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## NI 43-101 Technical Report Reno Creek Preliminary Feasibility Study Wyoming, USA May 9, 2014

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# 1.0 EXECUTIVE SUMMARY

## 1.1 RENO CREEK PROJECT HIGHLIGHTED

This independent Preliminary Feasibility Study (PFS) for the Reno Creek ISR Project (Project) has been prepared for AUC LLC (AUC) by TREC, Inc. (TREC) and Tetra Tech in accordance with the guidelines set forth under National Instrument (NI) 43-101 and NI 43-101F1 for the submission of technical reports on mining properties. The purpose of this PFS is to evaluate the technical and economic feasibility of the Project using the most current scientific and engineering information available. The results of this PFS demonstrate both the technical and economic feasibility of the Project.

The Project is located in Campbell County, Wyoming, USA. The Project consists of five Resource Units, which incorporate 16 Production Units (PU) and associated wellfields, header houses, and a central processing plant (CPP). The Project is a 100 percent AUC controlled property and located in southwest corner of Campbell County Wyoming. Figure 1.1 identifies the Project location, plus nearby proposed and operating uranium recovery projects owned by other companies. These include the operating Uranium One Willow Creek facility, the operating Cameco Smith Ranch-Highland and North Butte facilities, the Uranerz Energy Corporation's Nichols Ranch/Hank Project, which is currently commissioning a satellite plant in the Pumpkin Buttes area and the Uranium One Moore Ranch Project which has been permitted but construction has not begun. Allemand Ross and Ludeman are in the permitting process. Figure 1.2 shows the locations of the Resource Units and PUs within the Project.

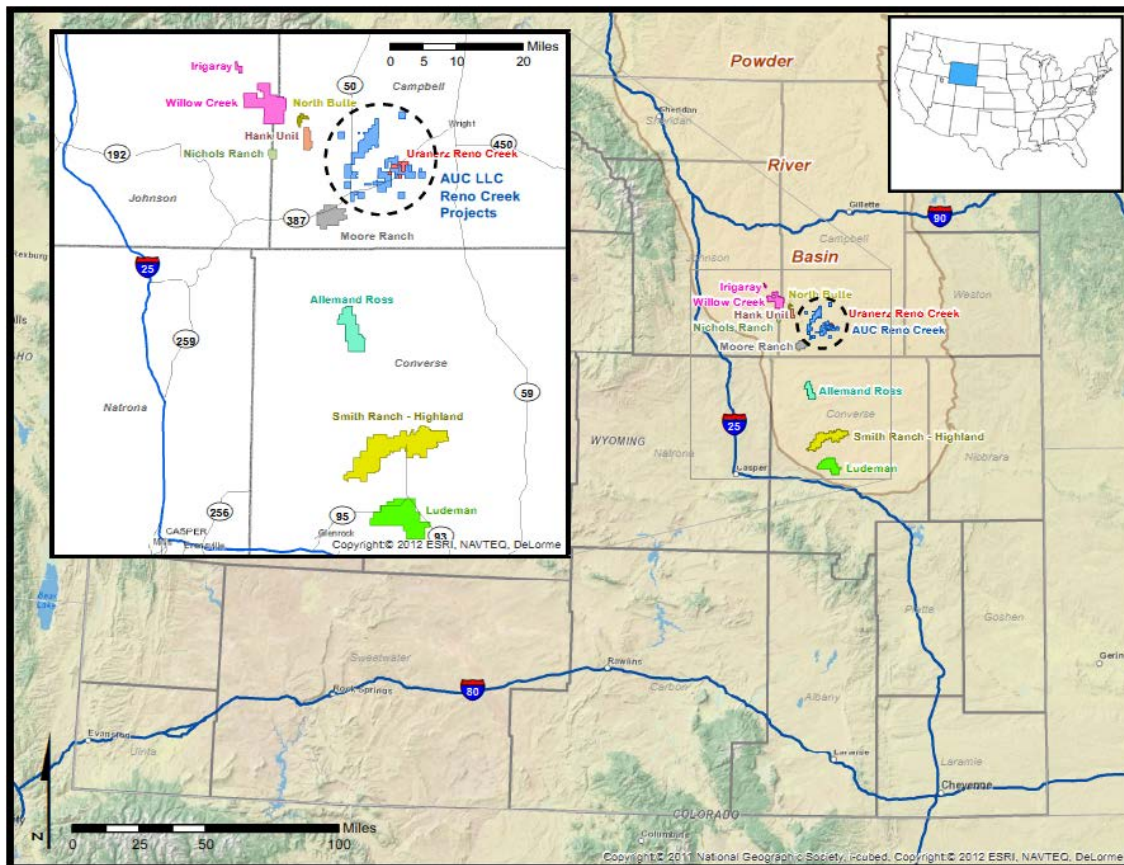


Figure 1.1: Location of Reno Creek ISR Project

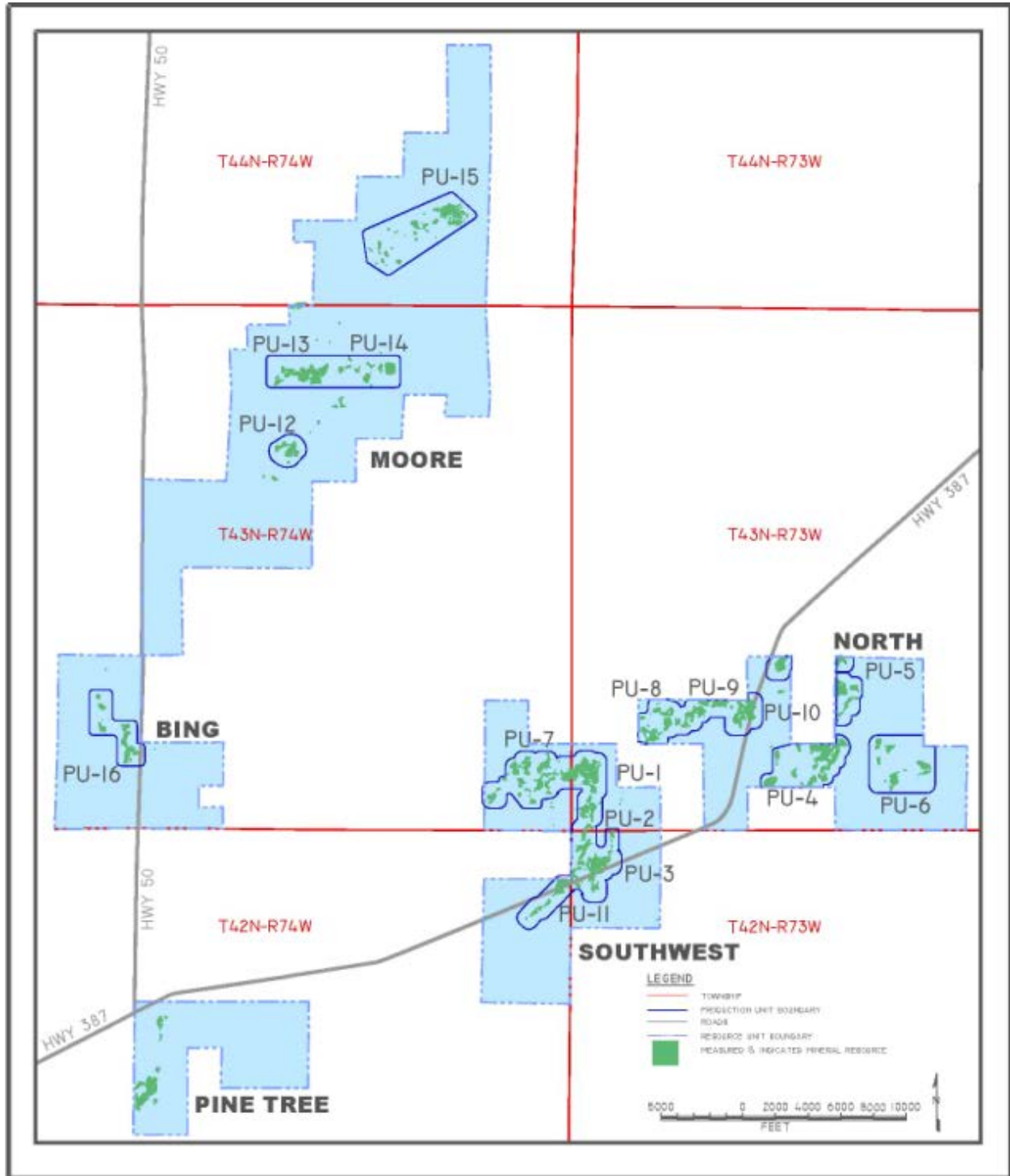


Figure 1.2: Reno Creek ISR Project Site Map

The Project includes approximately 21,240 acres of claims and mineral leases. The Project is composed of five Resource Units (Figure 1.2), of which one, the Reno Creek Resource Unit combines two contiguous sub-units, North Reno Creek and Southwest Reno Creek. Resources and reserves are reported in this report for these two units; however the Reno Creek combined unit will be operated as a single cohesive unit, i.e., the Reno Creek Resource Unit. The Moore and Bing Resource Units contain

roll-front uranium mineralization in the same and contiguous stratigraphic horizons as the Reno Creek Resource Unit. The Pine Tree Resource Unit contains mineralization in the same stratigraphic horizons as the Reno Creek Unit plus a slightly higher stratigraphic unit. Estimated reserves for the Pine Tree Unit are not being considered in this PFS as discussed in detail in Section 15.

AUC is currently permitting resources in the southeast portion of the Project, identified as the Permit Area. The Permit Area incorporates most of the Reno Creek Resource Unit. AUC intends to amend its Permits in the future to incorporate production from the Moore and Bing Units and possibly the Pine Tree Unit. The decision to amend the Permit to include the Pine Tree Unit will be made at a later time.

The Project area includes 688 unpatented mining claims, four fee (private) mineral leases and seven State of Wyoming mineral leases. Most of the land is privately owned, excepting only the State lease lands. No BLM or other federal lands are in the Project.

The Project has identified 21.87 million pounds of NI 43-101-compliant Measured and Indicated resources and 1.56 million pounds of Inferred resources at a 0.30%-ft GT cutoff (ref., Behre Dolbear, November, 2012 and Tetra Tech 2014). Included are 20.12 million pounds of probable reserves. After the application of the recovery factor described below, the project is estimated to produce 14.94 million pounds of recoverable uranium. The estimated recoverable uranium is located in the Reno Creek, Moore and Bing Resource Units. Reserves and recoverable uranium were not estimated for the Pine Tree Unit.

The Project consists of the proposed development of a commercial uranium *in situ* recovery and processing (ISR) operation. Development of the Project will be by conventional ISR processes to recover uranium from the host sandstone formations at the Project site to produce uranium as a U<sub>3</sub>O<sub>8</sub> yellowcake product. This was confirmed by metallurgical test programs (bottle roll and column leach) conducted on representative samples from core drilling. Based on the results of the metallurgical programs conducted by AUC and its predecessors and similar ISR operations, an overall recovery of 74.25 percent (75.0 percent through the wellfield leaching and 99 percent through the CPP) was estimated to be reasonable for the Project at a PFS level study.

This PFS uses design criteria provided for the Project by AUC and is supplemented with preliminary designs for certain facility components (e.g., wellfield piping, CPP, laboratory, header houses, etc.) prepared by TREC to develop estimates of capital costs, operating costs, and closure costs. This PFS presents an after-tax economic analysis based on the projected capital, operating and closure expenditures and estimates of projected revenue from the sale of natural uranium concentrates based on assumptions presented herein.

Prior to the start of mining, AUC will be required to obtain the following permits, licenses, and approvals.

- Combined Source and 11e.(2) Byproduct Materials License (U.S. Nuclear Regulatory Commission (NRC), including completion of the NHPA Section 106 Tribal Consultation that is currently underway
- Permit to Mine (Wyoming Department of Environmental Quality (WDEQ))
- Permit to Appropriate Groundwater (Wyoming State Engineer's Office)
- Class I Disposal Well Permit (WDEQ)

- WYPDES construction storm water(WDEQ)
- 11e.(2) Byproduct/Waste Disposal Agreement (with licensed tailings operator)
- Air Quality Permit (WDEQ)

The two most significant permits/licenses are (a) the Permit to Mine, issued by the WDEQ/Land Quality Division (LQD) and (b) the Source Materials License, required and issued by the NRC for mineral processing of natural uranium. In October 2012, AUC submitted application for the Source Materials License to the NRC for the Project which includes most of the Reno Creek Resource Unit. The Permit to Mine application was submitted to the WDEQ/LQD in January 2013.

The Project exhibits minimal environmental risks for development:

- No residences or domestic wells will be present inside the permit boundary during operations
- It is located more than ten miles from any sage-grouse core area habitat.
- There are no documented threatened or endangered species present, nor are any species listed as candidates for the endangered species act.
- There are no cultural resources present on the site qualified for the National Register of Historic Places.
- The Production Zone is physically confined by aquitards across the entire project area.

The targeted mineralized zones for *in situ* uranium recovery at the Project occur within sand units ranging from 50 feet to 200 feet in thickness, and at depths ranging from 170 feet to 450 feet below surface.

The mineralized areas generally occur along trends that vary in thickness ranging from 1 foot to 30 feet thick with an average thickness of approximately 14.8 feet. The mineralized bodies range in grade from 0.01 percent to greater than 0.50 percent  $U_3O_8$ , with an average grade estimated at 0.052 percent  $U_3O_8$  and an average GT of 0.770. Additional potential mining targets within the Reno Creek, Bing, Moore and Pine Tree Resource Units may exist in the Project area. Future drilling in these areas will be needed to fully define any additional target areas and to increase the present resource and reserve estimates. Any such resources from additional mining targets are not included in the evaluation in this PFS.

A National Instrument (NI) 43-101 compliant Technical Report on Resources was prepared for the Project by Behre Dolbear and the results were used in the development of this PFS (ref., Behre Dolbear, November, 2012). The Technical Report estimated current in place “measured and indicated” resources of 20.87 million tons at an average grade of 0.052%  $U_3O_8$  containing 21.87 million pounds of uranium and an “Inferred” resource of 1.56 million tons at an average grade of 0.050%  $U_3O_8$ , containing 1.55 million pounds of uranium.

The results for the measured and indicated resources are summarized in Table 1.1 and the inferred resources in Table 1.2.

**Table 1.1: Summary of Mineral Resource Uranium Estimates<sup>1</sup>**

Resource Unit	Tons <sup>2</sup> (millions)	Thickness (feet)	Grade (%U <sub>3</sub> O <sub>8</sub> )	PoundsU <sub>3</sub> O <sub>8</sub> <sup>2</sup> (millions)
<b>North Reno Creek</b>				
Measured	2.69	18.9	0.055	2.96
Indicated	5.44	15.2	0.047	5.13
<b>Total</b>	<b>8.13</b>	<b>16.4</b>	<b>0.050</b>	<b>8.09</b>
<b>Southwest Reno Creek</b>				
Measured	2.86	17.5	0.058	3.32
Indicated	3.58	14.1	0.050	3.55
<b>Total</b>	<b>6.44</b>	<b>15.6</b>	<b>0.053</b>	<b>6.87</b>
<b>Moore</b>				
Measured	1.27	13.9	0.061	1.56
Indicated	3.21	11.5	0.046	2.97
<b>Total</b>	<b>4.48</b>	<b>12.2</b>	<b>0.051</b>	<b>4.53</b>
<b>Bing</b>				
Measured	0.20	19.3	0.052	0.21
Indicated	0.84	15.2	0.043	0.72
<b>Total</b>	<b>1.04</b>	<b>16.0</b>	<b>0.045</b>	<b>0.93</b>
<b>Pine Tree</b>				
Measured	0.15	10.8	0.105	0.32
Indicated	0.66	10.0	0.086	1.13
<b>Total</b>	<b>0.81</b>	<b>10.2</b>	<b>0.089</b>	<b>1.45</b>
<b>Reno Creek Project</b>				
Measured	7.18	17.3	0.058	8.38
Indicated	13.70	13.4	0.050	13.50
<b>Total</b>	<b>20.9</b>	<b>14.8</b>	<b>0.052</b>	<b>21.87</b>

<sup>1</sup>Cutoff ≥ 0.30 grade × thickness per intercept

<sup>2</sup>Columns may not add due to rounding

**Table 1.2: Reno Creek ISR Project – Summary of Inferred Resources<sup>1</sup>**

Resource Unit	Tons <sup>2</sup> (millions)	Thickness (feet)	Grade (%U <sub>3</sub> O <sub>8</sub> )	PoundsU <sub>3</sub> O <sub>8</sub> <sup>2</sup> (millions)
<b>North Reno Creek</b>				
Inferred	0.84	14.4	0.050	0.85
<b>Southwest Reno Creek</b>				
Inferred	0.41	11.0	0.040	0.32
<b>Moore</b>				
Inferred	0.25	7.9	0.062	0.31
<b>Bing</b>				
Inferred	0.02	12.2	0.050	0.02
<b>Pine Tree</b>				
Inferred	0.03	4.7	0.112	0.06
<b>Reno Creek Project</b>				
<b>Inferred Total</b>	<b>1.56</b>	<b>12.1</b>	<b>0.05</b>	<b>1.55</b>

<sup>1</sup>Cutoff  $\geq 0.30$  %-ft grade  $\times$  thickness per intercept

<sup>2</sup>Columns may not add due to rounding

The sensitivity to changing cut-off grade \* thickness (GT) is shown in Table 1.3.

**Table 1.3: Resources<sup>1</sup>, Measured + Indicated U<sub>3</sub>O<sub>8</sub> in Million Pounds<sup>2</sup> at various GT cut-off grades.**

Grade <sup>1</sup> Thickness cut-off grades (%-ft U <sub>3</sub> O <sub>8</sub> /ft)	U <sub>3</sub> O <sub>8</sub> Pounds (millions) <sup>2</sup>					
	North Reno Creek	Southwest Reno Creek	Moore	Bing	Pine Tree	Total
0.10	12.13	11.61	8.20	1.53	1.92	35.39
0.15	11.01	10.24	7.06	1.32	1.80	31.43
0.20	9.92	9.01	6.14	1.16	1.68	27.91
0.25	8.96	7.89	5.34	1.03	1.58	24.80
<b>0.30</b>	<b>8.09</b>	<b>6.87</b>	<b>4.53</b>	<b>0.93</b>	<b>1.45</b>	<b>21.87</b>
0.35	7.35	5.95	3.95	0.82	1.41	19.48
0.40	6.65	5.19	3.35	0.73	1.33	17.25
0.45	6.01	4.57	2.88	0.64	1.26	15.36
0.50	5.43	4.05	2.47	0.56	1.18	13.69

<sup>1</sup>Cutoff at various grade  $\times$  thickness per intercept

<sup>2</sup>Columns may not add due to rounding

Recoverable uranium pounds in Table 1.4 were calculated after adjusting the 21.87 million pounds of U<sub>3</sub>O<sub>8</sub> into reserves and then into recoverable uranium using these modifying factors:

1. Resource classification – Only measured and indicated resources present in the Project's Resource Units were converted to reserves. While inferred resources are also present, they are not included in reserves or in the estimation of recoverable uranium.
2. Geologic – Only mineralized roll front geometry that were well defined and relatively free of structural and stratigraphic complexity were considered

3. Hydrologic – The resources had to be bounded by aquitards and below the water table.
4. Geographic – The resources were within planned well fields inside production unit boundaries and unaffected by other land uses or resource development.
5. Recovery – The resources were adjusted for estimated sweep and plant efficiency factors.
6. Economic – The resources at and above a 0.30 %-ft GT cutoff had to meet the final test of profitability.

A step-by-step description of the conversion process is presented in Section 15. As part of the PFS, Tetra Tech estimated a total of 20.1 million pounds of probable reserves, after excluding the Pine Tree project area, resources above water table, and resources lying outside of proposed Production Units, as shown in Table 1.4. Also excluded from the analysis are the 1.55 million pounds of Inferred resources identified in the resource estimate. No proven reserves are reported.

**Table 1.4: Estimated Probable Reserves for Reno Creek**

RESERVES <sup>1,2</sup>	Pounds U <sub>3</sub> O <sub>8</sub> at a GT <sup>1</sup> >= 0.30 %-ft Cutoff (millions)						
	Probable Reserves						
	CLASS	Production Unit					
		North Reno Creek	SW Reno Creek	Moore	Bing	Pine Tree	Total
Probable	7.99	6.81	4.41	0.91	0.00	20.12	

<sup>1</sup>GT = Grade x Thickness in %-feet

<sup>2</sup>Resources adjusted to exclude uranium below water table and outside of proposed Production Units.

Tetra Tech estimated that 14.94 million pounds of uranium (as U<sub>3</sub>O<sub>8</sub>) can be recovered at the Reno Creek Project, as a result of the application of a recovery factor of 74.25% (Sweep efficiency of 75% x Solution Recovery in the plant of 99%) to the probable reserves.

The Reno Creek, Moore, Pine Tree, and Bing resource units contain additional prospective areas along the strike of recognized roll fronts. The PFS recommends additional drilling in these areas to increase defined resources and reserves.

In order to produce and sell the uranium resources at the Project, infrastructure including PUs and a CPP will be designed and constructed. PUs are designated areas above the defined mineralized zone that will feature wells and piping for the *in situ* recovery process and are sized for the desired production goals. Each Resource Unit will be developed into one or more PUs for the uranium recovery process. Each PU will be divided into wellfields, with each wellfield consisting of up to 30 individual well patterns. A pattern will be made up of a configuration of recovery and injection wells collectively known as production wells. Each production well will be piped individually to a central location within each wellfield called a header house. The header house is the point at which the flow rates to each injection well and from each recovery well will be monitored and controlled in order to balance the flows within each wellfield. Each header house will be connected to a trunk line system, which will connect to the CPP.

The piping/well system will inject a groundwater based-leaching solution (barren lixiviant) into the mineralized zone and recover the uranium-enriched solution (pregnant lixiviant) after it has passed through the mineralized zone. The mineralized zone is the geological sandstone unit where economic concentrations of uranium exist, and in which the leaching solutions are injected and recovered. It is bounded between zones of low permeability, typically shales or mudstones, termed aquitards.

AUC anticipates the patterns for the injection and recovery wells generally to follow the conventional five-spot pattern consisting of a recovery well surrounded by four injection wells. Depending on the mineralized zone shape, alternative pattern designs may also be used. The dimensions of the patterns vary depending on the mineralized zone, but the injection wells will typically be between 50 and 120 feet apart. This report assumes the average distance will be 100 feet. In order to effectively recover the uranium and also to complete the groundwater restoration, the wells will be completed so that they can be used as either injection or recovery wells. During mining operations, a slightly greater volume of water will be recovered from the mineralized zone aquifer than injected, in order to create an inward flow gradient within the PUs. This is referred to as "bleed". AUC anticipates the bleed will average about one percent of flow.

PU1, which will consist of six wellfields, will be installed concurrently with the CPP. The remainder of the PUs will be installed and brought on line sequentially to maintain the required CPP throughput to achieve production goals. As production occurs, the head grade from the operating wellfields will decrease toward economic limits, and additional wellfields will be placed into operation in order to maintain the desired flow rate and head grade at the CPP. Eventually, all the patterns in a given PU will reach their economic limit and uranium recovery operations in that area will be terminated. Thereafter, groundwater restoration activities will commence. This sequential installation, production, and restoration cycle will be implemented until all PUs has been restored and at this time, final decommissioning of the CPP and reclamation will be conducted.

Each wellfield includes a number of injection wells, recovery wells, monitoring wells, one header house and associated piping and power supply. Header houses will be located within the wellfields, and will collect pregnant lixiviant from up to 30 recovery wells (per header house) and transfer the pregnant lixiviant to trunk lines and then to the CPP. Barren lixiviant from the CPP will pass through the trunk lines, into the header houses and then be distributed to approximately 42 injection wells per header house.

Monitoring wells will include both interior and exterior wells. Interior monitoring wells will be located within the PU boundaries and may be screened in the aquifers above (or below as required) the mineralized zone to monitor potential vertical movement of *in situ* recovery fluids. Each PU will also be surrounded by exterior monitoring wells to monitor the potential for lateral movement of the *in situ* lixiviant. The screened interval of these exterior monitor wells will be within the production sand.

Class I Underground Injection Control (UIC) deep disposal wells (DDW) are also required for disposal of liquid wastes from wellfield bleed and groundwater restoration operations.

The Project Resource Units will include the following components as shown in Table 1.5



**Table 1.5: Project Header House and Well Inventory by Resource Unit**

Item	Resource Units			
	Reno Creek	Bing	Moore	Pine Tree
Header Houses	50	4	18	0
Injection Wells	2,100	150	742	0
Recovery Wells	1,500	107	530	0
Interior Monitoring Wells	100	7	35	0
Exterior Monitoring Wells	250	18	88	0

The CPP will be designed to produce up to approximately 1.5 million pounds of dry yellowcake per year through five major solution circuits: the recovery/extraction ion exchange (IX) circuit; the lixiviant make-up circuit; the elution circuit; a yellowcake precipitation circuit; and the dewatering, drying and packaging circuit. The CPP will be designed to process approximately 8,000 gallons per minute (gpm) of groundwater extracted from the mineralized zone. The system will recycle and reuse most of the solutions inside each circuit. A bleed will be taken from the overall process to ensure that slightly less water is injected back into the wellfield than was initially recovered to maintain an inward groundwater gradient within each PU. This bleed solution will be treated via reverse osmosis and the brine will be routed to the DDWs. The yellowcake will be packaged in approved 55 gallon steel drums and transported to the licensed uranium conversion facility. A simplified process flow diagram is provided in Figure 1.3.

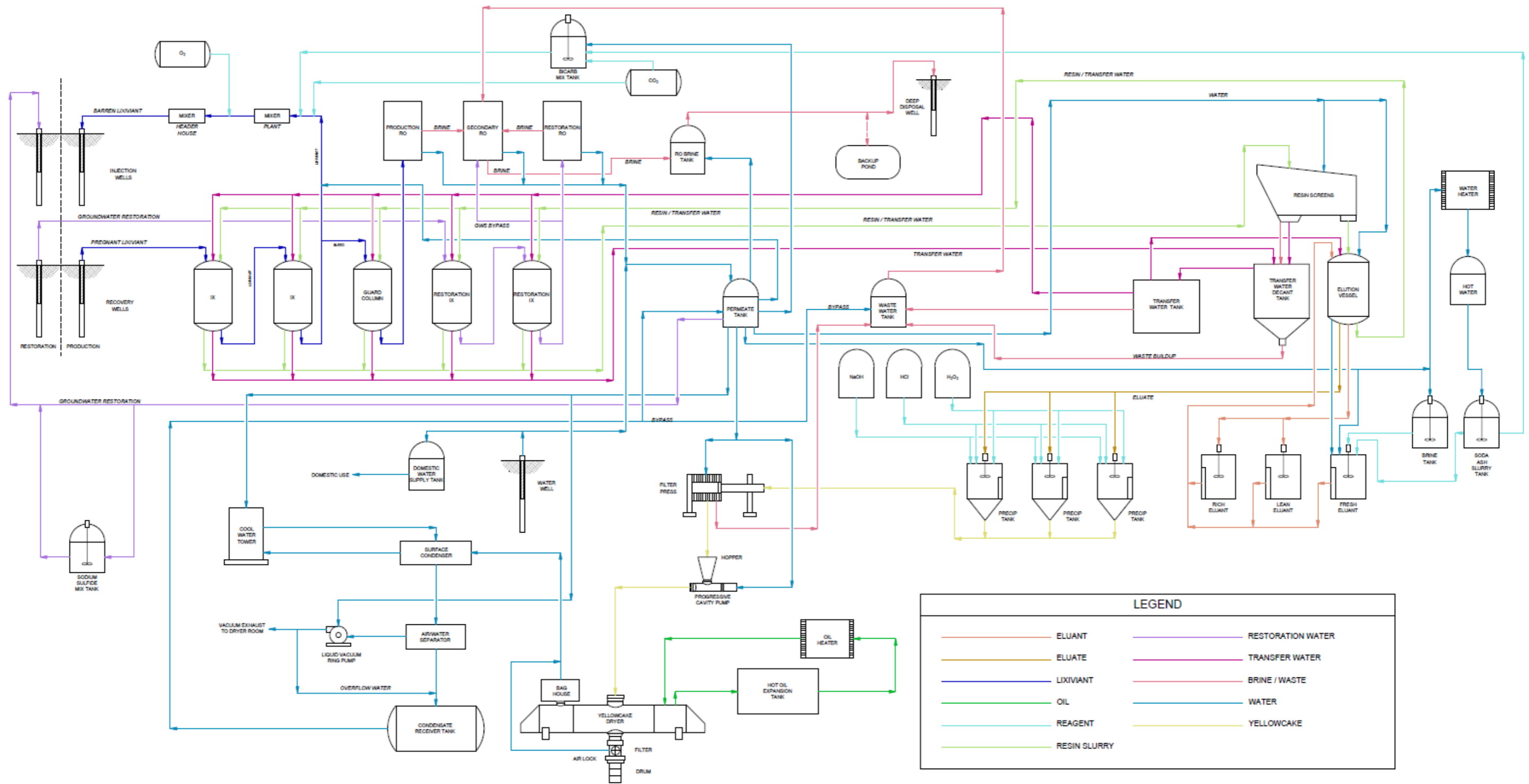


Figure 1.3: Process Flow Diagram – Central Processing Plant

TREC prepared an estimate of Capital and Operating Costs on the basis of the design data and assumptions described herein. The costs were developed on a first principles basis, including specifications and current vendor quotes for all major pieces of equipment and installation and construction costs.

Table 1.6 summarizes the economics of the Project based on the assumptions, capital and operating cost estimates, taxes, royalties and revenues as discussed herein.

**Table 1.6: Summary of Economics**

Economic Item	Units	Value	\$/Lb U <sub>3</sub> O <sub>8</sub>
<b>Revenue:</b>			
U <sub>3</sub> O <sub>8</sub> Price	\$/lb U <sub>3</sub> O <sub>8</sub>	65.00	
Production	kLbs	14,942	
<b>Uranium Gross Revenue</b>	<b>US\$000s</b>	<b>971,201</b>	<b>65.00</b>
Surface & Mineral Royalties	US\$000s	37,488	2.51
Ad Valorem + Severance Tax	US\$000s	57,434	3.84
<b>Net Revenue</b>	<b>US\$000s</b>	<b>876,279</b>	<b>58.65</b>
<b>Operating Costs<sup>1</sup>:</b>			
Plant & Wellfield Costs	US\$000s	143,992	9.64
Administration Costs	US\$000s	6,636	0.44
D&D & Restoration Costs	US\$000s	31,923	2.14
Financial Assurance	US\$000s	-	-
License/Permit Amendments	US\$000s	4,050	0.27
<b>Net Operating Cash Flow</b>	<b>US\$000s</b>	<b>689,678</b>	<b>46.16</b>
<b>Capital Costs<sup>1</sup>:</b>			
Pre-Construction Capital Costs	US\$000s	12,289	0.82
Plant (CPP) Capital Development Costs	US\$000s	52,612	3.52
Wellfield Capital Development Costs	US\$000s	154,709	10.35
Indirect Capital Costs	US\$000s	5,839	0.39
<b>Total Capital Costs</b>	<b>US\$000s</b>	<b>225,449</b>	<b>15.09</b>
<b>Total Costs<sup>2</sup></b>	<b>US\$000s</b>	<b>506,972</b>	<b>\$ 33.93</b>
<b>Net After-Tax Cash Flow</b>	<b>US\$000s</b>	<b>359,820</b>	<b>\$ 24.08</b>
<b>Net Present Value @ 6% Discount Rate<sup>3</sup></b>	<b>US\$000s</b>	<b>186,656</b>	
<b>Net Present Value @ 8% Discount Rate<sup>3</sup></b>	<b>US\$000s</b>	<b>150,027</b>	
<b>Net Present Value @ 10% Discount Rate<sup>3</sup></b>	<b>US\$000s</b>	<b>120,362</b>	
<b>Internal Rate Of Return<sup>3</sup></b>	<b>%</b>	<b>32.2</b>	

<sup>1</sup>Costs include contingency.

<sup>2</sup>Includes royalties, ad valorem, severance tax, operating and capital costs.

<sup>3</sup>After-tax.

Using the estimated capital costs, operating costs and closure costs presented herein, the after- tax cash flow was developed and is summarized in Table 1.6. The statement assumes no escalation, no debt, no interest or capital repayment, but does include Wyoming and local taxes, royalties, depletion, amortization, depreciation, tax loss carry forward and back, and U.S. federal income tax (note; Wyoming does not have a state income tax). The after-tax pro forma cash flow used the U.S. tax structure as its basis.

The sale price for the produced uranium as U<sub>3</sub>O<sub>8</sub> is assumed to be fixed at \$65.00 per pound through the life of the project. Uranium analysts are forecasting that the uranium price will increase significantly from its current level starting around 2015-2016 as a result of increased demand and supply shortages.

A uranium price of \$65 per pound of U<sub>3</sub>O<sub>8</sub> was determined to be an acceptable price for the PFS based on the Project's expected startup date. AUC has no sales contracts in place. Contracts for yellowcake transportation, handling and sales will be developed prior to commencement of commercial production. The revenue for the cash flow estimate was developed using the recoverable reserve estimate for the Project of 14.94 million pounds of U<sub>3</sub>O<sub>8</sub>.

The after-tax Net Present Value (NPV) for three discount rates has been calculated and is presented in Table 1.7.

**Table 1.7: After-Tax Net Present Values versus Discount Rate**

Discount Rate	After-Tax NPV (\$US000s)
6%	\$186,656
8%	\$150,027
10%	\$120,362

Table 1.8 provides a summary of the estimated development costs, compiled by TREC, based on the Project preliminary design and quantities and unit costs obtained from various sources. The predicted level of accuracy of the capital cost estimate is +/- 25 percent. The estimated costs for the major items identified in this study have been sourced in the United States.

**Table 1.8: Development Cost Summary**

Item Description <sup>1</sup>	Initial Capital <sup>2</sup> CPP & PU1 (\$US 000s)	Subsequent <sup>3</sup> Capital PUs 2-18 (\$US 000s)	Total Capital Costs (\$US 000s)
<b>DIRECT CAPITAL COSTS<sup>4</sup></b>			
<b>Plant (CPP) Development Costs</b>			
IX Circuit	\$ 6,131	\$ -	\$ 6,131
Elution Circuit	\$ 879	\$ -	\$ 879
Drying & Precipitation Circuit	\$ 4,204	\$ -	\$ 4,204
Groundwater Restoration Circuit <sup>5</sup>	\$ 1,938	\$ 1,437	\$ 3,375
Building & Infrastructure <sup>6</sup>	\$ 14,431	\$ -	\$ 14,431
Installation Costs	\$ 4,335	\$ -	\$ 4,335
Deep Disposal Wells <sup>7</sup>	\$ 6,360	\$ 6,360	\$ 12,720
<i>Subtotal</i>	\$ 38,278	\$ 7,797	\$ 46,074
Contingency (Average of approximately 14%)	\$ 5,739	\$ 799	\$ 6,537
<b>Plant (CPP) Development Cost Subtotal</b>	<b>\$ 44,016</b>	<b>\$ 8,596</b>	<b>\$ 52,612</b>
<b>Wellfield Development Costs</b>			
Wellfield Cost <sup>8</sup>	\$ 17,101	\$ 91,915	\$ 109,016
Contingency (Average of approximately 13%)	\$ 2,195	\$ 11,799	\$ 13,994
<b>Wellfield Capital Development Cost Subtotal</b>	<b>\$ 19,296</b>	<b>\$ 103,714</b>	<b>\$ 123,010</b>
<b>INDIRECT CAPITAL COSTS</b>			
Engineering, Procurement & Construction Management	\$ 2,995	\$ -	\$ 2,995
Labor <sup>9</sup>	\$ 2,567	\$ -	\$ 2,567
Financial Assurance <sup>10</sup>	\$ 7,370	\$ -	\$ 7,370
<i>Subtotal</i>	\$ 12,931	\$ -	\$ 12,931
Contingency (Average of approximately 16%)	\$ 2,120	\$ -	\$ 2,120
<b>Indirect Capital Cost Subtotal</b>	<b>\$ 15,052</b>	<b>\$ -</b>	<b>\$ 15,052</b>
<b>TOTAL DEVELOPMENT CAPITAL COSTS</b>	<b>\$ 78,364</b>	<b>\$ 112,310</b>	<b>\$ 190,674</b>

Notes:

<sup>1</sup> Individual line item costs are shown without contingency. Contingency must be considered as part of the total cost.

<sup>2</sup> Costs associated with CPP incurred in Years -1 and 1, and costs associated with PU1 incurred in Years 1 and 2.

<sup>3</sup> Subsequent development costs will be incurred following startup.

<sup>4</sup> Includes 6% sales tax on applicable items.

<sup>5</sup> Cost for some restoration items, including secondary RO, will be incurred in Years 2 and 3.

<sup>6</sup> Includes cost of land acquisition for the CPP site.

<sup>7</sup> Four deep disposal wells; two in Year 1, one in Year 2 and one in Year 3.

<sup>8</sup> Initial and Subsequent Wellfield CAPEX are referenced from the Wellfield Development Costs Summary, Table 1.11, and are shown on this table, Table 1.8, without contingency. Initial Capital costs include Production Unit 1 and miscellaneous wellfield costs. AUC labor is included in Wellfield Completion / Restoration Labor shown in the Wellfield Development Cost Summary, Table 1.11 and is not included in this table.

<sup>9</sup> Labor costs incurred prior to commencement of CPP & PU1 production.

<sup>10</sup> The costs for Bonding are incurred before the start of production, and are also shown with contingency in Year 1 of the Annual Operating Cost Summary, Table 1.10. On the Cash Flow Statement, Table 1.9, they are included under Financial Assurance.

Pre-construction capital costs provided by AUC to TREC have been included in the capital cost estimate. Pre-construction capital costs include corporate overheads plus final permit/license application costs that are anticipated between the date of this report and initiation of construction. Contracted construction management services will be used to assist AUC personnel in performing engineering, procurement and construction management (EPCM) for Project facilities construction. Additionally, AUC will employ a wellfield construction crew consisting of 28 persons to construct the wellfields. Costs for construction of PU 1 are included as initial capital costs and are shown in Table 1.11.

The current manpower estimates for the project during the peak operating phase assumes 70 plant and wellfield staff. Additionally, construction of the wellfields included as subsequent capital costs, will require the same 28 person crew identified for the initial wellfield construction. Surface reclamation of the wellfields also will be performed by the wellfield construction crew.

Solid wastes generated from the operations will normally consist of spent resin, empty packaging, miscellaneous pipes and fittings, tank sediments, personal protective equipment and domestic refuse. These materials will be classified as contaminated or non-contaminated based on their radiological characteristics. Non-contaminated solid waste will be collected on the site in designated areas and disposed of in the nearest permitted sanitary landfill. Contaminated solid waste consists of solid waste contaminated with radioactive material that cannot be decontaminated. These materials will be temporarily stored on site and periodically transported for disposal. AUC will establish an agreement for disposal of this waste as 11.e(2) byproduct material in a licensed waste disposal or uranium mill tailings facility. As defined by the NRC, 11.e(2) is the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content. This report assumes that an existing operational disposal facility, a uranium mill tailings facility, located within approximately 150 miles of the Project Site, will be utilized for disposal of 11.e(2) byproduct material.

TREC developed the operating cost estimates by evaluating each process unit operation and associated operating services (power, water, air, waste disposal), infrastructure (offices, change rooms, shop), salary plus burden and environmental control (heat, air conditioning, monitoring). The operating cost estimate is based on AUC's life of mine schedule (LOM), Figure 1.4, and associated wellfield deliverables, process flow sheets, process design, materials balance and project manpower schedule. The annual operating and closure cost summary is provided in Table 1.10. The predicted level of accuracy of the operating cost estimate is +/- 25 percent.

Table 1.9 and Table 1.10 show the annual cash flow and operating costs, respectively.

The cash flow includes pre-construction costs starting in Year -2 and anticipates construction starting in Year 1. The start of production is assumed to be Quarter 1, Year 2, pending regulatory approvals. A summary schedule for the project is provided in Figure 1.4. The schedule shows the proposed plan for construction, production, groundwater restoration, and decommissioning of each PU. However, the plan is subject to change due to extraction schedules, variations with production area recoveries, production plant issues, economic conditions, etc.

The After-Tax Net Present Value (NPV) calculations were based on end of year discounting. The after-tax NPV is calculated from the discounted cash flow model and a constant uranium price of \$65.00 per pound for Project's anticipated life of mine schedule.

Total initial capital costs are estimated at \$78.4 million, including initial capital for the CPP of \$44.0 million, the capital cost for PU1 of \$19.3 million, and indirect costs of \$15.1 million. The estimated payback is in Quarter 1 of Year 3 with the commencement of construction in Quarter 1 of Year 1 and generates net after-tax earnings (undiscounted) over the life of the project of US\$359.8 million. It is estimated that the project has an after-tax internal rate of return (IRR) of 32.2 percent and an after-tax NPV of US\$150.0 million applying an eight percent discount rate. The total cost (capital and operating) per pound of U<sub>3</sub>O<sub>8</sub> is \$33.93 for the LOM.

Table 1.9: Cash Flow Statement (\$US 000s)

Cash Flow Line Items	Units	Total or Avg	Year -2	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	
Uranium Production as U <sub>3</sub> O <sub>8</sub> (2)	Lbs 000s	14,942	0	0	0	498	1,316	1,505	1,490	1,502	1,514	1,511	1,501	1,494	1,490	951	170	-	-	-	-	-	
Uranium Price for U <sub>3</sub> O <sub>8</sub> (3)	US\$/lb	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	
<b>Uranium Gross Revenue</b>	US\$000s	\$971,201	\$-	\$-	\$-	\$32,343	\$85,560	\$97,794	\$96,869	\$97,624	\$98,424	\$98,203	\$97,562	\$97,082	\$96,837	\$61,831	\$11,073	\$-	\$-	\$-	\$-	\$-	
Less: Surface & Mineral Royalties (4)	US\$000s	37,488	-	-	-	1,248	3,303	3,775	3,739	3,768	3,799	3,791	3,766	3,747	3,738	2,387	427	-	-	-	-	-	
Less: Ad Valorem & Severance Taxes (5)	US\$000s	57,434	-	-	-	1,913	5,062	5,785	5,731	5,775	5,823	5,809	5,771	5,743	5,729	3,658	635	-	-	-	-	-	
<b>Net Revenue</b>	US\$000s	\$876,279	\$-	\$-	\$-	\$29,181	\$77,196	\$88,234	\$87,400	\$88,081	\$88,802	\$88,603	\$88,024	\$87,591	\$87,371	\$55,787	\$10,010	\$-	\$-	\$-	\$-	\$-	
Less: Plant & Wellfield Operating Costs	US\$000s	143,992	-	25	1,039	10,485	11,591	11,653	11,648	11,652	11,657	11,656	11,653	11,650	11,649	11,460	9,216	2,226	1,882	1,676	949	225	
Less: Administration Costs	US\$000s	6,636	-	25	304	395	395	395	395	395	395	395	395	395	395	395	395	395	395	395	395	247	135
Less: D&D & Restoration Costs	US\$000s	31,923	-	-	-	-	-	279	975	1,532	2,266	2,545	2,223	2,560	2,582	2,824	2,743	2,298	1,688	4,015	3,393	-	
Less: Financial Assurance	US\$000s	-	-	-	9,212	1,691	2,899	1,450	3,141	2,899	242	1,208	-	242	(1,691)	(1,450)	(1,450)	(4,590)	(1,450)	(5,081)	(5,331)	(1,941)	
Less: Permit Amendments	US\$000s	4,050	-	-	-	200	200	100	1,250	1,300	1,000	-	-	-	-	-	-	-	-	-	-	-	
<b>Net Operating Cash Flow</b>	US\$000s	\$689,678	\$-	\$(50)	\$(10,555)	\$16,410	\$62,111	\$74,357	\$69,991	\$70,303	\$73,242	\$72,799	\$73,753	\$72,744	\$74,436	\$42,558	\$(894)	\$(329)	\$(2,515)	\$(1,005)	\$742	\$1,581	
Less: Depletion Allowance	US\$000s	(177,765)	-	-	-	-	-	(20,312)	(20,489)	(20,648)	(20,817)	(20,771)	(20,635)	(20,534)	(20,482)	(13,078)	-	-	-	-	-	-	
Less: Depreciation/Amortization	US\$000s	(222,725)	(3,884)	(6,457)	(15,896)	(20,561)	(21,569)	(18,732)	(18,523)	(18,433)	(16,423)	(14,827)	(14,392)	(13,365)	(11,368)	(8,392)	(6,756)	(5,496)	(3,563)	(2,115)	(1,445)	(530)	
<b>Net Income Before Tax Calculations</b>	US\$000s	\$289,187	\$(3,884)	\$(6,507)	\$(26,451)	\$(4,151)	\$40,542	\$35,313	\$30,979	\$31,222	\$36,002	\$37,201	\$38,726	\$38,845	\$42,586	\$21,088	\$(7,649)	\$(5,825)	\$(6,078)	\$(3,120)	\$(703)	\$1,051	
Less: Income Loss Carry Forward/Back	US\$000s	(228,555)	(18,469)	(22,353)	(28,860)	(55,312)	(59,463)	(18,922)	-	-	-	-	-	-	(7,650)	(5,825)	7,649	5,825	-	(6,078)	(9,197)	(9,900)	
<b>Taxable Income</b>	US\$000s	\$60,633	\$(22,353)	\$(28,860)	\$(55,312)	\$(59,463)	\$(18,921)	\$16,391	\$30,979	\$31,222	\$36,002	\$37,201	\$38,726	\$38,845	\$34,936	\$15,263	\$-	\$-	\$(6,078)	\$(9,197)	\$(9,900)	\$(8,849)	
Less: Federal Income Tax (1)	US\$000s	104,409	-	-	-	22	922	11,327	10,869	10,928	12,601	13,020	13,554	13,597	12,227	5,342	-	-	-	-	-	-	
<b>Net Profit After Taxes</b>	US\$000s	\$(43,776)	\$(22,353)	\$(28,860)	\$(55,312)	\$(59,485)	\$(19,843)	\$5,064	\$20,110	\$20,294	\$23,401	\$24,181	\$25,172	\$25,249	\$22,709	\$9,921	\$-	\$-	\$(6,078)	\$(9,197)	\$(9,900)	\$(8,849)	
Plus: Add-back of Non-Cash Depletion	US\$000s	(177,765)	-	-	-	-	-	20,312	20,489	20,648	20,817	20,771	20,635	20,534	20,482	13,078	-	-	-	-	-	-	
Plus: Add-back of Depreciation/Amortization	US\$000s	(222,725)	3,884	6,457	15,896	20,561	21,569	18,732	18,523	18,433	16,423	14,827	14,392	13,365	11,368	8,392	6,756	5,496	3,563	2,115	1,445	530	
Plus: Add-back of Income Loss Carry Forward/Back	US\$000s	(228,555)	18,469	22,353	28,860	55,312	59,463	18,922	-	-	-	-	-	-	7,650	5,825	(7,649)	(5,825)	-	6,078	9,197	9,900	
Less: Pre-Construction Capital Costs	US\$000s	12,289	5,417	6,872	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Less: Plant (CPP) Capital Development Costs	US\$000s	52,612	-	8,405	32,926	3,256	8,025	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Less: Wellfield Capital Development Costs	US\$000s	154,709	-	-	20,954	13,604	15,262	8,780	15,262	15,262	8,780	15,263	8,780	15,263	8,781	2,299	2,298	2,299	1,149	345	328	-	
Less: Indirect Capital Costs	US\$000s	5,839	-	-	5,839	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Net After-Tax Cash Flow</b>	US\$000s	\$359,820	\$(5,417)	\$(15,327)	\$(70,274)	\$(472)	\$37,902	\$54,250	\$43,860	\$44,113	\$51,862	\$44,515	\$51,419	\$43,885	\$53,427	\$34,917	\$(3,192)	\$(2,628)	\$(3,664)	\$(1,350)	\$414	\$1,581	

(1) Includes Alternative Minimum Tax.

(2) Production schedule estimated by AUC LLC

(3) Uranium price at \$65/lb U<sub>3</sub>O<sub>8</sub> assumed to remain constant over the Life of the Project.

(4) Surface and mineral royalties provided by AUC LLC and based on a weighted average over the area of the Project.

(5) Ad valorem calculated as 5.98% of adjusted taxable value and Severance tax is calculated as 4.0% of adjusted taxable value.

