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

Total Restoration and Reclamation Cost Estimate		
I.	**GROUNDWATER RESTORATION COST**	$10,117,329
II.	**EQUIPMENT REMOVAL & DISPOSAL COST**	$103,633
III.	**BUILDING DEMOLITION AND DISPOSAL COST**	$1,011,992
IV.	**WELLFIELD BUILDINGS & EQUIPMENT REMOVAL & DISPOSAL COST**	$1,206,586
V.	**WELL ABANDONMENT COST**	$1,415,815
VI.	**WELLFIELD AND SATELLITE SURFACE RECLAMATION COST**	$94,214
VII.	**TOTAL MISCELLANEOUS RECLAMATION COST**	$695,734
	SUBTOTAL RECLAMATION AND RESTORATION COST ESTIMATE	$14,645,303
	CPI ESCALATOR- July 1998 to May 31, 2006 (24.08%)	$3,526,589
	SUBTOTAL	$18,171,892
	ADMINISTRATIVE, OVERHEAD, AND CONTINGENCY ITEMS (25%)	$4,542,973
	TOTAL	$22,714,865
	TOTAL CALCULATED SURETY (IN 2006 DOLLARS)	**$22,714,900**
	September Version - Current Surety	

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	0
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	0.00
Affected Ore Zone Area (ft2)	151900	690900	1274000	32500	0	279500	994500	3348000	1116000	216000	891231	1200000	0
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	0
Kgallons per Pore Volume	13529	61535	77189	1969	10173	21168	78331	202849	81139	16359	67497	121176	0
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	
Total Estimated	31	141	196	5	0	43	153	465	155	30	124	120	0
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	0
Total Estimated	27	141	192			45	143	465	155	30	125	120	0
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	0
Total Estimated	50	319	343	included		91	307	903	327	67	236	240	0
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	
Total Estimated	18	67	78			38	86	134	81	20	39	41	0
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	0
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	0
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	$0
Total Ground Water Sweep Costs	**$566,109**												
III. Reverse Osmosis Costs													
PV's Required	0	5	5	5	5	5	5	5	5	5	5	5	5
Total Kgals for Treatment	0	307673	385946	9846	50864	105840	391656	1014243	405697	81794	337487	605880	0
Reverse Osmosis Unit Cost ($/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	$0
Total Reverse Osmosis Costs	**$4,900,643**												
IV. Bioremediation/Chemical Reductant Costs													
Total Kgals for Treatment (2 Pore Volumes)	0	123069	154378	3938	20346	42336	156662	405697	162279	32718	134995	242352	0
Chemical Reductant Unit Cost ($/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	$0
Total Chemical Reductant Costs	**$428,842**												
V. Elution Costs													
A. Elution Processing Costs													
Kgals/Elution Required	35000	35000	35000	35000	35000	35000	35000	35000	35000	35000	35000	35000	35000
Number of Elutions	0	11	13	1	2	4	13	35	14	3	12	21	0
Processing Unit Cost ($/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	$0
B. Deep Well Injection Costs													
Deep Well Injection Volume (Kgals/Elution)	12	12	12	12	12	12	12	12	12	12	12	12	12
Total Kgals for Injection	0	132	156	12	24	48	156	420	168	36	144	252	0
Deep Well Injection Unit Cost ($/Kgals)	$4.60	$4.60	$4.60	$4.60	$4.60	$4.60	$4.60	$4.60	$4.60	$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	$0
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	$0
Total Elution Costs	**$74,849**												
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	
$/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	
3. UCL Sampling													
# of Wells	0	70	78	5	20	29	55	89	69	16	33	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	
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	$900
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	
Samples/Year	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	
Samples/Year	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	
Samples/Year	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	
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	$0
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	
Total Monitoring and Sampling Costs	**$599,472**												
VII. Mechanical Integrity Test (MIT) Costs													
Five Year MIT Unit Cost ($/well)	$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	0
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	$0
Total Mechanical Integrity Testing Cost	**$54,272**												
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	$0
TOTAL WELLFIELD RESTORATION COST	**$6,624,187**												
VIII. Building Utility Costs	**Central Plant**	**Main Office**	**Satellite No.1**	**Satellite No.2**	**Satellite No.3**								
Electricity ($/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		**$10,117,329**	

