POWER
RESOURCES

Smith Ranch - Highland
Uranium Project
P. O. Box 1210
Glenrock, Wyoming USA 82637
Casper: 307-235-1628
Douglas: 307-358-6541
Fax: 307-358-4533

June 30, 2006

Addressee only
Mr. Gary Janosko, Chief FCLB
Fuel Cycle Facilities Branch, NMSS
Mail Stop T-8A33
U.S. Nuclear Regulatory Commission
Washington D.C. 20555

RE: Smith Ranch-Highland Uranium Project
Docket No. 40-8964, SUA-1548
2006-2007 Surety Estimate Revision

Dear Mr. Janosko:

**HIGHLAND URANIUM PROJECT**
**2006-2007 Surety Estimate Revision Summary**

The 2006-2007 Surety Estimate revision is based on the current approved estimate, which utilizes the WDEQ-LQD standardized bond format and, where applicable, the cost estimates provided in WDEQ-LQD Guideline No. 12 (dated October 2005). The 2006-2007 Surety Estimate Revision results in a Surety Estimate of $22,497,100, which is an increase of $710,400. from the currently approved Surety Estimate of $21,786,700. The attached computer disk contains the Excel file (HUPBOND2007), which contains all spreadsheets and unit cost derivations.

The 2006-2007 Surety Estimate Revision reflects costs associated with new development during the report period and planned operations during the next one-year surety period. The only significant development during this report period was construction activities in Mine Unit-J (MU-J). Completed construction activities include the monitor well ring, the main trunkline from Satellite #3, completion of some of the planned wellfield patterns and all required monitor wells associated with Mine Unit J. There are a total of seven Headerhouse's in MU-J, six will

start up and be in production in 2006 and one in 2007. The estimate also identifies work to be started in MU-JA in the first & second quarter of 2007. Updating the Surety Estimate with appropriate ground water restoration, decommissioning, and reclamation costs for pattern areas and the trunkline corridor for Mine Unit-J & JA added approximately $438,000 (before any escalators) to the Surety Estimate.

Cost estimates based on the WDEQ-LQD Guideline No. 12 were revised in 2005, and utility costs were updated at that time based on operating costs. Unit costs used from the WDEQ-LQD Guideline No. 12 were de-escalated to July 1998 dollars to maintain consistency with the other unit costs used in the bond calculations as well as the 2005-2006 revised surety estimate revision. The CPI escalator (July 98 to May 06) is then applied to the total tabulated costs. The CPI increased .3% from last year's (19.1%) revision. WDEQ-LQD Guideline No. 12 unit costs are mainly used to estimate building demolition and disposal, wellfield demolition and disposal, and surface reclamation costs. Using the current, de-escalated to July 1998 dollars

Restoration of Mine Unit-A has been completed. Therefore, there are no groundwater restoration costs for Mine Unit-A is included in the 2006-2007 Surety Estimate (with the exception of costs for stabilization period monitoring). Costs for removal of buildings and equipment, well abandonment, and surface reclamation for Mine Unit-A are retained in the 2006-2007 Surety Estimate.

Line item VI on the surety summary table decreased ($1,220.00) as a result of more realistic estimations of the number of feet of wellfield roads (spread sheet WF REC – IIB). This is the only line item that exhibited a decrease from the 2005-2006 surety estimate revision submittal. All other surety items exhibited an increase or remained the same. The CPI escalator (19.41%) and 25% contingency account for $ 7,424,920.00 or 33%, of the total surety estimate.

Copies of these 2006-2007 Surety Estimate Revisions are also being forwarded to the Wyoming Department of Environmental Quality (WDEQ-LQD). Upon WDEQ-LQD and NRC approval of these estimates, PRI will revise the existing surety instrument to the applicable amounts. Until that time, the existing surety instrument will remain in place.

PRI representatives are available to meet with your staff to assist with their review of this submittal. If you or your staff have any questions, please call me at (307) 358-6541 ext. 46.

Sincerely,

John McCarthy
Manager, Environmental, Health
& Safety (EHS)

Cc: S.P. Collings w/atta
C. Foldenauer w/atta
R. Townley w/o atta
L. Spackman, WDEQ/LQD

POWER RESOURCES INC HIGHLAND URANIUM PROJECT
2006-2007 SURETY ESTIMATE REVISION

| Total Restoration and Reclamation Cost Estimate | | |
|---|---|---|
| I. | GROUNDWATER RESTORATION COST | $10,504,422 |
| II. | EQUIPMENT REMOVAL & DISPOSAL COST | $103,633 |
| III. | BUILDING DEMOLITION AND DISPOSAL COST | $1,011,992 |
| IV. | WELLFIELD BUILDINGS & EQUIPMENT REMOVAL & DISPOSAL COST | $1,209,170 |
| V. | WELL ABANDONMENT COST | $1,452,683 |
| VI. | WELLFIELD AND SATELLITE SURFACE RECLAMATION COST | $94,519 |
| VII. | TOTAL MISCELLANEOUS RECLAMATION COST | $695,734 |
| | SUBTOTAL RECLAMATION AND RESTORATION COST ESTIMATE | $15,072,153 |
| | CPI ESCALATOR- July 1998 to May 31, 2006 (19.41%) | $2,925,505 |
| | SUBTOTAL | $17,997,658 |
| | ADMINISTRATIVE, OVERHEAD, AND CONTINGENCY ITEMS (25%) | $4,499,415 |
| | TOTAL | $22,497,073 |
| | TOTAL CALCULATED SURETY (IN 2005 DOLLARS) | $22,497,100 |

| Ground Water Restoration | Mine Unit-A | Mine Unit-B | Mine Unit-C | C-19N Pattern | C-Haul. Drifts | Mine Unit-D | Mine Unit-E | Mine Unit-F | Mine Unit-H | Mine Unit-D Ext. | Mine Unit-I | Mine Unit-J | Mine Unit-JA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PV Assumptions | | | | | | | | | | | | | |
| Wellfield Area (ft2) | 151900 | 690900 | 1274000 | 32500 | | 279500 | 994500 | 3348000 | 1116000 | 216000 | 891231 | 1200000 | 400000 |
| Wellfield Area (acres) | 3.49 | 15.86 | 29.25 | 0.75 | 0.00 | 6.42 | 22.83 | 76.86 | 25.62 | 4.96 | 20.46 | 27.55 | 9.18 |
| Affected Ore Zone Area (ft2) | 151900 | 690900 | 1274000 | 32500 | 0 | 279500 | 994500 | 3348000 | 1116000 | 216000 | 891231 | 1200000 | 400000 |
| Avg. Completed Thickness | 15 | 15 | 15 | 15 | | 15 | 15 | 15 | 15 | 15 | 15 | 20 | 20 |
| Porosity | 0.27 | 0.27 | 0.27 | 0.27 | | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 |
| Perimeter Injection Wells/ ft2 | | | 2.05E-04 | | | 2.54E-04 | 2.63E-04 | 2.00E-04 | 2.43E-04 | 2.45E-04 | 2.55E-04 | 2.55E-04 | 2.55E-04 |
| Flare Factor | 2.94 | 2.94 | 2 | 2 | | 2.5 | 2.6 | 2 | 2.4 | 2.5 | 2.5 | 2.5 | 2.5 |
| Affected Volume (ft3) | 6698790 | 30468690 | 38220000 | 975000 | 1360000 | 10481250 | 38785500 | 100440000 | 40176000 | 8100000 | 33421163 | 60000000 | 20000000 |
| Kgallons per Pore Volume | 13529 | 61535 | 77189 | 1969 | 10173 | 21168 | 78331 | 202849 | 81139 | 16359 | 67497 | 121176 | 40392 |
| Number of Patterns in Unit(s) | | | | | | | | | | | | | |
| Current | 31 | 141 | 196 | 5 | 0 | 43 | 153 | 465 | 155 | 30 | 124 | 120 | 0 |
| Estimated next report period | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 |
| Total Estimated | 31 | 141 | 196 | 5 | 0 | 43 | 153 | 465 | 155 | 30 | 124 | 120 | 40 |
| Number of Wells in Unit(s) | | | | | | | | | | | | | |
| Production Wells | | | | | | | | | | | | | |
| Current | 27 | 141 | 192 | | | 45 | 143 | 465 | 155 | 30 | 125 | 120 | 0 |
| Estimated next report period | 0 | 0 | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 |
| Total Estimated | 27 | 141 | 192 | | | 45 | 143 | 465 | 155 | 30 | 125 | 120 | 40 |
| Injection Wells | | | | | | | | | | | | | |
| Current | 50 | 319 | 343 | | | 91 | 307 | 903 | 327 | 67 | 236 | 240 | 0 |
| Estimated next report period | 0 | 0 | 0 | Wells | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 80 |
| Total Estimated | 50 | 319 | 343 | included | | 91 | 307 | 903 | 327 | 67 | 236 | 240 | 80 |
| Monitor Wells | | | | under | | | | | | | | | |
| Current | 18 | 67 | 78 | C-Wellfield | | 38 | 86 | 134 | 81 | 20 | 39 | 41 | 0 |
| Estimated next report period | 0 | 0 | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| Total Estimated | 18 | 67 | 78 | | | 38 | 86 | 134 | 81 | 20 | 39 | 41 | 30 |
| Restoration Wells | | | | | | | | | | | | | |
| Current | 13 | 30 | 19 | | | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 |
| Estimated next report period | 0 | 0 | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Estimated | 13 | 30 | 19 | | | | | 15 | 0 | 0 | 0 | 0 | 0 |
| Number of Wells per Wellfield | 108 | 557 | 632 | 0 | 0 | 174 | 536 | 1517 | 563 | 117 | 400 | 401 | 150 |
| Total Number of Wells | 4087 | | | | | | | | | | | | |
| Average Well Depth (ft) | 500 | 450 | 550 | 550 | 550 | 600 | 550 | 650 | 500 | 600 | 650 | 540 | 540 |
| I. Restoration Well Installation Costs | | | | | | | | | | | | | |
| Number of Restoration Wells | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Well Installation Unit Cost ($/Well) | $4,000 | $4,000 | $4,000 | $4,000 | $4,000 | $4,000 | $4,000 | $4,000 | $4,000 | $4,000 | $4,000 | $4,000 | $4,000 |
| Subtotal Restoration Well Installation Costs per Wellfield | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Total Restoration Well Installation Costs | $0 | | | | | | | | | | | | |

| Ground Water Restoration | Mine Unit-A | Mine Unit-B | Mine Unit-C | C-19N Pattern | C-Haul. Drifts | Mine Unit-D | Mine Unit-E | Mine Unit-F | Mine Unit-H | Mine Unit-D Ext. | Mine Unit-I | Mine Unit-J | Mine Unit-JA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| II. *Ground Water Sweep Costs* | | | | | | | | | | | | | |
| PV's Required | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Kgals for Treatment | 0 | 61535 | 77189 | 1969 | 10173 | 21168 | 78331 | 202849 | 81139 | 16359 | 67497 | 121176 | 40392 |
| Ground Water Sweep Unit Cost ($/Kgal) | $0.77 | $0.77 | $0.77 | $0.77 | $0.77 | $0.77 | $0.77 | $0.77 | $0.77 | $0.77 | $0.77 | $0.77 | $0.77 |
| Subtotal Ground Water Sweep Costs per Wellfield | $0 | $47,114 | $59,100 | $1,508 | $7,789 | $16,207 | $59,974 | $155,311 | $62,124 | $12,525 | $51,679 | $92,778 | $30,926 |
| **Total Ground Water Sweep Costs** | $597,035 | | | | | | | | | | | | |
| III. **Reverse Osmosis Costs** | | | | | | | | | | | | | |
| PV's Required | 0 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Total Kgals for Treatment | 0 | 307673 | 385946 | 9846 | 50864 | 105840 | 391656 | 1014243 | 405697 | 81794 | 337487 | 605880 | 201960 |
| Reverse Osmosis Unit Cost ($/Kgal) | $1.33 | $1.33 | $1.33 | $1.33 | $1.33 | $1.33 | $1.33 | $1.33 | $1.33 | $1.33 | $1.33 | $1.33 | $1.33 |
| Subtotal Reverse Osmosis Costs per Wellfield | $0 | $407,851 | $511,609 | $13,051 | $67,425 | $140,301 | $519,179 | $1,344,481 | $537,792 | $108,426 | $447,373 | $803,155 | $267,718 |
| **Total Reverse Osmosis Costs** | $5,168,361 | | | | | | | | | | | | |
| IV. **Bioremediation/Chemical Reductant Costs** | | | | | | | | | | | | | |
| Total Kgals for Treatment (2 Pore Volumes) | 0 | 123069 | 154378 | 3938 | 20346 | 42336 | 156662 | 405697 | 162279 | 32718 | 134995 | 242352 | 80784 |
| Chemical Reductant Unit Cost ($/Kgal) | $0.29 | $0.29 | $0.29 | $0.29 | $0.29 | $0.29 | $0.29 | $0.29 | $0.29 | $0.29 | $0.29 | $0.29 | $0.29 |
| Subtotal Chemical Reductant Costs per Wellfield | $0 | $35,690 | $44,770 | $1,142 | $5,900 | $12,277 | $45,432 | $117,652 | $47,061 | $9,488 | $39,148 | $70,282 | $23,427 |
| **Total Chemical Reductant Costs** | $452,269 | | | | | | | | | | | | |
| V. **Elution Costs** | | | | | | | | | | | | | |
| A. Elution Processing Costs | | | | | | | | | | | | | |
| Kgals/Elution Required | 35000 | 35000 | 35000 | 35000 | 35000 | 35000 | 35000 | 35000 | 35000 | 35000 | 35000 | 35000 | 35000 |
| Number of Elutions | 0 | 11 | 13 | 1 | 2 | 4 | 13 | 35 | 14 | 3 | 12 | 21 | 7 |
| Processing Unit Cost ($/Elution) | $525 | $525 | $525 | $525 | $525 | $525 | $525 | $525 | $525 | $525 | $525 | $525 | $525 |
| Subtotal Processing Costs | $0 | $5,775 | $6,825 | $525 | $1,050 | $2,100 | $6,825 | $18,375 | $7,350 | $1,575 | $6,300 | $11,025 | $3,675 |
| B. Deep Well Injection Costs | | | | | | | | | | | | | |
| Deep Well Injection Volume (Kgals/Elution) | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Kgals for Injection | 0 | 132 | 156 | 12 | 24 | 48 | 156 | 420 | 168 | 36 | 144 | 252 | 84 |
| Deep Well Injection Unit Cost ($/Kgals) | $4.60 | $4.60 | $4.60 | $4.60 | $4.60 | $4.60 | $4.60 | $4.60 | $4.60 | $4.60 | $4.60 | $4.60 | $4.60 |
| Subtotal Deep Well Injection Costs | $0 | $607 | $718 | $55 | $110 | $221 | $718 | $1,933 | $773 | $166 | $663 | $1,160 | $387 |
| Subtotal Elution Costs per Wellfield | $0 | $6,382 | $7,543 | $580 | $1,160 | $2,321 | $7,543 | $20,308 | $8,123 | $1,741 | $6,963 | $12,185 | $4,062 |
| **Total Elution Costs** | $78,911 | | | | | | | | | | | | |
| VI. **Monitoring and Sampling Costs** | | | | | | | | | | | | | |
| A. Restoration Well Sampling | | | | | | | | | | | | | |
| Estimated Restoration Period (Years) | 5 | 5 | 5 | 5 | 2 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 1. Well Sampling prior to restoration start | | | | | | | | | | | | | |
| # of Wells | 0 | 20 | 31 | 5 | 7 | 9 | 31 | 21 | 12 | 4 | 6 | 6 | 6 |
| $/sample | $150 | $150 | $150 | $150 | $150 | $150 | $150 | $150 | $150 | $150 | $150 | $150 | $150 |

