Rio Algom

Rio Algom Mining Corp.
P.O. Box 1390
Glenrock, Wyoming 82637 307.358.3744 tel
762 Ross Road 307.266.2449 tel
Douglas, Wyoming 82633 307.358.9201 fax

June 18, 2000

Certified Mail - 7099 3220 0002 1631 3563
Return Receipt Requested

Mr. Rick Chancellor
Wyoming Department of Environmental Quality
Land Quality Division
Herschler Building, Third Floor
122 West 25th Street
Cheyenne, Wyoming 82002-0600

Re: Annual Report
Permit To Mine #633
NRC License SUA-1548; Docket 40-8964
Smith Ranch Facility

Dear Mr. Chancellor:

Please find attached for the above referenced permit, Rio Algom Mining Corp.'s Annual Mining and Reclamation Report. This annual report covers the period of April 1, 1999 through March 31, 2000.

Enclosed within Appendix A of this annual report are the proposed WDEQ reclamation costs. Based on this analysis, the one (1) year forward WDEQ reclamation cost for the Smith Ranch permit facility is $8.093 million.

If you have questions regarding this submittal, please contact me at (307) 358-3744, extension 62.

Sincerely,

John Cash
Supervisor of Environmental & Regulatory Affairs

NMSSOIRblic

Attachments: As stated

xc: B. Ferdinand - (RAMC/Smith Ranch)
M. Freeman - (RAMC/OKC)
P. Goranson - (RAMC/OKC)
J. Lusher - (NRC/Washington D.C., SUA-1548, Docket 40-8964) - **Certified Mail - 7099 3220 0002 1631 3556**
D. Whyde - (U.S. BLM /Mills) - **Certified Mail - 7099 3220 0002 1631 3570**
file

RIO ALGOM MINING CORP.

SMITH RANCH PROJECT

WDEQ PERMIT #633

NRC LICENSE: SUA-1548
Docket: 40-8964

ANNUAL REPORT
1999-2000

Submitted
June 18, 2000

RIO ALGOM MINING CORP. - SMITH RANCH FACILITY
ANNUAL REPORT - PERMIT TO MINE NO. 633
YEAR 1999-2000

1. (a) Name of Permittee - **RIO ALGOM MINING CORP.**

   (b) Address - **P.O. Box 1390, Glenrock, Wyoming 82637**

   (c) Mining Permit No. - **Permit To Mine #633 (Permit Map - Figure 1, Appendix C)**

   (d) Date of Permit Issuance (and any amendments) - **June 18, 1991**

   (e) Material Mined - **Uranium**

   (f) State and Federal Lease Numbers - **No Federal Lease Number, State Lease Numbers #48-057-087 and #48-057-0009-1**

2. Report Period - **April 1, 1999 to March 31, 2000**

3. (a) Tabulate acreage disturbed (by pits roads, facilities, etc.) during the report period and illustrate on map.

The following table presents those areas which were disturbed during the report period and may require future reclamation activities:

TABLE 1
AREAS DISTURBED DURING 1999-2000 REVIEW PERIOD

Area	Acreage
Topsoil Pile #17[1]	0.2
Facility Fire Water System Tank[1]	0.1
Deep Disposal Well #2 Pad[1]	1.9
Trunkline #2 Pipeline Laydown Area[2]	1.1
Wellfield #4/Phase #2[2]	27.0
Wellfield #4/Phase #2 Staging Area[1]	0.3
Drill Water Facility Including Topsoil Pile #18[2]	0.1
Office Parking Lot[2]	0.4
Topsoil Pile #12[3]	0.2
Total	31.3

(1) New disturbances not previously included within the bond.
(2) Disturbance already included in bond.
(3) Disturbances already included in bond, however, area was increased by the area shown during this reporting period.

Presented in Table 2, are the disturbances planned during the next reporting period resulting from Smith Ranch mining activities and may require future reclamation activities:

TABLE 2
AREAS PLANNED TO BE DISTURBED DURING NEXT REVIEW PERIOD (2000-2001)

Area	Est. Acreage
Wellfield #4/Phase #2 Pipeline	5.9
Total	5.9

(b) Tabulate acreage affected to date by years and illustrate on map.

TABLE 3
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 Storage Area	1998	1.54
Satellite #1	1998	2.05
Wellfield #4 Storage Area	1998	1.64
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

Area	Year	Acreage
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 Including Topsoil Pile #18	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
Unreclaimed Areas	---	195.87
Areas Previously Reclaimed (See Table 4)	---	17.34
Total Acres	---	178.53

(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.

TABLE 4
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	0.25
Wellfield #1 Staging Area	1999	1.5
Total Acres	---	17.34

TABLE 5
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

(c) Tabulate all topsoil stockpile volumes, date of stockpiling and illustrate on map.

TABLE 6
ESTIMATED TOPSOIL INVENTORY

Topsoil Pile No.	Year	Volume (yd^3)	Amount Used	Remaining
1	1968	14,300	0	14,300
2	1968	15,800	13,550	2,250
3	1968	12,100	0	12,100
4	1968	520	0	520
5	1983	3,350	0	3,350
6	1983 & 1998	1,621	0	1,621
7	1983	300	0	300
8	1996	1,820	0	1,820
9	1997	60	0	60
10	1998 & 1999	3,217	0	3,217
11	1998	495	0	495
12	1998 & 1999	1,872	0	1,872
13	1998	4,653	0	4,653
14	1998	751	0	751
15	1999	490	0	490
16	1999	3,500	0	3,500
17	2000	300	0	300
18	1999	170	0	170
Total	---	65,319	13,550	51,769

(d) Tabulate all out-of-pit spoil volumes, dates of placement and illustrate on map.

TABLE 7
OUT of PIT SPOIL INVENTORY

Spoil	Year	Volume (yd^3)	Amount Used	Remaining
1	1997	2,120	2,120	0

(1) Note - The material is from the construction of the disposal well lined drilling ponds. The material is used as needed in the construction of the facility as fill and grade material.

(e) Tabulate quantity of commodity mined by years.

The following presents the quantity of U_3O_8 mined to date:

TABLE 8
U_3O_8 MINED

Year	Amount (Pounds)
Pre-1982[1]	24,800
1982-1989[2]	284,000
1990-Present[3]	24,529
1997-98[4]	182,301
1999[4]	1,640,139
2000[4,5]	385,445
Total	2,541,214

(1) Underground conventional mining production.
(2) ISL Pilot Plants production.
(3) ISL Pilot Plants standby production.
(4) Commercial ISL production (calendar year)
(5) January 1, 2000 through March 31, 2000

(f) Describe any new construction during the report period and illustrate on map; include:

1. Shop facilities, erection sites
2. Roads
3. Culverts
4. Diversion ditches, collector ditches, interceptor ditches
5. Sediment ponds, containment ponds
6. Monitoring sites

During the review period, various construction activities were completed that had been initiated during the prior report period. These are discussed below along with new construction activities initiated during this report period.

These items are noted in Figure 3-11 found in Appendix C of this submittal.

Please note that Rio Algom, pursuant to WDEQ/LQD letter dated February 11, 1999, specifically at Item 2.2, requested that the facility map in the annual report be labeled as Figure 3-11 for inclusion into the permit. In previous annual reports, these maps had been numerically numbered.

Wellfield #1

Activities in Wellfield #1 were limited to maintenance.

Wellfield #3

Construction in Wellfield #3 was limited to installation of pumps in header house 3-7, installation of culvert 3-12 and general maintenance.

Wellfield #4

New construction activities associated with Wellfield #4 included the completion of trenching the pipeline route for trunk line #2. The route of this trunk line is located in Figure 3-11 in Appendix C.

Also completed during the review period was the installation of production and injection wells in the wellfield. Construction of header houses 4-1 through 4-3 was completed along with associated trenching of electrical and water lines. Completion of header houses 4-4 through 4-6 is scheduled to be completed during the next reporting period. Header houses 4-1, 4-3, 4-4, and 4-5 are on an existing road. A road will be completed to header house 4-6 during the next report period. Contained in Appendix D, pursuant to Rio Algom's commitment during the November 17, 1998, meeting with WDEQ/LQD representatives and identified as Item 2.3 of WDEQ/LQD's letter dated February 11, 1999, are photo documentation and a map showing the locations of these photos showing the A-E horizons in wellfield #4 and other disturbed areas.

Construction of a pipeline from the CPP to header houses 4-1 and 4-2 was completed and reclaimed. A pipeline extension to header houses 4-3 and 4-4 was also completed along with a booster station. Construction of a pipeline extension from header house 4-4 to header houses 4-5 and 4-6

was initiated and will be completed in the next annual report. Miscellaneous construction consisted of installing culverts 4-1 and 4-2 and general maintenance.

Wellfield #4/Phase #2

All monitor wells were piloted, cased, completed, and MIT'd during the reporting period (see Fig. 3-11 in Appendix C). Piloting and completion of production and injection wells is ongoing.

A staging area was stripped of topsoil and covered with road base.

Miscellaneous

A drill water tank pad associated with well WW-27-1, located behind the satellite plant, was stripped of topsoil and covered with road base. Also completed during the reporting period was a parking lot at the facility office as well as Deep Disposal Well #2 near the satellite. Construction of a facility fire water system was initiated during the spring of 2000 and will be completed during the next reporting period.

Finally, consistent with Rio Algom's letter dated February 20, 1997, Rio Algom is providing the number, location, and abandonment procedures for delineation drill holes within the permit area. Please note that during the reporting period, there were a total of 1,199 delineation holes drilled within the permit. Maps indicating their locations and identification are presented as figures in Appendix C. Contained in Appendix B are the drill hole location tables.

The abandonment and plugging procedures utilized by Rio Algom include filling the drill hole to surface with an abandonment fluid which meets or exceeds the following specifications as required by WDEQ/LQD-Noncoal Rules, Chapter VIII:

* Ten minute gel strength of at least 20 lbs per 100 ft^2;
* Filtrate volume not to exceed 13.5 cc;
* Mud weight not less than 9 lbs per gallon.

The holes, which are filled within two (2) feet below the original land surface are followed with the placement of a 5" by 8" pre-cast concrete plug. The plug is tamped into the hole with the area above the cement plug backfilled with topsoil to the original ground level helping to assure that a minimum of at least 2 feet of fill is between the cement cap and the original land surface. Holes are generally surface capped the same day as drilling is completed.

(g) Describe any environmental problem areas and a proposed plan for mitigating them - illustrate on map; include:

1. Pit stability problems
2. Subsidence
3. Accidental water discharge, dam failure, etc.
4. Slumping or sliding
5. Revegetation problem areas

There were no pit stability problems as this is not applicable to the in-situ leaching operations associated with the Smith Ranch operation. In regards to items #2 and #4, subsidence and slumping respectively, there have been no observed problems associated with either of these items at the facility.

Provided in the table below are the dates, volume, and comments regarding accidental spills. Each of these items have been reported by phone and in writing to WDEQ. None of these spills were reportable for any other reason than the volume exceeded 420 gallons. There were no significant environmental effects, and none will effect the final reclamation plans. All spills were mitigated immediately by repairing the failed equipment.

TABLE 9
ACCIDENTAL SPILLS, 1999-2000 REVIEW PERIOD

Date	Location	Volume	Notation
7/21/99	WF 3, Header House 2	15,300	Rupture of line
9/1/99	Wellfield 3, well 3-I-251	1,600	Mechanical failure at the wellhead
10/5/99	WF 1, Header House 1	930	Mechanical failure of piping while a bag filter was being changed
10/30/99	Wellfield 1, well 1-P-106	1,000	Mechanical failure of a check valve
11/28/99	WF 3, well 3-P-133	1,500	Mechanical failure of a rubber hose
12/4/99	WF 1, Header House 2	50,000	An aluminum camlock fitting failed
12/11/99	WF 1, Header House 2	25,000	An aluminum camlock fitting failed
12/31/99	WF 1, Header House 5	3,000	A glue joint holding PVC pipe together failed
1/17/00	WF 4, well 4-P-2	6,300	A manufacturer's crimp fitting on a wellhead failed
2/26/00	WF 4, well 4-P-13	3,780	A manufacturer's crimp fitting on a wellhead failed

Rio Algom would also like to reference for incorporation as part of this report, its submittal dated April 26, 1999, which responds to WDEQ/LQD's inspection report of February 26, 1999. This response provides additional

information relative to the facility's efforts regarding re-vegetation, culvert review, and topsoil management. Rio Algom wishes to note that these descriptions and the above referenced report address items 3.2 and 3.3 contained within WDEQ/LQD letter dated February 11, 1999.

4. (a) Tabulate the reclaimed acreage completed during the report period and illustrate on map. Distinguish between:
   1. Backfilled, graded, and contoured. Include date of approval for coal permits.
   2. Topsoiled
   3. Seeded
   4. Reseeded
   5. Indicate where special construction or reclamation practices were used such as for sand bodies or alluvial material.

Wellfield #1

Reclamation activities in Wellfield #1 consisted of seeding the associated staging area previously used for storage of drilling and casing supplies in the fall of 1999. The area was reseeded with a long-term seed mixture during the spring of 2000 because the fall seeding failed to germinate. Green belts in Header Houses 1-2, 1-3, and 1-4 were planted with cover crop in the spring of 1999. All header houses were seeded with a long-term mixture in the fall of 1999.

Wellfield #3

Green belts throughout the wellfield were seeded with cover crop in the spring of 1999. During the fall of 1999 the entire wellfield was planted with a long-term see mixture including access roadways within the wellfield patterns.

Wellfield 4

During the report period topsoil was reapplied to Header Houses 4-1, 4-2, and 4-3 as well as on the pipeline within the wellfield.

Cover crop was planted along the wellfield access road from Ross Rd. to Header House 4-5 in the fall of 1999. Short sections of two track roads created during the installation of the monitor well ring were seeded with cover crop in the fall of 1999.

A long term seed mixture was applied in the areas of Header House 4-1, 4-2, and 4-3 and along the main roadway from Ross Rd. to Header House 4-1 and 4-2 during the fall of 1999.

Miscellaneous

Ranch roads south of Wellfield 1 in May 1999 were planted with cover crop.

Long-term seed was planted during the Fall of 1999 on: trunkline #2 from the mine facility to Ross Rd and its associated lay down area., along the road from the mine road to the Wellfield #2 staging area, on the pipeline disturbance from just northwest of twin towers to the satellite, along the road to the sheep pond in section 24 of T36N R74W, south of the oxygen tank by the main facility, around the satellite including topsoil pile #18, and ranch roads southeast of Wellfield #1.

During the spring of 2000 newly constructed turnouts and terraces along the road to the powder houses were seeded with cover crop.

All delineation holes drilled during the reporting period have been reclaimed with the exception of holes drilled immediately north of Wellfield #4 in section 35 of T36N R74W and those north of Wellfield #3 in sections 13, 14, and 24 of T36N R74W which were reclaimed after March 31, 2000.

For the purposes of this report, the items noted in the discussions above are considered "interim reclamation" activities and are provided to WDEQ/LQD as information pertaining to on-going operations. Interim reclamation means the regrading, contouring, topsoiling and re-vegetation, as may be applicable, on disturbed areas that are associated with on-going or active mine construction and/or production activities. This is to be distinguished from "final reclamation" activities which will commence and be completed upon cessation of mining activities for that particular area. Accordingly, as noted in Table 10, there were no areas during the review period where activities were performed towards "final reclamation".

TABLE 10
1999-2000 RECLAIMED ACREAGE - FINAL (acres)

Area	Backfilled, Graded, Contoured	Topsoiled	Seeded	Reseed	Special Practices
None	---	---	---	---	---

(b) Submit a map showing the reconstruction contours. The map must be the same scale and contour interval as the PMT map in the approved permit.

