

## ATTACHMENT 42

NI 43-101 Technical Report Mineral Resource Report Gas Hills Uranium Project Fremont and  
Natrona Counties, Wyoming, USA (May 2021 PEA)

**NI 43-101 Technical Report  
Mineral Resource Report  
Gas Hills Uranium Project  
Fremont and Natrona Counties, Wyoming, USA**

**Effective Date: March 29, 2021**

**Report Date: May 10, 2021**



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## 1.0 EXECUTIVE SUMMARY

This report titled “NI 43-101 TECHNICAL REPORT, MINERAL RESOURCE REPORT, GAS HILLS URANIUM PROJECT, FREMONT AND NATRONA COUNTIES, WYOMING, USA” (the “Report”) was prepared in accordance with National Instrument 43-101, Standards of Disclosure for Mineral Projects (“NI 43-101 Standards”). The Mineral Resources are in accordance with Canadian Institute of Mining, Metallurgy, and Petroleum Definition Standards Mineral Resources and Mineral Reserves, May 10, 2014 (“CIM Definition Standards”). The effective date of the Mineral Resources is March 29, 2021.

The Gas Hills Uranium Project (the “Project”) is owned by UColo Exploration Corp. (“UColo”), a Utah corporation, and a wholly owned subsidiary of URZ Energy Corp. (“URZ”). URZ is a wholly owned subsidiary of Azarga Uranium Corp. (“Azarga”).

This Report was prepared as an update to the previous resource estimate titled “AMENDED AND RESTATED, GAS HILLS URANIUM PROJECT, MINERAL RESOURCE AND EXPLORATION TARGET NI 43-101 TECHNICAL REPORT, FREMONT AND NATRONA COUNTIES, WYOMING, USA” dated effective June 9, 2017. This new estimate is based upon a reinterpretation of the existing data and inclusion of an expanded data set with refinement intended to evaluate in situ recovery (“ISR”) potential of resources as well as conventional open pit methods. This Report provides estimates of Mineral Resources for five areas of mineralization within the Project named by Azarga as the Western Unit, Central Unit, Rock Hill, South Black Mountain, and Jeep.

Between 1953 and 1988 many companies explored, developed, and produced uranium in the Gas Hills, including on lands now controlled by Azarga. Three uranium mills operated in the district and two others nearby were also fed by ore mined from Gas Hills. Cumulative production from the Gas Hills is in excess of 100 million pounds of uranium, mainly from open-pit mining, but also from underground mining and ISR. (Beahm, 2017)

Available data utilized in this Report includes pre-2007 exploration and production on Azarga’s Gas Hills Uranium Project, and drilling completed by a previous owner, Strathmore Minerals Corporation, from 2007 to June 2013. In August 2013, Strathmore Minerals Corporation was acquired by Energy Fuels, who subsequently sold the Project to URZ in October 2016. Azarga acquired the Project when it merged with URZ in July 2018.

Data sources for the estimation of uranium mineral resources for the Project include radiometric equivalent data ( $eU_3O_8$ ) for 4,569 drill holes, and  $eU_3O_8$  and Prompt Fission Neutron (“PFN”) logging data for 272 drill holes. The intent of recent drilling between 2007 and 2013 included verification of earlier data for drill holes and exploration.

Metallurgical studies were completed on recovered materials including bulk samples from reverse circulation drilling and cored sections. Bottle roll and column leach tests indicate uranium



recoveries of ~90% and sulfuric acid consumption of ~55 pounds per ton treated, which is consistent with past mining results.

## 1.1 Mineral Resources

The mineral resource estimation method utilized in this Report is the Grade Thickness (“GT”) contour method. This method is considered appropriate for this type of deposit.

Mineral resources were estimated using a cutoff grade of 0.02% eU<sub>3</sub>O<sub>8</sub>. Estimated mineral resources are summarized in Table 1.1 using both 0.1 GT and 0.2 GT cutoffs. The 0.1 GT base case cutoffs were selected by meeting economic criteria for both ISR and open pit/heap leach methods differentiated on the relative location to the water table. Resources labeled “ISR” meet the criteria of being sufficiently below the water table to be amenable for extraction by ISR methods and as well as also meeting other hydrogeological criteria. “Non-ISR” resources include those generally above the natural water table, which would typically be mined using open pit methods.

**Table 1.1: Mineral Resource Summary**

March 29, 2021 (GT cutoff 0.10)					
	Pounds	Tons	Avg. Grade	Avg. Thickness	Avg. GT
Measured	2,051,065	993,928	0.103%	5.35	0.552
Indicated	8,714,126	6,031,224	0.072%	6.13	0.443
Inferred	490,072	514,393	0.048%	6.16	0.293
Total M&I	10,765,191	7,025,152	0.077%	6.05	0.463
March 29, 2021, ISR Only (GT cutoff 0.10)					
	Pounds	Tons	Avg. Grade	Avg. Thickness	Avg. GT
Measured	2,051,065	993,928	0.103%	5.35	0.552
Indicated	5,654,545	2,835,339	0.100%	4.92	0.491
Inferred	427,817	409,330	0.052%	5.94	0.310
Total M&I	7,705,610	3,829,267	0.101%	4.99	0.502
March 29, 2021, Non-ISR Only (GT cutoff 0.10)					
	Pounds	Tons	Avg. Grade	Avg. Thickness	Avg. GT
Indicated	3,059,581	3,195,885	0.048%	8.60	0.412
Inferred	62,256	105,063	0.030%	7.01	0.208
Total M&I	3,059,581	3,195,885	0.048%	8.60	0.412
March 29, 2021, ISR Only (GT cutoff 0.20)					
	Pounds	Tons	Avg. Grade	Avg. Thickness	Avg. GT
Measured	1,887,847	847,570	0.111%	5.94	0.661

Indicated	4,872,128	2,143,763	0.114%	5.74	0.653
Inferred	290,007	260,544	0.056%	8.44	0.470
Total M&I	6,759,975	2,991,333	0.113%	5.77	0.653

*Note: Mineral resources that are not mineral reserves do not have demonstrated economic viability.*

Additionally, 0.2 GT cutoffs were included for ISR resources for additional comparison purposes only as this is a typical uranium industry standard ISR cutoff. However, average grade of ISR resources in this estimate at a 0.1 GT cutoff compare favorably to other ISR projects in region, met economic criteria for ISR extraction, and thus is considered the base case for this Report.

Section 14.0 provides additional details regarding the determination of cutoff grade, GT cutoff, and the assessment of reasonable prospects for eventual economic extraction of the mineral resource.

## 1.2 Conclusions and Recommendations

The Project is in an area of extensive historical mining and the scale of ISR Mineral Resources determined by this Report indicate favorable conditions for future extraction from the Project.

The Author recommends that ISR Mineral Resources from this Report be used for development of a Preliminary Economic Assessment. With favorable economic results and marketing conditions, the Author would recommend that Azarga consider initiating Environmental Permitting of the Project, especially as much of the work was previously completed for a mine application prepared for the Project in 2013 by Strathmore Minerals Corporation. The Author's recommendations for additional work programs are described in Section 26.0 and summarized in Table 1.2.

**Table 1.2: Recommendations**

Work Phase	Description	Estimated Cost US\$
Phase 1	Preliminary Economic Assessment	\$60,000
Phase 2	Prepare Permits and Associated Testing	
	• Preparation of Environmental Permit Applications	\$400,000
	• Baseline Studies	\$100,000
	• Pump Testing	\$300,000
	• Additional Groundwater Modelling	\$100,000
	• Metallurgical testing	\$300,000
	• Exploratory Drilling Program	\$200,000
Subtotal		\$1,400,000
Total with PFS		\$1,460,000

### 1.3 Summary of Risks

The Gas Hills Uranium Project is located in a brownfield district where the geology is well-known and past mining and milling have successfully been completed.

The Project does have some risks similar in nature to other mineral projects and uranium projects in particular. Risks to this Project include:

- variance in the grade and continuity of mineralization from what was interpreted by drilling and estimation techniques;
- changes in future commodity demand that could significantly change the economic viability of the Project;
- environmental, social and political acceptance of the Project could cause delays in conducting work or increase the costs from what is assumed;
- changes in the mining and mineral processing recovery; and
- Due to limited testing and operation of ISR throughout the Project, ISR operations may not be able to be successfully implemented due to hydrogeological, environmental, or other technical issues.

With regard to the socio-economic and political environment of the Gas Hills Uranium Project area, Wyoming mines have produced over 200 million pounds of uranium from both conventional and ISR mine and mill operations. Production began in the early 1950's and continues to the present. The state has ranked as the number one US producer of uranium since 1994. Wyoming is considered generally favorable to mine development and provides a well-established environmental regulatory framework for ISR which has been conducted in the state since the 1960's.

To the Author's knowledge there are no other significant risks that could materially affect the Mineral Resource estimates or interfere with the recommended work programs.

## 2.0 INTRODUCTION

This Technical Report titled “NI 43-101 TECHNICAL REPORT, MINERAL RESOURCE REPORT, GAS HILLS URANIUM PROJECT, FREMONT AND NATRONA COUNTIES, WYOMING, USA” was prepared in accordance with NI 43-101 Standards and the mineral resource estimates were prepared using the CIM Definition Standards. The effective date of the Mineral Resources and of this Technical Report is March 29, 2021.

This Report was prepared for Azarga by Roughstock Mining Services, LLC (“Roughstock”) under the supervision of Steve Cutler, P.G. This Report was prepared as an update to the previous resource estimate titled “AMENDED AND RESTATED, GAS HILLS URANIUM PROJECT, MINERAL RESOURCE AND EXPLORATION TARGET NI 43-101 TECHNICAL REPORT, FREMONT AND NATRONA COUNTIES, WYOMING, USA” dated effective June 9, 2017. This new estimate is based upon a reinterpretation of the existing data and inclusion of an expanded data set with refinement intended to evaluate the ISR potential of the resources as well as conventional open pit methods. This Report provides estimates of Mineral Resources for five areas of mineralization within the Project named by Azarga as the Western Unit, Central Unit, Rock Hill, South Black Mountain, and Jeep.

Data sources for the estimation of uranium mineral resources for the Project include radiometric equivalent data (eU<sub>3</sub>O<sub>8</sub>) for 4,569 drill holes (4,056 pre-2007), and eU<sub>3</sub>O<sub>8</sub> and PFN logging data for 272 drill holes completed between 2007 and 2013.

Table 2.1 provides a brief list of the terms and abbreviations used in this Report.

**Table 2.1: Terms and Abbreviations**

Uranium Specific Terms and Abbreviations					
Grade	parts per million		ppm U <sub>3</sub> O <sub>8</sub>	weight percent	% U <sub>3</sub> O <sub>8</sub>
Radiometric Equivalent Grade			ppm eU <sub>3</sub> O <sub>8</sub>		% eU <sub>3</sub> O <sub>8</sub>
Thickness	meters		m	feet	ft
Grade Thickness Product	grade x meters		GT(m)	grade x feet	GT(ft)

General Terms and Abbreviations					
	Metric		US		Metric to US Conversion
	Term	Abbreviation	Term	Abbreviation	
Area	Square Meters	m <sup>2</sup>	Square Feet	ft <sup>2</sup>	10.76
	Hectare	Ha	Acre	Ac	2.47
Volume	Cubic Meters	m <sup>3</sup>	Cubic Yards	Cy	1.308
Length	Meter	m	Feet	ft	3.28
	Meter	m	Yard	Yd	1.09

Distance	Kilometer	km	Mile	mile	0.6214
Weight	Kilogram	kg	Pound	Lb	2.20
	Metric Tonne	Tonne	Short Ton	Ton	1.10

Steve Cutler, P.G. is the independent qualified person responsible for the preparation of this Report and the mineral resource estimates herein. Mr. Cutler is a Qualified Person (QP) under NI 43-101 Standards responsible for the content of this Report and a Professional Geologist with 34 years of professional and managerial experience.

Steve Cutler, P.G. conducted a site visit on October 7, 2020. The purpose of the visit was to observe the geology of the site, review current site activities, understand the location of historic exploration and mining activities, and gain knowledge on existing site infrastructure.

### **3.0 RELIANCE ON OTHER EXPERTS**

The Author has fully relied upon information of the political, social and environmental risk of the Project by using information from the “Fraser Institute Annual Survey of Mining Companies 2019” (February 2020). This information is used in Section 25.0 of this Report.

The Author has fully relied upon information on uranium commodity price forecasts from CIBC Global Mining Group, “Analyst Consensus Commodity Price Forecasts”, November 2, 2020. This information is used in Section 14.0 of this Report.

In addition, the Author relied on the following information provided by Azarga:

- Mineral and surface ownership rights mineral including location information, agreements, leases, and claims that are summarized in Section 4.0. This information was transmitted to Roughstock on September 24, 2020 and remains current to the effective date of this Report.

## **4.0 PROPERTY DESCRIPTION AND LOCATION**

### **4.1 Property Description and Location**

Azarga's 100% owned Gas Hills Uranium Project is located approximately 45 miles east of Riverton, Wyoming in the historic Gas Hills Uranium District. The Project and the Gas Hills Uranium District are located along the southern extent of the Wind River Basin, near the northern edge of the Granite Mountains. The company's Project properties, including the Western Unit, Central Unit, Rock Hill, South Black Mountain, and Jeep properties, consist of 628 unpatented lode mining claims, one State of Wyoming mineral lease, one private mineral lease, and one private surface use agreement. Together the properties encompass approximately 1,280 surface acres and 12,960 mineral acres. As shown on Figure 4.1 Location/Property Map, the properties are located in Townships 32 and 33 North, Ranges 89, 90 and 91 West, 6<sup>th</sup> Principal Meridian, Fremont and Natrona Counties, Wyoming.

The US federal government owns the minerals associated with the mining claims, the State of Wyoming owns the minerals and surface associated with the State lease, the South Pass Land and Livestock Company owns the minerals associated with the private mineral lease, and the Philp Sheep Company owns the surface associated with the private surface use agreement. The US Bureau of Land Management, Wyoming State Office ("US BLM") manages the claims on behalf of the US federal government.

The mining claims, State lease, private mineral lease, and surface use agreement were assembled by Strathmore Resources (US) Ltd. ("Strathmore") between April 2006 and September 2012 and sold to UColo on October 31, 2016. Title has remained in UColo's name since that date. UColo is a subsidiary of URZ. URZ is a subsidiary of Azarga.

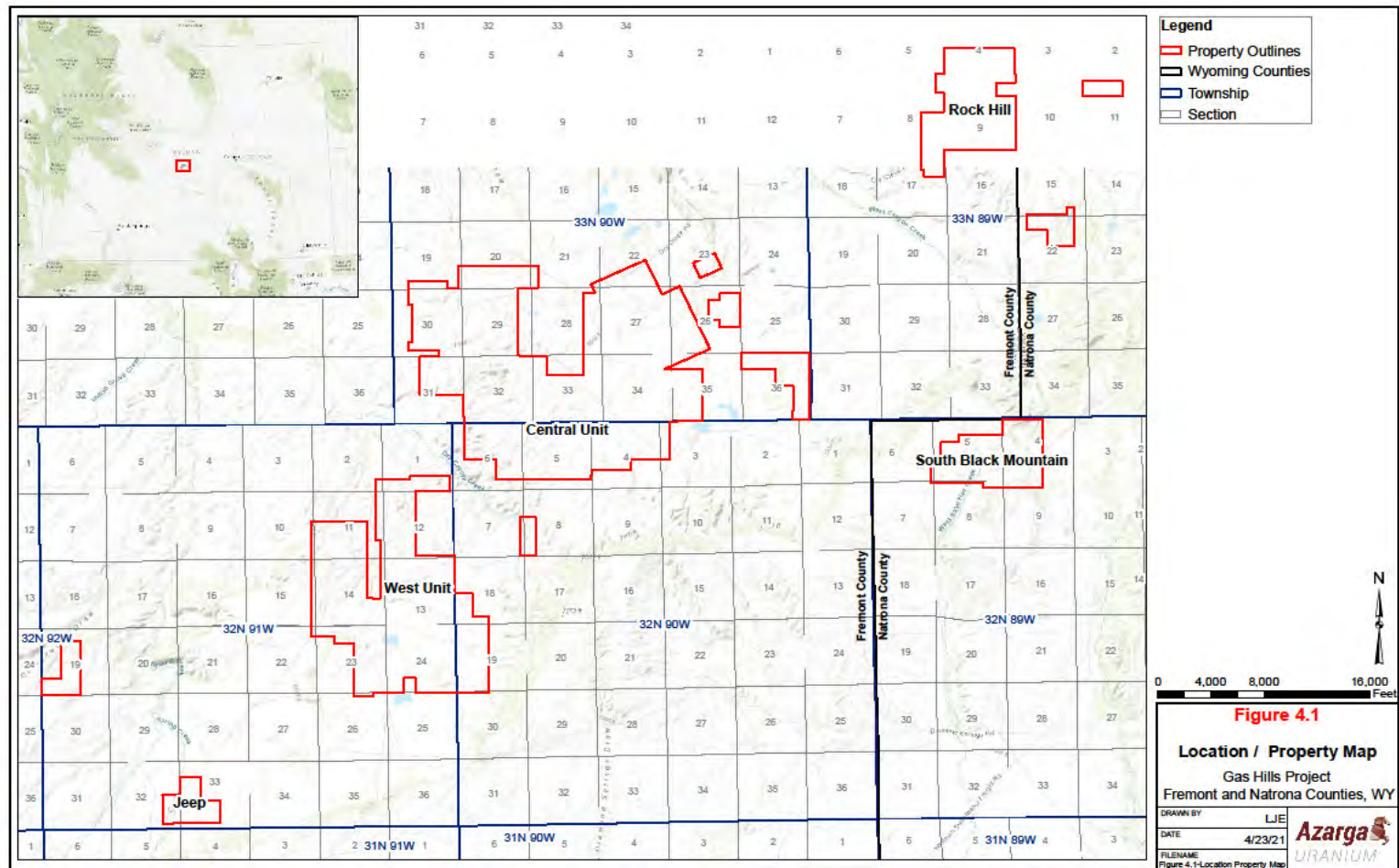
### **4.2 Azarga Acquisition of the Gas Hills Uranium Project**

On September 9, 2016, URZ's subsidiary, UColo, entered into an Asset Purchase and Sale Agreement ("APA") with Strathmore, a wholly owned subsidiary of Energy Fuels, whereby URZ purchased all of Strathmore's interest in the Project. In addition to the Project, the APA transaction included URZ's purchase of Strathmore's claims and State mineral leases for the Juniper Ridge and Shirley Basin Properties, however, these two properties are not discussed in this Report. The transaction closed on October 31, 2016.

On May 7, 2018, Azarga and URZ announced an agreement to merge under a plan of arrangement. On June 29, 2018, the shareholders of both URZ and Azarga approved the merger and on July 5, 2018 the merger was completed. As a result, URZ became a wholly owned subsidiary of Azarga.



**Figure 4.1: Location/Property Map**



### 4.3 Mining Claims

Approximately 12,560 mineral acres are encompassed by the Project claims. A 5% net proceeds royalty applies to 172 of the 628 claims as follows:

- A net proceeds royalty of 5% on 155 claims was granted by Quit Claim Deed from Strathmore to Elmhurst Financial Group, Inc. on October 31, 2007. One of the claims was relinquished during Strathmore's ownership. The surviving 154 claims were sold to UColo and remain subject to the 5% net proceeds royalty.
- A 5% net proceeds royalty was granted by Assignment from Strathmore to Blue Rock on October 31, 2007 on nine full claims and on the southern 720 feet of nine additional claims. The 18 claims were sold to UColo and remain subject to the 5% net proceeds royalty.

The other 456 claims are not subject to royalties or other encumbrances.

UColo has possessory right to explore, develop and produce from the unpatented lode mining claim areas and must pay an annual maintenance fee to the US BLM of \$165.00 per claim on or before September 1 each year. Surface use at the location of the mining claims on US BLM lands is allowed subject to Title 43 of the US Code of Federal Regulations Subpart 3809 and requires permitting by both the US BLM and the State of Wyoming Department of Environmental Quality, Land Quality Division ("WDEQ/LQD").

### 4.4 State of Wyoming Lease, Private Mineral Lease, and Private Surface Use Agreement

#### State of Wyoming Lease

Strathmore entered into a ten-year lease with the State of Wyoming for Mineral Lease #0-42121 on April 2, 2007. The lease was subsequently transferred by Assignment from Strathmore to UColo on October 31, 2016. UColo renewed the lease before its 10-year expiration, extending the lease an additional ten years to April 1, 2027. The lease can be renewed, at UColo's option, for unlimited additional 10-year periods as long as the terms and conditions of the lease have been met up to the time of applying to the State of Wyoming for renewal. The lease encompasses approximately 320 surface acres and 320 mineral acres in the NE $\frac{1}{4}$ , N $\frac{1}{2}$ NW $\frac{1}{4}$ , and E $\frac{1}{2}$ SE $\frac{1}{4}$  of Section 36, Township 33 North, Range 90 West, 6<sup>th</sup> Principal Meridian, Fremont County, Wyoming. The lease grants to the State a royalty of 4% of the gross selling price of U<sub>3</sub>O<sub>8</sub> or \$5.00 per leased acre per year, whichever is more. No Mineral Resources in this Report are located on this lease.

