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:

SMITH RANCH
2006-2007 Surety Estimate Revision

The 2006-2007 Smith Ranch Surety Estimate was revised to follow the WDEQ-LQD standardized bond format and, where applicable, the cost estimates provided in WDEQ-LQD Guideline No. 12. The 2006-2007 Surety Estimate Revision results in a surety estimate of $21,335,600.00 which is an increase of $4,705,800 from the currently approved surety estimate of $16,629,800. The attached computer disk contains the Excel file (SRBOND2006), which contains all spreadsheets and unit cost derivations. Items I – VII listed on the surety summary sheet accounts for $3,123,662 (66%) of the total 2006-2007 surety increase.

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. Development in the Mine Unit-15A, 9 and K represent the majority of activities depicted in the increased surety for 2006-2007 revision

A member of the Cameco *group of companies*

Mine Unit 15A is scheduled to have four Header Houses up and operating in the first and second quarter of 2007. Mine Unit 9 is targeted to have a deep disposal well completed and a new Satellite (SR-2) constructed by the end on the second quarter 2007. The new Satellite, access road and well field development and construction in MU-9 account for most of the increase in the estimated surety. Mine Unit K and 15A will up and operating adding an estimated additional 160 patterns and 9 Header Houses to last years surety estimate.

The remaining portion of the $4,705,800 increase ($1,582,138) in the surety estimate is a result of the CPI escalator, which increased from 19.1% to 19.41% (July 1998 to May 2006), and the 25% contingency.

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
File 4.6.4.1
R. Townley w/o atta
L. Spackman, WDEQ/LQD

POWER RESOURCES INC SMITH RANCH URANIUM PROJECT
2006-2007 SURETY ESTIMATE REVISION

Total Restoration and Reclamation Cost Estimate		
I.	GROUNDWATER RESTORATION COST	$11,091,386
II.	EQUIPMENT REMOVAL & DISPOSAL COST	$270,758
III.	BUILDING DEMOLITION AND DISPOSAL COST	$1,129,731
IV.	WELLFIELD BUILDINGS & EQUIPMENT REMOVAL & DISPOSAL COST	$326,047
V.	WELL ABANDONMENT COST	$1,028,819
VI.	WELLFIELD AND SATELLITE SURFACE RECLAMATION COST	$57,810
VII.	TOTAL MISCELLANEOUS RECLAMATION COST	$389,442
	SUBTOTAL RECLAMATION AND RESTORATION COST ESTIMATE	$14,293,992
	CPI ESCALATOR- July 1,1998 to May 31, 2006 (19.41%)	$2,774,464
	SUBTOTAL	$17,068,456
	ADMINISTRATIVE, OVERHEAD, AND CONTINGENCY ITEMS (25%)	$4,267,114
	TOTAL	$21,335,570
	TOTAL CALCULATED SURETY (IN 2004 DOLLARS)	$21,335,600

POWER RESOURCES INC SMITH RANCH URANIUM PROJECT
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Ground Water Restoration	Mine Unit-1	Mine Unit-2	Mine Unit-3	Mine Unit-3 2nd Comp.	Mine Unit- 4	Mine Unit-4A	Mine Unit-4 Extension	Mine Unit-15	Mine Unit-15A	Mine Unit K	Mine Unit 9
PV Assumptions											
Wellfield Area (ft2)	1,115,229	2,260,172	1,622,462	782,800	1,334,798	1,050,576	340,421	2,000,000	1,600,000	1,620,000	1,200,000
Wellfield Area (acres)	25.6	51.9	37.2	18.0	30.6	24.1	7.8	45.9	36.7	37.2	27.5
Affected Ore Zone Area (ft2)	1,115,229	2,260,172	1,622,462	782,800	1,334,798	1,050,576	340,421	2,000,000	1,600,000	1,620,000	1,200,000
Avg. Completed Thickness	18	24	20	14	18	17	18	19	19	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
Flare Factor	1.7	1.5	1.5	1.5	1.5	1.5	1.7	1.5	1.5	1.7	1.7
Affected Volume (ft3)	34,126,007	81,366,192	48,673,860	16,438,800	36,039,546	26,789,688	10,416,883	57,000,000	45,600,000	55,080,000	40,800,000
Kgallons per Pore Volume	68,921	164,327	98,302	33,200	72,785	54,104	21,038	115,117	92,094	111,240	82,400
Number of Patterns in Unit(s)											
Current	116	146	162	76	128	101	35	251	0	0	0
Estimated next report period	0	0	0	0	0	0	0		60	100	100
Total Estimated	116	146	162	76	128	101	35	251	60	100	100
Number of Wells in Unit(s)											
Production Wells											
Current	115	146	145	Wells	124	101	Wells	251	0	0	0
Estimated next report period	0	0	0	included	0	0	included	0	60	100	100
Total Estimated	115	146	145	under	124	101	under	251	60	100	100
Injection Wells				Wellfield 3			Wellfield 4				
Current	210	262	251		219	175	and	502	0	0	0
Estimated next report period	0	0	0		0	0	Wellfield 4A	0	120	200	200
Total Estimated	210	262	251		219	175		502	120	200	200
Monitoring Wells											
Current	49	50	40		51	39		105	60	61	0
Estimated next report period	0	0	0		0	0		0	0	0	100
Total Estimated	49	50	40		51	39		105	60	61	100
Number of Wells per Wellfield	374	458	436		394	315		858	240	361	400
Total Number of Wells	2835										
Average Well Depth (ft)	500	850	750		850	750		450	500	950	950
I. **Ground Water Sweep Costs**											
PV's Required	1	1	1	1	1	1	1	1	1	1	1
Total Kgals for Treatment	68,921	164,327	98,302	33,200	72,785	54,104	21,038	115,117	92,094	111,240	82,400
Ground Water Sweep Unit Cost ($/Kgal)	$0.57	$0.57	$0.57	$0.57	$0.57	$0.57	$0.57	$0.57	$0.57	$0.57	$0.57
Subtotal Ground Water Sweep Costs per Wellfield	$39,483	$94,139	$56,315	$19,019	$41,697	$30,995	$12,052	$65,948	$52,758	$63,726	$47,205
Total Ground Water Sweep Costs	$523,337										
II. **Reverse Osmosis Costs**											
PV's Required	5	5	5	5	5	5	5	5	5	5	6
Total Kgals for Treatment	*344,604*	*821,636*	*491,509*	*165,999*	*363,927*	*270,522*	*105,190*	*575,586*	*460,469*	*556,198*	*494,398*
Reverse Osmosis Unit Cost ($/Kgal)	$1.26	$1.26	$1.26	$1.26	$1.26	$1.26	$1.26	$1.26	$1.26	$1.26	$1.26
Subtotal Reverse Osmosis Costs per Wellfield	$434,822	$1,036,740	$620,186	$209,458	$459,204	$341,345	$132,728	$726,274	$581,020	$701,810	$623,831
Total Reverse Osmosis Costs	$5,867,418										
III. **Chemical Reductant Costs**											
Total Kgals for Treatment (2 Pore Volumes)	137842	328654	196603	66400	145571	108209	42076	230234	184188	222479	164799

