**RENO CREEK ISR PROJECT** 

BEHRE DOLBEAR

founded 1911 MINERALS INDUSTRY ADVISORS

# TECHNICAL REPORT ON RESOURCES OF THE RENO CREEK ISR PROJECT, CAMPBELL COUNTY, WYOMING, USA FOR AUC LLC

# LATITUDE 43°36′52″TO LATITUDE 43°44′51″ NORTH LONGITUDE 105°37′22″ TO LONGITUDE 105°47′17″ WEST

(BEHRE DOLBEAR PROJECT 12-181)

**30 NOVEMBER 2012** 

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#### GLOSSARY

- Alluvial Fan A cone-shaped deposit of alluvium (material transported by a stream) made by a stream where it empties into a level plain or meets a slower stream.
- Aquifer A saturated permeable geologic unit that can transmit quantities of water under ordinary hydraulic gradients.
- Aquitard A less permeable bed in a stratigraphic sequence. An aquifer overlain and underlain by aquitards is considered in a confined state.
- Assay The value of  $U_3O_8$  in samples, usually analyzed by 'wet chemical' or spectrographic methods. Comparison of this 'chemical' value to a 'radiometric equivalent is important to establish the state of equilibrium of a uranium deposit.
- Cutoff The factor used to separate ore and waste such that only material classified above the cutoff will be extracted in order to recover the mineral of interest. Evaluation of a deposit expected to be mined by in situ recovery uses a grade x thickness product (GT) to qualify a mineralized intercept for inclusion as a resource.
- Elution Process of extracting one material from another by washing with a solvent to remove adsorbed material from an adsorbent (as in washing of loaded ion-exchange resins to remove captured ions); used to obtain uranium ions during the in situ recovery process.
- Environmental Impact Statement (EIS) A document required by the National Environmental Policy Act (NEPA) for certain actions "significantly affecting the quality of the human environment." An EIS is a tool for decision-making, describing positive and negative environmental effects of a proposed action, and usually also listing one or more alternative actions that may be chosen instead of the action described in the EIS.
- Equilibrium A uranium deposit is in equilibrium when the proportion of uranium to naturally occurring daughter products (isotopes produced by the radioactive decay of uranium) is not disturbed. A deposit is in disequilibrium when there is a disparity favorable or unfavorable) in the normal ratio between uranium and its daughter products. One cause of disequilibrium is oxygenated groundwater moving through the host rock. Uranium can be mobilized and moved down the groundwater gradient; thus, the uranium content of the host rock can be overestimated, if calculations are based solely upon the radioactivity of remaining daughter products.
- Facies General appearance or nature of one part of a geologic unit as contrasted with other parts.
- Fee Ownership (fee simple right) The ownership of real property, with the accompanying rights of selling, leasing, occupying, or mortgaging property.
- Fluvial A fluvial sedimentary deposit consists of material transported by suspension or laid down by a river or stream.
- Gamma Ray, Resistivity, and Self-potential Logs Records of downhole radioactive intensity and electrical properties of geologic units penetrated by a drill hole. The logs are interpreted to derive

the value and position of uranium mineralization, rock types, and rock properties, sometimes described as 'electric logs'.

Humate – Containing humic acid, which is a principal component of humate (humic) substances. These are the major organic constituents of soil (humus), peat, coal, many upland streams, dystrophic lakes, and ocean water. Humic acid is produced by biodegradation of dead organic matter.

#### Inferred Mineral Resource

An 'Inferred Mineral Resource' is that part of a Mineral Resource for which quantity and grade or quality can be estimated based on geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes.

Due to the uncertainty, which may attach to Inferred Mineral Resources, it cannot be assumed that all or any part of an Inferred Mineral Resource will be upgraded to an Indicated or Measured Mineral Resource, as a result of continued exploration. Confidence in the estimate is insufficient to allow the meaningful application of technical and economic parameters or to enable an evaluation of economic viability worthy of public disclosure. Inferred Mineral Resources must be excluded from estimates forming the basis of feasibility or other economic studies.

#### Indicated Mineral Resource

An 'Indicated Mineral Resource' is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters, to support mine planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough for geological and grade continuity to be reasonably assumed.

In Situ Recovery (ISR) – A mining process used to recover minerals such as uranium through boreholes drilled into a deposit. A leaching solution is pumped into the deposit where it makes contact with the ore. The solution bearing the dissolved ore content is then pumped to the surface and processed.

Interstices – Pore spaces between the constituent mineral grains of a geologic unit.

#### IX – Ion exchange.

- Leach Amenability Suitability of a geologic unit, in terms of its geochemistry, mineralogy, and permeability, for the leaching and extraction of specific minerals (e.g., in situ recovery of uranium).
- Lithology Physical character of a rock (rock type, mineralogy, particle size distribution, etc.) generally determined megascopically or with the aid of a hand lens.

Lixiviant – A liquid medium used in hydrometallurgy to selectively extract the desired metal from the ore or mineral. It assists in rapid and complete leaching. The metal can be recovered from it in a concentrated form after leaching.

Measured Mineral Resource

A 'Measured Mineral Resource' is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are so well established that they can be estimated with confidence sufficient to allow the appropriate application of technical and economic parameters, to support production planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough to confirm both geological and grade continuity.

- NRC United States Nuclear Regulatory Commission.
- Patented Mining Claim Claim on federal land for which the Federal Government has conveyed the title, thus making it private land. Claim owner has exclusive title to locatable minerals and, in most cases, to surface.
- Permeability The state or quality of a material or membrane that causes it to allow liquids or gases to pass through it.
- Royalty The mineral owner's or royalty holder's share of the value of minerals produced.
- Satellite Plant A facility that may produce a solution enriched in uranium or a resin loaded with uranium that may be readily transported to another facility for precipitation and drying.
- Terrestrial A terrestrial sedimentary deposit is made on land above tidal reach because of the activity of glaciers, wind, rain-wash, and stream (fluvial) systems.
- Transmissivity For a saturated confined aquifer, transmissivity is equal to the hydraulic conductivity (a measure of permeability) times the thickness of the aquifer. A term used to describe the rate of flow of ground water.
- Yellowcake  $U_3O_8$  or 'uranium' used by the industry to describe the product of a mining and processing operation. Sold in semi-transparent private transactions via spot market or long-term contract in US\$ per pound.

## 1.0 SUMMARY

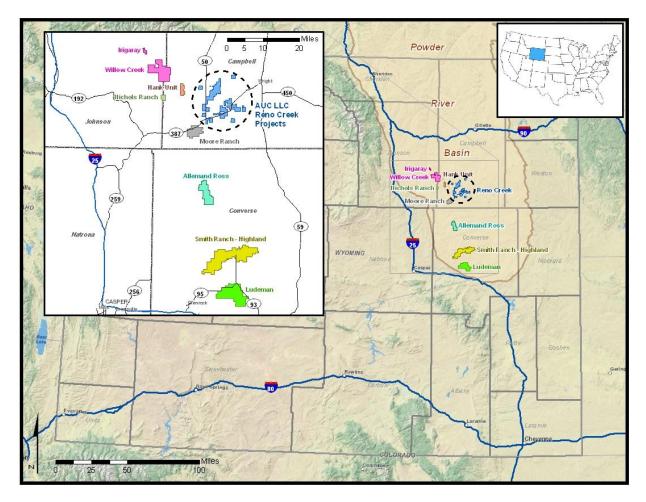
AUC LLC (AUC) engaged Behre Dolbear & Company (USA), Inc. (Behre Dolbear) to review and provide a report on uranium resources of the Reno Creek ISR Project (Project), Campbell County, Wyoming, USA. The Project is operated by AUC. Ms. Betty L. Gibbs and Mr. Robert D. Maxwell, who are Qualified Persons under Canadian National Instrument (NI) 43-101, were appointed by Behre Dolbear to supervise and be responsible for the study. Mr. Maxwell visited the Project on June 19, 2012 and July 27, 2012. Ms. Gibbs has not visited the property.

AUC LLC, a Delaware Corporation, is the current owner and operator of the Reno Creek Project. AUC LLC is the wholly owned subsidiary of AUC Holdings, also a U.S. based corporation, whose shares are held by Pacific Road Resource Funds (approximately 87%) and Bayswater Uranium Corporation (approximately 13%). AUC Holdings acquired the Reno Creek Project, including AUC LLC, from Strathmore Minerals Corporation in April 2010.

# 1.1 **PROPERTY DESCRIPTION AND LOCATION**

The Project consists of five resource units: North Reno Creek, Southwest Reno Creek, Moore, Pine Tree, and Bing. North Reno Creek and Southwest Reno Creek are contiguous and the other units are within 5 miles of the two (Figure 1.1).

- The North Reno Creek Unit and Southwest Reno Creek Unit are currently being permitted for mining by in situ recovery (ISR) methods, and will include 12 ISR Production Units and a Central Processing Plant (CPP). The proposed permit boundary encompasses the production units and CPP. An application for a Source Material License from the U.S. Nuclear Regulatory Commission (NRC) was submitted on October 5, 2012.
- The Moore Unit lies approximately 5 miles to the northwest of the Reno Creek Unit and proposed permit area. The Moore Unit will be connected to the CPP via pipelines.
- The Pine Tree Unit lies approximately 5 miles to the southwest of the Reno Creek Units, immediately southeast of the intersection of U.S. Highway 387 and Wyoming Highway 50, also known as Pine Tree Junction. The Pine Tree Unit will be connected to the CPP via pipelines.
- The Bing Unit lies adjacent to (west) of Wyoming Highway 50, 3 miles north of Pine Tree Junction. The Bing Unit will be connected to the CPP via pipelines.



# Figure 1.1.Reno Creek ISR Project location

The Project is located in the Pumpkin Buttes Uranium District in Campbell County, Wyoming in the south central portion of the Powder River Basin. Figure 1.1 depicts the general site location of the Project and surrounding area. The North Reno Creek and Southwest Reno Creek Units are located 7.5 miles southwest of Wright, 31 miles northeast of Edgerton, and 41 miles south of Gillette. The primary access roads to the Moore Resource Unit, from Highway 387, are Wyoming Highway 50 and the Clarkelen Road, which runs north and south and is a Campbell County-maintained gravel road. Additionally, there are private, two-track roads established from coal bed methane (CBM) development and agricultural activity, which provide access to other areas within the Project. No part of the Project is more than 2 miles from a public, all weather road.

AUC LLC is the current owner and operator of the Reno Creek Project. AUC is owned by Pacific Road Resource Funds (87%) and Bayswater Uranium (13%). The Project was acquired from Strathmore Resources in April of 2010.

The Project controls approximately 21,000 acres, consisting of 688 unpatented lode mining claims, 7 State of Wyoming mineral leases, and 4 private (fee) mineral leases. AUC has executed surface use and access agreements with all landowners who hold surface ownership within the proposed ISR mining permit boundary at North Reno Creek and Southwest Reno Creek including leases on State land. AUC has secured the majority of surface use and access agreements needed from landowners within the Moore

Unit. Surface use and access agreements for the Bing and Pine Tree Units will be negotiated in upcoming months.

AUC and Uranerz have recently signed a boundary agreement that allows each party to mine and reclaim up to its mineral ownership boundary. The agreement provides for each company to install and operate monitor wells on the other company's property during mining, restoration, and reclamation.

# **1.2 HISTORY AND STATUS**

Owners or operators of properties in the Project, prior to acquisition by AUC, were American Nuclear/TVA, Cleveland Cliffs Iron Company, Energy Fuels, International Uranium Corporation, Power Resources Inc., Rio Algom Mining Corporation, Rocky Mountain Energy, and Utah International Mining Corporation. Exploration and development work consisted of drilling vertical holes with documentation of stratigraphy and radiation via downhole geophysical logging. The most significant activity was Rocky Mountain Energy's Pilot Plant on the North Reno Creek property with very limited production (approximately 1,200 pounds of  $U_3O_8$ ).

Exploration on the property has continued and approximately 800 rotary holes, core holes, and monitoring wells have been drilled by AUC during the past 3 years within the North Reno Creek and Southwest Reno Creek Units. AUC is nearing completion of a 100-hole rotary and core program at the Moore Unit. Evaluation of results will be conducted over the next few months.

To date, more than 7,550 drill holes have been drilled by AUC and previous uranium exploration companies on, and nearby, the five Resource Units held by AUC. Data from the drilling, including survey coordinates, collar elevations, depths, and grade of uranium intercepts, have been incorporated into AUC's database.

As a result of energy development over the past 50 years, all of the properties where AUC's deposits lie have existing or nearby electrical power, gas, and have adequate phone and Internet connectivity. The local economy is geared toward coal mining and oil and gas production as well as ranching operations that provide a well-trained and capable pool of workers for ISR production and processing operations. AUC has leases and surface use and access agreements within the proposed mining permit area to enable construction of all operational facilities.

Specific permits will be acquired to conduct the work proposed for the property. Table 1.1 summarizes the list of permits and licenses needed for the Project.

TABLE 1.1							
SUMMARY OF PROPOSED, PENDING, AND APPROVED PERMITS FOR THE RENO CREEK ISR PROJECT							
Regulatory Agency       Permit or License       Status							
	Federal						
U.S. Nuclear Regulatory Commission (NRC)	Source Materials License (10 CFR 40)	Application was submitted October 5, 2012. Includes license application, an Environmental Report, and a Technical Report					
U.S. Army Corps of Engineers	Determination of Jurisdictional Wetland	Wetland delineation has been completed and forwarded to ACOE in April 2012					
U.S. Environmental Protection Agency (EPA)	Aquifer Exemption (40 CFR 144, 146)	Aquifer reclassification information to be submitted to EPA after preparation by WDEQ-WQD					
	<u>[</u> 4-4-						
Wyoming Department	State	1					
of Environmental Quality/Air Quality Department	Air Quality Permit	Application approved prior to start of construction –3 <sup>rd</sup> quarter 2013					
WDEQ/Water Quality	Groundwater Reclassification (WDEQ Title 35-11)	Aquifer reclassification application to be reviewed and classified by WDEQ-WQD – 2 <sup>nd</sup> quarter 2013					
Division (WQD)	Underground Injection Control Permit (Deep Disposal Well) (WDEQ Title 35-11)	Class I UIC Permit application under review by the WDEQ-WQD. Expect approval by 4th quarter 2012					
	Underground Injection Control Class III Permit (Permit to Mine) (WDEQ Title 35-11)	Class III UIC (Permit to Mine) Permit application to be submitted December 2012					
	Mineral Exploration Permit (WDEQ Title 35-11)	Approved Mineral Exploration Permit DN #401 is currently in place for the exploration actions of Reno Creek Project areas					
WDEO/L and Quality	Industrial Storm Water NPDES Permit (WDEQ Title 35-11)	An Industrial Storm Water NPDES will be required for the Central Processing Plant Area – 3 <sup>rd</sup> quarter 2013					
WDEQ/Land Quality Division (LQD)	Construction Storm Water NPDES Permit (WDEQ Title 35-11)	Construction Storm Water NPDES authorizations are applied for and issued annually under a general permit based on projected construction activities. The Notice of Intent will be filed at least 30 days before construction activities begin in accordance with WDEQ requirements $-3^{rd}$ quarter 2013					
	Underground Injection Control Class V (WDEQ Title 35-11)	The Class V UIC permit will be applied for following installation of an approved site septic system during facility construction. 3 <sup>rd</sup> quarter 2013					

# 1.3 GEOLOGY AND MINERALIZATION

The uranium deposits within the Project area occur in medium to coarse-grained sand facies in the lower portion of the Eocene-age Wasatch Formation. The uranium mineralization occurs as interstitial fillings between and coatings on the sand grains along roll front trends formed at a bio-chemical interface within the host sandstone aquifers. Sinuous fronts of mineralization occur in up to five sandstone units. Stacking of roll front mineralization occurs at many places throughout the Project causing resources to occur at different stratigraphic levels in the same area.

Sandstones are commonly cross-bedded, graded sequences fining upward from very coarse at the base to fine grained at the top, representing sedimentary cycles from 5 feet to 20 feet thick. Stacking of depositional cycles has resulted in sand body accumulations over 200 feet thick. The North Reno Creek, Southwest Reno Creek, Moore, and Bing Units share similar stratigraphy and geology. The Pine Tree Unit lies slightly higher in the stratigraphic section.

Roll front uranium minerals in the unoxidized zone are commonly coffinite and pitchblende (a variety of uraninite). Low concentrations of vanadium (<100 ppm) are sometimes associated with the uranium deposits.

# **1.4 MINERAL RESOURCES**

It is the authors' opinion that the resources were properly estimated by AUC using appropriate methodologies that are compliant with NI 43-101 standards, and result in an appropriate estimation of quantities and grades. As presented in Table 1.2, Measured and Indicated Resources for the Reno Creek ISR Project total 20.9 million tons grading  $0.052\% U_3O_8$  yielding 21.9 million pounds of  $U_3O_8$ . Inferred Resources total 1.56 million tons grading  $0.050\% U_3O_8$  yielding 1.55 million pounds of  $U_3O_8$ . It is also the authors' opinion that the triangulation gridding method used for volumetric measurements is an appropriate way to estimate quantities and grades given the sinuous and irregular nature of the deposits.

		TABLE 1.2				
<b>RENO CREEK ISR PROJECT</b> SUMMARY OF MEASURED AND INDICATED RESOURCES – IN-PLACE <sup>1</sup>						
Class	Tons <sup>2</sup>	Thickness	Grade	Pounds U <sub>3</sub> O <sub>8</sub> <sup>2</sup>		
C1455	(millions)	(feet)	(%U <sub>3</sub> O <sub>8</sub> )	(millions)		
North Reno Creek				-		
Measured	2.69	18.9	0.055	2.96		
Indicated	5.44	15.2	0.047	5.13		
Total	8.13	16.4	0.050	8.09		
Southwest Reno Creek				-		
Measured	2.86	17.5	0.058	3.32		
Indicated	3.58	14.1	0.050	3.55		
Total	6.44	15.6	0.053	6.87		
Moore						
Measured	1.27	13.9	0.061	1.56		
Indicated	3.21	11.5	0.046	2.97		
Total	4.48	12.2	0.051	4.53		
Bing						
Measured	0.20	19.3	0.052	0.21		
Indicated	0.84	15.2	0.043	0.72		
Total	1.04	16.0	0.045	0.93		
Pine Tree						
Measured	0.15	10.8	0.105	0.32		
Indicated	0.66	10.0	0.086	1.13		
Total	0.81	10.2	0.089	1.45		
Reno Creek Project						
Measured	7.18	17.3	0.058	8.38		
Indicated	13.70	13.4	0.050	13.50		
Total	20.9	14.8	0.052	21.9		
<sup>1</sup> Cutoff $\geq 0.30$ grade $\times$ thicknes						
<sup>2</sup> Columns may not add due to re	ounding					

The reader is cautioned that due to the uncertainty, which may attach to Inferred Mineral Resources, it cannot be assumed that all or any part of an Inferred Mineral Resource will be upgraded to an Indicated or Measured Mineral Resource, because of continued exploration. Confidence in the Inferred Mineral Resource estimate is insufficient to allow the meaningful application of technical and economic parameters or to enable an evaluation of economic viability worthy of public disclosure. Inferred Mineral Resources must be excluded from estimates forming the basis of pre-feasibility or other feasibility studies.

