Tota	l Restoration and Reclamation Cost Estimate	
I.	GROUNDWATER RESTORATION COST	\$3,517,068
II.	EQUIPMENT REMOVAL & DISPOSAL COST	\$133,000
III.	BUILDING DEMOLITION AND DISPOSAL COST	\$780,342
IV.	WELLFIELD BUILDINGS & EQUIPMENT REMOVAL & DISPOSAL COST	\$53,065
V.	WELL ABANDONMENT COST	\$161,505
VI.	WELLFIELD AND SATELLITE SURFACE RECLAMATION	\$7,952
VII.	TOTAL MISCELLANEOUS RECLAMATION COST	\$158,517
	SUBTOTAL RECLAMATION AND RESTORATION COST ESTIMATE	\$4,811,449
	CPI ESCALATOR- July 1,1998 to Feb. 28, 2006 (21.75)	%)
	SUBTOTA	AL \$4,811,449
	ADMINISTRATIVE, OVERHEAD, AND CONTINGENCY ITEMS (25%)	\$1,202,862
	TOTA	AL \$6,014,311
	TOTAL CALCULATED SURETY (IN 2006 DOLLAR	\$6,014,300

Constant Water Boots and Services	Mino Huit 1
Ground Water Restoration	Mine Unit-1
PV Assumptions	
Wellfield Area (ft2)	1,050,576
Wellfield Area (acres)	24.1
Affected Ore Zone Area (ft2)	1,050,576
Avg. Completed Thickness	17
Porosity	0.27
Flare Factor	1.5
Affected Volume (ft3)	26,789,688
Kgallons per Pore Volume	54,104
Number of Patterns in Unit(s)	
Current	101
Estimated next report period	0
Total Estimated	101
Number of Wells in Unit(s)	
Production Wells	
Current	101
Estimated next report period	0
Total Estimated	101
Injection Wells	101
, in the second	175
Current Estimated next report period	175
Estimated next report period	175
Total Estimated	175
Monitoring Wells	20
Current	38
Estimated next report period	0
Total Estimated	38
Number of Wells per Wellfield	314
Total Number of Wells	7.50
Average Well Depth (ft)	750
I. Ground Water Sweep Costs	
PV's Required	1
Total Kgals for Treatment	54,104
Ground Water Sweep Unit Cost (\$/Kgal)	\$1.35
Total Ground Water Sweep Costs	\$73,073
Total Ground Water Sweep Gosts	\$10,010
II. Reverse Osmosis Costs	
PV's Required	4
Total Kgals for Treatment	216,418
Reverse Osmosis Unit Cost (\$/Kgal)	\$0.60
Total Reverse Osmosis Costs	\$129,418
Total Reverse Osmosis Costs	\$127,410
III. Chemical Reductant Costs	
Total Kgals for Treatment (2 Pore Volumes)	108209
Chemical Reductant Unit Cost (\$/Kgal)	\$0.32

Gro			er Resto	oration I Reductant	Costs			Mine Unit-1 \$34,627
IV.	F1.	tion	Costs				OUT	
1 7 .	A.			cessing Cost	3		001	
	A.			ution Requir				35,000
		-	_	of Elutions	Cu			33,000
				ng Unit Cost	(\$/Flution)			\$525
				ocessing Cos				\$4,200
	B.			Injection Cos				\$4,200
	В.			ell Injection		rale/Elution)		12
				gals for Injec		gais/ Elution)		96
				ell Injection		(/K gals)		\$1.39
				ep Well Inje	(Kgais)		\$1.33	
	To		lution (Chon Costs			\$4,333
	10	tai E	iution (0818				\$4,555
V.	Mo	nito	ring and	d Sampling	Costs			
	Α.			oration Perio				
				estoration P		(3)		5
			JCL Sar		1104 (1041)			
		1. 0	# of V					36
			\$/sam					\$50
				les/Year				6
		Sub		estoration A	nalveec			\$54,000
	B.		ility Per		laryses			Ψ54,000
	Ъ.			tabilization	Period (Vea	re)		1
				e Analyses	criod (i ca			1
			of Wel					10
			amples/					3
			/sample					\$200
				st Analyses				\$200
			of Wel					10
			amples					0
			/sample					\$70
				ability Analy	ICAC			\$12,300
	То			ng and Sam		,		\$66,300
	10	tai ivi		ng anu san	pinig Costs	•		\$00,500
VI.	M	echan	ical Int	tegrity Test	(MIT) Cost	ts		
· ••	.,			IT Unit Cos	` /			\$180
				Wells (30%		Pest Wells)		53
	То			cal Integrity				\$9,450
TO	ΓAL	WEI	LLFIEI	LD RESTO	RATION C	OST		\$312,868
	<u> </u>							
VII.	Bu	ildin	g Utility	y Costs				Central Plant

Gro	und Water Rest	toration			Mine Unit-1
	Electricity	(\$/Month))		\$8,500
	Natural Ga	\$2,500			
	Number of	Months			48
	Total Building	Utility C	Costs		\$528,000
VIII	. Vehicle Opera	tion Cost	s		
				g Units (Gas)	
				ine No.12, Table D-	1) \$20.2
				rs w/o escalator)	OUT \$0.00
			ime (Hrs/Ye		1000
			ars (Average)		4
	Total Vehicle				\$404,200
	T 1 G 1				
IX.	Labor Costs	₹			
		Environn	nental Manag	gers/RSOs	
	\$/Year				\$100,000
		Restorati	on Managers		
	\$/Year				\$80,000
	Number of	Environn	nental Techn	icians	
	\$/Year				\$34,000
	Number of	Operators	s/Laborers		4
	\$/Year				\$34,000
	Number of	Maintena	nce Technic	ians	
	\$/Year				\$34,000
	Number of	Years			
	Total Labor C	Costs			\$1,672,000
Χ.	Capital Costs				. , , , , , , , , , , , , , , , , , , ,
		O Unit (1	X400 gpm U	Jnit)	\$600,000
	Total Capital		<u> </u>		\$600,000
				TION COSTS	\$3,517,068

Equip	ment	t Removal and Loading	CPP Ion Ex. Plant	Central Plant	Dryer Building
. R		val and Loading Costs			
A	Ta	ankage			
		Number of Tanks	13	51	C
		Volume of Tank Construction Material (ff³)	835	1340	300
	1.				
		Number of Persons	3	3	3
		Ft ³ /Day	25	25	25
		Number of Days	33	54	12
		\$/Day/Person	\$120	\$120	\$120
		Subtotal Labor Costs	\$12,030	\$19,296	\$4,320
	2.	Equipment			
		Number of Days	33	54	12
		\$/Day	\$338	\$338	\$338
		Subtotal Equipment Costs	\$11,295	\$18,117	\$4,056
	Sı	ubtotal Tankage Removal and Loading Costs	\$23,325	\$37,413	\$8,376
В	. P	VC/Steel Pipe			
		PVC Pipe Footage	2800	5000	
		Average PVC Pipe Diameter (inches)	3	3	3
		Shredded PVC Pipe Volume Reduction (ft ³ /ft)	0.016	0.016	0.016
		Volume of Shredded PVC Pipe (ft ³)	45	80	C
		Steel Pipe Footage	1100	0	C
		Average Steel Pipe Diameter (inches)	6	0	C
		Volume (ft ³)	216	0	C
	1.	Labor			
		Number of Persons	2	2	2
		Ft/Day	300	300	300
		Number of Days	13	17	C
		\$/Day/Person	\$120	\$120	\$120
		Subtotal PVC/Steel Pipe Labor Costs	\$3,120	\$4,000	\$0
	Sı	ubtotal PVC/Steel Pipe Removal and Loading Costs	\$3,120	\$4,000	\$0
С		umps			
		Number of Pumps	21	43	C
		Average Volume (ft³/pump)	4.93	4.93	C
		Volume of Pumps (ft ³)	103.53	211.99	C
	1.	Labor			
		Number of Persons	1	1	1
		Pumps/Day	2	2	2
		Number of Days	10.5	21.5	C
		\$/Day/Person	\$120	\$120	\$120
		Subtotal Labor Costs	\$1,260	\$2,580	\$0
	Sı	ubtotal Pump Removal and Loading Costs	\$1,260	\$2,580	\$0
D). D	ryer			
		ryer Volume (ft ³)			200
		Labor			
		Number of Persons	0	0	4
		Ft ³ /Day	0	0	175
		Number of Days	0	0	2
		\$/Day/Person	\$120	\$120	\$120
		Total Labor Cost	\$0	\$0	\$1,200
	T	otal Dryer Dismantling and Loading Cost	\$0	\$0	

