

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 8-K

CURRENT REPORT

Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

May 1, 2023

Date of Report (Date of earliest event reported)

URANIUM ENERGY CORP.

(Exact name of registrant as specified in its charter)

Nevada

(State or other jurisdiction of
incorporation)

001-33706

(Commission File Number)

98-0399476

(IRS Employer Identification
No.)

500 North Shoreline, Ste. 800

Corpus Christi, Texas

(U.S. headquarters)

78401

(Zip Code)

**1830 – 1030 West Georgia Street
Vancouver, British Columbia, Canada**

(Canadian headquarters)

V6E 2Y3

(Zip Code)

(Address of principal executive offices)

(361) 888-8235

Registrant's telephone number, including area code

Not applicable.

(Former name or former address, if changed since last report)

Check the appropriate box below if the Form 8-K is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

☐	Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
☐	Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
☐	Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
☐	Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol (s)	Name of each exchange on which registered
Common Stock	UEC	NYSE American

Indicate by check mark whether the registrant is an emerging growth company as defined in as defined in Rule 405 of the Securities Act of 1933 (Section 230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (Section 240.12b-2 of this chapter).

Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Item 8.01 Other Events

Uranium Energy Corp. has completed a SK-1300 Technical Report Summary for its Roughrider Uranium Project, Saskatchewan, Canada, having an effective date of April 25, 2023.

A copy of such Technical Report Summary is attached as Exhibit 96.1 hereto.

Item 9.01 Financial Statements and Exhibits**(a) Financial Statements of Business Acquired**

Not applicable.

(b) Pro forma Financial Information

Not applicable.

(c) Shell Company Transaction

Not applicable.

(d) Exhibits**Exhibit Description**

23.1 [Consent of SRK Consulting \(UK\) Limited.](#)

96.1 [SK-1300 Technical Report on The Roughrider Uranium Project, Saskatchewan, Canada; Effective Date: April 25, 2023.](#)

104 Cover Page Interactive Data File (the cover page XBRL tags are embedded within the inline XBRL document).

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

URANIUM ENERGY CORP.

DATE: May 1, 2023.

By: */s/ Pat Obara*

**Pat Obara, Secretary and
Chief Financial Officer**



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Uranium Energy Corp.
1030 West Georgia Street, Suite 1830
Vancouver, British Columbia, Canada,
C6E 2Y3

To the Directors,

May 1, 2023

SRK Consulting (UK) Limited (“SRK”) was requested by Uranium Energy Corp. (“UEC”), hereinafter also referred to as the “Company”) to consent to the disclosure of the technical report summary entitled “Roughrider Uranium Project, Saskatchewan, Canada”, dated April 25, 2023 (the “TRS”).

STATEMENT

SRK confirm the following:

- SRK was engaged by UEC to author the TRS which was prepared in accordance with the U.S. Securities and Exchange Commission (Regulation S-K Subpart 1300 (“S-K 1300”) and specifically Item 17 Code for Federal Regulations Parts 229, 230, 239 and 249);
- The TRS was prepared by SRK, a third-party firm comprising mining experts in accordance with S- K 1300 sub-section 229.1302(b)(1);
- UEC has determined that SRK meets the qualifications specified under the definition of Qualified Person in sub-section 229.1300; and
- The effective date of the Mineral Resources disclosed in the TRS is January 1, 2023.

CONSENT of SRK CONSULTING (UK) LIMITED

SRK hereby consent to:

- The filing of the TRS as Exhibit 96.1 to the Current Report on Form 8-K, dated May 1, 2023 (the “8- K”), of the Company being filed with the United States Securities and Exchange Commission;
- The incorporation by reference of such TRS attached as Exhibit 96.1 to the 8-K into the Company’s Form S-3 Registration Statements (File Nos. 333-160565, 333-164256, 333-165223, 333-170800, 333-192401, 333-198196, 333-198601, 333-208013, 333-210552, 333-218025, 333-220404, 333- 223881, 333-225059, 333-229382, 333-235878, 333-236571, 333-251508 and 333-256170), and any amendments thereto (the “S-3s”);
- The incorporation by reference of such TRS attached as Exhibit 96.1 to the 8-K into the Company’s Form S-8 Registration Statement (File No. 333-262197) and any amendment thereto (the “S-8”); and
- The use of and references to SRK’s name as a “Qualified Person” (as defined in Subpart 1300 of Regulation S-K promulgated by the SEC), in connection with the Form 8-K and the TRS.



Registered Address: 21 Gold Tops, City and County of Newport, NP20 4PG,
Wales, United Kingdom.
SRK Consulting (UK) Limited Reg No 01575403 (England and Wales)

Group Offices: Africa
Asia
Australia
Europe
North America
South America

CONSENT

SRK consent to the release of the TRS and this Consent Statement by the Directors of UEC.

Qualified Person: "Guy Dishaw"
P.Geo

Date: May 1, 2023

TECHNICAL REPORT SUMMARY: ROUGHRIDER URANIUM PROJECT, SASKATCHEWAN, CANADA

Prepared For
Uranium Energy Corp.

Date Issued: 25th April 2023

Report Prepared by



SRK Consulting (UK) Limited
UK31885



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SRK Legal Entity:

SRK Consulting (UK) Limited

SRK Address:

5th Floor Churchill House
17 Churchill Way
Cardiff, CF10 2HH
Wales, United Kingdom

Date:

April 25, 2023

Project Number:

UK31885

Client Legal Entity:

Uranium Energy Corp.

Client Address:

1030 West Georgia Street, Suite 1830
Vancouver, British Columbia,
Canada, C6E 2Y3

EXECUTIVE SUMMARY
TECHNICAL REPORT SUMMARY: ROUGHRIDER URANIUM
PROJECT, SASKATCHEWAN, CANADA

1 EXECUTIVE SUMMARY

This technical report summary ("TRS") was prepared in accordance with the U.S. Securities and Exchange Commission (Regulation S-K Subpart 1300 ("S-K 1300") and specifically Item 17 Code for Federal Regulations Parts 229, 230, 239 and 249) for Uranium Energy Corporation ("UEC") by SRK Consulting (UK) Ltd. ("SRK") on the Roughrider Uranium Project (the "Project").

1.1 Property Description (Including Mineral Rights) and Ownership

The Project is located 7 km north, via gravel road, of Points North Landing, a service centre on Provincial Road 905, in the eastern Athabasca basin of northern Saskatchewan, Canada. The Project is an Exploration Stage Property within the 597-hectare mineral lease ML-5547, which is 100% held by UEC. The Project site comprises core logging, office, and storage facilities.

The uranium deposits at the Project were discovered in 2008 by Hathor Exploration Limited ("Hathor") and were subsequently explored and studied in increasing detail until 2016.

1.2 Geology and Mineralization

The Project is located in the Athabasca Basin, a prolific uranium producing district, and comprises the Roughrider West Zone ("RRW"), the Roughrider East Zone ("RRE") and Roughrider Far East Zone ("RRFE") unconformity-related uranium deposits. The deposits occur at, and below, the unconformity between the overlying Athabasca group sandstones and conglomerates, and the Wollaston group orthogneisses. Uranium mineralization is localized by structures, adjacent to, and within graphitic meta-pelites. The mineralization is characterized by uraninite and lesser amounts of uranophane, and red to orange coloured oxy-hydroxillized iron oxides.

Uranium mineralization in the Athabasca basin, and the Project, is interpreted to form where oxidized uranium bearing fluids, presumably sourced from the Athabasca group, mix, at or near the unconformity with reduced fluids, or rock masses of the basement, Wollaston group. Uranium is reduced at the redox front where these conditions exist.

1.3 Status of Exploration and Development

Prospecting, airborne radiometric surveys, and lake sediment sampling for uranium in the Project area began in 1969. As a result of regional exploration work and targeting by various operators, significant uranium mineralization was discovered in 1978 at the Dawn Lake Project (east of the Project) and Midwest Lake (south of the Project). Exploration and drilling efforts around the project concentrated on an east-west trending conductor (indicative of graphitic gneisses of the Wollaston group), although no anomalous mineralization was intersected.

In 2006, Hathor acquired mineral lease, ML-5544 (now part of ML-5547). Drilling in 2008 intersected high-grade uranium mineralization, of the RRW deposit. In 2009 and 2011, the RRE and RRFE were discovered respectively. Based on the RRW and RRE deposits only, Hathor completed a preliminary economic assessment ("PEA") in 2011.



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Europe
North America
South America

Hathor was acquired by Rio Tinto Canada Uranium Corp. (“RTCU”) in 2011. RTCU continued to advance the Project through to 2016, completing substantial pre-development and environmental baseline work including dedicated geotechnical drilling, shaft vs. decline modelling, the establishment of hydrogeological monitoring wells, terrestrial and aquatic environmental assessments, heritage assessments, species at risk, and a conceptual reclamation plan. In 2013, RTCU submitted an Advanced Exploration Program (“ADEX”) proposal, to the Saskatchewan Ministry of Environment, that was intended to initiate an environmental impact study (“EIS”) review of the Project. No official determination was completed.

The Project comprises data from 665 drillholes, for a total of 228,185 m, drilled at the Project by Hathor and RTCU from 2007 to 2016. No exploration has been completed on the Project since 2016.

On October 17, 2022, UEC completed the acquisition of 100% of the Project from RTCU.

1.4 Mineral Resource Estimate

The Mineral Resource estimate (“MRE”) for the Project considers samples from 665 diamond drillholes completed on the Project between 2007 and 2016. All assays for uranium grade (U3O8 %) have been analysed by fluorimetry or ICP-OES by the Saskatchewan Research Council laboratory while bulk density measurements were taken by site operators. Bulk density samples have been measured by the site operators. Both U3O8 % and density analyses were subject to industry standard quality control and quality assurance procedures. Although the Qualified Persons (“QP”) was not able to personally witness the data collection procedures, as drilling and sampling activities ceased in 2016, based on the verification of the data and site visit observations, the QP is of the opinion that the data upon which the Mineral Resource is based has been collected in line with industry best practices and are reliable for the MRE presented in this TRS.

Geological models, that reflect key aspects including lithological, structural and mineralization domains were constructed by the QP and used to define the estimation domains to constrain the U3O8 % and bulk density estimates. A statistical and geostatistical study were completed on the samples within the estimation domains to determine appropriate estimation parameters. U3O8 % and bulk density estimates were validated using visual and statistical methods. The influence of very high U3O8 % grades were restricted using thresholds and dimensions specific to the local structural setting of each of the deposits.

Mineral Resources were classified by the QP into Indicated and Inferred categories considering the quantity and quality of data, geological and grade continuity, quality of the estimates, and experience of the QP with similar deposits.

The QP has estimated a reporting cut-off grade for the Project based on assumed costs for underground mining and commodity prices that provide a reasonable basis for establishing the prospects of economic extraction for Mineral Resources. These cost and price assumptions have been used to inform an optimisation process using the Deswik Stope Optimiser (“DSO”) software, which utilises the Mineable Shape Optimiser (“MSO”) and estimate a cut-off grade. Mineral Resources have been reported as diluted within the optimised shapes. Mineral Resources are reported exclusive of Mineral Reserves. There are no Mineral Reserves at the Project. The MRE for the Project is reported here by SRK with an effective date of January 1, 2023, in accordance with the S-K 1300 (ES Table 1).

ES Table 1: Mineral Resource Statement for the Project, effective January 1, 2023

					Contained U ₃ O ₈ Metal	
Mining Scenario	Deposit	Classification	Tonnage (kt)	GradeU ₃ O ₈	Tonnes	M lbs
C&F	RRW	Indicated	40	3.38	1,345	3.0
		Inferred	11	3.64	384	0.8
LHOS	RRW	Indicated	160	4.62	7,368	16.2
		Inferred	68	6.06	4,140	9.1
	RRE	Indicated	-	-	-	-
		Inferred	232	4.41	10,257	22.6
	RRFE	Indicated	189	2.07	3,917	8.6
		Inferred	48	3.26	1,567	3.5
Combined RRW, RRE, and RRFE						
Total		Indicated	389	3.25	12,629	27.8
		Inferred	359	4.55	16,349	36.0

*Notes

- 1.) Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.
- 2.) Mineral Resources are reported exclusive of Mineral Reserves. There are no Mineral Reserves for the Project.
- 3.) Mineral Resources are reported on a 100% ownership basis.
- 4.) Mineral Resources are reported diluted within the MSO shapes based on a U308 price of US\$56/lb of U308 and metallurgical recovery of 97%. Cut and Fill ("C&F") and long-hole open stoping ("LHOS") scenario cut-off grades are 0.52% U308 and 0.45% U308 respectively.
- 5.) The Mineral Resources were estimated by SRK, a third-party QP under the definitions defined by S-K 1300. The tonnage (presented in metric tonnes), grade (%), and contained metal (metric tonnes and imperial pounds) have been rounded to reflect the accuracy of the estimates

1.5 Conclusions and Recommendations

The QP has adhered to the regulations prescribed by S-K 1300 for all aspects of the preparation of the MRE presented in this TRS. In the absence of specific S-K 1300 requirements for particular aspects of the MRE preparation, the QP has considered the CIM Estimation of Mineral Resources & Mineral Reserves Best Practice Guidelines (November 29, 2019) and CIM Best Practices in Uranium Estimation Guidelines.

The QP has reviewed the data upon which the MRE is based and is of the opinion that the procedures and systems employed to collect and manage this information meet industry best practice. The QP is of the opinion that the supporting data are representative and adequately support the geological interpretations and estimates to the level of classification assigned.

The QP has considered the relevant economic factors and MSO shapes as a guide to identify those portions of the model to have prospects for economic extraction and select an appropriate Mineral Resource reporting cut-off grade. The reporting cut-off is used to constrain the MSO shapes, but the MRE is reported diluted within the MSO volumes.

The QP believes that the level of uncertainty has been adequately reflected in the classification of Mineral Resources for the Project. Sources of uncertainty that may affect the reporting of Mineral Resources include sampling or drilling methods, data processing and handling, geologic modelling, and estimation. The main controls on mineralization at Roughrider are interpreted from drill core observations and include interpretations of the structural and lithological controls. The interpretation of geometry of the structural framework, in which the mineralization has been modelled, has been interpreted by property scale structural trends, and is poorly supported by observed, oriented measurements. The continuity of relatively high U308 grades is a source of uncertainty in the estimates, where the QP has used the available data and experience from similar deposits to establish restrictions of distance over which relatively high grade U308 may be interpolated into the block estimates. The estimates of U308 grade and bulk density are particularly sensitive to these restrictions, and more so in volumes classified as Inferred Mineral Resources.

Furthermore, the MRE presented may be materially impacted by any future changes in the break-even cut-off grade, which may result from changes in mining method selection, mining costs, processing recoveries and costs, metal price fluctuations, or significant changes in geological knowledge.

The QP considers that Mineral Resources reported in the C&F scenario, which are adjacent to the unconformity where hydrogeological and geotechnical conditions are expected to be more challenging, are subject to increased uncertainty. In the event that these technical challenges could not be addressed, this material is at risk of not having prospects for economic extraction.

SRK has undertaken an initial assessment to support the disclosure of Mineral Resources, according to Item 17 Code for Federal Regulations Parts 229, 230, 239 and 249 of S-K 1300, specifically Section II, E, 4. The initial assessment comprises a qualitative evaluation of the technical and economic factors to establish the economic potential of the Project. As no conceptual or scoping level studies were available at the time of publication, SRK has relied on modified assumption sourced from recently published technical studies relating to underground uranium properties in the Athabasca Basin. These studies project significantly higher production rates than the currently assumed 100ktpa for the Project and as such the operating expenditure assumptions and other related assumptions have been factored to reflect this lower rate. Furthermore, it is important to note that significant additional technical work including the acquisition of additional site-specific data is required to advance the project to the next development stage as defined under S-K 1300, that being a Pre-Feasibility Study. Critical areas to be addressed in this regard will as a minimum include:

- The determination of scope and scale of the Project and specifically whether the Project will support the development of a dedicated processing facility and associated infrastructure or be considered as a supplemental ore feed to an owner of third-party processing hub;
- Securing additional site-specific technical data in respect of mining geotechnical data, hydrogeological data, metallurgical data, and geochemistry data;
- Mining method selection and mine access options including ventilation and services requirements as well as development of a mine plan and production schedules;
- Supporting infrastructure investigations including site selection for processing facilities and waste management facilities;
- Establishing updated and current quotations for operating and capital expenditure assumptions; and

- Initiation of Environmental and Social Studies to inform infrastructure site selection, address impact assessments and permitting requirements and specifically any negotiations with interested and affected parties. Furthermore, it is important to note the importance of the criticality of advancing the environmental and social assessment and CSNC licensing for the Project that may require between 48 and 72 months to complete.

To date no estimate for the expected timeline, funding or commencement thereof has been determined and as such SRK understands that the Company will initially focus on development of additional scoping level studies to refine the options for scope and scale such that these can be, if warranted, utilised to determine the engineering scope for a Pre-Feasibility Study. As such there can be no guarantee that the results of further technical studies will support the assumptions as incorporated into the initial assessments as reported herein or a positive decision to initiate and complete a Pre-Feasibility Study.

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TECHNICAL REPORT SUMMARY: ROUGHRIDER URANIUM PROJECT, SASKATCHEWAN, CANADA

2 INTRODUCTION

2.1 Background

SRK Consulting (UK) Limited (“SRK”) has been requested by Uranium Energy Corporation (“UEC”, hereinafter also referred to as the “Company” or the “Client”) to prepare a S-K 1300 Initial Assessment for the Roughrider Uranium Project (the “Project”), located in Saskatchewan, Canada. UEC is a public company listed on the Securities and Exchange Commission (the “SEC”).

The Project is a uranium project located in the eastern Athabasca Basin of northern Saskatchewan, Canada, one of the world’s premier uranium mining jurisdictions. The Project occurs entirely within the 597-hectare Mineral Lease ML-5547, which is registered to Roughrider Mineral Assets Inc. (“RMA”), which is a wholly owned subsidiary of UEC. The Project is located approximately 13 km west of Orano’s McClean Lake Mill, near UEC’s existing Athabasca Basin properties. The Project was the flagship asset of Hathor Exploration Ltd. (“Hathor”), which Rio Tinto Canada Uranium Corp. (“RTCU”) acquired on December 1, 2011 for US\$550 million (“M”). On October 17, 2022, UEC completed the acquisition of 100% of the Project from RTCU for a total acquisition cost of US\$150M in cash and shares.

2.2 Registrant for Whom the Technical Report Summary was Prepared

This technical report summary (“TRS”) was prepared for UEC by SRK.

2.3 Terms of Reference and Purpose of the Report

With respect to technical submissions (“Technical Report Summary” as defined under item 601 of S-K 1300 defined below) relating to the Project, UEC will be specifically required to comply with Subpart 1300 of Regulation S-K (subpart 1300) hereinafter “S-K 1300” and specifically Item 17 Code for Federal Regulations Parts 229, 230, 239 and 249 effective 25 February 2019. S-K 1300 is regulated under the Securities Act of 1933 and the Securities Exchange Act of 1934.

The purpose of this TRS is to report Mineral Resources for the Project. The reporting standard adopted for the reporting of Mineral Resources included in this TRS is S-K 1300 which acts as both a reporting format for TRS and Mineral Resources which, at the effective date of implementation, was broadly aligned with the Committee for Mineral Reserves International Reporting Standards (“CRIRSCO”) reporting template. Accordingly, SRK also considers that the terms and definitions incorporated into S-K 1300 for Mineral Resource reporting to be broadly aligned with those adopted worldwide for market-related reporting and financial investments.

The effective date of this TRS is January 1, 2023.

References to industry best practices contained herein are generally in reference to those documented practices as defined by organizations, such as the Canadian Institute of Mining, Metallurgy, and Petroleum (“CIM”), or international reporting standards as developed by CRIRSCO.

This is the first TRS prepared for the Project - there is no previously filed TRS. The Project is an Exploration Stage Property, which is defined as “a property that has no Mineral Reserves disclosed”. There are no Mineral Reserves at the Project.

2.4 Source of Information and Data

The information and data used to prepare the TRS have been provided by UEC or are available in the public domain. This TRS is based in part on internal Company technical reports, previous studies, maps, published government reports, Company letters and memoranda, and public information, as cited throughout this TRS and listed in the References Section (Section 24).

Reliance upon information provided by the registrant Company is listed in Section 25, when applicable.

2.5 Details of Inspection

A site visit to the Project was completed by the Qualified Person ("QP") on March 14, 2023. The QP was accompanied on the site visit by the following key UEC staff:

- Darcy Hirsekorn: District Geologist, Saskatchewan
- James Hatley: Vice President Production, Canada
- Nathan Barsi: District Geologist, Saskatchewan
- Jamal Ghavi: Geologist, Saskatchewan and
- Linda Frank: Office Manager

Through the course of the site visit, the QP reviewed drill cores (including sampled half-core) from 7 holes, two holes from each of the three Project deposits (Roughrider West Zone ("RRW"), Roughrider East Zone ("RRE") and Roughrider Far East Zone ("RRFE") and one non-mineralized hole. Characteristics of lithology, alteration and mineralization were checked and recorded from the reviewed cores. Specific mineralized intersections were checked with an RS-120 Super Scint (hand-held gamma scintillometer) to confirm the intensity of mineralization. The QP discussed specific alteration and mineralization characteristics observed in the core with the UEC geologists and how these key characteristics should be incorporated into the geological models and Mineral Resource estimate ("MRE") for the Project.

At the time of the site visit, there were no active data collection activities. The last drillhole to be drilled, logged and sampled, was completed by RTCU in 2016. As a result, the QP was not able to observe active drilling and data collection activities. The QP was able to confirm, from the reviewed core intersections, that certain sampling procedures that have been documented by the previous Project operators, Hathor and RTCU, had in fact been followed, specifically radiometric scanning, half-core sampling, and secure storage. Chain of custody evidence was well preserved, with core box labels clearly visible and geochemical and bulk density sampling locations clearly marked in the core boxes. The Project camp was visited and included industry best practice core logging facilities.

2.6 Qualified Person

This TRS was prepared by SRK, a third-party firm comprising mining experts in accordance with S-K 1300 sub-section 229.1302(b)(1). UEC has determined that SRK meets the qualifications specified under the definition of Qualified Person in sub-section 229.1300. References to the QP in this TRS are references to SRK and not to any individual employed at SRK.

3 PROPERTY DESCRIPTION

3.1 Coordinate System

All coordinates presented in this TRS are Universal Transverse Mercator ("UTM") projection, unless otherwise specified. The Project is located within UTM zone 13N.

3.2 Project Location

The Project is located 7 km north of Points North Landing, a service centre on Provincial Road 905, in northern Saskatchewan, Canada. (Figure 3-1). The Project is approximately 440 km north of La Ronge, and 700 km north of Saskatoon. The Project located at the coordinates 556,545E and 6,466,820N UTM.

The Project camp, including the core logging and storage facilities, is on the shore of the northeast bay of McMahon Lake, and can be accessed by a short gravel road off the Provincial Road 905 (Figure 3-2).



Figure 3.1: Project Location in Saskatchewan

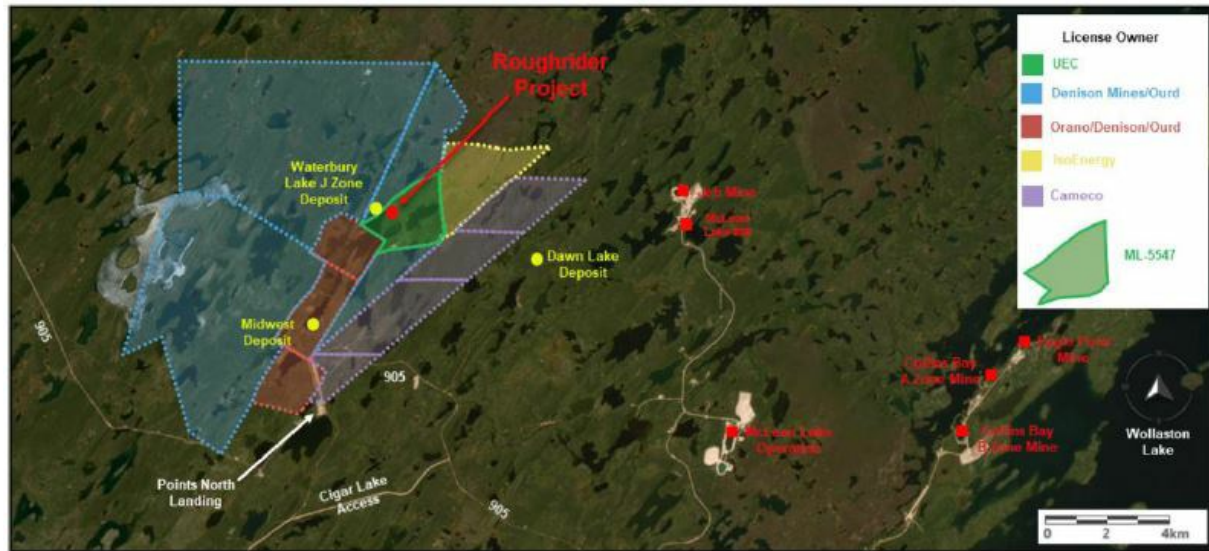


Figure 3-2: Project Location

3.3 Mineral Lease

The Project comprises one Mineral Lease, ML-5547, registered to RMA, which is 100% held by UEC. ML-5547 was consolidated, from three individual and contiguous licenses, ML-5544, ML-5545, and ML-5546 by RTCU on October 4, 2012. ML-5547 covers 597 hectares and is defined by the boundary points as listed in Table 3-1. ML-5547 was registered with the Saskatchewan Ministry of Energy and Resources on November 2, 2020, and is valid from March 20, 2021 for 10 years, expiring on March 20, 2031.

There is an annual expenditure requirement on ML-5547 of CA\$14,925, or CA\$25/hectare. The Project though currently has a credit of CA\$122,692.95.

Table 3-1: ML-5547 Boundary Points

Points	Easting	Northing	Points	Easting	Northing
A	558,533.541	6,465,868.353	N	555,945.856	6,466,763.272
B	558,536.000	6,465,765.000	O	556,464.000	6,467,254.000
C	558,434.000	6,465,795.000	P	556,704.000	6,467,530.000
D	558,034.000	6,465,651.000	Q	557,101.000	6,467,784.000
E	557,602.000	6,465,593.000	R	557,501.000	6,468,115.000
F	557,160.000	6,465,523.000	S	557,966.000	6,468,298.000
G	557,008.000	6,465,508.000	T	558,490.606	6,468,533.421
H	556,491.000	6,465,430.000	U	558,443.432	6,468,263.925
i	556,217.000	6,465,338.000	V	558,487.388	6,467,732.064
J	555,974.000	6,465,258.000	W	558,501.003	6,467,469.976
K	556,332.000	6,465,798.000	X	558,571.000	6,466,966.000
L	555,487.523	6,466,328.814	Y	558,696.000	6,466,088.000
M	555,352.000	6,466,414.000	Z	558,530.949	6,466,013.522

3.4 Mineral Rights

Exploration and mining in Saskatchewan is governed by the Crown Minerals Act, the Mineral Disposition Amendment Regulations, 2012 and the Mineral Tenure Registry Regulations, and administered by the Mines Branch of the Saskatchewan Ministry of Energy and Resources. Mineral rights are owned by the Crown and are distinct from surface rights.

There are two key land tenure milestones that must be met for commercial production to occur in Saskatchewan:

1. Conversion of a mineral claim to mineral lease, and
2. Granting of a Surface Lease to cover the specific surface area within a mineral lease where mining is to occur.

The processes associated with these are described further below.

Several other permits, licences and approvals are required both for ongoing exploration and eventual operation for the Project to proceed. To carry out exploration at the Project a Surface Exploration Permit, Forest Product Permit, and Aquatic Habitat Protection Permit are required.

Table 3-2 indicates the permits currently in place for the Property. The Permits, like the Mineral Lease, are registered to RMA. UEC and RTCU have kept the Project permits current through the transition of ownership. Several of the permits include conditions relating to restrictions on development, health and safety, environmental protection, and restoration/closure of disturbed areas. Non-compliance with these conditions could lead to regulatory enforcement action.

Future permitting processes expected to be required are summarised in Section 3.5

Table 3-2: List of Permits as Provided by UEC

Name	Disposition Type	Effective Date	Expiry Date	Holder (Organization)	Parent Disposition	Status Reason	Created On
0104668	Sand and Gravel	4/1/20232	3/31/2024	RMA	10028363	Activated	10/19/2022
0104669	Sand and Gravel	4/1/20232	3/31/2024	RMA	10016620	Activated	10/19/2022
0104670	Easement	4/1/20232	3/31/2047	RMA	10017136	Activated	10/19/2022
0104664	Industrial	4/1/20232	3/31/2024	RMA	10002692	Activated	10/19/2022
0104663	Foreshore Installations	4/1/20232	3/31/2033	RMA	10016552	Waiting Signature	10/19/2022
0104666	Foreshore Installations	4/1/20232	3/31/2025	RMA	10016553	Activated	10/19/2022
0104665	Foreshore Installations	4/1/20232	3/31/2033	RMA	10016554	Activated	10/19/2022
0104667	Miscellaneous	4/1/20232	3/31/2025	RMA	10016288	Activated	10/19/2022

3.4.1 Mineral Claim and Mineral Lease

A mineral claim does not grant the holder the right to mine minerals except for exploration purposes. Subject to completing necessary expenditure requirements, mineral claim credits can be accumulated for a maximum of 21 years. To ensure that mineral claims are kept in good standing in Saskatchewan, the claim holder must undertake the minimum exploration work on a yearly basis. The current requirements are CA\$15/ha per year for claims that have existed for 10 years or less, and CA\$25/ha per year for claims that have existed in excess of 10 years. Excess expenditures can be accumulated as credits for future years.

A mineral claim in good standing can be converted to a mineral lease by applying to the mining recorder and having a completed boundary survey. In contrast to a mineral claim, the acquisition of a mineral lease grants the holder the exclusive right to explore for, mine, recover, and dispose of any minerals within the mineral lease. Mineral leases are valid for 10 years and are renewable. In the case of the Project, there is a mineral lease (ML-5547) and this has been renewed and is now valid to 2031 (Table 3-1).

The Project originally consisted of three contiguous mineral claims, S-107243 staked on January 30, 2004, and S-110759 and S-110760 staked on March 18, 2008, covering a total area of 543 hectares. Hathor carried out a legal survey of the property in 2010. On March 16, 2011, the three mineral claims were converted to mineral leases and these were subsequently combined into a single mineral lease (ML 5547). Due to minor modification to the eastern property boundary as a result of the legal survey and land tenure changes, the official size of the mineral lease is 598 ha. Mineral Resources for the RRE, RRFE and RRW are contained completely within the mineral lease.

3.4.2 Surface Lease

Land within the mineral lease, surface facilities and mine workings are considered to be located on Provincial lands and therefore owned by the Province. Hence, the right to use and occupy those lands is acquired under a surface lease from the Province of Saskatchewan. A surface lease is issued for a maximum of 33 years and may be extended as necessary to allow the lessee to operate a mine and/or plant and undertake reclamation of disturbed ground.

Co-ordinated between various provincial government ministries and industry, the leases address a range of issues to which mining companies must respond, including land tenure, environmental protection measures, occupational health and safety provisions, and socioeconomic benefits for residents of northern Saskatchewan. Beyond addressing business opportunities and other local benefits, each surface lease agreement also requires the company to negotiate a long-term Human Resource Development Agreement with the Ministry of Advanced Education, Employment and Labour. This plan must speak to efforts to recruit, train and hire northern workers. For mining projects, the surface lease is negotiated between the proponent and the provincial government following the completion of a successful environmental assessment.

Once the surface lease is negotiated, the Provincial approval to operate a Pollution Control Facility is issued; it describes commitments that must be met in terms of monitoring and reporting.

3.5 Current and Future Permitting Requirements

Should the Project proceed, either to advanced exploration or to full development, the necessary development and operational approvals will need to be obtained. A description of the key permissions expected to be required and the processes needed to obtain these are given below. This section is mainly based on information provided by Clifton Engineering Group Inc. ("Clifton") (memo dated April 2023).

3.5.1 Provincial EIA and Permitting

For mining, a surface lease is required prior to work commencing on site. The surface lease will generally cover all areas predicted to be disturbed and accrues annual fees per hectare. Within the boundaries of the surface lease, the annual payments can vary as land is disturbed or reclaimed. Surface leases are coordinated through the Ministry of Government Relations, Northern Engagement Branch, and the Ministry of Environment ("MOE"), Lands Branch, and includes input from other government agencies where appropriate. While negotiations can start early, and in parallel with an environmental impact assessment ("EIA") process, a precondition of the issuance of a surface lease is the successful outcome of the provincial EIA process. In Saskatchewan, the EIA and licensing process are sequential; the EIA process must be completed prior to issuance of specific leases, licenses and permits.

Generally, all mining projects are deemed a Development' as per Section 2(d) of the Saskatchewan Environmental Assessment Act. As it is assumed that the Province will determine the Project is a Development, UEC can elect to self-declare the Project as a Development. A Technical Proposal document and draft terms of reference ("TOR") will need to be submitted to MOE, Environmental and Stewardship Branch ("EASB") with a letter indicating that UEC would like to self-declare the Project as a Development. The TOR is submitted as a draft and would be finalized after incorporating comments from the Province, the Canadian Nuclear Safety Commission ("CNSC") and Indigenous groups.

It will be incumbent on UEC to complete the work required for an EIA, including any delegated Duty to Consult engagement and consultation. While Clifton considers a federal Impact Assessment ("IA") is not likely to be required, it recommends including elements of the federal process in a provincial EIA to aid in the federal CNSC licensing process, in accordance with Canada's Nuclear Safety and Control Act ("NSCA" - see below).

Once an EIA is submitted and the provincial internal reviews are finished, the EASB will compile the comments and produce a Technical Review Comments ("TRC") document. If there are deficiencies in the EIA, the proponent will be required to address them before the TRC document and the final EIA are placed into public review (generally for 30 to 60 days). When public review is complete, EASB will produce an EIA decision document for the Minister of Environment. While there are three outcomes possible (outright approval, approval with conditions or rejection), the potential outcome for a project that gets to this stage is approval of the EIA with conditions. With approval of the EIA, licensing and permitting can be completed.

While an EIA is in progress, the proponent can develop the surface lease application and other provincial licensing packages for review by the government. Provincially, the licensing is through the MOE, Environmental Protection Branch, which largely provides a one-window approach for mining project licensing on behalf of other branches and ministries. There will be other ministries and permitting required related to health and safety, labour, employment, and royalties. Overall, a number of permissions, of one form or another, are required to complete the Project, but when compared to the EIA process, they are rarely material to the schedule or budget if organized properly. Most ministries will indicate their interest and the need for any permits at the Technical Proposal and EIA review stages and those comments will come forward in the TRC.

3.5.2 Federal Impact Assessment and Licensing

The federal Impact Assessment Act ("IAA") and the need to produce an IA can be triggered in two ways. The first is by triggering one of the activity thresholds in the Physical Activities Regulations ("PAR"), and the second is that the Project can be designated by the federal Minister of Environment and Climate Change (the "Minister") in response to a request to designate the Project and a supporting recommendation from the Canadian Impact Assessment Agency (CIAA). With approximately 300 tonnes/day ("tpd") of ore being mined and milled, the Project does not trigger Sections 20 to 23 of the PAR where a production or milling amount of >2500 tpd is the trigger. From recent experience, the CIAA will not likely refer a project for designation by the Minister if the CIAA is of the view the potential adverse effects within federal jurisdiction would be limited and managed through project design, mitigation measures, existing legislative frameworks, and there will not be adverse impacts to Indigenous peoples.

Under the IAA (Section 43), the Minister must refer the IA of a designated project to a review panel (the “Panel”) if the project includes physical activities that are regulated under the NSCA. If a Panel is declared for a uranium project, there will be one CNSC-appointed member to the Panel. In general, a Panel would add about a year to the approvals process. The IA conducted by a Panel is the only IA the CNSC can use for the purpose of issuing the licence. The CNSC will conduct an environmental protection review (“EPR”) for the license application in accordance with its mandate under the NSCA to ensure the protection of the environment and the health of persons. The CNSC will follow the federal mandates with respect to Indigenous peoples and other initiatives such as Climate Change.

The CNSC and Saskatchewan MOE have historically worked closely together and the CNSC will have the ability to review the provincial EIA submitted by UEC. The regulators have recently demonstrated that they will cooperate in their review of projects despite the expiration of their cooperation agreement. In addition, the CNSC will act as a technical advisor and will be an active participant in the EIA process. However, the provincial EIA decision will be independent of the federal government.

UEC will need to initiate the NSCA licensing process to have early and meaningful discussions with the CNSC regarding the licensing process, engagement and consultation expectations, and the scope of the Project’s licensing. While the option of sequentially doing the provincial EIA and the CNSC licensing is available, the CNSC suggests doing these two distinct processes in parallel to save time. It is assumed that a successful outcome for the provincial EIA would be an important part of the CNSC’s EPR, which would be presented to the CNSC Tribunal as part of the licensing review. As in Saskatchewan, a positive environmental decision on the EIA is required prior to the CNSC approving any licensing packages. The CNSC’s licensing and oversight processes are done on a cost recovery basis through the Cost Recovery Fees Regulations.

While in-water work is not expected, as it will be an underground operation, there may be a need to engage with Fisheries and Oceans Canada (under the Fisheries Act) regarding a treated effluent discharge or pump stations for fresh water. Transport Canada authorization may be required if there are any in-water works with a potential to impact navigation (under the Canadian Navigable Waters Act) or headframes or ventilation shafts, in relation to the Points North airstrip, need to be registered (under the Canadian Aviation Regulations). The Metal and Diamond Mining Effluent Regulations to the Fisheries Act, in addition to any provincial requirements, will govern water quality and the monitoring of biological effects. Other federal legislation of importance to the Project will be compliance with the Species at Risk Act (e.g. woodland caribou) and the Migratory Birds Convention Act. It is not clear whether the proposed federal policy on biodiversity will have an impact on the Project, but if enacted, it could mean more biophysical offsets will be required for any disturbed ground.

3.5.3 Decommissioning

As part of the regulatory process, UEC will be required to develop a conceptual decommissioning plan for inclusion in the EIA that details the steps that will be taken to decommission facilities and reclaim the land at the end of the Project’s life. As part of the subsequent licensing, the conceptual plan is expanded into a more detailed Preliminary Decommissioning Plan (“PDP”) along with a cost estimate for implementation (“PDC”). The Company will be required to provide a surety or bond to cover the cost of carrying out the PDP. While salvage of some materials is likely, these cannot be considered in the PDC. The PDP and PDC are periodically reviewed and updated and can be scaled to reflect the current state of the Project. As operations progress, progressive decommissioning is encouraged as it lowers close-out liabilities, which, in turn, can reduce the amount of a surety bond, and often reduces the cost of disturbed-land lease fees.

At the end of the life of mine, closure is required to be done in accordance with the Section 22 of the Mineral Industry Environmental Protection Regulations, MOE’s Guidelines for Northern Mine Decommissioning and Reclamation (November 2008); Environmental Code of Practice for Metal Mines (2009); and, industry best management practices, such as those established by Mining Association of Canada. The Department of Mines would be responsible for closure of underground workings in terms of the Mines Regulations.

In Saskatchewan, reclaimed land can be returned to the Crown under the Reclaimed Industrial Sites Act and the Reclaimed Industrial Sites Regulations, which establish an Institutional Control Program (“ICP”). The ICP is implemented once a decommissioned site has been deemed to be reclaimed in a stable, self-sustaining and non-polluting manner. The property is then transferred back to the Province for monitoring and maintenance. For this to happen, the proponent pays a calculated sum into the Institutional Control Monitoring and Maintenance Fund and the Institutional Control Unforeseen Events Fund; the government can seek redress from the proponent if the costs exceed the funds available.

3.5.4 Indigenous Engagement

For both the federal and provincial EIA and permitting/licensing processes, engagement and consultation with Indigenous groups are required. Engagement in Saskatchewan consists of the Crown’s duty to consult, a legal requirement, and interest-based engagement, which is essential to a project’s social license. Both levels of government have a duty to consult with Indigenous groups on any decision within their purview with the potential to affect Aboriginal or Treaty Rights. As the Project progresses through the regulatory process, several provincial and federal decisions will be made that must be informed by engagement and consultation. Implementation of the Crown’s duty to consult is guided by a combination of provincial and federal regulatory requirements and guidance documents (e.g. Section 35, The Constitution Act).

Although the duty to consult lies with the federal and provincial governments, the procedural aspects of the duty to consult are frequently delegated to the proponent to undertake. This often results in the proponent entering into engagement agreements with some Indigenous groups to do studies to identify any potential impacts to rights. The Company will be expected to meet with each potentially affected community to discuss engagement plans and an appropriate budget for the communities to complete the necessary meetings and studies. The engagement plan should include opportunities to inform Indigenous communities of the nature of the proposed activities, the potential impacts of the Project, and proposed mitigation strategies. The purpose is to receive feedback or information on current traditional land uses and potential impacts to Treaty and Aboriginal rights. UEC will be expected to work with the Indigenous communities to determine reasonable accommodations (e.g., an impact benefit or other agreement) to avoid, minimize, or mitigate adverse impacts to their rights.

UEC will be expected to demonstrate the extent of engagement through appropriate records and show how comments, concerns and traditional knowledge have been received and addressed within the EIA and licensing documents.

3.5.5 Violations and Fines

Subject to a formal legal due diligence, SRK has not been informed of any violations or fines associated with the Project.

3.5.6 Summary

Should the Project be developed, it is expected it will need to undertake additional environmental and social studies to build on the historical data collection undertaken by RTCU (which is now 10 years old) to prepare an EIA — a list of historical studies undertaken is presented in Appendix B. It is also recognised there are synergies between the environmental and engineering data gathering exercises (particularly for geochemistry, water and climate) and thus cost and schedule efficiencies can be achieved with careful planning. It is estimated the environmental and social assessment and CSNC licensing for the Project may require between 48 months and 72 months to complete.

The variation in schedule will be a function of the complexity of the proposed Project, how it interacts with the environment and the level of public concern with the proposed Project. Therefore, the accuracy of the schedule can only be refined following the completion of pre-feasibility or feasibility level engineering studies and the findings of new engagement activities with Indigenous groups (recognising that historical engagement was done approximately 10 years ago — refer to Section 17).

The CNSC operates on a cost recovery basis that allows the agency to bill the proponent for each hour their staff dedicates to the Assessment process. This complicates the ability to accurately estimate the total costs of an EA. SRK and Clifton consider a reasonable estimate of the total costs associated with completing an EA for this Project, at this stage of its development, is in the order of CA\$15M to CA\$20M over the duration of the assessment and permitting process.

A comprehensive list (as identified by UEC) of the potential permits, approvals and authorizations required for the Project are summarized in Appendix A.

3.6 Other Significant Factors or Risks

In terms of ESG related factors, several issues or risks associated with accessing the land or obtaining the necessary permissions have been identified and are expanded upon in Section 16. Four relate directly to the mining lease area and are summarised below:

1. According to the Advanced Exploration Program (“ADEX”) EIA (RTCU, 2014), there are no legally protected or internationally recognised habitat areas within the concession area. It is over 100 km to the nearest national parks, which are located to the northeast, northwest and south of the Project area.
2. Several species of conservation importance occur in the area and would require further assessment as part of any future EA process.
3. Heritage resources impact assessments were undertaken to support the ADEX PFS (BARR, 2013) and EIA (RTCU, 2014). The identified sites are shown in Figure 3-3. As a result of this work, the Heritage Conservation Branch (“HCB”) gave clearance for the ADEX project in 2012, but the ADEX EIA indicates that any further proposed development would have to be submitted to HCB for review.
4. The uranium mining industry and the Government of Saskatchewan have focused significant effort towards obtaining a “social license” to operate in the Athabasca Basin region over the course of the past 40+ years. To this end many committees, working groups, partnerships and agreements have been formed between the uranium mining companies and Indigenous and non-Indigenous communities. SRK understands traditional rights to the Project area will be recognised as part of the surface lease agreements and Impact Benefit Agreements resulting from the proposed Project. Further information on relevant stakeholder groups and historical engagement with them is given in Section 17.

The QP is not aware of any other significant factors that may affect access to the Project, or UEC’s ability to continue exploration activities at the Project.

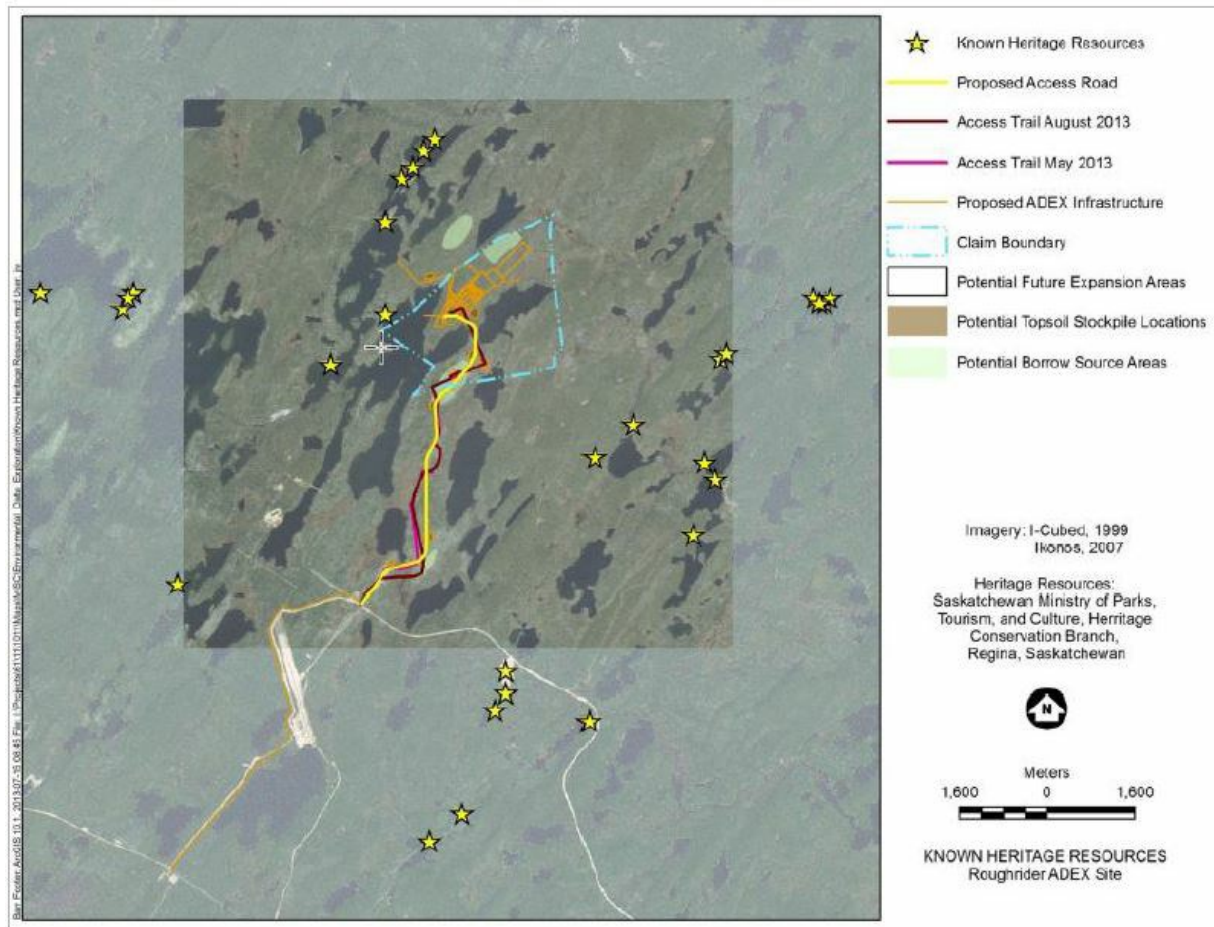


Figure 3-3: Known Heritage Sites near the Project site (BARR, 2013)

3.7 Royalties or Similar Interest

The Project is subject to royalty payments to the government of Saskatchewan, via the “Uranium Crown Royalty” and through a private agreement with the Uranium Royalty Corporation (“URC”), the “Roughrider Royalty”, as well as Corporation Capital Tax. The application of these for the prospects of economic extraction are discussed further in Section 11.4.1

3.7.1 Uranium Crown Royalty

The Government of Saskatchewan approved a new uranium royalty system effective January 1, 2013. The uranium royalty system is enacted under the Crown Mineral Royalty Regulations, pursuant to the Crown Minerals Act. According to the system, each owner, or joint venture participant, in a uranium mine is a royalty payer. Individual interests of a royalty payer are consolidated on a corporate basis for the calculation of royalties applied to the royalty payer’s sales of uranium. The system has three components:

- Basic royalty — 5% of gross revenue
- Profit royalty — rates increase from 10% to 15% as net profit increases
- Saskatchewan Resource Credit — a credit of 0.75% gross revenue

The Profit Royalty is based on net profits, with a two-tier rate structure. It will apply at rates of 10% on net profits up to and including \$22 per kilogram, and 15% on net profits above \$22 per kilogram. The Basic Royalty is not deductible from Profit Royalty payable.

Profit is calculated based on recognition of the full dollar value of a royalty payer's exploration, capital, production, decommissioning and reclamation costs.

The total royalty is calculated as follows:

Equation 3-1: Royalty Payment

$$\text{Royalty Payment} = \text{Basic Royalty} + \text{Profit Royalty} - \text{Saskatchewan Resource Credit}$$

3.7.2 Roughrider Royalty

The Project is subject to royalty payments through a private agreement, the "Roughrider Royalty", with URC. The Roughrider Royalty is a 1.9701% net smelter return royalty payable pursuant to the interest that Uranium Energy Corporation or any of its subsidiaries, assignees or successors holds in the property.

3.7.3 Corporation Capital Tax

For resource corporations, the Resource Surcharge rate is 3.0% of the value of sales of all uranium produced in Saskatchewan.

4 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

4.1 Topography and Elevation

The approximate claim boundary for the Project is shown in Figure 3-2. It has a maximum north-south dimension of roughly 2.5 km, and a maximum east-west dimension of roughly 3 km. The claim area lies between approximately elevations of 477 and 502 m above mean sea level ("MASL") (Figure 4-1). The predominant geology on site consists of glacial till underlain by water-bearing sandstone and the Western Churchill Province of the Archean Canadian Shield ("basement") rocks.

Throughout the Project area, glacial landforms distinctly trend northeast arising from the retreating of glacial ice from the southwest to the northeast during the Quaternary period. The Project deposits are located on the flank of a glacial drumlin. Approximately 60% of ML-5547 is land, while the remaining is water/lakes.

Two aquifers transmit groundwater under the Project site. The shallow aquifer extends at most 30 m into the ground and transmits water parallel to surface drainage. The deep aquifer transmits water in a more complex manner based on local geography (SRK, 2011). The surface water level of South McMahon Lake is assumed to be approximately 478 MASL.

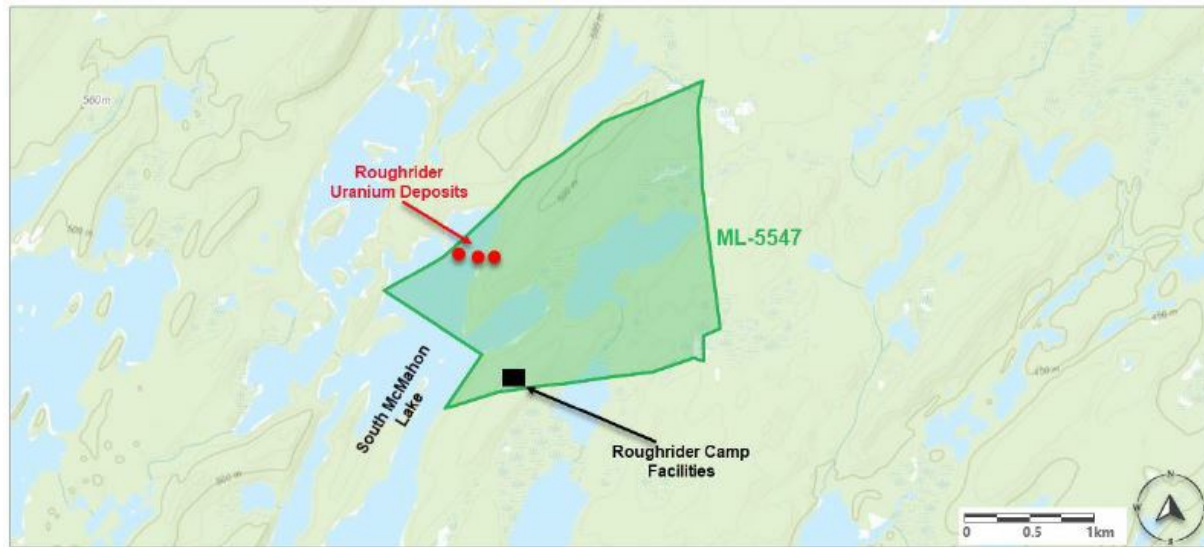


Figure 4-1: Plan view of the Project topography

4.2 Vegetation (and Habitats/Species of Conservation Importance)

The ADEX EIA (RTCU, 2014) was informed by environmental baseline data gathered by Canada North Environmental Services Limited Partnership between 2012 and 2014 (Section 3.5.1 and Appendix B). As such there is a reasonably good understanding of the Project context and its local and regional setting. The summary description of the vegetation, habitat and species of conservation importance presented below is extracted from these reports. SRK understands no further environmental baseline work has been completed subsequent to this.

The baseline studies included development of a habitat map (Figure 4-2) based on satellite imagery from 2011, which was ground truthed in the field (SRK considers an update to this would be needed to confirm if there have been changes in the last decade should the Project proceed). ML-5547 sits within the local study area. In terms of vegetation, five ecotypes (habitats) were identified based on tree canopy composition and wetland type:

- Open/shrubby wetland;
- Treed wetland;
- Ribbed fen;
- Jack pine-dominated conifer forest; and
- Black spruce-dominated conifer forest.

According to the ADEX EIA (RTCU, 2014), of the 119 rare plant species potentially occurring in the Athabasca Plain ecoregion, five have been observed in the study area: leathery grape fern, few-flowered sedge, three-seeded sedge, hairy butterwort, and American Scheuchzeria. None of the species observed are listed on the federal Species at Risk Act or protected under the provincial Wildlife Act. No exotic and/or prohibited, noxious, or nuisance weeds as listed by the Saskatchewan Weed Control Act were observed during vegetation studies.

