POWER RESOURCES

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March 28, 2003

ADDRESSEE ONLY
Mr. Dan Gillen, Chief
Fuel Cycle Licensing Branch, NMSS
Mail Stop T-8A33
US Nuclear Regulatory Commission
Washington, DC 20555

RE: Smith Ranch Project
Docket No. 40-8964, License SUA-1548
2003-2004 Surety Estimate Revision

Dear Mr. Gillen:

In accordance with License Condition 9.5 of Source Material License SUA-1548, attached please find two copies of the proposed 2003-2004 Surety Estimate Revision for the Smith Ranch Project. The 2003-2004 Surety Estimate Revision utilizes the previous format developed by Rio Algom Mining Corp. and is based on the current approved estimate for the 2002-2003 surety period. The surety estimate is calculated in 1997 dollars and adjusted to current (2003) dollars using the appropriate Consumer Price Index escalator.

The 2003-2004 Surety Estimate Revision results in a surety estimate of $14,343,300, which is an increase of $2,086,500 from the current approved surety estimate of $12,256,800. The surety estimate reflects costs associated with operations that expanded during the previous year and development that is planned during the next one-year surety period. Major changes that resulted in an increase in the proposed surety amount include the following:

- Completion of pattern installation in Wellfield 2 during the 2003-2004 surety period will result in an increase in the number of patterns in Wellfield 2. Updating cost estimates associated with affected pore volumes, ground water restoration, and wellfield reclamation of Wellfield 2 results in an increase of approximately $1,300,000 (before any escalators) or $1,900,000 (after application of escalators);

- Completion of Wellfield 4 Extension during the 2002-2003 surety period resulted in fewer patterns than previously estimated. Updating cost estimates associated with affected pore volumes and ground water restoration of Wellfield 4 Extension results in a decrease of approximately $37,000 (before any escalators); and

NMSS07

- Based on current (2003) operating costs at the Smith Ranch-Highland Uranium Project, the new unit cost for Byproduct Material transportation and disposal at an NRC-licensed facility is $5.62 per ft^3. Updating the surety estimate with this new unit cost results in relatively no change in the overall surety amount for this item. This unit cost should be considered conservative as it is based on current (2003) operating costs and is still subject to the 14.3% CPI escalator.

PRI believes that the 2003-2004 Surety Estimate Revision is conservative and exceeds potential actual restoration, reclamation, and decommissioning costs in the unlikely event of bond forfeiture for the following major reasons:

- PRI believes that ground water restoration can be accomplished in less time than the restoration technique and schedule utilized in the estimate indicate;

- The added contingency of 25% further increases the conservatism of all items included in the estimate;

- No salvage value is realized for buildings, process equipment, switchgear, electrical equipment, motors, rolling stock and other uncontaminated materials and facilities that actually have significant salvage value; and

- It is likely that all buildings and roads will not require demolition, disposal, and reclamation, as area landowners may request to use these facilities.

Upon WDEQ and NRC approval of the 2003-2004 Surety Estimate Revision, PRI will revise the existing surety instrument to the applicable amount. Until that time, the existing surety instrument will remain in place. If you have any questions, please call me at (307) 358-6541, ext. 62.

Sincerely,

Bill Kearney

W.F. Kearney
Manager-Health, Safety
& Environmental Affairs

WFK/sab

Attachment

cc: S.P. Collings w/o atta
R. Townley w/atta
R. Knode w/o atta
File SR 4.6.4.1 w/atta

POWER RESOURCES, INC.

SMITH RANCH PROJECT

2003-2004 SURETY ESTIMATE REVISION

REVISED MARCH 2003

2003-2004 SURETY ESTIMATE REVISION

The 2003-2004 Surety Estimate Revision for the Smith Ranch Project utilizes the previous format developed by Rio Algom Mining Corp. (RAMC) and is based on the current approved estimate for the 2002-2003 surety period. The surety estimate is presented in three (3) parts. Part I "Surety Bond Summary" is a summary of the itemized costs for ground water restoration, facility decommissioning, and surface reclamation. Part II "Surety Bond Detail" presents the detailed calculations of the summaries provided in Part I. Part III "Cost Basis" contains the cost bases that were used in the bond calculations in Part II. The surety estimate is calculated in 1997 dollars and adjusted to current (2003) dollars using the appropriate Consumer Price Index (CPI) escalator.

The 2003-2004 Surety Estimate Revision results in a surety estimate of $14,343,300, which is an increase of $2,086,500 from the current approved surety estimate of $12,256,800. The surety estimate reflects costs associated with operations that expanded in Wellfield 2 during the previous year and revised costs associated with second well completions in Wellfield 4 (i.e., Wellfield 4 Extension). In addition, pursuant to discussions between RAMC and WDEQ, PRI is including the cost of bonding for delineation holes within the permit area rather than including these potential reclamation costs under Drilling Notification 236DN.

Major changes that resulted in an overall increase in the 2003-2004 Surety Estimate Revision include the following:

- Completion of pattern installation in Wellfield 2 during the 2003-2004 surety period will result in a total of approximately 181 patterns with a measured pattern area of 2,260,172 ft^2. Using these data to update the affected pore volume, ground water restoration, and wellfield reclamation cost estimates for Wellfield 2 results in an increase of approximately $1,300,000 (before any escalators).

- Completion of Wellfield 4 Extension during the 2002-2003 surety period resulted in fewer patterns (33 vs. 35) than previously estimated. In addition, the number of perimeter injection wells and the measured pattern area are slightly less than previous estimates. Using these data to update the affected pore volume and ground water restoration cost estimates for Wellfield 4 Extension results in a decrease of approximately $37,000 (before any escalators).

- Based on current (2003) operating costs at the Smith Ranch-Highland Uranium Project, the new unit cost for Byproduct Material transportation and disposal at an NRC-licensed facility is $5.62 per ft^3. Updating the surety estimate with this new unit cost results in relatively no change in the overall surety amount for this item. This unit cost should be considered conservative as it is based on current (2003) operating costs and is still subject to the 14.3% CPI escalator.

PRI believes that the 2003-2004 Surety Estimate Revision is conservative and exceeds potential actual restoration, reclamation, and decommissioning costs in the unlikely event of bond forfeiture for the following major reasons:

- PRI believes that ground water restoration can be accomplished in less time than the restoration technique and schedule utilized in the estimate indicate.

- The added contingency of 25% further increases the conservatism of all items included in the estimate.

- No salvage value is realized for buildings, process equipment, switchgear, electrical equipment, motors, rolling stock and other uncontaminated materials and facilities that actually have significant salvage value.

- It is likely that all buildings and roads will not require demolition, disposal, and reclamation, as area landowners may request to use these facilities.

PART I - SURETY BOND SUMMARY

Table 1 provides a summary of the itemized bond calculations for the 2003-2004 review period. The proposed adjustment to the surety estimate includes new disturbances resulting from commercial construction activities along with the anticipated one year forward reclamation costs associated with installation and operation of Wellfield 1, Wellfield 2, Wellfield 3, Wellfield 3 Extension, Wellfield 4, Wellfield 4 Extension, Wellfield 4A, the Central Processing Plant facility, and Satellite SR-1. Accordingly, the surety recognizes these items and utilizes the CPI escalator of 14.3% from April 1997 (160.2) through February 2003 (183.1).

Table 2 provides a description of areas disturbed the 2002-2003 review period. Planned areas of disturbance during the 2003-2004 review period are provided in Table 3. Tables 4 through 6 provide a list of disturbed areas to be reclaimed/released, areas previously reclaimed, and areas that will not be fully reclaimed, respectively.

