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January 28, 2011

Mr. Doug Mandeville  
U.S. Nuclear Regulatory Commission  
11545 Rockville Pike  
Two White Flint North, Mailstop T8 F5  
Rockville, MD 20852-2738

Re: Source Material License SUA-1548, Docket No. 40-8964  
2011-12 Surety Estimate Update for **North Butte Satellite Facility**

Dear Mr. Mandeville:

Pursuant to License Condition 9.5 of SUA-1548, Pursuant to License Condition 9.5 of Source Materials License SUA-1548, Power Resources, Inc. d.b.a. Cameco Resources, is herein providing two (2) paper copies of the proposed 2011-2012 Year 1 Mining Operations Reclamation Surety Bond Estimate submitted to the Wyoming Department of Environmental Quality/Land Quality Division in the amount of \$5,579,000 for the North Butte ISR Uranium Project.

If you have questions or comments concerning this surety estimate, please contact Mr. Scott Bakken in Cameco Resources' Cheyenne Office at (307) 316-7586.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Leftwich", written over a white background.

Josh Leftwich  
Director of Radiation Safety and Licensing

JJL/jfl

Enclosures: 2011-12 Year 1 Mining Operations Reclamation Surety Bond Estimate, North Butte Satellite facility

ec: CR-Cheyenne  
CR-Casper  
CR-Smith Ranch-Highland

**APPENDIX B****2011-12 YEAR 1 MINING OPERATIONS RECLAMATION SURETY BOND ESTIMATE**

WDEQ Permit No. 632 Annual Report / NRC SUA-1548

North Butte ISR Project

**TOTAL RECLAMATION COST ESTIMATE**

PART I. PROCESS EQUIPMENT REMOVAL & DISPOSAL COST	\$119,728
PART II. BUILDING DEMOLITION AND DISPOSAL COST	\$693,999
PART III. WELLFIELD BUILDINGS & EQUIPMENT REMOVAL & DISPOSAL COST	\$468,439
PART IV. WELL & BOREHOLE ABANDONMENT COST	\$2,298,924
PART V. MISCELLANEOUS SURFACE RECLAMATION COST	\$829,307
SUBTOTAL RECLAMATION COST ESTIMATE	\$4,410,397
CONTRACTOR PROFIT, OVERHEAD, MOBILIZATION, DEMOBILIZATION COSTS (10%) *	\$441,040
SUBTOTAL	\$4,851,436
ADDITIONAL MISCELLANEOUS AND UNKNOWN COSTS (15%) **	\$727,715
<b>TOTAL CALCULATED SURETY (IN 2010 DOLLARS), rounded down</b>	<b>\$5,579,000</b>

\* Based on WDEQ-LQD Guideline No. 12, Section II(B)(12)(b)

\*\* Based on WDEQ-LQD Guideline No. 12, Sections II(B)(12)(except b) and (13)

**APPENDIX B**  
**2011-12 YEAR 1 MINING OPERATIONS RECLAMATION SURETY BOND ESTIMATE**  
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North Butte ISR Project

<b>PART I: PROCESS EQUIPMENT REMOVAL &amp; DISPOSAL</b>	<b>Satellite Plant</b>
<b>A. Removal and Loading Costs</b>	
<i>1. Tankage</i>	
Number of Tanks	25
Volume of Tank Construction Material (ft3)	1190
<b>a. Labor</b>	
Number of Persons	3
Ft3/Day	25
Number of Days	48
\$/Day/Person	\$181
Subtotal Labor Costs	\$26,116
<b>b. Equipment</b>	
Number of Days	48
\$/Day	\$1,515
Subtotal Equipment Costs	\$72,732
Subtotal Tankage Removal and Loading Costs	<b>\$98,848</b>
<i>2. PVC Pipe</i>	
PVC Pipe Footage	6000
Average PVC Pipe Diameter (inches)	4
Shredded PVC Pipe Volume Reduction (ft3/ft)	0.016
Volume of Shredded PVC Pipe (ft3)	96
<b>a. Labor</b>	
Number of Persons	2
Ft/Day	300
Number of Days	20
\$/Day/Person	\$181
Subtotal Labor Costs	\$7,254
<b>b. Shredding Costs</b>	
Pipe Shredding Unit Cost (\$/diameter-in-ft)	\$0.033
Subtotal Shredding Costs	\$792
Subtotal PVC Pipe Removal and Loading Costs	<b>\$8,046</b>
<i>3. Pumps</i>	
Number of Pumps	16
Average Volume (ft3/pump)	4.93
Volume of Pumps (ft3)	78.88
<b>a. Labor</b>	
Number of Persons	1
Pumps/Day	2
Number of Days	8
\$/Day/Person	\$181
Subtotal Labor Costs	\$1,451
Subtotal Pump Removal and Loading Costs	<b>\$1,451</b>
<i>4. RO Units</i>	
Volume (ft3)	250
<b>a. Labor</b>	
Number of Persons	2
Ft3/Day	175
Number of Days	1
\$/Day/Person	\$181
Total Labor Cost	\$363
Total RO Dismantling and Loading Cost	\$363
Subtotal Equipment Removal and Loading Costs per Facility	\$108,708
<b>Total Equipment Removal and Loading Costs</b>	<b>\$108,708</b>

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<b>PART I: PROCESS EQUIPMENT REMOVAL &amp; DISPOSAL</b>	<b>Satellite Plant</b>
<b>B. Transportation and Disposal Costs (NRC-Licensed Facility)</b>	
<i>1. Tankage</i>	
Volume of Tank Construction Material (ft3)	1190
Volume for Disposal Assuming 10% Void Space (ft3)	1309
Transportation and Disposal Unit Cost (\$/ft3)	\$7.34
Subtotal Tankage Transportation and Disposal Costs	\$9,604
<i>2. PVC Pipe</i>	
Volume of Shredded PVC Pipe (ft3)	96
Volume for Disposal Assuming 10% Void Space (ft3)	106
Transportation and Disposal Unit Cost (\$/ft3)	\$7.34
Subtotal PVC Pipe Transportation and Disposal Costs	\$778
<i>3. Pumps</i>	
Volume of Pumps (ft3)	78.88
Volume for Disposal Assuming 10% Void Space (ft3)	87
Transportation and Disposal Unit Cost (\$/ft3)	\$7.34
Subtotal PVC Pipe Transportation and Disposal Costs	\$638
Subtotal Equipment Transportation and Disposal Costs per Facility	\$11,020
<b>Total Equipment Transportation and Disposal Costs</b>	<b>\$11,020</b>
<b>C. Health and Safety Costs</b>	
Accounted For under Part I: Ground Water Restoration	
<b>SUBTOTAL EQUIPMENT REMOVAL + DISPOSAL COSTS PER FACILITY</b>	<b>\$119,728</b>
<b>TOTAL EQUIPMENT REMOVAL + DISPOSAL COSTS</b>	<b>\$119,728</b>

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<b>PART II: BUILDING DEMOLITION &amp; DISPOSAL</b>	<b>Satellite Bldg</b>	<b>DDW 1 Bldg</b>	<b>DDW 2 Bldg</b>
<b>A. Decontamination Costs</b>			
<i>1. Wall Decontamination</i>			
Area to be Decontaminated (ft2)	0	704	704
HCl Acid Wash (\$/per sq ft.)	\$1.031	\$1.031	\$1.031
Subtotal Wall Decontamination Costs	\$0	\$726	\$726
<i>2. Concrete Floor Decontamination</i>			
Area to be Decontaminated (ft2)	19200	480	480
HCl Acid Wash (\$/Gallon)	\$0.503	\$0.503	\$0.503
Subtotal Concrete Floor Decontamination Costs	\$9,667	\$242	\$242
Subtotal Decontamination Costs per Building	\$9,667	\$968	\$968
<b>Total Decontamination Costs</b>			<b>\$11,603</b>
<b>B. Demolition Costs</b>			
<i>1. Building</i>			
Assume:			
Volume of Building (ft3)	524800	4800	4800
Demolition Unit Cost per WDEQ Guideline No. 12, App.K (\$/ft3)	\$0.249	\$0.249	\$0.249
Subtotal Building Demolition Costs	\$130,581	\$1,194	\$1,194
<i>2. Concrete Floor</i>			
Area of Concrete Floor (ft2)	25600	480	480
Demolition Unit Cost per WDEQ Guideline No. 12, App.K (\$/ft2)	\$5.05	\$5.05	\$5.05
Subtotal Concrete Floor Demolition Costs	\$129,356	\$2,425	\$2,425
<i>3. Concrete Footing</i>			
Length of Concrete Footing (ft)	960	88	88
Demolition Unit Cost per WDEQ Guideline No. 12, App.K (\$/lin. ft)	\$18.14	\$18.14	\$18.14
Subtotal Concrete Footing Demolition Costs	\$17,410	\$1,596	\$1,596
Subtotal Demolition Costs per Building	\$277,347	\$5,215	\$5,215
<b>Total Demolition Costs</b>			<b>\$287,777</b>
<b>C. Disposal Costs</b>			
<i>1. Building</i>			
Volume of Building (cy) Building Construction and Demolition	1222	178	178
a. Landfill			
Assume:			
Cost to haul to landfill			
Total Trips @12(cy) each	102	15	15
Dump Truck (Guideline 12 App. J \$54.19 /hr)	\$64.33	\$64.33	\$64.33
Transportation(assume 2 trips per 12hr. Day)	\$39,313	\$5,718	\$5,718
Disposal Unit Cost (\$/ton)(Guideline No. 12 App. K)	\$95.70	\$95.70	\$95.70
Percentage (%)	100	100	100
Converted C&D waste volume to tons (.24 tons/cy) <sup>1</sup> :	293	43	43
Subtotal Disposal Costs	\$67,385	\$9,801	\$9,801
b. NRC-Licensed Facility			
Percentage (%)	0	0	0
Volume for Disposal (ft3)	0	0	0
Volume for Disposal Assuming 10% Void Space (ft3)	0	0	0
Transportation and Disposal Unit Cost (\$/ft3)	\$7.34	\$7.34	\$7.34
Subtotal NRC-Licensed Facility Disposal Costs	\$0	\$0	\$0