| Ground Water Restoration | Mine Unit-A | Mine Unit-B | Mine Unit-C | C-19N Pattern | C-Haul. Drifts | Mine Unit-D | Mine Unit-E | Mine Unit-F | Mine Unit-H | Mine Unit-D Ext. | Mine Unit-I | Mine Unit-J | Mine Unit-JA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2. Restoration Progress Sampling | | | | | | | | | | | | | |
| # of Wells | 0 | 20 | 31 | 5 | 7 | 9 | 31 | 21 | 12 | 4 | 6 | 12 | 12 |
| $/sample | $34 | $34 | $34 | $34 | $34 | $34 | $34 | $34 | $34 | $34 | $34 | $34 | $34 |
| Samples/Year | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| 3. UCL Sampling | | | | | | | | | | | | | |
| # of Wells | 0 | 70 | 78 | 5 | 20 | 29 | 55 | 89 | 69 | 16 | 33 | 69 | 69 |
| $/sample | $19 | $19 | $19 | $19 | $19 | $19 | $19 | $19 | $19 | $19 | $19 | $19 | $19 |
| Samples/Year | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Sub-total Restoration Analyses | $0 | $63,300 | $80,730 | $8,700 | $8,466 | $27,060 | $67,620 | $75,300 | $53,370 | $13,800 | $25,830 | $52,470 | $52,470 |
| B. Short-term Stability | | | | | | | | | | | | | |
| Estimated Stabilization Period (Months) | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| # of Wells | 6 | 56 | 44 | 6 | 2 | 19 | 28 | 89 | 69 | 16 | 33 | 33 | 33 |
| Samples/Year | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| $/sample | $19 | $19 | $19 | $19 | $19 | $19 | $19 | $19 | $19 | $19 | $19 | $19 | $19 |
| # of Wells | 5 | 20 | 31 | 6 | 2 | 9 | 31 | 21 | 12 | 4 | 6 | 6 | 6 |
| Samples/Year | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| $/sample | $34 | $34 | $34 | $34 | $34 | $34 | $34 | $34 | $34 | $34 | $34 | $34 | $34 |
| # of Wells | 5 | 20 | 31 | 6 | 2 | 9 | 31 | 21 | 12 | 4 | 6 | 6 | 6 |
| Samples/Year | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| $/sample | $150 | $150 | $150 | $150 | $150 | $150 | $150 | $150 | $150 | $150 | $150 | $150 | $150 |
| Sub-total Short-term Stability Analyses | $3,204 | $16,464 | $20,640 | $3,708 | $1,236 | $6,702 | $18,816 | $20,730 | $13,914 | $3,840 | $6,786 | $6,786 | $6,786 |
| Subtotal Monitoring and Sampling Costs per Wellfield | $3,204 | $79,764 | $101,370 | $12,408 | $9,702 | $33,762 | $86,436 | $96,030 | $67,284 | $17,640 | $32,616 | $59,256 | $59,256 |
| Total Monitoring and Sampling Costs | $658,728 | | | | | | | | | | | | |
| VII. Mechanical Integrity Test (MIT) Costs | | | | | | | | | | | | | |
| Five Year MIT Unit Cost ($/well) | $71 | $71 | $71 | $71 | $71 | $71 | $71 | $71 | $71 | $71 | $71 | $71 | $71 |
| Number of Wells (30% of Inj. and Rest. Wells) | 0 | 0 | 109 | 0 | 0 | 27 | 92 | 275 | 98 | 20 | 71 | 72 | 24 |
| Subtotal Mechanical Integrity Testing Costs per Wellfield | $0 | $0 | $7,711 | $0 | $0 | $1,938 | $6,539 | $19,553 | $6,965 | $1,427 | $5,027 | $5,112 | $1,704 |
| Total Mechanical Integrity Testing Cost | $55,976 | | | | | | | | | | | | |
| TOTAL RESTORATION COSTS PER WELLFIELD | $3,204 | $576,801 | $732,103 | $28,689 | $91,976 | $206,806 | $725,103 | $1,753,335 | $729,349 | $151,247 | $582,806 | $1,042,768 | $387,093 |
| TOTAL WELLFIELD RESTORATION COST | $7,011,280 | | | | | | | | | | | | |

| VIII. Building Utility Costs | Central Plant | Main Office | Satellite No.1 | Satellite No.2 | Satellite No.3 |
|---|---|---|---|---|---|
| Electricity ($/Month) | $0 | $0 | $1,050 | $1,190 | $1,675 |
| Propane ($/Month) | $0 | $0 | $680 | $0 | $1,160 |
| Natural Gas ($/Month) | $0 | $0 | $0 | $520 | $0 |
| Number of Months | 0 | 60 | 6 | 48 | 48 |
| Subtotal Utility Costs per Building | $0 | $0 | $10,380 | $82,080 | $136,080 |
| Total Building Utility Costs | $228,540 | | | | |

| Ground Water Restoration | | |
|---|---|---|
| IX. Irrigation Maintenance and Monitoring Costs | Irrigator No.1 | Irrigator No.2 |
| A. Irrigation Maintenance and Repair | | |
| Irrigation Operation Months/Year | 6 | 6 |
| Cost per Month | $667 | $667 |
| Total Number of Years | 5 | 5 |
| *Subtotal Maintenance and Repair Costs* | *$20,010* | *$20,010* |
| B. Irrigation Monitoring and Sampling | | |
| # of Irrigation Fluid Samples/Year | 6 | 6 |
| Cost/sample | $121 | $121 |
| # of Vegetation Samples/Year | 4 | 4 |
| Cost/sample | $165 | $165 |
| # of Soil Samples/Year | 28 | 32 |
| Cost/sample | $174 | $174 |
| # of Soil Water Samples/Year | 12 | 2 |
| Cost/sample | $121 | $121 |
| *Total Number of Years* | 5 | 5 |
| Subtotal Sampling Costs | $38,550 | $35,980 |
| Subtotal Maintenance and Monitoring Costs per Irrigator | $58,560 | $55,990 |
| Total Irrigation Maintenance and Monitoring Costs | $114,550 | |
| X. Capital Costs (RO Purchase) | | |
| Purchase/Installation Costs for 500 gpm RO Capacity | $500,000 | |
| Total Capital Costs | $500,000 | |
| XI. Vehicle Operation Costs | | |
| Number of Pickup Trucks/Pulling Units (Gas) | 10 | |
| *Unit Cost in $/hr (WDEQ Guideline No.12, Table D-1)* | $10.13 | |
| Unit Cost in $/hr (July 1998 dollars w/o escalator) | $8.80 | |
| Average Operating Time (Hrs/Year) | 1000 | |
| Total Number of Years (Average) | 5 | |
| Total Vehicle Operation Costs | $440,052 | |
| XII. Labor Costs | | |
| Number of Environmental Managers/RSOs | 1 | |
| $/Year | $60,000 | |
| Number of Restoration Managers | 1 | |
| $/Year | $50,000 | |
| Number of Environmental Technicians | 2 | |
| $/Year | $28,000 | |
| Number of Operators/Laborers | 7 | |
| $/Year | $28,000 | |
| Number of Maintenance Technicians | 2 | |
| $/Year | $28,000 | |
| Number of Years | 5 | |
| Total Labor Costs | $2,090,000 | |
| XIII. Capital Costs | | |
| Purchase RO Units (2X800 gpm Units) | $120,000 | |
| Total Labor Costs | $120,000 | |
| TOTAL GROUND WATER RESTORATION COSTS | $10,504,422 | |

| Equipment Removal and Loading | Central Plant | Satellite No.1 | Satellite No.2 | Satellite No.3 |
|---|---|---|---|---|
| I. Removal and Loading Costs | | | | |
| A. Tankage | | | | |
| Number of Tanks | 26 | 8 | 14 | 18 |
| Volume of Tank Construction Material ($ft^3$) | 1028 | 162 | 290 | 397 |
| 1. Labor | | | | |
| Number of Persons | 3 | 3 | 3 | 3 |
| $Ft^3$/Day | 25 | 25 | 25 | 25 |
| Number of Days | 41 | 6 | 12 | 16 |
| $/Day/Person | $112 | $112 | $112 | $112 |
| Subtotal Labor Costs | $13,776 | $2,016 | $4,032 | $5,376 |
| 2. Equipment | | | | |
| Number of Days | 41 | 6 | 12 | 16 |
| $/Day | $338 | $338 | $338 | $338 |
| Subtotal Equipment Costs | $13,858 | $2,028 | $4,056 | $5,408 |
| Subtotal Tankage Removal and Loading Costs | $27,634 | $4,044 | $8,088 | $10,784 |
| B. PVC Pipe | | | | |
| PVC Pipe Footage | 5000 | 1000 | 4000 | 4000 |
| Average PVC Pipe Diameter (inches) | 3 | 3 | 3 | 3 |
| Shredded PVC Pipe Volume Reduction ($ft^3$/ft) | 0.016 | 0.016 | 0.016 | 0.016 |
| Volume of Shredded PVC Pipe ($ft^3$) | 80 | 16 | 64 | 64 |
| 1. Labor | | | | |
| Number of Persons | 2 | 2 | 2 | 2 |
| Ft/Day | 200 | 200 | 200 | 200 |
| Number of Days | 25 | 5 | 20 | 20 |
| $/Day/Person | $112 | $112 | $112 | $112 |
| Subtotal Labor Costs | $5,600 | $1,120 | $4,480 | $4,480 |
| Subtotal PVC Pipe Removal and Loading Costs | $5,600 | $1,120 | $4,480 | $4,480 |
| C. Pumps | | | | |
| Number of Pumps | 50 | 10 | 14 | 13 |
| Average Volume ($ft^3$/pump) | 4.93 | 4.93 | 4.93 | 4.93 |
| Volume of Pumps ($ft^3$) | 246.5 | 49.3 | 69.02 | 64.09 |
| 1. Labor | | | | |
| Number of Persons | 1 | 1 | 1 | 1 |
| Pumps/Day | 2 | 2 | 2 | 2 |
| Number of Days | 25 | 5 | 7 | 7 |
| $/Day/Person | $112 | $112 | $112 | $112 |
| Subtotal Labor Costs | $2,800 | $560 | $784 | $784 |
| Subtotal Pump Removal and Loading Costs | $2,800 | $560 | $784 | $784 |
| D. Dryer | | | | |
| Dryer Volume ($ft^3$) | 885 | 0 | 0 | 0 |
| 1. Labor | | | | |
| Number of Persons | 5 | 0 | 0 | 0 |
| $Ft^3$/Day | 175 | 0 | 0 | 0 |
| Number of Days | 5 | 0 | 0 | 0 |
| $/Day/Person | $112 | $112 | $112 | $112 |
| Total Labor Cost | $2,800 | $0 | $0 | $0 |
| Total Dryer Dismantling and Loading Cost | $2,800 | $0 | $0 | $0 |
| E. RO Units | | | | |

| Equipment Removal and Loading | Central Plant | Satellite No.1 | Satellite No.2 | Satellite No.3 |
|---|---|---|---|---|
| Number of RO Units | | | | |
| Current | 0 | 3 | 0 | 0 |
| Planned | 0 | 0 | 1 | 1 |
| Average Volume ($ft^3$/RO Unit) | 250 | 250 | 250 | 250 |
| 1. Labor | | | | |
| Number of Persons | 2 | 2 | 2 | 2 |
| Number of Days | 0 | 1.5 | 0.5 | 0.5 |
| $/Day/Person | $112 | $112 | $112 | $112 |
| Subtotal Labor Costs | $0 | $336 | $112 | $112 |
| Subtotal RO Unit Removal and Loading Costs | $0 | $336 | $112 | $112 |
| Subtotal Equipment Removal and Loading Costs per Facility | $38,834 | $6,060 | $13,464 | $16,160 |
| **Total Equipment Removal and Loading Costs** | $74,518 | | | |
| **II. Transportation and Disposal Costs (NRC-Licensed Facility)** | | | | |
| A. Tankage | | | | |
| Volume of Tank Construction Material ($ft^3$) | 1028 | 162 | 290 | 397 |
| Volume for Disposal Assuming 10% Void Space ($ft^3$) | 1131 | 178 | 319 | 436 |
| Transportation and Disposal Unit Cost ($/$ft^3$) | $5.62 | $5.62 | $5.62 | $5.62 |
| Subtotal Tankage Transportation and Disposal Costs | $6,356 | $1,000 | $1,793 | $2,450 |
| B. PVC Pipe | | | | |
| Volume of Shredded PVC Pipe ($ft^3$) | 80 | 16 | 64 | 64 |
| Volume for Disposal Assuming 10% Void Space ($ft^3$) | 88 | 18 | 70 | 70 |
| Transportation and Disposal Unit Cost ($/$ft^3$) | $5.62 | $5.62 | $5.62 | $5.62 |
| Subtotal PVC Pipe Transportation and Disposal Costs | $495 | $101 | $393 | $393 |
| C. Pumps | | | | |
| Volume of Pumps ($ft^3$) | 246.5 | 49.3 | 69.02 | 64.09 |
| Volume for Disposal Assuming 10% Void Space ($ft^3$) | 271 | 54 | 76 | 70 |
| Transportation and Disposal Unit Cost ($/$ft^3$) | $5.62 | $5.62 | $5.62 | $5.62 |
| Subtotal Pump Transportation and Disposal Costs | $1,523 | $303 | $427 | $393 |
| D. Dryer | | | | |
| Dryer Volume ($ft^3$) | 885 | 0 | 0 | 0 |
| Volume for Disposal Assuming Dryer Remains Intact ($ft^3$) | 885 | 0 | 0 | 0 |
| Transportation and Disposal Unit Cost ($/$ft^3$) | $5.62 | $5.62 | $5.62 | $5.62 |
| Total Dryer Transportation and Disposal Costs | $4,974 | $0 | $0 | $0 |
| E. RO Units | | | | |
| Volume of RO Units ($ft^3$) | 0 | 750 | 250 | 250 |
| Volume for Disposal Assuming 50% Volume Reduction ($ft^3$) | 0 | 375 | 125 | 125 |
| Transportation and Disposal Unit Cost ($/$ft^3$) | $5.62 | $5.62 | $5.62 | $5.62 |
| Subtotal RO Unit Transportation and Disposal Costs | $0 | $2,108 | $703 | $703 |
| Subtotal Equipment Transportation and Disposal Costs per Facility | $13,348 | $3,512 | $3,316 | $3,939 |
| **Total Equipment Transportation and Disposal Costs** | $24,115 | | | |
| **III. Health and Safety Costs** | | | | |
| Radiation Safety Equipment | $1,250 | $1,250 | $1,250 | $1,250 |
| **Total Health and Safety Costs** | $5,000 | | | |
| SUBTOTAL EQUIPMENT REMOVAL AND DISPOSAL COSTS PER FACILITY | $53,432 | $10,822 | $18,030 | $21,349 |
| **TOTAL EQUIPMENT REMOVAL AND DISPOSAL COSTS** | $103,633 | | | |

