THE ANTELOPE URANIUM PROJECT

A Comparison of ISR and Heap Leach Extraction

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Introduction

The Energy Metals Corporation (EMC) holds numerous mineral properties in the northern portion of the Great Divide Basin including the JAB Property, one of several potential properties being planned for development as a satellite facility to the greater Antelope Uranium Project. A National Instrument 43-101 Technical Report has been completed for the JAB property. This report estimates total measured and indicated mineral resources on the property totaling 3,555,022 pounds U_3O_8 contained in 2,400,875 tons at an average grade of 0.073 % U_3O_8 at a .25 GT cutoff in accordance with CIM Standards on Mineral Resources and Reserves.

The JAB Property is located in Sections 13, 14, 15, 16, 21, 22, and 23, Township 26 North, Range 94 West, approximately Latitude 42^o 14' North and Longitude 108^o 00' West (Figure 1, Location Map). This property consists of unpatented mining lode claims and Wyoming State mineral leases comprising approximately 2,100 acres.

Uranium mineral resources within and in the vicinity of the project are found in the Eocene Battle Springs Formation. Mineralization on the JAB Property is typical of the Wyoming Sandstone Roll-Front. Mineral resource estimates are based on historical drill data from the property that includes radiometric and chemical assay data from some 1,572 drill holes completed on the property. Refer to Figure 2, Drill Hole and Claim Map.

Ground water levels vary slightly with topography, ranging from 71 to 127 feet below the ground surface. Mineralization in the "RD" area, representing approximately one third of the total mineral resources is generally above the water table and is thus, not suited to In Situ Recovery (ISR) development. The remaining mineralization in the "Silverbell" area is below the water table and may be suited to ISR development.

Based on this distribution of mineralization a ***conceptual*** feasibility study comparing ISR development, development by conventional mining with heap leach extraction, and the combination of both approaches has been completed and is the subject of this paper. The costs presented herein do not reflect total production costs but rather comparative costs of the different extraction approaches. In all cases it has been assumed that the mining and construction related activities would be contracted. All estimates are of a preliminary nature.

Project Location and Accessibility

The JAB Property is located within the Wyoming Basin physiographic province in the Great Divide Basin. The project is approximately 12 air miles northwest of the Sweetwater Uranium mill and approximately 15 air miles southwest of the Crooks Gap Mining District.

The project area is a low-lying plain, roughly 6,900 feet in elevation. Vegetation is characteristically sagebrush and grasses. The site is located on a small ridge between the ephemeral drainages of Arapahoe Creek and Osborne Draw. These drainages join Lost Creek approximately 4 miles west of the site. Portions of Lost Creek are spring fed and perennial. However, the Great Divide Basin is a closed basin of approximately 200 square miles with no external surface drainage.

The site is accessible via 2-wheel drive on existing county and/or two-track roads.

History

JAB was acquired by Union Carbide Corporation (UCC) in 1972 from Silverbell Industries, the original locator. By 1975, UCC had delineated an area of shallow oxidized mineralization. In 1978, mineralization was discovered west of the previous known mineralization in a deeper, reduced sandstone unit. The "discovery hole" contained 43.5 feet of continuous mineralization at a grade of 0.108 $\%_eU_3O_8$. Continued exploration and delineation drilling progressed, and by the end of 1980 the bulk of the mineral resources had been delineated. In 1981 mine planning and feasibility studies were initiated to exploit the mineralization via open pit mining with an on-site heap leach facility. The project was later tabled due to the declining uranium market and the claims were dropped. EMC acquired the property by locating unpatented mining lode claims and leasing the adjacent state section. Historical drill and other data were acquired from UCC.