The results of the estimation of Inferred  $U_3O_8$  resource in the Project are summarized in Table 1.3.

	Т	TABLE 1.3					
RENO CREEK ISR PROJECT							
S	UMMARY OF INFER	RED RESOURCES	S-IN-PLACE <sup>1</sup>				
Class	$Tons^2$ Thickness Grade Pounds $U_0^2$						
Class	(millions)	(feet)	(%U <sub>3</sub> O <sub>8</sub> )	(millions)			
North Reno Creek							
Inferred	0.85	14.4	0.050	0.85			
Southwest Reno Creek							
Inferred	0.41	11.0	0.040	0.32			
Moore							
Inferred	0.25	7.9	0.062	0.31			
Bing							
Inferred	0.02	12.29	0.050	0.02			
Pine Tree			1				
Inferred	0.03	4.7	0.11	0.06			
Reno Creek Project							
Inferred Total	1.56	12.1	0.050	1.55			
<sup>1</sup> Cutoff $\ge 0.30$ grade $\times$ thickness per intercept							
<sup>2</sup> Columns may not add due to rounding							

The authors consider that the AUC work on all units confirms the pre-2001 information and that the resources of the Project meet NI 43-101 standards for currently compliant resources due to the facts that:

- Recent confirmation drilling by AUC at the Southwest Reno Creek Unit confirmed that uranium mineralization reported by previous operators is present at the locations shown on historical maps. AUC's confirmation was performed by drilling step-out holes (100 feet from old holes), in accordance with recommendations by the authors. Continuity was confirmed on a large scale by approximately 800 holes that joined 2 mineralized areas over a mile apart. AUC drilling in this area (located in the west half of Section 31, T 43N, R73W) added approximately 2.0 million pounds of resources.
- 2) All uranium deposits in the 80-mile long Powder River Basin trend consist of bands of narrow classic C-shaped roll fronts as found at the Reno Creek Deposit.
- 3) The mineral forming process and the resulting deposits do not vary within the trend nor are they expected to vary within the Reno Creek Project.
- 4) The mineralized sands in the Reno Creek, Moore, and Bing units are the same geologic horizon, and are confined by the same aquitards.
- 5) The authors have reviewed maps covering competitor's operations and positions (not available for publication) showing continuity of sandstone horizons between resources units.

# 1.5 PROPOSED RECOVERY TECHNIQUE

AUC has determined that essentially all significant mineralization and resources at Reno Creek lie either in fully saturated areas or are deep enough below the water table to be fully accessible using in situ recovery (ISR) methods. The ISR process, contemplated by AUC, is a phased, iterative approach in which AUC will sequentially construct and operate a series of Production Units. Each Production Unit will include individual well fields equipped with a header house. AUC expects each header house will serve between 15 to 30 recovery wells and 25 to 50 injection wells (recovery and injection wells collectively referred to as production wells), depending upon the design of each well field.

## 1.6 CONCLUSIONS AND RECOMMENDATIONS

The authors conclude the Measured and Indicated resources of approximately 21.9 million pounds of  $U_3O_8$  for the Reno Creek ISR Project are compliant with Canadian NI 43-101 guidelines. The authors conclude there is limited risk that the estimate of quantity, quality, and physical characteristics of the resources of the Project will be unfavorably affected by future investigation.

The authors recommend that AUC proceed with their proposed drilling program summarized below and the completion of a Pre-Feasibility Study (PFS), currently underway.

- A 100-hole program recommended in the Moore Unit resource area before year-end 2012 (this work is currently underway). The purpose of the drilling will be to bolster AUC's knowledge of lithologic conditions in the area, including the verification of projected oxidation/reduction boundaries. Coring at 3 locations is recommended to assess permeability and porosity, rock density, and disequilibrium conditions. Approximate cost: US\$450,000 plus overhead expense, assays, and reclamation of drill sites.
- Core and rotary drilling at the North Reno Creek Unit planned for completion by the end of 2013. Approximately 4 core holes will be completed to further assess permeability and porosity, rock density, disequilibrium, and metallurgical recovery conditions. Approximately 100 rotary holes are also planned to expand resources and further delineate roll front trends. Approximate cost: US\$400,000 plus overhead expense, assays, and reclamation of drill sites.
- Drilling programs at the Bing and Pine Tree Resource Units planned but not scheduled at this time.

# 2.0 INTRODUCTION

# 2.1 PURPOSE OF THE REPORT

This Technical Report was developed for AUC to describe uranium resources of the Reno Creek ISR Project that are in compliance with the requirements of Canadian NI 43-101 and 43-101F1.

# 2.2 SOURCES OF INFORMATION AND DATA

This report has been constructed and compiled from information and data including drill hole location maps and data sheets; gamma-ray, resistivity, and self-potential curves plotted by depth; and core hole data from drilling by AUC as well as historical data. Behre Dolbear work was conducted in the period between January 2, 2011 and October 2012.

# 2.3 AUTHORS

AUC, through Behre Dolbear, engaged the authors listed below to undertake the Technical Report for the Reno Creek ISR Project.

**Ms. Betty Gibbs**, Behre Dolbear & Company (USA), Inc. Senior Associate and Mining Engineer collaborated with AUC on data reduction, reviewed AUC estimation procedures, and independently verified a portion of the North Reno Creek Unit. Ms. Gibbs has been involved in the minerals industry at for more than 42 years as an engineer, author, university professor, and consultant. Ms. Gibbs has been at the forefront of technology development and adaptation for the mining industry. An active participant in professional organizations and societies, Ms. Gibbs has conducted seminars, short courses, and presented papers regarding resource and mining programs. Ms. Gibbs is a Qualified Person under Canadian National Instrument 43-101 through the Mining and Metallurgical Society of America (MMSA). She is responsible for the preparation of Section 14.0 and contributed to Sections 12.1, 25.0, and 26.0 of this report and the results contained herein.

**Mr. Robert D. Maxwell**, Behre Dolbear & Company (USA), Inc. Senior Associate and geologist, is a contributing author of this report. He has over 30 years of professional experience, most of it in uranium exploration, development, and evaluation. He has been involved in several evaluations related to major uranium project acquisitions. Mr. Maxwell conducted a review of AUC reports and data. He field checked the Project on June 19, 2012 and July 27, 2012. He collected samples from AUC core drilling for verification by assay. There has been no material change to the scientific or technical information about the property since that date. Mr. Maxwell is a Qualified Person under Canadian National Instrument 43-101 through the American Institute of Professional Geologists and is responsible for the preparation of all of this report except Section 14.0 and the results contained herein.

# 2.4 CURRENCY AND UNITS OF MEASUREMENT

All references to currency are US dollars (US\$). Units of measurement are the English system of inches, miles, tons, etc.

# 3.0 **RELIANCE ON OTHER EXPERTS**

The authors relied on no other experts for the preparation of this report.

# 4.0 PROPERTY DESCRIPTION AND LOCATION

## 4.1 **PROPERTY DESCRIPTION**

The Reno Creek ISR Project is composed of 5 units named based on exploration history and location (Figure 4.1). The North Reno Creek, Southwest Reno Creek, Moore, Pine Tree, and Bing Units contain roll-front uranium mineralization in the same and contiguous stratigraphic horizons.

- The contiguous North Reno Creek and Southwest Reno Creek Units are currently being permitted for mining by ISR methods, and will include12 ISR Production Units and a Central Processing Plant (CPP). The proposed mine permit boundary and CCP site are shown on Figure 4.1. The Moore, Pine Tree, and Bing Units will be added into the mine permit, via an amendment to the operating license, at an appropriate time in the future.
- The Moore Unit lies approximately 5 miles to the northwest of the Reno Creek proposed permit area. The Moore Unit will be connected to the CPP via pipelines.
- The Pine Tree Unit lies approximately 5 miles to the southwest of Reno Creek, immediately southeast of the intersection of U.S. Highway 387 and Wyoming Highway 50, also known as Pine Tree Junction. Current plans also envision that the Pine Tree Unit will be connected to the CPP via pipelines.
- The Bing Unit lies approximately 5 miles west of the Reno Creek Units adjacent to (west) of Wyoming Highway 50, 3 miles north of Pine Tree Junction. The Bing Unit will be connected to the CPP via pipelines.

Collectively, AUC controlled mineral lands within the Project total approximately 21,240 acres, consisting of 688 unpatented lode mining claims, 7 State of Wyoming mineral leases, and 4 private mineral leases. Mineral ownership status and resource areas are shown on Figure 4.1.

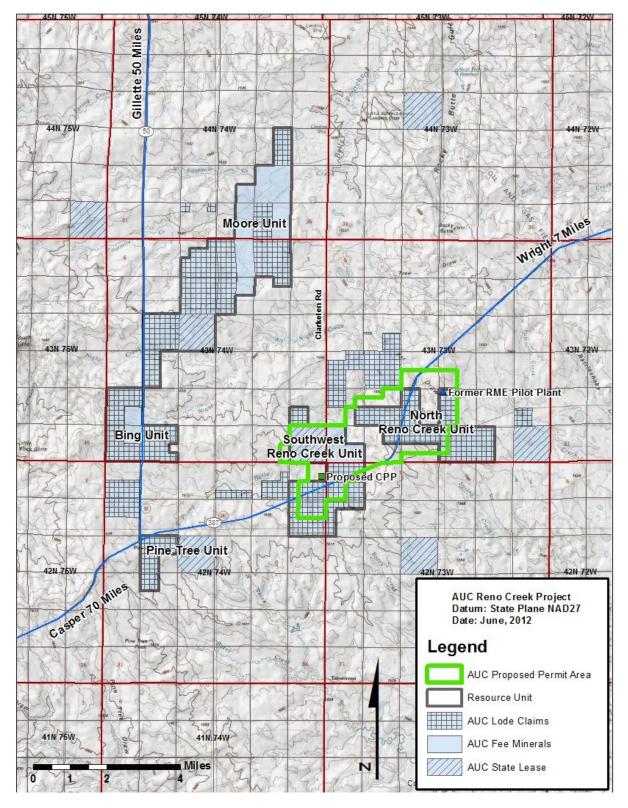


Figure 4.1. Reno Creek ISR Project land and resource unit locations

Surface ownership at the Project consists of both privately owned (fee) ranch lands and lands owned by the State of Wyoming. State surface ownership corresponds to state mineral ownership. The breakdown of land status including private fee, unpatented mining lode claims, and state leases for the Reno Creek ISR Project is shown in Table 4.1.

TABLE 4.1       Reno Creek ISR Project Acreage						
Township and	Township and State of Wyoming Leases Fee Mineral Leases Federal Lode Mining Claim					
Range	(Acres)	(Acres)	(Acres)			
T42N R73W	640	0	720			
T42N R74W	640	0	2,700			
T43N R73W	640	480	4,380			
T43N R74W	1,280	800	5,440			
T44N R73W	640	0	0			
T44N R74W	0	1,440	800			
T44N R75W	640	0	0			
Total	4,480	2,720	14,040			

# 4.2 LOCATION

The approximate latitude and longitude location for each resource unit follows.

•	North Reno Creek	Latitude 43°40'36.23" North – Longitude 105°37'21.87" West
•	Southwest Reno Creek	Latitude 43°40'26.44" North – Longitude 105°40'55.78" West
•	Moore	Latitude 43°44′50.84″ North – Longitude 105°43′59.56″ West
•	Pine Tree	Latitude 43°36′52.22″ North – Longitude 105°46′35.91″ West
•	Bing	Latitude 43°39'39.35" North – Longitude 105°47'17.33" West

# 4.3 MINERAL TENURE, RIGHTS, AND ROYALTIES

AUC has executed surface use and access agreements with all landowners, who hold surface ownership within the proposed ISR mining permit boundary at North Reno Creek and Southwest Reno Creek Units, including leases on state land. AUC has secured the majority of surface use and access agreements needed from landowners within the Moore Unit. Additional access agreements associated with the Pine Tree and Bing Units are currently being investigated.

AUC holds 688 unpatented lode claims on federally owned minerals. No royalties are due to the federal government from mining on lode claims. The claims will remain under AUC's ownership and control, provided that AUC adheres to required Bureau of Land Management (BLM) filing and annual payment requirements. Legal surveys of unpatented claims are not required and to the authors' knowledge have not been completed. Payments for state and private leases and BLM mining claim filing payments are up to date as of 2012.

Royalties on fee mineral leases vary with the ownership of the minerals. State mineral leases have a 5% gross royalty attached. Fee or private minerals have varying royalty rates and calculations, depending on the agreements negotiated with individual mineral owners. In addition, surface use and access agreements may include a production royalty, depending on agreements negotiated with individual surface owners at

various levels. AUC has calculated that the average combined mineral plus surface production royalty, applicable to the Project, is approximately 4%.

# 4.4 OTHER SIGNIFICANT FACTORS OR RISKS

No significant factors or risks are known that may affect access, title, or the right or ability to perform work on the property.

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

## 5.1 TOPOGRAPHY, ELEVATION, AND VEGETATION

Topography in the Reno Creek, Moore, Pine Tree, and Bing resource areas ranges from generally flat to gently rolling hills, though numerous drainages dissect the area. AUC's properties lie within the Northwestern Great Plains and Powder River Basin (PRB). The elevation in the area ranges from approximately 4,500 feet to 5,300 feet above mean sea level.

All drainages in the area are ephemeral in nature (Figure 4.1). The predominant source of surface water is from thunderstorms and spring snow melts. The watershed hydrology includes man made livestock ponds and small reservoirs for the Wyoming Pollutant Discharge Elimination System (WYPDES) discharge sites, from CBM de-watering activities.

Environmental investigations and surveys confirmed that neither sage grouse nor other threatened or endangered species are present, within the proposed mining permit area. In addition, no significant archeological or cultural features were identified. Additional details concerning environmental issues are found in Section 20.0.

Vegetation within the PRB is generally described as mixed grass prairie dominated by wheat grasses, various bunch grasses, and shrubs and within the Project area is comprised primarily of sagebrush shrub land, and upland grassland. Interspersed among these major vegetation communities, within and along the ephemeral drainages, are less abundant vegetation types of grassland and meadow grassland (Figure 5.1 and Figure 5.2).



Figure 5.1. View west from North Reno Creek Unit in Section 27 R43N T73W



# Figure 5.2. View east to Pine Tree Unit

# 5.2 ACCESS TO THE PROPERTY

AUC's properties are located in the southern portion of the PRB in the Pumpkin Buttes Uranium District in Campbell County, Wyoming. They are located in an area utilized for livestock grazing, oil and gas production, and CBM production.

The North Reno Creek and Southwest Reno Creek Resource Units are located 7.5 miles southwest of Wright, 31 miles northeast of Edgerton on Wyoming Highway 387. Access to North Reno Creek, Southwest Reno Creek, and Pine Tree Units, from the east and west, is via Wyoming Highway 387. Access to the Bing Resource Unit is provided via Wyoming Highway 50.

The primary access roads to the Moore Resource Unit, from Wyoming Highway 387, are Wyoming Highway 50 and the Clarkelen Road, which runs north and south and is a Campbell County-maintained gravel road. Additionally, there are private, two-track roads established from CBM development and agricultural activity, which provides access to other areas within the Project. No part of the Project is more than 2 miles from a public, all weather road.

# 5.3 PROXIMITY OF THE PROPERTY TO POPULATION CENTERS AND TRANSPORTATION

The Project is located in southwest Campbell County, Wyoming. The nearest community is Wright, a small, incorporated town (population 1,550) at the junction of Wyoming Highways 387 and Wyoming Highway 59 located 7.5 miles to the northeast of the North Reno Creek Resource Unit. Gillette, a major local population center with a regional airport, is located along Interstate 90, 41 miles north of the Project area via Wyoming Highway 59. The towns of Edgerton and Midwest are located in Natrona County and lie southwest of the Project on Wyoming Highway 387. Casper is a major population center with a

regional airport and lies approximately 80 miles to the southwest on Interstate 25. A major north-south railroad, used primarily for haulage of coal, lies approximately 20 miles east of the Project.

# 5.4 CLIMATE AND LENGTH OF OPERATING SEASON

The Project area is subject to extremes in temperature from summer to winter months ranging from 100°F in July to August to -25°F in December and January. Yearly precipitation totals range typically between 10 inches and 15 inches. Snow accumulation depths, throughout the winter months, are between 30 inches and 60 inches per year. Winds from the southwest are predominant and commonly range from 10 miles to 40 miles per hour. Evaporation rates are relatively high and are related to surface air temperatures, water temperatures, wind speed, and relative humidity. Despite occasional muddy spring conditions and cold winter conditions, work can be effectively carried on nearly year around on the Reno Creek ISR Project.

To determine the sub-regional weather and baseline meteorological conditions required for licensing and permitting, AUC installed a meteorological station at the eastern end of the North Reno Creek Resource Unit. This meteorological station has been providing continuous digital hourly-averaged meteorological data for over the 12-month baseline data collection period. The meteorological data collected include wind speed, wind direction, sigma theta, temperature, relative humidity, barometric pressure, solar radiation, precipitation, evaporation, and evaporation pan water temperature. AUC also installed an additional anemometer located at the up-wind west side of the Project, which enables an understanding of wind conditions across the Project area.

# 5.5 SURFACE RIGHTS FOR ISR OPERATIONS, POWER, MINING PERSONNEL, AND LAND AVAILABLE FOR PROCESSING FACILITIES

As a result of energy development over the past 50 years, all of the properties where AUC's deposits lie, have existing or nearby electrical power, gas, and have adequate phone and internet connectivity. The local economy is geared toward coal mining and oil and gas production as well as ranching operations, providing a well-trained and capable pool of workers for ISR production and processing operations.

AUC has leases and surface use and access agreements within the proposed mining permit area to enable construction of all operational facilities. Working with local ranchers, AUC has developed several arrangements to appropriate both surface and groundwater for exploration and baseline uses.

AUC has obtained rights to a central processing plant site (CCP, Figure 4.1) that is currently equipped with buildings, power, telephone, and well water. The site is located within the Southwest Reno Creek Resource Unit near the intersection of Wyoming Highway 387 and the Clarkelen County Road.

# 6.0 HISTORY

### 6.1 PRIOR OWNERSHIP AND OWNERSHIP CHANGES

In the 2004 to 2007 timeframe, Strathmore Minerals Corporation and American Uranium Corporation acquired lands in the Reno Creek ISR Project area. In 2007, they entered into a joint venture partnership to consolidate the Reno Creek properties. Strathmore Minerals Corporation and American Uranium Corporation subsequently sold the North Reno Creek and Southwest Reno Creek properties and the Pine Tree, Moore, and Bing properties and the holding company, AUC LLC, to AUC Holdings in 2010. The Project's history, prior to the Strathmore/AUC era, is described below.

#### 6.1.1 North Reno Creek and Southwest Reno Creek Units

Substantial historical exploration, development, and mine permitting were performed at North Reno Creek. Beginning in the late 1960s and continuing into the mid-1980s, Rocky Mountain Energy (RME), a wholly owned mining subsidiary of the Union Pacific Railroad, drilled approximately 5,800 exploration holes on their holdings, much of which AUC controls today. Exploration drilling delineated approximately 10 miles of roll front uranium deposits. By the mid-1970s, a partnership was formed between RME, Mono Power Company (South California Edison), and Halliburton Services to develop and mine Reno Creek using ISR methods.