| Building Demolition and Disposal | Central Plant | Dryer Building | Satellite No. 1 | Satellite No. 2 | Satellite No. 3 | Sat. No.3 Fab. Shop | Yellow Cake Warehouse | South Warehouse | Suspended Walkway |
|---|---|---|---|---|---|---|---|---|---|
| **I. Decontamination Costs** | | | | | | | | | |
| A. Wall Decontamination | | | | | | | | | |
| Area to be Decontaminated ($ft^2$) | 131000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Application Rate (Gallons/$ft^2$) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| HCl Acid Wash, including labor ($/Gallon) | $0.50 | $0.50 | $0.50 | $0.50 | $0.50 | $0.50 | $0.50 | $0.50 | $0.50 |
| Subtotal Wall Decontamination Costs | $65,500 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| B. Concrete Floor Decontamination | | | | | | | | | |
| Area to be Decontaminated ($ft^2$) | 17820 | 0 | 6000 | 9600 | 9600 | 0 | 0 | 0 | 0 |
| Application Rate (Gallons/$ft^2$) | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| HCl Acid Wash, including labor ($/Gallon) | $0.50 | $0.50 | $0.50 | $0.50 | $0.50 | $0.50 | $0.50 | $0.50 | $0.50 |
| Subtotal Concrete Floor Decontamination Costs | $35,640 | $0 | $12,000 | $19,200 | $19,200 | $0 | $0 | $0 | $0 |
| C. Deep Well Injection Costs | | | | | | | | | |
| Total Kgals for Injection | 202.28 | 0 | 24 | 38.4 | 38.4 | 0 | 0 | 0 | 0 |
| Deep Well Injection Unit Cost ($/Kgals) | $4.60 | $4.60 | $4.60 | $4.60 | $4.60 | $4.60 | $4.60 | $4.60 | $4.60 |
| Subtotal Deep Well Injection Costs | $931 | $0 | $110 | $177 | $177 | $0 | $0 | $0 | $0 |
| Subtotal Decontamination Costs per Building | $102,071 | $0 | $12,110 | $19,377 | $19,377 | $0 | $0 | $0 | $0 |
| **Total Decontamination Costs** | $158,021 | | | | | | | | |
| **II. Demolition Costs** | | | | | | | | | |
| A. Building | | | | | | | | | |
| Assumptions: | | | | | | | | | |
| Dryer bldg. demolition unit cost of $0.73/$ft^3$ for additional radiation safety equipment | | | | | | | | | |
| Volume of Building ($ft^3$) | 794000 | 30720 | 192000 | 320000 | 320000 | 37560 | 91000 | 333000 | 5600 |
| Demolition Unit Cost per WDEQ Guideline No.12,App.K ($/$ft^3$) | $0.171 | $0.171 | $0.171 | $0.171 | $0.171 | $0.171 | $0.171 | $0.171 | $0.171 |
| Unit Cost in $/$ft^3$ (July 1998 dollars w/o escalator) | $0.15 | $0.15 | $0.15 | $0.15 | $0.15 | $0.15 | $0.15 | $0.15 | $0.15 |
| Subtotal Building Demolition Costs | $117,962 | $4,564 | $28,525 | $47,541 | $47,541 | $5,580 | $13,520 | $49,473 | $832 |
| B. Concrete Floor | | | | | | | | | |
| Area of Concrete Floor ($ft^2$) | 23760 | 0 | 8000 | 12800 | 12800 | 0 | 6500 | 18000 | 0 |
| Demolition Unit Cost per WDEQ Guideline No.12,App.K ($/$ft^2$) | $3.17 | $3.17 | $3.17 | $3.17 | $3.17 | $3.17 | $3.17 | $3.17 | $3.17 |
| Unit Cost in $/$ft^2$ (July 1998 dollars w/o escalator) | $2.75 | $2.75 | $2.75 | $2.75 | $2.75 | $2.75 | $2.75 | $2.75 | $2.75 |
| Subtotal Concrete Floor Demolition Costs | $65,438 | $0 | $22,033 | $35,253 | $35,253 | $0 | $17,902 | $49,574 | $0 |
| C. Concrete Footing | | | | | | | | | |
| Length of Concrete Footing (ft) | 622 | 0 | 360 | 480 | 480 | 0 | 360 | 580 | 0 |
| Demolition Unit Cost per WDEQ Guide. No.12,App.K ($/lin. ft) | $11.45 | $11.45 | $11.45 | $11.45 | $11.45 | $11.45 | $11.45 | $11.45 | $11.45 |
| Unit Cost in $/lin. ft (July 1998 dollars w/o escalator) | $9.95 | $9.95 | $9.95 | $9.95 | $9.95 | $9.95 | $9.95 | $9.95 | $9.95 |
| Subtotal Concrete Footing Demolition Costs | $6,188 | $0 | $3,581 | $4,775 | $4,775 | $0 | $3,581 | $5,770 | $0 |
| Subtotal Demolition Costs per Building | $189,588 | $4,564 | $54,139 | $87,569 | $87,569 | $5,580 | $35,003 | $104,817 | $832 |
| **Total Demolition Costs** | $696,995 | | | | | | | | |
| **III. Disposal Costs** | | | | | | | | | |
| A. Building | | | | | | | | | |
| Volume of Building (cy) | 29407 | 1138 | 7111 | 11852 | 11852 | 1391 | 3370 | 12333 | 207 |
| 1. On-Site | | | | | | | | | |
| Assumptions: | | | | | | | | | |
| On-site disposal cost of $0.54/cy | | | | | | | | | |
| Percentage (%) | 100 | 0 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Volume for Disposal (cubic yards) | 29407 | 0 | 7111 | 11852 | 11852 | 1391 | 3370 | 12333 | 207 |
| Disposal Unit Cost ($/cy) | $0.54 | $0.54 | $0.54 | $0.54 | $0.54 | $0.54 | $0.54 | $0.54 | $0.54 |

| Building Demolition and Disposal | Central Plant | Dryer Building | Satellite No. 1 | Satellite No. 2 | Satellite No. 3 | Sat. No.3 Fab. Shop | Yellow Cake Warehouse | South Warehouse | Suspended Walkway |
|---|---|---|---|---|---|---|---|---|---|
| Subtotal On-Site Disposal Costs | $15,880 | $0 | $3,840 | $6,400 | $6,400 | $751 | $1,820 | $6,660 | $112 |
| 2. NRC-Licensed Facility | | | | | | | | | |
| Percentage (%) | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume for Disposal ($ft^3$) | 0 | 2624 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume for Disposal Assuming 10% Void Space ($ft^3$) | 0 | 2886 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Transportation and Disposal Unit Cost ($/$ft^3$) | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 |
| Subtotal NRC-Licensed Facility Disposal Costs | $0 | $16,219 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Subtotal Building Disposal Costs | $15,880 | $16,219 | $3,840 | $6,400 | $6,400 | $751 | $1,820 | $6,660 | $112 |
| B. Concrete Floor | | | | | | | | | |
| Area of Concrete Floor ($ft^2$) | 23760 | 0 | 8000 | 12800 | 12800 | 0 | 6500 | 18000 | 0 |
| Average Thickness of Concrete Floor (ft) | 0.75 | 0 | 0.67 | 0.67 | 0.67 | 0 | 0.5 | 0.5 | 0 |
| Volume of Concrete Floor ($ft^3$) | 17820 | 0 | 5360 | 8576 | 8576 | 0 | 3250 | 9000 | 0 |
| Volume of Concrete Floor (cy) | 660 | 0 | 199 | 318 | 318 | 0 | 120 | 333 | 0 |
| 1. On-Site | | | | | | | | | |
| Percentage (%) | 75 | 0 | 75 | 75 | 75 | 0 | 100 | 100 | 0 |
| Volume for Disposal (cy) | 495 | 0 | 149 | 238 | 238 | 0 | 120 | 333 | 0 |
| Disposal Unit Cost per WDEQ Guideline No.12,App.K ($/cy) | $4.69 | $4.69 | $4.69 | $4.69 | $4.69 | $4.69 | $4.69 | $4.69 | $4.69 |
| Unit Cost in $/cy (July 1998 dollars w/o escalator) | $4.07 | $4.07 | $4.07 | $4.07 | $4.07 | $4.07 | $4.07 | $4.07 | $4.07 |
| Subtotal On-Site Disposal Costs | $2,017 | $0 | $607 | $971 | $971 | $0 | $490 | $1,358 | $0 |
| 2. NRC-Licensed Facility | | | | | | | | | |
| Assumptions: | | | | | | | | | |
| Additional $2.00/$ft^3$ for segregation of concrete | | | | | | | | | |
| Percentage (%) | 25 | 0 | 25 | 25 | 25 | 0 | 0 | 0 | 0 |
| Volume for Disposal ($ft^3$) | 4455 | 0 | 1340 | 2144 | 2144 | 0 | 0 | 0 | 0 |
| Segregation and Loading Unit Cost ($/$ft^3$) | $2.00 | $2.00 | $2.00 | $2.00 | $2.00 | $2.00 | $2.00 | $2.00 | $2.00 |
| Transportation and Disposal Unit Cost ($/$ft^3$) | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 |
| Subtotal NRC-Licensed Facility Disposal Costs | $33,947 | $0 | $10,211 | $16,337 | $16,337 | $0 | $0 | $0 | $0 |
| Subtotal Concrete Floor Disposal Costs | $35,964 | $0 | $10,818 | $17,308 | $17,308 | $0 | $490 | $1,358 | $0 |
| C. Concrete Footing | | | | | | | | | |
| Length of Concrete Footing (ft) | 622 | 0 | 360 | 480 | 480 | 0 | 360 | 580 | 0 |
| Average Depth of Concrete Footing (ft) | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 0 |
| Average Width of Concrete Footing (ft) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| Volume of Concrete Footing ($ft^3$) | 2488 | 0 | 1440 | 1920 | 1920 | 0 | 1440 | 2320 | 0 |
| Volume of Concrete Footing (cy) | 92 | 0 | 53 | 71 | 71 | 0 | 53 | 86 | 0 |
| Disposal Unit Cost per WDEQ Guideline No.12,App.K ($/cy) | $4.69 | $4.69 | $4.69 | $4.69 | $4.69 | $4.69 | $4.69 | $4.69 | $4.69 |
| Unit Cost in $/cy (July 1998 dollars w/o escalator) | $4.07 | $4.07 | $4.07 | $4.07 | $4.07 | $4.07 | $4.07 | $4.07 | $4.07 |
| Subtotal Concrete Footing Disposal Costs | $375 | $0 | $217 | $290 | $290 | $0 | $217 | $350 | $0 |
| Subtotal Disposal Costs per Building | $52,219 | $16,219 | $14,875 | $23,998 | $23,998 | $751 | $2,527 | $8,368 | $112 |
| **Total Disposal Costs** | **$151,976** | | | | | | | | |
| ***III. Health and Safety Costs*** | | | | | | | | | |
| Radiation Safety Equipment | $1,000 | $1,000 | $1,000 | $1,000 | $1,000 | $0 | $0 | $0 | $0 |
| **Total Health and Safety Costs** | **$5,000** | | | | | | | | |
| SUBTOTAL BUILDING DEMOLITION AND DISPOSAL COSTS | $344,878 | $21,783 | $82,124 | $131,944 | $131,944 | $6,331 | $37,530 | $113,185 | $944 |
| **TOTAL BUILDING DEMOLITION AND DISPOSAL COSTS** | **$1,011,992** | | | | | | | | |

| Building Demolition and Disposal | Changehouse and Lab Bldg. | Maintenance Building | Main Office | Office Trailers | Process/Fire Water Bldg. | Potable Water Bldg. | Potable Water Tank Slab | Central Plant Tank Slabs |
|---|---|---|---|---|---|---|---|---|
| **I. Decontamination Costs** | | | | | | | | |
| A. Wall Decontamination | | | | | | | | |
| Area to be Decontaminated ($ft^2$) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Application Rate (Gallons/$ft^2$) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| HCl Acid Wash, including labor ($/Gallon) | $0.50 | $0.50 | $0.50 | $0.50 | $0.50 | $0.50 | $0.50 | $0.50 |
| Subtotal Wall Decontamination Costs | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| B. Concrete Floor Decontamination | | | | | | | | |
| Area to be Decontaminated ($ft^2$) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Application Rate (Gallons/$ft^2$) | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| HCl Acid Wash, including labor ($/Gallon) | $0.50 | $0.50 | $0.50 | $0.50 | $0.50 | $0.50 | $0.50 | $0.50 |
| Subtotal Concrete Floor Decontamination Costs | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| C. Deep Well Injection Costs | | | | | | | | |
| *Total Kgals for Injection* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Deep Well Injection Unit Cost ($/Kgals) | $4.60 | $4.60 | $4.60 | $4.60 | $4.60 | $4.60 | $4.60 | $4.60 |
| Subtotal Deep Well Injection Costs | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Subtotal Decontamination Costs per Building | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| **Total Decontamination Costs** | | | | | | | | |
| **II. Demolition Costs** | | | | | | | | |
| A. Building | | | | | | | | |
| Assumptions: | | | | | | | | |
| Dryer bldg. demolition unit cost of $0.73/$ft^3$ for additional radiation safety equipment | | | | | | | | |
| Volume of Building ($ft^3$) | 73000 | 27000 | 72000 | 20000 | 16500 | 6300 | 0 | 0 |
| Demolition Unit Cost per WDEQ Guideline No.12,App.K ($/$ft^3$) | $0.171 | $0.171 | $0.171 | $0.171 | $0.171 | $0.171 | $0.171 | $0.171 |
| Unit Cost in $/$ft^3$ (July 1998 dollars w/o escalator) | $0.15 | $0.15 | $0.15 | $0.15 | $0.15 | $0.15 | $0.15 | $0.15 |
| Subtotal Building Demolition Costs | $10,845 | $4,011 | $10,697 | $2,971 | $2,451 | $936 | $0 | $0 |
| B. Concrete Floor | | | | | | | | |
| Area of Concrete Floor ($ft^2$) | 5400 | 2100 | 6000 | 0 | 800 | 180 | 1256 | 7854 |
| Demolition Unit Cost per WDEQ Guideline No.12,App.K ($/$ft^2$) | $3.17 | $3.17 | $3.17 | $3.17 | $3.17 | $3.17 | $3.17 | $3.17 |
| Unit Cost in $/$ft^2$ (July 1998 dollars w/o escalator) | $2.75 | $2.75 | $2.75 | $2.75 | $2.75 | $2.75 | $2.75 | $2.75 |
| Subtotal Concrete Floor Demolition Costs | $14,872 | $5,784 | $16,525 | $0 | $2,203 | $496 | $3,459 | $21,631 |
| C. Concrete Footing | | | | | | | | |
| Length of Concrete Footing (ft) | 300 | 200 | 340 | 0 | 120 | 54 | 0 | 0 |
| Demolition Unit Cost per WDEQ Guide. No.12,App.K ($/lin. ft) | $11.45 | $11.45 | $11.45 | $11.45 | $11.45 | $11.45 | $11.45 | $11.45 |
| Unit Cost in $/lin. ft (July 1998 dollars w/o escalator) | $9.95 | $9.95 | $9.95 | $9.95 | $9.95 | $9.95 | $9.95 | $9.95 |
| Subtotal Concrete Footing Demolition Costs | $2,984 | $1,990 | $3,382 | $0 | $1,194 | $537 | $0 | $0 |
| Subtotal Demolition Costs per Building | $28,701 | $11,785 | $30,604 | $2,971 | $5,848 | $1,969 | $3,459 | $21,631 |
| **Total Demolition Costs** | | | | | | | | |
| **III. Disposal Costs** | | | | | | | | |
| A. Building | | | | | | | | |
| Volume of Building (cy) | 2704 | 1000 | 2667 | 741 | 611 | 233 | 0 | 0 |
| 1. On-Site | | | | | | | | |
| Assumptions: | | | | | | | | |
| On-site disposal cost of $0.54/cy | | | | | | | | |
| Percentage (%) | 100 | 100 | 100 | 100 | 100 | 100 | 0 | 0 |
| Volume for Disposal (cubic yards) | 2704 | 1000 | 2667 | 741 | 611 | 233 | 0 | 0 |
| Disposal Unit Cost ($/cy) | $0.54 | $0.54 | $0.54 | $0.54 | $0.54 | $0.54 | $0.54 | $0.54 |

