division	Township - Area
532942	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532943	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532944	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532945	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532946	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532947	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532948	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532949	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532950	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532951	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA, MECHITA LAKE AREA
532952	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532953	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532954	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532955	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532956	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532957	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532958	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532959	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532960	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
532961	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532962	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
532963	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532964	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532965	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
532966	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532967	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA, MECHITA LAKE AREA
532968	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
532969	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
532970	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532971	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532972	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532973	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532974	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
532975	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532976	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532977	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532978	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
532979	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
532980	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
532981	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532982	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532983	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532984	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532985	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532986	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532987	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532988	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
532989	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532990	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532991	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532992	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
532993	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA, MECHITA LAKE AREA
532994	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA

Frontier Lithium Inc. Complete List of Land Tenure; PAK Lithium Project

Tenure ID	Due	Status	Area (ha)	NSR %	Work Required	Owner	%age	Division	Township - Area
532995	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
532996	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
532997	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA, MECHITA LAKE AREA
532998	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA, MECHITA LAKE AREA
532999	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533000	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533001	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533002	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533003	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533004	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533005	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA, MECHITA LAKE AREA
533006	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533007	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533008	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533009	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA, MECHITA LAKE AREA
533010	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533011	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533012	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533013	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533014	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533015	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533016	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533017	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA, MECHITA LAKE AREA
533018	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533019	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA, MECHITA LAKE AREA
533020	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533021	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533022	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533023	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533024	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533025	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533026	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533027	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA, MECHITA LAKE AREA
533028	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533029	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533030	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA, MECHITA LAKE AREA
533031	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533032	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533033	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533034	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533035	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533036	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA, MECHITA LAKE AREA
533037	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533038	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533039	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533040	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533041	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533042	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533043	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533044	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533045	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533046	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533047	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA

Frontier Lithium Inc. Complete List of Land Tenure; PAK Lithium Project

Tenure ID	Due	Status	Area (ha)	NSR %	Work Required	Owner	%age	Division	Township - Area
533048	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533049	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533050	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533051	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533052	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533053	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA, MECHITA LAKE AREA
533054	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA, MECHITA LAKE AREA
533055	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533056	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533057	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533058	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA, MECHITA LAKE AREA
533059	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA, MECHITA LAKE AREA
533060	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533061	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533062	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533063	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533064	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533065	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533066	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533067	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533068	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA, MECHITA LAKE AREA
533069	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533070	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533071	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533072	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533073	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA, MECHITA LAKE AREA
533074	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA, MECHITA LAKE AREA
533075	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533076	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533077	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533078	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533079	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533080	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533081	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533082	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533083	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533084	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533085	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533086	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533087	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533088	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533089	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533090	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533091	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533092	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533093	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533094	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533095	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533096	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533097	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533098	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533099	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533100	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA, MECHITA LAKE AREA

Frontier Lithium Inc. Complete List of Land Tenure; PAK Lithium Project

Tenure ID	Due	Status	Area (ha)	NSR %	Work Required	Owner	%age	Division	Township - Area
533101	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533102	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533103	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533104	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533105	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533106	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533107	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA, MECHITA LAKE AREA
533108	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA, MECHITA LAKE AREA
533109	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA, MECHITA LAKE AREA
533110	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA, MECHITA LAKE AREA
533111	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533112	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533113	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533114	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533115	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533116	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533117	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533118	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533119	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533120	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA, MECHITA LAKE AREA
533121	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA, MECHITA LAKE AREA
533122	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533123	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533124	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533125	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533126	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533127	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533128	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533129	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533130	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533131	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533132	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533133	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533134	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533135	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533136	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533137	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533138	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533139	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533140	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533141	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533142	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533143	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533144	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533145	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533146	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533147	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533148	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533149	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533150	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533151	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533152	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533153	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA

