

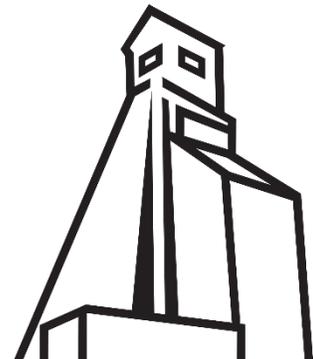


**NI 43-101 Technical Report for the  
Larocque East Project  
Northern Saskatchewan**

**Prepared for:**  
IsoEnergy Ltd.

**Prepared by:**  
Tim Maunula, P. Geo.  
T. Maunula & Associates Consulting Inc.

**Effective Date:** May 15, 2019



## **Date and Signature Page**

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The undersigned prepared this Technical Report, titled “NI 43-101 Technical Report for the Larocque East Project, Northern Saskatchewan,” with an effective date of May 15, 2019 at the request of IsoEnergy Ltd. The format and content of this report are intended to conform to National Instrument 43-101 (NI 43-101) of the Canadian Securities Administrators.

Dated at Chatham, Ontario on June 4, 2019.

*Original Signed and Sealed*

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Tim Maunula, P.Ge., Principal Geologist  
T. Maunula & Associates Consulting Inc.

## Table of Contents

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<b>1</b>	<b>SUMMARY .....</b>	<b>1-1</b>
1.1	Property Description .....	1-1
1.2	Ownership .....	1-1
1.3	Accessibility .....	1-4
1.4	History .....	1-4
1.4.1	Urangesellschaft –SMDC, 1976–1989 .....	1-4
1.4.2	Cameco, 1990–2009 .....	1-4
1.5	Geology and Mineralization .....	1-8
1.5.1	Regional Geology .....	1-8
1.5.2	Local and Property Geology .....	1-8
1.5.3	Mineralization .....	1-9
1.6	Deposit Type.....	1-10
1.7	Status of Exploration .....	1-12
1.8	Interpretation and Conclusions.....	1-15
1.9	Recommendations.....	1-15
1.9.1	Recommendations for Exploration Program.....	1-15
1.9.2	Exploration Budget – Summer Drilling Program .....	1-15
<b>2</b>	<b>INTRODUCTION .....</b>	<b>2-1</b>
2.1	Purpose .....	2-1
2.2	Sources of Information.....	2-1
2.3	Personal Inspection.....	2-1
<b>3</b>	<b>RELIANCE ON OTHER EXPERTS .....</b>	<b>3-1</b>
<b>4</b>	<b>PROPERTY DESCRIPTION AND LOCATION .....</b>	<b>4-1</b>
4.1	Area and Location .....	4-1
4.2	Nature of IsoEnergy’s Interest in the Property.....	4-1
4.3	Type of Mineral Tenure.....	4-1
4.4	Royalties.....	4-3
4.5	Environmental Liabilities .....	4-3
4.6	Required Permits.....	4-5
<b>5</b>	<b>ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, AND PHYSIOGRAPHY .....</b>	<b>5-1</b>
5.1	Accessibility .....	5-1
5.2	Climate .....	5-1
5.3	Topography, Elevation, and Vegetation.....	5-1
5.4	Local Resources and Infrastructure .....	5-1
<b>6</b>	<b>HISTORY.....</b>	<b>6-1</b>
6.1	Urangesellschaft–SMDC, 1976–1989.....	6-1
6.2	Cameco, 1990–2009 .....	6-1



<b>7</b>	<b>GEOLOGICAL SETTING AND MINERALIZATION.....</b>	<b>7-1</b>
7.1	Regional Geology.....	7-1
7.2	Local and Property Geology.....	7-3
7.2.1	Quaternary Geology.....	7-3
7.2.2	Athabasca Group.....	7-3
7.2.3	Crystalline Basement.....	7-3
7.3	Mineralization.....	7-4
<b>8</b>	<b>DEPOSIT TYPES.....</b>	<b>8-1</b>
<b>9</b>	<b>EXPLORATION.....</b>	<b>9-1</b>
<b>10</b>	<b>DRILLING.....</b>	<b>10-1</b>
10.1	2018-2019 Drilling.....	10-1
10.2	Diamond Drilling Results.....	10-1
<b>11</b>	<b>SAMPLING PREPARATION, ANALYSIS, AND SECURITY.....</b>	<b>11-1</b>
11.1	Sampling Procedure.....	11-1
11.2	Sample Preparation and Analysis.....	11-2
11.3	Sample Security.....	11-3
11.4	Discussion on Sample Preparation, Analyses, and Security.....	11-3
11.4.1	Quality Assurance and Quality Control Sampling.....	11-3
11.5	Qualified Person Opinion on the Adequacy of Sample Preparation, Security, and Analytical Procedures.....	11-9
<b>12</b>	<b>DATA VERIFICATION.....</b>	<b>12-1</b>
12.1	Verification of Mineralized Intersections.....	12-1
12.1.1	Drill Hole LE18-01A.....	12-1
12.2	Site Visit – August 2018.....	12-3
12.3	Comments on Data Verification.....	12-5
<b>13</b>	<b>MINERAL PROCESSING AND METALLURGICAL TESTING.....</b>	<b>13-1</b>
<b>14</b>	<b>MINERAL RESOURCE ESTIMATES.....</b>	<b>14-1</b>
<b>15</b>	<b>ADJACENT PROPERTIES.....</b>	<b>15-1</b>
<b>16</b>	<b>OTHER RELEVANT DATA AND INFORMATION.....</b>	<b>16-1</b>
<b>17</b>	<b>INTERPRETATION AND CONCLUSIONS.....</b>	<b>17-1</b>
<b>18</b>	<b>RECOMMENDATIONS.....</b>	<b>18-1</b>
18.1	Recommendations for Exploration Program.....	18-1
18.2	Exploration Budget – Summer Drilling Program.....	18-1
<b>19</b>	<b>REFERENCES.....</b>	<b>19-1</b>
<b>20</b>	<b>CERTIFICATE OF AUTHOR.....</b>	<b>20-1</b>
20.1	Tim Maunula, P. Geo.....	20-1



## Tables

---

Table 1-1: Mineral Disposition Status .....	1-1
Table 1-2: Larocque East – Diamond Drill Hole Summary .....	1-13
Table 4-1: Mineral Disposition Status .....	4-1
Table 10-1: Larocque East – Diamond Drill Hole Summary .....	10-2
Table 10-2: Larocque East – 2019 Diamond Drill Hole Radioactivity Summary .....	10-5
Table 11-1: Summary of Samples Collected .....	11-2
Table 11-2: QA/QC Sample Summary .....	11-4
Table 12-1: LE18-01A Collar Coordinates .....	12-4
Table 18-1: Exploration Budget .....	18-1

## Figures

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Figure 1-1: Larocque East Project Regional Location .....	1-2
Figure 1-2: Claim Location and Physical Geography .....	1-3
Figure 1-3: Larocque East Project Drill Hole Locations .....	1-7
Figure 1-4: Bedrock Geology of the Athabasca Basin with Selected Uranium Deposits .....	1-11
Figure 1-5: Hurricane Zone, Plan View Geology .....	1-14
Figure 1-6: Larocque East Planned Summer 2019 Drilling Area Plan View .....	1-16
Figure 4-1: Larocque East Project Mineral Dispositions .....	4-2
Figure 4-2: LE18-01A Drill Setup and Helicopter Pad .....	4-4
Figure 4-3: LE19-02 Drill Setup .....	4-4
Figure 6-1: Historical Drill Hole Collar Locations .....	6-3
Figure 7-1: Regional Geology Setting of the Larocque East Project .....	7-2
Figure 9-1: 2019 Resistivity Survey Coverage .....	9-2
Figure 10-1: Hurricane Zone, Plan View Geology .....	10-3
Figure 10-2: Diamond Drill Holes, Larocque Section 4560E .....	10-4
Figure 10-3: Drill Hole LE19-09 Mineralized Drill Core .....	10-6
Figure 11-1: IsoEnergy and SRC BL5 Standard Analysis .....	11-4
Figure 11-2: IsoEnergy CRM Blank Analyses .....	11-5
Figure 11-3: IsoEnergy O120 Standard Analysis .....	11-6
Figure 11-4: IsoEnergy O124 Standard Analysis .....	11-7
Figure 11-5: IsoEnergy O124 Standard Analysis – Uranium .....	11-7
Figure 11-6: SRC BL4A Standard Analysis .....	11-8
Figure 11-7: SRC BL2A Standard Analysis .....	11-8
Figure 11-8: SRC U02 Standard Analysis .....	11-9
Figure 12-1: Drill Hole LE18-01A, Larocque Section 4650E .....	12-2
Figure 12-2: LE18-01A Core Box Label .....	12-3
Figure 12-3: LE18-01A Drill Core with Uranium Mineralization .....	12-4
Figure 12-4: LE18-01A Collar .....	12-5
Figure 18-1: Larocque East Planned Summer 2019 Drilling Area Plan View .....	18-2



## Appendices

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### APPENDIX I

#### Drill Hole Summaries

## Glossary

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### *Units of Measure*

Centimetre .....	cm
Counts per second .....	cps
Degrees Celsius .....	°C
Dollar (Canadian) .....	Cdn\$
Hectare (10,000 m <sup>2</sup> ) .....	ha
Kilometre .....	km
Kilovolt .....	kV
Metre .....	m
Millimetre .....	mm
Minute (plane angle) .....	'
Parts per million .....	ppm
Percent .....	%
Second (plane angle) .....	"

### *Abbreviations and Acronyms*

Cameco Corporation .....	Cameco
DC .....	Direct Current
Electromagnetic .....	EM
Equivalent U <sub>3</sub> O <sub>8</sub> .....	eU <sub>3</sub> O <sub>8</sub>
Horizontal Loop Electromagnetic .....	HLEM
Induced Pulse Transient System .....	INPUT
Inductively Coupled Plasma Mass Spectrometry .....	ICP-MS
Inductively Coupled Plasma Optical Emission Spectrometry .....	ICP-OES
IsoEnergy Ltd. ....	IsoEnergy
Mineral Administration Registry System Saskatchewan .....	MARS
North American Datum .....	NAD
National Instrument .....	NI
Net Smelter Royalty .....	NSR
Partial Digestion .....	-p
Qualified Person .....	QP
Quality Assurance / Quality Control .....	QA/QC
Saskatchewan Mining Development Corporation .....	SMDC
Saskatchewan Research Council .....	SRC
Short-wave Infrared .....	SWIR
Time Domain Electromagnetic .....	TDEM
Total Digestion .....	-t





Uranium .....	U
Unconformity .....	UC
Universal Transverse Mercator .....	UTM
Urangesellschaft Canada Ltd.....	Urangesellschaft
Versatile Time Domain Electromagnetic.....	VTEM
Very Low Frequency Electromagnetic .....	VLF or VLF-EM
World Geodetic System .....	WGS



## 1 SUMMARY

T. Maunula & Associates Consulting Inc. (TMAC) has prepared this Technical Report in accordance with the reporting standards and definitions prescribed under Canadian National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* (NI 43-101).

This report titled “Technical Report for the Larocque East Project, Northern Saskatchewan” with an effective date of May 15, 2019, was prepared for IsoEnergy Ltd. (IsoEnergy). It covers two exploration-drilling programs. The first program was a single drill hole completed in July 2018, which discovered the Hurricane zone of unconformity associated uranium mineralization. The second program was a follow-up campaign consisting of twelve drill holes in the immediate Hurricane zone area completed between January 15 and March 12, 2019.

### 1.1 Property Description

The Larocque East Project area (“Larocque East” or the “Property”) consists of six contiguous mineral claims as listed in Table 1-1. Total area of the Property is 3,155.0 hectares (ha) and it is located 6 kilometres (km) northeast of Cameco Corporation’s (Cameco) Larocque Lake showing. The centre of the Property has approximate coordinates of 104° 09' 59" W, 58° 37' 24" N or NAD83 UTM Zone 13N 548,400 E, 6,498,400 N. Figure 1-1 illustrates the location of the Larocque East Project.

### 1.2 Ownership

Mineral dispositions outlined in Table 1-1 were acquired from Cameco, who staked the claims in the 1990s (Figure 1-2). These dispositions are subject to the *Crown Minerals Act* (Saskatchewan), and the Mineral Dispositions Regulations (Saskatchewan), which grant to the owner of a claim the right to explore for minerals.

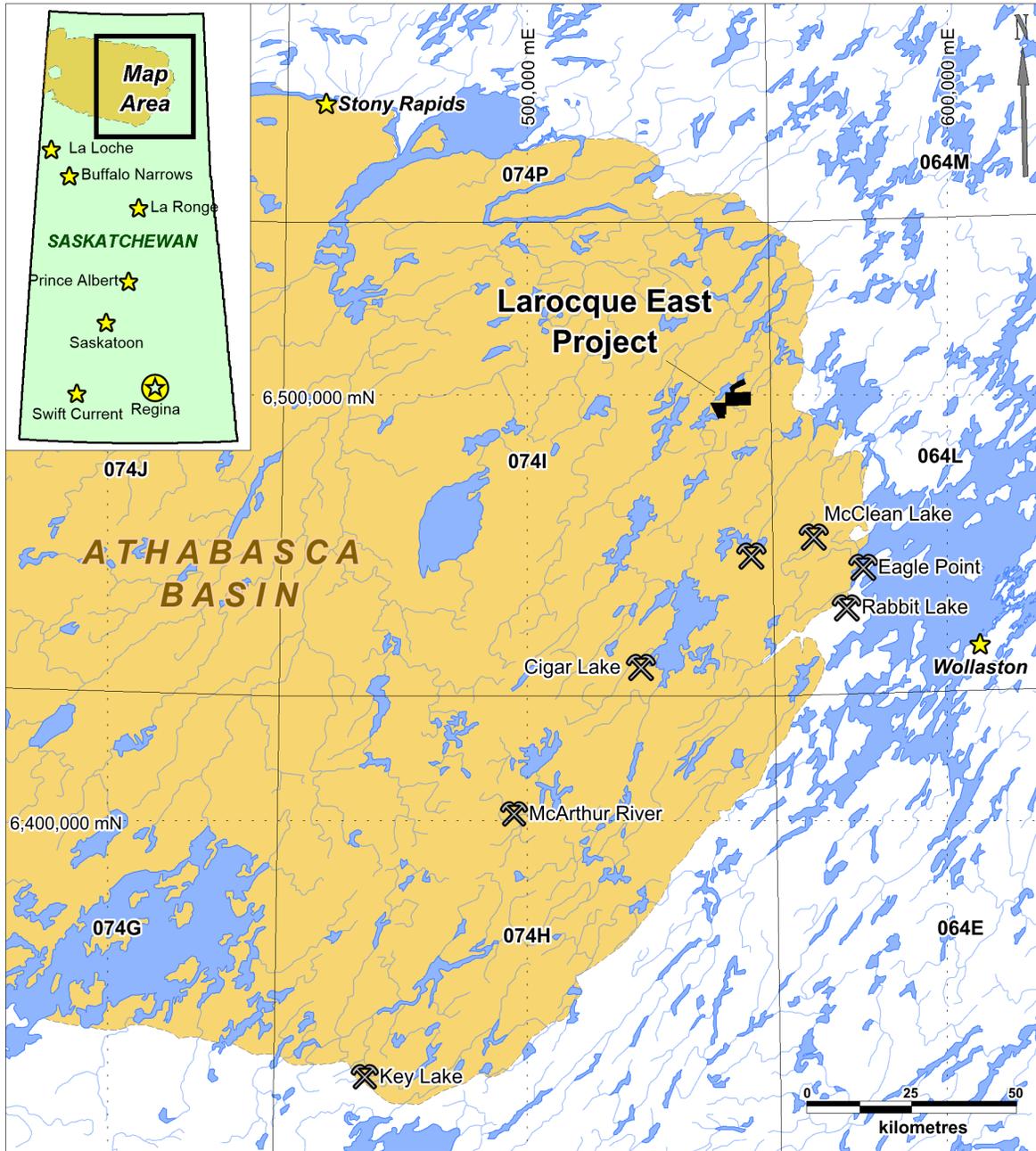
**Table 1-1: Mineral Disposition Status**

Mineral Disposition	Owner	Effective Date	Good Standing Date	Area (ha)
S-97679	IsoEnergy Ltd.: 100%	15-Mar-1993	12-Jun-2021	42.0
S-97680	IsoEnergy Ltd.: 100%	15-Mar-1993	12-Jun-2021	158.0
S-100193	IsoEnergy Ltd.: 100%	14-May-1990	11-Aug-2020	415.0
S-100194	IsoEnergy Ltd.: 100%	14-May-1990	11-Aug-2020	465.0
S-101078	IsoEnergy Ltd.: 100%	14-May-1990	11-Aug-2020	1,760.0
S-105491	IsoEnergy Ltd.: 100%	22-Apr-1992	20-Jul-2021	315.0
				<b>3,155.0</b>

IsoEnergy holds a 100% interest in the Larocque East Project mineral dispositions, which are not subject to any third-party royalties. IsoEnergy has not acquired the surface rights for the Larocque East Project area.



Figure 1-1: Larocque East Project Regional Location

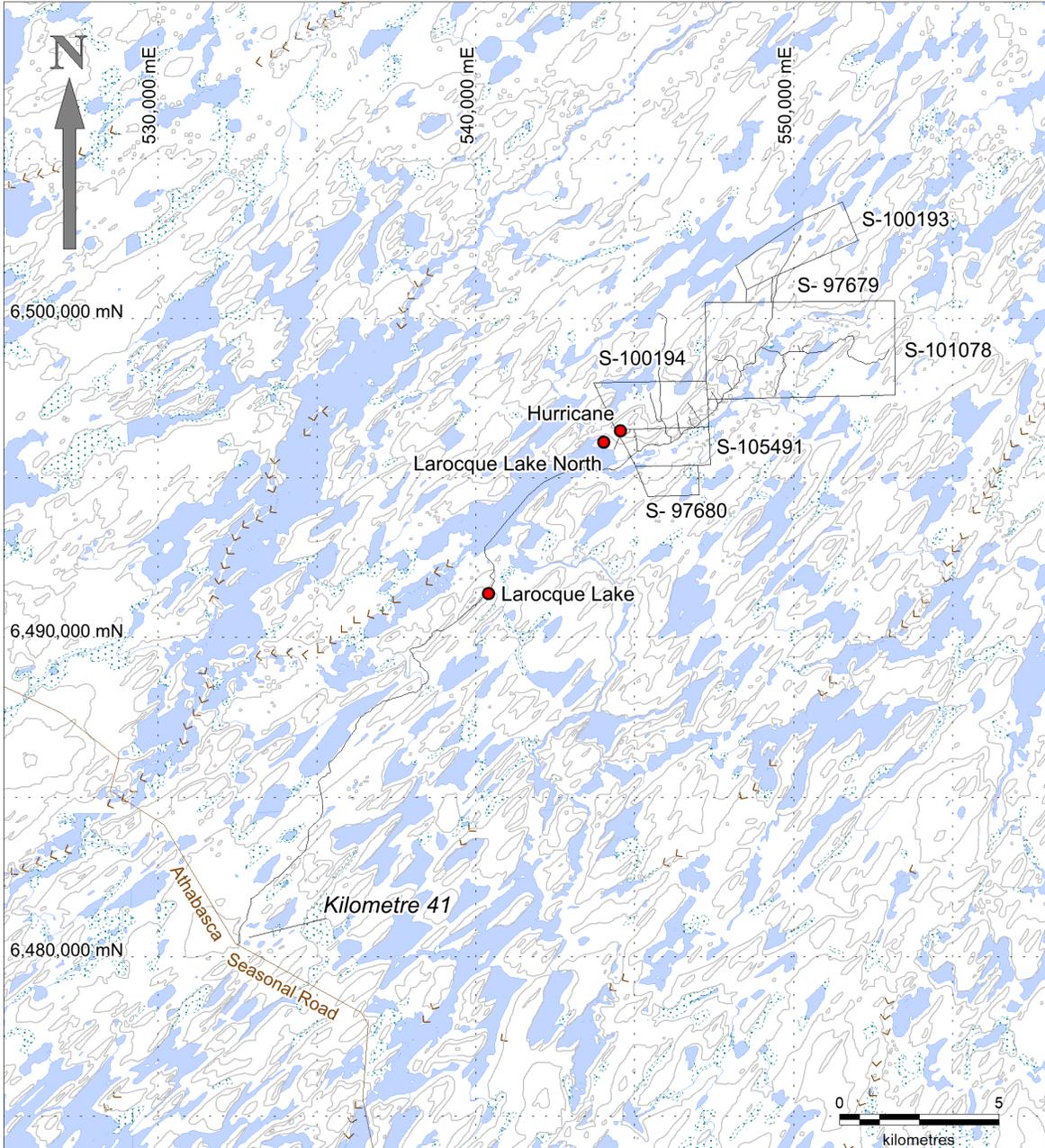


Date:	08 August 2018
Scale:	1:1,500,000
Datum:	NAD83 UTM Zone 13
Author:	J.Rodko

- Larocque East Project
- Athabasca Basin
- SK Settlement
- Waterbody
- Uranium Mine



**Figure 1-2: Claim Location and Physical Geography**



		<h2>Larocque East Project</h2> <h3>Claim Location and Physical Geography</h3>	
		<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: lightblue; border: 1px solid black; margin-right: 5px;"></span> Waterbody</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: lightblue; border: 1px dashed black; margin-right: 5px;"></span> Wetland</li> <li><span style="display: inline-block; width: 15px; height: 10px; border: 1px solid black; margin-right: 5px;"></span> Larocque East Project</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: red; border-radius: 50%; margin-right: 5px;"></span> Uranium Occurrences</li> </ul>	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 1px; border-bottom: 1px solid black; margin-right: 5px;"></span> Topographic Contour (20 Metres)</li> <li><span style="display: inline-block; width: 10px; height: 10px; border-left: 1px dashed black; border-bottom: 1px dashed black; margin-right: 5px;"></span> Esker</li> <li><span style="display: inline-block; width: 10px; border-bottom: 1px dashed black; margin-right: 5px;"></span> 4 Season Road</li> <li><span style="display: inline-block; width: 10px; border-bottom: 1px dashed black; margin-right: 5px;"></span> Winter Access Road</li> </ul>
Date:	09 August 2018		
Scale:	1:200,000		
Datum:	NAD83 UTM Zone 13		
Author:	J.Rodko		



### 1.3 Accessibility

The Larocque East Project area is located near the eastern margin of the Athabasca Basin of Northern Saskatchewan. A rough trail located at Kilometre 41 on the Athabasca Seasonal Road (Figure 1-2), approximately 38 km northwest from Points North Landing, provides winter access to the property. This access trail extends northeast to the property and is accessible by truck and heavy equipment only during frozen winter conditions as several lakes, streams, and muskegs must be crossed. During summertime conditions, access to the property is by float plane via several lakes within or proximal to the property, or by helicopter. Points North Landing, a privately-owned airstrip and service center, is located 38 km south of the Larocque East Project's southeasternmost point at 553,183 east and 6,497,587 north. Points North Landing is serviced by regular commercial flights from Saskatoon. La Ronge, a supply centre for northern Saskatchewan, is 460 km by road to the south of Points North Landing.

### 1.4 History

#### 1.4.1 *Urangesellschaft – SMDC, 1976–1989*

Exploration in the area began in 1976 when Urangesellschaft Canada Ltd (Urangesellschaft) explored the Hatchet Lake project in partnership with the Saskatchewan Mining Development Corporation (SMDC) until 1981 (Yackulic, 2010). From 1977 to 1984, several INPUT, HLEM, and DEEPEM geophysical surveys were completed in the area over the much larger Hatchet Lake project operating at that time. Five diamond drill holes were completed within the Larocque East Project in 1983 and 1984. Most of the claims in the area were allowed to lapse in 1989 due to a failure to intersect significant uranium mineralization in the years prior.

#### 1.4.2 *Cameco, 1990–2009*

In 1990 and 1993, Cameco Corporation restaked the area, giving rise to the Kernaghan Lake project (Yackulic, 2010).

No work was completed in the area after 1984 until 1991 when a boulder-sampling program was completed, which discovered weakly illitic sandstone over much of the conductive Larocque trend (Matthews, 1992). During the winter of 1992, Cameco contracted Quantec Consulting Inc. to complete 49.2 line-km of fixed loop Time Domain Electromagnetic (TDEM) surveying over the Chain, Chain East, and Kernaghan grids. Conductive lithologies were successfully extended and delineated in all three areas with several potential drill targets.

Exploration in 1993 comprised diamond drilling and 23.1 line-km of fixed loop EM 37 surveying over the Chain Lake West grid. Diamond drilling totalled 1,848 m in drill holes KERN- 1 through KERN-6. Surveying further delineated the Larocque trend in the Chain Lake area and discovered a previously unknown conductive trend south of the Chain Lake West grid. Drilling intersected graphite- and sulphide-rich pelitic gneisses; however, no significant uranium mineralization, pathfinder geochemistry, structure, or hydrothermal alteration were intersected, and follow-up was not



suggested (Forand et al., 1993). KERN series drill holes were later renamed with the prefix KER (Figure 1-3).

Diamond drill holes KER-7, -8, and -9 were completed during February 1999 and totalled 1,005 m on targets within the Chain West and Chain grids (Figure 1-3). KER-7, on the southwestern margin of the property and claim S-105491, intersected modest structure and hydrothermal alteration, as well as strongly graphitic rocks with zones of elevated radioactivity including a 0.1 m interval in the upper basement which assayed 0.124%  $U_3O_8$  (Jiricka et al., 1999). Drill holes KER-8 and KER-9 both successfully intersected graphitic basement lithologies and zones of hydrothermal alteration and significant structure near the unconformity. Geophysical coverage in 1999 consisted of 18.0 line-km of fixed loop EM over the Chain West grid, 16.0 line-km over the Chain grid, plus 7.1 and 8.65 line-km of moving loop EM over the Chain West and Chain grids, respectively.

The 2003 exploration program comprised 10.2 line-km of moving loop EM coverage along the western border of the property and completion of diamond drill holes KER-10 and KER-11 (Figure 1-3) totalling 733 m (Michayluk et al., 2003). KER-10 intersected weakly elevated uranium and highly anomalous lead up to 222 ppm through a zone of faulted and bleached sandstone from 153.6 to 161.1 m. Further west, drill hole KER-11 intersected significant hydrothermal alteration, structure, and anomalous geochemistry in the illite-rich sandstone column. Weak fracture hosted uranium mineralization up to 518 ppm U was intersected at 331.7 m, roughly 3 m above the unconformity. Basement lithologies are dominated by weakly to strongly graphitic augen gneiss and a paleoweathering profile that has been overprinted by late alteration.

Exploration reported by Hamel et al. in 2005 consisted of 9.7 line-km of TDEM surveying and the completion of three drill holes, KER-12 through KER-14, totalling 953 m (Figure 6-1). Roughly, 250 line-km of airborne VTEM surveying was also completed. KER-12 did not intersect uranium mineralization while following up KER-11 to the south, but it intersected significant structure throughout the illitic sandstone column plus chloritic and pyritic alteration and anomalous uranium geochemistry in the basal sandstone. An unconformity offset or change in paleotopography of roughly 41 m was recognized between KER-13 and KER-14, located roughly 250 m apart in the northern-most portion of the property. KER-13 intersected significant structure and alteration in the middle sandstone associated with increased illite, and anomalous uranium associated with strong illite, chlorite, and kaolinite in the lower sandstone. KER-13 has not been followed up. KER-14 failed to intersect significant alteration or structure. Updated VTEM cover over the entire property confirmed the extent of known graphitic lithologies and identified multiple areas of increased conductivity.

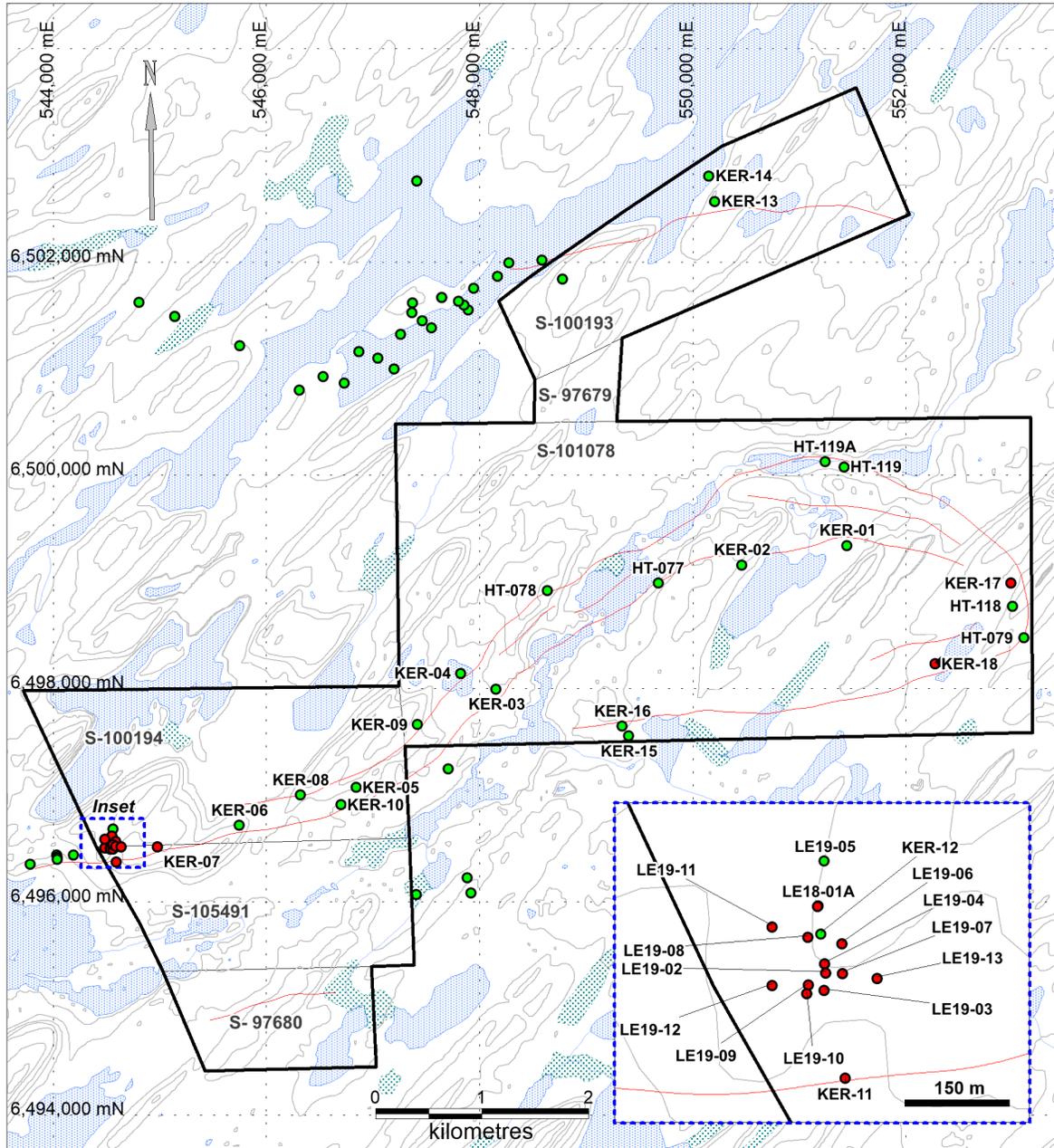
Limited work in 2008 consisted of 5.0 line-km of TDEM surveying within the Chain and Deschain grids. The purpose of the survey was, in part, to characterize the conductive nature of the sandstone to locate possible alteration. This surveying identified high priority drill targets on both grids (Milne et al., 2009).



Following the results of 2008, a four-hole diamond drilling exploration program was completed over the Chain (KER-15, KER-16) and Deschain (KER-17, KER-18) grids (Figure 1-3). KER-15 and KER-16 failed to intersect uranium mineralization. KER-17 and KER-18 were targeted to test the extent of an arcuate conductive package wrapping around a magnetic high in the eastern portion of the property. KER-17 targeted the apparent fold nose and intersected 727 ppm U-p over 0.5 m in the basal sandstone. KER-18, drilled in the southeastern corner of the property, intersected weak unconformity-style mineralization up to 395 ppm U over 0.4 m (Yackulic, 2010). Both drill holes intersected moderately graphitic lithologies with brittle reactivation noted in KER-17.