In 1992, RME's Reno Creek project was acquired by Energy Fuels Nuclear Inc. (EFI). Over the next decade, EFI and its successor, International Uranium Corporation (IUC), continued to advance their Reno Creek holdings toward full permitting and uranium recovery. In 2001, IUC's property was sold to Rio Algom Mining Corp. Thereafter, Rio Algom sold their holdings to Power Resources Inc. (United States subsidiary of Cameco), which dropped its claims in 2003.

Most of Southwest Reno Creek was controlled and explored by American Nuclear Corporation (ANC) and the Tennessee Valley Authority (TVA). Approximately 700 holes were drilled over several years during the life of the joint venture.

#### 6.1.2 Moore, Pine Tree, and Bing Units

Substantial exploration was conducted in the 1960s, near and on AUC's Pine Tree, Bing, and Moore properties by Cleveland Cliffs Iron Company (Cleveland Cliffs) and Utah International Mining Company (Utah International). Utah International held lands that comprised all of AUC's Pine Tree resource area in Sections 17 and 20, T42N, R74W and a portion of the Moore resource area in Section 3, T43N, R74W and Sections 26 and 35, T44N, R74W. Surface and mineral leases, as well as federal claims held by Utah International, Inc., were known as the 'A' Group (Pine Tree Property) and 'B' Group (Moore Property).

In the late 1970s, Utah International became Pathfinder Mines, Inc. and continued development of the Pine Tree and Moore properties, as possible open pit mining operations. By the early 1980s, activities consisted of assessment drilling to maintain leases and claims on areas containing the main mineralization. During the 1980s, RME obtained ownership of claims and leases on and in the area of the Moore properties. RME continued evaluation of these properties with annual assessment drill programs until about 1990.

The Bing project was explored exclusively by Cleveland Cliffs. Several hundred exploration holes were drilled and a limited hydrologic testing program was conducted in the area in the 1970s.

## 6.2 TYPE, AMOUNT, QUANTITY, AND RESULTS OF WORK BY PREVIOUS OWNERS

AUC has acquired several data sets from Areva, Cameco, and Strathmore and controls thousands of geophysical logs, maps, reports, and other data that are pertinent to all of the Reno Creek Resource Units.

#### 6.2.1 Disequilibrium Studies

RME conducted extensive coring and assay testing to confirm uranium values and evaluate potential disequilibrium at the Reno Creek and Moore Units. Twenty-three core holes on the AUC property were tested foot-by-foot through extensive portions of the production zone sandstone, with multiple comparisons run. In some cases, RME tested as much as 130 feet of sandstone; in others they tested 2 feet to 40 feet bracketing all of the intercepts that met or exceeded the 0.02% radiometrically equivalent  $U_3O_8$  (eU<sub>3</sub>O<sub>8</sub>) cutoff grade. Twenty core holes were located on the North Reno Creek Unit and 3 core holes were on the Moore Unit.

RME ran three separate comparisons on a foot-by-foot basis.

- Beta Minus Gamma versus Closed Can
- Chemical (Fluorimetric) Analysis versus Downhole Probe
- Delayed Fission Neutron (DFN) versus Downhole Probe

All of these were designed to estimate a level of potential uranium disequilibrium between a grade derived in a manner that either directly measures uranium or measures an indirect factor that closely relates to uranium concentrations and a radiometric grade from the downhole probe or closed can test (reliant on gross gamma ray measurements and the potential fractionation of uranium from its daughter products). Disequilibrium is represented by a ratio between the chemical and radiometric analyses. Favorable measurements exceed 1.0 while unfavorable measurements are less than 1.0.

Thirty-four separate intercepts averaging greater than 0.02% eU<sub>3</sub>O<sub>8</sub> (compositing the hundreds of half foot measurements described above) were extracted from the 23-core hole database. The 34 intercepts had 46 comparisons conducted using a combination of methods. The results of these comparisons are shown in the weighted averages below:

•	Beta Minus Gamma versus Closed Can	1.80
•	Chemical Analysis versus Probe	1.47
•	DFN versus Probe	1.21

Of the 46 comparisons, 37 were favorable (greater than 1.0) and 9 were unfavorable (less than1.0). Of the 9 unfavorable results, 6 were greater than 0.8. Three of the 9 were less than 0.8.

Sample RN 43C is the one intercept for which it is possible to suggest dispersion of uranium by oxidizing groundwater. It is the shallower of two intercepts in the hole, and is in an area that has approximately a 20 foot to 30 foot head above the shallow intercept.

Utah International/Pathfinder also conducted equilibrium analyses on 4 drill holes at the Pine Tree project. They evaluated 57 separate half-foot intervals using a chemical analysis by x-ray fluorescence and compared those measurements to radiometric analyses. Over those samples, the average ratio of

chemical to radiometric was 1.10. All of the intervals were in excess of 0.05%  $eU_3O_8$ , which was Utah's cutoff grade at the time. No equilibrium data are available for the Bing deposit.

## 6.2.2 North Reno Creek and Southwest Reno Creek

RME reports, maps, and cross sections in AUC's possession indicate that over 5,800 exploratory holes were drilled by RME in the greater Pumpkin Buttes area, with at least 1,083 holes completed on the North Reno Creek Unit. AUC possesses survey data, electric logs, and lithologic logs for nearly all of RME's drill holes at North Reno Creek. ANC and TVA drilled approximately 700 holes on the Southwest Reno Creek Unit, and while few electric logs are available, maps and data that summarize the results of the work are incorporated into AUC's database and are used for current mapping and resource estimates.

Extensive hydrologic testing was conducted by RME to enable permitting, construction, and operation of an ISR pilot plant located near the northeast portion of the mineralized trend (Figure 4.1). The well patterns at the plant site were sited in the partially saturated portion of the local hydrologic regime to assure that operations could be successfully conducted in that area. RME's pilot test pattern #2 was successfully operated and restored in an area with 20 to 30 feet of hydrologic head present above the mineralization (RME, 1981, 1982, and 1983). The fully saturated/partially saturated boundary was depicted on potentiometric maps by RME, and lies almost at the same position as Wyoming Highway 387, with partially saturated conditions being present east of the highway. Recent testing by AUC determined that current groundwater conditions remain very similar to conditions in the 1980s. Further discussion of AUC's hydrologic investigations is found in Section 20.1 of this report.

RME also conducted a large scale Hydrogeologic Integrity Test and issued a two-volume report describing the results (RME, 1982). The investigation had two objectives.

- Determine if historical exploration holes drilled, prior to the enactment of drill hole abandonment regulations, had naturally sealed themselves.
- Determine if there is hydraulic communication between the production zone aquifers (PZA) and the overlying aquifer using a series of pump tests in the PZA.

RME's tests of historical drill holes indicated that all holes had been adequately sealed through the production zone aquifer and overlying aquitard. Pump testing by RME and subsequent testing by AUC showed that there was no detectable communication between the PZA and the overlying aquifer.

Following RME's exit from the project, further extensive hydrologic and baseline studies were performed for several years at North Reno Creek by EFI and its successor, IUC. IUC was pursuing permits for a commercial operation and installed a monitoring well ring around a mineralized area in Section 29, 43N, R73W (Figure 4.1). Copies of IUC's documents have been acquired by AUC and were reviewed and used to aid current permitting efforts.

#### 6.2.3 Moore Unit

Drilling by Utah International/Pathfinder Mines was performed in the 1970s on what is now referred to as the Moore Unit resulting in identification of alteration fronts and resources in Sections 26 and 35, T44N, R74W and the east half of Section 3, T43N, R74W. The Utah/Pathfinder Moore drilling consists of more than 1,000 holes identified as drill hole B-series (B-1 through B-1066).

Upon acquisition of leases and claims in the Moore property area, RME drilled extensively in the 1980s. The locations were selected to extend known mineralized trends and to more closely identify alteration fronts. RME also installed six wells and conducted a multi-well pump test that determined favorable saturated ground water conditions exist at the Moore Unit (Hydro Engineering for Union Pacific Resources, 1987).

Data acquired by AUC for the Moore Unit includes 272 historical logs, reports, cross sections, and an electronic database containing coordinates, natural gamma ray log counts per second (CPS) data, and uranium intercept data for approximately 1,390 holes. RME, Pathfinder, and Cleveland Cliffs originally generated the data.

## 6.2.4 Pine Tree Unit

Drilling by Utah International/Pathfinder Mines, in the 1970s on their Pine Tree property, resulted in general identification of alteration fronts in what is now AUC's Pine Tree Unit in Sections 17 and 20, T42N, R74W. The total amount of drilling during this time consisted of more than 400 holes identified as the A-series (A-1 through A-480). AUC has acquired logs for 288 of those drill holes as well as Pathfinder's tabulations of survey information and uranium intercept data, all of which have been incorporated into AUC's Pine Tree database.

## 6.2.5 Bing Unit

Cleveland Cliffs drilled several hundred holes in the general Bing resource area including wells constructed for pump testing purposes. Analysis of Cleveland Cliff's pump test data is currently underway; however, water production reported from one of the tests indicates that pumping rates of over 20 gallons per minute (gpm) were achieved. The drilling was conducted from 1968 through 1982.

AUC's data acquisition for the Bing area included approximately 200 electric logs to support the AUC resource estimate, but did not include intercept reports. AUC personnel scanned the original electronic logs to estimate thickness and grades of radiometric equivalent  $U_3O_8$  (eU<sub>3</sub>O<sub>8</sub>) for use in resource estimates for the Bing Unit.

# 6.3 HISTORICAL MINERAL RESOURCE ESTIMATES

Strathmore Minerals Corporation prepared two National Instrument 43-101 Mineral Resources Reports for the Reno Creek Properties, entitled: "Reno Creek Uranium Property Campbell County, Wyoming" and "Southwest Reno Creek Uranium Property Campbell County, Wyoming," both updated on January 30, 2009. Charles D. Snow was the author of both reports.

Using a polygonal resource estimation method, Snow reported resources of 5.7 million tons at an average thickness of 11.9 feet and average grade of 0.065% for a total of 7.4 million pounds (Measured and Indicated) of  $U_3O_8$  at North Reno Creek. Snow's Southwest Reno Creek Technical Report reported resources of 2.6 million tons at an average thickness of 11.4 feet and average grade of 0.068% for a total of 3.5 million pounds (Measured and Indicated) of  $U_3O_8$  at Southwest Reno Creek.

The combined units reported approximately 8.3 million tons at an average grade of 0.066% and an average thickness of 11.7 feet for a total of 10.9 million pounds of Measured and Indicated  $U_3O_8$ .

An additional 2.6 million tons at an average thickness of 13.2 feet and average grade of 0.065%, yielding 3.4 million pounds of Inferred resources of  $U_3O_8$  were reported in North Reno Creek. At Southwest Reno Creek, Snow reported an additional 1.2 million tons at an average thickness of 11.4 feet and average grade of 0.057%, yielding 1.3 million pounds of Inferred Resources of  $U_3O_8$ .

The Snow reports did not estimate the resource by individual roll front. Behre Dolbear and AUC conducted a new resource estimate, which did not take into account the results of the two older NI 43-101 reports.

# 6.4 **PRODUCTION**

Very limited production (approximately 1,200 pounds of  $U_3O_8$ ) occurred at RME's pilot ISR operation, located in North Reno Creek (Figure 4.1). RME applied for and received a research and development (R&D) Pilot Plant license in 1978 from the NRC and Wyoming DEQ. RME tested two injection/recovery patterns under the license (RME, 1981, 1982, and 1983). Both were conducted in an area of lower grade (0.038%  $U_3O_8$ ) than the average of the deposit.

In January 1979, RME completed a 100 gpm pilot plant. Two test patterns were installed and operated. Pattern #1 utilized sulfuric acid lixiviant at a pH of 1.7 because of high recoveries indicated in amenability tests. Testing at Pattern #1 began in February 1979 and was terminated in November 1979 because results from this pattern were unsatisfactory. Severe permeability losses were noted and despite attempts to improve recovery and injectivity, the acid pattern ultimately proved that this formation could not be leached effectively using acid lixiviants. Restoration and stabilization of the groundwater of Pattern #1 was acknowledged and signed off by the NRC in March 1986. AUC possesses reports and letters from government agencies documenting hydrologic conditions, operation of the well fields, restoration, and regulatory signoff of the facility (RME, Reno Creek Pattern #2 Restoration Reports & Addenda, 1983).

Operation of Pattern #2 began in October 1980 using a sodium carbonate  $(Na_2CO_3)$ /sodium bicarbonate  $(NaHCO_3)$  lixiviant and hydrogen peroxide  $(H_2O_2)$  oxidant. # 2 was constructed as a modified 5-spot, consisting of 2 recovery wells, 4 injection wells, and 6 monitor wells. Pattern #2 was operated from October 1980 to December 1980. The results, coupled with the column leach test results, led RME to switch to carbonate lixiviant for further testing and commercial development. Uranium recovery and average head grade were especially encouraging. Uranium head grade peaked at 65 mg/L and approximately 1,200 pounds of  $U_3O_8$  were recovered. In order to demonstrate restoration, leaching was stopped while  $U_3O_8$  concentrations were still at 15 mg/L.

Restoration of Pattern #2 began in December 1980 and continued until April 16, 1983. All groundwater parameters returned to baseline ranges with the exception of pH, uranium, and vanadium. Of these parameters, all were either below Wyoming Department of Environmental Quality (WDEQ) Class I Groundwater Standards (domestic use) or do not have Class I maximum concentration limits (WDEQ, 1980). # 2 pilot testing culminated in regulatory signoff in June 1983 with the approval of carbonate leaching for commercial operations at Reno Creek under Materials License Number SUA-1338.

There has been no production from the Southwest Reno Creek, Moore, Pine Tree, or Bing Units.

# 7.0 GEOLOGICAL SETTING AND MINERALIZATION

# 7.1 REGIONAL GEOLOGY

The Project is located in the Pumpkin Buttes Uranium District in the central PRB of Northeastern Wyoming, as shown in Figure 7.1. Outcrop and host rock geology consists primarily of sedimentary units of the Eocene-age Wasatch Formation. Active uranium projects various stages of permitting, design, construction, or operation in the Pumpkin Buttes District posted on the map include Reno Creek (AUC LLC), Moore Ranch, Willow Creek (Uranium One – includes Irigaray and associated properties), and the Hank and Nichols Ranch (Uranerz) projects. Willow Creek is currently producing uranium using ISR methodology.

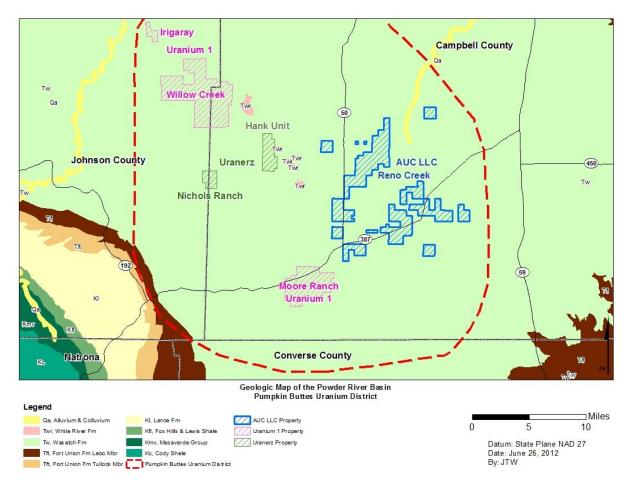


Figure 7.1. Geologic map of the Powder River Basin Pumpkin Buttes Uranium District

The Eastern Wyoming Uranium District encompasses an area of about 31,000 square kilometers (12,000 square miles) in Campbell, Johnson, and Converse counties within. The first uranium discoveries in the PRB near Pumpkin Buttes were in 1951 (Davis, 1969). Limited surface production began in 1953 followed by ISR development at Irigaray and Christensen Ranch. Other uranium deposits were found along a 60-miles northwest-southeast trend in the southwest part of the PRB.

The PRB extends over much of northeastern Wyoming and southeastern Montana, and consists of a large north-northwest trending asymmetric syncline. The basement axis lies near the western edge of the basin, and the present surface axis lies to the east of the basement axis near the Pumpkin Buttes, approximately 10 miles west of the project. The basin is bounded by the Big Horn Mountains to the west, the Black Hills to the east, and the Hartville Uplift and Laramie Mountains to the south.

The PRB is filled with sediments of marine and continental origin ranging in age from early Paleozoic through Cenozoic. Figure 7.2 depicts the upper portion of the stratigraphic column in the Reno Creek Project area. Sediments reach a maximum thickness of about 20,000 feet in the deepest parts of the basin. The top of the Precambrian is projected to be 17,500 feet deep in the Project area.

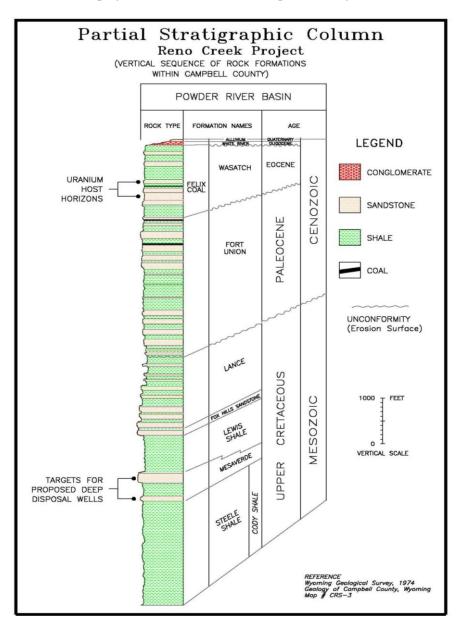


Figure 7.2. Stratigraphic column

Following a long period of stability during the Mesozoic, tectonic forces of late-Paleocene to early-Eocene age ushered in mountain building events related to the Laramide Orogeny. Uplift began to affect the western continental margin and modify the landscape of central and eastern Wyoming (Seeland, 1988). As a result of these tectonic forces, the PRB was the site of active subsidence surrounded by orogenic uplifts (Big Horn Mountains, Laramie Mountains, Black Hills, etc.). Northward flowing rivers deposited repeated sequences of sandstones, mudstones, and minor coals comprising the Eocene Wasatch Formation. Sandstones form the uranium-bearing host horizons at Reno Creek and surrounding areas. The Wasatch dips northwestward at approximately 1 degree to 2.5 degrees in this portion of the PRB (Sharp, et al., 1964).

During the Oligocene Epoch, regional volcanism to the west of the basin resulted in the deposition of tuffaceous claystone, sandstone, and conglomerate of the White River Formation. Remnants of the White River Formation overlie the Wasatch Formation capping the Pumpkin Buttes.

The Wasatch Formation unconformably overlies the Fort Union Formation around the margins of the basin. However, the two formations are conformable and gradational toward the basin center and the Project area. The Wasatch contains thick lenses of coarse, cross-bedded, arkosic sands deposited in a moderate to high-energy fluvial environment, and reaches a maximum thickness of 500 feet to 700 feet within the Project area. The Badger Coal is regarded as the approximate lower boundary of the Wasatch Formation in the Reno Creek, Moore, Pine Tree, and Bing areas.

CBM production present in parts of the Project area is from the Anderson/Big George Coal, at approximately 1,000 feet to 1,100 feet below ground surface. The coal seams occur approximately 600 feet below the base of the aquifer proposed for uranium ISR operations.