### Private Mineral Lease

Strathmore entered into a private mineral lease with South Pass Land and Livestock Company on July 28, 2010 for rights to minerals on the following two parcels of land: 40 mineral acres in the Jeep area in the SE $\frac{1}{4}$ SE $\frac{1}{4}$  of Section 32, Township 32 North, Range 91 West, 6<sup>th</sup> Principal Meridian, Fremont County, Wyoming and 40 mineral acres in the West Unit area in the SW $\frac{1}{4}$ SW $\frac{1}{4}$  of Section 19, Township 32 North, Range 90 West, 6<sup>th</sup> Principal Meridian, Fremont County, Wyoming. The mineral lease was transferred by Assignment and Assumption of Mineral Lease from Strathmore to UColo on October 31, 2016. UColo exercised its option to renew the lease for an additional 10 years in July 2020 by making the required payment. Unlimited 10-year renewals are available at UColo's option for additional payments. The lease grants a 5% net proceeds royalty to the owner of the mineral properties. The surface is owned separately from South Pass Land and Livestock Company. An agreement for surface access at the West Unit is described below. Presently, there is no agreement for surface access at the Jeep parcel.

### Private Surface Use Agreement

Strathmore entered into a private surface use and access agreement with Philp Sheep Company on June 21, 2011 to access approximately 960 surface acres at the following four parcels: the 40-acre West Unit parcel described above, the W $\frac{1}{2}$  and W $\frac{1}{2}$ E $\frac{1}{2}$  of Section 13, Township 32 North, Range 91 West, the S $\frac{1}{2}$  of Section 4, Township 33 North, Range 89 West, and the NW $\frac{1}{4}$ NE $\frac{1}{4}$  and S $\frac{1}{2}$ NE $\frac{1}{4}$  of Section 9, Township 33 North, Range 89 West, 6<sup>th</sup> Principal Meridian, Fremont County, Wyoming. The agreement allows entry onto the parcels to maintain claims, construct up to 25 exploratory boreholes, and to carry out geological, environmental, and wildlife studies associated with permitting. The agreement was transferred by Assignment and Assumption Agreement from Strathmore to UColo on October 31, 2016. It is a paid-up agreement. No further payments or royalties are due pursuant to the terms of the agreement. Philp Sheep Company does not own the minerals in the parcels covered by the agreement. The minerals in the 40-acre West Unit are owned by the South Pass Land and Livestock Company described above. The US federal government owns the minerals at the three remaining parcels and, for the most part, UColo maintains claims covering the US minerals. The exception regarding claim coverage is in the N $\frac{1}{2}$ S $\frac{1}{2}$  of Section 4, Township 33 North, Range 89 West where claims were located by Strathmore in October 2007 but later relinquished in September 2014.

## **4.5 Permitting**

URZ has a Drilling Notification ("DN") approved by the WDEQ/LQD and the US BLM that allows surface use for the purposes of exploration by drilling.

Although not required at this stage, mine development would require a number of permits depending on the type and extent of development, the most significant permits being the Permit to Mine and the Source Materials License issued by the WDEQ/LQD as required for mineral processing of natural uranium. Any injection or pumping operations for in situ mining operations

will require permits from the WDEQ which has authority under the Safe Water Drinking Act that stems from a grant of primacy from the US Environmental Protection Agency for administering underground injection control programs in Wyoming.

#### **4.6 Environmental Liabilities**

To the Author's knowledge, no specific environmental liabilities are known to exist. There is a DN bond for exploration previously held by URZ in the amount of \$63,000 which has been assumed by Azarga. This bond is subject to annual renewal and updating.

There are significant previous surface disturbances adjacent to the properties including drill roads, drill sites, haul roads, spoil dumps, reclaimed mill sites, and mined open-pits.

Several legacy reclamation programs are ongoing in the Gas Hills, including on lands controlled by Azarga. These programs are authorized under the Surface Mining and Reclamation Control Act of 1977 and carried out by the Wyoming Department of Environmental Quality/Abandoned Mine Lands Division ("WDEQ/AML") with cooperation of the US BLM. In addition, several former mill tailings sites on adjacent lands have been or will be reclaimed and transferred to the US Department of Energy (the "US DOE") for long-term care and maintenance.

All of this reclamation activity is currently being performed at the sole cost of the state and federal government agencies. State of Wyoming mining regulations will require Azarga to reclaim any new mining activities but excludes Azarga from any environmental liability associated with historical mining on Azarga's controlled lands. The AML fund is financed by a tax of 31.5 cents per ton for surface mined coal, 15 cents per ton for coal mined underground, and 10 cents per ton for lignite. An estimated 80% of AML fees are distributed to states with an approved reclamation program to fund reclamation activities (see <https://www.osmre.gov/programs/aml.shtml>).

Strathmore submitted a Permit to Mine application with the WDEQ/LQD on August 28, 2013. The Permit to Mine application was subsequently withdrawn by Energy Fuels following their acquisition of Strathmore. It is possible that much of this data can be utilized in a new Permit to Mine application should that be considered in the future.

#### **4.7 State and Local Taxes**

The current Wyoming severance tax is 4% but after the allowable wellhead deduction, the effective severance tax rate is approximately 3% of gross sales. In addition, the ad valorem (gross products) tax varies by county assessment but is approximately 6.5%. Federal income tax is assessed based on company profits.

#### **4.8 Encumbrances and Risks**

The unpatented lode mining claims will remain the property of Azarga provided it adheres to required filing and annual payment requirements with Fremont and Natrona Counties and the US BLM. Legal surveys of unpatented lode mining claims are not required and are not known to have been completed. Mining claims are subject to the Mining Law of 1872. Changes in the mining law could affect the Project.

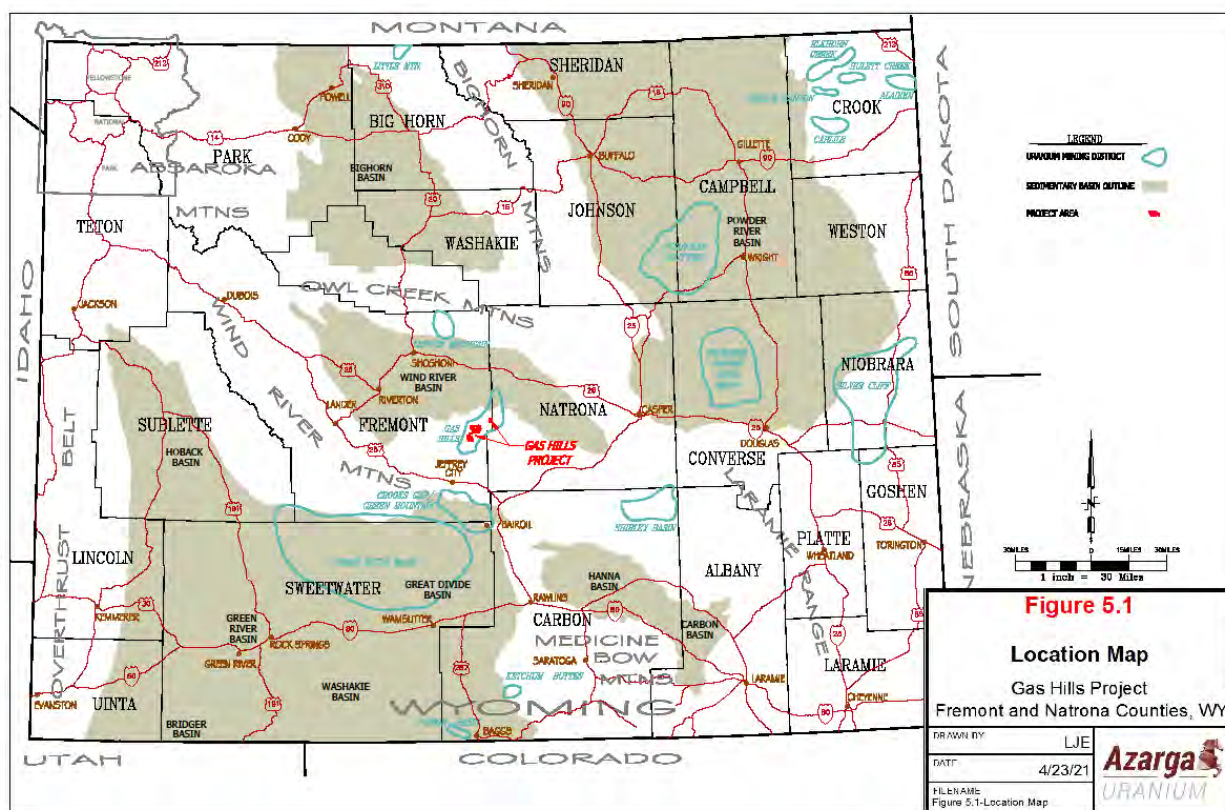


## 5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, AND PHYSIOGRAPHY

### 5.1 Accessibility

The Gas Hills Uranium District can be accessed by traveling southeast of Riverton 45 miles along Wyoming State Highway 136 (Gas Hills Road) to the junction of Fremont County Road #5 (Ore Haul Road). From Casper, one travels ~47 miles west on US Highway 20/26 until the Waltman Junction. Turning south onto Natrona County Road 212 (Gas Hills Road) one travels ~22 miles to the northeast corner of the district. From the south, the Gas Hills is accessible from US Highway 287 at Jeffrey City by traveling north along Fremont County Road #5 ~15 miles to the southwestern corner of the District. Refer to Figure 5.1.

**Figure 5.1: Project Location and Wyoming Basins**



## 5.2 Topography, Elevation, Physiography

The Project is located within the Wyoming Basin physiographic province (Figure 5.1) along the southern flank of the Wind River Basin which is a northwest-southeast trending, intermountain, structurally-bounded basin. The basin is bounded on the west by the Wind River Range, on the east by the Casper Arch, and on the north by the Owl Creek, Washakie and Big Horn Mountains. In the Gas Hills, Beaver Rim, the southern escarpment of the Wind River Basin, is located at the northern margin of Sweetwater Plateau, separating the drainages between the Wind and Sweetwater Rivers. Elevations in the Gas Hills vary from a low of ~6,300 feet at the northwestern extent to a high in excess of 7,400 feet atop Beaver Rim.

## 5.3 Climate, Vegetation and Wildlife

Climate in the Gas Hills is continental semi-arid, with annual precipitation of 8-12 inches, mostly falling in the form of late autumnal to early spring snows. The summer months are usually hot with temperature occasionally exceeding 100°F, dry and clear except for infrequent rains. Winter conditions can be severe and can include sub-zero temperatures and ground blizzards. Most drainages in the area are ephemeral, flowing only during storm events or spring snow melt. Year round open-pit mining operations were successfully carried out previously in the Gas Hills district. The principal access to the Project is Wyoming Highway 135 which is paved and maintained year-round. The secondary access is the Gas Hills road which is a gravel county road. Portions of the Gas Hills road are not currently maintained on a year-round basis but have been in the past. In sum year-round operations can be conducted at the Project. The climate in the Gas Hills is most similar to that of Casper Wyoming, some 60 miles to the northeast for which a brief summary of weather conditions is provided in Table 5.1.

**Table 5.1: Climate Data**

Measurement	Climate Data
Average annual high temperature	59°F
Average annual low temperature	31°F
Average annual precipitation - rainfall	12.42 inches
Average annual precipitation - snowfall	75 inches

([Climate Casper - Wyoming and Weather averages Casper \(usclimatedata.com\)](https://www.usclimatedata.com/))

Most common native vegetation is sage brush and prairie grasses and to a lesser extent, rabbit brush. No threatened or endangered plants are known in the area. Limited upland areas have juniper and limber pine trees on north facing slopes.

Mule deer and pronghorn antelope are common, as are nesting raptors. Small rodents and rabbits are common. A coyote was observed during the October 7, 2020 site visit. The Greater Sage



Grouse, present in the general area of the Project, has been considered for listing as a threatened or endangered species. Successful and ongoing mitigation efforts by the State of Wyoming have significantly decreased the probability of regulatory listing of the sage grouse.

#### **5.4 Infrastructure**

Extensive production in Wyoming of minerals (coal, trona, uranium) and oil/gas has provided a highly skilled labor force in the region. Population centers within two hours of the Project include Casper, Riverton, Lander and Rawlins, where equipment and supplies may be obtained. Paved roads from these towns and cities extend to the edge of the Project area. Access and haul roads within the Project are graded gravel and are maintained by the State, County and mining companies operating in the area. Functioning power lines, natural gas lines, telephone lines and fiber optic cable are present on and near the Azarga's properties. Several wells producing water for domestic and industrial use are also on or close to Azarga's properties. It is the Author's opinion that the Property area controlled by Azarga is more than adequate to provide areas for potential mining operations and associated facilities and for mineral processing operations including heap leach pads, and for tailings and other waste disposal sites.

#### **5.5 Surface Rights**

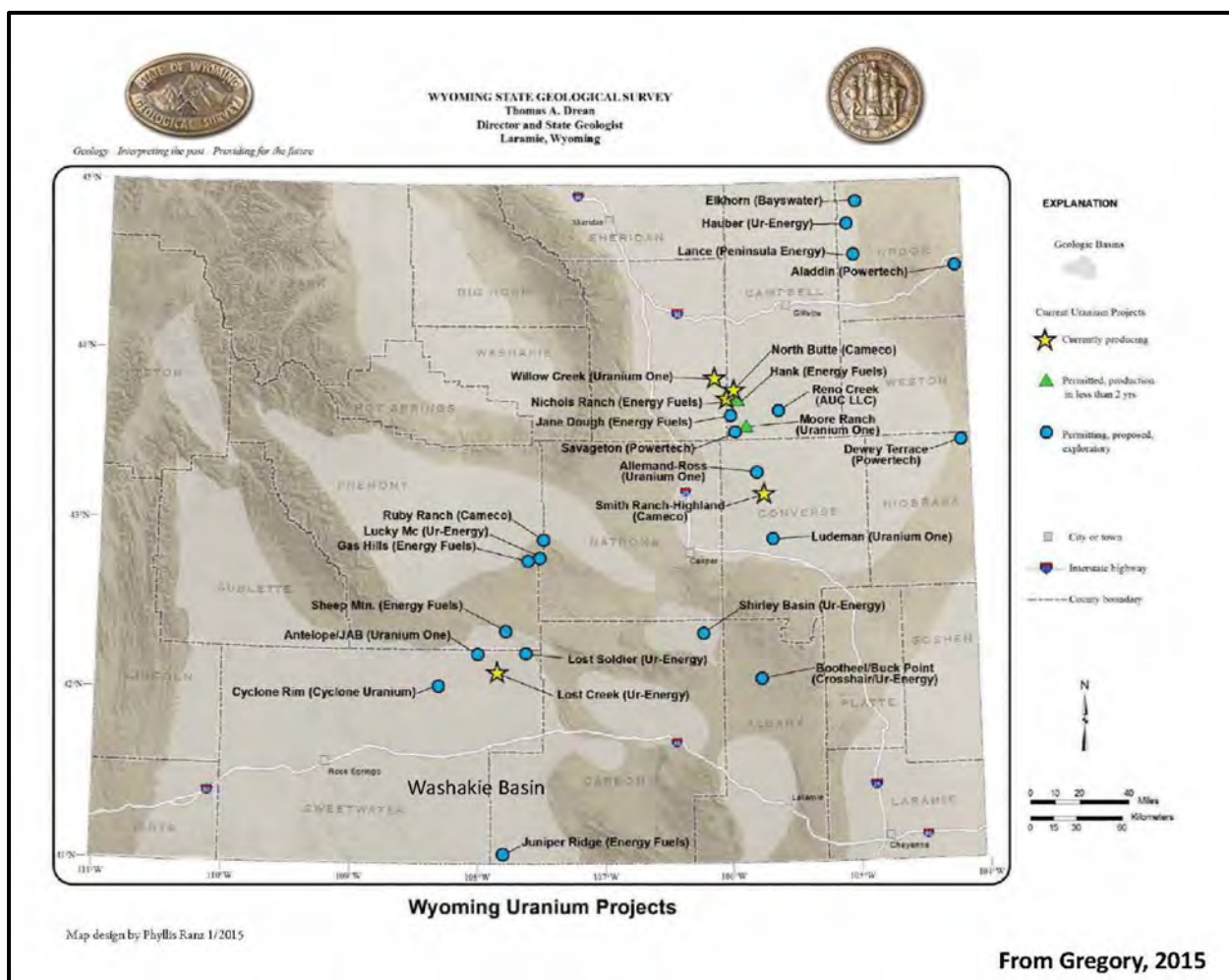
The 1872 Mining Law grants certain surface rights along with the right to mine provided the surface use is incident to the mine operations. In order to exercise those rights the operator must comply with a variety of State and Federal regulations (refer to Section 20.0). For areas of private surface ownership appropriate surface-owner agreements would be required.

The Code of Federal Regulations 43 CFR 3715 governs the use and occupancy under the mining laws for Federal Lands. Under these regulations, 3715.05, states "Mining operations means all functions, work, facilities, and activities reasonably incident to mining or processing of mineral deposits." For future mining and mineral processing the Author concludes that Azarga through UColo has, or can obtain through permitting and licensing of site activities, sufficient surface rights for possible future mining operations, including potential waste disposal areas, heap leach pads, ISR wellfields, and potential plant sites as was common with previous mine and mineral processing operations in the vicinity.

## 6.0 HISTORY

The Gas Hills Uranium District (“Gas Hills”) was one of the major uranium mining and production regions in the USA. Figure 6.1 shows the relationship of the Gas Hills to other uranium districts and the major basins of Wyoming. Between 1953 and 1988 many companies explored, developed, and produced uranium in the Gas Hills, including on lands now controlled by Azarga. Three uranium mills operated in the district and two others nearby were also fed by ore mined from Gas Hills. Cumulative production from the Gas Hills is in excess of 100 million pounds of uranium, mainly from open-pit mining, but also from underground mining and ISR.

**Figure 6.1: Wyoming Uranium Projects**



*Gas Hills is shown near the eastern boundary of Fremont County.*

Mine production did occur adjacent to and in the vicinity of the Project; however, the areas for which mineral resources are defined are unmined. Uranium was discovered in the Gas Hills in September 1953 by both ground and airborne radiometric surveys. Early exploration in the district exposed numerous near surface oxidized deposits and small shipments of ore were shipped out of state for processing. In 1955, the Atomic Energy Commission (“AEC” now the US DOE) constructed an ore buying station in Riverton where ore was stockpiled and eventually milled. In the Gas Hills area, when the AEC approved purchase allotments in 1956, Utah Construction (later Pathfinder and then Areva) began the Lucky Mc Mill in the central Gas Hills and Lost Creek Oil and Uranium (later Western Nuclear) began the Split Rock Mill 15 miles south at Jeffrey City. By 1959 the AEC authorized three additional mills in the county: Fremont Minerals’ (Susquehanna Mining) mill in Riverton, Federal-Radorock-Gas Hills Partners’ (later Federal American Partners) central Gas Hills mill, and Globe Uranium Company’s (later Union Carbide) east Gas Hills mill.

With the rapid decline in uranium price in the early to mid-1980’s production slowly halted. The last mill production in the Gas Hills occurred in 1988 at Lucky Mc. Extensive mill site and mine reclamation occurred from the late 1980s through to the present time in the Gas Hills. However, Wyoming remains the largest current uranium producer in the USA and there are several uranium projects in the state as shown of Figure 6.1. (Beahm, 2017)

## **6.1 Ownership and Control**

The present Project area was acquired by URZ’s subsidiary UColo from Strathmore on October 31, 2016 and subsequently the Project area was acquired by Azarga through a merger with URZ in July 2018. The minerals were originally acquired by staking and purchasing unpatented mining claims, and by acquiring the State of Wyoming Mineral Lease and the private South Pass Land and Livestock Company mineral lease.

## **6.2 Historical Exploration and Mineral Resource Estimates**

Historical mineral resources were generated by several sources including data from mining companies and/or their consultants that were active in the area historically including American Nuclear Corporation, 1985, Anonymous report, 1979, Dames & Moore, 1976, David Robertson & Associates, 1979, Energy Fuels, 1978, and Mullen Mining, 1977. This Report did not review all of these historical estimates but focused on more recent estimates including those prepared by Beahm, 2017 and CAM, 2013.

More than 100,000 exploration and development holes were drilled in the Gas Hills from the mid-1950s to the mid-1980s. Since 1990, a few hundred holes have been drilled, nearly all by Strathmore and Cameco. Strathmore acquired exploration data for several of its Gas Hills properties; all of which are now controlled by Azarga.

The most recent previous resource estimate was completed in June 2017 by Douglas Beahm in the report “AMENDED AND RESTATED, GAS HILLS URANIUM PROJECT, MINERAL

RESOURCE AND EXPLORATION TARGET NI 43-101 TECHNICAL REPORT, FREMONT AND NATRONA COUNTIES, WYOMING, USA” dated effective June 9, 2017.

Previous resource estimates are not relevant since there is a current Mineral Resource estimate on the Project which is described in Section 14.0 of this Report.

## 7.0 GEOLOGICAL SETTING AND MINERALIZATION

### 7.1 Regional Geology

The Gas Hills Uranium District is located in the south-central portion of the Wind River Basin (Refer to Figure 5.1). The District occupies approximately 100 square miles along the south-central flank of the Wind River Basin in central Wyoming. The Wind River Basin is marked by a northwest-trending topographic depression surrounded by mountains on all but the eastern side. The southern margin of the basin, in the area of the Gas Hills, is defined by a 500 to 1,000 foot high erosional escarpment, known as Beaver Rim. This topographic feature forms a boundary between the Wind River Basin to the north and the Sweetwater Basin and Granite Mountains to the south.

