

40-8084660E

# RIO ALGOM MINING CORPORATION

40-8084

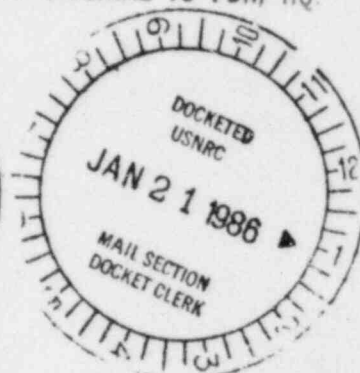
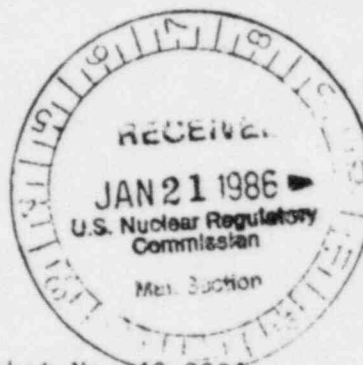
LaSal Route  
MOAB, UTAH 84532

Phone: (801) 259-5904

January 15, 1986

RETURN ORIGINAL TO PDR, HQ

Mr. R. Dale Smith, Director  
Uranium Recovery Field Office, Region IV  
U. S. Nuclear Regulatory Commission  
P. O. Box 25325  
Denver, Colorado 80225



Docket No. 40-8084  
Source Material License No. SUA-1119

Re: License Condition No. 27

Dear Mr. Smith:

In accordance with License Condition No. 27 attached is a full breakdown of the costs associated with our detailed reclamation plan, which was submitted to you on 31st December 1985. An additional \$150.00 amendment fee is also enclosed for this submission.

If you have any questions or require further information, please call or otherwise communicate.

Yours sincerely,

R. S. Pattison  
Plant Superintendent

M. D. Lawton  
President

Enclosures: 5 copies of "Detailed Cost Breakdown" for reclamation plan.  
\$150.00 Amendment Fee

Cc: File

8602130503 860115  
PDR ADCK 04008084  
C PDR

DESIGNATED ORIGINAL

Certified By Mary C. Hood

FEE EXEMPT

Check returned

Adel Info

264

# Rio Algom Mining Corp. - Lisbon Mine

SOURCE MATERIAL LICENSE NO. SUA-1119, NRC DOCKET NO. 40-8084

## Detailed Cost Breakdown

The following is a detailed breakdown of the costs associated with site decommissioning and tailings reclamation. These costs are in terms of 1986 dollars and include the complete removal of all buildings, foundations, and equipment with the site being restored as well as possible to its original pre-mining state. Buildings, foundations and equipment that can not be salvaged or decontaminated for re-sale will be buried in the mineshaft. All ground contamination at the site will be cleaned up and buried in the mine-shaft or tailings impoundment before tailings cover is emplaced. With the exception of the tailings piles, cleanup would permit unrestricted use of the site after abandonment by RAMC.

## DECOMMISSIONING COSTS

Mill and building decontamination, 4.5 man-yrs. at \$30,000/man-yr. (a)		\$135,000
Machinery removal (b)		No Cost
Building removal (b)		No Cost
Restoration of heavily contaminated area (c):		
1260 yd <sup>3</sup> concrete at 10.00/yd:	12,600	
28,000 yd <sup>3</sup> dirt at 1.25/yd:	35,000	47,600
Restoration of lightly contaminated area (incl ore pads):		
30,000 yd <sup>3</sup> waste rock at toe of Bisco embt. at 1.25/yd:	37,500	
28,000 yd <sup>3</sup> waste rock within Bisco embt. at 1.25/yd:	35,000	
15,000 yd <sup>3</sup> Bisco embt. and water treatment area at 1.00/yd:	15,000	
7.89 acres ore pads--cleanup 6 in. at 1.25/yd:	8,000	
8.05 acres in other plant areas--cleanup 6 in. at 1.25/yd:	8,100	103,600
Subtotal		\$286,200

# Rio Algom Mining Corp. - Lisbon Mine

SOURCE MATERIAL LICENSE NO. SUA-1119, NRC DOCKET NO. 40-8084

Engineering, 6% of subtotal	\$ 17,170
Contingency, 15% of subtotal	<u>42,930</u>
TOTAL DECOMMISSIONING COSTS	\$346,300

## Notes on decommissioning costs

- (a) Based on FGEIS, Appendix K-2
- (b) It is assumed that salvageable equipment and buildings can be removed at no cost because its re-sale value is expected to be much higher than the cost of removal.
- (c) Ore pad areas are not included in the costs of decontaminating "heavily" contaminated areas because ore pad cleanup is part of RAMC's normal mill operating costs.