TABLE 1
SUMMARY OF 2003-2004 SURETY ESTIMATE REVISION

	WORK UNIT	SURETY ESTIMATE
Ion Exchange Plant		
1.1	Building	40,116
1.2	Tankage and Vessels	26,573
1.3	Piping	13,204
1.4	Pumps	5,866
1.5	Electrical	9,470
1.6	Foundations	32,598
1.7	Plant Site	2,058
1.8	Access Road	1,054
1.9	Smith Ranch – Highland Road	19,554
	SUB-TOTAL	**150,493**
Central Processing Plant		
2.1	Buildings	57,548
2.2	Tankage and Vessels	51,637
2.3	Piping	11,464
2.4	Pumps	10,838
2.5	Electrical	19,682
2.6	Foundations	46,984
	SUB-TOTAL	**198,153**
Dryer Area		
3.1	Buildings	43,109
3.2	Equipment	10,764
3.3	Foundations	11,824
	SUB-TOTAL	**65,697**
Existing Facilities		
4.1	Buildings	95,635
4.2	Structures	17,914
4.3	Pilot Plant Equipment	21,651
4.4	Foundations	93,185
4.5	Site Reclamation	84,073
4.6	O-Sand Pilot	56,117
4.7	Q-Sand Pilot	0
4.8	Mine Water Treatment Ponds	19,878
	SUB-TOTAL	**388,453**

	WORK UNIT	SURETY ESTIMATE
Unit Header Site & Wellfields		
5.1	Buildings	107,501
5.2	Header Piping	193,765
5.3	Secondary Electrical	182,730
5.4	Wells-Totals	752,921
5.5	Monitor Wells-Total	104,516
5.6	Site Reclamation	70,719
	SUB-TOTAL	**1,412,152**
Associated Structures		
6.1	#1 Trunkline (5,000 ft ea)	68,901
6.2	#2 Trunkline (10,000 ft ea)	137,802
6.3	Radium Settling Ponds	62,555
6.4a	Plugging & Aband. Disposal Well #1	77,735
6.4b	Plugging & Aband. 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
	SUB-TOTAL	**451,024**
Groundwater Reclamation & RO Units		
7.1	Restoration	**7,181,835**
Health Physics and Radiation Surveys		
8.1	Monitoring	**168,470**
Whole Trucking (Remaining Fractional Units)		
9.3	Contaminated Trucking	523
9.4	Non-contaminated Trucking	157
	SUB-TOTAL	**680**
Delineation Hole Reclamation		
10.1	Delineation Hole Reclamation	**22,068**
SUB-TOTAL		**10,039,025**
OVERHEAD AND PROFIT (10%)		**1,003,903**
CONTINGENCY (15%)		**1,505,854**
SUB-TOTAL		**12,548,782**
CPI ESCALATOR: APRIL 1997 – FEBRUARY 2003 (14.3%)		**1,794,476**
TOTAL		**14,343,258**
2003-2004 SURETY ESTIMATE (IN 2003 DOLLARS)		**14,343,300**

TABLE 2
AREAS DISTURBED DURING 2002-2003 REVIEW PERIOD

AREA	ACREAGE
Smith Ranch-Highland Connecting Road and Associated Topsoil Piles #22-#28[1]	13.6
Total	

(1) Disturbance already included in bond.

TABLE 3
PLANNED AREAS OF DISTURBANCE DURING 2003-2004 REVIEW PERIOD

AREA	EST. ACREAGE
None	N/A
Total	0.0

TABLE 4
ACREAGE TO BE RECLAIMED/RELEASED

AREA	YEAR	ACREAGE
Bill Smith Surface Plant, Yard, Spoil	1971	10.57
Bill Smith Storage Yard (50% of 10.18 acres)	1971	5.09
Access Road (1/2 roadbed)	1968	4.75
Settling Ponds, Treatment Plant Area	1968	8.60
Topsoil Piles (pre-1996)	1968	3.36
Other Roads (Access to ISL Wellfield)	1982	5.00
Miscellaneous (Area around evap. ponds, settling ponds)	1981	3.61
Wellfield #1 (inclusive of header houses and roads)	1996	27.1
Oxygen Storage Facility	1997	0.2
Chemical Storage Facility[1]	1997	0.0
Disposal Well Area (Pad, Road & Spoil Pile)	1996	2.9
Drill Mud Storage Area	1996	0.25
Wellfield #1 Storage Area	1996	1.5
Topsoil #8	1996	0.2
Topsoil #9[2]	1997	0.3
Wellfield #2 Storage Area	1998	1.24
Wellfield #3 (inclusive of header houses and roads)	1998	37.52
Wellfield #3 Southern Storage Area	1998	1.2
Satellite #1	1998	2.05
Wellfield #4 Storage Area	1998	1.64

AREA	YEAR	ACREAGE
Wellfield #4 (inclusive of header houses and roads)	1998	29.59
Topsoil Pile #10	1998	0.40
Topsoil Pile #11	1998	0.08
Topsoil Pile #12	1998	0.29
Topsoil Pile #13	1998	0.72
Topsoil Pile #14	1998	0.16
Shop Building [1]	1997	0.00
Office Addition Building	1998	0.23
Trunkline #1	1998	3.1
Topsoil Pile #15	1999	0.1
Topsoil Pile #16	1999	0.2
Trunkline #2	1999	11.7
Topsoil Pile #6	1997	0.78
Office Parking Lot	1999	0.4
Trunkline #2 Pipeline Laydown Area	1999	1.1
Wellfield #4/Phase #2	1999/2000	27.0
Wellfield #4A/Phase #2 Staging Area	2000	0.3
Drill Water Facility	1999	0.1
Topsoil Pile #17	1999	0.2
Facility Fire Water System Tank	2000	0.1
Deep Disposal Well #2 Pad	1999	1.9
Topsoil Pile #18	2000	0.1
Wellfield #4 / Phase #2 Pipeline	2000	5.9
Topsoil Pile #19	2001	0.1
Topsoil Pile #20[3]	2001	0.0
Wellfield #4 HH4-5,6 Booster	2001	0.1
Wellfield #4/Phase #2 Pipeline for HH4-10, 11	2001	2.3
Wellfield #4 Booster Station	2001	0.1
Deep Disposal Well #2 Pipeline	2001	0.1
Wellfield #2 (Inclusive of header houses and roads)	2001	52
Topsoil Pile #21 [3]	2002	0.0
Smith Ranch-Highland Connecting Road	2002	10.9
Topsoil Pile #22	2002	0.3

AREA	YEAR	ACREAGE
Topsoil Pile #23	2002	0.6
Topsoil Pile #24	2002	0.4
Topsoil Pile #25	2002	0.4
Topsoil Pile #26	2002	0.4
Topsoil Pile #27	2002	0.4
Topsoil Pile #28	2002	0.2
Unreclaimed Areas	—	269.83
Areas Previously Reclaimed (See Table 5)	—	18.88
Total Acres	—	250.95

(1) Included within "Bill Smith Surface Plant, Yard and Spoil"
(2) Previous topsoil pile #9 was moved and combined several smaller topsoil piles to make new topsoil pile.
(3) Topsoil located in areas already covered by bond.

TABLE 5
AREAS PREVIOUSLY RECLAIMED

AREA	YEAR	ACREAGE
Bill Smith Mine Test Well Sites	1968	2.80
Miscellaneous - Bill Smith Mine	1968	4.19
ISL Pilot Pipeline and Wellfield	1983	5.80
Mine Settling Pond #1 and #2	1997	2.8
Drill Mud Storage Area	1999	.25
Wellfield #1 Staging Area	1999	1.5
Wellfield #3 North Staging Area	2001	1.54
Total Acres	—	18.88

TABLE 6
AREAS THAT WILL NOT BE FULLY RECLAIMED

AREA	YEAR	ACREAGE
Bill Smith Mine Access (reduced to previous existing road)	1968	4.75
Total Acres	—	4.75

PART II - SURETY BOND DETAIL

Part II presents the bond support details for the summary totals included in Table 1. The bond detail is divided into 10 sections that encompass the mining activities at the Smith Ranch Project. These 10 sections include (1) ion exchange plants, (2) central processing plant, (3) dryer area, (4) existing facilities, (5) header sites and wellfields, (6) associated structures, (7) groundwater reclamation and RO Units, (8) health physics and radiation surveys, (9) whole trucking, and (10) delineation hole reclamation. The cost bases for the calculations used in each section 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	26,573
1.3 Piping	13,204
1.4 Pumps	5,866
1.5 Electrical	9,470
1.6 Foundations	32,598
1.7 Plant Site	2,058
1.8 Access Road	1,054
1.9 Smith-Highland Road	19,554
Total Cost	150,493

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 x $1.09/BBL = $ 281
  42 Gal
- Dispose of Fluid @ $0.11/BBL
  10,810 Gal x BBL x $0.11/BBL = $ 28
  42 Gal

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 Landfill:
Building = 801.6 ft3 = 235,000# = 5 Truck Loads* @ 47,000#
5 Trucks x 8 Hrs/Truck x $65.39/Hr = **$ 2,616**

* 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 x 88 Hr	=	$ 3,290

* This foreman will also supervise 1.2 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 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 Site:
Contaminated Service = 835.4 Ft.^{3} @ $5.62/ft3[1] = **$ 4,695**

[1] Based on 2003 operating costs at Smith Ranch-Highland Uranium Project for Byproduct Material transportation and disposal at NRC-licensed facility.