Not applicable during the 1999-2000 review period.

(c) Tabulate acreage reclaimed (seeded with permanent seed mix) to date by years and illustrate on map.

As previously noted in Item 4(a), there was no final reclamation during the reporting period.

(d) Describe reclamation procedures used during the report period:

1. Depth of topsoil applied. Indicate whether from stockpile or directly applied.
2. Type of seed used for seeding during the report period.
3. Dates of seeding during the report period.
4. Seeding procedures used.
5. Rate of seed application.
6. Type and rate of any fertilizer applied.
7. Type and rate of mulch applied.
8. Rate of irrigation water applied.
9. Any deviations to the approved reclamation plan including, in addition to the items above, changes to the contours or location of post mining features.

As previously indicated in Item 4(a), there were no areas during the review period where "final reclamation" activities were performed. Accordingly, as noted in Table 11, there were no areas during the review period where activities were performed towards "final reclamation".

TABLE 11
1999-2000 RECLAMATION PROCEDURES

Area	Depth of Topsoil	Seed Type	Seeding Date	Seed Procedure	Rate of Application	Type/Rate of Fertilizer	Type/Rate of Mulch	Rate of Irrigation	Deviation from Plan
None	---	---	---	---	---	---	---	---	---

(e)Describe results of previous revegetation efforts; include:

1. Types of seed that have germinated and are growing.
2. Types of seed that are not growing successfully.
3. Areas experiencing problems with weeds and weed types.
4. Significant erosional problems.
5. Areas of unsuitable overburden on the surface.
6. Procedures used or proposed to correct these problems.

TABLE 12
RECLAMATION RESULTS

Area	Type of Seed Germinated	Type of Seed Not Growing	Weed Problems	Areas of Unsuitable Overburden	Procedures To Correct Unsuitable Overburden
Bill Smith Mine Test Well Sites	(1)	All Growing	---	N.A.	N.A.
Misc. - Bill Smith Mine	(1)	All Growing	---	N.A.	N.A.
ISL Pilot Pipeline & Wellfield	(1)	All Growing	---	N.A.	N.A.
Mine Settling Ponds #1/#2	(1)	All Growing	---	N.A.	N.A.

(1) Streambank wheatgrass, western wheatgrass, thickspike wheatgrass, green needlegrass, indian ricegrass, blue grama, fourwig saltbush.

(f) Summarize the actual reclamation costs incurred during the report period. Costs should be itemized for each operation (i.e. grading, topsoil replacement, seeding, etc.) and for each type of disturbance (i.e. spoil, haul roads, facilities removal, etc.) on a per-acre basis.

No final reclamation activities were performed during the period.

5. Describe in detail mining plans for the coming year including revised time schedules and all proposed deviations from previously approved plans. Acreage should be tabulated and illustrated on a map.

Production in Wellfield #1 is scheduled to continue throughout the 2000-2001 report period. No significant changes are planned for the wellfield.

Production in WF #3 will continue throughout the next reporting period as scheduled. The planned second completions are scheduled to begin in the fall of 2000.

The mine plan for the coming year includes completing construction of

Wellfield #4 Phase #1 and Phase #2 header houses. Wellfield #4 is located on Sections 33, 34, 35, T36N R74W and Section 2, T35N R74W. Header houses 4-3 through 4-9 are scheduled to be brought into production during next report period. WDEQ approval is required before initiating production in header houses 4-7 through 4-11. Reclamation costs for the first six (6) header houses for Wellfield #4 were previously included in last year's reclamation bond. The reclamation costs associated with phase 2 of wellfield #4 and its five (5) header houses (HH4-7 through HH4-11) have been incorporated into the proposed bond in Appendix A of this report.

The mine plan also includes development of Wellfield #2 with production scheduled to commence in 2002. Wellfield #2 is located in sections 25, 26, and 36, T36N R74W. Delineation drilling is scheduled to occur during the 2000-2001 report period. Rio Algom has included the reclamation costs for Wellfield #2's monitor wells in this year's bonding since these will be constructed during the next reporting period. The reclamation costs for this wellfield's production and injection wells will be included in the reclamation bond during the next review period as they are not scheduled for installation and operation until the 2001-2002 report period and thus, are beyond the one (1) year forward proposed surety covering the period of 2000-2001.

Wellfield #10 continues to be reviewed for optimal mining and resource enhancement. It is now anticipated that wellfield #10, which is located in sections 7, 8, 17, and 18 of T35N R74W, will be brought into production later than 2000 as reported in the 1998-1999 Permit 633 Annual Report. However, delineation drilling, is scheduled to take place during the next reporting period.

The areas where each of these activities are planned is shown in Figure 3-11 which is enclosed within Appendix C of this report.

6. Describe in detail reclamation plans for the coming year including revised time schedules and deviations from previously approved plans. Acreage should be tabulated and illustrated on a map.

Rio Algom will continue to initiate interim reclamation practices associated with re-vegetation of disturbed areas for topsoil stabilization including all topsoil piles, culvert maintenance, other mine related disturbances along with other items such as road maintenance.

7. Describe in detail all monitoring activities during the report period, summarize the data, describe procedures to correct any noted problems and deviations from previously approved methods, including:

(a) Groundwater Analyses
(b) Surface water analyses and discharge data
(c) Precipitation data
(d) Subsidence monitoring
(e) Overburden analyses
(f) Topsoil quantities - compare calculated and actual
(g) Vegetation data
(h) Wildlife data
(i) A map showing and identifying monitoring locations

(a) Groundwater Analysis

(1) Wellfield #1 - operation for this wellfield commenced on June 20, 1997. Production continued during the report and is scheduled to continue in the next report period. Provided in Table 13 is the water balance for this wellfield.

TABLE 13
WELLFIELD #1 - WATER BALANCE (Calendar Year 1999)

Item	Gallons (unless noted)
Recovery Volume	779,879,007
Injection Volume	775,355,065
Overrecovery Volume	4,523,942
Ave. Production Rate (gpm)	1,484

(2)Wellfield #3 - operation for this wellfield commenced on August 10, 1998. Production activities continued during the report and is scheduled to continue in the next report period. Provided in Table 14 is the water balance for this wellfield.

TABLE 14
WELLFIELD #3 - WATER BALANCE (Calendar Year 1999)

Item	Gallons (unless noted)
Recovery Volume	1,802,995,284
Injection Volume	1,793,660,088
Overrecovery Volume	9,335,196
Ave. Production Rate (gpm)	3,430

(3)Wellfield #4 - operation for this wellfield commenced on September 9, 1999. Production activities continued during the report and are scheduled to continue in the next report period. Provided in Table 14 is the water balance for this wellfield.

TABLE 15
WELLFIELD #4 - WATER BALANCE (Calendar Year 1999)

Item	Gallons (unless noted)
Recovery Volume	170,243,760
Injection Volume	169,256,206
Overrecovery Volume	987,554
Ave. Production Rate (gpm)	324

(4) Wastewater routed to disposal well: 20,153,926 gallons

(5) Water and Excursion Monitoring:

During the report period, the mechanical integrity tests (MIT) and monitor well results were completed and forwarded to WDEQ/LQD by reports dated April 27, 1999; July 15, 1999; October 25, 1999; January 31, 2000; and April 18, 2000. Rio Algom wishes to incorporate these submittals "by reference" for inclusion into this report. There were no excursions or UCL parameters exceeding any of their established UCL levels.

(b) Surface water analyses and discharge data

(1) NPDES Discharge

Water quality monitoring for the facility's NPDES permit No. WY-0022411 continues. These analyses were previously submitted to LQD within the semi-annual effluent report dated August 27, 1999, and February 29, 2000. These results are referenced for this report.

(2) Evaporation Ponds:

With the initiation of commercial operations, the evaporation ponds are sampled semi-annually. Accordingly, the evaporation pond samples were submitted as part of the semi-annual effluent reports dated August 27, 1999, and February 29, 2000. These submittals are referenced for this report.

(c) Precipitation data

Not Applicable

(d) Subsidence monitoring

Not Applicable

(e) Overburden analyses

Not Applicable

(f) Topsoil quantities - compare calculated and actual

See Table 6 for topsoil quantities.

(g) Vegetation data

RAMC wishes to reference the Semi-annual Effluent Report dated August 27, 1999.

(h) Wildlife data

During operational monitoring, no threatened or endangered species were seen within the permit boundary or the immediate area surrounding the permit area. See Figure 7 in Appendix E for results of raptor monitoring.

(i) A map showing and identifying monitoring locations

This is included within Appendix C as Figure 2.

(j) Environmental Radiological Monitoring Data

(1) Radon Survey:

Radon-222 is measured downwind from the facility at three (3) locations identified as Vollman Ranch, Fenceline, and Dave's Water Well. These measurements are made using a continuous passive radon detector. The detector is exchanged for analysis on a quarterly basis with the results having been submitted as part of the semi-annual effluent reports dated August 27, 1999, and February 29, 2000. Rio Algom wishes to incorporate this information by reference. The first quarter radon results will be submitted as part of the 1st half 2000 semi-annual effluent report.

(k) Gamma Radiation Survey:

Direct gamma radiation is measured quarterly at a number of locations and submitted as part of the semi-annual effluent report. Rio Algom wishes to incorporate by reference the reports dated August 27, 1999, and February 29, 2000, for incorporation into this report. The first quarter gamma results will be submitted as part of the 1st half 2000 semi-annual effluent report.

(l) Sediment/Soil Surveys:

Soil samples are collected on an annual basis and are reported with the semi-annual effluent report. Accordingly, Rio Algom would like to reference the August 29, 1999, "Semi-annual Effluent Report" for inclusion into this report.

8. Operator's Reclamation Performance Bond Estimate as required by Wyoming Statute §35-11-417. Reclamation cost estimate should be itemized in detail to reflect the actual estimated costs of reclaiming all lands which have been affected to date and those lands to be affected during the next report period. Costs must reflect procedures as specified in the approved mine and reclamation plan. The estimated cost of dismantling and disposal of all facilities and structures must be included. Salvage value will not be used to offset bonding requirements. Reclamation costs must reflect actual yardages to be moved. Actual yardages to be moved will reflect the removal or placement of additional material to correct any deviations between the PMT map and the map submitted for part 4.(b).

Attached in Appendix A is the 2000-2001 proposed surety showing the WDEQ one (1) forward reclamation costs.

The proposed 2000-2001 annual surety adjustment continues to use the WDEQ approved reclamation surety basis for this year's revised surety. Based on this analysis, the one (1) year forward WDEQ reclamation cost for the Smith Ranch permit facility is $8.093 million. Provided within Appendix A of this report are; (1) bond calculations incorporating additional surface disturbances from commercial construction activities (see Table 1) using the WDEQ approved bond basis contained within Appendix 4 "Existing Facilities", Section 4.5 "Site Reclamation"; and (2) bond calculations for reclamation of delineation holes within the permit area.

9. Supply any additional information as requested by the Division related to:
   (a) Notices of violation
   (b) Order
   (c) Permit stipulations; and
   (d) Other special conditions

There were no outstanding information issues related to notices of violations, orders, permit stipulations, or other special conditions requiring further information by Rio Algom.

10. All drill holes used for immediate developmental expansion of the advancing pit(s) shall be tabulated by location and depth and shown on the mining plan map. Pursuant to W.S. §35-11-404(e), all drill holes used for exploration shall be reported to the LQD Abandoned Drill Hole Program Supervisor and the State Engineer.

    Please note that during the review period, there were a total of 1,199 such holes drilled within the permit with an average depth of 736 feet. Maps indicating their locations are presented as Figures 4-1 through 4-4 in Appendix C with the Drill Hole tabulation included in Appendix B.

Annual Report Attachment

A. No changes were made to the company name or business organization during the report period.

B. The General Manager - Bill Ferdinand: P.O. Box 1390, Glenrock, WY 82637
The party to receive notice is John Cash: P.O. Box 1390, Glenrock, WY 82637

C. Rio Algom Mining Corp. Preseident - Rob Luke
Rio Algom Mining Corp. Executive Vice President - Marvin Freeman
Rio Algom Mining Corp. Manager, Radiation Safety, Regulatory Compliance and Licensing - Paul Goranson

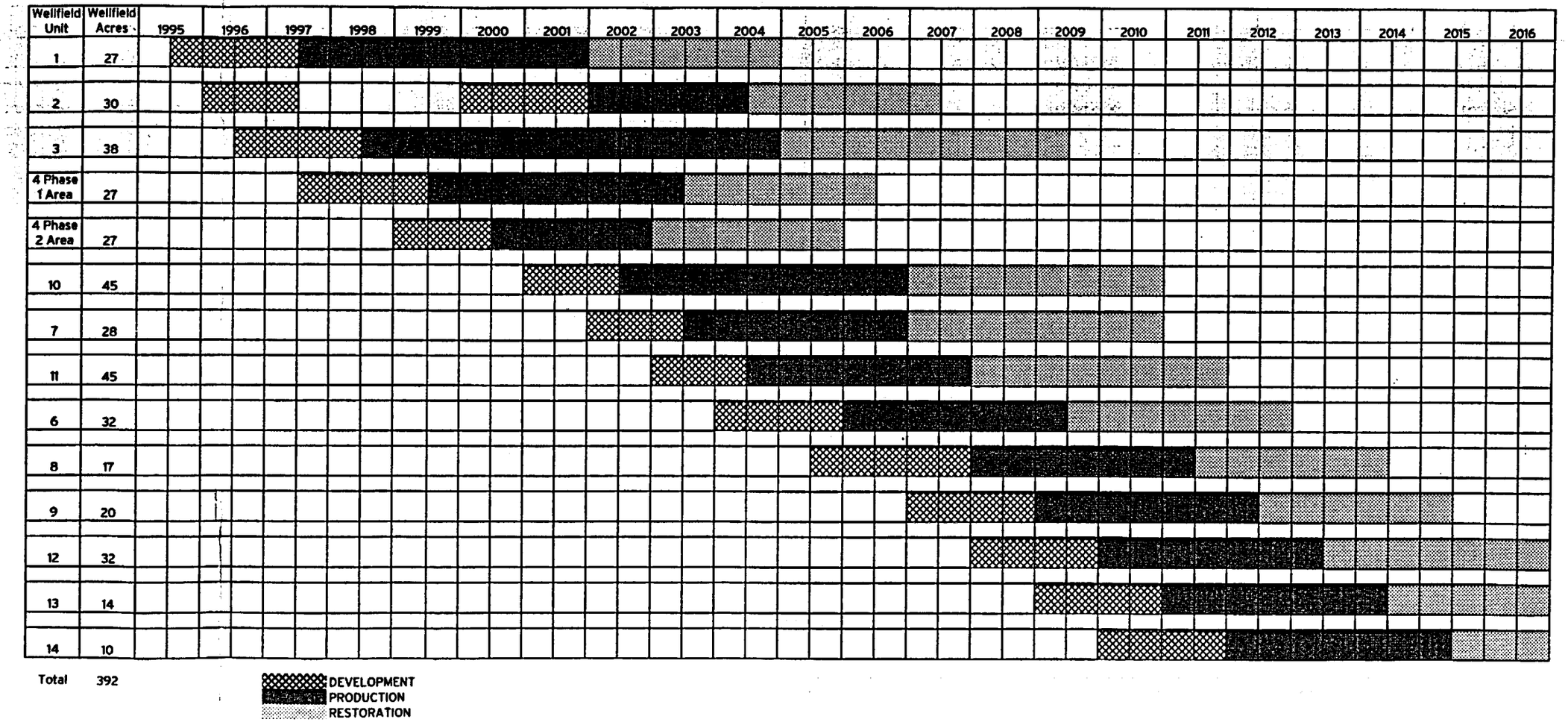
All the above officers can be reached at :

Rio Algom Miining Corp.
6305 Waterford Blvd.
Suite 325
Oklahoma City, OK 73118

Attachments:

Appendix A - Proposed Bond
Appendix B - Drill Hole Tables
Appendix C - Maps
Appendix D - Topsoil Profile Map and Pictures
Appendix E - Raptor Monitoring Results

TABLE 3-1
PROJECTED DEVELOPMENT SCHEDULE BY WELLFIELD



APPENDIX A

PROPOSED BOND

RIO ALGOM MINING CORP.