Equ	ıipm	ent Removal and Loading	CPP Ion Ex. Plant	Central Plant	Dryer Building
	Sub	total Equipment Removal and Loading Costs per Facility	\$27,705	\$43,993	\$9,576
	Tot	al Equipment Removal and Loading Costs	\$81,274		
TT	Two	Insportation and Disposal Costs (NRC-Licensed Facility)			
II.	A.	Tankage			
	A.	Volume of Tank Construction Material (ff ³)	835	1340	300
		Volume for Disposal Assuming 10% Void Space (ft ³)	919	1474	330
		Transportation and Disposal Unit Cost (\$\frac{1}{1}\)		\$12.00	\$12.00
		1 1	\$12.00		
	D	Subtotal Tankage Transportation and Disposal Costs	\$11,028	\$17,688	\$3,960
	B.	PVC / Steel Pipe	44.0	0.0	0
		Volume of Shredded PVC Pipe (ft ³)	44.8	80	0
		Volume for Disposal Assuming 10% Void Space (ff ³)	49	88	0
		Volume of Steel Pipe (ft ³)	296	0	0
		Volume for Disposal Assuming 10% Void Space (f ³)	326	0	0
		Transportation and Disposal Unit Cost (\$/ft³)	\$12.00	\$12.00	\$12.00
		Subtotal PVC Pipe Transportation and Disposal Costs	\$4,500	\$1,056	\$0
	C.	Pumps			
		Volume of Pumps (ft ³)	103.53	271	0
		Volume for Disposal Assuming 10% Void Space (fl³)	114	298	0
		Transportation and Disposal Unit Cost (\$/ft³)	\$12.00	\$12.00	\$12.00
		Subtotal Pump Transportation and Disposal Costs	\$1,368	\$3,576	\$0
	D.	Dryer			
		Dryer Volume (ft ³)	0	0	400
		Volume for Disposal Assuming Dryer Remains Intact (f ³)	0	0	400
		Transportation and Disposal Unit Cost (\$/ft³)	\$12.00	\$12.00	\$12.00
		Total Dryer Transportation and Disposal Costs	\$0	\$0	\$4,800
	Sub	total Equipment Transportation and Disposal Costs per Facility	\$16,896	\$22,320	\$8,760
	Tot	al Equipment Transportation and Disposal Costs	\$47,976		
III.	Hea	llth and Safety Costs			
		Radiation Safety Equipment	\$1,250	\$1,250	\$1,250
	Tot	al Health and Safety Costs	\$3,750	Ψ1,230	Ψ1,230
		TAL EQUIPMENT REMOVAL AND DISPOSAL COSTS PER FACILITY	·	\$67,563	\$19,586
TO	TAL	EQUIPMENT REMOVAL AND DISPOSAL COSTS	\$133,000		

	CPP Ion Ex.	Central	Dryer	Office	Shop	DDW	Yellowcake	Warehouse	Fresh Water
Building Demolition and Disposal	Plant	Plant	Building	Building	Building	Buildings	Storage	Building	Pumphouse
I. Decontamination Costs									
A. Wall Decontamination									
Area to be Decontaminated (ft²)	10,810	15,900	0	0	0	C	3100	0	0
Application Rate (Gallons/ft²) OUT	10,610	13,900	1	1	1	1	3100	1	1
HCl Acid Wash, including labor (\$/ft²)	\$0.63	\$0.63	\$0.63	\$0.63	\$0.63	\$0.63	\$0.63	\$0.63	\$0.63
Subtotal Wall Decontamination Costs	\$6,810	\$10,017	\$0.00	\$0	\$0.05	\$0.00		\$0.05	\$0
B. Concrete Floor Decontamination	\$0,010	Ψ10,017	40	40	40		\$1,755		40
Area to be Decontaminated (ft²)	11,550	16,500	3,500	0	0	0	2750	0	0
Application Rate (Gallons/ft ²) OUT	1	1	1	1	1	1	1	1	1
HCl Acid Wash, including labor (\$/ft ²)	\$0.47	\$0.47	\$0.47	\$0.47	\$0.47	\$0.47	\$0.47	\$0.47	\$0.47
Subtotal Concrete Floor Decontamination Costs	\$5,429	\$7,755	\$1,645	\$0	\$0	\$0	\$1,293	\$0	\$0
C. Deep Well Injection Costs									
Total Kgals for Injection	22.36	32.4	3.5	0	0	0	5.85	0	0
Deep Well Injection Unit Cost (\$/Kgals)	\$1.39	\$1.39	\$1.39	\$1.39	\$1.39	\$1.39	\$1.39	\$1.39	\$1.39
Subtotal Deep Well Injection Costs	\$31	\$45	\$5	\$0	\$0	\$0	\$8	\$0	\$0
Subtotal Decontamination Costs per Building	\$12,270	\$17,817	\$1,650	\$0	\$0	\$0	\$3,254	\$0	\$0
Total Decontamination Costs	\$34,991								
II. Demolition Costs									
A. Building									
A. Building Assumptions:									
Dryer bldg, demolition unit cost of \$0.73/ft ³ for additional									
radiation safety equipment									
Area of Building(ft²)	11.550	16.500	2.500	0.024	7.020	500	2750	0.720	922
Volume of Building (ft ³)	11,550 346,500	16,500 577,500	3,500 122,500	9,934 248,350	7,028 175,700	4,000		8,739 174,780	832 8,320
Demolition Unit Cost per WDEQ Guideline No.12,App.K (\$/ft³)	\$0.178	\$0.178	\$0.178	\$0.178	\$0.178	\$0.178		\$0.178	\$,320 \$0.178
Unit Cost in \$/ft ³ (July 1998 dollars w/o esca OUT	\$0.178	\$0.178	\$0.178	\$0.178	\$0.178	\$0.176	*	\$0.178	\$0.178
Subtotal Building Demolition Costs	\$61,677	\$102,795	\$21,805	\$44,206	\$31,275	\$712		\$31,111	\$1,481
B. Concrete Floor	\$01,077	\$102,773	\$21,003	\$77,200	\$31,273	ψ/12	\$7,770	\$31,111	\$1,701
Area of Concrete Floor (ft ²)	11,550	16,500	3500	9,934	7,028	0	2750	8,739	832
Demolition Unit Cost per WDEQ Guideline No.12, App.K (\$/ft²)	\$3.40	\$3.40	\$3.40	\$3.40	\$3.40	\$3.40		\$3.40	\$3.40
Unit Cost in \$/ft² (July 1998 dollars w/o escal OUT	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00		\$0.00	\$0.00
Subtotal Concrete Floor Demolition Costs	\$39,270	\$56,100	\$11,900	\$33,776	\$23,895	\$0		\$29,713	\$2,829
C. Concrete Footing	, , , , , ,		, ,,	, ,	, -,		7. 7	,	, , ,
Length of Concrete Footing (ft)	430	514	237	399	335	89	210	374	115
Demolition Unit Cost per WDEQ Guide. No.12,App.K (\$/lin. ft)	\$12.22	\$12.22	\$12.22	\$12.22	\$12.22	\$12.22	\$12.22	\$12.22	\$12.22
Unit Cost in \$/lin. ft (July 1998 dollars w/o es OUT	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Subtotal Concrete Footing Demolition Costs	\$5,253	\$6,279	\$2,892	\$4,872	\$4,098	\$1,093	\$2,563	\$4,569	\$1,410
Subtotal Demolition Costs per Building	\$106,200	\$165,174	\$36,597	\$82,854	\$59,268	\$1,805	\$21,703	\$65,393	\$5,720
Total Demolition Costs	\$544,714								
III. Disposal Costs									
A. Building									
Volume of Building (cy)	12833	21389	4537	9198	6507	148	2037	6473	308
1. On-Site	12033	21309	+337	2190	0307	140	2037	04/3	300
Assumptions:									
On-site disposal cost of \$1.25/cy									
Percentage (%)	100	100	100	100	100	100	100	100	100
Volume for Disposal (cubic yards)	12833	21389	4537	9198	6507	148		6473	308
Disposal Unit Cost (\$/cv)	\$1.25	\$1.25	\$1.25	\$1.25	\$1.25	\$1.25		\$1.25	\$1.25
Subtotal On-Site Disposal Costs	\$16,042	\$26,736	\$5,671	\$11,498	\$8,134	\$1.25		\$8.092	\$385
2. NRC-Licensed Facility	\$10,042	Ψ20,730	φυ,0/1	ψ11, 1 70	ψ0,134	\$100	\$2,340	\$6,092	رەدى
2. PARC-Elections I definty							1		