Most of Wyoming's uranium deposits are found in medium to coarse grained sandstone deposits within or on the margins of sedimentary basins. Figure 6.1 from Gregory, 2015, shows the major Wyoming Basin in relationship to known areas of uranium mineralization both historic and current. The Gas Hills is located in the Wind River Basin near the eastern boundary of Fremont County. The host rocks are about 40 million to 55 million years old, but the uranium mineralization contained in them is much younger.

South of Beaver Rim is the southward sloping Sweetwater Plateau which is underlain by upper Tertiary and older strata. Rising from the middle of the Sweetwater Plateau are the scattered knobs of Precambrian granitic rocks, known as the Granite Mountains. East of the Gas Hills District is a northwest-trending structural high, known as the Rattlesnake Hills Anticline. Rocks ranging in age from the Precambrian to the Paleocene are exposed along the northeastern flank of this feature. Mountain ranges around the Wind River Basin were uplifted during the late Cretaceous to early Tertiary Laramide orogeny. Erosion from these basement-cored uplifts deposited terrestrial clastic sediments of the Eocene Wind River Formation unconformably upon tilted and deformed Paleozoic-Mesozoic rocks. Arkosic sandstones and conglomerates are common in the Wind River Formation, indicative of their alluvial fan depositional setting. The Tertiary coarse clastic rocks are up to 1,800 feet thick in the Gas Hills area and pinch out against Paleozoic/Mesozoic rocks south of the Gas Hills.

The Wind River Formation is covered with generally conformable layers of tuffaceous sedimentary rocks derived from volcanoes active in the region during Oligocene to Miocene times. Regional uplift occurred in Pliocene times. Sometime during late Tertiary time the Granite Mountain block dropped down along east-west faults that lie between the mountains and the Gas Hills and associated faults near the Green Mountain-Crook Mountains south of Jeffrey City, forming the Split Rock syncline. This down dropping resulted in a southward regional tilt of the Wind River sedimentary rocks of 2-6° in the Gas Hills. (Beahm, 2017)



## 7.2 Regional Stratigraphy

The Cenozoic basin-fill deposits of the Wind River Basin are chiefly flood-plain and stream channel materials, with generally greater amounts of lacustrine and pyroclastic sediments toward the top of the sequence. The Eocene formations generally consist of lenticular, poorly sorted sediments, whereas the younger Tertiary formations are commonly better sorted and less lenticular in nature. The majority of the volcanic debris was derived from the Yellowstone-Absaroka volcanic field in northwestern Wyoming and to a much lesser extent from the Rattlesnake Hills volcanic field immediately east of the Gas Hills (Van Houten, 1964). The sedimentary strata dip gently a few degrees to the south, having been tilted by Late Tertiary collapse of the Granite Mountains and formation of the Split Rock syncline.

The Cenozoic basin-fill deposits exposed in the Gas Hills are, from oldest to youngest, the Wind River Formation, Wagon Bed Formation, White River Formation, and the Split Rock Formation. The arkosic sandstones of the Wind River Formation are the host rocks for all economically significant quantities of uranium mineralization in the Gas Hills. They were deposited during the period following uplift of the ranges surrounding the Wind River Basin and are composed of debris eroded from these highland areas. Deposited in alluvial fans, stream channels, lakes, flood plains, and swamps, the Wind River Formation varies in thickness from a few feet at the basin margins to several thousand feet thick in the central part of the basin to the north of the Gas Hills. Depositional processes were influenced by the Eocene climate, which was mostly humid, warm-temperate to sub-tropical in nature (Seeland, 1978). The younger basin-fill sediments (Wagon Bed, White River, Split Rock) are increasingly finer-grained than those arkosic sands of the Wind River Formation, in addition to having substantially more volcanic detritus. (Beahm, 2017)

## 7.3 Local Geologic Setting of the Gas Hills

Much of the following information is abstracted from work by the U.S Geological Survey (Armstrong, 1970). Very little has been published on the geology of the district since the collapse of the nuclear industry in 1979.

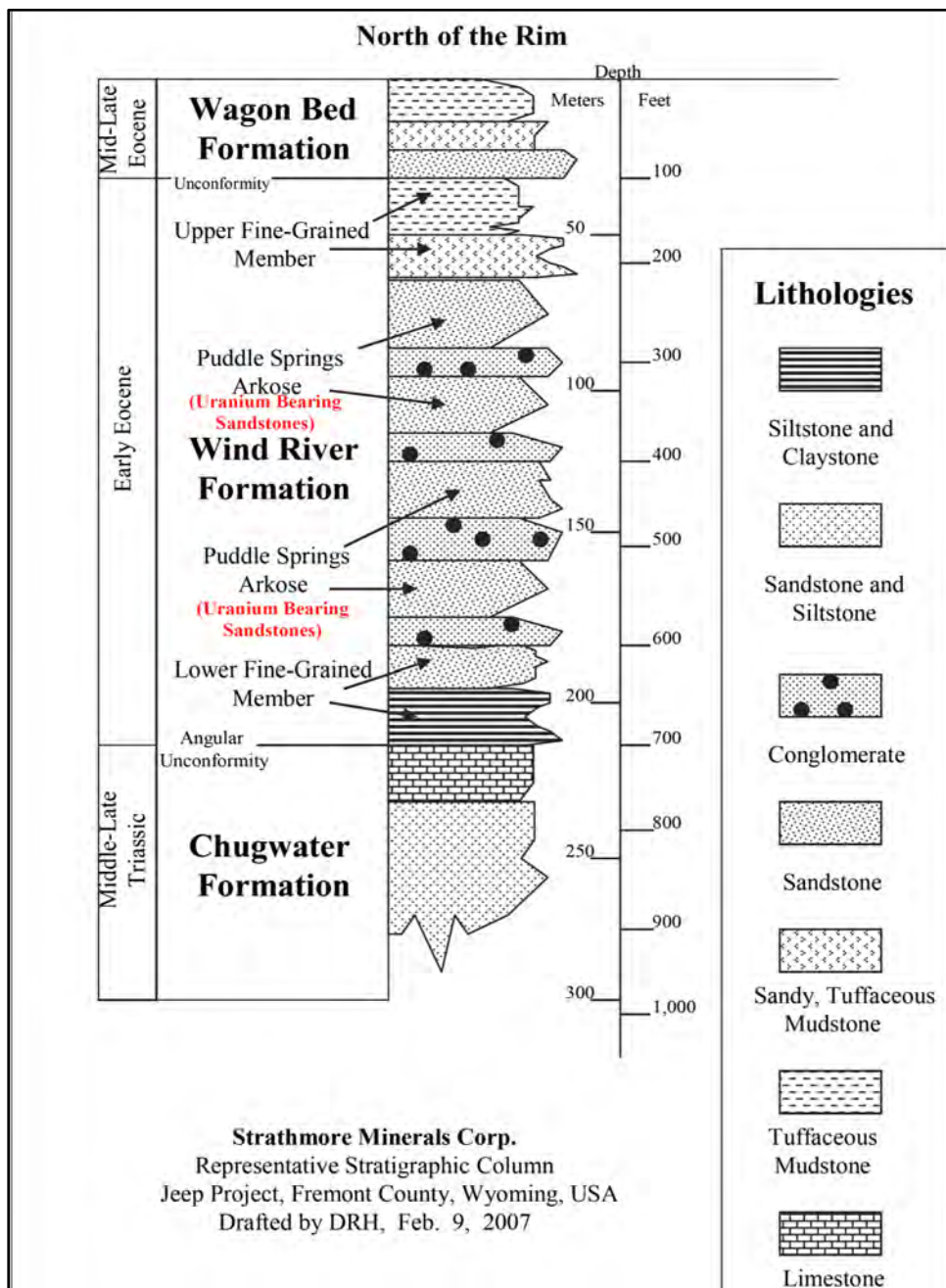
In the Gas Hills district, lower Tertiary rocks unconformably overlie folded and faulted Mesozoic and older rocks (Figure 7.1). The Wind River Formation, 400 to 800 feet thick, is conformably overlain by tuffaceous sandstones of the Eocene Wagon Bed Formation, which is 300 to 700 feet thick.

Soister (1968, p.9) in studying a larger area, divided the Wind River Formation into three units: (1) the lower fine-grained member, (2) the Puddle Springs arkose member, and (3) the upper fine-grained transition member.

The Puddle Springs arkose member is the host rock for the uranium deposits. It consists of poorly consolidated arkosic sandstone and conglomerate with thin discontinuous interbeds of mudstone. The Puddle Springs arkose was deposited rapidly by northward-flowing braided streams to form

coalescing piedmont alluvial fans (Soister, 1968). Mudstone interbeds are probably overbank deposits on floodplains. The provenance was the Granite Mountains a short distance to the south.

**Figure 7.1: Representative Stratigraphic Column: North of Beaver Rim**





The full thickness of the Wind River is present from just north of the base of Beaver Rim Divide southward for a few miles. North of the contact between Wind River and post-Wind River rocks, erosion has cut across strata at a low angle and the formation progressively thins to a feather edge at its northern margin, where basal beds lie unconformably on older rocks.

The pre-Cenozoic strata exposed, or buried at depth, in the Gas Hills are from Cambrian to Cretaceous in age. The Paleozoic sediments, averaging 2,000 feet thick, include rocks of Cambrian, Mississippian, Pennsylvanian and Permian ages; they consist of mostly sandstone, limestone and dolomite. The Mesozoic sedimentary rocks, averaging 10,000 feet thick, include rocks of Triassic, Jurassic and Cretaceous ages; they consist of mostly shale and some sandstone. All of the pre-Cenozoic rocks were extensively deformed during the Early Eocene faulting, uplift and basin development associated with the Laramide Orogeny. The pre-Cenozoic rocks are exposed sporadically throughout the Gas Hills. The area of greatest exposure is along the flanks of the Dutton Basin anticline. The anticline is exposed at the surface one mile east of the George-Ver Property; deposits from the Cody Shale downward to the Chugwater Formation outcrop. (Beahm, 2017)

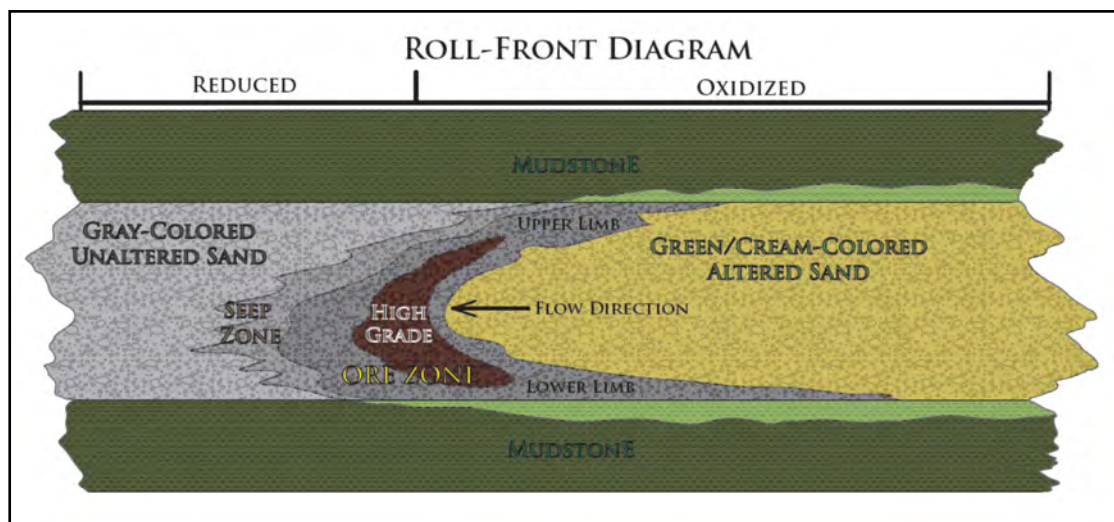
#### **7.4 Local Mineralization in the Gas Hills**

The Gas Hills uranium deposits are present in an arkosic sandstone facies, the Puddle Springs member of the Wind River formation (e.g. King and Austin, 1966; Armstrong, 1970). Knowledge of the distribution of this member is of great importance in the search for uranium deposits, as permeability determines whether a rock is a favorable or unfavorable host. Fine-grained, only slightly permeable rocks are unfavorable hosts. Highly porous conglomerates, on the other hand, appear to be too permeable to be a good host rock.

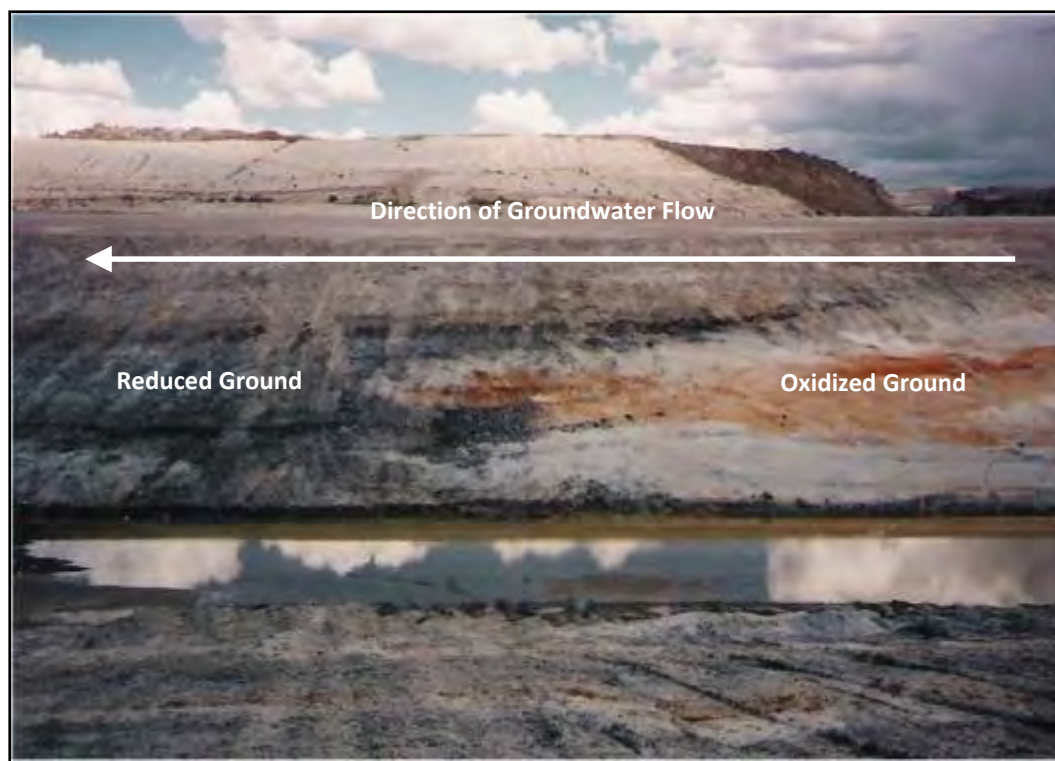
Drilling in the west Gas Hills indicates that the favorable arkosic sandstone host passes westward into unfavorable silty facies. A local sandstone facies has been found within the silty facies, and a small area containing uranium (Jeep deposit) has been found in the sandy facies. Thus, the favorable host for mineralization in the above-mentioned deposits (Figure 7.1) is bounded on the north by an erosional pinch out; on the east by a change of facies to an unfavorable silty sandstone host; on the south by a subsurface onlap pinch out; and on the west by change of facies to an unfavorable silty sandstone host.

Uranium mineralization in the Gas Hills is present in bodies usually referred to as “rolls” (e.g. King and Austin, 1966; Armstrong, 1970). In vertical cross section they are irregularly crescent or “C” shaped (Figure 7.2, Figure 7.3 and Figure 7.4). Rolls are the result of oxidized and soluble uranium being transported by ground water to a location within a permeable sandstone host where a reaction within a reducing environment occurs and insoluble reduced, uranium minerals are deposited. The contact between oxidized and reduced conditions is the “roll front”.

**Figure 7.2: Typical C-Shaped Uranium Roll-Front System**



**Figure 7.3: Roll Front Exposed in Reclamation Channel, George-Ver Deposit**



*This photograph shows classic Wyoming-type uranium roll-fronts exposed during construction of a reclamation channel on the Central Unit.*

**Figure 7.4: View of High-Grade Mineralization in Exposed Roll Front**



*This photograph is by Strathmore, circa 1996. It shows a view of dark black uranium mineralization in the “nose” of a classic Wyoming-type uranium roll-front exposed during construction of a reclamation channel in the Central Unit. This deposit has not been mined. The view is to the south.*

In the body of the crescent, individual rolls range from a few inches to many feet in vertical thickness. Average thickness of a well mineralized roll is 10 to 15 feet; many rolls thicker than 20 feet have been mined. The upper and lower tails of the crescent thin away from the body of the crescent. In the Gas Hills the lower tail normally is greatly extended and thins gradually, whereas the upper tail is typically short and thins abruptly.

On the concave side of a crescent-shaped mineralized body, relatively light gray colored altered host rock is present. The contact is a slightly irregular narrow zone, and the change from uranium-bearing to bleached or altered rock normally takes place within a short distance (Figure 7.2, Figure 7.3 and Figure 7.4). On the convex side of a crescent shape mineralized body, relatively dark greenish-gray unbleached (unaltered) rock is present. The contact between uranium-bearing and unbleached or unaltered rock is irregular interfingering, mostly gradational feature but the contact between individual fingers of mineralized rock and unbleached host may be moderately sharp. The fingers of mineralized rock point in the direction of unbleached rock.

Upper-limb mineralization dies out away from the body of the crescent in an abrupt manner somewhat similar to that of the contact between uranium-bearing and bleached rock on the concave side of the crescent. In contrast, lower limb mineralization normally terminates gradually in the way that mineralization terminates on the convex side of a roll.

The crescent-shaped contact between bleached rock and uranium mineralization is commonly referred to as a “front”. In mapping a front, the point of maximum advance of the altered rock is indicated. In plan-view, the trace of a front is extremely sinuous.

Rolls ordinarily are stacked *en echelon* (Figure 7.5), forming multiple mineralized bodies. A series of stacked rolls can be thought of as a frontal system. The number of rolls and vertical separation between them can be large or small, and as a result, mineralization may occur through a large stratigraphic interval. In the Central Gas Hills, uranium mineralization has been found in a stratigraphic interval almost 300 feet thick. Most rolls are stacked so that each successively higher roll is displaced in the direction of convexity and the volume of bleached rock narrows with depth. Each roll in a stack has its own front and each front in plan-view has its own sinuosity. The different fronts occur in the same general area, but the detailed sinuosity of one roll is independent of the sinuosity of other rolls.

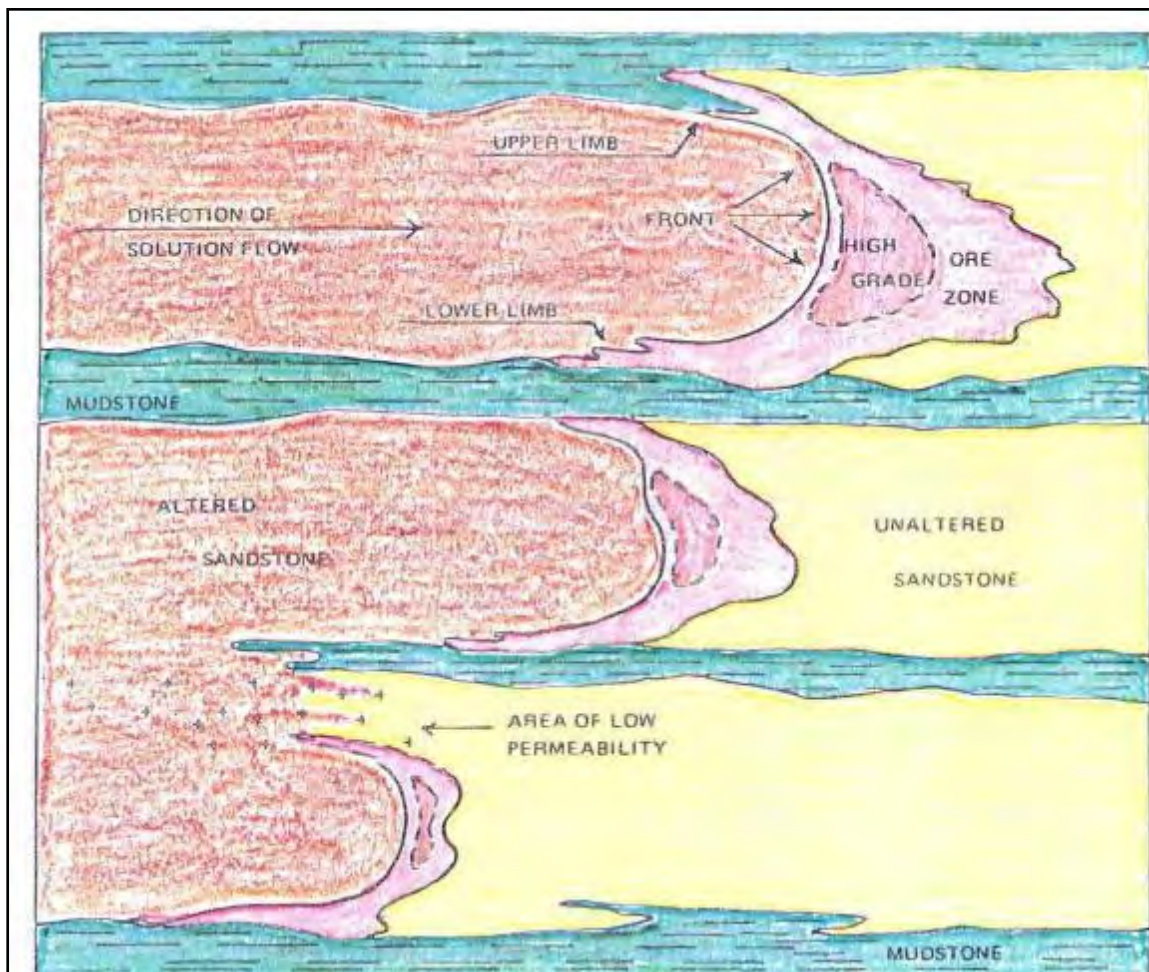
Rolls and lower-limb mineralized bodies normally are underlain by a mudstone layer. In many places a mudstone layer also overlies the roll. The upper limbs of some mineralized bodies end in sandstone and the next higher roll rests on a mudstone layer that is separated from the lower roll by un-mineralized sandstone.