SMITH RANCH FACILITY

SURETY BOND

2000-2001

RIO ALGOM MINING CORP.
ANNUAL ADJUSTMENT OF RECLAMATION SURETY
2000-2001

Shown below is the 2000-2001 proposed annual surety adjustment for the Smith Ranch facility. The 2000-2001 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 2000-2001 surety includes new disturbances resulting from commercial construction activities as shown in Table 1, along with the anticipated one year (1) forward reclamation costs associated with installation and operation of Wellfield #1, Wellfield #3, Wellfield #4 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 1.3% from April 1997 (CPI 160.2) through April 2000 (CPI 171.2). The proposed 2000-2001 reclamation surety amount for the WDEQ is $8.093 million.

PART I - SURETY BOND SUMMARY

Presented below in Table 1, is the summary of the itemized bond calculations for the review period of 2000-2001. 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, 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.

Increased Disposal Capacity for Restoration Bonding Amount

In a letter dated May 8, 1998, to WDEQ/LQD, RAMC committed to increasing the bonding amount for Permit #633 to reflect the installation of additional disposal capacity required for restoration. This commitment is in response to the first round comments for TFN 3 6/142 dated October 22, 1997. The comment was 0.3(c) regarding the water balance through the plant to include 6000 gpm of production, the resulting bleed, and the ability to handle 1,000 gpm of restoration flow. The resulting water balance would be approximately 300 gpm of required wastewater disposal capacity. The current disposal well is permitted to accept a maximum average flow of 150 gpm. In 1999, RAMC constructed and successfully permitted a second disposal well that will meet the waste disposal capacity requirements from simultaneous production and restoration operations. Therefore, the line item setting aside $1,000,000 will be removed and closure costs for the new disposal well will be included in the reclamation costs.

Groundwater Restoration Cost Estimate

During the 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 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 number 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.

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
2000-2001 PROPOSED WDEQ/LQD BOND

WORK UNIT	ONE YEAR FORWARD WDEQ/LQD & NRC 2000-2001 BOND AMOUNT
Ion Exchange Plant[1] (NRC Related Activity)	
Building	40,116
Tankage and Vessels	39,913
Piping	13,224
Pumps	6,094
Electrical	9,470
Foundations	48,588
Plant Site	2,058
Access Road	1,054
SUB-TOTAL	160,517
Central Processing Plant (NRC Related Activity)	
Buildings	57,548
Tankage and Vessels	60,246
Piping	10,846
Pumps	10,965
Electrical	19,682
Foundations	69,719
SUB-TOTAL	229,006
Dryer Area (NRC Related Activity)	
Buildings	16,222
Equipment	14,739
Foundations	16,802
SUB-TOTAL	47,763
Existing Facilities	
Buildings (NRC Related Activity)	95,635
Structures (NRC Related Activity)	14,067
Pilot Plant Equipment (NRC Related Activity)	21,266
Foundations (NRC Related Activity)	139,333
Site Reclamation[3]	124,677
O-Sand Pilot (NRC Related Activity)	41,435
Q-Sand Pilot (NRC Related Activity)	N/A

WORK UNIT	ONE YEAR FORWARD WDEQ/LQD & NRC 2000-2001 BOND AMOUNT
Mine Water Treatment Ponds	19,878
SUB-TOTAL	456,291
Unit Header Site & Wellfields[4] (NRC Related Activity)	
Buildings	78,534
Header Piping	138,664
Secondary Electrical	133,493
Wells-Totals	533,972
Monitor Wells-Total	73,515
Site Reclamation	51,663
SUB-TOTAL	1,009,842
Associated Structures	
#1 Trunkline (5,000 ft ea) (NRC Related Activity)	52,108
#2 Trunkline (10,000 ft ea) (NRC Related Activity)	104,216
Radium Settling Ponds (NRC Related Activity)	70,077
Plugging & Aband. Disposal Well #1 (NRC Related Activity)	77,735
Plugging & Aband. Disposal Well #2 (NRC Related Activity)	77,735
Sand Mining Area	13,173
Land Fill	1,500
Fire Protection System	23,326
SUB-TOTAL	419,871
Groundwater Reclamation & RO Units (NRC Related Activity)	
Restoration	3,467,261
Health Physics and Radiation Surveys (NRC Related Activity)	
Monitoring	168,470
Whole Trucking (Remaining Fractional Units) (NRC Related Activity)	
Contaminated Trucking	523

WORK UNIT	ONE YEAR FORWARD WDEQ/LQD & NRC 2000-2001 BOND AMOUNT
Non-contaminated Trucking	157
Delineation Hole Reclamation	96,852
SUB-TOTAL OF ALL ABOVE	6,056,553
Overhead and Profit at 10%	605,655
Contingency at 15%	908,483
SUB-TOTAL OF ALL ABOVE	7,570691
Inflation - 6.9% (4/97 CPI-160.2 through 4/00 CPI-171.2)	522,376
TOTAL (in 1999$)	8,093,069

(1) Incorporates additional surface disturbances (2.6 acres) from commercial construction activities along with new items including fencing, water wells, and fuel storage area.

3. (a) Tabulate acreage disturbed (by pits roads, facilities, etc.) during the report period and illustrate on map.

The following table presents those areas which were disturbed during the report period and may require future reclamation activities:

TABLE 1
AREAS DISTURBED DURING 1999-2000 REVIEW PERIOD

Area	Acreage
Topsoil Pile #17[1]	0.2
Facility Fire Water System Tank[1]	0.1
Deep Disposal Well #2 Pad[1]	1.9
Trunkline #2 Pipeline Laydown Area[2]	1.1
Wellfield #4/Phase #2[2]	27.0
Wellfield #4/Phase #2 Staging Area[1]	0.3
Drill Water Facility including Topsoil Pile #18[2]	0.1
Office Parking Lot[2]	0.4
Topsoil Pile #12[3]	0.2
Total	31.3

(1) New disturbances not previously included within the bond.
(2) Disturbance already included in bond.
(3) Disturbances already included in bond, however, area was increased by the area shown during this reporting period.

Presented in Table 2, are the disturbances planned during the next reporting period resulting from Smith Ranch mining activities and may require future reclamation activities:

TABLE 2
AREAS PLANNED TO BE DISTURBED DURING NEXT REVIEW PERIOD (2000-2001)

Area	Est. Acreage
Wellfield #4/Phase #2 Pipeline	5.9
Total	5.9

(b) Tabulate acreage affected to date by years and illustrate on map.

TABLE 3
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 Storage Area	1998	1.54
Satellite #1	1998	2.05
Wellfield #4 Storage Area	1998	1.64
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

Area	Year	Acreage
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 Including Topsoil Pile #18	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
Unreclaimed Areas	---	195.87
Areas Previously Reclaimed (See Table 4)	---	17.34
Total Acres	---	178.53

(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.

TABLE 4
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	0.25
Wellfield #1 Staging Area	1999	1.5
Total Acres	---	17.34

TABLE 5
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

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	13,224
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	160,517

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 = $ 5,503
- 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 = $ 8,521

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

Piping Total = *$ 13,224*

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

Mining Co., NRC license SUA-1473
[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

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 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 @ $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 / 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

[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

• 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	=	*$ 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	69,719
Total Cost	229,006

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 = 19 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

---

[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

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 (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

[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

Sub-total = $ 19,159

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

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 = $ 2,646
- 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 = $ 8,763

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 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 = *$69,719*

[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

[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

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 (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

[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

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 @ $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:

[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

• Materials = 259 Cu.Yd. Cover @ $1.09/Cu.Yd.	=	$ 282
Foundation Total	=	*$ 16,802*

SECTION 4
EXISTING FACILITIES RECLAMATION COSTS
Cost Summary

ITEM	COSTS ($97)
4.1 Buildings	95,635
4.2 Structures	14,067
4.3 Pilot Plant Equipment	21,266
4.4 Foundation	139,333
4.5 Site Reclamation	124,677
4.6 O-Sand Pilot	41,435
4.7 Q-Sand Pilot	N.A.
4.8Mine Water Trt Ponds	19,878
Total Cost	456,291

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) = $ 270

- 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 = $ 2,396

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
20000 ft

- Cost to remove fencing = $0.15/ft[12] = $ 3,000

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 = *$14,067*

4.3 Pilot Plant Equipment

A. Tanks:
15 Tanks
- Total = 15 Tanks x $55,926* / 51 Tanks = $ 15,095

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* = $ 2,986

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

43 Pumps

* Reference Section 2 - parts 2.2, 2.3 & 2.4

Pilot Plant Total = *$ 21,266*

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: 70.2 Acres = 3,057,912 Ft.^{2}

A. Rip & Contour:

• Rip & Contour @ $166.68/Acre x 70.2 Acre	=	$ 11,701

B. Topsoil Placement:

Replace 8 In.* Topsoil = 2,038,608 Ft.^{3} = 75,504 Cu.Yd.

• Topsoil @ $1.09/Cu. Yd.	=	$82,229

* 8 In. Topsoil Removed in Previous Years

C. Revegetate:

• Grade and Contour @ $87.19/Acre x 70.2 Acre	=	$ 6,121
• Seedbed Prep. (Disc. + Harrow) @ $ 21.80/Acre x 70.2 Acre	=	$ 1,530
• Mulch (Drill + Seed + Mow) @ $ 49/Acre x 70.2 Acre	=	$ 3,440
• Drill Seed and Fertilize (Drill + Seed + Fertilizer)@ $163/Acre x 70.2 Acre	=	$ 11,443
• Revegetation Contingency* @ $234/Acre x 35.1 Acre (All items excluding grading)	=	$ 8,213
Sub-total	=	$ 30,747
Site Reclamation Total	=	*$124,677*

* Assume only 50% of acreage requires reseeding

4.6 O-Sand Pilot

A. Surface Reclamation:

Basis = 6 Patterns

• Total = 6 Patterns x $16,669*	=	$ 10,001

[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

10 Patterns

* Reference Section 5 - Summary Table Cost Per Pattern

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) 507 Patterns 2000-2001
5.1 Buildings	1,549	78,534
5.2 Header Piping	2,735	138,664
5.3 Secondary Electrical	2,633	133,493
5.4 Wells-Total	10,532	533,972
5.5 Monitor Wells - Total	1,450	73,515
5.6 Site Reclamation	1,019	51,663
Total Cost	19,918	1,009,842

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. - 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 $\left(\frac{45\ Cu.\ Yd.}{100\ Ft.}\right)$ x $\left(\frac{Hr.}{26\ Cu.\ Yd.}\right)$ = 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 (45 $\frac{Cu.Yd.}{100\ Ft}$) x $\left(\frac{Hr}{65\ Cu.Yd.}\right)$ = 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
  + $0.54/Mile x 0.5 Day x 120 Mile/Day = $ 32
- Eq. Rental = 1 - Bucket Truck @ $ 37.36/Hr

[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

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 =
$10 \times \frac{(24in. \times 10in. \times 8in.)}{1728}$ = 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

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

---

[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

- 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 = $ 1,019

* Assume only 50% of acreage requires reseeding

Site Reclamation Total = *$ 1,030*

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	23,327
Total Cost	419,871

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. (Cat. 225 1.25 Cu. Yd. Bucket)
Hr

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 (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 = $ 59
  (All items excluding grading)

* 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)

[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

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 (All items excluding grading)	=	$ 585
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

[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

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

6.7.1 FIRE MAIN

Basis: 1 - 8 in. Fire Main Buried @6 Ft.

Length = 2,500 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 - 2 Days:
(2,500 Ft.) x (89 Cu. Yd. / 100 Ft.) x (___ Hr. ___ / 150 Cu. Yd.) = 15 Hrs - Round to 16 Hrs

- Eq. Rental = 1 - Cat. 225 Trackhoe @ $103/Hr
  $103/Hr x 16 Hr = $ 1,648

B. Remove, Cut and Load - 5 Days:
1 - 2,500 Ft Fire Main @ 140 Ft/Man-Day = 179 Man-Day
= 5 Crew-Day

- Labor Crew = 1 - Foreman @ $19.80/Hr
  4 - Laborers @ $11.95/Hr
  $67.60/Hrs x 32 Hr = $ 2,163
- Travel = $67.60/Hr x 15 Days x 1 Hr/Day = $ 338
- Eq. Rental = 2 - Backhoe @ $25.00/Hr
  2 - Chainsaw @ $ 2.20/Hr
  $54.40/Hr x 32 Hr = $ 1,741

$5,890

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

(2,500 Ft.) x (89 Cu. Yd. / 100 Ft.) (___ Hr. ___ / 130 Cu. Yd.) = 17 Hrs - Round to 24 Hrs

- Eq. Rental = 2 - Backhoes @ $ 25/Hr

$ 50/Hr x 24 Hrs = $ 1,200

D. Decontaminate - 0 Days: = $ 0

E. Haul & Dispose - Land Fill:

Pipe = 2,500 Ft. 8" SDR-11 @ 8.42 #/Ft.

$$\frac{(2{,}500\ \text{Ft})(8.42\ \#/\text{Ft})}{(62.4\ \#/\text{Ft}^3)(0.955)(0.6)} = 588\ \text{Ft.}^3 @ 21{,}050\#$$

Total = 588 Ft.^{3} @ 21,050 #
= 21 CY @ 21,050 #

- Haul 1 Truck x $\frac{8\ \text{Hr.}}{\text{Truck}} \times \frac{\$60}{\text{Hr}}$ = $480

- Dispose - See Appendix 6.5

F. Surface Reclamation:
4 Ft. x 2,500 Ft. = 10,000 Ft.^{2} = 0.3 Acres

• Grade and Contour	@ $ 80/Acre x 0.3 Acre	= $ 24
• Seedbed Prep. (Disc. + Harrow)	@ $ 20/Acre x 0.3 Acre	= $ 6
• Mulch (Drill + Seed + Mow)	@ $ 45/Acre x 0.3 Acre	= $ 13.5
• Drill Seed and Fertilize (Drill + Seed + Fertilizer)	@ $150/Acre x 0.3 Acre	= $ 45
• Revegetation Contingency* (All items excluding grading)	@ $215/Acre x 0.15 Acre	= $ 32
		$ 121

* Assume only 50% of acreage requires reseeding

Trunkline Sub-Total (End of Year - 1992$)	$ 9,339
1997 CPI Escalation = 14.4%	$ 1,344
Trunkline Total (End of Year - 1993$)	$10,683

6.7.2 TANKAGE AND VESSELS

Basis: 32 Ft. Dia. x 26 Ft. x ¼" steel - 4,222 Ft.2 x ¼" = 88 Ft.^{3} with no voids
= 42,876 lbs
= 147 Ft.^{3} with 40% voids

A. Decontaminate - 0 Days: = $ 0

B. Remove and Load - 5 Days:
- Labor Crew = 1 - Foreman @ $ 19.80/Hr*
  1 - Operator @ $ 16.25/Hr

2 - Laborers @ $11.95/Hr
$59.95/Hr x 40 Hr = $2,298

- Travel = $59.95/Hr x 5 Days x 1 Hr/Day = $ 300

- Eq. Rental = 1 - 20 Ton Crane @ $34.31/Hr
$34.31/Hr x 40 Hrs = $1,372

$3,970

C. Dismantle, Cut, or Crush - 5 Days:
Cut Steel @ 30 Ft^3/Man-Day @ 147 Ft^3 = 5 Crew-Days
Crush FRP @ 60 Ft^3/Man-Day @ 111.4 Ft^3 = 0 Crew-Days

- Labor Crew = 1 - Foreman @ $*
1 - Welder @ $17.75/Hr
2 - Laborers @ $11.95/Hr
$41.65/Hr x 40 Hrs = $1,666

* Foreman supervises both 2.2 B. & 2.2 C.