# 7.2 SITE GEOLOGY

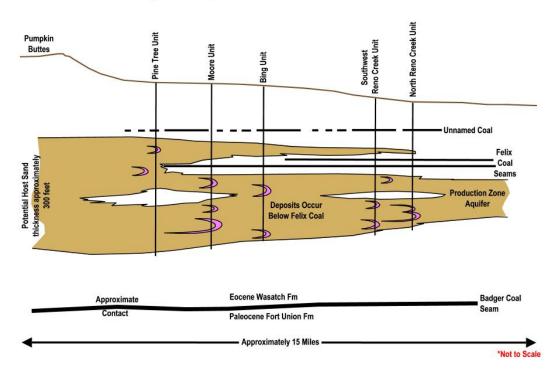
Mineralization in the Project area occurs in fluvial sandstones of the Eocene Wasatch formation. The sandstones are arkosic, fine- to coarse-grained, contain appreciable amounts of carbon trash, dispersed and in stingers, and contain local calcareous lenses. Unaltered sands are generally gray while altered sands are tan or pink, due to hematite or show yellowish coloring due to limonite (Utah International, Internal Memo, December 1971).

Pyrite is noted in several forms within the host sands. In unaltered sands, pyrite may be found as small to large single euhedral crystals associated with magnetite, ilmenite, and other dark detrital minerals. In altered sandstone, pyrite is absent or scarcely found as tarnished, very fine euhedral crystals. In areas of intense or heavy mineralization, pyrite may be found in massive, tarnished crystal aggregates (Utah International, Internal Memo, December 1971).

Major hydrostratigraphic units are described below. The Overlying Aquifer at North Reno Creek and Southwest Reno Creek is the overlying aquifer relative to the proposed production zone and overlies the Felix Coal marker across the entire area. This overlying aquifer/sandstone is regarded as a host for mineralization at the Pine Tree Unit, as shown on Figure 7.2 and Figure 7.3.

• The Overlying Aquitard is a continuous confining mudstone unit providing isolation between the production zone and overlying aquifer in the Reno Creek area and includes the Felix Coal seams.

- The Production Zone Aquifer (PZA) is the host for uranium deposits at the North Reno Creek, Southwest Reno Creek, Moore, Pine Tree, and Bing Units.
- The Underlying Aquitard is a continuous confining mudstone unit providing isolation between the PZA and underlying discontinuous units.



#### Diagram of Deposits in Relation to Local Coal Seams

#### Figure 7.3. Diagram of deposits in relation to coal seams

#### 7.2.1 North Reno Creek and Southwest Reno Creek Geology

In the North Reno Creek and Southwest Reno Creek Resource Units, the lower-most unit of the Wasatch Formation comprises the Underlying Aquitard, which lies below the Production Zone Aquifer (PZA) and above the Badger Coal. The aquitard is approximately 150 feet to 250 feet thick and consists of laterally continuous silt and clay rich mudstones, and locally, discontinuous lenticular sandstones. Based on geologic and hydrologic data at North Reno Creek and Southwest Reno Creek, sandstones within this unit do not meet the requirements of an aquifer.

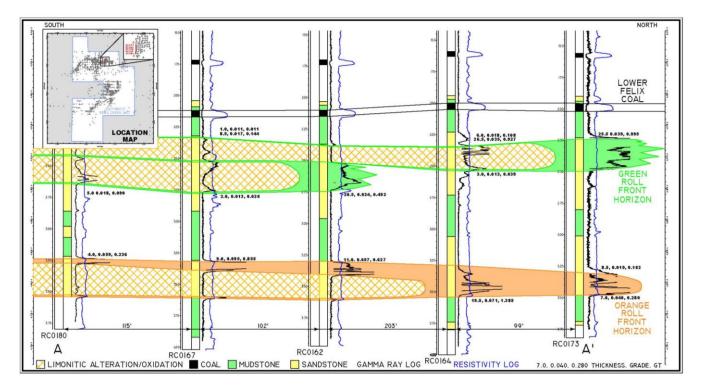
The mineralized host sandstone, or PZA, overlies the underlying aquitard at North Reno Creek and Southwest Reno Creek. The PZA is a discrete and laterally continuous sandstone ranging from under 75 feet in thickness to approximately 220 feet thick. The sand unit occasionally contains semi-continuous mudstone lenses.

At various localities within the Project area, all horizons from the base to the top of the host sandstone can be favorable for uranium deposition. However, economically significant uranium mineralization occurs most frequently in the lower half of the PZA. Hydrogeologic investigations by RME, IUC, and AUC have resulted in a thorough understanding of the groundwater conditions across the Project area, including the position of the water table in relation to mineralization. In the far eastern portion of the Project area, the PZA is partially saturated and, in some areas, very limited uranium mineralization is present above the potentiometric surface of the PZA. Based on recent work by AUC, the mineralization in the uppermost, unsaturated portion of the PZA is insignificant (approximately 1%). None of the resources presented in this report are above the water table.

Sandstones within the PZA that host the uranium mineralization are commonly cross bedded, graded sequences fining upward from very coarse at the base to fine grained at the top, representing sedimentary cycles from 5 feet to 20 feet thick. Stacking of depositional cycles has resulted in sand body accumulations over 200 feet thick.

AUC has divided the PZA host sandstone into five horizons to aid in tracking individual roll fronts. Fronts are mapped based on oxidized and reduced (redox) conditions. Oxidization (limonitic and hematitic stained sandstone) is the primary alteration product associated with the up-gradient side of the fronts (referred to as alteration fronts on subsequent figures).

The uppermost roll front horizon is coded as green, followed by the purple, red, orange, and blue with increasing depth. The relationship of the green and orange horizons is depicted on a diagrammatic cross section (Figure 7.4). The intervening purple and red roll fronts and the underlying blue horizon are not present in the area represented in the Southwest Reno Creek diagram.



# Figure 7.4. Cross Section A-A' Southwest Reno Creek

The unit overlying the PZA in the North Reno Creek and Southwest Reno Creek area is the Overlying Aquitard. The unit consists of a laterally continuous sequence of silt and clay rich mudstones, thin coal seams (the Felix Coal seams), and discontinuous sandstones.

As shown in Figure 7.2, Figure 7.3, and Figure 7.4, the Felix Coal seams are laterally continuous in the North Reno Creek and Southwest Reno Creek areas and appear to extend northward into the Moore and Bing areas. The Felix Coals and the underlying Badger Coal provide important correlation points across the entire project area.

Wasatch sequences in the North Reno Creek and Southwest Reno Creek Resource Units dip slightly to the northwest. No faulting has been observed within the immediate area.

In the North Reno Creek and Southwest Reno Creek Resource Units, the lower-most unit of the Wasatch Formation comprises the Underlying Aquitard, which lies below the PZA and above the Badger Coal. The aquitard is approximately 150 feet to 250 feet thick and consists of laterally continuous silt and clay rich mudstones, and locally, discontinuous lenticular sandstones. This confining unit is present under the entire project area.

The mineralized host sandstone, or PZA, overlies the Underlying Aquitard at North Reno Creek and Southwest Reno Creek. The PZA is a discrete and laterally continuous sandstone ranging from under 75 feet to approximately 220 feet thick. The sand unit occasionally contains semi-continuous mudstone lenses.

At various localities within the Project area, all horizons from the base to the top of the host sandstone can be favorable for uranium deposition. However, economically significant uranium mineralization occurs most frequently in the lower half of the PZA.

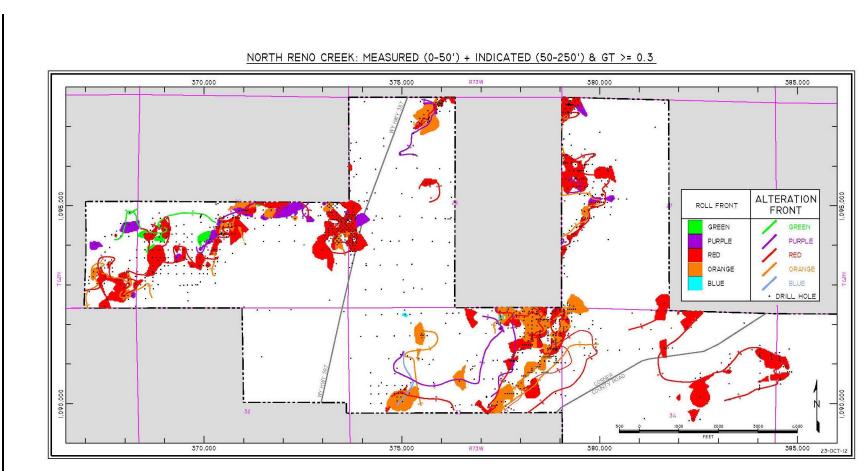
In the far eastern portion of the Project area, the PZA is partially saturated, and in limited areas, uranium mineralization is present above the potentiometric surface of the PZA. Based on recent work by AUC, the mineralization in the uppermost, unsaturated portion of the PZA does not represent a significant percentage of the overall uranium resource. None of the resources presented in this report are found above the water table.

Sandstones within the PZA that host the uranium mineralization are commonly cross bedded, graded sequences fining upward from very coarse at the base to fine grained at the top, representing sedimentary cycles from 5 feet to 20 feet thick. Stacking of depositional cycles has resulted in sand body accumulations over 200 feet thick.

AUC has divided the PZA host sandstone into five horizons to aid in tracking individual roll fronts. Fronts are mapped based on oxidized and reduced (redox) conditions. Oxidization (limonitic and hematitic stained sandstone) is the primary alteration product associated with the up-gradient side of the fronts (referred to as alteration fronts on subsequent figures).

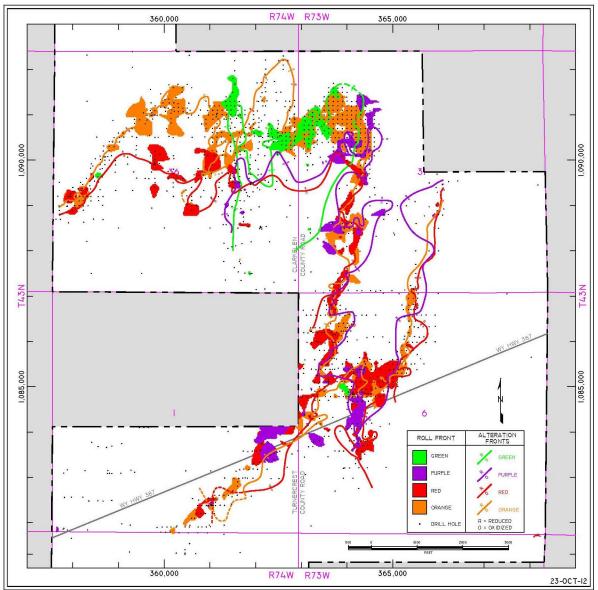
The uppermost roll front horizon is coded as green, followed by the purple, red, orange, and blue with increasing depth. The relationship of the green and orange horizons is depicted on a diagrammatic cross section (Figure 7.4). The intervening purple and red roll fronts and the underlying blue horizon are not present in the area represented in the Southwest Reno Creek diagram.

Resources and alteration fronts for the North Reno Creek and the Southwest Reno Creek Units are depicted on Figure 7.5 and Figure 7.6).



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Figure 7.5. Measured and Indicated resources at North Reno Creek



SOUTHWEST RENO CREEK: MEASURED (0-50') + INDICATED (50-250') & GT >= 0.3

## Figure 7.6. Measured and Indicated resources at Southwest Reno Creek

## 7.2.2 Moore Resource Unit Geology

Geology at the Moore Unit is consistent with the Reno Creek and Bing Units. Historical RME cross sections and CBM logs enable correlations from the Moore area to the other units. There are two notably continuous coal beds approximately 40 feet to 50 feet apart within the upper portion of the section at the Moore Unit. The lower coal correlates with the Felix Coal bed, which is a marker bed in the Reno Creek resource area. The mineralized host sand lies 5 feet to 30 feet below this coal bed and at a depth of 200 feet to more than 350 feet below the surface. The host sand ranges from 80 feet to 150 feet in thickness.

AUC constructed a series of cross sections using extensive intercept and location data from recent database acquisitions. The cross sections enabled correlation and projections of mineralized horizons. The uppermost roll front horizon is coded as green, followed by the purple, red, orange, and blue with increasing depth.

Where available, geophysical logs were used (AUC has copies of 272 geophysical logs in the Moore area) in the cross sections since lithologic logs, which provide oxidation/reduction data helpful for tracking fronts are generally not available. Therefore, mapping of alteration fronts in Figure 7.7 is based on historical maps and geologic interpretations of gamma log signatures, with thinner high gamma intervals assumed to be "tails" on the oxidized side and thicker mineralized zones are assumed to be in the nose or protore zone in the unoxidized portion of the roll front.

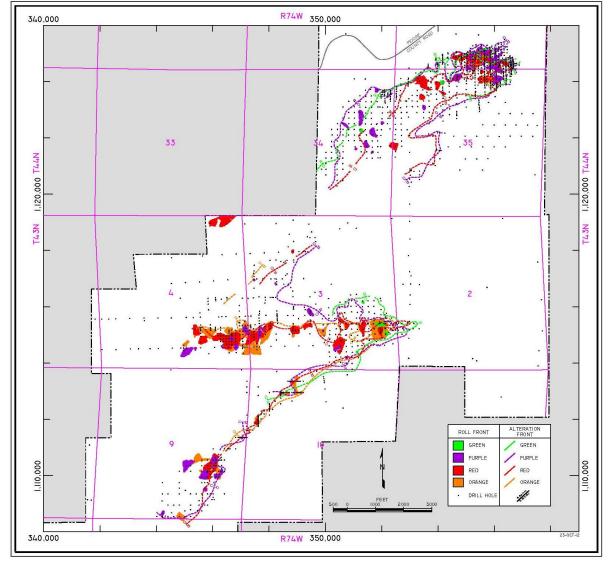


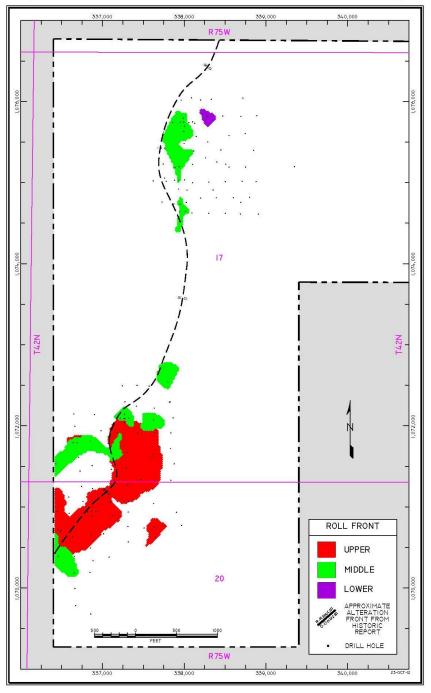


Figure 7.7. Moore Measured and Indicated resources

## 7.2.3 Pine Tree Resource Unit Geology

On the basis of regional CBM well log correlations, the sands hosting mineralization at Pine Tree are located stratigraphically slightly higher in the Wasatch section than the host sands at North Reno Creek, and occupy the projected stratigraphic position of the Felix Coal, which is absent at Pine Tree. The position of the mineralization is based on its stratigraphic relationship above the Badger and Big George Coals. AUC separated roll front horizons into Upper, Middle, and Lower fronts at the Pine Tree Unit.

Where available, geophysical logs were used (288 geophysical logs in the Pine Tree Unit) to create cross sections; however, lithologic logs are scarce so oxidation/reduction data helpful for tracking individual roll fronts is limited at this time. Mapping of the alteration front in Figure 7.8 is generalized, based on historical data.



PINE TREE: MEASURED (0-50') + INDICATED (50-250') & GT >= 0.3

#### Figure 7.8.Pine Tree Measured and Indicated resources

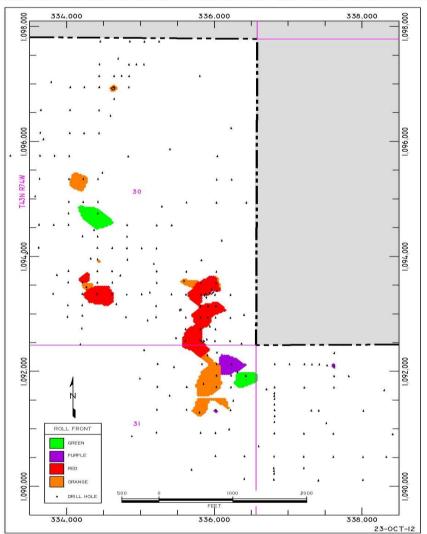
#### 7.2.4 Bing Resource Unit Geology

Based on review of CBM and historical geophysical logs, stratigraphy at the Bing Resource Unit consists of interbedded sand and clay units of the lower Wasatch formation. The mineralized sands appear to be similar to, and correlate with the host units at the Moore, North Reno Creek, and South Reno Creek Units.

Interbedded finer sediments consist of clays and mudstone units as well as thin coal beds that range from 2 feet to 8 feet in thickness

Based on regional correlations of CBM well logs, the Felix Coal bed marker bed is present in the Bing area. The host sand lies below the Felix Coal seam at a depth of 350 feet to 400 feet below the surface. The host sand ranges from 150 feet to 200 feet in thickness.

AUC divided the host sandstone into 4 horizons to aid in tracking individual roll fronts. The uppermost roll front horizon is coded as green, followed by the purple, red, and orange with increasing depth. Geophysical logs were used (AUC has copies of 200 geophysical logs in the Bing Unit area) to create cross sections and determine the mineralized roll front horizons. Lithologic logs are scarce so oxidation/reduction data helpful for tracking individual roll fronts is limited. Therefore, roll fronts are not included in Figure 7.9.



BING: MEASURED (0-50') + INDICATED (50-250') & GT >= 0.3

Figure 7.9. Bing Unit Measured and Indicated resources

## 7.2.5 Lithologic Characteristics

Historical lithologic data generated by RME for the North Reno Creek and Southwest Reno Creek Units is extensive (AUC has over 1,000 historical lithologic logs on file). Lithologic data from the other resource units is much less complete, but forms an adequate basis to enable geologic mapping for use in current resource estimates and for planning future drilling.

AUC drilled approximately 800 exploration holes, well pilot holes, stratigraphic test holes, and core holes since August 2010 on the North Reno Creek and Southwest Reno Creek Units. A 100-hole drilling and coring program is nearing completion at the Moore Unit. Results will be evaluated over the next few months.

AUC has collected approximately 450 feet of core from 12 core holes for analysis and lithologic examination. In addition, cuttings samples were collected at 5-foot continuous intervals for lithologic descriptions by AUC geologists from surface to total depth. Copies of electric logs, lithologic logs, and a collection of core and cuttings samples have been saved for future reference, and are stored in AUC's locked storage facility in Wright, Wyoming.

A series of deep stratigraphic test holes penetrating the total thickness of the Wasatch Formation, through the Badger Coal marker at the top of the Fort Union Formation, were drilled in each of AUC's 7 well clusters within the proposed mine permit area at the North Reno Creek and Southwest Reno Creek Units to provide a more detailed sub-regional control. Locations of the well clusters are shown in Section 20.0.