Un-oxidized mineralization is dark and usually the darker, the higher the grade. The uranium minerals are very fine grained uraninite and a little coffinite. The only non-silicate gangue minerals present in significant amounts are fine-grained pyrite and marcasite, and they are intimately mixed with uranium minerals. These minerals coat detrital sand grains and fill interstices of the host rock. Oxidized mineralization is present near surface and was mined when production in the district first started. Most production came from un-oxidized mineralization and essentially all present mineralization of potential economic interest is contained in un-oxidized mineralization.

Uranium is not distributed uniformly throughout the roll; rather, it is normally concentrated in the body of the crescent close to the concave side. High-grade mineralization locally contains several percent  $U_3O_8$ . The grade progressively decreases away from the high-grade zone. In the direction of bleached rock the grade decreases abruptly and there is a sharp break between mineralization and waste rock. In the direction of unbleached rock, grade decreases gradually. The high- grade zone in the body of the crescent and the area immediately adjacent to it contains most of the total uranium in the body. Most of the uranium produced from the Gas Hills has come from this location in rolls, and therefore most future production can logically be expected to come from similar positions in other rolls.



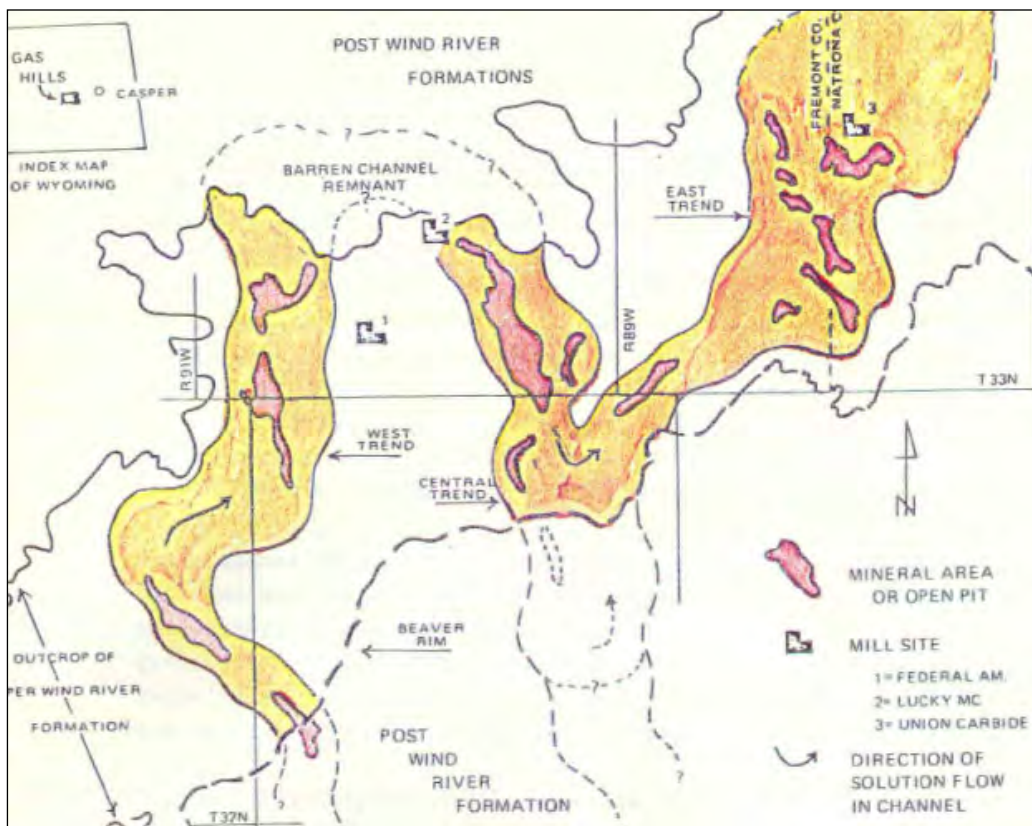
**Figure 7.5: Depiction of Multiple Stacked, En Echelon Uranium Deposits (EFR, 1979)**



Uranium was discovered in the Gas Hills near the center of the district at the north end of what later became known as the Central Gas Hills. As exploration continued, uranium was found at widely scattered localities and after a while it became evident that uranium occurrences were concentrated in three separate areas: the western, central and eastern trends. Each trend was considered to be a separate entity until about 1963, when it was realized that the different trends appear to be parts of a single complex, geologic feature (Armstrong, 1970).

In the Gas Hills the lateral extent of the host sandstone and favorable environment for uranium mineralization is continuous on the order of miles along trend (direction of solution flow in channels) and hundreds of feet across trend. Refer to Figure 7.6 for an illustration in plan-view. (Beahm, 2017)

**Figure 7.6: Gas Hills Uranium District**



*Map View of Connected Roll-Front Trends (EFR, 1979)*

*Note: The distance between the vertical grid lines (Range Lines) is 6 miles.*

## 7.5 Hydrogeology

The primary groundwater aquifer and the ore-bearing formation in the Project area is the Wind River Aquifer. The general direction of groundwater flow in the Project area is to the north or north west, with local deviation resulting from faulting and geologic structure. The Wind River Formation is made up of south dipping sand and clay layers with the more transmissive intervals of the Wind River Aquifer found within the upper member of this formation in medium to coarse sands. Within the areas of past mining and the resource areas in the Project area, the Wind River Formation functions as a single aquifer.

The Beaver Rim (or Beaver Divide) and the associated geologic structure profoundly impact the regional groundwater recharge and discharge in the Gas Hills area. Faulting and a series of anticlines north of Beaver Rim create barriers and partial divides within the groundwater basin. The majority of groundwater recharge to the Wind River Aquifer results from snowmelt southeast of and above Beaver Rim. Local recharge below and to the north of the Beaver Rim is limited by

the low annual precipitation. The Wind River Aquifer generally discharges to springs or to local alluvial systems associated with major surface drainages north of Beaver Rim. The underlying Cody Shale has a very small transmissivity, and because the Wind River Formation pinches out north of the area of the mining units, the groundwater conveyance capacity gradually diminishes to the north of the Project area until the formation is no longer is present.

Groundwater quality and water level data have been monitored for more than three decades by Pathfinder and others. Strathmore initiated a monitoring program in 2007 which was operated through 2011 in preparation for its 2013 mine permit application. The groundwater quality of the Wind River Aquifer is usually hard with sulfate, calcium, sodium and bicarbonate being the most prevalent major ions.

The potentiometric surface in the Project area has been significantly impacted by past mining and reclamation activities. Pit dewatering and drainage diversions during mining have the potential to profoundly affect the potentiometric surface. The construction of reclamation reservoirs and permanent reclamation diversions also affects the hydrologic system. These activities have been ongoing for more than four decades in the Gas Hills Uranium Project area. The recent water-level elevation contouring (Hydro-Engineering 2018) was developed from data collected for Strathmore's 2013 mine permit application, though also includes measurements taken by others primarily for the WDEQ/AML up to current time. Water-level elevation south and east of the site is also measured in wells installed by Cameco Resources as part of planned ISR operations. These wells generally reflect the potentiometric surface for the Wind River Aquifer between the historic Central Gas Hills area and Beaver Rim. There has been and still is a general trend showing recovery of the water table throughout the area since mining ended in the 1980s; though this is variable through the Project, with the largest recovery shown in the southernmost portion of the Western Unit relatively adjacent to the Beaver Rim at a rate of about 1 foot per year.

The aquifer properties were characterized by Hydro-Engineering (2013, 2018) based on data collected from aquifer stress tests (generally referred to as pump tests). Results from single and multi-well pump tests, along with recovery tests were conducted by Pathfinder in the late 1970's and early 1990's, have been compiled by Hydro-Engineering with recent pump tests performed by Strathmore performed in 2008.

In 2021, Hydro-Engineering developed a MODLOW-2005 numerical groundwater flow model within the major proposed ISR resource areas within the Central Unit. The objective of the modeling was to evaluate the magnitude and extent of predicted drawdown that would occur within in the potential ISR mining area and utilized data previously assembled by Hydro-Engineering from previous studies of the Project as detailed above. Results of the model indicated that for a life-of-mine production scenario ISR operations could be sustained, with a suitable but minor depression of the water table within the ISR pattern area and with the majority of water column above the immediate mining zone intact during ISR extraction. The analysis included stresses based on a life-of mine ISR wellfield design parameters designed to achieve approximately 1 million pounds  $U_3O_8$  per year production. The simulation included a constant withdrawal from



the aquifer during ISR operations at an operational bleed rate of 1%, which is the resulting difference between slightly greater overall production flowrate than overall injection flowrates that creates a constant inward flow necessary for controlling ISR mining solutions.

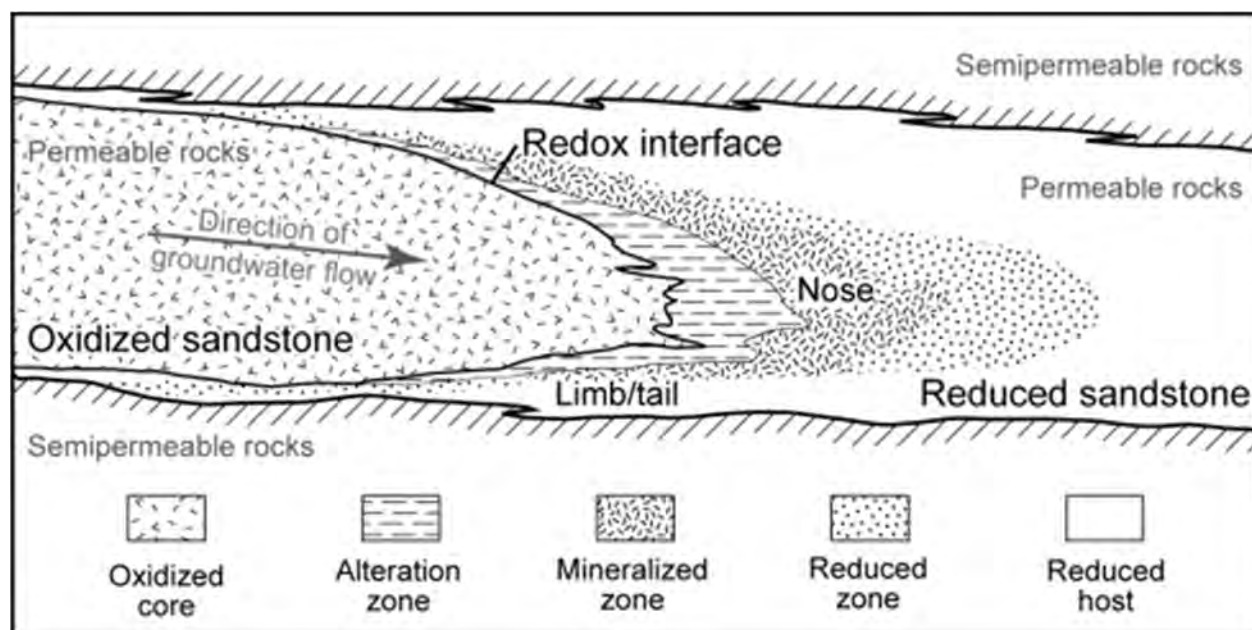
The general surface water conditions include numerous ephemeral drainage channels with significant alteration of local drainages by past mining activity. Perennial surface water bodies in the Project area have resulted from reclamation of mine pits to create several reservoirs, and from blockage of natural drainages fed by springs. There are limited reaches of perennial streams fed by natural springs, but the majority of natural and reclamation drainage channels are highly ephemeral with relatively infrequent flow.

## 8.0 DEPOSIT TYPES

Wyoming uranium deposits are roll-front uranium deposits as defined in the “World Distribution of Uranium Deposits (UDEPO) with Uranium Deposit Classification”, (IAEA, 2009).

Uranium deposits in the Gas Hills were formed by the classic Wyoming-type roll-fronts. Roll-fronts are irregular in shape, roughly tabular and elongated, and range from thin pods and a few feet in width and length, to bodies several hundred or thousands of feet in length. The deposits are roughly parallel to the enclosing beds but may form rolls that cut across bedding. Roll-front deposits are typified by a C-shaped morphology in which the outside of the C extends down-gradient in the direction of historic groundwater flow and the tails extend up-gradient of historic groundwater flow. The tails are typically caught up in the finer sand and silt deposits that grade into over and underlying mudstones, whereas the heart of the roll-front (higher grade mineralization) lies within the more porous and permeable sandstones toward the middle of the fluvial deposits (Figure 8.1).

**Figure 8.1: Idealized Cross-Section of a Sandstone-Hosted Roll Front Uranium Deposit**



*Modified from Granger and Warren (1974) and De Voto (1978).*

## **9.0 EXPLORATION**

### **9.1 Past Exploration**

The Project is located within a brownfield site which has experienced extensive exploration, development drilling, and mine and mill site production. The initial discoveries were based on both ground and aerial radiometric surveys in 1953. The initial discovery of the Gas Hills is credited to Neil MacNeice who located a mineralized outcrop using a handheld radiometric counter while Antelope hunting in the area on September 13, 1953 (Snow, 1978). During approximately the same time aerial radiometric surveys conducted on behalf of the Globe Mining Company identified radiometric anomalies in Gas Hills area as well. Initial exploration focused on the northern portions of the Gas Hills where the host formation and mineralization were exposed by erosion. Exploration methods included geological mapping, surface radiometric scanning, sampling of outcrops, and exploration by dozing to expose mineralization. As the Gas Hills district matured major mining companies were attracted to the area and drilling programs down-dip of the outcrops discovered significant uranium mineralization. Since that time, exploratory work has been primarily by rotary drilling with downhole gamma logging, which quantitatively determines the radiometric equivalent uranium concentration. Radiometric data has been supplemented by coring and/or other downhole geophysical logging techniques which quantitatively analyze for chemical uranium. The ownership of the past and recent exploration files passed from Strathmore to Energy Fuels in August 2013, from Energy Fuels to URZ in October 2016, and were then acquired by Azarga through a merger with URZ in 2018.

## 10.0 DRILLING

### 10.1 Drilling Methods

Currently available drill data consists of radiometric equivalent data ( $eU_3O_8$ ) for 4,569 drill holes (4,056 pre-2007), and  $eU_3O_8$  data and PFN assay data for 272 drill holes completed from 2007 to 2013. 2007-2013 drilling completed monitoring wells and exploration holes. Some pre-2007 drill holes were also re-drilled or washed-out for comparison of results to newer logging tools by previous operators as discussed in Section 11.0. Table 10.1 summarizes the drilling and geophysical data available for this resource estimate. Average depth of drilling for the entire Project is approximately 330 ft and ranges in depth from approximately 80 ft to 1,280 ft.

**Table 10.1: Drilling Summary by Area**

Area	Pre-2007 Drill Holes	2007-2013 Drill Holes	PFN logged	Core Collected
Central Unit	1204	195	75	14
Western Unit	1956	201	146	12
Jeep	296	40	0	0
South Black Mountain	41	20	3	0
Rock Hill	41	57	48	4
Total	4056	513	272	30

The vast majority of the drilling (pre and post 2007) was conducted by air and/or mud rotary drilling (vertical) with limited core drilling for evaluation of radiometric equilibrium conditions. The principal data collected for mineral resource estimation by drilling was downhole radiometric equivalent assays. Geologic data collected included lithologic descriptions of drill cuttings and interpretation of geophysical logs (SP and Resistivity).

Similar lithological and downhole radiometric equivalent assay data was collected during the 2011 and 2012 drilling campaign. Downhole PFN geophysical logs were also run on some holes to provide an in-situ uranium assay for comparison to the radiometric equivalent data. As shown in Table 10.1, a small portion of the drill holes were completed using reverse circulation methods to collect bulk samples for metallurgical testing along with limited core drilling. Drill hole coordinates and elevations are in state plane coordinates.

As no current drilling was being undertaken at the time of the October 7, 2020 site visit, no physical check of work practices was possible. After review of available documentation and discussions with Azarga site personnel, the Author concludes that the previous drilling procedures were in line with industry standard practice and acceptable for use in resource estimation.

## **10.2 Drilling Length Versus True Thickness**

Downhole drift surveys are available only for the 2011 and 2012 drilling. These surveys show random deviation from vertical of 1 to 3°. No deviation of the drill holes was assumed in the mineral resource estimation and this is considered reasonable as explained in following.

The dip of the Wind River Formation within the Project varies from 2 to 6°. If the combination of dip and downhole deviation resulted in an effective deviation of 5° from vertical, the true thickness of mineralization would vary by approximately 0.4%, i.e., a 10-foot apparent thickness would equate to a true thickness of 9.96 feet. The Author concludes that this possible variation is well within the accuracy of the resource estimate.

Core recovery is not an issue as uranium grade is determined primarily by geophysical methods in an open drill hole.

## **10.3 Summary and Interpretation of Relevant Drill Results**

Drill hole locations are shown on maps in Section 14.0. The Author has reviewed the available drill data and considers the information suitable for the purposes of this Report. See Section 12.0 for details on drill data verification.

## **11.0 SAMPLE PREPARATION, ANALYSES AND SECURITY**

### **11.1 Radiometric Equivalent Geophysical Log Calibration**

The US DOE supports the development, standardization, and maintenance of calibration facilities for environmental radiation sensors. Radiation standards at the facilities are primarily used to calibrate portable surface gamma-ray survey meters and borehole logging instruments used for uranium and other mineral exploration and remedial action measurements. This is an important quality control measure used by the geophysical logging equipment operators. The Author has reviewed the geophysical logs and they have annotation of the calibration parameters necessary for the accurate conversion of gamma measurements recorded by the logging units to radiometric equivalent uranium grade. Azarga has acquired exploration files for the Project which includes original geophysical logs and data. This data is securely stored at their facility in Edgemont, South Dakota.

Calibration facilities are located at the US DOE sites at Grand Junction Regional Airport in Grand Junction, Colorado; Grants, New Mexico; Casper, Wyoming; and George West, Texas (<https://energy.gov/lm/services/calibration-facilities>). These calibration facilities were first established by the AEC in the 1950's to support the domestic uranium exploration and development programs of that era.

Early geophysical logs were analog which required manual interpretation. The standard method for estimation of the grade and thickness of uranium was the half-amplitude method. In the late 1960's this method was gradually replaced with computer processing. Dodd et al. (1967) state that borehole logging is the geophysical method most extensively used in the US for the exploration and evaluation of uranium deposits and that gamma-ray logging at that time supplied 80 percent of the basic data for ore reserve calculations and much of the subsurface geologic information. At that time calibration and correction factors were established for each logging unit and probe in the full-scale model holes established by the AEC. GAMLOG and RHOLOG computer programs (Fortran II) were used to quantitatively analyze gamma-ray logs to obtain radiometric equivalent grade and thickness of mineralized intercepts (Dodd et al., 1967).

In 1942 Century Geophysical Corporation, now Century Wireline Services (Century) began research and development of geophysical logging techniques in the US and introduced analog geophysical logging equipment for the uranium industry by 1960. In the late 1970's Century pioneered digital logging and continues to provide these services (Century, 2017). Century's geophysical logging equipment is and has been calibrated at US facilities operated by the AEC, its successor the Energy Research and Development Administration ("ERDA"), and the successor to AEC and ERDA, the US DOE. Tools used for uranium logging are calibrated and assigned dead times and K-factor values at government provided uranium calibration pits. At the same time Century logs field calibration test sleeves which may then be used for daily tool calibration checks to verify that K-factor and dead times have not changed (Century, 2017 and Century, 1975).



