PATHFINDER

A Cogema Resources Company

September 29, 2000

Mr. Daniel M. Gillen
Chief, Uranium Recovery Section
Fuel Cycle Licensing Branch
Division of Fuel Cycle Safety and Safeguards
Office of Nuclear Material Safety and Safeguards
U. S. Nuclear Regulatory Commission
11545 Rockville Pike
Rockville, Maryland 20852

Ref: Docket No. 40-2259, Source Material License No. SUA-672

Dear Mr. Gillen:

Pathfinder hereby requests an amendment to the referenced license to incorporate into the Lucky Mc license a revised surety amount for tailings and mill site reclamation as required by condition 27. A summary of the adjusted surety amount is shown below.

LUCKY Mc SITE

ACTIVITY	CURRENT SURETY	PROPOSED SURETY
1. Mill Decommissioning	$0	$0
2. Tailings Reclamation	10,226,698	6,101,637
3. Long Term Surveillance	602,659	637,740
SUBTOTAL	$10,829,357	$6,739,377
4. Contingency (15% of 1 & 2)	1,534,005	915,246
TOTAL	**$12,363,362**	**$7,654,623**
Increase/(Decrease)		($4,708,739)

The decrease to $7,654,623 in the proposed surety amount reflects a recalculation of the cost estimate based upon the completion of significant portions of the approved reclamation plan over the past couple of years.

We would also like to note that an ACL application for Lucky Mc will soon be submitted to the NRC. We feel that the ACL application will ably demonstrate a predictable

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concluding date for the ground water corrective action. As a result the estimate of future cost for ground water remediation as presented in this submittal can be viewed with a greater degree of certainty. In fact, the ground water cost estimate has been increased in this evaluation to provide a greater level of assurance for the adequacy of the estimate.

The long term surveillance fee has been increased, consistent with the latest available CPI adjustment (August, 2000). Supporting information for the recalculated surety estimate is enclosed (two copies). Upon your written approval, we will proceed to obtain a rider for the existing Letter-of-Credit to reflect the revised surety amount.

Sincerely,

Tom Hardgrove

T. W. Hardgrove
Operations Manager

Enclosure

Cc: D. L. Wichers
J. R. Blaise
R. W. Poyser

PATHFINDER MINES CORPORATION
LUCKY Mc TAILINGS AND MILL SITE RECLAMATION COST ESTIMATE
September 29, 2000

Table 1 presents a cost estimate summary for the reclamation of the Lucky Mc mill site and tailings to 10 CFR 40 Appendix A standards. All mill buildings have been razed and buried in the designated mill refuse disposal area below the #2 tailings embankment. This cost summary addresses the remaining activities: final reclamation of the mill site and tailings including radon barrier, armor protection, and groundwater restoration.

The material volume estimates and related costs on the Summary Table for the various activities have been adjusted to reflect the remaining work in light of what has been completed to date. Two significant changes this year to the estimate include an increase in the volume of large riprap that will be purchased from an outside source, and the re-start of the limestone quarry in the mine area to produce more rock mulch and filter bed material. Both of these items reflect a recent re-evaluation of the required material quantities to complete the project.

Cost estimates provided here are based upon the use of outside contractors to accomplish the work. The hourly rate for workers utilized in this estimate is representative of typical wages paid by contractors in Wyoming. Labor costs are based upon the Rocky Mountain Employment and Earnings Supplement August 1988. While this reference appears somewhat dated, the wages paid in Wyoming have not changed appreciably for many years. A contractor recently hired by Pathfinder to construct temporary evaporation ponds at our Shirley Basin site is paying his equipment operators wages that are equivalent to those stated in this estimate.

Equipment hourly operating rates as well as rental rates are based on costs from the most recent Dataquest Cost Reference Guide and Rental Rate Blue Book, published by PRIMEDIA Information, Inc. for earth moving equipment.

The text following Table 1 provides supporting information for the unit costs or total costs developed for the various activities of the reclamation project as presented in Table 1.