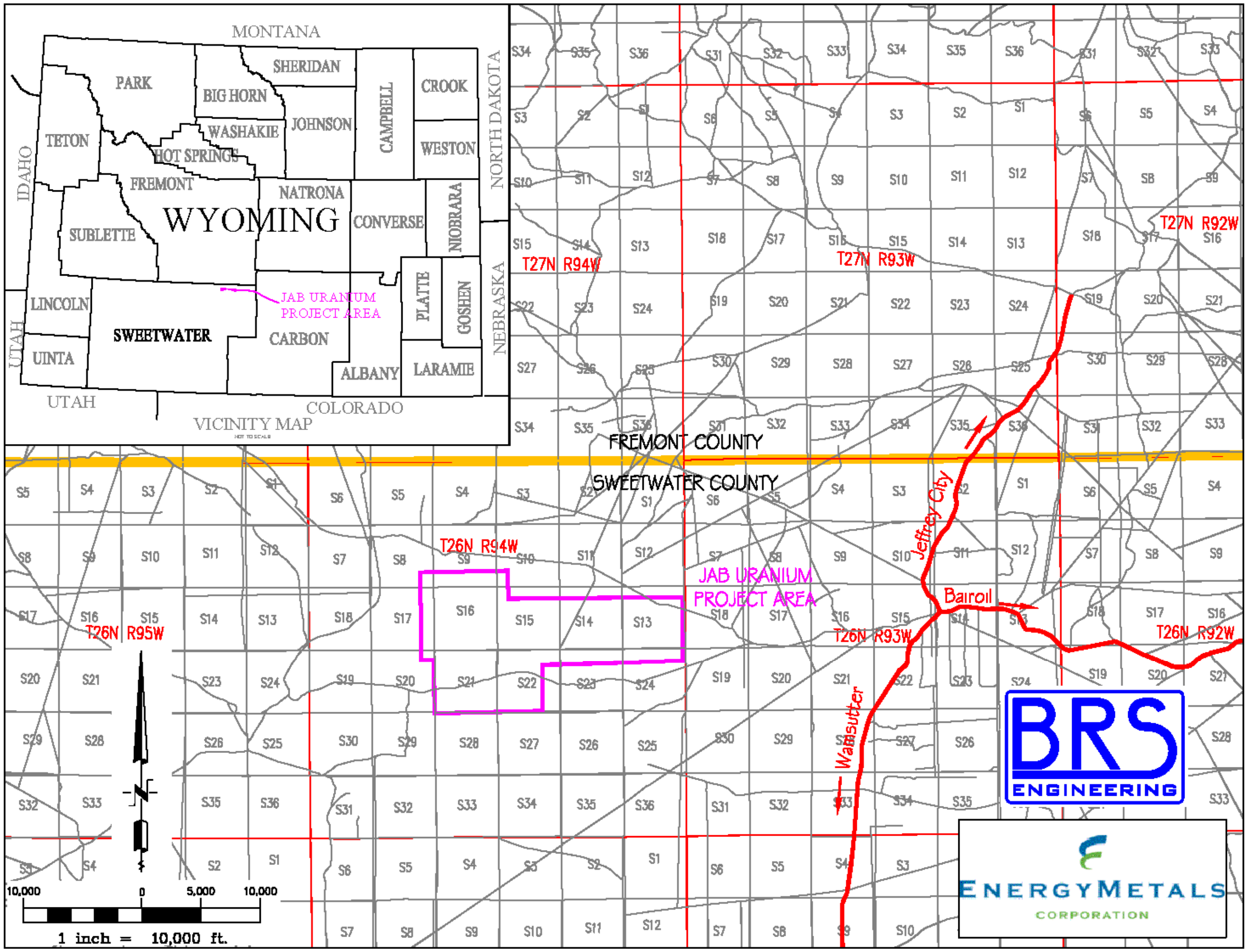

Figure 1 - Location Map

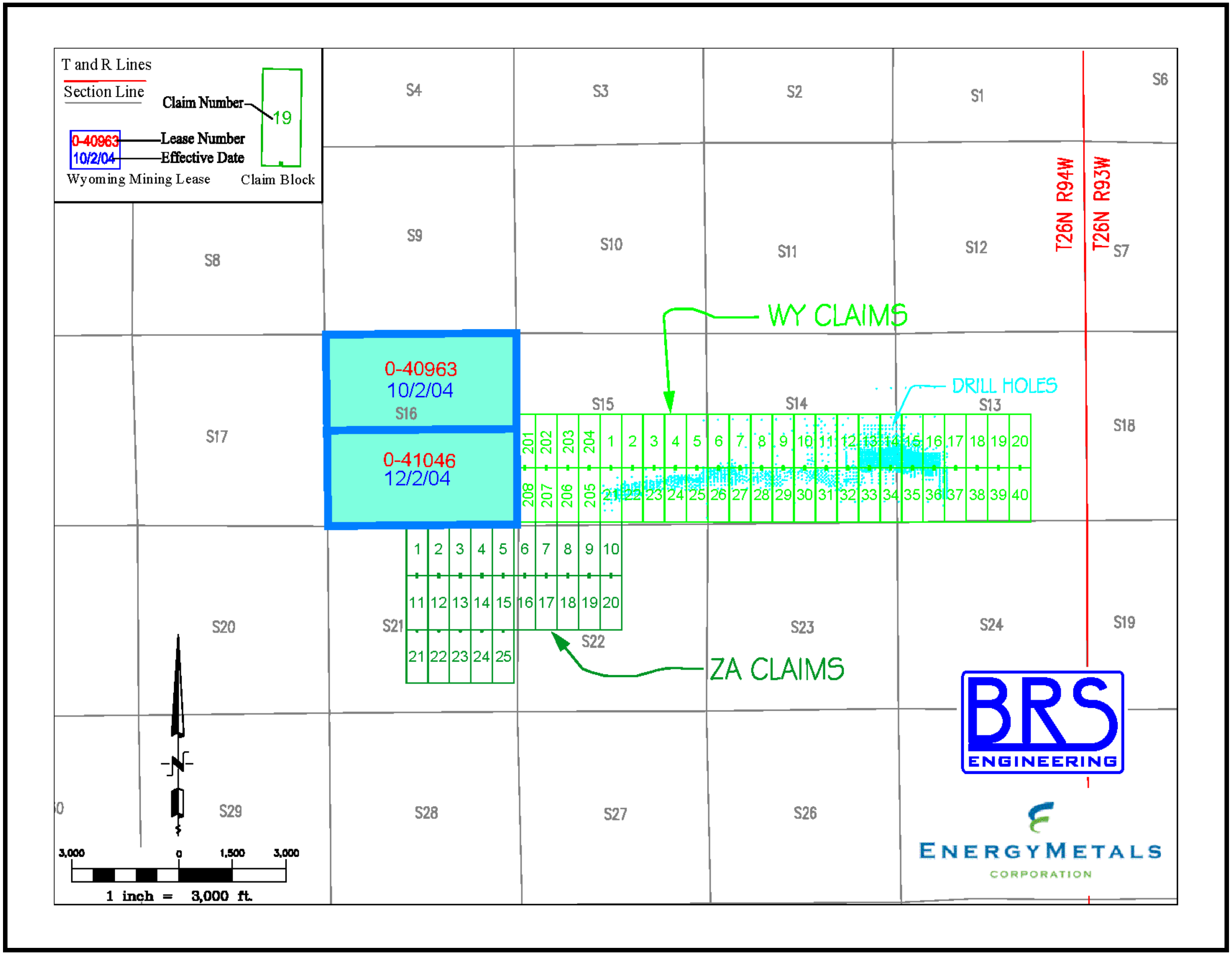

Figure 2 – Drill Hole and Claim Map

GEOLOGIC SETTING

Bedrock geology is shown on Figure 3, Geologic Map and Stratigraphic Column. Uranium mineral resources within and in the vicinity of the project are found in the Eocene Battle Springs Formation. The Battle Springs Formation is the time-stratigraphic equivalent of the Wasatch Formation. The Battle Springs Formation transitions to the Wasatch Formation along the western side of the Great Divide Basin near the Rock Springs uplift. The formations inter-tongue along a northwest trending zone of more than 50 miles (Dribus and Hanna, 1982). This zone represents a lateral gradation from a high energy fluvial deposit, the Battle Springs Formation, to the lower energy fluvial, plaudal, and lacustrine deposit, the Wasatch Formation.

The Battle Springs Formation is, in order of predominance, composed of medium to coarse-grained arkosic sandstone grading to fine sandstones and claystones with local carbonaceous shales. Dribus, and Hanna (1982) interpret the Battle Springs Formation to have formed through the coalescing of alluvial fans and piedmont facies that transition basinward to form the Wasatch Formation and attribute a thickness of over 4,500 feet to the Battle Springs. The transitional nature of the contact between the Battle Springs and Wasatch Formations is shown on the Geologic Map and Stratigraphic Column, Figure 3, from Roehler, (1992).

Uranium mineralization at the JAB Property is typical of the Wyoming roll-front sandstone mineralization described by Ganger and Warren (1979), Rackley and others (1972) and Dribus and Hanna (1982). Dribus and Hanna (1982) referring to the Battle Springs and Wasatch Formations in the Great Divide Basin, state that “environments within massive to cross-bedded, well to poorly sorted arkoses and other sandstones are favorable for Wyoming roll-type uranium