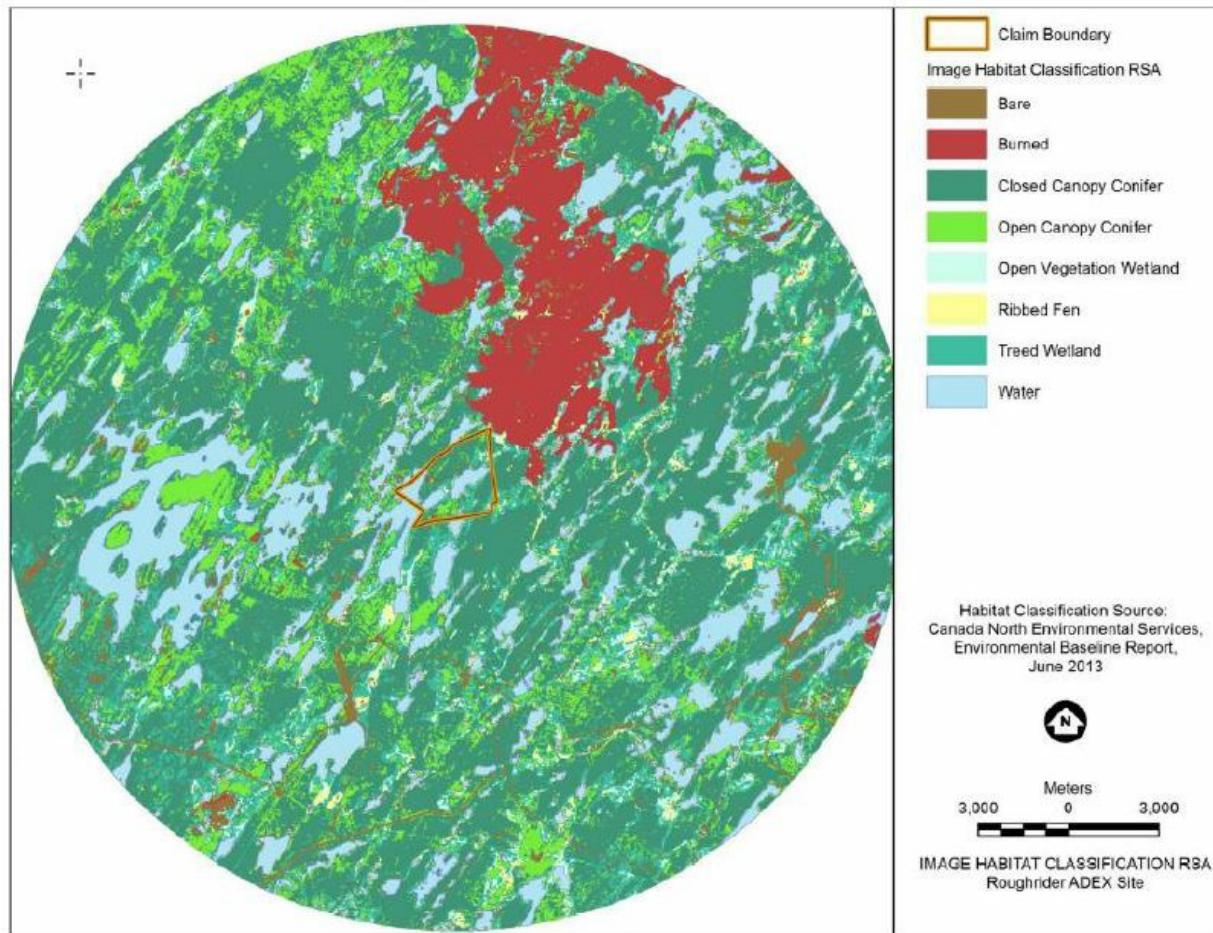


Figure 4-2: Habitat areas as defined in ADEX (BARR, 2013)

Database searches resulted in the identification of 11 federally listed wildlife species at risk or species with special conservation measures as potentially occurring within the study area. These include seven bird species and four mammals. Two bird species were detected in the study area that are listed federally as threatened: the olive-sided flycatcher and common nighthawk. Five bird species detected within the lease area and/or regional study area (“RSA”) have provincial activity setbacks including the bald eagle, osprey, northern hawk owl, Bonaparte’s gull, and common tern. Setback distances for common terns apply only to breeding colonies, and no colonies were observed. The four mammal species of conservation importance were the wolverine, little brown myotis (mouse eared bat), northern myotis, and boreal woodland caribou.

4.3 Property Access

The area around the Project is a well-developed mining area close to necessary infrastructure and resources. The property can be accessed by a 7 km gravel road, floatplane or helicopter from Points North Landing. Points North Landing is on Provincial Road 905 which is linked to the nearest sizeable population centre, La Ronge 440 km south, by Highway 102. There are several daily commercial airline services from Saskatoon to Points North Landing, and regular charter flights for Orano’s McLean Lake operation.

4.4 Climate and Length of Operating Season

According to the ADEX PFS (BARR, 2014) the Project area has a climate that is a mid-latitude continental climate, with temperatures ranging from 32°C in the summer to -45°C in the winter. Winters are long and cold, with mean monthly temperatures below freezing for seven months of the year. Annual precipitation is about 500 mm per year, with half of that in the summer months. Winter snowpack averages 70 cm to 90 cm. Lake ice forms by mid-October and usually melts by mid-June. Field operations are possible year-round with the exception of limitations imposed by lakes and swamps and the periods of break-up and freeze-up (effectively drilling operations are possible from January to April and June to October).

According to Canada's Changing Climate Report — In Light of the Latest Global Science Assessment (2022), which refers to the IPCC's AR6 report, there will be an increase in annual mean temperature in North America. They project that warming in Canada will be greater in the northernmost regions. Increases in mean annual precipitation is projected for several North American regions, including specifically where the Project site is located. According to Climatedata (<https://climatedata.ca/>), average temperature for the period 2021 to 2050 for Wollaston Lake, which lies 55 km to the southeast of the Project site, is expected to be -1.5 °C compared to -3.7 °C for the period 1971 to 2000. Changes in precipitation patterns and the possibility of increased variability in the amount and timing of rainfall and snowfall could result in more frequent and intense extreme weather events, such as floods and droughts.

4.5 Catchments and Water Resources

The Project straddles two distinct watersheds (which were characterised in terms of flow and quality during the ADEX EIA (RTCU, 2014):

- The Smith Creek catchment, which flows north from the Project, entering Smith Bay on the south side of Hatchet Lake. At the time of the ADEX EIA (2014) there were no other industrial users discharging to the watershed, and the nearest commercial user of the watershed was an outfitting camp located near the north end of Hatchet Lake and potentially a winter commercial fishery within the lake; and
- The Collins Creek catchment, which flows east from the area of the Project to Collins Bay of Wollaston Lake. Collins Creek receives the treated effluent from the McClean Lake uranium mill, which is located approximately 11 km east of the Project. The creek then enters Collins Bay (opposite the Rabbit Lake uranium mine and mill). A freshwater intake for the Rabbit Lake mine and mill is located within Collins Bay and treated effluent from the Rabbit Lake operation is discharged into Wollaston Lake.

4.6 Availability of Infrastructure

The Project benefits from being close to Points North Landing and the Provincial Road 905, both of which can be used for import of consumables and equipment. A road has been constructed to connect the Project site to the Provincial Road but will require further upgrade to facilitate development. The airstrip at Points North Landing or a dedicated airstrip would be used for ingress and egress of the workforce, which are likely be working on a fly-in-fly-out basis.

The Project will need to build its own administrative, maintenance, and operational support infrastructure on-site. This will include a fully serviced accommodation camp. The Project will need to generate heating and hot water, and other services such as water treatment, water supply and waste management. Study work (BARR, 2014) has established an overall conceptual layout.

Typical infrastructure associated to under mining located at surface will also need to be constructed such as shaft and headframe, winding house, ventilation fans, backfill plant / concrete plant, and freeze plant.

The power demand from mining has previously been estimated at between 17 to 24 MW (BARR, 2014). Additional power will be needed for surface infrastructure. South of Points North Landing and approximately 15 km from the Project is the nearest national grid substation, which is understood to be operated by “Saskpower”. The substation is situated on the high voltage regional transmission grid between the Athabasca Hydroelectric System (23 MW capacity) and the Island Falls Hydroelectric Station (111 MW capacity).

Saskpower has previously been contacted regarding the potential to connect to the substation. However, at this stage, the capacity and current utilisation of the transmission system has not been studied and nothing has been confirmed or agreed. If there is not adequate capacity on the nearby high voltage power line, then an LNG-fired power plant or a Small Modular Reactor(s) (“SMR”) are likely to be the lowest life-of-mine (“LOM”) cost self-generation alternative options.

5 HISTORY

5.1 Pre-Discovery

Between 1969 and 1974, following the discovery of the Rabbit Lake uranium deposit in 1968 by Gulf Minerals Ltd., Numac Oil and Gas (“Numac”) held the large Permit Number Eight over the Midwest Lake (McMahon Lake) and Dawn Lake areas. Prospecting, airborne radiometric surveys and lake sediment sampling for uranium and radon were carried out in 1969 and 1972 (Forgeron, 1969; Beckett, 1972). At the time, Numac, in conjunction with their partners Esso Minerals and Bow Valley Industries, focused on the Midwest Lake area, located adjacent to the Project.

In 1976, Asamera Oil Corp. (“Asamera”) initiated the Dawn Lake project, located approximately 6 km southeast of the current Project. Asamera discovered the Dawn Lake 11, 11A, 11B, and 14 zones in 1978. In 1983, the Saskatchewan Mining and Development Corporation (“SMDC”), predecessor to Cameco Corporation (“Cameco”) became the operator of the Dawn Lake Joint Venture. By 1995, the Dawn Lake Joint Venture consisted of Cameco, Cogema Resources Inc. (now Orano SA (“Orano”)), PNC Exploration Canada Ltd., and Kepeco Canada Ltd. (Jiricka et al., 1995). The Dawn Lake Joint Venture held the Esso North claim until it lapsed in 2003.

Early work by Asamera on the Esso North claim consisted of electromagnetic (“EM”) and aeromagnetic surveys in 1977, followed by airborne very low frequency (“VLF”) EM, magnetic and radiometric surveys in 1978 and 1979 by Kenting and Geoterrex, respectively. These surveys located an east-west trending conductor of moderate strength and a radiometric anomaly associated with a broad VLF-EM response on the eastern portion of the Esso North claim (Parker, 1982).

From 1978 to 1981, Turam, Vector Pulse EM, and VLF-EM surveys confirmed the east-west conductor as well as some weaker northeast trending VLF-EM conductors. The east-west conductor occurs just outside the western boundary of ML-5547. During this same period, Asamera drilled 21 holes on the Esso North claim (Parker, 1982; Asamera, 1982). The first 10 holes, EN-1 to EN-10, were drilled across the projected northeast strike extent of the Project. These holes are located within ML-5547 (formerly lease ML-5544) and penetrated basement rock for an average length of 25 m.

The other eleven holes were drilled on the main east-west striking conductor. Results, however, were discouraging; the highest radioactivity was encountered in drillhole EN-14 with 590 counts per second (“cps”) on a radiation detector. Basement lithologies intersected in drillholes included Archean granitoid, pegmatite, migmatite, and rare pelitic gneiss. Some evidence of structural disturbance and alteration was observed in the Athabasca sandstone intersected in drillholes EN-14, EN-15, and EN-16. Parker (1982) recommended relogging of the drill core to determine if any structural features had been missed. Only EN-14 and EN-15 are collared within ML-5547.

In 1984, SMDC carried out Time Domain EM (“TEM”) on the Esso North claim and completed two additional holes (Roy et al., 1984). Drillhole EN-18 targeted a weak TEM conductor near the east-west conductor. Results of this hole were negative. Drillhole EN-19 targeted a weak northeast trending TEM conductor. It intersected faulting and alteration in the Athabasca sandstone, but no other interesting features, and ended in pegmatite. Drillholes EN-18 and EN-19 are located within ML-5547.

Exploration on the Esso North claim was dormant until 1995 (Jiricka et al., 1995), when Cameco resurveyed the area with TEM and located both the east-west conductor and the weak northeast striking conductor. The latter target was tested by one hole, EN-20; it intersected faulted and altered sandstone but no significant radioactivity. The basement consisted of granite, pegmatite, as well as minor pelitic and psammitic gneiss. Radioactivity of up to 379 cps occurred in the basement, but the cause of the conductor was not found. Hole EN-20 is located within lease ML-5547.

In 1996 one drillhole, EN-21, was completed that targeted the east-west conductor. This conductor is located just west of ML-5547. No conductive material was intersected, and the basement lithology was granite. Anomalous lead values present were attributed to heavy minerals in the sandstone. The lower 40% of the sandstone column was bleached (Jiricka et al., 1996).

Under an agreement dated September 10, 2004, between Roughrider Uranium Corp. (“Roughrider”) and Bullion Fund Inc. (“Bullion Fund”), Roughrider earned a 90% interest in claim S-107243 (and six other claims that became part of Roughrider’s Russell South property) by paying Bullion Fund an aggregate of CA\$200k cash. Bullion Fund retained a 10% carried interest. On August 10, 2006, Roughrider became a wholly owned subsidiary of Hathor. A 1.9701% net smelter return on ML-5544 (now part of ML-5547) was payable to original Roughrider shareholders.

On April 12, 2007, Terra Ventures Inc. (“Terra”) announced that it had closed a deal with Bullion Fund to acquire an 8% carried working interest in seven claims comprising 56,360 acres in two separate projects located in the Athabasca Basin, Saskatchewan, of which 90% of the remaining 92% working interest was held by Hathor. One of the claims was S-107243. Terra’s interest was to be carried in all respects through to the completion of a feasibility study and the public announcement that the claims will be put into commercial production. Terra paid CA\$2.3M to acquire the interest and also paid a finder’s fee of CA\$69,000.

On March 24, 2008, Terra announced that it had closed its agreement with Bullion Fund to purchase Bullion Fund’s remaining 2% of Hathor’s carried working interest in the Project. This purchase increased Terra’s holding to a 10% carried working interest through to the completion of a feasibility study and the public announcement that the claims will be put into commercial production. The consideration paid by Terra to acquire this interest was CA\$2.5M and 3M shares of Terra.

5.2 Discovery to Present

RRW was discovered by Hathor during the winter drilling program of February 2008. A hydrothermal clay alteration system was intersected in drillhole MWNE-08-10, while high-grade uranium mineralization (5.29% U₃O₈) over a core length interval of 11.9 m) was intersected in drillhole MWNE-08-12.

RRE was discovered during the summer drilling program in September 2009. Hydrothermal alteration was intersected in a number of earlier drillholes during the summer program. High-grade uranium mineralization (12.71% U₃O₈ over a core length interval of 28 m) was intersected subsequently in drillhole MWNE-10-170.

A third zone, RRFE, was discovered during the winter drilling program in February 2011. The discovery drillhole intersected 1.57 % U₃O₈ over core length of 37.5 m.

On April 18, 2011, Hathor and Terra announced that they had executed a binding letter agreement pursuant to which Hathor would acquire, in an all-share transaction, all of the issued and outstanding shares of Terra. On May 9, 2011, Hathor and Terra announced that they had executed a definitive plan of arrangement agreement (the "Arrangement") to complete the previously announced merger. The result of the Arrangement was consolidation of 100% ownership of the Project. On August 2, 2011, Terra received approval from 96% of votes cast at a special meeting of its shareholders held in Vancouver. On August 4, 2011, Terra received final approval from the Supreme Court of British Columbia to complete the Arrangement. On August 5, 2011, Hathor and Terra announced the completion of the Arrangement and Terra became a wholly owned subsidiary of Hathor.

On December 1, 2011, Rio Tinto announced that it was successful in acquiring Hathor, through a wholly owned Canadian subsidiary, RTCU. On January 11, 2012, RTCU acquired all remaining Hathor common shares making RTCU 100% owners of the Project. After acquiring the Project, RTCU continued to advance the Project, completing substantial pre-development and environmental baseline work including dedicated geotechnical drilling, shaft vs. decline modelling, the establishment of hydrogeological monitor wells, terrestrial and aquatic environmental assessments, heritage assessments, species at risk, and a conceptual reclamation plan.

In July of 2013, RTCU submitted an ADEX proposal for consideration to the MOE. The program was intended to initiate the EIS review of the Project, with the Project intended to provide direct data related to the ore and mine development design. The application was partially through the EIS review process, but no official determination was completed.

On October 17, 2022, UEC completed the acquisition of 100% of the Project from RTCU for a total acquisition cost of US\$150M in cash and shares.

5.3 Historical Mineral Resource and Mineral Reserve Estimates

There are no Mineral Reserves at the Project. There are no historical Mineral Resources reported using the definitions from S-K 1300. The historical Mineral Resources discussed in the following paragraphs were classified in accordance with the definitions for Mineral Resources in the CIM Definition Standards for Mineral Resources and Mineral Reserves.

Mineral Resources for the Project were previously estimated by Scott Wilson RPA Inc., with an effective date of September 1, 2009. Using a cut-off grade of 0.06% U₃O₈, Indicated Mineral Resources were reported at 116,000 tonnes at 2.57% U₃O₈ for 6.58M lbs of U₃O₈ and Inferred Mineral Resources were reported at 83,000 tonnes at 3.00% U₃O₈ for 5.47M lbs of U₃O₈.

The last publicly disclosed historical MRE for the Project was completed by SRK (Table 5-1), with an effective date of November 29, 2010 (RRW) and, May 6, 2011 (RRE). Mineral Resources were estimated for the RRW and RRE deposits only, as the RRFE deposit had not been adequately explored at the time.

Table 5-1: Historical Mineral Resource Statement* for the Roughrider Uranium Deposit, Saskatchewan, November 29, 2010 (RRW) and, May 6, 2011 (RRE)

Deposit	Category	Tonnage (kt)	Grade U ₃ O ₈ %	Metal U ₃ O ₈ (Mlbs)
RRW	Indicated	394.2	1.98	17.2
	Inferred	43.6	11.03	10.6
RRE	Inferred	118.0	11.58	30.1
Total	Indicated	394.2	1.98	17.2
	Inferred	161.6	11.43	40.7

*CIM Definition Standards have been followed for classification of Mineral Resources. The cut-off grade of 0.05% U₃O₈ for RRW and 0.40% U₃O₈ was for RRE. U₃O₈ price of US\$80/lb U₃O₈ and metallurgical recovery of 98% assumed. Reasonable prospect for economic extraction assumes open pit extraction for RRW and underground extraction for RRE. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability. Totals may not add correctly due to rounding.

5.4 Historical Production

There is no historical production at the Project.

6 GEOLOGICAL SETTING, MINERALIZATION, AND DEPOSIT

6.1 Regional Geology

The Roughrider project, comprising the RRW, RRE and RRFE deposits occurs in the Athabasca Basin, which covers over 85,000 km² in northern Saskatchewan and north-eastern Alberta. The saucer-shaped basin contains a relatively undeformed and unmetamorphosed sequence of Mesoproterozoic clastic rocks known as the Athabasca Group (Figure 6-1). These rocks lie unconformably on the basement rocks. The basement rocks consist of Archean orthogneisses, which are overlain by, and structurally intercalated with, the highly deformed supracrustal Palaeoproterozoic Wollaston Group (Annesley et al., 2005).

The Athabasca Basin is elongated along an east-west axis and straddles the boundary between two subdivisions of the Western Churchill Province. The Rae Subprovince to the west and the Hearne Subprovince to the east. The subprovinces are separated by the northeast trending Snowbird Tectonic Zone, locally known as the Virgin River-Black Lake shear zone in the area of the Athabasca Basin.

The Hearne Craton beneath the eastern Athabasca Basin comprises variably reworked Archean basement, which is dominated by granitic domes and foliated to gneissic granitoid rocks with infolded outliers of Paleoproterozoic metasedimentary rocks. The structural and tectonic regime of the area has been influenced strongly by collisional tectonics between the Hearne and Superior Cratons during the early Proterozoic Trans-Hudson Orogen, which occurred approximately 1.9 billion years ago ("Ga") to 1.77 Ga.

Prior to deposition of the Athabasca Group, rocks of the Rae and Hearne Provinces that would later form the basement of the basin rocks experienced a lengthy period of weathering and non-deposition. Consequently, the basal Athabasca stratigraphy is underlain by a regolith of deeply weathered, hematite-stained basement. In places, the preserved regolith can reach a thickness of up to 50 m, but typically less than 10 m.

Unconformably overlying the basement rocks is the late Mesoproterozoic Athabasca Group consisting mainly of fluvial clastic sedimentary rocks, which are about 1,400 m thick in the central part of the basin (Ramaekers, 2001). The Athabasca Group comprises eight formations, although in the eastern Athabasca Basin, the Manitou Falls Formation is the only formation present. It is subdivided into four units, from bottom to top, designated MFa to MFd. Lithologies are dominated by fine to coarse-grained, partly pebbly or clay-intraclast-bearing quartz arenites. Minor conglomerates, mudstones, and dolostones also occur.

Apart from faulting and local folding associated with thrusting, the Athabasca Group strata are undeformed and unmetamorphosed. Age dating of zircons and diagenetic fluorapatite (SGS, 2003) indicate an age of sedimentary deposition around 1.77 Ga, post-dating the Trans-Hudson Orogeny (circa 1.9 Ga to 1.77 Ga).

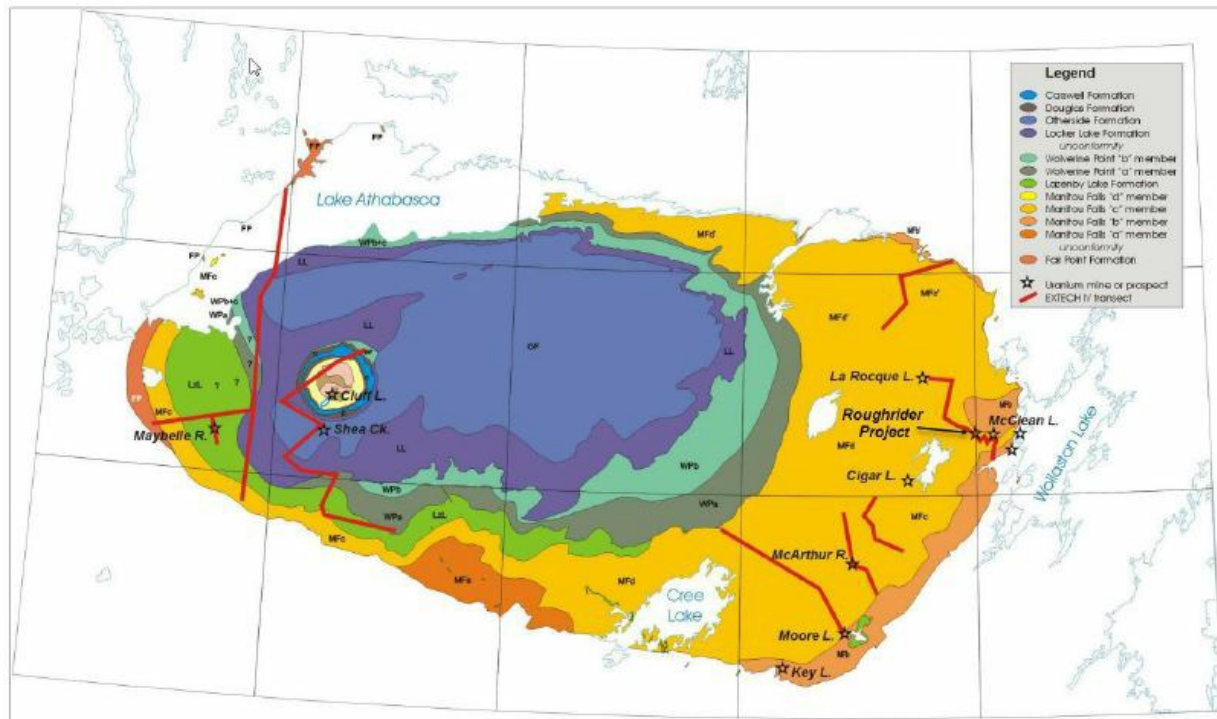


Figure 6-1: Geological sketch map of the Athabasca Basin, after Raemakers et al., 2001

6.2 Local Geology

6.2.1 Hearne Subprovince

Four important lithostructural domains have been identified in the Hearne Subprovince: the Eastern Wollaston Domain, Western Wollaston Domain (“WWD”), Wollaston-Mudjatik Transition Zone (“WMTZ”), and Mudjatik Domain (“MD”) (Annesley et al., 1997; Annesley et al., 2005). The basement rocks within the Project are part of the WMTZ. The WWD and WMTZ host all currently producing uranium mines in the area, as well as several other significant uranium occurrences. Certain lithologies, coupled with the deformational history of some domains, have had a strong influence on the location of the Athabasca unconformity-type uranium deposits.

The basement rocks in the Project area are structurally complex, comprising steeply dipping Wollaston Group rocks interfingering Archean granitic to granodioritic orthogneisses. Interpretations of aeromagnetic data suggest that several Archean granitic domes dominate the basement geology.

Model ages from the orthogneiss indicate a crustal history beginning as early as 3.6 Ga with extensive crust development approximately 2.92 Ga. Pelitic to psammitic supracrustal rocks and mafic granulites, minor quartzites, calc-silicates, marbles and ultramafic rocks, as well as rare oxide, silicate and sulphide facies iron formations occur in narrow arcuate bands throughout, defining the dome-and-basin pattern. In the east, most of these supracrustal remnants have been correlated with the Wollaston Supergroup. Metamorphic grades range from upper amphibolite to granulite facies (Annesley et al., 2002; SGS, 2003).

Away from the RRW, RRE, and RRFE deposits within the Project area, the reddish to greenish paleoweathering profile immediately below the sub-Athabasca unconformity is variable in its development but typically extends to a depth of 10 m to 35 m. It comprises a thin (less than 1 m) zone of bleached rock that is typically illitic to kaolinitic in composition. Immediately beneath is a zone of variably developed hematite alteration (red zone). This is separated from the lowermost alteration zone, the chlorite-altered green zone, by a transitional red-green zone, which is a combination of hematite and chlorite alteration. Within the RRW, RRE, and RRFE deposits, the paleoweathered regolith is overprinted and obliterated by hydrothermal alteration. In some cases, however, a ghost clay signature of the kaolinitic zone is still evident.

6.2.2 Athabasca Group

The property is underlain by 195 m to 215 m of sandstone belonging to the Manitou Falls Collins Member (“MFc”) and Bird Member (“MFb”) of the Athabasca Group. The Read Formation (“MFa”) is missing. The MFc can reach a thickness of 70 to 100 m and is composed of a fine-grained, homogeneous, beige to maroon sandstone. The MFb member ranges from 100 m to 130 m in thickness and comprises a heterogeneous mix of sandstone, pebbly sandstones and conglomerates. The conglomerates include a distinctive “Marker Conglomerate” that can be correlated regionally. The basal conglomerate is not ubiquitous throughout the property; in places immediately overlying the RRW, RRE, and RRFE deposits it may be absent. Typically, in the Project area, the unconformity is approximately 196 m to 221 m below the surface.

6.2.3 Surficial Geology

The Athabasca Basin and surrounding areas bear the strong imprint of Quaternary glaciation. During the Pleistocene Epoch, the northern half of Saskatchewan was scoured by the Laurentide ice sheet that was generally moving in a south-westerly direction. Glacial erosion of the less resistant sandstone of the Athabasca Basin resulted in an increased sediment load in the ice. Consequently, the glacial drift cover is much more extensive and thicker over the basin than the rest of the shield region (SGS, 2003).

The surficial geology within the property is characterized by portions of two low drumlins trending in a northeast direction. The drumlin tops are approximately 20 m to 50 m above local lake surface. The glacial deposits are composed generally of a sandy till that contains primarily reworked Athabasca sand grains, cobbles and boulders.

No outcrops have been observed on the property. Drilling has encountered overburden depths between 9 m and 12 m. Near the Project, McMahon Lake has a water depth of between 5 m and 12 m.

6.3 Property Geology

The RRW, RRE, and RRFE deposits occur in the basal part of the Wollaston Group of the WMTZ. The basement is structurally complex, comprising steeply dipping Wollaston Group rocks dominated by garnet- and cordierite-bearing pelitic gneisses with subordinate amounts of graphitic pelitic gneisses and psammopelitic to psammitic gneisses, and rare garnetites. The pelitic gneiss varies from equigranular to porphyroblastic in texture. The porphyroblasts vary in size up to centimetre-scale and normally comprise red almandine rich garnets when fresh. The gneisses have been intruded by syn- to post-peak metamorphic felsic pegmatites, granites, and microgranites of Hudsonian age. These rocks locally contain up to 400 parts per million (“ppm”) of primary uranium.

Proximal to mineralization, graphite in graphitic pelitic gneisses has been consumed by alteration and mineralization; distal to mineralization, the graphite appears to be discontinuous. These two features may help explain the absence of basement-hosted graphitic conductors at the Project.

Hydrothermal calc-silicate alteration of the orthogneisses is present locally. The alteration is interpreted to be post-peak metamorphism in age and is probably related to the introduction of the Hudsonian felsic rocks. The sandstone and basement rocks have been subjected to several episodes of brittle deformation, including the brittle reactivation of older ductile shear zones.

The primary lithologies at the Project comprise:

- Overburden
- Manitou Falls Formation:
 - o MFC (Collins Member, sandstone)
 - o MFBU (Bird Member Upper, sandstone)
 - o MFBMC (Bird Member Marker Conglomerate)
 - o MFBL (Bird Member Lower, sandstone)
 - o MFBascon (Basal Conglomerate)
- Wollaston Supergroup:
 - o WOLF (Felsic Pelitic Gneiss)
 - o WOLM (Mafic Pelitic Gneiss)
 - o WOLG (Graphitic Pelitic Gneiss)

The stratigraphic column for the Project and an example long section are presented in Figure 6-2 and Figure 6-3, respectively.

Age	Group	Formation	Unit	Graphical Log	Description
Quaternary	Overburden				Glacial till
Proterozoic	Athabasca Group	Manitou Falls Formation	MFC		Medium to coarse pebbly sandstone
			MFBU		Medium to coarse sandstone, conglomerate
			MFBMC		
			MFBL		
			MFBASCON		
Unconformity				■ ■ ■ ■ ■ ■ ■ ■	
Archean	Wollaston Group		WOLF		Felsic Pelitic Gneiss
			WOLG		Graphitic Pelitic Gneiss
			WOLM		Mafic Pelitic Gneiss

Figure 6-2: Stratigraphic Column of the Project

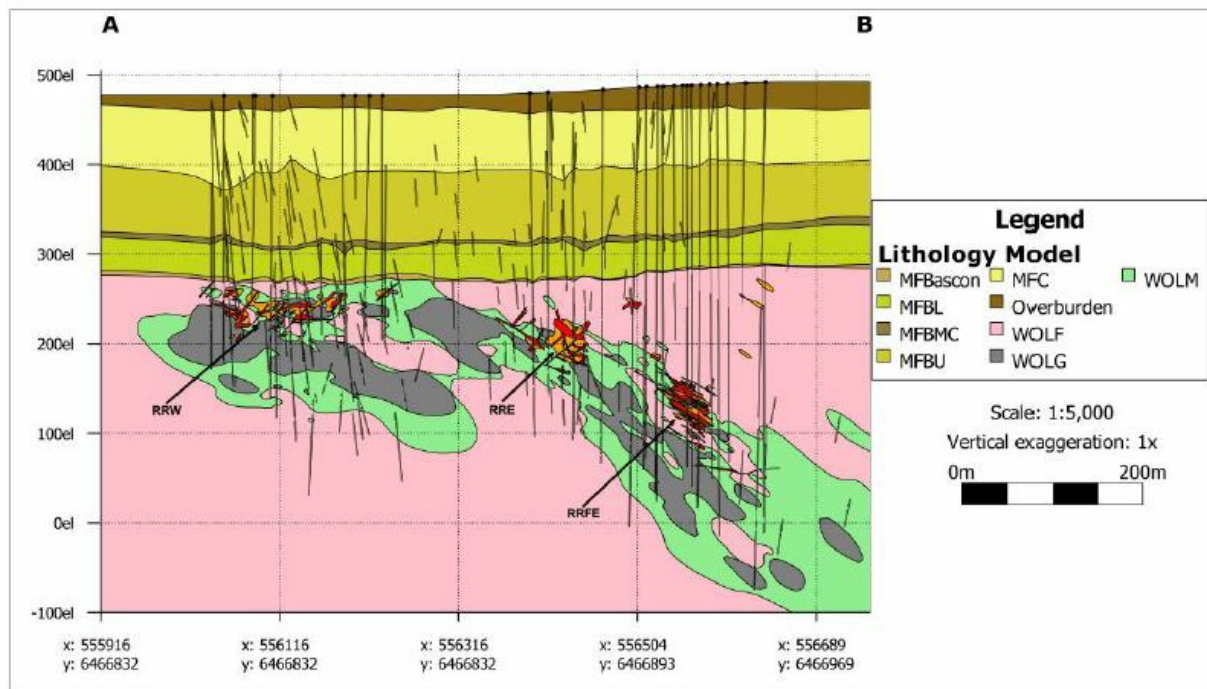


Figure 6-3: Long Section of the Project geological model (Section Location on Figure 6-6)

6.3.1 Structural Geology

All structural orientations referred to in this TRS are in the format of dip°/dip direction°.

Macro-scale geophysical, geological and structural modelling suggests that the Project is crosscut by a large number of structures. The two main structures to note are:

1. An east-west striking, north-dipping fault (approximately 75°/010°) with a reverse sense of slip and a maximum throw of approximately 20m.
2. A north-east striking, northwest-dipping fault (approximately 55°/295°) with ambiguous throw, possibly suggesting strike-slip movement. This is locally referred to as the 'Midwest Trend', that hosts the Midwest and Midwest A uranium deposits on the adjacent mineral leases, to the south of the Project.

The crosscutting relationship between these two faults is also unclear, suggesting that they were likely active at the same time. The north-up apparent reverse sense of movement on the east-west fault suggests sinistral movement on the north-east fault if they were both active in the same kinematic regime, which is the same sense of movement as inferred for north-east structures at Wheeler River (Pope, 2012).

The magnetic images support this interpretation, with two major project to regional scale magnetic lineaments parallel to the east-west and north-east striking faults (Figure 6-4). However, it is probable that the magnetic lineaments are caused by larger-scale precursor basement features rather than the low-displacement faults themselves.

The other project-scale feature which is important to mineralization is the WOLG lithology of the Wollaston Group, which forms the core of the larger WOLM. Uranium mineralization in the Project deposits is proximal to the WOLG, though not necessarily within it. The WOLG is also a useful marker horizon and modelling it has assisted in defining the orientation of layering in each deposit. Layering orientation varies; however, it has an average project-scale orientation of approximately 60°/000°. Given the apparent reverse sense of displacement on the steeper east-west striking fault, layering is well oriented for reactivation in shear or possibly mixed-mode extension depending on the local stress orientation at failure. The WOLG also appears to be sinistrally offset by the north-east striking fault, which supports the interpreted kinematics of this fault. Any offset of the WOLG by the east-west striking fault is ambiguous due to the limited drilling data in the hanging wall of the fault.

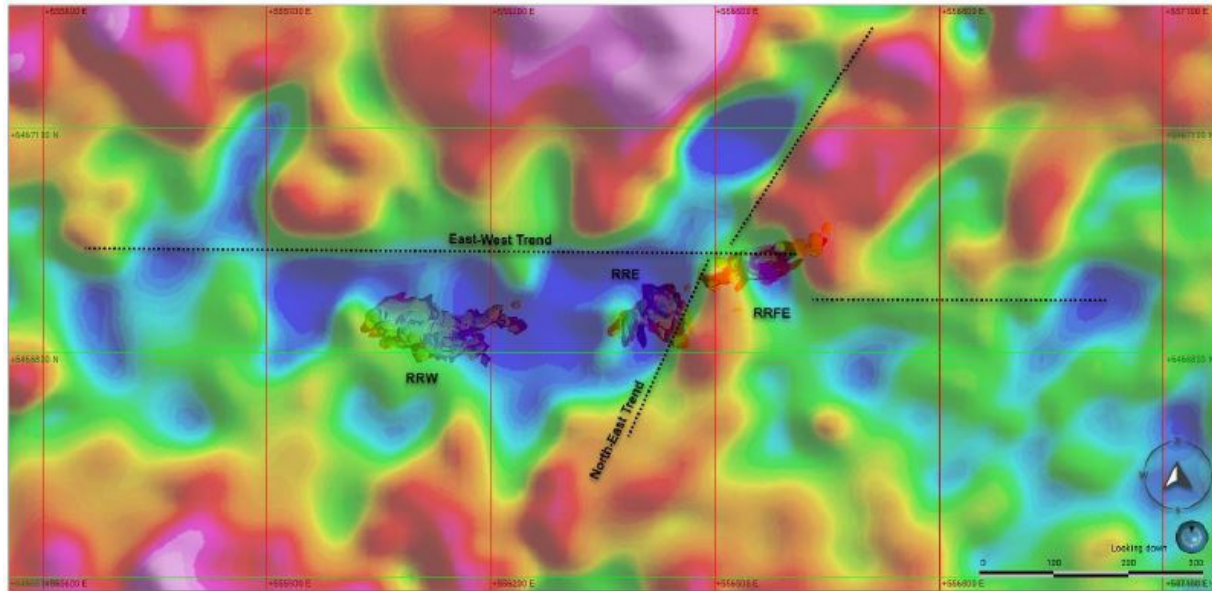


Figure 6-4: Interpretation of macro-scale lineaments on a first vertical derivative ground magnetics image

6.3.2 Mineralization

Uranium deposits in the Athabasca Basin can be broadly subdivided into two styles: unconformity-hosted (occurring at or above the unconformity) and basement-hosted. The Project is characterized by basement hosted mineralization, which is typically hosted in faults (often referred to as veins when hosting mineralization) which must have been open to hydrothermal fluid flow at the time of mineralization and thus were likely active at some stage post basin formation.

Uranium mineralization at the Project is highly variable in thickness and style in all zones. High grade uranium mineralization occurs primarily as structurally controlled, medium- to coarse-grained, semi-massive to massive pitchblende with what has been termed worm-rock texture, and texturally complex redox controlled mineralization. This high-grade uranium mineralization is intimately associated locally with lesser amounts of red-to-orange coloured oxy-hydroxillized iron oxides. Yellow secondary uranium minerals, probably uranophane, are present locally as veinlets or void-filling masses within the high-grade primary mineralization (Figure 6-5).

Lower grade mineralization occurs as either disseminated grains of pitchblende, fracture-lining, or veins of pitchblende. Galena occurs in a number of habits and is variably present in the uranium mineralization. The lead is presumed to have formed from the radioactive decay of uranium. Veinlets of galena are up to 5 mm thick and either crosscut massive pitchblende, as anhedral masses (less than 1 mm in size) interstitial to the massive pitchblende, or as fine-grained, sub-millimetre-scale disseminated flecks of galena omnipresent throughout mineralized drill core. In all cases, the galena appears to have formed later than the uranium mineralization.

Mineralization is in general terms, mono-metallic (uraninite) in composition. In the RRW deposit, visible, crystalline nickel-cobalt sulph-arsenides are present locally. At the RRE and RRFE deposits, the presence of nickel-cobalt sulph-arsenides is rare. The exact relationship of these elements to uranium is variable and still unclear at this time. However, unlike many unconformity-type uranium deposits in the Athabasca Basin, variable amounts of copper mineralization are present within the Project deposits.

The zones of uranium mineralization at the Project vary in size and depth below the unconformity:

1. RRW - is 200 m long and up to 50 m wide, and occurs at the unconformity down to approximately 50 m below the unconformity (Figure 6-6 and Figure 6-7);
2. RRE - is 100 m long and up to 50 m wide, and occurs from 20 m below the unconformity down to approximately 120 m below the unconformity (Figure 6-6 and Figure 6-8; and
3. RRFE - is 75 m long and up to 50 m wide, and occurs from 100 m below the unconformity down to approximately 220 m below the unconformity (Figure 6-6 and Figure 6-9).



Figure 6-5: Uranium mineralized drill core from MWNE-085 from 252.2 m to 258.1 m

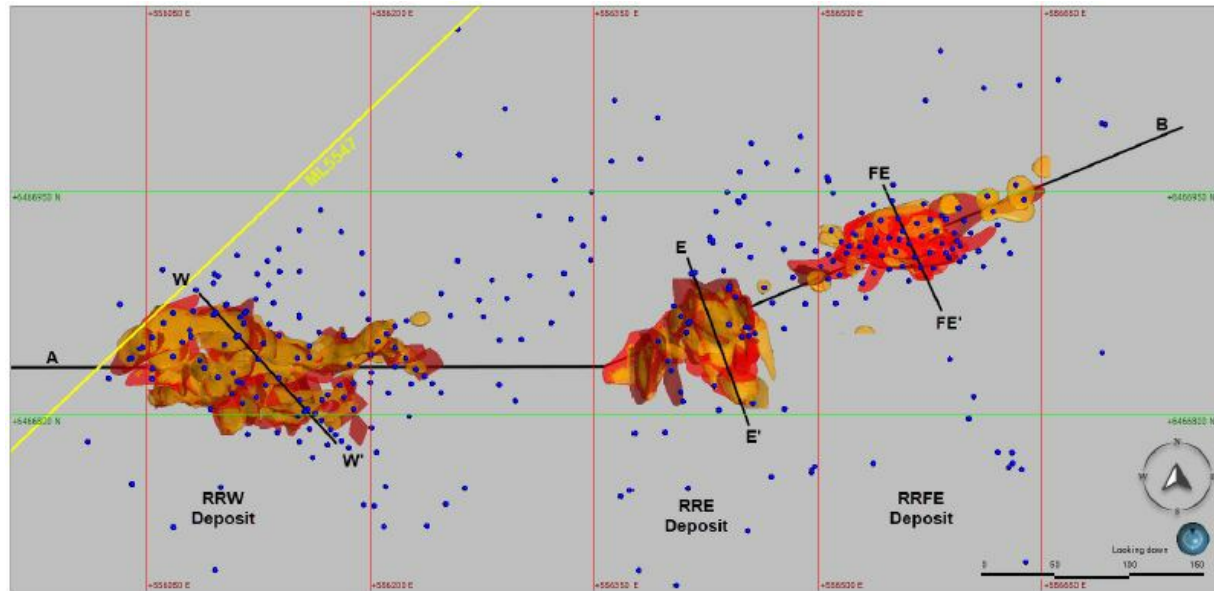


Figure 6-6: Plan view of the Project Uranium Deposits

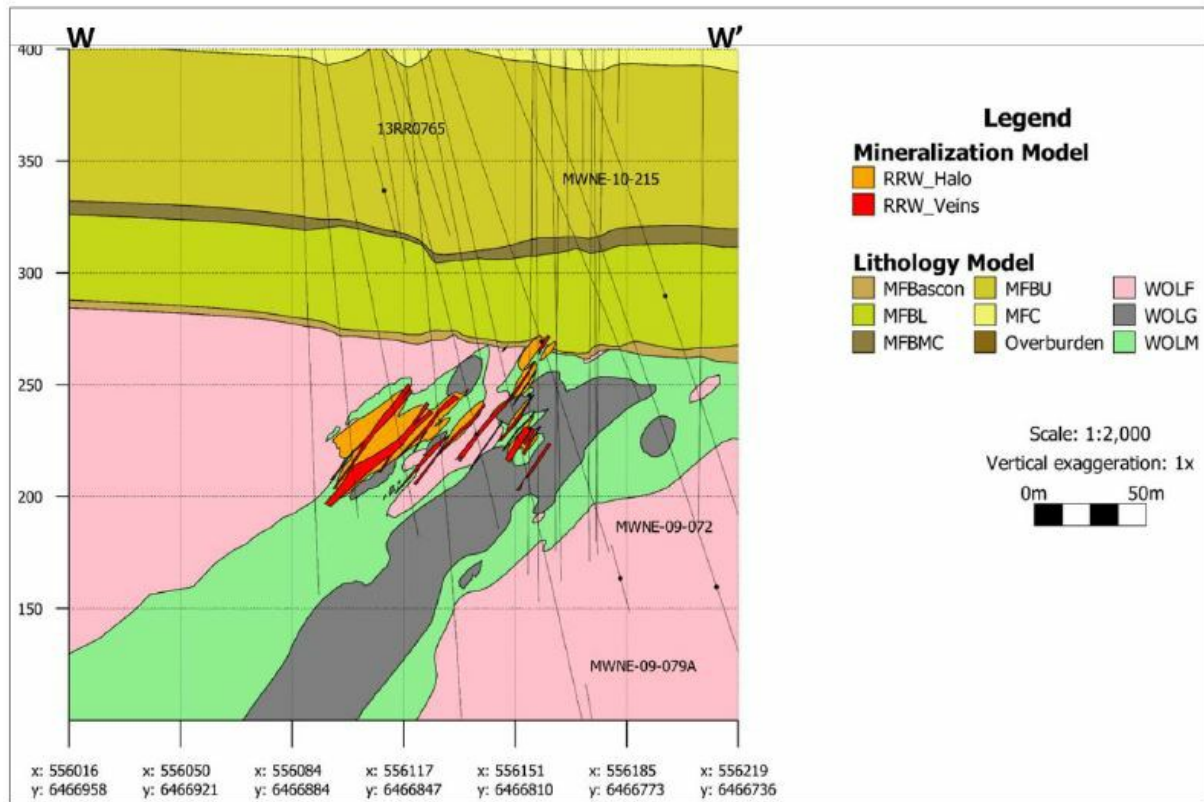


Figure 6-7: Cross Section W-W' through the RRW Deposit

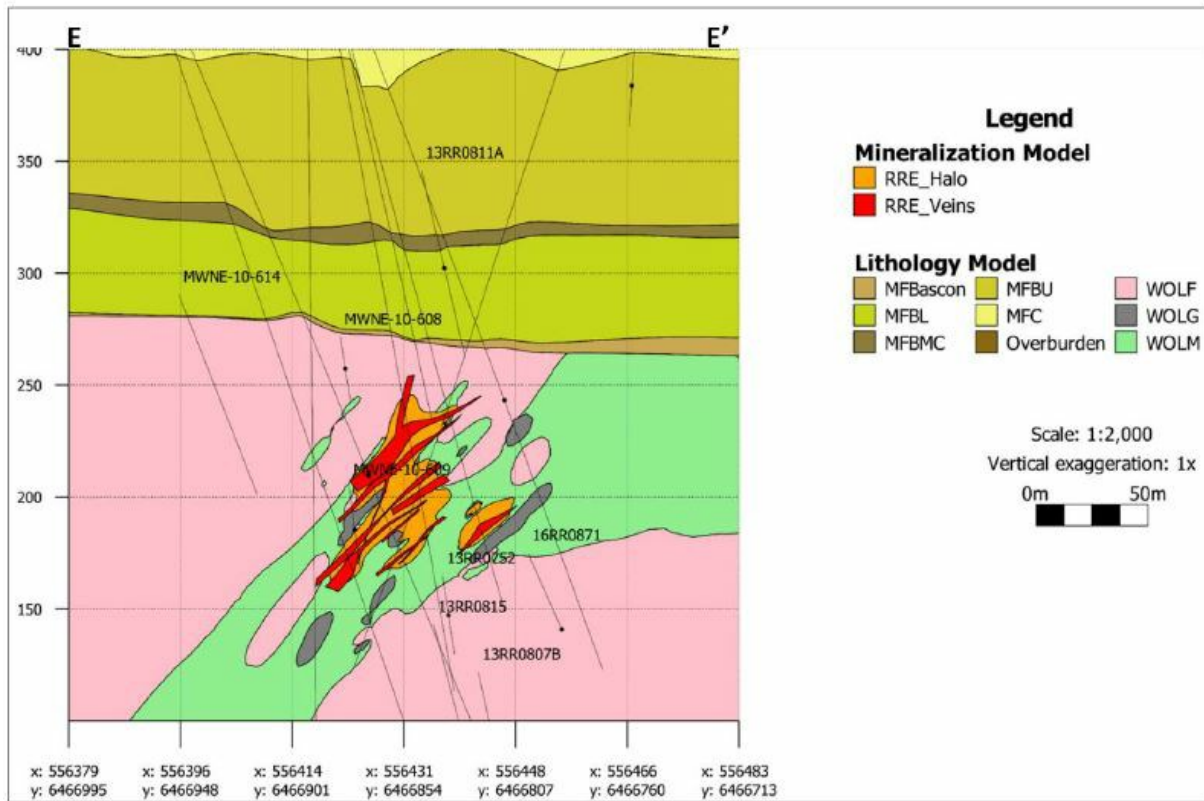


Figure 6-8: Cross Section E-E' through the RRE Deposit

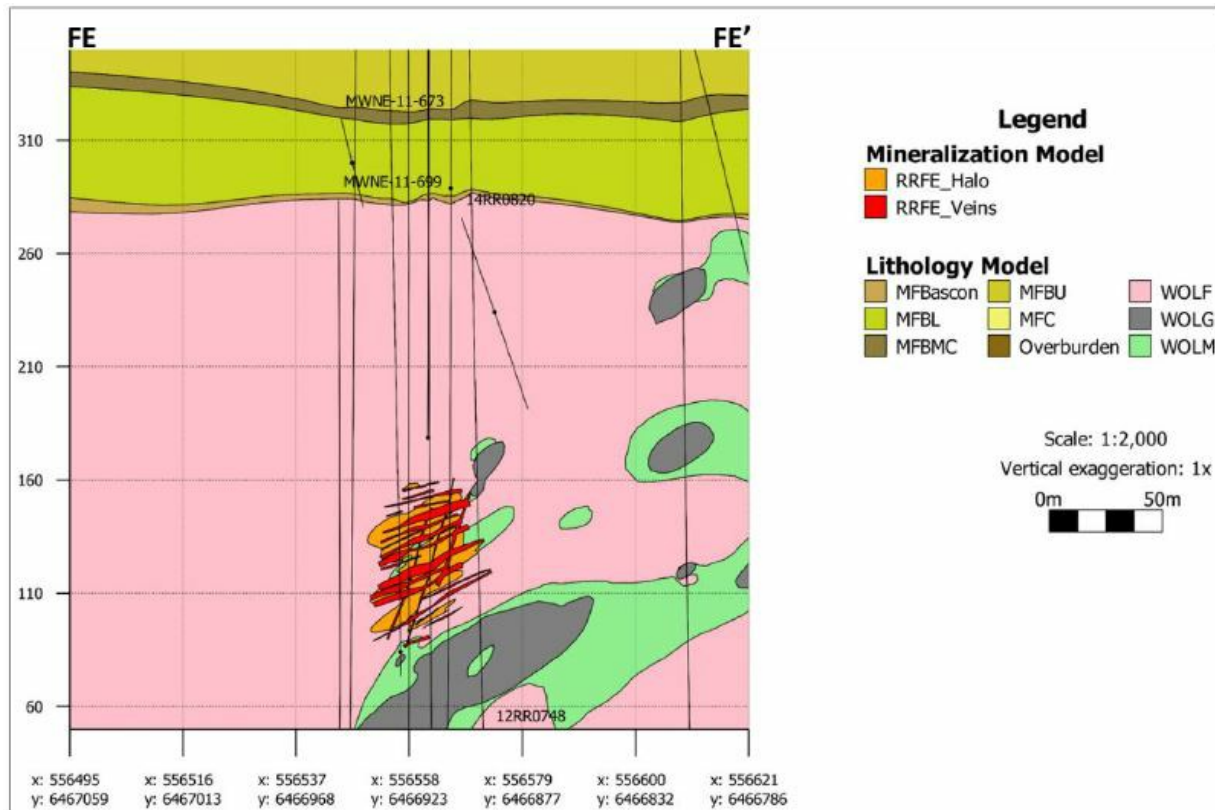


Figure 6-9: Cross Section FE-FE' through the RRFE Deposit

6.3.3 Alteration

Strong alteration has been intersected in the Athabasca sandstone and in the highly deformed basement rocks. Alteration within the overlying Athabasca Group includes intense bleaching, limonitization, desilicification and silicification, hydrothermal hematization, and illitic argillization. None of the primary hematite in the sandstone is preserved within the zone of bleaching and alteration.

Away from the RRW, RRE, and RRFE deposits, the background dominant clay species within the Athabasca sandstone is the regional dickite assemblage; within the Project, it is illite. However, the extent and intensity of the alteration in the Athabasca sandstone at the RRE is less than that above the RRW. In contrast, however, the illite abundance in the sandstone above the RRFE, the deepest of the three zones, is the stronger than at seen above either the RRE or RRW. Consequently, this variation cannot be simply due to the deeper depth of mineralization at the RRE. Currently, drilling has not identified the cause of the illite alteration patterns observed at the RRE deposit.

In basement rocks, alteration extends to at least 180 m below the unconformity and up to 115 m laterally away from the known mineralization. It varies in strength, ranging from weak to intense where massive clay has completely replaced the protolith. Clay alteration is predominantly white to pale green in colour and illitic in nature and extends downward into the Archean rocks. Hematite alteration within the basement rocks is spatially restricted in distribution and is commonly associated with high-grade mineralization. The hematite is variably altered on a local scale to a limonitic iron oxide.

6.4 Deposit Type

The deposits of the Project are interpreted to be Athabasca unconformity-associated uranium deposits, or some variant thereof. Two end-members of the unconformity-associated uranium deposit model have been defined (Quirt, 2003). A sandstone hosted egress-type model (one example is the Midwest A deposit south of the Project) involves the mixing of oxidizing sandstone-hosted brine with relatively reduced fluids from the basement in the sandstone. Basement-hosted, ingress-type deposits (one example is the Rabbit Lake deposit) formed by fluid-rock reactions between an oxidizing sandstone brine and the local wall rock of a basement fault zone. Both types of mineralization and associated host-rock alteration occur at sites of basement—sandstone fluid interaction where a spatially stable redox gradient, or front, was present. Although either type of deposit can result in high grade pitchblende mineralization with up to 20% pitchblende, they are not physically large.

Egress-type deposits tend to be polymetallic (uranium-nickel-cobalt-copper-arsenic) and typically follow the trace of the underlying graphitic pelites and associated faults along the unconformity. Ingress-type, tend to be mono-mineralic uranium deposits, and can have more irregular, structurally controlled geometry.

The RRW, RRE, and RRFE deposits at the Project are interpreted to be ingress types, although minor sections of the RRW mineralization does extend above the unconformity and the mineralization is polymetallic compared to the RRE and RRFE deposits.

7 EXPLORATION

7.1 Exploration

This sub-section summarizes the exploration work completed at the Project, other than exploration drilling, which is summarized in Section 7.2. Exploration work conducted at the Project includes a number of geophysical (EM, magnetic, gravity, seismic and resistivity) surveys completed by a number of different contractors between 2005 and 2009 and relogging of available historical drill core in 2006 by Hathor.

7.1.1 2005 GEOTEM and Aeromagnetic Survey

Fugro Airborne Surveys ("Fugro") completed a 124-line kilometre airborne electromagnetic (GEOTEM) and aeromagnetic survey of the Project area (ML-5544) in 2005 (Robertshaw, 2006). The survey did not detect any graphitic-type basement conductors within the Project area. Three weak and short electromagnetic conductor segments, thought to represent fault zones extending through the Athabasca Group sandstone, were identified.

7.1.2 2006 Logging of Historic Drill Core

In the fall of 2006, Hathor relogged available historic drill core from the Project. Detailed lithogeochemical and clay speciation studies of the historic drill core were also undertaken. These data were invaluable in identifying drill target areas.

7.1.3 2007 Aeromagnetic Survey

Goldak Airborne Surveys carried out an 850-line km tri-axial aeromagnetic survey in 2008. This survey provided a high-quality product with sufficiently broad coverage to assess the geological and structural setting of the Project, in relation to significant nearby features such as the uranium deposits of the adjacent Midwest Joint Venture ("MWJV") owned by Orano (69.16%), Denison Mines (25.17%), and OURD (Canada) Co., Ltd. (5.67%). Within the MWJV property, prominent structures trend 30°, 50°, and 95° (Robertshaw, 2008).

7.1.4 2007 Tempest and Magnetic Gradiometer Survey

Fugro completed a 395-line km airborne EM ("TEMPEST") and magnetic gradiometer survey in 2007. The survey was aimed at identifying sandstone alteration features using an early time EM channel data. Results showed a 1 km wide region of early channel conductivity that coincided with a group of anomalies from ground resistivity surveys, including a low resistivity zone that is interpreted to identify the hydrothermal alteration associated with the Project deposits.

7.1.5 Photo-Relogging

During a series of site visits by G. Broadbent and A. Pope (of RTCU) in 2012 and 2013, it was suggested that the felsic basement units originally logged as granitoid gneisses were actually semi-pelitic gneisses, concordant with the mafic pelitic gneisses rather than a series of complex, metamorphosed granitoid intrusions. These observations were consistent with other deposits in the Athabasca Basin, particularly in the Cameco logging scheme. A former Cameco geologist, T. Perkins, was contracted by RTCU in 2013 and suggested that all crucial holes be re-logged according to the Cameco logging scheme.