Figure 1-3: Larocque East Project Drill Hole Locations



		<h2 style="text-align: center;">LaRocque East Project</h2> <h3 style="text-align: center;">Drill Hole Collar Locations</h3>	



## 1.5 Geology and Mineralization

### 1.5.1 Regional Geology

The Larocque East Project lies near the eastern edge of the Athabasca Basin, a middle Proterozoic clastic basin filled with a relatively undeformed sequence of unmetamorphosed clastic rocks, predominantly sandstones, known as the Athabasca Group. These clastic rocks in the eastern half of the Athabasca basin lie unconformably on the highly deformed and metamorphosed rocks of the Hearne Craton of the Western Churchill Province of the Canadian Shield (Jefferson et al., 2007).

Figure 1-4 illustrates the position of the Larocque East Project within the Athabasca Basin and relative to selected uranium mines.

### 1.5.2 Local and Property Geology

#### *Quaternary Geology*

Quaternary geology (overburden) consists primarily of glacial till as blankets, drumlins, and eskers. Below the overburden lies Athabasca sandstone, which unconformably overlies Paleoproterozoic basement rocks. Drilling has intersected various granitic orthogneisses, paragneisses, and late cross-cutting pegmatite intrusions throughout the property.

In the vicinity of the Larocque East Project area, glaciation has imparted a northeast-southwest elongation to most significant topographic features. The project hosts several sizeable drumlins, the largest of which rises more than 65 m above the base elevation. Till blankets the bedrock surface over most of the property and, in the region, typically comprises a mixture of sandstone and basement boulders set in a sandy matrix. Within flatter portions of the project, glacial tills are likely overlain by veneers of aeolian sands, fluvial sands, and gravels, and other sediments derived from glacial outwash processes.

Based on results from the 36 completed drill holes on the project to date, Quaternary deposits are expected to be up to 50 m thick beneath drumlins and can be less than 10 m thick between drumlins.

#### *Athabasca Group*

Drilling results indicate the true vertical thickness of Athabasca Group sandstones on the Larocque East Project is between 115 and 275 m, which is dominated by the Manitou Falls Formation Bird (MFb) and Collins (MFC) Members that underlie the glacial overburden and unconformably overlie the crystalline basement. Some historical drill holes are reported to have intersected up to 90 m of the Manitou Falls Dunlop (MFD) member, a quartz arenite rich in clay intraclasts (Bosman and Ramaekers, 2015).



### ***Crystalline Basement***

Depth from surface to the top of the crystalline basement (the sub-Athabasca unconformity) ranges between 330 m and 150 m in drill holes on the Property. To date, drilling has largely focused on the Larocque trend, an approximately 30 km long, northeast to east-northeast trending magnetic low corridor that hosts several uranium occurrences along strike to the southeast of Larocque East. Within the Larocque East Project, the Larocque trend stretches across most of the central portion of the property and wraps around an arcuate magnetic high in the eastern portion of the property. The Larocque trend extension on the Larocque East property comprises a metasedimentary assemblage of sulphide-rich graphitic pelitic and semi-pelitic gneiss interlayered with non-graphitic garnetiferous and or sillimanite rich pelitic to semipelitic gneisses with local psammitic, quartzitic, and calcsilicate gneisses. Graphite-rich lithologies are often made up of augen (cordierite) gneiss with mild to moderate shearing. Several graphite-rich concordant faults have been intersected on the Larocque trend. An unconformity offset of 13 m is present between drill holes on the Hurricane zone discovery section (Figure 1-5). The offset is directly related to cataclastic graphitic faults in the area. Strongly faulted sandstone intersected in several drill holes on the property, including those at the Hurricane zone, suggests additional offsetting faults may be present on the property. Widely spaced exploration drilling has left long stretches of untested ground along the Larocque trend. Additional under-explored conductive trends are present to the north and south of the Larocque trend, including 2 km of untested conductive strike length within the southern claim block.

Upper basement rocks often host a typical paleoweathering profile consisting of variable amounts of bleached, red, red-green, and green zones intersected in earlier drill holes. The paleoweathering profile can extend 25 m to 50 m below the unconformity but may penetrate deeper along structures. The paleoweathering profile has been removed (overprinted) by hydrothermal alteration in most of the Hurricane zone drill holes.

The regional foliation on the Larocque East Property trends roughly northeast-southwest with variable dips to the southeast or northwest. In the immediate vicinity of the Hurricane zone, the foliation strikes west and dips roughly 70° to 85° to the north due to a series of stepwise bends along strike. Many structures are noted to be concordant with the basement foliation and host up to decametre-scale brittle fault zones, occasionally enriched in graphite, and often flanked by envelopes of hydrothermal alteration. Drilling in the Hurricane zone area has intersected a series of anastomosing and steeply dipping concordant graphite-rich cataclastic faults.

#### **1.5.3 Mineralization**

The Larocque East Project is located near the eastern margin of the Athabasca Basin, which hosts multiple uranium deposits and operating uranium mines. Uranium mineralization has been intersected by drill holes on the Larocque East Project and on adjacent claims.

The most significant zone of uranium mineralization intersected to date is the Hurricane zone, which was discovered in July 2018 and was followed up with a recently completed 12-hole drilling program in the winter (January–March) of 2019. Results include several high-grade intersections, including



3.5 m at 10.4%  $U_3O_8$  in drill hole LE19-02, 4.0 m at 3.8%  $U_3O_8$  in drill hole LE19-06, 4.5 m at 4.2%  $U_3O_8$  in drill hole LE19-09, and 8.5 m at 3.2%  $U_3O_8$  in drill hole LE19-12. The zone is at least 150 m long and 38 m wide and is up to 8.5 m thick. Mineralization begins approximately 320 m below surface and straddles the sub-Athabasca unconformity along a subtle ridge parallel to and coincident with certain graphitic units in the basement. Hurricane zone mineralization is polymetallic and contains local zones of high-grade nickel and cobalt.

Several drill holes on the property have intersected weak uranium mineralization at the unconformity or within basement hosted fractures (Figure 1-3). KER-07 was the first drill hole on the western side of the property to intersect mineralization on the Larocque trend where it intersected 0.12%  $U_3O_8$  over 0.1 m at 320.0 m within a limonitized anatectic sweat bordered by graphitic and pyritic semipelitic gneiss. Approximately 380 m along trend to the west, drill hole KER-11 intersected fracture-hosted mineralization of 518 ppm U-t over 0.5 m in the basal sandstone. The mineralization intersected in KER-11 lies within a zone of chlorite and sulphide alteration including fracture hosted sooty pyrite and chalcopyrite. Near the eastern border of the property, KER-17 was drilled to test the nose of the Larocque trend where it wraps around the arcuate magnetic high. At a depth of 187.0 m, roughly 1 m above the unconformity, drill hole KER-17 intersected 727 ppm U-t over 0.5 m in an interval of blebby pitchblende mineralization associated with chlorite, sooty pyrite, and hematitic clay coatings on nearby fractures and gouge. Approximately 1 km southwest of KER-17, KER-18 targeted the southern limb of the interpreted fold in the Larocque trend. Immediately underlying the unconformity, the drill hole intersected 395 ppm U-t over 0.4 m from 209.3 m to 209.7 m. The mineralization intersected in KER-18 is hosted within moderately bleached semipelitic gneiss coincident with patchy hydrothermal hematite and small scale limonitic redox fronts.

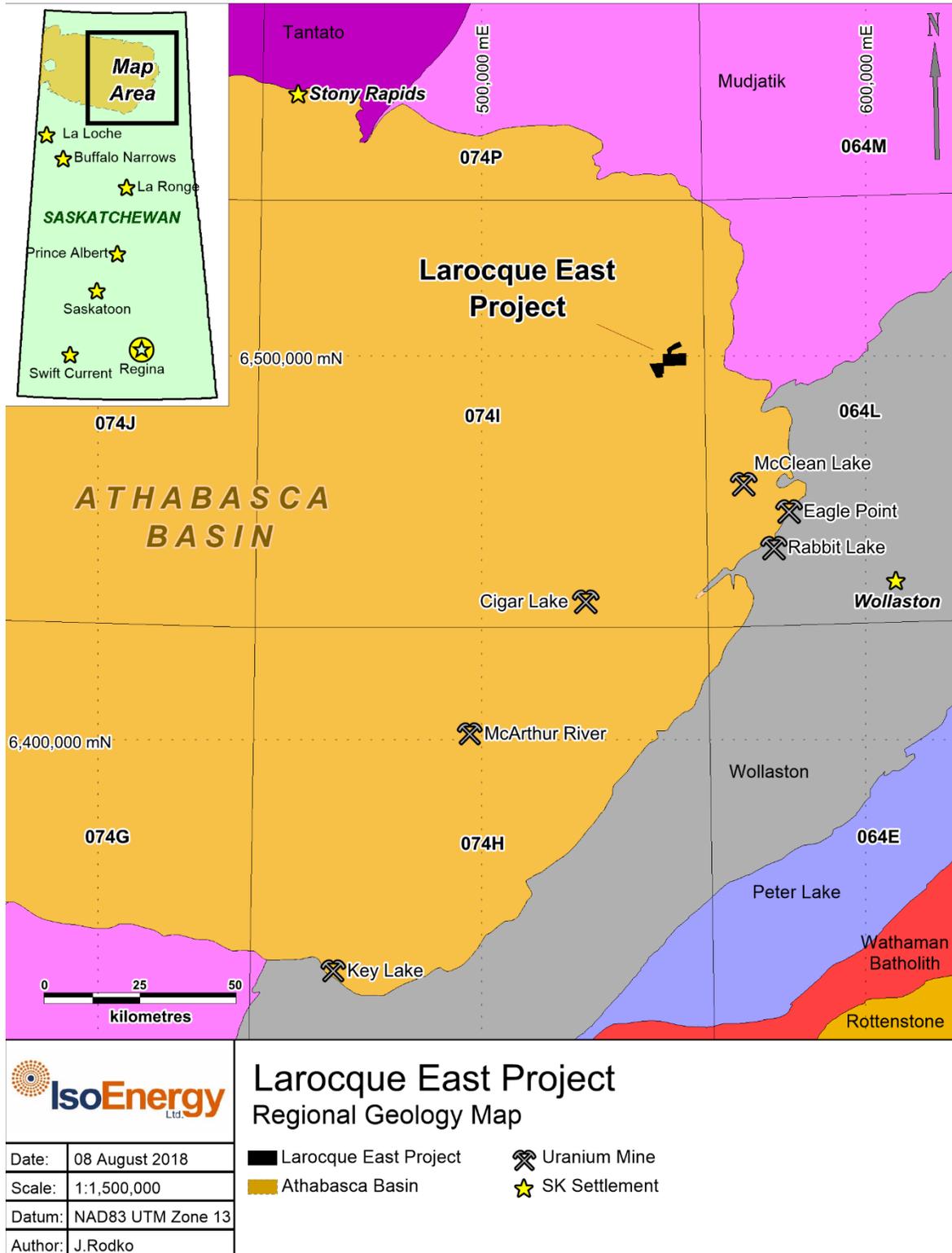
Roughly 400 m to the west of the Larocque East property boundary and 550 m along strike of KER-12 and KER-11 is Cameco's Larocque Lake North uranium showing, where drill hole Q22-16 intersected 0.93%  $U_3O_8$  over 1.4 m just above the unconformity contact. Mineralization intersected in Q22-16 is associated with strongly elevated amounts of nickel, cobalt, arsenic, lead, and gold (Jiricka et al., 1999). Approximately 5.5 km southwest of Q22-16, and less than six kilometres from the Larocque East property boundary is Cameco's Larocque Lake showing. At Larocque Lake, drill hole Q22-17 intersected 0.17%  $U_3O_8$  over a 3.8 m interval at 288.8 m in the basal sandstone. Several other drill holes have intersected uranium mineralization in that area, including 29.87%  $U_3O_8$  over 7.0 m in Q22-40 (Jiricka et al., 1999).

## 1.6 Deposit Type

The target on the Property is unconformity-associated uranium mineralization defined by Jefferson et al. (2007) as pods, veins, and semi-massive replacements, consisting primarily of uraninite close to basal unconformities, particularly those between Proterozoic conglomerate sandstone basins and metamorphosed basement rocks.



**Figure 1-4: Bedrock Geology of the Athabasca Basin with Selected Uranium Deposits**



## 1.7 Status of Exploration

Two recent drilling campaigns are described herein – one in the summer of 2018 and the other in the winter of 2019.

The Larocque East Project drilling during summer 2018 was helicopter supported. Drilling was conducted from July 17 to July 21 and comprised one drill hole totalling 494 m. Drill hole LE18-01A was gamma probed using a Mount Sopris 2PGA-1000 with gamma values recorded in counts per second (cps). All core was scanned with an SRAT SPP2 handheld scintillometer and the average cps for each 3 m drill run recorded on a geotechnical log. Radioactivity exceeding double the background level was recorded as a discrete interval within the 3 m drill run.

Winter 2019 drilling between January 15 and March 12 totalled of 5,046 m in 12 diamond drill holes. Winter drilling was skidder supported and based out of IsoEnergy's Larocque East temporary work camp. Winter drill holes were probed using a Mount Sopris 2PGA-1000 and recovered core was scanned using an RS-125 handheld spectrometer. Where either the RS-125 or Mount Sopris 2PGA devices indicated an intersection hosting over 4% equivalent  $U_3O_8$  ( $eU_3O_8$ ), a high-flux probe rented from Alpha Nuclear in Saskatoon was also used to measure down-hole radioactivity. Gamma values were recorded in counts per second.

Eleven of twelve winter drill holes intersected significant uranium mineralization, expanding the Hurricane zone to approximately 150 m long by 38 m wide and up to 8.5 m thick. Individual drill hole summaries for all Hurricane zone drill holes are found in Appendix I. Drill hole parameters for all Hurricane zone drill holes are presented in Table 1-2.

A resistivity survey is currently being completed on the property, which will aid in planning future drill holes designed to expand the eastern strike extension of the Hurricane zone. The summer 2019 drill program is currently in planning. Drilling is expected to begin in mid-June and will take approximately 80 days to complete.

In addition, passive seismic and soil geochemistry surveys will be completed in summer 2019. Winter 2019 drilling results indicate anomalous levels of several pathfinder elements, including uranium, are present in the top of bedrock above the Hurricane zone. These geochemical anomalies at the bedrock erosional surface are interpreted to be the result of geochemical chimneys related to hydrothermal alteration related to Hurricane mineralization. Soil geochemical surveying is being employed to detect the glacial dispersions of these anomalies at surface down-ice of their source(s) within the Larocque East Project.

Passive seismic surveying over conductive trends will be employed to evaluate overburden thickness to assist in drill hole planning and to attempt to detect large structures and/or offsets that reach top of bedrock.

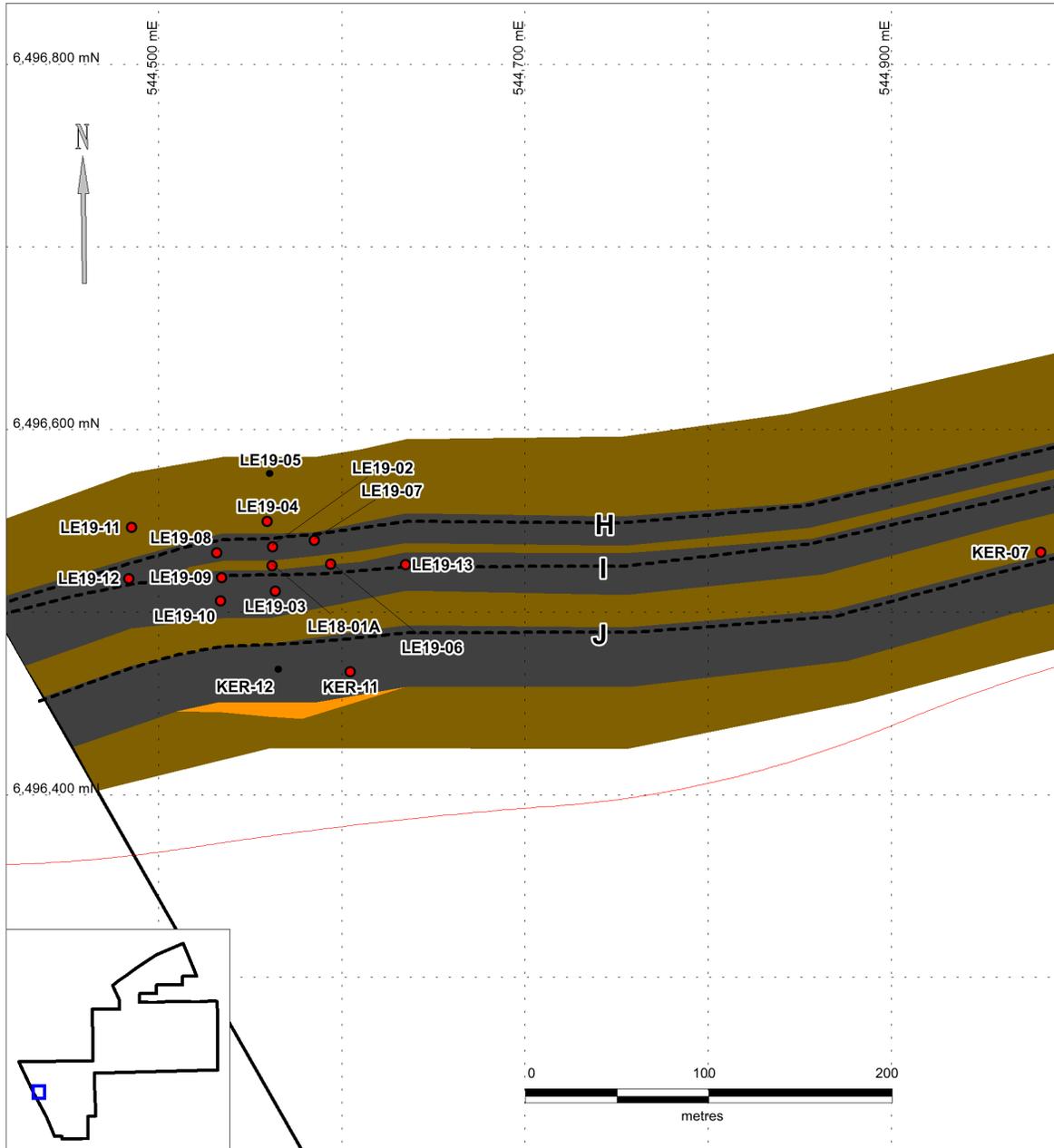


**Table 1-2: Larocque East – Diamond Drill Hole Summary**

Drill Hole #	UTM Coordinates (WGS84-13N)		Elevation (m)	Hole Dip	Hole Azim	Total Depth (m)	Days to Complete
	Northing	Easting					
LE18-01A	544550.5	6496633.4	450.6	-70	171	494	5
LE19-02	544561.3	6496537.9	450.6	-90	360	425	4
LE19-03	544559.5	6496513.1	448.8	-90	360	458	4
LE19-04	544560.1	6496550.6	450.4	-90	360	371	3
LE19-05	544559.7	6496697.5	450.5	-70	180	455	3
LE19-06	544584.9	6496579.7	452.9	-80	180	443	5
LE19-07	544586.0	6496536.8	450.6	-90	360	407	5
LE19-08	544535.9	6496588.7	450.1	-80	180	473	4
LE19-09	544536.6	6496520.8	448.8	-90	360	362	4
LE19-10	544534.6	6496508.5	448.3	-90	360	371	4
LE19-11	544484.8	6496603.3	446.0	-80	178	506	8
LE19-12	544484.9	6496519.7	445.8	-90	360	380	3
LE19-13	544635.0	6496530.0	446.2	-90	360	395	3
						<b>5,540</b>	<b>55</b>



Figure 1-5: Hurricane Zone, Plan View Geology



		<h3>Larocque East Project</h3> <h4>Hurricane Area Drill Holes and Geology</h4>	
Date:	8 May 2019	□ Larocque East Project Outline	■ Graphitic Pelitic Gneiss
Scale:	1:3,500	● Drill Hole UC Intercept - Mineralized	■ Pelitic Gneiss
Datum:	NAD83 UTM Zone 13	● Drill Hole UC Intercept - Unmineralized	■ Pegmatite
Author:	A. Carmichael	— VTEM Conductor	--- Fault (named)



## 1.8 Interpretation and Conclusions

IsoEnergy Ltd. completed a one-hole diamond drill program totalling 494 m on its Larocque East Project in July of 2018. Drill hole LE18-01A intersected a broad, 8.5-m-long interval of uranium mineralization, averaging 1.26% U<sub>3</sub>O<sub>8</sub> (above a cut-off of 0.1% U<sub>3</sub>O<sub>8</sub>), and including a higher-grade subinterval of 3.58% U<sub>3</sub>O<sub>8</sub> over 2.5 m.

A 12-hole follow-up program totalling 5,046 m was completed in the winter of 2019. Eleven of the 12 drill holes intersected significant uranium mineralization and successfully expanded the zone to 150 m (long) x 38 m (wide) and up to 8.5 m thick.

Additional follow-up drilling is required to define the limits of the zone.

There are no significant risks and uncertainties that could reasonably be expected to affect the reliability or confidence in the exploration information. However, there are inherent risks and uncertainties in exploration. One of these is the interpretation of geological data for the Larocque East Project, primarily the structural contact assumptions and the lithologic continuity between holes. In areas of the Athabasca Basin where the sandstone covers the basement rocks, exploration focuses on drill testing interpreted basement geology and geophysical anomalies. Drill results do not always support the original interpretation.

Besides the follow-up required in the immediate area of the Hurricane zone, other portions of the Larocque East Project area also warrant further exploration for unconformity-associated uranium mineralization.

## 1.9 Recommendations

### 1.9.1 *Recommendations for Exploration Program*

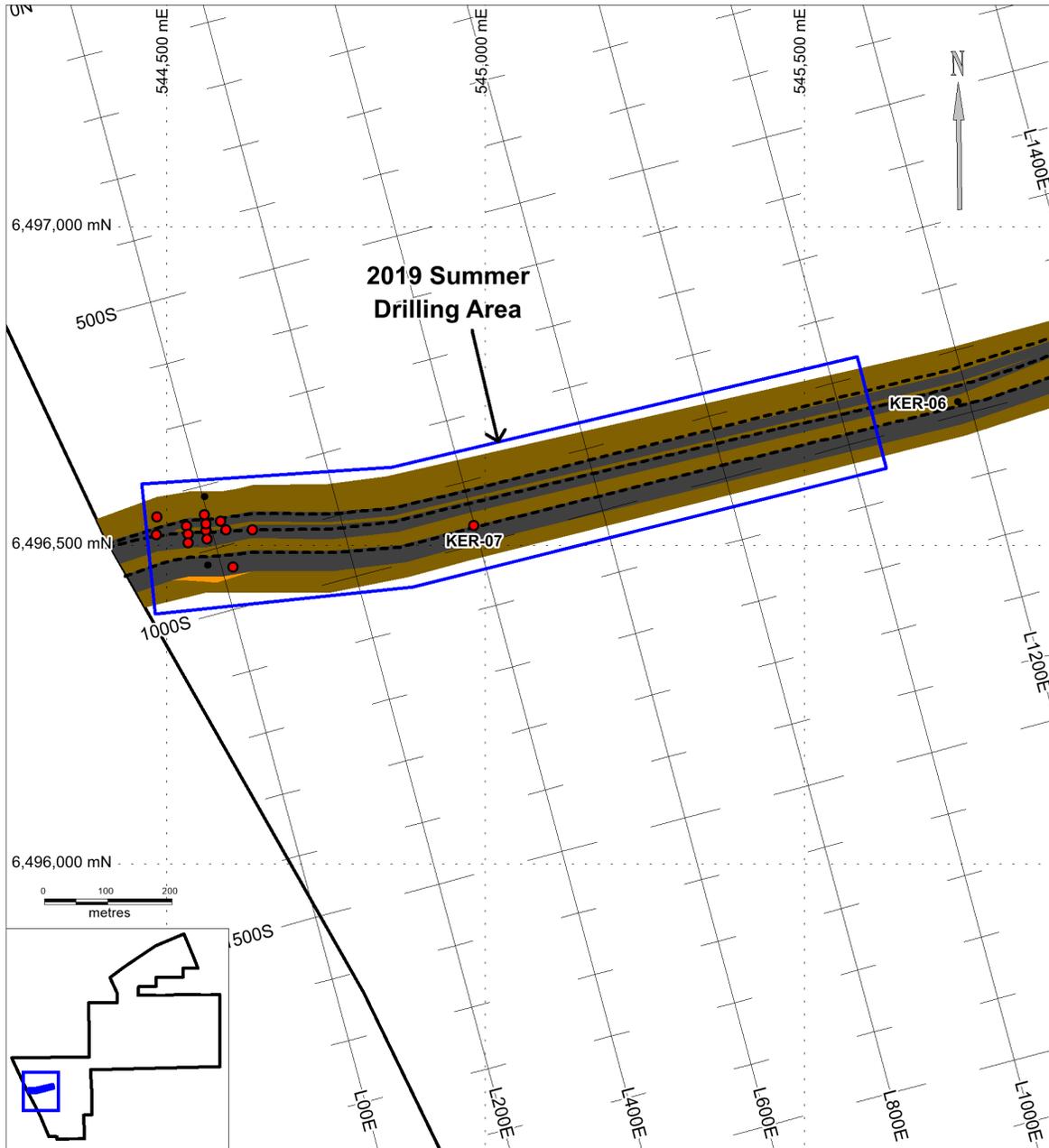
Given the interpretation and conclusions above, a substantial drilling program is recommended by TMAC as the next step for Larocque East. This drilling should focus primarily along-strike to the east of the Hurricane zone to determine the extent of the mineralization. Some drilling is also recommended to assess the potential for thicker and higher-grade mineralization within the current Hurricane zone drilling pattern.

### 1.9.2 *Exploration Budget – Summer Drilling Program*

IsoEnergy has proposed an exploration drilling budget of Cdn\$1,620,000 (budget details provided in Table 18-1) for the next phase of work at the Hurricane zone, which is expected to be completed between July and September 2019. TMAC agrees with the proposed work program. A total of 6,700 m in 16 drill holes is planned as shown in Figure 1-6.



**Figure 1-6: Larocque East Planned Summer 2019 Drilling Area Plan View**



		<h3>Larocque East Project Planned Summer 2019 Drilling Area</h3>	
		<ul style="list-style-type: none"> <li><span style="border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Larocque East Project Outline</li> <li><span style="color: red; font-size: 12px;">●</span> Drill Hole UC Intercept - Mineralized</li> <li><span style="color: black; font-size: 12px;">●</span> Drill Hole UC Intercept - Unmineralized</li> <li><span style="color: grey; font-size: 12px;">x</span> 2019 DC-Resistivity Grid</li> </ul>	<ul style="list-style-type: none"> <li><span style="background-color: grey; width: 15px; height: 10px; margin-right: 5px;"></span> Graphitic Pelitic Gneiss</li> <li><span style="background-color: brown; width: 15px; height: 10px; margin-right: 5px;"></span> Pelitic Gneiss</li> <li><span style="background-color: orange; width: 15px; height: 10px; margin-right: 5px;"></span> Pegmatite</li> <li><span style="border-bottom: 1px dashed black; width: 15px; margin-right: 5px;"></span> Fault (named)</li> </ul>
Date:	8 May 2019		
Scale:	1:10,000		
Datum:	NAD83 UTM Zone 13		
Author:	A. Carmichael		



## 2 INTRODUCTION

### 2.1 Purpose

TMAC has prepared this Technical Report in accordance with the reporting standards and definitions prescribed under Canadian National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* (NI 43-101).

This report titled “Technical Report for the Larocque East Project, Northern Saskatchewan” with an effective date of May 15, 2019, was prepared for IsoEnergy Ltd. (IsoEnergy). It covers two exploration drilling programs. The first program was a single drill hole completed in July 2018, which discovered the Hurricane zone of unconformity associated uranium mineralization. The second program was a follow-up campaign consisting of twelve drill holes in the immediate Hurricane zone area completed between January 15 and March 12, 2019.

### 2.2 Sources of Information

In preparing this Technical Report, the Qualified Person (QP), as defined in NI 43-101 relied on observations and data collected during a site visit, reviewed exploration data generated by the company and reviewed exploration data available in the non-confidential assessment files of the Saskatchewan Ministry of Energy and Resources and technical publications of the Ministry and other organizations. The assessment files contained information on much of the mineral exploration that has been carried out on and in the area of the Property. The sources of information and data contained in this Technical Report or used in its preparation are set out in Section 19 of this Technical Report.

### 2.3 Personal Inspection

The author conducted a site visit to Larocque East (the Property) on August 13, 2018, accompanied by Steve Blower (Vice President Exploration) and Justin Rodko (Exploration Geologist) of IsoEnergy. The site visit was completed to obtain a general view of the Property, to determine if there were any obvious concerns and to review drill core on the Property. Additional information regarding the site visit is included in Section 12.2.



### 3 RELIANCE ON OTHER EXPERTS

In respect of Sections 1.3, 4.3, and 4.4 of this Technical Report, the writer relied on the Mineral Administration Registry System Saskatchewan (MARS) accessed on May 15, 2019 (<https://mars.ica.ca/MARSWeb/publicmap/FeatureAvailabilitySearch.aspx>) and confirmation of the mineral tenure by IsoEnergy.

In respect of environmental matters referred to in Section 4.5 of this Technical Report, Mr. Maunula relied on statements by IsoEnergy made on September 20, 2018.



## 4 PROPERTY DESCRIPTION AND LOCATION

### 4.1 Area and Location

The Larocque East Project area (“Larocque East” or the “Property”) consists of six contiguous mineral claims as listed in Table 1-1. Total area of the Property is 3,155.0 hectares (ha) and it is located 6 kilometres (km) northeast of Cameco Corporation’s (Cameco) Larocque Lake showing. The centre of the Property has approximate coordinates of 104° 09' 59" W, 58° 37' 24" N or NAD83 UTM Zone 13N 548,400 E, 6,498,400 N. Figure 1-1 illustrates the location of the Larocque East Project.

### 4.2 Nature of IsoEnergy’s Interest in the Property

IsoEnergy holds a 100% interest in the mineral rights at Larocque East. IsoEnergy does not hold any surface rights within the Property boundaries.