- Travel = $41.65/Hr x 5 Days x 1 Hr/Day = $ 208

- Eq. Rental = 1 - D8N Dozer @ $0/Hr
1 - Welder/Torch @ $10/Hr
$10/Hr x 40 Hrs = $ 400
$2,274

D. Haul and Dispose - On-Site Land Fill:
100% of Non-Contaminated Service = 147 Ft^3 @ 42,976#
Total = 5.4 Cu.Yd. @ 42,976# = 1 Truckloads @ 47,000#

- Haul = 1 Truck x 8 Hrs/Truck x $60/Hr = $ 480
- Dispose = See Appendix 6.5 $ 480

Tankage & Vessels Sub-Total (End of Year - 1992$) $6,724
1997 CPI Escalation = 14.4% $ 968
Tankage & Vessels Total (End of Year - 1997$) = $7,692

6.7.3 PUMPS

A. Removal and Loading - 2 Days:
2 Pumps/Man-Day @ 2 Pumps = 1 Man-Day
= 1 Crew-Day

- Labor Crew = 1 - Foreman @ $19.80/Hr
1 - Operator @ $16.25/Hr
2 - Laborers @ $11.95/Hr

$59.95/Hr x 8 Hr =$ 480

- Travel = $59.95/Hr x 1 Days x 1 Hr/Day =$ 60

- Eq. Rental = 1 - 20 Ton Crane @ $34.31/Hr
  $34.31/Hr x 8 Hr = $ 274
  $ 814

B. Haul and Dispose - On-Site Land Fill:
100% Non-Contaminated = 121 $Ft.^3$ @ 2670#
Total = 4.5 Cu. Yd. @ 2670# = 0.1 Truck Load @ 47,000#

- Haul = 0.1 Truck x 8 Hrs/Truck x $60/Hr = $ 48
- Dispose = See Appendix 6.5 $ 48

Pumps Sub-Total (End of Year - 1992$) $ 862
1997 CPI Escalation = 14.4% $ 124
Pumps Total (End of Year - 1997$) $ 986

6.7.4 BUILDING

Basis: 12 Ft. x 40 Ft. with 8 Ft. Eave
Floor Area = 480 Ft^2
Skin Area = 832 Ft^2

A. Dismantle and Load - 1 Day:
Dismantle and Load @ 100 Ft^2/Man-Day
480 Ft^2 @ 100 Ft^2/Man-Day = 4.8 Man-Day
= 2 Crew-Day

- Labor Crew = 1 - Foreman @ $ 19.80/Hr
  1 - Welders @ $ 17.75/Hr
  2 - Laborers @ $ 11.95/Hr
  $ 61.45/Hr x 16 Hr = $ 983

- Travel = $61.45/Hr x 1 Day x 1 Hr/Day = $ 123
- Eq. Rental = 1 - Backhoe @ $ 25/Hr
  1 - Welder/Torch @ $ 10/Hr
  $ 35/Hr x 16 Hr = $ 560
  $1,666

B. Haul and Dispose - On-Site Land Fill:
Building = 9,400# = 0.2 Truck Loads* @ 47,000#

- Haul = 0.2 Truck x 8 Hrs/Truck x $60/Hr = $ 96
- Dispose = See Appendix 6.5 $ 96

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

Building Sub-Total (End of Year - 1992$)	$ 1,762
1997 CPI Escalation = 14.4%	$ 254
Building Total (End of Year - 1997$)	$ 2,016

6.7.5 SECONDARY ELECTRICAL

Basis: Remove Pole and Motor Starters

A. Remove Motor Starters - 1 Day:

• Labor Crew = 1	- Journeyman	@ $ 32/Hr		
	1 - Helper	@ $ 28/Hr		
		$ 60/Hr x 8 Hr	=	$ 480
• Travel = $60/Hr x 1 Day x 2 Hr/Day			=	$ 120
+ $0.5/Mile x 1 Day x 120 Mile/Day			=	$ 60
• Eq. Rental = 1 - Truck	@ $11.25/Hr			
		$11.25/Hr x 8 Hr	=	$ 90
				$ 750

B. Disconnect Power Cable from Pole - 0.5 Days:

• Labor Crew = 1	- Journeyman	@ $ 32/Hr		
	1 - Helper	@ $ 28/Hr		
		$ 60/Hr x 4 Hr	=	$ 240
• Travel = $60/Hr x 0.5 Day x 2 Hr/Day			=	$ 60
+ $0.5/Mile x 0.5 Day x 120 Mile/Day			=	$ 30
• Eq. Rental =	1 - Bucket Truck	@ $ 34.31/Hr		
	1 - Truck	@ $ 11.25/Hr		
		$ 45.56/Hr x 4 Hr	=	$ 182
				$ 512

C. Remove Pole - 0.5 Day:

• Labor Crew = 1	- Foreman	@ $ 19.80/Hr		
	1 - Operator	@ $ 16.25/Hr		
	1 - Laborer	@ $ 11.95/Hr		
		$ 48.00/Hr x 4 Hr	=	$ 192
• Travel = $48.00/Hr x 1 Day x 1 Hr/Day			=	$ 48
• Eq. Rental = 1 - 20 Ton Crane		@ $ 34.31/Hr		
		$ 34.31/Hr x 4 Hr	=	$ 137
				$ 377

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

Motor Starter =

$$\frac{(90\text{in.} \times 40\text{in.} \times 20\text{in.}) = 42\ \text{Ft.}^3}{1728} \text{ @500\#}$$

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

Total = 69.5 $Ft.^3$ @ 1,325#
= 1.6 Cu. Yd. @ 1,325# = 0.03 Trucks @ 47,000#

• Haul = 0.03 Trucks x 8 Hr/Truck x $60/Hr	=	$ 14
• Dispose = See Appendix 6.5		$ 14
Electrical Sub-Total (End of Year - 1992$)		$ 1,653
1997 CPI Escalation = 14.4%		$ 238
Electrical Total (End of Year - 1997$)		$ 1,891

6.7.6 SITE RECLAMATION

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

A. Topsoil Placement:

• 10 Cu.Yd. @ 1.00/Cu.Yd.	=	$ 10

B. Revegetate:

• Grade and Contour Topsoil	@ $ 80/Acre x 0.1 Acres	=	$ 8
• Seedbed Prep. (Disc. + Harrow)	@ $ 20/Acre x 0.1 Acres	=	$ 2
• Mulch (Drill + Seed + Mow)	@ $ 45/Acre x 0.1 Acres	=	$ 5
• Drill Seed and Fertilize (Drill + Seed + Fertilizer)	@ $150/Acre x 0.1 Acres	=	$ 15
• Revegetation Contingency* (All items excluding grading)	@ $215/Acre x 0.05 Acres	=	$ 11
			$ 41

* Assume only 50% of acreage requires reseeding

Site Reclamation Sub-Total (End of Year - 1992$)	$ 51
1997 CPI Escalation = 14.4%	$ 7
Site Reclamation Total (End of Year - 1997$)	$ 59
TOTAL Reclamation Cost (1997$)	$23,327

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
er 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	$3,647,261
Total Cost	$3,647,261

7.1 Groundwater Restoration Costs

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

Table 7.1
Affected Pore Volume Estimate

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
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

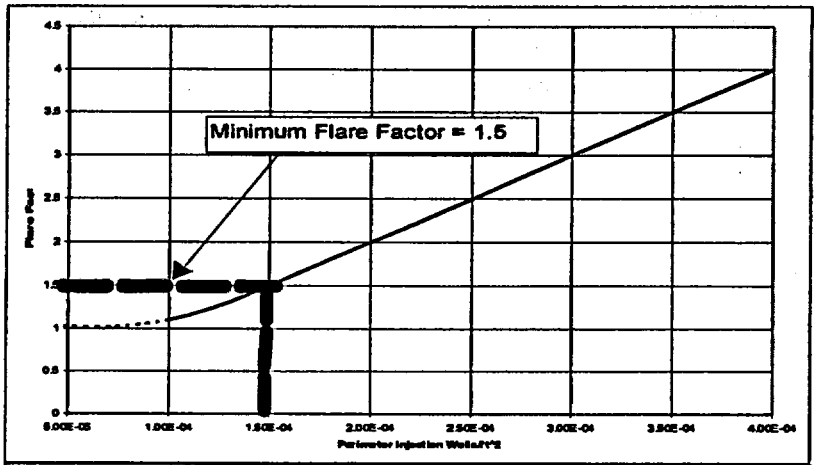


Figure 7-1. Predicted wellfield flare factor for RAMC commercial wellfields, as a function of wellfield scale

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.

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	$1.33/gpm/day ($0.92/1,000 gal.)	137,841,780	1000	$126,814	
SUBTOTAL				$160,930	
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				$141,288	
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)				$770,127	(1993$)
UNIT RESTORATION OPERATING COST			116 Patterns	$6,639	/Pattern
1993 -1997 Inflation (CPI-U) = 160.6/143.6 =	11.84%			$91,171	
			Total	$861,298	(1997$)

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	$34,799	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	$180,875	
	SUBTOTAL					$160,930	
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, Antiscalents, Oxygen Scavenger)	$0.57/gpm/day ($0.40/1,000 gal.)	196,603,455	1000	$78,641	
	SUBTOTAL					$201,519	
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	
	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)					$1,015,759	(1993$)
	UNIT RESTORATION OPERATING COST			162	Patterns	$6,270	/Pattern
		1993 -1997 inflation (CPI-U) = 160.6/143.6 =	11.84%			$120,250	
					Total	$1,136,009	(1997$)

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	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.)	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	$133,925	
SUBTOTAL				$160,930	
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				$149,210	
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)				$802,436 (1993$)	
UNIT RESTORATION OPERATING COST			126 Patterns	$6,269 /Pattern	
1993 -1997 Inflation (CPI-U) = 160.6/143.6 =	11.84%			$94,996	
			Total	$897,432 (1997$)	

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	$105,408	
SUBTOTAL					$160,930	
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					$117,438	
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)					$672,865 (1993$)	
UNIT RESTORATION OPERATING COST				0 Patterns	ERR /Pattern	
	1993 -1997 inflation (CPI-U) = 160.6/143.6 =	11.84%			$79,657	
				Total	$752,522 (1997$)	

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	$861,298
#3	$1,136,009
#4	$897,432
#4A	$752,522
Total	$3,647,261

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	96,852
Total Cost	96,852

Delineation Drilling Costs

Basis:	Delineation Holes remaining unreclaimed	131
	Delineation Holes to be drilled in 2000-2001	580
	Total Delineation Holes to be Bonded	711

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: 711 holes x $136.22/hole

Delineation Drilling Costs = *$96,852*

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)].

APPENDIX B

DRILL HOLE TABLES

TWN	RNG	SEC	HOLE	EAST	NORTH
35	74	4	247A	344671	865515
35	74	4	248	345017	865477
35	74	4	249	344492	865457
35	74	4	250	344876	865446
35	74	4	251	344495	865354
35	74	4	252	345151	865362
35	74	4	253	344297	865294
35	74	4	254	343783	865109
35	74	4	255	343970	865101
35	74	4	256	343604	864911
35	74	4	257	343704	864912
35	74	4	258	343645	864740
35	74	4	259	343739	864761
35	74	4	260	343987	864561
35	74	4	261A	344189	864560
35	74	4	262	346196	865098
35	74	4	263	346201	865031
35	74	4	264	346099	864926
35	74	4	265	346201	864928
35	74	4	266	345818	864599
35	74	4	267	346057	864494
35	74	4	268	345399	864102
35	74	4	269	345699	864085

TWN	RNG	SEC	HOLE	EAST	NORTH
35	74	5	450	343009	865490
35	74	5	451	343010	865365
35	74	5	452	342810	865333
35	74	5	453	342365	865262
35	74	5	454	342810	865210
35	74	5	455	342810	865141
35	74	5	456	342567	865120
35	74	5	457	340618	863876
35	74	5	458	340611	863773
35	74	5	459	340463	863663
35	74	5	460	340562	863523
35	74	5	461	340017	863225
35	74	5	462	340026	863126
35	74	5	463	338852	862937
35	74	5	464	338799	862830
35	74	5	465	339532	862859
35	74	5	466	338556	862759
35	74	5	467	338797	862725
35	74	5	468	339673	862808
35	74	5	469	338359	862649
35	74	5	470	338471	862595
35	74	5	471	338474	862494
35	74	5	472	343382	864636
35	74	5	473	343267	864478
35	74	5	474	343554	864484
35	74	5	475	343340	864327
35	74	5	476	342880	864177
35	74	5	477	341755	863799
35	74	5	479	342201	863735
35	74	5	480	341821	863506
35	74	5	481	341586	863300
35	74	5	482	341789	863301
35	74	5	483	343106	863397
35	74	5	484	341536	863199
35	74	5	485	343099	863192
35	74	5	486	342036	863013
35	74	5	487	341486	862950
35	74	5	488	341379	862902
35	74	5	489	340943	862542
35	74	5	490	341399	862562
35	74	5	491	341142	862345
35	74	5	492	340599	862102
35	74	5	493	340800	862099
35	74	5	494	338542	861860
35	74	5	496	338541	861664
35	74	5	497	339037	861316
35	74	5	498	339243	861363
35	74	5	499	338890	861220
35	74	5	500	338684	861113

35	74	5	501	338482	861004
35	74	5	502	338869	861007
35	74	5	503	338682	860905
35	74	5	504	338578	860852
35	74	5	505	342216	862910
35	74	5	506	338346	862766
35	74	5	507	338471	862412
35	74	5	508	339328	863188
35	74	5	509	339525	863110
35	74	5	510	339243	861460
35	74	5	511	339353	861365
35	74	5	512	340908	862107
35	74	5	513	340840	862486
35	74	5	514	341273	862798
35	74	5	515	342910	865043
35	74	5	516	342912	865146
35	74	5	517	341244	862350
35	74	5	518	343015	865047
35	74	5	519	342921	864939
35	74	5	520	343013	865154
35	74	5	521	339103	860458
35	74	5	522	343279	865142
35	74	5	523	343280	865072
35	74	5	524	343022	864940
35	74	5	525	342774	863974
35	74	5	526	342533	863760
35	74	5	527	342397	863678
35	74	5	528	342176	863536
35	74	5	529	342020	863518
35	74	5	530	342021	863451
35	74	5	531	341672	862801

