

September 26, 2011

Mr. Keith I. McConnell, Deputy Director
Decommissioning & Uranium Recovery Licensing Directorate
Division of Waste Management & Environmental Protection
Office of Federal & State Materials & Environmental Management Programs
Mail Stop T8-F5
U.S. Nuclear Regulatory Commission
11545 Rockville Pike
Rockville, MD 20852-2738

Re: Willow Creek Annual Surety Update

Docket No. 40-8502, License No. SUA-1341

Dear Mr. McConnell:

As per the request of Mr. Ron Linton, please find a copy of the updated surety estimate for the Willow Creek Project (Irigaray/Christensen Ranch) including a summary of changes from the current, approved surety amount. The update was formally submitted to the NRC on September 16, 2011 as part of the Wyoming Department of Environmental Quality – Land Quality Division Permit to Mine No. 478 Annual Report, Section 8. Explanations for the surety increase can be found in the enclosure accompanying this letter or in Section 8 of the September 16, 2011 Annual Report. Uranium One respectfully requests that License Condition 9.5 be amended to reflect a new surety amount of \$16,389,407, an increase of \$3,849,407 over the current approved surety level. If you should have any questions or need additional information in regards to this surety update, please contact me by phone at (307) 234-8235 ext. 331 or email at jon.winter@uranium1.com.

Sincerely

Jøn F. Winter

Manager, Wyoming Environmental and Regulatory Affairs

Uranium One Americas

Encl: SUA-1341 Annual Surety Estimate Update

cc: Ron Linton, U.S. NRC w/ encl. Glenn Mooney, WDEQ w/o encl.

<u>Uranium One 2011-2012 Willow Creek Project Surety Estimate Update</u>

In accordance with SUA-1341 License Condition 9.5 as required by 10 CFR 40, Appendix A, Criterion 9 an updated reclamation/restoration surety estimate for July 2011 through June 2012 is provided in Appendix 3. Significant changes have been made to the 2011-2012 bond estimate to account for CR MU8 wellfield development and the start of mining in MU8 which is anticipated by the beginning of 2012. No mining (lixiviant injection) or wellfield development is planned for MU9 until the 2012-2013 reporting period. Also, in "Worksheet 6" costs pertaining to Irigaray pump, surface trunkline, and buried trunkline have been removed as these reclamation activities have been completed. Other updates include planned expansion of the IX circuit in the CR satellite facility, the addition of two new precipitation tanks at the Irigaray plant and, at the request of the WDEQ, a "recurring cost summary" sheet has been added to the surety estimate. This new sheet updates many costs used repeatedly throughout the surety estimate to reflect actual costs and costs based on WDEQ-LQD Guideline Standardized Reclamation Performance Bond Format and Cost Calculation Methods. For an explanation of cost changes and their origins, see the cost summary sheet. Changes directly related to expansion and development have been highlighted in gray throughout the surety estimate worksheets.

Revised Recurring Costs

- Transportation costs for a trip to the licensed site (Shirley Basin) have been revised based on actual costs with a local trucking company.
- Transportation costs for a trip to the local landfill (construction debris, garbage, non-contaminated items) have been revised based on a quote from a local trucking company.
- Local landfill disposal costs have been revised based on the City of Casper's current landfill rates.
- Onsite disposal costs have been revised per WDEQ Guideline 12, Appendix K.
- Labor costs have been revised per <u>Heavy and Highway Prevailing Wages</u> (February 2011), referenced as <u>State Building Construction Prevailing Wages</u> in WDEQ Guideline 12, Section I.
- Cost of building demolition has been revised per WDEQ Guideline 12, Appendix K.
- Cost of concrete demolition has been revised per WDEQ Guideline 12, Appendix K.
- Cost of equipment rental and operation has been revised per WDEQ Guideline 12. Table D-1.
- Backfill cost has been revised based on WDEQ Guideline 12, Appendix B.
- Grading cost has been revised per WDEQ Guideline 12, Appendix M.

- Cost of fence removal has been revised based on WDEQ Guideline 12, Appendix H.
- Cost of transformer removal has been revised per WDEQ Guideline 12, Appendix H.
- Cost of culvert removal has been revised based on WDEQ Guideline 12, Appendix J.

Worksheet 1: Groundwater Restoration

- Recurring costs have been revised as discussed above.
- Well numbers and wellfield area for MU7 and MU8 have been adjusted for production and development plans.
- MU7 "Wellfield Area" has been revised to reflect current conditions.
- The number of "Baseline Water Quality wells" for MU7 has been reduced from 38 to 11 per WDWQ-LQD Guideline 4 recommendations of a density of 1 well per 3 acres for establishing restoration values.
- Credit for completion of groundwater sweep for Christensen Ranch Mine Units 2-6 has been granted by the WDEQ but has not been authorized by NRC; therefore, separate WDEQ estimates and NRC estimate are provided.
- Costs for the groundwater restoration of MU8 have been added. Lixiviant injection (subject to WDEQ approval) is anticipated in the first module of MU8 by the beginning of 2012.

Worksheet 2: Plant Equipment Removal and Disposal

- Recurring costs have been revised as discussed above.
- During the 2011-2012 reporting period Uranium One plans to add six additional IX vessels to the satellite plant accounting for a an increase in plant and filter media volume.

Worksheet 3: Restoration and Reclamation Costs

- Worksheet 3 addresses building demolition and disposal.
- Recurring costs have been revised as discussed above.
- During the 2011-2012 reporting period Uranium One plans to add an additional 9 wellfield module buildings and one booster pump building.

Worksheet 4: Pond Reclamation Cost

 This worksheet has been revised to reflect the recurring costs as discussed above.

Worksheet 5: Well Plugging and Abandonment

- Recurring costs have been revised as discussed above.
- The number of wells for CR MU7 and MU8 has been revised to reflect wells completed during the current reporting period and planned for 2011-2012.
- The row "Misc. Baseline / Regional Wells" has been removed, as these wells are either existing production or injection wells and their number is already reflected in the number of production/injection Wells. Past surety estimates mistakenly accounted for these wells as separate wells and included them in the total number of wells to be plugged in each mine unit.

Worksheet 6: Wellfield Equipment Removal & Disposal

Section I: Wellfield Piping

- Recurring costs have been revised as discussed above.
- The amount of wellfield pipeline for CR MU8 has been added.

Section II: Production Well Pumps

- The amount of production well pumps has been added for CR MU8.
- The number of production wells and pumps for CR MU7 has been revised to reflect the current number.
- The cost of removal and disposal for production well pumps at Irigaray has been deducted. All wells have been plugged and abandoned; and all well pumps have been removed from the site and disposed of at a licensed facility or moved to another operating facility.
- The cost of surface trunkline removal at Irigaray has been deducted, as all surface trunkline has been removed and disposed of at a licensed facility.
- The cost of buried trunkline removal at Irigaray has been deducted, as all buried trunkline has been removed and disposed of a licensed facility.

Section 3, Buried Trunkline

Trunkline for CR MU8 has been added.

Section V: Manholes

- Manholes have been added for CR MU8.
- The cost of manhole removal for Irigaray has been deducted, as all manholes have been removed and disposed of.

Worksheet 7: Topsoil Replacement & Revegetation

Recurring costs have been revised as discussed above.

Section III: Wellfields

Affected acreage for CR MU7 and MU8 remains the same from the last surety

update.

• Mine Unit 8 Radiation and Survey & Soil Analysis costs have been added.

Section IV: Roads

 Affected acreage for CR MU7 and MU8 remains the same from the last surety update.

Section V: Other

 Affected acreage for CR MU7 and MU8 remains the same from the last surety update.

Worksheet 8: Miscellaneous Reclamation

- Recurring costs have been revised as discussed above.
- For CR MU7 Sections I, II, III, and V have been adjusted to reflect actual numbers.
- Costs for CR MU8 development have been added throughout.

Table 1, Summary:

- In past surety estimate revisions, the costs have been inflated from September 2006 levels to reporting period levels based using the current CPI. In light of the of fact that a number of costs have been updated in Sheets 2-6, Uranium One has chosen to apply the inflation adjustment only to Sheet 1 "Groundwater Restoration" which has not had any costs escalated.
- "Miscellaneous Costs Associated with Third Party Contractors" has been updated to reflect the amounts in WDEQ-LQD Guideline 12, Section 2, Subsection 12.
- The overall difference from all the changes made to Worksheets 1 through 8 amounts to an increase for the WDEQ surety estimate amount of \$3,849,407 and an increase of \$3,311,788 to the NRC estimate.

In summary, the new Grand Total restoration and reclamation surety estimate for WDEQ is \$16,390,489 and the NRC estimate is \$16,240,210. This represents an increase of \$3,849,407 for the WDEQ estimate an increase of \$3,311,788 for the NRC estimate, over the currently approved amount of \$12,928,432. Uranium One respectfully requests that WDEQ approve the new bond amount of \$16,389,261.

RECURRING COST			
Item	Amount (\$)	Units	Cost Basis
ELECTRICAL			
Power Cost (actual costs)	\$0.03650	kw/hr	Current operating cost of electricity - Powder River Energy
LABOR RATES			
Supervisor	\$30.04	Hour	Operator Wage below + \$5.00 referenced in WDEO Guideline 12, Section I
Power Equipment Operators (Group 1)	\$24.08	Hour	From 2011 Heavy and Highway Prevailing Wages (referenced by state to 2010 State Building Construction Prevailing Wages) WDEQ Guideline 12 I.
Power Equipment Operators (Group 2)	\$25.04	hour	From 2011 Heavy and Highway Prevailing Wages (referenced by state to 2010 State Building Construction Prevailing Wages) WDEO Guideline 12.1.
Laborers (Group 1)	\$15.02	hour	From 2011 Heavy and Highway Prevailing Wages (referenced by state to 2010 State Building Construction Prevailing Wages) WDEQ Guideline 12 I.
Laborers (Group 2)	\$19.01	hour	From 2011 Heavy and Highway Prevailing Wages (referenced by state to 2010 State Building Construction Prevailing Wages) WDEO Guideline 12.1.

ANALYTICAL			
Guideline 8	\$150	batch	Current rate used in worksheet 1
TRANSPORTATION			
AND DISPOSAL	11.5	())	
Distance to Landfill	115	(miles)	The distance from Christensen Ranch/Irigary to Casper Landfill is ~115 miles
Transportation Cost	\$0.16	(\$/Ton-Mile)	Estimate from local trucking company (Sept. 2010)
Solid Waste landfill disposal cost .	\$58.50	Ton	Casper City landfill rates for outside of Natrona County commercial trailer over 8 feet in length.
Quantity Per Truck Load	20	(Tons)	
Quantity Per Truck Load	20.0	(Yds³)	Annual Control of the State of
11e2 disposal cost	\$100.00	cubic yard	Average cost of graduated fee schedule for disposal of soils, sands, rubble etc., at NRC Licensed Facility (Shirley Basin) (August 2010)
11e2 disposal cost	\$3.70	cubic foot	Average cost of graduated fee schedule for disposal of soils, sands, rubble etc., at NRC Licensed Facility (Shirley Basin) (August 2010)
11e2 disposal cost	\$11.00	cubic foot	Average cost of graduated fee schedule for disposal of sludge, resin beads, fileter media, etc., at NRC Licensed Facility (Shirley Basin) (August 2010)
11e2 disposal cost	\$297.00	cubic yard	Average cost of graduated fee schedule for disposal of sludge, resin beads, fileter media, etc., at NRC Licensed Facility (Shirley Basin) (August 2010)
Onsite Disposal	\$0.26	cubic foot	WDEQ Guidleine 12, Appendix K, Conrete Disposal On Site \$6.97yd ³ = \$0.26fi ³
11e2 Transporation Cost Per Truck	\$2,100.00		Constant cost per load based on current contract with local trucking company
VEHICLE			
OPERATION	600 (0		a . word a . I is lam II b I
Unit Cost	\$22.69	unit	Cost per WDEQ Guideline 12 Table D-1
PLANT			
DISMANTLING			
Concrete Floor Demolition	\$5.05	square foot	Costs per WDEQ Guideline 12, Appendix K
Cost of Demolition Per Ft ³	\$0.26	Cubic foot	WDEQ Guideline 12, Appendix K
			£
PLANT/EQUIPMENT			
DECONTAMINATION			
AND DISPOSAL			
Decontamination	\$0.13	square foot	Based on actual costs
Decontamination	\$435.00	truck load	Based On actual costs
WELL PLUGGING AND ABANDONMENT			
Bentonite Chips	\$5.10	50# bag	Quote from Casper Well (August 2011)
Cement Cones	\$7.50	per hole	Costs per WDEQ Guideline 12, App. L, Abandonment and Sealing of Drill and Monitor Wells

EOI	ЛРМ	ENT

Dozer	\$74.52	асте	Cost per WDEQ Guideline 12, App M, rough grading/backfi
Backhoe Loader (Cat 430E 4WD)	\$31.53	hour	Cost per WDEQ Guideline 12, Table D-1
Loader (Cat 980G)	\$106.06	hour	Cost per WDEQ Guideline 12, Table D-1
Pick up 4X4 (gasoline)	\$22.69	hour	Cost per WDEQ Guideline 12, Table D-1
Hose Reel	\$45.00	hour	Costs for equipment from operating ISR facility
			,

CULVERT REMOVAL

20 foot culvert	\$122.02	Cost per WDEQ Guideline 12, Appendix J
per foot	\$6.10 foot	

ELECTRICAL POWERLINES & TRANSFORMERS

Distrbution/Transmission Lines	\$0.00	Tri-County Electric will remove at no cost, WDEQ Guideline 12, Appendix H
Transformers	\$0.00	Tri-County Electric will remove at no cost, WDEQ Guideline 12, Appendix H

FENCING

Removal	\$0.31	linear foot	WDEQ Guideline 12, Appendix H
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RECLAMATION

Discing and Seeding	\$280	acre	Operator Experience based on Current Contractor Pricing
Top Soil Application	\$0.90	cu/yd	Costs per WDEQ Guideline 12, App. B
Unit Cost - Haul/Place (\$/Yd3)	\$0.90	cu/yd	Costs are for 1000 foot haul based on WDEQ Guideline 12, Appendix B, cost of \$.842/cubic yard
Unit Cost - Grading (\$/Ac)	\$70.43	асте	Costs per WDEO Guideline 12, Appendix M D9 dozer

References

Cost estimates were generated from a number of existing sources, primarily operating ISR facilities including:

Trec's Feasibility Study Moore Ranch Project

Guideline 12 costs were updated using Nov. 2010 version.

