



April 28, 2015

Attention: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Re: Strata Energy, Inc., Ross In Situ Recovery Project
Source Materials License SUA-1601, Docket No. 040-09091
Updated Annual Revised Bond Estimate

To Whom it May Concern:

By letter dated January 14, 2015 Strata Energy Inc. (Strata) submitted to NRC and the Wyoming Department of Environmental Quality (WDEQ) Land Quality Division (LQD) the annual surety estimate update for the Ross Uranium Project for remainder of CY 2015. On February 17, 2015 the WDEQ-LQD submitted comments and questions to Strata on the annual surety estimate. Strata responded to these comments and revised the annual surety estimate, which was transmitted to NRC on March 23, 2015.

On April 2, 2015 the WDEQ-LQD submitted additional comments and questions to Strata. By letter dated April 16, Strata responded to these comments and made further revisions to the surety estimate. The revised surety estimate included the following changes:

- LQD staff directed Strata to use the well and borehole abandonment costs provided in LQD Guideline 12. Based on this direction Strata must use a cost of \$2.50 per linear ft. for well abandonment costs in the current bond estimate. Strata has revised the well plugging and abandonment costs to meet this requirement. This cost is shown on Workbook tab UC-WELL ABAND and added \$541,800 to the bond estimate. Note that Strata believes that the use of the previous well abandonment costs was justified and plans to continue to work with the LQD to gain acceptance of a site-specific rate before the next bond estimate is submitted.
- LQD staff stated that bond estimates cannot be based on 100% efficiency of pumps and that the LQD generally accepts 80% efficiency for pumps. Based on this directive Strata has added an electrical efficiency factor of 80 percent to the electrical costs for wellfield pumping. This factor is shown on Workbook tabs UC-GWS, UC-RO, and UC-RECIRC and added \$20,800 to the bond estimate. Note that Strata and our engineering consultants do not agree with the use of an efficiency factor and plans to continue to work with the LQD to address this concern before the next bond estimate is submitted.

The total change to the bond estimate from the above noted changes is an additional \$562,600 for a total estimate of \$6,397,000. On March 27 Strata received approval of this bond estimate from the Director of the WDEQ and is in the process of establishing the required surety. Attachment 1 contains

NMSSDI



the revised estimate using the WDEQ-LQD approved format. Strata hereby requests that NRC approve the estimated bond amount and amend License SUA-1601. If you have any questions regarding the provided information, please contact me at 307-686-4066 or by email at mgriffin@stratawyo.com.

Sincerely,
STRATA ENERGY INC.

A handwritten signature in black ink, appearing to read "Mike Griffin", is written over the printed name and title.

Mike Griffin
Vice President of Permitting, Regulatory and Environmental Compliance

Cc: John Saxton, NRC Project Manager (via email)



Attachment 1
Revised Annual Bond Estimate – April 16, 2015

Ross Uranium Project Surety Update April 16 2015

Total Restoration and Reclamation Cost Estimate

I.	GROUNDWATER RESTORATION COST	\$2,948,669
II.	EQUIPMENT REMOVAL & DISPOSAL COST	\$76,868
III.	BUILDING DEMOLITION AND DISPOSAL COST	\$432,797
IV.	WELLFIELD BUILDINGS, PIPE & EQUIPMENT REMOVAL & DISPOSAL COST	\$275,122
V.	WELL ABANDONMENT COST	\$1,095,700
VI.	WELLFIELD SURFACE RECLAMATION COST	\$34,327
VII.	TOTAL MISCELLANEOUS RECLAMATION COST	\$254,124
	SUBTOTAL RECLAMATION AND RESTORATION COST ESTIMATE	\$5,117,607
	CPI ESCALATOR- _____ to _____ (__%)	\$0
	SUBTOTAL	\$5,117,607
	ADMINISTRATIVE, OVERHEAD, AND CONTINGENCY ITEMS (25%)	\$1,279,402
	TOTAL	\$6,397,009
	TOTAL CALCULATED SURETY (IN 2014 DOLLARS)	\$6,397,000