Calibration procedures and standards for the geophysical logging equipment used in the determination of radiometric equivalent uranium grade has been consistent through the various drilling campaigns and has relied on calibration facilities maintained by the US government. It is standard practice for Century and other geophysical logging companies to rely on these calibration facilities. Century calibrates to the primary standards located at ERDA facilities in Grand Junction, Colorado where a family of calibration models are maintained. These models consist of a barren zone bored in concrete and a mineralized zone constructed of a homogenous concentration of uranium at a known grade followed by and underlying barren zone. There are different grade models to reflect the range on uranium concentrations typically found in the US. In addition, the models can be flooded to determine a water factor and there are models which are cased for the determination of a casing factor. Each of the models are approximately 9 feet deep consisting a 3 foot mineralized zone with 3 foot barren zones above and below. The facilities are secure. Logging unit operators logs the holes, provide the geophysical log data in counts per second (CPS) to the facility which in turn processes the data and provides the company with standard calibration values including; dead time, K Factor, and water and casing factors (Century, 1975).

## 11.2 Pre-2007 Drilling Analyses

Pre-2007 drillhole logging in the Gas Hills was done by the mining and exploration companies themselves, using their own equipment and was also performed by Century Geophysical, Scinti-Log, Frontier Logging, Rocky Mountain Logging, and Geoscience Associates. These independent geophysical logging companies are and/or were well-known, well respected, and considered to have operated well within industry standards of the time. It was then, and still is standard industry practice to routinely calibrate downhole geophysical logging equipment at the facilities operated by the DOE.

Standard electric logs consisted of recordings of gamma, self-potential, and resistivity. Self-potential and resistivity data are useful in defining bedding boundaries and for correlation of sandstone units and mineralized zones between drill holes. At the time of the pre-2007 drilling, equivalent  $U_3O_8$  content was calculated from gamma logs using industry-standard methods developed by the AEC (now the US DOE), using either manual or computer methods. The manual method is as follows:

For zones greater than 2 feet thick, first pick an upper and lower boundary of mineralization by choosing points approximately one-half height from background to peak of gamma anomaly. Then determine counts per second (cps) for each half-foot interval between the points, convert cps to GT (grade times thickness) using the appropriate dead-time, k-factor and water factor for the specific logging unit utilized, and divide GT by thickness to obtain grade %  $eU_3O_8$ .

These gamma log interpretations are the basis from which quantities of mineralization could be calculated. These interpretations were industry standard at the time (1950s through 1980s) and, in the case of the Gas Hills Uranium Project, validated by more recent drilling and logging, and therefore considered appropriate for use in the mineral resource estimates reported in Section 14.0.

The AEC published information the calibration standards for geophysical logging and on gamma log interpretation methods (Dodd et al., 1967). The standard manual log interpretation method was the half-amplitude method (Century, 1975). The AEC and its successor agency the ERDA conducted workshops on gamma-ray logging techniques and interpretation as did private companies including Century Geophysical.

### **11.3 Post-2007 Drilling**

Starting in 2007, Strathmore implemented a program of exploration and confirmation drilling utilizing standard gamma logging, and from 2011 to 2013, both PFN and gamma logging. This program served as a check on the pre-2007 drilling results in that it confirmed the grade and thickness of uranium for those holes drilled and allowed comparison of results to nearby or adjacent holes from pre-2007 drilling. In 2011 limited reverse circulation drilling was completed to provide bulk material for metallurgical testing. In 2012, Strathmore implemented core drilling at the Bullrush, Day Loma, George-Ver, Loco-Lee and Rock Hill properties for chemical assay determinations to compare the results of their gamma and PFN logging, see Table 10.1 for a summary of core holes completed.

Drill core was typically split and sampled in half-foot or one-foot intervals and sent to various laboratories for uranium analysis. These analyses typically included: fluorometric chemical analysis and closed-can radiometric analysis.

Core assays (2011/2012) were performed by either Chemical and Geological Laboratories of Casper, Wyoming or Skyline Laboratories of Wheat Ridge, Colorado. Both laboratories were independent commercial laboratories. Specific core handling procedures and laboratory certifications for historic analyses are not known.

The PFN is a specialized logging tool with neutron activation to determine the uranium concentrations in drilled holes. The PFN logging utilizes two different tools used one after the other; a standard gamma tool followed by the PFN tool. Disequilibrium was evaluated by using direct comparisons of uranium grades determined PFN and radiometric equivalent uranium grades gamma logs.

The PFN tool creates neutron-induced fission reactions with U235 atoms present in the host rocks. The U235 atoms emit delayed neutrons which reactivate and are counted by the probe's detector. This delay cycle is repeated a number of times to accumulate a statistically acceptable number of delayed neutron counts. If uranium is present, the "decay" times of the delayed neutrons is proportional to the uranium content and is independent of disequilibrium or changes in density. This method can be used to determine the direct content of uranium in the host rocks.

For 2011 and 2012 drilling security practices involved: awareness of chain-of-custody issues, limited access to logging tools through locked storage as approved by the US Nuclear Regulatory

Commission (“US NRC”), and continuing calibration of logging tools to assure that no tampering has occurred. All drill hole samples were in locked storage until sent out for laboratory testing.

Beginning in May 2012, third-party independent PFN and gamma logging provided by GAA Wireline Inc. of Casper, Wyoming was also employed. GAA operated their own logging equipment and at times provided loggers who operated Strathmore’s company-owned PFN logging truck. GAA provided calibration documentation of test pit runs, which were reviewed.

#### **11.4 Security**

For 2011 and 2012 drilling security practices involved: awareness of chain-of-custody issues, limited access to logging tools through locked storage as approved by US NRC, and continuing calibration of logging tools to assure that no tampering has occurred. All drill hole samples were in locked storage until sent out for laboratory testing. Drill cutting samples were generally not preserved and it was typical for the mine operators to assay drill samples at their on-site laboratories.

#### **11.5 Summary**

The Author reviewed the available drill data and independently correlated mineralized horizons and reviewed appropriate composite intervals for use in mineral resource estimation. It is the Author’s opinion that the available drill data is reliable and adequate for the estimation of Measured, Indicated and Inferred Mineral Resources.

## 12.0 DATA VERIFICATION

Data sources reviewed for the estimation of uranium mineral resources for the Project include radiometric equivalent data ( $eU_3O_8$ ) for 4,569 drill holes (4,056 pre-2007), and  $eU_3O_8$  and PFN logging data for 272 drill holes completed between 2007 to 2013. For the 2011-2012 drilling programs, downhole geophysical logging using the PFN tool was completed with Strathmore's PFN logging truck and independently confirmed by GAA Wireline Services.

Extensive verification work was previously completed for holes drilled pre-2007 in the previous 2017 mineral estimate (Beahm, 2017). This Report used the results of the 2007 to 2013 drilling as part of the verification procedures on the pre-2007 drilling. The Author reviewed this analysis as well as post-2007 drilling raw data including electronic copies of geophysical logs, PFN logging data, and core data. There has been no additional drilling since 2013.

### 12.1 Verification of Radiometric Database

The pre-2007 drill data was originally collected by several operators including American Nuclear Corporation (ANC), Federal American Partners (FAP), Pathfinder Mines/Areva (PMC), Western Nuclear (WNC), Energy Fuels (EF), Union Carbide Corporation (UCC), Adobe-Vinpoint (Adobe), Power Resources Inc. (PRI), and others. These companies either utilized their own geophysical logging equipment, commercial logging services, or a combination of the two. The pre-2007 drill data includes geophysical logs from Century Geophysical, Scinti-Log, Rocky Mountain Logging, Frontier Logging Services, and Geoscience Associates. It was standard industry practice at the time, and it is the current practice, to maintain calibration of geophysical logging equipment through use of the AEC/ERDA (now the US DOE) standard calibration pits located at Casper, Wyoming and Grand Junction, Colorado for quality control and assurance with respect to radiometric equivalent data.

Electronic copies of geophysical logs are in possession of Azarga and were reviewed by the Author. The pre-2007 drill logs contain header information for essentially all of the drill holes including K Factor, Dead Time, and Water Factor. Several of the drill holes headers also included notes as to the date of calibration of the logging unit at the ERDA test pits. Pre-2007 drill data generally consists of geophysical logs of drill holes including of copies (blueprints) of original drill logs and copies of digital printouts of depth and counts per second (CPS) in ½ foot increments within the mineralized zones. The geophysical logs include natural gamma, resistivity, and spontaneous potential (SP). All drill holes were drilled with fluid and logged in the open hole with no casing. All drill holes were vertical with no drift data.

Radiometric equivalent data is available for essentially all the pre-2007 holes and is incorporated into the drill hole database.

The post-2007 drill data, both electronic and hard copy, includes; original geophysical log prints and digital Log Assay Standard (LAS) files, hard copy printouts and digital ½ foot radiometric

equivalent data, gamma calibration data files from the US DOE test pits, and hard copy and scans of field lithologic logs. The same type and form of data is available for drill holes logged with the PFN logging unit. Core data includes chain of custody and laboratory certificates.

Beahm reviewed 46 PFN logs which have both radiometric equivalent data and PFN uranium assay data, checked this data against the electronic database, and prepared the correlations of this data for evaluation of disequilibrium.

The pre-2007 drill data was combined with data from 2007-2013 drilling by Azarga in an electronic database. During the preparation of this Report, the available electronic data was reviewed for each of the mineral resource areas. This process included:

- Plotting of the drill hole locations and comparing these to drill maps prepared by previous operators
- Screening the drill hole data and preparing a subset of the data containing mineralized intercepts meeting grade, thickness and GT cutoff criteria.
- Correlating the mineralized intercept data such that mineral resource estimates reflected only continuous horizons.
- Excluding any spurious mineralized horizons (laterally or by depth from the continuous horizons) from the mineral resource estimate.
- Examining any mineralized intercepts which were either substantially higher or lower than the surrounding values to ensure the data was considered reliable and therefore suitable to be used.
- Confirmation of vertical correlation between mineralized zones of pre-2007 and 2007-2013 data

All intercept data from the electronic database and ACAD GT-contours initially generated by Azarga were loaded into Vulcan software by Roughstock for the auditing purposes. Using Vulcan, Roughstock was able to verify the mapped resource contours as well as compare and verify the internal consistency of the electronic database.

## **12.2 Verification of Disequilibrium Factor**

Radioactive isotopes decay until they reach a stable non-radioactive state. The radioactive decay chain isotopes are referred to as daughters. When all the decay products are maintained in close association with the primary uranium isotope U238 for the order of a million years or more, the daughter isotopes will be in equilibrium with the parent isotope (McKay et al., 2007).

Disequilibrium occurs when one or more decay products are dispersed as a result of differences in solubility between uranium and its daughters.

Disequilibrium is considered positive when there is a higher proportion of uranium present compared to daughters and negative where daughters are accumulated, and uranium is depleted. The disequilibrium factor (“DEF”) is determined by comparing radiometric equivalent uranium grade  $eU_3O_8$  to chemically measured uranium grade. Radiometric equilibrium is represented by a DEF of 1, positive radiometric equilibrium by a factor greater than 1, and negative radiometric equilibrium by a factor of less than 1.

Except in cases where uranium mineralization is exposed to strongly oxidized conditions, most of the sandstone roll front deposits reasonably approximate radiometric equilibrium. The nose of a roll front deposit tends to have the most positive DEF and the tails of a roll front would tend to have the lowest DEF (Davis, 1969).

Radiometric versus chemical data are available throughout the Project. Extensive data, analysis, and discussion of the comparability of PFN data with chemical assays from core was previously completed which concluded that the PFN assays were reliable (CAM, 2013). Beahm reviewed this information, completed independent calculations, and found the CAM conclusions to be reasonable and appropriate. Overall, the calculated DEF was positive averaging 1.2:1 which means the actual grade of uranium mineralization is higher than the radiometric equivalent grade. The DEF was found by Beahm to vary by area, ranging from 0.80:1 to 1.5:1 (Beahm, 2017).

Although available data indicates an overall positive DEF, a DEF of 1 is applied in this estimate and no correction to the radiometric equivalent data relative to %  $eU_3O_8$  is used in this estimate. The Author has reviewed the previous DEF analysis and deems this to approach to be a conservative, since a positive correction would result in an overall higher %  $eU_3O_8$  values and an overall higher quantity resource estimate. The Author also finds this approach to be consistent with typical industry practice for uranium ISR projects.

### **12.3 Verification of Pre-2007 Drilling by Re-Logging**

In 2011 and 2012 some pre-2007 drill holes were re-entered and re-probed using modern gamma and PFN logging tools. Where available, the pre-2007 gamma logs were scanned and displayed adjacent to the modern gamma/PFN logs. These holes compare favorably with respect to depth, thickness, grade and GT.

### **12.4 Density of Mineralized Material**

The density of mineralization used in the Gas Hills for resource estimation was 16 cubic feet per ton. This is the most common figure used for sandstone hosted, roll-front uranium deposits in Wyoming and Colorado, as noted extensively throughout the literature on these deposits. Density studies were completed on core retrieved in March and December 2012. The studies were



completed by Intermountain Labs of Sheridan, Wyoming and DOWL-HKM of Lander, Wyoming, respectively. The overall average of the 26 samples was 16.49 ft<sup>3</sup>/ton.

Based on the limited number of core sampled for density, and the overall average being very similar to the 16 ft<sup>3</sup>/ton average used historically, this Report has assumed a density factor of 16 ft<sup>3</sup>/ton for the mineral resource estimates reported in Section 14.0. The Author finds this value to be representative and also slightly conservative.

## **12.5 Summary**

Based on the outcomes of the above data verification, the Author considers the Project data sufficiently reliable for mineral resource estimation and related work. No deficiencies were found in the verification and audit of this information.

### 13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

Ore from past mining within the Gas Hills was processed using conventional milling, recovery, and extraction methods including the Union Carbide, Pathfinder, and Federal American Partners mills located in the Gas Hills. As well, ore from the Gas Hills was shipped to the Susquehanna mill in Riverton, Wyoming and the Western Nuclear mill near Jeffery City, Wyoming (Snow, 1978). Heap leach recovery operations were also successively conducted by Union Carbide at their East Gas Hills facility (Woolery et al., 1978) and at the Western Unit by Western Nuclear Corporation.

One of the previous operators, Strathmore, conducted preliminary metallurgical testing in 2011 on bulk samples collected from reverse circulation drill holes. The results are consistent those experienced when the mines were in production (Beahm, 2017).

In May 2011, Strathmore commissioned Lyntek Inc. of Lakewood, Colorado, an experienced firm in uranium engineering and processing research, to carry out preliminary metallurgical studies and investigate the proposed Gas Hills uranium heap leach recovery plans. These studies included bottle-roll testing, three separate column leach studies, and testing of Ion Exchange Resin. Results of these studies were included in following reports summarized in the “Preliminary Metallurgical Testing Summary, Agitation Test Work – Report 1, Uranium Heap Leach, Gas Hills Project” (Lyntek, 2013), “Preliminary Metallurgical Test Summary, Winter 2011, Column Leach Report (Lyntek, 2013) “Preliminary Metallurgical Test Summary – Summer 2012, Column Leach Test Report III, Uranium Heap Leach Gas Hills Project” (Lyntek, 2013) “Gas Hills Uranium Recovery Project, Metallurgical Investigations, Ion Exchange Testing” (Lyntek and Alexander, B, 2013).

#### Uranium Extraction Bottle Roll Testing

Lyntek completed 11 total bottle roll tests using core ranging in mineral grade from 0.069% - 0.258% U. Using all of the metallurgical tests to evaluate recovery showed that recoveries ranged between 55.8% and 97.9% and typically had acid consumptions ranging from 8.6 to 230 pounds per ton. The average recovery of all eleven leach tests was 90.0% with an average acid consumption of 55.4 pounds per ton. The individual bottle roll tests consisted of each of the following: 2 cores from the Western Unit, 4 cores and 1 duplicate from the Central Unit, 2 cores from Rock Hill, and 1 blended core sample and 1 blended core sample duplicate.

#### Uranium Extraction Column Testing

Lyntek completed two initial column leach tests with two blended samples from cores collected from the Western Unit, Central Unit, and Rock Hill configured to be a high-grade composite with an average grade of 0.135% U and a low-grade composite with an average grade of 0.023% U. Lyntek also conducted a third column leach test using a sample of stockpile ore from the Central Unit with an average grade of 0.137% that was highly oxidized due to prolonged exposure to the atmosphere. Though the tests were all run well past reaching an asymptotic recovery point, all

three results appear to confirm a suitable target of 90% recovery. Results of the initial two blended core samples showed what was deemed a “quick” extraction with maximum recovery of 98.4% reached in approximately 21 days in the high-grade sample and a maximum recovery of 98.9% recovery of the low-grade sample in approximately 9 days. In the third test, 90% recovery was reached in approximately 65 days.

### IX Testing

Preliminary ion exchange extraction tests showed that uranium could be successfully loaded by this method and that Dowex 21K resin was a favorable resin choice for use in processing recovery solutions from the site.

### Summary

In summary, while the history of uranium production in the Gas Hills demonstrates that uranium is recoverable from mineralized material and recent metallurgical testing indicates favorable results, Lyntek recommended additional metallurgical testing be conducted. Specifically, Lyntek recommended that metallurgical studies to further expand the understanding of the range of metallurgical conditions and process variables that may be incorporated into mine plans, and which further simulate the proposed mineral processing method, be performed. This includes both heap leach and ISR extraction scenarios.

The Author has reviewed the studies by Lyntek and finds them to be supportive that both assumed mining methods of this Mineral Resource estimate have reasonable prospects for economic extraction.

## **14.0 MINERAL RESOURCE ESTIMATES**

### **14.1 Mineral Resource Definitions**

A technical review and resource estimation was completed by Roughstock for this resource update using Vulcan V. 10.0 software. Mineral Resources reported in this Report are classified as Measured, Indicated, and Inferred in accordance with CIM “Estimation of Mineral Resource and Mineral Reserves Best Practice Guidelines” (November 29, 2019). Classification of the resources reflects the relative confidence of the grade estimates. Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no certainty that all or any part of the mineral resource will be converted into mineral reserve. The effective date of the revised Mineral Resource estimate March 29, 2021.

This section describes the resource estimation methodology and summarizes key assumptions considered by the Author. In the opinion of the Author, the resource evaluation is a reasonable representation of the uranium resources found in the Gas Hills.

The database, GT-contours, and calculations used to estimate the Gas Hills Uranium Project Mineral Resources was audited by Roughstock and it is the opinion of the Author that the current drilling information is sufficiently reliable to interpret the extents of the pods and the assay data are sufficiently reliable to support mineral resource estimation.

### **14.2 Basis of Mineral Resource Estimates**

#### **14.2.1 Methodology**

The mineral resource estimates are based on radiometric equivalent uranium grades % eU<sub>3</sub>O<sub>8</sub>. A minimum 0.02% eU<sub>3</sub>O<sub>8</sub>, minimum 1.0 foot thickness, and minimum GT of 0.10 was used in the estimations along with a bulk dry density of 16 cubic feet per ton. Resources were estimated using the GT contour method, which is industry standard for this type of deposit. The GT was determined for each drillhole by major stratigraphic horizon, then the GT was summed separately for each mineralized sub-horizon for intercepts meeting the cutoff criteria. Contours were drawn in two-dimensional space around horizon intercepts, allowing projection up to 100 feet across a mineralized trend and up to 600 feet along the mineralized trend. The GT contour maps provided in Section 14.5 provide a graphical representation of the mineralization reflecting the location, quality, GT, and continuity of the mineralization.

Average GT for each contour was calculated one of two ways depending on if the contour was the highest GT contour or if it contained another, higher GT contour. If the contour was the highest GT contour, all GT values within the contour were averaged, then averaged with the value of that GT contour. For example, a 1.0 GT contour with two GT values of 1.20 and 1.47 and no higher contour within would be  $((1.20+1.47)/2)+1.0)/2 = 1.17$  average GT. If the contour contained another higher contour, the average GT was the average of the upper and lower GT contour values.

For example, a 1.0 GT contour with a 2.0 GT contour within would be  $(1.0+2.0)/2 = 1.5$  average GT.

Pounds of uranium for each contour were calculated by multiplying the contour area by GT and applying the density factor ( $\text{Area} \times \text{Avg GT} \times 1.25 = \text{Pounds}$ ). Tonnage was calculated by multiplying composited contour thickness by contour area to get cubic feet, then converting to tonnage by applying the density factor ( $\text{Thickness} \times \text{Area}/16$ ).

The drillhole database was provided as an Excel database and imported into Vulcan's ISIS format in order to verify drillhole collar locations and any errors corrected.

The 0.1 GT base case cutoffs were selected by meeting economic criteria for both ISR and open pit/heap leach methods differentiated on the relative location to the water table. Resources labeled "ISR" meet the criteria of being sufficiently below the water table to be amenable by ISR methods and as well as also meeting other hydrogeological criteria. "Non-ISR" resources include those generally above the natural water table, which would typically be mined using open pit methods.

#### 14.2.2 Uranium Price Assumption

Uranium does not trade on the open market and many of the private sales contracts are not publicly disclosed. Monthly long term industry average uranium prices based on the month-end prices are published by Ux Consulting, LLC, and Trade Tech, LLC. CIM Guidance of Commodity Pricing (November 28, 2015) reviews methods for determining an appropriate long term commodity price assumption for use in cutoff calculations and to support assessment of "reasonable prospects of eventual economic extraction". Industry accepted practice is to use "Consensus Prices" obtained by collating publicly available commodity prices from credible sources. Table 14.1 provides a summary of recent analyst price forecasts.