POWER RESOURCES INC SMITH RANCH URANIUM PROJECT
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Ground Water Restoration	Mine Unit-1	Mine Unit-2	Mine Unit-3	Mine Unit-3 2nd Comp.	Mine Unit- 4	Mine Unit-4A	Mine Unit-4 Extension	Mine Unit-15	Mine Unit-15A	Mine Unit K	Mine Unit 9
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
Subtotal Chemical Reductant Costs per Wellfield	$39,974	$95,310	$57,015	$19,256	$42,216	$31,381	$12,202	$66,768	$53,414	$64,519	$47,792
Total Chemical Reductant Costs	$529,847										
IV. Elution Costs											
A. Elution Processing Costs											
Kgals/Elution Required	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000
Number of Elutions	12	28	17	6	12	9	4	20	16	19	16
Processing Unit Cost ($/Elution)	$525	$525	$525	$525	$525	$525	$525	$525	$525	$525	$525
Subtotal Processing Costs	$6,300	$14,700	$8,925	$3,150	$6,300	$4,725	$2,100	$10,500	$8,400	$9,975	$8,400
B. Deep Well Injection Costs											
Deep Well Injection Volume (Kgals/Elution)	12	12	12	12	12	12	12	12	12	12	12
Total Kgals for Injection	144	336	204	72	144	108	48	240	192	228	192
Deep Well Injection Unit Cost ($/Kgals)	$1.39	$1.39	$1.39	$1.39	$1.39	$1.39	$1.39	$1.39	$1.39	$1.39	$1.39
Subtotal Deep Well Injection Costs	$200	$467	$284	$100	$200	$150	$67	$334	$267	$317	$267
Subtotal Elution Costs per Wellfield	$6,500	$15,167	$9,209	$3,250	$6,500	$4,875	$2,167	$10,834	$8,667	$10,292	$8,667
Total Elution Costs	$86,128										
V. Monitoring and Sampling Costs											
A. Active Restoration Period											
Estimated Restoration Period (Years)	5	5	5		5	5		5	5	5	5
1. UCL Sampling											
# of Wells	49	51	43		55	36		108	60	61	100
$/sample	$20	$20	$20		$20	$20		$20	$20	$20	$20
Samples/Year	6	6	6		6	6		6	6	6	6
Sub-total Restoration Analyses	$29,400	$30,600	$25,800		$33,000	$21,600		$64,800	$36,000	$36,600	$60,000
B. Stability Period											
Estimated Stabilization Period (Years)	1	1	1		1	1		1	1	1	1
1. Full Suite Analyses											
# of Wells	17	31	24		20	10		61	34	34	56
Samples/Year	3	3	3		3	3		3	3	3	3
$/sample	$150	$150	$150		$150	$150		$150	$150	$150	$150
2. Short List Analyses											
# of Wells	17	31	24		20	10		61	34	34	56
Samples/Year	9	9	9		9	9		9	9	9	9
$/sample	$34	$34	$34		$34	$34		$34	$34	$34	$34
Sub-total Stability Analyses	$12,852	$23,436	$18,144		$15,120	$7,560		$46,116	$25,704	$25,704	$42,336
Subtotal Monitoring and Sampling Costs per Wellfield	$42,252	$54,036	$43,944		$48,120	$29,160		$110,916	$61,704	$62,304	$102,336
Total Monitoring and Sampling Costs	$554,772										
VI. Mechanical Integrity Test (MIT) Costs											
Five Year MIT Unit Cost ($/well)	$71	$71	$71		$71	$71		$71	$71	$71	$71
Number of Wells (30% of Inj. and Rest. Wells)	63	79	75		66	53		151	36	60	60
Subtotal Mechanical Integrity Testing Costs per Wellfield	$4,473	$5,581	$5,346		$4,665	$3,728		$10,693	$2,556	$4,260	$4,260
Total Mechanical Integrity Testing Cost	$45,562										
TOTAL RESTORATION COSTS PER WELLFIELD	$567,504	$1,300,973	$792,015	$250,983	$602,402	$441,484	$159,149	$991,433	$760,119	$906,911	$834,091
TOTAL WELLFIELD RESTORATION COST	$7,607,064										

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Ground Water Restoration	Mine Unit-1	Mine Unit-2	Mine Unit-3	Mine Unit-3 2nd Comp.	Mine Unit- 4	Mine Unit-4A	Mine Unit-4 Extension	Mine Unit-15	Mine Unit-15A	Mine Unit K	Mine Unit 9
VII. Building Utility Costs	Central Plant	Main Office	Satellite SR-1	Satellite SR-2							
Electricity ($/Month)	$8,500	$1,825	$8,500	$8,500							
Natural Gas ($/Month)	$2,500	$595	$765	$765							
Number of Months	48	60	36	36							
Subtotal Utility Costs per Building	$528,000	$145,200	$333,540	$333,540							
Total Building Utility Costs	**$1,340,280**										
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)	4										
Total Vehicle Operation Costs	**$352,042**										
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	4										
Total Labor Costs	**$1,672,000**										
XIII. **Capital Costs**											
Purchase RO Units (2X800 gpm Units)	$120,000										
Total Labor Costs	**$120,000**										
TOTAL GROUND WATER RESTORATION COSTS	**$11,091,386**										

ipment Removal and Loading	CPP Ion Ex. Plant	Central Plant	Dryer Building	Satellite SR-1	Pilot ISL	Water Pumphouse	Bone Yard	Satellite SR-2
Removal and Loading Costs								
A. Tankage								
Number of Tanks	13	51	0	10	15	3	30	0
Volume of Tank Construction Material (ft^3)	835	1340	300	397	260	164	1648	0
1. Labor								
Number of Persons	3	3	3	3	3	3	3	3
Ft^3/Day	25	25	25	25	25	25	25	25
Number of Days	33	54	12	16	10	7	66	0
$/Day/Person	$112	$112	$112	$112	$112	$112	$112	$112
Subtotal Labor Costs	$11,228	$18,010	$4,032	$5,376	$3,494	$2,204	$22,149	$0
2. Equipment								
Number of Days	33	54	12	16	10	7	66	0
$/Day	$338	$338	$338	$338	$338	$338	$338	$338
Subtotal Equipment Costs	$11,295	$18,117	$4,056	$5,408	$3,515	$2,217	$22,281	$0
Subtotal Tankage Removal and Loading Costs	$22,523	$36,127	$8,088	$10,784	$7,009	$4,421	$44,430	$0
B. PVC/Steel Pipe								
PVC Pipe Footage	2800	5000		4000	1500	0	0	0
Average PVC Pipe Diameter (inches)	3	3	3	3	3	3	0	0
Shredded PVC Pipe Volume Reduction (ft^3/ft)	0.016	0.016	0.016	0.016	0.016	0.016	0	0
Volume of Shredded PVC Pipe (ft^3)	45	80	0	64	24	0	0	0
Steel Pipe Footage	1100	0	0	0	0	80	0	0
Average Steel Pipe Diameter (inches)	6	0	0	0	0	8	0	0
Volume (ft^3)	216	0	0	0	0	30	0	0
1. Labor								
Number of Persons	2	2	2	2	2	2	2	2
Ft/Day	200	200	200	200	200	200	200	200
Number of Days	19.5	25	0	20	7.5	0.4	0	0
$/Day/Person	$112	$112	$112	$112	$112	$112	$112	$112
Subtotal PVC/Steel Pipe Labor Costs	$4,368	$5,600	$0	$4,480	$1,680	$90	$0	$0
Subtotal PVC/Steel Pipe Removal and Loading Costs	$4,368	$5,600	$0	$4,480	$1,680	$90	$0	$0
C. Pumps								
Number of Pumps	21	43	0	13	12	2	0	0
Average Volume (ft^3/pump)	4.93	4.93	0	4.93	4.93	4.93	4.93	4.93
Volume of Pumps (ft^3)	103.53	211.99	0	64.09	59.16	9.86	0	0
1. Labor								
Number of Persons	1	1	1	1	1	1	0	0
Pumps/Day	2	2	2	2	2	2	0	0
Number of Days	10.5	21.5	0	7	6	1	0	0
$/Day/Person	$112	$112	$112	$112	$112	$112	$112	$112