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<b>PART II: BUILDING DEMOLITION &amp; DISPOSAL</b>	<b>Satellite Bldg</b>	<b>DDW 1 Bldg</b>	<b>DDW 2 Bldg</b>
Subtotal Building Disposal Costs	\$67,385	\$9,801	\$9,801
<b>2. Concrete Floor</b>			
Area of Concrete Floor (ft2)	25600	480	480
Average Thickness of Concrete Floor (ft)	0.833	0.833	0.833
Volume of Concrete Floor (ft3)( with .54 void factor)	39490.37	740	740
Volume of Concrete Floor (cy)	1463	27	27
a. Municipal Landfill			
Percentage (%)	75	75	75
Volume for Disposal (cy)	1097	21	21
Tons of Concrete	1,193	22	22
Cost to haul to landfill			
Total Trips @12(cy) each	91	2	2
Dump Truck (Guideline 12 App. J \$54.19 /hr)	\$64.33	\$64.33	\$64.33
Transportation(assume 2 trips per 12hr. Day)	\$35,284	\$662	\$662
Disposal Unit Cost per WDEQ Guideline No.12, App.K (\$/ton)	\$95.70	\$95.70	\$95.70
Subtotal Landfill Disposal Costs	\$149,500	\$2,803	\$2,803
b. NRC-Licensed Facility			
Assume:			
Additional \$2.00/ft3 for segregation of concrete			
Percentage (%)	25	25	25
Volume for Disposal (ft3)	9873	185	185
Segregation and Loading Unit Cost (\$/ft3)	\$5.00	\$5.00	\$5.00
Transportation and Disposal Unit Cost (\$/ft3)	\$7.51	\$7.51	\$7.51
Subtotal NRC-Licensed Facility Disposal Costs	\$123,554	\$2,317	\$2,317
Subtotal Concrete Floor Disposal Costs	\$273,054	\$5,120	\$5,120
<b>3. Concrete Footing</b>			
Length of Concrete Footing (ft)	960	88	88
Average Depth of Concrete Footing (ft)	4	4	4
Average Width of Concrete Footing (ft)	0.75	0.75	0.75
Volume of Concrete Footing (ft3) (with 0.54 void factor)	5333	489	489
Volume of Concrete Footing (cy)	198	18	18
Tons of Concrete	215	20	20
Cost to haul to landfill			
Total Trips @12(cy) each	16	2	2
Dump Truck (Guideline 12 App. J \$54.19 /hr)	\$64.33	\$64.33	\$64.33
Transportation(assume 2 trips per 12hr. Day)	\$6,354	\$582	\$582
Disposal Unit Cost per WDEQ Guideline No.12, App.K (\$/ton)	\$95.70	\$95.70	\$95.70
Subtotal Concrete Footing Disposal Costs	\$20,567	\$1,885	\$1,885
Subtotal Disposal Costs per Building	\$361,006	\$16,806	\$16,806
<b>Total Disposal Costs</b>			<b>\$394,619</b>
<b>D. Health and Safety Costs</b>			
Accounted For under Part I: Ground Water Restoration			
SUBTOTAL BUILDING DEMOLITION AND DISPOSAL COSTS	\$648,020	\$22,989	\$22,989
<b>TOTAL BUILDING DEMOLITION AND DISPOSAL COSTS</b>			<b>\$693,999</b>

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<b>PART III: WELLFIELD BLDGS., EQUIPMENT REMOVAL &amp; DISPOSAL</b>	<b>Mine Unit No.1</b>
<b>A. Mine Unit Piping</b>	
Assume:	
Number of Header Houses	7
Approximate Length of Piping per Header House (ft) (avg. 46 wells per with 300 ft pipeline/well)	13,800
Approximate Total Length of Piping (ft.)	96,600
<b>1. Removal and Loading</b>	
Trench Length - (usually run multiple pipes in trench assume 1/4 pipe length)	24,150
Wellfield Piping Removal Unit Cost (\$/ft of pipe)	\$2.42
Subtotal Wellfield Piping Removal and Loading Costs	<b>\$233,772</b>
<b>2. Shredding Costs</b>	
Assume:	
Length of Piping per Header House (ft)	13,800
Total Length of Piping (ft)	96600
Average Diameter of Piping (inches)	2
HDPE Pipe Shredding Unit Cost (\$/diameter-in-ft)	\$0.066
Subtotal Shredding Costs	<b>\$12,751</b>
<b>3. Transport and Disposal Costs (NRC-Licensed Facility)</b>	
Chipped Volume Reduction (ft3/ft)	0.005
Chipped Volume per Wellfield (ft3)	483
Volume for Disposal Assuming 10% Void Space (ft3)	531
Transportation and Disposal Unit Cost (\$/ft3)	\$7.34
Subtotal Wellfield Piping Transport and Disposal Costs	<b>\$3,896</b>
<b>Total Wellfield Piping Removal and Disposal Costs</b>	<b>\$250,419</b>
<b>B. Well Pumps and Tubing</b>	
Assume:	
Pump and tubing removal costs included under ground water restoration labor costs	
Average tubing length/wellfield based on average well depth minus 25 ft	
<b>1. Shredding Costs</b>	
Number of Production Wells with Tubing	140
Number of Injection Wells with Tubing	260
Average Tubing Length per Well (ft)	650
Diameter of Production Well Fiberglass Tubing (inches)	2
Diameter of Injection Well HDPE Tubing (inches)	1.25
HDPE Pipe Shredding Unit Cost (\$/diameter-in-ft)	\$0.066
Subtotal Shredding Costs	<b>\$25,955</b>
<b>2. Pump and Tubing Transportation and Disposal</b>	
a. Pump Volume	
Number of Production Wells with Pumps	140
Average Pump Volume (ft3)	1
Pump Volume per Wellfield (ft3)	140
b. Tubing Volume	
Tubing Length per Wellfield (ft)	260,000
Chipped Volume Reduction (ft3/ft)	0.007
Chipped Volume per Wellfield (ft3)	1,820
Volume of Pump and Tubing (ft3)	1,960
Volume for Disposal Assuming 10% Void Space (ft3)	2,156
Transportation and Disposal Unit Cost (\$/ft3)	\$7.34
Subtotal Pump and Tubing Transport and Disposal Costs	<b>\$15,819</b>

