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Basin ENERGY

Global Uranium Conference Adelaide

High-Grade Uranium Target Generation within the Overlooked Margins of the Athabasca Basin

November 2023

ASX : BSN

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Disclaimer & Competent Persons Statement

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All figures in Australian Dollars unless stated otherwise.

Competent Persons Statement & Resource Figure Notes

The information in this announcement that relates to exploration results was first reported by the company in accordance with ASX listing rule 5.7 in the Company's prospectus dated 22nd August 2022 and announced on the ASX market platform on 30th September 2022, subsequent company ASX releases. The Company confirms that it is not aware of any new information or data that materially affects the information included in the prospectus.

All resource figures shown within this document of deposits within the Athabasca, unless stated are quoted from the International Atomic Energy Agency (IAEA) Tecdoc 1857. Resources are global and include mined resource and all classification of remaining resource. Resource Size (U_3O_8) is the amount of contained uranium (in Mlbs U_3O_8) and average grade (in % U_3O_8) of the deposit/system. This number is presented without a specific cut-off grade, as the cut-off value differs from deposit to deposit and is dependent on resource calculation specifications. Discrepancies between values in this field and other values in the public domain may be due to separate cut-off values used, or updated values since the writing of this document. For system entries, the values for the size were obtained by adding the individual deposits values whereas average grade values were derived using a weighted average of the individual deposits.

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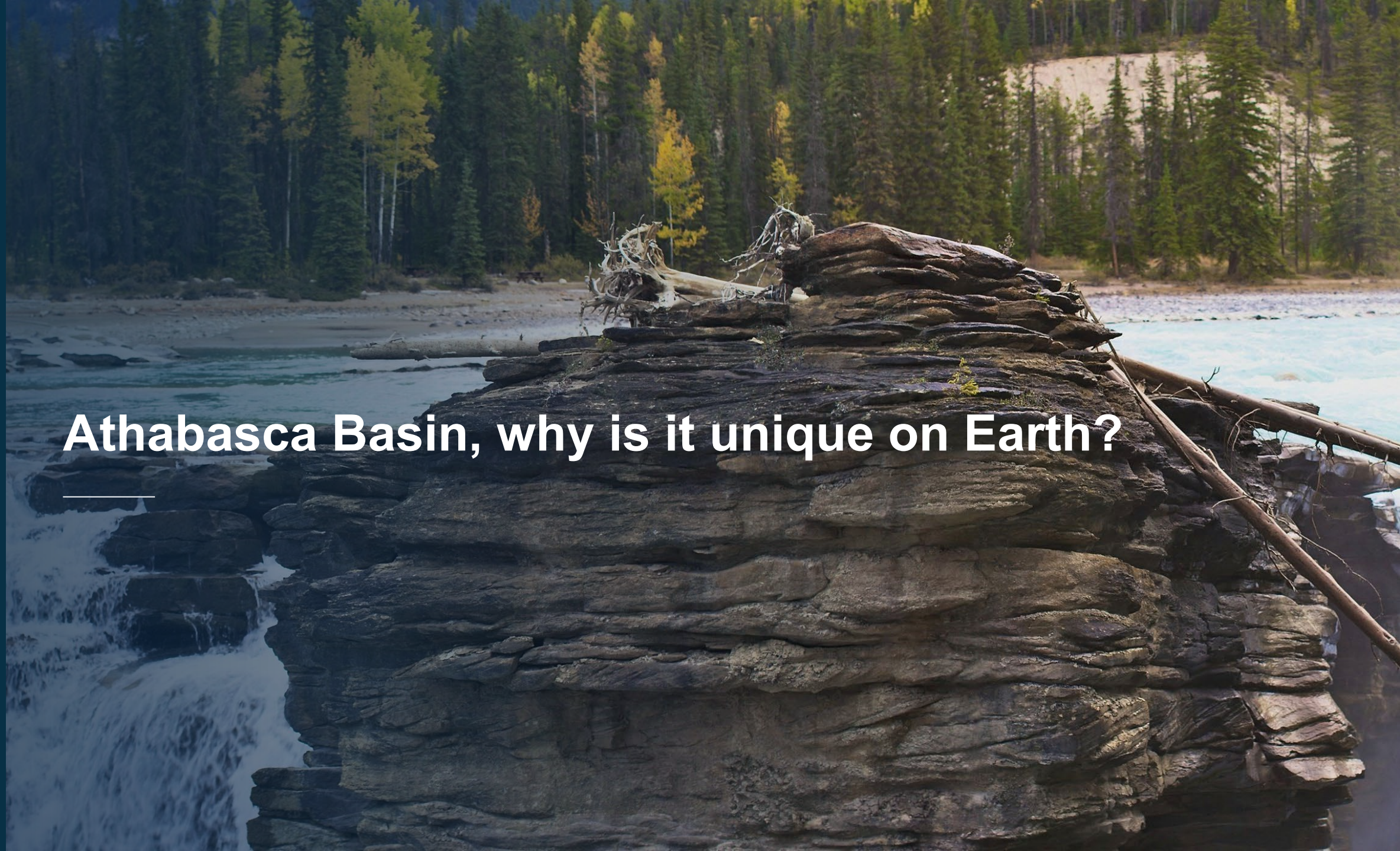
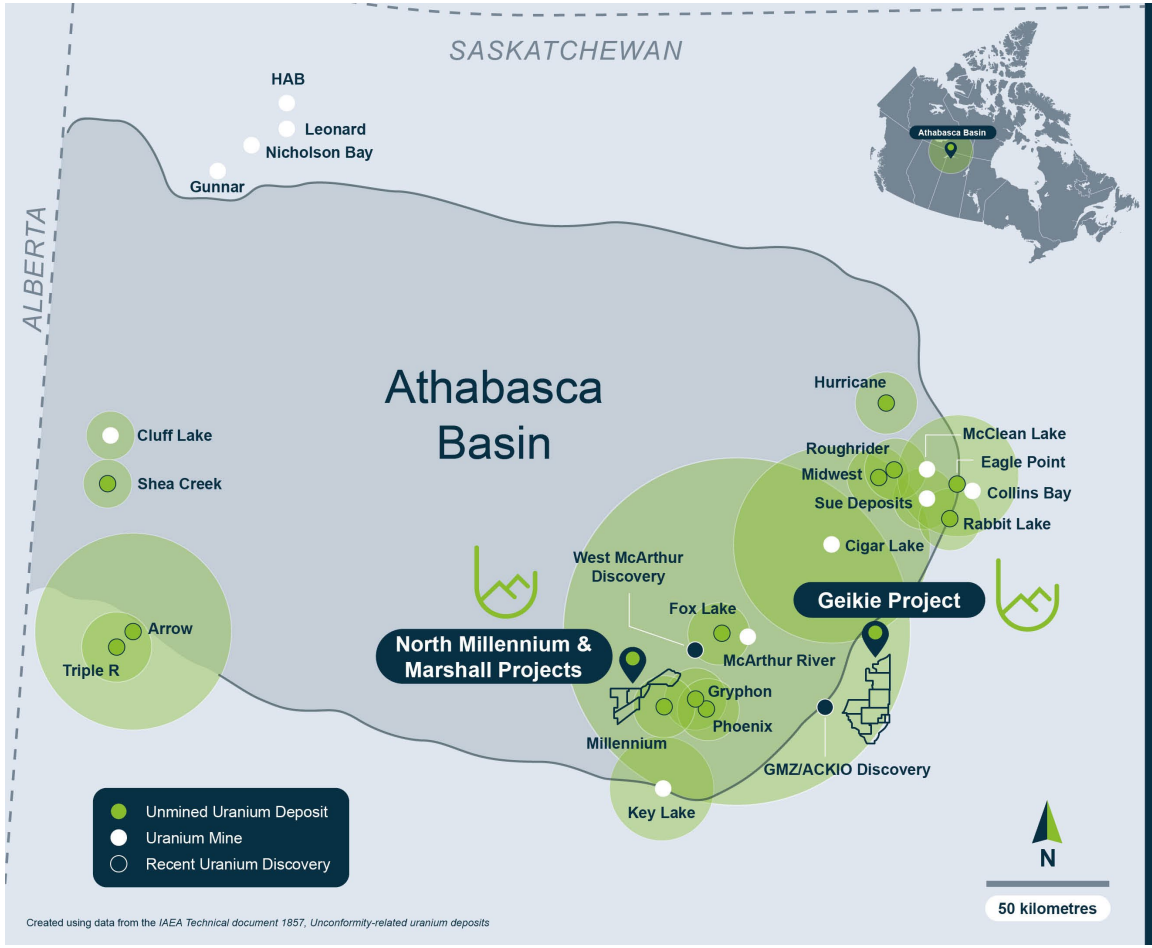
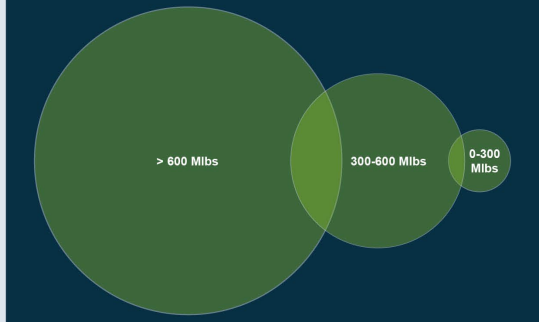


Athabasca Basin, why is it unique on Earth?

Athabasca Basin – discovery successes



Deposit	Resource Size (U_3O_8 Mlbs)	Resource Grade (%)
McArthur River	674.9	16.99
Cigar Lake	349.3	15.65
Arrow	306.1	4.62
Eagle Point	275.3	0.91
Key Lake	182.3	3.07
Triple R	135.1	1.80
Millennium	104.8	3.76
Shea Creek	95.9	1.47
Phoenix	70.9	19.23
Roughrider	70.8	4.75
Cluff Lake	70.0	1.48
Fox Lake	68.1	7.98
Midwest	49.2	3.55
Hurricane Deposit	48.6	34.5
Sue Deposits	45.9	3.75
Gryphon	49.7	1.80
Rabbit Lake	42.8	0.32



- Rabbit Lake deposit discovered in 1968.
- Majority are unconformity-related deposits.
- Basement-hosted deposits such as:
  - Eagle Point
  - Millenium
  - Arrow
  - Gryphon
  - Most recent discovery: GMZ/ACKIO mineralised zone (92 Energy and Baselode)

Sources: World Nuclear Performance Report 2021, World Nuclear Association, September 2021; The Nuclear Fuel Report Global Scenarios for Demand and Supply Availability 2021-2040, World Nuclear Association April 202
Resource figures taken from International Atomic Energy Agency Technical document 1857, Unconformity-related uranium deposits, refer to disclaimer.