ipment Removal and Loading	CPP Ion Ex. Plant	Central Plant	Dryer Building	Satellite SR-1	Pilot ISL	Water Pumphouse	Bone Yard	Satellite SR-2
Subtotal Labor Costs	$1,176	$2,408	$0	$784	$672	$112	$0	$0
Subtotal Pump Removal and Loading Costs	$1,176	$2,408	$0	$784	$672	$112	$0	$0
D. Dryer								
Dryer Volume (ft^3)			200					
1. Labor								
Number of Persons	0	0	5	0	0	0	0	0
Ft^3/Day	0	0	175	0	0	0	0	0
Number of Days	0	0	2	0	0	0	0	0
$/Day/Person	$112	$112	$112	$112	$112	$112	$112	$112
Total Labor Cost	$0	$0	$1,120	$0	$0	$0	$0	$0
Total Dryer Dismantling and Loading Cost	$0	$0	$1,120	$0	$0	$0	$0	$0
Subtotal Equipment Removal and Loading Costs per Facility	$39,295	$62,145	$13,240	$21,424	$12,855	$6,827	$66,579	$0
Total Equipment Removal and Loading Costs	**$222,365**							
Transportation and Disposal Costs (NRC-Licensed Facility)								
A. Tankage								
Volume of Tank Construction Material (ft^3)	835	1340	300	397	260	164	1648	0
Volume for Disposal Assuming 10% Void Space (ft^3)	919	1474	330	436	286	180	1813	0
Transportation and Disposal Unit Cost ($/$ft^3$)	$5.62	$5.62	$5.62	$5.62	$5.62	$5.62	$5.62	$5.62
Subtotal Tankage Transportation and Disposal Costs	$5,165	$8,284	$1,855	$2,450	$1,607	$1,012	$10,189	$0
B. PVC / Steel Pipe								
Volume of Shredded PVC Pipe (ft^3)	44.8	80	0	64	24	0	0	0
Volume for Disposal Assuming 10% Void Space (ft^3)	49	88	0	70	26	0	0	0
Volume of Steel Pipe (ft^3)	296	0	0	0	0	30	30	30
Volume for Disposal Assuming 10% Void Space (ft^3)	326	0	0	0	0	33	33	33
Transportation and Disposal Unit Cost ($/$ft^3$)	$5.62	$5.62	$5.62	$5.62	$5.62	$5.62	$5.62	$5.62
Subtotal PVC Pipe Transportation and Disposal Costs	$2,108	$495	$0	$393	$146	$185	$185	$185
C. Pumps								
Volume of Pumps (ft^3)	103.53	271	0	64	59	9.86	0	0
Volume for Disposal Assuming 10% Void Space (ft^3)	114	298	0	70	65	11	0	0
Transportation and Disposal Unit Cost ($/$ft^3$)	$5.62	$5.62	$5.62	$5.62	$5.62	$5.62	$5.62	$5.62
Subtotal Pump Transportation and Disposal Costs	$641	$1,675	$0	$393	$365	$62	$0	$0
D. Dryer								
Dryer Volume (ft^3)	0	0	400	0	0	0	0	0
Volume for Disposal Assuming Dryer Remains Intact (ft^3)	0	0	400	0	0	0	0	0
Transportation and Disposal Unit Cost ($/$ft^3$)	$5.62	$5.62	$5.62	$5.62	$5.62	$5.62	$5.62	$5.62
Total Dryer Transportation and Disposal Costs	$0	$0	$2,248	$0	$0	$0	$0	$0
Subtotal Equipment Transportation and Disposal Costs per Facility	$7,914	$10,454	$4,103	$3,236	$2,118	$1,259	$10,374	$185
Total Equipment Transportation and Disposal Costs	**$39,643**							
Health and Safety Costs								

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ipment Removal and Loading				CPP Ion Ex. Plant	Central Plant	Dryer Building	Satellite SR-1	Pilot ISL	Water Pumphouse	Bone Yard	Satellite SR-2
Radiation Safety Equipment				$1,250	$1,250	$1,250	$1,250	$1,250	0	$1,250	$1,250
Total Health and Safety Costs				**$8,750**							
TOTAL EQUIPMENT REMOVAL AND DISPOSAL COSTS PER FACILITY				$48,459	$73,849	$18,593	$25,910	$16,223	$8,086	$78,203	$1,435
AL EQUIPMENT REMOVAL AND DISPOSAL COSTS				**$270,758**							

POWER RESOURCES INC SMITH RANCH URANIUM PROJECT
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Building Demolition and Disposal	CPP Ion Ex. Plant	Central Plant	Dryer Building	Office Building	Office Annex	Storage Building	Water Treat Plant	Shop Building	Pilot ISL Building	Fresh Water Pumphouse	DDW Buildings
I. Decontamination Costs											
A. Wall Decontamination											
Area to be Decontaminated (ft^2)	10,810	15,900	0	0	9,934	1,152	576	4,826	12,000	0	0
Application Rate (Gallons/ft^2)	1	1	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	$0.50	$0.50
Subtotal Wall Decontamination Costs	$5,405	$7,950	$0	$0	$4,967	$576	$288	$2,413	$6,000	$0	$0
B. Concrete Floor Decontamination											
Area to be Decontaminated (ft^2)	11,550	16,500	3,500	0	14,468	1,678	839	7,028	17,477	0	0
Application Rate (Gallons/ft^2)	4	4	4	0	4	4	4	4	4	4	4
HCl Acid Wash, including labor ($/Gallon)	$0.50	$0.50	$0.50	$0.50	$0.50	$0.50	$0.50	$0.50	$0.50	$0.50	$0.50
Subtotal Concrete Floor Decontamination Costs	$23,100	$33,000	$7,000	$0	$28,936	$3,356	$1,678	$14,056	$34,954	$0	$0
C. Deep Well Injection Costs											
Total Kgals for Injection	57.01	81.9	14	0	67.806	7.864	3.932	32.938	81.908	0	0
Deep Well Injection Unit Cost ($/Kgals)	$4.12	$1.39	$1.39	$1.39	$1.39	$1.39	$1.39	$1.39	$1.39	$1.39	$1.39
Subtotal Deep Well Injection Costs	$235	$114	$19	$0	$94	$11	$5	$46	$114	$0	$0
Subtotal Decontamination Costs per Building	$28,740	$41,064	$7,019	$0	$33,997	$3,943	$1,971	$16,515	$41,068	$0	$0
Total Decontamination Costs	$199,598										
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)	346,500	577,500	122,500	0	361,700	16,780	8,390	175,700	314,586	8,320	660.3
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	$51,478	$85,797	$18,199	$0	$53,736	$2,493	$1,246	$26,103	$46,737	$1,236	$98
B. Concrete Floor											
Area of Concrete Floor (ft^2)	11,550	16,500	3500	0	14468	1678	839	7028	17477	832	0
Demolition Unit Cost per WDEQ Guideline No.12,App.K ($/$ft^2$)	$3.17	$3.17	$3.17	$3.17	$3.17	$3.17	$3.17	$3.17	$3.17	$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	$2.75	$2.75
Subtotal Concrete Floor Demolition Costs	$31,810	$45,443	$9,639	$0	$39,847	$4,621	$2,311	$19,356	$48,134	$2,291	$0
C. Concrete Footing											
Length of Concrete Footing (ft)	430	514	237	0	481	164	116	335	529	115	0
Demolition Unit Cost per WDEQ Guide. No.12,App.K ($/lin. ft)	$11.45	$11.45	$11.45	$11.45	$11.45	$11.45	$11.45	$11.45	$11.45	$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	$9.95	$9.95
Subtotal Concrete Footing Demolition Costs	$4,276	$5,111	$2,354	$0	$4,786	$1,630	$1,153	$3,336	$5,260	$1,144	$0
Subtotal Demolition Costs per Building	$87,564	$136,351	$30,192	$0	$98,369	$8,744	$4,710	$48,795	$100,131	$4,671	$98
Total Demolition Costs	$736,551										
III. Disposal Costs											
A. Building											
Volume of Building (cy)	12833	21389	4537	0	13396	621	311	6507	11651	308	24
1. On-Site											
Assumptions:											
On-site disposal cost of $0.54/cy											
Percentage (%)	100	100	100	100	100	100	100	100	100	100	100
Volume for Disposal (cubic yards)	12833	21389	4537	0	13396	621	311	6507	11651	308	24
Disposal Unit Cost ($/cy)	$0.54	$0.54	$0.54	$0.54	$0.54	$0.54	$0.54	$0.54	$0.54	$0.54	$0.54
Subtotal On-Site Disposal Costs	$6,930	$11,550	$2,450	$0	$7,234	$336	$168	$3,514	$6,292	$166	$13