Table 1. Pathfinder Mines Corporation, Lucky Mc Mine
Tailing and Mill Site Reclamation Cost Estimate Summary

29-Sep-00

Activity	Quantity		Unit Cost ($)		Cost	Footnote*
Cut & fill balanced throughout tailings area:						
Noncompacted fill	160,500	CY	1.49	/CY	$239,145	B
Excavation for rock lined channels:	30,000	CY	1.83	/CY	$54,900	C
Tailings/millsite cover & protection:						
Radon barrier placement	603,500	CY	2.69	/CY	$1,623,415	D
Filter bed (note 1 below)	39,300	CY	1.33	/CY	$52,269	H
Rock mulch (note 1 below)	11,650	CY	1.33	/CY	$15,495	H
Channel filter bed (note 2)	18,800	CY	2.61	/CY	$49,068	E
Additional filter bed (note 3)	43,300	CY	8.19	/CY	$354,627	G+H
Additional rock mulch (note 3)	59,450	CY	8.19	/CY	$486,896	G+H
Additional sm. riprap (note 3)	7,700	CY	8.19	/CY	$63,063	G+H
Angular granite (channels)	23,700	CY	2.38	/CY	$56,406	I
Additional angular riprap purchase and placement	53,000	CY	22.38	/CY	$1,186,140	F
Limestone already stockpiled at site:						
small angular rock	17,800		2.38	/CY	$42,364	I
rock mulch	82,600		2.61	/CY	$215,586	E
filter bed	85,800		2.61	/CY	$223,938	E
Topsoil	110,000	CY	1.63	/CY	$179,300	J
Revegetation						
Discing & seeding	75	AC	103.50	/AC	$7,763	K
Mobilization/Demobilization	—		—		$150,000	
SUBTOTAL	—		—		$5,000,374	
Contractor profit (2%)					$100,007	
TOTAL RECLAMATION CONTRACTOR COST					$5,100,381	
Construction management (5% of contractor cost)					$255,019	L
Materials testing					$74,420	L
Groundwater restoration					$328,017	M
Solution evaporation					$32,400	N
Fencing					$32,000	O
Radiological surveys					$50,000	P
Environmental monitoring					$229,400	P
			TOTAL		$6,101,637	
			Contingency (15%)		$915,246	
			Site Surveillance		$637,740	
			GRAND TOTAL		$7,654,623	

Note 1: This material is located at the quarry and must be hauled for direct placement.
Note 2: This material is located on site and must be placed with scrapers in channels.
Note 3: This material must be mined, processed, hauled, and directly placed.

* See the corresponding text section for an explanation of the derivation of costs.

Table 2 Equipment Hourly Costs

All equipment utilized in bond calculations are identified and costs are derived based on monthly rental rates assuming 4.3 weeks per month, or 172 hours of operation per month. The monthly rental costs are factored by the Dataquest Wyoming area rental rate factor and then added to the Dataquest Cost Reference Guide specific hourly operating cost for the total hourly equipment cost. These costs are summarized as follows:

Equipment	Monthly Rental Rate	Hourly* Rate	Hourly Op. Cost	Total Hr. Costs
Cat D-9N Dozer	$15,015	$ 87.30	$50.95	$138.25
Cat D-10N Dozer	20,249	118.02	67.45	185.47
Cat 651 E Scraper	25,002	145.36	89.90	235.26
Cat 14G Patrol	7,204	41.88	24.75	66.63
Cat 16G Patrol	10,090	58.66	34.30	92.96
Cat 988 B F.E. Loader	11,846	68.87	49.50	118.37
Cat 350 Backhoe	15,641	90.94	43.10	134.04
Cat 769 C Truck	9,563	55.60	35.90	91.50
Cat 825 C Compactor	11,787	68.53	32.95	101.48
6,000 Gal. Water Truck	7,890	45.87	41.85	87.72
Case 580L Tractor/Backhoe	2,326	13.52	7.80	21.32
100 HP Centrifical Pump	1,959	11.39	8.00	19.39

* Based upon 172 operated hours per month x the Wyoming Area adjustment rental rate factor which varies from 1.002 to 1.027 depending on equipment type.

