NI 43-101 Technical Report
Feasibility Study – PAK Lithium Project, Mine and Mill in Northwestern Ontario, Canada

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TABLE OF CONTENTS

1 EXECUTIVE SUMMARY 1
1.1 Property Description and Location 1
1.2 Accessibility, Climate, Local Resources, Infrastructure, and Physiography 1
1.3 History 2
1.4 Geology and Exploration Work 2
1.5 Mineral Processing and Metallurgical Testing 3
1.6 Mineral Resource Estimate 3
1.7 Mineral Reserve Estimate 5
1.8 Mining Methods 7
1.9 Recovery Methods 7
1.10 Project Infrastructure 8
1.11 Market Studies and Contracts 9
1.12 Environmental Studies, Permitting and Social or Community Impact 10
1.13 Capital and Operating Costs 12
1.14 Economic Analysis 14
1.15 Adjacent Properties 18
1.16 Other Relevant Data and Information 18
1.17 Interpretations and Conclusions 20
1.18 Recommendations 22
2 INTRODUCTION 25
2.1 Frontier Lithium Inc. 25
2.2 Project Description 25
2.3 Purpose of the Report 26
2.4 List of Qualified Persons 27
2.5 Site Visits 28
2.6 Effective Date 28
2.7 Sources of Information 28
2.8 Units and Currency 29
2.9 Non-GAAP Financial Measures 29
3 RELIANCE ON OTHER EXPERTS 30
4 PROPERTY DESCRIPTION AND LOCATION 31
4.1 Location 31
4.2 Mineral Disposition 32
4.3 Tenure Rights 33
4.4 Royalties and Related Information 33
4.5 Environmental Liabilities 37
4.6 Permits 37

4.7 Other Significant Factors 37
5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, AND PHYSIOGRAPHY 38
5.1 Access 38
5.2 Climate 39
5.3 Local Resources 40
5.4 Infrastructure 40
5.5 Physiography 40
6 HISTORY 41
6.1 Pakeagama Lake Area 41
6.2 PAK Project Chronology 43
6.3 Historical Mineral Resource and Mineral Reserves 48
7 GEOLOGICAL SETTING AND MINERALIZATION 50
7.1 Regional Geology 50
7.2 Project Geology 52
7.3 Mineralization 61
8 DEPOSIT TYPES 65
9 EXPLORATION 68
9.1 Early Exploration Work 68
9.2 PAK Exploration 69
9.3 Spark Exploration 74
9.4 Bolt Exploration 77
9.5 Pennock Exploration 79
9.6 Ember Exploration 80
9.7 Regional Mapping and Prospecting 81
9.8 Geophysics 82
10 DRILLING 87
10.1 Summary 87
10.2 Property Drilling Summary 87
10.3 Geological Functions 99
10.4 QP's Opinion 108
11 SAMPLE PREPARATION, ANALYSIS AND SECURITY 109
11.1 Sample Preparation 109
11.2 Summary of Analytical Procedures 111
11.3 Quality Assurance / Quality Control 113
11.4 QP's Opinion 128
12 DATA VERIFICATION 129
12.1 BBA Data Verification – 2013 to 2023 129

12.2 DRA Data Verification – 2023 to Present 132
12.3 QP's Opinion 138
13 MINERAL PROCESSING AND METALLURGICAL TESTING 140
13.1 Introduction 140
13.2 Historical Test Work (XPS, 2016-2021) 141
13.3 Current Test Work (SGS Lakefield, 2021-2022) 155
13.4 Solid-Liquid Separation (2022 Metso, 2025 RMS) 191
13.5 Metallurgical Projection 194
13.6 QP Comments 196
14 MINERAL RESOURCE ESTIMATE 197
14.1 Mineral Resource Estimate Definition and Procedure 197
14.2 General Description 199
14.3 PAK Deposit 199
14.4 Spark Deposit 227
14.5 Bolt Deposit 249
14.6 Mineral Resource Statement 267
15 MINERAL RESERVE ESTIMATE 269
15.1 Introduction 269
15.2 Mineral Reserve Estimate 269
15.3 Open Pit Mine Design 271
15.4 Pit Limit Analysis 271
15.5 Pit Limit Analysis 277
15.6 Optimal Pit Shell 278
15.7 PAK Pit Limit Results 279
15.8 Spark Pit Limit Results 281
15.9 Mining Dilution and Ore Loss 283
15.10 Pit Design 284
16 MINING METHODS 293
16.1 Introduction 293
16.2 Pit Design 293
16.3 Mine Waste Rock Storage Facilities 307
16.4 Life of Mine Production Schedule 311
16.5 Mining Sequence 316
16.6 Open Pit Equipment Fleet 333
16.7 Mine Personnel 344
16.8 Pit Dewatering 347
17 RECOVERY METHODS 349
17.1 Process Design Criteria 350
17.2 Production Summary 357

17.3 Process Description 360
18 PROJECT INFRASTRUCTURE 371
18.1 Overview 371
18.2 Site Development and Access Roads 371
18.3 Site Buildings and Facilities 373
18.4 Site Facilities 384
18.5 Electrical Site Reticulation 388
18.6 Control System 392
18.7 Tailings Management Facility 394
18.8 Water Management 408
18.9 Water Treatment Facilities 417
19 MARKET STUDIES AND CONTRACTS 420
19.1 Lithium Market Overview 420
19.2 Lithium Demand 421
19.3 Lithium Supply 424
19.4 Market Balance 428
19.5 Spodumene Price Forecast 429
19.6 Contracts and Off-Takes 432
20 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT 433
20.1 Environmental Studies and Issues 433
20.2 Environmental Permitting 439
20.3 Social and Community Aspects 443
20.4 Closure Plan 444
21 CAPITAL AND OPERATING COSTS 446
21.1 Capital Cost Estimate 446
21.2 Operating Costs 457
22 ECONOMIC ANALYSIS 462
22.1 Overview 462
22.2 Forward Looking Information 462
22.3 Assumptions 463
22.4 Economic Analysis Parameters 464
22.5 Exchange Rate Selection 466
22.6 Net Revenue 467
22.7 Closure Bonding Costs 467
22.8 Taxation 468
22.9 Financial Analysis Results 470
22.10 Sensitivity Analysis 474
23 ADJACENT PROPERTIES 477

24 OTHER RELEVANT DATA AND INFORMATION 479
24.1 Project Execution Plan 479
24.2 Project Execution Schedule 497
24.3 Operational Readiness Plan 504
25 INTERPRETATION AND CONCLUSIONS 507
25.1 Interpretations 507
25.2 Opportunities 516
25.3 Risks 518
26 RECOMMENDATIONS 521
26.1 Geology 521
26.2 Metallurgy and Processing 523
26.3 Mining Methods 523
26.4 Recovery Methods 524
26.5 Project Infrastructure 524
26.6 Environmental, Permitting and Community Relations 525
26.7 Economic Analysis 526
27 REFERENCES 527
28 ABBREVATIONS 536
29 QP CERTIFICATES 546

LIST OF TABLES

Table 1.1 – Mineral Resource Estimate Statement 4
Table 1.2 – Mineral Reserve Estimate 6
Table 1.3 – Capital Cost Summary (CA$ '000) 13
Table 1.4 – Total Estimated Operating Costs Over Life of Project (CA$) 14
Table 1.5 – Economic Analysis Parameters 15
Table 1.6 – Summary of Project Financial Metrics 17
Table 1.7 – Key Project Milestones 19
Table 2.1 – Report Responsibility Matrix 27
Table 2.2 – Site Visit 28
Table 4.1 – Summary of Land Tenure, PAK Project 34
Table 4.2 – Summary of Royalty Agreements, PAK Project 35
Table 4.3 – Summary of Active Exploration Permits, PAK Project 37
Table 6.1 – Historical Property Exploration Summary 43
Table 6.2 – Historic Mineral Resources and Historic Mineral Reserves 49
Table 9.1 – Summary of Preparation and Analytical Facilities Used for PAK Channel Sampling Programs by Year 71
Table 9.2 – Summary of PAK Channel Cut Locations and Samples by Year 71
Table 9.3 – Summary of PAK Channel Sample Results 72
Table 9.4 – Summary of Preparation and Analytical Facilities Used for Spark Channel Sampling Programs by Year 75
Table 9.5 – Summary of Spark Channel Cut Locations and Samples by Year 75
Table 9.6 – Summary of Spark Channel Sample Results 76
Table 9.7 – Summary of Preparation and Analytical Facilities Used for Bolt Channel Sampling Programs by Year 77
Table 9.8 – Summary of Bolt Channel Cut Locations and Samples by Year 77
Table 9.9 – Summary of Bolt Channel Sample Results 78
Table 9.10 – Summary of Preparation and Analytical Facilities Used for Pennock Channel Sampling Programs by Year 79
Table 9.11 – Summary of Pennock Channel Cut Locations and Samples by Year 79
Table 9.12 – Summary of Pennock Channel Sample Results 80
Table 9.13 – Summary of Preparation and Analytical Facilities Used for Ember Channel Sampling Program 80
Table 9.14 – Summary of Ember Channel Cut Locations and Samples - 2023 81
Table 9.15 – Summary of Ember Channel Sample Results 81
Table 10.1 – PAK Project Drilling Summary by Year 87
Table 10.2 – PAK Project Drilling Summary by Deposit / Target Area 88
Table 10.3 – Summary of Drill Hole Collar Information, PAK Deposit 89
Table 10.4 – Summary of Drill Hole Collar Information, Spark Deposit 93
Table 10.5 – Summary of Drill Hole Collar Information, Bolt Deposit 97
Table 10.6 – Summary of Drill Hole Collar Information, Ember Target 97
Table 10.7 – Summary of Drill Hole Collar Information, Condemnation Drilling 98
Table 10.8 – Downhole Survey Tools Summarized by Year, PAK Project 100
Table 11.1 – 2013 Sample Preparation Procedure – Actlabs and ACME 109
Table 11.2 – 2014 Sample Preparation Procedure – ACME 110
Table 11.3 – 2015 Sample Preparation Procedure – Actlabs 110
Table 11.4 – Summer 2015 to 2024 Sample Preparation Procedure – AGAT 111
Table 11.5 – Recommended Values for Initial LRC Standards for Li, Rb and Cs 111
Table 11.6 – Recommended Values for Additional Certified Reference Materials 112

Table 11.7 – Summary of Analytical Laboratories and Techniques by Year 112
Table 11.8 – Summary of Selected Analytical Detection Limits by Program 114
Table 11.9 – Composition of Standards 119
Table 12.1 – 2013 Drill Collar Validation 129
Table 12.2 – 2015 Drill Collar Validation 130
Table 12.3 – 2021 Drill Collar Validation 130
Table 12.4 – 2022 Drill Collar Validation 131
Table 12.5 – Conversion Factors 132
Table 12.6 – Comparison of Independent Collar Pickups vs. Database 134
Table 12.7 – Independent Check Assay Sampling Program 135
Table 12.8 – Summary of Comparative Statistics for Independent Check Assay Program 138
Table 13.1 – Bulk Samples for Metallurgical Testing, PAK Deposit 142
Table 13.2 – FRON-19 Composition 142
Table 13.3 – FRON-19 Head Grade 143
Table 13.4 – UIZ Modal Mineralogy 144
Table 13.5 – UIZ Spodumene Liberation 145
Table 13.6 – CIZ Modal Mineralogy 145
Table 13.7 – CIZ Spodumene Liberation 146
Table 13.8 – LIZ Modal Mineralogy 146
Table 13.9 – LIZ Spodumene Liberation 147
Table 13.10 – Spodumene Deportment in PAK Mineralized Zones 147
Table 13.11 – Comminution Test Results Summary 148
Table 13.12 – XPS Test Work Sample Map 149
Table 13.13 – Overall Metallurgical Results, PAK Deposit 153
Table 13.14 – Bulk Samples for Metallurgical Testing, Spark Deposit 157
Table 13.15 – Modal Mineralogy, Spark Variability Samples 157
Table 13.16 – Spark Spodumene Liberation 158
Table 13.17 – Spark Spodumene Association 159
Table 13.18 – Additional Comminution Test Results Summary 159
Table 13.19 – HLS Results at 2.70 and 2.65 SG – PAK and Spark 164
Table 13.20 – Spark DMS Master Composite Recipe 165
Table 13.21 – DMS Results for PAK Bulk Sample, SG 2.70 166
Table 13.22 – DMS Results for Spark Master Composite, SG 2.70 168
Table 13.23 – PAK Flotation Test Summary 175
Table 13.24 – PAK Locked Cycle Test Summary 176
Table 13.25 – Spark Flotation Test Summary 179
Table 13.26 – Spark Combined DMS and Flotation Performance 180
Table 13.27 – Spark Bulk Sample LC Test Results 181
Table 13.28 – Spark Master Composite LC Test Results 183
Table 13.29 – Pilot Plant Feed Sample Assays 184
Table 13.30 – Pilot Plant Concentrate Sample Assays 187
Table 13.31 – Wilfley Table Test Results 188
Table 13.32 – Spark Bulk Sample Grade Distribution 190
Table 13.33 – XRT Sorting Results, Coarse (+35 mm) Fraction 190
Table 13.34 – XRT Sorting Results, Fine (+12 mm -35 mm) Fraction 191
Table 13.35 – Overall TOMRA Sorting Results – Including Fines 191
Table 13.36 – Settling Tests Results Summary 192
Table 13.37 – Filtration Test Results Summary 193

Table 13.38 – Distribution of Lithium Losses (PAK) 195
Table 13.39 – Distribution of Lithium Losses (Spark) 195
Table 14.1 – Summary of Modelled Volumes for the PAK Deposit 201
Table 14.2 – Descriptive Statistics of Assays within the LIZ Unit 202
Table 14.3 – Descriptive Statistics of Assays within the CIZ Unit 202
Table 14.4 – Comparative Statistics of Assays and Composites for the LIZ Unit, PAK Deposit 206
Table 14.5 – Comparative Statistics of Assays and Composites for the CIZ Unit, PAK Deposit 207
Table 14.6 – PAK Block Model Setup Parameters 210
Table 14.7 – Definition of the Resource Block Model Items 210
Table 14.8 – Summary of the results on Density Measurements 212
Table 14.9 – Resource Interpolation Parameters for LIZ Zone, PAK Deposit 213
Table 14.10 – Resource Interpolation Parameters for CIZ Zone, PAK Deposit 214
Table 14.11 – Comparative Statistics between Assays, Composites and Blocks for the PAK Deposit 221
Table 14.12 – Mineral Resources Open Pit Shell Parameters, PAK Deposit 222
Table 14.13 – Underground Mining Stope Optimization Parameters, PAK Deposit 223
Table 14.14 – Mineral Resource Estimates for PAK Deposit by Resource Classification 226
Table 14.15 – Specific Gravity Values by Rock Type and Domain at the Spark Deposit 228
Table 14.16 – Summary of Basic Descriptive Statistics for Raw Data Samples Within the Main Zone at the Spark Deposit 231
Table 14.17 – Summary of Basic Descriptive Statistics for Raw Data Samples Within the Southwest Zone at the Spark Deposit 232
Table 14.18 – Summary of Selected Capping Grades by Domain at the Spark Deposit 233
Table 14.19 – Summary of Basic Descriptive Statistics for 2-m Composited Data Within the Main Zone at the Spark Deposit 236
Table 14.20 – Summary of Basic Descriptive Statistics for 2-m Composited Data Within the Southwest Zone at the Spark Deposit 237
Table 14.21 – Variogram Model Parameters for the Spark Deposit 239
Table 14.22 – Block Model Definition Parameters for the Spark Deposit 240
Table 14.23 – Inverse Distance Weighted (IDW^2) Interpolation Parameters Summary for the Spark Deposit Block Model 241
Table 14.24 – Mineral Resource Estimate for Spark Deposit 243
Table 14.25 – Comparison of IDW^2 and OK Interpolation Methods, Spark Block Model 248
Table 14.26 – Specific Gravity Values by Rock Type and Domain at the Bolt Deposit 250
Table 14.27 – Summary of Basic Descriptive Statistics for Raw Data Samples Within the Bolt Zone 253
Table 14.28 – Summary of Selected Capping Grades by Domain at the Bolt Deposit 254
Table 14.29 – Summary of Basic Descriptive Statistics for 2-m Composited Data Within the Bolt Zone 256
Table 14.30 – Variogram Model Parameters for the Bolt Deposit 257
Table 14.31 – Block Model Definition Parameters for the Bolt Deposit 259
Table 14.32 – Inverse Distance Weighted (IDW^2) Interpolation Parameters Summary for the Bolt Deposit Block Model 259
Table 14.33 – Mineral Resource Estimate for Bolt Deposit 261
Table 14.34 – Comparison of IDW^2 and OK Interpolation Methods, Bolt Block Model 266
Table 14.35 – Mineral Resource Estimate Statement 267
Table 15.1 – Mineral Reserve Estimate 270
Table 15.2 – FS Open Pit Optimization Parameters 274
Table 15.3 – PAK Pit Limit – Nested Pit Shell Results 280
Table 15.4 – Spark Pit Limit – Nested Pit Shell Results 282
Table 15.5 – Haul Roads Parameters 285
Table 15.6 – PAK Open Pit Reserve Estimate 290

Table 15.7 – Spark Open Pit Reserve Estimate....290
Table 16.1 – PAK Bench Design Parameters....294
Table 16.2 – Spark Bench Design Parameters....296
Table 16.3 – General Ultimate Pit Statistics – PAK....297
Table 16.4 – Pit Inventory – PAK....298
Table 16.5 – Pit Phase Inventory - PAK....298
Table 16.6 – General Ultimate Pit Statistics - Spark....302
Table 16.7 – Pit Inventory - Spark....302
Table 16.8 – Pit Phase Inventory - Spark....303
Table 16.9 – Mine Waste Rock Storage Facilities Design Criteria....307
Table 16.10 – Overburden Storage Facilities Design Criteria....307
Table 16.11 – PAK Mine Waste Rock Stockpile Design Capacity....308
Table 16.12 – PAK Overburden Stockpile Design Capacity....309
Table 16.13 – Spark Mine Waste Rock Stockpile Design Capacity....310
Table 16.14 – Spark Overburden Stockpile Design Capacity....310
Table 16.15 – LOM Production Schedule (Years 1 to 16)....313
Table 16.16 – LOM Production Schedule (Years 17 to 31)....314
Table 16.17 – ROM Stockpiling Requirements....316
Table 16.18 – Time Usage Definition Model....334
Table 16.19 – Annual Hours Estimate for Mining Equipment....335
Table 16.20 – Standby Estimate for Mining Activities....336
Table 16.21 – Loading Productivity Calculations....339
Table 16.22 – Blasthole Drill Pattern and Drill Capacity Details....342
Table 16.23 – LOM Drilling Metres for PAK and Spark Pits....343
Table 16.24 – Estimated List of Ancillary Mine Equipment....343
Table 16.25 – Pit Equipment List....345
Table 16.26 – Estimated List of Open Pit Personnel....346
Table 17.1 – Key Process Design Criteria....351
Table 17.2 – Concentrate Production Schedule....359
Table 17.3 – Reagents and Consumables....366
Table 17.4 – Sampling Requirements Summary....368
Table 18.1 – Fuel Storage Summary....387
Table 18.2 – Seasonal Electrical Power Load Requirements....388
Table 18.3 – E-Room Characteristics....390
Table 18.4 – Power Utilization Voltages....391
Table 18.5 – Electrical Load Ratings....392
Table 18.6 – TMF Development....399
Table 18.7 – Reclaim Pond Crest Determination....400
Table 18.8 – Factors of Safety of the Slope Stability Analysis....407
Table 18.9 – Storage Capacity of the Ponds....417
Table 19.1 – Sources of Spodumene Price Forecasts Used....420
Table 19.2 – Analyst SC6 Price Forecasts and Selected Average Long-Term SC6 (US$ per tonne)....431
Table 20.1 – Potential Permits for Mine, Concentrator Plant and Ancillary Infrastructure....440
Table 21.1 – Other Capex Responsibilities....446
Table 21.2 – Capex Summary – (CA$ ‘000)....446
Table 21.3 – Sustaining Capital Estimate Summary....447
Table 21.4 – Currency Exchange Rates....448
Table 21.5 – Growth and Waste Allowances....453

Table 21.6 – Total Operating Costs Over Life of Project....458
Table 21.7 – Breakdown of Average LOM Mining Operating Costs*....459
Table 21.8 – Processing Operating Costs - LOM Summary....459
Table 21.9 – Concentrator Plant and TMF Staffing Annual Costs....460
Table 22.1 – Economic Analysis Parameters....464
Table 22.2 – Summary of Project Financial Metrics....470
Table 22.3 – Financial Model Summary....472
Table 22.4 – Sensitivity of Project After-Tax Metrics to Spodumene Concentrate Price, Capex, Opex, and Exchange Rate....474
Table 22.5 – Sensitivity of Pre-Tax and After Tax NPV to Discount Rate....476
Table 24.1 – Key Project Milestones....498
Table 26.1 – Proposed Budget Summary for Infill and Extension Drilling, PAK Project....521

LIST OF FIGURES

Figure 1.1 – Analyst SC6 Price Forecasts 10
Figure 1.2 – Sensitivity of After-Tax NPV to Spodumene Concentrate Price, Capex, Opex, and Exchange Rate 17
Figure 1.3 – Sensitivity of After-Tax IRR to Spodumene Concentrate Price, Capex, Opex, and Exchange Rate 18
Figure 1.4 – Summary-Level Project Schedule 19
Figure 2.1 – Summary Schedule 26
Figure 4.1 – Location Map 31
Figure 4.2 – Property Location Map Showing Land Tenure and Royalty Distribution 36
Figure 5.1 – Property Access 39
Figure 7.1 – Archean Subprovinces of Northwestern Ontario 50
Figure 7.2 – Regional Geology Map 51
Figure 7.3 – Property Geology 53
Figure 7.4 – Detailed Geology of the PAK Deposit 56
Figure 7.5 – Detailed Geology of the Spark Deposit 57
Figure 7.6 – Compilation of the Bolt Deposit 58
Figure 7.7 – Compilation of the Pennock Pegmatite Area 59
Figure 7.8 – Compilation of the Ember Pegmatite Area 60
Figure 7.9 – Outcrop and Photomicrograph of the Upper Intermediate Zone 61
Figure 7.10 – Outcrop and Photomicrograph of the Central Intermediate Zone 62
Figure 7.11 – Outcrop and Photomicrograph of the Lower Intermediate Zone 62
Figure 8.1 – Division of Rare Metal Pegmatites 65
Figure 8.2 – Deposit Model 66
Figure 9.1 – Channel Sample Locations at the PAK Deposit 69
Figure 9.2 – Channel Sample Locations at the Spark Deposit 74
Figure 9.3 – Compilation Map Showing Regional Mapping Coverage with Traverses and Stations 82
Figure 9.4 – PULSAR Survey Coverage showing PT 3D Inversion (270-300 m depth) and E-W Vertical Slice over Spark 83
Figure 9.5 – Total Magnetic Intensity Map of UAV Survey Completed in 2022 84
Figure 9.6 – Residual Magnetic Intensity Map of 2023 UAV Survey, Pennock Area 85
Figure 9.7 – Residual Magnetic Intensity Map of 2023 UAV Survey, PAK-Bolt-Spark Mine Lease Area 86
Figure 10.1 – Examples of Drill Site Setups, PAK Project 99
Figure 10.2 – Examples of Drill Casings and Protective Tripods, PAK Project 101
Figure 10.3 – Example of Geotechnical and/or Structural Measurement Collection 102
Figure 10.4 – Examples of Dry and Wet Core Photographs, PAK Project 104
Figure 10.5 – Specific Gravity Determination Equipment Setup, PAK Project 105
Figure 10.6 – On-Site Core Splitting Facility, PAK Project 106
Figure 10.7 – Off-Site Core Storage Library, Val Caron, ON 107
Figure 10.8 – On-Site Core Storage Farm, PAK Project 107
Figure 11.1 – PAK Blank Control Samples 116
Figure 11.2 – Spark Blank Control Samples 117
Figure 11.3 – Original versus Duplicate Control Samples 118
Figure 11.4 – LRC-1 Standard Chart 119
Figure 11.5 – LRC-2 Standard Chart 120
Figure 11.6 – LRC-3 Standard Chart 121
Figure 11.7 – Blank Control Plot for All PAK Samples (Li ppm) at AGAT in 2023 122
Figure 11.8 – Blank Control Plot for All Spark Samples (Li ppm) at AGAT in 2023 123
Figure 11.9 – Blank Control Plot for All Bolt Samples (Li ppm) at AGAT in 2023 123

Figure 11.10 – Representative Standard Control Plot for All PAK Samples (OREAS-751) Analyzed at AGAT in 2023 125
Figure 11.11 – Representative Standard Control Plot for All Spark Samples (LRC-2) Analyzed at AGAT in 2023125
Figure 11.12 – Representative Standard Control Plot for All Bolt Samples (OREAS-753) Analyzed at AGAT in 2023 126
Figure 11.13 – Duplicate Control Plot for All PAK Samples (Li%) at AGAT in 2023.....127
Figure 11.14 – Duplicate Control Plot for All Spark Samples (Li%) at AGAT in 2023 127
Figure 11.15 – Duplicate Control Plot for All Bolt Samples (Li%) at AGAT in 2023.....128
Figure 12.1 – Duplicate Analysis Plot from Independent Check Assay Program 137
Figure 13.1 – PAK Deposit, Pegmatite Zones in Plan View 141
Figure 13.2 – FRON-19 PAK Flotation Flowsheet.....151
Figure 13.3 – Bulk Channel Sample Locations 156
Figure 13.4 – Washability Curve – PAK Bulk Sample 161
Figure 13.5 – Washability Curve – Spark A-1 Sample 162
Figure 13.6 – Washability Curve – Spark A-2 Sample 162
Figure 13.7 – Washability Curve – Spark L-1 Sample.....163
Figure 13.8 – Washability Curve – Spark L-2 Sample.....163
Figure 13.9 – Washability Curve – Spark L-3 Sample.....164
Figure 13.10 – Modelled Washability Curve – Spark Master Composite 165
Figure 13.11 – DMS vs HLS Performance – PAK Bulk Sample.....167
Figure 13.12 – DMS vs HLS Performance – Spark Master Composite.....169
Figure 13.13 – WHIMS Performance on Conc Production – Spark Sample 170
Figure 13.14 – Centrifugal Gravity Performance on Conc Production Spark Sample 171
Figure 13.15 – Conceptual SC6.0 – Chemical Grade Flowsheet.....172
Figure 13.16 – Conceptual SC7.2 – Technical Grade Flowsheet.....173
Figure 13.17 – Locked Cycle Test Flowsheet 1 of 2 177
Figure 13.18 – Locked Cycle Test Flowsheet 2 of 2 178
Figure 13.19 – Spark Sample Flotation Test Performance 179
Figure 13.20 – Spark Bulk Sample Performance 182
Figure 13.21 – Pilot Plant Flowsheet (1 of 2) 185
Figure 13.22 – Pilot Plant Flowsheet (2 of 2) 186
Figure 13.23 – Cake Moisture vs Filtration Rate 194
Figure 14.1 – Plan View of the LIZ and CIZ Zones, PAK Deposit 201
Figure 14.2 – Li_2O% Histogram for the LIZ Zone, PAK Deposit.....203
Figure 14.3 – Li_2O% Histogram for the CIZ Zone, PAK Deposit 204
Figure 14.4 – Histogram of Assay Sampling Length, PAK Deposit.....205
Figure 14.5 – Histogram of Assays and Composites for Li_2O%, PAK Deposit.....206
Figure 14.6 – LIZ Variogram on the Major Axis for Li_2O% 208
Figure 14.7 – LIZ Variogram on the Semi-Major Axis for Li_2O%.....208
Figure 14.8 – LIZ Variogram on the Minor Axis for Li_2O% 209
Figure 14.9 – Downhole Variogram for Li_2O% 209
Figure 14.10 – Plan View of Li_2O% in LIZ with Superimposed Composites and Block Grades 215
Figure 14.11 – East-West View of Li_2O% in LIZ with Superimposed Composites and Block Grades 215
Figure 14.12 – North-South View of Li_2O% in LIZ with Superimposed Composites and Block Grades 216
Figure 14.13 – Typical Section View of Li_2O% in LIZ with Superimposed Composites and Block Grades 216
Figure 14.14 – Plan View of Li_2O% in CIZ with Superimposed Composites and Block Grades.....217
Figure 14.15 – East-West View of Li_2O% in CIZ with Superimposed Composites and Block Grades 217
Figure 14.16 – North-South View of Li_2O% in CIZ with Superimposed Composites and Block Grades.....218
Figure 14.17 – Typical Section View of Li_2O% in CIZ with Superimposed Composites and Block Grades.....218

Figure 14.18 – Li_2O% Swath Plot by Level for Composites, OK and IDW^2 219
Figure 14.19 – Li_2O% Swath Plot by Row for Composites, OK and IDW^2 220
Figure 14.20 – Li_2O% Swath Plot by Column for Composites, OK and IDW^2 220
Figure 14.21 – Plan View of the Classified Resources for the LIZ Zone, PAK Deposit 224
Figure 14.22 – North-South View of the Classified Resources for the LIZ, PAK Deposit 225
Figure 14.23 – East-West View of the Classified Resources for the LIZ, PAK Deposit 225
Figure 14.24 – 3D Plan View (Looking Down) of Spark Deposit Mineralized Domains 229
Figure 14.25 – 3D Orthographic View of Spark Deposit Mineralized Domains 229
Figure 14.26 – Representative Histograms and Log Probability Plots for the Main Zone at the Spark Deposit 234
Figure 14.27 – Representative Histograms and Log Probability Plots for the SW Zone at the Spark Deposit 235
Figure 14.28 – Back-transformed Normal Score Variograms for Li_2O%, Spark Deposit 238
Figure 14.29 – 3D Orthographic View of the Final Block Classification for the Spark Deposit 242
Figure 14.30 – Plan view of Li_2O% at Spark with Assay and Block Grades Superimposed 244
Figure 14.31 – Comparison of Assay and Block Grades for the Spark Deposit on Representative Vertical Section (472,700E) 245
Figure 14.32 – Spark Deposit Swath Plot for Li_2O (%) – By Level – 2-m Composites vs. Block Grades by IDW^2 and OK Interpolation Methods 246
Figure 14.33 – Spark Deposit Swath Plot for Li_2O (%) – By Row – 2-m Composites vs. Block Grades by IDW^2 and OK Interpolation Methods 247
Figure 14.34 – Spark Deposit Swath Plot for Li_2O (%) – By Column – 2-m Composites vs. Block Grades by IDW^2 and OK Interpolation Methods 248
Figure 14.35 – 3D Plan View (Looking Down) of Bolt Deposit Mineralized Domain 251
Figure 14.36 – 3D Orthographic View of Bolt Deposit Mineralized Domain 252
Figure 14.37 – Representative Histograms and Log Probability Plots for the Bolt Deposit 255
Figure 14.38 – Back-transformed Downhole and Minor Plane Normal Score Variograms for Li_2O%, Bolt Deposit 258
Figure 14.39 – 3D Orthographic View of the Final Block Classification for the Bolt Deposit 260
Figure 14.40 – Plan View of Li_2O% at Bolt with Assay and Block Grades Superimposed 262
Figure 14.41 – Comparison of Assay and Block Grades for the Bolt Deposit on Representative Vertical Section (Looking Northwest) 263
Figure 14.42 – Bolt Deposit Swath Plot for Li_2O (%) – By Level – 2-m Composites vs. Block Grades by IDW^2 and OK Interpolation Methods 264
Figure 14.43 – Bolt Deposit Swath Plot for Li_2O (%) – By Row – 2-m Composites vs. Block Grades by IDW^2 and OK Interpolation Methods 265
Figure 14.44 – Bolt Deposit Swath Plot for Li_2O (%) – By Column – 2-m Composites vs. Block Grades by IDW^2 and OK Interpolation Methods 266
Figure 15.1 – General Process Path Description – PAK 272
Figure 15.2 – Grade Tonnage Curves – PAK 276
Figure 15.3 – Grade Tonnage Curves – Spark 277
Figure 15.4 – Nested (Incremental) Pit Shells 278
Figure 15.5 – Open Pit – Best- and Worst-Case Extraction Scenario 279
Figure 15.6 – PAK Pit-by-Pit Graph 281
Figure 15.7 – Spark Pit-by-Pit Graph 283
Figure 15.8 – Ramp Design, Double Lane 286
Figure 15.9 – Ramp Design, Single Lane 287
Figure 15.10 – Plan View – PAK Ultimate Pit Design 288
Figure 15.11 – Section View – PAK Ultimate Pit Design 289
Figure 15.12 – Plan View – Spark Ultimate Pit Design 291
Figure 15.13 – Section View – Spark Ultimate Pit Design 292
Figure 16.1 – Typical Pit Slope Design Terminology 294
Figure 16.2 – PAK Geotechnical Sectors 295

Figure 16.3 – Spark Geotechnical Sectors....296
Figure 16.4 – PAK Material Mined by Phases....299
Figure 16.5 – Phase Design – PAK – Plan View....300
Figure 16.6 – Phase Design – PAK – Long Section View....301
Figure 16.7 – Spark Material Mined by Phases....304
Figure 16.8 – Phase Design – Spark – Plan View....305
Figure 16.9 – Phase Design – Spark – Section View (472700E, Looking West)....306
Figure 16.10 – Plan View of Mine Rock and Overburden Stockpiles for PAK and Spark....311
Figure 16.11 – LOM Schedule – Tonnes and Grade to Concentrator Plant....315
Figure 16.12 – LOM Schedule – Total Material Mined by Pit and Material Type....315
Figure 16.13 – LOM Schedule – Total Material Mined by Pit and Phases....316
Figure 16.14 – End of Year 1 Progression Plan - Spark....317
Figure 16.15 – End of Year 2 Progression Plan - Spark....318
Figure 16.16 – End of Year 3 Progression Plan - Spark....319
Figure 16.17 – End of Year 4 Progression Plan - Spark....320
Figure 16.18 – End of Year 5 Progression Plan - Spark....321
Figure 16.19 – End of Year 6 Progression Plan - Spark....322
Figure 16.20 – End of Year 7 Progression Plan - Spark....323
Figure 16.21 – End of Year 12 Progression Plan - Spark....324
Figure 16.22 – End of Year 17 Progression Plan - Spark....325
Figure 16.23 – End of Year 17 Progression Plan - PAK....326
Figure 16.24 – End of Year 22 Progression Plan - Spark....327
Figure 16.25 – End of Year 22 Progression Plan - PAK....328
Figure 16.26 – End of Year 27 Progression Plan - Spark....329
Figure 16.27 – End of Year 27 Progression Plan - PAK....330
Figure 16.28 – End of Year 30 Progression Plan - Spark....331
Figure 16.29 – End of Year 31 Progression Plan - PAK....332
Figure 16.30 – Time Usage Model for Determining Fleet Size....334
Figure 16.31 – Truck Effective Working Hours....337
Figure 16.32 – Loading and Hauling Cycle of Operation....340
Figure 16.33 – Haul Cycle Times for Each Material Type....341
Figure 17.1 – Concentrator Ramp Up....358
Figure 17.2 – Simplified Process Flowsheet....361
Figure 18.1 – PAK Lithium Project Overall Site Plan....372
Figure 18.2 – Concentrator Plant Complex Plan....374
Figure 18.3 – Administration Building Plan....376
Figure 18.4 – Layout of Mine Dry and Canteen....377
Figure 18.5 – Layout of Mine Offices....378
Figure 18.6 – Layout of Fixed Plant Maintenance and Electrical Shop....379
Figure 18.7 – Layout of Process and Control Room (1st Floor)....380
Figure 18.8 – Layout of Process and Control Room (2nd Floor)....381
Figure 18.9 – Layout of Assay Laboratory....382
Figure 18.10 – Layout of Mobile Maintenance / Truck Shop and Wash Bay....383
Figure 18.11 – Indicative Camp Layout....386
Figure 18.12 – Process Plant E-Room #1....390
Figure 18.13 – Process Plant E-Room #2....390
Figure 18.14 – Crushing Plant E-Room....391
Figure 18.15 – Typical Dam Cross-Sections....401

Figure 18.16 – General Layout of Tailings Storage Area 402
Figure 18.17 – Deposition Plan of Tailings Storage Area....406
Figure 18.18 – Water Balance Block Flow Diagram....415
Figure 18.19 – Typical Layout of the Two Container Integrated MBR Process and Solids Management Modules 418
Figure 18.20 – Mine Water Treatment Plant Process Flow....419
Figure 19.1 – Schematic of the Lithium Value Chain 421
Figure 19.2 – LIB Proportion of Lithium Demand and Annual Demand Growth Rate (2015-2023) 422
Figure 19.3 – Lithium Demand (2015-2023) 422
Figure 19.4 – Lithium Demand Forecast (2023-2045)....423
Figure 19.5 – Sources of Lithium Supply as of 2023....424
Figure 19.6 – Lithium Production from Various Sources (2015-2023)....425
Figure 19.7 – Global Share of Lithium Refining Capacity (2015-2023) 426
Figure 19.8 – Lithium Supply Forecast (2023-2045) 427
Figure 19.9 – Lithium Refining Capacity Forecast (2023-2045) 427
Figure 19.10 – Lithium Refining Capacity Forecast Share by Country (2023-2045) 428
Figure 19.11 – Comparison of Lithium Market Balance Forecasts....429
Figure 19.12 – Historic Spodumene Price Trend with Lithium Market Balance (2015-2024) 430
Figure 19.13 – Analyst SC6 Price Forecasts (2025-2034 and Long-Term)....431
Figure 19.14 – Overview of the Frontier-Mitsubishi JV Agreement 432
Figure 21.1 – Processing Operating Costs – Pictorial Cost Breakdown....460
Figure 22.1 – Revenue Schedule over the Life of the Project 467
Figure 22.2 – After Tax Cash Flow of the Project....471
Figure 22.3 – Sensitivity of After-Tax NPV to Spodumene Concentrate Price, Capex, Opex, and Exchange Rate 475
Figure 22.4 – Sensitivity of After-Tax IRR to Spodumene Concentrate Price, Capex, Opex, and Exchange Rate 475
Figure 22.5 – Variations in Pre-Tax and After Tax NPV with Discount Rate 476
Figure 23.1 – Land Tenure in the Area as of March 26, 2025....478
Figure 24.1 – Summary-Level Project Schedule....498
Figure 24.2 – Level 2 Schedule Structure 500
Figure 24.3 – Personnel Ramp-Up Profile 506

1 EXECUTIVE SUMMARY

1.1 Property Description and Location

The PAK Project is located approximately 175 km north of the municipality of Red Lake, Ontario (ON) within the Red Lake Mining Division, and is centred around 52°36'N latitude and 93°23'W longitude near Pakeagama Lake.

The purpose of this Report is to describe recent developmental work performed for Frontier Lithium Inc.'s (Frontier's) PAK Lithium Project (the "Project") for the recently completed Feasibility Study (FS), in accordance with the guidelines of National Instrument 43-101 (NI 43-101) and Form 43-101 F1.

The Property comprises a total of three (3) mining leases and 1,300 contiguous mining claims totalling 27,886 ha. All land tenure has been recently transferred from Frontier Lithium Inc. to Frontier Lithium Resources Inc.

No industrial activities such as mining or mineral processing have been conducted on the Property, with disturbances limited to bulk sample pits, drill trails, and drill pad set-ups. There were no environmental liabilities observed presently on the Property by the personnel who visited the site.

All requisite permits have been obtained to conduct exploration on the Property.

Exploration Agreements are in place with four (4) 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.

1.2 Accessibility, Climate, Local Resources, Infrastructure, and Physiography

Access to the Property is available year-round by air and seasonally by a combination of all-season roads connecting to a winter road.

Required skilled trades and labour may be found in the vicinity of the Project and the region (e.g., Thunder Bay, Red Lake).

There is adequate water supply in the area to meet the needs of the Project and electric power will be supplied by the Watanynikaneyap powerline.

Surface rights sufficient for mining operations have been obtained.

The climate is typical northern boreal with warm summers and cold winters. The dominant vegetation around the Project is coniferous forest.

1.3 History

Besides mapping programs by the Geological Survey of Canada (GSC) and the Ontario Geological Survey (OGS) from as early as 1886 to 1999, most of the exploration work on the Property has been completed by Frontier including geological mapping, trenching, channel sampling and diamond drilling, as well as various geochemical and geophysical surveys.

1.4 Geology and Exploration Work

1.4.1 Geological Setting and Mineralization

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

The three (3) 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 pluton.

The five (5) mineralized zones identified on the Property to date are the PAK, Spark, Bolt, Pennock and Ember pegmatites. Mineral assemblages in these zones consist predominantly of K-feldspar, Na-feldspar, spodumene-quartz intergrowths and lithium-rich muscovite.

1.4.2 Deposit Type

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

1.4.3 Exploration

Exploration at the PAK Project, diamond drilling aside, has consisted primarily of detailed geological mapping, trenching and channel sampling, as well as various geochemical and geophysical surveys across the property. Mapping and channel sampling have been completed on multiple targets including the PAK, Spark and Bolt deposits, in addition to the new Ember pegmatite discovery and the historic Pennock showing.

1.4.4 Drilling

Fourteen (14) phases of surface diamond drilling have been completed to date on the Property by Frontier since 2013. Drilling was focused exclusively on the PAK deposit until 2019 when attention was turned to the newly discovered Spark pegmatite through to the end of the 2022 drilling campaign. Beginning in 2023, exploration drilling targeted both the Spark deposit and the new Bolt discovery; additional geotechnical and condemnation holes were also completed in the areas surrounding PAK and Spark.

Following database handover to DRA on November 30, 2023, additional geotechnical and condemnation drilling was completed at Spark as well as one (1) exploration hole at the new Ember target in 2024. DRA does not consider any of this drilling to be material to the mineral resources presented in this Report.

1.4.5 Sample Preparation, Analysis and Security

Review of Frontier's sample preparation and analysis procedures for both channel sampling and diamond drill programs has been completed by various independent and qualified consultants over the life of the Project. It has been confirmed that all sample preparation and analytical methods are completed at certified commercial laboratories; and that acceptable chain of custody and sample storage protocols are also in place.

Moreover, appropriate QA/QC programs have been in place since 2015 with the regular insertion of blank, duplicate and standard control samples into the sample stream.

1.4.6 Data Verification

Data verification to support the resource estimation has been conducted over the course of the Feasibility Study (FS). This includes site visits made to both the Project and offsite (Val Caron, ON) Frontier facilities, drill core review, collar location verification, independent check assay sampling, and database validation.

1.5 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, which was expanded to include the Spark deposit in 2019. Most of the test work has been completed at bench scale, although a pilot evaluation on a sample from Spark was also completed. The test work evaluated the efficiency of the main unit processes including sorting, dense media separation, crushing, grinding, dewatering, flotation, and magnetic separation.

1.6 Mineral Resource Estimate

The Mineral Resource Estimate statement for the Project prepared by DRA is summarized in Table 1.1.

Table 1.1 – Mineral Resource Estimate Statement

Deposit	Category	Li_2O Cut Off Grade (%)	Tonnage (kt)	Li_2O Grade (%)	Contained Li_2O (kt)
Open Pit					
PAK	Measured	0.65	2,585	2.03	52
	Indicated		1,521	1.96	30
	Measured + Indicated		**4,106**	**2.00**	**82**
	Inferred		122	1.50	2
Spark	Measured	0.65	13,796	1.54	212
	Indicated		17,304	1.41	244
	Measured + Indicated		**31,100**	**1.47**	**456**
	Inferred		10,954	1.53	167
Bolt	**Measured + Indicated**	0.65	**-**	**-**	**-**
	Inferred		5,516	1.23	68
Total Open Pit	Measured	0.65	16,381	1.61	264
	Indicated		18,825	1.45	273
	Measured + Indicated		**35,206**	**1.53**	**538**
	Inferred		16,592	1.43	237
Underground Mine					
PAK	Measured	0.80	-	-	-
	Indicated		1,703	2.39	41
	Measured + Indicated		**1,703**	**2.39**	**41**
	Inferred		1,995	2.19	44

Deposit	Category	Li_2O Cut Off Grade (%)	Tonnage (kt)	Li_2O Grade (%)	Contained Li_2O (kt)

Notes:

1. The Mineral Resource Estimate has been estimated using the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definitions Standards for Mineral Resource and Mineral Reserve in accordance with National Instrument 43-101 - Standards of Disclosure for Mineral Projects.
2. Mineral Resources which are not Mineral Reserves, do not have economic viability.
3. Inferred Mineral Resources are exclusive of the Measured and Indicated Resources.
4. In-pit Resources are constrained by Pseudoflow optimized pit shells using HxGn MinePlanTM 3D.
5. Pit shells were developed using pit slopes of 45° for PAK and Bolt and 43° for Spark, sales price of U$1,500/t for 6.0% Li_2O chemical grade concentrate, exchange rate of 1.30 US$/CA$, mining costs of US$7.80/t and US$7.15/t for ore and waste, respectively, processing costs of US$23.85/t milled, G&A costs of US$26.22/t milled, sustaining capital costs of US$4.28/t milled, closure costs of US$1.99/t milled, process recovery of 78.0%, transportation costs of US$100.79/t concentrate.
6. In-pit estimates are reported in-situ, at a cut-off grade of 0.65% Li_2O.
7. Underground mining stope optimization was performed using Deswik^{TM}.
8. Stope shapes were developed using a sales price of US$1,500/t for 6.0% Li_2O chemical grade concentrate, exchange rate of 1.30 US$/CA$, mining costs of US$85.00/t, processing costs of US$23.85/t milled, G&A costs of US$26.22/t milled, sustaining capital costs of US$4.28/t milled, closure costs of US$1.99/t milled, process recovery of 78.0%, and transportation costs of US$100.79/t concentrate.
9. Underground resources were estimated using a cut-off grade of 0.80% Li_2O.
10. Resource estimations were interpolated using Inverse Distance Weighting (IDW^2); variable densities were also interpolated.
11. The effective date of the Mineral Resource Estimate is November 30, 2023.
12. The independent and Qualified Person for the Mineral Resource Estimate, as defined by NI 43-101, is Dr. Schadrac Ibrango, P.Geo., MBA, of DRA Americas Inc.
13. The QP is not aware of any metallurgical, environmental, permitting, legal, title, taxation, socio-economic, marketing political, or other risk factors that might materially affect the estimate of Mineral Resources.
14. Figures have been rounded to an appropriate level of precision for the reporting of Mineral Resources. Thus, totals may not compute exactly as shown.

1.7 Mineral Reserve Estimate

The Mineral Reserve Estimate was completed on the PAK and Spark deposits using industry best practices. Mineral Reserve Estimates are based on the engineering and economic analysis described in Section 22 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.
- Process plant recoveries.
- Mining loss and dilution assumptions.
- Ability to meet and maintain permitting and environmental license conditions.

DRA prepared a Mineral Reserve Estimate for the Project using Hexagon MinePlan 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 Project is based on the resource block models developed by DRA as detailed in Section 14. The Project encompasses both the PAK deposit (referred to as PAK) and the Spark deposit (referred to as Spark).

Mineral reserves for the Project incorporate mining dilution and mining loss assumptions for the open pit mining method.

Mineral reserves are defined at the reference point where the ore is delivered to the concentrator plant facility, which includes the Run-of-Mine (ROM) stockpiles.

The Mineral Reserve Estimate for the Project comprises both Proven and Probable Mineral Reserves (category definitions provided in Section 15.1). This includes 16.2 Mt classified as Proven Mineral Reserves, with a lithium oxide (Li_2O) grade of 1.58%, and 14.9 Mt classified as Probable Mineral Reserves, with a Li_2O grade of 1.42%. The combined overall grade for Proven and Probable Mineral Reserves is calculated at 1.51% Li_2O, utilizing a cut-off grade (COG) of 0.65% Li_2O from both PAK and Spark. Table 1.2 presents the Mineral Reserve Estimate for the Project.

Table 1.2 – Mineral Reserve Estimate

Category	Deposit	Li_2O COG (%)	Diluted Tonnage (kt)	Diluted Li_2O Grade (%)	Contained Li_2O (kt)
Proven	PAK	0.65	2,520	1.97	50
Probable			1,427	1.94	28
Proven + Probable			***3,947***	***1.96***	***77***
Proven	Spark	0.65	13,670	1.51	206
Probable			13,514	1.37	185
Proven + Probable			***27,183***	***1.44***	***392***
Proven	**Total**	0.65	16,190	1.58	256
Probable			14,941	1.42	213
Proven + Probable			**31,131**	**1.51**	**469**

Category	Deposit	Li_2O COG (%)	Diluted Tonnage (kt)	Diluted Li_2O Grade (%)	Contained Li_2O (kt)

Notes:

1 The independent and Qualified Person for the Mineral Reserve Estimate, as defined by NI 43-101, is Ghislain Prévost, P.Eng. of DRA Americas Inc.
2 The effective date of the Mineral Reserve Estimate is May 28, 2025.
3 The Mineral Reserve Estimate is based on constant metallurgical recovery assumptions: 78% for chemical grade concentrate.
4 The Mineral Reserve Estimate is based on commodity prices assumptions of: USD1,500/t for 6.0% Li_2O chemical grade concentrate.
5 The Mineral Reserve was derived from a pit limit analysis and detailed pit design using Measured and Indicated Resources at a cut-off grade of 0.65% Li_2O.
6 For the PAK deposit, the Mineral Reserve Estimate includes dilution and mining loss. Approximately 2.7% dilution and a mining loss of 1.2% have been incorporated.
7 For the Spark deposit, the Mineral Reserve Estimate includes dilution and mining loss. Approximately 2.7% dilution and a mining loss of 1.4% have been incorporated.
8 PAK mineral reserves are based on a pit design with a 5.9 stripping ratio.
9 Spark mineral reserves are based on a pit design with a 3.3 stripping ratio.
10 The QP is not aware of any metallurgical, environmental, permitting, legal, title, taxation, socio-economic, marketing or political factors that might affect the estimate of Mineral Reserves.
11. Figures have been rounded to an appropriate level of precision for the reporting of Mineral Reserves. As a result, totals may not compute exactly as shown.

Source: DRA, 2025

1.8 Mining Methods

This FS presents an open pit mining solution using conventional drill-blast-load-haul methods for extraction.

The open pit production period is expected to last approximately 30 years. The operating scenario outlined in this FS includes:

- One (1) processing line with a capacity of 200,000 tpa of Chemical Grade (CG) concentrate or 1,040,000 tpa of CG ore.
- The processing plant is scheduled to commission on Q3 of Year 1.
- The processing plant feed incorporates a production ramp-up of nine (9) months.
- Average mining rate for both ore and waste combined throughout the Life-of-Mine (LOM) is estimated to be 4.7 Mtpa, with a peak production rate of 8.3 Mtpa projected in Year 9.

1.9 Recovery Methods

Ore from the Spark and PAK deposits is processed using the mineral processing flowsheet defined in Section 17 to generate chemical grade (6.0% Li_2O) concentrate. The mineral processing flowsheet described in Section 17 was developed using the laboratory and pilot scale test work described in Section 13 of the Report. The main components of the mineral processing flowsheet include three-stage crushing, XRT ore sorting, grinding, magnetic separation, gravity concentration, flotation, concentrate thickening, filtration and handling, and tailings thickening.

The concentrate will be transported by road to a nearby lithium chemicals conversion plant, or deep water port, where it will be further processed into battery-grade lithium hydroxide and lithium carbonate products, or sold to market.

1.10 Project Infrastructure

PAK Project infrastructure will include:

- Access and haul roads connecting the Spark and PAK open pits.
- Various administrative, operational, and warehousing buildings.
- Various site facilities (airstrip / helipad, construction facilities, operations camp, vehicle maintenance, heavy equipment maintenance, fuel facilities, truck scales, fire protection facilities, landfill, explosives facilities).
- An electrical power distribution system.
- A plant control system.
- Potable water and sewage treatment plants.
- Mine water treatment facility.
- Supporting facilities:
  - Mine rock storage areas (MRSAs) and overburden stockpiles.
  - A surface water management system.
  - A concentrator plant complex with crushing, screening, and stockpiling circuits.
  - A tailings management facility.

The Spark and PAK open pits will be mined sequentially (Spark first, then PAK as per mine plan).

Tailings generated in the concentrator complex will be deposited in the Tailings Management Facility (TMF). The tailings will be thickened to a non-segregating consistency, then pumped and conveyed by pipeline to the TMF. The TMF is formed by three, stage-raised, embankment dams designed to store the Life of Mine (LOM) tailings with an external Reclaim Pond that receives TMF drainage and runoff, and that provides a central collection pond for site water management.

Tailings are discharged from the West Dam towards the East Dam. An overflow spillway allows tailings drainage water and runoff to passively drain into the Reclaim Pond. The Reclaim Pond is contained by the Reclaim Pond Dam with an emergency spillway to prevent dam overtopping. The dams feature an upstream geomembrane liner to retain contact water and downstream seepage collection system to manage any seepage from the TMF/Reclaim Pond.

The main elements of the site water management system are non-contact water diversion channels, contact water ditches, sediment ponds downgradient of the overburden stockpiles equipped with

operating overflow spillways, open pit sumps, drainage ponds for the mine rock storage areas equipped with pumps and emergency overflow spillways as applicable, the TMF Dams equipped with an operating overflow spillway, the Reclaim Pond equipped with pumps and an emergency overflow spillway, and the Mine Water Treatment Facility.

The proposed site water management strategy assumes that all contact water (except for drainage from the overburden stockpiles) will be collected and directed to the Reclaim Pond, located immediately east of the TMF. Drainage from the overburden stockpiles will be passed through sediment ponds and released without further treatment directly to receiving waterbodies.

Process water make-up for the concentrator plant complex will be sourced from the Reclaim Pond. Surplus water collecting in the Reclaim Pond (i.e., water not required for ore processing and other mine operation activities) will be treated at a single Mine Water Treatment Facility prior to its release to the Flanagan River. Treated effluent from the Mine Water Treatment Facility will be pumped year-round via a pipeline to a discharge location with sufficient assimilative capacity.

1.11 Market Studies and Contracts

1.11.1 Market Studies

The market studies and forecasts detailed here were used to inform the financial model generated as part of the FS. The product generated from the mine and concentrator described in this Report is a spodumene concentrate with a grade of 6.0% Li_2O, also referred to as “SC6”. While Frontier announced on March 4, 2025, that it intends to construct a lithium conversion plant in Thunder Bay, ON, to process spodumene concentrate produced at the PAK Lithium Mine into lithium chemicals, that project and analysis is outside the scope of the current Report. For the purposes of this Report, it is assumed that SC6 sales will be undertaken via off-take agreements with third parties with the domestic market - Free on Board (FOB) Thunder Bay basis - at terms commensurate with generally accepted market terms.

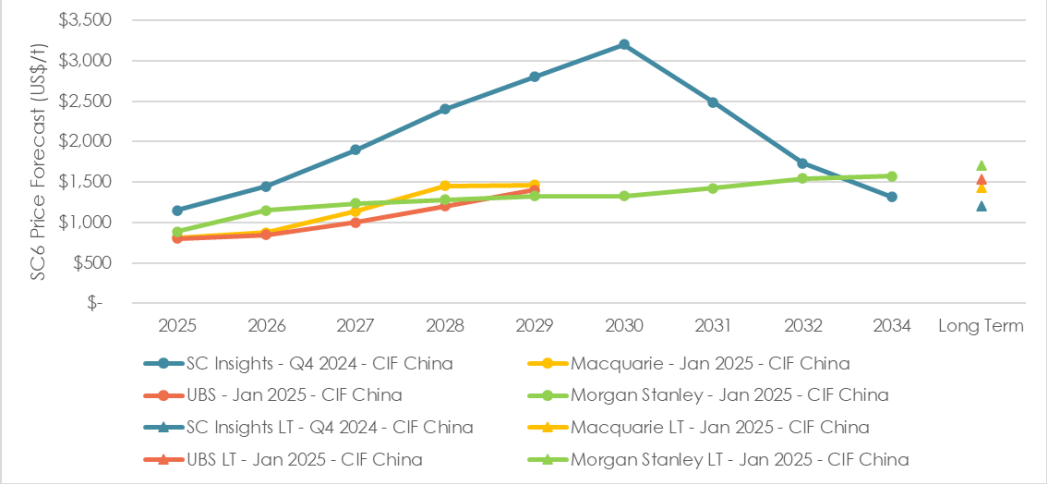
A range of SC6 price forecasts from industry and investment bank analysts were reviewed. In general, it can be summarized that the price of spodumene:

- Has demonstrated significant volatility in the past.
- Is a function of the lithium market demand-supply balance.
- Is influenced by geopolitical events.

Frontier subscribes to market studies for lithium developed by SC Insights, an advisory firm with expertise in the lithium-ion battery (LIB) supply chain, for their clients. The Q4 2024 SC Insights study was used to review lithium demand, supply, and market balance forecasts for this Report. The demand for lithium is dominated by the LIB industry as a result of the global trend towards electrification and decarbonization.

As conversion plants in Thunder Bay will need to source spodumene concentrate at market rates, Cost, Insurance and Freight (CIF) China prices are used in this Report as a proxy for FOB Thunder Bay prices. A long-term SC6 price of US$1,475/t (FOB Thunder Bay basis) is used in the current Report with the selection based on the price forecasts presented in Figure 1.1. As this price is based on the FOB Incoterm, the financial model of the Project accounts for land transportation of the concentrate from the Project to Thunder Bay.

Figure 1.1 – Analyst SC6 Price Forecasts



Source: SC Insights, 2024, Consensus Economics, 2025, Morgan Stanley, 2025

1.11.2 CONTRACTS AND OFF-TAKES

Frontier does not currently have any material contracts in place for the sale of SC6.

Mitsubishi Corporation (Mitsubishi) has formed a joint venture (JV) with Frontier to acquire a 7.5% stake in the PAK Lithium Project ("Tranche 1"). Upon completion of this FS, Mitsubishi has the option to increase its stake in the Project to 25% at a price based on the Project's net value as determined in the FS ("Tranche 2"). The completion of Tranche 2 is contingent upon results of the FS and a number of terms and conditions, including obtaining the necessary Project permits.

Under this agreement, Mitsubishi shall have the right to acquire a portion of the total production from the future conversion plant equal to their proportionate interest in the Project. Offtake rights will be formalized through an offtake agreement post Final Investment Decision (FID).

1.12 Environmental Studies, Permitting and Social or Community Impact

Frontier initiated environmental studies beginning in 2015 and data collection is ongoing at the "*Mine Site"* (open pit mines, concentrator plant, and ancillary infrastructure). These studies were designed and implemented to support requirements for future planning and permitting purposes. Multiple years of data are available for the following disciplines: Surface Water Quality and Hydrology;

Hydrogeology; Geochemistry; Terrestrial Ecology; Aquatic Ecology; Air Quality and Noise; Archaeology; and Traditional Land and Resource Use.

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.

The *Mine Site* does not require completion of a federal impact assessment, however, will need to complete Provincial Class Environment Assessments (EAs) for power, minor transmission facilities, diesel power generation, shoreline reserve surface rights, and aggregate source. It will also require longer lead permits such as a Closure Plan Authorization, Fisheries Act Authorization and Schedule 2 amendment under the Metal and Diamond Mining Effluent Regulations (MDMER). Other federal and provincial authorizations have been identified for Natural Resources Canada Explosives Act, Navigable Waters, Species at Risk, Permits to take Water (PTTW), Environmental Compliance Approval (ECA's) for water management, air emissions and noise, and permit to remove timber with issuance aligned with Mine Site development. Frontier is actively working to advance the longer lead / key permits concurrently with feasibility studies.

The *Mine Site* is in northwestern Ontario approximately 175 km north of Red Lake, in a region traditionally inhabited by the Oji-Cree people. It is located on the traditional territories of North Spirit Lake First Nation and Deer Lake First Nation. North Spirit Lake, a community of approximately 275 people, is located about 26 km southeast of the *Mine Site*. The Deer Lake community of approximately 1,250 people is about 45 km west of the *Mine Site*. This area has historically been used by them and continues to be occasionally used by Sandy Lake First Nation and Keewaywin First Nation. The Sandy Lake community of approximately 3,000 people is located about 50 km north of the *Mine Site* and the Keewaywin community of approximately 400 people is about 53 km northeast of the *Mine Site*.

Frontier has communicated and consulted with proximal Indigenous communities during the exploration phase of mining. This has included meetings with Chiefs and councils, tours of the proposed *Mine Site*, information sharing, and community engagement sessions. Frontier has signed Exploration Agreements with each of the four (4) Indigenous communities of Deer Lake, North Spirit Lake, Sandy Lake, and Keewaywin. In addition, Frontier has regularly recruited, hired, and has provided training to community members for the current activities on-site. Frontier engages companies that joint venture with proximal Indigenous communities and has funded annual educational bursaries to students in each of the four Indigenous communities and to students from First Nation communities within the region.

Consultation with the local and regional communities has commenced and will continue as the *Mine Site* planning and design 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.

A conceptual closure plan will be developed that meet requirements of Ontario Regulation 35/24 and is consistent with any traditional land uses and occupancy by Indigenous communities.

1.13 Capital and Operating Costs

The capital cost estimate (Capex) and the operating cost estimate (Opex) were compiled by DRA and based on the scope of work presented in various sections of this Report.

DRA developed the Capex and Opex for mining, process plant, plant infrastructure and other on-site infrastructure for the Project scope described in this Report. External Capex and Opex inputs were received as follows:

Source	Scope
Frontier	Provided the Owner's General and Administration Costs, Taxes and Duties
SLR	Prepared construction quantities for TMF, Water Management, Closure and Rehabilitation Cost. DRA then applied rates to complete the Capex.

The estimate was prepared in accordance with the Association for the Advancement of Cost Engineering (AACE) Class 3 Estimate guidelines, with an expected accuracy of -15% to +20%.

All Capex costs are expressed in Canadian Dollars (CA$ or CAD) and are based on Q1 2025 pricing.

1.13.1 CAPITAL COST

The Capex consists of direct and indirect capital costs, Indirects (including contingency) and Owner's costs. Table 1.3 presents a summary of the estimated capital costs.

Table 1.3 – Capital Cost Summary (CA$ '000)

WBS	WBS Description	Cost
Direct Costs		
1000	Mining	26,326
3000	Processing	252,773
5000	Site Infrastructure	240,210
7000	Tailings Management Facility	19,526
Indirect Costs		
9000	Indirect Costs	328,405
Owner's Cost		
8000	Owner's Costs	75,993
	TOTAL	**943,233**

Totals may not add-up precisely due to rounding.

1.13.2 OPERATING COST ESTIMATE

The Opex provides information on estimated operating costs of the Project and covers open pit, concentrator plant, TMF, mine services and G&A, and heating costs.

The total Opex is based on:

- Mining life of 31 years.
- Concentrator designed for 30 years of operation.
- Spark ore processed from Year 1 until Year 30.
- PAK ore processed from Year 18 until Year 31.
- Concentrator to process the above ores individually and their blends (as per the LOM mine plan) into a chemical grade lithium spodumene concentrate.
- Total milled tonnes over the LOM of 31.1 million dry tonnes (27.2 million dry tonnes of Spark, and 3.9 million tonnes of PAK).

The total site Opex for mining, concentrating and G&A over the LOM is estimated to be $2,709 M as shown in Table 1.4. The Opex estimates exclude any contingency allowances.

Table 1.4 – Total Estimated Operating Costs Over Life of Project (CA$)

Description	LOM Opex (CA$ M)	Annual Opex (CA$ M/a)	Opex (CA$/t ore)	% of Total Opex
Mining	893	29.55	28.70	33.08
Processing	975	32.28	31.30	36.0
Power (Non-Process)	37	1.24	1.20	1.4
G&A	737	24.39	23.70	27.2
TMF	38	1.25	1.20	1.4
Heating	29	0.97	0.90	1.1
TOTAL	**2,709**	**89.69**	**87.00**	**100.0**

Note: The totals may not add due to rounding

1.14 Economic Analysis

The results of the economic analysis contain forward-looking information as defined by Canadian securities legislation. The results rely on inputs that are subject to known and unknown risks, uncertainties, and other factors, which may cause actual results to differ materially from those presented here.

The economic analysis is based on the discounted cash flow (DCF) valuation method on a pre-tax and after-tax basis, conducted in real Canadian dollar terms. Cash flows are derived by means of a techno-economic model of cash flow streams including revenues, operating costs, capital expenditures and taxes. The key metrics determined in the analysis are the Net Present Value (NPV) at a real discount rate of 8%, the Internal Rate of Return (IRR), and the Payback Period. For the purposes of the evaluation, it is assumed that the operations are established within a single corporate entity, Frontier Lithium Resources Inc. The Project has been evaluated on an unlevered, all-equity basis as of the valuation date of June 2, 2026.

The cash flow model uses inputs from all elements of the Project to provide a comprehensive financial projection for the entire Project on an annual basis. All prices and costs are in Canadian dollars, unless otherwise stated, and accurate as of Q1 2025 (calendar years). No provisions have been made for the effects of inflation except in the depreciation and tax calculations. Current Federal and Provincial (Ontario) tax regulations were used to assess corporate tax liabilities. DRA has retained Ernst & Young LLP, based in Vancouver, BC, to prepare tax calculations for the after-tax economic evaluation of the Project. This evaluation includes Canadian federal and Ontario provincial income taxes, as well as the Ontario Mineral Tax (OMT).

The key parameters utilized in the financial analysis are summarized in Table 1.5.

Table 1.5 – Economic Analysis Parameters

Description	Units	Value
Macroeconomic Parameters		
SC6 Spodumene Concentrate price, Long-term	US$	1,475
Exchange rate (CAD$:US$), Long-term	US$:CA$	1.00:1.37
Inflation rate, Long-term[1]	%	2.0
Project Parameters		
Discount rate	%	8.0
Mine life	Years	31
Mineable mineral reserves, Total	Mt of ore	31.1
Mineable mineral reserves, PAK	Mt of ore	3.9
Mineable mineral reserves, Spark	Mt of ore	27.2
Grade mined, PAK (LOM average)	% Li_2O	1.96
Grade mined, Spark (LOM average)	% Li_2O	1.44
Annual mill throughput (LOM average)	ktpa	1,040
Lithium recovery, PAK (LOM average)	%	77.9
Lithium recovery, Spark (LOM average)	%	77.5
Concentrate grade	% Li_2O	6.0
Total concentrate produced (LOM)	Mt	6.1
Capital Expenditures		
Development capital	CA$ M	943
Sustaining capital	CA$ M	137
Closure capital	CA$ M	60
LOM Unit Operating Costs		
Mining	CA$/t of ore processed	28.70
Processing	CA$/t of ore processed	31.30
Tailings Management Facility	CA$/t of ore processed	1.20
Non-Process Power	CA$/t of ore processed	1.20
Heating	CA$/t of ore processed	0.90
G&A[5]	CA$/t of ore processed	23.70
Total Opex	CA$/t of ore processed	87.00
Other Costs		
Concentrate Transport Costs	CA$/t of concentrate sold (wet)	143

Description	Units	Value
LOM Undiscounted Cash Flows		
Net Revenue	CA$ M	11,298
Total Opex	CA$ M	(2,709)
Closure Bond Fees	CA$ M	(19)
Operating Earnings	CA$ M	8,569
Capital Expenditures	CA$ M	(1,138)
Clean Technology Manufacturing Investment Tax Credit	CA$ M	120
Change in Working Capital	CA$ M	(15)
Pre-Tax Cash Flow	CA$ M	7,536
Income Tax, Federal	CA$ M	(1,049)
Income Tax, Provincial	CA$ M	(699)
Mining Tax, Provincial	CA$ M	(645)
After Tax Cash Flow	CA$ M	5,144
Cost Metrics		
C1 Cost[2, 4]	CA$/tonne of concentrate sold	602
All-In Sustaining Cost (AISC)[3, 4]	CA$/tonne of concentrate sold	624

Notes:

1. The inflation rate is used in the tax, depreciation, and working capital calculations only. The results of these calculations are deflated using the same inflation rate for use in the cash flow model.
2. C1 Cost and C1 Cost per tonne of concentrate sold: C1 Cost consists of all production related expenses including mining, processing, services, tailings handling, royalties, and general and administrative, plus treatment charges, penalties, transportation and other selling costs. C1 Cost per tonne of concentrate sold is calculated as C1 Cost divided by tonnes of spodumene concentrate sold.
3. All-in Sustaining Costs (AISC) and AISC per tonne of concentrate sold: AISC consists of C1 Cost plus sustaining capital. AISC per tonne of concentrate sold is calculated as AISC divided by tonnes of spodumene concentrate sold.
4. C1 Costs and AISC are non-GAAP financial measures or ratios and have no standardized meaning under IFRS Accounting Standards and may not be comparable to similar measures used by other issuers. As the Project is not in production, Frontier does not have historical non-GAAP financial measures nor historical comparable measures under IFRS, and therefore the foregoing prospective non-GAAP financial measures or ratios may not be reconciled to the nearest comparable measures under IFRS. Refer to the “Non-GAAP Financial Measures” in Section 2.9 of this Report for more information, including a detailed description of each of these measures.
5. G&A Opex presented in this section includes allowances for operations insurance and community payments.
6. Numbers may not add due to rounding.

Based on a long-term spodumene concentrate price of US$1,475/t, long-term US$:CA$ exchange rate of 1.00:1.37, and a discount rate of 8%, the results of the economic analysis indicate a positive after-tax NPV of CA$932 M and an after-tax IRR of 17.9%. A summary of the key financial metrics is presented in Table 1.6.

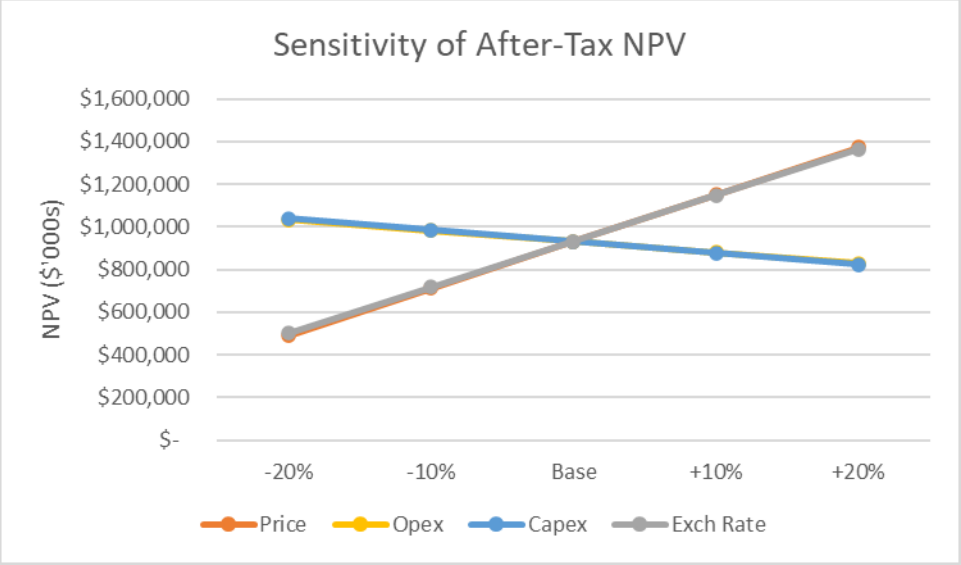
Table 1.6 – Summary of Project Financial Metrics

Description	Unit	Pre-Tax	After-Tax
NPV @ 8%	CA$ M	1,480	932
IRR	%	21.4	17.9
Payback Period[1]	Years	3.6	4.0

1. The Payback Period provided here is from the start of concentrator operation.

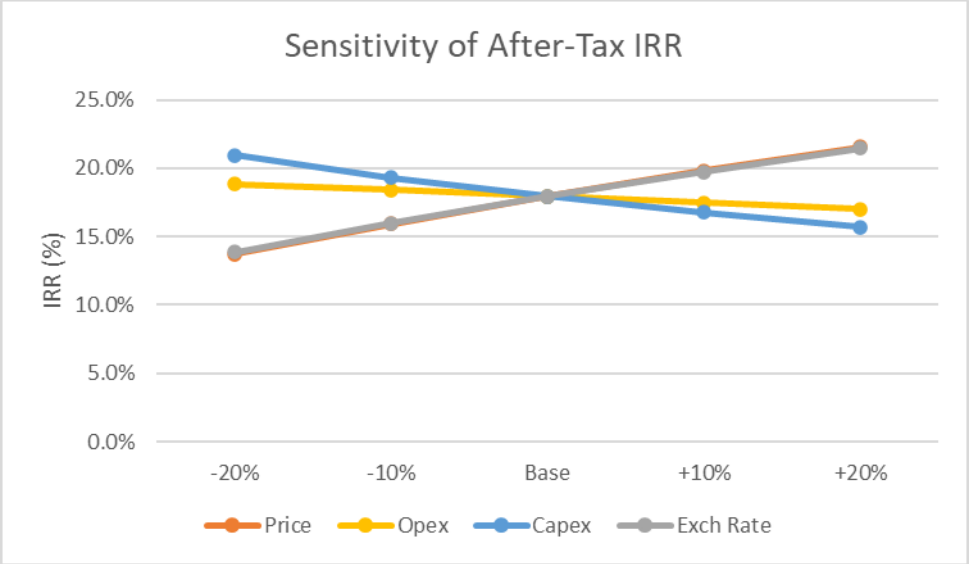
A sensitivity analysis was carried out to assess the impact of variations in spodumene concentrate price, US$:CA$ exchange rate, Development Capex, and Opex on the NPV and IRR. The after-tax results of the sensitivity analysis are shown in Figure 1.2. The NPV and IRR of the Project are most sensitive to variations in the spodumene concentrate price, and thus the US$:CA$ exchange rate, followed by Capex and Opex. The sensitivity of the economic parameters to the US$:CA$ exchange rate and spodumene concentrate price is almost identical as the exchange rate impact is dominated by the conversion of the spodumene concentrate price from US dollars to Canadian dollars. The Project retains a positive NPV at the lower limit of the spodumene concentrate price interval tested. The IRR is more sensitive to variations in Capex than Opex, as evidenced by the steeper slope of the Capex curve in Figure 1.3. The NPV appears to be equally sensitive to variations in Capex and Opex. Overall, within the limits of accuracy of the cost estimates in this study, the Project's potential after-tax viability does not seem significantly vulnerable to the under-estimation of capital and operating costs up to 20%, when taken individually.

Figure 1.2 – Sensitivity of After-Tax NPV to Spodumene Concentrate Price, Capex, Opex, and Exchange Rate



Source: DRA, 2025

Figure 1.3 – Sensitivity of After-Tax IRR to Spodumene Concentrate Price, Capex, Opex, and Exchange Rate



Source: DRA, 2025

1.15 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.

1.16 Other Relevant Data and Information

1.16.1 Project Execution Plan

The Project Execution Plan (PEP) defines the methods and project management elements that will be used to manage the execution of the Project. The PEP establishes the execution philosophy and defines the organization, work processes and systems necessary for management of the Project. The PEP will be further developed by the Frontier project team.

The Project will be implemented using an Engineering, Procurement, and Construction Management (EPCM) approach, with an EPCM contractor retained who will report to Frontier. An EPCM contractor's detailed estimate will be prepared as a component of the overall Project capital cost estimate. Additional cost considerations would be applicable if Frontier were to opt for an EPC contracting approach, as this contract model allocates certain additional responsibilities to the contractor instead of Frontier. Alternative contracting strategies are being explored and will be finalized using the inputs of the current study.

Detailed engineering will immediately follow the Front-End Engineering Design (FEED) phase. The principal deliverables following the FEED phase are frozen process design and plant general arrangements.

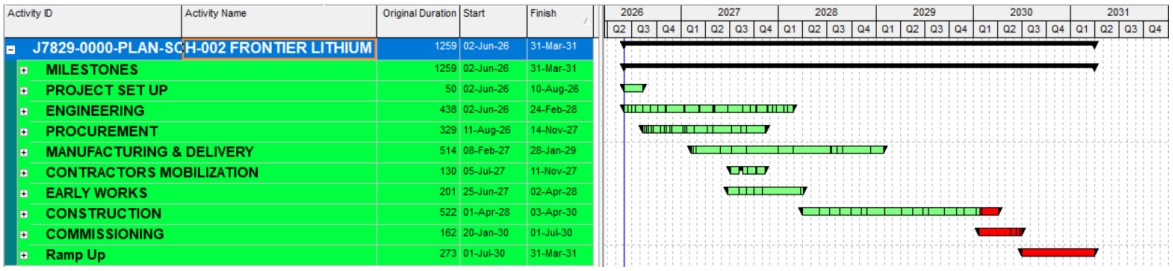
1.16.2 PROJECT IMPLEMENTATION SCHEDULE

The schedule details the execution activities for the Project, encompassing Engineering, Procurement, Manufacturing and Delivery, Construction, and Commissioning.

The execution schedule excludes all permitting requirements, and any work assigned to external consultants. However, the execution and permitting schedules have been prepared to be mutually compatible with each other. Construction dates both inform, and respect, the required permit delivery dates.

Figure 1.4 depicts a summary schedule of the Project execution phase. Key milestone dates are presented in Table 1.7.

Figure 1.4 – Summary-Level Project Schedule



Source: DRA, 2025

Table 1.7 – Key Project Milestones

Milestone Description	Date
Detailed engineering kick-off	June 2, 2026
Site water quality data for potable water input	July 1, 2026
Mine and surface water quality data	July 1, 2026
Output / effluent water quality data	July 1, 2026
Contractor mobilization	July 5, 2027
Permanent road available for construction	August 2, 2027
Construction start	August 4, 2027
All POs placed	September 2, 2027
Engineering finish	February 24, 2028
High-voltage overhead line available	January 20, 2030

Milestone Description	Date
Construction finish plant	April 3, 2030
Commissioning C5 sign off	June 24, 2030
Ramp up complete	March 31, 2031

1.16.3 Operational Readiness Plan

The Operational Readiness Plan (ORP), developed by Minopex (a division of DRA), is designed to support a smooth transition from construction to start-up, preparing the operations and maintenance teams for daily activities. The team will oversee commissioning and contractor activities, ensuring personnel and systems are ready for steady operations. More details are provided in Section 24.3.

1.17 Interpretations and Conclusions

Full details on interpretations and conclusions described below are provided in Section 25.

1.17.1 Recovery Methods

The spodumene concentrator plant capable of processing both Spark and PAK ore types will be located at the mine site. The ore will be processed into a 6.0% Li_2O chemical grade concentrate.

The concentrate will be transported by truck and further processed at a lithium chemicals conversion plant planned in or near a Great Lakes port city in Northern Ontario.

The concentrator flowsheet design is based on the results of well-planned and executed test work campaigns. The concentrator plant uses well developed unit operations for the processing circuits: three-stage crushing and XRT preconcentration followed by rod and ball mill grinding; LIMS and WHIMS magnetic separation; conventional flotation with rougher stages completed in tank cells, and cleaning stages in mechanical cells; attrition scrubbing tanks; high rate thickener for concentrate and high compression thickener for final tails; concentrate filter press; conventional cyclones; stack sizer fine screens. These unit operations are proven designs which are available from reputable equipment suppliers.

The concentrator design includes a practical level of automation for reliable control of process parameters and optimal headcount for operations team.

The concentrator design incorporates an automated sampling and on-stream analyzer system, which allows for accurate sample data collection and processing of the samples. This enhances project confidence in plant mass and metal balance reconciliation, as well as in process control.

1.17.2 Environmental Studies, Permitting and Social or Community Impact

The following interpretations and conclusions are noted:

- Cumulatively, the data collection studies being carried out by Frontier are sufficient to inform ongoing engineering and planning and support permitting requirements.
- Additional data collection may be needed as a result of footprint and component optimization, and/or consultation/regulatory process needs.
- The *Mine Site* does not require completion of a federal impact assessment, however, will need to complete Provincial Class Environment Assessments (EAs) for the power transformer station, diesel power generation, vegetation removal, surface waterway encroachment, and aggregate source.
- It will also require longer lead permits such as a certified Closure Plan, *Fisheries Act* Authorization and Schedule 2 amendment under the Metal and Diamond Mining Effluent Regulations (MDMER).
- Other federal and provincial authorizations (Table 20.1) have been identified for Species at Risk, water usage, water discharge, air emissions, noise, and permit to remove timber with issuance aligned with *Mine Site* development.
- Key milestone permits prior to construction starting onsite are the Closure Plan, Species at Risk permit, and Fisheries Act Authorization.
- Frontier has engaged qualified professionals to advance the longer lead/key milestone permits concurrently with feasibility studies. This work is underway.
- Frontier has taken an active role in engaging with local communities and has increased this engagement over 2024 by implementing a Consultation Plan. Frontier currently has exploration agreements signed with the four Indigenous communities surrounding the *Mine Site* and, together, the Indigenous communities have a memorandum of understanding agreeing to share information.
- Emphasis for the *Mine Site* design and operation 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 land uses and treaty rights.
- By initiating data collection and having multiple years of environmental data, starting regulatory processes for long lead / key permits, and implementing an engagement plan, all concurrently with engineering, Frontier is on track to secure the necessary authorizations and permits to advance the *Mine Site* through construction and into eventual operations.

1.17.3 Economic Analysis

Based on the available information, the Project has a positive after-tax NPV of $932 M using a discount rate of 8%, an IRR of 17.9% and a payback period of 4.0 years from the start of operations. The sensitivity analysis indicates that the Project economics are most sensitive to the spodumene concentrate price, and thus the US$:CA$ exchange rate. Significant sensitivity is also observed with regards to the Capex and Opex. Even with a spodumene concentrate price 20% below the base case of US$1,475/tonne, the Project maintains a positive after-tax-NPV.

1.18 Recommendations

Specific recommendations for the Project are summarized below and full details are provided in Section 26 of the Report.

1.18.1 Recovery Methods

- During the next phase of the Project, it is recommended to update the process mass and water balances with new test work data as it becomes available. Any updates to the mining plan, and new information should be incorporated along with the latest data from equipment suppliers.
- Consideration should also be given to possible equipment consolidation and bundling from reputable equipment manufacturers, if economically feasible.

1.18.2 Project Infrastructure

The recommendations related to the geotechnical aspects of stockpiles and foundations for the next stage of engineering design are as follows:

- Delineate depth to bedrock and overburden deposit thicknesses along the toe of the stockpile areas and characterize soft overburden soils. Geophysical investigations along the stockpile toes provide valuable information on bedrock profile, especially in shallow overburden areas.
- Investigate and characterize overburden stockpile areas (both at PAK and Spark mining areas).
- Consider assessing foundation improvements (i.e., shear key, wick drains, staged construction) for optimization of slope designs once further subsurface information and mine plans are available.
- Conduct detailed assessment for staged stockpile development and consideration of measurement and monitoring of consolidation of foundations and excess pore pressures, in coordination with the mine plan and development timelines.
- Develop detailed instrumentation design and monitoring plans for final stockpile development. Instrumentation installations such as vibrating wire piezometer (VWP) and slope inclinometer (SI) are recommended along the perimeter of the stockpiles to monitor pore water pressure and movement of stockpile slopes during operations.

The recommendations related to the TMF and Reclaim Pond for the next stage of engineering design are as follows:

- Collect soil samples from potential aggregate pits for grain size analysis testing. It is understood that other potential locations are known and the hydro transmission project may have knowledge of potential borrow sources.
- Identify suitable rock quarry locations. Only limited clean mine rock will be generated by the mine and will be mixed with PAG rock in the stockpiles. The bedrock outcrop in the middle of the TMF has the benefits of being close to the dams and increasing the storage capacity for tailings. This material has been assessed for concrete stone and is suitable.
- Conduct additional geotechnical investigations in the new East Dam footprint, the southern leg of the Reclaim Pond Dam (Ch. 0+000 to 0+200), and at the locations of the TMF overflow spillway and Reclaim Pond emergency spillway.
- Evaluate tailings storage capacity including the potential rock quarry inside the TMF to store the increase tonnage of tailings produced over the LOM. The value engineering conducted for process engineering after the TMF design was completed and increased the total tonnage of tailings produced from 20.3 Mt to 21.5 Mt. The crest elevations of the West and East dams may need to be raised to support the increased tailings tonnage of 1.2 Mt resulting from the value engineering study.
- Evaluate tailings and mine rock co-disposal opportunities to reduce the footprint of the facilities, inhibit issues with potentially acid generating mine rock, and simplify water management.

The recommendations related to the site water management for the next stage of engineering design are as follows:

- Conduct a site investigation at the locations of the proposed water management infrastructure to confirm the underlying stratigraphy and depth to groundwater.
- Develop of a site water balance (using GoldSim or an electronic spreadsheet) that represents each year of the operation phase consistent with the proposed mine plan and incorporates a level of detail appropriate for detailed engineering for better estimates of water storage requirements and pumping rates. The model should allow to evaluate the initial stage of the Project when only the Spark Pit and related infrastructure are developed.
- Incorporate outputs from the transient numerical groundwater model currently under development into pit dewatering plans.
- Consider the staged development and progressive reclamation of the mine rock stockpiles (and overburden stockpiles if applicable) to optimize site water management infrastructure designs.

1.18.3 Environmental Studies, Permitting and Social or Community Impact

- Update *Mine Site* information to support ongoing consultation activities and for permitting purposes including advance of EAs and permit applications.
- Continue engagement and consultation with regulators and Indigenous communities to advance EAs and permit applications.

1.18.4 Economic Analysis

It is recommended that the economic analysis be updated once off-take agreements for the spodumene concentrate and contracts for construction, transportation are in place to assess the assumptions made.

Once consultations and negotiations with federal and provincial governments and neighbouring communities have concluded, the impact of Resource Development Agreements should be adjusted in the model.

2 INTRODUCTION

DRA Americas Inc. (DRA), in conjunction with SLR Consulting Canada Ltd (SLR), has prepared this Technical Report (Report) at the request of Frontier Lithium Inc. (Frontier or the Company).

The purpose of this Report is to describe recent developmental work performed for the PAK Lithium Project (the Project) for the Feasibility Study for the Project's mine and mill, in accordance with the guidelines of National Instrument 43-101 (NI 43-101) and Form 43-101 F1.

2.1 Frontier Lithium Inc.

Frontier is an emerging lithium mineral and salts company focused on the development of its 100%-owned PAK Lithium Project in ON, Canada. It aims to produce battery-grade lithium hydroxide and lithium salts for the growing electric vehicle and energy storage markets in North America.

Frontier's corporate offices are located at 2614 Belisle Drive, Val Caron, ON, 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.

2.2 Project Description

The PAK Lithium Project contains a high grade lithium resource in Ontario, covering nearly 28,000 hectares and remaining largely unexplored. Since 2013, the Company has delineated two (2) premium spodumene-bearing lithium deposits, PAK and Spark, which are located 2.3 km apart. Exploration continues with two (2) additional spodumene-bearing discoveries: the Bolt pegmatite, situated between the PAK and Spark deposits, and the Pennock pegmatite, 25 km northwest of the PAK deposit within the Project claims.

A 2023 Pre-Feasibility Study (PFS) entitled "National Instrument 43-101 Technical Report PFS PAK Lithium Project" and authored by BBA E&C Inc., projected a 24-year Project life and a phased approach using the first phase to bring online the PAK open pit and the first concentrator line, and the second phase the Spark open pit, second concentrator line and battery salts plant.

The PFS assumed the development of Phase 1 using the seasonal winter road with the PAK mine and concentrator producing 40,000 tpa of SC7.2 requiring the processing of roughly 230,000 tpa of ROM. Upon completion of the all-season road, the second phase would allow the lithium battery salts plant to produce 20,000 t LCE of lithium chemicals which will require processing roughly 160,000 t of SC6 concentrate requiring the processing of approximately 900,000 t of ROM from the Spark deposit.

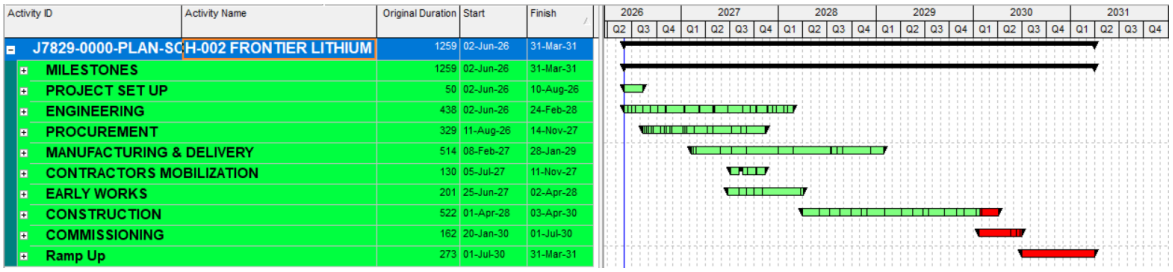
In October 2023, Frontier tasked DRA with the mandate to complete a Feasibility Study (FS), which is the subject of this Report. The FS was initially conducted by DRA on the same premises as the PFS with the process plant designed to produce both Chemical Grade (CG) and Technical Grade

(TG) spodumene concentrates. However, towards the end of the FS, Frontier decided to realign the Project and develop a Value Engineering (VE) phase of the FS based on the following assumptions:

- Elimination of the TG: One production line of CG with a production of 200,000 tpa of CG dry concentrate corresponding to an ore processing capacity of 1.063 Mtpa.
- Project execution delayed until the permanent road becomes available, with Early Works starting in August 2027 and construction starting in April 2028.
- Commissioning completion and plant start-up in July 2030.
- Mining of the Spark deposit initially, followed by PAK at Year 20 of the 31-year life-of-mine.

The summary schedule of the project development is presented in Figure 2.1.

Figure 2.1 – Summary Schedule



Source: DRA, 2025

2.3 Purpose of the Report

The purpose of this Report is to summarize developmental work on the Project performed during the FS phase, including:

- Land tenures, exploration history, and drilling.
- Mineral resource estimates at PAK and Spark deposits.
- Mineral reserve estimates at PAK and Spark deposits.
- Conceptual mine plan at a level to support the FS.
- Recovery methods and process design at a level to support the FS.
- Supporting infrastructure including, power, buildings, and tailings management facility, to support the FS mine plan.
- Environmental permitting requirements for the Project.
- Capital expenditure and operating expenditure estimates for the Project.
- An economic analysis of the Project.
- Summary of recommendations and budget for additional work.

Full listing of references is provided in Section 27.

2.4 List of 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 applicable professional associations:

Table 2.1 outlines the responsibilities for the various sections of the report and the names of the corresponding QPs.

Table 2.1 – Report Responsibility Matrix

#	NI 43-101 Sections	QP	Company
1	Summary	All QPs	ALL
2	Introduction	Elie Accad	DRA
3	Reliance on Other Experts	Elie Accad	DRA
4	Property Description and Location	Schadrac Ibrango	DRA
5	Accessibility, Climate, Local Resources, Infrastructure and Physiography	Schadrac Ibrango	DRA
6	History	Schadrac Ibrango	DRA
7	Geological Setting and Mineralization	Schadrac Ibrango	DRA
8	Deposit Types	Schadrac Ibrango	DRA
9	Exploration	Schadrac Ibrango	DRA
10	Drilling	Schadrac Ibrango	DRA
11	Sample Preparation, Analyses and Security	Schadrac Ibrango	DRA
12	Data Verification	Schadrac Ibrango	DRA
13	Mineral Processing and Metallurgical Testing	Volodymyr Liskovych	DRA
14	Mineral Resources Estimates	Schadrac Ibrango	DRA
15	Mineral Reserve Estimates	Ghislain Prévost	DRA
16	Mining Methods (except Sections 16.2.1 to 16.2.3)	Ghislain Prévost	DRA
16.2.1	Bench Design	Claude Bisaillon	DRA
16.2.2	Slope Design Parameters – PAK	Claude Bisaillon	DRA
16.2.3	Slope Design Parameters – Spark	Claude Bisaillon	DRA
17	Recovery Methods	Volodymyr Liskovych	DRA
18	Project Infrastructure except for 18.7 to 18.8	Elie Accad	DRA
18.7	Tailings Management Facility	Eric Sellars	SLR
18.8	Water Management	Luis Vasquez	SLR
19	Market Studies and Contracts	Daniel Gagnon	DRA

#	NI 43-101 Sections	QP	Company
20	Environmental Studies, Permitting and Social or Community Impact	Luis Vasquez	SLR
21	Capital and Operating Costs	Elie Accad	DRA
22	Economic Analysis	Daniel Gagnon	DRA
23	Adjacent Properties	Schadrac Ibrango	DRA
24	Other Relevant Data and Information	Elie Accad	ALL
25	Interpretation and Conclusions	All QPs	ALL
26	Recommendations	All QPs	ALL
27	References	All QPs	ALL
28	Abbreviations	All QPs	ALL

2.5 Site Visits

Table 2.2 lists the QPs who have completed property site visits.

Table 2.2 – Site Visit

Qualified Person	Company	Date of Site Visit
Claude Bisaillon	DRA	Feb. 20 to Feb. 22, 2024
Ghislain Prévost	DRA	Feb. 20 to Feb. 22, 2024
Eric Sellars	SLR	Feb. 28 to Mar. 1, 2024

2.6 Effective Date

The effective date of the Report is May 28, 2025. As of the effective date of this Report, the QPs 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.

2.7 Sources of Information

QP, Elie Accad, P. Eng. from DRA was the lead author for the FS and for supervision and compilation of this Report, in collaboration with the other QPs responsible for preparing various portions of this Report. This Technical Report includes work and deliverables prepared by and/or under the supervision of all QPs.

The Project assessments of the QPs were based on maps, published material, pre-existing reports, Project development work specifically performed by the Consultants and others, and data,

professional opinions and published and unpublished material provided by Frontier. The QPs reviewed all relevant data provided by Frontier. The QPs reviewed and evaluated all information used to prepare this Report and believe that such information is valid and appropriate considering the status of the Project and the purpose for which this Report is prepared. A full listing of references is provided in Section 27.

2.8 Units and Currency

In this Report, all currency amounts are in Canadian Dollars ($, CA$, or CAD), unless specifically stated otherwise. Quantities are generally stated in *Système international d'unités* (SI) units as per standard Canadian and international practice, including tonne (t) or kilogram (kg) for mass, and kilometre (km) or metre (m) for distance. Abbreviations used in this Report are listed in Section 28.

2.9 Non-GAAP Financial Measures

Certain financial measures referred to in this Report are not measures recognized under International Financial Reporting Standards (IFRS) and are referred to as non-Generally Accepted Accounting Principles (non-GAAP) financial measures or ratios. These measures have no standardized meaning under IFRS and may not be comparable to similar measures presented by other companies. These measures are intended to provide additional information and should not be considered in isolation or as a substitute for measures prepared in accordance with IFRS.

The non-GAAP financial measures used in this Technical Report are defined below:

- C1 Cost and C1 Cost per tonne of concentrate sold: C1 Cost consists of all production related expenses including mining, processing, services, tailings handling, royalties, and general and administrative, plus treatment charges, penalties, transportation and other selling costs. C1 Cost per tonne of concentrate sold is calculated as C1 Cost divided by tonnes of spodumene concentrate sold.
- All-in sustaining cost and all-in sustaining cost per tonne of concentrate sold (AISC): All-in sustaining cost consists of C1 Cost plus cash outlays for sustaining capital expenditures. All-in sustaining cost per tonne of concentrate sold is calculated as All-in sustaining cost divided by tonnes of spodumene concentrate sold.

As the Project is not in production, the QPs do not have historical non-GAAP financial measures nor historical comparable measures under IFRS, and therefore the foregoing prospective non-GAAP financial measures or ratios presented may not be reconciled to the nearest comparable measure under IFRS.

3 RELIANCE ON OTHER EXPERTS

This Technical Report has been prepared by DRA and SLR, for Frontier. The information, conclusions, opinions, and estimates contained herein are based on:

- Information available to the authors at the time of Report preparation.
- Assumptions, conditions, and qualifications as set forth in this Report.
- Data, reports, and other information supplied by Frontier and other third-party sources.

The authors believe the information supplied to be reliable, but do not guarantee the accuracy of conclusions, opinions, or estimates that rely on third-party sources for information that are outside their respective areas of technical expertise. Responsibilities for the various components of the Summary, Conclusions and Recommendations are dependent on the associated sections of the Report from which those components were developed.

The QPs 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 QPs who prepared this Report relied on information provided by experts who are not QPs. The QPs 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.

For Section 4, the QP has relied upon Frontier for information regarding the Project matters pertaining to mineral claims and mining leases.

Further, the QP has not independently verified legal ownership of surface title and exploration licenses comprising the Project beyond information that is publicly available or that was provided by Frontier. The Property description presented in this Report is not intended to represent a legal, or any other opinion as to title ownership.

For Section 22, the QP fully relied upon:

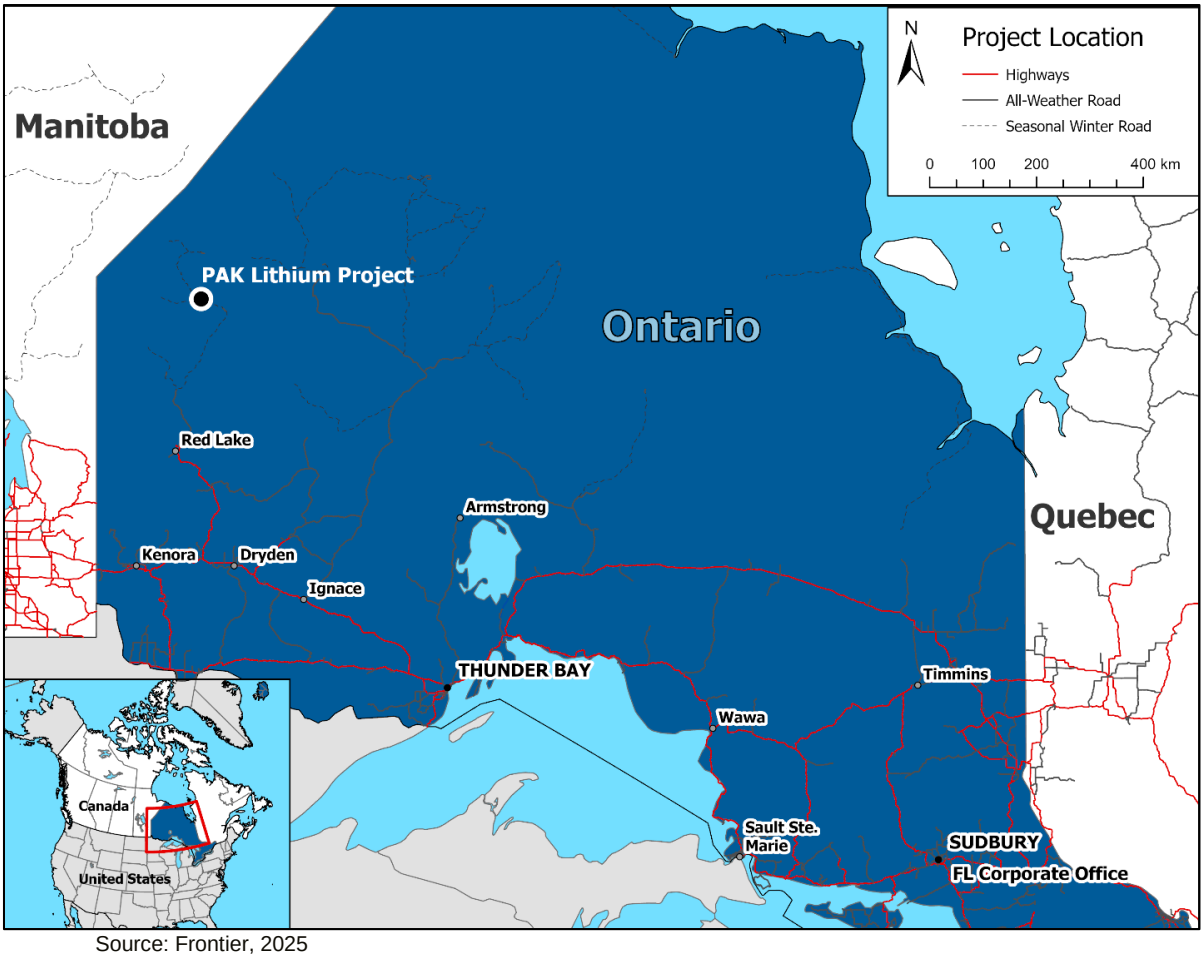
- Royalty memo provided by Frontier; and
- Tax information and tax amounts provided and calculated by Ernst & Young based on the work described in a letter to DRA entitled "Assistance with income tax and mineral tax portions of economic analysis prepared by DRA Americas Inc. in regards to the Feasibility Study Report on Frontier's PAK Lithium Project" dated June 2025. The tax information and tax amounts are used.

4 PROPERTY DESCRIPTION AND LOCATION

4.1 Location

The Property is located approximately 175 km north of the municipality of Red Lake, ON within the Red Lake Mining Division, and is situated on Crown Land (Figure 4.1). The centre of the Project is located is located at 52°36'N latitude and 93°23'W longitude near Pakeagama Lake, which is covered by National Topographic System map sheet reference 53C/11. The Property can only be accessed year-round via chartered airplane or helicopter; however, site access is also possible via a combination of all-season and winter roads during peak winter months.

Figure 4.1 – Location Map



Source: Frontier, 2025

4.2 Mineral Disposition

The Property comprises a total of three (3) mining leases and 1,300 mining claims, for a total of 27,886.4 ha. These dispositions are summarized in Table 4.1 and their distribution shown on the location map in Figure 4.2. All mining leases and claims are currently in good standing.

In March of 1999, Frontier Lithium Inc. (Frontier) entered into an option agreement to earn a 100% interest in Mining Claim KRL-1232441. Upon complying with the terms of the agreement, the Company exercised its option and acquired a 100% interest in the claim. In February 2017, the claim was converted to Mining Lease 109669 and in April 2021, Frontier purchased 100% of the royalty associated with the original option agreement.

On December 8, 2010, a 6-year agreement was entered with two (2) private individuals to acquire 100% interest of three (3) additional mining claims (each comprising 16 units) collectively called the Pakeagama South-East. In 2015, Frontier completed its earn-in by issuing a total of 600,000 common shares and payment of $135,000.

In 2014, 14 additional claims were staked to the northwest and southeast with two (2) more claims staked in 2015 to the west. In 2017, the original claim over the PAK pegmatite was converted to a mining lease to make up the land tenure prior to the Ministry of Energy, Northern Development and Mines (MENDM) transition to its online Mining Lands Administration System (MLAS). The new system uses cells based on the provincial grid system instead of claim units. Frontier's former legacy claims were subsequently converted into 432 mining claim cells and by March 2020, an additional 948 claims had been acquired for a grand total of 1,379 claims totalling 26,826 ha. By August 2, 2022, a total of 121 mining claim cells had been converted to two (2) additional mining leases encompassing the Spark pegmatite and proposed infrastructure area.

All land tenure has since been transferred from "Frontier Lithium Inc." to "Frontier Lithium Resources Inc."; this includes a group of 35 single cell claims (667 ha) that are subject to conversion from mining claims to a mining lease (shown in blue in Figure 4.2). A letter of intent to convert the claims to lease was submitted to the Ministry on June 28th, 2022. The Ministry has completed its due diligence and the surveying has since been completed according to the instructions provided by the Office of the Surveyor General. The legal reference plan is completed and submitted; pending approval, Frontier can complete the application for the mining lease.

In April 2024, 15 additional single cell claims were also acquired to link three (3) claims covering the Knox camp to the water body immediately to the east of the camp. This was done to ensure unimpeded access to the lake which could be used for float-equipped aircraft. The area between the Knox Lake claims and the main claims to the east became open and an additional 24 mining claims were staked in March 2025 making all claims and leases contiguous.

4.3 Tenure Rights

The active mining leases provide both surface rights and mineral rights. For the remaining claims, the surface rights and mineral right to the Property currently remain with the Crown. The Ontario Mining Act (2010) grants the mining claim holder access and exclusive rights to explore on a mineral claim without having the surface or mineral rights. The mining lease holder has the right to extract minerals subject to additional approvals. Frontier Lithium Resources Inc. currently holds three (3) mining leases totalling 2,219.3 ha. All rights are summarized in Table 4.1 and Figure 4.2.

4.4 Royalties and Related Information

No royalty or NSR agreements are associated with either Lease 109669 or Lease 110032 that contain the PAK and Spark deposits, respectively. A royalty agreement is in place for 17 claim cells to the east of Lease 109669 and portions within the 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 (2) additional areas acquired in late 2018 have 1.5% and 0.5% NSRs with the ability to buy out the royalties for $1,000,000 and $500,000, respectively. A single claim group (294.53 ha) located along the Flanagan River (acquired in March 2020) has a 1.0% NSR, which can also be purchased for $1,000,000. These royalty agreements are also summarized in Table 4.2 and shown in Figure 4.2.

Table 4.1 – Summary of Land Tenure, PAK Project

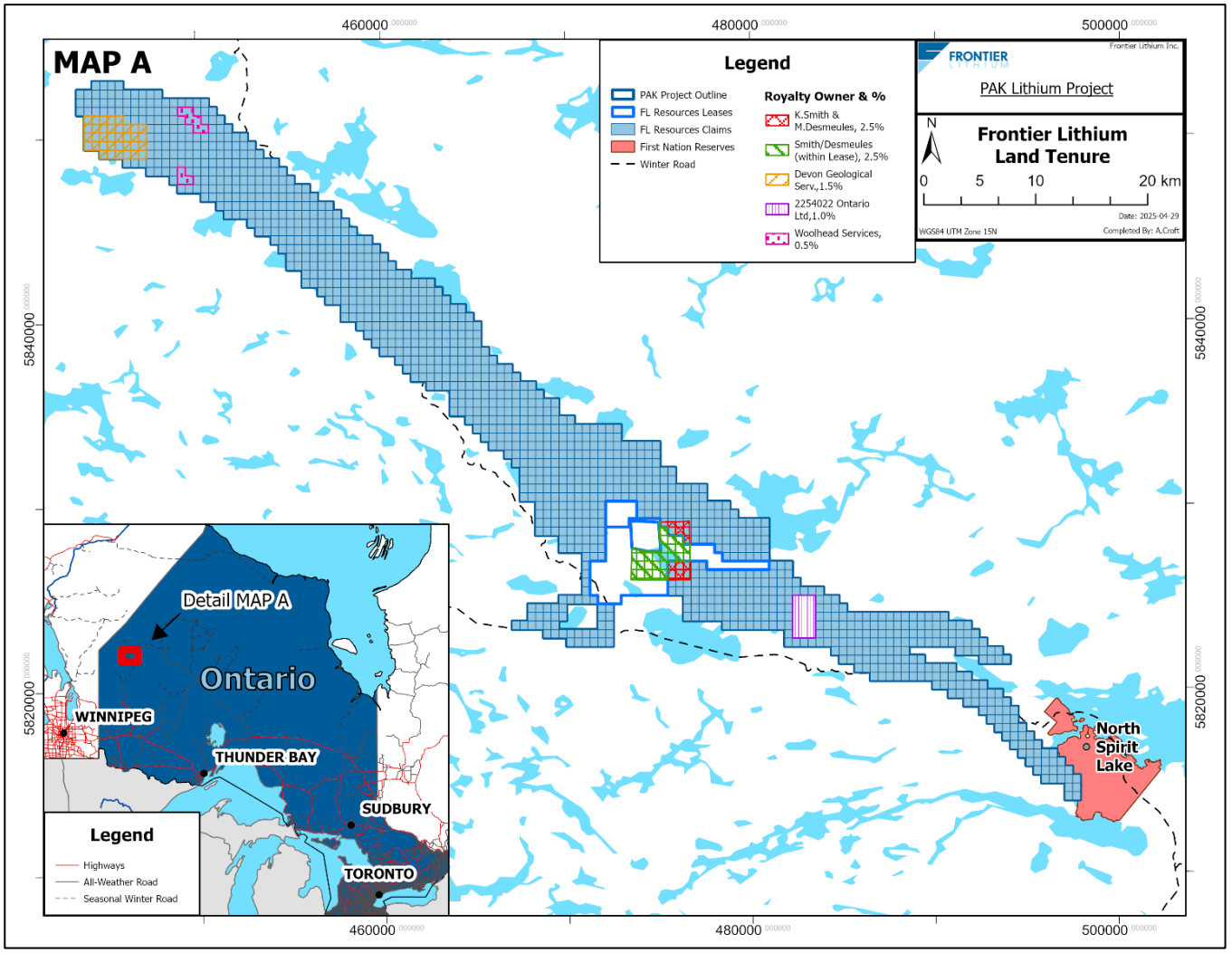
Tenure Type	Units	Ownership	Area (ha)	Expiry Date	Comments
Mining Lease	1	Frontier Lithium Resources Inc. (100%)	242.23	2026-03-01	
Mining Lease	1	Frontier Lithium Resources Inc. (100%)	215.94	2026-04-01	
Mining Lease	1	Frontier Lithium Resources Inc. (100%)	1,761.08	2025-08-01	
Mining Claim	23	Frontier Lithium Resources Inc. (100%)	451.05	2025-09-25	Claims subject to conversion to Mining Lease (initialed in June 2022). Approved by MENDM and legal survey completed with legal reference plan submitted (May 2025) to OSG for approval prior to submission of final application
Mining Claim	5	Frontier Lithium Resources Inc. (100%)	86.83	2026-03-19	
Mining Claim	2	Frontier Lithium Resources Inc. (100%)	39.24	2026-06-10	
Mining Claim	1	Frontier Lithium Resources Inc. (100%)	11.23	2026-08-12	
Mining Claim	2	Frontier Lithium Resources Inc. (100%)	39.22	2026-09-25	
Mining Claim	1	Frontier Lithium Resources Inc. (100%)	19.61	2027-09-25	
Mining Claim	1	Frontier Lithium Resources Inc. (100%)	19.61	2028-09-25	
Mining Claim	3	Frontier Lithium Resources Inc. (100%)	58.91	2025-12-13	
Mining Claim	169	Frontier Lithium Resources Inc. (100%)	3,302.68	2025-10-16	
Mining Claim	137	Frontier Lithium Resources Inc. (100%)	2,677.42	2025-12-10	
Mining Claim	219	Frontier Lithium Resources Inc. (100%)	4,302.47	2026-01-09	
Mining Claim	109	Frontier Lithium Resources Inc. (100%)	2,136.64	2026-01-10	
Mining Claim	10	Frontier Lithium Resources Inc. (100%)	153.8	2026-02-21	
Mining Claim	89	Frontier Lithium Resources Inc. (100%)	1,747.12	2026-02-22	
Mining Claim	44	Frontier Lithium Resources Inc. (100%)	798.2	2026-03-19	
Mining Claim	15	Frontier Lithium Resources Inc. (100%)	294.55	2026-04-19	
Mining Claim	1	Frontier Lithium Resources Inc. (100%)	58.62	2026-05-27	
Mining Claim	8	Frontier Lithium Resources Inc. (100%)	156.99	2026-06-10	

Tenure Type	Units	Ownership	Area (ha)	Expiry Date	Comments
Mining Claim	16	Frontier Lithium Resources Inc. (100%)	225.14	2026-08-12	
Mining Claim	35	Frontier Lithium Resources Inc. (100%)	683.65	2026-08-26	
Mining Claim	20	Frontier Lithium Resources Inc. (100%)	391.13	2026-08-28	
Mining Claim	1	Frontier Lithium Resources Inc. (100%)	117.17	2026-09-15	
Mining Claim	1	Frontier Lithium Resources Inc. (100%)	294.53	2026-10-02	
Mining Claim	364	Frontier Lithium Resources Inc. (100%)	7,130.09	2026-10-15	
Mining Claim	24	Frontier Lithium Resources Inc. (100%)	471.29	2027-03-24	
Totals	***1,303***		***27,886.4***		

Table 4.2 – Summary of Royalty Agreements, PAK Project

Tenure Type	No. of Units	Ownership	Area (ha)	NSR (%)
Mining Lease	2	Frontier Lithium Resources Inc. (100%)	458.2	-
Mining Lease	1	Frontier Lithium Resources Inc. (100%)	531.2	2.5
			1,229.9	-
Mining Claim	1,211	Frontier Lithium Resources Inc. (100%)	23,621.3	-
Mining Claim	1	Frontier Lithium Resources Inc. (100%)	294.5	1.0
Mining Claim	35	Frontier Lithium Resources Inc. (100%)	683.7	1.5
Mining Claim	16	Frontier Lithium Resources Inc. (100%)	225.1	2.5
Mining Claim	2	Frontier Lithium Resources Inc. (100%)	175.8	0.5
Mining Claim	34	Frontier Lithium Resources Inc. (100%)	655.6	-
Mining Claim	1	Frontier Lithium Resources Inc. (100%)	11.2	2.5
Totals	**1,303**		**27,886.4**	

Figure 4.2 – Property Location Map Showing Land Tenure and Royalty Distribution



Source: Frontier, 2025

4.5 Environmental Liabilities

No industrial activities such as mining or mineral processing have been conducted on the Property, with disturbances limited to bulk sample pits, drill trails, and drill pad set-ups. The QP is not aware of any environmental liabilities presently on the Property.

4.6 Permits

All requisite permits have been obtained to conduct exploration on the Property; a listing of the active permits is summarized in Table 4.3.

Table 4.3 – Summary of Active Exploration Permits, PAK Project

Issuing Ministry	Type of Permit or Approval	Permit ID	Permit Issue Date	Permit Expiry Date
Ministry of Energy Northern Development and Mines	Mechanized drilling, pitting and stripping (between PAK and Bolt)	PR-21-000212	2021-07-06	2025-11-06
Ministry of Energy Northern Development and Mines	Taking 1,000 tonne bulk sample (PAK pegmatite)	PR-21-000303	2021-10-21	2026-01-17
Ministry of Energy Northern Development and Mines	Taking 1,000 tonne bulk sample (Spark pegmatite)	PR-21-000304	2021-10-21	2026-01-17
Ministry of Energy Northern Development and Mines	Mechanized drilling, pitting and stripping (Bolt pegmatite)	PR-22-000133	2022-04-22	2025-11-06
Ministry of Energy Northern Development and Mines	Mechanized drilling, pitting and stripping (between Spark and Ember)	PR-23-000055	2023-02-21	2026-06-22

4.7 Other Significant Factors

Exploration Agreements are in place with four (4) 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

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

Access to the Property is available year-round by air and seasonally by a combination of all-season roads connecting to a winter road.

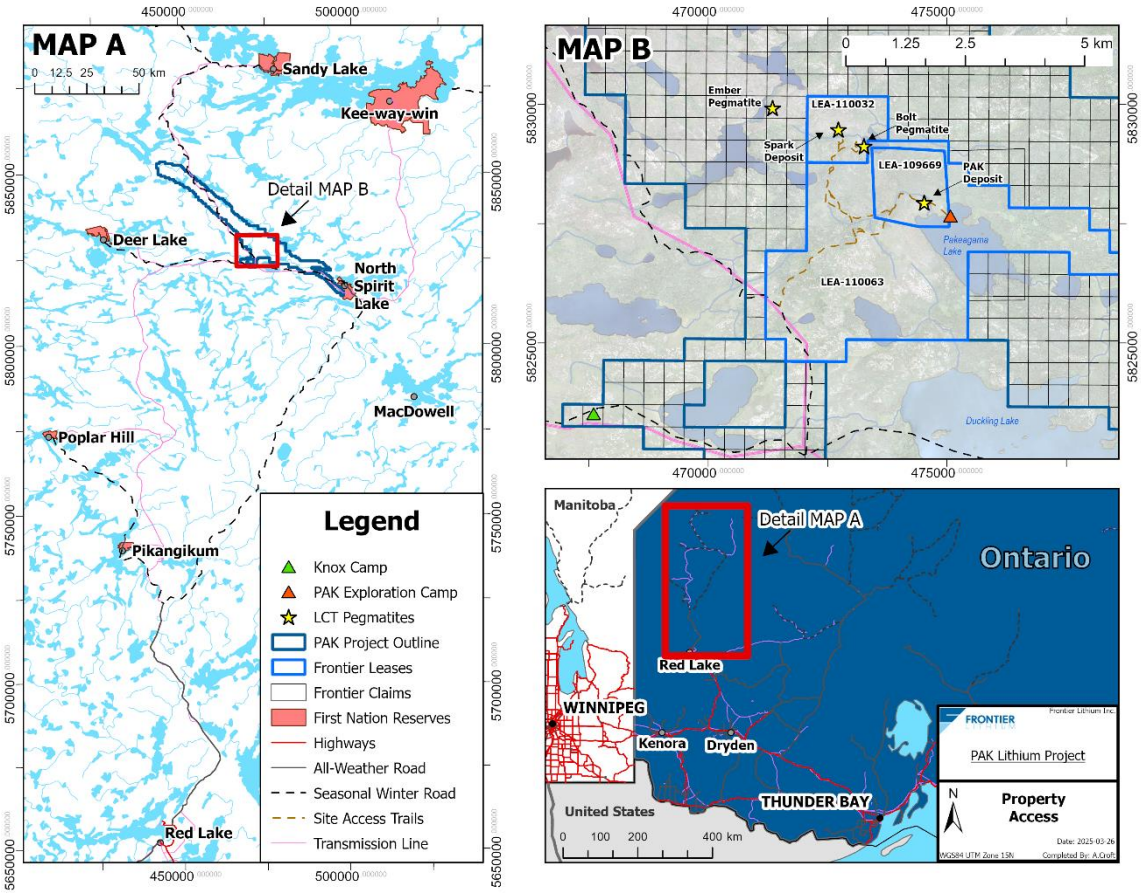
All-season road access to the site is being advanced with federal investment at Berens River in addition to support from the Critical Minerals Infrastructure Fund (CMIF). The start of Project construction is planned to coincide with all-season access on a permanent road. In the interim, the provincial winter road network provides seasonal access.

Currently, from mid-January to April, the Property is accessible via provincially maintained winter roads. Travelling to the site requires driving 100 km north on the Nungesser Road, then 115 km on the winter road to North Spirit Lake First Nation, and another 35 km past North Spirit Lake towards Sandy Lake First Nation.

The winter road is located adjacent to the west side of the claim group (Figure 5.1).

Access to the Property is available year-round by chartered ski or float-equipped aircraft from Red Lake, ON which is located 175 km to the south of Pakeagama Lake. There are short periods of time for ice freeze up in the winter and ice breakup in the spring when the lake surfaces are not suitable for aircraft landing/take-off. Bearskin Airlines and Wasaya Air service the nearby communities of Deer Lake, North Spirit Lake, and Sandy Lake with daily flights year-round.

Figure 5.1 – Property Access



Source: Frontier, 2025

5.2 Climate

The weather data station operated by Environment Canada that is nearest to the Project is located at Red Lake, ON. Review of the climate normals for this station, used to describe average climatic conditions over the period from 1981 to 2010, indicate an average annual temperature of 1.3°C. Summer (June to August) daily temperatures range from 9.1°C to 23.8°C, while winter (December to February) daily temperatures vary from -23.9°C to -8.6°C. Summer highs can reach the mid 30s (°C), and winter lows may drop to the mid -40s (°C). Average annual precipitation in the area is 686 mm (www.climate.weather.gc.ca).

5.3 Local Resources

There are currently no skilled miners nor mining industry skilled tradespersons in the immediate vicinity of the Property. However, the location of the Property within the greater northwestern Ontario region and its proximity to the Red Lake mining camp and Manitoba border will help bolster the number of skilled mining personnel and tradespeople available to meet the needs of the Project.

5.4 Infrastructure

The Property contains adequate water for mining operations, and necessary surface rights have been secured. There is sufficient space for mining and processing infrastructure. Currently, there is no electric power available on the Property. However, the completion of the Wataynikaneyap powerline in 2024, which runs along the western boundary of the project, will enable the project to connect to this power source. Efforts to secure the connection are being advanced with support from the CMIF.

5.5 Physiography

The Property features variable topography, characterized by ridges with prominent cliff faces aligned with the regional geological strike, surrounded by low-lying areas of swamps, lakes, and rivers. Its mean elevation is approximately 320 metres above sea level.

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

The dominant vegetation is coniferous forest, with jack pine stands reaching up to 6 metres in higher elevations and black spruce prevalent in swampy areas. Upland regions consist of discontinuous acidic sandy tills, often capped by thin lacustrine clay deposits in low-lying areas. Deadfall from a 1995 forest fire complicates foot travel, and subsequent fires in 2008, 2011 and 2021 affected parts of the Pakeagama Lake project area, including the vicinity of the pegmatites.

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 subsequently carried out by G. V. Douglas (1925), M. E. Hurst (1928), and Satterly and Bateman (1937), all of the Ontario Department of Mines. According to Stone (1998), the focus during this time included gold showings in the Sandy Lake and Favourable Lake areas to the north, as well as gold occurrences in the North Spirit Lake area to the southeast.

Limited exploration activity has occurred in the Pakeagama Lake area, with most of the historic work in the region centred on the Favourable Lake and Setting Net Lake areas located approximately 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 in close proximity to the Bearhead Lake Fault near Setting Net Lake (25 km WNW of Pakeagama Lake). A grab sample from the pegmatite dyke returned a value of 0.52% Li (Ayres, 1972b).

Additional mapping of the North Spirit Lake greenstone belt was carried out by Woods of the Ontario Geological Survey (OGS) between 1977 and 1988 (Stone, 1998).

6.1 Pakeagama Lake Area

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 OGS and the 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.

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 Bearhead Lake Fault Zone; however, the Pakeagama Lake pegmatite occurrence became the focus for future detailed studies.

In 1998 and 1999, Dr. F. Breaks and Dr. A. Tindle of the OGS conducted approximately 2,186 analyses to establish the Pakeagama rare metals pegmatite as a potential world-class deposit with similarities to the Tanco deposit nearby in Manitoba. 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.

In July 1998, the Pakeagama Lake pegmatite property was acquired by Houston Lake Mining Inc. (renamed Frontier Lithium Inc. in July 2016). Since 1998, exploration efforts have focused on rare-element pegmatites by Frontier as well as other companies. Between 1998 and 2001, field programs included geologic mapping, channel sampling, geophysics and geochemical surveys with most of the work occurring in 2001.

In 2008 and 2011, soil geochemical surveys were completed including enzyme leach and mobile metal ion (MMI) surveys. In 2012, most of the historic channel samples were resampled along with new channel cuts. This was the first time certified reference materials (CRMs) were used to validate the high lithium grades originally reported.

Orientation work on soil geochemistry and tree core dendrochemistry that began in 2013 culminated in a semi-regional study in June 2017. Other work included geological mapping in 2017 and 2018 and high-resolution aerial photography over much of the project area in 2016. The Spark and Bolt pegmatites were subsequently discovered in 2018 and 2020, respectively.

In June 2021, a LiDAR survey was flown over the entire PAK Lithium project. A ground-based PULSAR Audio Magnetotelluric (AMT) geophysical survey was completed over the PAK and Spark pegmatite areas in March 2022 followed by a drone-based magnetic survey in September 2022.

Prior to 2022, exploration efforts primarily consisted of limited, sporadic mapping and prospecting programs. To significantly advance geological knowledge of the area, a comprehensive regional mapping and prospecting campaign was launched during the summer 2022 field campaign. A more focused follow-up program was conducted in 2023 to further investigate newly generated targets.

In May 2023, a UAV-borne magnetic survey was flown over the PAK-Bolt area and over the Pennock pegmatite, followed by a second LiDAR survey covering the proposed Junction Road corridor which included coverage of Frontier's claims over the Knox camp and surrounding Knox Lake.

Diamond drilling began in 2013 and has continued into 2024 with a total of 42,733.5 m drilled in 142 exploration and 29 geotechnical holes to date.

In 2018, a Prefeasibility Study (PFS) was completed to produce spodumene concentrate from PAK pegmatite. With the discovery of the significantly larger Spark pegmatite, a Preliminary Economic Assessment (PEA) was completed in 2021 for fully integrated mining, milling, and processing of lithium compounds utilizing material from both the PAK and Spark pegmatites. This business case has since been upgraded with a PFS and an FS published in 2023 and 2025, respectively.

6.2 PAK Project Chronology

There has been little exploration carried out by publicly traded or private companies prior to Frontier's involvement with the Project.

Table 6.1 summarizes the work that has been completed on the Property. The information has been gathered from various assessment reports and internal documentation.

Table 6.1 – Historical Property Exploration Summary

Year	Company / Organization	Activity	Highlights
1886	GSC	Regional reconnaissance	First recorded reconnaissance work noted in the region.
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	Spodumene identified near Setting Net 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 and channel sampling	Completed detailed mapping and geochemistry (grab and channel samples) to establish Pakeagama Lake pegmatite as containing 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 previous work completed by the OGS.
2001	HLM	Ground geophysics	26-km magnetic and VLF survey; the survey was unsuccessful in delineating the pegmatite zone; however, contacts were defined between metasedimentary and granitoids that host the pegmatites in overburden-covered areas.
2001	EFR	Geological mapping and sampling	Mapped and sampled the area immediately to the northwest of the main pegmatite. No anomalies noted.
2001	HLM	Channel sampling	Identified and confirmed high-grade lithium in the "Core Zone" of 4.5% Li_2O over 13.9 m.

Year	Company / Organization	Activity	Highlights
2007	OGS	Airborne electromagnetics	Part of a larger survey flown by Fugro at 200 m line spacing and 120 m terrain clearance. Banded iron formation in the metasediments and metavolcanic-hosted sulphides were well defined by the survey.
2008	HLM	Line cutting and soil sampling	Re-established a former 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 for the suite including Cs, V, Ta, Li, Ga, and Nb.
2010	HLM	Acquisition of claims by option agreement	Acquired three (3) claims to secure 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 mainly successful in delineating areas of elevated cesium, lithium, and rubidium MMI concentrations, supporting the interpretation of potential extensions along strike to the northwest and southeast of the Pakeagama Lake pegmatite.
2012	HLM	Channel sampling; claim staking	Channel sampling was carried out across portions of the pegmatite to verify historical grades by using certified standards. Additional claims were staked to increase land tenure to the southeast along the pluton.
2013	HLM	Phase I diamond drilling; claim staking	Completed the first diamond drilling on the Property, totaling 955 m in six (6) holes. Intersected 154 m wide pegmatite zone grading 1.22% Li_2O, 111 ppm Ta_2O_5, and 0.41% Rb_2O, including a high-grade lithium-rich core of 18 m grading 4.22% Li_2O. Continued staking along the pluton.
2013	HLM	Tree core sampling	Collected 37 tree core samples during the winter drill program.
2013	HLM	Tree core and soil sampling	Collected 34 tree core samples and additional soil samples over the deposit area as an orientation study.
2013	HLM	Mineralogical 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; claim staking	Completed a total of 1,489 m in nine (9) holes, which confirmed continuity of the high-grade UIZ and extended mineralization both along strike and to depth. Continued staking to the southeast.
2014	HLM	Tree core & soil sampling	Collected soil samples and tree core samples on six (6) lines perpendicular to the strike of the PAK Deposit.

Year	Company / Organization	Activity	Highlights
2014	HLM	Channel sampling; claim staking	Completed the twinning of outstanding historical channels and cut two new channels confirming the grades and width of the UIZ at the surface. Additional staking completed to the northwest.
2015	HLM	Phase III diamond drilling	Completed 1,641 m in eight (8) holes, which continued to confirm grade continuity and extended known mineralization both along strike and to depth.
2015	HLM	Bulk sample of UIZ	In late Q1, a drill-blast program (67 holes) was completed to collect a ~300 t bulk sample. Following primary crushing in Red Lake, the sample was 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; claim staking	Established water sampling and monitoring stations within the PAK project area to be sampled three (3) times annually (spring freshet, late summer and winter). Also initiated flora and fauna studies, 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 (2) holes to test and confirm the eastern extension of the plunging pegmatite body.
2015	HLM	Channel sampling	Stripped overburden to increase surface exposures of the high-grade UIZ to the WNW and completed 70 m of new channel cuts in eight (8) separate channels.
2016	Frontier	Business name change	Company changes name from Houston Lake Mining (HLM) to Frontier Lithium Incorporated (FLI).
2016	Frontier	Exploration agreement	Company signs Exploration Agreement with Deer Lake First Nation and Sandy Lake First Nation.
2016	Frontier	Baseline environmental surveys	Continued with baseline work, including flora and fauna studies by Blue Heron Environmental.
2016	Frontier	High-resolution aerial photography	Completed high-resolution aerial photography over the northern portions of the legacy claim area. Ground survey control points were established, thereby allowing for the generation of digital elevation models.
2017	Frontier	Prefeasibility study	Initiated PFS work with Nordmin as the lead consultant, 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 (4) holes to delineate the eastern plunge of the pegmatite.

Year	Company / Organization	Activity	Highlights
2017	Frontier	Tree core and soil sampling study	Completed a study of available trees in proximity to the deposit, as well as on two (2) lines to the northwest to test a more distal area with prospective geology.
2017	Frontier	Geological mapping; petrographic study	Began a systematic mapping program within the Frontier claims area away from the deposit. Completed a petrographic study on selected hand samples.
2017	Frontier	Metallurgical test work	Metallurgical test produces a spodumene concentrate with a grade of 7.13% Li_2O.
2017	Frontier	Hydrogeological/ geotechnical drilling	Completed 316 m in 28 holes and 576 m in five (5) holes to support hydrogeological and geotechnical work for the PFS, respectively.
2018	Frontier	Baseline environmental surveys	Completed baseline surveys for the PFS, including both aquatic studies and flora and fauna studies.
2018	Frontier	Prefeasibility study	Published results of the prefeasibility study.
2018	Frontier	Geological mapping	Continued geological mapping led to the discovery of the new Spark pegmatite located ~2.3 km northwest of the PAK deposit.
2018	Frontier	Hydrogeology	Completed 194 m in 20 holes for hydrogeological work, as recommended in the 2018 PFS.
2018	Frontier	Phase VI diamond drilling	Completed 1,221 m in nine (9) holes focused on delineating the eastern extension of the PAK deposit and the near-surface UIZ.
2018	Frontier	Channel sampling	Completed eight (8) channels on the exposed surface of the Spark pegmatite.
2019	Frontier	Phase VII diamond drilling	In February, completed 1,340 m in five (5) holes to test the Spark pegmatite.
2019	Frontier	Phase VIII diamond drilling	In August, completed an additional four (4) holes totalling 1,159 m on the Spark pegmatite.
2019	Frontier	Channel sampling	Completed four (4) 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 (1) channel on the exposed surface of the Pennock pegmatite.
2020	Frontier	Prefeasibility study	Maiden Spark Mineral Resource Estimate included in the prefeasibility study report.
2020	Frontier	Channel sampling	Completed two (2) channels on the exposed surface of the Bolt pegmatite.
2021	Frontier	Phase IX diamond drilling	Completed a total of 1,631 m in four (4) delineation and two (2) geomechanical holes during February and March at the Spark deposit.

Year	Company / Organization	Activity	Highlights
2021	Frontier	Preliminary economic assessment	Preliminary economic assessment completed for fully integrated mining, milling and 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 a total of 1,638 m in four (4) delineation and one (1) geomechanical holes between September and October at the Spark deposit.
2021	Frontier	Channel sampling	Completed a third channel on the Bolt pegmatite and two (2) more channels on the western portion of Spark.
2022	Frontier	Phase XI diamond drilling	Completed a total of 1,343 m in three (3) delineation and two (2) geomechanical holes during February and March at the Spark deposit.
2022	SLR	Environmental baseline studies	Initiated an environmental audit by SLR, including a systematic program of surface and groundwater sampling, aquatic and terrestrial studies.
2022	Frontier	Phase XII diamond drilling	Completed 45 holes including two (2) geomechanical holes for a total of 14,641 m at the Spark deposit to ensure sufficient size and grade to proceed with a new prefeasibility study.
2022	Frontier	Channel sampling	Completed one (1) channel on the Spark Pegmatite in an area where there was a gap in drilling due to topography and related drill accessibility.
2022	Frontier	Regional mapping	Completed helicopter-supported regional-scale mapping over the entire PAK Lithium Project in tandem with 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 magnetic survey	Completed a UAV magnetic survey over 15 km^2 covering the PAK, Spark, and Bolt pegmatites.
2023	EarthEx	UAV magnetic survey	Completed a UAV magnetic survey at higher resolution over PAK, Spark, Bolt, and Pennock pegmatites.
2023	Frontier	Regional mapping	Completed a targeted helicopter-supported mapping program to follow up on work completed in 2022 in tandem with the Phase XIII drill program.

Year	Company / Organization	Activity	Highlights
2023	Frontier	Phase XIII diamond drilling	Completed a total of 11, 364 m in 46 holes including 4 delineation holes on Spark, 15 holes as part of maiden drilling on Bolt, 11 geotechnical holes on PAK, and 16 condemnation holes on the Leases.
2023	Frontier	Prefeasibility study	Published an updated prefeasibility study focused on an integrated mining, milling and production site for both the PAK and Spark deposits.
2023	Frontier	Feasibility study	Initiated FS work with DRA as the lead consultant and inputs from SLR, Minopex, Minnow and Ernst & Young.
2024	Frontier	Regional Mapping	Completed a small-scale mapping program on localized targets north of the Frontier mining leases.
2024	Frontier	Channel Sampling	Completed two (2) channels on barren aplite veins to confirm absence of mineralization for condemnation purposes.
2024	Frontier	Phase XIV diamond drilling	Completed a total of 2,031.5 m in five (5) geotechnical holes at Spark, four (4) condemnation holes, and one (1) exploration hole at the Ember pegmatite target.
2025	Frontier	Feasibility study	Published a feasibility study focused on an integrated mining, milling and production site for the PAK and Spark deposits, with a maiden Inferred resource for the Bolt deposit.

6.3 Historical Mineral Resource and Mineral Reserves

The PAK Lithium Project has had several historic Mineral Resource and Mineral Reserve Estimates completed since 2014. The historic Mineral Resources and Mineral Reserves were classified using the definitions provided by the Canadian Institute of Mining (CIM) at the time of disclosure. Each of these estimates has been publicly disclosed via technical report filings made by Frontier, as summarized in Table 6.2.

All of the Mineral Resource and Mineral Reserve Estimates listed below are considered historic in nature and are no longer to be relied upon or considered current.

Table 6.2 – Historic Mineral Resources and Historic Mineral Reserves

Year	Deposit	Classification	Cut-off Grade	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 and Indicated	0.4% Li_2O Eq	6.85	1.82	McCracken, 2016
		Inferred	0.4% Li_2O Eq	0.23	1.55	
2018	PAK	Proven and 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 and 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 and 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	
2023	PAK	Measured & Indicated (O/P)	0.6% Li_2O	5.42	1.99	McCracken et al., 2023
		Inferred (O/P)	0.6% Li_2O	0.60	1.97	
		Measured & Indicated (U/G)	0.8% Li_2O	1.26	2.15	
		Inferred (U/G)	0.8% Li_2O	2.07	2.38	
	Spark	Indicated (O/P)	0.65% Li_2O	18.83	1.52	
		Inferred (O/P)	0.65% Li_2O	29.75	1.34	

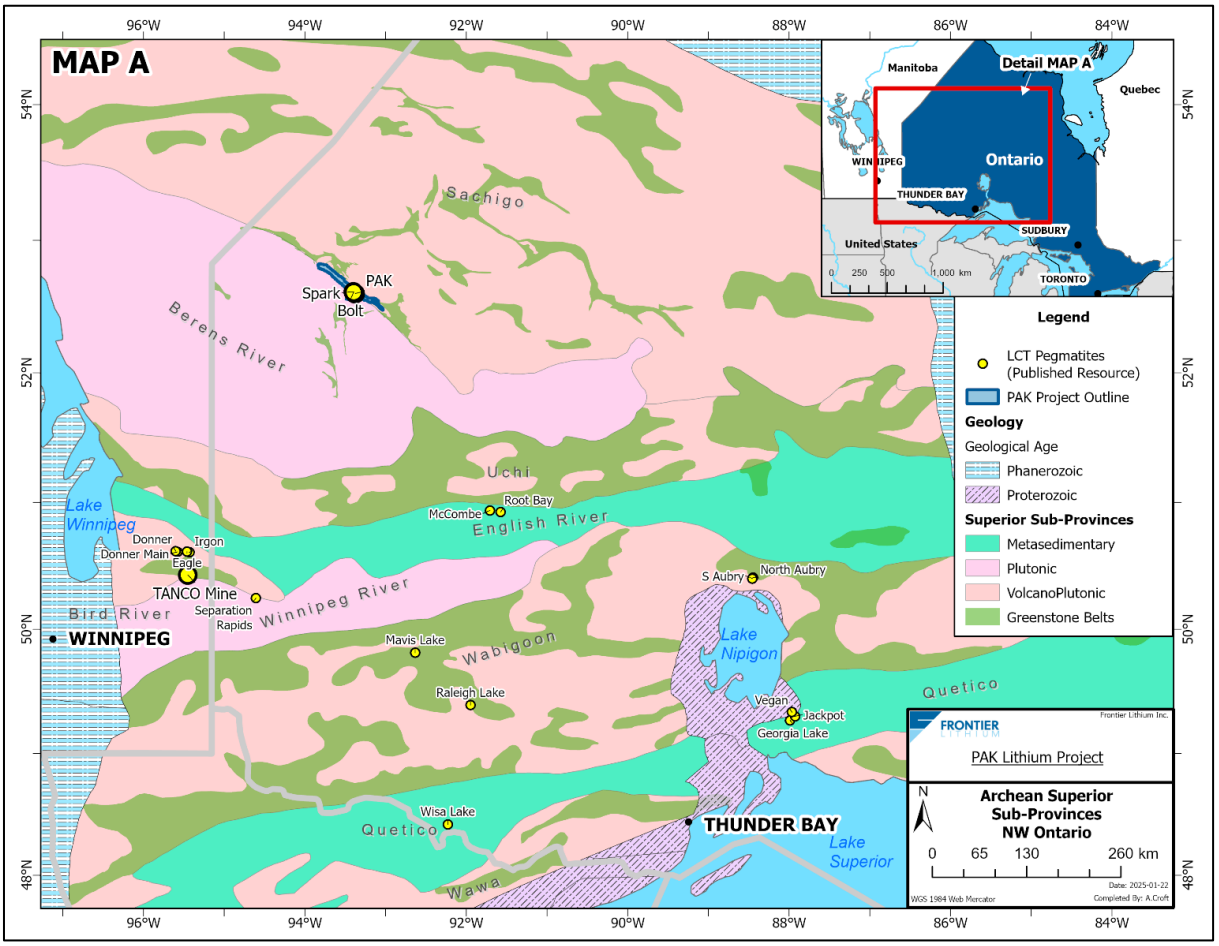
7 GEOLOGICAL SETTING AND MINERALIZATION

The information in Section 7 is largely extracted, summarized and/or updated from the Report available on SEDAR entitled: "NI 43-101 Technical Report – Pre-Feasibility Study for the PAK Project, Northwestern Ontario, Canada", which is effective as of May 31st, 2023 and issued on July 14th, 2023 (the Technical Report) and prepared by BBA E&C Inc., WSP Canada Inc., Halyard Inc., Ian Ward Consulting Services and Environmental Application Group for Frontier Lithium Inc. Further details as documented therein remain correct and valid.

7.1 Regional Geology

The Project area is situated in the North Caribou terrane 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).

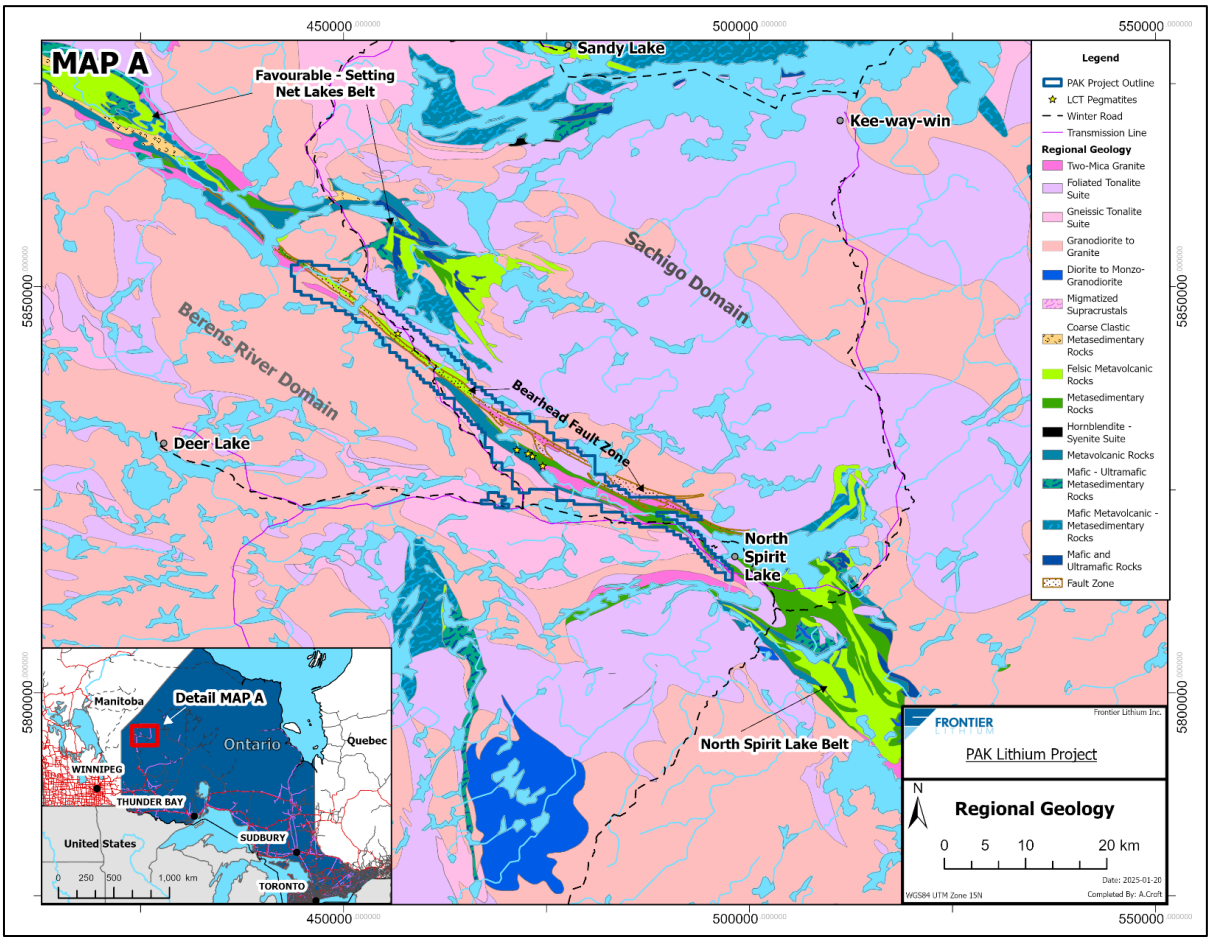
Figure 7.1 – Archean Subprovinces of Northwestern Ontario



Source: Frontier, 2025

These subprovinces comprise a series of relatively isolated volcano-sedimentary (greenstone) belts surrounded by extensive granitoid and gneissic rock suites. The subprovinces are separated by the Bearhead Lake Fault Zone as shown in Figure 7.2.

Figure 7.2 – Regional Geology Map



Source: Frontier, 2025

Two (2) of the greenstone belts that are located along the Bearhead Lake Fault Zone are the Favourable Setting Net Lake 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 Bearhead Lake Fault system. The main volcanic and sedimentary assemblages identified in each belt are interpreted, at least in part, to be correlative (Stone et al., 1993).

The assemblages of the Favourable Lake and North Spirit Lake greenstone belts have been metamorphosed under greenschist facies conditions. However, metamorphic grade increases to amphibolite facies in proximity to the Bearhead Lake Fault Zone. Amphibolite facies are thus

predominant in the Project area outside of the greenstone belts. For simplicity, the prefix 'meta' is herein omitted as all rocks on the Property are understood to have been variably metamorphosed.

There are five (5) generalized geological map units near the Pakeagama Lake pegmatite. These are, from oldest to youngest:

- Setting Net assemblage volcanics (ca. 2925 Ma), Favourable Lake greenstone belt.
- Makataiamik assemblage sediments (ca. 2750 Ma), North Spirit Lake greenstone belt.
- Tonalite to granodiorite (ortho-)gneissic suites.
- Granitic and granodioritic intrusions of the Berens River and Sachigo subprovinces (Card and Ciesielski, 1986).
- Peraluminous, two-mica (muscovite and biotite) granitic to granodioritic intrusions, including the Pakeagama Lake pluton (Corfu et al., 1998; Stone, 1998; Stone et al., 1993).

The Setting Net assemblage consists of basal komatiitic to basaltic subaqueous extrusive rocks overlain by siliciclastic rocks, marble, and ferruginous chert, with a volcanic-sedimentary caldera-filling succession at the top (Thurston et al., 1991).

Tonalitic to granodioritic gneiss protoliths give variable ages between ca. 3000 and 2700 Ma and are also reported as clasts within the Makataiamik assemblage (Corfu and Wood, 1986). Granitic and granodioritic intrusions were emplaced during a major magmatic event that generated more than 80% of Berens River plutonic rocks between ca. 2745 and 2700 Ma (Stone, 1998).

The Pakeagama Lake pluton is one of nine peraluminous two-mica granitic plutons (fertile granites) located over a strike length of 140 km along the Berens River - Sachigo subprovince boundary zone (Stone, 1998). One such pluton on the east side of the North Spirit Lake greenstone belt has a preliminary age of 2697 Ma (Stone, 1998). Fertile granites are interpreted to act as protoliths that give rise to rare metal pegmatites.

The Bearhead 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 Bearhead 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.

7.2 Project Geology

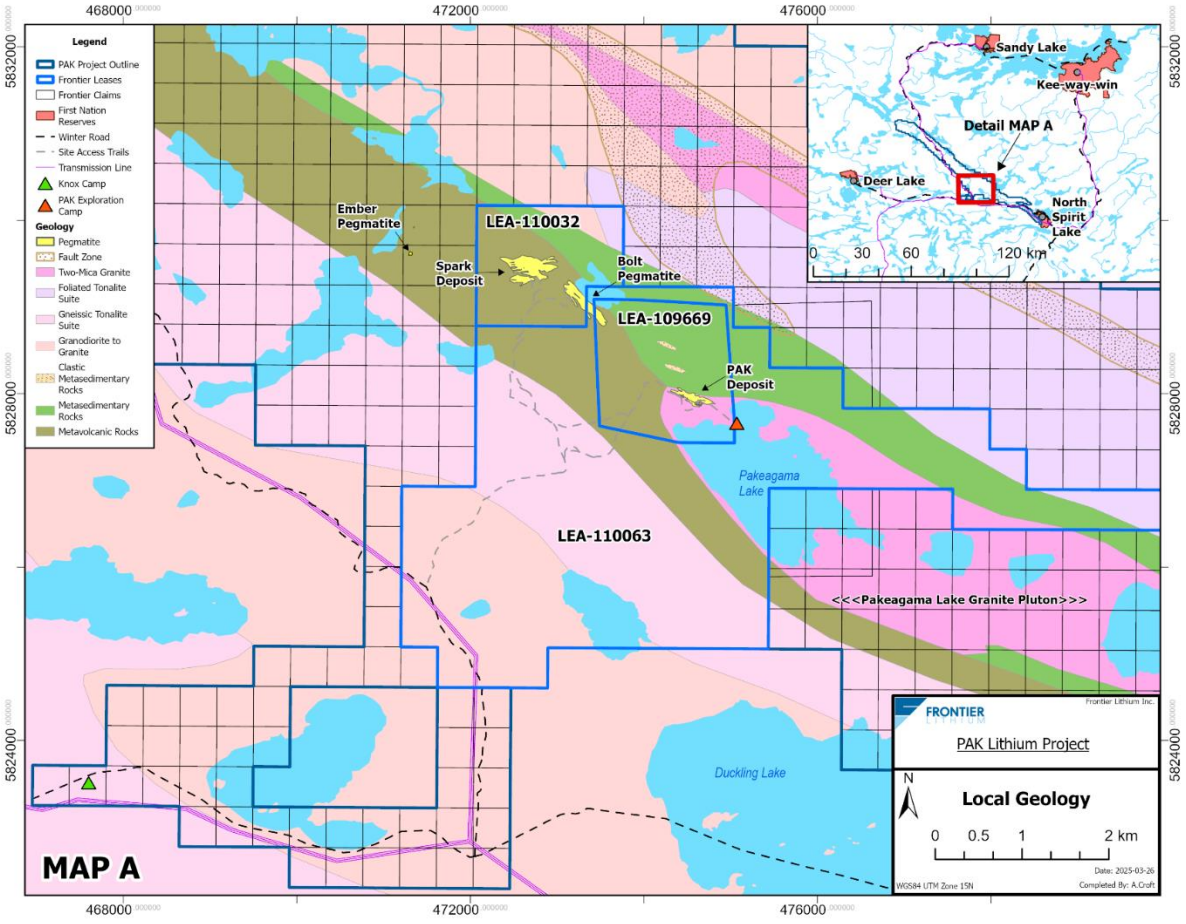
The area is underlain by the northwestern extension of the North Spirit Lake greenstone belt of the Superior Province. The greenstone rocks are approximately 2 km wide in the vicinity of the pegmatites (Figure 7.3).

The greenstone belt is bounded to the north by biotitic tonalites 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).

There are three (3) main lithologic domains. To the northeast, rocks with metasedimentary origins are composed of pelitic sediments, iron formation, and conglomerate. The southwest region comprises dominantly mafic metavolcanic and related metasedimentary rocks. The elongate (15 by 2.5 km) Pakeagama Lake peraluminous granite - pluton trending northwest-southeast was emplaced along the unconformable contact between metasedimentary and metavolcanic rocks.

The Pakeagama Lake granitic pegmatite (PAK pegmatite) is a highly evolved, zoned, complex- type, petalite-subtype LCT granitic 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).

Figure 7.3 – Property Geology



Source: Frontier, 2025

Recent discoveries by Frontier have identified up to three new mineralized intrusive bodies including the Spark, Bolt and Ember pegmatites in addition to the historic Pennock showing. The Spark pegmatite, situated approximately 2.3 km to the northwest of PAK, exhibits many lithological similarities. The smaller Bolt pegmatite is located between PAK and Spark, meanwhile the Pennock pegmatite lies approximately 25 km northwest of Spark. The most recently identified Ember pegmatite is located approximately 1 km west-northwest of Spark. Similar to PAK, each of these discoveries has been made along, or in proximity to, the same unconformable metasedimentary-metavolcanic contact.

7.2.1 PAK PEGMATITE

At 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

The exposed outcrop area was initially mapped 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 mineralogical zone criteria (Figure 7.4).

The three main pegmatite zones identified from this work include, from southwest to northeast and perpendicular to the strike:

- Central Intermediate Zone (CIZ) – tantalum, rubidium, and cesium enriched.
- Upper Intermediate Zone (UIZ) – lithium and rubidium enriched.
- Lower Intermediate Zone (LIZ) – lithium and rubidium enriched.

Border, Lower and Upper Wall Zones have also been described but are not included as separate mapped units. The zonation and related alterations display a number of similarities with the Tanco pegmatite as described by Černý et al. (1998).

7.2.2 SPARK PEGMATITE

The Spark Pegmatite was discovered in September 2018 during routine geological mapping of the area. The Spark pegmatite is less complexly zoned compared to PAK and appears to have been emplaced oblique to the dominant trend and near the contact of the host metavolcanic-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.

7.2.3 BOLT PEGMATITE

In September 2020, several zones of pegmatite were discovered ranging between a few metres to over 50 m wide and can be traced for at least 600 m along the western side of Unnamed Water Body #1 (Figure 7.6). The pegmatite encountered is generally concordant with the mafic metavolcanic host rock and dips steeply (~75–80º) to the southwest. At surface, the pegmatite is typically dark grey, lichen-covered and oxidized making it considerably less conspicuous than the lighter-coloured PAK and Spark pegmatites.

An easily accessible area towards the southern margin of the main exposure was sampled with two offset channels oriented perpendicular to the main trend of the pegmatite. A mixed zone of pegmatite and metavolcanics (contact zone) occurs parallel to the nearby shoreline. In 2023, additional channels and a maiden drill program were completed on the pegmatite. Figure 7.6 is a compilation of the Bolt area showing drill hole and channel lithologies and the surface exposure of the pegmatite.

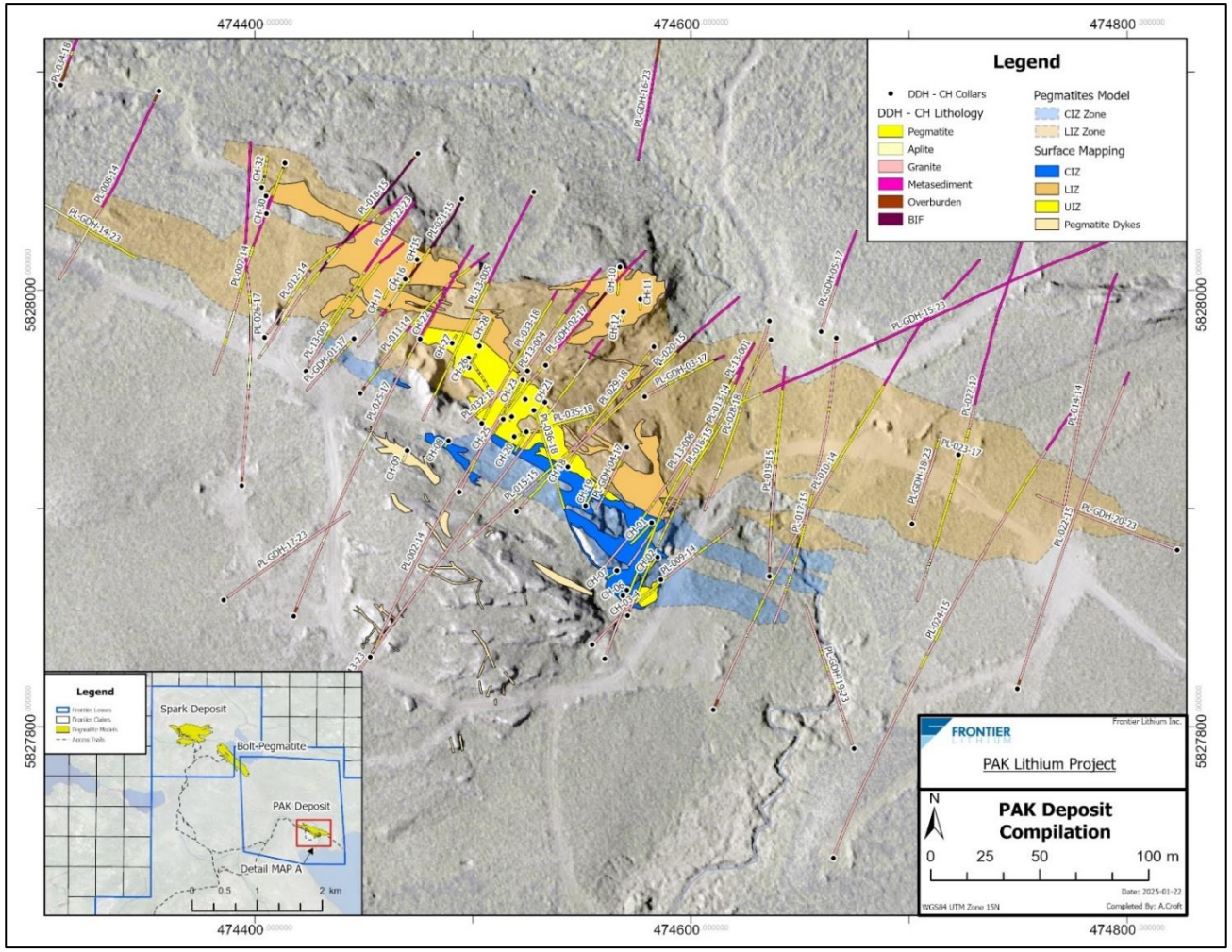
7.2.4 PENNOCK PEGMATITE

Immediately following the discovery of the Spark Pegmatite, the historic Pennock showing was investigated in 2018. With additional work completed in 2022, a 1.5 km-long pegmatite dyke was identified, 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 Zone and culminates near a 16 m wide exposed “blowout” at the western end. During summer drilling programs in 2019 and 2023, the support helicopter was used to transport two-person crews to cut a series of channels across the main blowout area and associated dykes of the Pennock pegmatite. A compilation map of the Pennock area along with Li_2O concentrations from the sampled channels is shown in Figure 7.7; this area remains an active exploration target.