**AFTER -TAX ECONOMIC CRITERIA CALCULATIONS (NPVs in US\$000s)**

Net Present Value @ 6%DR = \$186,656

Net Present Value @ 8%DR = \$150,027

Net Present Value @ 10% DR = \$120,362

IRR = 32.2%



Table 1.10: Annual Operating Cost Summary

LIFE OF MINE OPERATING COSTS	Year -2	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Total	Average Contingency	\$ per Pound	
Plant Operating Labor <sup>1</sup>	\$0	\$0	\$0	\$1,372,875	\$1,372,875	\$1,372,875	\$1,372,875	\$1,372,875	\$1,372,875	\$1,372,875	\$1,372,875	\$1,372,875	\$1,372,875	\$1,372,875	\$1,372,875	\$1,029,656	\$686,438	\$480,506	\$326,875	\$0	\$18,997,975	5%	\$1.27	
Plant Operating Expenses	\$0	\$0	\$0	\$5,239,830	\$5,239,830	\$5,239,830	\$5,239,830	\$5,239,830	\$5,239,830	\$5,239,830	\$5,239,830	\$5,239,830	\$5,239,830	\$5,239,830	\$5,239,830	\$0	\$0	\$0	\$0	\$0	\$62,877,962	10%	\$4.21	
Wellfield Operating Labor <sup>1</sup>	\$0	\$0	\$0	\$576,844	\$769,125	\$769,125	\$769,125	\$769,125	\$769,125	\$769,125	\$769,125	\$769,125	\$769,125	\$766,561	\$310,214	\$0	\$0	\$0	\$0	\$0	\$8,575,744	5%	\$0.57	
Wellfield Operating Expenses	\$0	\$0	\$180,698	\$1,936,047	\$2,581,396	\$2,581,396	\$2,581,396	\$2,581,396	\$2,581,396	\$2,581,396	\$2,581,396	\$2,581,396	\$2,581,396	\$2,572,791	\$1,041,163	\$0	\$0	\$0	\$0	\$0	\$28,963,261	10%	\$1.94	
Project General & Administrative <sup>2</sup>	\$0	\$25,000	\$858,726	\$1,359,353	\$1,628,240	\$1,690,055	\$1,685,382	\$1,689,196	\$1,693,237	\$1,692,120	\$1,688,880	\$1,686,457	\$1,685,220	\$1,508,347	\$1,251,884	\$1,195,938	\$1,195,938	\$1,195,938	\$621,875	225,250	\$24,577,033	7%	\$1.64	
<b>Plant &amp; Wellfield Operating Costs<sup>3</sup></b>	<b>\$0</b>	<b>\$25,000</b>	<b>\$1,039,424</b>	<b>\$10,484,949</b>	<b>\$11,591,466</b>	<b>\$11,653,281</b>	<b>\$11,648,608</b>	<b>\$11,652,422</b>	<b>\$11,656,463</b>	<b>\$11,655,346</b>	<b>\$11,652,106</b>	<b>\$11,649,683</b>	<b>\$11,648,446</b>	<b>\$11,460,404</b>	<b>\$9,215,966</b>	<b>\$2,225,594</b>	<b>\$1,882,375</b>	<b>\$1,676,444</b>	<b>\$948,750</b>	<b>\$225,250</b>	<b>\$143,991,974</b>		<b>\$9.64</b>	
Wellfield Restoration <sup>4</sup>	\$0	\$0	\$0	\$0	\$0	\$278,605	\$975,119	\$1,532,330	\$1,532,330	\$1,810,936	\$1,671,633	\$1,532,330	\$1,810,936	\$2,089,541	\$1,532,330	\$1,671,633	\$696,514	\$0	\$0	\$0	\$17,134,237	25%	\$1.15	
Decontamination / Decommissioning / Reclamation <sup>5</sup>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$733,727	\$733,727	\$551,680	\$1,028,325	\$771,244	\$733,727	\$1,210,372	\$626,715	\$990,808	\$4,014,704	\$3,393,529	\$0	\$14,788,558	25%	\$0.99	
<b>D&amp;D and Restoration Costs</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$278,605</b>	<b>\$975,119</b>	<b>\$1,532,330</b>	<b>\$2,266,057</b>	<b>\$2,544,663</b>	<b>\$2,223,313</b>	<b>\$2,560,656</b>	<b>\$2,582,180</b>	<b>\$2,823,268</b>	<b>\$2,742,703</b>	<b>\$2,298,347</b>	<b>\$1,687,322</b>	<b>\$4,014,704</b>	<b>\$3,393,529</b>	<b>\$0</b>	<b>\$31,922,795</b>		<b>\$2.14</b>	
<b>Total Operating Costs</b>	<b>\$0</b>	<b>\$25,000</b>	<b>\$1,039,424</b>	<b>\$10,484,949</b>	<b>\$11,591,466</b>	<b>\$11,931,886</b>	<b>\$12,623,727</b>	<b>\$13,184,752</b>	<b>\$13,922,520</b>	<b>\$14,200,008</b>	<b>\$13,875,419</b>	<b>\$14,210,338</b>	<b>\$14,230,625</b>	<b>\$14,283,672</b>	<b>\$11,958,668</b>	<b>\$4,523,941</b>	<b>\$3,569,697</b>	<b>\$5,691,148</b>	<b>\$4,342,279</b>	<b>\$225,250</b>	<b>\$175,914,770</b>	<b>11%</b>	<b>\$11.77</b>	
LIFE OF MINE ADMINISTRATIVE SUPPORT COSTS	Year -2	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Total	Average Contingency	\$ per Pound	
Administrative Costs <sup>6</sup>	\$0	\$25,000	\$304,196	\$394,950	\$394,950	\$394,950	\$394,950	\$394,950	\$394,950	\$394,950	\$394,950	\$394,950	\$394,950	\$394,950	\$394,950	\$394,950	\$394,950	\$394,950	\$247,475	\$135,394	\$6,636,315	0%	\$0.44	
Financial Assurance <sup>7</sup>	\$0	\$0	\$9,212,124	\$1,691,220	\$2,899,235	\$1,449,617	\$3,140,838	\$2,899,235	\$241,603	\$1,208,014	\$0	\$241,603	-\$1,691,220	-\$1,449,617	-\$1,449,617	-\$4,590,455	-\$1,449,617	-\$5,081,464	-\$5,330,871	-\$1,940,627	\$0	\$0	25%	\$0.00
Permit Amendments	\$0	\$0	\$0	\$200,000	\$200,000	\$100,000	\$1,250,000	\$1,300,000	\$1,000,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4,050,000	0%	\$0.27
<b>Administrative Support Costs</b>	<b>\$0</b>	<b>\$25,000</b>	<b>\$9,516,320</b>	<b>\$2,286,170</b>	<b>\$3,494,185</b>	<b>\$1,944,567</b>	<b>\$4,785,788</b>	<b>\$4,594,185</b>	<b>\$1,636,553</b>	<b>\$1,602,964</b>	<b>\$394,950</b>	<b>\$636,553</b>	<b>-\$1,296,270</b>	<b>-\$1,054,667</b>	<b>-\$1,054,667</b>	<b>-\$4,195,505</b>	<b>-\$1,054,667</b>	<b>-\$4,686,514</b>	<b>-\$5,083,396</b>	<b>-\$1,805,233</b>	<b>\$17,574,943</b>	<b>0%</b>	<b>\$1.18</b>	

Notes:

- 1) Labor costs incurred before the start of production are included in the Development Cost Summary, Table 1.8.
- 2) Includes site administrative labor, product shipment, product conversion fees and property tax.
- 3) Years 14, 15 and 16 represent operating expenses, such as power and administrative labor, which are associated with restoring, decommissioning and reclaiming the wellfields.
- 4) Includes groundwater restoration costs. Labor costs are included in Wellfield Completion / Restoration Labor on the Wellfield Development Costs Summary, Table 1.11.
- 5) Includes plant equipment removal and disposal, building demolition and disposal, header house demolition and disposal, soil removal and disposal, well abandonment, wellfield equipment removal and disposal, topsoil replacement, revegetation and miscellaneous reclamation costs.
- 6) Administrative costs provided by AUC LLC and includes legal fees, insurance, rent, office supplies, etc.
- 7) Assumes cash bond posted by AUC LLC with 0% interest accumulated on cash surety. Negative values represent positive cash flow from bond release.

**Table 1.11: Wellfield Development Cost Summary**

LIFE OF MINE WELLFIELD DEVELOPMENT COSTS	Year - 2	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Total	Average Contingency	\$ per Pound
Wellfield Completion / Restoration Labor <sup>1</sup>	\$0	\$0	\$0	\$2,298,188	\$2,298,188	\$2,298,188	\$2,298,188	\$2,298,188	\$2,298,188	\$2,298,188	\$2,298,188	\$2,298,188	\$2,298,188	\$2,298,188	\$2,298,188	\$2,298,188	\$1,149,094	\$344,728	\$328,313	\$0	\$31,698,572	5%	\$2.12
Initial Wellfield Capital	\$0	\$0	\$14,471,875	\$4,823,958	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$19,295,834	12%	\$1.29
Subsequent Wellfield Capital	\$0	\$0	\$6,482,151	\$6,482,151	\$12,964,302	\$6,482,151	\$12,964,302	\$12,964,302	\$6,482,151	\$12,964,302	\$6,482,151	\$12,964,302	\$6,482,151	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$103,714,420	12%	\$6.94
<b>Total Wellfield Development Costs</b>	<b>\$0</b>	<b>\$0</b>	<b>\$20,954,027</b>	<b>\$13,604,297</b>	<b>\$15,262,490</b>	<b>\$8,780,339</b>	<b>\$15,262,490</b>	<b>\$15,262,490</b>	<b>\$8,780,339</b>	<b>\$15,262,490</b>	<b>\$8,780,339</b>	<b>\$15,262,490</b>	<b>\$8,780,339</b>	<b>\$2,298,188</b>	<b>\$2,298,188</b>	<b>\$2,298,188</b>	<b>\$1,149,094</b>	<b>\$344,728</b>	<b>\$328,313</b>	<b>\$0</b>	<b>\$154,708,825</b>	<b>11%</b>	<b>\$10.35</b>

Notes:

1) Includes all labor associated with constructing, restoring, decommissioning and reclaiming the wellfields and is included in the Wellfield Development Cost line in the Cash Flow Statement, Table 1.9 Labor costs incurred in Year 1 are included in the Development Cost Summary, Table 1.8.

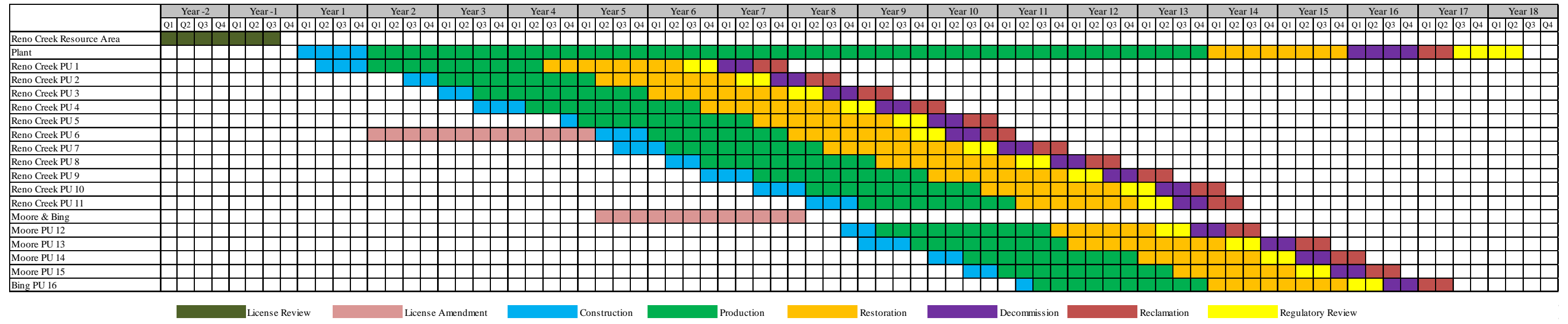


Figure 1.4: Life of Mine Schedule

The Project is most sensitive to changes in the price of uranium and uranium recovery as shown in Figure 1.5 entitled “NPV vs Variable Uranium Price” and in Figure 1.6 entitled “NPV vs Uranium Recovery. A US\$1 change in the uranium price results in a US\$6.8 million dollar change to the after-tax NPV at a discount rate of eight percent and changes the IRR by approximately one percent. The after-tax NPV changes approximately \$58.8 million per a ten percent change in uranium recovery based on an eight percent discount rate.

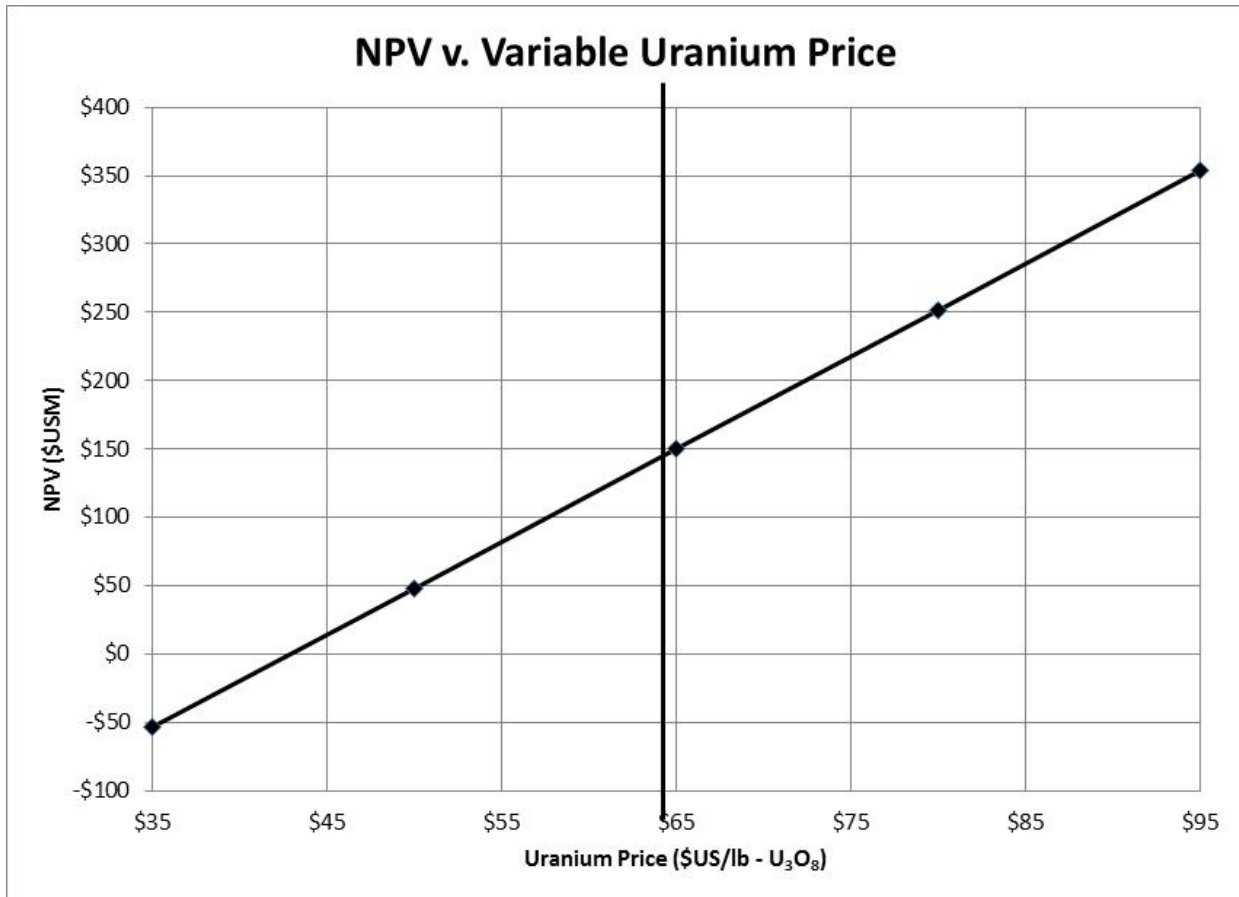
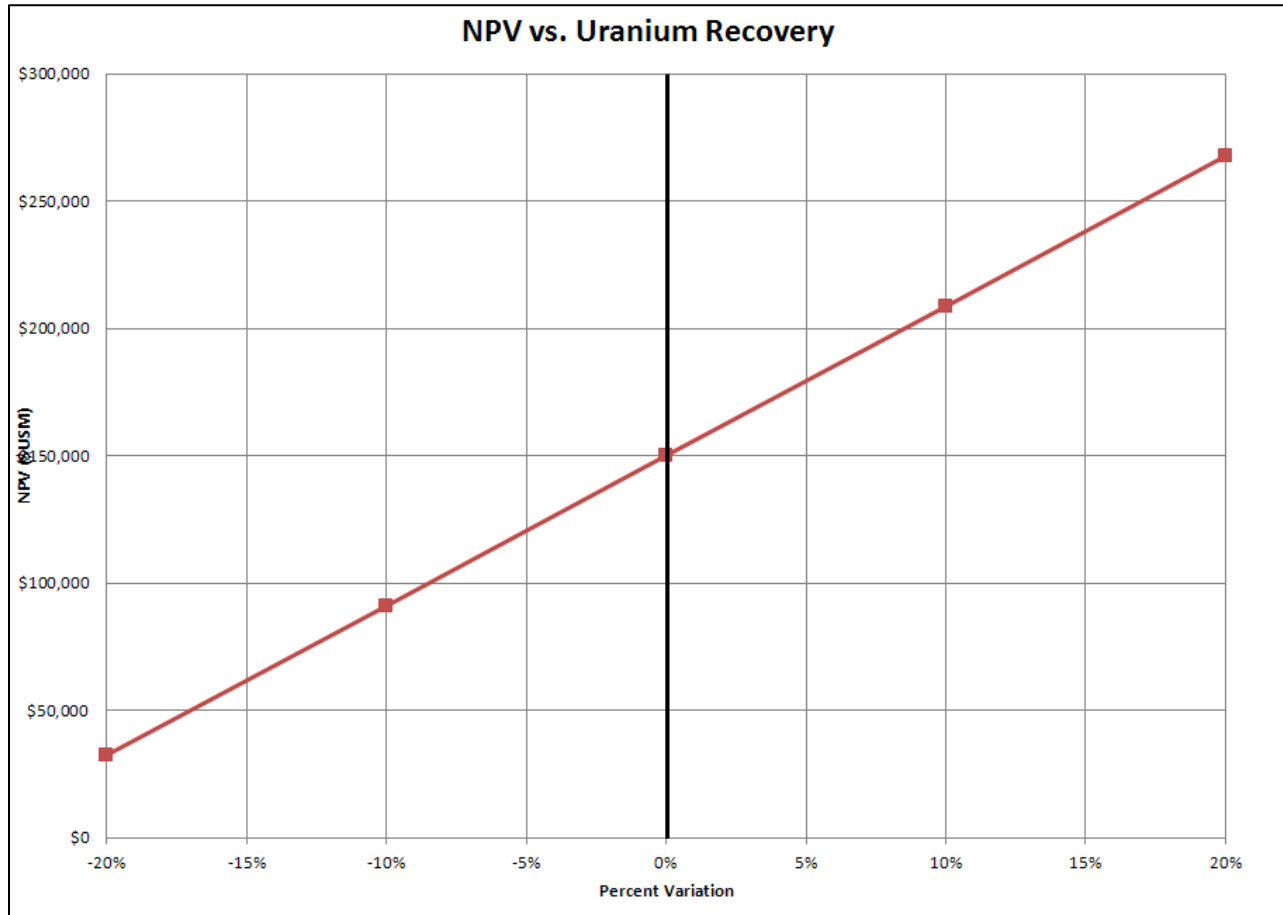
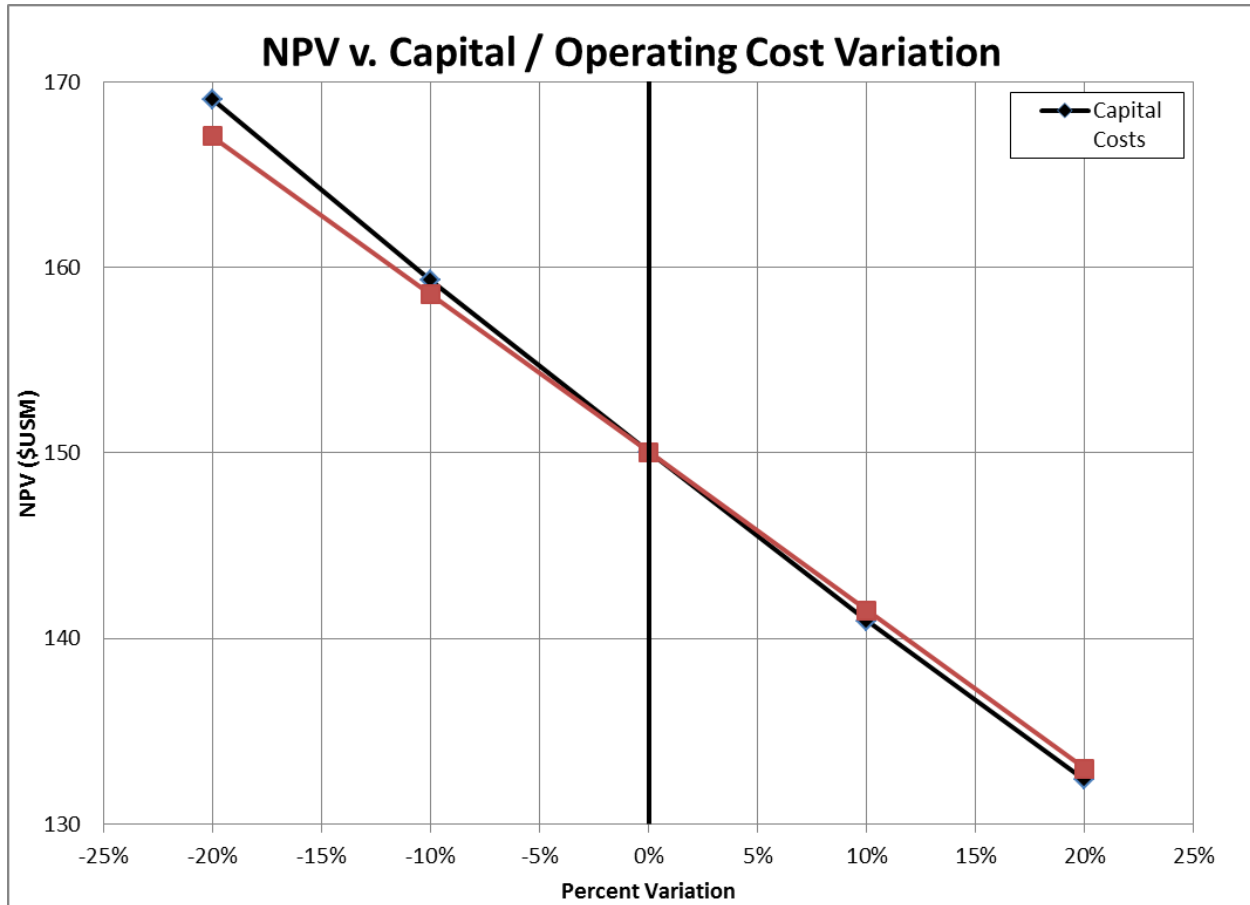


Figure 1.5: After-Tax NPV vs Variable Uranium Price



**Figure 1.6: After-Tax NPV vs Uranium Recovery**

The Project is slightly sensitive to changes in either capital or operating costs as shown in the Figure 1.7 entitled “After-Tax NPV vs Capital Cost Variation and After-Tax NPV vs Operating Cost Variation.” A five percent variation in operating costs results in a US\$4.2 million variation in NPV and a five percent variation in capital costs results in a US\$5.2 million variation to the after-tax NPV. This analysis is based on an eight percent discount rate and a \$65/lb of U<sub>3</sub>O<sub>8</sub> price.



**Figure 1.7: After-Tax NPV vs. Capital Cost Variation and After-Tax NPV vs. Operating Cost**

AUC’s facility will be permitted to produce 2.0 mlbs per year of yellowcake and operate at up to 11,000 gpm of lixiviant. This PFS assumes a maximum production of slightly over 1.5 mlbs per year at an average flow rate of 8,000 gpm. Thus, additional uranium processing of product through the Project CPP is possible and could further improve the economics of the Project presented in this PFS by expanded production or tolling revenues.

The Powder River Basin has a long history of conventional and ISR production, thus indicating that this region of Wyoming is a proven Uranium mining district. Current operating ISR mines in the Powder River Basin include the Uranium One Willow Creek facility and the Cameco Smith Ranch-Highland and North Butte facilities. The Uranerz Energy Corporation, Nichols Ranch Project is currently commissioning a satellite plant in the Pumpkin Buttes area and the Uranium One Moore Ranch Project has been permitted but construction has not begun. In addition, Strata Energy’s Ross Project, at the northeastern extent of the Basin, is in late-stage permitting.

## 1.2 CONCLUSIONS AND RECOMMENDATIONS

The Authors have assumed that AUC’s operations at the Project will be conducted in conformance with applicable laws, regulations and requirements of the various federal and state agencies. It is also assumed that organization and management controls will be established to ensure compliance with

applicable regulations and implement AUC's policy for providing a safe working environment including the philosophy of maintaining radiation exposures as low as reasonably achievable (ALARA).

The Authors find that the Project is technically and economically viable based on the assumptions contained herein. There is no certainty that the mineral recovery or the economics presented in this PFS will be realized. In order to realize the full economic benefits described in this PFS, the following activities are required, at a minimum:

- AUC should proceed toward Feasibility including more detailed engineering and design to prepare for eventual construction and operation of the Reno Creek Project. Finalize project facility designs including identification of long lead procurement items and cost-benefit and optimization evaluations of current design. This recommendation would result in a cost to AUC in the range of \$1 million to \$2 million and is included in this PFS.
- Evaluate potential waste water disposal alternatives to deep disposal wells. This recommendation would result in little or no cost outside of AUC labor.
- Further evaluate capital/operating cost optimization and review regional consolidation of other ISR uranium projects that would benefit from the centrally located processing plant. These costs are estimated to be approximately \$250,000.
- Include in the cost optimization an evaluation of the operating cost impacts of mining and restoration in a low hydraulic head environment in PU 6, the only area in which low head is found in the project.
- Upon receipt of its permits and licenses for the Reno Creek Resource Units, initiate baseline studies for license/permit license amendments to allow development in the Moore and Bing Resource Units, outside the current Reno Creek Permit area. This recommendation would result in cost to AUC of approximately \$4 million which is included in this PFS.
- Conduct hydrologic analyses in the Pine Tree Resource unit to determine if the resources are amenable to ISR production.

## 2.0 INTRODUCTION

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### 2.1 REPORT PREPARATION

TREC, Inc. (TREC) and Tetra Tech were retained by AUC LLC (AUC), to prepare this independent Preliminary Feasibility Study (PFS) for the Reno Creek ISR Project (Project) to be located in Campbell County in northeast Wyoming, USA shown in Figure 1.1. This PFS has been prepared for AUC in accordance with the guidelines set forth under National Instrument (NI) 43-101 and NI 43-101F1 for the submission of technical reports on mining properties.

AUC is the owner and operator of the Reno Creek Project. AUC is owned by Pacific Road Resource Funds (89 percent) and Bayswater Uranium (11 percent). The Project was acquired from Strathmore Resources in April of 2010.

### 2.2 TERMS OF REFERENCE

Units of measurement unless otherwise indicated are feet (ft), miles, acres, pounds avoirdupois (lbs.), and short tons (2,000 lbs.). Uranium production is expressed as pounds  $U_3O_8$ , the standard market unit. Grades reported for historical resources and the mineral resources reported and used herein are percent equivalent  $U_3O_8$  (e $U_3O_8$ ) by calibrated geophysical logging unit). ISR refers to *in situ* recovery, sometimes also termed ISL or *in situ* leach. Unless otherwise indicated, all references to dollars (\$) refer to the United States currency.

### 2.3 SOURCES OF INFORMATION

This PFS was prepared by TREC and Tetra Tech and is based on information provided by AUC, and other professional consultants, and generally accepted uranium ISR practices. The wellfield design includes the anticipated wellfield layout provided by AUC with associated numbers and locations of wells and header houses. The cost estimates presented herein are based on wellfield layouts, process flow diagrams, tank and process equipment sizes and locations, building dimensions, personnel and capital equipment requirements were based on information provided by AUC in conjunction with TREC engineering support. The Technical Report on Resources was developed by Behre Dolbear (BDB) (ref., Behre Dolbear, November, 2012).

The Capital Cost and Operating Cost estimates were developed primarily from TREC cost data, historical information, and vendor quotes for similar ISR projects currently being designed, constructed, or in production in the United States and are current as at year end 2013. Quantities, recovery and performance were assumed based on similar ISR projects. Unit costs were based on similar ISR facilities, vendor quotes, and TREC data.

The capital costs and operating cost estimates are based on total production of  $U_3O_8$  reserves of 14.94 million pounds (rounded). Capital and operating costs are presented in December, 2013 US dollars. No allowance for escalation has been provided. The authors of this PFS predict the accuracy of the estimates at approximately +/- 25 percent.

Financial modeling was performed by TREC based on anticipated operating schedules, capital and operating costs, internal AUC and TREC databases, and local/state taxes and royalties.



Exploratory drilling within the project area was the primary source of information and data for the Technical Report on Resources estimate (ref., Behre Dolbear, 2012). The data from historical drilling conducted by Rocky Mountain Energy (RME), American Nuclear Corporation (ANC), Tennessee Valley Authority (TVA), Utah International and Cleveland Cliffs were used to supplement recent drilling performed by AUC. Table 6.1 summarizes drill holes contained in AUC's database. The findings in the Technical Report on Resources are based on published and unpublished data including:

- Lithologic and geophysical logs, and intercept grade calculations for historic and recent drilling;
- Drillhole location data for historic and recent drilling;
- Mineralization intercept grade calculations; and
- Cross sections constructed from geophysical logs of recent and historical drilling.

## 2.4 SITE VISITS

Rex C. Bryan, Ph.D., Alva Kuestermeyer, MS. and David Richers, Ph.D., (all of Tt) conducted a Project site visit on January 20, 2014. Douglass H. Graves, P.E. (TREC) conducted a Project site visit on October 17, 2012 and January 20, 2014. The purposes of the visits were to observe the geography and geology of the Project site, verify work done at the site by AUC, observe the potential locations of Project components, current site activities, and location of exploration activities and gain knowledge on existing site infrastructure.

## 3.0 RELIANCE ON OTHER EXPERTS

The information, conclusions, opinions, and estimates contained herein are based on:

- Information supplied by AUC and third party sources (to the extent identified and as referenced herein);
- Assumptions, conditions, and qualifications as set forth in this PFS
- Data, reports, and other information supplied by AUC and third party sources (to the extent identified and as referenced herein).

For this PFS, the Authors relied on property ownership information provided by AUC and has not independently researched property title or mineral rights for the Project properties. The Authors expresses no legal opinion as to the ownership status of the Project properties controlled by AUC.

This PFS was prepared by TREC and Tetra Tech with reliance on reports and information from others as well as internal TREC experts. The table below identifies the experts and their contributions/responsibilities in the development of the PFS.

**Table 3.1: Summary of Independent Experts**

Independent Expert	Contribution/Responsibility
Douglass H. Graves, P.E. (QP)	Primary Author, PFS coordination, capital and operating cost estimates, economic analysis. (Sections 1, 2, 3, 4, 5, 6, 16, 17, 18, 20, 21, 22,23, 24, 25, 26, 27)
Rex C. Bryan, Ph.D. (QP)	Primary Author, geology, resource and reserve estimates (Sections 1, 2, 3, 6, 7, 8, 14, 15, 25, 26 and 27)
Alva Kuestermeyer, M.S. (QP)	Mineral Processing and metallurgical testing, market studies, and economic analysis. (Sections 1, 2, 3, 13, 19, 22, 25, 26, and 27)
Brian Pile	Review of PFS report, capital and operating cost estimating and economic analysis.
Samuel Hensler, E.I.T.	Preliminary plant designs, capital and operating costs, and sensitivity analysis.
Anna Tingstad, P.E.	Wellfield designs, operating and subsequent capital cost estimates.
Alex Edwards	Preliminary plant designs, capital and operating costs, and sensitivity analysis.
Robert Maxwell, P.G. - Behre Dolbear	Preparation of Technical Report on Resources, Reno Creek Uranium Project
Dave Richers, Ph.D. (QP)	Sample preparation, analysis and security. Uranium geochemistry (Sections 1, 2, 3, 9, 10, 11, 12, 25, 26, and 27)
Henrik Andersen, Ph.D.	Review of exploration methods and procedures. Analysis of disequilibrium
Rebecca Rogers, CPA	Taxation specialist , Hein & Associates LLP
Betty Gibbs – Behre Dolbear	Preparation of Technical Report on Resources, Reno Creek Uranium Project

## 4.0 PROPERTY DESCRIPTION AND LOCATION

### 4.1 PROPERTY DESCRIPTION

The Reno Creek Project is composed of five Resource Units as is shown in Figure 4.1. The Reno Creek Resource Unit combines two contiguous sub-units, North Reno Creek and Southwest Reno Creek, and will be operated as a single cohesive unit, i.e., the Reno Creek Resource Unit. The Moore and Bing Resource Units contain roll-front uranium mineralization in the same and contiguous stratigraphic horizons as the Reno Creek Units. The Pine Tree Resource Unit contains mineralization in the same stratigraphic horizons as Reno Creek plus a slightly higher stratigraphic unit.

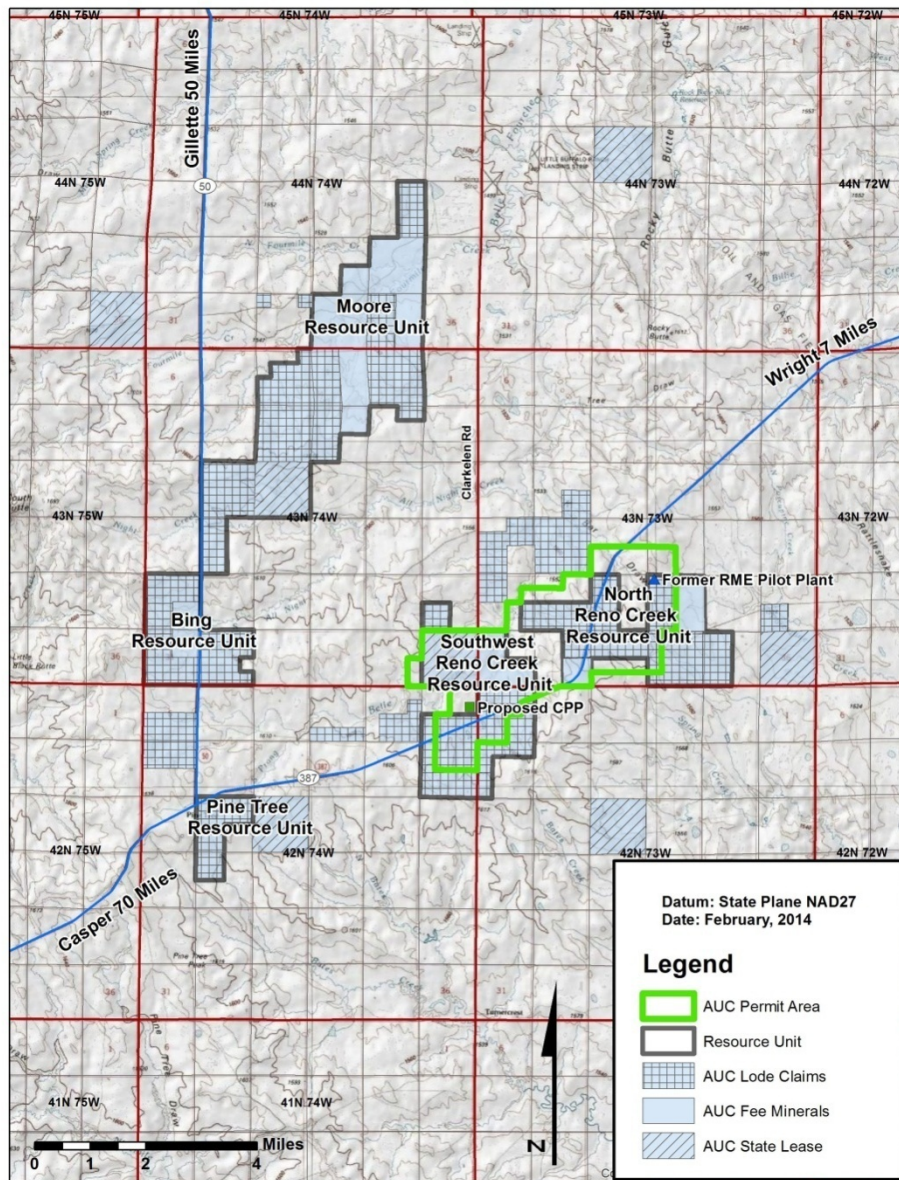


Figure 4.1: Project Map

The contiguous Reno Creek Resource Unit is currently being permitted for mining by ISR methods and will include 11 ISR Production Units (PU) and a Central Processing Plant (CPP). The CPP will be located on land owned by AUC. The proposed mine permit boundary is shown on Figure 4.1 and individual PUs are shown on Figure 1.2.

The Moore Resource Unit (four PUs) lies approximately five miles to the north of the Reno Creek proposed permit area. The Moore Resource Unit will be connected to the CPP via pipelines.

The Bing Resource Unit (one PU) lies adjacent to (west of) Wyoming Highway 50, 3 miles north of Pine Tree Junction, and will be connected to the CPP via pipelines.

The Pine Tree Resource 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. As detailed in Section 15, there is currently insufficient information regarding the hydrologic conditions in Pine Tree to classify them as mineral reserves. Thus, this Resource Unit is not considered in the economic analyses presented herein.

Collectively, AUC controls mineral lands within the Reno Creek Project totaling approximately 21,240 acres, consisting of 688 unpatented lode mining claims, seven State of Wyoming mineral leases, and four private mineral leases. Mineral ownership status and resource units are shown on Figure 4.1.

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. There is no BLM or other federal land in the Project. The breakdown of land status including private fee, unpatented mining lode claims, and state leases for the Reno Creek Project is shown in Table 4.1.

**Table 4.1: Project Lease and Claim Acreages**

Township and Range	State of Wyoming Leases (Acres)	Fee Mineral Leases (Acres)	Federal Lode Mining Claims (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
<b>Total</b>	<b>4,480</b>	<b>2,720</b>	<b>14,040</b>

## 4.2 RENO CREEK ISR PROJECT LOCATION

The Reno Creek ISR Project is located in Campbell County, in northeastern Wyoming, approximately 10 miles southwest of the town of Wright, see Figure 4.1. The approximate latitude and longitude location for each resource unit follows.

<b>Reno Creek Resource Unit</b>	Latitude 43°40'36.23" North - Longitude 105°40'55.78" West
<b>Moore Resource Unit</b>	Latitude 43°44'50.84" North - Longitude 105°43'59.56" West
<b>Bing Resource Unit</b>	Latitude 43°39'39.35" North - Longitude 105°47'17.33" West
<b>Pine Tree Resource Unit</b>	Latitude 43°36'52.22" North - Longitude 105°46'35.91" West

## 4.3 MINERAL TENURE, RIGHTS, LEASES AND SURFACE USE AGREEMENTS

AUC holds 688 unpatented lode mining claims with federally owned minerals, administered by the Bureau of Land Management (BLM). All of these claims are located on privately held surface. 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 BLM filing and annual payment requirements. Legal surveys of unpatented claims are not required and to the authors' knowledge have not been completed. The private and State lease payments, and BLM mining claim annual maintenance fee payments are up to date as of the end of 2013.

Royalties on fee mineral leases vary with the ownership of the minerals. State mineral leases have a five percent 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 agreements may include a production royalty or production payment 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 four percent.

AUC has executed surface use agreements with all landowners who hold surface ownership over minerals proposed to be mined by AUC within the ISR mining permit boundary at the Reno Creek Resource Unit, including leases on State land. AUC has secured the majority of surface access agreements needed from landowners within the Moore Resource Unit. Additional access agreements associated with the Pine Tree and Bing Resource Units are currently being negotiated. AUC is in the process of purchasing the land identified for the CPP. The BLM owns no surface land anywhere on the Reno Creek Project and is therefore not a regulatory agency regarding the project.

When the Reno Creek Project was originally acquired from Strathmore (See Section 6), a portion of the properties were subject to a 5 percent gross receipts royalty, payable either on product sales or for a buyout of \$10MM prior to the commencement of commercial production. In July, 2013, AUC purchased that royalty from Strathmore for \$3MM, and the royalty was terminated.

## 4.4 ENVIRONMENTAL LIABILITIES

### 4.4.1 *Residual Liabilities*

As part of the mine permit and licensing process, detailed environmental baseline evaluations were performed in 2010 and 2011 to characterize environmental conditions at the Project. No residual liabilities were identified. In addition, there are no known residual liabilities associated with the Uranium ISR Pilot Project discussed in Section 6, which were operated in the early 1980s at the Reno Creek Resource Unit.

Also, as part of the ISR planning process, AUC has performed exploration drilling for uranium and delineation drilling for mine planning purposes during the past three years. In conjunction with this drilling, AUC has installed 41 monitor and observation wells. These relatively shallow wells (generally less than 450 feet in depth) each have a surety bond posted to insure they are properly plugged, abandoned and that surface reclamation is performed at the completion of mining.

### 4.4.2 *Environmental Management and Regulation*

To the Authors' knowledge, operations at the Project site and facilities are currently conducted in conformance with applicable laws, regulations and requirements of the various federal and state agencies. Future conformance with these various laws, regulations and requirements is assumed. The organization and management controls outlined below will be established by AUC to ensure compliance and further implement AUC's policy to provide a safe working environment including the philosophy of maintaining radiation exposures as low as reasonably achievable (ALARA):

- Management Control Program,
- Management Audit and Inspection Program,
- Qualifications for Personnel Conducting the Radiation Safety Program,
- Radiation Safety Training,
- Security, and
- Radiation Safety Controls and Monitoring.

## 4.5 PERMITS REQUIRED TO CONDUCT WORK

The two most significant permits/licenses are (1) the Source and Byproduct Materials License, to be issued by the NRC; and (2) the Permit to Mine, to be issued by the WDEQ. The NRC license application for the Reno Creek Permit Area was submitted in October 2012 and subsequently the WDEQ Permit to Mine for the Reno Creek Permit Area was submitted in January 2013.

Upon receiving the license application, the NRC performed a completeness review to ensure all sections are complete. Once the application was deemed complete a technical and environmental review started to ensure criteria from NUREG-1569 and NUREG-1748 have been met. The public was notified that the NRC is preparing an EIS and is welcome to send in comments to identify issues that must be

addressed in the EIS. None were received by NRC. Based on both NRC expertise and scoping suggestions raised by the public, the NRC is in the process of preparing a Draft Supplemental Environmental Impact Statement (DEIS). The public will have the opportunity to provide feedback through written and public comments. Based on the comments on the DEIS, the NRC will prepare the Final Supplemental Environmental Impact Statement (SEIS) to the Generic Environmental Impact Statement (GEIS) for ISR facilities. NRC estimates that the DEIS will be issued late in 2014 and the SEIS late in 2015. As part of the DEIS, NRC is presently conducting the tribal consultation process in accordance with Section 106 of the National Historic Preservation Act.

A Safety Evaluation Report (SER) will also be issued by the NRC in parallel with the Final SEIS and the Source and By-Product Materials license.

Any injection or pumping operations will require permits from the WDEQ and will comply with the Wyoming Environmental Quality Act. The Wyoming Environmental Quality Act takes precedence over EPA quality standards in Wyoming due to a grant of primacy from the EPA. Primacy indicates the State has primary enforcement responsibility for public water systems in their state. To be granted primacy, the State must meet certain EPA requirements (see EPA 40CFR142, subparagraph B).

BLM owned lands are not present within the Project and thus no BLM Plan of Operations and associated EIS is required. Permit/license amendments will be required for the Bing, Moore and Pine Tree Resource Units.

The various federal and state permits and licenses that are needed for the Project are summarized in Table 4.2. Prior to the start of mining (the injection of lixiviant into the mineralized zone aquifers), AUC will obtain all the following necessary permits, licenses, and approvals required by the NRC and WDEQ. The status of AUC's permitting for the Project is as follows:

**Table 4.2: Status of Permits and Licenses**

Summary of Proposed, Pending, and Approved Permits for the Reno Creek ISR Project		
Regulatory Agency	Permit or License	Status
<b>Federal</b>		
US Nuclear Regulatory Commission (USNRC)	Source Materials License (10 CFR 40)	Application submitted October 5, 2012. Includes license application, an Environmental Report, and a Technical Report. RAIs were received February 2014
U.S. Army Corps of Engineers	Determination of Jurisdictional Wetland	Wetland delineation was completed and forwarded to ACOE in April 2012
US Environmental Protection Agency (USEPA)	Aquifer Exemption (40 CFR 144, 146)	Aquifer reclassification information to be submitted to EPA after preparation by WDEQ-WQD
<b>State</b>		
Wyoming Department of Environmental Quality/Air Quality Division (WDEQ/AQD)	Air Quality Permit	Application approval prior to anticipated start of construction – 3 <sup>rd</sup> quarter 2015
WDEQ/Water Quality Division (WQD)	Groundwater Reclassification (WDEQ Title 35-11)	Aquifer reclassification application to be reviewed and classified by WDEQ-WQD – 2 <sup>nd</sup> quarter 2014
	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 2 <sup>nd</sup> quarter 2014
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 submitted January 2013, first round of comments received from WDEQ in fourth quarter 2013.
	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 – 3 <sup>rd</sup> quarter 2014
	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 2014
	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 - 1 <sup>st</sup> quarter 2015

Drilling for exploration, permitting and mine planning has been conducted at the Project. Additional delineation drilling will be conducted by AUC to better identify and define mineralization in order to finalize wellfield pattern designs. AUC has one Drill Notification permit from WDEQ/LQD for all exploration drilling (DN#401).



Additionally, monitoring wells have been installed and monitoring conducted to provide baseline information in support of permit and license applications and to serve future mining needs. The volume and extent of exploration and other drilling is described in detail in Sections 9 and 10.

#### 4.6 OTHER RELEVANT FACTORS THAT AFFECT ACCESS, TITLE OR ABILITY TO PERFORM WORK

The primary relevant factors that affect access, title or ability to perform work have been addressed above and include land title, land owner relations and access for drilling or development and permitting/licensing.

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

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### 5.1 ACCESS

The Project is located in Campbell County, WY, in the northeast portion of the state. The Project lies 50 miles southwest of Gillette, WY, and 82 miles northeast of Casper, WY. The closest population center is Wright, WY (pop. 1,856) (ref., US Census Bureau, 2012) which is 10 miles west of the project area on Highway 387. The Project area is bisected by Highway 387 and is accessed on the northwest via Clarkelen/Turnercrest Road and on the southeast by Cosner Road. These roads are improved, all-weather, unpaved roads maintained by Campbell County shown in Figure 1.2.

During the construction, operation, restoration and decommissioning phases of the project, immediate access to the proposed project area will be from State Highway 387, from either or both the east and the west. The workforce for each phase will be primarily from Gillette using State Highway 59 then westbound State Highway 387, and from Casper using Interstate Highway 25 then eastbound State Highway 387.

The primary state and U.S. highways are well maintained year round. The county roads within the proposed project area that receive less traffic, generally speaking, are maintained and are in good condition, depending on the season and how recently maintenance occurred. In addition to the designated routes, there are a number of routes that traverse the proposed project area for grazing access and other uses such as oil and gas facility access, CBM and oil and gas exploration and production. The two-track roads in some portions of the proposed project area may require upgrading or maintenance for winter usage.

### 5.2 TOPOGRAPHY, ELEVATION AND VEGETATION

The Project area is within the Northwestern Great Plains eco-region. It is a semiarid rolling plain of shale and sandstone punctuated by occasional buttes. Elevation within the proposed project area ranges from approximately 5,041 to 5,296 feet above mean sea level. Topography within the proposed project area is primarily level to gently rolling, though numerous prominent ephemeral drainages dissect the site, see Figure 5.1. Similar terrain characterizes un-mined lands surrounding the proposed project area.

Vegetation within the Project area is generally described as mixed grass prairie dominated by rhizomatous wheatgrasses, various bunchgrasses, and shrubs. The proposed project area is comprised primarily of sagebrush shrubland 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. Trees within the proposed project area are limited in number and extent.

### 5.3 PROXIMITY TO POPULATION CENTERS AND TRANSPORT

The Project is located in Campbell County, in eastern Wyoming, approximately 10 miles west of the town of Wright. Campbell County population in 2010 was 46,133. The nearest town, Wright has a population of approximately 1,856. The large population center of Gillette is located approximately

50 miles from the Project and has a population of approximately 29,000 as of 2010. Figure 1.2 shows the locations of these population centers with respect to the Project.

The Burlington Northern Santa Fe (BNSF) Railroad runs in a north-south direction approximately 12.5-miles east and 53-miles south of the proposed Project area. There are no rail lines within the proposed Project boundary. It is not anticipated that these railroads will be utilized as a transportation option for any aspect of proposed project operations.

The closest air transportation is via the Gillette-Campbell County Airport (GCC). Five daily flights provide limited service to Denver, CO, Salt Lake City, UT, and Rock Springs, WY. Casper-Natrona County Airport (CPR) provides a comparable number of flights to Denver and Salt Lake City. The primary carriers at both airports are Delta and United Airlines.

## 5.4 CLIMATE

The Project is located in a semi-arid or steppe climate. The region is characterized seasonally by cold harsh winters, hot dry summers, relatively warm moist springs and cool autumns. Though summer nights are normally cool, the daytime temperatures can be quite high. Conversely, there can be rapid changes during the spring, autumn and winter when frequent variations of cold-to-mild or mild-to-cold can occur.

For purposes of the regional analysis, meteorological data were acquired through the Western Regional Climate Center (ref., WRCC, 2011) for 20 COOP and ASOS stations operated by the National Weather Service (NWS). These include Casper Airport (AP), Douglas, Gillette AP, Glenrock, Kaycee, Lance Creek, Midwest, Reno, and others. In addition, Glenrock Coal Mine and Antelope Coal Mine meteorological data have been obtained through the Air Science division of Inter-Mountain Laboratories (ref., IML Air Science) located in Sheridan, Wyoming. For the site-specific analysis, baseline meteorological information for the Project was collected from the Reno Creek meteorological station by IML Air Science. The Reno Creek Project meteorological station is located at N 43° 34' 14.4", W 105° 49' 42.4". Parameters recorded at this station include wind speed, wind direction, ambient temperature, relative humidity, barometric pressure, solar radiation, precipitation and pan evaporation.

The region has annual average maximum temperatures of 58.5°F and average minimum temperatures of 33.6°F. July has the highest maximum temperatures with averages near 90°F while the lowest minimum temperatures are observed in January with averages near 10°F. The average site temperature during the baseline monitoring year was 44.3°F with temperatures experiencing a maximum exceeding 95.9°F and minimum falling below -25.1°F (Table 5.1). Cold weather may limit the time periods for certain portions of capital construction, but should not significantly affect the operation of an ISR facility. ISR operations at the Project will be conducted year-round.

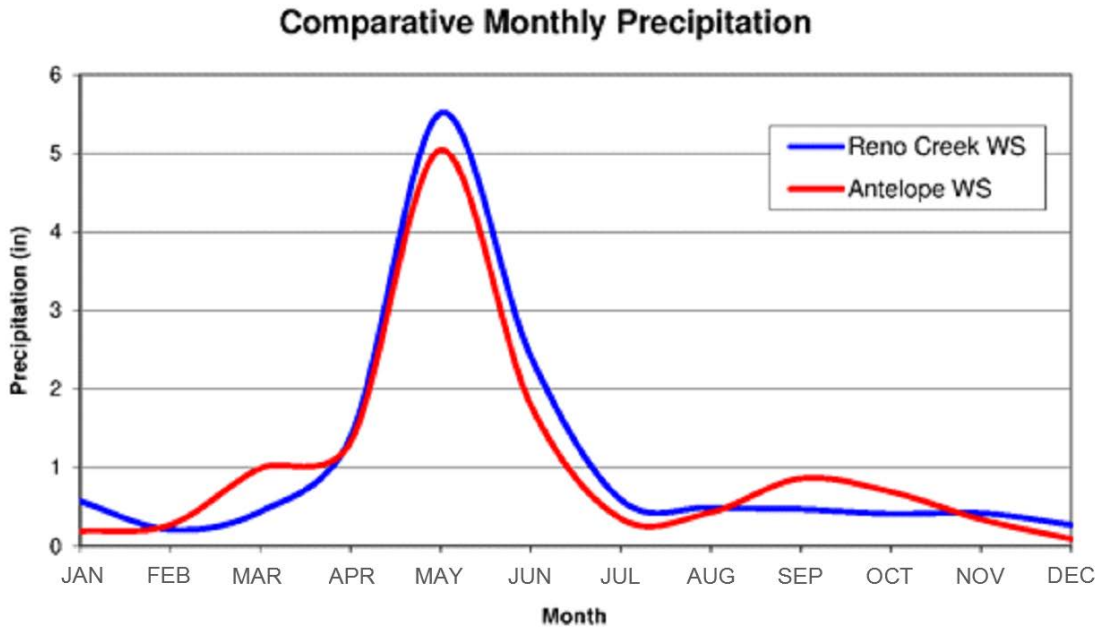
The Project region has an annual average precipitation ranging from 11 to 15 inches shown in Figure 5.1). Precipitation at the Project location during the baseline year totaled 13.4 inches with precipitation peaking in May and June. All other months recorded less than an inch of precipitation. The region is prone to severe thunderstorm and much of the precipitation is attributed to these events. Severe weather does arise throughout the region, but is limited to four to five severe events per year. These severe events are generally split between hail and damaging wind events. Tornadoes can occur but on rare occasions, with less than one tornado per county per year (Martner, 1986). Snow frequents the region throughout winter months (40-50 in/year), but provides much less moisture than rain events.

Windy conditions are fairly common to the area. Nearly five percent of the time hourly wind speed averages exceed 25 mph. The predominant wind directions are west and west/southwest with the wind blowing out of that those directions over 25 percent of the time. Surface wind speeds are relatively high all year-round, with hourly averages from 11 to 15 mph. Higher average wind speeds are encountered during the winter months while summer months experience lower average wind speeds.

**Table 5.1: Project Monthly Temperature Statistics 2010 - 2013**

Month	Average Temperature	Minimum Temperature	Maximum Temperature
	(°F)	(°F)	(°F)
Jan	22.5	-19.9	43.5
Feb	20.1	-25.1	50.0
Mar	34.3	4.2	59.6
Apr	38.5	17.1	72.6
May	45.2	25.3	71.7
Jun	59.5	39.1	89.7
Jul	72.2	50.6	95.9
Aug	71.5	48.8	95.3
Sep	60.7	35.9	86.7
Oct	49.9	26.1	86.4
Nov	30.3	-12.1	71.3
Dec	25.9	-7.6	48.7
Year-Round	44.2	15.2	72.6

Source: AUC, 2012.



Sources: National Climatic Data Center, 2011; IML Air Science meteorological database, 2011  
Period: (varies by monitoring location)

**Figure 5.1: Regional Monthly Average Precipitation**

## 5.5 SURFACE RIGHTS, LOCAL RESOURCES AND PROPERTY INFRASTRUCTURE

As a result of energy development over the past 50 years, the Project area has existing or nearby electrical power, gas, and 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 owner agreements within the proposed mining permit area to enable construction of all operations facilities. The agreements also include AUC's right to appropriate both surface and groundwater for exploration, development and operational uses.

AUC is in process of purchasing the CPP site that is currently equipped with buildings, power, telephone and well water. The site is located within the Reno Creek Resource Unit near the intersection of Wyoming Highway 387 and the Clarkelen County Road, see Figure 4.1

AUC and Uranerz (an adjacent mineral rights holder in North Reno Creek (Figure 7.1) signed a boundary agreement in October, 2012, that allows each party to mine and reclaim up to its mineral ownership boundary without setbacks. The agreement provides for each company to install and operate monitor wells on the other company's property during mining, restoration, and reclamation.

## 6.0 HISTORY

### 6.1 INTRODUCTION

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.