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

0.05 Trucks x 8 Hrs/Truck x $65.39/Hr = **$ 26**

Tankage and Vessel Total = ***$26,573***

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:

C. Haul and Dispose - Licensed Site:
100% Piping = 886.7 Ft^3 @ $5.62/ft3 = **$ 4,983**

Piping Total = ***$ 13,204***

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 Site:
Contaminated Pumps = 77.9 Ft.^{3} @ $5.62/ft3 = $ 438

C. Haul and Dispose - On-Site Landfill:
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#

0.2 Trucks x 8 Hrs/Truck x $65.39/Hr = $ 105

Pump Total = ***$ 5,866***

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
  + $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 Landfill:
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#

0.5 Trucks x 8 Hrs/Truck x $65.39/Hr = $ 262

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 @ $10.90/Hr (Brooms, Squeegee) $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 x $0.11/BBL 42 Gal	=	$ 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 Site:

Concrete = 2,888 Ft^2 x 8 In / 2 In/Ft = 1925 Ft^3 Set = 3,209 Ft^3 Loose (40% voids) @ $5.62/ft3	=	**$ 18,035**

D. Bury Area w/2 Ft Cover:

• Materials = 856 Cu.Yd. Cover @ $1.09/Cu.Yd.	=	$ 933
Foundation Total	=	***$ 32,598***

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

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 Total	=	***$ 1,054***

1.9 Smith Ranch – Highland Road

Basis: Cost to reclaim Satellite No. 3 Access Road at Highland Uranium Project

• 3 miles of road @ $6,518/mile	=	$19,554
Smith Ranch – Highland Road Total	=	***$19,554***

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

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

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

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

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

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

SECTION 2
CENTRAL PROCESSING PLANT RECLAMATION COSTS

Cost Summary

ITEM	COSTS ($)
2.1 Building	57,548
2.2 Tankage and Vessels	51,637
2.3 Piping	11,464
2.4 Pumps	10,838
2.5 Electrical	19,682
2.6 Foundations	46,984
Total Cost	198,153

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 x $1.09/BBL / 42 Gal = $ 413
- Dispose of Fluid @ $0.11/BBL
  15,900 Gal x BBL x $0.11/BBL / 42 Gal = $ 42

Sub-total = $ 9,208

B. Dismantle and Load - 21 Days:

Dismantle and Load @ 100 Ft^2/Man-Day
16,500 Ft^2 @ 100 Ft^2/Man-Day = 165 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 Landfill:
Building = 376,000# = 8 Truck Loads* @ 47,000#

8 Trucks x 8 Hrs/Truck x $65.39/Hr	=	**$ 4,185**
Building Total	=	***$ 57,548***

2.2 Tankage and Vessels

Basis: See Table 2.1

A. Decontaminate - 0 Days:

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 Site:
Contaminated Service = 1236.7 $Ft.^3$ @ $5.62/ft3 = **$ 6,950**

E. Haul and Dispose - On-Site Landfill:
Non-Contaminated Service = 393.2 Ft^3 @ 45,010#

Total = 14.6 Cu.Yd. @ 45,010# = 1 Truckloads @ 47,000#

1 Truck x 8 Hrs/Truck x $65.39/Hr	=	**$ 523**
Tankage and Vessel Total	=	***$ 51,637***

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:

C. Haul and Dispose - Licensed Site:

Pipe = 244 Ft.^{3} @ $5.62/ft3	=	**$ 1,371**
Piping Total	=	***$ 11,464***

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

• 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 Site:

Contaminated Service = 164.3 Ft.^{3} @ $5.62/ft3	=	**$ 923**

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

0.3 Truck x 8 Hrs/Truck x $65.39/Hr = **$ 157**

Pump Total = ***$ 10,838***

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 Landfill:

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#

1 Truck x 8 Hrs/Truck x $65.39/Hr = **$ 523**

* 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 x $0.11/BBL = $ 86
  42 Gal

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 Site:
Concrete = 4,125 Ft^2 x 8 In. / 12 In/Ft = 2,750 Ft^3 Set
= 4,583 Ft^3 Loose (40% Voids) @ $5.62/ft3 = **$ 25,756**

D. Bury Area with 2 Ft. Cover:

- Material = 1,225 Cu.Yd. Cover @ $1.09/Cu.Yd. = **$ 1,335**

Foundation Total = ***$70,019***

SECTION 3
DRYER AREA RECLAMATION COSTS

Cost Summary

ITEM	COSTS ($97)
3.1 Building	43,109
3.2 Equipment	10,764
3.3 Foundations	11,824
Total Cost	65,697

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 Site:
Building Materials = 5800 ft3* @ $5.62/ft3 = **$ 32,596**

* Assumes average wall thickness of 0.5 ft

Building Total = ***$ 43,109***

3.2 Equipment

Basis: See Table 3.1

A. Remove and Load - 7 Days:
- 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 Site:
Contaminated = 183.6 $Ft.^3$ @ $5.62/ft3 = **$ 1,032**

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

0.1 Truck x 8 Hrs/Truck x $65.39/Hr	=	$ 52
Equipment Total	=	***$10,764***

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
• Travel = $73.66/Hr x 2 Days x 1 Hr/Day	=	$ 147
• Eq. Rental = Hand Tools (Broom, Squeegee) @ $10.90/Hr $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 Site:

Concrete = 875 Ft^2 x 8 In / 12 In/Ft = 583 Ft^3 Set

= 972 Ft^3 Loose (40% Voids) @ $5.62/ft3 = $ 5,463

D. Bury Area with 2 Ft Cover:

• Materials = 259 Cu.Yd. Cover @ $1.09/Cu.Yd.	=	$	282
Foundation Total	=	***$ 11,824***	

SECTION 4
EXISTING FACILITIES RECLAMATION COSTS

Cost Summary

ITEM	COSTS ($97)
4.1 Buildings	95,635
4.2 Structures	17,914
4.3 Pilot Plant Equipment	21,651
4.4 Foundation	93,185
4.5 Site Reclamation	84,073
4.6 O-Sand Pilot	56,117
4.7 Q-Sand Pilot	NA
4.8 Mine Water Treat. Ponds	19,878
Total Cost	388,453

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 x $1.09/BBL / 42 Gal = $ 592
- Dispose of Fluid @ $0.11/BBL
  22,828 Gal x BBL x $0.11/BBL / 42 Gal = $ 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 Landfill:
Buildings = 676,800# = 14 Truck Loads* @ 47,000#

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

* 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 $\frac{\$62,555^*}{5\ Acres}$ = **$ 6,256**

* See Section 6.3 for 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 - 5,900 ft
Wellfield #1 - 6,600 ft
Wellfield #3 - 7,500 ft
Wellfield #4/4A - 25,000 ft
45,000 ft

- Cost to remove fencing = $0.15/ft = **$ 7,426**

- Cost Basis – Third party quote dated 6/11/99

G. Water Wells

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

- Cost Basis - $402/well (See Section 5.4 - $10,849 per 27 wells) = **$ 804**

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 = ***$ 17,914***

4.3 Pilot Plant Equipment

A. Tanks:
15 Tanks
- Total = 15 Tanks x $51,637* / 51 Tanks = **$ 15,187**

B. Piping:
1500 Ft. @ 6" Dia. or Less
- Total = 1500 Ft. x $11,464* / 5,000 Ft. = **$ 3,439**

C. Pumps:
12 Pumps
- Total = 12 Pumps x $10,838* / 43 Pumps = **$ 3,025**

* Cost Basis - See Sections 2.2, 2.3, & 2.4

Pilot Plant Total = ***$ 21,651***

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 Site:

Concrete = 8,312 Ft^2 x 8 In / 12 In/Ft = 5,541 Ft^3 Set
= 9,235 Ft^3 Loose (40% Voids) @ $5.62/ft3 = **$ 51,901**

D. Bury Area with 2 Ft Cover:

- Materials = 2,462 Cu. Yd. Cover @ $1.09/Cu. Yd. = **$ 2,684**

Foundation Total* = *$ 93,185

4.5 Site Reclamation

Basis: 47.35 Acres = 2,062,130 ft2 (Costs associated with the reclmation of the access road, CPP, wellfield pattern areas, and Trunklines 1 and 2 are covered in other areas.)