TWN	RNG	SEC	HOLE	EAST	NORTH
35	74	8	145	338393	855470
35	74	8	146	338392	855420
35	74	8	147	338507	855469
35	74	8	148	338614	855473
35	74	8	149	338726	855463
35	74	8	150	338847	855488
35	74	8	151	338848	855440
35	74	8	152	338913	855539
35	74	8	153	338961	855515
35	74	8	154	338960	855465
35	74	8	155	338960	855414
35	74	8	156	339005	855487
35	74	8	157	339003	855442
35	74	8	158	339046	855467
35	74	8	159	339045	855421
35	74	8	160	339173	855497
35	74	8	161	339173	855444
35	74	8	162	339216	855471
35	74	8	163	339331	855553
35	74	8	164	339329	855500
35	74	8	165	339317	855420
35	74	8	166	339315	855366
35	74	8	167	339356	855473
35	74	8	168	339362	855420
35	74	8	169	339365	855366
35	74	8	170	339392	855553
35	74	8	171	339416	855417
35	74	8	172	339416	855367
35	74	8	173	339441	855556
35	74	8	174	339443	855473
35	74	8	175	339486	855603
35	74	8	176	339489	855452
35	74	8	177	339542	855601
35	74	8	177A	339547	855600
35	74	8	178	339541	855550
35	74	8	179	339590	855602
35	74	8	180	339589	855555
35	74	8	181	339585	855444
35	74	8	182	339584	855401
35	74	8	183	339599	855254
35	74	8	184	339601	855151
35	74	8	185	339636	855500
35	74	8	186	339635	855445
35	74	8	187	339651	855302
35	74	8	188	339690	855652
35	74	8	189	339684	855447
35	74	8	190	339735	855548
35	74	8	191	339748	855347
35	74	8	192	339743	855442

35	74	8	193	339743	855398
35	74	8	195	339745	855246
35	74	8	196	339791	855539
35	74	8	196R	339795	855542
35	74	8	197	339769	855496
35	74	8	198	339791	855438
35	74	8	198R	339792	855437
35	74	8	199	339791	855397
35	74	8	200	339790	855341
35	74	8	201	339777	855291
35	74	8	202	339793	855243
35	74	8	203	339839	855595
35	74	8	204	339839	855495
35	74	8	205	339848	855395
35	74	8	206	339855	855292
35	74	8	207	339857	855238
35	74	8	208	339893	855589
35	74	8	209	339892	855548
35	74	8	210	339897	855451
35	74	8	211	339944	855539
35	74	8	212	339947	855490
35	74	8	213	339946	855442
35	74	8	214	339951	855371
35	74	8	215	339992	855493
35	74	8	216	339990	855442
35	74	8	217	340048	855491
35	74	8	218	340045	855441
35	74	8	219	340154	855544
35	74	8	220	340154	855495
35	74	8	221	340159	855447
35	74	8	222	340211	855545
35	74	8	223	340209	855498
35	74	8	224	340210	855444
35	74	8	225	340264	855596
35	74	8	226	340264	855498
35	74	8	227	340264	855447
35	74	8	228	340310	855653
35	74	8	229	340328	855308
35	74	8	230	340326	855263
35	74	8	231	340325	855215
35	74	8	232	340324	855165
35	74	8	233	340363	855651
35	74	8	234	340370	855602
35	74	8	235	340371	855552
35	74	8	236	340380	855316
35	74	8	237	340380	855263
35	74	8	238	340381	855166
35	74	8	239	340425	855651
35	74	8	240	340426	855602
35	74	8	241	340430	855554
35	74	8	242	340436	855506

35	74	8	243	340438	855456
35	74	8	244	340440	855409
35	74	8	245	340437	855314
35	74	8	246	340439	855268
35	74	8	247	340492	855555
35	74	8	248	340494	855507
35	74	8	249	340493	855456
35	74	8	250	340493	855411
35	74	8	251	340503	855206
35	74	8	252	340567	855700
35	74	8	253	340566	855649
35	74	8	254	340566	855600
35	74	8	255	340563	855553
35	74	8	256	340565	855504
35	74	8	257	340592	855414
35	74	8	258	340559	855150
35	74	8	259	340633	855749
35	74	8	260	340628	855649
35	74	8	261	340625	855602
35	74	8	262	340631	855548
35	74	8	263	340684	855746
35	74	8	264	340683	855696
35	74	8	265	340691	855498
35	74	8	266	340693	855452
35	74	8	267	340694	855399
35	74	8	268	340735	855744
35	74	8	269	340733	855653
35	74	8	270	340734	855600
35	74	8	271	340739	855551
35	74	8	272	340739	855432
35	74	8	273	340773	855845
35	74	8	274	340785	855741
35	74	8	275	340789	855697
35	74	8	276	340787	855647
35	74	8	277	340786	855599
35	74	8	278	340788	855552
35	74	8	279	340791	855449
35	74	8	280	340825	855846
35	74	8	281	340833	855652
35	74	8	282	340838	855549
35	74	8	283	340887	855606
35	74	8	284	338439	859793
35	74	8	285	338420	860042
35	74	8	286	338585	860005
35	74	8	287	338692	860140
35	74	8	288	338683	860300
35	74	8	289	338839	860234
35	74	8	290	339004	855393
35	74	8	291	339333	855611
35	74	8	292	339391	855610
35	74	8	293	339444	855611

35	74	8	294	339654	855153
35	74	8	295	339733	855601
35	74	8	296	340093	855289
35	74	8	297	340211	855597
35	74	8	298	338744	860047
35	74	8	299	338820	860117
35	74	8	300	338970	860347
35	74	8	301	338970	860237
35	74	8	302	338970	860117
35	74	8	303	339105	860347
35	74	8	304	339104	860237
35	74	8	305	339105	860117
35	74	8	306	339270	860117
35	74	8	307	339490	860352
35	74	8	308	338856	860050
35	74	8	309	339444	860177
35	74	8	310	339428	860281
35	74	8	311	338339	855361
35	74	8	312	338852	855367
35	74	8	313	338902	855403
35	74	8	314	338955	855371
35	74	8	315	339176	855357
35	74	8	316	339225	855276
35	74	8	317	339319	855277
35	74	8	318	339412	855277
35	74	8	319	339414	855146
35	74	8	320	339547	855289
35	74	8	321	339558	855186
35	74	8	322	339986	855591
35	74	8	323	340041	855392

TWN	RNG	SEC	HOLE	EAST	NORTH
35	74	10	271	348953	858587
35	74	10	272	349050	858585
35	74	10	273	349051	858485
35	74	10	274	349152	858487
35	74	10	275	349156	858383
35	74	10	276	349161	857989
35	74	10	277	349250	857888
35	74	10	278	349544	857886
35	74	10	279	349197	857833
35	74	10	280	349447	857830
35	74	10	281	349544	857783
35	74	10	282	349445	857730
35	74	10	283	349647	857728
35	74	10	284	349046	857683
35	74	10	285	349149	857685
35	74	10	286	349248	857686
35	74	10	287	350104	857540
35	74	10	288	350204	857444
35	74	10	289	349642	857624
35	74	10	290	352581	857184
35	74	10	291	349447	857526
35	74	10	292	349447	857428
35	74	10	293	349643	857422
35	74	10	294	352800	857654
35	74	10	295	352909	857549
35	74	10	296	350106	857444
35	74	10	297	349549	857375
35	74	10	298	349643	857315
35	74	10	299	349811	857349
35	74	10	300	353709	857396
35	74	10	301	350106	857350
35	74	10	302	350205	857339
35	74	10	303	349904	857251
35	74	10	304	350104	857192
35	74	10	305	350104	857087
35	74	10	306	350208	857085
35	74	10	307	350106	856986
35	74	10	308	350208	856986
35	74	10	309	350110	856887
35	74	10	310	350215	856883
35	74	10	311	354008	858200
35	74	10	312	354113	858198
35	74	10	313	354008	858096
35	74	10	314	354111	858094
35	74	10	315	354110	857994
35	74	10	316	353701	857896
35	74	10	317	353808	857897
35	74	10	318	354009	857899
35	74	10	319	354108	857895

35	74	10	320	353699	857793
35	74	10	321	353804	857793
35	74	10	322	353503	857696
35	74	10	323	353699	857695
35	74	10	324	353803	857695
35	74	10	325	353900	857696
35	74	10	326	354007	857696
35	74	10	327	353406	857590
35	74	10	328	353507	857592
35	74	10	329	352805	857557
35	74	10	330	353247	857518
35	74	10	331	353407	857492
35	74	10	332	353505	857490
35	74	10	333	353606	857490
35	74	10	334	352914	857447
35	74	10	335	353149	857414
35	74	10	336	353406	857389
35	74	10	337	353605	857393
35	74	10	338	352588	857399
35	74	10	339	352861	857349
35	74	10	340	353154	857309
35	74	10	341	353260	857312
35	74	10	342	352539	857296
35	74	10	343	352591	857294
35	74	10	344	352920	857247
35	74	10	345	353014	857246
35	74	10	346	352788	857194
35	74	10	347	352490	857187
35	74	10	348	352960	857146
35	74	10	349	351886	857086
35	74	10	350	351991	857083
35	74	10	351	352185	857085
35	74	10	352	352289	857086
35	74	10	353	353061	857046
35	74	10	354	351884	856983
35	74	10	355	351990	856984
35	74	10	356	352187	856989
35	74	10	357	352290	856987
35	74	10	358	352388	856996
35	74	10	359	352489	856992
35	74	10	360	352591	856990
35	74	10	361	352743	856994
35	74	10	362	351886	856883
35	74	10	363	351993	856888
35	74	10	364	352389	856888
35	74	10	365	352490	856890
35	74	10	366	352690	856889
35	74	10	367	351885	856783
35	74	10	368	351991	856783
35	74	10	369	352489	856789
35	74	10	370	352590	856788

35	74	10	371	353312	856394
35	74	10	372	353359	856348
35	74	10	373	352557	856292
35	74	10	374	353456	856290
35	74	10	375	352459	856201
35	74	10	376	353053	856192
35	74	10	377	353458	856192
35	74	10	378	352356	856095
35	74	10	379	352459	856096
35	74	10	380	353161	856092
35	74	10	381	353455	856091
35	74	10	382	352712	856034
35	74	10	383	352454	855993
35	74	10	384	352957	855990
35	74	10	385	353455	855989
35	74	10	386	353655	855992
35	74	10	387	352610	855882
35	74	10	388	352864	855886
35	74	10	389	353454	855887
35	74	10	390	353655	855889
35	74	10	391	350894	855752
35	74	10	392	351727	855734
35	74	10	393	352389	855796
35	74	10	394	352858	855788
35	74	10	395	353857	855787
35	74	10	396	350378	855565
35	74	10	397	350788	855600
35	74	10	398	351724	855636
35	74	10	399	351825	855630
35	74	10	400	351926	855633
35	74	10	401	352465	855684
35	74	10	402	352659	855684
35	74	10	403	353056	855687
35	74	10	403A	353061	855694
35	74	10	404	353159	855689
35	74	10	405	353552	855691
35	74	10	405A	353539	855656
35	74	10	406	353757	855686
35	74	10	407	350381	855475
35	74	10	408	350795	855499
35	74	10	409	351205	855501
35	74	10	410	351628	855531
35	74	10	411	351825	855531
35	74	10	412	351927	855529
35	74	10	413	352360	855593
35	74	10	414	352462	855593
35	74	10	415	352565	855591
35	74	10	416	352664	855592
35	74	10	417	352859	855589
35	74	10	418	353060	855587
35	74	10	419	353159	855588

35	74	10	420	353460	855585
35	74	10	420A	353471	855588
35	74	10	421	353554	855585
35	74	10	422	352259	855492
35	74	10	423	352461	855495
35	74	10	424	352564	855495
35	74	10	425	352657	855500
35	74	10	426	352858	855485
35	74	10	427	352956	855490
35	74	10	428	353058	855488
35	74	10	429	353157	855489
35	74	10	430	353370	855484
35	74	10	431	353462	855487
35	74	10	432	351926	855433
35	74	10	433	352137	855431
35	74	10	434	350781	855427
35	74	10	435	350892	855393
35	74	10	436	351208	855399
35	74	10	437	352262	855390
35	74	10	438	353853	855389
35	74	10	439	350370	855311
35	74	10	440	350797	855275
35	74	10	441	351927	855330
35	74	10	442	352135	855328
35	74	10	443	350375	855215
35	74	10	444	350795	855194
35	74	10	445	351108	855198
35	74	10	446	351927	855232
35	74	10	447	350838	855144
35	74	10	448	352263	855188
35	74	10	449	350794	855097
35	74	10	450	351107	855099
35	74	10	451	351930	855131
35	74	10	452	350840	855051

TWN	RNG	SEC	HOLE	EAST	NORTH
35	74	11	268	356962	860311
35	74	11	269	356821	860250
35	74	11	270	356823	860204
35	74	11	271	355799	859668
35	74	11	272	356769	859039
35	74	11	273	356292	858987
35	74	11	274	356496	858988
35	74	11	275	356348	858926
35	74	11	276	356447	858923
35	74	11	279	355755	857811
35	74	11	280	356082	858841
35	74	11	281	356523	858832
35	74	11	282	356620	858833
35	74	11	285	356300	858710
35	74	11	287	358054	858587
35	74	11	288	355828	857722
35	74	11	289	355874	857611
35	74	11	290	356415	858495
35	74	11	292	358099	858493
35	74	11	293	356415	858385
35	74	11	297	355255	858342
35	74	11	298	355446	858339
35	74	11	299	356201	858333
35	74	11	300	356562	858233
35	74	11	303	354943	858162
35	74	11	304	355253	858141
35	74	11	305	355449	858138
35	74	11	306	355829	858172
35	74	11	307	354902	858064
35	74	11	308	355832	858070
35	74	11	309	354703	858009
35	74	11	310	354804	858007
35	74	11	311	355205	857970
35	74	11	312	354701	857957
35	74	11	313	354704	857849
35	74	11	314	354253	857798
35	74	11	315	354204	857749
35	74	11	316	355109	857772
35	74	11	317	355259	857770
35	74	11	320	354610	857686
35	74	11	321	355366	857723
35	74	11	322	355562	857719
35	74	11	323	355765	857709
35	74	11	324	356587	857720
35	74	11	325	354408	857586
35	74	11	326	355665	857604
35	74	11	327	355765	857608
35	74	11	328	354759	857526
35	74	11	329	355009	857479

35	74	11	330	356537	857502
35	74	11	331	354963	857363
35	74	11	332	356539	857399
35	74	11	333	354711	857311
35	74	11	334	356539	857304
35	74	11	336	356485	857200
35	74	11	337	356539	857199
35	74	11	338	354621	857097
35	74	11	339	354716	857096
35	74	11	340	356538	857100
35	74	11	341	354609	856947
35	74	11	342	354714	856947
35	74	11	343	356339	856873
35	74	11	344	354466	856779
35	74	11	345	354607	856802
35	74	11	346	356401	856776
35	74	11	347	354555	856699
35	74	11	348	354709	856588
35	74	11	349	354715	856483
35	74	11	350	356238	856568
35	74	11	351	356288	856568
35	74	11	352	356340	856565
35	74	11	353	356061	856449
35	74	11	354	356164	856449
35	74	11	355	355962	856376
35	74	11	356	355809	856311
35	74	11	357	355760	856262
35	74	11	358	355615	856108
35	74	11	359	354966	855791
35	74	11	360	354908	855690
35	74	11	361	354962	855690
35	74	11	362	354770	855625
35	74	11	363	354770	855580
35	74	11	364	354263	855530
35	74	11	365	354565	855529
35	74	11	366	354870	855532
35	74	11	367	354368	855478
35	74	11	368	354565	855422
35	74	11	369	354204	855264
35	74	11	370	354209	855063

