William Paul Goranson, P.E.
Manager, Radiation Safety
Regulatory Compliance and Licensing

Rio Algom Mining Corp.
6305 Waterford Boulevard
Suite 325, Oklahoma City 405.858.4807 tel
Oklahoma 73118 405.810.2860 fax

Rio Algom

June 30, 2000

Certified Mail 7000 1670 0013 4034 8493
Return Receipt Requested

Melvyn Leach, Chief
Fuel Cycle Licensing Branch, NMSS
Mail Stop T-8A33
U.S. Nuclear Regulatory Commission
Washington, DC 2055

Re: Smith Ranch Facility
SUA-1548, Docket 40-8964
Wyoming Department of Environmental Quality Bond
Permit to Mine #633
License Condition 9.11, Annual Surety Update

Dear Mr. Leach:

Rio Algom Mining Corp. submits the following surety documents to support the 2001 annual surety update to the source material license referenced above. Rio Algom Mining Corp. is proposing a new surety bond $8.676 million as required in license condition 9.5 to the Source Material License.

Attached to this letter, pursuant to requirements in license condition 9.5, are the pertinent documents necessary to continue the Irrevocable Letter of Credit in favor of the State of Wyoming. These include:

(1) Letter of Credit from the Canadian Imperial Bank of Commerce (proposed);
(2) Surety Estimate Detail

A signed original of items (1) will be submitted to NRC within 90 days of NRC approval of the new proposed surety.

If you have any questions regarding this submittal, please contact me at (405) 858-4807.

Sincerely,

William Paul Goranson, P.E.
Manager, Radiation Safety, Regulator Compliance and Licensing

Attachments: As Stated
xc: M. Freeman - w/attachment (RAMC-OKC)
B. Ferdinand - w/attachment (RAMC - Smith Ranch)
J. Cash - w/attachment (RAMC - Smith Ranch)
D. Kavanagh - w/attachments
Division of Radiation Safety - (NRC/Arlington, Texas)
file

NMSSO1 Public

APPENDIX A

RECLAMATION COST BREAK-DOWN

RIO ALGOM MINING CORP.
ANNUAL ADJUSTMENT OF RECLAMATION SURETY
2001-2002

Shown below is the 2001-2002 proposed annual surety adjustment for the Smith Ranch facility. The 2001-2002 annual surety adjustment continues to use the WDEQ and NRC approved reclamation surety basis for this year's revised surety.

This annual surety proposal is presented in three (3) sections. The first section, entitled "Part I - Surety Bond Summary", is a summary of the itemized reclamation costs. The second section which is labeled as "Part II - Surety Bond Detail", presents the detailed calculations of the summaries noted in Part I. The final section, "Part III - Cost Basis", contains the basis that were used in the bond calculations in Part II.

It should be noted that during the 1997-1998 annual surety review, Rio Algom was requested by the WDEQ to present the bond in 1997 dollars. Accordingly, Rio Algom will continue to use the August 4, 1997, review as its surety basis although there is no difference monetarily between the earlier surety reviews which were expressed in 1993 dollars and adjusted to present, constant dollars using the Consumer Price Index (CPI). The surety however, has been modified to reflect disturbances due to construction activities associated with the 1999 commercial operations along with the projected one (1) year forward commercial operation activities.

The adjustments to the proposed WDEQ 2001-2002 surety includes new disturbances resulting from commercial construction activities as shown in Table 2, along with the anticipated one year (1) forward reclamation costs associated with installation and operation of wellfield #1, wellfield #3, wellfield #4, wellfield #4a, Wellfield #3 extension, main facility, and Satellite #1 plant. Additionally, pursuant to discussions with WDEQ, Rio Algom is including the cost of bonding delineation holes within the permit area rather than including these reclamation bonding costs within the Company's exploration drilling Permit 236DN.

Accordingly, the surety recognizes these items and where applicable, utilizes the inflation rate of 10.42% from April 1997 (CPI 160.2) through April 2001 (CPI 176.9). The proposed 2001-2002 reclamation surety amount for the WDEQ is $8.676 million.

PART I - SURETY BOND SUMMARY

Presented below in Table 1, is the summary of the itemized bond calculations for the review period of 2001-2002. The proposed adjustment to the WDEQ surety existing disturbances and new disturbances from commercial construction activities which are presented in Table 2, and the scheduled operation of wellfield #1, wellfield #3 , wellfield #4, wellfield #4a and Satellite #1 plant. Rio Algom has also included within this surety update reclamation costs associated with the facility's fuel storage area, water wells and fencing at the facility and around the wellfields as requested by WDEQ.

Groundwater Restoration Cost Estimate

During the previous Reporting Period, RAMC performed additional modeling and evaluation of wellfield restoration plans and cost estimates for the commercial wellfields. That work used both Q-sand pilot restoration information as a calibration of the wellfield model and used that information to conduct both hydrological and geochemical modeling. Based on the results of that work, RAMC developed a new methodology for developing the size of the Affected Pore Volume, (Section 7).

Figure 7-1 is derived from Figure 3-16 in "Evaluation and Simulation of Wellfield Restoration at the RAMC Smith Ranch Facility" dated October 29, 1999. This document was submitted to the Wyoming DEQ - Land Quality Division with a letter dated December 13, 1999 for review. In that document, RAMC proposed a methodology developed through hydraulic and geochemical modeling that uses the geometry of the wellfield to estimate a Flare Factor. In this case, the number of perimeter injection wells are counted, the surface area of the wellfield pattern is measured using a CAD based map, a ratio is developed of the # of perimeter injection wells to the surface area of the wellfield patterns. That ratio is located on the horizontal axis of figure 7-1. From that intercept, a vertical line is projected to intersect the curve. At that intersection, a horizontal line is projected to intercept the vertical axis. The estimated flare factor is derived from that intercept.

On May 11, 2000, RAMC met with LQD to discuss the review of the document and RAMC's proposed approach for estimating groundwater restoration costs. RAMC verified that the curve shown on Figure 7-1 had been validated using modeling for flare factors of 1.5 and higher, but it had not been verified for Flare Factors lower than 1.5. RAMC stated that for bonding purposes only, it would not use a Flare Factor lower than 1.5 for estimating the predicted costs for groundwater restoration.

The proposed groundwater restoration costs in Section 7 uses the new methodology with the constraints agreed to at the May 11, 2000 meeting between LQD and RAMC.

TABLE 1

RIO ALGOM MINING CORP. - SMITH RANCH FACILITY

2001-2002 PROPOSED WDEQ/LQD BOND

	WORK UNIT	ONE YEAR FORWARD WDEQ/LQD & NRC 2001-2002 BOND AMOUNT
	Ion Exchange Plant[1] (NRC Related Activity)	
1.1	Building	40,116
1.2	Tankage and Vessels	39,913
1.3	Piping	12,924
1.4	Pumps	6,094
1.5	Electrical	9,470
1.6	Foundations	48,588
1.7	Plant Site	2,058
1.8	Access Road	1,054
1.9	SUB-TOTAL	160,217
	Central Processing Plant (NRC Related Activity)	
2.1	Buildings	57,548
2.2	Tankage and Vessels	60,246
2.3	Piping	10,846
2.4	Pumps	10,965
2.5	Electrical	19,682
2.6	Foundations	70,019
	SUB-TOTAL	229,306
	Dryer Area (NRC Related Activity)	
3.1	Buildings	16,222
3.2	Equipment	14,739
3.3	Foundations	16,802
	SUB-TOTAL	47,763
	Existing Facilities	
4.1	Buildings[2] (NRC Related Activity)	95,635
4.2	Structures[3] (NRC Related Activity)	17,963
4.3	Pilot Plant Equipment (NRC Related Activity)	22,620
4.4	Foundations[2] (NRC Related Activity)	139,333
4.5	Site Reclamation[2]	178,287
4.6	O-Sand Pilot (NRC Related Activity)	41,435
4.7	Q-Sand Pilot (NRC Related Activity)	N/A
4.8	Mine Water Treatment Ponds	19,878
	SUB-TOTAL	515,151
	Unit Header Site & Wellfields[4] (NRC Related Activity)	
5.1	Buildings	79,463

	WORK UNIT	ONE YEAR FORWARD WDEQ/LQD & NRC 2001-2002 BOND AMOUNT
5.2	Header Piping	140,306
5.3	Secondary Electrical	135,073
5.4	Wells-Totals	540,292
5.5	Monitor Wells-Total	73,515
5.6	Site Reclamation	52,275
	SUB-TOTAL	1,020,924
	Associated Structures	
6.1	#1 Trunkline (5,000 ft ea) (NRC Related Activity)	52,108
6.2	#2 Trunkline (10,000 ft ea) (NRC Related Activity)	104,216
6.3	Radium Settling Ponds (NRC Related Activity)	70,077
6.4a	Plugging & Aband. Disposal Well #1 (NRC Related Activity)	77,735
6.4b	Plugging & Aband. Disposal Well #2 (NRC Related Activity)	77,735
6.5	Sand Mining Area	13,173
6.6	Land Fill	1,500
6.7	Fire Protection System	11,623
	SUB-TOTAL	408,167
	Groundwater Reclamation & RO Units (NRC Related Activity)	
7.1	Restoration	3,605,272
	Health Physics and Radiation Surveys (NRC Related Activity)	
8.1	Monitoring	168,470
	Whole Trucking (Remaining Fractional Units) (NRC Related Activity)	
9.1	Contaminated Trucking	523
9.2	Non-contaminated Trucking	157
10.1	Delineation Hole Reclamation	129,953
	SUB-TOTAL OF ALL ABOVE	6,285,903
	Overhead and Profit at 10%	628,590
	Contingency at 15%	942,855
	SUB-TOTAL OF ALL ABOVE	7,857,348
	Inflation - 10.42% (4/97 CPI-160.2 through	818,736

WORK UNIT	ONE YEAR FORWARD WDEQ/LQD & NRC 2001-2002 BOND AMOUNT
4/01 CPI-176.9)	
TOTAL (in 2001$)	8,676,084
Proposed Bonding	8,676,084

(1) Represents the construction of one (1) satellite during 1997-1998

(2) Incorporates new office annex building.

(3) Incorporates additional surface disturbances (10.46 acres) from commercial construction activities along with new items including fencing, water wells, and fuel storage area.

(4) Represents 1 year forward of 513 patterns to be restored.

APPENDIX B

SURETY DOCUMENTS

#SBGT717209

ISSUE DATE: April 1, 2001 AMOUNT: $8,676,084

EXPIRY DATE: April 1, 2002

Beneficiary:
Wyoming Department of Environmental
Quality, Land Quality Division
Herschler Building, 3rd Floor
Cheyenne, WY 82002
U.S.A.

Applicant:
Rio Algom Mining Corp.
6305 Waterford Blvd. Suite 325
Oklahoma City, OK 73118
U.S.A.

Re: WDEQ Permit No.633
NRC License No. SUA-1548
NRC Docket No. 40-8964

We, Canadian Imperial Bank of Commerce, New York Agency, 425 Lexington Avenue, New York, New York 10017 ("CIBC"), on behalf of Rio Algom Mining Corp., hereby issue in your favour this irrevocable letter of credit for the above-mentioned amount.

This letter of credit is available for payment upon presentation to CIBC at its above noted address or Two Paces West, 2727 Paces Ferry Road, Suite 1200, Atlanta, Georgia 30339 of the following documents:

1. Your draft drawn at sight on CIBC, purportedly signed by the Director of the Wyoming Department of Environmental Quality and by the Wyoming Land Quality Administrator and bearing the clause: "Drawn under Canadian Imperial Bank of Commerce Letter of Credit No:SBGT717209";

2. Beneficiary's dated statement addressed to CIBC, purportedly signed by the Director of the Wyoming Department of Environmental Quality and by the Wyoming Land Quality Administrator and stating either (a), (b) or (c) below:

   (a) "We, the undersigned Director of the Wyoming Department of Environmental Quality and by the Wyoming Land Quality Administrator, hereby advise you that the accompanying sight draft in the amount of $..... (..... United States Dollars) drawn under Canadian Imperial Bank of Commerce Letter of Credit No:SBGT717209 is an amount identical to the amount of the order that has been entered by the Environmental Quality Council pursuant to W.S. 35-11-421, forfeiting all or part of the amount of the said Letter of Credit because of any violation of the Wyoming Environmental Quality Act, by Rio Algom Mining Corp., Permit No.633. "; or

   (b) "We, the undersigned Director of the Wyoming Department of Environmental Quality and by the Wyoming Land Quality Administrator, hereby advise you that the accompanying sight draft in the amount of $..... (..... United States Dollars) drawn under Canadian Imperial Bank of Commerce Letter of Credit No:SBGT717209 is an amount identical to the amount of the Settlement Agreement signed on behalf of the Department of Environmental Quality and on behalf of the operator, Rio Algom Mining Corp., Permit No.633, in which the parties have agreed to an amount due to the Department because of a violation of the Wyoming Environmental Quality Act, and that Rio Algom Mining Corp. has failed to pay the amount due within the period of time specified in the said agreement."; or

   (c) "We, the undersigned Director of the Wyoming Department of Environmental Quality and by the Wyoming Land Quality Administrator, hereby advise you that a sight draft in the amount of $..... (..... United States Dollars) drawn under Canadian Imperial Bank of Commerce Letter of Credit No:SBGT717209 is accompanying this statement and certify that the operator, Rio Algom Mining Corp., Permit No.633, has not

filed with the Department an extension to the said Letter of Credit, a substitute Letter of Credit or other acceptable evidence of financial responsibility in the place of the said Letter of Credit, and that it is thirty (30) days or less until the current expiration date of the said Letter of Credit."

Partial drawings are permitted hereunder. The total amount of any drawings payable hereunder shall not exceed in aggregate the sum of USD8,676,084.

This letter of credit shall be reduced automatically, by the amount of each drawing paid hereunder and/or by amendment, by the amount of reduction that may be authorized by your written request, purportedly signed by the Director of the Wyoming Department of Environmental Quality and by the Wyoming Land Quality Administrator, given to CIBC.

CIBC understands that Chapter XII, Land Quality Division Noncoal Regulations, requires that the bank give immediate notice to the permittee, Rio Algom Mining Corp., and the Director of the Wyoming Department of Environmental Quality of: (a) any notice received or action filed alleging the insolvency or bankruptcy of the bank; or (b) alleging any violations of regulatory requirements which could result in suspension or revocation of the bank's charter or license to do business; or (c) the bank, for any reason, becomes unable to fulfill its obligation under the letter of credit. CIBC hereby agrees to give such notification as specified in this paragraph to the permittee, Rio Algom Mining Corp., and the Director of the Wyoming Department of Environmental Quality.

CIBC hereby agrees that your drafts drawn under and in compliance with the terms of this letter of credit will be duly honoured if presented to the its above noted address on or before April 1, 2002 (the "expiry date").

It is a condition of this letter of credit that it shall be deemed to be automatically extended without amendment for one year from the present or any future expiration date hereof, unless at least ninety (90) days prior to any such date, CIBC notifies the Director of the Wyoming Department of Environmental Quality in writing by registered mail or courier that CIBC elects not to consider this letter of credit renewed for such further period. Upon receipt by you of such notice, you may draw hereunder as above.

Notwithstanding the expiration date and the condition above, this letter of credit shall be cancelled effective the date of receipt by CIBC of the original letter of credit instrument and a dated letter addressed to CIBC, purportedly signed by the Director of the Wyoming Department of Environmental Quality, referencing this letter of credit number and requesting the cancellation of same.

This letter of credit shall be governed by and construed in accordance with the laws of the State of Wyoming and is also subject to the "Uniform Customs and Practice for Documentary Credits (1993 Revision) International Chamber of Commerce, Publication No. 500", up to the extent that it is not inconsistent with the laws of the State of Wyoming. Any conflicts or disputes with respect to this letter of credit shall be determined according to the laws of the State of Wyoming.

APPENDIX C

SURETY DETAIL

PART II - SURETY BOND DETAIL

This section presents the support details for the summary totals included in Table 1. Within this part, the bond detail is divided into ten (10) sections that encompass the mining activities at the Smith Ranch facility. These 10 divisions match each of the summary sections that are presented in Table 1.