Building Demolition and Disposal	CPP Ion Ex. Plant	Central Plant	Dryer Building	Office Building	Office Annex	Storage Building	Water Treat Plant	Shop Building	Pilot ISL Building	Fresh Water Pumphouse	DDW Buildings
2. NRC-Licensed Facility											
Percentage (%)	0	0	0	0	0	0	0	0	0	0	0
Volume for Disposal (ft^3)	0	0	0	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	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	$5.62	$5.62
Subtotal NRC-Licensed Facility Disposal Costs	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Subtotal Building Disposal Costs	$6,930	$11,550	$2,450	$0	$7,234	$336	$168	$3,514	$6,292	$166	$13
B. Concrete Floor											
Area of Concrete Floor (ft^2)	11550	16500	3500	0	14468	1678	839	7028	17477	1186	0
Average Thickness of Concrete Floor (ft)	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Volume of Concrete Floor (ft^3)	8662.5	12375	2625	0	10851	1258.5	629.25	5271	13107.75	889.5	0
Volume of Concrete Floor (cy)	321	458	97	0	402	47	23	195	485	33	0
1. On-Site											
Percentage (%)	75	75	75	100	100	100	100	100	75	100	0
Volume for Disposal (cy)	241	344	73	0	402	47	23	195	364	33	0
Disposal Unit Cost per WDEQ Guideline No.12,App.K ($/cy)	$4.69	$4.69	$4.69	$4.69	$4.69	$4.69	$4.69	$4.69	$4.69	$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	$4.07	$4.07
Subtotal On-Site Disposal Costs	$980	$1,401	$297	$0	$1,638	$190	$95	$795	$1,484	$134	$0
2. NRC-Licensed Facility											
Assumptions:											
Additional $2.00/$ft^3$ for segregation of concrete											
Percentage (%)	25	25	25	0	0	0	0	0	25	0	0
Volume for Disposal (ft^3)	2888	3094	656	0	0	0	0	0	3277	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	$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	$5.62	$5.62
Subtotal NRC-Licensed Facility Disposal Costs	$22,007	$23,574	$5,001	$0	$0	$0	$0	$0	$24,970	$0	$0
Subtotal Concrete Floor Disposal Costs	$22,987	$24,975	$5,298	$0	$1,638	$190	$95	$795	$26,454	$134	$0
C. Concrete Footing											
Length of Concrete Footing (ft)	430	514	237	0	481	164	116	335	529	124	0
Average Depth of Concrete Footing (ft)	4	4	4	4	4	4	4	4	4	4	4
Average Width of Concrete Footing (ft)	1	1	1	1	1	1	1	1	1	1	1
Volume of Concrete Footing (ft^3)	1720	2055	947	0	1925	655	463	1341	2115	496	0
Volume of Concrete Footing (cy)	64	76	35	0	71	24	17	50	78	18	0
Disposal Unit Cost per WDEQ Guideline No.12,App.K ($/cy)	$4.69	$4.69	$4.69	$4.69	$4.69	$4.69	$4.69	$4.69	$4.69	$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	$4.07	$4.07
Subtotal Concrete Footing Disposal Costs	$260	$310	$143	$0	$290	$99	$70	$202	$319	$75	$0
Subtotal Disposal Costs per Building	$30,177	$36,835	$7,891	$0	$9,162	$625	$333	$4,511	$33,065	$375	$13
Total Disposal Costs	$185,582										
III. Health and Safety Costs											
Radiation Safety Equipment	$1,000	$1,000	$1,000	$1,000	$1,000	$0	$0	$0	$0	$0	$0
Total Health and Safety Costs	$8,000										
SUBTOTAL BUILDING DEMOLITION AND DISPOSAL COSTS	$147,481	$215,250	$46,102	$1,000	$142,528	$13,312	$7,014	$69,821	$174,264	$5,046	$111
TOTAL BUILDING DEMOLITION AND DISPOSAL COSTS	$1,129,731										

Building Demolition and Disposal	Satellite SR-1	Yellowcake Warehouse	Satellite SR-2
I. Decontamination Costs			
A. Wall Decontamination			
Area to be Decontaminated (ft^2)	0	3100	
Application Rate (Gallons/ft^2)	1	1	1
HCl Acid Wash, including labor ($/Gallon)	$0.50	$0.50	$0.50
Subtotal Wall Decontamination Costs	$0	$1,550	$0
B. Concrete Floor Decontamination			
Area to be Decontaminated (ft^2)	9000	2750	0
Application Rate (Gallons/ft^2)	4	4	4
HCl Acid Wash, including labor ($/Gallon)	$0.50	$0.50	$0.50
Subtotal Concrete Floor Decontamination Costs	$18,000	$5,500	$0
C. Deep Well Injection Costs			
Total Kgals for Injection	36	14.1	0
Deep Well Injection Unit Cost ($/Kgals)	$4.60	$4.60	$4.60
Subtotal Deep Well Injection Costs	$166	$65	$0
Subtotal Decontamination Costs per Building	$18,166	$7,115	$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)	402,000	55,000	402,000
Demolition Unit Cost per WDEQ Guideline No.12,App.K ($/$ft^3$)	$0.171	$0.171	$0.171
Unit Cost in $/$ft^3$ (July 1998 dollars w/o escalator)	$0.15	$0.15	$0.15
Subtotal Building Demolition Costs	$59,724	$8,171	$59,724
B. Concrete Floor			
Area of Concrete Floor (ft^2)	13400	2750	13400
Demolition Unit Cost per WDEQ Guideline No.12,App.K ($/$ft^2$)	$3.05	$3.05	$3.05
Unit Cost in $/$ft^2$ (July 1998 dollars w/o escalator)	$2.65	$2.65	$2.65
Subtotal Concrete Floor Demolition Costs	$35,508	$7,287	$35,508
C. Concrete Footing			
Length of Concrete Footing (ft)	463	210	463
Demolition Unit Cost per WDEQ Guide. No.12,App.K ($/lin. ft)	$11.15	$11.15	$11.15
Unit Cost in $/lin. ft (July 1998 dollars w/o escalator)	$9.69	$9.69	$9.69
Subtotal Concrete Footing Demolition Costs	$4,486	$2,032	$4,486
Subtotal Demolition Costs per Building	$99,718	$17,490	$99,718
Total Demolition Costs			
III. Disposal Costs			
A. Building			
Volume of Building (cy)	14889	2037	14889
1. On-Site			
Assumptions:			
On-site disposal cost of $0.54/cy			
Percentage (%)	100	100	100
Volume for Disposal (cubic yards)	14889	2037	14889
Disposal Unit Cost ($/cy)	$0.54	$0.54	$0.54
Subtotal On-Site Disposal Costs	$8,040	$1,100	$8,040

	Satellite SR-1	Yellowcake Warehouse	Satellite SR-2
Building Demolition and Disposal			
2. NRC-Licensed Facility			
Percentage (%)	0	0	0
Volume for Disposal (ft^3)	0	0	0
Volume for Disposal Assuming 10% Void Space (ft^3)	0	0	0
Transportation and Disposal Unit Cost ($/$ft^3$)	$5.62	$5.62	$5.62
Subtotal NRC-Licensed Facility Disposal Costs	$0	$0	$0
Subtotal Building Disposal Costs	$8,040	$1,100	$8,040
B. Concrete Floor			
Area of Concrete Floor (ft^2)	13400	2750	13400
Average Thickness of Concrete Floor (ft)	0.75	0.75	0.75
Volume of Concrete Floor (ft^3)	10050	2062.5	10050
Volume of Concrete Floor (cy)	372	76	372
1. On-Site			
Percentage (%)	75	75	75
Volume for Disposal (cy)	279	57	279
Disposal Unit Cost per WDEQ Guideline No.12,App.K ($/cy)	$4.69	$4.69	$4.69
Unit Cost in $/cy (July 1998 dollars w/o escalator)	$4.07	$4.07	$4.07
Subtotal On-Site Disposal Costs	$1,138	$233	$1,138
2. NRC-Licensed Facility			
Assumptions:			
Additional $2.00/$ft^3$ for segregation of concrete			
Percentage (%)	25	25	25
Volume for Disposal (ft^3)	2513	516	2513
Segregation and Loading Unit Cost ($/$ft^3$)	$2.00	$2.00	$2.00
Transportation and Disposal Unit Cost ($/$ft^3$)	$5.62	$5.62	$5.62
Subtotal NRC-Licensed Facility Disposal Costs	$19,145	$3,929	$19,145
Subtotal Concrete Floor Disposal Costs	$20,283	$4,162	$20,283
C. Concrete Footing			
Length of Concrete Footing (ft)	463	210	463
Average Depth of Concrete Footing (ft)	4	4	4
Average Width of Concrete Footing (ft)	1	1	1
Volume of Concrete Footing (ft^3)	1852	839	1852
Volume of Concrete Footing (cy)	69	31	69
Disposal Unit Cost per WDEQ Guideline No.12,App.K ($/cy)	$4.69	$4.69	$4.69
Unit Cost in $/cy (July 1998 dollars w/o escalator)	$4.07	$4.07	$4.07
Subtotal Concrete Footing Disposal Costs	$280	$127	$280
Subtotal Disposal Costs per Building	$28,603	$5,389	$28,603
Total Disposal Costs			
III. Health and Safety Costs			
Radiation Safety Equipment	$1,000	$1,000	$1,000
Total Health and Safety Costs			
SUBTOTAL BUILDING DEMOLITION AND DISPOSAL COSTS	$147,487	$30,994	$129,321
TOTAL BUILDING DEMOLITION AND DISPOSAL COSTS			