TWN	RNG	SEC	HOLE	EAST	NORTH
35	74	17	592	338591	852456
35	74	17	599	338911	852830
35	74	17	607	339401	852909
35	74	17	612	339913	853090
35	74	17	617	340483	853357
35	74	17	618	340424	853250
35	74	17	619	340484	853427
35	74	17	620	340483	853309
35	74	17	621	340483	853189
35	74	17	622	340542	853250
35	74	17	623	340543	853369
35	74	17	624	340647	853356
35	74	17	625	340697	853405
35	74	17	626	340697	853306
35	74	17	627	340747	853355
35	74	17	628	340847	853356
35	74	17	629	340897	853357
35	74	17	630	341018	853364
35	74	17	631	341005	853259
35	74	17	632	341073	853314
35	74	17	633	341130	853364
35	74	17	634	341233	853364
35	74	17	635	341283	853415
35	74	17	636	341283	853314
35	74	17	637	341338	853366
35	74	17	638	341457	853431
35	74	17	639	341526	853531
35	74	17	640	341577	853532
35	74	17	641	341680	853582
35	74	17	642	341730	853631
35	74	17	643	341788	853626
35	74	17	644	341840	853577
35	74	17	645	341899	853644
35	74	17	646	341960	853643
35	74	17	649	342350	853651
35	74	17	650	342350	853600
35	74	17	651	342350	853550
35	74	17	652	342704	853503
35	74	17	653	342816	853548
35	74	17	654	342818	853596
35	74	17	655	343029	853553
35	74	17	656	343113	853686
35	74	17	657	343262	853605
35	74	17	658	343422	853602
35	74	17	659	343422	853502
35	74	17	660	343477	853554
35	74	17	661	343477	853453
35	74	17	662	343536	853604
35	74	17	663	343586	853553

35	74	17	664	343638	853504
35	74	17	665	343586	853453
35	74	17	667	343587	853353
35	74	17	668	339003	852844
35	74	17	669	339052	852791
35	74	17	670	339102	852943
35	74	17	671	339101	852844
35	74	17	672	339157	852950
35	74	17	673	339222	852911
35	74	17	674	339291	852959
35	74	17	675	339292	852907
35	74	17	676	339464	852912
35	74	17	677	339585	852954
35	74	17	678	339583	852903
35	74	17	679	339632	852902
35	74	17	680	339733	853002
35	74	17	681	339733	852954
35	74	17	682	339833	853003
35	74	17	683	339882	852952
35	74	17	684	339935	853003
35	74	17	685	339970	853183
35	74	17	686	340017	853230
35	74	17	687	340016	853133
35	74	17	688	340099	853167
35	74	17	689	340150	853163
35	74	17	690	340150	853115
35	74	17	691	340365	853367
35	74	17	692	340427	853188
35	74	17	693	340544	853432
35	74	17	694	340544	853311
35	74	17	695	340650	853457
35	74	17	696	340649	853308
35	74	17	697	340752	853406
35	74	17	698	340849	853406
35	74	17	699	340850	853307
35	74	17	700	340982	853297
35	74	17	701	341019	853308
35	74	17	702	341133	853415
35	74	17	703	341131	853315
35	74	17	704	341235	853415
35	74	17	705	341340	853315
35	74	17	706	341460	853480
35	74	17	707	341459	853381
35	74	17	708	341791	853677
35	74	17	709	341791	853576
35	74	17	710	341846	853677
35	74	17	711	341845	853624
35	74	17	712	341965	853692
35	74	17	714	342227	853688
35	74	17	715	342276	853687
35	74	17	716	342302	853598

35	74	17	717	342404	853597
35	74	17	718	342453	853550
35	74	17	719	342457	853494
35	74	17	720	342507	853646
35	74	17	721	342507	853596
35	74	17	722	342507	853493
35	74	17	723	342557	853697
35	74	17	724	342604	853596
35	74	17	725	342602	853498
35	74	17	726	342657	853682
35	74	17	727	342655	853588
35	74	17	728	342655	853503
35	74	17	729	342883	853645
35	74	17	730	342878	853546
35	74	17	731	342934	853648
35	74	17	732	342931	853598
35	74	17	733	343032	853702
35	74	17	734	343032	853652
35	74	17	735	343112	853633
35	74	17	736	343118	853576
35	74	17	737	343194	853531
35	74	17	738	343215	853603
35	74	17	739	343316	853604
35	74	17	740	343426	853550
35	74	17	741	343480	853601
35	74	17	742	343481	853502
35	74	17	743	343590	853501
35	74	17	744	343588	853402
35	74	17	745	343543	853655
35	74	17	746	343585	853605
35	74	17	747	341016	853409
35	74	17	748	341070	853408
35	74	17	749	338565	853553
35	74	17	750	340400	855055
35	74	17	751	338669	853559
35	74	17	752	340501	855076
35	74	17	753	340552	855053
35	74	17	754	338666	853658
35	74	17	755	338962	853743
35	74	17	756	339872	854963
35	74	17	757	340486	854874
35	74	17	758	340401	854957
35	74	17	759	340498	854950
35	74	17	760	339822	854912
35	74	17	761	339918	854915
35	74	17	762	340030	854924
35	74	17	766	340443	854912
35	74	17	768	340074	854868
35	74	17	770	340190	854834
35	74	17	773	340331	854863
35	74	17	774	340339	854780

35	74	17	776	339823	854812
35	74	17	778	340437	854817
35	74	17	780	340283	854743
35	74	17	781	340225	854707
35	74	17	782	339972	854759
35	74	17	784	340163	854764
35	74	17	785	339923	854705
35	74	17	786	340023	854706
35	74	17	787	340121	854708
35	74	17	788	340077	854655
35	74	17	789	339558	854634
35	74	17	790	340333	854709
35	74	17	791	340133	854609
35	74	17	792	340176	854656
35	74	17	793	340283	854658
35	74	17	794	339606	854586
35	74	17	795	339672	854587
35	74	17	796	339922	854604
35	74	17	797	339797	854570
35	74	17	799	339444	854545
35	74	17	801	339551	854531
35	74	17	802	339673	854536
35	74	17	803	339258	854501
35	74	17	804	339501	854493
35	74	17	805	339300	854448
35	74	17	806	339349	854447
35	74	17	807	339443	854443
35	74	17	808	339253	854399
35	74	17	809	339351	854398
35	74	17	810	338381	853680
35	74	17	811	339250	854358
35	74	17	813	339346	854344
35	74	17	814	339053	854242
35	74	17	816	339157	854238
35	74	17	817	338994	854184
35	74	17	818	338838	853730
35	74	17	819	339105	854188
35	74	17	820	338774	853668
35	74	17	821	338886	854135
35	74	17	822	338990	854137
35	74	17	823	338781	854081
35	74	17	824	338885	854085
35	74	17	825	338968	854099
35	74	17	826	339018	854100
35	74	17	828	338995	854002
35	74	17	829	339046	854006
35	74	17	830	338570	853970
35	74	17	831	338620	853973
35	74	17	832	338666	853974
35	74	17	833	338717	853972
35	74	17	834	338768	853971

35	74	17	835	338818	853973
35	74	17	836	338867	853971
35	74	17	837	338953	853971
35	74	17	838	338718	853608
35	74	17	839	339115	853959
35	74	17	840	338468	853917
35	74	17	841	338518	853919
35	74	17	842	338864	853916
35	74	17	843	338944	853919
35	74	17	844	339050	853905
35	74	17	845	339147	853890
35	74	17	846	338417	853866
35	74	17	847	338468	853867
35	74	17	848	338614	853875
35	74	17	849	338679	853876
35	74	17	850	338771	853873
35	74	17	851	338858	853850
35	74	17	852	339010	853800
35	74	17	853	338964	853846
35	74	17	854	339048	853852
35	74	17	855	338367	853816
35	74	17	856	338417	853817
35	74	17	857	338631	853831
35	74	17	858	338745	853829
35	74	17	859	338909	853797
35	74	17	860	338399	853746
35	74	17	861	338454	853747
35	74	17	862	338509	853747
35	74	17	863	338617	853751
35	74	17	864	338745	853768
35	74	17	865	338799	853776
35	74	17	866	338347	853728
35	74	17	867	338455	853694
35	74	17	868	338506	853696
35	74	17	869	338617	853705
35	74	17	870	338669	853706
35	74	17	871	338705	853719
35	74	17	872	338516	853654
35	74	17	873	338616	853653
35	74	17	874	338516	853604
35	74	17	875	338566	853604
35	74	17	876	338616	853605
35	74	17	877	338516	853554
35	74	17	878	338362	853497
35	74	17	879	338516	853493
35	74	17	880	338566	853494
35	74	17	881	338419	853446
35	74	17	882	338471	853445
35	74	17	883	338370	853397
35	74	17	884	338419	853397
35	74	17	885	338371	853348

35	74	17	886	340350	855110
35	74	17	888	340620	855024
35	74	17	889	340277	855072
35	74	17	890	338693	852653
35	74	17	891	338790	852705
35	74	17	892	338839	852706
35	74	17	893	338891	852708
35	74	17	894	338998	852735
35	74	17	895	339225	852794
35	74	17	896	339284	852790
35	74	17	897	339395	852955
35	74	17	898	339748	853117
35	74	17	899	339879	853219
35	74	17	900	340097	853213
35	74	17	901	340147	853258
35	74	17	902	340211	853204

TWN	RNG	SEC	HOLE	EAST	NORTH
35	74	18	671	338161	853297
35	74	18	672	338052	853248
35	74	18	673	337714	853344
35	74	18	674	337595	853061
35	74	18	675	337588	852844
35	74	18	676	337416	852701
35	74	18	677	337137	852499
35	74	18	678	336745	852329
35	74	18	679	336396	852147
35	74	18	680	336298	852052
35	74	18	681	336193	852126
35	74	18	682	338289	852282
35	74	18	683	337908	852139
35	74	18	684	337910	852037
35	74	18	685	337855	851897
35	74	18	686	337766	851795
35	74	18	687	337769	851677
35	74	18	688	337772	851578
35	74	18	689	337274	851731
35	74	18	690	336706	851680
35	74	18	691	336505	851681
35	74	18	692	336232	851478
35	74	18	693	336232	851425
35	74	18	694	335389	851097
35	74	18	695	335242	851045
35	74	18	696	335389	851513
35	74	18	697	335040	851315
35	74	18	698	334818	851164
35	74	18	698A	334813	851165
35	74	18	699A	334773	851108
35	74	18	700	334611	851068
35	74	18	700A	334609	851067
35	74	18	703	334512	851066
35	74	18	704A	334469	851122
35	74	18	705	334464	851016
35	74	18	706	338005	851985
35	74	18	707	334663	851013
35	74	18	708	335804	851409
35	74	18	708A	335803	851395
35	74	18	709	336002	851414
35	74	18	710	336702	851777
35	74	18	711	337219	851827
35	74	18	712	337319	851885
35	74	18	713	337382	851992
35	74	18	714	334933	851208
35	74	18	715	334415	850965
35	74	18	715A	334416	850963

TWN	RNG	SEC	HOLE	EAST	NORTH
36	74	13	264	359780	882652
36	74	13	265	359710	882584
36	74	13	266	359883	882585
36	74	13	267	359787	882519
36	74	13	268	359985	882487
36	74	13	270	359881	882398
36	74	13	271	360072	882390
36	74	13	272	359984	882317
36	74	13	273	359596	882063
36	74	13	274	359523	881994
36	74	13	275	359697	881997
36	74	13	276	359520	881901
36	74	13	277	359598	881894
36	74	13	278	359488	883992
36	74	13	286	359428	881722
36	74	13	287	359610	881676
36	74	13	288	359539	881620
36	74	13	289	359360	882791
36	74	13	290	359578	883889
36	74	13	291	359424	882881
36	74	13	292	359573	884066

TWN	RNG	SEC	HOLE	EAST	NORTH
36	74	14	229	359216	883995
36	74	14	230	359220	883826
36	74	14	232	359099	883397
36	74	14	233	359186	883290
36	74	14	234	358879	883401
36	74	14	235	359145	883134
36	74	14	237	359000	882918
36	74	14	238	358919	882834

TWN	RNG	SEC	HOLE	EAST	NORTH
36	74	24	375	359438	881517
36	74	24	378	359658	881442
36	74	24	380	360027	881496
36	74	24	381	360031	881328
36	74	24	383	360237	881327
36	74	24	385	360001	881099
36	74	24	387	360231	881091
36	74	24	391	359930	880884
36	74	24	392	360043	880889
36	74	24	393	360165	880889
36	74	24	394	360242	880891
36	74	24	397	359871	880631
36	74	24	398	360077	880608
36	74	24	402	360126	880406
36	74	24	407	360143	879783
36	74	24	409	359913	879680
36	74	24	410	359983	879534
36	74	24	411	360088	879530
36	74	24	412	359386	879441
36	74	24	413	359603	879444
36	74	24	414	359437	879303
36	74	24	415	360074	879280
36	74	24	416	359751	878890
36	74	24	417	359858	878892
36	74	24	418	359542	878709
36	74	24	419	359819	878710
36	74	24	420	359899	878656
36	74	24	421	359703	878557
36	74	24	422	359828	878531
36	74	24	423	359797	878401
36	74	24	424	359589	878306
36	74	24	425	359494	878099
36	74	24	426	359713	878106
36	74	24	427	360370	878099
36	74	24	428	360449	878088
36	74	24	429	359774	877911
36	74	24	430	360333	877905
36	74	24	431	360484	877907
36	74	24	432	359477	877854

TWN	RNG	SEC	HOLE	EAST	NORTH
36	74	26	2126	354209	873673
36	74	26	2127	354149	873593
36	74	26	2316	354272	874151
36	74	26	2318	354170	874051
36	74	26	2320	354262	873948
36	74	26	2335	354265	874235
36	74	26	2336	354168	874146
36	74	26	2337	354360	874149
36	74	26	2338	354168	874248
36	74	26	2339	354124	874348

TWN	RNG	SEC	HOLE	EAST	NORTH
36	74	27	371	353555	871661
36	74	27	398	353758	874753
36	74	27	399	352594	874746
36	74	27	400	353886	874673
36	74	27	401	353358	874569
36	74	27	402	353989	874579
36	74	27	404	352570	874452
36	74	27	405	352670	874450
36	74	27	406	352770	874501
36	74	27	407	353175	874434
36	74	27	410	351866	874263
36	74	27	411	351955	874222
36	74	27	412	351655	874168
36	74	27	414	353975	874238
36	74	27	418	354092	873767
36	74	27	419	354088	873666
36	74	27	420	353331	873429
36	74	27	423	353432	872997
36	74	27	424	353270	872859
36	74	27	425	353309	872801
36	74	27	426	353328	872722
36	74	27	427	354006	872690
36	74	27	428	354105	872684
36	74	27	429	353905	872618
36	74	27	430	353687	872553
36	74	27	431	353786	872557
36	74	27	432	353531	872531
36	74	27	433	353457	872421
36	74	27	434	353771	872423
36	74	27	435	353392	872301
36	74	27	436	352766	872259
36	74	27	437	352832	872171
36	74	27	438	353761	872136
36	74	27	439	352677	872030
36	74	27	440	352779	872039
36	74	27	442	353690	872051
36	74	27	443	353780	872041
36	74	27	445	353461	871941
36	74	27	446	353488	871851
36	74	27	447	353479	871734
36	74	27	448	353640	871588
36	74	27	449	352851	871618
36	74	27	450	352924	871750
36	74	27	451	352520	871585
36	74	27	454	351681	871660
36	74	27	455	351709	871493
36	74	27	459	351819	870965
36	74	27	460	350949	871335
36	74	27	461	351028	871263