### 4.3 Type of Mineral Tenure

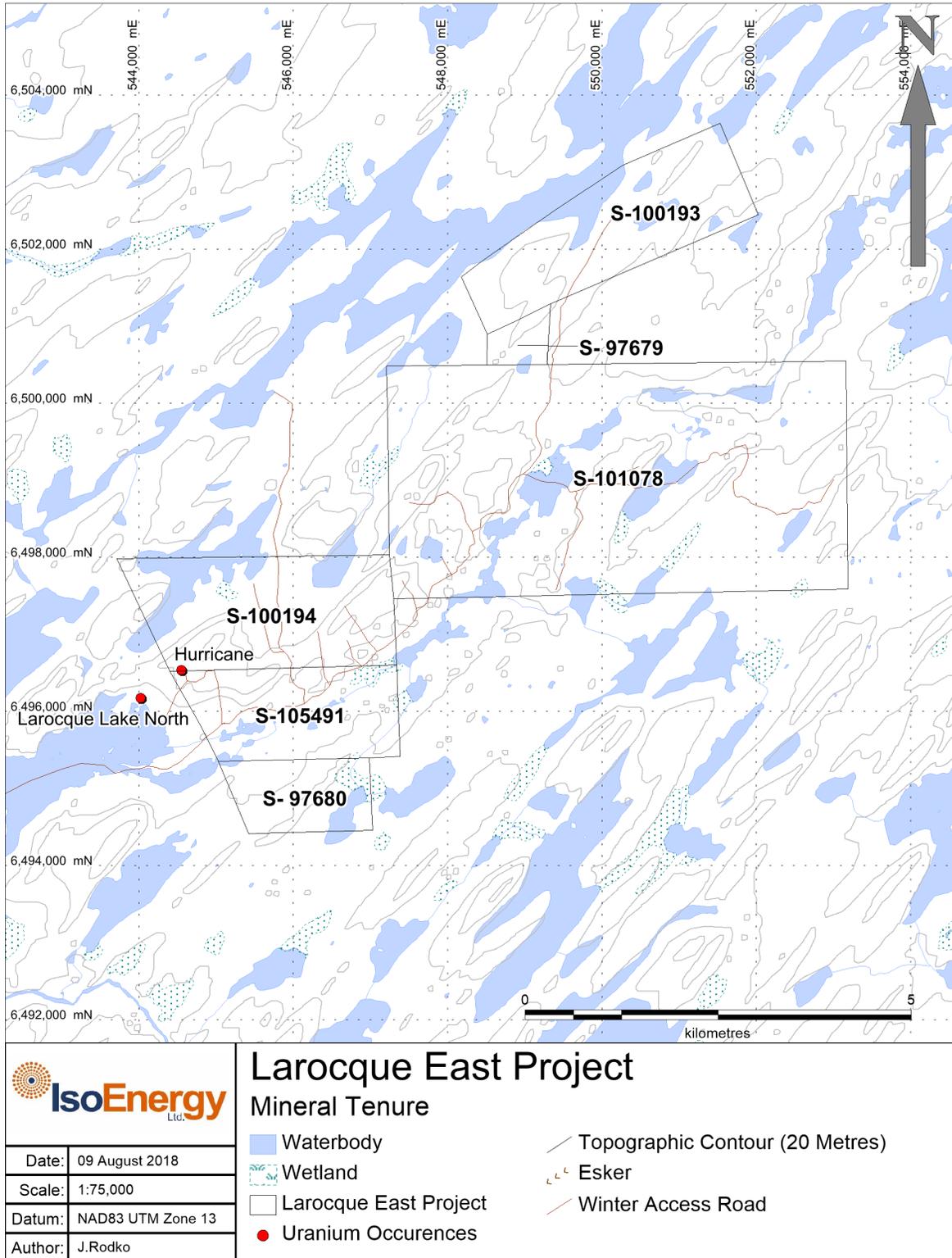
Mineral dispositions outlined in Table 4-1 were acquired from Cameco, who staked the claims in the 1990s (Figure 4-1). These dispositions are subject to the *Crown Minerals Act* (Saskatchewan), and the Mineral Dispositions Regulations (Saskatchewan), which grant to the owner of a claim the right to explore for minerals. To maintain the Property in good standing, exploration on the Property with annual expenditures of \$25/ha is required.

**Table 4-1: Mineral Disposition Status**

Mineral Disposition	Owner	Effective Date	Good Standing Date	Area (ha)
S-97679	IsoEnergy Ltd.: 100%	15-Mar-1993	12-Jun-2021	42.0
S-97680	IsoEnergy Ltd.: 100%	15-Mar-1993	12-Jun-2021	158.0
S-100193	IsoEnergy Ltd.: 100%	14-May-1990	11-Aug-2020	415.0
S-100194	IsoEnergy Ltd.: 100%	14-May-1990	11-Aug-2020	465.0
S-101078	IsoEnergy Ltd.: 100%	14-May-1990	11-Aug-2020	1,760.0
S-105491	IsoEnergy Ltd.: 100%	22-Apr-1992	20-Jul-2021	315.0
				<b>3,155.0</b>



**Figure 4-1: Larocque East Project Mineral Dispositions**



A claim in good standing can be converted to a lease upon application and with the completion of a boundary survey. Leases are for a term of ten years and are renewable. A lease grants the holder the exclusive right to explore for, mine, recover, and dispose of any minerals within the lease lands. Annual expenditures of the lease for years 1 to 10 are \$25/ha, \$50/ha for years 11 to 20, and \$75/ha annually thereafter.

Any surface facilities and mine workings constructed would be located on Provincial lands. The right to use and occupy Provincial lands is acquired under a surface lease from the Province of Saskatchewan. A surface lease is for a maximum of thirty-three years and can be renewed. Annual expenditures for a lease are \$25/ha for the first 10 years, \$50 for the next 10 years, and \$75 thereafter.

#### **4.4 Royalties**

IsoEnergy has confirmed there are no known third-party royalties or other interests associated with the Larocque East property.

#### **4.5 Environmental Liabilities**

The writer is not aware of any environmental liabilities on the Property. No obvious disturbance was noted during the site inspection, except for cut lines for geophysical work, drill pads, and drill roads (Figure 4-2 and Figure 4-3).



**Figure 4-2: LE18-01A Drill Setup and Helicopter Pad**



**Figure 4-3 LE19-02 Drill Setup**



#### 4.6 Required Permits

In order to carry out the proposed exploration on the ground (including drilling) the following permits are required:

- A general use permit, which lists all the rules and regulations to be followed
- A forest product permit if trees are to be cut
- A camp permit if there will be a camp on the Property
- A water use permit.

A review of the Ministry of Environment areas of endangered or threatened species and a review of archeological sites at the Heritage Conservation Branch is also required, but no permit is required to be issued.

IsoEnergy confirmed that they have obtained all required permits for their proposed exploration work aside from additional water use permits, which will be acquired prior to the commencement of summer drilling.

There are no significant factors or risks known to the writer that may affect access, title, or the right or ability to perform work on the Property.



## **5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, AND PHYSIOGRAPHY**

### **5.1 Accessibility**

The Larocque East Project area is located near the eastern margin of the Athabasca Basin of Northern Saskatchewan. A rough trail located at Kilometre 41 (Figure 1-2) on the Athabasca Seasonal Road, approximately 38 km from Points North Landing, provides winter access to the property. This access trail extends northeast to the property and is accessible by truck and heavy equipment only during frozen winter conditions as several lakes, streams, and muskegs must be crossed. Outside of winter, access to the property is by float plane via several small lakes within or proximal to the property, or by helicopter. Points North Landing, a privately-owned airstrip and service centre, is located 38 km south of the Larocque East Project's southeastern most point at 553,183 east and 6,497,587 north. Points North Landing is serviced by regular commercial flights from Saskatoon. La Ronge, a supply centre for northern Saskatchewan, is 460 km by road to the south of Points North Landing.

### **5.2 Climate**

The climate is typical of mid-latitude continental areas. The climate of the Larocque East Project area has a high seasonal variability with temperatures ranging from lows of -45°C in the winter to 30°C in the summer. Summers are hot, may be dry or wet, and thunderstorms are common. Winters are cold and long, with daytime temperatures below 0°C from mid-October through mid-April. Precipitation typically falls an average of 10 to 20 days per month with the heaviest precipitation occurring between June and September. Break-up occurs typically in April and May, and freeze-up in December. Large ground geophysical surveys and drilling programs are commonly completed in the winter due to the increased ease of access provided by frozen lakes and muskegs.

### **5.3 Topography, Elevation, and Vegetation**

Glaciation in the Larocque East Project area has resulted in a northeast-southwest trend for most topographic features in the region including lakes, drumlins, and eskers. The lowest elevation on the project is 398 m, with drumlins reaching a maximum elevation of approximately 464 m. The ground surface is approximately 20 percent lakes and wetlands with the remaining vegetation dominated by spruce and pine trees standing less than 15 m. Ground cover includes reindeer lichen, Labrador tea, and blueberry.

### **5.4 Local Resources and Infrastructure**

La Ronge is the nearest community of any size where exploration supplies and services can be obtained, although some services are available at Points North Landing, including accommodation,



meals, bulk fuel, trucking, and heavy equipment rental. Skilled labour for a mining operation would likely be sourced from several local northern communities, as well as communities in southern Saskatchewan. Saskatoon is a major population centre in Saskatchewan approximately 700 km south, with highway, rail, and air links to the rest of North America.

Electrical power is available from the provincial grid, with a switching station at Points North Landing. It is not known if there is sufficient capacity on that grid to operate a mining and milling operation at the Larocque East Project. Cameco's Cigar Lake Mine is connected to the provincial grid with a 138-kV power line.

Fuel oil and propane are available at Points North Landing. Water is readily available in the area. The Larocque East Project area appears to be large enough for the construction of a milling operation and an underground mining operation, including areas for waste rock storage and tailings.



## 6 HISTORY

### 6.1 Urangesellschaft–SMDC, 1976–1989

Exploration in the area began in 1976 when Urangesellschaft Canada Ltd (Urangesellschaft) explored the Hatchet Lake project in partnership with the Saskatchewan Mining Development Corporation (SMDC) until 1981 (Yackulic, 2010). From 1977 to 1984, several INPUT, HLEM, and DEEPEM geophysical surveys were completed in the area over the much larger Hatchet Lake project operating at that time. Five diamond drill holes were completed within the Larocque East Project in 1983 and 1984. Most of the claims in the area were allowed to lapse in 1989 due to a failure to intersect significant uranium mineralization in the years prior.

### 6.2 Cameco, 1990–2009

In 1990 and 1993, Cameco Corporation restaked the area, giving rise to the Kernaghan Lake project (Yackulic, 2010).

No work was completed in the area after 1984 until 1991 when a boulder-sampling program was completed, which discovered weakly illitic sandstone over much of the conductive Larocque trend (Matthews, 1992). During the winter of 1992, Cameco contracted Quantec Consulting Inc. to complete 49.2 line-km of fixed loop Time Domain Electromagnetic (TDEM) surveying over the Chain, Chain East, and Kernaghan grids. Conductive lithologies were successfully extended and delineated in all three areas with several potential drill targets.

Exploration in 1993 comprised diamond drilling and 23.1 line-km of fixed loop EM 37 surveying over the Chain Lake West grid. Diamond drilling totalled 1,848 m in drill holes KERN-1 through KERN-6. Surveying further delineated the Larocque trend in the Chain Lake area and suggested the presence of a previously unknown conductive trend south of the Chain Lake West grid. Drilling intersected graphite- and sulphide-rich pelitic gneisses, however, no significant uranium mineralization, pathfinder geochemistry, structure, or hydrothermal alteration were intersected, and follow-up was not recommended (Forand et al., 1993). All KERN series drill holes were later renamed with the prefix KER.

Diamond drill holes KER-7, -8, and -9 were completed during February 1999 and totalled 1,005 m on targets within the Chain West and Chain grids (Figure 6-1). KER-7, near the southwestern margin of the property and claim S-105491, intersected modest structure and hydrothermal alteration, as well as strongly graphitic rocks with zones of elevated radioactivity including a 0.1 m interval in the upper basement, which assayed 0.124%  $U_3O_8$  (Jiricka et al., 1999). Drill holes KER-8 and KER-9 both successfully intersected graphitic basement lithologies and zones of hydrothermal alteration and significant structure near the unconformity. Geophysical coverage in 1999 consisted of 18.0 line-km



of fixed loop EM over the Chain West grid, 16.0 line-km over the Chain grid, plus 7.1 and 8.65 line-km of moving loop EM over the Chain West and Chain grids, respectively.

The 2003 exploration program comprised 10.2 line-km of moving loop EM coverage along the western border of the property, and completion of diamond drill holes KER-10 and KER-11 (Figure 6-1) totalling 733 m (Michayluk et al., 2003). KER-10 intersected weakly elevated uranium and highly anomalous lead up to 222 ppm through a zone of faulted and bleached rocks from 153.6 to 161.1 m. Further west, drill hole KER-11 intersected significant hydrothermal alteration, structure and anomalous geochemistry in the illite-rich sandstone column. Weak fracture hosted uranium mineralization, up to 518 ppm U, was intersected at 331.7 m, roughly three metres above the unconformity. Basement lithologies were dominated by weakly to strongly graphitic augen gneiss and a paleoweathering profile that has been overprinted by late alteration.

Exploration reported by Hamel et al. (2005) detailed 9.7 line-km of TDEM surveying and the completion of three drill holes, KER-12 through KER-14, totalling 953 m (Figure 6-1). Roughly 250 line-km of airborne VTEM surveying was also completed. KER-12 did not intersect uranium mineralization while following up KER-11 to the south, but it intersected significant structure throughout the illitic sandstone column plus chloritic and pyritic alteration and anomalous uranium geochemistry in the basal sandstone. An unconformity offset or paleotopography of roughly 41 m was recognized between KER-13 and KER-14, located roughly 250 m apart in the northern-most stretch of the property. KER-13 intersected significant structure and alteration in the middle sandstone associated with increased illite, and anomalous uranium associated with strong illite, chlorite, and kaolinite in the lower sandstone. KER-13 has not been followed up. KER-14 failed to intersect significant alteration or structure. Updated VTEM coverage over the entire property confirmed the extent of known graphitic lithologies and identified multiple areas of increased conductivity.

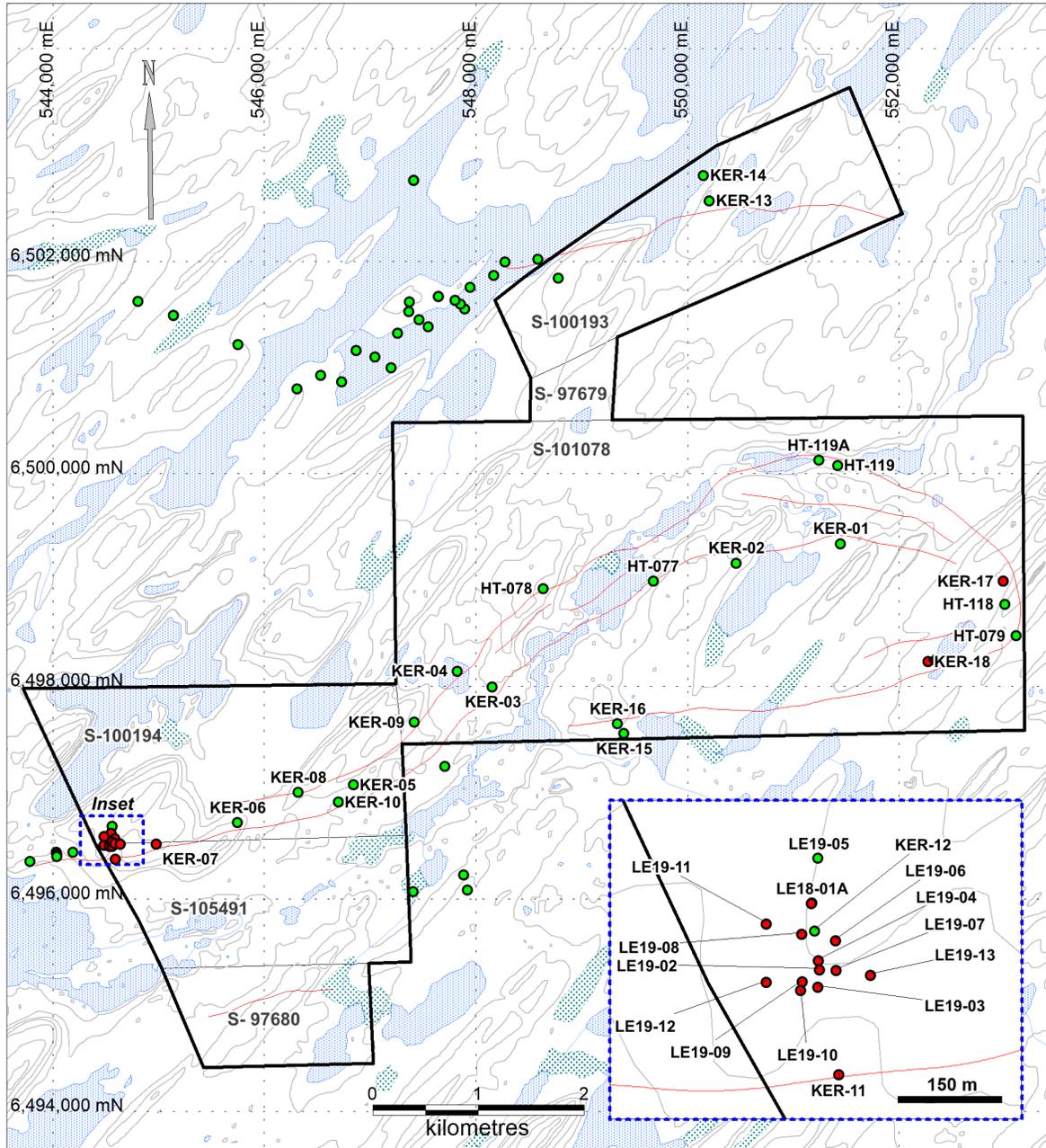
Limited work in 2008 consisted of 5.0 line-km of TDEM surveying within the Chain and Deschain grids. The purpose of the survey was, in part, to characterize the conductive nature of the sandstone with respect to possible alteration. Surveying identified high priority drill targets on both grids (Milne et al., 2009).

Following the results of 2008, a four-hole diamond-drilling program was completed over the Chain (KER-15, KER-16) and Deschain (KER-17, KER-18) grids (Figure 6-1). KER-15 and KER-16 failed to intersect uranium mineralization. KER-17 and KER-18 were targeted to test the extent of an arcuate conductive package wrapping around a magnetic high in the eastern portion of the property. KER-17 targeted the apparent fold nose and intersected 727 ppm U over 0.5 m in the basal sandstone. KER-18, drilled in the southeastern corner of the property, intersected weak unconformity-style mineralization up to 395 ppm U over 0.4 m (Yackulic, 2010). Both drill holes intersected moderately graphitic lithologies with brittle reactivation noted in KER-17.

Prior to work completed by IsoEnergy in the summer of 2018, the drilling completed in 2009 was the most recent exploration undertaken on the Kernaghan Lake project.



**Figure 6-1: Historical Drill Hole Collar Locations**



		<h2>LaRocque East Project</h2> <h3>Drill Hole Collar Locations</h3>	
		<ul style="list-style-type: none"> <li><span style="border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Larocque East Project Outline</li> <li><span style="border: 1px dashed black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Larocque East Project Claim</li> <li><span style="color: red; font-weight: bold;">●</span> Drill Hole Collar - Mineralized</li> <li><span style="color: green; font-weight: bold;">●</span> Drill Hole Collar - Unmineralized</li> </ul>	<ul style="list-style-type: none"> <li><span style="color: red; font-weight: bold;">—</span> VTEM Conductor</li> <li><span style="background-color: lightblue; border: 1px solid blue; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Waterbody, wetland</li> <li><span style="color: blue; font-weight: bold;">—</span> Watercourse</li> <li><span style="color: grey; font-weight: bold;">—</span> Topographic Contour (10 m interval)</li> </ul>
Date:	8 May 2019		
Scale:	1:60,000		
Datum:	NAD83 UTM Zone 13		
Author:	A. Carmichael		



## 7 GEOLOGICAL SETTING AND MINERALIZATION

### 7.1 Regional Geology

The Larocque East Project area lies near the northeastern edge of the Athabasca Basin, a middle Proterozoic clastic basin containing a relatively undeformed sequence of unmetamorphosed clastic rocks, predominantly sandstones, known as the Athabasca Group. These clastic rocks in the eastern half of the Athabasca basin lie unconformably on the highly deformed and metamorphosed rocks of the Hearne Craton of the Western Churchill Province of the Canadian Shield (Jefferson et al., 2007). The basement rocks of the Hearne Craton consist of Archean orthogneiss, overlain by the Paleoproterozoic Wollaston Supergroup sedimentary rocks. The basement rocks were metamorphosed to amphibolite facies and structurally intercalated and deformed during the Trans Hudson orogeny, resulting in a strong north-easterly linear fabric (Annesley et al., 2005). Other significant structural orientations run east-northeast (Collins Bay Thrust, Tent-Seal structure, among others), north-south (the Tabbernor Fault system), and northwest (diabase dikes).

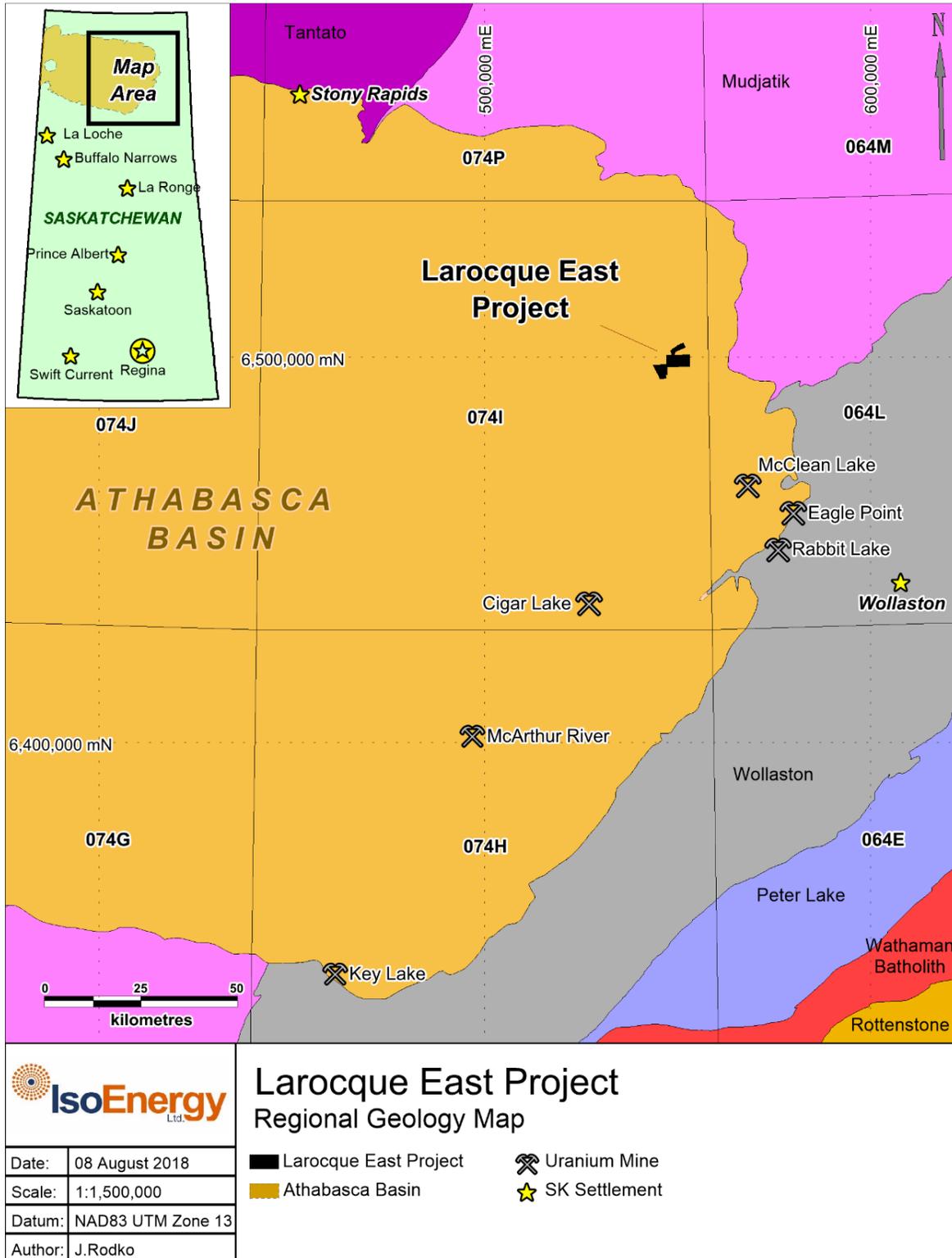
The central part of the Hearne Province can be divided into three lithostructural domains. From east to west these are: a) the Eastern Wollaston Domain, with the Wollaston Supergroup metasediments in this domain derived from pelitic to psammitic sedimentary rocks; b) the Western Wollaston Domain, where the stratigraphy of the Wollaston Supergroup is dominated by lower Wollaston stratigraphy, and consists of pelitic, usually graphitic, rocks, lesser psammitic rocks, quartzites, and calc-silicate lithologies; c) the Mudjatik Domain, which has lesser amounts of the Wollaston Supergroup metasediments and, instead of a linear fabric, has an arcuate basin and dome pattern. The Larocque East Project area is in the Mudjatik Domain where it transitions into the eastern Wollaston Domain.

The Trans-Hudson orogeny ended about 1.8 billion years ago. Prior to deposition of the Athabasca Group sediments, the metamorphic rocks were eroded and deeply weathered. Most “basement” rocks of the Wollaston Supergroup show lateritic weathering (MacDonald, 1980): a thin, bleached zone at the Athabasca unconformity, then hematite-stained (red zone), weathered metamorphic rocks, grading down to a green zone where mafic minerals have been altered to chlorite. Athabasca Group sedimentation started as early as 1,730 million years (Ma) ago (Jefferson et al., 2007).

The Athabasca Group consists of eight formations with provenance, at different times, from the east, south, and northwest (Ramaekers et al., 2007). In the eastern half of the basin only one formation is present, the Manitou Falls Formation, consisting of four units (MFa to MFd) of fluvial sandstones with interbedded pebbly beds and conglomerates. MFc and MFb members underlie the Larocque East Project. The MFc member is almost entirely quartz arenite with some regions containing pebbly quartz arenite. The MFb member consists of conglomeratic quartz arenite (Bosman and Korness, 2007). The MFb member hosts the Cigar Lake deposit. Figure 7-1 illustrates the position of the Larocque East Project area within the Athabasca Basin and relative to selected uranium mines.



Figure 7-1: Regional Geology Setting of the Larocque East Project



## 7.2 Local and Property Geology

### 7.2.1 Quaternary Geology

Quaternary geology (overburden) consists primarily of glacial till as blankets, drumlins, and eskers. Below the overburden lies Athabasca sandstone, which unconformably overlies Paleoproterozoic basement rocks. Drilling has intersected various granitic orthogneisses, paragneisses, and late cross-cutting pegmatite intrusions throughout the property.

In the vicinity of the Larocque East Project area, glaciation has imparted a northeast-southwest elongation to most significant topographic features. The project hosts several sizeable drumlins, the largest of which rises more than 65 m above the base elevation. Till blankets the bedrock surface over most of the property and, in the region, typically comprises a mixture of sandstone and basement boulders set in a sandy matrix. Within flatter portions of the project, glacial tills are likely overlain by veneers of aeolian sands, fluvial sands and gravels, and other sediments derived from glacial outwash processes.

Based on results from the 36 completed drill holes on the project to date, Quaternary deposits are expected to be up to 50 m thick beneath drumlins and can be less than 10 m thick between the drumlins.

### 7.2.2 Athabasca Group

Drilling results indicate the true vertical thickness of Athabasca Group sandstones on the Larocque East Project is between 115 and 275 m, which is dominated by the Manitou Falls Formation Bird (MFb) and Collins (MFc) Members, which underlie the glacial overburden and unconformably overlie the crystalline basement. Some historical drill holes are reported to have intersected up to 90 m of the Manitou Falls Dunlop (MFd) member, a quartz arenite rich in clay intraclasts (Bosman and Ramaekers, 2015).

### 7.2.3 Crystalline Basement

Depth from surface to the top of the crystalline basement (the sub-Athabasca unconformity) ranges between 330 m and 150 m in drill holes on the Property. To date, drilling has largely focused on the Larocque trend, an approximately 30-km-long, northeast to east-northeast trending magnetic low corridor which hosts several uranium occurrences along strike to the southeast of Larocque East. Within the Larocque East Project, the Larocque trend stretches across most of the central portion of the property and wraps around an arcuate magnetic high in the eastern portion of the property. The Larocque trend extension on the Larocque East property comprises a metasedimentary assemblage of sulphide-rich graphitic pelitic and semi-pelitic gneiss interlayered with non-graphitic garnetiferous and or sillimanite rich pelitic to semipelitic gneisses with local psammitic, quartzitic, and calcsilicate gneisses. Graphite-rich lithologies are often made up of augen (cordierite) gneiss with mild to moderate shearing.

Several graphite-rich concordant faults have been intersected on the Larocque trend. An unconformity offset of 13 m is present between drill holes on the Hurricane zone discovery section



(Figure 1-5). The offset is directly related to cataclastic graphitic faults in the area. Strongly faulted sandstone intersected in several drill holes on the property, including those at the Hurricane zone, suggests additional offsetting faults may be present on the property. Widely spaced exploration drilling has left long stretches of untested ground along the Larocque trend. Additional under-explored conductive trends are present to the north and south of the Larocque trend, including two kilometres of untested conductive strike length within the southern claim block.

Upper basement rocks often host a typical paleoweathering profile consisting of variable amounts of bleached, red, red-green, and green zones intersected in earlier drill holes. The paleoweathering profile can extend 25 m to 50 m below the unconformity but may penetrate deeper along structures. The paleoweathering profile has been removed (overprinted) by hydrothermal alteration in most of the Hurricane zone drill holes.

The regional foliation on the Larocque East Property trends roughly northeast-southwest with variable dips to the southeast or northwest. In the immediate vicinity of the Hurricane zone, the foliation strikes west and dips roughly 70° to 85° to the north due to a series of stepwise bends along strike. Many structures are noted to be concordant with the basement foliation and host up to decametre-scale brittle fault zones, occasionally enriched in graphite, and often flanked by envelopes of hydrothermal alteration. Drilling in the Hurricane zone area has intersected a series of anastomosing and steeply dipping concordant graphite-rich cataclastic faults.

### 7.3 Mineralization

The Larocque East Project area is located near the northeastern margin of the Athabasca Basin, which hosts multiple uranium deposits and operating uranium mines (Figure 1-4). Uranium mineralization has been intersected in drilling on the Larocque East Project area and adjacent claims.

The most significant zone of uranium mineralization intersected to date is the Hurricane zone, which was discovered in July 2018 and was followed up with a recently completed 12-hole drilling program in the winter (January-March) of 2019. Results include several high-grade intersections, including 3.5 m at 10.4%  $U_3O_8$  in drill hole LE19-02, 4.0 m at 3.8%  $U_3O_8$  in drill hole LE19-06, 4.5 m at 4.2%  $U_3O_8$  in drill hole LE19-09 and 8.5 m at 3.2%  $U_3O_8$  in drill hole LE19-12. The zone is at least 150 m long and 38 m wide and is up to 8.5 m thick. Mineralization begins approximately 320 m below surface and straddles the sub-Athabasca unconformity along a subtle ridge parallel to and coincident with certain graphitic units in the basement. Mineralization intersected in the Hurricane zone thus far is a mixture of fracture hosted and disseminated pitchblende in the basal sandstone and semi-massive pitchblende at the unconformity and is associated with intense hydrothermal and illitic clay alteration. Hurricane zone mineralization is polymetallic and contains local zones of high-grade nickel and cobalt.

Several drill holes on the property have intersected other zones of weak uranium mineralization at the unconformity or within basement hosted fractures (Figure 1-4). KER-07 was the first drill hole on the



western side of the property to intersect mineralization on the Larocque trend, where it intersected 0.12%  $U_3O_8$  over 0.1 m at 320.0 m within a limonitized anatectic sweat bordered by graphitic and pyritic semipelitic gneiss. About 380 m along the trend to the west, drill hole KER-11 intersected fracture-hosted mineralization of 0.061%  $U_3O_8$  over 0.5 m in the basal sandstone. The mineralization intersected in KER-11 lies within a zone of chlorite and sulphide alteration including fracture hosted sooty pyrite and chalcopyrite. Near the eastern border of the property, KER-17 was drilled to test the nose of the Larocque trend where it wraps around the arcuate magnetic high. At a depth of 187.0 m, roughly 1 m above the unconformity, drill hole KER-17 intersected 0.086%  $U_3O_8$  over 0.5 m in an interval of blebby pitchblende mineralization associated with chlorite, sooty pyrite, and hematitic clay coatings on nearby fractures and gouge. Approximately one kilometre southwest of KER-17, KER-18 targeted the southern limb of the interpreted fold in the Larocque trend. Immediately underlying the unconformity, the drill hole intersected 0.047%  $U_3O_8$  over 0.4 m from 209.3 m to 209.7 m. The mineralization intersected in KER-18 is hosted within moderately bleached semipelitic gneiss coincident with patchy hydrothermal hematite and small scale limonitic redox fronts.