7.2.5 EMBER PEGMATITE

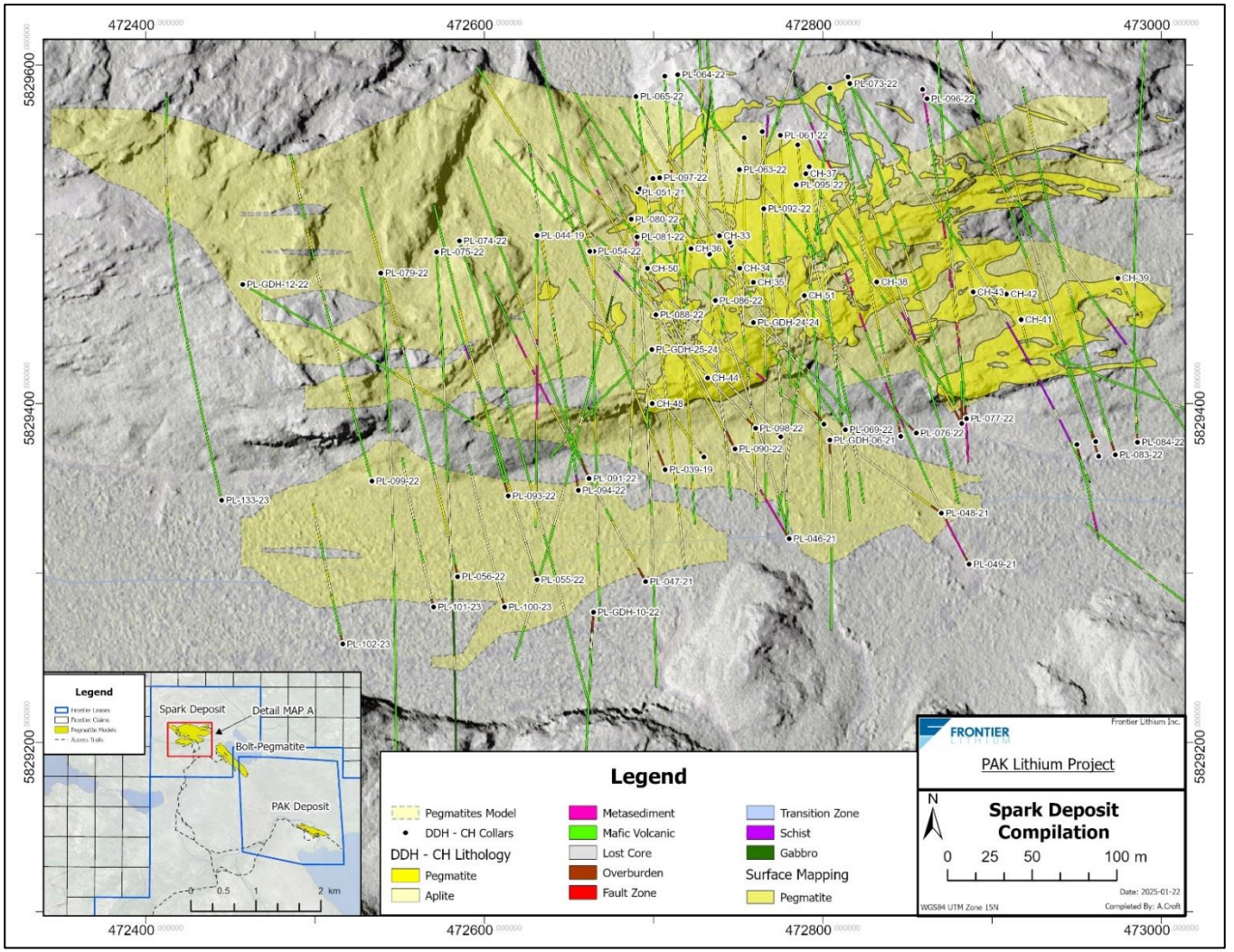
The Ember pegmatite was discovered in 2022 approximately 1 km west northwest of Spark during a routine regional geological traverse. Because of its small size (15 by 10 m) and proximity to other large glacial erratics, it was suspected to be a large erratic sourced from the nearby Spark pegmatite. However, during the initial channeling in 2023, it was confirmed to be in-situ by excavating the area between the pegmatite and the nearby metavolcanic outcrop exposing the contact. It exhibits textures and mineralogy comparable to the PAK deposit. In 2023, two parallel channels were cut across the outcrop, yielding an average grade of 2.16% Li_2O over a combined length of 18 m. A single diamond drill hole in 2024 further extended the high-grade lithium zone from the surface to a depth of 40 m (Figure 7.8). This area remains an active potential exploration target.

Figure 7.4 – Detailed Geology of the PAK Deposit



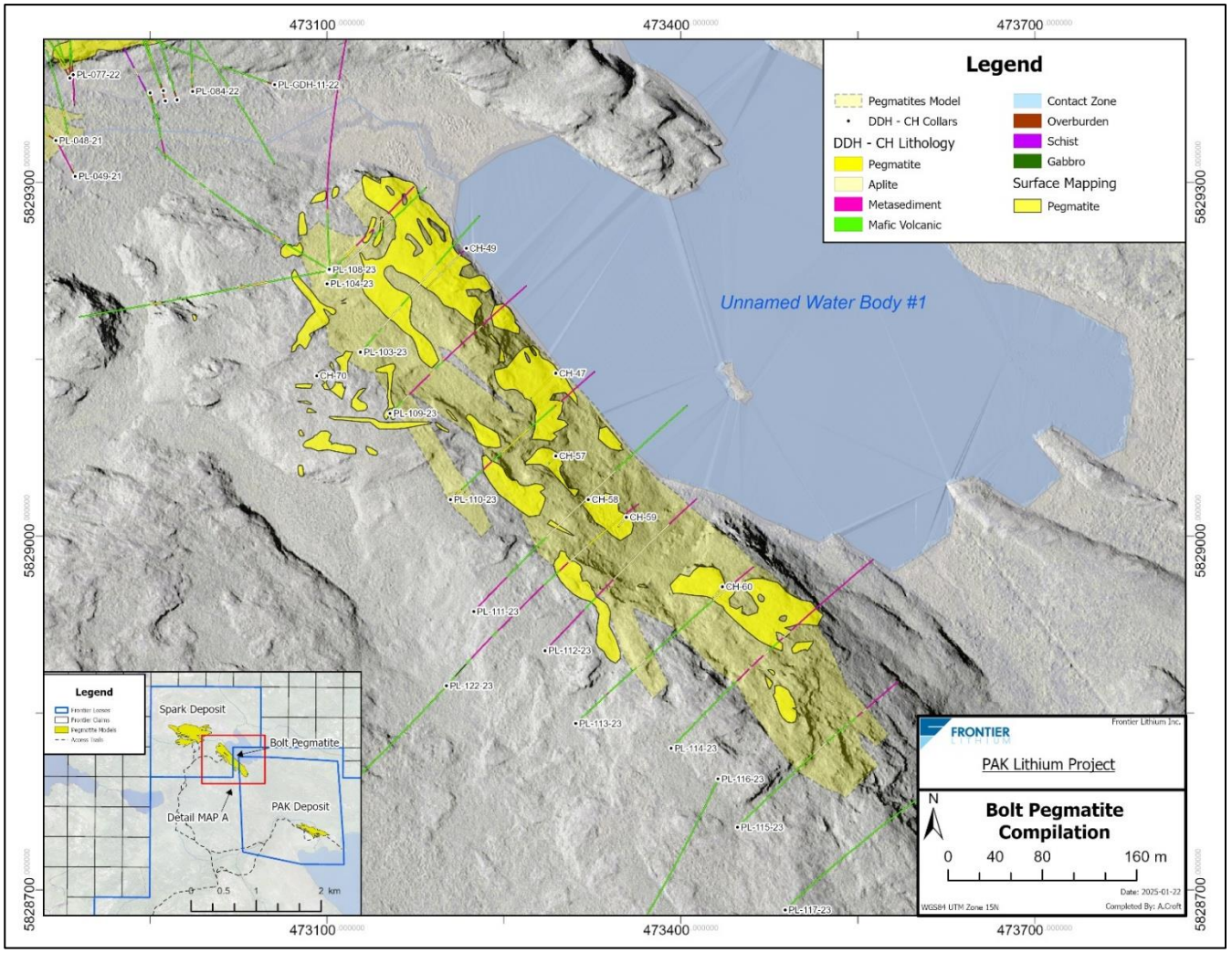
Source: Frontier, 2025

Figure 7.5 – Detailed Geology of the Spark Deposit



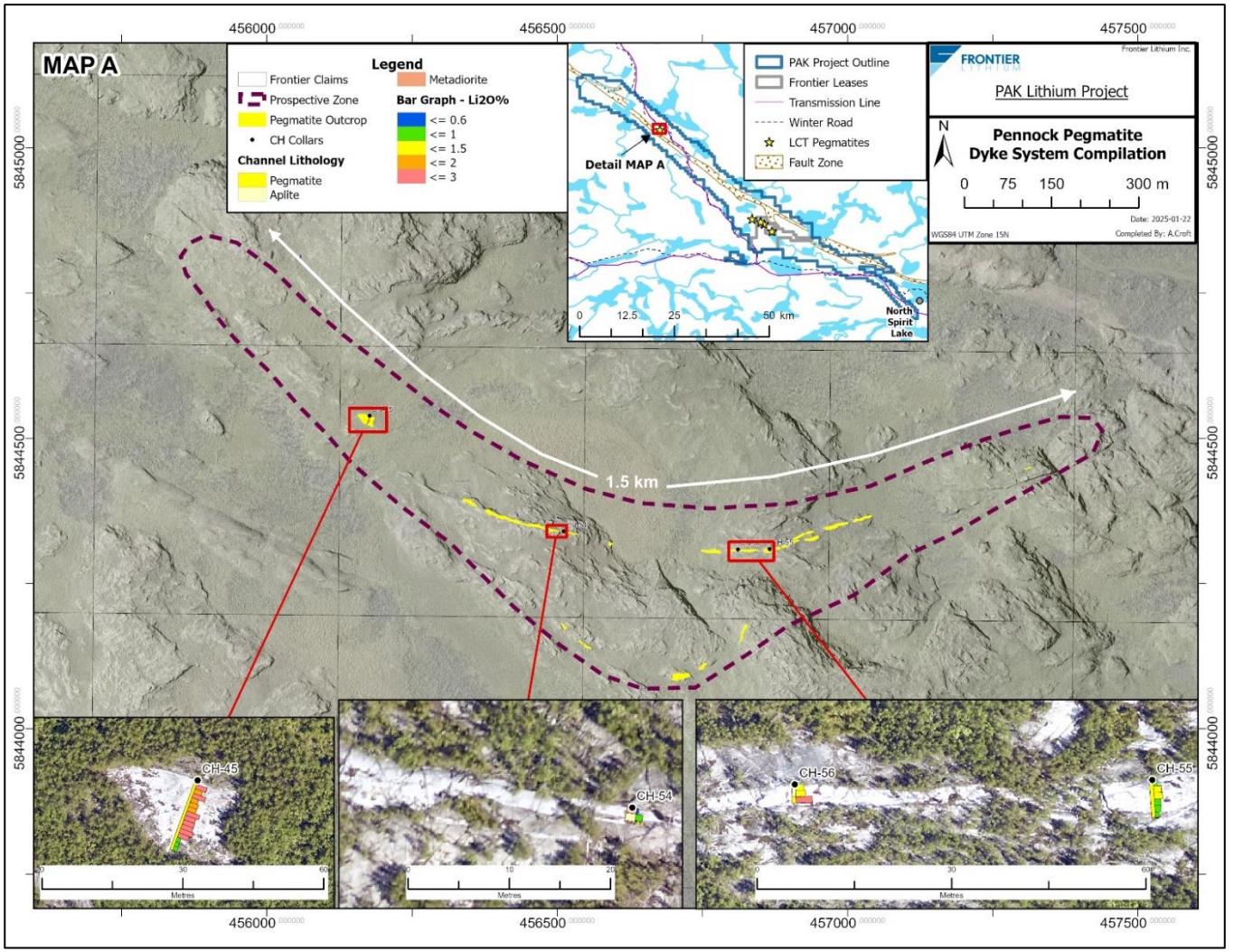
Source: Frontier, 2025

Figure 7.6 – Compilation of the Bolt Deposit



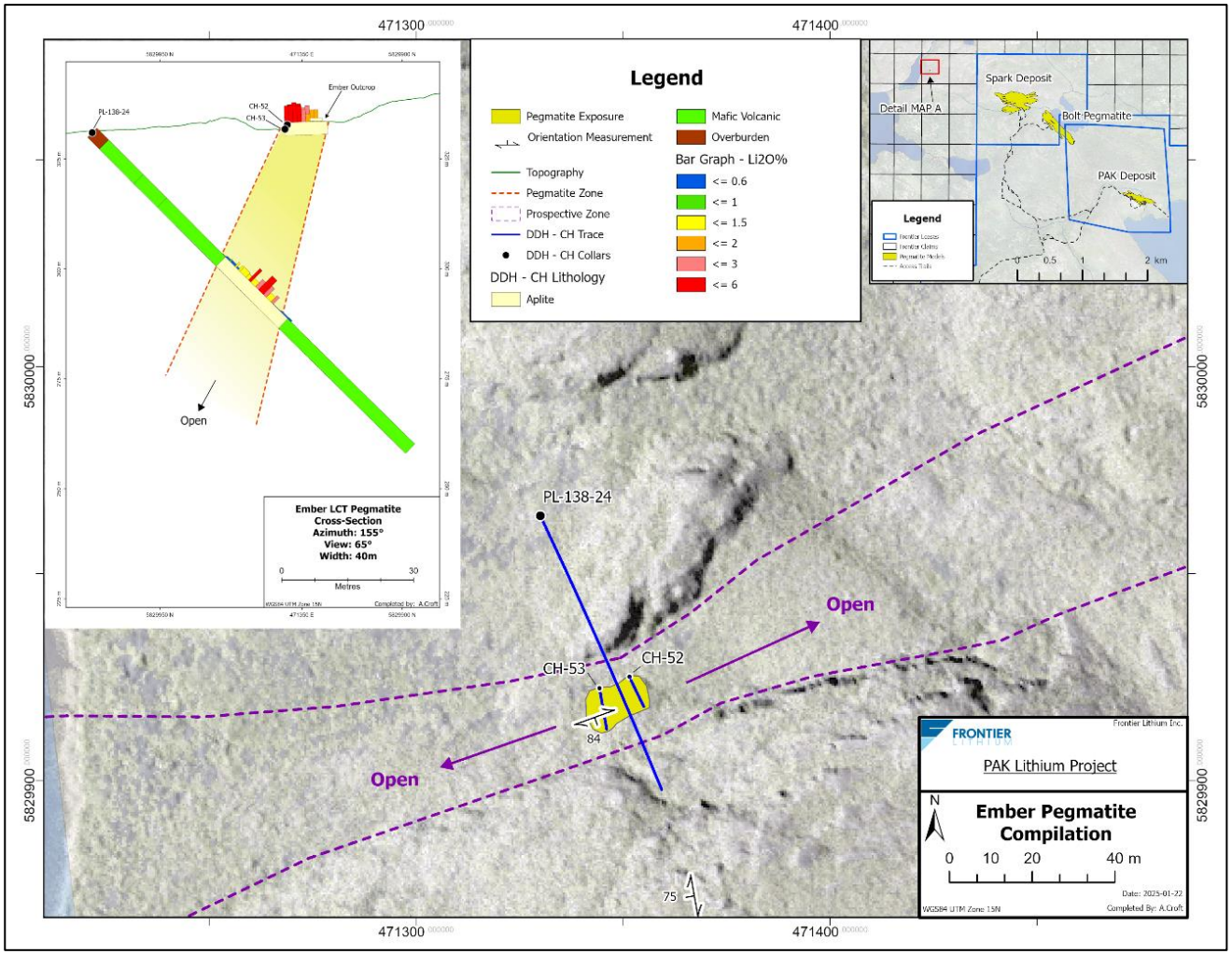
Source: Frontier, 2025

Figure 7.7 – Compilation of the Pennock Pegmatite Area



Source: Frontier, 2025

Figure 7.8 – Compilation of the Ember Pegmatite Area



Source: Frontier, 2025

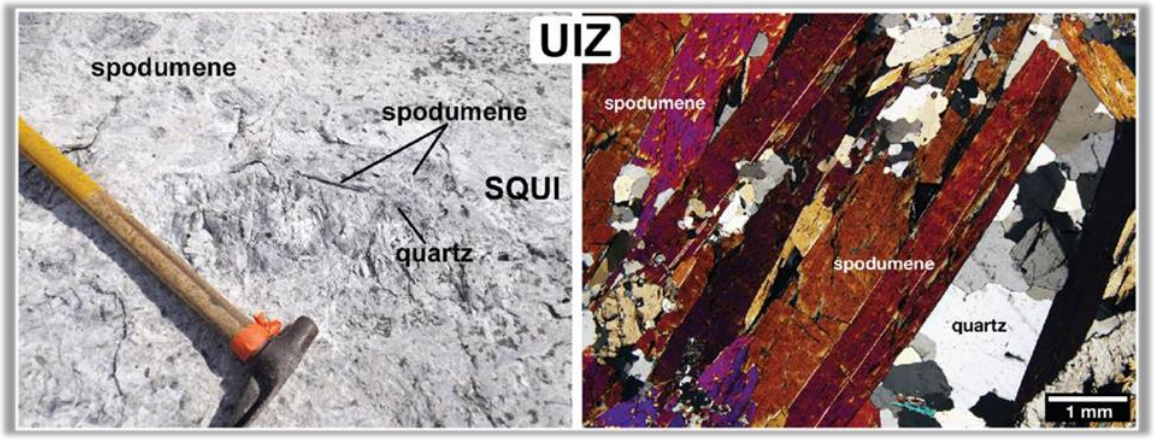
7.3 Mineralization

7.3.1 PAK PEGMATITE

7.3.1.1 Upper Intermediate Zone

The Upper Intermediate Zone (UIZ) represents a lithium-focused zone within the pegmatite and is dominated by spodumene-quartz intergrowths (SQUI), a term used to describe an isochemical reversion resulting in the replacement of primary petalite by oriented spodumene + quartz (London, 1984). Lesser grey K-feldspar and primary white spodumene in quartz are also present (Figure 7.9), along with other common accessory minerals such as montebrasite and apatite (phosphates), as well as lithian mica.

Figure 7.9 – Outcrop and Photomicrograph of the Upper Intermediate Zone



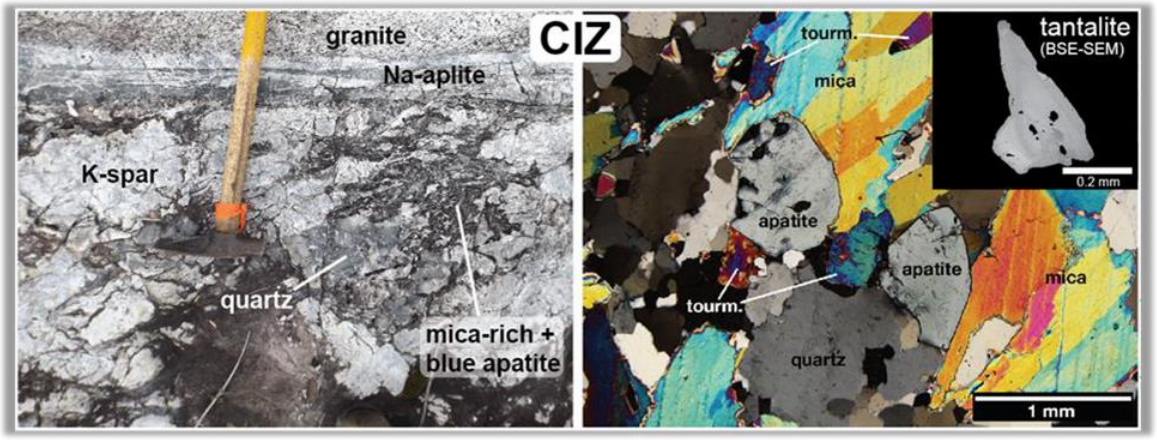
Source: BBA, 2023

7.3.1.2 Central Intermediate Zone

The Central Intermediate Zone (CIZ) is located in structurally higher portions of the pegmatite and is enriched in tantalum and rubidium. 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 (variably altered) + mica + quartz. Blue apatite prisms up to 1 cm wide and several cm long accompany the mica-rich zones. In the adjoining area to the northeast of CH-7, the K-feldspars are strongly altered to 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 drill holes PL-13-001 and PL-13-006, 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. Drill holes PL-

13-003 and PL-13-004 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 7.10 shows an outcrop and photomicrograph of the CIZ.

Figure 7.10 – Outcrop and Photomicrograph of the Central Intermediate Zone

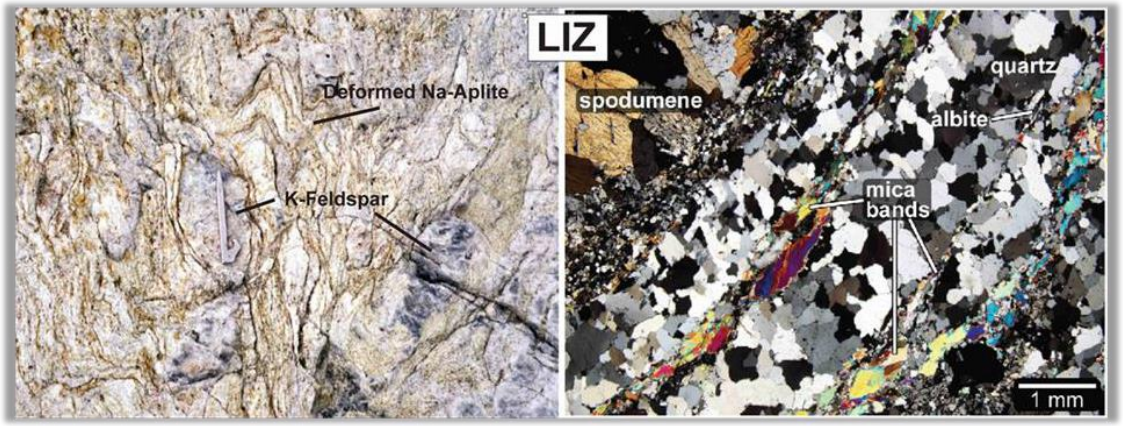


Source: BBA, 2023

7.3.1.3 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 7.11). Pollucite also occurs in an intersection of LIZ in drill hole PL-13-005. The zone has undergone both ductile and brittle deformation at the interpreted 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 7.11 – Outcrop and Photomicrograph of the Lower Intermediate Zone



Source: BBA, 2023

7.3.1.4 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 brick-red colouration of the K-feldspar is more common in close proximity to the metasediments; conversely, this colouration does not generally occur where the pegmatite is in contact with the granite. In this latter case, K-feldspar is chiefly light to medium grey, likely a result of lower inherent iron levels in the Pakeagama Lake granite.

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 appear to be pre- existing banded sodic aplites are also found throughout. The contact with the LIZ is gradational and is defined by the general absence of SQUI within the wall zones and a colour change of the K-feldspars from pale red to the light grey commonly found throughout the pegmatite. Similar to the LIZ, this zone has undergone deformation.

7.3.2 SPARK PEGMATITE

Two (2) predominant lithologies occur within the Spark Pegmatite including an early aplite phase that occurs ubiquitously throughout the pegmatite and an apparent later overprint phase of coarser-grained feldspar-quartz-spodumene-muscovite. 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 mm-scale pink garnets are commonly associated with quartz-rich phases. Coarse to megacrystic K-feldspar occurs locally 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 include black prismatic tourmaline, fluoroapatite, 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 exhibit 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. Grey megacrystic feldspar crystals are typically ~2 to 5 cm in size but can reach up to 20 cm locally. This later phase has been geologically logged as LIZ due to similarities in texture and composition with the LIZ at the PAK Deposit.

There is a narrow interval (~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, grey megacrystic K-feldspar, and common blue apatite. The mineralogy and texture of this interval are considered similar to the CIZ at PAK.

Both aplite and LIZ at Spark are weakly to moderately deformed with a preferred foliation and/or flow textures that are steeply dipping to sub-vertical and trending 070° to 100°. Locally, surface exposures of aplite tend to display tight folds with vertical axial planes.

7.3.3 BOLT PEGMATITE

The Bolt Pegmatite has not yet been mapped in any detail other than the geological logging of the channels and 2023 diamond drill holes. 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 those at Spark.

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.

7.3.4 PENNOCK PEGMATITE

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 samples at the “blowout” on the western end averaged 1.96% Li_2O over the 16 m channel, including 2.35% Li_2O over 12 m. 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).

7.3.5 EMBER PEGMATITE

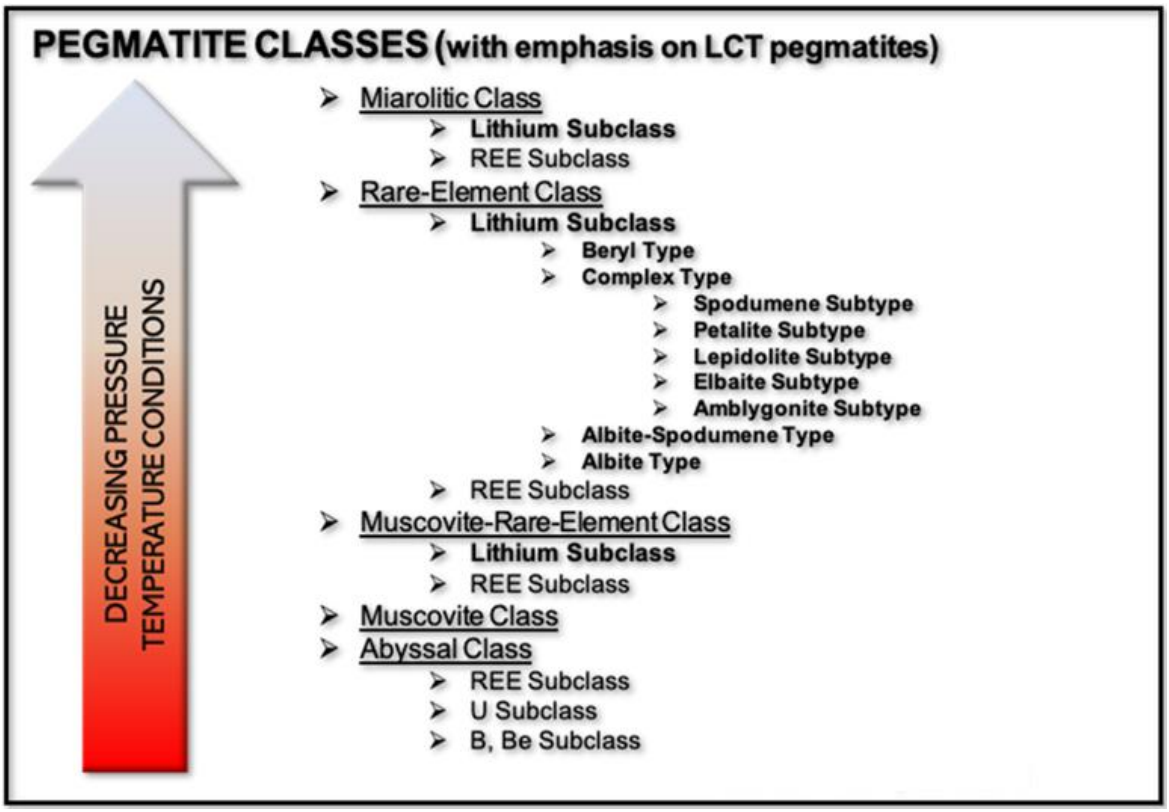
Two (2) channels have been cut across the pegmatite exposing textures and mineralogy similar to the higher grade portions of the PAK LIZ. White to pale grey SQUI is dominant throughout the northern half of the exposure with increasing light grey aplite towards the south where lithium content decreases. Patches of 2-8 mm anhedral orangey-red garnet occur within the higher grade portions.

8 DEPOSIT TYPES

Frontier's target deposit model is the highly evolved, granitic, rare-element lithium- cesium-tantalum (LCT) -bearing complex type, petalite subtype granitic pegmatite. The Tanco pegmatite, situated in the Bird River belt in southeastern Manitoba, is the best known comparable example of this type of deposit model (Section 7 has a comparative geological location map).

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 8.1).

Figure 8.1 – Division of Rare Metal Pegmatites

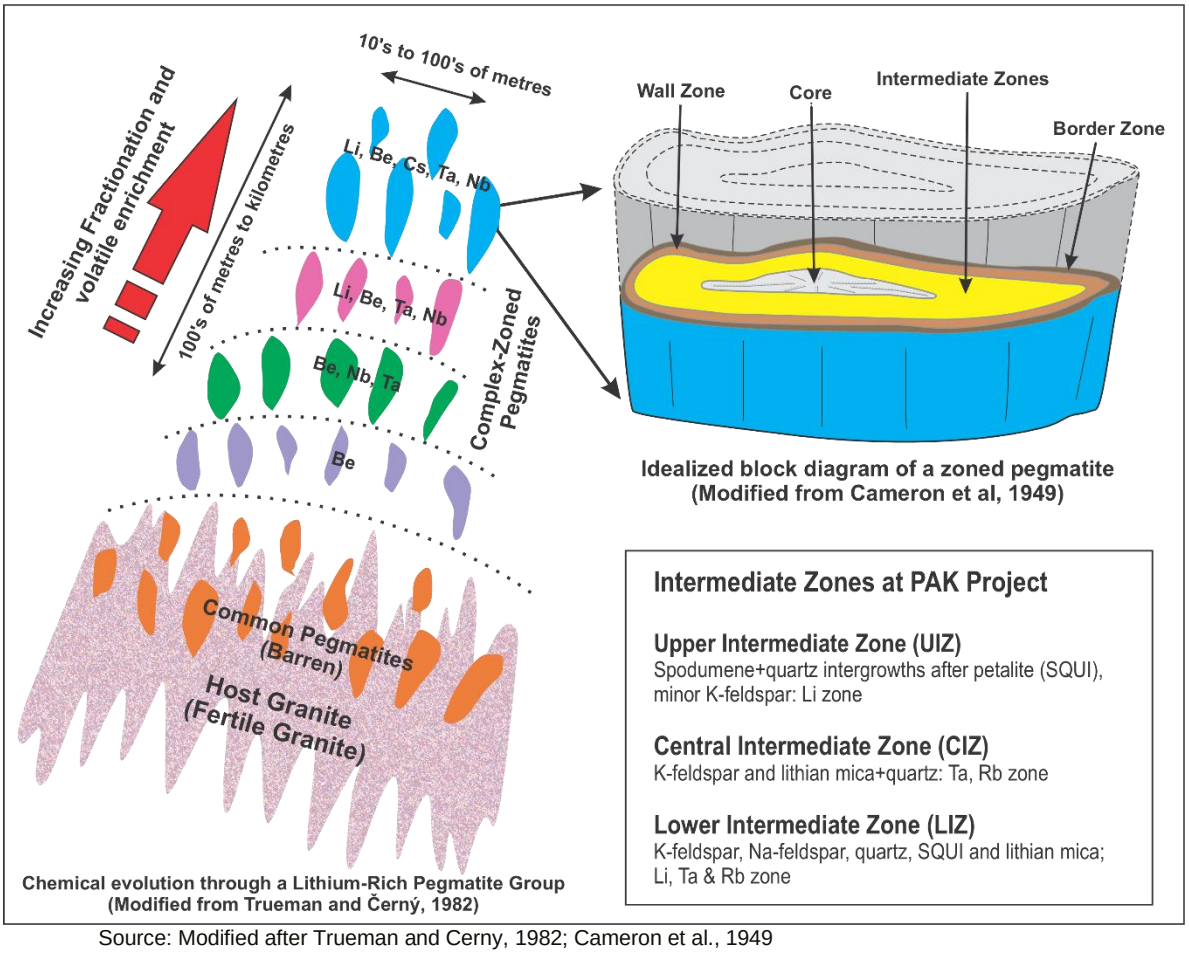


Source: Modified after Cerny & Ercit, 2005

Of the five (5) 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 migrates outward and upward away from the granite via suitable conduits. A field can comprise many pegmatites over a distance of a few kilometres from the source granite and will typically show increasing fractionation distal to the source granite. Figure 8.2 illustrates this process.

Figure 8.2 – Deposit Model



Source: Modified after Trueman and Cerny, 1982; Cameron et al., 1949

The internal structure of pegmatites, which can exhibit from simple (or un-zoned) to complex zonation, is largely what distinguishes them from other ordinary plutonic igneous rocks. These characteristics are generally manifested by variations in the spatial distribution of grain size, mineral assemblage, crystal habit, and / or rock fabric.

Pegmatites crystallizing from highly fractionated melts have the most evolved internal structure. These highly fractionated pegmatitic melts are enriched in fluxes such as hydrogen, boron, phosphate and fluorine, 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 are thus 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 better known Tanco pegmatite has nine distinguishable zones and its most notable geochemical anomalies include elevated tantalum, cesium and phosphorus, the latter two being the hallmark of a pelitic metasedimentary source (London, 2008).

Economic concentrations of the lithophile rare-elements will occur in pegmatites crystallizing from the most highly evolved melts. Moreover, some of the lithophile rare-elements may occur in separate zones, thereby allowing for selective exploitation. Economic tantalum mineralization can be complex and the host mineralogy for rubidium can vary by zone, but pollucite is consistently the main cesium mineral of interest. Similarly, spodumene is the most economically important lithium mineral (Kesler et al., 2012).

Figure 8.2 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 similar in nature to the Tanco deposit with respect to mineralogy and concentrations of lithium, tantalum, cesium and rubidium (Vanstone, 2013).

9 EXPLORATION

The information in Section 9 is largely extracted, summarized and/or updated from the Report available on SEDAR entitled: "NI 43-101 Technical Report – Pre-Feasibility Study for the PAK Project, Northwestern Ontario, Canada", which is effective as of May 31st, 2023 and issued on July 14th, 2023 (the Technical Report) and prepared by BBA E&C Inc., WSP Canada Inc., Halyard Inc., Ian Ward Consulting Services and Environmental Application Group for Frontier Lithium Inc. Further details as documented therein remain correct and valid.

Section 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. Information on surface exploration drilling can be found in Section 10 of this Report.

9.1 Early Exploration Work

Frontier's initial work was in 1999 with geological mapping in the area of the PAK Pegmatite to confirm 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 metasedimentary rocks and the granite that contains the pegmatites in overburden covered areas. Some sulphide/magnetite bearing xenoliths were also noted within the granite in proximity to 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 km 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.

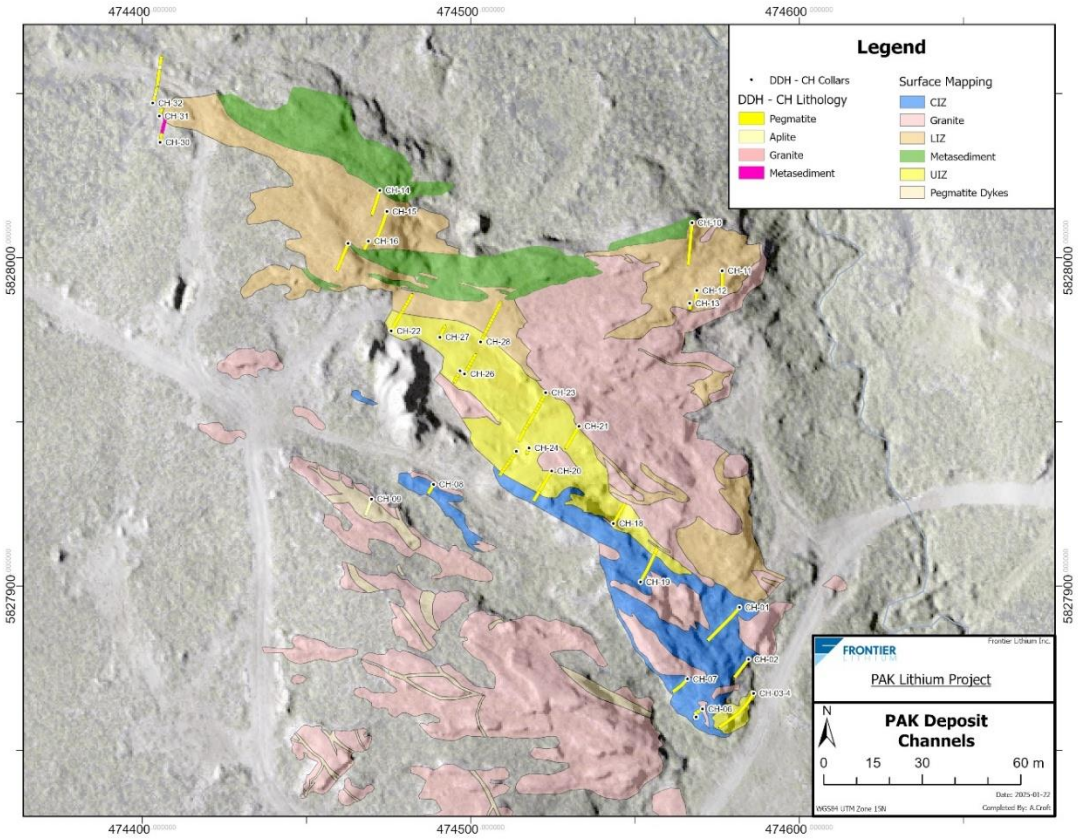
9.2 PAK Exploration

9.2.1 CHANNEL SAMPLING

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

The 2012 channel sampling program on the PAK pegmatite was initiated to confirm historical results and to obtain additional information by sampling distinct geologic zones (UIZ, LIZ, and CIZ). This approach of collecting both twin and new channel samples was carried forward over several years until the final campaign completed in 2017. Figure 9.1 shows the location of all channels cut on the PAK pegmatite.

Figure 9.1 – Channel Sample Locations at the PAK Deposit



Source: Frontier, 2025

9.2.1.1 *Sampling Methodology and Chain of Custody*

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. Offset channel cuts are sometimes required, depending on topography and overburden, in order to achieve a full section across zone; however, all attempts are made to minimize these instances wherever possible.

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 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 labelled and closed off with zip ties. The individual samples were tied and then placed in rice bags and transported back to the base of operations at the Pakeagama Lake campsite by Frontier (formerly Houston Lake Mining) field personnel or designates (e.g., Haveman Brothers of Kakabeka Falls, ON; Chenier Drilling Ltd. of Val Caron, ON).

In 2012, the samples were shipped to Red Lake by chartered aircraft along with Frontier personnel and camp equipment and subsequently shipped to Thunder Bay where control samples were inserted into the sample stream and delivered directly to the laboratory. In 2014, the samples were transported to Val Caron, ON where control samples were then inserted prior to commercial shipping to the laboratory. Beginning in 2015, control samples were inserted during the field campaign and shipped directly to the selected laboratory.

During September 2015, all channel locations were accurately surveyed by Rugged Geomatics Surveying of Kenora, ON, who was contracted to complete the survey requirements for conversion of the Mining Claim to Mining Lease.

9.2.1.2 *Sample Preparation and Analysis*

Table 9.1 summarizes the preparation and analytical labs used by year for the PAK channel sampling programs completed between 2012 and 2017.

Table 9.1 – Summary of Preparation and Analytical Facilities Used for PAK Channel Sampling Programs by Year

Year	Analytical Company	Preparation Facility Location	Analytical Laboratory Location
2012	ActLabs	Thunder Bay, ON	Thunder Bay, ON
2014	ACME	Val-d'Or, QC	Vancouver, BC
2015	AGAT	Rosslyn, ON	Mississauga, ON
2017	AGAT	Rosslyn, ON	Mississauga, ON

9.2.1.3 Channel Location and Sample Summary

Table 9.2 summarizes the location, bearing, length and number of samples for each channel cut completed at the PAK deposit by year.

Table 9.2 – Summary of PAK Channel Cut Locations and Samples by Year

Channel Number	Year	NAD83 UTM Zone 15N			Azimuth	Length (m)	Number of Samples
		Easting	Northing	Elevation (masl)			
CH-01	2012	474582	5827894	318	220	14.0	18
CH-03-04	2012	474586	5827867	316	212	15.0	15
CH-07	2012	474566	5827872	321	223	6.0	7
CH-15	2012	474474	5828014	325	198	11.0	11
CH-16	2012	474469	5828005	325	208	3.0	3
CH-17	2012	474463	5828004	326	202	9.0	9
CH-18	2012	474544	5827919	323	30	7.1	8
CH-19	2012	474552	5827901	322	28	11.6	14
CH-10	2014	474566	5828012	323	185	13.0	13
CH-11	2014	474575	5827997	323	180	5.5	5
CH-12	2014	474567	5827991	324	187	4.6	4
CH-13	2014	474565	5827987	324	180	2.5	2
CH-20	2014	474522	5827936	327	215	10.7	12
CH-21	2014	474532	5827948	327	215	8.0	8
CH-10	2014	474566	5828012	323	185	13.0	13
CH-22	2015	474476	5827978	324	30	13.0	13
CH-23	2015	474523	5827959	324	207	17.0	17
CH-24	2015	474518	5827942	324	203	2.0	2
CH-25	2015	474514	5827941	322	215	9.0	10

Channel Number	Year	NAD83 UTM Zone 15N			Azimuth	Length (m)	Number of Samples
		Easting	Northing	Elevation (masl)			
CH-26	2015	474498	5827965	324	29	7.0	7
CH-27	2015	474491	5827976	323	26	4.0	4
CH-28	2015	474503	5827974	323	27	13.8	16
CH-29	2015	474497	5827966	323	206	4.0	4
CH-30	2017	474405	5828035	323.8	10	7.7	8
CH-31	2017	474405	5828043	322.5	20	2.6	3
CH-32	2017	474403	5828047	322.5	18	14.8	15

9.2.1.4 Channel Sample Results

Table 9.3 summarizes the results from all channel cuts and sampling completed at the PAK deposit over four campaigns between 2012 and 2017.

Table 9.3 – Summary of PAK Channel Sample 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
2012										
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-03-04	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

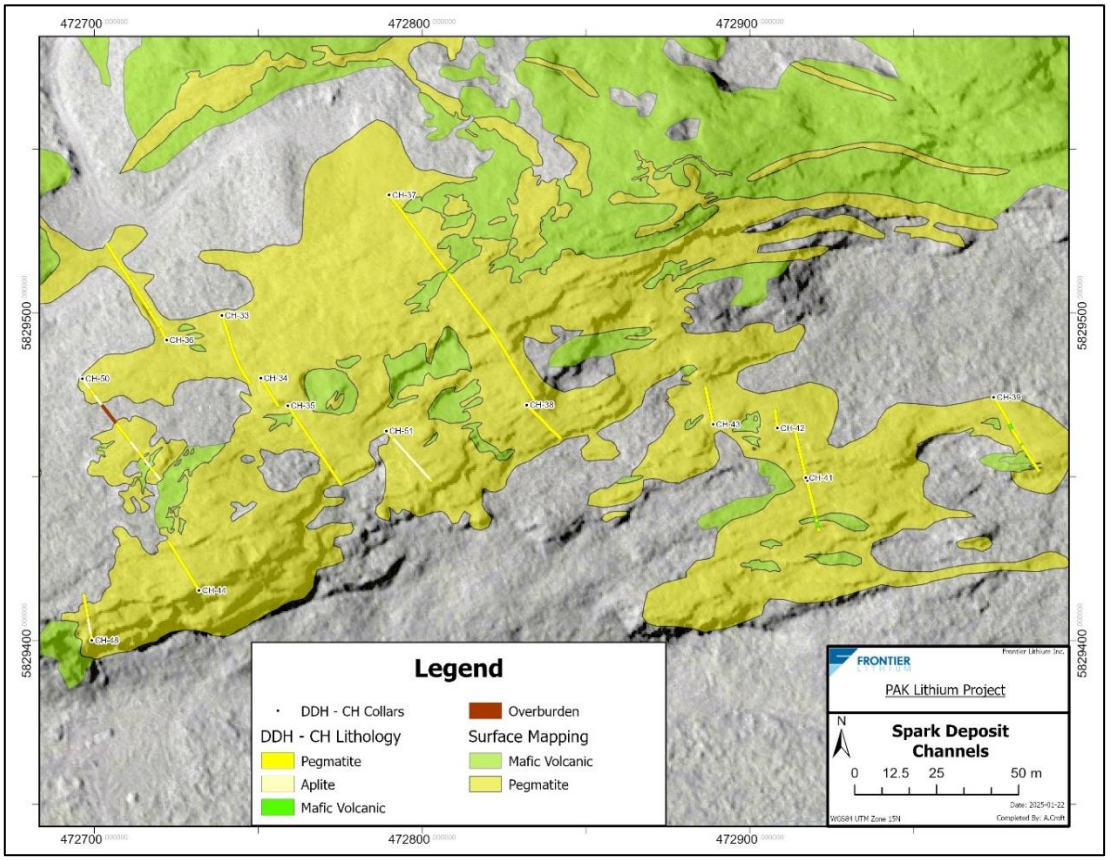
Channel ID	From (m)	To (m)	Length (m)	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Zone Sampled
2014										
CH-10	0.0	13.0	13.0	1.34	0.018	101	61	425	0.29	LIZ/UIZ/Aplite
Including	7.0	13.0	6.0	2.64	0.017	50	34	79	0.33	UIZ/Aplite
Including	2.0	8.0	6.0	0.48	0.018	181	103	590	0.27	LIZ/Aplite
CH-11	0.0	5.0	5.0	2.25	0.028	91	66	133	0.24	LIZ/Aplite
CH-12	0.0	4.0	4.0	0.49	0.037	158	115	172	0.27	Aplite/LIZ
CH-13	0.0	2.0	2.0	2.49	0.027	143	111	925	0.21	LIZ/Aplite/UIZ
CH-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
CH-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
2015										
CH-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
CH-23	0.0	17.0	17.0	4.71	0.017	49	13	33	0.05	UIZ
CH-24	0.0	2.0	2.0	4.2	0.036	111	77	52	0.16	UIZ
CH-25	0.0	9.0	9.0	3.91	0.057	86	47	74	0.27	UIZ
CH-26	0.0	7.0	7.0	4.69	0.018	51	13	30	0.02	UIZ
CH-27	0.0	4.0	4.0	4.59	0.035	67	22	23	0.05	UIZ
CH-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
CH-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
2017										
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

9.3 Spark Exploration

9.3.1 CHANNEL SAMPLING

Since the Spark pegmatite is well exposed, channel sampling was the focus for exploration work prior to the commencement of drilling. Immediately following its discovery, channel sampling began with limited geological mapping. The exposed host rock/pegmatite contact was also mapped in detail using a georeferenced drone image as a base. Figure 9.2 shows the location of all channels cut on the Spark pegmatite.

Figure 9.2 – Channel Sample Locations at the Spark Deposit



Source: Frontier, 2025

9.3.1.1 Sampling Methodology and Chain of Custody

The same procedures for channel sampling described for PAK (Section 9.2.1.1) were applied to the campaigns carried out at the Spark deposit. As in the later years described for PAK (post-2015), the Spark channel samples were bagged in the field where control samples were also inserted into the sample stream. The samples were then delivered to Red Lake by Frontier personnel whence they were commercially shipped to the laboratory of choice.

During August 2019 and September 2023, the channel locations were accurately surveyed by Rugged Geomatics of Kenora, ON or TULLOCH of Thunder Bay, ON.

9.3.1.2 Sample Preparation and Analysis

Table 9.4 summarizes the preparation and analytical labs used by year for the Spark channel sampling programs completed between 2018 and 2022.

Table 9.4 – Summary of Preparation and Analytical Facilities Used for Spark Channel Sampling Programs by Year

Year	Analytical Company	Preparation Facility Location	Analytical Laboratory Location
2018	AGAT	Timmins, ON	Mississauga, ON
2019	AGAT	Timmins, ON	Mississauga, ON
2021	AGAT	Thunder Bay, ON	Mississauga, ON
2022	AGAT	Thunder Bay, ON	Mississauga, ON

9.3.1.3 Channel Location and Sample Summary

Table 9.5 summarizes the location, bearing, length and number of samples for each channel cut completed at the Spark deposit by year.

Table 9.5 – Summary of Spark Channel Cut Locations and Samples by Year

Channel Number	Year	NAD83 UTM Zone 15N			Azimuth	Length (m)	Number of Samples
		Easting	Northing	Elevation (masl)			
CH-33	2018	472739	5829499	357.0	160	23.0	23
CH-34	2018	472751	5829480	355.9	148	11.0	11
CH-35	2018	472759	5829472	355.1	146	30.0	30
CH-36	2018	472722	5829492	356.0	330	35.0	29
CH-37	2018	472790	5829536	361.4	142	78.5	77
CH-38	2018	472832	5829472	353.8	140	16.0	16
CH-39	2018	472974	5829474	340.6	146	26.9	23
CH-40	2018	472918	5829449	341.0	168	16.0	16
CH-41	2019	472917	5829450	341.4	347	16.0	16
CH-42	2019	472908	5829465	344.4	352	6.0	6
CH-43	2019	472889	5829466	345.9	348.5	12.0	12
CH-44	2019	472732	5829415	349.1	328	18.0	18
CH-48	2021	472700	5829398	342.0	350	15.0	15
CH-50	2021	472696	5829480	354.8	145	39.0	32

Channel Number	Year	NAD83 UTM Zone 15N			Azimuth	Length (m)	Number of Samples
		Easting	Northing	Elevation (masl)			
CH-51	2022	472787	5829467	352.9	138	21.0	21

9.3.1.4 Channel Sample Results

Table 9.6 summarizes the results from all channel cuts and sampling completed at the Spark deposit over four campaigns between 2018 and 2022.

Table 9.6 – Summary of Spark Channel Sample 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
2018										
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
2019										
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
2021										
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	Unsampled interval 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
2022										
CH-51	0.0	21.0	21	1.92	0.01	122	92	41	0.31	Aplitic Pegmatite

9.4 Bolt Exploration

9.4.1 CHANNEL SAMPLING

Only limited mapping and channel sampling have been conducted on the Bolt pegmatite with a total of eight (8) cuts completed to date since 2020. Figure 7.6 shows a location map of all channels cut on the Bolt pegmatite.

9.4.1.1 Sampling Methodology and Chain of Custody

The same procedures for channel sampling described for PAK were applied to the campaigns carried out at the Bolt deposit. The channel samples were bagged in the field where control samples were also inserted into the sample stream. The samples were then delivered to Red Lake by Frontier personnel whence they were commercially shipped to the laboratory of choice.

During September 2023, the channel locations were accurately surveyed by TULLOCH of Thunder Bay, ON.

9.4.1.2 Sample Preparation and Analysis

Table 9.7 summarizes the preparation and analytical labs used by year for the Bolt channel sampling programs completed between 2020 and 2023.

Table 9.7 – Summary of Preparation and Analytical Facilities Used for Bolt Channel Sampling Programs by Year

Year	Analytical Company	Preparation Facility Location	Analytical Laboratory Location
2020	AGAT	Timmins, ON	Mississauga, ON
2021	AGAT	Thunder Bay, ON	Mississauga, ON
2023	AGAT	Thunder Bay, ON	Mississauga, ON

9.4.1.3 Channel Location and Sample Summary

Table 9.8 summarizes the location, bearing, length and number of samples for each channel cut completed at the Bolt deposit by year.

Table 9.8 – Summary of Bolt Channel Cut Locations and Samples by Year

Channel Number	Year	NAD83 UTM Zone 15N			Azimuth	Length (m)	Number of Samples
		Easting	Northing	Elevation (masl)			
CH-46	2020	473302	5829137	325.0	225	5.0	5
CH-47	2020	473294	5829138	325.5	225	31.4	32

Channel Number	Year	NAD83 UTM Zone 15N			Azimuth	Length (m)	Number of Samples
		Easting	Northing	Elevation (masl)			
CH-49	2021	473218	5829244	325.5	225	49	49
CH-57	2023	473294	5829068	335.5	224	13.3	15
CH-58	2023	473322	5829031	336.6	220	6.0	6
CH-59	2023	473354	5829016	334.1	220	11.0	11
CH-60	2023	473435	5828957	345.3	222	12.0	12
CH-70	2023	473091	5829136	346.6	53	5.9	6

9.4.1.4 Channel Sample Results

Table 9.9 summarizes the results from all channel cuts and sampling completed at the Bolt deposit between 2020 and 2023.

Table 9.9 – Summary of Bolt Channel Sample 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
2020										
CH-46	0.0	5.0	5.0	1.23	0.019	136	63	50	0.23	Aplite/ contact
Ch-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
CH-46 CH-47	0.0	36.4	36.4	1.51	0.011	122	88	50	0.22	Aplite/LIZ/ contact
2021										
CH-49	0.0	49.0	49.0	1.14	0.012	87	76	50	0.23	Aplitic Pegmatite Metavolcanics
2023										
CH-57	0.0	13.3	13.3	0.99	0.006	60	122	64	0.21	Pegmatite/ Aplite
CH-58	0.0	6.0	6.0	0.60	0.007	42	90	62	0.27	Pegmatite/ Aplite
CH-59	0.0	11.0	11.0	1.76	0.008	66	85	59	0.24	Pegmatite/ Aplite
CH-60	0.0	12.0	12.0	1.35	0.009	83	100	77	0.25	Pegmatite/ Aplite
CH-70	0.0	5.9	5.9	0.10	0.004	52	119	81	0.24	Aplite

9.5 Pennock Exploration

9.5.1 CHANNEL SAMPLING

Apart from early investigations of the historic showing in 2018, only limited exploration has been completed at the Pennock pegmatite over two summer field programs in 2019 and 2023. Figure 7.7 shows a location map of all channels cut at the Pennock exposures to date.

9.5.1.1 Sampling Methodology and Chain of Custody

The same procedures for channel sampling described for PAK were applied to the campaigns carried out at the Pennock target area. The channel samples were bagged in the field where control samples were also inserted into the sample stream. The samples were then delivered to Red Lake by Frontier personnel whence they were commercially shipped to the laboratory of choice.

9.5.1.2 Sample Preparation and Analysis

Table 9.10 summarizes the preparation and analytical labs used by year for the Pennock channel sampling programs completed in 2019 and 2023.

Table 9.10 – Summary of Preparation and Analytical Facilities Used for Pennock Channel Sampling Programs by Year

Year	Analytical Company	Preparation Facility Location	Analytical Laboratory Location
2019	AGAT	Timmins, ON	Mississauga, ON
2023	AGAT	Thunder Bay, ON	Mississauga, ON

9.5.1.3 Channel Location and Sample Summary

Table 9.11 summarizes the location, bearing, length and number of samples for each channel cut completed at the Pennock showing by year.

Table 9.11 – Summary of Pennock Channel Cut Locations and Samples by Year

Channel Number	Year	NAD83 UTM Zone 15N			Azimuth	Length (m)	Number of Samples
		Easting	Northing	Elevation (masl)			
CH-45	2019	456175	5844545	332.0	200	16.0	16
CH-54	2023	456511	5844340	344.2	190	1.5	4
CH-55	2023	456866	5844309	341.6	176	6.0	7
CH-56	2023	456811	5844309	339.6	178	3.0	3

9.5.1.4 *Channel Sample Results*

Table 9.12 summarizes the results from all channel cuts and sampling completed at the Pennock deposit over two campaigns in 2019 and 2023.

Table 9.12 – Summary of Pennock Channel Sample 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
2019										
CH-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
2023										
CH-54	0.6	1.4	0.8	0.58	0.013	118	95	89	0.49	Aplite
CH-55	0.0	5.8	5.8	0.97	0.008	106	119	179	0.37	Pegmatite
CH-56	0.0	3.0	3.0	1.76	0.010	84	86	92	0.41	Pegmatite-Aplite

9.6 Ember Exploration

9.6.1 CHANNEL SAMPLING

Only limited mapping and channel sampling have been conducted on the Ember pegmatite with a total of two (2) cuts completed in 2023. Figure 7.8 shows a location map of all channels cut at the Ember exposure to date.

9.6.1.1 *Sampling Methodology and Chain of Custody*

The same procedures for channel sampling described for PAK were applied to the campaigns carried out at the Ember target area. The channel samples were bagged in the field where control samples were also inserted into the sample stream. The samples were then delivered to Red Lake by Frontier personnel whence they were commercially shipped to the laboratory of choice.

9.6.1.2 *Sample Preparation and Analysis*

Table 9.13 summarizes the preparation and analytical labs used by year for the Ember channel sampling program completed in 2023.

Table 9.13 – Summary of Preparation and Analytical Facilities Used for Ember Channel Sampling Program

Year	Analytical Company	Preparation Facility Location	Analytical Laboratory Location
2023	AGAT	Thunder Bay, ON	Mississauga, ON

9.6.1.3 *Channel Location and Sample Summary*

Table 9.14 summarizes the location, bearing, length and number of samples for each channel cut completed at the Ember showing.

Table 9.14 – Summary of Ember Channel Cut Locations and Samples - 2023

Channel Number	Year	NAD83 UTM Zone 15N			Azimuth	Length (m)	Number of Samples
		Easting	Northing	Elevation (masl)			
CH-52	2023	471352	5829925	332.8	154	8.0	8
CH-53	2023	471344	5829922	331.8	170	10.0	10

9.6.1.4 *Channel Sample Results*

Table 9.15 summarizes the results from all channel cuts and sampling completed at the Ember pegmatite in 2023.

Table 9.15 – Summary of Ember Channel Sample Results

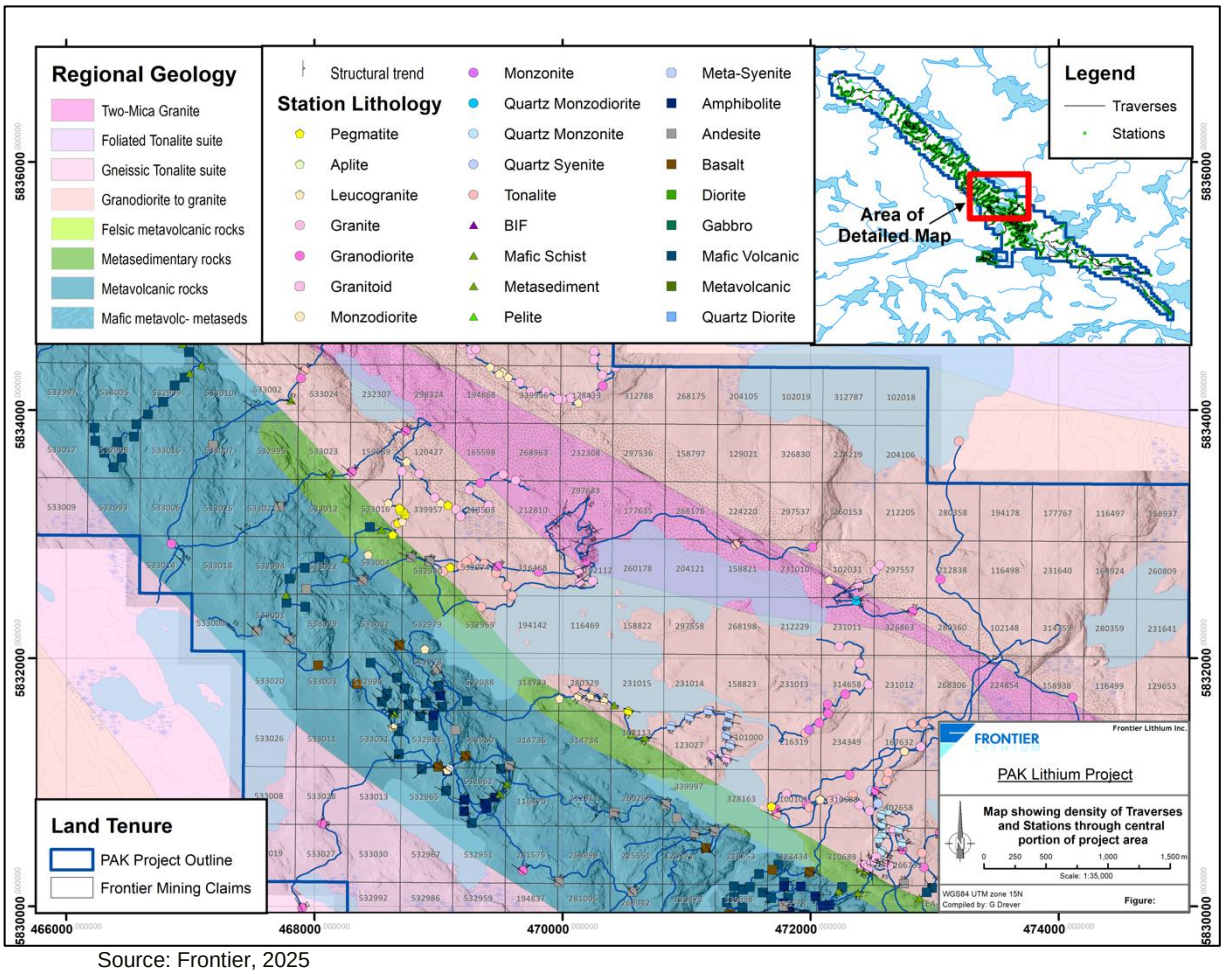
Channel ID	From (m)	To (m)	Length (m)	Li_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)	SnO_2 (ppm)	Rb_2O (%)	Zone Sampled
2023										
CH-52	0.0	8.0	8.0	2.38	0.004	91	96	72	0.13	Pegmatite-Aplite
CH-53	0.0	10.0	10.0	1.98	0.001	77	83	15	0.02	Aplite

9.7 Regional Mapping and Prospecting

Intermittent regional and detailed scale mapping was completed during summer drill programs; however, systematic mapping was not implemented prior to 2022. During the period from May to September 2022, a regional scale geological mapping and prospecting program was completed simultaneously with Phase XII diamond drilling.

From May to July 2023, a targeted geological mapping and prospecting program was conducted alongside Phase XIII diamond drilling. This initiative aimed to follow up on targets identified the previous year while enhancing coverage and detail in surface mapping near the Pennock, Bolt, and Spark pegmatites. In August and September 2024, a small-scale mapping and prospecting program was conducted north of the mining leases, focusing on localized prospective targets. Figure 9.3 shows the regional coverage over the entire claim group with additional detail in the central portion of the project area highlighting the traverse and station density.

Figure 9.3 – Compilation Map Showing Regional Mapping Coverage with Traverses and Stations



Source: Frontier, 2025

9.8 Geophysics

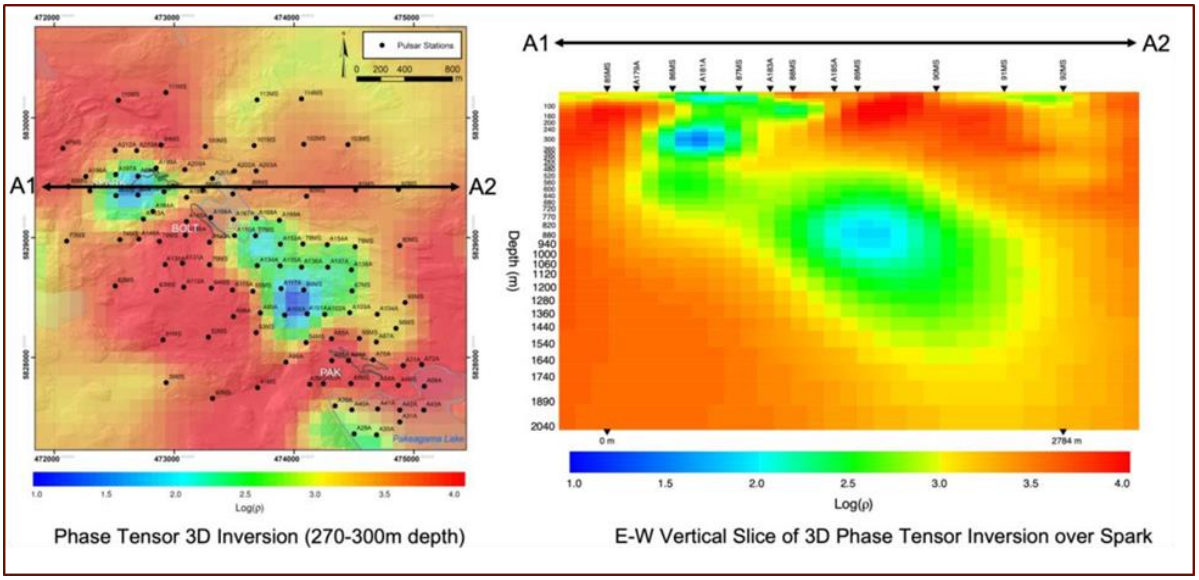
In 2001, a grid covering the 1,600 m x 1,600 m original claim over the PAK pegmatite was cut at 100 m line spacing. A ground magnetic survey and a very low-frequency-electromagnetic (VLF-EM) survey was completed. Results indicated anomalously high magnetic responses due to banded iron formations within 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 by the EM portion of the survey and thought to be related to the Bearhead fault zone.

9.8.1 PULSAR SURVEY

In September 2021, a PULSAR Audio Magnetotelluric (AMT) survey was completed over the area spanning PAK and Spark at a 400 m station separation and upgraded to a 200 m station separation during the winter of 2022. Results indicated 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 than suggested by 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

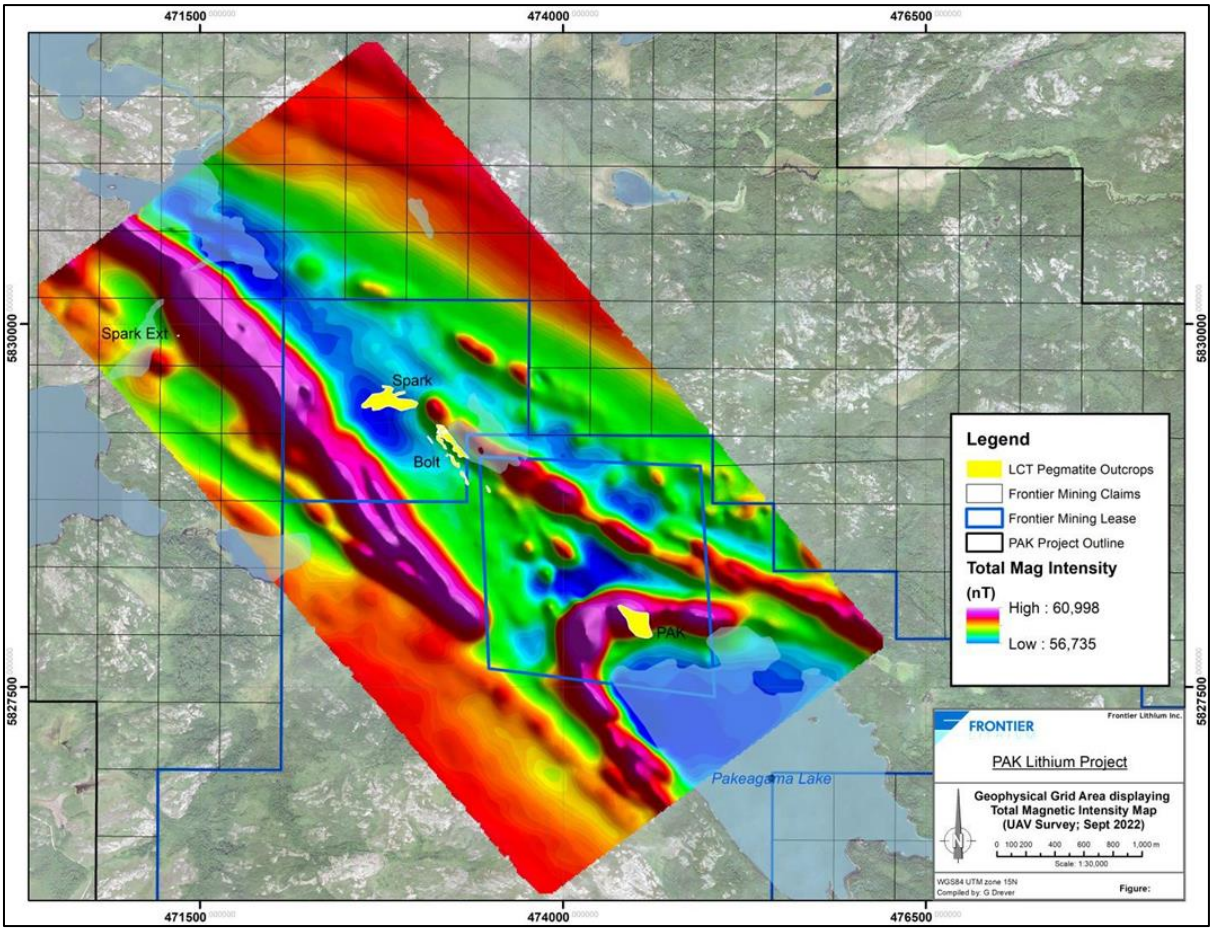


Source: BBA, 2023

9.8.2 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 Ember 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 of UAV Survey Completed in 2022

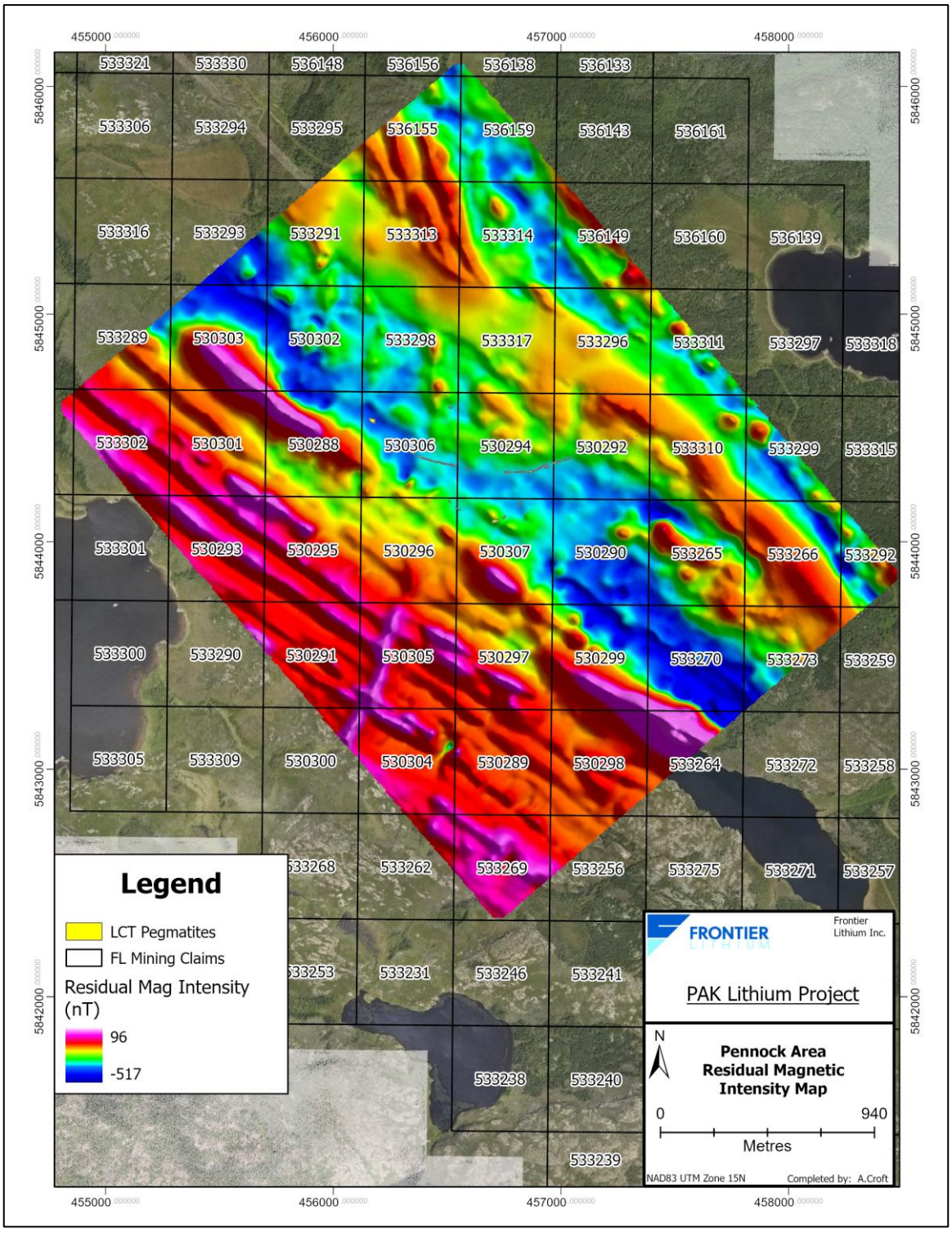


Source: Frontier, 2023

In May 2023, Earthex Geophysical Solutions based out of Selkirk, Manitoba was contracted to complete a high-resolution UAV-borne magnetic survey over the Pennock pegmatite region (Figure 9.6) as well as the PAK-Bolt-Spark pegmatite mine lease area (Figure 9.7). The detailed UAV magnetic survey over Pennock suggests a structurally complex region with extensive lithological discontinuities.

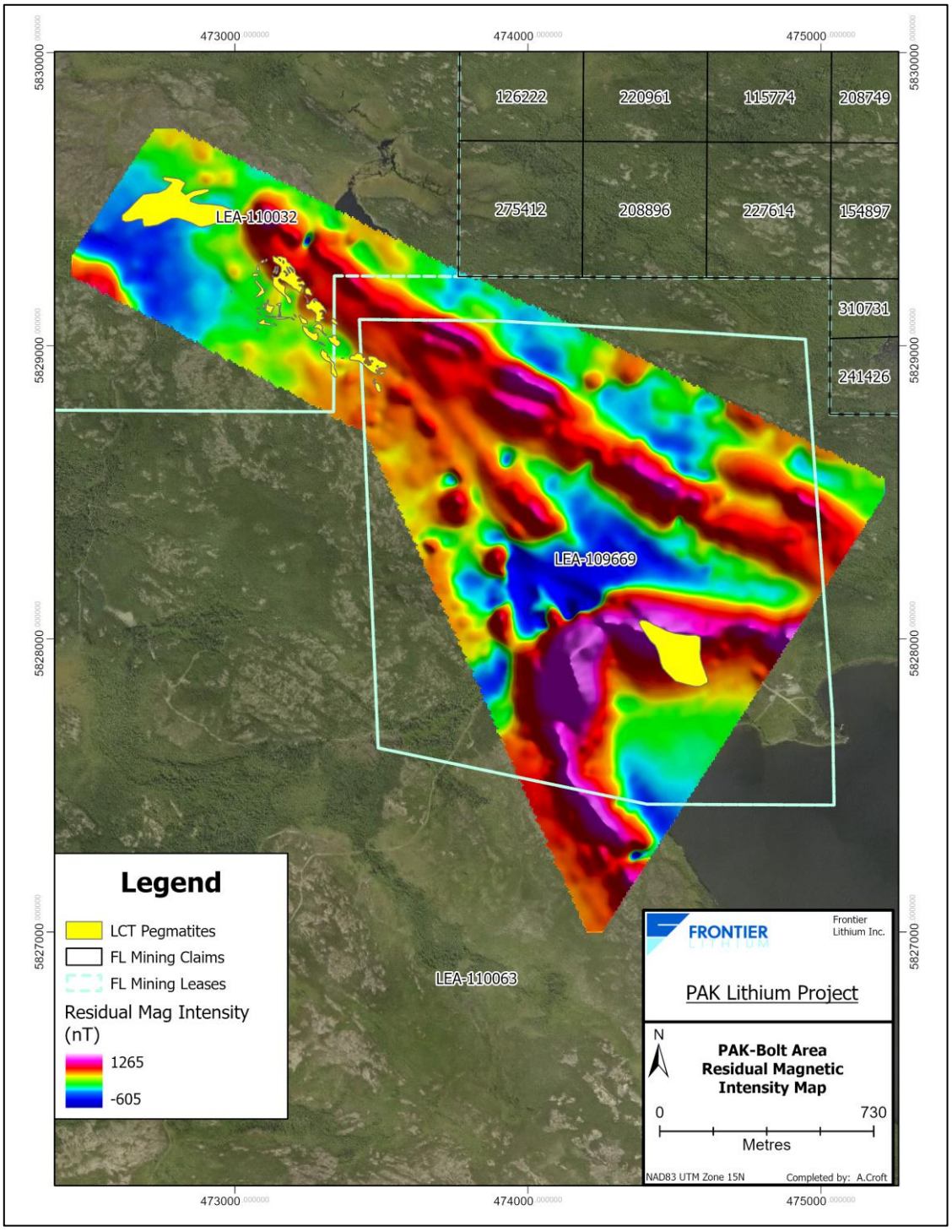
This magnetic survey may help understand the structural dynamics and potentially assist in locating other pegmatite dikes. Similarly, the UAV magnetic survey over the Bolt, Spark, and PAK areas provided detailed structural signatures of the subsurface geology, offering improved resolution over the previous survey conducted by Axiom Exploration Group in 2022.

Figure 9.6 – Residual Magnetic Intensity Map of 2023 UAV Survey, Pennock Area



Source: Frontier, 2025

Figure 9.7 – Residual Magnetic Intensity Map of 2023 UAV Survey, PAK-Bolt-Spark Mine Lease Area



Source: Frontier, 2025

10 DRILLING

10.1 Summary

Fourteen (14) phases of surface diamond drilling have been completed to date on the Property by Frontier since 2013. Drilling was focused exclusively on the PAK deposit until 2019 when attention was turned to the newly discovered Spark pegmatite through to the end of the 2022 drilling campaign. Beginning in 2023, exploration drilling targeted both the Spark deposit and the new Bolt discovery; additional geotechnical and condemnation holes were also completed in the areas surrounding PAK and Spark.

Following the database handover to DRA on November 30th, 2023, additional geotechnical and condemnation drilling was completed at Spark as well as one (1) exploration hole at the new Ember target in 2024. DRA does not consider any of this drilling to be material to the mineral resources presented in this Report.

10.2 Property Drilling Summary

Frontier has been the sole operator to conduct surface drilling at the PAK Project, with a total of 42,733.5 m completed in 171 drill holes (including re-starts and extensions) between 2013 and 2024. The total number of drill holes, metres and assay samples are summarized by year in Table 10.1.

Table 10.1 – PAK Project Drilling Summary by Year

Company Name	Year	Number of Holes	Number of Metres	Number of Samples[a]
Frontier Lithium Inc.	2013	6	955.3	695
Frontier Lithium Inc.	2014	9	1,488.6	801
Frontier Lithium Inc.	2015	10	2,254.8	941
Frontier Lithium Inc.	2017	9	1,608.6	504
Frontier Lithium Inc.	2018	9	1,220.8	462
Frontier Lithium Inc.	2019	9	2,499.5	1,241
Frontier Lithium Inc.	2021	11	3,269.2	1,365
Frontier Lithium Inc.	2022	52	16,041.2	6,323
Frontier Lithium Inc. Frontier Lithium Resources Inc.	2023	46	11,364.0	1,978
Frontier Lithium Resources Inc.	2024[b]	10	2,031.5	505
Total	**-**	**171**	**42,733.5**	**14,815**

Notes:
a Totals include control samples.
b Not included in database handover.

The total number of drill holes, metres and assay samples are also summarized by deposit or target area in Table 10.2.

Table 10.2 – PAK Project Drilling Summary by Deposit / Target Area

Deposit / Target Area	Platform	Number of Holes	Number of Metres	Number of Samples[a]
PAK Deposit	Surface	54	9,561.2	3,846
Spark Deposit[b]	Surface	81	23,947.5	9,721
Bolt Deposit	Surface	15	3,805.6	1,035
Ember Pegmatite[b]	Surface	1	102.0	27
Condemnation Drilling[b]	Surface	20	5,317.2	186
Total	**-**	**171**	**42,733.5**	**14,815**

Notes:
a Totals include control samples.
b. Includes 2024 drilling completed after database handover.

10.2.1 PAK Deposit Drilling

Drilling at the PAK deposit was initiated by Frontier in 2013. Up until the database freeze date of November 30, 2023, Frontier had completed a total of 9,561.2 m in 54 drill holes (including re-starts and extensions). Pertinent collar information is provided in Table 10.3, along with a location map of the collar positions shown in Figure 7.4.

Table 10.3 – Summary of Drill Hole Collar Information, PAK Deposit

Year	Site Area	DDH No.	Hole Size	WGS84 UTM Zone 15			Incl	Azim	Start Depth	EOH	Total Drilled	Company	Start	End
				Easting	Northing	Elev.			(m)	(m)	(m)			
2013	PAK	PL-13-001	NQ	474,560	5,827,831	316	-45	20	0	213.3	213.3	Element Drilling	2013-02-20	2013-03-03
2013	PAK	PL-13-002	NQ	474,453	5,827,832	320	-45	30	0	191.0	191.0		2013-02-22	2013-02-24
2013	PAK	PL-13-003	NQ	474,423	5,827,963	324	-45	30	0	104.0	104.0		2013-02-24	2013-02-25
2013	PAK	PL-13-004	NQ	474,494	5,827,908	323	-45	30	0	167.0	167.0		2013-02-25	2013-02-27
2013	PAK	PL-13-005	NQ	474,528	5,828,045	318	-45	210	0	161.0	161.0		2013-02-27	2013-02-28
2013	PAK	PL-13-006	NQ	474,610	5,827,943	313	-45	210	0	119.0	119.0		2013-03-01	2013-03-02
2014	PAK	PL-002-14	NQ	474,453	5,827,832	320	-45	30	191	305.0	114.0	Element Drilling	2014-02-11	2014-02-14
2014	PAK	PL-007-14	NQ	474,414	5,828,058	321	-45	210	0	140.0	140.0		2014-02-14	2014-02-18
2014	PAK	PL-008-14	NQ	474,356	5,828,091	317	-45	210	0	133.6	133.6		2014-02-18	2014-02-20
2014	PAK	PL-009-14	NQ	474,555	5,827,838	317	-45	45	0	116.0	116.0		2014-02-20	2014-02-23
2014	PAK	PL-010-14	NQ	474,610	5,827,808	313	-45	20	0	326.0	326.0		2014-02-23	2014-02-28
2014	PAK	PL-011-14	NQ	474,448	5,827,953	324	-45	30	0	119.0	119.0		2014-02-28	2014-03-02
2014	PAK	PL-012-14	NQ	474,404	5,827,978	324	-45	30	0	128.0	128.0		2014-03-02	2014-03-04
2014	PAK	PL-013-14	NQ	474,571	5,827,851	316	-60	20	0	233.0	233.0		2014-03-04	2014-03-08
2014	PAK	PL-014-14	NQ	474,769	5,827,885	317	-45	8	0	179.0	179.0		2014-03-08	2014-03-11

Year	Site Area	DDH No.	Hole Size	WGS84 UTM Zone 15			Incl	Azim	Start Depth	EOH	Total Drilled	Company	Start	End
				Easting	Northing	Elev.			(m)	(m)	(m)			
2015	PAK	PL-015-15	NQ	474,586	5,827,967	316	-45	220	0	178.7	178.7	Chenier Drilling	2015-02-18	2015-02-22
2015	PAK	PL-016-15	NQ	474,637	5,827,977	314	-60	210	0	247.5	247.5		2015-02-22	2015-02-24
2015	PAK	PL-017-15	NQ	474,667	5,827,978	317	-60	180	0	267.0	267.0		2015-02-24	2015-02-28
2015	PAK	PL-018-15	NQ	474,475	5,828,063	319	-45	210	0	171.0	171.0		2015-02-28	2015-03-02
2015	PAK	PL-019-15	NQ	474,636	5,827,869	313	-60	0	0	195.0	195.0		2015-03-02	2015-03-04
2015	PAK	PL-020-15	NQ	474,520	5,827,899	322	-45	44	0	198.0	198.0		2015-03-04	2015-03-05
2015	PAK	PL-021-15	NQ	474,495	5,828,042	319	-60	210	0	163.5	163.5		2015-03-06	2015-03-07
2015	PAK	PL-022-15	NQ	474,750	5,827,818	315	-45	15	0	220.5	220.5		2015-03-07	2015-03-10
2015	PAK	PL-023-15	NQ	474,723	5,827,925	317	-90	0	0	255.6	255.6		2015-08-28	2015-09-03
2015	PAK	PL-024-15	NQ	474,665	5,827,740	314	-48	20	0	358.0	358.0		2015-09-03	2015-09-09
2017	PAK	PL-GDH-01-17	NQ-3	474,446	5,827,978	324	-70	218	0	91.3	91.3	Chenier Drilling	2017-02-15	2017-02-19
2017	PAK	PL-GDH-02-17	NQ-3	474,533	5,827,966	323	-70	38	0	132.8	132.8		2017-02-20	2017-02-22
2017	PAK	PL-GDH-03-17	NQ-3	474,579	5,827,951	316	-72	60	0	131.0	131.0		2017-02-23	2017-02-25
2017	PAK	PL-GDH-04-17	NQ-3	474,571	5,827,928	320	-75	190	0	120.3	120.3		2017-03-25	2017-03-01
2017	PAK	PL-025-17	NQ	474,418	5,827,851	321	-50	20	0	320.0	320.0		2017-09-13	2017-09-18
2017	PAK	PL-026-17	NQ	474,394	5,827,910	321	-55	0	0	270.0	270.0		2017-09-18	2017-09-22
2017	PAK	PL-023-17	NQ	474,723	5,827,925	317	-90	0	255.6	289.6	34.0		2017-09-22	2017-09-22
2017	PAK	PL-GDH-05-17	NQ	474,660	5,827,981	317	-60	10	0	100.6	100.6		2017-09-23	2017-09-24
2017	PAK	PL-027-17	NQ	474,759	5,828,044	318	-62	199	0	408.6	408.6		2017-09-24	2017-09-28

Year	Site Area	DDH No.	Hole Size	WGS84 UTM Zone 15			Incl	Azim	Start Depth	EOH	Total Drilled	Company	Start	End
				Easting	Northing	Elev.			(m)	(m)	(m)			
2018	PAK	PL-028-18	BTW	474,636	5,827,986	315	-75	196	0	334.4	334.4	Chenier Drilling	2018-06-20	2018-06-26
2018	PAK	PL-029-18	BTW	474,583	5,827,974	317	-79	217	0	291.0	291.0		2018-06-26	2018-06-29
2018	PAK	PL-030-18	BTW	474,498	5,827,969	324	-85	142	0	222.0	222.0		2018-06-29	2018-07-01
2018	PAK	PL-031-18	BTW	474,524	5,827,950	324	-90	0	0	24.8	24.8		2018-07-01	2018-07-02
2018	PAK	PL-032-18	BTW	474,525	5,827,963	323	-41	228	0	48.0	48.0		2018-07-02	2018-07-02
2018	PAK	PL-033-18	BTW	474,504	5,827,939	323	-42	30	0	92.3	92.3		2018-07-02	2018-07-03
2018	PAK	PL-034-18	BTW	474,311	5,828,094	317	-44	20	0	88.3	88.3		2018-07-03	2018-07-04
2018	PAK	PL-035-18	BTW	474,519	5,827,933	324	-43	73	0	54.6	54.6		2018-07-04	2018-07-05
2018	PAK	PL-036-18	BTW	474,528	5,827,945	324	-44	160	0	65.4	65.4		2018-07-05	2018-07-06
2023	PAK	PL-GDH-13-23	BTW	474,417	5,827,788	317	-47	34	0	352.5	352.5	Chenier Drilling	2023-02-07	2023-02-12
2023	PAK	PL-GDH-14-23	BTW	474,283	5,828,051	321	-47	121	0	102.0	102.0		2023-02-12	2023-02-13
2023	PAK	PL-GDH-15-23	BTW	474,796	5,828,023	318	-47	249	0	266.1	266.1		2023-02-13	2023-02-16
2023	PAK	PL-GDH-16-23	BTW	474,586	5,828,129	318	-47	191	0	99.0	99.0		2023-02-17	2023-03-23
2023	PAK	PL-GDH-17-23	NQ	474,384	5,827,860	320	-69	55	0	201.0	201.0		2023-02-18	2023-02-23
2023	PAK	PL-GDH-20-23	NQ	474,826	5,827,883	318	-70	290	0	201.0	201.0		2023-02-23	2023-02-28
2023	PAK	PL-GDH-21-23	NQ	474,763	5,828,096	317	-71	213	0	97.5	97.5		2023-02-28	2023-03-03
2023	PAK	PL-GDH-18-23	NQ	474,701	5,827,894	315	-69	17	0	120.0	120.0		2023-03-03	2023-03-05
2023	PAK	PL-GDH-19-23	BTW	474,668	5,827,787	313	-70	340	0	201.0	201.0		2023-03-06	2023-03-11
2023	PAK	PL-GDH-23-23	NQ	474,741	5,828,050	317	-69	39	0	192.0	192.0		2023-03-12	2023-03-15
2023	PAK	PL-GDH-22-23	NQ	474,437	5,827,982	324	-69	34	0	201.0	201.0		2023-03-16	2023-03-21

10.2.2 SPARK DEPOSIT DRILLING

Drilling at the Spark deposit was initiated in 2019 following its discovery during the prior field season. A total of 22,890.0 m of drilling in 76 holes (including re-starts) had been completed by the database freeze date of November 30, 2023. The collar information for these holes is summarized in Table 10.4, and a location map is provided in Figure 7.5.

10.2.3 BOLT DEPOSIT DRILLING

Following its discovery in 2020, drilling commenced at the Bolt deposit in 2023. A total of 3,805.6 m of drilling in 15 holes (including re-starts) had been completed by the database freeze date of November 30, 2023. The collar information for these holes is summarized in Table 10.5, and a location map is shown in Figure 7.6.

10.2.4 EMBER PEGMATITE DRILLING

Only one (1) drill hole totalling 102.0 m has been completed to date at the Ember pegmatite, a new 15 x 10 m surface exposure discovered in 2022 approximately 1 km to the west-northwest of the Spark deposit. The hole successfully extended mineralization identified from two surface channels to a vertical depth of 40 m; this target remains open both along strike and to depth. The relevant collar information is summarized in Table 10.6; a location map showing the hole position and orientation relative to the surface outcrop is provided in Figure 7.8.

10.2.5 CONDEMNATION DRILLING

A total of 5,317.2 m in 20 holes of condemnation drilling have been completed in the areas surrounding and between the PAK and Spark deposits to help with long-term mine design and construction planning as part of the Feasibility Study. The collar information for these holes is summarized in Table 10.7.

Table 10.4 – Summary of Drill Hole Collar Information, Spark Deposit

Year	Site Area	DDH No.	Hole Size	WGS84 UTM Zone 15			Incl	Azim	Start Depth	EOH	Total Drilled	Company	Start	End
				Easting	Northing	Elev.			(m)	(m)	(m)			
2019	Spark	PL-037-19	BTW	472,885	5,829,391	325	-41	325	0	178.8	178.8	Chenier Drilling	2019-02-02	2019-02-05
2019	Spark	PL-038-19	BTW	472,801	5,829,388	326	-42	324	0	288.2	288.2		2019-02-06	2019-02-09
2019	Spark	PL-039-19	BTW	472,707	5,829,361	326	-44	338	0	250.5	250.5		2019-02-10	2019-02-11
2019	Spark	PL-040-19	BTW	472,961	5,829,378	325	-43	338	0	324.0	324.0		2019-02-12	2019-02-16
2019	Spark	PL-041-19	BTW	472,785	5,829,553	361	-45	174	0	298.5	298.5		2019-02-16	2019-02-19
2019	Spark	PL-042-19	BTW	472,706	5,829,593	356	-45	174	0	357.0	357.0		2019-07-20	2019-07-24
2019	Spark	PL-043-19	BTW	472,859	5,829,586	359	-42	171	0	276.0	276.0		2019-07-25	2019-07-28
2019	Spark	PL-044-19	BTW	472,631	5,829,499	353	-44	180	0	231.0	231.0		2019-07-28	2019-07-30
2019	Spark	PL-045-19	BTW	472,882	5,829,388	325	-45	331	0	295.5	295.5		2019-07-31	2019-08-03
2021	Spark	PL-GDH-06-21	BTW	472,804	5,829,378	326	-50	177	0	177.0	177.0	Chenier Drilling	2021-02-07	2021-02-10
2021	Spark	PL-046-21	BTW	472,780	5,829,320	326	-47	330	0	376.2	376.2		2021-02-11	2021-02-18
2021	Spark	PL-047-21	BTW	472,695	5,829,295	326	-48	330	0	298.5	298.5		2021-02-18	2021-02-24
2021	Spark	PL-048-21	BTW	472,870	5,829,335	325	-50	305	0	393.0	393.0		2021-02-25	2021-03-08
2021	Spark	PL-GDH-07-21	BTW	472,950	5,829,376	326	-46	165	0	83.0	83.0		2021-02-25	2021-02-26
2021	Spark	PL-049-21	BTW	472,886	5,829,305	325	-42	330	0	303.2	303.2		2021-03-08	2021-03-19
2021	Spark	PL-GDH-08-21	BTW	472,745	5,829,496	357	-60	355	0	220.5	220.5		2021-09-19	2021-09-26
2021	Spark	PL-050-21	BTW	472,746	5,829,494	357	-70	170	0	431.0	431.0		2021-09-26	2021-10-03
2021	Spark	PL-051-21	BTW	472,691	5,829,525	356	-60	180	0	346.3	346.3		2021-10-03	2021-10-23
2021	Spark	PL-052-21	BTW	472,815	5,829,593	359	-50	160	0	291.0	291.0		2021-10-23	2021-10-27
2021	Spark	PL-053-21	BTW	472,764	5,829,561	360	-55	177	0	349.5	349.5		2021-10-27	2021-11-01

Year	Site Area	DDH No.	Hole Size	WGS84 UTM Zone 15			Incl	Azim	Start Depth	EOH	Total Drilled	Company	Start	End
				Easting	Northing	Elev.			(m)	(m)	(m)			
2022	Spark	PL-054-22	BTW	472,665	5,829,490	353	-58	180	0	360.0	360.0	Chenier Drilling	2022-02-25	2022-03-02
2022	Spark	PL-055-22	BTW	472,631	5,829,296	326	-49	344	0	249.0	249.0		2022-03-07	2022-03-10
2022	Spark	PL-056-22	BTW	472,584	5,829,298	326	-49	348	0	351.0	351.0		2022-03-10	2022-03-16
2022	Spark	PL-057-22	BTW	472,733	5,829,488	356	-55	359	0	225.0	225.0		2022-05-15	2022-10-01
2022	Spark	PL-058-22	BTW	472,733	5,829,488	356	-70	177	0	400.0	400.0		2022-05-17	2022-10-03
2022	Spark	PL-059-22	BTW	472,700	5,829,533	355	-78	165	0	316.0	316.0		2022-05-24	2022-05-28
2022	Spark	PL-060-22	BTW	472,753	5,829,557	360	-73	180	0	360.0	360.0		2022-05-27	2022-06-04
2022	Spark	PL-061-22	BTW	472,775	5,829,559	360	-65	178	0	327.0	327.0		2022-05-20	2022-05-27
2022	Spark	PL-062-22	BTW	472,714	5,829,594	356	-65	176	0	360.0	360.0		2022-05-28	2022-06-05
2022	Spark	PL-063-22	BTW	472,751	5,829,538	360	-70	187	0	348.5	348.5		2022-06-05	2022-06-10
2022	Spark	PL-064-22	BTW	472,714	5,829,594	356	-65	141	0	352.5	352.5		2022-06-05	2022-06-10
2022	Spark	PL-065-22	BTW	472,690	5,829,582	352	-72	173	0	330.9	330.9		2022-06-10	2022-06-22
2022	Spark	PL-066-22	BTW	472,730	5,829,369	326	-70	323	0	365.7	365.7		2022-06-12	2022-06-27
2022	Spark	PL-067-22	BTW	472,775	5,829,380	327	-70	315	0	352.5	352.5		2022-06-29	2022-07-04
2022	Spark	PL-068-22	BTW	472,792	5,829,540	362	-55	171	0	343.5	343.5		2022-06-22	2022-06-27
2022	Spark	PL-069-22	BTW	472,813	5,829,385	326	-61	324	0	412.3	412.3		2022-07-06	2022-07-15
2022	Spark	PL-070-22	BTW	472,804	5,829,586	359	-54	184	0	405.0	405.0		2022-06-28	2022-07-04
2022	Spark	PL-071-22	BTW	472,804	5,829,586	359	-52	160	0	384.6	384.6		2022-07-04	2022-07-15
2022	Spark	PL-072-22	BTW	472,846	5,829,381	326	-61	349	0	386.2	386.2		2022-07-15	2022-07-21
2022	Spark	PL-073-22	BTW	472,816	5,829,589	359	-52	146	0	392.0	392.0		2022-07-16	2022-07-23
2022	Spark	PL-074-22	BTW	472,585	5,829,496	354	-47	162	0	403.5	403.5		2022-07-28	2022-08-02
2022	Spark	PL-075-22	BTW	472,572	5,829,490	354	-47	177	0	408.0	408.0		2022-08-01	2022-08-06
2022	Spark	PL-076-22	BTW	472,855	5,829,383	326	-63	314	0	438.0	438.0		2022-07-25	2022-08-05
2022	Spark	PL-077-22	BTW	472,885	5,829,391	326	-56	354	0	433.4	433.4		2022-08-08	2022-08-24

Year	Site Area	DDH No.	Hole Size	WGS84 UTM Zone 15			Incl	Azim	Start Depth	EOH	Total Drilled	Company	Start	End
				Easting	Northing	Elev.			(m)	(m)	(m)			
2022	Spark	PL-077A-22	BTW	472,882	5,829,388	324	-65	335	0	24.6	24.6	Chenier Drilling (Cont'd)	2022-08-06	2022-08-07
2022	Spark	PL-078-22	BTW	472,963	5,829,369	325	-55	341	0	339.7	339.7		2022-08-25	2022-09-01
2022	Spark	PL-079-22	BTW	472,539	5,829,477	357	-48	177	0	417.0	417.0		2022-08-06	2022-08-15
2022	Spark	PL-080-22	BTW	472,687	5,829,509	354	-55	193	0	418.5	418.5		2022-08-16	2022-08-23
2022	Spark	PL-081-22	BTW	472,690	5,829,499	354	-46	177	0	367.7	367.7		2022-08-24	2022-08-30
2022	Spark	PL-082-22	BTW	472,718	5,829,454	355	-61	6	0	241.5	241.5		2022-08-30	2022-09-02
2022	Spark	PL-083-22	BTW	472,973	5,829,370	324	-57	343	0	377.3	377.3		2022-09-02	2022-09-06
2022	Spark	PL-084-22	BTW	472,986	5,829,377	325	-42	358	0	327.0	327.0		2022-09-07	2022-09-11
2022	Spark	PL-085-22	BTW	472,736	5,829,460	354	-57	309	0	232.0	232.0		2022-09-02	2022-09-05
2022	Spark	PL-086-22	BTW	472,736	5,829,461	354	-46	162	0	201.0	201.0		2022-09-05	2022-09-08
2022	Spark	PL-087-22	BTW	472,701	5,829,452	354	-50	318	0	213.4	213.4		2022-09-08	2022-09-11
2022	Spark	PL-088-22	BTW	472,701	5,829,452	354	-46	173	0	210.7	210.7		2022-09-11	2022-09-16
2022	Spark	PL-089-22	BTW	472,765	5,829,515	360	-50	360	0	87.0	87.0		2022-09-16	2022-09-17
2022	Spark	PL-090-22	BTW	472,748	5,829,373	326	-45	334	0	289.4	289.4		2022-09-11	2022-09-15
2022	Spark	PL-091-22	BTW	472,662	5,829,356	327	-43	338	0	261.4	261.4		2022-09-15	2022-09-18
2022	Spark	PL-092-22	BTW	472,765	5,829,515	359	-46	174	0	274.5	274.5		2022-09-17	2022-10-20
2022	Spark	PL-093-22	BTW	472,614	5,829,346	327	-47	345	0	253.6	253.6		2022-09-20	2022-09-23
2022	Spark	PL-094-22	BTW	472,655	5,829,349	326	-54	351	0	339.0	339.0		2022-09-24	2022-10-01
2022	Spark	PL-095-22	BTW	472,784	5,829,529	362	-44	165	0	258.6	258.6		2022-09-20	2022-09-23
2022	Spark	PL-096-22	BTW	472,861	5,829,580	359	-44	136	0	425.3	425.3		2022-09-23	2022-09-30
2022	Spark	PL-097-22	BTW	472,704	5,829,533	355	-70	6	0	12.5	12.5		2022-10-03	2022-10-04
2022	Spark	PL-098-22	BTW	472,760	5,829,385	327	-58	317	0	471.0	471.0		2022-10-01	2022-10-09
2022	Spark	PL-099-22	BTW	472,533	5,829,354	328	-65	345	0	477.0	477.0		2022-10-09	2022-10-15
2022	Spark	PL-GDH-09-22	BTW	472,662	5,829,490	354	-45	346	0	223.5	223.5		2022-03-03	2022-03-06

Year	Site Area	DDH No.	Hole Size	WGS84 UTM Zone 15			Incl	Azim	Start Depth	EOH	Total Drilled	Company	Start	End
				Easting	Northing	Elev.			(m)	(m)	(m)			
2022	Spark	PL-GDH-10-22	BTW	472,664	5,829,277	327	-45	185	0	33.0	33.0	Chenier Drilling (Cont'd)	2022-03-16	2022-03-17
2022	Spark	PL-GDH-10A-22	BTW	472,664	5,829,277	327	-47	184	0	159.0	159.0		2022-03-18	2022-03-19
2022	Spark	PL-GDH-11-22	BTW	473,056	5,829,383	325	-47	285	0	173.5	173.5		2022-07-22	2022-07-24
2022	Spark	PL-GDH-12-22	BTW	472,457	5,829,470	358	-45	119	0	228.0	228.0		2022-07-23	2022-10-26
2023	Spark	PL-100-23	BTW	472,612	5,829,280	326	-60	345	0	174.1	174.1	Chenier Drilling	2023-03-24	2023-03-26
2023	Spark	PL-101-23	BTW	472,567	5,829,280	327	-60	346	0	181.5	181.5		2023-03-26	2023-03-28
2023	Spark	PL-102-23	BTW	472,512	5,829,260	327	-63	347	0	174.0	174.0		2023-03-28	2023-03-30
2023	Spark	PL-133-23	BTW	472,443	5,829,345	327	-64	346	0	550.5	550.5		2023-07-05	2023-07-14
2024	Spark	PL-GDH-24-24	NQ	472,759	5,829,448	352	-72	128	0	248.6	248.6	Chenier Drilling	2024-02-17	2024-02-25
2024	Spark	PL-GDH-25-24A	NQ	472,695	5,829,440	352	-72	228	0	65.5	65.5		2024-02-25	2024-02-27
2024	Spark	PL-GDH-25-24	NQ	472,699	5,829,432	352	-72	228	0	245.8	245.8		2024-02-27	2024-03-06
2024	Spark	PL-GDH-26-24	NQ	472,692	5,829,527	355	-72	323	0	248.8	248.8		2024-03-06	2024-03-11
2024	Spark	PL-GDH-27-24	NQ	472,763	5,829,539	360	-70	19	0	248.8	248.8		2024-03-11	2024-03-17

Table 10.5 – Summary of Drill Hole Collar Information, Bolt Deposit

Year	Site Area	DDH No.	Hole Size	WGS84 UTM Zone 15			Incl	Azim	Start Depth	EOH	Total Drilled	Company	Start	End
				Easting	Northing	Elev.			(m)	(m)	(m)			
2023	Bolt	PL-103-23	BTW	473,126	5,829,159	344	-43	41	0	203.5	203.5	Chenier Drilling	2023-03-31	2023-04-02
2023	Bolt	PL-104-23	BTW	473,096	5,829,215	341	-45	45	0	163.5	163.5		2023-04-02	2023-04-03
2023	Bolt	PL-105-23	BTW	473,101	5,829,230	340	-45	45	0	135.0	135.0		2023-04-03	2023-04-04
2023	Bolt	PL-106-23	BTW	473,101	5,829,234	338	-44	354	0	360.0	360.0		2023-04-04	2023-04-07
2023	Bolt	PL-107-23	BTW	473,094	5,829,225	339	-43	260	0	282.0	282.0		2023-04-08	2023-04-15
2023	Bolt	PL-108-23	BTW	473,095	5,829,228	339	-45	300	0	246.0	246.0		2023-04-11	2023-04-13
2023	Bolt	PL-109-23	BTW	473,153	5,829,108	350	-45	45	0	213.0	213.0		2023-04-16	2023-04-17
2023	Bolt	PL-110-23	BTW	473,202	5,829,030	350	-45	48	0	211.5	211.5		2023-04-18	2023-04-19
2023	Bolt	PL-111-23	BTW	473,221	5,828,937	352	-45	45	0	330.0	330.0		2023-04-20	2023-04-23
2023	Bolt	PL-112-23	BTW	473,284	5,828,901	357	-46	45	0	248.0	248.0		2023-04-23	2023-04-25
2023	Bolt	PL-113-23	BTW	473,308	5,828,840	363	-45	46	0	270.0	270.0		2023-04-25	2023-04-28
2023	Bolt	PL-114-23	BTW	473,390	5,828,822	368	-46	44	0	320.0	320.0		2023-04-28	2023-05-02
2023	Bolt	PL-115-23	BTW	473,447	5,828,750	370	-45	44	0	255.0	255.0		2023-05-02	2023-05-04
2023	Bolt	PL-117-23	BTW	473,487	5,828,685	373	-44	46	0	250.4	250.4		2023-05-08	2023-05-11
2023	Bolt	PL-122-23	BTW	473,202	5,828,869	354	-49	43	0	317.7	317.7		2023-05-26	2023-05-30

Table 10.6 – Summary of Drill Hole Collar Information, Ember Target

Year	Site Area	DDH No.	Hole Size	WGS84 UTM Zone 15			Incl	Azim	Start Depth	EOH	Total Drilled	Company	Start	End
				Easting	Northing	Elev.			(m)	(m)	(m)			
2024	Ember	PL-138-24	BTW	471,330	5,829,964	331	-45	155	0	102.0	102.0	Chenier Drilling	2024-09-08	2024-09-09

Table 10.7 – Summary of Drill Hole Collar Information, Condemnation Drilling

Year	Site Area	DDH No.	Hole Size	WGS84 UTM Zone 15			Incl	Azim	Start Depth	EOH	Total Drilled	Company	Start	End
				Easting	Northing	Elev.			(m)	(m)	(m)			
2023	Condemn	PL-116-23	BTW	473,432	5,828,791	369	-45	205	0	336.0	336.0	Chenier Drilling	2023-05-04	2023-05-08
2023	Condemn	PL-118-23	BTW	473,510	5,828,563	375	-44	219	0	345.0	345.0		2023-05-12	2023-05-15
2023	Condemn	PL-119-23	BTW	473,571	5,828,481	372	-44	45	0	300.0	300.0		2023-05-15	2023-05-18
2023	Condemn	PL-120-23	BTW	473,594	5,828,428	370	-44	211	0	343.5	343.5		2023-05-19	2023-05-23
2023	Condemn	PL-121-23	BTW	473,202	5,828,869	354	-46	223	0	255.0	255.0		2023-05-23	2023-05-26
2023	Condemn	PL-123-23	BTW	474,210	5,828,281	326	-45	210	0	36.0	36.0		2023-05-29	2023-05-31
2023	Condemn	PL-124B-23	BTW	474,052	5,828,388	325	-45	215	0	36.4	36.4		2023-06-01	2023-06-02
2023	Condemn	PL-124-23	BTW	474,095	5,828,433	331	-44	214	0	234.5	234.5		2023-06-03	2023-06-05
2023	Condemn	PL-125-23	BTW	473,953	5,828,555	331	-45	222	0	331.5	331.5		2023-06-06	2023-06-10
2023	Condemn	PL-126-23	BTW	474,025	5,828,624	333	-44	28	0	345.0	345.0		2023-06-10	2023-06-14
2023	Condemn	PL-127-23	BTW	474,265	5,828,359	333	-46	232	0	400.0	400.0		2023-06-14	2023-06-19
2023	Condemn	PL-128-23	BTW	474,394	5,828,453	335	-44	32	0	304.5	304.5		2023-06-19	2023-06-22
2023	Condemn	PL-129-23	BTW	474,487	5,828,405	334	-45	31	0	336.0	336.0		2023-06-22	2023-06-25
2023	Condemn	PL-130-23	BTW	474,628	5,828,341	334	-45	42	0	321.3	321.3		2023-06-25	2023-06-29
2023	Condemn	PL-132-23	BTW	474,857	5,828,251	325	-44	32	0	319.5	319.5		2023-07-02	2023-07-05
2023	Condemn	PL-131-23	BTW	474,172	5,828,043	328	-45	40	0	201.0	201.0		2023-07-29	2023-07-01
2024	Condemn	PL-134-24	BTW	472,272	5,829,220	329	-46	1	0	205.5	205.5		2024-03-19	2024-03-21
2024	Condemn	PL-135-24	BTW	473,800	5,830,040	338	-44	11	0	200.3	200.3		2024-08-21	2024-08-25
2024	Condemn	PL-136-24	BTW	474,304	5,830,018	327	-46	191	0	250.5	250.5		2024-08-26	2024-09-01
2024	Condemn	PL-137-24	BTW	474,301	5,830,018	327	45	9	0	215.7	215.7		2024-09-01	2024-09-06

10.3 Geological Functions

All geological activities strictly adhere to Frontier Standard Operating Procedures (SOPs). These procedures cover various aspects including drilling requirements and downhole surveying, core transport and chain of custody, core photography, Rock Quality Designation (RQD) and geotechnical data capture, geological and structural descriptions, density measurements, core sampling, core storage and security, and drill collar survey methodologies.

10.3.1 Drilling Requirements and Downhole Surveys

Frontier has used two (2) main drill contractors at the PAK Project, with services provided by Element Drilling Ltd. of Gimli, Manitoba in 2013 and 2014, and Chenier Drilling Ltd. of Val Caron, ON from 2015 to present. Initially, NQ-sized drill core (47.6 mm diameter), or NQ triple tube (NQ-3; 45.0 mm diameter) for geotechnical programs, was the standard for all drill holes. Beginning in 2018, the drill contract was changed to specify BQ thin wall (BTW) providing a 40.7 mm diameter core sample; however, subsequent geotechnical programs have continued to utilize NQ sized rods.

Drill hole collar locations are physically marked and flagged prior to drilling by Frontier geologists using hand-held Garmin GPS units. The intended drill site locations are marked based on predetermined coordinates from a detailed Geographic Information System (GIS) database compilation. Planned drill collar azimuths used to be indicated using a Silva compass, and verified by line of sight (outcrop features, channel cuts, etc.). However, this process has been updated since 2022 to use the north-seeking Reflex TN14 Gyrocompass (later replaced by the Reflex North Finder APS unit) to line up the collar azimuth. Once the drill is set up, its position and orientation are verified by Frontier personnel prior to commencement of drilling. Examples of drill setups are shown in Figure 10.1.

Figure 10.1 – Examples of Drill Site Setups, PAK Project

Source: Frontier, 2025

To monitor drill hole deviations, the Reflex EZ-Trac tool has been in usage from 2021 to present; the tool is able to provide downhole depth, magnetic azimuth, dip, temperature, magnetic field strength and gravity readings. Additionally, the Reflex Gyro Sprint-IQ tool was primarily used during the 2023 and 2024 campaigns, providing true north rather than magnetic azimuth readings. Single-shot measurements are taken during drilling, beginning near the collar (typically 9 m past the casing) and subsequently every 50 m until the end of hole. Upon completion of the hole, multi-shot readings are taken either every 1.5 m, 3.0 m, or 10.0 m while exiting the hole, depending on the type of survey tool used. Final data is then verified by Frontier geologists, ensuring to make the necessary adjustments for magnetic declination if required. Various downhole survey tools have been implemented over the years, as summarized in Table 10.8.

Table 10.8 – Downhole Survey Tools Summarized by Year, PAK Project

Period	Survey Tool	Operator
2013 – 2014	Reflex EZ-Shot (single replaced by multi-shot)	Element Drilling
2015, 2017	Ranger Discovery multi-shot (6 to 15 m intervals)	Chenier Drilling
2018 – 2019	Reflex EZ-Trac (single/multi-shot)	Chenier Drilling
2021 – 2024	Reflex EZ-Trac (single/multi-shot)	Chenier Drilling
2023 – 2024	Reflex Gyro Sprint-IQ (single/multi-shot)	Chenier Drilling

All geotechnical and the majority of exploration or delineation holes have utilized the Reflex ACT III Oriented Core System to orient and mark the drill core. Each core mark is subsequently verified by Frontier geologists for accuracy.

Once drilling is completed, the casing is left in place and an aluminium cap is screwed on top to seal the hole; the drill hole number is then engraved onto the cap for future identification. To highlight collar locations, tripods are built out of fastened tree trunks and affixed into the ground overtop of the casing (Figure 10.2); this serves to protect the drill casing from heavy machinery in addition to helping with future relocation should the terrain become overgrown.

Figure 10.2 – Examples of Drill Casings and Protective Tripods, PAK Project

Source: DRA, 2025

10.3.2 CORE TRANSPORT AND CHAIN OF CUSTODY

Sample security and chain of custody starts with the removal of core from the core tube and boxing of drill core at the drill site. The sealed core boxes remain under the custody of the drill contractor until it is transported from the drill to the secure on-site core shack facility by either the drill foreman or one of Frontier's designated personnel.

Once at the core shack, the core boxes are opened and inspected by Frontier geologists and/or technicians to ensure correct boxing and labelling of the core by the drill contractor. Following geotechnical and geological logging, core markup and tagging for sampling, photography, core splitting and bagging (including control sample insertions), the samples are stored securely until direct shipment to the laboratory of choice can be arranged.

From 2013 to early 2015, the boxes were resealed following logging and sample markup, and stored securely until transport to the off-site (Val Caron) sampling facility was arranged.

The remaining half-sawn cores are then transported by Frontier personnel to the secure on-site core storage area to be racked and/or cross-piled (the off-site core storage area was used from 2013 to early 2015).

10.3.3 GEOTECHNICAL / RQD DATA CAPTURE

The logging process for capturing geotechnical and/or RQD data is clearly laid out by Frontier's Core Logging Standard Operating Procedure.

Once the core boxes are opened and initial "teching" work completed (i.e., checking for block errors, measuring and labelling), the geologist should begin by "docking" the core. Assuming the core orientation tool was used to mark the bottom dead centre of the core, docking involves piecing the core back together and drawing a straight red line, on the core until the next orientation mark (typically every ~3 m). The from and to depths between each orientation mark are to be recorded directly in MX Deposit™, in addition to the general quality of the orientation and the beta angle (Figure 10.3) between extrapolated test lines (where applicable).

Figure 10.3 – Example of Geotechnical and/or Structural Measurement Collection

Source: Frontier, 2025

Following the collection of orientation data, the geologist is required to estimate RQD indices using a customized Excel spreadsheet which is imported into the MX Deposit™ database. A semi-quantitative "spodumene count" is recorded within this datasheet and is a tool that Frontier finds effective to estimate Li_2O% grades prior to receiving the actual assay data.

10.3.4 GEOLOGICAL DESCRIPTIONS

As for the geotechnical / RQD data capture, expectations for the types of information to be collected by geologists are detailed in Frontier's Core Logging Standard Operating Procedure.

The geologist should capture all geological information possible on the core itself using a single colour of grease pencil (preferably orange) to distinguish it from sampling (yellow) and orientation

(red) details. At the very least, major and minor lithological unit contacts with depths need to be recorded, with additional potential observations including unit names, structural measurements, etc.

The geological database used by Frontier for data collection and management is the cloud-based MX Deposit™ by Seequent. The platform is highly customizable in terms of data inputs and allows for seamless sharing among team members; it also includes a number of built-in tools (e.g., quality assurance / quality control (QA/QC) plots) that can accelerate workflows.

The geologist is required to enter drill hole header and survey data, as well as all pertinent geological observations and comments. Frontier makes use of several different data type forms including major and minor lithologies, alteration, mineralization, veining, structures and assay samples. As with many software packages, all of the tables are linked to the major lithology and thus these sub-tables should not cross major contacts (including assay intervals).

In terms of sample selections, the minimum length for analysis is considered 0.3 m, and the maximum acceptable length is 2 m for ore zones and 2.5 m in waste intervals. It is encouraged to sample ore zones in 2 m intervals, except where these must be subdivided due to heterogeneities and/or contacts. It is noted that waste intervals > 0.3 m that are internal to broader mineralized zones must be sampled separately. Typical shoulder samples of 1 m must also be collected on either side of any pegmatitic zones. Geologists are also required to insert three (3) QA/QC samples (1 standard, 1 duplicate and 1 blank) into each batch of 20 samples. Final sample intervals and unique IDs are to be captured immediately in MX Deposit™.

10.3.5 Core Photo Collection

It is Frontier's policy that all drill core must be photographed; it is preferred that this is completed following geological descriptions and sample selections (i.e., with sample tags stapled to the box for reference) and prior to being cut or stored. The geologist is required to ensure that the core is properly lined up and that there is a measuring stick in the photograph for scale purposes. Both dry and wet photographs are required to help identify various textures and minerals (e.g., Figure 10.4). Following appropriate labelling, the photographs are stored in the relevant folder on the geology network drive.

Figure 10.4 – Examples of Dry and Wet Core Photographs, PAK Project

Source: Frontier, 2022

10.3.6 SPECIFIC GRAVITY MEASUREMENTS

Frontier currently employs the Archimedes' method to determine the specific gravity (SG) of drill core samples. This procedure is summarized as follows:

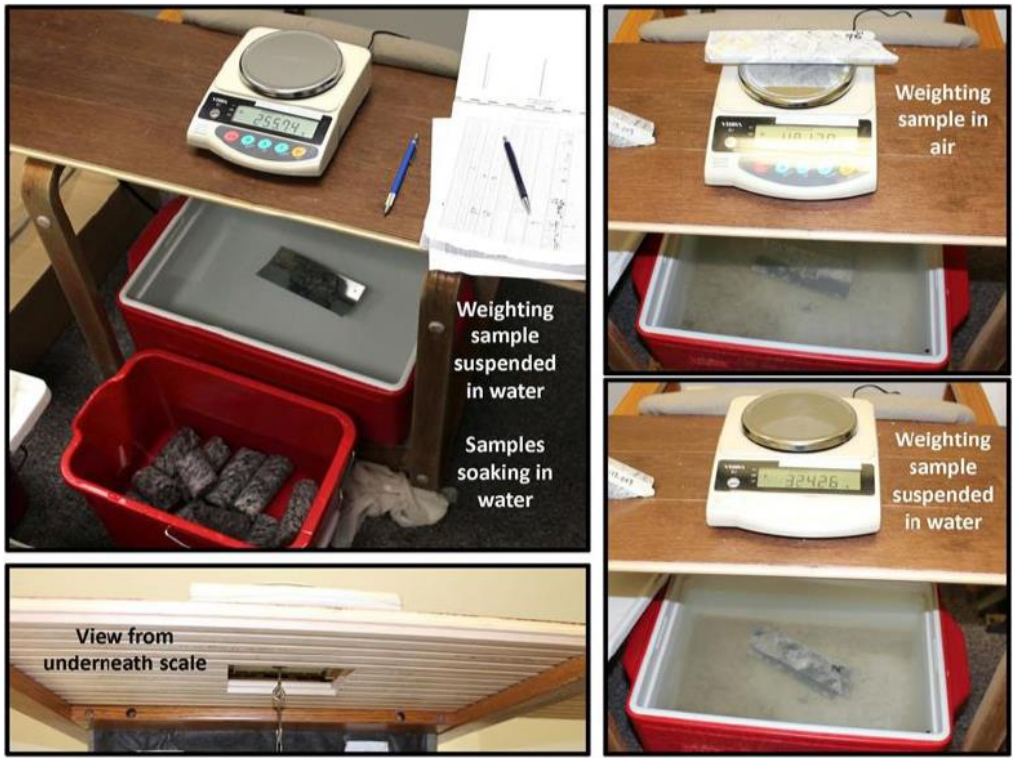
- Sample selected for SG measurement.
- Key data are recorded including hole ID, from and to depths (interval) and rock type.
- The sample is weighed dry on the scale (ensuring proper taring of the equipment).
- Sample is then weighed submerged in water at a constant temperature (22ºC).
- The specific gravity is then determined by the following equation:

$$SG = \frac{m_1}{(m_1 - m_2)/CF},$$

where m_1 = dry mass, m_2 = wet mass, and CF = correction factor (water temperature).

The SG determination setup used by Frontier is illustrated in Figure 10.5. Further details on the supplied SG data are available in Section 14.

Figure 10.5 – Specific Gravity Determination Equipment Setup, PAK Project



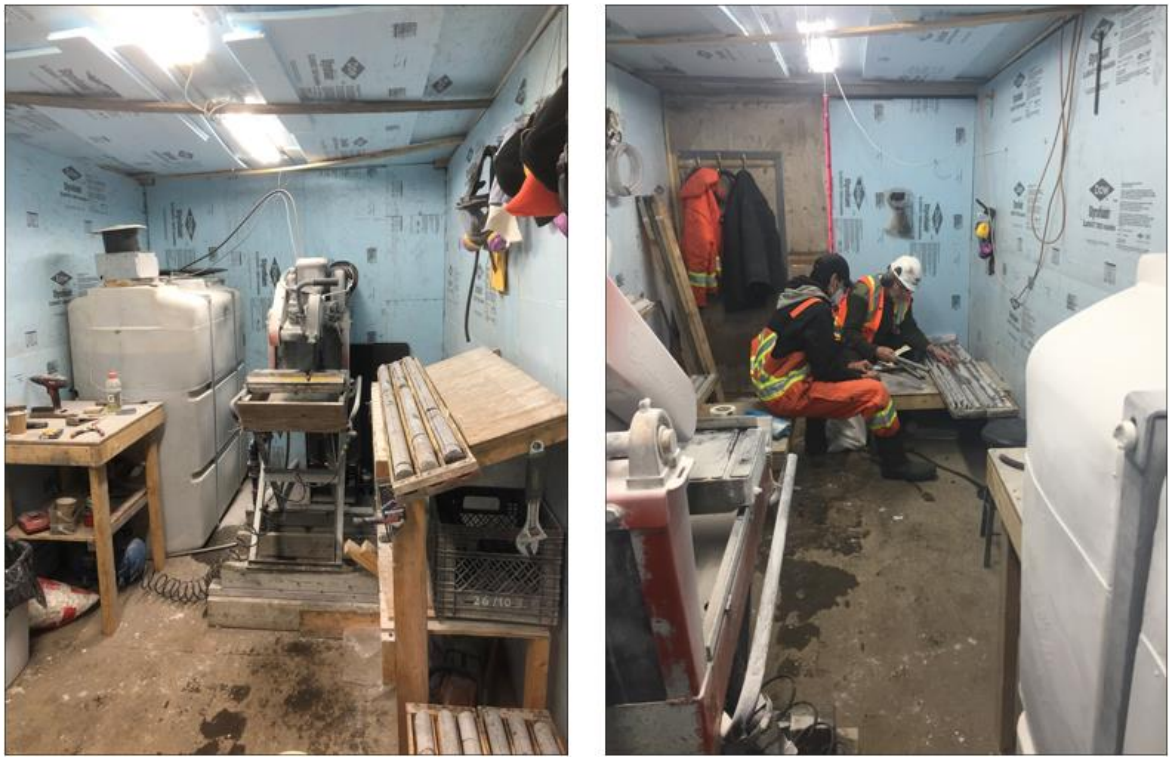
Source: BBA, 2023

10.3.7 DRILL CORE SAMPLING

Drill core that is selected and marked for splitting by the logging geologist is sawn using a diamond core saw with a mounted jig to ensure the core is cut lengthwise into equal halves (Figure 10.6). Half of the cut core is placed in clean individual sample bags with the appropriate sample tag; QA/QC samples are also placed into the sample stream at the prescribed intervals during this stage of sampling. The samples are then placed in rice bags for shipment to an analytical laboratory of choice for quantitative analysis of the selected elements; copies of the required sample submittal forms are included with the shipment to ensure clear instructions to the laboratory for sample logging, preparations and analysis.

During the early stages of drilling at the PAK Project (i.e., 2013, 2014 and the first phase of 2015), the core was re-closed on site following the completion of all geological functions and shipped to the Company's offsite core splitting facility in Val Caron, ON. The remaining half of the core was retained and incorporated into Frontier's secure offsite core library. Beginning in late 2015, this process was eliminated as a new core splitting facility allowed for the samples to be cut immediately on site; samples were then stored in a locked sea container until laboratory shipments were organized. As a result, the remaining core is now retained and predominantly stored at the secure on-site core storage farm.

Figure 10.6 – On-Site Core Splitting Facility, PAK Project



Source: Frontier, 2025

10.3.8 CORE STORAGE AND SECURITY

Drill core photographs are available digitally for rapid reference; however, the physical remaining half-core is stored in secured locations, both on and off site, for future detailed geological review and/or studies. Due to logistics at the time, core from the initial phases of drilling (i.e., 2013, 2014 and early 2015) is stored mainly in racks at Frontier's off-site core storage facility in Val Caron, ON (Figure 10.7). Sample pulps and rejects, once returned from the laboratory, are also stored at this location in locked sea containers or well-wrapped skids to protect them from the elements. A new organization system is also being developed as the Company has recently built a new office building and will eventually migrate all materials to either the new or similar location.

Drill core from more recent campaigns (late 2015 to present) is now mainly stored at a secure on-site storage area at the Property (Figure 10.8). Important intercepts can be found in a series of well-ordered core racks, with the remaining core cross-piled but nonetheless available for future access and review.

Figure 10.7 – Off-Site Core Storage Library, Val Caron, ON

Source: DRA, 2025

Figure 10.8 – On-Site Core Storage Farm, PAK Project

Source: Frontier, 2025 (left); DRA, 2025 (right)

10.3.9 Drill Collar Surveys

The surveying of all drill hole collars is carried out by a specialized technician or geologist; several high-resolution techniques have been employed to acquire accurate coordinate data throughout the various drill campaigns completed from 2013 to present. Data is compiled in the World Geodetic System 1984 (WGS84) datum using the Universal Transverse Mercator (UTM) coordinate projection system.

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

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.

In 2015, two surveyors were contracted to conduct a claim survey and pick up all new drill hole collars and channels, as well as earlier collected (2012 and 2014) channel locations which allowed to realign the 2013 survey points. Surveying was completed using a Total Station GPS system with the Precise Point Positioning (PPP) Service to establish sub-cm accuracy. The coordinates were measured from the TDC of the casing-ground surface contact.

Collar locations for the 2017 and 2018 drill campaigns were picked up based on high-resolution drone imagery with high-precision ground control points. The accuracy is less than 5 cm in the horizontal and less than 10 cm in the vertical based on surveyed control points.

From 2019 to 2023, the majority of drill collars have been surveyed to sub-cm accuracy by Rugged Geomatics (Kenora, ON) or TULLOCH (Thunder Bay, ON) using Total Station survey equipment. The 2024 drill collars have not yet been resurveyed to sub-centimeter accuracy; however, none have been used for resource estimation.

10.4 QP's Opinion

It is the QP's opinion that the procedures employed by Frontier for all geological functions, including drilling and survey requirements, data capture and management, sampling, chain of custody and storage, etc., meet acceptable industry standards and the resulting information is sufficient for resource estimation.

11 SAMPLE PREPARATION, ANALYSIS AND SECURITY

11.1 Sample Preparation

11.1.1 2013 PROGRAM

All channel samples were shipped to Thunder Bay, ON where 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 – Actlabs and ACME

Sample Preparation	Actlabs 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 PROGRAM

All 2014 samples were shipped from Frontier's Val Caron site to ACME Labs in Val-d'Or, QC 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 WINTER 2015 PROGRAM

All samples from the winter 2015 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, ON facility for analysis. 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 these samples' preparations.

Table 11.3 – 2015 Sample Preparation Procedure – Actlabs

Process	Actlabs 2015 Winter 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.
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).
Cleaning equipment	Actlabs uses white lightning SiO_2 under saturated (no free quartz) material as a cleaner sand between every pulverized sample.

11.1.4 SUMMER 2015 TO 2024 PROGRAMS

Samples from the summer 2015 to 2024 drilling campaigns and channel sampling programs were delivered to the AGAT facility in Thunder Bay, ON or Val-d'Or, QC; AGAT would occasionally transfer samples internally to its Timmins, ON location depending on capacities. The sample pulps were then sent to AGAT's analytical facility in Mississauga, ON (or rarely Calgary, AB). 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 with preparation of the samples.

Table 11.4 – Summer 2015 to 2024 Sample Preparation Procedure – AGAT

Process	AGAT Summer 2015 to 2024 Programs
Receiving	Samples were received, sorted in order, dried and stage-crushed to -12.7 mm and if >2kg, a 1kg sample was riffle split and saved.
Riffle split	If >2kg, a 1kg sample was split and saved
Crushing and pulverizing	Remainder of the 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 Summary of Analytical Procedures

A detailed description of each phase of diamond drilling and channel sampling can be found in the 2023 PFS by BBA E&C Inc., entitled “National Instrument 43-101 Technical Report PFS PAK Lithium Project”. The following is a summary describing the overall process throughout the life of the Project since comprehensive channelling and diamond drilling commenced in 2012 and 2013, respectively.

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 collected in line with industry-best practices.

In 2012, several of the original channels cut on the Pakeagama pegmatite by the OGS were re-cut and sampled inserting using CRMs to validate the high-grade lithium values previously reported. The initial CRMs used at the Project were a suite of four (4) standards developed by Frontier (formerly Houston Lake Mining) at Actlabs using materials collected from the Pakeagama Lake pegmatite blended with spodumene concentrate from the Tanco mine in Manitoba. Table 11.5 lists the recommended values for Li, Rb and Cs (LRC) for the four (4) LRC standards inserted into the sample stream from 2012 until 2023. Additional CRMs used since at the PAK Project are also summarized along with recommended values in Table 11.6.

Table 11.5 – Recommended Values for Initial LRC Standards for Li, Rb and Cs

CRM	Li (%)	Rb (%)	Cs (%)
LRC-1	0.401	0.73	0.625
LRC-2	1.107	0.551	2.103
LRC-3	1.575	0.441	4.095
LRC-4	1.563	0.407	8.006

Table 11.6 – Recommended Values for Additional Certified Reference Materials

CRM	Li (%)	Rb (ppm)	Cs (ppm)	Ta (ppm)
Oreas-751	0.468	496	48.5	28.1
Oreas-753	1.02	618	62	19.8
PLTA-01	-	-	-	163.8
TAN-1	-	-	-	2,360

Table 11.7 is a summary of all samples collected from channels and drill core at the PAK Lithium Project from 2012 to 2024. The table shows the year, lab used, number of samples (not including standards, blanks and duplicates), the method ID along with acid digestion and finishing technique. The method ID groups common analytical suites, digestion types, finishing techniques and lower detection limits but does not consider sample preparation (refer to Section 11.1). The corresponding detection limits for selected analytes are also provided in Table 11.8.

Table 11.7 – Summary of Analytical Laboratories and Techniques by Year

Year	Lab	Samples	ID_Method	Digestion	Technique
2012	Actlabs	79	Actlabs 2012a	$LiBO_2$ / $Li_2B_4O_7$ / Na_2O_2	FUS-ICPMS
2013	ACME	553	ACME 2013a	$LiBO_2$ / $Li_2B_4O_7$ / Na_2O_2	ICPMS/ICPOES
2014	ACME	662	ACME 2014a	$LiBO_2$ / $Li_2B_4O_7$ / Na_2O_2	ICPMS/ICPOES
		45	ACME 2014b		ICPMS/ICPOES/XRF
2015	Actlabs	610	Actlabs 2015a	$LiBO_2$ / B_4O_7	FUS-ICPMS
	AGAT	261	AGAT 2015a	Borate / $LiBO_2$ / Na_2O_2	ICPMS-OES/XRF
2017	AGAT	326	AGAT 2017b	$LiBO_2$ / Na_2O_2	ICPMS-OES; ISE
2018	AGAT	739	AGAT 2017b	$LiBO_2$ / Na_2O_2	ICPMS-OES; ISE
2019	AGAT	1,112	AGAT 2017b	$LiBO_2$ / Na_2O_2	ICPMS-OES; ISE
2020	AGAT	38	AGAT 2017b	$LiBO_2$ / Na_2O_2	ICPMS-OES; ISE
2021	AGAT	522	AGAT 2017b	$LiBO_2$ / Na_2O_2	ICPMS-OES; ISE
2022	AGAT	5,045	AGAT 2022a	$LiBO_2$ / Na_2O_2	ICPMS-OES
2023	AGAT	2,884	AGAT 2022a	$LiBO_2$ / Na_2O_2	ICPMS-OES
		22	AGAT 2023b	Na_2O_2	ICPMS / FA
2024	AGAT	440	AGAT 2023a	$LiBO_2$ / Na_2O_2	ICPMS-OES
Total Samples		**13,338**			

11.3 Quality Assurance / Quality Control

11.3.1 PRE-PFS DRILLING (BBA), 2013 – 2022

11.3.1.1 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 (3) times the detection limit. Sporadic samples had individual fails.

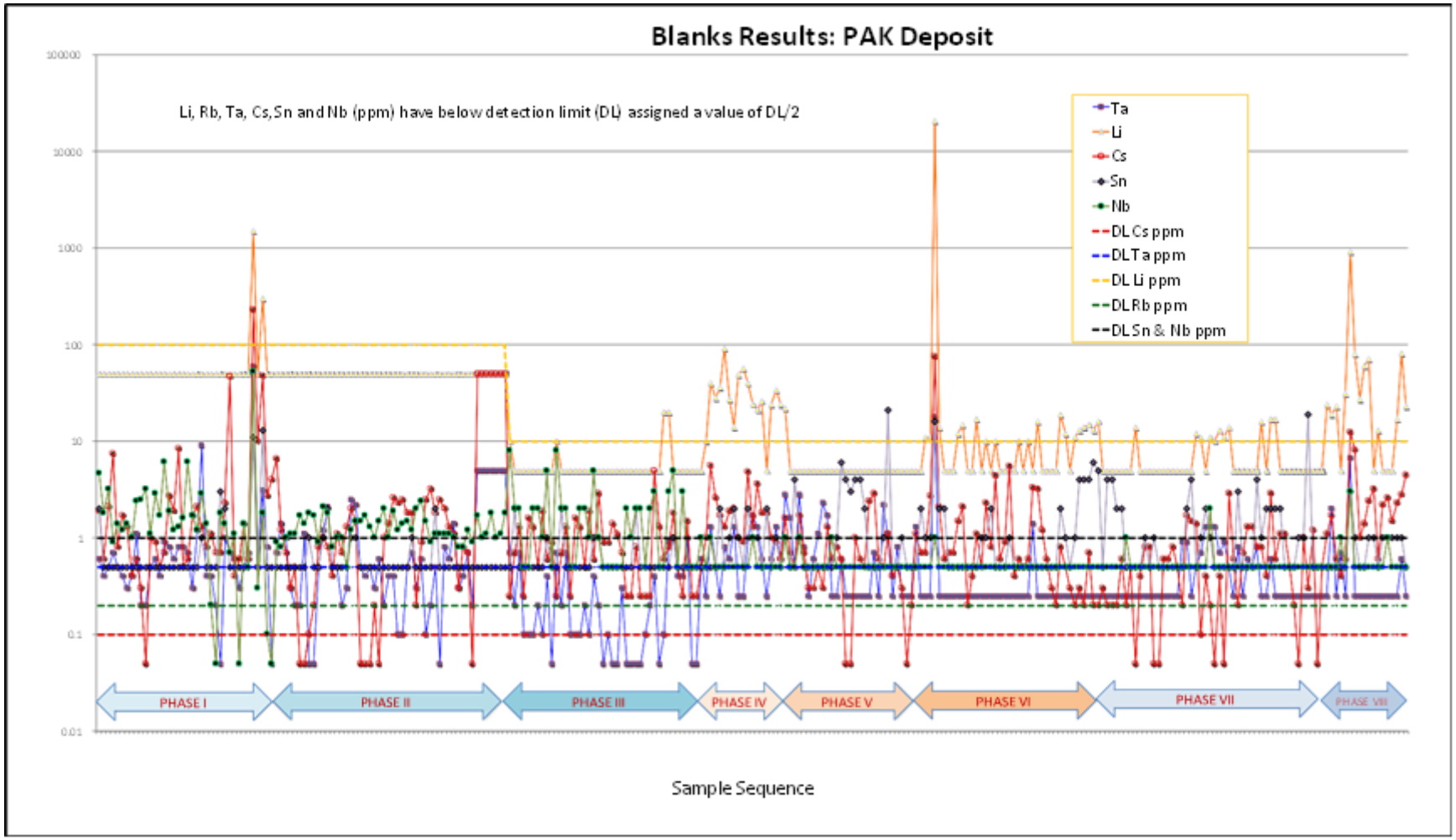
Figure 11.1 charts the blank samples submitted during the various drilling phases at PAK. Figure 11.2 charts the blank samples submitted during the various drilling phases at Spark.

Table 11.8 – Summary of Selected Analytical Detection Limits by Program

Type	Analyte	Unit of Measure	Detection Limit									
			Actlabs 2012a	ACME 2013a	ACME 2014a	ACME 2014b	Actlabs 2015a	AGAT 2015a	AGAT 2017b	AGAT 2022a	AGAT 2023a	AGAT 2023b
Elemental	Al	%						0.01	0.01	0.01	0.01	0.01
	As	ppm	5				5	0.5	30	5	5	5
	B	%		0.01	0.01	0.01						
	B	ppm							20	20	20	20
	Cs	%				0.01						
	Cs	ppm	0.5	0.1	0.1		0.5	0.01	0.1	0.1	0.1	0.1
	F	%					0.01					
	F	ppm			10	10		50	50			
	Fe	%						0.01	0.01	0.01	0.01	0.01
	K	%						0.05	0.05	0.05	0.05	0.05
	Li	%	0.001	0.01	0.01	0.01	0.001					
	Li	ppm						5	10	10	10	10
	Nb	ppm	1	0.1	0.1	0.1	1	0.2	1	1	5	5
	Rb	%				0.01						
	Rb	ppm	2	0.1	0.1		2	0.2	0.2	0.2	2	2
	Sn	ppm	1	1	1	1	1	1	1	1	2	2
	Ta	ppm	0.1	0.1	0.1	10	0.1	0.1	0.5	0.5	0.5	0.5

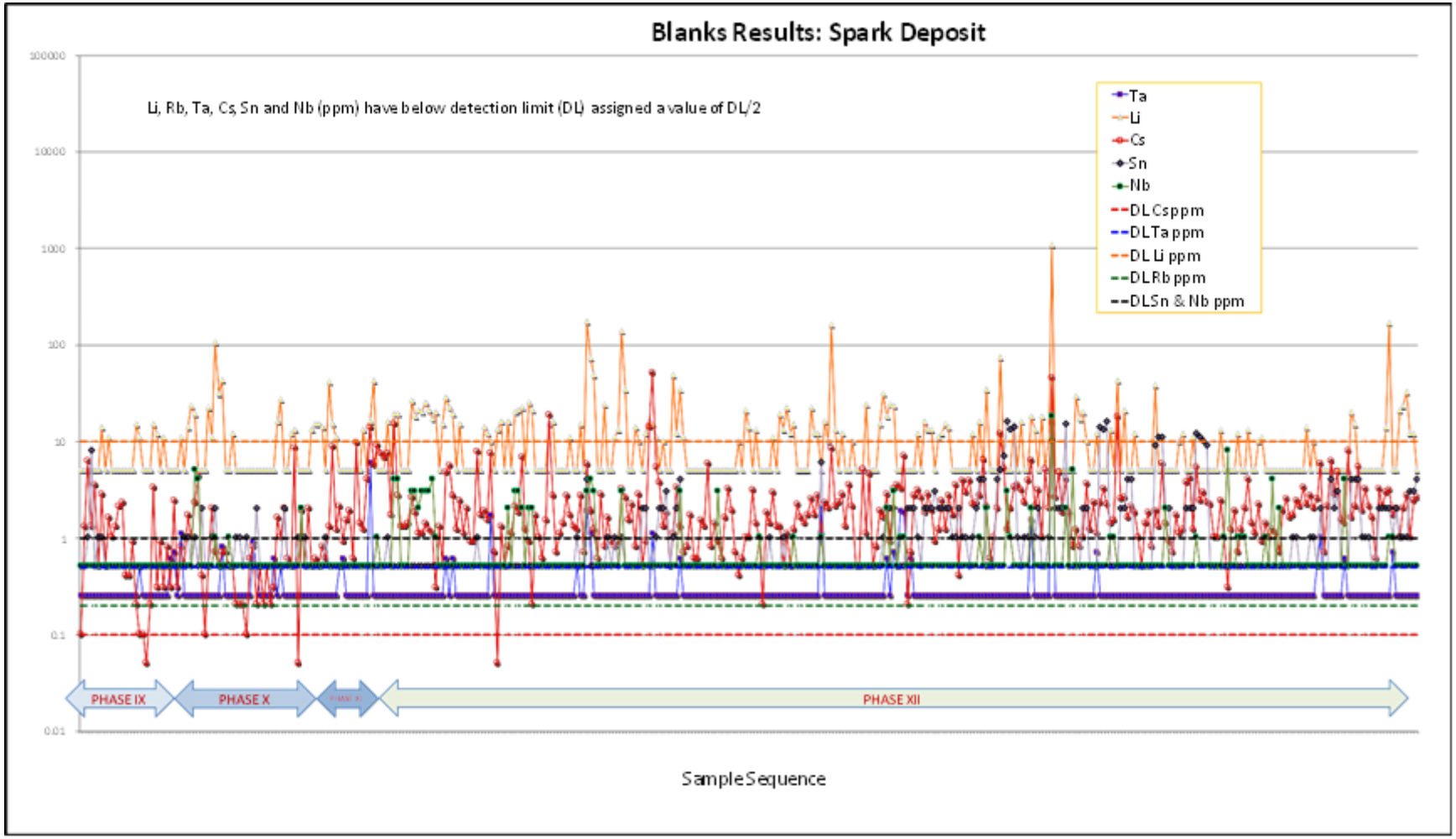
Type	Analyte	Unit of Measure	Detection Limit									
			Actlabs 2012a	ACME 2013a	ACME 2014a	ACME 2014b	Actlabs 2015a	AGAT 2015a	AGAT 2017b	AGAT 2022a	AGAT 2023a	AGAT 2023b
LOI	LOI	%		0.01	0.01	0.01			0.005	0.01	0.01	0.01
Oxides	Al_2O_3	%	0.01	0.01	0.01	0.01	0.01		0.005	0.005	0.01	0.01
	CaO	%	0.01	0.01	0.01	0.01	0.01		0.005	0.005	0.01	0.01
	Cr_2O_3	%		0.002	0.002	0.002			0.005	0.005	0.01	0.01
	Fe_2O_3	%	0.01	0.04	0.04	0.04	0.01		0.005	0.005	0.01	0.01
	K_2O	%	0.01	0.01	0.01	0.01	0.01		0.005	0.005	0.01	0.01
	MgO	%	0.01	0.01	0.01	0.01	0.01		0.005	0.005	0.01	0.01
	MnO	%	0.001	0.01	0.01	0.01	0.001		0.005	0.005	0.01	0.01
	Na_2O	%	0.01	0.01	0.01	0.01	0.01	0.005	0.005	0.005	0.01	0.01
	P_2O_5	%	0.01	0.01	0.01	0.01	0.01		0.005	0.005	0.01	0.01
	SiO_2	%	0.01	0.01	0.01	0.01	0.01		0.005	0.005	0.01	0.01
	TiO_2	%	0.001	0.01	0.01	0.01	0.001		0.005	0.005	0.01	0.01

Figure 11.1 – PAK Blank Control Samples



Source: BBA, 2023

Figure 11.2 – Spark Blank Control Samples

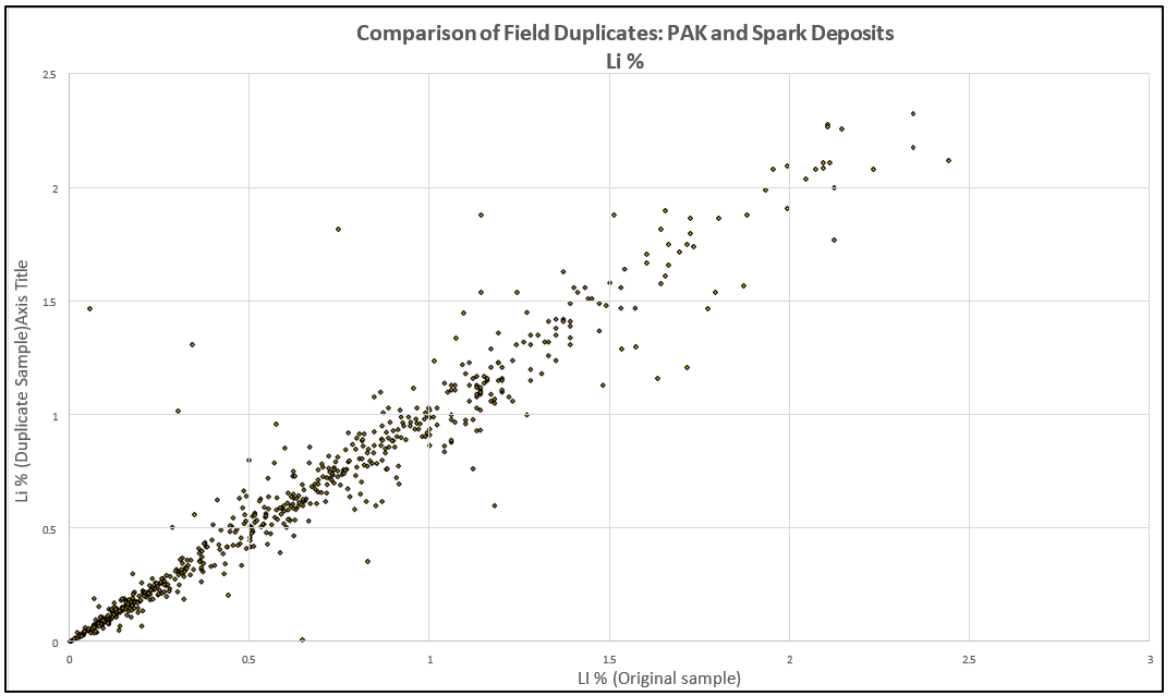


Source: BBA, 2023

11.3.1.2 Duplicates

A field duplicate is inserted approximately every twentieth sample. The duplicate is generated by cutting the half core into quarter core and submitting in separate samples bags with sequential sample numbers. Since 2019, field duplicate samples were collected by placing half core with two (2) sample tags into a single bag and subsequently splitting the sample after the crushing and before grinding during sample preparation at the lab. 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



Source: BBA, 2023

11.3.1.3 Standards

Frontier developed a set of in-house LRC standards at Actlabs in Ancaster, ON, 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 11.9. 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 CRM (TAN-01) was purchased from Canmet in Ottawa, ON 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 PLTA-01 reference material is found in Table 11.9.

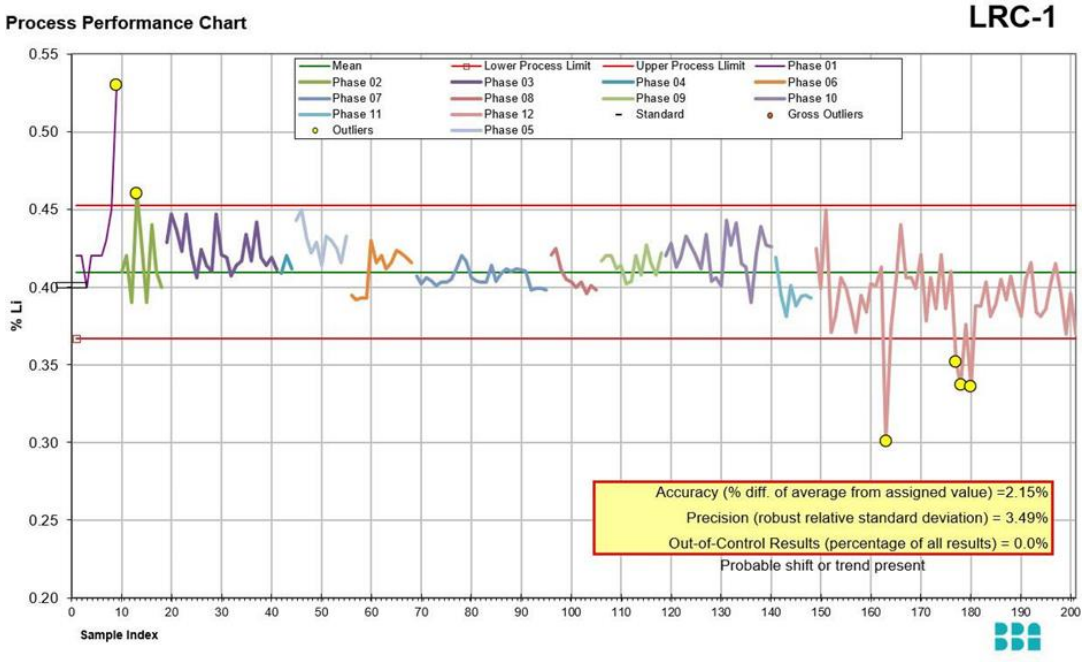
Table 11.9 – Composition of Standards

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

LRC-1

A total of 201 samples have been submitted over the 12 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

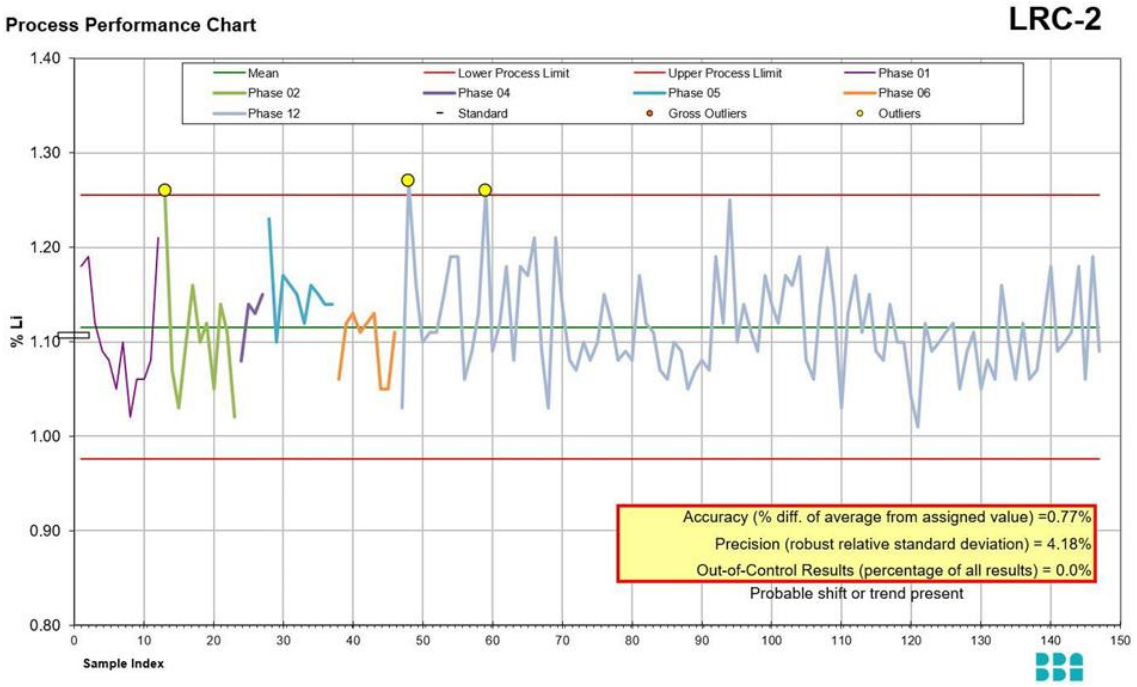


Source: BBA, 2023

LRC-2

A total of 147 samples have been submitted over six (6) 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

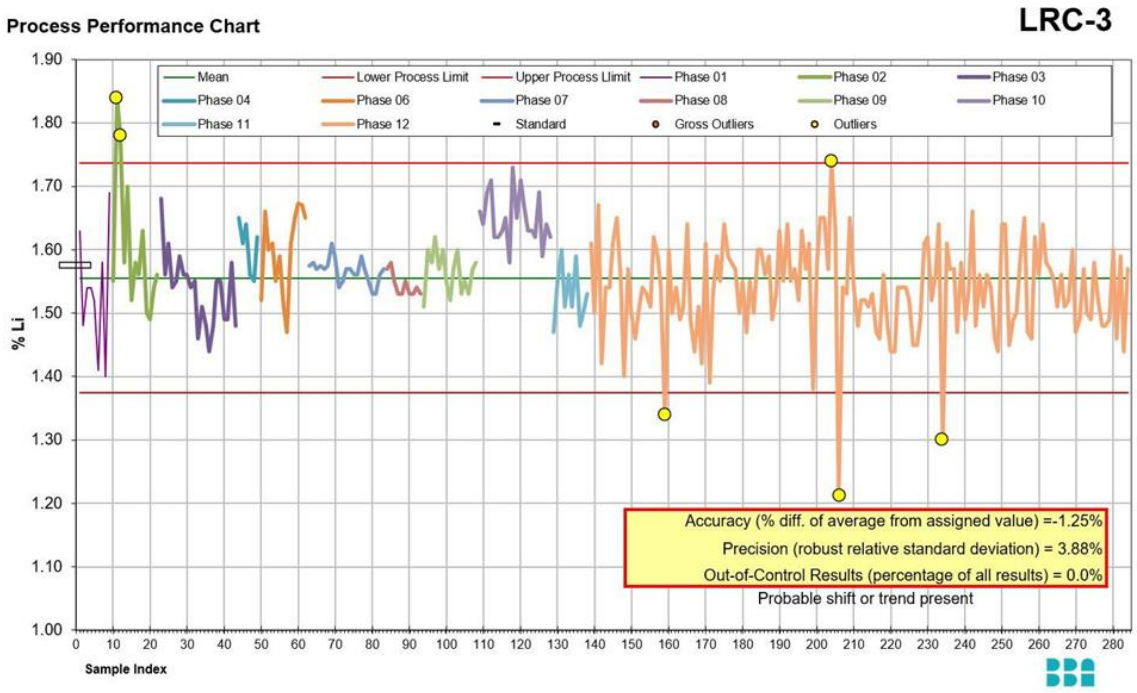


Source: BBA, 2023

LRC-3

A total of 284 samples have been submitted over 11 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



Source: BBA, 2023

11.3.1.4 Conclusions

It was the QP's opinion at the time 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.

11.3.2 POST-PFS DRILLING (DRA), 2023 TO PRESENT

During the period following the pre-PFS drilling until the database handover date of November 30, 2023 for this Report, Frontier maintained the same drilling, sampling and analytical procedures as recent years and described above.

As before, samples continued to be sent directly to AGAT facilities in Thunder Bay, ON for preparation prior to being transferred to its laboratory in Mississauga, ON for analysis by $LiBO_2$ / Na_2O_2 digestion with an ICPMS-OES finish.

Between the site visit by a DRA geologist and the effective date of this Report, DRA completed a review of both Frontier's sampling protocols and QA/QC database, in addition to its internal data analysis and reporting requirements, over the period from January 2023 onwards.

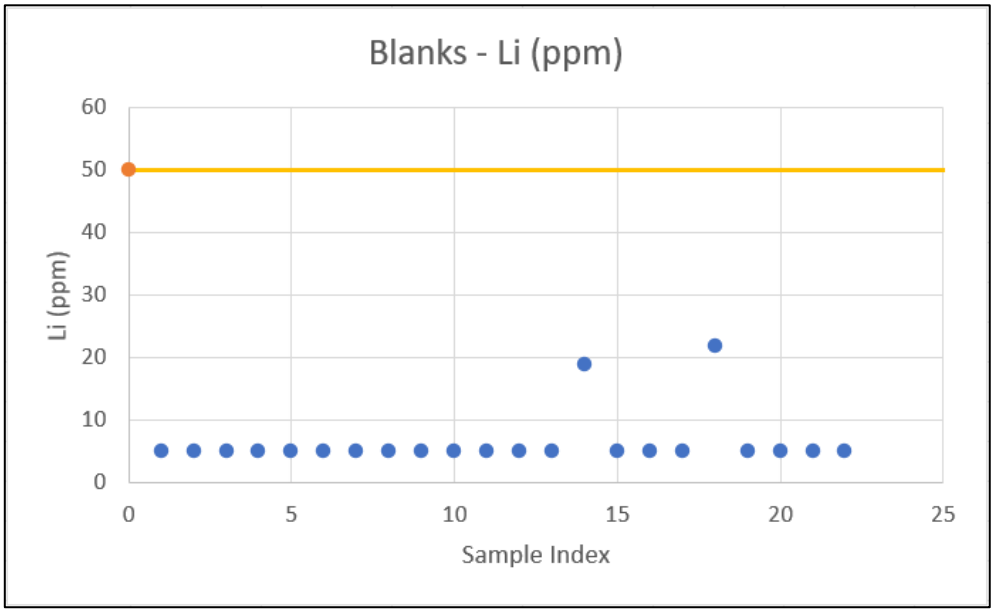
During this period, the QA/QC program continued to include the regular insertion of blanks, standards and field duplicates as per industry standards. Frontier's standard operating procedures aim to insert control samples into the regular sample stream at a frequency of one of each type in every batch of approximately 20 samples.