deposits.” This depositional model is applicable to the Silverbell mineralization, where classic roll fronts are found in a sandstone unit nominally 45 feet thick, with an overlying shale unit and an underlying shale-carbonaceous shale unit. However, the RD mineralization differs in character, representing oxidized remnants of sandstone roll-front mineralization once similar to the Silverbell mineralization. Gamma logs correlated across the mineralized trends show the character and morphology of roll-fronts. However, surface oxidation has remobilized the uranium downward in the section and re-deposited it in tabular form either at or near interfaces with claystones or at or near the interface with the current water table. This interpretation of the JAB mineralization is based on the author’s personal observation of drill logs and samples from several hundred exploratory and development drill holes completed on the site, over a six year period.

Figure 4, JAB Mineralized Trend, shows the mineralization of both the Silverbell and RD areas in plan view.

MINERAL RESOUCE SUMMARY

The following table summarizes the mineral resources estimated for the JAB Property using minimum .03% U_3O_8 and minimum .25 GT cutoffs, (Beahm, 2006)

Note that this is an estimate of total mineral resources, not a mining reserve estimate.

RD Mineralization:

lbs U_3O_8	Tons	Avg. Grade %U_3O_8
1,570,371	1,266,640	0.059

(Measured Mineral Resource based on assay data)

Silverbell IIA Mineralization:

lbs U_3O_8	Tons	Avg. Grade %U_3O_8
1,662,549	1,269,121	0.090

(Measured Mineral Resource based on radiometric equivalent with equilibrium correction)

Silverbell IIB Mineralization:

lbs U_3O_8	Tons	Avg. Grade %U_3O_8
325,102	230,709	0.70

(Indicated Mineral Resource based on radiometric equivalent with equilibrium correction)

Summary:

lbs U_3O_8	Tons	Avg. Grade %U_3O_8
3,558,022	2,440,875	0.073

(Measured and Indicated Mineral Resource based on radiometric equivalent and assay data)