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A. Hourly Labor Cost:

Based upon the Rocky Mountain Employment and Earnings Supplement the laborer/operator pay rate is $15.00 per hour, with supervisory labor with a pay rate of $20.00 per hour. These rates are comparable to what PMC currently pays.

B. Cut and Fill (Balanced throughout the Tailings Area):

Sculpting of the tailings area (including the solution ponds) to create acceptable slopes and appropriate drainage basins and drainage ways is completed utilizing Cat 651 scrapers that are push loaded with Cat D-9 tractors. Average productivity for the 651 scrapers is 250 CY/hr.

The machine fleet for this excavation consists of the following equipment:

2 - Cat D-9N tractors - push loading scrapers
4 - Cat 651E scrapers - material haulage
1 - Cat 16G motor grader - road and dump maintenance
1 - 6,000 gal. water truck, 50% usage - dust suppression

2 ea. Cat D-9N tractors	2 x $138.25/hr =	$276.50/hr
4 ea. Cat 651E scrapers	4 x $235.26/hr =	941.04/hr
1 ea. Cat 16G motor grader	1 x $92.96/hr =	92.96/hr
1 ea. 6,000 gal. water truck	1 x $87.72/hr x 50% =	43.86/hr
	Total hourly equipment cost	$1,354.36/hr

Labor Cost: 7.5 operators x $15.00/hr
+1 supervisor x $20.00/hr = $132.50/hr.
Total Hourly Cost: $1,354.36 + 132.50 = $1,486.86/hr.

Equipment Productivity:
4 ea. 651E scrapers @ 250 CY/hr = 1,000 CY/hr.

Unit Cost = $1,486.86/hr / 1,000 CY/hr = **$1.49 /CY**.

C. Excavation for Rock Lined Channels:

Excavation for rock lined channels is a fairly precise and controlled process. This excavation will be handled by a fleet of Cat 651 scrapers. Haul distance will vary between 1,000 and 2,000 feet one way, and average 651 productivity is

estimated at 200 CY/hr. The machine fleet for this activity consists of the following:

2 - Cat D-9N tractors - push loading scrapers
4 - Cat 651E scrapers - material haulage
1 - Cat 14G motor grader - road and dump maintenance
1 - 6,000 gal. water truck, 50% usage - dust suppression

2 ea. Cat D-9N tractors	2 x $138.25/hr =	$276.50/hr
4 ea. Cat 651E scrapers	4 x $235.26/hr =	941.04/hr
1 ea. Cat 14G motor grader	1 x $66.63/hr =	66.63/hr
1 ea. 6,000 gal. water truck	1 x $87.72/hr x 50% =	43.86/hr
Total hourly equipment cost		$1,328.03/hr

Labor Cost: 7.5 operators x $15.00/hr
+1 supervisor x $20.00/hr = $132.50/hr.

Total Hourly Cost: $1,328.03 + $132.50 = $1,460.53/hr.
Equipment Productivity:
4 ea. 651E scrapers @ 200 CY/hr = 800 CY/hr.

Unit Cost = $1,460.53/hr / 800 CY/hr = **$1.83/CY.**

Tailings and Millsite Cover and Protection:

D. Radon Barrier Placement:

Application of the radon barrier involves placement of Cody shale over the tailings in pre-designated thicknesses compacted to 95% Proctor. Placement of the radon barrier consists of:

a. Prewetting the Cody shale borrow
b. Excavating and hauling the Cody shale
c. Mixing and compacting the fill to 95% Proctor.

Compilation of costs is based on the most recent Dataquest Rental Rate Blue Book and local quotes for sprinkle irrigation supply rental.

a. Prewetting calculations are based on one remaining summer season (May-October) for construction. Actual prewetting is estimated to continue for a six month period each year.