At what is now referred to as 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). A summary of drilling data for all resource units is presented on Table 6.1.

**Table 6.1: Summary of Uranium Drill Hole Data Owned by AUC LLC**

RESOURCE UNIT	TOTAL HOLES DRILLED BY AUC (2010 - 2013)	AUC HOLES USED FOR 2012 RESOURCE ESTIMATE	HISTORIC HOLES USED FOR 2012 RESOURCE ESTIMATE		HISTORIC HOLES ON AUC PROPERTY BUT OUTSIDE OF RUs	HISTORIC HOLES OFF OF AUC PROPERTY WHERE AUC OWNS DATA	ORIGINAL GENERATOR OF HISTORIC URANIUM DRILLING DATA	TOTAL NUMBER OF HOLES IN AUC DATABASE
			ON AUC PROPERTY	HOLES OFF AUC PROPERTY WITHIN 250' OF BOUNDARY				
North Reno Creek	176	40	1,190	223	0	0	RME, EFN, PRI	1,589
Southwest Reno Creek	770	769	802	38	0	0	ANC, TVA, RME	1,610
Moore	98	0	1,738	52	0	0	PMC, RME, CCI	1,888
Bing	0	0	240	0	0	0	CCI	240
Pine Tree	0	0	303	13	0	0	PMC, ANC	316
Other AUC Drilling Data	0	0	0	0	130	4,153	All above plus other miscel. companies	4,283
<b>Total</b>	<b>1,044</b>	<b>809</b>	<b>4,273</b>	<b>326</b>	<b>130</b>	<b>4,153</b>		<b>9,926</b>

**URANIUM COMPANIES THAT GENERATED URANIUM DRILLING DATA PRIOR TO AUC'S ENTRY INTO THE PROJECT AREA :**

RME	Rocky Mountain Energy, Other names for this company varied from Union Pacific Mining to UP Resources
EFN	Energy Fuels Nuclear, later acquired by Denison Mines
PRI	Power Resources, Inc., now Cameco
ANC, TVA	American Nuclear and Tennessee Valley Authority joint ventured at SW Reno Creek
PMC	Pathfinder Mines Corporation (previously Utah International, currently owned by AREVA)
CCI	Cleveland Cliffs Iron Company

**NOTES:**

AUC did not reestimate resources using AUC's new drilling in late 2012 on the Moore RU (98 holes) or any of AUC's 2013 drilling (137 holes) located at Reno Creek. This PFS relies on the drilling & resources stated in the Behre Dolbear Technical Report on Resources dated 30 November 2012. Later drilling is not considered material to this report.

AUC drilled 98 holes on the Moore RU in late 2012 after completion of the 2012 Behre Dolbear Resource Report. AUC's 2013 drilling was conducted on North Reno Creek (136 holes) and South West Reno Creek (1 hole). Drilling consists primarily of rotary holes but may include cased wells and core holes. Many of the monitoring wells are designed to test zones above or below the PZA. In addition, AUC has acquired data for approximately 1,600 coal bed methane (CBM) wells in the region. CBM data is not used for resource estimations, but is highly valuable for regional geological mapping.

## 6.2 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.

## 6.3 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 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 drillhole abandonment regulations, had naturally sealed them.
- 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 an 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 shown in Figure 4.1. Copies of IUC's documents have been acquired by AUC and were reviewed and used to aid current permitting efforts.

## 6.4 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 multi-well pump tests at the Moore Unit that determined favorable hydrology and fully 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.

## 6.5 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.

## 6.6 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 fully saturated conditions are present in the ore zone, and 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  $eU_3O_8$  for use in resource estimates for the Bing Unit.



## 6.7 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 percent 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 percent 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 percent 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 percent, 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 percent, 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.

Behre-Dolbear prepared a National Instrument 43-101 Technical Report dated November 30, 2012, entitled: “Technical Report on Resources of the Reno Creek ISR Project, Campbell County, Wyoming, USA”. This current report is based on the Behre-Dolbear estimated resources. Details on the estimation methodology and results are described in the current report.

## 6.8 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 percent  $U_3O_8$ ) 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 of negative results. 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 ( $\text{Na}_2\text{CO}_3$ )/sodium bicarbonate ( $\text{NaHCO}_3$ ) lixiviant and hydrogen peroxide ( $\text{H}_2\text{O}_2$ ) 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  $\text{U}_3\text{O}_8$  were recovered. In order to demonstrate restoration, leaching was stopped while  $\text{U}_3\text{O}_8$  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). Pilot #2 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.

In addition to the Reno Creek pilot operation, there are several historic and current uranium ISR projects located in the Powder River Basin that are indicative of uranium ISR mining in this area. A brief discussion of other nearby projects is discussed below:

Willow Creek Uranium ISR Project (Formerly Christensen Ranch and Irigaray) -- The Willow Creek commercial ISR mine owned by Uranium One, is located about 25 miles west-northwest of the Project. Willow Creek was brought out of standby in 2011 and is currently producing. The project has production capabilities of up to 2.5 mlbs of  $\text{U}_3\text{O}_8$  per year.

North Rolling Pin -- The North Rolling Pin pilot test project was located approximately 15 miles west of the Project. The Wyoming Department of Environmental Quality, Land Quality Division (WDEQ-LQD) issued license 3RD for the North Rolling Pin site, and the Nuclear Regulatory Commission (NRC) granted a source materials license in late 1979 for the same site. Approval was granted in 1974 (SUA-1199) for research and development activities on North Rolling Pin.

The pilot test for North Rolling Pin was approximately 125 feet deep and was conducted using an oxidized carbonate leach solution. The pilot test was successfully able to recover uranium using the *in situ* recovery method followed by groundwater restoration.

Collins Draw -- The Collins Draw project, located near the North Rolling Pin test project, was conducted at depths of 450 feet (+/- 50 feet) and both ammonium bicarbonate and sodium bicarbonate leach solutions were used individually in adjacent well field pattern areas. Leaching operations at Collins Draw lasted from May 1980 to July 1981. The operators of the Collins Draw pilot test concluded that the technology developed at Collins Draw would be applicable to other mineralized areas in the Powder River Basin.

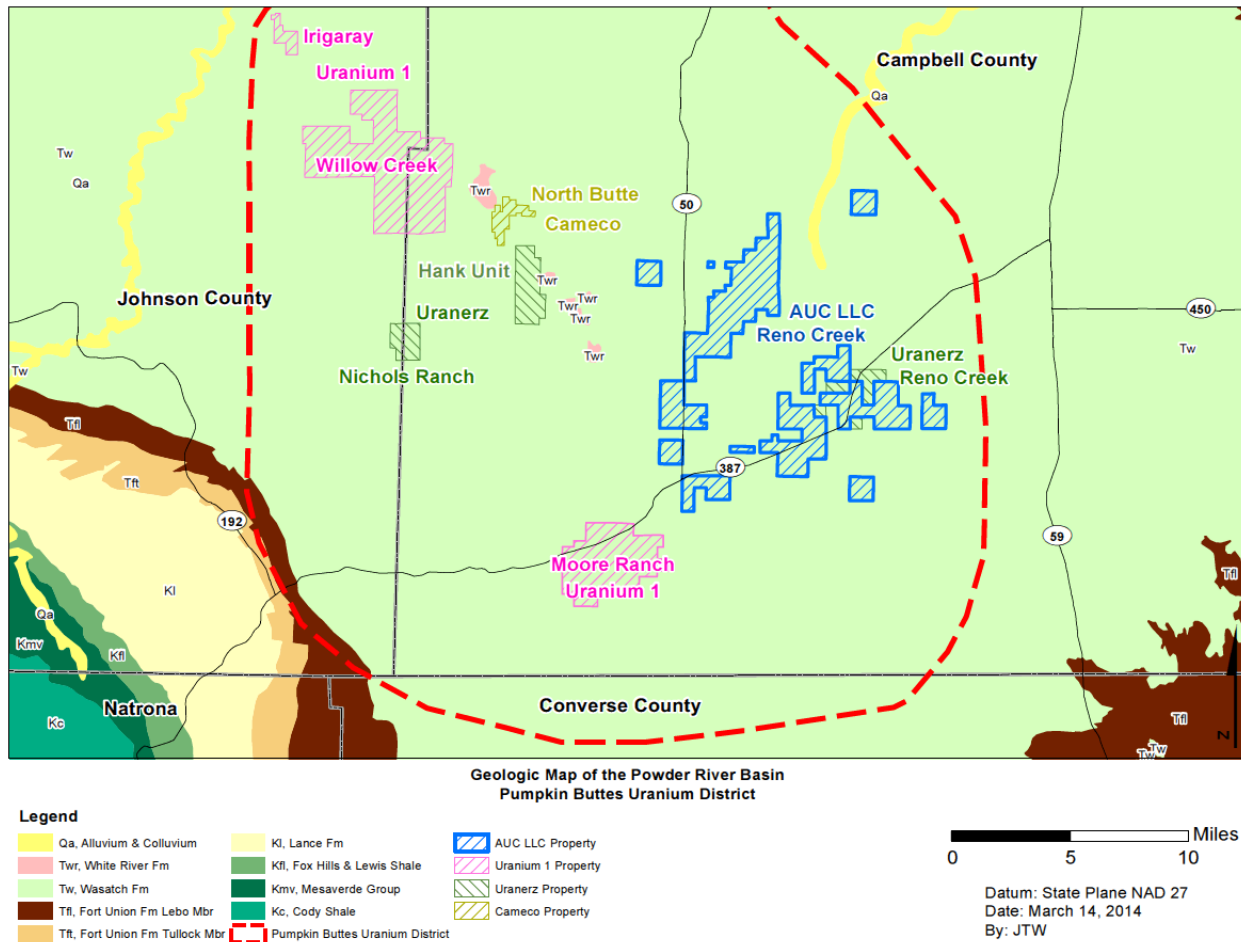
Ruth -- The Ruth pilot plant operated during 1982 through 1984 with 32,000 pounds of  $\text{U}_3\text{O}_8$  being produced using sodium bicarbonate-amended lixiviant. Groundwater was successfully restored at the Ruth project, forming the basis for a commercial ISR license from both NRC and WDEQ. This operation is located in Section 14 of T42N, R77W, approximately 20 miles west of the Project.

Other ISR projects in the Powder River Basin are either in various stages of development or permitting. Cameco's North Butte project began production in 2013. Additionally, Uranerz Energy Corporation, Nichols Ranch Project, is currently commissioning a satellite plant in the Pumpkin Buttes area, and has announced plans for commercial production in Q1 of 2014. The Uranium One Moore Ranch Project has been permitted but construction has not begun.

## 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 in various stages of permitting, design, construction, or operation in the Pumpkin Buttes District are posted on Figure 7.1. Projects currently in ISR production are Cameco's North Butte and Uranium One's Willow Creek and Irigaray CPP. Moore Ranch is fully permitted by Uranium One but not yet in production. Other projects in various stages of permitting include Reno Creek (AUC LLC), and the Hank and Nichols Ranch (Uranerz) projects. Nichols Ranch is currently in commissioning and has announced the expectation of commercial production in Q1 of 2014.



**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.

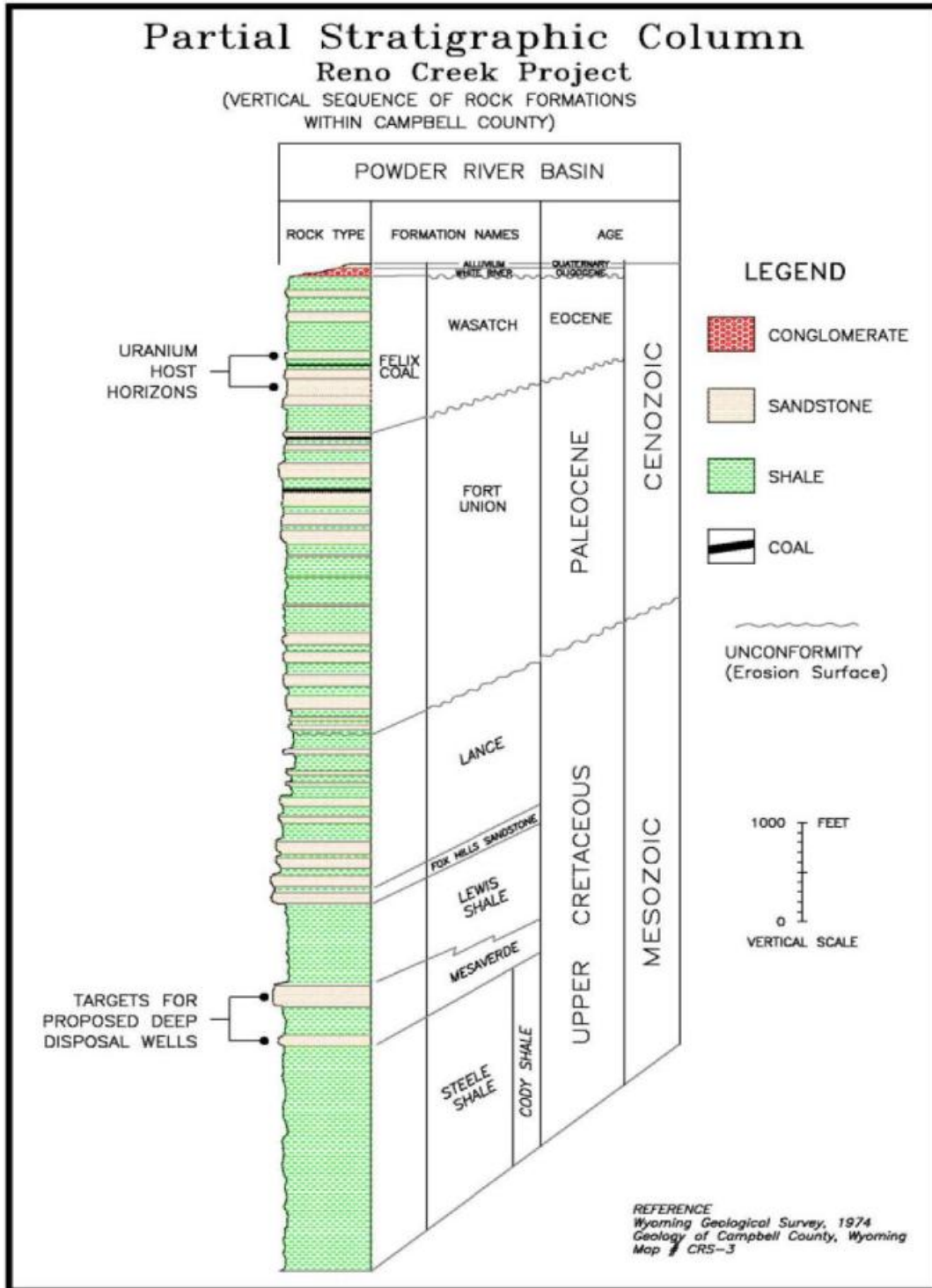


Figure 7.2: Stratigraphic column

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 is present in parts of the Project area 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 stringers, 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 (Morrow, 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

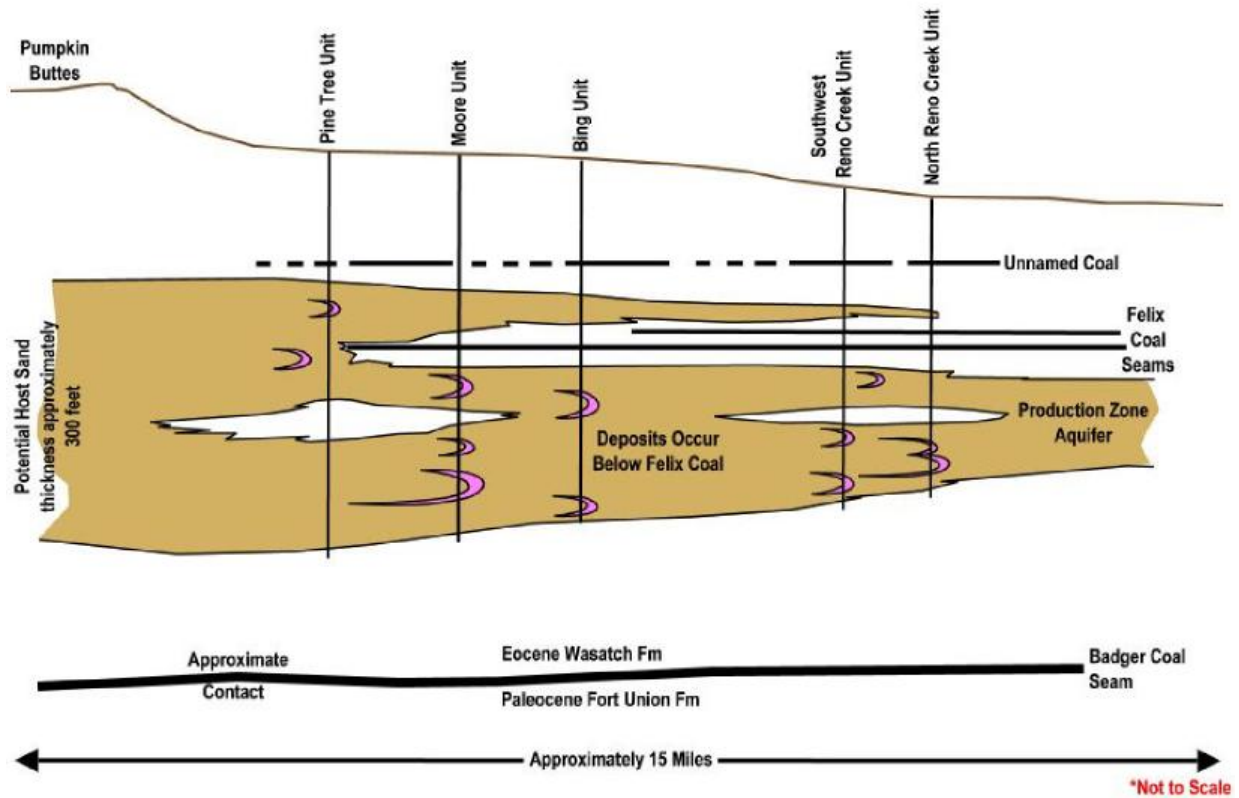


Figure 7.3: Diagram of deposits in relation to coal seams

7.2.1 North Reno Creek and Southwest Reno Creek Geology

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 one percent). 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.

Drill hole data used to evaluate the geology of all resource units are summarized in Section 6.0, History, Table 6.1

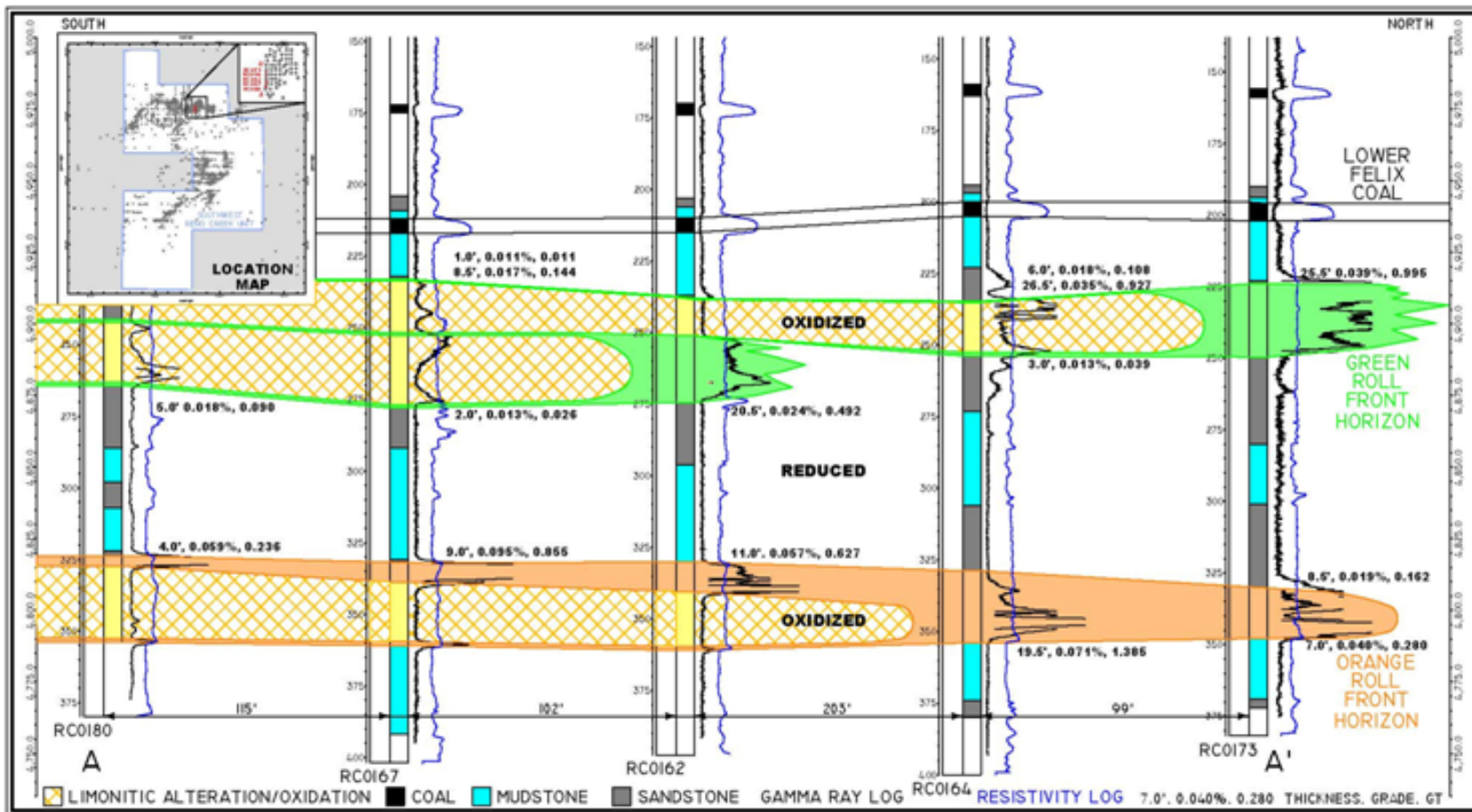


Figure 7.4: Cross Section A-A' Southwest Reno Creek

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.

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

NORTH RENO CREEK: MEASURED (0-50') + INDICATED (50-250') & GT  $\geq$  0.3

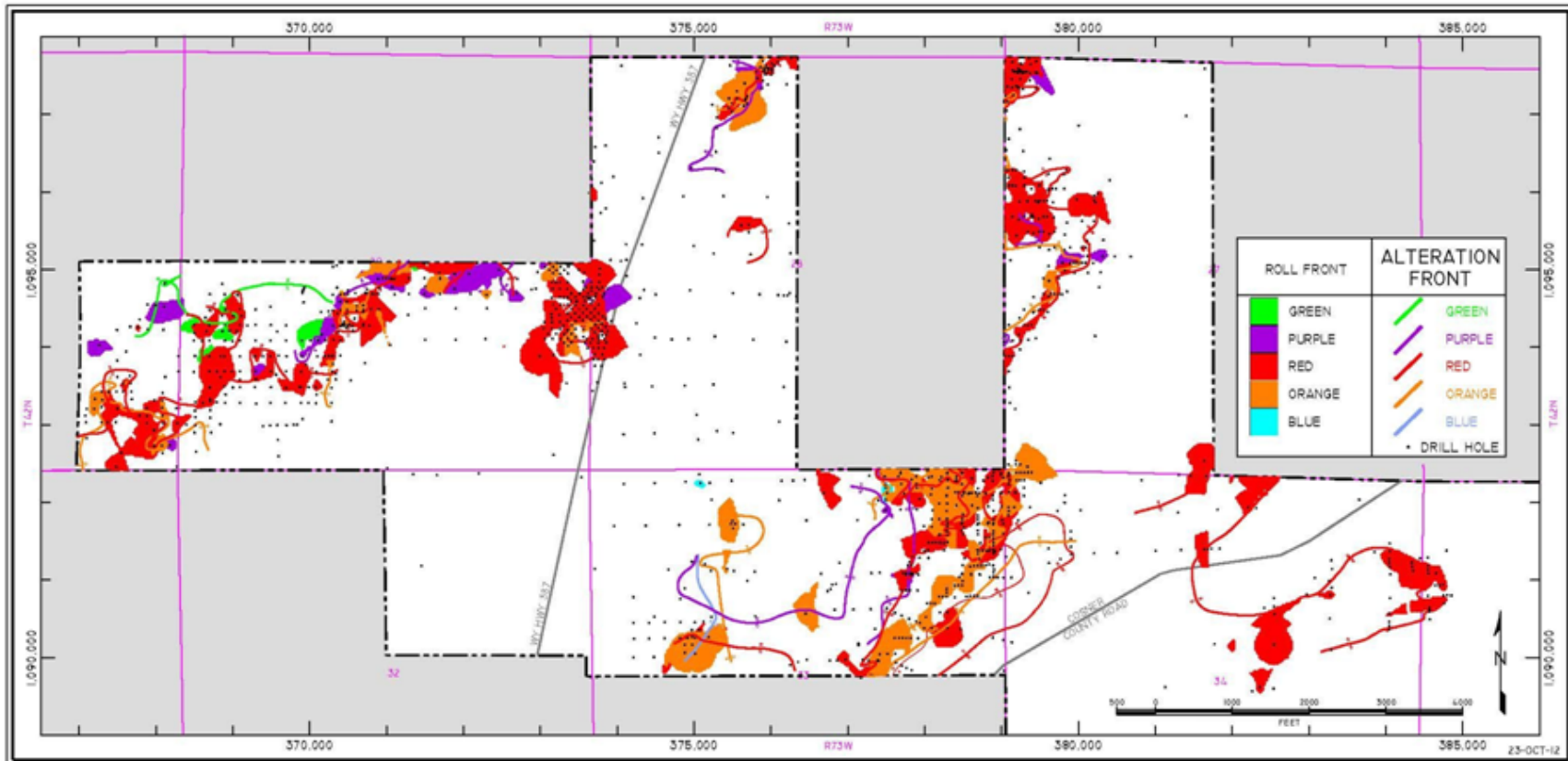
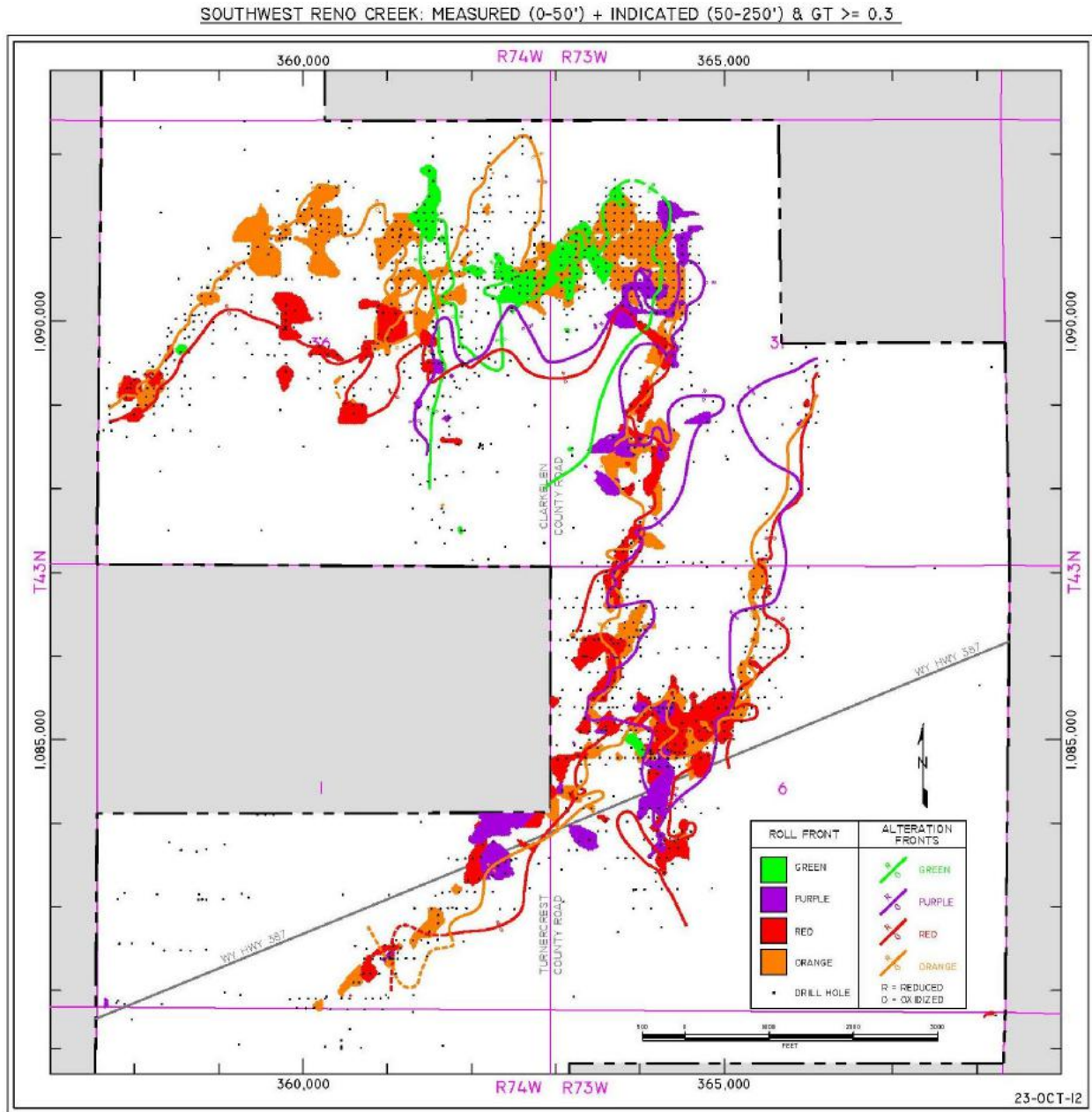


Figure 7.5: Measured and Indicated Resources at North Reno Creek



**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.

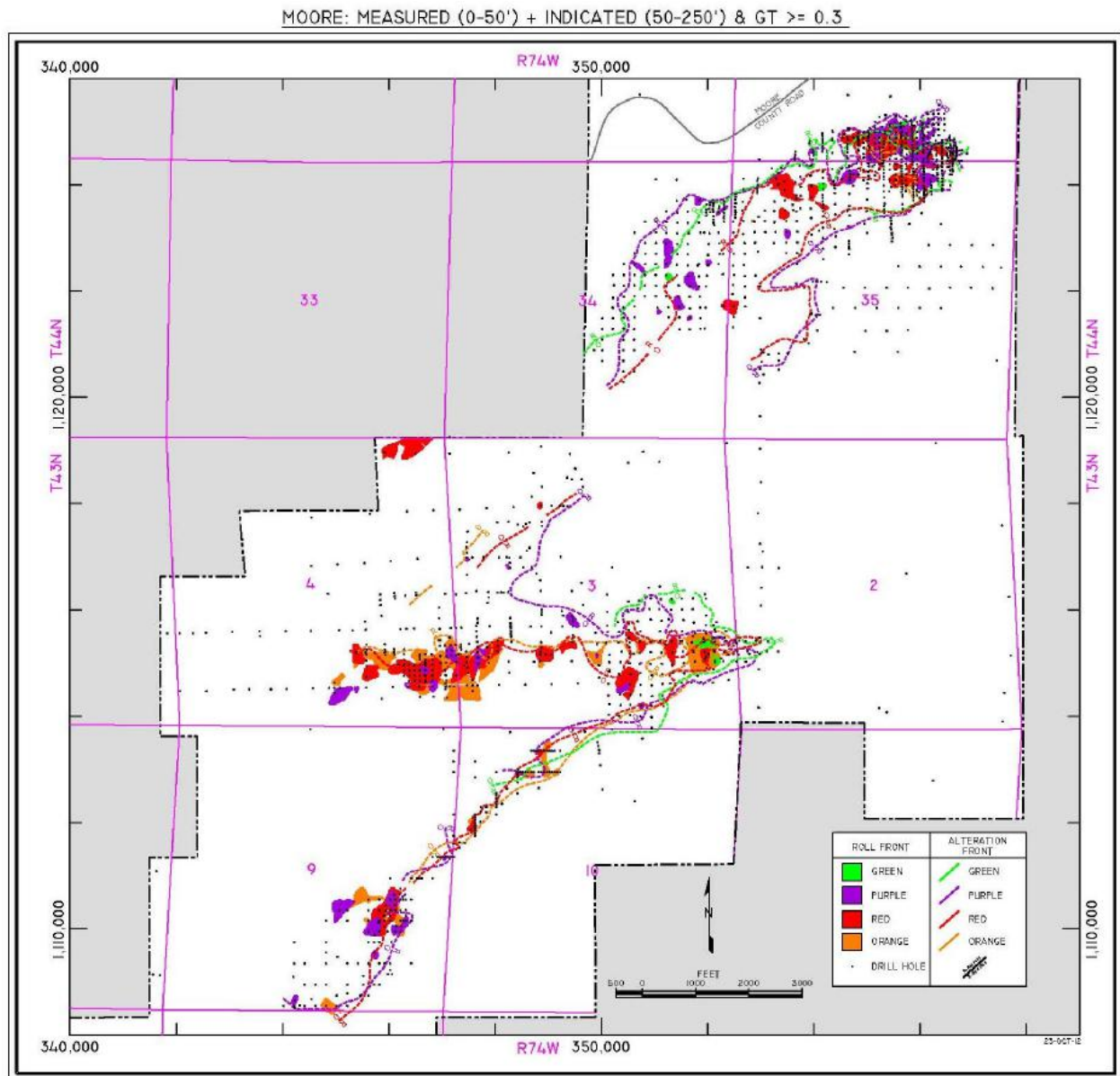


Figure 7.7: Moore Measured and Indicated resources

### **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.

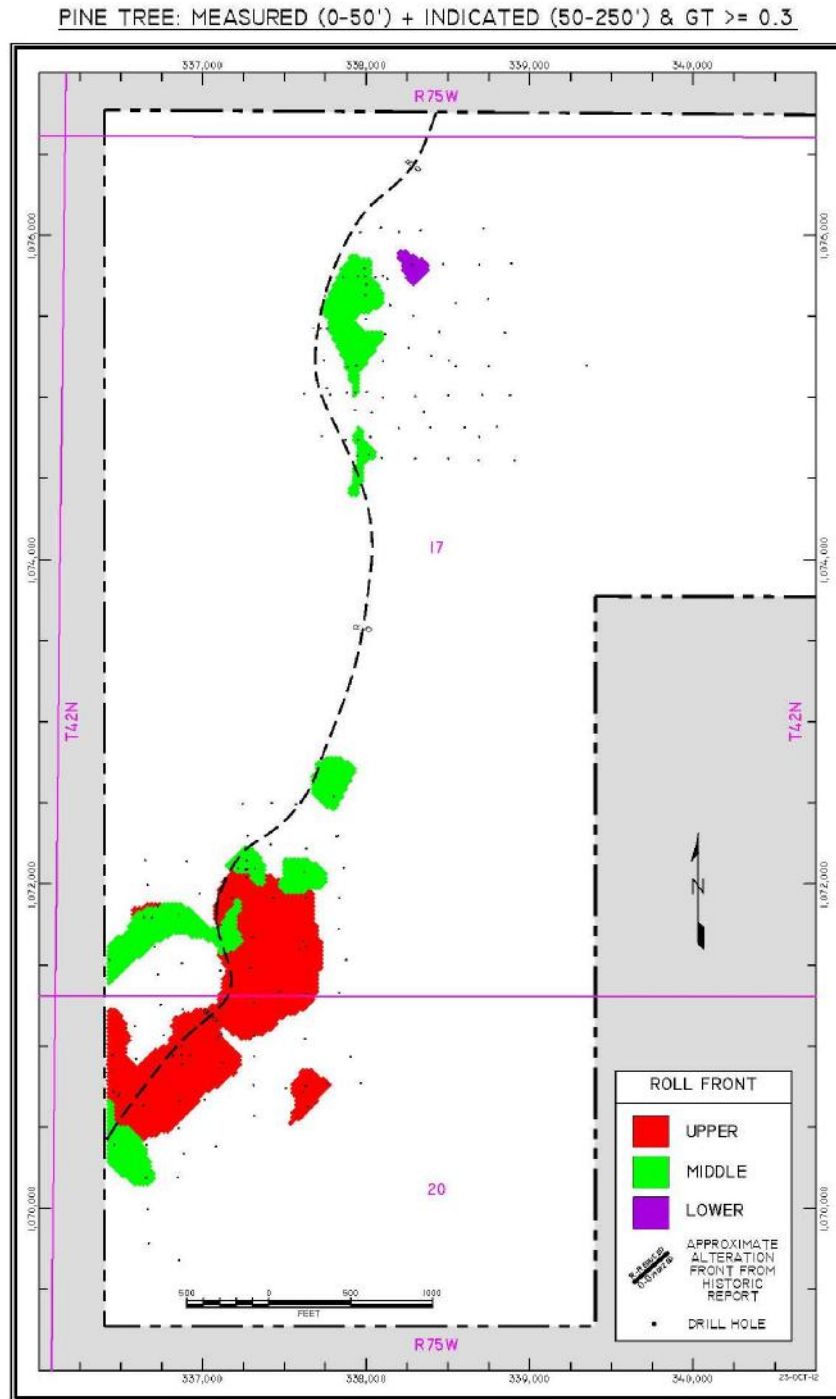


Figure 7.8: Pine Tree Measured and Indicated resources

### 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

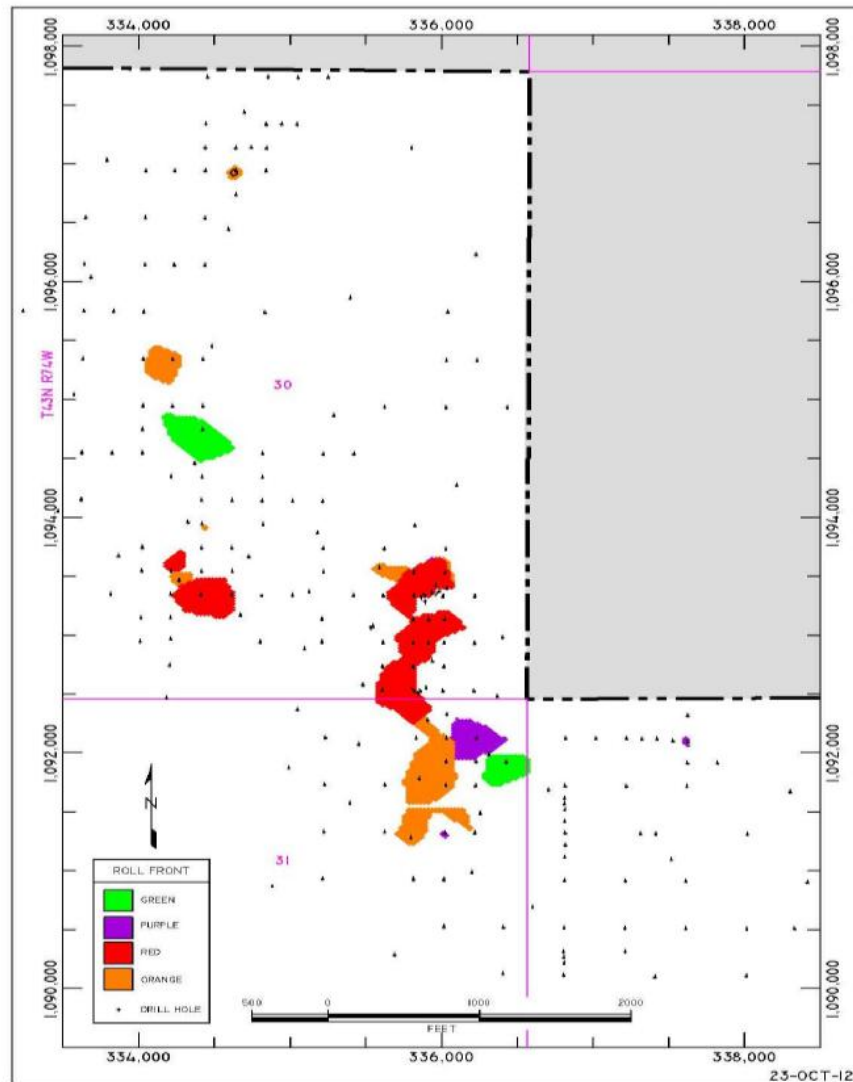


Units. Interbedded finer sediments consist of clays and mudstone units as well as thin coal beds that range from 2 feet to 8 feet in thickness

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  $\geq$  0.3**



**Figure 7.9: Bing Unit Measured and Indicated resources**

### 7.3 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 1044 exploration holes, well pilot holes, stratigraphic test holes, and core holes since August 2010 on the North Reno Creek, Southwest Reno Creek, and Moore Units (Table 6.1). AUC has collected approximately 720 feet of core from 19 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.

Detail regarding lithology, permeability, and porosity can be found in this report in Section 13. 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.

### 7.4 SUMMARY OF HYDROGEOLOGY

The Production Zone Aquifer (PZA) is the sandstone horizon containing uranium mineralization, and is the unit in which leaching solutions will be injected and recovered. The PZA is bounded between overlying and underlying zones of low permeability, typically shales or mudstones, termed aquitards. The PZA is fully saturated at all areas of the Project with the exception of a small area east of Highway 387 in the northeastern portion of the Reno Creek Resource Unit, where partially saturated conditions exist. RME successfully operated its R&D ISR operation in this area.

In addition to the information included in the Technical Report on Resources, the following provides a discussion of the hydrogeology and its relevance to the planned ISR mining approach. Additional detailed hydrogeological information can be obtained from the Reno Creek ISR Project Nuclear Regulatory Commission (NRC) License Application (ref., AUC, 2012)

A Hydrologic Integrity Evaluation was conducted by RME in 1982 which consisted of using drill rigs to re-enter previously drilled exploration boreholes to determine the extent to which these boreholes were sealed. During borehole re-entry investigations, mudstone obstructions were generally encountered at the mudstones above, between, and below the Felix Coal, within the unidentified mudstone present in the middle portion of the PZA, and within a basal mudstone near the bottom of the PZA that separates a relatively less permeable sand within the PZA (identified as the #5 sand by RME).

In the northern block area of investigations (ref., AUC, 2012), the mudstone overlying the Felix coal consistently held up to surface gauge hydrostatic pressures of 120 to 150 psi without bleeding off. Similar results were seen at slightly lower pressure in the mudstone separating the Upper and Lower Felix, and the mudstone below the Felix. The results of the packer testing indicated that the mudstone above the Felix consistently held up to surface gauge pressures of 120 to 150 psi and the mudstones between and below the Felix withstood somewhat lower pressures. Regardless of location, packer testing of the basal PZA mudstone did not usually withstand much pressure and suggested that this mudstone provided minimal confinement between the upper ore sands and lower ore sand #5 (RME nomenclature). RME concluded that the sands of the PZA should be treated as one hydrologic unit.

The significance of the Hydrologic Integrity Evaluation conducted by RME demonstrates that the numerous exploratory boreholes do not provide a conduit to cross flow of groundwater between aquifer units, due to the natural sealing capacity of the swelling clays present in confining units with respect to the production zone sand. Recent pump testing conducted at the Reno Creek Resource Unit by AUC has provided additional confirmation of the hydraulic isolation of the overlying aquifer and underlying unit (which is not considered an aquifer) with respect to the production zone.

Pump testing in the Reno Creek Resource Unit area has been conducted in the past by previous operators between the years 1979 and 1994. These historical testing activities included multiple single-well tests as well as several multi-well observation well tests. These investigations included:

- Five multi-well pump tests in the PZA;
- 16 single-well pump tests in the PZA at ten locations; and
- Three single-well pump tests in the overlying aquifer.

AUC conducted additional characterization of the hydrogeology at the Reno Creek Project by conducting pump tests in each of the sand units at the Reno Creek Resource Unit. AUC completed pump tests include:

- 4 multi-well pump tests in the Production Zone Aquifer;
- Several single-well pump tests in the Production Zone Aquifer;
- 2 single-well pump tests in the Shallow Water Table Unit;
- 4 single-well pump tests in the Overlying Aquifer; and
- 4 single-well pump tests in the Underlying Unit.

Pump test locations conducted on AUC properties are shown on Figure 10.1. The tests on the Moore unit were conducted by RME (Hydro Engineering, 1987). Test locations shown at Southwest and North Reno Creek are AUC's tests; numerous tests were conducted by previous operators at the Reno Creek Units but are not shown on Figure 10.1.

The results of the AUC conducted pump tests are consistent with the results of the historic pump tests, both of which indicate that the production zone sand has good permeability and is amenable to ISR recovery (Petrotek, 2012).

Historic permeability values ranged from 0.9 to 4.1 ft/day and storativity values ranged from  $4.0 \times 10^{-5}$  to  $1.0 \times 10^{-3}$ . No responses were observed in the overlying aquifer during any hydraulic testing activities.

AUC calculated hydraulic conductivities range between 0.3 ft/day and 13 ft/day and storativity values ranged from  $1.0 \times 10^{-5}$  to  $5.0 \times 10^{-3}$ . No responses were observed in the overlying aquifer during any hydraulic testing activities.

At the Moore Resource Unit, RME installed two clusters of wells and conducted multi-well pump tests in the 1980s that determined favorable hydrology and fully saturated ground water conditions exist (Hydro Engineering for Union Pacific Resources, 1987). The report also states that one of the pump test recovery wells produced at a flow rate of 40 gpm during the two day test.

Review of Cleveland Cliff's pump test data for a single well test at the Bing Unit indicates that fully saturated conditions are present in the ore zone, and pumping rates of over 20 gallons per minute (gpm) were achieved.

These recovery well flow rates at the Moore and Bing Resource Units are consistent with recovery well flow rates observed across the entire project area. The historic and AUC conducted pumps test showed recovery flow rates ranging from 5 gpm to 45 gpm.

Based on hydrologic testing conducted by AUC at the Reno Creek Resource Unit, the following presents a general summary of results that impact the proposed ISR operations (ref., AUC, 2012).

The PZA is a discrete and continuous aquifer and is geologically confined across the entire project area;

The PZA is fully saturated in the western portion of the Reno Creek Resource Unit and transitions to partially saturated conditions in the eastern third of the Resource Unit;

Hydrologic testing completed at four separate locations across the Reno Creek Resource Unit provides substantial characterization of the PZA;

Calculated transmissivities were found to vary across the site, between 20 ft<sup>2</sup>/day to 1,428 ft<sup>2</sup>/day; calculated hydraulic conductivities range between 0.3 ft/day and 13 ft/day;

No drawdown responses were observed during any pump testing in the overlying aquifer and underlying unit, indicating that there is adequate confinement of the PZA for the purposes of ISR operations;

Based on the results of testing, no hydrologic boundaries were detected in the PZA;

Transmissivities were evaluated at multiple locations in the water table SM unit, overlying aquifer, and underlying unit. In general, these units have significantly lower transmissivities in relation to the PZA. These units are discontinuous across the Reno Creek Resource Unit;

Based on the lack of sustainable well yields and extremely low values of transmissivity evaluated in the two pump tests conducted in the perched water table SM unit and the four tests conducted in the underlying unit, these intervals do not meet the definition of an aquifer;

As discussed in the License Application Technical Report, AUC anticipates monitoring the wells completed in the SM unit and underlying unit for a limited time. No additional wells will be installed in these units in the future, unless they meet the definition of an aquifer; and

AUC also completed a Groundwater Model Report based on the pump test characterization of the PZA. AUC used the results of the historic and AUC conducted pump tests and the AUC groundwater model to develop the conceptual PU design and build out plan upon which the PFS economic model is based. The conceptual design includes production well spacings, recovery well flow rates as well as monitor well locations and spacings. The average recovery well flow rate of 20 gpm was calculated to be representative across the project, however as noted from the pump test data recovery well flow rates can range from 5 to 45 gpm depending on hydrologic conditions. Well spacing for pattern designs also will vary with geologic and hydrologic conditions.

## 8.0 DEPOSIT TYPES

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### 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 greywacke sand facies in the lower portion of the Eocene Wasatch Formation. The sandstone host rock is composed of poorly sorted, angular grains of quartz, feldspar and rock fragments ranging in size from 0.063 to 2.0 millimeters. Found between these grains is a finer-grained matrix or interstitial material consisting of silt, clay and some organic material. When mineralized, very fine-grained particles of uranium minerals occur scattered throughout the interstitial matrix. As described in Section 13, the permeability in the mineralized sandstone generally is above 1 Darcy (1000 md) across the project area. The uranium mineralization occurs 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 depicts 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 percent) than the

altered sands (0.13 percent) 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 percent.

Location and distribution of measured and indicated resources for the RU in the Project were shown previously in Figure 7.5, Figure 7.6, Figure 7.7, Figure 7.8, and Figure 7.9.

Upon reviewing the Deposit Types interpretation for the Project, the authors feel that the conclusions are adequate for a PFS level assessment.

## 9.0 EXPLORATION

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The Exploration program and model established for the Reno Creek ISR Project spans several decades of data collection and analysis since the early 1960's through to the present. The Project is located in the Pumpkin Buttes area of the Powder River Basin, in Campbell County, Wyoming. A geologic map showing the project area appears in Figure 7.1. The deposits are typical roll-front uranium occurrences in fluvial arkosic sandstone beds of the Eocene Wasatch Formation, sandwiched between aquacludes in the shaly portions of the Wasatch Formation. The sandstone unit ranges between 75 to 220 feet in thickness.

The lower aquitard is reported to be between 150 to 250 feet thick and is comprised of silty to clayey mudstones and contains discontinuous lenticular sandstone bodies. The overlying aquitard is comprised of a sequence of slit and clay rich mudstones, thin coal seams, and discontinuous sandstone bodies. The upper aquitard typically is around 225 feet thick, although in some areas where stream valleys exist can be much thinner.

Uranium was first discovered by the USGS in 1951 in the Pumpkin Buttes area and production in this portion of the Powder River Basin dates back to 1953. Numerous other deposits have been identified along a 60-mile northwest-southeast trend in the region (Davis, J. F., 1969).

Uranium exploration companies have drilled in excess of 10,000 drill holes on or adjacent to the Reno Creek Project including 1,044 holes drilled by AUC (Table 6.1). Notably, AUC's holdings encompass approximately 21,240 acres of claims and mineral leases contained within the four RUs) as previously shown in Figure 4.1. One of the areas (Reno Creek) is subdivided into two contiguous sub-units, North Reno Creek and Southwest Reno Creek. Another RU, Pine Tree, does not have sufficient hydrologic data available to confirm that resources are fully saturated. Therefore, Pine Tree resources were not included in reserve estimations.

In the area of Reno Creek, extensive exploration has been conducted since the late 1960's. Notably Union Pacific subsidiaries (Union Pacific Resources and Rocky Mountain Energy) were involved up until 1991. Energy Nuclear Fuels (later IUC) and Power Resources acquired the properties in the 1990s and added an additional 300 to 400 holes to the historical database up through the 2000's period. The Southwest Reno Creek sub-area was also explored by ANC and TVA where 695 holes were drilled on properties adjacent to RME's holdings. The Behre Dolbear report (2012) asserts that all historical drilling and testing were conducted in accordance with standard and acceptable exploration practices of the time.

Between August 2010 and the present, AUC drilled 1,044 holes at the Reno Creek Project. In this mix, 19 core holes and 47 cased holes were selected to remain in place for an extended groundwater monitoring program. Twin holes (step-out holes) located 100 feet from historical holes were utilized to confirm intercepts in the historical data. Continuity of mineralization was also confirmed on a large scale by AUC drilling that proved connection of two mineralized areas over a mile apart in Southwest Reno Creek.

As part of the evaluation of the Project, data from approximately 60 historical and AUC core holes were utilized to provide disequilibrium data to help define the uranium content of the deposits. Discussions on disequilibrium can be found in ensuing sections.