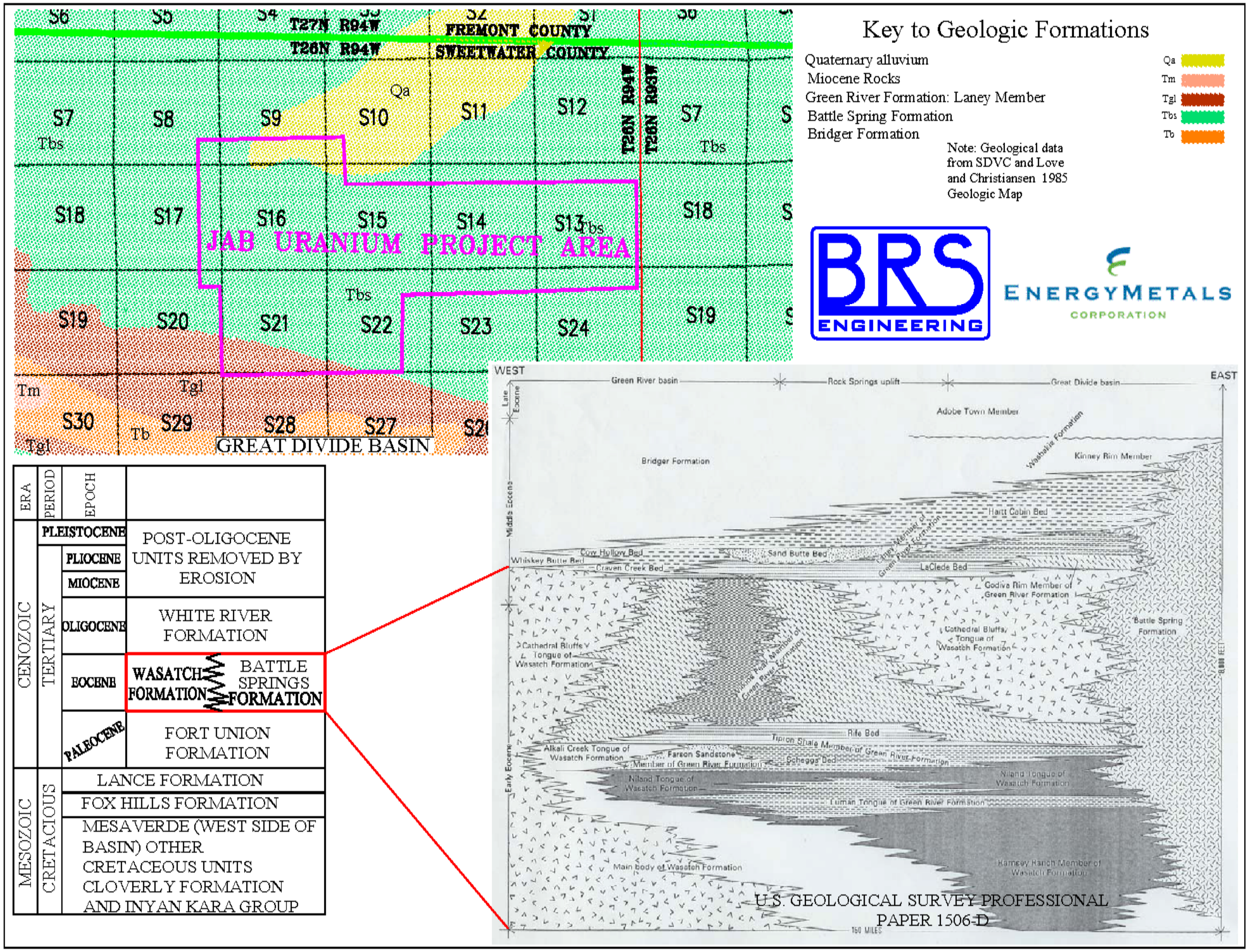

Figure 3 - Geologic Map and Stratigraphic Column

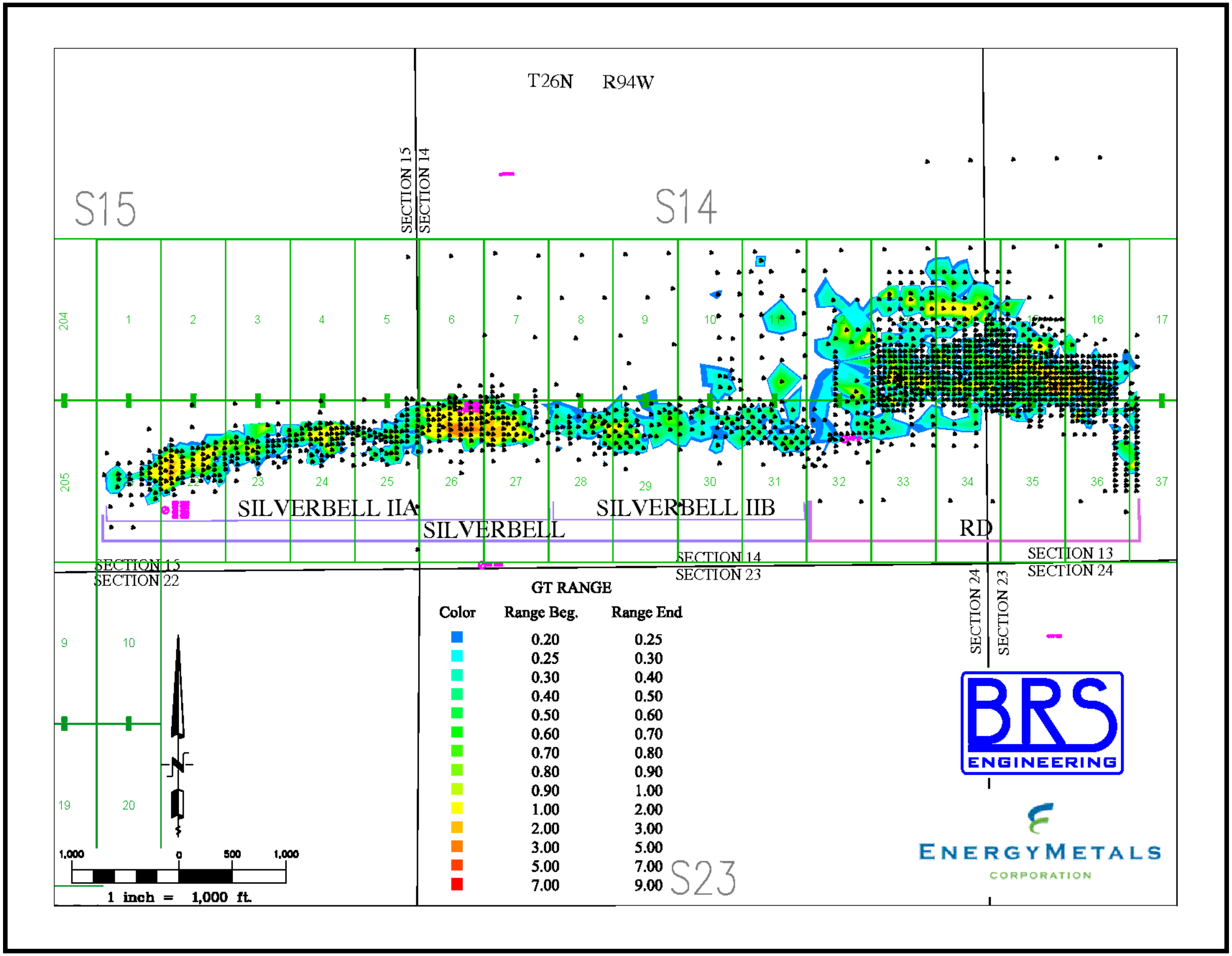

Figure 4 – JAB Mineralized Trend

RD Mineralization

The RD mineralization consists of one distinct trend that is well defined by approximately 750 drill holes. Mineralization is within the Eocene Battle Springs Formation. Drilling in the RD area is sufficient to define a mineralized trend along a length of approximately 3,200 feet. The RD mineralization is an oxidized remnant of a sandstone roll-front mineralization and is generally above the water table. Depth of mineralization from the surface ranges from 40 to 150 feet and averages approximately 70 feet. Mineralization thickness ranges from 1 to 54 feet with an average of 8.4 feet. GT ranges from 0.03 to 4.72 with an average of 0.534.

Silverbell IIA Mineralization

Silverbell IIA mineralization consists of one distinct trend that is well defined by approximately 410 drill holes. Mineralization is within the Eocene Battle Springs Formation. Drilling in the IIA area is sufficient to define a mineralized trend along a length of approximately 4,050 feet within the Battle Springs Formation. Mineralization is typical of sandstone roll-front mineralization. This depositional model is applicable to the Silverbell IIA and IIB mineralization where classical roll fronts are found in a sandstone unit nominally 45 foot thick, with an overlying shale unit and an underlying shale-carbonaceous shale unit. Drill hole spacing is approximately 50 to 100 feet along trend and 50 feet perpendicular to trend. Mineralization appears to be continuous. Depth of mineralization is up to 265 feet deep on the west end of the trend and 195 feet deep on the east end with an average of approximately 215 feet deep. The sand unit is approximately 45 feet thick, however, the mineralization in any given hole rarely exceeds 25 feet. Mineralization thickness ranges from 1 to 45 feet thick with an average of 11.2 feet. GT ranges from 0.03 to 4.01 with an average of 0.754.

Silverbell IIB Mineralization

Silverbell IIB mineralization consists of one distinct trend defined by approximately 200 drill holes. Mineralization is within the Eocene Battle Springs Formation. Drilling in the IIB area is sufficient to define a mineralized trend along a length of approximately 2,550 feet within the Battle Springs Formation. Mineralization is typical of sandstone roll-front mineralization but is less continuous than the Silverbell IIA mineralization. Drill