Smith Ranch 2007-2008 Surety Estimate Revision dated 6/29/07 - Accession Number ML072210876 - 2007-06-29.

			VVDEQ Estimate 1	TO Estimate
I GROUNDWATER RESTORATION - Worksh			\$6,337,329	\$6,575,380
Adjustment for Inflation = 11.2%	•			
(Sep. 2006 CPI All Urban Consumers, 202.9,	to June 2011, 225.72	22)	\$712,817	\$739,593
Subtotal Groundwater Restoration			\$7,050,146	\$7,314,973
II DECOMMISSIONING AND SURFACE RECL	AMATION:			
A. Process Plant(s) Equipment Remova			\$246,358	\$246,358
Worksheet 2				
B. Plant Building(s) Demolition and Disp	posal		\$1,210,115	\$1,210,115
Worksheet 3 C. Process Pond Sludge and Liner Han	dling		\$1,362,012	¢1 262 012
Worksheet 4	aing		\$1,302,012	\$1,362,012
D. Well Abandonment			\$740,740	\$740,740
Worksheet 5			•	
 E. Wellfield Equipment Removal and D Worksheet 6 	isposal		\$1,430,924	\$1,430,924
F. Topsoil Replacement and Revegetat	ion		\$1,038,999	\$1,038,999
Worksheet 7	_		#405.000	0405.000
G. Miscellaneous Reclamation Activities Worksheet 8	;		\$105,330	\$105,330
Sub Total - Decommissioning and Surface Re	eclamation		\$6,134,477	\$6,134,477
TOTAL RESTORATION AND RECLAMATION	N		\$13,184,623	\$13,449,449
	SUBTOTAL		\$13,184,623	\$13,449,449
Miscellaneous Costs Associated with Third P	-			
	WDEQ	NRC		
Project Design	\$200,000.00	0%		
Site Security & Liability Assurance	\$200,000.00	0.0%		
Contractor Profit & Mobilization	10%	3%		
Pre-construction Investigation	1%			
Project Management	3%	2%		
On-site monitoring	0.5%			
Longterm Administration	2%			
Subtotal miscellaneous additions to bond	16.5%	5.0%	\$2,575,463	\$672,472.47
	SUBTOTAL		\$15,760,085	\$14,121,922
Contingonous	WDEQ	NRC	# 000 400	
Contingency	4%	15%	\$630,403	\$2,118,288
GRAND TOTAL RESTORATION AND RECLAM	ATION		\$16,390,489	\$16,240,210
				· · · · · · · · · · · · · · · · · · ·

WDEQ Estimate NRC Estimate

10/1/10/12E1 1									
	Irigaray Mine Unit(s)	Irigaray Mine Unit(s)	Christensen Mine Unit	Christense Mine Unit					
ROUNDWATER RESTORATION	#1 Thru #5	#6 Thru #9	#2	#3	#4	#5	#6	#7	#8
echnical Assumptions:									
Wellfield Area (Ft²)	522720	784080	890000	798944	510088	1210968	2021243	1180476	21100
Wellfield Area (Acres)	12.00	18.00	20.43	18,34	11.71	27.80	46,40	27.10	48.
Affected Ore Zone Area (Ft²)	522720	784080	890000	798944	550193	1346004	2058344		21100
Avg Completed Thickness (Ft)	15.0	18.0	11.0	10.0	12.7	19.9	21.8	18.0	20
Affected Volume:	10.0	10.0	'	,0.0	,		21.0	10.0	
Factor For Vertical Flare	20%	20%	20%	20%	20%	20%	20%	20%	20
Factor For Horizontal Flare	20%	20%	20%	20%	20%	20%	20%	20%	20
Total Volume (Ft³)	11290752	20323353.6		11504793.6		38593685.7	64615534.8		607680
Porosity	26.0%	26.0%	26.0%	26.0%	26.0%	26.0%	26.0%	26,0%	26.0
Gallons Per Cubic Foot	7.48	7.48	7.48	7.48	7.48	7.48	7.48		7
Gallons Per Cubic Foot Gallons Per Pore Volume	21958254.5	39524858,1		22374522.6	19568440.7	75057000	125664292		11818160
Number of Wells in Unit(s)	2 1930234.3	33324030,1	2/41/012.5	22314322.0	15500440.7	73037000	123004252	39300009.07	11010100
Production Wells	150	274	91	176	81	134	178	167	2
Injection Wells	310	330	195	267		188	202		5
					130			309	
Monitor Wells	150	165		47	33	72	64	66	
Baseline Water Quality wells (prod or inj)	19	27	24	19	15	25	47	11	i
Average Well Spacing (Ft)	35	35		70	85	85	100		_
Average Well Depth (Ft)	250	250	345	300	430	450	520	550 H	3
GROUNDWATER SWEEP									
A. PLANT & OFFICE	—							1	l
Operating Assumptions:	i								
Flowrate (gpm)	i		200	200	200	200	200	200	
PV's Required			1	1	1	1	1	1	
Total Gallons For Treatment			27417012.5	22374522.6	19568440.7	75057000	125664292	59506869.67	11818160
Total KGals for Treatment			27417	22375	19568	75057	125664	59507	1181
Cost Assumptions:									
Power			1						
Avg Connected Hp			40.00	40.00	40,00	40.00	40.00	40.00	40.
Kwh's/Hp			0.83	0.83	0.83	0.83	0.83	0.83	0.
\$/Kwh			\$0.0365	\$0.0365	\$0.0365	\$0.0365	\$0.0365	\$0.0365	\$0.03
Gallons Per Minute			200	200	200	200	100	100	1
Gallons Per Hour			12000	12000	12000	12000	6000	6000	60
Cost Per Hour			1.21	1.21	1.21	1.21	1.21	1.21	1.
Cost Per Gallon			0.00010	0.00010	0.00010	0.00010	0.00020	0.00020	0.000
Cost Per KGal (\$)			\$0.101	\$0.101	\$0.101	\$0.101	\$0.202	\$0.202	\$0.2
Chemicals			\$0.101	φυ. 10 1	Ψ0.10 1	\$0.101	\$0.202	\$0.202	40.2
Antiscalent (\$/Kgals)			\$0.0947	\$0.0947	\$0.0947	\$0.0947	\$0.0947	\$0.0947	\$0.09
	•								
Elution (\$/KGals)	i l		\$0.099	\$0.099	\$0.099	\$0.099	\$0,099	\$0.099	\$0.0
Repair & Maintenance (\$/KGals)	ŀ		\$0.0379	\$0.0379	\$0.0379	\$0.0379	\$0.0379	\$0.0379	\$0.03
Analysis (\$/KGals)	ļ		\$0.131	\$0.127	\$0.115	\$0.050	\$0.056	\$0.000	\$0.0
Total Cost Per KGal			\$0.464	\$0.460	\$0.448	\$0.383	\$0.490	\$0.434	\$0.4
Total Treatment Cost			\$12,718	\$10,291	\$8,758	\$28,713	\$61,534	\$25,800	\$51,2
Utilities	i								
Power (\$/Month)	i		\$65	\$65	\$65	\$65	\$65	\$65	\$
Telephone (\$/Month	1		\$500	\$500	\$500	\$500	\$500	\$500	\$5
Time For Treatment			1						
Minutes For Treatment			137085	111873	97842	375285	628321	0	
Hours For Treatment			2285	1865	1631	6255	10472	0	
Days For Treatment			95	78	68	261	436	0	
Average Days Per Month			30.4	30.4	30.4	30.4	30.4	30.4	30
Months For Treatment			3.1	2.6	2.2	8.6	14,3	0.0	Č
Utilities Cost (\$)			\$1,768	\$1,443	\$1,262	\$4,841	\$8,105	\$0	
TOTAL PLANT & OFFICE COST		\$0	\$14,487	\$11,734	\$10,020	\$33,554	\$69,639	\$25,800	\$51.2
			417,107	\$11,707	410,020	400,001		420,000	401,2
	\$0								
GROUNDWATER SWEEP (Continued) B. WELLFIELD	\$0							i	
GROUNDWATER SWEEP (Continued) B. WELLFIELD	\$0								
GROUNDWATER SWEEP (Continued) B. WELLFIELD Cost Assumptions:	\$0								
B. WELLFIELD Cost Assumptions: Power	\$0		20.	20.	20.	20	າດ	າດ	
GROUNDWATER SWEEP (Continued) B. WELLFIELD Cost Assumptions: Power Avg Flow/Pump (gpm)	\$0		20 3.00	20 3.00	20 3.00	20 3.00	20 3.00	20	9.
B. WELLFIELD Cost Assumptions: Power Avg Flow/Pump (gpm) Avg Hp/Pump	\$0		3.00	3.00	3.00	3.00	3.00	3.00	3.0
B. WELLFIELD Cost Assumptions: Power Avg Flow/Pump (gpm) Avg Hp/Pump Avg # of Pumps Required	\$0		3.00 10.0	3.00 10.0	3.00 10.0	3.00 10.0	3.00 10.0	3.00 10.0	3.0 10
B. WELLFIELD Cost Assumptions: Power Avg Flow/Pump (gpm) Avg Hp/Pump Avg # of Pumps Required Avg Connected Hp	\$0		3.00 10.0 30	3.00 10.0 30	3.00 10.0 30	3.00 10.0 30	3.00 10.0 30	3.00 10.0 30	3.0 10
I GROUNDWATER SWEEP (Continued) B. WELLFIELD Cost Assumptions: Power Avg Flow/Pump (gpm) Avg Hp/Pump Avg # of Pumps Required	\$0		3.00 10.0	3.00 10.0	3.00 10.0	3.00 10.0	3.00 10.0	3.00 10.0	3.0 10 0.83 \$0.036

WORKSHEET 1									
	Irigaray	trigaray	Christensen						
	Mine Unit(s)	Mine Unit(s)	Mine Unit						
GROUNDWATER RESTORATION	#1 Thru #5	#6 Thru #9	#2	#3	#4	#5	#6	#7	#8
Gallons Per Minute			200	200	200	200	200	200	200
Gallons Per Hour			12000	12000	12000	12000	12000	12000	12000
Cost Per Hour (\$)			\$0.91	\$0.91	\$0.91	\$0.91	\$0.91	\$0.91	\$0.91
Cost Per Gallon (\$)			\$0.0001	\$0.0001	\$0.0001	\$0,0001	\$0,0001	\$0,0001	\$0,0001
Cost Per KGal (\$)			0.076	0.076	0.076	0.076	0,076	0.076	0.076
Repair & Maintenance (\$/KGals)			\$0.289	\$0.289	\$0.289	\$0.289	\$0.289	\$0.289	\$0.289
Total Cost Per KGal			\$0.365	\$0.365	\$0.365	\$0.365	\$0.365	\$0,365	\$0.365
TOTAL WELLFIELD COST	\$0	\$0	\$10,011	\$8,170	\$7,145	\$27,406	\$45,885	\$21,728	\$43,153
TOTAL GROUND WATER SWEEP COST	\$0	\$0	\$24,498	\$19,904	\$17,165	\$60,960	\$115,524	\$47,528	\$94,392
	_								
II REVERSE OSMOSIS									
A. PLANT & OFFICE									
Operating Assumptions:	1	1							
Flowrate (gpm)	1	į	500	500	500	500	500	500	500
PV's Required	1	i	5.0	5.0	5.0	5.0	5.0	10.0	10.0
Total Gallons For Treatment		i	137085062	111872613	97842203.3	375285000	628321461	595068696.7	1181816064
Total KGals for Treatment			137085	111873	97842	375285	628321	595069	1181816
Feed to RO (gpm)	1		500	500	500	500	500	500	500
Permeate Flow (gpm)	1		375	375	375	375	375	375	375
	1		125	125	125	125	125	125	125
Brine Flow (gpm)	1								
Average RO Recovery	1		75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
Cost Assumptions:									
Power	1								
Avg Connected Hp			560.00	560.00	560.00	560.00	560.00	560.00	560.00
Kwh's/Hp	ł		0.830	0.830	0.830	0.830	0.830	0.830	0.830
\$/Kwh			\$0.0365	\$0.0365	\$0.0365	\$0.0365	\$0.0365	\$0.0365	\$0.0365
Gallons Per Minute	!		500	500	500	500	500	500	500
Gallons Per Hour		i	30000	30000	30000	30000	30000	30000	30000
Cost Per Hour (\$)			\$16.97	\$16.97	\$16.97	\$16.97	\$16.97	\$16.97	\$16.97
Cost Per Gallon (\$)			\$0,00057	\$0.00057	\$0,00057	\$0,00057	\$0.00057	\$0.00057	\$0,00057
Cost Per KGai (\$)		-	\$0.566	\$0.566	\$0.566	\$0.566	\$0.566	\$0.566	\$0.566
Chemicals									
Caustic Soda (\$/KGals)			\$0.018	\$0.018	\$0.018	\$0.018	\$0.018	\$0.018	\$0.018
Antiscalent (\$/Kgals)			\$0.0947	\$0.0947	\$0.0947	\$0.0947	\$0.0947	\$0.0947	\$0.0947
Elution (\$/Kgals)			\$0.099	\$0.099	\$0.099	\$0.099	\$0.099	\$0.099	\$0.099
Repair & Maintenance (\$/KGals)			\$0.038	\$0.038	\$0.038	\$0.038	\$0.038	\$0.038	\$0.038
Sampling & Analysis (\$/KGals)			\$0.090	\$0.122	\$0.092	\$0.039	\$0.032	\$0.046	\$0,024
Total Cost Per KGal (\$)			\$0,905	\$0,937	\$0.907	\$0.854	\$0.847	\$0.861	\$0.839
Total Pumping Cost (\$)	\$0	\$0	\$124,089	\$104,788	\$88,752	\$320,397	\$531,949	\$512,194	\$991,206
Utilities (4)	40	•••	Ψ124,000	Ψ104,700	400,752	4020,007	4001,540	4012,101	4001,200
			ec.	ec=	605	\$65	\$65	\$65	\$ 65
Power (\$/Month)	i	!	\$65	\$65	\$65				
Propane (\$/Month			\$500	\$500	\$500	\$500	\$500	\$500	\$500
Time For Treatment									
Minutes For Treatment			274170	223745	195684	750570	1256643	1190137	2363632
Hours For Treatment			4570	3729	3261	12510	20944	19836	39394
Days For Treatment			190	155	136	521	873	826	1641
Average Days Per Month			30.4	30.4	30.4	30.4	30.4	30.4	30.4
Months For Treatment			6.3	5.1	4.5	17.1	28.7	27.2	54.0
Utilities Cost (\$)	\$0	\$0	\$3,560	\$2,882	\$2,543	\$9,662	\$16,216	\$15,368	\$30,510
TOTAL PLANT & OFFICE COST	\$0	\$0	\$127,648	\$107,670	\$91,294	\$330,059	\$548,165	\$527,562	\$1,021,716
II REVERSE OSMOSIS (Continued)	1 🔻	. 40	Ţ,O10	+.5,5,0,0	+- 1 par 7				
B. WELLFIELD	┥								
Cost Assumptions:	1								 1
	1		İ						
Power				00.55		20.00	20.00	00.00	
Avg Flow/Pump (gpm)	1		20.00	20.00	20.00	20.00	20.00	20.00	20.00
Avg Hp/Pump	1	1	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Avg # of Pumps Required	1		25.0	25.0	25.0	25.0	25.0	25.0	25.0
Avg Connected Hp	1	1	75.0	75.0	75.0	75.0	75.0	75.0	75.0
- Kwh's/Hp	1		0.830	0.830	0.830	0.830	0.830	0.830	0.830
\$/Kwh	i		\$0.0365	\$0.0365	\$0.0365	\$0.0365	\$0.0365	\$0.0365	\$0.0365
Gallons Per Minute			500	500	500	500	500	500	500
Gallons Per Hour			30000	30000	30000	30000	30000	30000	30000
							\$2.27	\$2.27	\$2.27
Cost Per Hour (\$)			\$2.27	\$2.27	\$2.27	\$2.27			
Cost Per Gallon (\$)			\$0.0001	\$0.0001	\$0.0001	\$0.0001	\$0.0001	\$0.0001	\$0.0001
Cost Per KGal (\$)			\$0.076	\$0.076	\$0.076	\$0.076	\$0.076	\$0.076	\$0.076
Repair & Maintenance (\$/KGals)	1	i	\$0.289	\$0.289	\$0.289	\$0.289	\$0.289	\$0.289	\$0.289
			40.200	40.200	Ψ0.203 j	40.E00	40.2.00	₩0.203	\$0.203