**Table 14.1: Analyst Consensus Uranium Price Forecast**

Analyst	Date Reported	2021	2022	2023	Long Term
CIBC	10/27/20	\$ 44.00	\$ 46.00	\$ 49.00	\$ 56.80
BMO	10/23/20	\$ 32.50	\$ 37.50	\$ 43.80	\$ 55.00
RBC	10/20/20	\$ 35.00	\$ 40.00	\$ 40.00	\$ 65.00
UBS	10/20/20	\$ 35.00	\$ 40.00	\$ 50.00	\$ 55.00
Eight Capital	10/14/20	\$ 55.00	\$ 60.00	-	\$ 60.00
Scotia	10/13/20	\$ 35.00	\$ 38.00	\$ 40.00	\$ 50.00
Investec	10/06/20	\$ 32.50	\$ 35.00	\$ 40.00	\$ 50.00
TD	10/5/20	\$ 36.00	\$ 37.50	\$ 40.00	\$ 45.00
Raymond James	9/23/20	\$ 42.50	\$ 45.00	-	\$ 50.00

Source: CIBC Global Mining Group, "Analyst Consensus Commodity Price Forecasts", November 2, 2020

While the analysts' forecasts vary, the median value of US\$55 per pound  $U_3O_8$  is considered reasonable by the Author for use in cutoff determination and to assess reasonable prospects for eventual economic extraction.

### 14.2.3 Prospects for Eventual Economic Extraction

Based on the depths of mineralization, average grade, thickness and GT, it is the Author's opinion that, using a long-term price of US\$55 per pound  $U_3O_8$ , mineral resources at the Project can be recoverable by either ISR or open pit mining methods.

For the purposes of assessing reasonable prospects of eventual economic extraction, operating costs were estimated from similar ISR projects under the assumption that the mining method would utilize low-pH recovery methods and an 80% recovery consistent with leach testing results for the Project. Project specific factors include the grade, resource scale, chemical consumption rates including sulfuric acid, resin processing, taxes, royalties and the extraction area and were used to estimate these costs which are summarized in Table 14.2 as follows:

**Table 14.2: ISR Cutoff Grade Cost Assumptions**

Cost Center	Estimated Cost per Pound $U_3O_8$
Plant and Operating Labor	\$ 8.02
Wellfield Operating and Labor	\$ 1.23
Product Transport/Finishing	\$ 0.85
Wellfield Restoration	\$ 0.35
Mineral Processing	\$ 3.30
Taxes and Royalties	\$ 1.66
Total Estimated Cost	\$ 15.41

These costs determined at the 0.1GT cutoff base case scenario and are 78% less than the US\$55 per pound  $U_3O_8$  consensus long-term price forecast. The estimate includes only direct operating costs and does not include capital or reclamation costs, though it does include groundwater restoration cost. The additional capex and reclamation costs were estimated for the Project at US\$20.65 per pound  $U_3O_8$ . Overall project costs were estimated to be US\$36.06 per pound  $U_3O_8$ . These preliminary cost estimates are only for the purposes of determining cutoff grade and to demonstrate that ISR mineral resources do have reasonable prospects for eventual economic extraction. Project economics and costs would be expected to be evaluated and optimized in a future preliminary economic assessment.

For the purposes of assessing reasonable prospects of eventual economic extraction for resources that are generally above the water table and not considered amenable by ISR methods, the mineral resources were evaluated using the costs for open pit and heap leach mining scenario. The resources comprised only the upper most mineralization at the Project and a lesser portion of the



overall mineralization. Resulting were within a mining ratio were within a depth and amount of strip material (overburden) that can be supported by a given volume and grade of mineralized material. To be conservative an average strip ratio of 20:1 was utilized, based upon average depth and area of the resources. This number was representative of the higher strip ratios at the Project though at times much lower than strip ratios are seen in several part of the Project which could range as low as 4:1.

Major operating cost centers for open pit uranium mining include primary stripping, mining of mineralized material, mineral processing, and taxes and royalties. Using the average strip ratio and metallurgical recovery of 85%, estimated operating costs are summarized in Table 14.3 as follows:

**Table 14.3: Open Pit/Heap Leach Cutoff Grade Assumptions**

Open Pit/Heap Leach Cost Center	Estimated Cost per Pound U <sub>3</sub> O <sub>8</sub>
Stripping	\$ 5.98
Support Equipment	\$ 2.08
Direct Mining	\$ 2.02
Mineral Processing	\$ 18.37
Product Transport/Finishing	\$ 4.93
Staff/G&A	\$ 2.57
Taxes and Royalties	\$ 3.44
Total Estimated Cost	\$ 39.39

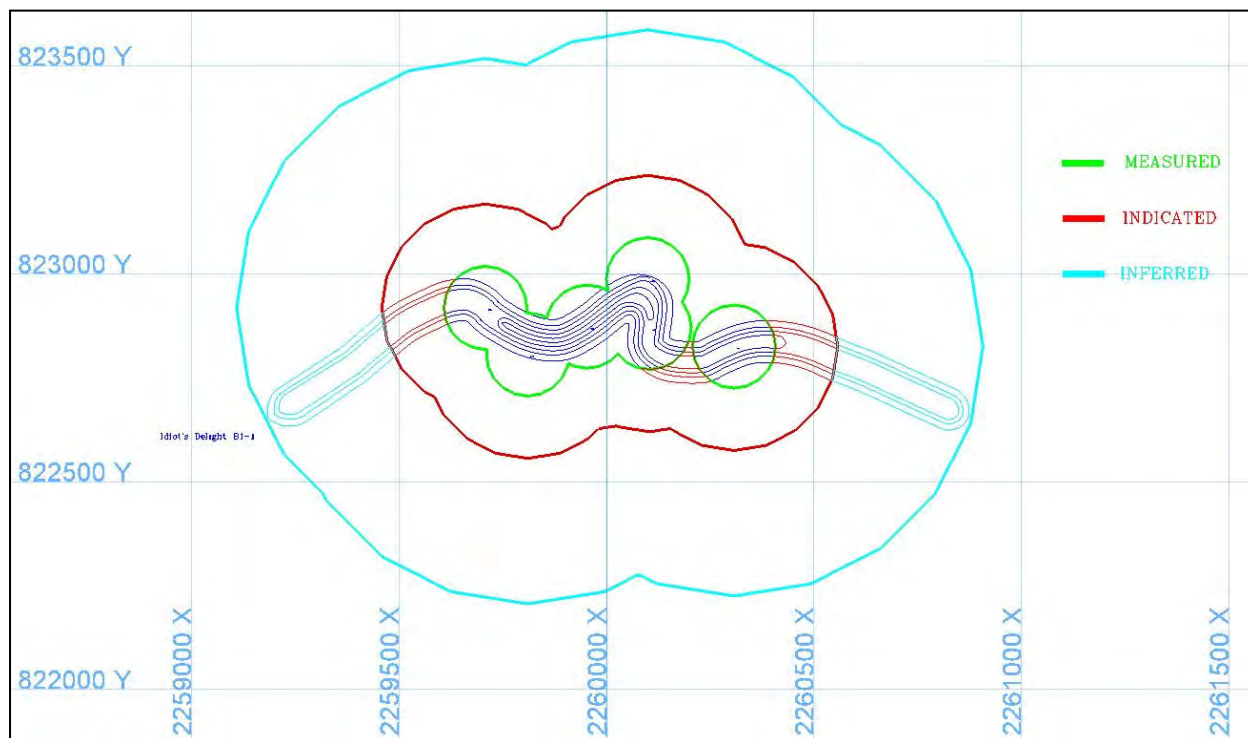
These costs were determined using the 0.1GT cutoff base case scenario and are about 28% less than the US\$55 per pound U<sub>3</sub>O<sub>8</sub> consensus long-term price forecast. The estimate includes only direct operating costs and does not include capital or reclamation costs. Capital and reclamation costs were estimated to be US\$14.48 per pound U<sub>3</sub>O<sub>8</sub>. Despite conservative assumptions, roughly estimated overall costs were just below the US\$55 per pound U<sub>3</sub>O<sub>8</sub> consensus long-term price forecast, at US\$53.48 per pound U<sub>3</sub>O<sub>8</sub>. These preliminary cost estimates are only for the purposes of determining cutoff grade and to demonstrate that non-ISR mineral resources do have reasonable prospects for eventual economic extraction. Project economics and costs would be expected to be evaluated and optimized in a future preliminary economic assessment.

### 14.3 Key Assumptions and Parameters

Mineral resources were classified as Measured, Indicated, and Inferred based on the distance to the nearest drilling intercept to measure drilling density. To be classified as measured resource, the contour must fall within 100 feet of a mineralized drillhole intercept in that horizon. Indicated resource must fall between 100 and 250 feet from the nearest mineralized intercept in that horizon. Inferred resource must be within 600 feet of a mineralized intercept in that horizon.

Using Vulcan software, boundaries at 100, 250, and 600 feet from each drillhole collar were generated. The GT contours were then divided and classified based on area contained within each of the distance boundaries from drillhole intercepts. Figure 14.1 shows contours for an example pod within the Central Unit that shows how categories were allocated within each mineralized pod for resource classification with respect to drilling density.

**Figure 14.1: Resource Classification Boundaries**



After classifying resources based on distance from drilling, further consideration was given to applicable mining methods for each pod. Reclassification of resource was determined based on local water table levels at each resource pod and the level of detail of hydrogeologic understanding.

At this time, only the Central Unit has had groundwater flow modeling completed. All other ISR resource which met the measured criteria for ISR drilling density were classified as indicated resource until more detailed hydrologic studies to support ISR are conducted on these resource areas.

### 14.3.1 Cutoff Criteria

The cutoff used for mineral resource classification was a minimum 0.02%  $eU_3O_8$ , minimum 1.0 foot thickness, and minimum 0.10 GT. These criteria were determined to meet the criteria for

“reasonable prospects for economic extraction” for both ISR and open pit heap/leach mining methods as described in Section 12.2.4. The GT cutoff of 0.1 GT is also consistent with previous historic resource estimation in the area. Additionally, 0.2 GT cutoffs were included for ISR resources for additional comparison purposes only as this is a typical uranium industry standard ISR cutoff. However, average grade of ISR resources in this resource estimate at a 0.1 GT cutoff compares favorably to other ISR projects in region, meet economic criteria for ISR extraction, and thus were considered the base case for this Report.

When drawing GT contours, the maximum allowable GT was set at 7.0. Any drilling intercept with a higher GT was included in the 7.0 GT contour and assigned that value.

### 14.3.2 Bulk Density

The bulk density value of 16 cubic feet per ton was used to calculate the resource estimate. Verification of the use of this value can be found in Section 12.4.

### 14.3.3 Radiometric Equilibrium

Evaluation of radiometric equilibrium is discussed on Section 12.0 of this Report. While the average disequilibrium factor for the five Project areas was greater than 1 (1.20), the disequilibrium factor varied by area, ranging from 0.80 to 1.50. For the purposes of assessing the overall mineral resources for the Project, it is recommended that no correction for radiometric equilibrium be applied for this level of study. Based on the available data and the geological setting of the mineral deposits, the Author considers it appropriate to assume a DEF factor of 1 for all mineral resource estimates.

## 14.4 Mineral Resource Summary

Mineral Resources for the Project are estimated by classifications meeting CIM standards and definitions as indicated or inferred mineral resources, at a 0.10 GT cutoff, as summarized in Table 14.4. Subsequent Sections 14.4.1 through 14.4.5 provide specific summaries for the Western Unit, Central Unit, Rock Hill, South Black Mountain, and Jeep areas, respectively.

**Table 14.4: Mineral Resource Summary**

March 29, 2021 (GT cutoff 0.10)					
	Pounds	Tons	Avg. Grade	Avg. Thickness	Avg. GT
Measured	2,051,065	993,928	0.103%	5.35	0.552
Indicated	8,714,126	6,031,224	0.072%	6.13	0.443
Inferred	490,072	514,393	0.048%	6.16	0.293
Total M&I	10,765,191	7,025,152	0.077%	6.05	0.463

March 29, 2021, ISR Only (GT cutoff 0.10)					
	Pounds	Tons	Avg. Grade	Avg. Thickness	Avg. GT
Measured	2,051,065	993,928	0.103%	5.35	0.552
Indicated	5,654,545	2,835,339	0.100%	4.92	0.491
Inferred	427,817	409,330	0.052%	5.94	0.310
Total M&I	7,705,610	3,829,267	0.101%	4.99	0.502
March 29, 2021, Non-ISR Only (GT cutoff 0.10)					
	Pounds	Tons	Avg. Grade	Avg. Thickness	Avg. GT
Indicated	3,059,581	3,195,885	0.048%	8.60	0.412
Inferred	62,256	105,063	0.030%	7.01	0.208
Total M&I	3,059,581	3,195,885	0.048%	8.60	0.412
March 29, 2021, ISR Only (GT cutoff 0.20)					
	Pounds	Tons	Avg. Grade	Avg. Thickness	Avg. GT
Measured	1,887,847	847,570	0.111%	5.94	0.661
Indicated	4,872,128	2,143,763	0.114%	5.74	0.653
Inferred	290,007	260,544	0.056%	8.44	0.470
Total M&I	6,759,975	2,991,333	0.113%	5.77	0.653

*Note: Mineral resources that are not mineral reserves do not have demonstrated economic viability.*

#### 14.4.1 Western Unit

There are a total of 2157 drill holes in the database for the Western Unit. Depth of mineralization varies within two horizons for ISR Mineralized Resources averaging in depth between approximately 200 to 350 feet below surface each and up to approximately 550 feet in depth. Non-ISR Mineralized Resources range in depth from surface to approximately 290 feet in depth with an average depth of approximately 150 feet. Additionally, several pods were identified in the northern portion of the Western Unit that were located near a significant fault. Due to uncertainty of the hydrogeologic conditions and the lack of groundwater modeling in proximity to the fault, ISR resources that met measured or indicated contours of drilling density were classified as inferred. Indicated and Inferred Mineral resources for the Western Unit are shown in Table 14.5 as follows:

**Table 14.5: Western Unit Mineral Resource Summary**

March 29, 2021 (GT cutoff 0.10)					
	Pounds	Tons	Avg. Grade	Avg. Thickness	Avg. GT
Indicated	5,272,398	2,985,281	0.088%	5.75	0.507
Inferred	300,591	295,277	0.051%	6.87	0.350

Total M&I	5,272,398	2,985,281	0.088%	5.75	0.507
March 29, 2021, ISR Only (GT Cutoff 0.10)					
	Pounds	Tons	Avg. Grade	Avg. Thickness	Avg. GT
Indicated	3,711,720	1,547,368	0.120%	4.92	0.591
Inferred	292,689	283,629	0.052%	6.76	0.349
Total M&I	3,711,720	1,547,368	0.120%	4.92	0.591
March 29, 2021, Non-ISR Only (GT Cutoff 0.10)					
	Pounds	Tons	Avg. Grade	Avg. Thickness	Avg. GT
Indicated	1,560,678	1,437,914	0.054%	8.02	0.435
Inferred	7,901	11,649	0.034%	8.00	0.271
Total M&I	1,560,678	1,437,914	0.054%	8.02	0.435
March 29, 2021, ISR Only (GT Cutoff 0.20)					
	Pounds	Tons	Avg. Grade	Avg. Thickness	Avg. GT
Indicated	3,291,530	1,208,058	0.136%	5.71	0.778
Inferred	211,601	198,222	0.053%	9.37	0.500
Total M&I	3,291,530	1,208,058	0.136%	5.71	0.778

*Note: Mineral resources that are not mineral reserves do not have demonstrated economic viability.*

#### 14.4.2 Central Unit

The Central Unit contains the George-Ver and Frazier Lamac mine complex located within the Central Gas Hills. These two historic areas were extensively mined in the past predominantly by open pit methods. The majority of the George-Ver and Frazier Lamac areas have been drilled on 100-foot centers or less. Data from 1399 drill holes was available and utilized in the estimation of mineral resources. ISR Mineralized Resources range in depth from 130 feet to approximately 280 feet and average approximately 210 feet below surface. Non-ISR Mineralized Resources range in depth from surface to approximately 310 feet with an average depth of approximately 110 feet. The depth to ore horizons varies widely based on surface topography. A detailed groundwater model (see Section 7.5) was conducted in the Central Unit specifically on the George Ver/Frazier Lamac deposit to demonstrate that conditions for extraction were suitable to sustain sufficient water levels over a life-of-mine operating scenario (Hydro-Engineering, 2021). Some ISR resources in the George Ver/Frazier Lamac areas are classified as Measured Resource because of the combination of drilling density, high-level hydrologic study, and supporting metallurgical analysis. Measured, Indicated, and Inferred Mineral resources for the Central Unit are shown in Table 14.6 as follows:



**Table 14.6: Central Unit Mineral Resource Summary**

March 29, 2021 (GT Cutoff 0.10)					
	Pounds	Tons	Avg. Grade	Avg. Thickness	Avg. GT
Measured	2,051,065	993,928	0.103%	5.35	0.552
Indicated	1,109,575	1,037,599	0.053%	5.86	0.313
Inferred	127,998	139,997	0.046%	5.23	0.239
Total M&I	3,160,640	2,031,527	0.078%	5.62	0.437
March 29, 2021, ISR Only (GT Cutoff 0.10)					
	Pounds	Tons	Avg. Grade	Avg. Thickness	Avg. GT
Measured	2,051,065	993,928	0.103%	5.35	0.552
Indicated	595,029	474,364	0.063%	5.92	0.371
Inferred	92,414	88,210	0.052%	4.46	0.233
Total M&I	2,646,094	1,468,292	0.090%	5.49	0.495
March 29, 2021, Non-ISR Only (GT cutoff 0.10)					
	Pounds	Tons	Avg. Grade	Avg. Thickness	Avg. GT
Indicated	514,546	563,236	0.046%	5.84	0.267
Inferred	35,585	51,787	0.034%	5.82	0.200
Total M&I	514,546	563,236	0.046%	5.84	0.267
March 29, 2021, ISR Only (GT cutoff 0.20)					
	Pounds	Tons	Avg. Grade	Avg. Thickness	Avg. GT
Measured	1,887,847	847,570	0.111%	5.94	0.661
Indicated	506,146	391,010	0.065%	7.64	0.494
Inferred	54,667	44,847	0.061%	5.78	0.352
Total M&I	2,393,993	1,238,580	0.097%	6.29	0.608

*Note: Mineral resources that are not mineral reserves do not have demonstrated economic viability.*

### 14.4.3 Rock Hill

Mineralized Resources at Rock Hill are shallow, averaging approximately 40 feet in depth from surface, and have, at least in part, been re-distributed by surface oxidation. Data from close spaced drilling (50 foot) is available. Table 14.7 summarizes the Indicated and Inferred Mineral Resources estimated for Rock Hill, which are entirely Non-ISR resources.

**Table 14.7: Rock Hill Mineral Resource Summary**

March 29, 2021, Non-ISR Only (GT cutoff 0.10)					
	Pounds	Tons	Avg. Grade	Avg. Thickness	Avg. GT
Indicated	984,357	1,194,736	0.041%	15.83	0.652
Inferred	18,770	41,627	0.023%	10.40	0.234
Total M&I	984,357	1,194,736	0.041%	15.83	0.652

*Note: Mineral resources that are not mineral reserves do not have demonstrated economic viability.*

#### 14.4.4 South Black Mountain

South Black Mountain drill data consists of 20 drillholes from relatively recent drilling (2007-2013) and 41 drillholes from Pre-2007. Two mineralized horizons are present in the area occurring at depths of approximately 980 feet and 1100 feet. South Black Mountain is located south of the Beaver Rim and contains the deepest mineralization of the Project. The area has been untouched by historic mining. Table 14.8 summarizes the Indicated and Inferred Mineral Resources estimated for South Black Mountain, which are entirely ISR resources.

**Table 14.8: South Black Mountain Mineral Resource Summary**

March 29, 2021, ISR Only (GT cutoff 0.10)					
	Pounds	Tons	Avg. Grade	Avg. Thickness	Avg. GT
Indicated	858,761	525,730	0.082%	4.43	0.362
Inferred	35,456	30,889	0.057%	3.48	0.200
Total M&I	858,761	525,730	0.082%	4.43	0.362
March 29, 2021, ISR Only (GT cutoff 0.20)					
	Pounds	Tons	Avg. Grade	Avg. Thickness	Avg. GT
Indicated	662,415	333,681	0.099%	5.11	0.507
Inferred	17,971	12,323	0.073%	4.80	0.350
Total M&I	662,415	333,681	0.099%	5.11	0.507

*Note: Mineral resources that are not mineral reserves do not have demonstrated economic viability.*

#### 14.4.5 Jeep

The Jeep area drill data consists of 40 drillholes (2007-2013) and 296 drill holes from Pre-2007 drilling. A single mineralized horizon is present in the area occurring at an approximate depth of 270 feet. Table 14.9 summarizes the Indicated and Inferred Mineral Resources estimated for South Black Mountain, which are entirely ISR resources.