36	74	27	462	350737	871159
36	74	27	463	350851	871159
36	74	27	464	350953	871158
36	74	27	465	351018	871050
36	74	27	466	350955	870988
36	74	27	467	352505	874262
36	74	27	468	352772	874245
36	74	27	469	351670	873940
36	74	27	470	351776	873835
36	74	27	471	351671	873834
36	74	27	476	352578	871819
36	74	27	477	352915	872225
36	74	27	478	353685	871627
36	74	27	479	352438	871501
36	74	27	480	352552	871402
36	74	27	482	352957	871613
36	74	27	483	353163	871847
36	74	27	484	353893	874495
36	74	27	485	354016	874437
36	74	27	486	354020	874331
36	74	27	487	351674	873722
36	74	27	491	352281	871392
36	74	27	492	351920	871113

TWN	RNG	SEC	HOLE	EAST	NORTH
36	74	33	270	348173	868929
36	74	33	271	348370	868923
36	74	33	272	348073	868757
36	74	33	273	347966	868554
36	74	33	274	348170	868559
36	74	33	275	348273	868464
36	74	33	276	347549	868293
36	74	33	277	347551	868083
36	74	33	278	347706	868082
36	74	33	279	347226	867908
36	74	33	280	347423	867909
36	74	33	281	347621	867907
36	74	33	282	347823	867903
36	74	33	283	347101	867711
36	74	33	284	347222	867706
36	74	33	285	346723	867460
36	74	33	286	346823	867460
36	74	33	287	346518	867300
36	74	33	288	346717	867300
36	74	33	289	346515	867210
36	74	33	290	346703	867113
36	74	33	291	346412	867032
36	74	33	292	344398	866104
36	74	33	293	344594	866099
36	74	33	294	344798	866101
36	74	33	295	344000	866000
36	74	33	295A	343999	865991
36	74	33	296	344202	865997
36	74	33	297	343715	865916
36	74	33	298	344008	865895
36	74	33	299	343715	865818
36	74	33	300	344004	865795
36	74	33	301	344332	865792
36	74	33	302	347890	866321
36	74	33	303	347742	866284
36	74	33	304	347802	866239
36	74	33	305	347060	866211
36	74	33	306	347452	866137
36	74	33	307	347137	866017
36	74	33	308	347453	866034
36	74	33	309	347555	865992
36	74	33	310	347452	865938
36	74	33	311	347320	865921
36	74	33	313	346736	865766
36	74	33	315	347186	865750
36	74	33	316	346735	865666
36	74	33	317	344392	866204
36	74	33	318	343992	866101
36	74	33	319	344198	866098

36	74	33	320	346404	867139
36	74	33	321	348479	869087
36	74	33	322	348556	869090
36	74	33	323	348619	869110
36	74	33	324	347195	866486
36	74	33	325	347394	866488
36	74	33	326	347103	866309
36	74	33	327	347405	866301

TWN	RNG	SEC	HOLE	EAST	NORTH
36	74	34	1015	353950	867660
36	74	34	1016	354000	867660
36	74	34	1349	350603	870915
36	74	34	1350	350416	870824
36	74	34	1351	350312	870624
36	74	34	1352	350008	870524
36	74	34	1353	350108	870525
36	74	34	1354	349904	870428
36	74	34	1355	349801	870328
36	74	34	1356	350002	870325
36	74	34	1357	350211	870323
36	74	34	1358	349750	870241
36	74	34	1359	349700	870143
36	74	34	1360	349799	870141
36	74	34	1361	352646	870560
36	74	34	1362	352903	870556
36	74	34	1363	352995	870557
36	74	34	1364	352596	870510
36	74	34	1365	352698	870510
36	74	34	1366	352648	870461
36	74	34	1367	352702	870400
36	74	34	1368	352802	870401
36	74	34	1369	352900	870401
36	74	34	1370	353001	870399
36	74	34	1371	352686	870249
36	74	34	1372	352786	870251
36	74	34	1373	352884	870251
36	74	34	1374	352984	870252
36	74	34	1375	353085	870252
36	74	34	1376	353338	870234
36	74	34	1377	353835	870271
36	74	34	1378	353935	870318
36	74	34	1379	354037	870268
36	74	34	1380	353416	870182
36	74	34	1381	353893	870204
36	74	34	1382	354093	870205
36	74	34	1383	353992	870152
36	74	34	1384	352926	870031
36	74	34	1385	353405	870050
36	74	34	1386	353362	870001
36	74	34	1387	353454	870002
36	74	34	1388	353901	870009
36	74	34	1389	353093	869970
36	74	34	1390	352893	869938
36	74	34	1391	353006	869913
36	74	34	1392	353093	869922
36	74	34	1393	353353	869891
36	74	34	1394	353394	869864
36	74	34	1395	353493	869858

36	74	34	1396	353838	869867
36	74	34	1397	353063	869795
36	74	34	1398	353154	869746
36	74	34	1399	353393	869731
36	74	34	1400	353253	869697
36	74	34	1401	353938	869694
36	74	34	1402	352995	869602
36	74	34	1403	353145	869600
36	74	34	1404	353795	869552
36	74	34	1405	352794	869492
36	74	34	1406	352893	869491
36	74	34	1407	353094	869490
36	74	34	1408	353806	869426
36	74	34	1409	352743	869430
36	74	34	1410	352616	869304
36	74	34	1411	352666	869305

TWN	RNG	SEC	HOLE	EAST	NORTH
36	74	35	1173	354601	867510
36	74	35	1174	354444	867619
36	74	35	1175	354316	867663

TWN	RNG	SEC	HOLE	EAST	NORTH
36	74	36	1559	360149	870343
36	74	36	1560	360151	870249
36	74	36	1561	360251	870249
36	74	36	1562	360341	870279
36	74	36	1563	360157	870172
36	74	36	1564	360042	870048
36	74	36	1565	360635	869857
36	74	36	1566	360753	869852
36	74	36	1567	360252	869752
36	74	36	1568	360636	869743
36	74	36	1569	360444	869649
36	74	36	1571	359704	868896
36	74	36	1572	359722	868808
36	74	36	1573	359505	868699
36	74	36	1574	359322	868604
36	74	36	1575	359512	868603
36	74	36	1576	360272	868161
36	74	36	1577	360358	868057
36	74	36	1578	360245	867969
36	74	36	1579	360343	867976
36	74	36	1580	360504	867923
36	74	36	1581	359850	867849
36	74	36	1582	360143	867855
36	74	36	1583	360250	867853
36	74	36	1584	360354	867855
36	74	36	1585	360434	867856
36	74	36	1586	360539	867859
36	74	36	1587	360540	867802
36	74	36	1588	359852	867750
36	74	36	1589	359951	867750
36	74	36	1590	360063	867745
36	74	36	1591	360159	867747
36	74	36	1592	360254	867744
36	74	36	1593	360348	867749
36	74	36	1594	360437	867744
36	74	36	1595	360512	867740
36	74	36	1596	360105	867697
36	74	36	1597	359864	867639
36	74	36	1598R	359936	867627
36	74	36	1599	360864	867660
36	74	36	1600	867558	360848
36	74	36	1601	360843	867493
36	74	36	1602	360851	867453
36	74	36	1603	360910	867414
36	74	36	1604	360845	867357
36	74	36	1606	361205	867340
36	74	36	1607	361485	867399
36	74	36	1608	361546	867347
36	74	36	1609	361546	867290

36	74	36	1610	361599	867285

APPENDIX C

MAPS

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: FIGURE 1, REV 2 : SMITH RANCH PROJECT WDEQ PERMIT TO MINE NO. 633 ANNUAL REPORT PERMIT AREA MAP

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DRAWING NUMBER: FIGURE 1, REV 2

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-1

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: FIGURE 2, REV 2: SMITH RANCH PROJECT WDEQ PERMIT TO MINE NO. 633 ANNUAL REPORT MONITOR WELL MAP

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DRAWING NUMBER: FIGURE 2, REV 2

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-2

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: FIGURE 3-11, REV 3: SMITH RANCH PROJECT WDEQ PERMIT TO MINE NO. 633 ANNUAL REPORT FACILITY MAP

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DRAWING NUMBER: FIGURE 3-11, REV 3

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-3

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: FIGURE 4-1, REV 1: SMITH RANCH PROJECT WDEQ PERMIT TO MINE NO. 633 ANNUAL REPORT DELINEATION HOLE MAP WESTERN PORTION

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DRAWING NUMBER: FIGURE 4-1, REV 1

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-4

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: FIGURE 4-2, REV 1: SMITH RANCH PROJECT WDEQ PERMIT TO MINE NO. 633 ANNUAL REPORT DELINEATION HOLE MAP MIDDLE PORTION

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DRAWING NUMBER: FIGURE 4-2, REV 1

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-5

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: FIGURE 4-3, REV 1: SMITH RANCH PROJECT WDEQ PERMIT TO MINE NO. 633 ANNUAL REPORT DELINEATION HOLE MAP EASTERN PORTION

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DRAWING NUMBER: FIGURE 4-3, REV 1

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-6

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: FIGURE 4-4, REV 1: SMITH RANCH PROJECT WDEQ PERMIT TO MINE NO. 633 ANNUAL REPORT DELINEATION HOLE MAP SOUTH EASTERN PORTION

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DRAWING NUMBER: FIGURE 4-4, REV 1

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-7

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: FIGURE 5-1, REV 3: SMITH RANCH PROJECT WDEQ PERMIT TO MINE NO. 633 ANNUAL REPORT WELL FIELD 1 PLAN MAP

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DRAWING NUMBER: FIGURE 5-1, REV 3

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-8

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: FIGURE 5-2, REV 1: SMITH RANCH PROJECT WDEQ PERMIT TO MINE NO. 633 ANNUAL REPORT WELL FIELD 3 PLAN MAP

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DRAWING NUMBER: FIGURE 5-2, REV 1

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-9

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: FIGURE 5-3, REV 2: SMITH RANCH PROJECT WDEQ PERMIT TO MINE NO. 633 ANNUAL REPORT WELL FIELD 4 PLAN MAP

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DRAWING NUMBER: FIGURE 5-3, REV 2

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-10

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: FIGURE 5-4, REV 1: SMITH RANCH PROJECT WDEQ PERMIT TO MINE NO. 633 ANNUAL REPORT WELLFIELD 4 PHASE 2

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DRAWING NUMBER: FIGURE 5-4, REV 1

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

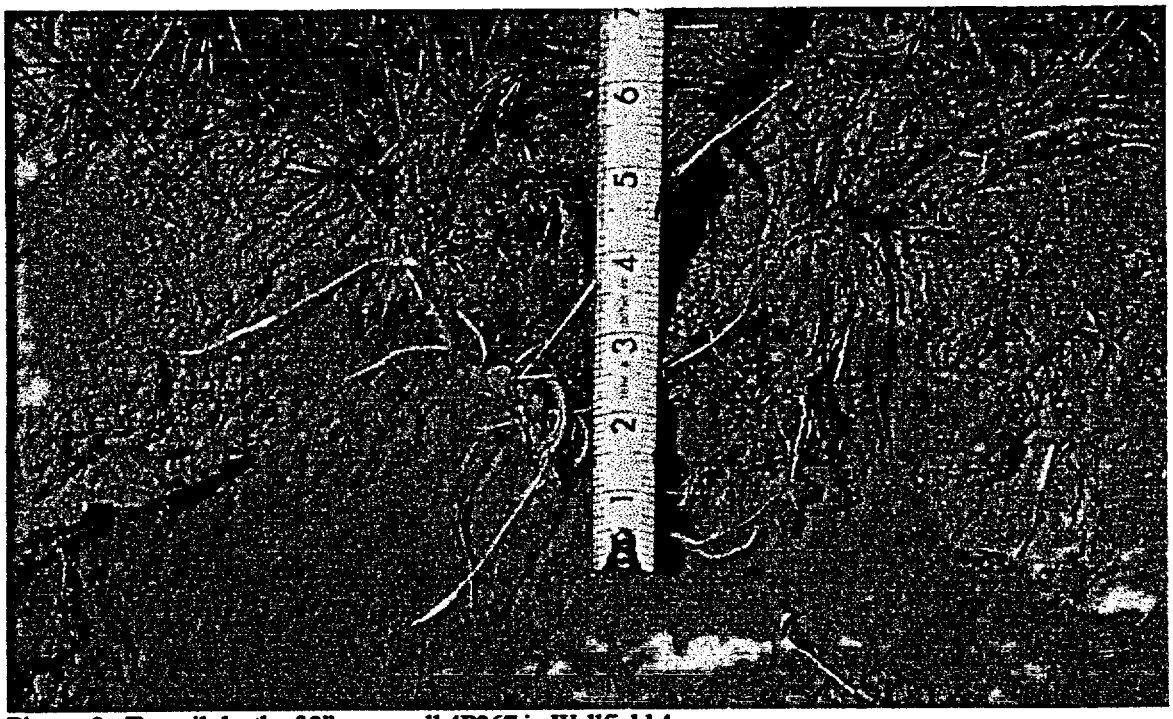
D-11

APPENDIX D

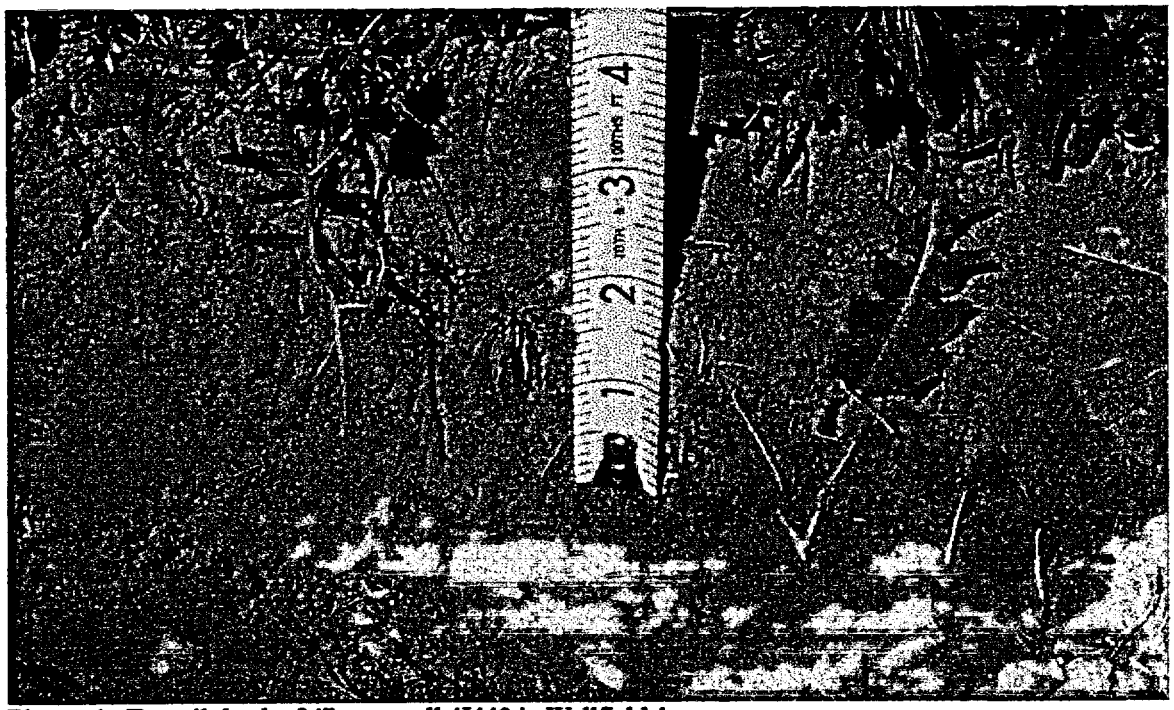
TOPSOIL PROFILE MAP & PICTURES

Picture 1: Topsoil depth of 4" near well 4P422 in Wellfield 4.

Picture 2: Topsoil depth of 4" near well 4P242 in Wellfield 4.