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<b>PART III: WELLFIELD BLDGS., EQUIPMENT REMOVAL &amp; DISPOSAL</b>	<b>Mine Unit No.1</b>
<b>Total Well Pumps and Tubing Removal and Disposal Costs</b>	<b>\$41,774</b>
<b>C. Buried Trunkline</b>	
Assume:	
Length of Trunkline Trench (ft)	7500
<b>1. Removal and Loading</b>	
Main Pipeline Removal Unit Cost (\$/ft of trench)	\$2.42
Subtotal Trunkline Removal and Loading Costs	\$18,150
<b>2. Shredding Costs</b>	
Diameter of HDPE Piping (in)	2
Total Length of 2" HDPE Piping (ft)	7,500
Diameter of HDPE Piping (in)	3
Total Length of 3" HDPE Piping (ft)	7,500
Diameter of HDPE Piping (in)	4
Total Length of 4" HDPE Piping (ft)	0
Diameter of HDPE Piping (in)	6
Total Length of 6" HDPE Piping (ft)	4,000
Diameter of HDPE Piping (in)	8
Total Length of 8" HDPE Piping (ft)	18,400
Diameter of HDPE Piping (in)	10
Total Length of 10" HDPE Piping (ft)	0
Diameter of HDPE Piping (in)	12
Total Length of 12" HDPE Piping (ft)	0
Diameter of HDPE Piping (in)	14
Total Length of 14" HDPE Piping (ft)	0
Diameter of HDPE Piping (in)	16
Total Length of 16" HDPE Piping (ft)	0
Diameter of HDPE Piping (in)	18
Total Length of 18" HDPE Piping (ft)	0
Diameter of HDPE Piping (in)	20
Total Length of 20" HDPE Piping (ft)	15,000
Diameter of HDPE Piping (in)	24
Total Length of 24" HDPE Piping (ft)	0
HDPE Pipe Shredding Unit Cost (\$/diameter-in-ft)	\$0.066
Subtotal Shredding Costs	\$33,574
<b>3. Transport and Disposal Costs (NRC-Licensed Facility)</b>	
<b>a. 2" HDPE Trunkline</b>	
Piping Length (ft)	7,500
Chipped Volume Reduction (ft3/ft)	0.01
Chipped Volume (ft3)	80.41
<b>b. 3" HDPE Trunkline</b>	
Piping Length (ft)	7500
Chipped Volume Reduction (ft3/ft)	0.02
Chipped Volume (ft3)	174.64
<b>c. 4" HDPE Trunkline</b>	
Piping Length (ft)	0
Chipped Volume Reduction (ft3/ft)	0.04
Chipped Volume (ft3)	0.00
<b>d. 6" HDPE Trunkline</b>	
Piping Length (ft)	4000
Chipped Volume Reduction (ft3/ft)	0.08
Chipped Volume (ft3)	333.57

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<b>PART III: WELLFIELD BLDGS., EQUIPMENT REMOVAL &amp; DISPOSAL</b>		<b>Mine Unit No.1</b>
e	8" HDPE Trunkline	
	Piping Length (ft)	18400
	Chipped Volume Reduction (ft3/ft)	0.14
	Chipped Volume (ft3)	2599.96
f	10" HDPE Trunkline	
	Piping Length (ft)	0
	Chipped Volume Reduction (ft3/ft)	0.22
	Chipped Volume (ft3)	0.00
g	12" HDPE Trunkline	
	Piping Length (ft)	0
	Chipped Volume Reduction (ft3/ft)	0.31
	Chipped Volume (ft3)	0.00
h	14" HDPE Trunkline	
	Piping Length (ft)	0
	Chipped Volume Reduction (ft3/ft)	0.37
	Chipped Volume (ft3)	0.00
i	16" HDPE Trunkline	
	Piping Length (ft)	0
	Chipped Volume Reduction (ft3/ft)	0.49
	Chipped Volume (ft3)	0.00
j	18" HDPE Trunkline	
	Piping Length (ft)	0
	Chipped Volume Reduction (ft3/ft)	0.62
	Chipped Volume (ft3)	0.00
k	20" HDPE Trunkline	
	Piping Length (ft)	15,000
	Chipped Volume Reduction (ft3/ft)	0.72
	Chipped Volume (ft3)	10817.18
l	24" HDPE Trunkline	
	Piping Length (ft)	0
	Chipped Volume Reduction (ft3/ft)	1.04
	Chipped Volume (ft3)	0.00
Total Trunkline Chipped Volume (ft3)		
Volume for Disposal Assuming 10% Void Space (ft3)		14005.76
Transportation and Disposal Unit Cost (\$/ft3)		15406
		\$7.34
Subtotal Trunkline Transport and Disposal Costs		\$113,034
<b>Total Trunkline Removal and Disposal Costs</b>		<b>\$164,758</b>
<b>D. Well Covers</b>		
Total Quantity		400
Average Well Cover Volume (ft3)		1.86
<b>1. Removal</b>		
Total Volume (ft3)		744
Demolition Unit Cost per WDEQ Guideline No.12, App.K (\$/ft3)		\$0.249
Subtotal Well Cover Demolition Costs		\$185
<b>2. Survey and Decontamination</b>		
Assume:		
Cost per Well Cover		\$7
Subtotal Survey and Decontamination Costs		\$2,624

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<b>PART III: WELLFIELD BLDGS., EQUIPMENT REMOVAL &amp; DISPOSAL</b>	<b>Mine Unit No.1</b>
<b>3. Disposal</b>	
Total Volume (cy)	28
Cost to haul to landfill	
Total Trips @12(cy) each	2
Dump Truck (Guideline 12 App. J \$54.19 /hr)	\$64.33
Transportation(assume 2 trips per 12hr. Day)	\$886
Disposal Unit Cost (\$/ton)(Guideline No. 12 App. K)	\$95.70
Percentage (%)	100
Converted C&D waste volume to tons (.24 tons/cy) <sup>1</sup>	2
Subtotal Disposal Costs	\$1,460
<b>Total Well Cover Removal and Disposal Costs</b>	<b>\$4,269</b>
<b>E. Header Houses</b>	
Total Quantity	7
Average Header House Volume (ft3)	800
<b>1. Removal</b>	
Total Volume (ft3)	5600
Demolition Unit Cost per WDEQ Guideline No.12, App.K (\$/ft3)	\$0.249
Subtotal Building Demolition Costs	\$1,393
<b>2. Survey and Decontamination</b>	
Assume:	
Cost per Header House	\$568
Subtotal Survey and Decontamination Costs	\$3,976
<b>3. Disposal</b>	
Total Volume (cy)	207
Volume for Disposal Assuming 10% Void Space (cy)	228
Disposal Unit Cost per WDEQ Guideline No.12, App.K (\$/cy)	\$8.12
Subtotal Off-Site Disposal Costs	\$1,850
<b>Total Header House Removal + Disposal Costs</b>	<b>\$7,219</b>
<b>TOTAL WELLFIELD BUILDINGS AND EQUIPMENT REMOVAL + DISPOSAL COSTS</b>	<b>\$468,439</b>

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<b>PART IV: WELL &amp; BOREHOLE ABANDONMENT</b>	<b>Mine Unit No.1</b>
<b>A. Well Abandonment (Wellfields)</b>	
# of Production Wells	140
# of Injection Wells	260
# of Monitoring Wells	80
#of Restoration Wells	0
# water supply wells	1
Total Number of Wells	481
Average Diameter of Casing (inches)	5
Average Depth (ft)	650
Well Abandonment Unit Cost (\$/well)	\$1,696
Subtotal Abandonment Cost per Wellfield	<b>\$815,975</b>
<b>B. Removal of Contaminated Soil Around Wells</b>	
# of Production and Injection Wells	400
Cost per well (\$/well)	\$83.87
Subtotal Removal of Soil Around Wells	<b>\$33,548</b>
<b>C. Delineation Hole Abandonment</b>	
# of Projected Holes	700
Average Depth (ft)	650
Hole Abandonment Unit Cost (\$/ft of hole)	\$2.61
Site Reclamation (\$/site)	\$68.75
Subtotal Hole Abandonment per Wellfield	<b>\$1,235,611</b>
<b>D. Waste Disposal Injection Well Abandonment</b>	
	<b>Fed BY1</b>
<b>1. Well Sealing</b>	
Assume: TD = 8570' FedBY1, TD = 8559' FedBY2	
Sealing cost per foot (in UIC permit)	\$11.91
Subtotal Plugging Costs per Well (in UIC permit)	\$102,069
<b>2. Pump Dismantling and Decontamination</b>	
Number of Persons	2
Number of Pumps	2
Pumps/Day	0.5
Number of Days	4
\$/Day/Person	\$258
Subtotal Dismantling and Decon Costs per Well	\$2,060.25
<b>3. Tubing String Disposal (NRC-Licensed Facility)</b>	
Length of Tubing String (ft)	8,570
Diameter of Tubing String (inches)	2.875
Volume of Tubing String (ft <sup>3</sup> )	386
Transportation and Disposal Unit Cost (\$/ft <sup>3</sup> )	\$7.34
Subtotal Tubing String Disposal Costs per Well	\$2,833
Subtotal Waste Disposal Well Abandonment Costs per Well	\$106,962
<b>Total Waste Disposal Well Abandonment Costs</b>	<b>\$213,790</b>
<b>TOTAL WELL ABANDONMENT COSTS</b>	<b>\$2,298,924</b>