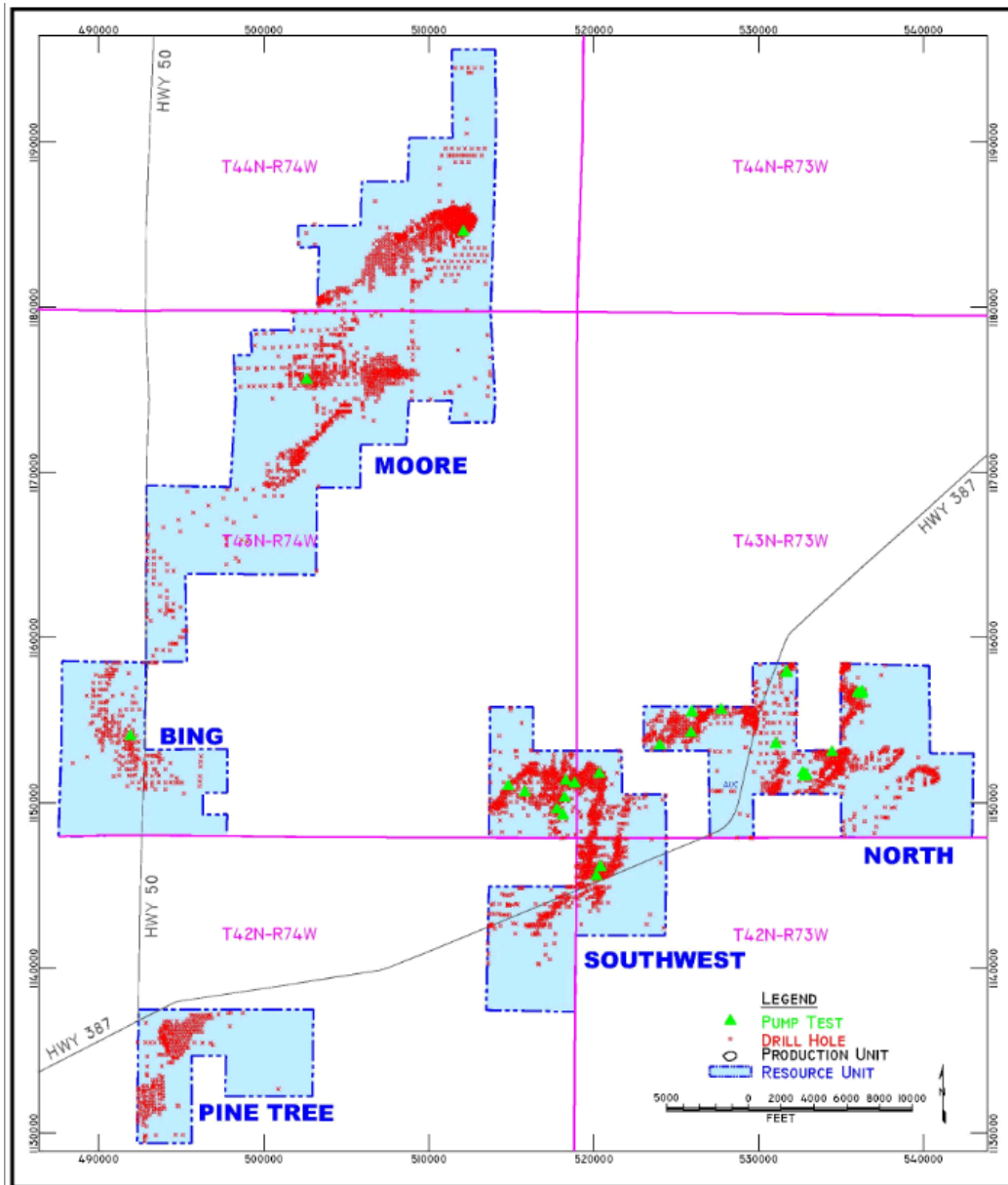


Tetra Tech, upon review of the steps and data utilized in the exploration strategy for the Project agrees with the information provided in the relevant sections of the Technical Report on Resources as it satisfies standard industry requirements and is adequately comprehensive.

## 10.0 DRILLING

### 10.1 TYPE AND EXTENT OF DRILLING

Figure 10.1 shows the location of all pertinent borehole and well locations within or near the 5 major deposits (Moore, Bing, Pine Tree, North Reno Creek, and Southwest Reno Creek).



**Figure 10.1: Pertinent boreholes and pump-test well location in the five Resource Units**

To date, more than 10,000 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 1,044 rotary holes, core holes, and monitoring wells was conducted during the past 3 years by AUC within the Moore, North Reno Creek and Southwest Reno Creek Units (Table 6.1). Results of AUC's drilling indicate general agreement with historical data. To date 809 AUC holes were used in the resource estimate calculations.

### **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 809 holes in North and Southwest Reno Creek from August 2010 through July 2012, including 16 core holes and 47 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 for use 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 4¼-inch to 5½-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 (Figure 10.2). 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 10.2: Drilling rig and logging truck from completed location on Southwest Reno Creek Unit**

### **10.1.2 Moore Unit Drilling**

AUC drilled 98 holes at the Moore RU in 2012. Historical 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 approximately 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 percent 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 percent cutoff grade, were used for the resource estimation.

## 11.0 SAMPLE PREPARATION, ANALYSIS AND SECURITY

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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

In the Behre Dolbear (BDB, Nov 30, 2012) report, as well as with discussions with AUC, LLC personnel, it was stated that geophysical logging was performed on drill holes drilled by AUC and its predecessors to help define the uranium resource on the property. To that end specific logs were selected for defining the resource including gamma-ray (GR), single point resistance (R), spontaneous potential (SP), and Neutron Density (ND) as well as utilizing spatial information such as hole deviation/location information.

Geophysical logging was 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  $eU_3O_8$ . 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. These test pits are located in either Grand Junction, Colorado or Casper, Wyoming. In addition, and as an on-site QA/QC measure, AUC requires that the contract logger reprobe a cased well (UM1, near the former RME Pilot Plant) to verify that grades, thicknesses, and depths of intercepts remain constant. This check is done approximately twice per month during drilling campaigns.

K-factor corrections involve applying a proportional factor of weight percent  $U_3O_8$ /gamma-ray response unit. It assumes that the proportion of other gamma-ray emitters present in the material (such as potassium-40, and daughter products of Uranium and Thorium) are somewhat constant. For this project, the host sandstone is described as being arkosic. As such it could contain varying amounts of feldspar that would affect the direct determination of  $U_3O_8$ . Further uranium is usually more mobile than its daughter products. So as uranium is introduced or lost to the local system, the relationship between uranium and its daughters changes which results in a disequilibrium. Once the uranium is fixed in the host rock, it takes about one million years for the daughter/uranium equilibrium to be reestablished. Due to uncertainties in this calculation, select core holes were utilized to measure raw GR at specific intervals, equilibrated  $U_3O_8$  (closed can) EPA method E901.1 and through chemical assays utilizing EPA SW6020 (ICP-MS) protocols. Results of the laboratory analysis in the Behre Dolbear, 2012 report as well as additional data provided by AUC, LLC indicate that the closed-can to assay values (c/e) are typically greater than 1.

### 11.2 CORE DRILLING

AUC has collected 525 feet of core from 16 core holes during the past 3 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. All 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
- Intermountain Laboratories, Sheridan, 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
- Colorado School of Mines, QEMSCAN Facility, electron microscopy to determine uranium mineralogy and host rock petrography.
- Tetra Tech has reviewed the BDB, 2012 NI-43101 report and finds that the methodologies and QA/QC procedures employed by AUC, and the QA/QC procedures used by the independent analytical laboratories contracted by AUC are compliant with 43-101 standards.

## 12.0 DATA VERIFICATION

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### 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 Section 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 authors performed the following steps to verify data in the North Reno Creek Unit.

1. **Historical drillhole 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 drillhole 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. **Drillhole 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 and reserve estimations to be properly prepared and sufficiently accurate for the preparation of a reserve 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 reserve.

### **12.1.1 Data Adequacy**

The authors consider the two-dimensional (2-D) database to be of reasonable quality and adequate for the reserve 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

Core sampling was conducted for a variety of purposes including determination of physical and geochemical properties, and to investigate metallurgical amenability to ISR methods. This section discusses the content of uranium contained in the host sandstone followed by discussions of other analytical work in Section 13.0.

### **12.2.1 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 percent radiometrically  $eU_3O_8$  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 (chemical) 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 percent  $eU_3O_8$  (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 than 1.0). 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 percent eU<sub>3</sub>O<sub>8</sub>, which was Utah's cutoff grade at the time. No equilibrium data are available for the Bing deposit.

On July 27, 2012, to verify continuity and quality of mineralization, the Bob Maxwell, Behre Dolbear QP, 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<sub>3</sub>O<sub>8</sub> radionuclides as well as EPA Method SW6020 for U<sub>3</sub>O<sub>8</sub>, V, Se, Mo, and As. The results for U<sub>3</sub>O<sub>8</sub> 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 U<sub>3</sub>O<sub>8</sub>**

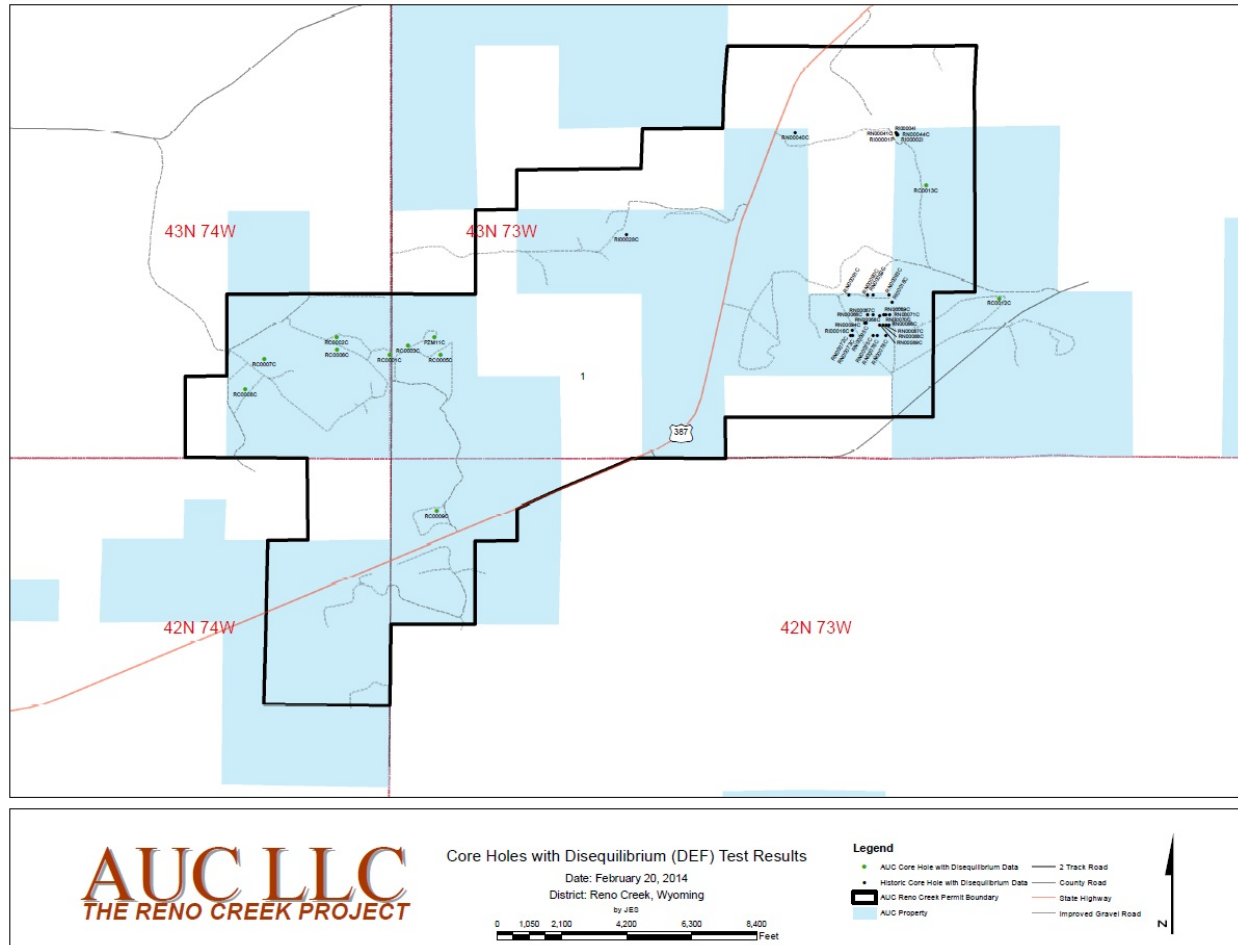
Sample ID	Core Hole	Depth (feet)	cU <sub>3</sub> O <sub>8</sub> % <sup>1,2</sup> (assay)	eU <sub>3</sub> O <sub>8</sub> % <sup>1,3</sup> (closed can)	c/e ratio
P 014162	RC0007C	380-380.5	0.173	0.135	1.28
P 014163	RC0009C	294-295	0.067	0.044	1.53
P 014164	RC0009C	296-297	0.061	0.039	1.57
P 014165	PZM11C	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 ( $c/e = \text{greater than } 1$ ) in the portions of the deposit sampled. This implies that the gamma-ray values consistently understate the  $U_3O_8$  content of the ore body in the Project. In that estimated quantities of  $U_3O_8$  are based on gamma-ray logs, the estimations err on the side of being conservative. A map of core hole locations used for disequilibrium determinations is included as Figure 12.1.



**Figure 12.1: AUC core holes with disequilibrium data**

Figure 12.2 and Figure 12.3 show the relationship between the chemical assay and the “closed-can” measurements for historical and the recent (AUC) bore holes, respectively, where equilibrium concerns are addressed.

As shown, both historical and recent bore hole assays show that the relationship between radiometric  $U_3O_8$  and assayed  $U_3O_8$  data results in a value or about 1.4 which conservatively underestimates the actual uranium content in the cores.

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 ( $c/e = \text{greater than } 1$ ) 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 12.2.

**Table 12.2: Equilibrium Study Results**

Sample ID	Core Hole	Depth (feet)	$cU_3O_8\%$ (assay)	$eU_3O_8\%$ (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.

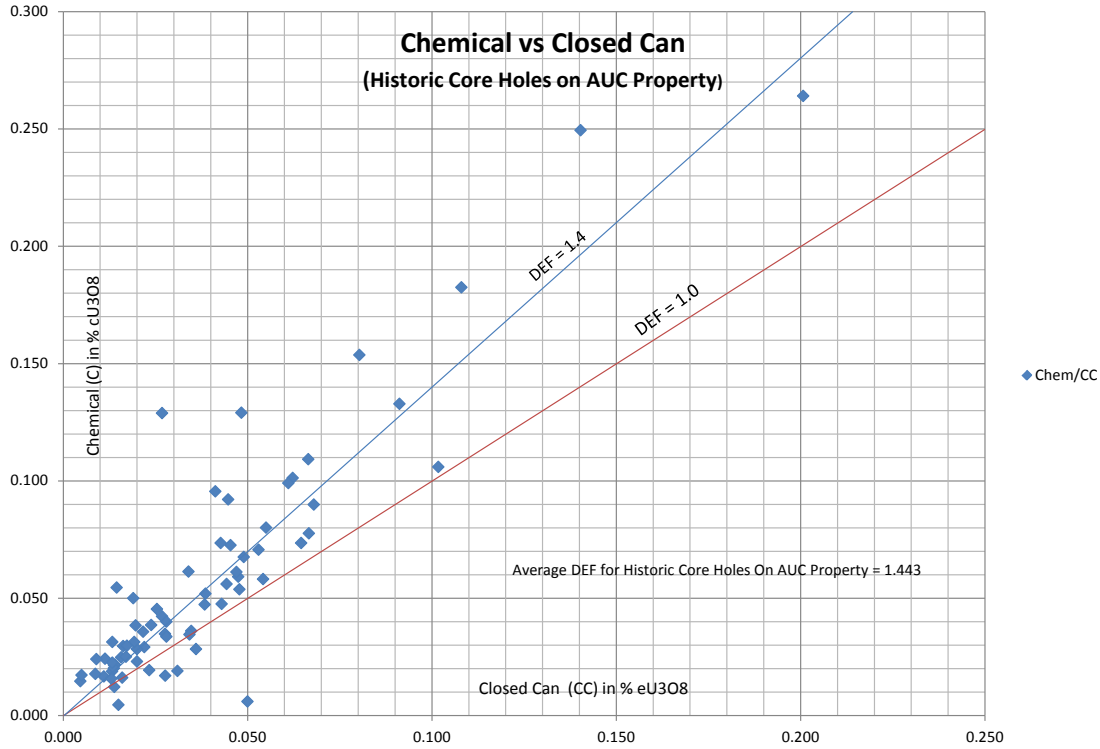


Figure 12.2: Closed Can to Assay U<sub>3</sub>O<sub>8</sub> estimations for Historical Cores

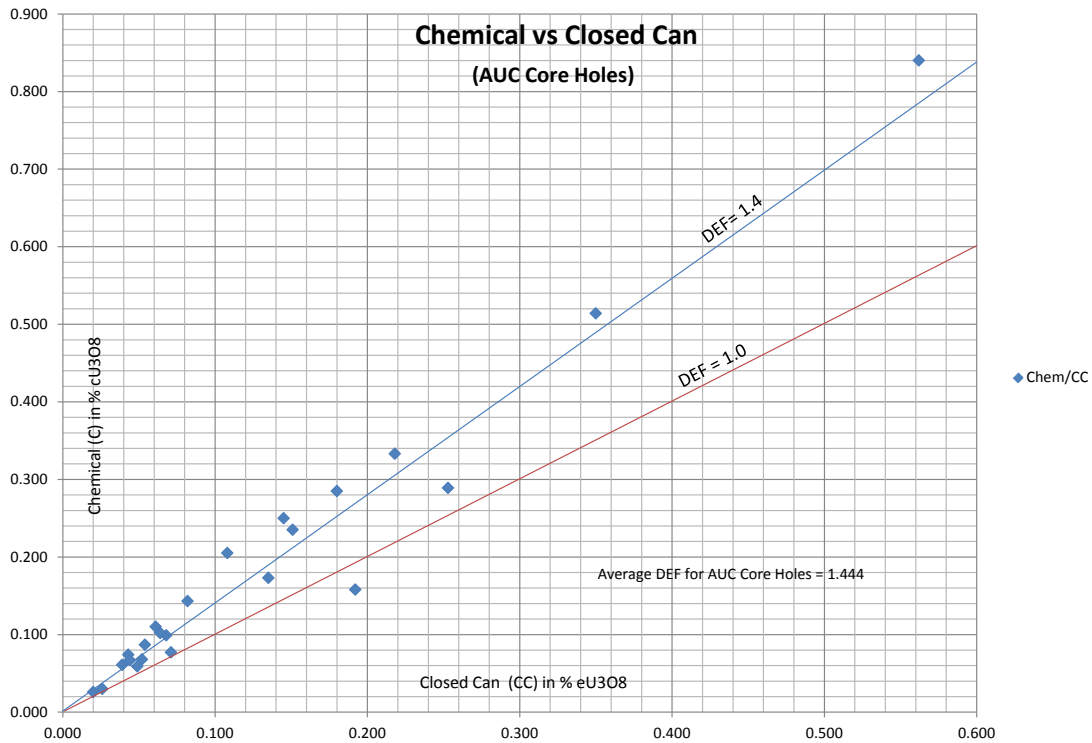


Figure 12.3: Closed Can to Assay U<sub>3</sub>O<sub>8</sub> estimations for AUC Cores

It is the authors' opinion the results are adequate for the purpose used in this PFS technical report.

## 13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

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Development of the Project will be by conventional ISR processes to recover uranium from the host sandstone formations at the Project site to produce uranium as a  $U_3O_8$  yellowcake product. Several factors are involved in estimating the recovery of uranium from such sandstone units, including porosity and permeability (P&P), hydraulic behavior of the production aquifer, and the *in situ* extraction chemistry. These were confirmed by P&P tests and metallurgical test programs (bottle roll and column leach tests) conducted on representative samples from core drilling. Locations of these samples are shown in Figure 13.1. In addition hydrologic pump testing was conducted using multiple wells located throughout the project area. Based on the results of these programs and similar ISR operations, an overall recovery of 74.25 percent (75.0 percent from the wellfield and 99 percent from the CPP) was estimated to be reasonable for the Project at a PFS level study. The testing and evaluation of the data are contained below.

### 13.1 MINERAL PROCESSING

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 through a series of injection and recovery wells to bring the uranium to the surface for further processing. AUC collected core samples from locations within the North Reno Creek and Southwest Reno Creek Units to test the application of the ISR method and provide data regarding the amenability of uranium to leaching and insights regarding the geochemistry and hydrologic properties of the sandstone host. Behre Dolbear (30 November 2012) 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 concluded that they provided results that are compliant with 43-101 standards.

The following tests and analyses were performed on the core samples to evaluate this method.

- Vertical and horizontal permeability and porosity analyses by various methods in major lithologic units including aquitards (claystones, mudstones, siltstones), unmineralized sandstones, and mineralized sandstones). AUC conducted approximately 40 P&P tests averaging over one Darcy (horizontal permeability) in the PZA sandstone. This is very similar to extensive testing done previously by RME;
- Effective porosity. AUC conducted approximately 40 P&P tests all averaging approximately 30 percent porosity in the PZA sandstone;
- Bulk density. AUC conducted approximately 30 density tests. Based on AUC results and historical and regional numbers for the district, AUC used 17.0 cubic feet per ton for resource estimates;
- 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 various types and strengths of oxidants and bicarbonate strengths; and
- Testing provides data regarding amenability of uranium leaching and insights regarding geochemistry at the project.

The proposed mineral processing for the Project will utilize the same unit processes that are currently being used or proposed at other ISR operations in Nebraska and Wyoming. ISR is a process where uranium is extracted from underground ore bodies by injecting solutions to dissolve the uranium and the uranium-bearing solution is pumped to the surface for recovery of the contained uranium. The unit processes for ISR are typically the following:

- Wellfields for injection of the lixiviant solution and recovery of the uranium which is pumped to the surface by recovery wells and to the Central Processing Plant (CPP);
- Processes in a CPP contain the following:
  - IX Circuit for recovery of the dissolved uranium onto ion exchange resins from the solution;
  - Elution Circuit for removal of the uranium from the ion exchange resins into a rich eluate;
  - Yellowcake Circuit for precipitation of the uranium as yellowcake from the rich eluate; and
  - Yellowcake Dewatering, Drying and Packaging Circuit for filtering, drying, and packaging the yellowcake for shipment.

Section 16 and Section 17 of the report describe the proposed ISR operations for the Project in full detail.

### **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 Permeability and Porosity (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	Method	Result	
Production Zone Aquifer	Air P&P	Average Porosity = 30.3%	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 an 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 percent; however, the effective porosity measurement of this sample was 23.7 percent.

Effective porosity excludes porosity related to bound water in clays resulting in a lower number (Table 13.2).

**Table 13.2: Nuclear 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.

Section 7.3 describes in detail the hydraulic characteristics of the ore body sandstone, and concludes that the ore body in all areas that are potentially considered reserves are amenable to the recovery of uranium using the ISR method.

## 13.2 METALLURGICAL TESTING

Taking into account the historical laboratory testing and the results of the Rocky Mountain Energy Pilot Plant at Reno Creek, AUC conducted two types of metallurgical or leach amenability testing to verify the amenability of the Project's reserves to ISR for the recovery of uranium as  $U_3O_8$ :

- Bottle roll; and
- Column leach.

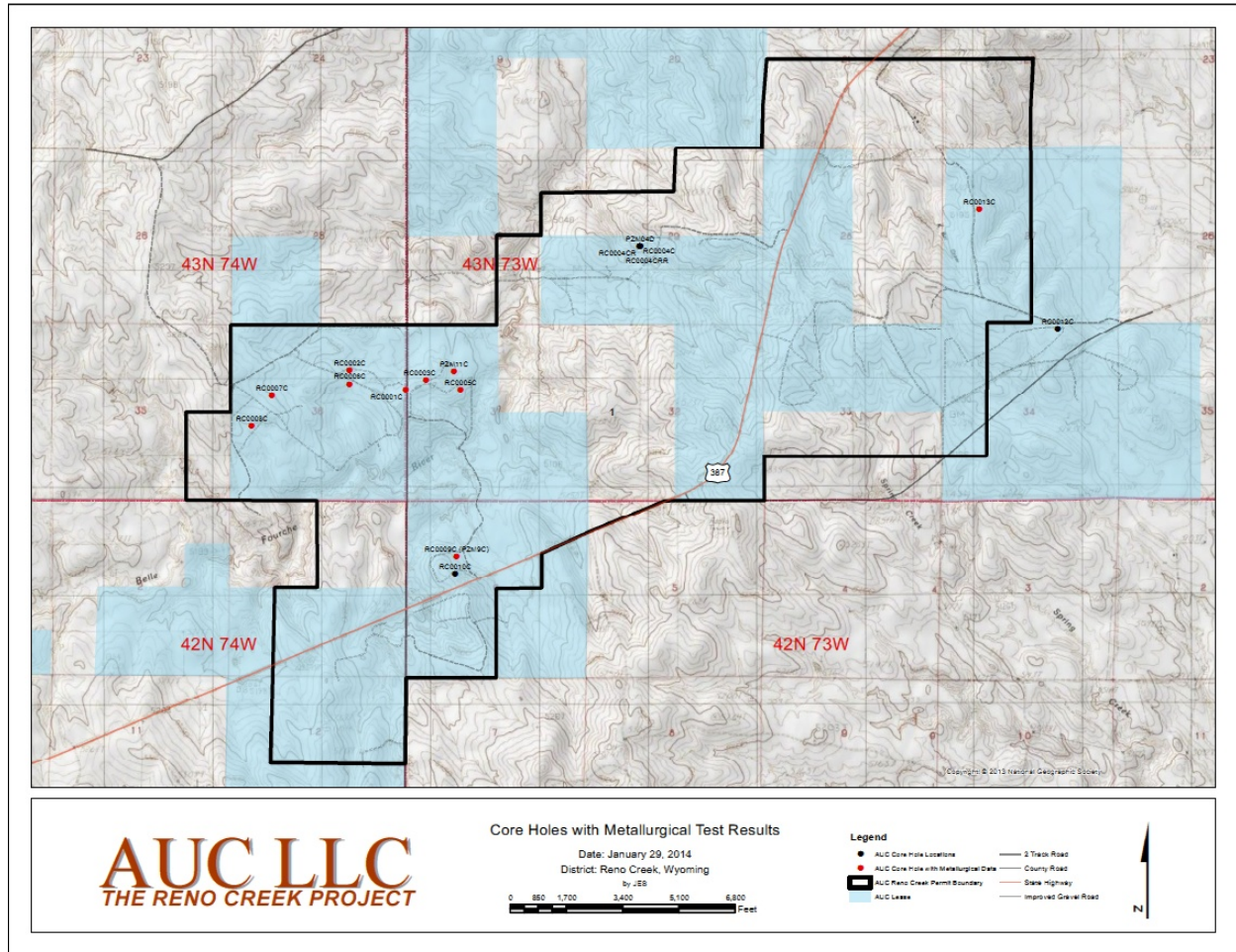
These tests for the PFS were conducted on core samples from the Project at the following 3 laboratories:

- Energy Laboratories in Casper, Wyoming (2011);
- J.E. Litz and Associates, Golden, Colorado (2012); and
- IML Laboratories, Sheridan, Wyoming (2013).

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 ( $\text{NaHCO}_3$  and  $\text{H}_2\text{O}_2$ ) 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).



**Figure 13.1: Metallurgical Test Sample Locations**

**Table 13.3: Bottle Roll Results**

Sample ID	Hole ID	Lixiviant	Depth	Percent Recovery		
				Total by Leach	Total by Tail	Total by 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

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<sub>2</sub>O<sub>2</sub>. 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, de-lumped, blended, and a ½-split is prepared for uranium analysis. Uranium recoveries varied from 80 percent to 95 percent with an average recovery rate of 85.5 percent (Table 13.4).

**Table 13.4: Column Leach Test Results**

Hole ID	Footage	Sample ID	Lixiviant	U <sub>3</sub> O <sub>8</sub> % Recovered
RC0009C	268'-271'	11-11-59R	NaHCO <sub>3</sub> , 1 g/L; H <sub>2</sub> O <sub>2</sub> , 0.5 g/L	83
RC0009C	297'-300'	11-11-60	NaHCO <sub>3</sub> , 1 g/L; H <sub>2</sub> O <sub>2</sub> , 0.5 g/L	84
RC0009C	297'-300'	11-11-60B	NaHCO <sub>3</sub> , 1 g/L; H <sub>2</sub> O <sub>2</sub> , 0.106 g/L	80
RC0002C	338.5'-341'	11-11-61A	NaHCO <sub>3</sub> , 1 g/L; H <sub>2</sub> O <sub>2</sub> , 0.5 g/L	95

Tetra Tech has reviewed the test programs and found them as meeting industry standards for ISR at the PFS level. Both Energy Laboratories and J.E. Litz are accepted test facilities by the mining industry for ISR metallurgical programs. Tetra Tech has reviewed the core samples used in the test programs and considers them to be representative for a PFS level study.

In 2013, metallurgical studies by AUC were conducted at the Intermountain Laboratories in Sheridan, Wyoming to expand and confirm work of the earlier programs. Table 13.5 shows bottle roll test work on 4 samples from four core holes was performed at Intermountain using a 1.5 g/L bicarbonate leach solution, and 60 and 90 PV. Table 13.5 summarizes the results of the Intermountain test program.

**Table 13.5: Results of Intermountain Labs, Sheridan, Wyoming**

Sample Number	Core Depth	Grade %U	%U Recovery	
			60 PVs	90 PVs
RC0013C	342'-346'	0.0976	79.2	86.7
RC0003C	241'-243'	0.1740	76.0	82.1
RC0005C	306'-308'	0.0610	87.0	93.0
PZM11C	303'-305'	0.0628	88.0	91.9
<b>Average</b>			<b>82.6</b>	

As a metallurgical test verification, the results of the Intermountain Laboratories confirm the work performed at Litz Laboratories with an average uranium recovery of 82.6 percent for 60 PVs.

### 13.3 URANIUM RECOVERIES AT OTHER ISR OPERATIONS

Leach amenability studies are intended to demonstrate that the uranium mineralization is capable of being leached using conventional ISR chemistry, not to predict an overall percent recovery rate. This is due to the fact that the laboratory tests do not replicate the conditions that exist underground within the Production Zone Aquifer (PZA).

The column leach and bottle roll laboratory tests recovery results demonstrate that the ore contained within the PZA at the Reno Creek Project is highly amenable to a standard ISR lixiviant. What is not predicted is the efficiency of the lixiviant to contact the ore thus allowing oxidation and complexation of the uranium within the host sandstone. However, other projects within the Powder River Basin that have similar characteristics as the Reno Creek Project in terms of mineralogy, hydrology, groundwater chemistry and geology have reported recovery rates of 75 percent or greater of in place reserves, as supported by laboratory testing with recoveries in the 80-90 percent range. Therefore, for the purposes of this PFS AUC has applied an overall recovery rate of in place reserves of 75 percent.

Tetra Tech performed research on other ISR operations in Wyoming and Nebraska to confirm there estimated uranium recoveries based on either actual operations or metallurgical test work. Table 13.6 summarizes these findings for the ISR operations with an average uranium recovery of 80.3 percent confirming the Project's estimate of 75 percent is reasonable.

**Table 13.6: Estimated Uranium Recoveries at Other ISR Operations**

<b>Company</b>	<b>Property</b>	<b>Location</b>	<b>Reserve Grade, %U<sub>3</sub>O<sub>8</sub></b>	<b>Estimated Metallurgical Recovery (%)</b>
Cameco	Crow Butte	Nebraska	0.12	85.0
Cameco	Gas Hills-Peach	Wyoming	0.11	72.0
Cameco	North Butte/Brown Ranch	Wyoming	0.08	80.0
Cameco	Smith Ranch-Highland	Wyoming	0.09	85.0
Uranium One	Willow Creek	Wyoming	0.054	80.0
Ur-Energy	Lost Creek	Wyoming	0.052	80.0
<b>Average</b>				<b>80.3</b>

Sources: Company Documents

The authors feel that after reviewing the metallurgical tests applied and results, that the results and procedures herein satisfy the requirements for a PFS.

## 14.0 MINERAL RESOURCE ESTIMATES

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### 14.1 BACKGROUND

Uranium ( $U_3O_8$ ) 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 10,000 drill holes have been drilled on and nearby, the 5 Resource Units evaluated. Electronic log gamma data are available for more than 75 percent of these holes, and interval data (thickness, grade, and GT) are available for about 95 percent of mineralized holes.

### 14.2 DATA PREPARATION

Data preparation included locating, editing and compiling drillhole location and downhole mineralized interval data for each roll front in each of the five Resource Units. This data was obtained from drillhole 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 845 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-like 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 percent  $eU_3O_8$  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.
7. **Holes Discarded.** Drill holes are discarded when X-Y-Z coordinates were missing, and when historic mineralized interval data couldn't be verified using e-logs or other sources.

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, and feet for X-Y-Z coordinate data.

### 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®.

The Delaunay triangulation method connected data points (drill holes) via a unique 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 coordinates and the measured U<sub>3</sub>O<sub>8</sub> grade and thickness values at each vertex point. Next, two 25 foot × 25 foot grids were superimposed over the triangular network, and each grid node (grid center) was assigned a grade value (grid 1) and a thickness value (grid2), 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, were 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 or greater than drill hole composited values, will not be estimated.
3. A unique, reproducible triangular network is generated.
4. The mathematics is 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 laboratory analyses from recent core drilling by AUC in Southwest Reno Creek. A disequilibrium factor of 1.0 was applied. 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 Section 12.

#### 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, Indicated, 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:
  - **Measured**– 0 feet to 50 feet between grid node and drill hole locations.
  - **Indicated** – 50 feet to 250 feet between grid node and drill hole locations.
  - **Inferred** – 250 feet to 500 feet between grid node and drill hole locations.
2. A GT cutoff of 0.30 %-ft.
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 resource was estimated separately for each roll front in each of the resource units. The roll front resources were next summed for each unit. The results of the estimation of Measured and Indicated U<sub>3</sub>O<sub>8</sub> 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 percent U<sub>3</sub>O<sub>8</sub> yielding 21.87 million pounds of U<sub>3</sub>O<sub>8</sub>.



**Table 14.1: Reno Creek ISR Project – Summary of Measured and Indicated Resource<sup>1</sup>**

Resource Unit	Tons <sup>2</sup> (millions)	Thickness (feet)	Grade (%U <sub>3</sub> O <sub>8</sub> )	PoundsU <sub>3</sub> O <sub>8</sub> <sup>2</sup> (millions)
<b>North Reno Creek</b>				
Measured	2.69	18.9	0.055	2.96
Indicated	5.44	15.2	0.047	5.13
<b>Total</b>	<b>8.13</b>	<b>16.4</b>	<b>0.050</b>	<b>8.09</b>
<b>Southwest Reno Creek</b>				
Measured	2.86	17.5	0.058	3.32
Indicated	3.58	14.1	0.050	3.55
<b>Total</b>	<b>6.44</b>	<b>15.6</b>	<b>0.053</b>	<b>6.87</b>
<b>Moore</b>				
Measured	1.27	13.9	0.061	1.56
Indicated	3.21	11.5	0.046	2.97
<b>Total</b>	<b>4.48</b>	<b>12.2</b>	<b>0.051</b>	<b>4.53</b>
<b>Bing</b>				
Measured	0.20	19.3	0.052	0.21
Indicated	0.84	15.2	0.043	0.72
<b>Total</b>	<b>1.04</b>	<b>16.0</b>	<b>0.045</b>	<b>0.93</b>
<b>Pine Tree</b>				
Measured	0.15	10.8	0.105	0.32
Indicated	0.66	10.0	0.086	1.13
<b>Total</b>	<b>0.81</b>	<b>10.2</b>	<b>0.089</b>	<b>1.45</b>
<b>Reno Creek Project</b>				
Measured	7.18	17.3	0.058	8.38
Indicated	13.70	13.4	0.050	13.50
<b>Total</b>	<b>20.9</b>	<b>14.8</b>	<b>0.052</b>	<b>21.87</b>

<sup>1</sup>Cutoff ≥ 0.30 grade × thickness per intercept

<sup>2</sup>Columns may not add due to rounding

Maps illustrating spatial distribution of the U<sub>3</sub>O<sub>8</sub> resource in the 5 Resource Units of the Reno Creek ISR Project are presented in Figure 7.5, Figure 7.6, Figure 7.7, Figure 7.8, and 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 809 additional holes in 2010, 2011, and 2012 (Table 6.1). 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.

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

## 14.6 INFERRED RESOURCE

The results of the estimation of Inferred U<sub>3</sub>O<sub>8</sub> resource in the Project are reported in Table 14.2 and total 1.56 million tons grading 0.050 percent U<sub>3</sub>O<sub>8</sub> yielding 1.55 million pounds of U<sub>3</sub>O<sub>8</sub>.

**Table 14.2: Reno Creek ISR Project – Summary of Inferred Resources<sup>1</sup>**

Resource Unit	Tons <sup>2</sup> (millions)	Thickness (feet)	Grade (%U <sub>3</sub> O <sub>8</sub> )	PoundsU <sub>3</sub> O <sub>8</sub> <sup>2</sup> (millions)
<b>North Reno Creek</b>				
Inferred	0.84	14.4	0.050	0.85
<b>Southwest Reno Creek</b>				
Inferred	0.41	11.0	0.040	0.32
<b>Moore</b>				
Inferred	0.25	7.9	0.062	0.31
<b>Bing</b>				
Inferred	0.02	12.2	0.050	0.02
<b>Pine Tree</b>				
Inferred	0.03	4.7	0.112	0.06
<b>Reno Creek Project</b>				
<b>Inferred Total</b>	<b>1.56</b>	<b>12.1</b>	<b>0.05</b>	<b>1.55</b>

<sup>1</sup> Cutoff  $\geq 0.30$  grade  $\times$  thickness per intercept

<sup>2</sup> Columns may not add due to rounding

## 14.7 VERIFICATION OF ESTIMATE

BD performed an audit of the database and a check estimate on several of the roll front databases in the North Reno Creek Unit was carried out. These data consisted of historical data generated by several companies previously operating in the area 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 5,500 paper logs. Other digital data included coordinates, downhole intervals, and digitized electronic logs. Any paper logs, not in digital form, were digitized by AUC. BD reviewed electronic logs, cross sections, and maps produced by AUC and previous operators.

To check the estimation produced by AUC using the RockWorks® program, BD imported AUC's roll front digital data in 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-foot  $\times$  25-foot. The calculated GT was used to estimate pounds.

The pounds estimated by BD using the Surfer® triangulation-gridding method were within  $\pm 5$  percent 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 was BD's opinion that the resources, as estimated by AUC, were done properly and result in an appropriate estimation of the quantities and grades. It was also BD's 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.** It was **BD's opinion** 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 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 sandstone that is stratigraphically higher than those in the other units.
  5. BD 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 resource units.

- **Sensitivity to Cutoff Grade –Low to Moderate Risk.** The authors consider that the project’s chosen base-case cutoff GT of 0.30 %-ft is reasonable. This cutoff grade is a unified proxy for numerous estimated parameters such as assumed capital and operating costs, overall recovery, uranium price and all other business risks. (Section 19 and Section 22).
  1. The majority of neighboring ISR projects uses a GT base-case cutoff of 0.30 %-ft.
  2. Recent ISR projects in the US shows the change of uranium resources as cutoffs are changed from 0.10 to 0.50 %-ft. An important observation is that there is no abrupt fall off in resources as the cutoff grade is increased.

**Table 14.3: Resources<sup>1</sup>, Measured + Indicated U<sub>3</sub>O<sub>8</sub> in Million Pounds<sup>2</sup> at various GT cutoffs.**

Grade* Thickness (%U <sub>3</sub> O <sub>8</sub> * ft)	U <sub>3</sub> O <sub>8</sub> Pounds (millions)					
	Production Unit					
	North Reno Creek	Southwest Reno Creek	Moore	Bing	Pine Tree	Total
0.10	12.13	11.61	8.20	1.53	1.92	35.39
0.15	11.01	10.24	7.06	1.32	1.80	31.43
0.20	9.92	9.01	6.14	1.16	1.68	27.91
0.25	8.96	7.89	5.34	1.03	1.58	24.80
<b>0.30</b>	<b>8.09</b>	<b>6.87</b>	<b>4.53</b>	<b>0.93</b>	<b>1.45</b>	<b>21.87</b>
0.35	7.35	5.95	3.95	0.82	1.41	19.48
0.40	6.65	5.19	3.35	0.73	1.33	17.25
0.45	6.01	4.57	2.88	0.64	1.26	15.36
0.50	5.43	4.05	2.47	0.56	1.18	13.69

\* Cutoff at various grade x thickness per intercept

## 14.9 SUMMARY

The Project contains 21.9 million pounds of U<sub>3</sub>O<sub>8</sub> 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 percent, and the average GT is 0.84%-ft. In addition, the Project contains an Inferred U<sub>3</sub>O<sub>8</sub> resource totaling 1.56 million tons grading 0.050 percent U<sub>3</sub>O<sub>8</sub> yielding 1.55 million pounds of U<sub>3</sub>O<sub>8</sub>.

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 and grade.
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:
  - bounded at top and bottom by aquitards
  - permeable and porous

- 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.

Tetra Tech concurs that the Resource estimates and methods of deriving the same meet current industry standards and are therefore technically acceptable.

## 15.0 MINERAL RESERVE ESTIMATES

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It is the opinion of Tetra Tech that the estimated reserve calculations meet the requirements set forth by NI 43-101 regulation. The reserve calculations also meet and exceed industry standards and practice.

### 15.1 MODIFYING FACTORS

Based on the resources presented in Section 14, and a series of sequential steps outlined below, probable reserves and then recoverable uranium (as  $U_3O_8$ ) have been defined for the Reno Creek. The probable reserve is based on a series of modifying factors applied to measured and indicated resources; the recoverable uranium is based on recovery of the uranium from the reserves using conventional *in situ* mining technology, which involves the use of injection and recovery wells in wellfields and a CPP to recover the mobilized uranium from the lixiviant pumped from the wellfield. The modifying factors, in accordance with NI 43-101, used to convert measured and indicated uranium resources into reserves and then into recoverable uranium include:

1. Resource classification – measured and indicated resources are present in the Project's Resource Units can be converted to reserves. While inferred resources are also present, they are not included in reserves.
2. Geologic – mineralized roll front geometry should be well defined and relatively free of structural and stratigraphic complexity.
3. Hydrologic – resources must be bounded by aquitards and below the water table.
4. Geographic – resources must be within planned well fields inside production unit boundaries and unaffected by other land uses or resource development.
5. Recovery – resources are adjusted for estimated sweep and plant efficiency factors.
6. Economic – resources at and above a 0.30 %-ft GT cutoff meet the final test of profitability.

Each of these modifying factors is discussed below.

#### **15.1.1 Resource Classification Modifying Factors**

Section 14 describes how the Reno Creek resources were estimated and discusses the selection of a cutoff value of 0.30 %-ft GT. Classification of these resources was completed using 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 grid node and drill hole locations.
  - b. **Indicated** – 50 feet to 250 feet between grid node and drill hole locations.
  - c. **Inferred** – 250 feet to 500 feet between grid node and drill hole locations.
2. A GT cutoff of 0.30 %-ft.
3. Whether the grid cell was within AUC's property boundary.

Table 15.1 shows the classified measured and indicated resources above the 0.30 %-ft GT cutoff in each resource unit.

Inferred resources are not included in Table 15.1 resource numbers.

**Table 15.1: Estimated Resources for Reno Creek Project at 0.30 %-ft GT Cutoff**

RESOURCE	Pounds U <sub>3</sub> O <sub>8</sub> at a GT>=0.30 %-ft (millions)					
	Resources (See Section 14)					
	CLASS	Resource Unit				
		North Reno Creek	SW Reno Creek	Moore	Bing	Pine Tree
Measured	2.96	3.32	1.56	0.21	0.32	8.37
Indicated	5.13	3.55	2.97	0.72	1.13	13.50
Measured + Indicated	8.09	6.87	4.53	0.93	1.45	21.87

### 15.1.2 Geologic Modifying Factors

The Reno Creek ISR Project roll fronts display good geologic continuity, as demonstrated by drill hole data (lithologic and electric logs) displayed on plan maps and cross sections. Review of this data shows that structural deformation in the form of faults, folds or major fracture zones is not present. Analyses made by AUC geologists also show no structural complexities in the project area.

Because of the availability of a large number of drill holes on 50 to 100-foot centers and the availability of a large number of e-logs, stratigraphic relationships within resource units are well understood. Contacts between major stratigraphic horizons are easily recognized, sharp and laterally traceable over distances of tens of miles.

Roll front mineralization and geometry is also well understood and can be correlated both vertically and horizontally within resource units. Horizontal and vertical roll front mineralization thickness and grade continuity within resource units is also well defined. Finally, alteration fronts for individual roll fronts have been mapped across all resource units except for the Bing Resource Unit.

From this analysis, no measured or indicated resources have been removed because of geologic modifying factors.

### 15.1.3 Hydrologic Modifying Factors

Hydrologic modifying factors include having aquitards above and below the mineralized zone, and having mineralized roll fronts below the water table.

As noted in Figure 7.4, Section 7.2.1.1, a low permeability claystone is present both above and below the roll front bearing sandstone. These lithologic units are easily recognized on e-logs and cross sections, and are correlative across the five resource areas. The claystones have been classified as aquitards because of their low vertical and horizontal permeability.

AUC has potentiometric surface (water table) data for North and Southwest Reno Creek, Moore and Bing Resource areas. This data has come from hydrologic testing and monitoring wells and testing that AUC has completed and from historic hydrologic testing done by other operators. Analysis of this data

indicates that roll front mineralization in these four resource units is below existing and historic water table levels.

At this time, the location of the water table at the Pine Tree Resource Unit is ambiguous. AUC is in possession of water level measurement data from two historical water monitoring wells; however, AUC has no construction details for the wells. Hence, it is not known what stratigraphic horizon is producing water in the wells; and, a water table surface cannot be developed from just two data points. As a result, AUC concluded it advisable to exclude Pine Tree resources from current consideration as reserves at this time.

#### 15.1.4 Geographic Modifying Factors

As described in Section 16, wellfields are the planned well groupings that will be installed and completed in the Resource Units targeting delineated mineralization. Placement of these well fields will focus on areas where roll front horizontal and vertical deposit geometry overlap and/or are in close geographic proximity. Hence, small and isolated blocks of measured and indicated resources would be excluded from the proposed mine plan on the basis of factors such as: amount of uranium in place, the underlying economics of production, distance from the wellfield infrastructure and logistics. Figure 16.6 in Section 16.1.6 shows reserve areas where production units with well fields are planned.

All resources falling outside of these production boundaries are excluded and not counted as reserves. The reserves in Table 15.2 are adjusted to be within outline areas called Production Unit boundaries where well fields are planned.

Due to arrangements between AUC and local ranchers, oil and gas developers, and CBM operators, no resources were excluded from being considered reserves as a consequence of potential conflicts with petroleum development or infrastructure.

## 15.2 RESERVE CLASSIFICATION

The 20.12 million pounds of probable reserves of uranium (as U<sub>3</sub>O<sub>8</sub>) are classified as probable reserve. No reserves are classified as proven, due to the uncertainties inherent at a Preliminary Feasibility Study level for each of the proceeding conversion steps.

**Table 15.2: Estimated Probable Reserves for Reno Creek Project**

RESERVES <sup>1,2</sup>	Contained Pounds U <sub>3</sub> O <sub>8</sub> at a GT>=0.30%-ft Cutoff (millions)						
	Probable Reserves						
	CLASS	Resource Unit					Total
		North Reno Creek	SW Reno Creek	Moore	Bing	Pine Tree	
Probable	7.99	6.81	4.41	0.91	0.00	20.12	

<sup>1</sup> GT = Grade x Thickness in %-feet

<sup>2</sup> Resources adjusted to exclude the Pine Tree Project, uranium below water table, and outside of proposed Production Units.

### 15.2.1 Estimate of Recoverable Uranium

The probable reserves represent the uranium which will be subject to mining and processing using *in situ* recovery methods, as described in Section 16, below. The process involves a sequence of wellfields



or Production Units which produce a pregnant lixiviant feeding a CPP to recover the leached uranium using ion exchange methods (Section 17 below). Tetra Tech and TREC have estimated that the efficiency of the ISR and plant processes will be approximately 74.25%, which would allow the Reno Creek Project to produce approximately 14.94 million pounds of recoverable  $U_3O_8$  over the life of the project.

Uranium ISR Recovery factors include applying an *in situ* sweep efficiency factor and a plant recovery factor to the probable reserves.

The first factor is an adjustment for “*in situ* sweep efficiency.” This factor is defined as the amount of interstitial uranium that would be contacted and dissolved effectively into the leaching solution (lixiviant) and delivered to the CPP for production of yellowcake. The sweep efficiency takes into account such factors as:

- the mineralization process and availability of uranium to dissolution by the lixiviant (discussed in Section 8),
- porosity and permeability (discussed in Section 13),
- hydraulic properties of the Production Zone Aquifer is described in Sections 7 and 13 and elsewhere.

On the basis of the extensive testing conducted by AUC and historical operators, an *in situ* sweep efficiency of 75 percent has been applied. There are also multiple examples of historical and current ISR performance to support this sweep efficiency level.

RME operated a pilot project at Reno Creek in 1979 to demonstrate that *in situ* recovery (ISR) of uranium was technically feasible. A 100 gallon per minute (GPM) plant was brought on-line in the NW/NW quarter of Section 27, T43N, R73W. The pilot testing was conducted on a low-grade (approximately 0.037 percent  $U_3O_8$ ), moderately low GT (0.388 %-ft) portion of the Red roll front in the northeastern part of RME’s Reno Creek holdings. In the pilot program, an initial acid leaching test was attempted without success. Subsequently, in October, 1980 an oxidized alkaline lixiviant utilizing  $Na_2CO_3/NaHCO_3$  was introduced to a second pattern. The test recovered an estimated 60 percent of contained uranium at an average 40 ppm head grade utilizing only 10 pore volumes, a small fraction of commercial levels. From this, Rocky Mountain Energy (1987) estimated that a commercial scale recovery rate of 71 percent was feasible at Reno Creek. Next, data from other near-by ISR projects in the Powder River Basin (Christensen Ranch, Smith Ranch-Highland, as well as several small pilot-scale projects) have experienced *in situ* recoveries ranging from 70 percent to over 90 percent.

The sweep efficiency of 75 percent for the Reno Creek project is considered conservative and within the normative range of near-by projects and the pilot plant results.

The second modifying factor adjustment is a recovery factor of 99 percent that was applied to reflect the efficiency of the CPP extraction cycle (see Section 13). The 99 percent recovery used is supported by experience of neighboring operations as well. A combined recovery adjustment of 74.25 percent is the result of multiplying the “*in situ* sweep efficiency” factor by the CPP extraction factor. The combined adjustment factor is applied to the probable reserves shown in Table 15.2. Tetra Tech estimated that 14.94 million pounds of uranium (as  $U_3O_8$ ) can be recovered at the Reno Creek Project, as a result of the application of the combined recovery factors. This resulting 14.94 million pounds of uranium is used in the economic analysis of Section 22 as product sold.