Detail regarding lithology, permeability, and porosity can be found in this report in Section 13.1. On the basis of historical work, as well as current drilling, coring, and laboratory analyses, AUC's understanding of lithologic characteristics of the host sandstone, aquitards, and adjacent coals, sandstones, and mudstones is adequate to interpret geologic factors controlling uranium deposition and future ISR actions at all resource units.

## 8.0 **DEPOSIT TYPE**

## 8.1 DEPOSIT TYPE AND GEOLOGIC MODEL

In the Pumpkin Buttes Uranium District, which includes the Reno Creek, Moore, Bing, and Pine Tree deposits, important economic uranium deposits occur in medium to coarse-grained sand facies of the Eocene Wasatch Formation. Uranium mineralization at AUC's holdings occurs within the lower portion of the Wasatch Formation. The uranium mineralization occurs as interstitial fillings between and coatings on the sand grains along roll front trends formed at geochemical reduction-oxidation (redox) boundaries within the host sandstone aquifers.

Roll front uranium minerals in the unoxidized zone are commonly coffinite and pitchblende (a variety of uraninite). Low concentrations of vanadium (less than 100 ppm) are sometimes associated with the uranium deposits.

Uranium deposits accumulated along roll-fronts at the down-gradient terminations of oxidation tongues within the host sandstones. The deposits occur within sandstones, which are intermittently interbedded with lenses of siltstone and claystone, commonly referred to as mudstones at the project due to the mixture of particle sizes. The thickness of the mineralization is controlled by the thickness of the sandstone host containing the solution-front.

Uranium deposits are generally found within sand units ranging from 50 feet to 200 feet in thickness, and at depths ranging from 170 feet to 450 feet below ground surface. Uranium intercepts are variable in thickness ranging from 1 foot to 30 feet thick. Thin low-grade residual upper and lower limbs of the roll fronts are found in the less permeable zones at the top and bottom of oxidized sand units bounded by unoxidized mudstones.

While in solution, uranium is readily transported and remains mobile as long as the oxidizing potential of the groundwater is not depleted. When the dissolved uranium encounters a reducing environment, it is precipitated and deposited at the interface between the oxidizing and reducing environments known as the redox or alteration front.

Oxidation or alteration of the PZA sandstone in the Reno Creek area was produced by the down-gradient movement of oxidizing, uranium-bearing groundwater solutions. Uranium mineralization was precipitated by reducing agents and carbonaceous materials in the gray, reduced sands. The host sandstones, where altered, exhibit hematitic (pink, light red, brownish-red, orange-red) and limonitic (yellow, yellowish-orange, yellowish-brown, reddish-orange) alteration colors, which are easily distinguished from the unaltered medium-bluish gray sands. Feldspar alteration, which gives a "bleached" appearance to the sands from the chemical alteration of feldspars into clay minerals, is also present. Limonitic alteration dominates near the "nose" of the roll fronts. The remote barren interior portions of the altered sands are usually pinkish-red in color. The uranium mineralization is contained in typical Wyoming roll-front deposits that are highly sinuous in map view. Figure 7.4 is a diagrammatic cross section of roll fronts using geophysical logs from the Southwest Reno Creek Resource Unit.

Carbon trash is occasionally present in both the altered and reduced sands. In general, the unaltered sands have a greater percentage of organic carbon (approximately 0.2%) than the altered sands (0.13%) in selected cores analyzed by previous operators. Carbon in unaltered sands is shiny, while dull and flaky in the altered sands. Pyrite is occasionally observed in reduced drill core, at concentrations of approximately 0.5%.

#### 9.0 **EXPLORATION**

Exploration drilling, described in Section 10.0, was performed on the AUC North Reno Creek and Southwest Reno Creek Units, which are the first areas scheduled for ISR extraction. A 100-hole drilling and coring program is nearing completion at the Moore Unit. Interpretation of the results is pending. AUC has not conducted exploration on the Pine Tree or Bing Units but recommends drilling in these areas in the future.

#### 10.0 DRILLING

## **10.1 TYPE AND EXTENT OF DRILLING**

To date, more than 7,550 drill holes have been drilled by AUC and previous uranium exploration companies on, and nearby, the 5 Resource Units held by AUC. The historical data sets in AUC's possession were generated by competent companies that exercised rigorous standards and used acceptable practices of the day. All available data from geologic reports, drilling, survey coordinates, collar elevations, depths, electric log data, and grade of uranium intercepts, have been incorporated into AUC's system. Review and QA/QC of AUC's files and databases for all resource areas was conducted by the authors, and the data was found to be adequate and sufficient to support current 43-101 compliant resource estimates and other discussions contained in this report.

Drilling of 807 rotary holes, core holes, and monitoring wells was conducted during the past 3 years by AUC within the North Reno Creek and Southwest Reno Creek Units. AUC has recently completed a 100-hole rotary and core program at the Moore Unit. Evaluation of results will be conducted over the next few months. A preliminary evaluation of results from the Moore Unit drilling indicates general agreement with historical data.

#### 10.1.1 North Reno Creek and Southwest Reno Creek Unit Drilling

The North Reno Creek area was extensively explored from the late 1960s through 1991 by Union Pacific Railroad and its subsidiaries RME and Union Pacific Resources. Energy Fuels Nuclear (later IUC) and Power Resources acquired the properties and drilled an additional 300 to 400 holes in the 1990s and early 2000s period.

Additionally, ANC and TVA explored Southwest Reno Creek during approximately the same period that RME was active in the area. ANC and TVA drilled approximately 695 holes in the general area on properties adjacent to RME's holdings. All of the historical drilling and testing were conducted in accordance with the standard and accepted practices of the time.

North Reno Creek and Southwest Reno Creek Resource Units include approximately 2,665 historical drill holes and plugged wells within the Project permit boundary. Approximately 100 of the holes were cased wells that were plugged and abandoned by previous operators.

AUC drilled approximately 800 holes from August 2010 through July 2012, including 12 core holes and 44 cased wells that will remain in place for an extended period for groundwater monitoring purposes. Recent drilling by AUC confirmed intercepts in the historical data by drilling step-out holes (100 feet from old holes), in accordance with recommendations by the authors. Continuity also was confirmed on a large scale by drilling that joined 2 mineralized areas over a mile apart. AUC drilling in this area (located in the west half of Section 31, T43N, R73W), added over 2.0 million pounds of resources.

The holes that were not cased, to be used as wells, were plugged and abandoned in accordance with WDEQ-LQD Chapter 8 and per the WDEQ approved AUC Reno Creek Project Drilling Notification 401 (DN401).

AUC's practice in the Pumpkin Buttes Uranium District was to drill bore holes using 4<sup>3</sup>/<sub>4</sub>-inch to 5<sup>1</sup>/<sub>4</sub>-inch diameter bits by conventional rotary drill rigs circulating drilling mud. The cuttings were

collected over 5-foot intervals and laid out on the ground in rows of 20 samples (100 feet) by the driller. The site geologist examined the cuttings, in the field, to determine lithology and geochemical alteration.

Upon completion of the drilling, drill holes were logged, from the bottom of the hole upward, with a gamma-ray, self-potential, and resistance probe. All of AUC's drill holes were logged by an independent downhole geophysical contractor, Century Geophysical Corporation. Lithologic and geophysical logs are stored electronically and on hard copy by AUC (Figure 10.1).



# Figure 10.1. Drilling rig and logging truck from completed location on Southwest Reno Creek Unit

## **10.1.2 Moore Unit Drilling**

A 100-hole drilling and coring program is nearing completion at this time, but results are not yet available for inclusion in this report. Drilling was done by several companies in the Moore resource areas. Wide-spaced drilling on traverse lines was done in the late 1960s by Cleveland Cliffs, which had a very large land holding in the PRB at that time. Cleveland Cliffs drilled some 177 holes in the Section 9, T43N, R74W resource area.

Utah International/Pathfinder Mines, Inc. began grid drilling in the late 1960s on their holdings, which included much of the resource area in Sections 26 and 35, T44N, R74W and a portion of Section 3, T43N, R74W. They drilled the B-series of holes, which comprised over 1,000 drill holes through the late 1970s and into the early 1980s. Drill spacing over the resource area is generally 200 feet with some areas being drilled on 50-foot to 100-foot spacing.

In the 1980s, RME drilled more than 400 holes on the Moore resource area now held by AUC. In 1986, RME conducted a 6-hole hydrologic test site in Section 26, T44N, R74W on the Moore deposit. This test work confirmed strongly mineralized roll-front trends and favorable hydrologic characteristics at the northern deposit on the Moore property. Core analysis and pump testing indicated sufficient permeability and hydraulic head to successfully accommodate ISR procedures. No abnormal leakage across the upper aquitard was detected during the 48-hour pump test, indicating that old drill holes are sealed within the area of influence of the test (RME Reno Creek Exploration 1987 Progress Report).

Data acquired by AUC for the Moore Unit includes 272 historical logs, reports, cross sections, and an electronic database containing coordinates, gamma ray log counts per second (CPS) data, and uranium intercept data for approximately 1,390 holes. The data was originally generated by RME, Pathfinder, and Cleveland Cliffs. No drilling has been performed in the Moore project area by AUC.

## **10.1.3** Pine Tree Unit Drilling

AUC has not drilled at the Pine Tree Unit at this time, but plans to in the future. Drilling in the Pine Tree area was performed by Utah International, Inc. and its successor, Pathfinder Mines from the early 1970s into the mid-1980s.

More than 560 holes were drilled in and around the Pine Tree project area with 2 mineralized areas found in Sections 17 and 20, T42N, R74W. The mineralized areas lie about 1,500 feet apart. Drilling was done on a 200-foot offset grid. The majority of drilling was completed by the mid-1970s. A 5-hole hydrologic test pattern was set up in 1979 by Pathfinder Mines, but AUC does not have results of that test work.

Through data acquisition, AUC has obtained copies of drill hole geophysical logs for 288 of the A-Series of drill holes. Of these holes, 155 logs contained conversion factors (*i.e.*, k-factors, dead times, and water factors). Logs were scanned into electronic format and digitized using the Neuralog, Inc. hardware and software. The ".las" files were utilized to extract grade data.

Intercept values at a 0.05% cutoff grade were compared to the original intercept listing from Utah International, Inc. An adequate correlation was found between the 2 data sets.

## **10.1.4 Bing Unit Drilling**

AUC has not drilled at the Bing Unit at this time, but plans to in the future. AUC evaluated 200 logs from the Bing property in Sections 30, 31, and 32, T43N, R74W. Cleveland Cliffs drilled the holes from 1968 through 1982. More than 109,000 feet of drilling was logged. The extracted intercepts, from digitization of the geophysical logs at a 0.01% cutoff grade, were used for the resource estimation.

## 11.0 SAMPLE PREPARATION, ANALYSIS, AND SECURITY

AUC developed Quality Assurance/Quality Control (QA/QC) procedures to guide drilling, logging, sampling, analytical testing, sample handling, and storage. The authors reviewed QA/QC procedures and determined that AUC followed the procedures and documented their activities properly.

## 11.1 DOWNHOLE GEOPHYSICAL LOGGING

Geophysical logging was routinely conducted for every drill hole completed on the property by AUC and its predecessors. Geophysical logs typically collected data for gamma ray, single-point resistance, spontaneous potential, neutron, and drill hole deviation. Currently, geophysical logging is being conducted by a qualified independent contractor, Century Geophysical of Tulsa, Oklahoma. Natural gamma logs provide an indirect measurement of uranium content by logging gamma radiation in counts per second (CPS) at one-tenth foot intervals, CPS are then converted to equivalent  $U_3O_8$  ( $eU_3O_8$ ). The conversion requires an algorithm and several correction factors that are applied to the CPS value. The correction factors include a k-factor, dead time factor, and water factor. K-factors and dead times vary from probe to probe and can also vary in each probe over time, with each probe recalibrated on a regular basis at a U.S. Department of Energy test pit located in either Grand Junction, Colorado or Casper, Wyoming.

In all holes drilled by AUC, downhole deviation surveys provided true depth, azimuth, and distance from collar location. Deviation rarely exceeded 5 feet, so true depth correction is insignificant. AUC staff surveyed drill hole collar locations using GPS technology with 10-centimeter accuracy to provide easting and northing coordinates and elevations.

Century Geophysical delivered logging data to AUC in digital and hard copy paper formats, daily, to AUC's geologists via email. Digital files consisted of ".tif" presentations of electronic logs, and digital data for all information was recorded on the ".las" files. AUC staff examined the logs and any QA/QC issues were identified and corrected. The logs were transferred to electronic versions of the geologist's lithology logs for efficient comparison of all geophysical and field logging data.

AUC stored the current and historical logs in electronic format on an in-house secure server, and hard copies were filed in metal cabinets in the Lakewood, Colorado office. Electronic files are protected and backed up to prevent damage or loss.

## **11.2 CORE DRILLING**

AUC has collected approximately 450 feet of core from 12 core holes during the past 2 years at selected locations within the North Reno Creek and Southwest Reno Creek Resource Units.

Core samples were collected by AUC in the field by the supervising geologist, boxed and labeled with appropriate identification. Core boxes were transported to the AUC locked warehouse and stored securely until they were sampled and sent for analysis. When the core hole was completed, it was logged using a downhole geophysical tool.

Core samples were prepared for analysis in Wright, Wyoming at AUC's core storage facility. Each sample was documented and described in detail, and a sequenced sample identification number was given to each sample. The samples were wrapped in sealed plastic bags with the ID number placed inside the bag and written on the outside of the bag for repetitive reassurance the correct sample ID would be used. Once all the samples were prepared and a chain of custody prepared for each laboratory. Chain of

Custody forms are on file with AUC. Samples were either hand delivered to local laboratories or shipped to the out of town labs.

Laboratories used by AUC for analytical procedures on core samples were:

- **Core Laboratories, Denver Colorado:** Permeability and Porosity (P&P), laser particle size analysis, x-ray diffraction (XRD)
- **Core Laboratories, Houston Texas:** Nuclear Magnetic Resonance (NMR) effective porosity
- **Energy Laboratories, Casper Wyoming:** Bottle roll, closed can, radiometrics, and chemical analyses of metals including uranium
- J.E. Litz and Associates, Golden Colorado: Column leach
- Weatherford Laboratories, Casper Wyoming: P&P, bulk density

The authors have reviewed the methodologies and QA/QC procedures employed by AUC, and the QA/QC procedures used by the independent analytical laboratories contracted by AUC, and conclude that they provided results that are compliant with 43-101 standards.

## **12.0 DATA VERIFICATION**

## 12.1 DATABASE

The drill hole database consists of historical data generated by several companies previously operating in the area (see Sections 6.0 and 10.0), and data from recent drilling conducted by AUC. Other historical and AUC generated information in AUC's files consists of over 100 maps, approximately 450 cross sections, tables, reports, and over 2,000 paper logs. Also available are digital databases of coordinates, downhole intervals, and digitized electronic logs. Any paper logs, not in digital form, were digitized by AUC. The authors reviewed electronic logs, cross sections, and maps produced by AUC and previous operators.

The author performed the following steps to verify data in the North Reno Creek Unit.

- 1) **Historical drill hole data** The authors compared original paper downhole logs with the information in the digital databases by checking 10 historical drill holes. Grades and thicknesses, handwritten on paper logs, were inconsistent and not useable. When other data sources were examined, matches with data in the digital databases were found in all cases. As noted above, AUC geologists relied on several sources for assembling roll front interval data, and made new interpretations of the roll front intervals, when needed. Comparisons were made between plan maps showing intervals by drill hole and cross sections compiled from original logs. No inconsistencies were found.
- 2) **AUC drill hole data**. The authors compared grades and thicknesses between the digital databases and paper logs from AUC drilling for 10 drill holes. All holes checked matched information in the digital database. AUC drilled holes have paper electronic logs and cutting/core logs, digital ".las" files, and computer generated composites at different grade cutoffs.
- 3) **Drill hole location coordinates.** Location and interval data were imported to the Micromine® software for additional location checking. Twenty of the 1,536 drill hole locations were checked with no errors detected.
- 4) **Roll front code data.** The roll front intervals, included in the digital databases, were plotted and examined by cross section through the deposit. Errors or uncertainties about roll front assignments were noted in the vertical locations for some roll fronts. Roll front interpretations from AUC drill holes were also reviewed and verified with the AUC geologists.
- 5) **Roll front composited data.** The authors compared grade and thickness composites for 10 drill holes in the North Reno Creek Unit digital databases. All composites checked matched the information in the digital databases.

AUC geologists collected and compiled roll front data for the other four Reno Creek ISR Project Units similarly with the same level of detailed geological interpretation and verification. The authors consider the data used for the resource estimation to be properly prepared and sufficiently accurate for the preparation of a resource estimate.

Data for the other units were collected and compiled with the same level of detailed geological interpretation and verification. The authors consider the data used for the resource estimation to be properly prepared and accurate for preparation of a resource.

## 12.1.1 Data Adequacy

The authors consider the two-dimensional (2-D) database to be of reasonable quality and adequate for the resource estimation. Further analysis for the detailed mapping of mineralized, production pay zones will require a complete, validated three-dimensional (3-D) data set. Extensive checking and further verification will be needed to make sure drill hole collar elevations are correct for all drill holes; and, that roll front elevations are correctly assigned for all mineralized intervals. The authors are satisfied that the digital data for 2-D resource estimation has been thoroughly checked by AUC professionals, and that the AUC geologists have competently made the roll front interpretations.

## 12.2 CORE SAMPLING

On July 27, 2012, to verify continuity and quality of mineralization, the author sampled 8 intercepts in 3 core holes (RC0007C, RC0009C, and RC0011C) drilled by AUC. The samples were chosen by selecting higher grade mineralization recorded on downhole radiometric logs. Cored intervals corresponding to the anomalies were checked for gamma radiation by a Mesa – 1 S/N 111 scintillometer to confirm the location of mineralization to be assayed. The samples were carried by the author to Energy Laboratories in Casper, Wyoming where they were assayed using EPA Method E901.1 for  $U_3O_8$  radionuclides as well as EPA Method SW6020 for  $U_3O_8$ , U, Se, Mo, and As. The results for  $U_3O_8$  are in Table 12.1. The methods are routinely used by industry to generate data for exploration and production and are derived from EPA standard methods.

TABLE 12.1   ANALYTICAL RESULTS FOR U3O8								
Sample ID	Core Hole	Depth (feet)	cU <sub>3</sub> O <sub>8</sub> % <sup>1,2</sup> (assay)	eU <sub>3</sub> O <sub>8</sub> % <sup>1,3</sup> (closed can)	c/e ratio			
P 014162	RC0007C	380-380.5	0.173	0.135	1.28			
P 014163	RC0009C	294-295	0.067	0.044	1.53			
P 014164	RC0009C	296-297	0.061	0.039	1.57			
P 014165	PZM11C	281-282	0.235	0.151	1.56			
P 014166	PZM 11C	282-283	0.158	0.192	0.82			
P 014167	PZM 11C	299-300	0.285	0.180	1.58			
P 014168	PZM 11C	300-301	0.333	0.218	1.53			
P 014169	PZM 11C	298-299	0.514	0.350	1.47			
<sup>1</sup> The quality of mineralization is higher than average for Project resources because samples were selected from higher grade portions of mineralized intercepts.								
<sup>2</sup> Results using Method SW6020. <sup>3</sup> Results using Method E901.1.								