Ross Uranium Project Surety Update April 16 2015

Ground Water Restoration	MU-1	MU-2
PV Assumptions		
Wellfield Area (ft2) (4 Mods injected, 1 Mod no inj)	1560044	390011
Wellfield Area (acres)	35.81	8.95
Affected Ore Zone Area (ft2)	1560044	390011
Avg. Completed Thickness	8	8
Porosity	0.34	0.34
Flare Factor (H=1.32, V=1.20, Overall= 1.58)	1.58	
Affected Volume (ft3)	19718956	0
Kgallons per Pore Volume	50149	0
Number of Wells in Unit(s)		
Production Wells		
Current	0	0
Estimated next report period	124	31
Total Estimated	124	31
Injection Wells		
Current	0	0
Estimated next report period	216	54
Total Estimated	216	54
Monitor Wells		
Current	31	0
Estimated next report period	87	100
Total Estimated	118	100
Restoration Wells		
Current		
Estimated next report period		
Total Estimated	0	0
Number of Wells per Wellfield	458	185
Total Number of Wells	643	
Average Well Depth (ft)	500	500
I. Ground Water Sweep Costs (includes brine disposal)		
PV's Required	0.5	
Total Kgals for Treatment	25075	0
Ground Water Sweep Unit Cost (\$/Kgal)	\$0.72	\$0.00
Subtotal Ground Water Sweep Costs per Wellfield	\$18,054	\$0
Total Ground Water Sweep Costs	\$18,054	
II. Reverse Osmosis Costs (includes brine disposal)		
PV's Required	7	
Total Kgals for Treatment	351045	0
Rever Percentage salvage -no value (60%)	\$0.84	\$0.00
Subtotal Reverse Osmosis Costs per Wellfield	\$296,422	\$0
Total Reverse Osmosis Costs	\$296,422	
III. Recirculation		
PV's Required	1	
Total Kgals for Treatment	50149	0
Recirculation Unit Cost (\$/Kgal)	\$0.43	\$0.00
Subtotal Recirculation Unit Costs per Wellfield	\$21,721	\$0

Ross Uranium Project Surety Update April 16 2015

Ground Water Restoration	MU-1	MU-2
Total Recirculation Costs	\$21,721	
IV. Monitoring and Sampling Costs		
A. Restoration Well Sampling		
Estimated Restoration Period (Years)	1	
1. Well Sampling prior to restoration start		
# of OZ BL Wells	46	
\$/sample	\$330	
2. Restoration Progress Sampling		
# of OZ BL Wells	46	
\$/sample	\$30	
Samples/Year	6	
3. UCL Sampling		
# of UCL Wells	72	
\$/sample	\$20	
Samples/Year	6	
Sub-total Restoration Analyses	\$32,100	
B. Short-term Stability		
Estimated Stabilization Period (Months)	12	
# of OZ BL Wells	46	
Samples/Year	368	
\$/sample	\$330	
# of UCL Wells	72	
Samples/Year	6	
\$/sample	\$30	
Sub-total Short-term Stability Analyses	\$134,400	\$0
Subtotal Monitoring and Sampling Costs per Wellfield	\$166,500	\$0
Total Monitoring and Sampling Costs	\$166,500	
V. Mechanical Integrity Test (MIT) Costs		
Five Year MIT Unit Cost (\$/well)	NA	NA
Number of Wells (30% of Inj. and Rest. Wells)	NA	NA
Subtotal Mechanical Integrity Testing Costs per Wellfield		
Total Mechanical Integrity Testing Cost		
TOTAL RESTORATION COSTS PER WELLFIELD	\$502,697	\$0
TOTAL WELLFIELD RESTORATION COST	\$502,697	
VI. Purchase/Install Additional High Eff. RO Unit (550 gpm)		
Cost for Additional High Eff RO Unit (includes installation)	\$750,000	
Total Cost for Additional High Eff RO Unit	\$750,000	
VII. Building Utility Costs	CPP	Office
Electricity (\$/Month) estimate	\$2,500	\$300
Propane (\$/Month)		
Natural Gas (\$/Month) estimate	\$2,000	\$500
Number of Months	36	36
Subtotal Utility Costs per Building	\$162,000	\$28,800
Total Building Utility Costs	\$190,800	
VIII. Vehicle Operation Costs		

Ross Uranium Project Surety Update April 16 2015

Ground Water Restoration	MU-1	MU-2
Number of Pickup Trucks/Pulling Units (Gas)	6	
Unit Cost in \$/hr (WDEQ Guideline No.12, Table D-1)	\$28.52	
Average Operating Time (Hrs/Year)	200	
Total Number of Years (Average)	3	
Total Vehicle Operation Costs	\$102,672	
IX. Labor Costs		
Number of Environmental Managers/RSOs	1	
\$/Year	\$125,000	
Number of Years	3	
Number of Restoration Managers (during active restoration)	1	
\$/Year	\$75,000	
Number of Years	2	
Number of Environmental Technicians	1	
\$/Year	\$65,000	
Number of Years	3	
Number of Operators/Laborers (reduced during stabilization)	4	
\$/Year	\$65,000	
Number of Years	2	
Number of Maintenance Technicians (reduced during stabilization)	1	
\$/Year	\$65,000	
Number of Years	2.5	
Total Labor Costs	\$1,402,500	
TOTAL GROUND WATER RESTORATION COSTS	\$2,948,669	