A. Rip & Contour:			
• Rip & Contour @ $166.68/Acre x 47.35 Acre		=	**$ 7,892**
B. Topsoil Placement:			
Replace 8 In.* Topsoil = 50,866 Cu.Yd.			
• Topsoil @ $1.09/Cu. Yd.		=	**$ 55,444**
* 8 In. Topsoil Removed in Previous Years			
C. Revegetate:			
• Grade and Contour	@ $87.19/Acre x 47.35 Acre	=	$ 4,128
• Seedbed Prep. (Disc. + Harrow)	@ $ 21.80/Acre x 47.35 Acre	=	$ 1,032
• Mulch (Drill + Seed + Mow)	@ $ 49/Acre x 47.35 Acre	=	$ 2,320
• Drill Seed and Fertilize (Drill + Seed + Fertilizer)@	$163/Acre x 47.35 Acre	=	$ 7,718
• Revegetation Contingency* (All items excluding grading)	@ $234/Acre x 23.67 Acre	=	$ 5,539
* Assume only 50% of acreage requires reseeding			
Sub-total		=	**$ 20,737**
Site Reclamation Total		=	***$84,073***

4.6 O-Sand Pilot

A. Surface Reclamation:			
Basis = 6 Patterns			
• Total = 6 Patterns x $20,348* / 10 Patterns		=	**$ 12,209**
* See Section 5 – Cost Summary Table (Total Cost per 10 Patterns)			
B. Groundwater Restoration:			
Basis = 6 Patterns			
• Total = 6 Patterns x $7,318* / Pattern		=	**$ 43,908**
* See Section 7 – Wellfield 3			
Sub-Total		=	**$ 56,117**

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) 694 Patterns* 2003-2004
5.1 Buildings	1,549	107,501
5.2 Header Piping	2,792	193,765
5.3 Secondary Electrical	2,633	182,730
5.4 Wells-Total	10,849	752,921
5.5 Monitor Wells - Total	1,506	104,516
5.6 Site Reclamation	1,019	70,719
Total Cost	20,348	1,412,152

* See Table 7.1 (Includes total number of patterns in Wellfields 1, 2, 3, 4, and 4A, plus six additional patterns added during Wellfield 3 Extension)

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 Landfill:
Building = 4,700# = 0.1 Truck Loads* @ 47,000#

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

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

Sub-total = **$ 52**

Building Total = ***$1,549***

5.2 Header Piping

Basis: 2000 Ft. - 1¼" 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 (45 Cu. Yd.) x (__Hr.__) = 35 Hrs
100 Ft. 26 Cu. Yd..

- 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 Cu.Yd/Hr. x 2.5 = 65 Cu.Yd./Hr

(2000 Ft) x (45 Cu.Yd.) x (Hr) = 13.8 Hrs or 14 hours
100 Ft 65 Cu.Yd.

- Eq. Rental = 1 - Backhoe @ $ 27.25/Hr
$ 27.25/Hr x 14 Hrs = $ 382

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

Volume = 2,000 Ft x (43 #/100 Ft) = 23 Ft.^{3} @ $5.62/ft3 = $ 129
62.4 #/Ft.^{3} x 0.6

Header Piping Total = ***$2,792***

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
  + $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 Landfll:
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#

0.06 Trucks x 8 Hr/Truck x $65.39/Hr = $ 31

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 Site:

Pumps = 10 x 5 In. Dia. x 8 Ft. Long = 10.9 $Ft.^3$
@ 850# (@ 85# Each)

Tubing = 27 x 550 Ft x 43#/100 Ft. = 170.6 $Ft.^3$ @ 6386#
62.4 #/$Ft.^3$ x 0.6

Total = 181.5 ft3 @ $5.62/ft3 = **$ 1,020**

Wells Total = ***$10,849***

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

- 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 Site:

Pumps = 3.21 @ 5 In. Dia. x 8 Ft. Long = 3.5 $Ft.^3$ @273#
(83# Each)

Tubing = 3.21 x 550 Ft x 43#/100 Ft. = 20.3 $Ft.^3$ @759#
62.4 #/$Ft.^3$ x 0.6

Total = 23.8 $Ft.^3$ @ $5.62/ft3 = **$ 134**

Monitor Well Total = ***$ 1,506***

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)	68,901
6.2 Trunkline #2 (10000 ft)	137,802
6.3 Radium Settling Ponds	62,555
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	451,024

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.) x (__Hr__) = 30 Hrs - Round to 32 Hrs
100 Ft. 150 Cu. Yd.

- 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.) (__Hr__) = 34 Hrs
100 Ft. 130 Cu. Yd.

- 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 Site:
100% of Pipe = 2 x 5,000 Ft. x 28.27#/Ft = 282,700#

$$= \frac{282{,}700\#}{62.4\#/Ft.^3 \times 0.6} = 7551\ Ft.^3 \text{ @ } \$5.62/ft3$$ = $ 42,437

F. Haul & Dispose - Landfill: = $ 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 = $ 59
  (All items excluding grading)

* Assume only 50% of acreage requires reseeding

Sub-total = **$ 220**

Trunkline Total = ***$68,901***

6.2 Trunkline #2

Cost for 5000 ft line is $68,901. Truckline #2 is 10,000 ft.
@ $68,901 x 2 = **$137,802**

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)

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 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} @ $5.62/ft3	=	$ 9,458
Radium Settling Pond Total	=	***$ 62,555***

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
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 $\frac{\text{Cu.Yd.}}{\text{Hr}}$ (Cat. 627E Scraper)

(931 Cu. Yd.) x ($\frac{\text{Hr}}{167\ \text{Cu.Yd.}}$) = 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 Landfill:
100% of Non-Contaminated Service = 148 Ft^3 @ 43,400#
Total = 5.5 Cu.Yd. @ 43,400# = 1 Truckloads @ 47,000#

1 Truck x 8 Hrs/Truck x $65.39/Hr = **$ 523**

Tankage and Vessel Total = ***$ 11,623***

SECTION 7
GROUNDWATER RESTORATION COSTS

Cost Summary

ITEM	COST ($97)
7.1 Ground Water Restoration	
Wellfield 1	$943,104
Wellfield 2	$2,199,549
Wellfield 3	$1,325,809
Wellfield 3 Ext.	$604,950
Wellfield 4	$996,586
Wellfield 4 Ext.	$326,250
Wellfield 4A	$785,587
Total Cost	**$7,181,835**

7.1 Groundwater Restoration Costs

Basis: Tables 7.1 through 7.8 - Groundwater Restoration Basis

Using the Affected Pore Volumes from Table 7.1, the detailed cost for groundwater restoration is provided for each wellfield in Tables 7.2, 7.3, 7.4, 7.5, 7.6, 7.7, and 7.8.

Wellfield 3 Ext. represents the second completion for 76 existing patterns in Wellfield 3 and results in a net increase of six patterns. Wellfield 4 Ext. represents the second completion for 33 existing patterns in Wellfield 4.