Roughly 400 m to the west of the Larocque East property boundary and 550 m along strike of KER-12 and KER-11 is Cameco's Larocque Lake North uranium showing, where drill hole Q22-16 intersected 0.93%  $U_3O_8$  over 1.4 m just above the unconformity contact. Mineralization intersected in Q22-16 is associated with strongly elevated amounts of nickel, cobalt, arsenic, lead, and gold (Jiricka et al., 1999). Approximately 5.5 km southwest of Q22-16 and less than 6 km from the Larocque East Property boundary is Cameco's Larocque Lake showing. At Larocque Lake, drill hole Q22-17 intersected 0.17%  $U_3O_8$  over a 3.8 m interval at 288.8 m in the basal sandstone. Several other drill holes have intersected uranium mineralization in that area, including 29.87%  $U_3O_8$  over 7.0 m in Q22-40 (Jiricka et al., 1999).

In the opinion of the QP, the geology of the region, the Larocque East property, and the current Hurricane zone model are well understood by the exploration staff at IsoEnergy. In areas of the Athabasca Basin where the sandstone covers the basement rocks, exploration is focused on drill testing interpreted basement geology and geophysical anomalies. Additional drilling may not always support the current interpretation.



## 8 DEPOSIT TYPES

The Athabasca Basin hosts deposits of unconformity-associated uranium mineralization defined by Jefferson et al. (2007) as pods, veins, and semi-massive replacements, consisting primarily of uraninite close to basal unconformities, particularly those between relatively undisturbed Proterozoic conglomeratic sandstone basins and metamorphosed basement rocks.

In the Athabasca Basin, unconformity-associated uranium mineralization is found at or near the unconformity between the Athabasca sandstones and the older Aphebian metasedimentary rocks. The metasediments are usually graphitic, or there are graphitic rocks nearby. The mineralization is always associated with basement-reactivated brittle faults, which are often rooted in graphitic rocks.

The deposits are not large volumetrically, often only a few hundred metres long (up to 2,000 m), and a few metres to 40 m thick and/or wide.

The faulting associated with mineralization propagates upward and fluid movement into the sandstone can result in extensive alteration envelopes above mineralization. Alteration consists of variable chlorite, tourmaline, hematite, illite, silicification, and desilicification. The alteration zone and trace amounts of uranium can extend more than 400 m vertically from the unconformity (Jefferson et al., 2007).

In most exploration programmes, geophysical techniques are used to explore for uranium mineralization, and the aim is to detect alteration (typically a resistivity low, or a resistivity high for silicification), and/or the faulted basement rocks (EM anomalies over graphitic rocks), rather than directly testing for uranium.



## 9 EXPLORATION

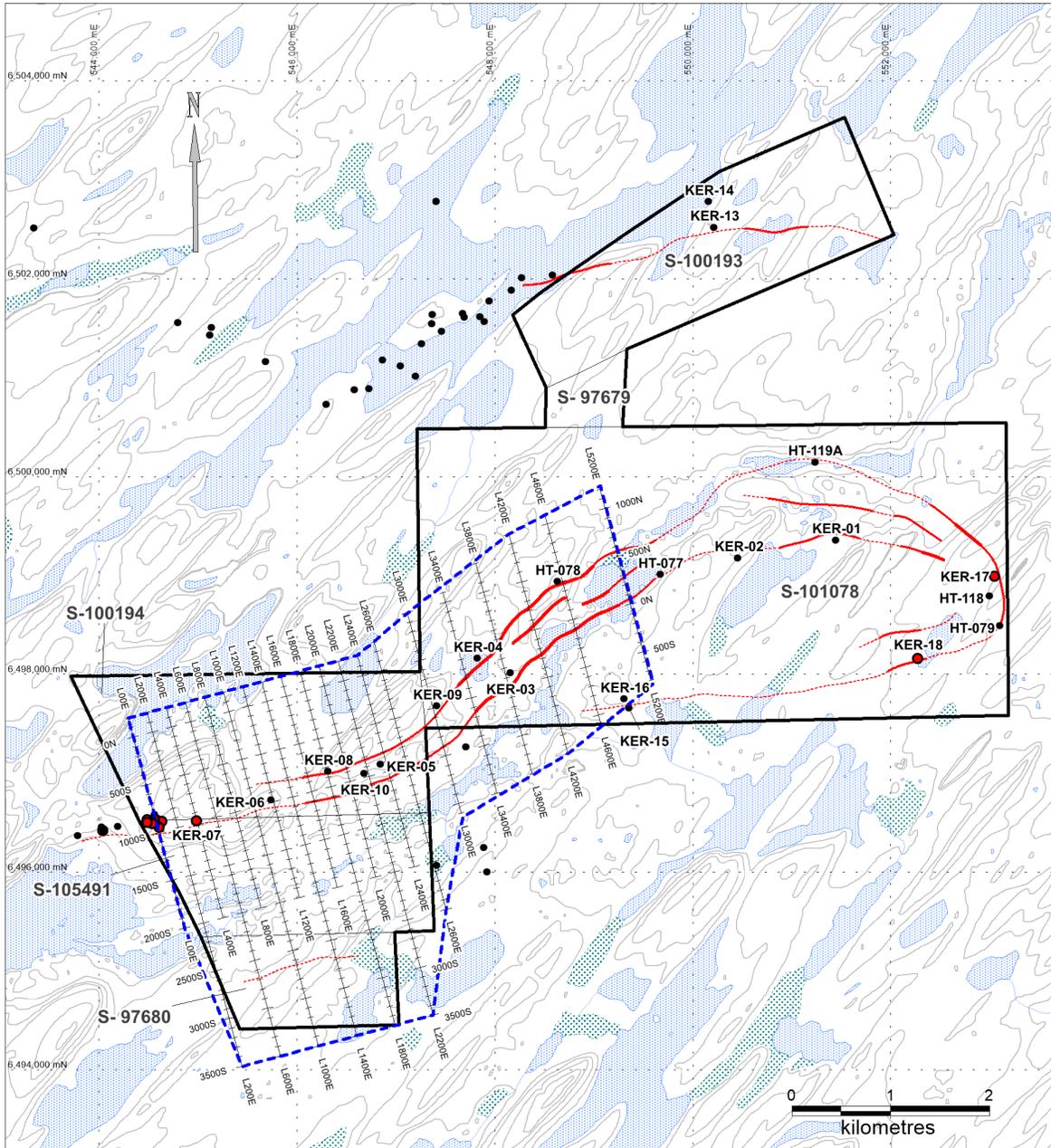
Exploration completed by IsoEnergy consists of the core drilling campaigns described herein, along with an on-going program of Direct Current (DC)-Resistivity ground geophysics. Historical exploration work is reported in Section 6. The core drilling programs are described in Section 10.

The DC-Resistivity geophysical survey consists of 53 line-km of surveying on grid lines spaced 200 m to 500 m apart. The survey began in March 2019 and is expected to be completed in June 2019. Spring break up conditions resulted in a temporary hiatus of surveying through most of May. There are three main objectives for the survey. The first is to fingerprint the key graphitic horizons that control mineralization at Hurricane and locate them immediately east of the Hurricane zone to aid step-out drill holes planned for the summer of 2019. Secondly, as the survey covers over five kilometres of the wide open Larocque conductor system east of Hurricane, it will be used to guide future exploration drilling programs targeting additional mineralization along this fertile belt. Finally, the survey will more accurately locate a poorly understood conductor system 2 km south of Hurricane. This southern conductor system is parallel to the Hurricane trend, has a possible strike extent of 2.3 km and has never been drilled within the Larocque East property boundaries. Figure 9-1 shows the location of the survey area.

Preliminary survey data over part of the grid has been collected and processing and interpretation are currently underway.



Figure 9-1: 2019 Resistivity Survey Coverage



		<h3>Larocque East Project</h3> <h4>Planned Spring 2019 DC-Resistivity Survey Area</h4>	
		<p>Date: 13 May 2019</p> <p>Scale: 1:65,000</p> <p>Datum: NAD83 UTM Zone 13</p> <p>Author: A. Carmichael</p>	<p>□ Larocque East Project Outline</p> <p>▭ 2019 DC-Resistivity Area</p> <p>● Drill Hole UC Intercept - Mineralized</p> <p>● Drill Hole UC Intercept - Unmineralized</p>



## 10 DRILLING

Historical drilling completed prior to 2018 is discussed in Section 6 (History).

### 10.1 2018-2019 Drilling

Larocque East property drilling during summer 2018 was helicopter supported. Drilling was conducted from July 17 to July 21 and comprised one drill hole totalling 494 m. The single drill hole, LE18-01A, was gamma probed using a Mount Sopris 2PGA-1000 with gamma values recorded in counts per second (cps). All core was scanned with an SRAT SPP2 handheld scintillometer and the average cps for each 3 m drill run recorded on a geotechnical log. Radioactivity exceeding double the background level was recorded as a discrete interval within the 3 m drill run.

Room, board, and fuel were obtained at Points North Landing for the summer 2018 drilling program. The Project was accessed via helicopter from Points North Landing. Helicopter operations were contracted to Access Helicopters of Kelowna, BC, who utilized an Airbus AS350-B2 helicopter for the duration of the program.

Winter 2019 drilling commenced on January 15 and was completed on March 12. Winter drilling was skidder supported and based out of IsoEnergy's temporary Larocque East work camp. Winter drill holes were probed using a Mount Sopris 2PGA-1000 and recovered core was scanned using an RS-125 handheld spectrometer. Where either the RS-125 or Mount Sopris 2PGA devices indicated an intersection hosting over 4% eU<sub>3</sub>O<sub>8</sub>, a high-flux probe rented from Alpha Nuclear in Saskatoon was also used to measure down-hole radioactivity. Gamma values were recorded in counts per second.

Both summer 2018 and winter 2019 drilling programs were contracted to Bryson Drilling of Archerwill, Saskatchewan who utilized a Zinex A5 diamond drill to produce NQ core.

### 10.2 Diamond Drilling Results

A total of 5,046 m was completed during the winter for a combined total of 5,540 m drilled at Hurricane during summer 2018 and winter 2019 drill seasons (Table 10-1).

Eleven of twelve 2019 winter drill holes intersected significant uranium mineralization, expanding the Hurricane zone to approximately 150 m along strike (Figure 10-1).

Figure 10-2 illustrates the results from drill holes bracketing the discovery hole LE18-01A. The width of the Hurricane zone was extended and confirmed by drill holes LE19-03 and LE19-04.

The discovery hole, LE18-01A, intersected a broad, 8.5-m-long interval of uranium mineralization, averaging 1.26% U<sub>3</sub>O<sub>8</sub> (above a cut-off of 0.1% U<sub>3</sub>O<sub>8</sub>), and including a higher-grade subinterval of 3.58% U<sub>3</sub>O<sub>8</sub> over 2.5 m. Significant radioactivity intersected in the winter 2019 drill program is summarized in Table 10-2. Individual drill hole summaries for all Hurricane zone drill holes are found in Appendix I.

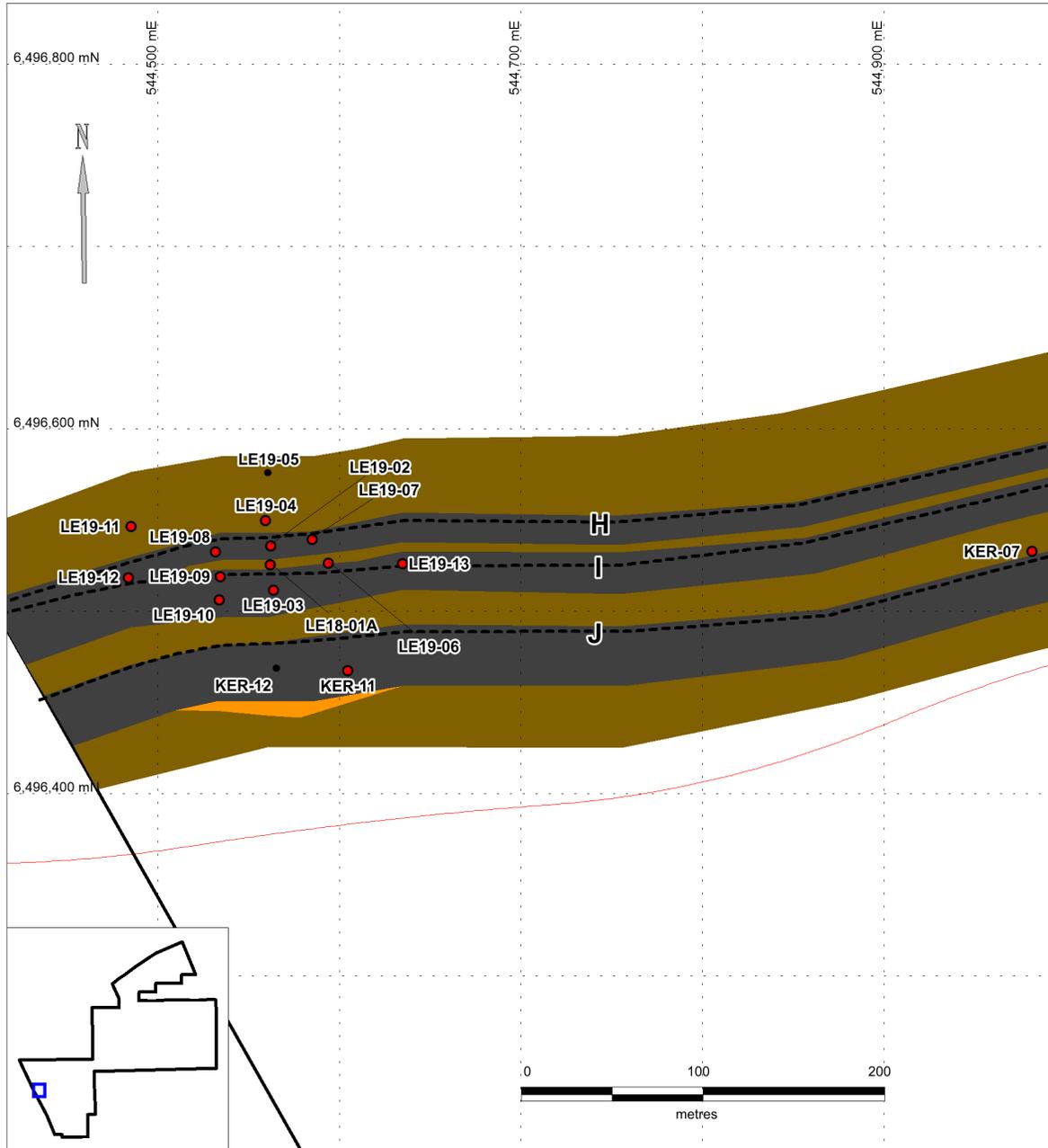


**Table 10-1: Larocque East – Diamond Drill Hole Summary**

Drill Hole #	UTM Coordinates (WGS84-13N)		Elevation (m)	Hole Dip	Hole Azim	Total Depth (m)	Days to Complete
	Northing	Easting					
LE18-01A	544550.5	6496633.4	450.6	-70	171	494	5
LE19-02	544561.3	6496537.9	450.6	-90	360	425	4
LE19-03	544559.5	6496513.1	448.8	-90	360	458	4
LE19-04	544560.1	6496550.6	450.4	-90	360	371	3
LE19-05	544559.7	6496697.5	450.5	-70	180	455	3
LE19-06	544584.9	6496579.7	452.9	-80	180	443	5
LE19-07	544586.0	6496536.8	450.6	-90	360	407	5
LE19-08	544535.9	6496588.7	450.1	-80	180	473	4
LE19-09	544536.6	6496520.8	448.8	-90	360	362	4
LE19-10	544534.6	6496508.5	448.3	-90	360	371	4
LE19-11	544484.8	6496603.3	446.0	-80	178	506	8
LE19-12	544484.9	6496519.7	445.8	-90	360	380	3
LE19-13	544635.0	6496530.0	446.2	-90	360	395	3
						<b>5,540</b>	<b>55</b>



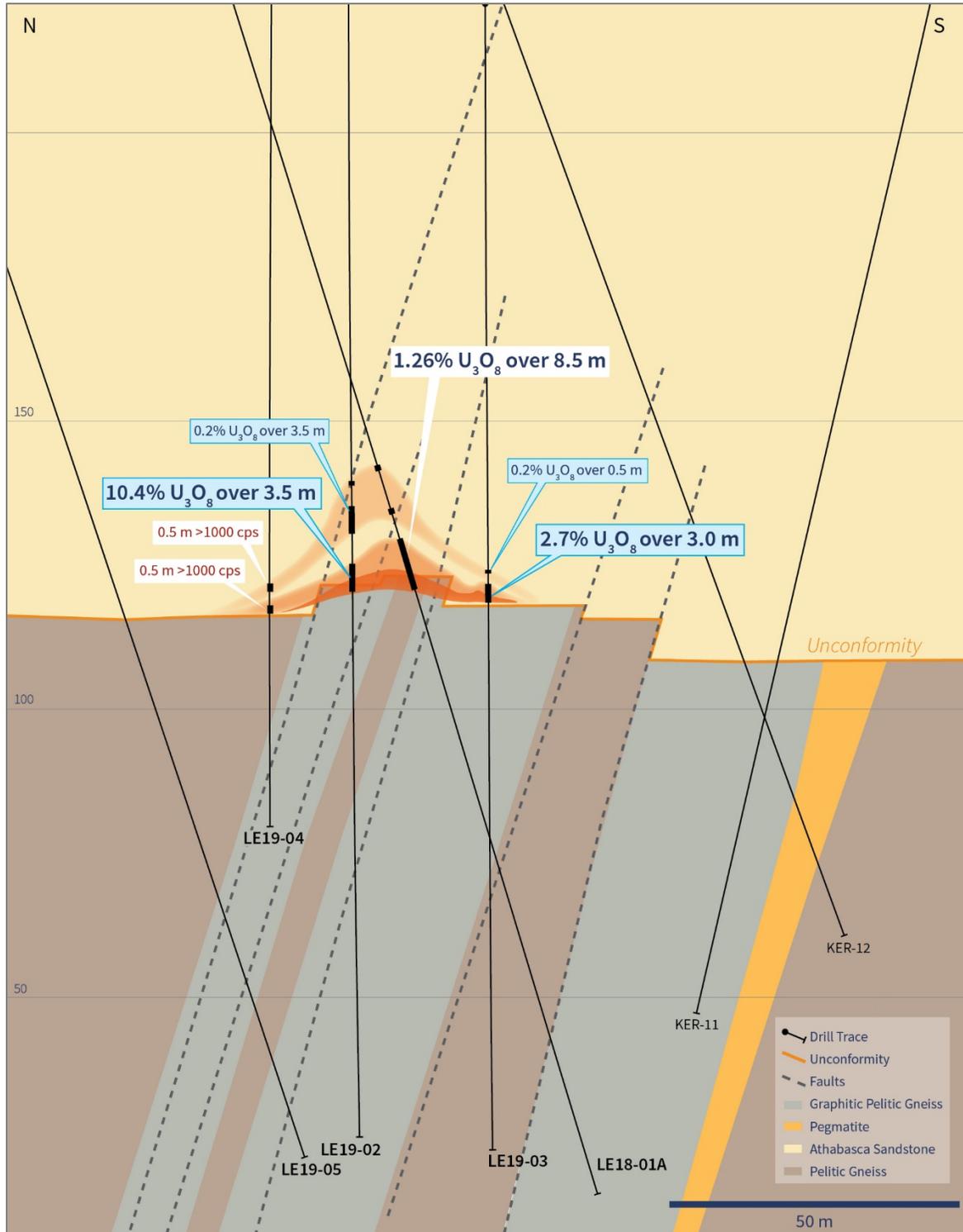
**Figure 10-1: Hurricane Zone, Plan View Geology**



		<h3>Larocque East Project</h3> <h4>Hurricane Area Drill Holes and Geology</h4>	
		<ul style="list-style-type: none"> <li><span style="border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Larocque East Project Outline</li> <li><span style="color: red;">●</span> Drill Hole UC Intercept - Mineralized</li> <li><span style="color: black;">●</span> Drill Hole UC Intercept - Unmineralized</li> <li><span style="color: red;">—</span> VTEM Conductor</li> </ul>	<ul style="list-style-type: none"> <li><span style="background-color: darkgrey; width: 15px; height: 10px; margin-right: 5px;"></span> Graphitic Pelitic Gneiss</li> <li><span style="background-color: olive; width: 15px; height: 10px; margin-right: 5px;"></span> Pelitic Gneiss</li> <li><span style="background-color: orange; width: 15px; height: 10px; margin-right: 5px;"></span> Pegmatite</li> <li><span style="border-bottom: 1px dashed black; width: 15px; margin-right: 5px;"></span> Fault (named)</li> </ul>
Date:	8 May 2019		
Scale:	1:3,500		
Datum:	NAD83 UTM Zone 13		
Author:	A. Carmichael		



Figure 10-2: Diamond Drill Holes, Larocque Section 4560E



**Table 10-2: Larocque East – 2019 Diamond Drill Hole Radioactivity Summary**

Hole ID	From (m)	To (m)	Length (m)	Radioactivity <sup>1,2</sup> (CPS)	Chemical Assays			Location
					U <sub>3</sub> O <sub>8</sub> (%)	Ni (%)	Co (%)	
LE19-02	316.5	320.0	3.5	>1,000	0.2	0.1	0.2	Section 4560E
and	326.5	330.0	3.5	>1,000	10.4	0.8	0.0	
incl.	328.5	330.0	1.5	>20,000	23.6	1.6	0.0	
incl.	329.0	329.5	0.5	>50,000	38.2	1.5	0.1	
LE19-03	324.0	324.5	0.5	>1,000	0.2	0.1	0.0	Section 4560E
and	326.5	329.5	3.0	>1,000	2.7	2.3	0.0	
incl.	328.5	329.5	1.0	>5,000	7.6	6.6	0.1	
incl.	329.0	329.5	0.5	>20,000	13.3	11.8	0.1	
LE19-04	329.0	329.5	0.5	>1,000	0.1	0.0	0.0	Section 4560E
	333.0	333.5	0.5	>1,000	0.4	0.2	0.0	
LE19-05	No significantly elevated radioactivity							Section 4560E
LE19-06	328.0	330.0	2.0	>1,000	0.4	0.1	0.1	Section 4585E
and	332.0	336.0	4.0	>5,000	3.8	1.1	0.0	
incl.	333.5	335.5	2.0	>10,000	5.5	0.7	0.0	
incl.	333.5	334.0	0.5	>20,000	13.7	1.2	0.0	
LE19-07	325.0	331.0	6.0	>1,000	0.4	0.8	1.4	Section 4585E
incl.	328.0	328.5	0.5	>5,000	1.0	4.9	9.3	
LE19-08	326.5	327.0	0.5	>1,000	0.4	0.1	0.1	Section 4535E
and	333.0	336.5	3.5	>1,000	0.8	1.5	0.4	
incl.	335.5	336.0	0.5	>10,000	3.7	8.3	1.3	
LE19-09	325.0	329.5	4.5	>1,000	4.2	1.1	0.8	Section 4535E
incl.	327.0	329.0	2.0	>20,000	6.8	1.9	1.3	
LE19-10	331.5	333.0	1.5	>1,000	0.6	1.7	1.9	Section 4535E
LE19-11	333.0	333.5	0.5	>5,000	2.1	0.1	0.1	Section 4485E
LE19-12	320.5	329.0	8.5	>1,000	3.2	2.1	0.2	Section 4485E
incl.	324.5	327.0	2.5	>10,000	7.2	0.6	0.0	
incl.	324.5	325.0	0.5	>20,000	3.5	0.3	0.0	
incl.	326.0	327.0	1.0	>20,000	14.3	1.1	0.0	
incl.	328.5	329.0	0.5	>20,000	12.8	15.0	0.4	
LE19-13	320.0	320.5	0.5	>1,000	0.2	0.0	0.0	Section 4635E
and	321.5	324.0	2.5	>1,000	0.6	0.2	0.5	
incl.	322.5	323.0	0.5	>10,000	1.6	0.4	1.1	

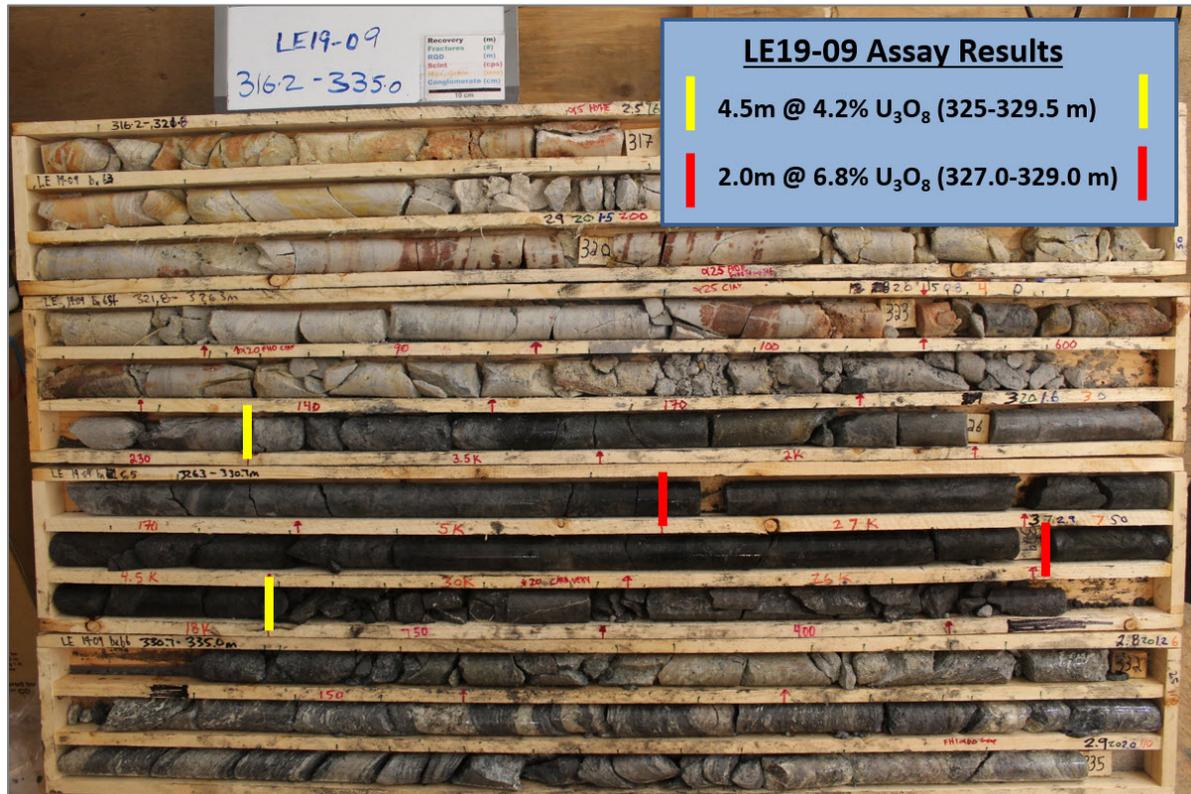
Notes: <sup>1</sup>Radioactivity is total gamma from drill core measured with an RS-125 hand-held spectrometer.

<sup>2</sup>Measurements of total gamma CPS on drill core are an indication of uranium content but may not correlate with uranium chemical assays.



Figure 10-3 illustrates representative mineralization intersected in the Hurricane zone.

**Figure 10-3: Drill Hole LE19-09 Mineralized Drill Core**



## 11 SAMPLING PREPARATION, ANALYSIS, AND SECURITY

### 11.1 Sampling Procedure

Composite geochemistry (COMP) samples consisted of roughly 1-cm long chips of core collected every 1.5 m through the sandstone and basement. Through the sandstone, composite sample lengths were 10 m until roughly 50 m above the unconformity followed by 5-m intervals to the unconformity. Basement composite samples were collected using the same technique; however, basement composite samples were generally limited to a maximum length of 5 m and were not allowed to overlap lithological boundaries. Basement composite sample intervals were occasionally extended to 10 m through zones of fresh and relatively homogenous rock. Where core loss was significant, samples were taken at 3 m intervals between depth marker blocks to maintain confidence in sample intervals.

Unmineralized split core (SPOT) samples were collected through zones of significant alteration and/or structure. Spot sample length varied depending on the width of the feature of interest but were generally 0.3 to 1.5 m in length; features of interest greater than 1.5 m were sampled with multiple samples. Half-metre shoulder samples were collected on the flanks of spot sample intervals.

Mineralized split-core (MINZ) samples were collected through zones of elevated radioactivity exceeding 350 cps measured via RS-125 handheld spectrometer. MINZ samples were generally 0.5 m in length and occasionally 1.0 m in length where radioactivity was consistent across broader intervals. Mineralized intervals equal to or less than 1.0 m in length were sampled with single 0.5 m shoulder samples above and below the mineralized interval. Mineralized intervals greater than 1.0 m were sampled with two 0.5 m shoulder samples above and below the mineralized interval.

Systematic short-wave infrared (SWIR) reflectance samples were collected from approximately the middle of each composite sample for analysis of clays, micas, and a suite of other generally hydrous minerals. Spot reflectance samples were collected where warranted (i.e., fracture coatings). No Quality Assurance / Quality Control (QA/QC) duplicates were collected for reflectance samples. Reflectance samples were not collected where core was significantly mineralized.

For litho-geochemistry samples, sample tags with the sample number were placed in the sample bags before they were sealed and shipped to Saskatchewan Research Council (SRC) Geoanalytical Laboratories in Saskatoon for analysis. A second set of sample tags with the depth interval and sample number were stapled in the core box at the end of each sample interval. A third set of sample tags with the drill hole number, sample depth interval, and sample number is retained in the sample book for archiving. SWIR reflectance samples were tagged in a similar fashion before shipping to Kim Heberlein in Maple Ridge, BC. Geologists enter all sample data into IsoEnergy's proprietary drill hole database during core logging. Table 11-1 summarizes the number of geochemical and reflectance samples collected at the Hurricane zone.



**Table 11-1: Summary of Samples Collected**

Sample Type	Number Collected
COMP	629
SPOT	145
MINZ	246
	<b>1,020</b>
REFL	617
	<b>617</b>

## 11.2 Sample Preparation and Analysis

Composite and spot samples were shipped to the SRC. The samples were then dried, crushed, and pulverized as part of the ICPMS Exploration Package (code ICPMS1 and ICPMS2) plus boron (code Boron). Samples were analyzed for uranium content, a variety of pathfinder elements, rare earth elements, and whole rock constituents with the ICPMS Exploration Package (plus boron). The Exploration Package consists of three analyses using a combination of ICP-MS, ICP-OES, and partial or total acid digestion of one aliquot of representative sample pulp per analysis (SRC, 2017). Total digestion (herein designated by the suffix -t) is performed via a combination of hydrofluoric, nitric, and perchloric acids while partial digestion (herein designated by the suffix -p) is completed via nitric and hydrochloric acids. In-house quality control performed by SRC consists of multiple instrumental and analytic checks using an in-house standard ASR316. Instrumental check protocols consist of two calibration blanks and two calibration standards. Analytical protocols require one blank, two QA/QC standards, and one replicate sample analysis. SRC is an independent laboratory with ISO/IEC 17025: 2005 Accreditation.

Samples yielding over 400 ppm U-t or those with radioactivity over 350 cps (RS-125) were also shipped to SRC. Sample preparation procedures are the same as for the ICPMS Exploration Package, samples were analyzed by ICP-OES only (Code ICP1) and for triuranium octoxide (U<sub>3</sub>O<sub>8</sub>) using hydrochloric and nitric acid digestion followed by ICP-OES finish, capable of detecting U<sub>3</sub>O<sub>8</sub> weight percent as low as 0.001%.

High uranium samples were also analyzed for gold, and in some instances, platinum and palladium, by fire assay using aqua regia digestion with ICP-OES finish. Analytical protocols utilized replicate sample analysis; however, no in-house standards were used for these small batches.