hole spacing is approximately 100 feet along trend and 50 feet perpendicular to trend. Mineralization is up to 195 feet deep on the west end of the trend and 150 feet deep on the east end, with an average of approximately 165 feet deep. Mineralization thickness ranges from 1 to 21.5 feet thick with an average of 4.4 feet. Although drilling adequately defines mineralization the lateral continuity of the Silverbell IIB mineralization is not nearly as strong as that for Silverbell IIA. The GT for the Silverbell IIB area ranges from 0.03 to 1.36 and averages 0.316.

Case 1 - Open Pit Mine and Heap Leach

Equipment Selection

For the open pit mine/heap option a contracted earthwork operation was assumed. Equipment selected for the stripping, mining and heap construction follows. The costs represent nominal operating costs per hour taken from three large construction projects managed by BRS in Wyoming during 2006. Operating costs per hour include $3.00 per gallon for diesel fuel and are fully loaded costs including operators, supervision, and maintenance.

Description	Model or Equivalent	Units	Capacity	Rate $/hr
Loader	CAT 988	1	7 cy	140
Trackhoe	CAT 345	1	3 cy	210
Articulated Truck	CAT 735	4	36 ton	160
Twin-Eng. Scraper	CAT 637	6	44 cy	180
Dozer	CAT D8	3	NA	180
Grader	CAT 16G	2	NA	140
Sheepsfoot	CAT 826	1	NA	140
Water Truck	NA	1	10,000 gal	140

In addition to the contract labor force, the mine operation includes six company personnel for supervision, ore control, and surveying.

Productivity estimates were based on Caterpillar Performance Handbook calculations for the selected equipment. Key assumptions included:

- 10 hour work shifts 5 days per week
- 2 shifts stripping
- 1 daylight shift mining
- 9 of the 10 hours operating
- 6 minute cycle Scrapers
- 10 minute cycle Trucks
- Loader backup for trackhoe
- All equipment costs based on operating full time

Based on these assumptions:

- The capacity of the stripping fleet is estimated at 6.8 million cubic yards per year with an average cost of $1.35/cy.
- Stripping fleet capacity exceeds the annual projected requirement of 6 million cubic yards leaving an excess capacity for sequential reclamation.
- The estimated capacity of the mining fleet is 1.6 million tons per year at an average cost of $2.25/ton.
- Mining fleet capacity of 1.6 million tons/year exceeds the projected annual requirement for Mining and interburden tonnage of 1.2 million tons per year. This allows additional capacity for sequential reclamation and haulage of spent heap material.