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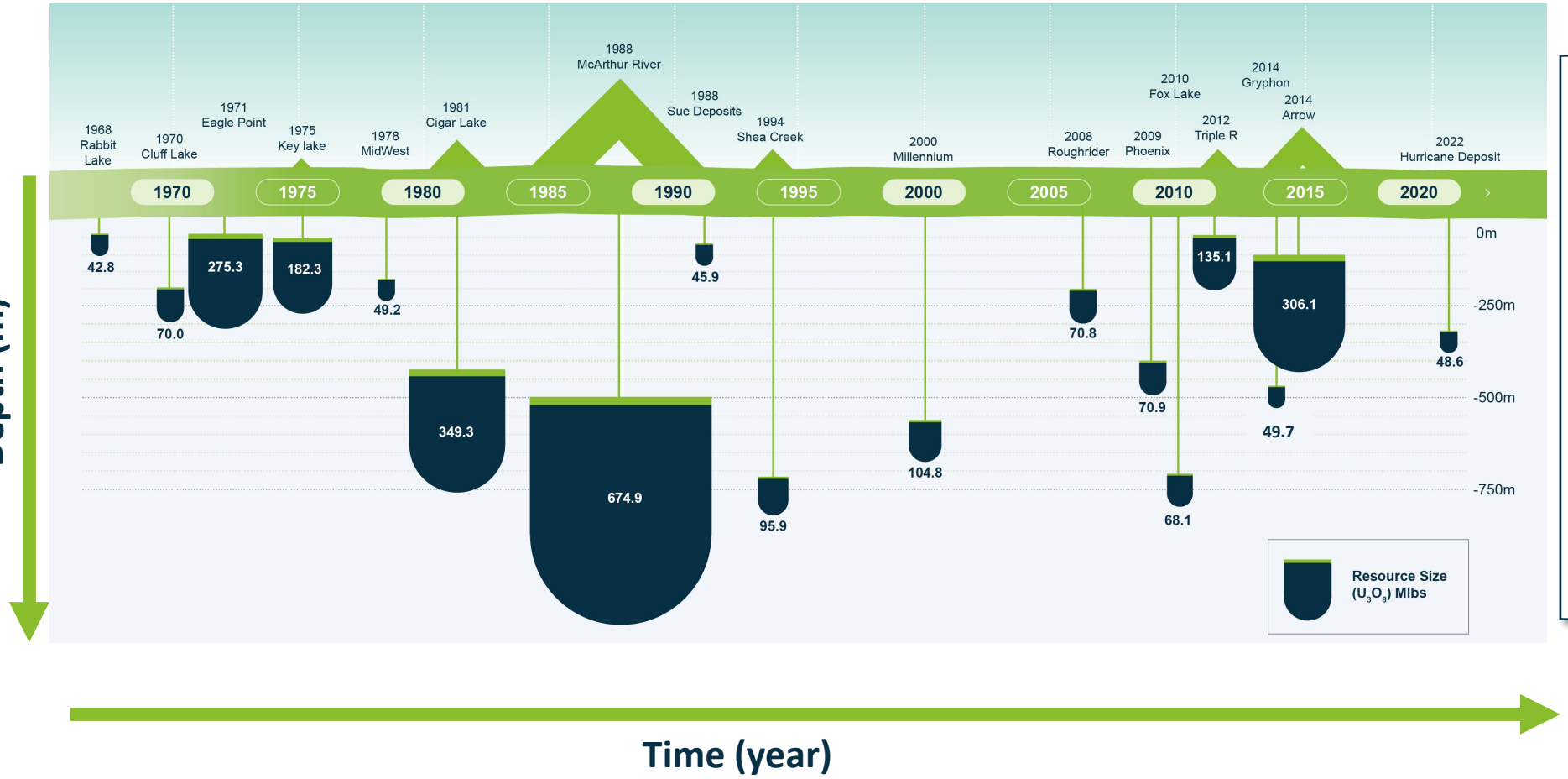
Athabasca Basin – discovery successes



Additional recent exploration success includes

- 92 Energy's Gemini discovery[1] **43m @ 0.6% U_3O_8** (incl. 6m @ 2.2% U_3O_8)
- Baselode's ACKIO discovery[2] **31.0m @ 0.9% U_3O_8**
- CanAlaska/Cameco McArthur West Discovery[3] **9m @ 2.6% U3O8**

Data in image from: *IAEA Technical document 1857, Unconformity-related uranium deposits, refer to disclaimer*
IsoEnergy TSX announcement, 18/07/2022, Initial Mineral Resource Estimate, inferred and indicated.
92Energy ASX announcement, 25/08/2022, High-grade uranium confirmed at GMZ including 6.0m of 2.17% U_3O_8
Baselode Energy TSX announcement, 20/09/2022, Baselode Intersects Best Drill Hole To Date With 0.90% U3O8 Over 31.0 Metres Starting at 69.3 m True Vertical
CanAlaska TSX-V announcement, 22/10/2022, CanAlaska Confirms High-Grade Uranium Mineralization in New Uranium Zone at West McArthur

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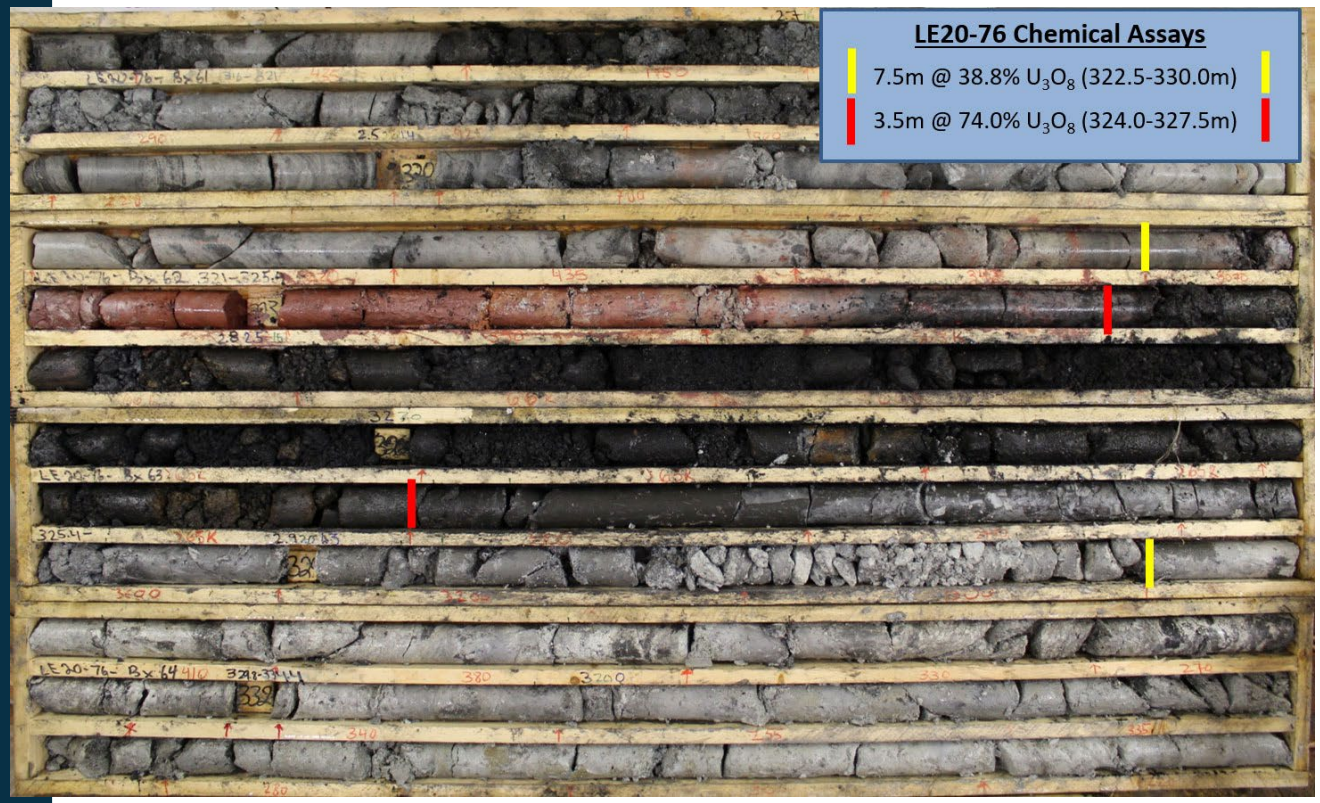
High-Grade Uranium

Unconformity style HG Uranium Mineralisation

Hurricane Deposit (disc. in 2018 by IsoEnergy)

48.6 Mlb U_3O_8 at 34.5%



Basement-hosted HG Uranium Mineralisation

Left: Arrow deposit (disc. in 2014 by NexGen)

306.1 Mlb U_3O_8 at 4.62%

Right: Gryphon deposit (disc. in 2014 by Denison)

43 Mlb U_3O_8 at 2.3%

Sources: *IAEA Technical document 1857, Unconformity-related uranium deposits*
IsoEnergy TSX announcement, 18/07/2022, Initial Mineral Resource Estimate, inferred and indicated.
NexGen Presentation, Sykes et al., 2014, Arrow: A New High-Grade Uranium Discovery In An Emerging District (Saskatchewan Geological Open House, 3 December 2014)

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Revisiting Exploration Models to Find Deposits of the Future

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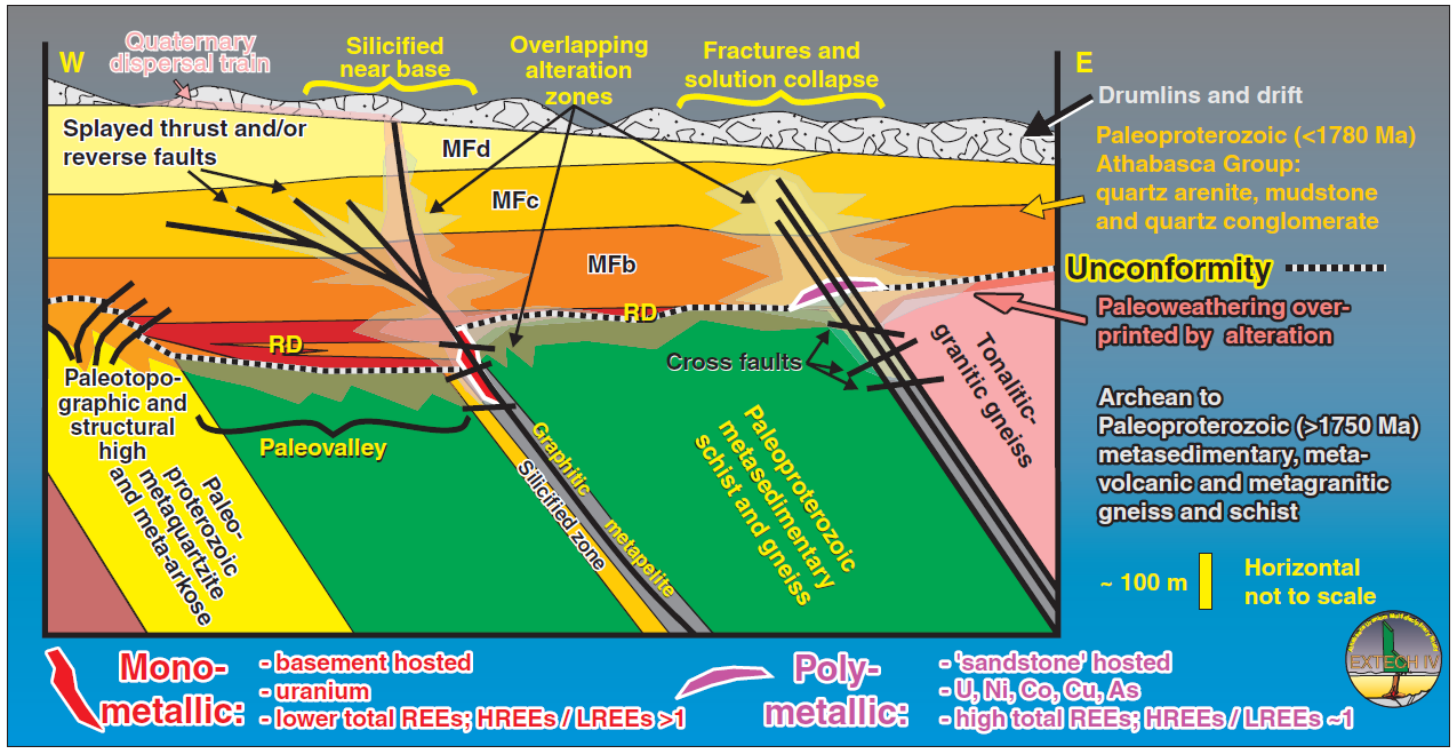
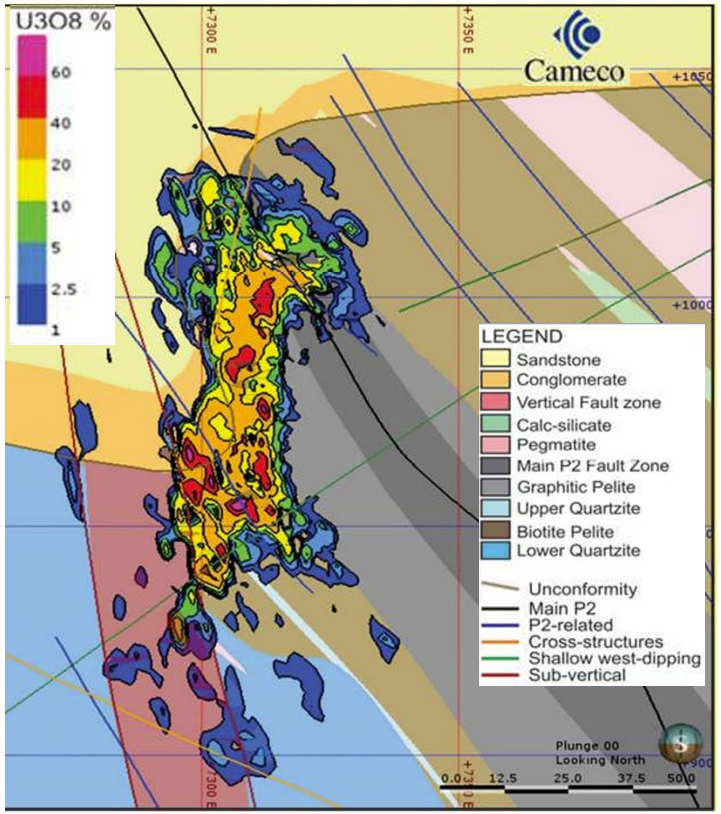
Classic Athabasca Exploration Model