Boron analysis has a lower detection limit of 2 ppm and is completed via ICP-OES after the aliquot is fused in a mixture of sodium superoxide (NaO<sub>2</sub>) and NaCO<sub>3</sub>. SRC in-house quality control for boron analysis consists of a blank, QC standards and one replicate with each batch of samples (SRC, 2017).



Reflectance samples were shipped to Kim Heberlein of Maple Ridge, British Columbia for collection of spectra. These spectra were subsequently sent electronically to AusSpec of New Zealand for semi-quantitative determinations of clay mineralogy.

### 11.3 Sample Security

Drill core was delivered from the drill to IsoEnergy's core handling facilities at the Geiger Property in 2018 and the Larocque Lake camp in 2019. Individual core samples were collected at the core facilities by manual splitting. They were tagged, bagged, and then packaged in 5-gallon plastic buckets for shipment to SRC Geoanalytical labs in Saskatoon. No issues were identified by IsoEnergy staff or SRC with sample security.

### 11.4 Discussion on Sample Preparation, Analyses, and Security

Quality assurance (QA) is information collected to demonstrate and quantify the reliability of assay data. Quality control (QC) consists of procedures used to maintain a desired level of quality in the database (Long, 2009). Exploration usually requires high precision on low concentrations and is more frequently concerned with identifying anomalous values, which may be near the analytical detection limit.

QA in uranium exploration benefits from the use of down-hole gamma probes and hand-held scintillometers/spectrometers, as discrepancies between radioactivity levels and geochemistry can be readily identified.

Quality assurance and control procedures implemented by IsoEnergy for the 2019 winter drill program will be continued for the summer 2019 program and are detailed in the following section.

#### 11.4.1 Quality Assurance and Quality Control Sampling

Each drill hole that encounters significant mineralization and 'MINZ' samples will include:

- One Certified Reference Material (CRM) BLANK
- One duplicate (MDUP), selected from a suitable (homogenous) sample
- One CRM Standard:
- OREAS 124 (O124) if maximum grade is <1% eU<sub>3</sub>O<sub>8</sub>
- BL-5 (BL5) if maximum grade is >1% eU<sub>3</sub>O<sub>8</sub>.

Maximum grade refers to the most radioactive 0.5 m interval in the drill hole.

For SPOT and COMP type samples, the following protocols will be followed:

- Sample IDs ending in 00 will be certified blanks (BLA1)
- Sample IDs ending in 25 and 75 will be duplicates (DUPL) of the preceding sample
- Sample IDs ending in 50 will be CRM OREAS 120 (O120).



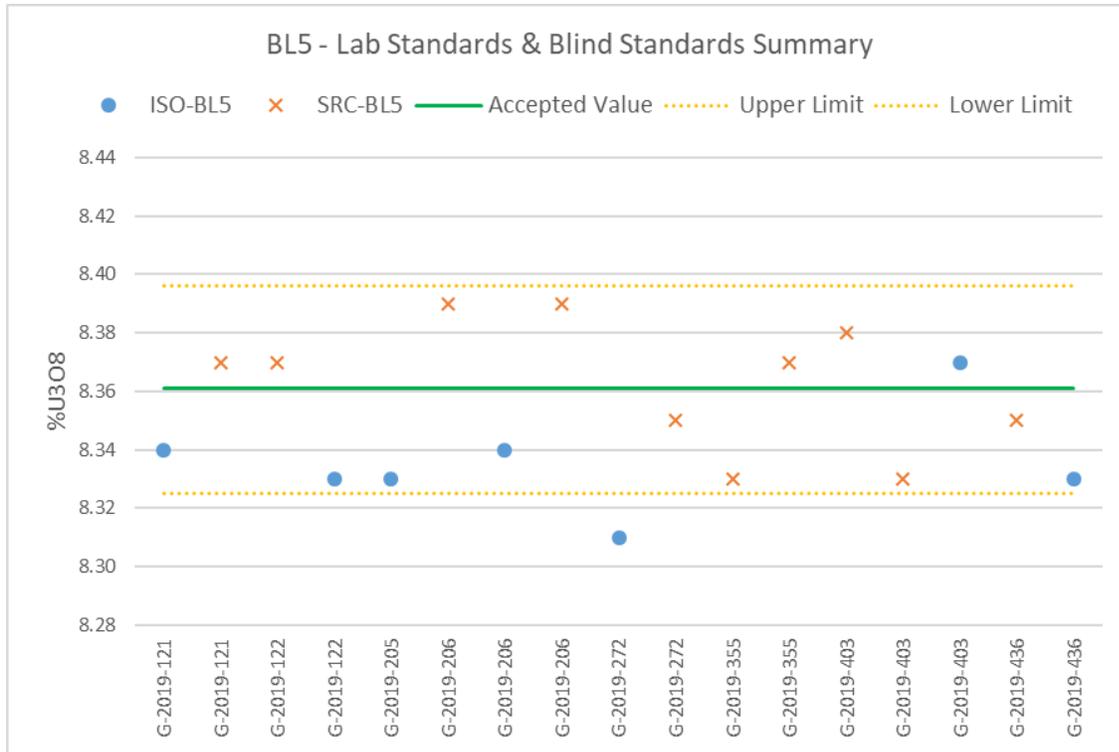
QA/QC sampling of MINZ, COMP, and SPOT samples will be independent of other sample types. In addition, lab repeats (REPT), non-radioactive lab standards (LSTD), and radioactive lab standards (BL2A, BL4A, BL5) are also tracked and monitored by IsoEnergy staff. Table 11-2 details the number of analyzed QA/QC samples.

**Table 11-2: QA/QC Sample Summary**

IsoEnergy QA/QC	Number of Analyses	SRC QA/QC	Number of Analyses
DUPL	20	Non-RA LSTD	116
MDUP	12	REPT	85
BLA1	20	BL2A	11
BL5	7	BL4A	33
O120	5	BL5	10
O124	3	<b>U02</b>	<b>9</b>
	<b>67</b>		<b>264</b>

Figure 11-1 through Figure 11-8 summarize the results of IsoEnergy QA/QC sample analysis by sample group number.

**Figure 11-1: IsoEnergy and SRC BL5 Standard Analysis**



**Figure 11-2: IsoEnergy CRM Blank Analyses**

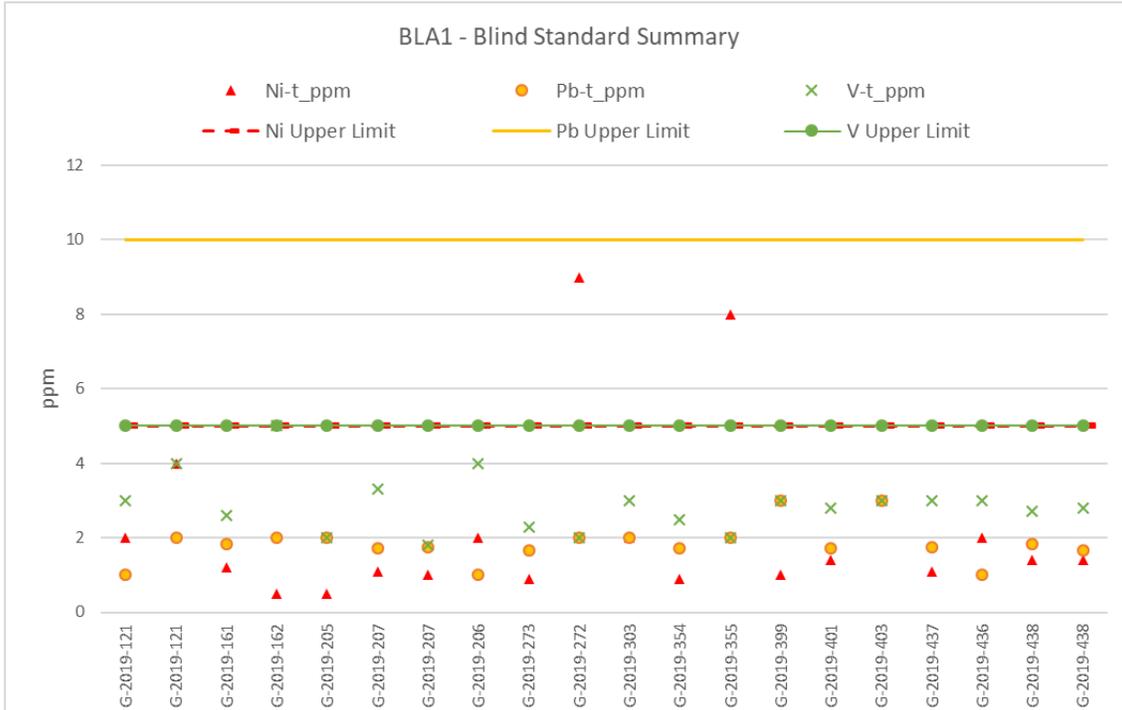
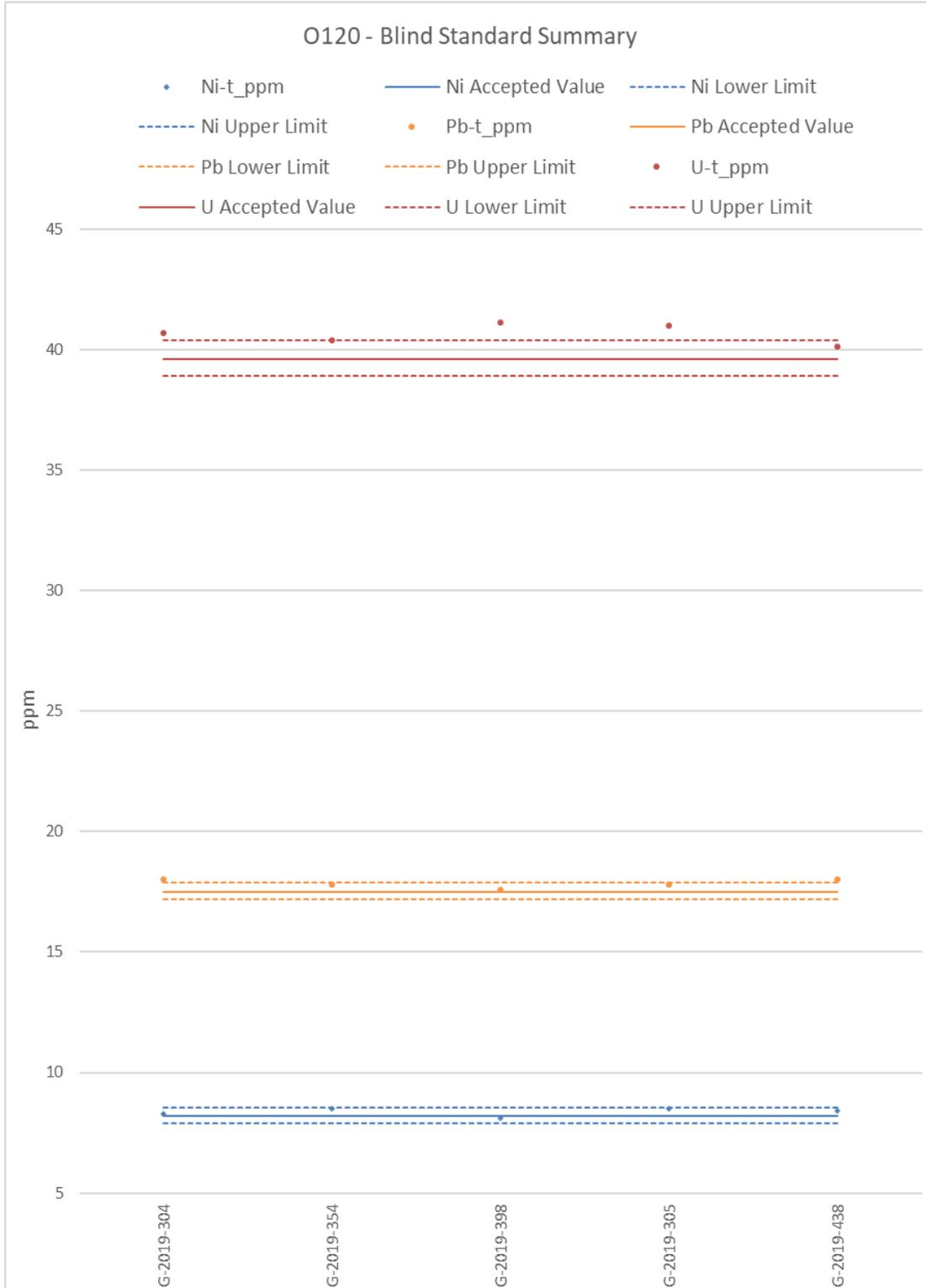
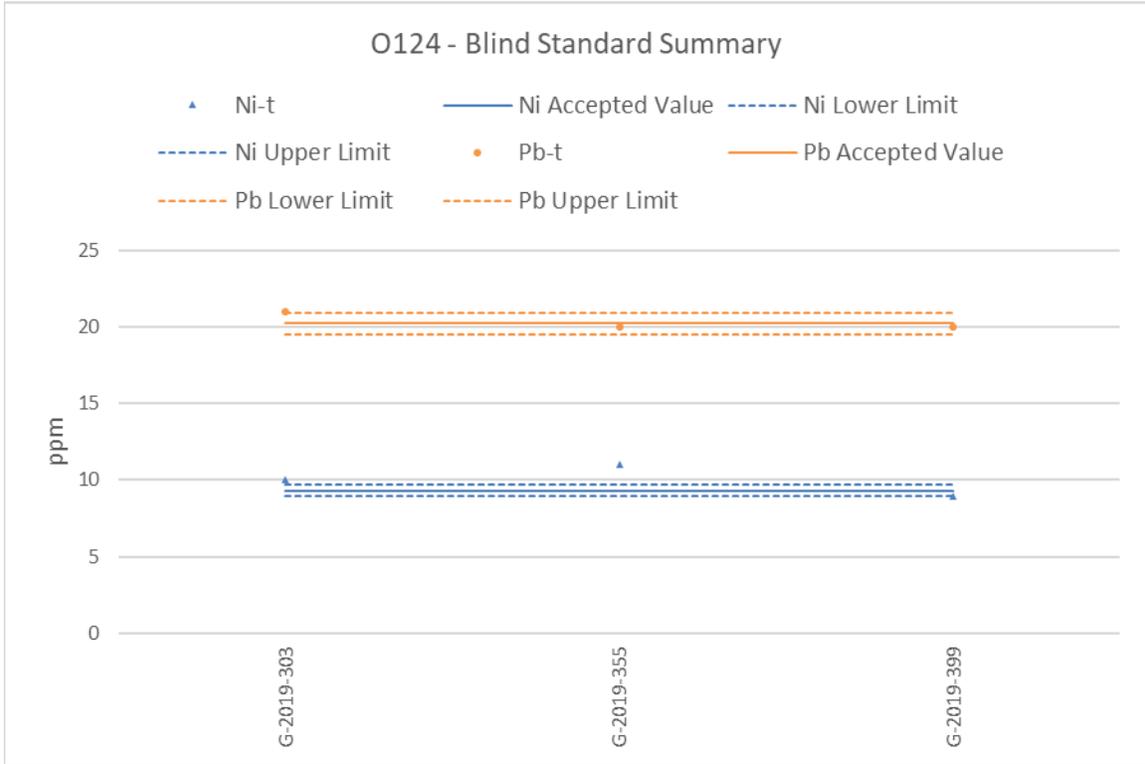


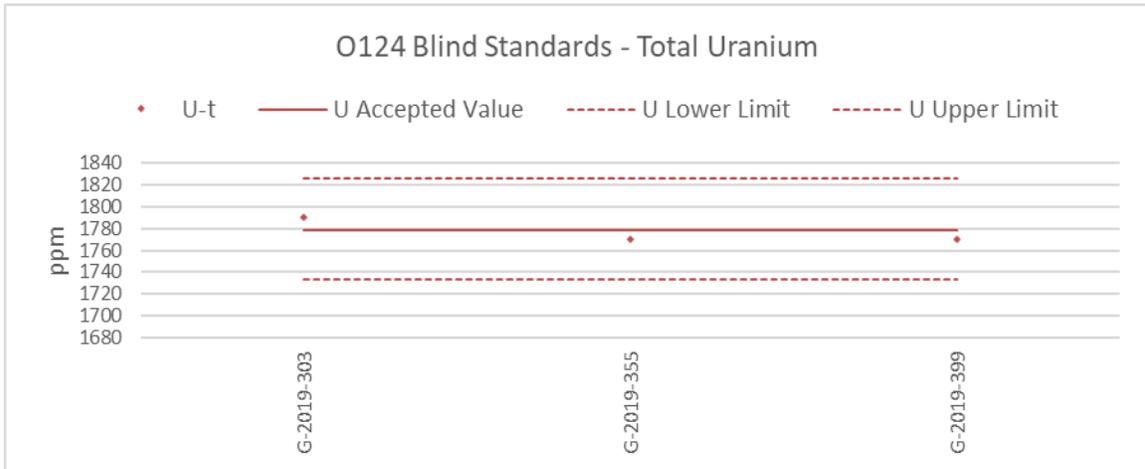
Figure 11-3: IsoEnergy O120 Standard Analysis



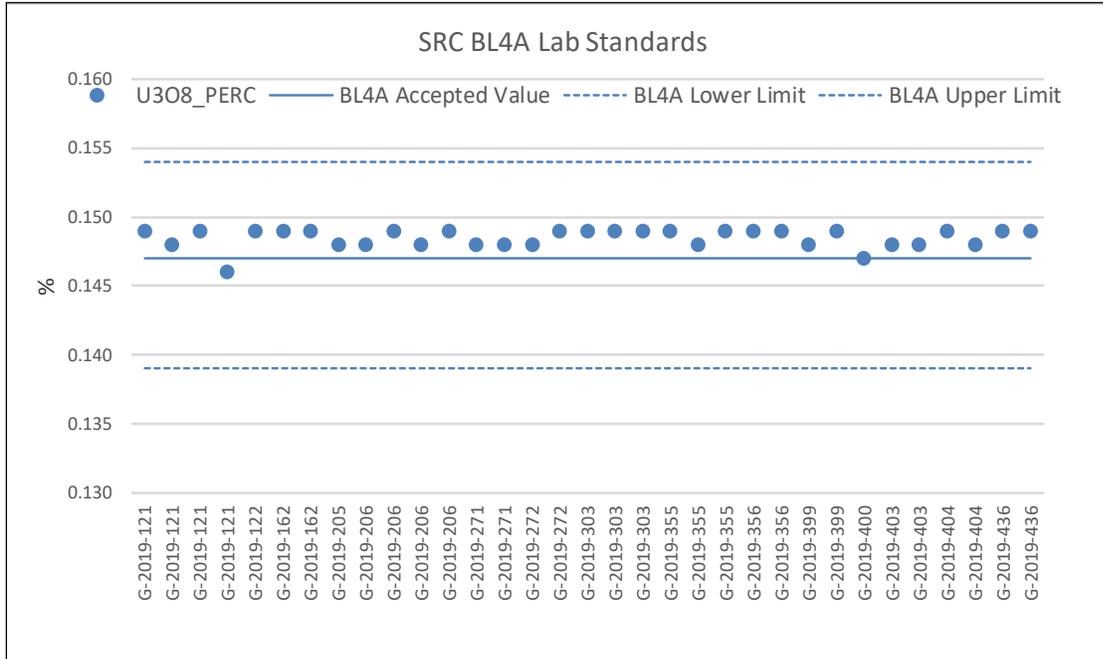
**Figure 11-4: IsoEnergy O124 Standard Analysis**



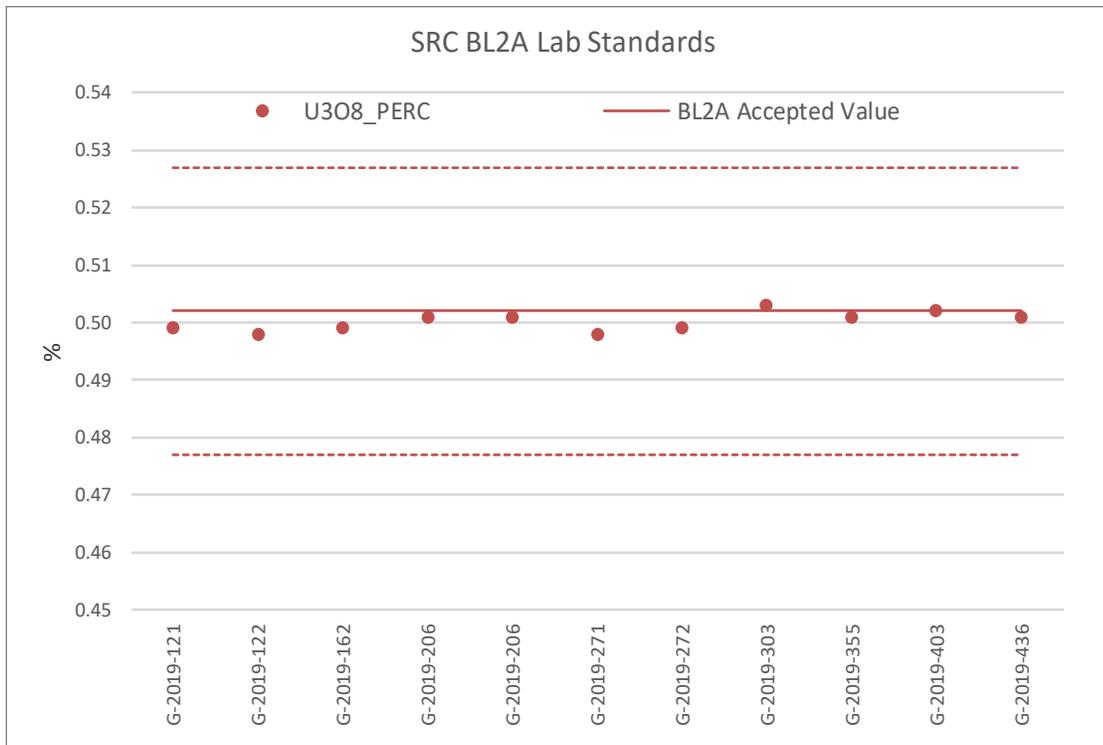
**Figure 11-5: IsoEnergy O124 Standard Analysis – Uranium**



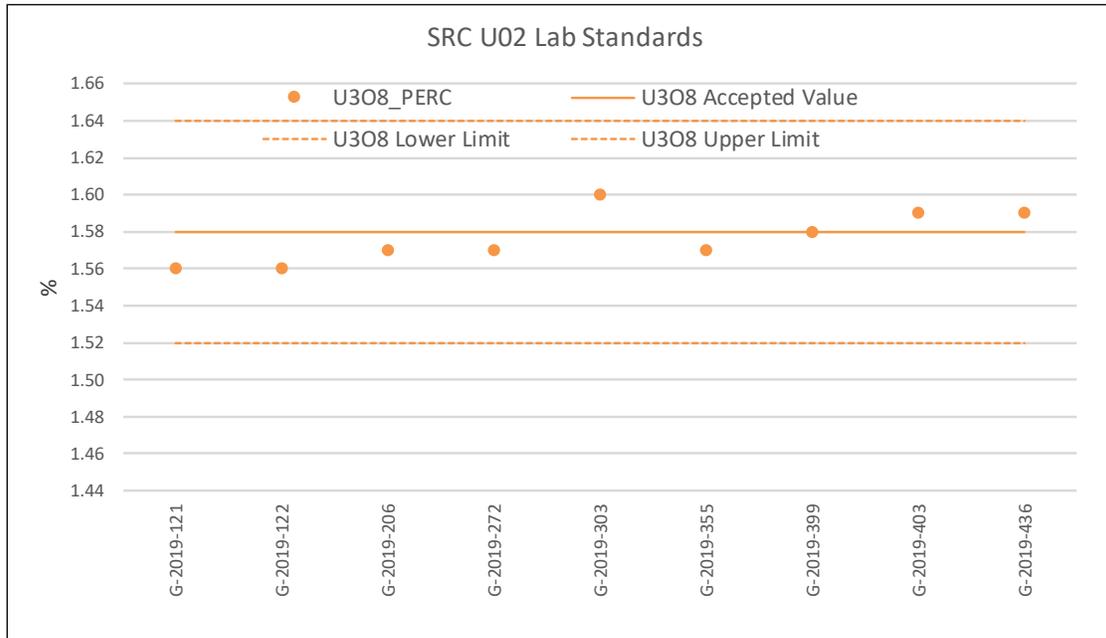
**Figure 11-6: SRC BL4A Standard Analysis**



**Figure 11-7: SRC BL2A Standard Analysis**



**Figure 11-8: SRC U02 Standard Analysis**



### 11.5 Qualified Person Opinion on the Adequacy of Sample Preparation, Security, and Analytical Procedures

It is QP’s opinion that the sample preparation, security, and analytical procedures used by IsoEnergy are consistent with standard industry practices and that the data is adequate for the purposes used in this Technical Report. Neither the SRC in-house quality control nor IsoEnergy’s quality control yielded any indication of quality concerns.

For future drill programs, the following are also recommended:

- Specific gravity determinations should be collected during drill programs that are representative of uranium mineralization host rock and waste rock
- Track chain of custody for future programs.



## 12 DATA VERIFICATION

### 12.1 Verification of Mineralized Intersections

Data verification was conducted for drill hole LE18-01A to confirm the anomalous uranium mineralization. The aspects reviewed were drill logs, downhole gamma logs, core photos, and sample analyses, and these were supplemented by drill core review during the site visit. During the drill core review, radioactivity levels were verified with an RS-125 hand-held spectrometer. The summary log for drill hole LE18-01A is included in Appendix I.

#### 12.1.1 *Drill Hole LE18-01A*

The unconformity was encountered at 344.9 m, and the hole ends at a final depth of 494.0 m. The Athabasca Group sandstones display pervasive bleaching to the unconformity. Moderate to strong grey alteration was noted below 332.0 m.

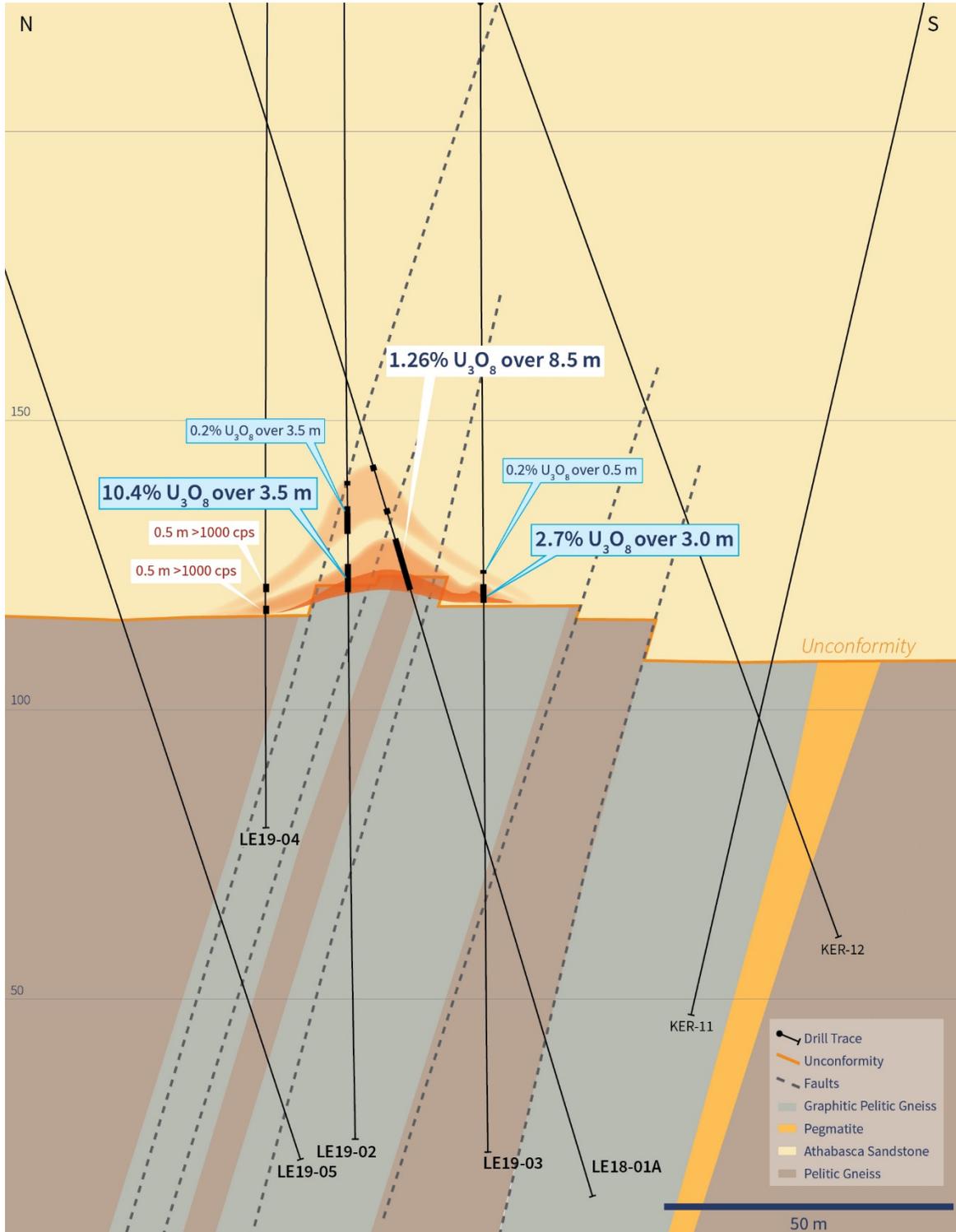
Several fault zones were noted throughout the sandstone column. The first zone of fault-hosted mineralization, 801 ppm U over 1 m, was noted at 324.5 m.

Underlying the unconformity is a succession of gneisses and pegmatites. Moderate to strong bleaching and argillization is pervasive within 15 m of the unconformity. Fresh pegmatite and semipelitic gneiss are noted below 488 m. Intense-shearing of graphite and sulphide-rich gneiss is continuous through much of the basement.

Drill hole LE18-01A intersected a broad, 8.5-m-long interval of elevated radioactivity, averaging 1.26%  $U_3O_8$  (above a cut-off of 0.1%  $U_3O_8$ ) as shown in Figure 12-1, and including a higher-grade subinterval of 3.58%  $U_3O_8$  over 2.5 m. Within the higher-grade subinterval is a zone that averages 6.45%  $U_3O_8$  over 1.0 m. The mineralization intersected is a mixture of fracture hosted and disseminated pitchblende in the basal sandstone and semi-massive pitchblende at the unconformity. The mineralization is associated with intense hydrothermal and illitic clay alteration.



Figure 12-1: Drill Hole LE18-01A, Larocque Section 4650E



## 12.2 Site Visit – August 2018

The author carried out a site visit on August 13, 2018. Steve Blower (Vice President Exploration) and Justin Rodko (Exploration Geologist) of IsoEnergy accompanied the author. The site visit was completed to obtain a general view of the Property, to determine if there were any obvious concerns and to review drill core on the Property.

During the site visit, drill core was examined for drill hole LE18-01A. Core boxes of upper sandstone were cross-piled by drill hole, and the basal sandstone and basement were stored in racks. The core boxes were labelled with the drill hole number, box number and meterage (Figure 12-2). The unconformity and scintillometer readings were marked on the wood strip above the drill core (Figure 12-3). Sample tags were observed in the boxes.

**Figure 12-2:** LE18-01A Core Box Label



**Figure 12-3: LE18-01A Drill Core with Uranium Mineralization**



The collar for LE18-01A was visited in the field to confirm the collar location from the drill log. A Garmin GPSmap 60 CSx confirmed the collar location within 1 m (Table 12-1). No rods were left in the hole, but the drill was still positioned at the collar. A collar picket was positioned at the collar location and was labelled with collar information (Figure 12-4).

**Table 12-1: LE18-01A Collar Coordinates**

Source	Easting (m)	Northing (m)	Elevation (m)
IsoEnergy	6496633.4	544550.5	450.6
QP Site Visit	6496633	544550	451



**Figure 12-4: LE18-01A Collar**



The QP collected no representative samples.