11.3.2.1 Blank Samples

Frontier continues to use commercially sourced lump carbonate for its blank control samples. These samples are introduced into the sample stream at a target frequency of one in every batch of approximately 20 samples. This is done mainly to test the lab for potential issues related to cross-contamination between samples. Representative plots for all of the blank samples sent to AGAT in 2023 from the PAK, Spark and Bolt deposits are provided in Figure 11.7 to Figure 11.9, respectively.

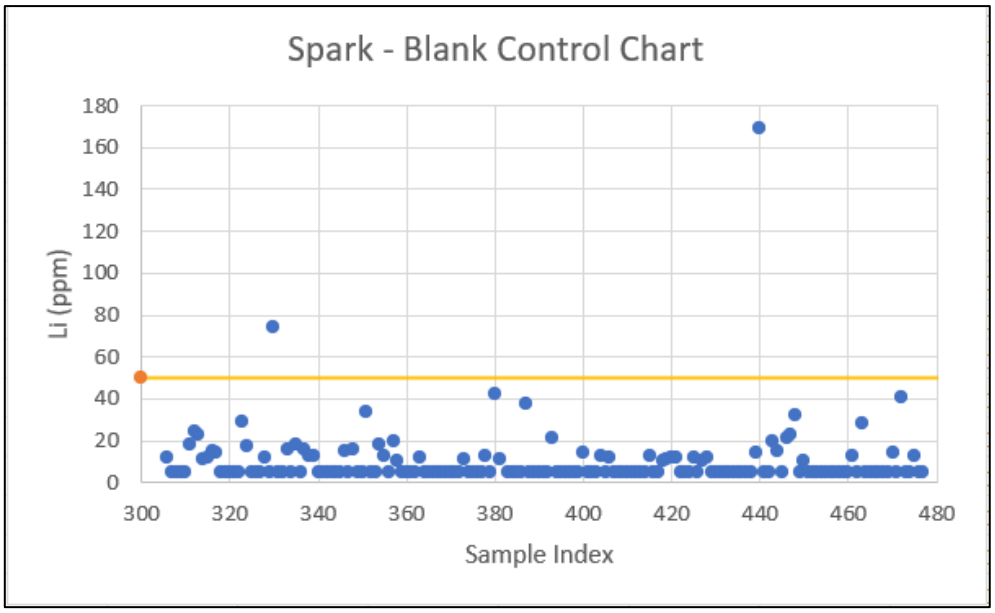
It is clear from this review that AGAT is doing a good job of maintaining clean preparatory and analytical facilities, in addition to suitable methodologies used between samples. There are only sporadic, isolated failures noted which indicates no clear pattern of cross-contamination issues during this time.

Figure 11.7 – Blank Control Plot for All PAK Samples (Li ppm) at AGAT in 2023



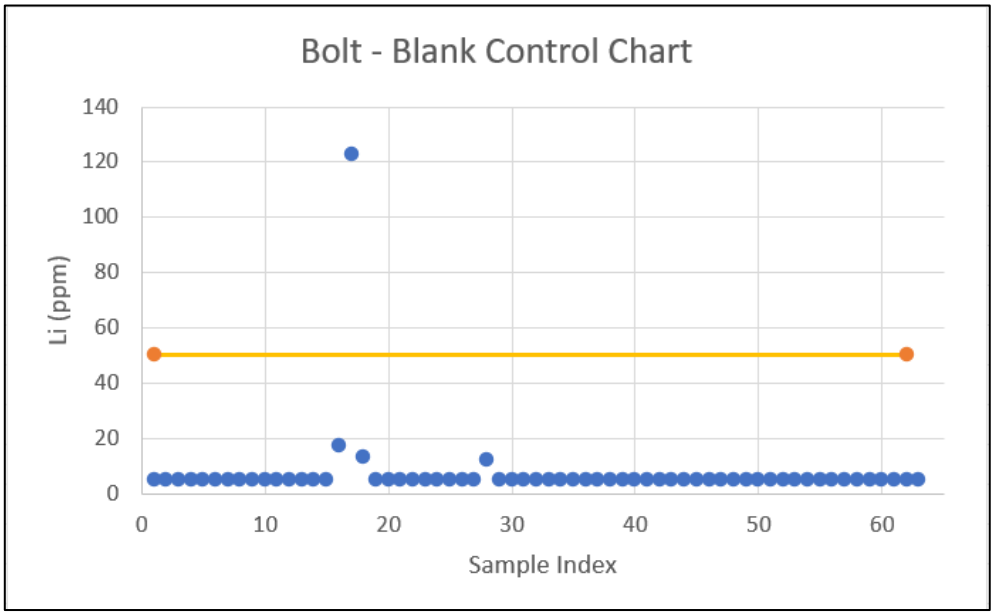
Source: DRA, 2025

Figure 11.8 – Blank Control Plot for All Spark Samples (Li ppm) at AGAT in 2023



Source: DRA, 2025

Figure 11.9 – Blank Control Plot for All Bolt Samples (Li ppm) at AGAT in 2023



Source: DRA, 2025

11.3.2.2 Standard Samples

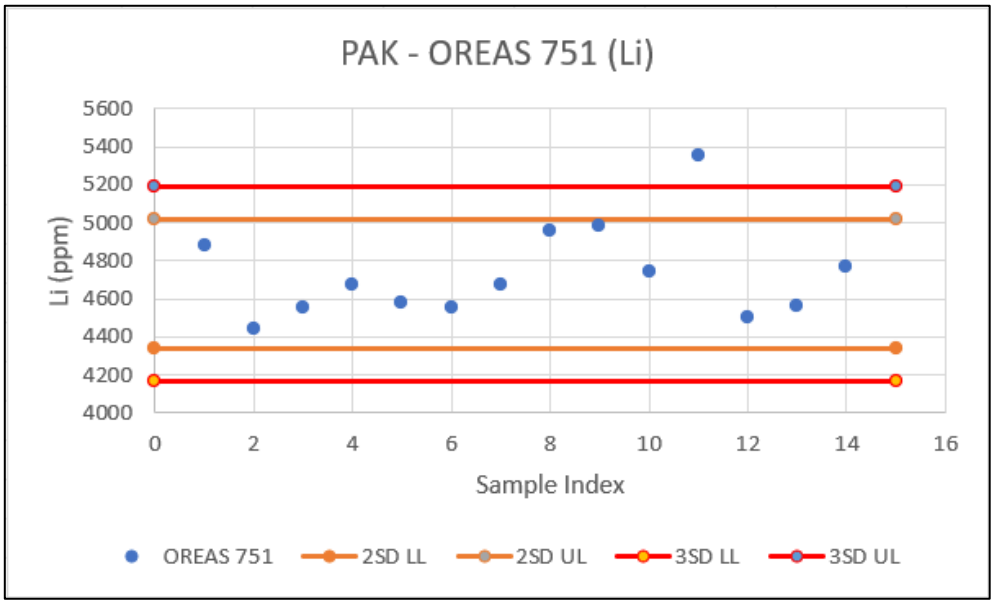
Frontier core sampling procedures require the use of standard control samples in order to assess the level of a laboratory's accuracy; the protocol is to insert a CRM at a frequency of one (1) in every batch of approximately 20 samples. The CRMs used by Frontier span a range of lithium and tantalum (among others) grades and include a mixture of in-house developed standards (LRC and PLTA-01 series) and commercially sourced standards (OREAS and Canmet). Representative plots for all of the standard control samples sent to AGAT in 2023 for the PAK, Spark and Bolt deposits are given in Figure 11.10 to Figure 11.12, respectively.

While the sample population is not yet large enough to be statistically significant, Figure 11.10 shows that the lab appears relatively accurate in this grade range with only one (1) failure (7%) to date for the OREAS-751 standard among PAK samples; all remaining analyses fall comfortably within the 2SD range. However, performance should be monitored in the future to ensure there is no concern with analytical calibration drift issues at the lab based on early trends.

In Figure 11.11, there is generally a very tight spread of analyzed values for the LRC-2 standard at Spark with only a few sporadic failures outside but in proximity to the 3SD range; there was only one (1) gross failure, which was investigated as a potential sample switch. Overall, it is clear that AGAT is performing well in terms of accuracy in this higher-grade range with no other issues identified.

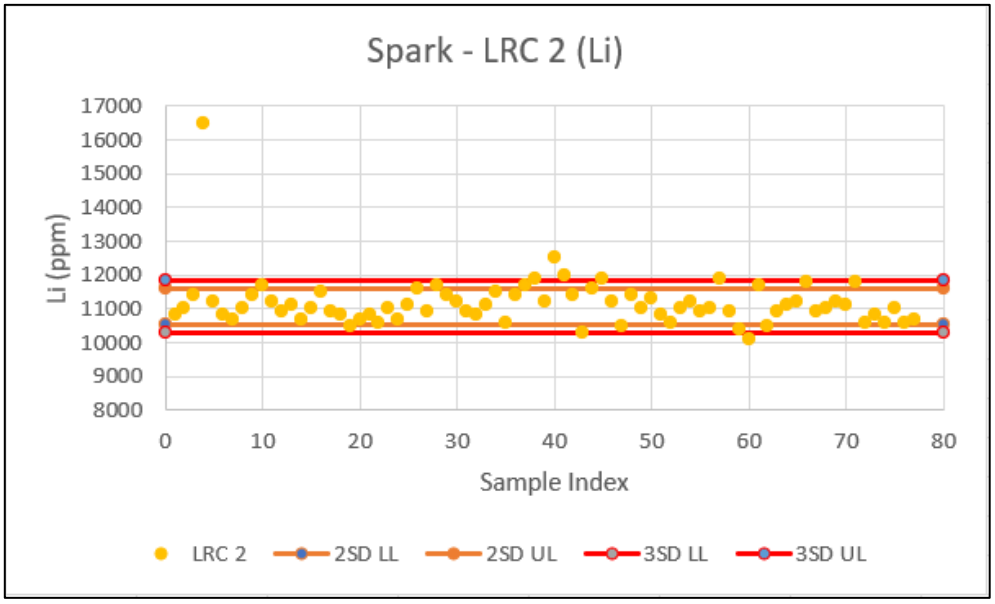
Figure 11.12 also indicates that the lab is performing relatively well in terms of accuracy with only three (3) minor failures (close proximity to the 3SD range) to date for OREAS-753 standard control samples at Bolt. It should be noted that there appears to be a slight negative bias on the distribution of analyzed values; this should be monitored in the future to determine if it is an issue with the lab or the standard itself.

Figure 11.10 – Representative Standard Control Plot for All PAK Samples (OREAS-751) Analyzed at AGAT in 2023



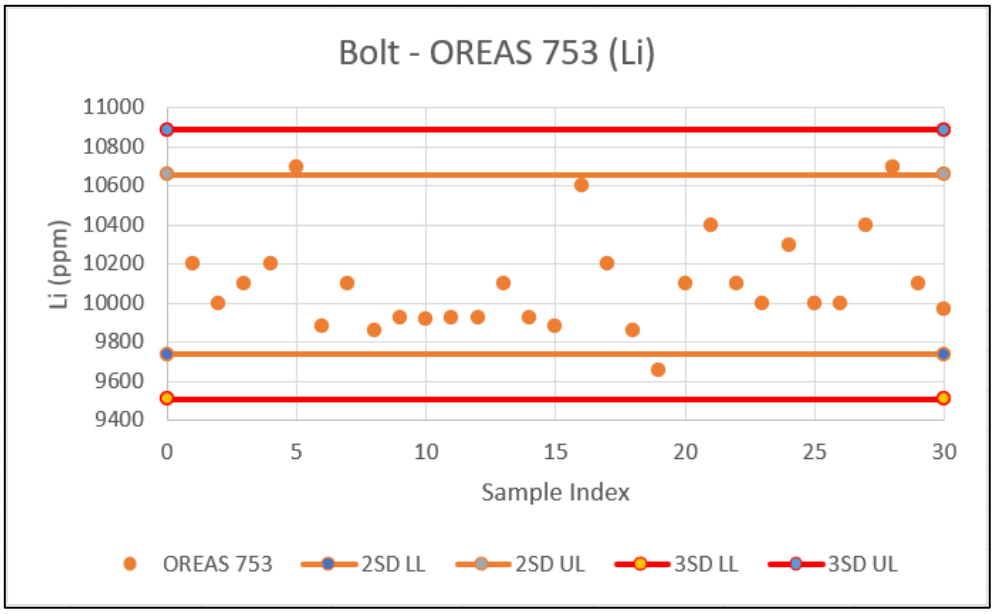
Source: DRA, 2025

Figure 11.11 – Representative Standard Control Plot for All Spark Samples (LRC-2) Analyzed at AGAT in 2023



Source: DRA, 2025

Figure 11.12 – Representative Standard Control Plot for All Bolt Samples (OREAS-753) Analyzed at AGAT in 2023



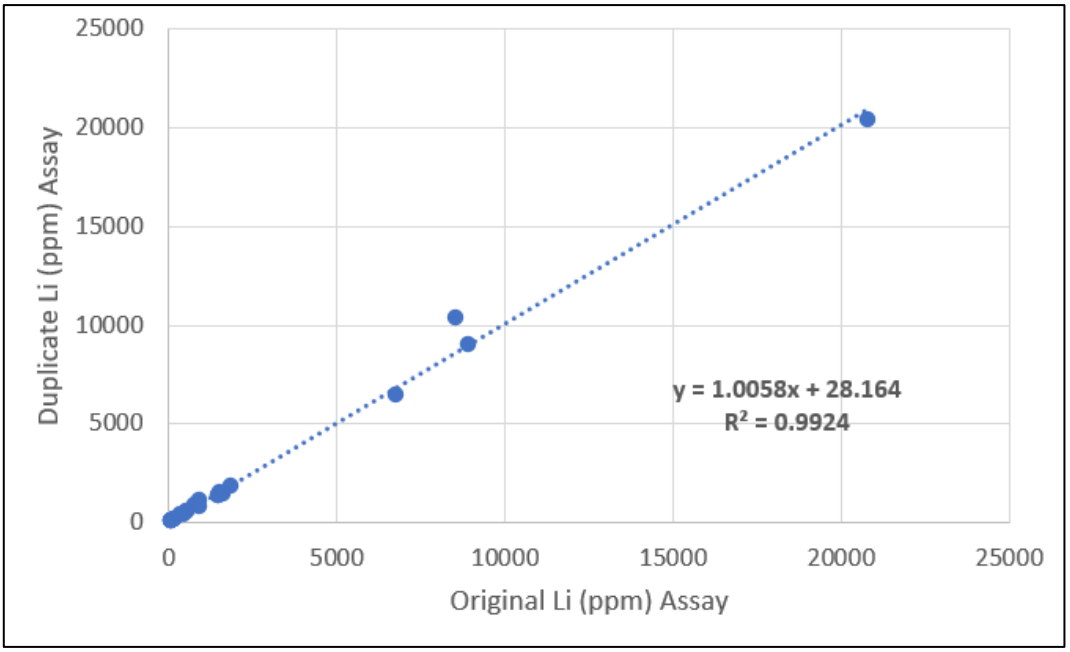
Source: DRA, 2025

11.3.2.3 Duplicate Samples

During this period, Frontier continued splitting the duplicate from the original sample after the crushing and before the grinding process during sample preparation at the lab, with a target insertion frequency of one in every batch of approximately 20 samples. This is done primarily to test the laboratory's level of repeatability (i.e., precision). Representative plots for all of the duplicate control samples sent to AGAT in 2023 from the PAK, Spark and Bolt deposits are provided in Figure 11.13 to Figure 11.15, respectively.

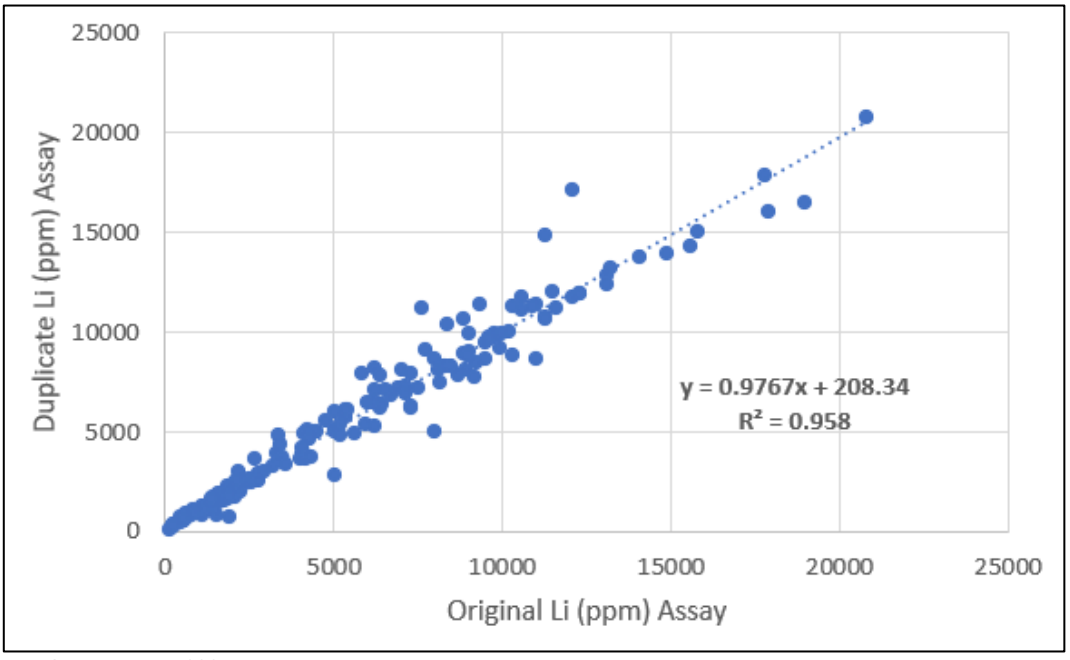
These plots clearly indicate a high level of reproducibility based on strong correlation between the original and duplicate sample values, which indicates that there is currently no cause for concern with the laboratory's performance in this regard.

Figure 11.13 – Duplicate Control Plot for All PAK Samples (Li%) at AGAT in 2023



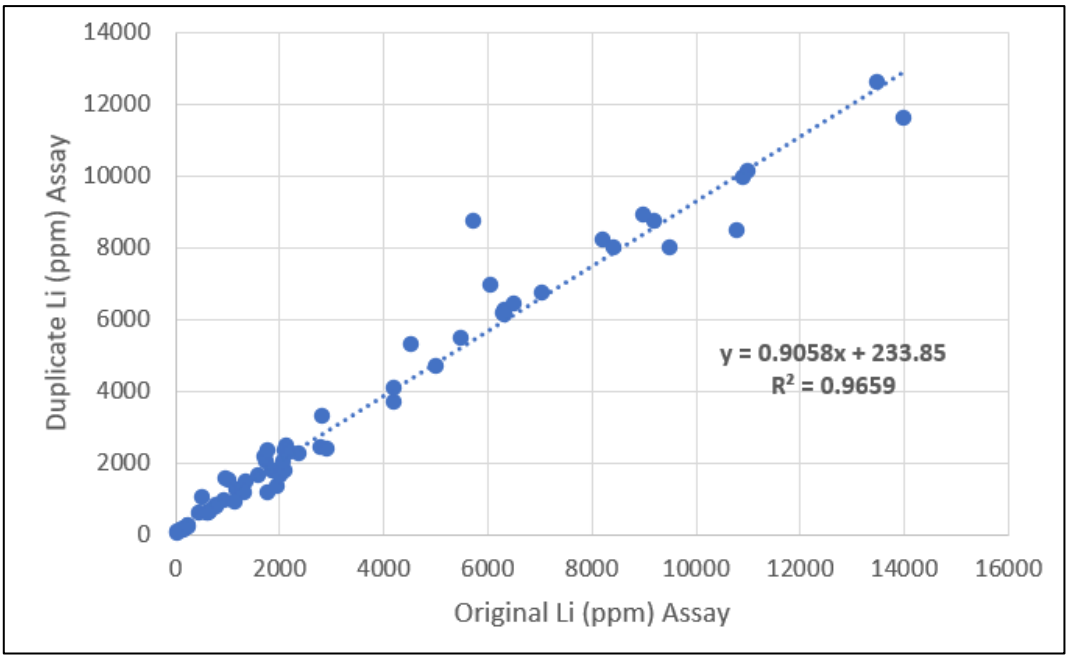
Source: DRA, 2025

Figure 11.14 – Duplicate Control Plot for All Spark Samples (Li%) at AGAT in 2023



Source: DRA, 2025

Figure 11.15 – Duplicate Control Plot for All Bolt Samples (Li%) at AGAT in 2023



Source: DRA, 2025

11.4 QP's Opinion

It is the QP's opinion that the SOP implemented by Frontier in the sampling and analysis of drill core samples, including the described QA/QC program, do not cause any issues that may significantly impact the integrity of the provided data. DRA thus considers the data to be of sufficient quality and reliability for the purposes of Mineral Resource estimation.

12 DATA VERIFICATION

The information in Section 12 is largely extracted, summarized and/or updated from the Report available on SEDAR entitled: "NI 43-101 Technical Report, Pre-Feasibility Study for the PAK Project, Northwestern Ontario, Canada, prepared for Frontier Lithium Inc., dated July 14, 2023, prepared by BBA E&C Inc."

12.1 BBA Data Verification – 2013 to 2023

12.1.1 SITE INVESTIGATION

Various QPs for the previous PFS report visited the Property between 2013 and 2022, for a total of 9 visits. At that time, various items were examined / reviewed, including: project setting, bulk sample site, PAK and Spark pit locations, potential TMF location, potential routing for access road, general area for concentrator plant, office and camps, numerous drill collar sites, channel samples, and geology and drilling, logging and sampling procedures.

One of the QPs for the previous PFS report also visited the Frontier cutting facility and core storage in Val Caron, ON various times during that same time period.

12.1.2 COLLAR VALIDATION

The QP for the previous PFS report confirmed the locations of six (6) 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 for the previous PFS report confirmed the locations of 16 surface borehole collars during the site visit in 2015. The QP for the previous PFS report 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
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 for the previous PFS report confirmed the locations of six (6) surface borehole collars during the site visit in 2021. The QP for the previous PFS report 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 for the previous PFS report confirmed the locations of 11 surface borehole collars during the site visit in 2022. The QP for the previous PFS report 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

12.1.3 INDEPENDENT SAMPLING

The QP for the previous PFS report 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.

12.1.4 DATABASE VALIDATION

The QP for the previous PFS report 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

12.1.5 CONCLUSIONS

It was the opinion of the QP for the previous PFS report at the time of filing that report that the sampling practices of Frontier met current industry standards. The former QP also concluded that the sample database provided by Frontier and validated by the QP for the previous PFS report at the time was suitable to support previous Mineral Resource Estimates.

12.2 DRA Data Verification – 2023 to Present

12.2.1 SITE VISITS

A representative of DRA visited the PAK Project from February 21st to 23rd, 2024. The underlying aim of the visit was to hold technical discussions with Frontier personnel, understand the nature of the alteration and mineralization with respect to the host rocks and surrounding geology (i.e., core review), review current interpretations and modelling methodologies, and address all geological functions, including:

- Drilling, logging and sampling procedures.
- Data collection, treatment and storage.
- Analytical procedures (including QA/QC).
- Core/sample chain of custody and storage processes.

Moreover, the general site layout, camp setup, office and core shack/cutting facilities were examined to ensure all protocols are in line with industry-best practices.

Additionally, a visit by DRA was made to Frontier's office and offsite facility in Val Caron, ON, from May 6th to 7th, 2024, to review additional drill intercepts from earlier phases of drilling that are kept in storage racks in a secured compound. During this visit, time was also spent locating drill core and sample rejects for a small independent sampling campaign focused on each of the PAK, Spark and Bolt deposits.

12.2.2 COLLAR VALIDATION

DRA confirmed the locations of 21 surface borehole collars at the PAK and Spark deposits during the site visit to the Project in early 2024. Collar locations were determined using a handheld GPS unit and compared with those in the provided database. It was found that all collar locations were located within the acceptable error limits of the handheld GPS (Table 12.6).

Table 12.6 – Comparison of Independent Collar Pickups vs. Database

Drill hole ID	Datum	Zone	Database			QP Field Check			Horizontal Distance (m)	Vertical Distance (m)
			Easting (m)	Northing (m)	Elevation (m)	Easting (m)	Northing (m)	Elevation (m)		
PL-012-14	NAD83	15U	474,404	5,827,978	324	474404	5827981	324	2.76	-0.61
PL-013-14	NAD83	15U	474,571	5,827,851	316	474570	5827849	315	2.24	-1.20
PL-014-14	NAD83	15U	474,769	5,827,885	317	474767	5827884	314	1.67	-3.25
PL-023-17	NAD83	15U	474,723	5,827,925	317	474722	5827926	316	1.48	-0.68
PL-025-17	NAD83	15U	474,418	5,827,851	321	474415	5827852	320	3.13	-0.74
PL-030-18	NAD83	15U	474,498	5,827,969	324	474497	5827970	319	1.41	-4.22
PL-031-18	NAD83	15U	474,524	5,827,950	324	474524	5827948	321	2.00	-2.40
PL-045-19	NAD83	15U	472,882	5,829,388	325	472881	5829388	329	1.07	3.32
PL-050-21	NAD83	15U	472,746	5,829,494	357	472747	5829493	356	1.42	-0.65
PL-052-21	NAD83	15U	472,815	5,829,593	359	472816	5829593	359	1.25	-0.31
PL-054-22	NAD83	15U	472,665	5,829,490	353	472662	5829491	351	2.77	-1.97
PL-066-22	NAD83	15U	472,730	5,829,369	326	472727	5829372	327	4.37	0.96
PL-079-22	NAD83	15U	472,539	5,829,477	357	472540	5829480	358	3.04	0.97
PL-081-22	NAD83	15U	472,690	5,829,499	354	472690	5829499	350	0.51	-3.96
PL-084-22	NAD83	15U	472,986	5,829,377	325	472986	5829378	329	0.77	4.13
PL-099-22	NAD83	15U	472,533	5,829,354	328	472530	5829352	333	4.17	5.70
PL-13-001	NAD83	15U	474,560	5,827,831	316	474559	5827831	314	1.46	-2.90
PL-GDH-10-22	NAD83	15U	472,664	5,829,277	327	472664	5829279	325	2.11	-2.23
PL-GDH-14-23	NAD83	15U	474,283	5,828,051	321	474283	5828051	321	0.00	0.76
PL-GDH-17-23	NAD83	15U	474,384	5,827,860	320	474385	5827860	320	1.00	-0.47
PL-GDH-20-23	NAD83	15U	474,826	5,827,883	318	474821	5827882	319	5.10	1.03

12.2.3 INDEPENDENT SAMPLING

An independent check assay sampling program was completed by the DRA representative during the visit to the Frontier office and offsite facility in Val Caron, ON. A total of 58 samples were sent for analysis including five (5) blanks and five (5) CRMs. At the QP's discretion, samples were delivered directly to ALS Laboratories in Sudbury, ON for preparation and then sent to their Vancouver facility for analysis. Sample media included a combination of remaining drill core, coarse rejects and pulp rejects (two (2) instances), depending on material availability. Sample identifiers and descriptions, as well as the original and check assay results, are provided in Table 12.7.

Table 12.7 – Independent Check Assay Sampling Program

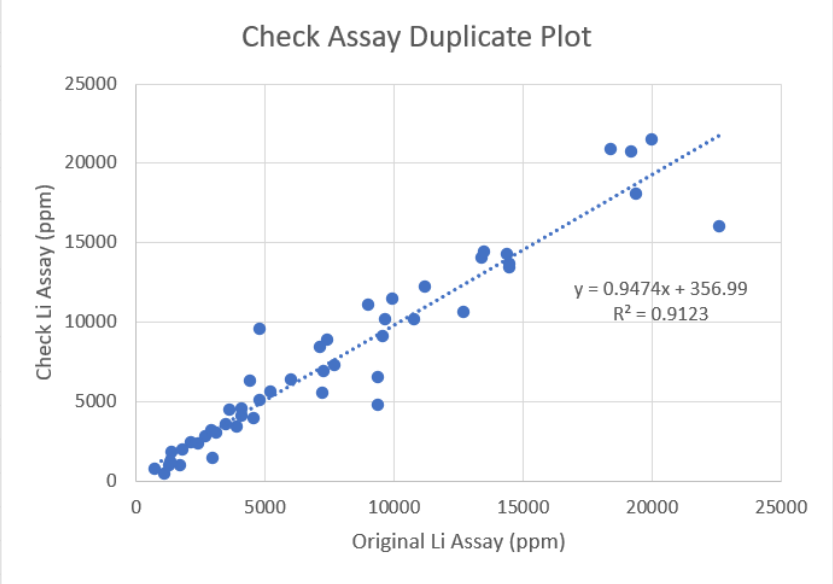
DDH-ID	Sample-ID Original	Sample-ID Check Assay	From (m)	To (m)	Interval (m)	Comment	Original Li_ppm	Check Li_ppm
PL-GDH-04-17	B00097464	F053851	20.35	20.7	0.35	Remaining core sampled	1100	490
PL-GDH-04-17	B00097468	F053852	27.75	29	1.25	Remaining core sampled	22600	16000
PL-GDH-04-17	B00097481	F053853	38.45	39.52	1.07	Remaining core sampled	12700	10600
PL-GDH-04-17	B00097483	F053854	67.25	68.25	1	Remaining core sampled	4550	3930
PL-GDH-04-17	-	F053855	-	-	-	**STD - OREAS 751**	-	4520
PL-GDH-04-17	B00097487	F053856	71.48	72.5	1.02	Remaining core sampled	14500	13400
PL-GDH-04-17	B00097490	F053857	85.57	86.57	1	Remaining core sampled	9400	4750
PL-GDH-04-17	B00097498	F053858	90.5	91.5	1	Remaining core sampled	3110	3030
PL-002-14	1320125	F053859	33	34	1	Remaining core sampled	1700	1000
PL-002-14	1320126	F053860	34	35	1	Remaining core sampled	9400	6510
PL-002-14	-	F053861	-	-	-	**BLANK**	-	29
PL-002-14	1320131	F053862	49	50	1	Remaining core sampled	1300	1010
PL-002-14	1320571	F053863	132	133	1	Remaining core sampled	2700	2830
PL-002-14	B00096003	F053864	193	194	1	Remaining core sampled	11200	12250
PL-002-14	B00096021	F053865	214	215	1	Remaining core sampled	19400	18100
PL-002-14	B00096046	F053866	262	263	1	Remaining core sampled	14500	13650
PL-002-14	-	F053867	-	-	-	**STD - OREAS 752**	-	6310
PL-13-004	1320254	F053868	17	18	1	Remaining core sampled	3900	3430
PL-13-004	1320266	F053869	33	34	1	Remaining core sampled	3500	3560
PL-13-004	1320273	F053870	40	41	1	Remaining core sampled	18400	20900
PL-13-004	1320284	F053871	60.1	60.55	0.45	Remaining core sampled	7400	8860
PL-13-004	1320297	F053872	80	81	1	Remaining core sampled	20000	21500

DDH-ID	Sample-ID Original	Sample-ID Check Assay	From (m)	To (m)	Interval (m)	Comment	Original Li_ppm	Check Li_ppm
PL-13-004	-	F053873	-	-	-	**BLANK**	-	85
PL-13-004	1320319	F053874	123	124	1	Remaining core sampled	9000	11050
PL-13-004	1320326	F053875	128	129	1	Remaining core sampled	3000	1420
PL-062-22	B00194506	F053876	138	140	2		9650	10150
PL-062-22	B00194518	F053877	162	164	2		4090	4520
PL-062-22	B00194546	F053878	205	207	2		7120	8450
PL-062-22	-	F053879	-	-	-	**STD - OREAS 752**	-	7280
PL-062-22	B00194557	F053880	237	239	2		6020	6390
PL-062-22	B00194587	F053881	300	302	2		10800	10200
PL-062-22	B00194598	F053882	322	324	2		2930	3170
PL-062-22	B00194616	F053883	352	354	2		4780	5110
PL-079-22	B00197562	F053884	143	145	2		5230	5590
PL-079-22	-	F053885	-	-	-	**BLANK**	-	20
PL-079-22	B00197575	F053886	156.53	158	1.47		1390	1830
PL-079-22	B00197594	F053887	183.56	185	1.44		19200	20700
PL-079-22	B00197613	F053888	200	202.4	2.4		2420	2350
PL-079-22	B00197622	F053889	224	226	2		4450	6330
PL-079-22	B00197634	F053890	242	244	2		9950	11450
PL-079-22	-	F053891	-	-	-	**STD - OREAS 751**	-	4750
PL-079-22	B00197640	F053892	252	254.59	2.59		722	750
PL-088-22	F048407	F053893	16.5	18.5	2		13400	14050
PL-088-22	F048431	F053894	58.5	60.5	2		7270	6910
PL-088-22	F050012	F053895	107	109	2		4780	9530
PL-088-22	F050033	F053896	138.5	140.5	2		7240	5540
PL-088-22	-	F053897	-	-	-	**BLANK**	-	13
PL-088-22	F050040	F053898	159	161	2		14400	14300
PL-088-22	F050053	F053899	175.5	177.5	2		2160	2410
PL-088-22	F050063	F053900	196	198	2		1360	1230
PL-103-23	F053380	F053901	99	101	2		3610	4470
PL-103-23	F053396	F053902	125	127	2		9590	9080
PL-103-23	-	F053903	-	-	-	**STD - OREAS 751**	-	4780
CH-49	B00099430	F053904	11	12	1	Pulp Reject	7690	7270

DDH-ID	Sample-ID Original	Sample-ID Check Assay	From (m)	To (m)	Interval (m)	Comment	Original Li_ppm	Check Li_ppm
CH-49	B00099460	F053905	35	36	1	Pulp Reject	1820	1940
PL-113-23	F124137	F053906	102.67	103.5	0.83		13500	14450
PL-113-23	F124170	F053907	213	214	1		4090	4100
PL-113-23	-	F053908	-	-	-	**BLANK**	-	13

Despite a little more variation between the original and check assays in comparison to Frontier's internal duplicate program (Figure 12.1), there does not appear to be a clear bias with balanced spread around the 1:1 line. Moreover, it is clear from descriptive statistics (Table 12.8) that the resulting distributions from each lab are very similar in nature. Overall, the QP considers the results from this independent check assay program to be acceptable and has not raised any red flags of concern in the suitability of Frontier's analytical procedures.

Figure 12.1 – Duplicate Analysis Plot from Independent Check Assay Program



Source: DRA, 2025

Table 12.8 – Summary of Comparative Statistics for Independent Check Assay Program

Metric	Original Li_ppm	Check Li_ppm
Mean	7771.3	7719.6
Standard Error	837.5	830.7
Median	6570.0	6360.0
Mode	14500.0	-
Standard Deviation	5802.4	5755.3
Sample Variance	33667853.7	33123774.3
Coefficient of Variation	0.75	0.75
Kurtosis	-0.1	-0.1
Skewness	0.9	0.8
Range	21878.0	21010.0
Minimum	722.0	490.0
Maximum	22600.0	21500.0
Sum	373022.0	370540.0
Count	48	48

12.2.4 DATABASE VALIDATION

DRA conducted a systematic validation check on approximately 40-50% of the provided digital database against the available drill logs and assay certificates; a higher proportion of checks were completed on the dataset for the new Bolt deposit. No outright errors were identified; however, additional review of Frontier's own validation work was completed to understand the rare splitting of assay samples when sampling errors had occurred during the geological logging process, i.e., where samples had mistakenly crossed lithological contacts.

Moreover, data validation was also undertaken using built-in tools during the data importation process in HxGn MinePlan 3D and its database manager, MS Torque.

Similar to comments by the previous QP, the assays for certain elements were converted to oxide values using the same conversion tool available on the British Columbia's Ministry of Energy and Mines website (www.empr.gov.ba.bc).

12.3 QP's Opinion

The QP is satisfied that not only the presence of lithium has been demonstrated at the PAK Project, but that Frontier has achieved an advanced understanding of the nature and controls on alteration and mineralization, which were substantiated during DRA's site visit.

All geological functions that were observed and/or reviewed with the Frontier Geology and Exploration team are found to be performed at a high level, well within the norm for what are considered industry-best practices. These include logging and sampling procedures, data collection, data treatment and storage, analytical procedures (including QA/QC), and core/sample chain of custody and storage practices.

The QP concludes that all processes observed, discussed and/or verified have resulted in data suitable for use in subsequent Mineral Resource Estimation.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Introduction

Extensive metallurgical test work has been conducted on a number of samples from the Spark and PAK deposits between 2016 and 2025. In addition to characterizing the modal mineralogy and liberation characteristics of samples, the test work has also determined the typical comminution and mineral processing behaviour. This information has been used to develop the process flowsheet detailed in Section 17 of the Report.

Test work discussed in this section was completed initially at bench scale and followed with a pilot scale program in early 2022, which included concentrate and tailings thickening and filtration tests by Metso in 2022, as well as a tailings thickening program conducted by RMS in January 2025.

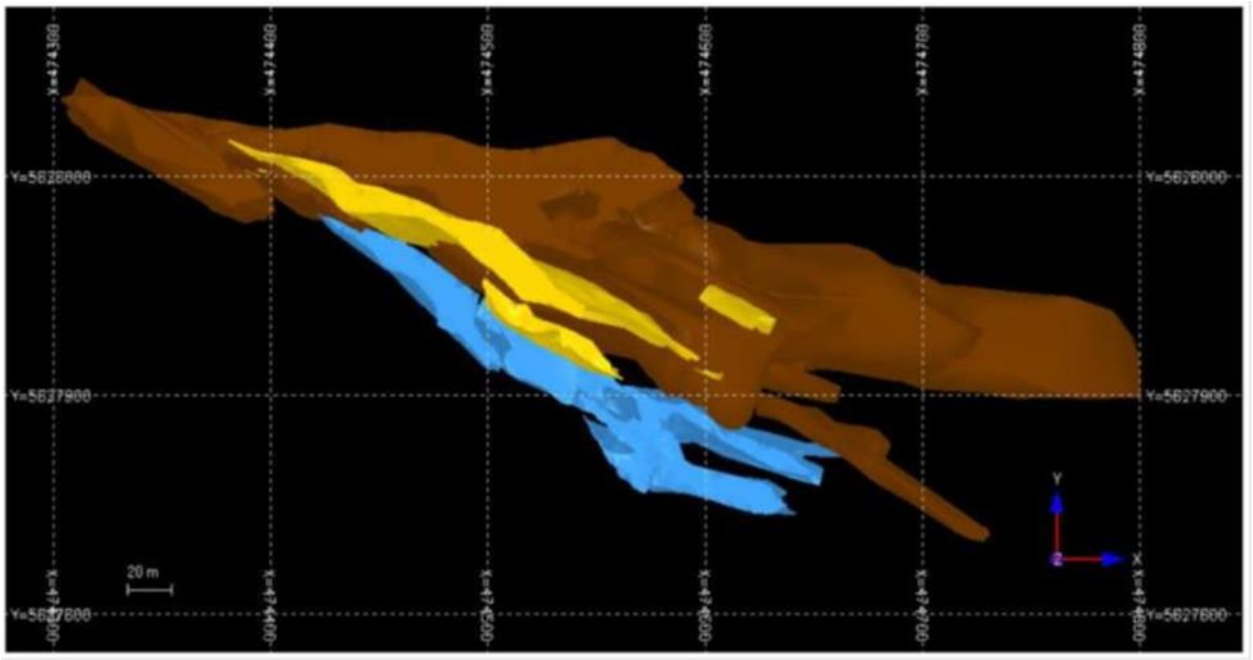
The initial rounds of lab scale test work, completed at Expert Process Solutions (XPS) in Sudbury, ON, mainly focused on mineralization samples from the PAK Deposit. In 2021, testing transitioned to SGS Canada Inc. (SGS) in Lakefield, ON, which examined samples from the Spark Deposit and subsequently piloted a bulk sample that blended mineralization from both Spark and PAK.

13.1.1 PAK DEPOSIT

The PAK Deposit, at the time of testing, was delineated into three (3) distinct lithologies including the Upper Intermediate Zone (UIZ), Central Intermediate Zone (CIZ) and Lower Intermediate Zone (LIZ). The LIZ encompassed the majority of the deposit and contained a lower lithia content than the UIZ. These zones are shown in plan view in Figure 13.1 (UIZ = yellow, CIZ = blue, LIZ = brown).These delineations were subsequently reviewed during the current work with the UIZ and LIZ combined per the details presented in Section 14. Figure 13.1 is from the previous understanding and is presented here as support to the testing done at that time.

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.

Figure 13.1 – PAK Deposit, Pegmatite Zones in Plan View



Source: SGS Geosol, 2016

13.1.2 SPARK DEPOSIT

The Spark Deposit contains two (2) lithologies which include the LIZ, (due to its similarity to the LIZ from the PAK Deposit), and Aplite zones. However, the two (2) 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 the production of 6% Li_2O spodumene "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 in Sudbury between 2016 and 2019, and this focused primarily on samples from the PAK Deposit. The work details a series of preliminary tests which examine the mineralogy and mineral processing characteristics of numerous composites made up from five (5) 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 (2) 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 sub-sampled 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

	Composition (%)							**Composition** (ppm)					
	Li_2O	Al_2O_3	SiO_2	Fe_2O_3	Na_2O	K_2O	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

Source: XPS, 2016

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

Lithology	Number 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

Lithology	Number of Samples	% Dist.	Average Li_2O %	Average Fe_2O_3 %
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%**		

Source: Frontier, 2016

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

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

Source: XPS, 2020

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

Spark-1 comprises 142 kg of material, with a Li_2O grade of 1.67%, while Spark-2 comprises 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 (4) 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:

$$LiAlSi_4O_{10} \rightarrow LiAl(SiO_3)_2 + 2{\cdot}SiO_2$$

Table 13.4 – UIZ Modal Mineralogy

	-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
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

Source: XPS, 2016

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

- Free – particles containing 100% spodumene.
- Liberated – particles containing more than 95% spodumene, but less than 100%.
- High-Grade Mids – particles containing more than 80% spodumene, but less than 95%.
- Low-Grade Mids – particles containing more 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 presented in Table 13.5. To achieve the grade requirement of 7.2% Li_2O, an average liberation of spodumene of 90% is required (assuming 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

	-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

Source: XPS, 2016

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

	-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

Source: XPS, 2016

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

	-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

Source: XPS, 2016

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 predominant 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

	-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

Source: XPS, 2016

The liberation of spodumene is presented 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

	-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

Source: XPS, 2016

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

	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

Source: XPS, 2016

13.2.4 COMMINUTION (PAK)

Various 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

Sample Name	JK Parameters		HPi (kWh/t)	RWI (kWh/t)	BWI (kWh/t)[1]	AI (g)
	Relative Density	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

Note:
[1] The Bond ball mill work index tests were completed at a closing size of 150 µm.

Source: SGS, 2017

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 lower Axb value (lower Axb indicates higher resistance to SAG milling). Further comminution work, including Spark mineralization samples, is discussed in Section 13.3.3.

13.2.5 MINERAL PROCESSING (PAK AND SPARK)

Work completed as part of the initial XPS flowsheet development program included consideration of Heavy Liquid Separation (HLS) and Dense Media Separation (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.
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 which 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 which is suitable for production of glasses and ceramics, rather than chemical grade concentrate which is destined for production of 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 is required. Phosphate is contained solely in phosphate minerals such as apatite and montebrasite. A major carrier of fluoride is muscovite mica which 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 which 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 328 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 DMS process to reject barren material and pre-concentrate the spodumene in the stream reporting to flotation. The spodumene mineralization at PAK is relatively fine-grained compared to other resources and for this reason production of significant amounts of DMS concentrate at the PAK project has always been challenging and DMS based flowsheets have not been particularly successful.

For the initial DMS processing work, completed at Sepro Minerals Systems in Langley British Columbia, 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.

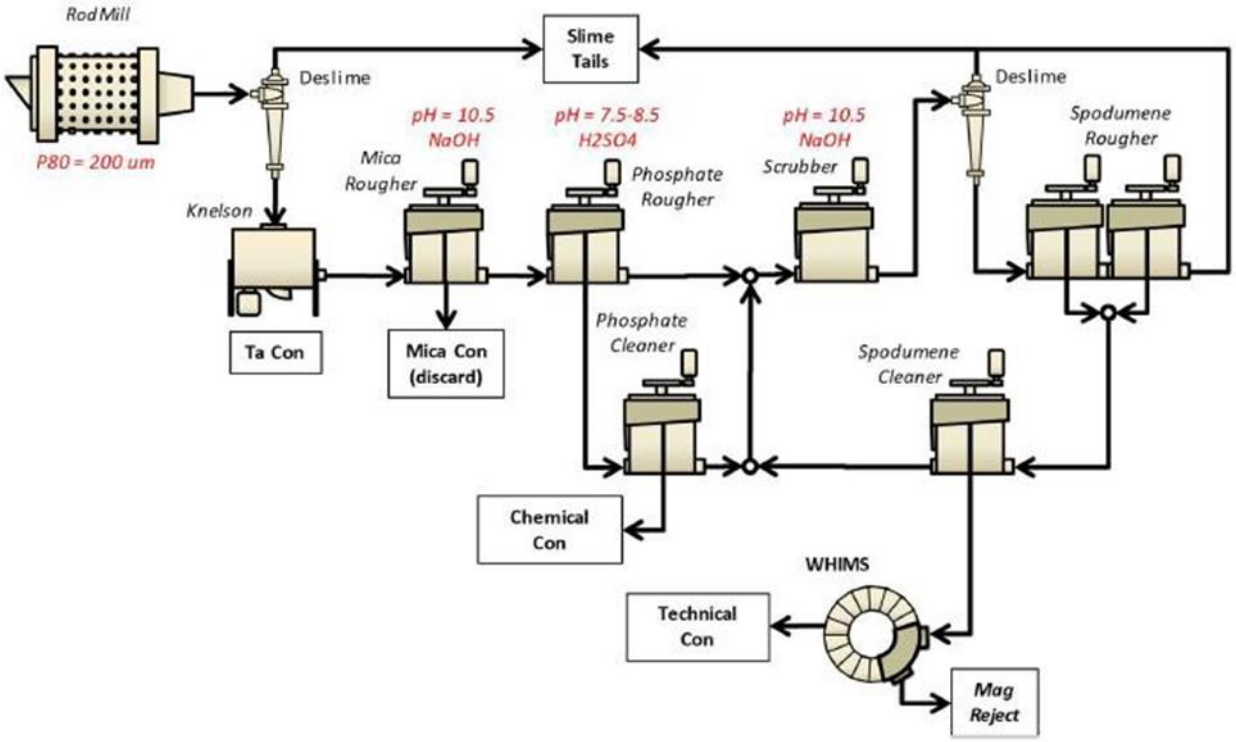
13.2.5.2 Flotation of PAK Samples

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) which was used to remove tantalum and arsenic present as arsenopyrite (FeAsS) and loellingite ($FeAs_2$). The Knelson concentrator tailings were 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 in removing any iron-bearing silicate minerals present from the metasediments in the feed sample.

Figure 13.2 – FRON-19 PAK Flotation Flowsheet



Source: XPS, 2016

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, a continuous concentrator would be more appropriate and much higher tantalum and arsenic recoveries would be possible.

Subsequent testing at XPS utilized the same processing flowsheet as shown in Figure 13.2. FRON-20, a single composite from the PAK Deposit with a higher Li head assay of 2.52% Li_2O, was 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 (2) 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 (2) 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.

Table 13.13 – Overall Metallurgical Results, PAK Deposit

Stage	Product	Wt %	Li_2O	Al_2O_3	SiO_2	Assay (%)		K_2O	Distribution (%)			Rb	Assay (ppm)			B	As
						Fe_2O_3	Na_2O		CaO	P_2O_5	Cs		Ta	Nb	F		
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	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	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
Activation	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 %	Li_2O	Al_2O_3	SiO_2	Assay (%)		K_2O	Distribution (%)			Rb	Assay (ppm)			B	As
						Fe_2O_3	Na_2O		CaO	P_2O_5	Cs		Ta	Nb	F		
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	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	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
Activation	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

Source: XPS, 2017

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, HLS, 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) 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 which included, but were not limited to:

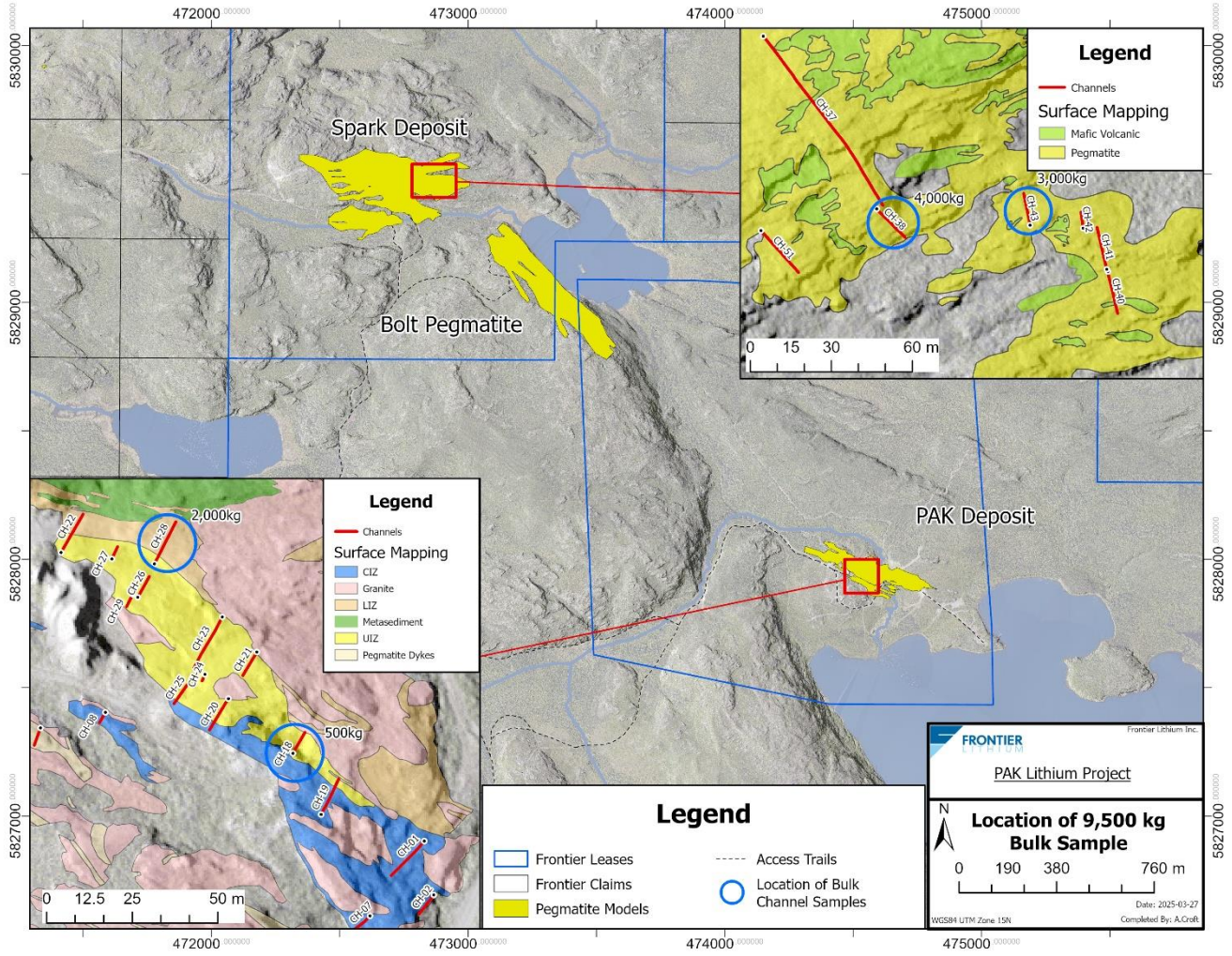
- Rearrange the pre-flotation stages to eliminate the use of acid and additional caustic from the repetitive raising and lowering pH.
- Take advantage of high-density conditioning for improving performance of the fatty acid collectors.
- Dramatically reduce the use of frother as the amine and fatty acid collectors used generally provide sufficient frothing alone.
- 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 process understanding 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 (2) samples (A-1 and A-2) of the Aplite lithology, containing 1.0% and 1.75%, 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, 2025

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

	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

Source: SGS, 2022

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 described 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

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

Mineral	Spark Var A-1	Spark Var A-2	Spark Var L-1	Spark Var L-2	Spark Var L-3
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**

Source: SGS, 2022

The liberation of spodumene in the five (5) 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 (5) 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

Liberation	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
≥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

Source: SGS, 2022

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

	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
Liberated Spodumene	23.1	23.6	22.9	22.8	15.3
Free Spodumene	47.3	47.9	49.1	49.9	59.3
Pure Spodumene	9.23	12.3	9.26	10.1	15.4

Source: SGS, 2022

13.3.3 COMMINUTION

Comminution tests were completed on seven (7) Spark composites and three (3) 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 include the original (2017) results for comparison.

Table 13.18 – Additional Comminution Test Results Summary

Sample Name	CWI	RWI	BWI	AI
	kWh/t	kWh/t	kWh/t	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	-	-

Sample Name	CWI	RWI	BWI	AI
	kWh/t	kWh/t	kWh/t	g
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	-

Source: SGS, 2022

The new data compares fairly well with the historical results, except for the Bond ball mill work index tests conducted in 2017 which indicates that 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.

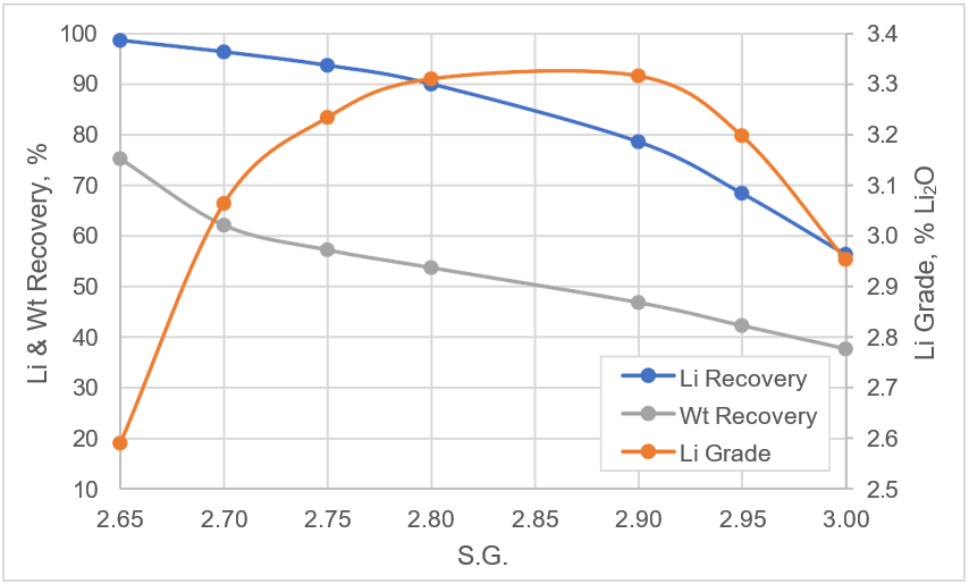
In some circumstances, a significant amount of “direct shippable” spodumene concentrate (greater than 6% Li_2O) can be produced at a relatively coarse size from the DMS process alone. However, for PAK, this has not been achieved as the spodumene mineralization is fairly fine with a tendency to associate 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 Specific Gravity (SG) if the fines fraction was excluded, although lithium recovery to this sink 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

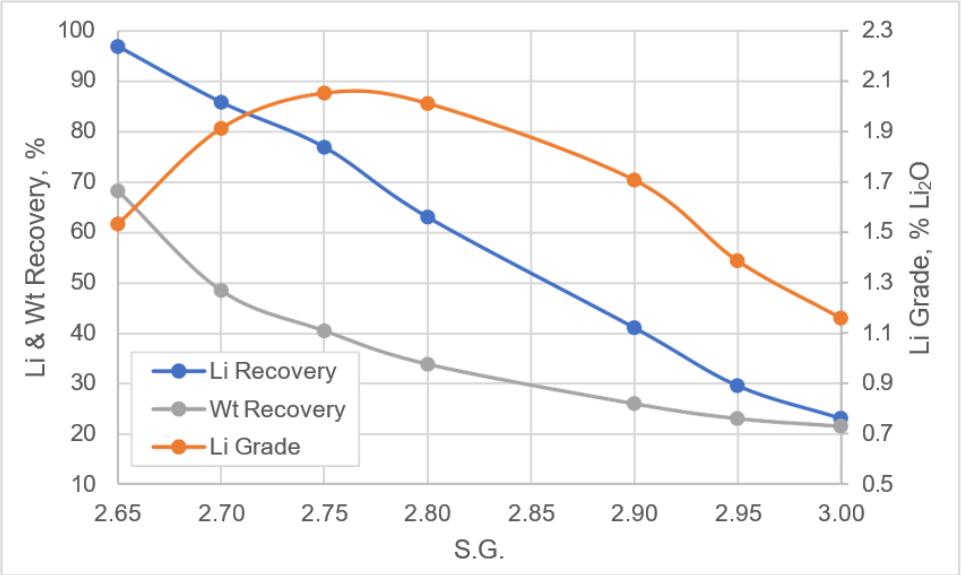


Source: SGS, 2022

The HLS results from the five (5) Spark variability samples are summarized in Figure 13.5 to Figure 13.9. 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%.

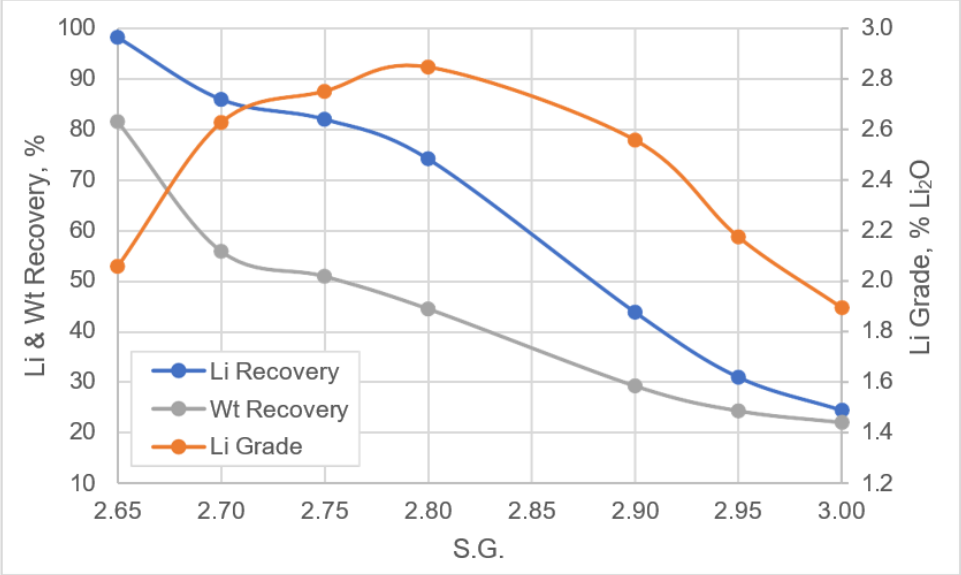
As concentrates with >6% Li_2O were not able to be produced from either sample, DMS processing will be evaluated from a pre-concentration perspective only.

Figure 13.5 – Washability Curve – Spark A-1 Sample



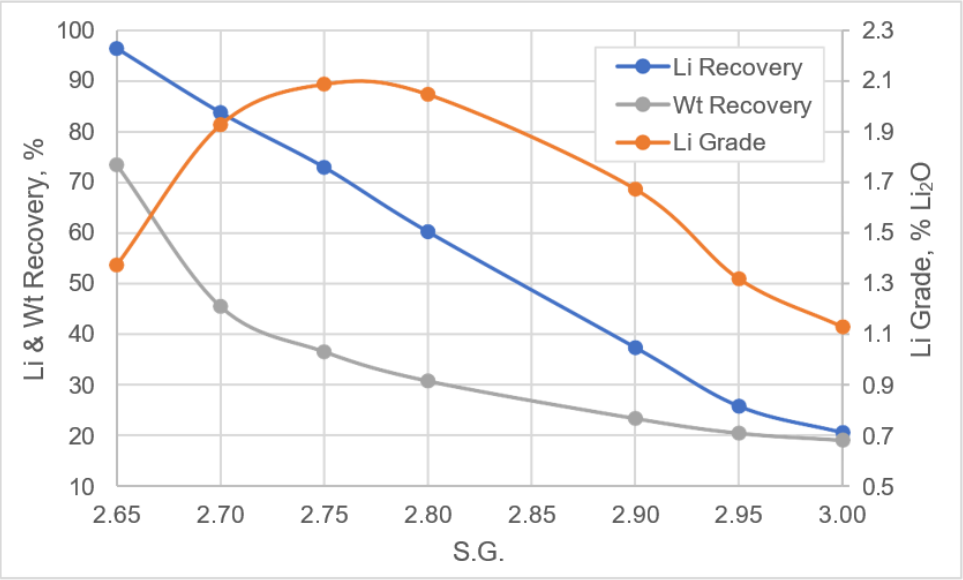
Source: SGS, 2022

Figure 13.6 – Washability Curve – Spark A-2 Sample



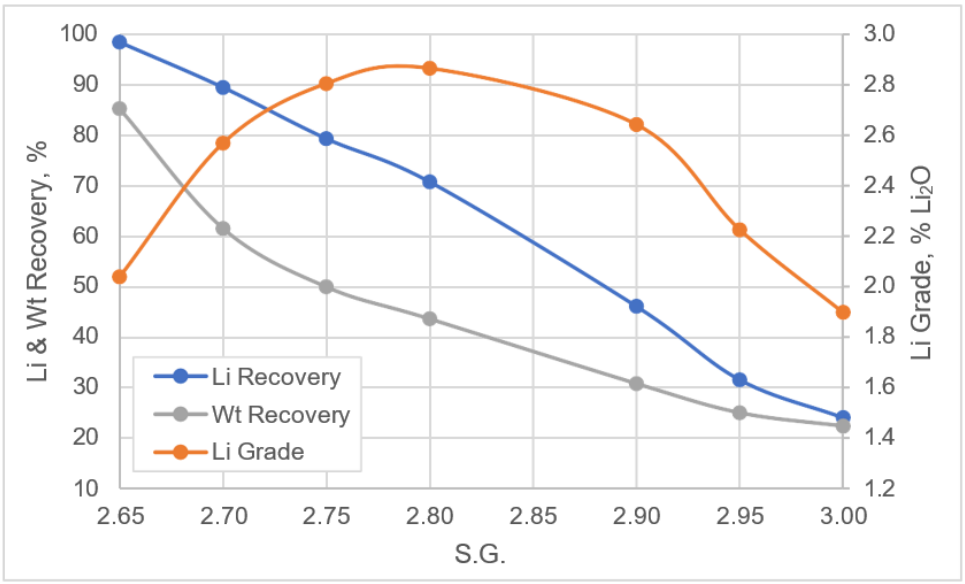
Source: SGS, 2022

Figure 13.7 – Washability Curve – Spark L-1 Sample



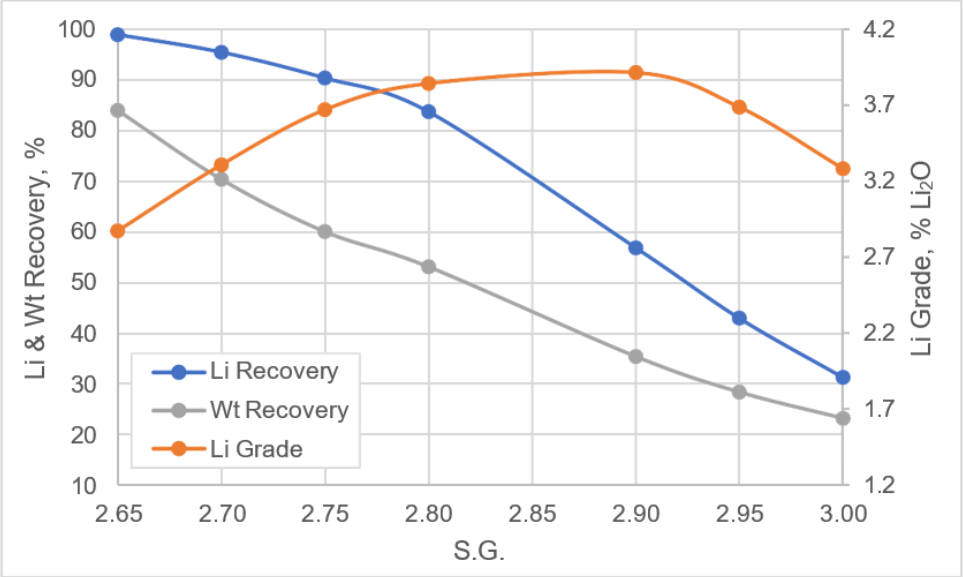
Source: SGS, 2022

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

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

Source: SGS, 2022

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 presented in Table 13.20.

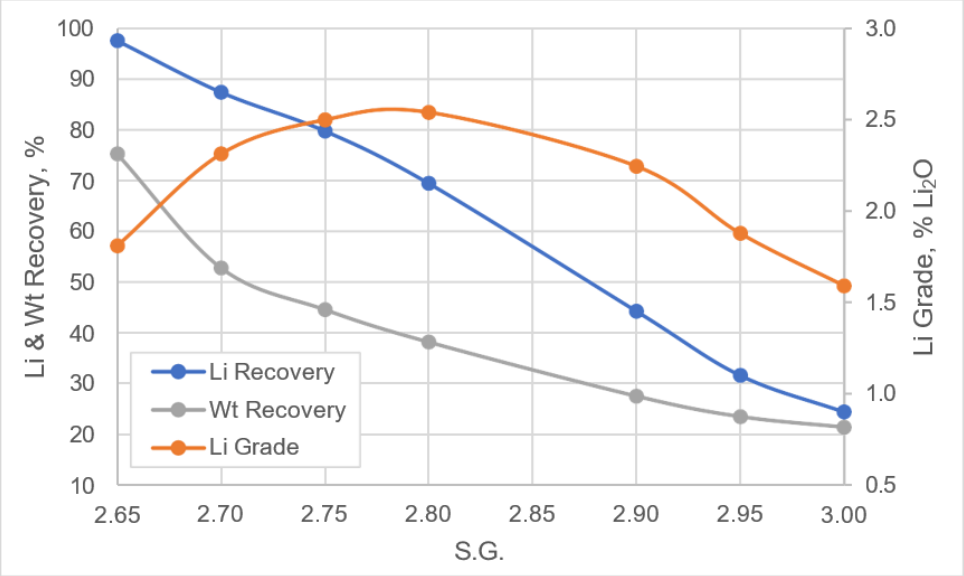
Table 13.20 – Spark DMS Master Composite Recipe

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**

Source: Frontier, 2021

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



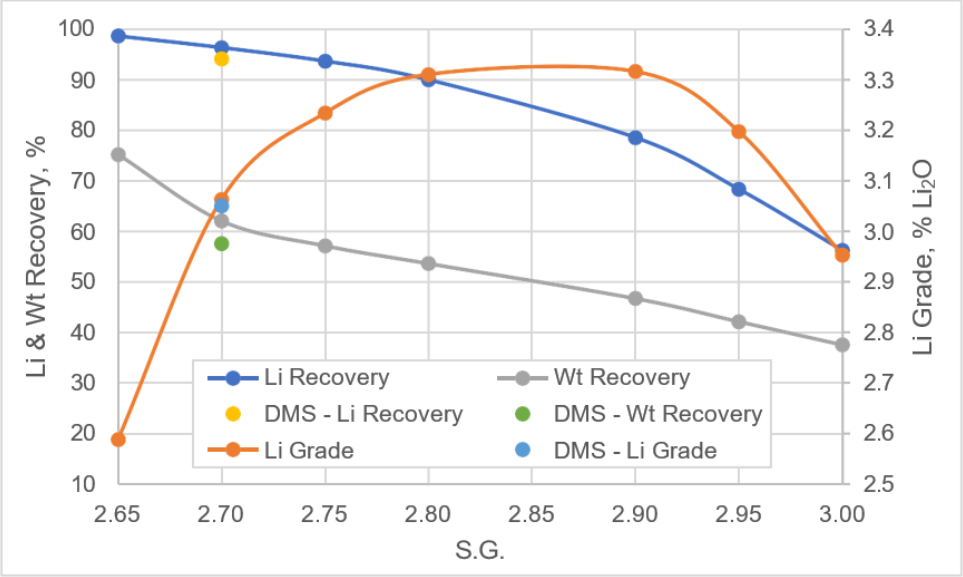
Source: SGS, 2022

Table 13.21 – DMS Results for PAK Bulk Sample, SG 2.70

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
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

Source: SGS, 2022

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.

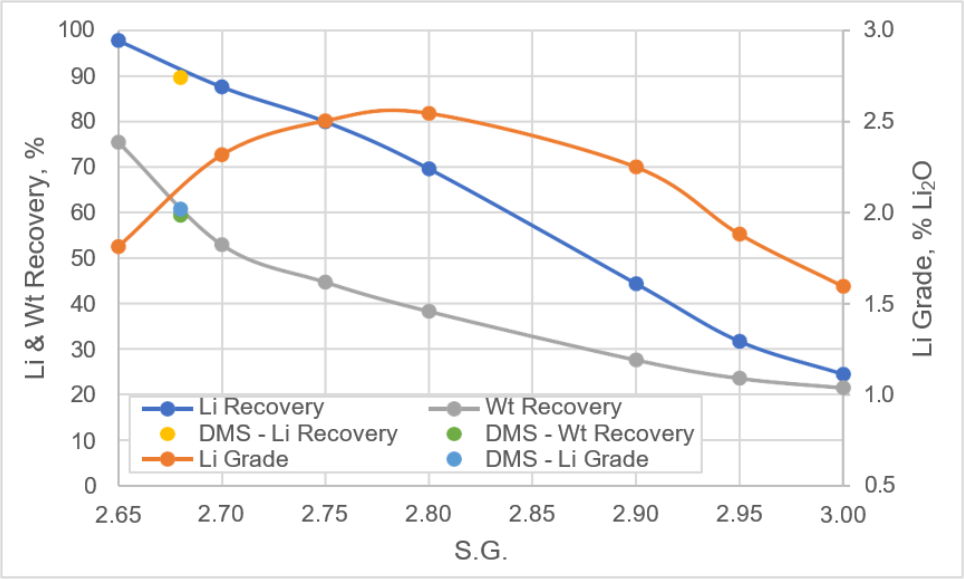
The results from DMS processing of the Spark Master Composite sample at a separation SG of 2.70 is summarized in Table 13.22 and compared against the HLS results in Figure 13.12. In comparison with the HLS data, it appears the separation was conducted closer to 2.68 SG, rather than 2.70 and resulted 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

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

Source: SGS, 2022

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 SGs, it would be necessary to run material through the DMS plant at the two (2) SGs producing separate Flotation Feed samples for comparison with the direct flotation performance. This testing was judged to be beyond the scope of FS 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, results from 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.

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.

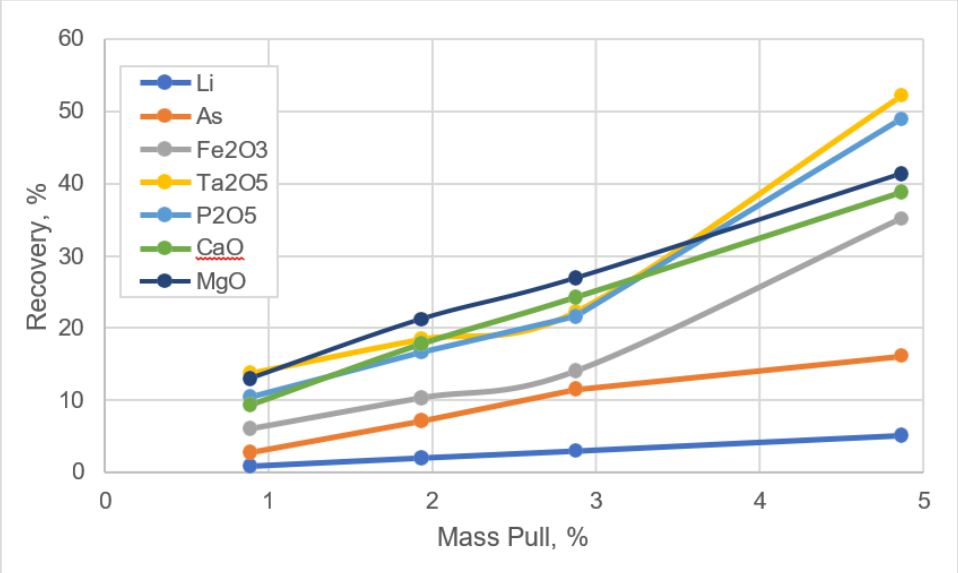
Both beneficiation techniques were assessed in the SGS test work program.

13.3.5.1 WHIMS Testing

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

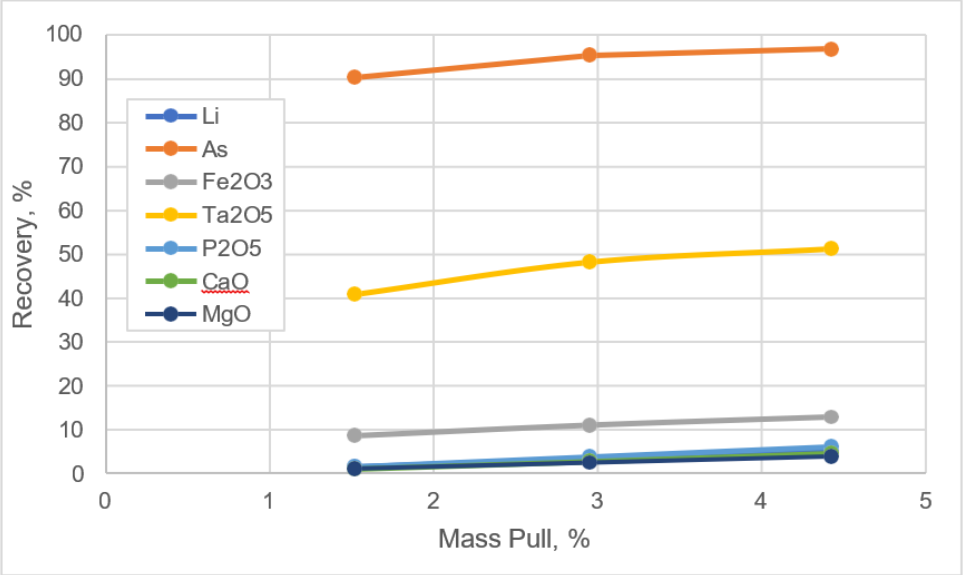


Source: SGS, 2022

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



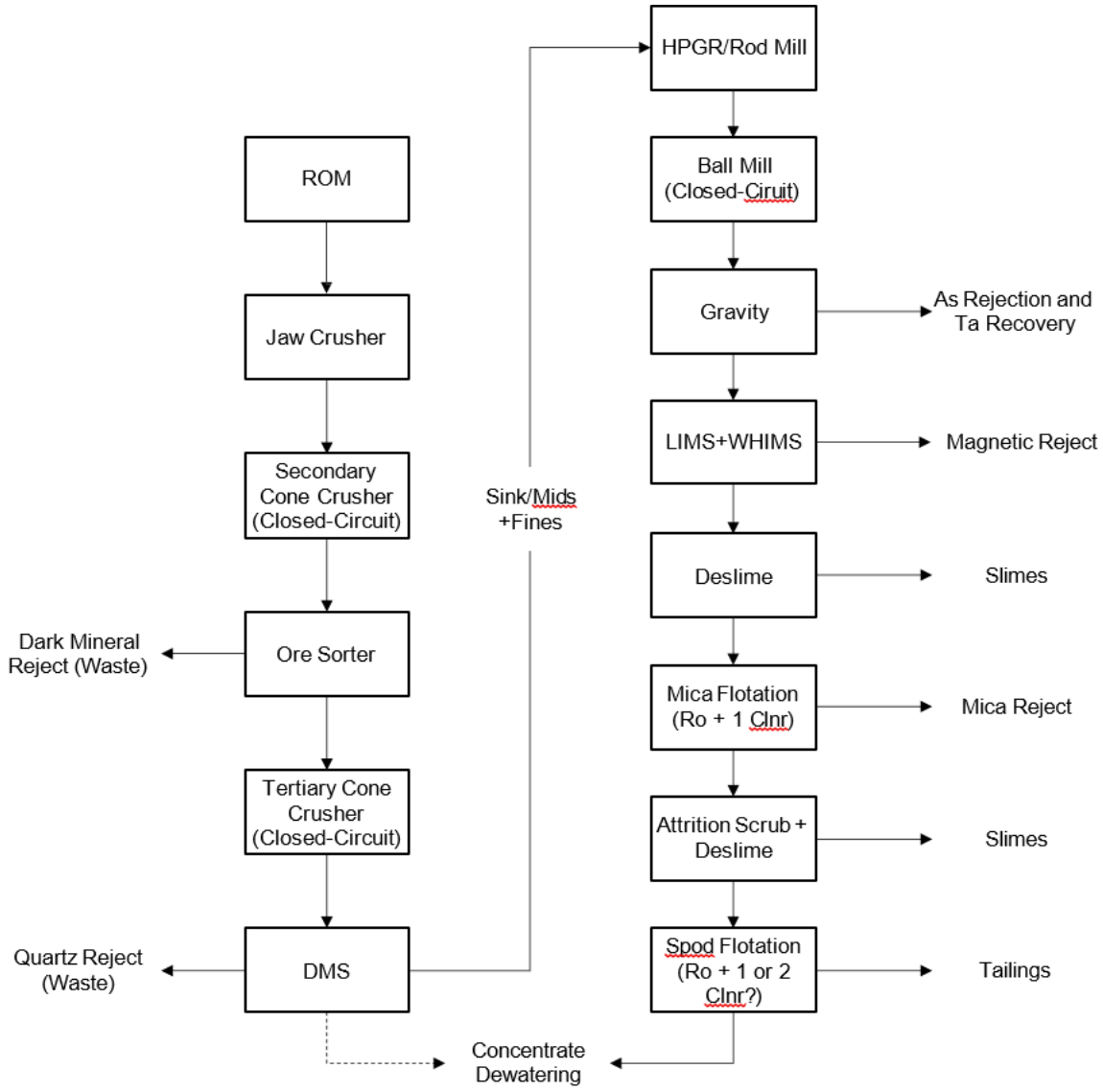
Source: SGS, 2022

13.3.6 FLOTATION TEST WORK

Revised conceptual flowsheets were designed as part of this updated program which included many of the same unit operations tested previously at XPS but reorganized to improve performance or remedy potential operational issues. The two (2) conceptual flowsheets used in this program to produce chemical and technical grade concentrates are shown in Figures 13.15 and 13.16 respectively.

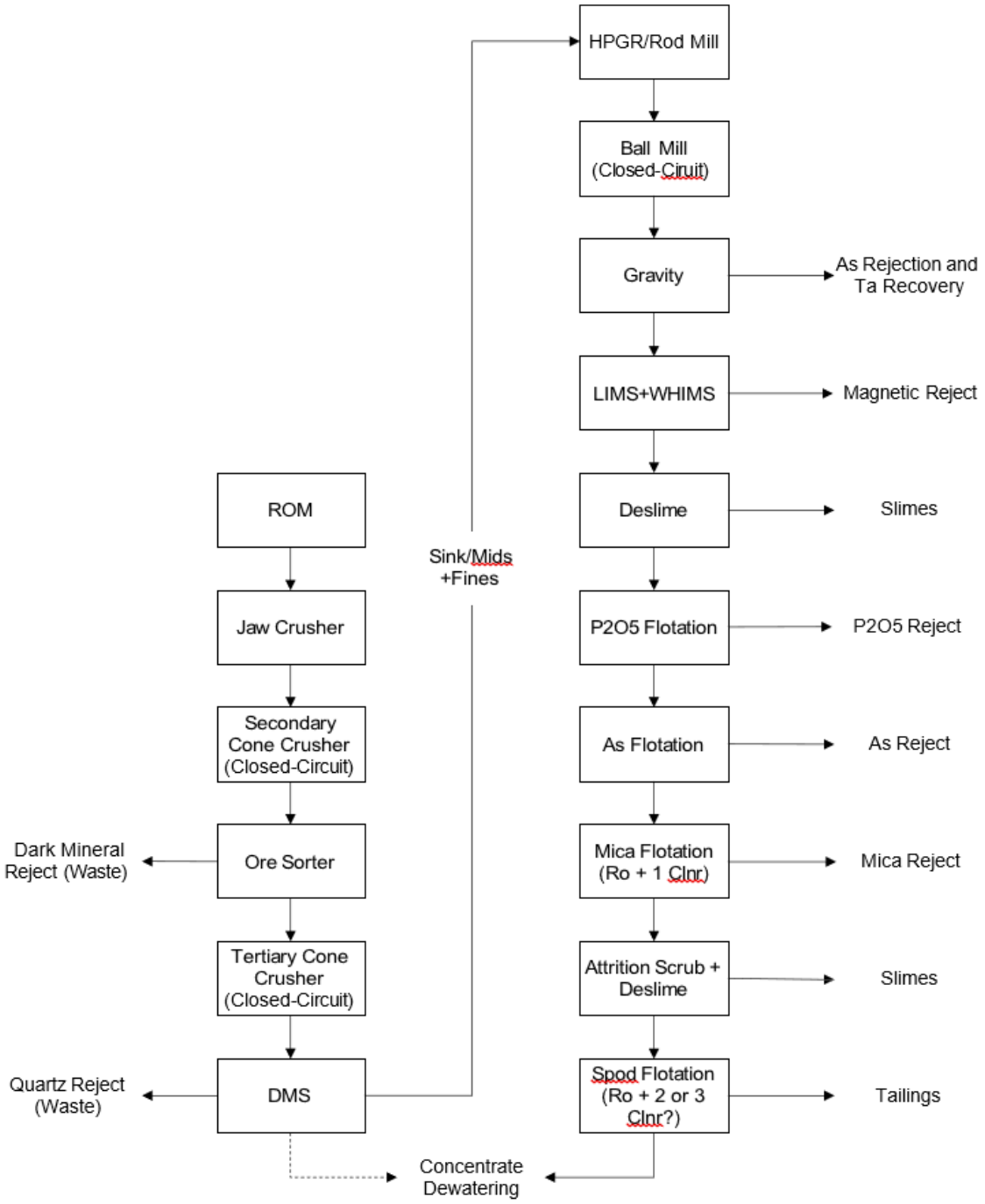
The flowsheets are relatively complex and include a number of unit operations other than flotation including, crushing, sensor-based particle sorting, grinding, gravity separation, and magnetic separation that are discussed in the previous sections. The PAK and Spark flowsheets are very similar except 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 which 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 K_{80} 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 which 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.

Results from the tests are summarized in Table 13.23 where lithium losses to the pre- spodumene flotation stages, proportion of lithium reporting to the spodumene flotation stage, lithium stage

recovery, and calculated overall lithium recovery are shown. The phosphate flotation stage was found to be the source of significant variability when DMS was not included, and dosage of depressant was found to be critical. Following DMS processing, losses to the magnetic fraction, slimes and phosphate concentrate were substantially lower, but 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 thus a solid recommendation for the PAK flowsheet.

Table 13.23 – PAK Flotation Test Summary

Test	Feed	Li Losses						Feed to Li Circuit	Conc % Li_2O	Li Stage Recovery	Overall Li Recovery
		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.

Source: SGS, 2022

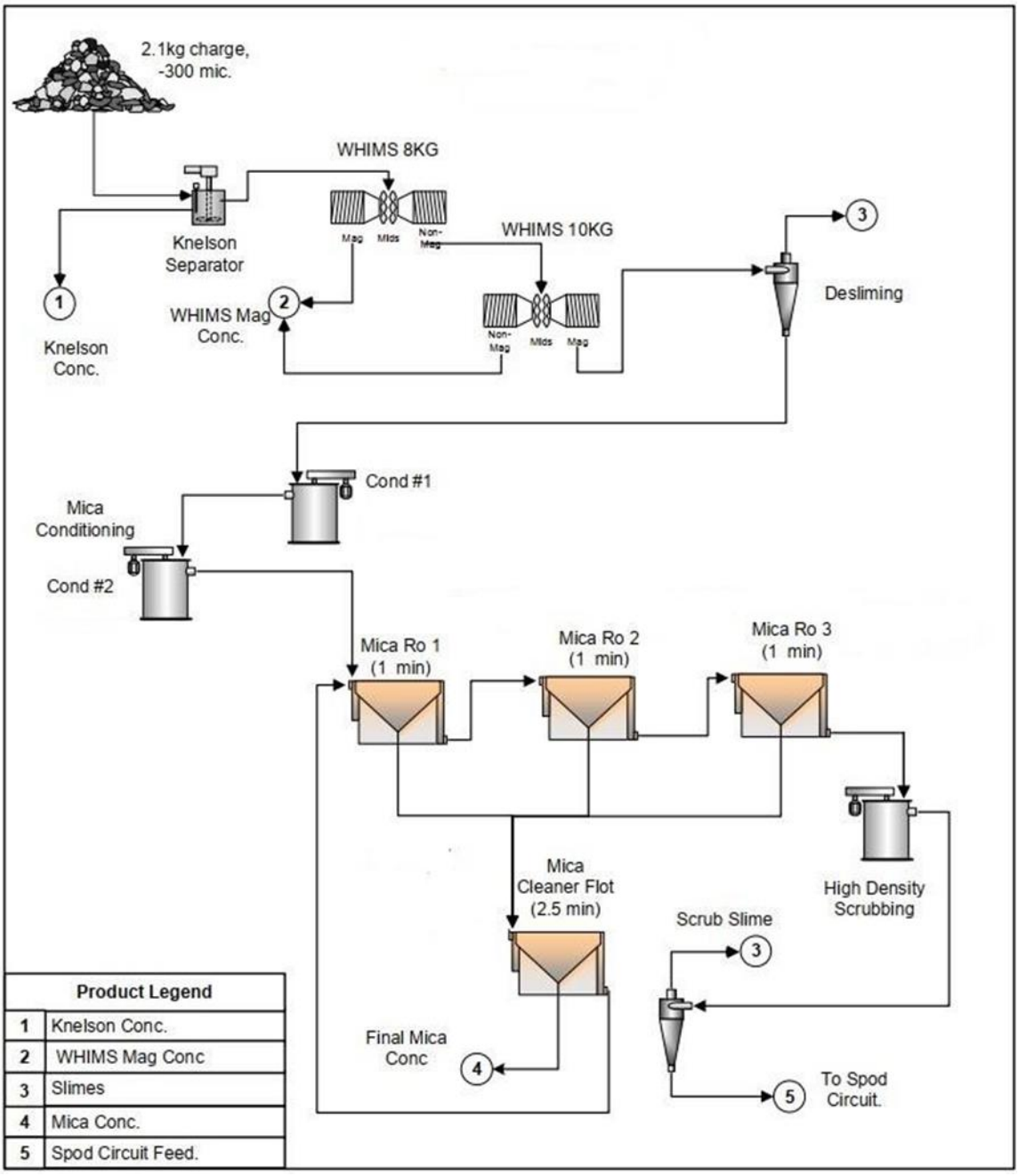
A locked cycle test (LC Test) was completed on a PAK DMS concentrate sample, following the flowsheet shown in Figures 13.17 and 13.18, except with an additional spodumene cleaning stage. The results of this test are summarized in Table 13.24, and indicate that a concentrate above target grade of 7.30% 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

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 Cl Tail	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

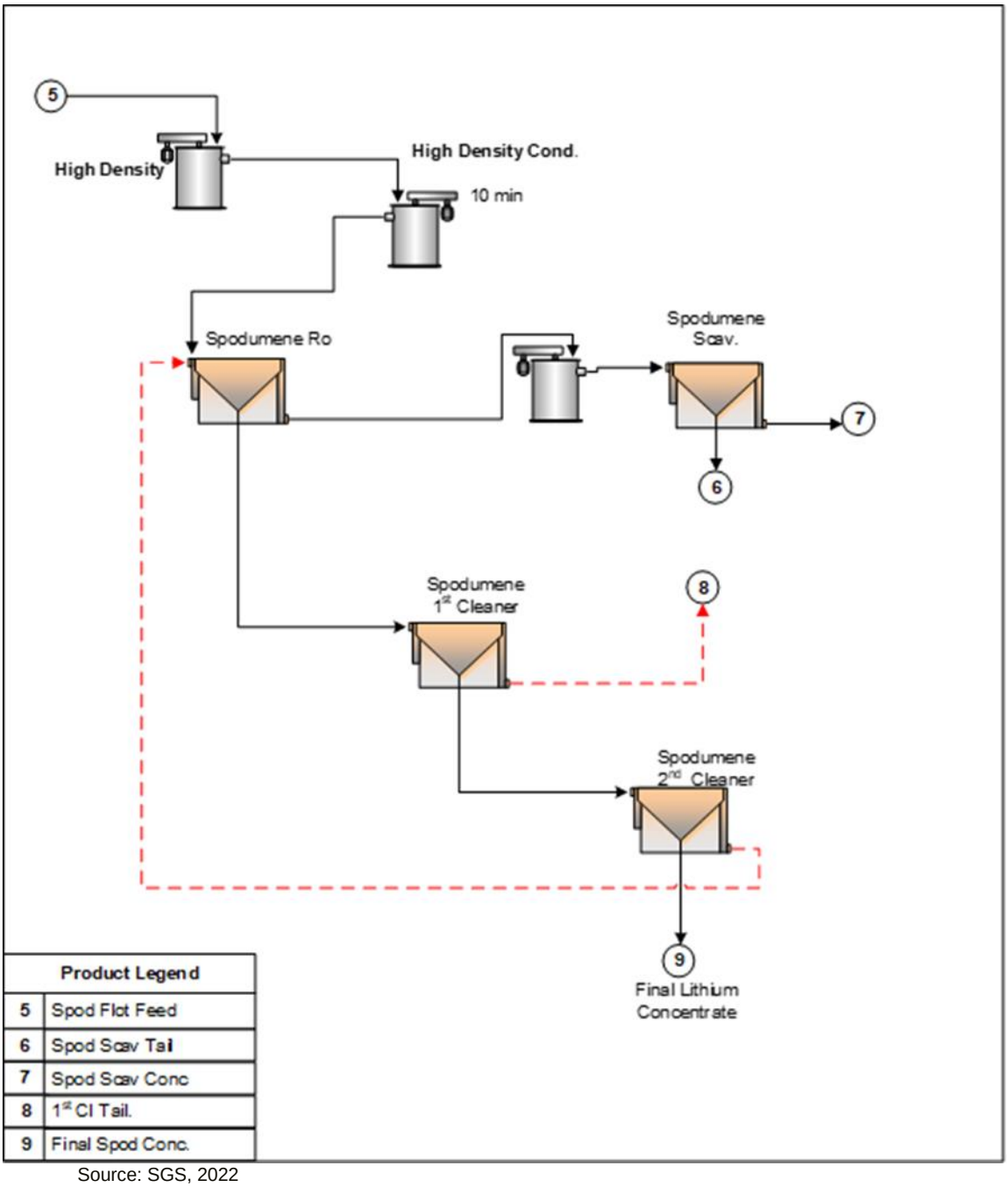
Source: SGS, 2022

Figure 13.17 – Locked Cycle Test Flowsheet 1 of 2



Source: SGS, 2022

Figure 13.18 – Locked Cycle Test Flowsheet 2 of 2

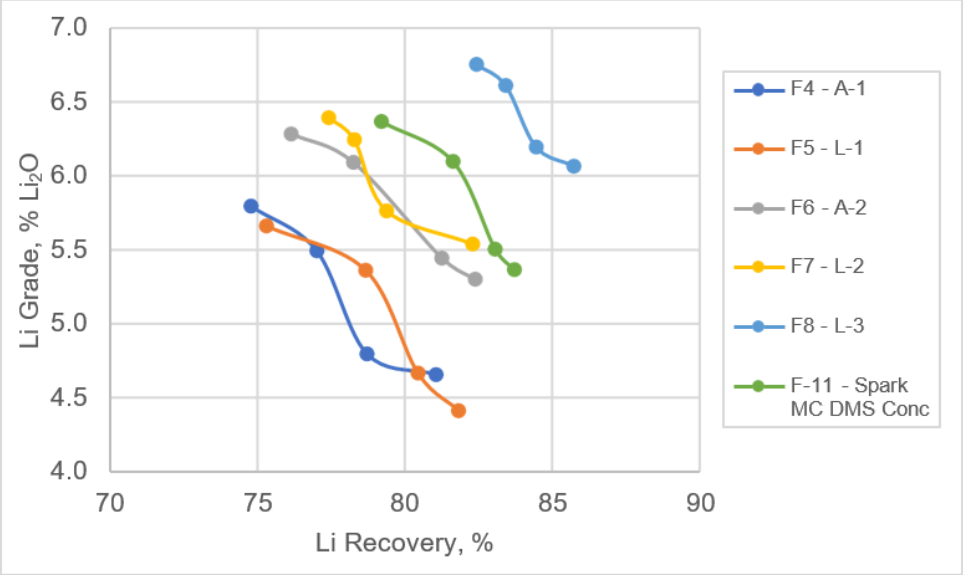


Source: SGS, 2022

The Spark Variability and DMS concentrate of the Master Composite samples were subject to similar flotation tests (F4 to F8 and F11), except that processing with the Knelson concentrator was omitted to simplify the test procedure as the presence of 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 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 subject to DMS processing prior to flotation, and so lithium losses associated with DMS must be considered in any comparisons. The Spark Master Composite results including DMS recovery are summarized in Table 13.25 and show that the high DMS losses reduce the global recovery compared to direct flotation of the ROM material.

Table 13.25 – Spark Flotation Test Summary

Test	Sample	Head Grade	Concentrate 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

Source: SGS, 2022

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 presented 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 and Flotation Performance

DMS SG	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

Source: SGS, 2022

In preparation for the pilot plant, two (2) batch flotation tests and an LC Test were conducted on the Spark Bulk sample. The tests were conducted with similar conditions and the LC Test was conducted following the flowsheet summarized in Figures 13.17 and 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.

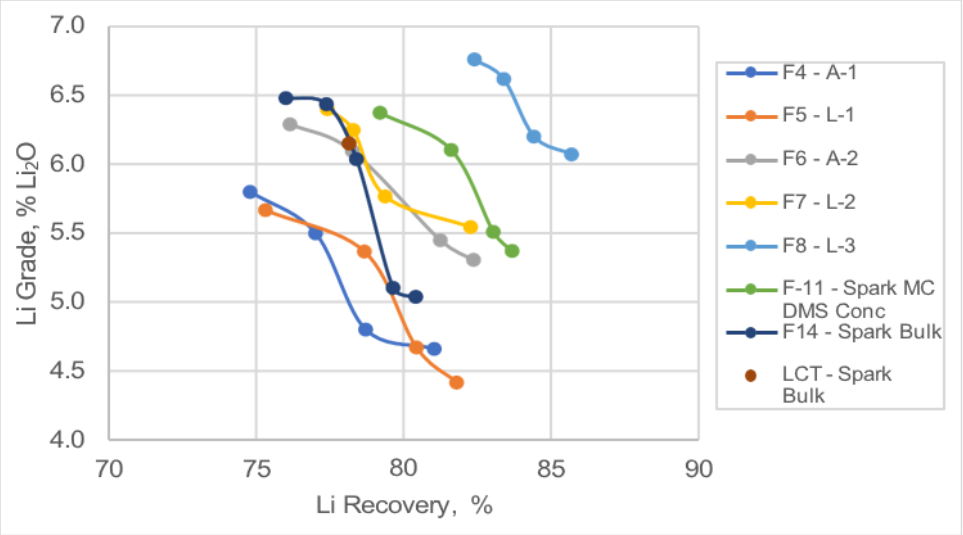
The results from the LC Test are summarized in Table 13.27 and the performance of batch test F14 and the LC Test are compared with the other Spark samples in Figure 13.20 where it is seen that the performance is similar to the A2 and L2 samples. This is to be expected due to the similar head grade, and the LC Test lands on the previously established grade-recovery curve.

Table 13.27 – Spark Bulk Sample LC Test Results

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 Cl Tail	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

Source: SGS, 2022

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 an LC 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 a higher recovery. The results from the LC Test 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 LC Test Results

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
Head (Dir.)		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

Source: SGS, 2022

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 LC Test), which increased the iron content 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

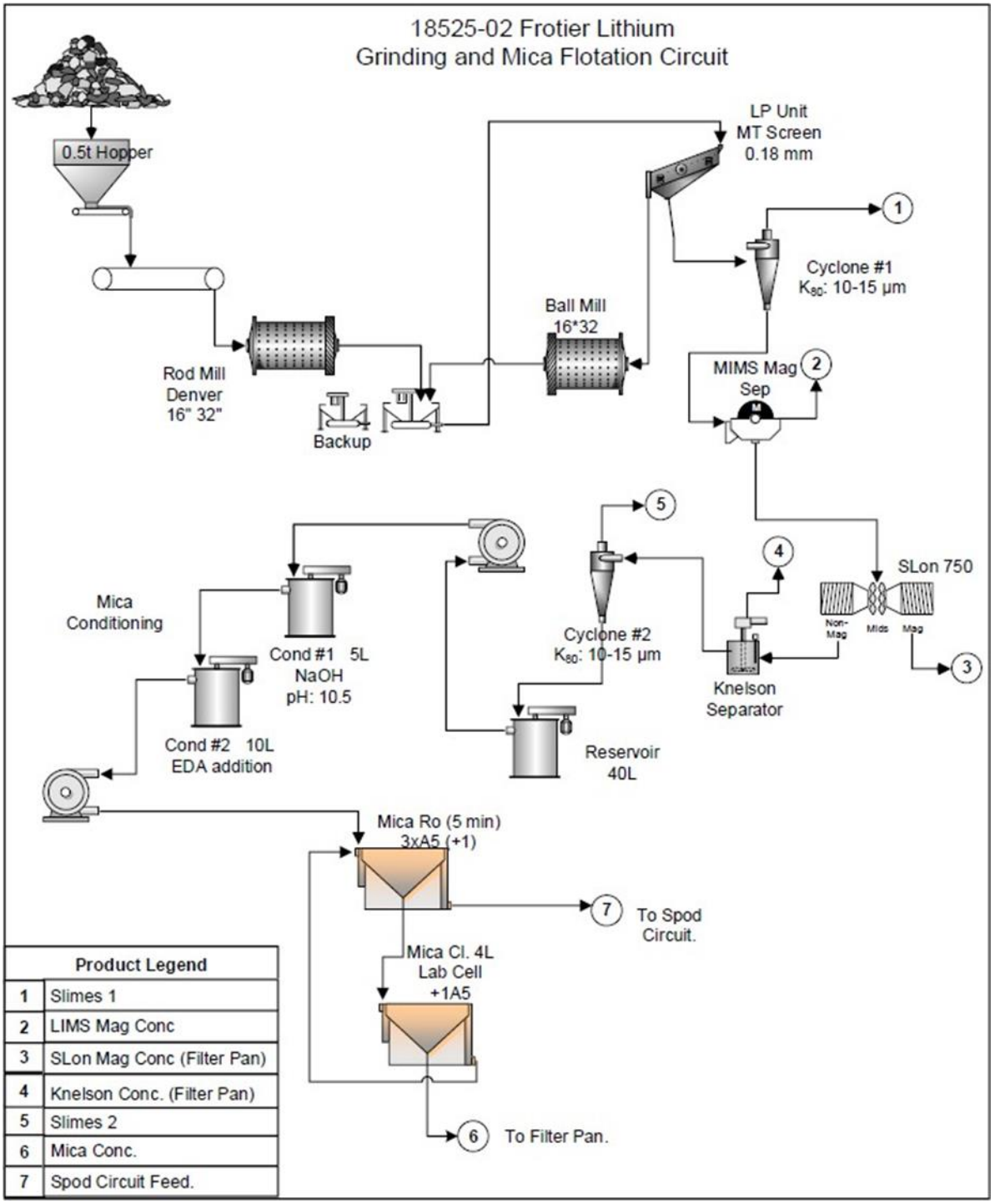
Assay, %														
Li_2O	SiO_2	Al_2O_3	Fe_2O_3	MgO	CaO	Na_2O	K_2O	TiO_2	P_2O_5	MnO	Cr_2O_3	V_2O_5	LOI	Sum
1.57	72.8	16.3	0.80	0.31	0.61	3.66	2.34	0.02	0.24	0.11	0.0	<0.01	0.64	97.8

Source: SGS, 2022

The pilot plant flowsheet was similar to the LC Test flowsheet and is summarized in Figures 13.21 and 13.22.

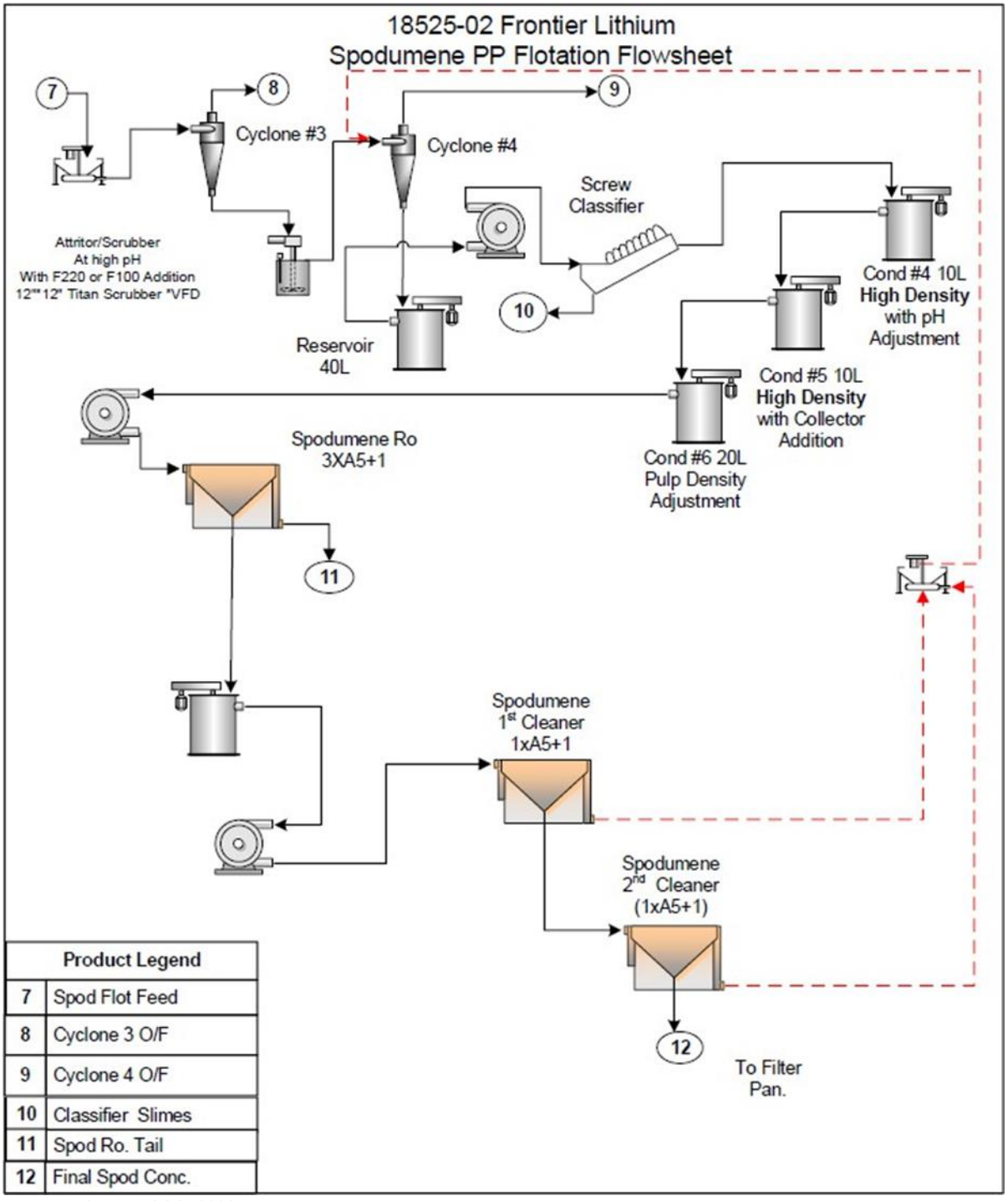
The pilot plant testing was conducted over eight (8) shifts (denoted as FPP-01 to FPP-08), and following a period of commissioning, desirable performance was achieved during FPP-05 through to FPP-08. All shifts produced concentrate over 5.5% Li_2O and averaged 5.95% Li_2O over the entire pilot production period. The more dramatic improvements attained over the pilot program were 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.

Figure 13.21 – Pilot Plant Flowsheet (1 of 2)



Source: SGS, 2022

Figure 13.22 – Pilot Plant Flowsheet (2 of 2)



Source: SGS, 2022

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

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**
Li_2O	SiO_2	Al_2O_3	Fe_2O_3	**Grav**
6.13	64.7	24.3	0.76	0.36

Source: SGS, 2022

13.3.8 GRAVITY CONCENTRATE DOWNSTREAM PROCESSING

The Knelson concentrate produced during the pilot plant was collected and tested to evaluate the production of a tantalum concentrate and the recovery of entrained spodumene.

In addition to tantalum, the Knelson concentrator recovered other high-density minerals including arsenic-bearing minerals loellingite and arsenopyrite, and separation of these may be required before a saleable tantalum concentrate can be achieved. A target of 0.25% As was set for the testing as an arbitrary benchmark.

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 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

Fraction	Product	Weight		Assays (%)							Distribution (%)						
		g	%	Ta	As	Li_2O	SiO_2	Al_2O_3	Fe_2O_3	MnO	Ta	As	Li_2O	SiO_2	Al_2O_3	Fe_2O_3	MnO
+125 µm	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 µm	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							

Source: SGS, 2022

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 which 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 (2) 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 which 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 were 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 (6) 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 as presented in Table 13.32.

Table 13.32 – Spark Bulk Sample Grade Distribution

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**

Source: TOMRA, 2022

Sorting was conducted in two (2) passes – giving a better sense of upgrading vs recovery/rejection of elements for each size fraction. Tables 13.33 and 13.34 summarize results from two (2) size fractions: Coarse fraction (larger than +35 mm), and Fine fraction (between +12 mm and -35 mm).

Table 13.33 – XRT Sorting Results, Coarse (+35 mm) Fraction

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

Source: TOMRA, 2022

Table 13.34 – XRT Sorting Results, Fine (+12 mm -35 mm) Fraction

Product	Description	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

Source: TOMRA, 2022

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

Description	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 1.54% 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 Solid-Liquid Separation (2022 Metso, 2025 RMS)

Settling tests were performed by Metso Outotec (now Metso), and Responsible Mining Solutions Corp. (RMS) in February 2022 and January 2025, respectively for samples of concentrate and final tailings. Pressure filtration tests were completed by Metso in March 2022 for concentrate samples.

Samples of concentrate and final tailings generated during the pilot plant campaign at SGS were used to perform the settling and filtration tests.

13.4.1 SETTLING TESTS

Settling tests programs had included the following component: flocculant selection, static settling, dynamic settling, particle size distribution (PSD), and rheology studies. The key results of these tests are summarized in Table 13.36.

Table 13.36 – Settling Tests Results Summary

Laboratory Item	Units	Metso		RMS	
		Spodumene Concentrate	Final Tailings	Final Tailings	Final Tailings
Thickener Feed					
Particle Size					
D_{80}	µm	175	157	184	184
D_{50}	µm	111	85	70	70
D_{30}	µm	n/a	n/a	37	37
D_{20}	µm	n/a	n/a	17	17
D_{10}	µm	40	13	n/a	n/a
Dynamic Settling					
Test Thickener		99 mm Supaflo High-Rate Thickener	99 mm Supaflo High-Rate Thickener	102 mm High-Rate	102 mm High-Rate
Flocculant		926 VHM	926 VHM	923 VHM	923 VHM
Flocculant Dosage	g/t thickener feed solids	11	30	43	38
Feed Density	% w/w	38	22	4.0	15
pH		8.2	8.1	7.7	7.7
Solids Settling Rate	t/(m²·h)	0.42	0.92	0.45	0.95
Rise Rate	m/h	1.6	4.0	11.3	6.3
Underflow Solids	% w/w	64	61	70	67.0
Underflow Sheared Yield Stress	Pa	409	21	17	13.5
Overflow Solids	mg/L	<100	114	691	248

13.4.2 FILTRATION TESTS

Filtration tests were completed using Metso's PF 0.1 lab scale unit to examine the filtering characteristics and process suitability of the concentrate sample.

The PF 0.1 test filter permits mini pilot scale testing of Larox Pressure Filter (PF) technology and to mimic the characteristics of large-scale pressure filters and membrane filter presses so that the full-scale filter size can be accurately calculated based on the test results.

Key results of the filtration test summarized in Table 13.37.

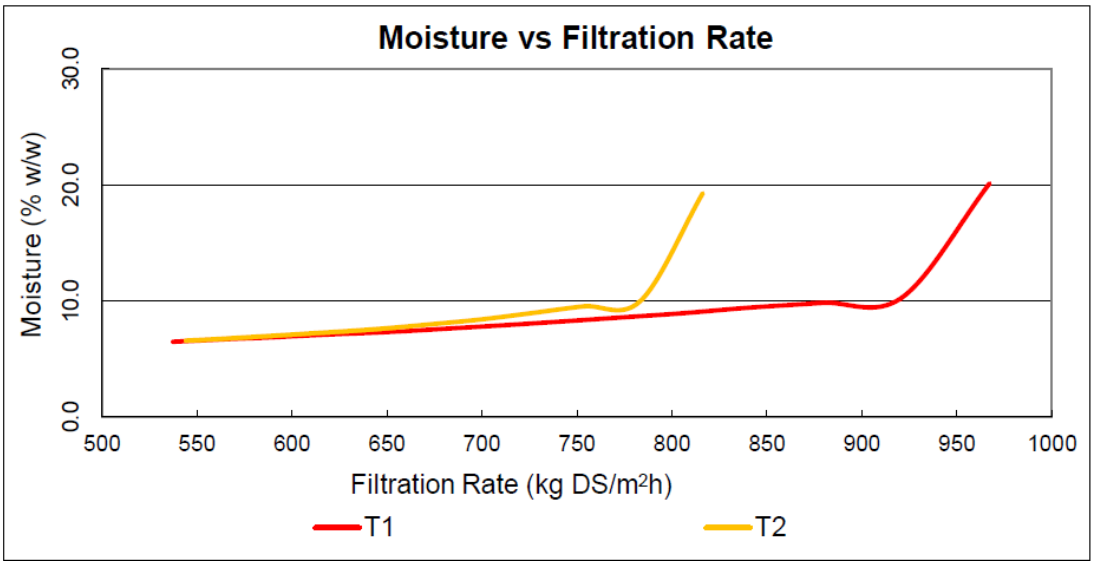
Table 13.37 – Filtration Test Results Summary

Item	Units	Test 1	Test 2
Filter Feed			
Particle size			
D_{80}	µm	175	175
D_{50}	µm	111	111
D_{10}	µm	40	40
Filtration Test			
Feed Density	% w/w	60	60
Filter Cloth Type		AINO T30	AINO T30
Chamber Depth	mm	60	60
Pumping Time	min	0.5	0.5
Pressing Time	min	0.5	0.5
Air Drying Time	min	4	3
Pumping Pressure	bar	6	6
Pressing Pressure	bar	12	12
Air Drying Pressure	bar	10	10
Cake Moisture	% w/w	6.47	6.57
Cake Thickness	mm	53	52

For all tests, the filter cakes released off the filter cloth. Filter cloths washed clean and there was no cloth blinding to be seen during testing. The filtrate from all tests initially had some solids pass through the cloth while the filter cake was forming but became clear after a few seconds.

A relationship between filtration rate as mass of dry solids per square metre per hour and filter cake moisture can be found in Figure 13.23.

Figure 13.23 – Cake Moisture vs Filtration Rate



13.5 Metallurgical Projection

Metallurgical recoveries for PAK and Spark mineralization were estimated using a combination of ore sorting test work, DMS test work and flotation test work. While in the PFS, the processing of PAK utilized DMS preconcentration, phosphate flotation, and magnetic separation steps to increase lithium grades and meet the stringent product specification of technical grade concentrate, in the current work both PAK and Spark will be processed through the same chemical grade plant. For chemical grade concentrate PAK ore can be preconcentrated through the XRT technique. No phosphate flotation or post-flotation magnetic separation upgrade is needed to achieve chemical grade concentrate specifications using PAK ore.

DMS preconcentration was observed to be challenging for Spark so XRT preconcentration is the preferred method. Spark ore comprises the majority of the chemical grade concentrate product. and Neither phosphate flotation nor magnetic separation of the cleaner flotation concentrate is needed to achieve chemical grade specifications.

Locked Cycle Test (LC Test) flotation work conducted most recently at SGS in Lakefield, ON, was used as the basis for performance projections used in reserve calculations and the financial analysis.

13.5.1 PAK

The PAK process flowsheets (for Technical Grade, and for Chemical Grade concentrate production) that result from the test work completed include several unit operations that can incur lithium losses. The SGS LC Tests quantify most of these, and preconcentration (sorting plus DMS) test work covers the rest. Finally, a modest scale-up allowance is included 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 13.38.

Table 13.38 – Distribution of Lithium Losses (PAK)

Concentrate Production	Technical Grade		Chemical Grade	
Operation	Estimated Li Losses (%)	Cumulative Recovery (%)	Estimated Li Losses (%)	Cumulative Recovery (%)
Run of Mine	-	100.0	-	100.0
Ore Sorting	0.12	99.9	2.1	97.9
DMS	4.14	95.7	-	-
Desliming	4.49	91.3	4.5	93.4
Gravity Concentration	6.21	85.1	6.2	87.2
LIMS/WHIMS	2.88	82.2	3.4	83.8
Phosphate Flotation	1.04	81.1	-	-
Mica Flotation	2.3	78.8	2.8	81.0
Spodumene Flotation	2.53	76.3	3.0	78.0

The use of an average lithium recovery of 76.0% across the planned range of PAK head grades is considered appropriate should the technical grade production be targeted, and 78.0% recovery should be used if chemical grade concentrate production is considered for the process flowsheet.

13.5.2 SPARK

The Spark SGS LC Tests and TOMRA sorting work helps to quantify the lithium losses. Similarly to PAK, a modest scale-up allowance was included to account for possible efficiency losses during full scale operation. An overall breakdown is given in Table 13.39.

Table 13.39 – 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

The use of an average lithium recovery of 77.6% across the planned range of Spark head grades is considered appropriate for the process plant design.

13.5.3 CONCLUSIONS

Extensive testing to produce lithium commercial products that achieve a typical spodumene concentrate containing over 6% Li_2O was conducted at SGS Lakefield using representative samples from the PAK and Spark deposits.

13.6 QP Comments

Various metallurgical test work programs have been completed on multiple samples of mineralization from the PAK and Spark Deposits. These tests date back to 2016 and are reasonably comprehensive in nature. The results of this work were 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 test work program carried out at SGS during 2021-2022, and solid-liquid separation tests carried by Metso and RMS.

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 of each mineral deposit as a whole.

14 MINERAL RESOURCE ESTIMATE

14.1 Mineral Resource Estimate Definition and Procedure

The current mineral resource estimate for the PAK Project has been prepared following the CIM standards and definitions, as required under NI 43-101 regulations. The standards and definitions are as follows:

"Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories. An Inferred Mineral Resource has a lower level of confidence than that applied to an Indicated Mineral Resource. An Indicated Mineral Resource has a higher level of confidence than an Inferred Mineral Resource but has a lower level of confidence than a Measured Mineral Resource."

"A Mineral Resource is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction."

"The location, quantity, grade or quality, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling. "

"Material of economic interest refers to diamonds, natural solid inorganic material, or natural solid fossilized organic material including base and precious metals, coal, and industrial minerals."

"The term Mineral Resource covers mineralization and natural material of intrinsic economic interest which has been identified and estimated through exploration and sampling and within which Mineral Reserves may subsequently be defined by the consideration and application of Modifying Factors. The phrase 'reasonable prospects for eventual economic extraction' implies a judgment by the Qualified Person in respect of the technical and economic factors likely to influence the prospect of economic extraction. The Qualified Person should consider and clearly state the basis for determining that the material has reasonable prospects for eventual economic extraction. Assumptions should include estimates of cut-off grade and geological continuity at the selected cut-off, metallurgical recovery, smelter payments, commodity price or product value, mining and processing method and mining, processing and general and administrative costs. The Qualified Person should state if the assessment is based on any direct evidence and testing."

"Interpretation of the word 'eventual' in this context may vary depending on the commodity or mineral involved. For example, for some coal, iron, potash deposits and other bulk minerals or commodities, it may be reasonable to envisage 'eventual economic extraction' as covering time periods in excess of 50 years. However, for many gold deposits, application of the concept would normally be restricted to perhaps 10 to 15 years, and frequently to much shorter periods of time."

14.1.1 MEASURED MINERAL RESOURCE

"A Measured Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit."

"Geological evidence is derived from detailed and reliable exploration, sampling and testing and is sufficient to confirm geological and grade or quality continuity between points of observation."

"A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proven Mineral Reserve or to a Probable Mineral Reserve."

"Mineralization or other natural material of economic interest may be classified as a Measured Mineral Resource by the Qualified Person when the nature, quality, quantity, and distribution of data are such that the tonnage and grade or quality of the mineralization can be estimated to within close limits and that variation from the estimate would not significantly affect potential economic viability of the deposit. This category requires a high level of confidence in, and understanding of, the geology and controls of the mineral deposit."

14.1.2 INDICATED MINERAL RESOURCE

"An Indicated Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit."

"Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation."

"An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Mineral Reserve."

"Mineralization may be classified as an Indicated Mineral Resource by the Qualified Person when the nature, quality, quantity and distribution of data are such as to allow confident interpretation of the geological framework and to reasonably assume the continuity of mineralization. The Qualified Person must recognize the importance of the Indicated Mineral Resource category to the advancement of the feasibility of the project. An Indicated Mineral Resource estimate is of sufficient quality to support a Pre-Feasibility Study which can serve as the basis for major development decisions."

14.1.3 INFERRED MINERAL RESOURCE

"An Inferred Mineral Resource is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity."

"An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration."

"An Inferred Mineral Resource is based on limited information and sampling gathered through appropriate sampling techniques from locations such as outcrops, trenches, pits, workings and drill holes. Inferred Mineral Resources must not be included in the economic analysis, production schedules, or estimated mine life in publicly disclosed Pre-Feasibility or Feasibility Studies, or in the Life of Mine plans and cash flow models of developed mines. Inferred Mineral Resources can only be used in economic studies as provided under NI 43-101."

"There may be circumstances, where appropriate sampling, testing, and other measurements are sufficient to demonstrate data integrity, geological and grade/quality continuity of a Measured or Indicated Mineral Resource, however, quality assurance and quality control, or other information may not meet all industry norms for the disclosure of an Indicated or Measured Mineral Resource. Under these circumstances, it may be reasonable for the Qualified Person to report an Inferred Mineral Resource if the Qualified Person has taken steps to verify the information meets the requirements of an Inferred Mineral Resource."

14.2 General Description

Three (3) models were used to compile the mineral resource statement presented in this Report; these include separate models for each of the PAK, Spark and Bolt deposits. The resource estimate for the PAK deposit was completed by QP, Schadrac Ibrango, P. Geo., of DRA Americas Inc., meanwhile the Spark and Bolt resource estimates were prepared by another geologist of DRA Americas Inc., under the direct supervision of the QP.

14.3 PAK Deposit

14.3.1 SUPPORTING DATA

14.3.1.1 Drill Hole Database and Data Verification

The Project drillhole database was supplied to DRA by Frontier in two (2) forms including (1) a Microsoft Access file with individual collar, survey, lithology and assay tables, and (2) exported comma-separated values (.csv) files. Specific gravity (SG) data was provided in a Microsoft Excel

workbook and used to estimate tonnages for the resource update. The extracted data files were reviewed and checked for common database errors (e.g., missing data, overlapping intervals, etc.) prior to being imported into MS Torque™, an SQL-based database manager integrated into HxGN MinePlan 3D. More details on implemented data verification procedures are available in Section 12 of this Report.

14.3.1.2 Topography

The topographic data used for the project was also provided by Frontier in the form of a regional digital elevation model (DEM) and deemed of suitable quality by DRA to be used for pit optimization and other planning purposes. An interpreted bedrock surface based on available drilling data was also provided and reviewed.

14.3.2 THREE-DIMENSIONAL (3D) MODELLING

Vertical sections were generated with an initial spacing of 12.5 m and used to digitize outlines depicting the limits of the lithium-bearing units. Two (2) units were modelled including the UIZ-LIZ zone, which is now a combination of the former Upper Intermediate (UIZ) and Lower Intermediate (LIZ) Zones, and the Central Intermediate Zone (CIZ). Previous interpretations modelled the UIZ and LIZ as two (2) separate units, but the integration of new data from the 2023 drilling program supported the merging of these zones. For all intents and purposes, the combined zone will now herein be referred to as the LIZ.

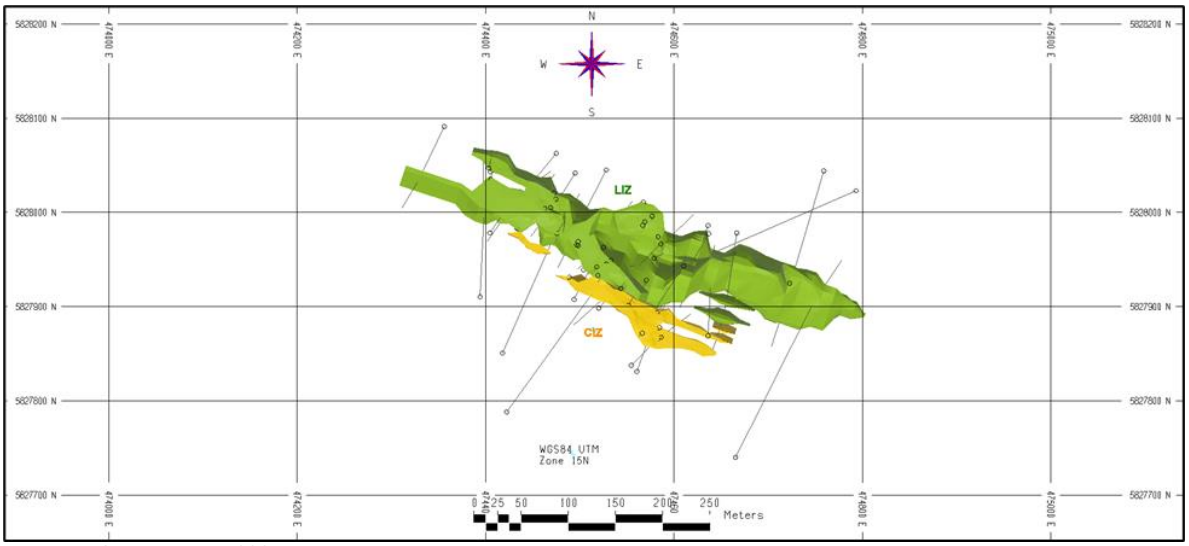
The interpretation and delineation of the lithium-bearing zones were based on both lithological information and assay data. Polylines drawn on 2D sections were extended beyond the topographic surface and joined together via triangulations to generate a 3D solid for each modelled unit; the wireframes were then cut against the provided topographic surface.

Given the intrusive nature of petalite-subtype granitic pegmatites, enclaves of granite were observed locally within broader pegmatite bodies. As such, efforts were made to model out internal waste granite from the final zone volumes wherever interpreted continuity allowed. Otherwise, the enclaves were considered as internal dilution with little to no content.

The PAK pegmatite outcrops on surface, as evidenced by the stripping and channel sampling completed. The sampled surface exposures were effectively used as horizontal drillholes along with traditional inclined drilling in the current MRE. The provided topographic surface was generated as a Digital Elevation Model (DEM) using high-resolution LiDAR and orthoimages collected in 2021 by Eagle Mapping Ltd. of Langley, BC.

Both wireframes trend along a strike of approximately 100° and dip steeply (-80°) to the south with a slight plunge of -10° to the east. Figure 14.1 depicts a plan view of the final modelled LIZ and CIZ zones at the PAK deposit with the associated volumes summarized in Table 14.1.

Figure 14.1 – Plan View of the LIZ and CIZ Zones, PAK Deposit



Source: DRA, 2025

Table 14.1 – Summary of Modelled Volumes for the PAK Deposit

Unit	Volume (*1000 m³)
LIZ	3,058
CIZ	417

14.3.3 EXPLORATORY DATA ANALYSIS

Exploratory Data Analysis (EDA) is the process of characterizing the statistical behaviours of sample populations using tools such as descriptive statistics, correlation analysis, histograms, probability plots and scatter plots. The modelled 3D wireframes were used to code the associated assay data with a distinct identifier for each lithium-bearing unit. The resulting data were exported to conduct EDA for each unit using both Microsoft Excel and Minesight Data Analyst (MSDA), which is the data analysis module of HxGN MinePlan 3D™. Descriptive statistics generated for the assays contained within each of the LIZ and CIZ zones are summarized in Tables 14.2 and 14.3, respectively. Accompanying histograms for Li_2O% are also provided in Figures 14.2 and 14.3.

The Coefficient of Variance (CoV) is one of the most helpful data descriptors because it is a dimensionless ratio of the standard deviation to the mean, which allows better comparisons between data sets. A parameter with a lower CoV (less than unity) suggests a low variability and thus a more homogeneous data set for that parameter. This is often the case for deposits formed in calm geological environments, such as sedimentary deposits, where the compositional variability is more pronounced in the vertical dimension, through the action of stratification.

In the case of intrusion related deposits (like PAK and Spark), the CoV is generally greater than unity. This naturally higher CoV is generated during the formation of the deposit and stems from geological events like zoned segregation, melt turbulence, fractured digestion of host rocks, etc. Another additional factor generally impacting the CoV is the length of core used in the sampling interval; shorter sampling lengths generally result in higher CoV values. For this reason, compositing will usually deliver lower CoV versus the input assays, and using the CoV is an important check on the representativeness of the composited data set. Practitioners are usually comparing the CoV of assays and composites to ensure that the selected compositing length is suitable and not introducing an excessive smoothing on the sample grades.

Table 14.2 – Descriptive Statistics of Assays within the LIZ Unit

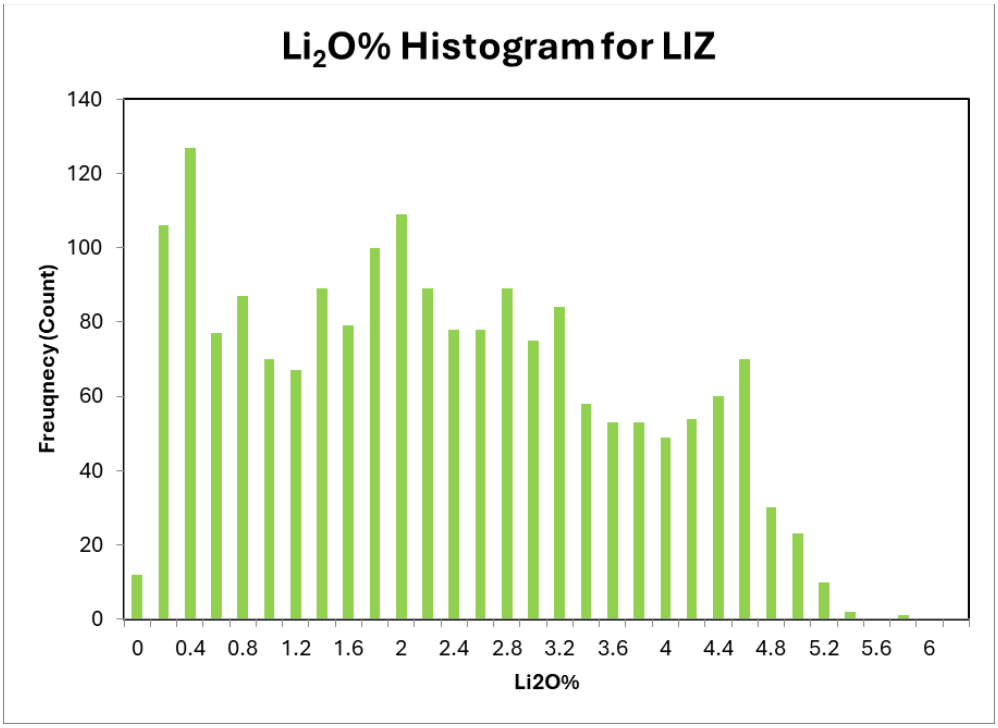
	Arith. Mean	*W. Mean*	Median	Mode	St. Dev.	CoV	Min	Max	Count
Li_2O%	2.17	***2.18***	2.06	2.67	1.38	0.64	0.00	5.77	1,879
Rb_2O%	0.26	***0.26***	0.24	0.00	0.18	0.69	0.00	1.12	1,879
Cs_2O%	0.04	***0.04***	0.03	0.02	0.04	1.17	0.00	1.30	1,879
K_2O%	2.51	***2.51***	2.19	0.00	1.89	0.75	0.00	11.96	1,879
Na_2O%	2.59	***2.55***	2.02	0.00	2.17	0.84	0.00	9.33	1,879
Fe_2O_3%	0.60	***0.55***	0.48	0.43	0.97	1.61	0.00	18.61	1,879
P_2O_5%	0.29	***0.28***	0.27	0.29	0.22	0.77	0.00	4.14	1,879
S%	0.01	***0.01***	0.01	0.01	0.03	2.26	0.00	0.54	1,879
Nb_2O_5_ppm	63.77	***62.46***	57.00	23.00	47.84	0.75	0.00	543.00	1,879
SnO_2_ppm	112.99	***104.52***	68.60	44.40	244.25	2.16	0.00	5,897.30	1,879
Ta_2O_5_ppm	90.46	***87.96***	76.90	0.00	73.70	0.81	0.00	1,008.60	1,879
As_ppm	137.06	***135.51***	113.00	138.00	271.83	1.98	0.00	5,710.00	1,879
B_ppm	333.99	***327.52***	336.00	336.00	377.35	1.13	0.00	7,100.00	1,879
Be_ppm	121.51	***114.91***	119.00	122.00	126.83	1.04	0.00	3,175.00	1,879
F_ppm	1,316.81	***1,340.62***	1,325.00	1,325.00	928.23	0.70	0.00	13,570.00	1,879
Sb_ppm	10.92	***10.92***	11.00	11.00	14.86	1.36	0.00	276.00	1,879
Tl_ppm	18.87	***18.79***	16.80	16.90	14.13	0.75	0.00	103.00	1,879

Table 14.3 – Descriptive Statistics of Assays within the CIZ Unit

	Arith. Mean	*W. Mean*	Median	Mode	St. Dev.	CoV	Min	Max	Count
Li_2O%	1.03	*1.00*	0.60	1.03	1.13	1.10	0.00	5.14	433
Rb_2O%	0.55	*0.54*	0.53	1.31	0.34	0.62	0.00	1.312	433
Cs_2O%	0.07	*0.07*	0.07	0.07	0.04	0.50	0.00	0.306	433
K_2O%	5.18	*5.04*	4.69	5.21	3.06	0.59	0.00	12.77	433

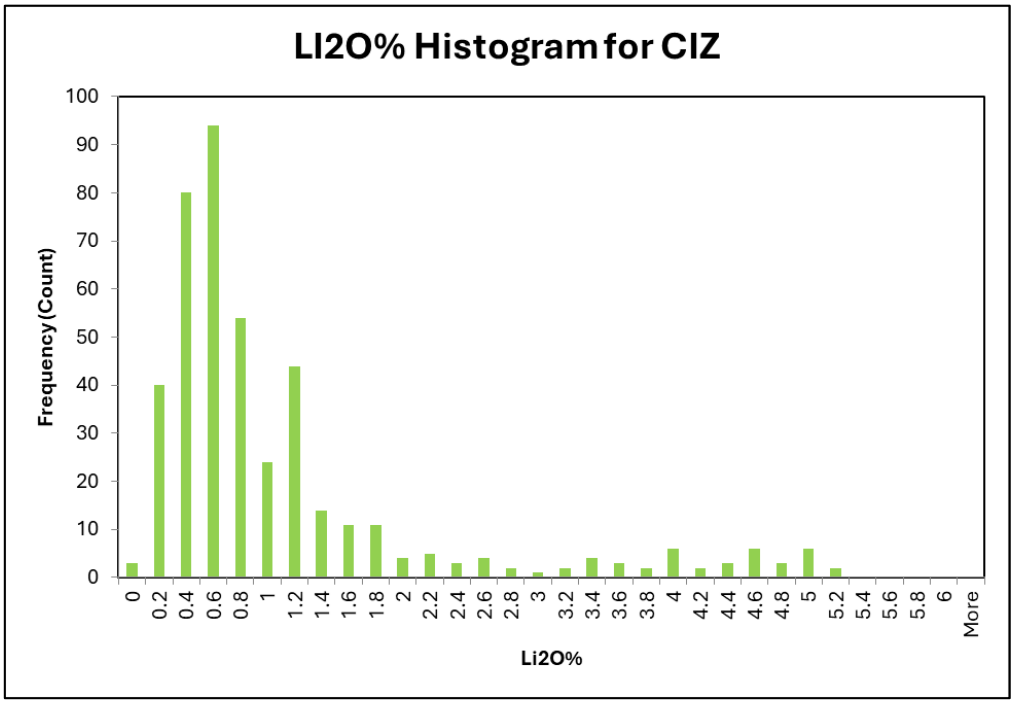
	Arith. Mean	*W. Mean*	Median	Mode	St. Dev.	CoV	Min	Max	Count
Na_2O%	2.49	*2.38*	2.20	2.51	1.53	0.62	0.00	8.69	433
Fe_2O_3%	0.52	*0.49*	0.42	0.52	0.38	0.73	0.00	1.7	433
P_2O_5%	0.38	*0.37*	0.33	0.33	0.35	0.91	0.00	2.83	433
S%	0.02	*0.02*	0.02	0.02	0.03	1.65	0.00	0.32	433
Nb_2O_5_ppm	59.65	*57.09*	45.00	27.00	54.11	0.91	0.00	323	433
SnO_2_ppm	155.35	*152.23*	94.00	156.00	187.29	1.21	0.00	1,456.2	433
Ta_2O_5_ppm	107.41	*102.71*	94.90	142.90	79.11	0.74	0.00	387.1	433
As_ppm	25.35	*24.10*	25.50	25.50	34.45	1.36	0.00	378	433
B_ppm	446.57	*423.92*	450.00	450.00	335.42	0.75	0.00	2400	433
Be_ppm	208.28	*201.38*	112.00	210.00	329.04	1.58	0.00	4369	433
F_ppm	4,314.58	*4,180.94*	4,345.00	4,345.00	2,796.01	0.65	0.00	1,3400	433
Sb_ppm	12.52	*12.19*	12.60	12.60	7.84	0.63	0.00	107	433
Tl_ppm	43.02	*42.34*	40.17	10.60	28.43	0.66	0.00	117	433

Figure 14.2 – Li_2O% Histogram for the LIZ Zone, PAK Deposit



Source: DRA, 2025

Figure 14.3 – Li_2O% Histogram for the CIZ Zone, PAK Deposit



Source: DRA, 2025

14.3.4 GRADE CAPPING

Grade capping is often applied in Mineral Resource Estimation to reduce the impact of extreme values (outliers) that may contribute to the overestimation of block grades for variables of economic interest, thereby leading to biased results and possibly poor mining/process reconciliation. Considering the low CoVs recorded for lithium oxide in both mineralized units, the shapes of the histograms generated, and observations made on the corresponding Cumulative Probability Plots (CPP), it was deemed that grade capping is not necessary prior to conducting sample compositing.

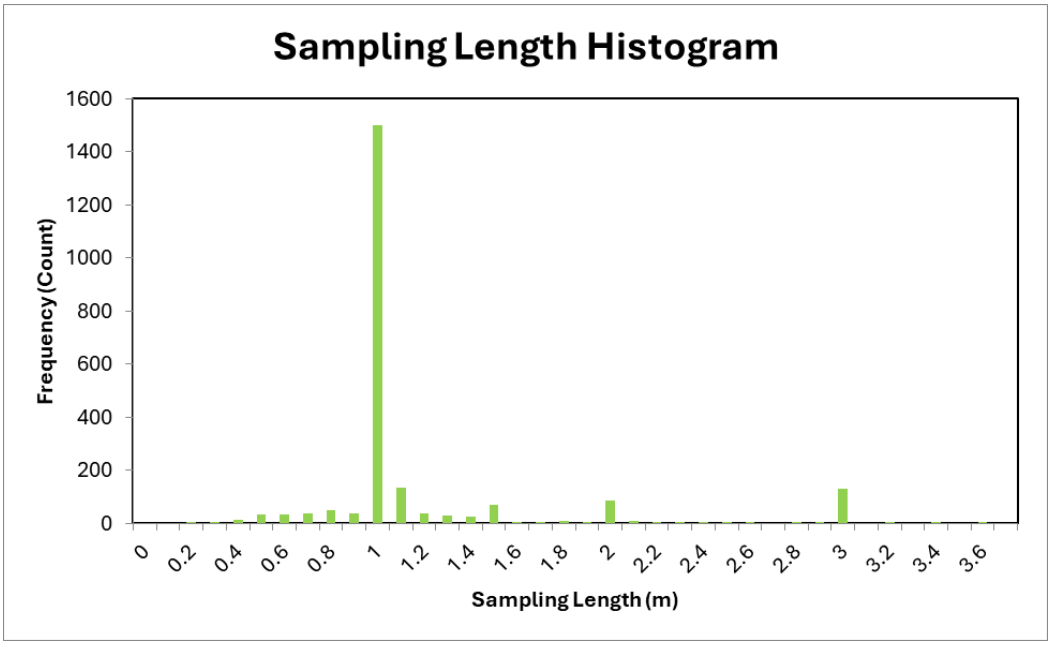
14.3.5 COMPOSITING

Compositing is a sample length weighted regularization process of grades with the objective of giving an identical weight to all samples and avoid introducing a bias due to length support differences. In general, the selection of the compositing length is based on a statistical analysis of the sampling length population. A histogram for sampling length of assays contained within the mineralized wireframes is presented in Figure 14.4. The sampling length histogram shows a length of 1 m as the statistical mode but compositing at this length will lead to splitting about 25% of the samples (those with lengths > 1 m) into smaller intervals, which can arbitrarily affect the outputs of subsequent variogram analysis. As a result, it was deemed more appropriate to conduct the compositing at a fixed length of 2 m with the option to merge shorter residuals (< 0.5 m), typically adjacent to solid intersections or unsampled sections, with neighbouring intervals. The proportion of

samples with lengths equal to, or less than 2 m represents ~89% of the total population, thus minimizing the splitting of samples into smaller intervals.

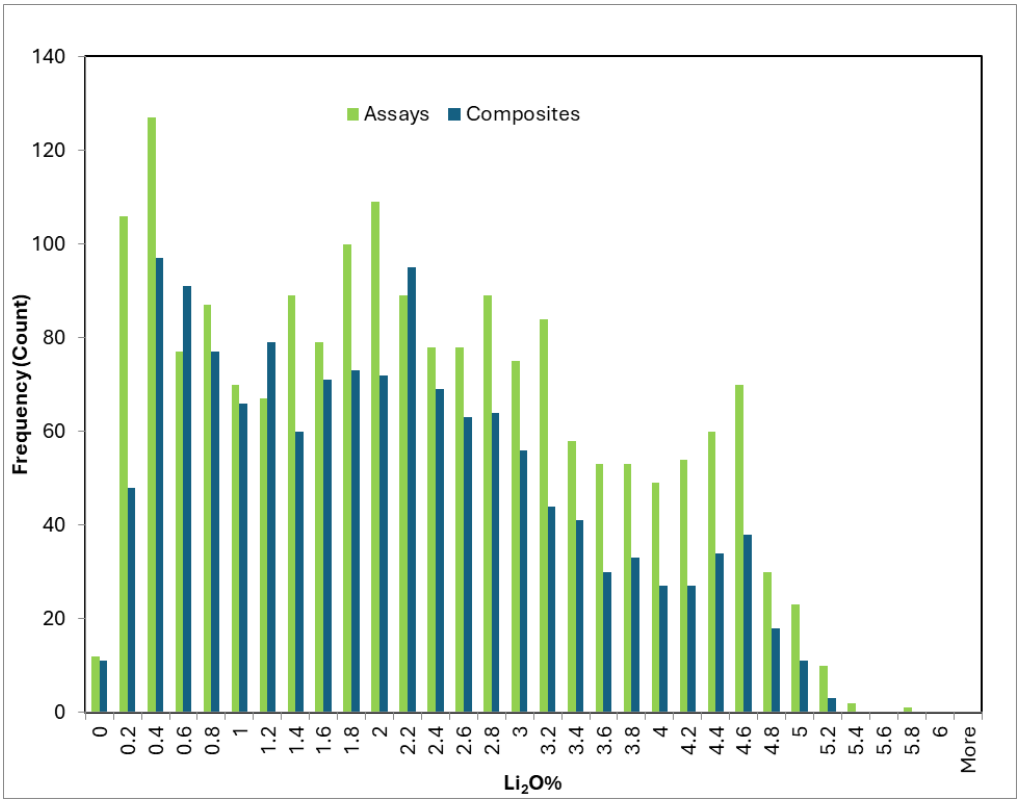
A superimposition of the assays and 2 m composites for Li_2O% is presented in Figure 14.5. Comparative statistics between the assays and composites in the LIZ and CIZ Zones are also summarized in Tables 14.4 and 14.5, respectively. The statistics of the assays were properly reproduced in the composites with no introduction of bias. A slight decrease in the CoV is observed in the composite data due to improved grade homogeneity (i.e., smoothing) caused by the compositing process.

Figure 14.4 – Histogram of Assay Sampling Length, PAK Deposit



Source: DRA, 2025

Figure 14.5 – Histogram of Assays and Composites for Li_2O%, PAK Deposit



Source: DRA, 2025

Table 14.4 – Comparative Statistics of Assays and Composites for the LIZ Unit, PAK Deposit

Parameter	Li_2O%		Rb_2O%		Cs_2O%		Ta_2O_5_ppm	
	Assays	Composites	Assays	Composites	Assays	Composites	Assays	Composites
Arith. Mean	2.17	2.18	0.26	0.26	0.04	0.04	90.46	87.75
W. Mean	2.18		0.26		0.04		87.96	
Median	2.06	2.09	0.24	0.25	0.03	0.03	76.9	78.65
Mode	2.67	2.73	0.00	0.16	0.02	0.04	0.00	37.6
St. Dev.	1.38	1.23	0.18	0.15	0.04	0.03	73.7	60.47
CoV	0.64	0.57	0.69	0.57	1.17	0.92	0.81	0.69
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum	5.77	5.06	1.12	0.97	1.3	0.78	1008.6	668.1
Count	1,879	1,164	1,879	1,164	1,879	1,164	1,879	1,164

Table 14.5 – Comparative Statistics of Assays and Composites for the CIZ Unit, PAK Deposit

Parameter	Li_2O%		Rb_2O%		Cs_2O%		Ta_2O_5_ppm	
	Assays	Composites	Assays	Composites	Assays	Composites	Assays	Composites
Arith. Mean	1.03	1.02	0.55	0.53	0.07	0.07	107.41	102.74
W. Mean	1.00		0.54		0.07		102.71	
Median	0.6	0.63	0.53	0.52	0.07	0.07	94.9	92.45
Mode	1.03	1.03	1.31	0.00	0.07	0.07	142.9	0.00
St. Dev.	1.13	1.07	0.34	0.31	0.04	0.03	79.11	66.11
CoV	1.10	1.06	0.62	0.58	0.5	0.47	0.74	0.64
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum	5.14	5.02	1.31	0.17	0.31	0.17	387.1	329.7
Count	433	234	433	234	433	234	433	234

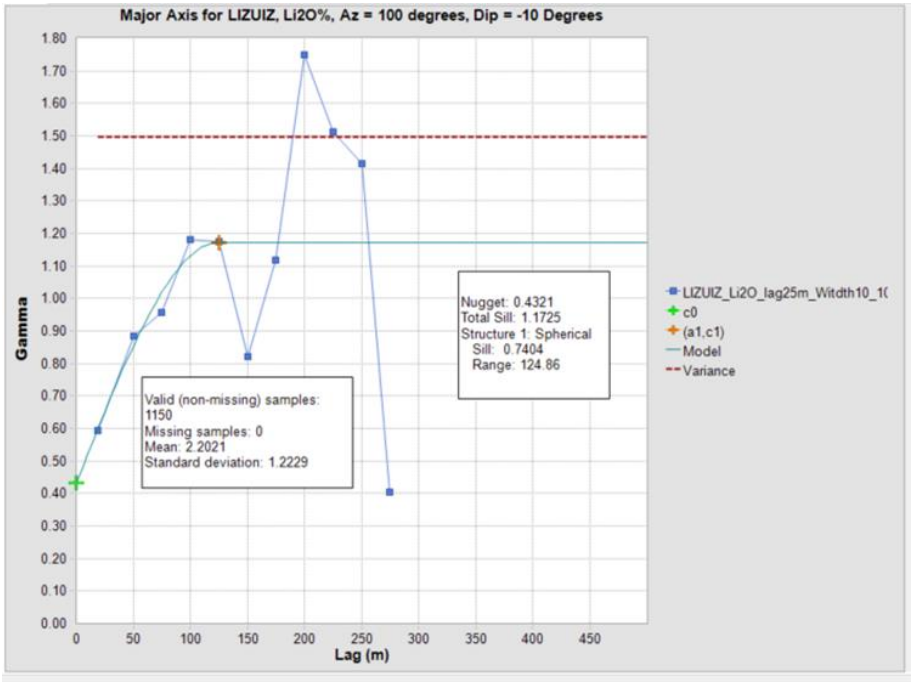
14.3.6 VARIOGRAPHY

Variograms were generated to assess and analyze the spatial continuity of grades and ultimately help in selecting suitable interpolation parameters to better reflect the underlying grade distribution in the block model. Variograms were modelled in HxGN MinePlan™ Data Analyst (MSDA) using the 2 m composite dataset.

For each unit, a full range of variograms, combining different azimuths and dip directions, was generated. More specifically, the software was set to generate all possible combinations of strikes, from 0° to 360° in a horizontal orientation and with a 15° incremental step, and dips from 0° to -90° with a 10° incremental step. The resulting variograms were then analyzed for their stability and the structural quality of their parameters (strike, dip, nugget effect, sill and range). Variograms were modelled focusing on Li_2O% as the major element of economic interest driving the Mineral Resource estimation.

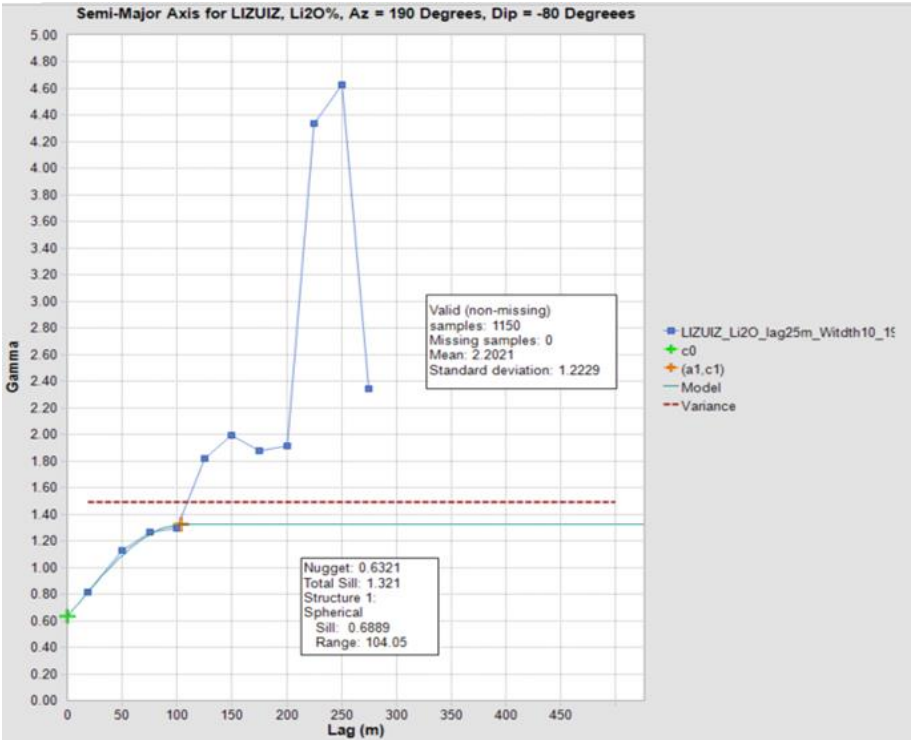
The best set of variograms obtained for the LIZ unit has a major axis range of approximately 125 m at an orientation of 100°, a semi major axis range of 104 m and a minor axis of ~35 m. The global variogram has a range of about 91 m. A downhole variogram was also calculated to determine the nugget effect which was found to be 0.12. The nugget effect is a measurement of short-range variability and is one of the relevant parameters used when conducting estimates based on geostatistical approaches such as Ordinary Kriging. No stable set of variograms was identified for the CIZ unit. Figure 14.6 to Figure 14.9 present the best variograms obtained for the LIZ unit.

Figure 14.6 – LIZ Variogram on the Major Axis for Li_2O%



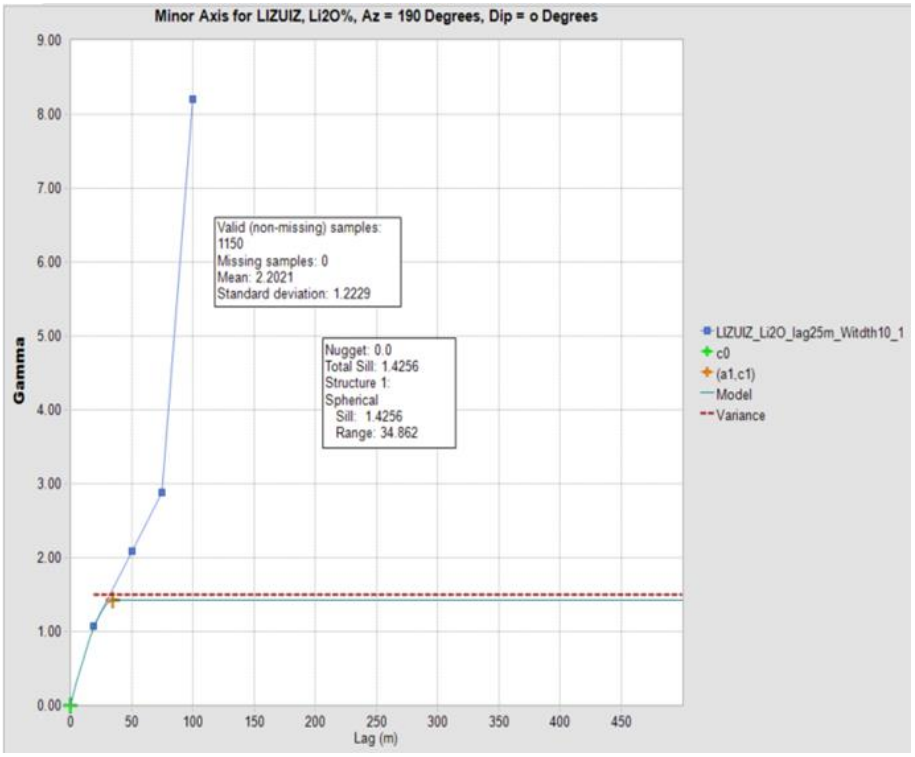
Source: DRA, 2025

Figure 14.7 – LIZ Variogram on the Semi-Major Axis for Li_2O%



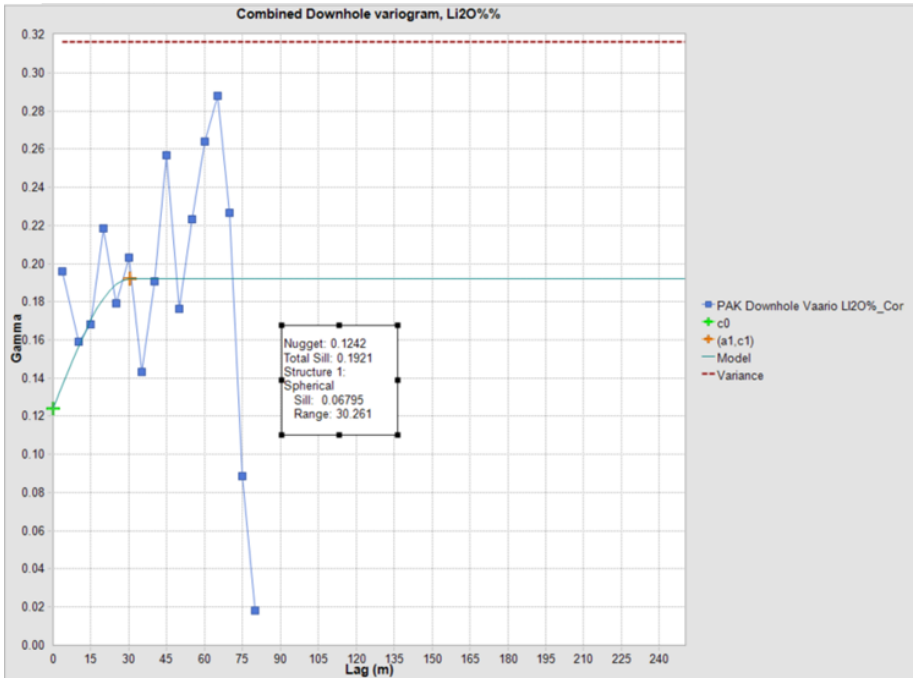
Source: DRA, 2025

Figure 14.8 – LIZ Variogram on the Minor Axis for Li_2O%



Source: DRA, 2025

Figure 14.9 – Downhole Variogram for Li_2O%



Source: DRA, 2025

14.3.7 Block Model Setup and Coding

A block model was created using the HxGN MinePlan 3D™ software package to generate a grid of regular blocks to estimate grade attributes, density and other information relevant to the estimate and to subsequent mine planning. The model was sub-blocked to better code the wireframe edges and hence better control volumetric mixtures between mineralization and waste.

Ultimately, the selected block model has parent block sizes of 10 m × 5 m × 10 m with sub-blocks of 2.5 m × 2.5 m × 2.5 m in the X, Y and Z directions, respectively. This size has been selected based on the drill spacing across the resource estimation domain. An industry standard is to ensure that blocks are not discretized to less than 1/3 to 1/5 of the drill spacing in order to avoid over-discretized estimates that are not reflective of the mineralization. Block size is a sensitive parameter in geospatial interpolation, particularly when applying geostatistical estimation methods such as Kriging (Ordinary Kriging, Indicator Kriging, etc.). Even for less advanced approaches, such as Inverse Distance Weighting, an over-discretization will lead to oversmoothed estimates that poorly reflect the underlying sample and grade distributions.

The selection of the parent block size is based on avoiding an over-discretization of the estimate domain. The selection of the sub-block size is based on a compromise between the need to better code the wireframe edges, contacts, and the ability to deliver a model of acceptable computational size. The model was rotated 15° relative to the east-west axis to better align blocks with the strike of the mineralization. Table 14.6 displays the block model design parameters, and Table 14.7 lists the definition of the resource block model items.