- **Targeting basement conductor** within preferred geological and structural settings vectored through **data layering** including geophysical parameters.
- Drill testing to evaluate the potential for **"egress" or "ingress" style mineralisation**



McArthur River type section



Sources: *EXTECH IV - Geology and uranium EXploration TECHnology of the Proterozoic Athabasca Basin, Saskatchewan and Alberta / edited by C.W. Jefferson and G. Delaney.*
Cameco, 2018, NI 43-101 McArthur River Operation

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Athabasca Deposits Footprints

Arrow (306.1 Mlb U_3O_8 at 4.62%)*

** Including 209.6 Mlb Measured Mineral Resources at 4.35% U3O8*

McArthur River
(675 Mlb U_3O_8 at 17%)*

** 446.2 Mlb past production, 228.7 Mlb Proven and Probable*

Figure 14-2: Isometric View of the Wireframe Models (Looking North)

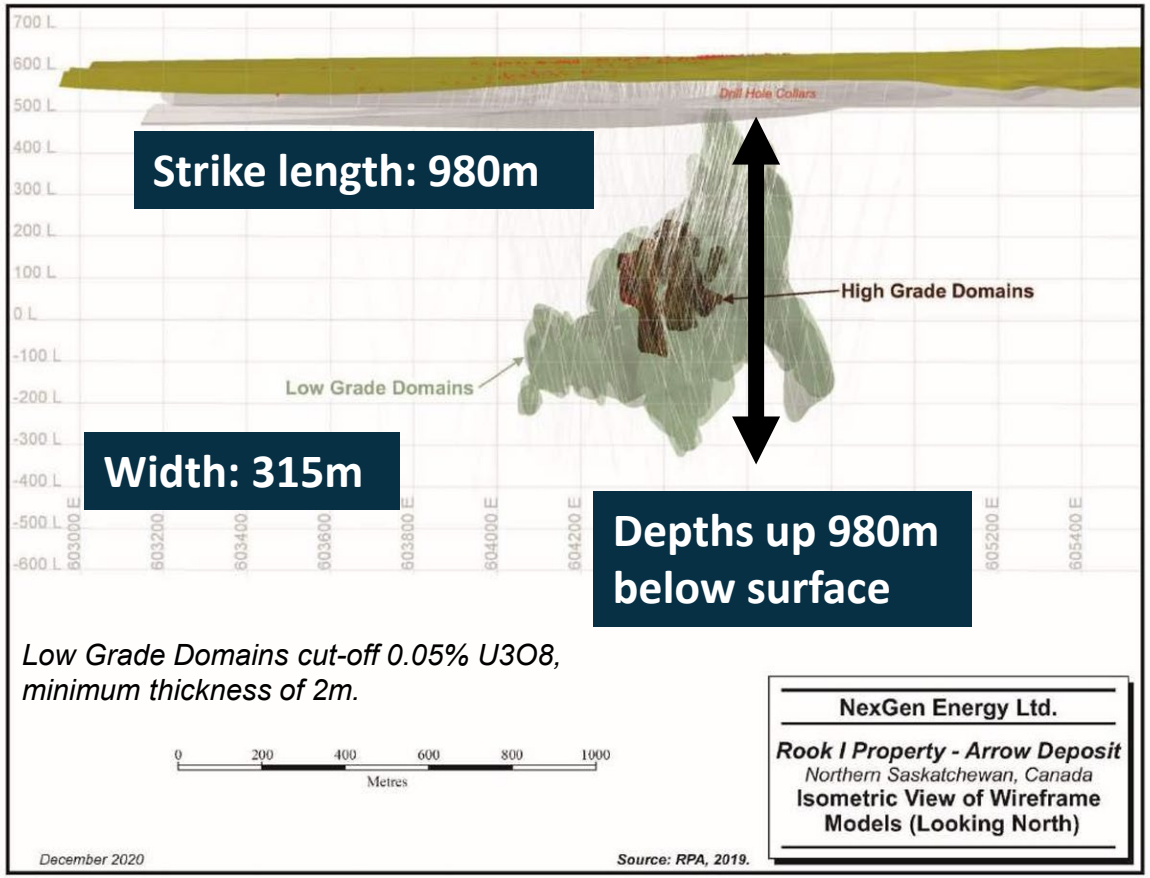
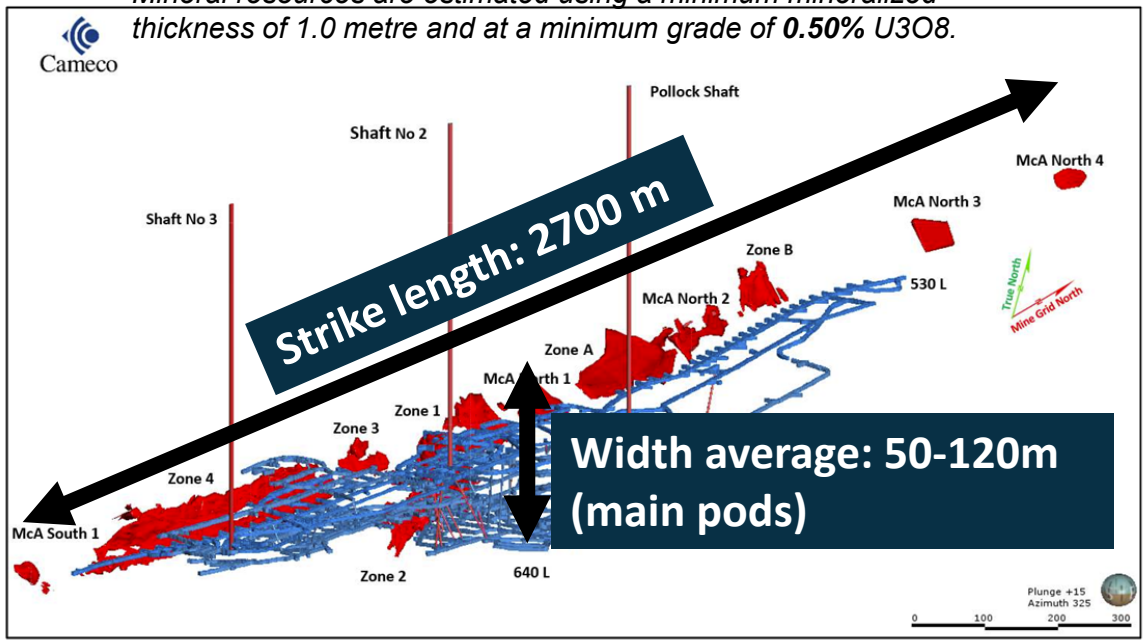


Figure 7-5: Orthogonal View of Underground Development and Mineralized Zones Looking Northwest

*Mineral resources are estimated using a minimum mineralized thickness of 1.0 metre and at a minimum grade of **0.50%** U3O8.*



Notes:

(1) Zone 4 includes Zone 4 South.

(2) Zones McA South 1, McA North 3 and McA North 4 are not reported as mineral resources.

(3) As of December 31, 2018.

Sources: *NexGen, 2018, NI 43-101 Rook 1 Property, Arrow deposit*
NexGen, 2021, NI 43-101 Rook 1 Property, Arrow deposit
Cameco, 2018, NI 43-101 McArthur River Operation

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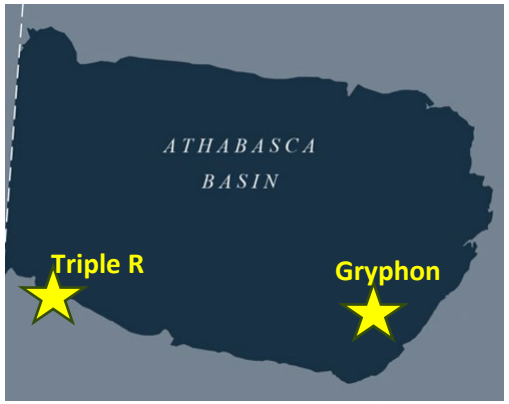
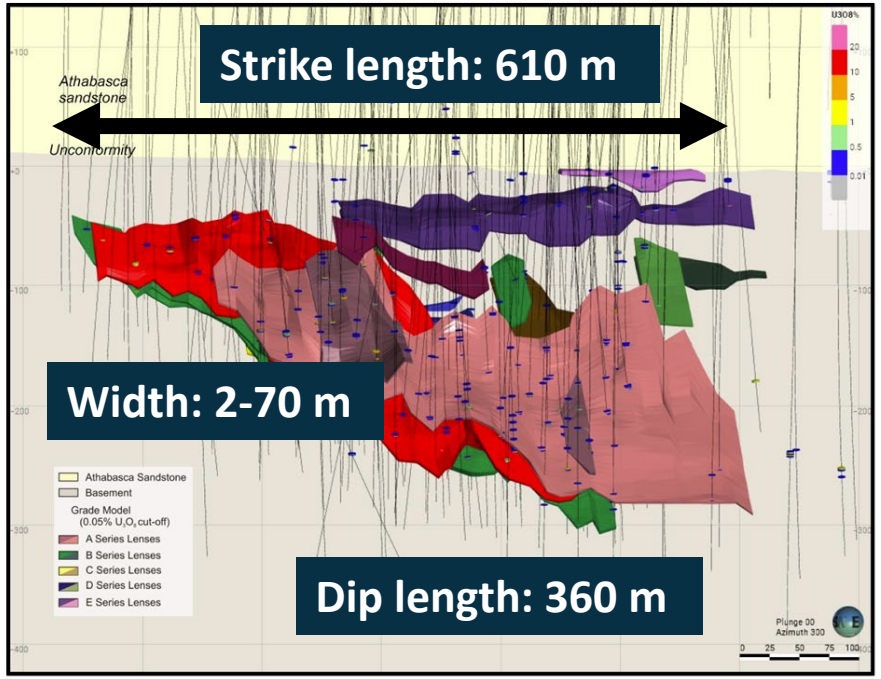
Basement Deposits Footprints



Gryphon (*49.7 Mlb U_3O_8 at 1.8%)***

** Probable Reserve*

Figure 7-17: 3D Isometric Longitudinal View of the Gryphon Deposit with Drill Hole Traces and %U_3O_8 Values



(Source, Denison, 2023)

Note: Mineralized wireframes using a 0.05% U_3O_8 cut-off and minimum thickness of 2 m.