A photo re-logging program was completed in April 2014 by contract geologists from Big Rock Exploration. The scope of re-logging program was focussed on drillholes within the immediate RRW, RRE, and RRFE deposit areas. Regional exploration holes were not re-logged at this time. The results of this re-logging did not change the overall interpretation of the deposit. In general, rocks previously logged as granitoid gneisses were re-logged to Arkosic and Semipelitic gneisses. The more mafic units were easier to distinguish visually and were rarely changed from the original logs.

A number of difficulties were noted by the contractors during the re-logging program associated with the intense alteration of the rocks. Alteration near the unconformity, referred to as paleoweathering, often obscures original texture and mineralogy, making it difficult or impossible to accurately identify the original lithology. Hydrothermal alteration also overprints texture and mineralogy, particularly in close proximity to mineralization. Seeing the core in person lends some degree of confidence in the interpretation of the protolith but can be quite challenging when logging by photos.

7.2 Exploration Drilling

Exploration drilling data available at the Project has been collected through multiple phases of drilling, by Asamera (1978), Hathor (2007 to 2012) and Rio Tinto (2012 to 2016) totalling 665 drillholes for 228,184.9 m (Table 7-1 and Figure 7-1). In addition to drill phases focussed on defining uranium mineralization at RRW, RRE, and RRFE, a significant amount of drilling has been completed through the Project area testing various targets (termed "RECON" in Table 7-1).

Table 7-1: Project Drilling Summary by Year, Company, and Deposit

Year/Company	RECON		RRE		RRFE		RRW		Total	
	Holes	Metres	Holes	Metres	Holes	Metres	Holes	Metres	Holes	Metres
1978	10	2,347.7	2	473.0	2	502.5			14	3,323.2
Asamera	10	2,347.7	2	473.0	2	502.5			14	3,323.2
2007	3	906.0							3	906.0
Hathor	3	906.0							3	906.0
2008	12	4,461.0					30	11,571.2	42	16,032.2
Hathor	12	4,461.0					30	11,571.2	42	16,032.2
2009	37	11,002.9	6	2,446.0			119	38,413.4	162	51,862.3
Hathor	37	11,002.9	6	2,446.0			119	38,413.4	162	51,862.3
2010			72	20,016.0	13	4,323.9	80	21,426.6	165	45,766.5
Hathor			72	20,016.0	13	4,323.9	80	21,426.6	165	45,766.5
2011	12	4,703.2	21	5,476.1	48	17,815.3	4	1,252.3	85	29,246.9
Hathor	12	4,703.2	21	5,476.1	48	17,815.3	4	1,252.3	85	29,246.9
2012	7	3,686.4	4	954.0	28	13,465.2			39	18,105.5
Hathor	3	1,602.4			1	456.0			4	2,058.4
Rio Tinto	4	2,084.0	4	954.0	27	13,009.2			35	16,047.2
2013	75	33,578.1	7	1,862.0	12	4,144.2	1	396.0	95	39,980.2
Rio Tinto	75	33,578.1	7	1,862.0	12	4,144.2	1	396.0	95	39,980.2
2014	47	17,305.9	1	477.4	10	4,344.0			58	22,127.2
Rio Tinto	47	17,035.9	1	477.4	10	4,344.0			58	22,127.2
2016	2	834.8							2	834.8
Rio Tinto	2	834.8							2	834.8
Grand Total	205	78,825.9	113	31,704.5	113	44,595.0	234	73,059.5	665	228,184.9

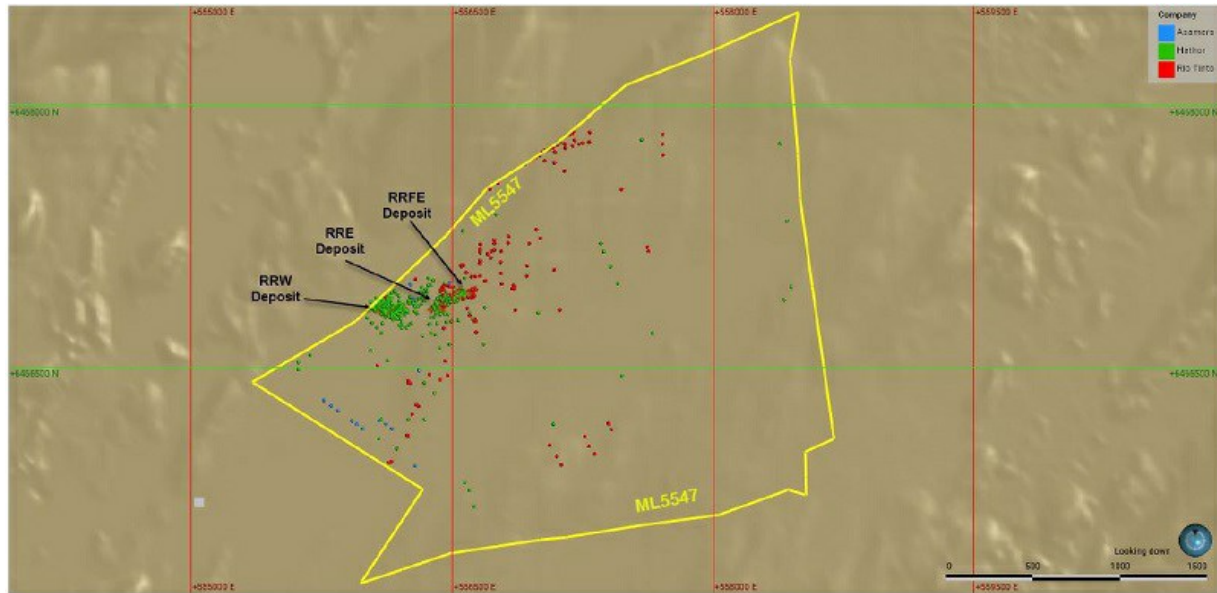


Figure 7-1: Plan view of the Project drillhole collars by Company

7.2.1 Drilling Methodology and Procedures

All drilling at the Project has been completed using diamond coring method. Procedures for data collection were developed and implemented by Hathor and adopted by Rio Tinto in 2012, with minor adjustments and additions. The procedures used through all drilling campaigns are well documented in standard operating procedures and manuals.

Diamond drilling at the Project has been completed using primarily Zinex A5 Diamond drills, and to a lesser extent, Longyear LF-70 drills. These drilling rigs have depth capabilities of 600+ m. The drills were configured depending on the drilling location and season. Winter drill programs utilize drills mounted on metal skids to allow mobilization between drill collar sites. Summer drill programs have utilized a combination of skid-mounted, helicopter-portable and barge-based drill rigs (Figure 7-2). Both the skid-mounted and helicopter-portable rigs can complete drillholes ranging in dip from vertical to 45°. In contrast, the barge-based drill rig is limited to vertical holes. Only drilling at the RRW deposit employed barge-based drill rigs due to the location under South McMahon Lake.

Wireline coring tools were used in all cases, with the majority of coring completed at NQ (47.0 mm diameter) and HQ (63.5 mm diameter). NQ-sized holes were cased NW into bedrock and drilled NQ to depth, HQ-sized holes were cased HW and drilled HQ sized to depth. In rare instances, for example hole MWNE-10-607, NQ-sized holes were reduced to BQ-sized (36.5 mm diameter) holes due to encountering severely bad ground.

RRW and RRFE is drilled on generally 10 m spaced sections, and 10 m to 15 m spacings on section for RRW and RRFE respectively. RRE is drilled at slightly wider, 10 m to 20 m spacings. Vertical and inclined drillholes have been used to target the mineralization in each zone, although the vast majority of holes are steeper than 70°. Drilling has largely been designed to intersect the mineralized zones at an angle roughly perpendicular to the local mineralization trend, although, due to the complex structural framework at each deposit, intersection thicknesses are rarely true thickness (Examples in Figure 6-7 to Figure 6-9).

All mineralized and non-mineralized holes within the vicinity of the RRW, RRE, and RRFE deposits were cemented from bottom to top. The top 30 m of all non-mineralized holes outside the deposit areas are cemented as per Saskatchewan MOE regulations.



Figure 7-2: Drilling operations at the Project, A: Barge Mounted A5 Drill, B: Helicopter Transported A5 Drill, C: Skid Mounted A5 Drill

7.2.2 Drillhole Surveys

Holes are located on a grid and collar sites are surveyed by differential GPS using NAD83 and UTM Zone 13. Land-based drillhole locations are marked with a tagged picket.

Downhole surveys were completed either with, or a combination of, Reflex EZ-Shot or a Reflex Gyro instrument. The Reflex EZ-shot is a single point instrument and is used to obtain dip and azimuth measurements at 21 m intervals down the hole with an initial test taken 6 m below the casing and a final test at the bottom of the hole.

The Reflex Gyro is a continuous multi-point instrument, which is not affected by magnetism and allows measurements to be made through the casing. It is used to obtain dip and azimuth measurements at 3 m intervals through the casing and at 5 m through the rest of the hole and a final test at the bottom of the hole. The reflex Gyro system was employed starting in the winter of 2010.

7.2.3 Geophysical Surveys

At the completion of each drillhole, downhole radiometric surveys were performed down the drill string at a speed of 15 m per minute down the hole and 5 m per minute up the hole using a Mount Sopris winch and Matrix logger interface board.

Unmineralized or weakly mineralized holes were surveyed using a single crystal (Sodium Iodide, or NaI) gamma probe that included the following tools: SN169, SN276, SN439, SN3858, SN4171, SN4172 and SN4178. Holes with an estimated uraninite content greater than 3% were surveyed with a downhole triple (one NaI and two Geiger-Mueller tubes) gamma probe that included the following tools: SN3705, SN4484, SN3877 and SN4410.

The Saskatchewan Research Council ("SRC") provides downhole calibration test pit facilities in Saskatoon, Saskatchewan, for the calibration of downhole gamma probes. These test pits consist of four variably mineralized holes with maximum grades of 0.61%, 0.30%, 1.35%, 4.15% uraninite. The probes used for the surveys were calibrated at the SRC test pit facility and allow for grade thickness estimates to be made from the instrument readings and grade estimates equivalent to U308 ("eU₃O₈") to be calculated.

However, it must be noted that, in general, no calibrations were available for high-grade mineralization (more than 5% U308) as Hathor and RTCU were not able to maintain an open, cased hole in such material and the highest grade SRC test pit available is 4.15% U308. Consequently, no eU₃O₈ grades are generally reported.

eU₃O₈ values were used to guide drilling and sampling operations only. Only U308 chemical assays have been used to construct the mineralization models and inform the grade estimates supporting the MRE reported here.

7.2.4 Drill Core Logging

At the drill rig, the core was removed from the core barrel by the drillers and placed directly into wooden core boxes. Individual drill runs were identified with small wooden blocks, onto which the depth in metres was recorded. The core was transported either by the drill contractor or company personnel to the fenced core-logging facility (the Project Core Camp) on the Project's property.

All drill core logging and sampling was conducted by Hathor or RTCU personnel. As per health and safety protocols, and to avoid any radioactive cross-contamination, all core boxes were scanned with a hand-held scintillometer to assess whether they were "hot" or "cold" in nature upon arrival at the Project Core Camp. The definition of "hot" core boxes are those that yield an "in-box" reading of greater than 500 cps. At this point, hot core was placed directly into the "hot shacks" and cold core (less than 500 cps) was placed in "cold shacks".

Geologists logged the hot and cold drill cores by recording their observations in a database. The logging included observations of radioactivity, lithologies, mineralization, alteration, friability, maximum grain size in the sandstone, fracture density, structural information, core loss/recovery, and a descriptive log of the core. Upon completion of each drillhole, the data was transferred into the master database. All core trays were marked with aluminium tags as well as felt-tip marker.

All mineralized core was carefully scanned with a hand-held Gamma Radiation Detector (Exploranium GR-110G or RS-120 Super SCINT) by removing each piece of drill core from the ambient background, noting the most pertinent reproducible result in cps, and carefully returning it to its correct place in the core box. These data, in conjunction with the downhole gamma probe data were used to guide split-sampling.

After selection of the intervals to be split-sampled, an aluminium tag or a hexagonal plastic core marker with the same number was stapled into the core box at the beginning of the sample interval.

Detailed photographic records of each drillhole were kept. All drillholes were photographed from just above the marker conglomerate (approximately 160 m vertical depth below surface) to the end of the drillhole prior to sampling. Mineralized sections were additionally photographed with the sample tags in place prior to split sampling.

7.2.5 Drill Core Sampling

To determine the content and distribution of uranium, and other major, minor and trace elements, as well as clay minerals (alteration), several types of samples are routinely collected from drill core from RRW, RRE and RFE, including:

- Composite geochemical samples of sandstone and basement rocks;
- Systematic split geochemical samples of mineralized (radioactive) drill core;
- Point geochemical samples of basement rock;
- Dry specific gravity ("SG") samples; and
- Clay alteration species (PIMA) samples.

All geochemical core samples are tracked by two-part SRC ticket books. One tag goes with the sample for assay and the other tag is kept with the geologist's records.

Composite Geochemical Samples

Hathor and Rio Tinto collected a suite of composite sandstone samples down the entire sandstone column from each drillhole. From the top of the sandstone column to a downhole depth of approximately 180 m, the sandstones were sampled by 10 m composite chip samples. For the next 20 m, a total of 4 m to 5 m samples were collected, and for the final approximately 10 m up to the unconformity (approximately 210 m vertical depth below surface), 1 m to 2 m composite samples were taken. Immediately below the unconformity, a 1 m composite sample was collected from the paleo-weathered material.

In the case that mineralization or very strong alteration reached the sandstone column, this sampling approach was superseded by the collection of systematic split samples. All composite samples were sent to the SRC laboratory for preparation and assaying.

Split Samples

Hathor and RTCU assayed all the cored sections through mineralized intervals. Sampling of the holes for assays was guided by the radiometric logs and readings from a hand-held scintillometer. Initial drillholes (up to MWNE-08-19) were sampled using variable sample lengths between 0.2 m and 1.0 m. All drillholes after MWNE 08-19, were sampled using either 0.5 m or 1.0 m sample lengths. In areas of extreme core loss sample intervals may extend locally to 3 m.

Barren samples were taken to shoulder both ends of mineralized intersections. Shoulder sample lengths were at least 1 m on either end but may be significantly more in areas with strong mineralization. All cores were split with either a handheld wheel-type splitter or a hydraulic core splitter according to sample intervals marked on the core. One half of the core was preserved in the box for future reference and the other half was bagged, tagged, and sealed in a plastic bag. The bags of samples for geochemical or clay analyses were placed in large plastic pails and sealed for shipping. Bags of mineralized samples were sealed for shipping in metal or plastic pails depending on their radioactivity. Mineralized samples were shielded by placing non-mineralized or weakly mineralized samples around the inner margins of the pail.

Point Samples

Point samples, normally 10 cm to 15 cm in length, were taken: selectively through the paleoweathering profile; systematically at 3 m or 5 m intervals through altered basement rock which is not split-sampled; and selectively through fresh basement rock. This sampling aids in the identification and understanding of background metal distribution.

Specific Gravity Samples

In winter 2009 (MWNE 09-43A onwards), a process to determine the dry SG on un-split core samples from various host rocks and mineralization styles was instituted. These samples were dried for four days in storage at the core logging shacks. Dry SG was determined by the water immersion methodology. Dried core pieces were weighed, wrapped in plastic film, which was heated to make tight seal around the core, and then weighed suspended in water.

For mineralized core, dry SG was determined for 50 cm core lengths to correspond to the sample interval. Between one and three 50 cm core lengths were selected for every 10 m of mineralized core. For unmineralized core, dry SG was determined for 10 cm core lengths roughly every 20 m throughout each drillhole.

Locations of each density sample were marked in the boxes to avoid core mix ups while measurements are taken. Prior to each measurement of the unknown samples, three in-house standards were measured and checked to ensure results were within +/-1% of the expected value of the standards.

PIMA Sampling

For the determination of clay alteration species in the sandstone column, Hathor (2007 to 2011) collected samples for analysis using the PIMA analyzer. Throughout the sandstone section, a 2 cm to 3 cm chip sample of core was collected every 5 m or 10 m. Near the unconformity, the sample interval was shortened as needed. PIMA samples were also collected as needed throughout the altered basement rocks, normally at 3 m or 5 m intervals.

7.2.6 Core Recovery

The mineralized rock at the RRW, RRE, and RFE deposits is predominantly highly altered basement gneisses. Locally, the core can be broken and blocky, but recovery was generally good with recovery of 95%, 96%, and 99% within the modelled mineralized volumes for the RRW, RRE, and RFE respectively.

There are localized intervals of up to 10 m with only 80% recovery. Intervals where core loss was greater than 50% over 3 m runs were rare. There is some evidence that higher-grade intervals are more prone to lower than average recovery, although this is supported by very few samples (Figure 7-3). SRK have investigated the few instances of very high grades (>15% U3O8) and low recovery (<80%) by reviewing the downhole radiometric survey information corresponding to these intervals and found the grade values are supported by high-value radiometric data, suggesting that the intervals are indeed high-grade (Figure 7-4).

In general, the recovery within the Wollaston group basement rocks is relatively high compared to the Manitou Falls formation. There is a notable Project-wide decrease in recovery at the unconformity associated with increased alteration (Figure 7-5). This decrease in recovery at the unconformity does not affect the modelled mineralization but is indicative of the decreased rock quality.

Due to the high rate of core recovery within the mineralized zones, SRK considers the chemical assays to be unbiased in relation to the drilling recovery. In rare cases, some mineralization may have washed out during the drilling process. In instances of high-grade mineralization with poor recovery, close correlation of the downhole radiometric data and the observed chemical analyses was observed which provides confidence in the tenor of mineralization whilst recognizing there may be some differences in absolute values.

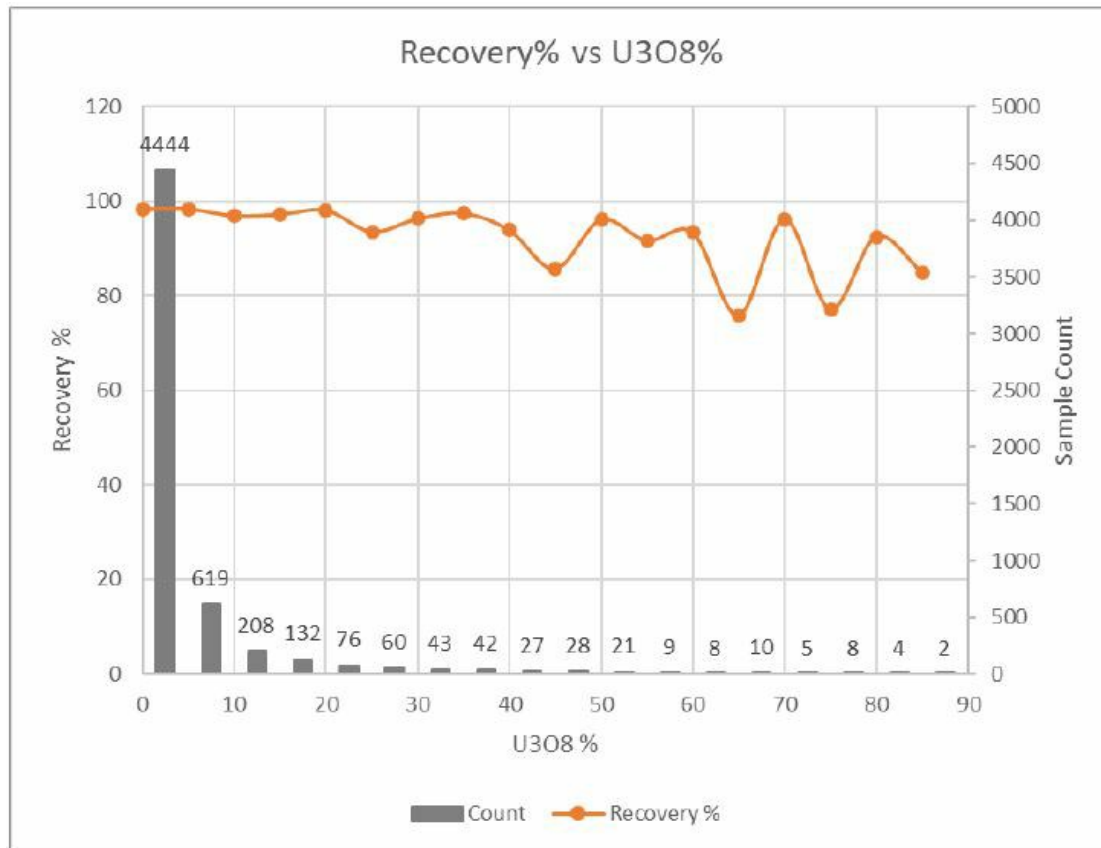
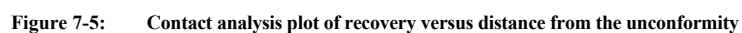
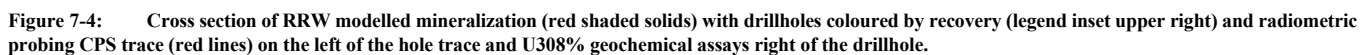


Figure 7-3: Recovery vs. U3O8% grade within modelled mineralization



7.2.7 Hydrogeologic Characterization

Background and Overview

The Project deposits, as with many other uranium deposits in the Athabasca Basin, are hosted around and below an unconformity between the Athabasca Group and the underlying basement rocks (metasediments and granites). The hydrogeological stratigraphy of the Athabasca Group is relatively well understood from nearby operations and is characterized by highly water-bearing sandstones and conglomerates. Furthermore, the unconformity between the Athabasca Group and the underlying basement rocks itself is also a high permeability conduit for inflow.

These units have typically previously been either avoided or isolated from the main mining areas using ground freezing by other mine operators in the basin. The use of ground freezing in this geological scenario is well established and has been effectively implemented on similar uranium deposits in the area such as Cigar Lake as well as McArthur River, both operated by Cameco. The Cigar Lake mine was flooded in 2006, prior to the adoption of ground freezing in this region, when mining encountered unmanageably high inflows within basement rocks near the unconformity.

Type and Appropriateness of Hydrogeological Testing and Sampling

Hydrogeological investigations at the Project began with RTCU in July 2012 and continued to 2016. Hydrogeological characterization was undertaken by way of drilling and packer testing at six locations in and around the RRE and RRFE deposits as well as adjacent to the deposits (Figure 7-6). Single-well packer tests were performed within the Athabasca Sandstone and underlying basement rock over 75 intervals at seven hole locations. Test interval lengths ranged from around 22 m to 45 m with three longer interval tests (up to 121 m) completed in the deeper basement rock at the shaft exploration hole.

Multilevel vibrating wire piezometers (with up to six pressure transducers per string at depths of between 290 mbgl and 444 mbgl) together with nested standpipe piezometers (three monitoring intervals per location installed within each of the Athabasca Sandstone, unconformity, and within the crystalline basement rock) were installed at six locations.

Ongoing monitoring during by RTCU (2012 to 2016) included water level measurements and water quality sampling from the monitoring wells on a quarterly basis as well as continuous water level monitoring from the vibrating wire piezometers recorded twice daily. No monitoring has been undertaken in the unconsolidated (overburden) deposits. Quality control ("QC") and quality assurance ("QA") procedures for water quality sampling were not provided to SRK.

SRK considers the scope of hydrogeological testing, monitoring and sampling to be appropriate for the current level of study. However, coverage of the hydrogeological studies is focussed on the RRE and RRFE deposits. RRW deposit lies underneath a lake which has prevented installation of instrumentation or hydrogeological testing in this area to date. It is understood that RTCU had planned to potentially explore RRW with angled holes drilled from the shore of the lake but this was not completed. Furthermore, no hydrogeological characterization of the shallow unconsolidated (overburden) deposits have been undertaken at the Project site. This was planned to be undertaken prior to shaft sinking and has not completed. Finally, no hydrogeological studies have been undertaken with respect to a potential tailings storage facility area and this will need to be addressed as the Project advances.

RTCU identified the possibility that groundwater samples may be impacted by cement grout in the exploration holes, resulting in unrepresentatively high pH values. This calls into question how representative groundwater samples collected to date may be of the formation groundwater chemistry. This will need further investigation and likely additional confirmatory groundwater sampling. Regardless, ongoing baseline groundwater chemistry monitoring will be required going forwards at the site to adequately confirm baseline groundwater characteristics.

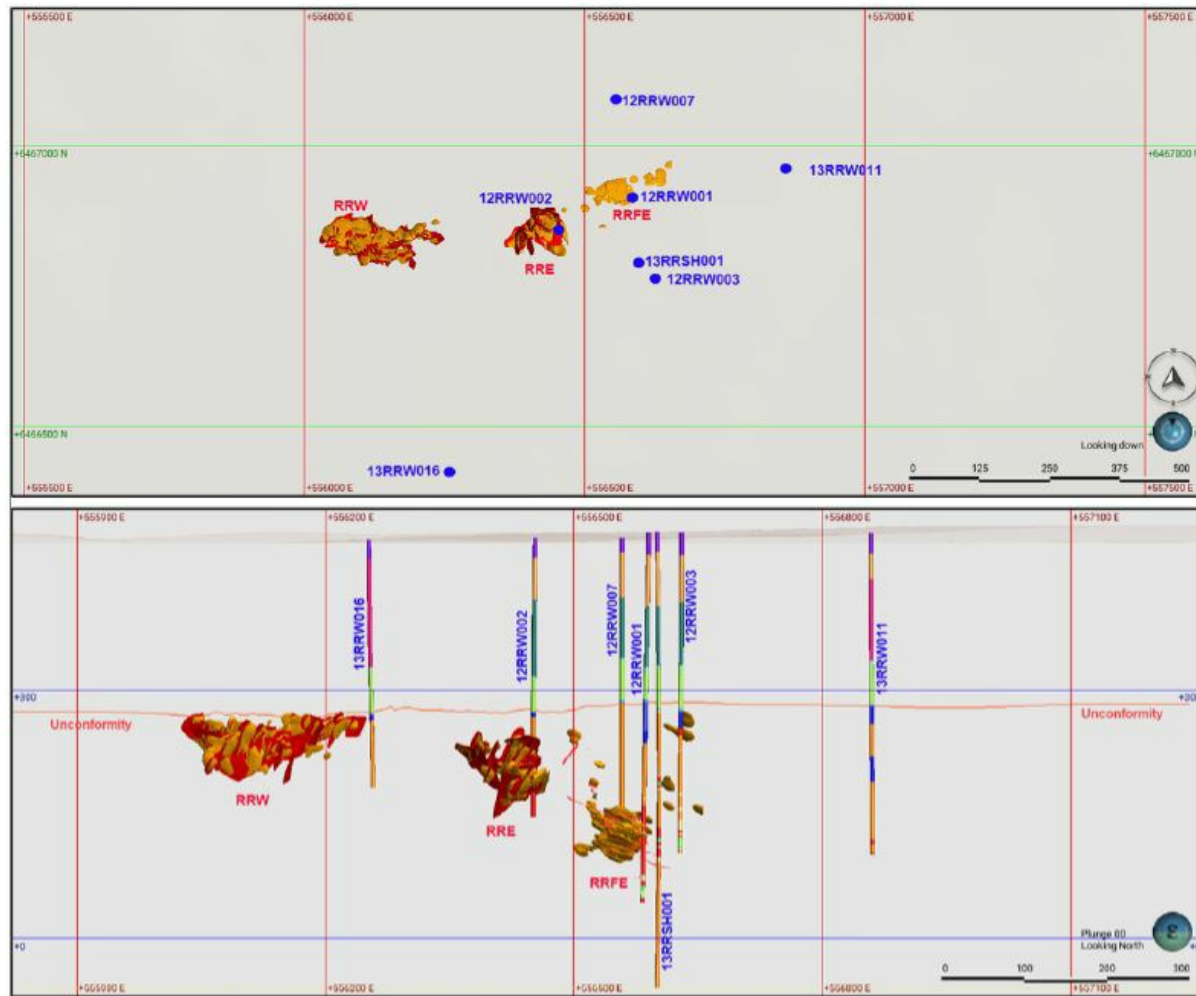


Figure 7-6: Plan view (top) and long section looking north (bottom) of Hydrogeological holes drilled at the Project

Results and Interpretation

Packer testing in the Athabasca Sandstone (generally excluding the basal conglomerate, which was tested with the unconformity and some basement rock) resulted in a geometric mean hydraulic conductivity of $3\text{E-}7$ m/s. This result compares favourably with other nearby deposits such as the Midwest Project to the south of the Project. It should be noted, however, that when considering risk of sudden inflows to the underground mine, geometric mean hydraulic conductivity may not be the best indicator of risk. Rather, an estimate of the 90th percentile hydraulic conductivity is more relevant in this case. SRK has only been provided with the summary reports and not the underlying raw permeability data collected and therefore cannot comment on the range and statistical distribution of hydraulic conductivity results. This is a material limitation as it limits the QP's ability to comment on the risk of the mine intersecting low frequency, high permeability geological structures that are a key driver behind sudden inrush.

Testing in the crystalline basement rock, away from the Project deposits, produced a geometric mean hydraulic conductivity $2\text{E-}8$ m/s (i.e., one order of magnitude lower than the Athabasca Sandstone). Geometric mean hydraulic conductivity in the altered crystalline basement rocks associated with the Project deposits was $2\text{E-}9$ m/s (i.e., one order of magnitude lower than that of the unaltered crystalline basement rock and two orders of magnitude lower than the Athabasca Sandstone). Packer testing results showed that the permeability of the basement rock tends to be higher away from the altered zones, which are more clay rich and less fractured.

Testing performed across the unconformity (including the basal conglomerate) showed a geometric mean hydraulic conductivity very similar to the Athabasca Sandstone. It is understood that RTCU were planning to undertake additional packer testing over shorter intervals, isolating the basal conglomerate, in order to get a better estimate of the specific hydraulic properties of this unit but SRK understand that this was not completed.

In the absence of any hydrogeological testing within the unconsolidated overburden, RTCU considered the hydraulic conductivity data from the nearby Midwest Project where the overlying sandy tills and alluvial sands indicate a permeability of between around $E-6$ m/s and $E-5$ m/s (i.e. 1 to 2 orders of magnitude higher than the Athabasca Sandstone).

Initial studies by RTCU suggested that the bedrock hydrogeological unit is unconfined but recommended further testing to confirm. This observation is based on a lack of strong vertical hydraulic gradients observed in the monitoring wells. These observations require further confirmation as they are critical to the understanding of risk of inflows from the Athabasca Sandstone into a potential underground mine. Horizontal hydraulic gradients, from the data collected, have also been relatively inconclusive and variable. Vibrating wire piezometer data collected between 2012 and 2013 shows a general decline in water levels during this period of up to 1 m, likely indicating equilibration to some extent with the surrounding formation, but also showing a slight seasonal variation of up to 1 m. Analysis of the data collected to date has been fairly high level and more in-depth detailed analysis of hydrogeological data was recommended by RTCU in 2014 and is still required.

Groundwater Modelling and Inflow Estimation

Based on the documents provided for SRK to review, limited analysis of hydrogeological data collected to date has been undertaken and no numerical groundwater modelling has been completed. Estimates of groundwater inflows to a potential mine were produced in support of the 2011 PEA (SRK, 2011) based on similar nearby deposits and hydrogeological data from the wider Athabasca Basin and not on site-specific data.

Water Management Infrastructure Considerations

Ground freezing is included in the 2011 PEA (SRK, 2011) designs around the mineralized zones prior to level development and production. This concept is based on knowledge from nearby similar deposits and would need to be validated for the site-specific conditions by way of additional geothermal and hydrogeological studies as the Project progresses. Dedicated freezing drifts would be required on the perimeter of the mineralized zones from where freezing holes can be drilled. Brine is then circulated through these holes at low temperatures until the surrounding rock mass is frozen. Residual groundwater inflows into the underground mine with ground freezing barriers in place were expected to be relatively low.

In the RRE and RFE deposits there is no mineralization above the unconformity, and Mineral Resources are within the basement rocks, 20 m and greater below the unconformity. Any freezing requirements for these deposits is anticipated to be limited to volumes adjacent to the unconformity. Freezing would be required to access mineralization within the basement rocks adjacent to the unconformity. This volume, within 20 m of the unconformity, is discussed in Section 11.4 as a cut and fill mining scenario.

In the RRW deposit, a portion of mineralization is located above the unconformity. To recover this, there would likely be a requirement for a more complex arrangement of freezing to extend well above the unconformity, including at least one freeze drift located in the lower Athabasca sandstones. SRK has not reported mineral resources above the unconformity for the Project.

Expected inflows can be considered in terms of routine or average groundwater inflows as well as non-routine or unexpected significant inflows due to intersection of unforeseen high permeability preferential flow zones. Estimates of both types of inflows are important and should be considered separately for dewatering infrastructure design purposes. For example, unexpected nonroutine inflows would be managed through standby pumping capacity and contingency sump storage whereas a duty system should be designed for efficient pumping of the ongoing average inflows.

Study Level and Suitability

SRK consider the work undertaken to date to be generally suitable for an advanced exploration stage. Hydrogeological characterisation work undertaken would likely be sufficient to inform a Scoping Study or potentially a Pre-Feasibility study design for the RRE and RRFE deposits. However, there are gaps in the following aspects of hydrological studies undertaken to date:

- Hydrogeological characterisation in and around the RRW deposit;
- Regional baseline groundwater and surface water monitoring and characterization studies as well as a water impact assessment in support of environmental studies;
- Hydrogeological characterization of the shallow unconsolidated (overburden) deposits; and
- Hydrogeological characterization for a potential tailings storage facility area.

In terms of engineering design, the 2011 PEA (SRK, 2011) provides outline designs and costs for required water management infrastructure, including ground freezing requirements, with some notable gaps including water treatment infrastructure requirements. SRK are not aware of any work to advance the design and costing beyond a PEA level.

Key Risks, Limitations and Recommendations

There is an ongoing risk to the Project of connection between future mine workings and the Athabasca Sandstone, unconformity, or the overlying surface water system. This could take place either through connection with a geological structure or via exploration drillholes. The risk of hydraulic connection has been investigated to some degree at RRE and RRFE deposits through packer testing and VWP installation but not at RRW deposit. Therefore, further hydrogeological test work is required at RRW, likely piggybacked onto future resource or geotechnical drill programs in this area, noting that the overlying lake will complicate the logistics to some extent. Further work is also required to characterise the shallow unconsolidated (overburden) deposits.

The risk of water impacts from the Project have not been fully evaluated to date. Baseline groundwater and surface water monitoring (level, flow and chemistry) will need to be restarted and expanded to adequately confirm baseline conditions. Early data from this program should inform regional characterization studies and a water impact assessment. These studies should include the area around a potential tailings storage facility area. Groundwater sampling to date may have been impacted by cement grout in exploration holes, calling into question their representativeness. This will also need further investigation and likely additional confirmatory groundwater sampling.

Hathor and RTCU have described that the exploration drillholes have been surveyed and grouted. However, RTCU noted that drillhole seals could fail and suggest that drillhole collar security measures should be implemented (if developing underground), as are used successfully at other underground uranium operations in Saskatchewan. SRK agrees with this risk and recommendation and notes that an ongoing system of recording, surveying and grouting all exploration drill holes should be implemented.

Any water that is discharged by the Project to the environment will require treatment through a water treatment plant. Only limited initial work has been done by RTCU on the water balance to define water disposal and treatment requirements and this will require further work as the Project progresses. This is a notable gap as it could represent a significant cost aspect of the Project. Further work is required to better define the site water balance both in terms of flow and quality in order to design and cost a suitable water treatment plant.

7.2.8 Geotechnical Characterization Background and Overview

A factual appraisal of the geotechnical data and the rock mass characteristics of the three deposit areas is provided. Each deposit area is very well drilled, but each has a varying quantity and quality of the recorded geotechnical parameters, with cognisance that the project is at the early conceptual study level.

This report section is limited to the above and does not give a detailed description (or constitute design) of:

- The stability and dimensions of minable stopes;
- The need for pillars and/or backfill support;
- The optimal location for mine access excavations and their respective standoff distance;
- The vertical opening placement and dimensions; or
- Comment on the sequence of excavation to manage ground control risk and optimise extraction.

Data Collection Approach

Geotechnical data is collected explicitly as well as drawn from other data sets collected by Hathor and RTCU. In the RTCU Acquire system, there are several logging interfaces utilised for the geotechnical data appraisal in this document. Relevant data used to inform this early-stage understanding of the rock mass characteristics includes:

- Core recovery with total core and solid core recorded;
- Geotechnical domain (Interval) logging sheet with various geotechnical parameters to enable rock quality rating calculations, but with varying degrees of completion;
- Point Structure logging sheet in three separate data sources;
- Point Load Testing (PLT) strength index; and
- Lithology, Alteration, and major structures logging data.

SRK has assessed the extent and suitability of the current geotechnical logging compared to the key categories in data collection to derive the calculated ratings in the four most common rock mass classification rating systems. These are listed in Table 7-2 with an initial snapshot of the status of the current data in the Project deposit areas, which is expanded in Table 7-3.

Table 7-2: Key Geotechnical data categories relevant for rock quality classification rating systems. The status of the Project data elements is listed next to each category.

Category	Parameters	Classification System				Status of Rough Rider Geotechnical Data set	
		Beniawski's RMR (1989)	Barton Q (1974, 2002)	Laubscher MRMR (1990)	Laubscher IRMR (2000)	Domain Logging	Point Logging
Intact rock Strength	UCS	x	x	x	x	Logged	Partial testing
Open Fracture Frequency	RQD	x	x	x	-	Partial testing	-
	FF/m	x	-	x	x	Extensive Logging	-
	Joint sets	x	x	x	x	Partial testing	-
Open Joint Strength	Roughness	x	x	x	x	Limited to RRFE	Limited
	Infill Strength	x	x	x	x	Limited to RRFE	Limited
	Joint Alteration	x	x	x	x	Limited to RRFE	Limited
Cemented Joints Quantity Strength	CJ/m	-	-	-	x	Partial Logging	-
	CJ Strength	-	-	-	x	Partial Logging	-

Adapted from: Jakubec & Esterhuizen 2007 Use Of The Mining Rock Mass Rating Classification: Industry Experience

The Nature and Quality of the Sampling Methods

Geotechnical data generated from the logging and core testing are listed in Table 7-3. This table includes a qualitative rating of the amount of data available, as required for geotechnical characterisation. Some parameters are not complete in the geotechnical domain logging which inhibits explicit calculation of rock quality ratings in common industry classification systems. This is further described in later report sections, as well as suggestions on how to manipulate these various data sets in order to allow for rock quality calculation.

Table 7-3: Project Geotechnical Data Collection Sources

Drillhole Logging/Testing Data	Deposit Area			Data file name
	West	East	Far East	
Recovery	Yes	Yes	Yes	rrdr_CoreLoss_Friability rrdr_GtechRecovery
Point structure	Yes	Yes	Yes	rrdr_dhd_pstr rrdr_GtechPointDetail StructureOrientedCH
Geotechnical Domain – Intervals	Incomplete parameters for rock quality ratings			rrdr_GtechDomain
IRS Strength	>80% drillholes			
RQD	1 drillhole	7 drillholes	>80% drillholes	
Open Joint Count	>80% drillholes			
Joint Condition	Not logged	Not logged	9 Drillholes	
Point Load Tests	1 drillhole	2 drillholes	>15 drillholes	rrdr_GtechPointLoad

Geotechnical Data Distribution

An initial indication of the relative competency between the RRW, RRE and RRFE deposit areas is shown by the core recovery in Figure 7-7. The RRFE deposit area appears to be in a higher competency rock mass, with further depth from the unconformity, and the dominant host rock type being WOLG. The RTCU geotechnical domain logging information is more extensively collected in the RRFE area, therefore, this data set is more relevant to this deposit only.

Elements of the data collection (GtechDomain) logging format and the distribution across the three deposits are shown in Figure 7-8. Generally, data availability is greatest for the RRFE deposit, and only one drillhole with geotechnical data is available for the RRW deposit (Figure 7-8). Hather and RTCU logging manuals describe that RQD should be collected at the core recovery logging stage, however, this data is not present in the supplied database exports. Only solid and total core recovery measurements are present.

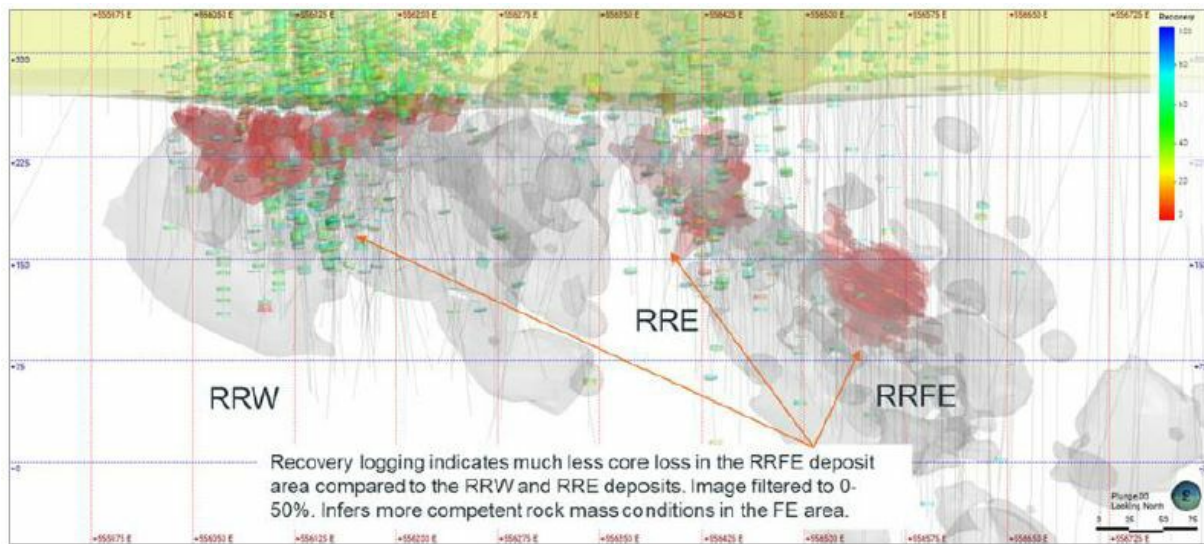


Figure 7-7: Core recovery comparison relative to the RRW, RRE and RRFE areas

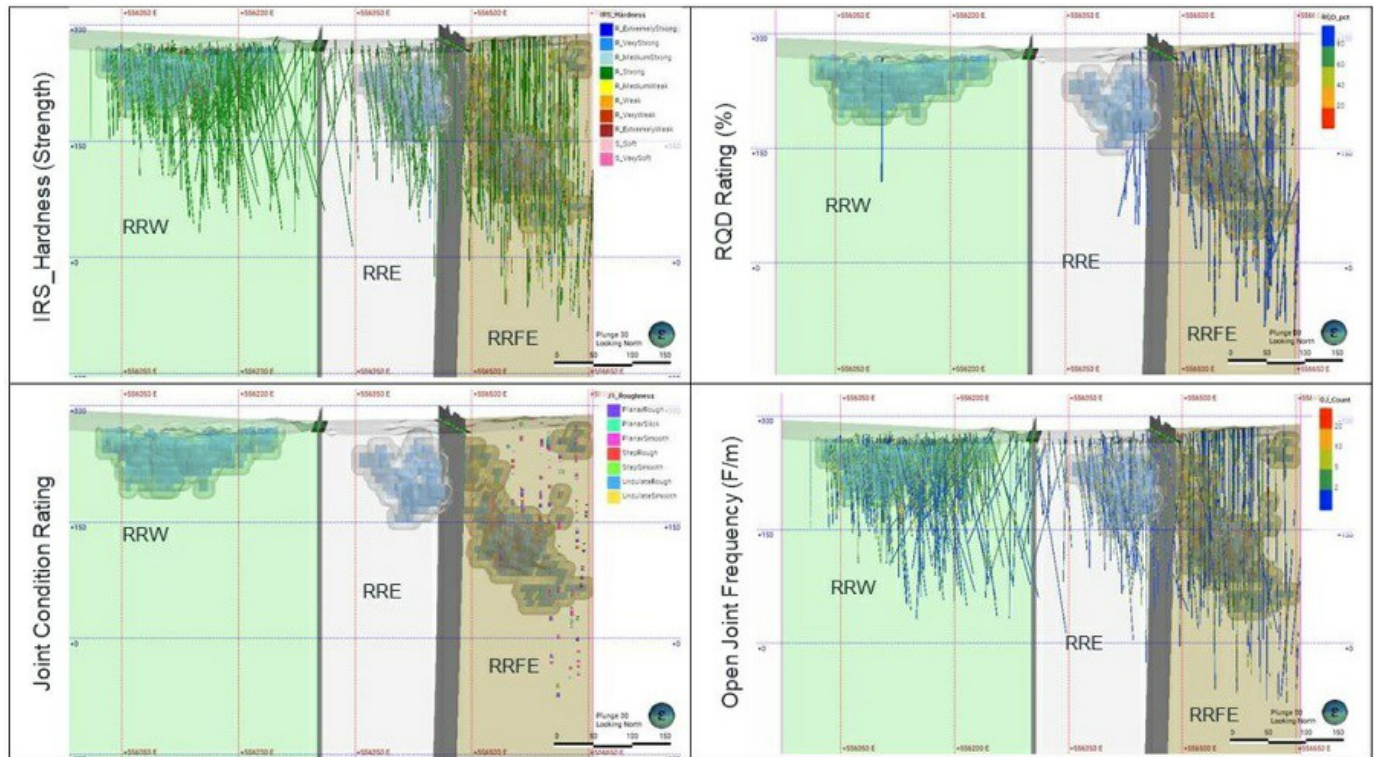


Figure 7-8: Interval logging data availability in each deposit area below the unconformity. Main geotechnical parameters (looking North).

Logged Structural Data

There is a reasonable amount of structural logging in the vicinity of the three deposit areas, where feature type and infill mineral type is recorded. Structural point logging is available across three types of logging files:

- Geological logging with logged structures;
- Logged structures with core orientation and confidence rating; and
- Logged structures with feature conditions including open, cemented, and sheared categories and geotechnical rating of the joint condition (planarity, roughness, and infill strength).

There is an opportunity, from existing core, to more comprehensively log the joint condition within the geotechnical logging table. The existing version of the logging template included this field as 'read only' which has resulted in only sporadic recording of infill type and condition (see Figure 7-8). Based on the available data, SRK infers that there are insufficient geotechnical parameters collected at the logging stage to facilitate the calculation of rock quality rating (Q or RMR).

In summary, the three separate data sets of logged structures are valuable to the Project. The logging of the features for geological purposes has been completed in more drillholes than the geotechnical characterization logging of structures. These two data sets have the potential to be combined to identify similar joint orientations, in similar rock type to then infer joint condition ratings. The inferred data can be verified by select core inspection of fracture surfaces. The combined data set can then have a confidence rating applied to each logged point and applied to geotechnical characterization.

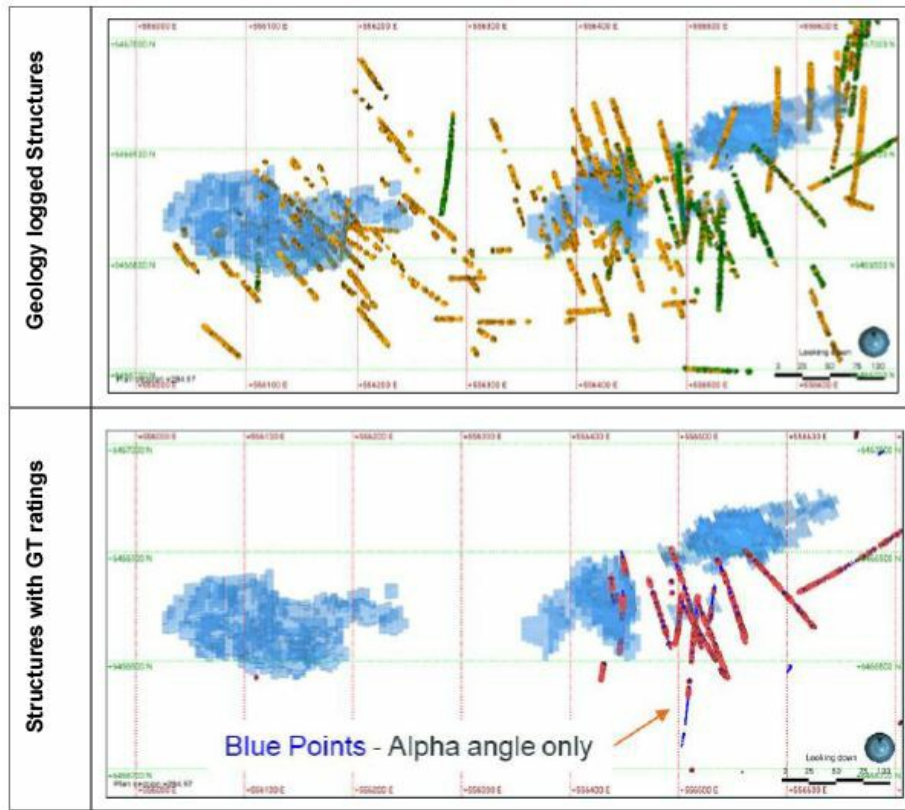


Figure 7-9: Distribution of logged structures. Upper image displays geology logging without geotechnical descriptions (Orange: geological structure logging, Green: Structural logging with orientation quality recorded). Lower image displays geotechnical logging with joint condition ratings.

An indication of the infill mineral logged for structures across the deposit areas is shown in Figure 7-10 (An interpretation of weak to strong is inferred from left to right in these charts). Clay is dominant in all areas and more resistant minerals (Quartz and carbonate fill) are not logged in the RRW but present in the RRFE deposit.

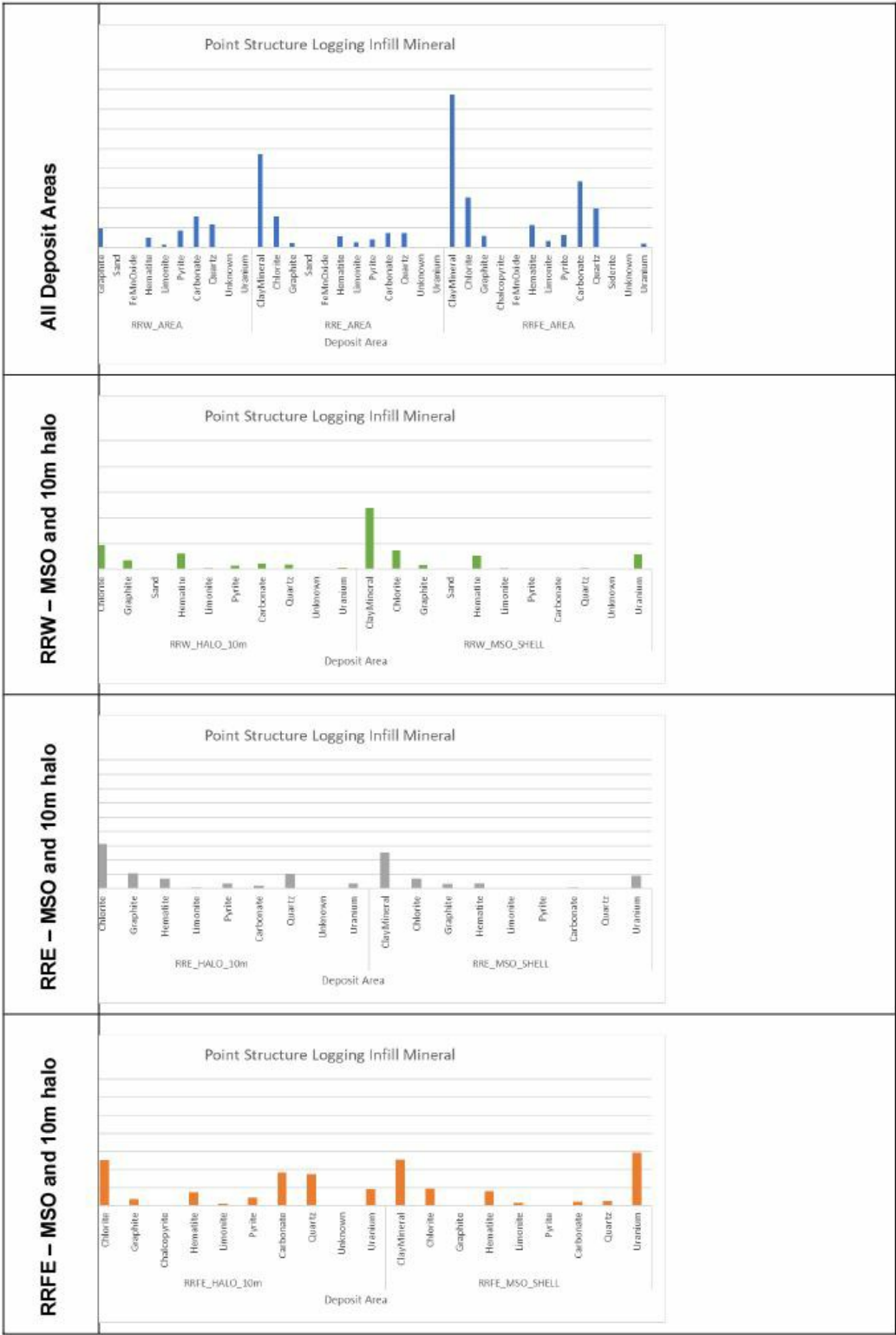


Figure 7-10: Distribution of mineral infill in logged structures. Inferred strength increases from left to right

Strength Testing

Point load test (“PLT”) testing was performed by RTCU during the period 2012 to 2016, which is mostly available for drillholes in the RRFE deposit area and further east. Limited testing is available for RRE and RRW deposit areas (Figure 7-11). The procedure to enter the test values is clear and to industry standards. Both diametral (load applied along the core length) and axial (load applied normal to core length) tests are performed which accounts for anisotropy in the rock types if it exists.

Currently, there have been no samples sent for laboratory strength testing to assess the material strength and elastic constants, therefore it is not yet possible to translate the PLTs to estimated UCS strength.

The inference of strength variation is derived from the logging index (IRS_Hardness) as this is the more abundant data set, where this has then been cross-referenced with the PLT data (where available).

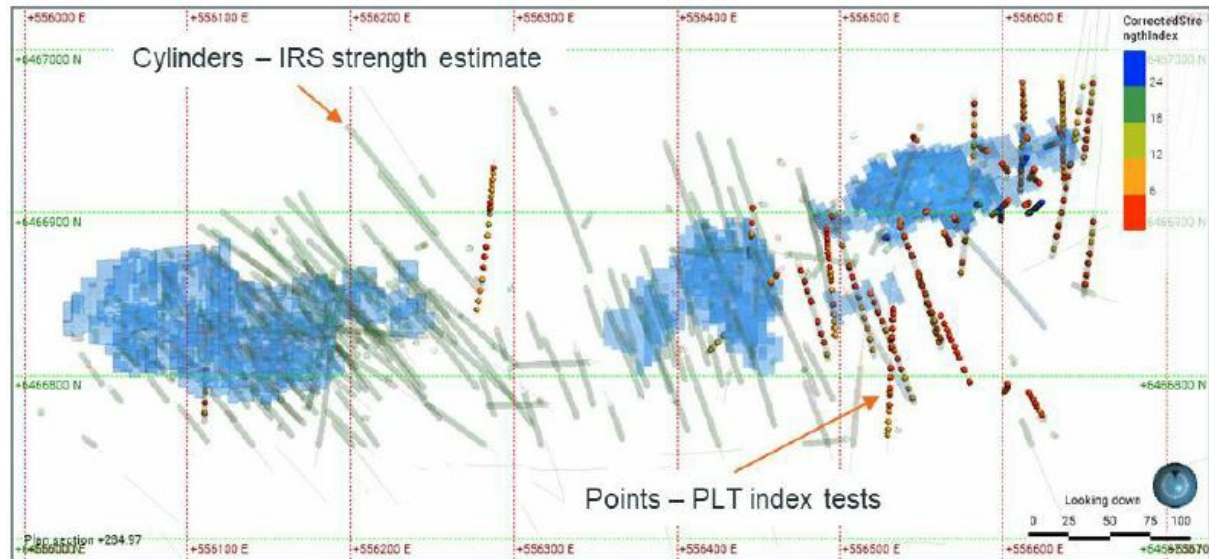


Figure 7-11: Distribution of Logging IRS strength estimate and locations of PLT tests completed.