Pump rental for 6 mos. @ $1959/mo $ 11,754

Supply pipe rental, 10 in. aluminum pipe for season, 13,000 ft. @ $2.50/ft.	32,500
Sprinkler pipe rental, 4 in., 2,000 ft. @ $1.25/ft.	2,500
Supply line and pump installation est. 2 men for 5 days, 80 hrs x $15.00/hr	1,200
Supply line and pump retrieval est. 2 men for 3 days, 48 hrs x $15.00/hr	720
Labor to move sprinkler lines 3 men for 40 hrs/wk. for 26 weeks, 3 x 40 hrs/wk x 26 wks x $15.00/hr	46,800
Pump power consumption $2,500/mo/95 HP, 6 mos x $2,500/mo	15,000
Total prewetting cost	$110,474

Prewetting Unit Cost = $110,474 /603,500 CY = $0.18/CY.

b. Excavation and haulage of Cody shale:
Haulage distance for the placement of the Cody shale Radon barrier varies from 1,800 feet to as much as 5,500 feet one way. Estimated productivity for the 651 scrapers is 180 CY/hr. The machine fleet for this excavation consists of the following:

1 - Cat D-9N tractor - ripping and dozing
2 - Cat D-9N tractors - push loading scrapers
5 - Cat 651E scrapers - material haulage
1 - Cat 14G motor grader - road maintenance
1 - 6,000 gal. water truck, 50% usage - dust suppression

3 ea. Cat D-9N tractors	3 x $138.25/hr =	$ 414.75/hr
5 ea. Cat 651E scrapers	5 x $235.26/hr =	1,176.30/hr
1 ea. Cat 14G motor grader	1 x $66.63/hr =	66.63/hr
1 ea. 6,000 gal. water truck	1 x $87.72/hr x 50% =	43.86/hr
	Total hourly equipment cost	$1,701.54/hr

Labor Cost: 9.5 operators x $15.00/hr
+1 supervisor x $20.00 = $162.50/hr.

Total Hourly Cost: $1,701.54 + $162.50 = $1,864.04/hr.

Equipment Productivity:
5 ea. 651E scrapers @ 180 CY/hr = 900 CY/hr.

Unit Cost = $1,864.04/hr / 900 CY/hr = $2.07/CY.

c. Mixing and compacting fill to 95% Proctor:

Experience to date with radon barrier construction at Lucky Mc has shown that Cody shale at the proper moisture content can be compacted to 95% Proctor by filling in six inch lifts and utilizing a Cat 825C compactor with five pass compaction. Prior to compaction, the fill is mixed by utilizing a D-9 tractor pulling a Towner type construction disc. Maintenance of the fill area requires a Cat 14G motor grader on a full time basis. The machine fleet for this procedure consists of the following:

1 - Cat D-9N tractor - discing fill
1 - Cat 825C compactors - compaction (577 CY/hr)
1 - Cat 14G motor grader - fill maintenance
1 - Construction disc

1 ea. Cat D-9N tractor	1 x $138.25/hr =	$138.25/hr
2 ea. Cat 825C compactors	1 x $101.48/hr =	101.48/hr
1 ea. Cat 14G motor grader	1 x $66.63/hr =	66.63/hr
1 ea. Construction disc, $1140/mo,	1 x $7.16/hr =	7.16/hr
	Total hourly equipment cost	$313.52/hr

Labor Cost: 4 operators x $15.00/hr
+1 supervisor x $20.00/hr = $80.00/hr.

Total Hourly Cost: $313.52 + $80.00 = $393.52/hr.

Equipment Productivity:

Unit Cost = $393.52/hr / 900 CY/hr = $0.44/CY.

Radon Barrier Unit Cost = a + b + c from above.
$0.18/CY + $2.07/CY + $0.44/CY = **$2.69/CY.**

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E. Filter Bed and Rock Mulch Already Stockpiled at the Tailings Site:

Significant volumes of limestone rock mulch and limestone filter bed already have been produced and hauled to the tailings area. Placing this material is estimated to require two 651 scrapers each spreading material at the rate of 150 CY/hr and equiring a Cat 16 motor grader full time to level the filter bed. The scrapers will be push loaded by a single D-9 tractor in the stockpile. Machine fleet for this operation consists of the following.