Triple R (*135.1 Mlb U_3O_8 at 1.8%)***

**Including 93.7 Mlb U3O8 at 1.41% Probable Reserve*

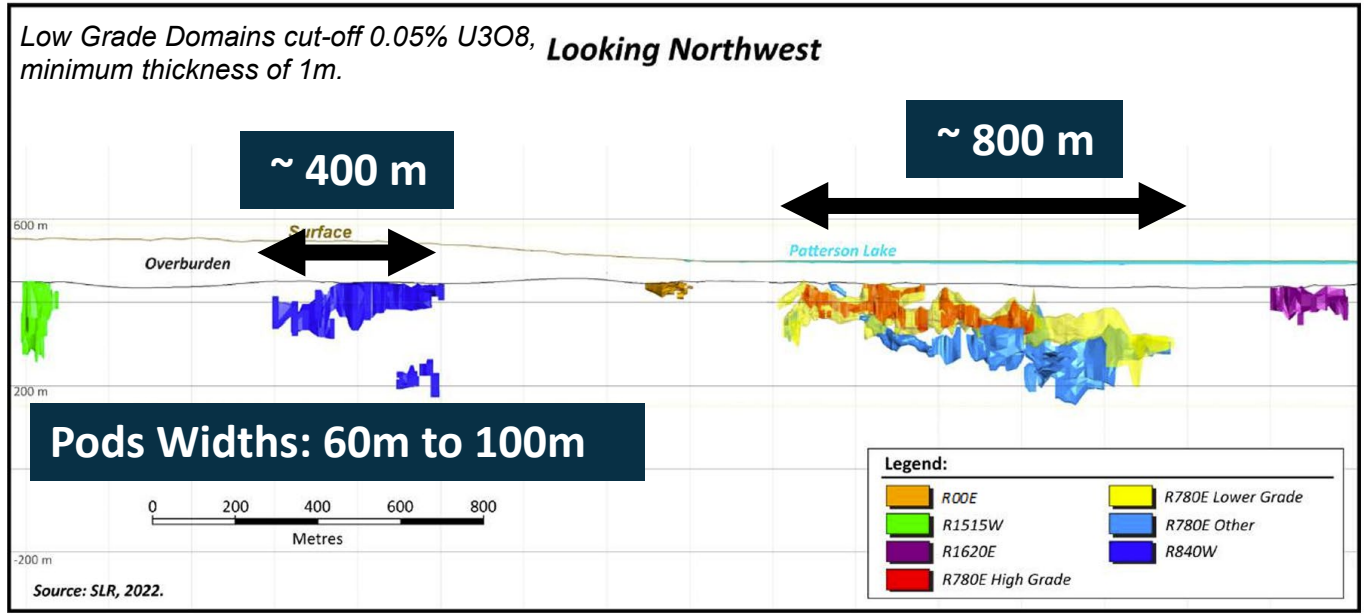


Figure 14-2: Wireframe Solids Longitudinal Section

Sources: *Denison, 2023, NI43-101 Wheeler River*
Fission, 2023, NI43-101 PLS Property

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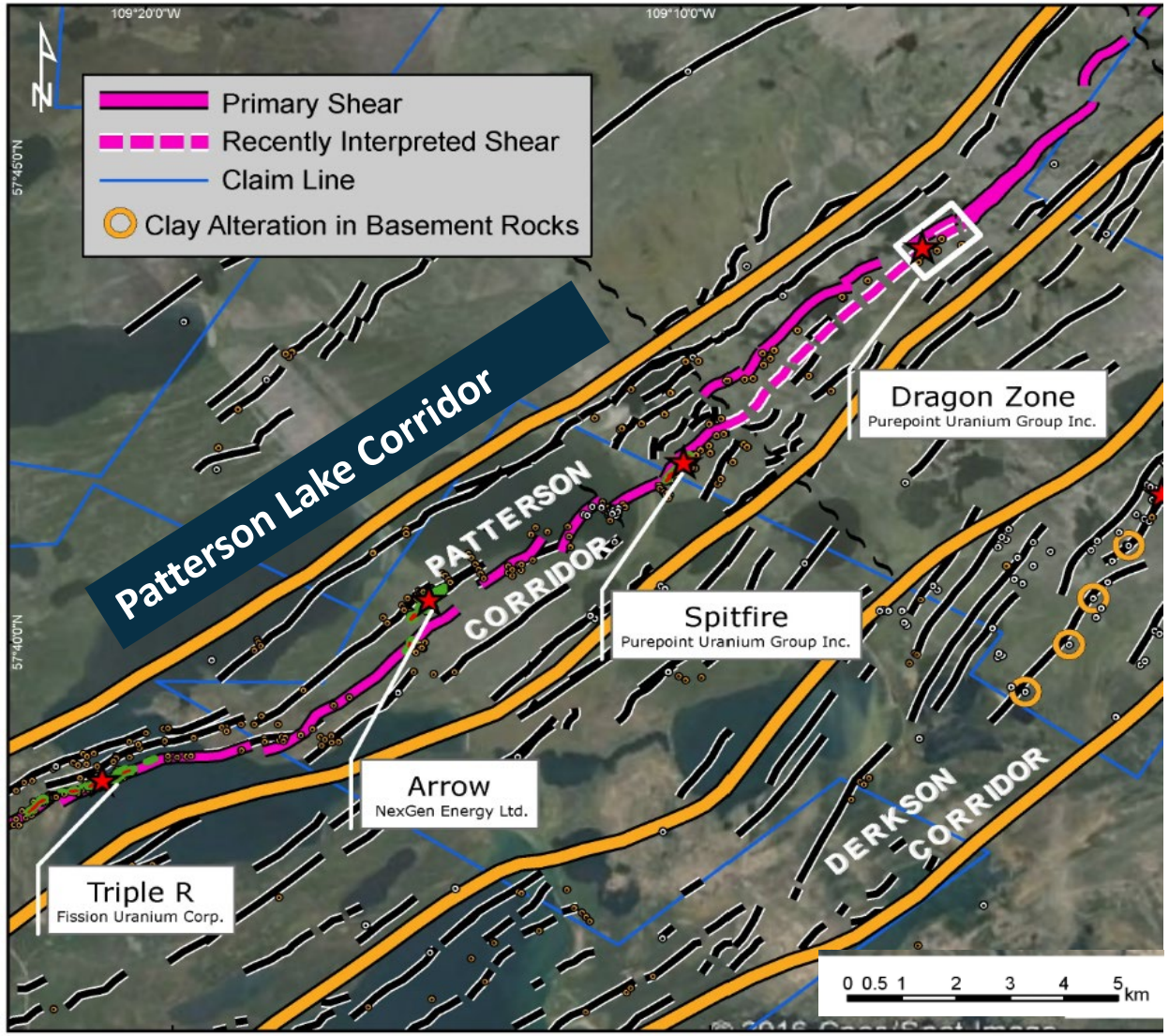
Lesson learned from discovery of Triple R and Arrow

- Basement-hosted high-grade mineralisation **hosted in orthogneisses of the Taltson Domain**
  - Different geology setting than Wollaston-Mudjatik metasediments hosting most of the Athabasca deposits
- Mineralisation is controlled by steeply dipping shear zones
- Very high grade of these discoveries, comparable to unconformity deposits
- The down dip extent of the mineralisation (~900m) mineralisation



Sources: *Adapted from Purepoint uranium Group*
https://purepoint.ca/projects/hook-lake/01-patterson-corridor-and-derkson-corridor-3/

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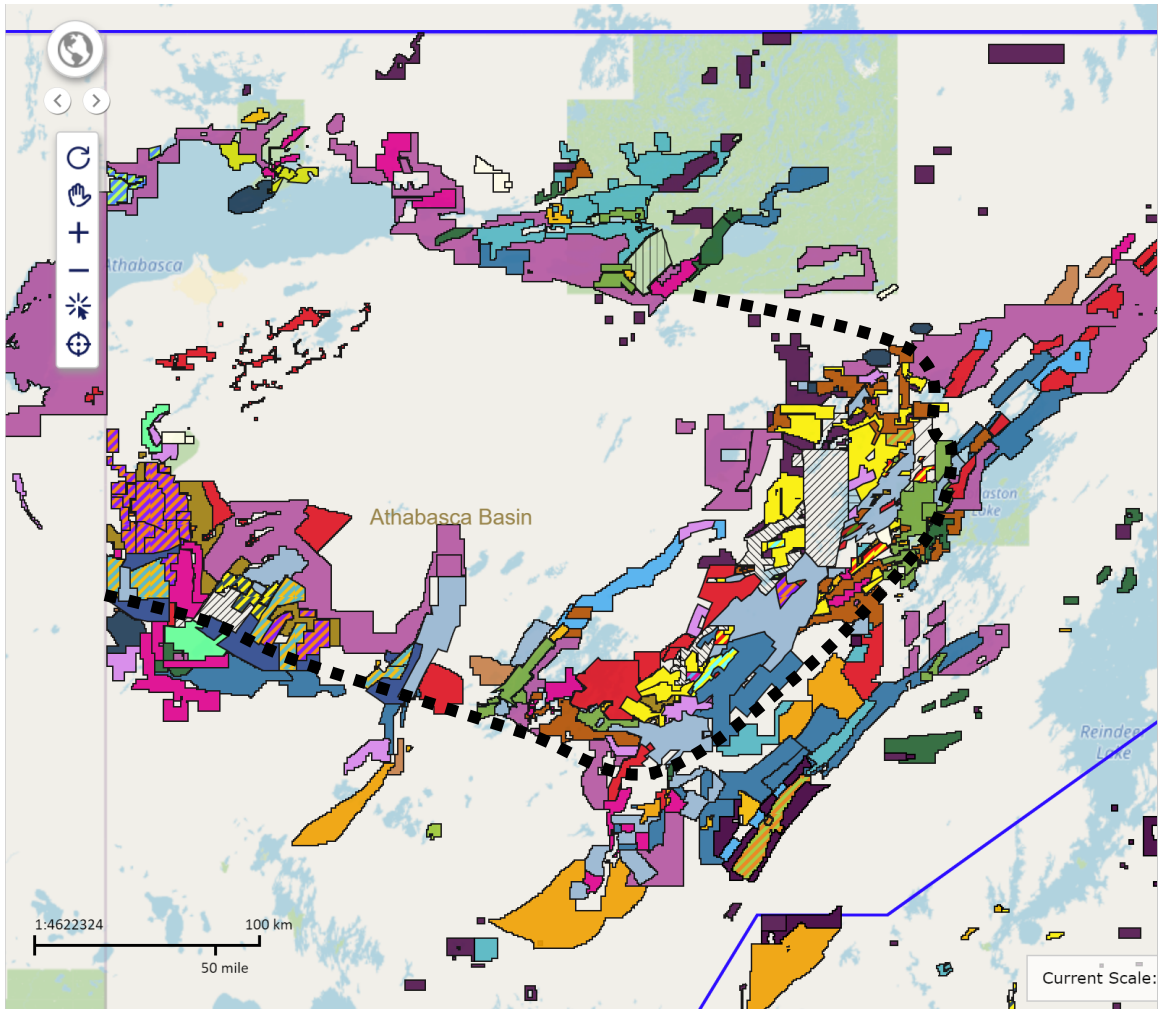
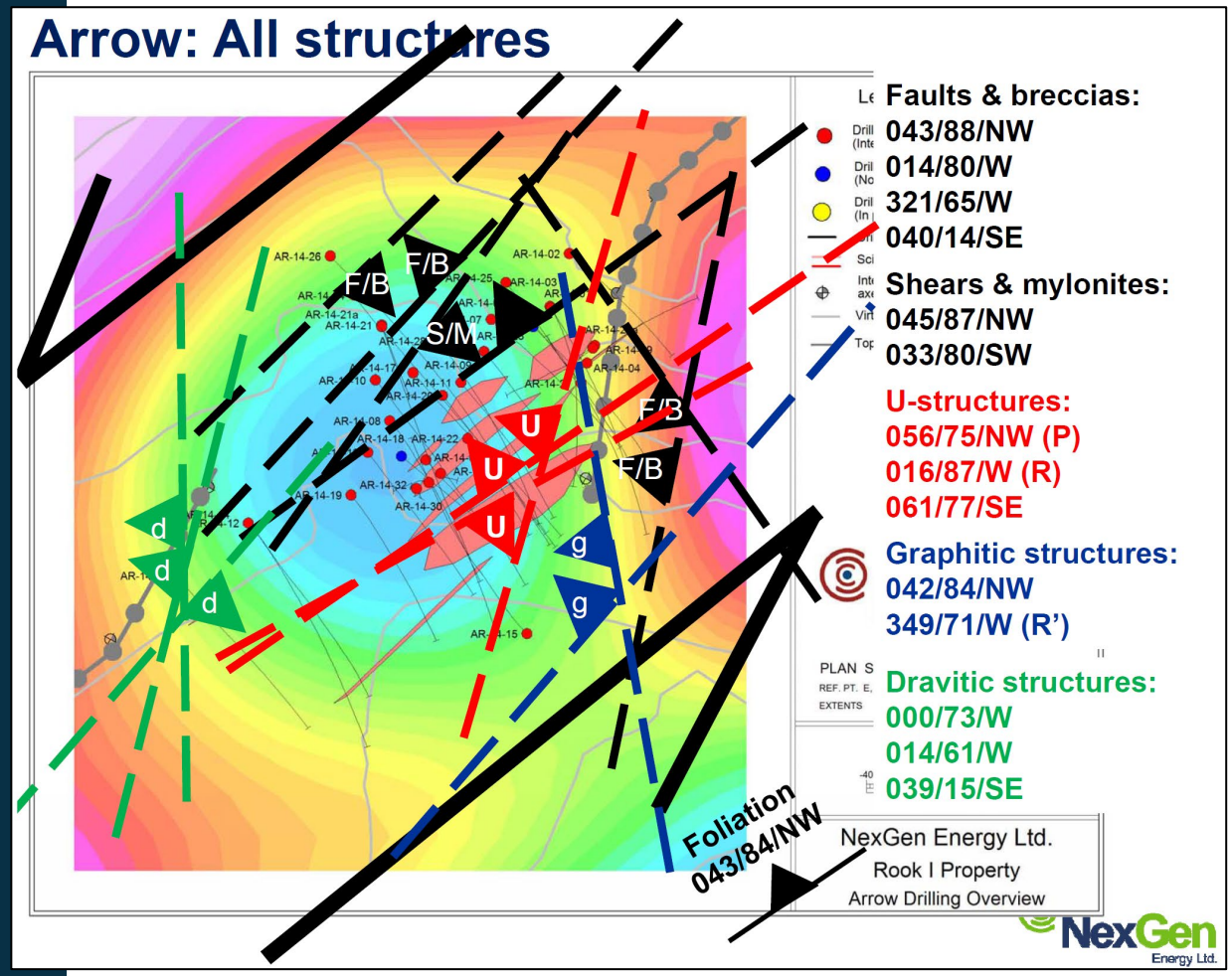
Exploration on the margin of the Athabasca Basin