Table 14.6 – PAK Block Model Setup Parameters

	Minimum	Maximum	Size	# of Blocks	Sub Size	# of Sub Blocks
	(m)	(m)	(m)		(m)	
X (Columns)	0	1000	10	100	2.5	4
Y (Rows)	0	550	5	110	2.5	2
Z (Levels)	-100	350	10	45	2.5	4

Table 14.7 – Definition of the Resource Block Model Items

Item	Description
TOPO%	Percentage of block below topography
Li_2O	Lithium Oxide
Rb_2O	Rubidium Oxide
Cs_2O	Cesium Oxide
K_2O	Potassium Oxide

Item	Description
Na_2O	Sodium Oxide
Fe_2O_3	Iron Oxide
P_2O_5	Lead Oxide
S	Sulphur
Nb_2O_5	Niobium Oxide
SnO_2	Tin Oxide
Ta_2O_5	Tantalum Oxide
As	Arsenic
B	Boron
Be	Beryllium
F	Fluorine
Sb	Antimony
Tl	Thallium
SOLID	Solid Code
DENS	Density
NCOMP	Number of Composites used for Block Interpolation
DISTA	Composites Average Distance
DISTC	Distance to Closest Composite
DISTF	Distance to Farthest Composite
NHOLE	Number of Holes used for Block Interpolation
PASS	Interpolation Pass ID
RCAT	QP Classified Resource category
INPIT	Block location after Resource Pit Optimization

14.3.8 BULK DENSITY

An updated database of specific gravity (SG) measurements was supplied to DRA and overlaid with the lithological description file. Descriptive statistics were generated to assess the central tendency and the variability of density according to the lithological description (Table 14.8). Low CoVs are observed for both LIZ and CIZ units. However, the range of variation is not negligible since the SG values vary between 2.55 and 3.00 for both units. From experience, there is usually a good correlation between lithium content and density for lithium-bearing pegmatite deposits. Since there are no lithium assay results restricted to the interval lengths selected for the SG determinations, it was not possible to confirm this relationship and develop a regression function between density and

lithium content. However, there was sufficient density data contained within each mineralized unit to interpolate density values using the Inverse Distance Squared Weighting (IDW^2) method.

Table 14.8 – Summary of the results on Density Measurements

Lithology	No of Samples	Average Density	CoV	Min	Max
LIZ	614	2.77	0.04	2.55	3
CIZ	516	2.76	0.03	2.55	3
Aplite	1107	2.72	0.01	2.58	2.97
Granite	777	2.65	0.01	2.52	2.76
Metasediments	878	2.93	0.05	2.66	3.71

14.3.9 MINERAL RESOURCE ESTIMATE

Lithium is the primary commodity of economic interest at the PAK Project and therefore Li_2O was the dominant variable used to determine the relevant interpolation parameters. Other potential variables of economic interest that were estimated include Cs_2O, Rb_2O, Ta_2O_5 and Nb_2O_5. An additional 12 elements were also interpolated for metallurgical and environmental considerations including Fe_2O_3, K_2O, Na_2O, P_2O_5, SnO_2, S, As, Sb, B, Be, Tl and F The Mineral Resources for the PAK Deposit were estimated using Inverse Distance Squared Weighting (IDW^2) and validated with Ordinary Kriging (OK). For each estimation domain (i.e., wireframe), three (3) successive passes using varying interpolation parameters were run to estimate block grades. An octant search method was applied to all passes to reduce the influence of over-sampled areas on the resource estimation; a maximum number of four (4) composites was allowed per octant.

For the LIZ Zone, a search ellipsoid of 75 m × 21 m × 61 m, respectively in the X, Y and Z directions, was used in the first estimation pass for composite selection. This size corresponds to 2/3 of the full range of the most stable variogram generated during the spatial analysis. The maximum and minimum number of composites to interpolate a block were set to 12 and 9, respectively, and the maximum number of composites allowed from a single hole set to four (4); as a result, at least three (3) holes are required to interpolate a block during this pass.

For the second interpolation pass on the LIZ, the same size of search ellipsoid was maintained but the minimum number of composites to interpolate a block was reduced to six (6) while the other parameters were kept unchanged. This pass required a minimum of at least two (2) holes to interpolate a block.

For the third pass, the search ellipsoid was relaxed to 150 m × 50 m × 150 m to minimize the number of non-interpolated blocks within the LIZ domain. The minimum number of composites to code a

block and the maximum number of composites allowed from a single hole were both set to four (4), thereby requiring only one hole for block coding during this pass.

For the CIZ Zone, a search ellipsoid of 75 m × 21 m × 61 m, respectively in the X, Y and Z directions, was used in the first estimation pass for composite selection. The maximum and minimum number of composites to interpolate a block were set to 12 and 6, respectively, and the maximum number of composites allowed from a single hole set to four (4); as a result, a minimum of two (2) holes are required for interpolating a block during this pass.

The size of the search ellipsoid was held constant during the second interpolation pass on the CIZ; however, the minimum number of composites to code a block was reduced to four (4) while the maximum number of composites from a single hole was set to three (3). As a result, at least two (2) holes were required to allow a block to code during this pass.

For the third pass on the CIZ, the size of the search ellipsoid was relaxed to 125 m × 50 m × 125 m. Both the minimum number of composites to code a block and the maximum number of composites from a single hole were set to three (3), thus requiring only one (1) hole to code a block.

The final interpolation parameters for the LIZ and CIZ Zones are summarized in Tables 14.9 and 14.10, respectively.

Table 14.9 – Resource Interpolation Parameters for LIZ Zone, PAK Deposit

Block Model Setup and Interpolation Parameters for LIZ Zone	
Items	**Description**
Grade Interpolation Method	Inverse Distance Squared (IDW^2)
Parent Block Size	X = 10 m, Y = 5 m, Z = 10 m
Sub-Block Size	X = 2.5 m, Y = 2.5 m, Z = 2.5 m
Model Rotation	15º
Compositing	By fixed length of 2 m
High Values Capping	Not applicable
Partially samples intervals within resource solids	Filled by regression function or an average grade value
Unsampled intervals within resource solids	Grades replaced by zero value
Ellipse Orientation	Az= 100º, Dip= -80º, Plunge = -10º
Search ellipse size for pass 1	Major = 75 m, Semi = 61 m, Minor = 21 m
Search ellipse size for pass 2	Major = 75 m, Semi = 61 m, Minor = 21 m
Search ellipse size for pass 3	Major = 150 m, Semi = 150 m, Minor = 50 m
De-clustering	Octant search. Limit of four (4) composites per octant

Block Model Setup and Interpolation Parameters for LIZ Zone			
Interpolation Pass	**Pass 1**	**Pass 2**	**Pass 3**
Min. Number of Composites/Block	9	6	4
Max. Number of Composites/Block	12	12	12
Max. Number of Composites/Hole	4	4	4

Table 14.10 – Resource Interpolation Parameters for CIZ Zone, PAK Deposit

Block Model Setup and Interpolation Parameters for CIZ Zone			
Items	**Description**		
Grade Interpolation Method	Inverse Distance Squared (IDW2)		
Parent Block Size	X = 10 m, Y = 5 m, Z = 10 m		
Sub-Block Size	X = 2.5 m, Y = 2.5 m, Z = 2.5 m		
Model Rotation	15°		
Compositing	By fixed length of 2 m		
High Values Capping	Not applicable		
Partially samples intervals within resource solids	Filled by regression function or an average grade value		
Unsampled intervals within resource solids	Grades replaced by zero value		
Ellipse Orientation	Az= 100°, Dip= -80°, Plunge = -10°		
Search ellipse size for pass 1	Major = 75 m, Semi = 61 m, Minor = 21 m		
Search ellipse size for pass 2	Major = 75 m, Semi = 61 m, Minor = 21 m		
Search ellipse size for pass 3	Major = 150 m, Semi = 150 m, Minor = 50 m		
De-clustering	Octant search. Limit of 4 composites per octant		
Interpolation Pass	**Pass 1**	**Pass 2**	**Pass 3**
Min. Number of Composites/Block	6	4	3
Max. Number of Composites/Block	12	12	12
Max. Number of Composites/Hole	4	3	3

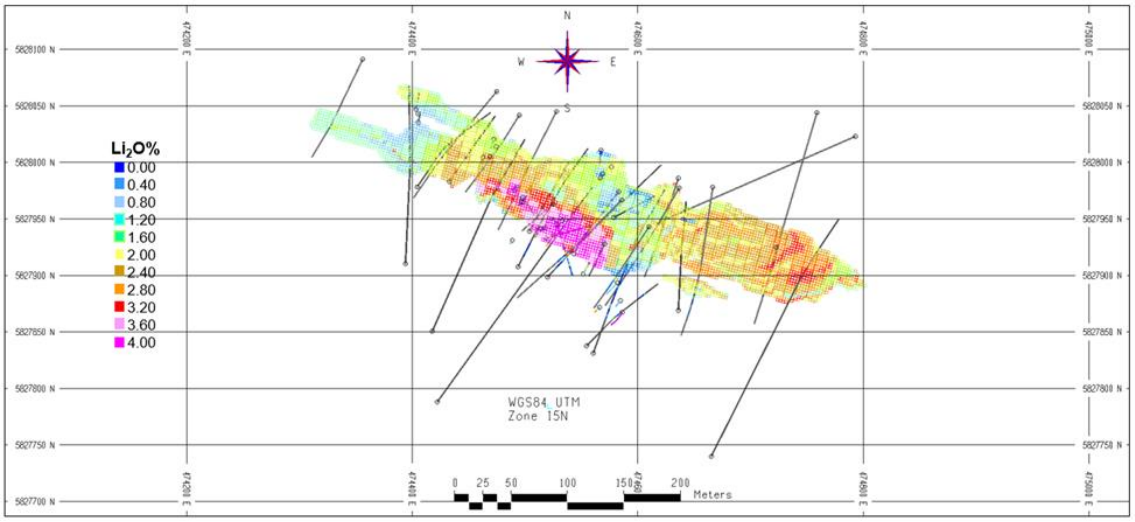
14.3.10 BLOCK MODEL VALIDATION

14.3.10.1 Visual Inspection

The first step for the Mineral Resource validation procedure was to compare composite and block grades both in 2D and 3D to ensure that grade distributions were honoured in the block model. The 2D inspection consisted of visualizing each cross-section with the composites superimposed on the estimated block grades. It is DRA's opinion that the block model in fact reproduces the composite

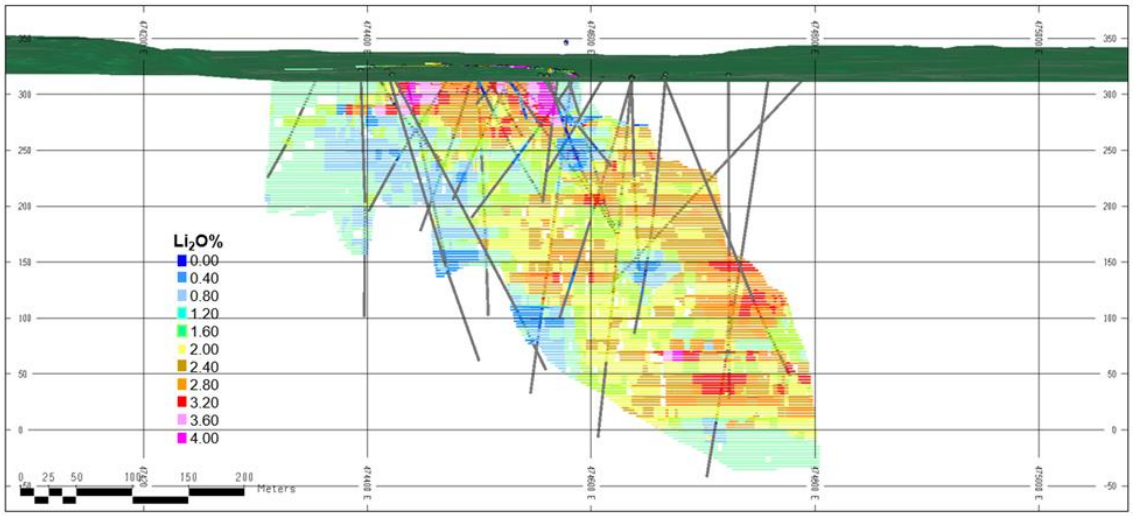
grades at both global and local scales. Figure 14.10 to Figure 14.17 illustrate this comparison with a variety of representative plan views and vertical sections for both the LIZ and CIZ units.

Figure 14.10 – Plan View of Li_2O% in LIZ with Superimposed Composites and Block Grades



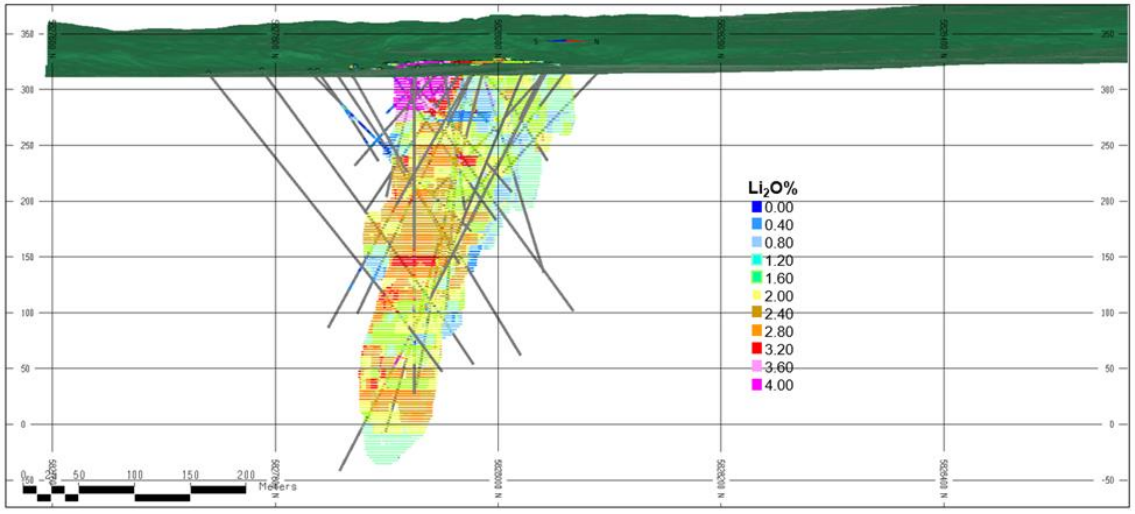
Source: DRA, 2025

Figure 14.11 – East-West View of Li_2O% in LIZ with Superimposed Composites and Block Grades



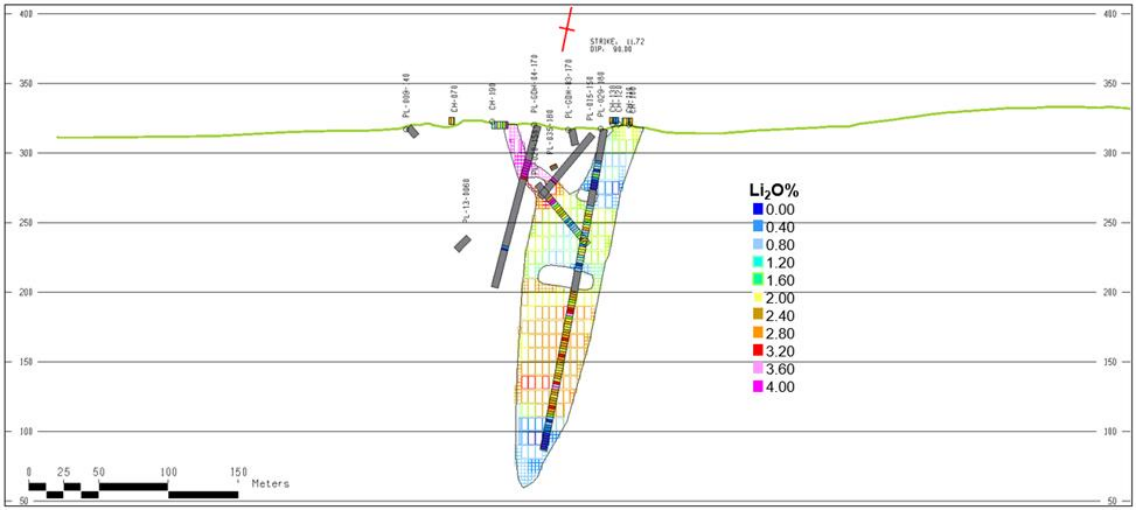
Source: DRA, 2025

Figure 14.12 – North-South View of Li_2O% in LIZ with Superimposed Composites and Block Grades



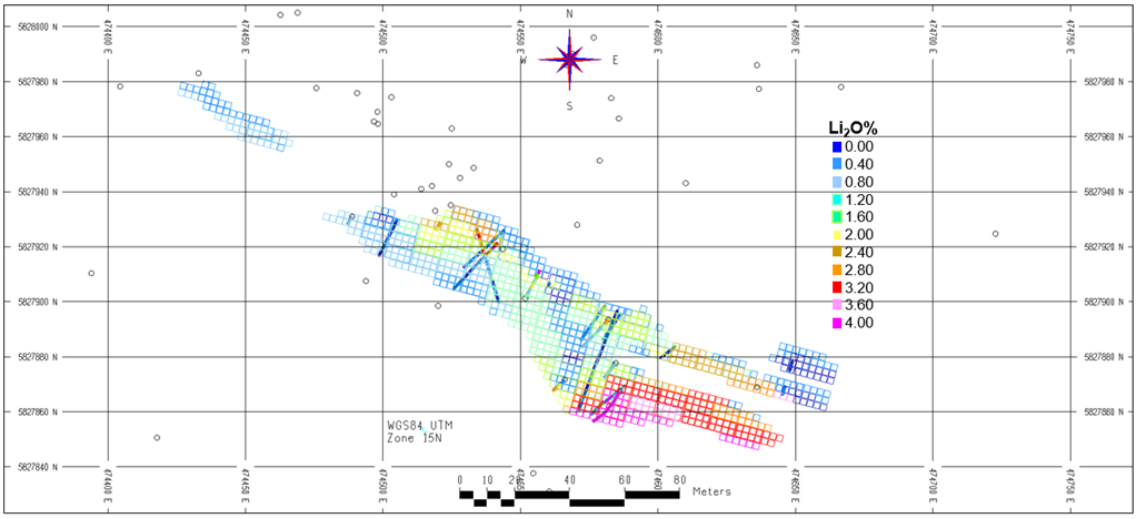
Source: DRA, 2025

Figure 14.13 – Typical Section View of Li_2O% in LIZ with Superimposed Composites and Block Grades



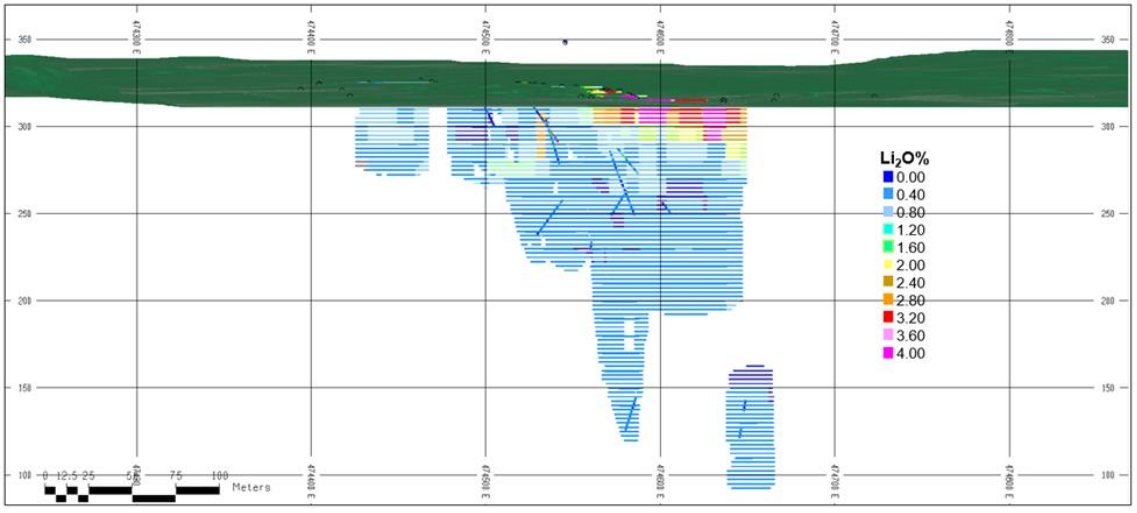
Source: DRA, 2025

Figure 14.14 – Plan View of Li_2O% in CIZ with Superimposed Composites and Block Grades



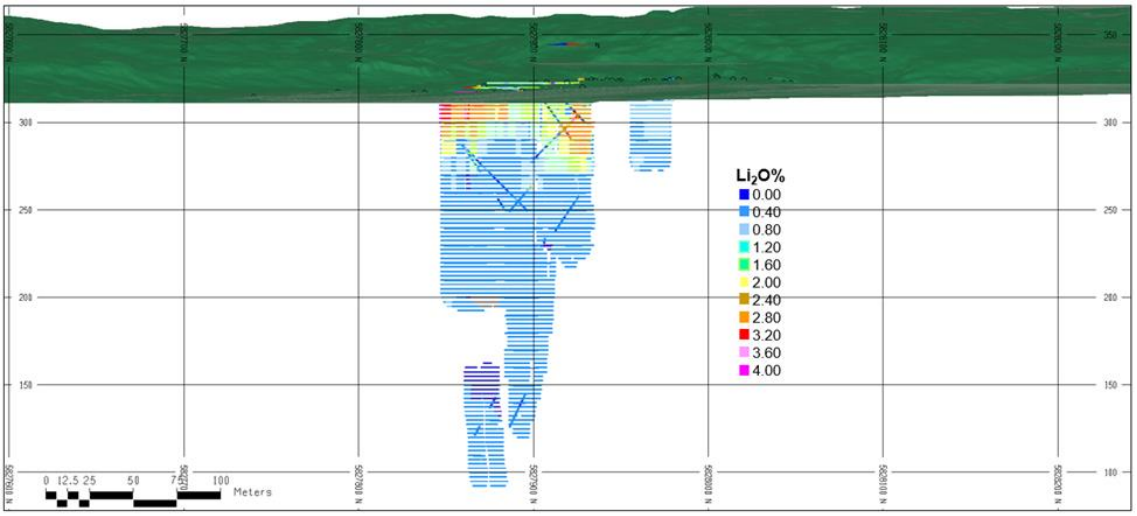
Source: DRA, 2025

Figure 14.15 – East-West View of Li_2O% in CIZ with Superimposed Composites and Block Grades



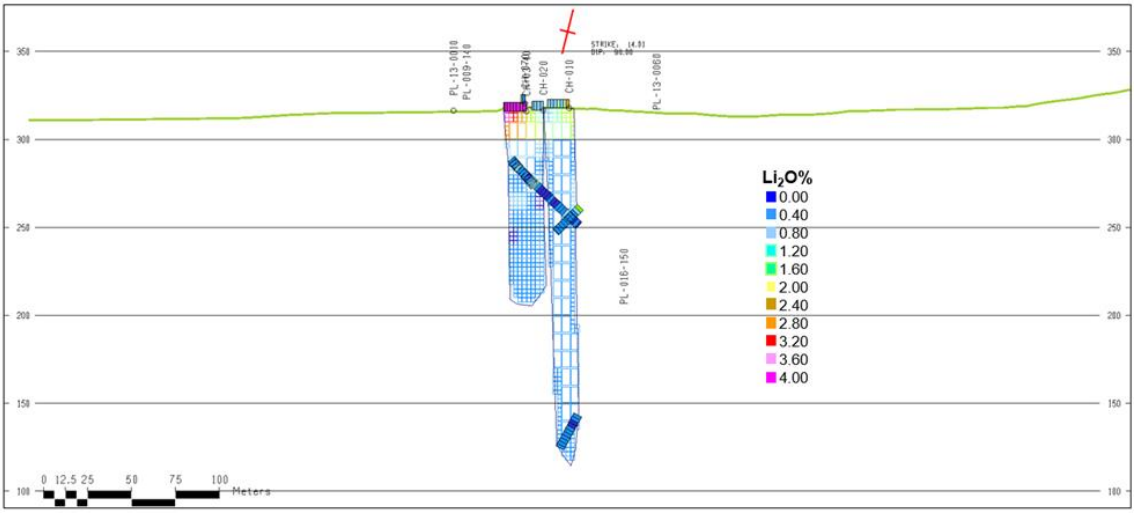
Source: DRA, 2025

Figure 14.16 – North-South View of Li_2O% in CIZ with Superimposed Composites and Block Grades



Source: DRA, 2025

Figure 14.17 – Typical Section View of Li_2O% in CIZ with Superimposed Composites and Block Grades



Source: DRA, 2025

14.3.10.2 Descriptive Statistics

Descriptive statistics were generated as part of the validation process to compare input assays, composites and block grades, and ensure that no local or global bias was introduced during the estimation. These statistics are summarized by mineralized zone in Table 14.11. The estimated blocks compare reasonably well with both the assay and composite data used to conduct the Mineral Resource Estimate.

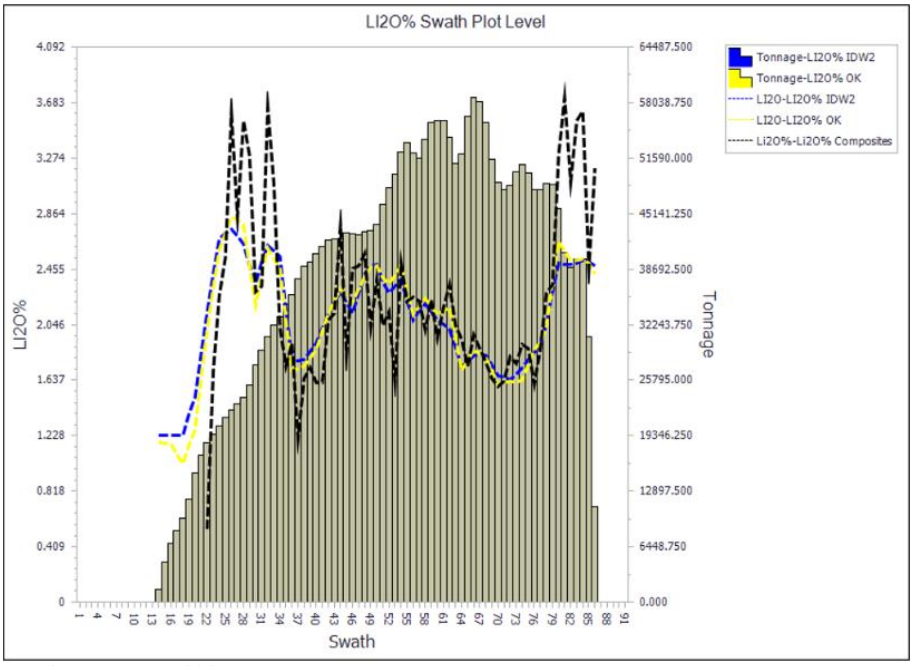
A slight decrease in the Li_2O% mean (and associated CoV) is observed for the blocks compared to the input composites, which is expected due to smoothing caused by a much larger number of blocks (191,033 for LIZ and 26,750 for CIZ) being interpolated by a smaller set of composite data (1,164 for LIZ and 234 for CIZ). The slight decrease can also be partly explained by short-range variability observed in lithium grades across the deposit, as attested by the relatively poor quality of the variograms generated.

14.3.10.3 Swath Plots

Swath plots were also generated as an additional step to validate the estimates. Swath plots depict the block model data aggregated in 2D and projected into the third dimension. The approach may be used to compare results of multiple interpolation methods or to compare composite and block grade trends in a given direction across an orebody.

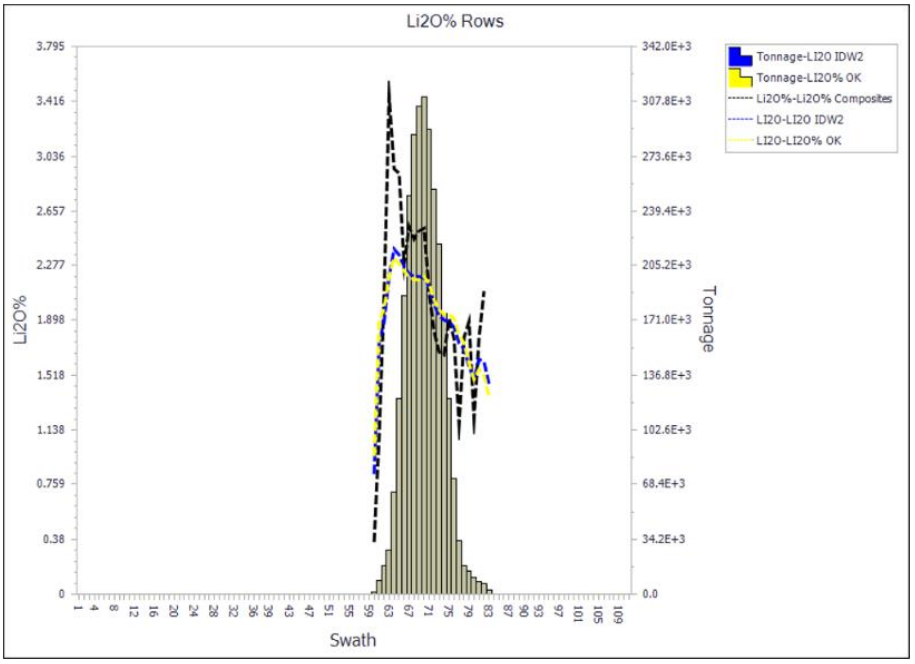
DRA ran another version of the block model using Ordinary Kriging as an alternative interpolation method to compare the results with those estimated by IDW^2. The results of both estimates, along with the composite grades, were used to generate swath plots (Figure 14.18 to Figure 14.20) by level, row and column of the rotated block model

Figure 14.18 – Li_2O% Swath Plot by Level for Composites, OK and IDW^2



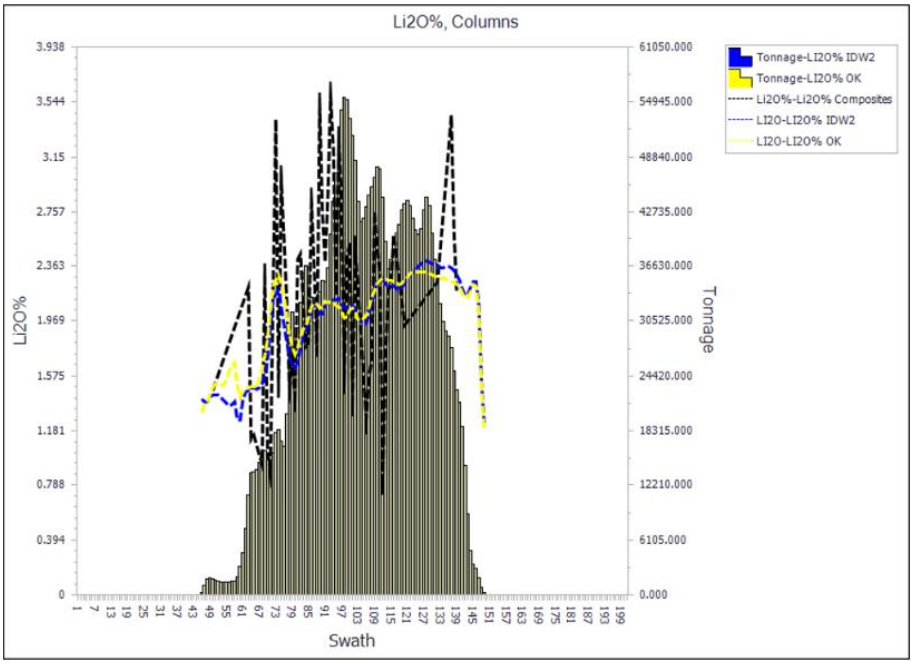
Source: DRA, 2025

Figure 14.19 – Li_2O% Swath Plot by Row for Composites, OK and IDW²



Source: DRA, 2025

Figure 14.20 – Li_2O% Swath Plot by Column for Composites, OK and IDW²



Source: DRA, 2025

Table 14.11 – Comparative Statistics between Assays, Composites and Blocks for the PAK Deposit

Unit	Parameter	LI_2O%			Rb_2O%			Cs_2O%			Ta_2O_5_ppm		
		Assays	Composites	Blocks	Assays	Composites	Blocks	Assays	Composites	Blocks	Assays	Composites	Blocks
LIZ	Mean (or W. Mean)	2.18	2.18	2.12	0.26	0.26	0.28	0.04	0.04	0.04	87.96	87.75	91.28
	Minimum	0.00	0.00	0.25	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	10.20
	Maximum	5.77	5.06	4.64	1.12	0.97	0.73	1.30	0.78	0.57	1008.60	668.10	609.30
	Standard Deviation	1.38	0.57	0.69	0.18	0.15	0.09	0.04	0.03	0.03	73.70	60.47	42.27
	CoV	0.64	0.57	0.33	0.69	0.57	0.33	1.17	0.92	0.71	0.81	0.69	0.46
	Count	1,879	1164	191,033	1,879	1,164	191,033	1,879	1,164	191,033	1,879	1,164	191,033
CIZ	Mean (or W. Mean)	1.00	1.02	0.91	0.54	0.53	0.61	0.07	0.07	0.07	102.71	102.74	102.51
	Minimum	0.00	0.00	0.22	0.00	0.00	0.07	0.00	0.00	0.02	0.00	0.00	10.10
	Maximum	5.14	5.02	4.75	1.30	1.25	1.04	0.31	0.17	0.11	387.10	329.70	235.40
	Standard Deviation	1.13	1.07	0.72	0.34	0.31	0.18	0.04	0.03	0.02	79.11	66.11	38.46
	CoV	1.10	1.06	0.79	0.62	0.58	0.30	0.50	0.47	0.24	0.74	0.64	0.38
	Count	433	234	26,570	433	234	26,570	433	234	26,570	433	234	26,570

14.3.11 Open Pit and Underground Mining Limiting Parameters

A resource-constraining pit shell was generated to reflect the portion of the estimated resources with a reasonable prospect of economic extraction via an open pit mining method. Additionally, the portion of resources of the LIZ zone that lies beneath the pit shell limits was also considered for an underground mining applying a different cut-off. The pit optimization exercise was undertaken in HxGN™ MinePlan 3D's MSOpit module using the Pseudoflow algorithm. Underground mining stope optimization was performed using Deswik™. The parameters used for the open pit and underground optimization work are summarized in Tables 14.12 and 14.13, respectively.

Table 14.12 – Mineral Resources Open Pit Shell Parameters, PAK Deposit

Description	Unit	Value
General		
Exchange Rate	US$/CA$	1.30
Concentrate Selling Price (6.0% Li_2O)	$/t concentrate	1,500
Transportation Cost	$/t concentrate	100.79
Closure Costs	$/t mined	1.99
Discount Rate	%	8.00
Pit Slope Angles	°	45
Processing		
Processing Cost	$/t milled	23.85
G&A Cost	$/t milled	26.22
Sustaining Capital Costs	$/t milled	4.28
Process Recovery	%	78
Mining		
Resource Cut-Off	Li_2O%	0.65
Mineral Mining Cost	$/t mined	7.80
Waste Mining Cost	$/t mined	7.15
Production Rate	Mtpa	0.83

Table 14.13 – Underground Mining Stope Optimization Parameters, PAK Deposit

Description	Unit	Value
General		
Exchange Rate	US$/CA$	1.30
Concentrate Selling Price (6.0% Li_2O)	$/t concentrate	1,500
Transportation Cost	$/t concentrate	100.79
Closure Costs	$/t mined	1.99
Discount Rate	%	8.00
Pit Slope Angles	°	45
Processing		
Processing Cost	$/t milled	23.85
G&A Cost	$/t milled	26.22
Sustaining Capital Costs	$/t milled	4.28
Process Recovery	%	78
Mining		
Resource Cut-Off	Li_2O%	0.8
Mineral Mining Cost	$/t mined	85.00

14.3.12 MINERAL RESOURCE CLASSIFICATION

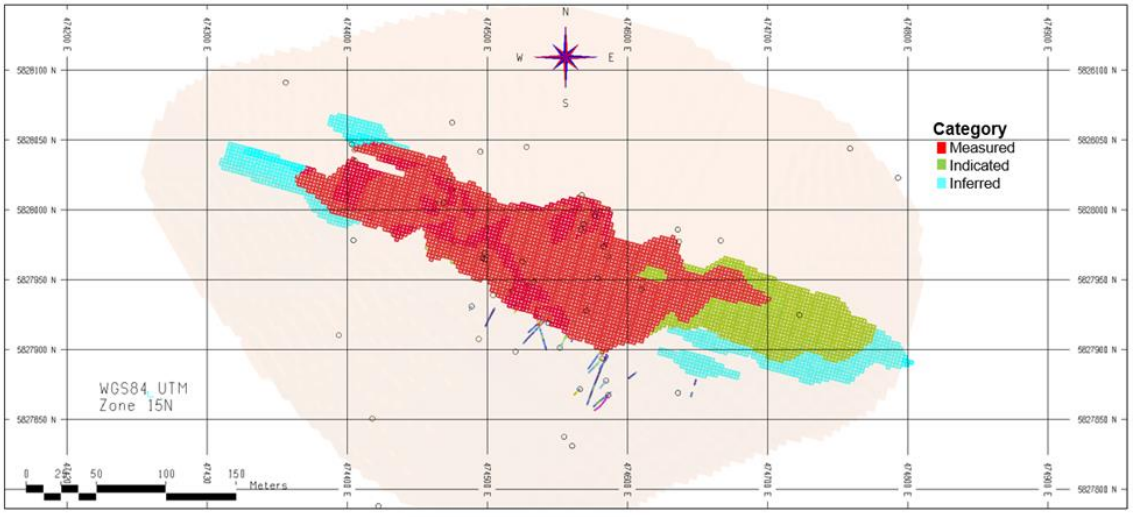
Mineral Resource classification is based on confidence in the geological and grade continuity of a deposit, which is most often a function of drilling density. It is intuitive that areas that are more densely drilled (i.e., sampled) are usually better understood due to increased data points in comparison to more sparsely tested areas. Portions of a deposit that fall under the latter case may still be considered for inclusion in a Mineral Resource but with a lower confidence level. As such, resources are typically classified into Measured, Indicated and Inferred resource categories of decreasing confidence. DRA considered the following factors as part of the resource classification for the PAK deposit:

- The requirements of the NI43-101 for classifying Mineral Resources.
- The best practices guidelines in Mineral Resources and Mineral Reserves Estimates of the Canadian Institute of Mining, Metallurgy and Petroleum (CIM).
- The nature of the observed mineralization and related LCT, petalite-subtype granitic pegmatite type examples.
- Drillhole and channel sample spacing.

- The appropriateness of drilling orientations (i.e., some holes were drilled down-dip or oblique due to drilling logistics and/or hole depths; this can result in unrealistic representations of the mineralization in localized areas).
- The inability to develop a regression model between lithium content and density due to differences in sampling intervals (by experience, there is usually a strong correlation between these variables which can help increase confidence).
- Variographic analysis, which showed moderate range structures with some short-range variability locally.
- The results of the QA/QC procedures implemented throughout the drilling programs which in turn contribute to validate the drillhole database used to conduct the MRE.

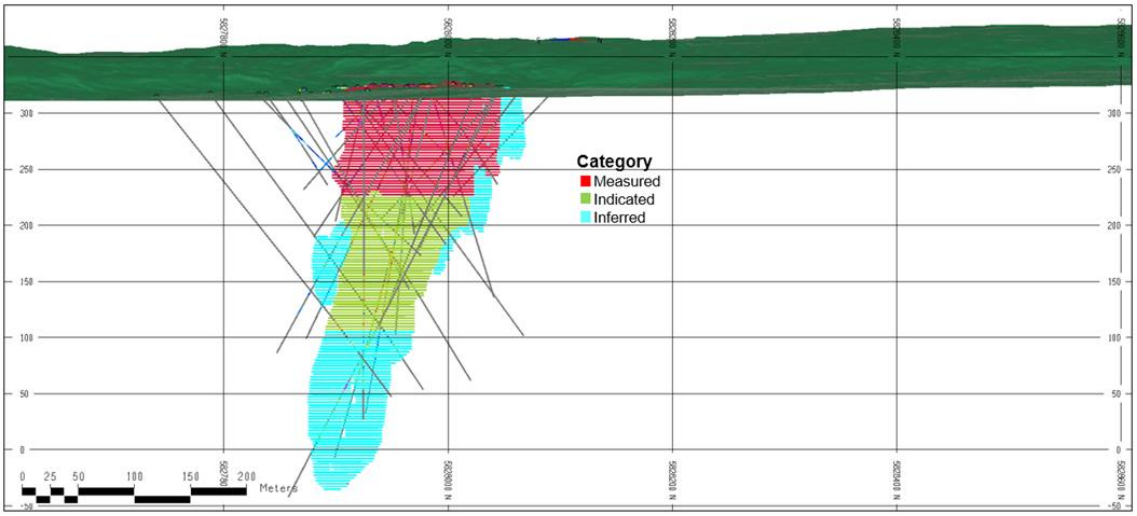
Considering all of the above factors, primary categorization at the PAK deposit was based on multiple-pass IDW^2 interpolation which employed increasing search ellipsoid ranges. The QP then conducted secondary manual refinements to deliver classified resources with more regular shapes and reduce any spotted dog effects. Some localized areas with holes drilled down-dip were downgraded until additional drilling can be completed at appropriate drill angles across the mineralized body; this is assuming the potential for eventual economic extraction still remains following optimization studies. The LIZ was classified into Measured, Indicated and Inferred categories, meanwhile only Indicated and Inferred categories were classified for the CIZ. Figure 14.21 to Figure 14.23 present a variety of views of the classified Mineral Resources at the PAK deposit.

Figure 14.21 – Plan View of the Classified Resources for the LIZ Zone, PAK Deposit



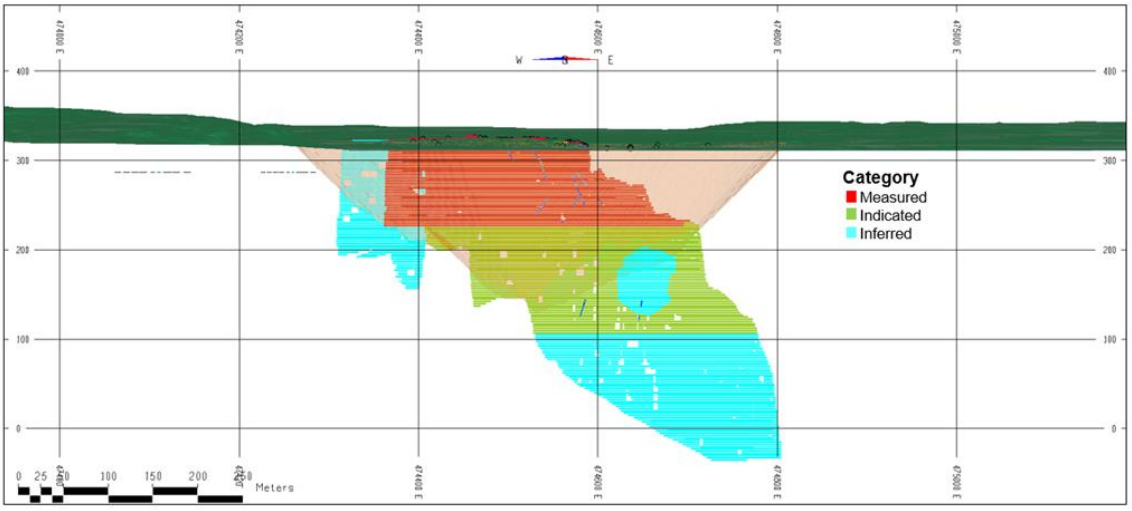
Source: DRA, 2025

Figure 14.22 – North-South View of the Classified Resources for the LIZ, PAK Deposit



Source: DRA, 2025

Figure 14.23 – East-West View of the Classified Resources for the LIZ, PAK Deposit



Source: DRA, 2025

14.3.13 MINERAL RESOURCE STATEMENT

The Mineral Resources estimated for the PAK deposit are stated using a Li_2O cut-off grade of 0.65% for the open pit portion and 0.80% for the underground portion. These resources are summarized below in Table 14.14. The CIZ zone is not part of the declared MRE because, as this stage, it is not economical as a large proportion of the contained lithium units are located in micas and not spodumene. The processing and recovery of lithium bearing micas is uneconomical.

Table 14.14 – Mineral Resource Estimates for PAK Deposit by Resource Classification

Category	Li_2O Cut-Off Grade (%)	Tonnage (kt)	Li_2O Grade (%)	Contained Li_2O (kt)
Open Pit				
Measured	0.65	2,585	2.03	52
Indicated		1,521	1.96	30
Measured + Indicated		**4,106**	**2.00**	**82**
Inferred		122	1.50	2
Underground				
Measured	0.80	—	—	—
Indicated		1,703	2.39	41
Measured + Indicated		**1,703**	**2.39**	**41**
Inferred		1,995	2.19	44

Note:

1. The Mineral Resource Estimate has been estimated using the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definitions Standards for Mineral Resource and Mineral Reserve in accordance with National Instrument 43-101 - Standards of Disclosure for Mineral Projects.
2. Mineral Resources which are not Mineral Reserves, do not have economic viability.
3. Inferred Mineral Resources are exclusive of the Measured and Indicated Resources.
4. In-Pit Resources are constrained by Pseudoflow optimized pit shells using HxGn MinePlan™ 3D.
5. Pit shells were developed using pit slopes of 45°, sale price of US$1,500/t for 6.0% Li_2O chemical grade concentrate, exchange rate of 1.30 US$/CA$, mining cost of US$7.80/t and US$7.15/t for ore and waste, respectively, processing costs of US$23.85/t milled, G&A costs of US$26.22/t milled, sustaining capital costs of US$4.28/t milled, closure costs of US$1.99/t milled, process recovery of 78.0%, and transportation costs of US$100.79/t concentrate.
6. In-Pit estimates are reported in situ, at a cut-off of 0.65% Li_2O.
7. Underground mining slope optimization was performed using Deswik™.
8. Stope shapes were developed using a sale price of US$1,500/t for 6.0% Li_2O chemical grade concentrate, exchange rate of 1.30 US$/CA$, mining costs of US$85.00/t, processing costs of US$23.85/t milled, G&A costs of US$26.22/t milled, sustaining capital costs of US$4.28/t milled, closure costs of US$1.99/t milled, process recovery of 78.0%, and transportation costs of US$100.79/t concentrate.
9. Underground resources were estimated using a cut-off grade of 0.80% Li_2O.
10. Resource estimates were conducted using Inverse Distance Weighting (IDW^2) method, variable densities were also interpolated using the same method.
11. The effective date of the Mineral Resource Estimate is November 30, 2023.
12. The independent Qualified Person for the Mineral Resource Estimate, as defined by the Ni43-101, is Dr. Schadrac Ibrango, P.Geo., MBA of DRA.
13. The QP is not aware of any metallurgical, environmental, permitting, legal, title, taxation, socio-economic, marketing political, or other risk factors that might materially affect the estimate of Mineral Resources.
14. Figures have been rounded to an appropriate level for the reporting of the Mineral Resources and may not compute exactly as shown.

14.4 Spark Deposit

The current mineral resource update for the Spark deposit has been prepared by DRA through collaborative efforts with the Frontier Lithium technical team. Following the relevant data transfers, gap analyses and review, in addition to a QP-supported site visit, DRA re-created the mineralized wireframes with minor revisions to those provided.

As described in Section 7, the Spark deposit is subdivided into two domains, termed here the Main and Southwest (SW) Zones. As suggested by the name, the Main Zone is a significantly larger intrusion with better grades associated with typical LCT pegmatite mineralization textures. Conversely, the smaller SW Zone is a lower grade target and is distinguishable based on textures that are more aplitic in nature. Both zones trend at approximately 280 degrees along strike and dip 80 degrees to the north.

The interpreted mineralization model used for the resource update was generated using an explicit modelling workflow in MinePlan 3D, followed by statistical and geostatistical analysis with Isatis.neo (Geovariances) software, and finally block modelling and estimation were carried out again in MinePlan 3D.

14.4.1 Supporting Data

14.4.1.1 Drill Hole Database and Data Verification

The Frontier Lithium Geology and Exploration team provided the diamond drillhole database used by DRA to estimate the Mineral Resources reported herein for the Spark deposit. Further information regarding the database and its verification can be found in Section 12 of this Report.

14.4.1.2 Topography

The topographic data used for the Project was also provided by the Frontier Lithium Geology and Exploration team in the form of a regional digital elevation model (DEM) and deemed of suitable quality by DRA to be used for pit optimization and other planning purposes. An interpreted bedrock surface based on available drilling data was also provided and reviewed.

14.4.1.3 Bulk Density

A total of 2,665 specific gravity (SG) measurements from the Spark deposit were provided by Frontier Lithium for tonnage estimation purposes. Of this total, 1,540 data points are located within the interpreted wireframes. Since the data are well distributed throughout the deposit, DRA elected to interpolate these values within the estimation domains using the inverse distance squared weighting (IDW^2) method. The overall range of SG values contained within the block model limits spans from 2.58 to 3.32. These measurements are summarized in Table 14.15.

Table 14.15 – Specific Gravity Values by Rock Type and Domain at the Spark Deposit

Lithology / Domain	Measurement Count	Average SG
Pegmatite	401	2.76
Aplite	785	2.73
Mafic Volcanic	1,049	3.02
“LIZ”	290	2.76
“CIZ”	8	2.68
Metagabbro	44	3.01
Metasediment	17	2.97
Granite	1	2.63
Fault	20	2.82
Transition	6	2.87
Schist	41	3.06
Quartz Vein	3	2.94
Main Zone	**1,434**	**2.79**
Southwest Zone	**106**	**2.73**

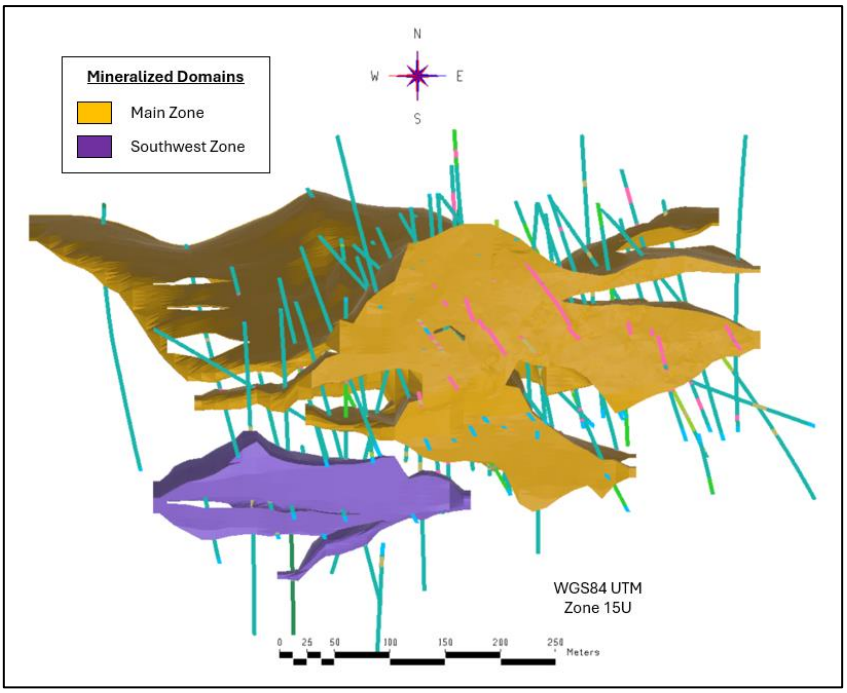
14.4.2 THREE-DIMENSIONAL (3D) MODELLING

Frontier Lithium provided DRA with an initial set of wireframes for the two (2) mineralized domains at the Spark deposit. Following review of the approach and methodology used to produce these wireframes, DRA conducted an independent review of the interpreted zones in both 2D and 3D.

A new set of wireframes was generated by DRA using an explicit approach on 12.5 m vertical sections and 10 m plan views within the MinePlan 3D software environment. The modelling was dominantly driven by lithological controls with additional considerations for grade continuity, especially along the peripheries and to depth within the host pegmatitic intrusions.

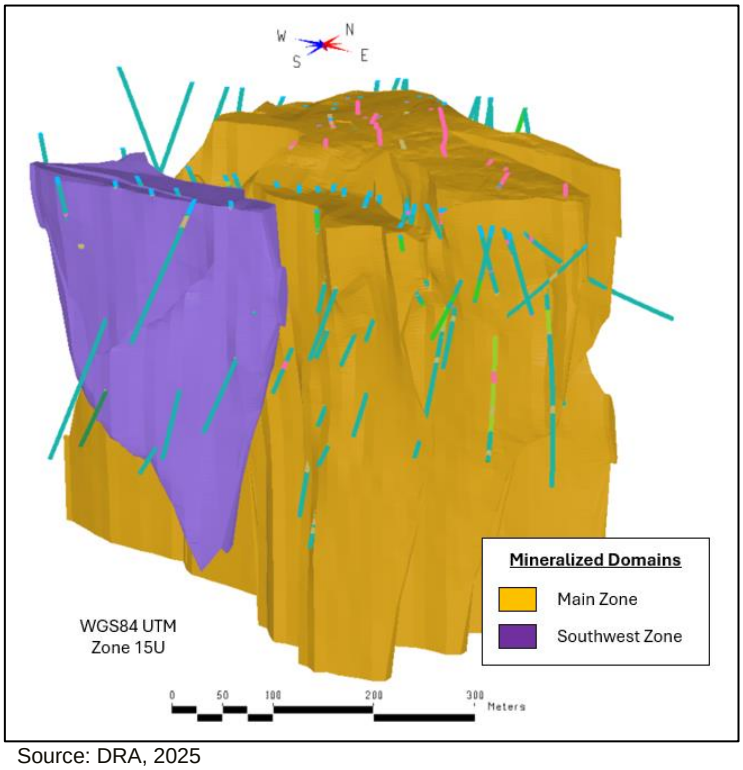
The new mineralized domains were comparable to the initial set, with minor adjustments based on interpreted continuity, particularly with respect to the modelling of the internal mafic inclusions (“rafts”). Changes were then discussed with Frontier Lithium in order to finalize the set of wireframes used in the subsequent mineral resource estimation (Figures 14.24 and 14.25).

Figure 14.24 – 3D Plan View (Looking Down) of Spark Deposit Mineralized Domains



Source: DRA, 2025

Figure 14.25 – 3D Orthographic View of Spark Deposit Mineralized Domains



Source: DRA, 2025

14.4.3 DESCRIPTIVE STATISTICS

Data was flagged according to the modelled wireframes, then statistically analyzed to determine the underlying data distributions and help with eventual comparisons to composited and estimated block grade data for reconciliation purposes. The data was imported into the Isatis.neo software package for statistical and geostatistical computations.

It is noted that relatively rare instances of unsampled intervals within the solids, mostly related to internal waste, were replaced with zero values as grades. Moreover, missing values for certain intervals (partial analyses, different drill campaigns, etc.) were assigned a value using the average of the attribute as correlation coefficients between elements were too weak to consider linear regression.

Basic descriptive statistics were then calculated for the raw data samples contained within each of the mineralized envelopes (i.e., zone intercepts) at the Spark deposit. These results are summarized by zone below in Tables 14.16 and 14.17.

Table 14.16 – Summary of Basic Descriptive Statistics for Raw Data Samples Within the Main Zone at the Spark Deposit

Variable	Count	Arithmetic Mean	Weighted Mean	Standard Error	Median	Mode	Standard Deviation	Variance	CoV	Kurtosis	Skewness	Minimum	Maximum
Li_2O (%)	6395	1.53	1.56	0.01	1.48	2.20	0.85	0.73	0.56	0.08	0.51	0.00	5.21
Cs_2O (%)	6395	0.03	0.03	0.00	0.02	0.01	0.14	0.02	4.12	1,088.84	29.05	0.00	6.03
Rb_2O (%)	6395	0.29	0.28	0.00	0.26	0.24	0.17	0.03	0.61	15.99	2.90	0.00	2.37
Ta_2O_5_(ppm)	6395	114.01	113.11	1.88	88.20	0.30	150.43	22,628.12	1.32	358.52	13.79	0.30	5,336.20
Nb_2O_5_(ppm)	6395	81.45	82.58	0.66	84.40	87.30	52.64	2,771.28	0.65	914.95	19.65	0.70	2,660.70
SnO_2_(ppm)	6395	69.43	67.71	1.04	50.80	39.40	83.08	6,902.75	1.20	123.99	8.52	0.60	2,094.80
As_(ppm)	6395	563.20	547.57	30.09	66.00	2.50	2,405.93	5,788,490.80	4.27	935.78	23.48	2.50	117,000.00
B_(ppm)	6395	88.74	82.32	4.35	10.00	10.00	347.90	121031.40	3.92	304.44	13.87	10.00	11,800.00
Tl_(ppm)	6395	20.16	20.05	0.18	17.30	14.90	14.39	207.10	0.71	22.94	3.58	0.30	213.00
F_(ppm)	6395	1,316.44	1,313.37	9.06	1,338.16	1,338.16	724.63	525,092.75	0.55	205.34	10.93	25.00	21,600.00
Fe_2O_3 (%)	6395	1.72	1.59	0.04	0.75	2.23	2.92	8.51	1.69	8.60	3.10	0.03	19.10
K_2O (%)	6395	2.32	2.35	0.01	2.23	2.17	1.16	1.34	0.50	6.51	1.64	0.05	12.30
Na_2O (%)	6395	3.23	3.22	0.02	3.27	3.38	1.71	2.92	0.53	0.02	0.41	0.02	12.10
P_2O_5 (%)	6395	0.26	0.26	0.00	0.23	0.28	0.23	0.05	0.88	157.24	9.59	0.00	6.19
S (%)	6395	0.02	0.02	0.00	0.01	0.01	0.07	0.00	2.92	168.46	10.26	0.01	1.69
Sb_(ppm)	6395	4.95	4.73	0.38	2.40	2.00	30.03	901.50	6.07	4,638.54	63.48	0.10	2,220.00
Be_(ppm)	6395	104.22	103.68	1.24	93.00	2.50	99.49	9,897.43	0.95	84.28	5.80	2.50	2,200.00

Table 14.17 – Summary of Basic Descriptive Statistics for Raw Data Samples Within the Southwest Zone at the Spark Deposit

Variable	Count	Arithmetic Mean	Weighted Mean	Standard Error	Median	Mode	Standard Deviation	Variance	CoV	Kurtosis	Skewness	Minimum	Maximum
Li_2O (%)	656	0.92	0.92	0.04	0.41	0.22	1.06	1.13	1.15	1.30	1.55	0.02	4.48
Cs_2O (%)	656	0.01	0.01	0.00	0.01	0.01	0.01	0.00	0.95	28.52	4.32	0.00	0.13
Rb_2O (%)	656	0.20	0.20	0.01	0.18	0.15	0.15	0.02	0.72	2.51	1.37	0.00	0.85
Ta_2O_5_(ppm)	656	69.69	69.85	1.53	64.75	0.30	39.13	1,531.14	0.56	2.77	1.00	0.30	297.90
Nb_2O_5_(ppm)	656	104.07	105.25	2.29	98.70	75.80	58.55	3,427.91	0.56	2.50	0.91	1.40	432.00
SnO_2_(ppm)	656	59.73	60.46	2.06	50.80	41.90	52.87	2,795.58	0.89	101.16	7.40	2.50	896.30
As_(ppm)	656	419.00	416.02	34.56	46.00	2.50	885.20	783,580.94	2.11	13.13	3.31	2.50	7,090.00
B_(ppm)	656	285.79	287.71	17.66	79.50	10.00	452.38	204,652.19	1.58	17.38	3.38	10.00	4,000.00
Tl_(ppm)	656	13.49	12.84	0.44	10.90	7.10	11.23	126.09	0.83	4.44	1.86	0.30	66.70
F_(ppm)	656	1,367.78	1,373.21	10.35	1,338.16	1,338.16	264.97	70,207.34	0.19	63.29	6.91	348.00	4,460.00
Fe_2O_3 (%)	656	1.32	1.29	0.09	0.83	1.03	2.30	5.30	1.74	56.24	6.87	0.02	24.10
K_2O (%)	656	2.17	2.08	0.07	1.71	2.24	1.82	3.32	0.84	5.52	2.07	0.07	11.60
Na_2O (%)	656	4.71	4.80	0.09	4.95	6.58	2.26	5.12	0.48	-0.71	-0.05	0.09	11.80
P_2O_5 (%)	656	0.47	0.47	0.01	0.42	0.43	0.37	0.14	0.78	21.87	3.51	0.01	4.01
S (%)	656	0.02	0.01	0.00	0.01	0.01	0.05	0.00	3.00	155.01	11.27	0.01	0.74
Sb_(ppm)	656	3.81	3.78	0.19	2.80	2.00	4.87	23.74	1.28	61.69	6.72	0.30	59.80
Be_(ppm)	656	18.65	17.68	1.34	7.00	2.50	34.24	1,172.48	1.84	110.79	7.99	2.50	576.00

14.4.4 GRADE CAPPING

Grade capping is used to limit the spatial extrapolation of occasional isolated high grades in the resource model estimates. Capping analyses undertaken include the use of histograms, log probability plots and ranked composites (outlier analysis).

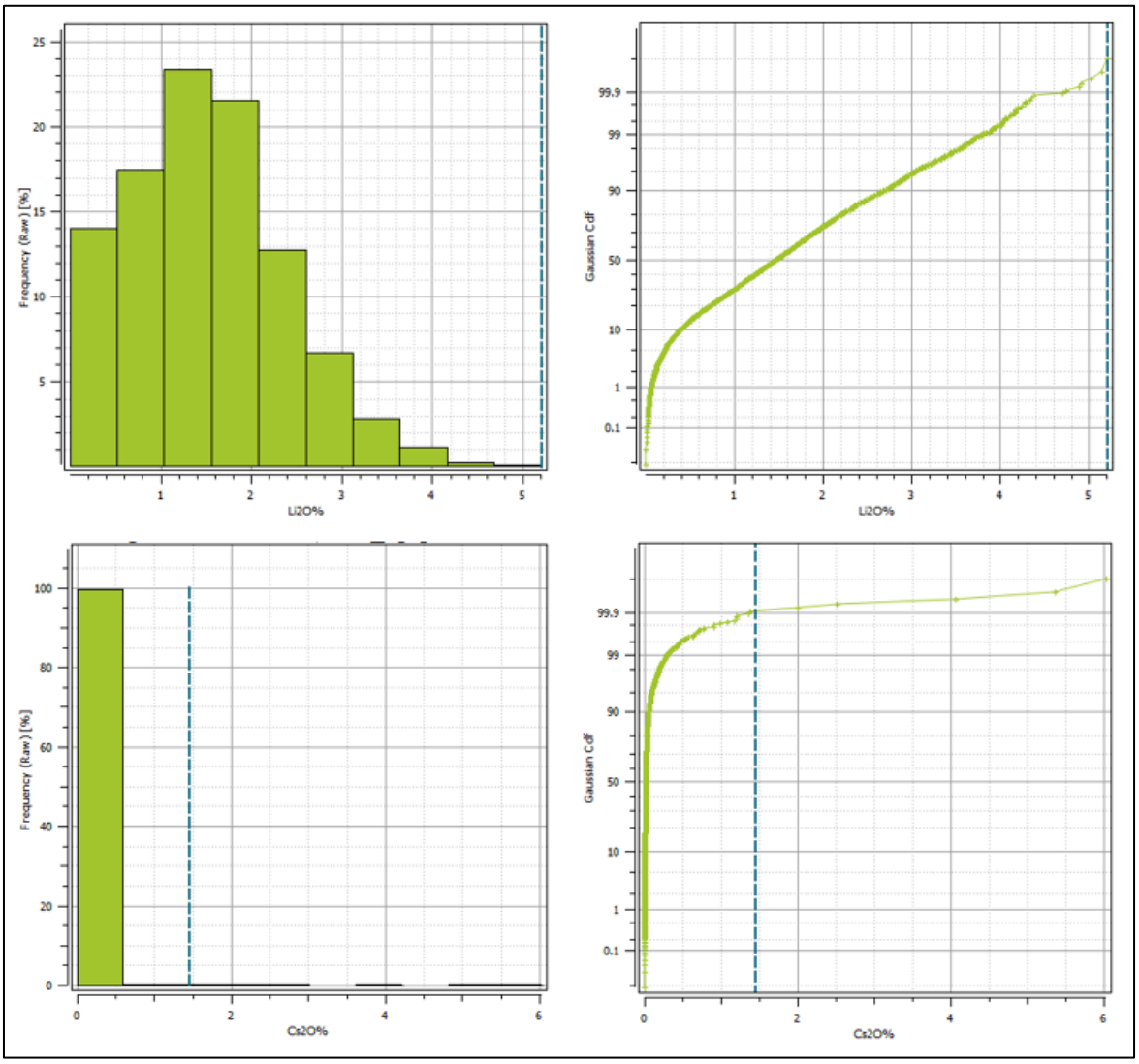
Histograms were used to search for distinct breaks in grade distributions in tandem with log probability plots, which generally show clear inflection points at the selected capping value. Outliers were also examined by means of ranked composites and observing the effect of sequential capping on the coefficient of variation (CoV) of the remaining data.

The final selected capping grades used in the resource estimate are summarized along with a subset of basic descriptive statistics in Table 14.18. Representative histograms and log probability plots for the Main and SW Zones are also provided in Figures 14.26 and 14.27, respectively.

Table 14.18 – Summary of Selected Capping Grades by Domain at the Spark Deposit

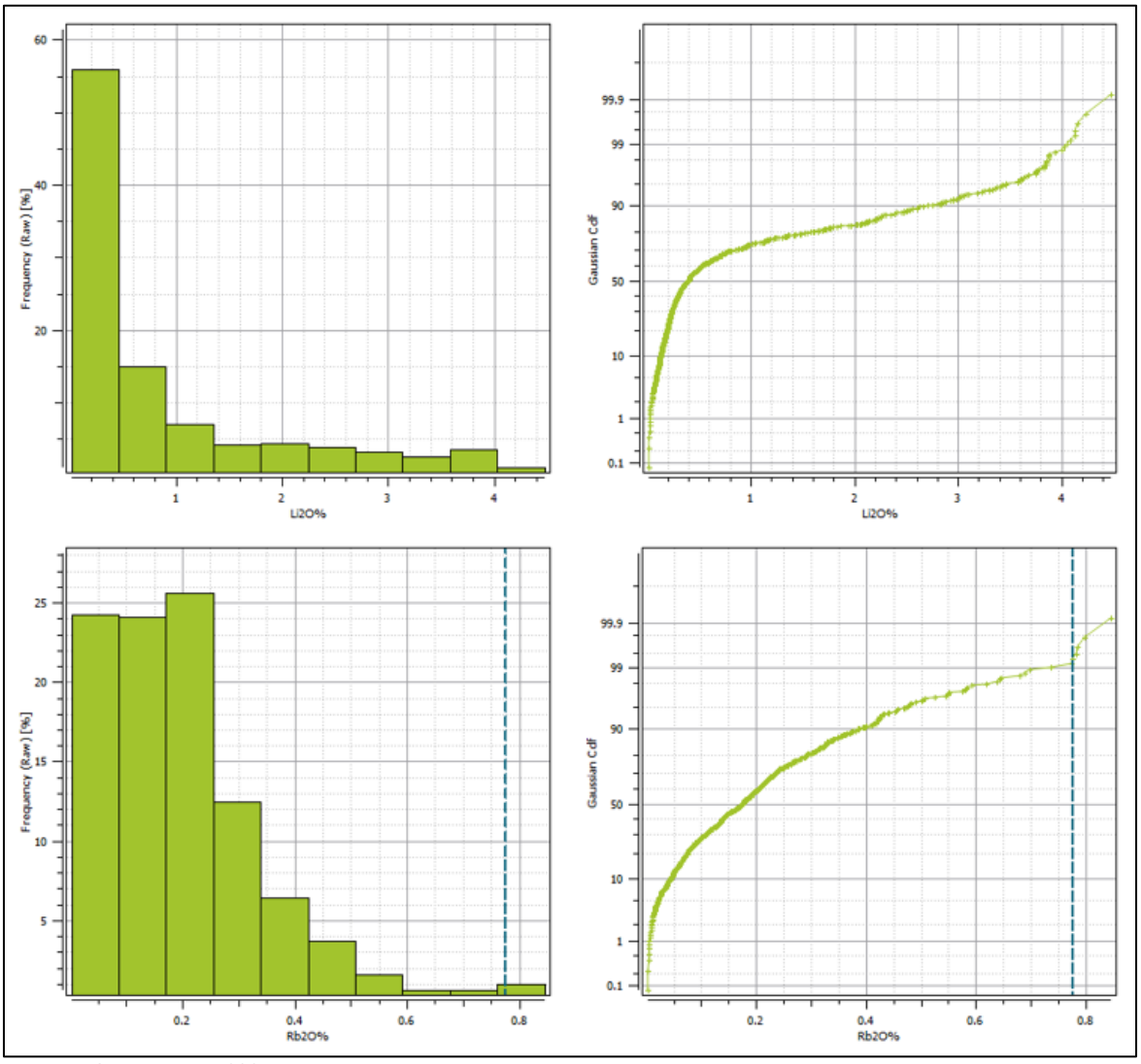
Domain	Variable	Uncapped Mean	Uncapped CoV	Capping Grade	Capped Comps (#)	Capped Comps (%)	Capped Mean	Capped CoV	Metal Loss (%)
Main Zone	Li_2O (%)	1.53	0.56	-	-	-	-	-	-
	Cs_2O (%)	0.03	4.12	1.45	5	0.08	0.03	2.53	6.34
	Rb_2O (%)	0.29	0.61	-	-	-	-	-	-
	Ta_2O_5 (ppm)	114.01	1.32	3000	2	0.03	113.42	1.22	0.53
	Nb_2O_5 (ppm)	81.45	0.65	925	1	0.02	81.23	0.55	0.35
SW Zone	Li_2O (%)	0.92	1.15	-	-	-	-	-	-
	Cs_2O (%)	0.01	0.95	0.10	3	0.45	0.01	0.88	1.37
	Rb_2O (%)	0.20	0.72	0.75	4	0.61	0.20	0.65	0.61
	Ta_2O_5 (ppm)	69.69	0.56	-	-	-	-	-	-
	Nb_2O_5 (ppm)	104.07	0.56	-	-	-	-	-	-

Figure 14.26 – Representative Histograms and Log Probability Plots for the Main Zone at the Spark Deposit



Source: DRA, 2025

Figure 14.27 – Representative Histograms and Log Probability Plots for the SW Zone at the Spark Deposit



Source: DRA, 2025

14.4.5 COMPOSITING

Drill hole intercepts through the interpreted mineralized domains at the Spark deposit were composited to 2 m fixed length intervals, with a 0.5 m tolerance to merge shorter intervals resulting from intersection with wireframe edges or unsampled/missing intervals. The selected composite length was based on the systematic sampling approach used by Frontier Lithium geologists to focus on 2 m intervals through the target mineralized zones; this is also supported by statistical analysis with mean, median and mode lengths of 1.7 m, 2 m and 2 m, respectively. Basic descriptive statistics for the composited data within wireframes (i.e., zone intercepts) are summarized by zone below in Tables 14.19 and 14.20.

Table 14.19 – Summary of Basic Descriptive Statistics for 2-m Composited Data Within the Main Zone at the Spark Deposit

Variable	Count	Arithmetic Mean	Standard Error	Median	Mode	Standard Deviation	Variance	CoV	Kurtosis	Skewness	Minimum	Maximum
Li_2O (%)	5826	1.50	0.01	1.49	0.00	0.80	0.65	0.54	0.17	0.36	0.00	5.12
Cs_2O (%)	5826	0.03	0.00	0.02	0.01	0.13	0.02	4.10	1,001.01	28.11	0.00	5.63
Rb_2O (%)	5826	0.27	0.00	0.26	0.00	0.16	0.02	0.57	12.19	2.33	0.00	2.06
Ta_2O_5_(ppm)	5826	109.03	1.73	87.00	0.00	132.37	17,522.02	1.21	355.20	13.61	0.00	4,261.60
Nb_2O_5_(ppm)	5826	79.49	0.68	83.00	0.00	51.88	2,691.70	0.65	1,067.54	22.41	0.00	2,660.70
SnO_2_(ppm)	5826	65.26	0.94	50.25	0.00	71.60	5,126.39	1.10	102.60	7.62	0.00	1,618.60
As_(ppm)	5826	530.19	26.89	71.85	2.50	2,052.77	4,213,859.42	3.87	351.14	15.53	0.00	64,989.00
B_(ppm)	5826	81.54	3.87	10.00	10.00	295.31	87210.70	3.62	230.84	12.73	0.00	7,957.70
Tl_(ppm)	5826	19.35	0.17	17.20	0.00	12.94	167.53	0.67	19.00	3.12	0.00	185.00
F_(ppm)	5826	1,269.86	7.46	1,338.20	1,338.20	569.76	324,621.03	0.45	127.87	7.16	0.00	14,982.00
Fe_2O_3 (%)	5826	1.60	0.03	0.77	0.00	2.41	5.79	1.51	9.71	3.13	0.00	14.70
K_2O (%)	5826	2.26	0.01	2.23	0.00	1.09	1.18	0.48	4.73	1.08	0.00	10.09
Na_2O (%)	5826	3.11	0.02	3.21	0.00	1.57	2.46	0.50	0.10	0.23	0.00	11.64
P_2O_5 (%)	5826	0.25	0.00	0.23	0.00	0.17	0.03	0.70	74.87	5.98	0.00	4.01
S (%)	5826	0.02	0.00	0.01	0.01	0.06	0.00	2.60	195.12	10.29	0.00	1.69
Sb_(ppm)	5826	4.59	0.26	2.40	0.00	20.18	407.22	4.40	1,942.97	39.80	0.00	1,092.60
Be_(ppm)	5826	100.49	1.13	92.00	0.00	86.23	7,435.74	0.86	48.55	4.09	0.00	1,639.70

Table 14.20 – Summary of Basic Descriptive Statistics for 2-m Composited Data Within the Southwest Zone at the Spark Deposit

Variable	Count	Arithmetic Mean	Standard Error	Median	Mode	Standard Deviation	Variance	CoV	Kurtosis	Skewness	Minimum	Maximum
Li_2O (%)	579	0.90	0.04	0.44	0.00	0.96	0.91	1.06	1.09	1.43	0.00	4.07
Cs_2O (%)	579	0.01	0.00	0.01	0.01	0.01	0.00	0.82	37.60	4.61	0.00	0.13
Rb_2O (%)	579	0.19	0.00	0.18	0.00	0.11	0.01	0.59	1.61	0.90	0.00	0.70
Ta_2O_5_(ppm)	579	68.31	1.36	66.40	0.00	32.85	1,078.80	0.48	0.98	0.47	0.00	202.70
Nb_2O_5_(ppm)	579	103.02	2.05	100.10	0.00	49.37	2,437.40	0.48	0.58	0.31	0.00	316.50
SnO_2_(ppm)	579	58.77	1.52	52.70	0.00	36.48	1,330.66	0.62	9.86	2.12	0.00	358.10
As_(ppm)	579	406.44	32.15	49.00	2.50	773.59	598,442.88	1.90	7.39	2.66	0.00	4,623.60
B_(ppm)	579	282.24	15.32	109.40	10.00	368.52	135,806.51	1.31	5.39	2.06	0.00	2,541.70
Tl_(ppm)	579	12.63	0.35	11.40	0.00	8.37	70.07	0.66	3.43	1.37	0.00	58.00
F_(ppm)	579	1,352.40	13.80	1,338.20	1,338.20	332.07	110,268.57	0.25	30.80	2.85	0.00	4,300.30
Fe_2O_3 (%)	579	1.32	0.09	0.85	0.00	2.09	4.39	1.59	54.53	6.55	0.00	24.10
K_2O (%)	579	2.04	0.06	1.73	0.00	1.38	1.89	0.67	3.66	1.48	0.00	9.39
Na_2O (%)	579	4.69	0.09	4.91	0.00	2.11	4.44	0.45	-0.62	-0.14	0.00	10.85
P_2O_5 (%)	579	0.47	0.01	0.43	0.00	0.31	0.10	0.66	17.71	3.00	0.00	3.13
S (%)	579	0.01	0.00	0.01	0.01	0.04	0.00	2.81	148.88	10.90	0.00	0.68
Sb_(ppm)	579	3.75	0.16	2.80	2.00	3.90	15.18	1.04	49.23	5.69	0.00	51.20
Be_(ppm)	579	17.18	0.92	9.00	2.50	22.19	492.52	1.29	22.89	3.54	0.00	246.20

14.4.6 VARIOGRAPHY

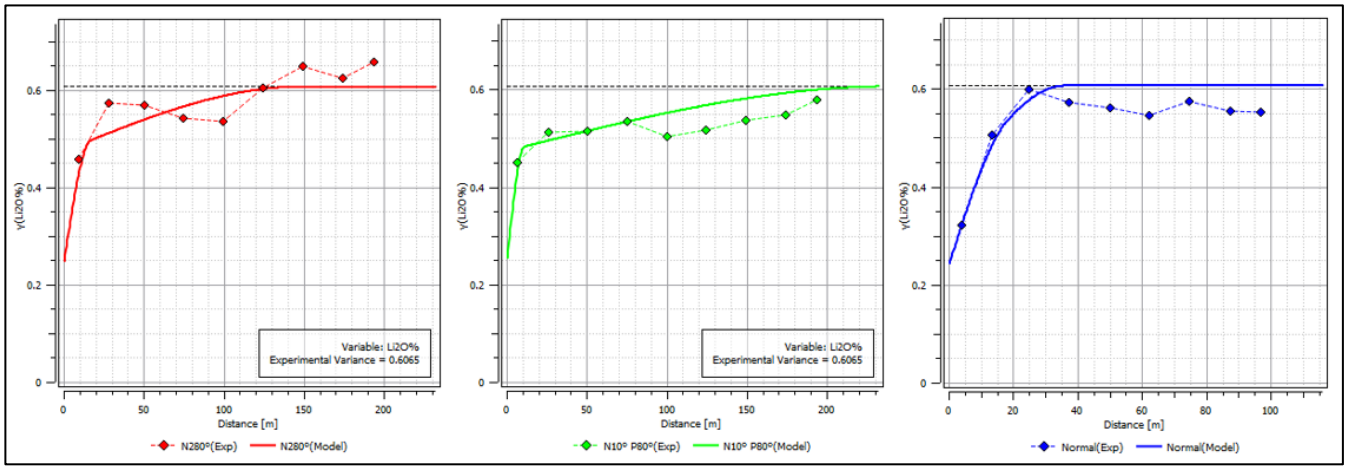
Variography aims to assess the spatial continuity of grade for an element of interest and ultimately helps guide the definition of parameters for the interpolation of Mineral Resources. The selected approach, inverse distance squared weighting (IDW^2), is a linear geostatistical estimation method that requires input parameters to limit the size of the search neighbourhood (via a defined search ellipsoid) for each point to be interpolated within the block model. Downhole and directional variography for the Spark deposit were run also using Isatis.neo software.

Downhole variograms indicated relatively high nugget effect values (~0.39) for both the Main and Southwest zones at the Spark Deposit. Multi-directional variograms were generated on normal score transformed data for each domain; unfortunately, those for the SW zone were not statistically meaningful and thus the same parameters will be applied as at the Main zone. The experimental variograms were fitted using two nested spherical structures in addition to the predetermined nugget; the data were then back-transformed to the original data space to help interpret and support potential ranges for the search ellipsoid. Examples of multi-directional variograms are shown in Figure 14.28.

Depending on the selected variogram parameters (e.g., lag spacing and tolerance, angle tolerances and bandwidths) and subsequent model fitting, ranges varied from approximately 100 to 150 m along strike, 175 to 225 m down-dip and 35 to 50 m in the minor (perpendicular) plane to the deposit. A reasonable set of variogram model fitting parameters are summarized in Table 14.21.

It should be noted that the indicated ranges were only used as a guide in the selection of maximum search ellipsoid distances for Measured, Indicated and Inferred Resource categories, in conjunction with geological information and other statistical factors such as average drill hole spacing.

Figure 14.28 – Back-transformed Normal Score Variograms for Li_2O%, Spark Deposit



Source: DRA, 2025

Table 14.21 – Variogram Model Parameters for the Spark Deposit

Domain	Main Zone	SW Zone
Nugget	0.39	0.39
Angle1	280	280
Angle2	-80	-80
Angle3	0	0
Structure 1		
Sill	0.39	0.39
Range 1	18	18
Range 2	12	12
Range 3	22	22
Type	Sph	Sph
Structure 2		
Sill	0.22	0.22
Range 1	150	150
Range 2	225	225
Range 3	45	45
Type	Sph	Sph

14.4.7 MINERAL RESOURCE ESTIMATE

Lithium is the primary commodity of economic interest at the PAK Project and therefore Li_2O was the dominant variable used to determine the relevant interpolation parameters. Other potential variables of economic interest that were estimated include Cs_2O, Rb_2O, Ta_2O_5 and Nb_2O_5. An additional 12 elements were also interpolated for metallurgical and environmental considerations including Fe_2O_3, K_2O, Na_2O, P_2O_5, SnO_2, S, As, Sb, B, Be, Tl and F. Following exploratory data and geostatistical analyses using Isatis.neo software, the block model was built, and subsequent grade and tonnage estimates were computed in MinePlan 3D.

14.4.7.1 Block Model

A single block model was constructed for the Spark deposit to capture a variety of data types including the relevant mineralized domain codes, estimated block grades, density values, percentage of material beneath the topographic surface, the closest/furthest/average distances between informing composites, initial resource category as determined by multiple-pass interpolation and finalized resource category as determined by the resource modeller.

Sub-blocking was used to better define narrow portions of the block model and to respect the volumetrics of the modelled mineralized domains and triangulations. The model was non-rotated and aligned east-west along the approximate strike of the deposit. Relevant block model definition parameters are summarized in Table 14.22.

Table 14.22 – Block Model Definition Parameters for the Spark Deposit

Description	Value
Model Dimension X (m)	2,700
Model Dimension Y (m)	1,400
Model Dimension Z (m)	600
Origin X (Easting)	471800
Origin Y (Northing)	5828700
Origin Z (Lower Elev.)	-200
Rotation (º)	0
Block Size X (m)	15
Sub-block Size X (m)	5
Block Size Y (m)	10
Sub-block Size Y (m)	5
Block Size Z (m)	10
Sub-block Size Z (m)	5

14.4.7.2 Search Strategy and Interpolation

Block values were estimated for each individual mineralized domain using the generated composites and the inverse distance weighted (IDW^2) method. The set of search parameters used in the multi-pass interpolations, derived mainly from geological information and interpreted continuity with support from variography and statistical factors such as average drill hole spacing, are summarized by estimation domain in Table 14.23.

Table 14.23 – Inverse Distance Weighted (IDW^2) Interpolation Parameters Summary for the Spark Deposit Block Model

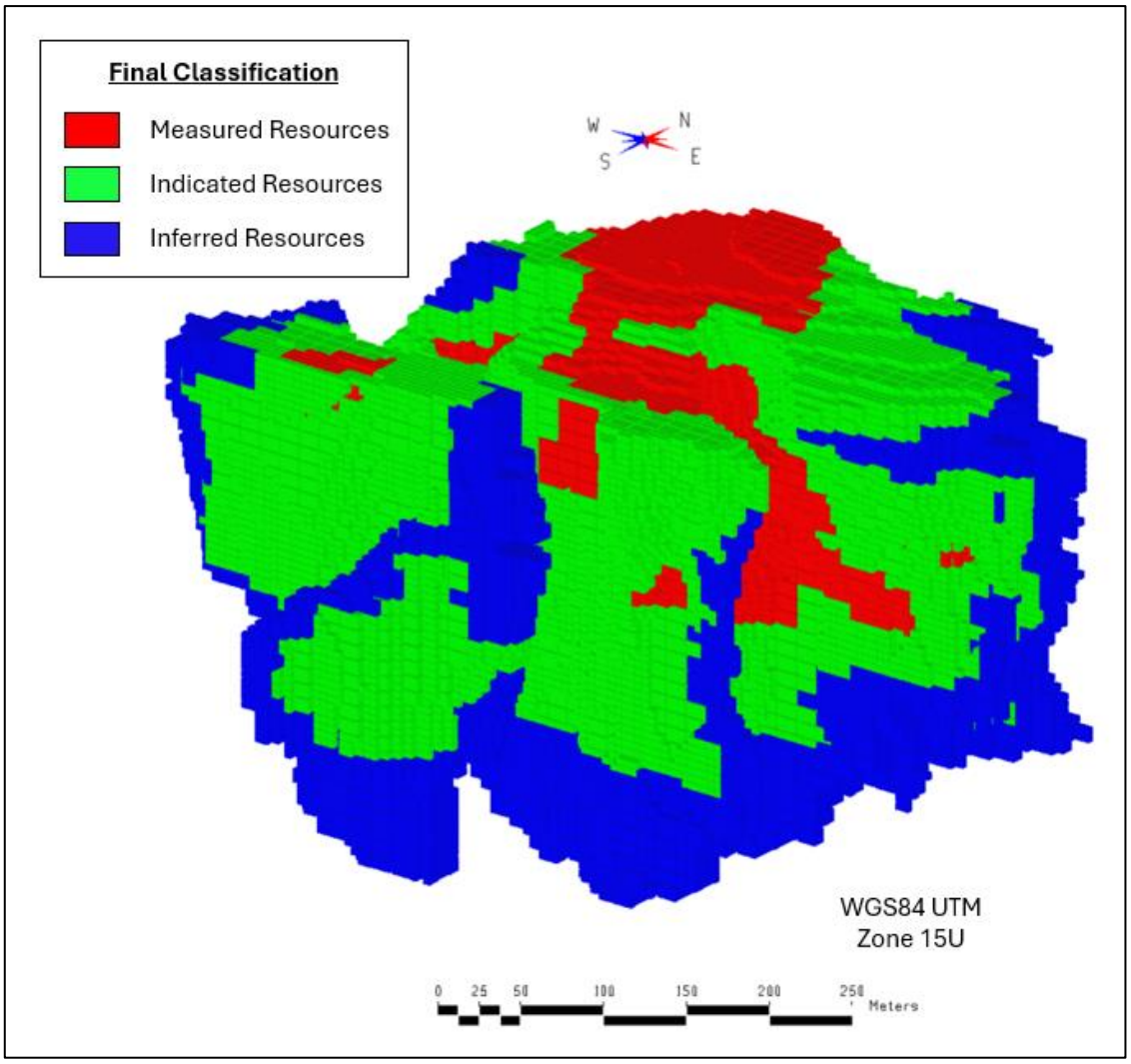
Domain	Pass	Estimation Method	Min Samples	Max Samples	Max. Samples /DDH	Major Axis	Semi Axis	Vert Axis
Main Zone	1	IDW^2	9	15	3	45	15	40
	2	IDW^2	6	15	3	70	25	65
	3	IDW^2	4	15	2	95	35	85
SW Zone	1	IDW^2	9	15	3	45	15	40
	2	IDW^2	6	15	3	70	25	65
	3	IDW^2	4	15	2	95	35	85

14.4.7.3 Mineral Resource Classification

The Mineral Resources reported herein for the Spark deposit have been classified into Measured, Indicated and Inferred categories. This classification is based on the interpreted geological and grade continuity of the observed mineralization.

Primary categorization was based on multiple-pass IDW^2 interpolation which employed increasing search ellipsoid ranges (refer back to Table 14.23). Secondary classification was carried out by creating geometric volumes of higher confidence and continuity based on drill hole density, with subsequent minor manual adjustments to remove any remaining spotted dog effects. A 3D orthographic view of the final block classification at the Spark deposit is provided in Figure 14.29.

Figure 14.29 – 3D Orthographic View of the Final Block Classification for the Spark Deposit



Source: DRA, 2025

14.4.8 MINERAL RESOURCE STATEMENT

The Mineral Resource Estimate statement for the Spark deposit prepared by DRA is summarized in Table 14.24. Additional details on mining and processing modifying factors are also provided in the adjoining footnotes.

Table 14.24 – Mineral Resource Estimate for Spark Deposit

Cut-Off	Resource Classification	Tonnes (kt)	Li_2O (%)	Cs_2O (%)	Rb_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)
0.65% Li_2O	Measured	13,796	1.54	0.02	0.26	100.67	83.31
	Indicated	17,304	1.41	0.04	0.27	121.01	77.26
	Measured + Indicated	**31,100**	**1.47**	**0.03**	**0.27**	**111.99**	**79.94**
0.65% Li_2O	Inferred	10,954	1.53	0.03	0.28	117.60	73.21

Notes:

1. The Mineral Resource Estimate has been estimated using the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definitions Standards for Mineral Resource and Mineral Reserve in accordance with National Instrument 43-101 - Standards of Disclosure for Mineral Projects.
2. Mineral Resources which are not Mineral Reserves, do not have economic viability.
3. Inferred Mineral Resources are exclusive of the Measured and Indicated Resources.
4. In-Pit Resources are constrained by Pseudoflow optimized pit shells using HxGn MinePlanTM 3D.
5. Pit shells were developed using pit slopes of 45° for PAK and Bolt and 43° for Spark, sales price of U$1,500/t for 6.0% Li_2O chemical grade concentrate, exchange rate of 1.30 US$/CA$, mining costs of US$7.80/t and US$7.15/t for ore and waste, respectively, processing costs of US$23.85/t milled, G&A costs of US$26.22/t milled, sustaining capital costs of US$4.28/t milled, closure costs of US$1.99/t milled, process recovery of 78.0%, and transportation costs of US$100.79/t concentrate.
6. In-pit estimates are reported in-situ, at a cut-off grade of 0.65% Li_2O.
7. Resource estimations were interpolated using Inverse Distance Weighting (IDW^2); variable densities were also interpolated using the same method.
8. The effective date of the Mineral Resource Estimate is November 30, 2023.
9. The independent and Qualified Person for the Mineral Resource Estimate, as defined by NI 43-101, is Dr. Schadrac Ibrango, P.Geo., of DRA Americas Inc.
10. The QP is not aware of any metallurgical, environmental, permitting, legal, title, taxation, socio-economic, marketing political, or other risk factors that might materially affect the estimate of Mineral Resources.
11. Figures have been rounded to an appropriate level for the reporting of the Mineral Resources and may not compute exactly as shown.

14.4.9 Block Model Validation

The current Spark deposit block model has been validated by DRA using a combination of visual inspection and statistical comparisons, including:

- Visual comparison of assays and block grades.
- Inspection of generated swath plots.
- Alternative interpolation methods.

14.4.9.1 Visual Inspection

Estimated blocks and drill hole intercepts at the Spark deposit were reviewed both on 2D vertical sections and level plans, as well as interactively within the MinePlan 3D software environment. The block grades suitably respect assay grades throughout the deposit. A plan view of Li_2O% at Spark with assay and block grades superimposed is presented in Figure 14.30. A representative north-south vertical section through the core of the deposit is shown in Figure 14.31.

Figure 14.30 – Plan view of Li_2O% at Spark with Assay and Block Grades Superimposed

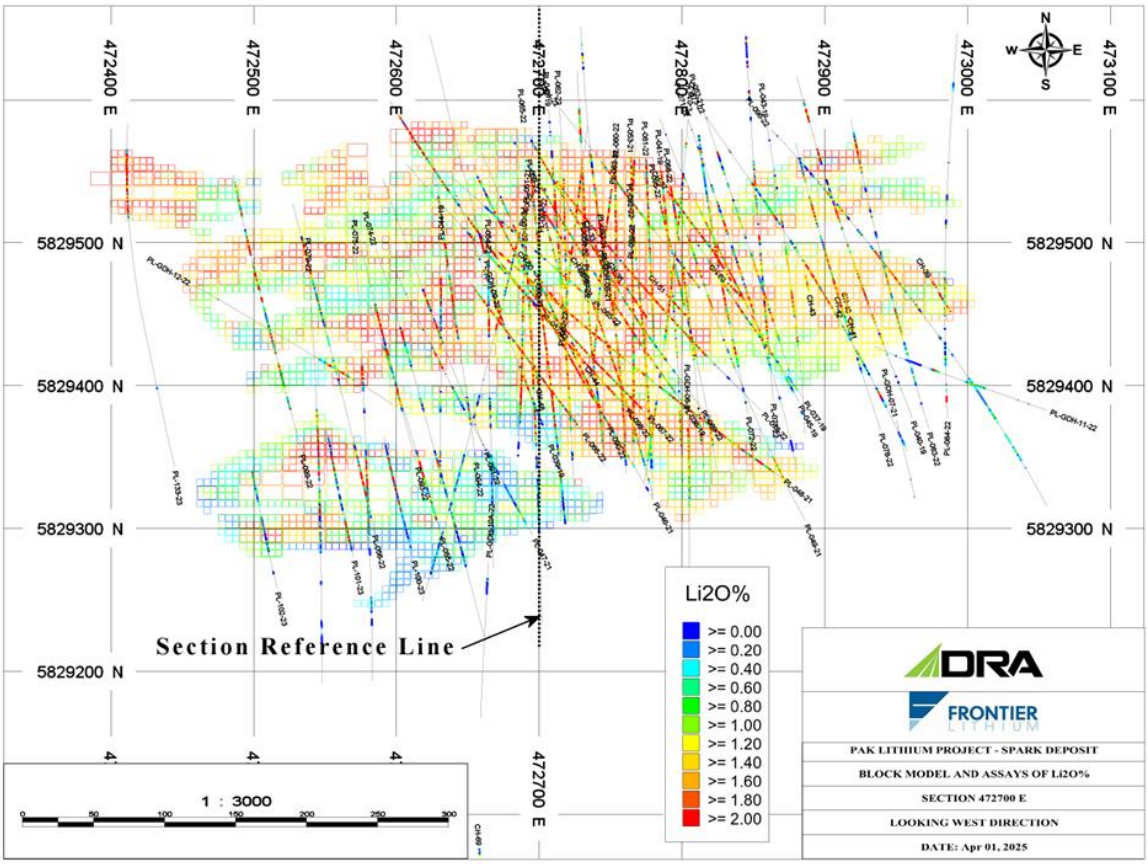
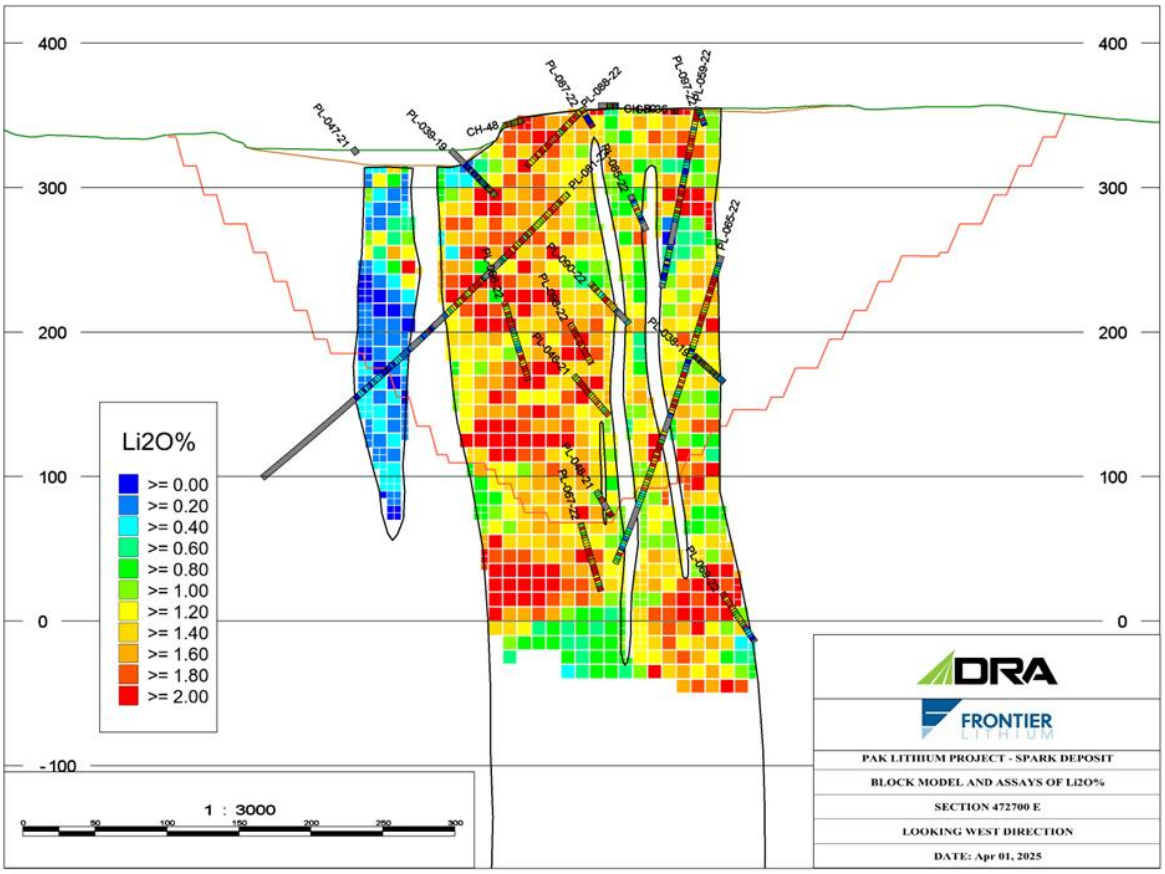


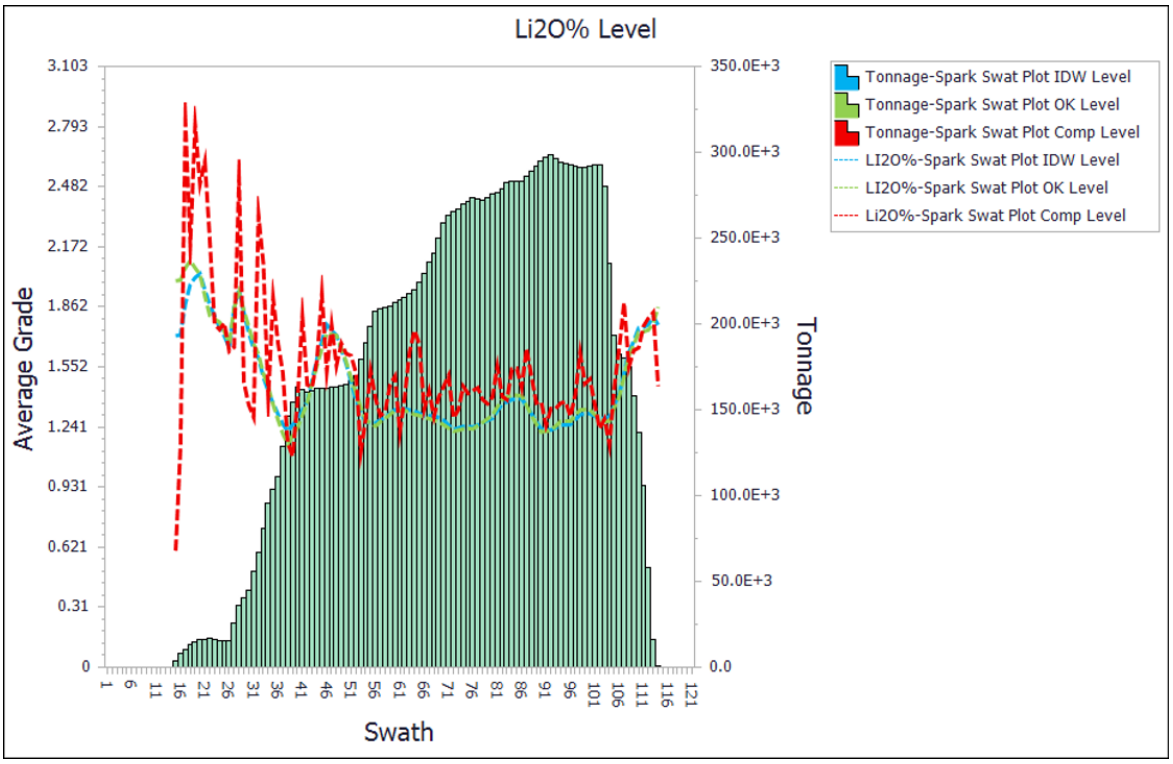
Figure 14.31 – Comparison of Assay and Block Grades for the Spark Deposit on Representative Vertical Section (472,700E)



14.4.9.2 Swath Plots

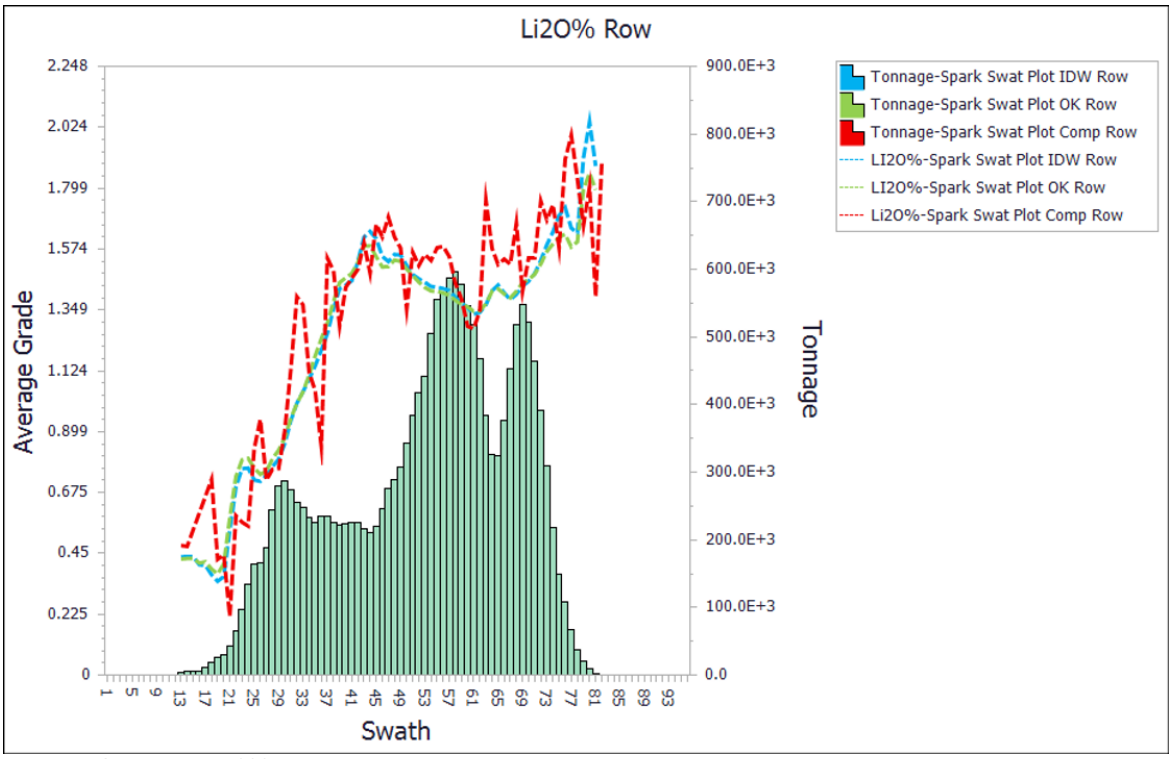
Average composite and block grades were compared by means of swath plots generated on vertical and horizontal planes spaced throughout the core of the Spark deposit. The generated comparative sections for the levels, rows and columns are provided in Figure 14.32 to Figure 14.34, respectively. It is clear from these plots that estimated block grades closely match those of the 1 m composite data throughout the deposit, with a minor amount of smoothing (as expected). Additionally, there is also good agreement along each direction between alternative interpolation methods including inverse distance weighted (IDW^2) and ordinary kriging (OK) model types.

Figure 14.32 – Spark Deposit Swath Plot for Li_2O (%) – By Level – 2-m Composites vs. Block Grades by IDW^2 and OK Interpolation Methods



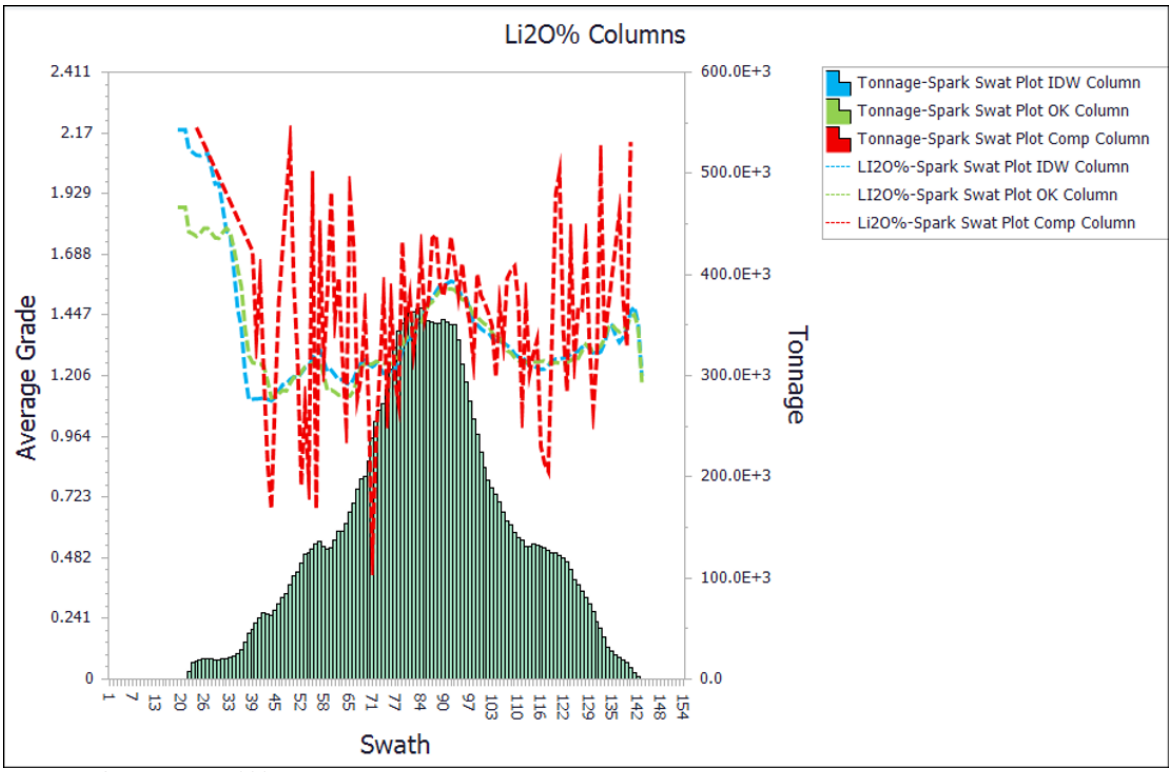
Source: DRA, 2024

Figure 14.33 – Spark Deposit Swath Plot for Li_2O (%) – By Row – 2-m Composites vs. Block Grades by IDW² and OK Interpolation Methods



Source: DRA, 2024

Figure 14.34 – Spark Deposit Swath Plot for Li_2O (%) – By Column – 2-m Composites vs. Block Grades by IDW² and OK Interpolation Methods



Source: DRA, 2024

14.4.9.3 Alternative Interpolation Methods

As shown in Figure 14.33 to Figure 14.34 above, an ordinary kriging (OK) model was also run as an alternative interpolation method in order to compare against the selected inverse distance weighting (IDW^2) method used for the reported resource estimate. The results of this comparison are summarized here mainly as a global bias check (Table 14.25). The correlation between the models is considered acceptable by DRA, with global grades showing overall percent differences of less than 1% between interpolation types.

Table 14.25 – Comparison of IDW² and OK Interpolation Methods, Spark Block Model

Category	IDW²		OK			
	Tonnes	Grade	Tonnes	% Diff	Grade	% Diff
Measured	14,374,690	1.50	14,374,690	0.00	1.49	-0.67
Indicated	20,757,826	1.24	20,757,827	0.00	1.24	0.00
M+I	**35,132,516**	**1.35**	**35,132,517**	**0.00**	**1.34**	**-0.30**
Inferred	15,448,176	1.37	15,448,177	0.00	1.37	0.00

14.5 Bolt Deposit

This maiden mineral resource for the Bolt deposit has been prepared by DRA through collaborative efforts with the Frontier Lithium technical team. Following the relevant data transfers, gap analyses and review, in addition to a QP-supported site visit, DRA re-created the mineralized wireframes with minor revisions to those provided.

As described in Section 7, the Bolt deposit currently consists of a single mineralized domain hosted by a sizable intrusion with typical LCT pegmatite textures. The Bolt pegmatite, which is intruded along the contact between mafic volcanics and metasediments, trends at approximately 135 degrees along strike and dips steeply (~75°) to the southwest.

The interpreted mineralization model used for the resource update was generated using an explicit modelling workflow in MinePlan 3D, followed by statistical and geostatistical analysis with Isatis.neo (Geovariances) software, and finally block modelling and estimation were carried out again in MinePlan 3D.

14.5.1 Supporting Data

14.5.1.1 Drill Hole Database and Data Verification

The Frontier Lithium Geology and Exploration team provided the diamond drillhole database used by DRA to estimate the Mineral Resources reported herein for the Bolt deposit. Further information regarding the database and its verification can be found in Section 12 of this Report.

14.5.1.2 Topography

The topographic data used for the project was also provided by the Frontier Lithium Geology and Exploration team in the form of a regional digital elevation model (DEM) and deemed of acceptable quality by DRA to be used for pit optimization and other planning purposes. An interpreted bedrock surface based on available drilling data was also provided and reviewed by DRA.

14.5.1.3 Bulk Density

A total of 942 specific gravity (SG) measurements from the Bolt deposit were provided by Frontier Lithium for tonnage estimation purposes. Of this total, 151 data points are located within the interpreted wireframes. As the data are reasonably distributed throughout the deposit, DRA elected to interpolate these values within the estimation domain using the inverse distance squared weighting (IDW^2) method. The overall range of SG values contained within the block model limits spans from 2.62 to 3.46; these measurements are summarized in Table 14.26.

Table 14.26 – Specific Gravity Values by Rock Type and Domain at the Bolt Deposit

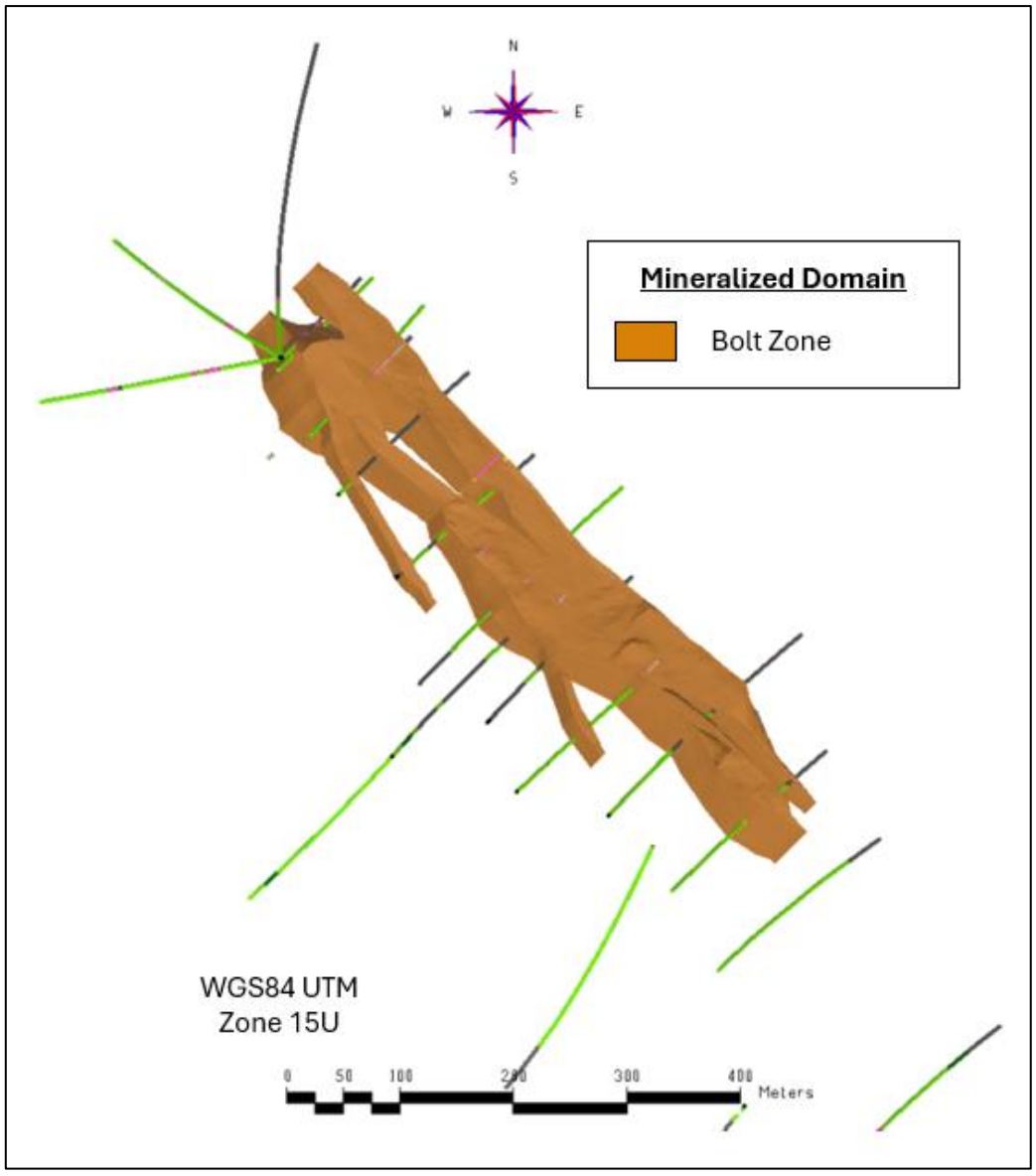
Lithology / Domain	Measurement Count	Average SG
Pegmatite	24	2.69
Aplite	121	2.72
Mafic Volcanic	493	3.01
Metagabbro	16	3.05
Metasediment	272	2.99
Granite	1	2.65
Fault	12	2.83
Rubble Zone	2	3.04
Schist	1	3.28
Bolt Zone	**151**	**2.76**

14.5.2 THREE-DIMENSIONAL (3D) MODELLING

Frontier Lithium provided DRA with an initial wireframe for the mineralized domain at the Bolt deposit. An independent review of the interpreted zone was made by DRA in both 2D and 3D following assessment of the approach and methodology used to generate the wireframe.

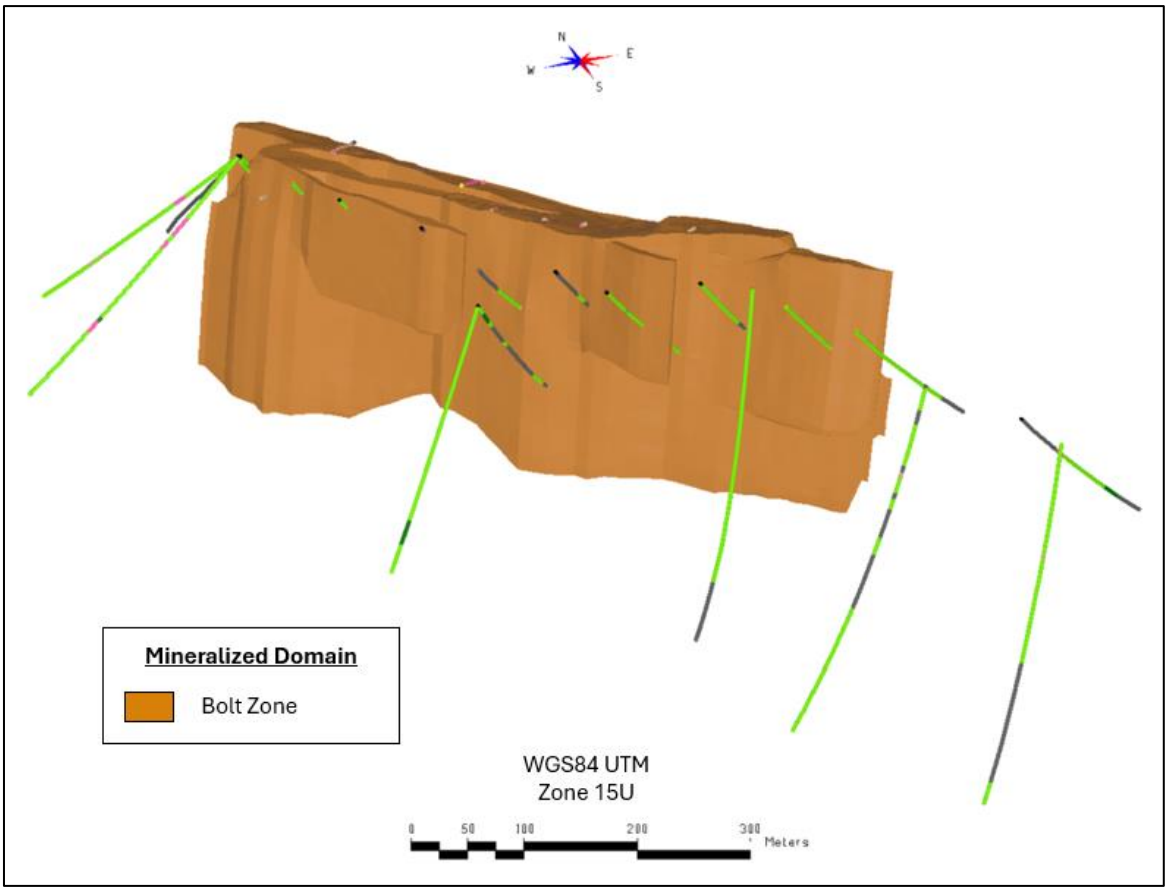
A new solid was created by DRA using an explicit approach on 12.5 m spaced vertical sections and plan views within the MinePlan 3D software environment. Following a similar approach deployed on the Spark deposit, the modelling was mainly driven by lithological controls with additional considerations for grade continuity, especially along the peripheries and to depth within the host pegmatitic intrusion (Figures 14.35 and 14.36).

Figure 14.35 – 3D Plan View (Looking Down) of Bolt Deposit Mineralized Domain



Source: DRA, 2025

Figure 14.36 – 3D Orthographic View of Bolt Deposit Mineralized Domain



Source: DRA, 2025

14.5.3 DESCRIPTIVE STATISTICS

Data was flagged according to the modelled wireframe, then statistically analyzed to determine the underlying data distributions and help with eventual comparisons to composited and estimated block grade data for reconciliation purposes. The data was then imported into the Isatis.neo software package for statistical and geostatistical investigations.

It is noted that one or two instances of unsampled intervals within the solid, likely related to internal waste, were replaced with zero values as grades. Unlike at Spark, data imputation was not required for Bolt as there were consistent analyses throughout for all elements of interest. Fluorine (F) was entirely disregarded due to incomplete coverage.

Basic descriptive statistics were then calculated for the raw data samples contained within the mineralized envelope (i.e., zone intercepts) at the Bolt deposit. These results are summarized in Table 14.27.

Table 14.27 – Summary of Basic Descriptive Statistics for Raw Data Samples Within the Bolt Zone

Variable	Count	Arithmetic Mean	Standard Error	Median	Mode	Standard Deviation	Variance	CoV	Kurtosis	Skewness	Minimum	Maximum
Li_2O (%)	772	0.99	0.03	0.78	2.43	0.76	0.58	0.77	-0.37	0.74	0.01	3.55
Cs_2O (%)	772	0.01	0.00	0.01	0.01	0.01	0.00	1.17	20.27	3.88	0.00	0.13
Rb_2O (%)	772	0.21	0.00	0.21	0.25	0.09	0.01	0.44	6.06	0.93	0.00	0.90
Ta_2O_5_(ppm)	772	66.20	1.55	61.45	0.30	43.00	1,849.17	0.65	4.68	1.27	0.30	344.40
Nb_2O_5_(ppm)	772	73.27	1.36	80.10	71.50	37.67	1,418.90	0.51	7.57	0.87	2.90	390.50
SnO_2_(ppm)	772	59.06	1.11	57.10	53.30	30.85	952.00	0.52	14.90	2.30	2.50	351.70
As_(ppm)	772	193.72	15.23	30.50	2.50	423.25	1,791,38.92	2.18	51.20	5.96	2.50	5,060.00
B_(ppm)	772	125.36	7.70	39.50	10.00	213.93	45,766.41	1.71	31.17	4.38	10.00	2,540.00
Tl_(ppm)	772	14.02	0.24	13.90	14.80	6.55	42.96	0.47	10.96	1.71	0.30	70.90
Fe_2O_3 (%)	772	2.74	0.15	1.04	1.05	4.13	17.08	1.51	4.42	2.37	0.01	20.70
K_2O (%)	772	2.41	0.04	2.45	2.99	0.99	0.99	0.41	1.64	0.10	0.09	7.60
Na_2O (%)	772	3.56	0.05	3.65	2.67	1.51	2.29	0.43	0.26	0.13	0.16	9.68
P_2O_5 (%)	772	0.32	0.01	0.30	0.28	0.16	0.03	0.50	1.45	0.75	0.03	1.13
S (%)	772	0.06	0.01	0.01	0.01	0.17	0.03	2.66	30.65	5.00	0.01	1.70
Sb_(ppm)	772	0.83	0.06	0.50	0.50	1.54	2.37	1.85	197.43	11.45	0.10	31.00
Be_(ppm)	772	44.36	1.94	26.00	2.50	53.95	2,910.71	1.22	14.66	2.88	2.50	531.00

14.5.4 GRADE CAPPING

Grade capping is used to limit the spatial extrapolation of occasional isolated high grades in the resource model estimates. As for Spark, capping analyses undertaken for the Bolt deposit included the use of histograms, log probability plots and ranked composites (outlier analysis).

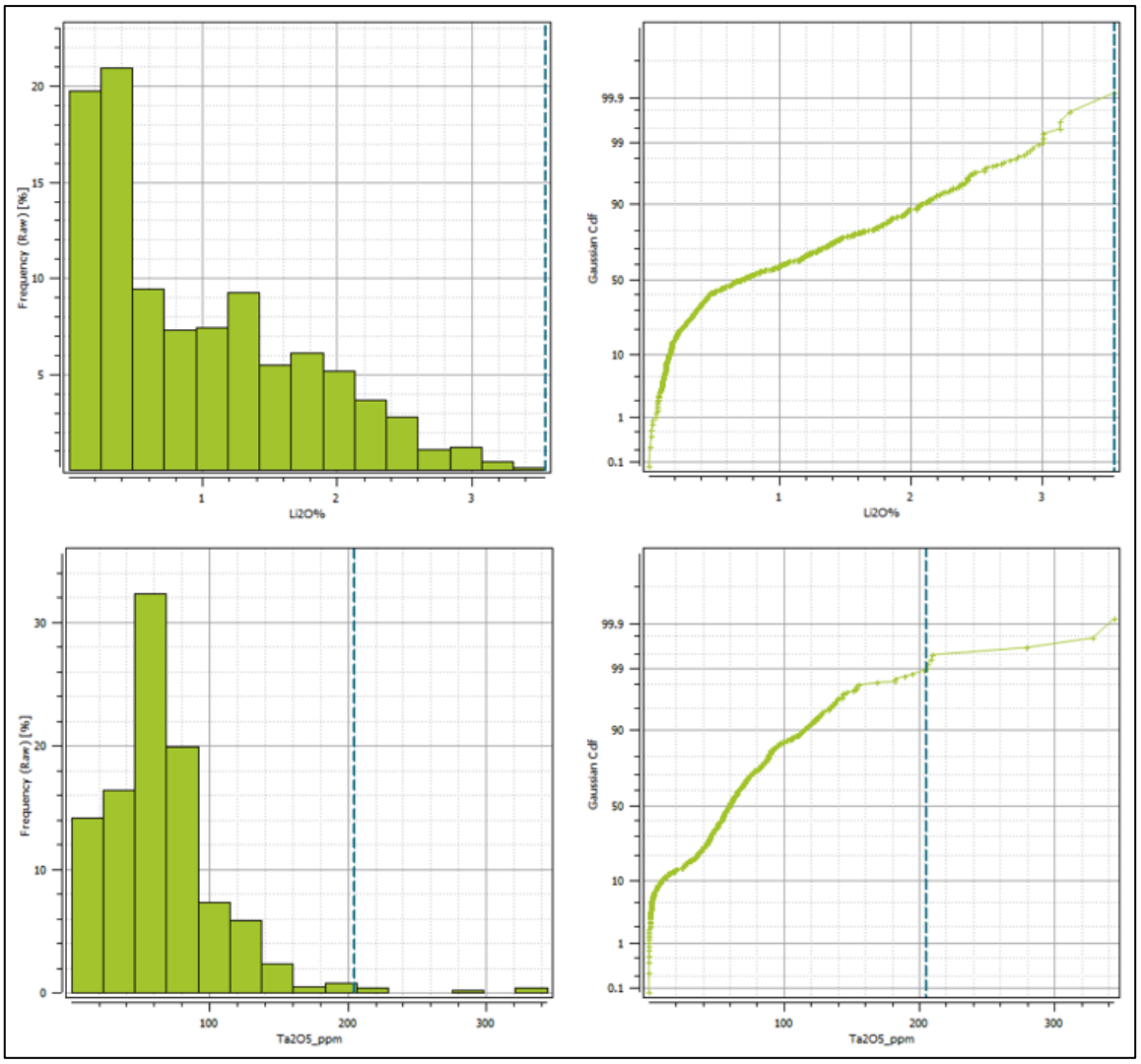
Histograms were used to search for distinct breaks in grade distributions in tandem with log probability plots, which generally show clear inflection points at the selected capping value. Outliers were also examined by means of ranked composites and observing the effect of sequential capping on the CoV of the remaining data.

The final selected capping grades used in the resource estimate are summarized along with a subset of basic descriptive statistics in Table 14.28. Representative histograms and log probability plots for the Bolt Zone are also provided in Figure 14.37.

Table 14.28 – Summary of Selected Capping Grades by Domain at the Bolt Deposit

Domain	Variable	Uncapped Mean	Uncapped CoV	Capping Grade	Capped Comps (#)	Capped Comps (%)	Capped Mean	Capped CoV	Metal Loss (%)
Bolt Zone	Li_2O (%)	0.99	0.77	-	-	-	-	-	-
	Cs_2O (%)	0.01	1.17	0.10	2	0.30	0.01	1.16	0.55
	Rb_2O (%)	0.21	0.44	0.60	3	0.46	0.21	0.43	0.29
	Ta_2O_5 (ppm)	66.20	0.65	205.00	7	1.06	64.61	0.61	0.83
	Nb_2O_5 (ppm)	73.27	0.51	205.00	3	0.46	72.95	0.48	0.63

Figure 14.37 – Representative Histograms and Log Probability Plots for the Bolt Deposit



Source: DRA, 2025

14.5.5 COMPOSITING

Following a similar methodology employed on the Spark data, drill hole intercepts through the interpreted mineralized domain at the Bolt deposit were composited to 2 m fixed length intervals, with a 0.5 m tolerance to merge shorter intervals resulting from intersection with wireframe edges or unsampled/missing intervals. The selected composite length was based on the systematic sampling approach used by Frontier Lithium geologists to focus on 2 m intervals through the target mineralized zones wherever possible. Despite mean, median and mode lengths of 1.12 m, 1 m and 1 m, respectively, statistical analysis shows that greater than a third of samples are longer than these metrics. Basic descriptive statistics for the composited data within the wireframe (i.e., zone intercepts) are summarized in Table 14.29.

Table 14.29 – Summary of Basic Descriptive Statistics for 2-m Composited Data Within the Bolt Zone

Variable	Count	Arithmetic Mean	Standard Error	Median	Mode	Standard Deviation	Variance	CoV	Kurtosis	Skewness	Minimum	Maximum
Li_2O (%)	444	0.98	0.03	0.90	1.27	0.65	0.42	0.66	-0.65	0.53	0.07	2.73
Cs_2O (%)	444	0.01	0.00	0.01	0.01	0.01	0.00	0.92	10.63	2.98	0.00	0.07
Rb_2O (%)	444	0.21	0.00	0.21	0.25	0.07	0.00	0.34	1.59	-0.15	0.00	0.55
Ta_2O_5_(ppm)	444	64.24	1.51	59.35	41.90	31.89	1,016.90	0.50	1.05	0.77	0.30	185.60
Nb_2O_5_(ppm)	444	73.99	1.49	77.25	77.30	31.45	988.86	0.42	1.64	0.39	3.60	225.30
SnO_2_(ppm)	444	59.44	1.21	57.20	55.90	25.51	650.94	0.43	8.28	1.64	3.80	232.90
As_(ppm)	444	180.60	16.22	51.25	2.50	341.86	116,870.13	1.89	30.16	4.57	2.50	3,415.00
B_(ppm)	444	119.88	7.81	53.95	10.00	164.64	27,107.56	1.37	19.50	3.38	10.00	1,631.90
Tl_(ppm)	444	13.73	0.22	14.10	14.70	4.74	22.48	0.35	3.17	0.25	0.30	42.40
Fe_2O_3 (%)	444	2.80	0.16	1.10	0.71	3.40	11.56	1.22	2.73	1.92	0.48	16.20
K_2O (%)	444	2.41	0.04	2.49	2.60	0.82	0.67	0.34	0.77	-0.31	0.18	5.62
Na_2O (%)	444	3.56	0.05	3.54	4.15	1.06	1.12	0.30	-0.54	0.03	0.67	6.57
P_2O_5 (%)	444	0.32	0.01	0.31	0.30	0.13	0.02	0.41	-0.07	0.48	0.05	0.70
S (%)	444	0.06	0.01	0.01	0.01	0.14	0.02	2.22	25.26	4.49	0.01	1.25
Sb_(ppm)	444	0.76	0.05	0.50	0.50	1.04	1.07	1.36	65.72	6.78	0.10	13.90
Be_(ppm)	444	42.20	2.01	29.95	2.50	42.32	1,790.83	1.00	8.50	2.19	2.50	357.70

14.5.6 VARIOGRAPHY

Variography aims to assess the spatial continuity of grade for an element of interest and effectively helps guide the definition of parameters for the interpolation of Mineral Resources. The selected method, inverse distance squared weighting (IDW^2), is a linear geostatistical estimator that requires input parameters to limit the size of the search neighbourhood (via a defined search ellipsoid) for each point to be interpolated within the block model. Downhole and directional variography for the Bolt deposit were run also using Isatis.neo software.

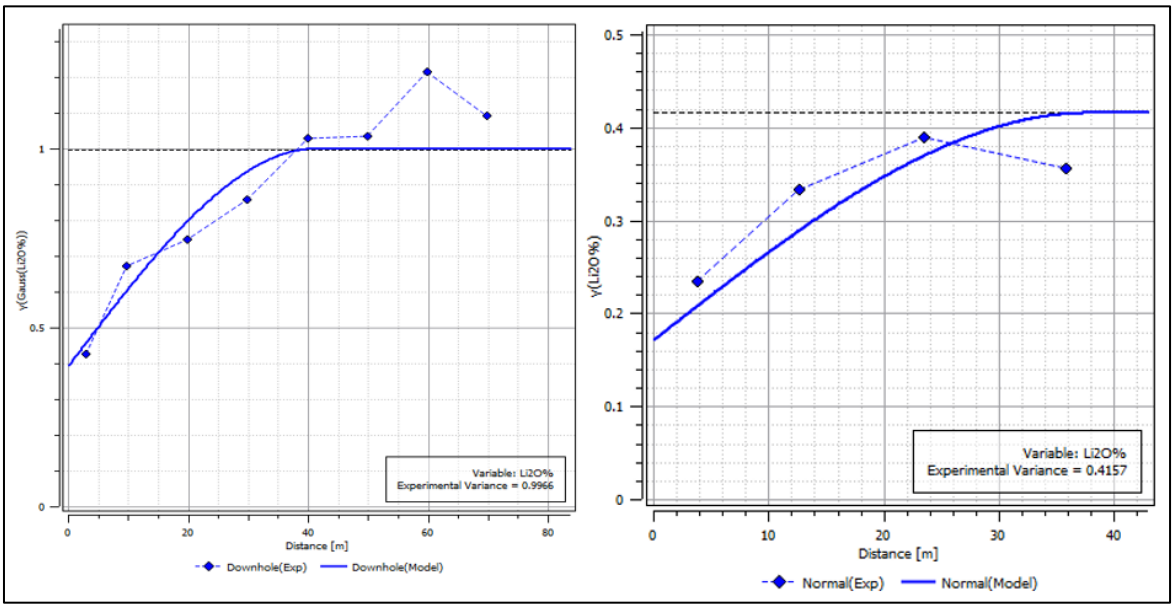
As for the Spark pegmatite, downhole variograms indicated relatively high nugget effect values (~0.39) for the Bolt mineralized zone. Multi-directional variograms were generated on normal score transformed data for each domain; unfortunately, those for the Bolt deposit were not statistically meaningful and thus the same range parameters will be applied as at the Spark deposit (Table 14.30). The lack of statistical significance in the spatial continuity observed at Bolt is likely due to the relatively wide sample spacing in all directions (> 50 m). Given the similar downhole and normal (minor) plane variograms (Figure 14.38), it is reasonable to infer the search ellipsoid parameters from Spark.

It should be noted that the indicated ranges were only used as a guide in the selection of maximum search ellipsoid distances for Measured, Indicated and Inferred Resource categories, in conjunction with geological information and other statistical factors such as average drill hole spacing.

Table 14.30 – Variogram Model Parameters for the Bolt Deposit

Domain	Bolt Zone
Nugget	0.39
Angle1	135
Angle2	-75
Angle3	0
Structure 1	
Sill	0.39
Range 1	18
Range 2	12
Range 3	22
Type	Sph
Structure 2	
Sill	0.22
Range 1	150
Range 2	225
Range 3	45
Type	Sph

Figure 14.38 – Back-transformed Downhole and Minor Plane Normal Score Variograms for Li_2O%, Bolt Deposit



Source: DRA, 2025

14.5.7 MINERAL RESOURCE ESTIMATE

Lithium is the primary commodity of economic interest at the PAK Project and therefore Li_2O was the dominant variable used to determine the relevant interpolation parameters. Other potential variables of economic interest that were estimated include Cs_2O, Rb_2O, Ta_2O_5 and Nb_2O_5. An additional 11 elements were also interpolated at Bolt for metallurgical and environmental considerations including Fe_2O_3, K_2O, Na_2O, P_2O_5, SnO_2, S, As, Sb, B, Be and Tl. Following exploratory data and geostatistical analyses using Isatis.neo software, the block model was built and subsequent grade and tonnage estimates were computed in MinePlan 3D.

14.5.7.1 Block Model

A single block model was constructed for the Bolt deposit to capture a variety of data types including the relevant mineralized domain codes, estimated block grades, density values, percentage of material beneath the topographic surface, the closest/furthest/average distances between informing composites, initial resource category as determined by multiple-pass interpolation and finalized resource category as determined by the resource modeller.

Sub-blocking was used to better define narrow portions of the block model and to respect the volumetrics of the modelled mineralized domain and related triangulations. The model was rotated 45° and aligned northwest-southeast along the approximate strike of the deposit. Relevant block model definition parameters are summarized in Table 14.31.

Table 14.31 – Block Model Definition Parameters for the Bolt Deposit

Description	Value
Model Dimension X (m)	1,260
Model Dimension Y (m)	860
Model Dimension Z (m)	280
Origin X (Easting)	472590
Origin Y (Northing)	5829180
Origin Z (Lower Elev.)	0
Rotation (º)	45
Block Size X (m)	20
Sub-block Size X (m)	5
Block Size Y (m)	20
Sub-block Size Y (m)	5
Block Size Z (m)	20
Sub-block Size Z (m)	5

14.5.7.2 Search Strategy and Interpolation

Block values were estimated for each individual mineralized domain using the generated composites and the inverse distance weighted (IDW^2) method. The set of search parameters used in the multi-pass interpolations, derived mainly from geological information and interpreted continuity with support from variography and statistical factors such as average drill hole spacing, are summarized by estimation domain in Table 14.32.

Table 14.32 – Inverse Distance Weighted (IDW^2) Interpolation Parameters Summary for the Bolt Deposit Block Model

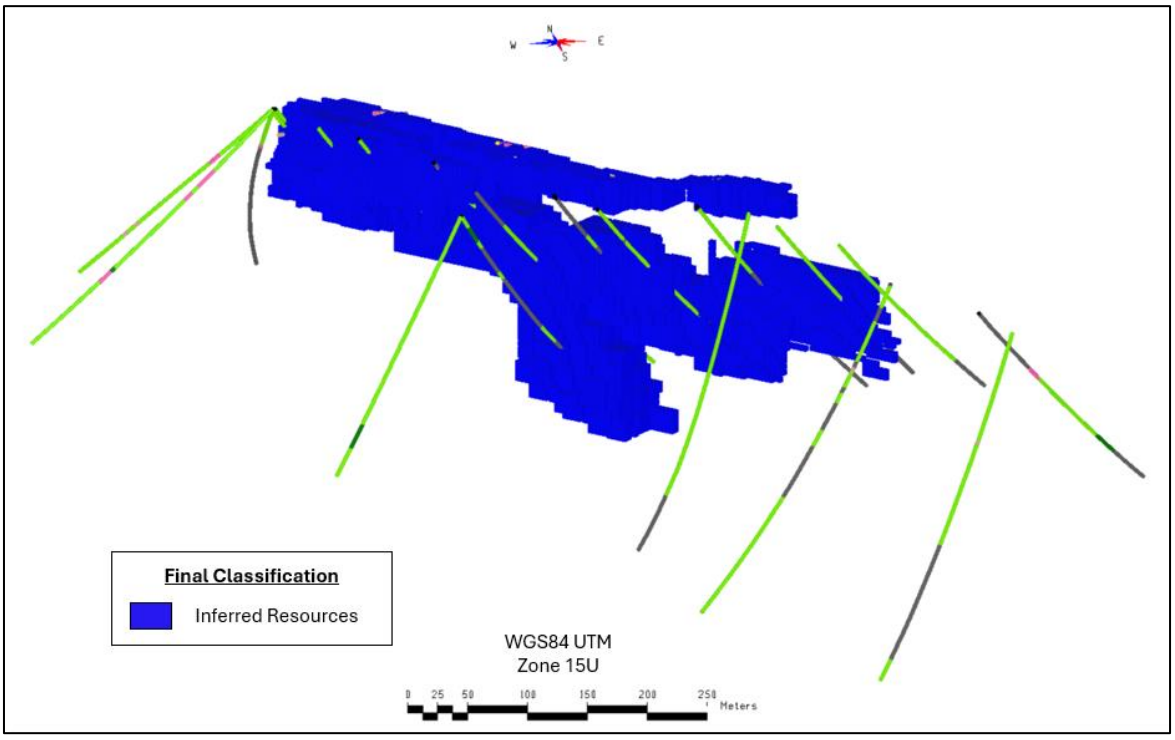
Domain	Pass	Estimation Method	Min Samples	Max Samples	Max. Samples /DDH	Major Axis	Semi Axis	Vert Axis
Main Zone	1	IDW^2	9	15	6	45	15	40
	2	IDW^2	6	15	5	70	25	65
	3	IDW^2	2	15	2	60	20	60

14.5.7.3 Mineral Resource Classification

The Mineral Resources reported herein for the Bolt deposit have been fully classified into the Inferred category. This classification is based on the interpreted geological and grade continuity of the observed mineralization as well as the sparse sample spacing/density.

Primary categorization was based on multiple-pass IDW^2 interpolation which employed increasing search ellipsoid ranges (refer back to Table 14.32). Secondary classification was carried out by DRA based on sample density and related confidence in the current resources. A 3D orthographic view of the final resource classification is provided in Figure 14.39.

Figure 14.39 – 3D Orthographic View of the Final Block Classification for the Bolt Deposit



Source: DRA, 2025

14.5.8 MINERAL RESOURCE STATEMENT

The Mineral Resource Estimate statement for the Bolt deposit prepared by DRA is summarized in Table 14.33. Additional details on mining and processing modifying factors are also provided in the adjoining footnotes.

Table 14.33 – Mineral Resource Estimate for Bolt Deposit

Cut-Off	Resource Classification	Tonnes (kt)	Li_2O (%)	Cs_2O (%)	Rb_2O (%)	Ta_2O_5 (ppm)	Nb_2O_5 (ppm)
0.65% Li_2O	Inferred	5,516	1.23	0.01	0.21	68.18	72.21

Notes:

1. The Mineral Resource Estimate has been estimated using the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definitions Standards for Mineral Resource and Mineral Reserve in accordance with National Instrument 43-101 - Standards of Disclosure for Mineral Projects.
2. Mineral Resources which are not Mineral Reserves, do not have economic viability.
3. Inferred Mineral Resources are exclusive of the Measured and Indicated Resources.
4. In-Pit Resources are constrained by Pseudoflow optimized pit shells using HxGn MinePlanTM 3D.
5. Pit shells were developed using pit slopes of 45° for PAK and Bolt and 43° for Spark, sales price of U$1,500/t for 6.0% Li_2O chemical grade concentrate, exchange rate of 1.30 US$/CA$, mining costs of US$7.80/t and US$7.15/t for ore and waste, respectively, processing costs of US$23.85/t milled, G&A costs of US$26.22/t milled, sustaining capital costs of US$4.28/t milled, closure costs of US$1.99/t milled, process recovery of 78.0%, and transportation costs of US$100.79/t concentrate.
6. In-pit estimates are reported in-situ, at a cut-off grade of 0.65% Li_2O.
7. Resource estimations were interpolated using Inverse Distance Weighting (IDW^2); variable densities were also interpolated using the same method.
8. The effective date of the Mineral Resource Estimate is November 30, 2023.
9. The independent and Qualified Person for the Mineral Resource Estimate, as defined by NI 43-101, is Dr. Schadrac Ibrango, P.Geo., of DRA Americas Inc.
10. The QP is not aware of any metallurgical, environmental, permitting, legal, title, taxation, socio-economic, marketing political, or other risk factors that might materially affect the estimate of Mineral Resources.
11. Figures have been rounded to an appropriate level for the reporting of the Mineral Resources and may not compute exactly as shown.

14.5.9 BLOCK MODEL VALIDATION

The current Spark deposit block model has been validated by DRA using a combination of visual inspection and statistical comparisons, including:

- Visual comparison of assays and block grades.
- Inspection of generated swath plots.
- Alternative interpolation methods.

14.5.9.1 Visual Inspection

Estimated blocks and drill hole intercepts at the Bolt deposit were reviewed both on 2D vertical sections and level plans, as well as interactively within the MinePlan 3D software environment. The block grades are considered to reasonably respect assay grades throughout the deposit. A plan

view of Li_2O% at Bolt with assay and block grades superimposed in presented in Figure 14.40. A representative vertical section through the core of the deposit is shown in Figure 14.41.

Figure 14.40 – Plan View of Li_2O% at Bolt with Assay and Block Grades Superimposed

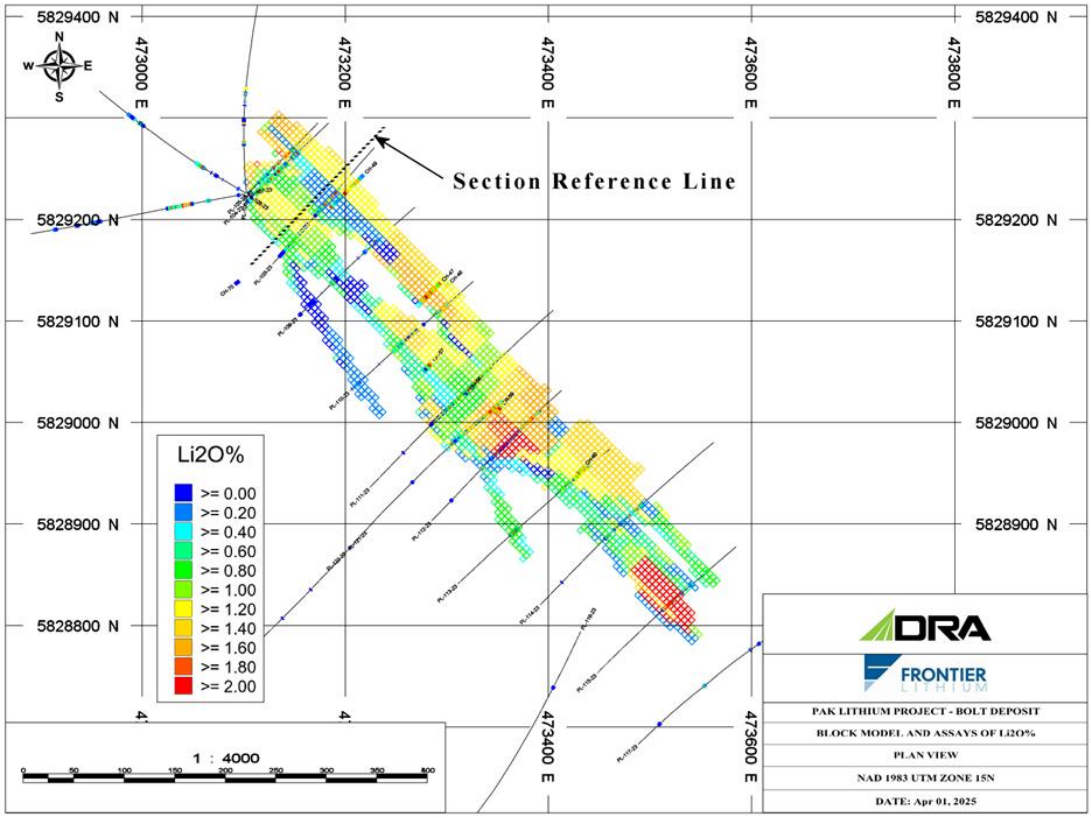
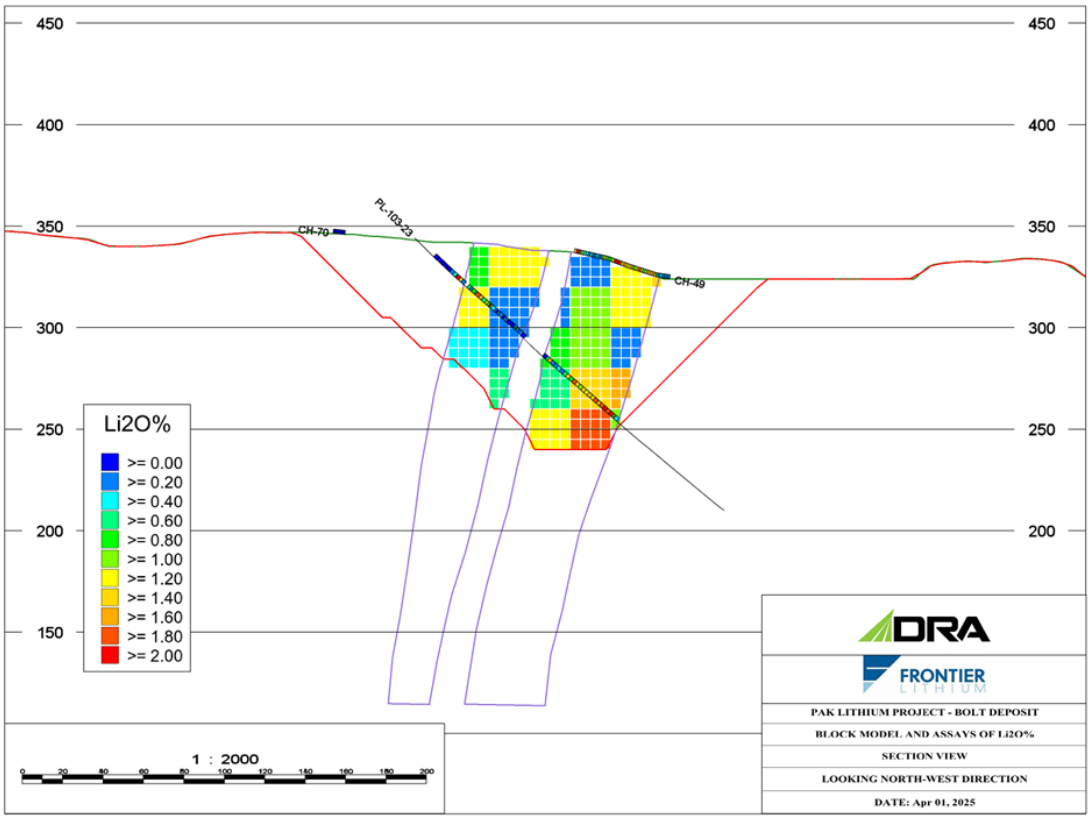


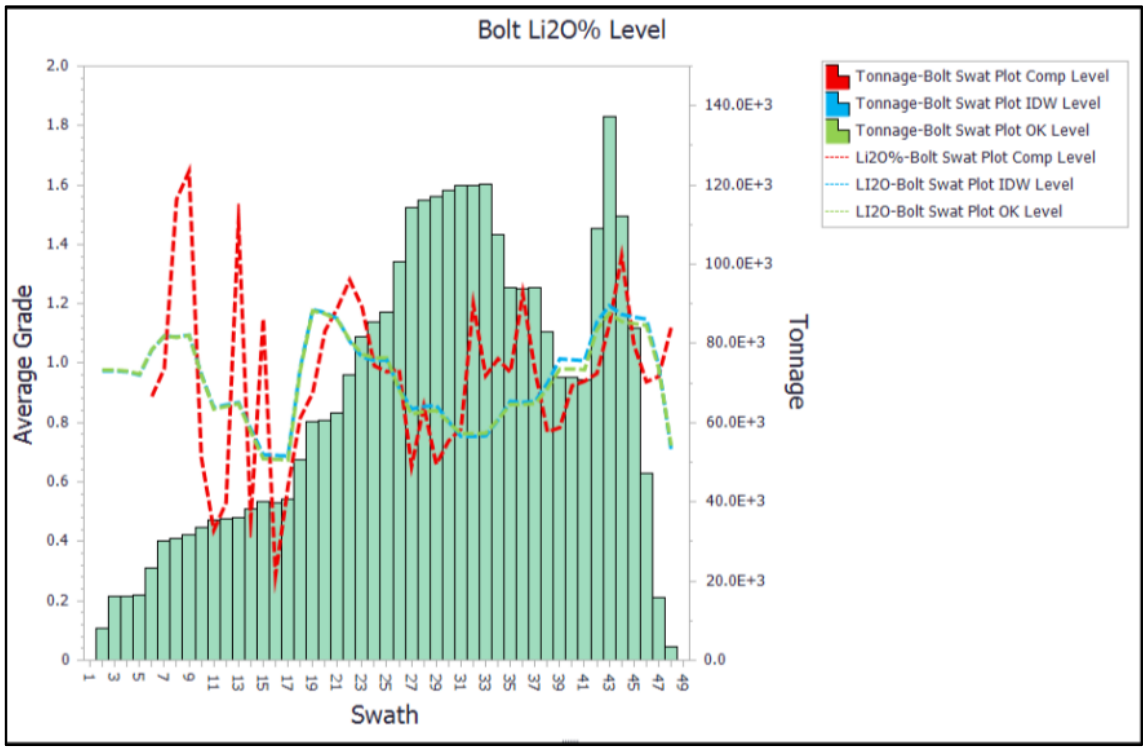
Figure 14.41 – Comparison of Assay and Block Grades for the Bolt Deposit on Representative Vertical Section (Looking Northwest)



14.5.9.2 Swath Plots

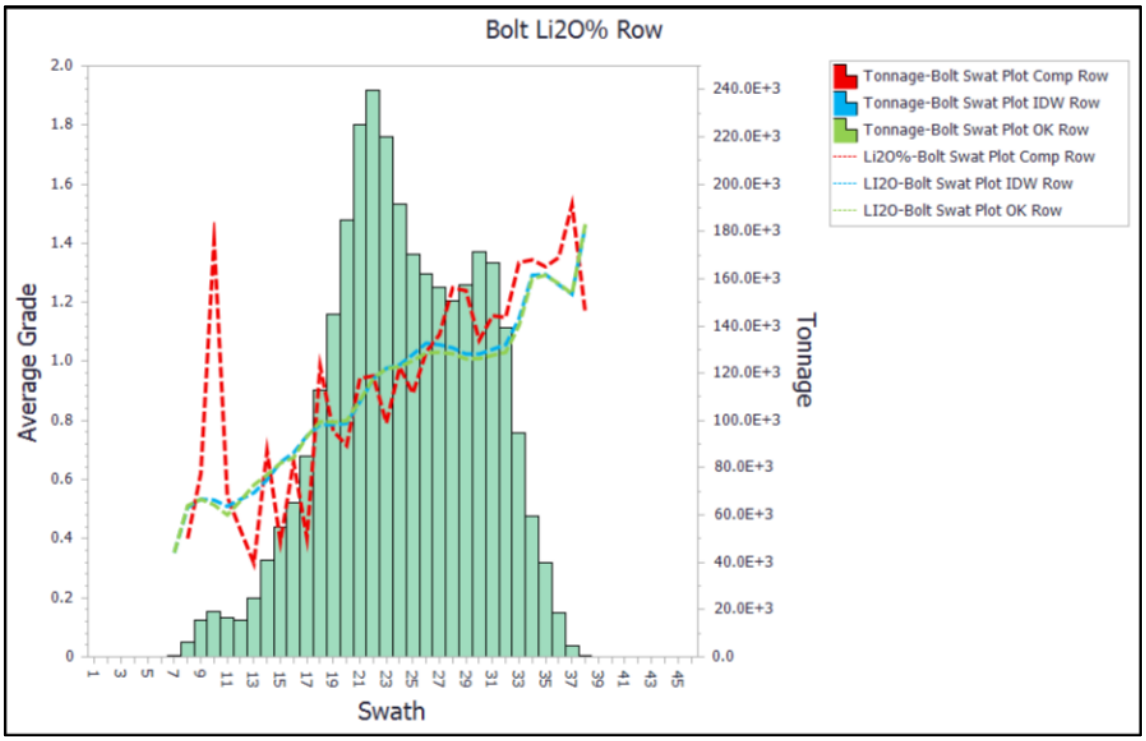
Average composite and block grades were also compared by means of swath plots generated on vertical and horizontal planes through the core of the Bolt deposit. The generated comparative sections for the levels, rows and columns (block model rotated 45°) are provided in Figure 14.42 to Figure 14.44, respectively. It is clear from these plots that estimated block grades closely match those of the 1 m composite data throughout the deposit, with a minor amount of smoothing (as expected). Additionally, there is also reasonable agreement along each direction between alternative interpolation methods including inverse distance weighted (IDW^2) and ordinary kriging (OK) model types.

Figure 14.42 – Bolt Deposit Swath Plot for Li_2O (%) – By Level – 2-m Composites vs. Block Grades by IDW² and OK Interpolation Methods



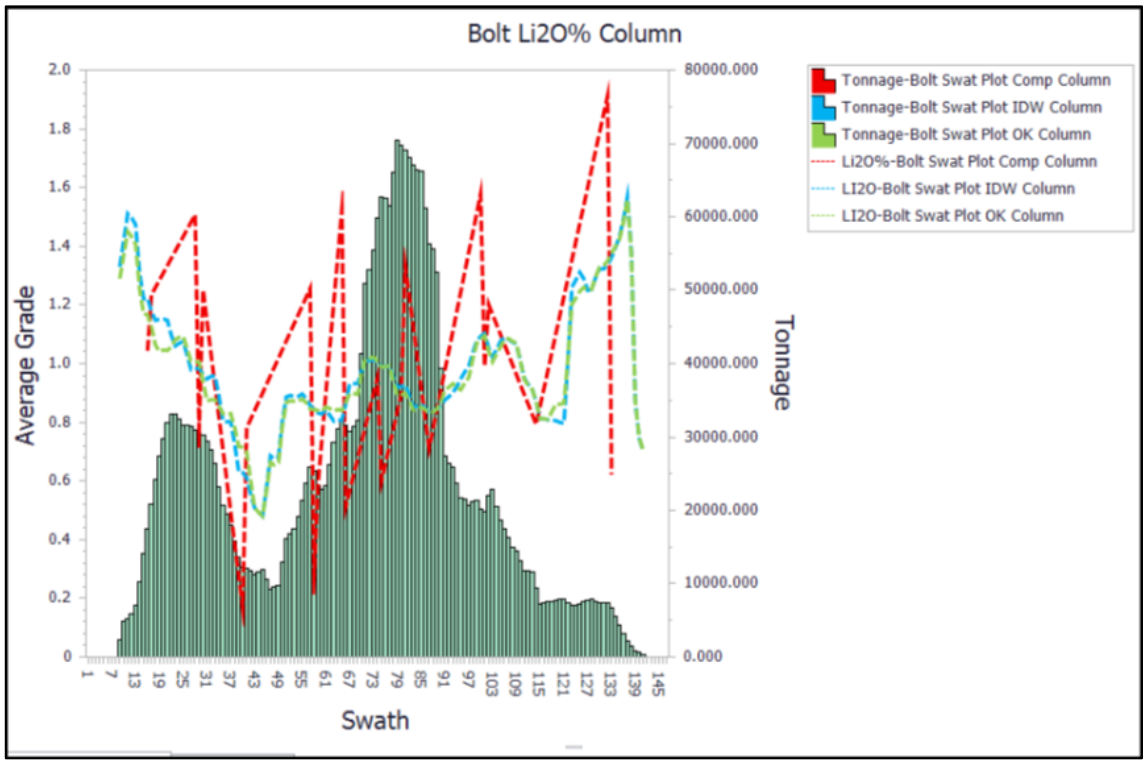
Source: DRA, 2024

Figure 14.43 – Bolt Deposit Swath Plot for Li_2O (%) – By Row – 2-m Composites vs. Block Grades by IDW^2 and OK Interpolation Methods



Source: DRA, 2024

Figure 14.44 – Bolt Deposit Swath Plot for Li_2O (%) – By Column – 2-m Composites vs. Block Grades by IDW² and OK Interpolation Methods



Source: DRA, 2024

14.5.9.3 *Alternative Interpolation Methods*

As shown in Figure 14.42 to Figure 14.44 above, an ordinary kriging (OK) model was also run as an alternative interpolation method in order to compare against the selected inverse distance weighting (IDW²) method used for the reported resource estimate. The results of this comparison are summarized here mainly as a global bias check (Table 14.34). The correlation between the models is considered suitable by DRA, with global grades showing percent differences in the range of 1% between both interpolation types.