The assays confirm the presence of mineralization as well as a slightly favorable state of disequilibrium (c/e = greater than 1) in the portions of the deposit sampled. It is the authors' opinion the results are adequate for the purpose used in this technical report.

## 13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

#### 13.1 CORE ANALYSES

AUC plans to use an ISR mineral extraction process to recover uranium from the host sandstone formations at the Reno Creek ISR Project. More specifically, AUC will employ a leaching solution composed of an oxidant and sodium bicarbonate for oxidation and complexation reactions to bring the uranium to the surface for further processing through a series of injection and recovery wells. In order to determine if the proposed uranium recovery method will be applicable, AUC collected core samples from 12 locations within the North Reno Creek and Southwest Reno Creek Units to provide data regarding the amenability of uranium to leaching and insights regarding the geochemistry and hydrologic properties of the sandstone host. The authors reviewed the methodologies and QA/QC procedures employed by AUC and the QA/QC procedures used by the independent analytical laboratories contracted by AUC, and conclude that they provided results that are compliant with 43-101 standards.

The following tests and analyses were performed on the core samples.

- Vertical and horizontal permeability and porosity analyses by various methods in major lithologic units including aquitards (claystones, mudstones, siltstones), unmineralized sandstones, and mineralized sandstones
- Effective porosity
- Bulk density (10 samples from Southwest Reno Creek)
- Grain size analysis
- Clay content and mineralogy
- PZA sandstone lithology, mineralogy, and petrology
- Uranium mineral(s) identification
- Metallurgical testing by bottle roll and column leach using varied oxidants and lixiviant strengths
- Assays of U<sub>3</sub>O<sub>8</sub> and closed can radiometric equivalent
- Testing provides data regarding amenability of uranium leaching and insights regarding geochemistry at the project

#### **13.1.1** Permeability and Porosity Measurements

AUC recovered core samples from the Overlying and Underlying Aquitards, the Overlying Aquifer, and the Production Zone Aquifer. Core from multiple zones was recovered to evaluate the characteristics of each of the lithologic units that are important to mining operations. Core Labs in Denver, Colorado analyzed samples for P&P. Samples in the Overlying Aquifer and Production Zone Aquifer were analyzed using the Klinkenberg Air P&P method. Samples from the Underlying and Overlying Aquitards were analyzed using a Liquid P&P method as well as the Klinkenberg Air P&P method (Table 13.1).

TABLE 13.1     PERMEABILITY AND POROSITY						
Zone	Zone Method Result					
Production Zone Aquifer	Production Zone Aquifer Air P&P		Average Permeability Klinkenberg = 1944 md			
Overlying Aquitard Liquid P&P Permeability Specific to Brine = 0.00087 md						
Underlying Aquitard Liquid P&P Permeability Specific to Brine = 0.00058 md						

## **13.1.2 Effective Porosity (NMR)**

Core Labs in Houston, Texas conducted 1 analysis of effective porosity on a PZA sandstone sample from core hole RC0007C. In this case, the Klinkenberg permeability was 1,801 md, the total porosity was 31.8%; however, the effective porosity measurement of this sample was 23.7%. Effective porosity excludes porosity related to bound water in clays resulting in a lower number (Table 13.2).

TABLE 13.2NUCLEAR MAGNETIC RESONANCE (NMR)EFFECTIVE POROSITY ANALYSIS					
Sample ID	004856				
Borehole ID	RC0007C				
Depth (feet)	379-380				
Porosity (%)	30.4				
Klinkenberg Permeability (md)	1,801				
Air Permeability (md)	1,831				
Porosity (%)	31.8				
Effective Porosity (%)	23.7				
Clay Bound Water	0.081				
Qv by NMR	0.525				

The P&P are within the normal range of ISR producing facilities and support the authors' conclusion that the mineralized sandstone is amenable to ISR production of uranium.

#### **13.1.3** Metallurgical Testing

AUC conducted two types of metallurgical testing to verify the amenability of the deposits to ISR.

Bottle roll tests were performed by Energy Laboratories in Casper, Wyoming on select core from the Southwest Reno Creek Resource Unit to test for recovery of uranium from the uranium host rock. Bottle roll tests were performed on a variety of different portions of core targeting different grades and lithologies. Tests were performed on 1-foot to 3-foot lengths of core.

The tests consisted of pulverizing 200 grams of core and adding 5 pore volumes of lixiviant (NaHCO<sub>3</sub> and  $H_2O_2$ ) and then rolling in a bottle for 16 hours. The leachate was then separated from the core sample and analyzed for uranium and trace metal concentrations. Six bottle roll stages were performed on each core sample. After the final test, the pulp was assayed for any remaining uranium (Table 13.3).

	TABLE 13.3   BOTTLE ROLL RESULTS								
Sample ID	Hole Lixiviant Depth		Perc Total by	ent Reco Total by	very Total by				
				Leach	Tail	Grab			
1	RC0001C	NaHCO <sub>3</sub> , 1 g/L; H <sub>2</sub> O <sub>2</sub> , 0.5 g/L	333-335	79.9	82.2	83.4			
2	RC0002C	NaHCO <sub>3</sub> , 1 g/L; H <sub>2</sub> O <sub>2</sub> , 0.5 g/L	332-334	83.7	88.0	88.9			
3	RC0002C	NaHCO <sub>3</sub> , 1 g/L; H <sub>2</sub> O <sub>2</sub> , 0.5 g/L	338.5-341	83.7	83.6	85.5			
4	RC0006C	NaHCO <sub>3</sub> , 1 g/L; H <sub>2</sub> O <sub>2</sub> , 0.5 g/L	349.5-351.5	104.7	66.1	77.5			
5	RC0006C	NaHCO <sub>3</sub> , 1 g/L; H <sub>2</sub> O <sub>2</sub> , 0.5 g/L	356-358	80.8	88.4	88.9			
6	RC0007C	NaHCO <sub>3</sub> , 1 g/L; H <sub>2</sub> O <sub>2</sub> , 0.5 g/L	380-381	80.4	94.2	94.1			
7	RC0007C	NaHCO <sub>3</sub> , 1 g/L; H <sub>2</sub> O <sub>2</sub> , 0.5 g/L	381-382	77.3	77.2	79.5			
8	RC0008C	NaHCO <sub>3</sub> , 1 g/L; H <sub>2</sub> O <sub>2</sub> , 0.5 g/L	378.5-380	71.3	89.5	89.3			
9	RC0009C (1)	NaHCO <sub>3</sub> , 1 g/L; H <sub>2</sub> O <sub>2</sub> , 0.5 g/L	268-271	70.9	82.7	82.2			
10	RC0009C (2)	NaHCO <sub>3</sub> , 1 g/L; H <sub>2</sub> O <sub>2</sub> , 0.5 g/L	297-300	66.4	77.7	76.3			

## 13.1.4 Column Leach

Column leach tests were run on 4 core samples from the Southwest Reno Creek Resource Unit. The samples were sent to J.E. Litz and Associates in Golden, Colorado. The procedure for small column tests was to charge a 2-inch diameter by 18-inch tall column with up to 1,000 grams of dry or damp mineralized core. Fresh formation water was used and prepared using a lixiviant solution of NaHCO<sub>3</sub> and  $H_2O_2$ . The solution is then pumped upflow through the column at approximately one pore volume per day.

The effluent discharging the column was sampled daily and the solutions submitted for uranium analyses. At the end of the test, the column is emptied and the solids filtered and washed. A weighted composite of the discharge and filtration solutions were submitted for additional analyses. The residue was dried, delumped, blended, and a <sup>1</sup>/<sub>8</sub>-split is prepared for uranium analysis. Uranium recoveries varied from 80% to 95% with an average recovery rate of 85.5% (Table 13.4).

TABLE 13.4     COLUMN LEACH TEST RESULTS						
Hole ID	Hole IDFootageSample IDLixiviantU <sub>3</sub> O <sub>8</sub> % Recovered					
RC0009C	268-271	11-11-59R	NaHCO3, 1 g/L; H <sub>2</sub> O <sub>2</sub> , 0.5 g/L	83		
RC0009C	297-300	11-11-60	NaHCO3, 1 g/L; H <sub>2</sub> O <sub>2</sub> , 0.5 g/L	84		
RC0009C	297-300	11-11-60B	NaHCO3, 1 g/L; H <sub>2</sub> O <sub>2</sub> , 0.106 g/L	80		
RC0002C	338.5-341	11-11-61A	NaHCO3, 1 g/L; H <sub>2</sub> O <sub>2</sub> , 0.5 g/L	95		

## 13.1.5 Equilibrium Study

Equilibrium occurs when the relationship of uranium with its naturally occurring radioactive daughter products is in balance. Oxygenated groundwater moving through a deposit can disperse uranium down the groundwater gradient, leaving most of the daughter products in place. The dispersed uranium will be in a favorable state of disequilibrium (c/e = greater than 1) and the depleted area will be in an unfavorable state (c/e = less than 1). The effect of disequilibrium can vary within a deposit and has been

observed to vary within an intercept. It follows that dispersed uranium will be more easily recovered than material from a depleted zone.

AUC performed equilibrium studies on 18 samples from 7 cores obtained from Southwest Reno Creek. The samples varied in grade and depth to mineralization to test for different variables. Closed can analysis was the method used to determine the percent of radiometric  $eU_3O_8$ , which was then compared to the assay/chemical  $U_3O_8$  ( $cU_3O_8$ ) for the same sample. Chemical analysis was conducted by ICP-MS. Seventeen of 18 samples tested had favorable (greater than 1.0) disequilibrium. The  $cU_3O_8/eU_3O_8$  ratio ranged from 0.82 to 1.79, as shown in Table 13.5.

TABLE 13.5 EQUILIBRIUM STUDY RESULTS						
Sample ID	Core Hole	Depth (feet)	cU <sub>3</sub> O <sub>8</sub> % (assay)	eU <sub>3</sub> O <sub>8</sub> % (closed can)	c/e ratio	
014151	RC0001C	333-335	0.030	0.026	1.16	
014152	RC0002C	332-334	0.087	0.054	1.62	
014153	RC0002C	338.5-341	0.289	0.253	1.14	
014154	RC0006C	349.5-351.5	0.026	0.020	1.32	
014155	RC0006C	356-358	0.110	0.061	1.79	
014156	RC0007C	380-381	0.250	0.145	1.72	
014157	RC0007C	381-382	0.077	0.071	1.09	
014158	RC0008C	378.5-380	0.840	0.562	1.49	
014159	RC0009C	268-271	0.059	0.049	1.20	
014160	RC0009C	297-300	0.068	0.052	1.31	
P014162	RC0007C	380-380.5	0.173	0.135	1.28	
P014163	RC0009C	294-295	0.067	0.044	1.53	
P014164	RC0009C	296-297	0.061	0.039	1.57	
P014165	PZM00011C	281-282	0.235	0.151	1.56	
P014166	PZM00011C	282-283	0.158	0.192	0.82	
P014167	PZM00011C	299-300	0.285	0.180	1.58	
P014168	PZM00011C	300-301	0.333	0.218	1.53	
P014169	PZM00011C	298-299	0.514	0.350	1.47	

The AUC assays, coupled with historical disequilibrium studies by RME, confirm the presence of a slightly favorable state of disequilibrium (c/e = greater than 1) in the portions of the deposit sampled. AUC used a 1.0 disequilibrium factor for resource estimates. It is the authors' opinion the results are adequate for the purpose used in this technical report and that an adjustment for disequilibrium is not warranted.

## **13.1.6 Host Rock Characteristics**

Sandstones at the Project are arkosic and/or feldspathic in composition. Quartz grains are a major component with moderate amounts of potassium and calcium feldspars. Accessory minerals include pyrite and calcium carbonate cement. Carbonaceous material is occasionally present in reduced portions of the sandstone.

Recent whole rock mineralogy work performed on core collected by AUC and reports from analytical work by RME in the late 1970s indicate that quartz ranges from 50% to 60%, feldspars comprise

approximately 20% to 25%, and clays present as smectite, kaolinite, and illite may comprise up to 20% of the total.

## 14.0 MINERAL RESOURCE ESTIMATES

## 14.1 BACKGROUND

In-place  $U_3O_8$  resources for the Reno Creek ISR Project were estimated and classified according to the CIM definition of a Mineral Resource classification of Measured, Indicated, and Inferred resources. The Project has been drilled on 50-foot to 100-foot spacing within areas defined as roll fronts, and on 200-foot to 400-foot spacing in areas not associated with roll fronts. To date, more than 7,550 drill holes have been drilled on and nearby, the 5 Resource Units evaluated. Electronic log gamma data are available for more than 75% of these holes, and interval data (thickness, grade, and GT) are available for about 95% of mineralized holes.

## **14.2 DATA PREPARATION**

Data preparation included locating, editing and compiling drill hole location and downhole mineralized interval data for each roll front in each of the 5 Resource Units. This data was obtained from drill hole core and cutting description logs, electric logs, maps, cross sections and digital databases purchased from previous operators in the area. Data also was obtained from approximately 800 holes drilled and logged by AUC, lab analyses completed for AUC, and reports generated by AUC.

The following criteria were used to build databases for roll fronts in the 5 Reno Creek Resource Units.

- 1) **Coordinate data.** For historical drill holes, when coordinates from different data sources were available, they were compared, maps were constructed, and a final set of coordinates adopted. In general, X-Y-Z coordinates obtained from multiple sources showed little variance. For AUC drill holes, coordinates were determined via field measurements using Trimble GPS instrumentation.
- 2) **Downhole data.** Mineralized intervals were identified in each drill hole using characteristics of shape and position of natural gamma radiation from electronic logs. Cutoff criteria included 0.01% eU<sub>3</sub>O<sub>8</sub> grade and a 1.0-foot thickness. These low cutoffs were selected so that the low-end tail of the data distribution would be represented in the estimation methodology. No upper cutoff criteria were applied. Thicknesses and grades were multiplied to obtain GT values.
- 3) **Drill holes with roll front code data.** Approximately 250 north-south and east-west cross sections were constructed and spatial continuity of roll fronts was determined. Mineralized intervals were assigned a roll front code. The codes reflect a local stratigraphic naming convention consistent with those used by operators in the region.
- 4) **Alteration front data.** Core and cutting logs, electronic logs, roll front plan maps, and cross sections were used to construct alteration front maps.
- 5) **Composited data.** Mineralized intervals in each drill hole were composited using roll front codes to derive a single composited thickness, grade, and GT value for each roll front in each drill hole.
- 6) **Barren hole data.** Drill holes, with no mineralized intervals or mineralized intervals below cutoffs, were assigned thickness and grade values of 0.0.

All work described above was completed by AUC geologists. As noted above, separate digital databases were created for each roll front in each of the Units in the Reno Creek ISR Project, as follows:

- 1) North Reno Creek Unit intervals within the green, purple, red, orange, and blue roll fronts.
- 2) **Southwest Reno Creek, Moore, and Bing Units** intervals within the green, purple, red, and orange roll fronts. The blue roll front is not present in these Units.
- 3) **Pine Tree Unit** intervals in the upper, middle and lower roll fronts.

Digital database records consisted of X-Y-Z coordinates and composited roll front interval data (thickness, grade, and GT values). Coordinate data was in Wyoming East State Plane, NAD 27 datum.

## 14.3 **RESOURCE ESTIMATION**

The mineral resource estimated by AUC used computerized geologic and volumetric modeling methods. More specifically, the estimation method used was a two-dimensional Delaunay triangulation and the software used was RockWorks<sup>®</sup>.

The Delaunay triangulation method connected data points (drill holes) via a triangular network with one data point at each triangle vertex, and constructed the triangles as close to equilateral as possible. Once the network is determined, the slope of each triangular plate was computed using the three X, Y, and Z vertex point values. Next, a 25 foot  $\times$  25 foot grid was superimposed over the triangular network, and each grid node (grid center) was assigned a Z-value, based on the intercept of the node and the sloping triangular plate. Only grid nodes falling within the boundary of the triangular network (convex hull) were estimated. Also computed was the distance of the grid node from a drill hole location and whether the node was located within AUC's property boundary. Next, the thickness and grade grids were multiplied to obtain a GT grid. Finally, the resource classification criteria, described in Section 14.4, was applied to the GT grid to obtain a classified resource.

The Delaunay triangulation estimation method was selected because:

- 1) The method exactly honors the drill hole interval data.
- 2) Grid cell values, less than drill hole composited values, will not be estimated.
- 3) A unique, reproducible triangular network is generated.
- 4) The mathematics are understandable and accepted by the industry.

The tonnage factor used in completing the resource estimate is 17 cubic feet per ton on a moisture-free (dry bulk density) basis, which is consistent with results of analyses from recent core drilling by AUC in Southwest Reno Creek. No disequilibrium factor was applied based on analysis of recent coring. These values are consistent with those used by other operators in the area (RME, 1988, TREC, 2010). Discussions of coring and associated analyses, QA/QC procedures, and recent equilibrium comparisons are included in Sections 11.0, 12.0, and 13.0.

## 14.4 RESOURCE CLASSIFICATION METHOD

Based on the study results in this report, the Reno Creek ISR Project is classified as a resource, according to the following definition from NI 43-101 Guidelines.

"A 'Mineral Resource' is a concentration or occurrence of natural, solid, inorganic, or fossilized organic material in or on the Earth's crust in such form and quantity and of such grade or quality that it has reasonable prospects for economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge."

The terms Measured, Indicate, and Inferred are defined in the NI 43-101 as follows.

"A 'Measured Mineral Resource' is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, physical characteristics are so well established that they can be estimated with confidence sufficient to allow the appropriate application of technical and economic parameters to support production planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings, and drill holes that are spaced closely enough to confirm both geological and grade continuity."

"An 'Indicated Mineral Resource' is that part of a Mineral Resource for which quantity. Grade or quality, densities, shape and physical characteristics, can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters to support mine planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings, and drill holes that are spaced closely enough for geological and grade continuity to be reasonably assumed."

"An 'Inferred Mineral Resource' is that part of a Mineral Resource for which quantity, grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geologic and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes."

The Reno Creek ISR Project roll fronts display good geologic continuity, as demonstrated by drill hole results displayed on plan maps and cross sections. Thickness and grade continuity within the Project Units also is good; however, continuity vertically within roll fronts is more variable.

For the Reno Creek resource, the classification strategy was based on the following three criteria.

- 1) Distance between a grid cell node (center) and a drill hole location, as follows:
  - a) **Measured** 0 feet to 50 feet between node and drill hole locations.
  - b) **Indicated** 50 feet to 250 feet between node and drill hole locations.
  - c) **Inferred** 250 feet to 500 feet between node and drill hole locations.

- 2) A GT cutoff of 0.30.
- 3) Whether the grid cell was within AUC's property boundary.

These criteria were selected because they are consistent with those commonly used at the other ISR projects in the area and their application reflects the current level of geologic certainty of the resource.

## 14.5 MEASURED AND INDICATED RESOURCES

As noted in Section 14.2 of this report, the in-place resource was estimated separately for each roll front in each of the resource units. The roll front resources were summed for each unit. The results of the estimation of Measured and Indicated  $U_3O_8$  resource for the Reno Creek ISR Project are reported in Table 14.1. On a combined basis, they total 20.9 million tons grading 0.052%  $U_3O_8$  yielding 21.9 million pounds of  $U_3O_8$ .