Table 7.1
Affected Pore Volume Estimates

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	1,115,229	1.52E-04	116	18	0.27	1.7	594,146	68,920,890
2	176	2,260,172	7.79E-05	181	24	0.27	1.5	907,885	164,327,161
3	147	1,622,462	9.06E-05	162	20	0.27	1.5	606,801	98,301,728
3 Ext.	97	782,800	1.24E-04	76	14	0.27	1.5	436,839	33,199,800
4	163	1,334,798	1.22E-04	128	18	0.27	1.5	568,636	72,785,467
4 Ext.	53	308,170	1.72E-04	33	17	0.27	1.7	545,054	17,986,786
4A	142	1,050,576	1.35E-04	101	18	0.27	1.5	567,199	57,287,069

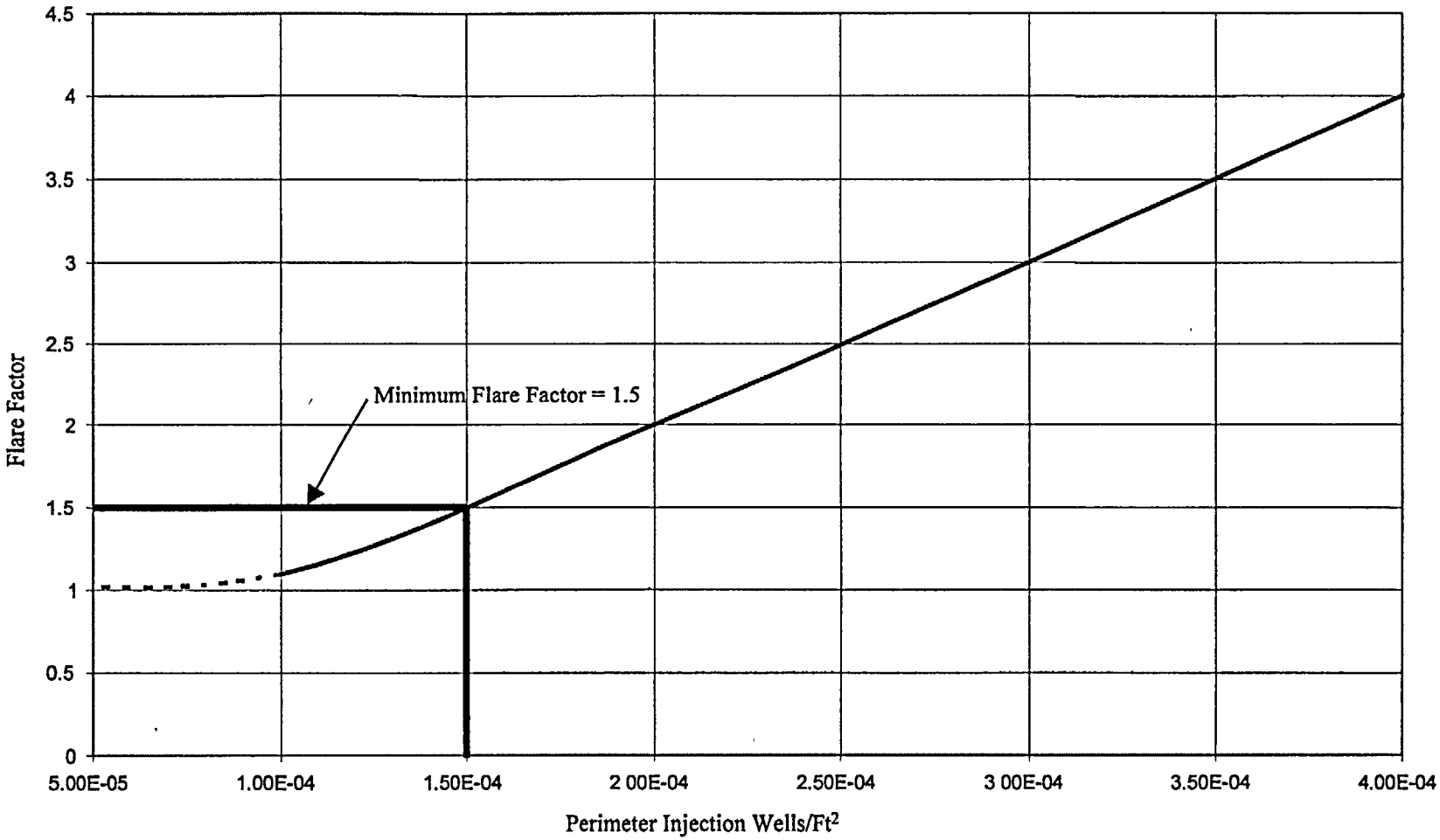

Figure 7-1 Predicted Wellfield Flare Factor for Smith Ranch Commercial Wellfields as a Function of Wellfield Scale

Source: Figure 3-16 in "Evaluation and Simulation of Wellfield Restoration at the RAMC Smith Ranch Facility" by Lewis Water Consultants (October 29, 1999)

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

1 APV = 68,920,890 gallons

RESTORATION COST COMPONENT	Unit Cost	Total Gallons Treated	Operating Flow Rate GPM		Total Cost	Number of Days
1 Wellfield Pumping Costs (Electrical costs)						
a) Groundwater Treatment (IX treatment Only) (100% of flow)	($0.117/1,000 gal)	413,525,340	1400	* $	48,382	287
b) Treated Groundwater Re-injection (bypass RO/EDR Treatment)	($0.117/1,000 gal)	248,115,204	600	* $	29,029	287
c) RO/EDR Treatment (800 GPM Feed 600 GPM Permeate)	($0.289/1,000 gal)	330,820,272	800	$	95,607	287
e) Groundwater Sweep (GW Inflow to replace water sent to disposal)	($0.117/1,000 gal)	82,705,068	200	$	9,676	287
SUBTOTAL	Total Treated Volume	413,525,340	1000	$	182,695	287
2. Chemical Treatment Power Costs						
a) Reverse Osmosis Unit	$0 10/gpm/day ($0 07/1,000 gal)	330,820,272	800	$	23,157	
b) Disposal Well Operation	$0 05/1,000 gal	82,705,068	200	$	4,135	
SUBTOTAL				$	27,293	
3 Chemicals						
a) Waste Water Treatment (Resin Elut. Chem) @$400/elution, Waste Water @ 2 mg/L U3O8 500 ft3 resin, 2 lb /ft3 loading, Annualized Waste Water Flow, 1400 gpm 1 elution every 29 7 days or 12 3 elutions per year	Elution Costs (12 3 Elutions/year * $400/ Elution)			$	3,871	287
b) Chemical Reductant (H2S or alternative)	$1 80/gpm/day ($1.25/1,000 gal.)	68,920,890	1200	$	86,151	
c) RO Chemicals (H2SO4, Antiscalents, Oxygen Scavenger)	$0 57/gpm/day ($0 40/1,000 gal.)	330,820,272	800	$	132,328	
SUBTOTAL				$	222,350	
4 Repairs and Maintenance						
a) Wellfield and Waste Water Treatment	$10,000/mo	9 4	months	$	94,154	
b) RO and process equipment	$5,000/mo	9 4	months	$	47,077	
SUBTOTAL				$	141,231	
5 Labor						
Supervisor @ $20 00 per hour		9 4	months	$	30,129	
4 Operators @ $13 00 per hour		9 4	months	$	78,336	
2 Maintenance @ $13 00 per hour		9 4	months	$	39,168	
SUBTOTAL				$	147,634	
6 Contract Laboratory Analysis						
49 Monitor Wells (24 samples/yr/well @ $20)		0 8	years	$	18,454	
Stabilization Samples						
10 Wells - 3 complete Assays @$350				$	10,500	
- 9 abbreviated assays @ $250				$	22,500	
SUBTOTAL				$	51,454	
7. Operating Expenses						
Supplies @$3,000/mo		9 4	months	$	28,246	
Heating @$5,000/mo		4 7	months	$	23,539	
Vehicle Fuel @$1,000/mo		9 4	months	$	9,415	
Office Utilities @$1,000/mo		9 4	months	$	9,415	
SUBTOTAL				$	70,616	
TOTAL OPERATING COST TO RESTORE GROUNDWATER AT FULL PRODUCTION (Nominal Mine Unit)				$	843,273	(1993$)
UNIT RESTORATION OPERATING COST			116 Patterns	$	7,270	/Pattern
1993 -1997 inflation (CPI-U) = 160 6/143 6 = 11.84%				$	99,830	
			Total	$	943,104	(1997$)