General Mining and Heap Construction Sequence

The mine plan includes four pits and two heap areas as shown on Figure 5. Total heap leach pads will require approximately 30 acres. The first heap will be built above grade with the second heap and final disposal site for the first heap sub-grade in the RD pit. The general mining and heap construction sequence is as follows:

Year	Stripping	Mining	Heap
-1	RD Pit		
1	SBIIA - West Pit	RD Pit	Above Grade Heap
2	SBIIA – East Pit	SB IIA - West Pit	Below Grade Heap
3	SBIIB Pit	SB IIA – East Pit	Below Grade Heap
4		SB IIB Pit	Below Grade Heap
5	Reclaim SB Pits		Below Grade Heap
6+	Reclaim RD & Heap		

Conceptually, the approach would be to strip and mine the shallow RD pit first while constructing an above grade heap for uranium recovery with a capacity for ~1/3 of the total ore. Mine development would then move to the SBIIA-West pit. Overburden from the SBIIA-West pit would partially backfill the RD pit and prepare the base for a sub-grade heap with capacity for the remaining ore. This would also function as a final sub-grade disposal site for both the sub-grade and above grade heap material. The SBIIA-East pit would follow in the sequence. Overburden from the SBIIA-East pit would be used to backfill and reclaim the SBIIA-West pit. In a similar manner the SBIIB pit would backfill the SBIIA-West pit. The overburden not need from the SBIIA-W pit for partial backfill of the RD pit would be positioned for final reclamation of the RD and SBIIB pits. The spent material, liner, and base from the above grade heap would be excavated and placed in the sub-grade disposal area prior to final reclamation of the RD pit.

Heap Leach Operations Unit Costs

In the early 1980’s, UCC had completed metallurgical testing and designed a heap leach facility to operate as a satellite to their Gas Hills mill operation. Data from this testing formed the basis for this study.

Key data elements include:

- Recovery 85%
- Acid consumption 45 lbs/ton
- Maximum allowable heap height 25 ft
  (study used 20 ft)

Using a 20 foot height and the anticipated ore tonnage, approximately 30 acres would be required for the heap leach pads. Heap loading was assumed in the haulage cycle for the mine trucks. The major cost items for the heap leach operation follow:

- Liner – Highest Cost Case: assume double synthetic liner 60 mil HDPE. 2006 installed price $0.55/sf or $0.88 per ton of ore.
- Sulfuric Acid: 45 pounds per ton of ore at $75/ton or a unit cost of $1.69 per ton of ore. Additional reagents estimated to add approximately $.30 per ton for a total reagent cost of $1.99 per ton of ore.
- Power estimated at $0.20 per ton of ore.
- Labor: assume 24 hour operation, 16 total personnel including operators, supervision and maintenance at a fully loaded cost of $40/hr. Labor equates to $4.78 per ton of ore.
- Allowing a 30% contingency for ancillary costs the estimated heap operation costs are $10.20 per ton of ore
- Satellite facility capital $7,600,000.