Table 14.34 – Comparison of IDW² and OK Interpolation Methods, Bolt Block Model

Category	IDW²		OK			
	Tonnes	Grade	Tonnes	% Diff	Grade	% Diff
Measured	N/A	N/A	N/A	N/A	N/A	N/A
Indicated	N/A	N/A	N/A	N/A	N/A	N/A
M+I	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Inferred	8,740,304	0.95	8,740,304	-	0.94	1.05

14.6 Mineral Resource Statement

The Mineral Resource Estimate statement for the Project prepared by DRA is summarized in Table 14.35. Additional details on mining and processing modifying factors are also provided in the adjoining footnotes.

Table 14.35 – Mineral Resource Estimate Statement

Deposit	Category	Li_2O Cut Off Grade (%)	Tonnage (kt)	Li_2O Grade (%)	Contained Li_2O (kt)
Open Pit					
PAK	Measured	0.65	2,585	2.03	52
	Indicated		1,521	1.96	30
	Measured + Indicated		**4,106**	**2.00**	**82**
	Inferred		122	1.50	2
Spark	Measured	0.65	13,796	1.54	212
	Indicated		17,304	1.41	244
	Measured + Indicated		**31,100**	**1.47**	**456**
	Inferred		10,954	1.53	167
Bolt	**Measured + Indicated**	0.65	**-**	**-**	**-**
	Inferred		5,516	1.23	68
Total Open Pit	Measured	0.65	16,381	1.61	264
	Indicated		18,825	1.45	273
	Measured + Indicated		**35,206**	**1.53**	**538**
	Inferred		16,592	1.43	237
Underground Mine					
PAK	Measured	0.80	-	-	-
	Indicated		1,703	2.39	41
	Measured + Indicated		**1,703**	**2.39**	**41**
	Inferred		1,995	2.19	44

Deposit	Category	Li_2O Cut Off Grade (%)	Tonnage (kt)	Li_2O Grade (%)	Contained Li_2O (kt)

Notes:

1. The Mineral Resource Estimate has been estimated using the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definitions Standards for Mineral Resource and Mineral Reserve in accordance with National Instrument 43-101 - Standards of Disclosure for Mineral Projects.
2. Mineral Resources which are not Mineral Reserves, do not have economic viability.
3. Inferred Mineral Resources are exclusive of the Measured and Indicated Resources.
4. In-pit Resources are constrained by Pseudoflow optimized pit shells using HxGn MinePlanTM 3D.
5. Pit shells were developed using pit slopes of 45° for PAK and Bolt and 43° for Spark, sales price of U$1,500/t for 6.0% Li_2O chemical grade concentrate, exchange rate of 1.30 US$/CA$, mining costs of US$7.80/t and US$7.15/t for ore and waste, respectively, processing costs of US$23.85/t milled, G&A costs of US$26.22/t milled, sustaining capital costs of US$4.28/t milled, closure costs of US$1.99/t milled, process recovery of 78.0%, and transportation costs of US$100.79/t concentrate.
6. In-pit estimates are reported in-situ, at a cut-off grade of 0.65% Li_2O.
7. Underground mining stope optimization was performed using Deswik^{TM}.
8. Stope shapes were developed using a sales price of US$1,500/t for 6.0% Li_2O chemical grade concentrate, exchange rate of 1.30 US$/CA$, mining costs of US$85.00/t, processing costs of US$23.85/t milled, G&A costs of US$26.22/t milled, sustaining capital costs of US$4.28/t milled, closure costs of US$1.99/t milled, process recovery of 78.0%, and transportation costs of US$100.79/t concentrate.
9. Underground resources were estimated using a cut-off grade of 0.80% Li_2O.
10. Resource estimations were interpolated using Inverse Distance Weighting (IDW^2); variable densities were also interpolated.
11. The effective date of the Mineral Resource Estimate is November 30, 2023.
12. The independent and Qualified Person for the Mineral Resource Estimate, as defined by NI 43-101, is Dr. Schadrac Ibrango, P.Geo., MBA, of DRA Americas Inc.
13. The QP is not aware of any metallurgical, environmental, permitting, legal, title, taxation, socio-economic, marketing political, or other risk factors that might materially affect the estimate of Mineral Resources.
14. Figures have been rounded to an appropriate level of precision for the reporting of Mineral Resources. Thus, totals may not compute exactly as shown.

15 MINERAL RESERVE ESTIMATE

15.1 Introduction

NI 43-101 defines the terms "Mineral Reserve," "Probable Mineral Reserve," and "Proven Mineral Reserve" as described by the Canadian Institute of Mining, Metallurgy, and Petroleum (CIM) in the Definition Standards on Mineral Resources and Mineral Reserves (May 2014) and the 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.

Mineral Reserves are sub-divided in order of increasing confidence into Probable Mineral Reserves and Proven Mineral Reserves. A Probable Mineral Reserve has a lower level of confidence than a Proven Mineral Reserve.

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.

15.2 Mineral Reserve Estimate

The Mineral Reserve Estimate is based on resource block models estimated by DRA and described in Section 14.

DRA prepared a Mineral Reserve Estimate for the Project using Hexagon MinePlan mining software packages and modules. These tools were employed for estimating the economic pit limit for the open pit and for block model interrogation.

The Project includes the PAK and Spark deposits. Mineral reserves for the Project account for mining dilution and mining loss assumptions specific to the open pit mining method.

The Mineral Reserve Estimate for the Project comprises a total of 31.1 million tonnes (Mt) of Proven and Probable Mineral Reserves. This includes 16.2 Mt of Proven Mineral Reserves with a grade of 1.58% Li_2O, and 14.9 Mt of Probable Mineral Reserves with a grade of 1.42% Li_2O. The overall grade for the combined Proven and Probable Mineral Reserves is 1.51% Li_2O, based on a Cut-Off Grade (COG) of 0.65% Li_2O from the PAK and Spark Deposits. The Project has an overall stripping ratio of 3.7.

Table 15.1 presents the Mineral Reserve Estimate for the Project.

Table 15.1 – Mineral Reserve Estimate

Category	Deposit	Li_2O COG (%)	Diluted Tonnage (kt)	Diluted Li_2O Grade (%)	Contained Li_2O (kt)
Proven	PAK	0.65	2,520	1.97	50
Probable			1,427	1.94	28
Proven + Probable			***3,947***	***1.96***	***77***
Proven	Spark	0.65	13,670	1.51	206
Probable			13,514	1.37	185
Proven + Probable			***27,183***	***1.44***	***392***
Proven	**Total**	0.65	16,190	1.58	256
Probable			14,941	1.42	213
Proven + Probable			**31,131**	**1.51**	**469**

Notes:

1 The independent and Qualified Person for the Mineral Reserve Estimate, as defined by NI 43-101, is Ghislain Prévost, P.Eng. of DRA Americas Inc.
2 The effective date of the Mineral Reserve Estimate is May 28, 2025.
3 The Mineral Reserve Estimate is based on constant metallurgical recovery assumptions: 78% for chemical grade concentrate.
4 The Mineral Reserve Estimate is based on commodity prices assumptions of: USD1,500/t for 6.0% Li_2O chemical grade concentrate.
5 The mineral reserve was derived from a pit limit analysis and detailed pit design using Measured and Indicated Resources at a cut-off grade of 0.65% Li_2O.
6 For the PAK deposit, the Mineral Reserve Estimate includes dilution and mining loss. Approximately 2.7% dilution and a mining loss of 1.2% have been incorporated.
7 For the Spark deposit, the Mineral Reserve Estimate includes dilution and mining loss. Approximately 2.7% dilution and a mining loss of 1.4% have been incorporated.
8 PAK mineral reserves are based on a pit design with a 5.9 stripping ratio.
9 Spark mineral reserves are based on a pit design with a 3.3 stripping ratio.
10 The QP is not aware of any metallurgical, environmental, permitting, legal, title, taxation, socio-economic, marketing or political factors that might affect the estimate of Mineral Reserves.
11. Figures have been rounded to an appropriate level of precision for the reporting of Mineral Reserves. As a result, totals may not compute exactly as shown.

Source: DRA, 2025

The following subsections outline the procedures used to estimate the mineral reserves.

15.3 Open Pit Mine Design

Conventional open pit mining has been selected for the Project. This method was deemed the most appropriate considering the PAK and Spark deposit sizes, shapes, orientations, and proximities 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.

15.4 Pit Limit Analysis

This section outlines an overview of the pit limit analysis methodology, including the parameters employed and the recommended pit shell chosen for the FS as well as detailed pit design for reserve estimation.

The selected pit shells serve as guidelines for developing the design of both the final and intermediate phases of the open pit.

15.4.1 METHODOLOGY

Mineral Reserves represent estimates of the quantity and quality of material within a Mineral Resource that are economically feasible to extract and process. To qualify as a Mineral Reserve, various modifying factors are applied to the Mineral Resource estimate during the preparation of the FS, adhering to the guidelines of the National Instruments 43-101 on Standards of Disclosure for Mineral Projects, and the Canadian Institute of Mine, Metallurgy and Petroleum Definition Standards for Mineral Resources and Mineral Reserves. These modifying factors ensure that the estimated quantity of saleable material in the final product generates a positive Net Present Value (NPV) using an appropriate discount rate and can be reasonably justified for eventual extraction. Factors significant to technical feasibility and potential economic viability must be considered and clearly stated when preparing Mineral Reserve statements.

These factors will include items such as:

- The size and legal conditions of the land tenure sufficient to fully enclose the Mineral Reserve.
- The extraction selectivity for the mining methods under consideration relative to the size and geometries of the mineralization interpretations.
- The processing method under consideration, the expected recovery from the mined material to a commercially marketable product and the proposed production volume.
- The price/value of the product and the market for the product at that price.
- The factors significant to COG or values (e.g., process recovery, smelter payability, treatment charges, operating costs, royalties, etc.) used for reporting of Mineral Reserve Estimates.

Mineral Reserves are derived from the Measured and Indicated portions of the Mineral Resource Estimate. Inferred Mineral Resources are excluded from the Mineral Reserves.

Pit optimizations are conducted utilizing the Pseudoflow 3D algorithm within the Hexagon Project Evaluator Software. This algorithm generates pit shells representing economically viable mining scenarios based on predefined parameters and the 3D block model. Through a comprehensive set of input parameters such as mining costs, processing costs, transportation costs, process recovery values, and pit slopes, the algorithm identifies the pit shell that maximizes the undiscounted value of the deposit. These shells lack geotechnical and operational nuances like ramps, benching arrangements, and minimum mining widths, serving instead as foundational elements for establishing pit limits and guiding the design of an engineered open pit. Capital expenses such as initial equipment purchases, or waste pile construction are not factored into the pit optimization tool's calculations.

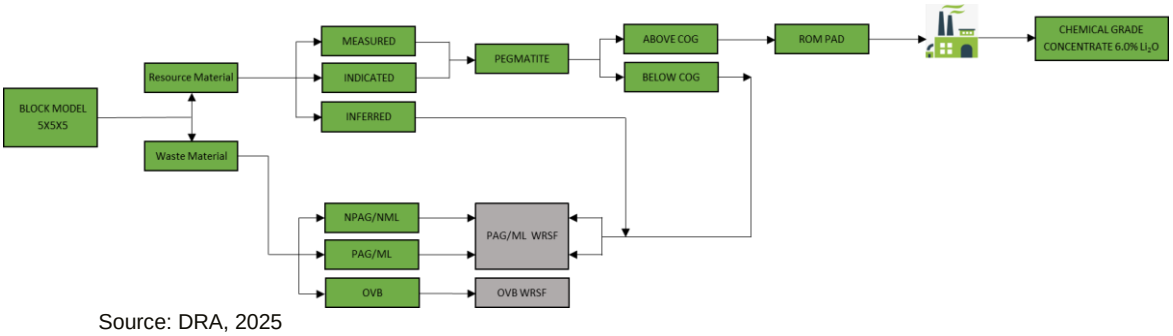
A range of pit shells is generated using various revenue factors, typically ranging from 10% to 120%, to create the standard pit-by-pit graph commonly employed in the industry. These revenue factors serve to gauge the sensitivity of pit optimizations to fluctuations in mineral selling prices and to assess the impact of pit size and stripping ratios on the Project's NPV.

The analysis yields a series of nested pit shells that prioritize the extraction of the most economically viable material. These pit shells progressively expand in size, with less profitable material being mined as the revenue factor increases. Subsequently, the results of pit optimizations are compared considering estimated NPV under Best, Average, and Worst-case scenarios, along with the quantities of ore and waste material.

From this comparative analysis, a final pit shell is selected that aligns with project requirements and maximizes project NPV.

Figure 15.1 depict the general process paths for the PAK and Spark deposits, as considered in the pit limit analysis.

Figure 15.1 – General Process Path Description – PAK



Source: DRA, 2025

15.4.2 MINING BLOCK MODEL – PAK

The resource model was developed using parent block size of 10 m x 5 m x 10 m, with sub-celling to 2.5 m x 2.5 m x 2.5 m, as a means of improving the resolution of the model at geological boundaries. This resource block model was used as the basis for creating the mining model used in the pit limit analysis.

For the pit limit analysis and mine planning tasks, the resource model for PAK was re-blocked to a 5 m x 5 m x 5 m block size using Hexagon MinePlan. This block size was chosen to match the expected mining equipment, selectivity, and pit configuration.

Resource categories and rock codes (such as Measured, Indicated, Inferred, granite, metasediment, LIZ, CIZ, etc.) were assigned to the blocks in the re-blocked model based on the majority volume from the original 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 includes internal, external dilution and mining loss.

15.4.3 MINING BLOCK MODEL – SPARK

The resource model was created with 15 m x 10 m x 10 m parent block cell size with sub-celling to 5 m x 5 m x 5 m, as a means of improving the resolution of the model at geological boundaries. The resource block model was used as the basis for creating the mining mode for the pit limit analysis, and mine planning with the following edits:

The model was regularized to a block size of 5 m wide x 5 m long x 5 m high using Hexagon MinePlan. These dimensions were selected to align with mining equipment, selectivity, and pit configuration.

The codes for resource categories (measured, indicated, and inferred) and rock codes 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 re-blocking of the Spark resource model to 5 m x 5 m x 5 m includes internal, external dilution and mining loss.

15.4.4 OPTIMIZATION PARAMETERS

The pit optimization parameters used for the FS are based on the Report prepared by BBA Inc. entitled "*Frontier Lithium Inc., NI 43-101 Technical Report, PAK Lithium Project Fully Integrated Pre-Feasibility Study*", issued July 2023.

Table 15.2 presents the proposed open pit optimization parameters.

Table 15.2 – FS Open Pit Optimization Parameters

Description	Unit	Value	Source
Mining			
Ore Mining	CA$/t mined	7.80	Based on 2023 PFS, Table 21-19
Waste Mining	CA$/t mined	7.15	Based on 2023 PFS, Table 21-19
Processing			
Processing Cost – Chemical Line	CA$/t milled	23.85	2023 PFS, Table 21-22
G&A	CA$/t milled	26.22	2023 PFS, Table 21-23
Sustaining Capital	CA$/t milled	4.28	2023 PFS, Table 21-15
Closure Cost	CA$/t milled	1.99	2023 PFS, Table 21-14
Metallurgical Recovery (Chemical)	%	78	2023 PFS, Table 21-2
Li_2O Concentrate Chemical Grade	%	6.0	2023 PFS, Table 21-2
Economics			
Li_2O @6.0% Chemical Grade	USD/t Conc.	1,500	2023 PFS, Table 15-2
Concentrate Transport and Loss	CA$/t Conc.	100.79	2023 PFS, Table 21-26
Currency	$	CAD	
Exchange Rate	USD/CAD	1.30	2023 PFS, Table 22-2
Discount Rate	%	8.0	2023 PFS, Table 22-2
Elevated Cut-Off Grade	% Li_2O	0.65	2023 PFS, Table 15-2
Pit Slope Parameters			
Overall Slope Angle – PAK	°	45.0	2023 PFS, Table 15-2
Overall Slope Angle – Spark	°	43.0	2023 PFS, Table 15-2
Throughput Rates			
Chemical Grade Feed	tpa	1,040,000	DRA
Boundary Constraint			
PAK Pit Limit from Pakeagama Lake	m	120	2023 PFS, Table 15-2
Spark Pit Limit from Unnamed Waterbody 1	m	0	Frontier

Source: BAA, 2023

15.4.5 GEOTECHNICAL PARAMETERS

The same overall pit slope parameters as those utilized in the PFS were maintained: a 45° overall slope angle for PAK and a 43° overall slope angle for Spark. The pit design followed the recommended geotechnical slopes as detailed in Section 16.2 of the Report.

15.4.6 OPERATING COSTS

The operating costs applied in the pit optimization presented in Table 15.2 were preliminary and developed specifically for the purpose of conducting the pit limit analysis. These estimates were not intended for final economic evaluation. Project-specific operating cost estimates were subsequently developed during the Feasibility Study (FS), based on detailed mine design, production scheduling, and equipment selection, providing a more accurate representation of the expected operating cost.

The basis for the operating costs utilized in the pit limit analysis are the results of the previous PFS prepared by BBA in July 2023.

15.4.7 METALLURGICAL RECOVERY

The metallurgical recovery assumptions are based on recovery rates defined in the PFS.

15.4.8 SELLING PRICE

The selling price used for pit optimization was based on the PFS assumption of US$1,500/t for a 6.0% chemical-grade concentrate. The final economic model, however, adopts a long-term price of US$1,450/t. This difference in price does not impact the pit optimization results.

15.4.9 CUT-OFF GRADE

To distinguish material within the open pit boundaries as either processing material or waste, the milling COG is employed. This break-even COG is calculated to cover the cost of processing, general and administrative costs, and selling costs utilizing the economic and technical parameters outlined in Table 15.2. Measured and indicated mineral resource material situated within the pit shell and surpassing the COG is designated as ore, while resource material falling below the COG is categorized as waste.

For the FS, the designated reserve COG stands at 0.65% Li_2O.

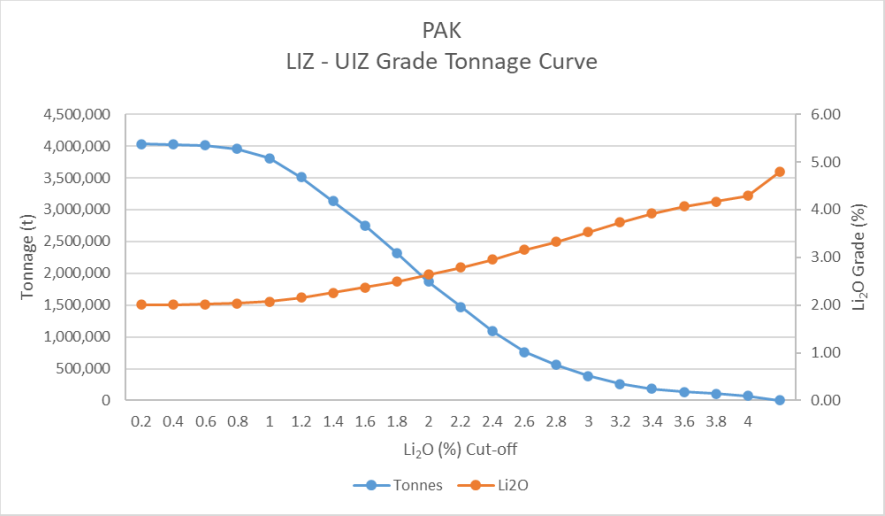
This grade exceeds the calculated break-even COG determined using the parameters detailed in Table 15.2. The calculated COG corresponds to 0.27% Li_2O for Chemical Grade.

Grade-tonnage curves visually illustrate how cut-off grades impact mineral reserves. These curves depict the ore tonnage above the COG and the average grade relative to that COG. As the criteria for classifying ore become more stringent, the tonnage of ore above the COG decreases.

Conversely, lowering the COG increases the ore tonnage of the deposit because the distinction between ore and waste becomes less strict. With higher COGs, the average grade of the mined ore also increases. Ultimately, these curves demonstrate how the average grade and tonnage of material processed depend on the chosen COG.

Figure 15.2 illustrates the open pit grade-tonnage curve for the PAK ore reserve, using the re-blocked 5 m x 5 m x 5 m block model, ultimate pit design, LIZ rock types, Proven and Probable Reserves.

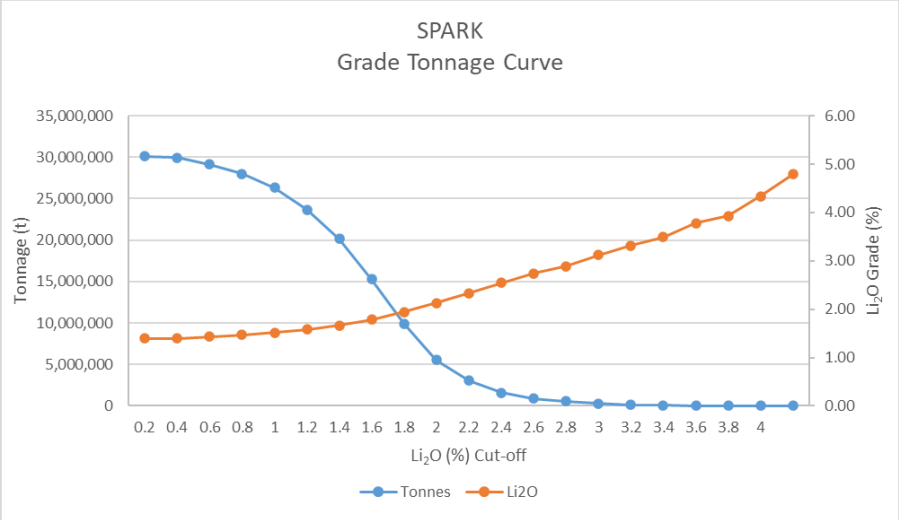
Figure 15.2 – Grade Tonnage Curves – PAK



Source: DRA, 2025

Figure 15.3 illustrates the open pit grade-tonnage curve for the Spark reserves, using the re-blocked 5 m x 5 m x 5 m block model, ultimate pit design, Proven and Probable Reserves.

Figure 15.3 – Grade Tonnage Curves – Spark



Source: DRA 2025

15.4.10 Boundary Constraints

- A 120 m offset from Pakeagama Lake was applied to the PAK pit limit analysis.
- No physical constraint applied to the Spark pit limit analysis.

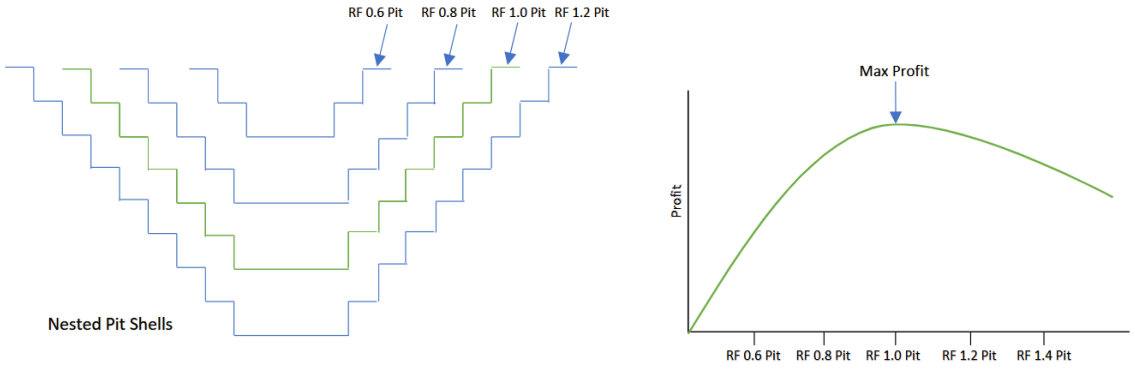
15.5 Pit Limit Analysis

The Pit Optimization process generates a series of nested pit shells, commonly referred to as incremental pit shells. Each of these shells is assigned a Revenue Factor (RF), calculated as the ratio of incremental cost to incremental revenue. For instance, at RF = 0.5, the revenue generated from this incremental shell is twice the cost required to realize those revenues. Similarly, when RF = 1.0 for a pit shell, the incremental cost matches the incremental revenue, resulting in zero profits for that increment. This pit shell with RF = 1.0 is recognized as the Maximum Economic Pit.

An important observation to grasp is that pit shells with RF > 1.0 will begin to erode value, as costs escalate more rapidly than revenue, ultimately diminishing overall profits.

Figure 15.4 illustrates the nested (incremental) pit shells at various revenue factors are shown, along with a graph showing that profit is maximized at the RF = 1.0 pit shell.

Figure 15.4 – Nested (Incremental) Pit Shells



Source: DRA, 2025

While the RF = 1.0 pit shell denotes the maximum economic pit, it is important to recognize that it is unlikely to be the optimal pit in terms of maximizing NPV. The RF = 1.0 pit shell only represents the optimal pit under the condition of no consideration for the 'time value of money,' meaning there is no cashflow discounting and the assumption is that the entire pit can be mined instantaneously within one period or year. Given this impracticality, it becomes essential to incorporate the time-value of money by discounting the revenue from each subsequent period.

This adjustment invariably leads to the realization that the optimal pit is consistently less than RF = 1.0, typically falling within the range of RF = 0.6 to RF = 0.9. Shallower pits with lower overburden and costs tend to optimize towards higher RF, whereas deeper pits with more overburden and higher costs optimize towards lower RF.

Throughout the FS, various interim pit shells between the current pit and the optimal pit may emerge as natural pit stage shells. These interim pits can be strategically utilized to stage pit designs and optimize resource extraction.

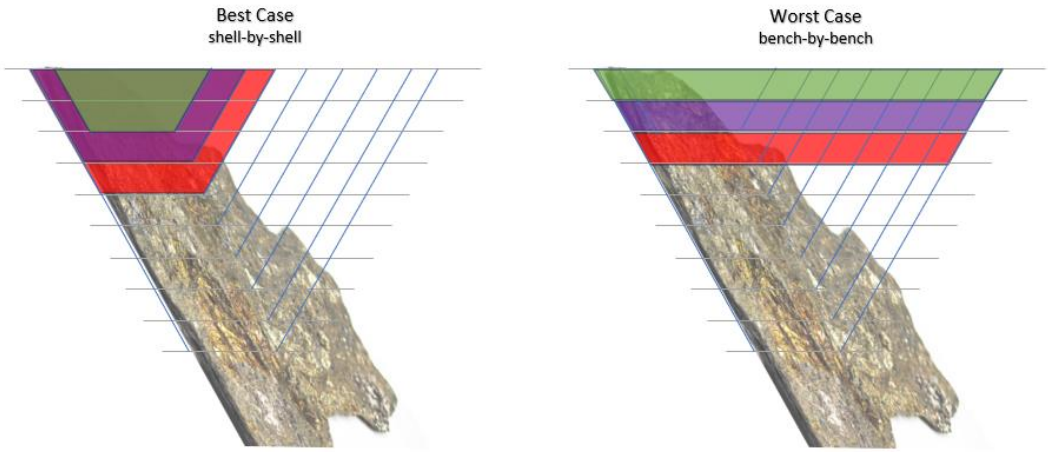
15.6 Optimal Pit Shell

The optimal pit shell is determined by maximizing the NPV through discounting revenue across the mine lifespan. The chosen mining sequence influences which pit shell yields the highest NPV.

For instance, adopting a bench-by-bench mining approach (the Worst-Case scenario) accelerates overburden stripping, but postpones access to potentially lucrative blocks at depth, leading to a delay in cash flow. This delay may reduce the value of high yield blocks due to discounting over time. Conversely, mining the optimal pit shell, shell-by-shell, allows for better value extraction.

Figure 15.5 illustrates the best- and worst-case extraction scenarios in an open pit, depicting various mining approaches employed to recover the material (hashed polygon).

Figure 15.5 – Open Pit – Best- and Worst-Case Extraction Scenario



Source: DRA, 2025

The Best-Case approach involves completing each nested pit shell to completion before moving on to the next, referred to as a shell-by-shell approach. This strategy ensures waste stripping and associated costs are incurred only when necessary to access the ore below. In contrast, the Worst-Case approach uses a bench-by-bench strategy that accelerates waste stripping in the schedule, which negatively impact the NPV.

However, operational constraints often make it impractical to adhere strictly to the Best-Case approach. Mining strategies typically fall between the extremes of Best- and Worst-Case scenarios. As a standard practice, the optimal pit is determined by calculating the average NPV of both approaches.

15.7 PAK Pit Limit Results

Observations from the PAK pit limit analysis results include:

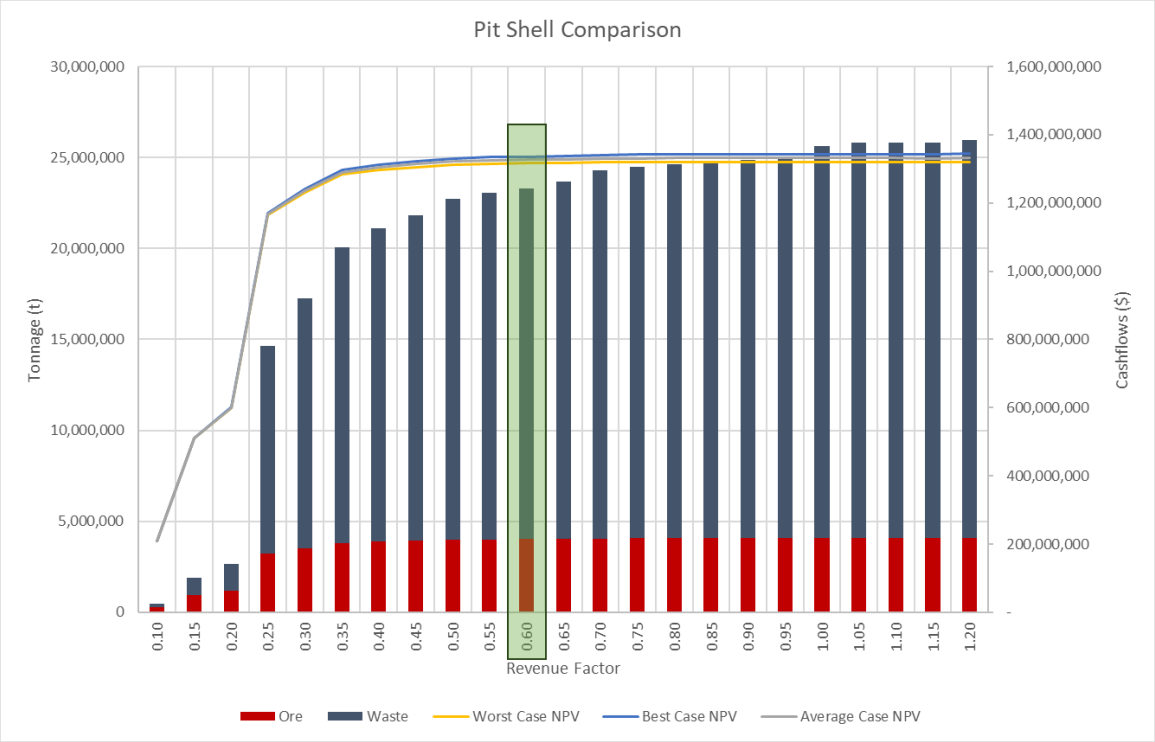
- Pit optimization incorporates resources categorized as Measured and Indicated only.
- Incremental increases in ore tonnes and NPV value are minimal between RF 0.35 and RF 1.0 pit shells.
- Recommended Pit Shell for designing the ultimate pit is the pit with a RF 0.60, corresponding to a selling price of **US$900/t** for 6.0% Chemical Grade concentrate.

Table 15.3 and Figure 15.6 provide a summary of the nested pit shell results for the PAK deposit, considering RFs ranging from 0.1 to 1.2.

Table 15.3 – PAK Pit Limit – Nested Pit Shell Results

Revenue Factor	Selling Price (US$)	Measured (kt)	Indicated (kt)	Total M+I (kt)	Li_2O Grade (%)	Waste (kt)	Overall Stripping Ratio	Incremental Stripping Ratio	NPV Best (CA$ M)	NPV Average (CA$ M)	NPV Worst (CA$ M)
0.10	150	293	-	293	3.26	193	0.66	0.66	210	210	210
0.15	225	919	-	919	2.68	965	1.05	1.23	512	512	512
0.20	300	1,200	-	1,200	2.47	1,455	1.21	1.74	601	600	599
0.25	375	2,384	841	3,225	2.09	11,396	3.53	4.91	1,169	1,167	1,164
0.30	450	2,454	1,079	3,533	2.06	13,721	3.88	7.56	1,241	1,237	1,232
0.35	525	2,506	1,290	3,796	2.04	16,249	4.28	9.61	1,298	1,291	1,283
0.40	600	2,523	1,354	3,877	2.03	17,247	4.45	12.32	1,313	1,305	1,297
0.45	675	2,534	1,393	3,927	2.03	17,890	4.56	12.83	1,322	1,314	1,305
0.50	750	2,545	1,433	3,978	2.02	18,749	4.71	17.02	1,331	1,321	1,312
0.55	825	2,554	1,444	3,999	2.02	19,042	4.76	14.12	1,334	1,324	1,314
0.60	900	2,561	1,454	4,016	2.01	19,298	4.81	14.81	1,336	1,326	1,316
0.65	975	2,562	1,466	4,028	2.01	19,628	4.87	26.54	1,338	1,327	1,317
0.70	1,050	2,568	1,484	4,051	2.01	20,241	5.00	26.51	1,341	1,330	1,320
0.75	1,125	2,572	1,487	4,059	2.01	20,417	5.03	22.93	1,342	1,331	1,320
0.80	1,200	2,572	1,490	4,063	2.01	20,552	5.06	37.94	1,342	1,331	1,320
0.85	1,275	2,572	1,498	4,070	2.01	20,734	5.09	23.83	1,343	1,332	1,320
0.90	1,350	2,572	1,499	4,071	2.01	20,775	5.10	31.62	1,343	1,332	1,320
0.95	1,425	2,576	1,501	4,077	2.01	20,912	5.13	26.50	1,344	1,332	1,321
1.00	1,500	2,576	1,515	4,091	2.01	21,551	5.27	44.16	1,344	1,332	1,320
1.05	1,575	2,576	1,521	4,097	2.00	21,710	5.30	27.94	1,344	1,332	1,320
1.10	1,650	2,576	1,522	4,098	2.00	21,741	5.31	27.61	1,344	1,332	1,320
1.15	1,725	2,576	1,522	4,098	2.00	21,741	5.31	0.00	1,341	1,331	1,320
1.20	1,800	2,579	1,522	**4,101**	**2.00**	23,837	5.33	35.46	1,344	1,332	1,320

Figure 15.6 – PAK Pit-by-Pit Graph



Source: DRA, 2025

15.8 Spark Pit Limit Results

For Spark, pit optimization was conducted for two (2) scenarios: one focused on marketing a 6.0% Chemical Grade concentrate, and the other on a secondary transformation for battery Li concentrate. Ultimately, DRA opted to proceed with the 6.0% Chemical Grade concentrate scenario due to its slightly more conservative approach in selecting the reserve pit shell.

Observations from the Spark pit limit analysis results include:

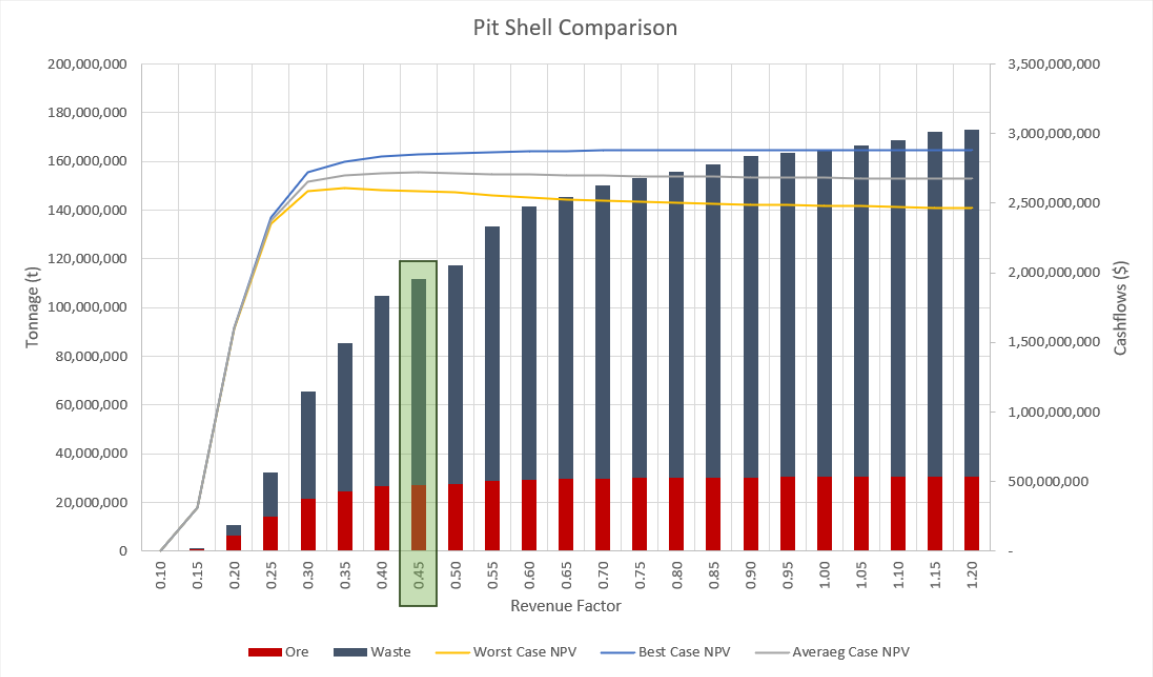
- Pit optimization incorporates resources categorized as Measured and Indicated.
- Incremental increases in ore tonnes and NPV value are minimal between RF 0.40 and RF 0.50 pit shells.
- Recommended Pit Shell for designing the ultimate pit is the shell with a RF 0.45 corresponding to a selling price of **US$675/t** for 6.0% Chemical Grade concentrate.

Table 15.4 and Figure 15.7 provide a summary of the nested pit shell results for the Spark deposit, considering revenue factors ranging from 0.1 to 1.2.

Table 15.4 – Spark Pit Limit – Nested Pit Shell Results

Revenue Factor	Selling Price (US$)	Measured (kt)	Indicated (kt)	Total M+I (kt)	Li_2O Grade (%)	Waste (kt)	Overall Stripping Ratio	Incremental Stripping Ratio	NPV Best (CA$ M)	NPV Average (CA$ M)	NPV Worst (CA$ M)
0.10	150	0	2	**2**	**3.01**	1	0.25	0.25	1	1	1
0.15	225	587	210	**797**	**1.95**	236	0.30	0.30	313	313	313
0.20	300	4,875	1,760	**6,634**	**1.61**	4,205	0.63	0.68	1,601	1,601	1,599
0.25	375	9,917	4,355	**14,272**	**1.52**	18,079	1.27	1.82	2,399	2,374	2,349
0.30	450	13,026	8,350	**21,376**	**1.50**	44,246	2.07	3.68	2,723	2,654	2,586
0.35	525	13,569	10,815	**24,384**	**1.49**	61,104	2.51	5.60	2,798	2,703	2,607
0.40	600	13,682	12,861	**26,543**	**1.49**	78,098	2.94	7.87	2,838	2,718	2,597
0.45	675	13,749	13,526	**27,276**	**1.48**	84,517	3.10	8.76	2,849	2,718	2,588
0.50	750	13,764	14,039	**27,804**	**1.48**	89,677	3.23	9.78	2,856	2,718	2,580
0.55	825	13,774	15,106	**28,880**	**1.47**	104,367	3.61	13.64	2,869	2,710	2,552
0.60	900	13,782	15,604	**29,385**	**1.47**	112,167	3.82	15.44	2,874	2,706	2,537
0.65	975	13,787	15,834	**26,621**	**1.47**	115,906	3.91	15.88	2,877	2,703	2,529
0.70	1,050	13,792	16,056	**29,848**	**1.47**	120,287	4.03	19.32	2,878	2,699	2,519
0.75	1,125	13,795	16,203	**29,999**	**1.47**	123,089	4.10	18.55	2,879	2,695	2,512
0.80	1,200	13,796	16,331	**30,127**	**1.47**	125,650	4.17	20.01	2,880	2,692	2,505
0.85	1,275	13,796	16,432	**30,229**	**1.47**	128,435	4.25	27.27	2,881	2,690	2,498
0.90	1,350	13,796	16,572	**30,368**	**1.47**	131,933	4.34	25.12	2,881	2,685	2,489
0.95	1,425	13,796	16,603	**30,399**	**1.47**	132,983	4.37	33.67	2,881	2,684	2,486
1.00	1,500	13,796	16,637	**30,434**	**1.47**	134,263	4.41	37.28	2,881	2,682	2,483
1.05	1,575	13,796	16,702	**30,499**	**1.47**	136,221	4.47	30.00	2,882	2,680	2,478
1.10	1,650	13,796	16,760	**30,556**	**1.47**	138,278	4.53	35.73	2,882	2,677	2,473
1.15	1725	13,796	16,845	**30,641**	**1.47**	141,609	4.62	39.42	2,882	2,673	2,464
1.20	1800	13,796	16,869	**30,665**	**1.47**	142,554	4.65	39.38	2,882	2,673	2,464

Figure 15.7 – Spark Pit-by-Pit Graph



Source: DRA, 2025

15.9 Mining Dilution and Ore Loss

Internal and external ore loss and dilution is anticipated in any open pit project when converting in-situ resources to mineable reserves. To minimize the impact of ore dilution and loss, simulation and understanding of its potential impact is key to developing an appropriate grade control methodology as well as the mining fleet selection and scheduled mining rates.

a. Internal Dilution

In the mining industry, block model regularization methodology is utilized to predict internal dilution and loss by selecting the smallest mining unit (SMU).

In open-pit mining, the SMU refers to the smallest volume or block of material that can be practically excavated and processed by the mining equipment. It is a crucial concept in mine planning and reserve estimation. The SMU is determined based on various factors such as the size and capabilities of the mining equipment, economic considerations and geotechnical constraints.

The SMU selected for both PAK and Spark, relative to the mining equipment chosen, is a block of 5 m x 5 m x 5 m.

In this Project, the block model sizes for the mineral resources are as follows: PAK utilized a block model size of 10 m x 5 m x 10 m, with sub-blocks measuring 2.5 m x 2.5 m x 2.5 m, while Spark employed a block model size of 15 m x 10 m x 10 m, also with sub-blocks at 5 m x 5 m x 5 m. Subsequently, these block models were regularized to a uniform size of 5 m x 5 m x 5 m to simulate internal dilution and loss.

b. External Dilution

For external mining dilution, calculations are based on calculating the number of waste blocks adjacent to an ore block in the mine block model (utilizing Hexagon MinePlan™ 3D). Only blocks which were contained within a given zone and above COG (0.65% Li_2O) were considered as ore blocks.

The number of waste block face contacts, with ore block faces for each block, was calculated on each horizontal plane in the model. The number of waste faces (or edges) may vary from zero (i.e., block is surrounded by ore blocks) to four (i.e., block is totally surrounded by waste blocks). Dilution was estimated using the number of waste edges for each block, an assumed grade of zero for all waste and a width of dilution of 0.5 m (10%) for each edge.

15.10 Pit Design

The pit designs are based on the Pit Limit Analysis detailed in Sections 15.5 to 15.8 of the Report.

The aim of the pit design phase is to translate the optimal pit shell obtained from the pit optimization study into a practical pit, incorporating ramps, bench structures, and berms, all while adhering to design criteria and geotechnical limitations.

Ramp positioning within the overall pit design is an integral component of mine design because it influences the stripping ratio of the overall design, the performance of the equipment, and the operating costs. The exit positions of the ramps were determined considering the current position of the primary crusher and the waste rock dumps.

15.10.1 Geotechnical Slope Parameters

The geotechnical slope parameter is detailed in Section 16.2 of the Report.

15.10.2 Haul Ramp Design

The parameters for designing the haul road were determined accounting for the specific type and size of the hauling equipment utilized during operations. The dimensions of the haul road were based on those suitable for a 64.0 t rigid truck, adhering to the best practices in road design. Industry practice recommends multiplying the vehicle's operating width by factors of 3.0 for two-lane traffic and 2.0 for single-lane traffic to determine the effective operating width of the haul road. This

calculation incorporates essential road infrastructure elements such as safety berms and drainage channels. Further details regarding the haul road's gradient and width are presented in Table 15.5.

For double lane traffic, the overall width of a 64.0 t rigid frame haul truck is 5.7 m which results in a running surface of 17.1 m. The allowance for berms and ditches increases the overall haul road width to 22.0 m.

For single lane traffic, the overall width of a 64.0 t rigid frame haul truck is 5.7 m which results in a running surface of 11.4 m. The allowance for berms and ditches increases the overall haul road width to 16.5 m.

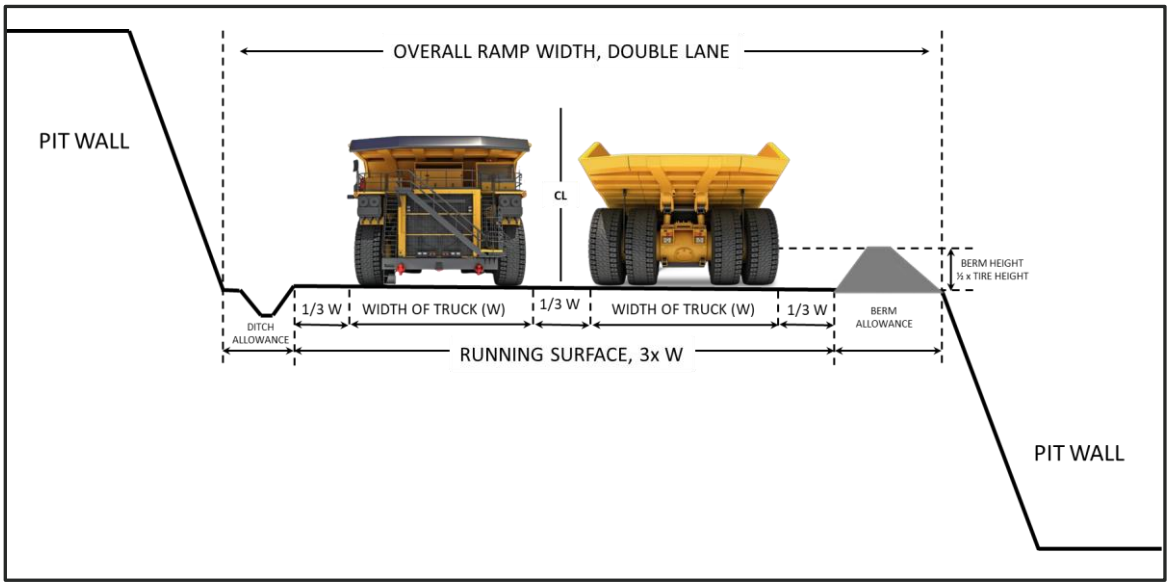
Table 15.5 – Haul Roads Parameters

Description	Unit	Value
Haul Truck		
Nominal Payload	t	64.0
Operating Width (TOW)	m	5.7
Truck Wheel Height	m	2.2
Road to Truck Width Ratio		
Single Lane		2.0
Double Lane		3.0
Running Surface (RW)		
Single Lane	m	11.4
Double Lane	m	17.1
Berm		
Type		Trapezoidal
Tire/Berm Height Ratio		0.5
Roadside Slope	°	45
Outer Slope	°	37
Berm Height (BH)	m	1.1
Safety Crest Berm Width	m	0.9
Berm Width (BW)	m	3.4
Drainage Ditch		
Width Bottom	m	0.3
Depth	m	0.5
Allowance From Toe	m	0.3
Slope	°	45
Width Top (DW)	m	1.6

Description	Unit	Value
Total Ramp Width		
Single Lane (Rounded)	m	16.5
Double Lane (Rounded)	m	22.0
Road Slope	%	10

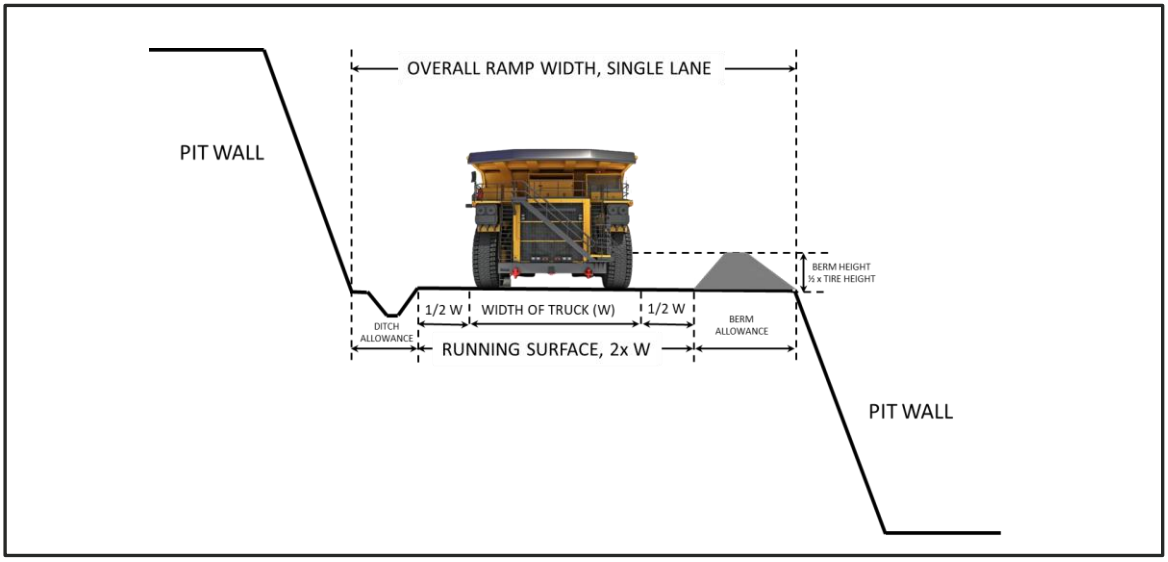
A maximum ramp grade of 10% was used for the in-pit haul road. Figures 15.8 and 15.9 present typical sections of the in-pit ramp design.

Figure 15.8 – Ramp Design, Double Lane



Source: DRA, 2025

Figure 15.9 – Ramp Design, Single Lane



Source: DRA, 2025

15.10.3 PAK PIT DESIGN AND COMPLIANCE WITH PROJECT EVALUATOR SHELL

The ultimate pit for PAK was designed based on the selected pit shell, utilizing a RF 0.60 as guidance.

Figures 15.1 and 15.11 provide a visual representation of the section and plan view of the ultimate pit design, along with the distribution of Li_2O grades.

Figure 15.10 – Plan View – PAK Ultimate Pit Design

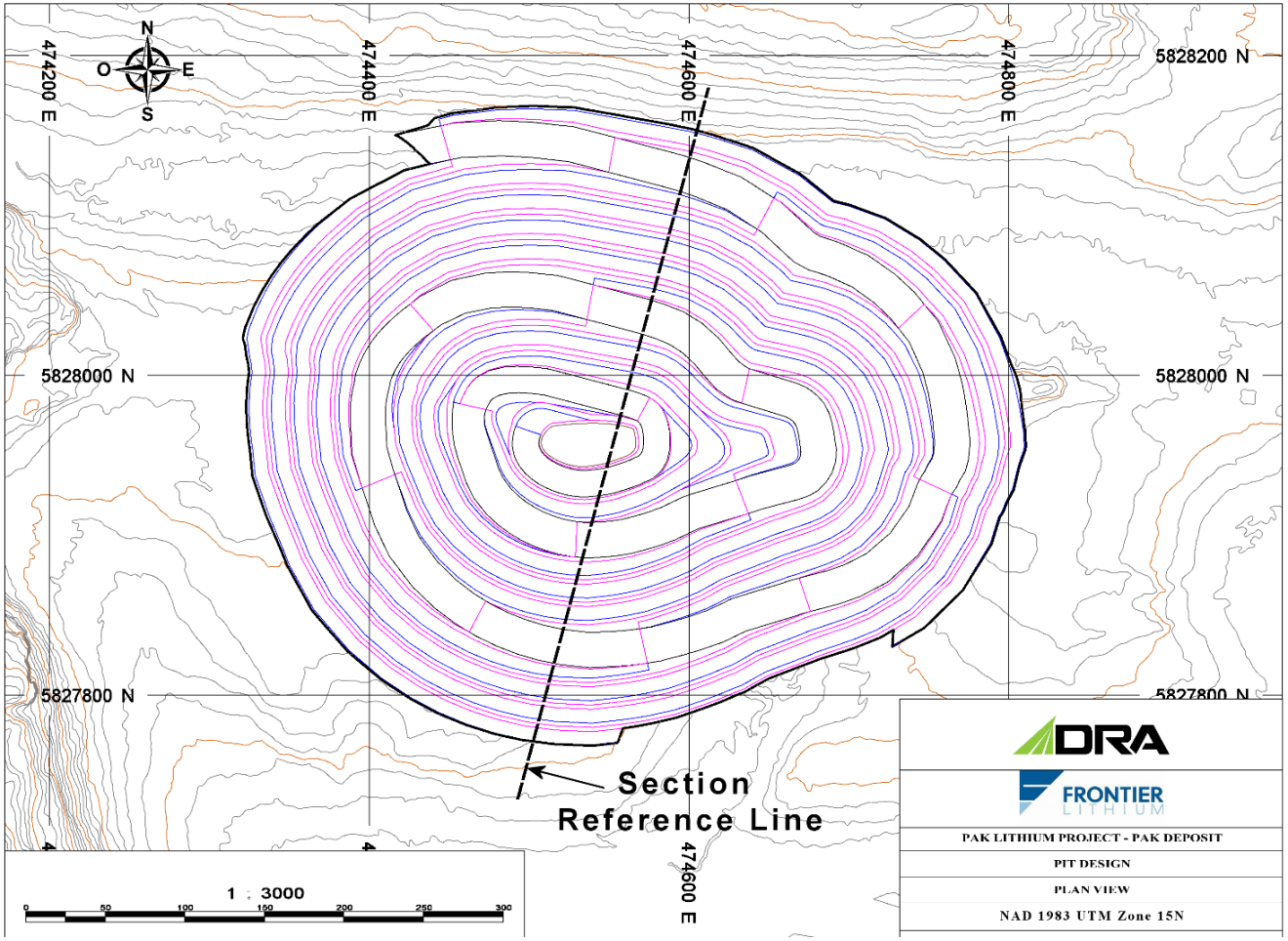
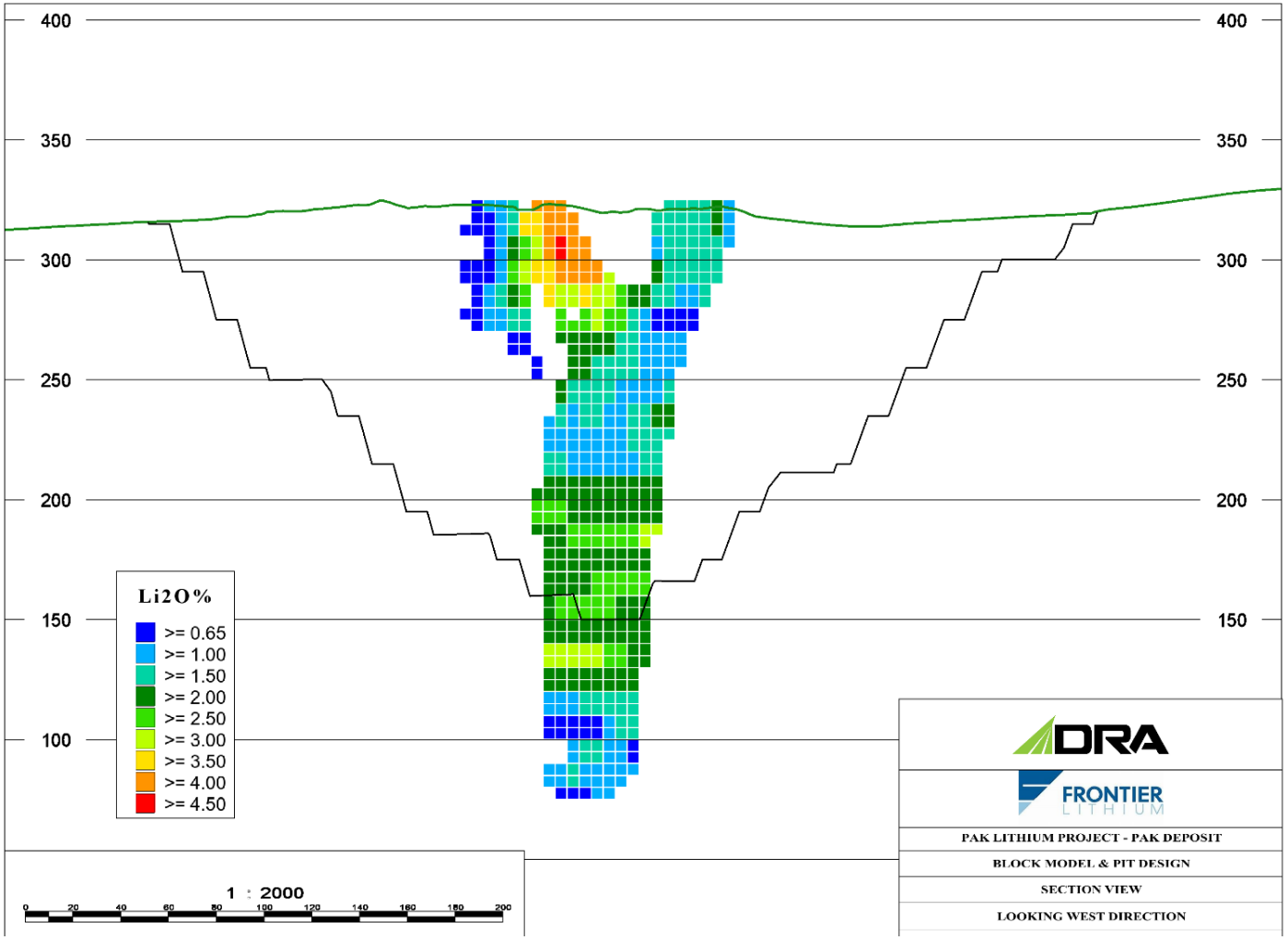


Figure 15.11 – Section View – PAK Ultimate Pit Design



15.10.4 PAK Reserve Estimate

The reported open pit reserve for PAK has been delineated using the ultimate pit design derived from the optimization pit shell of RF 0.60 and Li_2O COG of 0.65%, as presented in Table 15.6.

Table 15.6 – PAK Open Pit Reserve Estimate

Material	Reserve Category	Tonnes (kt)	Li_2O (%)	Contained Li_2O (kt)
ORE				
0.65% Li_2O COG	Proven	2,520	1.97	50
	Probable	1,427	1.94	28
	Proven + Probable	**3,947**	**1.96**	**77**

15.10.5 Spark Pit Design and Compliance With Project Evaluator Shell

The ultimate pit for Spark was designed based on the selected pit shell, utilizing a RF of 0.45 as guidance.

Figures 15.12 and 15.13 provide a visual representation of the section and plan view of the ultimate pit design, along with the distribution of Li_2O grades.

15.10.6 Spark Reserve Estimate

The reported open pit reserve for Spark has been delineated using the ultimate pit design derived from the optimization pit shell of RF 0.45 and Li_2O COG of 0.65%, as shown in Table 15.7.

Table 15.7 – Spark Open Pit Reserve Estimate

Material	Reserve Category	Tonnes (kt)	Li_2O (%)	Contained Li_2O (kt)
ORE				
0.65% Li_2O COG	Proven	13,670	1.51	206
	Probable	13,514	1.37	185
	Proven + Probable	**27,183**	**1.44**	**391**

Figure 15.12 – Plan View – Spark Ultimate Pit Design

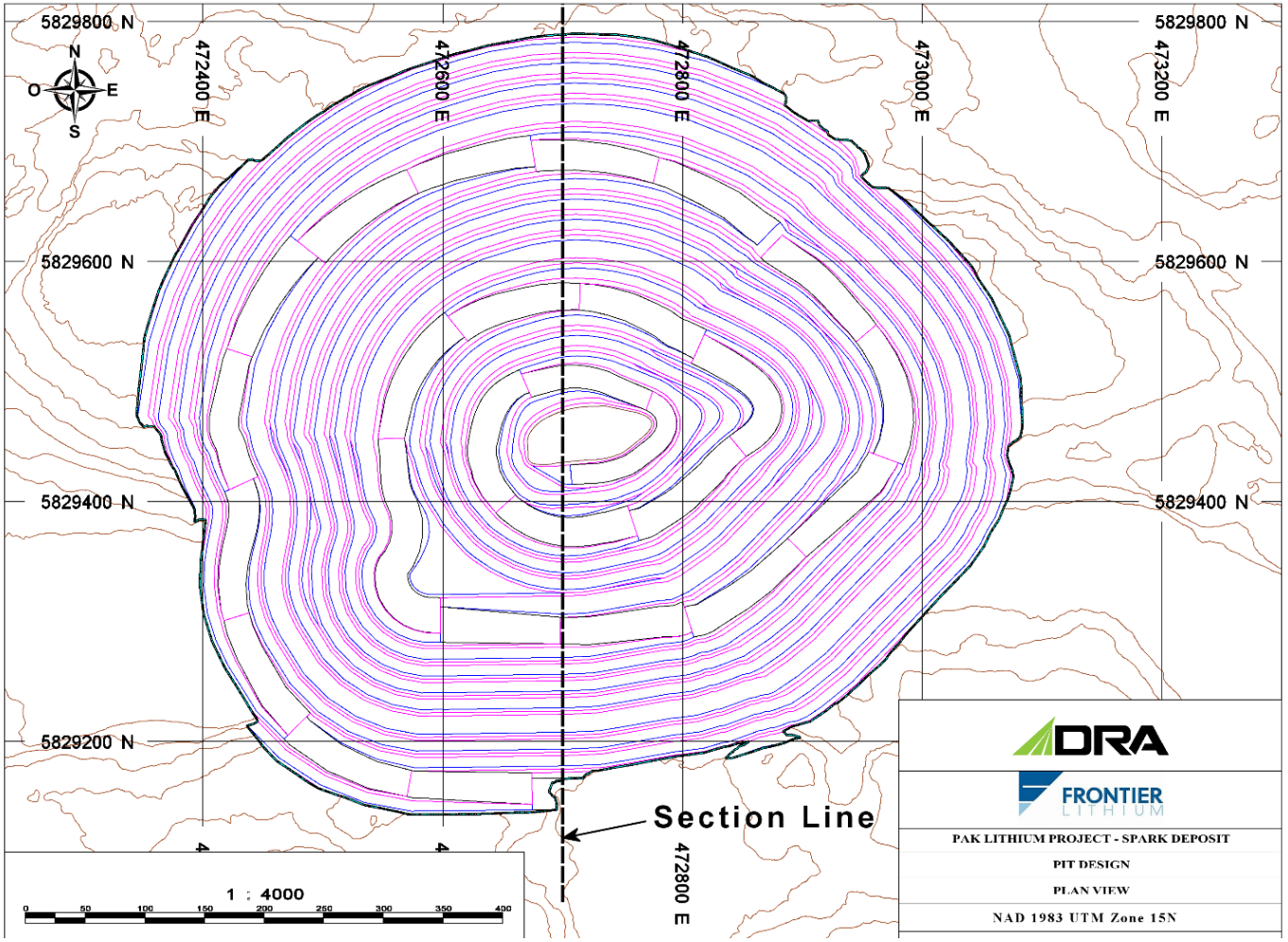
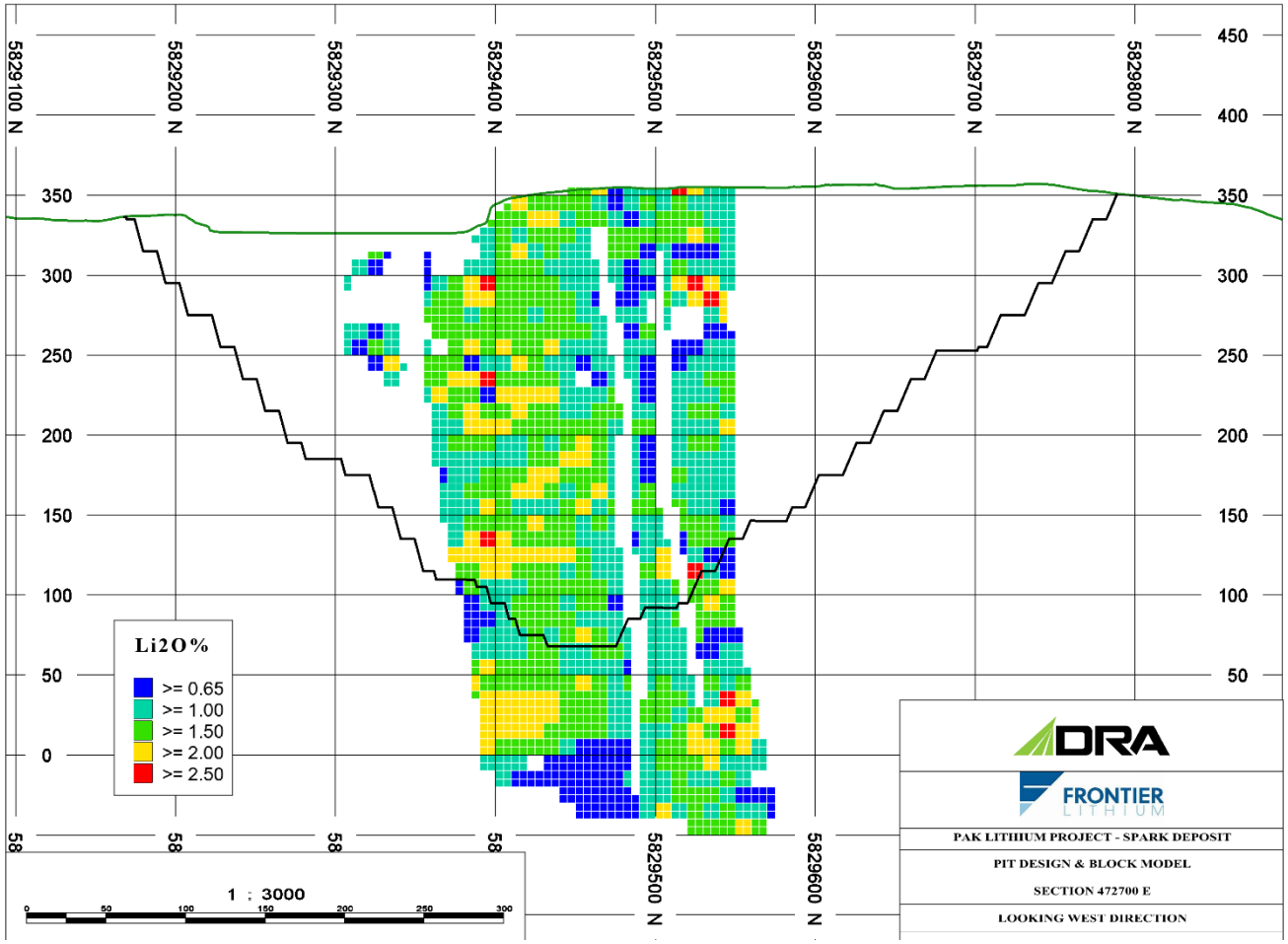


Figure 15.13 – Section View – Spark Ultimate Pit Design



16 MINING METHODS

16.1 Introduction

The Mineral Reserve Estimates in Section 15 are supported by the open pit mine planning summarized in this section. Detailed open pit mine production schedules, mobile fleet productivities, and mine capital and operating cost estimates have been developed for the PAK Project at a Feasibility Study level of engineering. These elements have been utilized to perform FS level mine planning for the Project, which proposes a concentrator plant feed production rate 1,040,000 tpa for Chemical Grade (CG) ore.

Open pit mining was selected as a viable option for the FS due to the mineralization being located at or near the surface. Vegetation, topsoil and overburden will be stripped and stockpiled for future reclamation use. The ore and waste rock will be mined with 10 m high benches, drilled, blasted and loaded into rigid frame haul trucks with hydraulic excavators and front-end loaders.

The material will be transported from the bench to the crusher, ROM stockpile, or waste stockpiling areas, depending on its type. Ancillary equipment will include dozers, graders, and various maintenance, support, service, and utility vehicles.

This Report assumes an owner-operator scenario, with drilling and blasting activities contracted out.

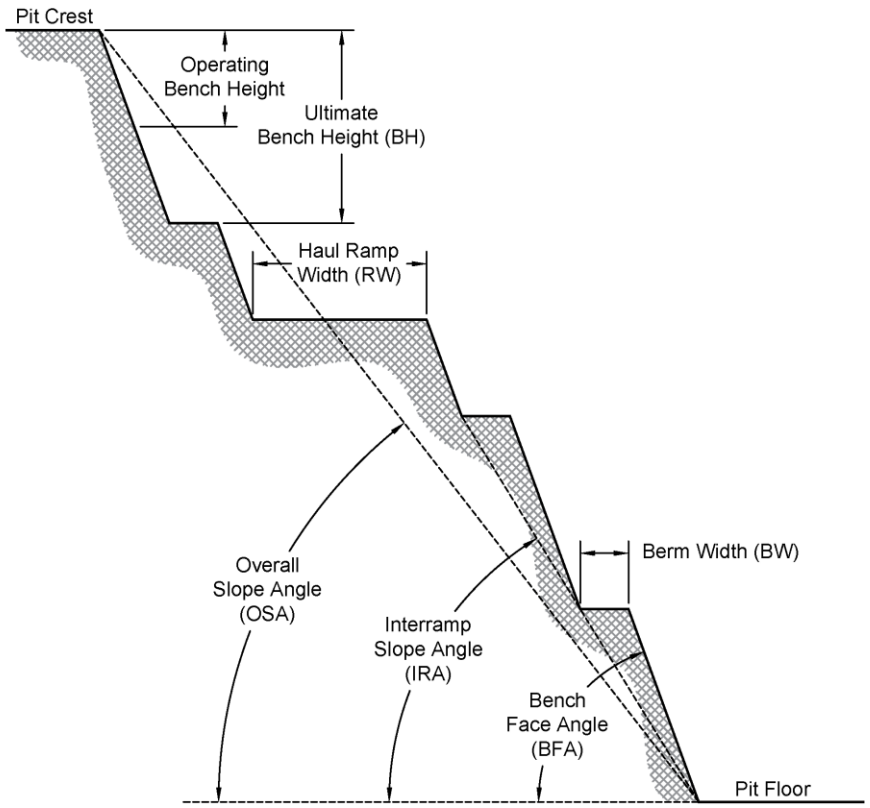
16.2 Pit Design

The pit designs parameters are guided by the Pit Limit Analysis previously described in Section 15 and were confirmed with the additional data collected during the 2024 drilling season.

16.2.1 Bench Design

Figure 16.1 illustrates the parameters used for the pit design slope.

Figure 16.1 – Typical Pit Slope Design Terminology



Source: DRA, 2025

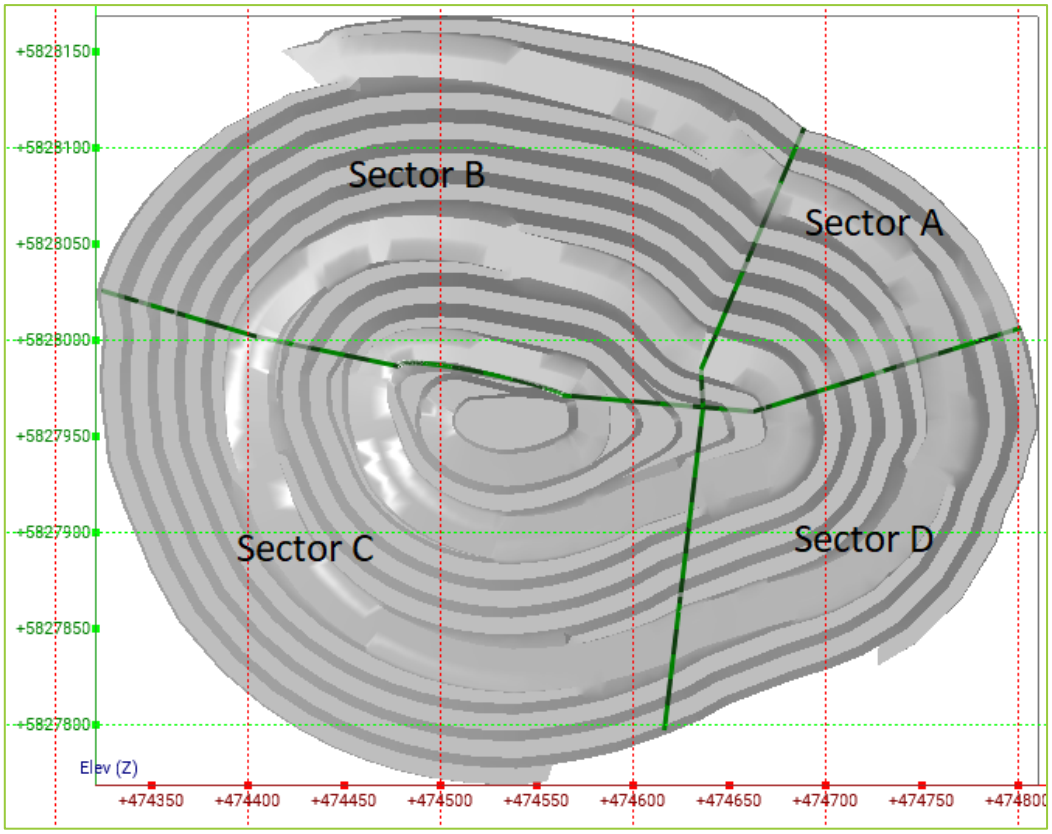
16.2.2 SLOPE DESIGN PARAMETERS – PAK

Figure 16.2 shows geotechnical sectors for PAK, and Table 16.1 shows the corresponding bench design parameters for each of those sectors.

Table 16.1 – PAK Bench Design Parameters

Parameter	Unit	Sector A	Sector B	Sector C	Sector D
Bench Face Angle	°	70	70	75	75
Working Bench Height	m	10	10	10	10
Safety Berm Width	m	8.5	8.5	8.5	8.5
Berm Frequency		2	2	2	2
Bench Height	m	20	20	20	20
Inter-ramp Slope Angle	°	51.7	51.7	55.3	55.3
Overall Slope Angle	°	39.0	41.0	43.0	39.0

Figure 16.2 – PAK Geotechnical Sectors



Source: DRA, 2025

As standard practice for slopes greater than 150 m in height, not cut by a ramp, it is recommended to install a 15 m wide geotechnical catch bench for every 150 m of vertical separation. These geotechnical berms act as safety controls on rock fall.

Due to wrap around ramps as currently designed, the PAK pit design did not produce slopes greater than 150 m in height.

For slopes that are in overburden, an overall slope angle of 25° was applied.

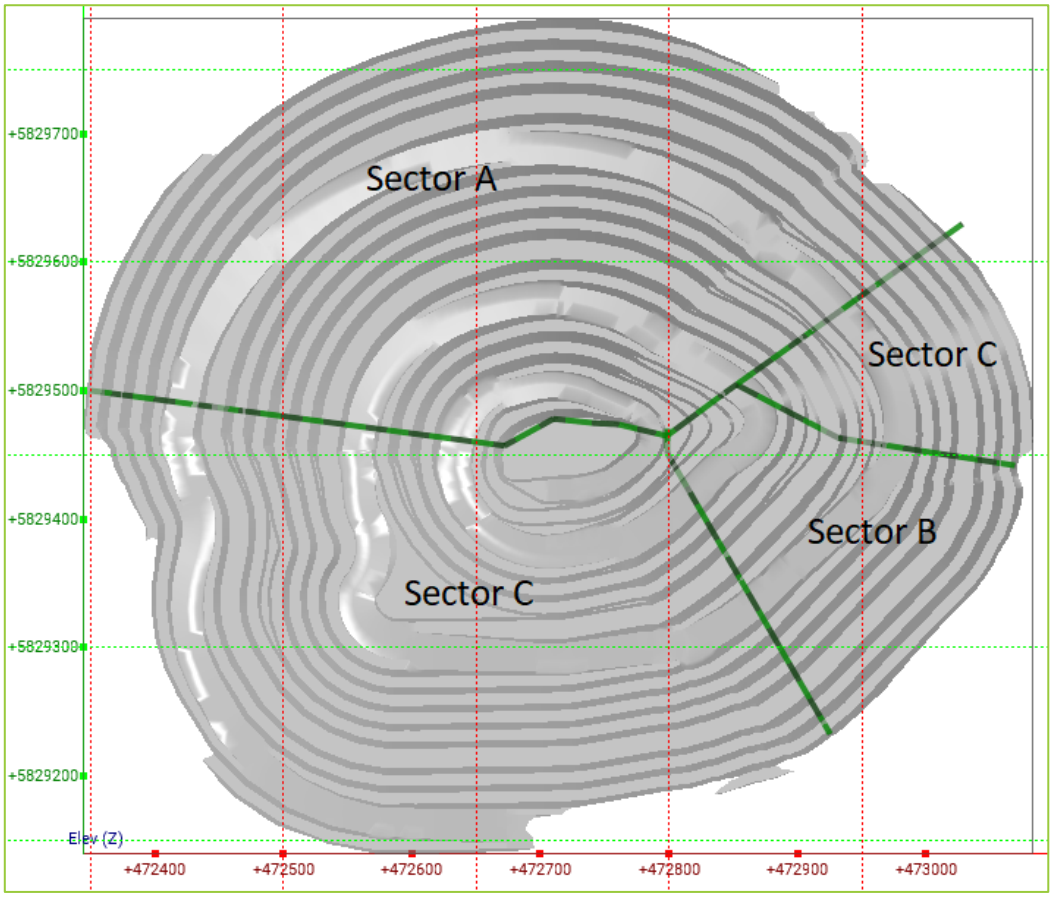
16.2.3 Slope Design Parameters – Spark

Figure 16.3 shows geotechnical sectors for Spark, and Table 16.2 shows the corresponding bench design parameters for each of the sectors.

Table 16.2 – Spark Bench Design Parameters

Parameter	Unit	Sector A	Sector B	Sector C
Bench Face Angle	°	70	70	75
Bench Face Angle	m	67	69	75
Working Bench Height	m	10	10	10
Safety Berm Width		8.5	8.5	8.5
Berm Frequency	m	2	2	2
Bench Height	°	20	20	20
Inter-ramp Slope Angle	°	50	51	55
Overall Slope Angle	°	40.5	41.5	41.5

Figure 16.3 – Spark Geotechnical Sectors



Source DRA 2025

As standard practice for slopes greater than 150 m in height, not cut by a ramp, it is recommended to install a 15m wide geotechnical catch bench for every 150 m vertical separation. These geotechnical berms act as safety controls on rock fall.

Due to wrap around ramps as currently designed, the Spark pit design did not produce slopes greater than 150 m in height. For slopes that are in overburden, an overall slope angle of 25° was applied.

16.2.4 PIT DESIGN – PAK

16.2.4.1 Ultimate Pit Design

The ultimate pit design for the PAK deposit is summarized in Table 16.3.

Table 16.3 – General Ultimate Pit Statistics – PAK

Item	Unit	Value
Pit Top Elevation	m	315
Pit Bottom Elevation	m	150
Pit Exit Elevation	m	315
Pit Depth	m	165
Volume of Pit	m^3	10,162,950
Area of Pit Top	m^2	146,900
Perimeter at the Top of the Pit	m	1,480
Length from East to West	m	485
Length from North to South	m	400

The contents within the PAK ultimate pit design are presented in Table 16.4, with figures derived from the re-blocked block model.

Table 16.4 – Pit Inventory – PAK

Material	Reserve Category	Tonnes (kt)	Li_2O (%)	Rb_2O (%)	Cs_2O (%)	Ta_2O_5 (ppm)
0.65% Li_2O COG	Proven	2,520	1.97	0.26	0.03	94.71
	Probable	1,427	1.94	0.30	0.04	89.16
	Proven + Probable	**3,947**	**1.96**	**0.27**	**0.04**	**92.71**
CIZ		396	1.41	0.62	0.08	99.00
Overburden		1,405				
Waste		**21,647**				
Total Waste Rock		**23,448**				
Total Mined		**27,395**				
Stripping Ratio		**5.9**				

The estimated mining dilution and loss within the FS pit design for PAK are based on a re-blocked model using a 5 m x 5 m x 5 m block size, with an additional 0.5 m of external dilution from adjacent waste blocks.

16.2.4.2 PAK Phases

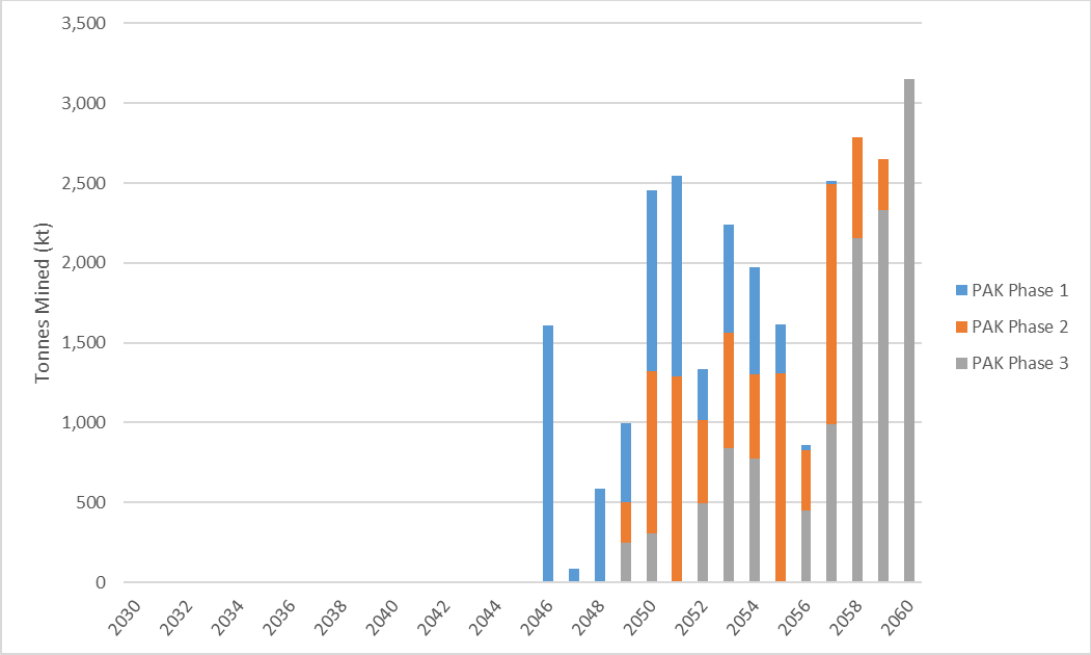
Three (3) phases are proposed for the PAK FS design, guided by the pushback generation in Hexagon MinePlan 3D Project Evaluator. These pushbacks or phases are determined by the pushback design strategy, including factors such as: maximum number of pushbacks, pushback size, mining direction, minimum mining width, and economic value. The final phase (Phase 3) is constrained by the ultimate pit with an RF 0.60. Table 16.5 and Figure 16.4 show the incremental tonnages and grades for each phase, while Figures 16.5 and 16.6. show phase design graphically.

Table 16.5 – Pit Phase Inventory - PAK

Rock Type	Reserves Category	Phase 1		Phase 2		Phase 3	
		Tonnage (kt)	Li_2O (%)	Tonnage (kt)	Li_2O (%)	Tonnage (kt)	Li_2O (%)
Concentrator Plant Feed	**Proven & Probable**	**1,896**	**2.06**	**881**	**1.84**	**1,170**	**1.90**
LIZ	Proven	1,896	2.06	449	1.85	175	1.37
	Probable	-	-	432	1.84	996	1.99
Waste Rock		**5,291**		**7,599**		**10,557**	
Overburden		333		542		530	
CIZ		290	1.53	99	1.11	7	0.70
Waste		4,668		6,958		10,020	

Rock Type	Reserves Category	Phase 1		Phase 2		Phase 3	
		Tonnage (kt)	Li_2O (%)	Tonnage (kt)	Li_2O (%)	Tonnage (kt)	Li_2O (%)
Total Mined (kt)		**7,187**		**8,480**		**11,727**	
Stripping Ratio		**2.8**		**8.6**		**9.0**	

Figure 16.4 – PAK Material Mined by Phases



Source: DRA 2025

Figure 16.5 – Phase Design – PAK – Plan View

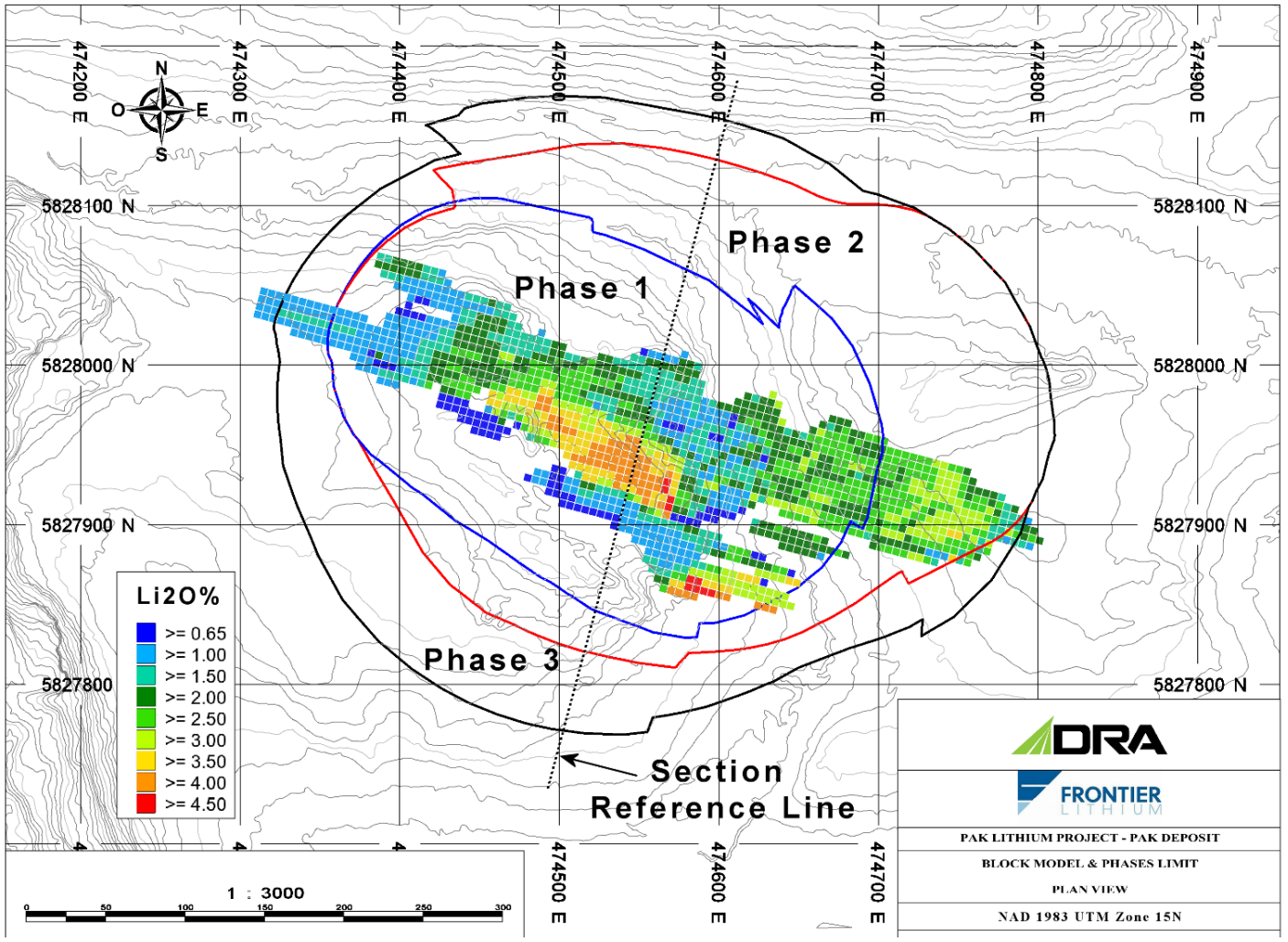
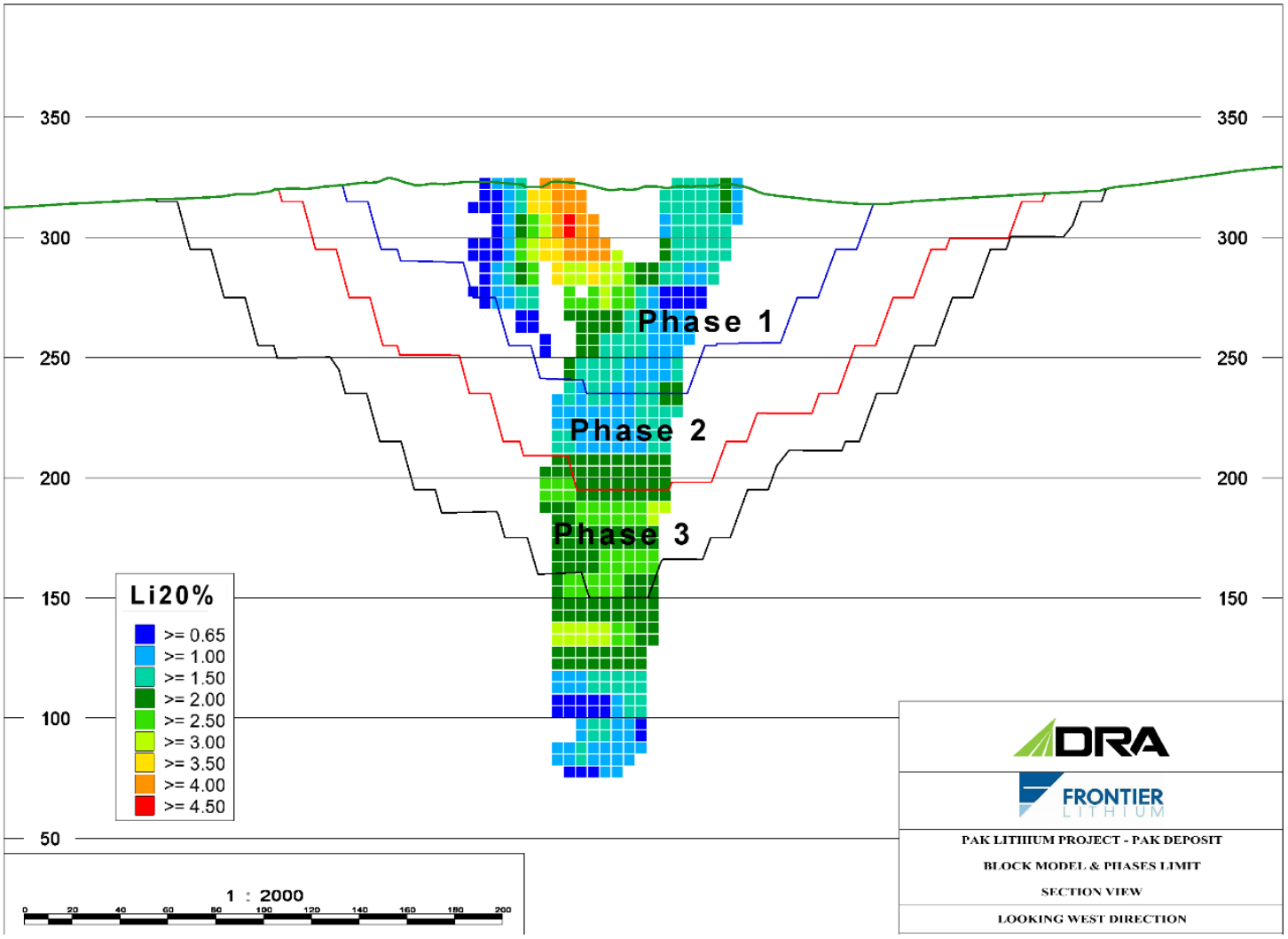


Figure 16.6 – Phase Design – PAK – Long Section View



16.2.5 PIT DESIGN – SPARK

16.2.5.1 Ultimate Pit Design

Based on Table 16.2, the ultimate pit design for the Spark Deposit is summarized in Table 16.6.

Table 16.6 – General Ultimate Pit Statistics - Spark

Item	Unit	Value
Pit Top Elevation	m	348
Pit Bottom Elevation	m	68
Pit Exit Elevation	m	335
Pit Depth	m	280
Volume of Pit	m^3	40,734,810
Area of Pit Top	m^2	359,150
Perimeter at the Top of the Pit	m	2,450
Length from East to West	m	735
Length from North to South	m	650

The contents of the Spark ultimate pit design are presented in Table 16.7. The figures are derived from a regularized block model.

Table 16.7 – Pit Inventory - Spark

Material	Reserve Category	Tonnes (kt)	Li_2O (%)	Cs_2O (%)	Fe (%)	Fe_2O_3 (%)	Nb_2O_5 (ppm)	Rb_2O (%)	SnO_2 (ppm)	Ta_2O_5 (ppm)
Ore										
0.65% Li_2O COG	Proven	13,670	1.51	0.02	1.06	1.52	83.26	0.26	56.47	100.76
	Probable	13,514	1.37	0.03	1.26	1.80	79.16	0.27	68.14	118.78
	Proven + Probable	**27,183**	**1.44**	**0.03**	**1.16**	**1.66**	**81.23**	**0.26**	**62.27**	**109.72**
Waste										
Overburden		1,546								
Waste		89,335								
Total Waste Rock		**90,881**								
Total Mined		**118,064**								
Stripping Ratio		**3.3**								

The estimated mining dilution and loss within the FS Pit Design for Spark are based on a re-blocked model using 5 m x 5 m x 5 m block size, with an additional 0.5 m of external dilution from adjacent waste blocks.

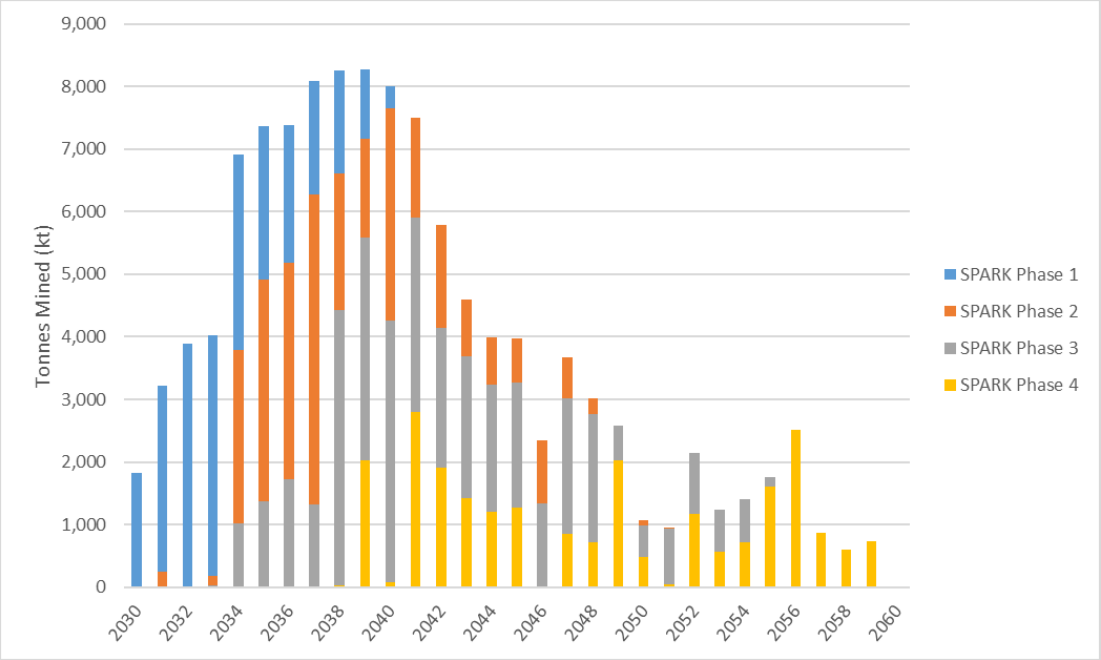
16.2.5.2 Spark Phases

Four (4) phases are proposed for the Spark FS design, guided by pushback generation in Hexagon MinePlan 3D Project Evaluator. These pushbacks or phases are determined by the pushback design strategy, which includes factors such as: maximum number of pushbacks, pushback size, mining direction, minimum mining width, and economic value. The final phase (Phase 4) is constrained by the ultimate pit with an RF 0.45. Table 16.8 and Figure 16.7 show the incremental tonnages and grades of each phase, while Figures 16.8 and 16.9 depict the phase design.

Table 16.8 – Pit Phase Inventory - Spark

Rock Type	Reserve Category	Phase 1		Phase 2		Phase 3		Phase 4	
		Tonnage (kt)	Li_2O Grade (%)	Tonnage (kt)	Li_2O Grade (%)	Tonnage (kt)	Li_2O Grade (%)	Tonnage (kt)	Li_2O Grade (%)
Concentrator Plant Feed	**Proven & Probable**	**9,602**	**1.46**	**5,953**	**1.48**	**6,183**	**1.41**	**5,445**	**1.39**
Pegmatite	Proven	5,913	1.53	4,665	1.52	2,488	1.45	603	1.44
	Probable	3,689	1.36	1,287	1.34	3,696	1.38	4,841	1.39
Waste Rock		**15,598**		**23,913**		**33,070**		**18,298**	
Overburden		1,289		151		105		-	
Waste Rock		14,308		23,762		33,070		18,298	
Total Mined		**25,200**		**29,866**		**39,253**		**23,743**	
Stripping Ratio		**1.5**		**4.0**		**5.3**		**3.4**	

Figure 16.7 – Spark Material Mined by Phases



Source: DRA, 2025

Figure 16.8 – Phase Design – Spark – Plan View

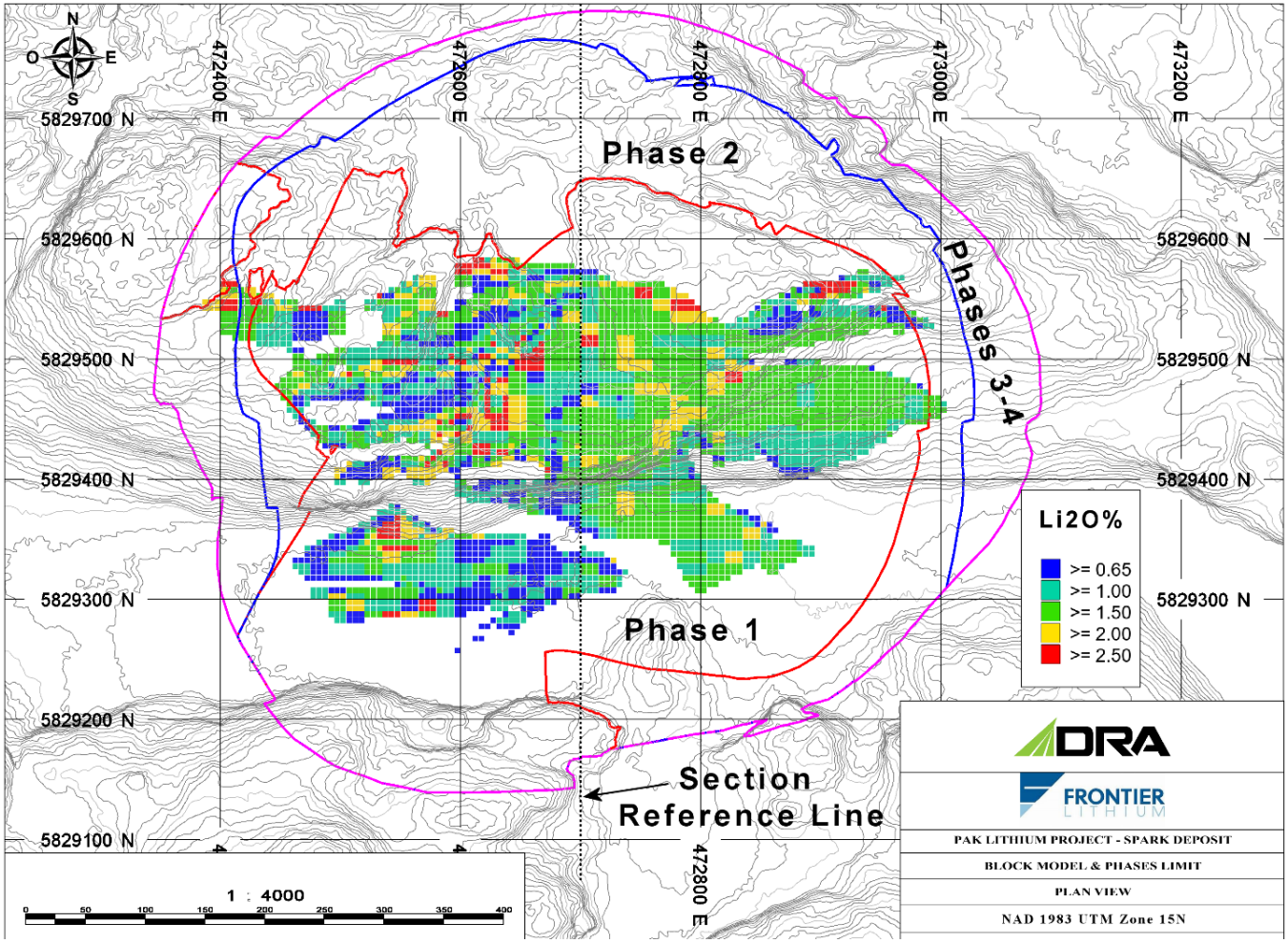
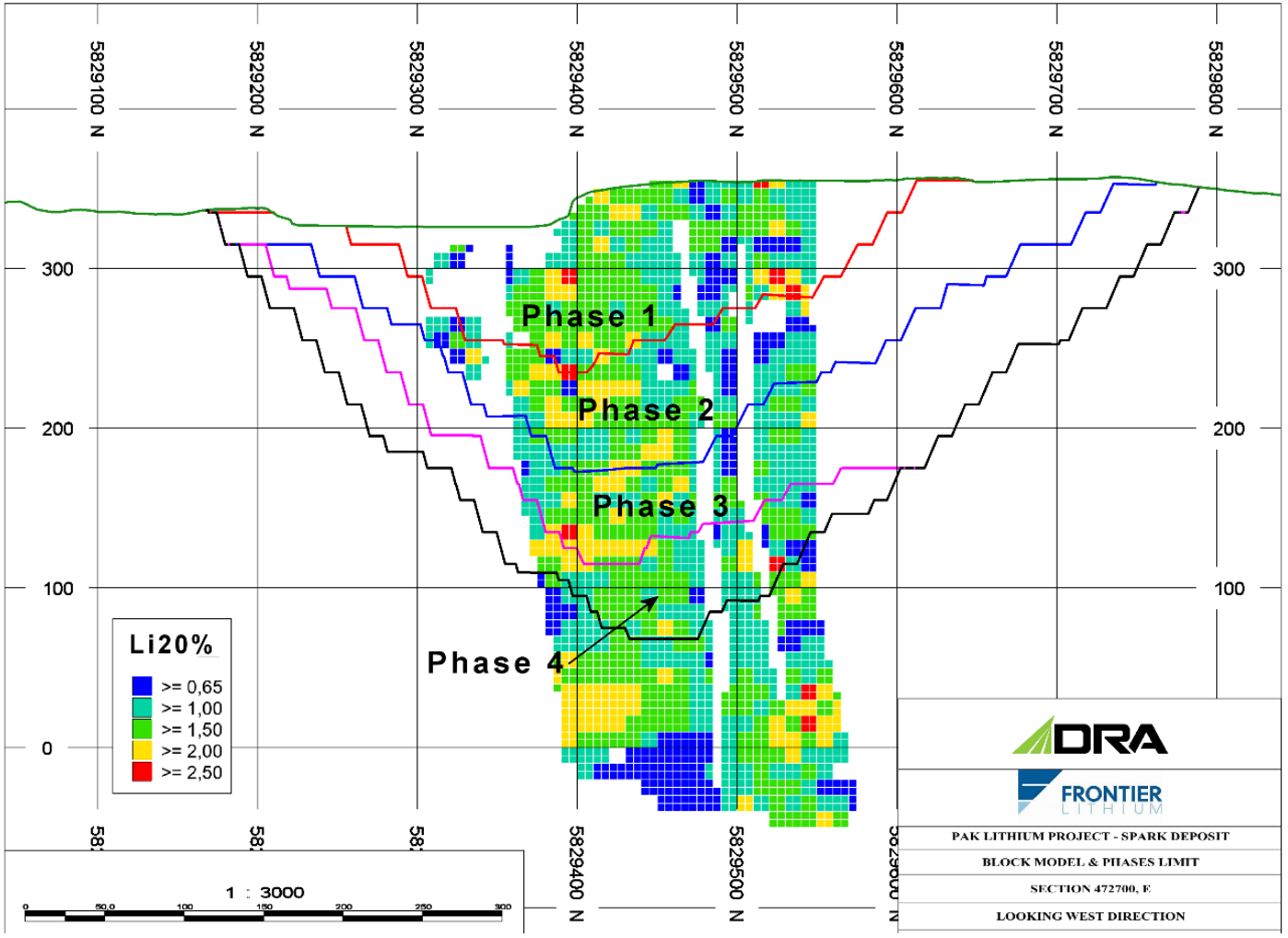


Figure 16.9 – Phase Design – Spark – Section View (472700E, Looking West)



16.3 Mine Waste 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 SLR.

The design criteria for the waste (mine rock and overburden) storage facilities are summarized in Tables 16.9 and 16.10, respectively.

Table 16.9 – Mine Waste Rock Storage Facilities Design Criteria

Item Description	Unit	Value
Lift Height	m	10
Lift Face Angle	°	35
Berm Width	m	5.8
Maximum Height	m	120
Overall Slope	°	26
Ramp Width	m	22
Ramp Gradient	%	8

Table 16.10 – Overburden Storage Facilities Design Criteria

Item Description	Unit	Value
Lift Height	m	5
Lift Face Angle	°	27
Berm Width	m	10.3
Maximum Height	m	30
Overall Slope	°	15
Ramp Width	m	22
Ramp Gradient	%	6

16.3.1 PAK AREA

Waste rock generated from the open pit will require development of waste rock storage areas. This waste includes Waste Rock Storage Facilities (WRSF) and Overburden Storage Facilities (OVBSF).

The proposed mine plan will generate approximately 27.3 Mt of waste rock material, which include mill reject and excludes overburden. Assuming a swell factor of 30%, a volume of 13.0 Mm³ of waste storage is required.

The WRSF and OVBSF size requirements are provided in Tables 16.11 and 16.12. The storage capacity is designed to accommodate waste rock generated from the open pit operations.

Two (2) stockpiling areas are required:

- WRSF, which will contain:
  - All waste material from the PAK open pit consisting of a mix of high and low sulphide rock. Most of the material is classified as Non-Potentially Acid Generating (NPAG), with a minor proportion identified as Potentially Acid Generating (PAG). As a result, mine water from this source is expected to exhibit a combination of acidic and circumneutral pH drainage. Waste rock from PAK has potential for metal leaching.
  - CIZ material, which is mineralized and not currently recoverable with the present concentrator plant flowsheet.
  - Concentrator plant rejects from the ore sorters (PAK and Spark).
- OVBSF, which will contain:
  - Overburden material.

Table 16.11 – PAK Mine Waste Rock Stockpile Design Capacity

Item Description	Unit	WRSF (Waste)	WRSF (Concentrator Reject)
Waste Rock Tonnage to Store	t	22,040,050	5,656,400
Waste Rock Specific Gravity	t/m³	2.76	2.76
Waste Rock Volume to Store	m³	7,988,785	2,049,400
Swell	%	30	30
Total Waste Rock Volume Capacity Requirement	**m³**	**10,382,890**	**2,664,300**
		13,047,190	
Designed Capacity	m³	13,635,700	
Maximum Lift	m	390	
Lowest Elevation	m	320	
Footprint Area	m²	539,140	
Surface Area	m²	518,175	
Perimeter	m	4,485	

Table 16.12 – PAK Overburden Stockpile Design Capacity

Item Description	Unit	OVB WRSF
Overburden Tonnage to Store	t	1,404,600
Overburden Specific Gravity	t/m³	1.90
Overburden Volume in Pit Design (from block model)	m³	739,200
Contingency	%	15
Overburden Volume to Store	m³	850,000
Swell	%	20
Total Overburden Volume Capacity Requirement	**m³**	**1,020,200**
Designed Capacity	m³	1,054,200
Maximum Lift	m	345
Lowest Elevation	m	320
Footprint Area	m²	82,190
Surface Area	m²	82,140
Perimeter	m	1,130

16.3.2 SPARK AREA

Waste rock generated from the Spark open pit will also require the development of waste rock storage areas, for mine waste rock and overburden.

The proposed mine plan will generate approximately 89.3 Mt of waste rock material, which excludes overburden. Assuming a swell factor of 30%, a volume of 39.2 Mm³ of waste storage is required.

The stockpile size requirements for Spark are provided in Tables 16.13 and 16.14. The storage capacities are designed to accommodate waste rock generated from the open pit operations.

Two (2) stockpiling areas are required:

- WRSF, which will store waste rock material. Geochemical characterization of Spark rock indicates low sulphide content, with much of the material classified as NPAG. Only a very small fraction (~1% of samples) is classified as PAG. As a result, mine water associated with Spark waste rock is expected to exhibit circumneutral pH drainage. Waste rock from Spark has the potential for metal leaching.
- OVBSF, which will store overburden material.

Table 16.13 – Spark Mine Waste Rock Stockpile Design Capacity

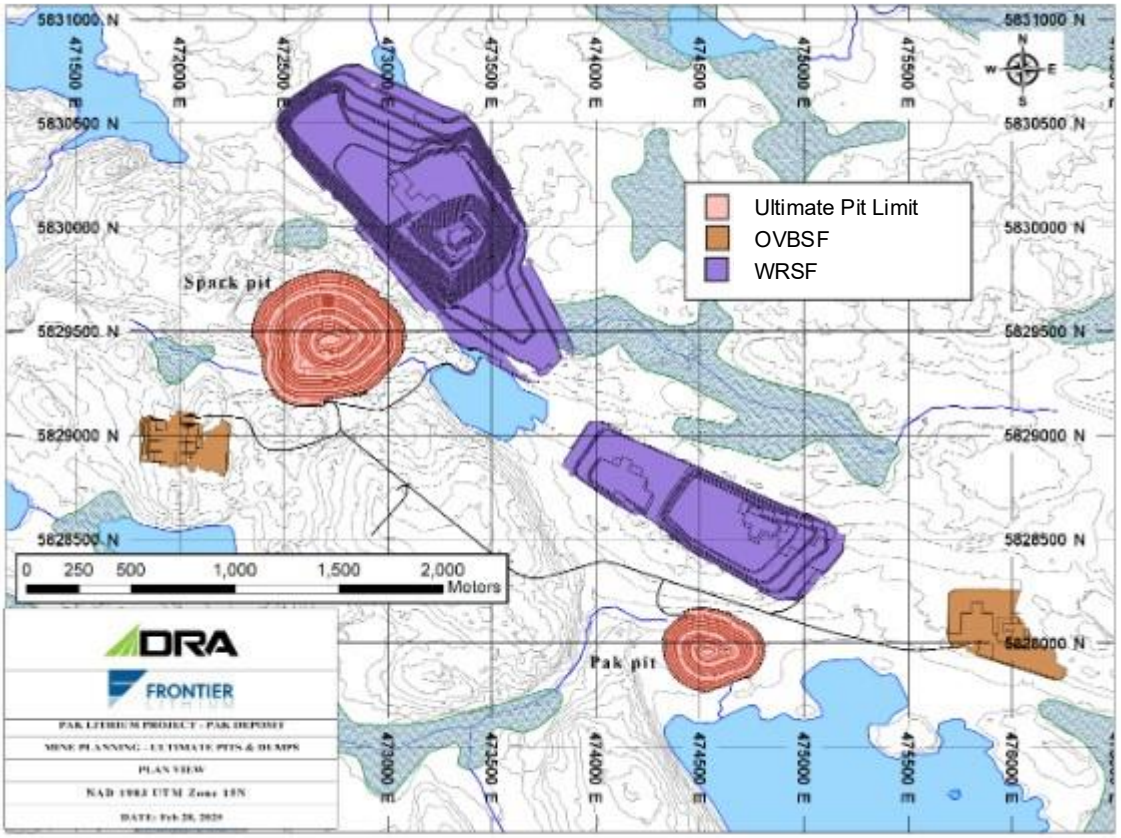
Item	Unit	WRSF
Waste Rock Tonnage to Store	t	89,272,250
Waste Rock SG	-	2.96
Waste Rock Volume to Store	m³	30,191,800
Swell (including compaction)	%	30
Total Waste Rock Volume Capacity Requirement	**m³**	**39,249,300**
Designed Capacity	m³	41,223,680
Maximum Lift	m	440
Lowest Elevation	m	321
Footprint Area	m²	1,049,740
Surface Area	m²	1,046,760
Perimeter	m	5,575

Table 16.14 – Spark Overburden Stockpile Design Capacity

Item	Unit	OVBSF
Overburden Volume in Pit Design (from block model)	m³	1,545,717
Contingency	%	15
Overburden Volume to Store	m³	935,570
Swell	%	20
Total Overburden Volume Capacity Requirement	**m³**	**1,122,680**
Designed Capacity	m³	1,396,300
Maximum Lift	m	370
Lowest Elevation	m	346
Footprint Area	m²	113,655
Surface Area	m²	112,450
Perimeter	m	1,558

Figure 16.10 illustrates the plan view of the PAK and Spark open pits, as well as their associated waste storage facilities for mine waste and overburden.

Figure 16.10 – Plan View of Mine Rock and Overburden Stockpiles for PAK and Spark



16.4 Life of Mine Production Schedule

The LOM production schedule for the open pits was developed using the MinePlan Schedule Optimizer (MPSO) tool within HexagonTM MinePlan 3D software. By integrating economic input parameters and operational constraints like phase sequencing, maximum bench sink rates, and mining and concentrating capacities, the software determines the optimal mining sequence and ore stockpiling strategy, ultimately maximizing the NPV of the mine production plan.

The overall objective of the mine scheduling and planning process is to maximize Project NPV while aligning with the processing plant objectives and targets. Typically, this entails postponing overburden and waste rock removal activities to minimize costs when feasible. This objective remains pivotal throughout all phases of the mine design and planning.

A comprehensive mine production schedule was established based on the following assumptions and criteria:

- One (1) processing line with a capacity of 200,000 tpa of Chemical Grade (CG) concentrate or 1,040,000 tpa of ore.

- Processing plant is scheduled to commission on Q3 of Year 1.
- Process plant feed incorporates a production ramp-up of 9 months.
- Average mining rate for both of ore and waste throughout the LOM is estimated to be 4.7 Mtpa, with a peak production rate of 8.3 Mtpa projected in Year 9.
- Maximum sink rate of 8 benches (80 m) per year.
- Maximum Fe_2O_3 grade in the mill feed is targeted at 1.4% whenever possible.
- Maximum material movement ex-pit per year:
  - From 1.8 – 1.82 Mt in 2029 to 8.3 – 9 Mt in 2038.
  - From 8.5 Mt in 2039 to 4 Mt in 2046.
  - Maximum of 3.5 Mt from 2047 until end of LOM.
- Prioritize the Spark pit first, postponing the PAK pit until later in the LOM plan (Year 18).
- Production schedule will be developed monthly for Years 1, 2 and 3. From Year 4 to Year 6, it will shift to quarterly and then transition to annually thereafter.
- Incorporate ROM stockpiles with a soft constraint of 165,000 t.
- Prioritize schedule constraints: concentrator feed tonnage, total mined tonnage per area, and ROM stockpiling balance.

The mine plan was developed to meet plant feed requirements, implementing open pit mine practices such as equipment fleet smoothing and maximizing NPV.

A pre-production stripping period of two (2) months at the Spark open pit is planned. Additionally, waste rock from the pits is not planned for use as construction material.

Tables 16.15 and 16.16 tabulate the LOM production plan.

Table 16.15 – LOM Production Schedule (Years 1 to 16)

Column Label	Unit	Total LOM	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
Mining Year			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Concentrator Plant Production Plan																		
PAK Mill Feed	kt	**3,947**																
	% Li_2O	**1.96**																
Spark Mill Feed	kt	**27,183**	182	1,005	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040
	% Li_2O	**1.44**	1.66	1.59	1.57	1.46	1.46	1.41	1.46	1.39	1.39	1.49	1.33	1.34	1.36	1.41	1.45	1.40
Total Mill Feed	kt	**31,131**	182	1,005	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040
	% Li_2O	**1.51**	1.66	1.59	1.57	1.46	1.46	1.41	1.46	1.39	1.39	1.49	1.33	1.34	1.36	1.41	1.45	1.40
Mine Production Plan																		
PAK																		
Waste Tonnes Mined	kt	**23,454**																
Ore Tonnes Mined	kt	**3,947**																
Ore Grade Mined	% Li_2O	**1.96**																
Total Tonnes Mined	kt	**27,401**																
Stripping Ratio	kt	**5.9**																
Spark																		
Waste Tonnes Mined	kt	**90,818**	1,550	2,261	2,827	3,016	5,737	6,315	6,339	7,055	7,237	7,225	6,958	6,460	4,750	3,554	2,946	2,935
Ore Tonnes Mined	kt	**27,183**	267	958	1,065	1,003	1,171	1,050	1,040	1,040	1,040	1,027	1,051	1,042	1,040	1,040	1,040	1,040
Ore Grade Mined	% Li_2O	**1.44**	1.64	1.60	1.54	1.48	1.43	1.40	1.44	1.38	1.39	1.49	1.33	1.33	1.36	1.41	1.45	1.41
Total Tonnes Mined	kt	**118,001**	1,817	3,219	3,892	4,019	6,908	7,365	7,379	8,095	8,264	8,277	8,000	7,500	5,790	4,594	3,986	3,975
Stripping Ratio	kt	**3.3**	5.8	2.2	2.7	3.0	4.9	6.0	6.1	6.8	7.0	6.9	6.7	6.2	4.6	3.4	2.8	2.8
Total																		
Waste Tonnes Mined	kt	**114,272**	1,550	2,261	2,827	3,016	5,737	6,315	6,339	7,055	7,237	7,225	6,958	6,460	4,750	3,554	2,946	2,935
Ore Tonnes Mined	kt	**31,131**	267	958	1,065	1,003	1,171	1,050	1,040	1,040	1,040	1,027	1,051	1,042	1,040	1,040	1,040	1,040
Ore Grade Mined	% Li_2O	**1.51**	1.64	1.60	1.54	1.48	1.43	1.40	1.44	1.38	1.39	1.49	1.33	1.33	1.36	1.41	1.45	1.41
Total Tonnes Mined	kt	**145,403**	1,817	3,219	3,892	4,019	6,908	7,365	7,379	8,095	8,264	8,277	8,000	7,500	5,790	4,594	3,986	3,975
Stripping Ratio	kt	**3.7**	5.8	2.2	2.7	3.0	4.9	6.0	6.1	6.8	7.0	6.9	6.7	6.2	4.6	3.4	2.8	2.8
Material Rehandle																		
STPL[1] To Crusher	kt	4,354	182	455	377	525	365	360	334	91	65	48	26	38	8	4	16	33

[1] STPL – Stockpile

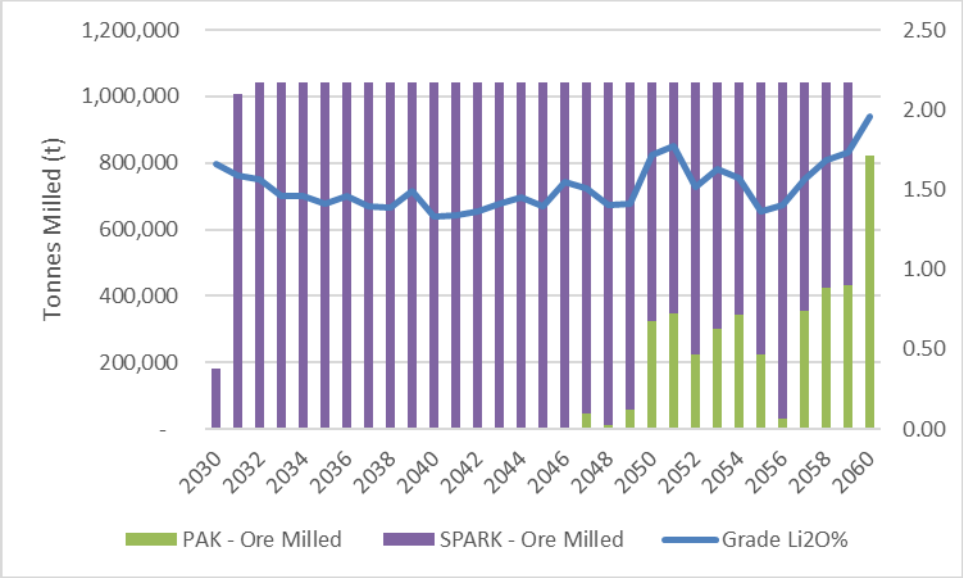
Table 16.16 – LOM Production Schedule (Years 17 to 31)

Column Label	Unit	Total LOM	2046	2047	2048	2048	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060
Mining Year			17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Concentrator Plant Production Plan																	
PAK Mill Feed	kt	**3,947**	-	47	12	60	325	346	226	300	344	223	31	354	426	432	823
	% Li_2O	**1.96**	0.00	2.44	1.44	2.76	2.41	2.44	1.82	1.95	1.72	1.60	1.55	1.64	1.81	2.00	1.96
Spark Mill Feed	kt	**27,183**	1,040	993	1,028	980	715	694	814	740	696	817	1,009	686	614	608	0
	% Li_2O	**1.44**	1.55	1.60	1.79	2.02	2.02	2.09	1.82	1.56	1.79	2.28	2.07	2.11	1.61	1.57	0.00
Total Mill Feed	kt	**31,131**	1040	1040	1040	1040	1040	1040	1040	1040	1040	1040	1040	1040	1040	1040	823
	% Li_2O	**1.51**	1.54	1.51	1.40	1.41	1.72	1.77	1.52	1.63	1.57	1.36	1.40	1.57	1.68	1.73	1.96
Mine Production Plan																	
PAK																	
Waste Tonnes Mined	kt	**23,454**	1,563	73	527	906	2,122	2,166	1,247	1,939	1,630	1,392	826	2,112	2,381	2,244	2,326
Ore Tonnes Mined	kt	**3,947**	47	12	60	93	333	383	88	303	341	223	35	401	404	403	823
Ore Grade Mined	% Li_2O	**1.96**	2.44	1.44	2.76	2.57	2.43	2.18	1.77	1.94	1.73	1.60	1.60	1.69	1.83	1.96	1.96
Total Tonnes Mined	kt	**27,401**	1,610	85	587	999	2,454	2,549	1,335	2,242	1,971	1,615	861	2,513	2,784	2,647	3,150
Stripping Ratio	kt	**5.9**	33.5	6.2	8.8	9.8	6.4	5.7	14.2	6.4	4.8	6.3	23.6	5.3	5.9	5.6	2.8
Spark																	
Waste Tonnes Mined	kt	**90,818**	1,352	2,643	2,022	1,629	369	300	1,212	553	643	1,109	1,345	241	97	135	0
Ore Tonnes Mined	kt	**27,183**	990	1,021	991	947	707	657	935	688	762	655	1,170	633	510	605	0
Ore Grade Mined	% Li_2O	**1.44**	1.57	1.46	1.41	1.33	1.41	1.47	1.42	1.50	1.53	1.25	1.40	1.57	1.59	1.54	0.00
Total Tonnes Mined	kt	**118,001**	2,342	3,665	3,013	2,576	1,076	957	2,147	1,241	1,405	1,764	2,515	874	607	740	0
Stripping Ratio	kt	**3.3**	1.4	2.6	2.0	1.7	0.5	0.5	1.3	0.8	0.8	1.7	1.1	0.4	0.2	0.2	0
Total																	
Waste Tonnes Mined	kt	**114,272**	2,596	2,713	2,543	2,125	2,142	2,436	2,250	2,413	2,273	2,502	2,171	2,354	2,477	2,380	2,326
Ore Tonnes Mined	kt	**31,131**	1,040	1,036	1,033	1,051	1,040	1,040	1,040	1,023	992	1,103	878	1,205	1,034	913	1,008
Ore Grade Mined	% Li_2O	**1.51**	1.41	1.61	1.46	1.48	1.44	1.74	1.73	1.45	1.63	1.59	1.34	1.41	1.61	1.70	1.71
Total Tonnes Mined	kt	**145,403**	3,952	3,750	3,600	3,575	3,530	3,506	3,482	3,483	3,376	3,379	3,376	3,388	3,391	3,387	3,150
Stripping Ratio	kt	**3.7**	2.8	2.6	2.4	2.4	2.4	2.4	2.4	2.5	2.1	2.9	1.8	2.3	2.7	2.4	2.8
STPL[1] To Crusher	kt	4,354	51	67	55	124	97	152	165	97	99	162	0	165	159	32	0

[1] STPL – Stockpile

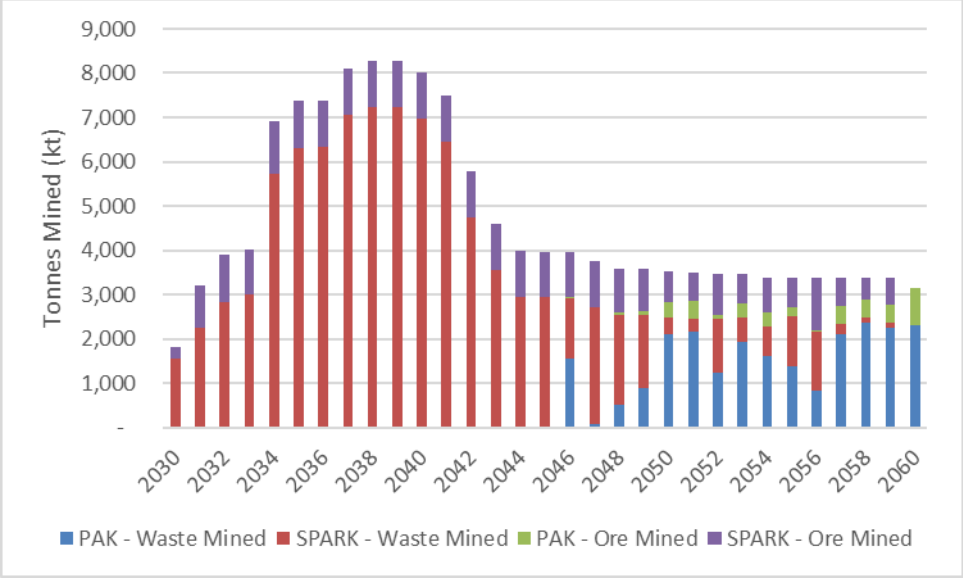
Figure 16.11 to Figure 16.13 illustrate the LOM production plan graphically in further detail.

Figure 16.11 – LOM Schedule – Tonnes and Grade to Concentrator Plant



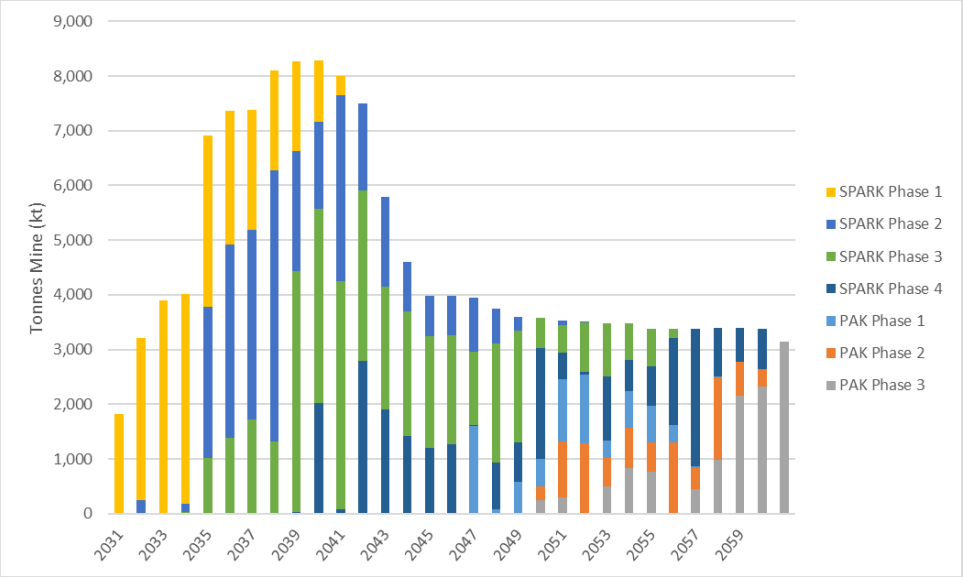
Source: DRA 2025

Figure 16.12 – LOM Schedule – Total Material Mined by Pit and Material Type



Source: DRA 2025

Figure 16.13 – LOM Schedule – Total Material Mined by Pit and Phases



Source: DRA 2025

Table 16.17 presents the estimated maximum footprint for each of the ROM stockpiles, which is determined as follows:

- The capacity for the ore stockpile can be adjusted as needed for the operational requirement, as long as it remains within the designed ore storage footprint.
- Specifications for stockpile:
  - Slope (3H:1V), Density (2.12 t/m³)

Table 16.17 – ROM Stockpiling Requirements

Description	Unit	Chemical Stockpile
Peak Tonnage to Stockpile	t	165,000
Peak Volume to Stockpile	m³	78,000
Approximate Dimensions		
Length (L)	m	115
Width (W)	m	115
Height	m	10

16.5 Mining Sequence

Figure 16.14 through Figure 16.29 depict the expected progression of the PAK and Spark open pits on an annual basis for select years.