1 - Cat D-9N tractor - push loading scrapers
2 - Cat 651E scrapers - materials haulage and spreading
1 - Cat 16G motor grader - finish grading

1 ea. Cat D-9N tractor	1 x $138.25/hr =	$138.25/hr
2 ea. Cat 651E scrapers	2 x $235.26/hr =	470.52/hr
1 ea. Cat 16G motor grader	1 x $92.96/hr =	92.96/hr
	Total hourly equipment cost	$701.73/hr

Labor Cost: 4 operators x $15.00/hr
+1 supervisor x $20.00/hr = $80.00/hr.

Total Hourly Cost: $701.73 + $80.00 = $781.73/hr.

Equipment Productivity:
2 ea. 651E scrapers @ 150 CY/hr = 300 CY/hr.

Placement Unit Cost = $781.73/hr / 300 CY/hr = **$2.61/CY.**

F. Purchase of Additional Larger Riprap:

After the conclusion of limestone quarrying and processing operations, it was evident that there was a shortfall of some 53,000 CY in the D50 = 0.8 and 1.0 feet categories of rock product. This was due to the inherent limitations of the limestone deposit. This shortfall will be addressed for bonding purposes by looking to an outside source of good quality rock in the appropriate size. A quote obtained this past summer from an outside contractor with an established rock source was $20.00/CY delivered to the Lucky Mc site. The cost for subsequent placement of this rock from stockpiles is derived under item I below.

Total Unit Cost for Acquired and Placed Riprap:

Material Cost + Placement Cost =

$20.00/CY + $2.38/CY = **$22.38/CY**

G. Limestone Mining

Additional smaller riprap, rock mulch and filter bed will be required from the established limestone quarry. Mining and processing costs are derived below.

Stripping Equipment:

2 - 651E Scrapers - material haulage
1 - D-9N Pushcat - push loading scrapers
1 - 16G Grader - 50% - road and dump maintenance

Mining Equipment:

2 - D-10N Dozers - ripping and dozing rock
1 - 988 Loader - stockpiling mined rock adjacent to the processing plant

Stripping:

1 ea. Cat D-9N tractor	1 x $138.25/hr	= $138.25/hr
2 ea. Cat 651E scrapers	3 x $235.26/hr	= $470.52/hr
1 ea. Cat 16 motor grader	1 x $ 92.96/hr x 50%	= $ 46.48/hr
	Total hourly equipment cost	$655.25/hr

Labor Cost: 3.5 operators x $15.00/hr
+1 supervisor x $20.00/hr x 50% = $62.50/hr

Total Hourly Cost: $655.25 + $62.50 = $717.75/hr

Equipment Productivity:

2 ea. Cat 651 scrapers @ 250 CY/hr = 500 CY/hr

Unit Cost = $717.75/hr / 500 CY/hr = $1.44/CY

The ratio of stripping to mining is anticipated to be 1:1 for the limited amount of additional material required. Therefore assignment of the unit cost of stripping to the final product

unit cost is appropriate.

Mining:

2 ea. Cat D-10N tractor	2 x $185.47/hr	= $370.94/hr
1 ea. Cat 988 Loader	1 x $118.37/hr	= $118.37/hr

Total hourly equipment cost = $489.31/hr

Labor Cost: 3 operators x $15.00/hr
+1 supervisor x $20.00/hr x 50% = $55.00/hr

Total Hourly Cost: $489.31 + $55.00 = $544.31

Equipment Productivity:

2 ea. D-10N tractors @ 200 CY/hr = 400 CY/hr

Unit Cost = $544.31/hr / 400 CY/hr = $1.36/CY

Crushing/Screening:

Previous operating cost of the Limestone Quarry resulted in production costs equating to $4.06/CY, including all material handling thru stockpiling at the quarry, and royalty payment to the BLM.