These bond division areas include; ion exchange plants, central processing plant, dryer area, existing facilities, header sites and wellfields, associated structures, groundwater reclamation and RO Units, whole trucking, and delineation hole reclamation. The cost basis for these calculations are from contractor quotes. These quotes are presented in "Part III - Cost Basis".

SECTION 1

ION EXCHANGE PLANT RECLAMATION COSTS

Cost Summary

ITEM	COSTS ($97)
1.1 Building	40,116
1.2 Tankage and Vessels	39,913
1.3 Piping	12,924
1.4 Pumps	6,094
1.5 Electrical	9,470
1.6 Foundations	48,588
1.7 Plant Site	2,058
1.8 Access Road	1,054
Total Cost	160,217

1.1 Building

Calculation Basis: 70 Ft. x 165 Ft. with 23 Ft. Eave
Floor Area = 11,550 Ft^2
Skin Area = 10,810 Ft^2

A. Washdown Building - 6 Days:
Wash 10,810 Ft^2 @ 1 Gal/Ft^2 = 10,818 Gal
Wash 10,810 Ft^2 @ 450 Ft^2/Man-Day = 24 Man-Days
= 6 Crew-Days

- Labor Crew = 1 - Foreman @ $21.58/Hr
  4 - Laborers @ $13.02/Hr
  $73.66/Hr x 48 Hr = $ 3,536
- Travel = $73.66/Hr x 6 Day x 1 Hr/Day = $ 442
- Eq. Rental = 4 - Pressure Washers @ $ 8.71/ Hr
  $ 34.84/Hr x 48 Hr = $ 1,672
- Materials = Soap @ $1.09/BBL
  10,810 Gal x BBL / 42 Gal x $1.09/BBL = $ 281
- Dispose of Fluid @ $0.11/BBL
  10,810 Gal x BBL / 42 Gal x $0.11/BBL = $ 28

Sub-total = $ 5,959

B. Dismantle and Load - 15 Days:

11,550 Ft^2 @ 100 Ft^2/Man-Day = 115.5 Man-Days
= 15.0 Crew-Days

- Labor Crew = 1 - Foreman @ $ 21.58/Hr
  2 - Welders @ $ 19.35/Hr
  2 - Operators @ $ 17.71/Hr
  4 - Laborers @ $ 13.02/Hr
  $147.78/Hr x 120 Hr = $ 17,734
- Travel = $147.78/Hr x 15 Days x 1 Hr/Day = $ 2,217

- Eq. Rental =2 - 20 Ton Cranes @ $37.39/Hr
  2 - Welders/Torches @ $10.90/Hr
  $96.58/Hr x 120 Hr = $ 11,590

Sub-total = $ 31,541

C. Haul and Dispose - On-Site Land Fill:
Building = 235,000# = 5 Truck Loads** @ 47,000#
- Haul = 5 Trucks x 8 Hrs/Truck x $65.39/Hr = $ 2,616
- Dispose = Cost Included in Section 6.5

** 5 Trucks required to move building in 1988

Building Total = *$ 40,116*

1.2 Tankage and Vessels

Basis: See Table 1.1

A. Decontaminate - 0 Days: (Assume No Decontamination)

B. Remove and Load - 11 Days:
- Labor Crew = 1 - Foreman @ $21.58/Hr*
  1 - Operator @ $17.71/Hr
  2 - Laborers @ $13.02/Hr
  $65.33/Hr x 88 Hr = $ 5,749
- Travel = $65.33/Hr x 11 Days x 1 Hr/Day = $ 719
- Eq. Rental = 1 - 20 Ton Crane @ $37.39/Hr
  $37.39/Hr x 88 Hr = $ 3,290

* This foreman will also supervise1.2 C.

Sub-total = $ 9,758

C. Dismantle, Cut, or Crush - 11 Days:
Cut Steel @ 30 $Ft.^3$/Man-Day @ 631.4 Ft^3 = 21 Man-Day
Crush FRP @ 60 $Ft.^3$/Man-Day @ 240.5 Ft^3 = 4 Man-Day

- Labor Crew = 1 - Foreman @ Foreman supervises both 1.2 (B) & (C)
  2 - Welders @ $19.35/Hr
  2 - Laborers @ $13.02/Hr
  $64.74/Hr x 88 Hr = $ 5,697
- Travel = $64.74/Hr x 11 Days x 1 Hr/Day = $ 712
- Eq. Rental = 1 - D8N Dozer @ $117.71/Hr for 4 Days
  $117.71/Hr x 32 Hr = $ 3,767
  2 - Welders/Torches @ $ 10.90/Hr
  $ 21.80/Hr x 88 Hr = $ 1,918

Sub-total $ 12,094

D. Haul and Dispose - Licensed (NRC SUA - #1473) Site:
100% of Contaminated Service = 835.4 $Ft.^3$ @ 198,380#
Total = 30.9 Cu.Yd. @ 198,380# = 5 Truck Loads @ 40,000#

- Haul = 5 Truck x 800 Mile x $3.27/Mile = $ 13,080
- Dispose = 198,380# = 99.1 tons
  @ $50/ton disposal cost[1] = $ 4,955

E. Haul and Dispose - On-Site Land Fill:
100% of Non-Contaminated Service = 36.5 Ft^3 @ 2,320#
Total = 1.4 Cu.Yd. @ 2,230# = 0.05 Truck Loads @ 47,000#

- Haul = 0.05 Trucks x 8 Hrs/Truck x $65.39/Hr = $ 26
- Dispose = Cost Included in Section 6.5

Tankage and Vessel Total = *$39,913*

1.3 Piping

Basis: See Table 1.2

A. Remove, Cut or Crush and Load - 5 Days:
PVC & Poly - 2,800 Ft @ 140 Ft/Man-Day = 20 Man-Day
= 5 Crew-Day
Steel - 1,100 Ft @ 110 Ft/Man-Day = 10 Man-Day
= 5 Crew-Day

- Labor Crew = 1 - Foreman @ $ 21.58/Hr
  2 - Welders @ $ 19.35/Hr
  1 - Operator @ $ 17.71/Hr
  4 - Laborers @ $ 13.02/Hr
  $130.07/Hr x 40 Hr = $ 5,203
- Travel = $130.07/Hr x 5 Days x 1 Hr/Day = $ 650
- Eq. Rental = 1 - 20 Ton Crane @ $37.39/Hr
  2 - Welders/Torches @ $10.90/Hr
  $59.19/Hr x 40 Hr = $ 2,368

Sub-total = $ 8,221

B. Decontaminate - 0 Days: $ 0

C. Haul and Dispose - Licensed (NRC SUA #1473) Site:
100% Piping = 886.7 Ft^3 @ 52,080#
Total = 32.8 Cu.Yd. @ 52,080# = 1.3 Truck Load @ 40,000#

- Haul = 1.3 Truck x 800 Mile x $3.27/Mile = $ 3,401
- Dispose = 52,080# = 26.04 tons
  @ $50/ton disposal cost[2] = $ 1,302

[1] See 1997-1998 Permit to Mine 633 2nd Round Responses. Cost is provided in 1998 NRC Surety for SUA-1548, and determined acceptable by NRC and it is based on actual fees charged by Quivira Mining Co., NRC license SUA-1473

[2] See 1997-1998 Permit to Mine 633 2nd Round Responses. Cost is provided in 1998 NRC Surety for SUA-1548, and determined acceptable by NRC and it is based on actual fees charged by Quivira Mining Co., NRC license SUA-1473

Piping Total = *$ 12,924*

1.4 Pumps

Basis: See Table 1.3

A. Removal and Loading - 6 Days:
21 Pumps @ 2 Pumps/Man-Day = 10.5 Man-Days
= 6.0 Crew-Days

- Labor Crew = 1 - Foreman @ $21.58/Hr
  1 - Operator @ $17.71/Hr
  2 - Laborers @ $13.02/Hr
  $65.33/Hr x 48 Hrs = $ 3,136
- Travel = $65.33/Hr x 6 Days x 1 Hr/Day = $ 392
- Eq. Rental = 1 - 20 Ton Crane @ $37.39/Hr
  $37.39/Hr x 48 Hrs = $ 1,795

Sub-total = $ 5,323

B. Haul and Dispose - Licensed (NRC SUA #1473) Site:
Contaminated Pumps = 77.9 Ft.^{3} @ 5,700#
Total = 2.9 Cu. Yd. @ 5,700# = 0.2 Truck Loads @ 40,000#

- Haul = 0.2 Truck x 800 Mile x $3.27/Mile = $ 523
- Dispose = 5,700# = 2.85 tons
  @ $50/ton disposal cost[3] = $ 143

C. Haul and Dispose - On-Site Land Fill:
Non-Contaminated Motors = 69.9 Ft^3 @ 8,445#
Non-Contaminated Pumps = 2 Ft^3 @ 100#
Total = 71.9 Ft.^{3} @ 8,545# = 0.2 Truck Loads @ 47,000#

- Haul = 0.2 Trucks x 8 Hrs/Truck x $65.39/Hr = $ 105
- Dispose = Cost Included in Section 6.5

Pump Total = *$ 6,094*

1.5 Electrical

A. Remove, Cut and Load - 5 Days:
- Labor Crew = 1 - Journeyman Elect. @ $ 34.88/Hr
  2 - Helpers @ $ 30.51/Hr
  1 - Welder @ $ 19.35/Hr
  1 - Operator @ $ 17.71/Hr
  $132.96/Hr x 40 Hr = $ 5,318
- Elec. Travel = $95.90/Hr x 5 Days x 2 Hr/Day = $ 959

[3] See 1997-1998 Permit to Mine 633 2nd Round Responses. Cost is provided in 1998 NRC Surety for SUA-1548, and determined acceptable by NRC and it is based on actual fees charged by Quivira Mining Co., NRC license SUA-1473

	+ $0.54/Mile x 5 Days x 120 Mile/Day	=	$ 324
•	Travel = $37.06/Hr x 5 Days x 1 Hr/Day	=	$ 185
•	Eq. Rental = 1 - 20 Ton Crane @ $37.39/Hr 1 - Truck @ $12.26/Hr* 1 - Welder/Torch @ $10.90/Hr $60.55/Hr x 40 Hr	=	$ 2,422
	Sub-total	=	$ 9,208

B. Haul and Dispose - On-Site Land Fill:
MCC = 11.75 Ft. x 1.25 Ft. x 7.5 Ft. = 110.2 $Ft.^3$ @ 4,550#
Cable = 110.2 $Ft.^3$ x 0.5 = 55.1 $Ft.^3$ @ 18,400# (@ 40% Voids)
Total = 165.1 $Ft.^3$ @ 22,950#
= 6.1 Cu. Yd. @ 22,950# = 0.5 Truck Loads @ 47,000#

•	Haul = 0.5 Trucks x 8 Hrs/Truck x $65.39/Hr	=	$ 262
•	Dispose = Cost Included in Section 6.5		
Electrical Total		=	*$ 9,470*

1.6 Foundation

A. Decontaminate Slab - 3 Days:
11,550 Ft^2 @ 1,000 Ft^3/Man-Day = 11.6 Man-Days
= 3.0 Crew-Days

•	Labor Crew = 1 - Foreman @ $21.58/Hr 4 - Laborers @ $13.02/Hr $73.66/Hr x 24 Hr	=	$ 1,768
•	Travel = $73.66/Hr x 3 Days x 1 Hr/Day	=	$ 221
•	Eq. Rental = Hand Tools (Brooms, Squeegee) @ $10.90/Hr $10.90/Hr x 24 Hr	=	$ 262
•	10% HCl = 2 Gal/Ft^2 x 11,550 Ft^2 = 23,100 Gal.		

Make-Up from 20 Be HCl Stock @ $0.55/Gal
Require 288 Gal. Stock per 1,000 Gal. - 10%

	23,100 gal x 0.288 x $0.55/Gal	=	$ 3,659
•	Dispose of Fluid @ $0.11/BBL 23,100 Gal x BBL / 42 Gal x $0.11/BBL	=	$ 61
	Sub-total		$ 5,971

B. Break and Remove 25% of Slab - 10 Days:
11,550 Ft^2 x 0.25 = 2,888 Ft^2
2,888 Ft^2 @ 37.5 Ft^2/Hr = 77 Hrs

•	Labor Crew = 1 - Operator @ $17.71/Hr 17.71/Hr x 77 Hrs	=	$ 1,364

- Travel = $17.71/Hr x 10 Days x 1 Hr/Day = $ 177

- Eq. Rental = 1 - Pavement Breaker @ $31.33/Hr
  $31.33/Hr x 77 Hrs = $ 2,412
  1 - Cat 980C Loader @ $92.64/Hr
  $92.64/Hr x 40 Hrs = $ 3,706

Sub-total = $ 7,659

C. Haul and Dispose - Licensed (NRC SUA #1473) Site:

Concrete = 2,888 Ft^2 x 8 In / 12 In/Ft = 1925 Ft^3 Set
= 377,365# @ 196# Ft^3
= 3,209 Ft^3 Loose (40% voids)

Total = 11.9 Cu.Yd. @ 377,365# = 9.4 Truck Loads @ 40,000#

- Haul = 9.4 Truck x 800 Miles x $3.27/Mile = $ 24,590
- Dispose = 377,365# = 188.7 tons
  @ $50/ton disposal cost[4] = $ 9,435

D. Bury Area w/2 Ft Cover:
- Materials = 856 Cu.Yd. Cover @ $1.09/Cu.Yd. = $ 933

Foundation Total = *$ 48,588*

1.7 Plant Site

Basis: 200 Ft. x 300 Ft. = 60,000 $Ft.^2$ = 1.4 Acres

A. Rip and Contour:
- Basis: See Table 1.4
- Rip and Contour @ $166.68/Acre = $ 233

B. Topsoil Placement:
Replace 6 in. Topsoil = 60,000 $Ft.^2$ x 0.5 = 30,000 $Ft.^3$ = 1,111 Cu.Yd.
Topsoil Placement @ $1.09/Cu.Yd. = $ 1,211

C. Revegetate:
- Grade and Contour Topsoil @ $ 87.19/Acre x 1.4 Acre = $ 122
- Seedbed Prep. (Disc. + Harrow) @ $ 21.80/Acre x 1.4 Acre = $ 31
- Mulch (Drill + Seed + Mow) @ $ 49/Acre x 1.4 Acre = $ 69
- Drill Seed and Fertilize (Drill + Seed + Fertilizer) @ $163/Acre x 1.4 Acre = $ 228
- Revegetation Contingency (All items excluding grading) @ $233.80/Acre* x 0.7 Acre = $ 164

*Assume only 50% of acreage requires reseeding

[4] See 1997-1998 Permit to Mine 633 2nd Round Responses. Cost is provided in 1998 NRC Surety for SUA-1548, and determined acceptable by NRC and it is based on actual fees charged by Quivira Mining Co., NRC license SUA-1473

Sub-total		=	$ 614
Plant Site Total		=	*$ 2,058*

1.8 Access Road

Basis: Gravel Road = 21 Ft. x 1320 Ft. = 27,720 $Ft.^2$ = 0.6 Acres

A. Rip and Contour:
- Basis: See Table 1.4
- Rip and Contour @ $166.68/Acre = $ 233

B. Topsoil Placement:
Replace 6 in. Topsoil = 27,720 $Ft.^2$ x 0.5 = 13,860 $Ft.^3$ = 513 Cu.Yd

- Topsoil Placement @ $1.09/Cu.Yd. = $ 559

C. Revegetate:

• Grade and Contour	@ $ 87.19/Acre x 0.6 Acre	=	$ 52
• Seedbed Prep. (Disc. + Harrow)	@ $ 21.80/Acre x 0.6 Acre	=	$ 13
• Mulch (Drill + Seed + Mow)	@ $ 49/Acre x 0.6 Acre	=	$ 29
• Drill Seed and Fertilize (Drill + Seed + Fertilizer)	@ $163/Acre x 0.6 Acre	=	$ 98
• Revegetation Contingency (All items excluding grading)	@ $233.80/Acre* x 0.3 Acre	=	$ 70