			CPP Ion Ex.	Central	Dryer	Office	Shop	DDW	Yellowcake	Warehouse	Fresh Water
Buil	ding	ng Demolition and Disposal	Plant	Plant	Building	Building	Building	Buildings	Storage	Building	Pumphouse
		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 Spa	ce (ft ³)	0	0	0	0	0	0	0	0
		Transportation and Disposal Unit Cost (\$/ft ³)	\$12.0	\$12.00	\$12.00	\$12.00	\$12.00	\$12.00	\$12.00	\$12.00	\$12.00
		Subtotal NRC-Licensed Facility Disposal Costs	\$	\$0	\$0	\$0		\$0		\$0	\$0
		Subtotal Building Disposal Costs	\$16,04	\$26,736	\$5,671	\$11,498	\$8,134	\$185	\$2,546	\$8,092	\$385
	B.										
		Area of Concrete Floor (ft ²)	1155		3500	9934		0		8739	1186
		Average Thickness of Concrete Floor (ft)	0.7		0.75	0.75	0.75	0.75	0.75	0.75	0.75
		Volume of Concrete Floor (ft ³)	8662.		2625	7450.5	5271	0	2062.5	6554.25	889.5
		Volume of Concrete Floor (cy)	32	1 458	97	276	195	0	76	243	33
		1. On-Site									
		Percentage (%)	7.		75	100		100		100	100
		Volume for Disposal (cy)	24	1 344	73	276	195	0		243	33
		Disposal Unit Cost per WDEQ Guideline No.1	2,App.K (\$/cy) \$6.3		\$6.39	\$6.39	\$6.39	\$6.39		\$6.39	\$6.39
		Unit Cost in \$/cy (July 1998 dollars w/o e	OUT \$0.0		\$0.00	\$0.00	\$0.00	\$0.00		\$0.00	\$0.00
		Subtotal On-Site Disposal Costs	\$1,53	\$2,197	\$466	\$1,763	\$1,247	\$0	\$366	\$1,551	\$211
		NRC-Licensed Facility									
		Assumptions:									
		Additional \$2.00/ft ³ for segregation of co	ncrete								
		Percentage (%)	2		25	0	0	0		0	0
		Volume for Disposal (ft ³)	288		656	0	0	0		0	0
		Segregation and Loading Unit Cost (\$/ft ³)	\$2.6		\$2.60	\$2.60	\$2.60	\$2.60		\$2.60	\$2.60
		Transportation and Disposal Unit Cost (\$/ft ³)	\$12.0		\$12.00	\$12.00		\$12.00		\$12.00	\$12.00
		Subtotal NRC-Licensed Facility Disposal Costs	\$42,16		\$9,581	\$0		\$0		\$0	\$0
		Subtotal Concrete Floor Disposal Costs	\$43,70	\$47,366	\$10,047	\$1,763	\$1,247	\$0	\$7,894	\$1,551	\$211
	C.	Concrete Footing									
		Length of Concrete Footing (ft)	43	514	237	399	335	89		374	124
		Average Depth of Concrete Footing (ft)		4	4	4	4	4	4	4	4
		Average Width of Concrete Footing (ft)		1	1	1	1	1	1	1	1
		Volume of Concrete Footing (ft ³)	172	2055	947	1595	1341	358		1496	496
		Volume of Concrete Footing (cy)	6			59		13		55	18
		Disposal Unit Cost per WDEQ Guideline No.12,A	pp.K (\$/cy) \$6.3		\$6.39	\$6.39		\$6.39		\$6.39	\$6.39
		Unit Cost in \$/cy (July 1998 dollars w/o esca	OUT \$0.0		\$0.00	\$0.00	\$0.00	\$0.00		\$0.00	\$0.00
		Subtotal Concrete Footing Disposal Costs	\$40	7 \$486	\$224	\$377	\$317	\$85	\$199	\$354	\$117
		btotal Disposal Costs per Building	\$60,15	\$74,588	\$15,942	\$13,638	\$9,698	\$270	\$10,639	\$9,997	\$713
	Tot	otal Disposal Costs	\$195,63	7							
137	Це	ealth and Safety Costs		+		<u> </u>					
IV		Radiation Safety Equipment	\$1,00	\$1,000	\$1,000	\$1,000	\$0	\$0	\$1.000	\$0	\$0
		otal Health and Safety Costs	\$1,00		\$1,000	\$1,000	30	30	\$1,000	\$0	50
CITE		OTAL BUILDING DEMOLITION AND DISPOSAL C			\$55,189	\$97,492	\$68,966	\$2,075	\$36,596	\$75,390	\$6,433
		L BUILDING DEMOLITION AND DISPOSAL CO			\$33,189	\$97,492	\$08,900	\$2,075	\$30,396	\$/3,390	\$0,433
10	AL	L BUILDING DEMOLITION AND DISPOSAL CO	515 5/80,34	-							

ell	field	d Buildings and Equipment Removal and Disposal	Mine Unit-1	
	11/4	ollGold Dining		
		Assumptions:		
			5	
		Number of Header Houses per Wellfield	5	
		Length of Piping per Header House (ft)	2000	
		Total Length of Piping (ft)	10000	
	A.	Removal and Loading	00.40	
		Wellfield Piping Removal Unit Cost (\$/ft of pipe)	\$0.42	
		Subtotal Wellfield Piping Removal and Loading Costs	\$4,200	
	B.	Transport and Disposal Costs (NRC-Licensed Facility)		
		Average Diameter of Piping (inches)	2	
		Chipped Volume Reduction (ft ³ /ft)	0.005	
		Chipped Volume per Wellfield (ft ³)	50	
_		Volume for Disposal Assuming 10% Void Space (ft ³)	55	
		Transportation and Disposal Unit Cost (\$/ft ³)	\$12.00	
		Subtotal Wellfield Piping Transport and Disposal Costs	\$660	
	We	ellfield Piping Costs per Wellfield	\$4,860	
	C.	Capitol Costs		
		PVC Pipe Shredder	\$0	
	To	tal Wellfield Piping Costs	\$4,860	
			7 7	
•	We	ell Pumps and Tubing		
		Assumptions:		
		Pump and tubing removal costs included under ground water re	estoration labor costs	
		60% of production/injection wells contain pumps and/or tubing	9	
	A.	Pump and Tubing Transportation and Disposal		
		Number of Production Wells	101	
		Number of Injection Wells	175	
		1. Pump Volume		
		Number of Production Wells with Pumps	61	
		Average Pump Volume (ft ³)	1	
		Pump Volume per Wellfield (ft ³)	61	
		2. Tubing Volume		
		Assumptions:		
		Average tubing length/wellfield based on average well d	enth minus 25 ft	
		Number of Production Wells with Tubing	61	
		Number of Injection Wells with Tubing	105	
		Average Tubing Length per Well (ft)	725	
		Tubing Length per Wellfield (ft)	120350	
		Diameter of Production Well Fiberglass Tubing (inches)	2	
		Diameter of Injection Well HDPE Tubing (inches)	1.25	
		Chipped Volume Reduction (ft ³ /ft)	0.005	
		Chipped Volume per Wellfield (ft ³)	602	
		Volume of Pump and Tubing (ft ³)	663	
		Volume for Disposal Assuming 10% Void Space (ft ³)	729	
		Transportation and Disposal Unit Cost (\$/ft ³)	\$12.00	
		tal Pump and Tubing Costs	\$8,748	