- **Overlooked tenures** while the focus was on unconformity-style deposit exploration.
  - Historical base metal exploration common with transferrable geophysical datasets to U exploration.
- Erosion has reduced size and thickness of the present-day Athabasca basin.
  - Pure basement-hosted deposit and remnants (eroded) of basement hosted unconformity-related deposit scenarios
- **Industry's EM (graphitic) conductor drilling "skewed" focus**?
  - Downplay of graphite in recent studies as direct reducing agent for Umin and **emphasis on mechanical role of graphite** as "lubricatring agent" for fault formation/reactivation.
- **Faults** are a **primary exploration vector** as **mineralising fluid conduits** and **locus for fluid-rock interactions.**



DigiGeoData https://digigeodata.com/solutions/digigeomaps/

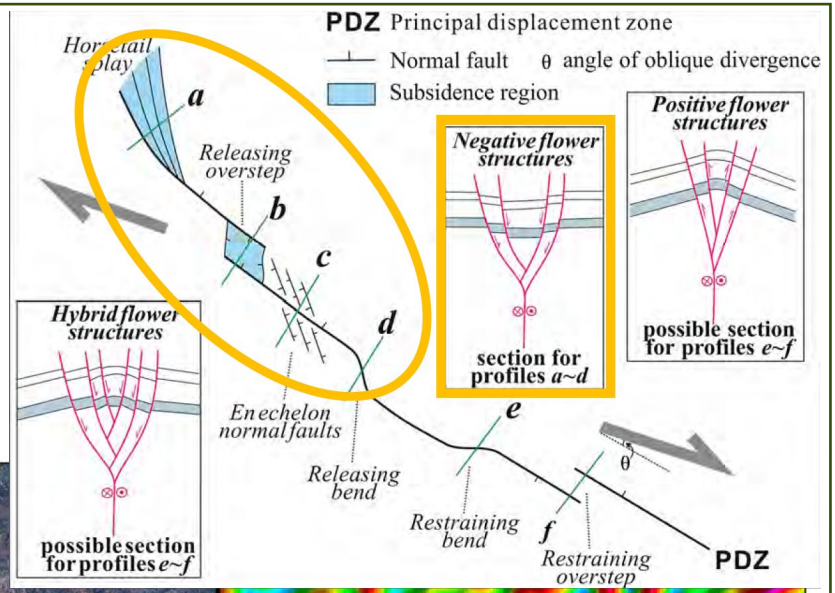
It's all about structures!

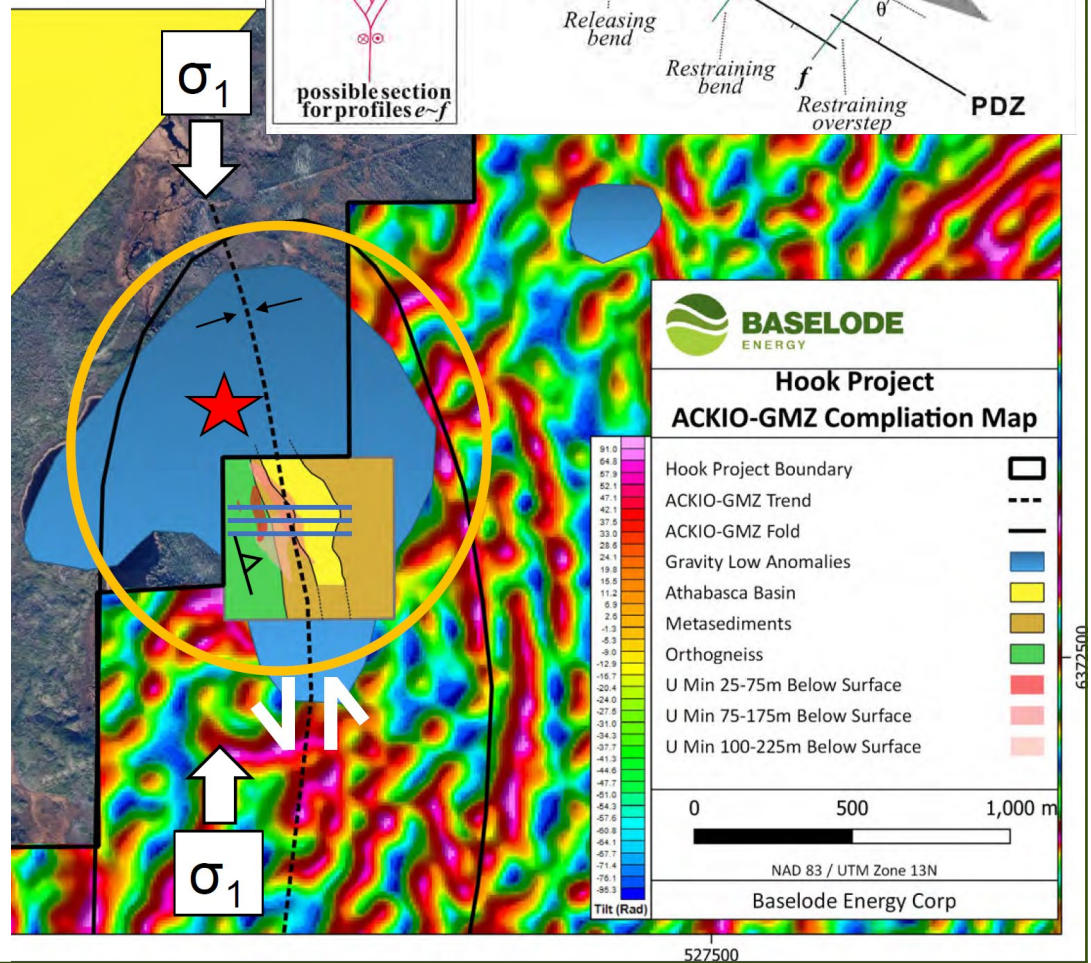


Source: NexGen Presentation, Browne A., 2015, The Arrow Uranium deposit (AusIMM Uranium Conference, Adelaide, 10 June 2015)

ACKIO-GMZ (Baselode Interpretation)

Source:
McKay C., 2022, Observations from the ACKIO uranium discovery (Saskatchewan Geological Open House Conference)





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Integrated Systematic Exploration Approach

Key Exploration Vectors for Basement Hosted Deposits

- Complex structural systems
- Lithology rheology contrasts
- Basement alteration halos are what we expect to host uranium mineralisation: argilization, chlorite, dravite, secondary hematite.
- Graphite does not function as a direct reducing agent; mechanical role in fault formation/reactivation.

Appropriate Exploration methods

- Diligent regional historical assessment data compilation.
- Regional Geophysics – defining large-scale structures:
  - Airborne magnetics, airborne electromagnetics.
- Regional/Project surficial data – defining prospective areas of uranium-bearing fluids and hydrothermal alteration:
  - Airborne radiometrics, airborne gravity.
  - Prospecting, trenching. Collecting glacial ice-flows direction data.
  - Boulder or till sampling (geochemistry anomalies).
    - *Due to the significant glacial derived cover and wetlands in the region, surface geochemistry is not generally used as a primary exploration tool*
  - Lake sediment sampling, biological sampling.
- Project Ground Geophysics – narrow down large anomaly location if required
  - Ground gravity, fixed/moving loop EM, MT, seismic.
- Drill Testing
  - Test geophysical models: fail, success, false positive?
  - Integrated geology interpretation and reevaluate exploration model (understanding of area)

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Geikie Project

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Geikie Project Overview

Shallow exploration strategically located in proximity to recent high-grade, shallow uranium discoveries