Sub-total = $ 262

*Assume only 50% of acreage requires reseeding

Access Road = *$ 1,054*

TABLE 1.4
IX PLANT
SCARIFY (RIP) COMPACTED SURFACE

Equipment = Cat. 140G Motor Grader @ $65.39/Hr - Complete
Speed = 3.9 mph (2nd gear)
Width = 9 Ft/Pass

$$\text{Productivity} = 3.9 \frac{\text{Mile}}{\text{Hr}} \times 5280 \frac{\text{Ft}}{\text{Mile}} \times 9 \frac{\text{Ft}}{\text{Pass}} \times 0.83 \text{ Eff.}$$

$$= 153{,}822 \frac{\text{Ft}^2}{\text{Hr}}$$

$$= 3.53 \frac{\text{Acre}}{\text{Hr}}$$

$$\$/\text{Acre} = \frac{\$65.39}{\text{Hr}} \times \frac{\text{Hr}}{3.53 \text{ Acre}} = \frac{\$18.52}{\text{Acre}}$$

From Above - Ripping @ $166.68/Acre Allows for 9 Passes

SECTION 2
CENTRAL PROCESSING PLANT RECLAMATION COSTS

Cost Summary

ITEM	COSTS ($97)
2.1 Building	57,548
2.2 Tankage and Vessels	60,246
2.3 Piping	10,846
2.4 Pumps	10,965
2.5 Electrical	19,682
2.6 Foundations	70,019
Total Cost	229,306

2.1 Building

Basis: 100 Ft. x 165 Ft. with 30 Ft. Eave
Floor Area = 16,500 Ft^2
Skin Area = 15,900 Ft^2

A. Washdown Building - 9 days:

Wash 15,900 Ft^2 @ 1 Gal/Ft^2 = 15,900 Gal
Wash 15,900 Ft^2 @ 450 Ft^2/Man-Day = 35 Man-Days
= 9 Crew-Days

- Labor Crew = 1 - Foreman @ $21.58/Hr
4 - Laborers @ $13.02/Hr
$73.66/Hr x 72 Hr = $ 5,303

- Travel = $73.66/Hr x 9 Days x 1 Hr/Day = $ 663

- Eq. Rental = 4 - Pressure Washers @ $ 8.71/Hr
$ 34.84/Hr x 80 Hr = $ 2,787

- Materials = Soap @ $1.09/BBL
15,900 Gal x BBL / 42 Gal x $1.09/BBL = $ 413

- Dispose of Fluid @ $0.11/BBL
15,900 Gal x BBL / 42 Gal x $0.11/BBL = $ 42

Sub-total = $ 9,208

B. Dismantle and Load - 21 Days:

Dismantle and Load 16,500 Ft^2 @ 100 Ft^2/Man-Day @ 100 Ft^2/Man-Day = 165 Man-Days = 168 Man-Days = 21 Crew-Days

- Labor Crew = 1 - Foreman @ $ 21.58/Hr
2 - Welders @ $ 19.35/Hr
2 - Operators @$ 17.71/Hr
4 - Laborers @$ 13.02/Hr
$147.78/Hr x 168 Hr = $24,827

- Travel = $147.78 Hrs x 21 Days x 1 Hr/Day = $ 3,103

- Eq. Rental = 2 - 20 Ton Cranes @ $ 37.39/Hr
  2 - Welders/Torches @ $ 10.90/Hr
  $ 96.58/Hr x 168 Hr = $16,225

Sub-total = $44,155

C. Haul and Dispose - On-Site Land Fill:
Building = 376,000# = 8 Truck Loads* @ 47,000#

- Haul = 8 Trucks x 8 Hrs/Truck x $65.39/Hr = $ 4,185
- Dispose = See Appendix 6.5

Building Total = *$ 57,548*

2.2 Tankage and Vessels

Basis: See Table 2.1

A. Decontaminate - 0 Days: = $ 0

B. Remove and Load - 19 Days:
- Labor Crew = 1 - Foreman @ $ 21.58/Hr
  1 - Operator @ $ 17.71/Hr
  2 - Laborers @ $ 13.02/Hr
  $ 65.33/Hr x 152 Hr = $ 9,930

- Travel = $65.33/Hr x 19 Days x 1 Hr/Day = $ 1,241

- Eq. Rental = 1 - 20 Ton Crane @ $ 37.39/Hr
  $ 37.39/Hr x 152 Hrs = $ 5,683

Sub-total = $ 16,854

C. Dismantle, Cut, or Crush - 19 Days:
Cut Steel @ 30 Ft^3/Man-Day @ 518.5 Ft^3 = 17 Man-Days
Crush FRP @ 60 Ft^3/Man-Day @ 111.4 Ft^3 = 1.9 Man-Days

- Labor Crew = 1 - Foreman @ $ Foreman Supervises both 2.2(A) & (B)
  1 - Welder @ $ 19.35/Hr
  2 - Laborers @ $ 13.02/Hr
  $ 45.39/Hr x 152 Hrs = $ 6,899

- Travel = $45.39/Hr x 19 Days x 1 Hr/Day = $ 862

- Eq. Rental = 1 - D8N Dozer @ $117.71/Hr
  1 - Welder/Torch @ $ 10.90/Hr
  $128.61/Hr x 152 Hrs = $ 19,549

Sub-total = $ 27,310

D. Haul and Dispose - Licensed (NRC SUA #1473) Site:
100% of Contaminated Service = 1236.7 $Ft.^3$ @ 172,420#
Total = 45.8 Cu.Yd. @ 172,420# = 4.3 Truckloads @ 40,000#

- Haul = 4.3 Trucks x 800 Mile x $3.27/Mile = $ 11,249

- Dispose = 172,420# = 86.2 tons
  @ $50/ton disposal cost[5] = $ 4,310

E. Haul and Dispose - On-Site Land Fill:
100% of Non-Contaminated Service = 393.2 Ft^3 @ 45,010#
Total = 14.6 Cu.Yd. @ 45,010# = 1 Truckloads @ 47,000#

- Haul = 1 Truck x 8 Hrs/Truck x $65.39/Hr = $ 523
- Dispose = See Appendix 6.5

Tankage and Vessel Total = *$ 60,246*

2.3 Piping

Basis: See Table 2.2

A. Remove, Cut or Crush and Load - 9 days:
PVC and Poly @ 140 Ft/Man-Day @ 5,000 Ft = 36 Man-Days
= 9 Crew-Days

- Labor Crew = 1 - Foreman @ $ 21.58/Hr
  1 - Operator @ $ 17.71/Hr
  4 - Laborers @ $ 13.02/Hr
  $ 91.37/Hr x 72 Hr = $ 6,579
- Travel = $91.37/Hr x 9 Days x 1 Hr/Day = $ 822
- Eq. Rental = 1 - 20 Ton Crane @ $ 37.39/Hr
  $ 37.39/Hr x 72 Hr = $ 2,692

Sub-total = $ 10,093

B. Decontaminate - 0 Days: = $ 0

C. Haul and Dispose - Licensed (NRC SUA #1473) Site:
100% Pipe = 244 $Ft.^3$ @ 9,136#
Total = 9 Cu. Yd. @ 9,136# = 0.2 Truckloads @ 40,000#

- Haul = 0.2 Trucks x 800 Mile x $3.27/Mile = $ 523
- Dispose = 9,136# = 4.6 tons
  @ $50/ton disposal cost[6] = $ 230

Piping Total = *$ 10,846*

2.4 Pumps

Basis: See Table 2.3

A. Removal and Loading - 11 Days:
2 Pumps/Man-Day @ 43 Pumps = 21.5 Man-Days
= 11.0 Crew-Days

---

[5] See 1997-1998 Permit to Mine 633 2nd Round Responses. Cost is provided in 1998 NRC Surety for SUA-1548, and determined acceptable by NRC and it is based on actual fees charged by Quivira Mining Co., NRC license SUA-1473

[6] See 1997-1998 Permit to Mine 633 2nd Round Responses. Cost is provided in 1998 NRC Surety for SUA-1548, and determined acceptable by NRC and it is based on actual fees charged by Quivira Mining Co., NRC license SUA-1473

- Labor Crew = 1 - Foreman @ $21.58/Hr
  1 - Operator @ $17.71/Hr
  2 - Laborers @ $13.02/Hr
  $65.33/Hr x 88 Hr = $ 5,749

- Travel = $65.33/Hr x 11 Days x 1 Hr/Day = $ 719

- Eq. Rental = 1 - 20 Ton Crane @ $37.39/Hr
  $37.39/Hr x 88 Hr = $ 3,290

Sub-total = $ 9,758

B. Haul and Dispose - Licensed (NRC SUA #1473) Site:
100% Contaminated = 164.3 Ft.^{3} @ 10,612#
Total = 6.1 Cu. Yd. @ 10,612# = 0.3 Truck Load @ 40,000#

- Haul = 0.3 Truck x 800 Mile x $3.27/Mile = $ 785
- Dispose = 10,612# = 5.3 tons
  @ $50/ton disposal cost[7] = $ 265

C. Haul and Dispose - On-Site Land Fill:
100% Non-Contaminated = 106.5 Ft.^{3} @ 10,723#
Total = 3.9 Cu. Yd. @ 10,723# = 0.3 Truck Load @ 47,000#

- Haul = 0.3 Truck x 8 Hrs/Truck x $65.39/Hr = $ 157

- Dispose = See Appendix 6.5

Pump Total = *$ 10,965*

2.5 Electrical

A. Remove, Cut and Load - 10 Days:
- Labor Crew = 1 - Journeyman Elect. @ $ 34.88/Hr
  2 - Helpers @ $ 30.51/Hr
  1 - Welder @ $ 19.35/Hr
  1 - Operator @ $ 17.71/Hr
  $132.96/Hr x 80 Hr = $ 10,637

- Elec. Travel = $132.96/Hr x 10 Days x 2 Hr/Day = $ 2,659
  + $0.54/Mile x 10 Days x 120 Mile/Day = $ 648

- Other Travel = $37.06/Hr x 10 Days x 1 Hr/Day = $ 371

- Eq. Rental = 1 - 20 Ton Crane @ $ 37.39/Hr
  1 - Truck @ $ 12.26/Hr
  1 - Welder/Torch @ $ 10.90/Hr
  $ 60.55/Hr x 80 Hr = $ 4,844

Sub-total = $ 19,159

B. Haul and Dispose - On-Site Land Fill:

[7] See 1997-1998 Permit to Mine 633 2nd Round Responses. Cost is provided in 1998 NRC Surety for SUA-1548, and determined acceptable by NRC and it is based on actual fees charged by Quivira Mining Co., NRC license SUA-1473

MCC#1 = 11.75 Ft. x 1.25 Ft. x 7.5 Ft. = 110.2 $Ft.^3$ @ 4,550#
MCC#2 = 11.75 Ft. x 1.25 Ft. x 7.5 Ft. = 110.2 $Ft.^3$ @ 4,550#
Cable = 220.4 $Ft.^3$ x 0.5* = 110.2 $Ft.^3$ @ 36,700#
(555#/$Ft.^3$ @ 40% Void = 333#/Ft^2)
Total = 330.6 $Ft.^3$ @ 45,800#
= 12.2 Cu. Yd. @ 45,800# = 1 Truck @ 47,000#

- Haul = 1 Truck x 8 Hrs/Truck x $65.39/Hr = $ 523

- Dispose = See Appendix 6.5

* Cable Volume = 1/2 MCC Volume

Electrical Total = *$ 19,682*

2.6 Foundation

A. Decontaminate Slab - 5 Days:
16,500 Ft^2 @ 1000 Ft^2/Man-Day = 17 Man-Days
= 5 Crew-Days

- Labor Crew = 1 - Foreman @ $ 21.58/Hr
4 - Laborers @ $ 13.02/Hr
$ 73.66/Hr x 40 Hr = $ 2,946

- Travel = $73.66/Hr x 5 Days x 1 Hr/Day = $ 368

- Eq. Rental = Hand Tools @ $ 10.90/Hr
(Broom, Squeegee) $ 10.90/Hr x 40 Hr = $ 436

- 10% HCl = 2 Gal/Ft^2 x 16,500 Ft^2
= 33,000 Gal.

make-up from 20° Be HCl Stock @ $0.508/Gal
Require 288 Gal. Stock per 1,000 Gal. - 10%

33,000 x 0.288 x $0.55/Gal = $ 5,227

- Dispose of Fluid @ $0.11/BBL
33,000 Gal x BBL / 42 Gal x $0.11/BBL = $ 86

Sub-total = $ 9,063

B. Break and Remove 25% of Slab - 14 Days:
16,500 Ft^2 x 0.25 = 4,125 Ft^2
4,125 Ft^2 @ 37.5 Ft^2/Hr = 110 Hrs

- Labor Crew = 1 - Operator @ $ 17.71/Hr
$ 17.71/Hr x 110 Hrs = $ 1,948

- Travel = $17.71/Hr x 14 Days x 1 Hr/Day = $ 248

- Eq. Rental = 1 - Pavement Breaker @ $ 31.33/Hr
$ 31.33/Hr x 110 Hrs = $ 3,446

1- Cat 980C Loader @ $ 92.64/Hr
$ 92.64/Hr x 56 Hrs = $ 5,188

Sub-total	=	$ 10,830

C. Haul and Dispose - Licensed (NRC SUA #1743) Site:

Concrete = 4,125 Ft^2 x $\frac{8\ In.}{12\ In/Ft}$ = 2,750 Ft^3 Set

= 539,000# @ 196#/Ft^3

= 4,583 Ft^3 Loose (40% Voids)

Total = 170 Cu.Yd. @ 539,000# = 13.5 Truckloads @ 40,000#

• Haul = 13.5 Truckloads x 800 Miles x $3.27/Mile	=	$ 35,316
• Dispose = 539,000# = 269.5 tons @ $50/ton disposal cost[8]	=	$ 13,475

D. Bury Area with 2 Ft. Cover:

• Material = 1,225 Cu.Yd. Cover @ $1.09/Cu.Yd.	=	$ 1,335
Foundation Total	=	*$70,019*

[8] See 1997-1998 Permit to Mine 633 2nd Round Responses. Cost is provided in 1998 NRC Surety for SUA-1548, and determined acceptable by NRC and it is based on actual fees charged by Quivira Mining Co., NRC license SUA-1473

SECTION 3
DRYER AREA RECLAMATION COSTS
Cost Summary

ITEM	COSTS ($97)
3.1 Building	16,222
3.2 Equipment	14,739
3.3 Foundations	16,802
Total Cost	47,763

3.1 Building

Basis: 100 Ft. x 35 Ft. with 30 Ft. Eave
Floor Area = 3,500 Ft^2
Skin Area = 8,100 Ft^2

A. Washdown Building - 0 Days = $ 0

B. Dismantle and Load - 5 Days:
3500 Ft^2 @ 100 Ft^2/Man-Day = 35 Man-Days
= 5 Crew-Days

- Labor Crew = 1 - Foreman @ $ 21.58/Hr
2 - Welders @ $ 19.35/Hr
2 - Operators @ $ 17.71/Hr
4 - Laborers @ $ 13.02/Hr
$147.78/Hr x 40 Hr = $ 5,911
- Travel = $147.78/Hr x 5 Days x 1 Hr/Day = $ 739
- Eq. Rental = 2 - 20 Ton Cranes @ $37.39/Hr
2 - Welder/Torch @ $10.90/Hr
$96.58/Hr x 40 Hr = $ 3,863

Sub-total = $ 10,513

C. Haul and Dispose - Licensed (NRC SUA - #1473) Site:
Buildings = 71,212#* = 1.8 Truck Loads @ 40,000#

- Haul = 1.8 Trucks x 800 Mile x $3.27/Mile = $ 4,709
- Dispose = 40,000# = 20 tons
@ $50/ton disposal cost[9] = $ 1,000