ellfic	eld Bı	aildings and Equipment Removal and Disposal	Mine Unit-1	
. E	Burie	Trunkline		
	Ass	sumptions:		
	Lei	ngth of Trunkline Trench (ft)	2600	
A		moval and Loading		
		Main Pipeline Removal Unit Cost (\$/ft of trench)	\$0.89	
		ototal Trunkline Removal and Loading Costs	\$2,314	
E		nsport and Disposal Costs (NRC-Licensed Facility)		
	1.	3" HDPE Trunkline		
		Piping Length (ft)	2600	
		Chipped Volume Reduction (ft ³ /ft)	0.022	
		Chipped Volume (ft ³)	57.2	
	2.	6" HDPE Trunkline	7200	
		Piping Length (ft)	5200	
		Chipped Volume Reduction (ft ³ /ft)	0.078	
	2	Chipped Volume (ft ³) 8" HDPE Trunkline	405.6	
	3.	Piping Length (ft)	5000	
		Chipped Volume Reduction (ft ³ /ft)	0.15	
		Chipped Volume (ft ³)	750	
	3	10" HDPE Trunkline	750	
	J.	Piping Length (ft)	0	
		Chipped Volume Reduction (ft ³ /ft)	0.277	
		Chipped Volume (ft ³)	0.277	
	1	12" HDPE Trunkline	U U	
	т.	Piping Length (ft)	0	
		Chipped Volume Reduction (ft ³ /ft)	0.293	
		Chipped Volume (ft ³)	0.255	
	5	14" HDPE Trunkline		
		Piping Length (ft)	0	
		Chipped Volume Reduction (ft ³ /ft)	0.359	
		Chipped Volume (ft ³)	0	
	5.	16" HDPE Trunkline		
		Piping Length (ft)	2600	
		Chipped Volume Reduction (ft ³ /ft)	0.4	
		Chipped Volume (ft ³)	1040	
		Total Trunkline Chipped Volume (ft ³)	2252.8	
		Volume for Disposal Assuming 10% Void Space (ft ³)	2478	
		Γransportation and Disposal Unit Cost (\$/ft ³)	\$12.00	
		ototal Trunkline Transport and Disposal Costs	\$29,736	
1	Total '	Frunkline Decommissioning Costs	\$32,050	
7. V	Well F	Iouses		
		Quantity	5	

ellfield Buildings and Equipment Removal and Disposal	Mine Unit-1	
Average Well House Volume (ft ³)	12.5	
A. Removal		
Total Volume (ft ³)	62.5	
Demolition Unit Cost per WDEQ Guideline No.12,App.K (\$/ft ³)	\$0.178	
Unit Cost in \$/ft ³ (July 1998 dollars w/o escalator) OUT	\$0.00	
Subtotal Well House Demolition Costs	\$11	
B. Survey and Decontamination		
Assumptions:		
Cost per Well House	\$4.49	
Subtotal Survey and Decontamination Costs	\$22	
C. Disposal at NRC licensed Facility		
Total Volume (cy)	2	
Volume for Disposal Assuming 10% Void Space (cy)	3	
Transportation and Disposal Unit Cost (\$/ft ³)	\$12.00	
Subtotal NRC Licensed Facility Disposal Costs	\$36	
Total Well House Removal and Disposal Costs	\$69	
Header Houses		
Total Quantity	5	
Average Header House Volume (ft ³)	2700	
A. Removal	12700	
Total Volume (ft ³)	13500	
Demolition Unit Cost per WDEQ Guideline No.12,App.K (\$/ft³)	\$0.178	
Unit Cost in \$/ft ³ (July 1998 dollars w/o escalator) OUT	\$0.00	
Subtotal Building Demolition Costs	\$2,403	
B. Survey and Decontamination		
Assumptions:	***	
Cost per Header House	\$284	
Subtotal Survey and Decontamination Costs	\$1,420	
C. Disposal	500	
Total Volume (cy)	500	
Volume for Disposal Assuming 10% Void Space (cy)	550	
Disposal Unit Cost per WDEQ Guideline No.12,App.K (\$/cy)	\$6.39	
Unit Cost in \$/cy (July 1998 dollars w/o escalator) OUT	\$0.00	
Subtotal On-Site Disposal Costs	\$3,515	
Total Header House Removal and Disposal Costs	\$7,338	
TOTAL WELLFIELD BUILDINGS AND EQUIPMENT REMOVAL		
AND DISPOSAL COSTS	\$53,065	

Wel	l Ab	ando	nme	nt				Mine Unit-1
I.	W	ell Al	and	onment (W	/ellfields)			
				uction Wel				101
		# of	Injec	tion Wells				175
				itoring We	lls			38
				mber of We				314
		Ave	rage	Diameter o	f Casing (in	ches)		5
				Depth (ft)				725
		Wel	\$359					
	To	tal V	ellfi	eld Abando	onment Cos	sts		\$112,805
II.	W	eto I	Diene	sal Wall A	bandonme	nt		DDW#1
11.	_					ased on Wyomi	ng Oil	\$4.87
						ion average cos	•	ψ
	B.			Well (ft)			,	10000
	To	tal Ŵ	aste	Disposal V	Vell Aband	onment Costs		\$48,700
TO	ΓAL	WE	LL A	BANDON	MENT CO	STS		\$161,505

								Mine Unit					
V	ellfield an	d Satellite Su	ırface Recla	mation				1					
	XX7-110°-1-1	D-44 A	. T	A 11	D I D I								
•		Pattern Are	ea, Laydown	Area, and I	Koad Keciai	nation T		1					
		rea (acres)	- II.i. C4	(t) /)				1.					
		isking/Seedin			l D1	. C4-		\$23					
		Pattern Area,			i Reciamatio	n Costs		\$3,52 \$3,52					
	Total Wellfield Area Reclamation Costs												
I.		Area Reclam	ation					NB-					
	A	ssumptions:											
		Area of Dist	turbance (acr	es)				2.0					
		Average De	pth of Stripp	ed Topsoil (f	ît)								
			de: Level Gr										
		Average Lei	ngth of Tops	oil Haul (ft)				100					
	A	. Ripping Ove											
							app.I1 (\$/acre)	\$814.2					
			Unit Cost in	\$/acre (July	1998 dollars	s w/o escalato	OUT	\$0.0					
		Subtotal Rip						\$1,66					
	В	. Topsoil App	olication with	Scraper									
				Γopsoil Rem	\ •			330					
							2, App.C (\$/cy)	\$0.7					
					998 dollars v	w/o escalator)	OUT	\$0.0					
		Subtotal Top	psoil Applica	tion Costs				\$2,34					
	C	. Discing and											
			Discing/See	ding Unit Co	ost (\$/acre)			\$20					
			scing/Seeding					\$41					
	Total Sat	tellite Buildir	ng Area Rec	lamation Co	osts			\$4,42					
	TAL WE	CLLFIELD A	ND SATEI	LITE SURI	FACE REC	LAMATION	COSTS	\$7,95					
1 (TAL WE	LLFIELD A	AND SATEL	LITE SURI	FACE REC	LAMATION	COSTS	\$7,					