Tons <sup>2</sup> (millions)	Thickness (feet)	Grade (%U <sub>3</sub> O <sub>8</sub> )	Pounds U <sub>3</sub> O <sub>8</sub> <sup>2</sup> (millions)			
2.69	18.9	0.055	2.96			
5.44	15.2	0.047	5.13			
8.13	16.4	0.050	8.09			
2.86	17.5	0.058	3.32			
			3.55			
			6.87			
	2000		0101			
1.27	13.9	0.061	1.56			
3.21	11.5	0.046	2.97			
4.48	12.2	0.051	4.53			
0.20	193	0.052	0.21			
			0.72			
1.04	16.0	0.045	0.93			
0.15	10.8	0.105	0.32			
0.66	10.0	0.086	1.13			
0.81	10.2	0.089	1.45			
7 18	17.3	0.058	8.38			
13.70	17.5	0.058	13.50			
	CREEK ISR PRO INDICATED RI       Tons² (millions)       2.69       5.44       8.13       2.86       3.58       6.44       1.27       3.21       4.48       0.20       0.84       1.04       0.15       0.66       0.81	INDICATED RESOURCES - IN-P         Tons <sup>2</sup> (millions)       Thickness (feet)         2.69       18.9         5.44       15.2         8.13       16.4         2.86       17.5         3.58       14.1         6.44       15.6         1.27       13.9         3.21       11.5         4.48       12.2         0.20       19.3         0.84       15.2         1.04       16.0         0.15       10.8         0.66       10.0         0.81       10.2	CREEK ISR PROJECT - SUMMARY OF MEASURED INDICATED RESOURCES - IN-PLACE <sup>1</sup> Tons <sup>2</sup> (millions)       Thickness (feet)       Grade (%U <sub>3</sub> O <sub>8</sub> )         2.69       18.9       0.055         5.44       15.2       0.047         8.13       16.4       0.050         2.86       17.5       0.058         3.58       14.1       0.050         6.44       15.6       0.053         1.27       13.9       0.061         3.21       11.5       0.046         4.48       12.2       0.051         0.20       19.3       0.052         0.84       15.2       0.043         1.04       16.0       0.045         7.18       17.3       0.058			

Total	20.9	14.8	0.052	21.9		
<sup>1</sup> Cutoff $\geq 0.30$ grade × thickness per intercept						
<sup>2</sup> Columns may not add due to rounding						

Maps illustrating spatial distribution of the  $U_3O_8$  resource in the 5 Resource Units of the Reno Creek ISR Project are presented in Figure 7.5 to Figure 7.9. The Measured and Indicated resources for North Reno Creek and Southwest Reno Creek in this analysis are larger, and the Inferred resources are less than in the Snow NI 43-101 mineral resource reports, principally due to AUC's drilling of 807 additional holes in 2010, 2011, and 2012. Data from these holes defined new resources in previously undrilled areas, and extended resource trends between the North Reno Creek and Southwest Reno Creek Units.

The AUC estimates for the Moore, Bing, and Pine Tree Resource units contain compliant Measured, Indicated, and Inferred Resources. The new estimate incorporated hundreds of geophysical and lithologic logs, reports, and other data acquired by AUC since 2010. Previously, the estimates of resources for these units reported by Bayswater or others were non-compliant historical resources.

#### 14.6 INFERRED RESOURCE

The results of the estimation of Inferred  $U_3O_8$  resource in the Project are reported in Table 14.2 and total 1.56 million tons grading 0.050%  $U_3O_8$  yielding 1.55 million pounds of  $U_3O_8$ .

	Т	<b>'ABLE 14.2</b>				
<b>RENO CREEK ISR PROJECT – SUMMARY OF INFERRED RESOURCES – IN-PLACE<sup>1</sup></b>						
Class	Tons <sup>2</sup> (millions)	Thickness (feet)	Grade (%U <sub>3</sub> O <sub>8</sub> )	Pounds U <sub>3</sub> O <sub>8</sub> <sup>2</sup> (millions)		
North Reno Creek						
Inferred	0.84	14.4	0.050	0.85		
Southwest Reno Creek						
Inferred	0.41	11.0	0.040	0.32		
Moore						
Inferred	0.25	7.9	0.062	0.31		
Bing						
Inferred	0.02	12.2	0.050	0.02		
Pine Tree						
Inferred	0.03	4.7	0.112	0.06		
Reno Creek Project						
Inferred Total	1.56	12.1	0.05	1.55		
<sup>1</sup> Cutoff $\geq$ 0.30 grade $\times$ thickness p <sup>2</sup> Columns may not add due to rour						

#### 14.7 VERIFICATION OF ESTIMATE

The authors performed an audit of the database and a check estimate on several of the roll front databases in the North Reno Creek Unit. Comments about the database audit are presented in Section 12.0 of this report.

To check the estimation produced by AUC using the RockWorks® program, AUC's roll front digital data was imported to the Surfer® software and estimations were made using a triangulation-gridding method. This method included generating separate grids for thickness and grade, identifying the cells within the property boundary, and combining the grids to calculate a GT. Grid dimensions were 25-feet  $\times$  25-feet. The calculated GT was used to estimate pounds.

The pounds estimated by the authors using the Surfer® triangulation-gridding method were within  $\pm 5\%$  of the results obtained by AUC. This variance is due to using slightly different origin coordinates for the Rockworks® and Surfer® grids, which results in slightly different values being calculated at grid node and triangle plate intersections. The variance is within an acceptable range.

It is the authors' opinion that the resources, as estimated by AUC, were done properly and result in an appropriate estimation of the quantities and grades. It is also the authors' opinion that the triangulation-gridding method used is an appropriate way to estimate quantities and grades for the irregular nature of the deposit.

## 14.8 **RESOURCE RISK**

Resource estimation is based on data interpretation and extrapolation of limited sample volumes to very large volumes. Application of these tools can result in uncertainty or risk. Three elements of risk are identified for the Project.

- Grade Interpretation Methods Low to Moderate Risk. Automated grade estimates depend on many factors and interpretation methods assume continuity between samples. A risk exists that a grade estimate at any three-dimensional location in a deposit will differ from the grade of mineralization mined.
- **Geological Definition Low Risk.** The geological roll interpretation by the AUC geologists was checked. The host units are relatively flat lying, but there is a possibility of a misinterpretation of whether a split interval goes with one unit or another when multiple closely spaced intercepts are present.
- **Continuity Low Risk.** The authors consider that AUC's work on the North Reno Creek and Southwest Reno Creek units confirms historical data generated by operators prior to AUC's entry into the Project and that methodologies employed and the resulting estimate of resources of the Project meet National Instrument 43-101 standards for current resources due to the following:
  - 1) Recent drilling by AUC at the Southwest Reno Creek Unit confirmed intercepts that uranium mineralization, reported by previous operators, is present at the locations shown on historical maps. AUC's confirmation was performed by drilling step-out holes (100 feet from old holes). Continuity was confirmed on a large scale by holes that joined 2 mineralized areas in Southwest Reno Creek over a mile apart. AUC drilling in this area (located in the west half of Section 31, T 43N, R73W), added approximately 2.0 million pounds of resources.

- 2) Roll fronts found in the Reno Creek ISR Project have a narrow, classic C-shape similar to other uranium deposits in the 80-mile long PRB trend consist of bands of narrow classic C-shaped roll fronts as found at the Reno Creek deposit.
- 3) The mineral forming process and the resulting deposits do not vary within the trend nor are they expected to vary within the Reno Creek ISR Project.
- 4) Except for roll fronts at the Pine Tree Unit, fronts occupy the same sandstone horizons and are confined by the same aquitards. Roll fronts at Pine Tree are in a sandstone that is stratigraphically higher than those in the other units.
- 5) The authors have reviewed maps (not available for publication) covering competitor's operations and positions in areas between AUC's units that indicate continuity of sandstone horizons between units.

#### 14.9 SUMMARY

The Project contains 21.9 million pounds of in-place  $U_3O_8$  Measured and Indicated resources in North Reno Creek, Southwest Reno Creek, Moore, Bing, and Pine Tree Units contained in up to 5 roll fronts. The average thickness of this resource is 14.8 feet, the average grade is 0.052%, and the average GT is 0.84. The Reno Creek ISR Project resource has a reasonable expectation of being viable and should be considered for future ISR development for the following reasons.

- 1) The estimated resource is significant in size.
- 2) The resource estimate is consistent with previous historical estimates for the property.
- 3) Geologic conditions are consistent with surrounding properties with planned ISR projects.
- 4) Host sandstones are:
  - a) bounded at top and bottom by aquitards
  - b) permeable and porous
  - c) below the water table
- 5) Previous operation of a pilot in situ well field on the site was successful.
- 6) The ground water in which the pilot well field was installed was successfully restored to pre-pilot plant conditions.
- 7) The ground surface area of the pilot test area was successfully reclaimed to pre-pilot plant conditions.

## 15.0 MINERAL RESERVE ESTIMATES

Resources described in this document do not qualify as reserves.

# 16.0 MINING METHODS

Extraction of uranium from the Reno Creek Project is expected to be via the ISR methodology described in Section 17.0.

#### **17.0 RECOVERY METHODS**

The extraction of uranium from fluvial and shoreline facies via ISR has been successful in Wyoming, Nebraska, and Texas in the United States and Kazakhstan. Recovery rates vary with host rock and lixiviant characteristics and a general guideline is to consider that recovery would equal about 70% of the in-place resources estimated based on surface drilling.

The ISR process, contemplated by AUC, is a phased, iterative approach, in which AUC will sequentially construct and operate a series of Production Units. Each Production Unit will include individual well fields equipped with a header house. AUC expects each header house will serve between 15 to 30 recovery wells and 25 to 50 injection wells (recovery and injection wells collectively referred to as production wells) depending upon the design of each well field.

The Reno Creek ISR chemical process, proposed for uranium recovery, incorporates both the oxidation and complexation of uranium. Gaseous oxygen, hydrogen peroxide, or other oxidant oxidizes the uranium, which is then complexed with bicarbonate in solution. The carbonate/bicarbonate production solution and oxidant are combined into a leaching solution or barren lixiviant. The lixiviant is injected into the mineralized sandstone formation, referred to as the PZA, through a series of injection wells that have been drilled, cased, cemented, and tested for mechanical integrity. Recovery wells pump the uranium-bearing solution or pregnant lixiviant from the PZA to the header house. The pregnant lixiviant will be transferred through a series of buried pipelines to a pressurized down flow ion exchange column circuit in the CPP.

AUC anticipates that injection/recovery well patterns will follow the conventional 5-spot pattern, consisting of a recovery well surrounded by 4 injection wells. However, depending upon the configuration of the mineralization, more or fewer injection wells may be associated with each recovery well. In order to recover uranium effectively, and to complete groundwater restoration, all production wells will be completed so that they can be used as either injection or recovery wells. The dimensions of the patterns will vary depending on the configuration of the mineralized zone, uranium grade, and accessibility, but the injection wells typically will be between 75 feet to 125 feet apart.

Monitor wells will be placed in each Production Unit and will include both interior and exterior wells. Interior monitor wells will be located within the well field boundaries and will be screened, as necessary. Each Production Unit will also be surrounded by an exterior Monitor Well Ring to monitor for the potential horizontal movement of lixiviant beyond the extent of the well fields.

Within the CPP, the process uses the following steps to process uranium from the recovered solutions:

- Loading of uranium complexes onto ion exchange resin.
- Elution (removal) of the uranium complexes from the ion exchange resin.
- Precipitation of uranium from the eluate.
- Drying and packaging of the uranium.
- Reconstitution of the barren lixiviant by the addition of carbon dioxide and/or carbonate/bicarbonate and oxidant, which is recycled back to the Production Units for continuing operations.

During ISR operations, a slightly greater volume of water will be recovered from the PZA than is injected, to create an inward flow gradient into the Production Units. The difference between the amount

of water recovered and injected is the well field "bleed." The bleed rate will be adjusted, as necessary, to ensure that an inward flow gradient is maintained.

The ISR process selectively removes uranium from the deposit. No tailings are generated by the process; thus, eliminating a major concern associated with conventional uranium mining and milling. When installing an ISR Production Unit, only limited surface disturbance occurs. During the operating life of the Production Unit, vegetation is re-established over the Production Units and pipeline corridors to prevent erosion and buildup of undesirable weeds.

AUC is confident that the ISR process can be successfully employed at the Reno Creek ISR Project since it has been demonstrated through a successful site-specific pilot test conducted by RME at Reno Creek, as discussed in Section 6.3 of this report. The pilot test program along with bench-scale bottle roll and column leach studies (Section 13.0) have demonstrated both the technical feasibility of mobilizing and recovering uranium with a carbonate lixiviant.

#### **18.0 PROJECT INFRASTRUCTURE**

Because of energy development in the Project area, over the past 50 years, all properties under AUC's control have existing or nearby access to electrical power, gas, telephone, and internet connectivity. AUC has secured leases and surface use and access agreements within the proposed mining permit area to enable construction of all operational facilities. Working with local ranchers, AUC has developed several arrangements to appropriate both surface and groundwater for the exploration and environmental baseline sampling uses within the proposed mine permit boundary. AUC has obtained rights to a CPP site that is currently equipped with buildings, power, telephone, and well water. The site is well located within the Southwest Reno Creek Resource Unit near the intersection of Wyoming Highway 387 and the Clarkelen County Road.

## **19.0 MARKET STUDIES AND CONTRACTS**

AUC has not performed a market study for the proposed Reno Creek production and has no contracts for delivery of uranium from the Project at this stage.

#### 20.0 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

The North Reno Creek Unit and Southwest Reno Creek Unit are currently being permitted for mining by in situ recovery (ISR) methods, and will include 12 ISR Production Units and a CPP. The proposed permit boundary encompasses the production units and CPP. An application for a Source Material License from the NRC was submitted on October 5, 2012.

AUC and former owners of the Reno Creek ISR Project conducted environmental investigations and permitting actions in preparation for proposed ISR mining within the current AUC proposed mine permit area. Wildlife Survey results conducted by AUC show that there will be no impact to sage grouse as no known sage-grouse leks occur within Project area and the nearest sage grouse Core Area is over 20 miles from the Project. No burrowing owls, black-tailed prairie dogs, mountain plovers, swift fox or any threatened or endangered (T&E) vertebrate species were observed during the 2008 or 2010 surveys. The vegetation survey for T&E habitat and species showed no blowout penstemon and no Ute ladies-tresses' present. The Wetlands Survey results show all of the Project area wetlands are recommended to the United States Army Corps of Engineers (USACE) to be non-jurisdictional due to the isolated nature of the wetland present, absence of a consistent ordinary high water mark, and the lack of interstate commerce. Cultural Resource and Archaeological Surveys showed the Project will have no adverse impact on cultural and historical resources.

AUC's environmental baseline sample locations and the current proposed mining permit boundary are tabulated in Figure 20.1. Locations of AUC's hydrogeologic investigation pump tests and other associated groundwater monitoring wells are depicted on Figure 20.2.

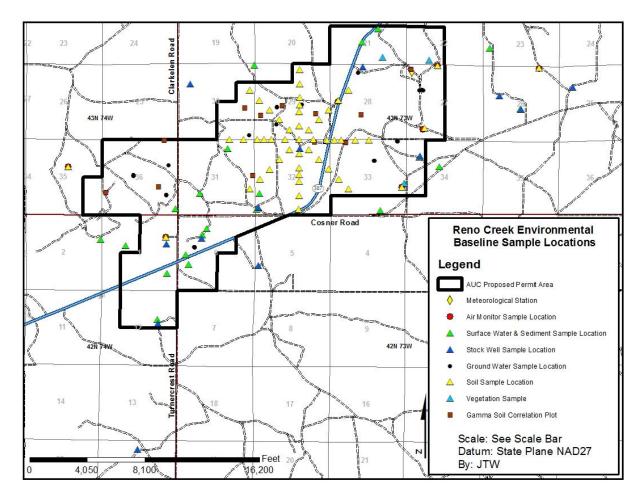
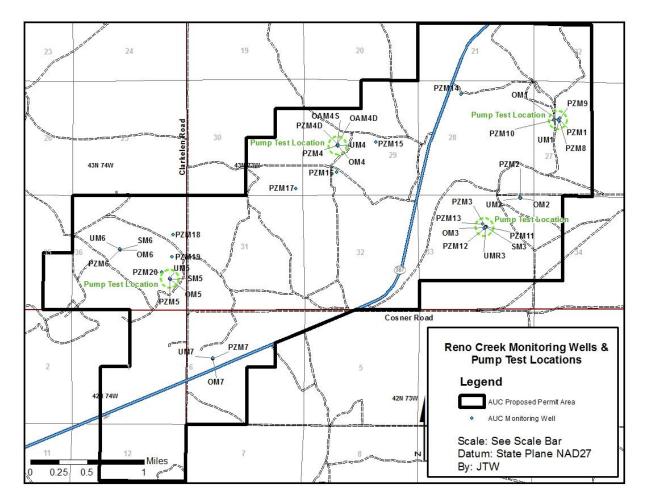


Figure 20.1. Environmental baseline sample locations



# Figure 20.2. Monitoring wells and pump test locations

Based on the results of an extensive environmental assessment and baseline evaluation and sampling effort, AUC is not aware of any pre-existing environmental impacts or liabilities at the Reno Creek ISR Project. Previous surface and subsurface exploration and production activities have occurred on the subject properties involving exploration drilling for uranium, exploration for and production of oil and gas, and production of CBM gas. AUC acknowledges responsibility related to its current and ongoing drilling program, which is being conducted in accordance with rules and regulations outlined by WDEQ.

### 20.1 ENVIRONMENTAL PERMITTING

AUC's environmental baseline sampling and assessment impact evaluation results for the North Reno Creek and Southwest Reno Creek mining permit area are discussed below.

### 20.1.1 Hydrology

Substantial hydrologic testing including 4 pump tests at multi-well, nested clusters was conducted by AUC in 2010 and 2011 at North Reno Creek and Southwest Reno Creek (Petrotek, 2012). Pumping was conducted from the PZA, which hosts uranium deposits within the proposed mining permit area. Observation wells completed in the PZA were also installed at each pump test cluster to confirm hydraulic communication exists across the entire PZA. All of the uranium mineralization included in the

resource estimates lies at least 20 feet below the water table, and in areas where groundwater is under both fully saturated and partially saturated aquifer conditions.

The PZA is geologically confined over the entire Project area. Pump testing identified no communication between the PZA and any overlying aquifer, surficial water bearing units, or underlying units. The hydrologic testing results within the PZA show excellent characteristics for mineability, hydraulic manageability, and restoration.

AUC has determined that essentially all significant mineralization and resources at North Reno Creek lie either in fully saturated areas or are deep enough below the water table to be fully accessible using ISR methods. Resources are present in areas where the PZA is under both fully saturated and partially saturated aquifer conditions, the boundary line being approximately at Wyoming Highway 387. The area of North Reno Creek, east of the highway where partially saturated conditions exist, contains a minor portion of the total resources at the Project. RME's pilot well field Pattern #2 was operated successfully in this area, indicating favorable groundwater conditions for ISR production.

### 20.1.2 Land Use

The land use evaluation results show that the proposed ISR activities will have no lasting overall impacts or any significant alteration or restrictions to neighboring of rangeland following completion of mining.