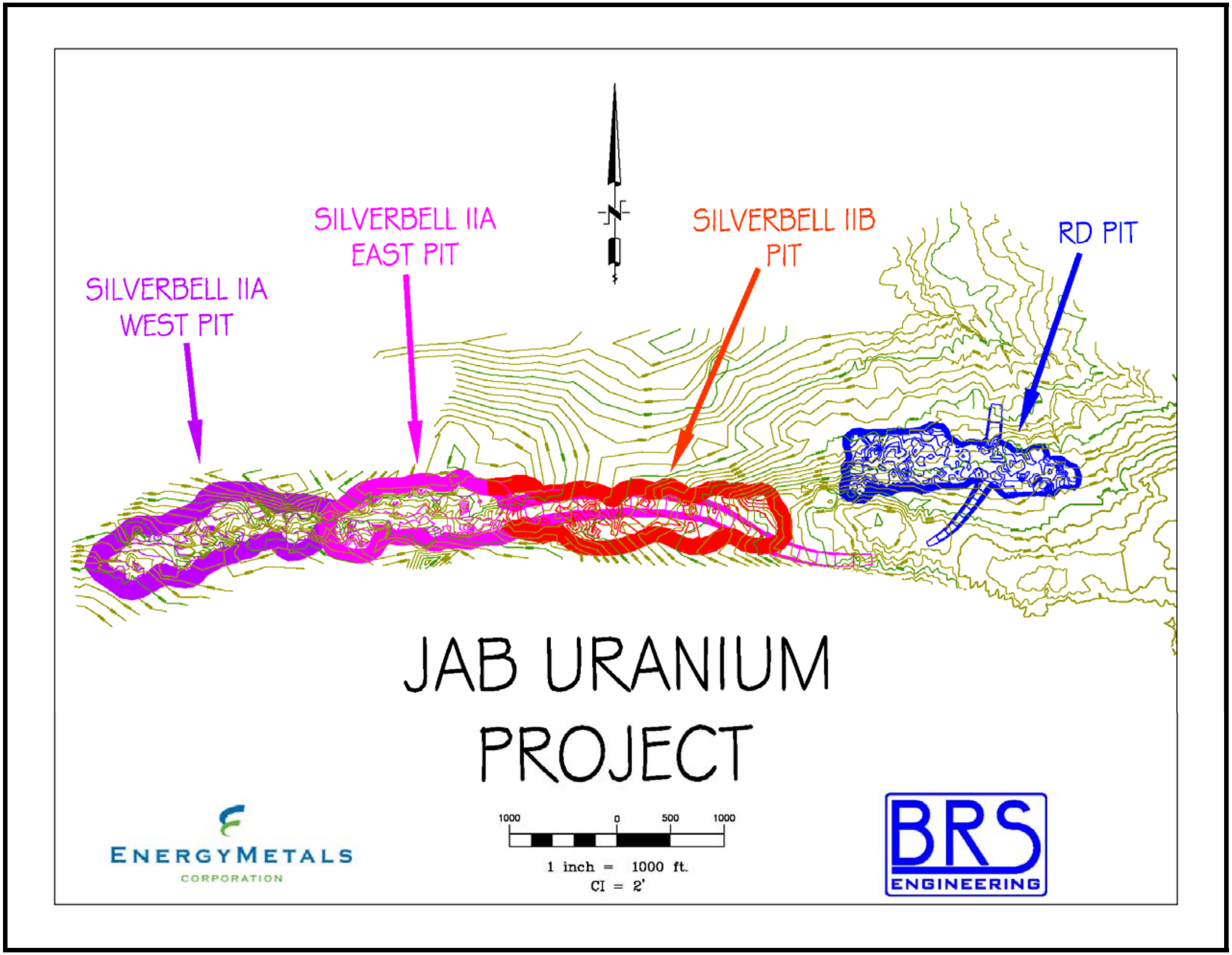

Figure 5 – Open Pit Mine Schematic

Mine/Heap Reclamation Costs

Although not required by current mine reclamation regulations, it was assumed that the project site would be returned to approximate original contours and all heap and/or contaminated material be disposed of and fully contained sub-grade in the lined RD pit.

Key cost items follow:

- Final phase mine reclamation, 5.9 million cubic yards at a cost of $1.35 per cubic yard.
- Relocate above grade heap to RD pit, approximately 500,000 tons at a cost of $2.25 per ton.
- Final cover RD pit, 300,000 cubic yard at a cost of $1.35 per cubic yard.
- Reclamation of 200 acres at a cost of $1,500 per acre.
- Other direct site costs $500,000.
- Estimated total reclamation cost per recovered pound of uranium $4.28.

Mine/Heap Operating Cost Summary

The following table summarizes the operating cost per pound uranium recovered in constant 2006 dollars based on the conceptual mining and heap recovery plan outlined herein. At 85% recovery, this plan would produce approximately 2,434,450 pounds U_30_8 over a five year period.

Operating Component	Estimated Total Cost $ x 1,000	Estimated Cost Per recovered lb
Primary Stripping	$32,488	$13.34
Mining and Interburden	$10,330	$4.24
Satellite Facility	$7,600	$3.12
Heap Leach Operating	$17,055	$7.01
Reclamation	$10,558	$4.28
Total	$72,442	$31.99

These costs reflect on-site operating and capital costs only and do not include capital needed for central processing facilities as these would be common to both the ISR and mine/heap operations and shared by multiple sites within the Antelope Uranium Project.

The highest single cost pit is the Silverbell IIB. If the Silverbell IIB were not mined the recoverable pounds of uranium would be reduced by approximately 300,000 pounds to just over 2.1 million pounds and the average cost reduced by approximately $2.50 per pound.

Case 2 – In Situ Recovery (ISR)

Equipment Selection

For the ISR case a contracted drilling and well installation operation was assumed. A contracted per operated hour rate of $250.00 was assumed based on current (2006) contract rates for similar projects.

In addition to the contract labor force, the mine operation includes company personnel for supervision, well field geology, field construction (header house, pumps, pipelines, etc.), surveying, operators, maintenance, and general labor.

General Well Field Sequence

The mine plan includes three well fields, shown on Figure 6. In contrast to the mine/heap option described in Case 1, the RD pit is not suited to ISR methods as the deposit is above the water table and is not included in this option. The general ISR mining sequence follows:

Year	Well Field Installation	Operation	Restoration
-1	SBIIA - East		
1	SBIIA - East	SBIIA - East	
2	SBIIA – West	SBIIA - East & SBIIA-West	
3	SBIIA – West	SBIIA – West	SBIIA - East
4	SBIIB	SBIIA-East & SBIIB	
5		SBIIB	SBIIA – West
6+			SBIIB

Conceptually, the approach would be to begin in the best portion of the deposit the SBIIA and finish with the poorer SBIIB deposit. In total, these three areas contain approximately 2.1 million pounds of U_30_8. Based on reported success from similar Wyoming sandstone deposits well field recoveries are expected to range from 70-80%. Conservatively, at a recovery of 70%, this would yield approximately 1.5 million pounds over a five year operating period. As with the mine/heap case the highest cost deposit would be the SBIIB. Excluding SBIIB the total recoverable pounds would be approximately 1.25 million pounds at a recovery of 70%.

ISR Costs

Well field installation, operating, and restoration costs for ISR were estimated utilizing proprietary software. The capital costs for the satellite facility would be similar to those for the mine/heap facility estimated at 7.6 million dollars.

The following table summarizes ISR costs for two cases:

- extraction of the total deposit and
- extraction of only the more economic SBIIA deposits.

All Deposits:

Deposit	Recoverable lbs U_30_8	Operating Costs/lb	Capital Cost/lb
SBIIA	1,250,000	$17.42	
SBIIB	250,000	$29.07	
Total	1,500,000	$19.36	$5.07

GRAND TOTAL $24.43 per/lb

SBIIA Deposits Only:

Deposit	Recoverable lbs U_30_8	Operating Costs/lb	Capital Cost/lb
SBIIA	1,250,000	$17.42	
Total	1,250,000	$17.42	$6.08

GRAND TOTAL $23.50 per/lb

Case 3 – Combined Mine/Heap and ISR

This case assumes:

- The RD 1 pit would be mined via open pit with heap leach recovery;
- The SBIIA and SBIIB deposits would be mined via ISR methods;
- A common satellite plant would process the pregnant solutions for both operations.