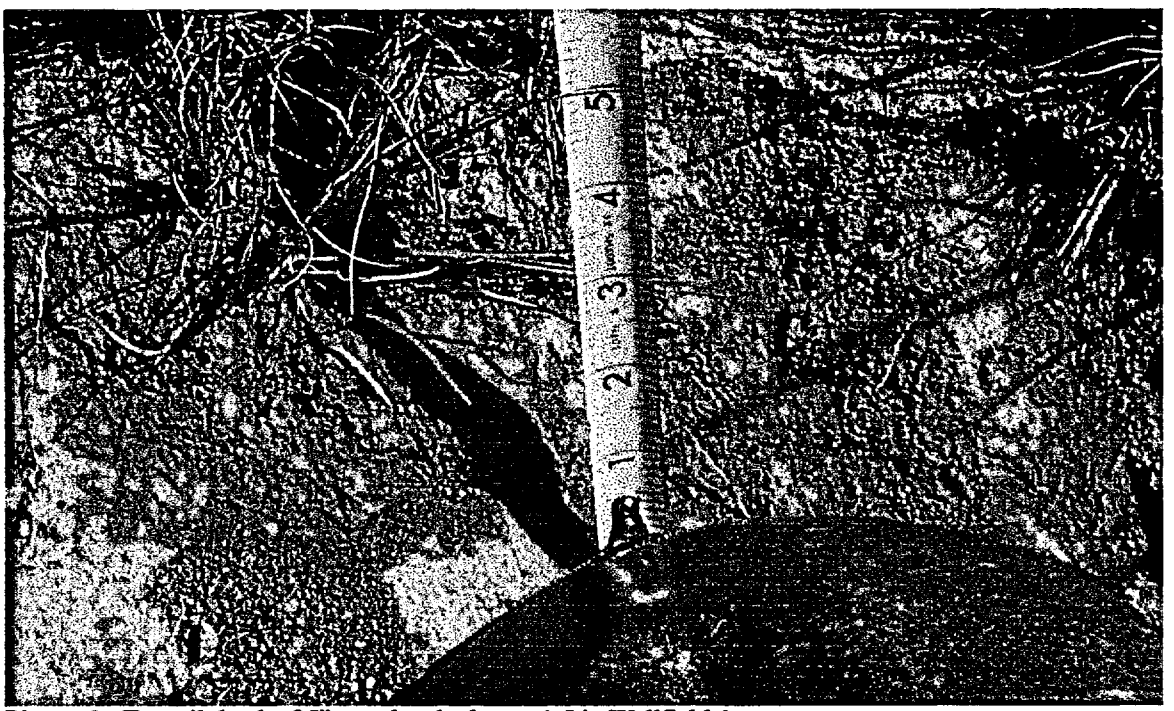


Picture 3: Topsoil depth of 3" near well 4P267 in Wellfield 4.

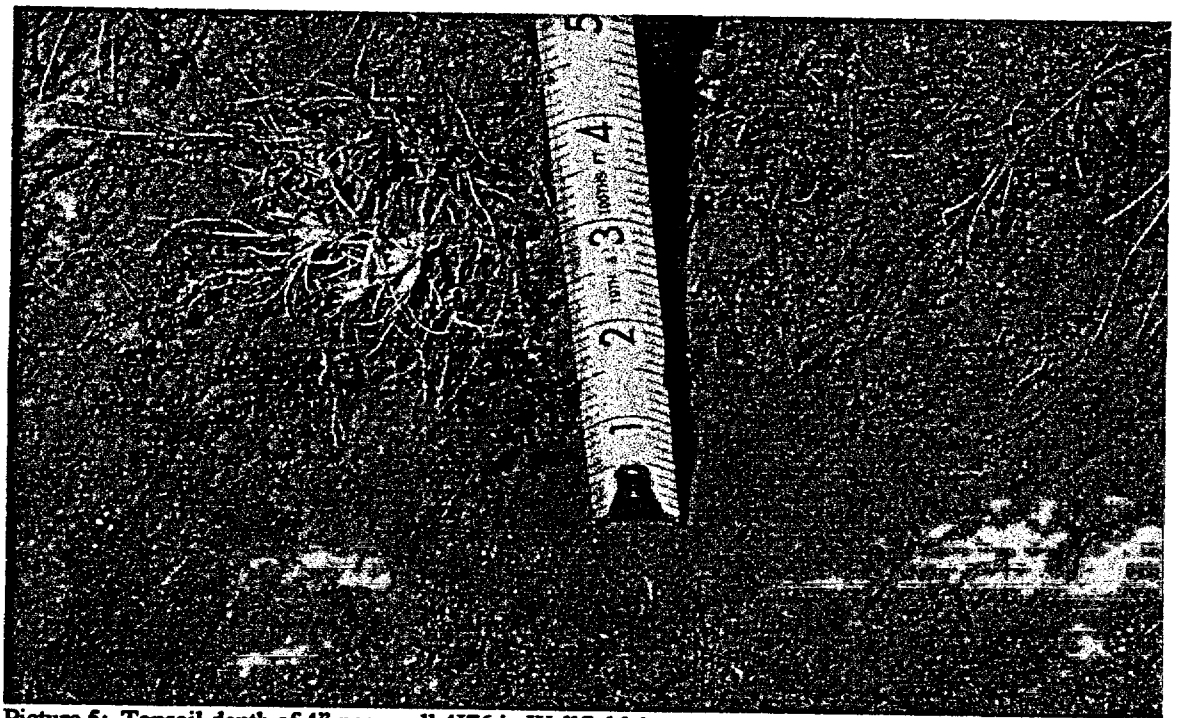


Picture 4: Topsoil depth of 4" near well 4I440 in Wellfield 4.

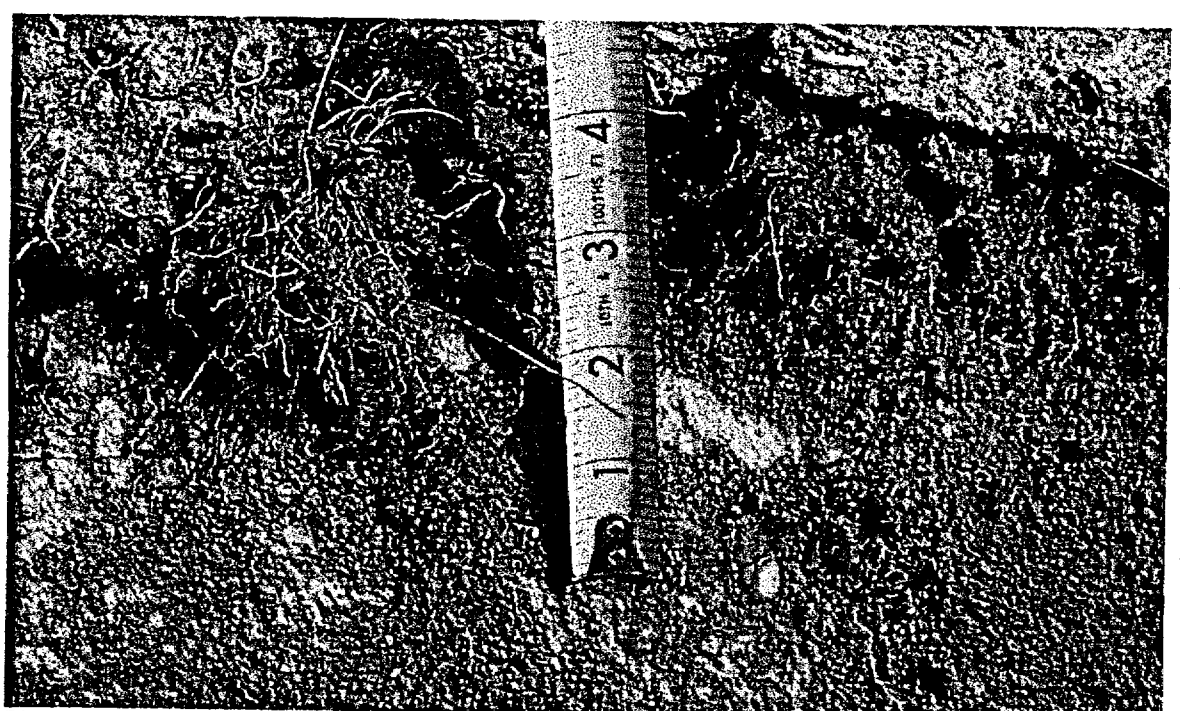
Picture 7: Topsoil depth of 5" immediately southeast of draw in header house 4-6 in Wellfield 4.



Picture 8: Topsoil depth of 5" near header house 4-5 in Wellfield 4.



Picture 5: Topsoil depth of 4" near well 4176 in Wellfield 4.



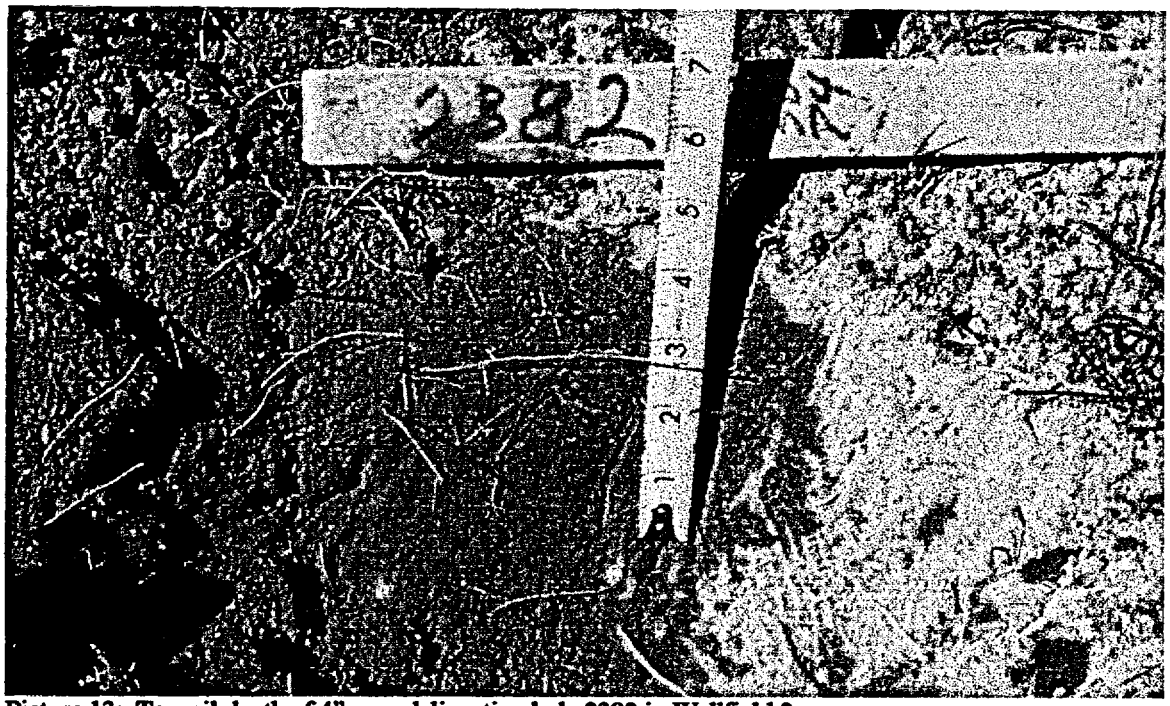
Picture 6: Topsoil depth of 5" approximately 200' east of apex in Wellfield 4 along access road.

Picture 9: Topsoil depth of 4" near delineation hole 2350 in Wellfield 2.

Picture 10: Topsoil depth of 5" near delineation hole 2364 in Wellfield 2.

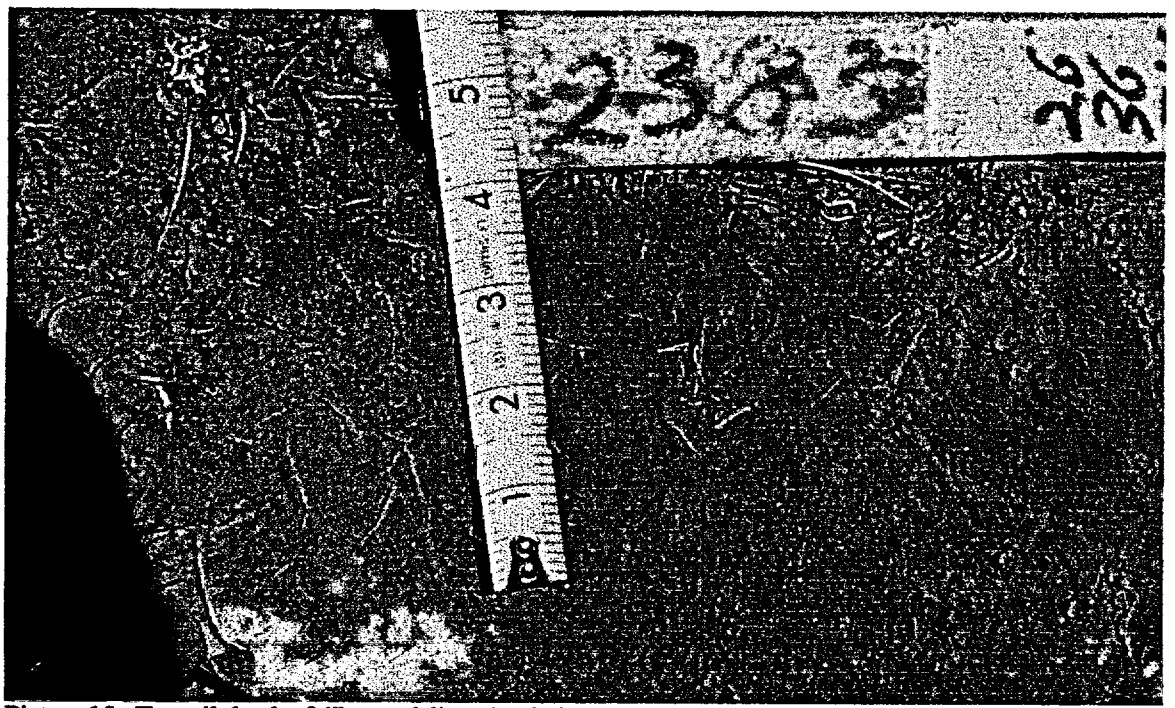
Picture 11: Topsoil depth of 4" near delineation hole 2375 in Wellfield 2.

Picture 12: Topsoil depth of 4" near delineation hole 2380 in Wellfield 2.



Picture 13: Topsoil depth of 4" near delineation hole 2382 in Wellfield 2.


Picture 14: Topsoil depth of 4" near delineation hole 2388 in Wellfield 2.



Picture 15: Topsoil depth of 4" near delineation hole 2383 in Wellfield 2.

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: FIGURE 6-1, REV 1: SMITH RANCH PROJECT WDEQ PERMIT TO MINE NO. 633 WELLFIELD 4 TOPSOIL DEPTHS

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DRAWING NUMBER: FIGURE 6-1, REV 1

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-12

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: FIGURE 6-2, REV 2: SMITH RANCH PROJECT WDEQ PERMIT TO MINE NO. 633 WELLFIELD 2 AND DEEP DISPOSAL WELL 2 TOPSOIL DEPTHS

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DRAWING NUMBER: FIGURE 6-2, REV 2

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-13

APPENDIX E

RAPTOR MONITORING

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: FIGURE 7, REV 2: SMITH RANCH PROJECT WDEQ PERMIT TO MINE NO. 633 ANNUAL REPORT RAPTOR MONITORING RESULTS

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DRAWING NUMBER: FIGURE 7, REV 2

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-14