liscella	neous Reclamation										
CP	P/Office Area/Warehouse/Maint. Shop/Chem. Storage/Yard Reclamation										
	Assumptions 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 (\$/ft²)	\$3.4									
	Unit Cost in \$/ft ² (July 1998 dollars w/o escalator OUT	\$0.0									
	Average Thickness of Concrete Floor (ft)	0.5									
	Volume of Concrete Floor (ft ³)	6,53									
	Volume of Concrete Floor (tr) Volume of Concrete Floor (cy)	242									
	On-Site Disposal Unit Cost per WDEQ Guideline No.12,App.K (\$/cy)	\$5.00									
	Unit Cost in \$/cy (July 1998 dollars w/o escalator OUT	\$0.00									
	Subtotal Concrete Pad Demolition and Disposal Costs	\$45,64									
В.	Gravel Road Base Removal	\$45,04									
D.	Assumptions Assumptions										
		1000									
	Average haul distance (ft)	1000									
	Gravel Road Base Width (ft)	0.4									
	Gravel Road Base Area (acres)	8.0									
	Average Road Base Depth (ft)	0.3									
	Volume of Road Base (cy)	6453									
	Removal Unit Cost per WDEQ Guideline No.12, App.C (\$/cy)	\$0.8									
	Unit Cost in \$/cy (July 1998 dollars w/o escalator OUT	\$0.00									
- D	Subtotal Gravel Road Base Removal Costs	\$5,58									
B.	Ripping Overburden with Dozer	10									
	Overburden Surface Area (acres)	10.									
	Ripping Unit Cost per WDEQ Guideline No.12, App.I1 (\$/acre)	\$814.2									
	Unit Cost in \$/acre (July 1998 dollars w/o escalat	\$0.0									
_	Subtotal Ripping Overburden Costs	\$8,60									
C.	Topsoil Application										
	Assumptions:										
	Area of surface disturbance (ft ²)	460420									
	Average thickness of topsoil (ft)										
	Average haul distance (ft)	200									
	Surface grade (%)	0%									
	Volume of Topsoil (cy)	17,053									
	Topsoil Unit Cost per WDEQ Guideline No.12, App.C (\$/cy)	\$1.12									
	Unit Cost in \$/cy (July 1998 dollars w/o escalator OUT	\$0.00									
	Subtotal Topsoil Application Costs	\$19,15									
D.	Discing/Seeding Discing/Seeding										
	Assumptions										
	Surface Area (acres)	10.5									
	Discing/Seeding Unit Cost (\$/acre)	\$235									

Miso	cella	neous Reclamation	
		Total Discing/Seeding Costs	\$2,484
	Tot	al CPF/Office/Yard Area Reclamation	\$75,881
II.	Aco	CPP Access Rd.	
11.		CFF Access Ru.	
	A.	Assumptions Surface grade	1%
		Length of Road (ft)	7000
		Width of Road (ft)	40
		Area of road (acres)	4.75
	B.	Gravel Road Base Removal	4.73
	В.	Assumptions Assumptions	
		Assumptions Average haul distance (ft)	1000
		Gravel Road Base Width (ft)	30
		Gravel Road Base Area (acres)	4.82
		Average Road Base Depth (ft)	0.5
		Volume of Road Base (cy)	
			3889
		Removal Unit Cost per WDEQ Guideline No.12, App.C (\$/cy)	\$0.87
		Unit Cost in \$/cy (July 1998 dollars w/o escalator OUT	· · · · · · · · · · · · · · · · · · ·
	0	Subtotal Gravel Road Base Removal Costs	\$3,368
	C.	Ripping Overburden with Dozer	4.0
		Overburden Surface Area (acres)	4.8
		Ripping Unit Cost per WDEQ Guideline No.12, App.I1 (\$/acre)	\$814.22
		Unit Cost in \$/acre (July 1998 dollars w/o escalat	·
	_	Subtotal Ripping Overburden Costs	\$3,868
	D.	Topsoil Application	
		Assumptions	4.500
		Average haul distance (ft)	1500
		Topsoil Surface Area (ft ²)	206910
		Depth of Topsoil (ft)	0.5
		Volume of Topsoil (cy)	3832
		Topsoil Unit Cost per WDEQ Guideline No.12, App.C (\$/cy)	\$1.50
		Unit Cost in \$/cy (July 1998 dollars w/o escalator OUT	\$0.00
		Subtotal Topsoil Application Costs	\$5,748
	E.	Discing/Seeding	
		Assumptions	
		Surface Area (acres)	4.8
		Discing/Seeding Unit Cost (\$/acre)	\$235
		Subtotal Discing/Seeding Costs	\$1,116
	Sub	\$14,100	
	_	al Access Road Reclamation Costs	\$22,765
			Trunk Line #1
111	Т	ink Lines #1 and #2	(To MU-1)
III.	111	IIIK LIIICS #1 AIIU #2	(10 MIU-1)
		Length of Trench (ft)	4000

cella	neous Reclamation	
A.	Removal and Loading	
	Main Pipeline Removal Unit Cost (\$/ft of trench)	\$0.
	Subtotal Trunkline Removal and Loading Costs	\$3,5
B.	Transport and Disposal Costs (NRC-Licensed Facility)	•
	1. 3" HDPE Trunkline	
	Piping Length (ft)	40
	Chipped Volume Reduction (ft ³ /ft)	0.0
	Chipped Volume (ft ³)	
	2. 6" HDPE Trunkline	
	Piping Length (ft)	80
	Chipped Volume Reduction (ft ³ /ft)	0.0
	Chipped Volume (ft ³)	6
	3. 8" HDPE Trunkline	
	Piping Length (ft)	
	Chipped Volume Reduction (ft ³ /ft)	0.
	Chipped Volume (ft ³)	
	3. 10" HDPE Trunkline	
	Piping Length (ft)	
	Chipped Volume Reduction (ft ³ /ft)	0.2
	Chipped Volume (ft ³)	
	4. 12" HDPE Trunkline	
	Piping Length (ft)	
	Chipped Volume Reduction (ft ³ /ft)	0.2
	Chipped Volume (ft ³)	
	5. 14" HDPE Trunkline	
	Piping Length (ft)	
	Chipped Volume Reduction (ft ³ /ft)	0.3
	Chipped Volume (ft ³)	
	5. 16" HDPE Trunkline	
	Piping Length (ft)	40
	Chipped Volume Reduction (ft ³ /ft)	(
	Chipped Volume (ft ³)	16
	Total Trunkline Chipped Volume (ft ³)	23
	Volume for Disposal Assuming 10% Void Space (ft ³)	25
	Transportation and Disposal Unit Cost (NRC-Licensed Facility) (\$/ft³)	
	Subtotal Pipeline Disposal Costs	\$12. \$30,5
C.	Discing/Seeding	\$30,3
C.	Assumptions:	
	Width of Pipeline Trench (ft)	
+	Area of Pipeline Trench (acres)	(