Tenure

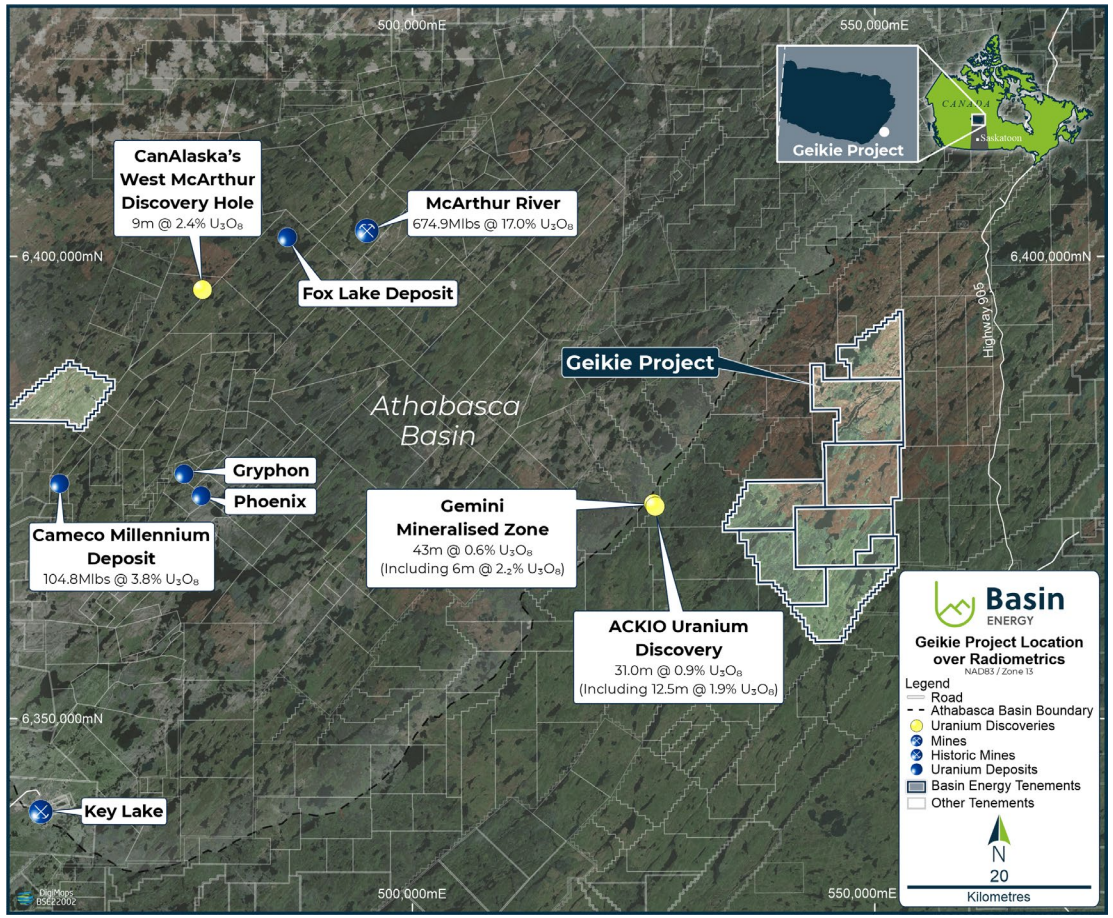
- 339km^2 landholding located 7km southeast of the present edge of the Athabasca Basin and 10km west of highway 905
- Adjacent to 92 Energy's Gemini discovery **43m @ 0.6% U_3O_8**[2] (incl 6m @ 2.2% U_30_8) & Baselode Energy's ACKIO discovery **31.0m @ 0.9% U_3O_8**[3]

Target

- Shallow Basement-hosted uranium mineralisation
  - i. Identify key geology and structure
  - ii. Presence of pathfinders
  - iii. Explorable depths

History

- Historical airborne and ground exploration completed between 1967 and 1980 targeting base metal mineralisation
- A central trend was identified with Cu and Mo showings surrounding Mud Lake; Mo is a key identifier for potential U_3O_8 mineralisation
- Several historical uranium showings occur on the property with grades as high as 0.225% U_3O_8 and 0.18% U_3O_8



1. *IAEA Technical document 1857, Unconformity-related uranium deposits*
2. *92Energy ASX announcement, 25/08/2022, High-grade uranium confirmed at GMZ including 6.0m of 2.17% U_3O_8*
3. *Baselode Energy TSX announcement, 20/09/2022, Baselode Intersects Best Drill Hole To Date With 0.90% U3O8 Over 31.0 Metres Starting at 69.3 m True Vertical*
4. *CanAlaska TSX-V announcement, 22/10/2022, CanAlaska Confirms High-Grade Uranium Mineralization in New Uranium Zone at West McArthur*

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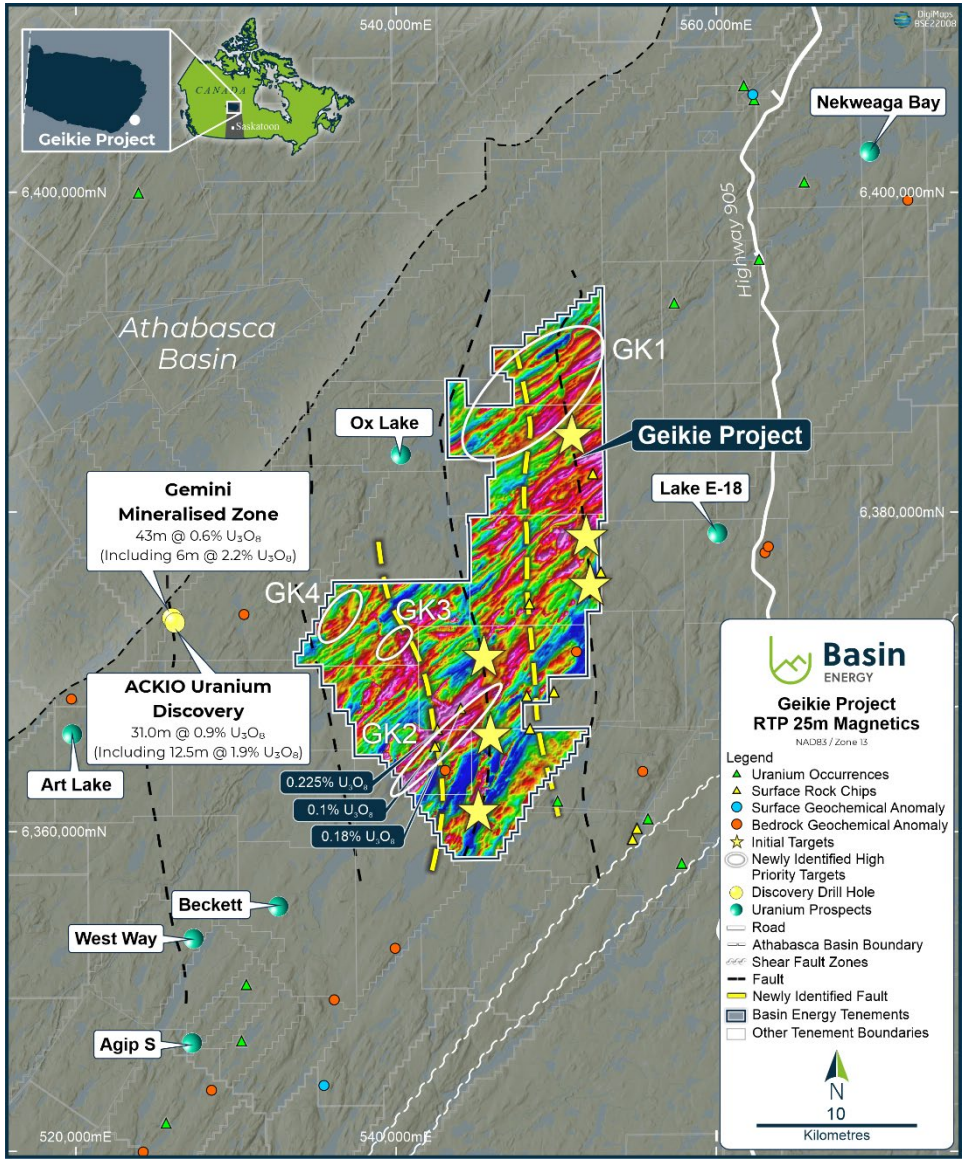
Integrated Systematic Exploration Approach

High resolution Airborne Magnetics and Radiometrics

- Identification of new major north-south trending structural corridors interpreted to be part of the Tabbernor Fault System.
- Four additional high priority targets identified, displaying significant geophysical anomalies at structural and lithological settings conducive for uranium mineralisation



Refer Basin Energy ASX release dated 13/10/2022 "Maiden geophysical survey defines multiple priority targets at Geikie"

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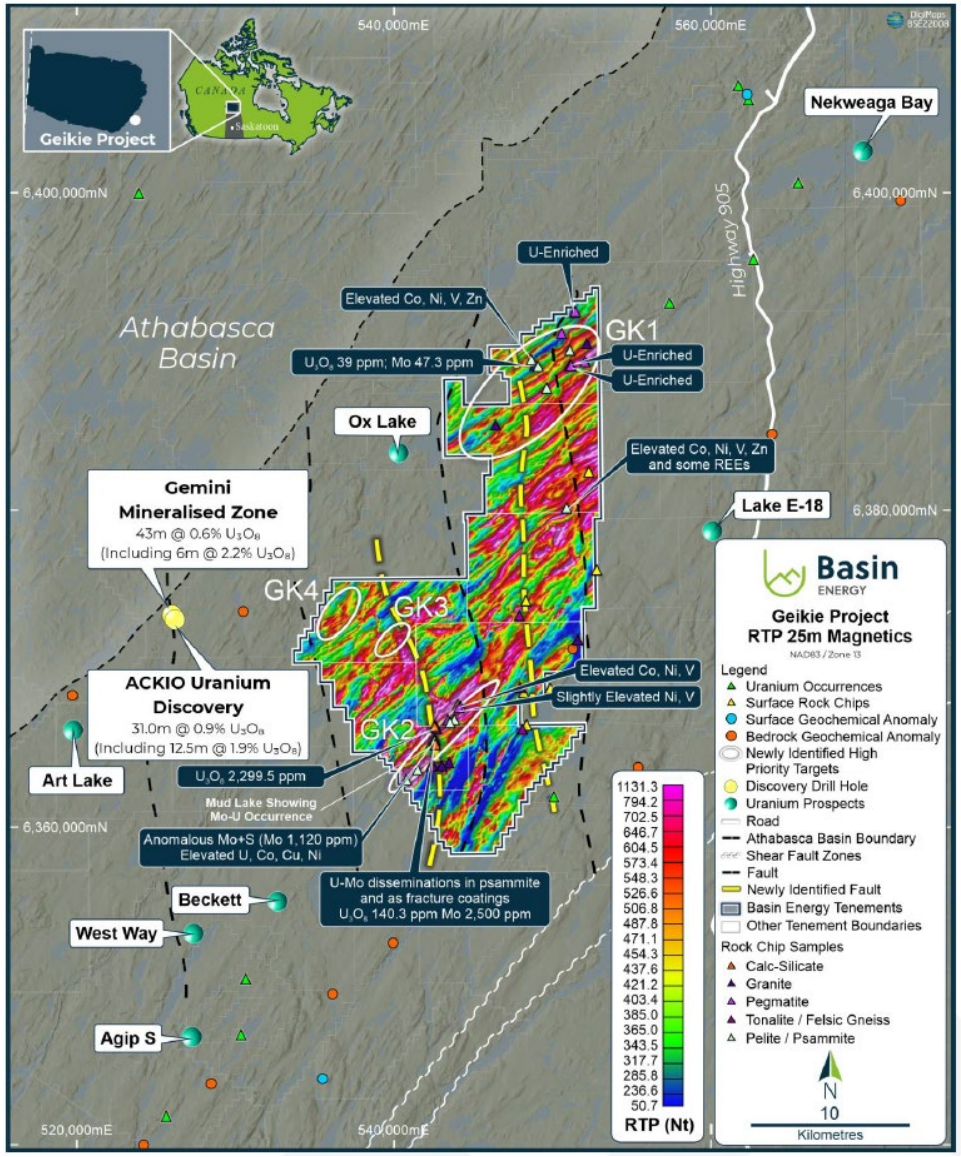
Ground Prospecting

- Investigate radiometric anomalies from Airborne Radiometric Survey
- Investigate historical uranium showings
- Acquire prospect-scale lithological/structural/geochemical data