*5 Trucks x 47,000#/Truck x $\frac{3500\ Ft^2}{11550\ Ft^2}$ = 71,212#

Building Total = *$ 16,222*

3.2 Equipment

Basis: See Table 3.1

A. Remove and Load - 7 Days:

[9] See 1997-1998 Permit to Mine 633 2nd Round Responses. Cost is provided in 1998 NRC Surety for SUA-1548, and determined acceptable by NRC and it is based on actual fees charged by Quivira Mining Co., NRC license SUA-1473

- Labor Crew = 1 - Foreman @ $21.58/Hr
  1 - Operator @ $17.71/Hr
  4 - Laborers @ $13.02/Hr
  91.37/Hr x 56 Hrs = $ 5,117

- Travel = $91.37/Hr x 7 Days x 1 Hr/Day = $ 640

- Eq. Rental = 1 - 20 Ton Crane @ $37.39/Hr
  $37.39/Hr x 56 Hrs = $ 2,094

Sub-total = $ 7,851

B. Dismantle and Cut - 7 Days:
Cut Steel @ 30 Ft^3/Man-Day @ 198.6 Ft^3 = 7 Man-Days

- Labor Crew = 1 - Foreman @ $ Foreman supervises 3.2(A) & (B)
  1 - Welders @ $19.35/Hr
  $19.35/Hr x 56 Hr = $ 1,084

- Travel = $19.35/Hr x 7 Days x 1 Hr/Day = $ 135

- Eq. Rental = 1 - Welder/Torch @ $10.90/Hr
  $10.90/Hr x 56 Hr = $ 610

Sub-total = $ 1,829

C. Haul and Dispose - Licensed (NRC SUA #1473) Site:
100% of Contaminated = 183.6 $Ft.^3$ @ 53,800#
Total = 6.8 Cu. Yd. @ 53,800# = 1.4 Truck Loads @ 40,000#

- Haul = 1.4 Truck x 800 Mile x $3.27/Mile = $ 3,662
- Dispose = 53,800# = 26.9 tons
  @ $50/ton disposal cost[10] = $ 1,345

D. Haul and Dispose - Land Fill:
100% Non-Contaminated = 15 $Ft.^3$ @ 4,400#
Total = 0.6 Cu. Yd. @ 4,400# = 0.1 Truck Loads @ 47,000#

- Haul = 0.1 Truck x 8 Hrs/Truck x $65.39/Hr = $ 52

- Dispose = See Appendix 6.5

Equipment Total = *$14,739*

3.3 Foundation

A. Decontaminate Slab - 2 Day:
3500 Ft^2 @ 1000 Ft^2/Man-Day Twice = 7 Man-Days
= 2 Crew-Days

- Labor Crew = 1 - Foreman @ $21.58/Hr
  4 - Laborers @ $13.02/Hr
  $73.66/Hr x 16 Hrs = $ 1,179

[10] See 1997-1998 Permit to Mine 633 2nd Round Responses. Cost is provided in 1998 NRC Surety for SUA-1548, and determined acceptable by NRC and it is based on actual fees charged by Quivira Mining Co., NRC license SUA-1473

- Travel = $73.66/Hr x 2 Days x 1 Hr/Day = $ 147

- Eq. Rental = Hand Tools @ $10.90/Hr
  (Broom, Squeegee) $10.90/Hr x 16 Hrs = $ 174

- 10% HCl = 2 Gal/Ft^2 x 3500 Ft^2 x 2
  = 14,000 Gal.

Make-Up from 20° Be HCl Stock @ $0.55/Gal
Require 288 Gal. Stock per 1,000 Gal. - 10%

14,000 x 0.288 x $0.55/Gal = $ 2,218

- Dispose of Fluid @ $0.11/BBL
  14,000 Gal x BBL/42 Gal x $0.11/BBL = $ 37

Sub-Total = $ 3,755

B. Break and Remove 25% of Slab - 3 Day:
3500 Ft^2 x 0.25 = 875 Ft^2
875 Ft^2 @ 37.5 Ft^2/Hr = 23 Hrs

- Labor Crew = 1 - Operator @ $17.71/Hr
  $17.71/Hr x 23 Hrs = $ 407

- Travel = $17.71/Hr x 3 Days x 1Hr/Day = $ 53

- Eq. Rental = 1 - Pavement Breaker @ $31.33/Hr
  $31.33/Hr x 24 Hrs = $ 752

  1- Cat 980C Loader @ $92.64/Hr
  $92.64/Hr x 12 Hr = $ 1,112

Sub-total = $ 2,324

C. Haul and Dispose - Licensed (NRC SUA #1743) Site:
Concrete = 875 Ft^2 x 8 In/12 In/Ft = 583 Ft^3 Set
= 114,268# @ 196#/Ft^3
= 972 Ft^3 Loose (40% Voids)

Total = 36 Cu.Yd. @ 114,268# = 2.9 Truckloads @ 40,000#

- Haul = 2.9 Truck x 800 Mile x $3.27/Mile = $ 7,586
- Dispose = 114,268# = 57.1 tons
  @ $50/ton disposal cost[11] = $ 2,855

D. Bury Area with 2 Ft Cover:

- Materials = 259 Cu.Yd. Cover @ $1.09/Cu.Yd. = $ 282

Foundation Total = *$ 16,802*

[11] See 1997-1998 Permit to Mine 633 2nd Round Responses. Cost is provided in 1998 NRC Surety for SUA-1548, and determined acceptable by NRC and it is based on actual fees charged by Quivira Mining Co., NRC license SUA-1473

SECTION 4
EXISTING FACILITIES RECLAMATION COSTS
Cost Summary

ITEM	COSTS ($97)
4.1 Buildings	95,635
4.2 Structures	17,963
4.3 Pilot Plant Equipment	22,620
4.4 Foundation	139,333
4.5 Site Reclamation	178,287
4.6 O-Sand Pilot	41,435
4.7 Q-Sand Pilot	N.A.
4.8Mine Water Trt Ponds	19,878
Total Cost	515,151

4.1 Buildings

Basis: Floor Area = 33,248 Ft^2
Skin Area = 22,828 Ft^2 (13 Ft Eave)

1 @ 200 Ft. x 60 Ft. = 12,000 Ft^2 (Pilot ISL Building)
0 @ 70 Ft. x 48 Ft. - Demolished & Removed Sept. 1991
1 @ 70 Ft. x 68 Ft. = 4,760 Ft^2 (Existing Office Building)
1 @ 48 Ft. x 24 Ft. = 1,152 Ft^2 (Storage Building)
1 @ 24 Ft. x 24 Ft. = 576 Ft^2 (Water Treatment Plant)
1 @ 40 Ft x 120 Ft. = 4,826 Ft^2 (Shop Building)
1 @ Building = 9,934 Ft^2 (New Office Annex Building)

A. Washdown Building - 8 Days
22,828 Ft^2 @ 1 Gal/Ft^2 = 22,828 Gal
22,828 Ft^2 @ 450 Ft^2/Man = 51 Man-Days
= 13 Crew-Days

- Labor Crew = 1 - Foreman @ $ 21.58/Hr
4 - Laborers @ $ 13.02/Hr
$ 73.66/Hr x 104 Hr = $ 7,661

- Travel = $73.66/Hr x 13 Days x 1 Hr/Day = $ 958

- Eq. Rental = 4 - Pressure Washers @ $ 8.71/Hr
$ 34.84/Hr x 104 Hr = $ 3,623

- Materials = Soap @ $1.09/BBL
22,828 Gal x BBL / 42 Gal x $1.09/BBL = $ 592

- Dispose of Fluid @ $0.11/BBL
22,828 Gal x BBL / 42 Gal x $0.11/BBL = $ 60

Sub-total = $ 12,894

B. Dismantle and Load - 24 Days:
33,248 Ft^2 @ 100 Ft^2/Man-Day = 332 Man-Days
= 42 Crew-Days

- Labor Crew = 1 - Foreman @ $ 21.58/Hr
  2 - Welders @ $ 19.35/Hr
  2 - Operators @ $ 17.71/Hr
  4 - Laborers @ $ 13.02/Hr
  $147.78/Hr x 336 Hrs = $ 49,654

- Travel = $147.78/Hr x 42 Days x 1 Hr/Day = $ 6,207

- Eq. Rental = 2 - 20 Ton Cranes @ $37.39/Hr
  2- Welder/Torches @ $10.90/Hr
  $96.58/Hr x 336 Hrs = $ 32,450

Sub-total = $ 88,311

C. Haul and Dispose - On-Site Land Fill:
Buildings = 676,800# = 14 Truck Loads* @ 47,000#

- Haul = 14 Trucks x 8 Hrs/Truck x $65.39/Hr = $ 7,324

- Dispose = See Appendix 6.5

* 5 Trucks x $\frac{18,488\ Ft.^2}{11,550\ Ft.^2}$ = 14 Trucks

Buildings Total = *$ 95,635*

4.2 Structures

A. Plug Shaft - Completed in 1994 = $ 0

B. Plug Venthole

- Backfill 335 ft. of hole
  (270 c.y. @ $1.09/yd) = $ 294

- Backhoe 16 hrs @ $27.25/hr = $ 436

- Steel plate and rebar = $ 300

- Cement - 10 c.y. @ $76/c.y. delivered = $ 760

- 40 man hours @ $13.02/hr = $ 521

- Dirt cover - 100 c.y. @ $1.09/c.y. = $ 109

Sub-total = $ 2,420

C. Mine Water Treatment Ponds
See Section 4.8

D. Evaporation Ponds
Total Area = 200 Ft. x 100 Ft. = 20,000 $Ft.^2$ = 0.5 Acres

- Total = 0.5 Acres x $\frac{\$65,392^*}{5\ Acres}$ = $ 6,539

* See Section 6 - part 6.2 for the cost on a 5 acre basis

E. Headframe Removal

- Dismantle - Completed in 1991 = $ 0

- Haul & Dispose - Completed in 1993 = $ 0

F. Fencing (includes delineation posts)

Facility Fence - 5900 ft
Wellfield #1 - 6600 ft
Wellfield #3 - 7500 ft
Wellfield #4/4A-25,000 ft
45000 ft

- Cost to remove fencing = $0.15/ft[12] = $ 7,426

G. Water Wells

- Water wells (2) are 5 inch diameter wells with depth of 750 feet.

- Cost Basis - $285/well ($7705 per 27 wells, see "Section 5.4 - Wells") = $ 570

H. Fuel Area

- Size - 15 ft x 25 ft = 375 Ft^2.
  375 Ft^2 @ 37.5 Ft^2/Hr = 10 Hrs

- Labor Crew = 1 - Operators @ $17.71/Hr
  $17.71/Hr x 10 Hrs = $ 177

- Travel = $17.71/Hr x 2 Days x 1 Hr/Day = $ 35

- Eq. Rental = 1- Pavement Breaker @ $31.33/Hr
  $31.33/Hr x 10 hrs = $ 313

  1- Cat 980C Loader @ 92.64/Hr
  $96.58/Hr x 5 hr = $ 483

Sub-total = $ 1008

Structures Total = *$ 17,963*

4.3 Pilot Plant Equipment

A. Tanks:
15 Tanks
- Total = 15 Tanks x $55,926*/51 Tanks = $ 16,449

B. Piping:
1500 Ft. @ 6" Dia. or Less
- Total = 1500 Ft. x $10,616*/5,000 Ft. = $ 3,185

C. Pumps:
12 Pumps
- Total = 12 Pumps x $10,700*/43 Pumps = $ 2,986

[12] Cost per linear foot based on Third Party Cost Quote dated 6/11/99

* Reference Section 2 - parts 2.2, 2.3 & 2.4

Pilot Plant Total = *$ 22,620*

4.4 Foundation

A. Decontaminate Slab - 5 Days:
33,248 Ft^2 @ 1000 Ft^2/Man-Day = 33.2 Man-Days
= 8.3 Crew-Days

- Labor Crew = 1 - Foreman @ $ 21.58/Hr
4 - Laborers @ $ 13.02/Hr
$ 73.66/Hr x 66.4 Hrs = $ 4,891
- Travel = $73.66/Hr x 9 Days x 1 Hr/Day = $ 663
- Eq. Rental = Hand Tools @ $10.90/Hr
(Brooms, Squeegee) @ $10.90 /Hr x 66.4 Hrs = $ 724
- 10% HCl = 2 Gal/Ft^2 x 33,248 $Ft.^2$
= 66,496 Gal.

Make-Up from 20° Be HCl Stock @ $0.55/Gal
Require 288 Gal. Stock per 1,000 Gal. - 10%

66,496 x 0.288 x $0.55/Gal = $ 10,532

- Dispose of Fluid @ $0.11/BBL
66,496 Gal x BBL / 42 Gal x $0.11 BBL = $ 174

Sub-total = $ 16,984

B. Break and Remove 25% of Slab - 28 Days:
33,248 Ft^2 x 0.25 = 8,312 Ft^2
8,312 Ft^2 @ 37.5 Ft^2/Hr = 221 Hrs

- Labor Crew = 1 - Operator @ $17.71/Hr
$17.71/Hr x 221 Hrs = $ 3,914
- Travel = $17.71/Hr x 28 Days x 1 Hr/Day = $ 496
- Eq. Rental = 1 - Pavement Breaker @ $31.33/Hr
$31.33/Hr x 221 Hrs = $ 6,923

1 - Cat 980C Loader @ $92.64/Hr
$92.64/Hr x 111 Hrs = $ 10,283

Sub-total = $ 21,616

C. Haul and Dispose - Licensed (NRC SUA #1743) Site:
Concrete = 8,312 Ft^2 x 8 In. / 12 In/Ft = 5,541 Ft^3 Set
= 1,086,101# @ 196#/Ft^3
= 9,235 Ft^3 Loose(40% Voids)

Total = 342 Cu.Yd. @ 1,086,101# = 27.1 Truckloads @ 40,000#

- Haul = 27.1 Truckloads x 800 Miles x $3.27/Mile = $70,894

• Dispose = 1,086,101# = 543.1 tons @ $50/ton disposal cost[13]	=	$27,155
D. Bury Area with 2 Ft Cover:		
• Materials = 2,462 Cu. Yd. Cover @ $1.09/Cu. Yd.	=	$ 2,684
Foundation Total	=	*$139,333*

4.5 Site Reclamation

Basis: 201.53 Acres = 8,778,647 Ft.^{2}

A. Rip & Contour:		
• Rip & Contour @ $166.68/Acre x 201.53 Acre	=	$ 33,591
B. Topsoil Placement:		
Replace 8 In.* Topsoil = 51,769 Cu.Yd.		
• Topsoil @ $1.09/Cu. Yd.	=	$56,428
* 8 In. Topsoil Removed in Previous Years		
C. Revegetate:		
• Grade and Contour @ $87.19/Acre x 201.53 Acre	=	$ 17,571
• Seedbed Prep. (Disc. + Harrow) @ $ 21.80/Acre x 201.53 Acre	=	$ 4,393
• Mulch (Drill + Seed + Mow) @ $ 49/Acre x 201.53 Acre	=	$ 9,875
• Drill Seed and Fertilize (Drill + Seed + Fertilizer)@ $163/Acre x 201.53 Acre	=	$32,849
• Revegetation Contingency* @ $234/Acre x 100.77 Acre (All items excluding grading)	=	$23,580
* Assume only 50% of acreage requires reseeding		
Sub-total	=	$ 88,268
Site Reclamation Total	=	*$178,287*

4.6 O-Sand Pilot

A. Surface Reclamation:		
Basis = 6 Patterns		
• Total = 6 Patterns x $16,669* / 10 Patterns	=	$ 10,001
* Reference Section 5 - Summary Table Cost Per Pattern		

[13] See 1997-1998 Permit to Mine 633 2nd Round Responses. Cost is provided in 1998 NRC Surety for SUA-1548, and determined acceptable by NRC and it is based on actual fees charged by Quivira Mining Co., NRC license SUA-1473

B. Groundwater Restoration:
Basis = 6 Patterns

• Total = 6 Patterns x $5,239* / Pattern	=	$ 31,434
* Reference Appendix #7		
Sub-Total	=	$ 41,435

4.7 Q-Sand Pilot

Basis - 6 Patterns

• Building - Removed in 1992	=	$ 0
• Plug & Abandon 10 Wells - Completed in 1992	=	$ 0
• Reclaim Surface = To Be Completed With WF1 Operations	=	$ 0
Sub-total	=	$ 0

4.8 Mine Water Treatment Ponds

A. Burial In-Place

• Settled solids to Pond 3 for Burial In-Place

D8N Dozer - 40 Hrs @ $117.71/Hr	=	$ 4,708

• Backfill and Contour Settling Ponds

D8N Dozer - 120 Hrs @ $117.71/Hr	=	$14,125
Motor Grader - 16 Hrs @ $65.34/Hr	=	1,045
Sub-total	=	$19,878
Mine Water Treatment Total	=	*$19,878*

SECTION 5
UNIT HEADER SITE AND ASSOCIATED WELLFIELD RECLAMATION COSTS

Cost Summary

ITEM	Cost ($97) per 10 Patterns	Cost ($97) 513 Patterns 2001-2002
5.1 Buildings	1,549	79,463
5.2 Header Piping	2,735	140,306
5.3 Secondary Electrical	2,633	135,073
5.4 Wells-Total	10,532	540,292
5.5 Monitor Wells - Total	1,450	73,515*
5.6 Site Reclamation	1,019	52,275
Total Cost	19,918	1,020,924

* In period 2001-2002, the second completion to Wellfield #3 will be opened with 6 new patterns. These will be in-fill patterns and will not increase the area of Wellfield #3 or necessitate the addition of monitor wells.