Wellfield Buildings and Equipment Removal and Disposal	Mine Unit-1	Mine Unit-2	Mine Unit-3	Mine Unit-4	Mine Unit-4A	Mine Unit-15	Mine Unit-15A	Mine Unit-K	Mine Unit-9
I. Wellfield Piping									
Assumptions:									
Number of Header Houses per Wellfield	6	5	8	6	5	10	0	5	6
Length of Piping per Header House (ft)	2000	2000	2000	2000	2000	2000	0	2000	2000
Total Length of Piping (ft)	12000	10000	16000	12000	10000	20000	0	10000	12000
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
Subtotal Wellfield Piping Removal and Loading Costs	$3,720	$3,100	$4,960	$3,720	$3,100	$6,200	$0	$3,100	$3,720
B. Transport and Disposal Costs (NRC-Licensed Facility)									
Average Diameter of Piping (inches)	2	2	2	2	2	2	2	2	2
Chipped Volume Reduction (ft^3/ft)	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Chipped Volume per Wellfield (ft^3)	60	50	80	60	50	100	0	50	60
Volume for Disposal Assuming 10% Void Space (ft^3)	66	55	88	66	55	110	0	55	66
Transportation and Disposal Unit Cost ($/$ft^3$)	$5.62	$5.62	$5.62	$5.62	$5.62	$5.62	$5.62	$5.62	$5.62
Subtotal Wellfield Piping Transport and Disposal Costs	$371	$309	$495	$371	$309	$618	$0	$309	$371
Wellfield Piping Costs per Wellfield	$4,091	$3,409	$5,455	$4,091	$3,409	$6,818	$0	$3,409	$4,091
C. Capitol Costs									
PVC Pipe Shredder	$40,000								
Total Wellfield Piping Costs	**$74,773**								
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	115	146	145	124	101	251	60	100	100
Number of Injection Wells	210	262	251	219	175	502	120	200	200
1. Pump Volume									
Number of Production Wells with Pumps	69	88	87	74	61	151	36	60	60
Average Pump Volume (ft^3)	1	1	1	1	1	1	1	1	2
Pump Volume per Wellfield (ft^3)	69	88	87	74	61	151	36	60	120
2. Tubing Volume									
Assumptions:									
Average tubing length/wellfield based on average well depth minus 25 ft									
Number of Production Wells with Tubing	69	88	87	74	61	151	36	60	60
Number of Injection Wells with Tubing	126	157	151	131	105	301	72	120	120
Average Tubing Length per Well (ft)	475	825	725	825	725	425	475	925	925
Tubing Length per Wellfield (ft)	92625	202125	172550	169125	120350	192100	51300	166500	166500

Wellfield Buildings and Equipment Removal and Disposal	Mine Unit-1	Mine Unit-2	Mine Unit-3	Mine Unit-4	Mine Unit-4A	Mine Unit-15	Mine Unit-15A	Mine Unit-K	Mine Unit-9
Diameter of Production Well Fiberglass Tubing (inches)	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
Chipped Volume Reduction (ft^3/ft)	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Chipped Volume per Wellfield (ft^3)	463	1011	863	846	602	961	257	833	833
Volume of Pump and Tubing (ft^3)	532	1099	950	920	663	1112	293	893	953
Volume for Disposal Assuming 10% Void Space (ft^3)	585	1209	1045	1012	729	1223	322	982	1048
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 Pump and Tubing Transport and Disposal Costs	$3,288	$6,795	$5,873	$5,687	$4,097	$6,873	$1,810	$5,519	$5,890
Pump and Tubing Costs per Wellfield	$3,288	$6,795	$5,873	$5,687	$4,097	$6,873	$1,810	$5,519	$5,890
Total Pump and Tubing Costs	**$45,832**								
III. Buried Trunkline									
Assumptions:									
Length of Trunkline Trench (ft)	5075	7600	4790	7105	5460	10000	0	0	1
A. Removal and Loading									
Main Pipeline Removal Unit Cost ($/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	$4,314	$6,460	$4,072	$6,039	$4,641	$8,500	$0	$0	$1
B. Transport and Disposal Costs (NRC-Licensed Facility)									
1. 1" Carbon Steel Trunkline									
Piping Length (ft)						10000	0	0	0
Volume (ft^3)						218	0	0	0
2. 1" HDPE Trunkline									
Piping Length (ft)						10000	0	0	0
Chipped Volume Reduction (ft^3/ft)						0.005	0.005	0.005	0.005
Chipped Volume (ft^3)						50	0	0	0
3. 3" HDPE Trunkline									
Piping Length (ft)	5075	7600	4790	7105	5460	0	0	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)	111.65	167.2	105.38	156.31	120.12	0	0	0	0
4. 6" HDPE Trunkline									
Piping Length (ft)	2410	10000	4820	3520	3800	20000	0	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)	187.98	780	375.96	274.56	296.4	1560	0	0	0
5. 8" HDPE Trunkline									
Piping Length (ft)	4100		1100	2400	1840	0	0	0	0
Chipped Volume Reduction (ft^3/ft)	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Chipped Volume (ft^3)	615	0	165	360	276	0	0	0	0
6. 10" HDPE Trunkline									
Piping Length (ft)	0	5200	3660	2280	2400	0	0	0	0

Wellfield Buildings and Equipment Removal and Disposal	Mine Unit-1	Mine Unit-2	Mine Unit-3	Mine Unit-4	Mine Unit-4A	Mine Unit-15	Mine Unit-15A	Mine Unit-K	Mine Unit-9
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)	0	1440.4	1013.82	631.56	664.8	0	0	0	0
7. 12" HDPE Trunkline									
Piping Length (ft)	1460	0	0	3210	2060	0	0	0	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)	427.78	0	0	940.53	603.58	0	0	0	0
8. 14" HDPE Trunkline									
Piping Length (ft)	740	0	0	0	0	0	0	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)	265.66	0	0	0	0	0	0	0	0
9. 16" HDPE Trunkline									
Piping Length (ft)	1440	0	0	2800	820	0	0	0	0
Chipped Volume Reduction (ft^3/ft)	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Chipped Volume (ft^3)	576	0	0	1120	328	0	0	0	0
Total Trunkline Chipped Volume (ft^3)	2184.07	2387.6	1660.16	3482.96	2288.9	1560	0	0	0
Volume for Disposal Assuming 10% Void Space (ft^3)	2402	2626	1826	3831	2518	1716	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 Trunkline Transport and Disposal Costs	$13,499	$14,758	$10,262	$21,530	$14,151	$9,644	$0	$0	$0
Trunkline Decommissioning Costs per Wellfield	$17,813	$21,218	$14,334	$27,569	$18,792	$18,144	$0	$0	$1
Total Trunkline Decommissioning Costs	**$117,871**								
IV. Well Houses									
Total Quantity	315	408	396	343	276	392	0	50	50
Average Well House Volume (ft^3)	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
A. Removal									
Total Volume (ft^3)	3937.5	5100	4950	4287.5	3450	4900	0	625	625
Demolition Unit Cost per WDEQ Guideline No.12,App.K ($/ft^3$)	$0.165	$0.165	$0.165	$0.165	$0.165	$0.165	$0.165	$0.165	$1.165
Unit Cost in $/ft^3$ (July 1998 dollars w/o escalator)	$0.14	$0.14	$0.14	$0.14	$0.14	$0.14	$0.14	$0.14	$1.01
Subtotal Well House Demolition Costs	$564	$731	$710	$615	$495	$702	$0	$90	$633
B. Survey and Decontamination									
Assumptions:									
Cost per Well House	$5	$5	$5	$5	$5	$5	$5	$5	$6
Subtotal Survey and Decontamination Costs	$1,575	$2,040	$1,980	$1,715	$1,380	$1,960	$0	$250	$300
C. Disposal at NRC licensed Facility									
Total Volume (cy)	146	189	183	159	128	181	0	23	23
Volume for Disposal Assuming 10% Void Space (cy)	160	208	202	175	141	200	0	25	25
Transportation and Disposal Unit Cost ($/ft^3$)	$5.62	$5.62	$5.62	$5.62	$5.62	$5.62	$5.62	$5.62	$6.62
Subtotal NRC Licensed Facility Disposal Costs	$899	$1,169	$1,135	$984	$792	$1,124	$0	$141	$166