Figure 16.14 – End of Year 1 Progression Plan - Spark

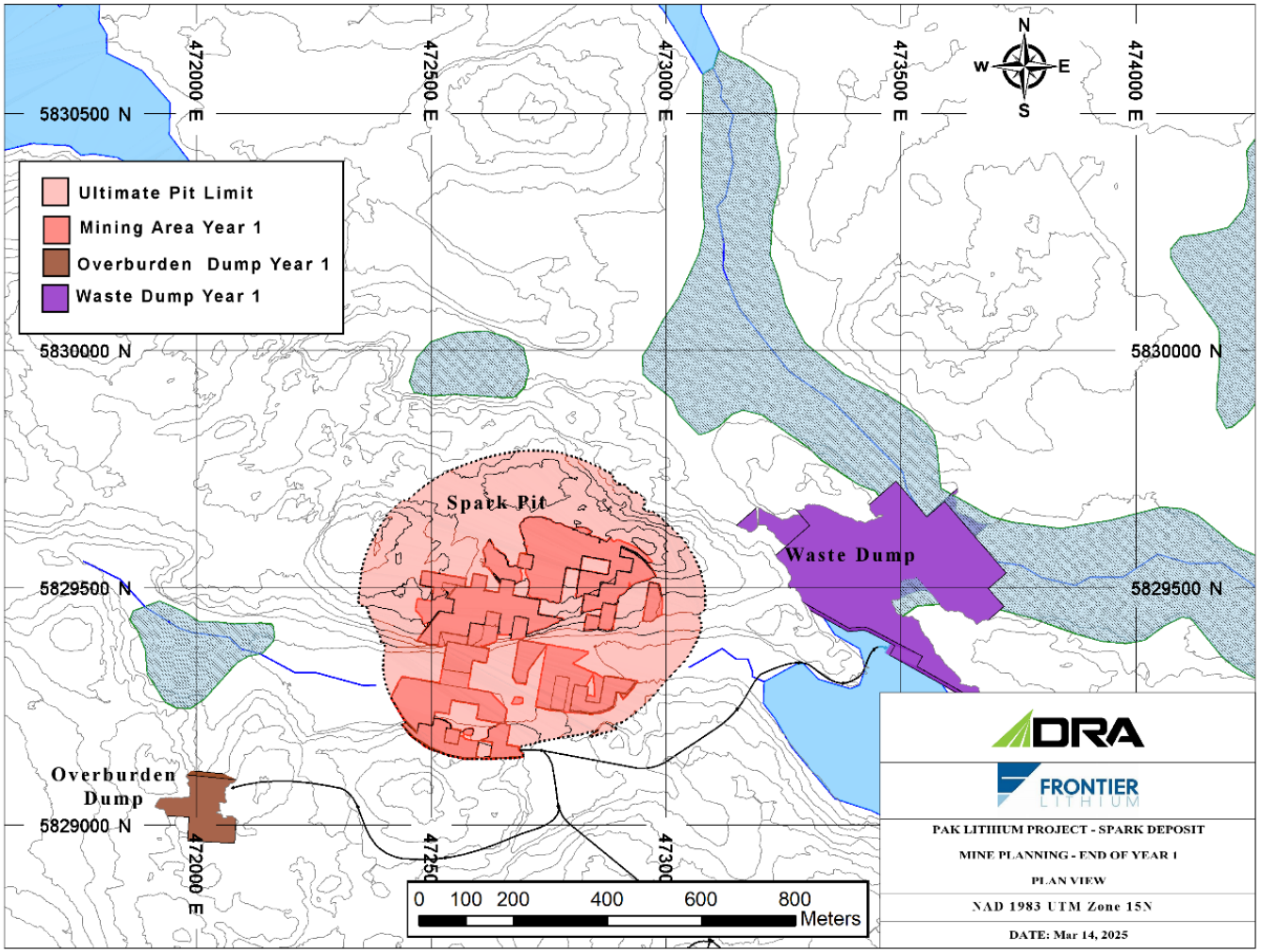


Figure 16.15 – End of Year 2 Progression Plan - Spark

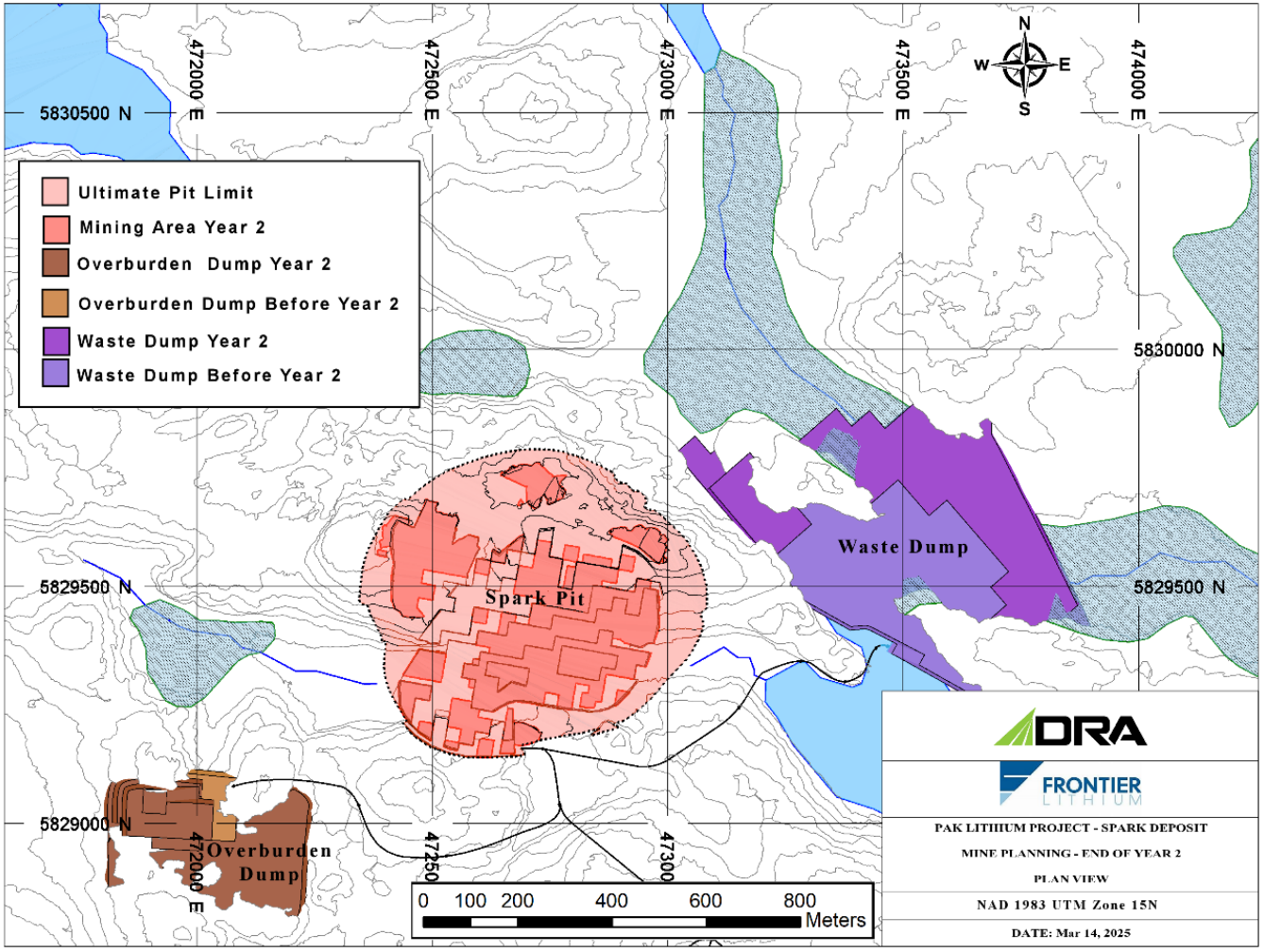


Figure 16.16 – End of Year 3 Progression Plan - Spark

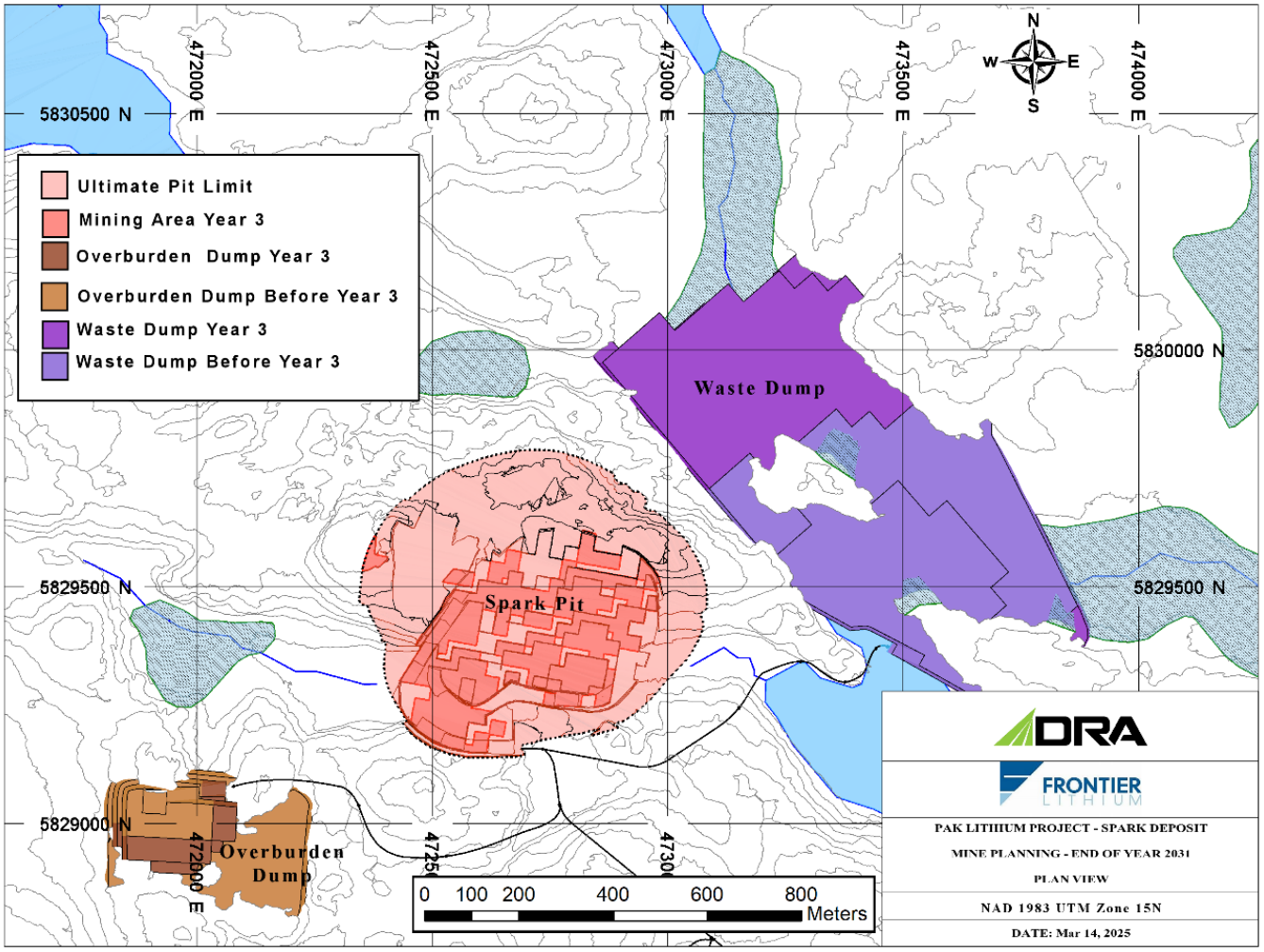


Figure 16.17 – End of Year 4 Progression Plan - Spark

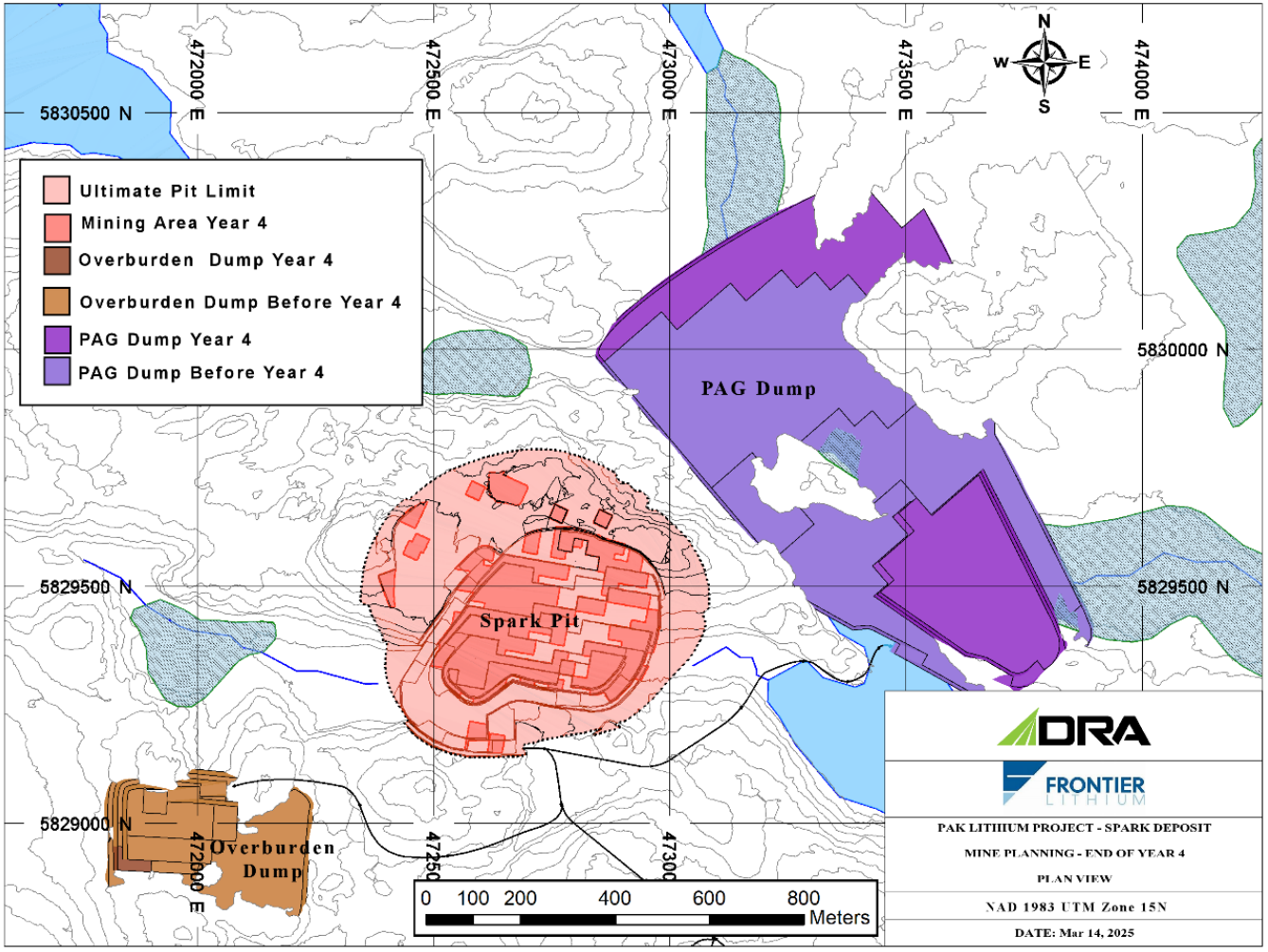


Figure 16.18 – End of Year 5 Progression Plan - Spark

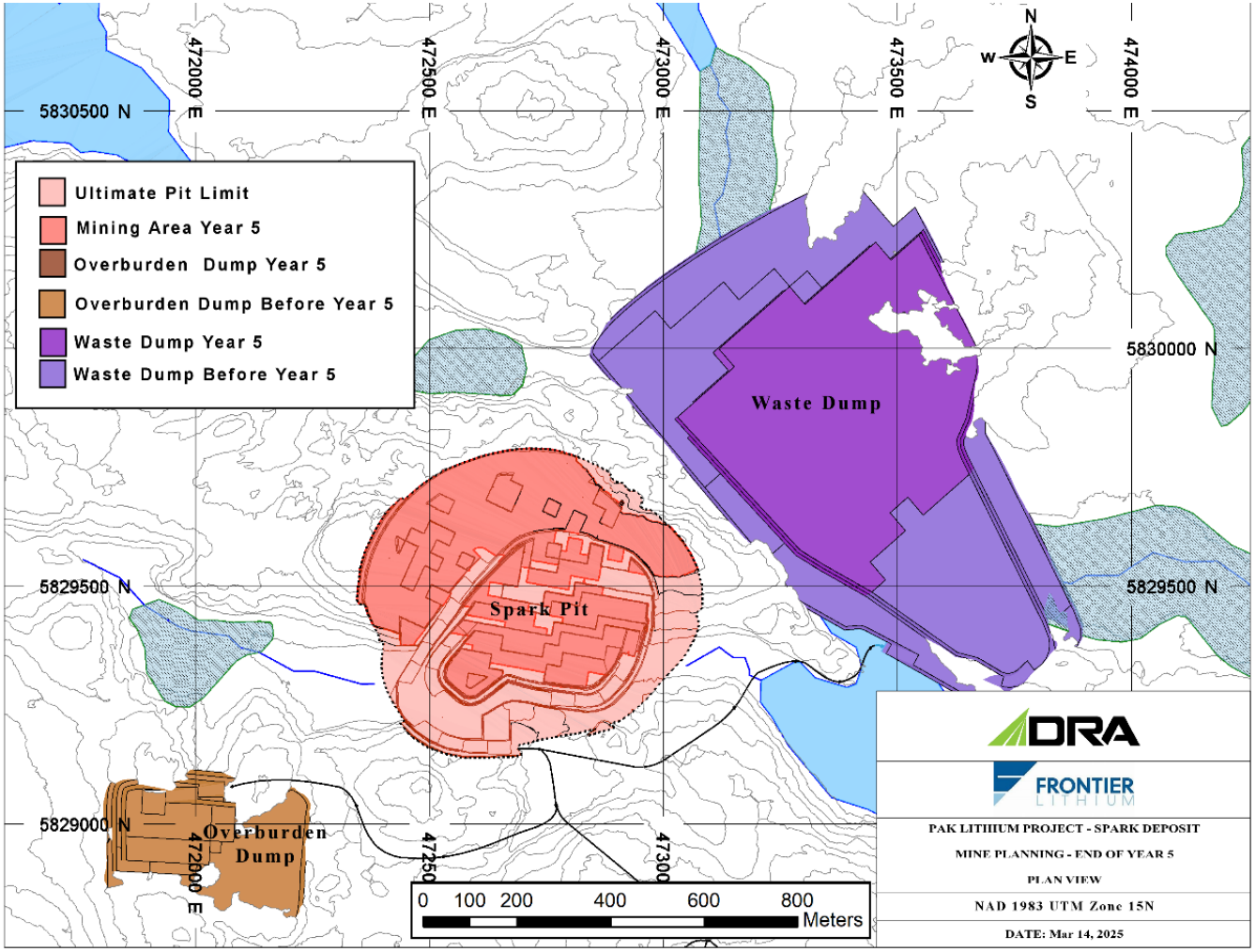


Figure 16.19 – End of Year 6 Progression Plan - Spark

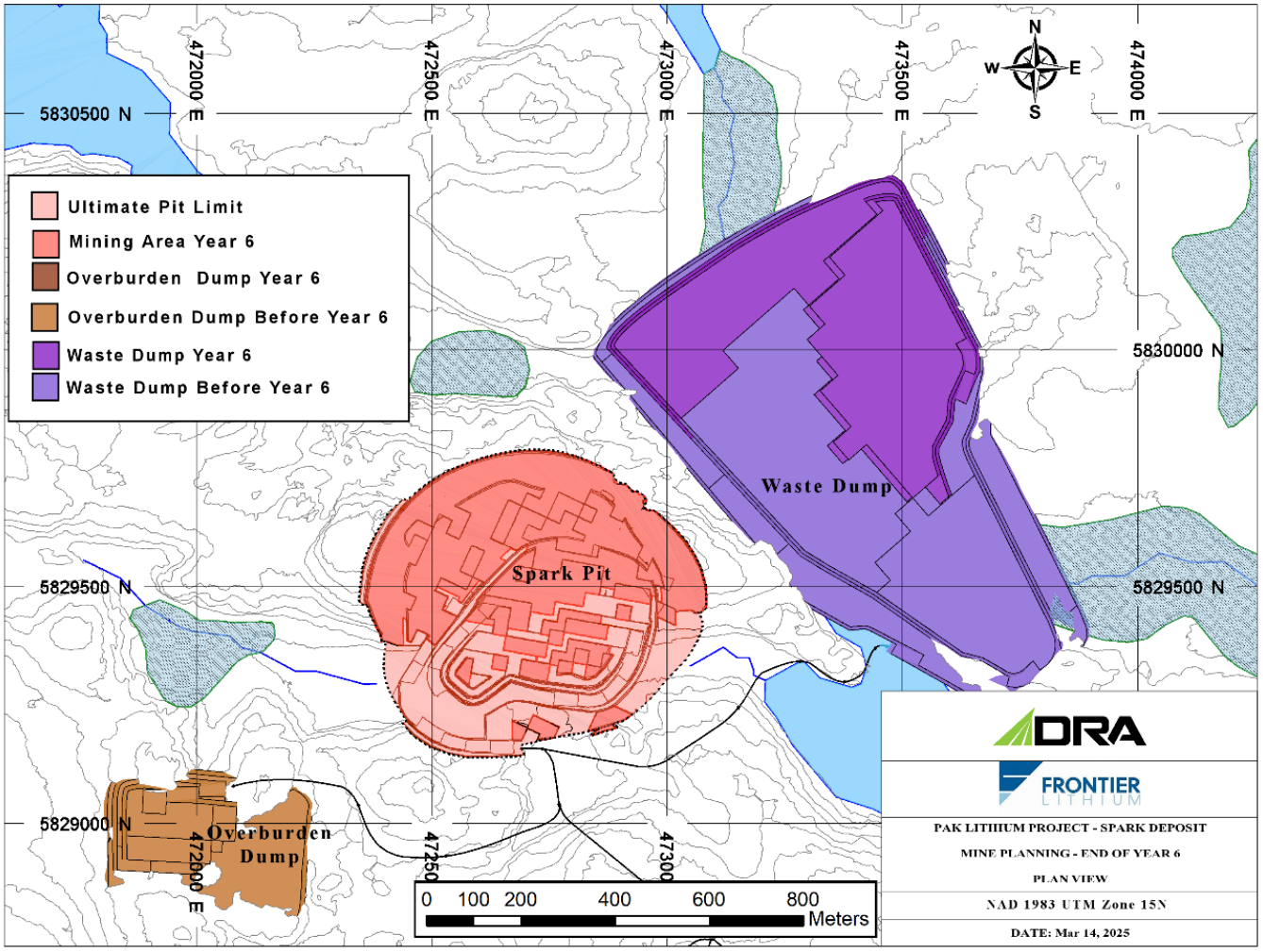


Figure 16.20 – End of Year 7 Progression Plan - Spark

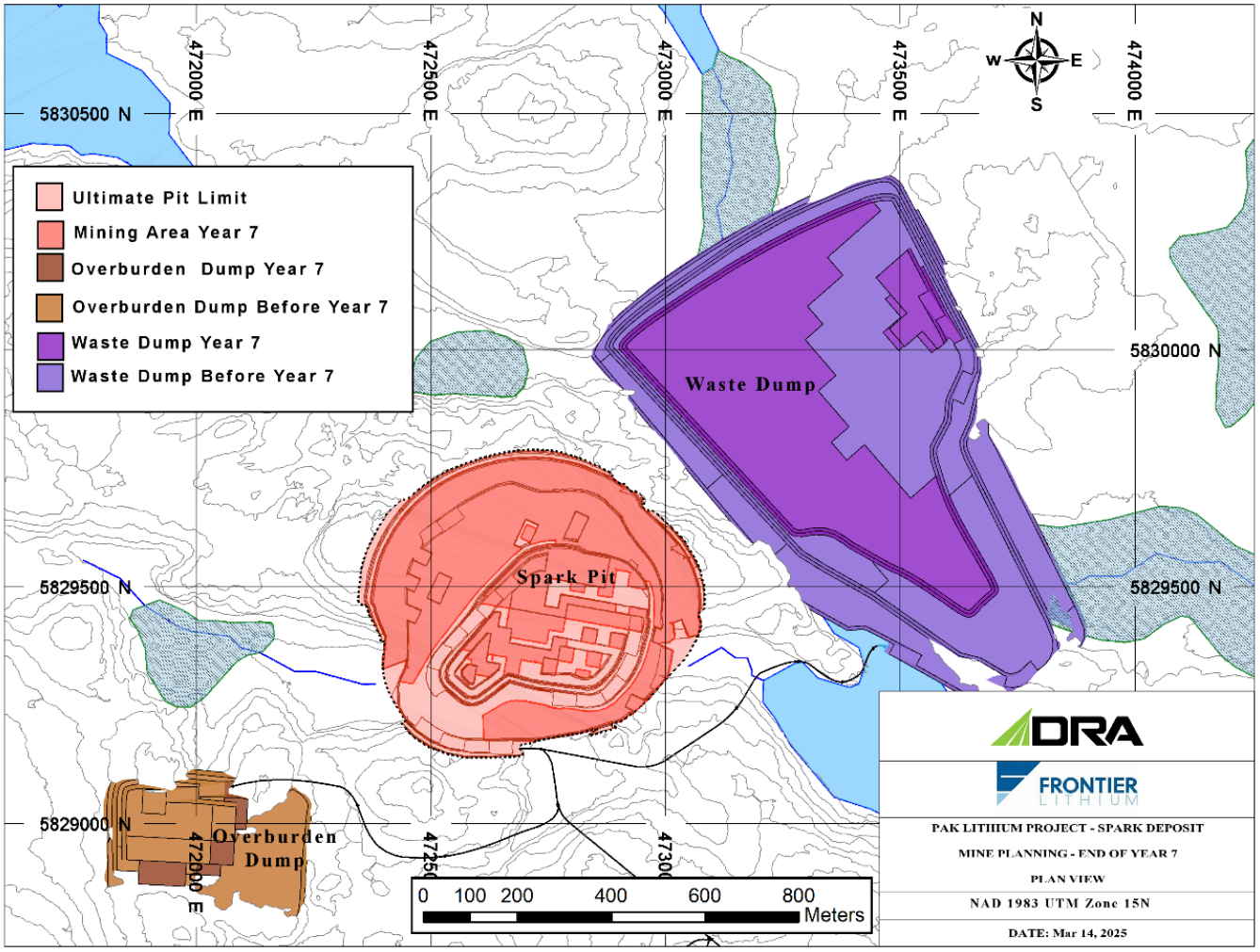


Figure 16.21 – End of Year 12 Progression Plan - Spark

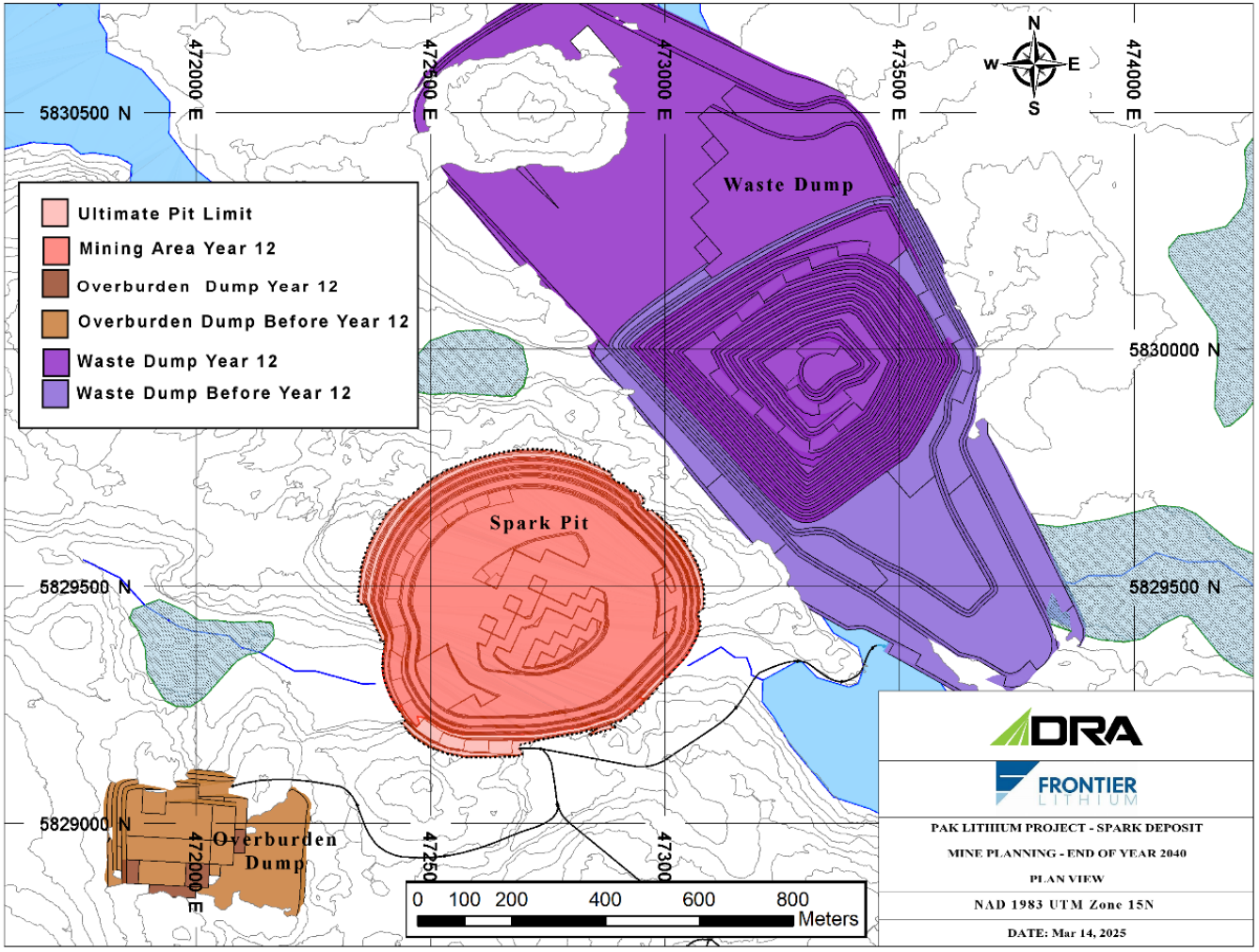


Figure 16.22 – End of Year 17 Progression Plan - Spark

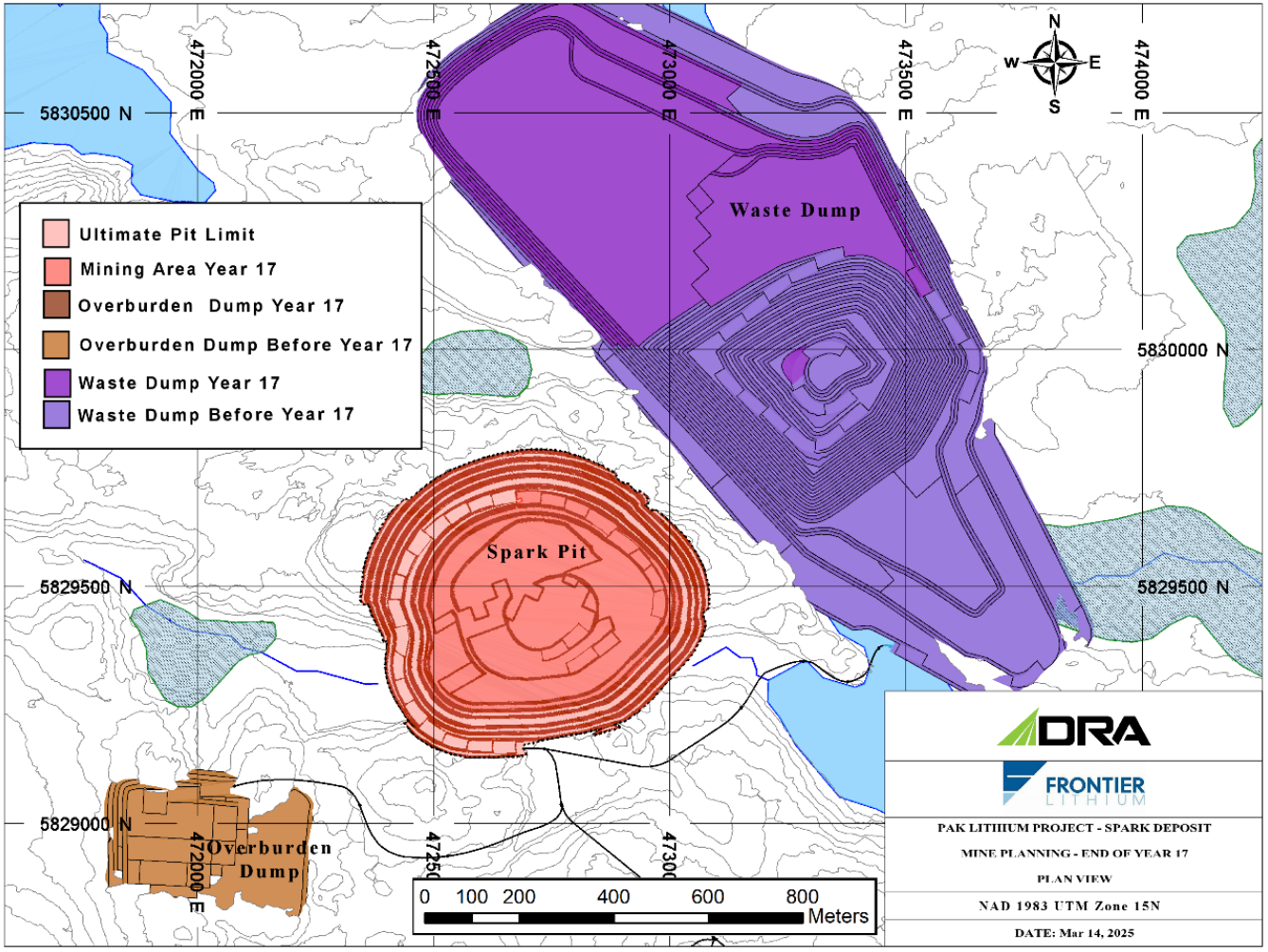


Figure 16.23 – End of Year 17 Progression Plan - PAK

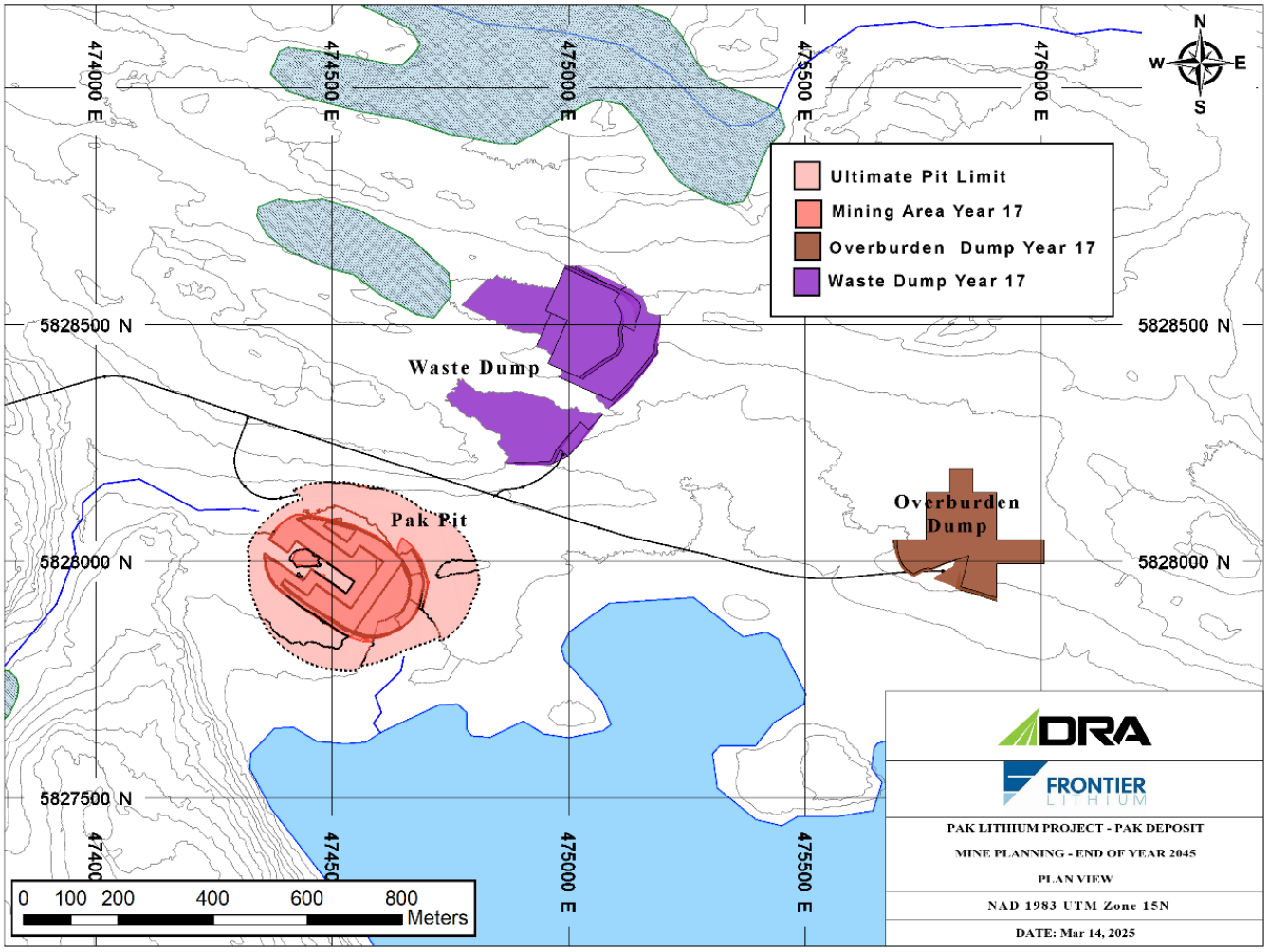


Figure 16.24 – End of Year 22 Progression Plan - Spark

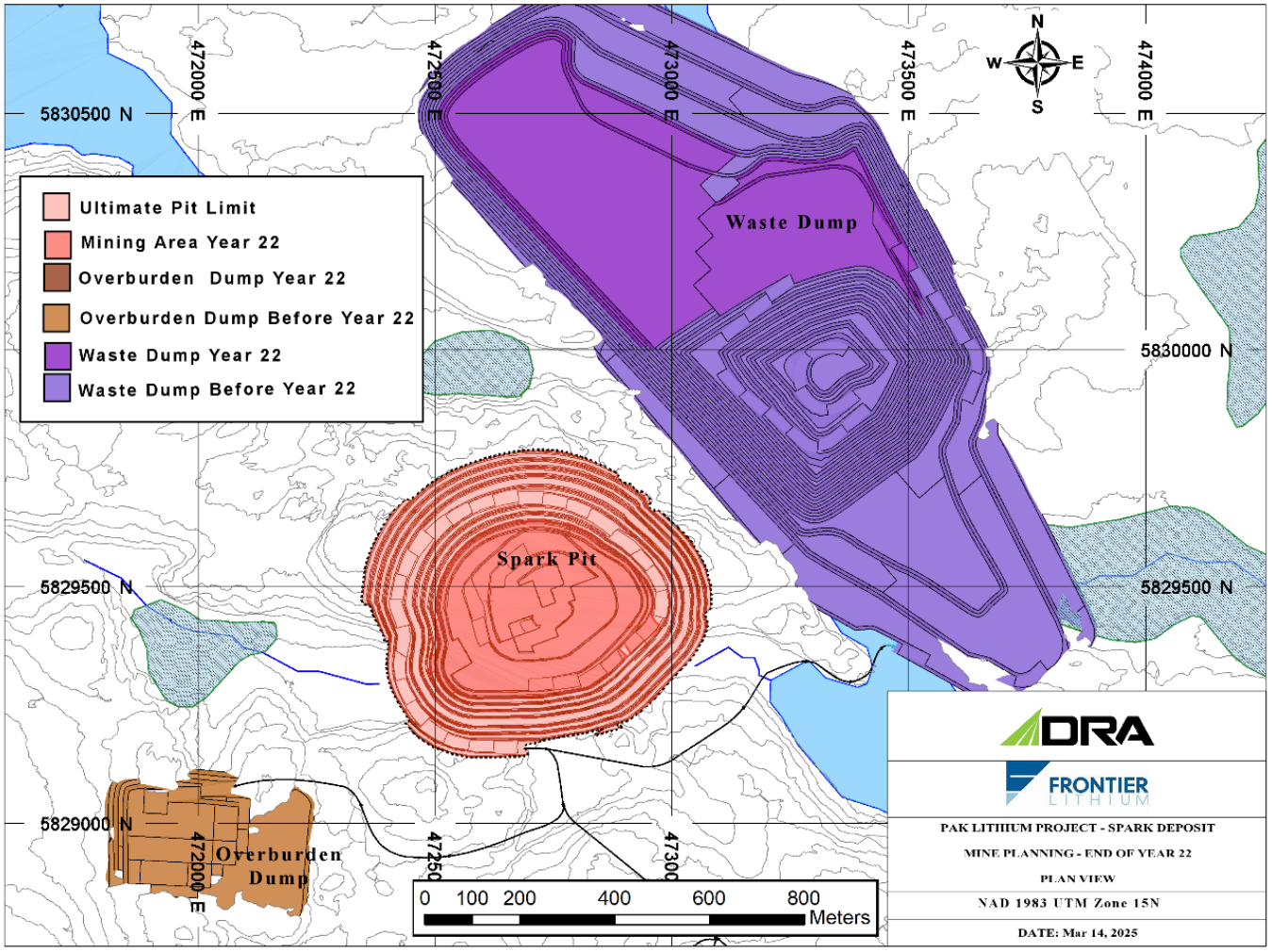


Figure 16.25 – End of Year 22 Progression Plan - PAK

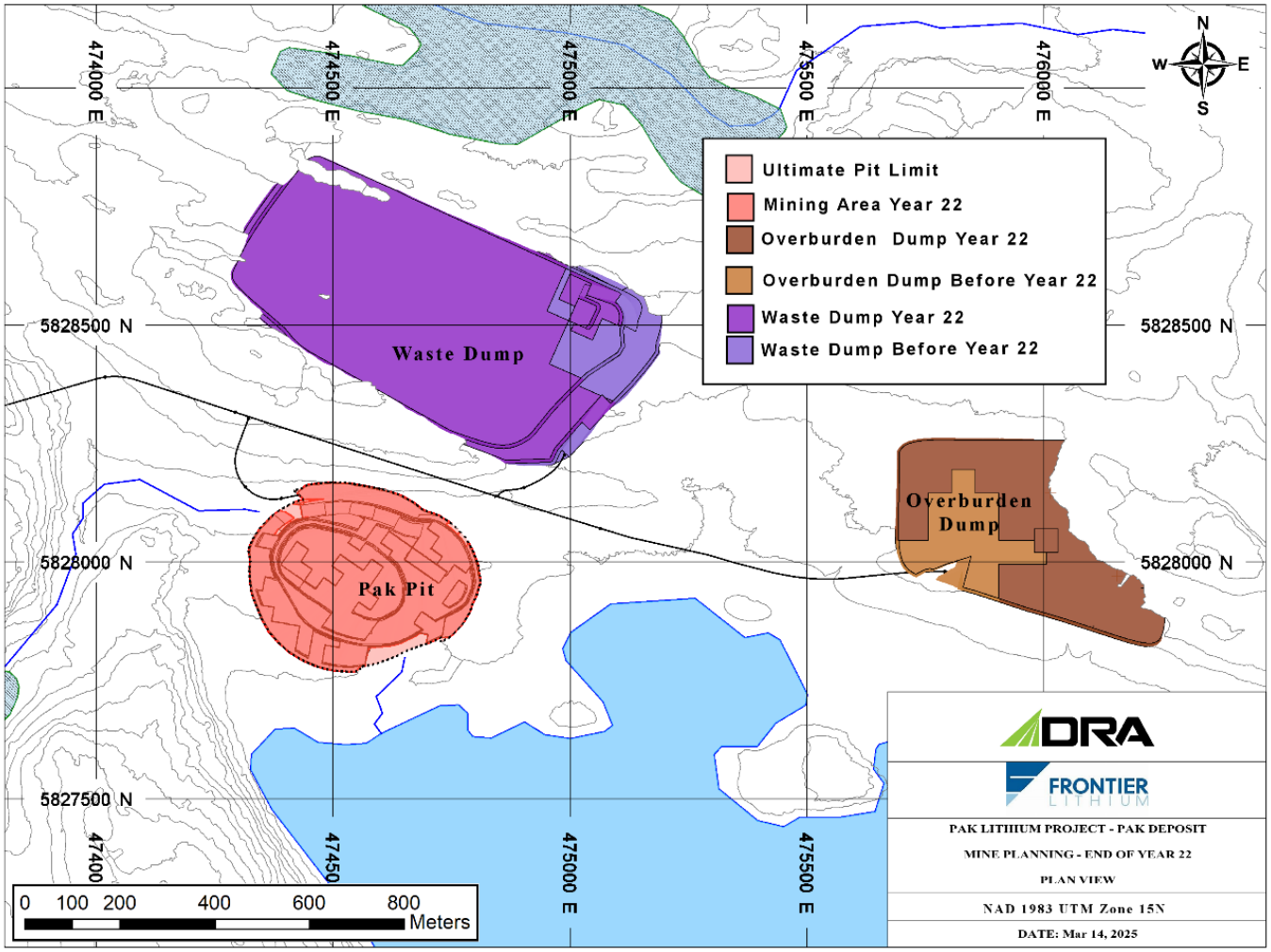


Figure 16.26 – End of Year 27 Progression Plan - Spark

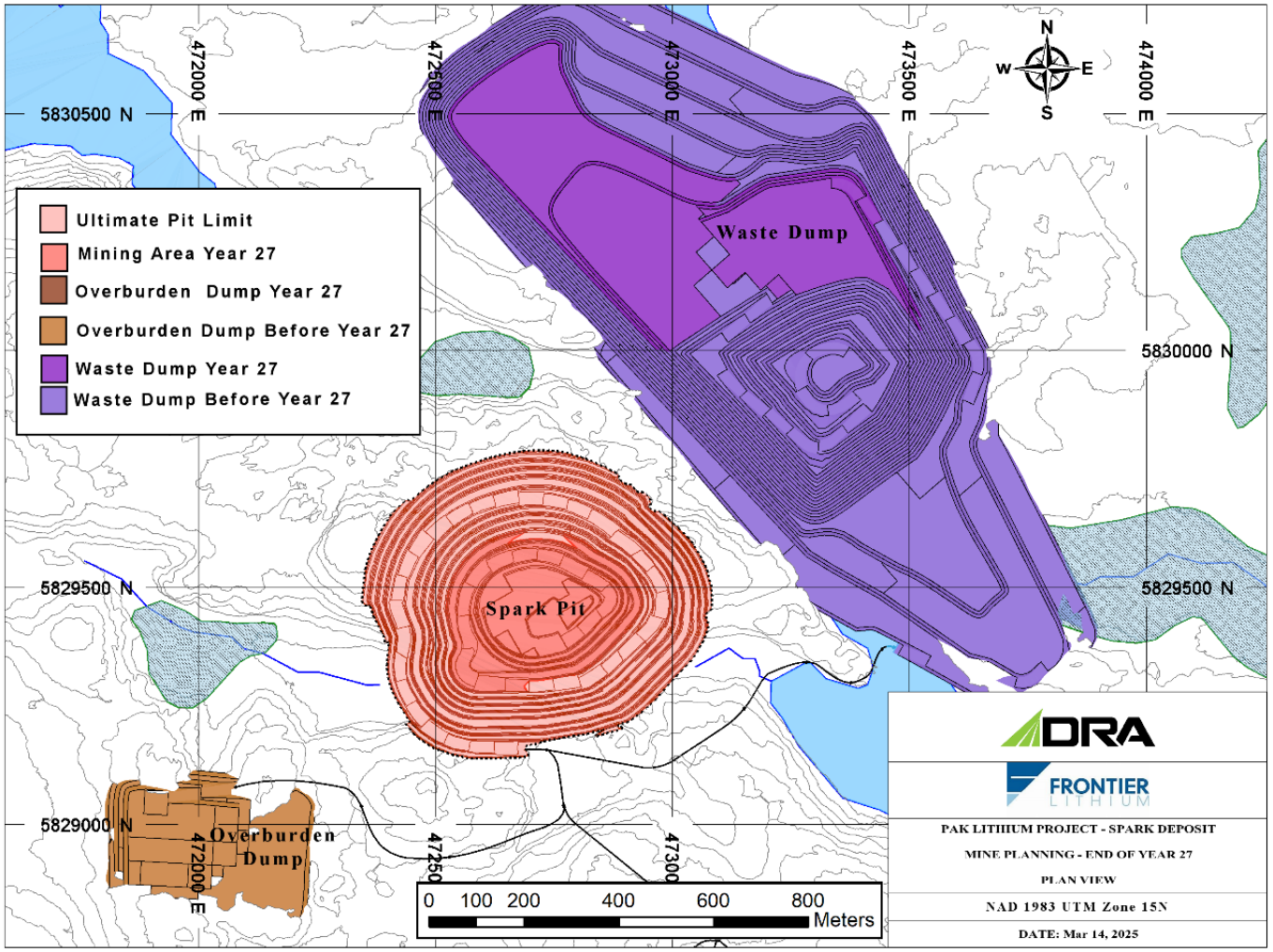


Figure 16.27 – End of Year 27 Progression Plan - PAK

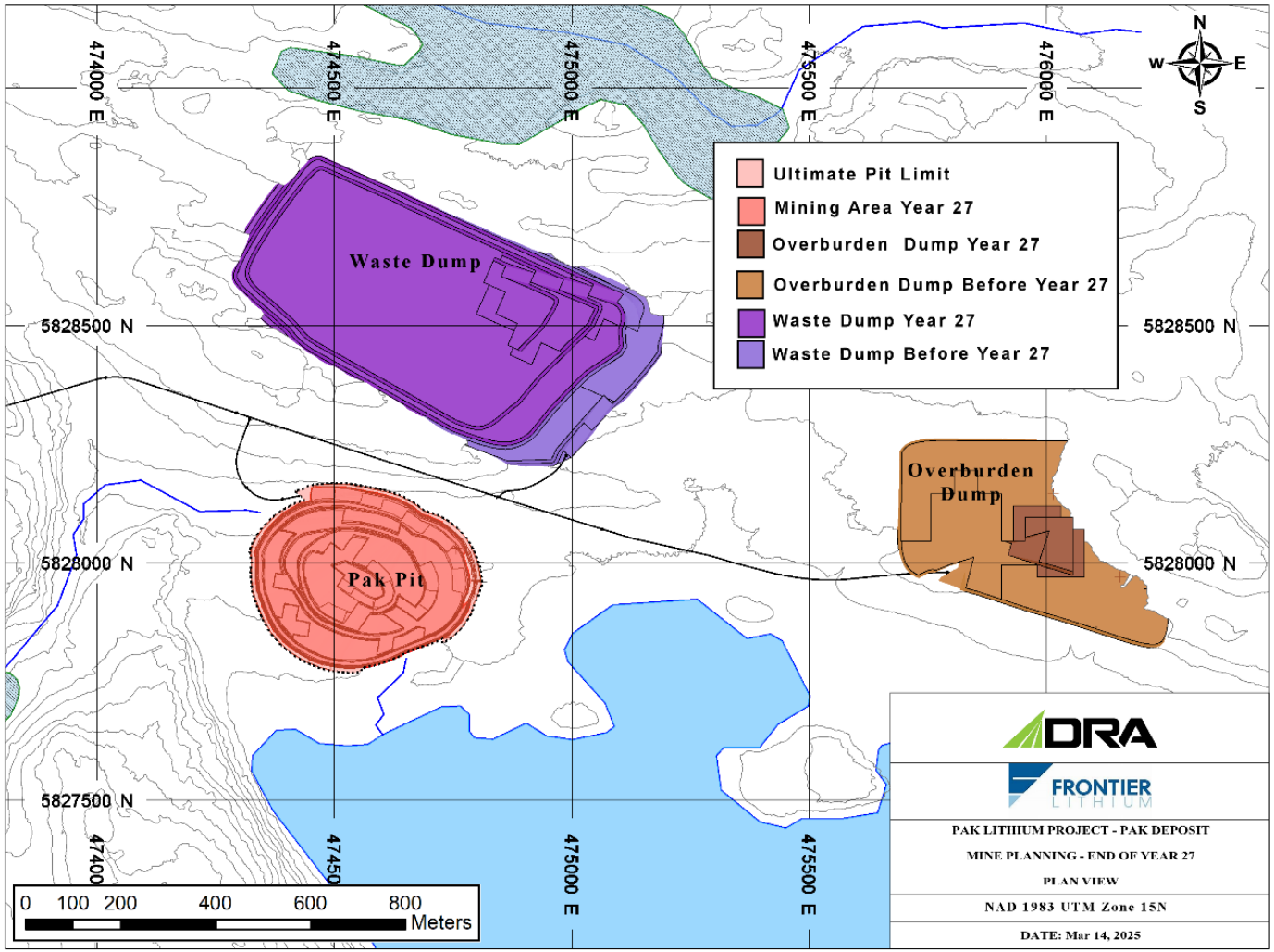


Figure 16.28 – End of Year 30 Progression Plan - Spark

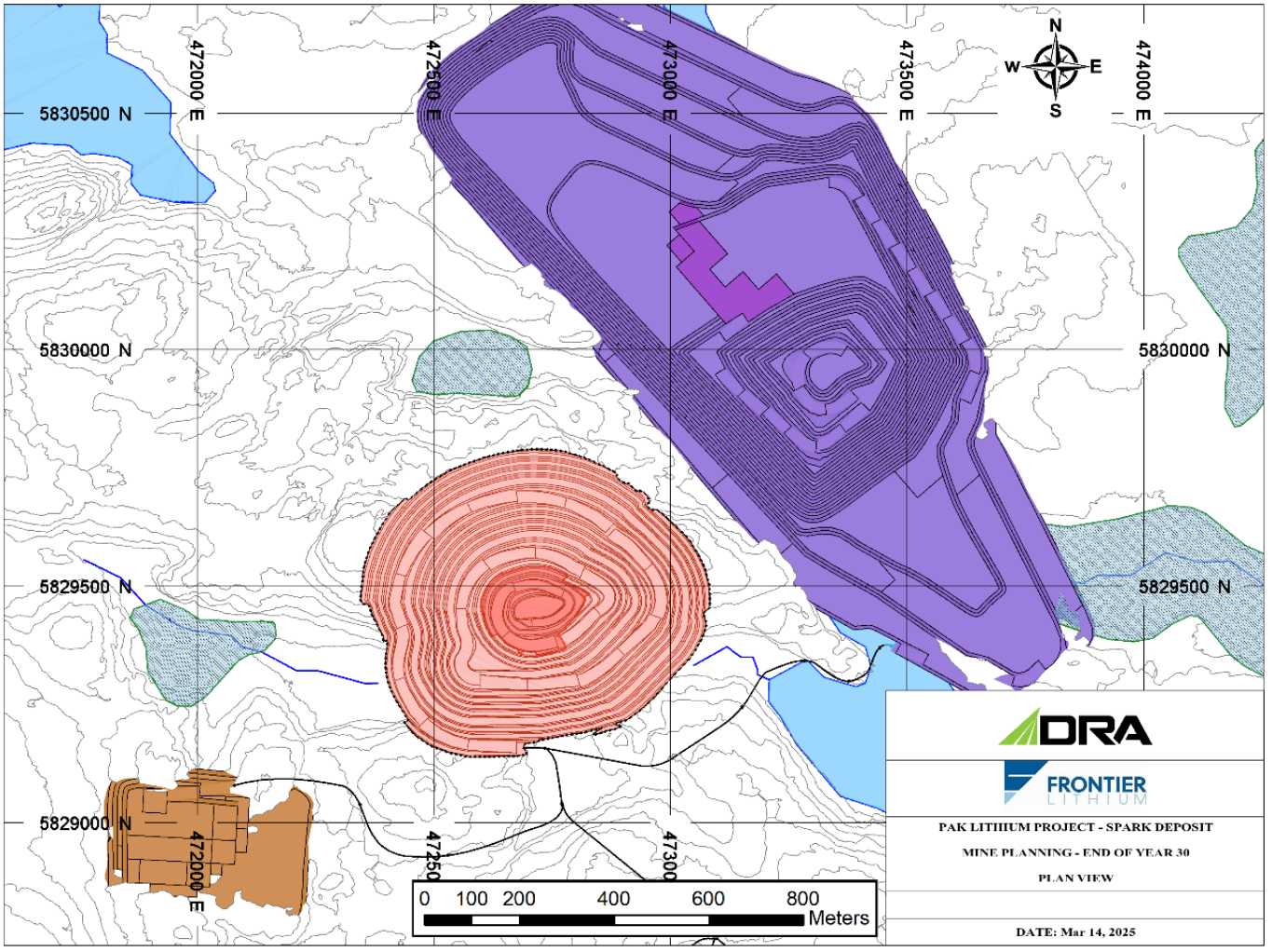
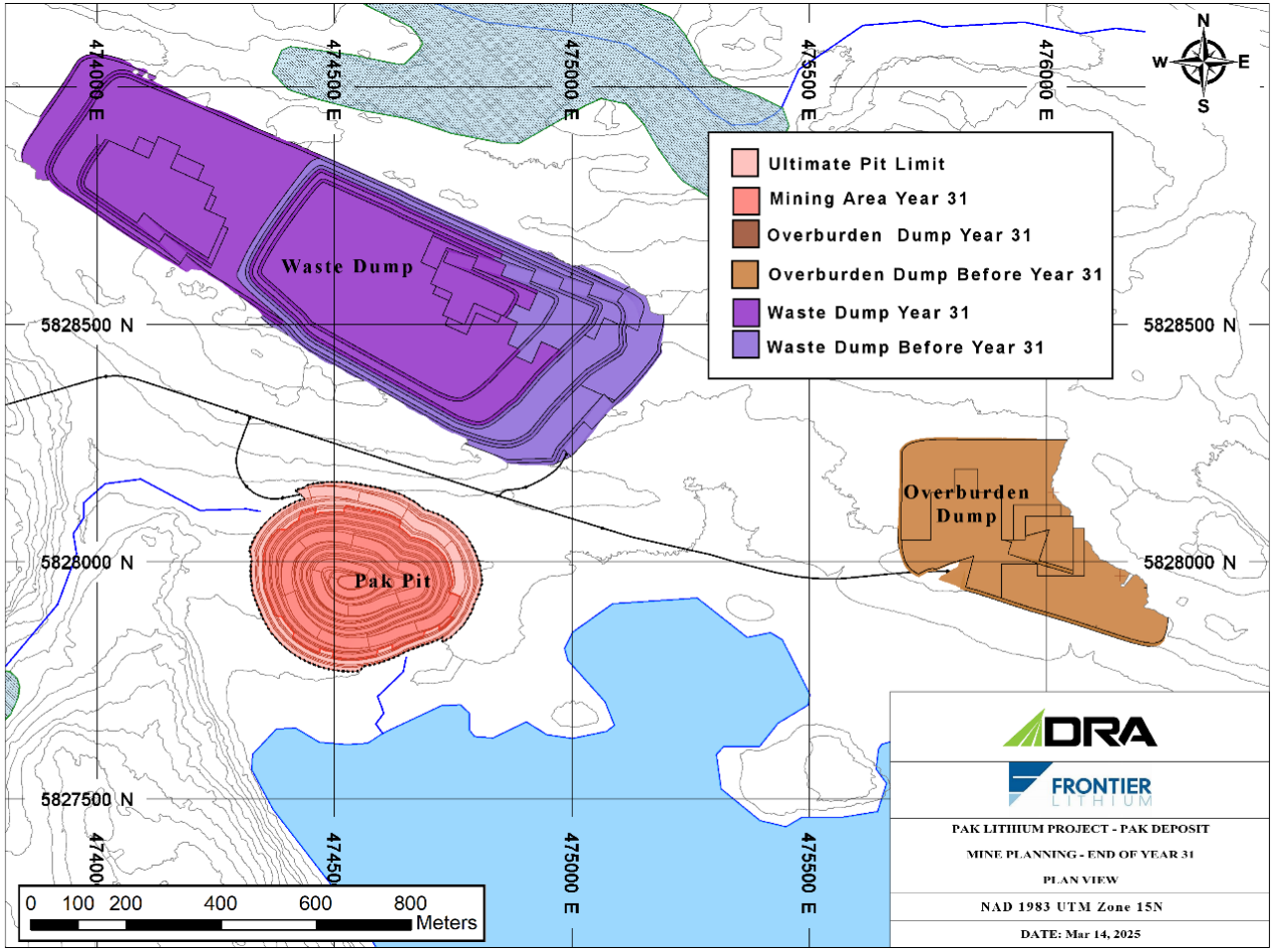


Figure 16.29 – End of Year 31 Progression Plan - PAK



16.6 Open Pit Equipment Fleet

This section presents an analysis of the fleet requirements projected for the execution of the open pit mine production plan. It encompasses indicative parameters for key operations such as drilling, blasting, loading, and hauling. The primary aim of equipment selection at this stage is to generate a FS-level cost estimate.

The rock density across the site is variable, depending on the rock type. However, for the purpose of fleet calculations, the average densities within the Mineral Reserves are considered: 2.76 t/m³ for ore, 2.96 t/m³ for waste rock, and 1.90 t/m³ for overburden.

The entire mining equipment fleet will be powered by diesel. In terms of ownership, operation, and maintenance, all equipment is presumed to be under the responsibilities of Frontier, with the sole exception being the contractor for drilling and blasting equipment.

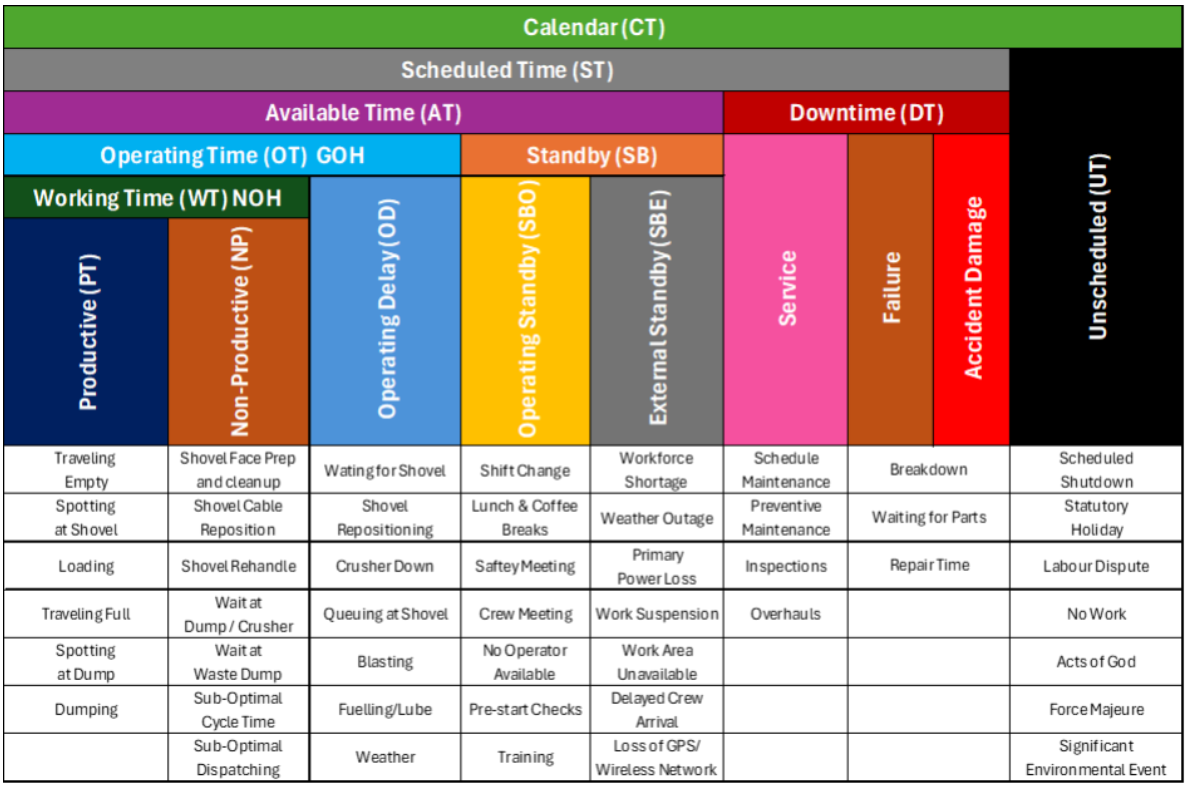
The open pit mine is structured to operate year-round. Typically, operations will consist of two (2) 12-hour shifts daily, seven (7) days per week. It is estimated that on average 10 operating days will be lost annually due to non-production days. This assumption is factored into the calculation of standard fleet requirements.

16.6.1 Equipment Utilization Model

Time usage models for mining equipment are important to precisely gauge the required scale for the primary mining equipment fleet. These models encompass metrics such as: equipment utilization, downtime analysis, maintenance schedules, and overall productivity assessments. By estimating elements such as operational duration, idle periods, and maintenance routines, these models will provide accurate determination of the optimal equipment fleet size.

Figure 16.30 depicts the time usage model utilized for assessing the optimal fleet size for PAK.

Figure 16.30 – Time Usage Model for Determining Fleet Size



Source: DRA 2025

Table 16.18 presents the definitions for each time component of the time usage model.

Table 16.18 – Time Usage Definition Model

Description	Code	Definition
Calendar Time	CT	Total time available
Schedule Time	ST	Equipment is required to meet business plan objectives and is assigned to an operation, project, or job.
Unscheduled Time	UT	Equipment is not scheduled or assigned in the system because it is not required due to external events.
Downtime	DT	Equipment is required but is not in a condition to perform its intended function.
Available Time	AT	Equipment is required and is in a condition to perform its intended function.
Standby	OS	Equipment is available but is not operating.
Operating Standby	SBO	Equipment is available but not operating, and there is no immediate intent to operate due to management decision or reasons within management control.

Description	Code	Definition
External Standby	SBE	Equipment is available, required, and committed to a project or site, but it cannot be operated for reasons that are out of immediate influence of operating management control.
Operating Time	OT	Equipment is available and under control of a human or system.
Operating Delay	OD	Equipment is available but not operating, and there is no immediate intent to operate due to management decision or reasons within management control.
Working Time	WT	Operating at less than the MDR[1] due to sub-optimal fill factor, excessive queuing, slow loading, hauling and dumping, reduced process flows due to asset internal wear, etc.
Non-Productive Time	NP	Unavoidable activities that do not directly contribute to production but are required to enable continued safe and efficient operation. Operating at less than MDR[1] due to sub-optimal fill factor, excessive queuing, slow loading, hauling and dumping.
Productive Time	PT	Equipment is performing its intended function and carrying out activities that directly contribute to production. Operating at MDR[1] in production of actual tons.

[1] MDR – Maximum Demonstrated Rate

Tables 16.19 and 16.20 present assumptions and bases used in estimating the annual equipment production hours.

Table 16.19 – Annual Hours Estimate for Mining Equipment

Description	Units	Hauling	Loading	
		Truck	Shovel	Loader
Available Time (AT)	%	85	75	75
Use of Availability (OT/AT)	%	90	88	77
Asset Utilization (OT/CT)	%	74	64	56
Operating Utilization (OT/ST)	%	76	66	58
Operating Efficiency (WT/OT)	%	96	95	94
Effective Utilization (WT/ST)	%	73	63	55
Production Effectiveness (PT/OT)	%	92	82	80
Standby (SB)	h/shift	1.05	1.05	2.05
Operating Delay (OD)	h/shift	0.40	0.40	0.40
Performance Loss (PL)	min/h	2	8	9
Effective (ET)	min/h	58	52	51

Description	Units	Hauling	Loading	
		Truck	Shovel	Loader
Work Schedule				
Weeks / Year	weeks	52		
Days / Week	days	7		
Days / Year	days	365		
Unscheduled Time	days	10		
Days / Year (after weather)	days	355		
Shifts / Day	shifts	2		
Shifts / Year	shifts	710		
Hours / Shift	h	12		
Hour Breakdown				
Calendar Time (CT)	h/y	8,760	8,760	8,760
Scheduled Time (ST)	h/y	8,520	8,520	8,520
Down Time (DT)	h/y	1,278	2,130	2,130
Available Time (AT)	h/y	7,242	6,390	6,390
Standby Time (SB)	h/y	745	745	1,455
Operating Time (OT) GOH	h/y	6,496	5,644	5,644
Operating Delay (OD)	h/y	284	284	284
Working Time (WT) NOH	h/y	6,212	5,360	4,650
Non-Productive (NP)	h/y	207	715	698
Productive (PT)	**h/y**	**6,005**	**4,646**	**3,953**

Table 16.20 – Standby Estimate for Mining Activities

Description	Units	Truck	Shovel	Loader
Shift Change	min/shift	20	20	20
Lunch/Breaks	min/shift	20[1]	20[1]	80[2]
Equipment Checks	min/shift	15	15	15
Safety Meeting/Briefing	min/shift	8	8	8
Total Standby	**h/shift**	**1.05**	**1.05**	**2.05**

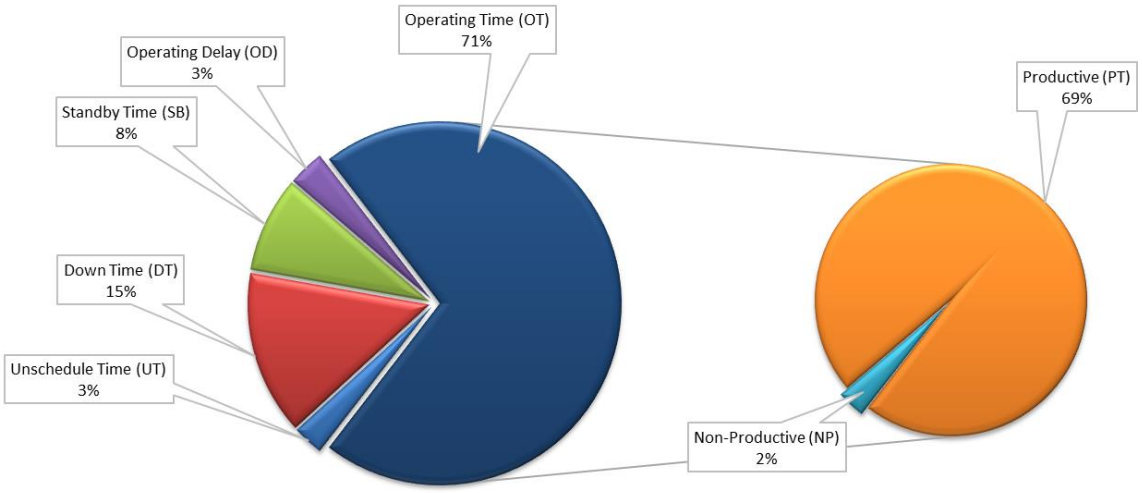
Notes:

1. The 20 min/shift lunch break reflects the implementation of a hot seat changeover strategy: operators are rotated without equipment shutdown during lunch break, minimizing standby time.
2. The 80 min/shift lunch break reflects the total scheduled duration allocated for both lunch and break periods.

For truck and shovel operations, a hot seat replacement strategy is implemented, allowing operators to switch places without shutting down equipment, to better support continuous operation. This practice is widely used to improve productivity and minimize standby time.

Figure 16.31 depicts the truck fleet time usage model utilized for assessing optimal fleet size.

Figure 16.31 – Truck Effective Working Hours



Source: DRA 2025

16.6.2 LOADING AND HAULING

During the FS, a Trade-off Study was conducted to evaluate whether it would be more advantageous to utilize a single type of shovel and mining truck for both PAK and Spark, instead of the equipment selected in the PFS which considered 40-t trucks for PAK and 64-t trucks for Spark.

Upon analyzing the Total Cost of Ownership estimates, it was determined that a single mine fleet for both pits is the preferred solution. While the cost difference between the two (2) options is not significant, a comprehensive evaluation of the inherent advantages and disadvantages of each option revealed that the single fleet is the preferred choice.

This preference is mainly due to increased flexibility in managing both pits, and the ability to streamline parts inventory and simplify fleet maintenance. Other benefits include improved equipment productivity, cost savings in accommodation, and enhanced training efficiency.

The main loading equipment, used for overburden, waste rock, and ore, includes up to three diesel hydraulic excavators with 7.0 m^3 bucket capacities, and one front-end loader with 6.8 m^3capacity.

The haul truck fleet includes 64-tonne (70.5-ton) rigid frame truck. These haul trucks were selected to optimally match the loading equipment.

Estimations for the loading fleet numbers are derived from first principles. These calculations rely on the necessary operating hours essential to meet the production schedule. They are determined by considering cycle times, equipment rated capacities, and estimated productivities.

The assumptions for loading unit productivity are provided in Table 16.21.

The estimate of haul truck fleet numbers was derived from first principles, considering the necessary operating hours to meet the production schedule. This estimation is based on calculated cycle times, assessments of the rated capacities of the equipment, and productivity estimations. Haul cycle times are estimated utilizing the Hexagon MinePlan 3D Haulage module.

Three-dimensional haulage routes for each period were generated using MinePlan 3D. The haulage module then calculates haulage times for each source and destination, based on the selected truck and material type.

A maximum speed of 40 km/h and a rolling resistance of 3% were applied.

Cycle times for each material type were calculated considering round-trip haulage profiles, haul truck speeds, and specific load/spot/dump times assigned to each material.

Table 16.21 – Loading Productivity Calculations

Description	Units	Loading					
		Ore		Overburden		Waste	
		Shovel	Loader	Shovel	Loader	Shovel	Loader
Shovel Bucket Nominal Capacity	m³	7.0	6.8	7.0	6.8	7.0	6.8
Truck Nominal Payload	t	64.0	64.0	64.0	64.0	64.0	64.0
Truck Nominal Capacity	m³	42.2	42.2	42.2	42.2	42.2	42.2
Truck Effective Payload	t	61.0	61.0	61.0	61.0	61.0	61.0
Truck Effective Capacity	m³	30.9	30.9	41.7	41.7	28.8	28.8
First Bucket Dump Time	min	0.35	0.50	0.35	0.50	0.35	0.50
Subsequent Bucket Cycle Time	min	0.67	0.75	0.67	0.75	0.67	0.75
Fill Factor	%	85	85	87	87	83	83
Effective Bucket Capacity	m³	6.0	5.8	6.1	5.9	5.8	5.6
Effective Bucket Capacity	t	11.7	11.4	8.9	8.6	12.3	11.9
Number of Passes to Load Truck	-	5.2	5.4	6.9	7.1	5.0	5.1
Number of Passes (Rounded)	-	5.0	6.0	7.0	7.0	5.0	5.0
Load Time	min	3.4	4.7	4.8	5.4	3.4	3.9
Maximum Truck Loads per Hour	load/h	17.5	12.9	12.6	11.1	17.5	15.4
Maximum Theoretical Productivity	Dry t/NOH	1,013	747	728	643	1,013	891
	Dry Mtpa	5.4	3.5	3.9	3.0	5.4	4.1

Other assumptions for the haul cycles include:

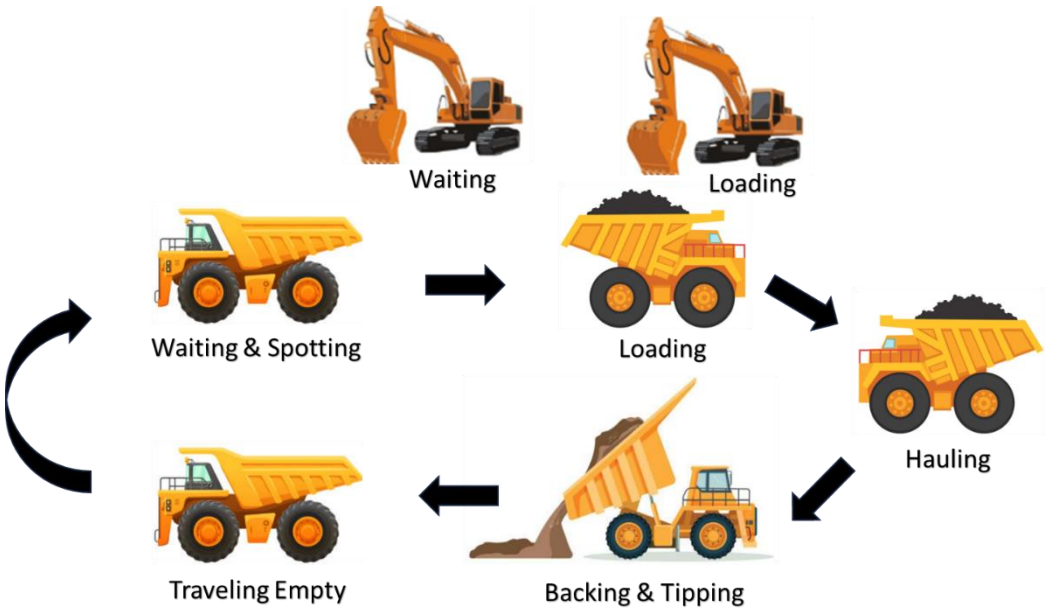
- Loading time calculated from excavator, wheel loader type.
- 0.4 min spot time at shovel.
- 0.5 min for dumping time, including spot time.
- 1.0 min of waiting time at the shovel.

Spot time at the shovel is the time during which the loading unit has the bucket in place to dump but is waiting for the truck to move into position.

The waiting time at the shovel refers to the duration when the hauling unit waits for another truck to finish loading.

Figure 16.32 illustrates the typical truck-shovel cycle of operation.

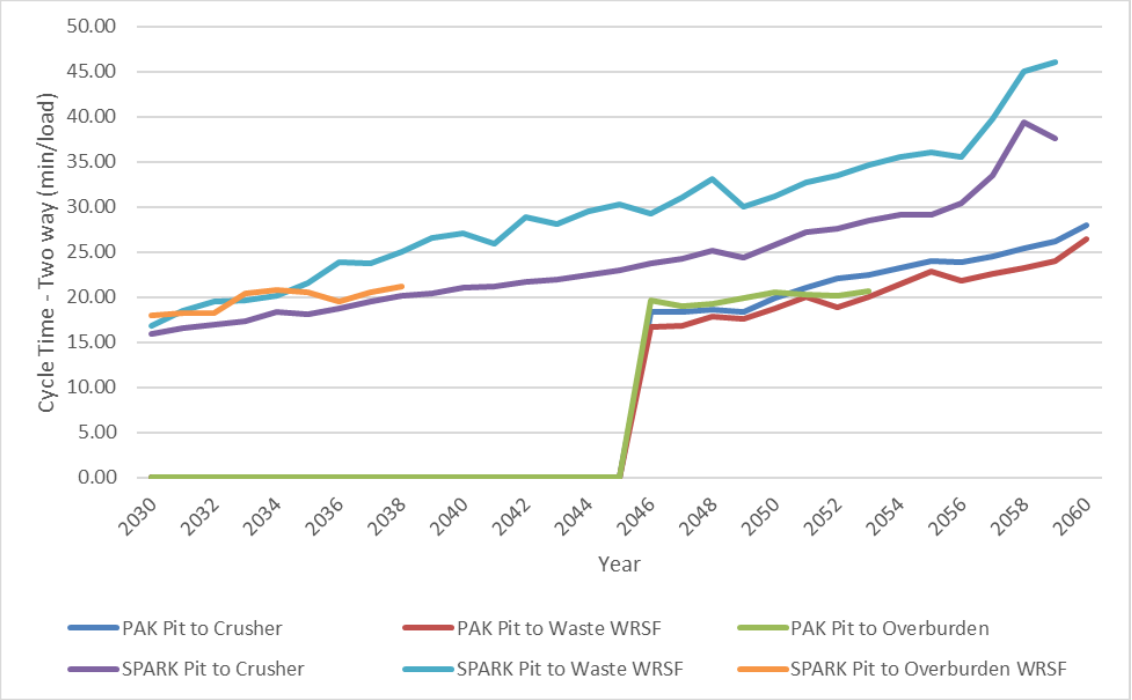
Figure 16.32 – Loading and Hauling Cycle of Operation



Source: DRA, 2025

Figure 16.33 illustrates the trend of cycle time over the LOM for each material type.

Figure 16.33 – Haul Cycle Times for Each Material Type



Source: DRA 2025

16.6.3 DRILLING AND BLASTING

A trade-off study was performed to compare two (2) methods of drilling and blasting for mining operations:

- **Option 1:** Drilling and blasting performed entirely by a single contractor.
- **Option 2:** Drilling conducted in-house and blasting managed by a major explosives supplier.

The trade-off study concluded that the total costs for both options are equal. This indicates that Frontier has either option available that will result in similar drill and blast costs over the LOM.

For the FS cost estimation, it is assumed that the single Contractor option will be selected to perform all the production drilling, and all explosives and production blasting related activities.

In the event that the Contractor is unable to perform the required work at the time of the Project, Frontier will have the option to procure drills and execute production drilling independently. Blasting operations will then be conducted by an explosives supplier on a contract basis.

The drilling and blasting contractor will provide the necessary blasting materials and technology, along with the equipment for storing and delivering the explosives, and the labour to load and detonate each blast. The material will be delivered to the mine site in containers by the contractor.

The explosives to be used will be bulk emulsion which will be transported to site via tanker trucks or produced on site with a portable emulsion plant.

It is assumed that wall control drilling and blasting methods will be necessary for the final walls to ensure stability and precision.

The details for the blasthole patterns and drilling capacity are presented in Table 16.22.

Table 16.22 – Blasthole Drill Pattern and Drill Capacity Details

Description	Units	Ore	Waste	Pre-Shearing
Average Annual Volume	m³	350,000	1,238,000	
Average Annual Surface	m²			15,500
Hole Diameter	mm	102	171	102
	in	4.02	6.75	4.02
Bench Height	m	10	10	20
Stemming	m	1.23	2.88	0.5
Subdrilling	m	1.0	1.0	n/a
Burden	m	3.05	4.9	n/a
Spacing	m	3.35	4.9	1.4
Tonnage of Rock Blasted per Hole	t	282	711	0
Tonnage per Metre Drilled	t/m	26	65	0
Powder Factor	kg/t	0.36	0.34	n/a
Annual Productivity	tpa	2,763,814	6,965,286	n/a
Annual Pre-Shear Productivity	m/y	n/a	n/a	114,756

n/a = Not Applicable

The work force required to execute the initial drill and blast requirements to achieve the mine plan is eight (8) personnel on 14 days in / 14 days out rotation.

For estimation purposes, overburden material is assumed to be free-digging and not requiring blasting. Table 16.23 presents the total drilling required for the LOM of the PAK and Spark pits.

Table 16.23 – LOM Drilling Metres for PAK and Spark Pits

Metres Drilled	Redrill	5%	5%
	Units	PAK Total	Spark Total
Ore	m	161,671	1,113,343
Waste	m	903,063	3,659,552
Pre-shearing	m	217,501	507,353
Total Drilling Metres	**m**	**1,282,235**	**5,280,248**

16.6.4 AUXILIARY EQUIPMENT FLEET

In addition to the primary mining equipment fleet, DRA compiled a list of support equipment based on experience in similar open-pit mining operations. The determination of support equipment requirements presented in Table 16.24 was primarily influenced by the scale of operation, dimensions and number of active waste rock stockpiles, and extent of haul roads requiring maintenance. It is noted that this list excludes auxiliary equipment for blasting, as these will be supplied by the explosives supplier.

Table 16.24 – Estimated List of Ancillary Mine Equipment

Auxiliary and Support Equipment	Number of Units
Track Dozer	2
Wheel Dozer	1
Road Grader	2
Water Truck	1
Sand Spreader	1
Utility Excavator	1
Utility Loader	1
Maintenance Field and Service Trucks	1
Welding Truck	1
Fuel/Lube Truck	1
Tire Handler	1
Light Vehicles	Up to 10
Lowboy	1
Portable Light Towers	up to 8
In-pit Sump Dewatering Pumps	up to 8

Table 16.25 provides the number of equipment units estimated to be operating on an annual basis.

16.7 Mine Personnel

Mining will operate 24 hours per day. Most mining personnel will be on a 12-hour-a-day, fly-in fly-out (FIFO) schedule with 14 days on-site and 14 days off-site. Each 24-hour operation position requires four (4) workers to fill the working schedule. The personnel requirements for the open pit mine include both hourly staff and salaried positions. Hourly staff are responsible for operating and maintaining the equipment essential for mining activities, while salaried positions encompass roles in engineering, geology, and supervision.

Technical services, such as engineering and geology and administrative personnel, are based on a day shift schedule and require two (2) workers to satisfy operational position requirements.

The number of operators required for the primary mining equipment, such as loaders and haul trucks, is determined by the total operating hours each year to operate the mine fleet. Most operators for this equipment follow a four-crew rotation system, ensuring continuous operation. Additionally, the number of maintenance personnel needed is calculated based on the ratio of maintenance hours on operating hours, ensuring that all machinery remains in optimal working condition.

A peak of 128 employees will be required for the mining department (including 18 employees for the drilling and blasting contractor).

Table 16.26 provides the estimated number of employees on an annual basis.

Table 16.25 – Pit Equipment List

Description	Year of Operation																														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Major Equipment																															
Haul Trucks	3	3	4	4	7	7	8	9	10	10	10	9	8	6	5	5	4	5	5	4	4	4	4	4	4	5	5	4	4	5	4
Excavator – Hydraulic Shovel	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Excavator – Loader	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Production Drill – Ore/Pre-Sheering (Contractor)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Production Drill – Waste (Contractor)	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Support Equipment																															
Track Dozer	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1
Wheel Dozer	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Road Grader	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Utility Loader	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Utility Excavator	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Water Truck	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Sand Spreader	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Lighting Plant	4	6	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	4	4	4	4	4	4	4	4	4	4	4
Service Equipment																															
Fuel & Lube Truck	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mechanic Service Truck	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Tire Service Truck	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Lowboy	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Light Vehicles	8	8	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	8	8	8	8	8	8	8	8	8	8
In-Pit Dewatering Pump -Diesel	2	2	2	3	3	4	4	4	4	4	4	5	6	6	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8
In-Pit Mobile Trash Pump	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

Table 16.26 – Estimated List of Open Pit Personnel

Description	Year of Operation																													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Mine Operations - Subtotal	**56**	**62**	**68**	**70**	**84**	**87**	**89**	**91**	**93**	**95**	**94**	**92**	**88**	**83**	**81**	**75**	**72**	**75**	**74**	**70**	**68**	**69**	**70**	**69**	**70**	**71**	**72**	**70**	**70**	**71**	**69**
Mine Manager	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mine Superintendent	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Pit Supervisor	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Training	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Mine Clerk	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Equipment Operators	22	26	30	32	44	47	49	51	53	55	54	52	48	43	41	37	34	37	36	32	30	31	32	31	32	33	34	32	32	33	31
Labourer	4	6	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Drilling and Blasting Contractor	16	16	16	16	18	18	18	18	18	18	18	18	18	18	18	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Mine Maintenance - Subtotal	**15**	**16**	**17**	**17**	**19**	**19**	**20**	**20**	**21**	**21**	**21**	**20**	**19**	**18**	**18**	**18**	**18**	**18**	**18**	**18**	**16**	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**17**
Maintenance Supervisor	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Maintenance Planner	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Maintenance Crew	11	12	13	13	15	15	16	16	17	17	17	16	15	14	14	14	14	14	14	14	12	13	13	13	13	13	13	13	13	13	13
Technical Services - Subtotal	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**
Technical Services Manager	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mining Engineer	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Project Engineer / Geotechnical Engineer	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Blasting/Geotechnical Technician	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Geologist	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Sampler	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Surveyor	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Total Pit Operations - TOTAL	**83**	**89**	**97**	**99**	**115**	**118**	**121**	**124**	**126**	**128**	**127**	**124**	**119**	**113**	**111**	**105**	**102**	**104**	**100**	**97**	**99**	**98**	**99**	**100**	**101**	**99**	**99**	**99**	**99**	**99**	**99**

16.8 Pit Dewatering

From the initiation of pre-stripping to the end of the mine plan, both PAK and Spark pits will need to manage water entering the pit as surface runoff, direct precipitation into the pit, as well as groundwater directly entering the pit from its bench faces and floors. Dewatering of pits will be achieved using an evolving network of pumps and pipes consisting of diesel powered portable centrifugal pumps on skids and trailers which will pump water out of the pits and into a settling pond via 6” and 10” outer diameter HDPE pipe.

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.

An allowance is included in the capital and operating costs for in-pit dewatering through in-pit sumps.

Initial dewatering requirements will be satisfied by:

- Two (2) 6” trash pumps with ability to overcome total head of 40 m (130 ft) while delivering 400 gpm (90 m³/h) using 6” HDPE pipe.
- Two (2) HL80 pumps with ability to overcome total head of 85 m (280 ft) while delivering 300 gpm (90 m³/h) using 10” HDPE pipe.

As the pits get deeper, booster pumps are likely to be required, and thus additional HL80 pumps are scheduled for purchase as part of the sustaining capital estimate. They will be implemented in series with the HL80s at the pit floor sump to attain the required total head to expel water from the pit with adequate flow to minimize operational downtime due to flooding.

When each pit attains a depth of approximately 160 m from pit floor sump water elevation to the elevation at discharge, a larger 8” discharge pump (HW6 350 HP diesel engine) will be procured for each of the two (2) pits. The HW6 pump can overcome up to 185 m of total head and deliver flow at over 1,100 gpm (250 m³/h) at that head.

During pre-stripping and early years, depending on the amount of rainfall and groundwater inflow, the trash pumps alone may prove adequate for meeting the pit dewatering needs. However, given the high level of uncertainty with regards to groundwater inflow for the Spark pit in particular it is recommended to purchase two (2) HL80 pumps sufficiently early in case they are needed.

Groundwater Inflow

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).

In summary, the number and sizes of pumps required are estimated to be adequate to dewater the pits within a reasonable amount of time after heavy rainfalls and not cause operational delays. As the pits get deeper the trash pumps, HL80s and the HW6 pumps may be configured in series with sumps at bench elevations to provide maximum pumping capacity by designing the elevation differences between sumps to suit the performance curves and efficiencies of the pumps.

17 RECOVERY METHODS

The mineral processing operation will be located at the PAK mine site approximately 175 km north of Red Lake, ON.

The ore mined from the Spark and PAK will be processed in the concentrator as per the ore processing schedule to produce a chemical grade lithium spodumene concentrate.

The concentrator will have a three-stage crushing plant that will divert mill feed to the XRT ore sorting circuit in order to reject mafic iron species.

All throughput and mass balance calculations used as the basis of design were based on an average mill feed of 1.04 Mtpa to produce an LOM average 201 ktpa of 6.0% Li_2O chemical grade concentrate.

The process plant design is derived from data and design criteria provided by Frontier, developed design data by DRA, vendor data, test work results summarized in the Section 13 of the Report, and regulatory permitting requirements. These data and criteria provide the basis for the calculations and design criteria derived from the mass balance.

The crushing and grinding circuit design is based upon the design throughput requirements and ore competency and hardness. The rod and ball mill sizing is based on achieving the grind size required to obtain the required spodumene concentrate tonnage and quality as well as the outcomes of the metallurgical test work and mill simulations.

For equipment influenced by volumetric flow, their sizing is based on the requirement for 115% of the instantaneous flow. For other equipment items, the peak production rates were used for sizing.

The design of the concentrator is based upon the test work results of the 2021-2022 SGS test work program as well as historical test work program results from 2016-2021, as applicable. The results of the test work provided the basis for process mass and water balance calculations, and sizing of the concentrator process equipment.

The design of the Tailings Management Facility (TMF) was completed by SLR and is detailed in Section 18 of the Report.

Fresh water is taken from an external water source. Fresh water is used for the process water circuit makeup, filtered and used for the gland seal duties within the process plant, for fire protection, and to generate potable water treated as per local regulations for process buildings and camp site use.

Reclaim water is sourced from final tailings thickener overflow, mine collection water from PAK and Spark water ponds, and water recovered from the tailings pond. Reclaim water is returned to the plant process water circuit.

Process water is recovered as an overflow from the concentrate thickener. In addition, the process water circuit receives water from reclaim water pond. Process water is then distributed within the concentrator circuits.

Electrical power will be provided by the projected Watay Power Line via overland power line.

Diesel generators will be used for emergency power generation of both the mine and plant site. Expected emergency demand for the process plant is 1,079 kVA. Diesel generators will be centralized at the main substation, supplying all emergency power to the main bus. The PCS will be responsible for turning emergency loads on and off.

17.1 Process Design Criteria

Table 17.1 summarizes key process design criteria. As per the ore processing schedule, Spark ore will be processed from Year 1 through Year 30, and PAK ore will be processed from Year 18 through Year 31. The blend of the PAK and Spark ore will be processed from Year 18 through Year 30.

The LOM amount of Spark ore is 27.2 million tonnes, and for PAK ore is 3.95 million tonnes.

Total annual LOM average ore processing tonnage is 1,040,000 tpa once the plant has been ramped up.

Concentrate production over the LOM will average 201 ktpa of chemical grade product at 6.0% Li_2O grade. Total LOM concentrate production is estimated at 6.07 million tonnes.

Details of the ore processing tonnages and concentrate production can be found in Table 17.2.

The concentrator plant flowsheet will use a flowsheet typical for spodumene ore processing operations inclusively of crushing, preconcentration, desliming, gravity, and magnetic separation, mica, and spodumene flotation, concentrate thickening and filtration, tailings thickening and disposal, water and reagent systems.

Final tailings will be thickened and pumped to the TMF for storage and water recovery.

Table 17.1 – Key Process Design Criteria

Description	Unit	Nominal	Design
Processing Operations Setup			
Runtime			
Crushing	%	70.0	70.0
XRT Ore Sorting	%	70.0	70.0
Concentrator	%	90.0	90.0
Filtration	%	85.7	85.7
Plant Throughput – LOM Average			
Daily Ore Processing Rate	t/d dry	2,849	3,277
Spark			
Lithium	% Li_2O	1.44	1.60
Iron	% Fe_2O_3	1.66	2.28
PAK			
Lithium	% Li_2O	1.96	2.42
Iron	% Fe_2O_3	0.68	1.00
Concentrate Quality – LOM			
Lithium Oxide Recovery – Spark and PAK/Spark blends	%	77.6	
Lithium Oxide Recovery – PAK		78.0	
Lithium Oxide Grade	% Li_2O	6.00	
Iron Oxide Grade	% Fe_2O_3	1.00	
Concentrate Mass Pull	% of ROM	19.7	25.4
Ore Comminution Properties			
Spark			
Bond Ball Mill Work Index (BWi)	kWh/t	11.1	12.3
Bond Rod Mill Work Index (RWi)	kWh/t	11.4	12.3
Crushing Work Index (CWi)	kWh/t	9.2	9.2
Abrasion Index (Ai)	g	0.543	0.543
PAK			
Bond Ball Mill Work Index (BWi)	kWh/t	12.4	13.6
Bond Rod Mill Work Index (RWi)	kWh/t	12.7	13.8
Crushing Work Index (CWi)	kWh/t	10.9	10.9
Abrasion Index (Ai)	g	0.573	0.573

Description	Unit	Nominal	Design
ROM Physical Properties (PAK and Spark)			
Ore Moisture	% w/w	5.0	7.0
Ore Angle of Repose	°	37.0	37.0
Processing Circuits			
Crushing			
Crushing Circuit Throughput	t/h	173	200
Crushing Circuit Feed Top Size (F_{100})	mm	600	600
Crushing Circuit Feed Size (F_{80})	mm	317	371
Crushing Circuit Product Size (P_{100})	mm	13	12.7
Crushing Circuit Product Size (P_{80}) - Grinding Feed	mm	9.5	9.5
Number of Crushing Stages	off	3	3
Primary Crusher		110 kW, 31" x 43" single toggle jaw crusher, 120 mm CSS	
Secondary Crusher		185 kW, cone crusher, 46 mm CSS	
Tertiary Crusher		260 kW, cone crusher, 16 mm CSS	
Secondary Screen		Triple deck dry vibrating screen, 50/25/13 mm aperture, 18 kW, installed open circuit with secondary cone crusher	
Tertiary Screen		Single deck dry vibrating screen,13 mm aperture, 15 kW,installed closed circuit with tertiary cone crusher	
Crushed Ore Storage			
Quantity		1	
Type		Conical, Covered	
Capacity (live)	t	1,500	
Ore Sorting			
Sorting Technology		XRT	
Number of Ore Sorters	off	2	2
Coarse Sorter Throughput	t/h	78	89
Coarse Sorter Feed Size Range	mm	+25-55	+25-55
Middlings Sorter Throughput	t/h	53	61
Middlings Sorter Feed Size Range	mm	+13-25	+13-25
Sorter Waste Rejection Rate	% of ore sorting feed	15	15
Combined Sorter Waste - Grades			

Description	Unit	Nominal	Design
Lithium	% Li_2O	0.62	0.6
Iron	% Fe_2O_3	10.9	10.9
Sorter Waste Stockpile			
Quantity		1	
Type		Conical, Open	
Capacity (live)	t	2,000	
Grinding			
New feed throughput	t/h solids	120	138
Mill Feed and Product Size (PAK and Spark, Train A and B)			
Rod Mill New Feed Top Size - F_{100}	mm	12.7	13
Rod Mill New Feed Size - F_{80}	mm	9.5	9.5
Rod Mill Product Size - T_{80}	µm	1,000	1,000
Ball Mill Product Size - P_{80}	µm	200	185
Rod Mill			
Mill Description		500 kW, 3.05 m D x 4.57 m EGL, rod mill, overflow discharge, VFD drive, steel liners	
Mill Circuit		Open	
Circulating Load	% of new feed	0	0
Mill Discharge Solids	% w/w	60	70
Rod Loading	% v/v	30	35
Operating Speed	% of critical (Cs)	70.0	80.0
Specific Energy	kWh/t	3.34	
Ball Mill			
Mill Description		750 kW, 3.2 m D x 5.18 m EGL, ball mill, overflow discharge, VFD drive, rubber liners	
Circulating Load	% of new feed	243	250
Mill Discharge Solids	% w/w	60	70
Ball Loading	% v/v	30	35
Operating Speed	% of critical (Cs)	70.0	80.0
Specific Energy	kWh/t	4.79	

Description	Unit	Nominal	Design
Grinding Classification Screens			
Screen Description		8-deck wet vibrating fine screen, 300 µm aperture	
Number of Screens Operating, per Train A or B	off	5 operating 0 standby	
Gravity Circuit			
Primary (rougher) Gravity Concentrator		1 Continuous centrifugal gravity concentrator complete with trash screen	
Gravity Regrind Circuit		1 45 kW, 1.2 m D x 2.4 m EGL, ball mill, overflow discharge, VFD drive, rubber liners closed circuit with a three-deck fine screen, 150 µm aperture	
Spiral Circuit		Rougher, scavenger, cleaner, and re cleaner spiral banks	
Gravity Separation New Feed Throughput	t/h solids	116	133
Gravity Cleaner Concentrate Masspull	% of new feed solids rate	0.07	0.08
Magnetic Separation			
Low Intensity Magnetic Separator (LIMS)		Two (2) 950 Gauss LIMS machines, counter-current rotation. Operating in parallel	
Wet High Intensity Magnetic Separator		1 rougher, and 1 scavenger 10,000 Gauss WHIMS machines	
LIMS Magnetics Masspull	% of stage feed	0.3	
WHIMS Magnetics Masspull (rougher and scavenger)	% of stage feed	5.7	
Desliming			
Duty Description		Desliming of the process unit operations feed prior gravity separation, mica, and spodumene flotation	
Desliming Equipment		Hydrocyclone clusters	
Cut Size	µm	15	

Description	Unit	Nominal	Design
Attrition			
Duty Description		Process slurry solids attrition scrubbing for spodumene feed	
Scrubbing Equipment		1 bank of 5 attrition cells	
Specific Power	kW/m^3 cell volume	18	20
Scrubber Feed Solids Density	% w/w	50	60
Slurry Residence Time	min	10	10
Dewatering Screens			
Duty Description		Removal of the excess water from desliming cyclone u/f. Installed after desliming cyclones	
Dewatering Equipment		Wet vibrating screens, single deck, 250 µm aperture	
Mica Flotation			
pH		10.5	
Residence Time, pH Adjustment Conditioning Tank	min	1	
Residence Time, Collector Conditioning Tank	min	2	
Mica Rougher			
Circuit Description		1 bank, 6 off tank cells, 10 m^3 each	
pH		10.5	
Flotation Feed Solids	% w/w	30.0	
Residence Time, Plant	min	10	
Air Hold-Up Factor	%	15.0	
Concentrate Mass Pull	%	7.3	
Mica Cleaner			
Circuit Description		1 bank, 3 mechanical cells, 2.3 m^3 each	
pH		10.5	
Flotation Feed Solids	% w/w	23.6	
Residence Time, Plant	min	6.25	
Air Hold-Up Factor	%	15.0	
Concentrate Mass Pull	%	5.8	

Description	Unit	Nominal	Design
Spodumene Flotation			
pH		8.5	
Residence Time, pH Adjustment Conditioning Tank	min	3	
Residence Time, Collector Conditioning Tank	min	10	
Spodumene Rougher			
Circuit Description		1 bank, 6 tank cells, 10 m^3 each	
pH		8.5	
Flotation Feed Solids	% w/w	35.0	
Residence Time, Plant	min	5	
Air Hold-Up Factor	%	15.0	
Concentrate Mass Pull	%	26.2	
Spodumene 1st Cleaner			
Circuit Description		1 bank, 5 mechanical cells, 2.3 m^3 each	
pH		8.5	
Flotation Feed Solids	% w/w	26.5	
Residence Time, Plant	min	5	
Air Hold-Up Factor	%	15.0	
Concentrate Mass Pull	%	22.7	
Spodumene 2nd Cleaner			
Circuit Description		1 bank, 5 mechanical cells, 2.3 m^3 each	
pH		8.5	
Flotation Feed Solids	% w/w	24.5	
Residence Time, Plant	min	3.75	
Air Hold-Up Factor	%	15.0	
Concentrate Mass Pull	% of train feed	19.7	25.4
Concentrate Thickener			
Equipment Description		High rate, 12 m diameter	
Thickener Feed Solids	% w/w	21	
Thickener Underflow Solids	% w/w	64.0	55.0
Solids Loading	$t/h/m^2$	0.55	

Description	Unit	Nominal	Design
Concentrate Filter			
Equipment Description		Vertical pressure filter, Larox type	
Filtration Rate	t/h/m^2	0.55	
Filter Cake Solids	% w/w	93.0	
Concentrate Stockpile			
Type		Conical	
Capacity (live)	t	8,000	
Reclaim Method		Front end loader	
Tailings Thickening			
Final Tailings Thickener			
Equipment Description		High compression, 16 m diameter	
Thickener Feed	% w/w	6.3	4.0
Thickener Underflow	% w/w	68	70
Solids Loading	t/h/m^2	0.50	
Rise Rate	m/h	12.5	

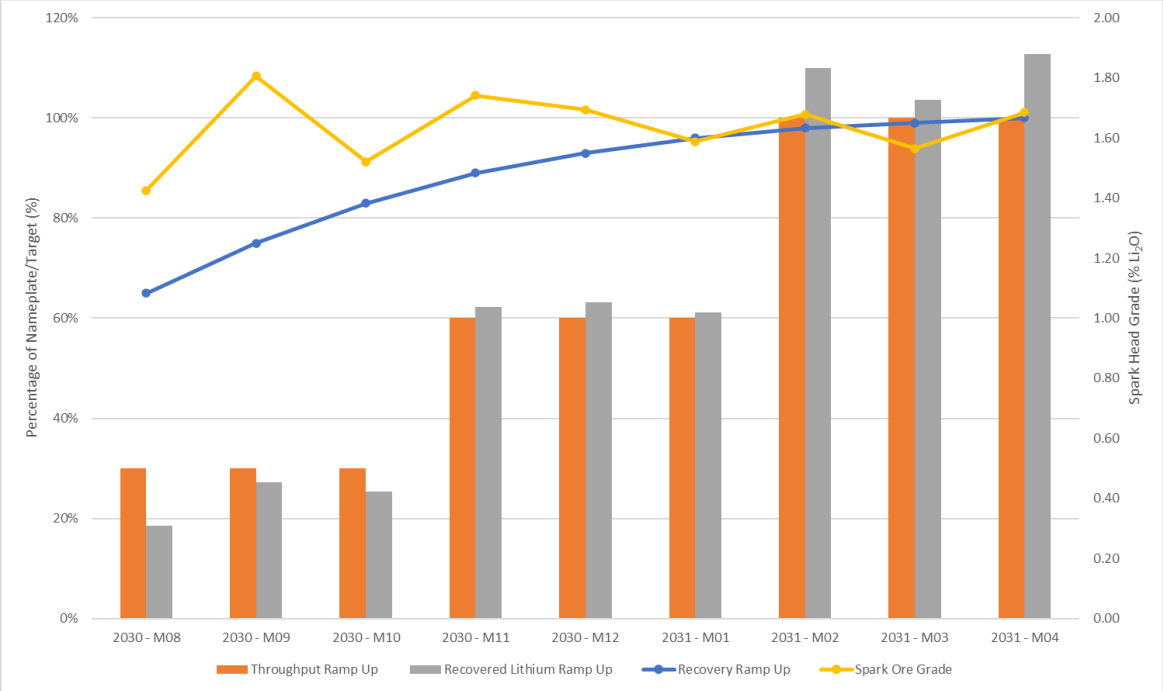
17.2 Production Summary

An integrated mine and concentrator process plant plan was developed with the following considerations:

- Concentrator starts processing Spark ore in August 2030 and by February 2031 throughput ramp up is completed.
- Spark ore is only being processed up until the end of 2046.
- PAK ore processing commences in Year 2047 in a blend with the Spark ore. PAK and Spark ore blends processed through 2030 with increasing fraction of PAK ore as Spark ore depletes.
- 2060 is last year of concentrator operation. By this time, no Spark ore processed, PAK only.

Figure 17.1 depicts the concentrator ramp up details in terms of the throughput and recovery. The figure indicates that the concentrator is expected to reach nameplate throughput and lithium recovery targets in nine (9) months.

Figure 17.1 – Concentrator Ramp Up



Source: DRA, 2025

Table 17.2 outlines the anticipated feed and production results over the LOM.

The basis for the development of the concentrate recoveries and grades were the results of the bench scale at pilot plant testing completed by SGS in 2021-2022 under Frontier's supervision.

The LOM Li_2O recovery is estimated at 77.6% as weighed average for the two ore types to be processed.

The schedule accounts for variation of the head grade as well as the ramp up on throughput tonnage and process recovery.

Table 17.2 – Concentrate Production Schedule

Operating Year		LOM	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060
ORE PROCESSED																																	
Spark Ore Processed	kt	**27,183**	182	1,005	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	993	1,028	980	715	694	814	740	696	817	1,009	686	614	608	0
Spark Ore Li_2O Head Grade	% Li_2O	**1.44**	1.66	1.59	1.57	1.46	1.46	1.41	1.46	1.39	1.39	1.49	1.33	1.34	1.36	1.41	1.45	1.40	1.54	1.46	1.40	1.33	1.41	1.44	1.43	1.50	1.50	1.30	1.40	1.53	1.60	1.54	0.00
PAK Ore Processed	kt	**3,947**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47	12	60	325	346	226	300	344	223	31	354	426	432	823
PAK Ore Li_2O Head Grade	% Li_2O	**1.96**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.44	1.44	2.76	2.41	2.44	1.82	1.95	1.72	1.60	1.55	1.64	1.81	2.00	1.96
Total Ore Processed	kt	**31,131**	182	1,005	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	823
Total Ore (Mill Feed) Li_2O Head Grade	% Li_2O	**1.51**	1.66	1.59	1.57	1.46	1.46	1.41	1.46	1.39	1.39	1.49	1.33	1.34	1.36	1.41	1.45	1.40	1.54	1.51	1.40	1.41	1.72	1.77	1.52	1.63	1.57	1.36	1.40	1.57	1.68	1.73	1.96
CONCENTRATE, SORTER REJECTS, TAILS																																	
Concentrate Production	kt	**6,064**	31.7	205.7	210.8	196.4	196.2	189.8	195.7	187.6	186.7	200.4	178.8	179.9	183.1	189.9	195.2	188.1	207.8	202.7	188.9	189.8	231.9	239.1	204.5	219.2	211.7	183.6	188.6	210.9	226.9	233.2	209.3
Concentrate Li_2O Grade	% Li_2O	**6.00**	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Li_2O Recovery	%	**77.6**	62.8	77.2	77.6	77.6	77.6	77.6	77.6	77.6	77.6	77.6	77.6	77.6	77.6	77.6	77.6	77.6	77.6	77.6	77.6	77.6	77.8	77.8	77.7	77.7	77.7	77.7	77.6	77.7	77.8	77.8	78.0
Concentrate Masspull	%	**19.7**	17.4	20.5	20.3	18.9	18.9	18.3	18.8	18.0	17.9	19.3	17.2	17.3	17.6	18.3	18.8	18.1	20.0	19.5	18.2	18.2	22.3	23.0	19.7	21.1	20.4	17.6	18.1	20.3	21.8	22.4	25.4
Sorter Rejects	kt	**3,532**	21	114	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	93
Tailings to Tailings Storage Facility	kt	**21,534**	130	686	711	726	726	732	726	734	735	722	743	742	739	732	727	734	714	719	733	732	690	683	717	703	710	738	733	711	695	689	521

Note: Totals may not add due to rounding

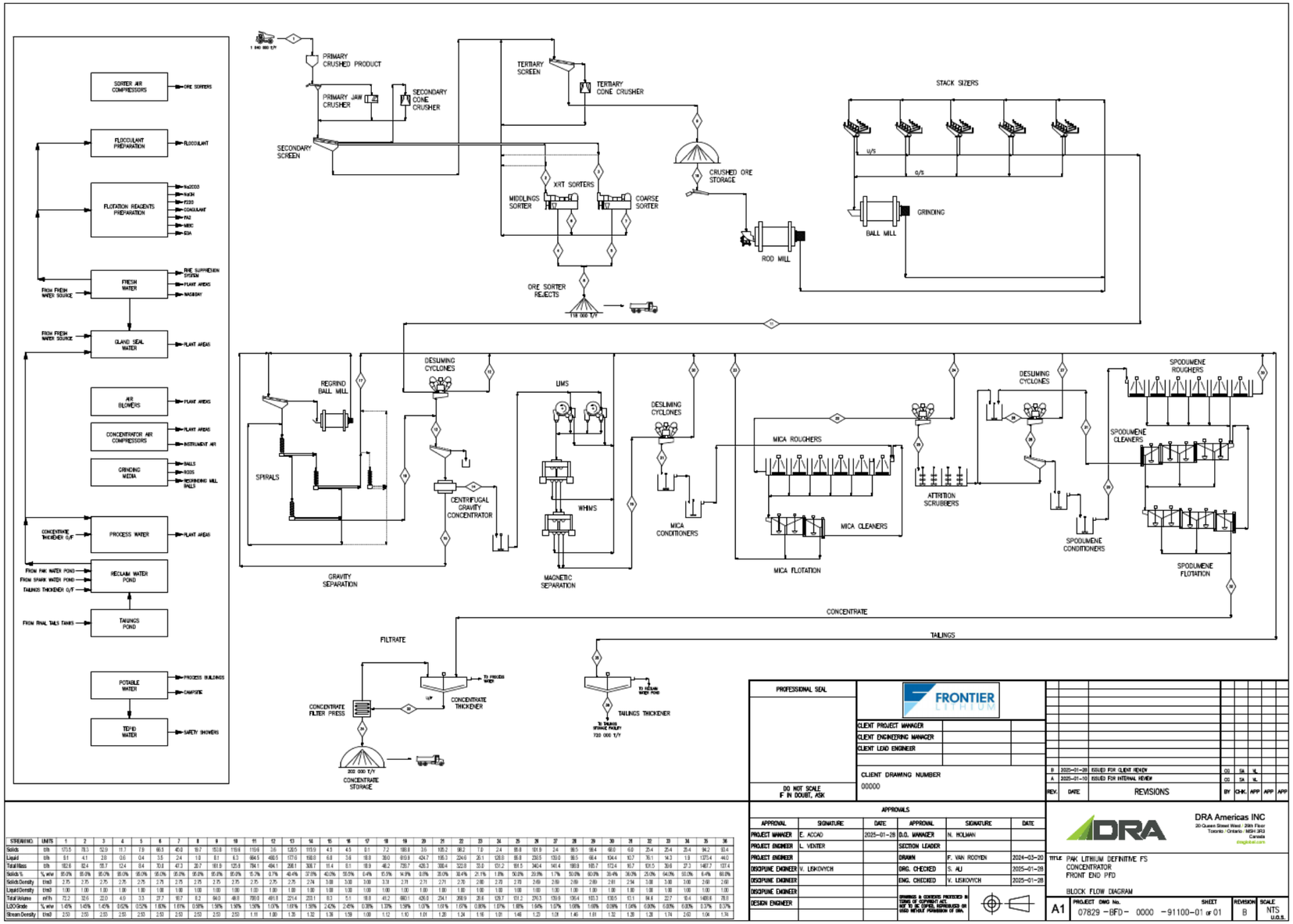
17.3 Process Description

The process plant includes the following principal process circuits:

- Crushing, Preconcentration, and Mill Feed Stockpile:
  - Primary, secondary, and tertiary crushing and screening.
  - XRT ore sorting of the secondary crushed ore.
  - Mill feed stockpiles.
- Concentrator, including:
  - Rod and ball mill grinding and fine screen classification.
  - Desliming.
  - Gravity separation for recovery of tantalum and arsenic.
  - Magnetic separation circuit for rejection of iron.
  - Mica rougher and cleaner flotation.
  - Mica tailings (spodumene flotation feed) dewatering and attrition scrubbing.
  - Spodumene rougher and cleaner flotation.
  - Concentrate thickening, filtration, and loadout.
- Tailings will be thickened and pumped to the Tailings Management Facility (TMF), which is not part of DRA's scope. The design of the TMF was completed by SLR and is described in Section 18 of the Report.
- Reagents Preparation and Distribution.
- Water Systems:
  - Fresh water.
  - Gland seal water.
  - Fire water.
  - Process water.
  - Reclaim water.
  - Potable water.
- Air Services:
  - Concentrator plant and instrument air.
  - Flotation air blowers.

The concentrator simplified flowsheet is shown in Figure 17.2.

Figure 17.2 – Simplified Process Flowsheet



17.3.1 CRUSHING, PRECONCENTRATION, AND MILL FEED STOCKPILE

17.3.1.1 Crushing

The ROM ore has an approximate moisture content of 5% and an F_{80} size of that varies from 300 to approximately 370 mm. ROM ore is dumped by haul trucks into a hopper equipped with a static grizzly. Any oversize material on the grizzly is reduced with a rock breaker. The hopper feeds a vibrating grizzly feeder from which the oversize (O/S) material is directed to a jaw crusher.

The product of the jaw crusher and the undersize (U/S) of the vibrating grizzly are then transferred to a conveyor, which delivers the material to the secondary crushing screen.

The secondary crushing circuit is composed of the secondary crushing screen, the secondary crusher, interconnecting conveyors, bins, and platework. The secondary crusher is in a closed circuit with the secondary screen and is used to reduce the oversize from the secondary crushing screen.

The screen is a triple deck screen which produces four (4) fractions:

- Top deck O/S (+ 50 mm), sent to the secondary crusher.
- Middle deck O/S (+ 25 mm), sent to the coarse ore sorter; (+ 13 mm), sent to the middlings ore sorter.
- Bottom deck U/S (- 13 mm), sent to the tertiary crusher screen.

Tertiary crushing includes a tertiary crusher screen, a tertiary crusher, interconnecting conveyors, bins and platework. The tertiary crusher is in a closed circuit with the tertiary screen, and it is used to reduce the oversize from the tertiary crushing screen.

The screen is a single deck with 13 mm screen apertures. The oversize material is fed to tertiary crusher and the undersize is the crushing plant product.

The oversize material is sent to the tertiary crusher. The undersize material is conveyed to the mill feed stockpile.

17.3.1.2 Ore Sorting

X-ray transmission (XRT) technology is used for the ore sorting as per the test work recommendations. The sorter rejects magnesian ferric aluminium silicate particles and upgrades the product stream by rejecting a significant portion of the iron from the ore.

The feed to ore sorting is split into two (2) fractions with each processed through a dedicated ore sorter (Coarse and Middlings).

The products of the ore sorting circuits report to the tertiary crusher screen. The waste reports to a waste stockpile within the crushing area.

Both coarse and middlings ore sorters have their own air delivery systems which comprise compressors, receivers, filters, and dryers.

17.3.1.3 Mill Feed Stockpile

Mill feed stockpile is a covered storage and has 1,500 t live capacity.

The stockpile is fed by means the belt conveyor and reclaimed via vibrating pan feeders (1 operating, 1 standby) in the tunnel below the stockpile.

17.3.2 CONCENTRATOR

The concentrator plant process described in sections below.

17.3.2.1 Grinding

The grinding flowsheet selected as a result of the trade-off study completed by DRA and ensures grinding product size while minimizing slimes generation to minimize Li_2O losses with the slimes.

The selected grinding circuit uses a rod mill for primary grinding, and ball mill for secondary grinding. Classification is done through the wet multi-deck fine screens (stack sizers).

The rod mill receives the crushed ore and grinds it from F_{80} of 9 mm to a T_{80} of 1,000 µm. The ball mill reduces the ore size further to P_{80} of 200 µm. Rod mill discharge is fed to the pumpbox and then pumped to five (5) parallel stack sizers.

The oversize from the stack sizers reports by gravity back to the ball mill while the undersize is pumped to the desliming circuit.

Rod and ball mills both have variable speed drives to accommodate for ore variability and ensure product P_{80}, and low Li_2O losses with the slimes.

17.3.2.2 Desliming

A desliming cyclone is used to separate the slimes (-15 µm) from the slurry. The slimes report to the overflow and are sent to the final tailings circuit. The cyclone underflow is fed to the gravity separation circuit.

17.3.2.3 Gravity Separation

Gravity separation circuit is required to reject tantalum and arsenic from the spodumene stream to produce a suitable feed for the conversion plant. Production of the saleable Ta concentrate can be considered as a brownfield expansion should the market be favourable at that time.

The desliming cyclone underflow reports to the agitated gravity concentrator feed tank from where it is pumped to the continuous centrifugal gravity concentrator.

Centrifugal gravity concentrator tailings discharges to the magnetic separation feed tank, which feeds magnetic separation described in sections below.

Centrifugal gravity concentrator concentrate is reground in the small tyre-driven ball mill installed in a closed circuit with the wet screen. The regrind is required to liberate lithium and direct it to the spodumene circuit by means of the spiral cleaners.

The regrind screen undersize is fed to the spiral cleaning circuit that includes rougher, scavenger, and cleaner spiral clusters as per the plant flowsheet. Spiral concentrate is pumped to the final tailings thickener, and the tailings are sent back to the centrifugal gravity concentrator feed to use the benefit of the centrifugal gravity concentrator's high G-force to recover the residual Ta and As.

17.3.2.4 Magnetic Separation

Magnetic separation circuit uses two low intensity magnetic separators (LIMSs) operating in parallel to reject highly magnetic material abraded from grinding media followed by two-stages of wet high intensity magnetic separation (WHIMS) at a magnetic intensity of 10,000 Gauss to remove the weakly magnetic iron-bearing waste in the ore.

Gravity concentrator tailings report to an agitated LIMS feed tank from where it is pumped to the LIMS feed box. The LIMS non-magnetics continue to the first stage WHIMS. The first stage WHIMS non-magnetics pumped to the second stage WHIMS. Magnetic fractions from both LIMS and WHIMS circuits are combined in a common pumpbox and pumped to the final tailings thickener.

The non-magnetic fraction of the second WHIMS stage is pumped to a cyclone for additional desliming prior the flotation. The cyclone overflow reports by gravity to the final tailings circuit, the cyclone underflow is pumped to mica flotation.

17.3.2.5 Mica Flotation

The purpose of the circuit is to remove muscovite mica from the spodumene flotation feed.

Mica flotation circuit has two (2) conditioning tanks and rougher and cleaner flotation cells. Dilution water and pH modifier are added in the first conditioning tank to achieve the target slurry pH of 10.5, while mica collector is added in the second tank.

The mica concentrate produced in the cleaner cells is pumped to the final tailings thickener while the spodumene-rich mica rougher tailings streams report to the attrition scrubber bank. Mica cleaner tailings are recirculated to the mica rougher feed.

17.3.2.6 Spodumene Flotation Feed Dewatering and Attrition Scrubbing

Dewatering cyclone receives mica flotation tailings and produces an underflow sufficiently dense (55% to 65% w/w solids) for attrition scrubbing and separates the slimes to the overflow.

Cyclone underflow is fed to the attrition scrubber bank where spodumene-rich slurry is vigorously agitated in a high pH environment to separate slimes from ore particle surfaces.

The scrubbed slurry is pumped to an agitated feed tank, which feeds a desliming cyclone to reject the slimes separated in the scrubbing process. Overflows from the desliming cyclones report by gravity to the final tailings circuit. The desliming cyclone underflow is dewatered on a screen, and post scrubbing is fed to the spodumene flotation.

17.3.2.7 Spodumene Flotation

The purpose of the spodumene flotation circuit is to concentrate the spodumene in the slurry and produce a 6.0% Li_2O chemical grade concentrate.

Frother and pH adjusting chemicals are added in the first conditioning tank to achieve the target slurry pH of 8.5 for spodumene flotation. Fatty acid collector is added in the second conditioning tank.

Spodumene 2nd cleaner concentrate is pumped to the concentrate thickener.

Spodumene rougher tailings are pumped to the final tailings thickener, while the spodumene 1st cleaner tailings are recirculated to the feed tank of the desliming cyclone ahead of the spodumene flotation circuit. The tailings of subsequent spodumene cleaner stages are recirculated to the feed of the previous cleaner stage.

17.3.2.8 Concentrate Thickening, Filtration and Loadout

This circuit includes a high-rate thickener, a filter press, and associated tanks, pumps and conveyors for filter feed, filtrate, and concentrate cake handling.

Underflow from the concentrate thickener is fed to the filter press.

Concentrate filter cake is collected by conveyor and fed onto the concentrate stockpile.

Overflow from the concentrate thickener is pumped to the process water tank and recycled within the process. The filtrate from the filter is recirculated to the feed box of the concentrate thickener.

17.3.2.9 Final Tailings Thickening

The final tails and slimes streams described in sections above are collected in the pumpbox and pumped to the high compression tailings thickener for dewatering. The overflow of the thickener reports to the reclaim water pond to age and destroy residual amine and fatty acid collectors. Thickener underflow is collected in the final tailings tank and then pumped to the TMF. Details of the TMF design can be found in Section 18.

17.3.3 REAGENTS AND CONSUMABLES

Reagents and consumables, consumption rates and annual usage required for the ore processing operations are listed in Table 17.3.

Table 17.3 – Reagents and Consumables

Description	Duty	Consumption		Annual Usage	
		Unit	Value	Unit	Value
Reagents					
Pionera F-220	Dispersant	g/t ROM	222	tpa	236
Flotigam EDA	Mica collector	g/t ROM	31	tpa	33
Sylfat FA-2 (90%) and TPA-100 (10%)	Spodumene collector	g/t ROM	448	tpa	476
MIBC	Frother	g/t ROM	9	tpa	9.4
Sodium Hydroxide	pH control	g/t ROM	356	tpa	379
Soda Ash	pH control	g/t ROM	122	tpa	130
Flocculant (all thickeners)	Solids settling aid	g/t ROM	33	tpa	35
Coagulant FLOQUAT FL 4440	Solids settling aid	g/t ROM	50	tpa	53
Grinding Media					
Rods, 63 mm	Grinding	g/t ROM	250	tpa	267
Balls, 50 mm	Grinding	g/t ROM	250	tpa	267
Balls, 38 mm	Regrind	g/t ROM	10	tpa	9
Liners					
Liners - Jaw Crusher	Primary crushing	set/y	1	off	1
Liners - Cone Crusher	Secondary crushing	set/y	1	off	1
Liners - Cone Crusher	Tertiary crushing	set/y	1	off	1
Liners - Rod Mill	Grinding	set/y/mill	1	off	1
Liners - Ball Mill	Grinding	set/ 2 years/mill	1	off	1
Liners - Regrind Ball Mill	Regrind	set/ 2 years/mill	1	off	1

Description	Duty	Consumption		Annual Usage	
		Unit	Value	Unit	Value
Filter Cloth					
Filter Cloth	Concentrate filter press	set/y	1	off	1

Reagent mixing will be completed in a designated area within the plant. The design of this area includes features such as bunding, with dedicated sump pumps. The layout and general arrangement of the reagent area considers the need to prevent contact of incompatible reagent types. Separate onsite long-term reagent supply storage is provided a safe distance away from the process plant.

17.3.4 Utilities and Services

17.3.4.1 Electric Power

Electric power will be provided by the projected Watay Powerline via overland power line.

The processing operations will have the following electrical power requirements:

- Total annual power demand – 46.3 million kWh/y.
- Electrical power consumption rate – 44.6 kWh/t ROM ore processed.

Diesel generators will be used for emergency power generation of both the mine and plant site. Expected emergency demand for the process plant is 1,079 kVA. Diesel generators will be centralized at the main substation, supplying all emergency power to the main bus. The process control system (PCS) will be responsible for turning emergency loads on and off.

17.3.4.2 Water

Fresh water will be sourced from excess surface water and wells. Fresh water is used for the process water makeup, filtered and used for gland seal duty within the process plant, for fire protection, and to generate potable water treated as per local regulations for process buildings and camp site use.

Fresh water destined for mill use will be sourced from internal reclaim ponds where a positive water balance from precipitation and inflow generate excess fresh water. No water will be taken from Pakeagama Lake as a sufficient quantity is recovered from mining and processing operations as well as site collection systems.

Reclaim water is sourced from final tailings thickener overflow, mine collection water from PAK and Spark water ponds, and water recovered from the tailings management facility. Reclaim water is returned to the plant process water circuit.

Process water is recovered as an overflow from the concentrate thickeners. In addition, the process water circuit receives water from the reclaim water pond. Process water is then distributed within the concentrator circuits.

Site water balance details are provided in Section 18 of the Report.

17.3.4.3 Air Services

Compressed air for plant distribution will be provided by the centralized compressor. Air receivers will be positioned throughout the process plant to buffer and control fluctuations within the system.

Instrument air for the process plant will be provided by drying an off-take stream from the centralized compressed air plant. Air receivers will be positioned throughout the plant to buffer and control fluctuations within the system.

Compressed air for the crusher area will be provided by independent systems due to their distance away from the main plant.

Ore sorting systems will have dedicated compressor systems that will provide compressed air of the required quality and flow rate to the XRT sorting machines.

Flotation circuit air will be supplied through dedicated flotation blowers.

17.3.5 SAMPLING AND ON-STREAM ANALYZER

The plant will use the Courier 8X SL system based on the laser-induced breakdown spectroscopy (LIBS) technology to measure mineral grades of slurries directly in the process. The system will sample the process streams for Li, Na, Al, K, Ca, Si, Mg, Fe, B, Be, and As grades as well as particle size distribution.

A summary of the samples and sampling requirements is provided in Table 17.4.

Table 17.4 – Sampling Requirements Summary

Sample	**Analysis**	**Sample for On-Stream Analyzer / Particle Size Analyzer** (Yes/No)	**Metallurgical Accounting Required** (Yes/No)
ROM Ore	PSD, Metal Grades	No	Yes
CG Ore Sorter Rejects	Metal Grades	No	No
XRT Sorter Concentrate	Metal Grades	No	No
Rod Mill Feed	PSD, Metal Grades	No	Yes
Mica Rougher Feed	PSD, Metal Grades	Yes	No

Sample	Analysis	Sample for On-Stream Analyzer / Particle Size Analyzer (Yes/No)	Metallurgical Accounting Required (Yes/No)
Mica Rougher Tailings	Metal Grades	Yes	No
Mica Cleaner Concentrate	Metal Grades	Yes	No
Spodumene Rougher Feed	PSD, Metal Grades	Yes	No
Spodumene Rougher Concentrate	Metal Grades	Yes	No
Spodumene Rougher Tails	Metal Grades	Yes	No
Spodumene Cleaner Concentrate	PSD, Metal Grades	Yes	No
Spodumene Cleaner Tails	Metal Grades	Yes	No
Final Concentrate	Metal Grades	No	Yes
Tailings Thickener Feed	Metal Grades	No	Yes
Spiral Screen Undersize	Metal Grades	No	No

17.3.6 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 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 day-to-day metallurgical performance of the concentrator facility.

17.3.7 Process Control

The Project will have an adequate level of automation and remote-control facilities. Instrumentation will be provided within the plant to measure and control key process parameters and to provide a safe work environment.

All key process and maintenance parameters will be available for trending and alarming on the PCS. The PCS that will be used for this plant is a PLC-based SCADA system. The PCS will control the process interlocks and PID control loops for non-packaged equipment. Control loop set-point changes for non-packaged equipment will be made at the operator interface terminals (OIT).

There will be two (2) modes for loop-controlled Control Variables available in the PCS: “Auto-Mode” and “Manual Mode”. Auto Mode will control the variables via the applicable PID loop based on the process variable set-point. Manual mode will allow the user to set the control variable directly on the SCADA OIT.

In general, the plant process drives will, as a minimum, report their Ready, Run and Fault status to the PCS system and will be displayed on the OIT.

The OIT will allow drives/valves to be selected to any of the following modes; Auto, Remote, Local, Maintenance or Out-of-Service modes via the drive/valve control popup on the OIT. Statutory interlocks such as emergency stops and overload protection are hardwired and will apply in all modes of operation.

The control of most of the vendor packages should be controlled remotely from PCS OIT and ethernet connection to control system network. General equipment fault alarms from each vendor package will be monitored by the PCS system and displayed on the OIT. Fault diagnostics and troubleshooting of vendor packages will be performed locally.

18 PROJECT INFRASTRUCTURE

18.1 Overview

This section describes the infrastructure for the Project site, which is located approximately 175 km north of Red Lake in northwestern Ontario.

The proposed layout of the Project site is shown in Figure 18.1, which presents the overall project site plan including site infrastructure. The layout includes haul roads, open pits (Spark and PAK) with haulage roads, tailings management facility (TMF) and reclaim water pond, concentrator plant complex, fuel storage, and facilities such as the operations camp for personnel accommodation, administration buildings, truck shop, explosives storage and production area, landfill, and airstrip with integrated helipad.

The PAK site will have process and mine administration buildings, while all other corporate functions related to the Project will be based at Frontier's head office.

In addition to the above, the infrastructure required for the Project will include:

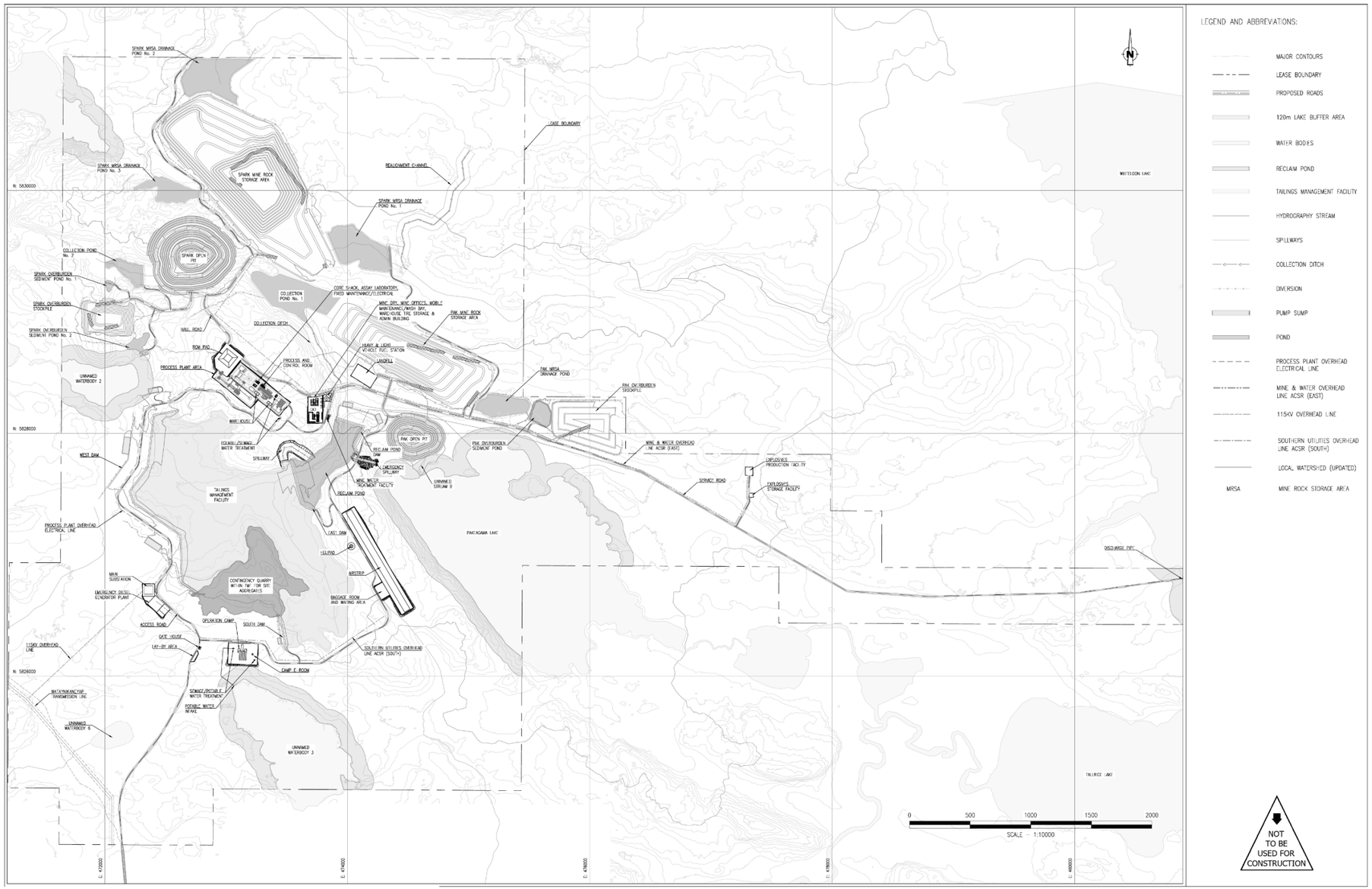
- Site access roads.
- Mine Rock Storage Areas (MRSAs) and overburden stockpiles.
- Surface water management infrastructure.
- Water Treatment Plant (WTP).
- Site-wide electrical power distribution with diesel-fuelled emergency generators.
- Communication, control, and IT systems.

18.2 Site Development and Access Roads

The site access road will be constructed to provide permanent all-season access to the facility. Frontier anticipates the completion of a provincial permanent access road, enabling site access for construction activities by August 2027.

Multiple haul and service roads are planned for construction within the site to transport ore and mine rock from the mine open pits to their designated destinations, and to facilitate the safe movement of personnel between the accommodation camp and the various work areas. Consideration has been given to site traffic management and control. A truck layby area is planned outside the site security gate house, and haul and service roads are designed to maintain separation between light vehicles, buses, semi-trucks, and mine production vehicles.

Figure 18.1 – PAK Lithium Project Overall Site Plan



Source: DRA, 2025

The haul roads and associated mine infrastructure will allow mine trucks to travel between the two (2) open pits, MRSAs, ROM stockpile area, refuelling station, and service buildings without using service roads. These two-lane haul roads will be 13.2 m wide, approximately 6 km in total length, and are designed for CAT 775 trucks. The roads will also accommodate CAT 6015 shovels and CAT 988 loaders, which may be relocated between pits as required.

There will be a total length of approximately 22 km of service roads constructed to accommodate vehicle traffic between the battery limit of the provincial road and the site's key infrastructure, including the security gatehouse, operations camp, concentrator, truck shop, airstrip, explosives facility, water treatment plants, surface water collection ponds, and the treated water discharge point at the Flanagan River. Service roads will be 7.2 m wide and will consist of the following:

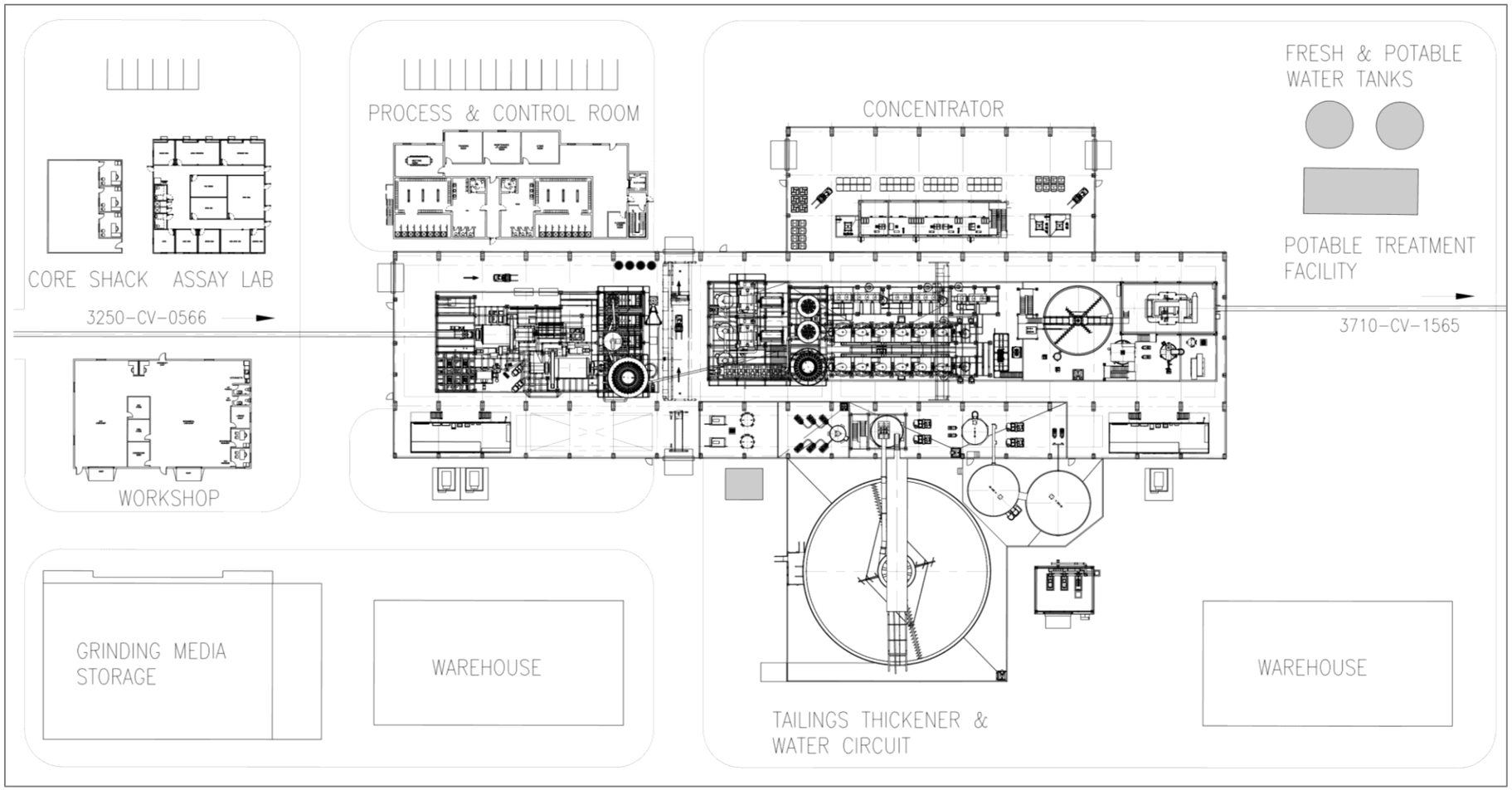
- Service road for the treated water discharge pipeline.
- Internal plant roads designed to access the crusher, concentrator and adjacent installations.
- Additional roads will be added to access the explosives storage areas, TMF and WTP.

18.3 Site Buildings and Facilities

This section provides an overview of the buildings and facilities at the Frontier PAK site. It covers both non-process structures, such as offices, mine facilities, warehouses, workshops, and security structures, and process buildings used for ore processing. Most non-process buildings are modular, pre-engineered, or fabric structures. The process facilities include crushers, ore-sorting units, screening, grinding, and concentration plants, primarily constructed as stick-built or pre-engineered structures.

The majority of the Project infrastructure will be located in a central complex around the Concentrator Plant as shown in Figure 18.2 and in the vicinity of the Mobile Equipment Maintenance Workshop.

Figure 18.2 – Concentrator Plant Complex Plan



Source: DRA 2025

18.3.1 GATE HOUSE

An insulated and heated gate house will be constructed along the site access road to serve as a security checkpoint for monitoring and controlling access to the Project site. This facility will be positioned near the operations camp to ensure effective oversight of incoming and outgoing personnel and vehicles. The gate house will be staffed by security personnel tasked with enforcing access control measures, verifying credentials, and preventing unauthorized entry.

The facility will include a designated vehicle layby area to facilitate inspections and temporary stops without obstructing traffic flow. The provisional layout of the gate house will feature a reception area for visitor processing, an office space for security staff, a waiting area, a search room, and a training room to support visitor induction initiatives. The facility will also be equipped with essential amenities, including a restroom, to accommodate personnel working on-site for extended periods.

Constructed with durable materials suited for the local climate, the gate house will provide a secure and controlled entry point for the site, contributing to overall operational security and efficiency.

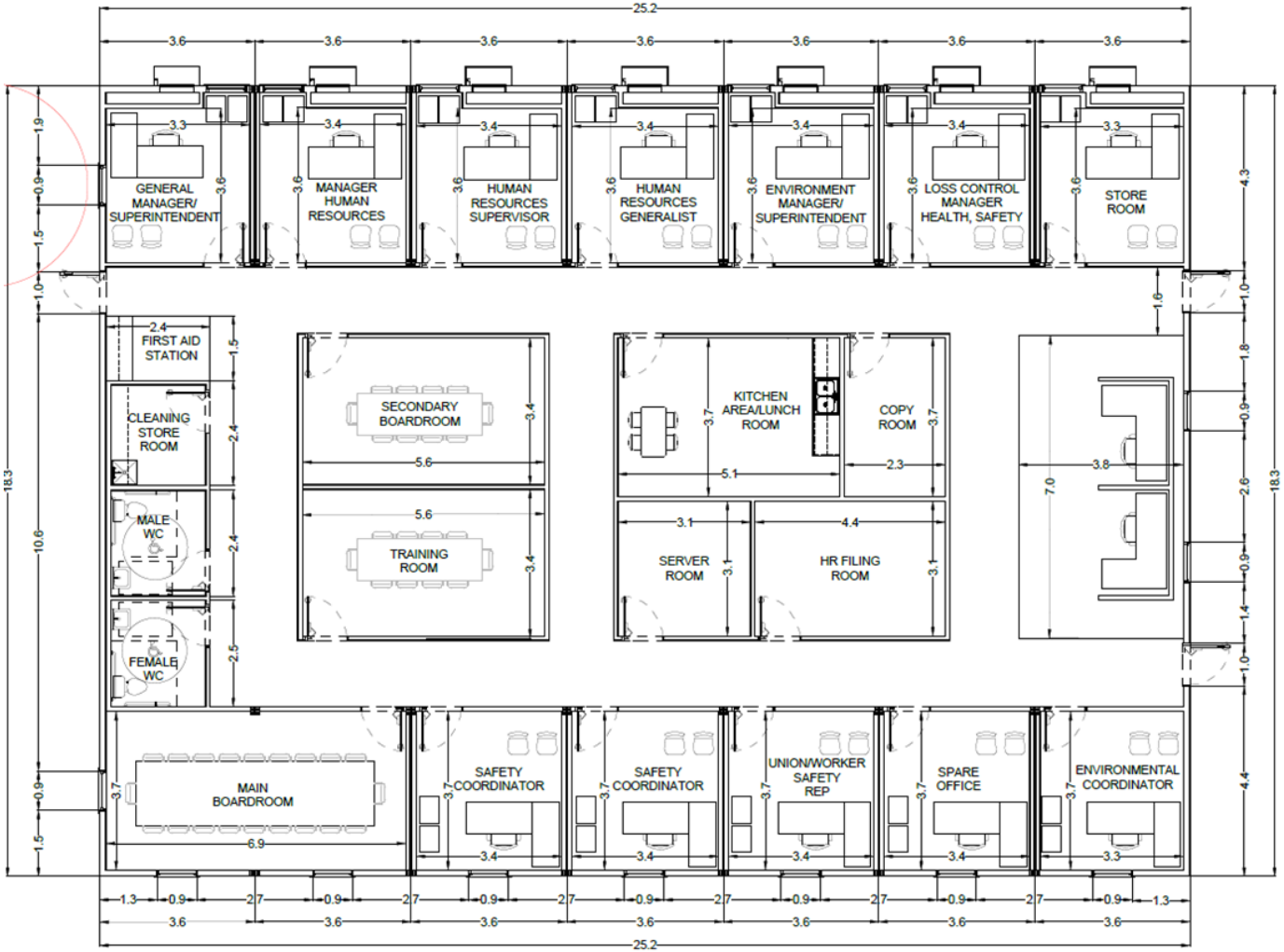
18.3.2 ADMINISTRATION BUILDING

The administration building and site offices will be located on the east side of the concentrator plant facilities. This single-story modular structure will provide essential office space for site management, supervision, and various support functions. The complex will be surrounded by approximately 100 parking stalls designated for site vehicles, ensuring accessibility for personnel and visitors.

The administration complex, as illustrated in Figure 18.3, will house the following key facilities:

- Site management and supervision offices, with dedicated workspaces for operational oversight.
- A first aid station for prompt medical response capabilities on-site.
- A server room, housing IT infrastructure, which are required for site operations.
- A filing room, for secure storage of administrative and operational records.
- Spare desks and offices, accommodating additional staff and / or temporary personnel.
- A training room, facilitating workforce development and safety instruction.
- A boardroom and secondary training rooms to support meetings and collaborative work.
- A kitchenette and lunchroom providing break areas for staff.
- Wheelchair-accessible male and female washrooms, to comply with accessibility standards.

Figure 18.3 – Administration Building Plan



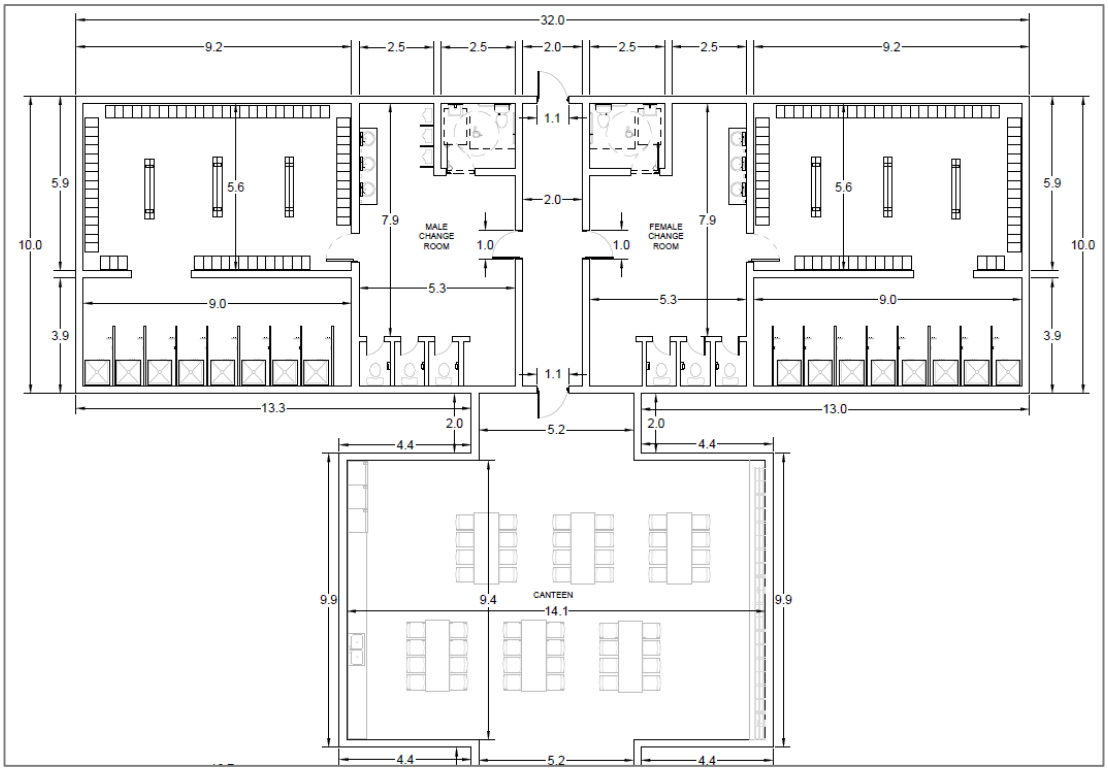
Source: DRA, 2025

18.3.3 MINE OFFICES AND DRY FACILITY

The mine offices and dry facility for the operations and maintenance workforce will be housed in modular units situated east of the concentrator area, adjacent to the Truck Shop (Mobile maintenance/wash bay). The dry facility (Figure 18.4) and mine offices (Figure 18.5) will be connected via a canteen area, to provide a centralized and convenient layout for personnel.

The mine dry facility will accommodate up to 100 employees (both male and female).

Figure 18.4 – Layout of Mine Dry and Canteen

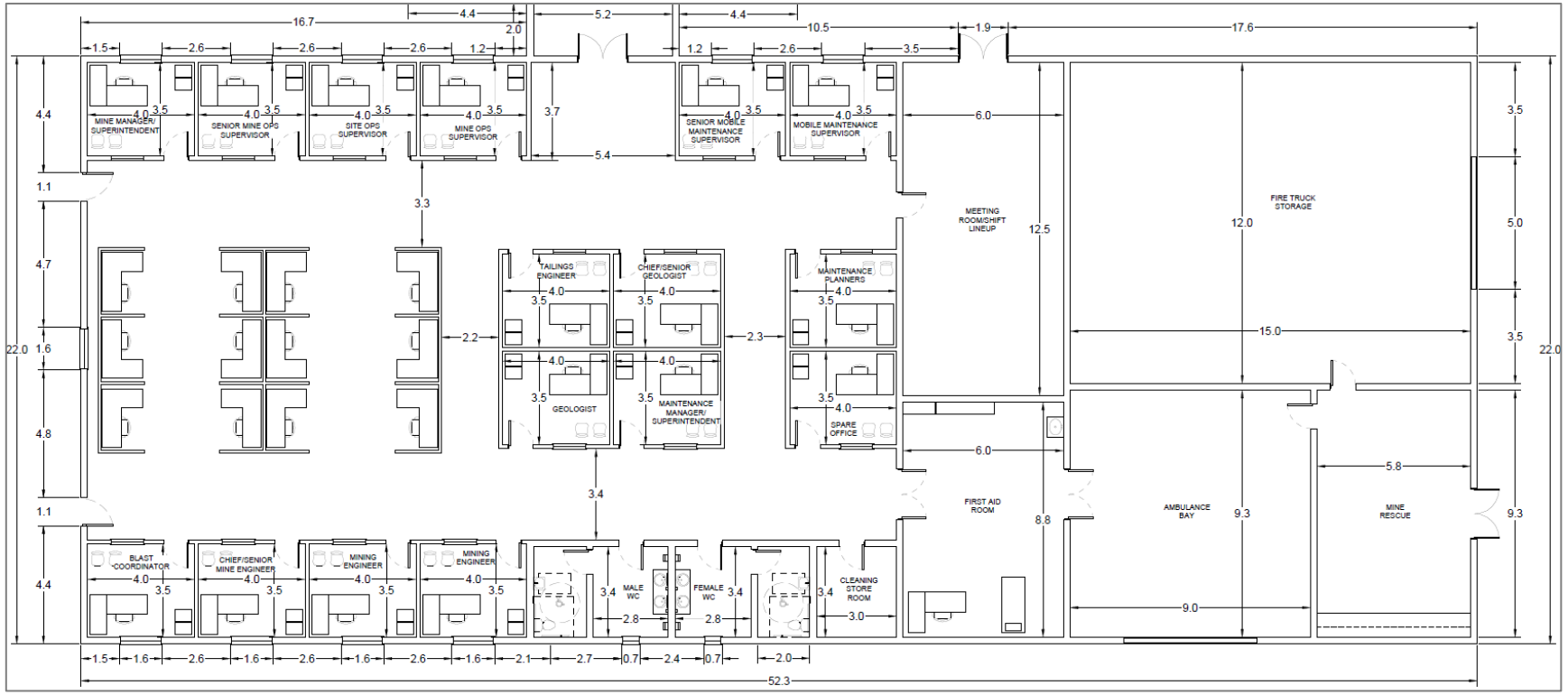


Source: DRA, 2025

18.3.4 FIXED MAINTENANCE / ELECTRICAL WORKSHOP (CONCENTRATOR)

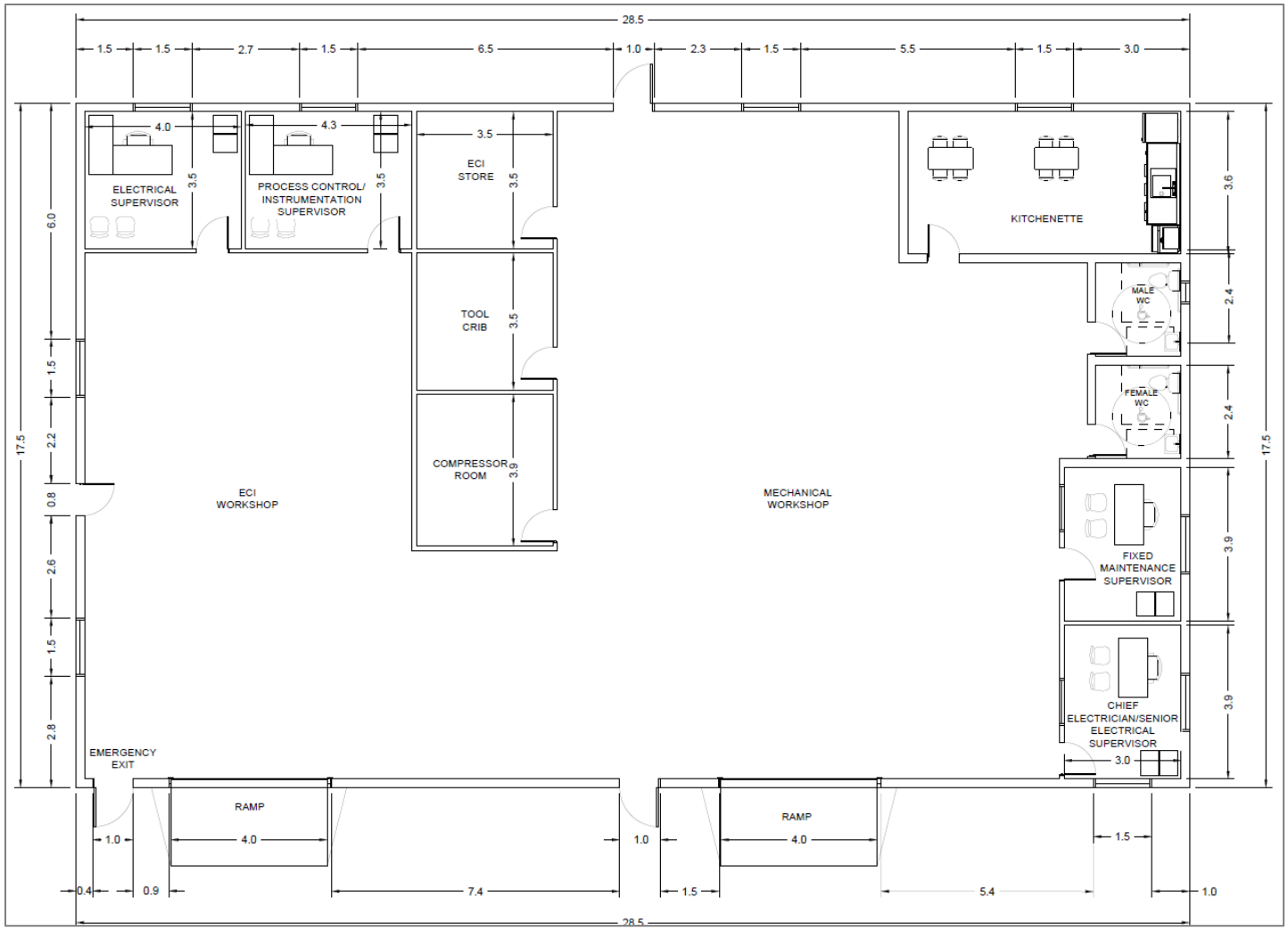
A standalone maintenance building of modular construction (28.5 m x 17.5 m, Figure 18.6) will support fixed plant and electrical maintenance activities. This workshop will be used by the electrical and mechanical teams to perform maintenance on the fixed equipment in the crushing and concentrator areas. Tools and small equipment for these tasks will be stored in the workshop. The structure will be located on the west side of the concentrator plant. This structure will also provide office space for supervisors.

Figure 18.5 – Layout of Mine Offices



Source: DRA, 2025

Figure 18.6 – Layout of Fixed Plant Maintenance and Electrical Shop



Source: DRA, 2025

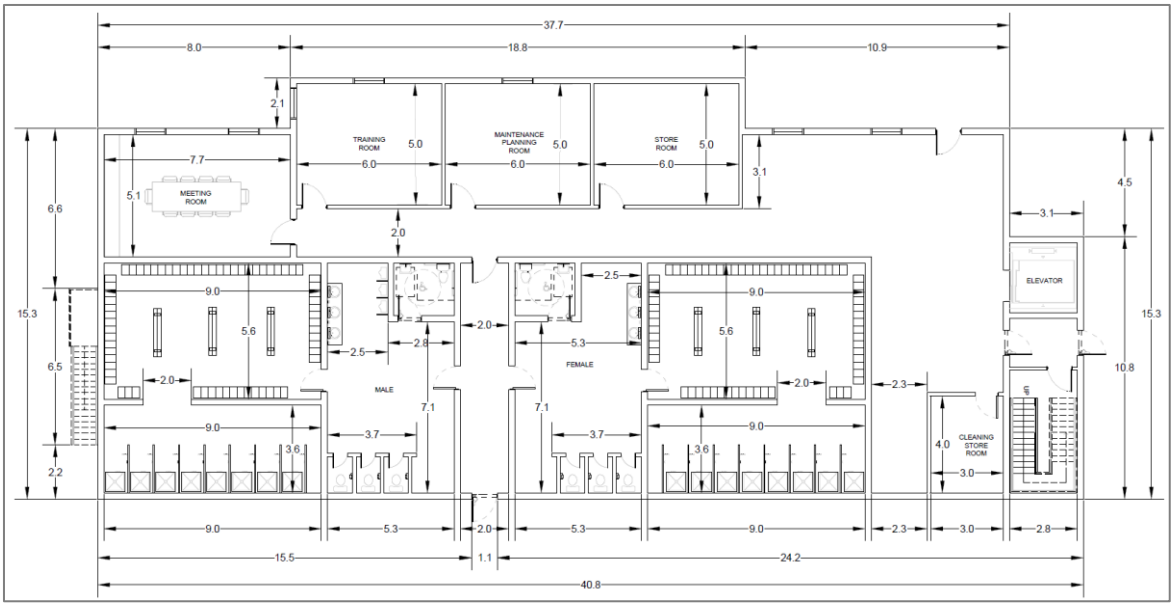
18.3.5 PROCESS BUILDING AND CONTROL ROOM

This building is a double-story building, to facilitate operational control (second floor) and personnel support (first floor) on separate floors, as described in the following sections.

18.3.5.1 First Floor (Change Room and Support Facilities)

The first floor (Figure 18.7) will support maintenance operations, staff transitions, and storage requirements. It includes spaces for meetings, training, and planning, as well as changing and storage facilities for personnel.

Figure 18.7 – Layout of Process and Control Room (1st Floor)



Source: DRA, 2025

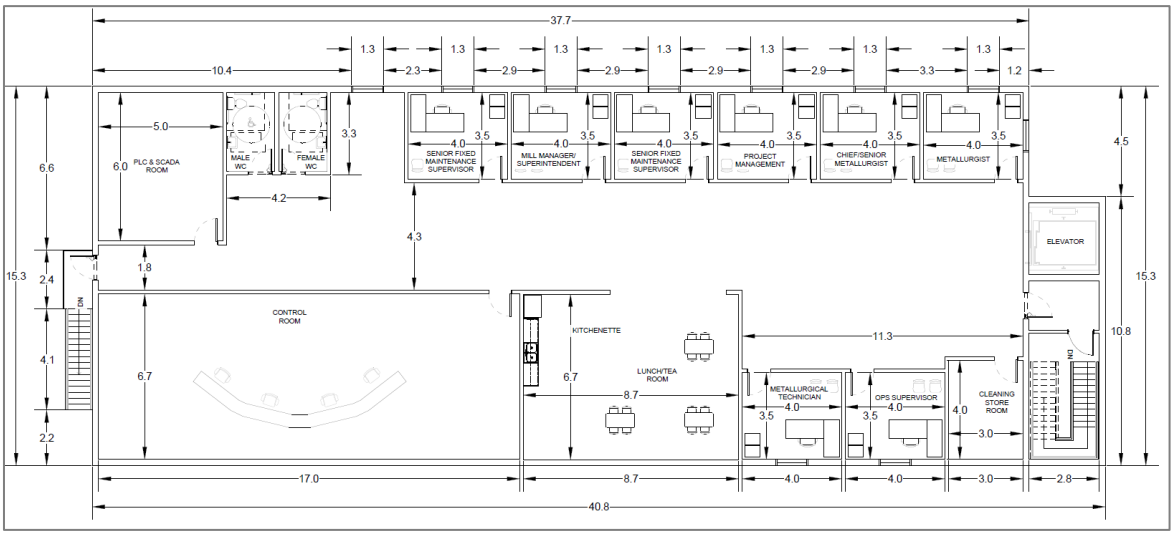
18.3.5.2 Second Floor (Control Room and Offices)

The second floor is for operational control, providing space for real-time process monitoring, control systems, and office spaces for key personnel.

- Control room will act as the central hub for operational control and process monitoring.
- Programmable Logic Controller (PLC) and Supervisory Control and Data Acquisition (SCADA) room will house essential control systems for automation and data acquisition.
- Kitchenette and lunchroom will provide space for staff breaks.
- Male and female washrooms will both be available on this floor.

- Offices will accommodate technical / managerial staff, including project managers, supervisors, metallurgists, and other key personnel involved in overseeing plant operations.

Figure 18.8 – Layout of Process and Control Room (2nd Floor)



Source: DRA, 2025

18.3.5.3 Ground Floor – Metallurgical Laboratory

The ground floor will have the metallurgical laboratory, which will be equipped with various instruments for testing and analysis.

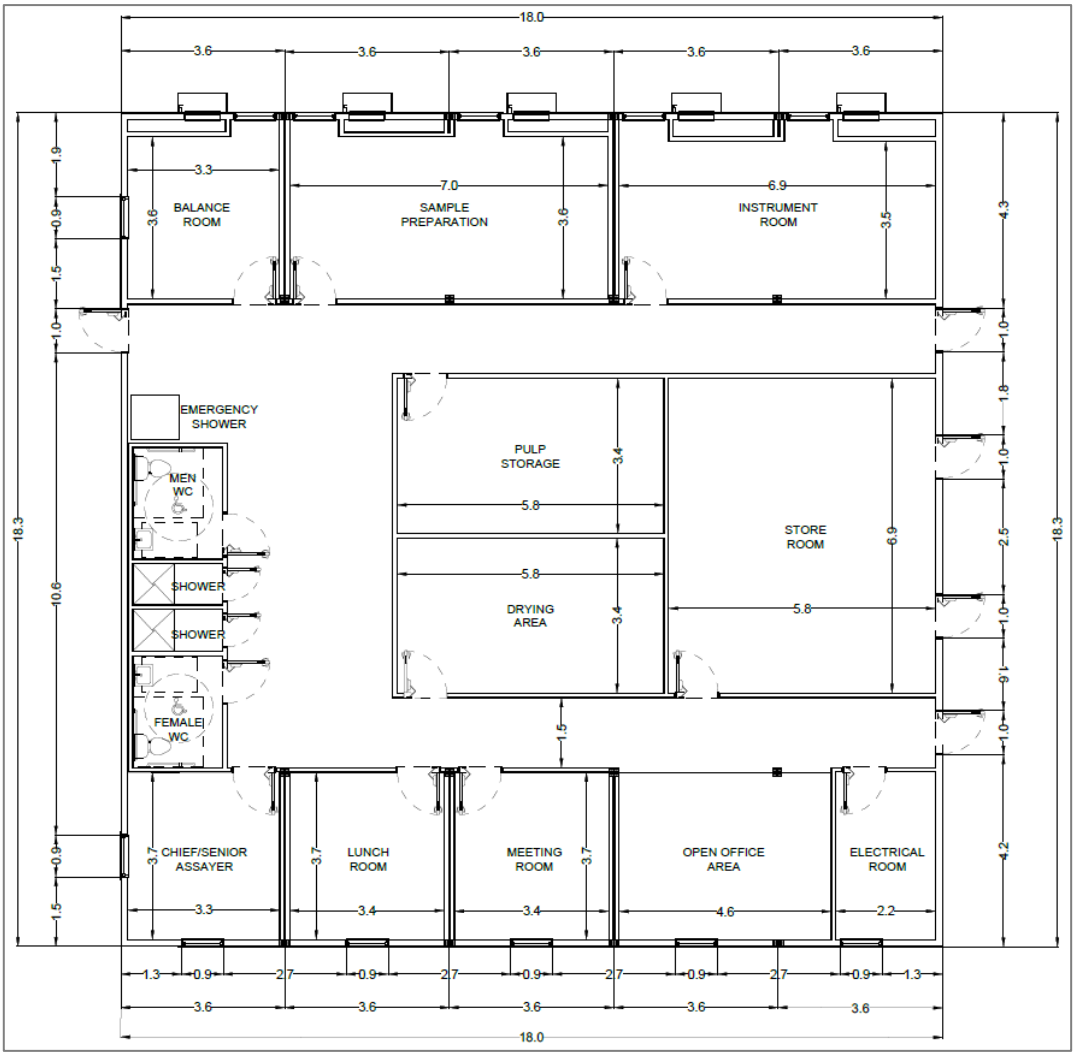
18.3.6 ASSAY LABORATORY

An assay laboratory (Figure 18.9) will support both exploration/geology activities and mining and concentrator plant operations. The laboratory is positioned adjacent to the core shack to facilitate sample processing and analysis.

The layout includes designated areas for sample preparation, instrumentation, and balance operations. The laboratory is equipped for various stages of sample analysis. Spaces for pulp storage and drying are provided to support sample preparation. Additionally, there are general office areas, a lunchroom, a meeting room, and a storeroom for staff and operational functions. Emergency showers and separate male and female washrooms provide safety and convenience for personnel.

To maintain data independence and integrity, laboratory equipment and technical staff will be provided by a third-party service provider. This approach supports accurate and impartial analysis in alignment with industry quality assurance and regulatory practices.

Figure 18.9 – Layout of Assay Laboratory



Source: DRA, 2025

18.3.7 CORE SHACK

A 15 m x 12 m modular structure will house the core shack. The core shack will be positioned next to the assay laboratory for efficient workflow between sample preparation and analysis.

The facility will include racking, tables, and specialized equipment for cutting, photographing, logging, and preparation of core samples. The layout includes individual workspaces for exploration geologists and technicians, for organized and efficient processing of core samples while supporting geological data collection and analysis.

18.3.8 MOBILE EQUIPMENT MAINTENANCE WORKSHOP AND WASH BAY

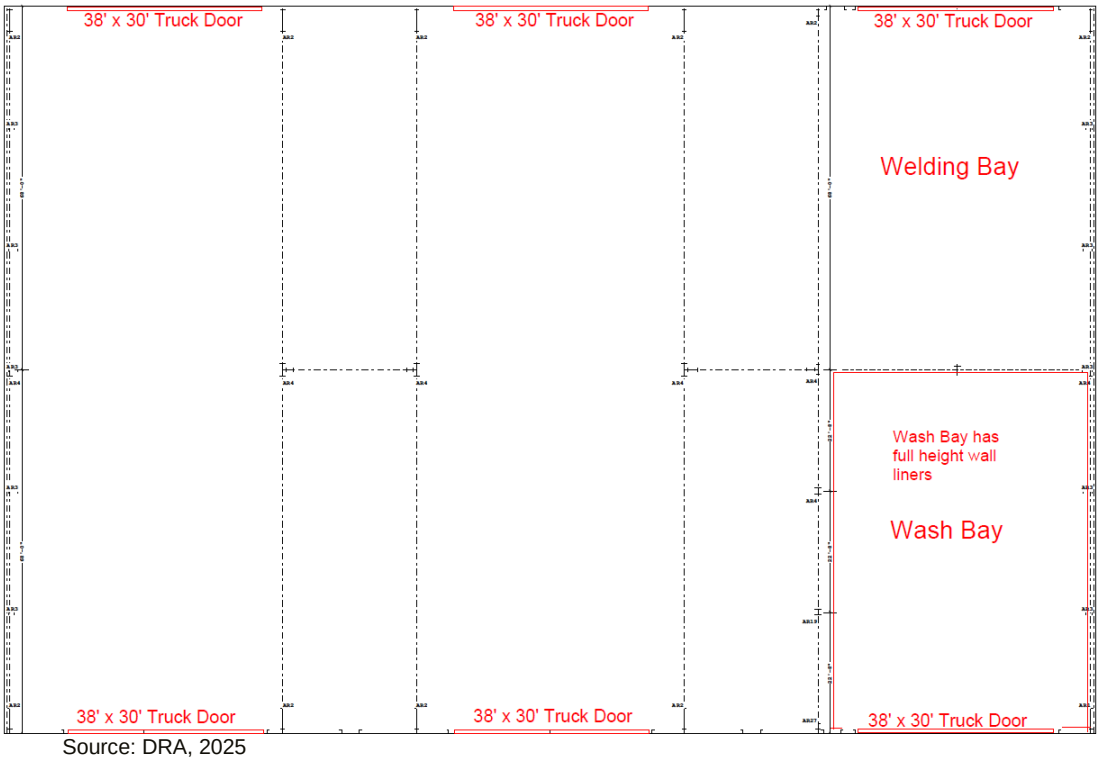
The mobile equipment maintenance workshop will be a pre-engineered structure measuring 41.5 m (W) × 62.2 m (L) × 19.2 m (H), designed for maintenance and servicing of heavy equipment. The facility will include a wash bay and welding bay.

The structure will include four (4) bays, each with a 12 m wide × 9 m tall overhead door, for entry and exit of large vehicles. To facilitate handling of heavy components and assemblies, two (2) 30 t overhead cranes will be installed in the facility. The bays will be designated as follows:

- Two (2) truck maintenance bays, grouped together to provide sufficient working space for vehicle and truck repairs.
- One (1) wash bay, with full-height wall liners to prevent water penetration into other areas.
- One (1) welding bay, dedicated to heavy metal fabrication and repair work.

The layout (Figure 18.10) may be adjusted for an additional bay, office space, and washroom, depending on operational requirements.

Figure 18.10 – Layout of Mobile Maintenance / Truck Shop and Wash Bay



Source: DRA, 2025

18.3.9 Grinding Media Storage

A 36 m x 25 m grinding media storage building will support milling operations. This facility will provide an organized storage area for bags of steel balls and rods for the mills. The facility will include:

- Reinforced flooring to support the weight of bulk-stored grinding media.
- Lighting for a safe working environment.
- Access doors and handling space for forklifts and material handling equipment.

18.3.10 Warehouses and Plant Store

The site will include three (3) warehouses, each 40 m x 20 m, for the storage of essential equipment, spare parts, and tires for site operations. Two (2) of the warehouses will be located next to the process plant, primarily serving as storage for equipment and spare parts for plant operations. The third warehouse will be located near the mobile equipment maintenance workshop, for tire and heavy equipment spare part storage, to ensure convenient access by maintenance personnel.

18.4 Site Facilities

18.4.1 Airstrip

The site will have an airstrip with a gravel surface of 990 m x 30 m, and an apron area sized for transfer of people, luggage and supplies into and out of the aircraft.

The airstrip will provide additional access during the initial stages of construction on site and will remain in place following the construction of the permanent access road. It will be suitable for aircraft up to and including the De Havilland Dash 8-100 / 200. The design will include a helipad, which can be used for exploration and environmental helicopter purposes.

An insulated and heated building will be constructed at the airstrip, which will serve as a terminal for passengers waiting to board. When a plane arrives, disembarking passengers will be loaded directly onto busses and transported to the accommodation facility.

18.4.2 Construction Laydown Area

During construction, site will be accessible from the permanent access road.

While the terraces are being built, construction contractors may use the existing laydown area at the Early Works Camp (Knox Camp) as needed.

After the terraces have been developed, several gravel laydown areas will become available for the storage of equipment and materials for construction. These areas include: concentrator plant terrace, ROM stockpile terrace and the terrace for the mobile equipment maintenance workshop.

18.4.3 CONSTRUCTION CAMP

The operations camp will be built at the mine site during Early Works and will also serve as the construction camp. While this camp is being erected, Knox Camp will house workers for the first stage of Early Works.

The Knox Camp is an existing camp which Frontier procured from Valard Construction who completed the design and construction of the Wataynikaneyap Power Transmission Project. It will be refurbished before the start of the Early Works phase.

Construction camp capacity is sufficient to house all construction workers during the peak construction period.

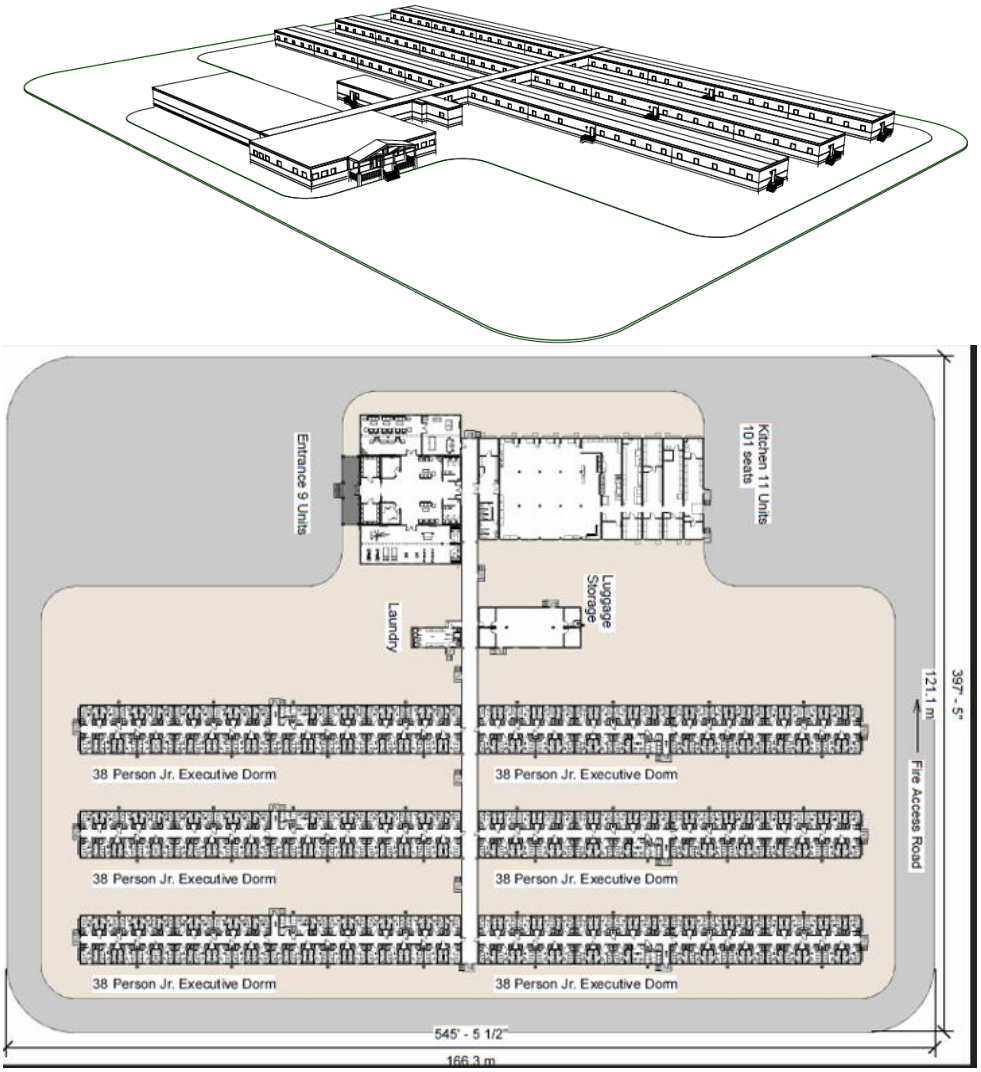
18.4.4 OPERATIONS CAMP

The operations camp located at the southern extent of the mine site as shown in Figure 18.1 will be a new modular installation. It will include an operations camp (the Camp) designed to house the mine, plant and administrative personnel as described below, for a nominal capacity of 240 persons. The Camp will be built during Early Works and will initially serve as a construction camp. After construction, it will be revamped to serve as the Frontier operations camp, and it will include:

- Six (6) x 40- person private guest rooms
- Eleven (11)-unit kitchen and dining area.
- Nine (9)-unit entrance with games room, lounge area, fitness area, offices, and boot rooms.
- One (1)-unit laundry room and one (1)-unit luggage storage room.
- Fire safety systems.
- Indoor and outdoor recreation spaces.

The indicative camp layout (Figure 18.11) shows a typical arrangement of camp facilities, including positioning of dormitories, kitchen and dining areas, recreational facilities, and administrative offices.

Figure 18.11 – Indicative Camp Layout



Source: Vendor Proposal, 2024

18.4.5 Fuel Storage and Dispensing

The fuel storage area will be located north of the truck shop, between the PAK and Spark open pits to provide access for mining vehicles which are the main fuel consumer. During peak production the maximum fuel consumption for all production, support, service and other vehicles is expected to reach approximately 4.4 million litres per year.

The fuel storage tanks are listed in Table 18.1.

Table 18.1 – Fuel Storage Summary

Fuel Tank Summary	Tank Size (L)	Qty	Total Capacity (L)	Location
Diesel – Dyed	75,000	6	450,000	Truck Shop
Diesel – Clear	75,000	2	150,000	Truck Shop
Gas (Petrol)	25,000	1	25,000	Truck Shop
Aviation Fuel	50,000	2	100,000	Airstrip
Diesel Exhaust Fluid (Def)	10,000	1	10,000	Truck Shop
Backup Generator Storage Tanks	25,000	2	50,000	Back-Up Generators

With the storage capacity listed above the mining production vehicles will have supply in excess of one month of diesel stored on site to mitigate the risk of road closures due to inclement weather or other unforeseen events. All fuel tanks will be double walled with level monitoring. In addition to the tanks the systems also include:

- Powered fuel offloading equipment.
- High speed fuel dispensing system for mining equipment.
- Splash filling fuel dispensing system for support equipment.
- Low speed dispensing skid for gasoline.
- Aviation fuel refuelling skid.
- Distribution skid for generator storage tanks.

18.4.6 TRUCK SCALES

A 100-t capacity truck scale will be installed in the Concentrate building to allow for the concentrate transport vehicles to be weighed as they are being loaded. This scale will have a 28.4 m x 3.35 m deck, which can accommodate any vehicle that can legally travel over road in Ontario.

A second truck scale installed at the gate will verify materials arriving and departing from site. The scales will have a local ticket printer and provisions to communicate readings to the office complex.

18.4.7 FIRE PROTECTION

The fresh water tank at the concentrator plant will have the bottom portion allocated for fire protection. The fire water pumping system will consist of electric, jockey and diesel pumps.

In total, 20 fire hydrants will be installed around the crushing and concentrator plants and maintenance facilities.

18.4.8 LANDFILL AREA

The landfill will have a total footprint of approximately 20,000 m^2. This landfill will be used for disposal of solid non-hazardous waste.

18.4.9 EXPLOSIVES STORAGE AND PRODUCTION

Details are contained in Section 16.

18.5 Electrical Site Reticulation

18.5.1 ELECTRICAL LOAD

The site electrical demand was determined based on requirements for the process and associated infrastructure, as follows:

- The estimated electrical demand is based on the concentrator plant facility load, operation camps, auxiliary building loads, open pit load, and ancillary loads.
- Both peak (maximum, all equipment on) and utilization loads were considered. Utilization estimates the expected loads based on operating process conditions.
- Summer and winter conditions were considered, with winter demand being higher due to the use of electric heating in the process plant and all site buildings.
- 25% spare capacity is considered for the plant.

Total estimated electrical demand for the site by season is presented in Table 18.2.

Table 18.2 – Seasonal Electrical Power Load Requirements

Period	kVA
Peak Winter	18,300
Utilization Winter	13,100
Peak Summer	15,200
Utilization Summer	10,400

18.5.2 EMERGENCY POWER

Based on the process and infrastructure design, emergency power load is estimated at 2.0 MVA.

Emergency loads consider the process plant, operations camp, and administration building.

18.5.3 POWER SUPPLY

Prior to the start of commissioning, electrical power will be sourced from the Ontario Independent Electricity System Operator (IESO) controlled grid, through the proposed Wataynikaneyap transmission system, which will be routed to the site. This is expected to be available by January 2030 at which time commissioning is scheduled to start.

A new 115 kV overhead line will be installed to tap off from the Wataynikaneyap transmission line and will be routed to the Frontier site substation.

18.5.4 MAIN SUBSTATION AND SITE POWER DISTRIBUTION

One (1) high voltage electrical substation (the main substation) will provide operational power to the entire Project site.

The location of the main substation is on the access road to the process plant and inside the remote-controlled gate, north-west of the gate, at a location as close as possible to the process plant, but no more than 2 km from the 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 protection and control, synchronization and network cabinets.
- Power factor correction capacitor banks (one for each bus).

From the substation 15 kV switchgear, power will be distributed to all site loads by overhead lines.