Miso	ella	aneous Reclamation	
1,119		Discing/Seeding Unit Cost (\$/acre)	\$235
		Subtotal Discing/Seeding Costs	\$86
	Sul	btotal Reclamation Costs per Pipeline	\$34,162
		tal Pipeline Reclamation Costs	\$34,162
			•
IV.		•	Evaporation Pond
	A.	1 8	
		Number of Soil Samples	10
		\$/Sample	\$75
	-	Subtotal Soil Sampling and Monitoring Costs	\$750
	B.	Liner/Subsoil Removal and Disposal	
		Removal and Loading Unit Cost based on engineer's design	
		report and Cat Performance Handbook	
		Width of Pond (ft)	112
		Length of Pond (ft)	487
		Depth of Pond (ft)	10
		Surface area of pond (ft ²)	54544
		Surface area of both ponds (ft ²)	109088
		1. Removal and Loading	
		Volume of Geotextile Liner (cy)	272.72
		GeotextileLiner Removal and Loading Unit Cost (\$/cy)	\$3
		Liner Removal and Loading Costs	\$818
		PVC Pipe Footage	920
		Average PVC Pipe Diameter (inches)	3
		PVC Pipe Removal Costs (base on previous estimates for piping removal)	\$1,008
		Subtotal Removal and Loading Costs	\$1,826
		2. Transportation and Disposal	
		Volume of Geotextile Liner (ft ³)	272.72
		Volume of Geotextile Liner @ 40% void (ft ³)	455
		Shredded PVC Pipe Volume Reduction (ft ³ /ft)	0.016
		Volume of Shredded PVC Pipe (ft ³)	15
		Transportation and Disposal Unit Cost (\$/ft ³)	\$12.00
		Subtotal Transportation and Disposal Costs	\$5,631
		Subtotal Liner Removal and Disposal Costs	\$7,457
	C.	Grade and Contour	
		Volume of Embankment Material (CY)	16,900
		Average Grade (%)	0
		Distance (ft)	100
		Material Moving Unit Cost per WDEQ Guideline No.12, App.E (\$/cy)	\$0.092
		Unit Cost in \$/cy (July 1998 dollars w/o escal OUT	\$0.00
		Subtotal Grade and Contour Costs	\$1,555
	C.	Topsoil Application	•
		Assumptions:	
		Area of surface disturbance (ft ²)	115000
		Average thickness of topsoil (ft)	1

Mis	cella	neous	Reclamation										
11220				ul distance (ft)				1000				
			Surface gra						0%				
		V	olume of Top						4,259				
			opsoil Unit Co		O Guidelii	ne No.12, A	app.C (\$/cy)		\$1.12				
			nit Cost in \$/c					OUT	\$0.00				
		Subto		\$4,783									
	D.		ng/Seeding										
		A	ssumptions:										
			Area of sur	face disturba	ance (acres)			2.6				
		D	iscing/Seeding	g Unit Cost	(\$/acre)				\$235				
			otal Discing/S	•	·				\$611				
	To		tling Basin/E			ion Costs			\$15,156				
	2.50												
V.	Mi	scella	neous Structu	ires									
	R	Potal	ole Water Wel	1c									
	D.		otal Depth (ft)		h Diametei	Wells @	750 ft)		1,500				
			ell Abandonn				73011)		\$6.70				
		Subtotal Potable Water Wells Abandonment Costs											
	C.	Fuel											
		C	oncrete Floor										
				ncrete Floor					375				
							No.12,App.K (\$/ft ²)		\$3.40				
				n \$/ft² (July				OUT	\$0.00				
			ubtotal Concre		molition C	osts			\$1,275				
		C	oncrete Footir	ng									
				Concrete Foo					77				
			Demolition	Unit Cost p	er WDEQ	Guide. No.	12,App.K (\$/lin. ft)		\$12.22				
			Unit Cost in	n \$/lin. ft (Ju	ıly 1998 do	llars w/o es		OUT	\$0.00				
		S	ubtotal Concre	ete Footing I	Demolition	Costs			\$947				
		Subto	otal Fuel Area	Costs					\$2,222				
	To	tal Mi	scellaneous S	tructures R	eclamatio	n Costs			\$3,598				
VI.	We	llfield	 Pattern Are	a. Laydown	Area. and	l Road Red	lamation						
	,,,		(acres)	, <u></u> , uo ; i					29.6				
	+		ng/Seeding U	nit Cost (\$/2	icre)				\$235				
	Sul		Pattern Area,			ad Reclama	ation Costs		\$6,956				
			ellfield Area l			ad rectaille			\$6,956				
	10		IIIICIU AI CA I	. Command	LOSIS				Ψ0,230				
TO	ΓAL	MISO	CELLANEO	JS RECLA	MATION	COSTS			\$158,517				

RADIUM TREATMENT				
HUP SURETY ONLY!!				
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	= \$	0.048		
By Product Disposal of Sludge	= \$	0.097		
TOTAL RADIUM TREATMENT COSTS PER 1000 GALLONS	= \$	0.34	HUP ONLY	/

GROU	NDWA	TER	SW	/EEP	(GW	S)										
					(-,										
Assun	nptions	S :														
1.	All pur	nps a	re :	5 hp p	oump	ing	at 5	.0 gp	m							
2.	Cost c	f elec	tric	city =	\$0.04	8/k	wh									
3.	All wa	ter pu	mp	ed is	dispo	se	d at	WDV	٧v	vith a 20) hp p	um	ıρ			
4.	Repair	and	ma	inten	ance	COS	sts e	estima	ate	d at \$0.	50/10	00	ga	llons		
										timated					lons	
6.	Labor	costs	are	e not	includ	dec	1									
Wellfie	eld Pur	nping	j C	osts	per 1	00	0 Ga	llons	3							
	1000	gal	Х	5	hp	v	1	hr	_	0.746 hr	kwh	V	\$	0.05	_ 0	0.60
			^	5	hp gpm	^	60	min	^	hŗ)	^		kwh	– Ф	0.00
Pumpi	na to l		<u> </u>	oto r)))	100) Ga	llono								
Pullipi										0.746	loub		σ	0.05		
	1000	yaı	Х	200	hp gpm	Χ	60	min	Χ	0.746	KWII	Χ	ф	0.05 kwh	= \$	0.22
				200	gpm		00	111111		h) 			KWII		
Danair	rand N	lainta		(Cooto		- 4 <i>1</i>	200 6	, a II	000					_ c	0.5
Repair	and N	iaiii(e	ııa	ince (JUSIS	p pe	er 10	טטט פ	all	บกร					- \$	0.5
Droos	20 800	nlina		nd A =	a bya	- 4	200	to no	- 1	000 Ga	llone				_ r	0.03
FIOCES	ss san	ipiing	jai	iu Ai	iaiysi	5 (508	ıs pe	1 10	ooo Ga	110/15				<u>-</u> ф	0.03
TOTAL	CWS	COS	Te	DED	1000	<u> </u>	A I I	ONG							_ ¢	1.35
IUIAL	_ GWS	CU3	13	rek	1000	G	ALL	CNO.							- \$	1.33

REVER	RSE O	SMOS	IS (RO)							
		000		_							
Assum	nptions	s:									
			ctual 19	98	opera	ating costs a	at Sat	ellite No.	1. Verified b	V	
						esign Softw				<u>, </u>	
2.			tricity =								
			ate/25%								
							\$700	per mem	brane eleme	nt	
						om wellfield					
6.											
						6&7 OUT					
7.											
8.	Proce	ss sar	npling a	and	analy	ysis costs e	stima	ted at \$0.0	03/1000 gallo	ons	
9.	Labor	costs	are no	t ind	cluded	d					
Revers	se Osn	nosis	Costs	per	1000	Gallons					
	Electr	icity					= \$	0.048			
	Chem	icals					= \$	0.23			
	Memb	orane	Replace	eme	ent		= \$	0.03			
	Repai	r and	Mainter	nan	ce		= \$	0.26			
			Items F	Ren	noved						
	Proce	ss Sa	mpling	and	l Anal	ysis	= \$	0.03			
TOTAL	- RO C	OSTS	PER 1	000	0 GAI	LLONS	= \$	0.60			

6. The 20%	reject is di	sposed at V	VDW with a	20 hp pumj	p at actual o	cost of	
\$0.14/10	00 gallons						
7. The perr		urned to the	wellfield wi	th a 20 hp r	oump at act	ual cost of	
	000 gallons			P			
Ψ0.010/1	ooo galloric						
	147 116 1	<u> </u>					
Pumping fr	om Wellfield	d					
Pumping to	Wellfield						
Pumping to	WDW						
\$		X	0.2				
<u> </u>	0.11	-	3.2				

CHEM	ICAL F	REDU	СТ	ANT													
Assum	nptions	S:															
1.	Bioren	nediat	ior	is utili	zed												
2.	Based	on a	ctu	al 2003	3-200	4 c	perat	ing co	sts	during rest	orati	ion	ac	ctivities			
3.	Added	I the c	OS	t of usi	ng ch	ee	se wh	ney									
TOTAL	_ CHEI	MICAI	_ R	EDUC	TAN	ГС	OST	S PEF	R K	Igal					= \$	0.3	
										July 1998 Dollars			5		= \$	0.26	OUT