RKSHEET 1									
	Irigaray	Irigaray	Christensen	Christensen		Christensen	Christensen	Christensen	Christense
	Mine Unit(s)	Mine Unit(s)	Mine Unit	Mine Unit	Mine Unit	Mine Unit	Mine Unit	Mine Unit	Mine Uni
DUNDWATER RESTORATION	#1 Thru #5	#6 Thru #9	#2	#3	#4	#5	#6	#7	#8
Total Cost Per KGal			\$0.365	\$0.365	\$0.365	\$0.365	\$0.365	\$0.365	\$0.3
TOTAL WELLFIELD COST	\$0	\$0	\$50,000	\$40,804	\$35,687	\$136,881	\$229,172	\$217,044	\$431,0
Circulate 1 PV of Hydrogen Sulfide gas reductant			\$23,661	\$19,309	\$16,888	\$64,774	\$108,448	\$51,354	\$101,9
\$0.863 per Kgal				' '					
TOTAL REVERSE OSMOSIS COST	\$0	\$0	\$201,309	\$167,783	\$143,869	\$531,714	\$885,785	\$795,961	\$1,554,7
							*	*/	
WASTE DISPOSAL WELL	٦								
Operating Assumptions:								1	
			1,917,612	1,917,612	1,917,612	1,917,612	1,917,612	1,917,612	1,917,6
Annual Evaporation Capacity (Gals)									
Avg. Monthly Evap. Capacity (Gals)			159,801	159,801	159,801	159,801	159,801	159,801	159,8
Total Disposal Requirement									
RO Brine Total Gallons			34,271,266	27,968,153	24,460,551	93,821,250	157,080,365	148,767,174	295,454,0
RO Brine Total KGallons	ł	1	34,271	27,968	24,461	93,821	157,080	148,767	295,4
Brine Concentration Factor	l l		60%	60%	60%	60%	60%	60%	6
Total Concentrated Brine (Gals)	f		20,562,759	16,780,892	14,676,330	56,292,750	94,248,219	89,260,305	177,272,4
Months of RO Operation	•	1	6.3	5.1	4.5	17.1	28.7	27.2	54
Average Monthly Reqm't (Gallons)			3,263,930	3,290,371	3,261,407	3,291,974	3,283,910	3,281,629	3,282,8
Monthly Balance for DDW (Gals)			3,104,129	3,130,570	3,101,606	3,132,173	3,124,109	3,121,828	3,123,
Total WDW Disposal (Gallons)			19,556,013	15,965,907	13,957,226	53,560,153	89,661,930	84,913,717	168,643,
Total WDW Disposal (KGals)	1		19,556	15,966	13,957	53,560	89,662	84,914	168,
Cost Assumptions:									
Power									
Avg Connected Hp			100.00	100.00	100.00	100.00	100,00	100.00	100
WDW Avg Connected Hp			180.00	180.00	180.00	180.00	180.00	180.00	180
Kwh's/Hp			0.830	0.830	0.830	0.830	0.830	0.830	0.8
\$/Kwh			\$0.0365	\$0.0365	\$0.0365	\$0.0365	\$0.0365	\$0.0365	\$0.03
Gallons Per Minute			150	150	150	150	150	150	
Gallons Per Hour			9000	9000	9000	9000	9000	9000	9
Cost Per Hour (\$)			\$8.48	\$8.48	\$8.48	\$8.48	\$8.48	\$8.48	\$8.
Cost Per Gallon (\$)			\$0.0009	\$0.0009	\$0.0009	\$0.0009	\$0.0009	\$0.0009	\$0.00
Cost Per KGal (\$)			\$0.943	\$0.943	\$0.943	\$0.943	\$0.943	\$0.943	\$0.9
Chemicals (\$/Kgals)			40.0.0	40.010	40.0.0	40.0.0	40.0.0	\$0.0.0	••••
RO Antiscalent (\$/Kgals)			\$0.190	\$0,190	\$0.190	\$0.190	\$0,190	\$0,190	\$0.1
	i								
WDW Antiscalent (\$/Kgals)			\$0.237	\$0.237	\$0.237	\$0.237	\$0.237	\$0.237	\$0.2
Sulfuric Acid (\$/Kgals)	1	1 1	\$0.534	\$0.534	\$0.534	\$0.534	\$0.534	\$0.534	\$0.5
Corrosion Inhibitor		1	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0,000	\$0.0
Algacide	I	1	\$0.111	\$0.111	\$0.111	\$0.111	\$0.111	\$0.111	\$0.1
Repair & Maint (\$/Kgals)	1	1 1	\$0.077	\$0.077	\$0.077	\$0.077	\$0.077	\$0,077	\$0.0
Total Cost Per KGal	1	1	\$2.092	\$2.092	\$2.092	\$2.092	\$2.092	\$2.092	\$2.0
TOTAL WASTE DISPOSAL WELL COST	1		\$40,902	\$33,393	\$29,192	\$112,022	\$187,529	\$177,598	\$352,7
						7			
STABILIZATION MONITORING	7								
Operating Assumptions:									
Time of Stabilization (mos)		1 1	9	9	9	9	9	9	
Frequency of Analysis (mos)		1 1	3	3	3	3	3	3	
Total Sets of Analysis		1 1	4	4	4	آءِ ا	4	ă	
		l 1	~	• •	· •	7	7	7	
Cost Assumptions:		t l	****		****				
Generator Rental per sample set		í I	\$280	\$280	\$280	\$280	\$280	\$280	\$2
Analytical costs per set		1 1	\$3,600	\$2,850	\$2,250	\$3,750	\$7,050	\$1,650	\$2,4
Total Sampling & Analysis Cost (\$)	•	1 1	\$15,520	\$12,520	\$10,120	\$16,120	\$29,320	\$7,720	\$10,7
Utilities (Power + Telephone per month)		1 1	\$565	\$565	\$565	\$565	\$565	\$565	\$5
Total Utilities Cost (\$)		1 1	\$5,085	\$5,085	\$5,085	\$5,085	\$5,085	\$5,085	\$5,0
TOTAL STABILIZATION COST	\$0	\$0	\$20,605	\$17,605	\$15,205	\$21,205	\$34,405	\$12,805	\$15,8
			4=0,000	4,000	\$10,200	4= 1,===	40.,,.00	¥ /=	
LABOR (Irigaray and Christensen Combined)	7								
Cost Assumptions	Cost/Hour	Hours/Year	Cost						
	COSDITION	1 Tours/ rear [COST						
Crew:	405.55	0000	450.055						
1 Supervisor	\$25.00	2080	\$52,000						
	\$20.00	2080	\$166,400						
4 Operators	\$20.00	2080	\$83,200						
4 Operators 2 Maintenance			\$49,920						
2 Maintenance		2080							
2 Maintenance 2 Vehicles	\$12.00	2080							
2 Maintenance		2080	\$351,520						
2 Maintenance 2 Vehicles Cost per Year	\$12.00	2080							
2 Maintenance 2 Vehicles		2080							

	Irigaray	Irigaray	Christensen						
		Mine Unit(s)	Mine Unit						
ROUNDWATER RESTORATION	#1 Thru #5	#6 Thru #9	#2	#3	#4	#5	#6	#7	#8
	Irigaray	Christensen	Total						
	Mine Unit(s)	Mine Unit	Christensen						
	#1 Thru #9	#2 Thru #4	& Irigaray						
VI RESTORATION CAPITAL REQUIREMENTS									
Deep Disposal Well(s) - new		\$0							
II Plug and Abandon CR DW-1		\$73,950							
III Plug and Abandon CR 18-3		\$66,250							
IV 500 GPM Reverse Osmosis Unit		\$0							
Total	\$0	\$140,200							

	Irigaray	Irigaray	Christensen	Christensen	Christensen	Christensen	Christensen	Christensen	Christensen	
				Mine Unit	Mine Unit	TOTAL				
		Mine Unit(s)								TOTAL
	#1 Thru #5	#6 Thru #9	#2	#3	#4	#5	#6	#7	#8	
SUMMARY:										
I GROUNDWATER SWEEP	\$0	\$0	\$24,498	\$19,904	\$17,165	\$60,960	\$115,524	\$47,528	\$94,392	
11 REVERSE OSMOSIS	\$0	\$0	\$201,309	\$167,783	\$143,869	\$531,714	\$885,785	\$795,961	\$1,554,760	
III WASTE DISPOSAL WELL	\$0	\$0	\$40,902	\$33,393	\$29,192	\$112,022	\$187,529	\$177,598	\$352,719	
IV STABILIZATION	\$0	\$0	\$20,605	\$17,605	\$15,205	\$21,205	\$34,405	\$12,805	\$15,805	
SUB TOTAL	\$0	\$0_	\$287,314	\$238,685	\$205,431	\$725,900	\$1,223,243	\$1,033,892	\$2,017,676	\$5,732,140
V LABOR										\$703,040
VI CAPITAL										\$140,200
TOTAL GROUNDWATER RESTORATION COST										\$6,575,380
Credit for Completion of Groundwater Sweep (WDEQ)			\$24,498	\$19,904	\$17,165	\$60,960	\$115,524	\$0	\$0	\$238,051
Credit for Completion of Reverse Osmosis (WDEQ)										\$0
Credit Completion of Stabilization Monitoring (WDEQ)										\$0
Credit Subtot	al		\$24,498	\$19,904	\$17,165	\$60,960	\$115,524	\$0	\$0	\$238,051
GRAND TOTAL WDEQ	\$0	\$0	\$262,816	\$218,781	\$188,265	\$664,940	\$1,107,719	\$1,033,892	\$2,017,676	\$6,337,329
GRAND TOTAL NRC (no credit)	\$0	\$0	\$287,314	\$238,685	\$205,431	\$725,900	\$1,223,243	\$1,033,892	\$2,017,676	\$6,575,380
								· · · · · · · · · · · · · · · · · · ·		

,				Irigaray						Christensen		
	Maint Area &	Main Process	Expansion	Resin +Sand	Dry Pack	Restoration		Satellite	Resin + Sand	Restoration	Wellfield	
PLANT EQUIPMENT REMOVAL AND DISPOSAL	Laboratory	Building	Building	Filter Media	Area	Building	Sub Total	Plant	Filter Media	Extension	Modules	Sub Total
Volume (Yds³)	40		188	110	40	0		116	215.6	42	77.5	
Quantity Per Truck Load (Yds3)	20	20	20	20	20	20		20	20	20	20	
Number of Truck Loads	2.0	0.0	9.4	5.5	2.0	0.0		5.80	10.8	2.1	3.9	
I Decontamination Cost												
Decontamination Cost (\$/Load)	\$435	\$435	\$435	\$435	\$435	\$435		\$435	\$435	\$435	\$435	
Percent Requiring Decontamination	20.0%	100.0%	100.0%		100,0%	100.0%	-	100.0%	0.0%	100.0%	100.0%	
Total Cost	\$174	\$0	\$4,089	\$0	\$870	\$0	\$5,133	\$2,523	\$0	\$914	\$1,686	\$5,122
II Dismantle and Loading Cost												
Cost Per Truck Load (\$)	\$650	\$650	\$650	\$650	\$650	\$650		\$650	\$650	\$650	\$650	
Total Cost	\$1,300	\$0	\$6,110	\$3,575	\$1,300	\$0	\$12,285	\$3,770	\$7,007	\$1,365	\$2,519	\$14,661
III Oversize Charges												
Percent Requiring Permits	40.0%	40.0%	40.0%	0.0%	60.0%	40.0%		40.0%	0.0%	40.0%	0.0%	
Cost Per Truck Load (\$)	\$326	\$326	\$326	\$326	\$326	\$326		\$326	\$326	\$326	\$326	
Total Cost	\$261	\$0	\$1,226	\$0	\$391	\$0	\$1,878	\$756	\$0	\$274	\$0	\$1,030
IV Transportation & Disposal							l					
A. Landfill												
Percent To Be Shipped	80.0%	80.0%	80.0%	0.0%	50.0%	80.0%		80.0%	0.0%	80.0%	80.0%	
Transportation Cost Per Truck Load	\$368	\$368	\$368	\$368	\$368	\$368		\$368	\$368	\$368	\$368	
Transportation Cost	\$589	\$0	\$2,767	\$0	\$368	\$0		\$1,708	\$0	\$618	\$1,141	
Disposal Fee Per Ton (1 yd3 = 1 ton)	\$58.50	\$58.50	\$58.50	\$58.50	\$58.50	\$58.50		\$58.50	\$58.50	\$58.50	\$58.50	
Disposal Cost (\$)	\$1,872	\$0	\$8,798	\$0	\$1,170	\$0		\$5,429	\$0	\$1,966	\$3.627	
Total Cost	\$2,461	\$0	\$11,566	\$0	\$1,538	\$0		\$7,136	\$0	\$2,584	\$4,768	
B. Licensed Site			* 1	**	* - 1	, ,						
Percent To Be Shipped	20.0%	20.0%	20.0%	100.0%	50.0%	20.0%		20.0%	100.0%	20.0%	20.0%	
Transportation Cost Per Truck Load	\$2,100	\$2,100	\$2,100	\$2,100	\$2,100	\$2,100		\$2,100	\$2,100	\$2,100	\$2,100	
Transportation Cost	\$840	\$0	\$3,948	\$11,550	\$2,100	\$0	-	\$2,436	\$22,638	\$882	\$1,628	
Disposal Cost Per Cubic Foot (\$)	\$11.00	\$11.00	\$11.00	\$11.00	\$11.00	\$11.00		\$11.00	\$11.00	\$11.00	\$11.00	
Quantity Per Truck Load (Yds³)	20.0	20.0	20.0	20.0	20.0	20.0		20.0	20.0	20.0	20.0	
Quantity Per Truck Load (Ft³)	540	540	540	540	540	540	[540	540	540	540	
Disposal Cost	\$2,376	\$0	\$11,167	\$32,670	\$5,940	\$0		\$6,890	\$64,033	\$2,495	\$4,604	
Total Cost Licensed Site	\$3,216	\$0	\$15,115	\$44,220	\$8,040	\$0		\$9,326	\$86,671	\$3,377	\$6,231	
Total Cost Transportation & Disposal	\$5,677	\$0	\$26,681	\$44,220	\$9,578	\$0	\$86,156	\$16,463	\$86,671	\$5,961	\$10,999	\$120,093
TOTAL COST	67.440	**	620.400	647.705	640 400	**	#40E 4E0	#00 E40	\$93,678	\$8,513	#4E 202	6140.000
TOTAL COST TOTAL COST - IRIGARAY AND CHRISTENSEN	\$7,412	\$0	\$38,106	\$47,795	\$12,139	\$0_	\$105,452	\$23,512	\$93,678	\$8,513	\$15,203	\$140,906 \$246,358