### 12.3 Comments on Data Verification

The data verification step confirmed the presence of significant uranium mineralization at the Hurricane zone and that the data is adequate for the purposes used in this Technical Report.



## 13 MINERAL PROCESSING AND METALLURGICAL TESTING

IsoEnergy has not undertaken mineral processing or metallurgical testwork.



## 14 MINERAL RESOURCE ESTIMATES

No mineral resource estimate has been completed.



## 15 ADJACENT PROPERTIES

No adjacent properties are relevant.



## 16 OTHER RELEVANT DATA AND INFORMATION

There is no other relevant data or information to be included.



## 17 INTERPRETATION AND CONCLUSIONS

IsoEnergy completed a one-hole diamond drill program totalling 494 m on its Larocque East Project in July of 2018. Drill hole LE18-01A intersected a broad, 8.5-m-long interval of uranium mineralization, averaging 1.26%  $U_3O_8$  (above a cut-off of 0.1%  $U_3O_8$ ), and including a higher-grade subinterval of 3.58%  $U_3O_8$  over 2.5 m.

A 12-hole follow-up program totalling 5,046 m was completed in the winter (January-March) of 2019. Eleven of the 12 drill holes intersected significant uranium mineralization and successfully expanded the zone to 150 m (long) x 38 m (wide) and up to 8.5 m thick.

There are no significant risks and uncertainties that could reasonably be expected to affect the reliability or confidence in the exploration information. However, there are inherent risks and uncertainties in exploration. One of these is the interpretation of geological data for the Larocque East Project, primarily the structural contact assumptions and the lithologic continuity between holes. In areas of the Athabasca Basin where the sandstone covers the basement rocks, exploration is focused on drill testing interpreted basement geology and geophysical anomalies. Drill results do not always support the original interpretation.

These results confirm that the Hurricane zone is a significant new discovery of unconformity associated uranium mineralization in the Athabasca Basin. The Larocque East Project area warrants further exploration expenditures to determine the limits of the Hurricane zone mineralization and to locate other zones of unconformity-associated uranium.



## 18 RECOMMENDATIONS

### 18.1 Recommendations for Exploration Program

Given the interpretation and conclusions above, a substantial drilling program is recommended by TMAC as the next step for Larocque East. This drilling should focus primarily along-strike to the east of the Hurricane zone to determine the extent of the mineralization. Some drilling is also recommended to assess the potential for thicker and higher-grade mineralization within the current Hurricane zone drilling pattern.

### 18.2 Exploration Budget–Summer Drilling Program

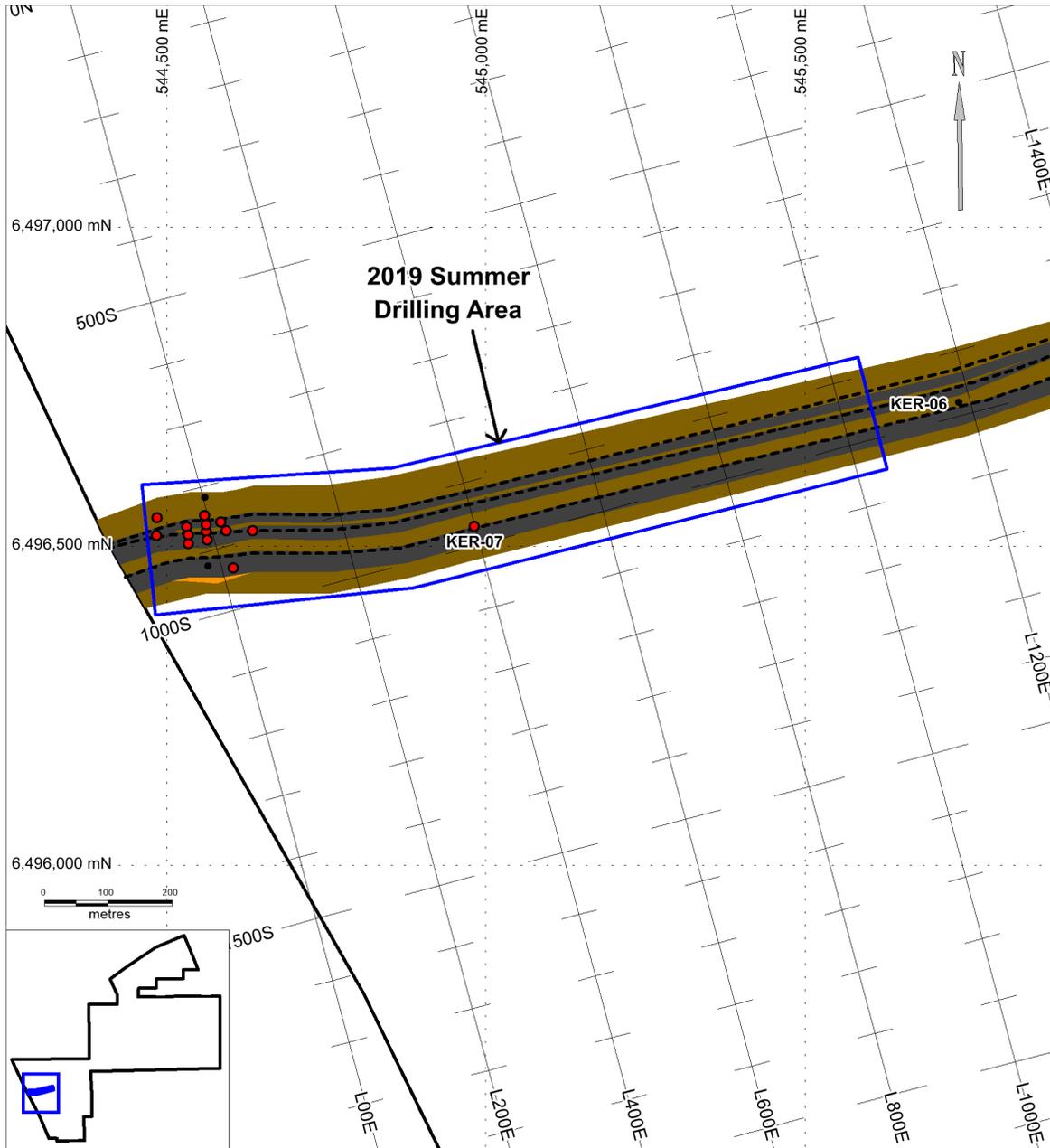
IsoEnergy has proposed an exploration drilling budget of Cdn\$1,620,000 (Table 18-1) for the next phase of work at the Hurricane zone, which is expected to be completed between July and September 2019. TMAC agrees with the proposed work program. A total of 6,700 m in 16 drill holes is planned for the summer drilling program. Figure 1-6 shows the planned drilling area.

**Table 18-1: Exploration Budget**

Item	Budget
Camp Costs	315,000
Drilling	1,101,000
Equipment Rental	20,000
Geochemistry and Assays	102,000
Shipping/Transport	47,000
Supplies	9,000
Travel – Site Related	26,000
<b>Total</b>	<b>1,620,000</b>



**Figure 18-1: Larocque East Planned Summer 2019 Drilling Area Plan View**



**Larocque East Project  
 Planned Summer 2019 Drilling Area**

Date:	8 May 2019
Scale:	1:10,000
Datum:	NAD83 UTM Zone 13
Author:	A. Carmichael

- Larocque East Project Outline
- Drill Hole UC Intercept - Mineralized
- Drill Hole UC Intercept - Unmineralized
- Pegmatite
- 2019 DC-Resistivity Grid
- Graphitic Pelitic Gneiss
- Pelitic Gneiss
- Fault (named)



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## 20 CERTIFICATE OF AUTHOR

### 20.1 Tim Maunula, P. Geo.

I, Tim Maunula, P. Geo., of Chatham, Ontario do hereby certify as follows:

1. I am the Principal Geologist of T. Maunula & Associates Consulting Inc., 15 Valencia Drive, Chatham, Ontario, N7L 0A9, Canada.
2. I graduated with a H.B.Sc. degree in Geology from Lakehead University in 1979. In addition, I have obtained a Citation in Geostatistics from the University of Alberta in 2004.
3. I am a member of the Association of Professional Geoscientists of Ontario (Registration Number 1115).
4. I have worked as a Geologist for a total of 37 years since my graduation from university.
5. I have read the definition of “qualified person” set out in National Instrument 43-101 – Standards of Disclosure for Mineral Projects” (NI 43-101) and certify that by reason of my education, affiliation with a professional association, and past relevant work experience, I am a qualified person for the purposes of NI 43-101.
6. I am responsible for all sections of the technical report titled “NI 43-101 Technical Report for the Larocque East Project, Northern Saskatchewan” with an effective date of May 15, 2019 (the Technical Report).
7. My most recent personal inspection of the Larocque East Project was on August 13, 2018.
8. I have no prior involvement with the property that is the subject of this Technical Report.
9. As of the effective date of the Technical Report, to the best of my knowledge, information, and belief, the Technical Report, contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.
10. I am independent of the issuer, in accordance with Section 1.5 of NI 43-101.
11. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

Dated this 4<sup>th</sup> day of June 2019 in Chatham, Ontario.

*Original Signed and Sealed*

\_\_\_\_\_  
Tim Maunula, P. Geo.



ISOENERGY LTD.

NI 43-101 TECHNICAL REPORT FOR THE LAROCQUE EAST PROJECT  
NORTHERN SASKATCHEWAN



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## APPENDIX I

### Drill Hole Summaries



# Drill Hole: LE18-01A

Collar Orientation 171°/-70

Start Date: 2018-07-16

End Date: 2018-07-19

Property: Larocque East

Geologist: J. Rodko

Easting: 544550.53mE

Northing: 6496633.35mN

Elevation: 450.63m

Datum: NAD83-13



## Drill Hole Purpose

Drill hole LE18-01A was designed to follow up anomalous uranium and encouraging structure and hydrothermal alteration intersected in the basal sandstone in drill hole KER-12. LE18-01A was drilled parallel to KER-12 and intersected the unconformity roughly 55 metres north of the KER-12 unconformity intercept.

## Survey

Depth/Dip/Azimuth

0 / -70 / 172

56 / -71.2 / 171.3

100 / -71.2 / 172.6

150 / -71.5 / 173.8

250 / -72.7 / 175.8

300 / -72.6 / 177

350 / -73.3 / 175

400 / -73.2 / 174.4

452 / -73.3 / 174.7

## Lithology

From (m) To (m) Lithology Name

0.00	42.00	Overburden
42.00	201.30	Manitou Falls - Collins Member
201.30	344.90	Manitou Falls - Bird Member
344.90	344.91	Unconformity
344.91	350.30	Graphitic Cordierite Pelitic Gneiss
350.30	354.80	Pegmatite
354.80	356.40	Cataclasite
356.40	396.40	Graphitic Cordierite Pelitic Gneiss
396.40	399.90	Semipelitic Gneiss
399.90	402.50	Pegmatite
402.50	418.20	Semipelitic Gneiss
418.20	420.10	Pegmatite
420.10	422.30	Semipelitic Gneiss
422.30	425.00	Graphitic Cordierite Pelitic Gneiss
425.00	431.50	Cataclasite
431.50	487.20	Graphitic Cordierite Pelitic Gneiss
487.20	491.70	Pegmatite
491.70	494.00	Semipelitic Gneiss

## Sandstone Alteration

Weak to moderate desilicification is noted throughout much of the sandstone column, often flanking and throughout structural corridors. Pervasive bleaching is moderate below 248.0 metres and strong below 316.0 metres to the unconformity. Moderate to strong grey alteration below 332.0 metres is also associated with patchy and fault controlled hydrothermal alteration, limonite, and uranium mineralization.

## Sandstone Structure

Several sub-vertical, metre scale fault zones are noted throughout the sandstone column as high as 119.0 metres and intersected frequently throughout the drill hole. The first zone of fault hosted mineralization was intersected at 324.5 metres within a zone of strong hydrothermal alteration, rotated bedding, and intermittent core loss.

## Basement Alteration

Moderate to strong pervasive bleaching and argillization extends below the unconformity to roughly 360.0 metres. Patchy white clay alteration and clay filled veinlets are noted throughout much of the drill hole, ceasing below 488.0 metres into fresh pegmatite and semipelitic gneiss.

## Basement Structure

Intense shearing of graphite- and sulphide-rich augen gneiss is continuous through much of the basement intersect. Shearing is overprinted by several brittle structures including cataclastic intervals or gouge from

# Drill Hole: LE18-01A

Collar Orientation 171°/-70

Start Date: 2018-07-16

End Date: 2018-07-19

Property: Larocque East

Geologist: J. Rodko

Easting: 544550.53mE

Northing: 6496633.35mN

Elevation: 450.63m

Datum: NAD83-13



354.8 to 356.4, 371.9 to 376.0, 380.5 to 383.3, 425.3 to 431.6, 443.6 to 444.6, and 484.8 to 487.2 metres, which are often sulphide rich and composed of up to 50% graphite.

## Radiometry

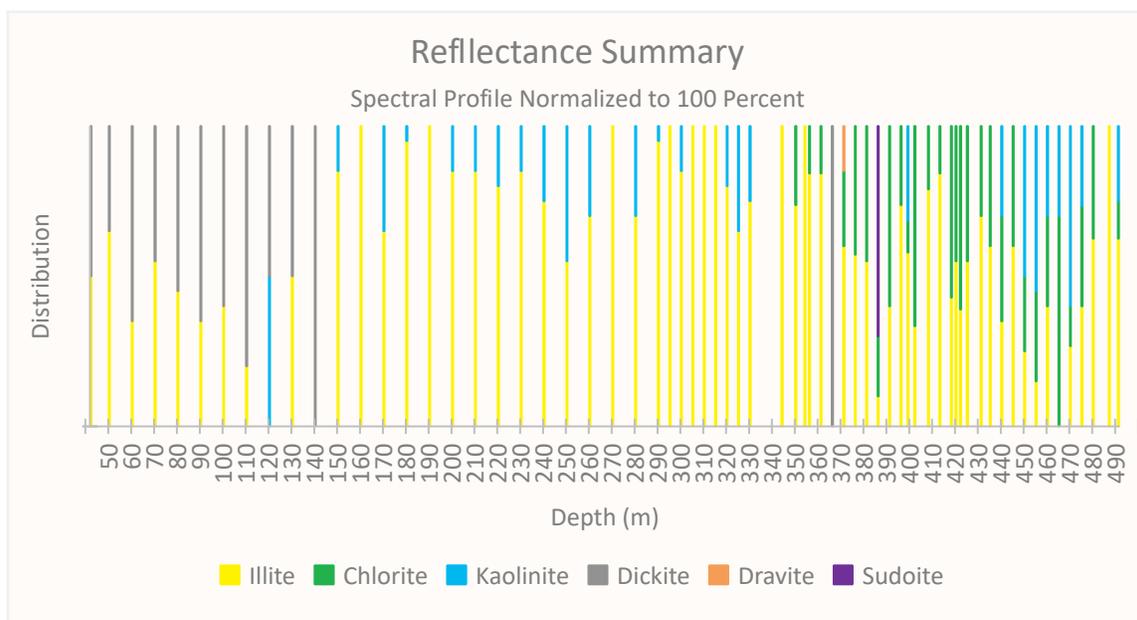
Downhole gamma logging with a Mt. Sopris 2PGA-1000 total gamma probe measured a maximum peak of 373,320 counts per second (dead time corrected) at 345.2 metres through a zone of semi-massive uranium mineralization.

## Geochemistry

LE18-01A intersected a broad, 8.5-metre-long interval of uranium mineralization, averaging 1.26% U<sub>3</sub>O<sub>8</sub> (above a cut-off of 0.1% U<sub>3</sub>O<sub>8</sub>), and including a higher-grade subinterval of 3.58% U<sub>3</sub>O<sub>8</sub> over 2.5 metres. Within the higher-grade subinterval is a zone that averages 6.45% U<sub>3</sub>O<sub>8</sub> over 1.0 metre. Mineralization is associated with highly anomalous amounts of several pathfinder elements over half-metre sample intervals, including but not limited to 17,000 ppm Cu-p, 27,600 ppm Pb-p, and 14,200 ppm Zn-p. Graphitic cataclasites intersected below mineralization host elevated to anomalous pathfinder concentrations, including 218 ppm As-p from 354.8 to 356.4 metres. Spot sampling of faults in the sandstone column yielded anomalous concentrations of U-p, as high as 14 ppm over 0.1 metres at 140.1 metres coinciding with the point where the sandstone becomes illite dominated.

## Reflectance - not collected through mineralized intervals

The sandstone column is a mix of illite and dickite clays with local kaolinite to 150.0 metres where the first zone of illitic faulting is intersected. Below this depth and for the remainder of the sandstone, spectral analysis indicates a nearly entirely illitic clay make-up with lesser amounts of kaolinite within and peripheral to structure zones. The moderate to weakly clay altered basement rocks remain dominantly illitic with increased kaolinite between 440.0 and 480.0 metres. Clay coated fractures and vein fill throughout the drill hole are often completely illitic.



# Drill Hole: LE19-02

Collar Orientation 360°/-90

Start Date: 2019-01-15

End Date: 2019-01-19

Property: Larocque East

Geologist: A. Carmichael

Easting: 544561.321mE

Northing: 6496537.895mN

Elevation: 450.562m

Datum: NAD83-13



## Drill Hole Purpose

LE19-02 was collared approximately 100 metres south of the LE18-01A collar. It was designed to test for unconformity mineralization 12.5 metres to the north of the LE18-01A unconformity intercept. LE19-02 was drilled vertically to reduce drill hole deviation and intersected uranium mineralization roughly 10 metres to the north of the LE18-01A intercept.

## Survey

Depth/Dip/Azimuth

0 / -90 / 0  
53 / -89.6 / 126.7  
104 / -89.6 / 112.1  
149 / -89.6 / 101.7  
200 / -89.8 / 264.7  
251 / -89.7 / 206.2  
302 / -89.4 / 167.4  
350 / -89.4 / 125.7  
401 / -88.7 / 132.4

## Lithology

From (m) To (m) Lithology Name

0.00	43.70	Overburden
43.70	193.30	Manitou Falls - Collins Member
193.30	329.00	Manitou Falls - Bird Member
329.00	329.01	Unconformity
329.01	345.50	Graphitic Cordierite Pelitic Gneiss
344.50	345.50	Cataclasite
345.50	351.70	Graphitic Cordierite Pelitic Gneiss
351.70	365.70	Semipelitic Gneiss
365.70	368.20	Pegmatite
368.20	374.90	Graphitic Cordierite Pelitic Gneiss
374.90	379.40	Cataclasite
379.40	425.00	Graphitic Cordierite Pelitic Gneiss

## Sandstone Alteration

Moderate bleaching was intersected below 143.0 metres which persists to 251.0 metres becoming strong peripheral to structures. Moderate structurally controlled desilicification and/or drusy quartz are noted from 251.0 to 329.0 metres. Patchy hydrothermal hematite is first noted below 277.0 metres and is pervasive from 284.0 to 298.0 metres. Pervasive grey alteration is present below 311.0 metres which persists through the mineralized interval with good correlation to strong hydrothermal hematite from 312.0 to 317.5 metres.

## Sandstone Structure

Moderate fracturation is noted below 252.5 metres with clay coated breccia intersected between 254.0 and 279.5 metres. Unstructured core from 279.5 to 296.0 metres is followed by intermittent moderate fracturation and clay coated brecciation throughout the remainder of the sandstone column. All preserved fault contacts are of low angle to core axis and very steeply dipping. Abundant core loss is noted from 296.0 to 318.0 metres.

## Basement Alteration

Primary mineralogy in the upper 15 metres of basement rock is largely overprinted by mix of strong clay, limonitic, and hydrothermal hematite alteration to 329.8 metres. Primary textures are identified at 331.7 metres though strong alteration persists and only quartz crystals remain fresh. Pervasive argillic alteration continues from 331.7 to 344.0 metres where fresh biotite is identified. Pervasive weak to locally moderate clay alteration, sericitization and chloritization persist across lithologies throughout the remainder of the basement.

## Basement Structure

Zones of intensely graphitic cataclasis are noted from 344.5 to 345.5 and 347.9 to 379.4 metres. Cataclasis zones are proximal to numerous smaller graphitic slips and breccias throughout both units of graphitic cordierite augen gneiss intersected in the drill hole. Foliations through graphitic units indicate a high degree of early ductile deformation with foliations commonly dipping 15 to 30 degrees to core axis with semi-frequent intervals of shearing dipping between 0 and 70 degrees to core axis.

# Drill Hole: LE19-02

Collar Orientation 360°/-90

Start Date: 2019-01-15

End Date: 2019-01-19

Property: Larocque East

Geologist: A. Carmichael

Easting: 544561.321mE

Northing: 6496537.895mN

Elevation: 450.562m

Datum: NAD83-13



## Radiometry

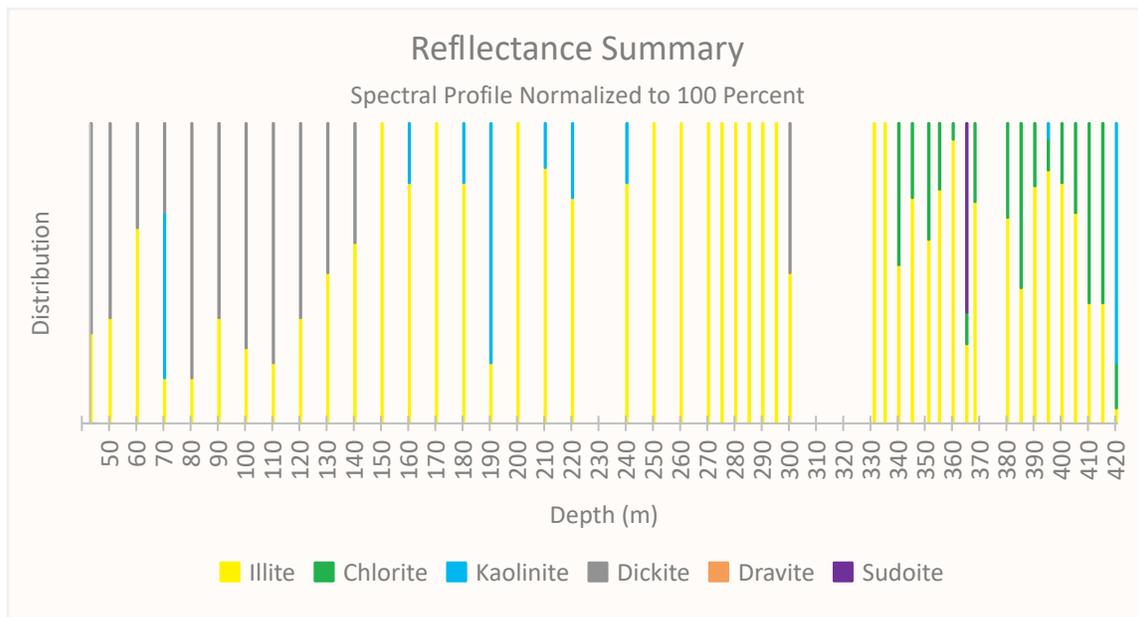
The first radiometric anomaly detected in core occurs at 311.5 metres where 1,300 cps was indicated by RS-125. Isolated zones of elevated radioactivity between 250 and 1,500 cps are noted to 326.5 metres. Below 326.5 metres the intensity of radioactivity in recovered drill core exceeds 60,000 counts per second locally. Strong radioactivity continues to an abrupt end at 329.8 metres where it is reduced to background levels.

## Geochemistry

Recovered core indicates 0.2% U3O8, 0.1% nickel, and 0.2% cobalt over 3.5 metres from 316.5 to 320.0 metres. A second zone of mineralization intersected from 326.5 to 330.0 metres hosts up to 10.4% U3O8 and 0.8% nickel over 3.5 metres. This interval includes 1.5 metres of 23.6% U3O8 and one half metre sample at 329.0 meters indicating up to 38.2% U3O8 and 1.6% nickel.

## Reflectance - not collected through mineralized intervals

From 150.0 to 305.0 metres spectral analysis indicates an average illite content of roughly 85% with lesser kaolinite and a near complete lack of dickite. Basement samples indicate that illite dominance persists to 410.0 metres where mixed chlorite gradually increases. No reflectance data was collected through mineralized intervals.



# Drill Hole: LE19-03

Collar Orientation 360°/-90

Start Date: 2019-01-20

End Date: 2019-01-24

Property: Larocque East

Geologist: J. Rodko

Easting: 544559.451mE

Northing: 6496513.079mN

Elevation: 448.841m

Datum: NAD83-13



## Drill Hole Purpose

LE19-03 was collared roughly 50 metres south of LE19-02. The objective of the drill hole was to test for unconformity mineralization roughly 12.5 metres south of the LE18-01A unconformity intercept. LE19-03 intersected mineralization at the unconformity roughly two metres from the planned target.

## Survey

Depth/Dip/Azimuth

0 / -90 / 360

59 / -88.8 / 117.9

104 / -88.5 / 98.2

134 / -89.1 / 91.2

164 / -88.9 / 76.6

200 / -89.5 / 60.1

251 / -89.2 / 95.4

302 / -89.5 / 186.6

350 / -89.6 / 127.2

401 / -89.1 / 113.2

449 / -88.6 / 139

## Lithology

From (m) To (m) Lithology Name

0.00	43.80	Overburden
43.80	193.20	Manitou Falls - Collins Member
193.20	330.60	Manitou Falls - Bird Member
330.60	330.61	Unconformity
330.61	381.10	Graphitic Cordierite Pelitic Gneiss
381.10	434.80	Garnetiferous Pelitic Gneiss
434.80	436.80	Pegmatite
436.80	446.10	Garnetiferous Pelitic Gneiss
446.10	454.40	Cataclasite
454.40	458.00	Graphitic Cordierite Pelitic Gneiss

## Sandstone Alteration

Weak bleaching in the upper sandstone becomes moderate below 228.0 metres with intermittent zones of weak to 286.0 metres. From 283.0 metres to the unconformity the core shows a mix of strong to locally moderate pervasive bleaching that increases with depth. Moderate desilicification and/or argillization are noted throughout and are locally pervasive proximal to structures or where bleaching is most intense. Moderate hydrothermal hematite is noted below 308.4 metres. Grey alteration is first identified at 320.0 metres and increases towards the mineralized zone.

## Sandstone Structure

The first zone of decimetre scale steeply dipping fracturation was intersected at 195.0 metres. From roughly 207.0 to 211.0, 213.0 to 216.0, 234.0 to 237.0, and 245.0 to 249.0 metres are zones of parallel fractures with good correlation to increasing hydrothermal alteration. Intermittent faulting and blocky zones persist to the unconformity with brief intervals of rotated bedding. The core becomes competent through zones of weaker mineralization.

## Basement Alteration

Moderate to locally weak argillization and bleaching continues across the unconformity through upper basement rocks to 338.5 metres. Below 338.5 metres alteration wanes and is consistently confined to structures below 343.0 metres as pure white clay and/or chlorite enveloping fracture zones. Foliation controlled sericitization is noted throughout the upper most graphitic unit, ceasing below 368.0 metres.

## Basement Structure

Several graphitic faults were intersected between 336.4 and 365.1 metres. Significant structures are concordant and moderately graphitic with white clays noted on structures most proximal to the unconformity. Discrete graphite/pyrite/chalcopyrite filled shears are noted throughout the upper graphitic cordierite gneiss. The foliation is very steeply dipping throughout and is most erratic where disseminated graphite content is

# Drill Hole: LE19-03

Collar Orientation 360°/-90

Start Date: 2019-01-20

End Date: 2019-01-24

Property: Larocque East

Geologist: J. Rodko

Easting: 544559.451mE

Northing: 6496513.079mN

Elevation: 448.841m

Datum: NAD83-13



highest.

## Radiometry

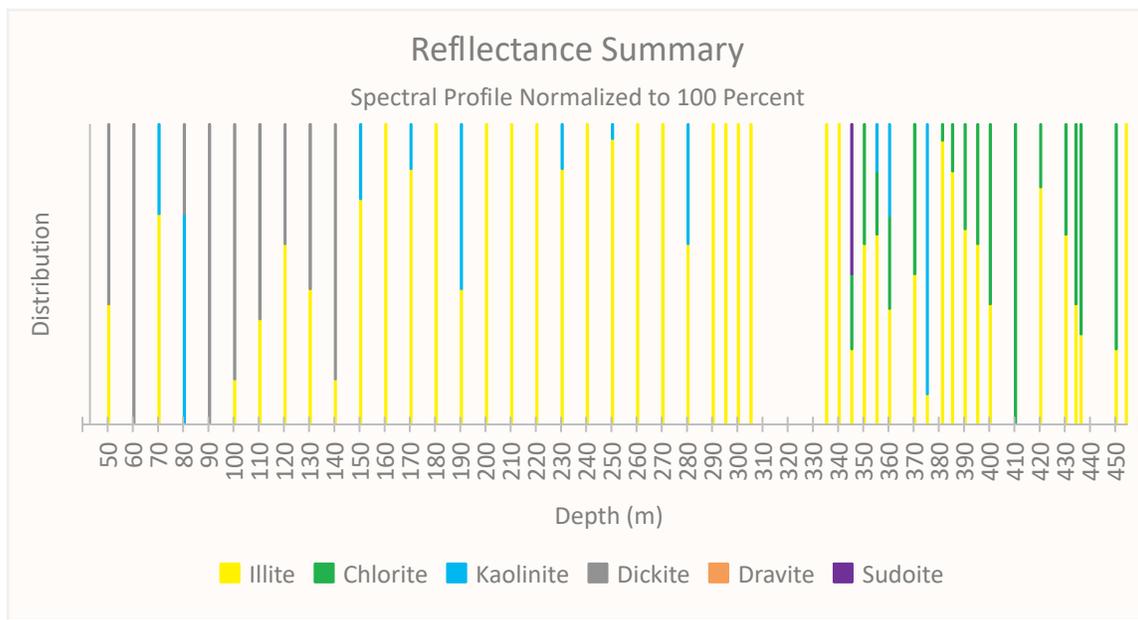
The first interval of significant radioactivity in recovered core is noted at 324.0 metres where an RS-125 device indicated over 1,000 cps over 0.5 metres. Beginning at 326.5 metres is a 3.0 metre zone averaging over 1,000 cps including over 20,000 cps from 329.0 to 329.5 metres. Down hole logging using a 2PGA-1000 natural gamma probe shows a dead time corrected peak of roughly 785,000 cps.

## Geochemistry

LE19-03 intersected 0.5 metres of 0.2% U3O8 and 0.1% nickel from 324.5 to 324.5 metres. A zone of continuous mineralization from 326.5 to 329.5 metres averages 2.7% U3O8 and 2.3% nickel, including one half metre sample returning 13.3% U3O8 and 11.8% nickel from 329.0 to 329.5 metres.

## Reflectance - not collected through mineralized intervals

Below 150.0 metres the sandstone column is completely illite dominated with a lack of dickite plus isolated patches of kaolinite, up to 55% from 190.0 to 200.0 metres. Reflectance analysis of basement rock chips indicates illite dominance to 345.0 metres followed by a 3:2 mix of illite and chlorite with isolated patches of up to 90% kaolinite.



# Drill Hole: LE19-04

Collar Orientation 360°/-90

Start Date: 2019-01-25

End Date: 2019-01-28

Property: Larocque East

Geologist: J. Rodko

Easting: 544560.053mE

Northing: 6496550.642mN

Elevation: 450.442m

Datum: NAD83-13



## Drill Hole Purpose

LE19-04 was collared roughly 12.5 metres north of LE19-02 and was designed to test for mineralization at the unconformity 12.5 metres north of the LE19-02 intercept. The drill hole successfully intersected mineralization roughly one metre from the planned target.