**APPENDIX B**

**2011-12 YEAR 1 MINING OPERATIONS RECLAMATION SURETY BOND ESTIMATE**

WDEQ Permit No. 632 Annual Report / NRC SUA-1548

North Butte ISR Project

<b>PART V: MISCELLANEOUS SURFACE RECLAMATION</b>	
<b>A. Wellfield Pattern Area Reclamation</b>	
Assume:	
Disking/Seeding Unit Cost Based on Actual Contractor Costs	
Pattern Area (acres)	23.53
Wellfield Pattern Area Disking/Seeding Unit Cost (\$/acre)	\$606
Subtotal Pattern Area Reclamation Costs per Wellfield	\$14,257
<b>Total Wellfield Pattern Area Reclamation Costs</b>	<b>\$14,257</b>
<b>B. Wellfield Road Reclamation</b>	
Length of Wellfield Roads (1000 ft)	20
Wellfield Road Reclamation Unit Cost (\$/1000 ft)	\$731
Subtotal Road Reclamation Costs per Wellfield	\$14,620
<b>Total Wellfield Road Reclamation Costs</b>	<b>\$14,620</b>
<b>C. Header House Surface Reclamation</b>	
Assume:	
Number of Header Houses	7
Area of Disturbance per Header House (ft <sup>2</sup> )	1000
Total Area of Disturbance (acres)	0.16
Average Depth of Stripped Topsoil (ft)	1
Surface Grade: Level Ground	
Average Length of Topsoil Haul (ft)	1000
<b>1. Ripping Overburden with Dozer</b>	
Ripping Unit Cost per WDEQ Guideline No.12, App.11 (\$/acre)	\$1,104.19
Subtotal Ripping Costs	\$177
<b>2. Topsoil Application with Scraper</b>	
Volume of Topsoil Removed (cy)	258
Application Unit Cost per WDEQ Guideline No.12, App.C (\$/cy)	\$1.09
Subtotal Topsoil Application Costs	\$281
<b>3. Disking and Seeding</b>	
Disking/Seeding Unit Cost (\$/acre)	\$606
Subtotal Disking/Seeding Costs	\$97
Subtotal Header House Reclamation Costs per Wellfield	\$555
<b>Header House Reclamation Costs per Wellfield</b>	<b>\$555</b>
<b>TOTAL WELLFIELD SURFACE RECLAMATION COSTS</b>	<b>\$29,432</b>
	<b>Satellite Area Reclamation</b>
<b>D. Satellite Plant Area Reclamation</b>	
<b>1. Topsoil Application</b>	
Assume:	
Average haul distance (ft)	2000
Surface grade: Level ground	
Topsoil Surface Area (acres)	21
Average Depth of Topsoil (ft)	0.5
Volume of Topsoil (cy)	16940
Topsoil Unit Cost per WDEQ Guideline No.12, App.C (\$/cy)	\$1.09
<b>Total Topsoil Application Cost</b>	<b>\$18,465</b>
<b>2. Disking/Seeding</b>	
Surface Area (acres)	5
Disking/Seeding Unit Cost (\$/acre)	\$606
Total Disking/Seeding Costs	\$3,030
<b>Satellite Plant/Office Area Reclamation</b>	<b>\$21,495</b>

**APPENDIX B**

**2011-12 YEAR 1 MINING OPERATIONS RECLAMATION SURETY BOND ESTIMATE**

WDEQ Permit No. 632 Annual Report / NRC SUA-1548

North Butte ISR Project

<b>PART V: MISCELLANEOUS SURFACE RECLAMATION</b>	
<b>E. Access Road Reclamation</b>	<b>Main Access Road</b>
Assume	
Surface grade: Level ground	
Length of road (miles)	6
Average road width (ft)	25
<b>1. Gravel Road Base Removal</b>	
Assume	
Average haul distance (ft)	1000
Gravel Road Base Width (ft)	25
Average Road Base Depth (ft)	0.5
Volume of Road Base (cy)	14667
Removal Unit Cost per WDEQ Guideline No.12, App.C (\$/cy)	\$1.09
Subtotal Gravel Road Base Removal Costs	<b>\$15,987</b>
<b>2. Ripping Overburden with Dozer</b>	
Overburden Surface Area (acres)	18
Ripping Unit Cost per WDEQ Guideline No.12, App.I1 (\$/acre)	\$1,104.19
Subtotal Ripping Overburden Costs	<b>\$19,875</b>
<b>3. Topsoil Application</b>	
Assume	
Average haul distance (ft)	1000
Topsoil Surface Area (ft2)	792000
Depth of Topsoil (ft)	0.5
Volume of Topsoil (cy)	14667
Topsoil Unit Cost per WDEQ Guideline No.12, App.C (\$/cy)	\$1.09
Subtotal Topsoil Application Costs	<b>\$15,987</b>
<b>4. Disking/Seeding</b>	
Surface Area (acres)	18
Disking/Seeding Unit Cost (\$/acre)	\$606
Subtotal Disking/Seeding Costs	<b>\$10,908</b>
<b>Total Access Road Reclamation Costs</b>	<b>\$62,757</b>
<b>F. Evaporation Pond Reclamation</b>	<b>Ponds 1 and 2</b>
Assume:	
Total Pond Surface Acres	2.5
Average Thickness of Liner and Sludge (in)	3
Average Thickness of Contaminated Soil (in)	6
Volume of Byproduct Material (ft3)	81675
Backhoe Operation Unit Cost	
<b>1. Liner &amp; Sludge Removal and Loading</b>	
a. Equipment	
Number of Backhoes	1
ft3/hr	300
Number of Hours	272
\$/hr/Backhoe	\$149.14
Equipment Costs	<b>\$40,566</b>
b. Labor	
Number of Persons	2
Number of Hours	272
\$/hr/Person(operator)	\$32
\$/hr/Person (laborer)	\$22

**APPENDIX B**

**2011-12 YEAR 1 MINING OPERATIONS RECLAMATION SURETY BOND ESTIMATE**

WDEQ Permit No. 632 Annual Report / NRC SUA-1548

North Butte ISR Project

<b>PART V: MISCELLANEOUS SURFACE RECLAMATION</b>	
Labor Costs	\$14,743
Subtotal Liner & Sludge Removal and Loading Costs	<b>\$55,309</b>
<b>2. Transportation and Disposal (NRC-Licensed Facility)</b>	
Transportation and Disposal Unit Cost (\$/ft <sup>3</sup> )	\$7.51
Subtotal Transportation and Disposal Costs	<b>\$613,773</b>
<b>3. Leak Detection Piping Removal and Loading</b>	
Assume:	
Piping Removal Unit Cost same as for Well fields (\$/ft)	\$2.42
Length of Piping (ft)	400
a. Piping Removal and Loading Costs	
Total Length of Piping (ft)	400
Subtotal Piping Removal and Loading Costs	\$968
b. Shredding Costs	
Average Diameter of Piping (inches)	2
PVC Pipe Shredding Unit Cost (\$/diameter-in-ft)	\$0.033
Subtotal Pipe Shredding Costs	\$66
c. Transport and Disposal Costs (NRC-Licensed Facility)	
Chipped Volume Reduction (ft <sup>3</sup> /ft)	0.01
Chipped Volume (ft <sup>3</sup> )	4
Volume for Disposal Assuming 10% Void Space (ft <sup>3</sup> )	4
Transportation and Disposal Unit Cost (\$/ft <sup>3</sup> )	\$7.34
Subtotal Piping Transport and Disposal Costs	<b>\$29</b>
Subtotal Leak Detection Piping Removal and Disposal Costs	<b>\$1,063</b>
<b>4. Replacement of Excavated Soil</b>	
Assume:	
Includes replacement of topsoil and subsoil	
Surface Grade: Level ground	
Average Haul Distance (ft)	1000
Surface Area (acres)	2.5
Average Depth of Excavated Soil (ft)	10.0
Volume of Topsoil (cy)	40333
Soil Replacement Unit Cost per WDEQ Guideline No.12, App.C (\$/cy)	\$1.09
Subtotal Soil Replacement Costs	\$43,963
<b>5. Disking/Seeding</b>	
Surface Area (acres)	2.5
Disking/Seeding Unit Cost (\$/acre)	\$606
Subtotal Disking/Seeding Costs	\$1,515
<b>Total Evaporation Pond Reclamation Costs</b>	<b>\$715,623</b>
<b>TOTAL MISCELLANEOUS SURFACE RECLAMATION COSTS</b>	<b>\$829,307</b>