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	
Length of Piping per Header House (ft)	15000	15000	15000	15000	15000	15000	15000	15000	15000	12500	
Total Length of Piping (ft)	75000	270000	300000	60000	225000	645000	150000	45000	90000	87500	
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	$0
B. Transport and Disposal Costs (NRC-Licensed Facility)											
Average Diameter of Piping (inches)	2	2	2	2	2	2	2	2	2	2	2
Chipped Volume Reduction (ft^3/ft)	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Chipped Volume per Wellfield (ft^3)	375	1350	1500	300	1125	3225	750	225	450	437.5	0
Volume for Disposal Assuming 10% Void Space (ft^3)	413	1485	1650	330	1238	3548	825	248	495	481	0
Transportation and Disposal Unit Cost ($/$ft^3$)	$5.62	$5.62	$5.62	$5.62	$5.62	$5.62	$5.62	$5.62	$5.62	$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	$0
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	$0
C. Capitol Costs											
PVC Pipe Shredder	$40,000										
Total Wellfield Piping Costs	**$703,934**										
II. Well Pumps and Tubing											
Assumptions:											
Pump and tubing removal costs included under ground water restoration labor costs											
60% of production/injection wells contain pumps and/or tubing											
A. Pump and Tubing Transportation and Disposal											
Number of Production Wells	27	141	192	45	143	465	155	30	125	122	
Number of Injection Wells	50	319	343	91	307	903	327	67	236	234	0
1. Pump Volume											
Number of Production Wells with Pumps	16	85	115	27	86	279	93	18	75	73	0
Average Pump Volume (ft^3)	1	1	1	1	1	1	1	1	1	1	1
Pump Volume per Wellfield (ft^3)	16	85	115	27	86	279	93	18	75	73	0
2. Tubing Volume											
Assumptions:											
Average tubing length/wellfield based on average well depth minus 25 ft											
Number of Production Wells with Tubing	16	85	115	27	86	279	93	18	75	73	0
Number of Injection Wells with Tubing	30	191	206	55	184	542	196	40	142	140	0
Average Tubing Length per Well (ft)	475	425	525	575	525	625	475	575	625	515	
Tubing Length per Wellfield (ft)	21850	117300	168525	47150	141750	513125	137275	33350	135625	109695	0
Diameter of Production Well Fiberglass Tubing (inches)	2	2	2	2	2	2	2	2	2	2	2
Diameter of Injection Well HDPE Tubing (inches)	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Chipped Volume Reduction (ft^3/ft)	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Chipped Volume per Wellfield (ft^3)	109	587	843	236	709	2566	686	167	678	548	0
Volume of Pump and Tubing (ft^3)	125	672	958	263	795	2845	779	185	753	621	0
Volume for Disposal Assuming 10% Void Space (ft^3)	138	739	1054	289	875	3130	857	204	828	683	0
Transportation and Disposal Unit Cost ($/$ft^3$)	$5.62	$5.62	$5.62	$5.62	$5.62	$5.62	$5.62	$5.62	$5.62	$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	$0
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	$0
Total Pump and Tubing Costs	**$49,438**										
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-H	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	**$298,340**										
IV. Well Houses											
Total Quantity	90	490	554	136	450	1383	482	97	361	213	
Average Well House Volume (ft^3)	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
A. Removal											
Total Volume (ft^3)	1125	6125	6925	1700	5625	17287.5	6025	1212.5	4512.5	2662.5	0
Demolition Unit Cost per WDEQ Guideline No.12,App.K ($/$ft^3$)	$0.171	$0.171	$0.171	$0.171	$0.171	$0.171	$0.171	$0.171	$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	$0
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	$0
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-H	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	0
Volume for Disposal Assuming 10% Void Space (cy)	46	250	282	69	229	704	245	49	184	108	0
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	$0
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	$0
Total Well House Removal and Disposal Costs	**$40,438**										
VI. Header Houses											
Total Quantity	5	18	20	4	15	43	10	3	6	9	
Average Header House Volume (ft^3)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
A. Removal											
Total Volume (ft^3)	8000	28800	32000	6400	24000	68800	16000	4800	9600	14400	0
Demolition Unit Cost per WDEQ Guideline No.12,App.K ($/$ft^3$)	$0.171	$0.171	$0.171	$0.171	$0.171	$0.171	$0.171	$0.171	$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	$0
B. Survey and Decontamination											
Assumptions:											
Cost per Header House	$284	$284	$284	$284	$284	$284	$284	$284	$284	$284	$284
Subtotal Survey and Decontamination Costs	$1,420	$5,112	$5,680	$1,136	$4,260	$12,212	$2,840	$852	$1,704	$2,556	$0
C. Disposal											
Total Volume (cy)	296	1067	1185	237	889	2548	593	178	356	533	0
Volume for Disposal Assuming 10% Void Space (cy)	326	1173	1304	261	978	2803	652	196	391	587	0
Disposal Unit Cost per WDEQ Guideline No.12,App.K ($/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	$0
Header House Removal and Disposal Costs per Wellfield	$4,303	$15,485	$17,209	$3,443	$12,907	$36,996	$8,604	$2,583	$5,161	$7,745	$0
Total Header House Removal and Disposal Costs	**$114,436**										
TOTAL REMOVAL AND DISPOSAL COSTS PER WELLFIELD	$60,174	$116,343	$157,861	$82,119	$98,809	$351,088	$140,742	$30,721	$76,124	$52,605	$0
TOTAL WELLFIELD BUILDINGS AND EQUIPMENT REMOVAL AND DISPOSAL COSTS	**$1,206,586**										