Wellfield Buildings and Equipment Removal and Disposal	Mine Unit-1	Mine Unit-2	Mine Unit-3	Mine Unit-4	Mine Unit-4A	Mine Unit-15	Mine Unit-15A	Mine Unit-K	Mine Unit-9
Well House Removal and Disposal Costs per Wellfield	$3,038	$3,940	$3,825	$3,314	$2,667	$3,786	$0	$481	$1,099
Total Well House Removal and Disposal Costs	**$22,150**								
VI. ***Header Houses*** *(Includes Booster Stations)*									
Total Quantity	6	5	8	6	5	13	4	5	2
Average Header House Volume (ft^3)	2700	2700	2700	2700	2700	2700	2700	2700	2700
A. Removal									
Total Volume (ft^3)	16200	13500	21600	16200	13500	35100	10800	13500	5400
Demolition Unit Cost per WDEQ Guideline No.12,App.K ($/$ft^3$)	$0.171	$0.171	$0.171	$0.171	$0.171	$0.171	$0.171	$0.171	$1.171
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	$1.02
Subtotal Building Demolition Costs	$2,407	$2,006	$3,209	$2,407	$2,006	$5,215	$1,605	$2,006	$5,494
B. Survey and Decontamination									
Assumptions:									
Cost per Header House	$200	$200	$200	$200	$200	$200	$200	$200	$201
Subtotal Survey and Decontamination Costs	$1,200	$1,000	$1,600	$1,200	$1,000	$2,600	$800	$1,000	$402
C. Disposal									
Total Volume (cy)	600	500	800	600	500	1300	400	500	200
Volume for Disposal Assuming 10% Void Space (cy)	660	550	880	660	550	1430	440	550	220
Disposal Unit Cost per WDEQ Guideline No.12,App.K ($/cy)	$5.44	$5.44	$5.44	$5.44	$5.44	$5.44	$5.44	$5.44	$6.44
Unit Cost in $/cy (July 1998 dollars w/o escalator)	$4.73	$4.73	$4.73	$4.73	$4.73	$4.73	$4.73	$4.73	$5.60
Subtotal On-Site Disposal Costs	$3,119	$2,599	$4,159	$3,119	$2,599	$6,759	$2,080	$2,599	$1,231
Header House Removal and Disposal Costs per Wellfield	$6,726	$5,605	$8,968	$6,726	$5,605	$14,574	$4,485	$5,605	$7,127
Total Header House Removal and Disposal Costs	**$65,421**								
TOTAL REMOVAL AND DISPOSAL COSTS PER WELLFIELD	$34,956	$40,967	$38,455	$47,387	$34,570	$50,195	$6,295	$15,014	$18,208
TOTAL WELLFIELD BUILDINGS AND EQUIPMENT REMOVAL AND DISPOSAL COSTS	**$326,047**								

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Well Abandonment	Mine Unit-1	Mine Unit-2	Mine Unit-3	Mine Unit-3 2nd Comp.	Mine Unit-4	Mine Unit-4A	Mine Unit-15	Mine Unit-15A	Mine Unit-K
I. Well Abandonment (Wellfields)									
# of Production Wells	115	146	145	Wells	124	101	251	60	100
# of Injection Wells	210	262	251	included	219	175	502	120	200
# of Monitoring Wells	49	50	40	under	51	39	105	60	61
Total Number of Wells	374	458	436		394	315	858	240	361
Average Diameter of Casing (inches)	5	5	5		5	5	5	5	5
Average Depth (ft)	500	850	750		850	750	450	500	950
Well Abandonment Unit Cost ($/well)	$280	$304	$297		$304	$297	$277	$277	$277
Subtotal Abandonment Cost per Wellfield	$104,814	$139,095	$129,492		$119,658	$93,555	$237,580	$66,456	$99,961
Total Wellfield Abandonment Costs	$990,611								
II. Waste Disposal Well Abandonment	DDW#1	DDW#2	SW DDW						
A. Well Plugging									
Drill Rig Operation ($/hr)	150	150	150						
Number of Hours	31	31	31						
Drill Rig Operating Costs	$4,650	$4,650	$4,650						
Cementing Costs	$7,500	$7,500	$7,500						
Equipment Transport Costs	$1,000	$1,000	$1,000						
Well Cap Welding Costs	$1,000	$1,000	$1,000						
Brine Makeup and Injection Costs	$1,500	$1,500	$1,500						
Subtotal Well Plugging Costs per Well	$15,650	$15,650	$15,650						
B. Pump Dismantling and Decontamination									
Number of Persons	2	2	2						
Number of Pumps	2	2	2						
Pumps/Day	0.5	0.5	0.5						
Number of Days	4	4	4						
$/Day/Person	$112	$112	$112						
Subtotal Dismantling and Decon Costs per Well	$896	$896	$896						
C. Tubing String Disposal (NRC-Licensed Facility)									
Length of Tubing String (ft)	10100	10100	10100						
Diameter of Tubing String (inches)	2.875	2.875	2.875						
Volume of Tubing String (ft^3)	455	455	455						
Transportation and Disposal Unit Cost ($/$ft^3$)	$5.62	$5.62	$5.62						
Subtotal Tubing String Disposal Costs per Well	$2,558	$2,558	$2,558						
Subtotal Waste Disposal Well Abandonment Costs per Well	$19,104	$19,104	$19,104						
Total Waste Disposal Well Abandonment Costs	$38,208								
TOTAL WELL ABANDONMENT COSTS	$1,028,819								

Wellfield and Satellite Surface Reclamation	Mine Unit-1	Mine Unit-2	Mine Unit-3	Mine Unit-3 2nd Comp.	Mine Unit-4	Mine Unit-4A	Mine Unit-15	Mine Unit-15A	Mine Unit-K
I. Wellfield Pattern Area, Laydown Area, and Road Reclamation									
Area (acres)	27.1	53.24	38.72	18	31.43	29.6	66.8	1	5
Disking/Seeding Unit Cost ($/acre)	$200	$200	$200	$200	$200	$200	$200	$200	$200
Subtotal Pattern Area, Laydown Area, and Road Reclamation Costs	$5,420	$10,648	$7,744	$3,600	$6,286	$5,920	$13,360	$200	$1,000
Total Wellfield Area Reclamation Costs	$54,178								
III. Satellite Area Reclamation	SR-1								
Assumptions:									
Area of Disturbance (acres)	2.05								
Average Depth of Stripped Topsoil (ft)	1								
Surface Grade: Level Ground									
Average Length of Topsoil Haul (ft)	1000								
A. Ripping Overburden with Dozer									
Ripping Unit Cost per WDEQ Guideline No.12, App.II ($/acre)	$663.93								
Unit Cost in $/acre (July 1998 dollars w/o escalator)	$576.83								
Subtotal Ripping Costs	$1,182								
B. Topsoil Application with Scraper									
Volume of Topsoil Removed (cy)	3307								
Application Unit Cost per WDEQ Guideline No.12, App.C ($/cy)	$0.71								
Unit Cost in $/cy (July 1998 dollars w/o escalator)	$0.62								
Subtotal Topsoil Application Costs	$2,040								
C. Discing and Seeding									
Discing/Seeding Unit Cost ($/acre)	$200								
Subtotal Discing/Seeding Costs	$410								
Subtotal Surface Reclamation Costs per Satellite	$3,632								
Total Satellite Building Area Reclamation Costs	$3,632								
TOTAL WELLFIELD AND SATELLITE SURFACE RECLAMATION COSTS	$57,810								