## Survey

Depth/Dip/Azimuth

0 / -90 / 360

56 / -89.7 / 203.4

101 / -89.6 / 214.4

151 / -89.8 / 273

200 / -89.9 / 302.8

251 / -89.7 / 5.4000

302 / -89.6 / 283.2

350 / -89.5 / 243

## Lithology

From (m) To (m) Lithology Name

0.00	44.20	Overburden
44.20	192.50	Manitou Falls - Collins Member
192.50	333.50	Manitou Falls - Bird Member
333.50	333.51	Unconformity
333.51	346.50	Graphitic Cordierite Pelitic Gneiss
346.50	361.00	Garnetiferous Pelitic Gneiss
361.00	364.60	Cataclasite
364.60	371.00	Graphitic Cordierite Pelitic Gneiss

## Sandstone Alteration

Weak to moderate bleaching is noted throughout much of the upper sandstone column, becoming pervasively moderate to locally strong from 305.0 metres to the unconformity at 330.5 metres. Patchy hydrothermal hematite is noted below 224.0 metres with moderate to strong structurally controlled hematite from 310.0 to 320.0 metres. Pervasive grey alteration occurs below 301.0 metres and increases in intensity towards the mineralized zone.

## Sandstone Structure

Moderate fracturation is steeply dipping with mixed intervals of brecciated sandstone throughout the manitou falls bird member - often enveloped by clay and limonite alteration. Intensely brecciated fault zone from 310.0 to 318.0 metres is underlain by a zone of rotated bedding blocks from 321.5 to 328.5 metres. Below 328.5 metres intermittent clay filled faults persist to the unconformity.

## Basement Alteration

Pervasive argillization with moderate bleaching and chloritization continue from the unconformity to roughly 361.0 metres. Below 361.0 metres feldspar minerals and cordierite augens remain weak to moderately bleached and chloritized to the end of the drill hole.

## Basement Structure

Graphitic cordierite augen gneiss is moderately sheared and steeply dipping from the unconformity to 346.5 metres and hosts a moderately graphitic meter scale cataclasite which contacts underlying garnetiferous pelitic gneiss. Core is otherwise competent with isolated fractures coated in bone white clays. Minor silica flooding from 339.2 to 340.0 metres.

## Radiometry

Handheld scintillometry of recovered drill core indicated two half-metre zones of anomalous radioactivity averaging over 1,000 cps, from 329.0 to 329.5 and 333.0 to 333.5 metres. Downhole gamma logging through these intervals indicated maximum dead time corrected peaks of 15,300 cps at 329.3 metres and 39,217 cps

# Drill Hole: LE19-04

Collar Orientation 360°/-90

Start Date: 2019-01-25

End Date: 2019-01-28

Property: Larocque East

Geologist: J. Rodko

Easting: 544560.053mE

Northing: 6496550.642mN

Elevation: 450.442m

Datum: NAD83-13



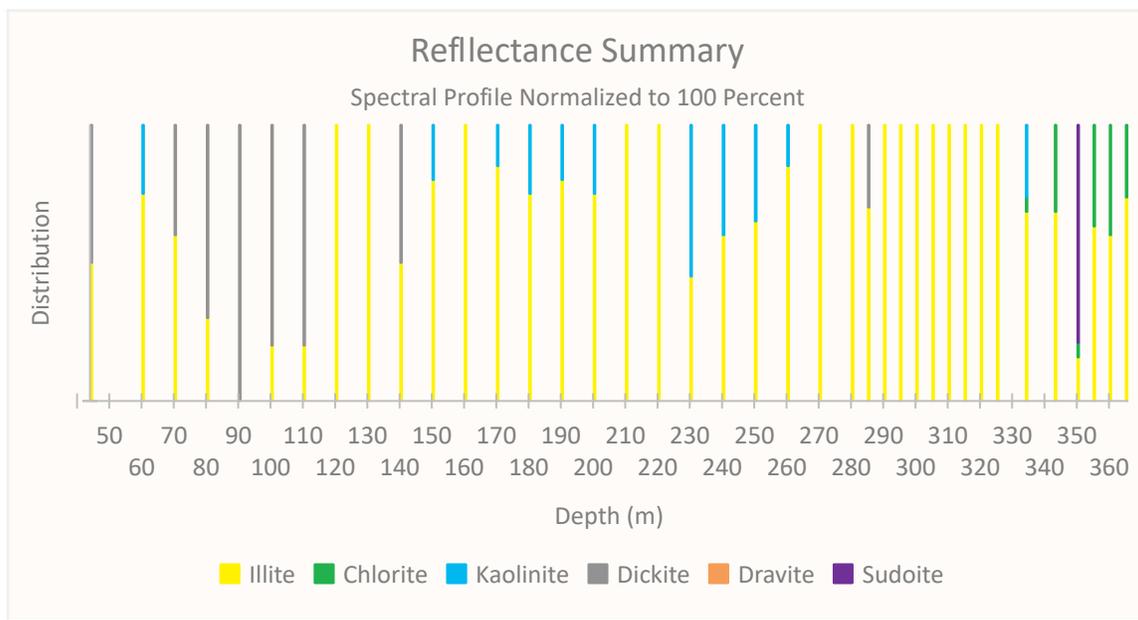
at 333.5 metres.

## Geochemistry

Geochemical analysis indicates LE19-04 intersected 0.1% U3O8 from 329.0 to 329.5 metres and 0.4% U3O8 plus 0.2% nickel from 333.0 to 333.5 metres. Anomalous levels of arsenic, cobalt, molybdenum, and several other uranium pathfinder elements are also recovered through these intervals.

## Reflectance - not collected through mineralized intervals

With the exception of one interval hosting up to 30% dickite from 285.0 to 290.0 metres, the sandstone column is completely illite dominated below 270.0 metres. The entire sandstone column averages roughly 77% illite. Basement chip samples average roughly 2:1 illite to chlorite with up to 25% kaolinite immediately beneath the unconformity.



# Drill Hole: LE19-05

Collar Orientation 180°/-70

Start Date: 2019-01-30

End Date: 2019-02-03

Property: Larocque East

Geologist: F. Shah

Easting: 544559.652mE

Northing: 6496697.457mN

Elevation: 450.471m

Datum: NAD83-13



## Drill Hole Purpose

LE19-05 was collared 65 metres north of LE18-01A and was targetted to test for unconformity mineralization 25 metres north of the LE18-01A intercept. LE19-05 was drilled parallel to LE18-01A with the objective of increasing the understanding of Hurricane zone stratigraphy in the hanging-wall rocks. LE19-05 successfully intersected and confirmed the presence of the suspected stratigraphy and known foot-wall lithologies.

## Survey

Depth/Dip/Azimuth

0 / -70 / 180

50 / -68.9 / 175.2

71 / -69.1 / 179

92 / -69.2 / 176.4

152 / -69.7 / 179.4

200 / -70 / 181.1

251 / -70.6 / 180.6

311 / -71 / 183.2

368 / -71.3 / 183

401 / -71.5 / 184.2

452 / -71.7 / 183.9

## Lithology

From (m) To (m) Lithology Name

0.00	42.80	Overburden
42.80	196.50	Manitou Falls - Collins Member
196.50	356.70	Manitou Falls - Bird Member
356.70	356.71	Unconformity
356.71	407.20	Garnetiferous Pelitic Gneiss
407.20	409.00	Graphitic Cordierite Pelitic Gneiss
409.00	414.00	Cataclasite
414.00	428.60	Graphitic Cordierite Pelitic Gneiss
428.60	437.50	Garnetiferous Pelitic Gneiss
437.50	447.90	Graphitic Cordierite Pelitic Gneiss
447.90	449.00	Cataclasite
449.00	455.00	Graphitic Cordierite Pelitic Gneiss

## Sandstone Alteration

Moderate fracture controlled bleaching is noted below 143.0 metres becoming most pervasive between 300.0 and 337.8 metres. Patchy moderate clay was intersected from 301.0 to 339.5 metres following a zone of weak to moderate desilicification beginning as high as 290.0 metres. Weak grey alteration with mixed patchy hydrothermal hematite are noted below 353.0 metres.

## Sandstone Structure

Isolated fractures throughout the manitou falls bird member appear to have strong controls on local argillization and desilicification with moderate drusy quartz noted on some fractures. A steeply dipping fault zone was intersected from 329.5 to 336.0 metres with several intervals of blocky core and low RQD.

## Basement Alteration

Moderate to weak bleaching, argillization, and chloritization of the uppermost garnetiferous pelitic gneiss unit decrease quickly with depth where the core freshens below 375.0 metres. Structure at 409.0 metres appears to sharply bound and reduce any persisting bleaching.

## Basement Structure

Steeply dipping and moderately sheared graphitic cordierite augen gneiss from 407.2 to 428.6 metres hosts an intensely graphitic cataclasite from 409.0 to 414.0 metres. A second graphitic cataclasite is noted again from 447.9 to 449.0 metres which is flanked by several more discrete healed breccias, graphitic slips, and chalcopryite rich shear bands.

## Radiometry

Downhole logging using a 2PGA-1000 natural gamma tool indicated a dead time corrected probe peak of 6,332 cps at 364.1 metres through an interval of moderately altered quartz rich pegmatite.

# Drill Hole: LE19-05

Collar Orientation 180°/-70

Start Date: 2019-01-30

End Date: 2019-02-03

Property: Larocque East

Geologist: F. Shah

Easting: 544559.652mE

Northing: 6496697.457mN

Elevation: 450.471m

Datum: NAD83-13

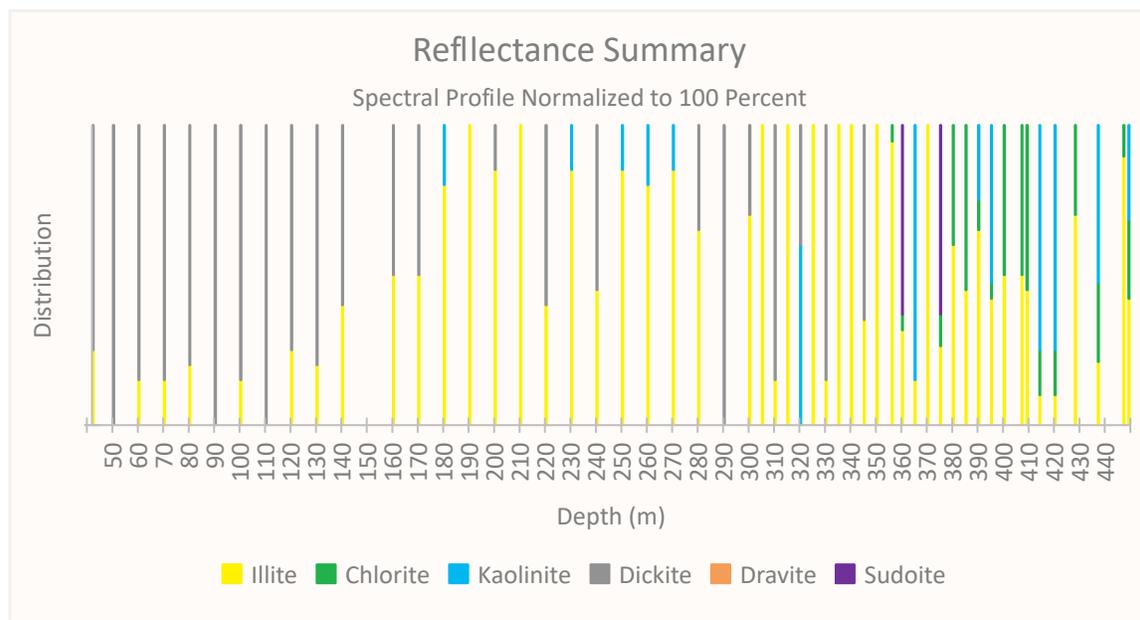


## Geochemistry

Geochemical samples collected between 363.5 and 364.5 metres contain the radioactive interval. Analysis indicates averages of 213 ppm U-p, 1645 ppm Mo-p, 257 ppm As-p, and 98 ppm Ni-p over this interval.

## Reflectance - not collected through mineralized intervals

The basal sandstone is a mix of roughly 3:1 illite to dickite from 180.0 metres to the unconformity at 356.7 metres. Illite content through this interval averages 70%, dickite averages 24% over the same interval with brief and sporadic zones of up to 60% kaolinite. Analysis of basement rock chips indicates a roughly 2:1:1 distribution of illite, chlorite, and kaolinite. A complete lack of dickite is noted throughout the basement.



# Drill Hole: LE19-06

Collar Orientation 180°/-80

Start Date: 2019-02-04

End Date: 2019-02-09

Property: Larocque East

Geologist: J. Rodko

Easting: 544584.926mE

Northing: 6496579.746mN

Elevation: 452.862m

Datum: NAD83-13



## Drill Hole Purpose

LE19-06 was planned as the first eastern step-out along strike to test the extent of unconformity style mineralization at the Hurricane zone. It was drilled at a -80 degree angle and successfully intersected mineralization roughly 32 metres east of the LE18-01A unconformity intercept.

## Survey

Depth/Dip/Azimuth

0 / -80 / 180  
56 / -80.9 / 167.9  
101 / -80.6 / 165.3  
152 / -80.6 / 169.2  
200 / -80.6 / 170.7  
251 / -81.6 / 173  
302 / -81.2 / 174.1  
350 / -81.4 / 172.7  
401 / -81.1 / 178.9

## Lithology

From (m) To (m) Lithology Name

0.00	46.30	Overburden
46.30	194.80	Manitou Falls - Collins Member
194.80	314.50	Manitou Falls - Bird Member
314.50	336.00	Manitou Falls - Bird Member
336.00	336.01	Unconformity
336.01	348.40	Graphitic Cordierite Pelitic Gneiss
348.40	349.20	Pegmatite
349.20	352.00	Cataclasite
352.00	387.80	Graphitic Cordierite Pelitic Gneiss
387.80	422.90	Garnetiferous Pelitic Gneiss
422.90	426.80	Pegmatite
426.80	428.90	Graphitic Cordierite Pelitic Gneiss
428.90	435.00	Cataclasite
435.00	439.00	Pegmatite
439.00	443.00	Graphitic Cordierite Pelitic Gneiss

## Sandstone Alteration

Intermittent moderate bleaching and desilicification below 233.0 metres becomes consistently moderate below 267.0 metres followed by pervasive strong bleaching below 278.0 and strong desilicification below 325.0 metres which continues to the unconformity. Moderate desilicification through fracture zones persists from 262.5 to 287.0 metres. Several intervals of fractures coated in mixed drusy quartz, hydrothermal hematite, limonite, and clays are noted below 229.0 metres and persist into the mineralized zone. Moderate to strong pervasive grey alteration occurs below 325.0 metres.

## Sandstone Structure

From the top of the manitou falls bird member contact at 314.5 metres to the unconformity at 336.0 metres are frequent steeply dipping faults, fractures, and rubble zones with rotated bedding blocks. Core competency increases below 330.0 metres though frequent fracturation persists.

## Basement Alteration

Moderate argillization and bleaching extending from the unconformity is truncated by a large structure at 347.8 metres. From the top of basement to approximately 338.0 metres core has a pinkish hue due to the shearing and hematization of clay altered cordierite porphyroblasts or the presence of fine-grained pink quartz. Brief intervals of quartz rich flooding continue from the base of the upper graphitic cordierite augen gneiss into underlying pegmatite intrusion.

## Basement Structure

From 349.2 to 352.0 metres is an intensely graphitic cataclasite referred to as the "I" fault. A second graphitic cataclasite, the "J" fault, was intersected from 428.9 to 435.0 metres and is of similar characteristics to the "I" fault though rocks footwall to the "J" fault are more sheared and contain fine-grained silvery sulph(arsenide)

# Drill Hole: LE19-06

Collar Orientation 180°/-80

Start Date: 2019-02-04

End Date: 2019-02-09

Property: Larocque East

Geologist: J. Rodko

Easting: 544584.926mE

Northing: 6496579.746mN

Elevation: 452.862m

Datum: NAD83-13



minerals.

## Radiometry

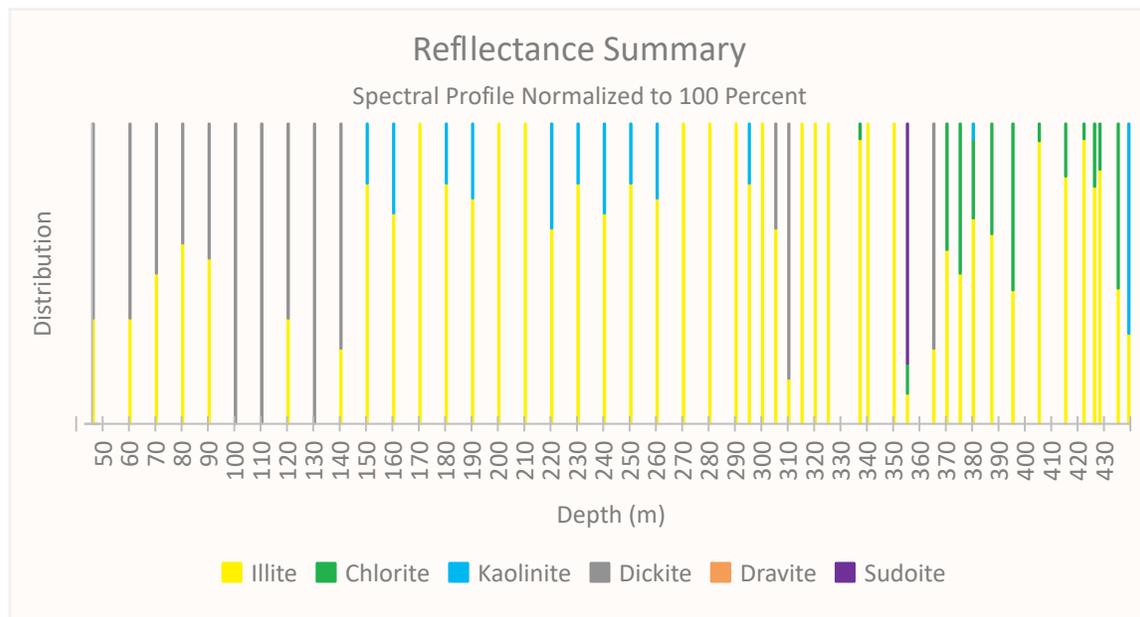
LE19-06 intersected elevated radioactivity at 328.0 metres beginning the first 2.0 metre zone averaging over 1,000 cps indicated by RS-125. A second zone from 332.0 to 336.0 metres averages 5,000 cps over 4.0 metres and hosts 2.0 metres averaging over 10,000 cps and 0.5 metres over 20,000 cps. Downhole gamma logging indicated a dead time corrected peak of 135,375 cps at 334.0 metres hosted within a continuous 4.4 metre zone above 10,000 cps and averaging over 68,000 cps throughout.

## Geochemistry

LE19-06 hosts 2.0 metres of 0.4% U3O8 from 328.0 to 330.0 metres followed by 4.0 metres averaging 3.8% U3O8 and 1.1% nickel. Within that interval are 2.0 metres of 5.5% U3O8 and 0.7% nickel plus 13.7% U3O8 and 1.2% nickel recovered from one half metre sample.

## Reflectance - not collected through mineralized intervals

Below 150.0 metres the sandstone column in LE19-06 lacks dickite with the exception of one interval averaging 60% dickite from 305.0 to 315.0 metres. The sandstone is predominantly illitic through this same interval with mixed kaolinite - up to 35% in one interval from 220.0 to 230.0 metres. Basement spectra reveal a primarily illitic composition with lesser amounts of chlorite and isolated zones of up to 5% kaolinite or 75% dickite.



# Drill Hole: LE19-07

Collar Orientation 360°/-90

Start Date: 2019-02-09

End Date: 2019-02-14

Property: Larocque East

Geologist: J. Rodko

Easting: 544586.001mE

Northing: 6496536.803mN

Elevation: 450.633m

Datum: NAD83-13



## Drill Hole Purpose

Drill hole LE19-07 was the second drill hole in the first eastern step out from the discovery section at the Hurricane zone. The objective was to test for mineralization 12.5 metres north of the planned LE19-06 unconformity intercept. The drill hole successfully intersected high grade mineralization roughly 24 metres east of the intercept drilled by LE19-02.

## Survey

Depth/Dip/Azimuth

0 / -90 / 360

59 / -88.8 / 5.3

65 / -88.7 / 4.90000

101 / -88.2 / 5.2

152 / -88.7 / 12.1

164 / -89.3 / 309

200 / -89.4 / 287.7

251 / -89.7 / 271.3

302 / -89.4 / 270.9

353 / -89.3 / 271.5

401 / -89.6 / 196.4

## Lithology

From (m) To (m) Lithology Name

From (m)	To (m)	Lithology Name
0.00	46.20	Overburden
46.20	191.80	Manitou Falls - Collins Member
191.80	330.70	Manitou Falls - Bird Member
330.70	330.71	Unconformity
330.71	356.50	Graphitic Cordierite Pelitic Gneiss
356.50	373.00	Garnetiferous Pelitic Gneiss
373.00	378.40	Graphitic Cordierite Pelitic Gneiss
378.40	380.40	Pegmatite
380.40	394.00	Graphitic Cordierite Pelitic Gneiss
394.00	397.00	Cataclasite
397.00	407.00	Graphitic Cordierite Pelitic Gneiss

## Sandstone Alteration

Weak bleaching becomes moderate and pervasive to locally strong below 255.8 metres. From approximately 205.0 to 239.0 metres is a cap of locally remobilized silica identified as a mix of drusy quartz coated and silica healed fractures. Disseminated grey alteration first noted at 300.0 metres increases at roughly 308.0 metres becoming moderate to strong from 324.9 metres to the unconformity. Disseminated and vein fill carbonate is noted from 322.0 to 326.7 metres.

## Sandstone Structure

Steeply dipping fracturation increases consistently with depth into short intervals of discrete clay coated faults followed by broad zones of chaotically brecciated and clay healed core with decimeter scale blocks of rotated bedding and highly friable core. Most brecciated intervals have been healed by thick white clays throughout the lower manitou falls bird member. Core is competent below 315.4 metres excluding a pyrite filled fracture with weak mineralization at 321.0 metres.

## Basement Alteration

Moderate pervasive bleaching and argillization continues from the unconformity at 330.7 metres to 345.5 metres then becoming weak throughout the remainder of the drill hole. Moderate patchy to pervasive vibrant green chloritization is also noted from the unconformity to roughly 340.0 metres. Patchy hematite and limonite envelope a weakly mineralized fracture at roughly 331.5 metres.

## Basement Structure

Intense shearing with several discrete graphitic/chalcopyritic/weakly argillized faults is noted throughout all graphitic cordierite augen gneiss units. From 394.0 to 397.0 metres is a moderately graphitic cataclasite with several centimetre to decimetre healed graphitic breccias peripheral to the main structure. Cordierite prophyroblasts are very seived and well sheared with argillized wings or strewn pressure shadows in the

# Drill Hole: LE19-07

Collar Orientation 360°/-90

Start Date: 2019-02-09

End Date: 2019-02-14

Property: Larocque East

Geologist: J. Rodko

Easting: 544586.001mE

Northing: 6496536.803mN

Elevation: 450.633m

Datum: NAD83-13



hanging-wall graphitic gneiss from 330.7 to 356.5 metres.

## Radiometry

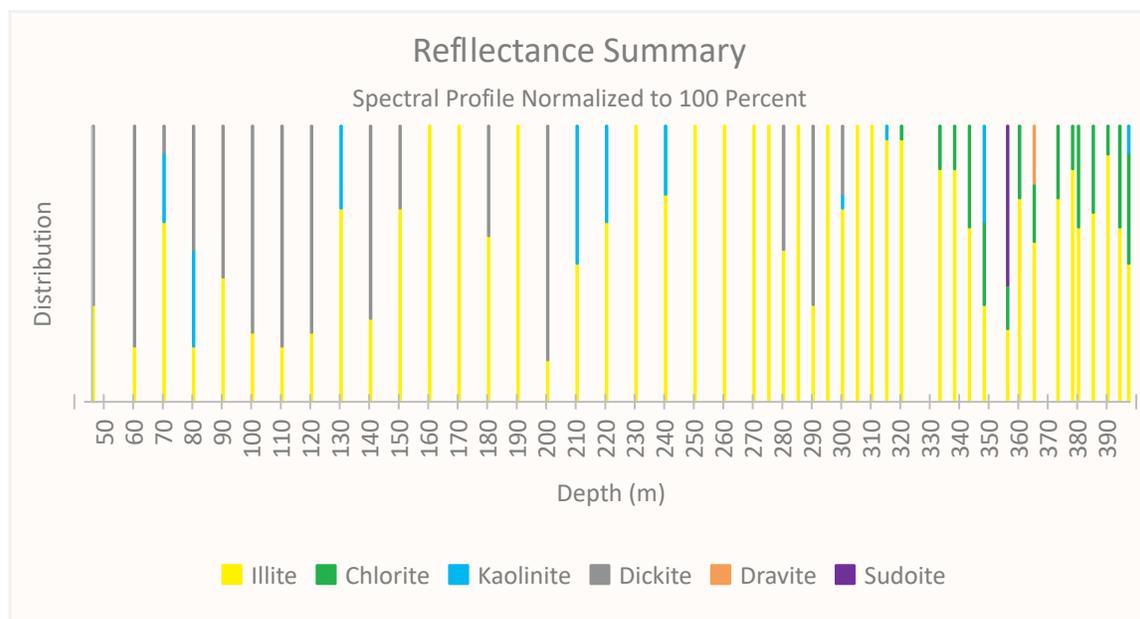
Scanning of recovered core identified a 6.0 metre interval of elevated radioactivity averaging over 1,000 cps from 325.0 to 331.0 metres, followed by a second zone averaging 5,000 cps from 328.0 to 328.5 metres. Downhole gamma logging via 2PGA-1000 identified a dead time corrected peak of 48,296 cps at 329.8 metres through a zone of high grade mineralization.

## Geochemistry

LE19-07 hosts 0.4% U3O8 plus 0.1% nickel and 0.1% cobalt over 6.0 metres from 325.0 to 331.0 metres and up to 1.0% U3O8, 4.9% nickel, and 1.3% cobalt over 0.5 metres from 328.0 to 328.5 meters.

## Reflectance - not collected through mineralized intervals

The sandstone column averages roughly 83% illite below 150.0 metres to the end of the sampled interval, with isolated zones of mixed kaolinite and/or dickite where core is less altered. Distribution of clays in LE19-07 basement rocks remains illite dominated with subdominant amounts of chlorite plus minor kaolinite. No dickite is present. No reflectance samples are collected through mineralized interval.



# Drill Hole: LE19-08

Collar Orientation 180°/-80

Start Date: 2019-02-15

End Date: 2019-02-19

Property: Larocque East

Geologist: F. Shah

Easting: 544535.877mE

Northing: 6496588.721mN

Elevation: 450.084m

Datum: NAD83-13



## Drill Hole Purpose

Drill hole LE19-08 is the first western step-out along strike at the Hurricane zone and the first hole in a three-hole fence testing for mineralization roughly 25 metres west of the discovery section. The drill hole was collared roughly 20 metres west of historic drill hole KER-12 and was successfully intersected mineralization at the planned target roughly 31 metres west of the intercept in LE19-02. LE19-08 was drilled as a planned undercut and also served to identify a potential southerly bend in the stratigraphy to the west.

## Survey

Depth/Dip/Azimuth

0 / -80 / 180

56 / -80.4 / 180

101 / -80 / 184.4

152 / -80.2 / 184.6

209 / -80.6 / 183.4

260 / -80.9 / 187.5

317 / -80.7 / 182.3

350 / -80.7 / 182.1

407 / -80.5 / 180.8

452 / -80.3 / 179.9

## Lithology

From (m) To (m) Lithology Name

0.00	44.70	Overburden
44.70	194.70	Manitou Falls - Collins Member
194.70	336.20	Manitou Falls - Bird Member
336.20	336.21	Unconformity
336.21	348.60	Graphitic Cordierite Pelitic Gneiss
348.60	355.40	Garnetiferous Pelitic Gneiss
355.40	361.10	Graphitic Cordierite Pelitic Gneiss
361.10	364.90	Cataclasite
364.90	369.20	Garnetiferous Pelitic Gneiss
369.20	424.90	Graphitic Cordierite Pelitic Gneiss
424.90	436.90	Graphitic Cordierite Pelitic Gneiss
436.90	451.20	Garnetiferous Pelitic Gneiss
451.20	461.10	Cataclasite
461.10	473.00	Graphitic Cordierite Pelitic Gneiss

## Sandstone Alteration

Moderate bleaching is first noted at 256.2 metres followed by strong pervasive bleaching below 315.9 metres to the unconformity and into upper basement rocks. Weak pervasive to structure controlled desilicification increases below 248.5 metres then becoming moderate to strong peripheral to larger structures. Weak grey alteration beginning at 308.5 metres quickly becomes moderate to strong and persists through the mineralized zone to the unconformity. Patchy and intermittent hydrothermal hematite is noted from 293.5 metres to the mineralized interval.

## Sandstone Structure

A moderately silicified fracture at 231.1 metres marks the start of several steeply dipping and parallel structures which are often coated in white clays, limonite, or pinkish red hydrothermal hematite. Massive clay gouge is intersected from 311.5 to 312.5 and again from 322.2 to 323.7 metres. Minor faulting and broken core continue to persist into the mineralized zone where core becomes more competent due to a general lack of structure and reduction in pervasive alteration.

## Basement Alteration

Moderate bleaching and argillization extend across the unconformity at 336.2 metres to roughly 341.1 metres then becoming weak and quickly waning to trace by the end of the first graphitic cordierite augen gneiss unit at 348.6 metres. Moderate to weak pervasive pale green chlorite is more continuous and reaches into underlying garnetiferous pelitic gneiss. Garnetiferous pelitic gneiss units host isolated zones of moderate to weak patchy bleaching peripheral to some structures.

## Basement Structure

# Drill Hole: LE19-08

Collar Orientation 180°/-80

Start Date: 2019-02-15

End Date: 2019-02-19

Property: Larocque East

Geologist: F. Shah

Easting: 544535.877mE

Northing: 6496588.721mN

Elevation: 450.084m

Datum: NAD83-13



The "I" fault, an intensely graphitic cataclasite was intersected from 361.1 to 364.9 metres. A second foot-wall graphitic cataclasite, the "J" fault, was intersected from 451.2 to 461.1 metres. Both cataclasites are hosted within larger intervals of sheared cordierite rich gneisses that host several other more discrete graphitic healed breccias, graphitic slips, and graphite/sulphide rich back thrusts.

### Radiometry

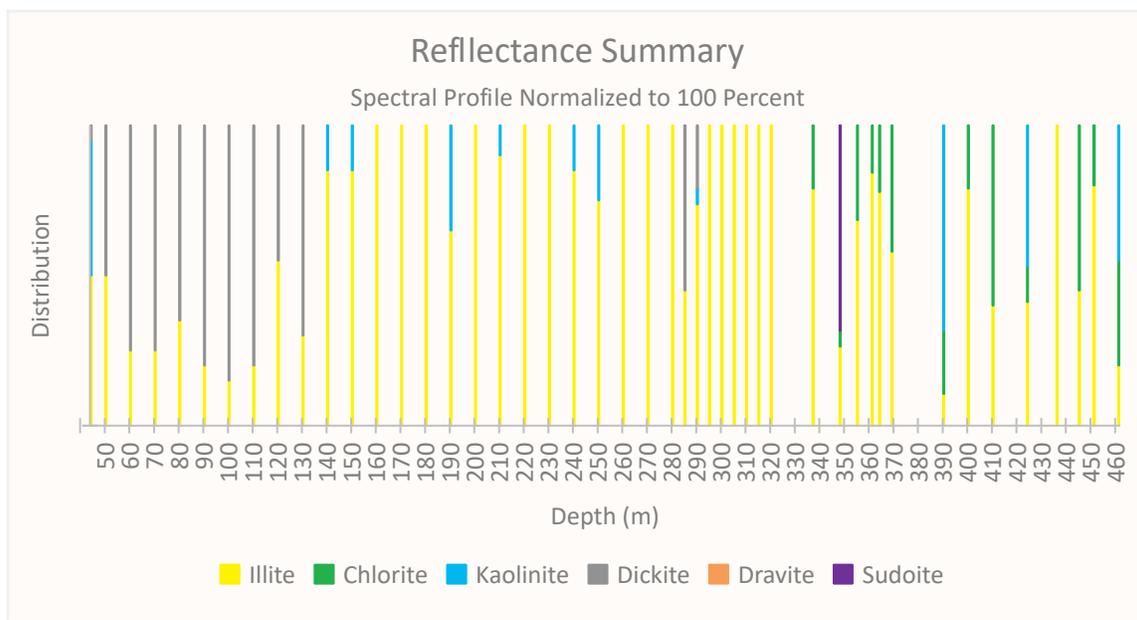
LE19-08 intersected two zones of elevated radioactivity. The uppermost zone from 326.5 to 327.0 metres averaged over 1,000 cps via handheld RS-125 spectrometer. A lower zone from 333.0 to 336.5 metres averages over 1,000 cps over 3.5 metres and hosts a shorter interval indicating more than 10,000 cps over 0.5 metres.