Total rock mining/production unit cost =
$1.44/CY + $1.36/CY + $4.06/CY = **$6.86/CY**

H. Limestone Filter Bed and Mulch Hauling from the Quarry with Direct Placement and Spreading:

Stockpiles of filter bed material and rock mulches located at the quarry must be hauled from the quarry to the tailings site for direct placement and spreading. For the loading and hauling of the crushed limestone over a relatively short distance, a cost of $0.14/ton-mile has been utilized. Limestone product density is estimated at 1.25 tons/CY.

Haulage Cost = $0.14/ton-mile x 1.25 ton/CY x 3.5 miles =
$0.61/CY

After direct hauling and placement the material must be spread out using a Cat 16 motor grader. Productivity for this operation is estimated at 150 CY/hr.

Cat 16 motor grader with operator =
$92.96/hr + $15.00/hr = $107.96/hr

Spreading Unit Cost = $107.96/hr / 150 CY/hr = $0.72/CY

Hauling Cost + Spreading Cost = $0.61/CY + $0.72/CY = **$1.33/CY**

I. Channel Large Rock Mulch and Angular Riprap:

All available materials for the channels are currently stockpiled at the tailings site. This includes the granite which was salvaged from the face of the No.4 tailings embankment during the past year.

Productivity of channel filter bed material and riprap placement has been estimated at the rate of 500 CY per shift utilizing one man with a Cat 350 backhoe. This productivity translates to 62.5 CY/hr over an eight hour shift. Supervision cost has not been included in this one man operation due to the presence of a supervisor for the placement of rock mulch and filter bed material which is ongoing simultaneously in the same area.

1 ea. Cat 350 backhoe 1 x $134.04/hr = $134.04/hr

Labor Cost: 1 operator x $15.00/hr = $15.00/hr.

Total Hourly Cost: $134.04 + $15.00 = $149.04/hr.

Unit Cost for Riprap Placement = $149.04/hr / 62.5 CY/hr = **$2.38/CY**

J. Topsoil:

Stockpiled topsoil available for revegetation in the tailings area is 110,000 CY. Standard topsoil application for revegetation is to a nine inch thickness, or 1,210 CY/acre. Historical production rates for spreading topsoil in mine reclamation at Lucky Mc have been 200 CY/hr for the Cat 651 scrapers. Machine fleet requirements are as follows:

1 - Cat D-9N tractor - push load scrapers in stockpile
4 - Cat 651E scrapers - haul and spread topsoil
1 - Cat 14G motor grader - road maint. and level topsoil
1 - 6,000 gal. water truck, 50% usage - dust suppression

1 ea. Cat D-9N tractor	1 x $138.25/hr =	$138.25/hr
4 ea. Cat 651E scrapers	4 x $235.26/hr =	$941.04/hr
1 ea. Cat 14G motor grader	1 x $66.63/hr =	$ 66.63/hr
1 ea. 6,000 gal. water truck	1 x $87.72/hr x 50%	=43.86/hr

Total hourly equipment cost $1,189.78/hr

Labor Cost: 6.5 operators x $15.00/hr
+1 supervisor x $20.00/hr = $117.50/hr

Total Hourly Cost: $1,189.78 + $117.50 = $1,307.28/hr.

Equipment Productivity:
4 ea. 651E scrapers @ 200 CY/hr = 800 CY/hr.

Unit Cost = $1,307.28/hr / 800 CY/hr = **$1.63/CY.**

K. Revegetation:

Unit costs for the various operations involved in the revegetation of areas that are not covered with rock are based upon recent contractor rates charged at Lucky Mc for similar work in the reclamation of the mine. The windblown tailings cleanup areas and related contaminated soils cleanup areas have been reclaimed, leaving just the acreage directly on top of tailings that is planned for topsoiling and seeding. Topsoil has already been spread on some of these areas. The unit costs are as follows:

Discing and Seeding:	
Labor and equipment -	$70.00/AC
Seed -	33.50/AC

Total	**$103.50/AC**

L. Construction Management and Materials Testing:

An estimated five percent of construction costs is applied to construction management.