5.1 Building

Basis: 12 Ft. x 24 Ft. with 10 Ft. Eave
Floor Area = 288 Ft^2
Skin Area = 720 Ft^2

A. Washdown Building - 1 Day:
Wash 720 Ft^2 @ 1 Gal/Ft^2 = 720 Gal
Wash 720 Ft^2 @ 450 Ft^2/Man-Day = 1.6 Man-Days
= 0.8 Crew-Days

- Labor Crew = 1 - Foreman @ $ 21.58/Hr
2 - Laborers @ $ 13.02/Hr
$ 47.62/Hr x 8 Hr = $ 381
- Travel = $47.62/Hr x 1 Day x 1 Hr/Day = $ 48
- Eq. Rental = 2 - Pressure Washers @ $ 8.71/Hr
$ 17.42/Hr x 8 Hr = $ 139
- Materials = Soap @ $1.09/BBL
720 Gal x BBL / 42 Gal x $1.09/BBL = $ 19
- Dispose of Fluid @ $0.11/BBL
720 Gal x BBL / 42 Gal x $0.11/BBL = $ 2

Sub-total = $ 589

B. Dismantle and Load - 1 Day:
Dismantle and Load @ 100 Ft^2/Man-Day
288 Ft^2 @ 100 Ft^2/Man-Day = 2.9 Man-Day
= 1.0 Crew-Day

- Labor Crew = 1 - Foreman @ $ 21.58/Hr
1 - Welders @ $ 19.35/Hr
2 - Laborers @ $ 13.02/Hr
$66.97/Hr x 8 Hr = $ 536
- Travel = $66.97/Hr x 1 Day x 1 Hr/Day = $ 67

- Eq. Rental =1 - Backhoe @ $ 27.25/Hr
  1 - Welder/Torch @ $ 10.90/Hr
  $ 38.15/Hr x 8 Hr = $ 305

Sub-total = $ 908

C. Haul and Dispose - On-Site Land Fill:
Building = 4,700# = 0.1 Truck Loads* @ 47,000#

- Haul = 0.1 Truck x 8 Hrs/Truck x $65.39/Hr = $ 52

- Dispose = See Appendix 6.5

* 5 Truck x $\frac{288\ Ft.^2}{11{,}550\ Ft.^2}$ = 0.1 Trucks

Sub-total = $ 52

Building Total = *$ 1,549*

5.2 Header Piping

Basis: 2000 Ft. - 1+" Piping Buried @6 Ft.
Trench = 6 Ft. x 2 Ft. = 45 Cu. Yd./100 Ft.
Excavation = 26 Cu. Yd./Hr (Case 580 Backhoe - 24 in. Bucket)

A. Open Trenches - 5 Days:
(2000 Ft.) x $\left(\frac{45\ Cu.\ Yd.}{100\ Ft.}\right)$ x $\left(\frac{\quad Hr. \quad}{26\ Cu.\ Yd.}\right)$ = 35 Hrs

- Eq. Rental = 1 - Backhoe @ $ 27.25/Hr
  $ 27.25/Hr x 40 Hr = $1,090

B. Remove, Cut and Load - 2.5 Days:
Trenches Opened at 400 Ft/Man-Day
Piping = 2000 Ft @ 400 Ft/Man-Day = 5 Man-Days
= 2.5 Crew-Days

- Labor Crew = 1 - Foreman @ $ 21.58/Hr
  2 - Laborers @ $ 13.02/Hr
  $ 47.62/Hr x 20 Hr = $ 952

- Travel = $47.62 x 3 Days x 1 Hr/Day = $ 143

- Eq. Rental = 2 - Chainsaws @ $2.40/Hr
  $4.8/Hr x 20 Hrs = $ 96

Sub-total = $ 1,191

C. Backfill Trenches - 2 Day:
Backfill @ 2.5 Time Excavation Rate or
Backfill @ 26 $\frac{Cu.Yd.}{Hr}$ x 2.5 = 65 Cu.Yd./Hr
(2000 Ft) x $\left(\frac{45\ Cu.Yd.}{100\ Ft}\right)$ x $\left(\frac{\quad Hr \quad}{65\ Cu.Yd.}\right)$ = 13.8 Hrs or 14 hours

- Eq. Rental = 1 - Backhoe @ $ 27.25/Hr

$ 27.25/Hr x 14 Hrs = $ 382

D. Haul and Dispose - Licensed (NRC SUA #1473) Site:
1 1/4" Poly Pipe = 43 #/100 Ft. = 2,000 Ft. x 0.43#/Ft. = 860#

$$\text{Volume} = \frac{2{,}000 \text{ Ft} \times (43 \text{ \#}/100 \text{ Ft.})}{62.4 \frac{\text{\#}}{\text{Ft.}^3} \times 0.6} = 23 \text{ Ft.}^3$$

Total = 0.9 Cu. Yd. @ 860# = 0.02 Truck Loads @ 40,000#

- Haul = 0.02 Trucks x 800 Mile x $3.27/Mile = $ 52
- Dispose = 860# = 0.4 tons
  @ $50/ton disposal cost[14] = $ 20

Header Piping Total = *$2,735*

5.3 Secondary Electrical

Basis: Remove 2,000 ft - #10 AWG, Power Cable
Remove Pole and Motor Starters

A. Remove Tray Cable - 1 Day:
- Labor Crew = 1 - Journeyman @ $ 34.88/Hr
  1 - Helper @ $ 30.51/Hr
  $ 65.39/Hr x 8 Hr = $ 523
- Travel = $65.39/Hr x 1 Day x 2 Hr/Day = $ 131
  + $0.54/Mile x 1 Day x 120 Mile/Day = $ 65
- Eq. Rental = 1 - Truck @ $12.26/Hr
  $12.26/Hr x 8 Hr = $ 98

Sub-total = $ 817

B. Remove Motor Starters - 1 Day:
- Labor Crew = 1 - Journeyman @ $ 34.88/Hr
  1 - Helper @ $ 30.51/Hr
  $ 65.39/Hr x 8 Hr = $ 523
- Travel = $65.39/Hr x 1 Day x 2 Hr/Day = $ 131
  + $0.54/Mile x 1 Day x 120 Mile/Day = $ 65
- Eq. Rental = 1 - Truck @ $12.26/Hr
  $12.26/Hr x 8 Hr = $ 98

Sub-total = $ 817

C. Disconnect Power Cable from Pole - 0.5 Days:
- Labor Crew = 1 - Journeyman @ $ 34.88/Hr
  1 - Helper @ $ 30.51/Hr
  $ 65.39/Hr x 4 Hr = $ 262
- Travel = $65.39/Hr x 0.5 Day x 2 Hr/Day = $ 65

[14] See 1997-1998 Permit to Mine 633 2nd Round Responses. Cost is provided in 1998 NRC Surety for SUA-1548, and determined acceptable by NRC and it is based on actual fees charged by Quivira Mining Co., NRC license SUA-1473

+ $0.54/Mile x 0.5 Day x 120 Mile/Day = $ 32

- Eq. Rental = 1 - Bucket Truck @ $ 37.36/Hr
  1 - Truck @ $ 12.26/Hr
  $ 49.62/Hr x 4 Hr = $ 198

Sub-total = $ 557

D. Remove Pole - 0.5 Day:

- Labor Crew = 1 - Foreman @ $ 21.58/Hr
  1 - Operator @ $ 17.71/Hr
  1 - Laborer @ $ 13.02/Hr
  $ 52.31/Hr x 4 Hr = $ 209
- Travel = $52.31/Hr x 1 Day x 1 Hr/Day = $ 52
- Eq. Rental = 1 - 20 Ton Crane @ $ 37.39/Hr
  $ 37.39/Hr x 4 Hr = $ 150

Sub-total = $ 411

E. Haul and Dispose - On-Site Land Fill:

Cable = $\frac{3.14 \times (0.5)^2 \times 2{,}000}{4 \times 144 \times 0.6}$ = 4.5 $Ft.^3$ @ 1499# (555#/$Ft.^3$ @ 40% Void)

Motor Starter =
10x$\frac{(24in. \times 10in. \times 8in.)}{1728}$ = 11.1 $Ft.^3$ @260# (@ 26# Each)

Pole = 1 Ft. Diam. x 35 Ft. = 27.5 $Ft.^3$ @ 825# (@ 30#/Ft^3)

Total = 43.1 $Ft.^3$ @ 2,585#
= 1.6 Cu. Yd. @ 2,585# = 0.06 Trucks @ 47,000#

- Haul = 0.06 Trucks x 8 Hr/Truck x $65.39/Hr = $ 31
- Dispose = See Appendix 6.5

Secondary Electrical Total = *$ 2,633*

5.4 Wells

Basis: 27 Wells per 10 Patterns
5 in. Casing, 750 Ft. TD
Pumps and Tubing Set @ 550 Ft.

A. Pull Pumps and Tubing - 2 Days:
10 Pumps @ 5 Pumps/Crew-Day = 2 Days

- Eq. Rental = 1 - Pulling Unit w/2-Man Crew @ $32.70/Hr
  $32.70/Hr x 16 Hrs = $ 523

B. Plug and Abandon - 4.5 Days:
27 Wells @ 6 Wells/Crew-Day = 4.5 Days
10 - Sack Cement/Well
800# - 'Shur-Gel'/Well

- Labor Crew = 1 - Foreman @ $ 21.58/Hr
  1 - Operator @ $ 17.71/Hr

2 - Laborers @ $13.02/Hr
$65.33/Hr x 36 Hrs = $2,352

- Travel = $65.33 x 5 Days x 1 Hr/Day = $327

- Eq. Rental = 1 - Backhoe @ $27.25/Hr
1 - 6000# Forklift @ $13.12/Hr*
2 - Skid Tanks @ $2.40/Hr
$45.17/Hr x 36 Hrs = $1,626

* $1927/Month @ 160 Hr/Month x 1.899 (CPI inflator) = $13.12/Hr

- Materials - 270 - Sacks Cement @ $5.45/each
21,600 - # 'Shur Gel' @ $16.34/100#
$5,001 = $5,001

Sub-total = $9,306

C. Haul and Dispose - Licensed (NRC SUA #1473) Site:
Pumps = 10 x 5 In. Dia. x 8 Ft. Long = 10.9 $Ft.^3$
@ 850# (@ 85# Each)

Tubing = 27 x $\frac{550 \text{ Ft x } 43\#/100 \text{ Ft.}}{62.4 \#/Ft.^3 \text{ x } 0.6}$ = 170.6 $Ft.^3$ @ 6386#

Total = 181.5 $Ft.^3$ @ 7,236#
= 6.7 Cu. Yd. @ 7,236# = 0.2 Trucks @ 40,000#

- Haul = 0.2 Truck x 800 Mile x $3.27/Mile = $523
- Dispose = 7,236# = 3.6 tons
@ $50/ton disposal cost[15] = $180

Wells Total = *$10,532*

5.5 Monitor Wells

Basis: 3.21 Per 10 Patterns
5 in. Casing, 750 Ft. T.D.
Pumps and Tubing Set @ 550 Ft.

A. Pull Pumps and Tubing - 1 Day:
3.21 Pumps @ 5 Pumps/Crew-Day = 1 Day

- Eq. Rental = 1 - Pulling Unit w/2-Man Crew @ $32.70/Hr
$32.70/Hr x 8 Hrs = $262

B. Plug and Abandon - 0.5 Days:
3.21 Wells @ 6 Wells/Crew-Day = 0.5 Crew-Days
10 Sacks Cement/Well
200# 'Shur-Gel'/Well

- Labor Crew = 1 - Foreman @ $21.58/Hr
1 - Operator @ $19.35/Hr
2 - Laborers @ $13.02/Hr
$66.97/Hr x 4 Hrs = $268

[15] See 1997-1998 Permit to Mine 633 2nd Round Responses. Cost is provided in 1998 NRC Surety for SUA-1548, and determined acceptable by NRC and it is based on actual fees charged by Quivira Mining Co., NRC license SUA-1473

- Travel = $66.97/Hr x 1 Day x 1 Hr/Day = $ 67

- Eq. Rental = 1 - Backhoe @ $ 27.25/Hr
  1 - 6000# Forklift @ $ 13.12/Hr
  2 - Skid Tanks @ $ 2.40/Hr
  $ 45.17/Hrs x 4 Hrs = $ 181

- Materials - 32 Sacks Cement @ $ 5.45/each
  2,568 - # 'Shur Gel' @ $ 16.34/100#
  $ 594 = $ 594

Sub-total = $ 1,110

C. Haul and Dispose - Licensed (NRC SUA #1473) Site:
Pumps = 3.21 @ 5 In. Dia. x 8 Ft. Long = 3.5 $Ft.^3$ @273#
(83# Each)

Tubing = 3.21 x $\frac{550 \text{ Ft x } 43\#/100 \text{ Ft.}}{62.4 \#/Ft.^3 \text{ x } 0.6}$ = 20.3 $Ft.^3$ @759#

Total = 23.8 $Ft.^3$ @ 1032#
= 0.8 Cu. Yd. @ 1032# = 0.03 Truck @ 40,000#

- Haul = 0.03 Truck x 800 Mile x $3.27/Mile = $ 78

Monitor Well Total = *$ 1,450*

5.6 Site Reclamation

Basis: Revegetate 2.3 Acres (500 Ft. x 200 Ft.)
Replace 10 Cu.Yd. Topsoil (540 $Ft.^2$ x 6 In.) @ Building Pad

A. Topsoil Placement:
- 10 Cu.Yd. @ 1.09/Cu.Yd. = $ 11

B. Revegetate:

- Grade and Contour Topsoil @ $ 87.19/Acre x 2.3 Acres = $ 201
- Seedbed Prep. (Disc. + Harrow) @ $ 21.80/Acre x 2.3 Acres = $ 50
- Mulch (Drill + Seed + Mow) @ $ 49/Acre x 2.3 Acres = $ 113
- Drill Seed and Fertilize (Drill + Seed + Fertilizer) @ $163/Acre x 2.3 Acres = $ 375
- Revegetation Contingency* (All items excluding grading) @ $234/Acre x 1.15 Acres = $ 269

Sub-total = $ 1,008

* Assume only 50% of acreage requires reseeding

Site Reclamation Total = *$ 1,019*

SECTION 6
ASSOCIATED STRUCTURES RECLAMATION COSTS

Cost Summary

ITEM	COSTS ($97)
6.1 Trunkline #1 (5000 ft)	52,108
6.2 Trunkline #2 (10000 ft)	104,216
6.3 Radium Settling Ponds	70,077
6.4a P/A Disposal Well #1	77,735
6.4b P/A Disposal Well #2	77,735
6.5 Sand Mining Area	13,173
6.6 Land Fill	1,500
6.7 Fire Protection System	11,623
Total Cost	408,167

6.1 Trunkline

Basis: 2 - 16 in. Trunklines Buried @6 Ft.