Using the foregoing cost estimates and assumptions, the ISR portion of the operation would recover some 1.5 million pounds U_30_8 at a cost of some $24.43 per pound. The mine/heap portion of the project, the RD Pit which is shallow and relatively low cost, would recover approximately 640,000 pounds U_30_8 at a cost of some $20.51 per pound. Thus, the total combined operation would recover an estimated 2,140,000 pounds U_30_8 at an average cost of $23.26 per pound.

Summary

In summary, three cases for recovery of the currently identified mineral resources located on EMC's JAB property were evaluated on a conceptual basis. The following estimates are in constant 2006 dollars and reflect only on-site costs assuming that a central processing facility would be constructed for this and additional properties as part of the Antelope Uranium Project.

- **Case 1 - Open Pit Mine and Heap Leach**
  - Recovers 2,434,450 pounds U_30_8
  - Cost per pound U_30_8 - $31.99
- **Case 2 – In Situ Recovery (ISR)**
  - Recovers 1,500,000 pounds U_30_8
  - Cost per pound U_30_8 - $24.43
- **Case 3 – Combined Mine/Heap and ISR**
  - Recovers 2,140,000 pounds U_30_8
  - Cost per pound U_30_8 - $23.26

Conclusions and Recommendations

In conclusion, the combination of an open pit mine and heap leach operation to exploit the shallow uranium resources in combination with ISR recovery of the deeper mineral resources appears to be the most profitable approach at a conceptual level. Further work is needed including but not limited to:

- Further exploration and delineation to better define the current mineral resources and potentially expand the known resources. This includes potential for shallow resources north of the RD pit and deeper resources west and south of the Silverbell IIA mineralization.
- Metallurgical and hydrological testing for development of key ISR parameters.
- Metallurgical testing of alkaline lixiviants for heap leach recovery and ISR recovery.
- Mine permitting at both the state and federal level pursuing multiple alternatives.

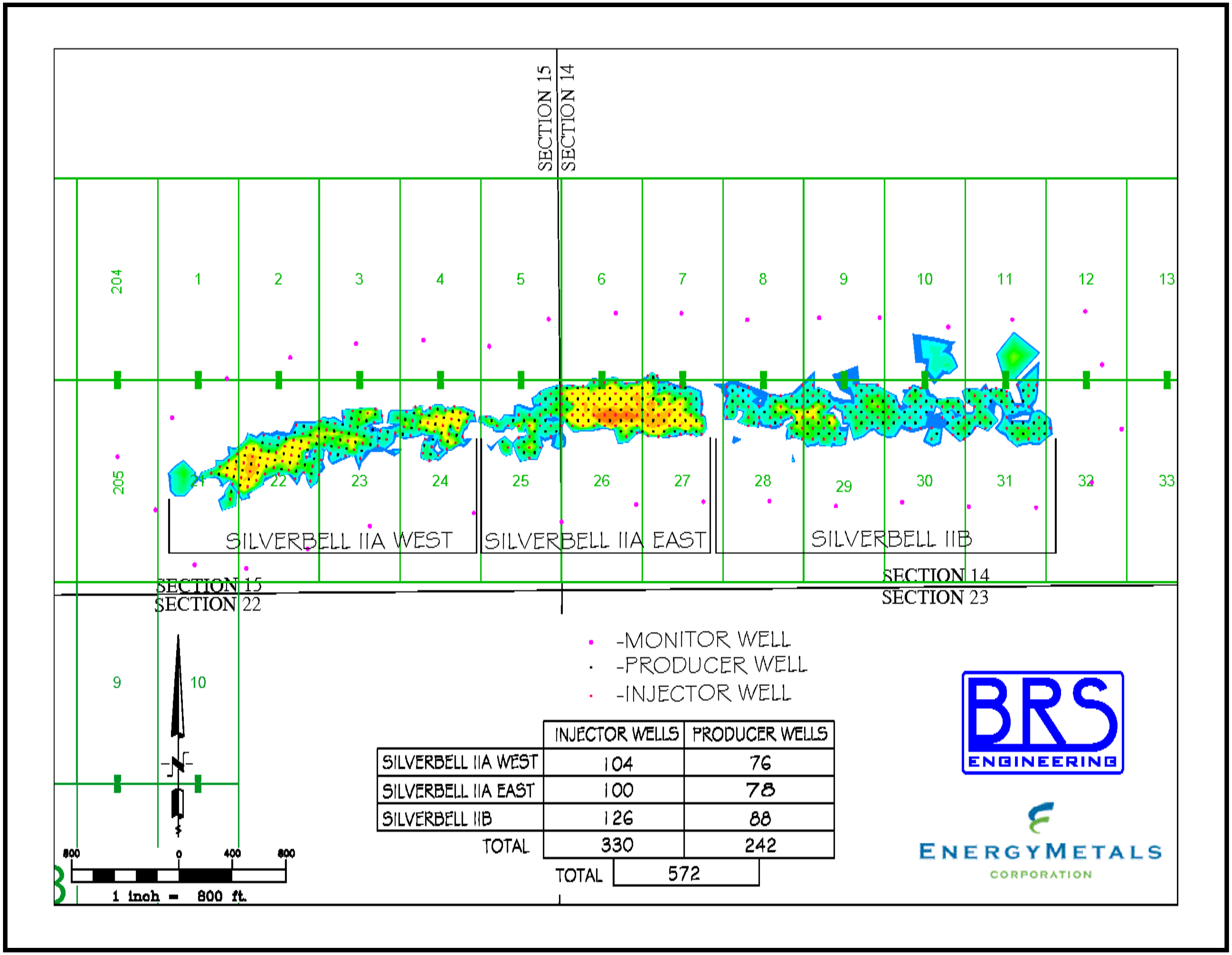

Figure 6 - ISR Well Field Schematic

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