Materials Testing Costs:

A significant portion of the radon barrier gradation testing as well as other material testing already has been completed. Based on the materials testing proposals in Section 11.0 of

the tailings reclamation plan, and utilizing quotes from a local geotechnical testing firm, the following costs are applicable:

Radon Barrier Testing		
gradation - 0 tests @ $45/test =		$ 0
Atterberg limits - 130 tests @ $35/test =		4,550
single pt. Proctor - 240 tests @ $40/test =		9,600
complete Proctor - 80 tests @ $75/test =		6,000
in place density & moisture - 130 days @ $323/day =		$41,990
	Total	$62,140
Topsoil Testing		
Atterberg limits - 11 tests @ $35/test		$385
gradation - 11 tests @ $45/test		495
	Total	$880
Rock Testing		
specific gravity - 15 tests @ $40/test		$ 600
sodium sulfate soundness - 15 tests @ $350/test		5,250
absorption - 15 tests @ $40/test		600
L.A. abrasion - 15 tests @ $80/test		1,200
gradation - 15 tests @ $250/test		$3,750
	Total	$11,400

Total Materials Testing Costs:
$62,140 + $880 + $11,400 = **$74,420**

M. Groundwater Restoration:

The present groundwater restoration strategy will be continued in order to accomplish a cleanup.

Dewatering System and Injection System
Operating and Maintenance Expense:

	Annual Cost
Dewatering System and Injection System - Supplies -	$15,000

Electricity -		$30,000
	Total	$45,000

Assuming the groundwater restoration requires an additional five years from the present, total costs for supplies and electricity for that period will be:

5 yrs x $45,000/yr = $225,000

Labor for All Systems -
1 operator for 20 hours/wk at $15.00/hr for 5 years -
$15.00/hr x 20 hr/wk x 52 wk/yr x 5 yrs = $78,000

Total Operating Expense for the Groundwater Restoration:

$225,000 + $78,000 = $303,000.

Well Plugging:

There are some 146 wells associated with the tailings/millsite or the groundwater restoration effort. An average depth for these wells is about 70 feet while the average water column height is about 40 feet. Thirty-five of the wells have two inch diameter casing while the balance have five inch casing. Plugging will involve the filling of each well to an elevation above the water level with bentonite pellets. Most of the balance of the well will be backfilled with soil. The casing will be cut off two feet below the land surface, and a concrete plug will be installed. The hole will then be backfilled with soil to the land surface. A cost summary for this activity follows:

Equipment:

A Case 580L tractor/backhoe/loader will be utilized to dig out the top two feet of casing below the land surface and provide adjacent fill dirt for the backfilling of the dry portion of each well. The hourly cost for this equipment is $21.32/hr.

Materials:

Five inch diameter wells with an average 40 ft. of water in them will require 5.5 CF of bentonite pellets to seal through the aquifer. Two inch diameter wells with an average of 40

ft. of water in them will require 1 CF of bentonite pellets. Five - sixteen inch diameter wells with an average 30 ft. Of water in them will require 42 CF of bentonite pellets. Two thirty-six inch diameter sumps will each require 71 CF of bentonite pellets. A 50 lb. bag of pellets cost $7.00/bag. One CF of pellets equals 70 lbs.

70 lbs/CF/50 lbs/bag x $7.00/bag = $9.80/CF bentonite.
$9.80/CF x 5.5 CF = $53.90 bentonite for 5" well.
$9.80/CF x 1 CF = $9.80 bentonite for 2" well.
$9.80/CF x 42CF = $411.60 bentonite for 16" well.
$9.80/CF x 71CF = $695.80 bentonite for 36" well.

1 bag of sacked concrete will be required for each well at $3.00/bag. Larger wells/sumps will require 4 bags of concrete.