Length = 5,000 Ft.
Trench = 6 Ft. x 4 Ft. = 89 Cu. Yd./100 Ft
Excavation = 150 Cu. Yd. / Hr (Cat. 225 1.25 Cu. Yd. Bucket)

A. Open Trench - 4 Days:
(5000 Ft.) x (89 Cu. Yd. / 100 Ft.) x (Hr. / 150 Cu. Yd.) = 30 Hrs - Round to 32 Hrs

- Eq. Rental = 1 - Cat. 225 Trackhoe @ $112.26/Hr
  $112.26/Hr x 32 Hr = $ 3,592

B. Remove, Cut and Load - 18 Days:
2 - 5000 Ft Trunklines @ 140 Ft/Man-Day = 71.4 Man-Day
= 18 Crew-Day

- Labor Crew = 1 - Foreman @ $21.58/Hr
  4 - Laborers @ $13.02/Hr
  $73.66/Hrs x 144 Hr = $ 10,607
- Travel = $73.66/Hr x 18 Days x 1 Hr/Day = $ 1,326
- Eq. Rental = 2 - Backhoe @ $27.25/Hr
  2 - Chainsaw @ $ 2.40/Hr
  $59.30/Hr x 144 Hr = $ 8,539

Sub-total = $ 20,472

C. Backfill Trench - 5 Days:
Backfill @ 65 Cu.Yd./Hr Per Backhoe or
Backfill @ 130 Cu.Yd./Hr with 2 Backhoes

(5000 Ft.) x (89 Cu. Yd. / 100 Ft.) (Hr. / 130 Cu. Yd.) = 34 Hrs

- Eq. Rental = 2 - Backhoes @ $ 27.25/Hr

	$ 54.50/Hr x 40 Hrs	=	$ 2,180
D. Decontaminate - 0 Days:		=	$ 0

E. Haul and Dispose - Licensed (NRC SUA #1473) Site:
100% of Pipe = 2 x 5,000 Ft. x 28.27#/Ft = 282,700#

$$= \frac{282{,}700\#}{62.4\#/Ft.^3 \times 0.6} = 7551\ Ft.^3$$

Total = 279.7 Cu. Yd. @ 282,700# = 7.1 Truckloads @ 40,000#

• Haul = 7.1 Trucks x 800 Mile x $3.27/Mile	=	$ 18,574
• Dispose = 282,700# = 141.4 tons @ $50/ton disposal cost[16]	=	$ 7,070
F. Haul & Dispose - Land Fill:	=	$ 0

G. Surface Reclamation:
4 Ft. x 5000 Ft. = 20,000 $Ft.^2$ = 0.5 Acres

• Grade and Contour @ $ 87.19/Acre x 0.5 Acre	=	$ 43
• Seedbed Prep. (Disc. + Harrow) @ $ 21.80/Acre x 0.5 Acre	=	$ 11
• Mulch (Drill + Seed + Mow) @ $ 49/Acre x 0.5 Acre	=	$ 25
• Drill Seed and Fertilize (Drill + Seed + Fertilizer)@ $163/Acre x 0.5 Acre	=	$ 82
• Revegetation Contingency* @ $234/Acre x 0.25 Acre (All items excluding grading)	=	$ 59

* Assume only 50% of acreage requires reseeding

Sub-total	=	$ 220
Trunkline Total	=	*$52,108*

6.2 Trunkline #2

Cost for 5000 ft line is $52,108. Truckline #2 is 10,000 ft. @ $52,108 x 2	=	$104,216

6.3 Radium Settling Ponds

Basis: 2 Ponds
9 Ft. Deep Below Grade plus 3 Ft. Freeboard Above Grade
Bottom = 180 Ft. x 360 Ft. (Per Pond)
Top = 252 Ft. x 432 Ft. (Per Pond)
Liner = 106,000 $Ft.^2$ x 30 MIL (Per Pond)
Solids = 200 $Ft.^3$/Yr (Both Ponds)

[16] See 1997-1998 Permit to Mine 633 2nd Round Responses. Cost is provided in 1998 NRC Surety for SUA-1548, and determined acceptable by NRC and it is based on actual fees charged by Quivira Mining Co., NRC license SUA-1473

A. Remove Solids and Liner - 8 Days:

Liner = 2 Ponds x 106,000 $Ft.^2$ x 0.03 In/12 = 530 $Ft.^3$
= 33,072# @ 62.4#/Ft^3
= 883 Ft^3 @ 40% Voids

Solids = 200 ft3/yr = 200 $Ft.^3$/Yr Yr #1 - 1998
= 800 $Ft.^3$ In Yr #5 - 2002

Remove @ 55 Gal/Man-Hr or 60 Ft^3/Man-Day

Yr #5 = 1683 Ft^3 @ 60 Ft^3/Man-Day = 28 Man-Days
= 7 Crew-Days

- Labor Crew = 1 - Foreman @ $21.58/Hr
  4 - Laborers @ $13.02/Hr
  $73.66/Hr x 56 Hrs = $ 4,125
- Travel = $73.66/Hr x 7 Days x 1 Hr/Day = $ 516
- Eq. Rental = 2 - Backhoes @ $27.25/Hr
  $54.50/Hr x 56 Hr = $ 3,052

Sub-total = $ 7,693

B. Backfill Ponds - 27 Days:

Volume @ Grade = 180 Ft x 360 Ft x 9 Ft = 583,200 Ft^3
+ 27 Ft x 180 Ft x 9 Ft = 43,740 Ft^3
+ 27 fT X 360 fT X 9 Ft = 87,480 Ft^3
714,420 Ft^3 (Per Pond)

Total Volume = 714,420 Ft^3/Pond x 2 Ponds = 1,428,840 Ft^3 = 52,920 Cu.Yd.

Backfill @ 250 Cu.Yd./Hr = 212 Hrs

- Eq. Rental = 1 - D8N Dozer @ $117.71/Hr
  1- Grader @ $ 65.39/Hr
  $183.10/Hr x 212 Hr = $ 38,817

C. Replace 6 In. Topsoil:

2 Ponds x 0.5 Ft. x 252 Ft. x 432 Ft. = 108,864 $Ft.^3$ = 4032 Cu. Yd.

- Topsoil = 4032 Cu. Yd x $1.09/Cu. Yd. = $ 4,395

D. Revegetate:

2 Ponds x 252 Ft. x 432 Ft. = 217,728 $Ft.^2$ = 5 Acres

- Grade and Contour @ $ 87.19/Acre x 5 Acre = $ 436
- Seedbed Prep.
  (Disc. + Harrow) @ $ 21.80/Acre x 5 Acre = $ 109
- Mulch (Drill + Seed + Mow) @ $ 49/Acre x 5 Acre = $ 245
- Drill Seed and Fertilize
  (Drill + Seed + Fertilizer)@ $163/Acre x 5 Acre = $ 817
- Revegetation Contingency* @ $234/Acre x 2.5 Acre = $ 585

(All items excluding grading)

Assume only 50% of acreage requires reseeding

Sub-total = $ 2,192

E. Haul and Dispose - Licensed (NRC SUA #1473) Site:
Solids = 800 $Ft.^3$ @ 154,400# (60% @ 280#/$Ft.^3$ + 40% @ 62.4#/$Ft.^3$ = 193#/Ft^3)
Liner = 883 $Ft.^3$ @ 33,072# (62.4#/$Ft.^3$ @ 40% Voids)
Total = 1683 $Ft.^3$ @ 187,472#
62.3 Cu. Yd. @ 187,472# = 4.7 Truckloads @ 40,000#

- Haul = 4.7 Trucks x 800 Mile x $3.27/Mile = $ 12,295
- Dispose = 187,472# = 93.7 tons
@ $50/ton disposal cost[17] = $ 4,685

Radium Settling Pond Total = *$ 70,077*

6.4a Plugging and Abandoning Deep Disposal Well #1

Oilfield Workover Unit, 6 Days @ $1,634.85/Day	=	$ 9,809
Circulating Pump & Tank, 2 Days @ $545/Day	=	$ 1,090
Power Swivel, 1 Day @ $436/Day	=	$ 436
Water Hauling & Water, 3 Days @ $354/Day	=	$ 1,062
Frac Tank Rental	=	$ 109
Slickline Services, 2 Days @ $599/Day	=	$ 1,198
2 - 7/8 Inch "R" Nipple	=	$ 1,417
Mud Materials	=	$ 545
2 - 7/8 Inch Tubing Rental, 8610' @ $0.54/Ft-Day	=	$ 2,325
Rental Tubing Inspection, 278 Jnts @ $10.90/Jnt	=	$ 3,030
Cement & Services, 3 Squeeze Jobs @ 4374 each	=	$ 13,122
Squeeze Manifold, Retainer, Swivel, Setting Tool @ $1,820/Squeeze Job	=	$ 5,460
Cement & Services, 2 Stabilizers & Surface Plugs	=	$ 4,711
Welder, Dirtwork & Roustabouts	=	$ 13,624
Trucking	=	$ 2,725
Supervision, 8 Days @ $545/Day	=	$ 4,360
Miscellaneous, Contingencies, & Sales Tax (10% Above)		= $ 6,502
Sub-Total	=	$ 71,525
Year 1991 &1992 CPI Escalation	=	$ 6,210
Sub-Total ($1997)	=	$ 77,735

Plug and Abandoning Disposal Well = *$ 77,735*

6.4b Plugging and Abandoning Deep Disposal Well #2

Oilfield Workover Unit, 6 Days @ $1,634.85/Day	=	$ 9,809
Circulating Pump & Tank, 2 Days @ $545/Day	=	$ 1,090
Power Swivel, 1 Day @ $436/Day	=	$ 436
Water Hauling & Water, 3 Days @ $354/Day	=	$ 1,062
Frac Tank Rental	=	$ 109
Slickline Services, 2 Days @ $599/Day	=	$ 1,198

[17] See 1997-1998 Permit to Mine 633 2nd Round Responses. Cost is provided in 1998 NRC Surety for SUA-1548, and determined acceptable by NRC and it is based on actual fees charged by Quivira Mining Co., NRC license SUA-1473

2 - 7/8 Inch "R" Nipple	=	$ 1,417
Mud Materials	=	$ 545
2 - 7/8 Inch Tubing Rental, 8610' @ $0.54/Ft-Day	=	$ 2,325
Rental Tubing Inspection, 278 Jnts @ $10.90/Jnt	=	$ 3,030
Cement & Services, 3 Squeeze Jobs @ 4374 each	=	$ 13,122
Squeeze Manifold, Retainer, Swivel, Setting Tool @ $1,820/Squeeze Job	=	$ 5,460
Cement & Services, 2 Stabilizers & Surface Plugs	=	$ 4,711
Welder, Dirtwork & Roustabouts	=	$ 13,624
Trucking	=	$ 2,725
Supervision, 8 Days @ $545/Day	=	$ 4,360
Miscellaneous, Contingencies, & Sales Tax (10% Above)		= $ 6,502
Sub-Total	=	$ 71,525
Year 1991 &1992 CPI Escalation	=	$ 6,210
Sub-Total ($1997)	=	$ 77,735

Plug and Abandoning Disposal Well = *$ 77,735*

6.5 Reclamation of Sand Mining Area

10 acres of disturbed area on sand outcrop

Grade and contour @ $ 87.19/acre x 10 Acre	=	$ 872
Replace 6 inch topsoil = 217,800 ft.^{3} = 8,067 Cu.Yd. topsoil = $1.09/Cu.Yd.	=	$ 8,793
Seedbed Prep. (Disc. + Harrow) @ $ 21.80/acre x 10 Acre	=	$ 218
Mulch (Drill + Seed + Mow) @ $ 49/acre x 10 Acre	=	$ 490
Drill Seed and Fertilizer @ $163/acre x 10 Acre	=	$ 1,630
Revegetation Contingency* (All items excluding grading) @ $234/acre x 5 Acre	=	$ 1,170

Assume only 50% of acreage requires reseeding

Sand Mining Area Total = *$ 13,173*

6.6 Land Fill

Basis: Depth = 6 Ft. total with 4 Ft. active strg. plus 2 ft. cover.
Bottom = 30 Ft. x 70 Ft. = 2,100 Ft.^{2}
Top = 54 Ft. x 94 Ft. = 5,076 Ft.^{2}
Grade = 66 Ft. x 106 Ft. = 6,996 Ft.^{2}

4 Ft. Active Strg. Volume = 30 Ft. x 70 Ft. x 4 Ft. = 8,400 Ft.^{3}
+ 12 Ft. x 30 Ft. x 4 Ft = 1,440 Ft.^{3}
+ 12 Ft. x 70 Ft. x 4 Ft. = 3,360 Ft.^{3}
13,200 Ft.^{3}

2 Ft. Cover Volume = 54 Ft. x 94 Ft. x 2 Ft. = 10,152 Ft.^{3}
+ 6 Ft. x 54 Ft. x 2 Ft. = 648 Ft.^{3}
+ 6 Ft. x 94 Ft. x 2 Ft. = 1,128 Ft.^{3}
11,928 Ft.^{3}

Total Volume = 13,200 $Ft.^3$ + 11,928 $Ft.^3$ = 25,120 $Ft.^3$ = 931 Cu.Yd.

A. Open Pit - 1 Day:

Productivity = 167 $\frac{Cu.Yd.}{Hr}$ (Cat. 627E Scraper)

(931 Cu. Yd.) x ($\frac{Hr}{167\ Cu.Yd.}$) = 5.6 Hrs round to 6 Hrs

- Eq. Rental = 1 - Cat. 627E Scraper @ $121/Hr

  $121/Hr x 6 Hrs = $ 726

B. Backfill Non-Contaminated Material - 1 Day:

Basis: See Table 6.1

Yr. 5 Total Volume = 8448 $Ft.^3$ = 312.9 Cu.Yd.

Backfill @ 65 Cu.Yd./Hr. = 4.8 Hrs. round to 5 Hrs

- Eq. Rental = 1 - Backhoe @ $27.25/Hr

  $27.25/Hr x 8 Hrs = $ 218

C. Backfill to Grade - 2 Days:

Voids = 312.9 Cu.Yd. x 0.4 = 125 Cu.Yd.

Remainder of Active Strg. = 13,200 $Ft.^3$ - 8,203 $Ft.^3$
= 5,103 $Ft.^3$ = 189 Cu.Yd.

Cover = 11,928 $Ft.^3$ = 442 Cu.Yd.
Total = 756 Cu.Yd.

Backfill @ 65 Cu.Yd./Hr = 11.6 Hrs round to 12 Hrs

- Eq. Rental = 1 - Backhoe @ $27.25/Hr

  $27.25/Hr x 12 Hrs = $ 327

D. Surface Reclamation:

Basis: 6996 $Ft.^2$ = 0.2 Acre

Replace 6 in. Topsoil = 6996 $Ft.^2$ x 0.5 Ft. = 3498 Ft^3 = 130 Cu.Yd.

- Topsoil Placement @ 1.09/Cu.Yd. = $ 142
- Grade and Contour @ $87.19/Acre x 0.2 Acre = $ 17
- Seedbed Prep. (Disc. + Harrow) @ $21.80/Acre x 0.2 Acre = $ 4
- Mulch (Drill + Seed + Mow) @ $49/Acre x 0.2 Acre = $ 10
- Drill Seed & Fertilize @ $163/Acre x 0.2 Acre = $ 33
- Revegetation Contingency* @ $234/Acre x 0.1 Acre
  (All items excluding grading) = $ 23

* Assume only 50% of acreage requires reseeding.