ELUTI	ON PR	OCES	SS	ING												
Assun	ptions	s:														
1.	Based	on a	ctu	al oper	ating	CO	sts									
TOTAL	PRO	CESS	IN	G COS	TS P	ER	ELU	TION	= \$	900						
				Cost	Costs removed from GW REST Workbook											

DEED	\A/E1.1	INLIE	СΤ	IONI								T					
DEEP	VVELL	INJE	C I	ION													
Assum																	
1.	Pump	150	hp	pump	ing a	t 10	00 g	pm									
2.	Cost c	of elec	tric	ity =	\$0.04	·8/k	wh										
3.	Repai	r and	ma	inten	ance	CO	sts b	ased	on	averac	e inje	ctio	on	volume	of 8	,000,000 gallons pe	r vear
										at \$.50						, , <u>J</u> <u>F</u> -	,
															allor	is per year	
	Labor							J - ,				T,		, , , , , ,		- ,	
Waste	Dispo	sal P	um	pina	Cost	s r	er '	1000 (Gal	lons							
											kwh		\$	0.048			
	.000	gu.	Х	100	anm	Х	60	min	X	0.746 hj)	X	Ψ	0.048 kwh	= \$	0.90	
				100	90		- 00			,				124411			
Repair	and N	lainte	na	nce (Costs	b D	er 1	000 G	iall	ons					= \$	0.5	
T T T																	
TOTAL	DEF	WFI		IN.JF	CTIO	N (COS	TS P	FR	1000 (BALLG	ON	S		= \$	1.40	
·OIAL					0.10				、	.000	,, _L\		•		Ψ	11-10	
	1																

=LL	ABAN	DONI	WENT												
	ptions														
			our w												
					,						of \$65/hr.				
											Il at cost o				
											el at cost o				
														ost of \$40/hr.	
6													ay at cost		
												gel/100 f	t of 5" well	casing.	
	Cost	of cem	nent is	\$7.6	32ar	d plug	gel	cost i	s \$5.95	i/sa	ck.				
	<u>Fixed</u>		3												
	Backh														
			hours			65	per	hour		=\$	520.00				
	Hose		Tow Ve												
			hours	Χ	\$	35	per	hour		=\$	280.00				
	Ceme														
			hours	Χ	\$	45	per	hour		=\$	360.00				
	Tow V														
		8	hours	Χ	\$	40	per	hour		=\$	320.00				
	Labor														
3	men=	24	man	Χ	\$	15.00	per	man		=\$	360.00				
			hours				hou								
			Total I	Fixe	d Co	osts pe	r 8.0	0 hr/d	ay	=\$	1840.00				
	Variat		<u>sts</u>		(pei	100 ft	of v	vell de	epth)						
	Materi														
		7.5	sack c	_		Χ	\$	7.62		=\$	57.15				
			per 10	00 fe	eet				sack						
							•	- 0-		_	5.05				
		1	sack p			Х	\$	5.95	per ho	=\$	5.95				
			per 10	U te	eet				plug						

_	ADAI	NDON	NIEIN I	Page 2									+
				ost (per				depth)	\$	63.10			
	Total	numb	er of w	ells com	pleted	per	/day						
			6										
	Cost	per W	ell pe	r Unit of	Avera	ge	Dept	h					
				Wel	l Depti	ı (ft	t)						
					450				=\$	354			
					500					359			
					550					365			
					600					370			
					650					375			
					700					380			-
					750					386			
					800					391			
					850					396			
					900					401			
					950					407			+
_					930				-φ	701			+

FIVE Y	EAR I	ИЕСН.	ANICAL	INT	EGR	ITY TE	STS	S (MIT	Γ)					
Assun	nption	s:												
1	Pullin	g Unit	for 8.0 hi	r/day	at o	cost of	\$45	hr.						
2	MIT	Jnit for	8.0 hr/da	ay at	cos	t of \$4	5/hr.							
3	Labor	for op	eration c	of pu	lling	unit wi	II red	quire :	2 w	orke	ers at \$15/	hr		
4	Labor	for op	eration c	of MI	T Ur	nit will r	equ	ire 1 v	vork	er a	at \$15/hr			
5	Avera	age we	lls plugge	ed po	er da	ay is 6								
	osts p													
Equip	ment:													
	Pullin	g Unit												
		8	hours	X	\$	45	per	hour				=\$	360.00	
	MIT U	Jnit												
		8	hours	X	\$	45	per	hour				=\$	360.00	
Labor:														
	Pullin	g Unit												
			hours	X	\$	15	per	hour	Χ	2	workers	=\$	\$240.00	
	MIT U													
		8	hours	X	\$	15	per	hour				=\$	120.00	
						TO	TAL	MIT	CO	ST	PER DAY	=\$	1080.00	
	Wells	Comp	leted			6	per	day						
				1										
							MI	т со	STS	3 PI	ER WELL	=\$	180.00	

B	DIDE: :	NIE D		<u> </u>	l		T							
MAIN	PIPEL	INE R	EMOV	AL										
Assun														
						t 750 ft/da								
						ckfilling w	ith t	rackho	e at 7	50 ft	/day			
3.	Track	hoe re	ental: \$	1,12	25/w	eek								
	Fuel													
						es 1 work								
6.	Pipeli	ne ext	raction	rec	quire	s 2 worke	rs a	it \$15/h	our (ii	n ad	dition to	trackhoe o	perator)	
						neously								
_	Includ			_	-									
9.	Opera	ating s	chedu	le: 8	hrs	/day, 5 da	ys/v	week						
Main F	Pipelin	e Ren	noval (Cos	ts p	er ft of Tr	enc	h						
Equip	ment													
	Track	thoe												
		\$	1125	X		week	Х	1	days	=\$	0.30			
		We	eek	^	5	days	^	750	ft					
	Fuel													
		\$	10	Х	8	hrs	Х		days	=\$	0.11			
		ho	our	^	1	day	^	750	ft					
Labor														
	Track		Operat	ion										
		\$	15	Х		man hrs	Х		days	=\$	0.16			
		_	n hr		1	day	^	750	ft					
	Pipel		traction	on										
		\$	15	X		man hrs	Х		day	=\$	0.32			
		ma	n hr	^	1	day	^	750	ft					
MAIN	I PIPE	LINE F	REMO	VAL	. CO	ST PER I	FT (OF TRE	ENCH	=\$	0.89			