Rock Quality Rating

With the availability of some, but not all, parameters in each logged interval, the rock quality rating cannot be calculated throughout. This is only possible in the RRFE area and for approximately 50% of the logged intervals. Therefore, at this stage of the study, no calculated rock quality can be presented with confidence from the logging data.

However, the whole database of logged information is valuable and useful. The parameters can be manipulated from the different sources of logging (extracted and merged downhole). The merged files can be verified by core photos and core inspection checks. This will establish the rating/value of the respective input parameters to allow for the calculation of rock quality. New drilling will require an update of the geotechnical logging systems to remove the ambiguity and uncertainty of what to be logged. Controls must be put in place to ensure logging effort is valuable to the Project. This includes automatic logging controls to ensure no numerical error, or demand a parameter entry where required, as well as quality control procedures.

Geotechnical Characterization

A preliminary geotechnical evaluation was conducted for the 2011 PEA (SRK, 2011) to assess and characterize the rock mass of the RRW and RRE. Based on this limited evaluation, general geotechnical domains were defined and input recommendations for mine design were provided based on these domains. SRK notes that the majority of the geotechnical information described in the previous sections was not available for this evaluation, and the rock mass characterization was largely based on visual review of core photos and lithological logging information.

Four rock mass domains were defined in this evaluation and summary descriptions of rock mass quality conditions:

1. Sandstone Domain: The Sandstone Domain contains the sandstone/conglomerate units above the Unconformity. Variability is anticipated to be low with generally Fair to Good rock mass quality prevailing (intact rock strength estimated at 60 MPa to 120 MPa).
2. Unconformity Domain: The Unconformity Domain encompasses a zone of ground approximately 20 m either side of the regional unconformity surface where ground conditions are interpreted to exhibit a wider variability compared to the surrounding Sandstone and Basement Domains. An increased frequency of core loss, percent clay, and rubble is observed in all lithological units.
3. Basement Domain: The Basement domain encompasses the rock mass outside the interpreted High-Risk Domains including meta-sediments, and granitic gneiss. Similar to the Sandstone Domain, variability is expected to be low, with predominantly Fair to Good rock mass conditions with rock strength in the range of 80 MPa to 150 MPa by field index estimation.
4. High-Risk Domain: Weaker and more friable zones should be expected in close proximity to major structures and mineralization. Based on core photo reviews of clay alteration and visual estimation of rock mass quality, an RMR <30 (poor conditions) has been used to define this domain.

As an update to the 2011 descriptions, the review of data for this TRS indicates that the RRFE is in the relatively better-quality rock mass of the Basement Domain.

Ground Control Comments

An early indication of anticipated ground control (support and improvement) is provided by SRK. Based on this preliminary evaluation, considering the conditions expected in the High-Risk Domain, lateral development at 5 m by 5 m, with a common ground control regime of 2.4 m long rebar rock bolt reinforcement, welded mesh and shotcrete surface support to the floor is considered appropriate by industry experience in similar conditions. The Basement domain, expected to be less fractured and has a higher strength rock mass with Fair — Good conditions, will require the same reinforcement (2.4m long rock bolts) with either mesh or shotcrete and to 1.5-3 m from the floor. However, the long-term degradation potential of the rock types after excavation (by water and air weathering) will require assessment and suitable long-term ground control regimes designed.

Spans greater than this 5 m by 5 m dimension (horizontally and vertically) should be supported with pattern cable bolts (commonly 6 m in length) in addition to the primary ground support listed above.

Due to the likely presence of water, some level of cover grouting will be required for all lateral development within sandstone (if required), and within the basement rocks within 20 m vertical depth beneath the unconformity. This may be designed as pre-grouting or post-grouting methods.

Recommendations

As described in the 2011 PEA (SRK, 2011), SRK considered that these assumptions were preliminary in nature and further data and study are required to understand the mine scale fault structures, rock mass characterization, and potential hydrogeological connectivity. The number of drillhole intercepts have increased, as well as improvements in the types of logging data and methods of data collection since the 2011 PEA. This improved data set (2012 to 2016) has provided increased geotechnical and PLT testing data concentrated in the RRFE deposit area.

The system of data capture requires improvement to allow for valid geotechnical parameter collection and allow for the calculation of rock quality. Major structures are to be identified and characterised by engineering geological descriptions. Hydrogeological connectivity needs to be measured in structures and in the rock mass where mine access and production excavations are likely to be designed. Borehole televiwer tools are recommended to qualify the in-situ conditions of major structures and fractured zones, calibrate the spacing of real and open joints, and characterize zones of no core recovery. This will benefit the geotechnical and hydrogeological appraisal of the Project.

8 SAMPLE PREPARATION, ANALYSES, AND SECURITY

Drill core from the Project was logged, marked for sampling, split, bagged, and sealed for shipment by Hathor and RTCU personnel at their secure, fenced core-logging facility on the property. All samples for U308 assay were transported by land, in compliance with pertinent federal and provincial regulations by Project personnel. The sample containers were transported directly to the Geoanalytical Laboratories of the SRC located in Saskatoon.

The Geoanalytical Laboratories of the SRC are unique facilities offering high quality analytical services to the exploration industry. The laboratory is accredited ISO 9001 by the Standards Council of Canada for certain testing procedures including those used to assay samples submitted for the Project. The laboratory is licensed by the CNSC for possession, transfer, import, export, use and storage of designated nuclear substances by CNSC Licence Number 01784-1-09.3. As such, the laboratory is closely monitored and inspected by the CNSC for compliance. The SRC laboratory is independent of Hathor and RTCU.

Non-mineralized samples for routine geochemical investigation were shipped to the Geoanalytical Laboratories of the SRC by ground transport. Samples for PIMA clay analyses taken by Hathor were shipped to a consultant, Mr. Ken Wasyluk of Northwind Resources Ltd., Saskatoon, by ground transport.

Analytical data results were sent electronically to Hathor and RTCU. These results were provided as a series of Adobe PDF files containing the official analytical results and a Microsoft Excel spreadsheet file containing only the analytical results. Upon receipt of the data, the electronic data was imported directly into the master drillhole database. During the import process, all values reported below detection limits were converted to half the detection limit of that element. Hard copies of the assay certificate were mailed to Hathor and RTCU exploration offices in Saskatoon.

8.1 Drill Core Preparation and Analysis

All core samples, including Composite Geochemical, Split, and Point samples were prepared by SRC. SRC performs the following sample preparation procedures on all samples submitted to them.

On arrival at SRC, samples were sorted into their matrix types (sandstone or basement rock) and according to radioactivity level. The samples were prepared and analyzed in that order.

Sample preparation (drying, crushing, and grinding) was done in separate facilities for sandstone and basement samples to reduce the probability of sample cross-contamination. Crushing and grinding of radioactive samples yielding more than 2,000 cps was done in another separate CNSC-licensed radioactive sample preparation facility. Radioactive material was kept in a CNSC-licensed concrete bunker until it could be transported by certified employees to the radioactive sample preparation facility.

Sample drying was carried out at 80°C with the samples in their original bags in large low temperature ovens. Following drying, the samples were crushed to 60% passing 2 mm using a steel jaw crusher. A 100 g to 200 g split was taken of the crushed material using a riffle splitter. This split was then ground to 90% passing 150 mesh using a chromium-steel puck-and-ring grinding mill for mineralized samples or a motorized agate mortar and pestle grinding mill for all non-mineralized samples. The resulting pulp was transferred to a clear plastic snap-top vial with the sample number labelled on the top.

All grinding mills were cleaned between sample runs using steel wool and compressed air. Between-sample grinds of silica sand were performed if the samples were clay-rich.

Prior to the primary geochemical analysis, the sample material was digested into solution using several digestion methods. A “total” three-acid digestion on a 250 ml aliquot of the sample pulp using a mixture of concentrated HF/HNO₃/HClO₄ acids to dissolve the pulp in a Teflon beaker over a hotplate; the residue, following drying, was dissolved in 15 ml of dilute ultrapure HNO₃. A “partial” acid digestion, on a two-gram aliquot of the sample pulp, digested using 2.25 ml of an eight-to-one ratio of ultrapure HNO₃ and HCl for one hour at 95°C in a hot water bath and then diluted to 15 ml using deionized water.

For fluorimetric analysis of uranium (also known as “AQRFLR”), an aliquot of either total digestion solution or partial digestion solution was pipetted into a platinum dish and evaporated. A NaF/LiK pellet was placed on the dish and the sample was fused for three minutes using a propane rotary burner and then cooled to room temperature before fluorimetric analysis.

Another digestion method used was a sodium peroxide fusion in which an aliquot of pulp was fused with a mixture of Na₂O₂ and NaCO₃ in a muffle oven. The fused mixture was subsequently dissolved in deionised water. Boron was analyzed by inductively coupled plasma optical emission spectrometry on this solution.

With each batch of samples run, SRC inserts, at a minimum, a duplicate from the batch and a QC standard of its own. For analytical QC purposes, Hathor and RTCU inserted one field duplicate for approximately every 10 m of sampled interval. This frequency equates to one duplicate for every 20 samples. Prior to Winter 2010, all field duplicates were quarter core in size, and since winter 2010 all field duplicates were half core in size.

One blank sample per drillhole was inserted. After standard sample preparation, SRC analyzed the samples by several analytical methods depending on the characteristics of each sample:

- Up to 2012, split samples, both mineralized and non-mineralized, from within the mineralized section were assayed for pitchblende using SRC accredited fluorimetry (ISO/IEC 17025) U308-method (code U308). In 2012 SRC changed their ore-grade U308 method from a fluorimetry determination to an ICP-OES determination. All Hathor mineralised samples were analysed by fluorimetry, with select samples between 2007 and 2009 being reanalysed by ICP-OES. The ICP-OES method employed by SRC was ISO/IEC accredited and used for all split samples by RTCU from 2012 to 2016;
- All split samples were additionally analyzed using inductively-coupled plasma optical emission spectrometry (“ICP-OES”) (partial and total digestion; method code ICP-1), plus boron;

- Select split samples were analyzed for gold, platinum, and palladium by conventional fire assay procedures and axial inductively coupled plasma spectrometry finish on 15 g sub-samples (method code AU5); and
- Non-radioactive, non-mineralized samples were analyzed using ICP-OES (partial and total digestion; method code ICP-1) and/or inductively coupled plasma mass spectrometry ("ICP-MS") (partial and total digestion; method code ICPMS 1), plus boron.

All samples are archived at SRC's laboratory for two calendar years (pulp inside and rejects outside), unless any specific instructions have been provided by Hathor or RTCU. SRK are not aware of the current location of the pulps and rejects.

8.2 Specific Gravity Sample Preparation and Analysis

This is described in Section 7.2.5.

8.3 PIMA Sample Preparation and Analysis

There is no sample preparation involved for the samples sent for clay analyses.

8.4 Quality Assurance and Quality Control

The Project has had a robust QA/QC process in place between 2007 and 2016. This includes the insertion of blanks, duplicates (field, coarse rejects and pulps) throughout the period and certified reference materials ("CRM"), from 2012 to 2016, inserted into the assay sample stream sent to SRC. CRMs were only inserted into the assay stream by RTCU, in 2012 after the acquisition of the project. Prior to this, Hathor relied on SRC internal QA/QC procedures in regards to CRM analysis. Both Hathor and RTCU undertook density analysis, monitored by three CRM samples, and undertook a limited umpire verification of the density samples. SGS Lakeland was used at the external ("umpire") laboratory.

A representative set of graphs and tables related to SRK QA/QC analysis is presented below in each section.

8.4.1 Blanks

Blank samples have been included in the sample stream since 2007. The composition of the blank material is unknown but is referred to as a field blank. In total 5,066 blank samples have undergone either fluorimetry or ICP-OES U308% analysis and the blank insertion rate has been calculated to be 27%, which has been derived from the total number of U308 assays. The total number of blanks may possibly contain internal SRC blanks as well as other blanks, as seven different types of blanks are denoted in the QA/QC data provided to SRK without confirmation of their origin. Furthermore, the assay date associated with the blank samples is believed to be related to the upload date and not the actual analysis date, which is why some samples analysed pre-2013 report with a 2013 date.

In reviewing the blank analysis data, SRK has applied a 5X detection limit threshold, specific for U308%. Samples that plot above this threshold are determined as failed samples, only three of the Project samples report above this or even above 2X the detection limit for any of the seven different blanks analyzed (Figure 8-1).

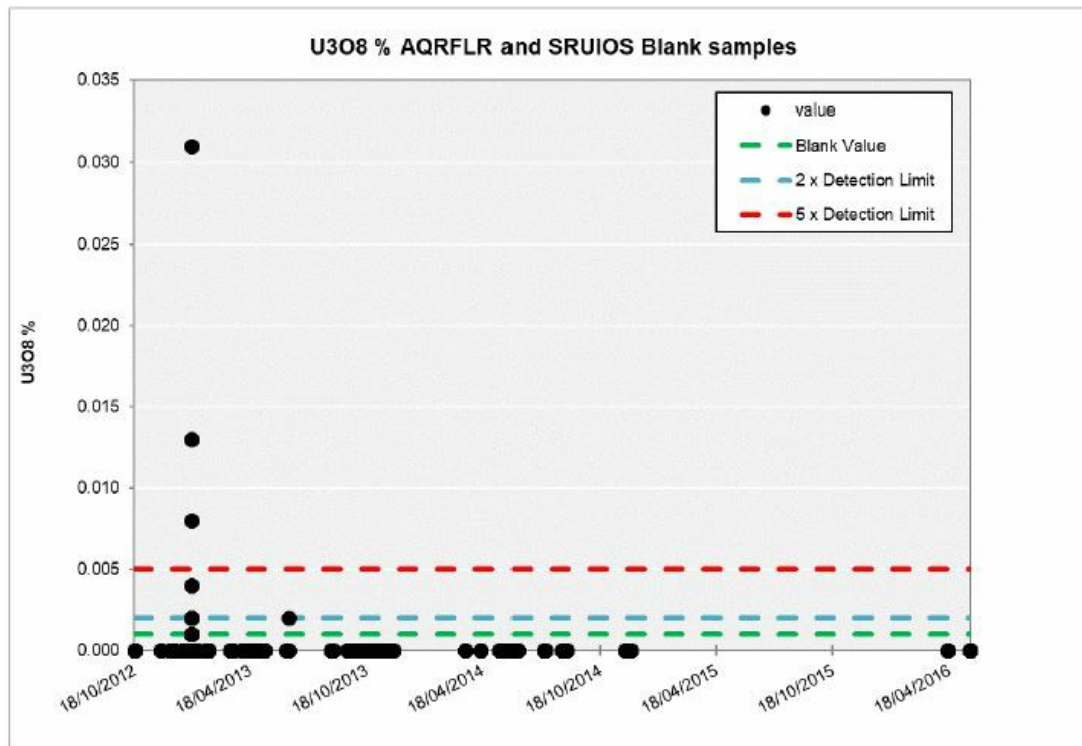


Figure 8-1: Blank sample results for fluorimetry (AQRFLR) and ICP-OES (SCUIOS) at SRC (U308 %)

8.4.2 Duplicates

The precision of sampling and analytical results can be measured by re-analysing a portion of the same sample using the same methodology. The variance between the original and duplicate result is a measure of their precision and/or internal variability. It should be noted that in the duplicate database there are eight category types. Although SRK's analysis has only focused on field duplicates (FP), coarse rejects (C) and pulp duplicates (LR), this understanding is based on the supporting data provided. However, it is not clear what the other codes (D, I, P, PLC and S) refer to, though only 30 samples of these were analysed by SRC using fluorimetry. This low number of samples (30) is unlikely to influence SRK's opinion derived from the analysis of the duplicate data. Furthermore, the assay date associated with the duplicate samples is believed to be related to the upload date and not the actual analysis date, which is why some samples were analysed in a pre-2013 report with a 2013 date.

An RTCU review of the QA/QC samples in 2013 identified that SRC did not undertake regular grind sizing test and only —68% of samples passed through a -106µm sieve. They stated that "a greater percentage passing -106µm would increase sample homogeneity and therefore reproducibility of analytical results", which SRK agrees with, though based on the result presented below this is not considered a material issue to the MRE and will likely only impact relatively very low-grade samples (<1000 ppm).

Field Duplicates

Field duplicate samples have been included in the sample stream since 2007. These duplicates were originally quarter core but switched to half core post winter 2010. The field duplicate samples are denoted by "FP" in the Project QA/QC database. Initially, the core was split by hand, though this was later replaced by a hydraulic splitter in 2013. SRK is unable to determine which samples were half core and quarter core field duplicates due to the lack of analysis date stated in the database. The insertion rate has been calculated to be 10%, which has been derived from the total number of U308 (fluorimetry and ICP-OES U308%) assays.

In order for SRK to analyse the performance of the field duplicates appropriately, SRK has calculated the percent mean difference between each sample and plotted these on the graphs for use as threshold values (Figure 8-2) along with 10% error lines. Samples that fall outside of the 10% threshold limits are determined to be failed samples. SRK has not included samples that report below the detection limits as these can result in large percentage differences and are not true representations of the mean percentage between samples at varying U308 grade ranges.

As expected, the duplicate results show a wider range of variation than the other duplicate types inserted into the sample stream, but still show reasonably good repeatability (Figure 8-2) and good correlation between the original and duplicate sample above. The field duplicates report correlation coefficients typically in excess of 0.9. The same degree of correlation and repeatability was identified across all grade ranges.

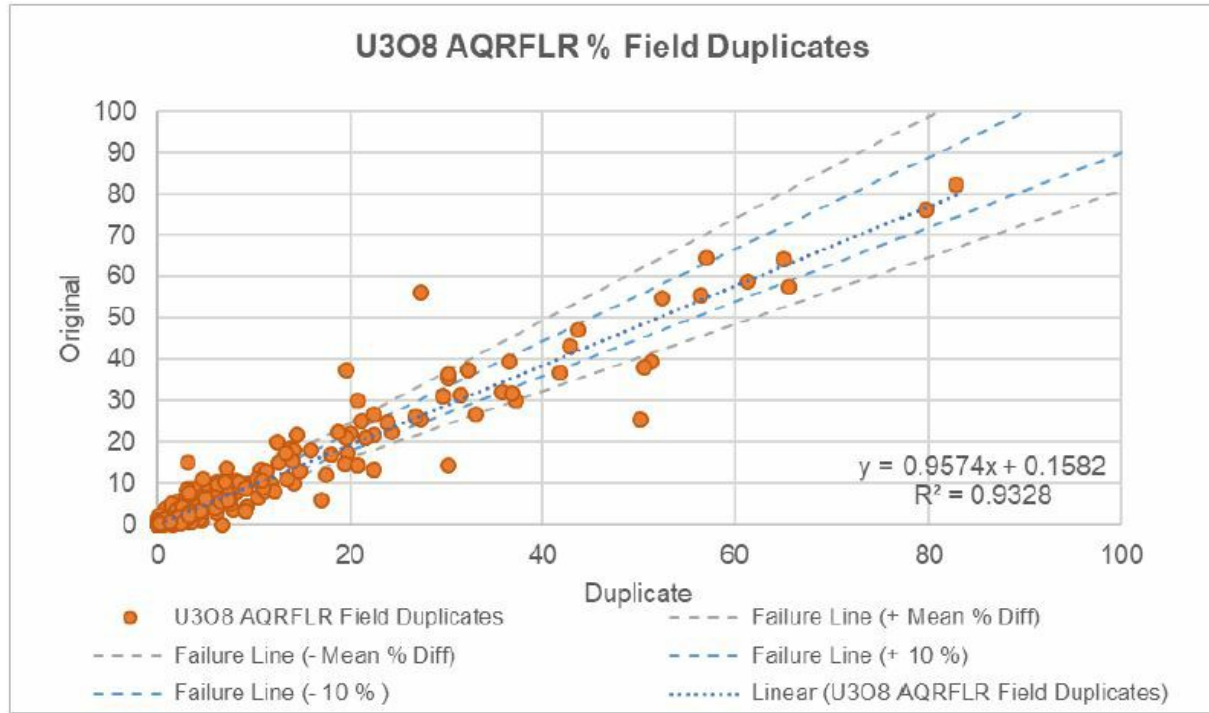


Figure 8-2: Field duplicate sample results for fluorimetry (AQRFLR -U308 %)

Coarse Duplicates

Coarse reject samples have been included in the sample stream since 2007. These are produced at the initial crushing stage at SRC and are denoted by C in the Project QA/QC database. The insertion rate has been calculated to be 5%, which has been derived from the total number of U308 (fluorimetry and ICP-OES U308%) assays.

In order for SRK to analyse the results of the field duplicates appropriately, SRK has calculated the percent mean difference between each sample and plotted these on the graphs for use as threshold values (Figure 8-3) along with 10% error lines. Samples which fall outside of the 10% threshold limits are determined to be failed samples.

As expected, these duplicate results show a higher degree of correlation than the field duplicates inserted into the sample stream, with an excellent repeatability (Figure 8-3) and a high degree of correlation between the original and duplicate sample. The coarse duplicates report correlation coefficients typically in excess of 0.99.

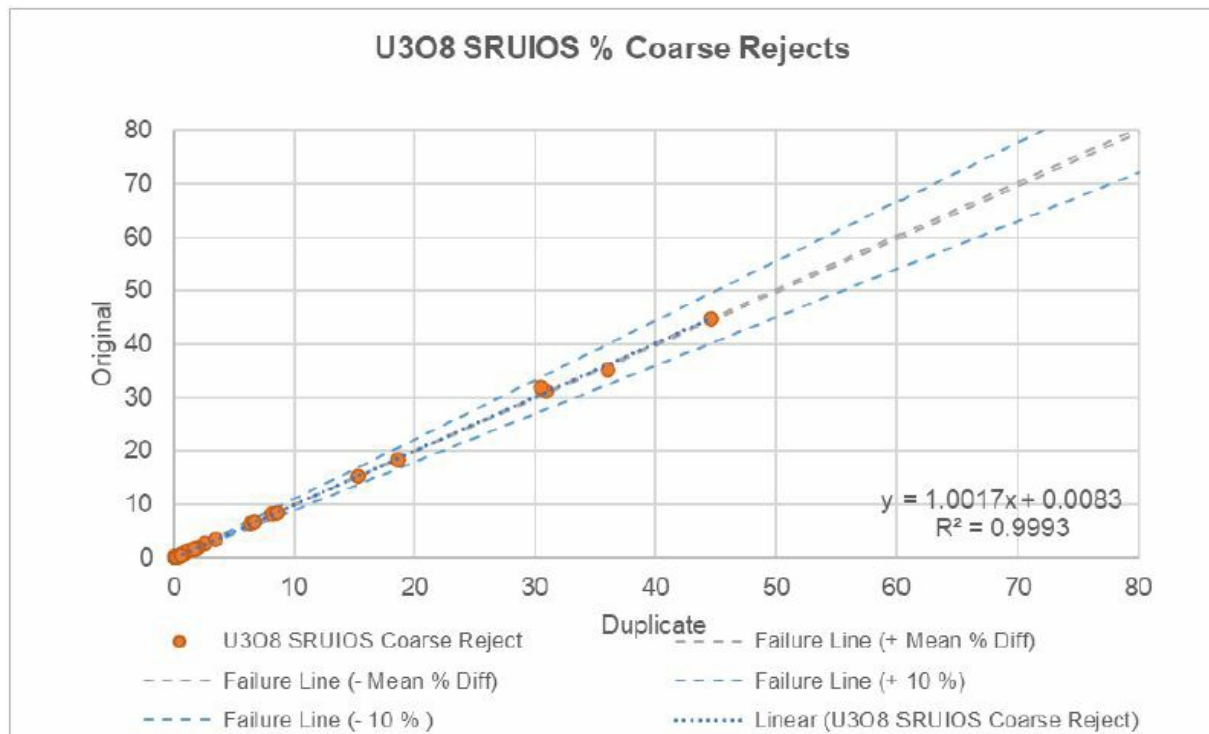


Figure 8-3: Coarse reject duplicate sample results for fluorimetry (AQRFLR -U308 %)

Pulp Duplicates

Pulp duplicate samples are collected at the final stage of sample preparation and have been included in the sample stream since 2007. These are denoted by LR in the Project QA/QC database. The insertion rate has been calculated to be 6%, which has been derived from the total number of U308 (fluorimetry and ICP-OES U308%) assays.

SRK has calculated the percent mean difference between each sample and plotted these on graphs to determine sample failures. The results for the pulp duplicates show a very high degree of repeatability and correlation between the original and duplicate sample, with a correlation coefficient typically in excess of 0.99 (Figure 8-4). As expected, these duplicate results show a higher degree of correlation between the original and duplicate sample than the field duplicates and ever so slightly more than the coarse rejects inserted into the sample stream.

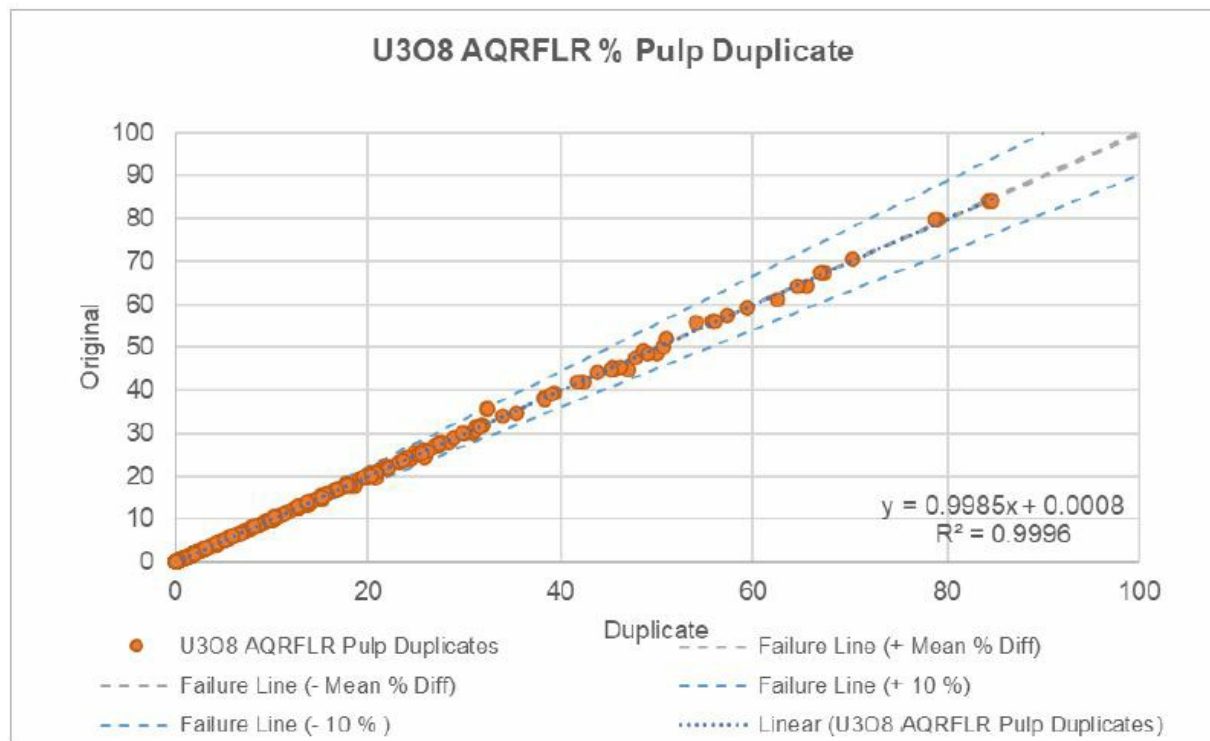


Figure 8-4: Pulp duplicate sample results for ICP-OES (SRUIOS - U308%)

8.4.3 Certified Reference Materials (CRM)

According to the data provided to SRK, Hathor did not insert any CRMs into the sample stream. Instead, they relied upon the internal CRMs inserted by SRC, at a rate of 1 in 20 (Section 8.4.4). This is industry standard for uranium projects in the Athabasca basin, since it would require procurement and storage of radioactive material at the site.

SRK's analysis of the CRMs is primarily based on samples inserted into the sample stream by RTCU, all CRMs assay results for U308 (%) and U (ppm) were analysed using ICP-OES (no CRMs are reported as being analysed by fluorimetry).

In total 20 CRMs were inserted into the sample stream since 2013, though this data is believed to be related to the upload date and not the analysis date. Only five report ICP-OES U308 % results, as shown in Table 8-1, the table also denotes the very low failure rate for each CRM where data is available. The U308% grade range covered by the 5 CRM is representative of the majority of the grade distribution, except at the very high-grade end of the distribution (above 10% U308%). SRK notes that SRC internal CRM include expected values up to 87.5% U308% (8.4.4). The other 15 CRMs were used to monitor Mo and Se and U, with the latter in low ppm concentrations. SRK's analysis has mainly focused on the 5 CRMs which were used to monitor U308% for the reasons described below. The insertion rate has been calculated to be 25%, which has been derived from the total number of U308 (ICP-OES U308%) assays.

Nine CRMs provided in the database do not have accompanying standard deviation or certified mean values and therefore SRK was unable to analyse these in any detail. However, none of these report U308% assays analysed using fluorimetry or ICP-OES. Six of the other CRMs have low (ppm) levels of U, these all were noted to perform within a reasonable degree, though in some cases multiple different U (ppm) analysis were undertaken and it is not clear as to why this was implemented. Overall, the 15 CRMs which did not analyse U308% generally report U assays below 5ppm and only one of these report U grades of —112 ppm, all of which would be well below the modelling cut-off considered to support the MRE.

Figure 8-5 to and Figure 8-7 are examples of U308 CRM performances at different grade ranges. SRK notes that the reported U308 CRM grades for the entire dataset are generally similar to the certified values normally reported within the three standard deviations. This indicates that there is no significant under or over reporting of values (suggesting high accuracy and precision). No sample switches were identified by SRK.

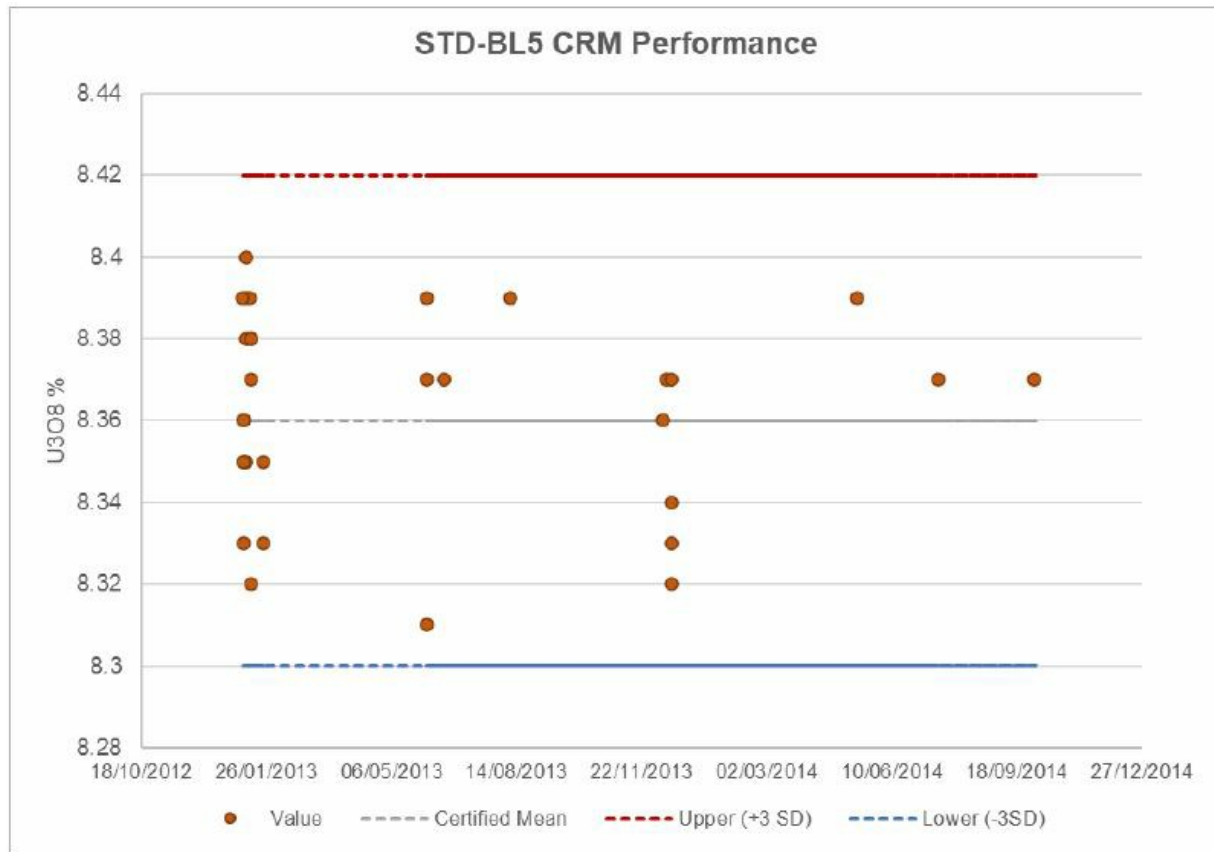


Figure 8-5: CRM plot for STD-BL5 analysed at SRC

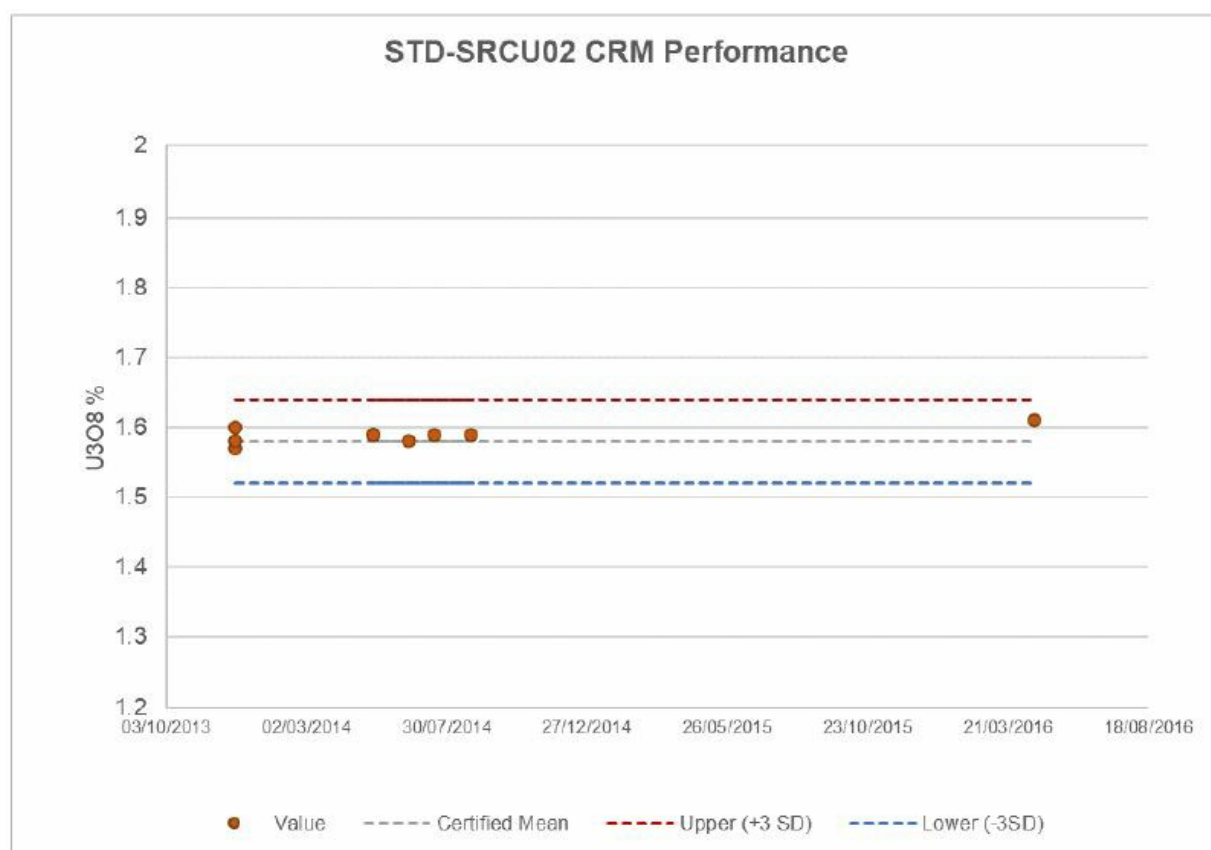


Figure 8-6: CRM plot for STD-SRCUO2 analysed at SRC

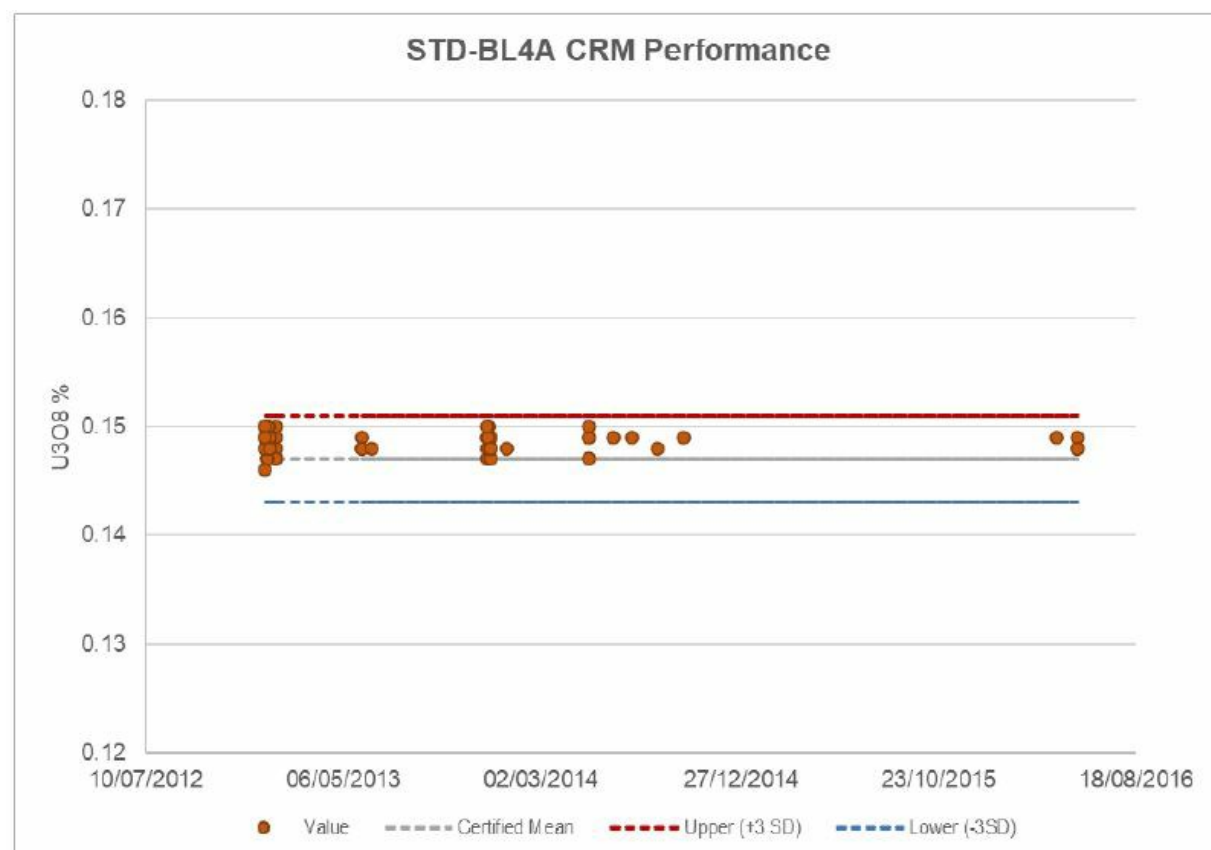


Figure 8-7: CRM plot for STD-BL4A analysed at SRC

Table 8-1: Project U308% and U ppm CRMS

CRM Name	No of Sample submitted	U ₃ O ₈ % Analysed	Uppm Analysed	Certified Mean	% Failed samples (outside 3SD)
STD-DCB01	19	No	Yes	N/A	0%
STD NIST-983-1Y	136			N/A	0%
STD NIST-981-1Y	132			N/A	0%
STD DS9	131			N/A	0%
STD ASH-1	66			N/A	0%
S5	4			N/A	0%
ASR316	11			N/A	0%
DCB01	227			N/A	0%
QFIR-S5	49			N/A	0%
STD-BL2A	48	Yes	No	0.502%	0%
STD-BL3	46			1.23%	0%
STD-BL4A	62			0.151%	0%
STD-BL5	31			8.42%	0%
STD-SRCU02	10			1.64%	0%
STD-CAR110	341	No	Yes	3198 ppm	0%
CAR110	200			3335 ppm	0%
ASR1	15			2.5 ppm	0%
ASR2	15			2.5 ppm	0%
ASR209	298			2.5 ppm	0%
ASR109	394			0.28 ppm	0%

8.4.4 SRC Internal QAQC Report

Since Hathor had not incorporated CRM in their QAQC program, and relied on SRC inserted CRMs, RTCU requested SRC provide a report detailing their internal QAQC procedures for all samples analysed between 2007 and the RTCU acquisition of the project in 2011. SRC prepared a document entitled "SRC Geoanalytical Laboratories. Hathor Exploration Ltd. Sample Report.pdf" to describe SRC's internal procedures from the moment the samples arrive at the laboratory, through to SRC Internal QAQC analysis as well as providing the accompanying QAQC charts, all of which have been reviewed by SRK. The following paragraph summarizes SRC's analysis of the QAQC results.

SRC inserted CRM at a rate of 1 in 20 into the sample stream. In total, seven CRMs were employed by SRC, covering a range of grades from 0.026% U308 to 87.5% U308. An example of one of SRC's CRM plots is shown in Figure 8-8. Additionally, SRC also inserted pulp duplicates into the sample stream at a rate of 1 in 40. Hathor specifically requested that 1 in 20 samples analysed should be a split replicate. Prior to releasing the assay results to Hathor, an SRC senior scientist reviewed the performance of their internal QAQC samples. If for any reason a failure, or any issues were identified with any samples then the batch or sub-group associated with the problematic sample was reanalysed and a corrective action report was produced describing the issue and corrective measure taken.

Overall, the performance of the SRC QAQC samples was within acceptable tolerances for U308%. SRK notes that some of the other minor analytes show a slight positive bias, though the majority of these samples fall within the three standard deviation failure lines. The potential bias, in these other elements, is not considered material to the Mineral Resource estimate and they are not reported in the Mineral Resource statement.

SRC also compared fluorimetry vs ICP-OES for a subset of samples, which shows a reasonable degree of continuity between sample pairs.

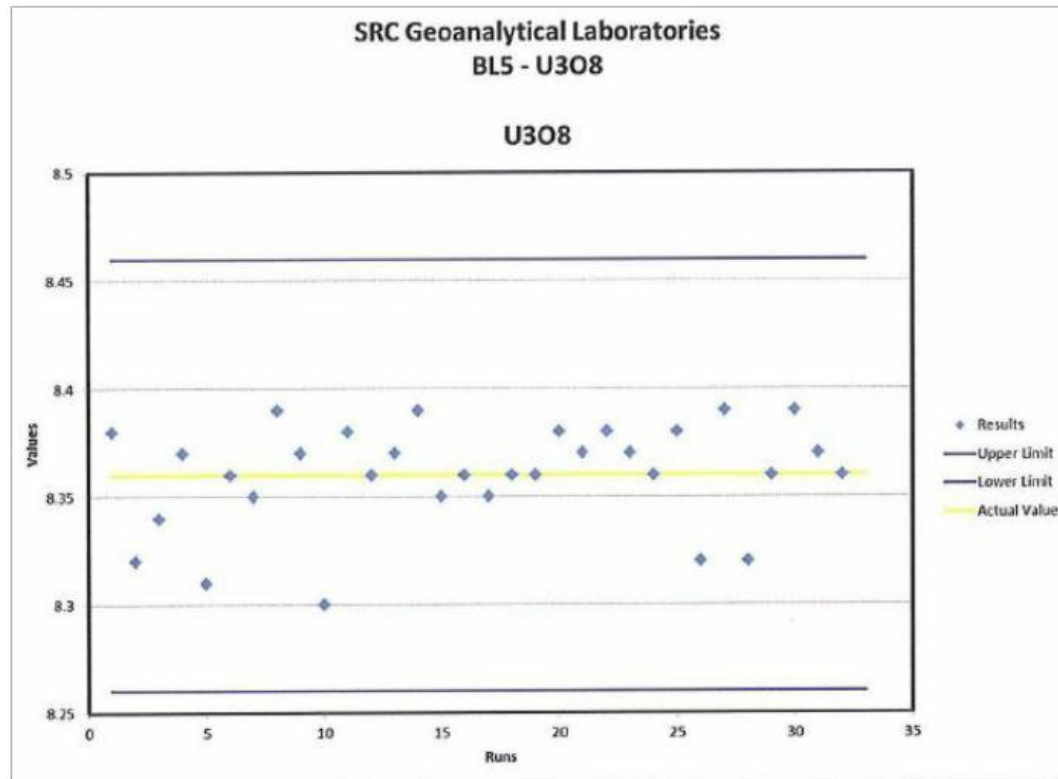


Figure 8-8: SRC internal BL5 CRM performance (Hathor samples 2007 to 2011)

8.4.5 External Duplicates (Umpires)

The external duplicate samples are collected at the final stage of sample preparation and sent to the umpire laboratory (SGS Lakeland) for either U308% analysis or delayed neutron counting ("DNC"). SRK calculated the insertion rate to be 4.9% for U308% analysis (fluorimetry) and 12% for the DNC analysis, this is believed to be related to the Hathor submitted data only. It should be noted that SRK found 86 umpire samples (SGS certificate) with a 2013 time stamp, though none of the sample ID's matched the assay database and so no further analysis of these were conducted. SRK recommends that the Company try to source the umpires sample submitted post RTCU ownership and review these, though given all other QA/QC types performed well the lack of these umpire samples is not considered material to the MRE.

SRK has calculated the percent mean difference between each sample and plotted these on graphs to determine sample failures (Figure 8-9 and Figure 8-10) along with 10% error lines.

The results for the external duplicates analysed using U308% and DNC show a high degree of repeatability (Figure 8-9 and Figure 8-10) and a high degree of correlation between the original and duplicate samples analysed at the two different laboratories. The correlation coefficient is in excess of 0.99, with only two samples falling outside the 10% error limits for the U308% vs DNC, which is not considered material to the MRE.

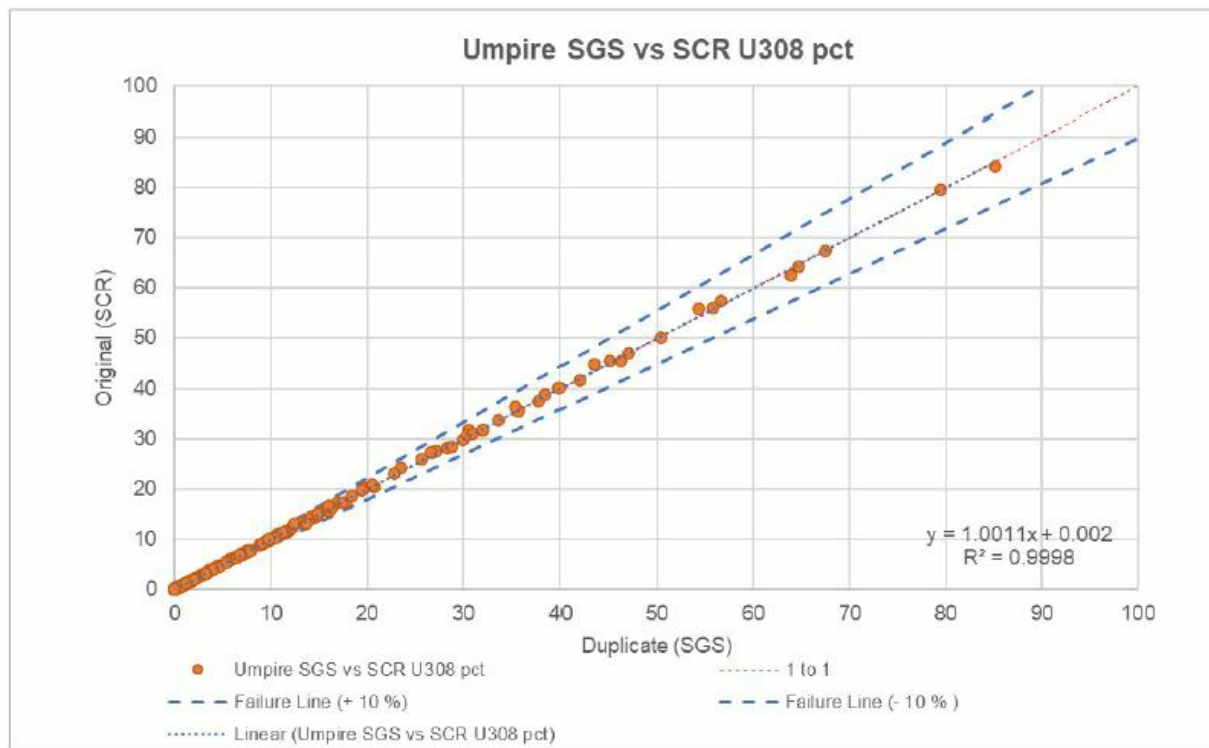


Figure 8-9: External duplicate sample results for U308% (SRC vs SGS)

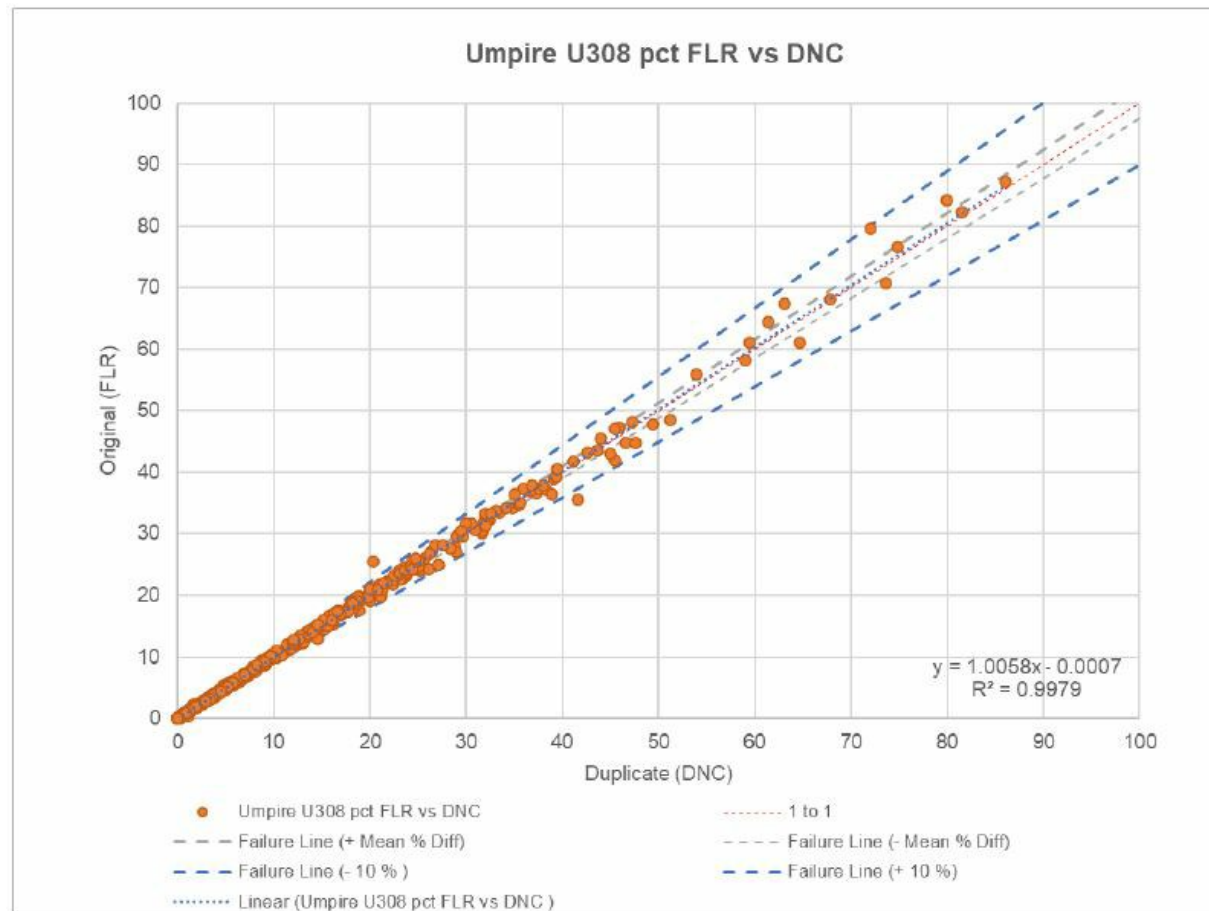


Figure 8-10: External duplicate sample results for DNC vs U308% (SRC vs SGS)

8.4.6 Density Samples

Both Hathor and RTCU verified their density results using three standards. Each of the three standards were measured for each drillhole from which density samples were measured. Density samples from the core were not measured until the results of the standard measurements were confirmed to pass.

It should be noted that the three density standards all report similar certified means between 2.65 t/m³ and 2.69 t/m³, as shown in Table 8-2, which also shows the low failure rate for each CRM.

Figure 8-5 is an example of one of the density CRM performances. SRK notes that the densities reported for the entire dataset are generally similar to the certified values, normally within the three standard deviations, though a few samples do report outside this range. SRK was informed that density samples which fall outside the three standard deviations were reanalysed by both Hathor and RTCU before proceeding with further measurements. Overall, there appears to be no significant under or over reporting of density values suggesting high accuracy and precision.