			Irigaray	-					Christensen				
Maint Area &	Warehouse	Main Process	Expansion	Dry Pack	Restoration		Satellite	Wellfield	Booster	Restoration	Office		
Laboratory	& Offices	Building	Building	Area	Building	Sub Total	Plant	Modules	Pump Bldgs.	Extension	Building	Warehouse	Sub Total

BUILDING DEMOLITION AND DISPOSAL

Structural Character	1 Story	1 Story	1 Story	1 Story	3 Story	1 Story		2 Story	1 Story	1 Story	2 Story	1 Story	1 Story	
	Steel Frame	Steel Frame	Steel Frame		Steel/Masonry	Steel Frame		Steel Frame	Pre Fab (31)	Pre Fab (5)	Steel Frame	Pre-Fab	Steel Frame	
Demolition Volume (Ft*)	179400	108720	430400	386400	126000	69640		192000	133920	58400	72000	64800	11000	
Cost of Demolition Per Ft*	\$0.2600	\$0.2600	\$0.2600	\$0.2600	\$0.2600	\$0.2600		\$0.2600	\$0.2600	\$0.2600	\$0.2600	\$0.2600	\$0.2600	
Demolition Cost (\$)	\$46,644	\$28,267	\$111,904	\$100,464	\$32,760	\$18,106	\$338,146	\$49,920	\$34,819	\$15,184	\$18,720	\$16,848	\$2,860	\$138,351
Factor For Gutting	15.0%	10.0%	30.0%	10.0%	20.0%	10.0%		20.0%	0.0%	0.0%	20.0%	10.0%	10.0%	
Cost For Gutting (\$)	\$6,997	\$2,827	\$33,571	\$10,046	\$6,552	\$1,811	\$61,804	\$9,984	\$0	\$0	\$3,744	\$1,685	\$286	\$15,699
Weight (pounds)	158761	96212	380885	341947	111504	61628		169912	66660	28032	63717	38802	9735	
Weight per Truckload (Tons)	20	20	20	20	20	20		20	20	20	20	20	20	
Number of Truckloads	4.0	2.4	9.5	8.5	2.8	1.5		4.2	1.7	0.7	1.6	1.0	0.2	
Distance to Landfill	115	115	115	115	115	115		115	115	115	115	115	115	
Unit Cost (Ton/Mile)	\$0.16	\$0.16	\$0.16	\$0.16	\$0.16	\$0.16		\$0.16	\$0.16	\$0.16	\$0.16	\$0.16	\$0.16	
Transportation Cost per Truckload	\$368	\$368	\$368	\$368	\$368	\$368		\$368	\$368	\$368	\$368	\$368	\$368	
Transportation Cost (\$)	\$1,461	\$885	\$3,504	\$3,146	\$1,026	\$567	\$10,589	\$1,563	\$613	\$258	\$586	\$357	\$90	\$3,467
Disposal Cost per Truckload	\$1,170.00	\$1,170.00	\$1,170.00	\$1,170.00	\$1,170.00	\$1,170.00		\$1,170.00	\$1,170.00	\$1,170.00	\$1,170.00	\$1,170.00	\$1,170.00	ŀ
Disposal Cost (\$)	\$4,644	\$2,814	\$11,141	\$10,002	\$3,261	\$1,803	\$33,665	\$4,970	\$1,950	\$820	\$1,864	\$1,135	\$285	\$11,023
TOTAL COST	\$59,745	\$34,793	\$160,120	\$123,658	\$43,599	\$22,287	\$444,203	\$66,437	\$37,382	\$16,262	\$24,914	\$20,025	\$3,520	\$168,540
TOTAL COST IRIGARAY AND CHRISTENSEN													L	\$612,743_

CONCRETE DECONTAMINATION, DEMOLITION & DISPOSAL

Area (Ft²)	8020	7100	17600	18400	5600	3600		9600	이	1800	3600	0	1000	
Average Thickness (Ft)	0.5	0.5	0.5	0.5	1	0.5		0.5	0.0	0.5	0.5	0.0	0.5	
Volume (Ft*)	4010	3550	8800	9200	5600	1800		4800	이	900	1800	0	500	
Percent Requiring Decontamination	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%		100.0%	0.0%	100.0%	100.0%	0.0%	0.0%	
Percent Decontaminated	0.0%	0.0%	75.0%	75.0%	40.0%	75.0%		75.0%	0.0%	100.0%	100.0%	0.0%	0.0%	
Decontamination (\$/Ft²)	\$0.134	\$0.134	\$0.134	\$0.134	\$0.134	\$0.134		\$0.134	\$0.134	\$0.134	\$0.134	\$0.134	\$0.134	
Decontamination Cost	\$0	\$0	\$1,769	\$1,849	\$300	\$362	\$4,280	\$965	\$0	\$241	\$482	\$0	\$0	\$1,688
Demolition (\$/Ft²)	\$5.05	\$5.05	\$5.05	\$5.05	\$5.05	\$5.05		\$5.05	\$5.05	\$5.05	\$5.05	\$5.05	\$5.05	
Demolition Cost	\$40,501	\$35,855	\$88,880	\$92,920	\$28,280	\$18,180	\$304,616	\$48,480	\$0	\$9,090	\$18,180	\$0	\$5,050	\$80,800
Transportation & Disposal			1		1		j					ŀ		
A. Onsite Disposal	1		i		i							- 1		
Percent to be Disposed Onsite	100%	100%	90%	90%	40%	90%		90%	0%	100%	100%	0%	100%	
Transportation Cost	\$0	\$0	\$0	\$0	\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0	
Disposal Cost per Cubic Foot	\$0.260	\$0.260	\$0.260	\$0.260	\$0.260	\$0.260		\$0.260	\$0.260	\$0.260	\$0.260	\$0.260	\$0.260	
Disposal Cost (\$)	\$1,043	\$923	\$2,059	\$2,153	\$582	\$421	\$7,181	\$1,123	\$0	\$234	\$468	\$0	\$130	\$1,955
B. Licensed Site	1		1		- 1	- 1								
Percent to be Shipped	0%	0%	10%	10%	60%	10%		10%	100%	0%	0%	100%	0%	
Transportation Cost per Truckload	\$2,100	\$2,100	\$2,100	\$2,100	\$2,100	\$2,100		\$2,100	\$2,100	\$2,100	\$2,100	\$2,100	\$2,100	
Transportation Cost (\$)	\$0	\$0	\$3,422	\$3,578	\$13,067	\$700	\$20,767	\$1,867	\$0	\$0	\$0	\$0	\$0	\$1,867
Disposal Cost per Cubic Foot	\$3.70	\$3.70	\$3.70	\$3.70	\$3.70	\$3.70		\$3.70	\$3.70	\$3.70	\$3.70	\$3.70	\$3.70	
Quantity Per Truck Load (Yds*)	20	20	20	20	20	20		20	20	20	20	20	20	
Quantity Per Truck Load (Ft*)	540	540	540	540	540	540		540	540	540	540	540	540	
Disposal Cost (\$)	\$0	\$0	\$3,259	\$3,407	\$12,444	\$667	\$19,778	\$1,778	\$0	\$0	\$0	\$0	\$0	\$1,778
TOTAL COST	\$41,544	\$36,778	\$99,389	\$103,907	\$54,674	\$20,330	\$356,622	\$54,212	\$0	\$9,565	\$19,130	\$0	\$5,180	\$88,088
TOTAL COST IRIGARAY AND CHRISTENSEN	J												L	\$444,710

SOIL REMOVAL & DISPOSAL

Assume removal of 3" of Contaminated Soil under Primary Areas, Disposal at a Licensed facility.	7													
Removal with Loader (\$106/hr) \$106	\$0	\$0	\$1,728	\$1,807	\$550	\$354	\$4,439	\$943	\$0	\$0	\$0	\$0	\$0	\$943
Quantity to be Shipped (Ff*)	C	l o	4400	4600	1400	900		2400	0	0	0	0	0	
Transportation Cost per Truckload	\$2,100	\$2,100	\$2,100	\$2,100	\$2,100	\$2,100	i	\$2,100	\$2,100	\$2,100	\$2,100	\$2,100	\$2,100	
Transportation Cost (\$)	\$0	\$0	\$17,111	\$17,889	\$5,444	\$3,500	\$43,944	\$9,333	\$0	\$0	\$0	\$0	\$0	\$9,333
Disposal fee Per Cubic Foot(\$)	\$3.70	\$3.70	\$3.70	\$3.70	\$3.70	\$3.70		\$3.70	\$3.70	\$3.70	\$3.70	\$3.70	\$3.70	
Quantity per Truckload (Ft*)	540	540	540	540	540	540		540	540	540	540	540	540	
Disposal Cost (\$)	\$0	\$0	\$16,296	\$17,037	\$5,185	\$3,333	\$41,852	\$8,889	\$0	\$0	\$0	\$0	\$0	\$8,889
Removal, NPDES Pts. Quantity to be Shipped (Ft*) Transportation Cost per Truckload	\$2,100	\$2,100	559 \$2,100	\$2,100	\$2,100	\$2,100		5,030 \$2,100	\$2,100	\$2,100	\$2,100	\$2,100	\$2,100	

				Irigaray		·				Christensen				
	Maint Area &	Warehouse	Main Process	Expansion	Dry Pack	Restoration		Satellite	Wellfield	Booster	Restoration	Office		
	Laboratory	& Offices	Building	Building	Area	Building	Sub Total	Plant	Modules	Pump Bldgs.	Extension	Building	Warehouse	Sub Total
Transportation Cost (\$)	\$0	\$0	\$2,174	\$0	\$0	\$0	\$2,174	\$19,562	\$0	\$0	\$0	\$0	\$0	\$19,562
Disposal fee Per Cubic Foot(\$)	\$3.70	\$3.70	\$3.70	\$3.70	\$3.70	\$3.70		\$3.70	\$3.70	\$3.70	\$3.70	\$3.70	\$3.70	1
Quantity per Truckload (Ft*)	540	540	540	540	540	540		540	540	540	540	540	540	
Disposal Cost (\$)	\$0	\$0	\$2,070	\$0	\$0	\$0	\$2,070	\$18,630	\$0	\$0	\$0	\$0	\$0	\$18,630
Total Cost	\$0	\$0	\$39,379	\$36,733	\$11,180	\$7,187	\$94,479	\$57,356	\$0	\$0	\$0	\$0	\$0	\$57,356
TOTAL COST	\$0	\$0	\$39,379	\$36,733	\$11,180	\$7,187	\$94,479	\$57,356	\$0	\$0	\$0	\$0	\$0	\$57,356
TOTAL COST IRIGARAY AND CHRISTENSEN			+50,070	430,130	¥11,100	Ψ/,10/	\$07,773	\ \$37,000]	Ψ0	μ	Ψ0	Ψ0	40	\$151,835

RADIATION SURVEY			Ì											
Area required (acres)	0.18	0.16	0.40	0.42	0.13	0.08		0.22	0.00	0.04	0.08	0.00	0.02	
Survey Cost (\$/acre)	\$520.00	\$520.00	\$520.00	\$520.00	\$520.00	\$520.00		\$520.00	\$520.00	\$520.00	\$520.00	\$520.00	\$520.00	
TOTAL SURVEY COST (\$)	\$96		\$210	\$220	\$67	\$43	\$636	\$115	\$0	\$21	\$43	\$0	\$12	\$191

TOTAL COST	\$101,385	\$71,571	\$299,099	\$264,518	\$109,520	\$49,846	\$895,939	\$178,121	\$37,382	\$25,848	\$44,087	\$20,025	\$8,712	\$314,176
TOTAL COST IRIGARAY AND CHRISTENSEN														\$1,210,115