**Table 14.9: Jeep Mineral Resource Summary**

March 29, 2021, ISR Only (GT cutoff 0.10)					
	Pounds	Tons	Avg. Grade	Avg. Thickness	Avg. GT
Indicated	489,034	287,877	0.085%	5.10	0.433
Inferred	7,258	6,603	0.055%	3.75	0.206
Total M&I	489,034	287,877	0.085%	5.10	0.433
March 29, 2021, ISR Only (GT cutoff 0.20)					
	Pounds	Tons	Avg. Grade	Avg. Thickness	Avg. GT
Indicated	412,038	211,014	0.098%	5.88	0.575
Inferred	5,768	5,152	0.056%	4.95	0.277
Total M&I	412,038	211,014	0.098%	5.88	0.575

*Note: Mineral resources that are not mineral reserves do not have demonstrated economic viability.*

## 14.5 GT Contour Maps

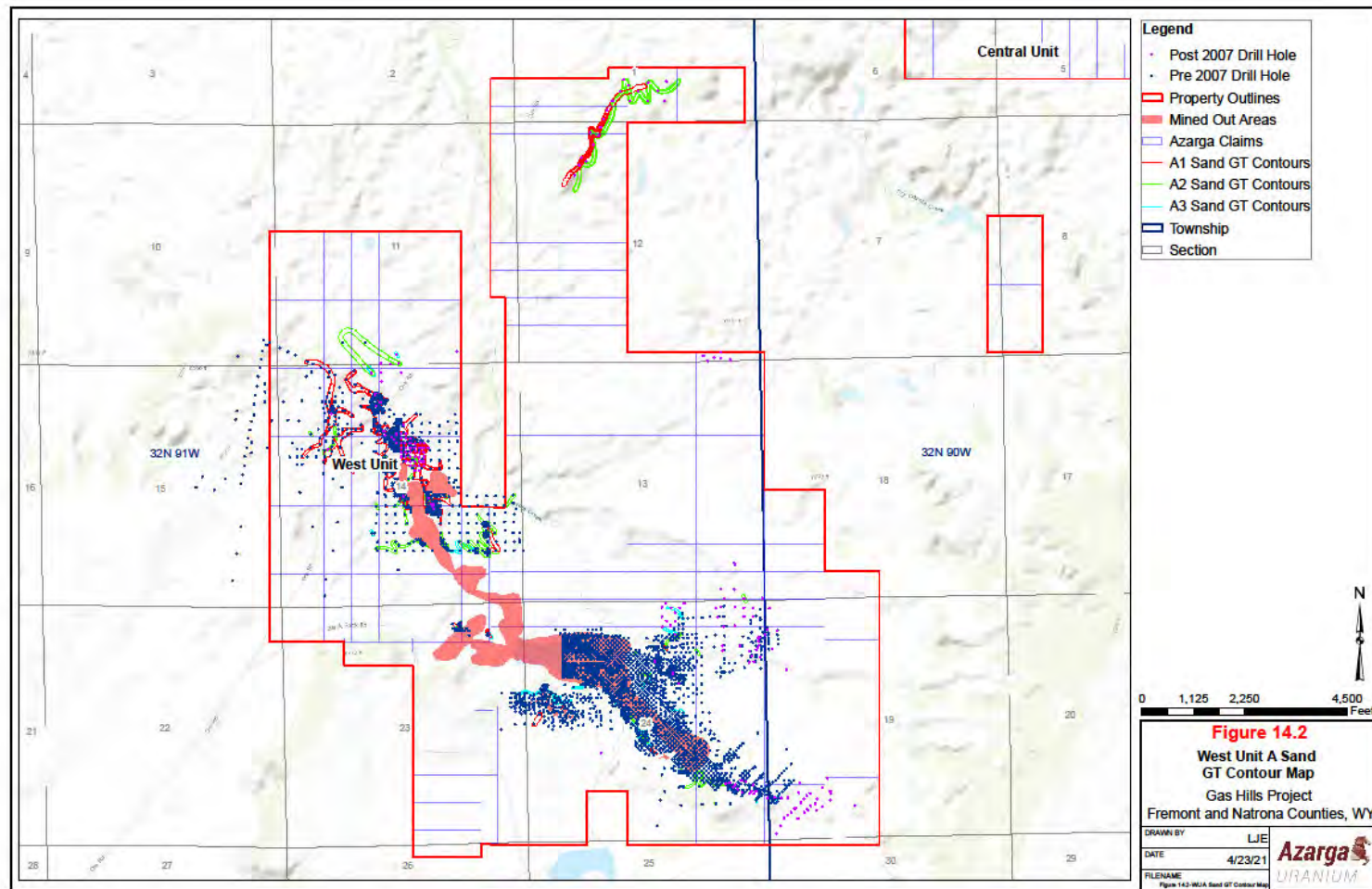
GT contour maps for the five mineral resource areas: Central Unit, Western Unit, Rock Hill, South Black Mountain, and Jeep are provided as Figures 14.2 through 14.9. The GT Contour maps provide a graphical representation or model of the mineralization reflecting the location, quality represented by GT, and continuity of the mineralization.

## 14.6 Discussion on Mineral Resources

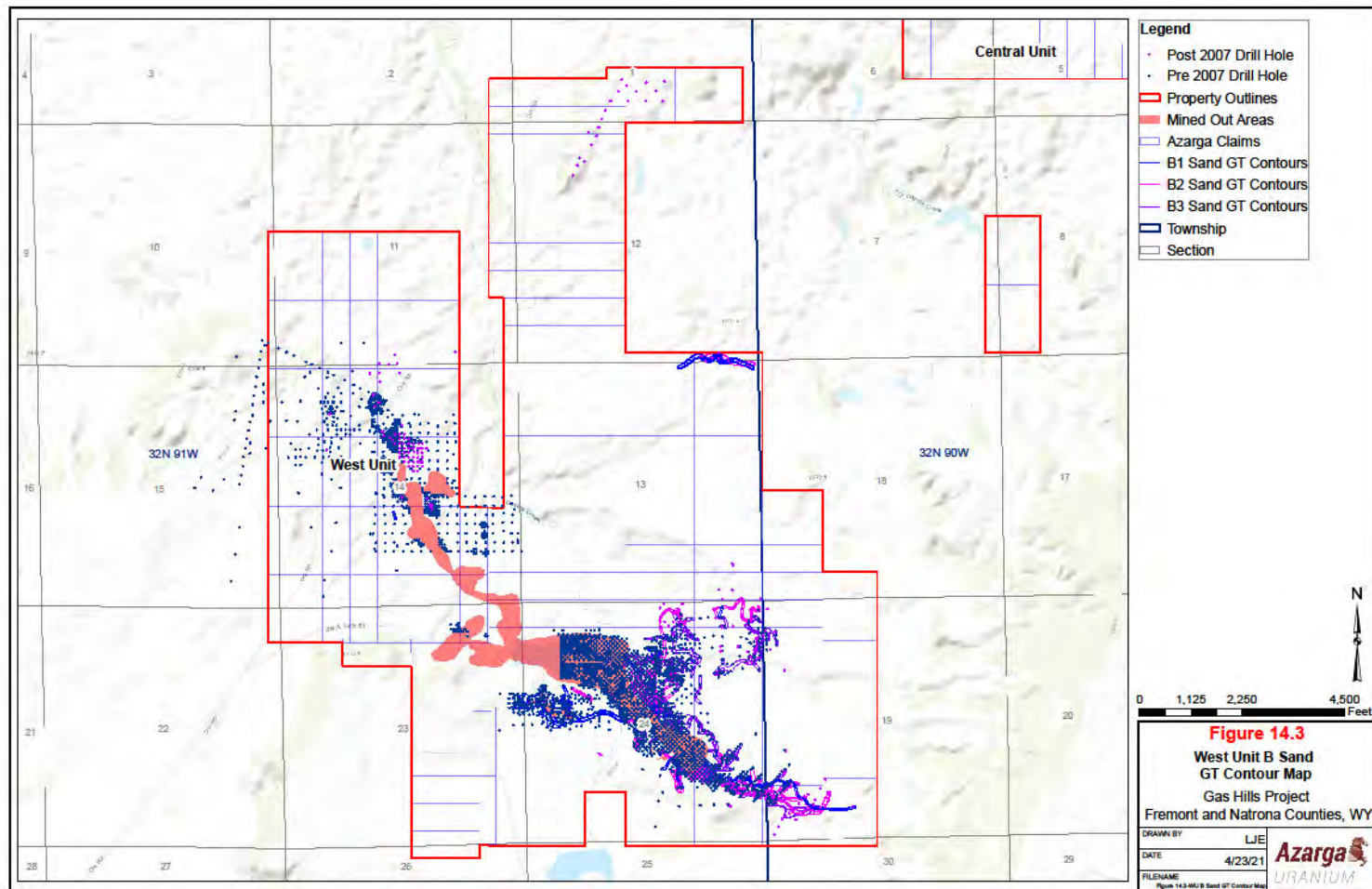
Mineral resources do not have demonstrated economic viability, but they have had technical and economic constraints applied to them to establish reasonable prospects for eventual economic extraction. The geological evidence supporting Measured and Indicated Mineral Resources is derived from adequately detailed and reliable exploration, sampling and testing, and is sufficient to reasonably assume geological and grade continuity. The Measured and Indicated Mineral Resources are estimated with sufficient confidence to allow the application of technical, economic, marketing, legal, environmental, social and governmental factors to support mine planning and economic evaluation of the economic viability of the deposit.

The tons and grade of the Inferred Mineral Resources are estimated on the basis of limited geological evidence and sampling, but the information is sufficient to imply, but not verify, geological and grade continuity. The Author expects the majority of the Inferred could be upgraded to Indicated Mineral Resources with additional drilling.