Miscellaneous Reclamation						
I. CPP/Office Area/Pilot Plant/Maint. Shop/Chem. Storage/Yard Reclamation						
Assumptions						
Concrete Pad= 0.3 acres						
Total Area = 10.57 acres						
A. Concrete Pad						
Area of Concrete Pad (ft^2)	13068					
Demolition Unit Cost per WDEQ Guideline No.12,App.K ($/$ft^2$)	$3.17					
Unit Cost in $/$ft^2$ (July 1998 dollars w/o escalator)	$2.75					
Average Thickness of Concrete Floor (ft)	0.50					
Volume of Concrete Floor (ft^3)	6,534					
Volume of Concrete Floor (cy)	242					
On-Site Disposal Unit Cost per WDEQ Guideline No.12,App.K ($/cy)	$4.69					
Unit Cost in $/cy (July 1998 dollars w/o escalator)	$4.07					
Subtotal Concrete Pad Demolition and Disposal Costs	$36,977					
B. Gravel Road Base Removal						
Assumptions						
Average haul distance (ft)	1000					
Gravel Road Base Width (ft)						
Gravel Road Base Area (acres)	8.0					
Average Road Base Depth (ft)	0.5					
Volume of Road Base (cy)	6453					
Removal Unit Cost per WDEQ Guideline No.12, App.C ($/cy)	$0.71					
Unit Cost in $/cy (July 1998 dollars w/o escalator)	$0.62					
Subtotal Gravel Road Base Removal Costs	$3,981					
B. Ripping Overburden with Dozer						
Overburden Surface Area (acres)	10.6					
Ripping Unit Cost per WDEQ Guideline No.12, App.11 ($/acre)	$663.93					
Unit Cost in $/acre (July 1998 dollars w/o escalator)	$576.83					
Subtotal Ripping Overburden Costs	$6,097					
C. Topsoil Application						
Assumptions:						
Area of surface disturbance (ft^2)	460426					
Average thickness of topsoil (ft)	1					
Average haul distance (ft)	2000					
Surface grade (%)	0%					
Volume of Topsoil (cy)	17,053					
Topsoil Unit Cost per WDEQ Guideline No.12, App.C ($/cy)	$0.92					
Unit Cost in $/cy (July 1998 dollars w/o escalator)	$0.80					
Subtotal Topsoil Application Costs	$13,630					
D. Discing/Seeding						
Assumptions						
Surface Area (acres)	10.57					
Discing/Seeding Unit Cost ($/acre)	$200					
Total Discing/Seeding Costs	$2,114					
Total CPF/Office/Yard Area Reclamation	**$58,818**					
II. Access Road Reclamation	**CPP Access Rd.**	**CPP to SAT 3**	**Access to WF**	**MU-15 Access**	**SR2 Access**	
A. Assumptions						
Surface grade	1%	5%	5%	0%	5%	
Length of Road (ft)	5173	15827	15557	10560	8500	
Width of Road (ft)	40	30	14	30	30	
Area of road (acres)	4.75	10.9	5	7.27	5.85	
B. Gravel Road Base Removal						
Assumptions						
Average haul distance (ft)	1000	1000	1000	1000	1000	
Gravel Road Base Width (ft)	30	20	10	20	20	
Gravel Road Base Area (acres)	3.56	7.27	3.57	4.85	3.90	
Average Road Base Depth (ft)	0.5	0.5	0.5	0.5	0.5	
Volume of Road Base (cy)	2874	5862	2881	3911	3148	
Removal Unit Cost per WDEQ Guideline No.12, App.C ($/cy)	$0.71	$0.71	$0.71	$0.71	$0.71	
Unit Cost in $/cy (July 1998 dollars w/o escalator)	$0.62	$0.62	$0.62	$0.62	$0.62	
Subtotal Gravel Road Base Removal Costs	$1,773	$3,616	$1,777	$2,413	$1,942	
C. Ripping Overburden with Dozer						
Overburden Surface Area (acres)	4.8	10.9	5.0	7.3	5.9	
Ripping Unit Cost per WDEQ Guideline No.12, App.11 ($/acre)	$663.93	$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	$576.83	
Subtotal Ripping Overburden Costs	$2,740	$6,287	$2,884	$4,195	$3,377	

Miscellaneous Reclamation					
D. Topsoil Application					
Assumptions					
Average haul distance (ft)	1500	1500	1500	1500	1500
Topsoil Surface Area (ft^2)	206910	474804	217800	316800	255000
Depth of Topsoil (ft)	0.5	0.5	0.5	0.5	0.5
Volume of Topsoil (cy)	3832	8793	4033	5867	4722
Topsoil Unit Cost per WDEQ Guideline No.12, App.C ($/cy)	$1.50	$1.50	$0.82	$0.82	$0.82
Unit Cost in $/cy (July 1998 dollars w/o escalator)	$1.30	$1.30	$0.71	$0.71	$0.71
Subtotal Topsoil Application Costs	$4,993	$11,459	$2,873	$4,180	$3,364
E. Discing/Seeding					
Assumptions					
Surface Area (acres)	4.8	10.9	5.0	7.3	5.9
Discing/Seeding Unit Cost ($/acre)	$200	$200	$200	$200	$200
Subtotal Discing/Seeding Costs	$950	$2,180	$1,000	$1,455	$1,171
Subtotal Reclamation Costs per Access Road	$10,456	$23,542	$8,534	$12,243	$9,854
Total Access Road Reclamation Costs	$64,629				
III. Trunk Lines	**Trunk Line #1 (To MU-4)**	**Trunk Line #2 (To SR-1)**	**Trunk Line #3 (MU-15 to SR-1)**	**Trunk Line #4 (O-Sand Pilot)**	
Length of Trench (ft)	7750	8500	21250	5500	
A. Removal and Loading					
Main Pipeline Removal Unit Cost ($/ft of trench)	$0.85	$0.85	$0.85	$0.85	
Subtotal Trunkline Removal and Loading Costs	$6,588	$7,225	$18,063	$4,675	
B. Transport and Disposal Costs (NRC-Licensed Facility)					
1 2" HDPE Trunkline					
Piping Length (ft)	7750	42500	21250	22000	
Chipped Volume Reduction (ft^3/ft)	0.005	0.005	0.005	0.005	
Chipped Volume (ft^3)	38.75	212.5	106.25	110	
1. 3" HDPE Trunkline					
Piping Length (ft)	0	0	0	0	
Chipped Volume Reduction (ft^3/ft)	0.022	0.022	0.022	0.022	
Chipped Volume (ft^3)	0	0	0	0	
2. 6" HDPE Trunkline					
Piping Length (ft)	7750	17000	42500	0	
Chipped Volume Reduction (ft^3/ft)	0.078	0.078	0.078	0.078	
Chipped Volume (ft^3)	604.5	1326	3315	0	
3. 8" HDPE Trunkline					
Piping Length (ft)	0	0	0	0	
Chipped Volume Reduction (ft^3/ft)	0.15	0.15	0.15	0.15	
Chipped Volume (ft^3)	0	0	0	0	
3. 10" HDPE Trunkline					
Piping Length (ft)	0	0	0	0	
Chipped Volume Reduction (ft^3/ft)	0.277	0.277	0.277	0.277	
Chipped Volume (ft^3)	0	0	0	0	
4. 12" HDPE Trunkline					
Piping Length (ft)	0	9000	0	0	
Chipped Volume Reduction (ft^3/ft)	0.293	0.293	0.293	0.293	
Chipped Volume (ft^3)	0	2637	0	0	
5. 14" HDPE Trunkline					
Piping Length (ft)	0	0	0	0	
Chipped Volume Reduction (ft^3/ft)	0.359	0.359	0.359	0.359	
Chipped Volume (ft^3)	0	0	0	0	
5. 16" HDPE Trunkline					
Piping Length (ft)	15500	11000	21120	15500	
Chipped Volume Reduction (ft^3/ft)	0.4	0.4	0.4	0.4	
Chipped Volume (ft^3)	6200	4400	8448	6200	
6 18" HDPE Trunkline					
Piping Length (ft)	0	31500	0	0	
Chipped Volume Reduction (ft^3/ft)	0.47	0.47	0.47	0.47	
Chipped Volume (ft^3)	0	14805	0	0	
Volume for Disposal Assuming 10% Void Space (ft^3)	6804.5	8363	11763	6200	
Transportation and Disposal Unit Cost (NRC-Licensed Facility) ($/$ft^3$)	7485	9199	12939	6820	
Subtotal Pipeline Disposal Costs	$5.62	$5.62	$5.62	$5.62	