### Geochemistry

Geochemical analysis indicates that LE19-08 intersected 0.5 metres of 0.4% U3O8 plus 0.1% of both cobalt and nickel. A broader interval from 333.0 to 336.5 metres averages 0.8% U3O8 plus 1.5% nickel and 0.4% cobalt. One half metre sample within the lower zone contained 3.7% U3O8, 8.3% nickel, and 1.3% cobalt.

### Reflectance - not collected through mineralized intervals

The sandstone column averages roughly 91% illite between 140.0 and the last collected sandstone sample at 323.5 metres. Minor kaolinite is noted intermittently with an average of 38% dickite between 285.0 and 295.0 metres. Reflectance analysis through the basement indicates a predominantly illitic make-up with lesser amounts of chlorite and rare zones of 40 to 65% kaolinite. No dickite was detected.



## Drill Hole: LE19-09

Collar Orientation 360°/-90

Start Date: 2019-02-19

End Date: 2019-02-23

Property: Larocque East

Geologist: F. Shah

Easting: 544536.594mE

Northing: 6496520.75mN

Elevation: 448.839m

Datum: NAD83-13



### Drill Hole Purpose

Drill hole LE19-09 was the second drill hole in a three hole fence designed to test for unconformity style mineralization roughly 15 metres west of the discovery section. The drill hole successfully intersected the target roughly 28 metres west of the discovery drill hole unconformity intercept - LE18-01A.

### Survey

Depth/Dip/Azimuth

0 / -90 / 360

53 / -89.4 / 226.1

74 / -89.6 / 210.8

101 / -89.8 / 259.8

152 / -89.3 / 252

200 / -89.6 / 268.6

251 / -89.2 / 264.1

302 / -89.8 / 217.7

350 / -89.4 / 248.8

### Lithology

From (m) To (m) Lithology Name

From (m)	To (m)	Lithology Name
0.00	41.90	Overburden
41.90	194.40	Manitou Falls - Collins Member
194.40	330.70	Manitou Falls - Bird Member
330.70	330.71	Unconformity
330.71	337.50	Graphitic Cordierite Pelitic Gneiss
337.50	341.60	Garnetiferous Pelitic Gneiss
341.60	362.00	Graphitic Cordierite Pelitic Gneiss

### Sandstone Alteration

Bleaching is moderate below 250.0 metres becoming strong at 300.5 metres. Moderate desilicification below 265.5 metres persists to the unconformity with increasing intensity. Massive clay gouges with preserved bedding textures are present below 306.5 metres. Hydrothermal hematite was first noted at 260.5 metres which persists intermittently into the mineralized interval. Strong grey alteration permeates the basal sandstone.

### Sandstone Structure

Steeply dipping faults with tight alteration envelopes were intersected at 199.0, 210.8, 249.1, 260.5, and 278.3 metres. Structure increases below 306.9 metres, characterized by several intervals of massive clay gouge mixed with broken and rubbly core becoming generally continuous into the mineralized interval.

### Basement Alteration

Moderate bleaching and argillization of the upper basement rocks wanes to weak at 343.2 metres followed by weak bleaching and weak to locally moderate chloritization to end of hole. Vibrant pale green chloritization affects most feldspars within pegmatite and leucosomal zones.

### Basement Structure

The basement foliation is steeply dipping throughout with mild shearing through more graphitic cordierite augen gneiss units. A 0.4 metre interval of healed graphitic breccia is noted at 352.1 metres which is flanked by several smaller graphitic proto-breccia and polished slips.

### Radiometry

Radiometry in recovered core indicates a 4.5 metre zone from 325.0 to 329.5 metres averaging over 1,000 cps which includes a 2.0 metre interval from 327.0 to 329.0 metres that averages over 20,000 cps. Downhole radiometry via 2PGA-1000 probe indicates a dead time corrected peak of 465,143 cps at 328.4 metres.

### Geochemistry

# Drill Hole: LE19-09

Collar Orientation 360°/-90

Start Date: 2019-02-19

End Date: 2019-02-23

Property: Larocque East

Geologist: F. Shah

Easting: 544536.594mE

Northing: 6496520.75mN

Elevation: 448.839m

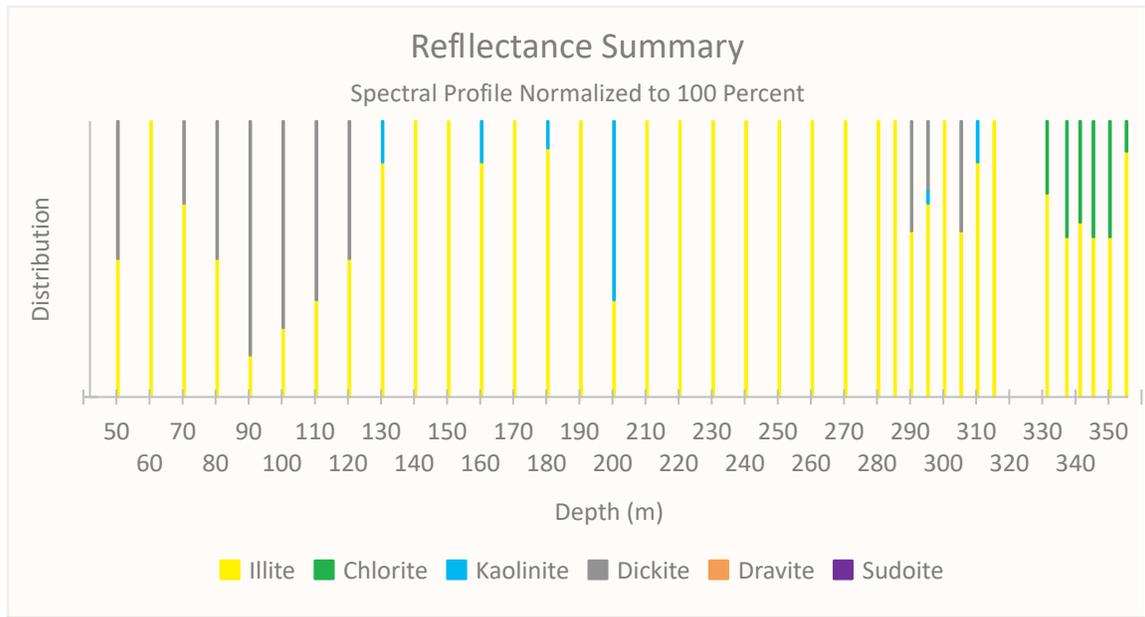
Datum: NAD83-13



LE19-09 intersected 4.2% U3O8 plus 1.1% nickel and 0.8% cobalt from 325.0 to 329.5 metres. This zone of mineralization includes a higher grade intersection averaging 6.8% U3O8, 1.9% nickel, and 1.3% cobalt from 327.0 to 329.0 metres.

### Reflectance - not collected through mineralized intervals

The sandstone column is dominantly illitic below 210.0 metres with up to 40% dickite and lesser kaolinite over some intervals. Distribution of clays in basement rocks is a mix of illite and chlorite at a ratio of roughly 2:1.



# Drill Hole: LE19-10

Collar Orientation 360°/-90

Start Date: 2019-03-23

End Date: 2019-02-27

Property: Larocque East

Geologist: F. Shah

Easting: 544534.617mE

Northing: 6496508.515mN

Elevation: 448.326m

Datum: NAD83-13



## Drill Hole Purpose

Drill hole LE19-10 was planned to test for mineralization at the unconformity 12.5 metres south of the mineralization encountered in LE19-09. The target was successful and intersected mineralization roughly 30 metres west of the LE19-03 intercept and 13 metres outh of the LE19-09 intercept.

## Survey

Depth/Dip/Azimuth

0 / -90 / 360

56 / -89.4 / 270.6

101 / -89.4 / 231.4

152 / -89.5 / 139.4

200 / -89.9 / 181.9

257 / -89.7 / 195.5

302 / -89.6 / 180.9

350 / -89.1 / 202.2

## Lithology

From (m) To (m) Lithology Name

0.00	43.40	Overburden
43.40	193.10	Manitou Falls - Collins Member
193.10	333.50	Manitou Falls - Bird Member
333.50	333.51	Unconformity
333.51	366.10	Graphitic Cordierite Pelitic Gneiss
366.10	371.00	Pelitic Gneiss

## Sandstone Alteration

Moderate bleaching becomes pervasive below 196.3 metres and strong below 284.7 metres. Moderate limonite franks structures from 198.9 to 199.5 and from 211.2 to 227.0 metres. Moderate to locally strong desilicification franks structures from 193.1 to 196.1, 211.5 to 215.5, 258.6 to 262.0, and 278.2 to 279.8 metres. Strong alteration is intersected from 289.5 to 324.1 metres through a broad structure zone which is underlain by moderate to strong grey alteration and patchy hydrothermal hematite from 324.1 metres to the unconformity.

## Sandstone Structure

Steeply dipping and parallel millimeter to decimeter scale faults are present at 251.1, 261.6, and 278.5 meters. From 289.5 to 324.1 meters a significant structural zone is present which is most intense below 311.0 metres. Clay fault gouges are present throughout the broken zone at 290.0, 303.0, 311.0, 316.3, and 319.9 metres. Core becomes competent through the mineralized interval.

## Basement Alteration

Immediately below the unconformity basement core is strong to moderately argillized and chloritized to 356.2 metres where alteration weakens quickly into fresh rock from 366.1 metres to end of hole.

## Basement Structure

Basement core is generally competent with isolated graphite and sulphide rich faults at 341.6 and 342.5 metres. Chalcopyrite is noted on steeply dipping fractures in the upper basement where core remains moderately to weakly altered.

## Radiometry

LE19-10 intersected a 1.5 metre zone of anomalous radioactivity averaging over 1,000 cps (RS-125) from 331.5 to 333.0 metres. Downhole logging via 2PGA-1000 detected a dead time corrected peak of 44,467 cps at 332.5 metres.

## Geochemistry

# Drill Hole: LE19-10

Collar Orientation 360°/-90

Start Date: 2019-03-23

End Date: 2019-02-27

Property: Larocque East

Geologist: F. Shah

Easting: 544534.617mE

Northing: 6496508.515mN

Elevation: 448.326m

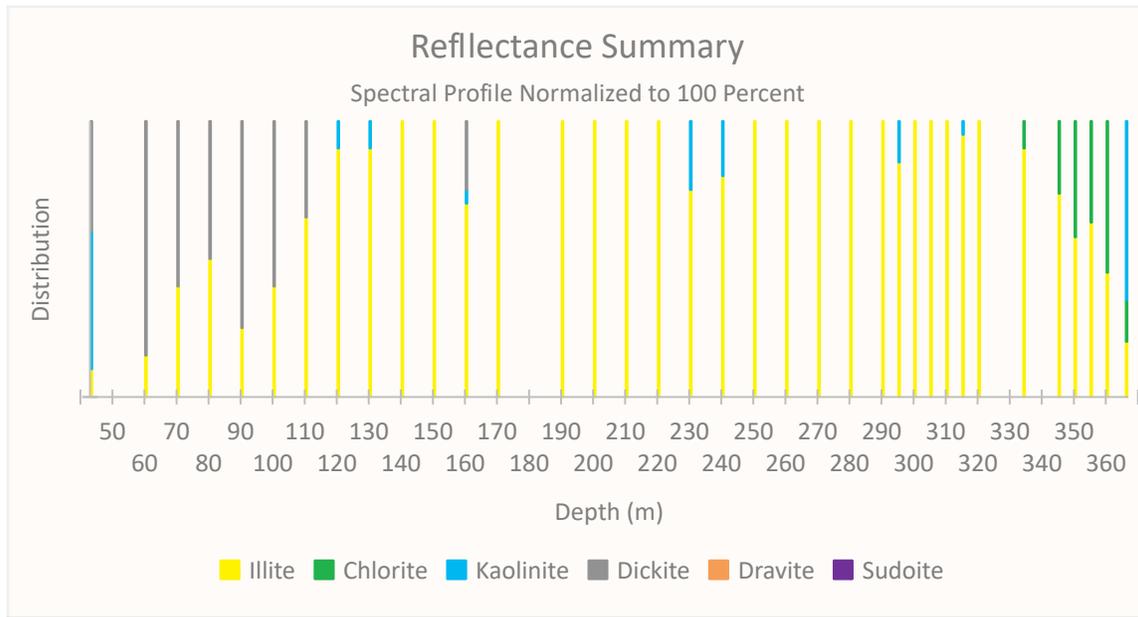
Datum: NAD83-13



Through the radioactive interval LE19-10 intersected 0.6% U3O8, 1.7% nickel, and 1.9% cobalt from 331.5 to 333.0 metres.

## Reflectance - not collected through mineralized intervals

Below 150.0 metres the sandstone column is dominated by illite with minor kaolinite. A complete lack of dickite is noted below 170.0 metres. Basement rocks contain an average mix of approximately 55% illite and 30% chlorite with minor kaolinite and carbonate.



# Drill Hole: LE19-11

Collar Orientation 178°/-80

Start Date: 2019-02-27

End Date: 2019-03-05

Property: Larocque East

Geologist: F. Shah

Easting: 544484.765mE

Northing: 6496603.34mN

Elevation: 445.978m

Datum: NAD83-13



## Drill Hole Purpose

LE19-11 was part of a two hole fence designed to test the unconformity for mineralization 75 metres west of the discovery section. The planned intercept for LE19-11 was 75 metres west of LE19-04. The primary purpose was to identify key structures and stratigraphy at an expected southerly bend in strike. The drill hole successfully intersected expected stratigraphy and intersected high grade mineralization at the unconformity.

## Survey

Depth/Dip/Azimuth

0 / -80 / 178

48 / -79.9 / 177.2

101 / -79.8 / 178

152 / -80 / 138.8

200 / -80.5 / 183.6

251 / -80.6 / 180.5

302 / -80.9 / 181.3

350 / -80.7 / 185.4

401 / -80.9 / 184.5

455 / -80.6 / 186.1

500 / -80.8 / 183.4

## Lithology

From (m) To (m) Lithology Name

From (m)	To (m)	Lithology Name
0.00	36.70	Overburden
36.70	192.50	Manitou Falls - Collins Member
192.50	333.40	Manitou Falls - Bird Member
333.40	333.41	Unconformity
333.41	369.80	Garnetiferous Pelitic Gneiss
369.80	372.40	Graphitic Cordierite Pelitic Gneiss
372.40	373.80	Cataclasite
373.80	396.60	Graphitic Cordierite Pelitic Gneiss
396.60	397.80	Cataclasite
397.80	414.30	Graphitic Cordierite Pelitic Gneiss
414.30	422.40	Garnetiferous Pelitic Gneiss
422.40	454.20	Graphitic Cordierite Pelitic Gneiss
454.20	500.50	Garnetiferous Pelitic Gneiss
500.50	504.50	Cataclasite
504.50	506.00	Graphitic Cordierite Pelitic Gneiss

## Sandstone Alteration

Moderate bleaching below 201.0 metres is continuous to the unconformity with brief intervals of weak to strong bleaching noted throughout. Moderate fault controlled argillization from 272.0 metres is underlain by an interval of moderate pervasive desilicification and friable core below 281.0 metres. Patchy hydrothermal hematite first noted at 299.0 metres is intermittent throughout the basal sandstone.

## Sandstone Structure

Intermittent steeply dipping fractures are first noted at 192.5 metres and persist throughout the remainder of the sandstone column. Clay/limonite/drusy quartz coated faults at 198.5, 201.5, 203.8, 206.3, 223.6, 242.2, 272.0, 314.2, 316.4, 321.9, and 326.8 metres characterize a broad structural corridor which is enveloped by a consistent alteration halo described above.

## Basement Alteration

Moderate argillization below the unconformity affects all minerals except for larger quartz crystals. Below 353.0 metres argillization quickly changes to weak with local metre scale zones of moderate patchy argillization and bleaching. Pale green chloritization is common through this interval and is very strong through intervals of quartz rich pegmatite. Mixed weak to moderate bleaching/chloritization/argillization of feldspars spans lithologies to approximately 400.0 metres where core freshens.

## Basement Structure

# Drill Hole: LE19-11

Collar Orientation 178°/-80

Start Date: 2019-02-27

End Date: 2019-03-05

Property: Larocque East

Geologist: F. Shah

Easting: 544484.765mE

Northing: 6496603.34mN

Elevation: 445.978m

Datum: NAD83-13



Metre scale graphitic cataclasites were intersected from 372.4 to 373.8, 396.6 to 397.8, and 500.5 to 504.5 metres. Graphitic cordierite augen gneiss units are highly sheared and very rich in graphite and pyrite. Foliation is locally erratic but generally steep to very steeply dipping. Garnetiferous pelitic gneiss units host several intervals of quartz and/or sillimanite rich shear bands though the foliation is less well defined.

## Radiometry

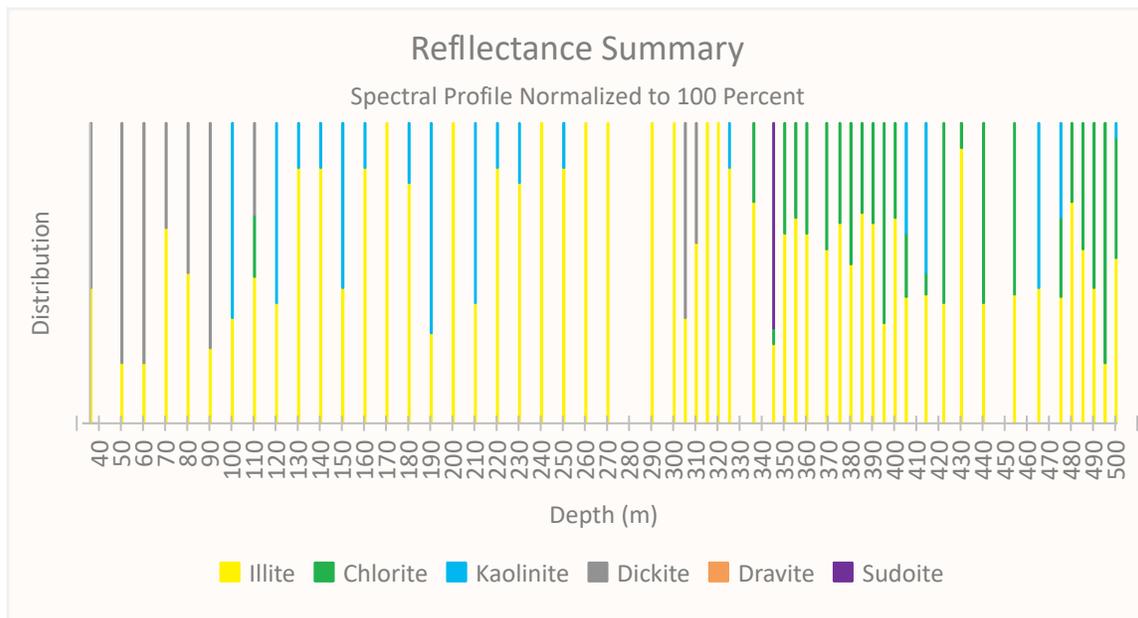
Recovered core from LE19-11 was scanned with a handheld RS-125 spectrometer which detected a 0.5 metre long zone of anomalous radioactivity averaging over 5,000 cps from 333.0 to 333.5 metres which is flanked by several smaller radiometric peaks above and below mineralization. Downhole gamma logging via 2PGA-1000 detected a dead time corrected gamma peak of 85,727 cps at 333.3 metres through an interval of high grade mineralization.

## Geochemistry

LE19-11 intersected 0.5 metres of up to 2.1% U3O8 plus 0.1% of both nickel and cobalt from 333.0 to 333.5 metres. Systematic sampling of the sandstone column indicated that like most Hurricane zone drill holes, LE19-11 hosts several intervals of highly anomalous uranium and uranium pathfinder elements throughout.

## Reflectance - not collected through mineralized intervals

Below 170.0 metres the sandstone is typically illite dominated with zones of kaolinite dominance. Kaolinite content in LE19-11 is generally higher than in other Hurricane drill holes to date. Dickite content remains very low to nil in the basal sandstone excluding an interval of 40 to 65% dickite content from 305.0 to 315.0 metres. Basement rocks host a consistent mix of illite and chlorite plus minor kaolinite. No dickite was detected in the basement.



# Drill Hole: LE19-12

Collar Orientation 360°/-90

Start Date: 2019-03-05

End Date: 2019-03-08

Property: Larocque East

Geologist: F. Shah

Easting: 544484.877mE

Northing: 6496519.736mN

Elevation: 445.849m

Datum: NAD83-13



## Drill Hole Purpose

Drill hole LE19-12 was the second planned drill hole in a two hole fence testing for mineralization 75 metres west of the discovery section. It was targeted to follow up mineralization intersected in drill hole LE19-11 and successfully intersected mineralization roughly 26 metres south of the intersection in LE19-11.

## Survey

Depth/Dip/Azimuth

0 / -90 / 360

53 / -89.3 / 243.4

68 / -89.4 / 281.6

101 / -89.2 / 272.6

152 / -90 / 26.6

200 / -89.7 / 34

251 / -89.7 / 166.7

311 / -89.7 / 187.4

350 / -89.9 / 229.9

## Lithology

From (m) To (m) Lithology Name

From (m)	To (m)	Lithology Name
0.00	39.10	Overburden
39.10	194.40	Manitou Falls - Collins Member
194.40	329.00	Manitou Falls - Bird Member
329.00	329.01	Unconformity
329.01	341.80	Graphitic Cordierite Pelitic Gneiss
341.80	343.80	Cataclasite
343.80	380.00	Graphitic Cordierite Pelitic Gneiss

## Sandstone Alteration

The beginning of the moderately bleached halo is noted at 227.4 metres which is generally continuous to 301.5 metres then becoming strong through the mineralized interval to the unconformity. Weak, structurally controlled white clays are first noted at 268.0 metres becoming moderate below 316.5 metres. Desilicification and core friability increase steadily with depth with greatest intensity peripheral to structures and strongly bleached intervals. Patchy hydrothermal hematite is noted between 282.5 and 318.5 metres and is underlain by a zone of moderate grey alteration.

## Sandstone Structure

Intermittent steeply dipping fractures in the upper sandstone column increase in frequency and intensity below 254.5 metres. Several rubbly zones are recovered from 281.0 to 282.2, 284.0 to 286.5, 290.5 to 293.3, and 297.4 to 299.2 metres. Structures generally have strong controls on alteration and high grade mineralization however core is more competent through the mineralized interval.

## Basement Alteration

Strong clay alteration extends from the unconformity at 329.0 metres to 333.5 metres then waning to moderate to 350.0 metres followed by weaker clay alteration to end of hole. Argillization is coincident with strong chloritization of the upper basement rocks which changes to moderate at roughly 331.5 metres and remains weak to locally moderate throughout. Increased chloritization and bleaching of coarser grained pegmatite hosted feldspars is common.

## Basement Structure

LE19-12 intersected several centimeter to decimeter faults at 333.0, 338.4, 345.3 and 346.3 metres plus intervals of broken core from 337.0 to 337.8 and 358.8 to 360.8 metres. Most notably is an intensely graphitic cataclasite from 341.8 to 343.8 m which is also rich in pyrite and minor chalcopyrite.

## Radiometry

# Drill Hole: LE19-12

Collar Orientation 360°/-90

Start Date: 2019-03-05

End Date: 2019-03-08

Property: Larocque East

Geologist: F. Shah

Easting: 544484.877mE

Northing: 6496519.736mN

Elevation: 445.849m

Datum: NAD83-13



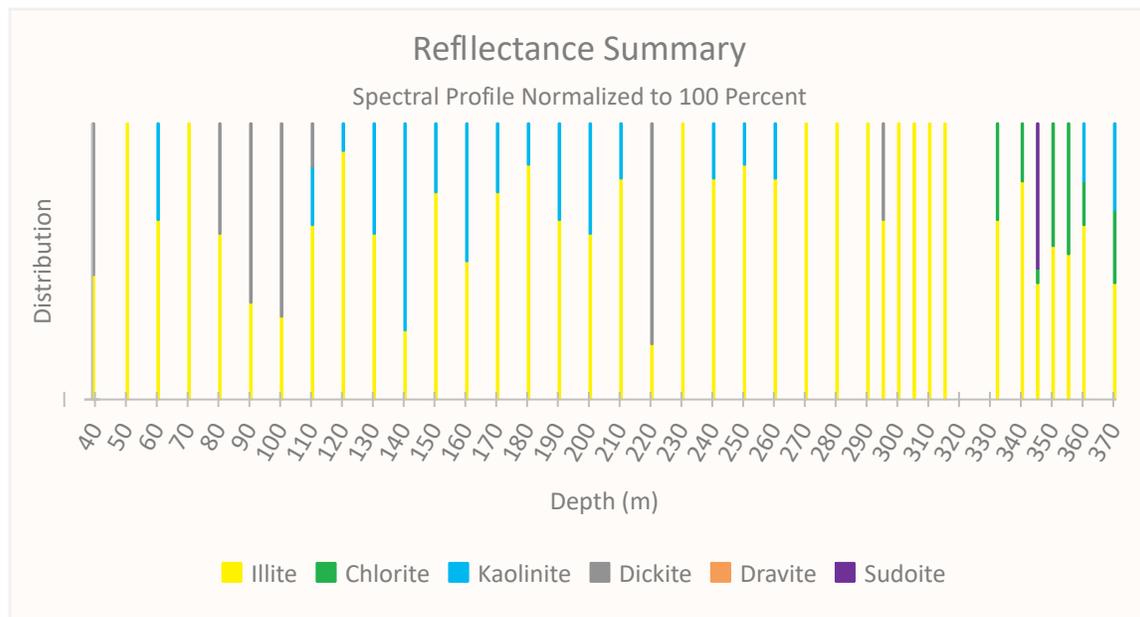
LE19-12 intersected an 8.5 metre long interval of highly anomalous radioactivity averaging over 1,000 cps (RS-125) from 320.5 to 329.0 metres. This zone includes several intersections averaging over 20,000 cps including from 324.5 to 325.0, 326.0 to 327.0, and 328.5 to 329.0 metres. Downhole gamma logging via 2PGA-1000 detected a dead time corrected peak of 826,250 cps at 326.2 metres.

## Geochemistry

LE19-12 intersected up to 3.2% U3O8, 2.1% nickel, and 0.2% cobalt over an 8.5 metre interval from 320.5 to 329.0 metres. This zone includes several very high grade intersections including 14.3% U3O8 over 1.0 metre and up to 15.0% nickel recovered from one 0.5 metre split sample.

## Reflectance - not collected through mineralized intervals

Reflectance analysis indicates nearly the entire sandstone column is dominated by illite - averaging roughly 75% illite throughout. Multiple brief and isolated zones of up to 80% dickite are noted however there are no continuous zones detected below 120.0 metres. Much of the manitou falls collins member hosts lesser kaolinite, averaging 25% kaolinite between 110.0 and 270.0 metres. Basement clay distribution is typically dominated by illite with lesser chlorite and up to 30% kaolinite below 360.0 metres.



# Drill Hole: LE19-13

Collar Orientation 360°/-90

Start Date: 2019-03-09

End Date: 2019-03-12

Property: Larocque East

Geologist: F. Shah

Easting: 544635mE

Northing: 6496530mN

Elevation: 446.17m

Datum: NAD83-13



## Drill Hole Purpose

Drill hole LE19-13, the final drill hole of the winter 2019 season, was planned to test for unconformity style mineralization 75 metres east of the discovery section. The drill hole intersected mineralization roughly 40 metres east of the LE19-06 intercept however drill hole deviation and a northerly bend in strike resulted in a minor over shot of the intended target.

## Survey

Depth/Dip/Azimuth

0 / -90 / 360

56 / -89.4 / 171

104 / -89.4 / 155.9

152 / -89.5 / 171.3

200 / -89.4 / 179.7

251 / -89.2 / 193.8

302 / -89.1 / 224.3

350 / -89.1 / 190.8

## Lithology

From (m) To (m) Lithology Name

From (m)	To (m)	Lithology Name
0.00	38.40	Overburden
38.40	188.00	Manitou Falls - Collins Member
188.00	329.00	Manitou Falls - Bird Member
329.00	329.01	Unconformity
329.01	335.20	Graphitic Cordierite Pelitic Gneiss
335.20	338.20	Cataclasite
338.20	367.30	Graphitic Cordierite Pelitic Gneiss
367.30	378.00	Cataclasite
378.00	395.00	Garnetiferous Pelitic Gneiss

## Sandstone Alteration

Pervasive weak bleaching is noted from 188.0 to 242.0 metres then exhibiting a gradational change to moderate bleaching to 285.0 metre then into a zone of pervasive strong bleaching extending to the unconformity. Moderate desilicification is commonly noted peripheral to structures which produces broad intervals of friable and easily broken drill core. Patchy hydrothermal hematite is noted from 228.2 to 251.0 metres and again from 309.0 metres to the unconformity. Moderate grey alteration is first noted at 315.6 metres becoming strong towards the mineralized zone.

## Sandstone Structure

Several steeply dipping fractures and discrete clay coated faults were intersected at 199.5, 238.3, 242.5, 251.0, 254.4, 267.2, 292.5, and 306.2 metres. A centimetre scale block of sandstone with rotated bedding was recovered at 234.8 metres within a zone of mixed gouge from 231.4 to 234.8 metres. Intense breccia with rounded sandstone clasts are noted between 309.4 and 310.0 metres. Core is generally competent through the mineralized interval.

## Basement Alteration

Strong to moderate argillization of basement rock continues from the unconformity to 331.5 metres and is coincident with strong to moderate chloritization that becomes weaker below 335.2 metres. At 335.2 metres alteration is truncated by a large fault that is underlain by fresher rocks.

## Basement Structure

Metre to decametre scale graphite rich cataclasis was intersected from 335.2 to 338.2 and from 367.3 to 378.0 metres. Minor graphitic slips and centimetre scale healed breccia are noted proximal to zones of more intense shearing through graphitic cordierite augen gneiss units, most notably at 384.8, 385.6, 391.5, and 394.5 metres. Core is otherwise competent and very steeply dipping with a highly erratic fabric proximal to cataclastic structure zones.

## Radiometry

# Drill Hole: LE19-13

Collar Orientation 360°/-90

Start Date: 2019-03-09

End Date: 2019-03-12

Property: Larocque East

Geologist: F. Shah

Easting: 544635mE

Northing: 6496530mN

Elevation: 446.17m

Datum: NAD83-13



LE19-13 intersected two zones of highly anomalous radioactivity. The upper zone averages over 1,000 cps (RS-125) from 320.0 to 320.5 metres is followed by a lower zone from 321.5 to 324.0 metres that averages over 1,000 cps and hosts an interval of over 10,000 cps from 322.5 to 323.0 metres. Downhole gamma logging via 2PGA-1000 detected a dead time corrected radiometric peak of 92,655 cps.

## Geochemistry

Split sampling of LE19-13 drill core indicates up to 0.19% U3O8 from 320.0 to 320.5 metres and up to 0.58% U3O8 from 321.5 to 324.0 metres. This interval includes one 0.5 metre sample containing up to 1.62% U3O8, 0.4% nickel, and 1.1% cobalt.

## Reflectance - not collected through mineralized intervals

Reflectance analysis indicates that the sandstone column in LE19-13 is dominated by illite below 140.0 metres. Core below this zone averages roughly 82% illite with lesser kaolinite and up to 75% dickite from 160.0 to 180.0 and from 280.0 to 290.0 metres.