Sub-total = $ 229

Land Fill Total = *$ 1,500*

6.7 Fire Protection System

Basis = 32 ft dia. x 26 ft ht. x 0.25 = 43,400 # = 148 ft^3 (40% void)

A. Decontaminate - 0 Days: = $ 0

B. Remove and Load - 5 Days:

- Labor Crew = 1 - Foreman @ $ 21.58/Hr
  1 - Operator @ $ 17.71/Hr
  2 - Laborers @ $ 13.02/Hr
  $ 65.33/Hr x 40 Hr = $ 2,613
- Travel = $65.33/Hr x 5 Days x 1 Hr/Day = $ 327
- Eq. Rental = 1 - 20 Ton Crane @ $ 37.39/Hr
  $ 37.39/Hr x 40 Hrs = $ 1,496

Sub-total = $ 4,436

C. Dismantle, Cut, or Crush - 5 Days:

Cut Steel @ 30 Ft^3/Man-Day @ 518.5 Ft^3 = 5 Man-Days

- Labor Crew = 1 - Foreman @ $ Foreman Supervises both 2.2(A) & (B)
  1 - Welder @ $ 19.35/Hr
  2 - Laborers @ $ 13.02/Hr
  $ 45.39/Hr x 40 Hrs = $ 1,816
- Travel = $45.39/Hr x 5 Days x 1 Hr/Day = $ 227
- Eq. Rental = 1 - D8N Dozer @ $117.71/Hr
  1 - Welder/Torch @ $ 10.90/Hr
  $128.61/Hr x 40 Hrs = $ 5,144

Sub-total = $ 7,187

D. Haul and Dispose - On-Site Land Fill:

100% of Non-Contaminated Service = 148 Ft^3 @ 43,400#
Total = 5.5 Cu.Yd. @ 43,400# = 1 Truckloads @ 47,000#

- Haul = 1 Truck x 8 Hrs/Truck x $65.39/Hr = $ 523
- Dispose = See Appendix 6.5

Tankage and Vessel Total = *$ 11,623*

TABLE 6.1

Non-Contaminated Disposal Volume

SOURCE	UNIT WEIGHT (#)	UNIT VOLUME ($Ft.^3$)	YR. #1 1998 ($Ft.^3$)	YR. #5 2003 ($Ft.^3$)
1. IX Plant:				
A. Building	235,000	801.6*	801.6	1,603.2
B. Tankage & Vessels	2,320	36.5	0	73.0
C. Piping	0	0	0	0
D. Pumps	8,545	71.9	0	43.8
E. Electrical	22,950	165.1	0	30.2
			801.6	2,150.2
2. Central Processing Plant:				
A. Building	376,000	1,282.6*	0	1,282.6
B. Tankage & Vessels	45,010	393.2	0	393.2
C. Piping	0	0	0	0
D. Pumps	10,723	106.5	0	106.5
E. Electrical	45,800	330.6	0	330.6
			0	2,112.9
3. Dryer Area:				
A. Building	0	0	0	0
B. Equipment	4,400	15.0	0	15.0
4. Existing Facilities:				
A. Building	676,800	2,308.6	2,308.6	2,308.6
B. Structures	0	0	0	0
C. Pilot Plant Equip.	16,230	145.3	145.3	145.3
			2,453.9	2,453.9
5. Header Site & Associated Wellfield:				
A. Building	4,700	16.0*	0	742.4
B. Header Piping	0	0	0	0
C. Secondary Elect.	2,585	43.1	0	1,999.8
D. Wells - Total	0	0	0	0
E. Mon. Wells - Total	0	0	0	0
			0	2,742.2
6. Associated Structures				
A. Storage Tank				
B. Pump				
C. Pump House				
D. Piping				
TOTAL			3,255.5	9,474.2

*Building Unit Volume = $\frac{\text{Unit Weight}}{62.4 \times 7.83 \times 0.6}$

SECTION 7

GROUNDWATER RESTORATION COSTS

Cost Summary

ITEM	COSTS ($97)
7.1 Groundwater Restoration	$4,341,580
Total Cost	$4,341,580

7.1 Groundwater Restoration Costs

Basis: Table 7.1, Table 7.2 & Table 7.3, 7.4, 7.5 and 7.6 - Groundwater Restoration Basis

Table 7.1

Wellfield	Number of Perimeter Injection Wells	Measured Pattern Area (ft^2)	Perimeter Inj Wells per Unit Area	Number of Patterns	Average Open Interval (ft)	Effective Porosity	Flare Factor from Fig 7-1	Pattern Affected Pore Volume (gal/ pattern)	Wellfield Affected Pore Volume (gallons)
1	170	1115229	1.52E-004	116	18	0.27	1.7	594,146	68,920,890
3	147	1622462	9.06E-005	162	20	0.27	1.5	606,801	98,301,728
3 ext	97	782800	1.24E-004	76	14	0.27	1.5	436,839	33,199,800
4	163	1334798	1.22E-004	128	18	0.27	1.5	568,636	72,785,467
4A	142	1050576	1.35E-004	101	18	0.27	1.5	567,199	57,287,069

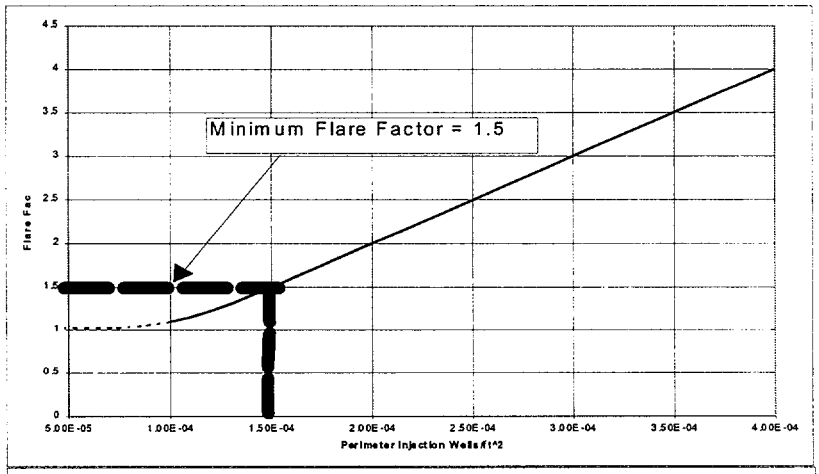

Figure 7-1. Predicted wellfield flare factor for RAMC commercial wellfields, as a function of wellfield scale

Affected Pore Volume Estimate

Methodology for Flare Factor Determination

Figure 7-1 is derived from Figure 3-16 in *"Evaluation and Simulation of Wellfield Restoration at the RAMC Smith Ranch Facility"* dated October 29, 1999. This document was submitted to the Wyoming DEQ - Land Quality Division with a letter dated December 13, 1999 for review. In that document, RAMC proposes a methodology developed through hydraulic and geochemical modeling that uses the geometry of the wellfield to estimate a Flare Factor. In this case, the number of perimeter injection wells are counted, the surface area of the wellfield pattern is measured using a CAD based map, a ratio is developed of the # of perimeter injection wells to the surface area of the wellfield patterns. That ratio is located on the horizontal axis of figure 7-1 (above). From that intercept, a vertical line is projected to intersect the curve. At that intersection, a horizontal line is projected to intercept the vertical axis. The estimated flare factor is derived from that intercept.

On May 11, 2000, RAMC met with LQD to discuss the review of the document and RAMC's proposed approach for estimating groundwater restoration costs. RAMC verified that the curve shown on Figure 7-1 had been validated using modeling for flare factors of 1.5 and higher, but it had not been verified for Flare Factors lower than 1.5. RAMC stated that for bonding purposes only, it would not use a Flare Factor lower than 1.5 for estimating the predicted costs for groundwater restoration.

Wellfield 3 ext. represents the 2nd completion within the existing patterns in Wellfield #3. That 2nd completion represents an opening of an upper interval of the patterns in Wellfield #3 which effects 76 patterns and will result in a net increase of 6 patterns.

Table 7.2
SMITH RANCH PROJECT
Mining Unit Groundwater Restoration Costs
Wellfield #1

1 APV = 68,920,890 gallons

RESTORATION COST COMPONENT		Total Gallons Treated	Operating Flow Rate GPM	Total Cost	Number of Days
1. Wellfield Pumping Costs					
a) Groundwater Sweep (no reinjection) (3 APV)	($0.118/1,000 gal.)	206,762,670	1015	$24,398	141
b) Chemical Reductant injection (95% reinjection) (1 APV)	($0.232/1,000 gal.)	68,920,890	1015	$15,990	47
c) RO/EDR Treatment (75% reinjection) (2 APV)	($0.201/1,000 gal.)	137,841,780	1000	$27,706	96
SUBTOTAL				$68,094	284
2. Chemical Treatment Power Costs					
a) Reverse Osmosis Unit	$0.10/gpm/day ($0.07/1,000 gal.)	137,841,780	1000	$9,649	
SUBTOTAL				$9,649	
3. Chemicals					
a) Waste Water Treatment (BaCl2, Resin Elut. Chem)			600	$50,342	284
BaCl2 @ $9.00/gpm/month, Elution					
@$400/elution, Waste Water @ 2 mg/L U3O8	Elution Costs (5.2 Elutions/year * $400/ Elution)			$1,620	
500 ft3 resin, 2 lb./ft3 loading,					
Annualized Waste Water Flow; 600 gpm					
1 elution every 69 days or 5.2 elutions per year					
b) Chemical Reductant (H2S or alternative)	$1.80/gpm/day ($1.25/1,000 gal.)	68,920,890	1015	$86,151	
c) RO Chemicals (H2SO4, Antiscalents, Oxygen Scavenger)	$0.57/gpm/day ($0.40/1,000 gal.)	137,841,780	1000	$55,137	
SUBTOTAL				$193,251	
4. Repairs and Maintenance					
a) Wellfield and Waste Water Treatment	$10,000/mo	9.3	months	$93,227	
b) RO and process equipment	$5,000/mo	9.3	months	$46,613	
SUBTOTAL				$139,840	
5. Labor					
Supervisor @ $20.00 per hour		9.3	months	$29,833	
4 Operators @ $13.00 per hour		9.3	months	$77,565	
2 Maintenance @ $13.00 per hour		9.3	months	$38,782	
SUBTOTAL				$146,179	
6. Contract Laboratory Analysis					
70 Monitor Wells (140 UCL samples per year @$100)		0.8		$10,876	
Stabilization Samples					
10 Wells	- 3 complete Assays @$350			10,500	
	- 9 abbreviated assays @ $250			22,500	
SUBTOTAL				$43,876	
7. Operating Expenses					
Supplies	@$3,000/mo	9.3		27,968	
Heating	@$5,000/mo	4.7		23,307	
Vehicle Fuel	@$1,000/mo	9.3		9,323	
Office Utilities	@$1,000/mo	9.3		9,323	
SUBTOTAL				$69,920	
TOTAL OPERATING COST TO RESTORE GROUNDWATER AT FULL PRODUCTION (Nominal Mine Unit)				$670,809	(1993$)
UNIT RESTORATION OPERATING COST			116 Patterns	$5,783	/Pattern
1993 -1997 inflation (CPI-U) = 160.6/143.6 =	11.84%			$79,413	
			Total	$750,222	(1997$)

Table 7.3
SMITH RANCH PROJECT
Mining Unit Groundwater Restoration Costs
Wellfield #3

1 APV = 98301728 gallons

	RESTORATION COST COMPONENT			Total Gallons Treated	Operating Flow Rate GPM	Total Cost	Number of Days
1.	Wellfield Pumping Costs						
	a)	Groundwater Sweep (no reinjection) (3 APV)	($0.118/1,000 gal.)	294,905,183	1015	$34,795	202
	b)	Chemical Reductant Injection (95% reinjection) (1 APV)	($0.232/1,000 gal.)	98,301,728	1015	$22,806	67
	c)	RO/EDR Treatment (75% reinjection) (2 APV)	($0.201/1,000 gal.)	196,603,455	1000	$39,517	137
	SUBTOTAL					$97,122	406
2.	Chemical Treatment Power Costs						
	a)	Reverse Osmosis Unit	$1.33/gpm/day ($0.92/1,000 gal.)	196,603,455	1000	$13,762	
	SUBTOTAL					$13,762	
3.	Chemicals:						
	a)	Waste Water Treatment (BaCl2, Resin Elut. Chem.)			600	$71,803	406
		BaCl2 @ $9.00/gpm/month, Elution					
		@$400/elution, Waste Water @ 2 mg/L U3O8	Elution Costs (5.2 Elutions/year * $400/Elution)			$2,311	
		500 ft3 resin, 2 lb/ft3 loading					
		Annualized Waste Water Flow; 600 gpm					
		1 elution every 69 days or 5.2 elutions per year					
	b)	Chemical Reductant (H2S or alternative)	$1.80/gpm/day ($1.25/1,000 gal.)	98,301,728	1015	$122,877	
	c)	RO Chemicals (H2SO4, Anticalents, Oxygen Scavenger)	$0.57/gpm/day ($0.40/1,000 gal.)	196,603,455	1000	$78,641	
	SUBTOTAL					$275,633	
4.	Repairs and Maintenance						
	a)	Wellfield and Waste Water Treatment	$10,000/mo	13.3	months	$132,969	
	b)	RO and process equipment	$5,000/mo	13.3	months	$66,484	
	SUBTOTAL					$199,453	
5.	Labor						
	Supervisor @ $20.00 per hour			13.3	months	$42,550	
	4 Operators @ $13.00 per hour			13.3	months	$110,630	
	2 Maintenance @ $13.00 per hour			13.3	months	$55,315	
	SUBTOTAL					$208,495	
6.	Contract Laboratory Analysis						
	70 Monitor Wells (140 UCL samples per year @ $100)			1.1		$15,513	
	Stabilization Samples:						
	10 Wells	- 3 complete Assays @ $350				10,500	
		- 9 abbreviated assays @ $250				22,500	
	SUBTOTAL					$48,513	
7.	Operating Expenses:						
	Supplies	@$3,000/mo		13.3		39,891	
	Heating	@$5,000/mo		6.6		33,242	
	Vehicle Fuel	@$1,000/mo		13.3		13,297	
	Office Utilities	@$1,000/mo		13.3		13,297	
	SUBTOTAL					$99,727	
	TOTAL OPERATING COST TO RESTORE GROUNDWATER AT FULL PRODUCTION (Nominal Mine Unit)					$942,706	(1993$)
	UNIT RESTORATION OPERATING COST			162	Patterns	$5,819	/Pattern
		1993 - 1997 inflation (CPI-U) = 160.6/143.6 =	11.84%			$111,602	
					Total	$1,054,307	(1997$)

Table 7.4
SMITH RANCH PROJECT
Mining Unit Groundwater Restoration Costs
Wellfield #4