Miscellaneous Reclamation											
	C.	Discing/Seeding						$42,066	$51,698	$72,717	$38,328
			Assumptions:								
				Width of Pipeline Trench (ft)				4	4	4	4
				Area of Pipeline Trench (acres)				0.7	0.8	2.0	0.5
			Discing/Seeding Unit Cost ($/acre)					$200	$200	$200	$200
		Subtotal Discing/Seeding Costs						$142	$156	$390	$101
	Subtotal Reclamation Costs per Pipeline							$48,796	$59,079	$91,170	$43,104
	Total Pipeline Reclamation Costs							$242,149			
IV.	Settling Basin/Evap. Pond Reclamation							Evaporation Pond	SettlingPond		
	A.	Soil Sampling and Monitoring									
			Number of Soil Samples					0	15		
			$/Sample					$60	$60		
		Subtotal Soil Sampling and Monitoring Costs						$0	$900		
	B.	Liner/Subsoil Removal and Disposal									
			Assumptions:								
				Clay liner and subsoil constitute by-product material							
				Thickness of clay liner (ft)				0.5	0.5		
				Thickness of contaminated subsoil (ft)				0.5	0.5		
				Removal and Loading Unit Cost based on engineer's design							
				report and Cat Performance Handbook							
			Width of Pond (ft)					200	252		
			Length of Pond (ft)					100	432		
			Depth of Pond (ft)					10	20		
			Surface area of pond (ft^2)					20000	108864		
		1.	Removal and Loading	(Settling Pond is not By-Product, therefore can stay in place)							
				Volume of Clay Liner (cy)				741	0		
				Clay Liner Removal and Loading Unit Cost ($/cy)				$3	$3		
			Subtotal Liner Removal and Loading Costs					$2,222	$0		
		2.	Transportation and Disposal								
				Volume of Clay Liner (ft^3)				0	0		
				Volume of Geotextile Liner (ft^3)				50	0		
				Volume of Geotextile Liner @ 40% void (ft^3)				83	0		
				Transportation and Disposal Unit Cost ($/$ft^3$)				$5.62	$5.62		
			Subtotal Liner Transportation and Disposal Costs					$468	$0		
		Subtotal Liner Removal and Disposal Costs						$2,690	$0		
	C.	Grade and Contour									
				Volume of Embankment Material (CY)				7,407	80,640		
				Average Grade (%)				0	0		
				Distance (ft)				50	100		
				Material Moving Unit Cost per WDEQ Guideline No.12, App.E ($/cy)				$0.092	$0.161		
				Unit Cost in $/cy (July 1998 dollars w/o escalator)				$0.08	$0.14		
			Subtotal Grade and Contour Costs					$592	$11,280		
	C.	Topsoil Application									
			Assumptions:								
				Area of surface disturbance (ft^2)				20000	108899		
				Average thickness of topsoil (ft)				1	1		
				Average haul distance (ft)				1000	1000		
				Surface grade (%)				0%	3%		
			Volume of Topsoil (cy)					741	4,033		
			Topsoil Unit Cost per WDEQ Guideline No.12, App.C ($/cy)					$0.71	$0.71		
			Unit Cost in $/cy (July 1998 dollars w/o escalator)					$0.62	$0.62		
		Subtotal Topsoil Application Costs						$457	$2,488		
	D.	Discing/Seeding									
			Assumptions:								
				Area of surface disturbance (acres)				0.5	2.5		
			Discing/Seeding Unit Cost ($/acre)					$200	$200		
		Subtotal Discing/Seeding Costs						$100	$500		
	Subtotal Reclamation Costs per Pond							$3,839	$15,168		
	Total Settling Basin/Evap. Ponds Reclamation Costs							$19,007			
V.	Miscellaneous Structures										
	A.	Venthole									
			Hole Depth (ft)					335			
			Concrete Volume (cy)					270			
			Backfill ($1.09/cy)					$365			
			Backhoe 16 hrs ($50/hour)					$800			
			Steel Plate and Rebar					$300			
			Cement (10 cy @$76/cy delivered)					$760			
			Labor (40 man-hours @ $15/hour)					$600			
			Dirt Cover (100 cy @ $1.09/cy)					$109			

Miscellaneous Reclamation											
		Subtotal Venthole Plugging Costs					$2,934				
	B.	Potable Water Wells									
			Total Depth (ft) (Two 5-inch Diameter Wells, @ 750 ft)				1,500				
			Well Abandonment Unit Cost ($/100 ft)				$6.70				
		Subtotal Potable Water Wells Abandonment Costs					$100.50				
	C.	Fuel Area									
			Concrete Floor								
				Area of Concrete Floor (ft^2)			375				
				Demolition Unit Cost per WDEQ Guideline No.12,App.K ($/$ft^2$)			$3.17				
				Unit Cost in $/$ft^2$ (July 1998 dollars w/o escalator)			$2.75				
			Subtotal Concrete Floor Demolition Costs				$1,033				
			Concrete Footing								
				Length of Concrete Footing (ft)			77				
				Demolition Unit Cost per WDEQ Guide. No.12,App.K ($/lin. ft)			$11.45				
				Unit Cost in $/lin. ft (July 1998 dollars w/o escalator)			$9.95				
			Subtotal Concrete Footing Demolition Costs				$771				
		Subtotal Fuel Area Costs					$1,804				
	Total Miscellaneous Structures Reclamation Costs						$4,838.65				
TOTAL MISCELLANEOUS RECLAMATION COSTS							$389,442				

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**

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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 disposed at WDW with a 20 hp pump
4. Repair and maintenance costs estimated at $0.03/1000 gallons
5. Process sampling and analysis costs estimated at $0.03/1000 gallons
6. Labor costs are not included

Wellfield Pumping Costs per 1000 Gallons

$$\frac{1000\ \text{gal}}{} \times \frac{5\ \text{hp}}{5\ \text{gpm}} \times \frac{1\ \text{hr}}{60\ \text{min}} \times \frac{0.746\ \text{kwh}}{\text{hp}} \times \frac{\$\ 0.03}{\text{kwh}} = \$\ 0.37$$

Pumping to WDW Costs per 1000 Gallons

$$\frac{1000\ \text{gal}}{} \times \frac{75\ \text{hp}}{200\ \text{gpm}} \times \frac{1\ \text{hr}}{60\ \text{min}} \times \frac{0.746\ \text{kwh}}{\text{hp}} \times \frac{\$\ 0.03}{\text{kwh}} = \$\ 0.14$$

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 = **$ 0.57**

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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 disposed at WDW with a 20 hp pump at actual cost of												
	$0.14/1000 gallons												
7.	The permeate is returned to the wellfield with a 20 hp pump at actual cost of												
	$0.019/1000 gallons												
8.	Process sampling and analysis costs estimated at $0.03/1000 gallons												
9.	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					
	Pumping to WDW												
		$	0.14	X	0.2		= $	0.0028					
	Process Sampling and Analysis						= $	0.03					
TOTAL RO COSTS PER 1000 GALLONS							**= $**	**1.26**					

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 200 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

$$\frac{1000\ \text{gal}}{} \times \frac{75\ \text{hp}}{200\ \text{gpm}} \times \frac{1\ \text{hr}}{60\ \text{min}} \times \frac{0.746\ \text{kwh}}{\text{hp}} \times \frac{\$\ 0.03}{\text{kwh}} = \$\ 0.14$$

Repair and Maintenance Costs per 1000 Gallons = $ 1.25

TOTAL DEEP WELL INJECTION COSTS PER 1000 GALLONS = $ **1.39**

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 hours	X	$	15.00	per man hour	=$	105.00
Materials								
	1	hole plug	X	$	1.75	per hole plug	=$	1.75
					Total Fixed Costs		=$	246.75

Variable Costs (per 100 ft of well depth)

Materials								
	1	sack plug gel per 100 feet	X	$	6.70	per sack	=$	6.70

Cost per Well per Unit of Average Depth

Well Depth (ft)		
450	**=$**	**277**
500	**=$**	**280**
550	**=$**	**284**
600	**=$**	**287**
650	**=$**	**290**
700	**=$**	**294**
750	**=$**	**297**
800	**=$**	**300**
850	**=$**	**304**
900	**=$**	**307**
950	**=$**	**310**

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	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

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

Scarification Costs per 1000 ft of Road

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

Grading Costs per 1000 ft of Road

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

Topsoil Application Costs per 1000 ft of Road

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

Discing/Seeding Costs per 1000 ft of Road

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

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

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

Grading Costs per 1000 ft of Road

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

Topsoil Application Costs per 1000 ft of Road

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

Discing/Seeding Costs per 1000 ft of Road

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

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**

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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