**Table 15.3: Recovery Factors**

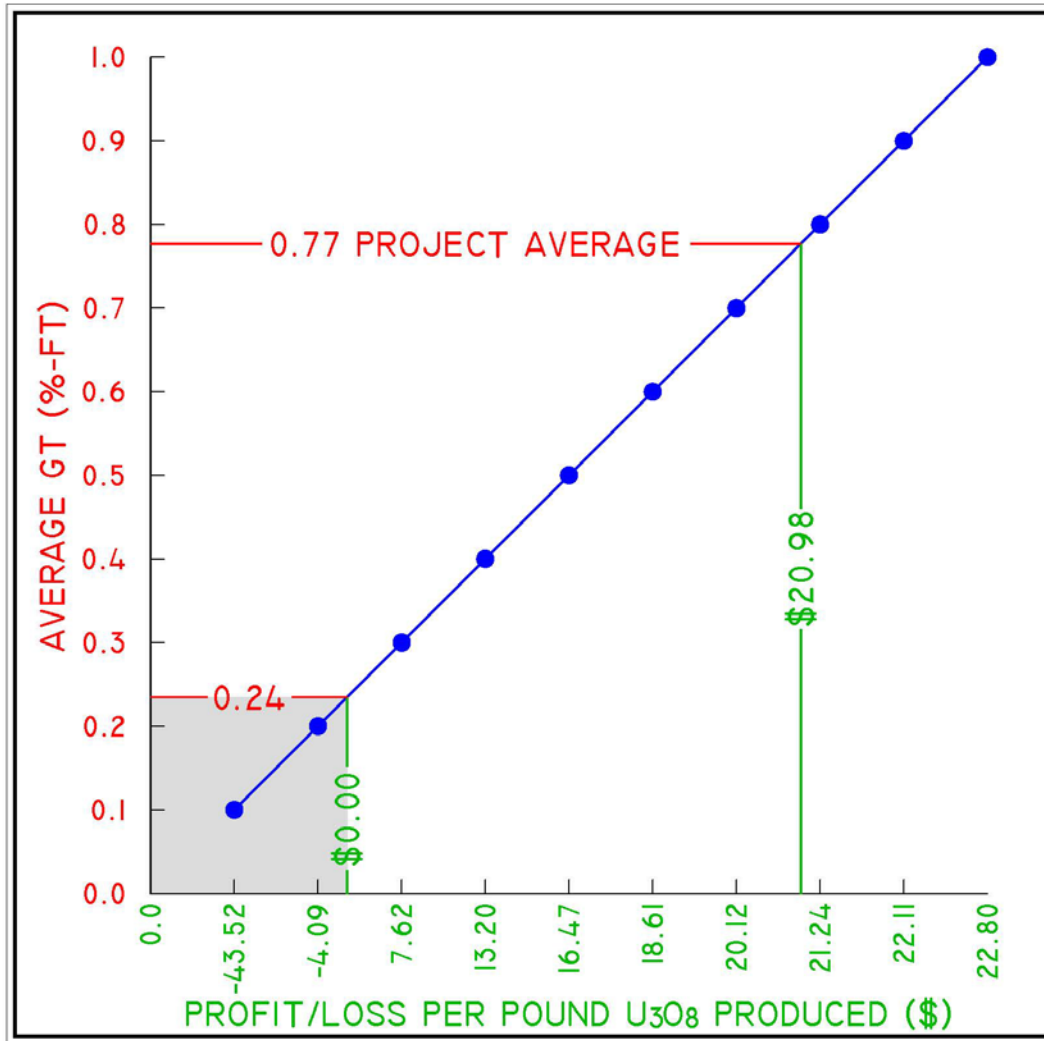
Factors Applied	
In Situ Sweep Efficiency	75%
CPP Extraction (Solution Recovery)	99%
Total Recovery	74.25%

Tetra Tech notes that the Reno Creek, Moore, Pine Tree, and Bing resource units all contain additional prospective areas along and adjacent to the strike of recognized roll fronts. The PFS recommends additional drilling in these areas to potentially increase defined resources and reserves.

### 15.3 ECONOMIC ANALYSIS OF CUTOFF GRADE

By definition, if a resource has a reasonable expectation of being extracted, processed and sold at a profit, it can be classified as a reserve. Using an average GT for the Reno Creek ISR Project 0.77 %-ft and 14.94 million pounds of recoverable  $U_3O_8$  produces a positive internal rate of return (IRR) of 32.5 percent (See Section 22). This Project also generates a net present value (NPV) of \$150 million at an eight percent discount rate over a productive life of eighteen years.

The authors reviewed financial model analyses estimating the profit or loss associated with mining of uranium from the Reno Creek Project using different project GT averages, ranging from 0.1 %-ft to 1.0 %-ft in order to develop a reasonable cutoff GT level. Figure 15.1 presents data from the analysis, showing the projected profit or loss per pound  $U_3O_8$  produced using a range of theoretical project average GTs. Recoverable pounds of  $U_3O_8$  were calculated for each average GT value shown on the chart. Well field CAPEX and OPEX costs were then used to calculate whether the recoverable pounds for each GT value would produce a positive or negative cash flow. Results show that a breakeven point is reached at a GT of approximately 0.24%-ft. AUC has selected a cutoff GT of 0.3 %-ft for estimating  $U_3O_8$  resources and reserves for the Reno Creek ISR Project.



**Figure 15.1: Graph illustrating relationship between Reno Creek Project average GT and profit/loss per pound U<sub>3</sub>O<sub>8</sub>.**

## 15.4 SUMMARY

The Reno Creek measured and indicated resources in five resource units total 21.87 million pounds U<sub>3</sub>O<sub>8</sub>. After applying modifying factors, the Reno Creek probable reserve is estimated to be 20.12 million pounds. These reserves have been classified as probable reserves. The application of a recovery factor produces an estimate of 14.94 million recoverable pounds of U<sub>3</sub>O<sub>8</sub>. The recoverable pounds of U<sub>3</sub>O<sub>8</sub> were reported as product sold in the Economic Analysis in Section 22.

The modifying factors applied 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. Figure 15.2 is a schematic drawing showing the sequence of steps to arrive at the recoverable uranium estimate.

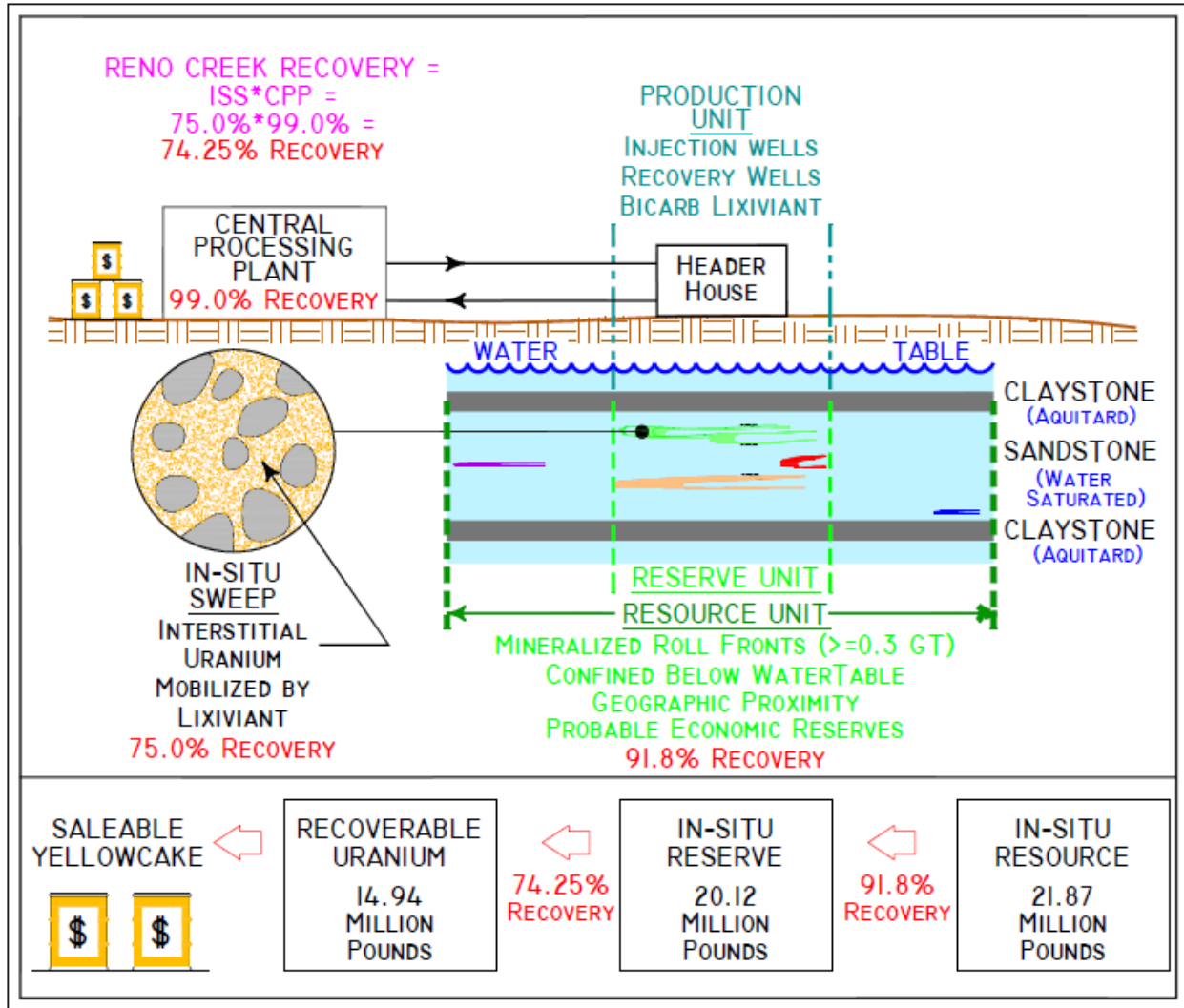


Figure 15.2: Flowsheet illustrating the conversion of Reno Creek resources to recoverable uranium.

## 16.0 MINING METHODS

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This section of the PFS presents descriptions for injection, recovery and uranium processing; the cost estimate approach; and assumptions used to develop the capital costs and operating costs. The information presented in Section 16 is in accordance with the guidelines set forth in NI 43-101 and NI 43-101F1.

AUC plans to mine the uranium using the ISR method. For purposes of operations, the North and Southwest Reno Creek Resource Units will be unitized into a single operation called the Reno Creek Resource Unit. Mining of the reserves described in this PFS will occur in the Reno Creek Unit and the Moore and Bing Units.

The ISR method is successfully used elsewhere in the United States, especially in Wyoming. ISR mining was developed independently in the 1970s in the former USSR and the United States for extracting uranium from sandstone type uranium deposits that were not suitable for open cut or underground mining. Many sandstone deposits are amenable to uranium extraction by ISR mining, which is now a well-established mining method that accounted for more than 27 percent of the world's uranium production in 2008 (ref., Australian Department of the Environment, 2009). The pilot test (see Section 6) along with bench-scale bottle roll and column leach studies (see Section 13) demonstrate the technical feasibility of both mobilizing and recovering uranium with a carbonate lixiviant.

The basic requirement for ISR mining is that mineralization is located in water-saturated permeable sandstone bodies that allow effective confinement of mining solutions, typically confined between impermeable clay-rich strata. As discussed in Section 15, the estimated mineral reserves used to determine the economics in this PFS do not include any ore that does not meet this basic requirement.

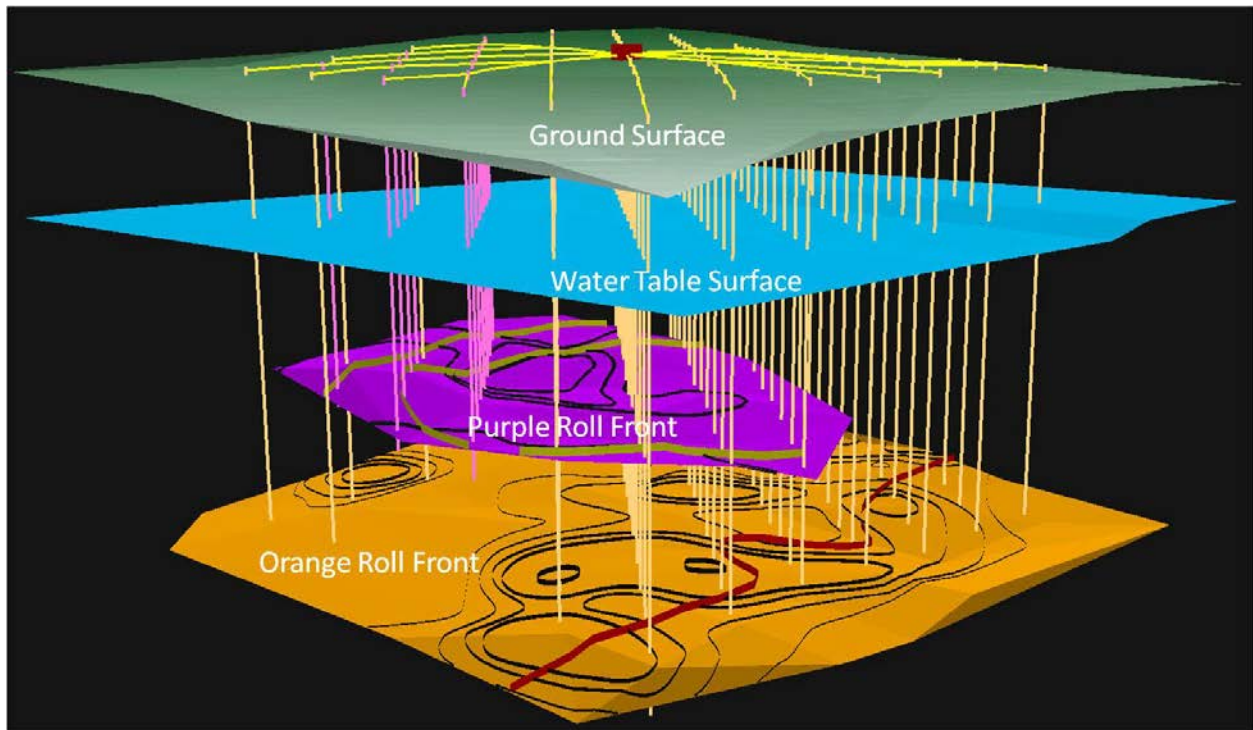
Mining dilution (rock that is removed along with the ore during the mining process) is not a factor with the ISR method as only minerals that can be mobilized with the carbonate lixiviant are recovered. There are some metals, such as vanadium, that can be mobilized with carbonate lixiviant and can potentially dilute the final product if not separated before packaging. If vanadium occurs in high enough concentration, it can be economically separated and sold as a separate product. However, as discussed in Section 8, vanadium occurs in low concentration within the Reno Creek mineral deposit and is furthermore not considered a dilutant in this PFS.

Figure 16.6 identifies 16 PUs that lie within the three Resource Units which have been designated to produce uranium from the mineralized zones at the Project. Note that the Pine Tree RU is not incorporated in the mine plan. The rationale for this non-inclusion is that current information on the location of the water table in the Pine Tree area's Production Zone Aquifer is ambiguous. Each PU will contain multiple wellfields, each of which will have a header house. The injection and recovery wells located within the wellfields will be typically arranged in five-spot patterns. However, in some situations, AUC may use other well patterns to most effectively target the mineralization. Monitor wells will be installed at each PU as dictated by geologic and hydrogeologic parameters, and as approved by the WDEQ/LQD. The CPP and appurtenant facilities will be constructed according to accepted engineering practices.

## 16.1 GEOTECHNICAL AND HYDROLOGICAL MINE DESIGN AND PLANS

### 16.1.1 Wellfields

Wellfields are the groups of wells, installed and completed in the mineralized zones that are sized to effectively target delineated ore and reach the desired production goals. One header house controls the operation of each wellfield. The ore zones are located within the geologic sandstone units where the leaching solutions are injected and recovered via wells in an ISR wellfield and it is bounded between aquitards. Figure 16.1 depicts a typical wellfield comprised of one header house and several recovery and injection wells. The wellfield conceptualized in this figure is targeting two separate ore roll fronts, identified by AUC as Purple and Orange.



**Figure 16.1: Conceptual Wellfield with Header House**

The following subsections describe the wellfield design used as the basis for the Project cost estimates included in this PFS. The life of mine construction, production and closure schedule is provided in Figure 16.2.

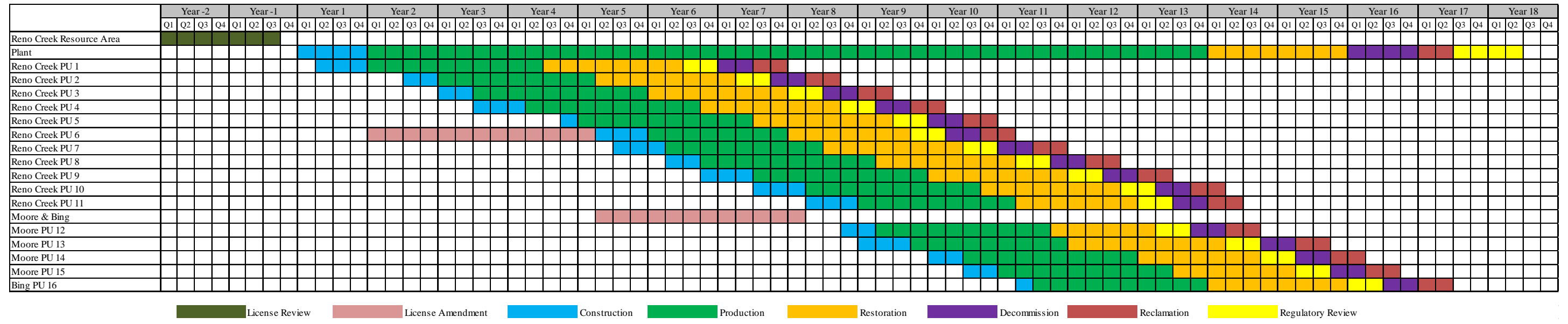


Figure 16.2: Life of Mine Schedule

### **16.1.2 Proposed Wellfield Design**

This PFS assumes the patterns for the injection and recovery wells will generally follow the conventional five-spot pattern consisting of a recovery well surrounded by four injection wells. Depending on the shape of the mineralized zone, other patterns, including seven-spot, line drive or staggered line drive patterns, may also be used. The dimensions of individual patterns vary depending on the mineralized zone, the aquifer transmissivity, etc. The preliminary wellfield design developed for this report assumes injection wells will be spaced 100 feet apart on the corners of a 5-point square pattern. Costing has been developed assuming this spacing, but some individual patterns may be developed where injection wells could be as little as 50 feet apart, and in other areas as much as 120 feet apart depending on localized conditions. Across the entire project, however, AUC estimates that the average spacing will be approximately 100 feet, rendering the overall cost reasonable. In order to effectively recover the uranium, and also to complete the groundwater restoration, the wells will be completed so they can be used as either injection or recovery wells, allowing flow direction to be reversed at any time during the production or restoration phases of the Project, see Figure 16.3, Figure 16.4, and Figure 16.5. A slightly greater volume of water (approximately one percent) will be recovered from the ore zone aquifer than the volume injected (bleed) in order to create an inward flow gradient towards the recovery wells to minimize the potential for excursions of lixiviant from the wellfields.



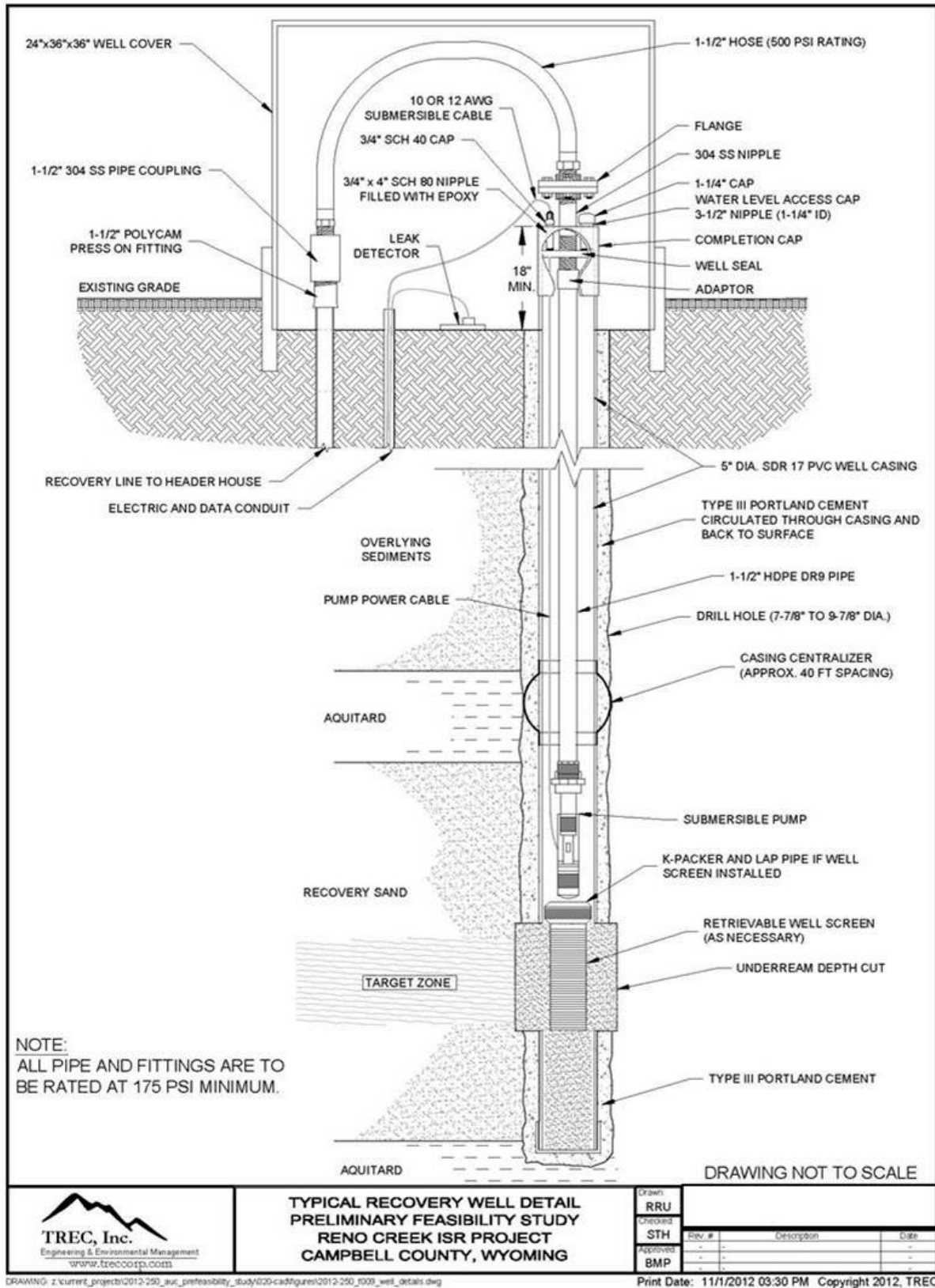


Figure 16.3: Recovery Well Detail

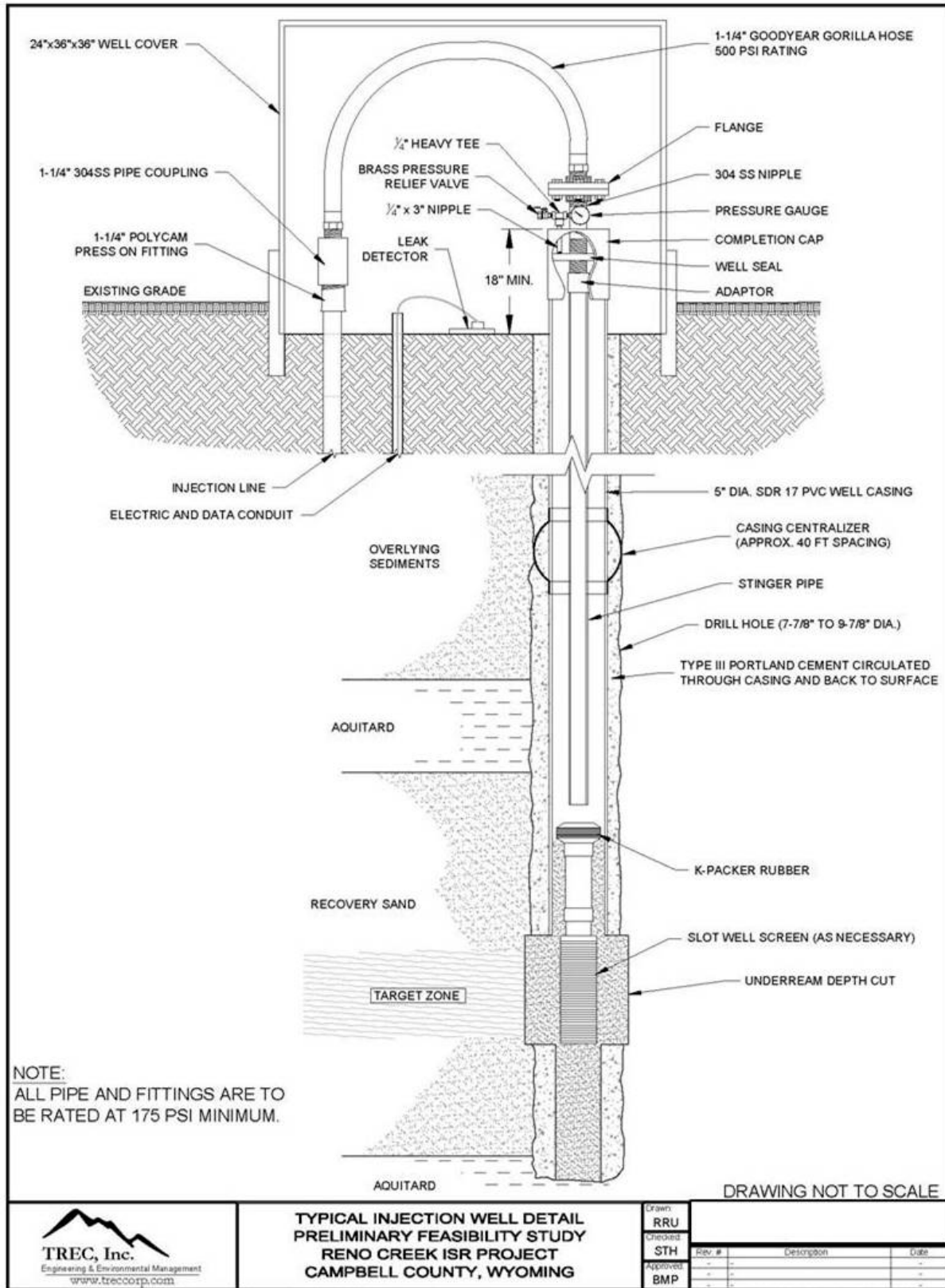


Figure 16.4: Typical Injection Well Detail

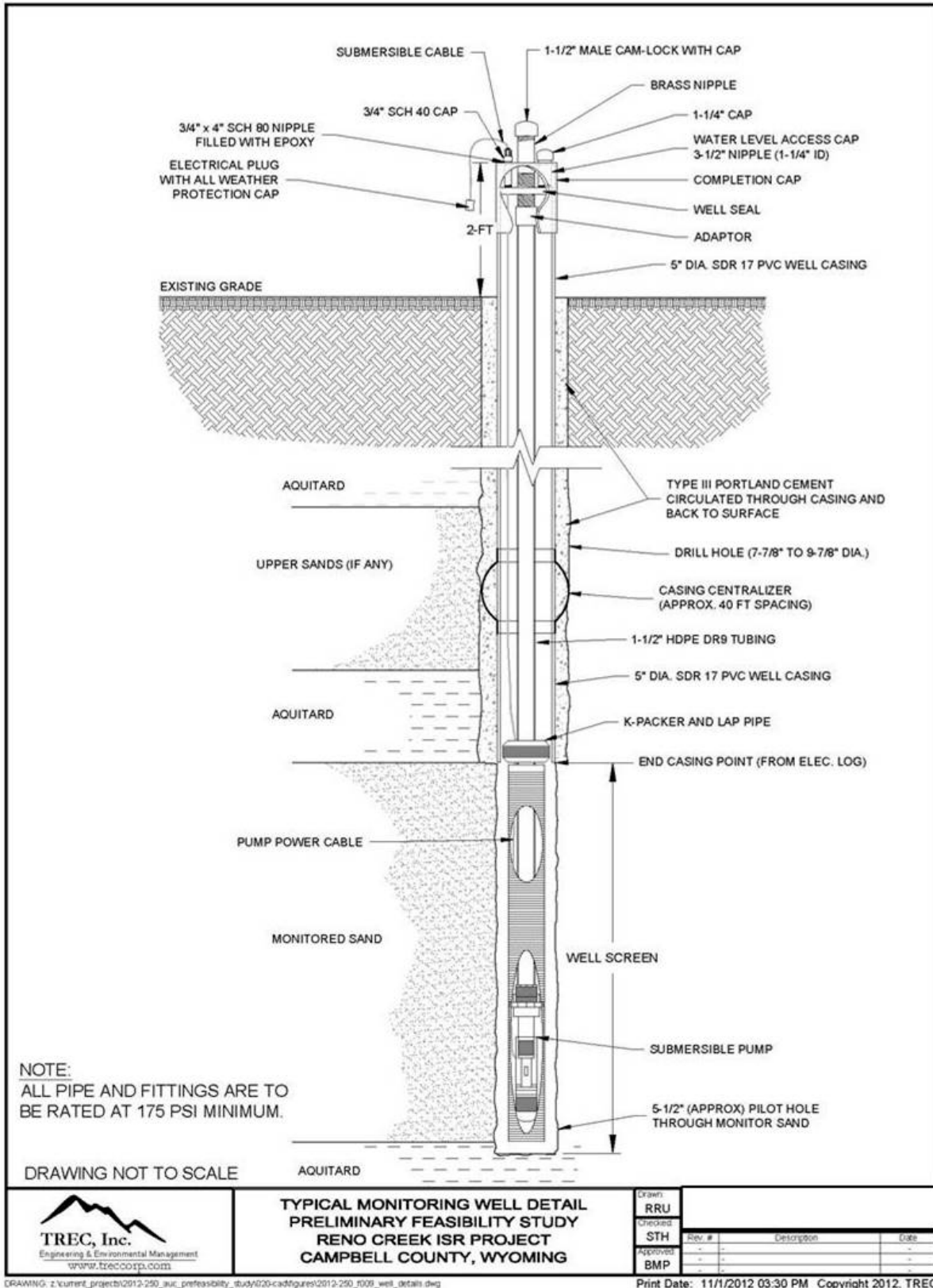


Figure 16.5: Typical Monitoring Well Detail

### **16.1.3 Wellfield Installation**

AUC has performed, and the Authors understand that AUC intends to continue to perform, delineation drilling in each proposed Resource Unit prior to installing the injection and recovery wells to better define mineral resources for design of PUs. This allows the designing geologist to reasonably know the width, depth, and thickness of the mineralized zone and the depth of the underlying shale prior to specifying the screen interval for the injection and recovery wells, which optimizes the locations of specific injection and recovery wells. A PU will consist of patterns of recovery and injection wells (e.g., the pattern area) within a ring of monitor wells. The monitor wells will be used to detect horizontal excursions, if any, of the groundwater-based leaching solutions away from the mineralized zone. Monitor wells will also be completed in the overlying aquifer (or potentially the underlying sand unit in some PUs), as necessary, to detect vertical excursions, if any. Inside the pattern area, wells (which may double as recovery or injection wells) will also be completed in the mineralized zone to provide baseline water quality information prior to the mining process and to gauge groundwater restoration performance after mining is complete. The cost of such delineation drilling is incorporated into this PFS.

Pilot holes for monitor, recovery and injection wells will be drilled through the target completion interval. The hole will be logged, reamed, casing set, and cemented to isolate the completion interval. Production wells are planned to be under-reamed as part of the well completion process. After under-reaming, setting the screen and, possibly, installing a sand filter pack, the well will be air lifted and/or swabbed to remove any remaining drilling mud and/or cuttings. The primary goal of this well development is to allow clear formation water to freely enter the well screen.

Typical well completion schematics for production wells (recovery and injection wells), and monitor wells are shown on Figure 16.3, Figure 16.4, and Figure 16.5, respectively.

### **16.1.4 Mechanical Integrity Testing (MIT)**

After an injection, recovery or monitor well has been completed, and before it is made operational, AUC will perform a MIT of the well casing. In the integrity test, the bottom of the casing adjacent to or below the confining layer above the zone of interest is sealed as is the top of the casing, and a pressure gauge is installed to monitor the pressure inside the casing. The pressure in the sealed casing is then increased to a specified test pressure and must maintain 90 percent of this pressure for ten minutes to pass the test. If any well casing that fails the test cannot be repaired, the well will be plugged and abandoned.

In accordance with WDEQ and NRC requirements, MITs will be repeated once every five years for all production wells. A MIT will also be performed on any well that is damaged during operations or has had a drill bit cutting tool inserted in the well. Results of MIT will be maintained on-site and will be reported, as required to WDEQ.

### **16.1.5 Production**

The proposed uranium ISR process will involve the dissolution of the water-soluble uranium compound from the mineralized host sands at near neutral pH ranges. The lixiviant contains oxygen and sodium bicarbonate. The oxygen oxidizes the uranium, which is then complexed with the bicarbonate. The uranium-rich solution (typically ranging from 20 ppm to 250 ppm, but may be higher or lower) will be pumped from the recovery wells to the nearby processing facility for uranium concentration with ion

exchange (IX) resin. A slightly greater volume of water will be recovered from the mineralized zone aquifer than injected, referred to as “bleed”, in order to create an inward flow gradient towards the PUs. Thus, overall recovery flow rates will always be slightly greater than overall injection rates. This bleed solution will be treated via RO and the permeate used as makeup water in the process or discharged, as permitted, and the brine will be disposed via injection into Deep Disposal Wells (DDW).

Production Unit Boundaries were designated based on deposit locations and configuration of mineralization. Small and isolated blocks of measured and indicated resources were excluded from the proposed mine plan in this PFS on the basis of multiple factors: amount of uranium in place, the underlying economics of production, distance from the wellfield infrastructure and logistics.

The PUs will be developed within the Production Unit Boundaries in a sequential fashion. The numbering system of the PUs depicted on Figure 16.6 indicates the order in which the PUs are proposed to be developed, put into production and ultimately restored and reclaimed. Figure 1.4 presents the life of mine schedule showing the sequencing of the PUs used in the evaluations in this document.

#### **16.1.6 Wellfield Piping System**

Pipelines will transport the pregnant and barren lixiviant to and from the IX columns of the CPP. The individual well flow rates and manifold pressures will be monitored in the header houses. These data will be transmitted to the CPP for remote monitoring through a master control system. The operator will be capable of shutting down header house production lines from the control system. High density polyethylene (HDPE), PVC, stainless steel, or equivalent piping will be used in the wellfields and will be designed and selected to meet design operating conditions.

The lines from the CPP, header houses and individual well lines will be buried for freeze protection and to minimize pipe movement. Other ISR mines in Wyoming have successfully buried HDPE pipelines. Figure 16.6 illustrates the approximate location for trunk lines to/from the wellfields and the CPP.

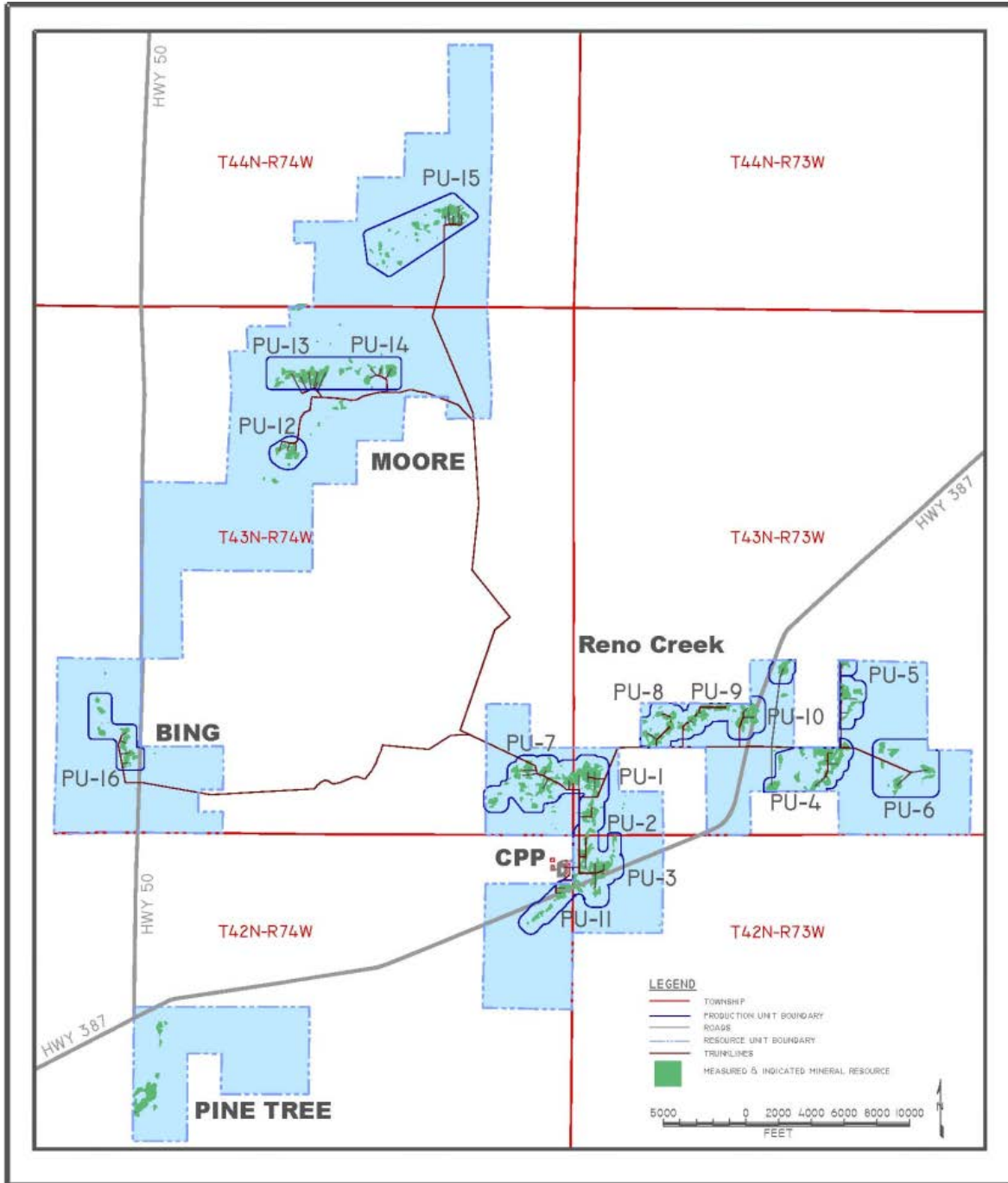


Figure 16.6: Approximate locations for trunk lines to/from the wellfields and the CPP

### 16.1.7 Header Houses

Header houses will be used to distribute barren lixiviant to injection wells and collect pregnant lixiviant from recovery wells. Each header house will be connected to two production trunk lines and two restoration trunk lines as needed. The header houses will include manifolds, valves, flow meters, pressure gauges, instrumentation and oxygen for incorporation into the barren lixiviant, as required. See Figure 16.7 for a typical header house piping and instrumentation diagram (P&ID).

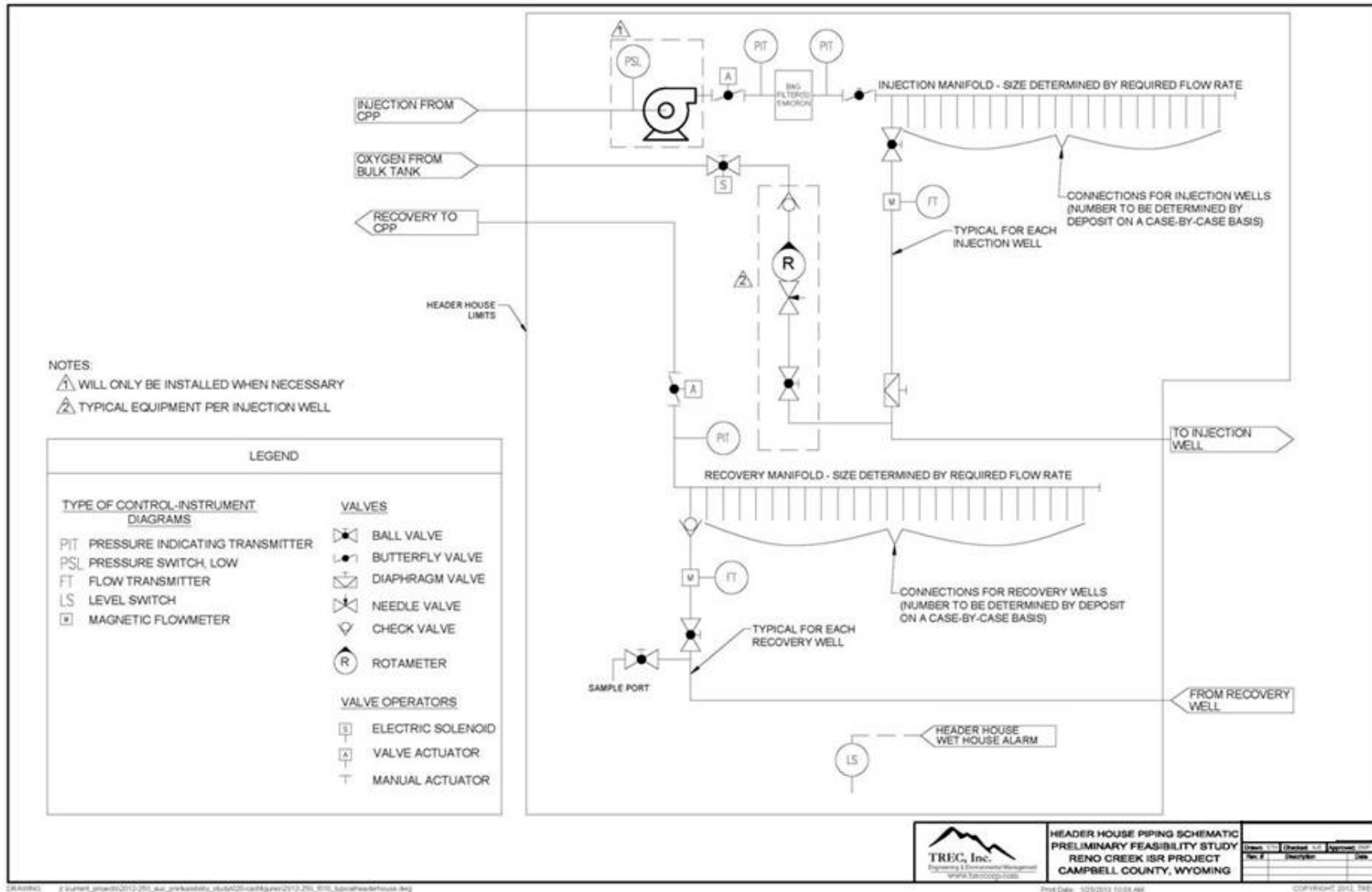


Figure 16.7: Typical Header House P&ID

Each header house will service approximately 72 wells (42 injection and 30 recovery) depending on resource delineation. Table 16.1 presents the current anticipated header house and well summary by Resource Unit.

**Table 16.1: Project Header House and Well Inventory by Resource Unit**

Item	Resource Units			
	Reno Creek	Bing	Moore	Pine Tree
Header Houses	50	4	18	0
Injection Wells	2,100	150	742	0
Recovery Wells	1,500	107	530	0
Interior Monitoring Wells	100	7	35	0
Exterior Monitoring Wells	250	18	88	0
Deep Disposal Wells	4	0	0	0

Injection wells, recovery wells, monitor wells and header houses in the Resource Units were determined using a conventional five-spot pattern as described above, which assigns approximately 6.9 acres of mineral reserve, 42 injection wells, 30 recovery wells, and seven monitor wells to each header house.

**16.1.8 Wellfield Reagents, Electricity and Propane**

Due to the varying nature of production over the life of the mine, wellfield reagents, electricity and other consumable costs are expected to vary by year. Details about reagent and power use are found in Section 17, Recovery Methods.

The mining approach is governed by how the production units are designed, the rate of ore recovery and the duration of the mine development, processing and closure. The following describes each of these mine development and operation components.

**16.1.9 Production Unit Design**

The Project is divided into four Resource Units – Reno Creek, Bing, Moore and Pine Tree. Figure 16.6 illustrates the four Resource Units, their boundaries and proposed trunk lines to reach the three Resource Units that will be mined. Each of these Resource Units is further subdivided into PUs.

Within each PU, the preliminary design assumes there will be multiple wellfields. Each wellfield is serviced by one header house and within the context of the build out plan each header house is projected to contain 30 recovery wells. Across the entire project, AUC estimates that the average flow of production wells will be approximately 20 gpm. Individual wells may pump in a range of 5 to 45 gpm, with each wellfield planned to produce approximately 600 gpm.

Wellfields and their associated header houses are planned to be installed at a rate of two per quarter. The first wellfields will be brought on line in conjunction with the commissioning of the CPP. Initial flow rates to the CPP may range between 600 to 1200 gpm, but as additional wellfields are installed and brought on line the flow rate to the CPP will increase incrementally in 600 gpm lots until the maximum flow throughput of the CPP of 8,000 gpm is achieved. Based on the mine plan the maximum flow



throughput will not be achieved until the third year after operations begins, year 4 in the mine plan. This maximum flow throughput of 8,000 gpm is expected to be sustained for 8 years by having 13 to 14 wellfields in various stages of recovery operations spread over three to four PUs on line.

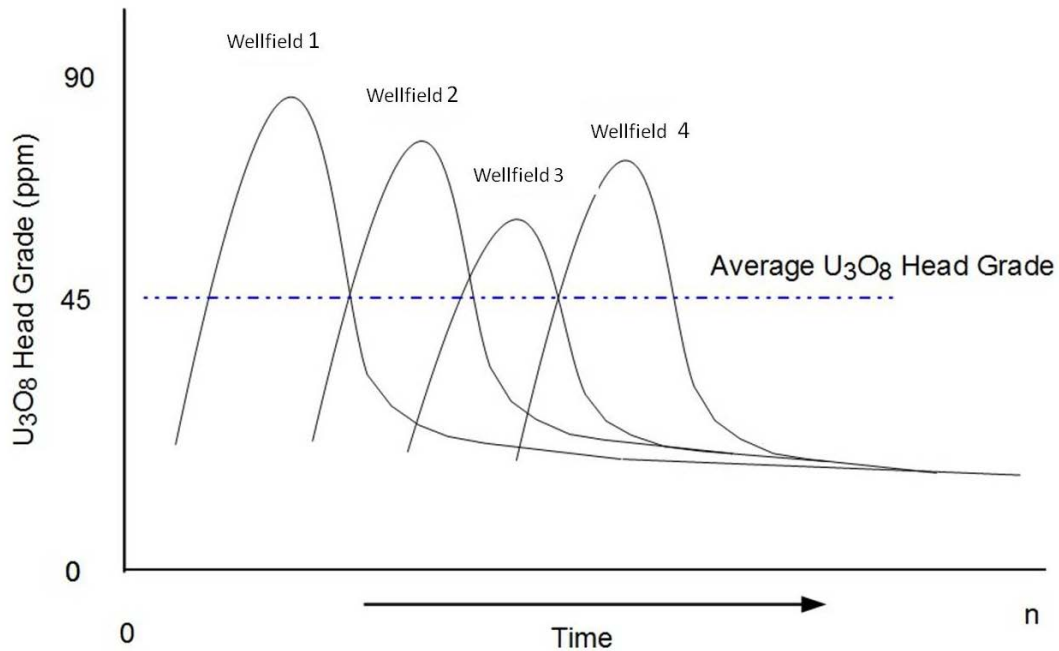
As wellfields are mined out and removed from operations and put into groundwater restoration, new wellfields will be brought on line to maintain the maximum CPP throughput of 8,000 gpm. This will occur until the reserves are developed to a point where no new wellfields will be available to be brought and line, which results in lower flow rates in years 12 and 13 of the mine plan. Table 16.2 summarizes the total area of each Resource Unit and the area of wellfields within each Resource Unit.

**Table 16.2: Total Area and Estimated Wellfield Area by Resource Unit**

Item	Resource Units			
	Reno Creek	Bing	Moore	Pine Tree
Production Units	11	1	4	0
Total Area (Acres) within monitor well rings	331.5	22.5	100.5	0
Wellfield (Acres) (Resource surface area)	220.9	15.0	67.4	0

**16.1.10 Production Rates**

The development plan is subject to change due to recovery schedules, variations with production unit recoveries, CPP operations, economic conditions, etc. Figure 1.4 presents the life of mine schedule used in the evaluations in this document. Mineral reserve head grade is projected to average approximately 45 ppm over the entire production schedule. Initial head grades in new wellfields can be several hundred ppm, while head grades from nearly mined out wellfields may be 10-20 ppm. As pregnant lixiviant is gathered from individual wellfields it is co-mingled with solutions from other operating wellfields to make up an average head grade of about 45 ppm. Figure 16.8 shows how the proposed 45 ppm head grade was estimated through the use of cumulative decline curves. Since there is a peak followed by a successive depletion in the amount of uranium extracted from the formation from a given wellfield, careful planning of mixing schemes from high yield wellfields and lower yield wellfields is required to maintain the head grade for the operation.



**Figure 16.8: Cumulative Decline Curves**

Peak production of approximately 1.5 million pounds (mlbs) per year is anticipated in Year 4 of the mine plan continuing through Year 11. Uranium production will continue during years 12 and 13 at lower production rates with total production over the life of the mine estimated to be 14.9mlbs.

### **16.1.11 Mine Life**

AUC has estimated the mine life based on head grade, estimated ore, flow rates and closure requirements for the four Resource Units. Figure 1.4 provides the operating and production schedule for the Project as currently defined. Production will generally occur at each PU consecutively and the Project production will occur over a period of approximately 12 years. Restoration and reclamation will also be implemented concurrently with production and will continue approximately four years beyond the production period. The overall mine life is approximately 17 years from initiation of construction activities to completion of restoration and decommissioning and reclamation.

The Project cash flow analysis assumes closure of the wellfields and CPP approximately three years after economic depletion of the uranium within the target ore zones of the three Resource Units that will be mined.

## **16.2 MINE DEVELOPMENT**

Mine development will begin simultaneous with construction of the CPP and PU 1 (six header houses). Each header house is expected to produce 600 gpm of pregnant lixiviant, which is the flow requirement for initial CPP IX circuit operation. The six header houses in PU 1 will begin production, as close to simultaneously as possible, in the first quarter of Year 2.

As the productivity or head grade from the initial headers houses or PU decreases below economic limits, patterns from additional header houses or PUs will be placed into operation in order to maintain the desired flow rate and head grade at the CPP.

It is anticipated that the baseline studies, amendment preparation, review and approval will require approximately three years to complete.

Resource definition drilling (delineation drilling) is on-going. As additional mineral reserve information is acquired, the wellfield design and mine plan will adjust accordingly. The project boundaries may adapt to in-coming delineation drilling results. The specific details of mineral extraction may also be adjusted to ensure the highest yield of recovered minerals is obtained.

### 16.3 MINING EQUIPMENT

Details of the mining equipment necessary for the construction of wellfields, header houses and the CPP are discussed in Section 21. Construction equipment required by AUC to complete construction of the wellfields including pickup trucks, cementers, slurry trucks, etc., are also discussed in Section 21. The CPP consists of multiple tanks, pumps, filters and other processing equipment.

## 17.0 RECOVERY METHODS

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The information presented in Section 17 is in accordance with the guidelines set forth in NI 43-101 and NI 43-101F1. The design of the Project is consistent with that of currently and historically operating ISR facilities in Wyoming. It includes no untested technologies or equipment.

AUC plans to recover uranium from the lixiviant using the ion exchange (IX) process. This same method is typically and successfully used with the ISR method elsewhere in the United States and especially in Wyoming.

### 17.1 PLANT DESCRIPTION

The CPP will house the process equipment in a 50,000 square foot metal building. Bulk chemical storage tanks will be located both within and outside of the CPP. A 2,000 square foot laboratory area and a 3,400 square foot maintenance area will be provided in the CPP as well as change rooms. A 12,000 square foot building will also be constructed north of the CPP to serve as a combined office and shop/warehouse building. In addition to office spaces for professional staff, the 12,000 square foot building will include the computer server room, lunchroom, and restroom facilities, the warehouse and maintenance shop with all the required tools/equipment and various supplies for performing maintenance. See Figure 17.1 for the site layout.