### Assumptions: 1. Trenching with backhoe at 1500 ft/day 2. Pipeline extraction and backfilling with backhoe at 1500/day 3. Backhoe rental: \$1,000/week 4. Fuel cost: \$10/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 ##################################	WELLE	IEI D	DIDIN	C DEN	<u>// ()</u>	/A I								
1. Trenching with backhoe at 1500 ft/day 2. Pipeline extraction and backfilling with backhoe at 1500/day 3. Backhoe rental: \$1,000/week 4. Fuel cost: \$10/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 \$ \$1000	VVELE	IELD	FIFIN	IG KEN	/IOV	AL								
1. Trenching with backhoe at 1500 ft/day 2. Pipeline extraction and backfilling with backhoe at 1500/day 3. Backhoe rental: \$1,000/week 4. Fuel cost: \$10/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 \$ \$1000	A	ntion	••											
2. Pipeline extraction and backfilling with backhoe at 1500/day 3. Backhoe rental: \$1,000/week 4. Fuel cost: \$10/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 \$ 1000		•		مططان	ماءاء		1500 ft/d							
3. Backhoe rental: \$1,000/week 4. Fuel cost: \$10/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 \$ 1000										1.450	0/1			
4. Fuel cost: \$10/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 \$ 1000								ith b	acknoe	e at 1500	u/day	/		
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 \$ 1000														
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 \$ 1000 week Fuel \$ 10 \$														
7. Operating schedule: 8 hrs/day, 5 days/week Main Pipeline Removal Costs per ft of Pipe Equipment Backhoe \$ 1000														
Main Pipeline Removal Costs per ft of Pipe										our (in a	dditi	on to trackho	oe operator)	
Equipment	7.	Opera	ating s	chedul	e: 8	hrs.	/day, 5 da	ys/w	/eek					
Equipment														
Backhoe	Main P	ipelin	e Ren	noval (Cos	ts p	er ft of Pi	ре						
Backhoe														
Backhoe	Equipn	nent												
Week X 5 days X 1500 ft			hoe											
Week X 5 days X 1500 ft			\$	1000	.,	1	week	.,	1	davs	=\$	0.13		
Fuel					Х			Х						
S 10		Fuel					, .							
hour X 1 day X 1500 ft			\$	10		8	hrs		1	davs	=\$	0.05		
Labor Backhoe Operation \$ 15 X 8 man hrs 1 day X 1 days 1500 ft \$ 0.08 Pipeline Extraction Final properties of the					X			Х			Ψ	0.00		
Backhoe Operation			110	Jui		•	auy		1000	10				
Backhoe Operation	Labor													
\$ 15 man hr X 8 man hrs 1 day X 1 days 1500 ft =\$ 0.08 Pipeline Extraction \$ 15 man hr X 16 man hrs 1 day X 1 day =\$ 0.16 1500 ft 1500 ft =\$ 0.16 =\$ 0.16	Labor	Rack	hoo O	norati	on.									
man hr		Dack				9	man hra		1	daye	_ _¢	0.08		
Pipeline Extraction					Χ			Х	1500	uays #	-\$	0.00		
\$ 15 X 16 man hrs X 1 day =\$ 0.16		Dinel	_			ı	udy		1500	IL				
man hr X 1 day X 1500 ft		Pipeli			חכ	40				d		0.40		
man hr 1 day 1500 ft					Χ			Х			=\$	0.16		
MAIN PIPELINE REMOVAL COST PER FT OF PIPE =\$ 0.420			ma	n hr		1	day		1500	π				
MAIN PIPELINE REMOVAL COST PER FT OF PIPE =\$ 0.420														
MAIN PIPELINE REMOVAL COST PER FT OF PIPE =\$ 0.420											<u> </u>			
, , , , , , , , , , , , , , , , , , ,		MAIN	N PIPE	ELINE	RE	MOV	AL COST	Γ PE	R FT C	F PIPE	=\$	0.420		

WELLI	FIELD F	ROAD	RE	CL	AMA	TIO	N													
Assun	ptions	(Road	ds c	on	struc	ted	be	fore	Janu	ary	1,	1997):							
															ideli	ne No. 12,	App. C, Level (Ground, 500	ft haul)	
2.	Gravel	road b	oase	e: a	veraç	ge c	lept	h = 0	.25 ft,	, a\	/era	ge w	idth	n = 10 ft						
																	ine No. 12, App			
																	EQ Guideline N		ndix G)	
															. 12,	App. C, Le	evel Ground, 50	0 ft haul)		
	Strippe																			
7.	Discing	g/seed	ing	COS	st of \$	23	5/ac	re is	base	o b	n ac	ctual	con	tractor c	osts	ı				
				<u> </u>			L						L							
	Gravel									00 1	tt of	Road	t							
		1000) ft	X	0.25	ft	Х	10	ft	Χ	1	cy ft ³	X	\$0.87	= \$	80				
	0 15										27	tt°		су	·					
	Scarific													044.07						
		1000) ft	Х	25	Ħ	Х	1	acre 56E+	0.4	- .2	Х		\$41.87	= \$	24			 	
	0	0 1			1000	CL - 1			56E+	04	ft*			acre						
	Gradin			er	25	tt ()			aara					¢4E GE						
		1000	<i>)</i> IL	X	25	IL	Х	1 2	acre 56E+	04	r. 2	Х		\$45.65	= \$	26				
	Topsoi	I Annli	ooti		Coote		r 10	4.3 200 ff	of Do	04	π_			acre						
	TOPSOI	1000										CV		\$0.87						
		1000	, IL	X	0.67	Iι	Х	25	IL	Х	27	cy ft ³	X		= \$	537				
	Discing	1/2000	lina	<u></u>	oto n	or 1	000) ft of	Poor	_	21	IL		су						
	DISCITION	1000			25		UUL) IL OI 1	acro	ı				\$235						
		1000	, IL	X	23	Iι	Х	1 2	acre 56E+	04	£ 2	Х		-	= \$	135				
								4.3	30=+	04	IL			acre						
	TOTAI	WFI	l FI	FI	D RO	ΔΠ	RF	CI A	ΜΔΤΙ	ON	1 ()	OSTS	; PI	FR						
	IOIA	1000													= \$	802				
		1000	· · ·	Ť.	1107	, –				10	/\l\	· ·, ·		,	Ψ	002				
Assum	ptions	(Road	ds c	on	struc	ted	aft	er Ja	nuar	v 1	. 19	97):								
	Gravel										,									
2.	Roads	scarifi	ed r	oric	r to to	ops	oil a	applic	ation	at	COS	t of \$	41.	87/acre	WD	EQ Guidel	ine No. 12, App	endix P)		
																	EQ Guideline N		ndix G)	
																	el Ground, 500			
5.	Strippe	ed tops	oil:	ave	erage	de	pth	= 0.4	ft, av	era	age	width) =	20 ft						
6.	Discing	g/seed	ing	cos	st of \$	23	5/ac	re is	based	o b	n ac	ctual	con	itractor c	osts					
	Scarific																			
		1000	ft	x	20	ft	x	1	acre 56E+			Х		\$41.87	= \$	19				
								4.3	56E+	04	ft ²	^		acre	Ψ	10				
	Gradin			er 1			Ro													
		1000	ft	×	20	ft	Х	1	acre			X		\$45.65	= \$	21				
									56E+			^		acre	Ψ					
	Topsoi			on	Costs	s pe	r 10			oac										
		1000	ft	×	0.40	ft	x	20	ft	x	1	су	x	\$0.86	= \$	255				
							Ĺ			^`	27	ft ³	 ^`	су	Ψ	_00				
	Discing	,		Со			000													
		1000	ft	x	20	ft	x		acre		_	X		\$235	= \$	108				
				^`				4.3	56E+	04	ft ²	^		acre	Ψ	.00				
	TOTAI												_	ER						
		1000	FT (OF	ROA	D (ΑF	TER	JAN	JΑ	RY	1, 19	97		= \$	403				
1	1	1				1	1							1	1					1

BYPRO	DDUCT MA	TERIA	AL T	RANSF	ORT	ATION	I AN	ID DISP	OSA	L				
Assum	ptions:													
1.	Based on a	actual	2001	1-2002	contra	acted o	costs	for trar	nsport	atio	i to a	nd dispos	sal at an	
	NRC-licens	sed dis	spos	al facilit	y.									
2.	Includes pr	ofit for	r trar	sporte	and	dispos	al fa	acility.						
3.	All types of	waste	shi _l	pped vi	bulk	contaiı	ner ((30-yd ³ (dumps	ster	or 30-	yd³ dum _l	p truck).	
4.	Each shipn	nent c	ontai	ins 30,0	00 lb	s of m	ater	ial.						
		Trans	spor	tation (Cost		Dis	sposal	Cost			<u>Total</u>		
			\$	1.00	/ft ³	+	\$	11.00	/ft ³	=	\$	12.00	/ft ³	
										=	\$	12.00	/ft ³	

December 2006

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DISKING/S	SEEDING									
Assumption	ons:									
1.	Based on actual contractor costs in 2006									
2.	Disking cos	st \$55/Acre								
3.	Seeding co	st based or	drill seedir	ng - se	ed co	st based or	n type,			
	availability, over all cost of \$180.00/Acre									
TOTAL DIS	SKING/SEE	DING COS	TS PER AC	RE	= \$	235				

December 2006

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Abbreviation	ns/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
Нр	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