WORKSHEET 4													
										Christensen			
BOND BEOLAMATION COOT	Dend A	Daniel D.	Dead O	Irigaray	Donal E	Pond RA	Pond RB	Brine Pond 1	Brine Pond 2	Brine Pond 3	Brine Pond 4	Permeate Pond	
POND RECLAMATION COST	Pond A	Pond B	Pond C	Pond D	Pond E	Pond RA	Pona RB	Pond I	Poliu 2	Fond 3	Pona 4	Politi	
POND SLUDGE:								I					
Average Studge Depth (Ft)	1	0.156		0.156		0.156	0.156	0.166	0.222	0.143	890.0	0.000	
Average Area of Sludge (Ft²)		50,604		50,604		64,299	64,299	20,909	20,909	20,909	20,909		
Volume of Sludge (Ft³)	l	7,907		7,907		10,047	10,047	3,466	4,651	2,983	1,414	-	
Volume of Sludge (Yds³)		293		293		372	372	128	172	110	52	0	
Volume of Sludge Per Truck Load (Yds*)		20.0		20.0		20.0	20.0	20.0	20.0	20.0	20.0	20.0	
# of Truck Loads of Sludge		14.7		14.7		18,6	18.6	6.4	8.6	5.5	2.6	0.0	
Sludge Handling Cost Per Load (\$)		\$240.00		\$240.00		\$240.00	\$240.00	\$240.00	\$240.00	\$240.00	\$240.00	\$240.00	
Total Sludge Handling Cost (\$)	\$0	\$3,528	\$0	\$3,528	\$0	\$4,464	\$4,464	\$1,536	\$2,064	\$1,320	\$624	\$0	
Transportation & Disposal		400.004				400.00	400.00/	400.004	100.0%	100.0%	100.0%	100.0%	
Percent To Be Shipped to Licensed Site		100.0%		100.0%		100.0% \$2,100	100.0% \$2,100	100.0% \$2,100	\$2,100	\$2,100	\$2,100	\$2,100	
Transportation Cost per Truckload		\$2,100 \$30,870		\$2,100 \$30,870		\$39,060	\$39,060	\$2,100 \$13,440	\$18,060	\$11,550	\$5,460	\$2,100	
Transportation Cost (\$) Disposal Cost Per Cubic Foot (\$)		\$30,670 \$11.00		\$11.00		\$11.00	\$11.00	\$13,440	\$10,000	\$11,00	\$11.00	\$11.00	
Quantity Per Truck Load (Yds ³)		20.0		20.0		20,0	20.0	20.0	20.0	20.0	20.0	20.0	
Quantity Per Truck Load (*tus*) Quantity Per Truck Load (*Fts*)		540		540		540	540	540		540	540		
Disposal Cost (\$)		\$87,318		\$87,318	1	\$110,484	\$110,484	\$38,016	\$51,084	\$32,670	\$15,444	\$0	
Total Transportation & Disposal (\$)	\$0	\$118,188	\$0	\$118,188	\$0	\$149,544	\$149,544	\$51,456	\$69,144	\$44,220	\$20,904	\$0	
TOTAL SLUDGE COST (\$)	\$0		\$0		\$0			\$52,992	\$71,208	\$45,540	\$21,528	\$0	\$742,716
					·								
POND LINER:													
Total Pond Area (Acres)	1	1.72		1.72		2.17	2.17	1.10	1.10	1.10	1.10	0.00	
Total Pond Area (Ft²)	į.	74923.2		74923.2		94525.2	94525.2	47916	47916	47916	47916		
Factor For Sloping Sides		20.0%		20.0%	ŀ	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%		
Total Liner Area (Ft²)		89908		89908		113430	113430		57499	57499	57499		
Liner Thickness (Mil)		30		180		180	0.0300	180 0.1800	0.0300	30 0,0300	30 0,0300	0	
Liner Thickness (Inches)		0.0300		0.1800		0.1800 0.0150	0.0300	0.1800	0.0025	0.0300	0.0025	٥	
Liner Thickness (Ft) "Swell" Factor		0.0025 25.0%		0.0150 25.0%		25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	0.0%	
Liner Volume (FIP)		25.0%		1686		23.0%	354	1287	180	180	180	0.570	
Truck Loads of Liner	1	0.5		3,1		3.9	0.7	2.4	0.3	0.3	0.3	0.0	
Liner Handling Cost (\$)	 	- 0.0		0.1		0.0	<u> </u>						
Labor Crew Cost per Hour (\$)	i	\$160		\$160		\$160	\$160	\$160	\$160	\$160	\$160	\$0	
Hours per Load		2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0	0.0	
Liner Handling Cost Per Load (\$)		\$320.36		\$320.36		\$320.36	\$320.36	\$320.36	\$320.36	\$320.36	\$320.36	\$0.00	
Total Liner Handling Cost (\$)	\$0_	\$160	\$0	\$993	\$0	\$1,249	\$224	\$769	\$96_	\$96	\$96	\$0	
Transportation & Disposal												ll	
Percent To Be Shipped to Licensed Site		100.0%		100.0%		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
Transportation Cost per Truckload		\$2,100		\$2,100		\$2,100	\$2,100	\$2,100	\$2,100	\$2,100	\$2,100	\$2,100	
Transportation Cost (\$)		\$1,050		\$6,510		\$8,190	\$1,470	\$5,040	\$630 \$11.00	\$630 \$11.00	\$630 \$11.00	\$0 \$11.00	
Disposal Cost Per Cubic Foot (\$)		\$11.00		\$11.00		\$11.00 540	\$11.00 540	\$11.00 540	540	\$11.00 540	\$11.00 540		
Quantity Per Truck Load (Ft³)		540 \$2,970		540 \$18,414		\$23,166	\$4.158	\$14,256	\$1,782	\$1,782	\$1,782	\$0	
Disposal Cost (\$) Total Transportation & Disposal (\$)	\$0	\$4,020	\$0	\$24,924	\$0	\$31,356	\$5,628	\$19,296	\$2,412	\$2,412	\$2,412	so l	
TOTAL LINER COST (\$)	\$0	\$4,180	\$0	\$25,917	\$0	\$32,605	\$5,852	\$20,065	\$2,508	\$2,508	\$2,508	\$0	\$96,143
TOTAL LINER COOT (4)	Ψ0	\$1,100		\$25,511		402,000	40,002	420,000	,	, , , , , , , , , , , , , , , , , , ,			
POND BACKFILL:	T							1					
Backfill required (Yds³)	8740	8580	8740	8580	2517	14617	16319	9048	9048	9048	9048		
Backfill Cost (\$/Yd³)	\$0.90	\$0.90	\$0.90	\$0.90	\$0.90	\$0.90	\$0.90	\$0.90	\$0.90	\$0.90	\$0.90	\$0.90	
TOTAL BACKFILL COST (\$)	\$7,866	\$7,722	\$7,866	\$7,722	\$2,265	\$13,155	\$14,687	\$8,143	\$8,143	\$8,143	\$8,143	\$16,263	\$110,118
RADIATION SURVEY	1											ا _ا	
Areal required (acres)		1.72		1.72		2.90	2.17	1.10	1.10	1.10 \$520.00	1.10	\$520.00	
Survey Cost (\$/acre)	\$520.00	\$520.00	\$520.00	\$520.00	\$520.00	\$520.00	\$520.00	\$520.00	\$520.00 \$572	\$520.00 \$572	\$520.00 \$572	\$520.00	\$6,712
TOTAL SURVEY COST (\$)	\$0	\$894	\$0	\$894	\$0	\$1,508	\$1,128	\$572	\$572	\$372	\$572	\$0	\$0,712
LEAV DETECTION OVETER DEMOVAL	1												
LEAK DETECTION SYSTEM REMOVAL		F 1						26,250				1	
Volume of Gravel and Piping (Ft³) (Assume 3") Quantity per Truckload (Ft³)	I							26,250 540	1			j	
Quantity for Truckload (Ft) Quantity to be Shipped to Licensed Site (Loads)	1							49					
Transportation Cost per Truckload	1							\$2,100					
Transportation Cost (\$)	1		Ì	}	1) '		\$102,000	ì			1	
Handling Cost per load	1							\$15,573				ļ	
Disposal Fee per Cubic Foot (\$)	1							\$11					
Disposal Cost (\$)								\$288,750					
1 1	•		•	'		•			•		-		

_										Christenser			1
				Irigaray				Brine	Brine	Brine	Brine	Permeate	
POND RECLAMATION COST	Pond A	Pond B	Pond C	Pond D	Pond E	Pond RA	Pond RB	Pond 1	Pond 2	Pond 3	Pond 4	Pond	
TOTAL LEAK DETECTION SYSTEM REMOVAL	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$406,323	\$0	\$0	\$0	\$0	\$406,323
					_								
TOTAL POND RECLAMATION COST	\$7,866	\$134,512	\$7,866	\$156,249	\$2,265	\$201,276	\$175,675	\$488,095	\$82,431	\$56,763	\$32,751	\$16,263	\$1,362,012

SUMMARY - IRIGARAY:

SUMMARY - CHRISTENSEN:

TOTAL SLUDGE COST (\$)	\$551,448	TOTAL SLUDGE COST (\$)	\$191,268
TOTAL LINER COST (\$)	\$68,554	TOTAL LINER COST (\$)	\$27,589
TOTAL BACKFILL COST (\$)	\$61,283	TOTAL BACKFILL COST (\$)	\$48,835
TOTAL RADIATION SURVEY COST (\$)	\$4,424	TOTAL RADIATION SURVEY COST (\$)	\$2,288
LEAK DETECTION SYSTEM REMOVAL	\$0	LEAK DETECTION SYSTEM REMOVAL	\$406,323
TOTAL POND RECLAMATION COST	\$685,709	TOTAL POND RECLAMATION COST	\$676,303
		TOTAL PROJECT COST - CR and IR (\$)	\$1,362,012

		Irigaray						Christensen	1			
	Mine Units	5I7 USMT	Monitor/					Mine Units				
WELL PLUGGING AND ABANDONMENT	#1 Thru #9	Test Sites	Trend	Sub Total	#2	#3	#4	#5	#6	#7	25 PM #8 PM	Sub Total
	·									•		
Number of Wells	0	11		11								
Production / Injection Wells (Inclusive of										<u> interance</u>		
Misc. Baseline / Regional Wells)					286	443	211	322	380	556	760	2958
Monitor Wells (Shallow, Deep, Perimeter)	1				50	47	33	72	64	66	82	414
Total					336	490	244	394	444	622	842	3372
Average Depth	250	250	250		345		430					
Average Diameter	4.5	4.5	4.5		4.5		4.5					
										,		
Materials												
Bentonite Chips Required (Ft³/Well)	11.4	11.4	11.4		11.4	11.4	11.4	11.4	11.4	11.4	11.4	
Bags of Chips Required/Well	15.0	15.0	15.0		15.0	15.0	15.0	15.0	15.0	15.0	15.0	
Cost Per Bag (\$)	\$5.10	\$5.10	\$5.10		\$5.10	\$5.10	\$5.10	\$5.10	\$5.10	\$5.10	\$5.10	
Cost/Well Bentonite Chips (\$)	\$76.50	\$76.50	\$76.50		\$76.50	\$76.50	\$76.50	\$76.50	\$76.50	\$76.50	\$76.50	
Gravel Fill Required (Ft³/Well)	15.7	15.7	15.7		26.5	21.5	35.9	38.1	45.8	49.1	24.9	
Gravel Fill Required (Yd³/Well)	0.58	0.58	0.58		0.98	0.80	1.33	1.41	1.70	1.82	0.92	
Cost of Gravel/Yd³ (\$)	\$20.00	\$20.00	\$20.00		\$20.00	\$20.00	\$20.00	\$20.00	\$20.00	\$20.00	\$20.00	
Cost/Well Gravel Fill (\$)	\$11.63	\$11.63	\$11.63		\$19.63	\$15.93	\$26.59	\$28.22	\$33.93	\$36.37	\$18.44	
Cement Cone/Markers Req'd/Well	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Cost of Cement Cones/Markers (\$)	\$7.50	\$7.50	\$7.50		\$7.50	\$7.50	\$7.50	\$7.50	\$7.50	\$7.50	\$7.50	
Total Materials Cost per Well	\$95.63	\$95.63	\$95.63		\$103.63	\$99.93	\$110.59	\$112.22	\$117.93	\$120.37	\$102.44	
Labor				[
Hours Required per Well	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Labor Cost per Hour	\$54.12	\$54.12	\$54.12		\$54.12	\$54.12	\$54.12	\$54.12	\$54.12	\$54.12	\$54.12	
Total Labor Cost per Well (\$)	\$54.12	\$54.12	\$54.12		\$54.12	\$54.12	\$54.12	\$54.12	\$54.12	\$54.12	\$54.12	
Equipment Rental												
Hours Required per Well	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Backhoe w/Operator Cost/Hr (\$)	\$55.61	\$55.61	\$55.61		\$55.61	\$55.61	\$55.61	\$55.61	\$55.61	\$55.61	\$55.61	
Total Equipment Cost per Well (\$)	\$55,61	\$55,61	\$55.61		\$55.61	\$55.61	\$55.61	\$55.61	\$55.61	\$55.61	\$55.61	
Total Cost per Well (\$)	\$205.36	\$205.36	\$205.36		\$213.36	\$209.66	\$220.32	\$221.95	\$227.66	\$230.10	\$212.17	
										\$72,485		
TOTAL WELL ABANDONMENT COST (\$)	\$0	\$2,259	\$0	\$2,259	\$71,689	\$102,731	\$53,759	\$87,449	\$101,079	\$143,122	\$178,651	\$738,481