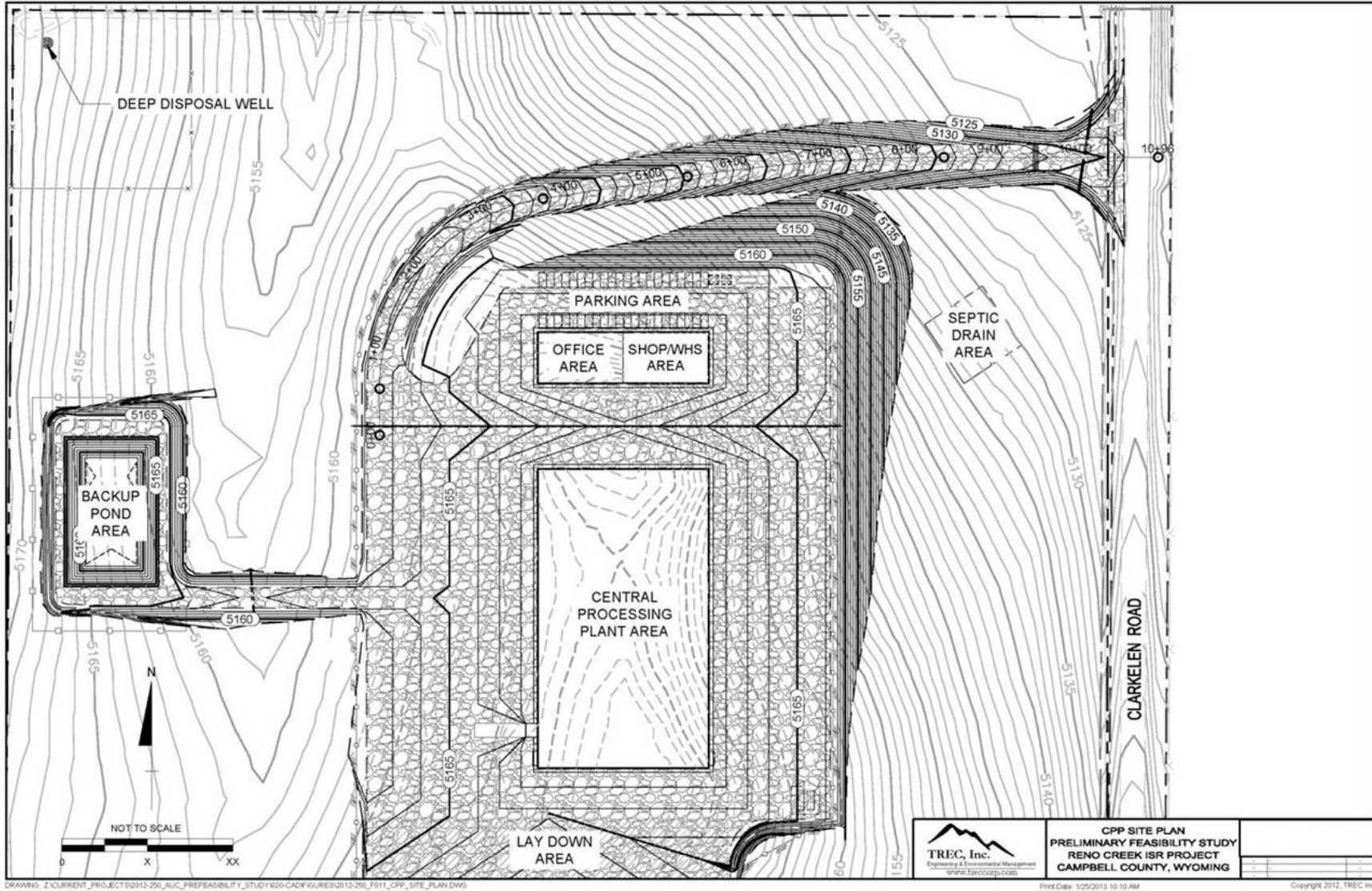


Figure 17.1: CPP Site layout

### 17.1.1 CPP Processing

The proposed CPP will have four major process circuits: the uranium recovery/extraction circuit (IX); the elution circuit to remove the uranium from the IX resin; a yellowcake precipitation circuit; and the dewatering, drying and packaging circuit.

Figure 1.3, Section 1 presents a simplified, typical process flow diagram for the CPP.

## 17.2 PLANT DESIGN

The major process components of the CPP are described in Section 21. The systems within the CPP have been designed to recycle and reuse most of the solutions inside each circuit. A low-volume bleed (approximately one percent of flow) is permanently removed from the groundwater-based leaching solution to ensure a constant inward flow gradient to the PUs and ensure that the leaching solution in the target mineralized zone is contained by the inward movement of groundwater within the designated recovery area. This bleed solution will be routed to RO treatment, and the permeate will be used as process make up water. Brine will be disposed of via DDWs.

As described in Section 21, pregnant lixiviant from the wellfields will be pumped to the CPP for processing as described below:

**IX Circuit** -- Uranium dissolved from the underground deposits in the wellfields will be extracted from the solution in the IX circuit. This evaluation assumes an average uranium head grade of 45 ppm based on the production model and leach tests. Subsequently, the barren lixiviant will be reconstituted to the proper bicarbonate strength, and oxidant will be added, as needed, prior to being pumped back to the wellfield for reinjection. A low-volume bleed, approximately one percent during production and four percent of the circulating lixiviant flow during restoration, will be permanently removed from the lixiviant flow. The bleed will be treated by RO. A portion of the permeate will be returned to the wellfield, and a portion will be used as plant makeup water. Brine will be disposed of into a DDW.

**Elution Circuit** -- When it is fully loaded with uranium, the IX resin will be subject to elution. The elution process will reverse the loading reactions for the IX resin and strip the uranium from the resin. The resulting rich eluate will be an aqueous solution containing salt and sodium carbonate and/or sodium bicarbonate.

**Yellowcake Precipitation Circuit** -- Yellowcake will be precipitated from the rich eluate. The eluate from the elution circuit will be de-carbonated in slurry tanks by lowering the pH below two standard units with strong mineral acid. The yellowcake product will be precipitated with hydrogen peroxide using sodium hydroxide for pH control.

**Yellowcake Dewatering, Drying and Packaging Circuit** -- The precipitated yellowcake slurry will be transferred to a filter press where excess liquid will be removed. Following a fresh water wash step that will flush any remaining dissolved chlorides, the resulting product cake will be transferred to the yellowcake dryer which will further reduce the moisture content, yielding the final dried free-flowing product. Dried yellowcake will be packaged in 55-gallon steel drums.

Prior to completion of the CPP and initial wellfield, AUC will secure a contract with a uranium hexafluoride processing facility. For the purposes of this PFS, it has been assumed that drummed

yellowcake will be shipped via truck approximately 1,220 miles to the Honeywell uranium hexafluoride processing facility in Metropolis, Illinois. This conversion facility is the first manufacturing step in converting the yellowcake into reactor fuel. Figure 17.2 shows the general arrangement of the major process components of the CPP.

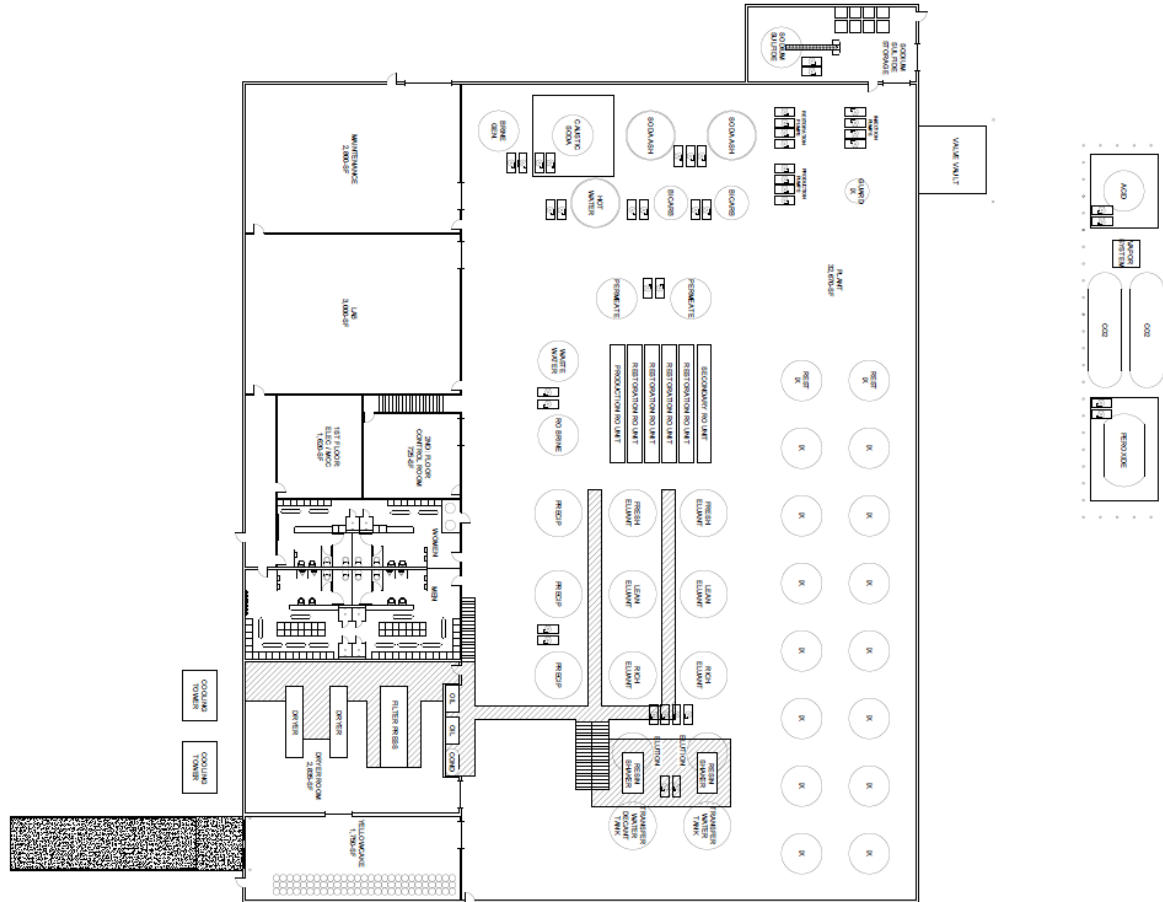


Figure 17.2: CPP General Arrangement

**17.2.1 Liquid Disposal (Deep Disposal Well)**

Typical ISR mining operations require a disposal well for limited quantities of fluids that cannot be returned to the wellfields, primarily bleed from wellfield operations and brine from RO water treatment operations. The RO system used for treating the bleed and for groundwater restoration will be in the CPP. Four DDWs will be required for disposal of liquid waste and AUC has applied for the WDEQ permits for their construction. The capital and operating cost estimates for this PFS assume that four DDWs will be completed and used for this Project.

A back-up storage pond has been designed for the CPP brine waste management operations. The back-up pond is required in the event that part of the DDW system becomes inoperable and/or during MIT of a DDW and allows time for repair or replacement of system components, see Figure 17.1.

The brine back-up pond has an operating capacity of 1.6 acre-feet (ac-ft) with 30 days of storage during maximum flow (production and restoration phase). It is assumed that the brine back-up pond will only be used to temporarily store fluid which requires disposal in the DDWs.

### **17.2.2 Solid Waste Disposal**

Solid wastes will normally consist of spent resin, empty packaging, miscellaneous pipes and fittings, tank sediments, used personal protective equipment and domestic trash. These materials will be classified as contaminated or non-contaminated based on their radiological characteristics.

Non-contaminated solid waste is waste which is not contaminated with radioactive material or which can be decontaminated and re-classified as non-contaminated waste. This type of waste may include trash, piping, valves, instrumentation, equipment and any other items which are not contaminated or which may be successfully decontaminated. Per the license application for the Project permit area Environmental Report (ER) (ref., AUC, 2012) non-contaminated solid waste for the CPP is estimated to be approximately 22 tons per month. Non-contaminated solid waste will be collected in designated areas at the Project site and disposed of in the nearest permitted sanitary landfill which is located near Gillette, Wyoming, approximately 50 miles north of the CPP (ref., AUC, 2012).

Contaminated solid waste consists of solid waste contaminated with radioactive material and that cannot be decontaminated. This waste will be classified as 11e.(2) byproduct material. This byproduct material will consist of filters, personal protective equipment, spent resin, piping, etc. These materials will be temporarily stored on-site and periodically transported for disposal. AUC will establish an agreement for disposal of this waste as 11e.(2) byproduct material in a licensed waste disposal site or licensed mill tailings facility.

Per the ER, production is estimated to generate approximately 100 cubic yards per year of contaminated 11e.(2) byproduct material. This estimate is based on the waste generation rates of similar *in situ* uranium recovery facilities.

## 17.3 ENERGY, WATER AND PROCESS MATERIAL REQUIREMENTS

### **17.3.1 Energy Requirements**

Estimates used in the evaluation presented in this document assume the consumption of approximately 1,000 MBH (thousand British thermal units per hour) of propane to operate one dryer and assume the use of two dryers running for six hours per day each. To heat the CPP during winter months, an estimated 3,300 MBH of propane is required. Additionally, this PFS estimates 22.8 million kWh annually of electricity will be necessary to operate the CPP and the wellfields during peak production with simultaneous mining and restoration activities.

### **17.3.2 Water Requirements**

As previously mentioned, bleed from the lixiviant will be routed to RO treatment, and the permeate will be used as process make up water. Thus, water recycling will eliminate the need for additional process water. However, the fresh water will be required for showers and other domestic uses and will be available for plant wash down and yellowcake wash. Approximately 1.3 gpm of fresh water is anticipated to suffice this demand. Brine from the RO will be routed to the DDWs. This PFS assumes an



average 150 gpm will be disposed through the DDWs during simultaneous production and restoration activities.

### 17.3.3 Process Material Requirements

Chemicals that are anticipated to be used during processing and the assumed annual peak production consumption rates listed in the table below. There may be small quantities of other chemicals used at the site which are not listed in the table below.

**Table 17.1: Estimated Chemical Consumption Rates**

Reagent Consumption		
CO <sub>2</sub> Consumption	1.77	LB/LB U <sub>3</sub> O <sub>8</sub>
O <sub>2</sub> Consumption	5.29	LB/LB U <sub>3</sub> O <sub>8</sub>
Soda Ash Consumption	4.95	LB/LB U <sub>3</sub> O <sub>8</sub>
NaCl Consumption	3.13	LB/LB U <sub>3</sub> O <sub>8</sub>
HCl Sol'n Consumption	2.88	LB/LB U <sub>3</sub> O <sub>8</sub>
H <sub>2</sub> O <sub>2</sub> Sol'n Consumption	0.50	LB/LB U <sub>3</sub> O <sub>8</sub>
NaOH Sol'n Consumption	0.58	LB/LB U <sub>3</sub> O <sub>8</sub>
Na <sub>2</sub> S Consumption	3.42	LB/Kgal

The different types of chemicals will be stored, used and managed so as to ensure worker and environmental safety in accordance with standards developed by regulatory agencies and vendors. The hydrochloric acid and hydrogen peroxide storage areas will include secondary containment. Sodium hydroxide and the various acid and caustic chemicals are of potential concern and will be stored and handled with care. To prevent unintentional releases of hazardous chemicals and limit potential impacts to the public and environment, AUC will implement its internal operating procedures consistent with federal, state and local requirements.

## 18.0 PROJECT INFRASTRUCTURE

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The ISR process selectively removes uranium from the deposit; thus eliminating major concerns associated with conventional uranium mining and milling such as tailings storage areas, waste disposal areas, and heap leach pad(s). When installing a PU, only limited surface disturbance occurs. During the operating life of the mine, vegetation is re-established over the PU and pipeline corridors to prevent erosion and buildup of undesirable weeds.

The basic infrastructure (power, water, and transportation) necessary to support an ISR mining operation at the proposed Project is located within reasonable proximity of the site as further described below.

### 18.1 ELECTRICAL POWER

Powder River Energy Corporation (PRECorp) is anticipated to be the power provider for the Project. The nearest power source for the Project is estimated to be within 200 yards of the proposed CPP. Main power for the Reno Creek Resource Unit will be distributed from a point near the plant. From the distribution point, power will be carried overhead to medium voltage transformers located near each header house and the CPP site. The other resource units will have independent distribution systems, but will have individual transformers for each header house. Low voltage lines will be run from these transformers to each service entrance on header house buildings and at the CPP site.

Smaller loads will have a transformer that will reduce from 480 volts to 208/120 volts as required. All three-phase motors will be started and controlled through standard MCCs. A lock-out point will be provided for each motor and the driven machinery as required by the National Electrical Code (NEC).

### 18.2 CPP FUEL

CPP heating will be achieved through use of propane gas.

### 18.3 SANITARY SEWER

A septic system was designed for the PFS and includes treatment and disposal of sanitary waste from the CPP, office/shop/warehouse buildings.

This system includes one 3,000 gallon precast concrete septic tank, one 1,500 gallon precast concrete dosing tank, dosing pump and low-pressure pipe drainfield. This system will not likely be commissioned until the end of the construction phase; therefore, portable sanitation units will be required during the construction phase. The system will be completely isolated from any process water sources.

### 18.4 FRESH WATER WELL

The Project facilities will require fresh water for showers and other domestic uses. Fresh water will also be available for plant wash down and yellowcake wash, however permeate will be the primary source for all non-potable demands. The domestic water supply system will consist of a new water supply well, a water treatment (chlorination) capability, treated water storage and a water distribution system. This system will not likely be commissioned until the end of the construction phase; therefore, an

alternate potable water source will be required during the construction phase. All potable water sources will also be isolated from any process or raw water systems.

One fresh-water well will be installed near the CPP and equipped with a five-horsepower pump. The well depth at the CPP is anticipated to be 120 feet. The fresh-water well will be in a sandstone interval that is hydrologically isolated from the ore zone. Monitoring and reporting of water quality parameters will be in accordance with state and federal requirements.

## 18.5 ROADS

Transportation routes within 50-miles (80 km) of the proposed project include Interstate highways, non-Interstate U.S. highways, state highways, county roads and local roads. The state transportation routes from the nearest communities are via State Highway 387 between Wright and the highways leading to Kaycee and Edgerton-Midwest. From Wright, State Highway 59 leads north 40 miles to Gillette.

Local access roads within the proposed Project area are Clarkelen-Turnercrest Road and Cosner Road. These roads are improved, all-weather, unpaved roads. In addition to the designated routes, there are a number of routes that traverse the proposed project area for grazing access and other uses such as oil and gas facility access, CBM and oil and gas exploration and production.

The primary state and U.S. highways are well maintained year around. The county roads within the proposed project area that receive less traffic, generally speaking, are maintained and are in fair condition, depending on the season and how recently maintenance occurred. However, the privately owned two-track roads in some portions of the proposed project area can be difficult to navigate in winter and wet weather months due to minimal maintenance and poor drainage. Many of the two-track roads are indistinct, difficult to delineate, or do not have obvious end points.

During the construction, operation, restoration and decommissioning phases of the Project, immediate access to the Project area will be from State Highway 387, from the east or the west. The workforce for each phase will be primarily from Gillette, Wyoming using State Highway 59 then westbound State Highway 387 and from Casper, Wyoming using Interstate Highway 25 then eastbound State Highway 387.

Primary access roads will be used for routine access to the CPP area. The proposed CPP borders Clarkelen Road, a County Road. Therefore, minimal access road construction is required. The close proximity of the CPP to all-weather maintained graveled county roads will be beneficial with respect to transportation of equipment, supplies, personnel and product to and from the CPP.

The secondary access roads will be used at the Project to provide access to the header house buildings. The secondary access roads will be constructed with limited cut and fill construction and may be surfaced with small sized aggregate or other appropriate material.

The temporary wellfield access roads are for access to drilling sites, wellfield development, or ancillary areas assisting in wellfield development. Where possible, AUC will use existing two-track trails or designate two-track trails where the land surface is not typically modified to accommodate the road. These roads will not be surfaced. The temporary wellfield access roads will be used throughout the PUs.

## 18.6 PONDS

As discussed in Section 17, a back-up storage pond has been designed for the CPP brine waste management operations. The back-up pond is required in the event that part of the DDW system becomes inoperable and/or during MIT and allows time for repair or replacement of system components, see Figure 17.1.

The back-up storage pond has an operating capacity of 1.6 ac-ft with 30 days of storage during maximum flow (production and restoration phase). It is assumed that the back-up storage pond will only be used to temporarily store fluid which requires disposal in the DDWs.

## 18.7 PIPELINES

As discussed in Section 16, both the pregnant lixiviant and restoration water will be conveyed via a series of buried pipelines ranging from 1 ½ to 24 inches in diameter. The individual well flow rates and manifold pressures will be monitored in the header houses. These data will be transmitted to the CPP for remote monitoring through a master control system. The user will be capable of shutting down header house production lines from the control system. High density polyethylene (HDPE), PVC, stainless steel, or equivalent piping will be used in the wellfields and will be designed and selected to meet design operating conditions.

The lines from the CPP, header houses and individual well lines will be buried for freeze protection and to minimize pipe movement. Other ISR mines in Wyoming have successfully buried HDPE pipelines. Figure 18.1 illustrates the approximate locations for trunk lines to/from the wellfields and the Plant.

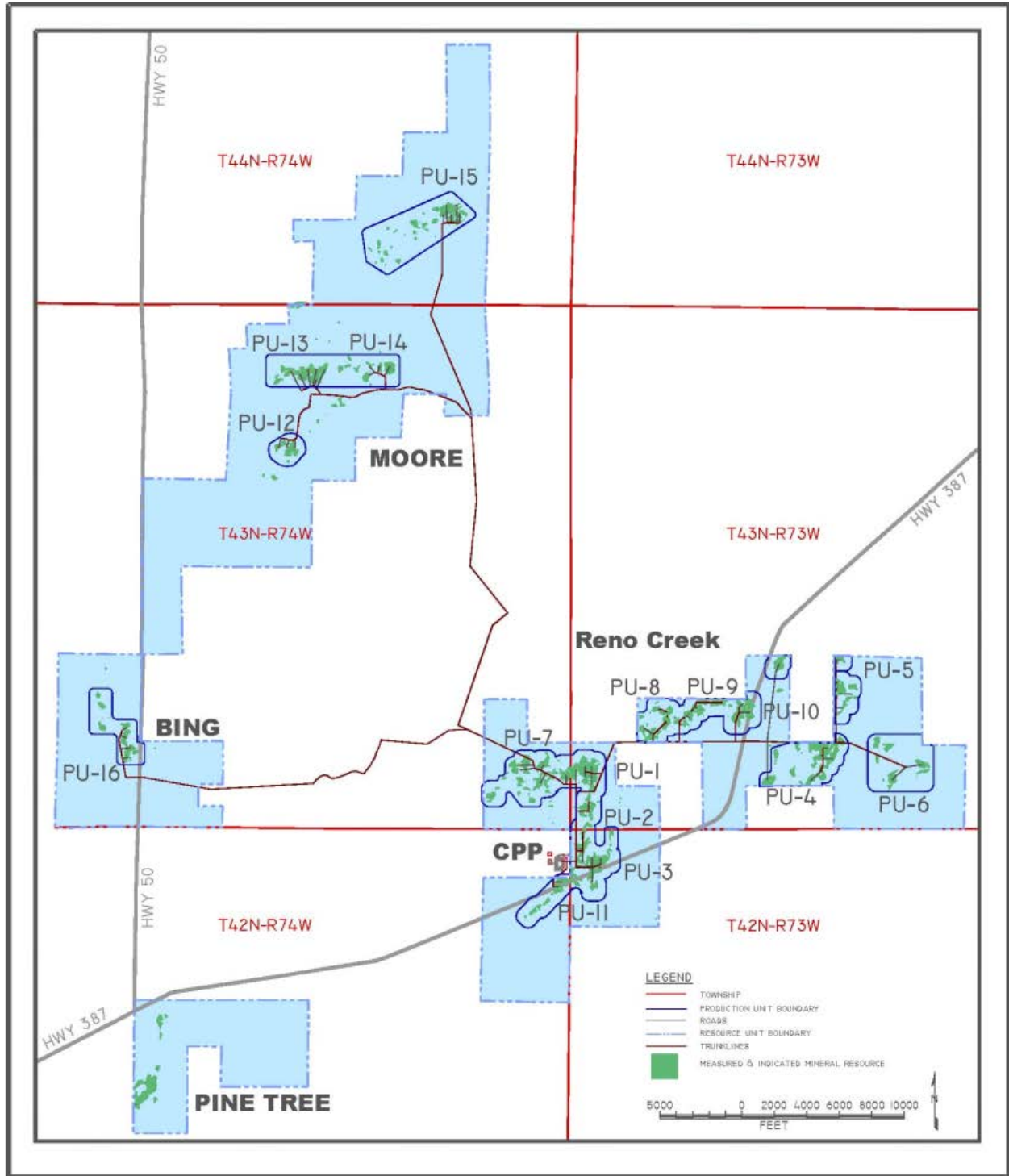


Figure 18.1: Approximate locations for trunk lines to/from the wellfields and the Plant

## 19.0 MARKET STUDIES AND CONTRACTS

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The information presented in Section 19 meets the content requirements of NI 43-101 and NI 43-101F1.

Uranium analysts are forecasting that the uranium price will increase significantly from its current level starting around 2015-2016 as a result of increased demand and supply shortages. A uranium price of \$65 per pound of  $U_3O_8$  was determined to be an acceptable price for the PFS based on the Project's expected startup date. AUC has no contracts in place for sale of product from the project. Contracts for yellowcake transportation, handling and sales will be developed prior to commencement of commercial production.

### 19.1 PRODUCT MARKETS, ANALYSES AND PRICING

Uranium does not trade on an open market like other commodities such as gold, silver and copper. Sales of uranium as  $U_3O_8$  are predominantly contracted on a medium and long term basis with prices determined by a pre-set formulae linked to the reported long term and/or spot prices. AUC has not entered into nor have they initiated negotiations on a contract for uranium sales. For PFS modeling purposes AUC has adopted a price forecast based on averaging uranium price forecasts developed by several investment banks and forecast consulting firms. Table 19.1 summarizes recent uranium price forecasts by analysts. This table demonstrates that price forecasts between \$60 and \$70 by the investment banks and analysts are realistic for the near term of 2015-2017. Based on the uranium price forecast data in Table 19.1, the PFS has assumed  $U_3O_8$  production is sold at a contract price of \$65.00 per pound based on the compilation of various price projection sources.

Table 19.1: Uranium Price Forecasts--Spot Prices

Source Category	Source Document	Forecast Date	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Averages
<b>Individual Analyst</b>													
Raymond James	Research Report	3-Dec-13	\$ 45.00	\$ 56.00	\$ 70.00	\$ 70.00	\$ 70.00	\$ 70.00	\$ 70.00	\$ 70.00	\$ 70.00	\$ 70.00	\$ 66.10
Cantor Fitzgerald	U <sub>3</sub> O <sub>8</sub> .biz	19-Dec-13	\$ 43.25	\$ 62.50	\$ 70.00	\$ 70.00	\$ 70.00	\$ 70.00	\$ 70.00	\$ 70.00	\$ 70.00	\$ 70.00	\$ 66.58
Macquarie	Research Report	Dec-13	\$ 42.50	\$ 47.50	\$ 52.50	\$ 60.00	\$ 70.00	\$ 70.00	\$ 70.00	\$ 70.00	\$ 70.00	\$ 70.00	\$ 62.25
Dundee	Research Report	Nov-13	NA	\$ 65.00	\$ 65.00	\$ 65.00	\$ 65.00	\$ 65.00	\$ 65.00	\$ 65.00	\$ 65.00	\$ 65.00	\$ 65.00
Paradigm Capital	Research Report	Jan-13	\$ 60.00	\$ 60.00	\$ 75.00	\$ 75.00	\$ 75.00	\$ 75.00	\$ 75.00	\$ 75.00	\$ 75.00	\$ 75.00	\$ 72.00
<b>Average Analysts</b>			<b>\$ 43.58</b>	<b>\$ 58.20</b>	<b>\$ 66.50</b>	<b>\$ 68.00</b>	<b>\$ 70.00</b>	<b>\$ 70.00</b>	<b>\$ 70.00</b>	<b>\$ 70.00</b>	<b>\$ 70.00</b>	<b>\$ 70.00</b>	<b>\$ 65.63</b>
<b>Uranerz</b>	<b>Corp. Presentation</b>	<b>1-Nov-13</b>											
BMO	Research Report	12-Aug-13	\$ 70.00	\$ 60.00	\$ 60.00	\$ 60.00							\$ 62.50
Cantor Fitzgerald	Research Report	24-Oct-13	\$ 42.00	\$ 62.00	\$ 70.00	\$ 70.00							\$ 61.00
CIBC	Research Report	5-Jun-13	\$ 65.00	\$ 70.00	\$ 70.00	\$ 70.00							\$ 68.75
Credit Suisse	Research Report	3-Apr-13	\$ 56.00	\$ 65.00	\$ 70.00	\$ 65.00							\$ 64.00
Dundee	Research Report	16-Sep-13	\$ 62.00	\$ 65.00	\$ 65.00	\$ 65.00							\$ 64.25
GHS	Research Report	4-Mar-13	\$ 65.00	\$ 65.00	\$ 65.00	\$ 65.00							\$ 65.00
Haywood	Research Report	26-Nov-13	\$ 60.00	\$ 70.00	\$ 75.00	\$ 75.00							\$ 70.00
JP Morgan	Research Report	23-Apr-13	\$ 62.00	\$ 65.00	\$ 86.00	\$ 90.00							\$ 75.75
Laurentian Bank	Research Report	17-Sep-13	\$ 52.00	\$ 60.00	\$ 65.00	\$ 70.00							\$ 61.75
Paradigm	Research Report	30-Jan-13	\$ 60.00	\$ 60.00	\$ 75.00	\$ 75.00							\$ 67.50
RBC Capital	Research Report	26-Nov-13	\$ 55.00	\$ 65.00	\$ 75.00	\$ 80.00							\$ 68.75
Raymond James	Research Report	27-Sep-13	\$ 45.00	\$ 55.00	\$ 70.00	\$ 70.00							\$ 60.00
<b>Average URZ</b>			<b>\$ 57.83</b>	<b>\$ 63.50</b>	<b>\$ 70.50</b>	<b>\$ 71.25</b>							<b>\$ 65.77</b>
<b>Black Range</b>	<b>Corp. Presentation</b>	<b>Nov 1, 2013</b>											
Cantor Fitzgerald	Research Report	Oct-13	\$ 43.25	\$ 62.50	\$ 70.00	\$ 70.00	\$ 70.00	\$ 70.00	\$ 70.00	\$ 70.00	\$ 70.00	\$ 70.00	\$ 66.58
Hartleys	Research Report	Sep-13	\$ 47.00	\$ 56.00	\$ 63.00	\$ 68.00	\$ 63.00	\$ 63.00	\$ 63.00	\$ 63.00	\$ 63.00	\$ 63.00	\$ 61.20
RFC Ambrian	Research Report	Jul-13	\$ 50.00	\$ 65.00	\$ 70.00	\$ 75.00	\$ 75.00	\$ 75.00	\$ 75.00	\$ 75.00	\$ 75.00	\$ 75.00	\$ 71.00
Argonaut	Research Report	Jul-13	\$ 60.00	\$ 70.00	\$ 70.00	\$ 75.00	\$ 75.00	\$ 75.00	\$ 75.00	\$ 75.00	\$ 75.00	\$ 75.00	\$ 72.50
Macquarie	Research Report	May-13	\$ 53.00	\$ 63.00	\$ 70.00	\$ 70.00	\$ 60.00	\$ 60.00	\$ 60.00	\$ 60.00	\$ 60.00	\$ 60.00	\$ 61.60
JP Morgan	Research Report	May-13	\$ 58.00	\$ 70.00	\$ 90.00	\$ 70.00							\$ 72.00
<b>Average Black Range</b>			<b>\$ 51.88</b>	<b>\$ 64.42</b>	<b>\$ 72.17</b>	<b>\$ 71.60</b>	<b>\$ 68.60</b>	<b>\$ 68.60</b>	<b>\$ 68.60</b>	<b>\$ 68.60</b>	<b>\$ 68.60</b>	<b>\$ 68.60</b>	<b>\$ 67.17</b>
<b>Salman Partners</b>	Research Report	12-Feb-14	<b>\$ 49.06</b>	<b>\$ 68.10</b>	<b>\$ 63.02</b>	<b>\$ 59.13</b>	<b>\$ 60.26</b>						<b>\$ 59.91</b>
<b>Ur-Energy</b>	PEA	30-Dec-13	<b>\$ 54.10</b>	<b>\$ 61.93</b>	<b>\$ 69.88</b>	<b>\$ 67.48</b>	<b>\$ 63.58</b>	<b>\$ 64.33</b>	<b>\$ 65.00</b>	<b>\$ 65.00</b>	<b>\$ 65.00</b>	<b>\$ 65.00</b>	<b>\$ 64.13</b>
<b>Average All Sources</b>			<b>\$ 54.13</b>	<b>\$ 62.78</b>	<b>\$ 69.78</b>	<b>\$ 69.98</b>	<b>\$ 68.07</b>	<b>\$ 68.85</b>	<b>\$ 68.91</b>	<b>\$ 68.91</b>	<b>\$ 68.91</b>	<b>\$ 68.91</b>	<b>\$ 66.92</b>

Analysts are in agreement that the market fundamentals for uranium remain strong with the supply for nuclear reactors increasing and supply of secondary materials decreasing (such as the ending of the HEU program between the U.S. and Russia). Demand for uranium is expected to continue to rise for the foreseeable future. Various uranium analysts (Scotia and Dundee) are forecasting a shortage in uranium supply by 2015. Although the Fukushima Daiichi nuclear accident has affected nuclear power projects and policies in some countries, nuclear power remains a key and growing part of the global energy mix. The government of Japan recently issued its Energy Policy, which affirmed that nuclear energy was to remain a significant portion of its energy mix, and supported the re-starting of several idled nuclear reactors. Several governments have plans for new nuclear power plant construction, with the strongest expansion expected in China, India, the Republic of Korea and the Russian Federation. Table 19.2 summarizes the number of current nuclear plants in operation, nuclear plants under construction, new and closed and the number in operation in 2022 with a net increase of 67 nuclear plants at that time.

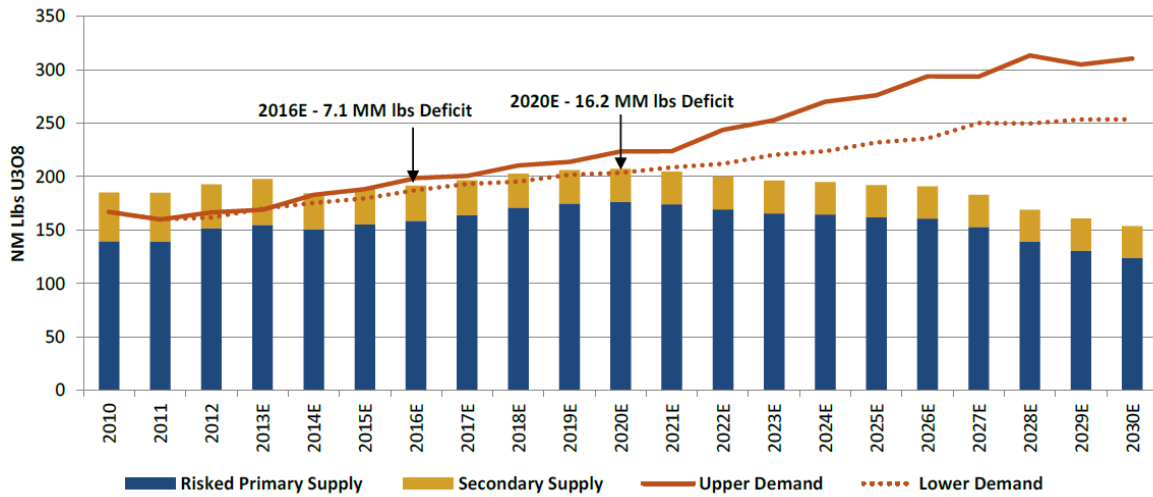
**Table 19.2: Nuclear Power Plants**

Region/Country	Operating 2013	Under Construction 2013	New	Closure	Operating 2022	NetChange
Americas	125	5	8	7	126	+1
Asia (excl. China, India)	77	9	14	8	83	+9
<b>China</b>	17	28	56	0	73	+28
<b>Europe</b>	136	2	12	16	132	-4
<b>India</b>	20	7	14	0	34	+7
<b>Russia/E. Europe</b>	49	12	20	12	57	+12
<b>Other</b>	6	4	10	0	16	+4
<b>Totals</b>	<b>430</b>	<b>67</b>	<b>134</b>	<b>43</b>	<b>521</b>	<b>+67</b>

Source: Cameco

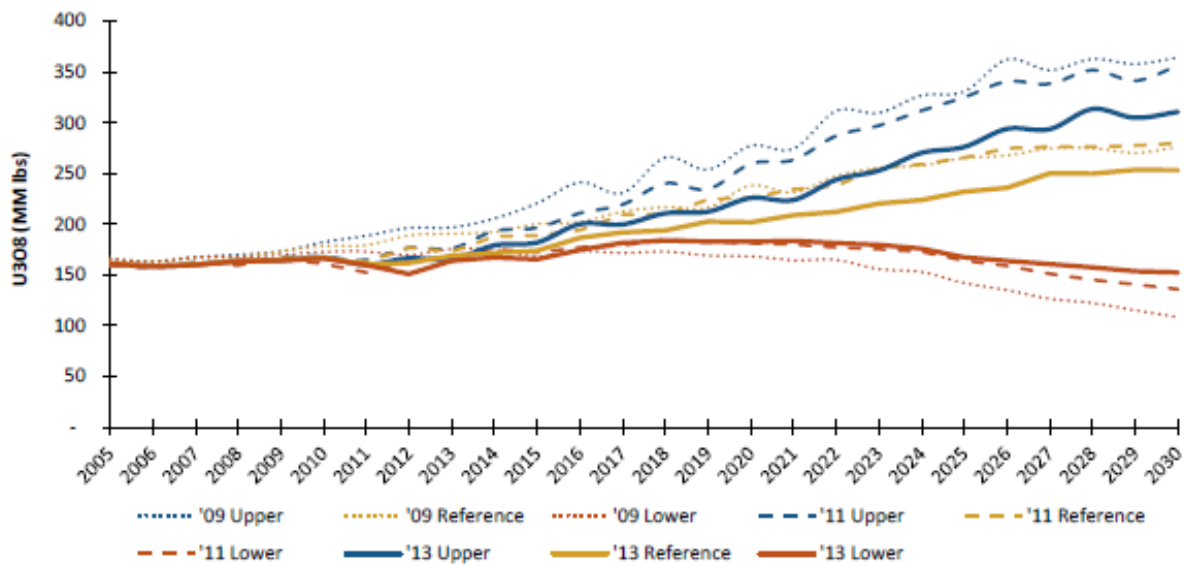
Uranium demand is a function of its consumption for the generation of electricity in nuclear reactors. By the year 2035, according to the joint NEA-IAEA Secretariat, world nuclear electricity generating capacity is projected to grow from 375 GWe net (at the end of 2010) to between 540 GWe net in the low demand case and 746 GWe net in the high demand case, increases of 44 percent and 99 percent respectively. Accordingly, world annual reactor-related uranium requirements are projected to rise from 63,875 tonnes of uranium metal (tU) at the end of 2010 to between 98,000 tU and 136,000 tU by 2035 (ref., IAEA, 2011). Analysts forecast a supply-demand deficit will start to occur in 2016 as the estimated uranium supply from primary and secondary sources will be insufficient to meet the forecast reactor demand. The excess of demand over supply will likely result in the signing of more uranium contracts and rising uranium prices. Figure 19.1 shows a risk weighted supply curve for Dundee Capital Markets, a Canadian analyst.





**Figure 19.1: Dundee's Risk Weighted Supply Curve**

Analysts are forecasting that uranium demand will increase at a rate of 2.5 to 4.0 percent per year. These forecasts are based on the number of nuclear reactors currently in operation, reactors closed, reactors under construction and planned reactors. The World Nuclear Association (WNA) estimates that the uranium requirements for nuclear reactors is currently about 170 million pounds and is forecast to increase to 201 million pounds by 2020 and 253 million pounds by 2030. This represents a 2.5 percent growth rate at a base case scenario and a 3.8 percent increase at an upper case scenario. Figure 19.2 shows a comparison of nuclear reactor requirements by the WNA for various scenarios.



Source: WNA, Dundee Capital Markets

**Figure 19.2: Comparison of Nuclear Reactor Requirements**

As a result of announced nuclear plant closures in U.S. and Europe, the uranium demand forecasts in these markets are now lower in the near term. These closures represent the highest risk to a lower uranium demand in the near term with a continued weak U.S. economy and low gas prices also

contributing to this scenario. WNA is becoming more optimistic about Japan and the restart of some of its nuclear reactors in the near to medium term. Table 19.3 shows a summary of the WNA's uranium requirements until 2030 for their reference and upper scenarios with increases between 50 and 88 percent.

**Table 19.3: Summary of the WNA's Estimates of Uranium Requirements until 2030**

Uranium Requirements - Upper Scenario										Lift 2013 to
MM lbs U3O8	2007	2008	2009	2010	2013E	2015E	2020E	2025E	2030E	2030
WNA 2007	167.4	170.7	171.7	175.4	193.3	212.1	239.7	319.1	387.4	100%
WNA 2009	167.3	167.6	173.2	182.3	196.7	220.6	277.1	330.6	364.1	85%
WNA 2011	167.3	167.6	173.2	167.6	176.0	196.5	259.4	325.0	356.0	102%
WNA 2013	160.2	163.7	164.5	167.1	165.0	182.0	225.7	276.1	310.5	88%
Uranium Requirements - Reference Scenario										Lift 2013 to
MM lbs U3O8	2007	2008	2009	2010	2013E	2015E	2020E	2025E	2030E	2030
WNA 2007	167.4	168.0	170.1	168.2	182.1	192.4	210.6	248.0	283.8	56%
WNA 2009	167.3	167.6	173.2	178.5	190.7	200.0	238.0	265.2	275.9	45%
WNA 2011	167.3	167.6	173.2	165.9	172.9	189.0	226.2	265.6	279.6	62%
WNA 2013	160.2	163.7	164.5	166.9	168.9	173.9	201.8	231.9	253.4	50%

Dundee Capital Markets has prepared estimates for risked and un-risked uranium supply curve and demand estimates for 2010 – 2012 (actual) and 2013 – 2030 (estimated). Table 19.4 shows this demand and supply data for 2010 (actual) to 2020 (estimated).

**Table 19.4: Demand and Supply Data for 2010 to 2020**

	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E	2018E	2019E	2020E
<b>Supply:</b>											
Un-Risked Primary Supply	140	139	152	159	163	180	202	215	235	249	266
Risked Primary Supply	140	139	152	155	151	155	159	164	171	175	177
Secondary Supply	46	46	41	43	33	34	33	32	32	31	31
<b>TOTAL UN-RISKED SUPPLY</b>	<b>185</b>	<b>185</b>	<b>193</b>	<b>202</b>	<b>196</b>	<b>213</b>	<b>235</b>	<b>248</b>	<b>266</b>	<b>280</b>	<b>297</b>
<b>TOTAL RISKED SUPPLY</b>	<b>185</b>	<b>185</b>	<b>193</b>	<b>198</b>	<b>184</b>	<b>189</b>	<b>192</b>	<b>196</b>	<b>203</b>	<b>206</b>	<b>207</b>
<b>Demand:</b>											
Upper Demand	167	160	167	169	183	188	199	201	210	214	223
Lower Demand	167	160	162	170	175	180	187	193	195	202	204
<b>Surplus/Defecit - Risked Supply</b>											
Upper Demand	18.2	24.9	26.1	28.9	1.2	0.4	-7.1	-4.3	-7.7	-7.8	-16.2
Lower Demand	18.4	24.6	31.0	27.9	8.7	9.0	4.2	3.3	7.3	4.1	3.7

The Dundee data shows a positive scenario for uranium prices and producers starting in 2016 with significant supply shortages which will continue through 2030 for the upper demand case. For the lower demand case, supply shortages are forecast to occur from 2021 through 2030.

Meeting projected demand will require timely investments in new uranium production facilities because of the long lead times (typically in the order of ten years or more in most producing countries) required to develop production facilities that can turn resources into refined uranium ready for nuclear fuel production.

## 19.2 CONTRACTS

AUC has no contracts in place for sale of uranium produced from the Reno Creek Project, nor is AUC in negotiations for such an agreement at the date of this report.

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

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The information presented in Section 20 is in accordance with the guidelines set forth in NI 43-101 and NI 43-101F1.

AUC submitted its license application to NRC in October, 2012. Its WDEQ application for a permit to mine was submitted in January of 2013 (ref., AUC, 2012 and AUC, 2013). The area addressed by the license and permit applications is shown on Figure 4.1 and includes the Reno Creek Resource Unit. This area does not include the Moore, Bing or Pine Tree Resource Units. License and permit amendments will be developed in the future for these areas, see the life of mine schedule in Figure 1.4.

The results of the baseline studies performed for the license and permit applications for the Reno Creek Project area plus those supporting ongoing and historical energy and other development activities indicate that specific environmental concerns are not likely for the Moore, Bing or Pine Tree Resource Units.

### 20.1 ENVIRONMENTAL STUDIES AND ISSUES

NRC license pre-submittal meetings were held November 15-17, 2011 between AUC and the NRC in Wright, Wyoming. The public were invited to attend but none were present at the meetings. The pre-submission audit consisted of a site tour and an audit of the preliminary draft application. The NRC staff commented on the draft document and those comments were addressed within the final application. As a consequence, when NRC's requests for additional information were received in February of 2014, there were few substantive requests for additional information. NRC filed a public notice of its intent to prepare a Supplemental Environmental Impact Statement on September 15, 2013. At the conclusion of the public notice and comment period, NRC had received no requests for a public hearing, and proceeded with the EIS preparation. At present, NRC anticipates release of the Draft EIS in the fall of 2014 and the Final SEIS in the fall of 2015.

It is anticipated that the Permit to Mine will be issued by the WDEQ Land Quality Division during 2014.

Two areas of uranium reserves will require additional permitting: The Moore and Bing Resource Units, plus the portion of Reno Creek lying just SE of the permit boundary in Section 34.

Once a facility has been permitted and in operation, WDEQ and NRC have similar processes to add uranium resource areas and/or processing/infrastructure to the existing permit or license using a straight-forward amendment procedure. In the case of the Section 34 and Moore Trend properties, the amendments would only involve wellfields and the linking pipelines, significantly lesser potential impacts than the original Reno Creek Project.

AUC has projected that the amendment procedure for Section 34 could be initiated as early as Year 3 and the Moore & Bing Units could be initiated as early as Year 5. Funds for the appropriate activities and time needed for processing of the applications are included in the cash flow statement.

The regulatory approval risks are mitigated by the long history of intensive grazing land usage and natural resource extraction in the immediate area of the overall Reno Creek Project. AUC's land

holdings of nearly 22,000 acres (approximately 34 square miles) are contained in an area of approximately 6 Townships (216 square miles).

Virtually all of the 216 square miles have been used for stock grazing for more than 100 years. In addition, portions have been subject to dryland agriculture off and on since the early 20<sup>th</sup> century, including the intentional removal of Sagebrush over large portions of the region to enhance grazing. Oil production commenced in the 1950s and has seen at least three major surges/booms including the present boom involving unconventional/shale/hydrofracturing/horizontal drilling. As of Feb 2, 2014, there are approximately 275 oil wells which have been drilled and/or operated in the area of the Reno Creek Project (an additional 149 wells have a permit or are awaiting an approval to drill), including at least 45 oil wells on AUC's land holdings with an additional 30 wells that have a permit or are awaiting approval to drill. In addition, there are approximately 200 miles of roads/pipelines serving oil developments in the same area.

In the 1990s, the coal bed methane production boom commenced, and is only now beginning to abate. As of Feb 2, 2014, there are about 1,500 CBM wells operating or recently abandoned in the area of the Reno Creek Project, including 301 CBM wells on AUC's holdings. More than 450 CBM wells are on properties adjacent to AUC's holdings. In addition, there are more than 300 miles of roads/pipelines and pumping stations serving CBM production in the project area.

The development of oil and CBM is subject to similar environmental review processes as a mining operation such as Reno Creek. The CBM development for the entire Powder River Basin (including SE Montana) was subject to a Federal/BLM Regional EIS before CBM leasing grew to current levels. CBM development in the Powder River Basin of WY alone totals nearly 16,000 production wells plus thousands of miles of infrastructure. The day to day production permitting emerging from the final EIS is conducted by the WY Oil and Gas Conservation Commission (WOGCC), an agency that considers both environmental and operational factors.

Oil development permitting involves primarily the WOGCC, but can involve the BLM as well during leasing activities for federally owned petroleum minerals. The BLM and the WOGCC consider environmental and operational factors in the permitting process.

One hundred percent of AUC's holdings have been subject to prior environmental baseline evaluations as part of the petroleum industry permitting process. The permitting of many oil and gas wells includes public hearings and comment. In addition, full permitting and licensing was accomplished for Uranium One's Moore Ranch ISR Uranium Facility immediately southwest of the Pine Tree Resource Unit.

Therefore, it is anticipated that no major issues will be raised that will prevent approval of the necessary permit or license amendments for the Moore, Bing and Pine Tree Resources Areas. A summary of the results of site-specific environmental studies is given below.

### **20.1.1 Surface and Groundwater Quality**

All streams within the proposed Project area and two mile buffer are classified as ephemeral streams incapable of supporting fish populations or drinking water supplies. All drainages in the proposed project area are also ephemeral in nature. The predominant source of surface water is from thunderstorms and spring snowmelt. No land is used for crops or other irrigated vegetation within the proposed Project boundary. The few water bodies that do exist across the proposed project area are

scattered and small and are primarily man-made stock watering impoundments. The impoundments accumulate limited rainfall and snowmelt, plus CBM discharge water and water from stock wells.

Surface water runoff from precipitation (rain and snowmelt) at the proposed project facilities will flow from the facilities area to natural drainages. None of the runoff will flow directly into either artificial or natural streams or wetlands. The potential for contamination of surface-water runoff is also minimal because the CPP and back-up pond are self-contained. All exterior chemical and fuel tanks will have a means of secondary containment, including cement curbs, berms and CPP walls. The CPP and back-up pond area will be graded and sloped to direct precipitation runoff away from building foundations in all directions to a storm water conveyance system. The storm water conveyance system will be designed to pass the 50-year flood. Due to the location of the CPP, back-up pond, and wellfield areas related to the surrounding topography, impacts from flooding are expected to be minimal.

Within the proposed Project area, the overlying aquifer is considered the uppermost aquifer. Based on the depth to the top of the overlying aquifer and the observed sequence of finer grained silt and shale that overlies this aquifer, the overlying aquifer is considered isolated from the surface water drainages present in the proposed Project area. As all surface drainages in the Project area are characterized as ephemeral, the lack of a perennial wetting front and the distance between ground surface and the top of the overlying aquifer support this conclusion of isolation between surface water and the overlying aquifer.

The underlying unit within the proposed Project area is comprised of relatively ratty sandstones that are discontinuous and often lenticular. This underlying unit is not continuous or hydraulically connected across the Project area, based on geologic data and potentiometric data. Based upon the extremely low well yields and hydraulic conductivities at wells completed in this underlying unit, this unit does not meet the definition of an aquifer according to 10 CFR Part 40.

Rocky Mountain Energy (RME) conducted a series of hydrogeological investigations within the Project area in 1982. The significance of the Hydrogeological Integrity Study conducted by RME demonstrates that the numerous exploratory boreholes do not provide a conduit to crossflow of groundwater between aquifer units, due to the natural sealing capacity of the swelling clays present in confining units with respect to the production zone sand. Recent pump testing and re-entry of many historical drill holes conducted across the Project area has also provided additional confirmation of hydraulic isolation of the overlying aquifer and underlying unit (which is not considered an aquifer) with respect to the production zone.

Groundwater flow in the Production Zone Aquifer (PZA) is to the northeast and structural dip is to the northwest at approximately 35 to 50 feet per mile. Geologic confinement of the PZA by the overlying and underlying aquitards exists across the entire project area. Aquifer conditions transition from fully saturated in the western portion of the Project area to partially saturated conditions in the eastern project area. Based on available information to date, partially saturated conditions exist in approximately 30 percent of the Project area. The partially saturated conditions will impact the mineability of some of the resources and this has been accounted for in the conversion to reserves.

### **20.1.2 Cultural and Historic Resources**

Cultural resources, which are protected under the National Historic Preservation Act (NHPA) of 1966, are nonrenewable remains of past human activity. There are no culturally significant places listed in

either the National Register of Historic Places (NRHP) or state registers for the Project area. An intensive Class III Cultural Resource Evaluation for the Project was conducted between August 5, 2010 and December 11, 2010. Seventy-nine cultural localities were identified within the Project area, all of which have been evaluated as not eligible for the NHRP. To date there are no Native American Heritage sites which have been formally identified and recorded which are associated with the Project area.

The Project area is geographically located 7.5-miles from the Pumpkin Buttes which have been identified as a traditional cultural property (TCP). The Project area is located well beyond the TCP boundary which negates the necessity to obtain a mandatory Memorandum of Agreement (MOA) for the operation of the Project facility. Regardless, AUC commits to ongoing monitoring of historic and cultural resources as project development progresses. Mitigation measures consistent with approved ISR operations elsewhere in Wyoming are proposed by AUC to avoid or reduce cultural resource impacts.

At present, AUC is working closely with the NRC and interested tribes during the conduct of consultation associated with Section 106 of the NHPA, which is required for any major Federal government action (e.g., permitting). The consultation is planned to be incorporated into NRC's draft EIS.