| Building Demolition and Disposal | Changehouse and Lab Bldg. | Maintenance Building | Main Office | Office Trailers | Process/Fire Water Bldg. | Potable Water Bldg. | Potable Water Tank Slab | Central Plant Tank Slabs |
|---|---|---|---|---|---|---|---|---|
| Subtotal On-Site Disposal Costs | $1,460 | $540 | $1,440 | $400 | $330 | $126 | $0 | $0 |
| 2. NRC-Licensed Facility | | | | | | | | |
| Percentage (%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume for Disposal ($ft^3$) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume for Disposal Assuming 10% Void Space ($ft^3$) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Transportation and Disposal Unit Cost ($/$ft^3$) | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 |
| Subtotal NRC-Licensed Facility Disposal Costs | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Subtotal Building Disposal Costs | $1,460 | $540 | $1,440 | $400 | $330 | $126 | $0 | $0 |
| B. Concrete Floor | | | | | | | | |
| Area of Concrete Floor ($ft^2$) | 5400 | 2100 | 6000 | 0 | 800 | 180 | 1256 | 7854 |
| Average Thickness of Concrete Floor (ft) | 0.5 | 0.5 | 0.5 | 0 | 0.5 | 0.5 | 1 | 1 |
| Volume of Concrete Floor ($ft^3$) | 2700 | 1050 | 3000 | 0 | 400 | 90 | 1256 | 7854 |
| Volume of Concrete Floor (cy) | 100 | 39 | 111 | 0 | 15 | 3 | 47 | 291 |
| 1. On-Site | | | | | | | | |
| Percentage (%) | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 |
| Volume for Disposal (cy) | 100 | 39 | 111 | 0 | 15 | 3 | 47 | 291 |
| Disposal Unit Cost per WDEQ Guideline No.12,App.K ($/cy) | $4.69 | $4.69 | $4.69 | $4.69 | $4.69 | $4.69 | $4.69 | $4.69 |
| Unit Cost in $/cy (July 1998 dollars w/o escalator) | $4.07 | $4.07 | $4.07 | $4.07 | $4.07 | $4.07 | $4.07 | $4.07 |
| Subtotal On-Site Disposal Costs | $407 | $158 | $453 | $0 | $60 | $14 | $190 | $1,185 |
| 2. NRC-Licensed Facility | | | | | | | | |
| Assumptions: | | | | | | | | |
| Additional $2.00/$ft^3$ for segregation of concrete | | | | | | | | |
| Percentage (%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume for Disposal ($ft^3$) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Segregation and Loading Unit Cost ($/$ft^3$) | $2.00 | $2.00 | $2.00 | $2.00 | $2.00 | $2.00 | $2.00 | $2.00 |
| Transportation and Disposal Unit Cost ($/$ft^3$) | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 |
| Subtotal NRC-Licensed Facility Disposal Costs | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Subtotal Concrete Floor Disposal Costs | $407 | $158 | $453 | $0 | $60 | $14 | $190 | $1,185 |
| C. Concrete Footing | | | | | | | | |
| Length of Concrete Footing (ft) | 300 | 200 | 340 | 0 | 120 | 54 | 0 | 0 |
| Average Depth of Concrete Footing (ft) | 4 | 4 | 4 | 0 | 4 | 4 | 4 | 4 |
| Average Width of Concrete Footing (ft) | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |
| Volume of Concrete Footing ($ft^3$) | 1200 | 800 | 1360 | 0 | 480 | 216 | 0 | 0 |
| Volume of Concrete Footing (cy) | 44 | 30 | 50 | 0 | 18 | 8 | 0 | 0 |
| Disposal Unit Cost per WDEQ Guideline No.12,App.K ($/cy) | $4.69 | $4.69 | $4.69 | $4.69 | $4.69 | $4.69 | $4.69 | $4.69 |
| Unit Cost in $/cy (July 1998 dollars w/o escalator) | $4.07 | $4.07 | $4.07 | $4.07 | $4.07 | $4.07 | $4.07 | $4.07 |
| Subtotal Concrete Footing Disposal Costs | $181 | $121 | $205 | $0 | $72 | $33 | $0 | $0 |
| Subtotal Disposal Costs per Building | $2,048 | $819 | $2,098 | $400 | $462 | $173 | $190 | $1,185 |
| **Total Disposal Costs** | | | | | | | | |
| **III. Health and Safety Costs** | | | | | | | | |
| Radiation Safety Equipment | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| **Total Health and Safety Costs** | | | | | | | | |
| SUBTOTAL BUILDING DEMOLITION AND DISPOSAL COSTS | $30,749 | $12,604 | $32,702 | $3,371 | $6,310 | $2,142 | $3,649 | $22,816 |
| **TOTAL BUILDING DEMOLITION AND DISPOSAL COSTS** | | | | | | | | |

| Building Demolition and Disposal | Exxon R&D RO Bldg. | Exxon R&D Process Bldg. | D, E-Wellfield Booster Stat. | Morton No. 1-20 Bdlg. |
|---|---|---|---|---|
| **I. Decontamination Costs** | | | | |
| A. Wall Decontamination | | | | |
| Area to be Decontaminated ($ft^2$) | 0 | 0 | 0 | 0 |
| Application Rate (Gallons/$ft^2$) | 1 | 1 | 1 | 1 |
| HCl Acid Wash, including labor ($/Gallon) | $0.50 | $0.50 | $0.50 | $0.50 |
| Subtotal Wall Decontamination Costs | $0 | $0 | $0 | $0 |
| B. Concrete Floor Decontamination | | | | |
| Area to be Decontaminated ($ft^2$) | 1260 | 1260 | 0 | 0 |
| Application Rate (Gallons/$ft^2$) | 4 | 4 | 4 | 4 |
| HCl Acid Wash, including labor ($/Gallon) | $0.50 | $0.50 | $0.50 | $0.50 |
| Subtotal Concrete Floor Decontamination Costs | $2,520 | $2,520 | $0 | $0 |
| C. Deep Well Injection Costs | | | | |
| Total Kgals for Injection | 5.04 | 5.04 | 0 | 0 |
| Deep Well Injection Unit Cost ($/Kgals) | $4.60 | $4.60 | $4.60 | $4.60 |
| Subtotal Deep Well Injection Costs | $23 | $23 | $0 | $0 |
| Subtotal Decontamination Costs per Building | $2,543 | $2,543 | $0 | $0 |
| **Total Decontamination Costs** | | | | |
| **II. Demolition Costs** | | | | |
| A. Building | | | | |
| Assumptions: | | | | |
| Dryer bldg. demolition unit cost of $0.73/$ft^3$ for additional | | | | |
| radiation safety equipment | | | | |
| Volume of Building ($ft^3$) | 15120 | 15120 | 8640 | 14400 |
| Demolition Unit Cost per WDEQ Guideline No.12,App.K ($/$ft^3$) | $0.171 | $0.171 | $0.171 | $0.171 |
| Unit Cost in $/$ft^3$ (July 1998 dollars w/o escalator) | $0.15 | $0.15 | $0.15 | $0.15 |
| Subtotal Building Demolition Costs | $2,246 | $2,246 | $1,284 | $2,139 |
| B. Concrete Floor | | | | |
| Area of Concrete Floor ($ft^2$) | 1260 | 1260 | 0 | 600 |
| Demolition Unit Cost per WDEQ Guideline No.12,App.K ($/$ft^2$) | $3.17 | $3.17 | $3.17 | $3.17 |
| Unit Cost in $/$ft^2$ (July 1998 dollars w/o escalator) | $2.75 | $2.75 | $2.75 | $2.75 |
| Subtotal Concrete Floor Demolition Costs | $3,470 | $3,470 | $0 | $1,652 |
| C. Concrete Footing | | | | |
| Length of Concrete Footing (ft) | 144 | 144 | 0 | 100 |
| Demolition Unit Cost per WDEQ Guide. No.12,App.K ($/lin. ft) | $11.45 | $11.45 | $11.45 | $11.45 |
| Unit Cost in $/lin. ft (July 1998 dollars w/o escalator) | $9.95 | $9.95 | $9.95 | $9.95 |
| Subtotal Concrete Footing Demolition Costs | $1,432 | $1,432 | $0 | $995 |
| Subtotal Demolition Costs per Building | $7,148 | $7,148 | $1,284 | $4,786 |
| **Total Demolition Costs** | | | | |
| **III. Disposal Costs** | | | | |
| A. Building | | | | |
| Volume of Building (cy) | 560 | 560 | 320 | 533 |
| 1. On-Site | | | | |
| Assumptions: | | | | |
| On-site disposal cost of $0.54/cy | | | | |
| Percentage (%) | 100 | 100 | 100 | 100 |
| Volume for Disposal (cubic yards) | 560 | 560 | 320 | 533 |
| Disposal Unit Cost ($/cy) | $0.54 | $0.54 | $0.54 | $0.54 |

| Building Demolition and Disposal | Exxon R&D RO Bldg. | Exxon R&D Process Bldg. | D, E-Wellfield Booster Stat. | Morton No. 1-20 Bdlg. |
|---|---|---|---|---|
| Subtotal On-Site Disposal Costs | $302 | $302 | $173 | $288 |
| 2. NRC-Licensed Facility | | | | |
| Percentage (%) | 0 | 0 | 0 | 0 |
| Volume for Disposal ($ft^3$) | 0 | 0 | 0 | 0 |
| Volume for Disposal Assuming 10% Void Space ($ft^3$) | 0 | 0 | 0 | 0 |
| Transportation and Disposal Unit Cost ($/$ft^3$) | $5.62 | $5.62 | $5.62 | $5.62 |
| Subtotal NRC-Licensed Facility Disposal Costs | $0 | $0 | $0 | $0 |
| Subtotal Building Disposal Costs | $302 | $302 | $173 | $288 |
| B. Concrete Floor | | | | |
| Area of Concrete Floor ($ft^2$) | 1260 | 1260 | 0 | 600 |
| Average Thickness of Concrete Floor (ft) | 0.5 | 0.5 | 0 | 0.5 |
| Volume of Concrete Floor ($ft^3$) | 630 | 630 | 0 | 300 |
| Volume of Concrete Floor (cy) | 23 | 23 | 0 | 11 |
| 1. On-Site | | | | |
| Percentage (%) | 100 | 100 | 0 | 100 |
| Volume for Disposal (cy) | 23 | 23 | 0 | 11 |
| Disposal Unit Cost per WDEQ Guideline No.12,App.K ($/cy) | $4.69 | $4.69 | $4.69 | $4.69 |
| Unit Cost in $/cy (July 1998 dollars w/o escalator) | $4.07 | $4.07 | $4.07 | $4.07 |
| Subtotal On-Site Disposal Costs | $95 | $95 | $0 | $45 |
| 2. NRC-Licensed Facility | | | | |
| Assumptions: | | | | |
| Additional $2.00/$ft^3$ for segregation of concrete | | | | |
| Percentage (%) | 0 | 0 | 0 | 0 |
| Volume for Disposal ($ft^3$) | 0 | 0 | 0 | 0 |
| Segregation and Loading Unit Cost ($/$ft^3$) | $2.00 | $2.00 | $2.00 | $2.00 |
| Transportation and Disposal Unit Cost ($/$ft^3$) | $5.62 | $5.62 | $5.62 | $5.62 |
| Subtotal NRC-Licensed Facility Disposal Costs | $0 | $0 | $0 | $0 |
| Subtotal Concrete Floor Disposal Costs | $95 | $95 | $0 | $45 |
| C. Concrete Footing | | | | |
| Length of Concrete Footing (ft) | 144 | 144 | 0 | 100 |
| Average Depth of Concrete Footing (ft) | 4 | 4 | 4 | 4 |
| Average Width of Concrete Footing (ft) | 1 | 1 | 1 | 1 |
| Volume of Concrete Footing ($ft^3$) | 576 | 576 | 0 | 400 |
| Volume of Concrete Footing (cy) | 21 | 21 | 0 | 15 |
| Disposal Unit Cost per WDEQ Guideline No.12,App.K ($/cy) | $4.69 | $4.69 | $4.69 | $4.69 |
| Unit Cost in $/cy (July 1998 dollars w/o escalator) | $4.07 | $4.07 | $4.07 | $4.07 |
| Subtotal Concrete Footing Disposal Costs | $87 | $87 | $0 | $60 |
| Subtotal Disposal Costs per Building | $484 | $484 | $173 | $393 |
| **Total Disposal Costs** | | | | |
| **III. Health and Safety Costs** | | | | |
| Radiation Safety Equipment | $0 | $0 | $0 | $0 |
| **Total Health and Safety Costs** | | | | |
| SUBTOTAL BUILDING DEMOLITION AND DISPOSAL COSTS | $10,175 | $10,175 | $1,457 | $5,179 |
| **TOTAL BUILDING DEMOLITION AND DISPOSAL COSTS** | | | | |