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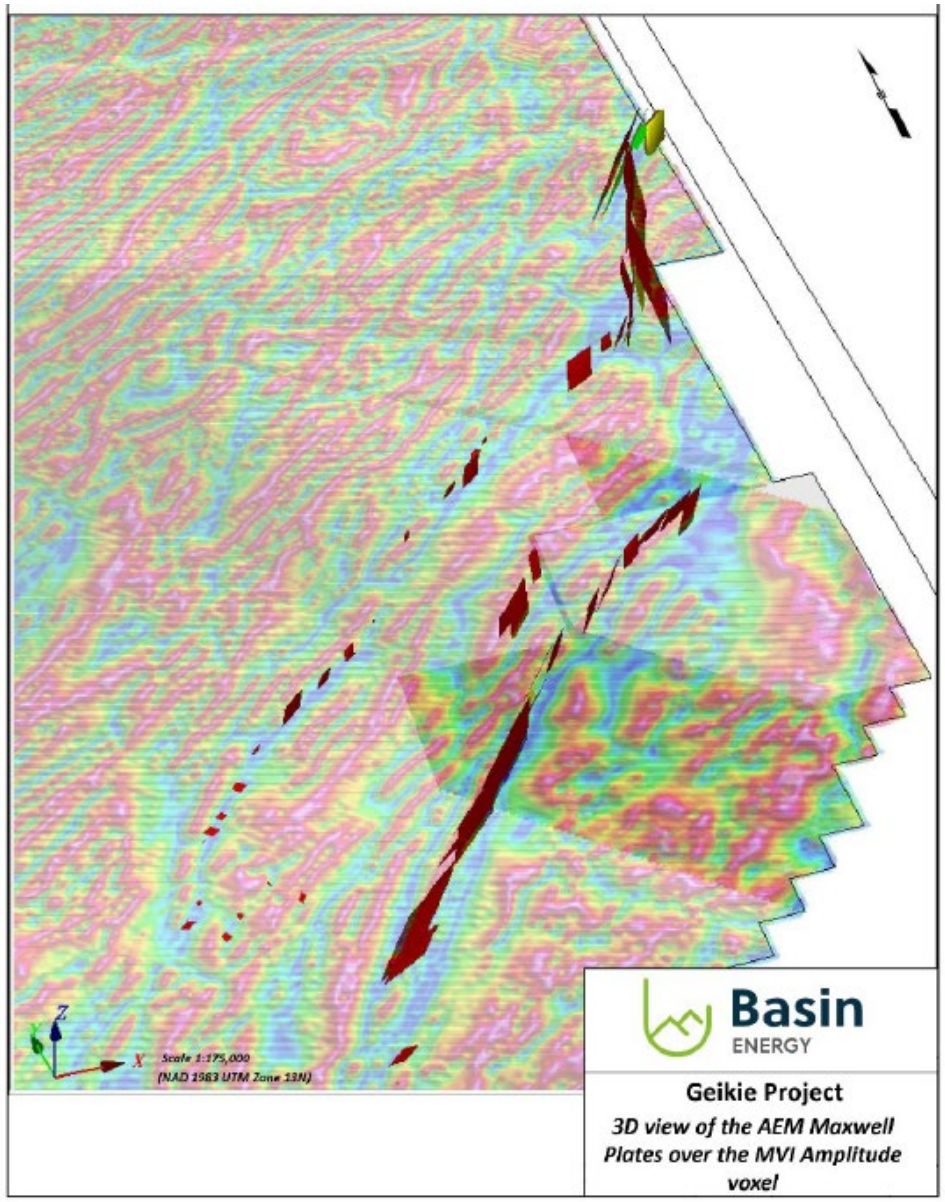
High-resolution Airborne Electromagnetic

- Identification of a regionally significant conductive trend.
- Identification of areas of structural complexity (clear conductor flexures and splays) coincident with interpreted Tabbernor Faults.
- 3D Maxwell Modelling of EM plates.
- Resistivity Depth Imaging



Refer Basin Energy ASX release dated 13/10/2022 "Maiden geophysical survey defines multiple priority targets at Geikie"
Refer Basin Energy ASX release dated 14/12/2022 "Airborne EM survey commence at Geikie"
Refer Basin Energy ASX release dated 08/03/2023 "Geophysical targets identified at Geikie"
Refer Basin Energy ASX release dated 31/05/2023 "Basin preprares for maiden drill program at Geikie"

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- 3D Maxwell Modelling of EM plates.
- Resistivity

First Pass Drilling

- ~2200m – 8 drillholes.
- Focus: targets along conductor trace where structural disruptions noted (conductor flexures and splays) and/or key magnetic structures are crosscutting the conductor.

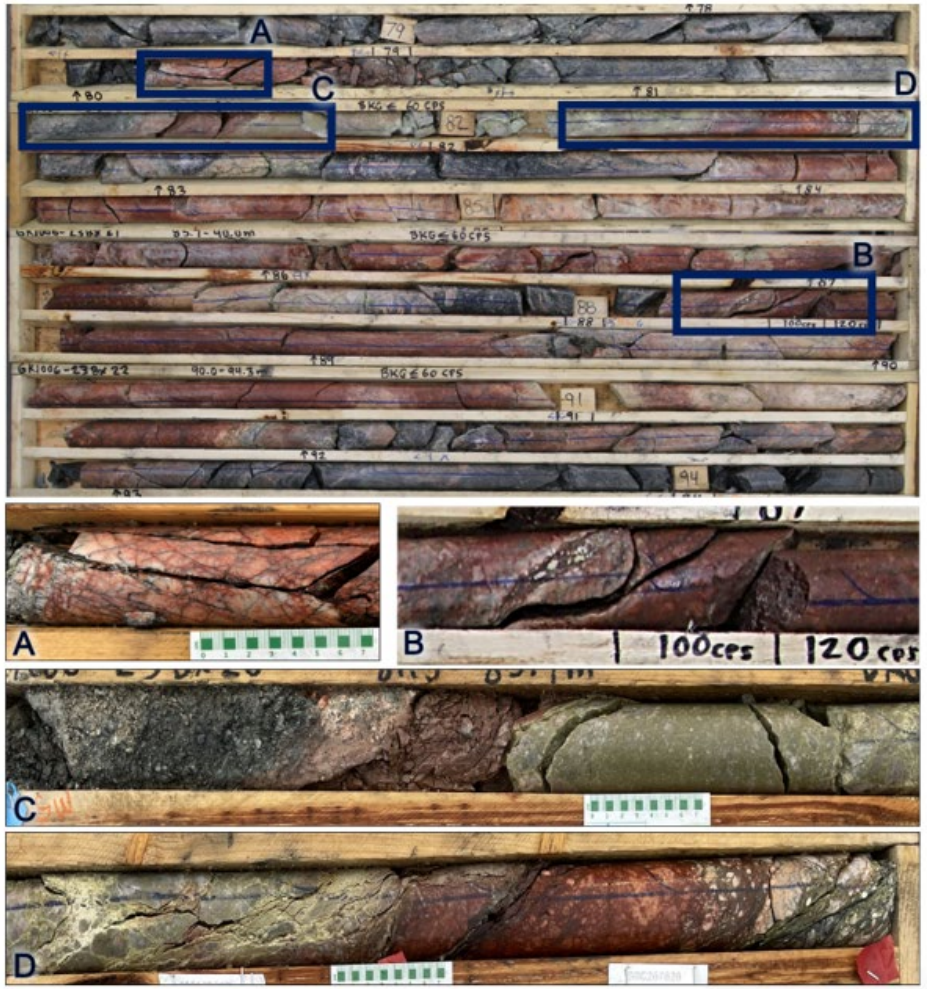

***Figure 3**: Photographs of alteration and deformation style intersected in a major faulted interval (shear zone) in drillhole GKI-006. A. Close-up of a hematised clast-supported crackle breccia with dark chlorite and hematite matrix. B. Close-up of strongly hematised fractured host rock with elevated CT-007-M scintillometer radiometry. Note the 3 cm-thick matrix-supported breccia exhibiting corroded clasts within a friable fine grained hematitic clay matrix. C. Close-up of a strongly altered cataclastic interval consisting of an incohesive gouge with dark grey to light grey clay matrix (left), an incohesive brick-red protobreccia (middle), and an indurated ultracataclasite zone with a sage green chloritic matrix (right). D. Close-up of continued strongly altered brecciated interval with brick red hematite noted overprinting the middle section of the photographed core and a later reactivation stage marked by a pale green-yellow clay matrix supporting chlorite-altered clasts.*

Refer Basin Energy ASX release dated 13/10/2022 "Maiden geophysical survey defines multiple priority targets at Geikie"
Refer Basin Energy ASX release dated 14/12/2022 "Airborne EM survey commence at Geikie"
Refer Basin Energy ASX release dated 08/03/2023 "Geophysical targets identified at Geikie"
Refer Basin Energy ASX release dated 31/05/2023 "Basin preprares for maiden drill program at Geikie"
Refer Basin Energy ASX release dated 20/09/2023 "Basin Energy Intersects Uranium Mineralisation up to 0.27% in Maiden Drilling at Geikie"
Refer Basin Energy ASX release dated 10/08/2023 "Elevated Radioactivity and Significant Hydrothermal Alteration Identified at Geikie"

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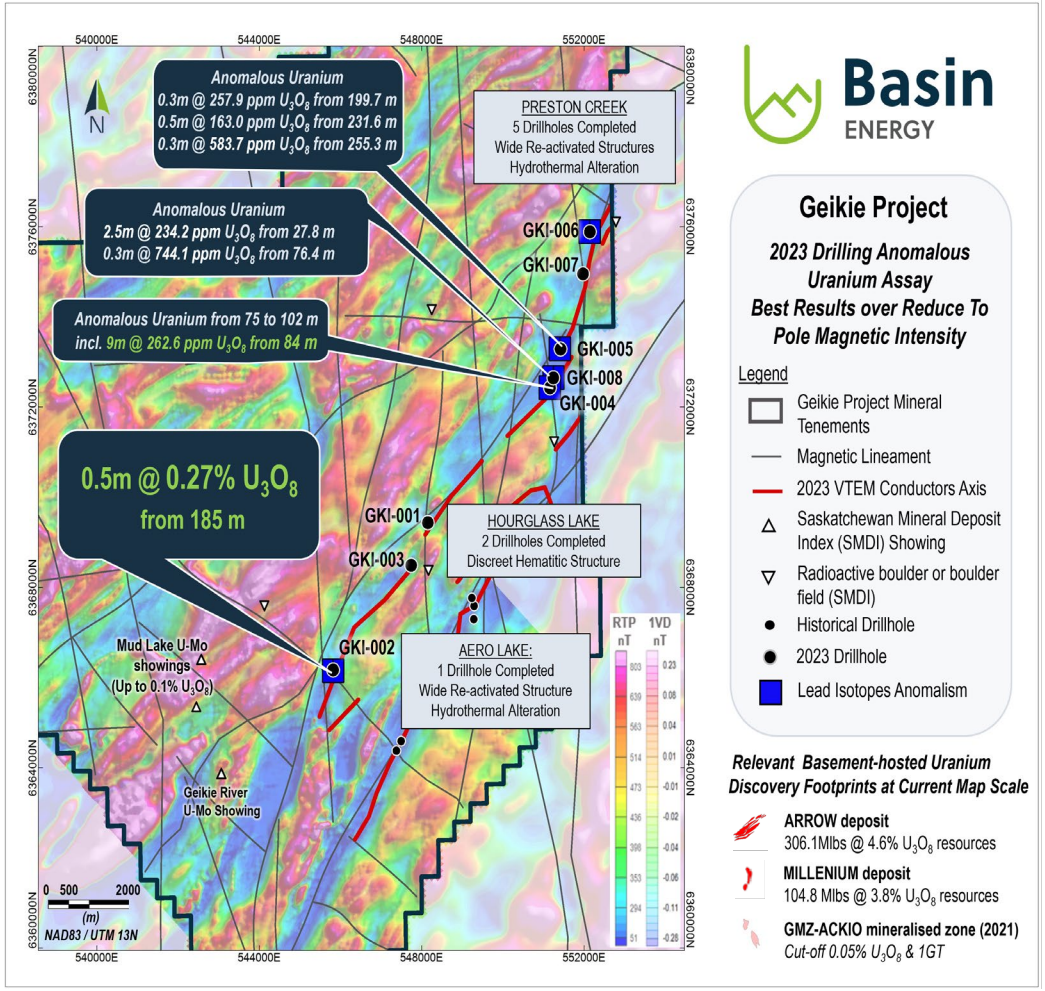
First pass drilling at Geikie