### **20.1.3 Paleontological Resources**

The BLM utilizes the Potential Fossil Classification System (PFYC) for land use planning efforts and for the preliminary assessment of potential impacts and proper mitigation needs for specific projects. The entirety of the Project area is considered the Wasatch Formation which the BLM designates a PFYC Class 5. This rating suggests that a very high relative abundance of vertebrate, invertebrate or plant fossils may exist in the area. However, the Class III survey conducted in 2010 found no fossil or other paleontological evidence at the Project area.

### **20.1.4 Visual and Scenic Resources**

A site-specific Visual Resource Management (VRM) evaluation for the Project area was conducted July 2011 based on methods provided in BLM Manual 8410. The key factors of landform, vegetation, water, color, influence of adjacent scenery, scarcity and cultural modifications were evaluated and scored according to the rating criteria. If the visual resource evaluation rating is nineteen (19) or less, no further evaluation is required. Based on the site specific evaluation the total score of the scenic quality inventory for the Project is eight (8) out of the possible 32. Therefore, no further evaluation is required for existing scenic resources and any changes to scenic resources from Project facilities.

### **20.1.5 Threatened, Endangered, or Candidate Species**

The USFWS has identified three federally listed species potentially occurring in Campbell County that require monitoring for project development. Those include two plant species, the Ute ladies'-tresses (threatened) and blowout penstemon (endangered), and one vertebrate species, the greater sage-grouse (candidate) (USFWS 2010). No individuals or populations of blowout penstemon or Ute ladies'-tresses were found during field surveys of the Reno Creek Permit area, and local habitat was confirmed unsuitable for either plant species. Other than a single female sage-grouse that was documented in 2011, no threatened, endangered, candidate, or proposed wildlife species have been documented in the Reno Creek Permit survey area during surveys. There are three sage-grouse leks within four miles of the Reno Creek Permit boundary; all are east and southeast of the boundary. The closest core areas are the Buffalo and Thunder Basin areas located approximately 20 miles west and east, respectively, of the

Project area. However, no core or connectivity areas for sage-grouse have been designated by the State of Wyoming in the Project area or the four mile review area. The sage-grouse is currently considered a candidate species under the Endangered Species Act (ESA), and will undergo an annual review of its status to determine if a change in that decision is warranted.

## 20.2 BYPRODUCT DISPOSAL

The 11e.(2) or non-11e.(2) byproduct disposal methods are discussed in detail in Section 17. Deep disposal wells, landfills, and licensed 11e.(2) facilities will be used depending on the level of contamination for the given waste product.

## 20.3 PERMITTING REQUIREMENTS, PERMIT STATUS, FINANCIAL ASSURANCE

Permitting requirements, status and financial assurance are discussed in other sections of this PFS. A summary of each of these subjects is provided below.

### **20.3.1 Permit Status**

Permit status is discussed in Section 4.5. In summary, the Source Materials License application for the Project Permit Area has been submitted to the NRC and is under review. The Permit to Mine application for the Project Permit Area was submitted to the WDEQ/LQD in January 2013.

Other permits are in the process of being developed or have been developed and submitted to the appropriate regulatory agencies, see Table 4.1.

The Moore, Bing and Pine Tree Resource Units will require that license and permit amendments be developed prior to construction or operations in these areas.

### **20.3.2 Financial Assurance**

Financial Surety will be required by the State of Wyoming and the NRC. The Project will be secured for the entire estimated amount of total closure costs which include groundwater restoration, facility decommissioning and reclamation. The financial surety cost estimate assumes zero percent interest earned on the surety bond. The annual financial surety amount is based on the estimated amount of annual development that would require closure in the case of default by the owner.

## 20.4 COMMUNITY AFFAIRS

AUC has an ongoing community affairs program, directed by senior staff, its environmental manager, and its land department. AUC maintains routine contacts with landowners, local communities and businesses, and the general public. The senior operational managers, environmental manager, and landman will be onsite at the facility, and are included in the administrative support labor costs in operating costs.



## 20.5 PROJECT CLOSURE

### **20.5.1 Well Abandonment / Groundwater Restoration**

Groundwater restoration will begin as soon as practicable after uranium recovery in each wellfield is completed (as determined by project economics). If a depleted wellfield is near an area that is being recovered, a portion of the depleted area's restoration may be delayed to limit interference with the ongoing recovery operations. A reductant, sodium sulfide, is planned to be used to enhance the groundwater restoration process.

Restoration completion assumes up to seven pore volumes of groundwater will be extracted and treated by reverse osmosis. Following completion of successful restoration activities, the injection and recovery wells will be plugged and abandoned in accordance with WDEQ/LQD regulations. Monitor wells will also be abandoned following verification of successful groundwater restoration.

### **20.5.2 Demolition and Removal of Infrastructure**

Simultaneous with well abandonment operations, the trunk and feeder pipelines will be removed, tested for radiological contamination, segregated as either solid 11e.(2) or non-11e.(2) then chipped and transported to appropriate disposal facilities. The header houses will be disconnected from their foundations, decontaminated, segregated as either solid 11e.(2) or non-11e.(2), and transported to appropriate disposal facilities. The CPP processing equipment and ancillary structures will be demolished, tested for radiological properties, segregated and either scrapped or disposed of in appropriate disposal facilities based on their radiological properties.

### **20.5.3 Site Grading and Revegetation**

Following the removal of wellfield and CPP infrastructure, site roads, which the surface owner does not desire to keep, 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.

## 21.0 CAPITAL AND OPERATING COSTS

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The information presented in Section 21 has been prepared in accordance with the guidelines set forth in NI 43-101 and NI 43-101F1.

TREC prepared this estimate of capital and operating costs on the basis of the design data and assumptions described herein. The costs were developed on a first principles basis, including specifications and current vendor quotes for all major pieces of equipment, installation and construction costs. Both the capital and operating costs are current as of the end of 2013.

### 21.1 CAPITAL COSTS

The capital costs provided below address the development of a 1.5 mlbs annual capacity CPP located within the Project area and the associated wellfields within the PUs. Capital cost estimates are representative of the capital and infrastructure costs required for the estimated reserves as of the date of this report. The current life of mine schedule shown in Figure 1.4. The life of mine schedule anticipates pre-production construction work will begin in Year 1. This work consists of constructing a 1.5 mlbs annual capacity CPP and developing the first PU within the Reno Creek Resource Unit. The further development of wellfields will be expensed as “Subsequent” capital costs and are discussed in Section 21.2.

Detailed discussion of mining and recovery methods and associated infrastructure are provided in Section 16, Section 17, and Section 18.

The following sections provide a summary of the quantities and assumptions used to develop the initial capital costs for the CPP and PU 1. Table 21.1 provides a summary of all capital costs and illustrates how the development costs have been divided between initial capital and “Subsequent” capital costs. Total initial capital costs are estimated at \$78.4 million, including initial capital for the CPP of \$44.0 million, the capital cost for PU1 of \$19.3 million, and indirect costs of \$15.1 million. Life-cycle capital costs, the cost for all development, is estimated at US\$191 million, and includes both indirect costs and EPCM.

**Table 21.1: Development Cost Summary**

Item Description <sup>1</sup>	Initial Capital <sup>2</sup> CPP & PU1 (\$US 000s)	Subsequent <sup>3</sup> Capital PUs 2-18 (\$US 000s)	Total Capital Costs (\$US 000s)
<b>DIRECT CAPITAL COSTS<sup>4</sup></b>			
<b>Plant (CPP) Development Costs</b>			
IX Circuit	\$ 6,131	\$ -	\$ 6,131
Elution Circuit	\$ 879	\$ -	\$ 879
Drying & Precipitation Circuit	\$ 4,204	\$ -	\$ 4,204
Groundwater Restoration Circuit <sup>5</sup>	\$ 1,938	\$ 1,437	\$ 3,375
Building & Infrastructure <sup>6</sup>	\$ 14,431	\$ -	\$ 14,431
Installation Costs	\$ 4,335	\$ -	\$ 4,335
Deep Disposal Wells <sup>7</sup>	\$ 6,360	\$ 6,360	\$ 12,720
<i>Subtotal</i>	\$ 38,278	\$ 7,797	\$ 46,074
Contingency (Average of approximately 14%)	\$ 5,739	\$ 799	\$ 6,537
<b><i>Plant (CPP) Development Cost Subtotal</i></b>	<b>\$ 44,016</b>	<b>\$ 8,596</b>	<b>\$ 52,612</b>
<b>Wellfield Development Costs</b>			
Wellfield Cost <sup>8</sup>	\$ 17,101	\$ 91,915	\$ 109,016
Contingency (Average of approximately 13%)	\$ 2,195	\$ 11,799	\$ 13,994
<b><i>Wellfield Capital Development Cost Subtotal</i></b>	<b>\$ 19,296</b>	<b>\$ 103,714</b>	<b>\$ 123,010</b>
<b>INDIRECT CAPITAL COSTS</b>			
Engineering, Procurement & Construction Management	\$ 2,995	\$ -	\$ 2,995
Labor <sup>9</sup>	\$ 2,567	\$ -	\$ 2,567
Financial Assurance <sup>10</sup>	\$ 7,370	\$ -	\$ 7,370
<i>Subtotal</i>	\$ 12,931	\$ -	\$ 12,931
Contingency (Average of approximately 16%)	\$ 2,120	\$ -	\$ 2,120
<b><i>Indirect Capital Cost Subtotal</i></b>	<b>\$ 15,052</b>	<b>\$ -</b>	<b>\$ 15,052</b>
<b>TOTAL DEVELOPMENT CAPITAL COSTS</b>	<b>\$ 78,364</b>	<b>\$ 112,310</b>	<b>\$ 190,674</b>

**Notes:**

<sup>1</sup> Individual line item costs are shown without contingency. Contingency must be considered as part of the total cost.

<sup>2</sup> Costs associated with CPP incurred in Years -1 and 1, and costs associated with PU1 incurred in Years 1 and 2.

<sup>3</sup> Subsequent development costs will be incurred following startup.

<sup>4</sup> Includes 6% sales tax on applicable items.

<sup>5</sup> Cost for some restoration items, including secondary RO, will be incurred in Years 2 and 3.

<sup>6</sup> Includes cost of land acquisition for the CPP site.

<sup>7</sup> Four deep disposal wells; two in Year 1, one in Year 2 and one in Year 3.

<sup>8</sup> Initial and Subsequent Wellfield CAPEX are referenced from the Wellfield Development Costs Summary, Table 21.6, and are shown on this table, Table 21.1, without contingency. Initial Capital costs include Production Unit 1 and miscellaneous wellfield costs. AUC labor is included in Wellfield Completion / Restoration Labor shown in the Wellfield Development Cost Summary, Table 21.6 and is not included in this table.

<sup>9</sup> Labor costs incurred prior to commencement of CPP & PU1 production.

<sup>10</sup> The costs for Bonding are incurred before the start of production, and are also shown with contingency in Year 1 of the Annual Operating Cost Summary, Table 21.4. On the Cash Flow Statement, Table 21.1, they are included under Financial Assurance.

The predicted level of accuracy of the capital cost estimate is +/- 25 percent. The budget prices for the major items identified in this study have been sourced in the United States.

The capital costs developed for and presented in this PFS are based on typical uranium ISR wellfield designs and the PFS preliminary design. Pre-construction capital costs for permitting, drilling work, etc., are identified in the Cash Flow summary.

The design includes process flow diagrams, mass balance, water balance, materials balance, chemical consumption estimates, tank sizes, and specific processing circuit components (i.e., type of filter press, dryer, etc.). Line sizing, material types, pumps, valves and instrumentation have been identified and priced. In addition, the wellfield design used for this PFS includes estimated well and header house locations, well depths, construction materials and anticipated flow rates. To facilitate the development of capital cost estimates, TREC used the following from the PFS preliminary design and similar projects for which TREC has provided engineering, procurement and construction management services:

- Mechanical equipment requirements,
- CPP design and equipment takeoffs,
- Building layouts,
- Chemical types and consumption rates,
- Well details and depths,
- Wellfield layout (injection, recovery and monitoring well locations), and
- Anticipated well and total system production rates.

The capital cost estimates were developed using a series of detailed estimating spreadsheets including:

- Injection, recovery and monitoring well estimating sheets,
- Header house estimating sheets,
- Wellfield piping, electrical cable and trenching estimating sheets,
- Vendor estimates for mechanical equipment and structures, and
- Miscellaneous capital equipment (i.e., light vehicles, support and maintenance vehicles).

### **21.1.1 Wellfields**

The Project includes four Resource Units (three with reserves) for the *in situ* recovery of uranium from the mineralized zones. Figure 18.1 presents locations of the CPP along with the preliminary trunk line layout for each of the Resource Units and associated PU's.

PU 1 will be the first production area constructed and has been considered an initial capital cost, as most of the area will be completed prior to production. During the initial construction of the PU and CPP, it is assumed that approximately 28 wellfield installation staff and 9 administrative staff will be required to perform the construction. The administrative personnel required to manage wellfield construction will also manage plant production staff and are described again in Section 21.2.

**Table 21.2: Initial Construction Personnel**

<b>Administration</b>	
Mine Manager	1
Environmental Manager	1
Radiation Safety Officer	1
IT Tech and Data Base	1
Purchasing Agent	1
Environmental Technician	3
Warehouse Foreman	1
<i>Subtotal:</i>	9
<b>Wellfield Completion / Restoration</b>	
MIT operator/laborer	2
Construction/Reclamation crew foreman	1
Construction/Reclamation crew /laborer	5
Well Logger/technician	2
Casing and cementing crew/laborers	5
Hole and Well Plugging	4
Staff Geologist	6
Senior Geologist	2
Drilling Supervisor	1
<i>Subtotal:</i>	28
<b>Total:</b>	<b>37</b>

Salaries and labor burden used for this PFS are based on the salaries, wages and benefits provided by AUC.

The current Project schedule anticipates that pre-production construction will occur in Year 1 and the remaining PUs will be developed and constructed in Year 2 through Year 11. The remaining wellfield costs are considered on-going development costs (subsequent wellfield installation costs) and are discussed later in this section.

Non-labor, pre-production construction costs were estimated based on the preliminary wellfield design including the number, location, depth and construction material specifications for well and header houses. A preliminary design for the Project, CPP and wellfields, was developed and used to estimate quantities. The detailed cost estimates were compiled using information from this preliminary design and TREC’s cost database.

The first PU will begin construction in Year 1 and is therefore included in initial capital costs, and was designed to consist of:

- 252 injection wells,
- 180 recovery wells,
- 42 monitor wells, and
- 6 header houses.

Additionally, costs for associated trunk and feeder pipelines, electrical service and wellfield fencing are included.

### **21.1.2 Central Processing Plant**

The proposed location of the CPP is shown on Figure 18.1 and the CPP layout is depicted on Figure 17.1 and is estimated to be approximately 50,000 square feet. All process equipment will be housed in the CPP which will consist of a typical industrial metal building. The CPP will include a 3,000 square foot laboratory. An additional 12,000 square foot office/shop/warehouse building will be located near the CPP.

AUC anticipates contracting the construction of the CPP to a third party and will provide one construction manager/engineer to oversee and verify CPP construction.

The CPP is permitted to process 11,000 gpm of lixiviant and produce 2.0 mlbs of  $U_3O_8$  annually. This PFS is based on an average peak production of approximately 1.5 mlbs of  $U_3O_8$  annually.

### **21.1.3 Piping**

Piping will be required between the various processing units and bulk storage tanks. Estimates for pipe length and material type were developed based on the preliminary design for the CPP and experience on other similar projects. Piping will consist primarily of HDPE and PVC with some carbon steel and stainless steel.

### **21.1.4 Earthwork and Topsoil Management**

Earthwork that will be required for the Project will include site grading for the CPP/laboratory, office/shop/warehouse building area, internal access roads and excavation and backfill for header houses, buried piping and electrical service. Injection and recovery pipelines will be buried a minimum of 48 inches below the existing ground surface and each header house will have a containment structure with a sump. Topsoil will be salvaged from any disturbed areas prior to construction in accordance with WDEQ/LQD requirements using common earth moving equipment. Topsoil salvage operations for the wellfield will be limited to the removal of topsoil at header house locations, pipeline trench alignments and separation of topsoil from mud pits at drill sites. Topsoil that is salvaged during construction activities will be stored in designated topsoil stockpiles and managed per regulatory requirements.

### **21.1.5 Concrete**

Concrete will be used for foundations below all structures and flatwork within the CPP. A drilled pier foundation system has been assumed to support the building, with all processing equipment being supported by a mat foundation. The foundation assumptions are based on the results of the geotechnical report (Inberg-Miller Engineers, 2012) which recommended the design of either a drilled pier or mat foundation system due to expansive soils located in the building footprint. A conceptual foundation system design was prepared for developing costs for this PFS. Processing circuits may also be contained by sloping the concrete floor slab with drainage to a sump for spill containment and recovery. All chemical storage tanks will include secondary containment and recovery systems.

### **21.1.6 Structural Steelwork**

Structural steel work includes the frame for the CPP/laboratory, office/shop/warehouse building, resin shakers, elution/precipitation equipment access, and filter press and dryer support. Estimates have been prepared from the preliminary layout designs, and preliminary vendor building designs and pricing.

### **21.1.7 Electrical and Instrumentation**

Accessible overhead electrical is expected to be near the Project vicinity and is assumed to be within 200 yards of the Project buildings. Power drops will be distributed to the CPP site, wellfields, etc. One 500 kW diesel generator is included in the capital cost for back-up power for vital functions at the CPP. Power supply, consumption and distribution quantities and costs are included in the cost estimates for the various Project components. The cost estimates assume that electrical capacity is available in the regional electrical utility's system.

Detailed wellfield instrumentation designs had not been completed at the time this PFS was prepared. Therefore, instrumentation and control costs have been estimated based on providing an automated system to monitor operations at central locations such as the CPP and header houses.

For the PU 1 wellfields and CPP capital cost estimates, the following instrumentation was assumed and associated costs were developed:

- PU 1 Wellfields -
  - Pressure transmitters for injection and recovery feeder lines within header houses,
  - Flow meters for injection and recovery feeder lines within header houses,
  - Manual/automated shut off, flow control valves, and
  - SCADA and telemetric monitoring and controls.
- CPP –
  - Pump speed control,
  - Pressure transmitters,
  - Flow transmitters,
  - Liquid level transducers,
  - pH measurement,
  - Automatic shut off valves,
  - Temperature controls,
  - Automated chemical feed controls, and
  - SCADA monitoring and control.

## **21.1.8 Infrastructure and Facilities**

### **21.1.8.1 Sanitary Sewer**

A septic system is assumed to service both the CPP and office/shop/warehouse building. The system will be for treatment/disposal of sanitary waste from the CPP, office/shop/maintenance buildings. All other wastewater generated from within the CPP will be disposed of via the DDWs.

### **21.1.8.2 Fresh Water Well**

The Project facilities will require fresh water for showers and other domestic uses. Fresh water will also be available for plant wash down and yellowcake wash, however permeate will be the primary source for all non-potable demands. One fresh-water well will be installed near the CPP. The well depth at the CPP is anticipated to be 120 feet. The well will include a five-horsepower pump.

### **21.1.8.3 Roadwork and Site Drainage**

There are three types of roads that will be used for access to the Project. They include primary access roads, secondary access roads and temporary wellfield access roads. Figure 18.1 shows the local road network and the CPP access road.

The construction for the primary access road to the CPP is included in the CPP capital costs. AUC will construct or improve approximately 30 miles of new roads for wellfield access.

Culverts and drainage ditches have been designed for the CPP. These costs are included in the CPP capital costs. The access road to the CPP will be 30 feet wide with gravel surface. Snow removal and periodic surface maintenance will be required.

The secondary access roads will be used at the Project to provide access to the wellfield header houses. The secondary access roads will be constructed with limited cut and fill construction, culverts as necessary and may be surfaced with small sized aggregate or other appropriate material.

The temporary wellfield access roads are for access to drilling sites, wellfield development, or ancillary areas assisting in wellfield development, operation and maintenance. The temporary wellfield access roads will be used throughout the Resource Units.

### **21.1.8.4 Communications**

On-site communications will be comprised of inter-connected mobile and fixed systems. The mobile system will consist of a base radio station with hand-held and vehicle-mounted slave sets. The fixed system will include a master “communications manager” controlling a network of fixed handsets and an Ethernet data network for external communications.

### **21.1.8.5 Laboratory Equipment**

Laboratory equipment will consist of ICP for uranium and metals analyses, an auto-titrator for alkalinity and chloride measurements, specific conductance meter and other equipment, materials and supplies required to efficiently operate the mine and CPP. In addition, the laboratory will require fume hoods,



reagent storage cabinets and other safety equipment. Costs for laboratory equipment, supplies and set-up have been included in the CPP capital cost estimate.

Uranium analysis of column tails will ultimately determine resin transfer frequency while knowledge of column feed grade and flow will allow the operator to predict breakthrough. The laboratory instrumentation will be used to verify calibration and operation of automated process control equipment. In the event of monitor well excursions, the CPP laboratory will be equipped to perform rapid conductivity analysis to monitor efforts at wellfield balancing.

#### 21.1.8.6 Deep Disposal Wells

Two DDWs will be constructed before production commences. Two additional DDWs are anticipated.

#### 21.1.8.7 Vehicles and Miscellaneous

Vehicles and equipment that will be required are shown in Table 21.3.

**Table 21.3: Anticipated Vehicles and Equipment**

Item	No.
Pick-up Trucks	11
Cement Silo	1
Water truck	1
Redi-mix truck	1
Hose-reel Units	2
Pulling Unit	2
Portable Air Compressor	1
AWD Forklift	3
Backhoe	4
Farm Tractor/Implements	2
Motor Grader	2
Tool sets	20
Welder	4
Utility Trailer	1
Flat Reel	2
Telehandler	1
VacTruck	2
Grout Trailer	2
Pipe chippers	2
MIT Truck	2
HDPE Fusion Equipment	4 Lots

#### 21.1.8.8 Security

Due to the remote location of the facilities and continuous operation, manned security is not anticipated to be necessary. The backup pond at the CPP will be enclosed by a wildlife exclusion fence. The CPP facility will be enclosed by a standard eight foot chain link security fence. In addition, typical operations will be 24 hours per day and seven days per week. AUC personnel will be on-site continuously.

#### 21.1.8.9 Owner's Costs

AUC will provide site representatives during initial CPP and wellfield construction. Additionally, AUC will provide the crews to construct wellfield components including well logging, MIT testing, geological interpretation, wellhead and header house construction and trenching and pipeline construction as described above.

#### **21.1.9 EPCM and Expenses**

Engineering, procurement and construction management (EPCM) services will be performed with contracted services. The capital cost estimate assumes an AUC construction and management staff of 37 working on the CPP and wellfield construction.

#### **21.1.10 Contingency and Sales Tax**

Variable contingency ranging from 5 to 30 percent has been applied to individual materials, activities and estimates. The weighted average of all applied contingency is equivalent to 12 percent over the total cost of the project. The magnitude of contingency for each item was determined by how recently the quote was received, the historical cost volatility of the item and the level of confidence in the designated quantity, e.g., trunkline lengths. This level of contingency has been substantiated on other similar sized construction projects for which the Author has recent experience. Sales tax has been assumed to be six percent for all materials. See Section 22 for additional discussion on taxes.

## 21.2 OPERATING COSTS

### **21.2.1 Operating Cost Estimate Allocation and Methodology**

The operating costs, current as of the end of 2013, have been developed by evaluating each process unit operation and the associated required services (chemicals, power, water, air, waste disposal), infrastructure (offices, change rooms shop), salary and burden, and environmental control (heat, air conditioning, monitoring). The basis for the operating cost estimate is the life of mine schedule presented on Figure 1.4 and is based on design wellfield flows and head grade, process flow-sheets, preliminary process design, materials balance and estimated Project manpower requirements. The Annual Operating Cost Summary for the Project is provided in Table 21.4. Total operating costs have been estimated at \$11.78 per pound of U<sub>3</sub>O<sub>8</sub> produced including plant and wellfield operating costs of \$9.64 and restoration, D&D and reclamation costs of \$2.14 per pound. In addition, administrative costs have been estimated at \$0.44 per pound of U<sub>3</sub>O<sub>8</sub> produced, permit amendments have been estimated at \$0.27, see Table 21.4. Wellfield capital development costs have been estimated at \$10.35 (see Table 21.6.).

The predicted level of accuracy of the operating and closure cost estimates is approximately +/- 25 percent. The prices for the major items identified in this PFS have been sourced in the United States.

Table 21.4: Annual Operating Costs Summary

LIFE OF MINE OPERATING COSTS	Year -2	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Total	Average Contingency	\$ per Pound	
Plant Operating Labor <sup>1</sup>	\$0	\$0	\$0	\$1,372,875	\$1,372,875	\$1,372,875	\$1,372,875	\$1,372,875	\$1,372,875	\$1,372,875	\$1,372,875	\$1,372,875	\$1,372,875	\$1,372,875	\$1,372,875	\$1,029,656	\$686,438	\$480,506	\$326,875	\$0	\$18,997,975	5%	\$1.27	
Plant Operating Expenses	\$0	\$0	\$0	\$5,239,830	\$5,239,830	\$5,239,830	\$5,239,830	\$5,239,830	\$5,239,830	\$5,239,830	\$5,239,830	\$5,239,830	\$5,239,830	\$5,239,830	\$5,239,830	\$0	\$0	\$0	\$0	\$0	\$62,877,962	10%	\$4.21	
Wellfield Operating Labor <sup>1</sup>	\$0	\$0	\$0	\$576,844	\$769,125	\$769,125	\$769,125	\$769,125	\$769,125	\$769,125	\$769,125	\$769,125	\$769,125	\$766,561	\$310,214	\$0	\$0	\$0	\$0	\$0	\$8,575,744	5%	\$0.57	
Wellfield Operating Expenses	\$0	\$0	\$180,698	\$1,936,047	\$2,581,396	\$2,581,396	\$2,581,396	\$2,581,396	\$2,581,396	\$2,581,396	\$2,581,396	\$2,581,396	\$2,581,396	\$2,572,791	\$1,041,163	\$0	\$0	\$0	\$0	\$0	\$28,963,261	10%	\$1.94	
Project General & Administrative <sup>2</sup>	\$0	\$25,000	\$858,726	\$1,359,353	\$1,628,240	\$1,690,055	\$1,685,382	\$1,689,196	\$1,693,237	\$1,692,120	\$1,688,880	\$1,686,457	\$1,685,220	\$1,508,347	\$1,251,884	\$1,195,938	\$1,195,938	\$1,195,938	\$621,875	225,250	\$24,577,033	7%	\$1.64	
<b>Plant &amp; Wellfield Operating Costs<sup>3</sup></b>	<b>\$0</b>	<b>\$25,000</b>	<b>\$1,039,424</b>	<b>\$10,484,949</b>	<b>\$11,591,466</b>	<b>\$11,653,281</b>	<b>\$11,648,608</b>	<b>\$11,652,422</b>	<b>\$11,656,463</b>	<b>\$11,655,346</b>	<b>\$11,652,106</b>	<b>\$11,649,683</b>	<b>\$11,648,446</b>	<b>\$11,460,404</b>	<b>\$9,215,966</b>	<b>\$2,225,594</b>	<b>\$1,882,375</b>	<b>\$1,676,444</b>	<b>\$948,750</b>	<b>\$225,250</b>	<b>\$143,991,974</b>		<b>\$9.64</b>	
Wellfield Restoration <sup>4</sup>	\$0	\$0	\$0	\$0	\$0	\$278,605	\$975,119	\$1,532,330	\$1,532,330	\$1,810,936	\$1,671,633	\$1,532,330	\$1,810,936	\$2,089,541	\$1,532,330	\$1,671,633	\$696,514	\$0	\$0	\$0	\$17,134,237	25%	\$1.15	
Decontamination / Decommissioning / Reclamation <sup>5</sup>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$733,727	\$733,727	\$551,680	\$1,028,325	\$771,244	\$733,727	\$1,210,372	\$626,715	\$990,808	\$4,014,704	\$3,393,529	\$0	\$14,788,558	25%	\$0.99	
<b>D&amp;D and Restoration Costs</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$278,605</b>	<b>\$975,119</b>	<b>\$1,532,330</b>	<b>\$2,266,057</b>	<b>\$2,544,663</b>	<b>\$2,223,313</b>	<b>\$2,560,656</b>	<b>\$2,582,180</b>	<b>\$2,823,268</b>	<b>\$2,742,703</b>	<b>\$2,298,347</b>	<b>\$1,687,322</b>	<b>\$4,014,704</b>	<b>\$3,393,529</b>	<b>\$0</b>	<b>\$31,922,795</b>		<b>\$2.14</b>	
<b>Total Operating Costs</b>	<b>\$0</b>	<b>\$25,000</b>	<b>\$1,039,424</b>	<b>\$10,484,949</b>	<b>\$11,591,466</b>	<b>\$11,931,886</b>	<b>\$12,623,727</b>	<b>\$13,184,752</b>	<b>\$13,922,520</b>	<b>\$14,200,008</b>	<b>\$13,875,419</b>	<b>\$14,210,338</b>	<b>\$14,230,625</b>	<b>\$14,283,672</b>	<b>\$11,958,668</b>	<b>\$4,523,941</b>	<b>\$3,569,697</b>	<b>\$5,691,148</b>	<b>\$4,342,279</b>	<b>\$225,250</b>	<b>\$175,914,770</b>	<b>11%</b>	<b>\$11.77</b>	
<b>LIFE OF MINE ADMINISTRATIVE SUPPORT COSTS</b>	<b>Year -2</b>	<b>Year -1</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>	<b>Year 7</b>	<b>Year 8</b>	<b>Year 9</b>	<b>Year 10</b>	<b>Year 11</b>	<b>Year 12</b>	<b>Year 13</b>	<b>Year 14</b>	<b>Year 15</b>	<b>Year 16</b>	<b>Year 17</b>	<b>Year 18</b>	<b>Total</b>	<b>Average Contingency</b>	<b>\$ per Pound</b>	
Administrative Costs <sup>6</sup>	\$0	\$25,000	\$304,196	\$394,950	\$394,950	\$394,950	\$394,950	\$394,950	\$394,950	\$394,950	\$394,950	\$394,950	\$394,950	\$394,950	\$394,950	\$394,950	\$394,950	\$394,950	\$394,950	\$247,475	\$135,394	\$6,636,315	0%	\$0.44
Financial Assurance <sup>7</sup>	\$0	\$0	\$9,212,124	\$1,691,220	\$2,899,235	\$1,449,617	\$3,140,838	\$2,899,235	\$241,603	\$1,208,014	\$0	\$241,603	-\$1,691,220	-\$1,449,617	-\$1,449,617	-\$4,590,455	-\$1,449,617	-\$5,081,464	-\$5,330,871	-\$1,940,627	\$0	\$0	25%	\$0.00
Permit Amendments	\$0	\$0	\$0	\$200,000	\$200,000	\$100,000	\$1,250,000	\$1,300,000	\$1,000,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4,050,000	0%	\$0.27
<b>Administrative Support Costs</b>	<b>\$0</b>	<b>\$25,000</b>	<b>\$9,516,320</b>	<b>\$2,286,170</b>	<b>\$3,494,185</b>	<b>\$1,944,567</b>	<b>\$4,785,788</b>	<b>\$4,594,185</b>	<b>\$1,636,553</b>	<b>\$1,602,964</b>	<b>\$394,950</b>	<b>\$636,553</b>	<b>-\$1,296,270</b>	<b>-\$1,054,667</b>	<b>-\$1,054,667</b>	<b>-\$4,195,505</b>	<b>-\$1,054,667</b>	<b>-\$4,686,514</b>	<b>-\$5,083,396</b>	<b>-\$1,805,233</b>	<b>\$17,574,943</b>	<b>0%</b>	<b>\$1.18</b>	

Notes:

<sup>1</sup> Labor costs incurred before the start of production are included in the Development Cost Summary, Table 21.1

<sup>2</sup> Includes site administrative labor, product shipment, product conversion fees and property tax.

<sup>3</sup> Years 14, 15 and 16 represent operating expenses, such as power and administrative labor, which are associated with restoring, decommissioning and reclaiming the wellfields.

<sup>4</sup> Includes groundwater restoration costs. Labor costs are included in Wellfield Completion / Restoration Labor on the Wellfield Development Costs Summary, Table 21.6

<sup>5</sup> Includes plant equipment removal and disposal, building demolition and disposal, header house demolition and disposal, soil removal and disposal, well abandonment, wellfield equipment removal and disposal, topsoil replacement, revegetation and miscellaneous reclamation costs.

<sup>6</sup> Administrative costs provided by AUC LLC and includes legal fees, insurance, rent, office supplies, etc.

<sup>7</sup> Assumes cash bond posted by AUC LLC with 0% interest accumulated on cash surety. Negative values represent positive cash flow from bond release.

### **21.2.2 Personnel - Salaries and Benefits**

The salaries and benefits for the AUC personnel will be spread across the duration of the Project based on the level of activity within any given year, see Figure 1.4. Project staffing includes

- Administration staff,
- CPP operation staff,
- Wellfield operation staff, and
- Wellfield development / restoration staff

Total staff at full production is estimated to be 70. The wellfield development / restoration crew, described previously in this section, will continue to build and develop wellfields until approximately Year 11 and will restore wellfields until Year 15. The costs associated with wellfield development / restoration labor are shown in Table 21.6. As the production begins within PU 1 and at the CPP and expands to the other PUs, production and operations crews will be required. The bulk of the administrative staff will be required from initial development through restoration.

The manpower estimate does not include corporate office and staff. Note that it is anticipated that there will be an Environmental Health and Safety Manager included in the administration staff. The salaries and labor burden are based on the salaries, wages and benefits provided by AUC. Some of the administrative personnel in the table below are also included in Table 21.3.

The anticipated administrative, plant and wellfield operations staff at full production are listed in Table 21.5.

**Table 21.5: Administrative, Plant and Wellfield Operations Staff**

<b>Administration</b>	
Mine Manager	1
Environmental Manager	1
Radiation Safety Officer	1
IT Tech and Data Base	1
Purchasing Agent	1
Receptionist/File Clerk	3
Environmental Technician	3
Custodian	1
Warehouse Foreman	1
<i>Subtotal</i>	13
<b>CPP Operations</b>	
CPP Supervisor (Engineer)	1
CPP Foreman	1
Dryer Operator	1
CPP Operator	8
Lab Supervisor/Chemist	1
Lab Technicians	2
Maintenance Supervisor	1
Maintenance Technician	2
Electrical/Instrumentation	1
<i>Subtotal</i>	18
<b>Wellfield</b>	
Monitor well samplers/laborers	3
Wellfield maintenance foreman	1
Wellfield maintenance/operators	3
Pulling unit/swabbing operators	3
Wellfield Engineer	1
<i>Subtotal</i>	11
<b>Total Personnel</b>	<b>42</b>

**21.2.3 Consultants**

The use of consultants during operations is anticipated to be minimal and therefore not included as an operating cost. Potential services that could be required include data management, compliance issues (i.e., lixiviant excursions detected in monitoring wells), specialized monitoring, surveying, CPP and/or wellfield optimization and public relations.

#### **21.2.4 Office, Site and Administrative Costs**

Administrative costs for the site office include office consumables, rent, travel and entertainment, power, heat, regulatory agency interaction, interest expense, postage, communications, office equipment repairs and training. Salaries and capital purchases are included in other categories as described herein.

#### **21.2.5 Insurance and Financial Assurance**

Insurance, in addition to that required for staffing (i.e., health, workers compensation, unemployment), will be required. This PFS assumes insurance requirements including general liability, automobile and structural (fire and weather damage). In addition, financial assurance for restoration, decommissioning and reclamation has been estimated assuming that the project will be self-bonded. The financial assurance costs are included with other insurance costs provided in Table 21.4.

#### **21.2.6 Taxes, Leases, Fees and Royalties**

Various taxes, leases, maintenance, land impact and access fees are required and included in the operating cost estimates and financial evaluation of this PFS. These items are described in detail in Section 22.

#### **21.2.7 Wellfield Operating Costs**

Non-labor wellfield operating costs include recovery well pump servicing, repair and replacement; pipeline repair; power; well rehabilitation; MIT; header house maintenance; fence repair; and well access road maintenance. In addition, PUs 2 through 16 will be constructed largely in Year 2 through Year 11. These costs are included in the wellfield subsequent capital costs (post production) as shown in Table 21.1 and Table 21.6.

AUC will provide the wellfield construction personnel for construction of header houses and wellfield components for the PUs. The construction crew previously described in this section will continue to develop wellfields throughout the life of the Project.

Non-labor, "Subsequent" capital costs for construction of the PUs were estimated based on the preliminary wellfield design including the number, location, depth and construction material specifications for wells and header houses and the hydraulic conveyance (piping) system associated with the wellfields. Additionally, trunk and feeder pipelines, electrical service and wellfield fencing are included in the cost estimates. Subsequently, quantity takeoffs, costs from recent projects and vendor pricing for pipe, well casing, pumps, power cable, valves, meters, etc., were used to develop the detailed cost estimates. Installation costs were determined from recent project experience, vendor/contractor quotes, labor and equipment rates and production estimates.

**Table 21.6: Wellfield Development Costs Summary**

LIFE OF MINE WELLFIELD DEVELOPMENT COSTS	Year -2	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Total	Average Contingency	\$ per Pound
Wellfield Completion / Restoration Labor <sup>1</sup>	\$0	\$0	\$0	\$2,298,188	\$2,298,188	\$2,298,188	\$2,298,188	\$2,298,188	\$2,298,188	\$2,298,188	\$2,298,188	\$2,298,188	\$2,298,188	\$2,298,188	\$2,298,188	\$2,298,188	\$1,149,094	\$344,728	\$328,313	\$0	\$31,698,572	5%	\$2.12
Initial Wellfield Capital	\$0	\$0	\$14,471,875	\$4,823,958	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$19,295,834	12%	\$1.29
Subsequent Wellfield Capital	\$0	\$0	\$6,482,151	\$6,482,151	\$12,964,302	\$6,482,151	\$12,964,302	\$12,964,302	\$6,482,151	\$12,964,302	\$6,482,151	\$12,964,302	\$6,482,151	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$103,714,420	12%	\$6.94
<b>Total Wellfield Development Costs</b>	<b>\$0</b>	<b>\$0</b>	<b>\$20,954,027</b>	<b>\$13,604,297</b>	<b>\$15,262,490</b>	<b>\$8,780,339</b>	<b>\$15,262,490</b>	<b>\$15,262,490</b>	<b>\$8,780,339</b>	<b>\$15,262,490</b>	<b>\$8,780,339</b>	<b>\$15,262,490</b>	<b>\$8,780,339</b>	<b>\$2,298,188</b>	<b>\$2,298,188</b>	<b>\$2,298,188</b>	<b>\$1,149,094</b>	<b>\$344,728</b>	<b>\$328,313</b>	<b>\$0</b>	<b>\$154,708,825</b>	<b>11%</b>	<b>\$10.35</b>

**Notes:**

<sup>1</sup> Includes all labor associated with constructing, restoring, decommissioning and reclaiming the wellfields and is included in the Wellfield Development Cost line in the Cash Flow Statement, Table 21.1. Labor costs incurred in Year 1 are included in the Development Cost Summary, Table 21.6

## 21.2.8 CPP Operating Costs

### 21.2.8.1 Reagents

The initial chemical reagent loading of the system is included in capital costs. Chemical consumption for the CPP has been estimated based on the proposed process design. Oxygen and carbon dioxide reagent costs are included under wellfield operating costs. The estimated annual chemical consumption costs for the various reagents are included in operating costs.

### 21.2.8.2 Maintenance

Annual maintenance and repairs for the CPP have been estimated at two percent of capital equipment costs.

### 21.2.8.3 Power

Power costs for the wellfields are included in the wellfield operating costs described above. The estimated annual power costs are based on estimated power consumption for major process equipment and services including lights, pumps, motors, filter press, dryer, air conditioning and hot water, and basic service and demand charges from the local electrical utility. Power demand cost estimate is included in operating costs.

### 21.2.8.4 Product Freight

It has been assumed for this PFS that uranium product (yellowcake) will be shipped via truck 1,220 miles to the Honeywell Uranium Hexafluoride processing facility in Metropolis, Illinois. An average truck shipment contains approximately 40 drums, or up to 38,000 lbs (19 tons) of yellowcake. Based on the projected annual production rate ranging from 170,000 to 1.51 million lbs of yellowcake per year, approximately 1 to 42 shipments with 40 drums each will be required annually for a total of over 393 shipments over the life of the Project. Freight and conversion handling costs have been estimated and are included in the operating costs.

### 21.2.8.5 Waste Disposal

It is estimated that the site will produce approximately 22 tons of non-contaminated solid waste per month (see Section 17). This estimate is based on the waste generation rates of similar uranium ISR facilities. Non-contaminated solid waste will be collected on the site in designated areas and disposed of in the nearest permitted sanitary landfill.

Contaminated solid waste consists of solid waste contaminated with radioactive material and that cannot be decontaminated. This byproduct material will consist of filters, personal protective equipment, spent resin, piping, etc. These materials will be temporarily stored on site and periodically transported for disposal. AUC will establish an agreement for disposal of this waste as 11e.(2) byproduct material in a licensed disposal facility.

It is estimated that the Project will generate approximately 100 cubic yards per year of contaminated 11e.(2) byproduct material. This estimate is based on the waste generation rates of similar uranium ISR facilities. Byproduct material generated during operation and groundwater restoration will include:

- Filtrate and spent filter media from production and restoration circuits,
- General sludge, scale, etc., from maintenance operations,



- Affected soil collected from spill areas,
- Spent/damaged ion exchange resin, and
- Contaminated PPE.

### **21.2.9 Well Abandonment/Groundwater Restoration**

After economic recovery in each wellfield is completed, groundwater restoration will begin as soon as practical. If a completed wellfield is near an area that is being mined, a portion of the completed area's restoration may be delayed to limit interference with the on-going extraction operations.

Restoration completion assumes up to seven pore volumes of groundwater that has been treated by RO. A reductant, such as sodium sulfide, will be used to enhance the groundwater restoration process.

Following completion of successful restoration activities, all injection and recovery wells will be abandoned in accordance with WDEQ/LQD requirements. Monitor wells will also be abandoned following verification of successful groundwater restoration.

### **21.2.10 Demolition and Removal of Infrastructure**

Simultaneous with well abandonment operations, the trunk and feeder pipelines will be removed, tested for radiological contamination, segregated as either radiologic waste or non-radiologic solid waste, chipped and transported to appropriate disposal facilities. The header houses will be disconnected from their foundations, decontaminated, segregated as either radiological waste or non-radiologic solid waste, cut and crushed and transported to appropriate disposal facilities. The CPP, processing equipment, laboratory and office/shop/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.

### **21.2.11 Site Grading and Re-vegetation**

Following the removal of wellfield, CPP and infrastructure, site roads will be removed and the site will be re-graded to approximate pre-development contours, as appropriate, and the stockpiled topsoil placed over disturbed areas. The disturbed areas will then be seeded.

### **21.2.12 Closure Costs**

Restoration and closure costs for the Project are estimated to be approximately \$31.9 million. A summary of the closure cost estimate is provided in Table 21.4. The closure costs are based on 2012 dollars and material volumes developed in conjunction with the capital cost estimates used in this PFS. Unit costs for closure are based on a combination of State of Wyoming costs for financial assurance purposes and the TREC cost database.

## 22.0 ECONOMIC ANALYSIS

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The information presented in Section 22 meets the content requirements of NI 43-101 and NI 43-101F1.

### 22.1 ASSUMPTIONS

Pretax and after-tax cash flow statements were developed based on the capital, operating and closure cost estimates, royalties, production schedule, Wyoming and local taxes, and U.S. taxes. The cash flow statements assume no escalation, no debt, no interest, no corporate income tax or capital repayment. The sale price for the produced uranium as  $U_3O_8$  is assumed at \$65.00 per pound for the life of the Project. This basis for this price is discussed in Section 19.

Uranium recovery from the mineral resource was determined based on an estimated overall recovery factor of 74.25 percent of the reserves discussed in Section 15. The production schedule assumes an average solution uranium grade (head grade) of 45 ppm as described in Section 13.

The sales for the cash flow are developed by applying the recovery factor to the resource estimate for the Project (Section 14). The total uranium production as  $U_3O_8$  over the life of the Project is estimated to be 14.94 mlbs, the recoverable reserves. The production estimates and operating cost distribution used to develop the cash flow are based on the mine plan schedule presented on Figure 1.4. It should be noted that recovery is based on both site-specific laboratory recovery data as well as the experience of AUC personnel and other industry experts at similar facilities. There can be no assurance that recovery at this level will continue to be achieved during production.

The U.S. corporate income tax standards regime was used for the after-tax calculations for depletion, depreciation, amortization, income tax loss carry forward and back, and federal income tax. The tax analysis for the after-tax cash flow has been prepared by Hein & Associates LLP, tax accountants for AUC LLC. The tax analysis has been prepared using the maximum federal effective tax rate of 35 percent. The effective state tax rate has been assumed to be zero percent because the mineral property is located in Wyoming, which has no corporate income tax. In accordance with IRC Section 617, mine exploration costs have been expensed in the period incurred and are subject to recapture. Mine development costs have been expensed under IRC Section 616 resulting in 70 percent of the costs being expensed in the period incurred and the remaining 30 percent amortized over 60 months. Depletion is calculated using percentage depletion, which is 22 percent of mine gross income, not to exceed 50 percent of the mine net income. Alternative minimum tax adjustments related to depreciation, mine exploration, mine development and depletion have been considered in calculating alternative minimum tax using the maximum federal effective tax rate of 35 percent.

This PFS assumes Year -2 as the Project start date. Pre-production expenses commence on the Project start date. Capital expenditure/construction is assumed to start in Year 1, as it is anticipated that the license/permit approval process will take approximately two years to complete. The start of production is one year after the start of construction, or the beginning of Year 2, see Figure 1.4, Section 16. The after-tax NPV assumes end of year discounting of the annual cash flows and is calculated based on a discounted after-tax cash flow.

## 22.2 CASH FLOW PROJECTION AND PRODUCTION SCHEDULE

The following sections provide a summary of the quantities and assumptions used to develop the initial capital costs for the CPP and PU 1. Table 22.1 provides a summary of all capital costs and illustrates how the development costs have been divided between initial capital and “Subsequent” capital costs. Total initial capital costs are estimated at \$78.4 million, including initial capital costs for the CPP of \$44.0 million, the capital cost for PU1 of \$19.3 million, and indirect costs of \$15.1 million. Life-cycle capital costs, the cost for all development, is estimated at US\$191 million, including indirect costs and EPCM.

The estimated payback is in Quarter 1 of Year 4 with the commencement of construction in Quarter 1 of Year 1 and generates net earnings after income tax over the life of the project of US\$359.8 million. It is estimated that the project has an internal rate of return (IRR) of 32.2 percent and a NPV of US\$150.0 million applying an eight percent discount rate. The cost (capital and operating) per pound of U<sub>3</sub>O<sub>8</sub> is \$33.93 for the LOM, (See Table 22.1, Table 21.1, Table 21.4 and Table 21.6).

Figure 1.4, Section 16 presents the Project schedule, as currently defined, and was used to develop cash flow and economic analysis from the capital, operating and closure costs. The schedule illustrates the proposed plan for production, groundwater restoration, and decommissioning of each Production Unit. However, the plan is subject to change due to recovery rates, variations with Resource Unit recoveries, CPP issues, economic conditions, and other conditions and variables.

Table 22.1: Cash Flow Statement (\$US 000s)

Cash Flow Line Items	Units	Total or Avg	Year -2	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	
Uranium Production as U <sub>3</sub> O <sub>8</sub> (2)	Lbs 000s	14,942	0	0	0	498	1,316	1,505	1,490	1,502	1,514	1,511	1,501	1,494	1,490	951	170	-	-	-	-	-	
Uranium Price for U <sub>3</sub> O <sub>8</sub> (3)	US\$/lb	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	
<b>Uranium Gross Revenue</b>	US\$000s	\$971,201	\$-	\$-	\$-	\$32,343	\$85,560	\$97,794	\$96,869	\$97,624	\$98,424	\$98,203	\$97,562	\$97,082	\$96,837	\$61,831	\$11,073	\$-	\$-	\$-	\$-	\$-	
Less: Surface & Mineral Royalties (4)	US\$000s	37,488	-	-	-	1,248	3,303	3,775	3,739	3,768	3,799	3,791	3,766	3,747	3,738	2,387	427	-	-	-	-	-	
Less: Ad Valorem & Severance Taxes (5)	US\$000s	57,434	-	-	-	1,913	5,062	5,785	5,731	5,775	5,823	5,809	5,771	5,743	5,729	3,658	635	-	-	-	-	-	
<b>Net Gross Sales</b>	US\$000s	\$876,279	\$-	\$-	\$-	\$29,181	\$77,196	\$88,234	\$87,400	\$88,081	\$88,802	\$88,603	\$88,024	\$87,591	\$87,371	\$55,787	\$10,010	\$-	\$-	\$-	\$-	\$-	
Less: Plant & Wellfield Operating Costs	US\$000s	143,992	-	25	1,039	10,485	11,591	11,653	11,648	11,652	11,657	11,656	11,653	11,650	11,649	11,460	9,216	2,226	1,882	1,676	949	225	
Less: Administration Costs	US\$000s	6,636	-	25	304	395	395	395	395	395	395	395	395	395	395	395	395	395	395	395	395	247	135
Less: D&D & Restoration Costs	US\$000s	31,923	-	-	-	-	-	279	975	1,532	2,266	2,545	2,223	2,560	2,582	2,824	2,743	2,298	1,688	4,015	3,393	-	
Less: Financial Assurance	US\$000s	-	-	-	9,212	1,691	2,899	1,450	3,141	2,899	242	1,208	-	242	(1,691)	(1,450)	(1,450)	(4,590)	(1,450)	(5,081)	(5,331)	(1,941)	
Less: Permit Amendments	US\$000s	4,050	-	-	-	200	200	100	1,250	1,300	1,000	-	-	-	-	-	-	-	-	-	-	-	
<b>Net Operating Cash Flow</b>	US\$000s	\$689,678	\$-	\$(50)	\$(10,555)	\$16,410	\$62,111	\$74,357	\$69,991	\$70,303	\$73,242	\$72,799	\$73,753	\$72,744	\$74,436	\$42,558	\$(894)	\$(329)	\$(2,515)	\$(1,005)	\$742	\$1,581	
Less: Depletion Allowance	US\$000s	(177,765)	-	-	-	-	-	(20,312)	(20,489)	(20,648)	(20,817)	(20,771)	(20,635)	(20,534)	(20,482)	(13,078)	-	-	-	-	-	-	
Less: Depreciation/Amortization	US\$000s	(222,725)	(3,884)	(6,457)	(15,896)	(20,561)	(21,569)	(18,732)	(18,523)	(18,433)	(16,423)	(14,827)	(14,392)	(13,365)	(11,368)	(8,392)	(6,756)	(5,496)	(3,563)	(2,115)	(1,445)	(530)	
<b>Net Income Before Tax Calculations</b>	US\$000s	\$289,187	\$(3,884)	\$(6,507)	\$(26,451)	\$(4,151)	\$40,542	\$35,313	\$30,979	\$31,222	\$36,002	\$37,201	\$38,726	\$38,845	\$42,586	\$21,088	\$(7,649)	\$(5,825)	\$(6,078)	\$(3,120)	\$(703)	\$1,051	
Less: Income Loss Carry Forward/Back	US\$000s	(228,555)	(18,469)	(22,353)	(28,860)	(55,312)	(59,463)	(18,922)	-	-	-	-	-	-	(7,650)	(5,825)	7,649	5,825	-	(6,078)	(9,197)	(9,900)	
<b>Taxable Income</b>	US\$000s	\$60,633	\$(22,353)	\$(28,860)	\$(55,312)	\$(59,463)	\$(18,921)	\$16,391	\$30,979	\$31,222	\$36,002	\$37,201	\$38,726	\$38,845	\$34,936	\$15,263	\$-	\$-	\$(6,078)	\$(9,197)	\$(9,900)	\$(8,849)	
Less: Federal Income Tax (1)	US\$000s	104,409	-	-	-	22	922	11,327	10,869	10,928	12,601	13,020	13,554	13,597	12,227	5,342	-	-	-	-	-	-	
<b>Net Profit After Taxes</b>	US\$000s	\$(43,776)	\$(22,353)	\$(28,860)	\$(55,312)	\$(59,485)	\$(19,843)	\$5,064	\$20,110	\$20,294	\$23,401	\$24,181	\$25,172	\$25,249	\$22,709	\$9,921	\$-	\$-	\$(6,078)	\$(9,197)	\$(9,900)	\$(8,849)	
Plus: Add-back of Non-Cash Depletion	US\$000s	(177,765)	-	-	-	-	-	20,312	20,489	20,648	20,817	20,771	20,635	20,534	20,482	13,078	-	-	-	-	-	-	
Plus: Add-back of Depreciation/Amortization	US\$000s	(222,725)	3,884	6,457	15,896	20,561	21,569	18,732	18,523	18,433	16,423	14,827	14,392	13,365	11,368	8,392	6,756	5,496	3,563	2,115	1,445	530	
Plus: Add-back of Income Loss Carry Forward/Back	US\$000s	(228,555)	18,469	22,353	28,860	55,312	59,463	18,922	-	-	-	-	-	-	7,650	5,825	(7,649)	(5,825)	-	6,078	9,197	9,900	
Less: Pre-Construction Capital Costs	US\$000s	12,289	5,417	6,872	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Less: Plant (CPP) Capital Development Costs	US\$000s	52,612	-	8,405	32,926	3,256	8,025	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Less: Wellfield Capital Development Costs	US\$000s	154,709	-	-	20,954	13,604	15,262	8,780	15,262	15,262	8,780	15,263	8,780	15,263	8,781	2,299	2,298	2,299	1,149	345	328	-	
Less: Indirect Capital Costs	US\$000s	5,839	-	-	5,839	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Net After-Tax Cash Flow</b>	US\$000s	\$359,820	\$(5,417)	\$(15,327)	\$(70,274)	\$(472)	\$37,902	\$54,250	\$43,860	\$44,113	\$51,862	\$44,515	\$51,419	\$43,885	\$53,427	\$34,917	\$(3,192)	\$(2,628)	\$(3,664)	\$(1,350)	\$414	\$1,581	

<sup>1</sup> Includes Alternative Minimum Tax.