| Wellfield Buildings and Equipment Removal and Disposal | Mine Unit-A | Mine Unit-B | Mine Unit-C | Mine Unit-D | Mine Unit-E | Mine Unit-F | Mine Unit-H | Mine Unit-D Ext. | Mine Unit-I | Mine Unit-J | Mine Unit-JA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **I. Wellfield Piping** | | | | | | | | | | | |
| Assumptions: | | | | | | | | | | | |
| Number of Header Houses per Wellfield | 5 | 18 | 20 | 4 | 15 | 43 | 10 | 3 | 6 | 7 | 2 |
| Length of Piping per Header House (ft) | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 12500 | 15000 |
| Total Length of Piping (ft) | 75000 | 270000 | 300000 | 60000 | 225000 | 645000 | 150000 | 45000 | 90000 | 87500 | 30000 |
| A. Removal and Loading | | | | | | | | | | | |
| Wellfield Piping Removal Unit Cost ($/ft of pipe) | $0.31 | $0.31 | $0.31 | $0.31 | $0.31 | $0.31 | $0.31 | $0.31 | $0.31 | $0.31 | $0.31 |
| Subtotal Wellfield Piping Removal and Loading Costs | $23,250 | $83,700 | $93,000 | $18,600 | $69,750 | $199,950 | $46,500 | $13,950 | $27,900 | $27,125 | $9,300 |
| B. Transport and Disposal Costs (NRC-Licensed Facility) | | | | | | | | | | | |
| Average Diameter of Piping (inches) | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Chipped Volume Reduction ($ft^3$/ft) | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 |
| Chipped Volume per Wellfield ($ft^3$) | 375 | 1350 | 1500 | 300 | 1125 | 3225 | 750 | 225 | 450 | 437.5 | 150 |
| Volume for Disposal Assuming 10% Void Space ($ft^3$) | 413 | 1485 | 1650 | 330 | 1238 | 3548 | 825 | 248 | 495 | 481 | 165 |
| Transportation and Disposal Unit Cost ($/$ft^3$) | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 |
| Subtotal Wellfield Piping Transport and Disposal Costs | $2,321 | $8,346 | $9,273 | $1,855 | $6,958 | $19,940 | $4,637 | $1,394 | $2,782 | $2,703 | $927 |
| Wellfield Piping Costs per Wellfield | $25,571 | $92,046 | $102,273 | $20,455 | $76,708 | $219,890 | $51,137 | $15,344 | $30,682 | $29,828 | $10,227 |
| C. Capitol Costs | | | | | | | | | | | |
| PVC Pipe Shredder | $40,000 | | | | | | | | | | |
| **Total Wellfield Piping Costs** | **$714,161** | | | | | | | | | | |
| **II. Well Pumps and Tubing** | | | | | | | | | | | |
| Assumptions: | | | | | | | | | | | |
| Pump and tubing removal costs included under ground water restoration labor costs | | | | | | | | | | | |
| 60% of production/injection wells contain pumps and/or tubing | | | | | | | | | | | |
| A. Pump and Tubing Transportation and Disposal | | | | | | | | | | | |
| Number of Production Wells | 27 | 141 | 192 | 45 | 143 | 465 | 155 | 30 | 125 | 122 | 40 |
| Number of Injection Wells | 50 | 319 | 343 | 91 | 307 | 903 | 327 | 67 | 236 | 234 | 80 |
| 1. Pump Volume | | | | | | | | | | | |
| Number of Production Wells with Pumps | 16 | 85 | 115 | 27 | 86 | 279 | 93 | 18 | 75 | 73 | 24 |
| Average Pump Volume ($ft^3$) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Pump Volume per Wellfield ($ft^3$) | 16 | 85 | 115 | 27 | 86 | 279 | 93 | 18 | 75 | 73 | 24 |
| 2. Tubing Volume | | | | | | | | | | | |
| Assumptions: | | | | | | | | | | | |
| Average tubing length/wellfield based on average well depth minus 25 ft | | | | | | | | | | | |
| Number of Production Wells with Tubing | 16 | 85 | 115 | 27 | 86 | 279 | 93 | 18 | 75 | 73 | 24 |
| Number of Injection Wells with Tubing | 30 | 191 | 206 | 55 | 184 | 542 | 196 | 40 | 142 | 140 | 48 |
| Average Tubing Length per Well (ft) | 475 | 425 | 525 | 575 | 525 | 625 | 475 | 575 | 625 | 515 | 515 |
| Tubing Length per Wellfield (ft) | 21850 | 117300 | 168525 | 47150 | 141750 | 513125 | 137275 | 33350 | 135625 | 109695 | 37080 |
| Diameter of Production Well Fiberglass Tubing (inches) | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Diameter of Injection Well HDPE Tubing (inches) | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 |
| Chipped Volume Reduction ($ft^3$/ft) | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 |
| Chipped Volume per Wellfield ($ft^3$) | 109 | 587 | 843 | 236 | 709 | 2566 | 686 | 167 | 678 | 548 | 185 |
| Volume of Pump and Tubing ($ft^3$) | 125 | 672 | 958 | 263 | 795 | 2845 | 779 | 185 | 753 | 621 | 209 |
| Volume for Disposal Assuming 10% Void Space ($ft^3$) | 138 | 739 | 1054 | 289 | 875 | 3130 | 857 | 204 | 828 | 683 | 230 |
| Transportation and Disposal Unit Cost ($/$ft^3$) | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 |
| Subtotal Pump and Tubing Transport and Disposal Costs | $776 | $4,153 | $5,923 | $1,624 | $4,918 | $17,591 | $4,816 | $1,146 | $4,653 | $3,838 | $1,293 |
| Pump and Tubing Costs per Wellfield | $776 | $4,153 | $5,923 | $1,624 | $4,918 | $17,591 | $4,816 | $1,146 | $4,653 | $3,838 | $1,293 |
| **Total Pump and Tubing Costs** | **$50,731** | | | | | | | | | | |
| **III. Buried Trunkline** | A/B-Wellfields | | | D/E-Wellfields | | | | | | | |
| Assumptions: | | | | | | | | | | | |

| Wellfield Buildings and Equipment Removal and Disposal | Mine Unit-A | Mine Unit-B | Mine Unit-C | Mine Unit-D | Mine Unit-E | Mine Unit-F | Mine Unit-II | Mine Unit-D Ext. | Mine Unit-I | Mine Unit-J | Mine Unit-JA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A/B-Wellfields use the same trunkline | | | | | | | | | | | |
| D/E-Wellfields use the same trunkline | | | | | | | | | | | |
| Length of Trunkline Trench (ft) | 6500 | | 5900 | 12000 | | 11700 | 13200 | 5500 | 10750 | 2500 | 0 |
| A. Removal and Loading | | | | | | | | | | | |
| Main Pipeline Removal Unit Cost ($/ft of trench) | $0.85 | | $0.85 | $0.85 | | $0.85 | $0.85 | $0.85 | $0.85 | $0.85 | $0.85 |
| Subtotal Trunkline Removal and Loading Costs | $5,525 | | $5,015 | $10,200 | | $9,945 | $11,220 | $4,675 | $9,138 | $2,125 | $0 |
| B. Transport and Disposal Costs (NRC-Licensed Facility) | | | | | | | | | | | |
| 1. 3" HDPE Trunkline | | | | | | | | | | | |
| *Piping Length (ft)* | 6500 | | 5900 | 12000 | | 11700 | 13200 | 5500 | 10750 | 0 | 0 |
| Chipped Volume Reduction ($ft^3$/ft) | 0.022 | | 0.022 | 0.022 | | 0.022 | 0.022 | 0.022 | 0.022 | 0.022 | 0.022 |
| Chipped Volume ($ft^3$) | 143 | | 129.8 | 264 | | 257.4 | 290.4 | 121 | 236.5 | 0 | 0 |
| 2. 6" HDPE Trunkline | | | | | | | | | | | |
| Piping Length (ft) | 0 | | 0 | 0 | | 0 | 0 | 11000 | 3000 | 0 | 0 |
| Chipped Volume Reduction ($ft^3$/ft) | 0.078 | | 0.078 | 0.078 | | 0.078 | 0.078 | 0.078 | 0.078 | 0.078 | 0.078 |
| Chipped Volume ($ft^3$) | 0 | | 0 | 0 | | 0 | 0 | 858 | 234 | 0 | 0 |
| 3. 10" HDPE Trunkline | | | | | | | | | | | |
| Piping Length (ft) | 13000 | | 0 | 0 | | 0 | 0 | 0 | 750 | 2000 | 0 |
| Chipped Volume Reduction ($ft^3$/ft) | 0.277 | | 0.277 | 0.277 | | 0.277 | 0.277 | 0.277 | 0.277 | 0.277 | 0.277 |
| Chipped Volume ($ft^3$) | 3601 | | 0 | 0 | | 0 | 0 | 0 | 207.75 | 554 | 0 |
| 4. 12" HDPE Trunkline | | | | | | | | | | | |
| Piping Length (ft) | 0 | | 11800 | 24000 | | 0 | 0 | 0 | 0 | 2000 | 0 |
| Chipped Volume Reduction ($ft^3$/ft) | 0.293 | | 0.293 | 0.293 | | 0.293 | 0.293 | 0.293 | 0.293 | 0.293 | 0.293 |
| Chipped Volume ($ft^3$) | 0 | | 3457.4 | 7032 | | 0 | 0 | 0 | 0 | 586 | 0 |
| 5. 14" HDPE Trunkline | | | | | | | | | | | |
| Piping Length (ft) | 0 | | 0 | 0 | | 23400 | 26400 | 0 | 8500 | 0 | 0 |
| Chipped Volume Reduction ($ft^3$/ft) | 0.359 | | 0.359 | 0.359 | | 0.359 | 0.359 | 0.359 | 0.359 | 0.359 | 0.359 |
| Chipped Volume ($ft^3$) | 0 | | 0 | 0 | | 8400.6 | 9477.6 | 0 | 3051.5 | 0 | 0 |
| 6 18" HDPE Trunkline | | | | | | | | | | | |
| Piping Length (ft) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Chipped Volume Reduction ($ft^3$/ft) | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 |
| Chipped Volume ($ft^3$) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Trunkline Chipped Volume ($ft^3$) | 3744 | 0 | 3587.2 | 7296 | | 8658 | 9768 | 979 | 3729.75 | 1140 | 0 |
| Volume for Disposal Assuming 10% Void Space ($ft^3$) | 4118 | | 3946 | 8026 | | 9524 | 10745 | 1077 | 4103 | 1254 | 0 |
| Transportation and Disposal Unit Cost ($/$ft^3$) | $5.62 | | $5.62 | $5.62 | | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 | $5.62 |
| Subtotal Trunkline Transport and Disposal Costs | $23,143 | | $22,177 | $45,106 | | $53,525 | $60,387 | $6,053 | $23,059 | $7,047 | $0 |
| Trunkline Decommissioning Costs per Wellfield | $28,668 | | $27,192 | $55,306 | | $63,470 | $71,607 | $10,728 | $32,197 | $9,172 | $0 |
| **Total Trunkline Decommissioning Costs** | $298,340 | | | | | | | | | | |
| **IV. Well Houses** | | | | | | | | | | | |
| Total Quantity | 90 | 490 | 554 | 136 | 450 | 1383 | 482 | 97 | 361 | 213 | 72 |
| Average Well House Volume ($ft^3$) | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 |
| A. Removal | | | | | | | | | | | |
| Total Volume ($ft^3$) | 1125 | 6125 | 6925 | 1700 | 5625 | 17287.5 | 6025 | 1212.5 | 4512.5 | 2662.5 | 900 |
| Demolition Unit Cost per WDEQ Guideline No.12,App.K ($/$ft^3$) | $0.171 | $0.171 | $0.171 | $0.171 | $0.171 | $0.171 | $0.171 | $0.171 | $0.171 | $0.171 | $0.171 |
| Unit Cost in $/$ft^3$ (July 1998 dollars w/o escalator) | $0.15 | $0.15 | $0.15 | $0.15 | $0.15 | $0.15 | $0.15 | $0.15 | $0.15 | $0.15 | $0.15 |
| Subtotal Well House Demolition Costs | $167 | $910 | $1,029 | $253 | $836 | $2,568 | $895 | $180 | $670 | $396 | $134 |
| B. Survey and Decontamination | | | | | | | | | | | |
| Assumptions: | | | | | | | | | | | |
| Cost per Well House | $5 | $5 | $5 | $5 | $5 | $5 | $5 | $5 | $5 | $5 | $5 |
| Subtotal Survey and Decontamination Costs | $450 | $2,450 | $2,770 | $680 | $2,250 | $6,915 | $2,410 | $485 | $1,805 | $1,065 | $360 |
| C. Disposal | | | | | | | | | | | |

| Wellfield Buildings and Equipment Removal and Disposal | Mine Unit-A | Mine Unit-B | Mine Unit-C | Mine Unit-D | Mine Unit-E | Mine Unit-F | Mine Unit-II | Mine Unit-D Ext. | Mine Unit-I | Mine Unit-J | Mine Unit-JA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Volume (cy) | 42 | 227 | 256 | 63 | 208 | 640 | 223 | 45 | 167 | 99 | 33 |
| Volume for Disposal Assuming 10% Void Space (cy) | 46 | 250 | 282 | 69 | 229 | 704 | 245 | 49 | 184 | 108 | 37 |
| Disposal Unit Cost per WDEQ Guideline No.12,App.K ($/cy) | $5.98 | $5.98 | $5.98 | $5.98 | $5.98 | $5.98 | $5.98 | $5.98 | $5.98 | $5.98 | $5.98 |
| Unit Cost in $/cy (July 1998 dollars w/o escalator) | $5.20 | $5.20 | $5.20 | $5.20 | $5.20 | $5.20 | $5.20 | $5.20 | $5.20 | $5.20 | $5.20 |
| Subtotal On-Site Disposal Costs | $239 | $1,299 | $1,465 | $358 | $1,190 | $3,658 | $1,273 | $255 | $956 | $561 | $192 |
| Well House Removal and Disposal Costs per Wellfield | $856 | $4,659 | $5,264 | $1,291 | $4,276 | $13,141 | $4,578 | $920 | $3,431 | $2,022 | $686 |
| **Total Well House Removal and Disposal Costs** | **$41,124** | | | | | | | | | | |
| **VI. Header Houses** | | | | | | | | | | | |
| Total Quantity | 5 | 18 | 20 | 4 | 15 | 43 | 10 | 3 | 6 | 9 | 2 |
| Average Header House Volume ($ft^3$) | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 |
| A. Removal | | | | | | | | | | | |
| Total Volume ($ft^3$) | 8000 | 28800 | 32000 | 6400 | 24000 | 68800 | 16000 | 4800 | 9600 | 14400 | 3200 |
| Demolition Unit Cost per WDEQ Guideline No.12,App.K ($/ft$^3$) | $0.171 | $0.171 | $0.171 | $0.171 | $0.171 | $0.171 | $0.171 | $0.171 | $0.171 | $0.171 | $0.171 |
| Unit Cost in $/ft$^3$ (July 1998 dollars w/o escalator) | $0.15 | $0.15 | $0.15 | $0.15 | $0.15 | $0.15 | $0.15 | $0.15 | $0.15 | $0.15 | $0.15 |
| Subtotal Building Demolition Costs | $1,189 | $4,279 | $4,754 | $951 | $3,566 | $10,221 | $2,377 | $713 | $1,426 | $2,139 | $475 |
| B. Survey and Decontamination | | | | | | | | | | | |
| Assumptions: | | | | | | | | | | | |
| Cost per Header House | $200 | $200 | $200 | $200 | $200 | $200 | $200 | $200 | $200 | $200 | $200 |
| Subtotal Survey and Decontamination Costs | $1,000 | $3,600 | $4,000 | $800 | $3,000 | $8,600 | $2,000 | $600 | $1,200 | $1,800 | $400 |
| C. Disposal | | | | | | | | | | | |
| Total Volume (cy) | 296 | 1067 | 1185 | 237 | 889 | 2548 | 593 | 178 | 356 | 533 | 119 |
| Volume for Disposal Assuming 10% Void Space (cy) | 326 | 1173 | 1304 | 261 | 978 | 2803 | 652 | 196 | 391 | 587 | 130 |
| Disposal Unit Cost per WDEQ Guideline No.12,App.K ($/cy) | $5.98 | $5.98 | $5.98 | $5.98 | $5.98 | $5.98 | $5.98 | $5.98 | $5.98 | $5.98 | $5.98 |
| Unit Cost in $/cy (July 1998 dollars w/o escalator) | $5.20 | $5.20 | $5.20 | $5.20 | $5.20 | $5.20 | $5.20 | $5.20 | $5.20 | $5.20 | $5.20 |
| Subtotal On-Site Disposal Costs | $1,694 | $6,094 | $6,775 | $1,356 | $5,081 | $14,563 | $3,387 | $1,018 | $2,031 | $3,050 | $675 |
| Header House Removal and Disposal Costs per Wellfield | $3,883 | $13,973 | $15,529 | $3,107 | $11,647 | $33,384 | $7,764 | $2,331 | $4,657 | $6,989 | $1,550 |
| **Total Header House Removal and Disposal Costs** | **$104,814** | | | | | | | | | | |
| TOTAL REMOVAL AND DISPOSAL COSTS PER WELLFIELD | $59,754 | $114,831 | $156,181 | $81,783 | $97,549 | $347,476 | $139,902 | $30,469 | $75,620 | $51,849 | $13,756 |
| **TOTAL WELLFIELD BUILDINGS AND EQUIPMENT REMOVAL AND DISPOSAL COSTS** | **$1,209,170** | | | | | | | | | | |

