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**SUBJECT:** Duck Creek Uranium Project Resource Prognosis

# **Executive Summary**

WWC Engineering (WWC) was contracted by UNXE238 Corp. (UNXE238) to prepare a technical prognosis of the uranium deposits at the Duck Creek Uranium Project (Project) located in the Powder River Basin (PRB), Wyoming USA.

- Historical drilling completed by the Kerr-McGee Corporation (Kerr-McGee) in support of open pit mining, including 3,508 historical drill holes in the Wasatch Formation.
- Metal quantities have been estimated at the Project based on uranium intercept data from 1,492 historical Kerr-McGee drill holes with 23,136 uranium intercepts.
- Metal quantities are reported as a range with an upper and lower bound and are summarized on Table 1.
- Given the shallow historical drilling and the proximity to existing in-situ uranium mines that target mineralization in the deeper Fort Union Formation, significant upside potential exists for the Project.
- A National Instrument (NI) 43-101 technical report disclosing an exploration target will be released in Q2 2025.

Table 1. Duck Creek Uranium Project Metal Quantities Range

Upper Range							
Formation	Average Grade	Median GT	Area (ft²)	Tons (000s)	Uranium Metal Quantity (Mlbs U <sub>3</sub> O <sub>8</sub> )		
Wasatch	0.05	0.598 5,895,866		4,241	4.2		
Lower Range							
Formation	Average Grade	Minimum GT	Area (ft²)	Tons (000s)	Uranium Metal Quantity (Mlbs U <sub>3</sub> O <sub>8</sub> )		
Wasatch	0.05	0.201	5,895,866	4,241	1.4		

# Introduction

WWC has undertaken a technical prognosis of the uranium deposits at the Project in the PRB, Wyoming, USA. The results of this investigation are intended to determine the appropriate estimation methodology and assumptions and to prepare a range of potential metal quantities at the Project. Below are Project details, a data review and WWC's observations, an unclassified uranium prognosis identifying a range of metal quantities at the project, and recommendations for advancing the Project.

# **Project Details**

The Project is located in the Southern Powder River Basin Uranium Mining District. The Project consists of four State of Wyoming leases held by UNXE238 covering approximately 2,560 acres of surface and mineral rights. The Project consists of Sections 15, 16, 21, and 28 of T37N, R73W.

Data provided by UNXE238 included:

- Kerr-McGee shallow ore intercept data sheets,
- GIS data digitized from historical Kerr-McGee maps, and
- Excel intercept tables based on Kerr-McGee data sheets and maps,

Over 3,500 drill holes have been drilled in the Project area targeting shallow mineralization in the Eocene age Wasatch Formation. The 1,492 historical drill holes with known coordinates, uranium intercept grade, intercept thickness data, and depth are the basis for this analysis. Numerous shallow open pit mines were operated in and around the Project which have since been closed and reclaimed.

Since the purpose of this prognosis is to identify metal quantities and is not a classified mineral resource under NI 43-101 guidelines, the historical information has not been independently verified. The potential quantity and grade at the Project is conceptual in nature and there is insufficient data to estimate a mineral resource and it is uncertain if further exploration will result in the estimation of a mineral resource.

# Data and Mapping Review

Historical exploration data provided by UNXE238 were reviewed by WWC. These data included shallow ore intercept data sheets from drilling, Excel intercept tables based on historical Kerr-McGee data and GIS files providing, drill hole locations, grade data, and digitized maps.

## Geology and Deposit Type

The Project is located in the southern portion of the PRB. Underlying this area are thick sections of the Paleocene Fort Union Formation and Eocene Wasatch Formation. These Formations generally dip toward the east-northeast with shallow dip, typically between 1°-3°. Sandstones within the Wasatch Formation are the host rocks for the uranium deposits at the Project.

Uranium mineralization in the Project area is typical of Wyoming roll-front sandstone deposits in the PRB. The formation of roll-front deposits is largely a groundwater process that occurs when uranium-rich, oxygenated groundwater interacts with a reducing environment in the subsurface and precipitates uranium.

## **Adjacent Properties**

The Allemand-Ross Project owned by Uranium Energy Corp. (UEC) and the Reynolds Ranch Satellite to Cameco's Smith Ranch-Highland Mine are adjacent to the Project. Table 2 summarizes publicly available resource data from these projects.

Table 2. Adjacent Properties

Project	Owner	Measured Resources		Indicated Resources		Inferred Resources		Total	
		Grade (%U₃O <sub>8</sub> )	MLbs U <sub>3</sub> O <sub>8</sub>	Grade (%U₃O <sub>8</sub> )	MLbs U <sub>3</sub> O <sub>8</sub>	Grade (%U₃O <sub>8</sub> )	MLbs U <sub>3</sub> O <sub>8</sub>	Avg Grade (%U₃Oଃ)	Mlbs U₃O <sub>8</sub>
Allemand- Ross	UEC	0.09%	0.4	0.07%	0.04	0.10%	2.5	0.10%	2.94
Smith Ranch - Highland	Cameco	0.10%	7.9	0.05%	17	0.05%	7.7	0.06%	36.2

Sources: UEC 2024, Cameco 2024.

WWC has not verified the information from the adjacent properties and this information is not necessarily indicative of the mineralization at the Project. The data presented above has been sourced from public information on the websites of the owners of the adjacent properties.

# **Duck Creek Uranium Project Uranium Prognosis**

The historical nature of the exploration data, the inability to verify the historical data, and the lack of geophysical logs limits preliminary resource calculations which may not meet industry standard estimation procedures. This preliminary uranium prognosis demonstrates the resource potential, and aids in directing further exploration efforts.