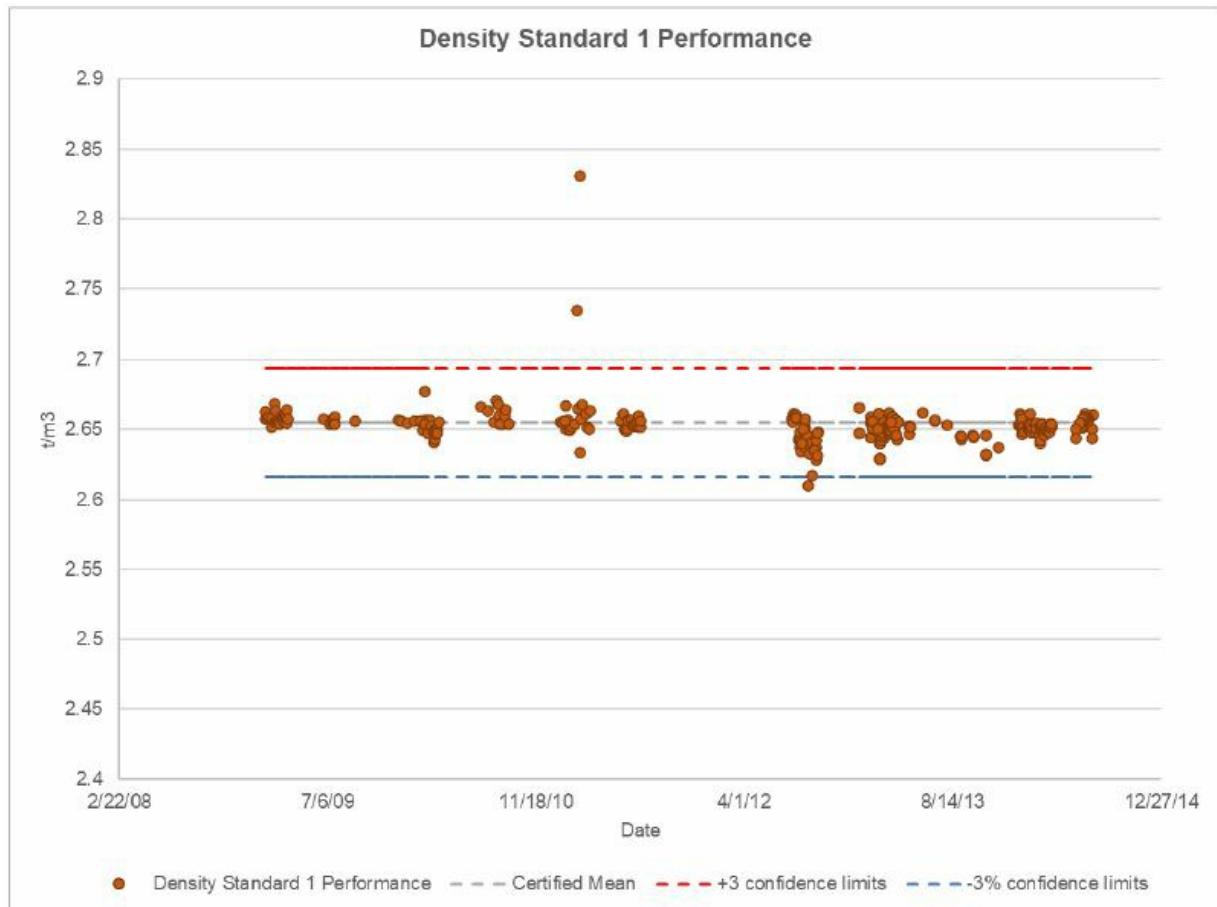


Figure 8-11: Standard 01 Density CRM plot

Table 8-2: Project density CRMs

CRM Name	No of Sample Analysed	Certified Mean density (t/m ³)	% Failed samples
Standard 1	371	2.655	2%
Standard 2	371	2.669	2%
Standard 3	368	2.693	1%

8.4.7 Umpire Density Samples

Twenty density samples were sent to SRC for verification purposes. This is believed to be related to the Hathor analysis only, as it was undertaken in 2010. It is not known if these relate to exact sample analysed by Hathor or whether these are quarter or half core field duplicates.

SRK has calculated the percent mean difference between each sample and plotted these on graphs to determine sample failures (Figure 8-9).

The results for the external density duplicates show a moderate to high degree of repeatability (Figure 8-9) and a moderate to high degree of correlation between the original and duplicate samples analysed, with a correlation coefficient typically of 0.79. However, given the low sample population, it is difficult to make any meaningful conclusions, though it does appear that the Hathor density values slightly under report compared to the SRC values.

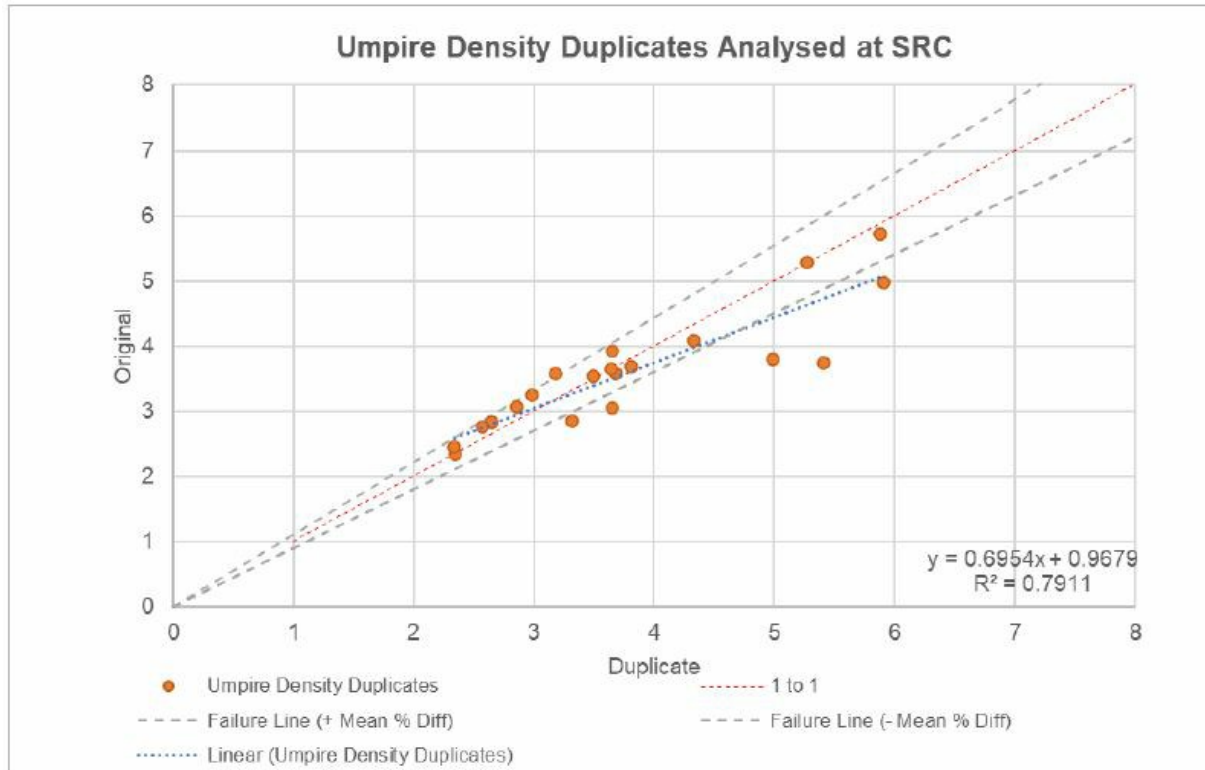


Figure 8-12: External duplicate density sample results (Hathor vs SRC)

8.5 Sample Security

Drill core samples from the Project were logged, marked for sampling, split, bagged and sealed in drums for transport within a fenced core-logging facility on the property. The sealed drums were transported by road directly to the SRC laboratory in Saskatoon. Samples were traced by their unique sample ID, which was marked in the boxes from which they were taken and have accompanied the sample through preparation, analysis, and addition to the master assay database.

8.6 SRK Comments

SRK has undertaken a review of the assay and geology database during the MRE procedure. Field duplicate data typically show a less well-defined correlation (assay repeatability) compared to coarse reject and pulp duplicates due to the nature of sampling (core splitting by hand and hydraulic) and possible inhomogeneity of the mineralisation itself. This underlines the necessity to rely on multiple sample data points to ensure sufficient averaging when estimating block model grades to overcome random sampling errors present in individual grade values. RTCU mentioned that the U308 suite ore-grade U308 analysis method has a relatively high detection limit and produces poorly reproducible results below 1000ppm. SRK does not consider this a material issue, as the lowest modelling cut-off is a factor of 10 times higher than this limit.

The lack of CRMs inserted into the sample stream by Hathor (2007 to 2011) is common practice for uranium exploration in the Athabasca basin and is not considered material to the Mineral Resource estimate presented in this TRS. In the opinion of SRK, the QA/QC monitoring and analysis completed by SRC during this period demonstrates that the U308 analyses are appropriate for the use in the estimate.

In the future, SRK recommends that the company insert CRMs with a more variable U308% grades (3%, >10%) and density values (1.8 t/ m³ and 2.2 t/m³) in order to better reflect the mineralisation grades and density observed in the drillhole statistics.

8.7 QP Opinion of the Adequacy of Sample Preparation, Security and Analytical Procedures

The QP has reviewed the data upon which the MRE is based, and is of the opinion that the procedures and systems employed to collect and manage this information meets industry best practice. SRK considers that the QA/QC results demonstrate acceptable levels of accuracy and precision at the laboratories. The QP is of the opinion that the supporting data are representative and adequately support the geological interpretations and estimates to the level of classification assigned.

9 DATA VERIFICATION

9.1 Data Verification Procedures Applied by the QP

The QP was provided with the drillhole database for the Project in a series of Microsoft Excel comma delimited files (“CSV” format). Before use in the geological modelling and Mineral Resource estimation, a series of verification checks were conducted, including:

- Collar Elevation versus Digital Elevation Model (“DEM”);
- Verification of Mineral Lease location;
- Downhole deviation and orientation;
- Interval table checks — gaps, overlaps, out of range, and missing samples;
- Lithology Logging consistency; and
- Assay database versus source certificates.

9.1.1 Collar Elevation vs DEM

Final drillhole collar locations have been surveyed by the Hathor and RTCU teams using the Trimble GeoExplorer 2008 Series differential global positioning system (“DGPS”). The DGPS has decimetre scale accuracy. The QP has compared the DGPS collar elevations versus the lidar DEM for the Project. All collar coordinates, surveyed with the DGPS, used in the MRE are very close to the lidar DEM elevation, with the mean distance being less than 1 m (Table 9-1).

SRK set the elevations of two drillholes, 16RR0871 and 16RR0872, to the DEM elevation as the database contained only the planned coordinates for these holes.

Table 9-1: Collar Elevation versus DEM statistics by Deposit

Deposit	Distance from Collar Survey to DEM Surface (m)		
	Minimum	Maximum	Mean
RRW	0.24	0.96	0.93
RRE	0.00	1.30	0.48
RRFE	0.00	0.80	0.30

9.1.2 Mineral Lease Location

The QP independently reviewed and exported the boundary points of ML-5547 from the Mineral Administration Registry System, an electronic registry managed by the Government of Saskatchewan for issuing mineral dispositions. SRK confirmed the location, area, and ownership information of ML-5547 that was provided by UEC. ML-5547 fully encapsulates the mineralisation boundaries modelled, and the MRE reported in this TRS.

9.1.3 Downhole Deviation and Orientation

The QP visually reviewed the downhole traces of all drillholes used in the MRE to both check for unreasonable deviations of drillholes and drillholes that may be poorly oriented with respect to the local mineralization.

There were no drillholes identified with visually erroneous downhole survey information, although there were numerous holes drilled at the RRW deposit with orientations that were near parallel to the interpreted mineralization trend (Figure 9-1). After careful consideration, the QP has chosen to exclude 22 drillholes due to poor intersection angles (Table 9-2). These holes were collared from the shore of South McMahon Lake, before barge drilling commenced. Additionally, due to the collar location and target (RRW) the holes were drilled at relatively shallow dip (down to -45 °), which meant that the casing being set in overburden was up to 40 m, resulting in the first downhole survey of each hole being somewhat deeper than 40 m (as the deviation survey tool is magnetic and must be clear of magnetic influences, like casing). The result of the poor drilling angle and questionable starting deviation surveys result in uncertainty in the spatial location of the holes and therefore have been excluded from the MRE.

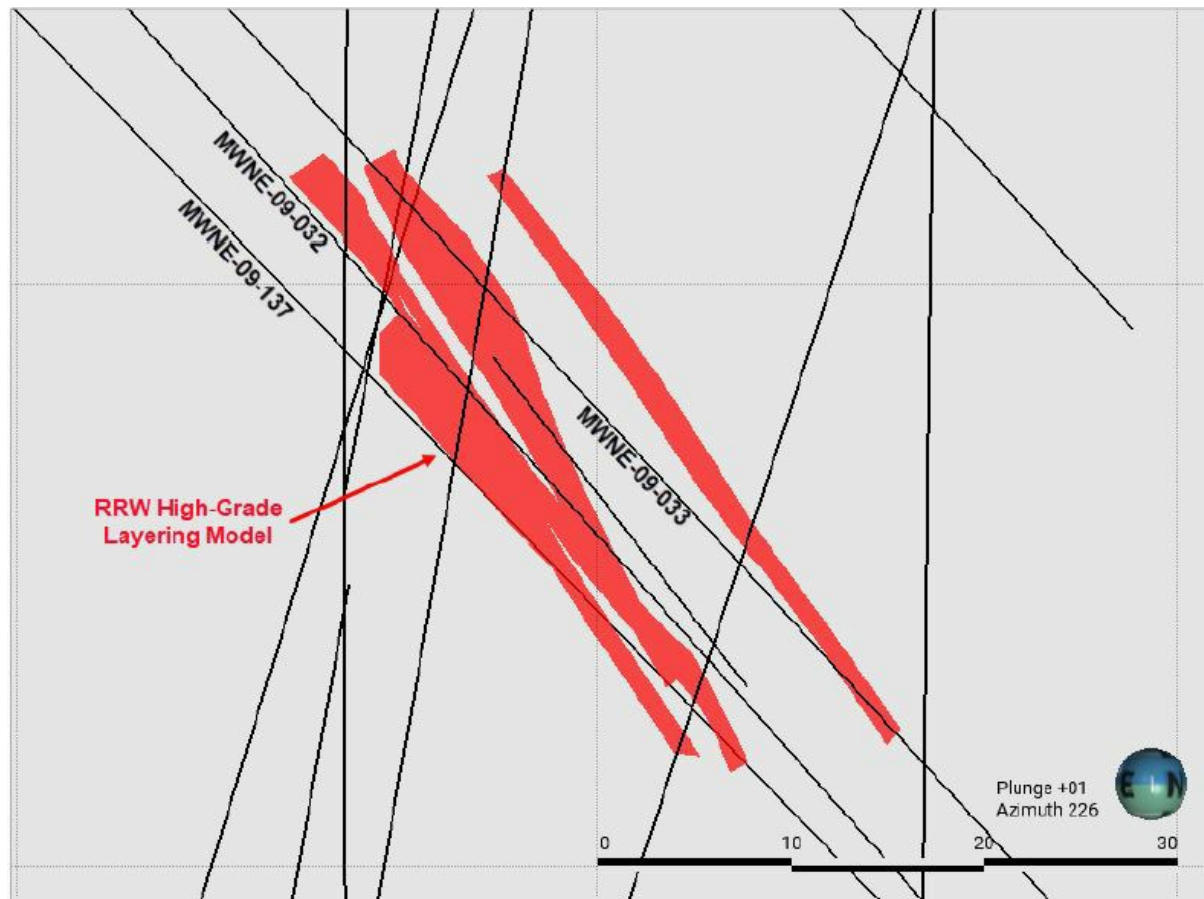


Figure 9-1: Cross section looking south-west at the modelled RRW high-grade layering features with respect to drilling orientation

Table 9-2: Drillholes Excluded from the Geological Model and MRE

Drillhole Name			
MWNE-08-030	MWNE-08-042	MWNE-08-037	MWNE-09-140
MWNE-08-031	MWNE-09-085	MWNE-08-038	MWNE-09-146A
MWNE-08-032	MWNE-09-132	MWNE-08-039	MWNE-09-148
MWNE-08-033	MWNE-09-133A	MWNE-08-040	MWNE-09-151
MWNE-08-034	MWNE-09-134	MWNE-08-041	MWNE-09-510
MWNE-08-035	MWNE-09-137		

9.1.4 Interval Table Checks

All drilling data supporting the geological models and MRE was provided in CSV format files. The QP has imported these into modelling software, which have standard verification tools for checking and resolving issues such as overlapping or duplicate intervals, missing intervals, out of range values, and sample depth greater than the depth of the collar file among others. No significant issues were detected in the verifications.

Due to the nature of the sampling process, samples are only taken where scintillometer readings indicate mineralization. Gaps in the sampling are therefore present and must be treated appropriately. Since gaps have been identified as effectively barren, the QP has set the value of U308% to 0.0001% for all gaps.

9.1.5 Lithology Logging Consistency

The geological model for the Project was prepared using the downhole lithology logging (as described in Section 11.2.3). During the construction of the model, the QP made the following observations about the consistency of lithological logging:

- MFBMC, MFBASCON, and WOLG units are consistently logged and result in adjacent holes regularly confirming contact locations, resulting in reliable modelled contacts; and
- MFC, MFBU, MFBL, WOLF and WOLG are less consistently logged and require some interpretation, including exclusion of some logged contacts from the models and less reliable modelled contacts.

The QP notes that the WOLG and MFBASCON are the two most important lithological features for the Project, since the WOLG is associated with localization of uranium mineralization, and the MFBASCON location marks key hydrogeological and geotechnical conditions.

9.1.6 Assay Database vs Source Certificates

SRK has checked the source laboratory assay certificates associated with the 2007-2016 drilling. In total, SRK reviewed 137 samples (equivalent to 0.7% of the U308% ore-grade assay database) across five years (2008-2013) and identified no material issues or discrepancies between the drillhole assay file and laboratory certificates.

9.2 Site Visit

The QP completed a site visit in March of 2023, the details of which are described in Section 2.5.

9.3 Limitations

The QP was not directly involved in the exploration drilling, logging and sampling programs that formed the basis for collecting the data used to support the geological model and MRE for the Project. During the site inspection, the QP reviewed drill core from seven holes representing intersections from each of the three Project deposits. The QP was able to observe that certain sampling procedures were in fact being followed, specifically radiometric scanning, half-core sampling, and secure storage. Chain of custody evidence was well preserved, with core box labels clearly visible and geochemical and bulk density sampling locations clearly marked in the core boxes.

The QP has relied upon a detailed review of the 2007 to 2016 data and supporting documentation to ensure the resulting database, upon which the MRE is based, is reliable.

The QP notes that verification of the Project data, collected up to 2011, was completed from 2010 to 2011 by a previous QP (Section 9.3.1).

9.3.1 Previous SRK QP Visits

The qualified person for the previous, November 29, 2010 (RRW) and May 6, 2011 (RRE) Mineral Resource, SRK Consulting (NA) Ltd. ("SRKNA"), completed verifications of the Project data. In summary, during SRKNA's September 13 to 14, 2010 site visit, all aspects that could materially impact the Mineral Resource evaluation were reviewed with Hathor staff. SRKNA reported that it was provided full access to all relevant Project data available at the time. SRKNA was able to interview exploration staff to ascertain exploration procedures and protocols. Drillhole collars were reported to be clearly marked with stakes inscribed with the borehole number on aluminium Dymo labels. No discrepancies were found between the location, numbering or orientation of the holes verified in the field and on plans and the database examined by SRKNA at the time.

The QP notes that the Company confirmed that the procedures in place at the time of SRKNA's site visit were continued until drilling and sampling concluded in 2016.

9.4 QP Opinion of the Data Adequacy

The QP has verified the data provided, including collar, survey, downhole logging and sampling and analytical data. The QP was provided unlimited access to this data by UEC during the course of the study. The QP was not able to personally witness the data collection procedures as drilling and sampling activities ceased in 2016. Based on the verification of the data and site visit observations, the QP is of the opinion that the data upon which the MRE is based has been collected with industry best practices and are reliable for the MRE presented in this TRS.

10 MINERAL PROCESSING AND METALLURGICAL TESTING

Hathor engaged Melis Engineering Ltd. ("Melis") as metallurgical consultants from 2008 onwards to manage a series of testwork programs carried out by SGS at their Lakefield facility in Ontario, Canada on samples from the Project. When RTCU completed acquisition of the Project in late 2011, Melis and SGS were retained to continue with the testwork program.

SGS completed four phases of metallurgical testwork between 2008 and 2012 on samples from the RRW (phases 1-3) and the RRFE (Phase 4) deposits of the Project. In 2012, during the fourth phase of testwork, the program was truncated, and the full schedule was never completed.

The test programs originally included comminution tests, atmospheric leach tests, solvent extraction uranium recovery tests, yellowcake precipitation, resin loading and elution test, tailings preparation, effluent treatment and environmental analyses.

Samples for the tests were taken from exploration drill core (Phase 1 and 2) and later from dedicated drillholes made specifically for the purpose of collecting samples for metallurgical testwork.

10.1 Metallurgical Testwork Program

The Project is located in the eastern Athabasca Basin uranium district of northern Saskatchewan. This is an established area for mining and extraction of uranium bearing minerals that currently supplies around 20% of the world's uranium. With a number of historic and operating mines in the area, the initial testwork program focused on the two proven flowsheets in use in the area for the extraction of Uranium:

- Heated Agitated Leaching, and
- Low Pressure Oxygen Acid Leaching.

Initial testwork, Phase 1, was carried out on samples from RRW, which were the samples available at the time. This is typical for projects, but as understanding of the mineralization develops with increased data, a program of testwork needs to be developed that will inform decisions about the choice of flowsheet, type of equipment required, and the forecast performance level of the final plant design.

Once the flowsheet is developed, it is normal to run continuous pilot or mini-plant scale programs over prolonged periods to simulate the full flowsheet including all internal recirculating streams. Finally, testwork, using the preferred flowsheet, should be carried out on a wider range of ore types to determine what degree of variability there will be in the plant performance on different ore types.

The testwork program conducted to date for the Project took place in four phases:

10.1.1 Phase 1 Testwork

Phase 1 testwork, using early-stage drill core, to establish levels of uranium recovery from the two established flowsheets in use in the eastern Athabasca area.

10.1.2 Phase 2 Testwork

More extensive metallurgical testwork to cover ore characterization for selection of crushing and grinding equipment. Confirmation of the previous levels of recovery by leaching as well as leach optimisation tests to reduce reagent use. Downstream uranium recovery testwork by solvent extraction and testing on waste neutralization streams.

10.1.3 Phase 3 Testwork

Variability testwork on a wide range of composites synthetically composited from two purpose drilled holes.

10.1.4 Phase 4 Testwork

Testwork carried out on samples from RRFE to examine similarity to the previously investigated RRW samples.

10.2 Sample Selection

Key to any testwork program is that the samples tested should be representative of the mineralization. Drillhole locations for the samples used for the four phases of testwork are shown in Figure 10-1.

As the testwork campaign was curtailed, the dispersal of the drillhole locations is limited and cannot be said to adequately represent the entire Project. Specifically, samples for the RRE (East Zone) were collected, but never tested (shown as “Untested” in Figure 10-1).

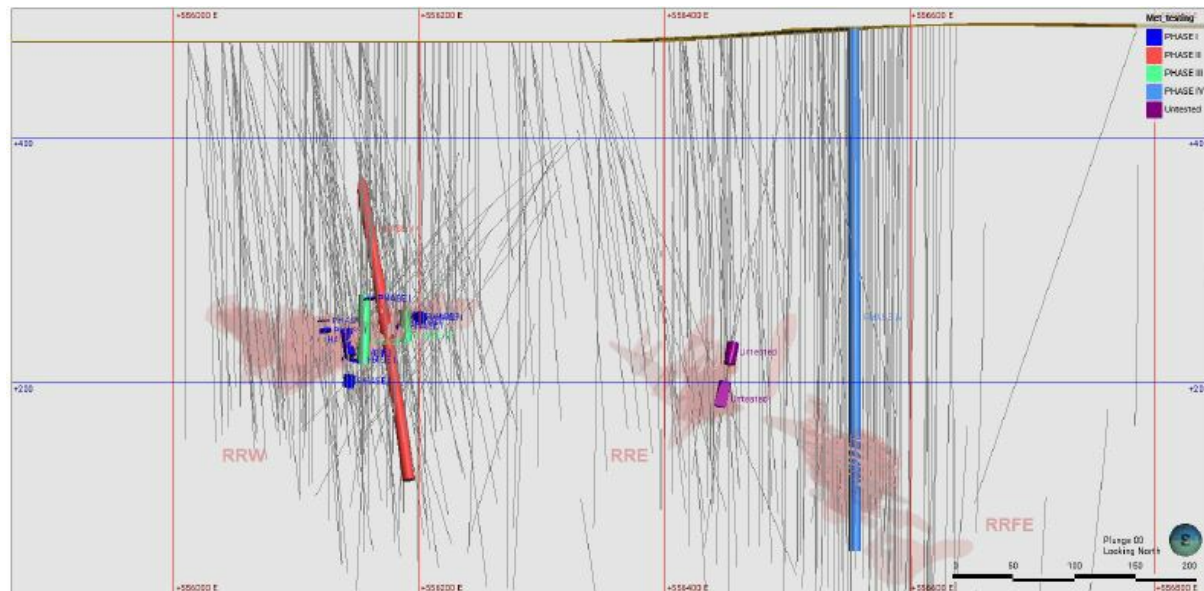


Figure 10-1: Drill hole location for Metallurgical Test Programs

10.2.1 Phase 1 Samples

Phase 1 testwork was carried out on three composite samples that were prepared by taking core intervals from the following drillholes:

1. DDH MWNE-08-12
2. DDH MWNE-08-24
3. DDH MWNE-08-28
4. DDH MWNE-08-30
5. DDH MWNE-08-32 and
6. DDH MWNE-08-33

The characteristic of the composite is presented in Table 10-1.

Table 10-1: Phase 1 Testwork, Sample Characteristics

Phase 1 Project Test Composites — Key Element Analysis				
Analyte	Unit	Composite No. 1	Composite No. 2	Composite No. 3
U ₃ O ₈	%	6.11	2.68	0.62
As	%	0.052	0.15	0.0065
Co	%	0.022	0.021	0.0036
Cu	%	0.077	0.12	0.042
Mo	%	0.24	0.071	0.17
Ni	%	0.025	0.066	0.0078
Pb	%	1.98	0.085	0.045
Se	%	0.0029	0.0016	<0.0001
V	%	0.40	0.16	0.30
Zn	%	0.046	0.018	<0.004
Au	g/t	1.05	0.23	0.48
Ag	g/t	34	3.1	12

10.2.2 Phase 2 Samples

The Phase 2 testwork was carried out on composite samples formed from intersections of a single purpose drillhole MWNE-09-85 from RRW. The characteristics of the composites are presented in Table 10-2.

Table 10-2: Phase 2 Testwork, Sample Characteristics

Phase 2 Roughrider Test Composites — Key Element Analysis						
Analyte	Unit	Comp RR2	Comp PG	Comp DM	Comp WRM	Comp PE
U ₃ O ₈	%	3.30	0.19	0.81	16.5	0.11
As	%	0.035	0.0075	0.017	0.080	0.035
Mo	%	0.062	0.022	0.090	0.120	0.015
Se	%	<0.004	<0.004	<0.004	<0.004	<0.004
V	%	0.13	0.089	0.20	0.19	0.067

10.2.3 Phase 3 Samples

Phase 3 variability testwork was carried out on over 600 kg of purpose drilled core samples from the RRW, drillholes (DDH MWNE-09-171 and MWNE-09-172). The characteristics of the composites are presented in Table 10-3.

Table 10-3: Phase 3 Testwork Composite Characteristics

Phase 3 Project Test Composites - Key Element Analysis										
Analyte	Unit	Comp RR-A	Comp RR-B	Comp RR-C	Comp RR-D	Comp RR-E	Comp RR-F	Comp RR-G	Comp RR-H	Comp RR3
U ₃ O ₈	%	0.047	0.25	2.29	0.25	0.55	0.13	17.4	0.083	1.40
As	%	0.032	0.056	0.098	0.033	0.068	0.091	0.55	0.025	0.088
Co	%	0.006	0.013	0.03	0.0069	0.013	0.039	0.056	0.0079	0.016
Mo	%	0.027	0.083	0.075	0.017	0.088	0.32	1.6	0.014	0.014
Ni	%	0.046	0.036	0.05	0.015	0.03	0.032	0.72	0.013	0.058
Se	%	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.024	<0.006	<0.006
V	%	0.14	0.39	0.49	0.13	0.12	0.60	0.62	0.02	0.30

10.2.4 Phase 4 Samples

Phase 4 samples were collected from a purpose-drilled hole (DDH MWNE-11-718) in RRFE of the Project. Five variability composites and one overall composite, representing the RRFE mineralization, have been prepared for testing. The characteristics of the composites are presented in Table 10-4.

Table 10-4: Phase 4 Testwork Composite Characteristics

Phase 4 Roughrider Test Composites - Key Element Analysis						
Analyte	Comp RR4	Comp MG	Comp UG	Comp LPG	Comp GG	Comp PG
U308	2.72	2.38	2.78	15.6	4.50	1.83
As	0.0135	0.0169	0.0025	0.135	0.0039	0.0181
Co	0.0023	0.0017	0.0008	0.021	0.0010	0.0033
Cu	0.0177	0.0053	0.0021	0.0162	0.0062	0.0469
Fe	2.83	1.85	7.34	1.54	1.46	2.06
Mo	0.0156	0.0270	0.0085	0.0390	0.0172	0.0106
Ni	0.0112	0.0153	0.0017	0.0902	0.0057	0.0112
Pb	0.153	0.131	0.094	1.77	0.461	0.120
S	0.0611	0.0528	0.0100	0.270	0.0425	0.0978
Se	0.0012	0.0015	<0.0001	0.0030	0.0025	0.0021
Th	0.002	0.0035	0.0012	0.0038	0.0020	0.0012
V	0.0561	0.0741	0.0412	1.185	0.0431	0.0549
Zn	0.0006	0.0007	0.0013	0.0002	0.0009	0.0004

10.3 Metallurgical Testwork Results

The main areas of completed testwork were in Comminution and Leaching. The full range of the test program, including detailed testing on the solvent extraction uranium recovery tests, yellowcake precipitation, resin loading and elution tests, liquid/solid separation testing and further tailings preparation, effluent treatment and environmental analyses were never moved beyond the scoping level and are not commented on here.

10.3.1 Comminution Results

Ore characterization was carried out as part of the Phase 2 Testing to determine the semiautogenous grinding (“SAG”) and Ball Mill grinding characteristics. The results in Table 10-5 show the samples to be relatively soft. This is consistent with reported values for other uranium operations in the area.

In the Phase 3 Variability Testwork program, the eight composite samples were subject to additional Bond Work Index testing. The results in Table 10-6 show a range of values that are generally in line with the Phase 1 results.

The Phase 4 comminution testwork used composite samples from RRFE designated as Composites UG, MG, PG, LPG, and GG are shown in Table 10-7 and Table 10-8. The individual

SAG power index (“SPI”) tests, as well as the range of average results, was quite wide.

Available grinding tests on four of the five variability composites suggest that the RRFE mineralization is relatively soft and is consistent with previous measurements of the RRW test composites.

Testwork was also carried out on the non-mineralised material composites. The results in Table 10-7 show that the non-mineralized material is relatively harder than the mineralized — which is to be expected.

Table 10-5: Phase 2 Comminution Results (RRW)

Summary of Comminution Test Results on Phase 2 Variability Composites		
Composite	SAG Mill Power Index (Minutes)	Bond Ball Work Index (kWh/t)
Average	14.3	9.3
Std. Dev.	6.5	1.7

Table 10-6: Phase 3 Variability Comminution Results

Comminution Variability Test Results on Phase 3 Composites	
Composite	Bond Ball Work Index (kWh/t)
RR A	12.7
RR B	10.5
RR C	8.8
RR D	7.2
RR E	7.2
RR F	14.5
RR G	9.5
RR H	13.5
Average	10.5

Table 10-7: Phase 4 Comminution Variability SPI Test Results

Phase IV Metallurgy - Test Composites Average SPI Measurements (min)				
Measurement	Comp MG	Comp UG	Comp GG	Comp PG
SPI (min)	30.2	25.9	53.3	41.6

Table 10-8: Phase 4 Comminution Variability BWi Test Results

Phase IV Metallurgy - Test Composites-Ball Mill Bond Work Index (BWi) Measurements (kWh/t - Metric)					
Measurement	Comp MG	Comp UG	Comp LPG	Comp GG	Comp PG
BWi (kWh/tonne)	10.7	10.6	n/a	12.1	10.0

Table 10-9: Project Non-Mineralised Composites — Comminution Measurements

Composite	Sample No.	Crusher Index	SPI (min)	Ball Mill BWI Metric (kWh/t)
NMG	54851	10.8	15.8	-
NMPG	54852	9.9	46.6	-
NMGG	54853	11.0	43.9	-
NMS	54854	7.7	48.3	-
Blend	-	-	-	16.5

10.3.2 Leach Results

In the Phase 1 study tests, the two leaching practices used in operations in the Eastern Athabasca area were tested under normal operating conditions. Under both heated agitated leaching and low-pressure oxygen leaching, the uranium extraction levels were close to 99% with similar levels of acid consumption. The leach liquors were treated by conventional solvent extraction processes and the uranium was effectively recovered from the acid solutions by both strong acid stripping and ammonium sulphate stripping solvent extraction (“SX”) procedures. The ammonium sulphate strip liquor was used to precipitate an ammonium diuranate product containing 99.9% of the uranium in the strip liquors.

Phase 2 was focused on the ore characterization but repeated the earlier scoping level acid leach testwork for confirmation. Again, under both heated agitated leaching and low pressure oxygen leaching the uranium extraction levels were close to 98 to 99% with acid consumption of 125 kg/t H₂SO₄ and 4 kg/t NaClO₃. Leach residence times in the order of 12 hours were used.

The larger, and more comprehensive, Phase 3 variability tests showed that:

- Under heated agitated leach conditions, uranium extractions were —93% with 42 kg/t to 136 kg/t sulphuric acid additions. Sodium chlorate was added at a rate of 0 kg/t to 3 kg/t (27 kg/t for Comp RRG only). Overall composite (RR3) extraction was 99% with 96 kg/t acid addition and 2 kg/t sodium chlorate addition. In most cases, the leach kinetics showed that the uranium extraction was complete by 12 hours. Nickel and cobalt extractions with 42 kg/t acid addition for RRF were 26% and 37% respectively. Nickel and cobalt extractions for RRG were up to 71% and 70%, respectively, with 95 kg/t acid addition.
- Under low-pressure oxygen agitated leach conditions, uranium extractions were —95% with 63 kg/t to 156 kg/t sulphuric acid additions. Oxidation was achieved through the sparging of oxygen and allowing a continual off-gas at a rate of —250 mL/min. Overall composite (RR3) extraction was 99% with 92 kg/t acid addition. In most cases, the leach kinetics showed that the uranium extraction was complete by 12 hours. Nickel and cobalt extractions for RRF were 31% and 49% respectively with 99 kg/t acid addition. Nickel and cobalt extractions for RRG were 51% and 61%, respectively, with 149 kg/t acid addition.
- The leach liquors were treated by conventional solvent extraction processes. The uranium was effectively recovered from the acid solutions by both strong acid stripping and ammonium sulphate stripping SX procedures.
- The leach residue was neutralized via two different processes. Treatment using the ammonium sulphate raffinate required approximately 13 kg/t hydrated lime to bring the final slurry to a pH of 10. Treatment using the strong acid raffinate required approximately 92 kg/t hydrated lime to bring the final slurry to a pH of 7.5. The resultant stage 2 effluents were quite clean, though arsenic levels were slightly above mandated limits.

In the Phase 4 testwork, once it was established that the RRFE behaved in a way very similar to RRW, additional variability testing was undertaken using the Atmospheric Leach process.

The following conclusions were drawn from the variability leach test results on the RRFE composites:

- The RRFE mineralization leaches very easily.
- Coarsening the grind K80 from 150 pm to 550 pm at a 15 g H₂SO₄/L free acid level did not impact on extraction, >99% extraction was achievable even at a 550 pm grind.
- Reducing the free acid level to 5 g to 10 g H₂SO₄/L yielded >99% extractions after nine hours of leaching for a 250 pm grind.
- Acid additions are approximately 65 kg to 70 kg H₂SO₄/t for a 15 g/L free acid, dropping down to approximately 50 kg/t for a 10 g/L free acid.
- Sodium chlorate additions of approximately 2.5 kg to 3 kg NaClO₃/t are required to yield an oxidation-reduction potential approaching 500 mV.

The ore characterisation and leaching elements of the metallurgical testwork have been carried out on a variety of different ore types and under a wide range of conditions. The samples were however not spatially representative of the deposits and were sourced from a limited number of drillholes.

Table 10-10: Summary of Phase 4 RR4 Composite Variability Leach Test Results

Composite RR4 (2.72% U ₃ O ₈) - Summary of Atmospheric Leach Test Conditions and Results													
Test No.	Comp.	Target K ₈₀ , µm	Temp. °C	Free Acid g H ₂ SO ₄ /L		Avg. Slurry ORP, mV	Reagent Additions		Uranium Extraction				
				Target	Avg		H ₂ SO ₄ , kg/t	NaClO ₃ , kg/t	h/% Extn	h/% Extn	h/% Extn	h/% Extn	Final h/%
AL-1	RR4	150	50	15	16	477	75.1	1.9	3/67.3	6/99.2	9/99.6	12/99.6	24/99.6
AL-2	RR4	250	50	5	5	513	35.9	5.1	-	6/66.3	9/99.7	-	24/99.3
AL-3	RR4	250	50	10	11	464	56.1	2.3	3/54.6	6/96.5	9/99.3	-	24/99.3
AL-4	RR4	250	50	15	13	475	67.2	2.5	6/99.1	12/99.6	18/99.6	24/99.6	48/99.6
AL-5	RR4	250	50	20	19	445	79.4	2.7	3/96.2	6/99.6	9/99.6	12/99.6	24/99.6
AL-6	RR4	250	50	30	28	463	103.4	2.2	3/98.3	6/99.6	9/99.6	12/99.6	24/99.6
AL-7	RR4	350	50	15	16	544	65.7	4.0	3/94.7	6/99.3	9/99.3	12/98.7	24/99.7
AL-8	RR4	450	50	15	13	469	64.9	2.7	6/98.5	12/99.0	18/99.5	24/99.0	53/99.0
AL-9	RR4	450	50	20	19	475	78.6	2.7	6/99.2	12/98.8	18/98.0	24/99.6	48/99.2
AL-10	RR4	450	50	30	36	471	104.1	2.1	6/98.3	12/99.6	18/99.6	24/99.6	48/99.6
AL-11	RR4	550	50	15	14	490	124.6(1)	2.1	6/99.3	12/98.9	18/99.6	24/99.3	48/98.9
AL-12	RR4	550	50	30	30	497	92.4	1.7	6/99.2	12/99.6	18/98.4	24/98.8	48/99.6
Note: 1. Anomalous value relative to the four other 15 g/L tests, average acid consumption of 68.2 kg/t													

Table 10-11: Summary of Phase 4 Variability Composite Leach Test Results

Variability Composites - Summary of Atmospheric Leach Test Conditions and Results												
Test No.	Comp.	Head Grade		Pregnant Solution		Reagent Additions		Uranium Extraction				
		% U ₃ O ₈	% Fe	FAg H ₂ SO ₄ /L	Avg. ORP, mV	H ₂ SO ₄ , kg/t	NaClO ₃ , kg/t	h/% Extn	h/% Extn	h/% Extn	h/% Extn	Final h/% Extn
AL-13	UG	2.89	6.92	17.6	487	76.0	0	3/97.0	6/99.2	9/99.2	12/99.2	24/98.7
AL-14	MG	2.25	1.80	17.1	456	64.9	1.5	3/90.2	6/97.0	9/98.0	12/99.5	n/a
AL-15	PG	1.90	1.95	16.9	456	73.6	1.1	3/95.4	6/99.3	9/99.3	12/99.3	24/99.3
AL-16	LPG	15.8	1.42	14.8	317	69.6	4.2	3/53.7	6/59.5	9/67.2	12/63.6	n/a
AL-17	CG	4.65	1.35	14.3	410	69.5	2.2	3/89.3	6/96.6	9/98.4	12/95.3	n/a

Table 10-12: Phase 4 Variability Composites - Summary of Additional Atmospheric Leach Test Conditions and Results

Variability Composites - Summary of Additional Atmospheric Leach Test Conditions and Results													
Test No.	Comp.	Head Grade		Grind	Pregnant Solution		Reagent Additions		Uranium Extraction				
		% U ₃ O ₈	% Fe		K ₈₀ , μm	FAg H ₂ SO ₄ /L	Avg. ORP, mV	H ₂ SO ₄ , kg/t	NaClO ₃ , kg/t	h/% Extn	h/% Extn	h/% Extn	h/% Extn
AL-16R	LPG	15.6	1.54	350	15.0	453	103.9	11.9	3/73.4	6/91.1	9/83.6	12/82.4	24/98.4
AL-17R	CG	4.5	1.46	350	13.9	499	78.7	3.3	3/62.1	6/91.5	9/92.6	12/97.8	24/95.2
AL-18	LPG	15.6	1.54	350	11.6	389	109	16.6	3/73.8	6/82.5	9/72.7	12/77.4	24/94.7

10.4 Project Process Description

The selected process, according to the 2011 PEA (SRK, 2011) is based on the results of the test work completed in the first two phases of test work as described above. The milling process used for the preparation of mill capital and operating cost estimates for the Project was a grind/acid leach/resin-in-pulp process. This process was used as a basis of the scoping study estimates but remains to be further assessed with further metallurgical testing and trade-off studies as mining plans are further developed and as the Project advances. Changes to unit operations and control strategies will occur in conjunction with metallurgical design developments. Consequently, this process description will require revisions from time to time to reflect these changes and a significant update to reflect operating and capital expenditures which accord with market conditions noted in 2023 or during following study updates.

The run-of-mine ore will be received at the mill site and fed to a primary crusher as a blended feed. Grinding will be accomplished in a SAG mill/ball mill grinding circuit. The ground slurry will be thickened and leached in a series of mechanically agitated leach tanks under atmospheric pressure using sulphuric acid and sodium chlorate oxidant to maintain oxidizing conditions.

Uranium recovery from leach liquor will be accomplished using ion exchange in a resin-in pulp circuit. Resin ion exchange, was selected in the 2011 PEA (SRK, 2011) in place of solvent ion exchange (extraction) in part for the following reasons:

- The achievable thickened leach residue densities [approximately 35% solids (w/w)] are low relative to the requirements of a typical counter-current-decantation ("CCD") circuit (low underflow densities imply that numerous CCD stages would be required for effective uranium recovery from the leach slurry);
- Capital costs could potentially be reduced on a comparative basis by up to 15%;
- Potential for equal or lower operating costs compared to a CCD/SX circuit;
- No requirement to keep large volumes of organic on site; and
- No impact from residual organics in treated effluent.

Uranium precipitation is proposed to be accomplished using hydrogen peroxide with magnesia for pH control. The uranium product will be packaged in 205 L drums for shipment to a uranium refinery.

It is proposed that tailings and effluent treatment will be accomplished with the treatment conditions currently in use at other Saskatchewan uranium mines. This will include reverse osmosis and multiple chemical treatment stages with discharge of neutralized tailings to the tailings management facility and treated effluent to the environment. Permeate from reverse osmosis will be recycled to the mill for use as a process water.

10.5 Project Provisional Flowsheet

The proposed flowsheet would be considered normal in Saskatchewan for the processing of uranium bearing ores. The equipment selected and the process steps are well established and are considered to be low risk. The conceptual flowsheet is shown in Figure 10-2.

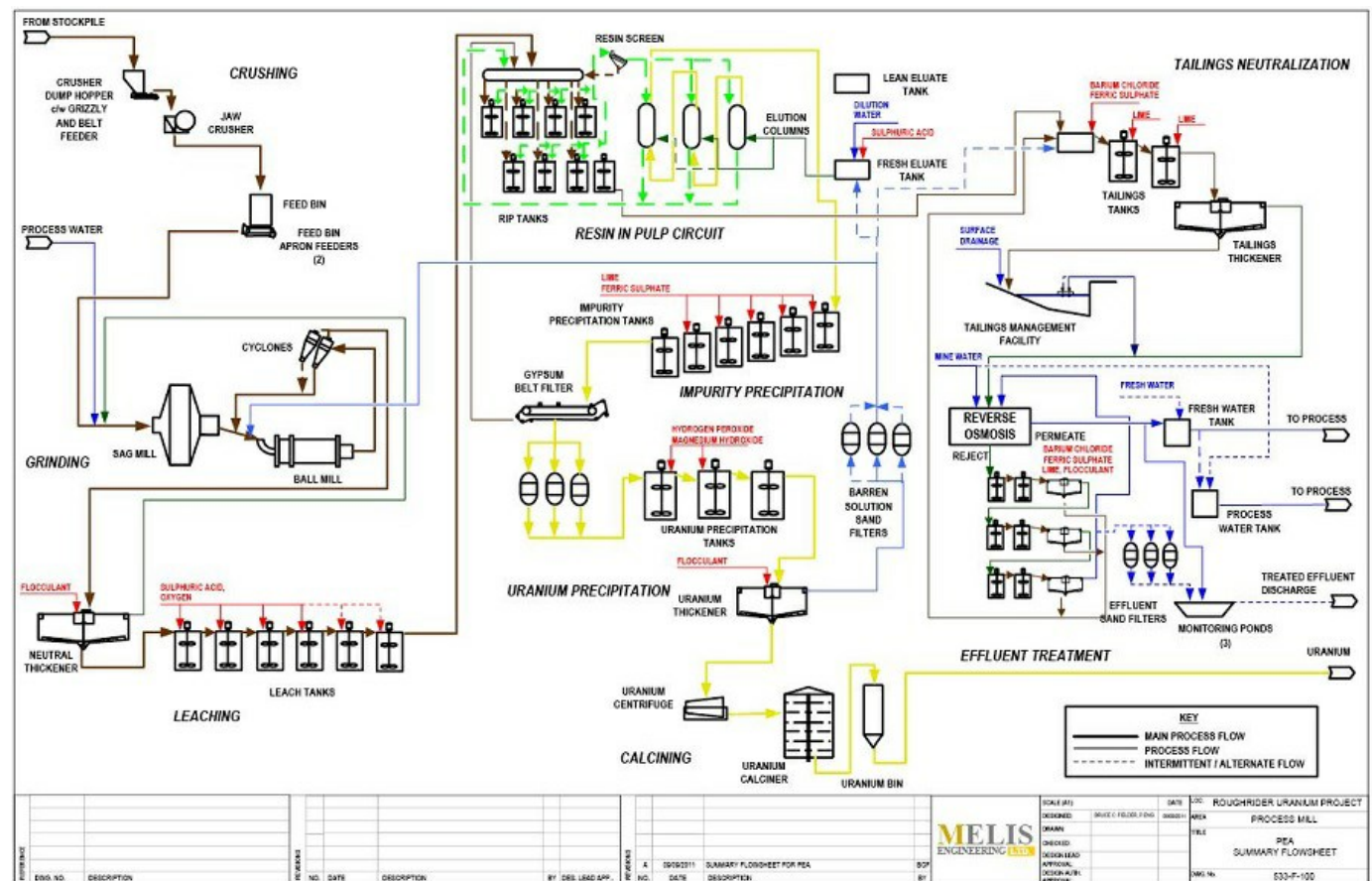


Figure 10-2: Conceptual Roughrider Flowsheet

10.6 Qualified Laboratory

SGS is one of the world's leading inspection, verification, testing and certification company. SGS Lakefield is a well-established facility for undertaking laboratory testwork and experienced in the testing related to uranium processing.

10.7 QP Opinion of the Data Adequacy

The testwork carried out, as described in the referenced reports and the resulting flowsheet, are industry standard for the processing of uranium. The metallurgical testwork program, as planned, was truncated due to budget constraints.

A conceptual flowsheet has been developed which uses process technology well established for the processing of uranium ores in the Athabasca Basin.

Standard comminution testwork has been carried out on a range of sample types and the samples were found to be generally soft and amenable to grinding.

Atmospheric acid leach testwork has been carried out on a range of sample types and high leach recoveries have been consistently achieved.

Little testwork has been completed on the remaining parts of the flowsheet. No pilot plant, or mini-plant continuous testing has been carried out.

SRK note that the metallurgical testwork completed to date is dated and conceptual in nature and as such needs to be significantly and substantively advanced to attain PFS level as well as reflect market conditions for operational cost assumptions in 2023 or during following study updates.

11 MINERAL RESOURCE ESTIMATES

11.1 Introduction

The MRE for the Project, prepared by SRK, considers 665 diamond drillholes drilled from surface between the years of 2007 to 2016. The MRE presented herein was prepared by the QP and has an effective date of January 1, 2023.

This section describes the resource estimation methodology and summarizes the key assumptions considered by SRK. In the opinion of SRK, the resource evaluation reported herein is an appropriate representation of the U308 Mineral Resources found at the Project at the current level of sampling. The Mineral Resources are reported in accordance with the terms and definitions of S-K 1300.

11.2 Key Assumptions, Parameters and Methods

11.2.1 Resource Estimation Procedures

The resource estimation methodology involved the following procedures:

- Database compilation and verification;
- Definition and modelling of geological domains;
- Data conditioning;

- Statistical and Geostatistical analysis;
- Block model construction and grade and density interpolation;
- Validation of grade and density estimates;
- Classification of estimated blocks;
- Application of a Moving Shape Optimiser with reasonable assumptions to determine material having ‘reasonable prospects of eventual economic extraction’; and
- Preparation of a Mineral Resource statement.

11.2.2 Resource Database

The Project database was provided to SRK in CSV format, and included collar, survey, lithology, alteration, structure, density, and assay tables. The drillhole database consists of 665 drillholes, although only 218 holes are considered to be in the resource area (Table 11-1). Any issues identified through SRK’s review of the data were corrected before use in the resource estimates (Section 9).

A significant number of specific gravity measurements (SG) have been collected throughout the history of the project (Table 11-2).

Table 11-1: Drillholes, U₃O₈ Samples and Sampled Metres in the Resource Area by Deposit

Deposit	Drillholes	Samples	Sampled Metres
RRW	123	2,882	1494.1
RRE	40	1,126	593.2
RRFE	55	1,751	884.0
Total	218	5,759	2,971.4

Table 11-2: Density Samples and Sampled Metres in the Resource Area by Deposit

Deposit	Samples	Sampled Metres
RRW, RRE, RRFE	1,193	596

11.2.3 Geological Models

The QP has developed geological models that reflect key aspects of the Project, including lithological, structural and mineralization domains. These models have been used to define the estimation domains to constrain the U308 grade and bulk density estimates.

Lithological Model

The nine primary lithologies (Section 6.3) have been modelled at the Project, representing overburden, Manitou Falls formation units, and the Wollaston group units (Figure 11-1). Lithology models were based on lithological logs recorded from drill cores.

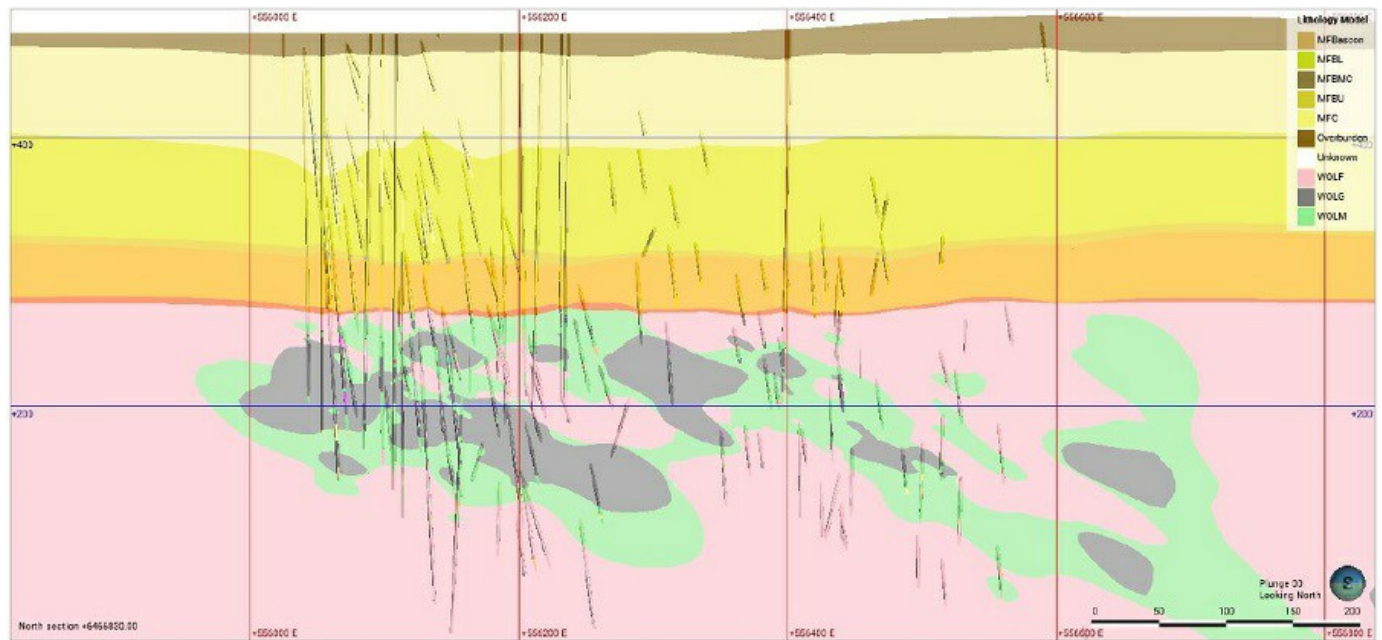


Figure 11-1: Cross section looking North at the Project lithological Model and drillholes coloured by logged lithology

Structural Model

The QP has used the structural framework described in Section 6.3.1 to guide the development of local mineralization trend surfaces. It is noted that individual trend surfaces are informed by limited oriented core measurements, where the confidence of the core orientation was typically low in the mineralized zones, due to locally fractured core. Trend modelling indicates that U308 mineralization dominantly follows the trend of the graphitic gneiss (i.e. “layer-parallel mineralization”) but is locally affected by a combination of the northeast trending structures (in the case of RRW and RRE) and east-west structures (in the case of RRFE). U308 mineralization is primarily controlled by the interaction of reactivated layering (in the graphitic gneiss) and north-east and east-west trending faults.

These trend surfaces have been used to guide the development of high-grade U308 ‘vein’ mineralization models for each of RRW, RRE, and RRFE. The orientation of each group of trends for the deposits vary slightly so coding has been added to the model to differentiate these, accordingly:

- RRW (code 1000);
- RRE (code 3000); and
- RRFE (code 4000).

Mineralization Model

Uranium mineralization at the Project is characterized by discrete high-grade, structurally controlled zones of semi-massive to massive uraninite and lower-grade, disseminated and fracture filling zones of uraninite within clay altered gneisses (Section 6.3.2).

The model represents discrete ‘vein’ models for high-grade (generally >0.5% U308), structurally controlled zones of uranium mineralization. These vein models were guided in geometry by the local structural trend models developed, and include layer-parallel veins, north-east striking veins, and east-west striking veins. Most veins are only 0.5 m to 2 m wide, although locally the intersection of layer-parallel and north-east striking veins is associated with significantly wider mineralised intercepts.

The vein network encompasses the majority of the mineralized intercepts; however, there are some additional intercepts and lower grade intersections that have been captured using an indicator interpolant grade shell that uses a 0.1% U3O8 cut-off and follows a structural trend defined by the median surfaces of each vein in each deposit. These volumes represent the lower-grade disseminated mineralization, and higher grade veins of limited continuity.

The mineralized models were then grouped based on the nature of the mineralization and coded, specifically:

- High-Grade Layering (code 100);
- High-Grade north-east Structures (code 200);
- High-Grade east-west Structures (code 300); and
- Low-Grade (code 400).

The mineralization models for the RRW, RRE, and RRFE deposits are presented in Figure 11-2, Figure 11-3 and Figure 11-4 respectively.