Table 7.3
SMITH RANCH PROJECT
Mining Unit Groundwater Restoration Costs
Wellfield #2

1 APV = 164,327,161 gallons

RESTORATION COST COMPONENT	Unit Cost	Total Gallons Treated	Operating Flow Rate GPM		Total Cost	Number of Days
1. Wellfield Pumping Costs (Electrical costs)						
a) Groundwater Treatment (IX treatment Only) (100% of flow)	($0 117/1,000 gal.)	985,962,968	1400	*	$ 115,358	685
b) Treated Groundwater Re-injection (bypass RO/EDR Treatment)	($0 117/1,000 gal.)	591,577,781	600	*	$ 69,215	685
c) RO/EDR Treatment (800 GPM Feed 600 GPM Permeate)	($0 289/1,000 gal)	788,770,375	800		$ 227,955	685
e) Groundwater Sweep (GW Inflow to replace water sent to disposal)	($0 117/1,000 gal.)	197,192,594	200		$ 23,072	685
SUBTOTAL	Total Treated Volume	985,962,968	1000		$ 435,598	685
2. Chemical Treatment Power Costs						
a) Reverse Osmosis Unit	$0.10/gpm/day ($0 07/1,000 gal)	788,770,375	800		$ 55,214	
b) Disposal Well Operation	$0 05/1,000 gal	197,192,594	200		$ 9,860	
SUBTOTAL					$ 65,074	
3. Chemicals						
a) Waste Water Treatment (Resin Elut. Chem) @$400/elution, Waste Water @ 2 mg/L U3O8 500 ft3 resin, 2 lb./ft3 loading, Annualized Waste Water Flow, 1400 gpm 1 elution every 29.7 days or 12.3 elutions per year	Elution Costs (12 3 Elutions/year * $400/ Elution)				$ 9,229	685
b) Chemical Reductant (H2S or alternative)	$1.80/gpm/day ($1.25/1,000 gal)	164,327,161	1200		$ 205,409	
c) RO Chemicals (H2SO4, Antiscalents, Oxygen Scavenger)	$0 57/gpm/day ($0.40/1,000 gal)	788,770,375	800		$ 315,508	
SUBTOTAL					$ 530,146	
4 Repairs and Maintenance						
a) Wellfield and Waste Water Treatment	$10,000/mo	22 4	months		$ 224,491	
b) RO and process equipment	$5,000/mo	22 4	months		$ 112,245	
SUBTOTAL					$ 336,736	
5 Labor						
Supervisor @ $20 00 per hour		22.4	months		$ 71,837	
4 Operators @ $13 00 per hour		22 4	months		$ 186,776	
2 Maintenance @ $13 00 per hour		22 4	months		$ 93,388	
SUBTOTAL					$ 352,001	
6 Contract Laboratory Analysis						
51 Monitor Wells (24 samples/yr/well @ $20)		1 9	years		$ 45,796	
Stabilization Samples						
10 Wells - 3 complete Assays @$350					$ 10,500	
- 9 abbreviated assays @ $250					$ 22,500	
SUBTOTAL					$ 78,796	
7. Operating Expenses						
Supplies @$3,000/mo		22 4	months		$ 67,347	
Heating @$5,000/mo		11.2	months		$ 56,123	
Vehicle Fuel @$1,000/mo		22.4	months		$ 22,449	
Office Utilities @$1,000/mo		22.4	months		$ 22,449	
SUBTOTAL					$ 168,368	
TOTAL OPERATING COST TO RESTORE GROUNDWATER AT FULL PRODUCTION (Nominal Mine Unit)					$ 1,966,720	(1993$)
UNIT RESTORATION OPERATING COST			181 Patterns		$ 10,866	/Pattern
1993 -1997 Inflation (CPI-U) = 160.6/143 6 = 11.84%					$ 232,829	
			Total		$ 2,199,549	(1997$)

Table 7.4
SMITH RANCH PROJECT
Mining Unit Groundwater Restoration Costs
Wellfield #3

1 APV = 98,301,728 gallons

RESTORATION COST COMPONENT	Unit Cost	Total Gallons Treated	Operating Flow Rate GPM		Total Cost	Number of Days
1. Wellfield Pumping Costs (Electrical costs)						
a) Groundwater Treatment (IX treatment Only) (100% of flow)	($0.117/1,000 gal)	589,810,366	1400	*	$ 69,008	410
b) Treated Groundwater Re-injection (bypass RO/EDR Treatment)	($0.117/1,000 gal)	353,886,220	600	*	$ 41,405	410
c) RO/EDR Treatment (800 GPM Feed 600 GPM Permeate)	($0.289/1,000 gal)	471,848,293	800		$ 136,364	410
e) Groundwater Sweep (GW Inflow to replace water sent to disposal)	($0.117/1,000 gal)	117,962,073	200		$ 13,802	410
SUBTOTAL	Total Treated Volume	589,810,366	1000		$ 260,578	410
2. Chemical Treatment Power Costs						
a) Reverse Osmosis Unit	$0 10/gpm/day ($0 07/1,000 gal)	471,848,293	800		$ 33,029	
b) Disposal Well Operation	$0 05/1,000 gal	117,962,073	200		$ 5,898	
SUBTOTAL					$ 38,927	
3. Chemicals						
a) Waste Water Treatment (Resin Elut. Chem) @$400/elution, Waste Water @ 2 mg/L U3O8 500 ft3 resin, 2 lb./ft3 loading, Annualized Waste Water Flow; 1400 gpm 1 elution every 29.7 days or 12 3 elutions per year	Elution Costs (12 3 Elutions/year * $400/ Elution)				$ 5,521	410
b) Chemical Reductant (H2S or alternative)	$1 80/gpm/day ($1 25/1,000 gal)	98,301,728	1200		$ 122,877	
c) RO Chemicals (H2SO4, Antiscalents, Oxygen Scavenger)	$0 57/gpm/day ($0 40/1,000 gal)	471,848,293	800		$ 188,739	
SUBTOTAL					$ 317,138	
4. Repairs and Maintenance						
a) Wellfield and Waste Water Treatment	$10,000/mo	13 4	months		$ 134,292	
b) RO and process equipment	$5,000/mo	13 4	months		$ 67,146	
SUBTOTAL					$ 201,438	
5. Labor						
Supervisor @ $20 00 per hour		13 4	months		$ 42,973	
4 Operators @ $13 00 per hour		13 4	months		$ 111,731	
2 Maintenance @ $13 00 per hour		13 4	months		$ 55,865	
SUBTOTAL					$ 210,570	
6. Contract Laboratory Analysis						
43 Monitor Wells (24 samples/yr/well @ $20)		1.1	years		$ 23,098	
Stabilization Samples						
10 Wells - 3 complete Assays @$350					$ 10,500	
- 9 abbreviated assays @ $250					$ 22,500	
SUBTOTAL					$ 56,098	
7. Operating Expenses						
Supplies @$3,000/mo		13 4	months		$ 40,288	
Heating @$5,000/mo		6 7	months		$ 33,573	
Vehicle Fuel @$1,000/mo		13 4	months		$ 13,429	
Office Utilities @$1,000/mo		13 4	months		$ 13,429	
SUBTOTAL					$ 100,719	
TOTAL OPERATING COST TO RESTORE GROUNDWATER AT FULL PRODUCTION (Nominal Mine Unit)					$ 1,185,468	(1993$)
UNIT RESTORATION OPERATING COST			162 Patterns		$ 7,318	/Pattern
1993 -1997 Inflation (CPI-U) = 160 6/143 6 = 11 84%					$ 140,341	
			Total		$ 1,325,809	(1997$)