Frontier Lithium Inc. Complete List of Land Tenure; PAK Lithium Project

Tenure ID	Due	Status	Area (ha)	NSR %	Work Required	Owner	%age	Division	Township - Area
533154	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533155	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533156	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533157	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533158	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533159	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533160	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533161	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533162	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533163	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533164	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533165	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533166	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533167	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533168	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533169	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533170	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533171	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533172	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533173	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533174	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533175	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533176	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533177	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533178	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533179	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533180	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533181	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533182	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533183	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533184	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533185	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533186	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533187	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533188	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533189	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533190	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533191	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533192	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533193	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533194	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533195	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533196	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533197	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533198	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533199	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533200	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533201	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533202	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533203	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533204	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533205	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533206	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA

Frontier Lithium Inc. Complete List of Land Tenure; PAK Lithium Project

Tenure ID	Due	Status	Area (ha)	NSR %	Work Required	Owner	%age	Division	Township - Area
533207	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533208	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533209	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533210	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533211	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533212	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533213	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533214	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533215	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533216	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533217	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533218	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533219	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533220	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533221	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533222	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533223	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533224	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533225	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533226	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533227	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533228	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533229	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533230	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533231	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533232	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533233	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533234	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533235	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533236	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533237	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533238	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533239	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533240	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533241	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533242	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533243	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533244	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533245	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533246	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533247	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533248	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533249	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533250	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533251	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533252	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533253	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533254	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533255	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533256	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533257	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533258	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533259	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA

Frontier Lithium Inc. Complete List of Land Tenure; PAK Lithium Project

Tenure ID	Due	Status	Area (ha)	NSR %	Work Required	Owner	%age	Division	Township - Area
533260	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533261	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533262	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533263	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533264	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533265	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533266	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533267	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533268	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533269	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533270	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533271	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533272	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533273	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533274	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533275	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533276	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533277	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533278	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533279	2023-10-15	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	MECHITA LAKE AREA
533289	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533290	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533291	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533292	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533293	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533294	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533295	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533296	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533297	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533298	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533299	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA, SETTING NET CREEK AREA
533300	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533301	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533302	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA, SETTING NET CREEK AREA
533303	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533304	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533305	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533306	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533307	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533308	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533309	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
533310	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA, SETTING NET CREEK AREA
533311	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533312	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA, SETTING NET CREEK AREA
533313	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533314	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533315	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA, SETTING NET CREEK AREA
533316	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533317	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533318	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533319	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533320	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA, SETTING NET CREEK AREA
533321	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA

Frontier Lithium Inc. Complete List of Land Tenure; PAK Lithium Project

Tenure ID	Due	Status	Area (ha)	NSR %	Work Required	Owner	%age	Division	Township - Area
533322	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533323	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533324	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533325	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533326	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533327	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533328	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533329	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533330	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533331	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533332	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533333	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533334	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533335	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533336	2023-10-16	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533337	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533338	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533339	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533340	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533341	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533342	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533343	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533344	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533345	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533346	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533347	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533348	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533349	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533350	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533351	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533352	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533353	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533354	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533355	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533356	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533357	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533358	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533359	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533360	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533361	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533362	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533363	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533364	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533365	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533366	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533367	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA, SETTING NET LAKE AREA
533368	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533369	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533370	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533371	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533372	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533373	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533374	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA

Frontier Lithium Inc. Complete List of Land Tenure; PAK Lithium Project

Tenure ID	Due	Status	Area (ha)	NSR %	Work Required	Owner	%age	Division	Township - Area
533375	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533376	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533377	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533378	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA, SETTING NET LAKE AREA
533379	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533380	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533381	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533382	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533383	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533384	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533385	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533386	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533387	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533388	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA, SETTING NET LAKE AREA
533389	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA, SETTING NET LAKE AREA
533390	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533391	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533392	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533393	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA, SETTING NET LAKE AREA
533394	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA, SETTING NET LAKE AREA
533395	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA, SETTING NET LAKE AREA
533396	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA, SETTING NET LAKE AREA
533397	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533398	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533399	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533400	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533401	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533402	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA, SETTING NET LAKE AREA
533403	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA, SETTING NET LAKE AREA
533404	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA, SETTING NET LAKE AREA
533405	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533406	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533407	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533408	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533409	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533410	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533411	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA, SETTING NET LAKE AREA
533412	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533413	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533414	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533415	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533416	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA, SETTING NET LAKE AREA
533417	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA, SETTING NET LAKE AREA
533418	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533419	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533420	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533421	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533422	2024-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
533423	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533424	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533425	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533426	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533427	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA

Frontier Lithium Inc. Complete List of Land Tenure; PAK Lithium Project

Tenure ID	Due	Status	Area (ha)	NSR %	Work Required	Owner	%age	Division	Township - Area
533428	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533429	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533430	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533431	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533432	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533433	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533434	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533435	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533436	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533437	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533438	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533439	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533440	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533441	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533442	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533443	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533444	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533445	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533446	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533447	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533448	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533449	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533450	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533451	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533452	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533453	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533454	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533455	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533456	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
533457	2023-10-16	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536079	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536080	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536081	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536082	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536083	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536084	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536085	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536086	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA, SETTING NET CREEK AREA
536087	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536088	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536089	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536090	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536091	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536092	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536093	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536094	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536095	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536096	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA, SETTING NET CREEK AREA
536097	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536098	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536099	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536100	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536101	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA

Frontier Lithium Inc. Complete List of Land Tenure; PAK Lithium Project

Tenure ID	Due	Status	Area (ha)	NSR %	Work Required	Owner	%age	Division	Township - Area
536102	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536103	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536104	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536105	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536106	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536107	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536108	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536109	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536110	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536111	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536112	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536113	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536114	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536115	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536116	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536117	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536118	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536119	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536120	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536121	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536122	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536123	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536124	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET CREEK AREA
536130	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536131	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536132	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536133	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536134	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536135	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536136	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536137	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536138	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536139	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536140	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536141	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536142	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536143	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536144	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536145	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536146	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536147	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536148	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536149	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536150	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536151	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536152	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536153	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536154	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536155	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536156	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536157	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536158	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536159	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA

Frontier Lithium Inc. Complete List of Land Tenure; PAK Lithium Project

Tenure ID	Due	Status	Area (ha)	NSR %	Work Required	Owner	%age	Division	Township - Area
536160	2023-12-10	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536161	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536162	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536163	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536164	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536165	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536166	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536167	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536168	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536169	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536170	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536171	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536172	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536173	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536174	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536175	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536176	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536177	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536178	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536179	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536180	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536181	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536182	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536183	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536184	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536185	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536186	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536187	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536188	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536189	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536190	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536191	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536192	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536193	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536194	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536195	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536196	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536197	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536198	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536199	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536200	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536201	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536202	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536203	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536204	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536205	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA, SETTING NET LAKE AREA
536206	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SETTING NET LAKE AREA
536207	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536208	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536209	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536210	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536211	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536212	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA

Frontier Lithium Inc. Complete List of Land Tenure; PAK Lithium Project

Tenure ID	Due	Status	Area (ha)	NSR %	Work Required	Owner	%age	Division	Township - Area
536213	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536214	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA, SETTING NET LAKE AREA
536215	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536216	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536217	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536218	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536219	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
536220	2023-12-10	Active	19.5		$400	Frontier Lithium Inc	100	Red Lake	SOUTH OF FAVOURABLE LAKE AREA
538663	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
538664	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538665	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538666	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538667	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538668	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA, PAKEAGAMA LAKE AREA
538669	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538670	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538671	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538672	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
538673	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA, PAKEAGAMA LAKE AREA
538674	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538675	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538676	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538677	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538678	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538679	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
538680	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA, PAKEAGAMA LAKE AREA
538681	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA, PAKEAGAMA LAKE AREA
538682	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538683	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538684	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538685	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538686	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538687	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
538688	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
538689	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538690	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538691	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538692	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538693	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538694	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538695	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538696	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538697	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538698	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538699	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538700	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538701	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538702	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538703	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538704	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538705	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538706	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538707	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA

Frontier Lithium Inc. Complete List of Land Tenure; PAK Lithium Project

Tenure ID	Due	Status	Area (ha)	NSR %	Work Required	Owner	%age	Division	Township - Area
538708	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538709	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538710	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538711	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538713	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538714	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538715	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538716	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538717	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538718	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538719	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538720	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538721	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538722	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538723	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538724	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538725	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538726	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538727	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538728	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538729	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538730	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538731	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538732	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538733	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538734	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538735	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538736	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538737	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538738	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538739	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538740	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538741	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538742	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538743	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538744	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538745	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538746	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538747	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538748	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538749	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538750	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538751	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538752	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538753	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538754	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538755	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538756	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538757	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538758	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538759	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538760	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538761	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA

Frontier Lithium Inc. Complete List of Land Tenure; PAK Lithium Project

Tenure ID	Due	Status	Area (ha)	NSR %	Work Required	Owner	%age	Division	Township - Area
538762	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538763	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538764	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538765	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538766	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538767	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538768	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538769	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538770	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538771	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538772	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538773	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538774	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538775	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538776	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538777	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538778	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538779	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538780	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538781	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538782	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538783	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538784	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538785	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538786	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538787	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538788	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538789	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538790	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538791	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538792	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538793	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538794	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538795	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538796	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538797	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538798	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538799	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538800	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538801	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538807	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538808	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538809	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538810	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538811	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538812	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538813	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538814	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538815	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538816	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538817	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538818	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538819	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA

Frontier Lithium Inc. Complete List of Land Tenure; PAK Lithium Project

Tenure ID	Due	Status	Area (ha)	NSR %	Work Required	Owner	%age	Division	Township - Area
538820	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538821	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538822	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538823	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538824	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538825	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538826	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538827	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538828	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538829	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538830	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538831	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538832	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538833	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538834	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538835	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538836	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538837	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538838	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538839	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538840	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538841	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538842	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538843	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538844	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538845	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538846	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538847	2024-01-09	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538848	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538849	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538850	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538851	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538852	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538853	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538854	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538855	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538856	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538862	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538863	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538864	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	MARGOT LAKE AREA
538865	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	MARGOT LAKE AREA
538866	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	MARGOT LAKE AREA
538867	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538868	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA, MARGOT LAKE AREA
538869	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	MARGOT LAKE AREA
538870	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538871	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	MARGOT LAKE AREA
538872	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA, MARGOT LAKE AREA
538873	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	MARGOT LAKE AREA
538874	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	MARGOT LAKE AREA
538875	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	MARGOT LAKE AREA
538876	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538877	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	MARGOT LAKE AREA

Frontier Lithium Inc. Complete List of Land Tenure; PAK Lithium Project

Tenure ID	Due	Status	Area (ha)	NSR %	Work Required	Owner	%age	Division	Township - Area
538878	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA, MARGOT LAKE AREA
538879	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	MARGOT LAKE AREA
538880	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	MARGOT LAKE AREA
538881	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	MARGOT LAKE AREA
538882	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538883	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	MARGOT LAKE AREA
538884	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA, MARGOT LAKE AREA
538885	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	MARGOT LAKE AREA
538886	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA
538887	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	MARGOT LAKE AREA
538888	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	MARGOT LAKE AREA
538889	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	PAKWAN LAKE AREA, MARGOT LAKE AREA
538890	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	MARGOT LAKE AREA
538891	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	MARGOT LAKE AREA
538892	2024-01-09	Active	19.7		$400	Frontier Lithium Inc	100	Red Lake	MARGOT LAKE AREA
768632	2024-12-13	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
768633	2024-12-13	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
768634	2024-12-13	Active	19.6		$400	Frontier Lithium Inc	100	Red Lake	PAKEAGAMA LAKE AREA
		subtotal	**24 215.2**		$494 400				
	Grand Total		**27 120.6**		**$508 400**				