- Two (2) redundant feed, Aluminum Conductor, Steel Reinforced (ACSR) lines will run northwards to the main process plant to be distributed by switchgear.
- One (1) single feed ACSR line will run southwards to the Camp and associated utilities.

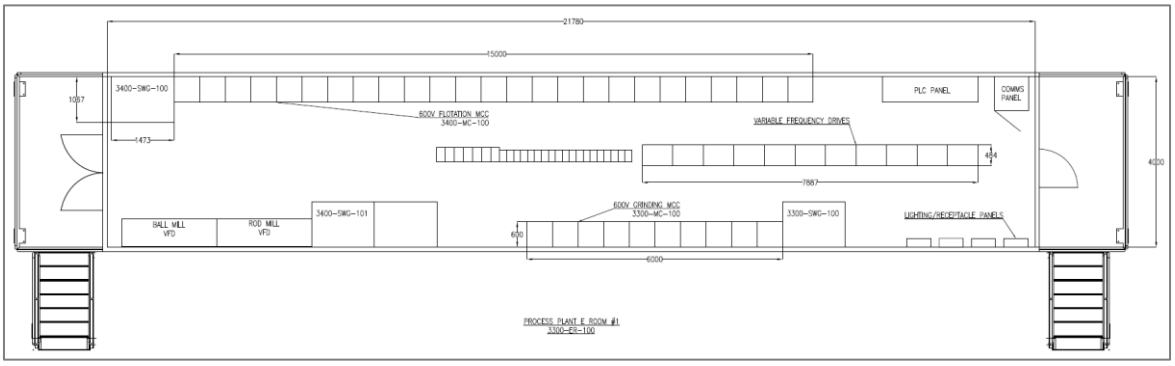
18.5.5 POWER DISTRIBUTION AND E-ROOMS

E-rooms will be prefabricated and power and control the Project site as presented in Table 18.3.

Table 18.3 – E-Room Characteristics

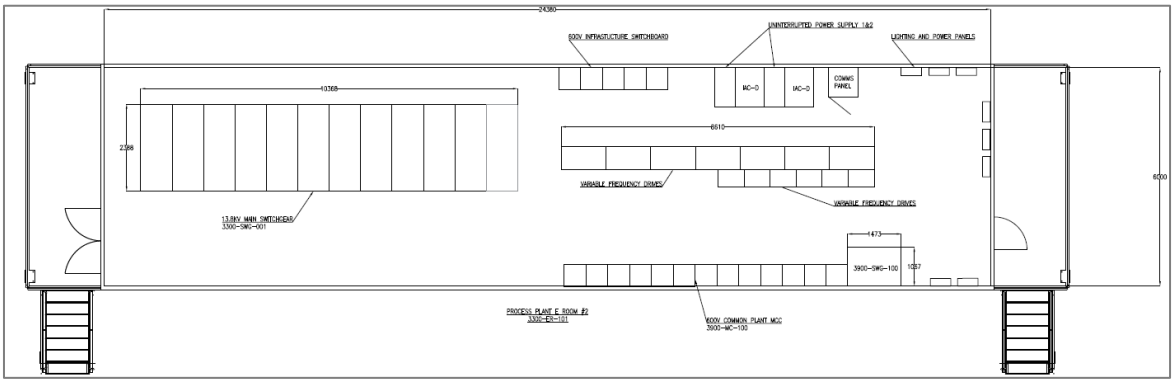
Tag	Description	Dimensions	Approximate Electrical Load (kVA)
3200-ER-100	Primary and Secondary Crushing E-Room	10 m x 2.4 m	909
3200-ER-101	Ore Sorting E-Room	11.5 m x 2.4 m	1,405
3300-ER-100	Process Plant E-Room #1	22 m x 4 m	2,547
3300-ER-101	Process Plant E-Room #2	25 m x 6 m	4,014
3911-ER-100	Reclaim Water E-Room	10 m x 2.4 m	328
5800-ER-100	Camp E-Room	10 m x 2.4 m	1,734

Figure 18.12 – Process Plant E-Room #1



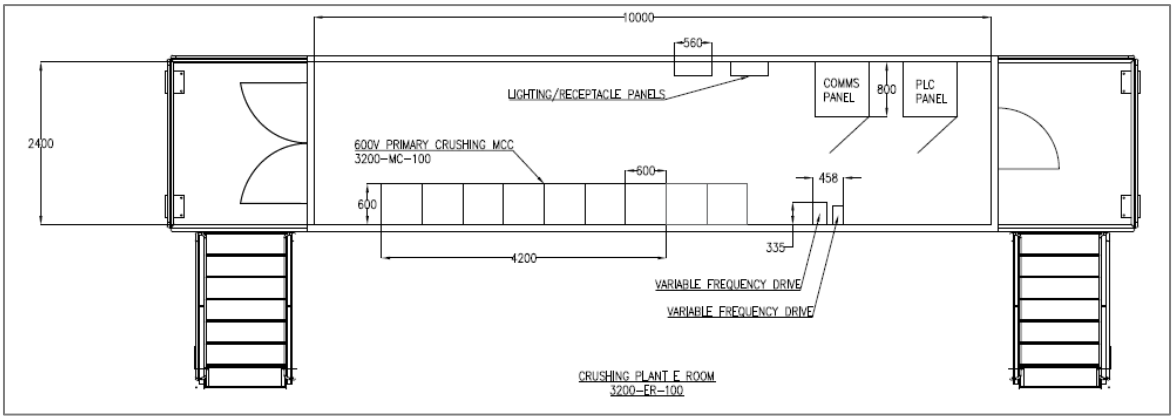
Source: DRA, 2025

Figure 18.13 – Process Plant E-Room #2



Source: DRA, 2025

Figure 18.14 – Crushing Plant E-Room



Source: DRA, 2024

Each E-Room will include a step-down transformer, 600 V switchgear, MCC, lighting/utility panels, and other electrical equipment.

18.5.5.1 Main E-Room Switchgear and 13.8 kV Remote Distribution

A 13.8 kV switchgear located near the Process Plant shall be used to distribute power to the various E-Rooms around the site. This is to reduce cable runs from the main substation.

13.8 kV power for the PAK and Spark mine areas shall be supplied by way of a smaller overhead line from this switchgear.

Mine power centres (MPCs) will be installed near the field equipment in these remote locations to step down the voltage from 13.8 kV to 600 V and distribute power for the associated loads. For smaller loads, more cost effective, pole mounted transformers will be used.

18.5.5.2 Utilization Voltages

Plant equipment utilization voltages are provided in Table 18.4.

Table 18.4 – Power Utilization Voltages

Category	Voltage (V)	Phase + Neutral (N)	Grounding
Main Primary Supply (High Voltage)	115,000	3 + N (TBC)	Solidly Grounded 115 kV WYE (TBC)
Primary Distribution (Medium Voltage)	13,800	3	Resistance Grounded (100 A)
Medium Voltage Utilization	4,160	3	Resistance Grounded (25 A)
Low Voltage Utilization	600	3	High Resistance Grounded (5 A)
Lighting	120 or 208	1 + N	Solidly Grounded
Low-Voltage Small Power and Receptacles	208Y/120	3 or 1 + N	Solidly Grounded

Category	Voltage (V)	Phase + Neutral (N)	Grounding
Motor Starter Control Voltage	120 AC	1 + N	Solidly Grounded
Switchgear Control Voltage	125 DC		Solidly Grounded
Control and Instrumentation	120/24 AC/DC	1 + N	Solidly Grounded

Rated voltages for plant equipment are shown in Table 18.5.

Table 18.5 – Electrical Load Ratings

Equipment	Rating	Starting Method	Voltage (V)	Phase
Motor	below 0.5 HP	DOL	115	1
Motor	0.5 HP to 250 HP	DOL	575	3
Motor	75 HP to 250 HP*	Soft Starter	575	3
Motor	above 250 HP*	Soft Starter	4,000	3
Motor	above 250 HP**	DOL	4,000	3
Motor	up to 500 HP	VFD	575	3
Heater	below 1 kW	N/A	115	1
Heater	1 kW and above	N/A	575 or 208	3 or 1

* As required by mechanical constraints for conveyors, pumps, and special application motors.
** 575 V may be used for motors above 250 HP per Engineer's approval.

18.6 Control System

18.6.1 Control System Philosophy

The overall control system philosophy will be as follows:

- A central control room located in the process plant equipped with a SCADA control system will include all servers, Human Machine Interface (HMI), camera monitors, and control stations for both the process plant and the underground mine.
- Each process area will have its own PLC cabinet including processor and I/O modules. All programming for each process area shall be in this processor. The central SCADA will be utilized for monitoring and supervision tasks only.
- The use of Remote I/O cabinets will be considered to reduce field cable runs where applicable.
- Redundancy in the system will be achieved by way of a ring topology for all communications between the process PLCs and the central control room.

18.6.2 AUTOMATION PROCESS NETWORK

The PCS will be based on a redundant Ethernet backbone network in a ring-type topology. The network will link all main automation equipment (SCADA, Historian, HMI, PCS processor).

The network will include fibre optic linking of all operating areas of the site:

- Central control room.
- MCC and equipment for Crushing, Ore Sorting, Grinding, and Flotation areas.
- Field I/O panels.
- Remote water management system.
- Infrastructure equipment.

Network automation services will include:

- SCADA stations located in the central control room.
- PCS processor inter-communications.
- PCS field I/O communications.
- PCS direct interface to MCCs.
- IEC 61850 interface to power distribution equipment.
- Camera systems for operator process control and for security.

18.6.3 LOCAL CONTROL SYSTEM AND INSTRUMENTS

The control system includes local push button stations for all motors for maintenance and safety.

The push button stations include a local jog button, local stop button, and selector switch for local / remote in the field. These are for maintenance purposes. The stop function is always functional.

For critical equipment, an extra emergency stop push button is added and directly connected to the motor starter.

All control loops are integrated and controlled by the PLC. For complex instrument or equipment supplied with PLC, a communication link is added to get remote status and diagnostics for the plant supervision control system.

All field instruments and switches are wired to the PLC through junction boxes and digital and analogue input/output modules mounted in automation panels located in area electrical rooms. The standard 4-20 mA signal is the standard for instrumentation. Control logic is performed by the PLC.

PLC wiring includes junction boxes for instrument power supply, and digital and analogue signals.

18.6.4 SCADA System

The SCADA system will be based on client/server technology and will include at a minimum:

- Two (2) SCADA servers for redundancy.
- One (1) historian server.
- Four (4) HMI operator stations.
- One (1) engineering station.

All SCADA servers will be connected to the site UPS so operators can retain control over the plant in a power outage.

18.6.5 Site-Wide Communications

A site-wide communication system will be employed based on a single mode fibre optic backbone. VoIP telephones, intranet/internet access, and control system network connectivity will be integrated into this fibre backbone so these systems can be accessed 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 de-militarized zone (DMZ) network.

The fibre will be installed in a redundant ring topology for seamless service on site.

Cybersecurity will be evaluated and applied strategically to the site networking and IT systems.

18.7 Tailings Management Facility

Tailings generated in the concentrator complex will be deposited in the Tailings Management Facility (TMF). Tailings will be thickened to a non-segregating consistency, then pumped and conveyed by pipeline to the TMF for disposal. The TMF is a stage-raised, embankment dam containment facility designed to store the Life of Mine (LOM) tailings with an external Reclaim Pond that receives TMF drainage and runoff and provides a central collection pond for site water management.

18.7.1 Design Basis and Criteria

The design intent is to deposit tailings from the western side (high ground) of the TMF, forming a tailings beach that slopes towards the Reclaim Pond to promote passive drainage from the TMF. The containment dams are progressively raised during operations and designed for closure. Process water discharged with the tailings along with contact water from the TMF and rest of the mine site is managed in the Reclaim Pond, which provides make-up water for the concentrator plant. Surplus water will be treated and discharged to the environment via the Mine Water Treatment Facility.

The design basis for the TMF and Reclaim Pond consists of:

- Non-segregating thickened tailings disposal - a uniform deposited beach slope, which means there is no requirement for a pond for solids-liquid separation.
- Tailings are non-PAG but metal leaching - contact water must be collected and kept separate from the environment.
- Soft, glaciolacustrine clay foundation soils - dam design utilizes shallow slopes and construction completed in stages to limit excess porewater pressure build-up.
- Basal clay deposit - the TMF and Reclaim Pond basin are underlain by a glaciolacustrine unit that forms a natural liner.
- Design for closure - the dams and spillways are designed to be physically stable under long-term conditions with passive drainage and are suitable for closure even under early suspension.
- Mine water management - the Reclaim Pond serves as the primary water management pond and receives contact water from the TMF, mine rock stockpiles, pit dewatering, and concentrator plant runoff.

The dams have been assessed a Hazard Potential Classification of 'Very High' in accordance with CDA Dam Safety Guidelines (CDA 2013). The consequence of failure of a dam would be the release of up to 20.3 Mt of tailings and/or the contact water contained in the Reclaim Pond. A breach on the west side of the TMF would result in a release to the adjacent watershed, while a breach on the east side would drain to the PAK Open Pit and Pakeagama Lake.

The following minimum factors of safety are required as per CDA (2014) for the design of fluid retention structures:

- Long term (steady-state seepage, normal reservoir level) 1.5
- During or at end of construction (short term or before filling) >1.3
- Full or partial rapid drawdown 1.2 to 1.3
- Pseudo-static 1.1
- Post-earthquake 1.2

The TMF dam design relies on four geotechnical investigation campaigns carried out to characterize the dam and TMF basin conditions. The field investigations have included boreholes, test pits, and cone penetration testing. Laboratory testing of select soil samples was carried out and standpipe piezometers will be installed at select locations.

The main findings of the investigations that will drive the geotechnical design are:

- Soft, glaciolacustrine clay deposits in low-lying areas that range in thickness from 4 m to 23 m.
- Flowing, non-cohesive silty sand underlying the glaciolacustrine deposit.

- Peat wetland deposit along the western side of the TMF up to 4.5 m thick.
- Shallow bedrock on high ground.

18.7.2 TAILINGS PRODUCTION AND CHARACTERISTICS

A total of 31.1 Mt of ore will be mined from the Spark and PAK open pits over 31 years. The ore will be processed in the concentrator plant to produce lithium concentrate and tailings. A total of 20.3 Mt of tailings produced during the LOM will be deposited in the TMF. It is noted that value engineering conducted for process engineering after the TMF design was completed has increased the total tonnage of tailings produced to 21.5 Mt. The TMF may need to be expanded in the next phase of study to store the additional 1.2 Mt of tailings produced. This may include raising the TMF West and East Dams and/or utilizing empty bedrock quarries within the TMF.

Ore will be sourced entirely from the Spark pit initially and later combined with PAK pit ore. The concentrator complex will process 1,040,000 tpa except in the first and last years of operation.

The following characteristics are relevant for tailings management:

- The tailings production rate (nominal) is 678,000 tpa.
- The design tailings slurry density is 68% solids by mass.
- The geochemical characterization indicates that tailings are non-Potentially Acid Generating (non-PAG) and have potential for metal leaching.

Tailings generated through the milling and concentration processes are characterized as a coarse tailings according to ICOLD (2017) based on particle size distribution and Atterberg limit testing.

The following index test parameters are known for the tailings:

- Particle size distribution P_{80} of 157 µm
- Plasticity index Non-plastic
- Specific gravity 2.69

The tailings will be thickened to a non-segregating consistency at the mill with an estimated slurry density of 68% solids by mass. Based on an assumed deposited void ratio of 1.1, the average deposited dry density of the tailings is considered to be 1.35 t/m^3 for design purposes.

18.7.3 TAILINGS MANAGEMENT ALTERNATIVES ASSESSMENT

An alternatives assessment was carried out in the early stages of the FS to evaluate options for tailings management including alternative sites, tailings dewatering, and co-disposal with mine rock. A high-level assessment of site water management was evaluated and identified potential optimization of managing contact water from different facilities separately rather than combining to a central balancing pond as proposed in the PFS.

A total of six (6) potential sites were identified, referred to as Sites A through F. Of these sites, three (3) were determined to be candidate sites (Site A, Site E, and Site F). The other three (3) sites were not advanced as they were considered impractical to build or disadvantageous relative to the others.

The assessment compared three (3) alternatives, which were:

- Alternative 1 - Thickened, non-segregating tailings deposited at Site A (TMF site from the PFS).
- Alternative 2 - Filtered tailings co-disposed with PAK mine rock at Site F (PAK MRSA).
- Alternative 3 - Filtered tailings co-disposed with all mine rock at Site F (PAK MRSA).

The assessment concluded that Alternative 1 would be preferable to implement as it uses more proven tailings management technologies and benefits from site characterization being well defined. Alternatives 2 and 3 provide opportunities to reduce capital costs of dam construction, mitigate acid rock drainage (ARD) / metal leaching (ML) from mine rock, and reduce overall Project footprint.

Ultimately Alternative 1 was carried forward for the FS as it is a proven practice while Alternatives 2 and 3 have little precedence in Ontario. However, filtered tailings and co-disposal may be considered in the future as improvements to Project operation as the technology matures.

18.7.4 TMF INFRASTRUCTURE

The TMF comprises the following infrastructure:

- Embankment dams:
  - West Dam – tailings discharge structure.
  - East Dam – internal separation structure.
  - Reclaim Pond Dam – water containment structure.
- Reclaim Pond.
- Collection ditches and pump sumps to collect and manage seepage downstream of the dams.
- Perimeter roads along downstream dam toes for maintenance and inspections.
- Tailings discharge road along West Dam crest for deposition operations.
- Reclaim Pond pump station to recirculate water to the process plant or discharge via the Mine Water Treatment Facility.
- Bedrock quarry on the outcrop inside the TMF.

A temporary supernatant pond will collect decant water (tailings thickener underflow, stormwater runoff, and runoff and seepage collection return) in the TMF during the earlier stages of TMF development (per Section 18.8.3 of this Technical Report). The TMF and Reclaim Pond have a combined footprint of 232 ha. Details of the main components of tailings storage area are provided in the following sections.

18.7.4.1 Embankment Dams

The dam structures utilize clean rockfill from mining operations or designated quarries to construct the shell of the embankment, while filter, drain, and transition zones are provided by native granular soil borrow areas. The West and Reclaim Pond dams will feature an upstream geomembrane liner to restrict seepage from escaping the TMF/Reclaim Pond areas given the potential for metal leachate drainage from the tailings. The East Dam does not feature a liner as it is an internal structure that is intended to allow free drainage from the saturated tailings to the Reclaim Pond.

The dams are stage-raised using downstream construction methods for the West and Reclaim Pond Dams. The East Dam uses centreline construction methods owing to the fact that the dam toes will be submerged by tailings (upstream) and water (downstream) once operations commence. Toe berms are required to satisfy slope stability on the soft, compressible foundations, with overall dam slopes ranging between 7 to 10 (H):1(V).

Figure 18.15 illustrates the TMF dam typical sections. The Stage 1 (starter) and Stage 6 (ultimate) dams are shown on the figure while the dam crest elevations of the intermediate stages are presented in Table 18.6.

An assessment of alternative dam types was carried out and concluded that a geomembrane-lined, rockfill embankment dam was the best option for site based on the availability and conditions of native soils. The rationale supporting this decision includes:

- Glaciolacustrine clay, while abundant in the TMF area, is too wet for use as fill in a clay core dam. In general, the in-situ moisture content is close to the liquid limit of the clay and would be challenging to construct with.
- Availability of mine rock for the dam shell. The pits will produce significant quantities of mine rock. Some further analysis and planning will be required to identify which parts of the pit can supply rockfill that is geochemically benign (i.e., non-PAG and no metal leaching potential).

Dam fill zone gradation envelopes were design to be filter compatible and developed in accordance with FEMA (2011) based on the tailings particle size distribution. The design of the dam fill zone gradation envelopes is intended to allow water to drain out of the dam while preventing movement of soil particles (i.e., piping erosion).

Table 18.6 – TMF Development

Duration	Tailings Produced	Stage	Dam Raise	Tailings Elevation		Dam Crest Elevation		
				West Dam	East Dam	West Dam	East Dam	Reclaim Pond Dam
(years)	(Mt)		(year)	(m)	(m)	(m)	(m)	(m)
2	0.56	1	-1	334.3	327.0	335.0	334.0	334.0
3	2.60	2	2	337.5	327.7	338.0	334.0	334.0
4	5.31	3	5	340.5	330.4	341.0	337.5	337.5
5	8.70	4	9	343.5	333.2	344.0	337.5	337.5
8	14.12	5	14	346.5	335.9	347.0	337.5	337.5
10	20.28	6	22	350.7	338.9	351.0	340.0	337.5

The dams will be constructed with the following fill zones and materials:

- Zone 1 – Embankment (rockfill).
- Zone 2 – Select embankment fill (rockfill).
- Zone 3 – Transition (processed rock).
- Zone 4 – Filter (select or processed sand).
- Zone 5 – Road surfacing (select or processed sand) and gravel.
- Zone 6 – Toe berm (rockfill).
- Zone 7 – Riprap (processed mine or quarried rock).
- Liner (2000 µm HDPE).

18.7.4.2 Reclaim Pond

The Reclaim Pond will be constructed by two (2) cross-valley embankment dams (Figure 18.16). The pond will receive pumped discharges from the Collection Pond No. 1, PAK Open Pit, and PAK MRSA Drainage Pond, gravity drainage from the TMF, tailings thickener overflow and runoff from the concentrator plant complex, as well as runoff from contributing natural catchment areas. Water will be returned from the pond to the process water circuits at the concentrator plant complex and treated at the Mine Water Treatment Facility prior to being released into the Flanagan River.

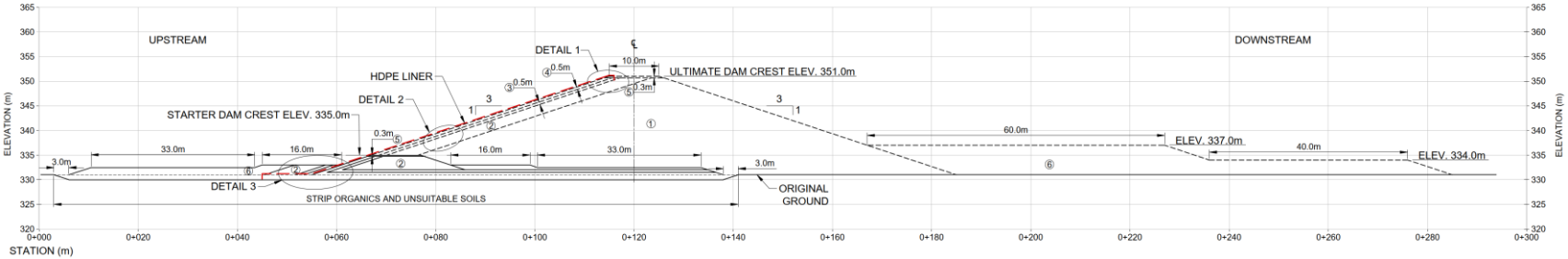
The hydrotechnical design basis and criteria are presented in Section 18.8.3 of this Technical Report. Table 18.7 summarizes the pond volumes and dam crest levels for the Reclaim Pond.

Table 18.7 – Reclaim Pond Crest Determination

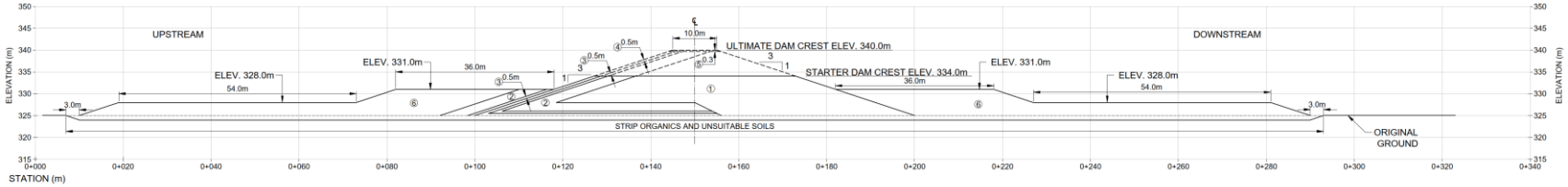
Pond Level	Pond		Stage 1 (Startup)			Stage 6 (Ultimate)		
	Volume (m^3)	Cumulative Volume (m^3)	TMF Pond (m^3)	Reclaim Pond (m^3)	Elevation (m)	TMF Pond (m^3)	Reclaim Pond (m^3)	Elevation (m)
Minimum ground elevation	-	-	-	-	321.0	-	-	321.0
Minimum operating pond	56,744	56,744	0	56,744	326.0	0	56,744	326.0
Maximum operating pond	601,189	657,933	204,355	453,597	331.2	0	657,933	333.5
Maximum pond (EDF)	315,593	973,526	408,671	564,855	332.2	0	973,526	335.7
Emergency spillway invert	-	-	-	-	332.5	-	-	336.0
IDF level	-	-	-	-	333.3	-	-	336.9
Dam crest	-	-	-	-	334.0	-	-	337.5

Note:
The EDF is the Environmental Design Flood (described in Section 18.8.3 of this Technical Report).

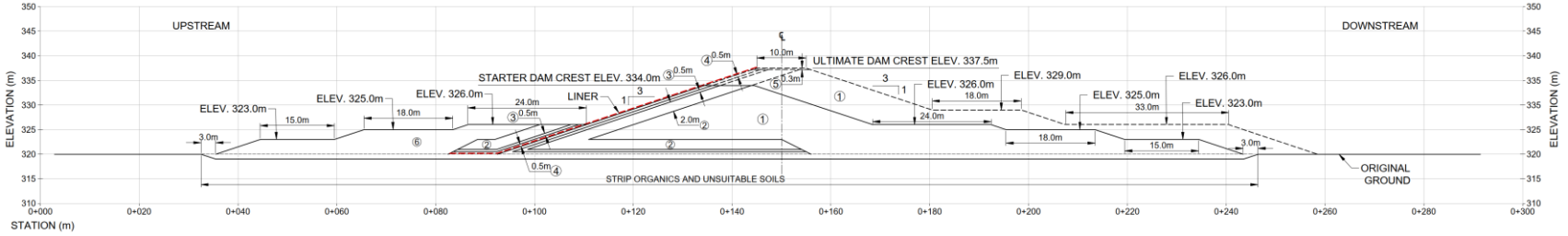
Figure 18.15 – Typical Dam Cross-Sections



WEST DAM TYPICAL SECTION



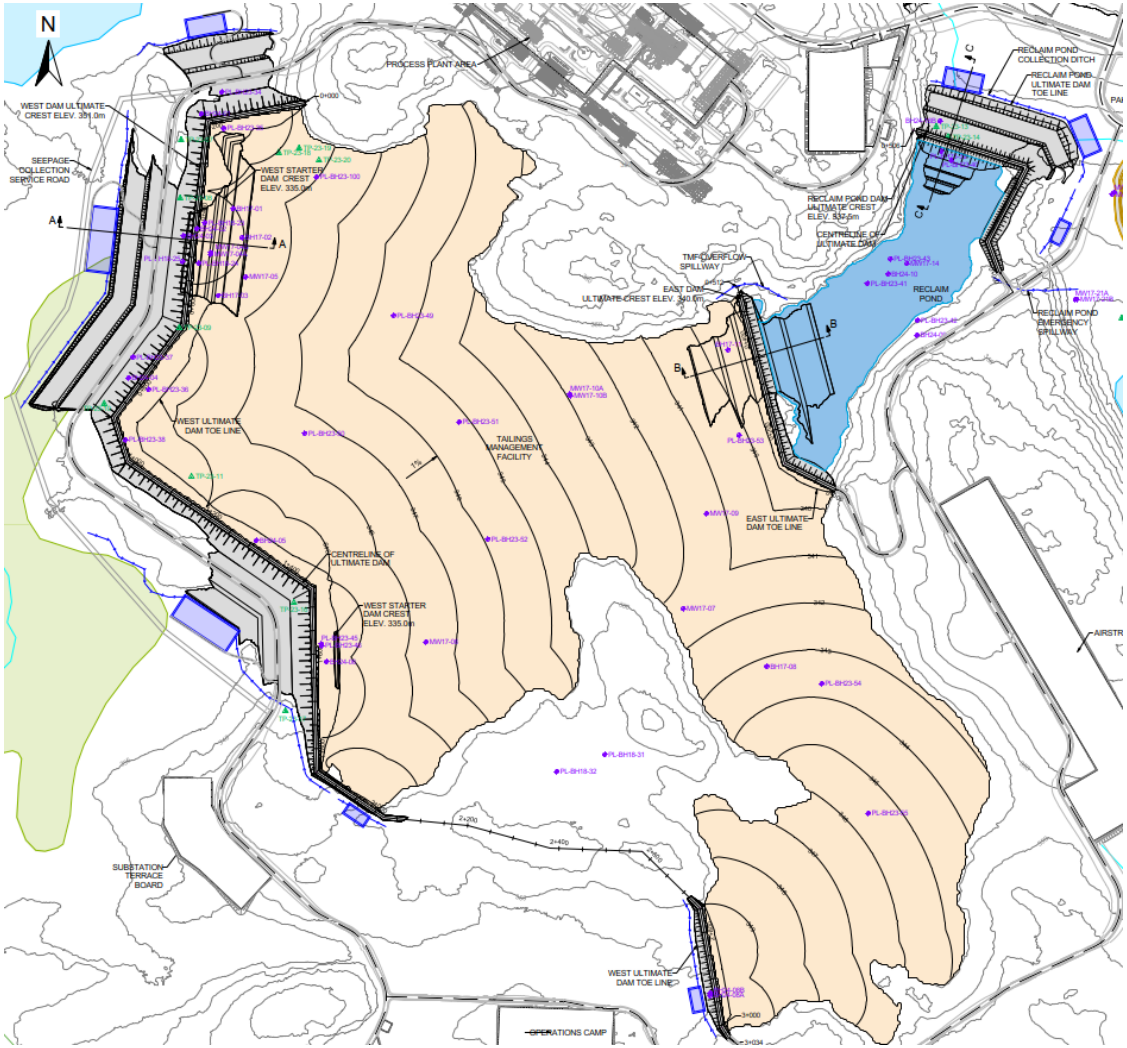
EAST DAM TYPICAL SECTION



RECLAIM POND DAM TYPICAL SECTION

Source: SLR, 2025

Figure 18.16 – General Layout of Tailings Storage Area



Source: SLR, 2025

18.7.4.3 Spillways

There are two (2) spillways in the TMF:

- The overflow spillway in the East Dam.
- The emergency spillway in the Reclaim Pond Dam.

The TMF overflow spillway allows tailings bleed water and runoff to decant passively into the Reclaim Pond. The spillway is located in the left (west) abutment of the TMF East Dam. Since tailings will be thickened to a point where they exhibit non-segregating behaviour that will retain the finer end of the particle distribution, the TMF requires only a nominal pond size for sedimentation.

During the first approximately 16 years of operations, the Reclaim Pond will backup into the TMF during high water levels. This allows for smaller dams to be constructed for the Reclaim Pond at startup while utilizing the larger TMF basin before it is infilled with tailings.

During operations, the overflow spillway invert will be set a maximum 2.0 m above the tailings beach formed upstream of the TMF East Dam and progressively raised with the deposited tailings. The TMF spillway Stage 1 invert elevation at startup is 329.0 m and is progressively raised with the TMF during operations to a final elevation of 338.9 m in Stage 6. The spillway consists of a trapezoidal channel with a width of 23 m in Stage 1, expanding to a width of 65 m in Stage 6. The spillway is expected to be cut into bedrock in the dam abutment and will have side slopes of 1(H):1(V).

The TMF spillway channel is sized to convey peak discharges from the TMF during floods up to the 24-hr Probable Maximum Flood (PMF).

The Reclaim Pond features an emergency spillway to manage floods exceeding the EDF without overtopping the dam. The spillway is located in the right (east) abutment of the Reclaim Pond Dam and is assumed to be excavated in bedrock. The spillway will discharge to Pakeagama Lake during operations. In closure, the spillway may be redirected to discharge to the mined-out PAK Open Pit.

The spillway invert will be located 1.5 m below the crest of the Reclaim Pond Dam and will be raised with the Reclaim Pond Dam. The invert control section consists of a concrete wall, fastened to bedrock, with an invert elevation of 332.5 m in Stage 1, rising to 336.0 m in Stage 3. The spillway consists of a trapezoidal channel with a Stage 1 base width of 30 m, increasing to 40 m in Stage 3. The spillway will have side slopes of 1(H):1(V).

The emergency spillway has been sized to convey the peak discharges from the pond during floods up to the 24-hr PMF.

18.7.4.4 Seepage Collection System

Dam seepage and runoff from the outer embankment slopes and toe buttresses of the TMF West Dam and the Reclaim Pond Dam will be intercepted by collection ditches constructed along the downstream toe of these structures and conveyed by gravity to ponds (Figure 18.16). The TMF collection ditches will discharge to five ponds, from where water will be pumped back into the facility. The Reclaim Pond collection ditches will discharge to three ponds, from where water will be pumped back into Reclaim Pond. The hydrotechnical design criteria are presented in Section 18.8.3 of this Technical Report.

The service road built downstream of the TMF West Dam provides secondary containment should surface runoff spill over the ponds (e.g., during the freshet if the sump has frozen over).

18.7.5 TAILINGS DEPOSITION PLAN

The deposition plan involves depositing a total of 20.3 Mt of tailings produced over the 31-year LOM. The ultimate configuration of the TMF with the full LOM tailings stored is presented on Figure 18.16 and the deposition plan showing the progressive filling at regular intervals is presented in Figure 18.17.

The overall concept for tailings deposition is to discharge tailings from spigots along the crest of the West Dam into the TMF basin forming a beach that slopes toward and is contained by the East Dam. Drainage from the TMF passively overflows to the Reclaim Pond and provides make-up water to the concentrator plant.

The deposition plan is based on thin lift deposition with a uniform discharge elevation that proceeds from the lowest area (i.e., between Ch. 0+200 and 1+000) and gradually extends farther south where the ground elevations are generally higher. The overflow spillway in the East Dam allow water to passively drain from the TMF into the Reclaim Pond. High water levels in the Reclaim Pond will back up into the TMF in the early years of operation before the tailings beach is established upstream of the East Dam.

The deposition plan for the TMF, including the dam crest elevations and raise schedule, is summarized in Table 18.6.

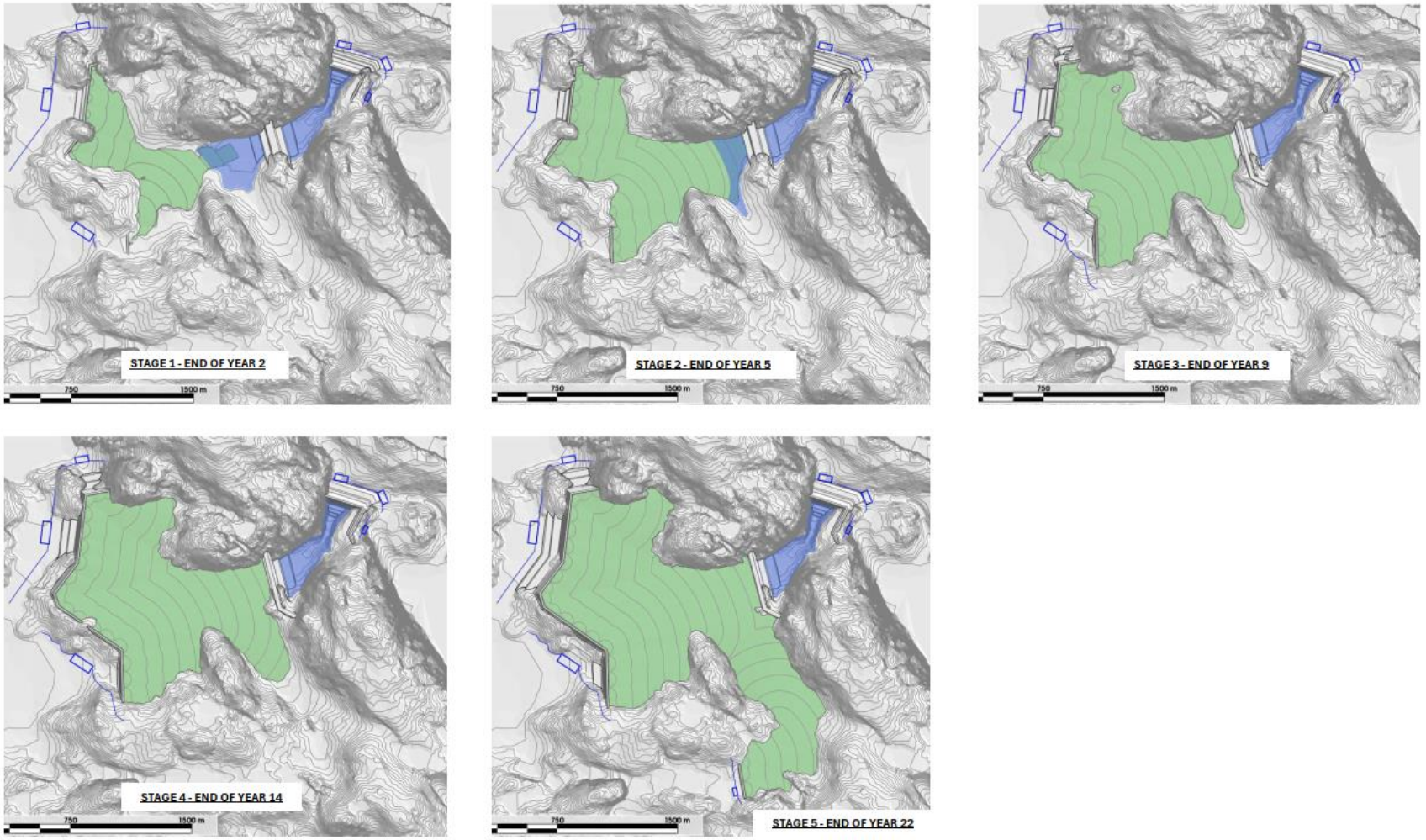
The following criteria and assumptions were used in developing the deposition plan:

- Tailings are non-PAG with metal leaching potential (particularly arsenic, antimony, and phosphorous).
- Tailings are dewatered to a thickened, non-segregating consistency with a targeted solids content of 68% by weight.
- Tailings are discharged from spigots along the West Dam to produce a minimum beach slope of 1%.

- Tailings are produced at a nominal rate of 678,000 tpa.
- Deposited tailings have an assumed void ratio of 1.1 and an inferred dry density of 1.35 t/m^3.
- An operating pond for solid-liquid separation is not required in the TMF due to the non-segregating nature of the tailings. A small pond will be formed between the deposited tailings beach and the overflow spillway invert.
- Tailings bleed water and surface runoff passively discharge via the overflow spillway that will be maintained above the tailings beach and progressively raised during operations.

The dams and overflow spillway are raised progressively as the TMF is filled. Tailings will be deposited within the northern basin for the first 14 years until the southern leg of the West Dam is constructed in Stage 5.

Figure 18.17 – Deposition Plan of Tailings Storage Area



Source: SLR, 2025

18.7.6 DAM STABILITY ANALYSIS

Slope stability analyses were completed for critical dam cross sections to evaluate the Factors of Safety (FoS) of the West, East, and Reclaim Pond dams. The critical dam sections are located on low ground where deeper overburden soils, comprising soft to very soft glaciolacustrine silty clay and loose sand layers are prevalent. The representative soil models were based on information collected in the geotechnical investigations, including soil descriptions, in situ testing, and laboratory testing.

The short-term analysis included excess porewater pressure generated in the glaciolacustrine clay unit to simulate the immediate impact of dam fill loading on the foundation. This is modelled utilizing B-Bar, which is defined as the ratio of change in porewater pressure to change in vertical overburden pressure. A B-Bar factor of 0.5 with the full height of dam used to calculate the change in overburden pressure.

The analysis results are summarized in Table 18.8 and presented in more detail in the TMF Design Memorandum (SLR, 2025c).

Table 18.8 – Factors of Safety of the Slope Stability Analysis

Loading Condition	FOS Criterion	West Dam	East Dam	Reclaim Pond Dam
End of Construction – Upstream Slope	1.5	1.5	1.7	1.5
End of Construction – Downstream Slope	1.5	1.5	1.7	1.5
Long-term Steady-State	1.5	1.7	1.5	1.9
Pseudo-static	1.1	1.3	1.3	1.4

The following conclusions are drawn from the stability analyses:

- Shallow overall slopes of between 7 horizontal (H):1 vertical (V) to 10(H):1(V) are required with the soft, glaciolacustrine clay governing slope stability.
- Short-term loading conditions dictate the size of the toe berms required to stabilize the dams. Dam construction is expected to generate excess pore pressures in the glaciolacustrine clay. Porewater pressure in the clay unit will need to be monitored during construction and the rate of rise may need to be adjusted.
- Long-term (steady state) and seismic (pseudo-static) analyses are less critical and generally exceed the minimum required factors of safety.

18.8 Water Management

18.8.1 Water Management Plan

The proposed site water management strategy assumes that all contact water (except for drainage from the overburden stockpiles) will be collected and directed to the Reclaim Pond, located immediately east of the TMF. Drainage from the overburden stockpiles will be passed through sediment ponds and released without further treatment directly to receiving waterbodies. Geochemical testing suggests that the overburden is non-PAG but further evaluation is needed to determine whether the material is metal leaching.

Process water make-up for the concentrator plant complex will be sourced from the Reclaim Pond. Potable water will be extracted from groundwater wells.

Normal operations for the site water management systems are considered to be between dry year annual precipitation with a 25-year return period and the wet year annual precipitation with a 50-year return period. The Reclaim Pond is designed with adequate storage to provide process water make-up to the concentrator plant complex year-round despite variations in precipitation conditions and mine operations. Flood events will be managed by providing no-spill flood storage capacities in, and overflow spillways from, water management ponds.

Surplus water collecting in the Reclaim Pond (i.e., water not required for ore processing and other mine operation activities) will be treated at a single Mine Water Treatment Facility prior to its release to the Flanagan River. Treated effluent from the Mine Water Treatment Facility will be pumped year-round via a pipeline to a discharge location with sufficient assimilative capacity.

The site water management systems (including pumps) used during the Project's operations stage will continue to be operated and maintained during mine closure and beyond until the quality of water collecting in the flooded open pits, and drainage from the rehabilitated stockpiles and TMF meets regulatory discharge standards. The opportunities for passive water treatment may be investigated at a later design stage.

18.8.2 Projected Infrastructure for Water Management

Site water management infrastructure requirements have been identified for the site layout. Infrastructure will include the following, as shown on Figure 18.1:

- A realignment channel to redirect the unnamed stream southeast of the Spark MRSA towards the north.
- Diversion berms to intercept non-contact runoff from undisturbed catchments upstream of the PAK Overburden Stockpile, PAK Overburden Sediment Pond and PAK MRSA Drainage Pond, and to divert it around these facilities. Water intercepted by the berms will be directed southward and discharged to Pakeagama Lake.

- A diversion pond, Collection Pond No. 2, to intercept the unnamed stream west and upstream of the Spark Open Pit. Water collecting in the pond will be pumped to Collection Pond No. 1 overprinting the existing Unnamed Waterbody 1.
- Open pit sumps to collect groundwater inflows to the Spark and PAK open pits and runoff from the open pit walls. Water collecting in the open pit sumps will be pumped to the Collection Pond No. 1 (from Spark Open Pit) and to the Reclaim Pond (from PAK Open Pit).
- Contact water collection ditches to convey runoff and seepage from the stockpiles and other sources to water management ponds at low points around the stockpile perimeters.
- Sediment ponds to remove suspended solids from runoff from the Spark and PAK Overburden Stockpiles prior to the release of water to the environment. These consist of Spark Overburden Sediment Pond Nos. 1 and 2, and PAK Overburden Sediment Pond.
- Surge ponds to collect runoff and seepage from the Spark and PAK MRSAs which will be pumped to the Reclaim Pond for re-use or treatment at the Mine Water Treatment Facility. These include Spark MRSA Drainage Pond Nos. 1, 2, and 3, Collection Pond No. 1, and PAK MRSA Drainage Pond.
- Pumping systems (pumps and pipelines) to convey water collecting in the surge ponds to the Reclaim Pond.
- A temporary supernatant pond to collect decant water (tailings bleed water, stormwater runoff, and runoff and seepage collection return from the seepage collection system) in the TMF during the earlier stages of TMF development.
- A Reclaim Pond to receive gravity drainage from the TMF, pumped discharges from the surge ponds, tailings thickener overflow and runoff from the concentrator plant complex, and runoff and seepage collection return from the seepage collection system.
- Contact water collection ditches to convey runoff and seepage from the TMF West Dam and the Reclaim Pond Dam to runoff and seepage collection ponds.
- Runoff and seepage collection ponds to collect runoff and seepage from the TMF West Dam and the Reclaim Pond Dam which will be pumped to the TMF and Reclaim Pond, respectively.
- Pumping systems (pumps and pipelines) to convey water collecting in the TMF West Dam and Reclaim Pond Dam runoff and seepage collection ponds to the TMF and Reclaim Pond, respectively.

18.8.3 Hydrotechnical Design Basis and Criteria

18.8.3.1 Non-Contact Water Diversion Channels

Non-contact water diversion channels (berms and excavated ditches) will be constructed upstream of mine facilities to divert non-contact stormwater runoff from natural catchment areas around these facilities. The water collected will not require treatment prior to its release to the environment.

Channels have been designed to convey high flows without erosion of the channel cross sections and outlets. Channels will have sufficient capacity to convey the design peak flow event with freeboard.

18.8.3.2 Contact Water Ditches

Contact water ditches will be constructed to collect runoff and toe seepage from the overburden and mine rock stockpiles, and runoff from undisturbed areas within the Project footprint potentially impacted by particulate matter from mine facilities and convey it by gravity to water management ponds. The water collected will require physical and/or chemical treatment prior to its discharge to the environment.

The ditches have been designed to convey high flows without erosion of the ditch cross sections and outlets. The ditches will have sufficient capacity to convey the design peak flow event with freeboard.

Ditches servicing the mine rock stockpiles will be lined where necessary to minimize infiltration losses.

18.8.3.3 Water Storage Facilities

The site water management system will include four (4) types of water storage facilities:

- Diversion ponds that will intercept non-contact stormwater runoff from natural catchment areas upstream of mine facilities. Water collecting in the diversion ponds will not require treatment prior to discharge.
- Open pit sumps that will collect groundwater inflows to the open pits and stormwater runoff from the open pit walls (i.e., contact water). Water collecting in the open pit sumps will require physical and chemical treatment prior to discharge.
- Surge ponds that will collect contact water from the mine rock stockpiles and concentrator plant complex (i.e., stormwater runoff, seepage, process water). Water collecting in these facilities will require physical and chemical treatment prior to discharge.
- Sediment ponds that will collect contact water from the overburden stockpiles (i.e., stormwater runoff, seepage). Water collecting in these ponds will require sediment removal prior to discharge.

Adequate water storage capacity is required to manage the operating range of accumulating water volumes while maintaining a minimum freeboard to protect the environment and, where applicable, dam safety. Hydrotechnical design criteria for the water storage facilities were established with the following considerations:

- Water storage capacities of all sumps and ponds were defined considering a minimum volume for sediment accumulation and/or to operate pumps.

- Water storage capacities of the open pit sumps will allow for live storage above the minimum volume to manage accumulations of stormwater runoff and groundwater inflows. The provision for live storage is associated with the management of a spring freshet event. Selection of the event duration and return period was based on considerations including the expected useful life of the sump and maintenance schedule for open pit dewatering systems, and the accepted hydrologic risk and potential consequences of system failure. A 3-day 25-year rainfall plus snowmelt event was adopted to define the live storage of the open pit sumps.
- Water storage capacities of the diversion ponds and surge ponds will allow for live storage above the minimum volume to manage accumulations of stormwater runoff, seepage (from mine rock stockpiles), and pumped discharges from other water storage facilities. The provision for live storage is associated with the management of a spring freshet event. Selection of event durations and return periods were based on considerations including the expected useful life of a pond, the anticipated maintenance schedule for the pond and its pumping system, the accepted hydrologic risk of system failure, and the potential consequences of system failure. A 30-day 100-year rainfall plus snowmelt event was adopted to define the live storage of the diversion ponds and surge ponds proposed for the Project.
- Water storage capacities of the sediment ponds will allow for a permanent pool volume below the overflow spillway level.
- Sediment ponds are designed with sufficient surface area to promote settling of solid particles from stormwater runoff from the overburden stockpiles during storms up to the critical duration 10-year event (i.e., the Water Quality Design Flood).
- The diversion ponds, surge ponds, and sediment ponds will be equipped with overflow spillways designed to safely convey the Inflow Design Flood (IDF) from contributing catchments through the facilities while maintaining adequate freeboards.

Additional details regarding the design criteria are provided in SLR, 2025.

18.8.3.4 TMF and Reclaim Pond

Supernatant water from the deposited tailings and stormwater runoff from the tailings beach and contributing natural catchment areas will drain passively to the Reclaim Pond via an operating overflow spillway at the TMF East Dam. The spillway will enable hydraulic connectivity between the TMF and the Reclaim Pond during staged construction of the containment dams of these facilities.

The TMF will store water seasonally during the first four (4) stages of dam construction to provide additional storage capacity for water accumulating in the Reclaim Pond. This will facilitate the staged construction of the TMF East Dam and Reclaim Pond Dam. The pond will be maintained on the TMF during the first four stages of dam construction during which time the TMF East Dam operating overflow spillway will allow mutual hydraulic connectivity between the TMF and Reclaim Pond. The available water storage capacity will be dependent on tailings deposition and the construction stage

of the TMF East Dam. The TMF East Dam spillway is designed to safely convey the IDF through the TMF during all dam construction stages. The IDF is the most severe inflow flood for which a dam and its associated facilities are designed. The IDF selected for the TMF and Reclaim Pond is the 24-hour Probable Maximum Flood (PMF).

Of note, although there is no requirement for a pond for solids-liquid separation (Section 18.7.5 of this Technical Report), there will be a small pond on the TMF near the TMF East Dam spillway because the spillway invert must remain above the tailings beach at all times to prevent tailings from flowing into the Reclaim Pond.

The Reclaim Pond will have a total water storage capacity including a minimum volume for sediment accumulation and to operate pumps, a live storage volume to manage inflows under normal operating conditions, and a freeboard above the live storage to the invert of an emergency overflow spillway for temporary storage of an Environmental Design Flood (EDF) volume.

The EDF is the most severe flood (peak, volume, shape, duration, timing) that is to be managed without release of untreated water to the environment. An EDF is necessary where contaminated water must be retained either with no discharge to the environment or with controlled discharge through a treatment system prior to discharge to the environment. Retention of water during the EDF requires storage capacity above the normal operating water level.

A minimum Reclaim Pond volume equivalent to a water depth of 5.0 m was assumed. The provision for live storage will be sufficient to manage flows transferred from the Collection Pond No. 1, PAK Open Pit, PAK MRSA Drainage Pond, and TMF (Figure 18.1), as well as the thickener overflow and stormwater runoff from concentrator plant complex and contributing natural catchment areas. The design criterion to define the provision for live storage is the maximum operating water volume in the pond based on water balance modelling considering the 50-year wet annual precipitation conditions, a 12-month discharge window, and a Mine Water Treatment Facility capacity of 600.9 m^3/hr. The EDF corresponds to the 24-hour, 100-year rainfall event. The Reclaim Pond emergency spillway is designed to safely convey the IDF (the 24-hour PMF) through the Reclaim Pond during all dam construction stages.

Water accumulating in the Reclaim Pond will be pumped to the concentrator plant complex for re-use, or to the Mine Water Treatment Facility for treatment prior to discharge to the environment.

Contact water ditches will be constructed along the toes of the TMF West Dams and the Reclaim Pond Dam to collect stormwater runoff and seepage from these structures. The water collected will drain by gravity to ponds, situated in topographic low areas, and be pumped back into the TMF and Reclaim Pond. The water collected will require physical and chemical treatment prior to its discharge to the environment. The seepage collection ditches will be lined where necessary to minimize infiltration losses. The ditches will have sufficient capacity to convey the peak flows during the design

storm event with freeboard. The seepage collection ponds will accommodate stormwater runoff from the contributing catchments during the design storm with pumped outflows.

The seepage collection ponds are designed to accommodate runoff from the contributing catchments during the critical duration 100-year storms with pumped outflows. The contact water ditches have been designed to convey the peak flows during critical duration storms up to the 100-year event.

18.8.4 Operational Water Balance

A block flow diagram showing the water management ponds, the movement of water across the site, freshwater takings, and site discharges is shown on Figure 18.18. This represents the ultimate configurations for the mine facilities (e.g., open pits, overburden and mine rock stockpiles, TMF) during the operations stage of the Project.

A deterministic site wide water balance model, based on the diagram, was developed using Microsoft Excel with the following objectives:

- Estimate the nominal (annual average) rates of water transfer between the contact water ponds to inform design of pump and pipeline systems.
- Evaluate the live storage requirements in the Reclaim Pond.
- Confirm process water make-up demands can be met by water accumulating in Reclaim Pond.
- Estimate volumes of water requiring treatment at the Mine Water Treatment Facility.

Modelling was performed on a monthly basis under average, dry and wet annual precipitation conditions with consideration given to the effects of climate change due to the estimated 30-year life-of-mine. The simulated annual average flows into, between, and out of the various water management ponds are shown on Figure 18.18.

18.8.5 Design Considerations

The key considerations for site water management design are:

- The Project is situated in an area of variable topographic relief which, together with the proposed site layout, determines the number, locations, capacities, and configurations of water management ponds.
- The depth to groundwater across the site is relatively shallow which influences the configurations of the water management ponds. The proposed pond designs minimize excavations below the water table reducing potential impacts on their performance due to groundwater inflows and construction dewatering requirements.
- Design criteria for live storage volumes in the water storage facilities have been selected with consideration given to the dependency on pumping to manage the accumulation of water.

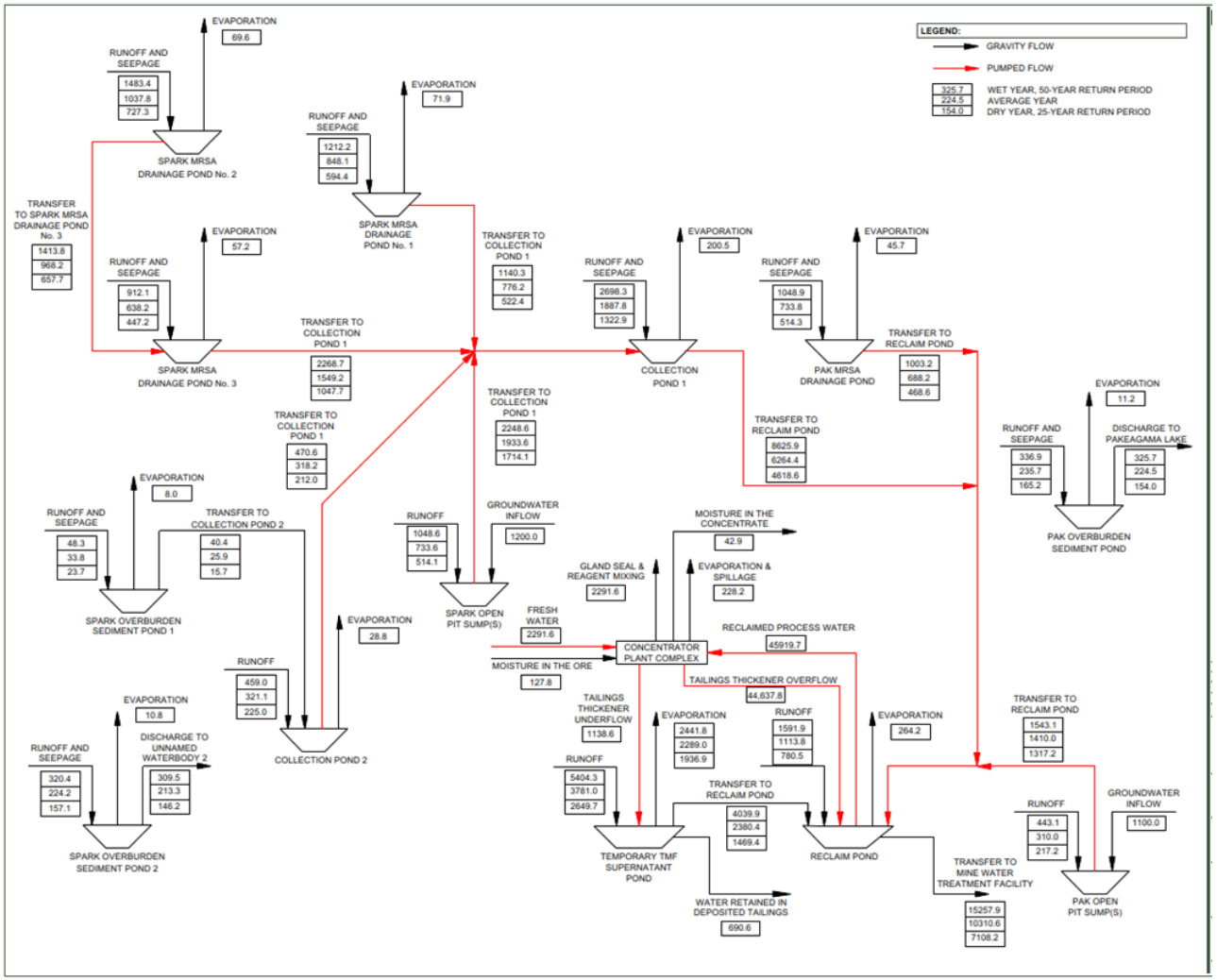
- Groundwater inflow to the open pits will occur all year round. It is understood there is the potential for freezing of inflows with ice build up on the open pit walls during the colder months, resulting in an interruption in groundwater inflow at times for up to 5 months (November to March). Design considers a 12-month groundwater inflow scenario which is expected to result in a greater amount of contact water from the open pits that will require management and treatment.
- The tailings thickener overflow will be pumped to the Reclaim Water Pond due to concerns regarding the accumulation of fatty acid/grease in the collector.
- Year-round operation of the Mine Water Treatment Facility was adopted as a base case in agreement with Frontier to optimize the size of the Reclaim Pond with potential Capex benefits.

18.8.6 DESIGN OBJECTIVES

The site water management for the Project was designed to satisfy the following objectives:

- Minimize non-contact stormwater runoff from upstream natural catchment areas from contacting with the mine facilities and infrastructure where practicable.
- Manage non-contact and contact water separately to minimize the volumes of mining effluent requiring treatment prior to discharge.
- Reduce or prevent off-site sediment transport by collecting and treating runoff for sediment removal close to the source.
- Protect channels, ditches, and streams against erosion and sedimentation.
- Collect all contact water either for use in the process water circuits at the concentrator plant complex, for use in other mine operation activities, or for treatment and discharge to the environment.
- Minimize freshwater water taking from external sources (e.g., groundwater wells) and satisfy process water requirements at the concentrator plant complex by maximizing the recycling and reuse of water (e.g., water return from the Reclaim Pond, reuse of treated water).
- Provide flow balancing storage to supply process water to the concentrator plant complex during low flow periods, in particular the winter months when there is limited or no runoff from precipitation and there is presence of ice cover on ponds.

Figure 18.18 – Water Balance Block Flow Diagram



Source: SLR, 2025

- Protect the aquatic environment and fisheries by treating mine effluent to prescribed discharge water quality standards and releasing flows during recommended discharge windows.
- Release treated mining effluent to a minimum number of locations, as is practicable, to facilitate controlled discharges and environmental monitoring (water quantity and water quality).
- Reduce or prevent flood risk by managing the peak flows and high runoff volumes during the annual spring freshet.

18.8.7 Pond Sizing and Design

Collection Pond No. 2 will be constructed west and upstream of the Spark Open Pit to intercept stormwater runoff from natural catchment areas (Figure 18.1). Water accumulating in Collection Pond No. 2 will be pumped to the Collection Pond No. 1, from where it will be managed together with contact water.

Collection Pond No. 2 was designed with a live storage volume to contain the 30-day 100-year runoff volume from its contributing catchment since this pond is located upstream of the Spark Open Pit and will be drained by pumping under normal operating conditions. Collection Pond No. 2 will have a total capacity of 110,550 m³, will be constructed in cut and fill, and will have side slopes of 3(H):1(V).

Sediment control ponds will be constructed downgradient of the Spark and PAK Overburden Stockpiles and will receive and treat runoff and seepage from these facilities. The sediment ponds have been designed as flow-through facilities that provide sufficient hydraulic residence time for sediment removal prior to the release of water to the environment.

Spark Overburden Sediment Pond Nos. 1 and 2 will be constructed by impounding drainage behind a cross-valley berm (Figure 18.1). The berms will have a crest width of 5.0 m, heights of 4.5 m (Spark Overburden Sediment Pond No. 1) and 3.5 m (Spark Overburden Sediment Pond No. 2), and side slopes of 3(H):1(V). Berms will be constructed using low permeability fill and provided with erosion protection on the inner and outer faces. The PAK Overburden Sediment Pond will be constructed in cut and fill. The pond will have a total depth of 4.5 m and side slopes of 3(H):1(V). Outflow from the ponds will occur via operating overflow spillways with inverts 1.0 m below the tops of the ponds. The ponds will maintain permanent pools, and allowances were made within the pools for sediment storage.

Four (4) surge ponds (Spark MRSA Drainage Pond Nos. 1, 2, and 3 and Collection Pond No. 1) will be constructed at low points around the Spark MRSA (Figure 18.1) to intercept runoff and toe seepage from this facility. Similarly, another surge pond (PAK MRSA Drainage Pond) will be constructed east of the PAK MRSA. Water accumulating in Spark MRSA Drainage Pond No. 1 will be pumped to the Collection Pond No. 1. Water accumulating in Spark MRSA Drainage Pond No. 2 will be pumped to Spark MRSA Drainage Pond No. 3, and water accumulating in Spark MRSA

Drainage Pond No. 3 will be pumped to the Collection Pond No. 1. Water collecting in the Collection Pond No. 1 and the PAK MRSA Drainage Pond will be pumped to the Reclaim Pond.

Surge ponds will be constructed in cut and fill and will have side slopes of 3(H):1(V). Where excavation encounters overburden, the facilities will be lined with low permeability clay to minimize infiltration losses to the environment. The ponds are relatively large and shallow with excavation targeted to be less than 3.0 m below ground surface.

The Reclaim Pond and the seepage collection ponds are discussed in Section 18.7.4 of this Technical Report.

The storage capacity of the ponds is summarized in Table 18.9.

Table 18.9 – Storage Capacity of the Ponds

Infrastructure	Live Storage (m^3)	Total Capacity (m^3)
Collection Pond No. 2	61,300	110,600
Spark MRSA Drainage Pond No. 1	160,000	297,200
Spark MRSA Drainage Pond No. 2	241,900	399,500
Spark MRSA Drainage Pond No. 3	117,900	210,700
Collection Pond No. 1	304,700	417,600
PAK MRSA Drainage Pond	115,400	231,000
Reclaim Pond (ultimate dam configuration)	601,200	1,265,100

18.9 Water Treatment Facilities

18.9.1 Sewage Water Treatment Plants

The proposed sewage treatment plants will handle wastewater from the process area and the camp. Three identical sewage treatment systems will be provided, each rated for 75 m^3/day, designed to meet the needs of up to 300 people at a consumption rate of approximately 250 L/person/day. The solid waste will be disposed off-site.

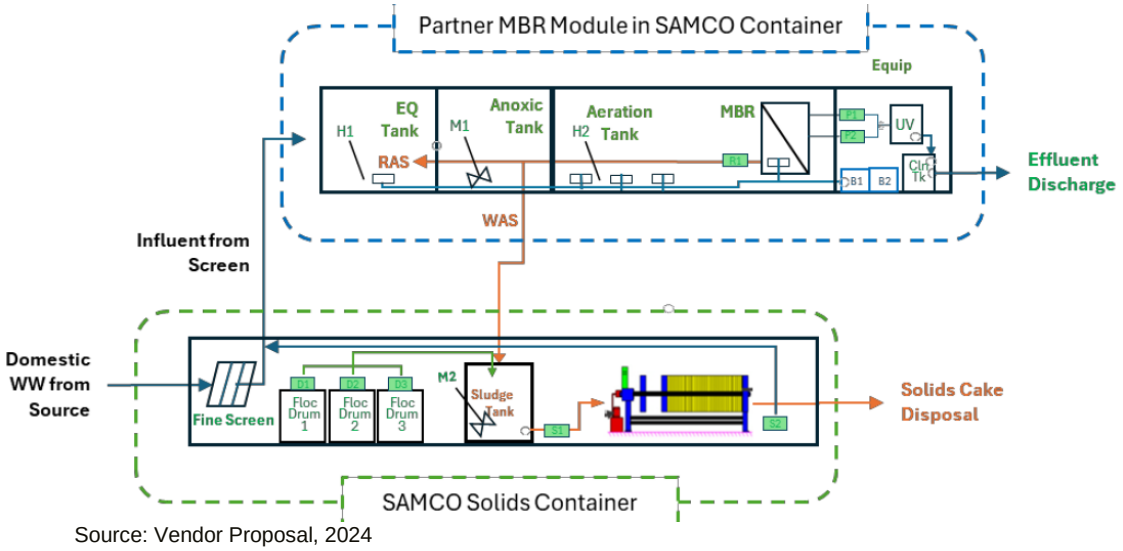
A typical layout of the treatment system is shown in Figure 18.19.

18.9.2 Potable Water Treatment Plants

The proposed potable water treatment systems will supply potable water to the process area and the camp, as well as the operational site facilities. The system will consist of three (3) units providing potable water for up to 300 people based on a consumption rate of 250 L/person/day.

The systems will be installed in modified containers and will use a reverse osmosis process to treat water to meet Ontario drinking water standards, in accordance with the Safe Drinking Water Act, 2002 (Schedules 1, 2, and 3).

Figure 18.19 – Typical Layout of the Two Container Integrated MBR Process and Solids Management Modules



Source: Vendor Proposal, 2024

18.9.3 MINE WATER TREATMENT PLANT

Water will be collected from numerous sources across the site with all collected water fed to the Reclaim Water Pond (refer to Figure 18.18). A portion of the collected water is pumped back to the concentrator plant facility with the excess being treated prior to being discharged via pipeline into the Flanagan River which is approximately 7 km east of the water treatment plant.

The water treatment system will treat a maximum of 15,200 m^3/day and will operate continuously throughout the year. The system will include chemical dosing equipment (e.g., flocculant, coagulant), pH control, settling equipment, filtration, and discharge monitoring systems.

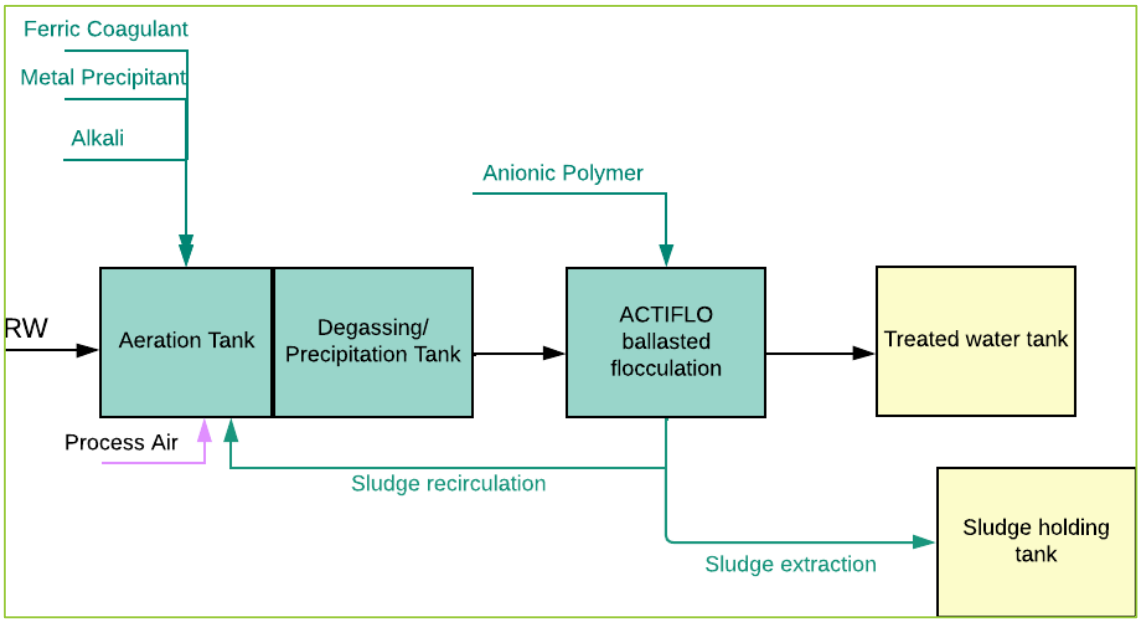
The Mine Water Treatment Plant will comprise the following sub-systems:

- Metal precipitation reactor.
- Rapid clarification reactor.
- Sludge recirculation system.
- Holding tanks.
- Reagents preparation and distribution:
  - Anionic polymer.
  - Coagulant.

- Metal precipitation.
- Alkali.
- Microsand.
- Acid.

Figure 18.20 illustrates the process flow for the Mine Water Treatment Plant.

Figure 18.20 – Mine Water Treatment Plant Process Flow



Source: Vendor Schematic, 2025

19 MARKET STUDIES AND CONTRACTS

Frontier subscribes to lithium market studies prepared by Supply Chain Insights (SC Insights), an advisory firm with expertise in the lithium-ion battery (LIB) supply chain. The analysis by SC Insights includes lithium demand and supply forecasts, lithium products price forecasts, and industry cost curve data. The Q4 2024 study by SC Insights was reviewed for this Report.

The data from SC Insights was used in conjunction with price forecasts developed by analysts at several investment banks to arrive at a long-term SC6 (spodumene concentrate with 6% Li_2O grade) price forecast. Table 19.1 provides an overview of the sources of forecasts evaluated along with their effective dates.

Table 19.1 – Sources of Spodumene Price Forecasts Used

Forecast By	Effective Date
SC Insights	Q4 2024
Morgan Stanley	January 2025
UBS	January 2025
Macquarie	January 2025

The information in this section is based on the reports and forecasts developed by the firms listed in Table 19.1, leveraging their industry knowledge and expertise. Market and price forecasting is inherently uncertain, and the information presented in this section contains forward-looking information based on several assumptions. The QP has considered this information when evaluating the concentrate price given in this Section.

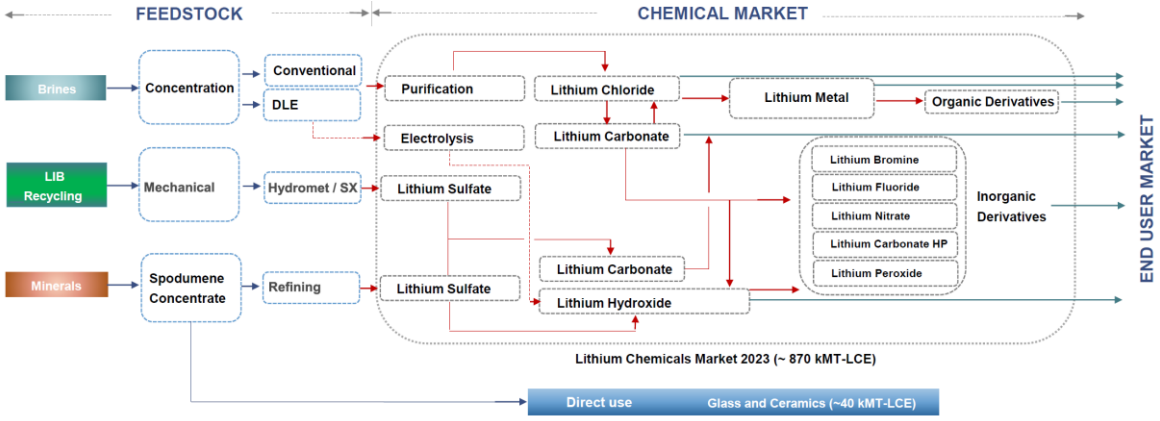
19.1 Lithium Market Overview

Despite recent growth, the lithium market remains relatively opaque with limited open trading (Taquiri, Lassourd & Viola, 2024). A standardized form of lithium is not presently carried on major metal exchanges unlike more established metals such as copper and nickel. This creates a challenge when determining the current and future market prices for lithium metal, concentrates and salts as multiple data sets exist, each with their own bias. To establish reliable market indications for pricing, understanding both the supply and demand sides of the market is important.

Figure 19.1 presents an overview of the lithium value chain, highlighting the main sources of lithium and the processing stages used to convert feedstock into the chemical compounds ultimately sold to end-use markets.

As lithium is traded in the form of a variety of compounds, the industry has adopted lithium carbonate equivalent (LCE) as a standardized unit of measurement. Conversion to and from LCE is based on the chemical formulae of the compounds and stoichiometric ratios.

Figure 19.1 – Schematic of the Lithium Value Chain



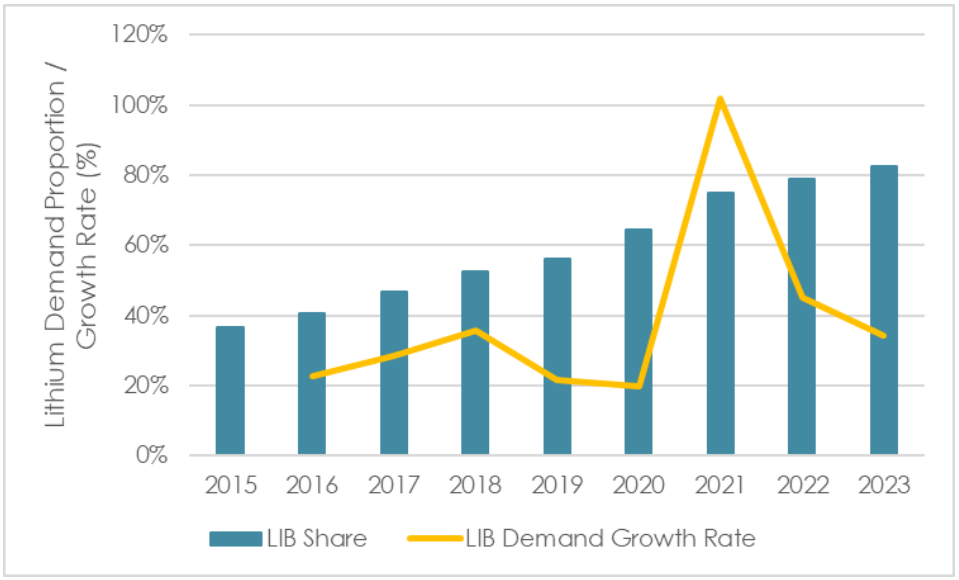
Source: SC Insights, 2024

19.2 Lithium Demand

The end uses of lithium span a variety of sectors, including rechargeable LIBs, glass and ceramics, lubricants, metallurgy, pharmaceuticals, and specialty chemicals. As a result of the global trend towards electrification and decarbonization, lithium demand in recent years has been dominated by LIB applications. Lithium is well suited for these applications because of its physical properties, including low specific density, high conductivity, high specific heat, and high thermic capacity (Taquiri, Lassourd & Viola, 2024).

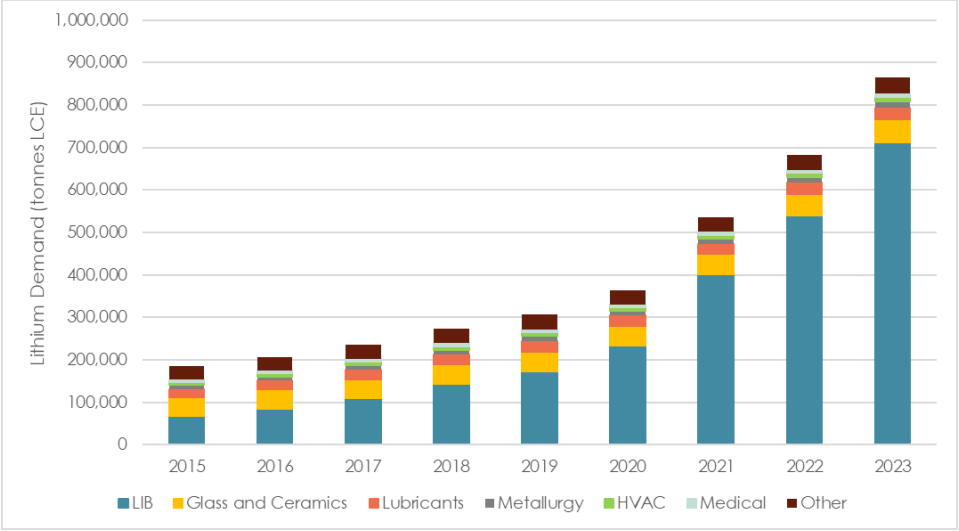
In 2006, LIB accounted for 22% of lithium demand with the majority of the supply used by the glass, ceramics, and lubricants industries (Benchmark Source, 2023). The share of the lithium market attributed to LIB has grown to 82% in 2023 as shown in Figure 19.2. The rapid growth in the LIB industry has fuelled a 4.7x growth in lithium demand between 2015 and 2023. Figure 19.3 illustrates the notable growth in lithium demand in this period with the contributions of key end uses.

Figure 19.2 – LIB Proportion of Lithium Demand and Annual Demand Growth Rate (2015-2023)



Source: SC Insights, 2024

Figure 19.3 – Lithium Demand (2015-2023)

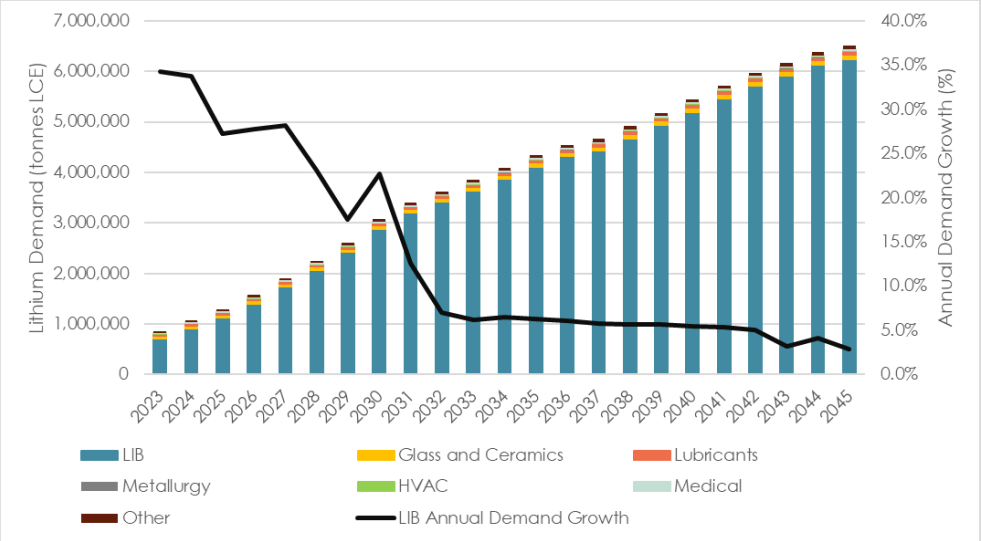


Source: SC Insights, 2024

Lithium demand is forecast to continue to increase rapidly over the next few years driven by Electric Vehicles and Energy Storage Systems.

SC Insights forecasts that the annual LIB demand growth rate will remain above 10% until 2032 and above 5% until 2043, with LIB forecast to account for 94% of lithium demand by 2043 (approximately 6,000,000 tonnes LCE). As a result, lithium demand is expected to grow to 3.6x by 2030 and 7.5x by 2045 from 2023 levels. The forecast LIB dominance of the lithium market is evident in Figure 19.4.

Figure 19.4 – Lithium Demand Forecast (2023-2045)



Source: SC Insights, 2024

Lithium carbonate and lithium hydroxide (monohydrate) are the two predominant feedstock compounds used in the LIB manufacturing process. Lithium hydroxide is generally used in the production of high-nickel cathode chemistries, while lithium carbonate is used for low-nickel cathode chemistries (Taquiri, Lassourd & Viola, 2024). The respective demands for high-nickel and low-nickel cathode chemistries are constantly changing (Taquiri, Lassourd & Viola, 2024), especially in North America where EV demand is still evolving.

Canada's domestic lithium demand is also poised for significant growth, driven by the buildout of a local battery manufacturing and electric vehicle ecosystem, supported by the Canadian government's Critical Minerals Strategy (Natural Resources Canada, 2022). In Ontario, major original equipment manufacturers (OEMs) such as Volkswagen have announced multi-billion-dollar investments in EV manufacturing and battery production facilities (Ontario, Office of the Premier, 2024 and 2023). In Quebec, the development of Bécancour is advancing as a critical hub for battery materials processing and cathode active material production, including the recent announcement of C$327.6 M in planned investment by the federal and provincial governments (Transport Canada, 2024). These investments reflect strategic decisions to locate manufacturing capacity near secure, regional sources of critical minerals, within a low-risk, geopolitically stable jurisdiction.

It should be noted that a degree of uncertainty is introduced into both global and Canadian lithium demand forecasts as a result of ongoing geopolitical uncertainty and evolving global trade policies. At this time, the impact of these policies on the lithium market remains uncertain.

19.3 Lithium Supply

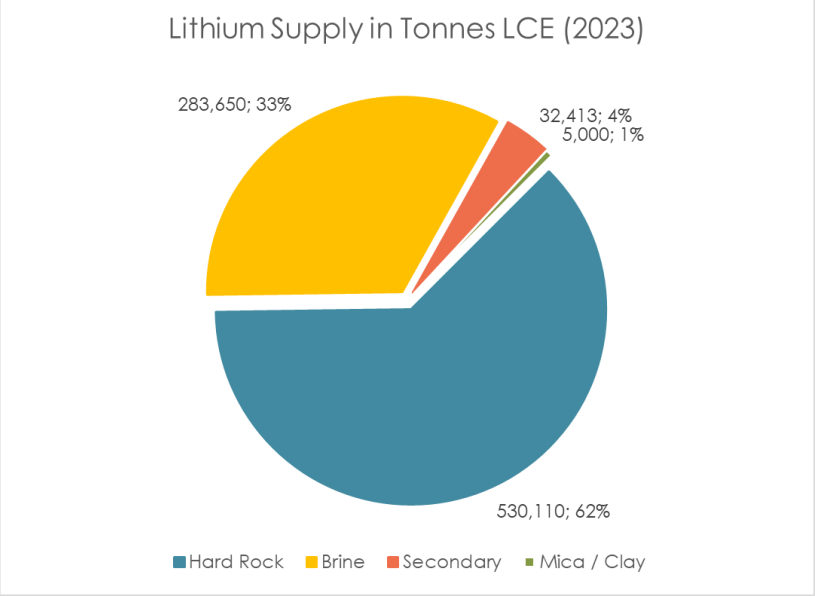
Lithium is extracted from several sources using a variety of methods, including hard rock mining and extraction from brines.

Lithium is traded in the form of a variety of compounds. Hard rock mining operations produce a mineral concentrate that is then refined to either lithium hydroxide or lithium carbonate. The concentrate refining step is typically performed at a separate facility from the mine and mill operations. For conventional brine operations, a concentrated brine is produced by evaporation techniques and pumped to a refining plant to produce lithium carbonate. An additional processing stage is required for the conversion of lithium carbonate produced from brines into lithium hydroxide, making hard rock operations the preferred source of lithium hydroxide (Kushner & Talbot, 2023).

Spodumene concentrate is traded at different lithium grades, ranging from 5.0% Li_2O to 7.2% Li_2O (Albemarle Corporation, 2025). Technical Grade concentrate contains 7.2% Li_2O with a low impurity profile and is used primarily in the glass, ceramics, and metallurgical industries (Albemarle Corporation, 2025). SC6 is a common Chemical Grade concentrate consisting of 6.0% Li_2O. Chemical Grade concentrates are used as precursors to the production of lithium chemical compounds for the LIB industry.

Currently, hard rock and saltwater brine sources account for the majority of lithium production, as indicated in Figure 19.5, with the other sources still considered as ‘emerging’.

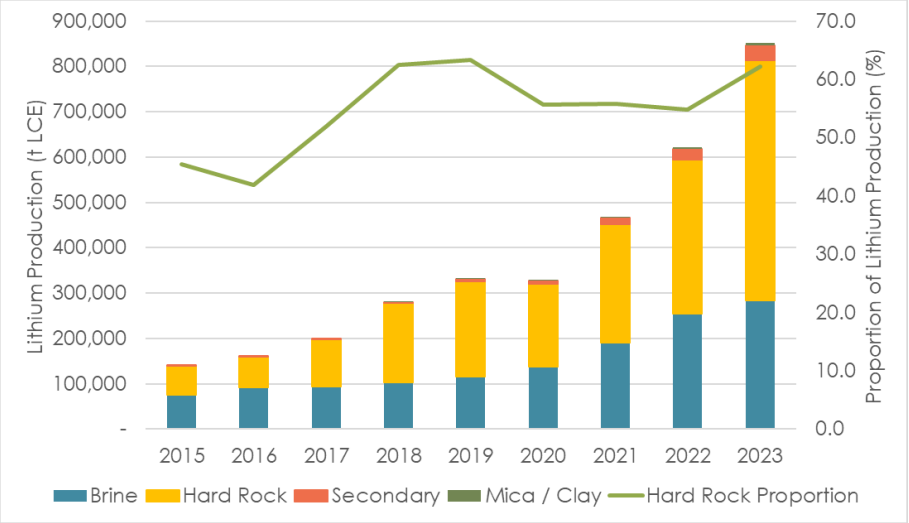
Figure 19.5 – Sources of Lithium Supply as of 2023



Source: SC Insights, 2024

The proportion of lithium production derived from hard rock mining has increased from 2015 to 2023, as is evident in Figure 19.6. Spodumene is the dominant mineral for lithium production from hard rock ores, with other less common minerals such as lepidolite and petalite making up the remainder.

Figure 19.6 – Lithium Production from Various Sources (2015-2023)

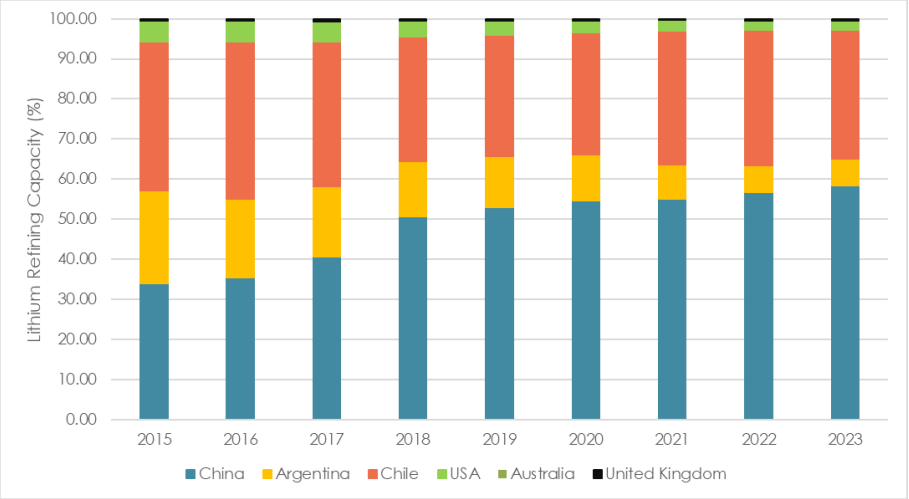


Source: SC Insights, 2024

Australia led lithium extraction in 2023 with 74,700 t of lithium from hard rock spodumene sources, accounting for 51% of the global total. Brine operations in Chile (38,000 t of lithium) and mines in China (22,600 t of lithium) accounted for most of the remaining global production (Natural Resources Canada, 2025). Measured and indicated lithium resources stand at around 105 Mt worldwide as of January 2024, with Bolivia, Argentina and the United States leading in this regard (US Geological Survey, 2024). Chile reports the highest lithium reserves (9.3 Mt), followed by Australia (6.2 Mt) and Argentina (3.6 Mt) (US Geological Survey, 2024).

Despite the distribution of lithium resources globally, China dominates lithium refining accounting for around 60% of global refining capacity in 2023 as seen in Figure 19.7.

Figure 19.7 – Global Share of Lithium Refining Capacity (2015-2023)

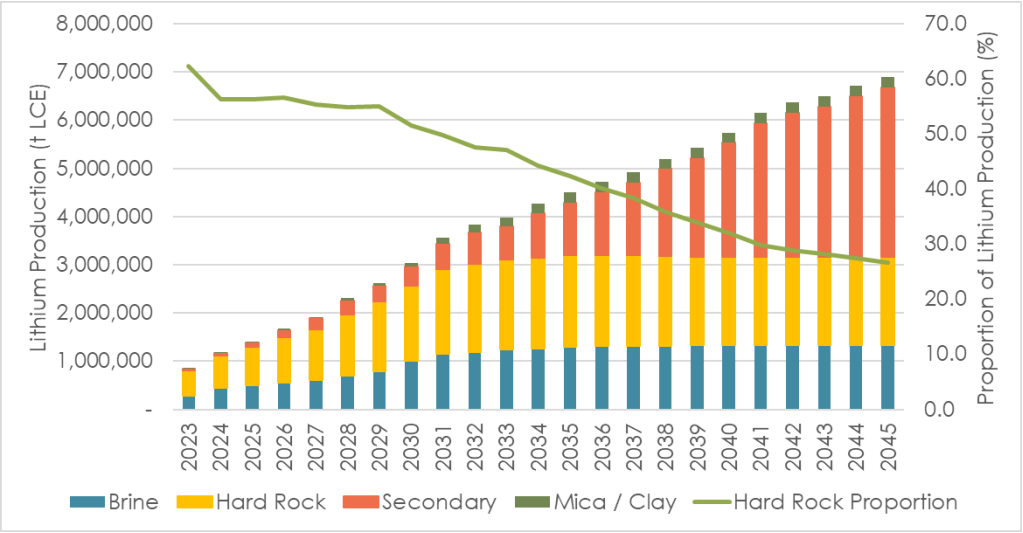


Source: SC Insights, 2024

Lithium supply forecasts are based on market analysts' expectations and assumptions of production rates from existing and developmental lithium projects. As shown in Figure 19.8, SC Insights estimates significant growth in lithium supply driven initially by hard rock and brine projects, and subsequently by secondary sources (recycling) after around 2030. The proportion of lithium produced from hard rock mines is anticipated to fall to just below 30% by 2045.

While these projections indicate strong growth in global lithium supply, the realization of this growth is increasingly contingent on the successful financing and development of a number of new projects. Data from SC Insights show that the number of unfinanced greenfield lithium projects is expected to grow significantly between 2026 and 2035—from just 8 in 2026 to 75 by 2035, highlighting a reliance on projects that have yet to secure capital. Furthermore, the growth of lithium supply after 2030 in the SC Insights forecast is anchored by significant increases in recycled lithium supply, which may not necessarily materialize, elevating the overall risk to future supply availability.

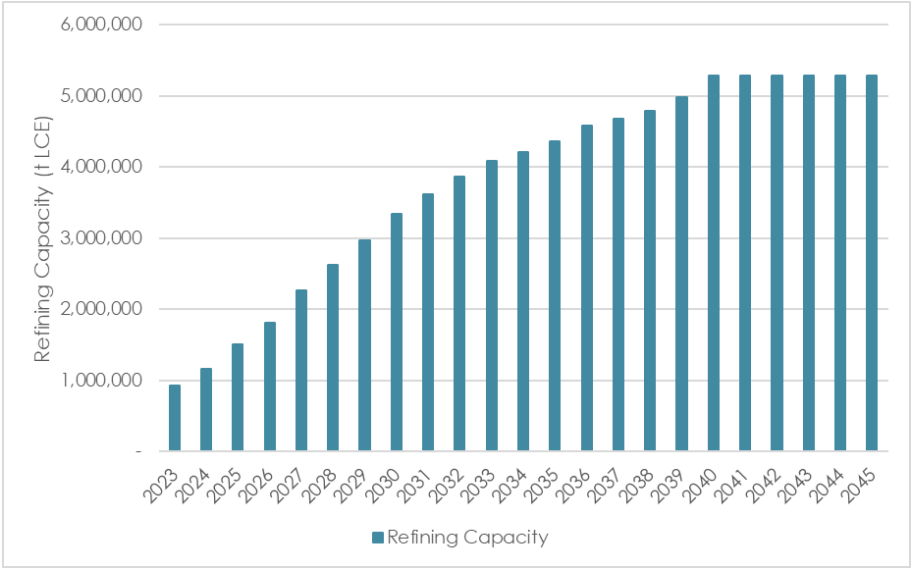
Figure 19.8 – Lithium Supply Forecast (2023-2045)



Source: SC Insights, 2024

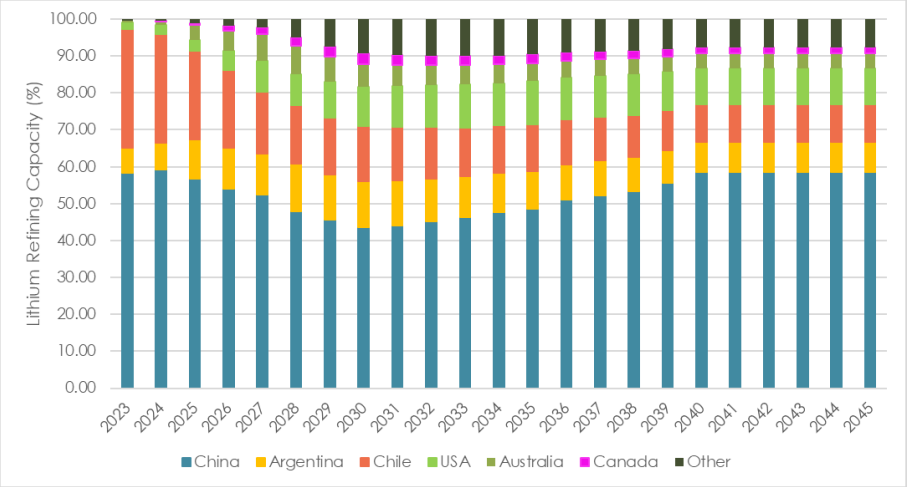
Lithium refining capacity is forecast to grow by 5.7 times by 2040 as compared to 2023 levels, as shown in Figure 19.9 predominantly due to the growth in the LIB industry. Though other countries are expected to enter the lithium refining market as part of the trend of reshoring supply chains, SC Insights expects China to maintain market dominance in the long run, as seen in Figure 19.10.

Figure 19.9 – Lithium Refining Capacity Forecast (2023-2045)



Source: SC Insights, 2024

Figure 19.10 – Lithium Refining Capacity Forecast Share by Country (2023-2045)



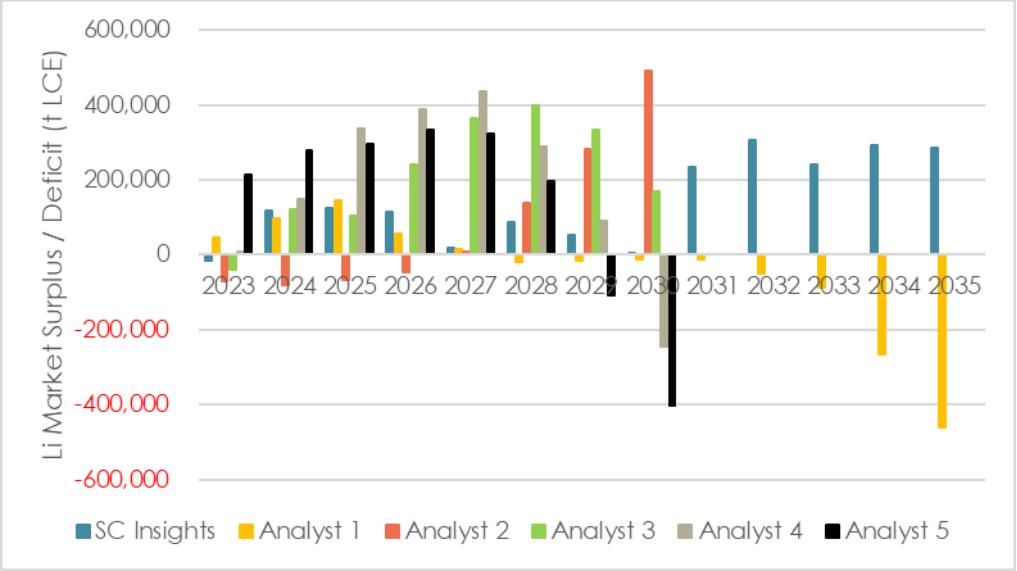
Source: SC Insights, 2024

19.4 Market Balance

SC Insights predicts that the lithium market will remain in surplus until 2026, followed by a period of balance with only modest surpluses projected through 2030. Beyond 2030, more significant surpluses are expected as supply from secondary sources is forecast to scale.

However, analyst perspectives on the lithium market balance diverge. Frontier provided confidential data on lithium market balance forecasts from a number of investment banks. Figure 19.11 presents a comparison of forecasts from SC Insights and these analysts on the lithium market balance. Other than SC Insights, only one other forecast of market balance was available beyond 2030. Up to and including 2029, most analysts predict that the market will remain in surplus. There is less consensus from 2030 onwards with half the forecasts reviewed predicting that the market will be in deficit in 2030. These differences likely arise not only from analysts' demand growth expectations but also their views on the pipeline for new projects and expansions with the constraints imposed by the current low lithium price environment.

Figure 19.11 – Comparison of Lithium Market Balance Forecasts



Source: SC Insights, 2024, and Confidential, 2024/2025

19.5 Spodumene Price Forecast

Frontier announced on March 4, 2025, that it intends to develop a lithium conversion plant in Thunder Bay, ON to process SC6 produced at the Project into lithium chemicals for sale to the LIB industry (Frontier, 2025). Several other companies have made similar announcements regarding the development of lithium conversion facilities in Thunder Bay and it is assumed that a domestic market will be in place for SC6 when the Project commences operations. As the scope of this Report does not currently include a conversion facility, only price forecasts for SC6 are evaluated to assess the economics of this Project. The economics of the Project are evaluated using SC6 prices based on Free on Board (FOB) terms at Thunder Bay.

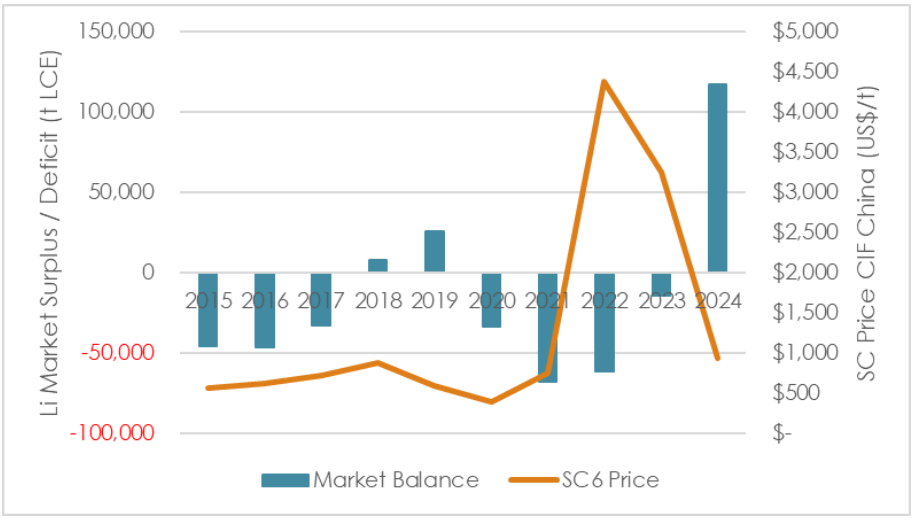
For the purposes of this Report, it is assumed that SC6 sales will be undertaken via off-take agreements with third parties at terms commensurate with generally accepted market terms. The majority of the spodumene concentrate currently produced globally is purchased by refining facilities in China for conversion to lithium chemicals. With most spodumene concentrate originating in Australia, prices are typically reported either in terms of Cost, Insurance, & Freight (CIF) China or FOB Australia. The price forecasts discussed in this Section are on a CIF China basis.

As any conversion plant in Thunder Bay will need to source spodumene concentrate at market rates, CIF China prices are used in this Report as a proxy for FOB Thunder Bay prices. The realization costs used in the financial analysis of Section 22 include land transportation costs from the mine to Thunder Bay.

Spodumene concentrate is typically sold in the form of long-term off-take agreements negotiated between a buyer and seller, with sale prices typically tracking the spot price of lithium (International Lithium Association, 2024).

The spodumene price fluctuates as a function of the demand-supply balance in the lithium market, as shown in Figure 19.12. A deficit in the market from 2020 to 2022 caused a spike in lithium prices in this period to a peak in 2022. As the market responded with the development of new projects and expansions, prices have decreased significantly.

Figure 19.12 – Historic Spodumene Price Trend with Lithium Market Balance (2015-2024)



Source: SC Insights, 2024

Given the variance in analyst estimates of lithium market balance (as described in Section 19.4), the long-term spodumene price selection for this Project was based on a review of a number of analyst price forecasts, including those from SC Insights and various investment banks. The price forecasts considered are summarized in Table 19.2 and Figure 19.13.

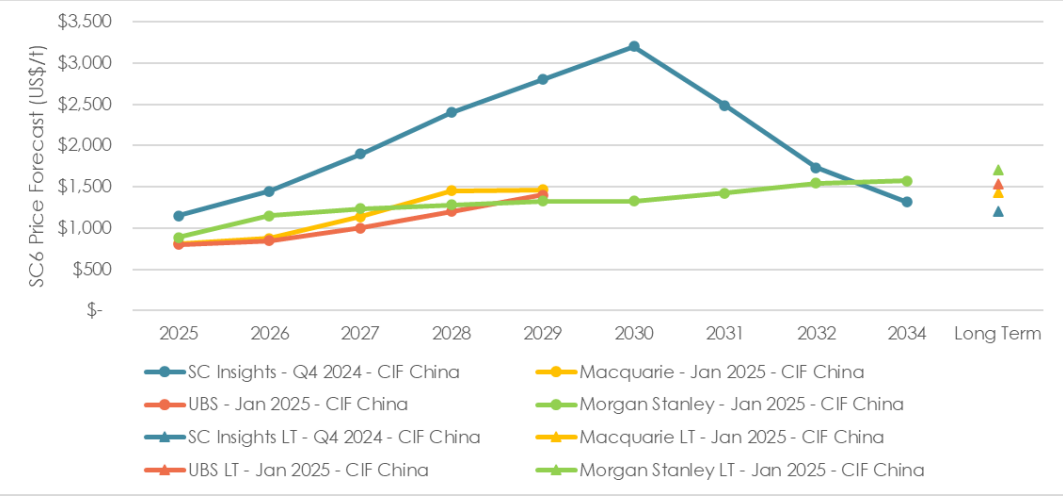
Based on these forecasts, an average long-term SC6 price of US$1,475/t over the LOM, in real terms, has been selected for this Project.

Table 19.2 – Analyst SC6 Price Forecasts and Selected Average Long-Term SC6 (US$ per tonne)

Source	Product	Incoterms	2025	2026	2027	2028	2029	2030	2031	2032	2034	Long-Term
SC Insights	SC6	CIF China	1,150	1,450	1,900	2,400	2,800	3,200	2,487	1,734	1,315	1,210
Macquarie	SC6	CIF China	814	878	1,140	1,451	1,467					1,430
UBS	SC6	CIF China	800	850	1,000	1,200	1,400					1,540
Morgan Stanley	SC6	CIF China	890	1,152	1,235	1,283	1,330	1,330	1,425	1,543	1,573	1,712
Average[1]												**1,475**

Note:
1 The average long-term price has been rounded to the nearest multiple of US$25.

Figure 19.13 – Analyst SC6 Price Forecasts (2025-2034 and Long-Term)



Source: SC Insights, 2024, Consensus Economics, 2025, Anand & Sinha, 2025

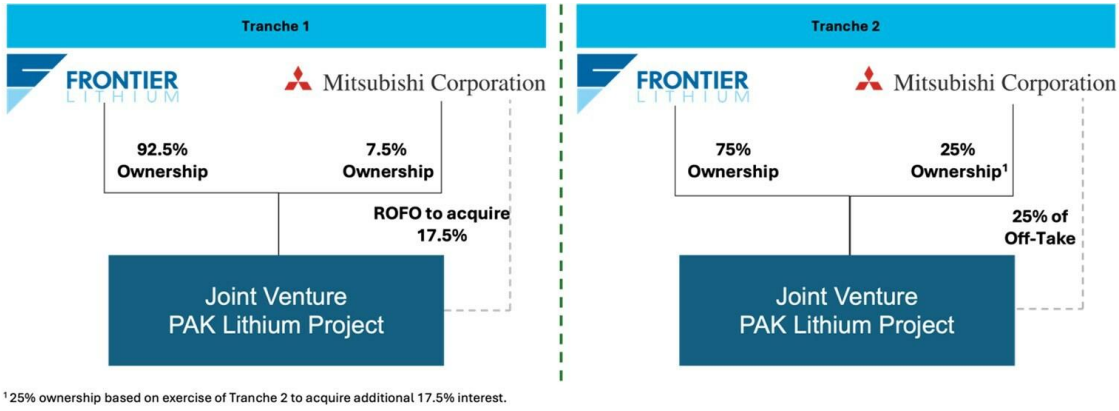
19.6 Contracts and Off-Takes

There are no material contracts in place at the time of this Report for the sale of SC6 by Frontier. However, Frontier has entered into a joint venture (JV) agreement with Mitsubishi Corporation (Mitsubishi) for the PAK Lithium mine and a planned lithium chemicals conversion facility.

Mitsubishi entered into the JV agreement with Frontier Lithium Inc. in March 2024 to acquire an initial 7.5% interest in the PAK Lithium Project mine and planned lithium chemicals conversion facility for CA$25 M (Tranche 1) (Frontier, 2024). Upon completion of the FS for the Project, Mitsubishi will have the right to purchase an additional 17.5% interest in the JV to bring its total share to 25% (Tranche 2). The Tranche 2 purchase will be at a price based on the net Project value as determined in the FS. The completion of Tranche 2 is contingent upon FS results and certain other conditions, including the receipt of the necessary material permits for the mine. Under this agreement, Mitsubishi shall have the right to acquire a portion of the total production from the conversion plant equal to their proportionate interest in the Project. Offtake rights will be formalized through an offtake agreement post Final Investment Decision (FID).

Mitsubishi will also work closely with Frontier in arranging project financing. Frontier will serve as the manager of the JV and operator of the Project. A high-level overview of the transaction is provided in Figure 19.14.

Figure 19.14 – Overview of the Frontier-Mitsubishi JV Agreement



[1] 25% ownership based on exercise of Tranche 2 to acquire additional 17.5% interest.

Source: Frontier, 2024

20 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

Collection of environmental data for the proposed *Mine Site* was initiated in 2015/16 and refocussed in 2022. Data collection will be ongoing as the *Mine Site* advances design (i.e., mine operations, concentrator plant, and ancillary infrastructure).

Frontier has also purchased the Knox Camp infrastructure located approximately 7.5 km southwest of the *Mine Site.* The camp in its existing location was intended as a temporary exploration camp, with the future use of the camp to support construction activities until the on-site operations camp is available. Permits for this camp will be amended, or new authorizations obtained, as needed, with the required engagement and consultation.

An all-season road into the region has been advanced with support of the regional Indigenous communities for the last 20 years. The Berens Bridge and Road Project, the first phase of the all-season road, was led by Whitefeather Forest Community Resource Management Authority (WFCRMA) and Pikangikum First Nation. It was funded by the federal and provincial governments with construction scheduled to start in 2025. The second phase of the all-season road passing through the Whitefeather Forest, led by WFCRMA, is engineered, permitted and ready for construction. An extension to that road, the third phase, is being planned by Frontier. The federal Critical Minerals Infrastructure Fund announced funding in 2024 for Frontier to begin this work and environmental studies and consultation with Indigenous communities are currently underway. Frontier will use the all-season road to transport the concentrate to a lithium conversion plant in Thunder Bay.

Frontier has taken an active role in communicating and engaging with the local communities. The company currently has exploration agreements signed with the four Indigenous communities surrounding the *Mine Site* and, together, the Indigenous communities have a memorandum of understanding agreeing to share information.

20.1 Environmental Studies and Issues

Frontier initiated environmental studies in 2015, during the exploration program. In 2022, after building a team of subject matter experts, Frontier developed a comprehensive environmental program and revisited the work plan for data collection which continued from 2022 through 2024. Environmental monitoring at the *Mine Site* is ongoing.

The environmental studies allow for the characterization of the biophysical and socio-economic environment prior to development. In addition, they can be used as a basis for the prediction of potential environmental impacts and appropriate mitigation can be incorporated into the development. Environmental study findings to date are described in further detail in this section.

20.1.1 SURFACE WATER

The proposed Mine facilities are located approximately 9 km west of Whiteloon Lake within the Cellist Lake-Flanagan River Quaternary Watershed. From the Cellist Lake-Flanagan River Quaternary Watershed, the Flanagan River drains north through Whiteloon Lake, Cellist Lake, and Northwind Lake before discharging into Sandy Lake. From Sandy Lake, the flows continue north via the Severn River travelling more than 525 km until eventually reaching Hudson's Bay.

Water Survey of Canada (WSC) stations at two separate locations were used to characterize and prorate flows for the *Mine Site*: I) Flanagan River at Outlet of Spirit Lake (WSC: 04CA005; Flanagan River); and ii) Berens River above Berens Lake (WSC: 05RC001; Berens River). Between 2012 and 2021, the mean annual streamflow was 17.4 m^3/s and the mean annual water yield was 300 mm at the Flanagan River WSC station (Minnow 2024a). At the Berens River WSC station, between 1980 and 2021, the mean annual streamflow was 49.1 m^3/s and the mean annual water yield was 270 mm. Based on the data from the WSC stations, the mean annual runoff coefficients (i.e., the ratio of mean annual water yield to mean annual precipitation) were 0.47 for the Flanagan River watershed and 0.41 for the Berens River watershed.

Year 2023 marked the lowest streamflow year on record for both WSC stations. The mean annual streamflow for the Flanagan River in 2023 was 7.0 m^3/s and the mean annual water yield was 120 mm. Concurrently, the mean annual streamflow for the Berens River was 18.0 m^3/s and the mean annual water yield was 100 mm. Runoff coefficients in 2023 ranged between 0.22 and 0.30 for the Flanagan River watershed, and between 0.19 and 0.25 for the Berens River watershed.

The hydrometric monitoring program for the *Mine Site* is ongoing and will continue to collect staff gauge and manual flow measurements with the aim of generating stage-discharge relationships (i.e., rating curves) for each hydrometric monitoring station.

Studies to characterize the background surface water quality surrounding the *Mine Site* have been ongoing since 2015 (Minnow, 2024b) Surface water quality data were screened against the Ontario Provincial Water Quality Objectives (PWQOs) and any concentrations that were observed to be outside the PWQO were flagged. Parameters that were identified as having values above the PWQOs in at least one sample included field pH, field dissolved oxygen, total phosphorus, dissolved aluminium, total arsenic, total boron, total cadmium, total chromium, total cobalt, total copper, total iron, total lead, total silver, total uranium, total vanadium, and total zinc. Most of the collected 2023 surface water quality data were consistent with observations made during historical monitoring events, however, measured concentrations of total copper and total phosphorous which were above PWQO values were new to the dataset during the 2023 monitoring period. Generally, the majority of the observed exceedances were observed at monitoring stations located within Spark Creek, Unnamed Waterbody 1, and the Flanagan River at the outlet of Tallrice Lake. These elevated concentrations of metals are naturally occurring and reflect background conditions that are

influenced by interactions with mineralized sediments and outcropping bedrock as surface water flows through the watercourses and lakes throughout the *Mine Site*.

20.1.2 GROUNDWATER

Collection of environmental data for the *Mine Site* has been ongoing since 2016, although sampling had been sporadic in the earlier parts of the program. Regular monitoring was initiated in 2021/2022.

Groundwater is inferred to mimic topography, recharging from infiltration of precipitation at higher elevations, discharging to lower lying surface water features (SLR, 2024a). Groundwater was observed to respond to precipitation events, with a slight lag time, and artesian conditions are also noted in some locations, particularly in area of topographical lows. Groundwater is inferred to flow through the low-lying areas in the area of the proposed Tailings Management Facility (TMF), ultimately reporting to Pakeagama Lake. In the area of the proposed PAK open pit and Mine Rock Stockpile, groundwater flow is south to Pakeagama Lake. Groundwater flow in overburden and bedrock in the area of the proposed Spark Pit and Mine Rock Area was assessed in 2024 following the installation of new monitoring wells (SLR, 2025, in preparation). Overburden and bedrock groundwater flow in the vicinity of the proposed Spark Open Pit and Mine Rock Stockpile is interpreted to flow in the direction of decreasing topography in a westerly direction towards an unnamed waterbody.

Groundwater quality (SLR, 2024a) suggests that concentrations of several metals including aluminum, arsenic, boron, cadmium, cobalt, copper, iron, lead, nickel, phosphorus, silver, thallium, tungsten, uranium, vanadium, zinc and zirconium exceeded either the PWQOs, the Ontario Drinking Water Quality Standards and/or the Canadian Drinking Water Quality Standards. Elevated concentrations of these parameters are reflective of the natural mineralization and geochemical process of the area.

20.1.3 ATMOSPHERIC ENVIRONMENT

The regional ambient monitoring data was collected for $PM_{2.5}$ and NO_2 from two (2) National Air Pollution Surveillance (NAPS) Program stations (SLR, 2023). These locations included stations in Winnipeg, MB and Thunder Bay, ON for a data period from 2016-2020. $PM_{2.5}$ and NO_2 were selected as the most representative of ambient conditions as they relate to human health for overall emissions of dust and transportation-related combustion emissions. The data from stations nearest to the *Mine Site* were analyzed and it was determined that the measured data met the Ambient Air Quality Criteria (AAQC) and Canadian Ambient Air Quality Standards (CAAQS) for the period from 2016 to 2020. The NAPS monitoring data was generally consistent with what would be expected for a remote location in Northern Ontario. Results for $PM_{2.5}$ and NO_2 were typically measuring low, although there were some spikes of readings which may have been influenced by local wildfires.

20.1.4 TERRESTRIAL ENVIRONMENT

Data collection was initiated in 2017/18 and refocussed in 2022/24 (SLR, 2024b). Based on the cumulative data collection to date, terrestrial habitat is mostly a mix of typical boreal forest of the 2W Ecoregion. Habitat is represented by relatively dense coniferous vegetation (e.g., balsam fir [*Abies balsamea*], jack pine [*Pinus banksiana*], spruce [*Picea* sp.]) forest, and low-lying treed wetlands intermixed with varying percentages of birch (*Betula* sp.) and aspen/poplar (*Populus* sp.) hardwood forest.

Three (3) Species of Conservation Concern (SCC) plants (SLR, 2024b) were observed in 2023 including siberian yarrow (*Achillea alpina*) (Critically imperiled, S1 in Ontario) and Vasey's rush (*Juncus vaseyi*) (Vulnerable, S3 in Ontario) located west of the *Mine Site* area in the central portion of the site, and American parsley fern (*Cryptogramma acrostichoides*) (Imperiled, S2 in Ontario) located on outcrops across the *Mine Site*.

Wetlands occur in association with watercourses (streams and hydrological connections) and riparian zones of lakes. Peatlands, cliffs, and other communities make up a very small proportion of the *Mine Site*.

Notably, the area has been historically impacted by wildfires with forests and soils visually scarred and stripped, and regeneration (early succession) occurring. Areas not impacted by forest fires are generally mature forests (i.e., trees and forest communities are mature and continuous).

In general, bird species observed during the field surveys were typical of the boreal forest ecoregion. Avian SCC (i.e., species provincially or federally designated, those of regional interest species provincially or federally designated, and those of regional interest) identified were: Common Nighthawk (*Chordeiles minor*) (Special Concern); Barn Swallow (*Hirundo rustica*) (Threatened); Rusty Blackbird (*Euphagus carolinus*) (Special Concern); American White Pelican (*Pelecanus erythrorhynchos*) (Threatened); and Red-necked Grebe (*Podiceps grisegena*) (S3). Bald Eagle (*Haliaeetus leucocephalus*) nests were recorded within 500 m of riparian areas (interconnecting smaller waterbodies) of Pakeagama, Duckling, and Tallrice Lakes and in proximity to the early exploration camp and the proposed Spark open pit.

Mammals observed were also typical of the boreal forest with moose (*Alces alces*) and bear (*Ursus sp.*) encountered and observed frequently.

The 2022 terrestrial field studies focused on identifying potential bat hibernation habitat (e.g., rock cliffs, crevasses). One area within the *Mine Site* area was identified with hibernation potential. While bats were observed, they were in limited numbers (under 10 individual observations) suggesting hibernation is unlikely to occur. Monitoring programs continued in 2023. Bat species identified within the *Mine Site* area include (SLR, 2024b): big brown bat (*Eptesicus fuscus*), hoary bat (*Lasiurus*

cinereus), silver–haired bat (*Lasionycteris noctivagans*), northern myotis (*Myotis septentrionalis*), little brown myotis (*Myotis lucifugus*), and eastern red bat (*Lasiurus borealis*).

Mammal SCC (SLR, 2024b) identified included caribou (*Rangifer tarandus*), wolverine (*Gulo gulo*), little brown bat (*Myotis lucifugus*) and northern myotis (*Myotis septentrionalis*). All of the species identified are listed provincially as Endangered and are located throughout the study area.

Focussed surveys have been completed in 2023 for wolverine and caribou including aerial surveys (NBS, 2023a) and ground-based surveys to identify potential nursery habitat (NBS, 2023b). Ongoing monitoring with trail cameras continued into 2024. Aerial surveys were completed within a 20 km x 20 km area centred on the *Mine Site*. Wolverine tracks were observed at three (3) widely scattered locations and caribou tracks, cratering, and slushing were observed at multiple locations, with the closest approximately 3 km northeast of the *Mine Site*. A small number of moose and wolves were also observed, with tracks widespread throughout the area. Sixteen (16) bald eagle nests, as well as several stick nests of other species were observed, none within 1 km of the *Mine Site*.

Thirty-eight (38) surveys were conducted at islands, peninsulas, and shorelines within approximately 10 km of the *Mine Site* to identify potential boreal caribou nursery habitat. No sign of evidence of calving or nursery use was observed; however, caribou pellets and potential tracks were observed with the closest within approximately 1 km of the *Mine Site*.

20.1.5 AQUATIC ENVIRONMENT

Data collection was initiated in 2017/18 and refocussed in 2022 and continued through 2023 and 2024. In general, the *Mine Site* area consists of small to moderate sized boreal waterbodies, watercourses, wetlands and peat bogs (Minnow, 2024c). Most of the shoreline habitat is populated with dense coniferous or mixed-wood forest and abundant floating sphagnum moss wetlands. Common species include northern pike (*Esox lucius*), yellow perch (*Perca flavescens*), white sucker (*Catostomus commersonii*), walleye (*Sander vitreus*), burbot (*Lota lota*), brook stickleback (*Culaea inconstans*), and spottail shiner (*Notropis hudsonius*). Fish species present are common species found in the boreal forest ecoregion. There are no aquatic Species of Conservation Concern likely to occur in the *Mine Site* area.

Three (3) general fish habitat types were observed in watercourses, including defined channels that were continuously wetted during the time of survey, wetland habitats, and discontinuously wetted areas that were disconnected from each other and frequently had no defined channel. Often, discontinuous and non-defined channels were observed in the upper reaches of the surveyed watercourses, serving as indicators of the upstream limits of fish habitat at the time of the surveys. Where the channels were defined, the surveyed watercourses were generally composed of slow, shallow glides with sand and silt bottoms and variable amounts of cover provided by instream and overhanging vegetation, and woody debris.

Surface and bottom waters in all waterbodies were well oxygenated (Minnow, 2024c) at *in situ* water quality sampling locations as well as throughout the water column at vertical profile sampling stations, generally meeting the dissolved oxygen PWQOs for the protection of warm and cold water biota. Though dissolved oxygen decreased slightly near the bottom in the deepest basins of most of the sampled waterbodies, only the deepest measurement at Unnamed Waterbody 3 was low enough to suggest hypoxic conditions (i.e., 2.56 mg/L). Water pH in 2023 was largely circumneutral throughout the water column of the assessed waterbodies (range = 6.2 to 8.0) and in most cases was within the Ontario PWQO range of 6.5 to 8.5 except for the deepest pH measurement in the vertical profile at Unnamed Waterbody 3 (6.20) and the bottom measurement at *in situ* sampling station DUCL5 at Duckling Lake (6.41).

Several metals in the sediments of the sampled waterbodies exceeded the lowest effect level Ontario Provincial Sediment Quality Guidelines (PSQG Lowest Effect Level [LEL]) but were mostly below severe effect levels (PSQG Severe Effect Level [SEL]; OMOE 1993). Overall, arsenic, chromium, copper, iron, manganese, nickel, phosphorus, and selenium were above the PSQG LEL in one or more waterbodies in sediment core and grab samples, with only rare exceedances above the PSQG SEL in core samples (i.e., iron in Whiteloon Lake and phosphorus in Unnamed Waterbody 7). Given that the development of the PSQG was based on data from the Great Lakes basin, which tends to have a substantially lower natural content of many metals relative to sediment in Canadian Shield lakes (Prairie and McKee, 1994), sediment metal concentrations in the study waterbodies are within natural background concentrations of sediment metals, particularly in the mineralized area of the Canadian Shield, which can often exceed LELs.

20.1.6 Archaeology, Cultural and Heritage Resources

A Stage 1 archaeological assessment was completed to review available information about the known and potential archaeological resources at the *Mine Site*. Based on the results of the Stage 1 archaeological assessment (Woodland Heritage Northwest, 2023) it was determined that there were areas where Stage 2 test pit surveys should take place at the *Mine Site*. This work was completed in 2024 (Woodland Heritage Northwest, in preparation) and no artifacts were found in the areas surveyed.

20.1.7 Environmental Sensitivities and Mitigation

Work to date for the *Mine Site* has not identified any biophysical or cultural heritage values that pose a material constraint to development. There are no known environmental liabilities at the *Mine Site* property.

Mitigation measures are inherent in the design of the *Mine Site* to avoid or minimize adverse effects on the environment to the extent practical. Emphasis has been placed on minimizing footprint and disturbed area, implement site wide runoff water collection, maximizing water recycling where

practical, and reducing fugitive dust and noise to minimize the potential for impacts including those that could affect traditional uses and Aboriginal treaty rights.

20.2 Environmental 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 federal and provincial agencies. This section summarizes permitting requirements for the *Mine Site*.

20.2.1 Impact Assessment/Environmental 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:

- 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.

This was confirmed by the Canadian Environmental Assessment Agency, now the Impact Assessment Agency, (correspondence September 19, 2018, and September 24, 2018) that concluded that the proposed mine operations do not include Designated Activities that require a federal impact assessment.

The *Mine Site* will need to complete the provincial Class EA processes listed below:

- Class EA for Resource Stewardship and Facility Development, in accordance with the Ministry of Natural Resources (MNR, 2024), in advance of issuing permits for timber harvesting, water crossings, shoreline modifications, online dikes and aggregate pit development.
- Class EA for Transmission Facilities (Hydro One 2024) is required for the 115 kV transformer station at the *Mine Site* to connect to the provincial grid via the Wataay Power Line (https://www.wataypower.ca/). The Notice of Commencement was submitted to the Ministry of Environment, Conservation and Parks (MECP) on December 4, 2024 to initiate this EA process.
- Environmental Screening Process (ESP) for Electricity Projects is required under Ontario O. Reg. 50/24 of the *Ontario Environmental Assessment Act* for the use of diesel generators (>1 MW and <5 MW cumulative capacity). The *Mine Site* will need less than 5 MW of diesel-fired generation during the construction phase until the grid connection is established. The Notice of Commencement was submitted to the MECP on December 4, 2024 to initiate this EA process.

20.2.2 PERMIT REQUIREMENTS

The provincial and federal government permits that are anticipated to be required for the *Mine Site* are listed in Table 20.1. Frontier, or their designated consultant, will consult with government agencies as planning progresses to confirm permit requirements. No municipal authorizations, permits or licenses are needed for the *Mine Site* as it is located outside municipal boundaries and jurisdiction.

Table 20.1 – Potential Permits for Mine, Concentrator Plant and Ancillary Infrastructure

Permit	Responsible Agency	Applicable Act	Description
Federal			
Harmful Alteration, Disruption or Destruction (HADD) of Fish Habitat	Fisheries and Oceans Canada (DFO)	*Fisheries Act*	Effects of mine dewatering to fish-bearing surface water features under evaluation. Qualified consultant has been engaged to develop mitigation/offset measures to compensate for HADD.
Schedule 2 Listing, *Metal and Diamond Mine Effluent Regulations*	Environment & Climate Change Canada (ECCC)	*Fisheries Act*	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.
Environmental Emergency Response Plan		*Environmental Protection Act*	Emergency response and communications.
Migratory Birds		*Migratory Birds Convention Act*	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.
Works in Navigable Waters	Transport Canada (TC)	*Canadian Navigable Waters Act*	Authorizations for crossings work within navigable waterways and changes/removal of Unnamed Waterbody 1.
Transportation of Dangerous Goods		*Transportation of Dangerous Goods Act*	There are no unique dangerous goods used at the *Mine Site*. The *Mine Site* also uses conventional fuels (diesel, gasoline, natural gas, propane) and commercially available welding gases.
Aeronautic Approvals		*Aeronautics Act*	Assessment Form for Obstruction Assessment, such as for transmission lines.
NAVCANADA		*Aeronautics Act*	Land Use Proposal Approval for Aeronautic obstructions, such as transmission lines.

Permit	Responsible Agency	Applicable Act	Description
Federal (cont'd)			
Manufacturing, storage, and transportation of explosives	Natural Resources Canada (NRCan)	*Explosives Act*	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.
Radioisotope License	Canadian Nuclear Safety Commission (CNSC)	*Nuclear Safety Control Act*	Authorization for nuclear density gauges / X-ray analyzer.
Provincial			
Permit to Take Water (PTTW)	Ministry of Environment, Conservation & Parks (MECP)	*Ontario Water Resources Act*	Freshwater taking of more than 50,000 L/day.
			Mine dewatering of more than 50,000 L/day. Qualified consultant has been engaged to develop water management plan including maximizing recycling and designed to extreme weather events.
			Other areas (construction minor takings during construction for dewatering etc.).
Environmental Compliance Approval (ECA)		*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)
			Industrial 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. Qualified consultants have been engaged to develop predictive water models to inform mitigation measures.
			Air emissions and noise including, but not limited to, concentrator plant processes, assay lab emissions, on-site generators, fugitive dust, mining activities and on-site works. Qualified consultant has been engaged to develop predictive air/noise model to inform mitigation measures.
			Waste Disposal Site, for operation of a small (<40,000 m3) landfill for disposal of solid, non-hazardous waste.

Permit	Responsible Agency	Applicable Act	Description
Provincial (cont'd)			
Species at Risk Overall Benefits Permit	MECP	*Endangered Species Act*	Control of activities related to Species at Risk to be fully defined in consultation with Ministry Qualified consultant has been engaged to inform mitigation measures.
Drinking Water Works Permit		*Safe Drinking Water Act*	Drinking water system for the supply of drinking water on-site.
Work Permit / Letter of Authority	Ministry of Natural Resources (MNR)	*Lakes and Rivers Improvement Act, Public Lands Act*	Upgrade of road on Crown land (outside surface rights leases) and new water crossings over Crown managed riverbeds.
Location Approval and Plans & Specifications Approval			Online dikes for Tailings Management Facility and seepage collection dykes.
Land Use Permit / Sale of Crown Land / License of Occupation (lake/river 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.
Aggregate Resource License		*Aggregate Resource Act*	Extraction of sand and gravel (above water table).
Closure Plan	Ministry of Mines (MINES)	*Mining Act*	For construction/production and eventual decommissioning of the *Mine Site*. Notice of Project change and Plan of Consultation has been submitted to Ministry.
Mining Leases			Required land tenure to allow mining and development.
Entrance Permit	Ministry of Transportation (MTO)	*Public Transportation and Highway Improvement Act; Highway Traffic Act*	If upgrades are required to existing entrance points onto provincial highways, an Entrance Permit will be required.
Clearance Letter	Ministry of Citizenship & Multiculturalism (MCM)	*Heritage Act*	Confirmation that appropriate archeological studies and mitigation, if required, have been completed for the *Mine Site*.

20.3 Social and Community Aspects

The *Mine Site* is in northwestern Ontario approximately 175 km north of Red Lake, in a region traditionally inhabited by the Oji-Cree people. It is located on the traditional territories of North Spirit Lake First Nation and Deer Lake First Nation. North Spirit Lake community of approximately 275 people is located about 26 km southeast of the *Mine Site*. The Deer Lake community of approximately 1,250 people is about 45 km northwest of the *Mine Site*. This area has historically been used by them and continues to be occasionally used by Sandy Lake First Nation and Keewaywin First Nation. The Sandy Lake community of approximately 3,000 people is located about 50 km north of the *Mine Site* and the Keewaywin community of approximately 400 people is about 53 km northeast of the *Mine Site*.

Consistent with its Indigenous Principles (www.frontierlithium.com/sustainability), Frontier recognizes the importance of developing and maintaining strong relationships with Indigenous communities advanced through shared values of honesty, respect, and open communication. During Frontier's 14 years of active development in the area, efforts have been focussed on building relationships with the proximal Indigenous communities of Deer Lake, North Spirit Lake, Sandy Lake, and Keewaywin.

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 *Mine Site* as part of the environmental impact assessment and approvals process.

The Ministry of Mines has provided guidance to Frontier regarding the consultation that is required for the *Mine Site* and the aspects of the consultation process that will be delegated to Frontier. Frontier is developing consultation plans 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. A draft Consultation Framework has been submitted to the Indigenous communities for their review and comment.

Frontier has communicated and consulted with proximal Indigenous communities during the exploration phase of mining. This has included meetings with Chiefs and councils, tours of the proposed *Mine Site*, information sharing, and community engagement sessions. Frontier has signed Exploration Agreements with each of the four (4) Indigenous communities of Deer Lake, North Spirit Lake, Sandy Lake, and Keewaywin. In addition, Frontier has regularly recruited, hired, and has provided training to community members for the current activities on-site. Frontier engages companies that joint venture with proximal Indigenous communities and has funded annual educational bursaries to students in each of the four Indigenous communities and to students from First Nation communities within the region.

20.3.2 PUBLIC AND GOVERNMENT CONSULTATION

Consultation with the local and regional communities has commenced and will continue as the *Mine Site* planning and design 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 Plan

Through the *Building More Mines Act*, 2023, (BMMA), Ontario has made changes to the *Mining Act* and created a new regulation, Ontario Regulation 35/24 (Rehabilitation of Lands) which replaced Ontario Regulation 240/00 (Advanced Exploration, Mine Development and Closure under Part VII of the Act) as of April 1, 2024 (MINES, 2024a).

The *Mine Site* (mine, concentrator plant, and ancillary infrastructure) is subject to these Regulations and a closure plan will be developed that meet requirements of O.Reg. 35/24 and is consistent with any traditional land uses and occupancy by Indigenous communities. The Closure Plan must also be amended 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 MINES. Financial assurance must be submitted before a closure plan is approved, in advance of the beginning of mining activities. A preliminary cost estimate based on a conceptual closure plan is included in Section 21.1.

General preliminary concepts of the closure plan for the mine, concentrator plant, and ancillary infrastructure are summarized below:

- Buildings, infrastructure, and equipment that are not required for water management will be removed and salvaged, recycled or disposed. Contractor-owned items and leased items will be removed by the respective owners.
- Any contaminated soil will be managed in accordance with MECP requirements.
- Growth media from a local overburden/soil stockpiles will be placed over the site and the area will be re-vegetated to a state consistent with the proportions of vegetation to rock exposure seen at the site prior to *Mine Site* related disturbance. Revegetation will use suitable seed mixes and/ or planted 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 filled with water. Boulder fencing will be constructed along any high walls.
- Re-contouring of the waste rock piles, and other embankments, will be implemented as needed to achieve overall embankment slopes that are adequate for long-term physical stability at

closure. Available stockpiled overburden/soil will be used to cover and vegetate disturbed areas as practical to conform to the local landscape and minimize water infiltration.

- Waste rock types that pose a chemical stability risk will be managed in accordance with the Adaptive Rock Management Plan that will be developed and implemented as part of operations and the closure plan.
- The TMF and Reclaim Pond dams are designed with overall embankment slopes that are adequate for long-term physical stability at closure.
- The TMF tailings beach will be appropriately sloped to prevent erosion and to manage surface drainage with the intent of reducing infiltration into the tailings. Once contoured the surface will be covered and vegetated to ensure long-term physical and chemical stability.
- Perimeter ditches will be left in place and protected from erosion, as needed. Seepage collection systems will be decommissioned once drainage meets water quality criteria.
- Final removal of power distribution and water management infrastructure will occur once active water management is no longer required.
- Roads that are not requested to remain in place by the MNR, an Indigenous community or a third party, will be removed in accordance with the MNR (1995) and any supplemental guidance from the MNR, with financial assurance provided in the closure plan.

Frontier is committed to ongoing engagement with Indigenous communities on closure plan strategies and concepts and will develop a Mine Closure Plan that is consistent with regulatory requirements.

21 CAPITAL AND OPERATING COSTS

21.1 Capital Cost Estimate

The capital cost estimate (Capex) consists of direct capital costs for the mine, process plant, and infrastructure, and indirect costs for project construction management services. DRA developed the Capex for the mine, process plant, and infrastructure for the Project scope described in this Report. DRA has consolidated external sources, including those listed in Table 21.1.

Table 21.1 – Other Capex Responsibilities

Sources	Scope
SLR	Prepared the construction quantities for the TMF, Water Management, Closure and Rehabilitation Cost. DRA then applied rates to complete the Capex
Frontier	Provided the Owner's General and Administration Costs, Taxes and Duties

The Capex is considered to be within the accuracy range -15%/+20% and was prepared in accordance with the guidelines of the Association for the Advancement of Cost Engineering (AACE) Class 3 estimating standard.

All Capex costs are expressed in Canadian Dollars (CA$ or CAD) and are based on Q1 2025 pricing.

21.1.1 CAPITAL COST SUMMARY

The Capex consists of direct and indirect capital costs (including contingency) and Owner's costs. Table 21.2 presents a summary of the estimated capital costs.

Table 21.2 – Capex Summary – (CA$ '000)

WBS	WBS Description	Cost
Direct Costs		
1000	Mining	26,326
3000	Processing	252,773
5000	Site Infrastructure	240,210
7000	Tailings Management Facility	19,526
Indirect Costs		
9000	Indirect Costs	328,405
Owner's Cost		
8000	Owner's Costs	75,993
	TOTAL	**943,233**

Totals may not add-up precisely due to rounding.

21.1.2 SUSTAINING CAPITAL

Sustaining capital includes costs associated with equipment replacements, fleet upgrades, facility expansions, and ongoing maintenance necessary to maintain operations throughout the mine life. The estimated total is CA$137.0 million, as summarized in Table 21.3.

Table 21.3 – Sustaining Capital Estimate Summary

Description	LOM ($ '000)
O/P – Mobile Fleet	78,094
G&A – Equipment Replacement	25,399
TMF – Expansion	33,033
TOTAL	**136,526**

21.1.3 SITE CLOSURE AND RECLAMATION

The total closure cost for the Project is estimated at CA$79.1 M (including CA$59.8 M of closure capital and CA$19.3 M of carrying costs of closure bonds). This estimate was prepared by SLR (closure costs) and Frontier (bond and carrying costs), and includes decommissioning and reclamation of the Project site, site water management, geotechnical and environmental monitoring programs.

21.1.4 ASSUMPTIONS AND EXCLUSIONS

The Capex is based on the Project obtaining all relevant permits in a timely manner to meet the Project schedule.

The Capex reflects an EPCM type execution model and is based on the assumption that construction contracts will be attributed on the basis of a competitive bidding with qualified contractors.

The availability of qualified contractors and skilled workers has been discussed with national-scale construction firms. While the local numbers are limited, the firms are not concerned at a provincial or national level. It is also expected, and costed, that significant site management, contract administration, quality control and safety management will be required from the contractors by the appointed EPCM contractor.

The following items are currently excluded from the Capex and are considered either not necessary or provided by others or further defined in the financial model where and if applicable.

General:

- Delays caused by local community public relations.
- Cost impacts resulting from “force majeure” and/or inclement weather.
- Allowance for schedule acceleration or deceleration.
- Modifications to plant following start-up and commissioning other than costs incurred in sustaining capital.
- Scope or design changes.
- 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.

Earthworks and General Site:

- Remediation of contaminated soil.
- Removal and disposal of hazardous materials.
- Provisions for adverse soil conditions beyond those based on available site data or assumed.

Financial:

- Provision for inflation, escalation, and interests incurred during construction.
- Capitalized Interest.
- Project financing costs.
- Fluctuations to nominated currency exchange rates at any time in the Project life.
- All duties and taxes. These costs are considered in the economic analysis.

21.1.5 EXCHANGE RATES

The base currency for this Report is Canadian Dollars (CA$ or CAD). For information purposes, the exchange rates used for all work when quotations were received in foreign currencies are in Table 21.4.

Table 21.4 – Currency Exchange Rates

Code	Description	Exchange Rate
US$, USD	United States Dollars	1.37
EUR	European Euro	1.36

21.1.6 ESTIMATE STRUCTURE

The Capex is structured into the following major categories:

- **Direct Costs** (expenditures for supply of equipment, materials and site construction labour).
- **Indirect Costs** (expenditures for temporary construction facilities, transport of equipment / materials, engineering / procurement services, and supervision and commissioning of works).
- **Owner's Costs**.

21.1.7 ESTIMATION METHODOLOGY

The Capex was assembled in a spreadsheet using the following general methods of calculation.

21.1.7.1 Quantity Development

Quantities were developed based on design quantity take-offs and supplemented by estimates or allowances where needed. The following engineering documents were produced to complete quantity estimates:

- Site Plot Plans and Layout Drawings.
- Major Mechanical and Electrical Equipment Lists.
- Process Flow Diagrams and Preliminary P&IDs.
- Electrical Single Line Diagrams.
- Numerous Engineering Sketches.

21.1.7.2 Civil and Bulk Earthworks

DRA developed Material Take-Off (MTO) quantities for civil works using the following methodology. All available geotechnical drilling information was considered for ground conditions at the site. A percentage of rock excavation was applied to the MTOs for unexpected depth of encountered rock. The civil work assumes levelling appropriate areas and does not include detailed excavation and backfill for concrete foundations.

- Quantities of clearing and grubbing were established in m² from the site plot plans.
- Quantities for mass earthworks were developed using topographically integrated software to determine accurate volumes.
- Earthwork estimates were calculated using neat quantities, with no allowance for swell or compaction of materials.
- A cross section of in-plant roads and layout drawings were used to develop road quantities.
- Appropriate drainage was considered.
- Rock excavation was considered for some areas.

- Piping for sanitary, fire water, potable and fresh waters was quantified with material take-offs and priced using rates from suppliers and fabricators of piping systems.
- No ground water level is assumed to be at the plant site or at any offsite location.
- Access roads, site services and deviation of existing above or U/G piping services.
- Allowance for disposal of excess excavated materials offsite is included in the estimate.
- Demolition scope is not included.

Civil and Earthworks Contractor indirect cost is estimated and provided by a contractor.

21.1.7.3 Concrete

DRA developed MTOs for concrete using the following methodology. The concrete work assumed detailed excavation, backfill and all concrete works, embedded steel, and concrete finishes.

- Concrete quantities were estimated using the Bill of Materials and Scope of Work for concrete works provided by engineering.
- 3D Model layouts generated during the FS were used to develop concrete quantities with input from the civil and structural design departments.
- Quantities were segregated into the following cast-in-place categories such as:
  - Structural foundation.
  - Equipment foundation.
  - Elevated slab.
  - Slab on grade.

The Contractor's indirect cost for concrete works is estimated and provided by a contractor.

21.1.7.4 Structural and Pre-Engineered Buildings

DRA developed MTOs for steelwork using the following methodology. The steelwork assumed building steel, support structures, platforms, handrailing, stairs, crane columns and rails.

- Steelworks quantities are estimated using engineered bills of materials for steelwork. Quantities for the process plant were estimated from engineered drawings, and include all steelwork and ancillary equipment (sheeting, grating, handrailing, kick flats, stair treads, etc.).
- Quantities are segregated into the following fabricated steel member categories:
  - Heavy Steel: > 60 kg/m.
  - Medium Steel: 30 – 60 kg/m.
  - Light Steel: 30 kg/m.
  - Miscellaneous metals.

- Bought out items: checker plate, grating, handrail, stairs, ladders, and floor deck.

The indirect costs for steelworks contractors are estimated and provided by a contractor.

21.1.7.5 Mechanical

The equipment scope for the Capex is defined by the Mechanical Equipment List. The costs of primary and secondary equipment are based on quotations from equipment contractors as well as firm price quotes from the Frontier Supply Chain.

Mechanical works include equipment, materials, and labour for the following:

- Major mechanical equipment.
- Equipment insulation.
- Installation construction materials.

Plate work quantities are estimated using information provided by engineering using drawings.

The pricing of the mechanical equipment was based on the receipt of two (2) to three (3) quotations from qualified equipment suppliers and fabricators.

Quotations were received from contractors for the installation of the mechanical equipment, piping and steel works.

21.1.7.6 Process Piping

The development of the piping quantities was based on the following methodology.

- The cost for Process plant piping is factored as a percentage of the mechanical equipment cost based on DRA's in-house data and experience from similar projects.
- Major overland pipelines were quantified with MTOs and priced using rates from suppliers and fabricators of piping systems.
- Bids for installation of major overland pipelines were provided by contractors and included indirect costs.

21.1.7.7 Electrical

Development of costs for electrical equipment (transformers, MCCs, switchgear, generators, etc.) was based on the Electrical Equipment List and those costs are included in the Capex as follows:

- Electrical Equipment List indicating size/capacity, power, along with single line diagrams were used estimate electrical equipment quantities.
- Bulk electrical raceway quantities were taken from the plot plan, equipment layouts and single line diagrams.

- Overhead lines were routed, and take-off lengths utilized along with in-house database cost factors from reference projects.
- Power and control cables were generated from the load list and average take-offs calculated.
- Budget quotations were obtained for major electrical equipment (MCC, transformers, etc.).
- Prices for electrical bulks such as tray, conduit and cables were received from local suppliers and local contractors.
- Indirect costs for electrical works packages were included with contractor pricing.

21.1.7.8 Instrumentation and Controls

The instrumentation and controls estimates were developed based on the following methodology.

- Cost for Process Instrumentation and Controls was factored as a percentage of mechanical equipment cost based on DRA's historical data and experience from similar projects.
- Cost for DCS was factored as a percentage of the mechanical equipment cost for process facilities areas only.
- Indirect cost for instrumentation & controls contractor was estimated as a percentage in the Capex.

21.1.8 DESIGN AND GROWTH ALLOWANCES

All quantities provided by Engineering and/or contractors were taken off as neat quantities. During the preparation of Capex, not all quantities are typically known, specific and measurable.

Thus, design growth allowances are:

- Considered as a "known unknown" requirement, when preparing the direct cost and more accurately reflect what the final design will require.
- Applied at the direct cost level, to compensate for the degree of engineering that is incomplete and subject to minor modifications.

Design growth allowances are added to compensate for known items not identified in the estimate line items.

On the other hand, contingency (WBS 9900) is typically included below the line, to include for the "unknown unknowns", and is typically a separate account. Design allowances are developed for currently identified scope and do not make provision for scope changes. Scope changes are specifically excluded and should be treated as variations to the capital cost of the project.

Allowances for bulk materials are applied to quantities and include growth on both labour and material.

Table 21.5 – Growth and Waste Allowances

Commodity	Allowance (on MTO)
Civil	10%
Concrete	10%
Steel	5% growth 10% connect
Mechanical and electrical equipment	None
Mechanical (ductwork, plate work)	10%
Piping	15%
Wire and Cable	10%

21.1.9 LABOUR BASIS

The calculation of labour hours for the Capex serves two purposes. Firstly, the hours are assigned to a particular unit of work to properly assign costs to that element. Secondly, the purpose is to determine the number of workers and associated staff required to complete the work.

Labour cost is the product of unit labour-hours and labour crew wage rates, by estimated quantity.

Installation labour costs are based on a 70-hour (7 x 10) work week and a rotation of two (2) weeks in and one (1) week out.

The crew rates for various disciplines were provided by a local contractor with recent experience in the region and already established on site.

The crew rates for the commodity disciplines reflect the price of contracted rates including:

- Mobilization and demobilization.
- Travel allowance.
- Training.
- Small tools and consumables.
- Safety supplies.
- Per diem.

A composite of crew rates is developed for major commodities including earthwork, structural, mechanical, electrical and others.

An assessment of local productivity was made on all-inclusive labour cost based on factors such as temperature, working calendar, worker's skill level, in plant movement, and site conditions. The productivity factor was then applied to the labour hours.

The productivity factors differ from region to region and encompass such factors as:

- Site location.
- Extended overtime.
- Type of contract.
- Access to work area.
- Height – scaffolding.
- Availability of skilled workers.
- Labour turnover.
- Inspection and 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.

21.1.9.1 Owner's Costs

Operational Readiness cost for the Project is prepared in detail.

The allowance for "Other Owner's Costs" above is estimated as 7.1% of direct Capex, and includes but is not limited to the following:

- Land acquisition and rights of way.
- Definition drilling, assaying and related reports and models.
- Owner's project administration team.

- Owner's pre-production and mine development.
- Health safety and security.
- Sunk costs.
- Process rights, royalties, license fees, and technology fees.
- Venture capital.
- Owner’s Project management team costs.
- Information technology and other technology expenses.
- 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 EPCM Contractor’s site construction office) including rent, communications, furniture and equipment, and office supplies.
- Performance bonds.
- Commissioning and start-up salaries and expenses.
- Training of plant operating personnel and training centre.
- First Nations and community affairs.
- Owner’s legal costs.
- Owner’s marketing costs.
- Currency hedging.
- Owner’s raw material consumption during commissioning.

21.1.9.2 Engineering and Procurement

The detailed engineering and procurement (EP) services estimate is based on DRA’s construction organization breakdown structure and rates by disciplines for PAK Lithium Project execution.

The EP cost includes all expenses incurred by the project management team while performing the necessary on-site services. These costs generally include, but are not limited to, the following:

- Project and Engineering Management.
- Mining, Geotechnical, and Process Engineering.
- Project Discipline Engineering and Design Personnel.
- Project Estimation.
- Project Controls Personnel.

- Procurement Services.
- Site Management.

21.1.9.3 Other Construction Indirect Costs

The construction indirect cost account represents the typical site construction management team and contractor's site area preparation, hook-ups, fencing, etc. The estimated Capex is based on:

- 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.

21.1.9.4 Vendor Representatives

Vendor representatives are needed to supervise installation of equipment and/or to conduct a checkout of the equipment prior to start-up as deemed necessary for performance warranties. Allowances for this are made for the installation and pre-commissioning periods.

The cost for Vendor representatives includes per diem (all day cost), plus incidental meal, accommodation and flights.

The number of Vendor representatives was determined by a review between construction, scheduling and estimating.

21.1.9.5 Freight

Freight and logistics costs were based on calculated in-house information and in all cases included within the material and equipment costs. In the absence of Contractor freight pricing the following was used for determining freight costs:

- Ocean freight (Europe): The cost for ocean freight including insurance and demurrage is factored as a percentage of overseas mechanical equipment cost based on DRA's historical data and experience.

- Land freight (Europe, USA, Canada): The cost for land transport is factored as a percentage of the mechanical equipment cost based on DRA's historical data and experience.

21.1.9.6 Capital Spares and Inventory

Capital spares and inventory include capital spares, operational spares, commissioning spares, and initial fills.

21.1.9.7 Temporary Construction Camp

Construction camp and catering services are estimated based on information provided by Frontier. They are based on the known operating expenses for the Knox camp over the past 18 months of operation. Rental units to expand the capacity over a short term are quoted from the camp supplier and include transportation, installation and removal.

21.1.9.8 Contingency

Contingency is calculated on an item-by-item basis, considering items that are quoted, estimated, or factored. Contingency is intended to cover items which are consolidated in the scope of work as described in this document, but which cannot be adequately defined at this time due to lack of accurate detailed design information. Contingency also covers uncertainty in the estimated quantities and unit prices for labour, equipment and materials contained within the scope of work.

Contingency should not be considered compensation for estimating inaccuracy, nor is it intended to cover costs due to potential scope changes, "Acts of God", labour strikes or disruptions outside the control of the project manager, fluctuations in currency or cost escalation beyond predicted rates.

Contingency is applied as follows:

- WBS Items estimated based on quotes – 7%.
- WBS Items estimated based on in-house information – 15%.
- WBS Items estimated based on historical information – 17%.

21.2 Operating Costs

21.2.1 Operating Cost – Summary

This section provides information on the estimated operating costs (Opex) of the Project and covers open pit, concentrator plant, TMF, mine services and G&A, and heating costs.

The total estimated Opex is based on:

- Mining life of 31 years.
- Concentrator designed for 30 years of operation.

- Spark ore processed from Year 1 until Year 30.
- PAK ore processed from Year 18 until Year 31.
- Concentrator to process the above ores individually and their blends (as per the LOM mine plan) into the chemical grade lithium spodumene concentrate.
- Total milled tonnes over the LOM of 31.1 million dry tonnes (27.2 million dry tonnes of Spark, and 3.9 million tonnes of PAK).

The total site Opex for mine and concentrator over the LOM is estimated to be $ 2,709 M as shown in Table 21.6. The Opex figures exclude any allowances for contingencies.

Table 21.6 – Total Operating Costs Over Life of Project

Description	LOM Opex (CA$ M)	Annual Opex (CA$ M/a)	Opex (CA$/t ore)	% of Total Opex
Mining	893	29.55	28.70	33.0
Processing	975	32.28	31.30	36.0
Power (Non-Process)	37	1.24	1.20	1.4
G&A	737	24.39	23.70	27.2
TMF	38	1.25	1.20	1.4
Heating	29	0.97	0.90	1.1
TOTAL	**2,709**	**89.69**	**87.00**	**100.0**

Note: The totals may not add due to rounding

21.2.2 Mining Operating Cost Estimate

The mining Opex is based on conventional open-pit mining methods, for the entire operation, except for drilling and blasting, being outsourced to a mining contractor.

The mining Opex was developed based on the project's mining plan and is calculated from first principles. Inputs are sourced from contractor quotations and historical data, including quoted costs and consumption rates for items such as fuel, lubricants, fluids, tires, undercarriage components, ground engaging tools (GET), machine parts, major machine components, as well as operating and maintenance labour.

Mining Opex items are estimated to average $6.14 per tonne of material mined over the LOM. The average mining unit cost per tonne mined translates to a unit cost of $28.68 per tonne ore (accounting for the stripping ratio).

A detailed breakdown of these costs is presented in Table 21.7.

Table 21.7 – Breakdown of Average LOM Mining Operating Costs*

Cost Area	LOM (CA$ '000)	Unit Cost (CA$/t mined)	Percentage of Total (%)
Drilling & Blasting	238,588	1.64	27
Loading	39,832	0.27	5
Hauling	140,718	0.97	16
Support Equipment	118,748	0.82	13
Labour	314,030	2.16	35
Mine General	40,818	0.28	4
Total Mining Operating Costs	**892,734**	**6.14**	**100**

Note: The totals may not add due to rounding
*excludes pre-production

21.2.3 PROCESSING OPERATING COST ESTIMATE

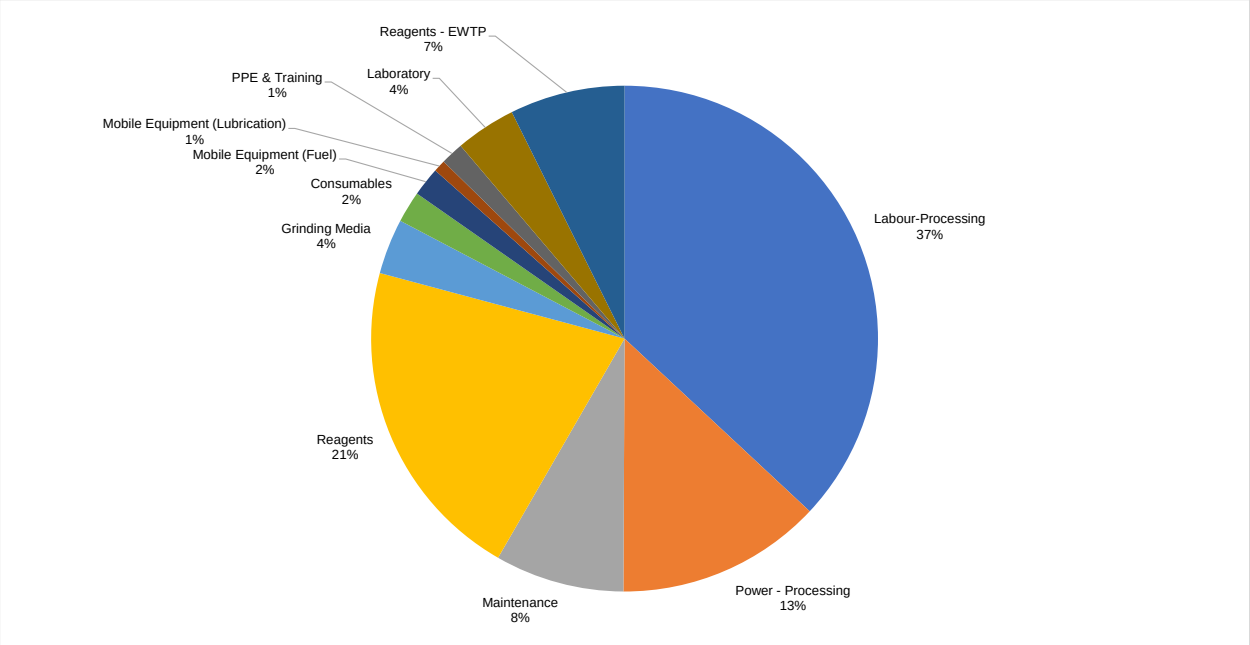
The process Opex over the LOM is estimated to be $975 M, as presented in Table 21.8 and illustrated Figure 21.1.

Table 21.8 – Processing Operating Costs - LOM Summary

Description	CA$ M/ a	CA$/t ore
Labour-Processing	12.10	11.70
Power - Processing	4.30	4.20
Maintenance	2.70	2.60
Reagents	6.50	6.30
Grinding Media	1.20	1.10
Consumables	0.70	0.60
Mobile Equipment (Fuel)	0.60	0.60
Mobile Equipment (Lubrication)	0.30	0.20
PPE & Training	0.50	0.50
Laboratory	1.30	1.20
Reagents - EWTP	2.40	2.30
TOTAL	**32.30**	**31.30**

The totals may not add due to rounding

Figure 21.1 – Processing Operating Costs – Pictorial Cost Breakdown



Processing Opex was derived from first principles and summarized in the categories shown below.

21.2.3.1 Concentrator Plant Labour

Labour cost is estimated based on the plant headcount prepared by Minopex and salary rates issued by Frontier during the PFS and reviewed by DRA and Minopex. Labour cost estimate accounts for the project schedule and the associated mobilization plan. The labour estimate in Table 21.9 is for concentrator and TMF, whereas mining Opex is considered separately.

Table 21.9 – Concentrator Plant and TMF Staffing Annual Costs

Personnel	**Subtotal** (CA$ M/a)
Engineering - Mill/Concentrator	4.92
Operations - Mill/Concentrator	5.67
Metallurgy	0.93
Tailings Management	0.52
	12.05
The totals may not add due to rounding	

21.2.3.2 Power

Power cost was calculated using the total absorbed equipment power as given in the Mechanical Equipment List (MEL). Equipment utilization factor varied according to the duty of each equipment per the MEL.

An additional 10% of power lost as electrical losses, based on DRA experience, was allowed in the yearly costs.

Power costs include costs for non-process buildings such as camps, mine pits, warehouse, and water management facility. These costs are meant to cover costs for lighting, computers, HVAC in the camps, and others.

Unit cost of electricity is $0.093 per kWh based on a power cost estimate provided by Frontier.

LOM power cost for non-process buildings is estimated at $1.24 M per annum or $1.20/t ore.

21.2.4 General and Administration

General and Administration (G&A) costs include costs of the ICT and systems, G&A labour cost, camp and catering cost, travel cost, operations insurance cost, allowances for legal and audit fees, and allowances for community payments.

LOM G&A costs are estimated at $24.39 M per annum, or $23.70/t ore.