**Reclamation Cost Estimate  
Detailed Assumptions and Calculations**

<b>WELL ABANDONMENT Unit Costs</b>									
Basis									
	Typical 5" diameter well								
	Hose reel and tow vehicle to pull pump and discharge line from well								
	Cementer and tow vehicle to pump cement and plug gell								
	3 operators per day to plug 2800 ft of 5-inch wells								
Productivity		2800	ft per day						
Daily Costs	Cost Description	Quantity	% utilization	Unit Rate	Units	Total Cost	Units	Comments	
	Operators	3	100%	\$ 269.23	\$/man-	\$ 807.69	\$/day		
	Pulling Unit/Hose Re	8	100%	\$ 75.00	\$/hr	\$ 600.00	\$/day	Quote from Pronghorn Pump	
	Tow vehicle deisel	24	50%	\$ 26.41	\$/hr	\$ 316.92	\$/day	Guideline 12 rate	
	Trailer gooseneck	16	50%	\$ 20.00	\$/hr	\$ 160.00	\$/day		
	Skid Mounted Grout	8	100%	\$ 45.00	\$/hr	\$ 360.00	\$/day	\$22K new to Purchase from ChemGrout	
	Water truck 4K gal F	8	100%	\$ 33.14	\$/hr	\$ 265.09	\$/day	Quote Wyoming Machinery	
	Water truck 4K gal d	8	50%	\$ 41.68	\$/hr	\$ 166.73	\$/day	74.82 less rent rate	
	Backhoe CAT 430D	8	100%	\$ 32.39	\$/hr	\$ 259.12	\$/day	Guideline 12 rate	
	Pickup gas	8	25%	\$ 29.28	\$/hr	\$ 58.56	\$/day	Guideline 12 rate	
	Subtotal/day					\$ 2,994.12			
Materials									
	Cement/100 ft	7.5	sacks	10.08	\$/sack	\$ 75.60	\$/100 ft	Quote GCC Dakotah	
	Plug Gel/100 ft	1	tube	7.67	\$/tube	\$ 7.67	\$/100 ft	Quote Casper Well Products	

**Reclamation Cost Estimate  
Detailed Assumptions and Calculations**

Subtotal/\$ per 100 ft					\$ 83.27	\$/100 ft				
Subtotal Daily Cost					\$ 5,325.68					
20 wells average 800 feet deep, 16,000 feet @ 2800 ft/day 6 day duration										
Mobilization/Demobilization										
	Pulling Unit	3 hrs/way @ \$110/hr			\$ 660.00		Quote Pronghorn Pump			
	1 lowboy	3 hrs/way @ \$125/hr			\$ 750.00					
	3 pickups	100 miles/way @ \$.55/mile			\$ 330.00					
	Labor	3 Operators - 3hrs/way @ \$33.65/hr			\$ 605.70					
	1250 gal water tank				\$ 1,500.00		Quote American Process Technology			
Per Diem										
	3 men	6 days @ \$150/day			\$ 2,700					
	Oversight	40 hours @ \$60/hr			\$ 2,400					
Subtotal Project Costs					\$ 1,745.70					
Per Well Costs										
Average well depth		800 ft								
	Site Locating				\$ 10.00	each	Guideline 12 rate			
	Well Cap				\$ 7.50	each	Guideline 12 rate			
	Seeding				\$ 50.00	each	Guideline 12 rate			
Cost per foot per well					\$ 0.08					
<b>Total Cost per Foot</b>										<b>\$ 2.61</b>

**Reclamation Cost Estimate  
Detailed Assumptions and Calculations**

<b>REMOVAL OF CONTAMINATED SOIL AROUND WELLS Unit Cost</b>									
<b>Assumptions:</b>									
1	Use backhoe for 0.25 hr/well to dig								
2	Radiation Technician measures extent of contamination for 0.25 hr/well								
<b>Assessment/Removal Costs</b>									<b>Cost per well</b>
	Cat 416 Backhoe								
	0.25	hours	X	\$ 25.42	per hour				\$6.35
	Radiation Technician								
	0.25	hours	X	\$ 26.87	per hour				\$6.72
	Laborer								
	0.25		X	\$ 32.19	per hour				\$8.05
<b>Disposal and Transportation Costs</b>									
	Contaminated Soil per Well								
					0.370	cy per well			
	Disposal and Transportation								
				\$	169.60	per cy			\$62.75
<b>Total Estimated Cost per Well:</b>									<b>\$83.87</b>

**Reclamation Cost Estimate  
Detailed Assumptions and Calculations**

Delineation Surface Unit Costs									
<b>Assumptions:</b>									
<b>Delineation Surface Reclamation Costs</b>								650	<b>\$/ft (based on 650 ft holes)</b>
Site Locating	1	per site	X	\$	10.00	per site	=	10.00	\$ 0.015
<b>Site Grading &amp; Seeding</b>									
Cat 416 Backhoe	1	hours	X	\$	25.42	per hour	=	25.42	\$ 0.039
Operator	1	hours	X	\$	32.19	per hour	=	32.19	\$ 0.050
Seeding	0.0184	acre	X	\$	606.37	per acre	=	11.14	\$ 0.017
<b>Total Estimated Cost per Well</b>								<b>68.75</b>	
<b>Total Estimated Cost per Foot:</b>									<b>\$0.12</b>

**Reclamation Cost Estimate  
Detailed Assumptions and Calculations**

**FIVE YEAR MECHANICAL INTEGRITY TESTS (MIT)**

**Assumptions:**

1. Equipment Costs are referenced to UC-Equip Cost
2. Labor Costs are referenced to Master Cost
3. Use pulling unit for 2 hr/well at cost of \$110/hr. with Labor
4. Use MIT unit for 1.5 hrs/well at cost of \$69.54/hr. With Labor

**MIT Costs per Well**

**Equipment with Labor:**

Pulling Unit				
2 hours	X	\$ 110	per hour	\$220.00
MIT Unit (With Labor)				
3 hours	X	\$ 69.54	per hour	\$208.63
			<b>MIT COST PER WELL</b>	<u><u>\$429</u></u>

**Reclamation Cost Estimate  
Detailed Assumptions and Calculations**

**WELLFIELD PIPING REMOVAL Unit Costs**

**Assumptions:**

1. Trenching with Trackhoe at 1000 ft per day
2. Pipeline extraction and backfilling with Trackhoe & loader at 2000 ft/day 1000 feet per day
4. Trackhoe operation requires 1 worker
5. Pipeline extraction requires 2 workers
6. Operating schedule: 8 hrs/day, 5 days/week

**Equipment**

<b>Trackhoe</b>	\$ \$ 149.14		X	8 hours day		1 day 1000 ft	= \$1.19 per foot
	hour						
<b>Loader</b>	\$ 46.60576		X	8 hours day		1 day 1000 ft	= \$0.37 per foot
	hour						
<b>Pickup</b>	\$ \$ 19.45		X	8 hours day		1 day 1000 ft	= \$0.16 per foot
	hour						

**Labor**

<b>Trackhoe Operation</b>	\$ 32.1914		X	8 man hrs 1 day		1 day 1000 ft	= \$0.26 per foot
	man hr						
<b>Loader Operation</b>	\$ 32.1914		X	8 man hrs 1 day		1 day 1000 ft	= \$0.26 per foot
	man hr						
<b>Pipeline Extraction Laborer</b>	\$ 22.01		X	8 man hrs 1 day		1 day 1000 ft	= \$0.18 per foot
	man hr						

<b>MAIN PIPELINE REMOVAL COST</b>	<b>\$2.42 per foot</b>
<b>Chipped Pipe Volume Calculations</b>	

Pipe Diam Inches	SDR	OD	ID	Wall Thickness	Area of Plastic in Crossection (ft <sup>2</sup> )	Volume of Plastic per Linear Foot (ft <sup>3</sup> )
1.5	11	1.900	1.534	0.183	0.0069	0.0069
2	11	2.375	1.917	0.229	0.0107	0.0107
3	11	3.500	2.825	0.3375	0.0233	0.0233
4	11	4.500	3.633	0.4335	0.0385	0.0385
6	11	6.625	5.348	0.6385	0.0834	0.0834
8	11	8.625	6.963	0.831	0.1413	0.1413
10	11	10.750	8.678	1.036	0.2196	0.2196
12	11	12.750	10.293	1.2285	0.3088	0.3088
14	11	14.000	11.302	1.349	0.3723	0.3723
16	11	16.000	12.916	1.542	0.4864	0.4864
18	11	18.000	14.531	1.7345	0.6155	0.6155
20	11	20.000	16.364	1.818	0.7211	0.7211
24	11	24.000	19.636	2.182	1.0386	1.0386