POWER RESOURCES INC HIGHLAND URANIUM PROJECT
2006-2007 SURETY ESTIMATE REVISION

| Well Abandonment | Mine Unit-A | Mine Unit-B | Mine Unit-C | Mine Unit-D | Mine Unit-E | Mine Unit-F | Mine Unit-H | Mine Unit-D Ext. | Mine Unit-I | Mine Unit-J | Mine Unit-JA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| I. Well Abandonment (Wellfields) | | | | | | | | | | | |
| # of Production Wells | 0 | 141 | 192 | 45 | 143 | 465 | 155 | 30 | 125 | 120 | 40 |
| # of Injection Wells | 0 | 319 | 343 | 91 | 307 | 903 | 327 | 67 | 236 | 240 | 80 |
| # of Monitoring Wells | 0 | 67 | 78 | 38 | 86 | 134 | 81 | 20 | 39 | 41 | 10 |
| #of Restoration Wells | 0 | 30 | 19 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 |
| Total Number of Wells | 0 | 557 | 632 | 174 | 536 | 1517 | 563 | 117 | 400 | 401 | 130 |
| Average Diameter of Casing (inches) | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4.5 |
| Average Depth (ft) | 500 | 450 | 550 | 600 | 550 | 650 | 500 | 600 | 650 | 540 | 500 |
| Well Abandonment Unit Cost ($/well) | $280 | $277 | $284 | $287 | $284 | $290 | $280 | $287 | $290 | $284 | $284 |
| Subtotal Abandonment Cost per Wellfield | $0 | $154,233 | $179,235 | $49,929 | $152,010 | $440,385 | $157,781 | $33,573 | $116,120 | $113,724 | $36,868 |
| **Total Wellfield Abandonment Costs** | **$1,433,858** | | | | | | | | | | |
| **II. Waste Disposal Well Abandonment** | **Morton No.1-20** | **Vollman No.33-27** | (Construction not anticipated) | | | | | | | | |
| A. Well Plugging | | | | | | | | | | | |
| Drill Rig Operation ($/hr) | 150 | 0 | | | | | | | | | |
| Number of Hours | 31 | 0 | | | | | | | | | |
| Drill Rig Operating Costs | $4,650 | $0 | | | | | | | | | |
| Cementing Costs | $7,500 | $0 | | | | | | | | | |
| Equipment Transport Costs | $1,000 | $0 | | | | | | | | | |
| Well Cap Welding Costs | $1,000 | $0 | | | | | | | | | |
| Brine Makeup and Injection Costs | $1,500 | $0 | | | | | | | | | |
| Subtotal Well Plugging Costs per Well | $15,650 | $0 | | | | | | | | | |
| B. Pump Dismantling and Decontamination | | | | | | | | | | | |
| Number of Persons | 2 | 0 | | | | | | | | | |
| Number of Pumps | 2 | 0 | | | | | | | | | |
| Pumps/Day | 0.5 | 0 | | | | | | | | | |
| Number of Days | 4 | 0 | | | | | | | | | |
| $/Day/Person | $112 | $0 | | | | | | | | | |
| Subtotal Dismantling and Decon Costs per Well | $896 | $0 | | | | | | | | | |
| C. Tubing String Disposal (NRC-Licensed Facility) | | | | | | | | | | | |
| Length of Tubing String (ft) | 9000 | 0 | | | | | | | | | |
| Diameter of Tubing String (inches) | 2.875 | 0 | | | | | | | | | |
| Volume of Tubing String ($ft^3$) | 406 | 0 | | | | | | | | | |
| Transportation and Disposal Unit Cost ($/$ft^3$) | $5.62 | $0.00 | | | | | | | | | |
| Subtotal Tubing String Disposal Costs per Well | $2,279 | $0 | | | | | | | | | |
| Subtotal Waste Disposal Well Abandonment Costs per Well | $18,825 | $0 | | | | | | | | | |
| **Total Waste Disposal Well Abandonment Costs** | **$18,825** | | | | | | | | | | |
| **TOTAL WELL ABANDONMENT COSTS** | **$1,452,683** | | | | | | | | | | |

| Wellfield and Satellite Surface Reclamation | Mine Unit-A/B | Mine Unit-C | Mine Unit-D | Mine Unit-E | Mine Unit-F | Mine Unit-H | Mine Unit-D Ext. | Mine Unit-I | Mine Unit-J | Mine Unit-JA |
|---|---|---|---|---|---|---|---|---|---|---|
| I. Wellfield Pattern Area Reclamation | | | | | | | | | | |
| Pattern Area (acres) | 20 | 31 | 6.5 | 23 | 77 | 26 | 5 | 21 | 28 | 0 |
| Disking/Seeding Unit Cost ($/acre) | $200 | $200 | $200 | $200 | $200 | $200 | $200 | $200 | $200 | $200 |
| Subtotal Pattern Area Reclamation Costs per Wellfield | $4,000 | $6,200 | $1,300 | $4,600 | $15,400 | $5,200 | $1,000 | $4,200 | $5,600 | $0 |
| **Total Wellfield Pattern Area Reclamation Costs** | $47,500 | | | | | | | | | |
| II. Wellfield Road Reclamation | | | | | | | | | | |
| A. Road Construction Before January 1, 1997 | | | | | | | | | | |
| Length of Wellfield Roads (1000 ft) | 12.2 | 11.3 | 2.4 | 13.3 | 15 | 0 | 0 | 0 | 0 | 0 |
| Wellfield Road Reclamation Unit Cost ($/1000 ft) | $586 | $586 | $586 | $586 | $586 | $586 | $586 | $586 | $586 | $586 |
| Subtotal Pre-1997 Wellfield Road Reclamation Costs | $7,149 | $6,622 | $1,406 | $7,794 | $8,790 | $0 | $0 | $0 | $0 | $0 |
| B. Road Construction After January 1, 1997 | | | | | | | | | | |
| Length of Wellfield Roads (1000 ft) | 0.6 | 0 | 0 | 0 | 3 | 15.7 | 5 | 5 | 5 | 1 |
| Wellfield Road Reclamation Unit Cost ($/1000 ft) | $305 | $305 | $305 | $305 | $305 | $305 | $305 | $305 | $305 | $305 |
| Subtotal Post-1997 Wellfield Road Reclamation Costs | $183 | $0 | $0 | $0 | $915 | $4,789 | $1,525 | $1,525 | $1,525 | $305 |
| Subtotal Road Reclamation Costs per Wellfield | $7,332 | $6,622 | $1,406 | $7,794 | $9,705 | $4,789 | $1,525 | $1,525 | $1,525 | $305 |
| **Total Wellfield Road Reclamation Costs** | $42,528 | | | | | | | | | |
| SUBTOTAL SURFACE RECLAMATION COSTS PER WELLFIELD | $11,332 | $12,822 | $2,706 | $12,394 | $25,105 | $9,989 | $2,525 | $5,725 | $7,125 | $305 |
| TOTAL WELLFIELD SURFACE RECLAMATION COSTS | $90,028 | | | | | | | | | |
| III. Satellite Area Reclamation | Satellite No.1 | Satellite No.2 | Satellite No.3 | | | | | | | |
| Assumptions: | | | | | | | | | | |
| Area of Disturbance (acres) | 1 | 1 | 1 | | | | | | | |
| Average Depth of Stripped Topsoil (ft) | 1 | 0.67 | 0.67 | | | | | | | |
| Surface Grade: Level Ground | | | | | | | | | | |
| Average Length of Topsoil Haul (ft) | 1000 | 500 | 500 | | | | | | | |
| A. Ripping Overburden with Dozer | | | | | | | | | | |
| Ripping Unit Cost per WDEQ Guideline No.12, App.I1 ($/acre) | $679.37 | $679.37 | $679.37 | | | | | | | |
| Unit Cost in $/acre (July 1998 dollars w/o escalator) | $590.24 | $590.24 | $590.24 | | | | | | | |
| Subtotal Ripping Costs | $590 | $590 | $590 | | | | | | | |
| B. Topsoil Application with Scraper | | | | | | | | | | |
| Volume of Topsoil Removed (cy) | 1613 | 1081 | 1081 | | | | | | | |
| Application Unit Cost per WDEQ Guideline No.12, App.C ($/cy) | $0.71 | $0.60 | $0.60 | | | | | | | |
| Unit Cost in $/cy (July 1998 dollars w/o escalator) | $0.62 | $0.52 | $0.52 | | | | | | | |
| Subtotal Topsoil Application Costs | $995 | $563 | $563 | | | | | | | |
| C. Discing and Seeding | | | | | | | | | | |
| Discing/Seeding Unit Cost ($/acre) | $200 | $200 | $200 | | | | | | | |
| Subtotal Discing/Seeding Costs | $200 | $200 | $200 | | | | | | | |
| Subtotal Surface Reclamation Costs per Satellite | $1,785 | $1,353 | $1,353 | | | | | | | |
| **Total Satellite Building Area Reclamation Costs** | $4,491 | | | | | | | | | |
| TOTAL WELLFIELD AND SATELLITE SURFACE RECLAMATION COSTS | $94,519 | | | | | | | | | |