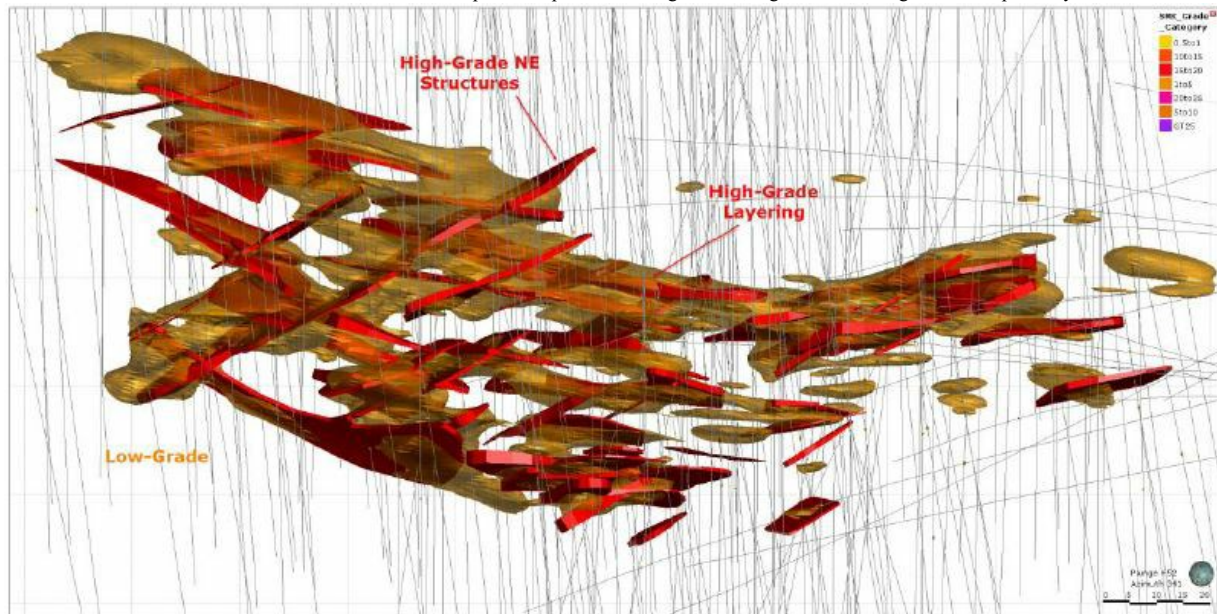


Figure 11-2: RRW mineralization model – view looking down at 50° to the north-northwest.

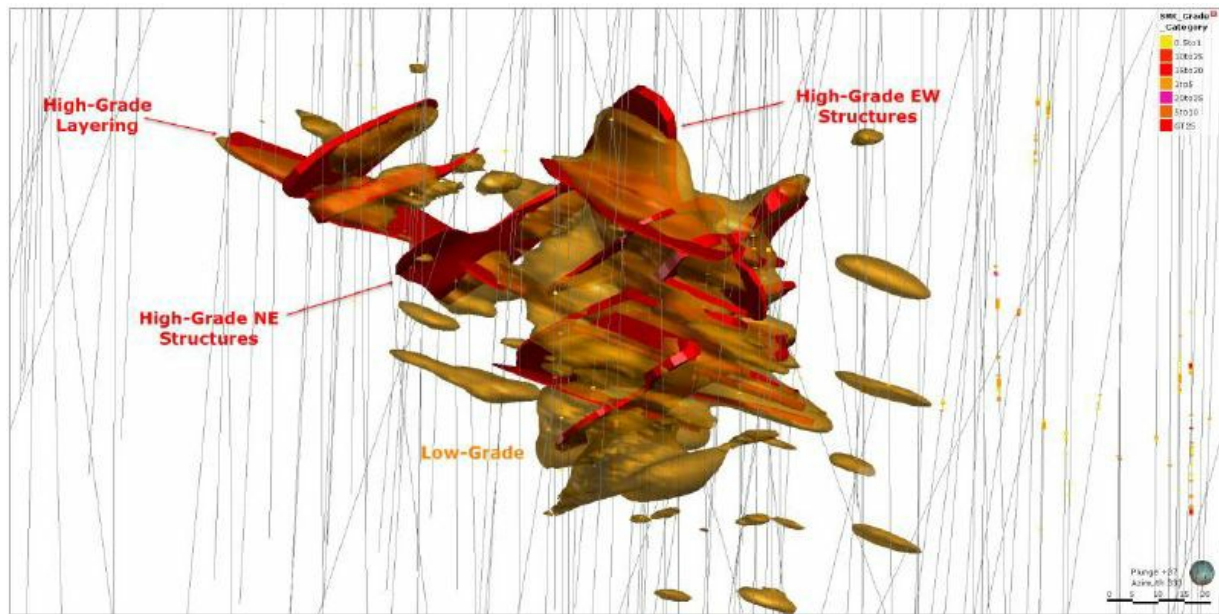


Figure 11-3: RRE mineralization model – view looking down at 37° to the north-northwest.

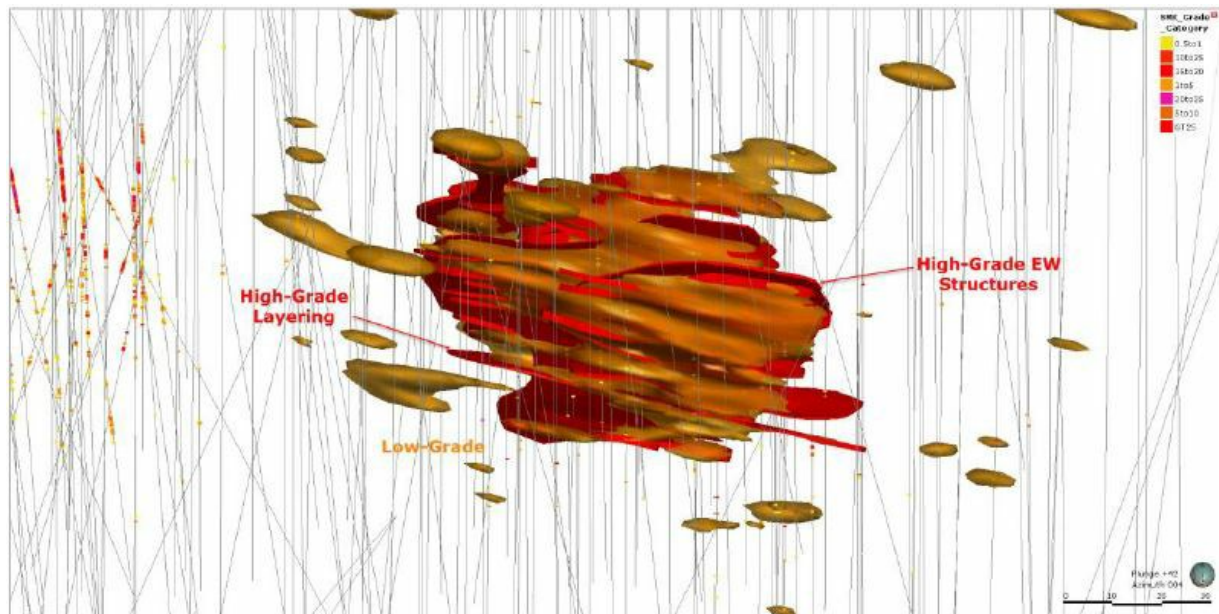


Figure 11-4: RRFE mineralization model – view looking down at 42° to the north.

Final Estimation Domains

The final estimation domain model is based on the zone, mineralization model groups, and mineralization models totalling 97 estimation domains, in 11 groups. The description of each domain and the equivalent model code value are listed in Table 11-3.

Table 11-3: Final Estimation Domains and Coding by Zone and Mineralization Group

Zone	Zone Code	Group	Group Code	Mineralization Model Codes
RRW	1000	High Grade Layering	1100	1101 to 1129
		High Grade NE	1200	1201 to 1220
		Low Grade	1400	1402
RRE	3000	High Grade Layering	3100	3101 to 3111
		High Grade NE	3200	3201 to 3207
		High Grade EW	3300	3302
		Low Grade	3400	3402
RRFE	4000	High Grade Layering	4100	4101 to 4121
		High Grade NE	4200	4201 to 4202
		High Grade EW	4300	4301 to 4304
		Low Grade	4400	4402

11.2.4 Data Conditioning

U₃O₈ Absent Values

Gaps in the assay data for U₃O₈% are common due to the sampling procedure employed on the Project (only samples greater than 500 counts-per-second on the scintillometer are analysed for U₃O₈%). Before the assay data were conditioned, and used for statistical analysis, a value of 0.0001% U₃O₈ was assigned for all sample gaps. 0.0001 is one-tenth of the detection limit from the U₃O₈% analyses.

Bulk Density

1,193 SG values, within the resource area, were considered for evaluating the assignment of bulk density. SG is strongly correlated with U₃O₈% for grades above approximately 15% U₃O₈. Below 15% U₃O₈, the intensity of clay alteration is the primary contributor to the variation of SG values (Figure 11-5). Note that samples below the green regression curve (up to approximately 15% U₃O₈) are dominantly samples with clay alteration stronger than 3 intensity (or moderate clay alteration according to the logging procedure), while samples above the curve are dominantly samples with low clay alteration, or less than 3 intensity.”

Equation 11-1: U₃O₈ < 15%, and Logged Argillic Alteration <3 intensity

$$Density = (0.0003\% (U_3O_8 * U_3O_8)) + (0.0126 * U_3O_8) + 2.3185$$

Equation 11-2: U₃O₈ < 15 %, and Logged Argillic Alteration >=3 intensity

$$Density = (0.0005\% (U_3O_8 * U_3O_8)) + (0.0061 * U_3O_8) + 2.2016$$

Equation 11-3: U₃O₈ >= 15 %

$$Density = (0.0004\% (U_3O_8 * U_3O_8)) + (0.0107 * U_3O_8) + 2.2567$$

In cases where a specific gravity measurement was available for a sample, that value was used instead of the calculated value.

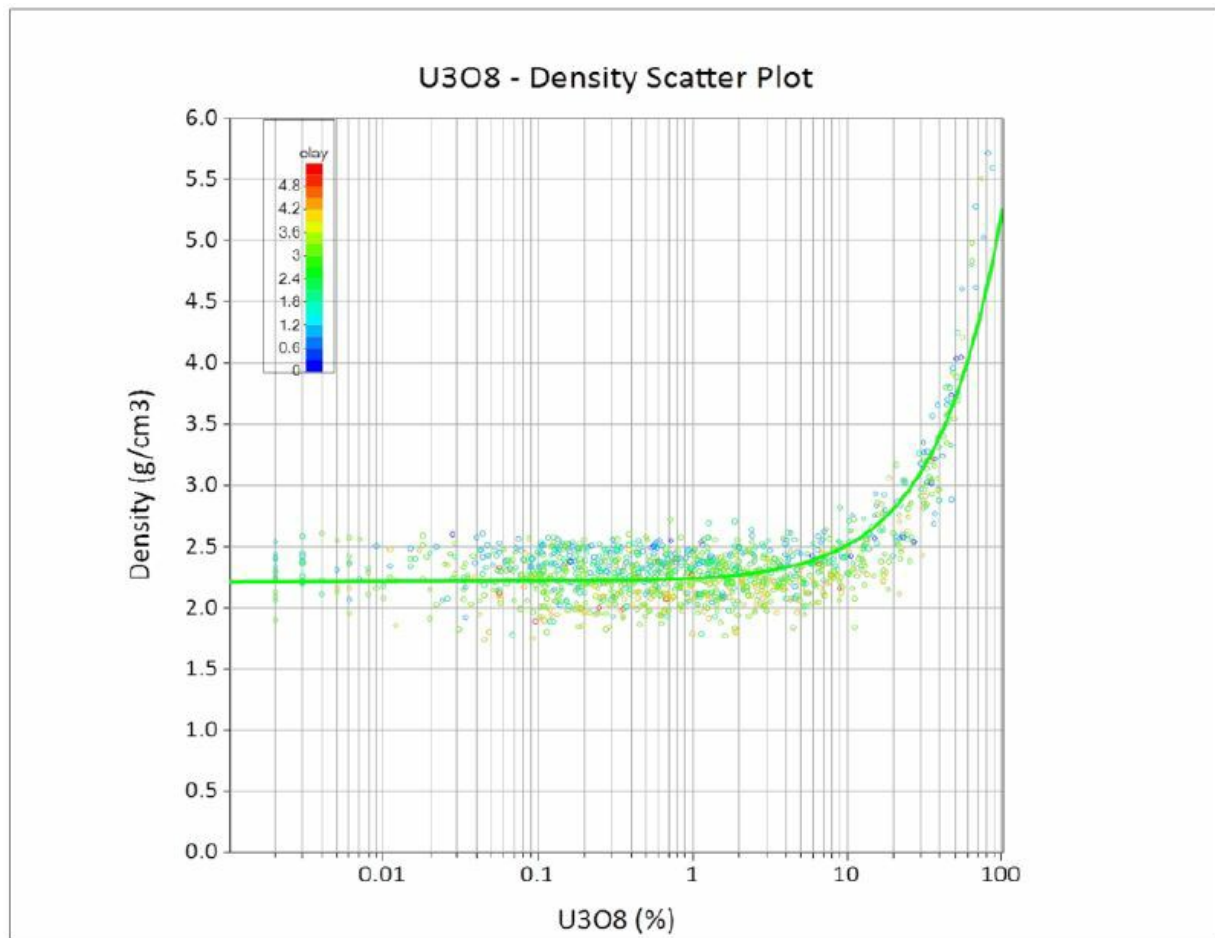


Figure 11-5: Measured specific gravity versus U₃O₈ % grade; samples coloured by clay alteration intensity (legend inset upper-left from low clay 0 to intense clay 5)

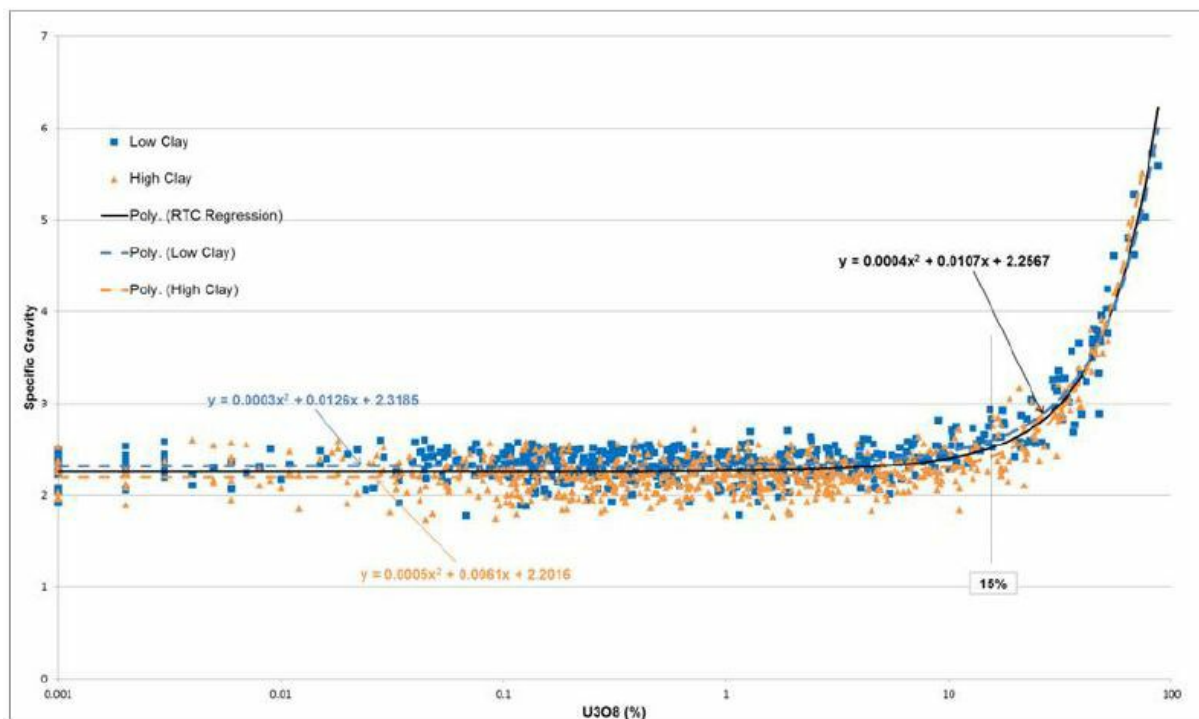


Figure 11-6: Measured specific gravity versus U₃O₈ % grade, with samples coloured by Low and High Clay alteration groupings (legend inset upper-left). Regression curves for low clay (blue), high clay (orange), and all data (black)

Compositing

More than 99% of the samples inside estimation domains were collected at 1 m and shorter intervals, with over 90% of the samples collected at 0.5 m length (Figure 11-7).

The average U_3O_8 grades were reviewed and compared at various sample lengths to assess the grade characteristics at the different lengths, where it was found that shorter (<0.5 m) as well as longer (>1 m) samples displayed higher grade on average, although there are very few samples with length greater than 1 m. Longer sample lengths exhibiting higher grades on average is atypical, although it was noted that these were associated with low recovery zones in mineralization where longer sample lengths were taken to obtain the mass required for analysis. The QP has investigated these intersections and note that in most cases where recovery was poor the downhole radiometric data supports the assumption that the mineralization is present throughout the unrecovered interval. Unfortunately, the gamma probe data are uncalibrated (for grades above 4% U_3O_8) and the exact grades cannot be confirmed in these cases. The QP considers that there is a limited amount of block estimates informed by these high-grade and low-recovery samples and does not consider this material to the MRE. Notwithstanding this, block estimates supported by these samples are considered to be of relatively lower confidence and this has been accommodated in the Mineral Resource classification criteria.

For geostatistical analysis and resource estimation, all assays were composited to 1 m lengths within the mineralized domains. Short composites, less than 0.5 m, created at domain boundaries are merged with the adjacent composite of the same domain. U_3O_8 grade and density fields were composited, and a Density*Grade field calculated for each composite.

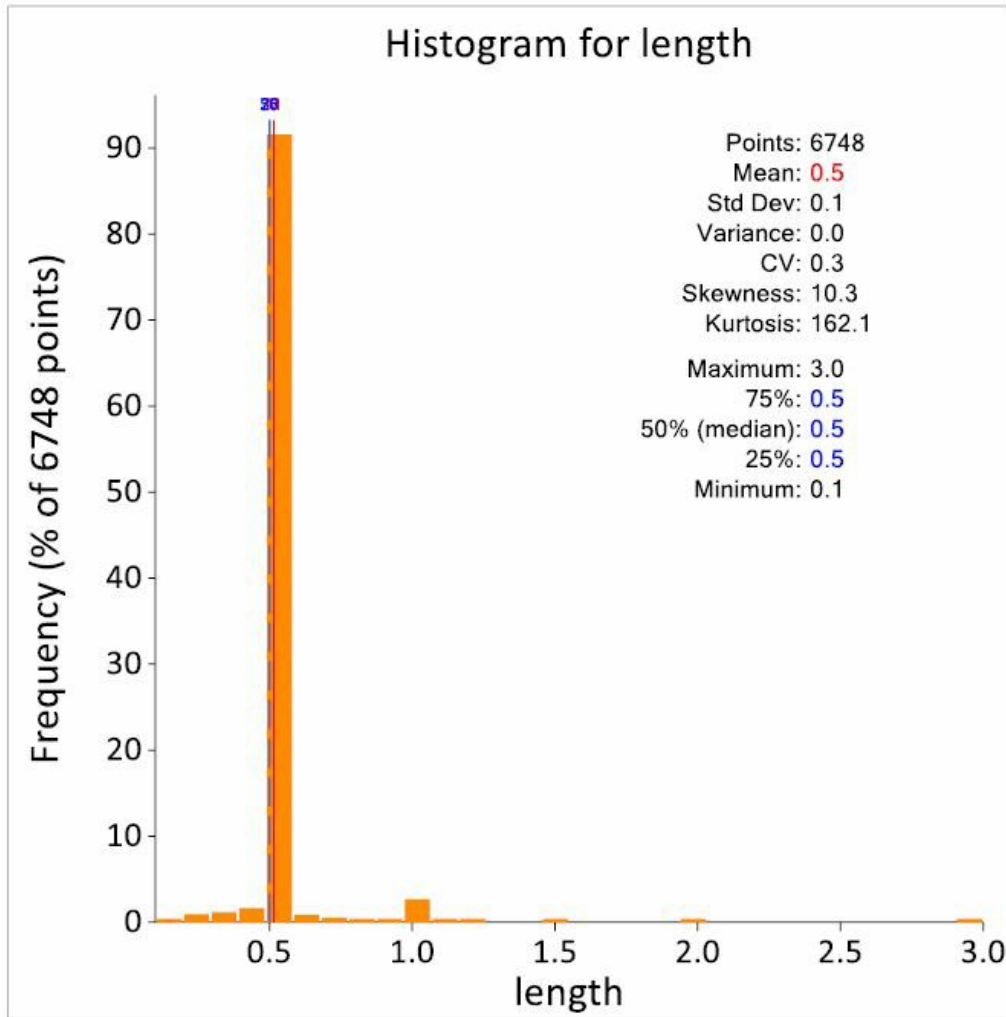


Figure 11-7: Histogram of sample lengths in the estimation domains

Treatment of High Grades

Block grade estimates may be unduly affected by very high-grade assays. In order to manage this aspect, SRK investigated the presence of high-grade outlier values for each domain using histograms and log-probability plots of declustered U_3O_8 grade as well as visualizing these composites and their distribution in space. Declustering of the composites was completed using the cell declustering method for each domain.

SRK noted that in the high-grade domains, two grade populations are generally observed. For example, in Figure 11-8 and Figure 11-9, a second, higher-grade population can be seen in the histograms, and a deviation in the log-probability slope, at 30% U_3O_8 and 15% U_3O_8 respectively. A second, higher-grade population is also observed (although it is more subtle) in the low-grade domains. For example, in Figure 11-10, a second, higher-grade population can be seen in the histogram, and by a deviation in the log-probability slope, at 5% U_3O_8 .

The spatial distribution of the high-grade populations suggests that these elevated grades appear to be clustered and are likely associated with structural intersections (Figure 11-11). In the opinion of the QP, these high-grade populations are not 'outliers', but are key characteristics of this deposit type and are indicative of mineralization focussed on preferential fluid pathways, such as the intersection between north-east trending faults and the faulted layers of the graphitic gneiss. These focussed pathways are limited in extent though, so the distance over which these grades, indicative of these features, can influence the estimates must be controlled/restricted in the estimate rather than being capped.

SRK used these observations to determine grade threshold limits, above which, samples would be spatially restricted in the estimation process in order to represent the interpretation that these are more discrete zones and limit their influence on the estimates (Table 11-4). The orientations of the restriction dimensions were based on modelled grade continuity (Section 11.2.6) and the restricted ranges were set to a fraction of the modelled continuity (80% in the major direction, and 50% in the Semi-major and minor directions for RRE and RRFE and 70% in the major direction, and 50% in the Semi-major and minor directions for RRW). This effectively limits the use of these samples, identified above the threshold, to a hard boundary at these restricted distances.

Limiting the high-grade U_3O_8 populations to restricted volumes has a direct impact on metal content in the estimate. Table 11-5 shows the difference between estimated block U_3O_8 grades from threshold restricted data versus non-threshold restricted data in each zone. In RRW and RRFE the effect is significant, with 8% and 5% metal reductions respectively, although relatively low compared to the metal reduction of 15% in the RRE. This large difference observed in RRE is due primarily to the wider spaced drillholes in this zone (15 to 20m spacings versus 10m in the RRW and RRFE). This has the effect, in the non-threshold model, of allowing above threshold composites to be used in the estimates of a larger volume of blocks. Therefore, if the threshold restriction is not applied, the elevated grades would influence a larger volume of the model than what would be observed at RRW or RRFE.

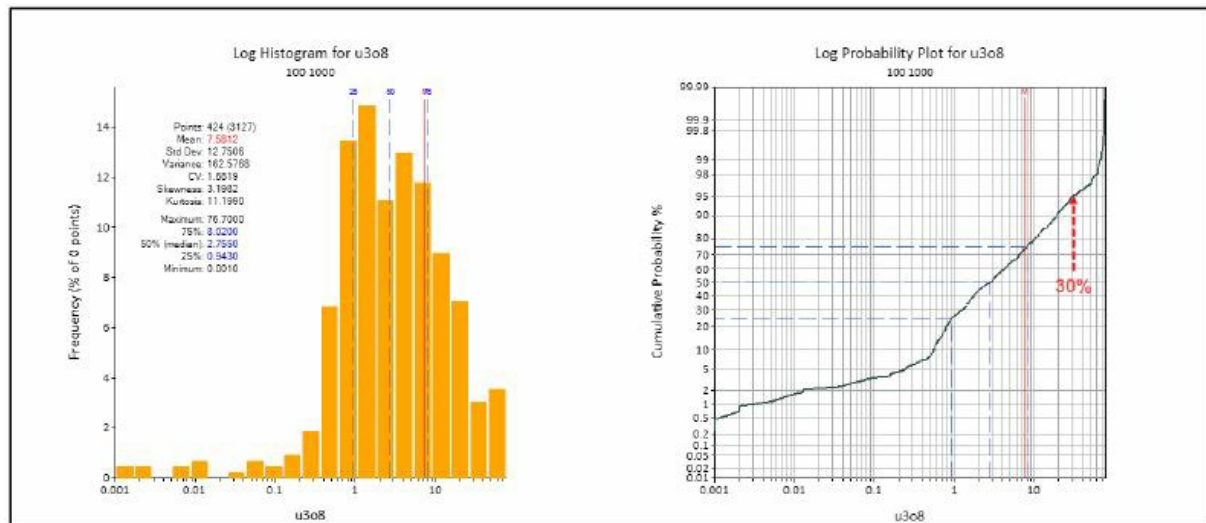


Figure 11-8: Log-histogram and Log-probability plots of $U_3O_8\%$ in the RRW High-Grade Layering group

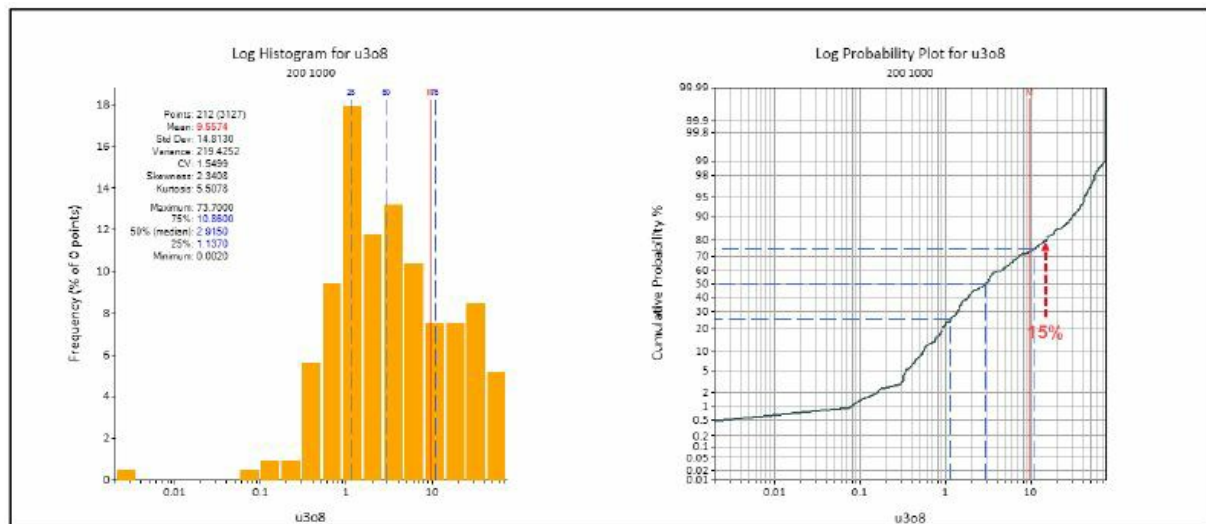


Figure 11-9: Log-histogram and Log-probability plots of $U_3O_8\%$ in the RRW High-Grade north-east group

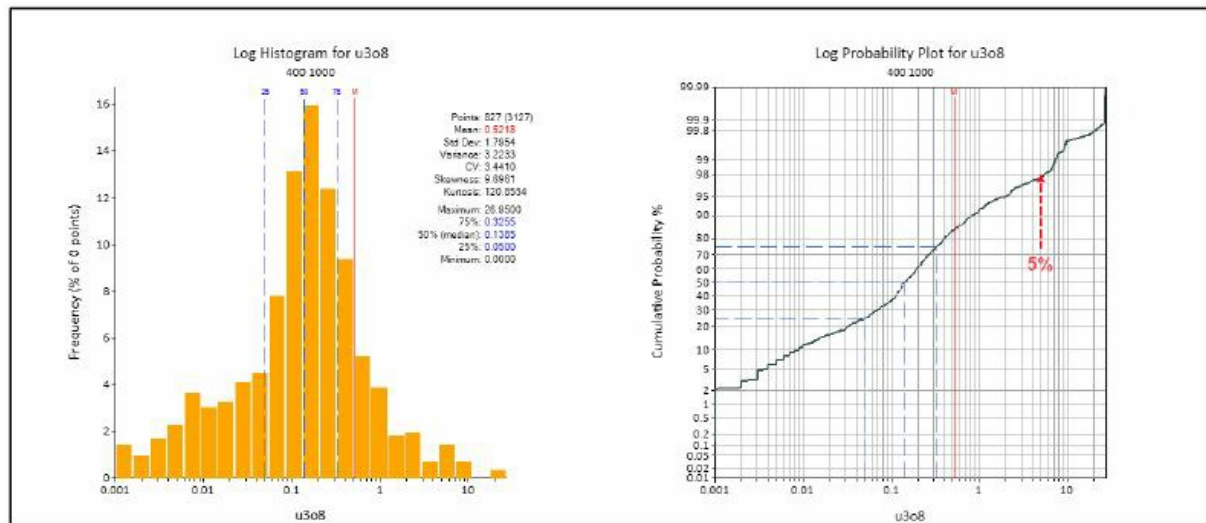


Figure 11-10: Log-histogram and Log-probability plots of $U_3O_8\%$ in the RRW Low-Grade group

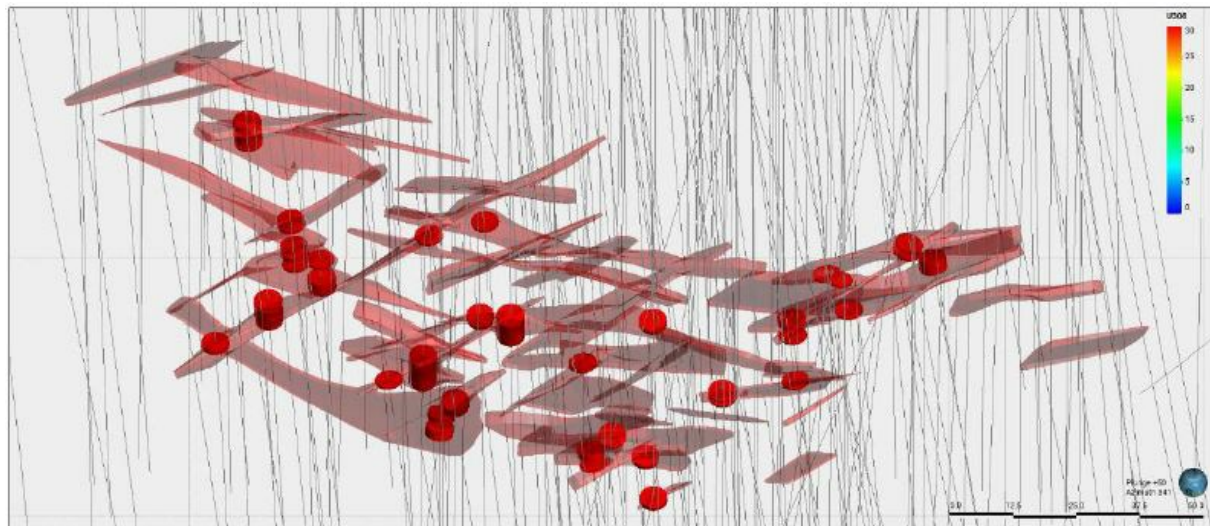


Figure 11-11: View looking down at 50° to the north-northwest at the RRW mineralization model with $U_3O_8\%$ intercepts greater than 30% displayed

Table 11-4: High-Grade Threshold Restrictions Designed for the Estimate by Domain

Zone	Domain	Threshold (%U ₃ O ₈)	Restricted Radii (m)		
			Major	Semi-Major	Minor
West	High-Grade Layering	30	36	12.5	7.5
	High-Grade NE	10	28	12.5	5
	Low Grade	5	36	7.5	7.5
East	High-Grade Layering	15	24	10	7.5
	High-Grade NE	25	20	12.5	5
	High-Grade EW	N/A			
	Low Grade	5	18	8	6
Far East	High-Grade Layering	15	40	15	6
	High-Grade NE	15	20	12	5
	High-Grade EW	15	20	12	5
	Low Grade	5	20	6	6

Table 11-5: Uranium Metal Reductions Associated with the Application of High-Grade Threshold Restrictions in the Estimation Domains

Zone	Mean U ₃ O ₈ (%)		Contained Metal Reduction (%)
	No Threshold	Threshold	
RRW	4.21	3.87	8%
RRE	4.74	4.07	15%
RRFE	2.43	2.31	5%

11.2.5 Estimation Domain Statistics

Basic Statistics

The basic statistics of the U₃O₈ composite values are summarized by domain in Table 11-6. All domains are characterized by moderate to high coefficient of variation ("COV"), specifically between 1 and 1.6 for the High-Grade domains and between three and four for the Low-Grade domains. The QP regards this level of variability in the domains as reasonable, considering the treatment of high grades proposed in Section 11.2.4, which limits the influence of high-grade U₃O₈ samples on the estimates in all domains.

Table 11-6: Basic Statistics of U₃O₈ Composites by Domain

Deposit	Domain	Number of Composites	Statistics			
			Minimum	Maximum	Mean	COV
RRW	High-Grade Layering	424	0.001	76.70	7.58	1.68
	High-Grade NE	212	0.002	73.70	9.56	1.55
	Low Grade	827	0.001	26.95	0.52	3.44
RRE	High-Grade Layering	160	0.001	84.70	10.34	1.50
	High-Grade NE	119	0.107	55.50	9.59	1.21
	High-Grade EW	16	0.42	34.22	9.98	1.06
	Low Grade	365	0.001	11.29	0.30	2.92
RRFE	High-Grade Layering	441	0.002	51.90	5.72	1.37
	High-Grade NE	22	0.418	20.50	4.70	1.19
	High-Grade EW	51	0.001	55.80	7.35	1.63
	Low Grade	490	0.001	33.25	0.60	4.03

Domain Boundary Conditions

Uranium grades can change substantially across contacts between estimation domains, at distances shorter than average drillhole spacing. Contact analysis plots were used to evaluate the boundary conditions between the mineralization domain groups (example in Figure 11-12). The results of this analysis have been summarized in Table 11-7, Table 11-8 and Table 11-9.

Broad zones of fracturing and small-scale faulting at the intersection of co-active faults are relatively common in fault systems. Because the layer-parallel and north-east and east-west striking mineralization is interpreted to have formed synchronously, the boundaries between veins are treated as soft boundaries. This is supported by contact analysis, which demonstrates that mineralization is typically continuous across vein-vein contacts for limited distances.

SRK interprets the maximum range (semi-major direction) to 6 m, 8 m and 10 m for RRW, RRE and RRFE respectively. To enforce this distance restriction, the soft-boundary condition searches were designed such that the orientation of the restricted search is similar to the contacting feature sharing the boundary, and the semi-major range is set to the 6 m, 8 m, and 10 m values as stated above. The major and minor ranges are then adjusted according to the original anisotropic ratios (Table 11-10). An example of the primary search, versus the restricted soft-boundary search, is presented in Figure 11-13.

A hard boundary has been used for the contacts between the veins and modelled halo, and waste.

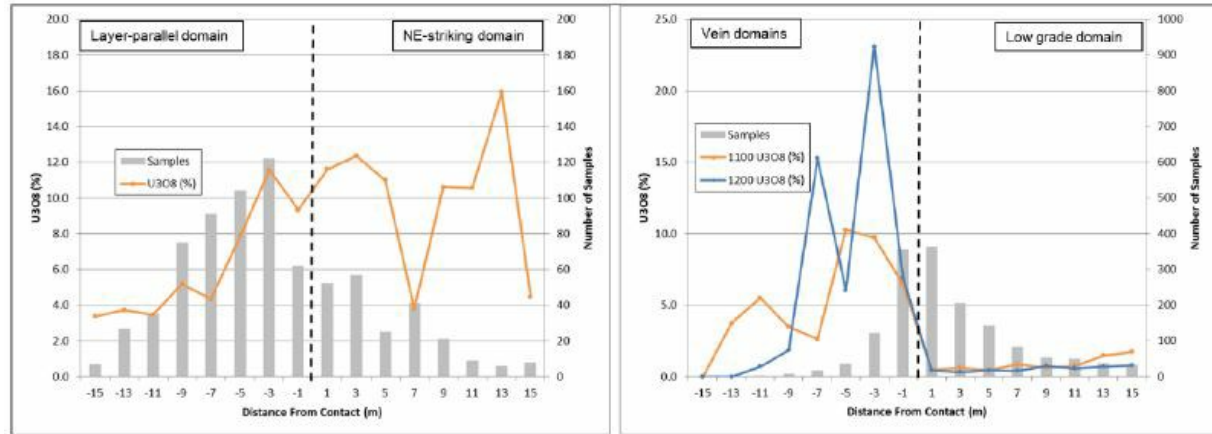


Figure 11-12: Contact analysis between layer-parallel veins and north-east striking veins (left) and between combined vein domains (layer-parallel = 1100, north-east striking = 1200) and the surrounding low grade domain at RRW

Table 11-7: Interpreted Domain Boundary Condition Matrix for the RRW domains

Domain Group	1100	1200	1400	Waste
1100		SOFT	HARD	HARD
1200	SOFT		HARD	HARD
1400	HARD	HARD		HARD
Waste	HARD	HARD	HARD	

Table 11-8: Interpreted Domain Boundary Condition Matrix for the RRE domains

Domain	3100	3200	3300	3400	Waste
3100		SOFT	SOFT	HARD	HARD
3200	SOFT		SOFT	HARD	HARD
3300	SOFT	SOFT		HARD	HARD
3400	HARD	HARD	HARD		HARD
Waste	HARD	HARD	HARD	HARD	

Table 11-9: Interpreted Domain Boundary Condition Matrix for the RRFE domains

Domain	4100	4200	4300	4400	Waste
4100		SOFT	SOFT	HARD	HARD
4200	SOFT		SOFT	HARD	HARD
4300	SOFT	SOFT		HARD	HARD
4400	HARD	HARD	HARD		HARD
Waste	HARD	HARD	HARD	HARD	

Table 11-10: Soft Boundary Condition Design with Associated Search Parameter Restrictions

Deposit	Primary Domain	Secondary Domain	Search Ellipse					
			Bearing	Plunge	Dip	Major	Semi-Major	Minor
RRW	High-Grade Layering	High-Grade NE	345	-45	20	12	8	4
	High-Grade NE	High-Grade Layering	170	50	180	12	8	3
	High-Grade Layering	High-Grade NE	250	-45	-35	8	8	4
	High-Grade Layering	High-Grade EW	20	-75	0	8	8	4
RRE	High-Grade NE	High-Grade Layering	350	-40	-10	10	6	5
	High-Grade NE	High-Grade EW	20	-75	0	8	8	4
	High-Grade EW	High-Grade Layering	350	-40	-10	10	6	5
RRFE	High-Grade Layering	High-Grade EW	92	20	70	8	8	4
	High-Grade Layering	High-Grade NE	92	-17	42	8	8	4
	High-Grade NE	High-Grade Layering	350	-40	-10	8	8	4
	High-Grade NE	High-Grade EW	20	-75	0	8	8	4
	High-Grade EW	High-Grade Layering	92	-17	42	15	10	5

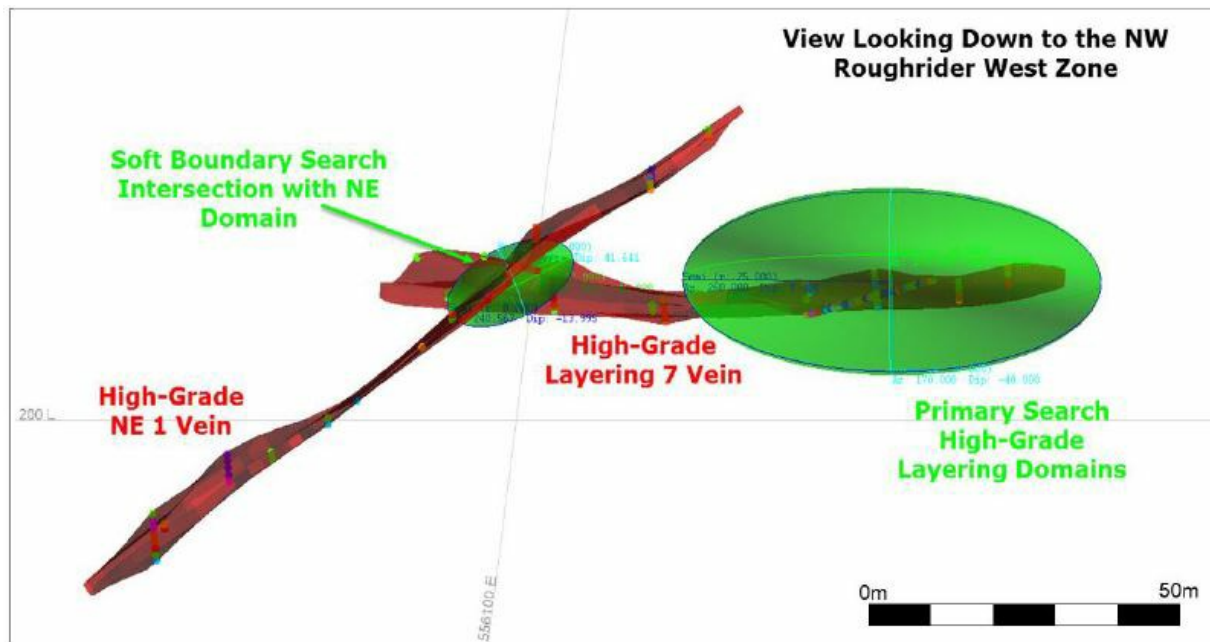


Figure 11-13: 3D view looking down to the northwest at High-grade layering vein 7 intersecting high-grade northeast vein 1 at RRW. The example shows the primary search ellipse and restricted soft-boundary search (able to include composites from high-grade northeast vein 1) implemented when estimating High-Grade Layering domain 7 at RRW.

11.2.6 Geostatistics

Grade Continuity Modelling

Semi-variogram models for $U_3O_8\%$, Density, and Density*Grade were developed from 1 m composites for each of the Domain groups. Downhole variograms were used to model nugget effects (i.e., assay variability at very close distance). Directional semi-variograms, supported by variogram maps, were used to model grade continuities for larger distances. The variograms modelled for Density and Density*Grade were generally less robust than the $U_3O_8\%$ models but suggested very similar continuity (not surprisingly as these are generally well correlated). Based on the above observations, the $U_3O_8\%$ models have been applied for the Density and Density*Grade models (with sill values re-scaled to reflect the different variance).

An example of experimental and modelled semi-variograms along specific directions of continuity for $U_3O_8\%$ at RRW are presented in Figure 11-14, Figure 11-15, and Figure 11-16. Note relatively strong anisotropies in these domains. Table 11-11 summarizes the semivariogram models for $U_3O_8\%$ in all domains.

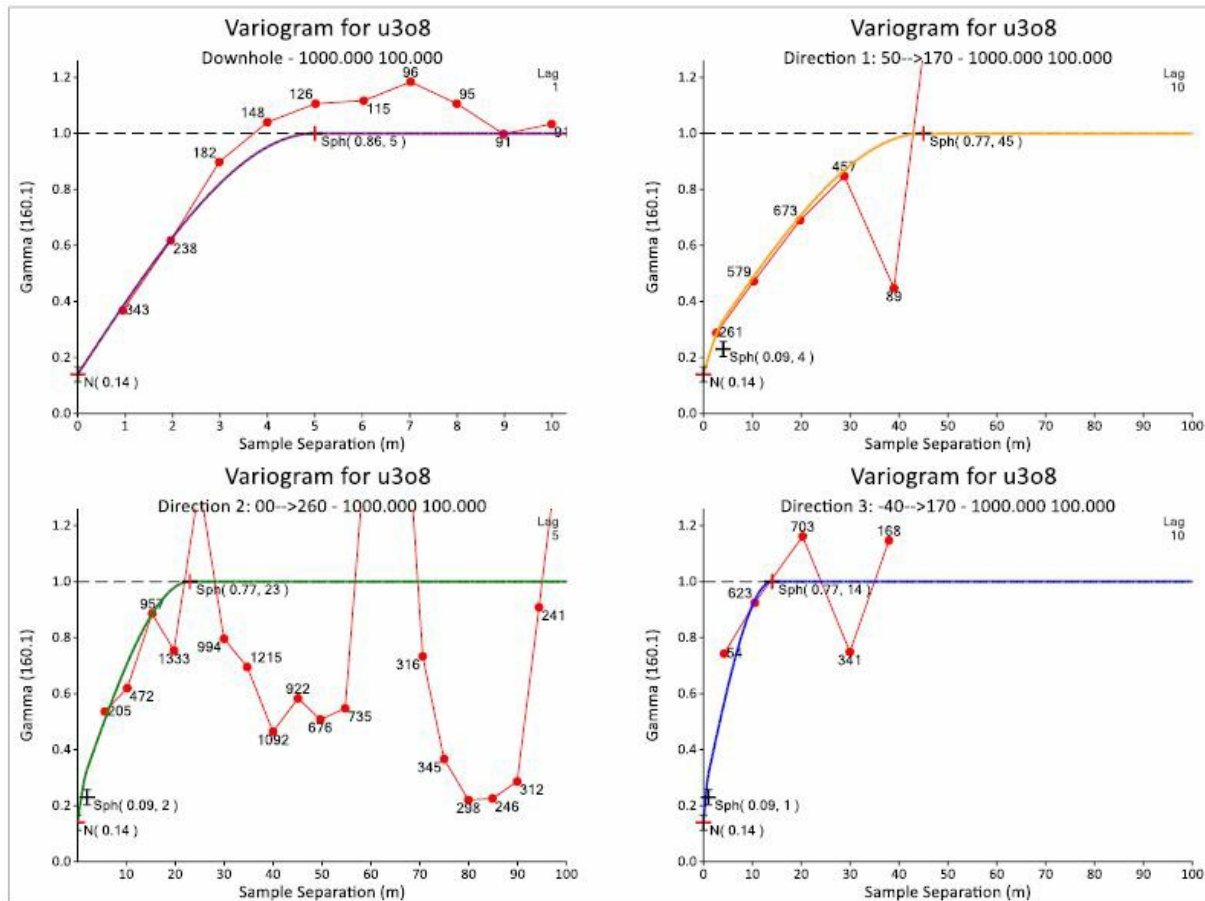


Figure 11-14: Experimental and modelled Domain (1100) in RRW. Down right), Semi-major directional right) variograms for the High-Grade Layeringhole (upper-left), Major directional (upper-lower-left), and Minor directional (lower-right)

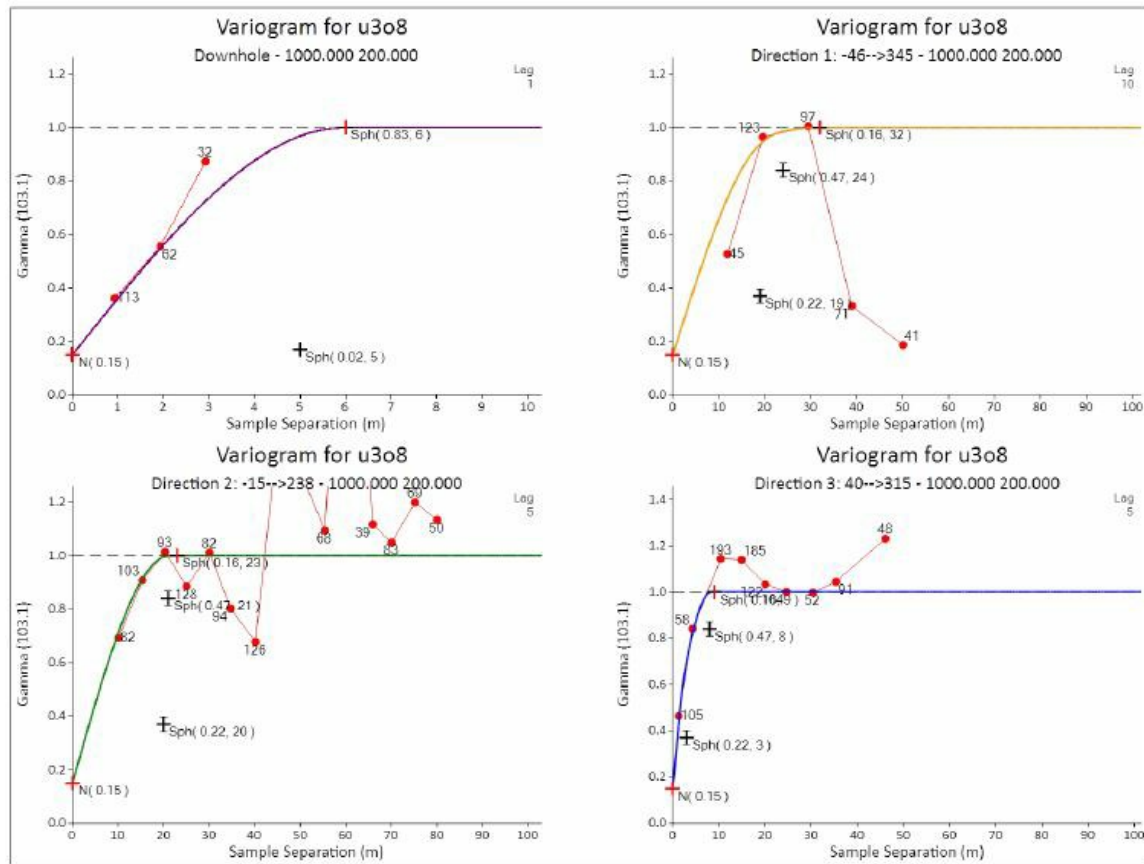


Figure 11-15: Experimental and modelled variograms for the High-Grade NE Domain (1200) in RRW. Downhole (upper-left), Major directional (upper-right), Semi-major directional (lower-left), and Minor directional (lower-right)

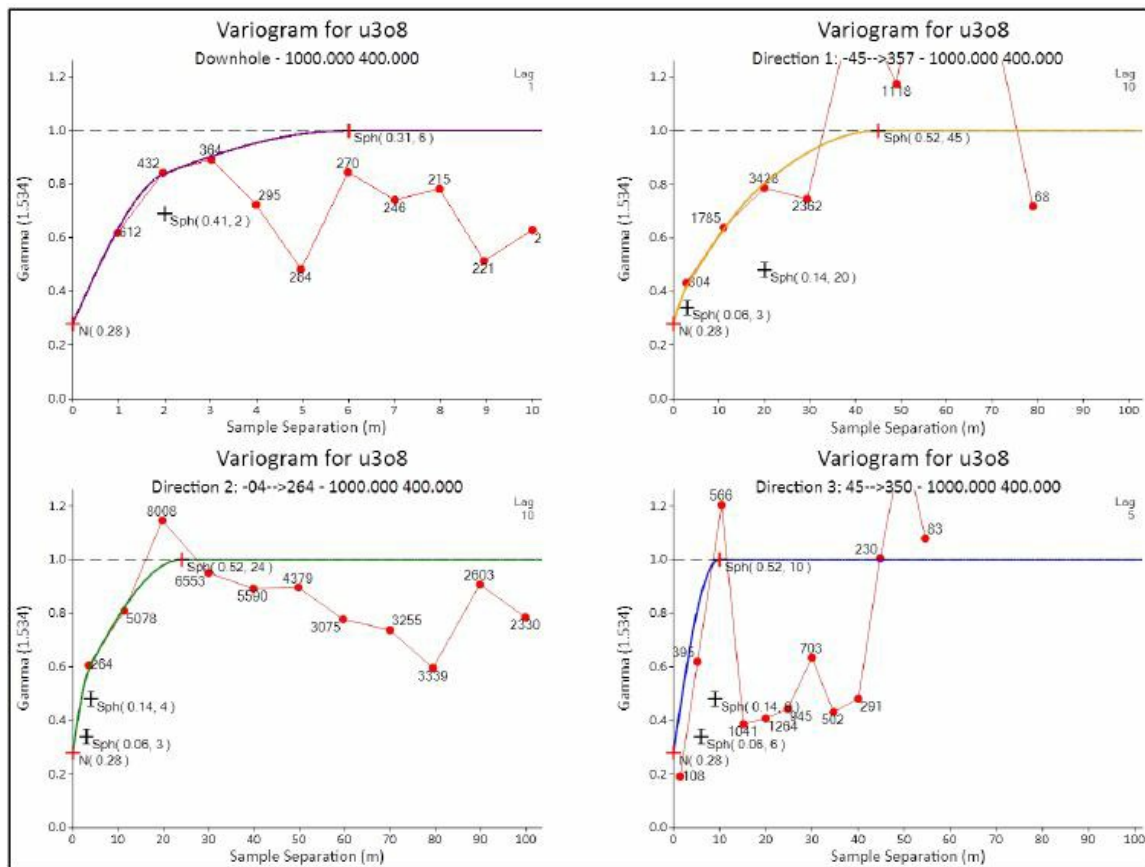


Figure 11-16: Experimental and modelled variograms for the Low-Grade Domain (1400) in RRW. Downhole (upper-left), Major directional (upper-right), Semi-major directional (lower-left), and Minor directional (lower-right)

Table 11-11: Modelled U₃O₈ Grade Continuity by Domain

Zone	Domain	Model Type	Nugget	Structure Component	Orientation			Radii (m)		
					Bearing	Plunge	Dip	Major	Semi-Major	Minor
RRW	High-Grade Layering	SPHERICAL	0.14	0.09	170	50	180	4	2	1
				0.77	170	50	180	45	23	14
	High-Grade NE	SPHERICAL	0.15	0.22	345	-46	22	19	20	3
				0.47	345	-46	22	24	21	8
				0.16	345	-46	22	32	23	9
	Low Grade	SPHERICAL	0.28	0.06	357	-45	5	3	3	6
				0.14	357	-45	5	20	4	9
				0.52	357	-45	5	45	24	10
RRE	High-Grade Layering	SPHERICAL	0.22	0.46	352	-39	-8	22	6	10
				0.32	352	-39	-8	30	19	15
	High-Grade NE	SPHERICAL	0.1	0.55	250	-45	-36	21	3	3
				0.35	250	-45	-36	24	24	9
	High Grade EW	SPHERICAL	0.22	0.46	20	-75	0	20	20	7.5
				0.32	20	-75	0	25	25	10
	Low – Grade	SPHERICAL	0.3	0.38	342	-47	-17	6	6	3
				0.32	342	-47	-17	21	17	12
RRFE	High-Grade Layering	SPHERICAL	0.3	0.15	92	-17	42	12	2	1
				0.55	92	-17	42	50	27	11
	High Grade NE	SPHERICAL	0.1	0.55	250	-45	-36	21	3	3
				0.35	250	-45	-36	24	24	9
	High-Grade EW	SPHERICAL	0.3	0.47	92	19	69	16	3	2
				0.23	92	19	69	23	23	6
	Low Grade	SPHERICAL	0.2	0.38	88	-21	41	17	5	3
				0.42	88	-21	41	25	12	12

11.2.7 Search Neighbourhood Design

The selection of the search radii and rotation of search ellipsoids were guided by modelled continuity from the variograms of $U_3O_8\%$. In addition, the search radii were established to assure that all blocks in the estimation domains were estimated. The search and sample selection parameters were refined by conducting Kriging Neighborhood Analysis tests as well as reviewing the results in a series of plan views and sections.