## Reclamation Cost Estimate Detailed Assumptions and Calculations

### WELLFIELD ROAD RECLAMATION

#### Assumptions:

1. Gravel road base removed at cost of \$1.19/cy/1000 ft (WDEQ Guideline No.12, Appendix C)
2. Gravel road base: average depth = 0.25 ft, average width = 10 ft
3. Roads scarified prior to topsoil application at cost of \$59.41/acre (WDEQ Guideline No. 12, Appendix P)
4. Topsoil applied at cost of \$1.19/cy/1000 ft (WDEQ Guideline No. 12, Appendix C, Surface grade: level ground)
5. Stripped topsoil: average depth = 0.4 ft, average width = 20 ft
6. Disking/seeding cost of \$685/acre is based on actual contractor costs

Gravel Road Base Removal Costs per 1000 ft of Road

$$\frac{1000 \text{ ft}}{1000 \text{ ft}} \times \frac{0.25 \text{ ft}}{0.25 \text{ ft}} \times \frac{10 \text{ ft}}{10 \text{ ft}} \times \frac{1 \text{ cy}}{27 \text{ ft}^3} \times \frac{\$1.09}{\text{acre}} = \$ 101$$

Scarification Costs per 1000 ft of Road

$$\frac{1000 \text{ ft}}{1000 \text{ ft}} \times \frac{20 \text{ ft}}{20 \text{ ft}} \times \frac{1 \text{ acre}}{43560 \text{ ft}^2} \times \frac{\$62.93}{\text{acre}} = \$ 29$$

Topsoil Application Costs per 1000 ft of Road

$$\frac{1000 \text{ ft}}{1000 \text{ ft}} \times \frac{0.40 \text{ ft}}{0.40 \text{ ft}} \times \frac{20 \text{ ft}}{20 \text{ ft}} \times \frac{1 \text{ cy}}{27 \text{ ft}^3} \times \frac{\$1.09}{\text{cy}} = \$ 323$$

Disking/Seeding Costs per 1000 ft of Road

$$\frac{1000 \text{ ft}}{1000 \text{ ft}} \times \frac{20 \text{ ft}}{20 \text{ ft}} \times \frac{1 \text{ acre}}{43560 \text{ ft}^2} \times \frac{\$606}{\text{acre}} = \$ 278$$

**TOTAL WELLFIELD ROAD RECLAMATION COSTS PER  
1000 FT OF ROAD**

**= \$ 731**

## Reclamation Cost Estimate Detailed Assumptions and Calculations

### PIPE SHREDDING COST:

#### Assumptions:

1. Shredder Cost (UC-Equipment Costs)= \$ 22.41 hr
2. Operator Cost( Master Costs) = \$22.01 hr
- 3 Shredding Rate :
  - a. HDPE SDR 11 pipe = 8,000 (diameter - inches - feet / day)  
eg: 1,000 ft of 8" diameter, or , 2,000 ft of 4" diameter per day
  - b. PVC pipe = 16,000 (diameter - inches - feet / day)

#### Shredding Cost: (Includes Labor)

a. HDPE SDR 11:

$$\frac{531.4797 \text{ \$/day}}{8,000 \text{ Dia-in-ft/day}} = \frac{\$0.066}{\text{Dia - in - ft}}$$

b. PVC:

$$\frac{531.4797 \text{ \$/day}}{16,000 \text{ Dia-in-ft/day}} = \frac{\$0.033}{\text{Dia - in - ft}}$$

**Reclamation Cost Estimate  
Detailed Assumptions and Calculations**

Equipment Costs - based on Cost Reference Guide: "Equipment Watch 2010"

Gasoline cost/gallon = \$ 3.00

GEC = ground engaging components

18%

Diesel Cost/ gallon = \$ 3.23

Equipment Description	Hourly Ownership & Overhaul Cost					Field Repair & Operating Expenses (no operator labor)							Total Operating cost/hr	Total Hourly Cost	Owner's Profit & OH / hr	Cost/hr
	Ownership		Overhaul													
	Depr. \$	CFC \$	O'Head \$	Labor \$	Parts \$	Labor \$	Parts \$	Fuel consum. Gal/hr	Fuel \$	Lube \$	Tires \$	GEC \$				
Cat 14H Grader - 14' Blade	\$ 16.53	\$ 7.29	\$ 9.16	\$ 3.95	\$ 8.32	\$ 3.29	\$ 8.07	7.04	\$ 22.74	\$ 4.22	\$ 5.14	\$ 0.64	\$ 44.10	\$ 89.35	\$ 16.08	\$ 105.43
Bobcat S250 Skid Steer Loader	\$ 1.95	\$ 0.64	\$ 0.78	\$ 1.75	\$ 1.31	\$ 1.42	\$ 0.93	2.78	\$ 8.97	\$ 0.84	\$ 0.85	\$ 0.08	\$ 13.09	\$ 19.52	\$ 3.51	\$ 23.03
Backhoe 416E Extendable Boom	\$ 3.85	\$ 1.51	\$ 1.30	\$ 1.21	\$ 0.92	\$ 1.23	\$ 1.14	2.88	\$ 9.29	\$ 1.57	\$ 0.95	\$ 0.15	\$ 14.33	\$ 23.12	\$ 4.16	\$ 27.29
Cat 924H 4-WD Wheel Loader	\$ 8.05	\$ 2.76	\$ 2.63	\$ 2.30	\$ 1.85	\$ 2.85	\$ 1.80	4.12	\$ 13.32	\$ 1.87	\$ 1.83	\$ 0.24	\$ 21.91	\$ 39.50	\$ 7.11	\$ 46.61
Cat 615C Elevating Scarper	\$ 17.88	\$ 7.79	\$ 7.88	\$ 7.89	\$ 14.79	\$ 12.27	\$ 13.31	10.07	\$ 32.52	\$ 5.18	\$ 3.33	\$ 1.14	\$ 67.75	\$ 123.98	\$ 22.32	\$ 146.30
Cat D8R Dozer - Semi U Blade	\$ 21.97	\$ 7.90	\$ 7.53	\$ 7.89	\$ 14.36	\$ 8.77	\$ 13.86	11.36	\$ 36.69	\$ 5.41	\$ -	\$ 2.01	\$ 66.74	\$ 126.39	\$ 22.75	\$ 149.14
Cat 320C L Trackhoe	\$ 16.31	\$ 5.02	\$ 3.64	\$ 5.70	\$ 5.60	\$ 5.70	\$ 5.60	5.80	\$ 18.72	\$ 3.52	\$ -	\$ 0.90	\$ 34.44	\$ 70.71	\$ 12.73	\$ 83.44
Concrete Jaws Laboury - CP-60	\$ 1.57	\$ 0.47	\$ 0.47	\$ 0.81	\$ 0.39	\$ 7.30	\$ 1.95	-	\$ -	\$ 0.21	\$ -	\$ -	\$ 9.46	\$ 13.17	\$ 2.37	\$ 15.54
Grove RT700E 50 ton RT Crane	\$ 20.62	\$ 6.85	\$ 8.83	\$ 6.07	\$ 9.81	\$ 5.85	\$ 13.79	11.54	\$ 37.28	\$ 6.22	\$ 5.70	\$ -	\$ 68.84	\$ 121.02	\$ 21.78	\$ 142.80
Vermeer 1230 Chipper	\$ 2.19	\$ 0.40	\$ 0.60	\$ 1.21	\$ 1.38	\$ 0.99	\$ 1.02	2.92	\$ 9.43	\$ 0.83	\$ 0.26	\$ 0.69	\$ 13.22	\$ 19.00	\$ 3.42	\$ 22.41
JLG 600S Manlift - 60 ft (Gas)	\$ 11.12	\$ 2.18	\$ 1.51	\$ 5.10	\$ 4.52	\$ 5.26	\$ 1.87	3.11	\$ 9.33	\$ 1.71	\$ 0.80	\$ -	\$ 18.97	\$ 43.40	\$ 7.81	\$ 51.21
Pressure Washer 5 gpm 2200 psi	\$ 0.21	\$ 0.04	\$ 0.03	\$ 0.34	\$ 0.09	\$ 0.52	\$ 0.04	0.50	\$ 1.50	\$ 0.17	\$ -	\$ -	\$ 2.23	\$ 2.94	\$ 0.53	\$ 3.47
Pick-up Truck 3/4 ton 4X4	\$ 2.66	\$ 0.44	\$ 0.37	\$ 0.59	\$ 0.54	\$ 0.75	\$ 0.52	3.14	\$ 9.42	\$ 0.79	\$ 0.40	\$ -	\$ 11.88	\$ 16.48	\$ 2.97	\$ 19.45
Pulling Unit - Truck 1.75 Ton 4X4	\$ 4.06	\$ 0.71	\$ 0.72	\$ 0.66	\$ 0.88	\$ 0.83	\$ 0.85	6.88	\$ 20.63	\$ 1.66	\$ 0.65	\$ -	\$ 24.62	\$ 31.65		
Hoisting Unit - Hydraulic 18000#	\$ 4.91	\$ 0.90	\$ 0.78	\$ 1.46	\$ 1.32	\$ 1.80	\$ 1.52	-	\$ -	\$ 0.46	\$ -	\$ -	\$ 3.78	\$ 13.15		
Pulling Unit Total	\$ 8.97	\$ 1.61	\$ 1.50	\$ 2.12	\$ 2.20	\$ 2.63	\$ 2.37	6.88	\$ 20.63	\$ 2.12	\$ 0.65	\$ -	\$ 28.40	\$ 44.80	\$ 8.06	\$ 52.87
MIT Truck - 1.75 Ton 4X4 Gas	\$ 4.06	\$ 0.71	\$ 0.72	\$ 0.66	\$ 0.88	\$ 0.83	\$ 0.85	6.88	\$ 20.63	\$ 1.66	\$ 0.65	\$ -	\$ 24.62	\$ 31.65	\$ 5.70	\$ 37.35
Mobile Mixer Trailer Mounted - Cementer - Grout mixer pumper	\$ 5.86	\$ 1.12	\$ 1.07	\$ 4.16	\$ 1.68	\$ 5.48	\$ 1.85	2.02	\$ 6.52	\$ 0.85	\$ 0.40	\$ -	\$ 15.10	\$ 28.99	\$ 5.22	\$ 34.21
Gooseneck Trailer 3 Axle - fixed	\$ 2.85	\$ 0.76	\$ 0.45	\$ 1.42	\$ 0.88	\$ 1.64	\$ 1.22	-	\$ -	\$ 0.29	\$ 2.24	\$ -	\$ 5.39	\$ 11.75	\$ 2.12	\$ 13.87
GEHL DL-8 Rough Terrain Lift Truck	\$ 8.35	\$ 1.88	\$ 1.92	\$ 5.06	\$ 4.93	\$ 5.28	\$ 3.31	3.23	\$ 10.44	\$ 1.61	\$ 1.43	\$ -	\$ 22.07	\$ 44.21	\$ 7.96	\$ 52.17