- Anomalous uranium was intersected in **4 of the 8 holes** drilled
  - Highest grade was **0.27%** U3O8 over 0.5 metres at Aero Lake
  - 263 ppm over 9 metres at Preston Creek
- **Pathfinder** elements for uranium mineralisation, specifically lead isotope anomalies were observed in **5** of the 8 holes
- **Scale** of structures and associated alteration hit
  - Big structures capable of moving a lot of fluid around and host a lot of mineral
  - Extensive alteration present to demonstrate that fluid has been active
  - Fertile uranium in the system demonstrated in assay results
- Gravity used to maximise effectiveness of drilling expenditure
  - Most cost-effective way to map alteration at this scale *(**it's a big project**, look at the footprints of the deposits shown on the map)*



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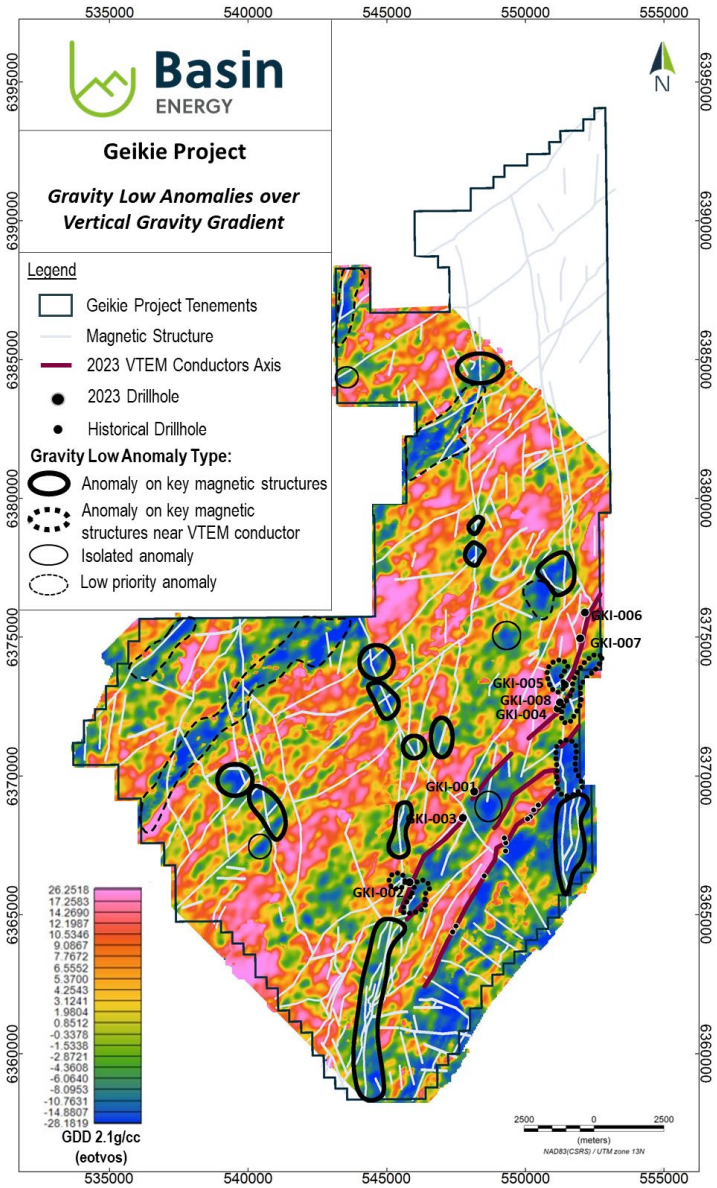
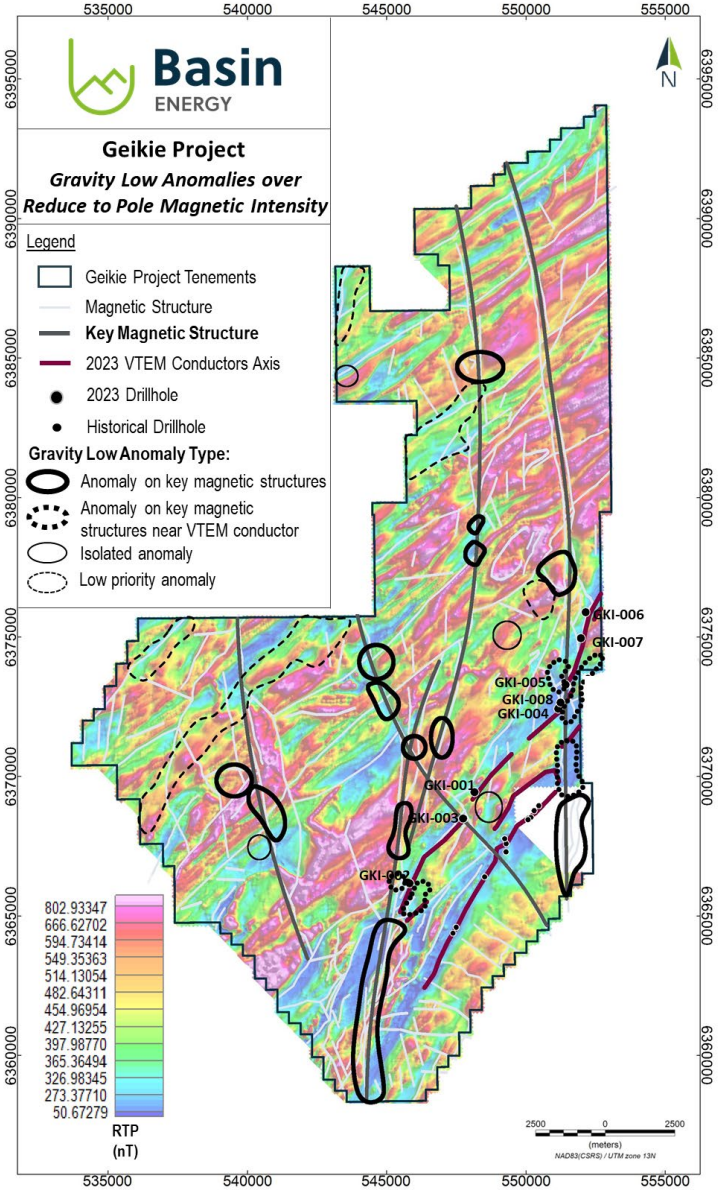
Airborne Gravity Survey

- Drilling identified significant alteration associated with structures at the Preston Creek and Aero Lake Prospects.
- Large gravity low anomalies identified coincident with key regional structures.
  - **Series of gravity anomalies identified, coincident with key north-south fault identified near drill hole GKI-002 which intercepted 0.27% U_3O_8**
- Preliminary modelling of gravity low anomalies supports interpretation of an active hydrothermal system adjacent to drilling prospects
- **Immediate follow-up drilling warranted** at Geikie for **Q1 2024**.





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Refer Basin Energy ASX release dated 15/11/2023 "Gravity Survey Identifies Significant Anomalies at the Geikie Uranium Project"

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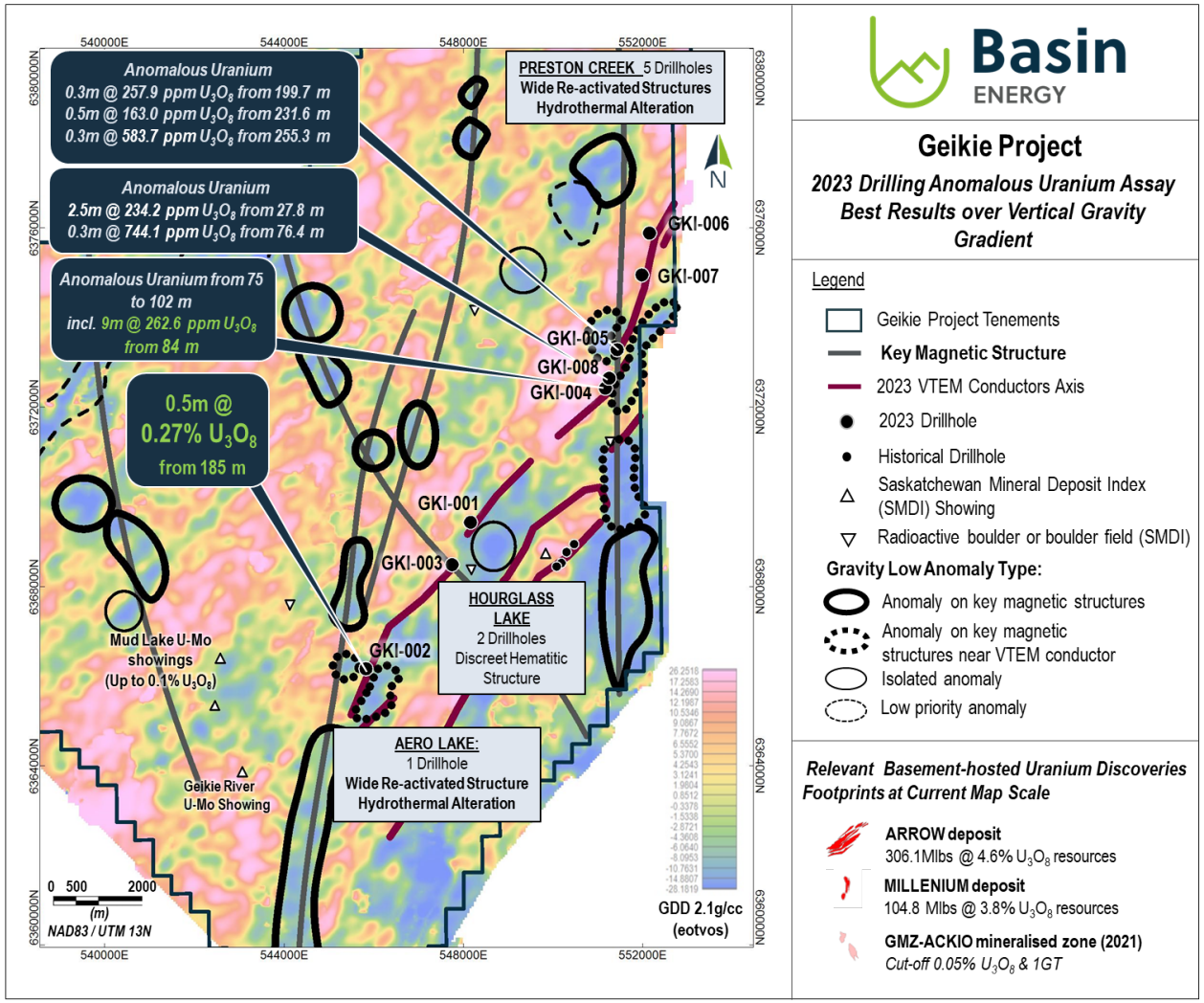
Airborne Gravity Survey

- Preliminary ranking of gravity anomalies:
  - **Gravity low on key magnetic structures**
  - **Gravity low on key magnetic structures adjacent to EM conductor**
  - Isolated gravity low anomaly
  - Low priority anomaly (require further investigation)

- Priority ranking of gravity targets for drill target generation subject to on-going modelling of gravity data.



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Geikie Project

High Quality Data Layering for Efficient Target Definition

Target: structural disruptions across EM conductors and/or gravity low anomalies

- Diligent Historical Assessment Reports Review
- Airborne Magnetics
- Airborne Radiometrics
- Ground Prospecting
- Airborne Electromagnetics
- First Pass Drilling
- Airborne Gravity Gradient

We have identified a significant system which requires careful systematic drill testing.

Next Steps: Follow up Drill Testing

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basinenergy.com.au

Pete Moorhouse

M: +61 (0) 7 3667 7449

E: pete.m@basinenergy.com.au

Odile Maufrais

M: +61 (0) 4 3465 9080

E: odile.m@basinenergy.com.au

Chloe Hayes

M: +61 (0) 4 5861 9317

E: chloe@janemorganmanagement.com.au

This presentation has been authorised for release by the Basin Energy Board