21.2.5 Tailings Management Facility

Yearly operational costs for the TMF are estimated using a factor of 1.5% on the total TMF Capex. The TMF Capex is approximately $83 M as estimated by DRA. The 1.5% factor was determined by DRA based on previous project experience.

LOM operating cost of the TMF is estimated at $1.25 M per annum, or $1.21/t ore.

21.2.6 Heating

Heating costs are estimated by DRA. The assumption is that electric heaters will be used for all heating duties.

LOM heating cost is estimated at $0.97 M per annum, or $0.94/t ore.

22 ECONOMIC ANALYSIS

22.1 Overview

The economic analysis presented in this Section contains forward-looking information as defined by Canadian securities legislation. The results of the analysis rely on inputs that are subject to known and unknown risks, uncertainties, and other factors, which may cause actual results to differ materially from those presented here.

The economic analysis is based on the discounted cash flow (DCF) valuation method on a pre-tax and after-tax basis, conducted in real Canadian dollar terms. Cash flows are derived by means of a techno-economic model of annual cash flow streams including revenues, operating costs, capital expenditures, and taxes. DRA has retained Ernst & Young LLP, based in Vancouver, BC, to assess corporate tax liabilities for the Project based on current Federal and Provincial (Ontario) tax regulations.

The key metrics determined in the analysis are the Net Present Value (NPV) at a real discount rate of 8%, the Internal Rate of Return (IRR), and the Payback Period. A sensitivity analysis was carried out to assess the impact of variations in spodumene concentrate price, Capex, Opex and US$:CA$ exchange rate on the financial metrics.

For the purposes of the evaluation, it is assumed that the operations are established within a single corporate entity, Frontier Lithium Resources Inc. The Project has been evaluated on an unlevered, all-equity basis as of the valuation date of June 2, 2026.

The production schedule used in this analysis is based on the LOM Production Plan and the Plant Production Schedule outlined in Sections 16 and 17, respectively. The capital and operating costs estimates are detailed in Section 21.

All costs and pricing are in Canadian dollars, unless otherwise stated, and accurate as of Q1 2025 (calendar years). No provision is made for the effects of inflation in this analysis except in the working capital, depreciation and tax calculations.

22.2 Forward Looking Information

The results of the economic analyses discussed in this section represent forward-looking information as defined by Canadian securities legislation. The results depend on inputs that are subject to known and unknown risks, uncertainties, and other factors that may cause actual results to differ materially from those presented here. Forward-looking information includes assumptions and estimations of:

- Price of spodumene concentrate.
- Concentrate transportation costs.

- Amount of mineralized material and material grade.
- Proposed mine production plan.
- Mining dilution and mining recovery.
- Geotechnical or hydrogeological considerations during mining.
- Process plant production plan.
- Recovery rates of lithium in the processing plant.
- Ability of plant, equipment, processes to operate as anticipated.
- Development capital costs.
- Sustaining and operating costs.
- Closure costs and unforeseen reclamation expenses.
- Environmental, social, and licensing risks.
- Taxation policy and tax rates.
- Royalty agreements.
- Cost inflation.
- Exchange rates.
- The timing of the Project in terms of permitting approval, project development, construction, operation, and closure.
- General business and economic conditions.
- Ability to maintain social license to operate.

22.3 Assumptions

In addition to, and subject to, such specific assumptions discussed in more detail elsewhere in this Report, the following assumptions were made in the development of the economic analysis:

- A reference date of June 2, 2026 is used for the analysis, aligned with Frontier's expectation for the timing of a Construction Decision on the Project.
- Revenue from the Project is derived from the sale of SC6 spodumene concentrate only.
- No realization costs are applicable to the sale of spodumene concentrate apart from transportation costs.
- A long-term SC6 spodumene concentrate price of US$1,475/tonne (FOB Thunder Bay basis) was selected, as described in Section 19, assumed constant over the LOM..
- The concentrate transport cost used includes trucking to Thunder Bay.
- A long-term US$:CA$ exchange rate of 1.00:1.37 was selected as described in Section 22.5, assumed constant over the LOM.

- No royalty agreements are applicable to the Project.
- Any growth exploration costs are excluded from the analysis.
- The all-season road to site will be completed prior to the start of plant operations.
- All environmental approvals, required permits, licenses and authorizations will be obtained from the relevant governments and other relevant stakeholders.
- Closure bonding fees are 2.25% and 1.35% of the total bonded disturbance during the construction and operation periods, respectively. The total bonded disturbance is determined based on the waste rock schedule from the mine plan.
- The Project development timeline aligns with the execution schedule developed in this Study.
- Corporate tax liabilities were calculated using current Federal and Provincial (Ontario) tax regulations.
- Ontario Mining Tax is deductible for federal and provincial income tax purposes.
- Discount rate of 8%.
- All costs and pricing are in Q1 2025 Canadian dollars, unless otherwise stated.
- No provision is made for the effects of inflation in this analysis except in the calculations of working capital, depreciation and taxes. For these items, a long-term inflation rate of 2% is selected to align with the mid-point of the Bank of Canada's 1%-3% control range and assumed constant over the LOM.
- The analysis is conducted on an unlevered, all-equity basis.
- Refer to Section 22.7 for assumptions related to taxation.

22.4 Economic Analysis Parameters

The key parameters utilized in the financial analysis are summarized in Table 22.1.

Table 22.1 – Economic Analysis Parameters

Description	Units	Value
Macroeconomic Parameters		
SC6 Spodumene Concentrate price, Long-term	US$	1,475
Exchange rate (CA$:US$), Long-term	US$:CA$	1.00:1.37
Inflation rate, Long-term[1]	%	2.0

Description	Units	Value
Project Parameters		
Discount rate	%	8.0
Mine life	Years	31
Mineable mineral reserves, Total	Mt of ore	31.1
Mineable mineral reserves, PAK	Mt of ore	3.9
Mineable mineral reserves, Spark	Mt of ore	27.2
Grade mined, PAK (LOM average)	% Li_2O	1.96
Grade mined, Spark (LOM average)	% Li_2O	1.44
Annual mill throughput (LOM average)	ktpa	1,040
Lithium recovery, PAK (LOM average)	%	77.9
Lithium recovery, Spark (LOM average)	%	77.5
Concentrate grade	% Li_2O	6.0
Total concentrate produced (LOM)	Mt	6.1
Capital Expenditures		
Development capital	CA$ M	943
Sustaining capital	CA$ M	137
Closure capital	CA$ M	60
LOM Unit Operating Costs		
Mining	CA$/tonne of ore processed	28.70
Processing	CA$/tonne of ore processed	31.30
Tailings management facility	CA$/tonne of ore processed	1.20
Non-process power	CA$/tonne of ore processed	1.20
Heating	CA$/tonne of ore processed	0.90
G&A[5]	CA$/tonne of ore processed	23.70
Total Opex	CA$/tonne of ore processed	87.00
Other Costs		
Concentrate transport costs	CA$/tonne of concentrate sold (wet)	143
LOM Undiscounted Cash Flows		
Net Revenue	CA$ M	11,298
Total Opex	CA$ M	(2,709)
Closure Bond Fees	CA$ M	(19)
Operating Earnings	CA$ M	8,569
Capital Expenditures	CA$ M	(1,138)

Description	Units	Value
Clean Technology Manufacturing Investment Tax Credit	CA$ M	120
Change in Working Capital	CA$ M	(15)
Pre-Tax Cash Flow	CA$ M	7,536
Income Tax, Federal	CA$ M	(1,049)
Income Tax, Provincial	CA$ M	(699)
Mining Tax, Provincial	CA$ M	(645)
After Tax Cash Flow	CA$ M	5,144
Cost Metrics		
C1 Cost[2, 4]	CA$/tonne of concentrate sold	602
All-In Sustaining Cost (AISC)[3, 4]	CA$/tonne of concentrate sold	624

Notes:

1. The inflation rate is used in the tax, depreciation, and working capital calculations only. The results of these calculations are deflated using the same inflation rate for use in the cash flow model.
2. C1 Cost and C1 Cost per tonne of concentrate sold: C1 Cost consists of all production related expenses including mining, processing, services, tailings handling, royalties, and general and administrative, plus treatment charges, penalties, transportation and other selling costs. C1 Cost per tonne of concentrate sold is calculated as C1 Cost divided by tonnes of spodumene concentrate sold.
3. All-in Sustaining Costs (AISC) and AISC per tonne of concentrate sold: AISC consists of C1 Cost plus sustaining capital. AISC per tonne of concentrate sold is calculated as AISC divided by tonnes of spodumene concentrate sold.
4. C1 Costs and AISC are non-GAAP financial measures or ratios and have no standardized meaning under IFRS Accounting Standards and may not be comparable to similar measures used by other issuers. As the Project is not in production, Frontier does not have historical non-GAAP financial measures nor historical comparable measures under IFRS, and therefore the foregoing prospective non-GAAP financial measures or ratios may not be reconciled to the nearest comparable measures under IFRS. Refer to the “Non-GAAP Financial Measures” in Section 2.9 of this Report for more information, including a detailed description of each of these measures.
5. G&A Opex presented in this section includes allowances for operations insurance and community payments.
6. Numbers may not add due to rounding.

22.5 Exchange Rate Selection

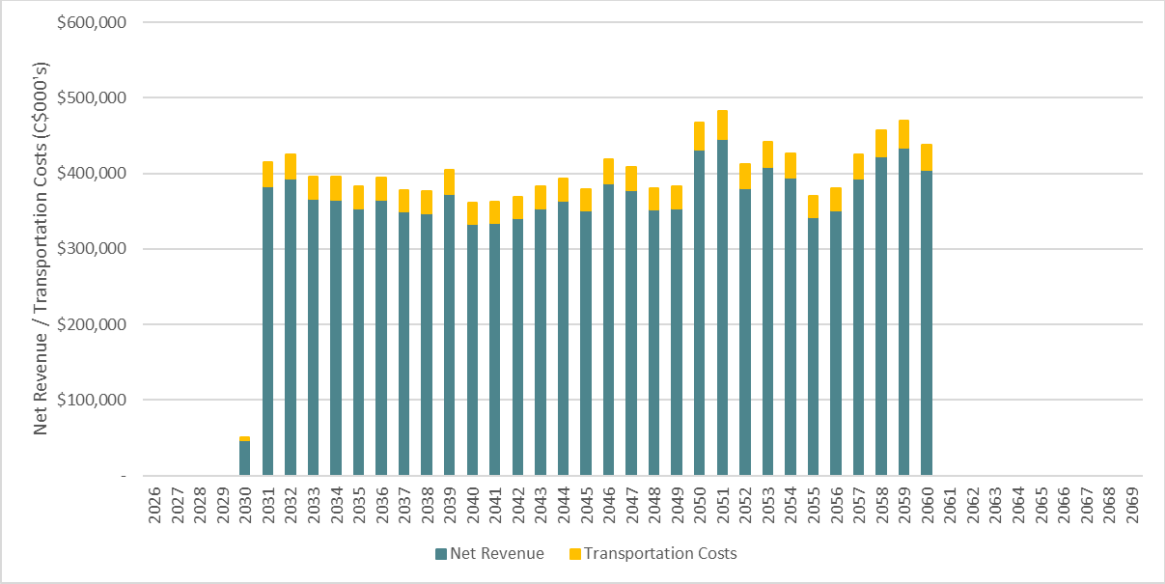
As spodumene concentrate prices are denominated in US dollars, the US$:CA$ exchange rate is a key driver of the financial metrics of the Project. The long-term exchange rate was selected as 1.00:1.37 based on a review of forecasts from major banks and other financial institutions. Exchange rates are impacted by a variety of economic and geopolitical factors and exchange rate forecasting is an inherently uncertain activity, particularly several years into the future as required in this case with concentrate sales expected to commence in 2030.

22.6 Net Revenue

The Gross Revenue schedule for the Project is derived from the Production Plan provided in Section 17 and using the selected SC6 concentrate price of US$1,475/t. Transportation costs are subtracted from the Gross Revenue to arrive at the Net Revenue.

Figure 22.1 provides the revenue schedule of the Project over the LOM.

Figure 22.1 – Revenue Schedule over the Life of the Project



Source: DRA, 2025

22.7 Closure Bonding Costs

The closure bonding costs and collateral requirements have been included in the analysis based on the following bonding details provided by Frontier:

- The Closure Bond Fees are determined as a percentage of the Total Bonded Disturbance. The rate is 2.25% during the construction period and 1.35% during the operating period.
- The Total Bonded Disturbance schedule is determined based on the closure cost estimate, waste rock mining schedule and the life of mine.
- Collateral requirements are 30% of the Total Bonded Disturbance during the construction period and 10% during the operating period. Collateral is assumed to be posted in the form of cash in a restricted account and to be recoverable 5 months after the start of operations.

22.8 Taxation

The Project is subject to federal income tax, provincial income tax and mining tax (Ontario) and other non-income taxes such as carbon taxes. The Project is also eligible for the refundable Clean Technology Manufacturing Investment Tax Credit (ITC). To support the after-tax economic evaluation of the Project, DRA has retained Ernst & Young LLP, a Canadian firm based in Vancouver, BC, to prepare the tax calculations. These calculations include Canadian federal and Ontario provincial income taxes, as well as the Ontario Mining Tax (OMT).

22.8.1 INCOME TAXES

The federal government imposes corporate income tax on mining income at the same rate that applies to other types of income. The applicable federal tax rate is 15%. Ontario's taxation of the resource sector is generally harmonized to the federal system. The provincial corporate income tax rate applicable to mining income is 10% in Ontario. A combined tax rate of 25% is used in the financial model to compute the federal and provincial tax liability in respect of this Project. Federal and provincial tax legislation provides a number of deductions, allowances, and credits that are specifically available to taxpayers engaged in qualifying mining activities. The most notable of these deductions are Canadian Exploration Expenditures (CEE), Canadian Development Expenses (CDE), capital costs eligible for Class 41 of the Capital Cost Allowance (CCA) system, and OMT. Unused losses from business ("non-capital losses") of a year may be carried back to any of the preceding three years or forward to any of the following 20 years to apply against any source of income where applicable.

22.8.2 MINING TAX

Under the Ontario Mining Tax Act (OMTA) and the Mining Tax Regulations (Regulations), mining taxes are imposed on profits generated from production from mines in Ontario and are imposed on every operator of a non-remote mine[1] for a taxation year at a tax rate of 10%. The OMT is calculated on profits derived from mining operations which is generally calculated as the gross revenue received or receivable on the sale of output from the mine, less expenses, deductions, or allowances (e.g., depreciation allowance, processing allowance) that are allowed under the OMTA. Furthermore, in computing taxable profits subject to OMT, an annual deduction of CA$500,000 is claimed as well as a mining tax exemption with respect to a new mine on mining income of up to CA$10 M during an exempt period of 36 months commencing with the month when the new mine comes into production in reasonable commercial quantities.

[1] Mines may be certified as a remote mine and qualify for a lower tax rate (5%) provided certain conditions are met. For the purposes of this analysis it has been assumed that these conditions will not be met.

22.8.3 CARBON TAXES

As of April 1, 2025, Federal Fuel Charge has been set to zero-rated. The Industrial Pricing under the Ontario Output Based Pricing System has been applied in the model; however, the Project is not expected to reach the mandatory participation threshold of emissions exceeding 50,000 t CO_2e/year. As a result, the carbon taxes are projected to be nil in the model.

22.8.4 CLEAN TECHNOLOGY MANUFACTURING ITC

The Clean Technology Manufacturing ITC is refundable and available to qualifying taxpayers that make eligible investments in certain clean technology manufacturing property that is acquired and available for use on or after January 1, 2024 and before 2035 for eligible Clean Technology Manufacturing use. The tax credit rate ranges from 5% to 30% depending on the year in which the property is acquired and becomes available for use.

To qualify for the Clean Technology Manufacturing ITC, an investment must be made in eligible property for a clean technology manufacturing use. More specifically, as currently enacted there are two (2) categories of use that may qualify for purposes of the credit:

1. Property used entirely or substantially in performing certain qualified zero-emission technology manufacturing activities defined in section 5202 of the Income Tax Regulations.
2. Property used in qualifying mineral activities producing entirely or predominantly qualifying materials (i.e., lithium, cobalt, nickel, copper, rare-earth elements and graphite) as defined in proposed subsection 127.49(1) of the Act.

The Clean Technology Manufacturing ITC was applied in the tax calculations as a reduction of the undepreciated capital cost of the respective class of the eligible property.

22.8.5 TAX ASSUMPTIONS

The tax calculations used in the after-tax NPV calculations in the financial model are based on various assumptions; the key assumptions include:

- Validity of the income tax and mining tax calculations used in the model are based on provisions of the relevant tax acts and regulations which were in force and effective as of January 31, 2025.
- The Project is held by a taxable Canadian corporation with a permanent establishment in the province of Ontario only and the operator of the mine. All income is attributable to the mining operation in the province of Ontario.
- Model does not attempt to reflect future changes in corporate structure or property ownership.
- Commercial production commences and ends in the taxation years ended December 31, 2030 and December 31, 2060, respectively.

- The Project valuation basis is 100% equity financed and therefore excludes any interest and financing expenses associated with any loan facilities.
- All capital assets are available for use in the same year the applicable assets are acquired or built and are fully disposed at the end of the mine life.
- 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.

22.9 Financial Analysis Results

Based on a long-term spodumene concentrate price of US$1,475/tonne, long-term US$:CA$ exchange rate of 1.00:1.37, and a discount rate of 8%, the results of the economic analysis indicate a positive after-tax NPV of CA$932 M and an after-tax IRR of 17.9%. A summary of the key financial metrics is presented in Table 22.2.

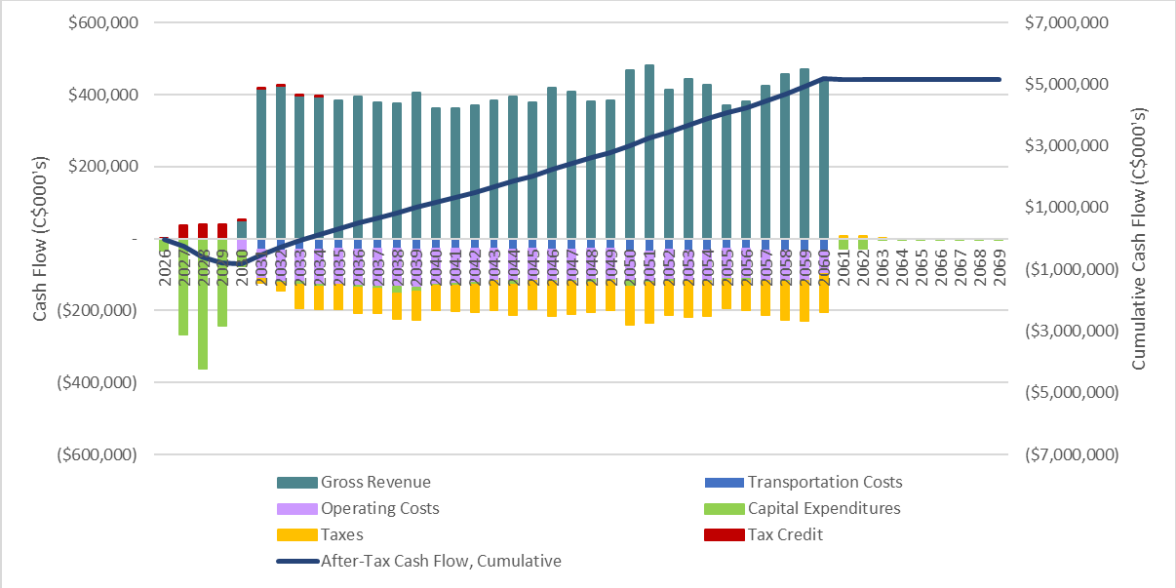
Table 22.2 – Summary of Project Financial Metrics

Description	Unit	Pre-Tax	After-Tax
NPV @ 8%	CA$ M	1,480	932
IRR	%	21.4	17.9
Payback Period	Years	3.6	4.0

1. The Payback Period provided here is from the start of concentrator operation.

Figure 22.2 illustrates the annual and cumulative free cash flows of the Project on an after-tax basis. A summary of the financial model is presented in Table 22.3.

Figure 22.2 – After Tax Cash Flow of the Project



Source: DRA, 2025

Table 22.3 – Financial Model Summary

Period #			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16-25	26-35	36-44
Period			Y-4	Y-3	Y-2	Y-1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12-Y21	Y22-Y31	Y32-Y40
Period Start			1-Jan-26	1-Jan-27	1-Jan-28	1-Jan-29	1-Jan-30	1-Jan-31	1-Jan-32	1-Jan-33	1-Jan-34	1-Jan-35	1-Jan-36	1-Jan-37	1-Jan-38	1-Jan-39	1-Jan-40	1-Jan-41	1-Jan-51	1-Jan-61
Period End			31-Dec-26	31-Dec-27	31-Dec-28	31-Dec-29	31-Dec-30	31-Dec-31	31-Dec-32	31-Dec-33	31-Dec-34	31-Dec-35	31-Dec-36	31-Dec-37	31-Dec-38	31-Dec-39	31-Dec-40	31-Dec-50	31-Dec-60	31-Dec-69
PRODUCTION DATA		*(Tot. / Avg.)*																		
Ore Mined																				
Ore Mined, PAK	*(ktonnes)*	**3,947**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	544	3,403	-
Ore Grade (Lithium), PAK	*(% Li_2O)*	**1.96**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.47	1.88	-
Ore Mined, Spark	*(ktonnes)*	**27,183**	-	-	-	-	267	958	1,065	1,003	1,170	1,050	1,040	1,040	1,027	1,051	1,042	10,400	10,183	-
Ore Grade (Lithium), Spark	*(% Li_2O)*	**1.44**	-	-	-	-	1.64	1.60	1.54	1.48	1.43	1.40	1.44	1.38	1.39	1.49	1.33	1.41	1.46	-
Ore Mined, Total	*(ktonnes)*	**31,131**	-	-	-	-	267	958	1,065	1,003	1,170	1,050	1,040	1,040	1,027	1,051	1,042	10,400	10,018	-
Contained Lithium (Li_2O), Total	*(ktonnes)*	**469**	-	-	-	-	4	15	16	15	17	15	15	14	14	16	14	153	161	-
Strip Ratio		**3.7**	-	-	-	-	5.8	2.4	2.7	3.0	4.9	6.0	6.1	6.8	7.0	6.9	6.7	3.3	2.4	-
Ore Milled																				
Ore Milled, PAK	*(ktonnes)*	**3,947**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	3,504	-
Ore Grade (Lithium), PAK	*(% Li_2O)*	**1.96**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.43	1.90	-
Ore Milled, Spark	*(ktonnes)*	**27,183**	-	-	-	-	182	1,005	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	9,957	6,679	-
Ore Grade (Lithium), Spark	*(% Li_2O)*	**1.44**	-	-	-	-	1.66	1.59	1.57	1.46	1.46	1.41	1.46	1.39	1.39	1.49	1.33	1.41	1.46	-
Ore Milled, Total	*(ktonnes)*	**31,131**	-	-	-	-	182	1,005	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	10,400	10,183	-
Contained Lithium (Li_2O), Total	*(ktonnes)*	**469**	-	-	-	-	3	16	16	15	15	15	15	15	14	15	14	151	164	-
Lithium Recovery, PAK	*(%)*	**78.0**	-	-	-	-	-	-	-	-	-	-	78.00	78.00	78.00	78.00	78.00	78.00	78.00	-
Lithium Recovery, Spark	*(%)*	**77.5**	-	-	-	-	65.07	77.24	77.60	77.60	77.60	77.60	77.60	77.60	77.60	77.60	77.60	77.60	77.60	-
Concentrate Produced																				
Concentrate Grade	*(% Li_2O)*	**6.0**	-	-	-	-	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	-
Concentrate Sold	*(ktonnes)*	**6,053**	-	-	-	-	25	205	210	196	196	189	195	187	186	200	178	1,953	2,131	-
Contained Lithium (Li_2O)	*(ktonnes)*	**363**	-	-	-	-	1	12	13	12	12	11	12	11	11	12	11	117	128	-
CASH FLOWS		*(Tot. / Avg.)*																		
Gross Revenue	*(C$'000s)*	**$12,232,180**	-	-	-	-	$50,292	$415,245	$425,042	$396,023	$395,631	$382,813	$394,770	$378,238	$376,422	$404,108	$360,677	$3,947,227	$4,305,691	-
Transportation Costs	*(C$'000s)*	**$934,205**	-	-	-	-	$3,841	$31,713	$32,462	$30,245	$30,215	$29,236	$30,150	$28,887	$28,748	$30,863	$27,546	$301,460	$328,837	-
Net Revenue	*(C$'000s)*	**$11,297,975**	-	-	-	-	$46,451	$383,531	$392,581	$365,778	$365,415	$353,577	$364,620	$349,351	$347,673	$373,245	$333,132	$3,645,766	$3,976,854	-
Operating Costs	*(C$'000s)*	**$2,709,391**	-	-	-	-	$33,412	$81,697	$86,734	$89,175	$98,629	$100,299	$102,079	$103,982	$105,095	$106,447	$100,138	$883,014	$818,691	-
Mining	*(C$'000s)*	**$892,734**	-	-	-	-	$7,734	$20,916	$24,638	$25,612	$34,976	$36,563	$37,560	$39,683	$40,775	$41,598	$40,732	$294,224	$247,722	-
Process	*(C$'000s)*	**$975,305**	-	-	-	-	$9,641	$29,605	$30,627	$32,420	$32,722	$32,722	$32,746	$32,722	$32,722	$32,722	$32,746	$327,266	$316,645	-
TSF	*(C$'000s)*	**$37,637**	-	-	-	-	$522	$1,245	$1,248	$1,245	$1,245	$1,245	$1,248	$1,245	$1,245	$1,245	$1,248	$12,457	$12,198	-
Non-Process Power	*(C$'000s)*	**$37,401**	-	-	-	-	$519	$1,237	$1,241	$1,237	$1,237	$1,237	$1,241	$1,237	$1,237	$1,237	$1,241	$12,379	$12,121	-
Heating	*(C$'000s)*	**$29,375**	-	-	-	-	$407	$972	$974	$972	$972	$972	$974	$972	$972	$972	$974	$9,722	$9,520	-
G&A	*(C$'000s)*	**$736,939**	-	-	-	-	$14,589	$27,722	$28,005	$27,689	$27,477	$27,559	$28,310	$28,123	$28,144	$28,673	$23,197	$226,965	$220,485	-
Operating Costs per Tonne Ore Milled	*(C$/t milled)*	**$87.0**	-	-	-	-	$183.6	$81.3	$83.4	$85.7	$94.8	$96.4	$98.2	$100.0	$101.1	$102.4	$96.3	$849	$804	-
Operating Costs per Tonne Concentrate Produced	*(C$/t conc)*	**$447.6**	-	-	-	-	$1,342.5	$397.6	$412.4	$455.0	$503.8	$529.4	$522.5	$555.5	$564.2	$532.3	$561.0	$4,554	$3,871	-
Royalties	*(C$'000s)*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Closure Bond Fees	*(C$'000s)*	**$19,312**	$22	$127	$239	$352	$384	$322	$333	$345	$360	$378	$404	$424	$445	$466	$486	$5,632	$7,081	$1,513
Capital Expenditures	*(C$'000s)*	**$1,138,219**	$33,916	$265,991	$360,831	$243,121	$40,726	$45	$4,312	$8,580	$4,957	$72	$3,339	$5,725	$18,847	$8,980	$3,216	$54,649	$22,454	$58,461
Development Capital	*(C$'000s)*	**$943,233**	$33,916	$265,991	$360,831	$243,121	$39,374	-	-	-	-	-	-	-	-	-	-	-	-	-
Sustaining Capital	*(C$'000s)*	**$136,526**	-	-	-	-	$1,352	$45	$4,312	$8,580	$4,957	$72	$3,339	$5,725	$18,847	$8,980	$3,216	$54,649	$22,454	-
Closure Capital	*(C$'000s)*	**$59,765**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	$59,765
Salvage Value	*(C$'000s)*	**$1,305**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	$1,305
Closure Collateral Cash Flow	*(C$'000s)*	**($0)**	($875)	($1,500)	($1,500)	($1,500)	$3,024	$2,351	-	-	-	-	-	-	-	-	-	-	-	-
Change in Working Capital	*(C$'000s)*	**($15,254)**	-	-	-	-	($16,206)	($10,746)	($3,438)	$2,596	$1,359	$2,571	($3,298)	$820	($265)	($2,459)	$2,238	($13,925)	$25,499	-

Financial Model Summary (cont'd)

Period #			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16-25	26-35	36-44
Period			Y-4	Y-3	Y-2	Y-1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12-Y21	Y22-Y31	Y32-Y40
Period Start			1-Jan-26	1-Jan-27	1-Jan-28	1-Jan-29	1-Jan-30	1-Jan-31	1-Jan-32	1-Jan-33	1-Jan-34	1-Jan-35	1-Jan-36	1-Jan-37	1-Jan-38	1-Jan-39	1-Jan-40	1-Jan-41	1-Jan-51	1-Jan-61
Period End			31-Dec-26	31-Dec-27	31-Dec-28	31-Dec-29	31-Dec-30	31-Dec-31	31-Dec-32	31-Dec-33	31-Dec-34	31-Dec-35	31-Dec-36	31-Dec-37	31-Dec-38	31-Dec-39	31-Dec-40	31-Dec-50	31-Dec-60	31-Dec-69
TAXES & CREDITS		*(Tot. / Avg.)*																		
Income Tax, Federal	*(C$'000s)*	**$1,048,584**	-	-	-	-	-	-	$5,938	$31,411	$32,550	$31,309	$33,316	$31,911	$30,921	$34,333	$30,133	$369,059	$426,949	($9,246)
Income Tax, Provincial	*(C$'000s)*	**$699,056**	-	-	-	-	-	-	$3,959	$20,940	$21,700	$20,873	$22,211	$21,274	$20,614	$22,889	$20,088	$246,040	$284,633	($6,164)
Mining Tax, ON	*(C$'000s)*	**$644,632**	-	-	-	-	-	$8,839	$11,943	$13,303	$8,425	$13,444	$17,024	$14,178	$19,685	$22,028	$18,789	$230,686	$266,289	-
CTMITC	*(C$'000s)*	**$119,973**	$1,021	$35,862	$39,554	$39,858	$3,209	$6	$358	$3	$103	-	-	-	-	-	-	-	-	-
Carbon Charges	*(C$'000s)*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FINANCIAL METRICS		*(Tot. / Avg.)*																		
Pre-Tax Metrics																				
NPV @ 8% discount rate	*(C$'000s)*	**$1,479,923**																		
IRR	*(%)*	**21.4%**																		
Payback Period from Start of Production	*(years)*	**3.56**																		
Payback Period from Start of Construction	*(years)*	**7.48**																		
After-Tax Metrics																				
NPV @ 8% discount rate	*(C$'000s)*	**$932,430**																		
IRR	*(%)*	**17.9%**																		
Payback Period from Start of Production	*(years)*	**4.01**																		
Payback Period from Start of Construction	*(years)*	**7.92**																		

Source: DRA, 2025

22.10 Sensitivity Analysis

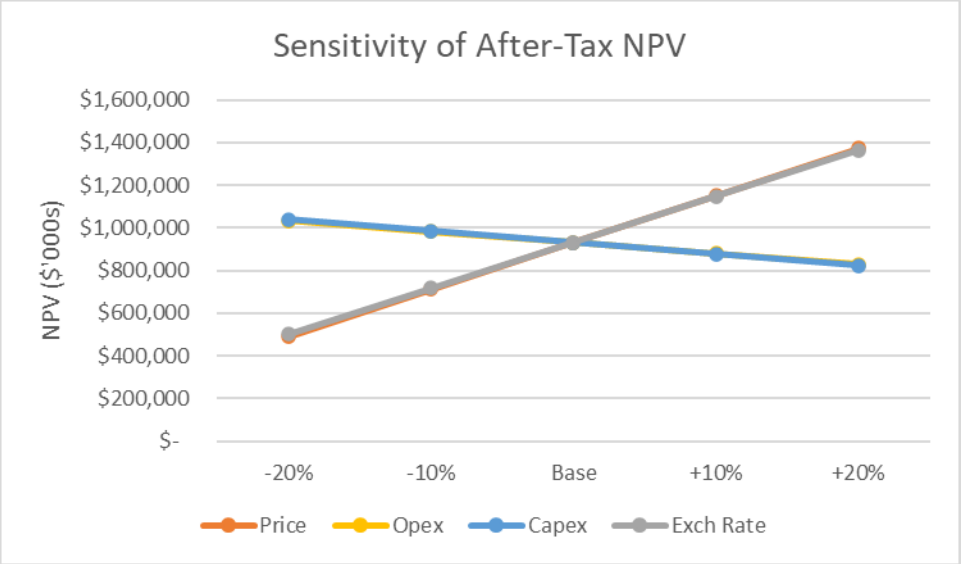
A sensitivity analysis was carried out, using the base case described above as a starting point, to assess the impact of changes in the price of spodumene concentrate, Development Capex, Opex and the US$:CA$ exchange rate on the Project's NPV at an 8% discount rate and IRR. The impact of each variable is examined individually with an interval of ±20% and increments of 10% applied. It is to be noted that the margin of error for cost estimates at the Feasibility Study level is typically -15% +20%. However, the uncertainty in concentrate price forecasts remains significantly higher and is a function of price volatility.

The after-tax results of the sensitivity analysis are shown in Table 22.4, Figures 22.3 and 22.4. The NPV and IRR are most sensitive to variations in spodumene concentrate price and exchange rate. The sensitivity to each of these factors is almost identical as the exchange rate impact is dominated by the conversion of the spodumene concentrate price from US dollars to Canadian dollars. Figure 22.3 indicates that variations in Development Capex and Opex have similar impacts on the after tax NPV, while Figure 22.4 shows that the after-tax IRR is more sensitive to the Development Capex than to the Opex. The Project retains a positive NPV even at the lower end of the spodumene concentrate price and US$:CA$ exchange rate ranges tested.

Table 22.4 – Sensitivity of Project After-Tax Metrics to Spodumene Concentrate Price, Capex, Opex, and Exchange Rate

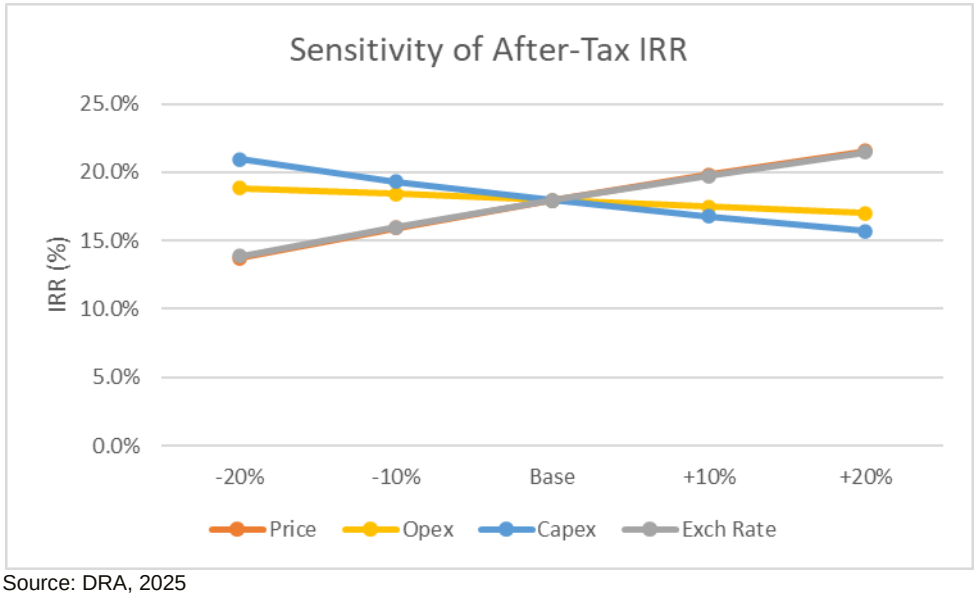
Price	Units	-20%	-10%	Base	+10%	+20%
NPV @ 8.0%	CA$ M	$ 491	$ 712	$ 932	$ 1,153	$ 1,373
IRR	%	13.7%	15.9%	17.9%	19.8%	21.6%
Payback	Years	5.3	4.5	4.0	3.6	3.3
Opex	**Units**	**-20%**	**-10%**	**Base**	**+10%**	**+20%**
NPV @ 8.0%	CA$ M	$ 1,035	$ 984	$ 932	$ 881	$ 830
IRR	%	18.9%	18.4%	17.9%	17.5%	17.0%
Payback	Years	3.8	3.9	4.0	4.1	4.23
Capex	**Units**	**-20%**	**-10%**	**Base**	**+10%**	**+20%**
NPV @ 8.0%	CA$ M	$ 1,041	$ 986	$ 932	$ 879	$ 824
IRR	%	21.0%	19.3%	17.9%	16.8%	15.7%
Payback	Years	3.4	3.7	4.0	4.3	4.6
Exchange Rate	**Units**	**-20%**	**-10%**	**Base**	**+10%**	**+20%**
NPV @ 8.0%	CA$ M	$ 501	$ 717	$ 932	$ 1,148	$ 1,364
IRR	%	13.9%	16.0%	17.9%	19.8%	21.5%
Payback	Years	5.3	4.5	4.0	3.6	3.3

Figure 22.3 – Sensitivity of After-Tax NPV to Spodumene Concentrate Price, Capex, Opex, and Exchange Rate



Source: DRA, 2025

Figure 22.4 – Sensitivity of After-Tax IRR to Spodumene Concentrate Price, Capex, Opex, and Exchange Rate



Source: DRA, 2025

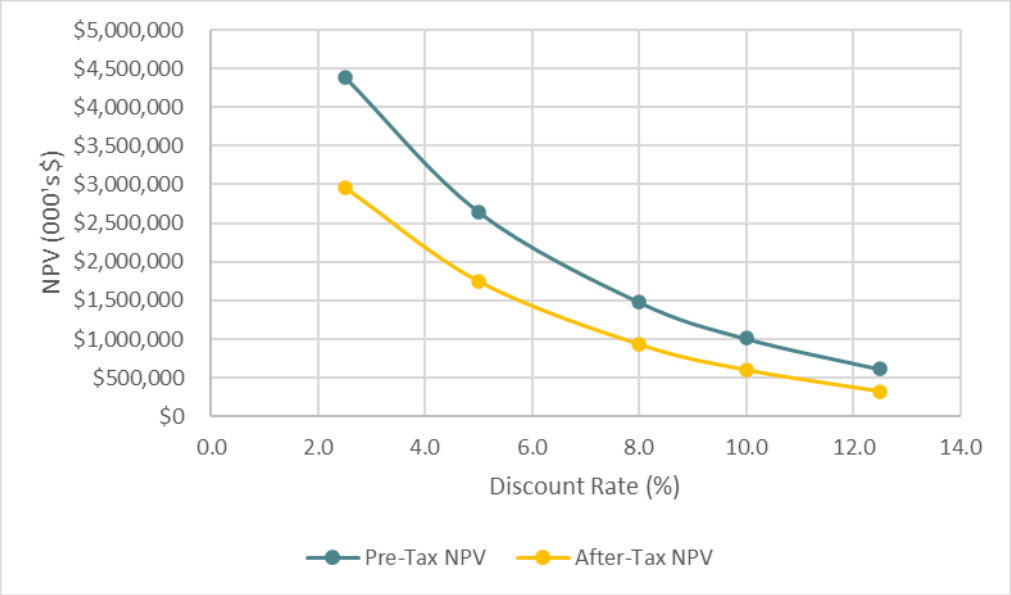
22.10.1 DISCOUNT RATE SENSITIVITY

The sensitivity of the pre-tax and after-tax financial metrics of the Project to various discount rates is presented in Table 22.5 and Figure 22.5.

Table 22.5 – Sensitivity of Pre-Tax and After Tax NPV to Discount Rate

Discount Rate	Pre-Tax NPV (CA$ M)	After-Tax NPV (CA$ M)
2.5%	4,392	2,962
5.0%	2,646	1,747
8.0%	1,480	932
10.0%	1,008	602
12.5%	614	325

Figure 22.5 – Variations in Pre-Tax and After Tax NPV with Discount Rate



Source: DRA, 2025

23 ADJACENT PROPERTIES

Figure 23.1 illustrates the Land Tenure in the area as of March 26, 2025.

The Bearhead Lake Fault Zone, as described in Chapter 7, has been staked by various exploration companies along the same general trend as the PAK Lithium Project. Midex Resources and Patriot Lithium to the northwest, along with Exiro Minerals to the southeast, are among the major landholders in the region. S2 Minerals' gold properties in the Sandy Lake area represent the largest land package in the region.

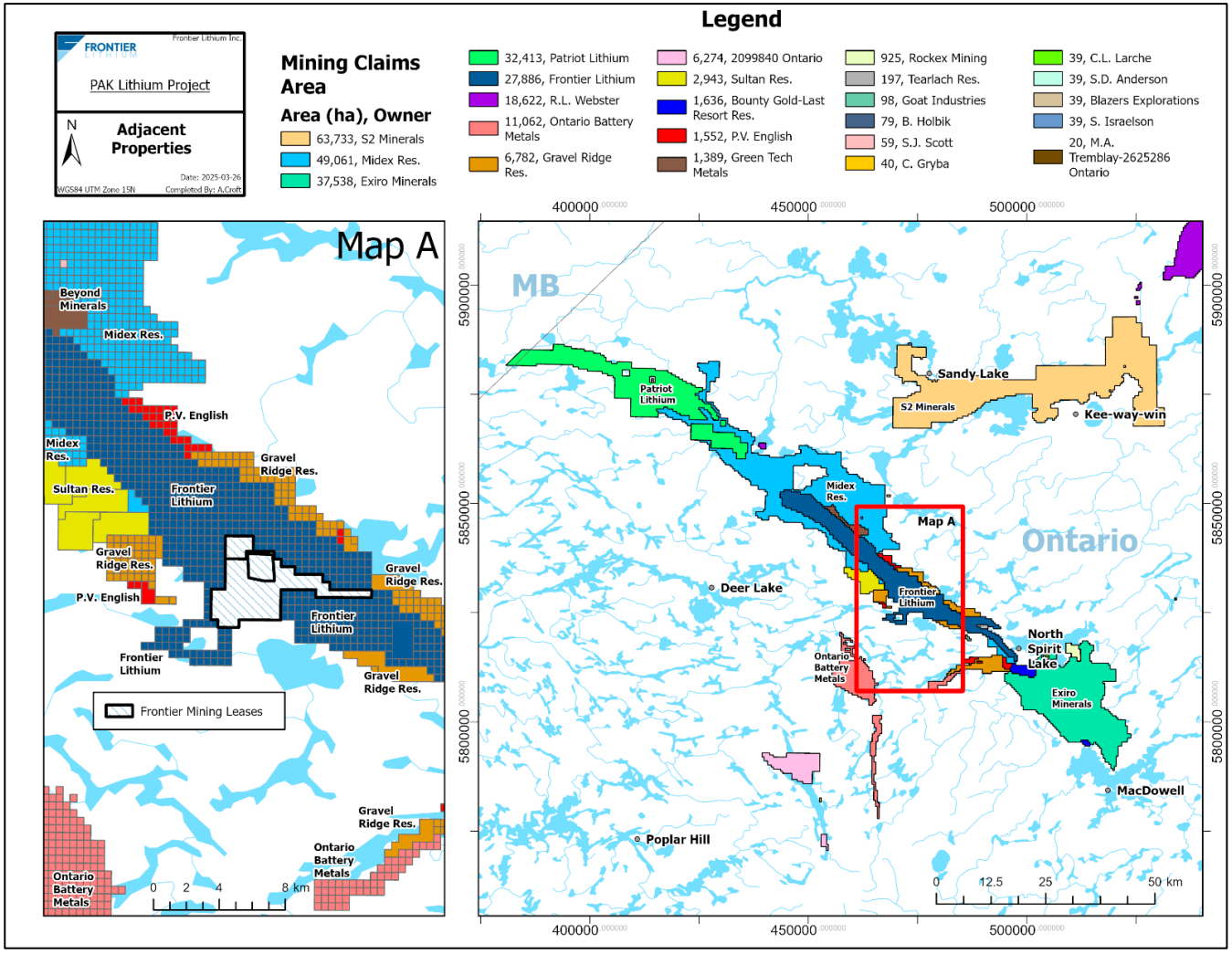
In March 2023, Exiro Minerals filed assessment work for their North Spirit Lake Property, which included a LiDAR survey, inversion modeling, a heliborne magnetic survey, and a till sampling program. Exploration targets focused on multiple commodities, including gold, copper, nickel, zinc, lead, and iron. This work led to a lithological and structural re-interpretation, identifying broad and primarily conceptual targets for future exploration.

Additionally, smaller land packages held by P.V. English, Gravel Ridge Resources, and Sultan Resources are situated adjacent to Frontier's claims surrounding the mining leases. In March 2025, Solstice Gold relinquished land south of the PAK Project, with portions subsequently staked by Frontier. Before releasing the land, Solstice Gold submitted an assessment report detailing a two-day mapping and sampling program along with an airborne magnetic survey. The study identified granitic pegmatites containing tourmaline, with elevated concentrations of Rb, B, Ba, Ce, Cs, La, Sn, Ta, and Tl.

Green Technology Metals, which holds land on the eastern edge of Frontier's Pennock claims, filed an assessment report for work completed in 2023. This work included a heliborne high-resolution magnetic survey designed to assist in defining future prospecting targets.

Beyond the work mentioned above, no other assessment reports have been filed in the past five years. Additionally, no adjacent property is at an advanced exploration stage.

Figure 23.1 – Land Tenure in the Area as of March 26, 2025



24 OTHER RELEVANT DATA AND INFORMATION

24.1 Project Execution Plan

24.1.1 OBJECTIVES

This section outlines a proposed philosophy and approach to executing the Project through to production. Following the completion of the FS and after approval is received to proceed with the Project, a Definition phase is required to finalize the design criteria, produce a control estimate for Project execution, and define the operating costs more accurately. Steps will be taken during this Project Definition phase to reduce the risks and pursue opportunities which are identified in the FS.

The Project will consist of:

- Design, engineering, procurement and construction of the new plant, infrastructure, and material handling facilities as described in this Report.
- Taking the Project to commissioning and operation in line with the agreed execution schedule.

In terms of project management, the Project requires that:

- Safety and environmental requirements, both statutory and Project specific, are fully adhered to without exception throughout all Project phases.
- The completed facilities and associated infrastructure:
  - Comply with design and engineering specifications.
  - Are completed and commissioned in accordance with a plan and to suit feed requirements.
  - Are completed and commissioned within the approved budgets.
- Operational organization is established in accordance with a plan consistent with the commissioning and operational needs of the site.
- Operational organization is established within the approved budget.
- Overall Project cost is consistent with the established estimate of capital expenditure.

The Project execution milestones at the site are as follows:

- Site and Project permits and approvals.
- Plant permits and approvals.
- All weather permanent road construction (by others).
- Engineering, Procurement and Construction Management (EPCM) contract placement.
- On site early works for site establishment and temporary infrastructure.
- Mine development.

- Infrastructure construction.
- Concentrate plant construction.
- Concentrate plant commissioning and operations.

24.1.2 EXECUTION METHODOLOGY

24.1.2.1 General

At this time, it is expected that the Project will be implemented using an EPCM approach, with an EPCM contractor retained who will report to Frontier. An EPCM contractor's detailed estimate will be prepared as a component of the overall Project capital cost estimate. Additional cost considerations would be applicable if Frontier were to opt for an EPC contracting approach, as this contract model allocates certain additional responsibilities to the contractor instead of Frontier. Alternative contracting strategies are being explored and will be finalized using the inputs of the current study.

Detailed engineering will immediately follow the Front-End Engineering Design (FEED) phase. The principal deliverables following the FEED phase are frozen process design and plant general arrangements. A detailed schedule for engineering, procurement and construction will also be finalized at that time which will be used to control progress of Project activities.

24.1.2.2 Integrated Team

Effective team building and alignment will be implemented to ensure that the integrated Frontier-EPCM Contractor team is aligned to a common purpose and understands the Project's goals and objectives.

It is envisaged that Frontier representatives and EPCM staff will share a common office during the detailed engineering and procurement phases of the EPCM work. Other Project work will be carried out from site and from satellite offices (e.g. sub-consultants) as required and appropriate. As Project activities move towards construction, members of the office team will move to the site.

24.1.2.3 Management

Overall management of the Project will be by the Frontier-EPCM Contractor integrated team, including management of all contractors and consultants involved in the design and engineering, procurement, construction management and pre-commissioning of the new plant facilities. The EPCM Contractor will report to Frontier's designated Project Manager, who in turn, will report to (and get direction from) Frontier's stakeholder members.

Personnel appointed to the management teams will have the appropriate qualifications and experience for the positions they occupy.

24.1.2.4 Work Breakdown Structure

The Project WBS is a framework for assembling and organizing parts of the Project for the purpose of cost estimation, as well as for design and operation.

24.1.2.5 Project Structure, Relationships, Roles and Responsibilities

The organizational and communications protocols that will be finalized during the Definition phase, and which will continue into the FEED and execution phases of the Project, are as follows:

- Executive interrelationship between the EPCM Contractor and Frontier.
- Frontier project team organization, including both corporate and site-based teams.
- EPCM Contractor project management, including direction of and interaction between Process Engineering, Discipline Engineering, Drawing Office (design) personnel, Specialist Services, Procurement, Project Controls, Construction, and Commissioning groups.
- Individual EPCM Contractor structures for the groups mentioned above.

24.1.2.6 Engineering, Procurement, and Construction

EPCM Contractor services on the Project will cover project management, engineering, procurement, construction management and commissioning, as well as assistance as required with process optimization. These services will include management and coordination of various other service providers and vendors.

Project direction will be provided by a management group, consisting of an overall Project Manager for the plant and associated infrastructure, who is supported by a Project Engineer, a Project Services Manager, and Construction and Commissioning Managers.

The role of the Project Manager is to manage, co-ordinate and rationalize work performed by all Project team members. They will ensure, where applicable, that engineering, designing, and construction activities are functioning as required for execution of the Project, and that progress of the work is as per the implementation program. They will have day-to-day responsibility for coordination and management of the Project as a whole.

The Project Manager will focus on control of their scope of work, budget and schedule. After transfer to the field, they will also be accountable for maintaining occupational health, safety, environmental and quality standards. The Construction Manager will, however, take overall responsibility on site for these aspects.

The Project Engineer(s) and Discipline Leads will broadly undertake the following:

- Internal coordination of tasks within each discipline.
- Internal coordination of the dedicated multidisciplinary EPCM Contractor engineering team.

- External coordination with Frontier, vendors and the site.
- Signing off engineering regarding the achievement of process intent.
- Management of services budgets by discipline.
- Active control of scope, schedule and budget.
- Active implementation of the change management process.
- Preparation and issuance of engineering deliverables and technical integrity thereof.
- Reporting to Project Manager on achievement of objectives and resource requirements.

The EPCM Contractor will be responsible for coordinating the integration and / or interfacing of the various mineral processing and related technologies.

24.1.2.7 Temporary Facilities

Early in the EPCM phase a study will be carried out to investigate existing on-site office facilities as required for the construction phase. It is assumed that Frontier will provide areas for contractors to erect site offices, trailers, storage, and washroom facilities as required. Power and water hook-ups as well as sewage connection points will be provided to each contractor by Frontier.

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.

It is envisaged that the communications system for the construction period will be part of Frontier's permanent communications system. It will provide for adequate telephone and internet services for Frontier, EPCM Contractor, and construction contractors.

Construction power will be generated on site until transmission connections are established.

24.1.2.8 Early Construction Priorities and Camp Establishment

Construction works will be scheduled as each trade's involvement in the Project commences. Early works construction includes 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.
- Camps.
- Utilities services.

The construction of these items will start after the permanent road becomes available.

The permanent Operations Camp will be ordered early enough during the Engineering portion of the EPCM phase, to be delivered and installed during Early Works, and it will be used as a construction camp. Its nominal capacity (240 people) is sufficient to house workers during the peak construction. The camp will be revamped at the end of construction to become the Operations Camp.

24.1.2.9 Interface and Interaction Profile – Owner / Engineer

Frontier's team including team members from the eventual operation, will have certain responsibilities and interactions with the EPCM Contractor's Project team.

Frontier will perform ongoing review and approval functions which will have a direct bearing on the progress of the Project. To ensure the incorporation of the Owner's team approvals and corrections, a strong contingent of Owner's team personnel will be present on site during construction. A meeting schedule and scope conflict resolution process will be agreed at the outset of the Project.

A common, integrated set of project procedures applicable to both Frontier and EPCM staff will be used for development work and review cycles. Included in this category are the functions covering review and approval of designs, layouts, drawings and specifications for all disciplines.

24.1.3 VALUE ADDING STRATEGIES

While it is recognized that individual savings obtained by specific strategies are not additive due to overlap of common features, a combination of strategies can result in substantial savings and added value. These will be systematically reviewed during the FEED phase.

24.1.3.1 Front End Engineering Design Practices

The beneficial effects on cost and schedule from implementing FEED practices result from:

- Determining structure of team, to ensure all stakeholders have input into Project decisions.
- Developing and communicating roles and responsibilities of the team.
- Finalizing procurement and contracting strategies.
- Establishing fit for purpose Project procedures based on recent successes.
- Preparing Project schedule, commencing design and early construction efforts.
- Performing studies for Value Engineering and for identified improvement opportunities.
- Clearly defining Project control requirements.
- Finalizing and updating equipment specifications.

24.1.3.2 Value Engineering

The most effective use of Value Engineering is to perform specific, well structured, clearly defined design studies to establish the full extent of potential improvements to the overall value of the

Project. Value Engineering studies will be conducted early in the EPCM phase to resolve any outstanding design issues and opportunities.

24.1.3.3 Constructability

Constructability is the integration of engineering, construction and operations knowledge and experience during planning and design to optimize overall Project objectives. Early construction contractor engagement was deployed during the current study. The integration of proven construction methods by Lead Engineers will contribute to Project benefits in terms of savings in cost and time, construction simplification, operating safety, and Project quality.

24.1.3.4 Integrated Commissioning and Start-Up

Proper planning of all activities well in advance of the actual commencement of individual activities in the field will be essential to the achievement of plant completion within schedule.

The Commissioning Manager will be responsible for all commissioning and start-up activities, but excluding those activities that must be performed by construction to achieve mechanical completion of the Project. The Commissioning Manager, in conjunction with the Project Manager will develop pre-commissioning, commissioning and start-up schedules in line with actual Project execution.

These schedules will then be integrated with the Project schedule. The mechanical completion and commissioning requirements will be aligned to Frontier requirements and each phase defined to ensure compliance to specific requirements and to identify responsible parties at each phase.

24.1.4 PROJECT CONTROLS

Project Controls activities provide concise, timely and accurate reporting to the team and other key stakeholders. A Project Controls Plan will be finalized after considering aspects such as:

- Project Controls functions and procedures including cost control, progress measurement, and management of change, finance, contingency, opportunity analysis and trends.
- Project Controls organization.
- Project Controls tools.
- List of lookahead programs and plans.
- List of progress measurements, means to obtain measurements, reporting tables and curves.

24.1.4.1 Overall Progress and Cost Control Methodology

Effective planning is a prerequisite of robust Project Control. The foundation of progress monitoring and cost control methods will be in accordance with the agreed baseline scope, plan and budget of the FS, which will be measured against agreed criteria. Control measures will focus on achieving the goals of the Project, without being distracted by artificial targets.

Control will be achieved by:

- Monitoring progress and cost against the established program.
- Reporting results of the monitoring process clearly, promptly and to the right people.
- Reacting positively and promptly to reported data and trends.

24.1.4.2 Signing off Project Baseline Plan and Budget

The schedule will be developed in collaboration with the Owner's team, with the purposes being to:

- Demonstrate an agreed and workable scheme for achieving the Project objectives.
- Set time frames for all Project activities.
- Generate an expenditure phasing plan.
- Give early warning of any threat to the Project key dates.

The FS contains a developed Project schedule and cost estimate, which together will form a basis for the control budget of the Project. The link to the FS provides continuity to understand and manage any impacts on cost, schedule, quality and risk.

The WBS forms the links between the schedule and the cost estimate. The WBS organizes the Project work scope into a logical hierarchy of units against which costs and activities can be planned and controlled.

During final development of the Project schedule, a series of milestone dates will be identified between the Project start and finish. These milestones have a vital purpose as project control tools, and they set achievable targets.

The planning approach to be employed is based on establishing a credible time frame, which supports the project execution sequencing objectives.

24.1.4.3 Change Management

The management of changes will be the responsibility of the entire Project Team under the direction of the Project Manager. Detection, assessment and management of these changes will be implemented through the various change management systems:

- Changes to scope of work or deliverables.
- Changes to performance or design criteria.
- Changes to work methods or sequencing of activities.
- Changes to Owner requirements.
- Changes to commercial arrangements or contracts.
- Changes to program information.

- Movement of funds within the Project.
- Changes to identified risks.

Changes may be initiated by any individual or group associated with the Project but, before any change proposal can be implemented, it will be assessed and authorized in accordance with approved project change management procedures.

The process of change management will be based on the concept of change requests and a Change Register. Change requests provide the mechanism to identify changes, raise them within the Project team, and record at a summary level the expected impacts on Engineering, Procurement, Construction, Costs and Schedule. A Change Register records and tracks all change requests.

Trend forecasting and reporting are aids used for the management of change on the Project. The purposes of trend forecasting are to:

- Alert management to cost and program deviations so that corrective actions can be taken.
- Promote cost and program consciousness in the Project team by constant probing for trends.
- Proactively expose change and moderate impact to impending decisions.

24.1.4.4 Control of Costs

Real time cost data provides an essential tool for decision making to control costs. Budget figures will be input at activity level, providing the basis for achieving effective cost control.

All parties will be involved as early as practical in making sure that the design / construction / operation / maintenance needs are satisfied and to minimize impacts of any changes.

The objectives of the Project cost management system, at package and total Project levels, are to:

- Establish a cost baseline based on the Project control budget.
- Control the authorization of cost commitments.
- Record, control and report actual committed cost.
- Record invoices, control payments, and incurred costs.
- Identify actual and potential cost changes and trends.
- Forecast final cost at completion.

<u>Cash Flow Management</u>

A planned cash flow curve will be produced at contract / order level and rolled up to Project level. Actual cash flow will be monitored, and all major contracts require cash flows provided monthly.

Cost Forecasting

Projections of likely cost outcomes are incorporated in all cost reporting against each commitment and remaining uncommitted control item. Cost forecasts are based on accurate quantity estimates developed as design progresses, costs are committed, and accurate measurement of fabrication, assembly and construction progress, actual costs incurred, and probable cost trends. Forecasts are updated monthly in line with the approval of each package invoice.

Control of Direct Costs

Discipline Leads and other appointed contractors / consultants are responsible for cost control of their respective areas.

The cost controller will set up and maintain the cost control system and prepare related inputs for the monthly report.

24.1.4.5 Document Control

Document Management will be the focal point for all matters relating to the receipt, capture, tracking, recording, distribution and dispatch of Project documentation and drawings. A project specific document control package will be implemented during the definition phase to capture project documents and carry into operation.

24.1.5 DESIGN AND ENGINEERING

Discipline engineers (process, mechanical, piping, electrical, instrumentation, civil and structural) will be responsible for providing the following services for each Project area:

24.1.5.1 Key Objectives

Key objectives of the design work will include:

- Design will provide no margin over specifications unless specifically requested by Frontier.
- Design will be based on safety and health of personnel and safe condition of plant and equipment under all foreseeable conditions and at all times including start up, operation, shutdown and maintenance.
- Design will meet all required local, Ontario health and safety requirements.
- New facilities will be suitably designed for the cold weather climate of northwestern Ontario.
- Particular focus will be placed on facilitation of maintenance and clean up in plant design.
- Materials and equipment will be selected to minimize number of manufacturers and types of equipment where possible, aiming to minimize plant installed cost and spare parts inventory.

- Design will take into consideration consequences of non-performance of installed equipment and make appropriate provision in terms of safety, environmental and economic aspects.
- Layout of facilities and arrangement of equipment will provide adequate accessibility for safety, operation and maintenance, including use of mobile maintenance equipment where appropriate. Accessibility will be verified with the aid of 3D modelling.
- Drawings and calculations will be certified by appropriately qualified professional engineers. A common architectural approach to design of buildings and other facilities will be applied.

Documentation to be further developed include:

- Engineering design criteria.
- Engineering design and workflows.
- Engineering progress.
- 3D model progress.
- Engineering procedures.
- Decision / holds registers.
- Engineering tools.
- Engineering reviews.
- Computer aided design and drafting (CADD).
- Engineering quality and approvals.
- Hazard and Operability (HAZOP) reviews.

24.1.5.2 Engineering Design Criteria

Engineering Design Criteria are documents which form the basis of engineering, methodology and standards for equipment, functionality and design to be implemented for the execution of the Project. At the commencement of detailed engineering each Discipline Lead will prepare this document, which outlines the key design criteria for their particular discipline.

24.1.5.3 Engineering Design and Workflow

Effective engineering workflow and control are key to successful Project delivery incorporating 3D design. To achieve the engineering objectives, structured milestones are defined to control the execution activities. This approach focuses on multi-discipline coordination and 3D design review, objective progress measurement and integration of engineering with other functions and systems – all supported by precisely defined deliverable content and contractual interfaces.

24.1.5.4 Engineering Progress

Internal engineering progress meetings will be held on a regular and recurring basis to ensure continuous alignment of scope, schedule, cost, and progress among all disciplines. These meetings will also focus on the refinement of Project procedures and systems, to streamline the engineering design process.

The engineering execution logic will be contained and reflected in the Project execution schedule and progress will be reported against set and agreed logic. This logic will set the predecessor and successor of all engineering deliverables, and activities against progress reporting will take place.

24.1.5.5 3D Model Progress

All disciplines will use the guideline milestones as listed below, and progress is achieved by completion of specified and weighted discipline and multi-discipline interface activities. Within the basic criteria, any discipline is authorized to amend the basic milestone criteria to suit specific requirements for specific deliverables. The model milestones are weighted against budget hours.

- Milestone 1 30% Approved for Design - Basic Engineering complete and approved.
- Milestone 2 60% Approved for Checking.
- Milestone 3 90% Approved for Fabrication / Construction.
- Milestone 4 100% As built (if required).

The 3D model design review process and checklist will be geared to proactively validate progress and to punch list outstanding items for expediting and closeout.

Reviewers will typically include as appropriate, functional leads, external specialists and constructors / fabricators. Engineering undertaken in each of the facilities will be reviewed via the 3D model at scheduled milestones, typically as defined by the milestones above. The milestone weightings by area may vary depending on discipline complexity.

24.1.5.6 Engineering Procedures

EPCM Contractor's engineering procedures will be implemented to achieve the following:

- Implementation of sound engineering practice.
- Effective multi-disciplinary communication.
- Owner liaison and "buy-in" into engineering concepts and details.
- Standards to enhance group co-operation and consistency.
- Discipline concept and detailed interface management.
- Engineering in a cost-effective disciplined fashion to achieve Project objectives.
- Engineering quality of an acceptable industry standard.

Additional control documents will be implemented to record decisions made that may affect Project, scope schedule or costs.

24.1.5.7 Decision Register

The Decision Register will be updated with entries related to decisions taken by the Project team. Decisions of any nature will be recorded and may not necessarily be related solely to Engineering. The Decision Register will be presented periodically at review meetings and will be attached to the minutes of these meetings.

24.1.5.8 Holds Register

The Holds Register will be populated with entries of items that are put on hold pending further information, development of which are delayed for reasons stipulated. The Holds Register will be presented at scheduled review meetings and will be attached to the minutes of these meetings.

24.1.5.9 Engineering Tools

Data integration between disciplines will be maximized using established engineering systems. Engineering systems will be adopted for each discipline to efficiently perform engineering design functions as required. System integration between disciplines will receive the highest priority to reduce manual interfacing and managing of data as far as possible. Manual transfer of critical data will however still receive high priority to ensure proper control of information and flow thereof between disciplines. These formal manual transfers of data will occur through Document Control.

24.1.5.10 Engineering Reviews (Layout / Model Reviews)

Layout reviews will be done using AutoCAD with live models where possible. PowerPoint images will be taken of these reviews which will be maintained in a specific model review folder for traceability on approved and reviewed models during the design process.

24.1.5.11 Computer Aided Design and Drafting

CADD systems will be used by Engineering disciplines, and integration and sharing of data between systems will be continually improved. Clash detection will be implemented and fully utilized. Full responsibility is required for each discipline for co-ordination of their respective discipline models.

All drawings will be prepared in AutoCAD, and final drawings will be delivered to Frontier in AutoCAD format. Drawings will be issued for review during the design process in pdf format.

24.1.5.12 Engineering Quality

Quality of the engineering work must never jeopardize functionality, quality of project, practicalities involving the fabrication and erection process and ultimately either operability or maintainability.

Engineering procedures mentioned above will be implemented to support the process of scope and change management, squad checking, design and model reviews with both maintenance and operations staff, detail design reviews and drawing checking as well as the engineering involvement with the inspection, testing and approval of fabricated items before delivery to site. All procedures will aim at continually improving the quality of engineering work performed.

24.1.5.13 Engineering Approval

Terminology definitions and purposes which apply to document issuance are defined as follows:

- **For Review (IFR):** An issue for review and comments.
- **For Design (IFD):** Document is conceptually correct / adequate as basis for detailed design.
- **For Tender (IFT):** Document is conceptually correct / adequate for tender purposes. Only documentation sent to potential Vendors / Contractors will be IFT.
- **For Construction (IFC):** Document is correct / adequate for construction.
- **Drawing Sign-Off**: Drawings will be authorized in the title block for Tender and Construction. Sign-off by Frontier is for commercial and management purposes only, and does not imply any responsibility for design.

24.1.5.14 Hazard and Operability Review

HAZOP Reviews form a part of the “Safety in Design” approach and will be implemented on this Project under the guidance of a trained HAZOP facilitator. HAZOP studies will be carried out to:

- Identify potential hazards and impediments to operability in a design.
- Anticipate whether the plant will operate as intended under all possible circumstances.
- Proactively learn about hazards through foresight.
- Examine every part of the design for the entire Project from this perspective.

A series of HAZOP reviews will be performed during detailed engineering. A HAZOP Review Plan will be prepared and circulated to the Project team near the start of detailed engineering, so that the team understands the purpose and timing of the various HAZOP reviews to be performed.

24.1.6 PROCUREMENT AND CONTRACTS

A Procurement Program will be developed based on the Required on Site (ROS) dates. The Procurement Program will define when engineering and specification for each work package must be complete for Request for Quotations (RFQ) issue to satisfy the ROS dates.

The integrated Engineering, Design and Procurement Program will ensure all design commences on time to ensure adequate time for review, check, risk analysis studies, and peer reviews in advance of release for purchase and for construction dates, in line with agreed approval procedures.

The structure of the vendor schedules will be aligned with the structure of the overall Project schedule. A detailed specification on planning requirements will be included in tender enquiries.

Procurement, quality surveillance, and expediting activities will be performed by the EPCM Contractor and Frontier. Packages will be prepared, bid and evaluated by the EPCM Contractor with final contracts or purchases awarded directly by Frontier. All major equipment purchase orders will be placed on a priority basis, to ensure the timely flow of vendor data in support of the engineering process, with deferral of associated equipment procurement, manufacture and delivery phases until required to support the construction schedule.

The EPCM Contractor will prepare enquiry packages, adjudications and placement of orders. The Project Engineer will ensure that procurement procedures are adhered to when issuing enquiries, purchase orders or contracts.

24.1.6.1 Key Objectives of Procurement

The key objectives of Procurement on the Project are:

- Manage safety through the procurement cycle, particularly with respect to site contracts.
- Develop and utilize General and Special Conditions of contract.
- Utilize Document Control for web-based procurement with focus on local Ontario suppliers.
- Ensure suitable tender pre-qualification processes to determine workload over Project duration.
- Ensure materials and equipment delivery to meet schedule, budget and technical performance.
- Implement and maintain contract-specific quality management procedures.
- Set up contract packages to meet the Project cost, schedule and implementation objectives.
- Build Risk Management strategies associated with time, cost and contractor performances.
- Apply emphasis to critical equipment and construction contracts, using QC and expediting.

Owner requirements will be incorporated into the procedures to ensure they are captured and implemented.

Materials and equipment will be procured from suppliers properly equipped to satisfy specified Project requirements, and capable of providing adequate technical support and competent after-sales service.

The procurement team will be responsible for:

- Procurement of materials and equipment to be incorporated in the new facilities.
- Placing and managing contracts for provision of temporary facilities and services at site for construction, and support for Frontier in commissioning and performance testing.

- Purchasing spares and consumables required for commissioning, performance testing and initial operation, as agreed in the budget.
- Establishing a comprehensive library of technical documentation accurately describing all parts of new plant as commissioned.

A table of anticipated procurement packages and services sub-contracts which are foreseen for the Project will be established and developed further during the FEED phase to be used as a progress monitoring tool as Procurement activities advance.

24.1.6.2 Construction Contracts

Construction contracts will be awarded for the supply and installation of various commodities and purchase orders for most of the equipment. Typical anticipated contracts are as follows, and others may also be considered for this Project specifically as further outlined in subsequent sections:

- EPCM Contract.
- Civil Installation (Earthworks and Concrete) Contract.
- Steel, Piping and Platework (SPP) Supply Contract.
- Steel, Mechanical, Piping and Plate Work (SMPP) Installation Contract.
- Electrical Contract.

EPCM Contract

The EPCM Contractor is responsible for detailed engineering, procurement, and construction management of the site facilities. Specialist consultants for services such as geotechnical, surveying, and Construction Management will be contracted directly by the EPCM Contractor and will work under their supervision.

Civil Installation (Earthworks and Concrete) Contract

This Contract includes all earthworks, clearance and grubbing, cut and fill, haul and place, plant roads, road signs, and storm water drains.

The Concrete Contract includes detailed excavation, reinforcing, shuttering and shoring of concrete as specified on the concrete detail drawings.

SPP Supply Contract

This Contract includes the supply of all structural steel, piping, and plate work required for the Project, as described in the engineering drawings and Bills of Material prepared for the Project.

SMPP Installation Contract

Structural erection and mechanical equipment installation is combined in a single contract to avoid contractor access issues. This Contract includes all stairs, handrails, flooring, cladding and steel protective coatings as required. Also included in this contract is the off-loading of all mechanical equipment to the lay-down area. A material controller will inspect equipment and a condition report will be compiled for Project accounting.

The plate work portion of this Contract includes bin / chute supply, manufacture, lining (as required), delivery and site assembly or installation.

The piping potion of this Contract includes installation of all piping work, valves and in-line instruments. Valves and in-line instruments are supplied free-issue. Instruments are calibrated and cabled by the Electrical Contractor.

Electrical Contract

The Electrical Contractor is responsible for the installation of all electrical as well as instrument cable and racks, and tie-in to the existing site facilities.

24.1.6.3 Logistics

The primary responsibilities will include the control of access to site, the control of material deliveries to the correct construction area, construction waste removal and the import of borrow material.

24.1.7 CONSTRUCTION

24.1.7.1 Safety Fundamentals

Safety must be a shared value that Project success goes beyond delivering work on schedule and within budgetary expectations. The objective is to conduct all Project aspects safely at all times by minimizing all identified risks, based on a combination of legislative measures and using a people-based safety system.

The following safety rules and fundamentals will be strictly enforced to ensure safety of all stakeholders involved with the Project:

- Beyond Zero / Zero Harm – Adherence to standards at all times and an intolerance of unsafe acts or conditions.
- Personnel Competency – All personnel competent in the work they conduct.
- Risk Assessment – Workplace hazards identified and risks assessed before activities commence on site.

- Daily Work Plans – Work control plans in place to ensure adherence to principles of safety and assessed risk.
- Change Management – Hazards and risk reviewed when processes, people or natural circumstances change to ensure unacceptable risks to safety and health are prevented.
- Emergency Response – Tested emergency response plans, developed from a review of potential emergency scenarios, will be in place before commencement of work.
- Record Keeping – All accidents and incidents must be reported immediately. Records will be maintained for a minimum period of twelve months after completion of the Project.
- Site Requirements – Permits are required to do any work on site. Permitting will be an Owner responsibility, with support as required provided by the EPCM Contractor.
- Stringent controls for protection of the environment will be applied at all times. Prompt action will be taken to correct an adverse trend or situation.

24.1.7.2 Site Management

The appointed Construction Manager will report to the Project Manager. The Construction Manager will have responsibility for all site construction activity, as well as for control of all free issue materials, safety, security, and industrial relations. The Construction Manager may also appoint other personnel as necessary, such as: civil, structural, mechanical, piping, electrical and instrumentation supervisors, construction planner(s), safety and administration personnel, materials controller, document controller(s), contract administrator(s) and quantity surveying services.

The Construction Manager will treat Project planning, design and construction phases as integrated tasks. The Construction Manager provides leadership on all matters relating to construction, keeping the Project Manager informed and making recommendations on design improvements, constructability, schedules, strategies and labour relations.

The construction phase begins prior to the award of the first contract. The requirements of the Construction Manager entail:

- Implementation of safety and environmental procedures.
- Overseeing establishment of the infrastructure, site office and site services.
- Contracts co-ordination.
- Construction services (stores receipt, inspection, storage, issuing Owner-supplied goods).
- Site administration and progress records.
- Participation in implementation of quality management.
- Approve progress payment requests and certification.
- Implementation of site Document Control.

- Preparation of Project acceptance and close-out.
- Site-based risk management.

Construction teams will be organized to ensure they are adequately supervised such that Project schedule, cost and quality control criteria are met. Construction work will be carried out by competent contractors with proven experience of work in similar environments of a similar scale.

The overall co-ordination of construction will be by the Construction Manager and their team, who will not themselves directly undertake construction.

Construction will be carried out in accordance with local legislation and approved procedures.

All free issue materials and equipment for incorporation in the works will be received, stored and issued under the guidance of the Construction Manager.

The Owner in discussion with the Construction Manager will arrange for the supply of utilities and services (electricity, potable water, telephones, etc.) by the relevant authorities at connection points convenient for off take by the contractors. The Construction Manager will monitor proper installation and use of these utilities and services by contractors.

24.1.7.3 Material Control and Warehousing

Material logistics on site will be the responsibility of the Construction Manager. Responsibilities in this capacity include management of receipt, storage and issue of free issue equipment, management of lay down yard and warehouse, and site expediting as required.

24.1.7.4 Site Accommodation

Accommodations at or near the site will be established in consultation between the EPCM Contractor and Frontier. Tendering contractors must indicate their anticipated accommodation requirements with their tender submissions. Such requirements will be re-confirmed by the successful contractor at time of contract award, and subsequently at monthly intervals.

24.1.8 COMMISSIONING

24.1.8.1 General

Standard EPCM Contractor commissioning procedures form the basis of the Project schedule. A final commissioning procedure will be developed and submitted for approval during Execution.

Plant start-up is a demanding and complex phase of the Project. It involves the combined effort and co-operation of all parties, including Frontier's operations and commissioning teams, contractors and vendors. A Commissioning Manager will be appointed with overall responsibility for commissioning and handover to Frontier.

The Commissioning Team will be based at the site office. Mobilization of this team will occur during the final weeks of construction and will include key personnel from the detailed engineering phase.

24.1.8.2 Commissioning Safety

Maintaining the required safety conditions during plant commissioning and start-up is a demanding task. Overlap with construction, inherent risks of testing equipment and operator unfamiliarity with new systems are all complicating factors. For this reason, adherence to proper safety precautions must take a primary role. The operation of equipment in hazardous conditions is not permitted.

24.1.8.3 Ramp Up and Handover

Handover will be complete on successful operation of the plant at name plate capacity as defined in the Contract. The test will be deemed complete if any delays were caused by a lack of operational support or lack of material for processing beyond reasonable control of the EPCM Contractor.

24.2 Project Execution Schedule

This section outlines the methodology, standards, assumptions, constraints, and other relevant considerations for the full plant and other buildings used to develop the Project Schedule.

The schedule hinges on two (2) fundamental assumptions:

- The permanent road will become available in August 2027. This is important to allow the start of early works activities and to permit the subsequent delivery of equipment and materials.
- The high-voltage line will become operational in January 2030 in time to allow the commissioning of the Plant.

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.

24.2.1 SCHEDULE SCOPE

The schedule details the execution plan for the Project, encompassing Engineering, Procurement, Manufacturing and Delivery, Construction, and Commissioning. It is classified as a Level 4 schedule.

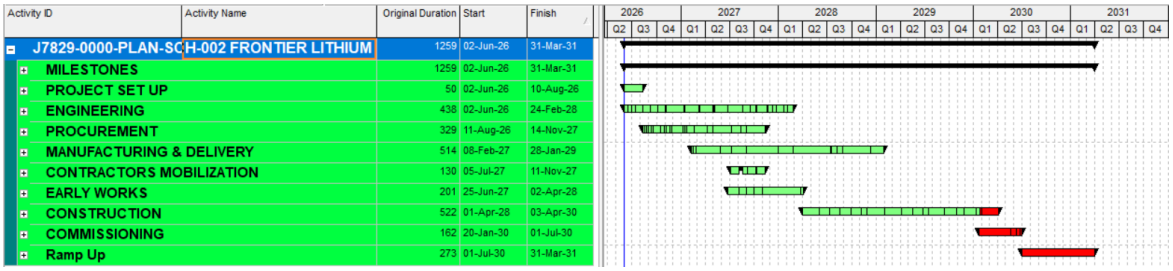
24.2.2 SCHEDULE EXCLUSION - PERMITTING

The execution schedule excludes all permitting requirements, and any work assigned to external consultants. However, the execution and permitting schedules have been prepared to be mutually compatible with each other. Construction dates both inform, and respect, the required permit delivery dates.

24.2.3 OVERALL SCHEDULE AND KEY PROJECT DATES

Figure 24.1 depicts a summary schedule of the Project execution phase. Key Milestone dates are presented in Table 24.1.

Figure 24.1 – Summary-Level Project Schedule



Source: DRA, 2025

Table 24.1 – Key Project Milestones

Milestone Description	Date
Detailed engineering kickoff	June 2, 2026
Site water quality data for potable water input	July 1, 2026
Mine and surface water quality data	July 1, 2026
Output / effluent water quality data	July 1, 2026
Contractor mobilization	July 5, 2027
Permanent road available for construction	August 2, 2027
Construction start	August 4, 2027
All POs placed	September 2, 2027
Engineering finish	February 24, 2028
High-voltage overhead line available	January 20, 2030
Construction finish plant	April 3, 2030
Commissioning C5 sign off	June 24, 2030
Ramp up complete	March 31, 2031

24.2.4 KEY ASSUMPTIONS

The schedule relies on the following assumptions:

- The permanent road will be available in August 2027. This is critical to allow the start of early works activities and the subsequent delivery of equipment and materials.
- The high-voltage line will be operational in January 2030, in time for the plant commissioning.

The permanent Operations Camp will be ordered early during the EPCM phase, allowing for delivery and installation during Early Works. It is assumed its nominal capacity of 240 people is also sufficient to house workers during peak construction. The camp will be revamped at the end of the construction to become the Operations Camp.

24.2.5 SCHEDULE STRUCTURE

The Schedule was developed to Level 4 structure, broken down as follows:

- **Level 1** – Phases (Engineering, Procurement, Fabrication, Construction, Commissioning).
- **Level 2** – Disciplines / Main Area / Procurement Packages.
- **Level 3** – Sub areas / Main procurement packages.
- **Level 4** – Sub packages, Trades.

Figure 24.2 illustrates a Level 2 schedule structure.

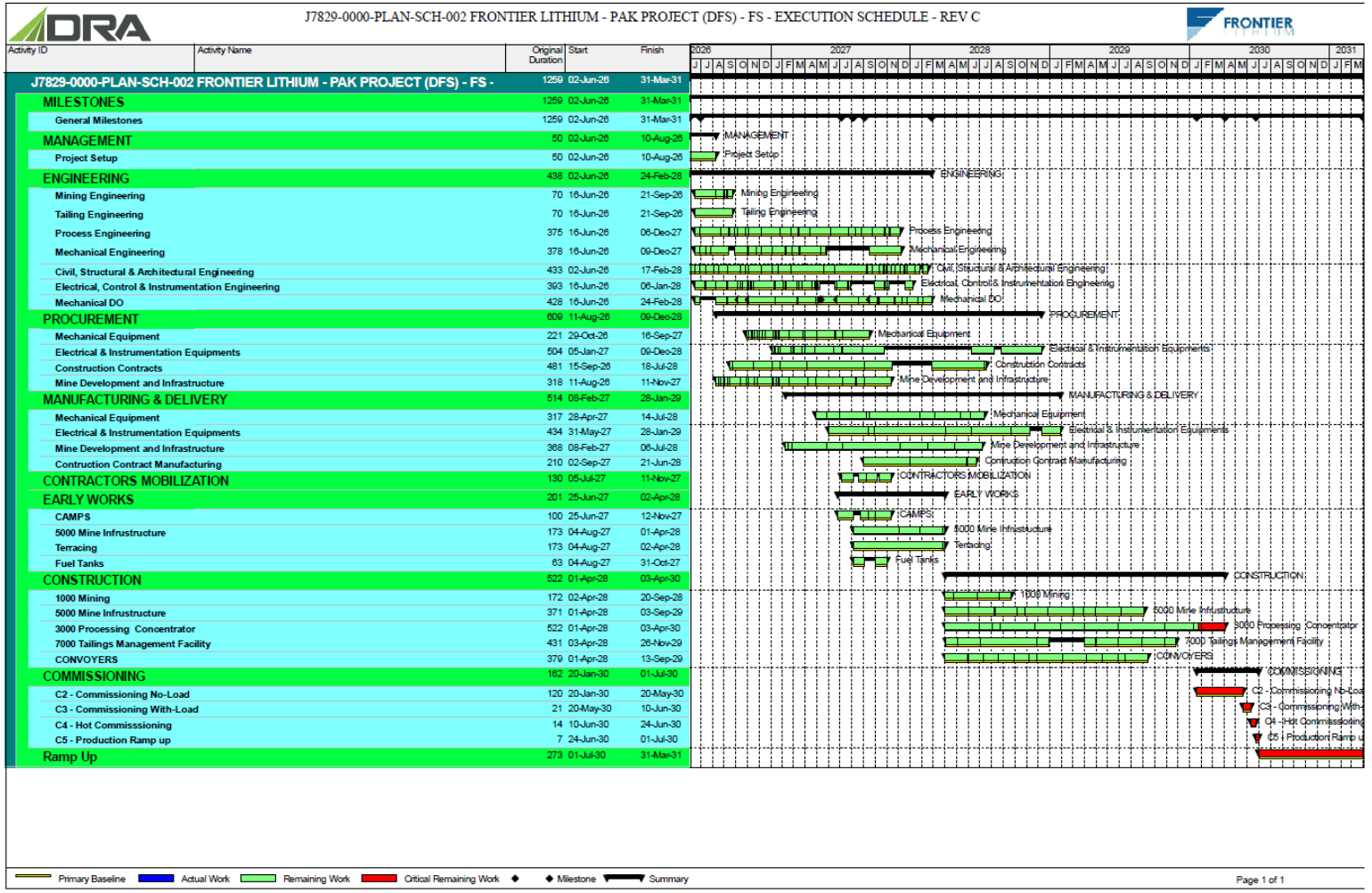
24.2.6 BASIS OF SCHEDULE

24.2.6.1 Engineering

The engineering phase includes preparation of all engineering deliverables, from equipment design to preparation of IFC and fabrication drawings. This phase is structured based on the Project WBS. Overall engineering duration is expected to be 20 months.

- Assumptions:
  - Engineering start on June 2, 2026.
  - There will be no significant change in design from that developed during the FS.
- Deliverable Review Process:
  - Each deliverable will first be reviewed internally and then submitted for Client review. One (1) week has been allocated for each step in most cases.
- Vendor Information:
  - Vendor information must be approved prior to the start of manufacturing. Vendor information is also required to design the structure and concrete and produce drawings, to update the 3D models with accurate information, and to produce mechanical IFC drawings.

Figure 24.2 – Level 2 Schedule Structure



24.2.6.2 Procurement

The procurement process for both equipment and contract packages begins once the scope of work is defined, via a package of datasheets, drawings, documents, and/or any other relevant information. The finalized package is then handed over to the procurement team, who initiates the bidding process by preparing and issuing Requests for Proposals (RFPs) to send to the market.

The following assumptions outline the procurement steps and associated durations:

- The total duration of procurement is expected to be 15 months.
- Contract Packages:
  - Seven (7) Contracts packages are considered: Early Works, Buildings, Earthwork, Concrete, SMPP, EI&C, and Mining. Certain contractors may perform multiple scopes.
  - RFPs: ready one (1) week after receipt of package documents (including scope of work (SOW), specification, preamble, bill of quantities (BOQ), drawings / documents).
  - Bidding period: eight (8) weeks.
  - Comparison of tenders (COT): five (5) weeks.
  - Purchase Order Placement: four (4) weeks from COT to Draft Contract and Client approval and signature: one (1) to two (2) weeks, subject to the approval of SOW, specification, preamble, BOQ and associated drawings / documents to issue to purchase.
- Long Lead Equipment Packages:
  - RFQ: one (1) week after receipt of the Package documents (including SOW, Specification, Datasheet, BOQ, Vendor Data Requirements List (VDRL) and associated drawings).
  - Bidding period: four (4) weeks.
  - COT: seven (7) weeks
  - Purchase Order / Contract Finalization: three (3) weeks after the COT is complete.

It is assumed that when a contract is signed, only some IFC drawings will be available to allow the contractor to start work in the prioritized areas. The remaining IFC drawings will be issued gradually during the execution of the contract.

24.2.6.3 Fabrication and Delivery

Once the Purchase Order is placed and vendor engineering data is reviewed and approved, the supplier will commence manufacturing. The following key assumptions are considered:

- Total duration for equipment manufacturing and delivery to site is expected to be 24 months.
- Deliveries to site are scheduled after the permanent road is ready in August 2027.
- Durations:

- Manufacturing duration is based on vendor quotations received during the FS.
- Delivery to site used by default is 70 days for all the long lead items. For equipment purchased in North America, 30 days was considered.

24.2.6.4 Early Works and Construction

The expected duration for Early Works is nine (9) months, while the total duration for the site construction, including C1 is 24 months. The Early Works and Construction phases are organized based on the WBS up to Level 3, as applicable, where Level 1 represents Area, Level 2 Sub-Area, and Level 3 Trade. The sequence, with applicable lags, is as follows:

- Earthwork.
- Concrete.
- Buildings Construction.
- Structural, Mechanical and Plate Work.
- Piping.
- Painting and Insulation.
- EI&C.

Assumptions for Early Works include:

- Early Works will commence only after the permanent road is available in August 2027.
- Early Works consist of the following components: camp, airstrip, roads (main road to site, camps to landing strips, internal roads), utilities services (fuel tanks), and site terraces.

24.2.6.5 Commissioning

Commissioning will occur in five (5) phases and will conclude four (4) months after construction completion. The total duration for commissioning (C2 to C5) is expected to be six (6) months. The commissioning steps and related assumptions are as follows:

- C1 – Construction verification (equipment, EC&I, I/O checks / punch items (by sub-area)).
- C2 – Direction checks (motors and valves).
- C3 – Commissioning with water.
- C4 – Introduction of ROM ore.
- C5 – Completion of performance testing.

24.2.6.6 Ramp Up

Following the performance test, production ramp up will begin. The total expected duration for production ramp up is 9 months.

24.2.7 SCHEDULE CALENDARS

Three (3) main Project calendars have been established:

- **Engineering/ Procurement:** 8 hours a day / 5 days a week, with holidays in last week of the year and the first week of the year.
- **Manufacturing, Delivery and Construction :**10 working hours a day / 6 days a week, with a two-week Christmas holiday included.
- **Concrete Work:** 10 hours a day / 7 days a week, with no holidays. This schedule applies from April to October, and applies for all concrete work activities that are not covered by a building.

24.2.8 CRITICAL PATH AND NEAR CRITICAL PATH

The critical path consists of the longest sequence of activities on the Project, and all activities on this path have zero float. Any delay in these activities will extend the Project end date. The main activities comprising the critical path include:

- Permanent road availability.
- Camp construction.
- Main plant terrace construction.
- Installation of the winterized building.
- Installation work inside the winterized building (grinding and flotation areas).
- High voltage overhead line available.
- Commissioning.
- Ramp-up.

Since a backward planning methodology was used for engineering (from the readiness of the permanent road), engineering is not considered part of the schedule's critical path.

The near critical path is defined as any activity with a total float of 60 days or less. The following activities constitute the near critical path:

- Early Works design.
- Detailed engineering and drawings for winterized building, grinding, crushing, coarse ore stockpile, and floatation.
- Roads (between the camp and landing strips / internal roads).
- Construction contractor contract.
- Construction in crushing coarse ore stockpile, grinding, floatation areas.
- Winterized buildings manufacturing.
- Fuel tanks.

24.3 Operational Readiness Plan

Operational Readiness (OR) is defined as “the state of preparedness of a unit to perform the objectives/mission for which it is organized, designed and built for”.

An Operational Readiness Plan (ORP) should primarily be seen as an integration strategy, which transitions a facility / plant from the engineering and design phase to execution and ultimately to steady-state operations. OR projects typically focus on the following critical dimensions:

- Defining and assessing the impact of the future operating environment and future operational steady-state strategies, influencing the technical design from an early stage (PFS, FS) into detail design).
- Defining and building operational support capabilities from the ramp-up phase through to steady-state operations.
- Creating opportunities for early alignment among management, engineering, operations, and support teams.

Typically, three (3) main OR objectives must be met to ensure that a fit-for-purpose operational capability is developed in parallel with project execution, which are broadly categorized as follows:

1. To have people “operationally ready” with the right levels of engagement, empowerment, skills, and knowledge to meet the ramp-up production schedules and plans safely.
2. To have equipment “operationally ready” to safely produce at the expected availability, production rate and quality levels to meet ramp-up production schedules and plans.
3. To have systems and processes “operationally ready”: Ensuring systems and processes are in place to safely and consistently meet production requirements, fully compliant with operating licenses and Frontier's values, mission, and vision.

The OR effort required to meet the objectives listed above includes the following tasks:

- Identify and define activities for each of the identified OR functional workstreams and core elements (starting with a gap review).
- Identify and assign responsibility and resources to execute the activities.
- Ensure workstream activities consider the timeframe for recruiting, onboarding and training of personnel as well as time required for completion of all OR plan activities and to develop each OR component.
- Link the recruitment schedule, OR schedule, and operations start-up schedule to the project master schedule which is used to monitor the delivery of all OR components.
- Identify gaps in resource availability.
- Build an OR budget for inclusion in the overall project budget report.
- List the applicable operating and start-up procedures per functional area to be developed.

- Develop an index of relevant documents for each key OR component.

In general, the OR gap review process is designed to determine the capability of the operations team in its current state versus its capability required during steady-state operations. It provides a high-level overview of the risks and opportunities to be addressed, in the definition of an integrated framework and OR schedule. Utilizing Minopex's in-house, cloud-based MTAC (Minopex Technical Advisory Collaborator) tool, this process involves workshops to identify gaps, define the desired end-state, and outline actions to achieve the operational goals.

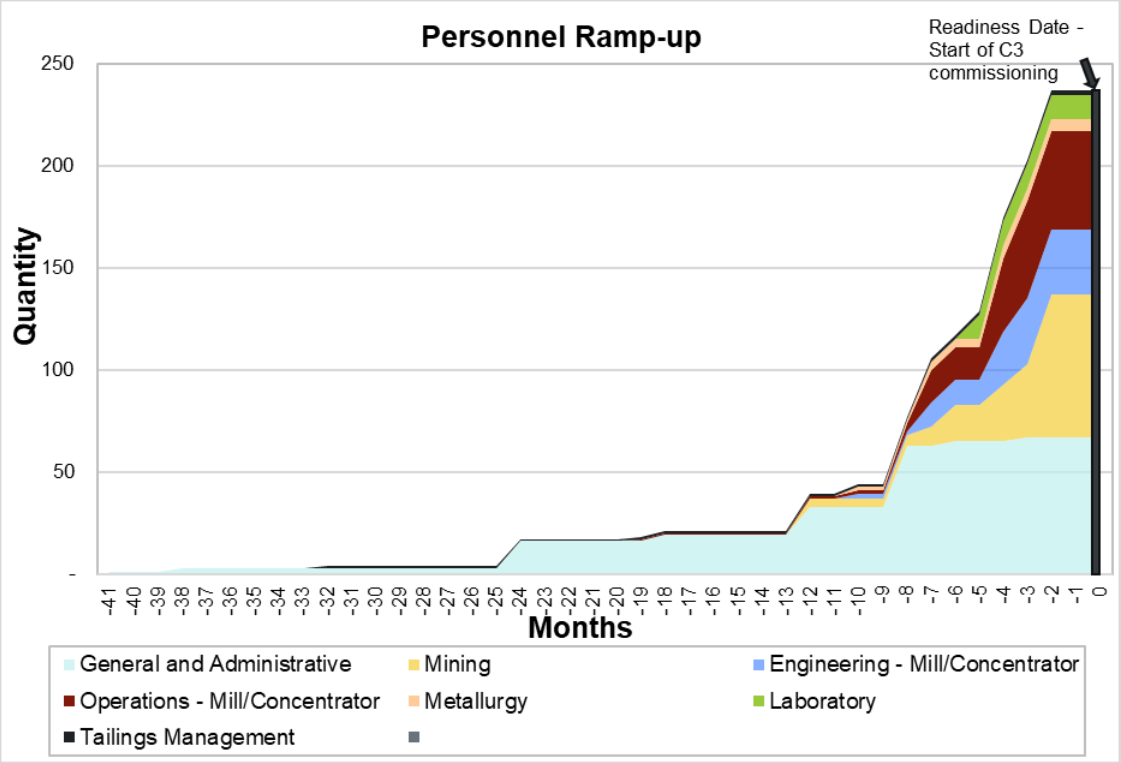
The actions identified during the gap assessment are used to formulate the integrated framework, Responsible, Accountable, Consulted, and Informed (RACI) matrices per workstream, Standard Operating Procedures (SOPs) requirements, and a risk analysis. The RACI matrix is used to identify roles and responsibilities, and to assign activities and milestones to the right team members. The summarized RACI matrices will be incorporated into the OR schedule, which includes tasks, integration points, and capability development activities that require input and ownership from all stakeholder groups. The OR schedule and OR budget are aligned with the project master schedule, pegged against specific milestones, including:

- Construction completion: 3 April 2030.
- C2 Commissioning completion: 20 May 2030.
- C3 Commissioning completion: 10 June 2030.
- C4 Commissioning completion: 24 June 2030.
- C5 Commissioning completion: 1 July 2030.
- Production Ramp-up completion: 31 March 2031.

The OR project budget has been calculated, with CA$37.70 M allocated over the four-year pre-production period. This budget supports the ramp-up of 225 full-time equivalent personnel, development of necessary infrastructure, and integration of critical business systems. The project milestones, including key commissioning dates, are aligned with the ORP to ensure that all components are in place for successful project execution. The anticipated personnel mobilization profile is presented in Figure 24.3.

It is essential that development of the workstream activities commence as soon as possible to ensure timely completion. The overall OR review is effectively a risk mitigation strategy, aiming to identify risks and opportunities per functional area and ensuring timely risk mitigation, but also allows teams the opportunity to focus on commissioning activities.

Figure 24.3 – Personnel Ramp-Up Profile



Source: Minopex, 2025

25 INTERPRETATION AND CONCLUSIONS

25.1 Interpretations

25.1.1 Property Description and Location

The Project is located approximately 175 km north of the municipality of Red Lake, ON within the Red Lake Mining Division, and is centred around 52°36'N latitude and 93°23'W longitude near Pakeagama Lake.

The Property comprises a total of three (3) mining leases and 1,300 mining claims totalling 27,886 ha that are contiguous.

All land tenure has since been transferred from "Frontier Lithium Inc." to "Frontier Lithium Resources Inc."; this includes a group of 35 single cell claims (667 ha) that are subject to conversion from mining claims to a mining lease (shown in blue in Figure 4.2). A letter of intent to convert the claims to lease was submitted to the Ministry on June 28, 2022. The Ministry has completed its due diligence and the surveying has since been completed according to the instructions provided by the Office of the Surveyor General. The legal reference plan is completed and submitted; pending approval, Frontier can complete the application for the mining lease.

No royalty or NSR agreements are associated with either Lease 109669 or Lease 110032 that contain the PAK and Spark deposits, respectively. A royalty agreement is in place for 17 claim cells to the east of Lease 109669 and portions of the 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 (2) additional areas have 1.5% and 0.5% NSRs with the ability to buy out the royalties for $1,000,000 and $500,000, respectively. A single claim group located along the Flanagan River has a 1.0% NSR, which can also be purchased for $1,000,000.

No industrial activities such as mining or mineral processing have been conducted on the Property, with disturbances limited to bulk sample pits, drill trails, and drill pad set-ups. The QP is not aware of any environmental liabilities presently on the Property.

All requisite permits have been obtained to conduct exploration on the Property.

Exploration Agreements are in place with four (4) 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.

25.1.2 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

Access to the Property is currently available year-round by chartered aircraft from Red Lake, ON and during winter by vehicle from Red Lake north on 100 km of the all-season Nungesser Road, then 115 km on the winter road to North Spirit Lake First Nation, and another 35 km past North Spirit Lake towards Sandy Lake First Nation.

The climate is typical northern boreal with warm summers and cold winters.

There is no immediate skilled labour close to the Property however there are skilled tradespeople and labourers in the greater region.

There is sufficient water for mining operations within the Property.

Surface rights sufficient for mining operations have been obtained.

Currently, there is no electric power is available on the Property, however the Watanynikaneyap powerline, currently under construction and passing the western boundary of the Project, is expected to supply power to the Project.

The dominant vegetation around the Project is coniferous forest.

25.1.3 HISTORY

Early mapping programs completed by the GSC and OGS aside, Frontier has been the sole operator actively exploring on the Property since 1999. These efforts have included predominantly geological mapping, trenching, channel sampling and diamond drilling, in addition to various geochemical and geophysical surveys.

25.1.4 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 area is underlain by the northwestern extension of the North Spirit Lake greenstone belt, which is approximately 2 km wide in the vicinity of the known pegmatites.

The greenstone belt is bounded to the north by biotitic tonalites 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).

There are three (3) main lithologic domains. To the northeast, rocks with metasedimentary origins are composed of pelitic sediments, iron formation, and conglomerate. The southwest region comprises dominantly mafic metavolcanic and related metasedimentary rocks. The elongate (15 by

2.5 km) Pakeagama Lake peraluminous granite - pluton trending northwest-southeast was emplaced along the unconformable contact between metasedimentary and metavolcanic rocks.

The Pakeagama Lake granitic pegmatite (PAK pegmatite) is a highly evolved, zoned, complex- type, petalite-subtype LCT granitic 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.

Recent discoveries by Frontier have identified up to three new mineralized intrusive bodies including the Spark, Bolt and Ember pegmatites in addition to the historic Pennock showing. The Spark pegmatite, situated approximately 2.3 km to the northwest of PAK, exhibits many lithological similarities. The smaller Bolt pegmatite is located between PAK and Spark, while the Pennock pegmatite lies approximately 25 km northwest of Spark. The most recently identified Ember pegmatite is located approximately 1 km west-northwest of Spark. Similar to PAK, each of these discoveries has been made along, or in proximity to, the same unconformable metasedimentary-metavolcanic contact.

25.1.4.1 Deposit Type

Frontier's target deposit model is the highly evolved, granitic, rare-element LCT-bearing complex type, petalite subtype granitic pegmatite system. Many similarities can be drawn from the world-class Tanco pegmatite mining complex.

25.1.4.2 Exploration

Diamond drilling aside, exploration by Frontier at the Project has mainly comprised detailed geological mapping, trenching and channel sampling, as well as various geochemical and geophysical surveys across the property. Mapping and channel sampling have been completed on multiple targets including the PAK, Spark and Bolt deposits, in addition to the new Ember pegmatite discovery and the historic Pennock showing.

25.1.4.3 Drilling

A total of 14 phases of surface diamond drilling have been completed to date on the Property by Frontier since 2013. Drilling was focused exclusively on the PAK deposit until 2019 when attention was turned to the newly discovered Spark pegmatite through to the end of 2022. Beginning in 2023, drilling targeted both the Spark deposit and the new Bolt discovery; additional geotechnical and condemnation holes were also completed in the areas surrounding PAK and Spark.

Following the database handover to DRA on November 30, 2023, additional geotechnical and condemnation drilling was completed at Spark, as well as one (1) exploration hole at the new Ember target in 2024. DRA does not expect any of this drilling to have a significant impact on the mineral resources presented in this Report.

25.1.4.4 Sample Preparation, Analyses and Security

Samples were prepared and analyzed at ACME and Activation Laboratories from 2013 to 2015 and at AGAT from 2015 to 2024. All three (3) laboratories are accredited commercial facilities. All analyses were completed using sodium peroxide fusion with an ICP-OES/ICP-MS Finish.

The QP confirms that Frontier has maintained a QA/QC program that meets industry standards during all channel sampling and drilling programs.

25.1.4.5 Data Verification

Various qualified consultants have verified data from the PAK Project over the years by completing site investigations, reviewing drill core, confirming drill collar locations, conducting independent check assay sampling, and database validation.

25.1.5 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 2025. 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 process flowsheet selected for the feasibility study includes a number of unit operations including ore sorting, desliming, gravity separation, magnetic separation, mica, and spodumene flotation to produce a targeted lithium recovery (77.6% for Spark, and 78.0% for PAK) to the 6% Li_2O spodumene concentrate.

25.1.6 Mineral Resources

An updated Mineral Resource Estimate has been completed for the PAK Project using new information from continued drilling and exploration work completed since the effective date of the last technical report (May 31, 2023; BBA, 2023). The resources reported herein used a database handover (i.e., freeze) date of November 30th, 2023.

It is the QP's opinion that the geological interpretation and related data remain valid for the Mineral Resource Estimates. Assumptions and methodologies used are considered acceptable and representative of typical LCT pegmatite mineralized systems.

In-pit resources for the PAK deposit include Measured and Indicated Resources of 4,106 kt @ 2.00% Li_2O for 82 kt of contained Li_2O, and Inferred Resources of 122 kt @ 1.50% Li_2O for 2 kt of contained Li_2O; the underground portion includes Measured and Indicated Resources of 1,703 kt @ 2.39% Li_2O for 41 kt of contained Li_2O, and Inferred Resources of 1,995 kt @ 2.19% Li_2O for 44 kt of contained Li_2O.

Pit-constrained resources for the Spark deposit include Measured and Indicated Resources of 31,100 kt @ 1.47% Li_2O for 456 kt of contained Li_2O, and Inferred Resources of 10,954 kt @ 1.53% Li_2O for 167 kt of contained Li_2O.

In-pit resources for the new Bolt deposit include Inferred Resources of 5,516 kt @ 1.23% Li_2O for 68 kt of contained Li_2O.

Pit-constrained resources for the overall PAK Project thus include Measured and Indicated Resources of 35,206 kt @ 1.53% Li_2O for 538 kt of contained Li_2O, and Inferred Resources of 16,592 kt @ 1.43% Li_2O for 237 kt of contained Li_2O; total underground resources are from the PAK deposit only and include Measured and Indicated Resources of 1,703 kt @ 2.39% Li_2O for 41 kt of contained Li_2O, and Inferred Resources of 1,995 kt @ 2.19% Li_2O for 44 kt of contained Li_2O.

The resource has been prepared using a cut-off grade of 0.65% Li_2O for the in-pit resources, meanwhile the underground portion is declared using a cut-off grade of 0.80% Li_2O. Both in-pit and underground resources are reported using a lithium price of US$1,500/t for 6.0% Li_2O chemical grade concentrate.

It is noteworthy that Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. Moreover, it is not guaranteed that all or part of the Mineral Resources will be converted into Mineral Reserves.

The QP considers the Mineral Resources declared in this Report to have been prepared in a manner conforming with current CIM standards, definitions and guidelines for Mineral Resource Estimation.

The QP is also presently unaware of any legal, title, environmental, permitting, taxation, geopolitical, socioeconomic or other factors that may materially affect the Mineral Resources reported herein for the Project.

Any additional drilling completed following the database handover date has been reviewed and is considered as not likely to have any significant impacts on the resources declared in this Report.

25.1.7 MINERAL RESERVES

The FS for the PAK Lithium Project demonstrates the economic viability of developing an open-pit lithium mining operation at the PAK and Spark deposits. With a total of 31.1 million tonnes (Mt) of Proven and Probable Mineral Reserves, grading 1.51% Li_2O. The selected mining methodology and pit optimization strategies have been carefully designed to maximize resource extraction while maintaining Project profitability.

The study highlights key technical parameters, including a cut-off grade of 0.65% Li_2O, metallurgical recoveries of 78%, and an economic model based on a commodity long term price assumption of

US$1,475/t for 6.0% Li_2O chemical-grade concentrate. The projected stripping ratios of 5.9 for the PAK deposit and 3.3 for Spark indicate a feasible mining plan with manageable waste-to-ore ratios.

Industry best practices, including geotechnical assessments, pit shell optimizations, and detailed mine design, have been applied to ensure the accuracy and reliability of the reserve estimate.

While the Project demonstrates positive economic returns, several risk factors must be continuously monitored and managed:

Market volatility: Fluctuations in lithium prices that may impact project economics.

Regulatory compliance: Potential challenges in meeting environmental and permitting requirements.

Operational efficiency: Maintaining optimal recovery rates and cost-effective mining operations.

Additionally, opportunities exist to optimize operational costs, enhance mining efficiencies, and explore additional mineralization to expand the resource base.

The Project will employ conventional open-pit mining methods to extract material from the PAK and Spark deposits, selected due to the deposits' near-surface nature.

The mining sequence will involve:

- **Drilling and blasting** to fragment the rock.
- **Excavation and loading** using a combination of backhoe-type and front-end loader-type excavators.
- **Material haulage** by haul trucks transporting ore to the crusher, ROM stockpile, or mine waste rock storage facilities, depending on material classification.

Support equipment will include dozers, graders, utility loaders, water trucks, and service vehicles to facilitate mining operations.

A two-month pre-production stripping period has been scheduled due to the low initial mining and milling tonnages, as well as the immediate availability of surface ore. Mine rock from the pits was not planned for use as construction material.

The open pit production period is approximately 31 years. The operation scenario for the FS involves:

- Prioritize the Spark pit mine first, postponing the PAK pit until as late as possible in the LOM plan (Year 18).
- Average mining rate for both of ore and waste throughout the Life-of-Mine (LOM) is estimated to be approximately 4.7 Mtpa, with a peak production rate of 8.3 Mtpa projected in Year 9.

- One (1) processing line with a capacity of 200,000 tpa of Chemical Grade (CG) concentrate equivalent to 1,040,000 ore tpa.
- Processing plant is scheduled to commission on Q3 of Year 1.
- Maximum sink rate of 8 benches (80 m) per year.
- Fe_2O_3 maximum mill feed grade set to 1.4%.
- Prioritize schedule constraints: Concentrator Feed tonnage, Total Mined Tonnage per area, and ROM stockpiling balance.

25.1.8 RECOVERY METHODS

The spodumene concentrator plant capable of processing both Spark and PAK ore types will be located at the mine site. The ore will be processed into a 6.0% Li_2O chemical grade concentrate.

The concentrate will be transported by truck and further processed at a lithium chemicals conversion plant planned in or near a Great Lakes port city in Northern Ontario.

The concentrator flowsheet design is reasonable and based on the results of well-planned and executed test work campaigns. The concentrator plant uses well developed unit operations for the processing circuits: three-stage crushing and XRT preconcentration followed by rod and ball mill grinding; LIMS and WHIMS magnetic separation; conventional flotation with rougher stages completed in tank cells, and cleaning stages in mechanical cells; attrition scrubbing tanks; high rate thickener for concentrate and high compression thickener for final tails; concentrate filter press; conventional cyclones; stack sizer fine screens. These unit operations are all proven designs available from reputable equipment suppliers.

The concentrator design includes a practical level of automation for reliable control of process parameters and optimal headcount for the operations team.

The concentrator design incorporates an automated sampling and on-stream analyzer system, which allows for accurate sample data collection and processing of the samples. This enhances project confidence in plant mass and metal balance reconciliation, as well as in process control.

25.1.9 MARKET STUDIES AND CONTRACTS

Lithium is a key component of rechargeable lithium-ion batteries (LIBs), that are used in consumer electronics, electric vehicles, and energy storage applications. As a result of the global trend towards electrification and decarbonization, the lithium market has seen significant growth over the past decade and is predicted to continue to expand at a rapid pace. There are a number of greenfield projects and expansions in the pipeline to meet this demand, particularly from hard rock and conventional brine sources.

Lithium is traded in a number of forms, primarily as spodumene concentrate, lithium hydroxide, and lithium carbonate. The price for each these products is driven by the lithium market demand-supply balance and geopolitical events. The lithium market is still relatively immature and recent years have seen significant price volatility driven by demand-supply imbalances.

Frontier announced on March 4, 2025, that it intends to develop a lithium conversion plant in Thunder Bay, ON to process SC6 spodumene concentrate produced by the Project into lithium chemicals for sale to the LIB industry. As the scope of this Report does not currently include a conversion facility, price forecasts for SC6 from a number of industry and investment bank analysts were evaluated to determine a long-term SC6 price for the Project. For the purposes of this Report, it is assumed that SC6 sales will be undertaken via off-take agreements with third parties at terms commensurate with generally accepted market terms. Following this review, a long-term price of US$1,475/t (CIF China basis) was selected. To accommodate the use of this Incoterm, allowances for ocean freight and insurance to China were included in the realization costs used in the financial analysis of the Project.

Frontier does not currently have any material contracts in place for the sale of SC6. Mitsubishi has entered into a JV agreement with Frontier to initially acquire a 7.5% stake in the PAK Lithium mine and conversion facility (Tranche 1). Upon completion of this FS, Mitsubishi will have the right to increase its stake to 25% at a price based on the net value of the Project as determined in the FS (Tranche 2). The completion of Tranche 2 is subject to the results of the FS and certain terms and conditions, including the receipt of all the necessary material permits for the Project. Under this agreement, Mitsubishi shall have the right to acquire a portion of the total production from the conversion plant equal to their proportionate interest in the Project.

25.1.10 Environmental Studies, Permitting and Social or Community Impact

The following interpretations and conclusions are noted:

- Cumulatively, the data collection studies being carried out by Frontier are sufficient to inform ongoing engineering and planning and support permitting requirements.
- Additional data collection may be needed as a result of footprint and component optimization, and/or consultation/regulatory process needs.
- The *Mine Site* does not require completion of a federal impact assessment, however, will need to complete Provincial Class Environment Assessments (EAs) for the power transformer station, diesel power generation, vegetation removal, surface waterway encroachment, and aggregate source.
- It will also require longer lead permits such as a certified Closure Plan, *Fisheries Act* Authorization and Schedule 2 amendment under the Metal and Diamond Mining Effluent Regulations (MDMER).

- Other federal and provincial authorizations (Table 20.1) have been identified for Species at Risk, water usage, water discharge, air emissions, noise, and permit to remove timber with issuance aligned with *Mine Site* development.
- Key milestone permits prior to construction starting onsite are the Closure Plan, Species at Risk permit, and Fisheries Act Authorization.
- Frontier has engaged qualified professionals to advance the longer lead/key milestone permits concurrently with feasibility studies. This work is underway.
- Frontier has taken an active role in engaging with local communities and has increased this engagement over 2024 by implementing a Consultation Plan. Frontier currently has exploration agreements signed with the four Indigenous communities surrounding the *Mine Site* and, together, the Indigenous communities have a memorandum of understanding agreeing to share information.
- Emphasis for the *Mine Site* design and operation 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 land uses and treaty rights.
- By initiating data collection and having multiple years of environmental data, starting regulatory processes for long lead / key permits, and implementing an engagement plan, all concurrently with engineering, Frontier is on track to secure the necessary authorizations and permits to advance the *Mine Site* through construction and into eventual operations.

25.1.11 Economic Analysis

Based on the available information, the Project has a positive after-tax NPV of $932 M using a discount rate of 8%, an IRR of 17.9% and a payback period of 4.0 years from the start of operations. The sensitivity analysis indicates that the Project economics are most sensitive to the spodumene concentrate price, and thus the US$:CA$ exchange rate. Significant sensitivity is also observed with regards to the Capex and Opex. Even with a spodumene concentrate price 20% below the base case of US$1,475/tonne, the Project maintains a positive after-tax-NPV.

25.1.12 Adjacent Properties

A number of mineral claims have been staked around the Project. No adjacent property is at an advanced exploration stage.

25.1.13 Other Relevant Information

The Operational Readiness effort for the Project has been planned to facilitate transition from the engineering and design phases to steady-state operations. The detailed ORS addresses various features of the project, including future operating environment, development of operational support

capabilities, and early alignment of key stakeholders across management, engineering, operations, and support functions.

Key objectives have been identified to ensure that personnel, equipment, and systems are operationally ready. These objectives are supported by a series of tasks and activities which align with the overall project schedule. This approach ensures that responsibilities are defined and that all stakeholders are engaged in the process.

The Operational Readiness budget is CA$37.7 M allocated over the four-year pre-production period. This budget supports the ramp-up of 225 full-time equivalent personnel, the development of necessary infrastructure, and the integration of critical business systems. The project milestones, including key commissioning dates, are aligned with the ORP to ensure that all necessary components are in place for project execution.

The OR review process serves as a risk mitigation strategy, identifying potential risks and opportunities within each functional area and potential interventions. By adhering to the approach outlined in the ORP, the project team can mitigate risks, focus on commissioning activities, and focus on achieving the desired operational outcomes.

25.2 Opportunities

25.2.1 GEOLOGY

- Improve understanding of the structures around each of the identified pegmatite bodies, particularly to the west-northwest of the Spark deposit towards the Ember occurrence; this work could help better define potential areas of interest to test for the emplacement of additional mineralized pegmatite bodies (including buried intrusions).

25.2.2 DRILLING

- Improved drill angles at the northwest end of the Spark deposit could help to better define structures and understand how the emplacement/mineralized trend is behaving to the west-northwest, particularly towards the new Ember pegmatite occurrence. Moreover, there is potential for extensions at both Spark (especially to depth) and Bolt, in addition to drill testing the historic Pennock pegmatite showing as well as any new future discoveries.

25.2.3 PROCESS

- Optimize the overall production plan (mine/concentrator plant/conversion plant).

25.2.4 GEOLOGY AND MINERAL RESOURCES

As described in Section 25.3.3, the sampling of previously unsampled waste intervals (especially at Spark) could potentially have positive impacts on overall lithium grades; however, this could also increase iron grades which are known to impact the recovery process.

There is also an opportunity associated with the future collection of full sample SG measurements that match the assay intervals; this could potentially allow for the development of strong regression models between density and lithium at each deposit. This approach has been shown to work well for other rare metal projects in the QP's experience, thereby providing improved confidence in both geological and resource models.

Improved drill angles at the northwest end of the Spark deposit could also help to better define structures and understand how the emplacement/mineralized trend is behaving to the west-northwest, particularly towards the new Ember pegmatite occurrence. Moreover, there is potential for extensions at both Spark (especially to depth) and Bolt, in addition to drill testing the historic Pennock pegmatite showing as well as any new future discoveries.

25.2.5 MINING

For optimization purposes, DRA recommends the following continuous improvement initiatives:

- While this study has focused solely on open-pit mining, underground mining could be a viable option for extracting deeper portions of the PAK mineralized zones.
- Development of mining fleet automation could become available for the project, potentially enhancing its economic viability.
- Electrification of the mine equipment fleet could become an option in the future, reducing diesel consumption and lowering greenhouse gas emissions.
- Explore the possibility of in-pit disposal of mine waste, including the option to dispose of waste rock and/or tailings into the PAK pit after mining operations have concluded.
- Continue to refine dump and stockpile locations, including in-pit waste dumping, to improve overall efficiency and material handling logistics.
- Continue optimizing the mine plan by refining phase designs, evaluating alternative mining strategies, and enhancing overall operational efficiency.

25.2.6 RECOVERY METHODS

- Results of the test work program planned by Frontier for the next stage of the Project will provide new data for the process design with regards to the ore variability and composite samples tested. The process mass and water balances updated with the new test work data will improve confidence with regards to the process flowsheet design and equipment selection.

- Evaluate available options for equipment consolidation and bundling can potentially reduce the Project cost, schedule and could also simplify Project logistics.

25.3 Risks

25.3.1 GEOLOGY

Much work has gone into improving understanding of the structures around the PAK and Spark deposits since the 2023 PFS via geotechnical drilling programs; however, continued efforts are eventually required for all mineralized pegmatite bodies identified to date (incl. Bolt, Pennock and Ember) as well as any new discoveries.

25.3.2 DRILLING

A potential risk related to drilling involves the multiple drilling angles at the PAK deposit; at least two (2) main populations of drilling angles were identified by DRA. Understanding the difficulties associated with drill platform availability and logistics, this can affect appropriate sampling methodologies across the entire width of the mineralized zones, which can in turn introduce bias into the final estimation.

25.3.3 MINERAL RESOURCES

Review of the geology and resources by DRA has only identified a couple of areas of risk that could negatively affect the Project. These risks include multiple drilling angles at the PAK deposit; at least two (2) main populations of drilling angles were identified by DRA. Understanding the difficulties that can arise from logistics in drill platform availability, this can affect appropriate sampling methodologies across the entire width of the mineralized zones, which can in turn introduce bias into the final estimation.

In addition, several narrow, unsampled intercepts deemed as waste by the logging geologists were identified within the mineralized domains, particularly at the Spark deposit. Generally, this approach is acceptable where continuity of the waste intervals (mafic volcanics in this case) is clear and these enclaves/rafts can be modelled out. However, this was not always possible based on the provided data; as such, these intervals were set to grades of zero for all variables. In theory, sampling of these intervals could be either beneficial or negative for lithium grades but it could also lead to an underestimate in iron grades, which are known to pose challenges in the recovery process.

25.3.4 MINING

DRA identified the following risks:

- **Dewatering Challenges**: Insufficient capacity — due to higher-than-estimated water inflow — or delays in developing pit dewatering infrastructure, including the number and size of in-pit pumps and associated pipelines.
- **Regulatory Permit Approvals**: could be delayed, potentially impacting the commencement of mining activities and ore processing.
- **Equipment Availability and Reliability**: Delays in procurement, maintenance issues, or unexpected failures of mining equipment could impact production targets.
- **Mine Fleet Productivity**: Variability in haulage cycle times, truck and shovel mismatches, or congestion at loading and dumping areas could reduce efficiency.
- **Drill and Blast Effectiveness**: Variability in rock fragmentation or suboptimal blast patterns could impact downstream mining and processing efficiency.
- **Ore Recovery and Dilution**: Uncertainty in orebody continuity, poor grade control, or excessive dilution could affect ore feed quality.
- **Pit Slope Stability**: Geotechnical failures, including wall sloughing or large-scale slope instabilities, could pose safety risks and require remediation.
- **Commodity Price Fluctuations**: Variability in metal prices could impact economic viability, affecting cut-off grades and production planning.
- **Fuel and Operating Cost Variability**: Rising energy or consumable costs (e.g., diesel, explosives) could increase overall mining costs.
- **Workforce Availability and Retention**: Skilled labour shortages or labour disputes could impact productivity.
- **Exclusion Zone**: Assess whether the 120-metre zone around Pakeagama Lake is sufficient to prevent water infiltration into the pit. Hydrogeological and geotechnical studies will be required to confirm.

25.3.5 PROCESS

- Mill feed variability with regards to the Li_2O head grades and impurities (iron, arsenic) may pose some challenges to achieve the concentrate tonnage and grade specification. Additional test work planned for the next phase of the Project targets addressing these risks.
- Volatility of the equipment market poses a Project cost risk. This risk is to be addressed through communication with reputable equipment suppliers and exploring opportunities for bundling and equipment package consolidation.

25.3.6 ECONOMICS

The Project economic performance is highly sensitive to the price of spodumene concentrate, as demonstrated in the sensitivity analysis. A key risk is the possibility of a significant decline in the price of spodumene during the life of the Project, potentially owing to oversupply in the market, which would negatively impact the Project economics. Similarly, a significant decrease in the US$:CA$ exchange rate (strengthening of the Canadian dollar) would negatively impact the Project economics in Canadian dollar terms.

The current geopolitical uncertainty around trade policies has the potential to have inflationary effects on global markets. Significant cost inflation or cost overruns driven by other factors would negatively impact the Project economics given the sensitivity observed to both development Capex and Opex.

26 RECOMMENDATIONS

26.1 Geology

The QP has identified recommendations for further consideration in various areas including drilling, sampling and analyses, sample storage, and regional exploration, as follows.

26.1.1 GEOLOGY

DRA recommends continuing to advance geological modelling efforts in the vicinity of all mineralized pegmatite bodies identified to date, particularly the earlier-stage exploration targets including the Bolt deposit and the Pennock and Ember occurrences. This can be achieved via a combination of further geological mapping, trenching, channel sampling and diamond drill testing; oriented drill core will be important to advance understanding of both regional and localized structures.

26.1.2 DRILLING

26.1.2.1 Infill and Extension Drilling

Though this Report has demonstrated the technical and economic viability of the PAK Project to produce high-quality 6% Li_2O chemical grade concentrate at an assumed lithium price of US$ 1,500/t, DRA recommends additional future drilling for a variety of purposes.

At the PAK deposit, this drilling would be intended to improve drilling angles in certain areas of the mineralized zones and to further de-risk the underground portion of the current resource base. At Spark, this drilling would focus on improving drilling angles at the northwestern end of the deposit, infill drilling to upgrade Inferred Resources to at least the Indicated category, and to test for potential extensions (particularly at depth). At Bolt, this drilling would aim to upgrade Inferred Resources to at least the Indicated category, as well as testing for potential zone extensions.

The proposed budget for this recommended infill and extension drilling is summarized in Table 26.1.

Table 26.1 – Proposed Budget Summary for Infill and Extension Drilling, PAK Project

Task	Estimated Cost (CA$ '000)
PAK Deposit Improved Angle and Infill Drilling	880
Spark Deposit Infill and Extension Drilling	6,000
Bolt Deposit Infill and Extension Drilling	4,400
Total	**11,280**

26.1.2.2 Regional Exploration Drilling

In terms of regional exploration, it is difficult to accurately determine an appropriate number of drilling metres that would be required for the PAK Project. However, given multiple recent discoveries of pegmatite bodies along the known mineralized trend, the QP recommends an initial drill program of at least 2,500 m (estimated approximately CA$ 1,000,000) to test the following areas:

- The NW extension of the Spark deposit towards the new Ember pegmatite occurrence.
- In the vicinity of the Ember pegmatite occurrence itself.
- The historic Pennock pegmatite occurrence.
- New geophysical/geochemical anomalies as relationships are better understood between the recent high-resolution UAV magnetic survey work done in 2023 and drill results.

26.1.3 Sampling and Analyses

- As described in Section 25.1.4, implement systematic collection of full sample SG measurements (that match assay intervals) to help with the development of potentially useful regression models between density and lithium grades for each deposit.
- Sampling of previously unsampled waste intervals within interpreted mineralized solids that do not have proven continuity (i.e., cannot be properly modelled out as enclaves/rafts presently) where possible for future resource updates.
- For future drilling campaigns, it is also recommended to sample all intervals within interpreted mineralized domains to avoid setting all values to zero for missing data points. For new target areas, all interpreted waste intervals should also be sampled if less than 10-15 m in width; this should continue until continuity of the waste materials is better understood with increased density of drilling/sampling.
- Implement internal check assay programs via umpire/secondary labs to avoid simply relying on regular duplicate sample insertions; the QP suggests a minimum of ~5% check samples on all drilling campaigns.
- Improve documentation of how QA/QC failures (e.g., overrides, suspected sample switches, re-analyses, etc.) are handled directly within the database for quick access; this would be especially important under an operating mine scenario.

26.1.4 Sample Storage

- Implement improved long-term storage and documentation systems for sample rejects returned from the laboratory to maintain sample integrity for potential future studies. While the current system is both secure and sufficient for the short-term, it is advisable to develop a more systematic approach as drilling progresses in the future.

26.1.5 Regional Exploration

- Consider classic B horizon soil, soil profile (A1, A2, B, etc.) or other types (e.g., clays, water, stream sediments) of geochemical orientation surveys over known deposits and apply to structural areas of interest identified from geophysical data to help prioritize new drilling targets.

26.2 Metallurgy and Processing

- Future metallurgical test work should be scheduled to firm up the overall performance envelope definition for the mineral processing flowsheet for composites and variability samples reflecting the projected mine plan. However, no significant changes are expected to the current flowsheet.
- A program of variability sampling and bench-scale testing for both the Spark and PAK deposits is recommended. This will help mitigate risks related to metallurgical performance predictions. The recommended work includes a program of locked cycle tests (LC Tests) of the composites and variability samples from Spark and PAK to confirm the existing flowsheet and optimize processing parameters, as required.
- Additional dynamic settling tests are recommended for variability samples of the final tailings. This will increase confidence in the final tailings thickener sizing and pump characteristics.
- Additional chemical grade concentrate will be required for testing program that supports the conversion plant design. This program is envisioned as a pilot run which will use a composite reflecting the projected mine plan and provide a feedstock for a conversion plant test work.

26.3 Mining Methods

For optimization purposes, DRA recommends the following continuous improvement initiatives:

- Evaluate the implementation of a trolley-assist system or a diesel-electric truck fleet to reduce emissions, lower maintenance costs, and decrease fuel consumption.
- Assess the feasibility of using autonomous trucks, drills, and dozers to improve operational efficiency and safety.
- Continue refining dump and stockpile locations and design, including in-pit waste dumping, to improve overall efficiency and material handling logistics.
- Optimize the mine plan by refining phase designs, evaluating alternative mining strategies, and increasing overall operational efficiency
- Conduct additional hydrogeological site investigations and open-pit water inflow modeling throughout LOM to improve the accuracy of pit dewatering requirements and associated costs.
- Develop execution-level mine plan for first two (2) years to support mining operations start-up.

26.4 Recovery Methods

During the next Project phase, it is recommended to update process mass and water balances with new test work data as it becomes available. Any updates to the mining plan, and new information should also be incorporated along with the latest data provided from equipment suppliers.

Consideration should also be given to possible equipment consolidation and bundling from reputable equipment manufacturers, if technically and economically feasible.

26.5 Project Infrastructure

26.5.1 GEOTECHNICAL

The recommendations related to the geotechnical aspects of stockpiles and foundations for the next stage of engineering design are as follows:

- Delineate depth to bedrock and overburden deposit thicknesses along stockpile toe areas and characterize soft overburden soils. Geophysical investigation along the toe of the stockpiles provides valuable information on bedrock profile, especially in shallow overburden areas.
- Investigate and characterize overburden stockpile areas (both at PAK and Spark mining areas).
- Consider assessing foundation improvements (i.e., shear key, wick drains, staged construction) to optimize slope designs once further subsurface information and mine plans are available.
- Conduct detailed assessment for staged stockpile development and consideration of measurement and monitoring of consolidation of foundations and excess pore pressures, in coordination with the mine plan and development timelines.
- Develop detailed instrumentation design and monitoring plans for final stockpile development. Instrumentation installations such as vibrating wire piezometer (VWP) and slope inclinometer (SI) are recommended along the perimeter of the stockpiles to monitor pore water pressure and movement of stockpile slopes during operations.

26.5.2 TAILINGS MANAGEMENT FACILITY

The recommendations related to the TMF and Reclaim Pond for the next stage of engineering design are as follows:

- Collect soil samples from potential aggregate pits for grain size analysis testing. It is understood that other potential locations are known and the hydro transmission project may have knowledge of potential borrow sources.
- Identify suitable rock quarry locations. Only limited clean mine rock will be generated by the mine and will be mixed with PAG rock in the stockpiles. The bedrock outcrop in the middle of the TMF has the benefits of being close to the dams and increasing the storage capacity for tailings. This material has been assessed for concrete stone and is suitable.

- Conduct additional geotechnical investigations in the new East Dam footprint, the southern leg of the Reclaim Pond Dam (Ch. 0+000 to 0+200), and at the locations of the TMF overflow spillway and Reclaim Pond emergency spillway.
- Evaluate tailings storage capacity including the potential rock quarry inside the TMF to store the increase tonnage of tailings produced over the LOM. The value engineering conducted for process engineering after the TMF design was completed and increased the total tonnage of tailings produced from 20.3 Mt to 21.5 Mt. The crest elevations of the West and East dams may need to be raised to support the increased tailings tonnage of 1.2 Mt resulting from the value engineering study.
- Evaluate tailings and mine rock co-disposal opportunities to reduce the footprint of the facilities, inhibit issues with potentially acid generating mine rock, and simplify water management.

26.5.3 Site Water Management

The recommendations related to the site water management for the next stage of engineering design are as follows:

- Conduct a site investigation at the locations of the proposed water management infrastructure to confirm the underlying stratigraphy and depth to groundwater.
- Develop of a site water balance (using GoldSim or an electronic spreadsheet) that represents each year of the operation phase consistent with the proposed mine plan and incorporates a level of detail appropriate for detailed engineering for better estimates of water storage requirements and pumping rates. The model should allow to evaluate the initial stage of the Project when only the Spark Pit and related infrastructure are developed.
- Incorporate outputs from the transient numerical groundwater model currently under development into pit dewatering plans.
- Consider the staged development and progressive reclamation of the mine rock stockpiles (and overburden stockpiles if applicable) to optimize site water management infrastructure designs.

26.6 Environmental, Permitting and Community Relations

- Update *Mine Site* information to support ongoing consultation activities and for permitting purposes including advance of EAs and permit applications.
- Continue engagement and consultation with regulators and Indigenous communities to advance EAs and permit applications.

26.7 Economic Analysis

It is recommended that the economic analysis be updated once off-take agreements for spodumene concentrate and contracts for construction, transportation are in place to assess assumptions made.

Once consultations and negotiations with federal and provincial governments and neighbouring communities have concluded, the impact of Resource Development Agreements should be adjusted in the model.

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28 ABBREVATIONS

Abbreviation	Definition
$ M	Million of Dollars
$/L	Dollar per Litre
%	Percent
%w/w	Percent by Weight
~	Approximately
<	Less Than
>	Greater Than
°	Degree
°C	Degree Celsius
µm	Micron
2D	Two-Dimensional
3D	Three Dimensional
a	Annum, Year
AACE	Association for the Advancement of Cost Engineering
AAQC	Ambient Air Quality Criteria
AB	Alberta
AC/DC	Alternating Current/Direct Current
ACME	ACME Labs
ACSR	Aluminum Conductor, Steel Reinforced
Actlabs	Activation Laboratories
Ai	Abrasion Index
AISC	All-In Sustaining Cost
Al	Aluminum
AMT	Audio Magnetotelluric
ARD	Acid Rock Drainage
As	Arsenic
AT	Available Time
B	Boron
BC	British Columbia
Be	Beryllium
BH	Berm Height

Abbreviation	Definition
BMMA	Building More Mines Act
BTW	BQ Thin Wall
BW	Berm Width
BWi	Bond (Ball Mill) Work Index
Ca	Calcium
CA$ M	Million of Canadian Dollars
CA$ or CAD	Canadian Dollar
CA$/t	Canadian Dollar per Tonne
CAAQS	Canadian Ambient Air Quality Standards
CADD	Computer Aided Design and Drafting
Capex	Capital Expenditure, Capital Cost Estimate
CDE	Canadian Development Expenses
CEE	Canadian Exploration Expenditures
CG	Chemical Grade
CH-1	Channel 1
CIF	Cost, Insurance, & Freight
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
CIZ	Central Intermediate Zone
cm	Centimetre
CMIF	Critical Minerals Infrastructure Fund
CNSC	Canadian Nuclear Safety Commission
COG	Cut-off Grade
COT	Comparison of Tenders
CoV	Coefficient of Variance
CRM	Certified Reference Material
Cs	Cesium
Cs_2O	Cesium Oxide
CT	Calendar Time
CWi	Crushing Work Index
DCF	Discounted Cash Flow
DEM	Digital Elevation Model
DFO	Department of Fisheries and Oceans

Abbreviation	Definition
DLE	Direct Lithium Extraction
DMS	Dense Media Separation
DMZ	De-Militarized Zone
DRA	DRA Americas Inc.
DSO	Direct Shipping Ore
DT	Downtime
EA	Environmental Assessment
ECA	Environmental Compliance Approval
ECCC	Environment and Climate Change Canada
EDA	Exploratory Data Analysis
EDF	Environmental Design Flood
EFR	Emerald Fields Resources
EI&C	Electrical, Instrumentation and Control
EP	Engineering and Procurement
EPCM	Engineering, Procurement and Construction Management
ESG	Environmental, Social, and Governance
ESP	Environmental Screening Process
ESS	Energy Storage System
Eur	Euro
EV	Electric Vehicle
F	Fluorine
F_{100}	Feed Size 100%
F_{80}	Feed Size 80%
Fe	Iron
FEED	Front-End Engineering Design
FID	Final Investment Decision
FIFO	Fly-In Fly-Out
FLI	Frontier Lithium Inc.
FoS	Factor of Safety
Frontier	Frontier Lithium Inc.
FS	Feasibility Study
ft	Foot

Abbreviation	Definition
G&A	General and Administrative
g/t	Gram per Tonne
Ga	Gallium
GAAP	Generally Accepted Accounting Principle
GAT	Gravity Amenability Test
GET	Ground Engaging Tool
GOH	Gross Operating Hours
gpm	Gram per Minute
GSC	Geological Survey of Canada
ha	Hectare
HADD	Harmful Alteration, Disruption or Destruction
HAZOP	Hazard and Operability
HDPE	High-Density Polyethylene
HLM	Houston Lake Mining
HLS	Heavy Liquid Separation
HP	Horse Power
HVAC	Heating, Ventilation and Air Conditioning
I/O	Input/Output
ICP-MS	Inductively Coupled Plasma Mass Spectrometry
ICP-OES	Inductively Coupled Plasma Optical Emission Spectroscopy
IDF	Inflow Design Flood
IDW^2	Inverse Distance Weighting Squared
IESO	(Ontario) Independent Electricity System Operator
IFC	Issued for Construction
IFD	Issued for Design
IFR	Issued for Review
IFRS	International Financial Reporting Standards
IFT	Issued for Tender
IRR	Internal Rate of Return
ISO	International Organization for Standardization
ITC	Investment Tax Credit

Abbreviation	Definition
JV	Joint Venture
K	Potassium
kg/m	Kilogram per Metre
kg/t	Kilogram per Tonne
km	Kilometre
kt	Kilotonne
ktpa	Kilotonne per Annum
kVA	Kilovolt-Ampere
kW	Kilowatt
kWh/t	Kilowatt-Hour per Tonne
kWh/y	Kilowatt-Hour per Year
L	Litre
LCE	Lithium Carbonate Equivalent
LCT	Lithium-Cesium-Tantalum
LC Test	Locked Cycle Test
LEL	Lowest Effect Level
Li	Lithium
Li_2O	Lithium Oxide
LIB	Lithium-Ion Battery
$LiBO_2$	Lithium Metaborate
LIBS	Laser-Induced Breakdown Spectroscopy
LIMS	Low Intensity Magnetic Separator
LIZ	Lower Intermediate Zone
LOM	Life-of-Mine
m/h	Metre per Hour
m/y	Metre per Year
m^3	Cubic Metre
m^3/s	Cubic Metre per Second
Ma	Million Years
masl	Metre Above Sea Level

Abbreviation	Definition
MB	Manitoba
MCC	Motor Control Centre
MCM	Ministry of Citizenship and Multiculturalism
MDMER	Metal and Diamond Mining Effluent Regulations
MDR	Maximum Demonstrated Rate
MECP	Ministry of Environment, Conservation and Parks
MEL	Mechanical Equipment List
MENDM	Ministry of Energy, Northern Development and Mines
Mg	Magnesium
mg/L	Milligram per Litre
min	Minute
MINES	Ministry of Mines
ML	Metal Leaching
MLAS	Mining Lands Administration System
mm	Millimetre
MMI	Mobile Metal Iron
MNR	Ministry of Natural Resources
MPC	Mine Power Centre
MPSO	MinePlan Schedule Optimizer
MPU	Mobile Processing Unit
MRE	Mineral Resource Estimate
MRSA	Mine Rock Storage Area
MSDA	Minesight Data Analyst
Mt	Million Tonnes
MT	Ministry of Transportation
MTAC	Minopex Technical Advisory Collaborator
MTO	Material Take-Off
Mtpa	Million Tonnes per Annum
MVA	Million Volt-Amperes
N	North
N	Neutral
N/A	Not Applicable
Na	Sodium

Abbreviation	Definition
Na_2O_2	Sodium Peroxide
NAPS	National Air Pollution Surveillance (Program)
Nb	Niobium
NO_2	Nitrogen Dioxide
NOH	Net Operating Hours
NP	Non-Productive (Time)
NPV	Net Present Value
NRCan	Natural Resources Canada
O/P	Open Pit
O/S	Over size
OD	Operating Delay
ODM	Ontario Department of Mines
OEM	Original Equipment Manufacturer
OGS	Ontario Geological Survey
OIT	Operator-Interface Terminal
OK	Ordinary Kriging
OMT	Ontario Mining Tax
OMTA	Ontario Mining Tax Act
ON	Ontario
Opex	Operating Expenditure, Operating Cost Estimate
OR	Operational Readiness
ORP	Operational Readiness Plan
OS	Standby
OSG	Office of the Surveyor General
OT	Operating Time
OVBSF	Overburden Storage Facilities
P&ID	Piping and Instrumentation Diagram
P_{100}	Passing 100%
P_{80}	Passing 80%
PAG	Potentially Acid Generating
PCS	Process Control System
PEA	Preliminary Economic Assessment

Abbreviation	Definition
PFS	Prefeasibility Study
PID	Proportional-Integral-Derivative
PL	Performance Loss
PLC	Programmable Logic Controller
$PM_{2.5}$	Particulate Matter with diameter equal or less than 2.5 µm
PMF	Probable Maximum Flood
PPE	Personal Protective Equipment
ppm	Parts per Million
PPP	Precise Point Positioning
PSQG	Provincial Sediment Quality Guidelines
PT	Productive Time
PTTW	Permit to Take Water
PWQO	Provincial Water Quality Objectives
Q1, Q2, Q3, Q4	First Quarter, Second Quarter, Third Quarter, Fourth Quarter
QA/QC	Quality Assurance and Quality Control
QC	Quebec
QP	Qualified Person
RACI	Responsible, Accountable, Consulted, Informed
Rb_2O	Rubidium Oxide
RF	Revenue Factor
RFP	Request for Proposal
RFQ	Request for Quotation
RMS	Responsible Mining Solutions Corp.
ROM	Run-of-Mine
ROS	Required on Site
RQD	Rock Quality Designation
RWi	Bond Rod Mill Work Index
SBE	External Standby
SBO	Operating Standby
SC6.0	Spodumene Concentrate (6.0% Li_2O)
SC7.2	Spodumene Concentrate (7.2% Li_2O)
SCADA	Supervisory Control and Data Acquisition

Abbreviation	Definition
SCC	Species of Conservation Concern
SG	Specific Gravity
SGS	SGS Canada Inc.
Si	Silicon
SI	Slope Inclinometer
SMPP	Steel, Mechanical, Piping and Plate Work
SMU	Smallest Mining Unit
SOP	Standard Operating Procedure
SOW	Scope of Work
SPP	Steel, Piping and Platework
sq. ft.	Square Feet
SQUI	Spodumene-Quartz Intergrowths
STPL	Stockpile
ST	Schedule Time
t/d	Tonne per Day
$t/h/m^2$	Tonne per Hour per Square Metre
t/m	Tonne per Metre
t/m^3	Tonne per Cubic Metre
Ta	Tantalum
Ta_2O_5	Tantalum Pentoxide
TBC	To Be Confirmed
TC	Transport Canada
TDC	Top-Dead-Centre
TMF	Tailings Management Facility
TOMRA	TOMRA Sorting Solutions
TOW	Truck Operating Width
tpa	Tonne per Annum
US, USA	United States (of America), United States of America
U/G	Underground
U/S	Under size
UAV	Unmanned Aerial Vehicle
UIZ	Upper Intermediate Zone

Abbreviation	Definition
US$, USD	United States of America Dollar
US$/t	United States of America Dollar per Tonne
UT	Unscheduled Time
UTM	Universal Transverse Mercator
V	Vanadium
VDRL	Vendor Data Requirements List
VLF	Very Low-Frequency
VLF-EM	Very Low-Frequency-Electromagnetic
VWP	Vibrating Wire Piezometer
W	West
W	Width
WBS	Work Breakdown Structure
WFCRMA	Whitefeather Forest Community Resource Management Authority
WHIMS	Wet High Intensity Magnetic Separation
WRSF	Waste Rock Storage Facility
WSC	Water Survey of Canada
WT	Working Time
WTP	Water Treatment Plant
XRT	X-Ray Transmission
y	Year

29 QP CERTIFICATES

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CERTIFICATE OF QUALIFIED PERSON

To accompany the Report entitled "*NI 43-101 Technical Report – Feasibility Study – PAK Lithium Project, Mine and Mill in Northwestern Ontario, Canada*", dated July 9, 2025 (the "Technical Report"), prepared for Frontier Lithium Inc. ("Frontier" or the "Company").

I, *Elie Accad, MBA, P. Eng.,* do hereby certify that:

1. I am a Project Manager with DRA Americas Inc. with an office at suite 600, 555 René-Lévesque Blvd. West, Montreal, Quebec, Canada.
2. I graduated with a bachelor's degree in mechanical engineering from the American University of Beirut, Lebanon, in 1981 and I have obtained an MBA from McGill University, Montreal, Quebec, Canada in 1991.
3. I am a registered member of "*Ordre des Ingénieurs du Québec*" (Reg. #96035).
4. I have practiced my profession since 1982 with over 17 years of experience in mining projects.

   My work experience includes participation in the management and implementation of industrial and mining projects and the preparation of Study Reports and NI 43-101 Technical Reports for projects in various parts of the world including North and South America and Western Africa.
5. I have read the definition of "qualified person" set out in the National Instrument 43-101 and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements to be an independent 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 responsible for preparing or supervising the preparation of Sections 2, 3, 18 (except for 18.7 and 18.8), 21 and 24, and portions of Sections 1, 25 to 27 of the Technical Report.
8. I have not visited the Property that is the subject of the Technical Report.
9. I have had no prior involvement with the property that is the subject of the Technical Report.

10. I have read National Instrument 43-101 and Form 43-101F and the sections of the Technical Report for which I am responsible have been prepared in compliance with NI 43-101.

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.

Dated this 9th day of July 2025, in Montreal, Quebec.

"Original Signed on file"
Elie Accad, MBA, P. Eng.
Study Project Manager
DRA Americas Inc.

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To accompany the Report entitled "*NI 43-101 Technical Report – Feasibility Study – PAK Lithium Project, Mine and Mill in Northwestern Ontario, Canada*", dated July 9, 2025 (the "Technical Report"), prepared for Frontier Lithium Inc. ("Frontier" or the "Company").

I, *Claude Bisaillon, P. Eng.,* do hereby certify that:

1. I am Senior Geotechnical Engineer with DRA Americas Inc., located at 555 Blvd René-Lévesque West, 6th Floor, Montreal, Quebec, Canada H2Z 1B1.
2. I am a graduate from Concordia University in Montreal in 1991 with a B.Sc. in Geology and from the Université Laval in Quebec City in 1996 with a B.Ing. in Geological Engineering.
3. I am a member in good standing of the *Ordre des Ingénieurs du Québec* (OIQ #116407). I am a Member of the Canadian Institute of Mining, Metallurgy and Petroleum.
4. I have worked as an engineer continuously since graduation from university in 1996. I have worked on similar projects to PAK Lithium Project in Canada, Africa, the USA, Asia and South America; my experience for the purpose of the Technical Report includes:
    - Over 28 years of consulting in the field of Mineral Resource estimation, orebody modelling, mineral resource auditing, pit wall slope stability and geotechnical engineering.
    - Technical assistance in exploration, geology and resources for a variety of projects from greenfield exploration to active mine operations in various countries.
    - Participation in the preparation of multiple NI 43-101 Technical Reports.
5. I have read the definition of "qualified person" set out in the National Instrument 43-101 and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements to be an independent 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 responsible for the preparation of Sections 16.2.1, 16.2.2, 16.2.3. I am also responsible for the associated portions of 1 and 25 to 27 of the Technical Report.
8. I visited the Property that is the subject of the Technical Report on February 20 to 22, 2024.
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 in compliance with NI 43-101.
11. As of the 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.

Dated this 9th day of July 2025, in Montreal, Quebec.

"Original Signed on file"
Claude Bisaillon, P. Eng.
Senior Geotechnical Engineer
DRA Americas Inc.

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I, *Daniel M. Gagnon, P. Eng.,* do hereby certify that:

1. I am Senior Vice President East Canada and Mining, with DRA Americas Inc., located at 555 Blvd René-Lévesque West, 6th Floor, Montreal, Quebec, Canada H2Z 1B1.
2. I am a graduate from "École Polytechnique de Montréal" with Bachelor of Mining Engineer in 1995.
3. I am a registered member of "*Ordre des Ingénieurs du Québec*" (Reg. #118521).
4. I have worked in the mining industry continuously since 1995 and as a licensed mining engineer since 1999.
5. I have worked on similar projects as the PAK Lithium Project in Africa, North and South America; my experience for the purpose of the Technical Report includes:
    - Design, scheduling, cost estimation, Mineral Reserve estimation, and financial modelling several open pit studies in Canada, the USA, South America, West Africa, and Morocco.
    - Technical assistance in mine design and scheduling for mine operations in Canada, the USA, and Morocco.
    - Participation in the preparation of multiple NI 43-101 Technical Reports.
6. I have read the definition of "qualified person" set out in the National Instrument 43-101 and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements to be an independent qualified person for the purposes of NI 43-101.
7. I am independent of the issuer applying all the tests in section 1.5 of NI 43-101.
8. I am responsible for preparing or supervising the preparation of Sections 19 and 22, and portions of Sections 1, 25 to 27 of the Technical Report.

9. I have not visited the Property that is the subject of the Technical Report.

10. I have had no prior involvement with the property that is the subject of the Technical Report.

11. I have read National Instrument 43-101 and Form 43-101F and the sections of the Technical Report for which I am responsible have been prepared in compliance with NI 43-101.

12. 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.

Dated this 9th day of July 2025, in Montreal, Quebec.

"Original Signed on file"

Daniel M. Gagnon, P. Eng.
Senior Vice President East Canada and Mining
DRA Americas Inc.

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I, *Schadrac Ibrango, P.Geo., Ph.D., MBA,* do hereby certify that:

1. I am a Lead Geology and Hydrogeology Consultant with DRA Americas Inc., located at 555 Blvd René-Lévesque West, 6th Floor, Montreal, Quebec, Canada H2Z 1B1.
2. I am a graduate from University of Ouagadougou (Burkina-Faso) with a Master's Degree in Geology in 1998, a Ph.D. in Engineering of Darmstadt University of Technology (Germany) in 2005 and an executive MBA from Université du Québec à Montréal (Canada) in 2016.
3. I am a registered member of the *Ordre des Géologues du Québec (OGQ)* (Reg. # 1102) and Professional Engineers & Geoscientists of Newfoundland and Labrador (Reg. # 07633).
4. I have worked continuously as a geologist for more than 25 years in the mining industry since my graduation from university.

   I have worked on similar projects to the PAK Lithium Project in Canada and in Africa; my experience for the purpose of the Technical Report includes:

   - Hands-on experience in exploration for gold, silver, iron ore, potash, graphite, lithium, PGE and base metal deposits.
   - Acting as resource estimation QP for lithium, graphite and rare earth elements in Canada
   - Design and supervision and implementation of drilling programs.
   - Review, audits, interpretation of geoscientific data.
   - Participant and author for various NI 43-101 Technical Reports.
5. I have read the definition of "qualified person" set out in the National Instrument 43-101 and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements to be an independent 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 responsible for the preparation of Sections 4 to 12, 14, and 23 and portions of Sections 1 and 25 to 27 of the Technical Report.
8. I have not visited the Property that is the subject of the Technical Report.
9. I have had no prior involvement with the Property that is the subject of the Technical Report.
10. I have read National Instrument 43-101 and Form 43-101F and the sections of the Technical Report for which I am responsible have been prepared in compliance with NI 43-101.
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.

Dated this 9th day of July 2025.

"Original Signed on file"

Schadrac Ibrango, P.Geo., Ph.D., MBA
Lead Geology and Hydrogeology Consultant
DRA Americas Inc.

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To accompany the Report entitled "*NI 43-101 Technical Report – Feasibility Study – PAK Lithium Project, Mine and Mill in Northwestern Ontario, Canada*", dated July 9, 2025 (the "Technical Report"), prepared for Frontier Lithium Inc. ("Frontier" or the "Company").

I, *Volodymyr Liskovych, Ph.D., P. Eng.*, do hereby certify:

1. I am a Principal Process Engineer, with DRA Americas Inc. with an office at 20 Queen Street West, 29th Floor, Toronto, Ontario, Canada.
2. I am a graduate from Zaporizhzhia State Engineering Academy, Zaporizhzhia, Ukraine in 1996 with a Metallurgical Engineer Degree, and a graduate from National Metallurgical Academy of Ukraine, Dnipro, Ukraine with the PhD degree in Metallurgical Engineering in 2001.
3. I am a registered member of Professional Engineers Ontario (#100157409).
4. I have worked continuously as a Metallurgical Engineer for more than 28 years since my graduation from Zaporizhzhia State Engineering Academy. My relevant work experience includes:
    - Review and report on mineral processing and metallurgical operations and projects around the world for due diligence and regulatory requirements;
    - Engineering study (PEA, PFS, FS, and Detailed Engineering) project work on many minerals processing and metallurgical and hydrometallurgical projects around the world, and in North America;
    - Operational experience in operations management and operational support positions in metallurgical and hydrometallurgical operations in Ukraine, Canada, and Brazil.
    - Participation and author of several NI 43-101 Technical Reports.
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 Company applying all the tests in Section 1.5 of NI 43-101.
7. I am responsible for the preparation of Sections 13 and 17. I am also responsible for the relevant portions of Sections 1 and 25 to 27 of the Technical Report.

8. I did not visit the property that is the subject to the Technical Report.

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 in compliance with NI 43-101.

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.

Dated this 9th day of July 2025, in Toronto, Ontario

"Original Signed on file"

Volodymyr Liskovych, Ph.D., P.Eng.
Principal Process Engineer
DRA Americas Inc.

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I, *Ghislain Prévost, P. Eng.,* do hereby certify that:

1. I am Manager – Mining with DRA Americas Inc., located at 555 Blvd René-Lévesque West, 6th Floor, Montreal, Quebec, Canada H2Z 1B1.
2. I am a graduate from "*École Polytechnique de Montréal*" with Bachelor of Mining Engineer in 1996 and a Master degree Applied Science in Mineral Engineering in 1999.
3. I am a member in good standing of the "*Ordre des Ingénieurs du Québec*" (OIQ # 119054).
4. I have worked in the mining industry continuously since 1999 and as a licensed mining engineer since 2001. I have worked on similar open pit projects to PAK Lithium Project in North and South America, and Africa; my experience for the purpose of the Technical Report includes:
   - Over 26 years of experience in mining engineering in gold, silver, base metals, iron ore and other projects across Canada and worldwide.
   - Design, scheduling, cost estimation and Mineral Reserve estimation for several open pit studies.
   - Technical assistance in mine design and scheduling for mine operations in Canada, Brazil, and Guinea.
   - Participation in the preparation of multiple NI 43-101 Technical Reports.
5. I have read the definition of "qualified person" set out in the National Instrument 43-101 and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements to be an independent 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 responsible for preparing or supervising the preparation of Sections 15 and 16 (except for Sections 16.2.1, 16.2.2, and 16.2.3). I am also responsible for the associated portions of 1 and 25 to 27 of the Technical Report.

8. I visited the Property that is the subject of the Technical Report on February 20 to 22, 2024.
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 in compliance with NI 43-101.
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.

Dated this 9th day of July 2025, in Montreal, Quebec.

"Original Signed on file"
Ghislain Prévost, P. Eng.
Manager – Mining
DRA Americas Inc.

SLR Consulting (Canada) Ltd
55 University Avenue, Suite 501, Toronto, ON M5J 2H7

CERTIFICATE OF QUALIFIED PERSON

To accompany the Report entitled "*NI 43-101 Technical Report – Feasibility Study – PAK Lithium Project, Mine and Mill in Northwestern Ontario, Canada*", dated July 9, 2025 (the "Technical Report"), prepared for Frontier Lithium Inc. ("Frontier" or the "Company").

I, *Eric Sellars, P. Eng.*, of Toronto, Ontario, Canada, do hereby certify:

1. I am a Geotechnical Engineer with SLR Consulting (Canada) Ltd, of Suite 501, 55 University Ave., Toronto, ON M5J 2H7.
2. I am a graduate from the University of Waterloo, in Waterloo, Ontario, Canada, with a Bachelor of Applied Sciences in Geotechnical Engineering in 2009.
3. I am registered as a Professional Engineer in the Province of Ontario (Reg. #100199889).
4. My relevant experience includes 15 years as a Geotechnical Engineer. I have worked on similar projects to the PAK Lithium Project; my experience for the purpose of the Technical Report includes:
    - Site selection and best technology studies for tailings and waste rock facilities.
    - Design, construction, and operational support for tailings containment facilities.
    - Experience in dam safety governance and current best practices.
    - Participant and author for various NI 43-101 Technical Reports.
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 the test set out in Section 1.5 of NI 43-101.
7. I am responsible for the preparation of Section 18.7. I am also responsible for the associated portions of 1, 26 and 27 of the Technical Report.
8. I visited the Property that is the subject of the Technical Report on February 28 – March 1, 2024.
9. I have had no prior involvement with the property that is the subject of the Technical Report.

10. I have read Nl 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with NI 43-101.
11. As at the 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.

Dated this 9th day of July 2025, Toronto, Canada

"Original Signed and Sealed on file"
Eric Sellars, P. Eng.
Geotechnical Engineer
SLR Consulting (Canada) Ltd.

SLR Consulting (Canada) Ltd
55 University Avenue, Suite 501, Toronto, ON M5J 2H7

CERTIFICATE OF QUALIFIED PERSON

To accompany the Report entitled "*NI 43-101 Technical Report – Feasibility Study – PAK Lithium Project, Mine and Mill in Northwestern Ontario, Canada*", dated July 9, 2025 (the "Technical Report"), prepared for Frontier Lithium Inc. ("Frontier" or the "Company").

I, *Luis Vasquez, M.Sc., P. Eng.*, of Toronto, Ontario, Canada, do hereby certify:

1. I am a Principal Hydrotechnical Engineer – Water Resources Engineering with SLR Consulting (Canada) Ltd, of Suite 501, 55 University Ave., Toronto, ON M5J 2H7.
2. I am a graduate of Universidad de Los Andes, Bogotá, Colombia, in 1998 with a Bachelor of Science degree in Civil Engineering, and in 1999 with a Master of Science degree in Water Resources Engineering.
3. I am registered as a Professional Engineer in the Province of Ontario (Reg. #100210789).
4. I have worked as a civil engineer for a total of 26 years since my graduation. My relevant experience for the purpose of the Technical Report is:
    - Review and report as an environmental consultant on numerous mining operations and projects for due diligence and regulatory requirements.
    - Preparation of environmental impact assessments for mining projects for regulatory approval in Canada.
    - Preparation of mine closure plans for mining projects in Canada.
    - Preparation of several scoping, prefeasibility, feasibility, and detailed design level studies for projects in North America, South America, the Caribbean, and Asia with a focus on planning, design, and safe operation of water management systems and waste disposal facilities.
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 the test set out in Section 1.5 of NI 43-101.
7. I am responsible for the preparation of Sections 18.8 and 20. I am also responsible for the associated portions of 1, 26 and 27 of the Technical Report.

8. I did not visit the Property that is the subject of the Technical Report.
9. I have had no prior involvement with the property that is the subject of the Technical Report.
10. I have read Nl 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with N1 43-101.
11. As at the 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.

Dated this 9th day of July 2025, Toronto, Canada

"Original Signed and Sealed on file"
Luis Vasquez, M.Sc., P. Eng.
Principal Hydrotechnical Engineer
SLR Consulting (Canada) Ltd.