**Reclamation Cost Estimate  
Detailed Assumptions and Calculations**

**Master Costs: Mine Unit Data**

	Mine Unit 1	Mine Unit 2	Mine Unit 3	Mine Unit 4	Mine Unit 5
Total number of production wells	140			0	0
Total number of injection wells	300			0	0
Total number of monitor wells	75			0	0
Flare Factor	1.5				0
Wellfield Area (ft <sup>2</sup> )	1,095,400	0	0	0	0
Wellfield Area (acres)	23.53	0.00	0.00	0.00	0.00
Affected Ore Zone Area (ft <sup>2</sup> )	1,095,400	0	0	0	0
Avg. Completed Thickness	20.0	20.0	20.0	20.0	20.0
Porosity	0.27	0.27	0.27	0.27	0.27
Affected Volume (ft <sup>3</sup> )	32,862,000	0	0	0	0
Kgallons per Pore Volume	66,368	0	0	0	0
Number of Patterns in Unit(s)					
Current	0	0	0	0	0
Estimated next report	140	0	0	0	0
Total Estimated	140	0	0	0	0
Number of Wells in Unit(s)					
Production Wells					
Current	0	0	0	0	0
Estimated next report	140	0	0	0	0
Total Estimated	140	0	0	0	0
Injection Wells					
Current	0	0	0	0	0
Estimated next report	260	0	0	0	0
Total Estimated	260	0	0	0	0
Monitor and Restoration Wells					
Current	0	0	0	0	0
Estimated next report	80	0	0	0	0
Total Estimated	80	0	0	0	0
Number of Wells per Wellfield	480	0	0	0	0
Total Number of Wells	480				
Average Well Depth (ft)	500	0	0	0	0
Average Diameter of Casing (inches)	5	5	5	5	5
Delineation Holes Estimated Next Report Period	700	0	0	0	0
Length of Fencing (ft)	0	0		0	0
Number of Deep Disposal Wells	2				
<b>Electrical Costs</b>	2009 Actual				
Power cost	\$0.0478	kwHr			
Kilowatt to Horsepower	0.746	Kw/HP			
Horsepower per gallon per minute	0.167	HP/gpm			
<b>Labor Rates</b>					
Latest Available, Wyoming, Mountain States Employers Council, July, 2009	Inc 42% benefits	(i.e., overhead)			
Environmental Manager/RSO	\$45.43	\$64.51	hour		
Restoration Manager/Hydrologist	\$32.21	\$45.74	hour		
Operator	\$22.67	\$32.19	hour		
Laborer	\$15.50	\$22.01	hour		
Engineer	\$32.21	\$45.74	hour		
Radiation/Environmental Engineering Technician	\$18.92	\$26.87	hour		
2,080 working hours in a year	173	hours per month			
<b>Chemical Costs</b>	2010 Actual				
Antiscalant for RO	\$16.19	gal			
Sodium Sulfide	\$0.38	pound			
Methanol	\$2.43	gal			
Cement	\$5.94	sack			
Bentonite Tubes	\$2.90	tube			
Plug Gel	\$7.30	sack			
Well Cap	\$7.50	each			
Hydrochloric Acid	\$0.16	pound			

**Reclamation Cost Estimate  
Detailed Assumptions and Calculations**

<b>Analytical Costs</b>						
Guideline 8 (contract lab adjusted for current contract cost)	\$337.00	analysis				
6 parameter (in-house) Est Rate (CPI)	\$100.00	analysis				
Other (radon, bio, etc.) Est Rate (CPI)	\$1,000.00	month				
<b>Equipment Costs</b>						
Equipment	Base Rental Rate (\$/hr)	Labor Costs (\$/hr)	Repair Reserve Costs (\$/hr)	Fuel Costs (\$/hr)	Mob & Demob (\$/hr)	Total (\$/hr)
Cat 924G Loader	\$46.61	N/A	inc	inc	inc.	\$46.61
Cat 416 Backhoe	\$27.29	N/A	inc	inc	inc.	\$27.29
Shredder	\$22.41	N/A	inc	inc	inc	\$22.41
Cat D8N Bulldozer	\$146.30	N/A	inc	inc	inc.	\$146.30
Pulling Unit with Operator	\$110.00	inc	inc	inc	inc	\$110.00
MIT Unit with Operator	\$37.35	N/A	inc	inc	inc	\$37.35
Drill Rig (workover, repair, P&A) wif	\$200.00	inc	inc	inc	inc	\$200.00
Goose Neck Trailer	\$13.87	N/A	inc	inc	inc.	\$13.87
Manlift Rental	\$51.21	inc	inc	inc	inc	\$51.21
Cementer	\$34.21	N/A	inc	inc	inc.	\$34.21
Crane Rental with Operator	\$142.80	inc	inc	inc	inc	\$142.80
Cat 320C L Trackhoe	\$149.14	N/A	inc	inc	inc	\$149.14
Concrete Jaws Labounty - CP-6f	\$83.44	N/A	inc	inc	inc	\$83.44
Pick-up Truck 3/4 ton 4X4	\$19.45	N/A	inc	inc	inc	\$19.45
Hose Reel	\$62.50	N/A	inc	inc	inc	\$62.50
Bobcat S250 Skid Steer Loader	\$23.03	N/A	inc	inc	inc	\$23.03
Cat 14H Grader - 14' Blade	\$105.43	N/A	inc	inc	inc	\$105.43
Cat 615C Elevating Scarper	\$146.30	N/A	inc	inc	inc	\$146.30
Basis:						
Drill Rig Based on Current Contract						
Equipment rates based on Cost Reverence Guide-Equipment Watch 2010 updated addition (see UIC-Equip Cost)						
Pulling Unit Cost Based on Quote from Pronghorn Pump.						
Diesel costs from EIA projected average for 2011				\$3.230	gallon	
Gasoline costs from EIA projected average for 2011				\$3.000	gallon	

**Waste Disposal Costs**

Waste Form	Fee		Density Correction Factor (Tons/Yd3)	Fee per Cubic Yard	Transport Cost		Total Transportation and Disposal	
Soil, Concrete, Bulk Byproduct Material	\$110.00	per Ton	0.54	\$59.40	\$143.50	per Yd3	\$202.90	per Yd3
Unpackaged Bulk Byproduct Material (e.g., pipe)	\$130.00	per Ton	0.42	\$54.60	\$143.50	per Yd3	\$198.10	per Yd3
Solid Waste (landfill)	\$0.00827	per Lb			Incl.	per Lb	\$0.00827	per Lb
Solid Waste (landfill)	\$133.75	per Load			Incl.	per Load	\$133.75	per Load
Void Factor (for disposal)	1.25							
Transportation Cost per load	\$2,800	yrds/load	30	yd				
Bin Rental (90 days @ \$13.00 per day)	\$1,170							
Decontamination Fee	\$170	per Load						
Unloading Fee	\$165	per Load						
Total Transportation	\$4,305							
Disposal Costs are Based on the Current Contract								
With Denison Mines good through 2015								
Tansportation is Calculated from SRH								

**Load Correction Factors** - difference between solid material and when it is broken because of air space between the pieces of material, the coarser the material the lower the load factor ( or the finer the material the higher the factor). The table below shows some examples of load factors for several common materials, including concrete.