#### 20.1.3 Transportation

Transportation evaluation results show no impacts from the proposed ISR activities, aside from small increases in the traffic volume and increase in vehicular emissions, there will be minimal degradation of local air quality.

#### 20.1.4 Geology and Soils

There would be small impact to soils primarily from construction earthmoving activities associated with the construction and decommissioning phases of the proposed action. However, there will be no significant outlying impacts for the duration of the ISR operation.

#### 20.1.5 Water Resources

Given the ephemeral nature of local drainages and the small area to be affected, the potential impact on surface water during construction and decommissioning would primarily be limited to uncommon precipitation or runoff events. Therefore, there would be no significant impact from the proposed ISR activities.

For groundwater impacts related to mining and restoration, both the State of Wyoming and NRC require approved restoration efforts to address any potential affected groundwater. Substantial groundwater modeling results also show that groundwater quality can be restored, thus ensuring adjacent aquifers will not be affected.

#### 20.1.6 Ecological Resources

During any of the ISR operational phases, there will be limited and managed impacts due to Projectrelated traffic or habitat removal actions from the removal of topsoil. Any habitat disruption is not anticipated to result in large transformation of the existing habitat. Neither sage grouse nor other threatened or endangered species are present within the proposed mining permit area.

### 20.1.7 Air Quality/Meteorology

During the construction and decommissioning phase earthmoving activities, there would be a highly localized and temporary, short-term effects on air quality, primarily and from vehicle emissions and fugitive dust. Use of mitigative measures, such as applying water for dust suppression, would limit fugitive dust emissions. There are no anticipated long-term air quality impacts from the proposed action.

### 20.1.8 Archaeology, Historic, and Cultural

The archaeological, historical, and cultural evaluation results show there are no historic or cultural resources eligible for listing on the National Register of Historic Places.

### 20.1.9 Visual and Scenic

There is the potential for small visual and scenic impact in the area surrounding the proposed project from existing well fields, pipelines, and utility lines associated with ISR mining and CBM and oil and gas development. There would be a small short-term impact to the visual landscape from the proposed ISR operation.

#### 20.1.10 Socio-economic

The socio-economic impact is anticipated to be small, primarily positive, as a result of the employment of up to 65 people at the facility.

### 20.1.11 Public and Occupational Health and Safety

AUC conducted baseline radiological environmental monitoring for radon in the air and for uranium and radium concentrations in soils. The baseline data results were used to evaluate and model radiological exposure from potential localized fugitive dust emissions during construction and decommissioning actions. These modeling results showed that a radiation dose for the public was comparable to natural background exposure; therefore, there would be a very small impact from any public radiological exposure, primarily due to the facility's remote location and on-site security.

#### 20.1.12 Waste Management

Waste generation and disposal from activities implemented during all phases of the proposed Project, under the proposed action, would likely result in small impacts during ISR operations. Permitted facilities are available to accept the wastes streams and properly handle and dispose of all waste types. On-site injection wells are also being considered for the ISR operation.

### 20.2 PERMITS REQUIRED

Specific permits will be acquired to conduct the work proposed for the property. Table 20.1 summarizes the list of permits and licenses needed for the Reno Creek Project.

TABLE 20.1Summary of Proposed, Pending, and Approved Permits for theProposed Reno Creek ISR Project						
Regulatory Agency	Permit or License	Status				
Federal						
U.S. Nuclear Regulatory Commission (NRC)	Source Materials License (10 CFR 40)	Application was submitted on October 5, 2012. Includes license application, an Environmental Report, and a Technical Report				
U.S. Army Corps of Engineers	Determination of Jurisdictional Wetland	Wetland delineation has been completed and forwarded to ACOE in April 2012				
U.S. Environmental Protection Agency (EPA)	Aquifer Exemption (40 CFR 144, 146)	Aquifer reclassification information to be submitted to EPA after preparation by WDEQ- WQD				
	State					
Wyoming Department of Environmental Quality/Air Quality Department	Air Quality Permit	Application approved prior to start of construction –3 <sup>rd</sup> quarter 2013				
WDEQ/Water Quality Division (WQD)	Groundwater Reclassification (WDEQ Title 35-11)	Aquifer reclassification application to be reviewed and classified by WDEQ-WQD – $2^{nd}$ quarter 2013				
	Underground Injection Control Permit (Deep Disposal Well) (WDEQ Title 35-11)	Class I UIC Permit application under review by the WDEQ-WQD. Expect approval by 4th quarter 2012				
WDEQ/Land Quality Division (LQD)	Underground Injection Control Class III Permit (Permit to Mine) (WDEQ Title 35-11)	Class III UIC (Permit to Mine) Permit application to be submitted December 2012				
	Mineral Exploration Permit (WDEQ Title 35-11)	Approved Mineral Exploration Permit DN #401 is currently in place for the exploration actions of Reno Creek Project areas.				
	Industrial Storm Water NPDES Permit (WDEQ Title 35-11)	An Industrial Storm Water NPDES will be required for the Central Processing Plant Area – 4 <sup>th</sup> quarter 2013				
	Construction Storm Water NPDES Permit (WDEQ Title 35-11)	Construction Storm Water NPDES authorizations are applied for and issued annually under a general permit based on projected construction activities. The Notice of Intent will be filed at least 30 days before construction activities begin in accordance with WDEQ requirements – 3 <sup>rd</sup> quarter 2013				
	Underground Injection Control Class V (WDEQ Title 35-11)	The Class V UIC permit will be applied for following installation of an approved site septic system during facility construction. 3 <sup>rd</sup> quarter 2013				

# 20.3 EXPLORATION

Recent exploration drilling has been conducted at the Reno Creek Property by AUC to better define mineralization within specified areas of interest. AUC has a Notification to Drill permit from the State of WDEQ Land Quality Division (LQD) for all exploration drilling.

### 20.4 **PRODUCTION**

AUC and former owners of the Reno Creek ISR Project conducted environmental investigations and permitting actions in preparation for proposed ISR mining within the current AUC proposed mine permit area. Wildlife Survey results conducted by AUC show that there will be no impact to sage grouse as no known sage-grouse leks occur within Project area and the nearest sage grouse Core Area is over 20 miles from the Project. No burrowing owls, black-tailed prairie dogs, mountain plovers, swift fox or any threatened or endangered (T&E) vertebrate species were observed during the 2008 or 2010 surveys. The vegetation survey for T&E habitat and species showed no blowout penstemon and no Ute ladies-tresses' present. The Wetlands Survey results show all of the Project area wetlands are recommended to the United States Army Corps of Engineers (USACE) to be non-jurisdictional due to the isolated nature of the wetland present, absence of a consistent ordinary high water mark, and the lack of interstate commerce. Cultural Resource and Archaeological Surveys showed the Project will have no adverse impact on cultural and historical resources.

The applications include identification of a CPP and associated Production Units to be located within the Reno Creek Property boundary. The NRC has the responsibility to issue Source Material Licenses to "receive title to, receive, possess, use, transfer, or deliver any source material after removal from its place of deposit in nature" (Code of Federal Regulations (CFR) 40.1 and 40.3). The NRC is responsible for the oversight and implementation of the NEPA regulations. Pursuant to 10 CFR 51.20, all licenses for new uranium mills (including ISR facilities) will be required to submit a license application that will include an environmental report and a technical report. The 10 CFR 51.20 further requires that an EIS be conducted for new uranium mills (including ISR facilities).

NRC has issued an independent Generic Environmental Impact Statement (GEIS) for new uranium ISR operations to help meet this requirement. An additional site-specific environmental impact statement (SEIS) will be tiered off the GEIS. Environmental baseline information (hydrology, vegetation, wildlife, etc.) at the Reno Creek Property will be developed in order to complete the WDEQ LQD Permit to Mine. The WDEQ has primacy from the EPA to prepare and administer permits allowing injection or pumping operations for underground injection control programs in Wyoming, allowed under authority of the Safe Water Drinking Act.

### 20.5 CLOSURE

After recovery of uranium in each Production Unit has been completed, AUC will begin aquifer restoration, as soon as practical. Following regulatory approval of successful restoration activities, all injection, recovery, and monitor wells will be abandoned in accordance with WDEQ-LQD Rules and Regulations. Simultaneous with well abandonment operations, Production Unit infrastructure, such as trunk lines, feeder pipelines, header houses, etc., will be removed, tested for radiological contamination, and transported to appropriate disposal facilities.

Following regulatory approval of aquifer restoration of the last Production Unit, the CPP, processing equipment, office, laboratory, and maintenance buildings will be demolished, tested for radiological

properties, segregated, and either scrapped or disposed of in appropriate disposal facilities, based on their radiological properties.

Following the removal of wellfield and plant infrastructure, site roads will be removed and the site will be re-graded to approximate pre-development contours and the stockpiled topsoil placed over disturbed areas. The disturbed areas will then be seeded. Once reclamation is complete and regulatory closure achieved, the site will be approved for unrestricted use.

AUC will provide information on financial assurance related to site operations, groundwater restoration, surface reclamation, and decommissioning of surface facilities in a Reclamation Action Plan (RAP) to the NRC and WDEQ. The RAP will provide detailed plans for restoration and site decommissioning, including financial assurance cost estimates. The RAP also will provide a methodology for annually updating financial assurance cost estimates, as required by the regulatory agencies, both to keep the estimates current and to reflect changes in AUC's operations.

# 21.0 CAPITAL AND OPERATING COSTS

A report titled "Preliminary Feasibility Study (PFS), Reno Creek Uranium In Situ Recovery Project, Northeast Wyoming, USA" by Douglass H. Graves, P.E. and Matthew J. Yovich, P.E., of TREC, Inc. dated September 28, 2009 was prepared for NCA Nuclear, Inc. (the U.S. subsidiary of Bayswater Uranium Corporation) covering portions of North Reno Creek and Southwest Reno Creek Units, partly based on earlier reports prepared for Strathmore. The report is not the basis for the estimates of resources or other content used in this document because additional work has since been done by AUC. Therefore, the authors mention TREC's 2009 PFS as a historical notation.

AUC has commissioned an independent third party contractor to prepare a new PFS covering the areas of all five resource units, incorporating the resource estimate contained herein, and on such, independent contractor's first principles calculation of capital costs, operating costs, reclamation costs, etc. required to assess economic potential. Such a report is expected to be completed within the next few months.

### 22.0 ECONOMIC ANALYSIS

AUC has commissioned an independent third party contractor to prepare a PFS covering the five resource units, incorporating the resource estimate contained herein, and on such, independent contractor's first principles calculation of capital, operating, and reclamation costs and other parameters required to assess economic potential. Such a report is expected to be completed within the next few months.

### 23.0 ADJACENT PROPERTIES

Table 23.1 summarizes published project holdings of various uranium companies within 2 miles of the Reno Creek Project. Figure 1.1 and Figure 7.1show the locations of selected properties within the Pumpkin Buttes Mining District.

TABLE 23.1     ADJACENT PROPERTIES <sup>1</sup>						
Project	Ownership	Township	Range	Approximate Acreage		
Reno Creek	Uranerz	T43/42N	R73/74W	1,300		
Moore Ranch	Uranium One	T41/42N	R74/75W	3,214		
Ruby	Cameco	T43N	R74W	Not Available		
<sup>1</sup> TREC, Inc., October 13, 2010, "Technical Report Reno Creek Property, Campbell County, Wyoming," by						
Douglass Graves, P.E., for Uranerz Energy Corporation						

The estimates of in-place tonnage and grade presented in Table 23.2 are based on TREC, Inc.'s October 13, 2010, "Technical Report Reno Creek Property, Campbell County, Wyoming," by Douglass Graves, P.E. for Uranerz Energy Corporation.

TABLE 23.2         Adjacent Property Estimates of In-place Tonnage and Grade						
Project	Source	Tons	Average Grade % eU <sub>3</sub> O <sub>8</sub>			
Uranerz Reno Creek	TREC, 2010	3,831,477	0.056			
Uranium One Moore Ranch	BRS, 2006	2,950,306	0.100			

The authors have not verified the information and data for the adjacent properties.

# 24.0 OTHER RELEVANT DATA AND INFORMATION

# 24.1 PRE-FEASIBILITY STUDY

AUC plans to have a NI 43-101 compliant PFS completed later in 2012 using the results of resource estimates included in this Technical Report. The PFS will incorporate the timely development of all of the Reno Creek Units, beginning with North Reno Creek and Southwest Reno Creek followed by Moore, Bing, and Pine Tree. The PFS will include a targeted maximum production rate of 1.5 million pounds of  $U_3O_8$  per year from a CPP located on the Project.

### 25.0 INTERPRETATION AND CONCLUSIONS

The authors conclude the Measured and Indicated resources of 21.9 million pounds of  $U_3O_8$  for the Reno Creek ISR Project are compliant with Canadian NI 43-101 guidelines.

The authors conclude there is limited risk that the estimate of quantity, quality, and physical characteristics of the resources of the Project will be affected by future investigation.

### 26.0 **RECOMMENDATIONS**

The authors recommend that AUC proceed with their proposed program described below and the completion of a PFS currently underway.

- A 100-hole program recommended in the Moore Unit resource area before year-end 2012 (this work is currently underway). The purpose of the drilling will be to bolster AUC's knowledge of lithologic conditions in the area, including the verification of projected oxidation/reduction boundaries. Coring at 3 locations is recommended to assess permeability and porosity, rock density, and disequilibrium conditions. Approximate cost: US\$450,000 plus overhead expense, assays, and reclamation of drill sites.
- Core and rotary drilling at the North Reno Creek Unit planned for completion by the end of 2013. Approximately 4 core holes will be completed to further assess permeability and porosity, rock density, disequilibrium, and metallurgical recovery conditions. Approximately 100 rotary holes are also planned to expand resources and further delineate roll front trends. Approximate cost: US\$400,000 plus overhead expense, assays, and reclamation of drill sites.
- Drilling programs at the Bing and Pine Tree Resource Units planned but not scheduled at this time.
- Incorporate the Measured and Indicated Resources estimates, stated in this report, in a PFS to evaluate the economics of development of the Reno Creek ISR Project.

#### 27.0 REFERENCES

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## DATE AND SIGNATURE

The undersigned qualified persons prepared, titled "Technical Report on Resources of the Reno Creek ISR Project, Campbell County, Wyoming, USA," dated November 30, 2012.

Betty Lithe

Betty L. Gibbs MMSA, 0164QP

November 30, 2012

Rout D. Maxues

Robert D. Maxwell AIPG #10913

November 30, 2012

# CERTIFICATE OF QUALIFICATIONS Betty L. Gibbs

I, Betty L. Gibbs do hereby certify that:

- 1) I am a Senior Associate of Behre Dolbear & Company (USA), Inc. with a business address of 999 Eighteenth Street, Suite 1500, Denver, Colorado 80202 U.S.A.
- 2) I am a graduate of Colorado School of Mines with an Engineer of Mines degree in 1969, and a Master of Science degree in 1972.
- 3) I am registered as a Qualified Person with the Mining and Metallurgical Society of America (MMSA).
- 4) I have worked as a mining engineer and ore reserves specialist. My relevant experience for the purpose of the Technical Report is:
  - Project Manager for resource evaluation for possible acquisitions or joint ventures of:
  - COMINAK uranium mine in Niger, Africa for confidential client (for debt placement).
  - American Gilsonite Mine operations purchase due diligence, for confidential client
  - Principal Investigator for database development, resource evaluation, mine planning, technical systems evaluation, and software management:
    - American Colloid Corporate technical data management systems evaluation,
    - Rio Algom, data capture and preliminary evaluations for several uranium projects,
    - Conquista uranium project for Conoco Minerals,
    - Gulf Minerals, ore reserves and mine planning on coal and uranium projects, and
    - Climax Molybdenum, mine engineering and planning for open pit and underground molybdenum operation.
- 5) I have read the definition of "qualified person" as set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) 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 Sections 12.0 (Data Verification) and 14.0 (Mineral Resource Estimates) of the "Technical Report on Resources of the Reno Creek ISR Project, Campbell County, Wyoming USA for the Reno Creek Project" dated November 30, 2012.
- 7) I have had no prior involvement with the property that is the subject of the Technical Report.
- 8) As of the date of this report, to the best of my knowledge, information, and belief, my contribution to the Technical Report contains all scientific and technical information that is required to be disclosed to make the report not misleading.
- 9) I am independent of AUC LLC as set out in Section 1.4 of National Instrument 43-101.
- 10) I have read National Instrument 43-101F1, and the Technical Report has been prepared in compliance with National Instrument 43-101 and Form 43-101F1.
- 11) I consent to the filing of this Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public.

Dated: November 30, 2012

"Signed and Sealed"

Betty Lilles

Betty L. Gibbs, MMSA QP #1164

### CERTIFICATE OF QUALIFICATIONS Robert D. Maxwell

I, Robert D. Maxwell do hereby certify that:

- 1. I am a Senior Associate of Behre Dolbear & Company (USA), Inc. 999 Eighteenth Street, Suite 1500, Denver, Colorado 80202.
- 2. I am a graduate of Texas Western College with a Bachelor of Science in the Sciences, 1964 and the University of Colorado at Denver with a Master of Business Administration, 1991.
- 3. I am certified as Profession Geologist #10903 by the American Institute of Professional Geologists.
- 4. I have worked as a geologist and a mineral property evaluator. My relevant experience for the purpose of the Technical Report is:
  - Project Manager for resource evaluation for possible acquisitions or joint ventures of:
    - Akdala and South Inkai Kazakhstan uranium deposits for a confidential client
      - BHP Billiton Ambrosia Lake uranium holdings
      - Strathmore Ambrosia Lake uranium holding for a confidential client
      - Uranium Resources, Inc Grants mineral belt uranium holdings
  - Principal Investigator for resource evaluation for possible acquisitions or joint ventures of:
    - Homestake Mining Company Ambrosia Lake uranium holdings for Conoco
    - Bokum Corp. New Mexico uranium holdings for Conoco
    - Susquehanna Western Inc. south Texas uranium holdings for Conoco
    - Florence Arizona copper deposit for Conoco
    - Pathfinder Mines Wyoming uranium holdings for Cogema
    - Milwaukee Railroad northwestern USA minerals for ITT Rayonier
    - Kemmerer Coal Wyoming coal for Marathon Oil Company
- 5. I have read the definition of "qualified person" as set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) 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 Sections except Section 14.0 of the "Technical Report on Resources of the Reno Creek ISR Project, Campbell County, Wyoming USA" dated November 30, 2012.
- 7. I visited the site June 19, and July 27, 2012.
- 8. I have had prior involvement with portions of the property that is the subject of the Technical Report as a principal investigator for Rio Algom Mining Corporation's due diligence prior to acquiring portions of the Project in the late 1990s.
- 9. To the best of my knowledge, information, and belief, my section of Technical Report contains all scientific and technical information that is required to be disclosed to make the report not misleading.
- 10. I am independent of AUC LLC as set out in Section 1.4 of National Instrument 43-101.
- 11. I have read National Instrument 43-101F1, and the Technical Report has been prepared in compliance with National Instrument 43-101 and Form 43-101F1.
- 12. I consent to the filing of this Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public.

Dated: November 30, 2012

"Signed and sealed"

Retut D. Maxing

Robert D. Maxwell AIPG # 10903