Table 7.5
SMITH RANCH PROJECT
Mining Unit Groundwater Restoration Costs
Wellfield #3 Extension

1 APV = 33,199,800 gallons

RESTORATION COST COMPONENT	Unit Cost	Total Gallons Treated	Operating Flow Rate GPM		Total Cost	Number of Days
1 Wellfield Pumping Costs (Electrical costs)						
a) Groundwater Treatment (IX treatment Only) (100% of flow)	($0.117/1,000 gal)	199,198,803	1400	* $	23,306	138
b) Treated Groundwater Re-injection (bypass RO/EDR Treatment)	($0.117/1,000 gal)	119,519,282	600	* $	13,984	138
c) RO/EDR Treatment (800 GPM Feed 600 GPM Permeate)	($0.289/1,000 gal)	159,359,042	800	$	46,055	138
e) Groundwater Sweep (GW Inflow to replace water sent to disposal)	($0 117/1,000 gal)	39,839,761	200	$	4,661	138
SUBTOTAL	Total Treated Volume	199,198,803	1000	$	88,006	138
2 Chemical Treatment Power Costs						
a) Reverse Osmosis Unit	$0.10/gpm/day ($0 07/1,000 gal)	159,359,042	800	$	11,155	
b) Disposal Well Operation	$0 05/1,000 gal	39,839,761	200	$	1,992	
SUBTOTAL				$	13,147	
3 Chemicals						
a) Waste Water Treatment (Resin Elut Chem) @$400/elution, Waste Water @ 2 mg/L U3O8 500 ft3 resin, 2 lb./ft3 loading, Annualized Waste Water Flow; 1400 gpm 1 elution every 29 7 days or 12 3 elutions per year	Elution Costs (12.3 Elutions/year * $400/ Elution)			$	1,865	138
b) Chemical Reductant (H2S or alternative)	$1 80/gpm/day ($1.25/1,000 gal)	33,199,800	1200	$	41,500	
c) RO Chemicals (H2SO4, Antiscalents, Oxygen Scavenger)	$0 57/gpm/day ($0 40/1,000 gal)	159,359,042	800	$	63,744	
SUBTOTAL				$	107,108	
4 Repairs and Maintenance						
a) Wellfield and Waste Water Treatment	$10,000/mo	4 5	months	$	45,355	
b) RO and process equipment	$5,000/mo	4.5	months	$	22,677	
SUBTOTAL				$	68,032	
5 Labor						
Supervisor @ $20 00 per hour		4 5	months	$	14,514	
4 Operators @ $13 00 per hour		4 5	months	$	37,735	
2 Maintenance @ $13 00 per hour		4 5	months	$	18,868	
SUBTOTAL				$	71,117	
6 Contract Laboratory Analysis						
24 Monitor Wells (24 samples/yr/well @ $20)		0 4	years	$	4,426	
Stabilization Samples						
10 Wells - 3 complete Assays @$350				$	10,500	
- 9 abbreviated assays @ $250				$	22,500	
SUBTOTAL				$	37,426	
7 Operating Expenses						
Supplies @$3,000/mo		4 5	months	$	13,606	
Heating @$5,000/mo		2 3	months	$	11,339	
Vehicle Fuel @$1,000/mo		4 5	months	$	4,535	
Office Utilities @$1,000/mo		4 5	months	$	4,535	
SUBTOTAL				$	34,016	
TOTAL OPERATING COST TO RESTORE GROUNDWATER AT FULL PRODUCTION (Nominal Mine Unit)				$	418,852	(1993$)
UNIT RESTORATION OPERATING COST			76 Patterns	$	5,511	/Pattern
1993 -1997 inflation (CPI-U) = 160 6/143 6 = 11 84%				$	49,586	
RECOMPLETION ($640/well)(2 7 wells/pattern)(79 patterns)				$	136,512	
			Total	$	604,950	(1997$)

Table 7.6
SMITH RANCH PROJECT
Mining Unit Groundwater Restoration Costs
Wellfield #4

1 APV = 72,785,467 gallons

RESTORATION COST COMPONENT	Unit Cost	Total Gallons Treated	Operating Flow Rate GPM		Total Cost	Number of Days
1 Wellfield Pumping Costs (Electrical costs)						
a) Groundwater Treatment (IX treatment Only) (100% of flow)	($0 117/1,000 gal)	436,712,803	1400	* $	51,095	303
b) Treated Groundwater Re-injection (bypass RO/EDR Treatment)	($0 117/1,000 gal)	262,027,682	600	* $	30,657	303
c) RO/EDR Treatment (800 GPM Feed 600 GPM Permeate)	($0.289/1,000 gal)	349,370,242	800	$	100,968	303
e) Groundwater Sweep (GW Inflow to replace water sent to disposal)	($0.117/1,000 gal)	87,342,561	200	$	10,219	303
SUBTOTAL	Total Treated Volume:	436,712,803	1000	$	192,940	303
2 Chemical Treatment Power Costs						
a) Reverse Osmosis Unit	$0 10/gpm/day ($0 07/1,000 gal)	349,370,242	800	$	24,456	
b) Disposal Well Operation	$0 05/1,000 gal	87,342,561	200	$	4,367	
SUBTOTAL				$	28,823	
3 Chemicals						
a) Waste Water Treatment (Resin Elut Chem) @$400/elution, Waste Water @ 2 mg/L U3O8 500 ft3 resin, 2 lb./ft3 loading, Annualized Waste Water Flow, 1400 gpm 1 elution every 29 7 days or 12.3 elutions per year	Elution Costs (12.3 Elutions/year * $400/ Elution)			$	4,088	303
b) Chemical Reductant (H2S or alternative)	$1 80/gpm/day ($1.25/1,000 gal.)	72,785,467	1200	$	90,982	
c) RO Chemicals (H2SO4, Antiscalents, Oxygen Scavenger)	$0 57/gpm/day ($0 40/1,000 gal)	349,370,242	800	$	139,748	
SUBTOTAL				$	234,818	
4 Repairs and Maintenance						
a) Wellfield and Waste Water Treatment	$10,000/mo	9 9	months	$	99,434	
b) RO and process equipment	$5,000/mo	9 9	months	$	49,717	
SUBTOTAL				$	149,151	
5 Labor						
Supervisor @ $20 00 per hour		9 9	months	$	31,819	
4 Operators @ $13 00 per hour		9 9	months	$	82,729	
2 Maintenance @ $13 00 per hour		9 9	months	$	41,364	
SUBTOTAL				$	155,912	
6 Contract Laboratory Analysis						
55 Monitor Wells (24 samples/yr/well @ $20)		0 8	years	$	21,875	
Stabilization Samples						
10 Wells - 3 complete Assays @$350				$	10,500	
- 9 abbreviated assays @ $250				$	22,500	
SUBTOTAL				$	54,875	
7 Operating Expenses						
Supplies @$3,000/mo		9 9	months	$	29,830	
Heating @$5,000/mo		5 0	months	$	24,858	
Vehicle Fuel @$1,000/mo		9.9	months	$	9,943	
Office Utilities @$1,000/mo		9 9	months	$	9,943	
SUBTOTAL				$	74,575	
TOTAL OPERATING COST TO RESTORE GROUNDWATER AT FULL PRODUCTION (Nominal Mine Unit)				$	891,094	(1993$)
UNIT RESTORATION OPERATING COST			128 Patterns	$	6,962	/Pattern
1993 -1997 inflation (CPI-U) = 160 6/143 6 = 11 84%				$	105,492	
			Total	$	996,586	(1997$)

Table 7.7
SMITH RANCH PROJECT
Mining Unit Groundwater Restoration Costs
Wellfield #4 Extension