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	
# of Injection Wells	0	319	343	91	307	903	327	67	236	240	
# of Monitoring Wells	0	67	78	38	86	134	81	20	39	41	
#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	0
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	$0
Total Wellfield Abandonment Costs	**$1,396,990**										
II. Waste Disposal Well Abandonment	**Morton No.1-20**	**Vollman No.33-27**	(Construction not anticipated)								
A. Well Plugging											
Drill Rig Operation ($/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	**$1,415,815**										

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	$0
B. Road Construction After January 1, 1997										
Length of Wellfield Roads (1000 ft)	0.6	0	0	0	3	15.7	5	5	5	
Wellfield Road Reclamation Unit Cost ($/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	$0
Subtotal Road Reclamation Costs per Wellfield	$7,332	$6,622	$1,406	$7,794	$9,705	$4,789	$1,525	$1,525	$1,525	$0
Total Wellfield Road Reclamation Costs	**$42,223**									
SUBTOTAL SURFACE RECLAMATION COSTS PER WELLFIELD	$11,332	$12,822	$2,706	$12,394	$25,105	$9,989	$2,525	$5,725	$7,125	$0
TOTAL WELLFIELD SURFACE RECLAMATION COSTS	**$89,723**									
III. Satellite Area Reclamation	**Satellite No.1**	**Satellite No.2**	**Satellite No.3**							
Assumptions:										
Area of Disturbance (acres)	1	1	1							
Average Depth of Stripped Topsoil (ft)	1	0.67	0.67							
Surface Grade: Level Ground										
Average Length of Topsoil Haul (ft)	1000	500	500							
A. Ripping Overburden with Dozer										
Ripping Unit Cost per WDEQ Guideline No.12, App.I1 ($/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	**$94,214**									

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	**$54,536**			
III.		**Wastewater Pipeline Reclamation**	**SAT2 to SAT1 WW Pipeline**	**SAT3 to SAT2 PSR**	**H-WF Rest. Bypass**	
	A.	Pipeline Removal and Loading				
		Length of HDPE Pipe Trench (ft)	24000	22000	2200	
		Main Pipeline Removal Unit Cost ($/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 Ponc**	**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

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**

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

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**

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	X	1	week	X	2	days	=$	0.43		
		week			5	days		1500	ft				
	Fuel												
		$	9	X	8	hrs	X	2	days	=$	0.10		
		hour			1	day		1500	ft				
Labor													
	Trackhoe Operation												
		$	15	X	8	man hrs	X	2	days	=$	0.16		
		man hr			1	day		1500	ft				
	Pipeline Extraction												
		$	15	X	16	man hrs	X	1	day	=$	0.16		
		man hr			1	day		1500	ft				
MAIN PIPELINE REMOVAL COST PER FT OF TRENCH										**=$**	**0.85**		

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	X	1	week	X	2	days	=$	0.10		
		week			5	days		3000	ft				
	Fuel												
		$	9	X	8	hrs	X	2	days	=$	0.05		
		hour			1	day		3000	ft				
Labor													
	Backhoe Operation												
		$	15	X	8	man hrs	X	2	days	=$	0.08		
		man hr			1	day		3000	ft				
	Pipeline Extraction												
		$	15	X	16	man hrs	X	1	day	=$	0.08		
		man hr			1	day		3000	ft				
	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

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

Scarification Costs per 1000 ft of Road

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

Grading Costs per 1000 ft of Road

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

Topsoil Application Costs per 1000 ft of Road

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

Discing/Seeding Costs per 1000 ft of Road

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

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

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

Grading Costs per 1000 ft of Road

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

Topsoil Application Costs per 1000 ft of Road

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

Discing/Seeding Costs per 1000 ft of Road

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

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

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**	

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					