GRAND TOTAL IRIGARAY AND CHRISTENSEN

\$740,740

•	Irigaray	Christensen	Christensen	Christensen	Christensen Mine Unit		Total Christensen
WELLFIELD EQUIPMENT REMOVAL & DISPOSAL	Mine Unit(s) #1 Thru #9	Mine Units #2 Thru #4	Mine Unit #5	Mine Unit #6	#7	Mine Unit #8 +	& Irigaray
t Wellfield Piping	٦						
A. Removal							
Length/Well (Ft)	100	300	300	300	500		
Total Number of Wells	602	940	322	380			
Total Quantity (Ft)	60200		96600	114000			
Cost of Removal (\$/Ft)	\$0.202	\$0.202	\$0.202	\$0.202	\$0.202	\$0.202	
Cost of Removal (\$)	\$12,160	\$56,964	\$19,513	\$23,028	\$56,156	\$35,310	\$203,131
Average OD (Inches)	3.0	3.0	3.0	3.0	3.0	3.0	
Chipped Volume Reduction (Ft³/Ft)	0.016	0.016	0.016	0.016	0.016	0.016	
Chipped Volume (Ft³)	963	4,512	1,546	1,824	4,448	2,797	
Quantity Per Truck Load (Ft ^s)	540	540	540	540			
Total Number of Truck Loads	1.8	8.4	2.9	3.4	8.2	5.2	
B. Survey & Decontamination							
Percent Requiring Decontamination	0%	0%	0%	0%			
Loads for Decontamination	0.0	0.0	0.0	0.0	0.0	0.0	
Cost for Decontamination (\$/Load)	\$435.00	\$435.00	\$435.00	\$435.00	\$435.00	\$435.00	ļ
Cost for Decontamination (\$)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
C. Transport & Disposal		1					
1.) Landfill							
a. Transportation			l	l			
Percent To Be Shipped	0.0%	0.0%	0.0%	0.0%	0.0%		
Loads To Be Shipped	0.0	0.0	0.0	0.0	0.0	5.2	
Transportation Cost per Load	\$1,170	\$1,170	\$1,170	\$1,170	\$1,170	\$1,170	** **
Transportation Cost (\$)	\$0	\$0	\$0	\$0	\$0	\$6,060	\$6,060
b. Disposal	*50.50	\$ 50.50	*50.50	\$58.50	\$58.50	\$58,50	
Disposal Fee Per Yd³ Yds³ Per Load	\$58.50 20	\$58.50 20	\$58.50 20	356.50			
Disposal Cost (\$)	\$0	\$0	\$0	\$0	\$0	\$6,060	
Total Cost - Landfill	\$0	\$0	\$0	\$0	\$0	\$12,119	\$12,119
2.) Licensed Site	40		***	**	40	\$12,113	V12,113
a. Transportation			!				
Percent To Be Shipped	100.0%	100.0%	100.0%	100.0%	100.0%	0.0%	
Loads To Be Shipped	1.8	8.4	2.9	3.4	8.2	0.0	
Transportation Cost per Load	\$2,100	\$2,100	\$2,100	\$2,100	\$2,100	\$2,100	
Transportation Cost (\$)	\$3,780	\$17,640	\$6,090	\$7,140	\$17,220	\$0	\$51,870
b. Disposal	40,700	•,	1 40,000	•,,	V.,,	**	40.1,07.
Disposal Cost Per Ft ^s	\$11.00	\$11.00	\$11.00	\$11.00	\$11.00	\$11.00	
Disposal Fee Per Yd³	\$297.00	\$297.00	\$297.00	\$297.00	\$297.00	\$297.00	
Quantity Per Truck Load (Yds3)	20	20	20	20	20	20	
Disposal Cost (\$)	\$10,692	\$49,896	\$17,226	\$20,196	\$48,708	\$0	\$146,718
Total Cost - Licensed Site	\$14,472	\$67,536	\$23,316	\$27,336	\$65,928	\$0	\$198,588
Total Cost - Transport & Disposal	\$14,472	\$67,536	\$23,316	\$27,336	\$65,928	\$12,119	\$210,707
Total Cost - WF Piping Removal & Disposal	\$26,632	\$124,500	\$42,829	\$50,364	\$122,084	\$47,429	\$413,839
II Production Well Pumps							
A. Pump and Tubing Removal					l		
Number of Production Wells	0	348	134	178	167		
Cost of Removal (\$/well)	\$60.91	\$60.91	\$60.91	\$60.91	\$60.91	\$60.91	
Cost of Removal (\$)	\$0	\$21,195	\$8,161	\$10,841	\$10,171	\$14,313	\$64,681
Number of Pumps Per Truck Load	180	180	180	180	180		
Number of Truck Loads (Pumps) B. Survey & Decontamination (Pumps)	0.0	1.9	0.7	1.0	0.9	1.3	_
b. Survey a Desermanmation (1 amps)	ļ						
Percent Requiring Decontamination	50.0%	50.0%	50.0%	50.0%	50.0%		
Loads for Decontamination	0.0	1.0	0.4	0.5	0.5	0.0	
Cost for Decontamination (\$/Load)	\$435.00	\$435.00	\$435.00	\$435.00	\$435.00	\$435.00	
Cost for Decontamination (\$)	\$0	\$435	\$174	\$218	\$218	\$0	\$1,044
C. Tubing Volume Reduction & Loading	1	l .					
Length per Well (Ft)	100	300	300	450	500	230	
Total Quantity (Ft)	0	104,400	40,200	80,100	83,500	54,050	
Cost of Removal (\$/Ft)	\$0.025	\$0.025	\$0.025	\$0.025	\$0.025	\$0.025	
Cost of Removal (\$)	\$0	\$2,610	\$1,005	\$2,003	\$2,088	\$1,351	\$9,056
Average OD (Inches)	3.0	3.0	3.0	3.0	3.0	3.0	
Chipped Volume Reduction (Ft*/Ft)	0.016	0.016	0.016	0.016	0.016	0.016	
Chipped Volume (Ft ^s)	0	1,670	643	1,282	1,336	865	

ELLFIELD EQUIPMENT REMOVAL & DISPOSAL	Irigaray Mine Unit(s) #1 Thru #9	Christensen Mine Units #2 Thru #4	Christensen Mine Unit #5	Christensen Mine Unit #6	Christensen Mine Unit #7	Christensen Mine Unit #8	Total Christenser & Irigaray
Quantity per Truckload (Ft³) Number of Truck Loads	540 0.0	540 3.1	540 1,2	540 2.4	540 2.5	540 1.6	
D. Transport & Disposal	0.0	3.1	1.2	2.4	2.5	1.0	
1.) Landfill					i		
a. Transportation Percent To Be Shipped (Pumps)	50,0%	50.0%	50.0%	50.0%	50,0%	0.0%	
Loads To Be Shipped (Famps)	0.0	1.0	0.4	0.5	0.5	2.9	
Transportation Cost per Load	\$1,170	\$1,170	\$1,170	\$1,170	\$1,170	\$1,170	
Transportation Cost (\$)	\$0	\$1,170	\$468	\$585	\$585	\$3,393	\$6,20
b. Disposal	450.50	250.50	450.50	450.50	AFO 50	****	
Disposal Fee Per Yd³ Yds³ Per Load	\$58.50 20	\$58.50 20	\$58.50 20	\$58.50 20	\$58.50 20	\$58.50 20	
Disposal Cost (\$)	\$0	\$1,170	\$468	\$585	\$585	\$3,393	\$6,20
Total Cost - Landfill	\$0	\$2,340	\$936	\$1,170	\$1,170	\$6,786	\$12,40
2.) Licensed Site				1			
a. Transportation		l'					
Percent To Be Shipped (Pumps)	50.0% 100.0%		50.0% 100.0%	50.0% 100.0%	50.0% 100.0%		
Percent To Be Shipped (Tubing) Loads To Be Shipped	0.0	4.0	1.5	2.9	2.9	0.0%	
Transportation Cost per Load	\$2,100	\$2,100	\$2,100	\$2,100	\$2,100	\$2,100	
Transportation Cost (\$)	\$0	\$8,491	\$3,236	\$6,034	\$6,141	\$0	\$23,90
b. Disposal							
Disposal Cost Per Ft	\$11.00	\$11.00	\$11.00	\$11.00	\$11.00	\$11.00	
Disposal Fee Per Yd³ Quantity Per Truck Load (Yds³)	\$297.00 20	\$297.00 20	\$297.00 20	\$297.00 20	\$297.00 20	\$297.00 20	
Disposal Cost (\$)	\$0	\$24,017	\$9,154	\$17, 0 68	\$17,369	\$0	\$67.60
Total Cost - Licensed Site	\$0	\$32,508	\$12,391	\$23,102	\$23,510	\$0	\$91,51
Total Cost - Transport & Disposal	\$0	\$34,848	\$13,327	\$24,272	\$24,680	\$6,786	\$103,91
Total Cost - Pump Removal & Disposal	\$0	\$59,088	\$22,667	\$37,333	\$37,156	\$22,450	\$178,69
Surface Trunkline Piping A. Removal							
Total Quantity (Ft)	30.00 STO	ا	0	۰ ا	ه ا	0	
Cost of Removal (\$/Ft)	\$0.146	\$0.146	\$0.146	\$0.146	\$0.146	\$0.146	
Cost of Removal (\$)	\$0	\$0	\$0	\$0	\$0	\$0	\$
Average OD (Inches)	8.750	8.750	0.000	0.000	0.000	0.000	
Chipped Volume Reduction (Ft³/Ft)	0.088	0.088	0.088 0	0.088 n	0.088 n	0.088	
Chipped Volume (Ft³) Quantity Per Truck Load (Ft³)	0 540	540	540	540			
Total Number of Truck Loads	0.0	0.0	0.0	0.0	0.0	0.0	
B. Survey & Decontamination	1						
				l			
Percent Requiring Decontamination	0.0%	0.0%	0.0%	0.0%	0.0%		
Loads for Decontamination Cost for Decontamination (\$/Load)	0.0 \$435.00	0.0 \$435.00	0.0 \$435.00	0.0 \$435.00	0.0 \$435.00	0.0 \$435.00	
Cost for Decontamination (\$)	\$0	\$433.00	\$0	\$0	\$455.00	\$0	s
C. Transport & Disposal					1	1	
1.) Landfill					Ĭ		
a. Transportation					İ	li	
Percent To Be Shipped Loads To Be Shipped	0.0%	0.0%	0.0% 0.0	0.0% 0.0	0.0% 0.0	0.0%	
Transportation Cost per Load	\$1,170	\$1.170	\$1,170	\$1,170	\$1,170	\$1,170	
Transportation Cost (\$)	\$0	\$0	\$0	\$0	\$0	\$0	\$
b. Disposal	, ,		, ,		1		
Disposal Fee Per Yd³	\$58.50	\$58.50	\$58.50	\$58.50	\$58.50	\$58.50	
Yds³ Per Load	20	20	20	20	20		_
Disposal Cost (\$) Total Cost - Landfill	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$ \$
2.) Licensed Site	30	\$ 0	30	30	1	**	Ψ
a. Transportation					ĺ	i	
Percent To Be Shipped	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
Loads To Be Shipped	0.0	0.0	0.0	0.0	0.0	0.0	
Transportation Cost per Load	\$2,100	\$2,100	\$2,100	\$2,100	\$2,100	\$2,100	
Transportation Cost (\$)	\$0	\$0	\$0	\$0	\$0	\$0	\$
b. Disposal	*****		644.0-	644.65	044.00	644.00	
Disposal Cost Per Ft ³	\$11.00	\$11.00	\$11.00	\$11.00	\$11.00	\$11.00	
Disposal Fee Per Yd³	\$297.00	\$297.00	\$297.00	\$297.00	\$297.00	\$297.00	

WORKSHEET 6							
	Irigaray	Christensen	Christensen	Christensen	Christensen	Christensen	Total
	Mine Unit(s)	Mine Units	Mine Unit	Mine Unit	Mine Unit	Mine Unit	Christensen
WELLFIELD EQUIPMENT REMOVAL & DISPOSAL	#1 Thru #9	#2 Thru #4	#5	#6	#7	#8	& Irigaray
Quantity Per Truck Load (Yds³)	20	20	20	20	20	20	
Disposal Cost (\$)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Cost - Licensed Site	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Tota Recirculation Phase \$0.863 per Kgal	\$0	\$0	\$0	\$ 0	\$0	 \$ 0	\$0
Total Cost - Surface Trunkline Removal & Disposal	\$0	\$0	\$0	\$0	\$0	\$0	\$0
IV Buried Trunkline		*-		,	•	·	
A. Removal							
Total Quantity (Ft)	0	11565	24500	47000	28500	57750	
Cost of Removal (\$/Ft)	\$3.12	\$3.12	\$3.12	\$3.12	\$3.12	\$3.12	
Cost of Removal (\$)	\$0	\$36,083	\$76,440	\$146,640	\$88,920	\$180,180	\$528,263
	8.750	8.750	8.750	12,000	12,000	12.000	\$ 320,203
Average OD (Inches)							
Chipped Volume Reduction (Ft*/Ft)	0.088	0.088	0.088	0.130	0.130	0.130	
Chipped Volume (Ft³)	0	1018	2156	6110	3705	7507.5	
Quantity Per Truck Load (Ft ^a)	540	540	540	540	540	540	
Number of Truck Loads	0.0	1.9	4.0	11.3	6.9	13.9	
B. Survey & Decontamination							
Percent Requiring Decontamination	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Loads for Decontamination	. 0.0	0.0	0,0	0.0	0.0	0.0	
Cost for Decontamination. (\$/Load)	\$435.00	\$435.00	\$435.00	\$435.00	\$435.00	\$435.00	J
Cost for Decontamination. (\$)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
C. Transport & Disposal			- 40	40	40	**	40
1.) Landfill							
a. Transportation							
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Percent To Be Shipped							
Loads To Be Shipped	0.0	0.0	0.0	0.0	0.0	, 0.0	
Transportation Cost per Load	\$1,170	\$1,170	\$1,170	\$1,170	\$1,170	\$1,170	
Transportation Cost (\$)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
b. Disposal	1						
Disposal Fee Per Yd ³	\$58.50	\$58.50	\$58.50	\$58.50	\$58.50	\$58.50	
Yds³ Per Load	20	20	20	20	20	20	
Disposal Cost (\$)	\$0	. \$0	. \$0	\$0	\$0	\$0	\$0
Total Cost - Landfill	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2.) Licensed Site			·	· ·			
a. Transportation							
Percent To Be Shipped	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
Loads To Be Shipped	0.0	1.9	4.0	11.3	6.9	13.9	
Transportation Cost per Load	\$2,100	\$2,100	\$2,100	\$2,100	\$2,100	\$2,100	
Transportation Cost (\$)	\$2,100	\$3,990	\$8,400	\$23,730	\$14,490	\$29,190	\$79,800
	J 30	\$3,990	\$0,400	\$23,730	\$ 14,49U	\$29,190	\$19,000
b. Disposal	ا مییما			*** ***	*** **		
Disposal Cost Per Ft ³	\$11.00	\$11.00	\$11.00	\$11.00	\$11.00	\$11.00	
Disposal Fee Per Yd³	\$297.00	\$297.00	\$297.00	\$297.00	\$297.00	\$297.00	
Quantity Per Truck Load (Yds³)	20	20	20	20	20	20	
Disposal Cost (\$)	\$0	\$11,286	\$23,760	\$67,122	\$40,986	\$82,566	\$225,720
Total Cost - Licensed Site	\$0	\$15,276	\$32,160	\$90,852	\$55,476	\$111,756	\$305,520
Total Cost - Transport & Disposal	\$0	\$15,276	\$32,160	\$90,852	\$55,476	\$111,756	\$305,520
Total Cost - Buried Trunkline Removal & Disposal_	\$0	\$51,359	\$108,600	\$237,492	\$144,396	\$291,936	\$833,783
V Manholes							
A. Removal							
Total Quantity	25 30 10	8	5	11	5	13	
Cost of Removal (\$ Each)	\$117.00	\$109.73	\$109.73	\$109.73	\$109.73	\$109.73	
Cost of Removal (\$)	\$0	\$878	\$549	\$1,207	\$549	\$1,426	\$4,609
Quantity Per Truck Load	10	10	10	10	10	10	4.,000
Number of Truck Loads	0.0	0.8	0.5	1.1	0.5	1.3	
B. Survey & Decontamination	9.0	U.0	0.5	1.1	0.5	1.3	
b. Survey & Decomanimation							
Demont Provides Provides	0.0%	0 00.	0.0%	0.0%	0.0%	0.0%	
Percent Requiring Decontamination		0.0%					
Loads for Decontamination	0.0	0.0	0.0	0.0	0.0	0.0	
Cost for Decontamination (\$/Load)	\$435.00	\$435.00	\$435.00	\$435.00	\$435.00	\$435.00	
Cost for Decontamination (\$)	\$0	\$0_	\$0	\$0	\$0	\$0	\$0
C. Transport & Disposal				ļ			
1.) Landfill							
a. Transportation		l					
Percent To Be Shipped	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Loads To Be Shipped	0.0	0.0	0.0	0.0	0.0	0.0	
Transportation Cost per Load	\$1,170	\$1,170	\$1,170	\$1,170	\$1,170	\$1,170	
,	, ,,,,,,,,,,	,	, (, 1	,		