| Miscellaneous Reclamation | | | | |
|---|---|---|---|---|
| I. CPF/Office Area Reclamation | | | | |
| Assumptions | | | | |
| Concrete, asphalt, and building material used to backfill low areas | | | | |
| No topsoil salvaged or applied (area is pre-law) | | | | |
| CPF/Office area = 10 acres | | | | |
| A. Ripping and Hauling Asphalt | | | | |
| Assumptions | | | | |
| Average haul distance (ft) | 500 | | | |
| Surface grade (%) | 0% | | | |
| Average Thickness of Asphalt (ft) | 0.5 | | | |
| Surface Area (acres) | 3.4 | | | |
| Ripping Unit Cost per WDEQ Guideline No.12, App.I ($/acre) | $474.92 | | | |
| Volume of Asphalt (cy) | 2743 | | | |
| Hauling Unit Cost per WDEQ Guideline No.12, App.C ($/cy) | $0.60 | | | |
| Total Asphalt Ripping and Hauling Cost | $3,260 | | | |
| B. Borrow Cover | | | | |
| 1. Topsoil Removal/Replacement | | | | |
| Assumptions | | | | |
| Surface area of borrow area (acres) | 3 | | | |
| Six inches of topsoil removed and replaced at borrow area | | | | |
| Volume of topsoil (cy) | 2420 | | | |
| Topsoil Removal/Replacement Unit Cost ($/cy) | $1.00 | | | |
| Total Topsoil Removal/Replacement Cost | $2,420 | | | |
| 2. Borrow Application | | | | |
| Assumptions | | | | |
| Final borrow cover depth will range from 0 to 4 ft, average = 1 ft | | | | |
| Average haul distance = 1000 ft | | | | |
| Surface grade (%) | 0% | | | |
| Borrow Volume (cy) | 16133 | | | |
| Borrow Cover Unit Cost per WDEQ Guideline No.12, App.C ($/cy) | $0.70 | | | |
| Total Borrow Application Cost | $11,293 | | | |
| Total Borrow Cover Cost | $13,713 | | | |
| C. Discing/Seeding | | | | |
| Assumptions | | | | |
| Includes discing/seeding of borrow area (3 acres) | | | | |
| Surface Area (acres) | 13 | | | |
| Discing/Seeding Unit Cost ($/acre) | $200 | | | |
| Total Discing/Seeding Costs | $2,600 | | | |
| **Total CPF/Office Area Reclamation** | **$19,573** | | | |
| **II. Access Road Reclamation** | **CPF/Office Area** | **Sat No. 1** | **Sat No. 3** | **Connecting Road** |
| A. Assumptions | | | | |
| CPF/Office Area Road is pre-law (no topsoil applied) | | | | |
| Surface grade | 5% | 0% | 0% | 0% |
| Length of road (miles) | 2.5 | 3 | 1 | 2 |
| Average road width (ft) | 25 | 30 | 30 | 30 |
| B. Ripping and Hauling Asphalt | | | | |
| Assumptions | | | | |
| Average haul distance (miles) | 1.25 | 0 | 0 | 0 |
| Average Thickness of Asphalt (ft) | 0.5 | 0 | 0 | 0 |
| Asphalt Surface Area (acres) | 7.6 | 0.0 | 0.0 | 0.0 |
| Ripping Unit Cost per WDEQ Guideline No.12, App.I ($/acre) | $474.92 | $474.92 | $474.92 | $474.92 |
| Unit Cost in $/acre (July 1998 dollars w/o escalator) | $412.62 | $412.62 | $412.62 | $412.62 |
| Volume of Asphalt (cy) | 6111 | 0 | 0 | 0 |
| Hauling Unit Cost per WDEQ Guideline No.12, App.C ($/cy) | $1.91 | $1.91 | $1.91 | $1.91 |
| Unit Cost in $/cy (July 1998 dollars w/o escalator) | $1.66 | $1.66 | $1.66 | $1.66 |
| Subtotal Asphalt Ripping and Hauling Costs | $13,267 | $0 | $0 | $0 |
| B. Gravel Road Base Removal | | | | |
| Assumptions | | | | |
| Average haul distance (ft) | 0 | 1000 | 1000 | 1000 |
| Gravel Road Base Width (ft) | 0 | 14 | 14 | 14 |
| Gravel Road Base Area (acres) | 0.0 | 5.1 | 1.7 | 3.4 |
| Average Road Base Depth (ft) | 0 | 0.5 | 0.5 | 0.5 |
| Volume of Road Base (cy) | 0 | 4107 | 1369 | 2738 |
| Removal Unit Cost per WDEQ Guideline No.12, App.C ($/cy) | $0.00 | $0.71 | $0.71 | $0.71 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Miscellaneous Reclamation** | | | | | | |
| Unit Cost in $/cy (July 1998 dollars w/o escalator) | | | $0.00 | $0.62 | $0.62 | $0.62 |
| Subtotal Gravel Road Base Removal Costs | | | $0 | $2,533 | $844 | $1,689 |
| C. Ripping Overburden with Dozer | | | | | | |
| Overburden Surface Area (acres) | | | 0.0 | 10.9 | 3.6 | 7.3 |
| Ripping Unit Cost per WDEQ Guideline No.12, App.I1 ($/acre) | | | $663.93 | $663.93 | $663.93 | $663.93 |
| Unit Cost in $/acre (July 1998 dollars w/o escalator) | | | $576.83 | $576.83 | $576.83 | $576.83 |
| Subtotal Ripping Overburden Costs | | | $0 | $6,293 | $2,098 | $4,195 |
| D. Topsoil Application | | | | | | |
| Assumptions | | | | | | |
| Average haul distance (ft) | | | 0 | 5000 | 1500 | 1500 |
| Topsoil Surface Area ($ft^2$) | | | 0 | 475200 | 158400 | 316800 |
| Depth of Topsoil (ft) | | | 0 | 0.5 | 0.5 | 0.5 |
| Volume of Topsoil (cy) | | | 0 | 8800 | 2933 | 5867 |
| Topsoil Unit Cost per WDEQ Guideline No.12, App.C ($/cy) | | | $0.00 | $1.50 | $0.82 | $0.82 |
| Unit Cost in $/cy (July 1998 dollars w/o escalator) | | | $0.00 | $1.30 | $0.71 | $0.71 |
| Subtotal Topsoil Application Costs | | | $0 | $11,468 | $2,090 | $4,180 |
| E. Discing/Seeding | | | | | | |
| Assumptions | | | | | | |
| Surface Area (acres) | | | 7.6 | 10.9 | 3.6 | 7.3 |
| Discing/Seeding Unit Cost ($/acre) | | | $200 | $200 | $200 | $200 |
| Subtotal Discing/Seeding Costs | | | $1,515 | $2,182 | $727 | $1,455 |
| Subtotal Reclamation Costs per Access Road | | | $14,782 | $22,476 | $5,759 | $11,519 |
| **Total Access Road Reclamation Costs** | | | $54,536 | | | |
| | | | | | | |
| **III. Wastewater Pipeline Reclamation** | | | **SAT2 to SAT1 WW Pipeline** | **SAT3 to SAT2 PSR** | **II-WF Rest. Bypass** | |
| A. Pipeline Removal and Loading | | | | | | |
| Length of HDPE Pipe Trench (ft) | | | 24000 | 22000 | 2200 | |
| Main Pipeline Removal Unit Cost ($/ft of trench) | | | $0.85 | $0.85 | $0.85 | |
| Subtotal Pipeline Removal Costs | | | $20,400 | $18,700 | $1,870 | |
| B. Pipeline Transportation and Disposal (NRC-Licensed Facility) | | | | | | |
| Pipe Diameter (inches) | | | 3 | 4 | 3 | |
| Chipped Volume Reduction ($ft^3$/ft) | | | 0.022 | 0.032 | 0.022 | |
| Subtotal Volume of Shredded PVC Pipe ($ft^3$) | | | 528 | 704 | 48.4 | |
| Transportation and Disposal Unit Cost ($/$ft^3$) | | | $5.62 | $5.62 | $5.62 | |
| Subtotal Pipeline Disposal Costs | | | $2,967 | $3,956 | $272 | |
| C. Discing/Seeding | | | | | | |
| Assumptions: | | | | | | |
| Width of Pipeline Trench (ft) | | | 10 | 10 | 8 | |
| Area of Pipeline Trench (acres) | | | 5.5 | 5.1 | 0.4 | |
| Discing/Seeding Unit Cost ($/acre) | | | $200 | $200 | $200 | |
| Subtotal Discing/Seeding Costs | | | $1,102 | $1,010 | $81 | |
| Subtotal Reclamation Costs per Pipeline | | | $24,469 | $23,666 | $2,223 | |
| **Total Wastewater Pipeline Reclamation Costs** | | | $50,358 | | | |
| | | | | | | |
| **IV. Radium Settling Basin Reclamation** | | | **E. Radium Pond** | **W. Radium Pond** | | |
| A. Soil Sampling and Monitoring | | | | | | |
| Number of Soil Samples | | | 10 | 10 | | |
| $/Sample | | | $60 | $60 | | |
| Subtotal Soil Sampling and Monitoring Costs | | | $600 | $600 | | |
| C. Grade and Contour | | | | | | |
| Volume of Embankment Material (CY) | | | 6,400 | 6,400 | | |
| Average Grade (%) | | | 0 | 0 | | |
| Distance (ft) | | | 50 | 50 | | |
| Material Moving Unit Cost per WDEQ Guideline No.12, App.E ($/cy) | | | $0.092 | $0.092 | | |
| Unit Cost in $/cy (July 1998 dollars w/o escalator) | | | $0.08 | $0.08 | | |
| Subtotal Grade and Contour Costs | | | $512 | $512 | | |
| C. Topsoil Application | | | | | | |
| Assumptions: | | | | | | |
| Area of surface disturbance ($ft^2$) | | | 37500 | 37500 | | |
| Average thickness of topsoil (ft) | | | 1 | 1 | | |
| Average haul distance (ft) | | | 2000 | 2000 | | |
| Surface grade (%) | | | 0% | 0% | | |
| Volume of Topsoil (cy) | | | 1,389 | 1,389 | | |
| Topsoil Unit Cost per WDEQ Guideline No.12, App.C ($/cy) | | | $0.92 | $0.92 | | |
| Unit Cost in $/cy (July 1998 dollars w/o escalator) | | | $0.80 | $0.80 | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Miscellaneous Reclamation** | | | | | | | | |
| | | Subtotal Topsoil Application Costs | | | $1,110 | $1,110 | | |
| | D. | Discing/Seeding | | | | | | |
| | | Assumptions: | | | | | | |
| | | Area of surface disturbance (acres) | | | 1 | 1 | | |
| | | Discing/Seeding Unit Cost ($/acre) | | | $200 | $200 | | |
| | | Subtotal Discing/Seeding Costs | | | $200 | $200 | | |
| | Subtotal Reclamation Costs per Radium Pond | | | | $2,422 | $2,422 | | |
| | **Total Radium Settling Basin Reclamation Costs** | | | | **$4,843** | | | |
| **V.** | **Purge Storage Reservoir Reclamation** | | | | **PSR-1** | **PSR-2** | | |
| | A. | Soil Sampling and Analysis Costs | | | $3,000 | $3,000 | | |
| | B. | Leachate Collection System Removal Costs | | | $5,000 | $0 | | |
| | C. | Topsoil/Subsoil Application | | | | | | |
| | | Assumptions: | | | | | | |
| | | Average haul distance (ft) | | | 1000 | 150 | | |
| | | Surface grade (%) | | | 0% | 0% | | |
| | | Volume of Topsoil/Subsoil (cy) | | | 83000 | 74000 | | |
| | | Topsoil/Subsoil Unit Cost per WDEQ Guideline No.12, App.C ($/cy) | | | $0.71 | $0.71 | | |
| | | Unit Cost in $/cy (July 1998 dollars w/o escalator) | | | $0.62 | $0.62 | | |
| | | Topsoil/Subsoil Unit Cost per WDEQ Guideline No.12, App.E ($/cy) | | | $0.194 | $0.194 | | |
| | | Unit Cost in $/cy (July 1998 dollars w/o escalator) | | | $0.17 | $0.17 | | |
| | | Subtotal Topsoil/Subsoil Application Costs per Reservoir | | | $65,189 | $58,120 | | |
| | D. | Discing/Seeding | | | | | | |
| | | Surface Area (acres) | | | 6 | 32 | | |
| | | Discing/Seeding Unit Cost ($/acre) | | | $200 | $200 | | |
| | | Subtotal Discing/Seeding Costs | | | $1,200 | $6,400 | | |
| | Subtotal Reclamation Costs per Reservoir | | | | $74,389 | $67,520 | | |
| | **Total Purge Storage Reservoir Reclamation Costs** | | | | **$141,909** | | | |
| **VI.** | **Irrigation Area Reclamation** | | | | **Irrigator No. 1A** | **Irrigator No. 2** | | |
| | A. | Irrigation Equipment Removal Costs | | | $2,000 | $2,000 | | |
| | B. | Plowing | | | | | | |
| | | Assumptions: | | | | | | |
| | | Plowing Unit Cost ($/acre) | | | $30 | $30 | | |
| | | Irrigation Area (acres) | | | 55 | 116 | | |
| | | Number of Cultivations | | | 2 | 2 | | |
| | | Subtotal Plowing Costs | | | $3,300 | $6,960 | | |
| | C. | Discing/Seeding | | | | | | |
| | | Discing/Seeding Unit Cost ($/acre) | | | $200 | $200 | | |
| | | Subtotal Discing/Seeding Costs | | | $11,000 | $23,200 | | |
| | Subtotal Reclamation Costs per Irrigation Area | | | | $16,300 | $32,160 | | |
| | **Total Irrigation Area Reclamation Costs** | | | | **$48,460** | | | |
| **VII.** | **Drilling Fluid Storage Cell Reclamation** | | | | | | | |
| | | Assumptions: | | | | | | |
| | | Each cell is 100 ft (width) by 100 ft (length) by 10 ft (depth) | | | | | | |
| | | Volume of each cell, discounting side slopes (cy) | | | 3704 | | | |
| | | Surface area disturbance associated with each cell (acres) | | | 1 | | | |
| | | Average haul distance (ft) | | | 500 | | | |
| | | Surface grade (%) | | | 0 | | | |
| | A. | Topsoil/Subsoil Application | | | | | | |
| | | Topsoil/Subsoil Unit Cost per WDEQ Guideline No.12, App.C ($/cy) | | | $0.60 | | | |
| | | Unit Cost in $/cy (July 1998 dollars w/o escalator) | | | $0.52 | | | |
| | | Topsoil/Subsoil Application Costs per Storage Cell | | | $1,931 | | | |
| | B. | Discing/Seeding | | | | | | |
| | | Discing/Seeding Unit Cost ($/acre) | | | $200 | | | |
| | | Subtotal Discing/Seeding Costs | | | $200 | | | |
| | Subtotal Reclamation Costs per Storage Cell | | | | $2,131 | | | |
| | Total Number of Storage Cells | | | | 5 | | | |
| | **Total Drilling Fluid Storage Cell Reclamation Costs** | | | | **$10,655** | | | |
| **VIII.** | **Revegetation of Exxon Reclaimed Lands** | | | | | | | |
| | | Assumptions: | | | | | | |
| | | Reseeding potential areas of erosion ($/acre) | | | $200 | | | |
| | | Surface Area (acres) | | | 217 | | | |
| | **Total Exxon Reclaimed Lands Revegetation Costs** | | | | **$43,400** | | | |
| **IX.** | **Potential Mitigation Plan For Irrigator No.1A (Requested by WDEQ-LQD)** | | | | | | | |

| | | |
|---|---|---|
| **Miscellaneous Reclamation** | | |
| Assumptions: | | |
| Harvesting grass for 2 years will further reduce Se levels in vegetation. | | |
| Harvest grass for 2 years @ $2000/year. | $4,000 | |
| Analyze Se in grass for 2 years @$165/sample X 4 samples X 2 yrs. | $1,320 | |
| Analyze Se in soil for 2 years @$174/sample X 28 samples X 2 yrs. | $9,744 | |
| Add 1 ft. of Se free water to 58 acre irrigation area @ cost of $6000. | $6,000 | |
| If desired, plow, disk and reseed area with alfalfa @ cost of $4400. | $4,400 | |
| **Total Potential Mitigation Plan Costs- Call $30,000** | **$30,000** | |
| **X. Potential Mitigation Plan For Irrigator No.2 (Requested by WDEQ-LQD)** | | |
| Assumptions: | | |
| Harvesting grass for 2 years will further reduce Se levels in vegetation. | | |
| Harvest grass for 2 years @ $4000/year. | $8,000 | |
| Analyze Se in grass for 2 years @$165/sample X 4 samples X 2 yrs. | $1,320 | |
| Analyze Se in soil for 2 years @$174/sample X 32 samples X 2 yrs. | $11,136 | |
| Add 1 ft. of Se free water to 116 acre irrigation area @ cost of $12000. | $12,000 | |
| If desired, plow, disk and reseed area with alfalfa @ cost of $8800. | $8,800 | |
| **Total Potential Mitigation Plan Costs- Call $42,000** | **$42,000** | |
| **XI. Potential Mitigation Plan for Shallow Well Casing Leak Investigation** | | |
| Assumptions: | | |
| Investigation and potential mitigation plan as of June 2002. | | |
| Assume cost of $250,000. | | |
| **Total Preliminary Cost** | **$250,000** | |
| **TOTAL MISCELLANEOUS RECLAMATION COSTS** | **$695,734** | |

| | | | |
|---|---|---|---|
| **RADIUM TREATMENT** | | | |
| | | | |
| **Assumptions:** | | | |
| 1. | Based on actual 1998 operating costs from Satellite No. 2 | | |
| | | | |
| **Radium Treatment Costs per 1000 Gallons** | | | |
| | Chemical | = $ | 0.177 |
| | Filtration | = $ | 0.021 |
| | Electricity | = $ | 0.019 |
| | By Product Disposal of Sludge | = $ | 0.097 |
| | | | |
| **TOTAL RADIUM TREATMENT COSTS PER 1000 GALLONS** | | = $ | **0.31** |

**GROUNDWATER SWEEP (GWS)**

**Assumptions:**

1. All pumps are 5 hp pumping at 5.0 gpm
2. Cost of electricity = $0.03/kwh
3. All water pumped is treated for radium removal at actual cost of $0.31/1000 gallons
4. All water pumped is disposed at irrigation facility with a 20 hp pump
5. Repair and maintenance costs estimated at $0.03/1000 gallons
6. Process sampling and analysis costs estimated at $0.03/1000 gallons
7. Labor costs are not included

**Wellfield Pumping Costs per 1000 Gallons**

$$\frac{1000\ \text{gal}}{} \times \frac{5\ \text{hp}}{5\ \text{gpm}} \times \frac{1\ \text{hr}}{60\ \text{min}} \times \frac{0.746\ \text{kwh}}{\text{hp}} \times \frac{\$\ 0.03}{\text{kwh}} = \$\ 0.373$$

**Radium Treatment Costs per 1000 Gallons** = $ 0.31

**Pumping to Irrigator Costs per 1000 Gallons**

$$\frac{1000\ \text{gal}}{} \times \frac{20\ \text{hp}}{400\ \text{gpm}} \times \frac{1\ \text{hr}}{60\ \text{min}} \times \frac{0.746\ \text{kwh}}{\text{hp}} \times \frac{\$\ 0.03}{\text{kwh}} = \$\ 0.019$$

**Repair and Maintenance Costs per 1000 Gallons** = $ 0.03

**Process Sampling and Analysis Costs per 1000 Gallons** = $ 0.03

**TOTAL GWS COSTS PER 1000 GALLONS** = $ **0.77**

POWER RESOURCES INC HIGHLAND URANIUM PROJECT
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| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **REVERSE OSMOSIS (RO)** | | | | | | | | | | | |
| | | | | | | | | | | | |
| **Assumptions:** | | | | | | | | | | | |
| 1. | Based on actual 1998 operating costs at Satellite No. 1. Verified by | | | | | | | | | | |
| | Hydranautics RO System Design Software, Version 6.0 (1995) | | | | | | | | | | |
| 2. | Cost of electricity = $0.03/kwh | | | | | | | | | | |
| 3. | 80% permeate/20% reject split | | | | | | | | | | |
| 4. | Membrane life of 4 years with a cost of $695 per membrane element | | | | | | | | | | |
| 5. | Includes cost of pumping from wellfield to RO Unit | | | | | | | | | | |
| 6. | The 20% reject is treated for radium removal prior to irrigation at actual cost of $0.31/1000 | | | | | | | | | | |
| | gallons | | | | | | | | | | |
| 7. | The 20% reject is disposed at irrigation facility with a 20 hp pump at actual cost of | | | | | | | | | | |
| | $0.019/1000 gallons | | | | | | | | | | |
| 8. | The permeate is returned to the wellfield with a 20 hp pump at actual cost of | | | | | | | | | | |
| | $0.019/1000 gallons | | | | | | | | | | |
| 9. | Process sampling and analysis costs estimated at $0.03/1000 gallons | | | | | | | | | | |
| 10. | Labor costs are not included | | | | | | | | | | |
| | | | | | | | | | | | |
| **Reverse Osmosis Costs per 1000 Gallons** | | | | | | | | | | | |
| | Electricity | | | | | | = $ | 0.17 | | | |
| | Chemicals | | | | | | = $ | 0.26 | | | |
| | Membrane Replacement | | | | | | = $ | 0.15 | | | |
| | Repair and Maintenance | | | | | | = $ | 0.26 | | | |
| | Pumping from Wellfield | | | | | | = $ | 0.37 | | | |
| | Pumping to Wellfield | | | | | | =$ | 0.019 | | | |
| | Radium Treatment | | | | | | | | | | |
| | | $ | 0.31 | X | 0.2 | | = $ | 0.0628 | | | |
| | Pumping to Irrigator | | | | | | | | | | |
| | | $ | 0.019 | X | 0.2 | | = $ | 0.004 | | | |
| | Process Sampling and Analysis | | | | | | = $ | 0.03 | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| **TOTAL RO COSTS PER 1000 GALLONS** | | | | | | | = $ | **1.33** | | | |

| | | | |
|---|---|---|---|
| **CHEMICAL REDUCTANT** | | | |
| | | | |
| **Assumptions:** | | | |
| 1. | Bioremediation is utilized | | |
| 2. | Based on actual 2003-2004 operating costs during restoration activities | | |
| | | | |
| | | | |
| **TOTAL CHEMICAL REDUCTANT COSTS PER Kgal** | | **= $** | **0.33** |
| | | | |
| | | | |
| | **July 1998 Dollars** | **= $** | **0.29** |