The search neighbourhood was designed to involve two successive steps. The first step considered a relatively small search ellipsoid (designed at 100% of the modelled continuity range of the respective variograms), which was increased to approximately 150% of the modelled continuity range for the second step (Table 11-12). Octant restrictions were employed in some domains to limit screening effects.

Table 11-12: Sample Selection Parameters Employed in the Estimation by Domain

Zone	Domain	Pass	Search Ellipse					Sample Selection				
			Bearing	Plunge	Dip	Major	Semi-Major	Minor	Minimum	Maximum	Max. per Hole	Max. per Octant
RRW	High-Grade Layering	1	170	50	180	45	25	15	5	8	4	3
		2				60	32.5	20	3 to 4	8	3	N/A
	High-Grade NE	1	345	-45	22.5	35	25	10	3 to 5	8	4	3
		2				45	32.5	15	2 to 4	8	3	N/A
	Low Grade	1	355	-45	5	45	25	10	6	12	4	3
		2				75	45	20	5	12	4	N/A
RRE	High-Grade Layering	1	350	-40	-10	30	20	15	6	10	4	N/A
		2				45	30	23	3 to 5	10	4	N/A
	High-Grade NE	1	250	-45	-35	25	25	10	6	10	4	N/A
		2				45	45	18	3 to 5	10	4	N/A
	High-Grade EW	1	20	-75	0	25	25	10	6	10	4	N/A
		2				45	45	20	3	10	NA	N/A
	Low Grade	1	342	-47	-17	21	17	12	6	12	4	N/A
		2				37.5	37.5	18	4	12	4	N/A
RRFE	High-Grade Layering	1	92	-17	42	50	30	12.5	5	8	4	3
		2				65	40	17	5	8	4	N/A
	High-Grade NE	1	250	-45	-35	30	20	15	5	8	4	3
		2				45	30	23	5	8	4	N/A
	High-Grade EW	1	92	20	70	25	25	7.5	5	8	4	3
		2				50	50	22	5	8	4	N/A
	Low Grade	1	88	-21	40	25	12.5	12.5	6	12	4	3
		2				75	32.5	32.5	4	12	4	N/A

11.2.8 Estimation Methodology

Resource estimation was completed within an area encompassing all three Project deposits with block model geometry and extents as presented in Table 11-13. A parent block size of 4 m x 4 m x 2 m, sub-blocked to 0.5 m x 0.25 m x 0.25 m, was chosen for the model. The parent block size is roughly half to a third of the drillhole spacing at RRW and RRFE and a quarter of the drillhole spacing at RRE.

The resource estimation methodology was based on the following:

- All sampling gaps in the U₃O₈ assays were treated as 0.0001% grade for resource estimation.
- 1 m composited data were not capped for estimation, but a high-grade search restriction was employed as described in Section 11.2.4.
- A combination of hard and restricted soft boundary conditions were employed in the estimation as described in Section 11.2.5.
- Only samples from within individual mineralization model domains were used to estimate blocks within those domains (apart from limited soft boundary conditions as described above).
- U₃O₈, density, and density*grade fields were estimated by Ordinary Kriging.
- Sub-block grades were assigned the grade of the parent block.
- A discretization level of 3,3,3 was set for all estimates.
- Density weighted U₃O₈ was calculated from the final block estimated density and density*grade values.

Table 11-13: Block Model Framework on page 126 of pdf

Description	Easting (X)	North (Y)	Elevation (Z)
Block Model Origin (Lower left corner)	556000	6466650	-100
Parent Block Dimension	4	4	2
Number of Blocks	400	200	600
Sub-Block Dimension	0.5	0.25	0.25
Rotation	0	0	0

11.2.9 Estimation Validation

The estimates were validated by completing the following checks:

- Global validation using estimation statistics, including percent of total blocks estimated, number of samples, number of holes, average distance to samples, and slope of regression;
- Global validation by comparison of composite statistics versus block estimates;
- Local validation using visual inspections on sections and plans, viewing composites versus block estimates; and

- Local validation by comparison of average assay grades with average block estimates along different directions (swath plots).

Estimation Statistics

Estimation statistics were summarized by estimation domain and by estimation pass. The results are presented in Table 11-14. Not surprisingly, the slope of regression values are greater, and the distance to samples is less for the pass 1 statistics, indicating significantly better estimates in the first pass for all domains. Significantly higher slope of regression values are achieved for RRW and RRFE, compared to RRE. High-grade north-east and east-west domains are in many cases characterized by lower SOR since the number of samples informing these zones is relatively low. The number of holes and number of samples used for the estimates is generally similar between the zones.

Table 11-14: Estimation Statistics by Domain and Estimation Step

Zone	Domain	Pass	Percent of Total Blocks Estimated	Mean Statistics			
				Number of Holes	Number of Samples	Distance to Samples (m)	Slope of Regression
RRW	High-Grade Layering	1	87%	4	7	17	0.81
	High-Grade Layering	2	13%	4	7	26	0.66
	High-Grade NE Structures	1	83%	4	7	15	0.71
	High-Grade NE Structures	2	17%	4	6	20	0.55
	Low-Grade	1	99%	4	12	18	0.84
	Low-Grade	2	1%	5	12	32	0.58
RRE	High-Grade Layering	1	73%	4	9	15	0.57
	High-Grade Layering	2	27%	4	7	24	0.39
	High-Grade NE Structures	1	79%	4	9	13	0.48
	High-Grade NE Structures	2	21%	5	9	26	0.26
	High-Grade EW Structures	1	37%	3	7	14	0.66
	High-Grade EW Structures	2	63%	2	6	14	0.39
	Low-Grade	1	90%	3	9	12	0.46
	Low-Grade	2	10%	4	11	21	0.36
RRFE	High-Grade Layering	1	96%	5	7	15	0.8
	High-Grade Layering	2	4%	5	8	25	0.69
	High-Grade NE Structures	1	79%	4	9	13	0.48
	High-Grade NE Structures	2	21%	5	9	26	0.26
	High-Grade EW Structures	1	80%	4	7	14	0.28
	High-Grade EW Structures	2	20%	6	8	24	0.22
	Low-Grade	1	82%	4	11	12	0.72
	Low-Grade	2	18%	4	10	34	0.44

Global Statistics

Mean composite grades were compared to the mean density weighted estimated grades to globally validate the estimates (Table 11-15). For this comparison, high-grade domains in each zone were combined since soft-boundary conditions between these domains were employed in the estimate. In the Low-Grade domains for RRW and RRFE, the percent difference is greater than 10%. This is due to the use of the high-grade restriction which has a more significant impact on the estimates in the Low-grade domains and in particular in RRW where there are more high-grade samples captured in the Low-Grade domain.

Table 11-15: Mean Composite Grades Compared to the Mean Block Estimates (Density Weighted and Non-Weighted)

Deposit	Domain Group	Statistic	Composite Grade (U ₃ O ₈ %)	Block Estimate(non-Weighted U ₃ O ₈ %)	Block Estimate (Density Weighted U ₃ O ₈ %)	Non Weighted Estimate vs. Composite (% Difference)	Density Weighted Estimate vs. Composite (% Difference)
West	High-Grade	Points/Tonnes	636	142,421			
		Mean	8.24	8.24	9.39	0	14
	Low-Grade	Points/Tonnes	827	211,402			
		Mean	0.52	0.36	0.37	-31	-29
East	High-Grade	Points/Tonnes	295	92,022			
		Mean	10.02	9.51	11.14	-5	11
	Low-Grade	Points/Tonnes	365	114,177			
		Mean	0.3	0.28	0.28	-7	-7
Far East	High-Grade	Points/Tonnes	514	92,789			
		Means	5.84	5.45	5.87	-7	1
	Low-Grade	Points/Tonnes	490	101,150			
		Means	0.6	0.51	0.55	-15	-8

Visual Inspection

Composites, coloured by U₃O₈ grade were viewed on sections and plans versus the block model coloured by the same attribute. These inspections confirmed that the estimates locally conform to the composites.

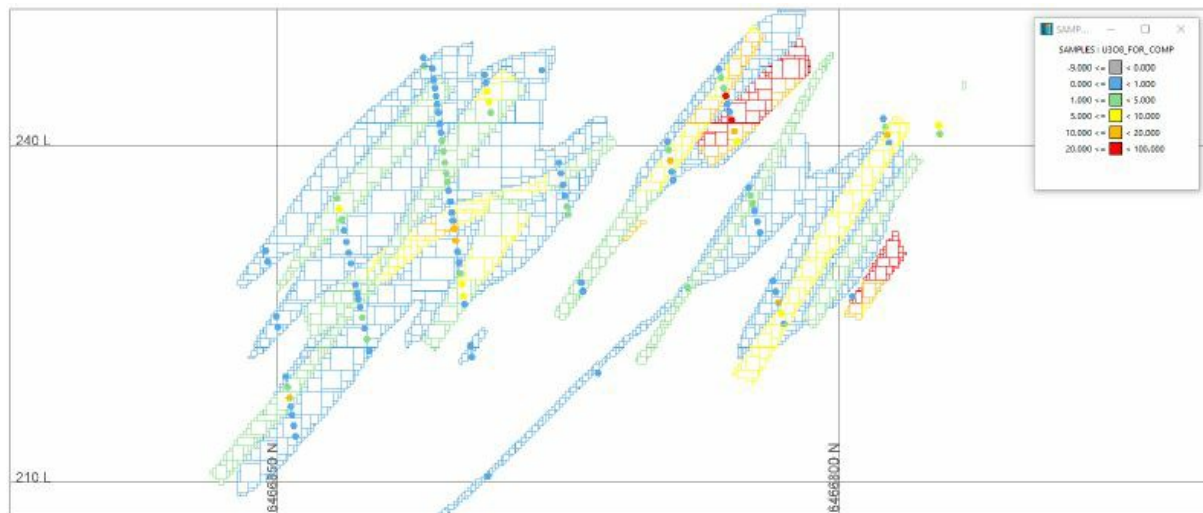


Figure 11-17: Cross section in RRW looking east at 556140E through the estimated model. Block

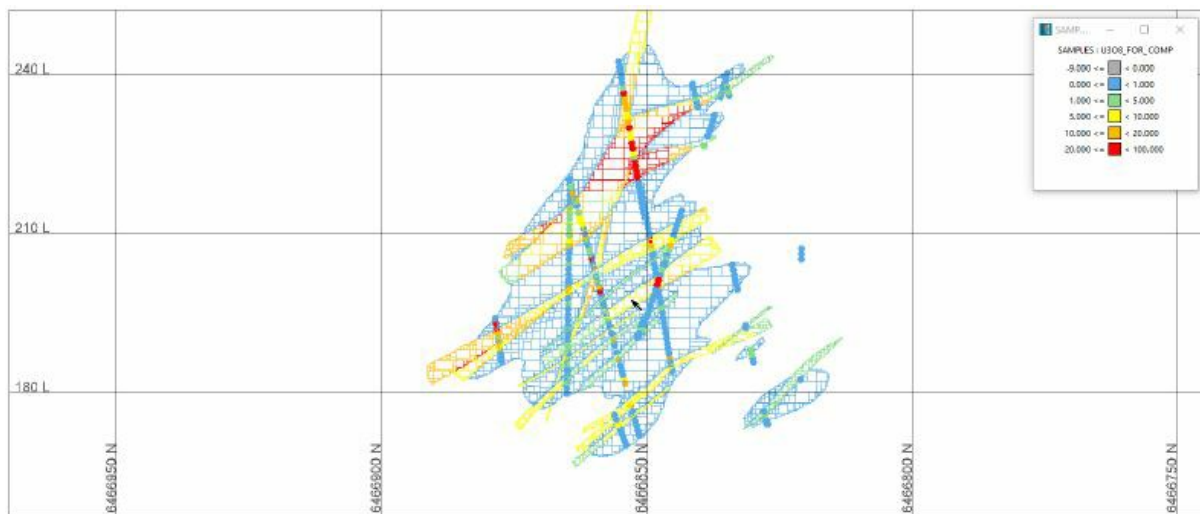


Figure 11-18: Cross section in RRE looking east at 556435E through the estimated model. Block model and composites coloured by U_3O_8 grade.

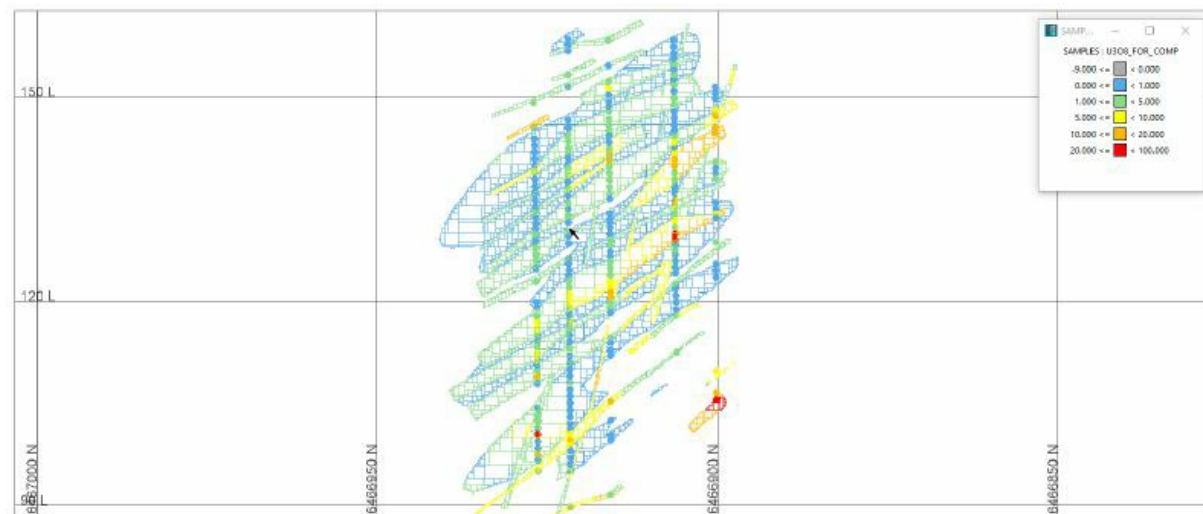


Figure 11-19: Cross section in RRFE looking east at 556555E through the estimated model. Block model and composites colored by U_3O_8 grade.

Swath Plots

Another check involved a comparison of average composite grades and average block estimates along different directions. This involved calculating average composite grades and comparing them with average block estimates along east-west, north-south and elevation swaths. The swath dimensions are one parent block in each direction, 4 m east-west, north-south, and 2 m elevation. For this comparison, high-grade domains in each zone were combined since soft-boundary conditions between these domains were employed in the estimate.

Examples of swath plots from RRW are presented in Figure 11-20, Figure 11-21 and Figure 11-22. The mean U_3O_8 composite grades and the mean non-density weighted estimated U_3O_8 block grades are quite similar in all directions, while the density weighted estimates are typically slightly higher in grade as expected, where higher grade samples exist. This is due to a greater influence of the density weighting of the higher-grade composites. The estimates, as expected are somewhat smoother than the composite grades, particularly where there are limited samples or very high-grade composites.

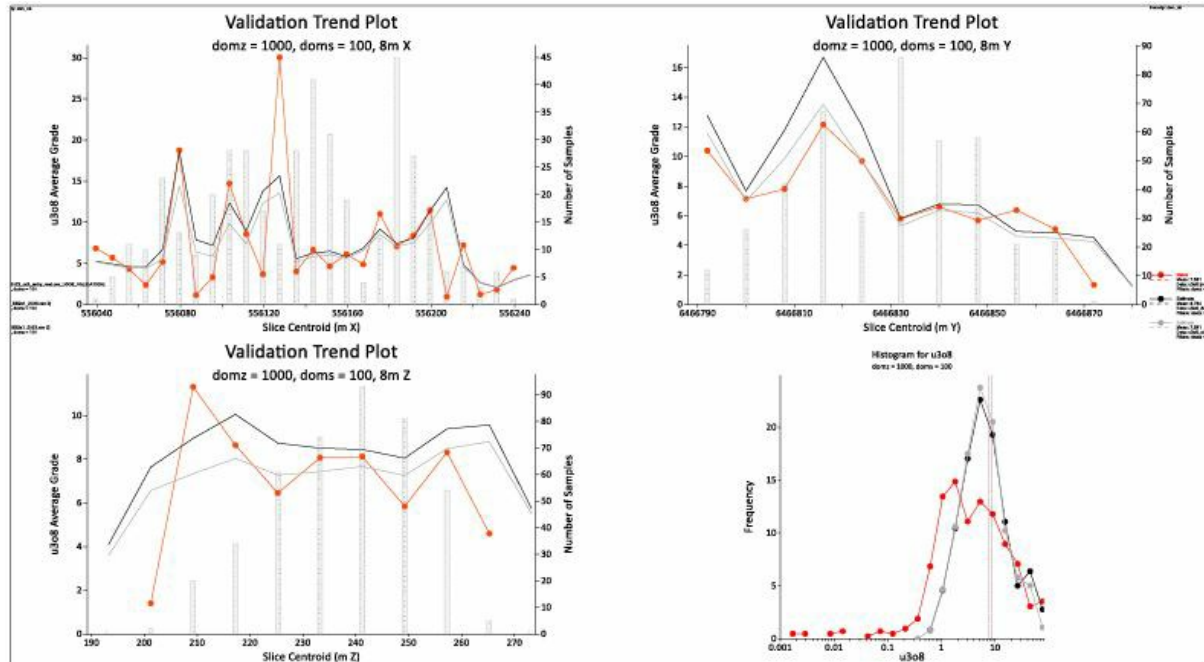


Figure 11-20: Swath plot and log-histogram of % U_3O_8 composites (Orange), density weighted block estimates (Black), and non-weighted estimates (grey) for RRW High-grade layering domain in the X, Y, Z directions

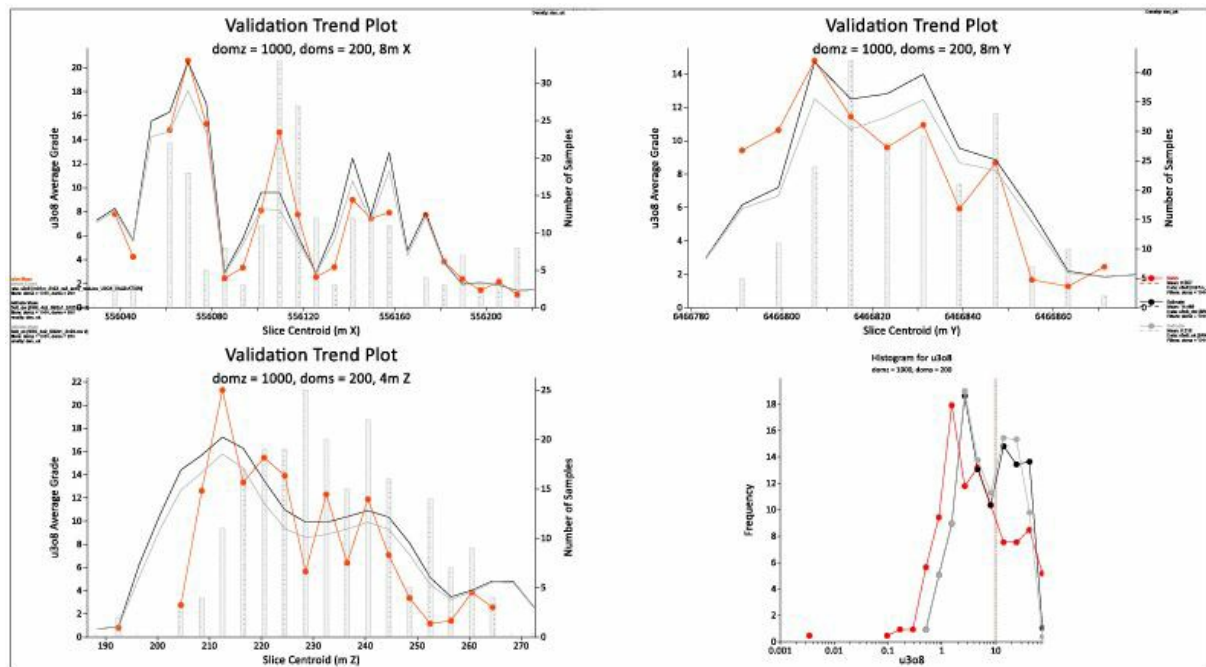


Figure 11-21: Swath plot and log-histogram of % U_3O_8 composites (Orange), density weighted block estimates (Black), and non-weighted estimates (grey) for RRW High-grade north-east domain in the X, Y, Z directions

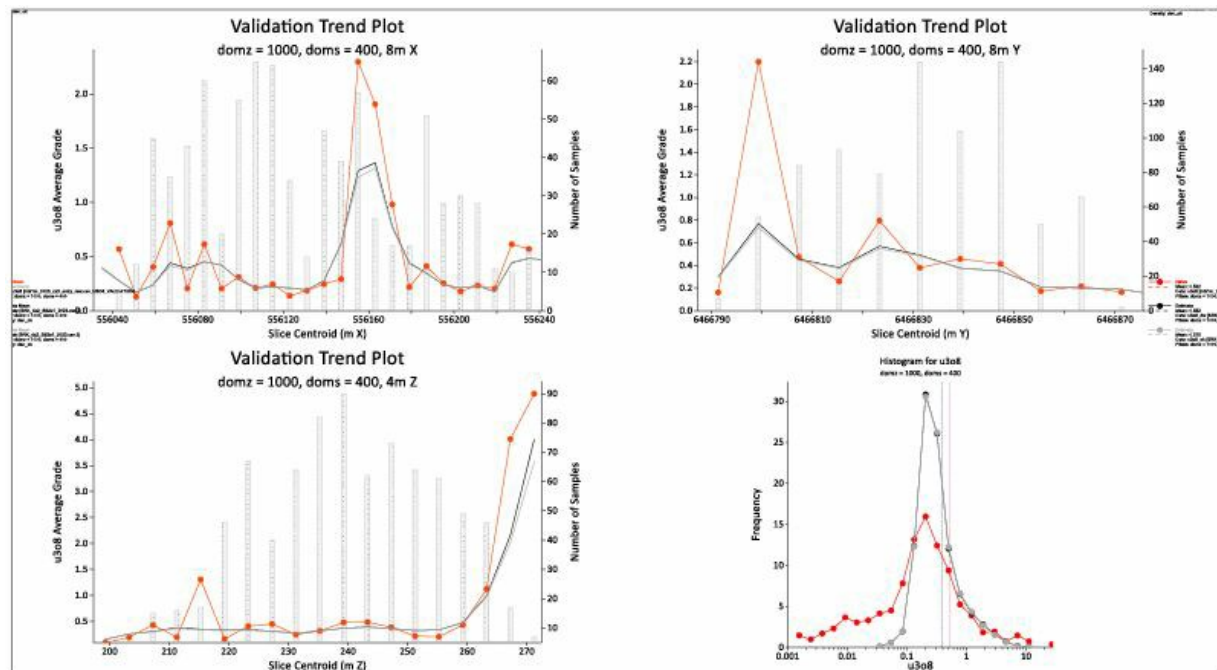


Figure 11-22: Swath plot and log-histogram of % U_3O_8 composites (Orange), density weighted block estimates (Black), and non-weighted estimates (grey) for RRW Low-grade domain in the X, Y, Z directions

11.2.10 Depletion and Reconciliation

There has been no mining on the Project so depletion is not required and there is no reconciliation data.

11.3 Mineral Resource Classification

11.3.1 Introduction

According to S-K 1300, a QP must subdivide Mineral Resources, in order of increasing geological confidence, into Inferred, Indicated, and measured Mineral Resources. These are defined in S-K 1300 as:

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. The level of geological uncertainty associated with an Inferred Mineral Resource is too high to apply relevant technical and economic factors likely to influence the prospects of economic extraction in a manner useful for evaluation of economic viability. Because an Inferred Mineral Resource has the lowest level of geological confidence of all Mineral Resources, which prevents the application of the modifying factors in a manner useful for evaluation of economic viability, an Inferred Mineral Resource may not be considered when assessing the economic viability of a mining project, and may not be converted to a Mineral Reserve.”

Indicated Mineral Resource

“...is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of adequate geological evidence and sampling. The level of geological certainty associated with an Indicated Mineral Resource is sufficient to allow a qualified person to apply modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Because an Indicated Mineral Resource has a lower level of confidence than the level of confidence of a measured Mineral Resource, an Indicated Mineral Resource may only be converted to a probable Mineral Reserve.”

Measured Mineral Resource

“...is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of conclusive geological evidence and sampling. The level of geological certainty associated with a measured Mineral Resource is sufficient to allow a qualified person to apply modifying factors, as defined in this section, in sufficient detail to support detailed mine planning and final evaluation of the economic viability of the deposit. Because a measured Mineral Resource has a higher level of confidence than the level of confidence of either an Indicated Mineral Resource or an Inferred Mineral Resource, a measured Mineral Resource may be converted to a proven Mineral Reserve or to a probable Mineral Reserve.”

11.3.1 Classification Considerations

The Project MRE has been classified, in order of increasing geological confidence, into Inferred and Indicated Mineral Resources according to S-K 1300 by the QP.

In determining the appropriate classification criteria, the QP considered the following:

- Quality of data used in the estimation;
- Quantity and density of sample data;
- Geological knowledge and understanding, specifically geological and grade continuity;
- Quality of the estimates; and
- Experience with other deposits of similar style.

These factors are discussed in detail below.

Quality of Data

The QP considers that the quality of the U₃O₈% grade and density data, supporting the MRE presented here, have been collected using industry best practices and are supported by QA/QC programs that facilitate independent verification of the data. There are instances identified by the QP where there is a risk to the reliability of U₃O₈% grade data and location of specific samples.

The QP has removed from consideration in the modelling and estimation of the resources 22 holes that would provide samples with questionable location (Section 9.1.3). There are also known to be some high-grade U₃O₈% samples with low recovery (<80%). The QP has considered the location of these particular samples and volumes informed by these samples have been considered as relatively lower confidence.

Quantity of Data

In general, the RRW and RRFE deposits are drilled at 10 m spacings, while the RRE deposit is drilled at up to 15 m spacing. The data spacing, compared to the nature of the mineralisation, results in well constrained domains and reliable U₃O₈% grade continuity models (variograms) for the RRW and RRFE deposits, and less reliable grade continuity models for RRE.

The quantity of density data is considerable, and the detailed logging of alteration data has allowed for reasonable regression analysis to be completed to assign density where measurements are not available.

Understanding of Geological and Grade Continuity

U₃O₈ mineralization continuity is controlled by key lithological and structural characteristics, both of which have been modelled by the QP forming a framework upon which the mineralization has been modelled. The geological continuity of the RRW, RRE, and RRFE deposits is up to 200 m, 100 m, and 75 m respectively, while individual high-grade U₃O₈ veins have somewhat less continuity and are characterized by multiple grade populations in the statistical analysis. Grade continuity of very high grade U₃O₈ is associated with a particular structural setting, and this has been incorporated into the modelling and estimation approach through the limitation of their impact in the grade estimation.

Quality of the Estimates

The estimates of U₃O₈ and density are supported by reliable data which has been collected at a spacing sufficient to model reasonable estimation domains and develop robust variograms for RRW and RRFE, but less reliable variograms for RRE. Ordinary Kriging has been used to estimate RRW, RRE, and RRFE and the slope of regression ("SLOR") from each block estimate has been recorded in the block model. The SLOR (values from 0 to 1.0) is used as a diagnostic for conditional bias where, ideally, the slope of this line should be close to one, which implies conditional unbiasedness. The higher the SLOR value, the higher the quality of the block estimate is considered to be.

11.3.2 Classification Design

The QP has defined the following criteria for classifying the Project Mineral Resources, according to the considerations discussed in Section 11.3.2. Individual blocks were coded by the criteria to identify the candidates for classification. The QP used these coded candidates to explicitly outline contiguous volumes of similar classification.

Indicated Mineral Resource Candidates

The QP considers that material eligible to be considered as Indicated Mineral Resources should be aligned with the following criteria:

- Block estimates are not informed by high-grade samples ($>15\%$ U_3O_8) with low core recovery (less than 80%);
- Maximum average distance to samples used to estimate the block is less than the range of the modelled (variogram) continuity at 90% of the sill by domain group;
- Minimum of three holes used in the block estimate;
- Ordinary Kriging informed by robust variograms. The modelled variograms at RRE are not robust, so it has been excluded from Indicated consideration; and
- SLOR of block estimate greater than or equal to 0.8.

Inferred Mineral Resource Candidates

The QP considers that material eligible to be considered as Inferred Mineral Resources should be aligned with the following criteria:

- Block estimates within the modelled estimation domains; and
- Maximum extrapolation distance to samples used to estimate the block is less than 15 m.

11.3.3 Classification Application

The QP reviewed the blocks coded as classification candidates, according to the criteria above, and designed wireframe volumes to identify contiguous areas that satisfy the criteria. In this process, some Indicated candidate blocks are assigned as Inferred and vice versa. The final Classification assignments for Indicated and Inferred Mineral Resources in RRW and RRFE, and Inferred Mineral Resources in RRE, are presented in Figure 11-23, Figure 11-24, and Figure 11-25.

In the opinion of the QP, there is reasonable expectation that the majority of Inferred Mineral Resources could be upgraded to Indicated or Measured Mineral Resources with continued exploration.

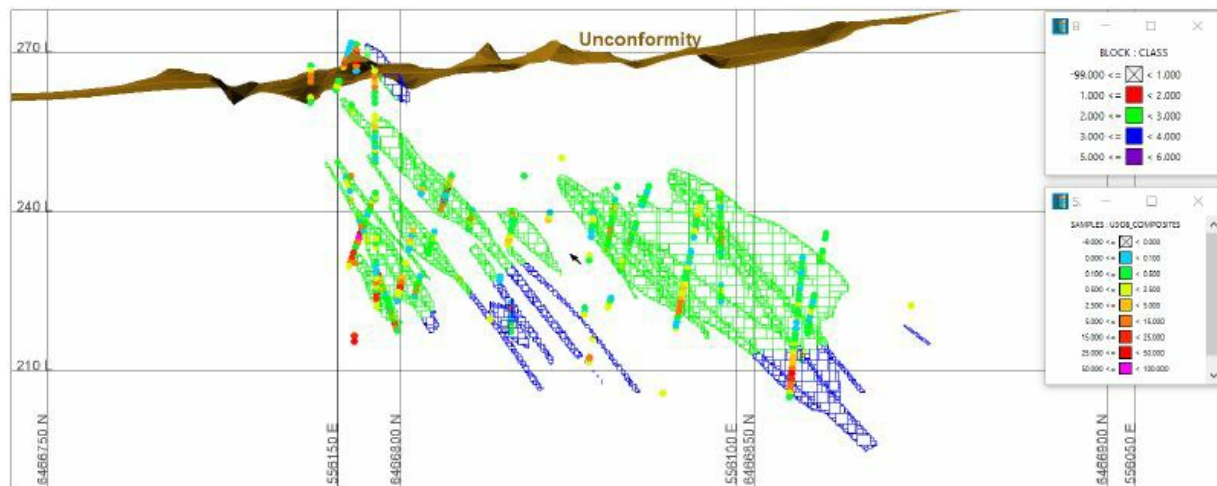


Figure 11-23: Cross section of the RRW block model coded by Mineral Resource classification, composites coloured by U_3O_8 % grade

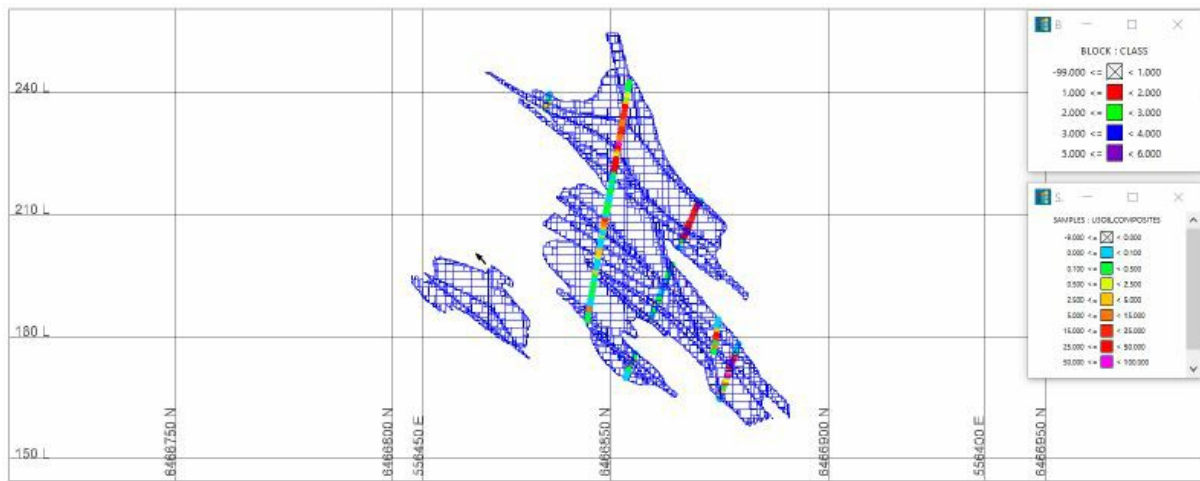


Figure 11-24: Cross section of the RRE block model coded by Mineral Resource classification, composites coloured by U₃O₈% grade

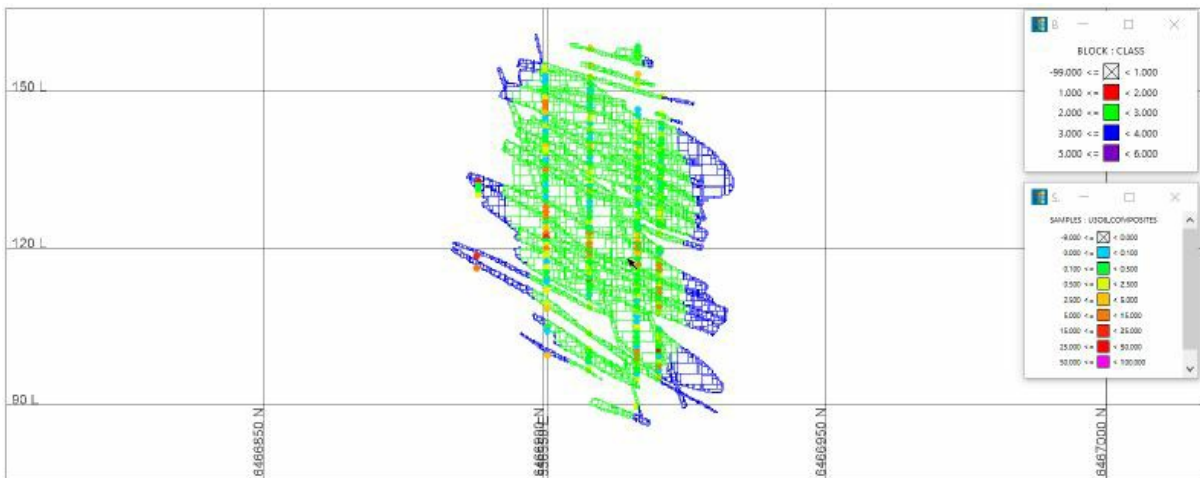


Figure 11-25: Cross section of the RRFE block model coded by Mineral Resource classification, composites coloured by U₃O₈% grade

11.4 Prospects of Economic Extraction for Mineral Resources

SRK has estimated a reporting cut-off grade for the Project based on assumed costs for underground mining and commodity prices that provide a reasonable basis for establishing the prospects of economic extraction for Mineral Resources. SRK has referenced cost assumptions from recently published feasibility studies in the Athabasca Basin:

- Arrow Deposit, Rook I Project, Saskatchewan — NI 43-101 Technical Report on the Feasibility Study (Stantec, 2021). Prepared for NexGen Energy Ltd.; and
- Feasibility Study, NI 43-101 Technical Report, for PLS Property (Tetra Tech, 2023). Prepared for Fission Uranium Corp.

These studies were developed for substantially higher production rates, 450 tpa and 350 tpa for Arrow Deposit and PLS Property respectively, than that assumed for the Project. SRK have modified these cost references to align with the assumed production rate for the Project. These cost and price assumptions have been used to inform an optimisation process using the Deswik Stope Optimiser (“DSO”) software, which utilises a Mineable Shape Optimiser (“MSO”).

11.4.1 Cut-off Grade Estimation

The cut-off grade has been estimated according to the following assumptions. Underground Mining Assumptions

The underground mining scenario assumed for the Project is primarily a combination of transverse and longitudinal LHOS, but also considers limited C&F stoping.

LHOS method is assumed for the RRFE, RRE, and RRW, while C&F is assumed for the upper 20m of the RRW deposit only. The RRW mineralisation extends up to, and slightly above the Athabasca unconformity, adjacent to which hydrogeological and geotechnical conditions are expected to be more challenging (Sections 7.2.7 and 7.2.8). It is anticipated that these conditions would necessitate the requirement of ground freezing techniques and/or stoping with reduced spans. C&F stoping is assumed for the upper RRW deposit, within 20m of the unconformity. Mineralization above the unconformity has not been considered in these mining scenarios and is excluded from the MRE.

The stope optimization parameters used are summarized in Table 11-16.

Mining costs have been estimated based on similar projects (Section 11.4) and general experience with similar operations. SRK have assumed the following underground mining costs in order to establish the prospects of economic extraction of Mineral Resources:

- LHOS — US\$ 189/t mined
- C&F — US\$ 265/t mined

Table 11-16: Stope Optimization Parameters on page 138 of the PDF

Parameters	Parameters	Unit	Value	Comment
C&F	Minimum Stope Width	m	5	
	Maximum Stope Width	m	5	
	Sublevel Interval	m	5	
	Stope length (along strike)	m	5	
	Minimum Dip Angle	°	85	
LHOS	Minimum Stope Width	m	2	
	Maximum Stope Width	m	100	Large number assumed to avoid pillars.
	Sublevel Interval	m	10	
	Stope length (along strike)	m	5	
	Minimum Dip Angle		50	

Processing Assumptions

The processing scenario assumption for the Project is a grind/acid leach/resin-in-pulp process, based on results of metallurgical testwork to date (Section 10).

Processing costs have been estimated based on similar projects (Section 11.4) and general experience with similar operations. SRK have assumed the following processing costs and recovery in order to establish the prospects of economic extraction of Mineral Resources:

- Processing Recovery — 97%
- Processing Cost — US\$202/t processed

General and Administration Costs (G&A)

G&A costs have been estimated based on similar projects (Section 11.4) and general experience with similar operations. G&A costs include assumptions for costs of flights to and from the project site, camp and catering, insurance premiums, marketing, and accounting and general maintenance of site buildings. SRK have assumed the following G&A cost in order to establish the prospects of economic extraction of Mineral Resources:

- G&A - US\$97/t

Commodity Price

UEC subscribes to the UxC Market Outlook forecast, which is a detailed supply-demand-price analysis undertaken by UxC, a specialised uranium market analyst. UxC presents a set of forecasts for spot uranium prices using their proprietary U-PRICE® model, which is an econometric simulation model of the uranium market. The U-PRICE model was designed to account for key factors that influence the uranium market. The structure of the model allows for an integrated simulation of uranium prices and related market variables. The model incorporates additional information about the historical relationships of specific factors in the market (UxC 2023).

Using various input assumptions comprising demand outlook, market outlook and perception, primary production, secondary supplies, separative work unit market developments, and exchange rates, the U-PRICE model is simulated to develop three price forecasting scenarios: Mid Price, High Price, and Low Price.

Term contracts are an integral part of uranium market transactions, some of which use base-escalated pricing mechanisms, while others are tied to market-related terms that index spot indicators. While the long-term base price is generally set at a risk premium (which is the amount that a buyer is willing to pay to lock in future prices) to the spot price, these two indicators have historically exhibited a very close relationship (UxC, 2023).

Unlike supplies in the spot and mid-term markets, which are mainly driven by available inventories (including secondary supplies of uranium), long-term contracts are typically offered by uranium producers who can commit supplies for multiple years in the future. Thus, the long-term base price provides an indicator of future supply availability and is more closely linked to production costs (UxC, 2023).

As with the spot uranium price forecasts, there are three scenarios for long-term contract base price projections: Mid LT Base, High LT Base and Low LT Base. The key assumptions used to develop each scenario are consistent with those used in forecasting the spot price scenarios listed above.

Based on the U₃O₈ price projections prepared by UxC, the QP considers that a reasonable U₃O₈ price assumption that provides a basis for establishing the prospects of economic extraction for Mineral Resources at the Project is the Composite LT Base Price for 2023, rounded to the dollar, which amounts to US\$56/lb U₃O₈. The Low Long-Term Base and High Long-Term Base prices for 2023 are US\$51.48 and US\$65 respectively. In addition, SRK have assumed a transport cost, estimated based on similar projects (Section 11.4), of yellowcake of US\$0.26/lb U₃O₈ from the Project to the Blind River Refinery, in Ontario.

Royalties and Tax

The Project is subject to royalty payments to the government of Saskatchewan, via the “Uranium Crown Royalty” and through a private agreement with URC, the “Roughrider Royalty”, as well as Corporation Capital Tax (Section 3.7). These components are summarized as follows:

- Uranium Crown Royalty: For the purposes of establishing the prospects of economic extraction for Mineral Resources, only the Basic Royalty and Saskatchewan Resource Credit components of the Uranium Crown Royalty are considered, resulting in a net 4.25% of gross revenue royalty assumption.
- Roughrider Royalty: 1.9701% of net smelter return.
- Corporation Capital Tax: 3% of the value of sales of all uranium produced in Saskatchewan.

The total royalty and tax consideration for the Project is calculated at 9.22% according to Equation 11-4.

Equation 11-4: Total Royalty

$$\text{Total Royalty} = \text{Uranium Crown Royalty} + \text{Roughrider Royalty} + \text{Corporation Capital Tax}$$

Summary of Cut-Off Grade Assumptions

The assumed costs for underground operations and commodity prices presented in the preceding sections have been used to provide a reasonable basis for establishing the prospects of economic extraction for Mineral Resources. These assumptions, along with the calculated cut-off grades are presented in Table 11-17. The break even cost and cut-off grade is calculated by mining scenario (Equation 11-5 and Equation 11-6).

Equation 11-5: Break Even Cost

$$\text{Break Even Cost} = \text{Mining Cost} + \text{Processing Cost} + \text{G\&A Cost}$$

Equation 11-6: Cut-off Grade

$$\text{Cut-Off Grade} = \text{Break Even Cost} / (((U_3O_8 \text{ Price} * \text{Recovery } U_3O_8 * \text{Payability} * (1 - \text{Total Royalty}) - \text{Transportation Cost}) * 2204.62) * 100)$$

Table 11-17: Assumptions for Prospects of Economic Extraction

Assumption	Units	Value
Production Rate - Ore	(tpa)	100,000
U₃O₈ Sales		
U ₃ O ₈ Price	US\$/lb	56
Transportation	US\$/lb	0.26
Payability	(%)	100
Processing		
Recovery U ₃ O ₈	(%)	97
Tax and Royalties		
Corporation Capital Tax	(%)	3
Uranium Crown Royalty	(%)	4.25
Roughrider Royalty	(%)	1.9701
Total Royalty	(%)	9.22
Operating Costs		
Mining Cost - LHOS	(USD/tore)	189
Mining Cost - C&F	(USD/tore)	265
Processing	(USD/tore)	202
G&A	(USD/tore)	97
Break Even Cost		
Break-even LHOS	(USD/tore)	488
Break-even C&F	(USD/tore)	463
Cut-Off Grade		
Break-even LHOS	%U ₃ O ₈	0.45
Break-even C&F	%U ₃ O ₈	0.52

Optimization Results

The cost and price assumptions have been used to inform an optimisation process using the Deswik Stope Optimiser (“DSO”) software, which utilises the MSO. This is a mine planning tool that automates the design of mineable shapes maximizing the value of the deposit according to the cost and price assumptions (Table 11-17) and provided design parameters (Table 11-16).

The reader is cautioned that the results from the MSO are used solely for the purpose of testing the “prospects of economic extraction” by underground methods and does not represent an attempt to estimate Mineral Reserves. There are no Mineral Reserves on the Project. The results are used as a guide to assist in the preparation of a Mineral Resource statement and to select an appropriate resource reporting cut-off grade.

The resulting shapes are presented in Figure 11-26. Mineral Resources are reported within these MSO shapes. The QP notes that the reported Mineral Resources are reported as diluted, within the MSO shapes in order to satisfy the minimum mining width assumptions for C&F and LHOS mining scenarios. No additional dilution or recovery factors are applied.

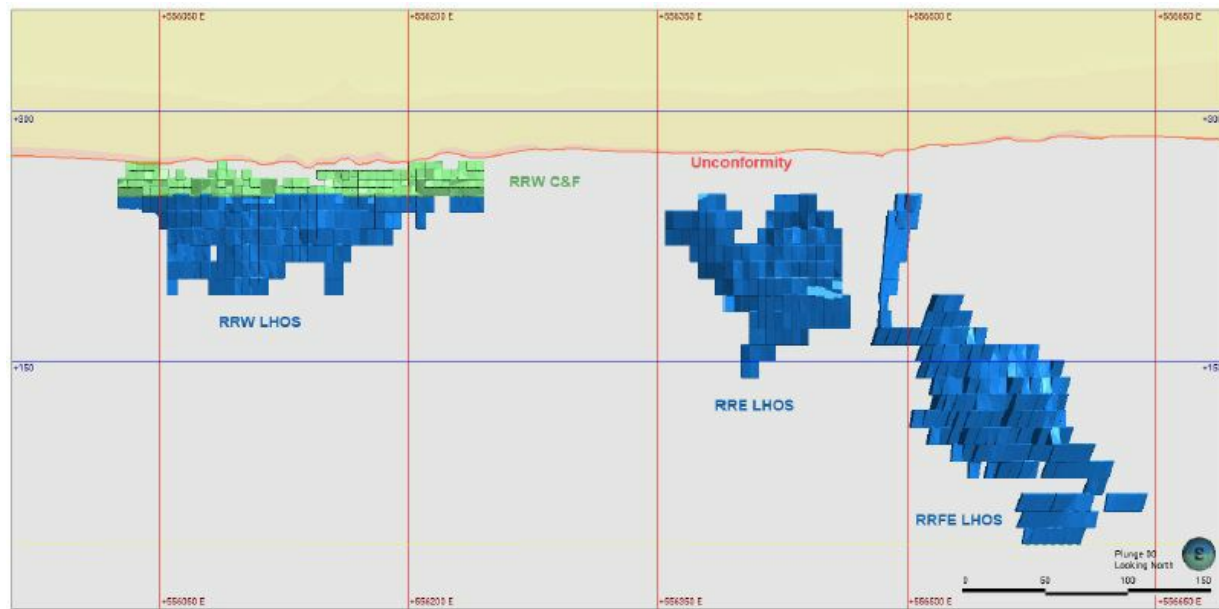


Figure 11-26: Long Section looking north at the MSO shapes for LHOS and CAF for RRW, RRE, and RRFE

11.4.2 Environmental, Social and Governance

In terms of ESG, the two key risk areas that could affect the prospect for economic extraction are the need to obtain both the regulatory approval and the buy-in, or social licence, from the relevant Indigenous groups and other non-Indigenous stakeholders. There are a number of ESG-related factors that have the potential to influence the success of obtaining these approvals and becoming Modifying Factors for future reporting of Mineral Reserves, these are discussed in more detail in Section 16.

11.4.3 QP Opinion on the Prospect of Economic Extraction

In the opinion of the QP, the U_3O_8 price assumption is consistent with expert uranium market analysts' studies (UxC) while the mining and processing cost assumptions are consistent with assumptions for similar uranium deposits in Saskatchewan based on current benchmarks. The Mineral Resource presented in Section 11.5 may be materially impacted by any future changes in the break-even cut-off grade (both up or down), which may result from changes in mining method selection, mining costs, processing recoveries and costs, metal price fluctuations, significant changes in geological knowledge, or issues obtaining regulatory approvals and/or social license.

11.5 Mineral Resource Statement

S-K 1300 define a Mineral Resource as:

"...a concentration or occurrence of 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 economic extraction. A Mineral Resource is a reasonable estimate of Mineralization, considering relevant factors such as cut-off grade, likely mining dimensions, location or continuity, that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable. It is not merely an inventory of all mineralisation drilled or sampled."

The QP has considered the relevant factors and MSO shapes, described in Section 11.4, to identify the volumes within which the Project Mineral Resource is considered to have prospects for economic extraction and can be reported as a Mineral Resource. These shapes capture the portions of the block model that are targeted by the MSO outputs over mineable distances but exclude isolated shapes unlikely to represent economically viable mining volumes. The Mineral Resources are reported diluted (meaning that below cut-off material is included) within these MSO shapes to satisfy the minimum mining width assumptions detailed in Table 11-16. 37% and 18% of the tonnage reported as a Mineral Resource is waste and mineralization below cutoff respectively.

The Project is an Exploration Stage Property 100% owned by UEC. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability. All figures have been rounded off to appropriate significant figures chosen to reflect the order of accuracy of the estimates of quantity and grade. Mineral Resources have been estimated for U_3O_8 only so there are no metal/mineral equivalents applicable. No Mineral Reserves are estimated for the Project.

The MRE for the Project is reported here by SRK with an effective date of January 1, 2023, in accordance with the S-K 1300 (Table 11-18).

Table 11-18: Mineral Resource Statement for the Project, effective January 1, 2023

Mining Scenario	Deposit	Classification	Tonnage(kt)	Grade U ₃ O ₈ (%)	Contained U ₃ O ₈ Metal	
					Tonnes	M lbs
C&F	RRW	Indicated	40	3.38	1,345	3.0
		Inferred	11	3.64	384	0.8
LHOS	RRW	Indicated	160	4.62	7,368	16.2
		Inferred	68	6.06	4,140	9.1
	RRE	Indicated	-	-	-	-
		Inferred	232	4.41	10,257	22.6
	RRFE	Indicated	189	2.07	3,917	8.6
		Inferred	48	3.26	1,567	3.5
Combined RRW, RRE, and RRFE						
Total		Indicated	389	3.25	12,629	27.8
		Inferred	359	4.55	16,349	36.0

*Notes

- 1.) Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.
- 2.) Mineral Resources are reported exclusive of Mineral Reserves. There are no Mineral Reserves for the Project.
- 3.) Mineral Resources are reported on a 100% ownership basis.
- 4.) Mineral Resources are reported diluted within the MSO shapes based on a U308 price of US\$56/lb of U308 and metallurgical recovery of 97%. C&F and LHOS scenario cut-off grades are 0.52% U308 and 0.45% U308 respectively.
- 5.) The Mineral Resources were estimated by SRK, a third-party QP under the definitions defined by S-K 1300. The tonnage (presented in metric tonnes), grade (%), and contained metal (metric tonnes and imperial pounds) have been rounded to reflect the accuracy of the estimates

11.6 Mineral Resource Uncertainty

Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability, nor is there certainty that all or any part of the Mineral Resource estimated here will be converted to Mineral Reserves through further study.

Sources of uncertainty that may affect the reporting of Mineral Resources include sampling or drilling methods, data processing and handling, geologic modelling and estimation. There are sources of uncertainty in the MRE at the Project which depend on the classification assigned.

11.6.1 Inferred Mineral Resources

Inferred Mineral Resources, by definition, are that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. The level of geological uncertainty associated with an Inferred Mineral Resource is too high to apply relevant technical and economic factors likely to influence the prospects of economic extraction in a manner useful for evaluation of economic viability.

At the Project, Inferred Mineral Resources are affected by the following sources of uncertainty:

Recovery of Sample

Although the recovery of sample is generally high at the Project, there are cases where significant U308 grades have been intersected and core recovery is relatively low. This situation may cause the recovered sample to be biased. The QP has considered this and has used an indicator to identify blocks in areas of the model where high U308 grades (>15% U308) and low recovery (<80%) are encountered. These areas have been classified as Inferred resources.

Data Spacing

The mineralization at the Project is highly variable, and characterized by significant changes in U308 grade and density over relatively short distances. Volumes classified as Inferred are informed by data spaced at distances considered to only be sufficient to establish where grade and density continuity is more likely than not.

Geological Models

The main controls on mineralization at the Project are interpreted from drill core observations and include interpretations of the structural and lithological controls. The interpretation of geometry of the structural framework, in which the mineralization has been modelled, has been interpreted by property scale structural trends, and is poorly supported by observed, oriented measurements (Section 11.2.3). This uncertainty in the local orientation of mineralized structures is more significant for Inferred Mineral Resources.

Grade and Density Estimates

The continuity of relatively high U308 grades is a source of uncertainty in the estimates. The QP has used the available data and experience from similar deposits to establish restrictions of distance over which relatively high grade U308 may be interpolated into the block estimates. The estimates of U308 grade and bulk density are particularly sensitive to these restrictions, and more so in volumes classified as Inferred Mineral Resources (Section 11.6.3).

Bulk density data is not available at the same support level as U308 grade. The estimation of bulk density includes the assignment of density values to samples where density has not been recorded. Although the QP has used available information and geological knowledge to develop regression formulae to assign the most appropriate density where this information is missing, this is a source of uncertainty in the MRE.

11.6.2 Indicated Mineral Resources

Inferred Mineral Resources, by definition, are part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of adequate geological evidence and sampling. The level of geological certainty associated with an Indicated Mineral Resource is sufficient to allow a qualified person to apply modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Because an Indicated Mineral Resource has a lower level of confidence than the level of confidence of a measured Mineral Resource, an Indicated Mineral Resource may only be converted to a probable Mineral Reserve.

At the Project, Indicated Mineral Resources are affected by the following sources of uncertainty: Data Spacing

The mineralization at the Project is highly variable and characterized by significant changes in U308 grade and density over relatively short distances. Volumes classified as Indicated are informed by data spaced at distances considered to be sufficient to establish geological and grade continuity with reasonable certainty.

Geological Models

It is recognized that there are possible alternate interpretations of the local scale structure, which in turn define the local controls on mineralization in the current model, that cannot be resolved with the available data. The uncertainty is primarily a result of the lack of oriented measurements in the mineralized zones and thus a reliance on more ambiguous data such as alpha angles (Section 11.2.3). Although the risk to the global estimate may be relatively low, there is a greater risk to the local estimates and it could also significantly impact mine planning and planning of infill and/or exploration drilling.

Grade and Density Estimates

Geological continuity of high-grade U308 and bulk density is limited, and is a source of uncertainty in the model, although all available information and geological knowledge has been incorporated into the modelling and estimation approach.

Bulk density data is not available at the same support level as U308 grade. The estimation of bulk density includes the assignment of density values to samples where density has not been recorded. Although the QP has used available information and geological knowledge to develop regression formulae to assign the most appropriate density where this information is missing, this is a source of uncertainty in the MRE.