	Irigaray	Christensen	Christensen	Christensen	Christensen	Christensen	Total
	Mine Unit(s)	Mine Units	Mine Unit	Mine Unit	Mine Unit	Mine Unit	Christensen
WELLFIELD EQUIPMENT REMOVAL & DISPOSAL	#1 Thru #9	_#2_Thru #4	#5	#6	#7	#8	& Irigaray
Transportation Cost (\$)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
b. Disposal							
Disposal Fee Per Yd3 (\$)	\$58.50	\$58.50	\$58.50	\$58,50	\$58.50	\$58.50	
Yds ³ Per Load	20	20	20	20	20	20	
Disposal Cost (\$)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Cost - Landfill	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2.) Licensed Site							
a. Transportation							
Percent To Be Shipped	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Loads To Be Shipped	0.0	0.0	0.0	0.0	0.0	0.0	1
Transportation Cost per Load	\$2,100	\$2,100	\$2,100	\$2,100	\$2,100	\$2,100	
Transportation Cost (\$)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
b. Disposal							
Disposal Cost Per Ft ⁹	\$11.00	\$11.00	\$11.00	\$11.00	\$11.00	\$11,00	
Disposal Fee Per Yd ³	\$297.00	\$297.00	\$297.00	\$297.00	\$297.00	\$297.00	
Quantity Per Truck Load (Yds3)	20	20	20	20	20	20	
Disposal Cost (\$)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Cost - Licensed Site	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Cost - Transport & Disposal	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Cost Manhole Removal & Disposal	\$0	\$878	\$549	\$1,207	\$549	\$1,426	\$4,609
TOTAL COST - WELLFIELD EQUIP REMOVAL & DISP	\$26,632	\$235,825	\$174,645	\$326,396	\$304,184	\$363,241	\$1,430,924

ORKSHEET 7		51			101	1 4000000000000000000000000000000000000	
	Irigaray Mine Unit(s)	Christensen Mine Units	Christensen Mine Unit	Christensen Mine Unit	Christensen Mine Unit	Christensen Mine Unit	Total Christense
PSOIL REPLACEMENT & REVEGETATION	#1 Thru #9	#2 Thru #4	#5	#6	#7	#8	& Irigaray
	1						
Process Plant and Office Building A. Topsoil Handling & Grading						П П	
Affected Area (Acres)	5.0	2.5	0.0	0.0	0.0	0.0	
Average Affected Thickness (Ins)	12.0	12.0	0.0	0.0	0.0	0.0	
Topsoil Volume (Yds³)	8067	4033	0	0	0	0	
Unit Cost - Haul/Place (\$/Yd³)	\$0.90	\$0.90	\$0.90	\$0.90	\$0.90	\$0.90	
Topsoil Handling Cost (\$)	\$7,260	\$3,630	\$0	\$0	\$0	\$0	
Unit Cost - Grading (\$/Ac)	\$74.52	\$74.52	\$74.52	\$74.52	\$74.52	\$74.52	-
Grading Cost (\$) Sub Total - Topsoil	\$373	\$186 \$3,816	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$11,4
B. Radiation Survey & Soil Analysis	\$7,633	\$3,010		\$0	30	30	\$11,4
Unit Cost (\$/Ac)	\$520.00	\$520.00	\$520.00	\$520.00	\$520.00	\$520.00	
Sub Total - Survey & Analysis	\$2,600	\$1,300	\$0	\$0	\$0	\$0	\$3,9
C. Revegetation				·			
Fertilizer (\$/Ac)	\$46.49	\$46.49	\$46.49	\$46.49	\$46.49	\$46.49	
Seeding Prep & Seeding (\$/Ac)	\$280.00	\$280.00	\$280.00	\$280.00	\$280.00	\$280.00	
Mulching & Crimping (\$/Ac)	\$276.54	\$276.54	\$276.54	\$276.54	\$276.54	\$276.54	
Sub Total Cost/Acre	\$603.03	\$603.03	\$603.03	\$603.03	\$603.03	\$603.03	64.5
Sub Total - Revegation Sub Total - Process Plant and Office Bldg.	\$3,015	\$1,508	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$4,5 \$19,8
Ponds	\$13,248	\$6,624	20	\$0	3 U	1 201	\$19,0
A. Topsoil Handling & Grading					I	1	
Affected Area (Acres)	20.0	12.0	0.0	0.0	0.0	0.0	
Average Affected Thickness (Ins)	12	12	0	0	0		
Topsoil Volume (Yds³)	32267	19360	0	0	0	0	
Unit Cost - Haul/Place (\$/Yd³)	\$0.90	\$0.90	\$0.90	\$0.90	\$0.90	\$0.90	
Topsoil Handling Cost (\$)	\$29,040	\$17,424	\$0	\$0	\$0	\$0	
Unit Cost - Grading (\$/Ac)	\$74.52	\$74.52	\$74.52	\$74.52	\$74.52	\$74.52	
Grading Cost (\$)	\$1,490	\$894	\$0	\$0	\$0	\$0	
Sub Total - Topsoil	\$30,530	\$18,318	\$0	\$0	\$0	\$0	\$48,8
B. Radiation Survey & Soil Analysis Unit Cost (\$/Ac)	\$520.00	\$520.00	\$520.00	\$520.00	\$520.00	\$520.00	
Sub Total - Survey & Analysis	\$10,400	\$6,240	\$0	\$0	\$0	\$0	\$16,6
C. Revegation	¥10,100	\$0,210	45				V 1,
Fertilizer (\$/Ac)	\$46.49	\$46.49	\$46.49	\$46.49	\$46.49	\$46.49	
Seeding Prep & Seeding (\$/Ac)	\$280.00	\$280.00	\$280.00	\$280.00	\$280.00	\$280.00	
Mulching & Crimping (\$/Ac)	\$276.54	\$276.54	\$276.54	\$276.54	\$276.54	\$276.54	
Sub Total Cost/Acre	\$603.03	\$603.03	\$603.03	\$603.03	\$603.03	\$603.03	
Sub Total - Revegation	\$12,061	\$7,236	\$0	\$0_	\$0	\$0	\$19,2
Sub Total - Ponds	\$52,991	\$31,795	\$0	\$0	\$0	\$0	\$84,7
Wellfields A. Topsoil Handling & Grading				·	l	Γ 1	
Affected Area (Acres)	40.0	55.0	30.0	50.0	35.0	40.0	
Average Affected Thickness (Ins)	3.5	3.5	3.5	3,5	3,5	3.5	
Topsoil Volume (Yds³)	18822	25881	14117	23528	16469	18822	
Unit Cost - Haul/Place (\$/Yd3)	\$0.90	\$0.90	\$0.90	\$0.90	\$0.90	\$0.90	
Topsoil Handling Cost (\$)	\$16,940	\$23,293	\$12,705	\$21,175	\$14,823	\$16,940	
Unit Cost - Grading (\$/Ac)	\$74.52	\$74.52	\$74.52	\$74.52	\$74.52	\$74.52	
Grading Cost (\$)	\$2,981	\$4,099	\$2,236	\$3,726	\$2,608	\$2,981	
Sub Total - Topsoil	\$19,921	\$27,391	\$14,941	\$24,901	\$17,431	\$19,921	\$124,5
B. Radiation Survey & Soil Analysis	4500.00	*500.00	A COO 00	4500.00	eroo 00	\$520.00	
Unit Cost (\$/Ac) Sub Total - Survey & Analysis	\$520.00 \$20,800	\$520.00 \$28,600	\$520,00 \$15,600	\$520.00 \$26,000	\$520.00 \$18,200	\$20,800	\$130,0
C: Spill Cleanup	φ20,000	φ20,000	\$13,000	Ψ20,000	\$10,200	φευ,σου	ψ13U,C
Affected Area (Acres)		0.036	o	0	0	0	
Affected Area (ft²)		1,568	ő	. 0		اها	
Average Affected Thickness (ft)		0.25	ő	0	0	ا ۱ ۱	
Affected Volume (ft ^s)		392	ŏ	0	0	ا م	
Quantity per Truckload (ft ^s)		540	540	540	540	540	
Quantity to be Shipped (Loads)		0.7	0.0	0.0	0.0	0.0	
Transportation Cost per Load		\$2,100	\$2,100	\$2,100	\$2,100	\$2,100	
Transportation Cost (\$)		\$1,524	\$0	\$0	\$0	\$0	
Handling Cost (\$240/load)		\$174	\$0	\$0	\$0	\$0	
			\$3.70	\$3.70	\$3.70	\$3.70	
Disposal Fee per Cubic Foot (\$)		\$3.70	\$3.7U J	\$3.70	\$3.10	ψ3.70	