**Figure 14.2: Western Unit A Sand GT Contour Map**

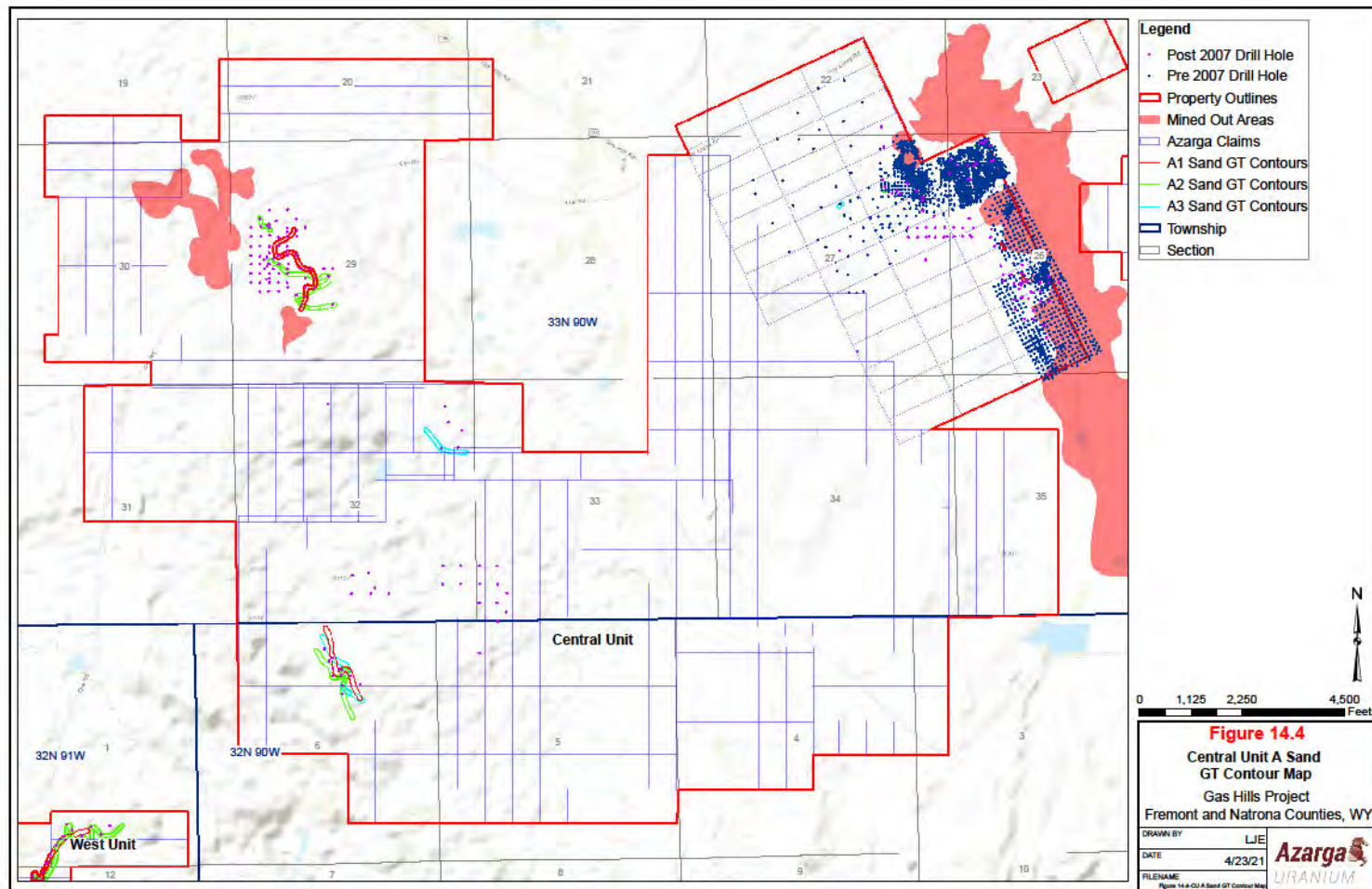


**Figure 14.3: Western Unit B Sand GT Contour Map**

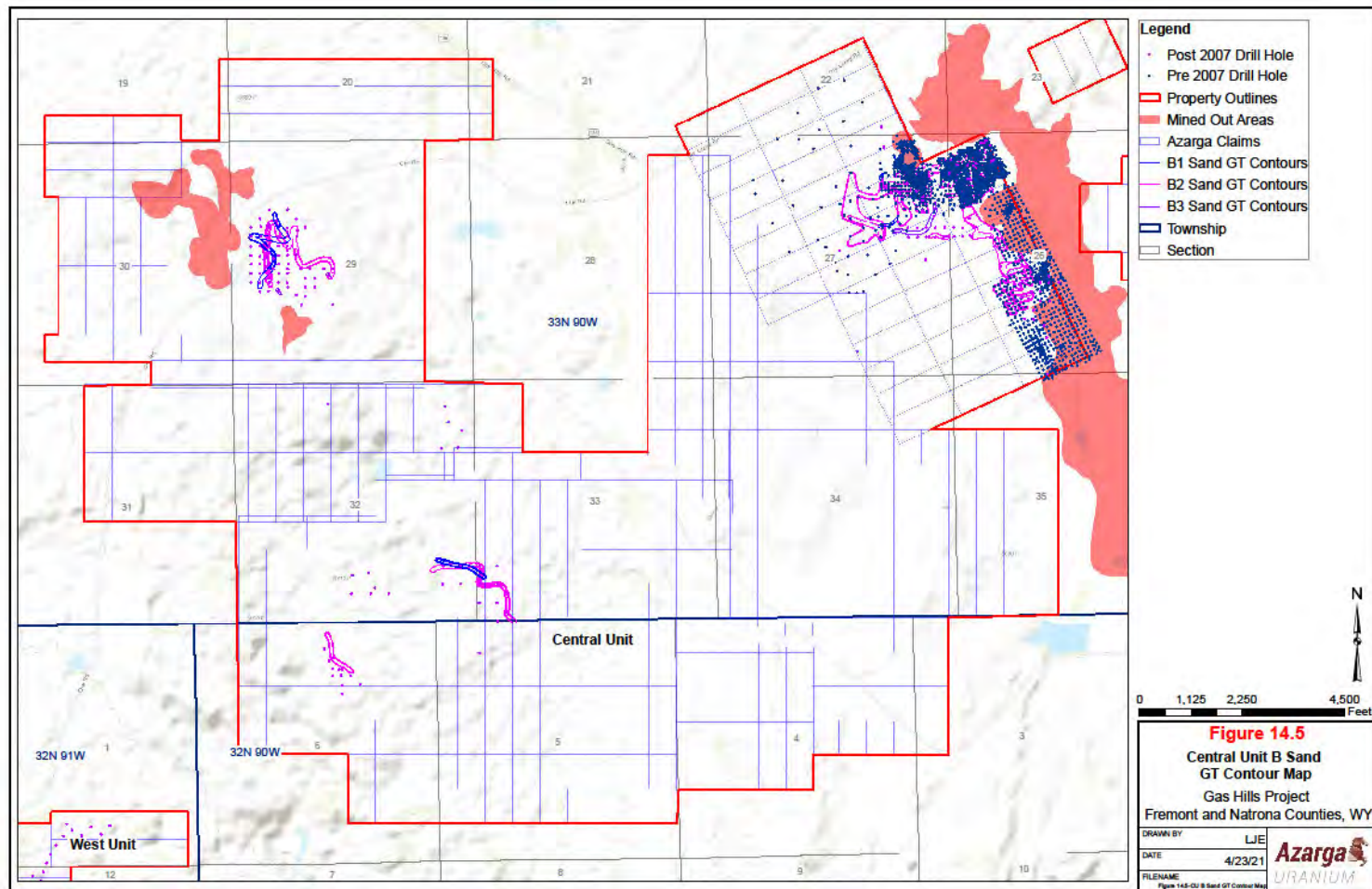




**Figure 14.4: Central Unit A Sand GT Contour Map**



**Figure 14.5: Central Unit B Sand GT Contour Map**

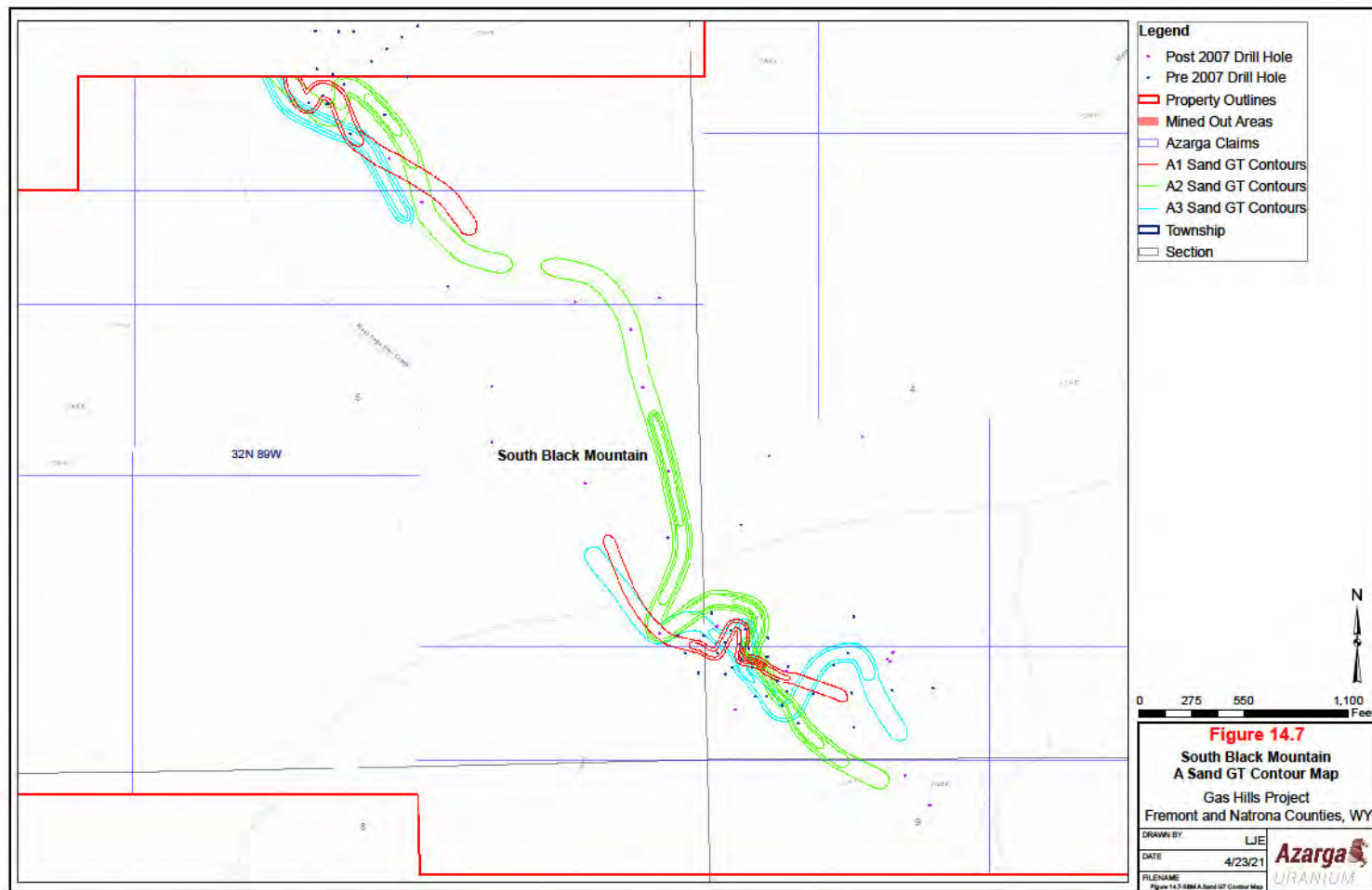


**Figure 14.6: Rock Hill GT Contour Map**

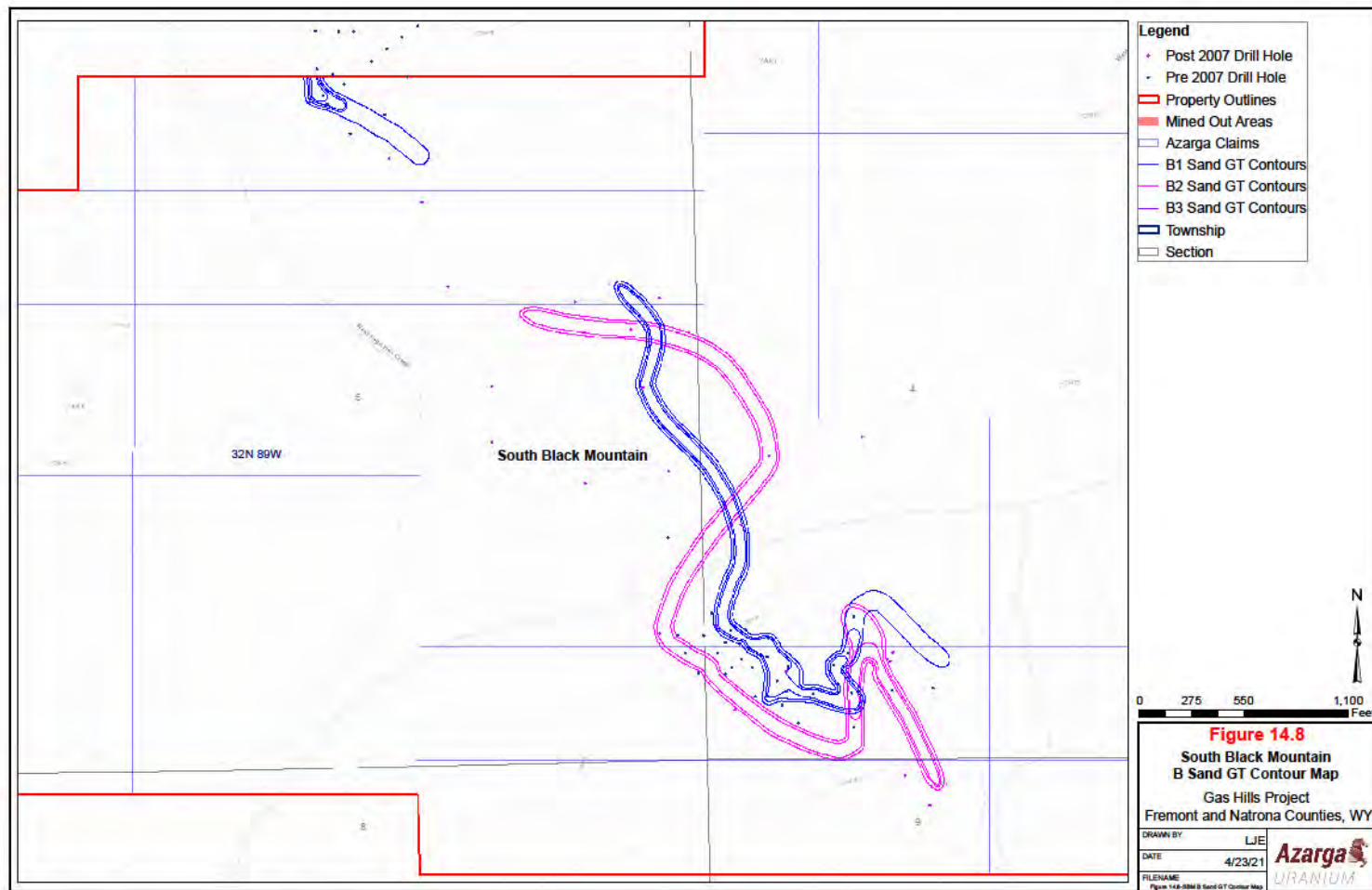




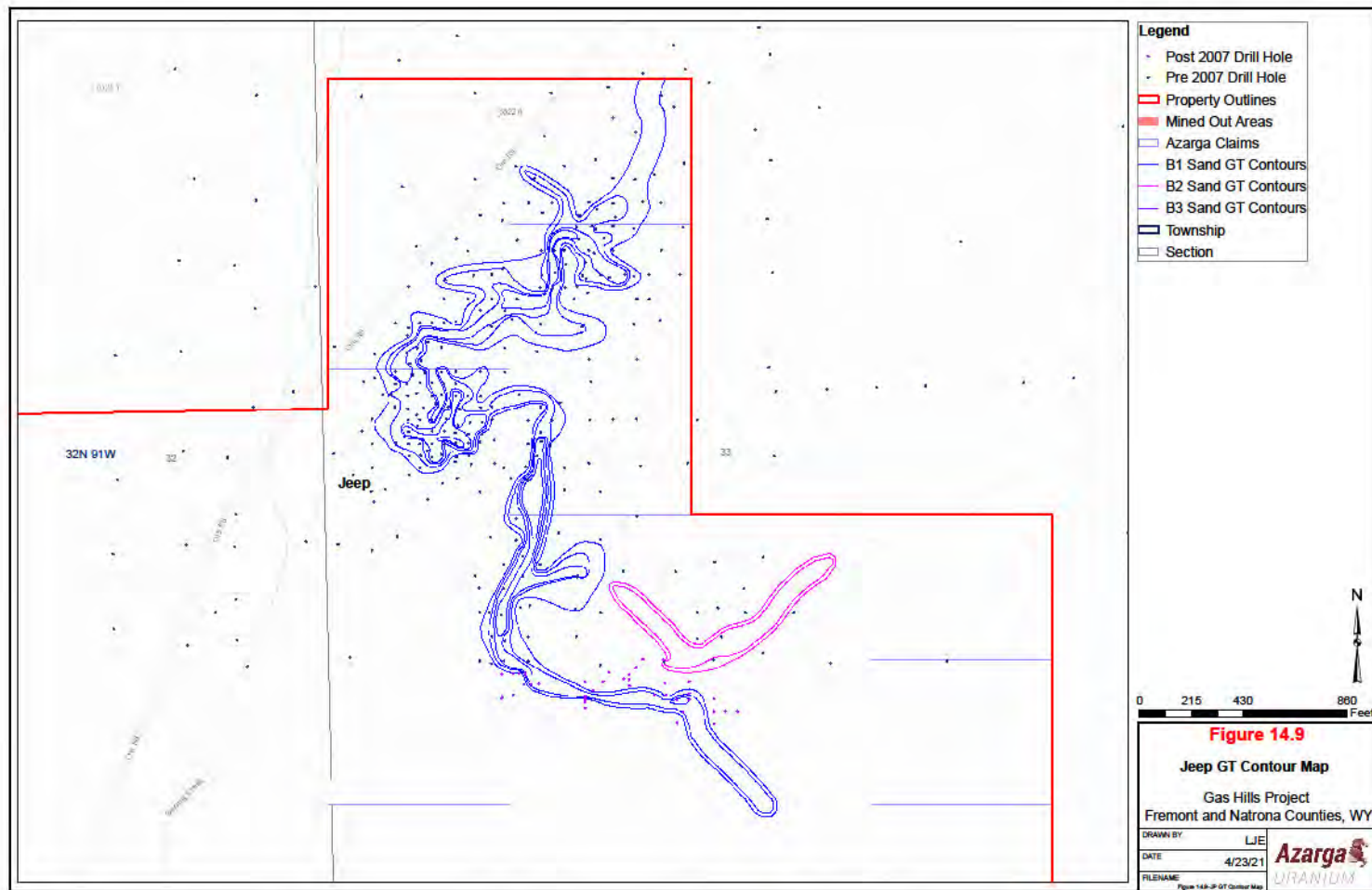
**Figure 14.7: South Black Mountain A Sand GT Contour Map**



**Figure 14.8: South Black Mountain B Sand GT Contour Map**



**Figure 14.9: Jeep GT Contour Map**





The Project is located in a brownfield mining district where the geology is well-known and past mining, milling, and recovery of uranium have successfully been completed. The Mineral Resources do have risks similar in nature to mineral resources on other mineral projects and uranium projects in particular. Risks common to mineral projects include:

- variance in the grade and continuity of mineralization from what was interpreted by drilling and estimation techniques;
- changes in future commodity demand that could significantly change the economic viability of the Project;
- environmental, social and political acceptance of the Project could cause delays in conducting work or increase the costs from what is assumed;
- changes in the mining and mineral processing recovery; and

Due to limited testing and operation of ISR throughout the Project, ISR operations may not be able to be successfully implemented due to hydrogeological, environmental, or other technical issues.

With regard to assessing the socio-economic, political, environmental, permitting, legal, title, taxation, marketing, or other relevant factors, which could materially affect the estimated mineral resources of the Gas Hills Uranium Project area, the following information is pertinent. Wyoming mines have produced over 200 million pounds of uranium from both conventional and ISR mine and mill operations. Production began in the early 1950's and continues to the present. The State has ranked as the number one US producer of uranium since 1994. Wyoming is considered generally favorable to mine development and has established environmental regulations (refer to "Wyoming Politicians, Regulators Embrace Uranium Miners with Open Arms", Finch, 2006). An assessment by the Fraser Institute published in February 2020, ranks Wyoming as 16th out of 76 jurisdictions using a Policy Perception Index, which indicates a favorable perception by the mining industry towards Wyoming mining policies.

The Author is not aware of any other environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors which would materially affect the mineral resource estimates. To the Author's knowledge there are no other significant factors that may affect access, title, or the right or ability to perform work on the property, provided the conditions of all mineral leases and options, and relevant operating permits and licenses are met. The reader is cautioned that additional drilling on the project may or may not result in discovery of additional mineral resources on the property.

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## **SECTIONS 15.0 THROUGH 22.0**

These sections are not applicable to this Report since this is not an Advanced Property.

## 23.0 ADJACENT PROPERTIES

Azarga's Gas Hills Uranium Project is in generally surrounded by mineral properties held by others, including Cameco Corporation ("Cameco"), Ur-Energy and others. However, all of the data used to evaluate the Azarga Gas Hills Uranium Project is from the Azarga Gas Hills Uranium Project and all of the mineral resources and mineral potential described herein lie entirely within the Azarga Gas Hills Uranium Project.

Over the past decade, Cameco has been observed conducting exploration drilling on their claims in the Gas Hills District and has permitted an ISR operation in the Gas Hills to extract uranium. Cameco has a Permit to Mine from the WDEQ/LQD (Permit #687) and a Source Materials License (SUA-1548) from the US NRC. The US BLM completed a Draft Environmental Impact Statement in November 2012 and on February 13, 2014 announced a "Record of Decision" authorizing Cameco to proceed with development of their project using ISR techniques. Production was slated to begin in 2014 (Wyoming Business Report, February 22, 2011); however, with the decline in spot uranium prices over the past few years, Cameco has delayed their project. The Cameco property borders Azarga's Gas Hills Uranium Project on Cameco's western, northeastern and southern extents.

Table 23.1 summarizes the Mineral Resources for the Gas Hills Peach Project from Cameco's website.

**Table 23.1: Cameco Peach Project Mineral Resources**

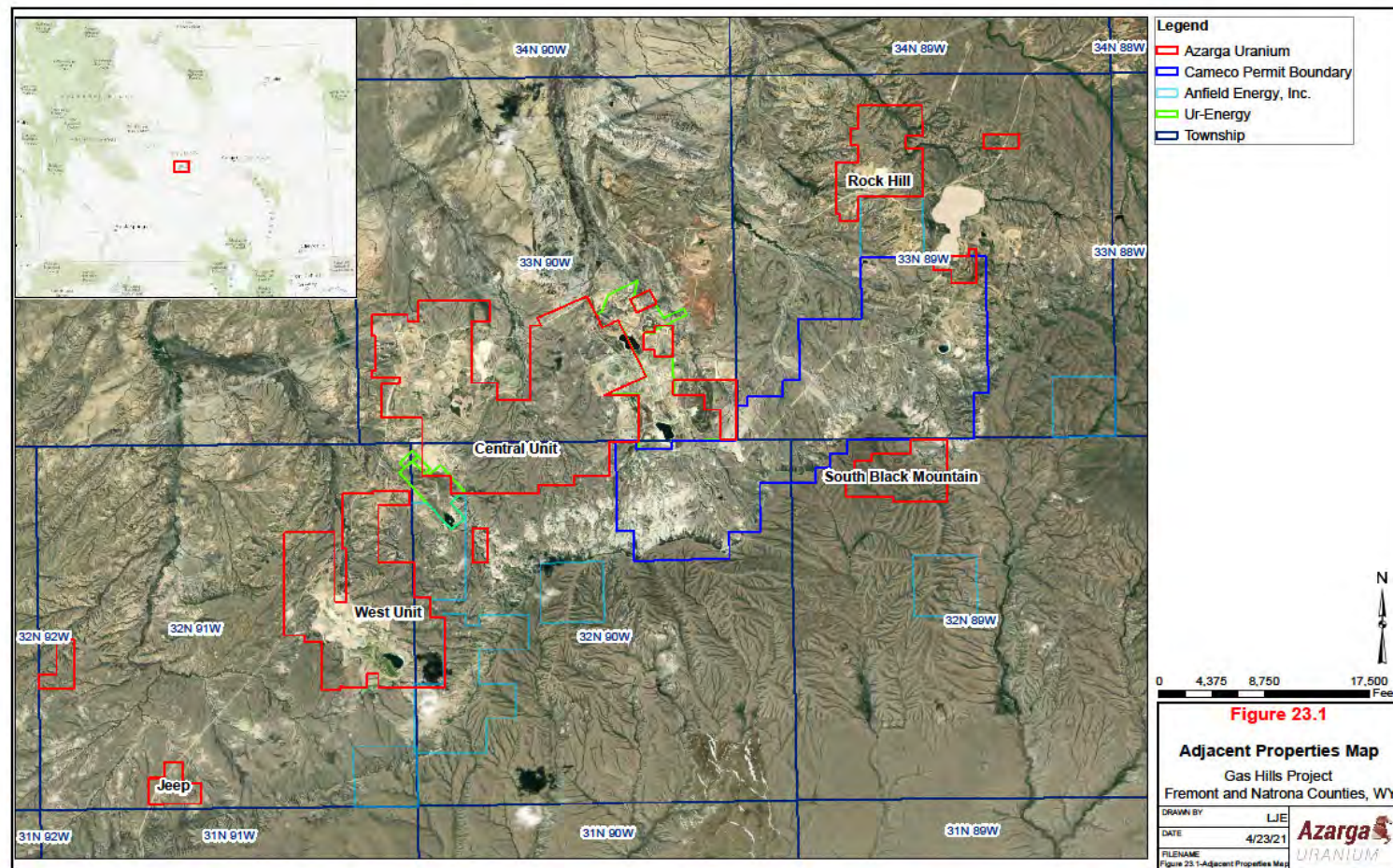
Classification	Tonnes (x1000)	Grade % eU <sub>3</sub> O <sub>8</sub>	Pounds
Measured Resource	687.2	0.11	1,700,000
Indicated Resource	3,626.1	0.15	11,600,000
Inferred Resource	3,307.5	0.08	6,000,000

<https://www.cameco.com/invest/overview/reserves-resources/measured-indicated> and  
<https://www.cameco.com/invest/overview/reserves-resources/inferred> (as of December 6, 2020)

It should be noted that the Author has not verified the information on Cameco's properties and the information may not be indicative of the mineralization that is present on Azarga's Gas Hills Uranium Project.

Other companies with significant mineral property holdings in the Gas Hills District include UR Energy who acquired the previous holdings of Pathfinder Mines Corporation and Anfield Energy Inc. who acquired the previous holdings of Uranium One. Figure 23.1 shows the relative position of other adjacent properties.

**Figure 23.1: Adjacent Properties**



Source: Modified from Gregory, 2019.

## **24.0 OTHER RELEVANT DATA AND INFORMATION**

To the Author's knowledge there is no additional information or explanation necessary to make this Report understandable and not misleading.



## 25.0 INTERPRETATION AND CONCLUSIONS

Based on the density of drilling, continuity of geology and mineralization, data verification including the confirmation drilling completed between 2007 and 2013, the mineral resource estimates meet the criteria for either Measured, Indicated or Inferred Mineral Resources as shown in Table 1.1, and in accordance with the CIM Definition Standards.

Substantial data was previously developed for the Project including exploration drilling which led towards preparation of mine and mill permit applications. Although somewhat dated, the permit data could be recovered and utilized where practical in new permitting and to guide future studies and work programs recommended in Section 26.0 of this Report. If additional study data can be located, this could diminish the level of work required for future studies, provided the data and/or conclusions of such previous data and information is properly verified and confirmed. The Project is located in an area which has been extensively mined in the past and where recently active mine and mill permits have been received by other mining companies. Wyoming is a State with a long history of uranium mining operations, is currently the largest producer of mined uranium in the USA and is considered by the mining industry to be a State with a highly favorable Policy Perception Index.

Assumptions regarding uranium prices, mining costs, and metallurgical recoveries are by their nature, forward-looking, and actual prices, costs, and performance results may be significantly different. The Author considers the risks to the Gas Hills mineral resource estimates to be reasonably understood and they can be mitigated during the recommended development program. The Author is not aware of any other specific risks or uncertainties that might significantly affect the mineral resource estimates.



## 26.0 RECOMMENDATIONS

The Project is located in an area of extensive historical mining and the scale and quality of the ISR Mineral Resources determined by this Report indicate favorable conditions for future extraction from the Project.

The Author recommends that the ISR Mineral Resources in this Report be used for development of a Preliminary Economic Assessment. With favorable economic results and marketing conditions, the Author would recommend that Azarga consider proceeding to initiate environmental permitting of the Project, especially as much of this work was previously completed for the Permit to Mine application prepared for the Project in 2013 by Strathmore. Overall, it is recommended that future work focus on advancement of the Project as an In Situ Recovery Satellite facility. It should be noted that leach solutions for an ISR operation or an open pit/heap leach can easily use a nearly identical ion exchange processing facility. Production of a final product can be achieved at existing central processing facilities of multiple companies in Wyoming under a toll milling agreement or also at Azarga's Dewey-Burdock Project should this US NRC-licensed central processing facility be constructed at the time.

As there are currently three other prominent mineral owners in the Gas Hills District, considerations should be given to consolidation and/or sharing of facilities and infrastructure. Specific recommendations by phases follow. Table 26.1 summarizes recommendations for the initial phases of the work with estimated costs.

### Phase 1:

- Complete a Preliminary Economic Assessment (PEA) for the project. The PEA may consider alternative mine extraction and mineral recovery methodologies but would be focus on ISR operations as the primary method for extraction based on the result of this resource estimate.

### Phase 2:

The following work is recommended based on successful results from Phase 1 and favorable market conditions

- Prepare and submit of environmental permits and license applications.
- Conduct additional representative pump testing as needed to support ISR design for licensing and permitting efforts.
- Conduct additional groundwater modelling to further evaluate utilization of ISR across all project areas.

- Conduct additional preliminary metallurgical testing on representative material for ISR amenability with alkaline and acid lixivants.
- With favorable market conditions, conduct additional exploratory drilling to evaluate not fully explored mineralized trends throughout the project area.

**Table 26.1: Recommendations**

Work Phase	Description	Estimated Cost US\$
Phase 1	Preliminary Economic Assessment	\$60,000
Phase 2	Prepare Permits and Associated Testing	
	• Preparation of Environmental Permit Applications	\$400,000
	• Baseline Studies	\$100,000
	• Pump Testing	\$300,000
	• Additional Groundwater Modelling	\$100,000
	• Metallurgical testing	\$300,000
	• Exploratory Drilling Program	\$200,000
Subtotal		\$1,400,000
Total with PFS		\$1,460,000

## 27.0 REFERENCES

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## 28.0 DATE AND SIGNATURE PAGE

I, Steven E. Cutler, P. Geo. do certify that:

1. This certificate applies to the technical report (Report) entitled "NI 43-101 Technical Report, Mineral Resource Report, Gas Hills Uranium Project, Fremont and Natrona Counties, Wyoming, USA" prepared for Azarga Uranium Corp. with an effective date of March 29, 2021.
2. I am a Consulting Geologist, affiliated with Roughstock Mining Services, LLC at 250 Blue Sky Trail, Bozeman, Montana 59718, USA.
3. I am Professional Geologist, AIPG #11103, in good standing. I am a graduate of Montana State University, Bozeman, Montana in 1984 with a Bachelor of Science in Geology, and a Master of Science Degree in Economic Geology from the University of Alaska-Fairbanks, Fairbanks, Alaska in 1992.
4. Since 1984 I have practiced continuously as a Geologist, Supervisor, Chief Mine Engineer, Technical Services Manager, and Consultant for mining firms, and other mining consulting firms. This work encompassed a wide variety of mining and metals types, resource estimation evaluations, mining planning, equipment selection, and cost analyses. I am the author of several publications on subjects relating to the mining industry.
5. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association, and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
6. I am responsible for the preparation of all of this resource update report
7. I completed a personal inspection of the Gas Hills Uranium Project site on October 7<sup>th</sup>, 2020 for a duration of 4 hours.
8. As defined in Section 1.5 of National Instrument 43-101, I am independent of the issuer, Azarga Uranium Corp.
9. To the best of my knowledge, information and belief, at the effective date of March 29, 2021 of the Report, the Report contains all scientific and technical information that is required to be disclosed to make the Report not misleading.
10. I have read National Instrument 43-101 and Form 43-101F1, and the report has been prepared in compliance with that Instrument and Form.

Effective Date: March 29, 2021

Signed Date: May 10th, 2021

Signed:

Steven E. Cutler, P.G.

Roughstock Mining Services