Material	Pounds/CY		% Dif	Load Factor
	Solid (bank)	Broken (Loose)		
Granite	4536	2781	39%	0.61
Limestone	4401	2619	40%	0.60
Sandstone	3915	2538	35%	0.65
Concrete	3996	2176	46%	0.54
Sand & gravel	2700	2400	11%	0.89

**Reclamation Cost Estimate  
Detailed Assumptions and Calculations**

<b>Guideline No. 12 Unit Costs (Includes Profit)</b>			
Paragraph 12, Miscellaneous (Administrative, Overhead and Contingency)			
Extrapolated percentage based on numbers provided			15 percent
<b>App K, Cost Estimates for Demolition and Removal of Railroad Spurs and Facilities Buildings</b>			
Task	Cost per unit	Regional Cost Adjustment	Adjusted Cost per Unit
Mixture of Types	\$0.26 ft3	0.957	\$0.249 ft3
Explosive Demolition, Concrete or	0.24 ft3	0.957	\$0.230 ft3
Disposal (Average)	8.48 cy	0.957	\$8.115 cy
City Landfill Dump Charges	\$100.00 ton	0.957	\$95.700 ton
Concrete Footings and Foundations		0.957	\$0.000
6" Thick with Rebar	5.28 ft2	0.957	\$5.053 ft2
Footings - 2' Thick, 3' Wide	18.95 lin. ft.	0.957	\$18.135 lin. ft.
Concrete Disposal On-Site	7.28 cy	0.957	\$6.967 cy
Dump truck from Appendix J	64.33 hr		
City Landfill Dump Charges x density correction factor		0.42	\$42.00
<b>App C, Calculations for Moving Materials with a Caterpillar 637G Push-Pull Scraper Fleet</b>			
			Operating Cost per bank (in situ) cubic yards
One-Way Distance 500 feet, 0% grade			\$0.913 bcy
One-Way Distance 1,000 feet, 0% grade			\$1.090 bcy
One-Way Distance 2,000 feet, 0% grade			\$1.413 bcy
One-Way Distance 6,500 feet, 5% grade			\$3.820 bcy
<b>App E, Calculations for Moving Material with a Caterpillar D9R Dozer</b>			
			Operating Cost per linear cubic yard
Distance 50 feet			\$0.133 lcy
<b>App H, Cost Estimates for Handling Wire Fencing and Electrical Power Lines</b>			
Fencing Removal			\$0.31 linear foot
<b>App I, Cost Estimate for Ripping Asphalt Using a Caterpillar D9R Dozer</b>			
			Operating Cost
			\$702.87 per acre
<b>App I1, Cost Estimate for Ripping Overburden Using a Caterpillar D10R Dozer</b>			
			Operating Costs
0.27 acre/hour			\$298.13 per hour
			\$1,104.19 per acre
<b>App J, Cost Estimate for Removing one 20' Section of CMP</b>			
			Operating Cost
			\$122.02 per 20' section
<b>App L, Abandonment and Sealing of Cased Drill Holes and Monitor Wells</b>			
Site Grading			\$30.00 per site
Seeding			\$1.00 per site
Large Sites 100' x 100'			\$100.00 per site
<b>App. O Cost to Remove One Meteorological Station</b>			
			\$886.48 per site
<b>App P, Cost Estimates for Scarification of Compacted Surfaces Using Cat. 16H Grader</b>			
			Operating Costs
2.9 acre/hour			\$182.49 per hour
			\$62.93 per acre
<b>Vehicle Operating Costs</b>			
Pickup (Gas)	\$26.15		
Pickup (Diesel)	\$22.69		
<b>Seeding Unit Costs</b>			
Disking / Seeding/Topsoil Costs		2010 Actual	
Seed cost		\$65.99 per acre	
Hay Mulch Crimped and Tackifier Soil Amendment		\$540 per acre	
Seed and Mulch		\$606 per acre	
Depth of Topsoil		0.5 feet	

**Reclamation Cost Estimate  
Detailed Assumptions and Calculations**

**North Butte Satellite Plant Dimension Calculations**

<b>Satellite Plant Dimensions</b>			
<b>Exterior</b>			
Main Building	Height, ft	Width, ft	Length,ft
	22	80	160
Office	19	40	160
Restoration	19	40	160
Roof			
Half of total building		80	160

<b>Shop Dimensions</b>			
<b>Interior</b>			
Interior Wall Dim	Height, ft	Width, ft	Length,ft
	19	40	
Floor			
Main Satellite		80	160
Restoration Area		40	160

<b>Satellite Plant Surface Area</b>		
Ends	3,520	ft <sup>2</sup>
Side 1	3,520	ft <sup>2</sup>
Side 2	3,520	ft <sup>2</sup>
Total	10,560	ft <sup>2</sup>
Office and Maint		
Side 1	3,040	ft <sup>2</sup>
Ends	1,520	ft <sup>2</sup>
Restoration		
Side 1	3,040	ft <sup>2</sup>
Ends	1,520	ft <sup>2</sup>
Total	4,560	ft <sup>2</sup>
Subtotal	19,680	ft <sup>2</sup>
Outside Walls		
Roof	25,600	ft <sup>2</sup>
2 halves		
Main Shop Floor	12,800	ft <sup>2</sup>
Restoration	6,400	ft <sup>2</sup>
Offices	6,400	ft <sup>2</sup>
Interior Walls		
5 walls total		
5 Walls	3,800	ft <sup>2</sup>
Total Building	49,080	ft <sup>2</sup>
Surface Area		

**Reclamation Cost Estimate  
Detailed Assumptions and Calculations**

<b>Building Volume</b>		
Main Plant	281,600	ft <sup>3</sup>
Support Spaces	243,200	ft <sup>3</sup>
Total Building Volume	524,800	ft <sup>3</sup>
Demolition		
volume	33,000	ft <sup>3</sup>

Reclamation Cost Estimate  
Detailed Assumptions and Calculations

**DDW Building Dimensions**  
**Exterior**

Main Building Dimensions	Height ft	Width ft	Length ft
	10	20	24
Building Volume	4800	ft <sup>3</sup>	
<b>Surface Area for the Satellite Plant</b>			
Ends	400	ft <sup>2</sup>	
Side 1	240	ft <sup>2</sup>	
Side 2	240	ft <sup>2</sup>	
Total	880	ft <sup>2</sup>	
Roof	480	ft <sup>2</sup>	
2 halves			
Main Shop Floor	480	ft <sup>2</sup>	
Total Building Surface Area	1360	ft <sup>2</sup>	
<b>Volume of Building</b>			
Main Plant	4800	ft <sup>3</sup>	
Support Spaces	0	ft <sup>3</sup>	
Total Building Volume	4800	ft <sup>3</sup>	
Demolition volume	1000	ft <sup>3</sup>	

## Reclamation Cost Estimate

### Abbreviations/Acronyms

\$	Dollars
\$/Kgal	Dollars per 1000 gallons
avg	average
ft	feet
ft <sup>2</sup>	square feet
ft <sup>3</sup>	cubic feet
gal	gallon
gpm	gallons per minute
H&S	Health and Safety
H <sub>2</sub> S	Hydrogen Sulfide
H <sub>2</sub> SO <sub>4</sub>	Sulfuric Acid
HCl	Hydrochloric Acid
Hp	Horsepower
Kgal	1000 gallons
Kwh	Kilowatt-hours
NaOH	Caustic Soda
OD	Outside Diameter
PPE	personal protective equipment
PV	Pore Volume Estimate
reqm't	requirement
RO	Reverse Osmosis
WDW	Waste Disposal Well
cy	cubic yards
yr	year