<sup>2</sup> Production schedule estimated by AUC LLC

<sup>3</sup> Uranium price at \$65/lb U<sub>3</sub>O<sub>8</sub> assumed to remain constant over the Life of the Project.

<sup>4</sup> Surface and mineral royalties provided by AUC LLC and based on a weighted average over the area of the Project.

<sup>5</sup> Ad valorem calculated as 5.98% of adjusted taxable value and Severance tax is calculated as 4.0% of adjusted taxable value.

**AFTER -TAX ECONOMIC CRITERIA CALCULATIONS (NPVs in US\$000s)**

Net Present Value @ 6%DR = \$186,656

Net Present Value @ 8%DR = \$150,027

Net Present Value @ 10% DR = \$120,362

IRR = 32.2%

### 22.2.1 NPV and IRR

The after-tax Net Present Value (NPV) for three discount rates has been calculated and is presented in Table 22.2. The estimated after-tax internal rate of return (IRR) is 32.2 percent.

**Table 22.2: After-Tax Net Present Values versus Discount Rate**

Discount Rate	After-Tax NPV (\$US000s)
6%	\$186,656
8%	\$150,027
10%	\$120,362

### 22.3 WYOMING STATE AND LOCAL TAXES AND OTHER FEES

AUC will be required to pay various state and local taxes related to production and the ownership of property. These taxes will be in the form of severance, *ad valorem*, and real property taxes. There are also State and county sales/use taxes.

There is no State income tax in Wyoming at this time but income from the Project will be included in AUC's federal corporate income tax returns. The cost of corporate income tax is not included in this analysis. All other taxes, royalties and fees are included.

The basis for both the state severance tax and the county *ad valorem* tax is the taxable value of product sold from the mine. Taxable value is computed by:

- Taking the net sales value attributable to production from the mine before processing (gross sales less production taxes and royalties) times an industry factor established by the state,
- Adding back total production taxes and private royalties (*This can be either what was paid for the prior year or an iteration calculation.*)
- Dividing the resultant number by the pounds sold, and
- Multiplying this factor by the pounds produced.

The current industry factor is 0.548827. Since significant value is added to the product produced from the mine during the processing and drying phase of the operations, the industry factor is an attempt to properly allocate the portion of the value of yellowcake sold attributable to the Project back to the Project, the point the mineral was severed.

The state severance tax is calculated at four percent of the taxable value. The county *ad valorem* tax is computed on the taxable value multiplied by the county mill levy. The 2012 mill levy in Campbell County is 59.771 per thousand dollar of assessed value, see Table 22.1.

The assessed value (taxable value) of real and personal property taxes, other than the *ad valorem* taxes described above, is calculated by multiplying the fair market value of the property (based on depreciated values) times the rate of 11.5 percent for industrial property. The county mill levy rate is then multiplied by the assessed value to determine the property taxes. Using the current mill levy and

an 11.5 percent assessment factor, county property taxes are approximately 0.07 percent of the fair market value. These taxes are accounted for under Project General & Administrative costs provided in Table 21.4.

Wyoming has a four percent sales/use tax and each county has the authority to assess additional sales taxes up to two percent. The combined current sales/use tax for the state and Campbell County is six percent. However, the Department of Revenue is currently allowing a sales tax exemption for:

- Manufacturing equipment within the CPP,
- Chemicals consumed during the manufacturing process (within the plant only), and
- Power consumed for the use of manufacturing (i.e., pumps, dryers, etc., not building heating or lighting).

Sales tax is accounted for in capital costs; see Table 21.1 and no tax exemptions have been included in the PFS.

As previously discussed in Section 4, AUC will be required to pay various royalties and fees related to production and use of surface property. Royalties based on sales of uranium will be paid to royalty interest owners on private lode mining claims at the Project. Royalties for private mineral ownership were calculated from individual royalty agreement summaries provided by AUC for the surface and mineral agreements for the Project area. Based on the information provided by AUC, the private surface use and private minerals, royalties average approximately 4 percent. These costs are summarized in Table 22.1.

When the Reno Creek Project was originally acquired from Strathmore (See Section 6), a portion of the properties were subject to a 5 percent gross receipts royalty, payable either on receipt over time or for a buyout of \$10MM prior to the commencement of commercial production. In July, 2013, AUC purchased that royalty from Strathmore for \$3MM, and the royalty was terminated.

Additionally, fees will be paid to the State for the sub-surface leases. These fees have been calculated and provided by AUC. They are included in the Annual Operating Cost summary, see Table 21.4.

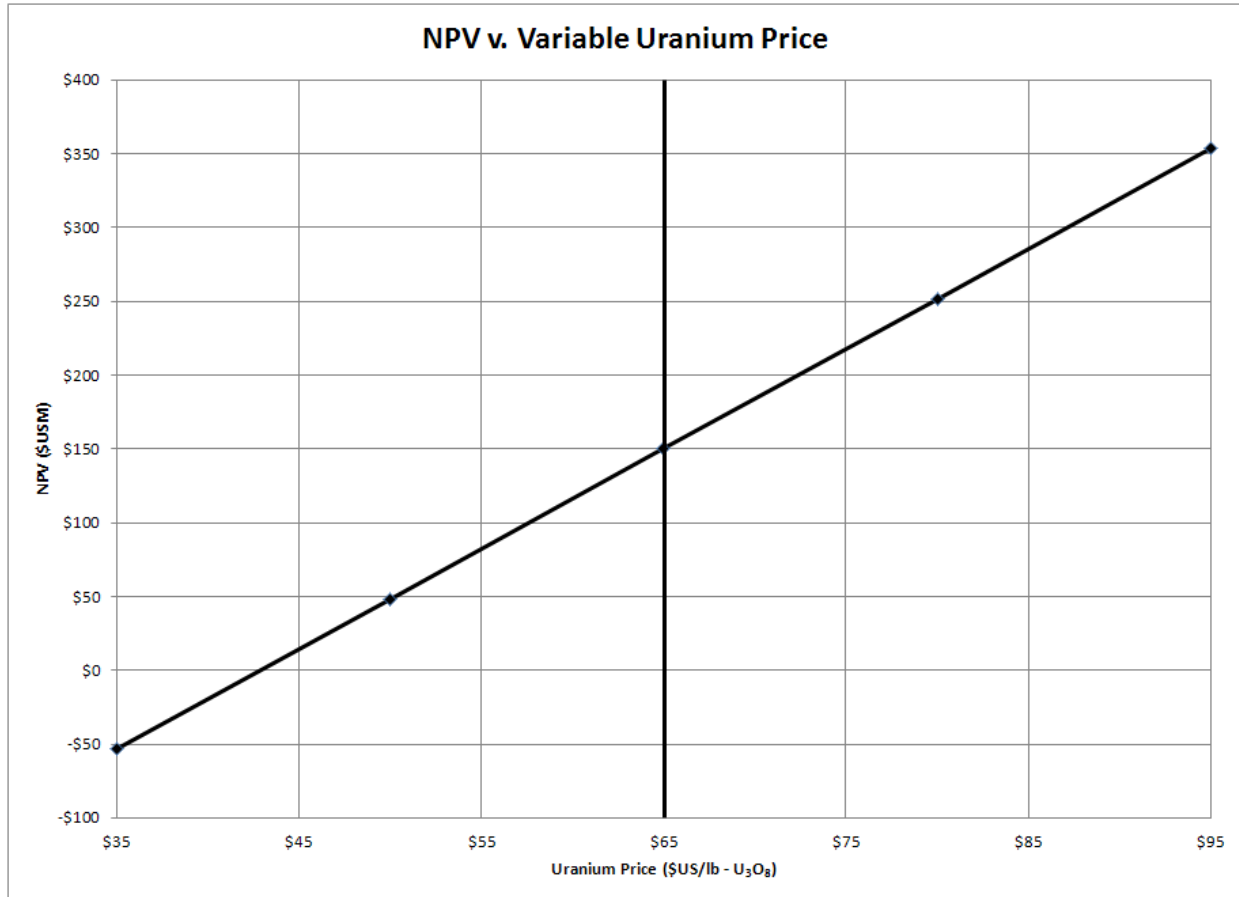
The following Table 22.3 summarizes the Wyoming and Local taxes associated with the Project.

**Table 22.3: Wyoming and Local Taxes**

Tax	Rate	Basis	Recipient
Severance Tax	4.00%	Adjusted taxable value	State
County Ad Valorem Tax	5.98%	Gross revenue	County
Property Tax	0.07%	Property value (w/ land improvements)	County
Sales Tax	6.00%	Goods and services	State

## 22.4 SENSITIVITY ANALYSIS

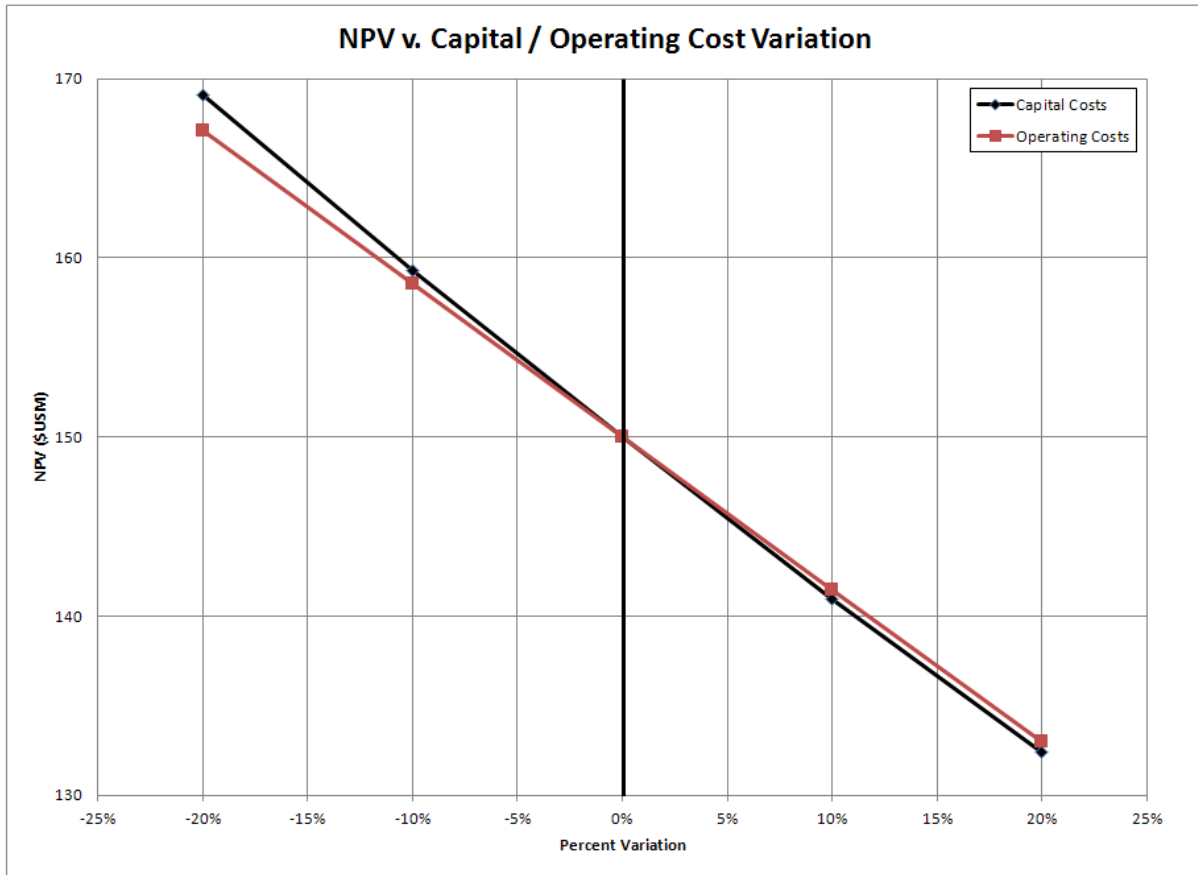
This analysis is based on a fixed commodity price of \$65.00 per pound of  $U_3O_8$  and the cash flow results presented herein. The sensitivity to changes in the price of uranium, capital and operating costs have been calculated from the after-tax cash flow statements and are presented below in Figure 22.1.



**Figure 22.1: After-Tax NPV vs. Variable Uranium Price**

The Project is most sensitive to changes in the price of uranium. A one dollar change in the price of uranium can have an impact to the after-tax NPV of approximately \$6.8 million based on a discount rate of eight percent. It will also impact the after-tax IRR by approximately one percent. The after-tax NPV changes approximately \$58.8 million per a 10 percent change in uranium recovery based on an eight percent discount rate.

The Project NPV is also slightly sensitive to changes in either capital or operating costs as shown on Figure 1.7, Section 1 below (After-Tax NPV vs Capital Cost Variation and After-Tax NPV vs Operating Cost Variation).



**Figure 22.2: After-Tax NPV vs. Capital and Operating Cost Variation**

A five percent variation in operating cost results in a \$4.2 million variation in NPV and a five percent variation in capital cost results in a \$5.2 million variation to the NPV. This analysis is based on an eight percent discount rate and a fixed \$65.00 uranium price per pound of U<sub>3</sub>O<sub>8</sub>.

## 22.5 CAPITAL AND OPERATING COSTS

Capital and operating costs were discussed in Section 21 and are summarized in Table 21.1 and Table 21.4, respectively. Capital costs are sensitive to wellfield costs – which may increase if well spacing needs to be reduced or additional injection/recovery wells are required. In addition, a shortage of drilling rigs and the increasing costs of well and piping materials (PVC, HDPE) may also lead to increased capital costs. Delays in regulatory approvals or additional requirements from regulatory agencies to obtain approvals could also increase capital costs. Operating costs are sensitive to consumable process chemicals, fuel, electricity and labor costs due to possible labor shortages and the need to provide increased compensation packages to attract workers as a result of potential low unemployment in Wyoming and employee competition from other natural resource extraction industries.

Cost estimates have been prepared with an estimated range of +/- 25 percent accuracy based on a relatively higher level of confidence in the design and quantity data. Figure 22.2 illustrates the sensitivity of capital and operating costs to the after-tax NPV.



## 23.0 ADJACENT PROPERTIES

Table 23.1 summarizes published project holdings of various uranium companies within 2 miles of the AUC Reno Creek Project. The locations of other similar properties within the Pumpkin Buttes Mining District can be found in Section 7, Figure 7.1.

**Table 23.1: Adjacent Properties**

Project	Ownership	Township	Range	Approximate Acreage	Tons	Average Grade % U <sub>3</sub> O <sub>8</sub>
Reno Creek	Uranerz	T43/42N	R73/74W	1,300	3,831,477	0.056
Moore Ranch	Uranium One	T41/42N	R74/75W	3,214	2,950,306	0.100
Ruby	Cameco	T43	R74W	Not Available	Not Available	Not Available

(ref., Behre Dolbear, 2012)

The authors have not verified the information for the adjacent properties and the information from the adjacent properties is not necessarily indicative of the mineralization for the AUC Reno Creek Property.

## 24.0 OTHER RELEVANT DATA AND INFORMATION

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There are additional opportunities for economic growth and development that are currently being explored, but neither costs nor revenues have been included in this PFS.

AUC's facility will be permitted to produce a maximum of 2.0m lbs per year of yellowcake and run at up to 11,000 gpm of lixiviant. Thus, additional uranium processing of product through the Project CPP could further improve the economics of the Project presented in this PFS by expanded production or tolling revenues.

## 25.0 INTERPRETATION AND CONCLUSIONS

After reviewing the available information, the Authors feel that the Project, located in northeast Wyoming, USA, is technically and economically viable. The proposed wellfield, recovery and processing facilities are very similar to other operations in the State of Wyoming. The site is located approximately 15 miles west of the town of Wright and is within easy driving distance to major towns such as Gillette and Casper. The site itself is near paved highways and adjacent to all-weather graveled county access roads and within reasonable commuting distance from good sources of labor. Infrastructure developed for Coal Bed Methane and oil/gas operations are available such as power and communications.

The sandstone hosted roll-front uranium deposits in the Project area are shown to be amenable to ISR extraction from Project site-specific bench-scale core leach testing and R&D results (ref., Behre Dolbear, November, 2012). The uranium will be extracted from the sand bodies using injection and recovery wells designated specifically for the target sand horizons.

An after-tax economic analysis has been performed based on the current Project uranium production estimates using the attached production schedule in conjunction with the estimated recoverable reserve of 14.9 mlbs of uranium as discussed in Section 15. An overall recovery factor of 74.25 percent was used in the economic evaluation and is in line with CIM guidance (ref., CIM Council, 2003). Based on the estimated recovery of 14.9 mlbs of  $U_3O_8$  the potential economic performance of the Project on an after-tax basis yields an after-tax IRR of 32.2 percent and NPVs as summarized in Table 25.1.

**Table 25.1: After-Tax Net Present Values versus Discount Rate**

Discount Rate	After-Tax NPV (\$US 000s)
6%	\$186,656
8%	\$150,027
10%	\$120,362

This analysis also assumes a constant price per pound for  $U_3O_8$  of \$65.00 over the life of the Project. The calculated cost per pound of uranium produced is \$33.93 per pound including all costs, with an estimated steady state operating cost of approximately \$18.84 per pound of  $U_3O_8$ , see Table 22.1. Predicted market prices for  $U_3O_8$  (\$65.00/lb of  $U_3O_8$ ) (see Section 19) well exceeds the operating/production costs per pound.

### 25.1 RISK ASSESSMENT

The Project is located in a State where ISR projects have been and are operated successfully. The ISR mining method has been proven effective in geologic formations within Wyoming as described herein. Four Wyoming ISR facilities are currently in operation (Smith Ranch, North Butte, Willow Creek and Lost Creek), one is in commissioning (Uranerz Nichols Ranch) and one other is currently under construction (Strata's Ross Project).

The Property is located in the Campbell County, northeast Wyoming, USA. The Project is located in a sparsely populated area approximately 15 miles west of Wright and 50 miles south of Gillette.

Electrical power and a major transportation corridor (Wyoming State Highway 59) are located within or near the site. Thus, the basic infrastructure necessary to support an ISR mining operation - power, water and transportation, are located within reasonable proximity of the site.

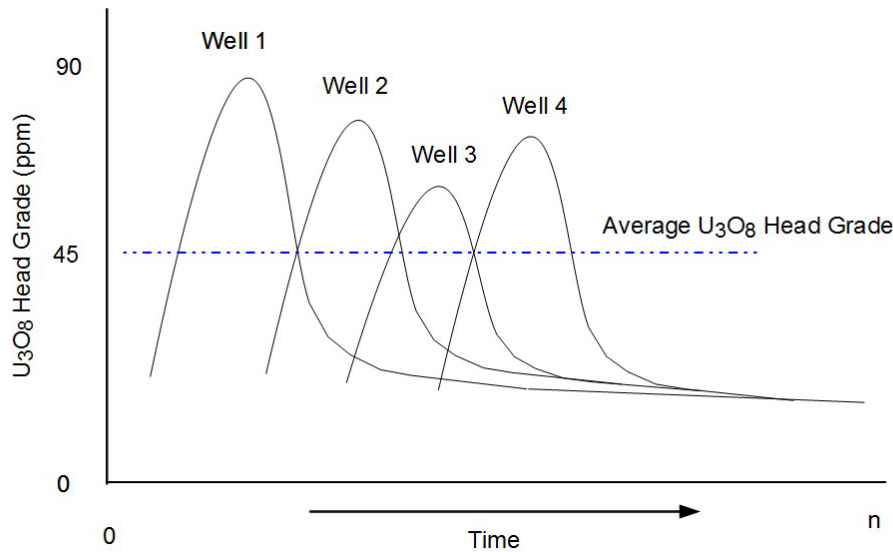
The following sections describe the potential risks to development of the Project and attainment of the financial results presented in this PFS.

### **25.1.1 Uranium Recovery and Processing**

Bench-scale bottle roll and column tests have been performed on core samples from the Project. A potential risks to meeting the production and thus financial risk results presented in this PFS will be associated with the success of the wellfield operation and the efficiency of recovering uranium from the targeted host sands. A potential risk in the wellfield recovery process depends on whether geochemical conditions that affect solution mining uranium recovery rates from the mineralized zones are comparable or significantly different than previous bench-scale tests. If they prove to be different, then potential efficiency or financial risks might arise.

The percent recovery results of several bottle roll leach amenability tests AUC had performed by Energy Labs, J.E. Litz and IML are presented in Section 13. Results of column leach tests performed by J.E. Litz and Associates from core samples in the Reno Creek Permit Area are also presented in Section 13 and indicate an average uranium recovery of 86 percent; therefore, a recovery factor of 75 percent (as determined in earlier bench scale studies and used in this PFS) should be achievable and conservative given the following considerations:

- The pregnant lixiviant will consist of a mix of multiple well streams designed to have an average head grade of 45 ppm thus allowing for production to continue from individual wells long after the peak grade has been achieved (Figure 25.1). This targeted concentration will result in a higher depletion of the resources within the host sandstones leading to greater total recovery. The wellfield design package includes instrumentation and data collection equipment to optimize wellfield production by monitoring flow rates, injection pressure and formation pressure allowing control of hydraulic factors, and
- Analogous projects with similar geologic settings (see discussion in Section 13) have seen leach testing results from bottle roll tests of 72 to 85 percent therefore again indicating that the use of a 75 percent recovery factor is conservative.



**Figure 25.1: Mixing Scheme to maximize depletion**

Another potential risk is reduced hydraulic conductivity in the formation due to chemical precipitation or lower hydraulic conductivities than estimated, high flare and/or recovery of significant amounts of groundwater, the need for additional injection wells to increase uranium recovery rates, variability in the uranium concentration in the host sands and discontinuity of the mineralized zone confining layers. The risks associated with these potential issues have been minimized to the extent possible by extensive delineation and hydraulic studies of the site and the bench scale testing did not indicate the formation of precipitates that might impact hydraulic conductivity.

Process risk encompasses the risk associated with the process selection for recovering of uranium, its proper implementation and attaining a final uranium product of acceptable quality. The CPP will be designed for average pregnant lixiviant flow rates and characteristics and the performance of the CPP and uranium production will vary with these criteria. Pregnant lixiviant properties, in particular solids and impurity contents, will also influence CPP operation. Continual monitoring of pregnant lixiviant quality, tank bottoms chemistry and uranium product will be performed to optimize the process and provide for acceptable quality of the final product.

A small portion of the reserves in the Reno Creek Project lie in an area below water table but having a relatively shallow hydraulic head. All of these reserves lie in the far eastern portion of the project, in PU 6. Approximately 40,000 lbs of U<sub>3</sub>O<sub>8</sub> are located within 10 feet of water table. Another 225,000 lbs are located between 10 and 20 feet of water table. Approximately 500,000 lbs lie between 20 and 30 feet of water table.

The operating cost may be somewhat higher in areas of low head as a consequence of two principal factors: maintaining the barren lixiviant in an oxygenated condition; and minimizing draw-down during production and restoration.

The Reno Creek pilot plant operated very successfully under head of 30 feet, using a small sized approximately 40-45 foot pattern. The plant both produced and restored the ground water quality readily. However, the facility utilized hydrogen peroxide instead of gaseous oxygen. The use of hydrogen peroxide allows the maintenance of oxygenating conditions, but potentially at a slightly higher overall operating cost.

At very shallow heads (e.g., less than 20 feet), production and restoration may require patterns smaller than 100 feet and flow rates lower than 20 gpm in order to minimize drawdown. Such situations may increase operating costs for the reserves being mined in such areas.

As discussed in Section 16, AUC has incorporated into the overall capital and operating costs an average pattern size of 100 feet, but allowed for both larger and small patterns in various areas (including smaller sizes in the low head area). In addition AUC has incorporated an average flow rate of 20 gpm, but allowed for a range of 5 to 45 gpm depending on various areas in the project. While AUC has conducted preliminary evaluations of the use of liquid oxidants, no allowance for alternative or supplemental liquid oxidants (e.g., hydrogen peroxide) has been included in the operating costs of the project as of the date of this report.

The reserves exhibiting less than 20 feet of head, which are most at risk for increased costs, represent less than 2 percent of total reserves. They are planned for operation only during years 5, 6, and 7, and will represent approximately 15 percent of overall production during that period.

### **25.1.2 Delays in Obtaining Licenses/Permits and Approvals**

The most significant potential risk to meeting the proposed schedule and attaining the performance described in this PFS is that of obtaining the required licenses/permits and approvals needed to commence mining in a timely fashion. This PFS assumes initiation of wellfield and facility construction will occur in Year -1 in the Reno Creek permit area. Additional license/permit amendments will be required for the Moore and Bing Resource Units. License/Permit amendments for the Pine Tree Resource Unit are not assumed in this study. The life of mine Schedule, Figure 1.4, illustrates the estimated timing for these amendments. The timeframe for obtaining licenses/permits and approvals could be extended depending on the schedule of the regulating authorities, i.e., the Wyoming DEQ and USNRC.

The two most significant permits/licenses are (1) the Permit to Mine, issued by the WDEQ/LQD, and (2) the Source and Byproduct Materials License, required and issued by the NRC for mineral processing of natural uranium.

The NRC and WDEQ are in the process of reviewing AUC's Source and Byproduct Materials License and Permit to Mine applications, respectively. The Permit to Mine application was submitted to WDEQ in January 2013. The Source and Byproduct Materials License application was submitted to the NRC in October 2012. Other uranium operating companies with similar permit applications for Wyoming ISR mines have recently had those permits approved. It is difficult to predict the time that will be required for the regulatory agencies to complete their reviews and issue permits/licenses. The projected two year period is both within the range of recent permitting activities for other uranium operators and within the statutory and regulatory guidelines for the respective agencies.

### **25.1.3 Market and Contracts**

Unlike other commodities, most uranium does not trade on an open market. Contracts are negotiated privately by buyers and sellers. Changes in the price of uranium can have a significant impact on the economic performance of the Project. As discussed in Section 22, a \$1.00 change in the price of uranium can have an impact to the after-tax NPV of approximately \$6.8 million, based on a discount rate of eight percent. This analysis assumes a fixed price per pound for U<sub>3</sub>O<sub>8</sub> over the life of the Project. This PFS assumes Figure 18.1 U<sub>3</sub>O<sub>8</sub> production Figure 18.1 is sold at a contract price of Figure 18.1

US\$ 65.00 per pound. The Authors believe that these estimates are appropriate for use in this evaluation. At the time of writing this PFS, AUC has no long term pricing contracts in place.

The marketability of uranium and acceptance of uranium mining is subject to numerous factors beyond the control of AUC. The price of uranium may experience volatile and significant price movements over short periods of time. Factors known to affect the market and the price of uranium include demand for nuclear power; political and economic conditions in uranium mining, producing and consuming countries; costs; interest rates, inflation and currency exchange fluctuations; governmental regulations; availability of financing of nuclear plants, reprocessing of spent fuel and the re-enrichment of depleted uranium tails or waste; sales of excess civilian and military inventories (including from the dismantling of nuclear weapons) by governments and industry participants; production levels and costs of production in certain geographical areas such as Russia, Africa and Australia; and changes in public acceptance of nuclear power generation as a result of any future accidents or terrorism at nuclear facilities.

#### **25.1.4 Uranium Recovery**

The estimated quantity of recovered uranium used in this PFS is based primarily on the recovery data from site-specific, bench-scale testing of mineralized samples. The overall recovery value of 74.25 percent, used herein, is relatively typical of industry experience for ISR recovery. The Authors can provide no assurance that the uranium recovery presented herein will be achieved. This PFS is based on the assumptions and information presented herein. The proposed uranium recovery was also confirmed based on estimates of other ISR operations in Nebraska and Wyoming.

Figure 25.2 illustrates the sensitivity of NPV to uranium reserve recovery. The after-tax NPV changes approximately \$58.8 million per a 10 percent change in uranium recovery based on an eight percent discount rate.

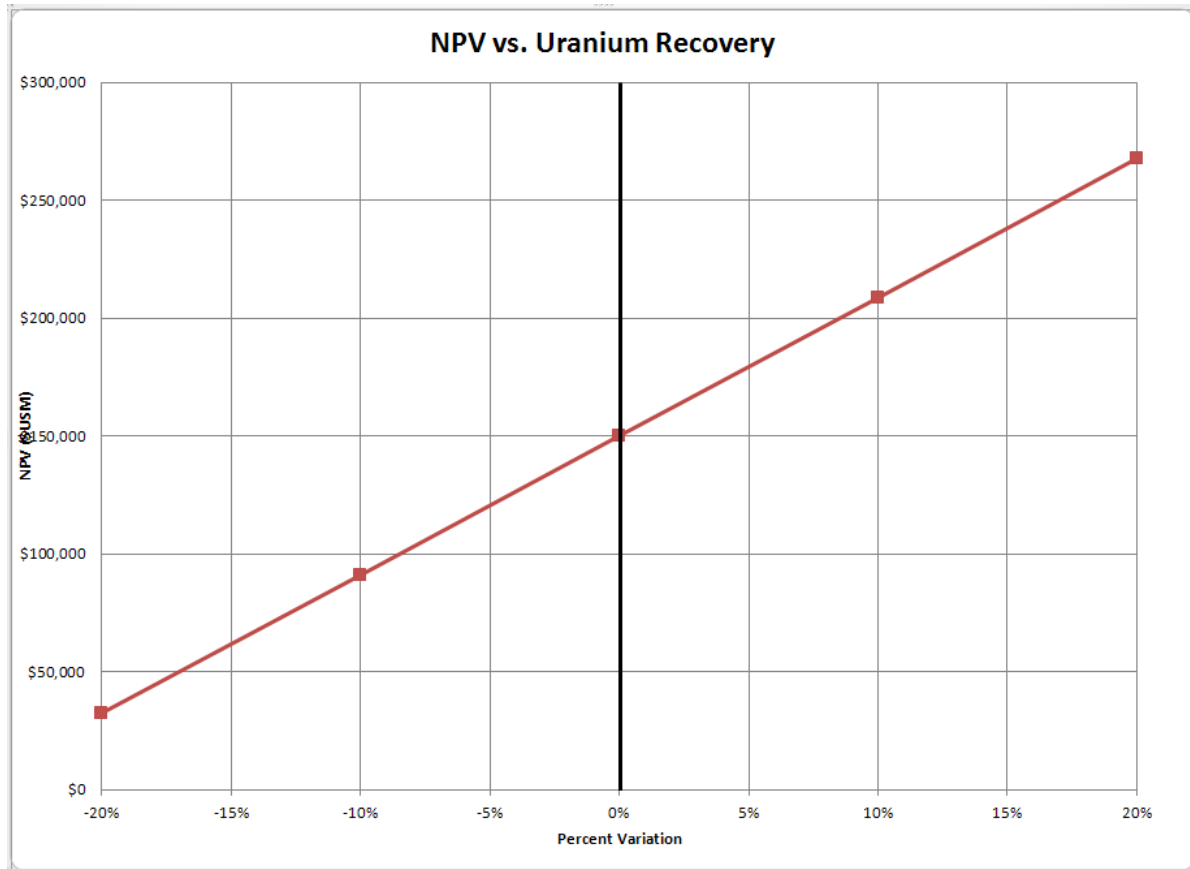


Figure 25.2: After-Tax NPV Sensitivity to Uranium Recovery

### 25.1.5 Operations

Some operational risks exist in the Project implementation but are generally considered to be addressable either through wellfield modifications or CPP optimization. The CPP will be designed as a batch precipitation and drying operation, which allows for process variations and enhanced control.

The IX and elution processes have been, and are being used at other ISR facilities in Wyoming, Texas, and Nebraska. The process does not use any unusual or innovative methods and the reagents for the process are readily available from regional sources. Initial process optimization will be required to minimize the use of reagents, minimize loss of product and ensure proper product quality.

Health and safety programs will be implemented to control the risk of on and off site exposures to uranium and process chemicals. Standard industry practices exist for this type of operation and novel approaches to risk control and management will not be required.

## 25.2 FORESEEABLE RISK IMPACT ON PROJECT'S VIABILITY

The above risk discussions describe potential and/or foreseeable impacts to the Project's viability. Further, based on the Author's opinion, the geologic assessment and uranium character of the project appears sound within the parameters of data supplied in that regard. Therefore any adverse risk to the viability of the project pertaining to the geologic and mineralization model is minimal.



### 25.3 QUALIFIED PERSONS' CONCLUSIONS

The Authors therefore conclude that the proposed Project as described herein is technically and economically viable.

## 26.0 RECOMMENDATIONS

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The results of the PFS, based on assumptions and calculations presented herein, indicate that the Project is technically and economically viable. In order to realize the full economic benefits described in this PFS, the following activities are recommended by the Authors, at a minimum:

- AUC should proceed toward Feasibility including more detailed engineering and design to prepare for eventual construction and operation of the Reno Creek Project. Finalize project facility designs including identification of long lead procurement items and cost-benefit and optimization evaluations of current design. This recommendation would result in a cost to AUC in the range of \$1 million to \$2 million and is included in this PFS.
- Evaluate potential waste water disposal alternatives to deep disposal wells. This recommendation would result in little or no cost outside of AUC labor.
- Further evaluate capital/operating cost optimization and review regional consolidation of other ISR uranium projects that would benefit from the centrally located processing plant. These costs are estimated to be approximately \$250,000.
- Include in the cost optimization an evaluation of the operating cost impacts of mining and restoration in a low hydraulic head environment in PU 6, the only area in which low head is found in the project.
- Upon receipt of its permits and licenses for the Reno Creek Resource Units, initiate baseline studies for license/permit license amendments to allow development in the Moore and Bing Resource Units, outside the current Reno Creek Permit area. This recommendation would result in cost to AUC of approximately \$4 million which is included in this PFS.
- Pursue and execute an 11e.(2) Byproduct/Waste Disposal Agreement (with licensed disposal operator) in a timeframe prior to operations. This recommendation would result in little or no costs outside AUC labor.
- Continue to explore all Resource Units to identify additional resources that may be brought into production and to convert inferred resources into reserves.
- Conduct hydrologic analyses in the Pine Tree Resource unit to determine if the resources are amenable to ISR production.

## 27.0 REFERENCES

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AUC LLC, 2012. USNRC Application, Combined Source and 11e.(2) Byproduct Material License, Reno Creek ISR Project, Campbell County, Wyoming, Technical Report. September, 2012.

AUC LLC 2013. WDEQ Permit to mine application.

Australian Department of the Environment, 2009, Best Practice Guide: Groundwater, Residues and radiation protection.

Behre Dolbear, 2012. Technical Report on Resources of the Reno Creek ISR Project, Campbell County, Wyoming. Prepared for AUC, LLC. November 30, 2012

CIM Council, 2003. Estimation of Mineral Resources and Mineral Reserves, Best Practice Guidelines.

Davis, J.F., 1969: Uranium Deposits of the Powder River Basin, Contributions to Geology, Wyoming Uranium Issue, University of Wyoming.

Hydro Engineering, 1987, Reno Creek Exploration Pump Tests, for Union Pacific Resources.

IAEA, 2011. Uranium 2011: Resources, Production and Demand

State of Wyoming GIS Database, 2012. <http://wygl.wygisc.org/DataServer/>.

IML Air Science meteorological database, 2011

Inberg-Miller, 2012. Subsurface Exploration and Geotechnical Engineering Report

Martner, 1986. Wyoming Climate Atlas, University of Nebraska Press

Morrow, E., 1971, Utah International, internal memo 12-8-71, Powder River Basin 'A' Block Summary of 1971 Drilling.

National Climatic Data Center, 2011. <http://www.ncdc.noaa.gov/>.

Petrotek, 2012, Reno Creek Project Regional Hydrologic Test Report DN401, TFN 5 4/150, prepared for AUC LLC.

Rocky Mountain Energy, 1988, Reno Creek Exploration 1987 Progress Report, Includes Core Analyses and Hydrologic Study, Moore Property.

Rocky Mountain Energy, 1988, Reno Creek Development Reserve Estimate with 50-Foot Hydrostatic Head Requirement.

Rocky Mountain Energy, 1982, Hydrogeologic Integrity Evaluation of the Reno Creek Project Area, Vol. I and II.

Rocky Mountain Energy, 1981, Hydrologic Analysis of the Reno Creek – Pattern 2 Property for *In Situ* Uranium Recovery.

- Rocky Mountain Energy, 1983, Reno Creek Pattern 2 Restoration Reports & Addenda from 1981, 1982, and 1983.
- Seeland, D, 1988, Laramide Paleogeographic Evolution of the Eastern Powder River Basin, Wyoming and Montana, in Diedrich, R.P., Dyka, M.A.K., and Miller, W.R., eds., Eastern Powder River Basin-Black Hills: Wyoming Geological Association Guidebook, 39th Field Conference, p. 29-34.
- Sharp, W.N., Gibbons, A.B., 1964: Geology and Uranium Deposits of the Southern Part of the Powder River Basin, Wyoming. U.S. Geological Survey Bulletin 1147-D, 164 pp.
- Snow, C.D., PG, 2009, National Instrument 43-101 Mineral Resources Report, Reno Creek Uranium Property Campbell County, Wyoming, for Strathmore Minerals Corporation, updated January 30, 2009.
- Snow, C.D., PG, 2009, National Instrument 43-101 Mineral Resources Report, Southwest Reno Creek Uranium Property Campbell County, Wyoming, for Strathmore Minerals Corporation, updated January 30, 2009.
- TREC, Inc., 2010, Technical Report Reno Creek Property, Campbell County, Wyoming, for Uranerz Energy Corporation.
- U.S. Census Bureau, 2012.
- Western Regional Climate Center (WRCC, 2011). <http://www.wrcc.dri.edu/>
- Wyoming State Climate Office, 2005. [http://www.wrds.uwyo.edu/sco/climate\\_office.html](http://www.wrds.uwyo.edu/sco/climate_office.html).

## 28.0 DATE AND SIGNATURE PAGE AND CERTIFICATION

This PFS was prepared by the following QPs, Certificates and consents of which are contained herein:

<b>Name</b>	<b>Title, Company</b>	<b>Responsible for Sections</b>
Douglass H. Graves, P.E.	Principal TREC, Inc.	1, 2, 3, 4, 5, 6, 16, 17, 18, 20, 21, 22, 23, 24, 25, 26, 27
Rex C. Bryan, Ph.D.	Principal Mining Engineer Tetra Tech	1, 2, 3, 6, 7, 8, 14, 15, 25, 26 and 27
Alva Kuestermeyer, M.S.	Mineral Processing Tetra Tech	1, 2, 3, 13, 19, 22, 25, 26, and 27
David M. Richers, Ph.D., P.G.	Geochemist / Geologist Tetra Tech	1, 2, 3, 9, 10, 11, 12, 25, 26, and 27

## CERTIFICATE OF AUTHOR

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### **Reno Creek Uranium ISR Project Preliminary Feasibility Study Campbell County, Wyoming**

I, Douglass H. Graves, P.E., of 1800 West Koch, Bozeman, Montana, USA, do hereby certify that:

- I have been retained by AUC, LLC, 1536 Cole Blvd, Suite 330, Lakewood, Colorado, USA, to manage, coordinate, develop and write certain sections of the documentation for the Reno Creek Property, Preliminary Feasibility Study.
- I am a principal of TREC, Inc., 1800 West Koch, Bozeman, Montana, USA.
- I graduated with a Bachelor of Science degree in Watershed Sciences from Colorado State University in 1975.
- I graduated with a Bachelor of Science degree in Civil Engineering from Montana State University in 1982.
- I am a Professional Engineer in Wyoming, Montana, Colorado, South Carolina, Arizona, Idaho, Michigan, Oklahoma and Missouri, a P. Eng. in Alberta, Canada, a Registered Member of SME; and a member of the Society for Mining, Metallurgy and Exploration (SME), Mining Associates of Wyoming (MAW), Montana Mining Association (MMA), Northwest Mining Association (NWMA) and the American Institute of Steel Construction (AISC).
- I have worked as a consulting Engineer for 35 years. My experience has encompassed infrastructure design, mine construction oversight, cost estimating and control, economic analyses, feasibility studies, equipment selection, design, construction management and mine closure/reclamation for numerous metal mining operations, conventional uranium and uranium ISR facilities. I have either been responsible for or the engineer of record for the design and/or construction of five uranium ISR central processing facilities (one is in operation and two are in construction), two uranium ISR satellite plants and numerous technical and financial evaluations for other uranium processing facilities in Wyoming, Colorado, Texas and New Mexico. I have also been responsible for or the engineer of record for numerous metal and uranium mine decommissioning and reclamation projects over the past 35 years. Some of the mining properties I have been involved with include:
  - Lost Creek Uranium
  - Moore Ranch Uranium
  - Nichols Ranch Uranium
  - Ludeman Uranium
  - Ross Creek Uranium
  - Willow Creek Uranium
  - Churchrock Uranium
  - Hansen Uranium
  - Jab-Antelope Uranium
  - Climax Molybdenum
  - Henderson Molybdenum
  - Bagdad Copper
  - Sierrita Copper
  - Globe Copper
  - Morenci Copper

- I have read the definition of “qualified person” set out in National Instrument (NI) 43-101 and certify by reason of my education, professional registration and relevant work experience, I fulfill the requirements to be a “qualified person” for the purposes of NI 43-101.
- I visited the Reno Creek project site on October 17, 2012 and January 20, 2014 and was there for approximately eight hours during each visit.
- I have read the NI 43-101 and the Reno Creek Property Preliminary Feasibility Study which has been prepared in accordance with the guidelines set forth in NI 43-101 and Form 43-101F1.
- I am responsible for the coordination, compilation and preparation of the Reno Creek Uranium ISR Project Preliminary Feasibility Study dated May 9, 2014 for portions of Section 1, Sections 2 through 6, Sections 16, 17, 18, 20, 21 and portions of Sections 22 through 27. I coordinated and assisted in the development of the various cost estimates, summaries, analyses, risk evaluation and recommendations.
- To the best of my knowledge, information and belief, at the effective date of the report, the Preliminary Feasibility Study contains all scientific and technical information that is required to be disclosed to make the Preliminary Feasibility Study not misleading.
- I am independent of the issuer applying all of the tests of NI 43-101.
- I have been involved with previous economic analyses and permitting activities for the subject property.
- I consent to the filing of the 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 this 9th Day of May, 2014

*Original document dated, signed and sealed by Douglass H. Graves*

Professional Engineer Wyoming PE 4845 and SME Registered Member 4149627

Douglass H. Graves, P.E.

## CERTIFICATE OF AUTHOR

---

**Rex C. Bryan**

Senior Geostatistician

Tetra Tech

350 Indiana Street, Suite 350

Golden, Colorado 80401

Telephone: 303-217-5700

Facsimile: 303-217-5705

Email: rex.bryan@tetratech.com

I, Rex Clair Bryan, Ph.D., MBA, do hereby certify that:

1. I am currently employed by Tetra Tech at:

350 Indiana Street  
Suite 350  
Golden, Colorado 80401

2. I graduated with a degree in Engineering (BS with honor) in 1971 and a MBA degree in 1973 from the Michigan State University, East Lansing. In addition, I graduated from the Brown University with a degree in Geology in 1977, Providence, Rhode Island and The Colorado School of Mines, Golden, Colorado, with a graduate degree in Mineral Economics (Ph.D.) in 1980.
3. I am a Registered Member (#411340) of the Society for Mining, Metallurgy, and Exploration, Inc. (SME).
4. I have worked as a resource estimator and geostatistician for a total of thirty-one years since my graduation from university; as an employee of a leading geostatistical consulting company (Geostat Systems, Inc. USA), with large engineering companies such as Dames and Moore, URS, and Tetra Tech as a consultant for more than 30 years.
5. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (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 the preliminary feasibility study ("REPORT") titled Reno Creek ISR Project, Campbell County, Wyoming, USA, NI 43-101 Technical Report, dated May 9, 2014. I have visited the subject property on January 20-21, 2014
7. I have either supervised the data collection, preparation, and analysis and/or personally completed an independent review and analysis of the data and written information contained in this Report. I am responsible for Sections 2, 3, 7, 8, 10, 12, 14, 15 and portions of 1, 6, 25, 26 of this report.



8. I have had no prior involvement with AUC and the Reno Creek ISR Project and Property that is the subject of this Report.
9. I am not aware of any material fact or material change with respect to the subject matter of the Report that is not reflected in the Report, the omission to disclose which makes the Report misleading.
10. I do not hold, nor do I expect to receive, any securities or any other interest in any corporate entity, private or public, with interests in the properties that are the subject of this report or in the properties themselves, nor do I have any business relationship with any such entity apart from a professional consulting relationship with the issuer, nor to the best of my knowledge do I have any interest in any securities of any corporate entity with property within a two (2) kilometer distance of any of the subject properties.
11. I have read National Instrument 43-101 and Form 43-101F, and the Report has been prepared in compliance with that instrument and form.
12. I consent to the filing of the Preliminary Feasibility Study NI 43-101 Technical Report with any stock exchanges or other regulatory authority and any publication by them, including electronic publication in the public company files on the websites accessible by the public, of the Preliminary Feasibility Study NI 43-101 Technical Report.

Dated this 9<sup>th</sup> Day of May, 2014

*"Original document dated, signed and sealed by Rex Clair Bryan"*

\_\_\_\_\_  
Signature of Qualified Person

"Rex Clair Bryan"  
Print name of Qualified Person



Rex Clair Bryan, Ph.D.  
SME Registered Member No. 411340

## CERTIFICATE OF AUTHOR

---

**Alva L. Kuestermeyer**

Principal Project Manager  
Tetra Tech  
350 Indiana Street, Suite 350  
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Telephone: 303-217-5700  
Facsimile: 303-217-5705

Email: al.kuestermeyer@tetrattech.com

I, Alva L. Kuestermeyer, do hereby certify that:

1. I am currently employed by Tetra Tech at:

350 Indiana Street, Suite 500  
Golden, Colorado 80401

2. This certificate applies to the Technical Report titled "NI 43-101 Technical Report Preliminary Feasibility Study Reno Creek ISR Project, Campbell County, Wyoming" (Technical Report), effective 9<sup>th</sup> of May, 2014, issued May 9, 2014.
3. I graduated with a B.S. degree in Metallurgical Engineering in 1973 from South Dakota School of Mines and Technology, Rapid City, SD and an M.S. degree in Mineral Economics in 1982 from Colorado School of Mines, Golden, CO. I have worked as a metallurgical engineer and mineral economist for a total of forty (40) years since my graduation from university as an employee of mining/consulting/engineering companies including ASARCO, European Uranium Resources, Dames and Moore, Behre Dolbear, SRK and Pincock, Allen and Holt; and currently with Tetra Tech. I am a Registered Member (#1802010) of the Society for Mining, Metallurgy, and Exploration, Inc. (SME) and a Fellow Member (#305602) of the Australasian Institute of Mining & Metallurgy (AusIMM). I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (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.
4. I have visited and inspected the subject property from January 20<sup>th</sup>, 2014 to January 21<sup>st</sup>, 2014.
5. I am responsible for Sections 13, 19 and 22 of this Technical Report.
6. I satisfy all the requirements of independence according to NI 43-101.
7. I have had no prior involvement with AUC LLC on the property that is the subject of this Technical Report. My involvement has consisted of acting as an expert who was relied upon for previous Technical Preliminary Feasibility Report and technical reports and data for this property.

8. I have read NI 43-101, Form 43-101F1, and the Companion Policy to NI 43-101 (43-101 CP) and the Technical Report has been prepared in compliance with NI 43-101, Form 43-101F1, and 43-101CP.
9. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the portions of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.
10. I consent to the filing of the Technical Report with any stock exchanges or other regulatory authority and any publication by them, including electronic publication in the public company files on the websites accessible by the public, of the Technical Report.

Dated this 9<sup>th</sup> Day of May, 2014

*"Original document dated, signed and sealed by Alva L. Kuestermeyer"*

\_\_\_\_\_  
Signature of Qualified Person

*"Alva L. Kuestermeyer"*  
Printed name of Qualified Person



**Alva L. Kuestermeyer**  
**SME Registered Member No. 1802010**

## CERTIFICATE OF AUTHOR

---

**David Matthew Richers**

Senior Geologist/Geochemist  
Tetra Tech

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Email: dave.richers@tetrattech.com

I, David M. Richers, PhD., PG, do hereby certify that:

1. I am currently employed by Tetra Tech MM, Inc. at:

350 Indiana Street  
Suite 350  
Golden, Colorado 80401

2. I graduated with a degree in Geology in 1974 from the Pennsylvania State University and a MS degree in Geology/Geochemistry in 1977 from the University of Kentucky. I also received a PhD in Geology from the University of Kentucky, Lexington, KY in 1980 for Uranium Geochemistry.
3. I am a Registered Member (#4174527) of the Society for Mining, Metallurgy, and Exploration, Inc. (SME).
4. I have worked as a geologist/geochemist for over 35 years in minerals, petroleum, environmental, and academia endeavors.
5. I am a registered AAPG Petroleum Geologist since 1984.
6. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (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.
7. I am responsible for the preparation of the preliminary feasibility study ("Report") titled Reno Creek ISR Project, Campbell County, Wyoming, USA, NI 43-101 Technical Report, dated May 9, 2014. I have visited the subject property on January 20-21, 2014
8. I have either supervised the data collection, preparation, and analysis and/or personally completed an independent review and analysis of the data and written information contained in this Report. I am responsible for Sections 9, 11, and 12 and portions of 1, 4, 5, 7, 13, 14, 15, and 16 of this report.
9. I have had no prior involvement with AUC or the Reno Creek ISR Project and Property that is the subject of this Report.

10. I am not aware of any material fact or material change with respect to the subject matter of the Report that is not reflected in the Report, the omission to disclose which makes the Report misleading.
11. I do not hold, nor do I expect to receive, any securities or any other interest in any corporate entity, private or public, with interests in the properties that are the subject of this report or in the properties themselves, nor do I have any business relationship with any such entity apart from a professional consulting relationship with the issuer, nor to the best of my knowledge do I have any interest in any securities of any corporate entity with property within a two (2) kilometer distance of any of the subject properties.
12. I have read National Instrument 43-101 and Form 43-101F, and the Report has been prepared in compliance with that instrument and form.
13. I consent to the filing of the Preliminary Feasibility Study NI 43-101 Technical Report with any stock exchanges or other regulatory authority and any publication by them, including electronic publication in the public company files on the websites accessible by the public, of the Preliminary Feasibility Study NI 43-101 Technical Report.

Dated this 9<sup>th</sup> Day of May, 2014

*"Original document dated, signed and sealed by David Matthew Richers"*

\_\_\_\_\_  
Signature of Qualified Person

*"David Matthew Richers"*  
\_\_\_\_\_  
Printed name of Qualified Person



David Matthew Richers, Ph.D.  
SME Registered Member No. 4174527