WWC estimates the potential resource as a range and is discussed in further detail below. Based on limited available data, UNXE238's Duck Creek Uranium Project potentially contains uranium metal quantities ranging from 1.4 to 4.2 million lbs.  $U_3O_8$ . The potential quantity and grade at the Project is conceptual in nature and there is insufficient data to estimate a mineral resource and it is uncertain if further exploration will result in the estimation of a mineral resource.

### **Assumptions**

The assumptions that are incorporated in this analysis are listed below:

- Historical data:
  - Historical intercept data sheets are accurate and were calculated properly.
  - Historical mapping is accurate.
  - Records of uranium production from historical surface mines on the Project are accurate.
- Geologic:

- The bulk density of the Project is 16.6 ft<sup>3</sup>/ton (120.5 lbs/ft<sup>3</sup>) based on test data from the neighboring Reynolds Ranch Project.
- A minimum grade-thickness (GT) of 0.201 was determined to be the lower cut-off GT in the estimate.
- A median cumulative GT of 0.598 was determined for the drill holes that exceeded a minimum cumulative GT of 0.2.
- Formation characteristics are uniform across the Project.

#### Estimate:

- Drill holes were filtered to remove any that had a cumulative GT of less than 0.2 or were further than 100 ft from another drill hole with a GT of greater than 0.2.
- Drill holes in Section 28 were not considered in the estimate due to the extent of historical mining in that section.
- A 50 ft buffer was applied to the remaining drill holes and that area was used as the basis for this estimate (Figure 1). This buffer size is an assumption, and the area of mineralization will need to be determined with additional exploration drilling.
- The lower estimate applied the minimum GT within the entire 50 ft buffer area.
- The upper estimate applied the median GT within the entire 50 ft buffer area.
- The average grade of the intercepts (0.05%) was applied to the reported historical tonnage mined (Table 3) to calculate and subtract the historical mining from this estimate.

Table 3. Historical Mines and Production

Section	Mine Name	Tons Mined	Pounds Mined at 0.05%
15	D-85	4,720	4,720
16	ML 151	359	359
21	Section 21	1,391	1,391
28	D-7	16,900	16,900
28-33	Mine 28-33	602,503	602,503
	Total	625,873	625,873

Source: Gregory et al. (2010)

#### Methods

Metal quantities were calculated for the Wasatch Formation.

Metal quantities were identified using the mineral outline method and were calculated using Equation 1.

$$lbs = \frac{GT \times Area \times 20}{TF}$$

 $lbs = U_3O_8$ 

GT = Median GT

Area = Area within buffer  $(ft^2)$ 

20 = Conversion factor (% to unit lbs & tons to lbs)

TF = Tonnage Factor ( $ft^3/ton$ )

These estimates are preliminary in nature, rely heavily on assumptions and it is uncertain if further exploration will result in the estimation of a mineral resource.

### **Conclusions and Recommendations**

### Significant Upside Potential

Based on the quality of the historical data, WWC finds that the Project merits additional exploration and analysis. Since the historical drilling was focused on shallow mineralization in the Wasatch Formation that could be surface mined, the average depth of the drill holes is 258 ft. Of the 15 drill holes that were drilled to 500 ft or deeper, no intercepts below 207 ft deep are present in the shallow ore intercept data sheets. The Fort Union Formation underlies the Wasatch Formation and contains significant quantities of uranium in the Southern PRB and the adjacent Reynolds Ranch Project targets mineralization in the Fort Union Formation. Given the shallow historical exploration along with presence of nearby ISR mines that target the Fort Union Formation, significant upside potential exists for the Project and could be identified through additional exploration drilling and logging, and trend mapping at the Project.

### **Next Steps**

WWC has several recommendations for future development and operations.

- Prepare a non-coal Drilling Notification (DN) required by the Wyoming Department of Environmental Quality/Land Quality Division (WDEQ/LQD) in order to explore by drilling.
- Verification drilling, geophysical logging, and prompt fission neutron (PFN) logging could confirm historical estimates, provide disequilibrium data, and allow conversion to classified resources.
- Complete exploration drilling in the Fort Union Formation to determine if additional mineralized zones are present.
- Water level data should be collected during exploration and verification drilling to determine which intervals are saturated.

 Core samples should be collected and tested in a laboratory setting to confirm the level of radiometric equilibrium unless prompt fission neutron logging is employed.

#### **Conclusions**

Based on limited available data, the exploration target for the Project is estimated to range from 1.4 to 4.2 million lbs  $U_3O_8$ .

As with all mineral exploration, there are risks associated with the Project. First, there is potential that further drilling will not confirm historical drilling results or reveal broad, consistent mineralized trends in the Fort Union Formation. Second, the estimates of historical mining may be low which would reduce the remaining uranium quantity at the Project. Third, the depth of the mineralization in the Wasatch Formation poses a risk to the eventual economic extraction of the uranium. As the average intercept depth is 111 feet, it is possible that it may not be below the water table which would preclude ISR as a mining method. A more expensive mining option may be required in an operational scenario.

The Project has a number of positive attributes. First, the historical exploration was well done and is extensive. Second, the potential that mineralization is present in the deeper Fort Union is supported by the nearby advanced projects in the area. Third, the Project lies in Wyoming where regulatory risk is low, and exploration authorization is expected. Third, the Project lies on State of Wyoming leases which reduce boundaries to surface access and additional exploration.

#### References

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