## RECLAMATION COSTS

### Emplacement of tailings cover:

#### 45.85 acres upper tailings cover:

36,986 yd <sup>3</sup> capillary break sand at \$1.50/yd:	55,500
369,857 yd <sup>3</sup> cover soil at \$0.87/yd:	321,800

#### 43.02 acres lower tailings cover:

34,703 yd <sup>3</sup> capillary break sand at \$1.50/yd:	52,100
347,028 yd <sup>3</sup> cover soil at \$0.87/yd:	301,900
	731,300

### Excavation and construction of flood diversions:

#### Main diversion channel (a):

##### Recontour operational flood channel bank

- 5,000 yd <sup>3</sup> at \$1.50/yd	7,500
Recontour other earth - 25,000 yd <sup>3</sup> at \$1.00/yd	25,000
Excavate spillway - 6,245 yd <sup>3</sup> at \$4.25/yd	26,500

# Rio Algom Mining Corp. - Lisbon Mine

SOURCE MATERIAL LICENSE NO. SUA-1119, NRC DOCKET NO. 40-8084

## Secondary diversion channel:

3,000 yd <sup>3</sup> excavation at \$1.00/yd.	3,000	
1,600 yd <sup>3</sup> riprap at \$5.00/yd	8,000	
960 yd <sup>3</sup> filter blanket at \$5.00/yd	4,800	

## A-4 diversion "channel" (b):

2,200 yd <sup>3</sup> waste rock at \$1.50/yd	3,300	
13,300 yd <sup>3</sup> compacted fill at \$1.50/yd	20,000	

## C-1 diversion channel:

1,100 yd <sup>3</sup> excavation (cut & fill) at \$7.00/yd	7,700	
--	-------	--

## C-2 diversion channel:

1,300 yd <sup>3</sup> excavation (cut & fill) at \$5.00/yd	6,500	112,300
--	-------	---------

## Selective armouring of the site:

### Upper tailings embankment face:

700 yd <sup>3</sup> 1½" riprap at \$5.00/yd	3,500	
1,400 yd <sup>3</sup> filter blanket at \$2.50/yd	3,500	

### Lower tailings embankment face:

1,100 yd <sup>3</sup> 1½" riprap at \$5.00/yd	5,500	
2,200 yd <sup>3</sup> filter blanket at \$2.50/yd	5,500	

## A-3d watershed runoff protection:

400 yd <sup>3</sup> additional fill at \$2.00/yd	800	
100 yd <sup>3</sup> riprap at \$5.00/yd	500	
200 yd <sup>3</sup> filter blanket at \$2.50/yd	500	

Other upper tailings subwatersheds: 1,000

Lower tailings subwatershed runoff protection 1,400

Upper tailings transition riprap 1,200

Lower tailings transition riprap 1,900 25,300

## Waste rock pile reclamation:

36,000 yd <sup>3</sup> of clean earthen cover at \$1.25/yd	45,000	
--	--------	--

# Rio Algom Mining Corp. - Lisbon Mine

SOURCE MATERIAL LICENSE NO. SUA-1119, NRC DOCKET NO. 40-8084

Revegetation of disturbed areas at \$2,000/acre:

45.85 acres upper tailings impoundment cover	91,700	
43.02 acres lower tailings impoundment cover	86,000	
25.00 acres plant site	50,000	
8.00 acres Bisco impoundment	16,000	
7.00 acres operational diversion channel	14,000	
55.50 acres tailings cover borrow area	111,000	368,700
Subtotal		\$1,282,600
Engineering, 6% of subtotal		77,000
Contingency, 15% of subtotal		192,400
TOTAL RECLAMATION COSTS		\$1,552,000

## Notes on reclamation costs

- (a) A great proportion of the main channel excavation costs are included under decommissioning and waste pile reclamation costs. The remaining costs are included here.
- (b) Creation of the A-4 diversion consists of raising the upper tailings embankment to 6,698.6 ft. msl.

## POST- RECLAMATION SITE SURVEILLANCE

It will be necessary to retain one RAMC employee for about one year after reclamation is completed. The individual retained will probably be an environmental chemist/radiation safety officer. He will be responsible for ensuring that the new re-vegetation is watered, taking groundwater samples from 5 or 6 well locations, and for general site inspections. It is unlikely that his services will be needed beyond one year after completion of the reclamation project. Additional costs associated with this work will amount to:

- \$30,000 salary.



## *Rio Algom Mining Corp. - Lisbon Mine*

SOURCE MATERIAL LICENSE NO. SUA-1119, NRC DOCKET NO. 40-8084

- \$ 5,000 for outside water analyses.
- \$ 2,000 for pumping and power costs.

In addition to these costs, and as outlined in FGEIS, Appendix R, "Scenario II", annual governmental site inspections, which include water sampling and analyses, are expected to be approximately \$7,000. This cost may be ongoing, but should be more than amply covered by the interest earned on the \$250,000 long-term site surveillance bond which is required by Criterion 10, Appendix A to 10 CFR Part 40.