RKSHEET 7	Irigaray	Christensen	Christensen	Christensen	Christensen	Christensen	Total
	Mine Unit(s)	Mine Units	Mine Unit	Mine Unit	Mine Unit	Mine Unit	Christensen
SOIL REPLACEMENT & REVEGETATION	#1 Thru #9	#2 Thru #4	#5	#6	#7	#8	& Irigaray
Sub Total - Spill Cleanup	\$0	\$3,151	\$0	\$0	\$0	\$0	\$3,15°
D. Revegation							
Fertilizer (\$/Ac)	\$46.49	\$46.49	\$46.49	\$46.49	\$46.49	\$46.49	
Seeding Prep & Seeding (\$/Ac)	\$280.00	\$280.00	\$280.00	\$280.00	\$280.00	\$280.00	
Mulching & Crimping (\$/Ac)	\$276.54	\$276.54	\$276.54	\$276.54	\$276.54	\$276.54	
Sub Total Cost/Acre	\$603.03	\$603.03	\$603.03	\$603.03	\$603.03	\$603.03	
Sub Total - Revegation	\$24,121	\$33,167	\$18,091	\$30,152	\$21,106	\$24,121	\$150,75
Sub Total - Wellfields (\$)	\$64,842	\$92,308	\$48,632	\$81,053	\$56,737	\$64,842	\$408,413
Roads					r		
A. Topsoil Handling & Grading							
Affected Area (Acres)	25.0	20.0	15.0	21.0	12.0	15.0	
Average Affected Thickness (Ins)	12	12	12	12	12	12	
Topsoil Volume (Yds³)	40333	32267	24200	33880	19360	24200	
Unit Cost - Haul/Place (\$/Yd³)	\$0.90	\$0.90	\$0.90	\$0.90	\$0.90	\$0.90	
Topsoil Handling Cost (\$)	\$36,300	\$29,040	\$21,780	\$30,492	\$17,424	\$21,780	
Unit Cost - Grading (\$/Ac)	\$74.52	\$74.52	\$74.52	\$74.52	\$74.52	\$74.52	
Grading Cost (\$)	\$1,863	\$1,490	\$1,118	\$1,565	\$894	\$1,118	
Sub Total - Topsoil	\$38,163	\$30,530	\$22,898	\$32,057	\$18,318	\$22,898	\$164,864
B. Radiation Survey & Soil Analysis							
Unit Cost (\$/Ac)	\$520.00	\$520.00	\$520.00	\$520.00	\$520.00	\$520.00	
Sub Total - Survey & Analysis	\$13,000	\$10,400	\$7,800	\$10,920	\$6,240	\$7,800	\$56,160
C. Revegation						ll	
Fertilizer (\$/Ac)	\$46.49	\$46.49	\$46.49	\$46.49	\$46.49	\$46.49	
Seeding Prep & Seeding (\$/Ac)	\$280.00	\$280.00	\$280.00	\$280.00	\$280.00	\$280.00	
Mulching & Crimping (\$/Ac)	\$276.54	\$276.54	\$276.54	\$276.54	\$276.54	\$276.54	
Sub Total Cost/Acre	\$603.03	\$603.03	\$603.03	\$603.03	\$603.03	\$603.03	
Sub Total - Revegation	\$15,076	\$12,061	\$9,045	\$12,664	\$7,236	\$9,045	\$65,127
Sub Total - Roads (\$)	\$66,239	\$52,991	\$39,743	\$55,641	\$31,795	\$39,743	\$286,151
Other	1						
A. Topsoil Handling & Grading							
Affected Area (Acres)	41.0	19.0	5.0	5.0	5.0	5.0	
Average Affected Thickness (Ins)	0.0	0.0	0	0	0	0	
Topsoil Volume (Yds ³)	0	0	이	0	0	ᅵ 이	
Unit Cost - Haul/Place (\$/Yd3)	\$0.90	\$0.90	\$0.90	\$0.90	\$0.90	\$0.90	
Topsoil Handling Cost (\$)	\$0	\$0	\$0	\$0	\$0	\$0	
Unit Cost - Grading (\$/Ac)	\$74.52	\$74.52	\$74.52	\$74.52	\$74.52	\$74.52	
Grading Cost (\$)	\$3,055	\$1,416	\$373	\$373	\$373	\$373	
Sub Total - Topsoil	\$3,055	\$1,416	\$373	\$373	\$373	\$373	\$5,962
B. Radiation Survey & Soil Analysis							
Unit Cost (\$/Ac)	\$520.00	\$520.00	\$520.00	\$520.00	\$520.00	\$520.00	
Sub Total - Survey & Analysis	\$21,320	\$9,880	\$2,600	\$2,600	\$2,600	\$2,600	\$41,600
C. Revegation							
Fertilizer (\$/Ac)	\$46.49	\$46.49	\$46.49	\$46.49	\$46.49	\$46.49	
Seeding Prep & Seeding (\$/Ac)	\$280.00	\$280.00	\$280.00	\$280.00	\$280.00	\$280.00	
Mulching & Crimping (\$/Ac)	\$276.54	\$276.54	\$276.54	\$276.54	\$276.54	\$276.54	
Sub Total Cost/Acre	\$603.03	\$603.03	\$603.03	\$603.03	\$603.03	\$603.03	
Sub Total - Revegation	\$24,724	\$11,458	\$3,015	\$3,015	\$3,015	\$3,015	\$48,242
Sub Total - Other	\$49,100	\$22,753	\$5,988	\$5,988	\$5,988	\$5,988	\$95,80
Remedial Action	1					,	
A. Topsoil Handling & Grading							
		_					
Affected Area (Acres)	65.5	54.3	25.0	38.0	26.0	30.0	
Average Affected Thickness (Ins)	0.0	0.0	0.0	0.0	0.0	0.0	
Average Affected Thickness (Ins) Topsoil Volume (Yds³)	0.0	0.0 0	0.0 0	0.0 0	0.0 0	0.0 0	
Average Affected Thickness (Ins) Topsoil Volume (Yds³) Unit Cost - Haul/Place (\$/Yd³)	0.0 0 \$0.00	0.0 0 \$0.00	0.0 0 \$0.00	0,0 0 \$0.00	0.0 0 \$0.00	0.0 0 \$0.00	
Average Affected Thickness (Ins) Topsoil Volume (Yds³) Unit Cost - Haul/Place (\$/Yd³) Topsoil Handling Cost (\$)	0.0 0 \$0.00 \$0	0.0 0 \$0.00 \$0	0.0 0 \$0.00 \$0	0.0 0 \$0.00 \$0	0.0 0 \$0.00 \$0	0.0 0 \$0.00 \$0	
Average Affected Thickness (Ins) Topsoil Volume (Yds*) Unit Cost - Haul/Place (\$/Yd*) Topsoil Handling Cost (\$) Unit Cost - Grading (\$/Ac)	0.0 0 \$0.00 \$0 \$0.00	0.0 0 \$0.00 \$0 \$0.00	0.0 0 \$0.00 \$0 \$0.00	0.0 0 \$0.00 \$0 \$0.00	0.0 0 \$0.00 \$0 \$0.00	0.0 0 \$0.00 \$0	
Average Affected Thickness (Ins) Topsoil Volume (Yds*) Unit Cost - Haul/Place (\$/Yd*) Topsoil Handling Cost (\$) Unit Cost - Grading (\$/Ac) Grading Cost (\$)	0.0 0 \$0.00 \$0 \$0.00 \$0	0.0 0 \$0.00 \$0 \$0.00 \$0	0.0 0 \$0.00 \$0 \$0.00 \$0	0.0 0 \$0.00 \$0 \$0.00 \$0	0.0 0 \$0.00 \$0 \$0.00 \$0	0.0 0 \$0.00 \$0 \$0.00 \$0	
Average Affected Thickness (Ins) Topsoil Volume (Yds*) Unit Cost - Haul/Place (\$/Yd*) Topsoil Handling Cost (\$) Unit Cost - Grading (\$/Ac) Grading Cost (\$) Sub Total - Topsoil	0.0 0 \$0.00 \$0 \$0.00	0.0 0 \$0.00 \$0 \$0.00	0.0 0 \$0.00 \$0 \$0.00	0.0 0 \$0.00 \$0 \$0.00	0.0 0 \$0.00 \$0 \$0.00	0.0 0 \$0.00 \$0	\$
Average Affected Thickness (Ins) Topsoil Volume (Yds*) Unit Cost - Haul/Place (\$/Yd*) Topsoil Handling Cost (\$) Unit Cost - Grading (\$/Ac) Grading Cost (\$) Sub Total - Topsoil B. Radiation Survey & Soil Analysis	0.0 0 \$0.00 \$0 \$0.00 \$0	0.0 0 \$0.00 \$0 \$0.00 \$0	0.0 0 \$0.00 \$0 \$0.00 \$0	0.0 0 \$0.00 \$0 \$0.00 \$0 \$0	0.0 0 \$0.00 \$0 \$0.00 \$0	0.0 0 \$0.00 \$0 \$0.00 \$0	\$
Average Affected Thickness (Ins) Topsoil Volume (Yds*) Unit Cost - Haul/Place (\$/Yd*) Topsoil Handling Cost (\$) Unit Cost - Grading (\$/Ac) Grading Cost (\$) Sub Total - Topsoil B. Radiation Survey & Soil Analysis Unit Cost (\$/Ac)	0.0 0 \$0.00 \$0 \$0.00 \$0	0.0 0 \$0.00 \$0 \$0.00 \$0	0.0 0 \$0.00 \$0 \$0.00 \$0 \$0	0.0 0 \$0.00 \$0 \$0.00 \$0	0.0 0 \$0.00 \$0 \$0.00 \$0 \$0	0.0 0 \$0.00 \$0 \$0.00 \$0 \$0	
Average Affected Thickness (Ins) Topsoil Volume (Yds*) Unit Cost - Haul/Place (\$/Yd*) Topsoil Handling Cost (\$) Unit Cost - Grading (\$/Ac) Grading Cost (\$) Sub Total - Topsoil B. Radiation Survey & Soil Analysis Unit Cost (\$/Ac) Sub Total - Survey & Analysis	0.0 0 \$0.00 \$0 \$0.00 \$0	0.0 0 \$0.00 \$0 \$0.00 \$0	0.0 0 \$0.00 \$0 \$0.00 \$0	0.0 0 \$0.00 \$0 \$0.00 \$0 \$0	0.0 0 \$0.00 \$0 \$0.00 \$0	0.0 0 \$0.00 \$0 \$0.00 \$0	
Average Affected Thickness (Ins) Topsoil Volume (Yds*) Unit Cost - Haul/Place (\$/Yd*) Topsoil Handling Cost (\$) Unit Cost - Grading (\$/Ac) Grading Cost (\$) Sub Total - Topsoil B. Radiation Survey & Soil Analysis Unit Cost (\$/Ac)	0.0 0 \$0.00 \$0 \$0.00 \$0	0.0 0 \$0.00 \$0 \$0.00 \$0	0.0 0 \$0.00 \$0 \$0 \$0 \$0 \$0	0.0 0 \$0.00 \$0 \$0.00 \$0 \$0 \$0	0.0 0 \$0.00 \$0 \$0.00 \$0 \$0 \$0	0.0 0 \$0.00 \$0 \$0 \$0 \$0 \$0	
Average Affected Thickness (Ins) Topsoil Volume (Yds*) Unit Cost - Haul/Place (\$/Yd*) Topsoil Handling Cost (\$) Unit Cost - Grading (\$/Ac) Grading Cost (\$) Sub Total - Topsoil B. Radiation Survey & Soil Analysis Unit Cost (\$/Ac) Sub Total - Survey & Analysis	0.0 0 \$0.00 \$0 \$0.00 \$0	0.0 0 \$0.00 \$0 \$0.00 \$0	0.0 0 \$0.00 \$0 \$0.00 \$0 \$0	0.0 0 \$0.00 \$0 \$0.00 \$0 \$0 \$0 \$0 \$0	0.0 0 \$0.00 \$0.00 \$0.00 \$0 \$0.00 \$0	0.0 0 \$0.00 \$0.00 \$0.00 \$0 \$0 \$0.00 \$0	
Average Affected Thickness (Ins) Topsoil Volume (Yds*) Unit Cost - Haul/Place (\$/Yd*) Topsoil Handling Cost (\$) Unit Cost - Grading (\$/Ac) Grading Cost (\$) Sub Total - Topsoil B. Radiation Survey & Soil Analysis Unit Cost (\$/Ac) Sub Total - Survey & Analysis C. Revegation	0.0 \$0.00 \$0.00 \$0.00 \$0.00 \$0 \$0.00	0.0 0 \$0.00 \$0 \$0,00 \$0 \$0 \$0	0.0 0 \$0.00 \$0 \$0 \$0 \$0 \$0	0.0 0 \$0.00 \$0 \$0.00 \$0 \$0 \$0	0.0 0 \$0.00 \$0 \$0.00 \$0 \$0 \$0	0.0 0 \$0.00 \$0 \$0 \$0 \$0 \$0	
Average Affected Thickness (Ins) Topsoil Volume (Yds*) Unit Cost - Haul/Place (\$/Yd*) Topsoil Handling Cost (\$) Unit Cost - Grading (\$/Ac) Grading Cost (\$) Sub Total - Topsoil B. Radiation Survey & Soil Analysis Unit Cost (\$/Ac) Sub Total - Survey & Analysis C. Revegation Fertilizer (\$/Ac)	0.0 0 \$0.00 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	0.0 0 \$0.00 \$0 \$0.00 \$0 \$0 \$0 \$0 \$0	0.0 0 \$0.00 \$0 \$0.00 \$0 \$0 \$0 \$0 \$0	0.0 0 \$0.00 \$0 \$0.00 \$0 \$0 \$0 \$0 \$0	0.0 0 \$0.00 \$0.00 \$0.00 \$0 \$0.00 \$0	0.0 0 \$0.00 \$0.00 \$0.00 \$0 \$0 \$0.00 \$0	\$0 \$0

	Irigaray	Christensen	Christensen	Christensen	Christensen	Christensen	Total
	Mine Unit(s)	Mine Units	Mine Unit	Mine Unit	Mine Unit	Mine Unit	Christensen
TOPSOIL REPLACEMENT & REVEGETATION	#1 Thru #9	#2 Thru #4	#5	#6	#7	#8	& Irigaray
Sub Total - Revegation	\$39,498	\$32,714	\$15,076	\$22,915	\$15,679	\$18,091	\$143,973
Sub Total - Remedial Action	\$39,498	\$32,714	\$15,076	\$22,915	\$15,679	\$18,091	\$143,973
	-						
TOTAL COST - TOPSOIL & REVEGETATION	\$285,918	\$239 186	\$109.438	\$165 596	\$110 198	\$128 664	\$1.038.999

WORKSHEET 8							
	Irigaray	Christensen	Christensen	Christensen	Christensen	Christensen	Total
	Mine Unit(s)	Mine Units	Mine Unit	Mine Unit	Mine Unit	Mine Unit	Christensen
MISCELLANEOUS RECLAMATION	#1 Thru #9	#2 Thru #4	#5	#6	#7	** #8	& Irigaray
I Fence Removal & Disposal	1						
Quantity (Feet)	15240	35260	20000	9000	18000	30000	
Cost of Removal/Disposal (\$/Ft)	\$0.31	\$0.31	\$0.31	\$0.31	\$0.31	\$0.31	
Cost of Removal/Disposal (\$)	\$4,724	\$10,931	\$6,200	\$2,790	\$5,580	\$9,300	\$39,525
II Powerline Removal & Disposal							
Quantity (Feet)	9450	10565	18000	18000	∵ 5500	25000	
Cost of Removal/Disposal (\$/Ft)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Cost of Removal/Disposal (\$)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
III Powerpole Removal & Disposal	7-	**- 1	**		7-1		
Quantity	25	30	60	60		84	
Cost of Removal/Disposal (\$/Each)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Cost of Removal/Disposal (\$)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
IV Transformer Removal & Disposal	+0	\$0,1	Ψυ			Ψ <u>υ</u> 1	
Quantity	0	1	0	0	18	30	
Cost of Removal/Disposal (\$/Each)	\$0.00	\$0.00	\$0.00	\$0.00	\$0	\$0	
Cost of Removal/Disposal (\$)	\$0	\$0.50	\$0	\$0	\$0	\$0	\$0
V Booster Pump Assembly Removal &		40	ΨΟ	ΨΟ	Ψ0 1	ΨΟΙ	ΨΟ
Quantity	0	6	5	5	5 12	18	
Cost of Removal/Disposal (\$/Each)	\$248	\$248	\$248	\$248	\$248	\$248	
Cost of Removal/Disposal (\$)	\$0	\$1,488	\$1,240	\$1,240	\$2,976	\$4,464	\$11,408
VI Culvert Removal & Disposal	+	₩1,-100 <u> </u>	Ψ1, <u>2</u> -10]	Ψ1,2-10	Ψ2,570	Ψ1,101	Ψ11,-100
Quantity (Feet)	150	1200	1000	1000	500	ol	
Cost of Removal/Disposal (\$/Ft)	\$6.10	\$6.10	\$6.10	\$6.10	\$6.10	\$6.10	
Cost of Removal/Disposal (\$)	\$915	\$7,321	\$6,101	\$6,101	\$3,051	\$0.10	\$23,489
VII Guardrail Removal	Ψ515	Ψ1,021	ψο, το τ	Ψ0,101	Ψ0,001	401	Ψ20,403
Quantity (Feet)	200	3000	0	0	0	ol	
Cost of Removal/Disposal (\$/Ft)	\$6.44	\$6.44	\$6.44	\$6.44	\$6.44	\$6.44	
Cost of Removal/Disposal (\$)	\$1,288	\$19,320	\$0	\$0	\$0.44	\$0.77	\$20,608
VIII Low Water Stream Crossing	Ψ1,200	Ψ13,020	ΨΟ	ΨΟ	ΨΟ	40 1	Ψ20,000
Quantity	0	1	1	0	ol	0	
Cost of Removal/Disposal (\$/Each)	\$4,500	\$4,500	\$4,500	\$4,500	\$4,500	\$4,500	
Cost of Removal/Disposal (\$)	\$0	\$4,500 \$4,500	\$4,500	\$0	\$0	\$0	\$9,000
IX Utilities Cost	ΨΟ	Ψ-,500	Ψ+,500	ΨΟ	ΨΟ	. 40	ψ3,000
Quantity (Mos)	O	8	4	4	4	o	
Cost Per Month (\$/Month)	\$65	\$65	\$65	\$65	\$65	\$65	
Total Cost (\$)	\$0	\$520	\$260	\$260	\$260	\$0	\$1,300
Total Cost (4)	1 20 1	Φ02U	ΨZ0U		⊕∠0 U		Φ1,300
TOTAL MISCELLANEOUS COST	\$6,928	\$44,080	\$18,301	\$10,391	\$11,867	\$13,764	\$105,330
TOTAL MISCELLANEOUS COST	\$6,928_	⊅ 44 ,080	3 18,301	\$10,391	\$11,867	⊅13,764	\$105,330