11.6.3 Sensitivity to High-Grade Restrictions

The Mineral Resources of the Project are sensitive to the selection of the high-grade threshold search restrictions. To illustrate this sensitivity, block model quantities and grades were estimated using several high-grade search restriction scenarios:

- Scenario R0: No Threshold applied. All samples considered up to 100% of modelled continuity in all directions.
- Scenario R1: Samples above threshold restricted to a distance of 90% of modelled continuity in the major direction, and 60% in the semi-major and minor directions for the RRE and RRFE and 80% in the major direction, and 60% in the semi-major and minor directions for the RRW.
- Scenario R2: Samples above threshold restricted to a distance of 80% of modelled continuity in the major direction, and 50% in the semi-major and minor directions for the RRE and RRFE and 70% in the major direction, and 50% in the semi-major and minor directions for the RRW. This scenario was implemented in the final model estimate.
- Scenario R3: Samples above threshold restricted to a distance of 70% of modelled continuity in the major direction, and 40% in the semi-major and minor directions for the RRE and RRFE and 60% in the major direction, and 40% in the semi-major and minor directions for the RRW.
- Scenario R4: Samples above threshold restricted to a distance of 50% of modelled continuity in the major direction, and 20% in the Semi-major and minor directions for the RRE and RRFE and 40% in the major direction, and 20% in the Semi-major and minor directions for the RRW.

The resulting block model grades, and corresponding metal loss percent of each scenario are presented in Table 11-19. The scenarios demonstrate that the U308 grade, and resulting metal is sensitive to the restriction of high-grade samples. SRK have used geological observations and experience with similar deposits to choose an appropriate scenario (Section 11.2.4). Scenario R2 was used for the high-grade restrictions implemented in the Mineral Resource estimate presented in Section 11.5.

Table 11-19: Metal Loss Sensitivity to the selection of High-Grade Search Restriction Radii.

Deposit	Scenario R0	Scenario R1		Scenario R2		Scenario R3		Scenario R4	
	Grade U ₃₀₈ (%)	Grade U ₃₀₈ (%)	Metal U ₃₀₈ (%)	Grade U ₃₀₈ (%)	Metal Loss (%)	Grade U ₃₀₈ (%)	Metal Loss (%)	Grade U ₃₀₈ (%)	Metal Loss (%)
RRW	4.21	3.89	7.90%	3.87	8.30%	3.8	10.00%	2.92	31.40%
RRE	4.74	4.12	13.50%	4.07	14.60%	3.74	21.80%	2.85	40.80%
RRFE	2.43	2.32	4.60%	2.31	5.00%	2.25	7.50%	1.91	21.80%

11.6.4 Sensitivity to Reporting Cut-off

The Mineral Resources of the Project are sensitive to the selection of the reporting cut-off grade. To illustrate this sensitivity, the diluted block model quantities and grade estimates are presented in grade-tonnage curves at different U3O8 grade cut-off values for Indicated and Inferred category Mineral Resources respectively (Figure 11-27 and Figure 11-28). The reader is cautioned that the figures presented in these tables should not be misconstrued with a Mineral Resource statement. The figures are only presented to show the sensitivity of the block model estimates to the selection of the U3O8 grade cut-off value.

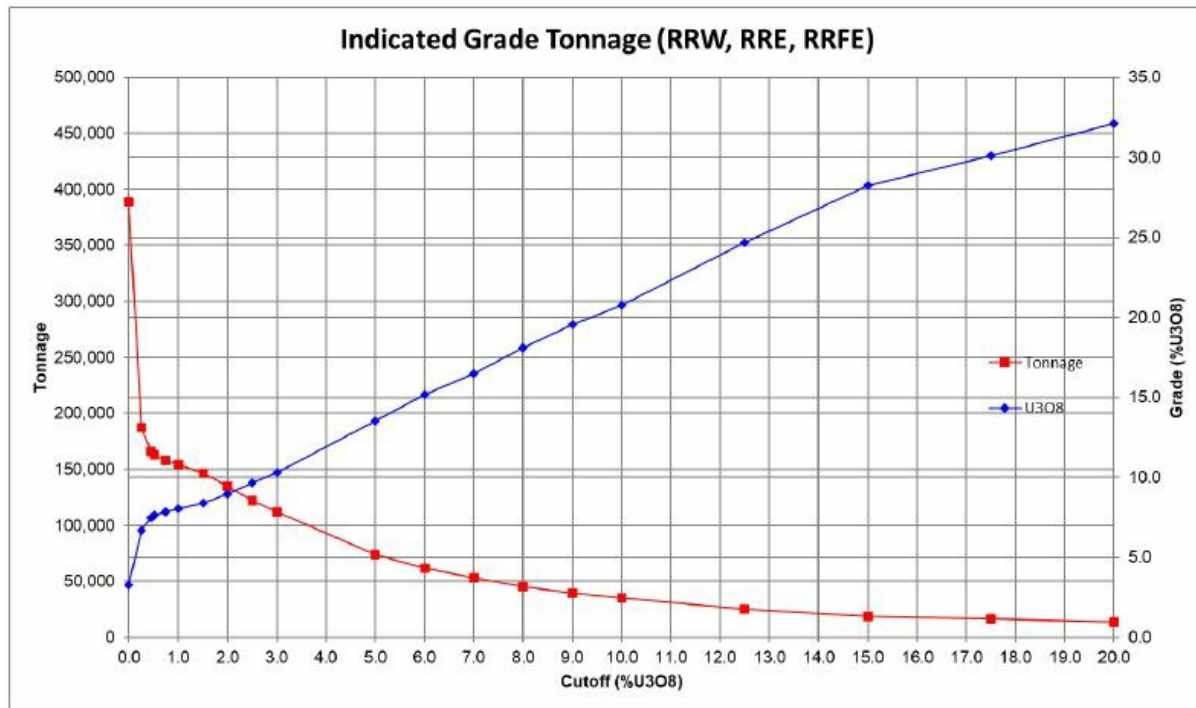


Figure 11-27: Diluted Block Model Quantities Grade Tonnage Curves for Indicated Mineral Resources.



Figure 11-28: Diluted Block Model Quantities Grade Tonnage Curves for Inferred Mineral Resources.

11.6.5 QP Opinion on the Level of Uncertainty

The QP considers that the level of uncertainty has been adequately reflected in the classification of Mineral Resources for the Project. Notwithstanding this, the MRE presented in Section 11.5 may be materially impacted by any future changes in the break-even cut-off grade, which may result from changes in mining method selection, mining costs, processing recoveries and costs, metal price fluctuations, or significant changes in geological knowledge.

The QP considers that the MRE reported in the C&F scenario (Table 11-18), which are adjacent to the unconformity where hydrogeological and geotechnical conditions are expected to be more challenging, are subject to increased uncertainty. In the event that these technical challenges could not be addressed, this material is at risk of not having prospects for economic extraction.

The combined level of technical studies completed to date on the Project is at a conceptual study level. Substantive additional technical work, comprising gathering site specific information and additional technical work is required to advance the Project to a position where economic viability can be demonstrated. Mining, processing, and G&A costs were referenced from similar projects (described in Section 11.4) and adjusted to reflect the assumed 100 ktpa production rate for the Project.

12 MINERAL RESERVE ESTIMATES

This section is not applicable to the TRS.

13 MINING METHODS

This section is not applicable to the TRS.

14 PROCESSING AND RECOVERY METHODS

This section is not applicable to the TRS.

15 INFRASTRUCTURE

This section is not applicable to the TRS.

16 MARKET STUDIES

This section is not applicable to the TRS.

17 ENVIRONMENTAL STUDIES, PERMITTING, AND PLANS, NEGOTIATIONS, OR AGREEMENTS WITH LOCAL INDIVIDUALS OR GROUPS

This section presents technical and economic ESG factors that have the potential to become Modifying Factors should the Project move towards reporting of Mineral Reserves. The concept of double materiality is applied, with potential ESG impacts from the Project considered equally to impacts posed by the ESG setting to the Project. According to double materiality, companies must report both on how their business is impacted by sustainability issues (“outside-in”) and how their activities impact society and the environment (“inside-out”).

For this assessment, potentially material is assumed to be factors that could:

- Stop the Project, affect the continuation of operations or obtaining of approvals;
- Pose major concern to stakeholders and/or could affect the social licence to operate (this includes Indigenous title holders, non-Indigenous communities, potential labour areas and business stakeholders);
- Are out of alignment with corporate strategies or policies; and/or
- Result in the need for additional studies or costs that could affect the proposed design and/or operation of the Project and thus the value of the assets (e.g., design changes, operational management requirements, cash flow restrictions, rehabilitation/closure demands).

The potential for materiality has been identified on the basis of:

- Experience of ESG reviewers;
- Understanding of the location; proposed operation; regulatory and governance structure; socio-political situation; environmental and social setting; and labour relations context with key source documents being the PEA (SRK, 2011), the ADEX PFS (BARR, 2014) and the ADEX EIA (RTCU, 2014); and
- Understanding client and audience, in particular current expectations from investors around ESG factors and the requirements of Canadian and international standards representing good international industry practice for a uranium project.

The factors are divided subjectively into environment, social and governance considerations. It is recognised many of the factors fall into more than one of the ESG categories with interdependencies and direct and indirect influences making the risks and opportunities facing a future project more complex than may be presented simplistically below. Most notable of these crossing cutting factors is the involvement of Indigenous groups because of their bond to the land (environment), their historical social treatment and suppression of their culture (social) and the move towards regaining their traditional rights (governance).

17.1 Environmental Considerations

- Although the ADEX EIA included extensive baseline investigations over the period 2012 to 2014, these are now a decade old and it is expected that both regulators and stakeholders will wish to see additional environmental studies undertaken to confirm previous findings in terms of water resources, air quality and biodiversity and inform any future Project design. Valued environmental and traditional valued environmental components need to be confirmed and included in a new environmental assessment (“EA”) (with the latter reconfirmed with relevant Indigenous groups). Based on current information, the design criteria for the Project will need to be updated to ensure potentially material constraints around aspects such as those summarised below are developed and applied to minimise risk of unexpected development costs or objections from stakeholders.
- Impacts to water quality were a key concern and debate during previous engagements with authorities and communities. Design and management of water-related infrastructure has the potential to significantly influence capital, operational and closure Project costs. It is expected that the mine would be net positive for water and that a treated effluent would need to be discharged. Erosion and sediment control will also require careful consideration in further design. Previous assumptions regarding where any effluent would be discharged need to be re-tested with regulators and stakeholders.
- As described in the Preliminary Geochemical Characterization report (BARR, 2015), waste rock generated from mining in northern Saskatchewan is typically classified as either “clean” or “mineralized” (or “special”) waste rock. Clean rock does not contain sufficient quantities of any minerals that could be mobilized or potentially cause an adverse impact if released into the environment, but still requires management for other reasons, such as erosion control. Special rock at uranium mining facilities in northern Saskatchewan are variably characterized as: having elevated, though not economic, levels of uranium; being potentially acid generating (“PAG”); or containing other constituents of potential concern (COPCs). BARR 2015 identified a list of COPCs for the ADEX’s waste materials, which are assumed to be similar to any future Project waste streams. The report concluded the Athabasca Group lithologies (both upper and lower) appear to be non-acid-generating with low levels of COPCs. However, the Wollaston Supergroup lithologies contain both PAG and non-PAG material, with some COPCs. As part of future development studies, the initial geochemical testwork will need to be revisited and updated to determine the design, operational controls and closure plans required for any waste material (rock, tailings, overburden etc). It is likely at least some facilities will require lining and seepage collection and leak detection, along with treatment prior to release to surface waters.
- Depending on the extent of processing to be proposed for the Project site, there may be a need for tailings disposal, which is likely to be a significant capital, operational and closure cost item. Other mines in the area dispose of tailings to old surface pits and this will not be an option for the Project. If tailings are disposed of on surface, it is expected that extensive geotechnical, geochemical and environmental investigations will be required to ensure Canadian standards, such as the Towards Sustainable Mining tailings and Canadian Dam Association guidelines are met. Depending on business stakeholder demands, consideration of international standards, such as the Global Industry Standard on Tailings Management may also be needed. If the ore is milled elsewhere, the disposal capacity of the receiving mine will need to be confirmed. Options for cemented tailings backfill may also need to be explored.

- Some preliminary closure concepts were outlined in the PEA (SRK, 2011). However these would need to be revisited as part of any future Project development study taking into account new norms around closure (stipulated by both Canadian and international good practice guidelines and standards), updated regulations and further consultation with interested parties. Conceptual closure cost estimates need to be included in any future technical economic models, with provisions included for post-mining monitoring and maintenance and social transitioning.
- The following potential environmental risks to the Project will require consideration during Project development to ensure appropriate risk controls address regulatory, stakeholder and corporate risk profile requirements:
 - Wildfire preparedness and response;
 - Seasonal changes and how these may be impacted by a changing climate such as drought (with increase the risk of wildfires and decrease surface flows), more intense runoff events and extreme weather events;
 - Seismic event although it is understood the tectonic stability of the Canadian Shield is one of the most tectonically stable areas in the world (ADEX EIA, RTCU, 2014); and
 - Hydrogeological risks that could provide a direct or indirect connection between the underground workings and higher hydraulic conductivity zones or to an overlying lake.

17.2 Social (Including Labour) Considerations

- Uranium has been mined in Saskatchewan since the mid-1950s. The development of new deposits in the late 1970s (Cluff Lake uranium mine) saw an increase in public interest/concern with uranium mining in the Province. As a result, government (federal and provincial) and industry increased their attention to addressing social considerations associated with uranium mining in Saskatchewan. New uranium developments are likely to be closely scrutinised.
- Formal engagement with Indigenous rights holders is now a duty imposed on both federal and provincial governments, though generally effected by the Project proponent as part of the EA and licensing processes described in Section 3.5. Efforts will be needed to solicit and incorporate traditional knowledge, concerns and desires of northern Saskatchewan residents into the EA process. There are well-established forums and committees mandated to facilitate engagement. Both Hathor and RTCU undertook engagement when active on the Project, but it is understood there has been limited engagement since 2014 as the Project was inactive under the previous operator. The previous stakeholder analysis will need to be updated, a new engagement plan developed and engagement re-initiated to optimise opportunities for value add to the Project and minimise risks of opposition.
- From a socio-economic perspective, many of these communities and political entities have interests in limited partnerships and other business ventures established to take advantage of the economic opportunities associated with northern Saskatchewan's mining industry. These stakeholder groups will be looking for opportunities to enter into contractual arrangements to maximize the involvement of these businesses with the Project in the event the Project gains
- Although the Project area is remote wilderness, it and the surrounding areas are used by people (particularly Indigenous peoples) for their livelihoods and recreation. This may involve traditional activities through hunting, trapping, fishing, wild harvesting, etc. Therefore, anything that harms or restricts access to these natural resources is of concern not just in the immediate vicinity, but also more widely across the RSA. Often accommodation is required to offset any impacts to traditional activities and rights.

- No physical resettlement is expected to be required but there is a trapper active in the area, with historical compensation payments made by RTCU to cover possible loss of income due to exploration activities. The current status of these compensation payments is unknown.
- Radiological exposure is an emotive issue and of concern to both potential staff and anyone coming into contact with the site or its product. It is tightly controlled by CNSC requirements, with radon and radium being the key areas of concern for staff and wider community exposure. As part of the CNSC licence it is expected there will be extensive safety controls imposed through management systems including monitoring (site, personal and environment) and reporting.
- General health and safety controls are specified in law and Canadian good practice guides. It is expected that hazard avoidance controls associated with things like hazardous chemicals, radiation (see above) and natural phenomena will need to be designed and implemented as part of appropriate management systems.
- The following potential social (including labour) risks to the Project will require consideration during project development and implementation:
 - Stakeholder opposition (Indigenous rights holders, non-governmental organisations, etc.) has the potential to slow down permitting processes and in extreme cases lead to direct interference with the Project. This is best managed through early, regular and transparent communication with relevant stakeholders, as outlined above.
 - There is a lack of available labour in the immediate Project area due to its remoteness. However, it is recognised that there is a skilled labour set in the wider northern Saskatchewan region due to the number of other uranium mines.

17.3 Governance Considerations

Governance risks and opportunities identified for the Project include:

- To enable the above environmental and social risks and opportunities to be appropriately addressed to the satisfaction of both board and investors satisfaction, the Project will need to establish appropriate governance frameworks for development, construction and operation. Policies, strategies and internal control processes will need to be applied or established to set out how the Project intends to operate with respect to ESG related matters. Top level management commitment and appropriate environment, community, health & safety, human resources and procurement teams will need to be recruited, trained and evaluated regularly, with reporting back to relevant decision makers.
- CNSC will require and most good practice guidelines in the mining industry are pushing companies towards development of robust management systems for health & safety, radiological control and environmental protection and other areas of high risk (e.g. tailings management). These systems inherently include requirements for ongoing engagement and reporting to internal and external stakeholders. As part of such a system, it is expected any future construction and operation will require site-specific management plans, standard operating procedures and monitoring programs to address core risk areas and facilitate assessment of compliance and reporting.
- Although there are no protected areas or identified heritage sites (Section 4), there are sensitive habitats for protected species and restrictions around working near water bodies and may be other biophysical or social constraints identified through the engagement process. As such future Project development studies will need to take a risk informed approach to decision making when evaluating alternative technologies and location of infrastructure.

- SRK understands power supply (Scope 2) to a future Project is likely to be hydroelectric but there is still hydrocarbon fired power input to the Saskatchewan grid. The Project described in the PEA (SRK, 2011) required both diesel and propane (Scope 1) and it is likely there would be some of loss of vegetation/wetland cover, all of which contribute to the Project's greenhouse gas footprint. Corporate strategy and any further development studies will need to determine decarbonisation approaches that align with government initiatives. As an example, SRK notes the federal government requires the proponent address the extent to which the Project hinders or contributes to the Government's ability to meet its environmental obligations and its commitments in respect of climate change.
- Future financial models will need to address carbon-pricing requirements, which may influence the above decarbonisation strategies. In June 2018 the Greenhouse Gas Pollution Pricing Act ("GGPPA") and supporting regulations came into force. The GGPPA allows each province and territory to develop and implement its own carbon programs. The GGPPA has two pricing systems: a fuel charge, which is applicable in Saskatchewan; and an Output-Based Pricing System ("OBPS") that puts a price on the carbon pollution of industrial facilities emitting >50,000 tonnes of CO₂e per year. The federal government approved Saskatchewan's OBPS in November 2022, which comes into effect January 1, 2023. The Saskatchewan OBPS will follow the federal carbon pricing schedule as a minimum, which means the price will increase by CAD\$15 per year from 2023 -2030, taking the price from CA\$65 (2023) to CA\$170 (2030) per tonne CO₂e. The program also includes credit for carbon capture, utilization and storage.
- Uranium and nuclear power may be considered positive in terms of transitioning away from carbon-based power generation and corporate marketing strategies could be tailored to make the most of this opportunity.
- Although there are a few community activists and close scrutiny by Indigenous groups, uranium mining is widely accepted in the region due to economic benefit and the oversight from the CNSC. Uranium is considered a strategic mineral and historically has been considered to be at a low risk of political interference, but this is difficult to predict and needs to be closely monitored. The 2022 federal budget proposed to provide CA\$250M over four years, starting in 2022-23, to Natural Resources Canada to support pre-development activities of clean electricity projects of national significance, such as SMRs.
- As part of any future EA, the cumulative impacts with neighbouring exploration and operational projects will need to be assessed and opportunities for social enhancement explored. This includes the operational McClean Lake mill and Rabbit Lake mill (under care and maintenance) and the closest project, Midwest. The most sensitive issues are likely to relate to water resources, traffic and local procurement/employment.

18 CAPITAL AND OPERATING COSTS

This section is not applicable to the TRS.

19 ECONOMIC ANALYSIS

This section is not applicable to the TRS.

20 ADJACENT PROPERTIES

The Project is located in the eastern Athabasca Basin, which has a significant history of uranium mining and processing. Most notably are Orano/Denison's McLean Lake Operation (active) and Cameco's Rabbit Lake Operation (care and maintenance), both within 30 km of Roughrider. There are a number of known uranium projects adjacent to the Project, including Orano/Denison's Midwest Project, Denison/Korea Waterbury Lake Uranium Limited Partnership's ("KWULP") Waterbury Project, and Cameco's Dawn Lake Project (Figure 20-1).

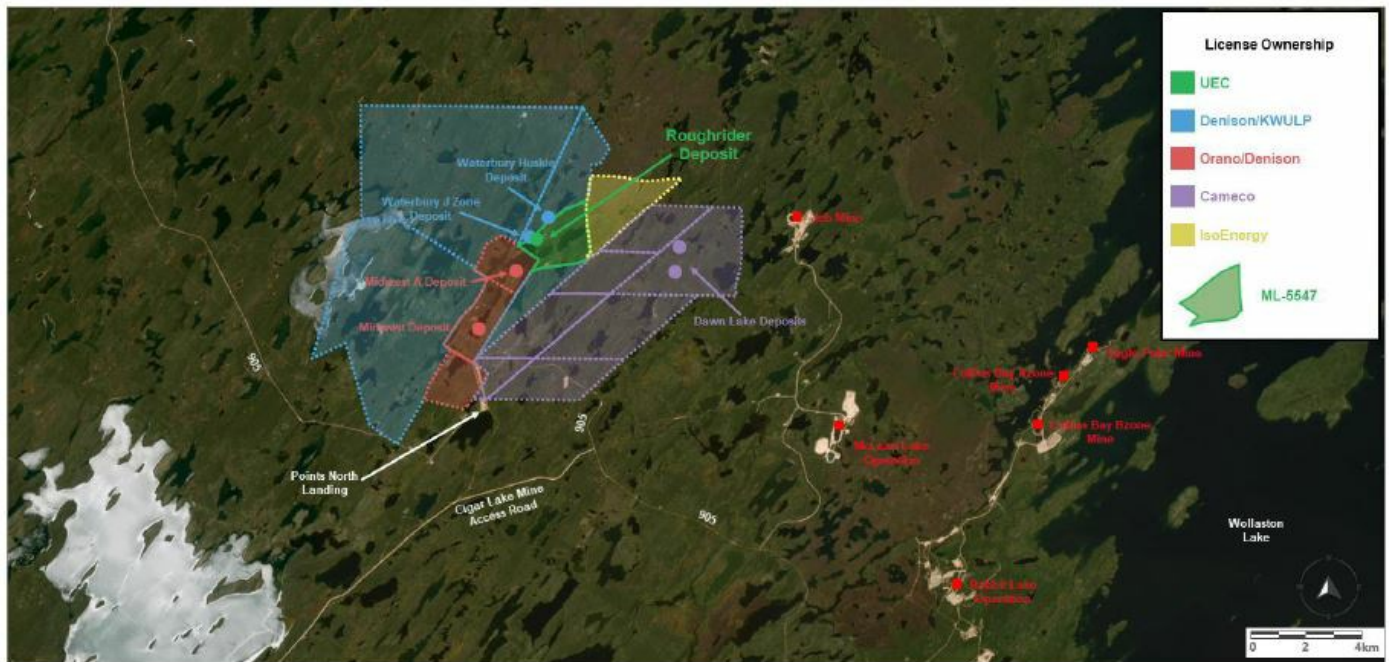


Figure 20-1: Plan view of the Roughrider deposit area of the eastern Athabasca

20.1 Midwest Project

The information presented here on the Midwest Project is publicly available and has been sourced from Denison Mines (“Denison”) website (<https://denisonmines.com>). The QP has been unable to verify this information and it is not necessarily indicative of the mineralization on the Project that is the subject of this TRS.

The Midwest Project is located within one kilometre of Points North Landing and comprises the Midwest Main and Midwest A uranium deposits (Figure 20-1). The Midwest Project is owned by Orano Canada (74.83%) and its joint venture partner Denison (25.17%). Orano Canada is the operator of the project.

20.1.1 Midwest Main Deposit

The Midwest Main deposit is lens to cigar shaped, 600 m long, 10 m to over 100 m wide, with thicknesses ranging from 5 m to 10 m. The deposit consists of a near-massive, high-grade mineralized core that straddles the unconformity approximately 210 m below surface. The high-grade core is surrounded by lower-grade, more dispersed, fracture-controlled mineralization in both sandstone and, in minor amounts, in basement rocks. The high-grade mineralization forms a roughly flat-lying lens, with a root extending down into the basement rocks along a steeply-dipping fault.

Mineral Resources for the Midwest Main deposit have been reported by Denison at a cut-off grade of 0.1% U3O8 and include:

- Indicated Resources of 453kt @ 4.0% U3O8 for 39.9 Mlbs U3O8; and
- Inferred Resources of 793kt @ 0.66% U3O8 for 11.5 Mlbs U3O8

The Mineral Resources have an effective date of March 26, 2018 and were reported in accordance with the NI 43-101 Standards of Disclosure for Mineral Projects (“NI 43-101”).

20.1.2 Midwest A Deposit

The Midwest A deposit is approximately 450 m long, 10 m to 60 m wide, ranges up to 70 m in thickness and occurs between 150 m and 235 m below surface. Mineralization straddles the unconformity contact with minor amounts hosted within basement structures immediately below the unconformity. Thicker zones of mineralization above the unconformity are concentrated in conglomerate units at the base of the Athabasca sandstone. Similar to the Midwest Main deposit, a high-grade core of mineralization is surrounded by a lower-grade, more dispersed, fracture-controlled envelope.

Mineral Resources for the Midwest A deposit have been reported by Denison at a cut-off grade of 0.1% U308 and include:

- Indicated Resources of 566kt @ 0.87% U308 for 10.8 Mlbs U308; and
- Inferred Resources of 53kt @ 5.8% U308 for 6.7 Mlbs U308.

The Mineral Resources have an effective date of March 26, 2018 and were reported in accordance with NI 43-101.

20.2 Waterbury Project

The information presented here on the Waterbury Project is publicly available and has been sourced from Denison Mines ("Denison") website (<https://denisonmines.com>) and the report "Preliminary Economic Assessment for the Tthe Heldeth Ttie (J Zone) Deposit, Waterbury Lake Property, Northern Saskatchewan, Canada". The QP has been unable to verify this information and it is not necessarily indicative of the mineralization on the Project that is the subject of this TRS.

The Waterbury Project is located north-east of Points North Landing and comprises the Tthe Heldeth Tue (formerly J Zone) and Huskie uranium deposits (Figure 20-1). The Waterbury Project is owned Waterbury Lake Uranium Limited Partnership ("WLULP"), of which Denison Waterbury Corp. (a wholly-owned subsidiary of Denison) owns 67.01% and Korea Waterbury Lake Uranium Limited Partnership ("KWULP") owns 32.99%.

20.2.1 The Heldeth Ttie Deposit

The Tthe Heldeth Tild deposit is approximately 700 m in east-west strike length and up to a maximum north south lateral width of 70 m. Uranium mineralization thickness varies widely throughout and can range from tens of centimetres to over 19.5 m in vertical thickness. Uranium mineralization is generally found within several metres of the unconformity at depth ranges of 195 m to 230 m below surface. It variably occurs entirely hosted within the Athabasca sediments, entirely within the metasedimentary gneisses or straddling the boundary between them.

Mineral Resources for the Tthe Heldeth Tue deposit have been reported by Denison at a cutoff grade of 0.1% U308 and include:

- Indicated Resources of 291kt @ 2.0% U308 for 12.81 Mlbs U308.

The Mineral Resources have an effective date of September 6, 2013 and were reported in accordance with NI 43-101.

20.2.2 Huskie Deposit

The Huskie deposit uranium mineralization is entirely basement-hosted comprising three stacked, parallel lenses which are conformable to the dominant foliation and fault planes within the east-west striking graphitic gneiss unit. The deposit occurs over a strike length of approximately 210 m, dip length of approximately 215 m and has an overall true thickness of approximately 30 m. The deposit occurs 40 m to 245 m below the sub-Athabasca unconformity. The high-grade uranium mineralization within the lenses is comprised of massive to semi-massive uraninite and subordinate bright yellow secondary uranium minerals occurring along fault or fracture planes, or as replacement along foliation planes. Disseminations of lower grade mineralization occur within highly altered rocks proximal to fault planes.

Mineral Resources for the Huskie deposit have been reported by Denison at a cut-off grade of 0.1% U308 and include:

- Inferred Resources of 268kt @ 0.96% U308 for 5.69 Mlbs U308.

The Mineral Resources have an effective date of October 17, 2018 and were reported in accordance with NI 43-101.

20.3 Dawn Lake Project

The information presented here on the Dawn Lake Project is publicly available and has been sourced from the International Atomic Energy Agency (“IAEA”) website (<https://www.pubiaea.org/>). The QP has been unable to verify this information and it is not necessarily indicative of the mineralization on the Project that is the subject of this TRS.

The Dawn Lake Project, adjacent to the Project, hosts the Zone 11, 11A, 11B and Zone 14 unconformity-associated uranium occurrences and is owned by Cameco Corporation and Orano Canada. Further north, the Tamarack deposit is also located within the area referred to as the Dawn Lake Project, but the QP does not consider this an adjacent property.

20.3.1 Zone 11, 11A, 11B and Zone 4 Deposits

The uranium mineralization comprises primarily pitchblende and are entirely basement-hosted, in some places straddling the unconformity, forming cigar shaped pods. The deposits have a plunge from south to north, with the deposits initially sandstone-hosted before ending with the 11B deposit entirely basement hosted. The deposits have the following dimensions:

- Zone 11: 400 m x 60 m x 40 m
- Zone 11A: 650 m x 50 m x 60 m
- Zone 11B: 450 m x 120 m x 50 m
- Zone 14: 700 m x 40 m x 30 m

The Dawn Lake Zone 11 and Zone 14 deposits do not have any Mineral Resources.

21 OTHER RELEVANT DATA AND INFORMATION

In the opinion of the QP, all relevant information material to the MRE have been disclosed in the TRS.

22 INTERPRETATION AND CONCLUSIONS

The Project is an Exploration Stage Property 100% owned by Uranium Energy Corporation. The area around the Project is a well-developed mining area close to necessary infrastructure and resources.

The QP has adhered to the regulations and definitions prescribed by S-K 1300 for all aspects of the preparation of the MRE presented in this TRS. In the absence of specific S-K 1300 requirements for particular aspects of the MRE preparation, the QP has considered the CIM Estimation of Mineral Resources & Mineral Reserves Best Practice Guidelines (November 29, 2019) and CIM Best Practices in Uranium Estimation Guidelines.

The Project deposits are considered to be examples of Unconformity-Related Uranium deposits. The QP has prepared a geological model, and has designed structural and mineralization models, considering the supporting data as well as local knowledge of the QP and Project staff. Resource estimation domains were designed based on a combination of the mineralization and structural models. The QP considers that the knowledge of the deposit setting, lithologies, structural controls on mineralization, and the mineralization style and setting, is sufficient to support the MRE to the level of classification assigned.

The QP has considered the relevant factors and MSO shapes, described in Section 11.4, as a guide to identify those portions of the model to have prospects for economic extraction and select an appropriate resource reporting cut-off grade for reporting of the MRE.

The MRE prepared by the QP, with an effective date of 1 January 2023, comprises 389kt @ 3.25% U308 for 27.8 Mlbs of U308 in the Indicated Mineral Resource category and 359kt @ 4.55% U308 for 36.0 Mlbs of U308 in the Inferred Mineral Resource category. The MRE is reported as diluted within the MSO shapes, considering a 0.45% U308 cut-off for LHOS scenario areas and 0.52% U308 cut-off for C&F scenario areas.

The QP believes that the level of uncertainty has been adequately reflected in the classification of Mineral Resources for the Project. Notwithstanding this, the MRE presented in Section 11.5 may be materially impacted by any future changes in the break-even cut-off grade, which may result from changes in mining method selection, mining costs, processing recoveries and costs, metal price fluctuations, or significant changes in geological knowledge.

The QP considers that Mineral Resources reported in the C&F scenario (Table 11-18), which are adjacent to the unconformity where hydrogeological and geotechnical conditions are expected to be more challenging, are subject to increased uncertainty. In the event that these technical challenges could not be addressed, this material is at risk of not having prospects for economic extraction.

Should the Project be developed, it is expected it will need to undertake additional environmental and social studies to build on the historical data collection undertaken by RTCU (which is now 10 years old) to prepare an EIA. It is also recognized there are synergies between the environmental and engineering data gathering exercises (particularly for geochemistry, water and climate) and thus cost and schedule efficiencies can be achieved with careful planning. It is estimated the environmental and social assessment and CSNC licensing for the Project may require between 48 and 72 months to complete. The variation in schedule will be a function of the complexity of the proposed Project and how it interacts with the environment and the level of public concern with the proposed Project. Therefore, the accuracy of the schedule can only be refined following the completion of pre-feasibility or feasibility level engineering studies and the findings of new engagement activities with Indigenous groups (recognizing that historical engagement was done approximately 10 years ago).

23 RECOMMENDATIONS

SRK has undertaken an initial assessment to support the disclosure of Mineral Resources, according to Item 17 Code for Federal Regulations Parts 229, 230, 239 and 249 of S-K 1300, specifically Section II, E, 4. The initial assessment comprises a qualitative evaluation of the technical and economic factors to establish the economic potential of the Project. As no conceptual or scoping level studies were available at the time of publication, SRK has relied on modified assumption sourced from recently published technical studies relating to underground uranium properties in the Athabasca Basin. These studies project significantly higher production rates than the currently assumed 100ktpa for the Project and as such the operating expenditure assumptions and other related assumptions have been factored to reflect this lower rate. Furthermore, it is important to note that significant additional technical work including the acquisition of additional site-specific data is required to advance the project to the next development stage as defined under S-K 1300, that being a Pre-Feasibility Study. Critical areas to be addressed in this regard will as a minimum include:

- The determination of scope and scale of the Project and specifically whether the Project will support the development of a dedicated processing facility and associated infrastructure or be considered as a supplemental ore feed to an owner of third-party processing hub;
- Securing additional site-specific technical data in respect of mining geotechnical data, hydrogeological data, metallurgical data and geochemistry data;
- Mining method selection and mine access options including ventilation and services requirements as well as development of a mine plan and production schedules;
- Supporting infrastructure investigations including site selection for processing facilities and waste management facilities;
- Establishing updated and current quotations for operating and capital expenditure assumptions; and
- Initiation of Environmental and Social Studies to inform infrastructure site selection, address impact assessments and permitting requirements and specifically any negotiations with interested and affected parties. Furthermore, it is important to note the importance of the criticality of advancing the environmental and social assessment and CSNC licensing for the Project that may require between 48 and 72 months to complete.

To date no estimate for the expected timeline, funding or commencement thereof has been determined and as such SRK understands that the Company will initially focus on development of additional scoping level studies to refine the options for scope and scale such that these can be, if warranted, utilised to determine the engineering scope for a Pre-Feasibility Study. As such there can be no guarantee that the results of further technical studies will support the assumptions as incorporated into the initial assessments as reported herein or a positive decision to initiate and complete a Pre-Feasibility Study.

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25 RELIANCE ON INFORMATION PROVIDED BY THE REGISTRANT

If relying on information provided by the registrant for matters discussed in the technical report summary, as permitted under S-K 1300 sub-section 229.1302(f), provide the disclosure required pursuant to S-K 1300 sub-section 229.1302(f)(2).

25.1 Market and Uranium Price

The QP has relied upon information regarding marketing and uranium price forecast information included in this report (Section 11.4.1) as the QPs relied on experts retained by UEC for this information. UEC subscribe to UxC Market Outlook forecast, which is a detailed supplydemand-price analysis undertaken by UxC. The QP considers it acceptable to rely on UxC for this information as the company is one of the nuclear industry's leading market research and analysis companies.

25.2 Environmental, Permitting and Social or Community Considerations

The QP has fully relied upon, and disclaims responsibility for, information supplied by experts retained by UEC. Specifically, SRK has relied upon a regulatory summary produced by Clifton Engineering Group Inc. (memo dated 12 April 2023, File R6631) and list of required future permits provided by UEC.

26 CERTIFICATE OF AUTHOR

SRK Consulting (UK) Ltd.

SRK Consulting (UK) Ltd. ("SRK"), do hereby certify that:

1. SRK is an independent, third-party firm comprising mining experts, including professional geologists, mining engineers and environmental scientists.
2. In accordance with S-K 1300 sub-section 229.1302(b)(1), SRK meets the qualifications specified under the definition of Qualified Person in sub-section 229.1300.
3. The Registrant, Uranium Energy Corp. have read the definition of Qualified Person, set out in S-K 1300 sub-section 229.1300, and certifies that by reason of education, professional registration and relevant work experience, SRK fulfill the requirements to be a "Qualified Person" for the purposes of S-K 1300.

Dated this 1st day of May, 2023

Signed and Sealed

Guy Dishaw, P.Geo.

GLOSSARY

Glossary

Glossary Item text inserted as example for definition of the term included in the Glossary as appropriate.

Technical Studies	Definition
Feasibility Study	Is a comprehensive technical and economic study of the selected development option for a mineral project, which includes detailed assessments of all applicable modifying factors, as defined by this section, together with any other relevant operational factors, and detailed financial analysis that are necessary to demonstrate, at the time of reporting, that extraction is economically viable. The results of the study may serve as the basis for a final decision by a proponent or financial institution to proceed with, or finance, the development of the project.
(1)	A feasibility study is more comprehensive, and with a higher degree of accuracy, than a pre-feasibility study. It must contain mining, infrastructure, and process designs completed with sufficient rigor to serve as the basis for an investment decision or to support project financing.
(2)	The confidence level in the results of a feasibility study is higher than the confidence level in the results of a prefeasibility study. Terms such as full, final, comprehensive, bankable, or definitive feasibility study are equivalent to a feasibility study.
Preliminary Feasibility Study (or Pre- Feasibility Study)	is a comprehensive study of a range of options for the technical and economic viability of a Mineral project that has advanced to a stage where a qualified person has determined (in the case of underground mining) a preferred mining method, or (in the case of surface mining) a pit configuration, and in all cases has determined an effective method of Mineral processing and an effective plan to sell the product.
(1)	A pre-feasibility study includes a financial analysis based on reasonable assumptions, based on appropriate testing, about the modifying factors and the evaluation of any other relevant factors that are sufficient for a qualified person to determine if all or part of the Indicated and measured Mineral Resources may be converted to Mineral Reserves at the time of reporting. The financial analysis must have the level of detail necessary to demonstrate, at the time of reporting, that extraction is economically viable.
(2)	A pre-feasibility study is less comprehensive and results in a lower confidence level than a feasibility study. A pre-feasibility study is more comprehensive and results in a higher confidence level than an initial assessment.
Initial Assessment	Is a preliminary technical and economic study of the economic potential of all or parts of mineralisation to support the disclosure of Mineral Resources. The initial assessment must be prepared by a qualified person and must include appropriate assessments of reasonably assumed technical and economic factors, together with any other relevant operational factors, that are necessary to demonstrate at the time of reporting that there are reasonable prospects for economic extraction. An initial assessment is required for disclosure of Mineral Resources but cannot be used as the basis for disclosure of Mineral Reserves

Marketing Studies	Definition
Final Market Study	Is a comprehensive study to determine and support the existence of a readily accessible market for the Mineral. It must, at a minimum, include product specifications based on final geologic and metallurgical testing, supply and demand forecasts, historical prices for the preceding five or more years, estimated long term prices, evaluation of competitors (including products and estimates of production volumes, sales, and prices), customer evaluation of product specifications, and market entry strategies or sales contracts. The study must provide justification for all assumptions, which must include assumptions concerning the material contracts required to develop and sell the Mineral Reserves
Preliminary Market Study	Is a study that is sufficiently rigorous and comprehensive to determine and support the existence of a readily accessible market for the Mineral. It must, at a minimum, include product specifications based on preliminary geologic and metallurgical testing, supply and demand forecasts, historical prices for the preceding five or more years, estimated long term prices, evaluation of competitors (including products and estimates of production volumes, sales, and prices), customer evaluation of product specifications, and market entry strategies. The study must provide justification for all assumptions. It can, however, be less rigorous and comprehensive than a final market study, which is required for a full feasibility study
Resources	Definition
Mineral Resource	Is a concentration or occurrence of 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 economic extraction. A Mineral Resource is a reasonable estimate of Mineralization, considering relevant factors such as cut-off grade, likely mining dimensions, location or continuity, that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable. It is not merely an inventory of all mineralisation drilled or sampled.
Measured Mineral Resource	Is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of conclusive geological evidence and sampling. The level of geological certainty associated with a measured Mineral Resource is sufficient to allow a qualified person to apply modifying factors, as defined in this section, in sufficient detail to support detailed mine planning and final evaluation of the economic viability of the deposit. Because a measured Mineral Resource has a higher level of confidence than the level of confidence of either an Indicated Mineral Resource or an Inferred Mineral Resource, a measured Mineral Resource may be converted to a proven Mineral Reserve or to a probable Mineral Reserve.
Indicated Mineral Resource	Is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of adequate geological evidence and sampling. The level of geological certainty associated with an Indicated Mineral Resource is sufficient to allow a qualified person to apply modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Because an Indicated Mineral Resource has a lower level of confidence than the level of confidence of a measured Mineral Resource, an Indicated Mineral Resource may only be converted to a probable Mineral Reserve.
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. The level of geological uncertainty associated with an Inferred Mineral Resource is too high to apply relevant technical and economic factors likely to influence the prospects of economic extraction in a manner useful for evaluation of economic viability. Because an Inferred Mineral Resource has the lowest level of geological confidence of all Mineral Resources, which prevents the application of the modifying factors in a manner useful for evaluation of economic viability, an Inferred Mineral Resource may not be considered when assessing the economic viability of a mining project and may not be converted to a Mineral Reserve.
Reserves	Definition
Mineral Reserve	Is an estimate of tonnage and grade or quality of Indicated and measured Mineral Resources that, in the opinion of the qualified person, can be the basis of an economically viable project. More specifically, it is the economically mineable part of a measured or Indicated Mineral Resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted.
Proven Mineral Reserve	Is the economically mineable part of a measured Mineral Resource and can only result from conversion of a measured Mineral Resource.
Probable Mineral Reserve	Is the economically mineable part of an Indicated and, in some cases, a measured Mineral Resource.

APPENDIX

A LIST OF POTENTIAL, PERMITS, APPROVALS AND AUTHORIZATIONS

Table A 1: List of Potential Permits, Approvals and Authorizations required for the Project

Permits, Approvals, Authorizations	Issuing Agency
Provincial:	
Environmental Assessment Process	Saskatchewan Environmental Assessment Branch
Approval to Construct and Operate Waterworks (Surface Water Withdrawal and Groundwater Withdrawal)	Water Security Agency
Water Rights License	Water Security Agency
Approval to Construct and Operate Drainage Works	Water Security Agency
Approval to Construct and Operate Sewage Works	Water Security Agency
Aquatic Habitat Protection Permit	Water Security Agency
Forest Product Permit	Saskatchewan Environment
Miscellaneous Use Permit	Saskatchewan Environment
Construction Permit	Saskatchewan Environment
Environmental Protection Plan for Industrial Sources	Saskatchewan Environment
Approval to Construct/Alter Highways Approach	Saskatchewan Highways and Infrastructure
Approval to Construct and Operate an Industrial Effluent Works	Saskatchewan Environment
Approval to Construct and Operate a Storage Facility (Hazardous Materials and Waste Dangerous Goods)	Saskatchewan Environment
Approval to Operate Pollutant Control Facilities	Saskatchewan Environment
Sand and Gravel Surface Lease	Saskatchewan Environment
Approval to Decommission Pollutant Control Facilities	Saskatchewan Environment
Release from Decommissioning and Reclamation	Saskatchewan Environment
Provincial Acceptance of Decommissioned and Reclaimed Site into Institutional Control Program	Saskatchewan Environment
Federal	
CNSC Construction Licenses	Canadian Nuclear Safety Commission
CNSC Operating License	Canadian Nuclear Safety Commission
Fisheries Act Authorization	Department of Fisheries and Oceans Canada
Species at Risk Permit	Environment and Climate Change Canada
Aquatic Environmental Effects Monitoring Program	Environment and Climate Change Canada
License to Store, Manufacture, or Handle Explosives	Natural Resources Canada

APPENDIX

B ENVIRONMENTAL BASELINE STUDIES

Baseline studies were undertaken between 2011 and 2014 for the RTCUC ADEX Project. The studies covered different areas depending on the aspect being investigated. For terrestrial studies this focussed on the lease area, the local study area (LSA) and the regional study area (RSA). The LSA included a 1 km zone surrounding the lease area, covering an area of approximately 20 km². The RSA encompassed a 15 km radius centered around the lease area totalling 706.9 km². For aquatic studies three areas were investigated: primary aquatic study area (ASA), which included North McMahon lake, South McMahon Lake and others creeks, streams and lakes close to the ore bodies; Collins Creek ASA and Smith Creek ASA. The studies summarised below are expanded upon in the following documents:

- CanNorth, 2014: Baseline Study Report (RTCUC ADEX EIA)
- CanNorth, 2014: 2014 Continuing Baseline Studies
- Barr, 2015: Preliminary Geochemical Characterisation for ADEX Project

Type of study	Summary of work undertaken including timing of data collection
Terrestrial	
Identification of species that could breed, winter, or migrate through the RSA	Searches for rare species in the Saskatchewan Conservation Data Centre (SKCDC) Wildlife Map Application (SKCDC 2012a), the W.P. Fraser Herbarium (SASK 2011), the Species at Risk Public Registry (SARPR 2012), and the Saskatchewan Bird Atlas database (SKCDC 2012b)
Vegetation	• Habitat types were delineated by performing image analysis on the spectral properties of SPOT-5 10 m multi-spectral satellite imagery (dated September 2011) • These were ground truthed using 10 m x 10m quadrats during ecosite surveys completed in the spring/summer of 2012 — target areas identified from satellite images from within potential large (minimum 30 m radius) areas of homogeneous habitat • Spring and fall surveys were distributed throughout 10 ecosite types with a range of 1 to 25 sites per ecosite • Dominant tree species, percentage canopy cover, stem density measured — 15 randomly selected trees in the plot were assessed for breast height, basal diameter and tree height • The percent cover of eight growth forms (coniferous trees, deciduous trees, deciduous shrubs, ericaceous shrubs, forbs, grasses/sedges, bryophytes, and lichens) was visually estimated along with the percent of exposed soil, water cover, and litter cover — depth of organic measured with ruler • Rare plants observed within the plot were identified and the waypoint and number of individuals were recorded • A desktop study was performed post field-survey to identify if any of the plants observed species had documented historical uses by the Aboriginal groups of northern Saskatchewan • Vegetation information, including dominant species and their percent cover, along with abiotic information, was collected and used to identify wetland classes for wetland habitats within the Primary ASA and a subset of wetlands from the RSA

Type of study	Summary of work undertaken including timing of data collection
Terrestrial	
Amphibian surveys	- Survey sites were in the RSA and LSA where appropriate habitat was found (e.g., near water bodies) and where night time access was practical and safe (e.g., near roads) - Acoustic surveys conducted in June (8 days) during the breeding season - Visual encounter surveys were completed by walking around the perimeter of wetlands/waterbodies in a zig zag pattern in the riparian area and aquatic emergent vegetation zone to observe or flush amphibians - searches of adjacent non-inundated (upland) amphibian habitats were completed in the same manner
Bird life	- Aerial surveys (via helicopter) were completed to document the occurrence, diversity, and abundance of waterbirds and raptor nests in the LSA and RSA during May 2012 - The shorelines of waterbodies (lakes, wetlands, and creeks) within 9 km² (3 km by 3 km) survey blocks were also surveyed for waterbirds and raptor nests - Abundance and richness totals were calculated by length of transect surveyed within each block - Incidental wildlife observations were also recorded, and UTM coordinates of nests were taken - Breeding bird point count surveys were conducted to document the occurrence and relative abundance of breeding birds, particularly songbirds and any avian species at risk using point count locations stratified by habitat type - Fall bird migration surveys were completed to document the use of the study area by staging and migrating birds using methods suggested by CWS 2007; MOE 2009
Terrestrial animals	- An aerial survey was completed in March 2012 to determine species occurrence and density of ungulates, specifically moose and woodland caribou, within the LSA and RSA - parallel flight transects spaced 1 km apart with a transect strip width of 400 m - species, number of individuals, and habitat type were recorded - Winter tracking surveys were done in March 2012 using triangle transects (3 km in length, 1 km each side) were placed in the LSA and throughout the RSA in homogeneous habitat types where possible - Ungulate (moose and caribou) pellet group and browse surveys were conducted June 2012 to determine the distribution and relative abundance of ungulates in the RSA - Small mammal surveys were completed to: 1) determine the species composition and relative abundance of voles, mice, and shrews (Sorex spp.) in different habitats within the LSA, and 2) collect specimens for chemical analysis of baseline disturbance in the LSA, and potentially-impacted areas in the RSA. Transects in the RSA were located upstream and downstream of potential effluent drainage systems. - Sampling areas were located in several habitat types to increase the potential for capturing granivorous species and carnivorous species two snap traps were set at each sampling station, and sampling stations were spaced 10 m to 15 m apart along transects, and attempts were made to keep transects in the same habitat type - Shorelines of waterbodies in the RSA were surveyed to obtain distribution and relative abundance data for semi-aquatic mammals by canoe, Zodiac, or on foot were completed to cover selected stream and lake shorelines within the LSA and RSA

Type of study	Summary of work undertaken including timing of data collection
Aquatic	
Surface water hydrology	33 surface water hydrology monitoring stations were established in 2011 and 2012 (with data collected through to 2013), covering the three study areas, this included 24 staff gauges for measuring instantaneous lake levels and 6 staff gauges paired with Solinst - Levelloggers for continual measurement of stream depth and finally 3 continuously monitoring stations (9 staff gauges and 3 continuous stations revisited in 2014) - Instantaneous stream discharge rates were measured at three different times throughout the year at all six of the permanent hydrological monitoring stations and at the three velocity monitoring locations, with discharge rates estimated using the area—velocity method (Gordon et al. 2004) - Regional streamflow analysis was done with data obtained from Water - Survey of Canada hydrometric gauging stations to determine long-term statistical variability in expected frequency and magnitude of flood and low flows - Flow duration estimates were completed for the permanent hydrologic monitoring stations locations
Lake bathymetry	- Bathymetric mapping of all of the lakes in the Project ASA was completed in the summer and fall of 2012 using a GPS MAP 178 depth sounder mounted on a Zodiac portable boat. - Lake depth and GPS locations were recorded simultaneously at regular intervals along lake transects in a zig-zag pattern. - Bathymetric maps were produced using AutoCAD® and Surfer software.
Water and sediment quality	22 long-term monitoring stations - Water quality samples collected in three lake locations within the Primary ASA in June and July (2 rounds) in 2011, with quarterly seasonal monitoring at 22 locations (12 stations in Primary ASA, 5 stations in Collins Creek ASA, and 5 stations in Smith Creek ASA) initiated in March 2012 — during 2014 sampling occurred only once in spring on six lakes and streams closest to the deposit - Field parameters, including temperature, dissolved oxygen (DO), specific conductance, and pH were measured - Discrete grab samples were collected near the lake surface of each waterbody, with composite samples from top, middle and bottom taken at sites greater than 2 m — these were analysed by the Saskatchewan Research Council for inorganic ions and physical properties, nutrients, metals, trace elements and radionuclides - Sediment quality samples were collected in September 2012 from 22 sampling locations - in each sampling area, five replicate stations were minimally separated by a distance of 20 m - At each station, the 0 to 5 cm horizon of one core was collected for particle size and total organic carbon (TOC) analyses and for sediment chemistry, two cores were composited per station — similar parameters to water quality were analysed for
Zooplankton, benthic invertebrate, and fish communities	- Zooplankton samples were collected concurrent with water quality and invertebrate, and fish phytoplankton samples in July/August 2012 - density and composition communities were determined - Benthic invertebrate sampling was undertaken in depositional habitat at each of the 18 lake areas and in erosional habitat at each of the 4 creek areas in September 2012, concurrently with sediment sampling in each study area, five replicate stations were sampled spaced a minimum of 20 m apart — biomass and composition were determined
Aquatic macrophyte chemistry	- Aquatic macrophytes (sedges) were collected from littoral areas of Unnamed Lake, North McMahon Lake, South McMahon Lake, and McClean Lake East and West basins in July/August 2012 - five replicate samples of shoot, root, and sediment (0-5 cm) were obtained from each lake and a minimum distance of 20 m separated stations - Samples were frozen but not analysed (current status of these samples is unknown)
Fish	- Three fish spawning surveys were completed in selected waterbodies closest to the deposit the Primary, Collins Creek, and Smith Creek ASAs in 2012, with spring and autumn surveys undertake as appropriate for the relevant fish species — methods included hoop nets; short-length gill nets (spawning nets); and angling, with surveyors searching for fish eggs and noting the presence/ absence and abundance of eggs to confirm the potential spawning habitat - Fish community surveys were completed during the summer of 2011 and 2012 in all study areas to assess species composition, abundance, morphometry, and fish health — methods included boat and backpack electrofishing, minnow traps, half-standard gill nets, and box nets - Fish flesh and bone samples were collected for chemical analysis from selected waterbodies closest to the deposit — samples were analysed for metals, trace elements, physical properties and radionuclides - Fish, eggs, and larvae were collected under the authority of a Special Collection Permit issued by the MOE - Aquatic habitat mapping was completed in each waterbody where a fish community survey was conducted

Other studies	
Geochemical characterisation	• Fifteen samples were subjected to acid-base accounting (ABA) analyses in June 2014, in support of the ADEX Project PFS. Sample analysis included paste pH, sulphur speciation, neutralizing potential (NP) by titration, and total elemental concentration ("whole rock") by digestion in aqua regia followed by ICP-MS analyses of the digestate. These samples were subsequently subjected to additional carbon and sulphur speciation testing in November 2014. • Seventy-six pulp samples were subjected to screening-level carbon and sulphur speciation in July 2014 — sample intervals from the assay database were selected to reflect proximity to underground ADEX and LOM features, such that the samples are representative of rock that will be managed under the Project • An additional 15 samples were selected for carbon and sulphur speciation as recommended following a review of the above analyses • A sub-set of seven samples that were previously subjected to carbon speciation was subjected to titration for NP and standard ABA procedures, in order to compare measurements of HCl-soluble (carbonate) carbon with measurements of NP • A sub-set of samples that were previously subjected to carbon and sulphur speciation were also selected to undergo Synthetic Precipitation Leaching Procedure (SPLP), and net acid-generation (NAG) testing
Climate	• Meteorological station installed at site August 2012 with data collected through to December 2014 (Jan to Mar 2014 had no data) continuously monitors temperature, precipitation, relative humidity, wind speed and direction, solar radiation, and barometric pressure • EC's meteorological station (ID: 4061629) at Collins Bay of Wollaston Lake, roughly 25 km east of the Project area - general characteristics based on the 1971 to 2000 time period with Rainfall Intensity-Duration- Frequency (IDF) data were based on the 1973 to 1989 time period • CanNorth baseline study (2014) presents information on: precipitation; temperature; wind direction and speed; evaporation

Type of study	Summary of work undertaken including timing of data collection
Air quality and soils	- Six sampling plots (10x10m) were established in or near the Roughrider LSA and six sampling plots were established near the northeast edge of the RSA, upwind of the mine site, to serve as a future reference area – sampled during 2012 - Two noise monitoring stations were established in May 2012 with seasonal data collection in May, August, and September 2012 using a Brüel & Kjaer sound level meter - Monitoring occurred continuously at each site during a daytime (07:00 am to -22:00 pm) and a night time (22:00 pm to 07:00 am) - Lmax, Lmin and Leq T were recorded in decibels
Noise	- Only the LSA was assessed as no sensitive receptors identified further afield - Sampling included radon gas levels by Radtrack track-etch radon detectors, and collecting soil, blueberry stems and leaves, and lichen (<i>Cladonia stellaris</i>) samples for chemical analysis – radon cups were left for a year and collected through to 2014 - Five soil sub-samples were collected from within each sampling plot at a depth of 5 cm using a soil auger (plus duplicates) - Soils and samples analysed for a range of nutrients, metals, trace elements, radionuclides, inorganic ions and % moisture and pH (soil only)
Heritage Resources	- HCB's heritage resources database was consulted to determine the types and number of known sites recorded in the LSA and surrounding region - Archaeologists reviewed the LSA and the proposed access trail routes for heritage sensitivities