1 APV = 17,986,786 gallons

RESTORATION COST COMPONENT	Unit Cost	Total Gallons Treated	Operating Flow Rate GPM		Total Cost	Number of Days
1 Wellfield Pumping Costs (Electrical costs)						
a) Groundwater Treatment (IX treatment Only) (100% of flow)	($0.117/1,000 gal)	107,920,715	1400	*	$ 12,627	75
b) Treated Groundwater Re-injection (bypass RO/EDR Treatment)	($0.117/1,000 gal)	64,752,429	600	*	$ 7,576	75
c) RO/EDR Treatment (800 GPM Feed 600 GPM Permeate)	($0.289/1,000 gal)	86,336,572	800		$ 24,951	75
e) Groundwater Sweep (GW Inflow to replace water sent to disposal)	($0.117/1,000 gal)	21,584,143	200		$ 2,525	75
SUBTOTAL	Total Treated Volume	107,920,715	1000		$ 47,679	75
2 Chemical Treatment Power Costs						
a) Reverse Osmosis Unit	$0.10/gpm/day ($0 07/1,000 gal)	86,336,572	800		$ 6,044	
b) Disposal Well Operation	$0 05/1,000 gal	21,584,143	200		$ 1,079	
SUBTOTAL					$ 7,123	
3 Chemicals						
a) Waste Water Treatment (Resin Elut Chem) @$400/elution, Waste Water @ 2 mg/L U3O8 500 ft3 resin, 2 lb./ft3 loading, Annualized Waste Water Flow; 1400 gpm 1 elution every 29 7 days or 12.3 elutions per year	Elution Costs (12 3 Elutions/year * $400/ Elution)				$ 1,010	75
b) Chemical Reductant (H2S or alternative)	$1 80/gpm/day ($1 25/1,000 gal.)	17,986,786	1200		$ 22,483	
c) RO Chemicals (H2SO4, Antiscalents, Oxygen Scavenger)	$0 57/gpm/day ($0 40/1,000 gal.)	86,336,572	800		$ 34,535	
SUBTOTAL					$ 58,028	
4 Repairs and Maintenance						
a) Wellfield and Waste Water Treatment	$10,000/mo	2.5	months		$ 24,572	
b) RO and process equipment	$5,000/mo	2.5	months		$ 12,286	
SUBTOTAL					$ 36,858	
5 Labor						
Supervisor @ $20 00 per hour		2 5	months		$ 7,863	
4 Operators @ $13 00 per hour		2 5	months		$ 20,444	
2 Maintenance @ $13 00 per hour		2.5	months		$ 10,222	
SUBTOTAL					$ 38,529	
6 Contract Laboratory Analysis						
11 Monitor Wells (24 samples/yr/well @ $20)		0.2	years		$ 1,081	
Stabilization Samples						
10 Wells - 3 complete Assays @$350					$ 10,500	
- 9 abbreviated assays @ $250					$ 22,500	
SUBTOTAL					$ 34,081	
7 Operating Expenses						
Supplies @$3,000/mo		2 5	months		$ 7,372	
Heating @$5,000/mo		1.2	months		$ 6,143	
Vehicle Fuel @$1,000/mo		2.5	months		$ 2,457	
Office Utilities @$1,000/mo		2 5	months		$ 2,457	
SUBTOTAL					$ 18,429	
TOTAL OPERATING COST TO RESTORE GROUNDWATER AT FULL PRODUCTION (Nominal Mine Unit)					$ 240,728	(1993$)
UNIT RESTORATION OPERATING COST			33 Patterns		$ 7,295	/Pattern
1993 -1997 Inflation (CPI-U) = 160 6/143 6 = 11 84%					$ 28,498	
RECOMPLETION ($640/well)(2 7 wells/pattern)(33 patterns)					$ 57,024	
			Total		$ 326,250	(1997$)

Table 7.8
SMITH RANCH PROJECT
Mining Unit Groundwater Restoration Costs
Wellfield #4A

1 APV = 57,287,069 gallons

RESTORATION COST COMPONENT	Unit Cost	Total Gallons Treated	Operating Flow Rate GPM		Total Cost	Number of Days
1 Wellfield Pumping Costs (Electrical costs)						
a) Groundwater Treatment (IX treatment Only) (100% of flow)	($0 117/1,000 gal)	343,722,413	1400	*	$ 40,216	239
b) Treated Groundwater Re-injection (bypass RO/EDR Treatment)	($0 117/1,000 gal)	206,233,448	600	*	$ 24,129	239
c) RO/EDR Treatment (800 GPM Feed 600 GPM Permeate)	($0.289/1,000 gal)	274,977,930	800		$ 79,469	239
e) Groundwater Sweep (GW Inflow to replace water sent to disposal)	($0 117/1,000 gal)	68,744,483	200		$ 8,043	239
SUBTOTAL	Total Treated Volume:	343,722,413	1000		$ 151,857	239
2. Chemical Treatment Power Costs						
a) Reverse Osmosis Unit	$0 10/gpm/day ($0 07/1,000 gal)	274,977,930	800		$ 19,248	
b) Disposal Well Operation	$0 05/1,000 gal	68,744,483	200		$ 3,437	
SUBTOTAL					$ 22,686	
3 Chemicals						
a) Waste Water Treatment (Resin Elut. Chem) @$400/elution, Waste Water @ 2 mg/L U3O8 500 ft3 resin, 2 lb./ft3 loading, Annualized Waste Water Flow; 1400 gpm 1 elution every 29 7 days or 12 3 elutions per year	Elution Costs (12.3 Elutions/year * $400/ Elution)				$ 3,217	239
b) Chemical Reductant (H2S or alternative)	$1 80/gpm/day ($1.25/1,000 gal)	57,287,069	1200		$ 71,609	
c) RO Chemicals (H2SO4, Antiscalents, Oxygen Scavenger)	$0 57/gpm/day ($0 40/1,000 gal)	274,977,930	800		$ 109,991	
SUBTOTAL					$ 184,818	
4 Repairs and Maintenance						
a) Wellfield and Waste Water Treatment	$10,000/mo	7 8	months		$ 78,261	
b) RO and process equipment	$5,000/mo	7.8	months		$ 39,131	
SUBTOTAL					$ 117,392	
5 Labor						
Supervisor @ $20 00 per hour		7 8	months		$ 25,044	
4 Operators @ $13 00 per hour		7 8	months		$ 65,113	
2 Maintenance @ $13 00 per hour		7 8	months		$ 32,557	
SUBTOTAL					$ 122,713	
6 Contract Laboratory Analysis						
36 Monitor Wells (24 samples/yr/well @ $20)		0 7	years		$ 11,270	
Stabilization Samples						
10 Wells - 3 complete Assays @$350					$ 10,500	
- 9 abbreviated assays @ $250					$ 22,500	
SUBTOTAL					$ 44,270	
7. Operating Expenses						
Supplies @$3,000/mo		7 8	months		$ 23,478	
Heating @$5,000/mo		3 9	months		$ 19,565	
Vehicle Fuel @$1,000/mo		7 8	months		$ 7,826	
Office Utilities @$1,000/mo		7.8	months		$ 7,826	
SUBTOTAL					$ 58,696	
TOTAL OPERATING COST TO RESTORE GROUNDWATER AT FULL PRODUCTION (Nominal Mine Unit)					$ 702,430	(1993$)
UNIT RESTORATION OPERATING COST			101 Patterns		$ 6,955	/Pattern
1993 -1997 Inflation (CPI-U) = 160.6/143.6 = 11 84%					$ 83,157	
			Total		$ 785,587	(1997$)

SECTION 8
HEALTH PHYSICS 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 previous surety estimates, PRI has elected at this time to continue to use the five (5) forward bond amount for NRC purposes.

SECTION 9
WHOLE TRUCKING COSTS

Cost Summary

ITEM	COSTS ($97)
9.3 Contaminated Trucking	523
9.4 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 $65.39/Hr = **$ 262**

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 previous surety estimates, PRI 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	22,068
Total Cost	22,068

Delineation Drilling Costs

Basis:	Unreclaimed delineation holes from 1998-2003	0
	Delineation holes to be drilled in 2003-2004	162
	Total Delineation Holes to be Bonded	**162**

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: 162 holes x $136.22/hole

Delineation Drilling Costs = ***$ 22,068***

1999 Reclamation Bond Estimate for DN236

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 bases that were used in the bond calculations provided in 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.

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)].