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| ELUTION PROCESSING | | |
|---|---|---|
| | | |
| **Assumptions:** | | |
| 1. Based on actual operating costs | | |
| | | |
| | | |
| **TOTAL PROCESSING COSTS PER ELUTION** | **= $** | **525** |

**DEEP WELL INJECTION**

**Assumptions:**

1. Pump 75 hp pumping at 45 gpm
2. Cost of electricity = $0.03/kwh
3. Repair and maintenance costs based on average injection volume of 8,000,000 gallons per year
4. Repair and maintenance costs estimated at $1.25/1000 gallons
5. Chemical costs based on average injection volume of 8,000,000 gallons per year
6. Labor costs are not included

**Waste Disposal Pumping Costs per 1000 Gallons**

$$\frac{1000\ \text{gal}}{} \times \frac{75\ \text{hp}}{45\ \text{gpm}} \times \frac{1\ \text{hr}}{60\ \text{min}} \times \frac{0.746\ \text{kwh}}{\text{hp}} \times \frac{\$\ 0.03}{\text{kwh}} = \$\ 0.62$$

**Repair and Maintenance Costs per 1000 Gallons** = $ 1.25

**Chemical Costs per 1000 Gallons** = $ 2.73

| | |
|---|---|
| Scale Inhibitor | = $ 1.20 |
| Corrosion Inhibitor | = $ 1.16 |
| Oxygen Scavenger | = $ 0.37 |

**TOTAL DEEP WELL INJECTION COSTS PER 1000 GALLONS = $ 4.60**

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**WELL ABANDONMENT**

**Assumptions:**

1. Use backhoe for 0.5 hr/well to dig and reclaim pit at cost of $50/hr.
2. Use hose reel/tow vehicle for 2 hr/well to pull hoses and pump plug gel at cost of $35/hr.
3. Use cementer/tow vehicle for 1 hr/well to pump plug gel at cost of $45/hr.
4. Labor for backhoe, hose reel, cementer will require 2 workers at 3.5 hr/well at cost of $15/hr.
5. Materials include one hole plug at $1.75 and one sack of plug gel/100 ft of 5 inch well casing.

Cost of plug gel is $6.70/sack.

**Well Abandonment Costs**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Fixed Costs | | | | | | | |
| Backhoe | | | | | | | |
| 0.5 | hours | X | $ | 50 | per hour | =$ | 25.00 |
| Hose Reel/Tow Vehicle | | | | | | | |
| 2 | hours | X | $ | 35 | per hour | =$ | 70.00 |
| Cementer/Tow Vehicle | | | | | | | |
| 1 | hours | X | $ | 45 | per hour | =$ | 45.00 |
| Labor | | | | | | | |
| 7 | man | X | $ | 15.00 | per man | =$ | 105.00 |
| | hours | | | | hour | | |
| Materials | | | | | | | |
| 1 | hole | X | $ | 1.75 | per hole | =$ | 1.75 |
| | plug | | | | plug | | |
| | | | | Total Fixed Costs | | =$ | 246.75 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Variable Costs | (per 100 ft of well depth) | | | | | | |
| Materials | | | | | | | |
| 1 | sack plug gel | X | $ | 6.70 | per | =$ | 6.70 |
| | per 100 feet | | | | sack | | |

**Cost per Well per Unit of Average Depth**

| Well Depth (ft) | | |
|---|---|---|
| **450** | **=$** | **277** |
| **500** | **=$** | **280** |
| **550** | **=$** | **284** |
| **600** | **=$** | **287** |
| **650** | **=$** | **290** |

| FIVE YEAR MECHANICAL INTEGRITY TESTS (MIT) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Assumptions:** | | | | | | | | | | | | | |
| 1. | Based on 1999 PRI costs. | | | | | | | | | | | | |
| 2. | Use Pulling Unit for 0.25 hr/well at cost of $45/hr. | | | | | | | | | | | | |
| 3. | Use MIT Unit for 1.5 hr/well at cost of $20/hr. | | | | | | | | | | | | |
| 4. | Labor for operation of pulling unit will require 2 workers at $15/hr | | | | | | | | | | | | |
| 5. | Labor for operation of MIT Unit will require 1 worker at $15/hr | | | | | | | | | | | | |
| **MIT Costs per Well** | | | | | | | | | | | | | |
| **Equipment:** | | | | | | | | | | | | | |
| | Pulling Unit | | | | | | | | | | | | |
| | | 0.25 | hours | X | $ | 45 | per hour | | | | =$ | 11.25 | |
| | MIT Unit | | | | | | | | | | | | |
| | | 1.5 | hours | X | $ | 20 | per hour | | | | =$ | 30.00 | |
| **Labor:** | | | | | | | | | | | | | |
| | Pulling Unit | | | | | | | | | | | | |
| | | 0.25 | hours | X | $ | 15 | per hour | X | 2 | workers | =$ | $7.50 | |
| | MIT Unit | | | | | | | | | | | | |
| | | 1.5 | hours | X | $ | 15 | per hour | | | | =$ | 22.50 | |
| | | | | | | | **MIT COST PER WELL** | | | | =$ | 71 | |

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| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MAIN PIPELINE REMOVAL** | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| **Assumptions:** | | | | | | | | | | | | | | |
| 1. | Trenching with trackhoe at 1500 ft/day | | | | | | | | | | | | | |
| 2. | Pipeline extraction and backfilling with trackhoe at 1500 ft/day | | | | | | | | | | | | | |
| 3. | Trackhoe rental: $1600/week | | | | | | | | | | | | | |
| 4. | Fuel cost: $9/operating hour | | | | | | | | | | | | | |
| 5. | Trackhoe operation requires 1 worker at $15/hour | | | | | | | | | | | | | |
| 6. | Pipeline extraction requires 2 workers at $15/hour (in addition to trackhoe operator) | | | | | | | | | | | | | |
| 7. | Pipelines removed simutaneously | | | | | | | | | | | | | |
| 8. | Includes removal of manholes | | | | | | | | | | | | | |
| 9. | Operating schedule: 8 hrs/day, 5 days/week | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| **Main Pipeline Removal Costs per ft of Trench** | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| **Equipment** | | | | | | | | | | | | | | |
| | **Trackhoe** | | | | | | | | | | | | | |
| | | $ 1600 / week | X | 1 week / 5 days | X | 2 days / 1500 ft | | =$ | 0.43 | | | | | |
| | **Fuel** | | | | | | | | | | | | | |
| | | $ 9 / hour | X | 8 hrs / 1 day | X | 2 days / 1500 ft | | =$ | 0.10 | | | | | |
| | | | | | | | | | | | | | | |
| **Labor** | | | | | | | | | | | | | | |
| | **Trackhoe Operation** | | | | | | | | | | | | | |
| | | $ 15 / man hr | X | 8 man hrs / 1 day | X | 2 days / 1500 ft | | =$ | 0.16 | | | | | |
| | **Pipeline Extraction** | | | | | | | | | | | | | |
| | | $ 15 / man hr | X | 16 man hrs / 1 day | X | 1 day / 1500 ft | | =$ | 0.16 | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| **MAIN PIPELINE REMOVAL COST PER FT OF TRENCH** | | | | | | | | =$ | **0.85** | | | | | |

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**WELLFIELD PIPING REMOVAL**

**Assumptions:**

1. Trenching with backhoe at 3000 ft/day
2. Pipeline extraction and backfilling with backhoe at 3000 ft/day
3. Backhoe rental: $750/week
4. Fuel cost: $9/operating hour
5. Backhoe operation requires 1 worker at $15/hour
6. Pipeline extraction requires 2 workers at $15/hour (in addition to trackhoe operator)
7. Operating schedule: 8 hrs/day, 5 days/week

**Main Pipeline Removal Costs per ft of Pipe**

**Equipment**

**Backhoe**

$750/week X 1 week/5 days X 2 days/3000 ft =$ 0.10

**Fuel**

$9/hour X 8 hrs/1 day X 2 days/3000 ft =$ 0.05

**Labor**

**Backhoe Operation**

$15/man hr X 8 man hrs/1 day X 2 days/3000 ft =$ 0.08

**Pipeline Extraction**

$15/man hr X 16 man hrs/1 day X 1 day/3000 ft =$ 0.08

**MAIN PIPELINE REMOVAL COST PER FT OF PIPE =$ 0.31**

**WELLFIELD ROAD RECLAMATION**

**Assumptions (Roads constructed before January 1, 1997):**

1. Gravel road base removed at cost of $0.60/cy/1000 ft (WDEQ Guideline No. 12, App. C, Level Ground, 500 ft haul)
2. Gravel road base: average depth = 0.25 ft, average width = 10 ft
3. Roads scarified prior to topsoil application at cost of $36.30/acre (WDEQ Guideline No. 12, Appendix P)
4. Grading of scarified roads prior to topsoil application at cost of $38.45/acre (WDEQ Guideline No. 12, Appendix G)
5. Topsoil applied at cost of $0.60/cy/1000 ft (WDEQ Guideline No. 12, App. C, Level Ground, 500 ft haul)
6. Stripped topsoil: average depth = 0.67 ft, average width = 25 ft
7. Discing/seeding cost of $200/acre is based on actual contractor costs

Gravel Road Base Removal Costs per 1000 ft of Road

$$1000\ \text{ft} \times 0.25\ \text{ft} \times 10\ \text{ft} \times \frac{1\ \text{cy}}{27\ \text{ft}^3} \times \frac{\$0.60}{\text{cy}} = \$\ 56$$

Scarification Costs per 1000 ft of Road

$$1000\ \text{ft} \times 25\ \text{ft} \times \frac{1\ \text{acre}}{4.356\text{E+}04\ \text{ft}^2} \times \frac{\$36.30}{\text{acre}} = \$\ 21$$

Grading Costs per 1000 ft of Road

$$1000\ \text{ft} \times 25\ \text{ft} \times \frac{1\ \text{acre}}{4.356\text{E+}04\ \text{ft}^2} \times \frac{\$38.45}{\text{acre}} = \$\ 22$$

Topsoil Application Costs per 1000 ft of Road

$$1000\ \text{ft} \times 0.67\ \text{ft} \times 25\ \text{ft} \times \frac{1\ \text{cy}}{27\ \text{ft}^3} \times \frac{\$0.60}{\text{cy}} = \$\ 372$$

Discing/Seeding Costs per 1000 ft of Road

$$1000\ \text{ft} \times 25\ \text{ft} \times \frac{1\ \text{acre}}{4.356\text{E+}04\ \text{ft}^2} \times \frac{\$200}{\text{acre}} = \$\ 115$$

**TOTAL WELLFIELD ROAD RECLAMATION COSTS PER 1000 FT OF ROAD ( BEFORE JANUARY 1, 1997) = $ 586**

**Assumptions (Roads constructed after January 1, 1997):**

1. Gravel road base will not be removed
2. Roads scarified prior to topsoil application at cost of $36.30/acre (WDEQ Guideline No. 12, Appendix P)
3. Grading of scarified roads prior to topsoil application at cost of $38.45/acre (WDEQ Guideline No. 12, Appendix G)
4. Topsoil applied at cost of $0.60/cy/1000 ft (WDEQ Guideline No. 12, App. C, Level Ground, 500 ft haul)
5. Stripped topsoil: average depth = 0.4 ft, average width = 20 ft
6. Discing/seeding cost of $200/acre is based on actual contractor costs

Scarification Costs per 1000 ft of Road

$$1000\ \text{ft} \times 20\ \text{ft} \times \frac{1\ \text{acre}}{4.356\text{E+}04\ \text{ft}^2} \times \frac{\$36.30}{\text{acre}} = \$\ 17$$

Grading Costs per 1000 ft of Road

$$1000\ \text{ft} \times 20\ \text{ft} \times \frac{1\ \text{acre}}{4.356\text{E+}04\ \text{ft}^2} \times \frac{\$38.45}{\text{acre}} = \$\ 18$$

Topsoil Application Costs per 1000 ft of Road

$$1000\ \text{ft} \times 0.40\ \text{ft} \times 20\ \text{ft} \times \frac{1\ \text{cy}}{27\ \text{ft}^3} \times \frac{\$0.60}{\text{cy}} = \$\ 178$$

Discing/Seeding Costs per 1000 ft of Road

$$1000\ \text{ft} \times 20\ \text{ft} \times \frac{1\ \text{acre}}{4.356\text{E+}04\ \text{ft}^2} \times \frac{\$200}{\text{acre}} = \$\ 92$$

**TOTAL WELLFIELD ROAD RECLAMATION COSTS PER 1000 FT OF ROAD ( AFTER JANUARY 1, 1997) = $ 305**

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**BYPRODUCT MATERIAL TRANSPORTATION AND DISPOSAL**

**Assumptions:**

1. Based on actual 2001-2002 contracted costs for transportation to and disposal at an NRC-licensed disposal facility.
2. Includes profit for transporter and disposal facility.
3. All types of waste shipped vi bulk container (30-$yd^3$ dumpster or 30-$yd^3$ dump truck).
4. Each shipment contains 30,000 lbs of material.

| Transportation Cost | | Disposal Cost | | Total | |
|---|---|---|---|---|---|
| $ 66.67 | /$yd^3$ + | $ 85.00 | /$yd^3$ = | $ 151.67 | /$yd^3$ |
| | | | = | **$ 5.62** | /$ft^3$ |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **DISKING/SEEDING** | | | | | | | | | |
| | | | | | | | | | |
| **Assumptions:** | | | | | | | | | |
| 1. | Based on actual contractor costs | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| **TOTAL DISKING/SEEDING COSTS PER ACRE** | | | | | **= $** | **200** | | | |

| Abbreviations/Acronyms | |
|---|---|
| | |
| $ | Dollars |
| $/Kgal | Dollars per 1000 gallons |
| avg | average |
| ft | feet |
| ft2 | square feet |
| ft3 | cubic feet |
| gal | gallon |
| gpm | gallons per minute |
| H&S | Health and Safety |
| H2S | Hydrogen Sulfide |
| H2SO4 | Sulfuric Acid |
| HCl | Hydrochloric Acid |
| Hp | Horsepower |
| Kgal | 1000 gallons |
| Kwh | Kilowatt-hours |
| NaOH | Caustic Soda |
| OD | Outside Diameter |
| PPE | personal protective equipment |
| PV | Pore Volume Estimate |
| reqm't | requirement |
| RO | Reverse Osmosis |
| WDW | Waste Disposal Well |
| yd3 | cubic yards |
| yr | year |