	5" Well	2" Well	16" Well	36"Well
Bentonite Pellets	$53.90	$9.80	$411.60	$695.80
Sacked Concrete	3.00	3.00	12.00	12.00
Total Materials	$56.90	$12.80	$423.60	$707.80

Labor:

2 personnel will be required, one to operate the backhoe, the other as a manual laborer.

2 laborers x $15.00/hr = $30.00/hr.

It is assumed that each well requires two hours to plug. Therefore, labor = 2 hr./well x $30.00/hr = $60.00/well.

Total Costs for Each Size Well:

	5" Well	2" Well	16" Well	36" Well
Equipment	$42.64	$42.64	$ 42.64	$ 42.64
Materials	56.90	12.80	423.60	707.80
Labor	60.00	60.00	60.00	60.00
Total	$159.54	$115.44	$526.24	$810.44

107 - 5" wells x $159.54/well = $17,071
32 - 2" wells x $115.44/well = $ 3,694
5 - 16" wells x $526.24/well = $ 2,631
2 - 36" sumps x $810.44/sump = $ 1,621
Total $25,017

9/29/00

Total Expense for Groundwater Restoration =
$303,000 + $25,017 = **$328,017.**

N. Solution Evaporation:

An evaporation system consisting of one pump installed in the No. 4 evaporation pond will feed a floating array of sprinkler heads on the No. 4 pond. It is estimated that three more years of spraying during May through October will be required. Electrical operating costs have averaged about $1,000/month.

3 yr. x 6 mos./yr x $1,000/mo. = $18,000.

Maintenance and labor is projected as follows:

Supplies cost $200/mo.
3 yr. x 6 mos/yr x $200/mo = $3,600

Labor requirements for maintenance of the system are projected at 40 hrs/mo.

3 yr. x 6 mos/yr. x 40 hrs./mo. x $15.00/hr. =
$10,800

Total costs for the Evaporation System =
$18,000 + $3,600 + $10,800 = $**32,400.**

O. Fencing:

It is assumed that the restricted area will be expanded prior to site transfer to the DOE, requiring 16,000 feet of new fencing. Based upon recent contract fencing work done for Pathfinder in the Gas Hills, a unit cost of $2.00/linear ft. of fence is appropriate, including materials and labor.

16,000 ft x $2.00/ft = **$32,000.**

P. Radiological Survey and Environmental Monitoring:

Post Reclamation Ra226 Survey:

Remaining post reclamation gamma/Ra226 survey work will entail

the examination of approximately fifty acres. Recent experience using a contractor indicates that such an effort, including soil sample analyses, will cost about $1,000 per acre, or a total of **$50,000.**

Environmental Monitoring:

An environmental monitoring program will be maintained during reclamation, and it is assumed it will be continued after the completion of reclamation, and it will end coincident with the completion of the groundwater restoration. The following costs are derived:

Labor and Program Administration -

1 technician for 36 hrs/mo for a five year duration:

36 hrs/mo x 12 mo/yr x 5 yrs x $15.00/hr = $32,400.

Administration, general overhead, and general engineering/consultant oversight -

Administration/overhead = $500/mo x 12 mo/yr x 5 yr = $30,000.
Engineering/consultants = $400/mo x 12 mo/yr x 5 yr = $24,000.

Materials and Supplies -
$400/mo x 12mo/yr x 5 yrs = $24,000.

Analytical Work -
Based upon current costs for the outside analytical work done at Lucky Mc to maintain the environmental monitoring program as required by the license, the following would apply:

	Annual Cost
Water sample analyses	$18,000
Air sample analyses	3,000
Penetrating radiation (TLD's)	200
Soil sample analyses	1,000
Vegetation sample analyses	1,200
Radon analyses	400
Total	$23,800

9/29/00

Total Analytical Costs for 5 Years:

$23,800/yr x 5 yrs = $119,000.

Total Costs for Environmental Monitoring:

$32,400 + $30,000 + $24,000 + $24,000 + $119,000
= **$229,400.**