1 APV = 72,785,467 gallons

RESTORATION COST COMPONENT			Total Gallons Treated	perating low Rat GPM	Total Cost	Number of Days
1. Wellfield Pumping Costs						
a)	Groundwater Sweep (no reinjection) (3 APV)	($0.118/1,000 gal.)	218,356,401	1015	$25,766	149
b)	Chemical Reductant Injection (95% reinjection) (1 APV)	($0.232/1,000 gal.)	72,785,467	1015	$16,886	50
c)	RO/EDR Treatment (75% reinjection) (2 APV)	($0.201/1,000 gal.)	145,570,934	1000	$29,260	101
SUBTOTAL					$71,912	300
2. Chemical Treatment Power Costs						
a)	Reverse Osmosis Unit	$1.33/gpm/day ($0.92/1,000 gal.)	145,570,934	1000	$10,190	
SUBTOTAL					$10,190	
3. Chemicals						
a)	Waste Water Treatment (BaCl2, Resin Elut. Chem)			600	$53,165	300
	BaCl2 @ $9.00/gpm/month, Elution					
	@$400/elution, Waste Water @ 2 mg/L U3O8	Elution Costs (5.2 Elutions/year * $400/ Elution)			$1,711	
	500 ft3 resin, 2 lb./ft3 loading,					
	Annualized Waste Water Flow; 600 gpm					
	1 elution every 69 days or 5.2 elutions per year					
b)	Chemical Reductant (H2S or alternative)	$1.80/gpm/day ($1.25/1,000 gal.)	72,785,467	1015	$90,982	
c)	RO Chemicals (H2SO4, Antiscalents, Oxygen Scavenger)	$0.57/gpm/day ($0.40/1,000 gal.)	145,570,934	1000	$58,228	
SUBTOTAL					$204,087	
4. Repairs and Maintenance						
a)	Wellfield and Waste Water Treatment	$10,000/mo	9.8	months	$98,454	
b)	RO and process equipment	$5,000/mo	9.8	months	$49,227	
SUBTOTAL					$147,681	
5. Labor						
Supervisor @ $20.00 per hour			9.8	months	$31,505	
4 Operators @ $13.00 per hour			9.8	months	$81,914	
2 Maintenance @ $13.00 per hour			9.8	months	$40,957	
SUBTOTAL					$154,376	
6. Contract Laboratory Analysis						
70 Monitor Wells (140 UCL samples per year @$100)			0.8		$11,486	
Stabilization Samples						
10 Wells	- 3 complete Assays @$350				10,500	
	- 9 abbreviated assays @ $250				22,500	
SUBTOTAL					$44,486	
7. Operating Expenses						
Supplies	@$3,000/mo		9.8		29,536	
Heating	@$5,000/mo		4.9		24,614	
Vehicle Fuel	@$1,000/mo		9.8		9,845	
Office Utilities	@$1,000/mo		9.8		9,845	
SUBTOTAL					$73,841	
TOTAL OPERATING COST TO RESTORE GROUNDWATER AT FULL PRODUCTION (Nominal Mine Unit)					$706,573	(1993$)
UNIT RESTORATION OPERATING COST				128 Patterns	$5,520	/Pattern
	1993 -1997 inflation (CPI-U) = 160.6/143.6 =	11.84%			$83,647	
				Total	$790,220	(1997$)

Table 7.5
SMITH RANCH PROJECT
Mining Unit Groundwater Restoration Costs
Wellfield 4A

1 APV = 57,287,069 gallons

RESTORATION COST COMPONENT				Total Gallons Treated	Operating Flow Rate GPM	Total Cost	Number of Days
1.	Wellfield Pumping Costs						
	a)	Groundwater Sweep (no reinjection) (3 APV)	($0.118/1,000 gal.)	171,861,206	1015	$20,280	118
	b)	Chemical Reductant Injection (95% reinjection) (1 APV)	($0.232/1,000 gal.)	57,287,069	1015	$13,291	39
	c)	RO/EDR Treatment (75% reinjection) (2 APV)	($0.201/1,000 gal.)	114,574,138	1000	$23,029	80
	SUBTOTAL					$56,600	236
2.	Chemical Treatment Power Costs						
	a)	Reverse Osmosis Unit	$1.33/gpm/day ($0.92/1,000 gal.)	114,574,138	1000	$8,020	
	SUBTOTAL					$8,020	
3.	Chemicals						
	a)	Waste Water Treatment (BaCl2, Resin Elut. Chem)			600	$41,845	236
		BaCl2 @ $9.00/gpm/month, Elution					
		@$400/elution, Waste Water @ 2 mg/L U3O8	Elution Costs (5.2 Elutions/year * $400/ Elution)			$1,347	
		500 ft3 resin, 2 lb./ft3 loading,					
		Annualized Waste Water Flow; 600 gpm					
		1 elution every 69 days or 5.2 elutions per year					
	b)	Chemical Reductant (H2S or alternative)	$1.80/gpm/day ($1.25/1,000 gal.)	57,287,069	1015	$71,609	
	c)	RO Chemicals (H2SO4, Antiscalents, Oxygen Scavenger)	$0.57/gpm/day ($0.40/1,000 gal.)	114,574,138	1000	$45,830	
	SUBTOTAL					$160,630	
4.	Repairs and Maintenance						
	a)	Wellfield and Waste Water Treatment	$10,000/mo	7.7	months	$77,490	
	b)	RO and process equipment	$5,000/mo	7.7	months	$38,745	
	SUBTOTAL					$116,235	
5.	Labor						
	Supervisor @ $20.00 per hour			7.7	months	$24,797	
	4 Operators @ $13.00 per hour			7.7	months	$64,472	
	2 Maintenance @ $13.00 per hour			7.7	months	$32,236	
	SUBTOTAL					$121,504	
6.	Contract Laboratory Analysis						
	70 Monitor Wells (140 UCL samples per year @$100)			0.6		$9,040	
	Stabilization Samples						
	10 Wells	- 3 complete Assays @$350				10,500	
		- 9 abbreviated assays @ $250				22,500	
	SUBTOTAL					$42,040	
7.	Operating Expenses						
	Supplies	@$3,000/mo		7.7		23,247	
	Heating	@$5,000/mo		3.9		19,372	
	Vehicle Fuel	@$1,000/mo		7.7		7,749	
	Office Utilities	@$1,000/mo		7.7		7,749	
	SUBTOTAL					$58,117	
	TOTAL OPERATING COST TO RESTORE GROUNDWATER AT FULL PRODUCTION (Nominal Mine Unit)					$563,147	(1993$)
	UNIT RESTORATION OPERATING COST				101 Patterns	$5,576	/Pattern
		1993 -1997 Inflation (CPI-U) = 160.6/143.6 =	11.84%			$66,668	
					Total	$629,815	(1997$)

Table 7.6
SMITH RANCH PROJECT
Mining Unit Groundwater Restoration Costs
Wellfield 3 ext

1 APV = 33,199,800 gallons

RESTORATION COST COMPONENT				Total Gallons Treated	Operating Flow Rate GPM	Total Cost	Number of Days
1.	Wellfield Pumping Costs						
	a)	Groundwater Sweep (no reinjection) (3 APV)	($0.118/1,000 gal.)	99,599,401	1015	$11,753	68
	b)	Chemical Reductant Injection (95% reinjection) (1 APV)	($0.232/1,000 gal.)	33,199,800	1015	$7,702	23
	c)	RO/EDR Treatment (75% reinjection) (2 APV)	($0.201/1,000 gal.)	66,399,601	1000	$13,346	46
	SUBTOTAL					$32,801	137
2.	Chemical Treatment Power Costs						
	a)	Reverse Osmosis Unit	$1.33/gpm/day ($0.92/1,000 gal.)	66,399,601	1000	$4,648	
	SUBTOTAL					$4,648	
3.	Chemicals						
	a)	Waste Water Treatment (BaCl2, Resin Elut. Chem)			600	$24,250	137
		BaCl2 @ $9.00/gpm/month, Elution					
		@$400/elution, Waste Water @ 2 mg/L U3O8	Elution Costs (5.2 Elutions/year * $400/ Elution)			$781	
		500 ft3 resin, 2 lb./ft3 loading,					
		Annualized Waste Water Flow; 600 gpm					
		1 elution every 69 days or 5.2 elutions per year					
	b)	Chemical Reductant (H2S or alternative)	$1.80/gpm/day ($1.25/1,000 gal.)	33,199,800	1015	$41,500	
	c)	RO Chemicals (H2SO4, Antiscalents, Oxygen Scavenger)	$0.57/gpm/day ($0.40/1,000 gal.)	66,399,601	1000	$26,560	
	SUBTOTAL					$93,090	
4.	Repairs and Maintenance						
	a)	Wellfield and Waste Water Treatment	$10,000/mo	4.5	months	$44,908	
	b)	RO and process equipment	$5,000/mo	4.5	months	$22,454	
	SUBTOTAL					$67,362	
5.	Labor						
	Supervisor @ $20.00 per hour			4.5	months	$14,371	
	4 Operators @ $13.00 per hour			4.5	months	$37,364	
	2 Maintenance @ $13.00 per hour			4.5	months	$18,682	
	SUBTOTAL					$70,416	
6.	Contract Laboratory Analysis						
	70 Monitor Wells (140 UCL samples per year @$100)			0.4		$5,239	
	Stabilization Samples						
	10 Wells	- 3 complete Assays @$350				10,500	
		- 9 abbreviated assays @ $250				22,500	
	SUBTOTAL					$38,239	
7.	Operating Expenses						
	Supplies	@$3,000/mo		4.5		13,472	
	Heating	@$5,000/mo		2.2		11,227	
	Vehicle Fuel	@$1,000/mo		4.5		4,491	
	Office Utilities	@$1,000/mo		4.5		4,491	
	SUBTOTAL					$33,681	
	TOTAL OPERATING COST TO RESTORE GROUNDWATER AT FULL PRODUCTION (Nominal Mine Unit)					$340,238	(1997$)
	UNIT RESTORATION OPERATING COST				76 Patterns	$4,477	/Pattern
		1993 -1997 inflation (CPI-U) = 160.6/143.6 =	11.84%			$40,279	
					Total	$380,517	(1997$)

Costs Associated with Groundwater Restoration

Using the Affected Pore Volumes developed on Table 7.1, the detail cost for groundwater restoration is provided for each wellfield on Tables 7.2, 7.3, 7.4, and 7.5. The estimated cost for groundwater restoration is shown below on Table 7.6.

TABLE 7.6

Estimated Groundwater Restoration Costs By Wellfield

Wellfield #	Estimated Cost ($1997)
#1	$750,413
#3	$1,054,307
#4	$790,220
#4A	$629,815
#3ext	$380,517
Total	$3,605,272

SECTION 8
HEALTH PYSICS COSTS

Cost Summary

ITEM	COSTS ($97)
8.1 Health Physics	168,470
Total Cost	168,470

Health Physics

Basis: Year #1 - 223 Days:
See Table 8.1

- Labor Crew = 1 - RSO @ $32.70/Hr
  0.5 - RST @ $21.80/Hr
  $43.60/Hr x 1784 Hr = $ 77,782

Basis: Year #5 - 483 Days
See Table 8.1

- Labor Crew = 1 - RSO @ $32.70/Hr
  0.5 - RST @ $22.80/Hr
  $43.60/Hr x 3864 Hr = $168,470

To provide consistency with Rio Algom Mining Corp.'s U.S. Nuclear Regulatory Commission (NRC) surety, Rio Algom has elected at this time to continue to use the five (5) forward bond amount utilized for NRC purposes.

SECTION 9
WHOLE TRUCKING COSTS

Cost Summary

ITEM	COSTS ($97)
9.1 Contaminated Trucking	523
9.2 Uncontam. Trucking	157
Total Cost	680

Contaminated Trucking - Year #1

Basis: See Table 9.1

• Haul = 0.2 Trucks x 800 Miles x $3.27/Mile = $ 523

9.2 Non-Contaminated Trucking - Year #1

Basis: See Table 9.2

• Haul = 0.5 Trucks x 8 Hrs/Truck x $65.39/Hr = $ 157

9.3 Contaminated Trucking - Year #5

Basis: See Table 9.3

• Haul = 0.2 Trucks x 800 Miles x $3.27/Mile = $ 523

9.4 Non-contaminated Trucking - Year #5

Basis: See Table 9.4

• Haul = 0.3 Trucks x 8 Hrs/Truck x $65.39/Hr = $ 157

To provide consistency with Rio Algom Mining Corp.'s U.S. Nuclear Regulatory Commission (NRC) surety, Rio Algom has elected at this time to continue to use the five (5) forward bond amount utilized for NRC purposes.

SECTION 10
DELINEATION DRILLING RECLAMATION COSTS

Cost Summary

ITEM	COSTS ($97)
10.1 Delineation Drilling	129,953
Total Cost	129,953

Delineation Drilling Costs

Basis: Delineation Holes drilled in 1998-2001 436
Delineation Holes to be drilled in 2001-2002 518

Total Delineation Holes to be Bonded 954

Per hole cost for reclamation of delineation is based on bonding estimate for exploration holes under DN 236. (see attached table)

Reclamation costs per hole = $136.22/hole
Cost for plugging and abandonment: 954 holes x $136.22/hole

Delineation Drilling Costs = *$129,953*

1999 Reclamation Bond Estimate				
Well Abandonment and Topsoil Replacement and Re-vegetation				
I.	Assumptions			
	A.	Well Abandonment		
		# of Monitoring wells		
		Average Depth (ft.)		
		$/foot		$2.00
		Abandonment Costs		$0
	B.	Drill Hole Abandonment		
		# of Drill holes		1
		Bentonite chips cost		$12.50
		Personnel - $/hr		$17.50
		Transportation - $/hr		$6.54
		Water truck - $/hr		$10.00
		Holes/day		5
		# of Days		0
		# of Hours		2
		Drill Hole Abandonment Cost		$80.58
	C.	Survey Crew Cost		
		Hours/hole		0.3
		$/hour		$75.00
		Subtotal		$22.50
		Survey Crew Cost		$22.50
II.	Equipment			
	A.	Abandonment Equipment		
		Drill Rig Mobilization Cost		
	ABANDONMENT COST			$103.08
Total Cost per Well or Drill Hole				$103.08
III.	Backfill & Topsoil Replacement			
	A.	Assumptions		
	1.	General		
		Affected Area/hole (ft2)		400
		Affected area/hole (acres)		0.01
		Pit area/pit (ft2)		120
		Backfill depth		9
		Modified Pit Volume		800
		Number of wells and drill holes		1
		Topsoil Replacement Depth (ft)		0.33
		Pit Topsoil Volume (yd3)		1.47
		yd3 backfill		29.63
		total yd3 backfill		29.63
		Total yd3 topsoil		1.47
		Total affected area (acres)		0.01
	2.	Equipment with operator		
		Productivity backhoe w/trailer (yd3/hr)		32.39
		$/hour		$33.24
		Total replacement costs		$31.92

IV.	Reseeding			
	1.	Equipment		
		Drill Seeder w/trailer ($/acre)		$100.00
		Subtotal Equipment Cost		$0.92
	2.	Seed		
		$/acre		$33.00
		Subtotal Seed Cost		$0.30
	Subtotal Re-Seeding Cost			$1.22
V.	Mulching & Crimping			
	1.	Equipment		
		Mulcher & Crimper w/trailer ($/acre)		
		Subtotal Equipment Cost		$0.00
	2.	Mulch		
		Mulch $/ton		
		Tons/acre		1
		$/acre		$0.00
		Subtotal Mulch Cost		$0.00
	Subtotal Mulching & Crimping Cost			$0.00
Subtotal Reseeding Cost				$1.22
TOTAL				$136.22

PART III - SURETY BOND SUMMARY

This section contains the cost basis that were used in the bond calculations provided within Part II. The basis for the bond calculations are from contractor bids to perform the work with the costs then adjusted to constant 1997 dollars as requested by WDEQ/LQD. Provided in the summary table below are the initial bids in the dollars of their day and the adjustment to 1997 dollars. The individual contractor bids follow the summary table.

BID RATES FOR LABOR AND EQUIPMENT

ITEM	HOURLY BID RATE- YEAR ($/HR)	ADJUSTED 1997 DOLLARS ($/HR)
Foreman	19.80 (1993)	21.58
Certified Welder	17.75 (1993)	19.35
Operator	16.25 (1993)	17.71
Laborer	11.95 (1993)	13.02
Journeyman Electrician	32.00 (1993)	34.88
Apprentice Electrician	28.00 (1993)	30.51
20 Ton Crane (**)	34.31 (1993)	37.39
6000# Forklift (**)	12.04 (1993)	13.12
Welding/Torch (**)	10.00 (1993)	10.90
D8N Dozer (*)	108.00 (1993)	117.71
140G Blade (*)	60.00 (1993)	65.34
Pavement Breaker, Fuel/Maint	28.75 (1993)	31.33
980C Loader (*)	85.00 (1993)	92.64
235 Trackhoe (*)	103.00 (1993)	112.25
627 Scraper (*)	111.00 (1993)	120.98
Pulling Unit (*)	30.00 (1993)	32.70
Backhoe (*)	25.00 (1993)	27.25
2000 PSI Spray Washer	8.00 (1993)	8.71
Chainsaw (**)	2.20 (1993)	2.40

Note - (*) includes operator, fuel, and maintenance. Others include fuel and maintenance unless shown otherwise.. (**) bid obtained by telephone. Adjustment to 1997 dollars were made using GNP-IPD inflation rate of 8.99% [1st quarter 1993 (101.8) through 1st quarter 1997 (110.95)].