Ross Uranium Project Surety Update April 16 2015

Equipment Removal Onsite Disposal and Loading

CPP DDW Building

I. Removal and Loading Costs

A. Tankage

Number of Uncontaminated FG Tanks to be Cut Up	4
Volume of Uncontaminated Tank Construction Material (ft ³)	246
Weight of Uncontaminated Tank Construction Material @ 1000 lb/yd3 (tons)	5
1. Labor for Dismantling	
Number of Persons	3
Ft ³ /Day	50
Number of Days	5
\$/Day/Person	\$200
Subtotal Labor Costs	\$3,000
2. Equipment	
Number of Days	5
\$/Day	\$500
Subtotal Equipment Costs	\$2,500
3. Off site transport and disposal at Moorcroft Landfill Unit Cost (\$/ton)	\$338.00
Off site transport and disposal cost	\$1,540
Subtotal Uncontaminated tankage Removal, Loading, Disposal Costs	\$7,040
Number of Contaminated FG Tanks to be Cut Up	4
Volume of Contaminated Tank Construction Material (ft ³)	283
1. Labor for Dismantling	
Number of Persons	3
Ft ³ /Day	50
Number of Days	6
\$/Day/Person	\$200
Subtotal Labor Costs	\$3,600
2. Equipment	
Number of Days	6
\$/Day	\$500
Subtotal Equipment Costs	\$3,000
Subtotal Tankage Removal and Loading Costs	\$6,600

B. Number of IX Columns to be Decontaminated, Cut Up and Salvaged (no value)

Number of 11,000 gal IX Columns	8
Number of 5,500 gal Guard IX Columns	1
Weight of 11,000 gal IX Column (lbs)	24,000
Weight of 5,500 gal Guard IX Column (lbs)	5500
Assume 90% steel salvage (no value)	
Weight of 11,000 gal IX column for disposal (tons)	1.2
Weight of 5,500 gal IX column for disposal (tons)	0.275
1. Labor for Decontamination and Dismantling	
Number of Persons	3
Number of Days	18
\$/Day/Person	\$200
Subtotal Labor Costs	\$10,800
2. Equipment	
Number of Days	18
\$/Day	\$500
Subtotal Equipment Costs	\$9,000
3. Off site transport and disposal at Moorcroft Landfill Unit Cost (\$/ton)	\$338.00
Off site transport and disposal cost	\$3,338
Subtotal Decontaminated IX Columns Removal and Offsite Disposal Costs	\$23,138

Ross Uranium Project Surety Update April 16 2015

Equipment Removal Onsite Disposal and Loading		CPP	DDW Building
C.	Contaminated PVC/HDPE Pipe		
	PVC/HDPE Pipe Footage	1000	30
	Average PVC Pipe Diameter (inches)	5	2
	Shredded PVC Pipe Volume Reduction (ft ³ /ft)	0.6	0.2
	Volume of Shredded PVC Pipe (ft ³)	600	6
1.	Labor for Shredding		
	Number of Persons	2	1
	Ft/Day	350	350
	Number of Days	3	1
	\$/Day/Person	\$200	\$200
	Subtotal Labor Costs	\$1,200	\$200
	Subtotal PVC Pipe Removal and Loading Costs	\$1,400	
D.	Contaminated Pumps		
	Number of Contaminated Pumps	28	1
	Average Volume (ft ³ /pump)	4	6
	Volume of Pumps (ft ³)	112	6
1.	Labor		
	Number of Persons	3	2
	Pumps/Day	10	1
	Number of Days	3	1
	\$/Day/Person	\$200	\$200
	Subtotal Labor Costs	\$1,800	\$400
	Subtotal Pump Removal and Loading Costs	\$2,200	
E.	Contaminated Dryer		
	Dryer Volume (ft ³)	NA	
1.	Labor		
	Number of Persons	NA	
	Ft ³ /Day	NA	
	Number of Days	NA	
	\$/Day/Person	NA	
	Total Labor Cost	NA	
	Total Dryer Dismantling and Loading Cost	\$0	
F.	Contaminated RO Units		
	Number of RO Units		
	Current	0	
	Planned (One RO installed with CPP, one installed later for restoration)	2	
	Average Volume (ft ³ /RO Unit)	1000	
1.	Labor		
	Number of Persons	3	
	Number of Days	1	
	\$/Day/Person	\$200	
	Subtotal Labor Costs	\$1,200	
	Subtotal RO Unit Removal and Loading Costs	\$1,200	
	Total Equipment Removal and Loading Costs	\$41,578	
II. Transportation and Disposal Costs (NRC-Licensed Facility)			
A.	Tankage		
	Volume of Tank Construction Material (ft ³)	283	
	Volume for Disposal Assuming 10% Void Space (ft ³)	311	
	Transportation and Disposal Unit Cost (\$/ft ³)	\$12.85	
	Subtotal Tankage Transportation and Disposal Costs	\$3,997	
B.	PVC/HDPE Pipe		
	Volume of Shredded PVC/HDPE Pipe (ft ³)	600	
	Volume for Disposal Assuming 10% Void Space (ft ³)	660	
	Transportation and Disposal Unit Cost (\$/ft ³)	\$12.85	
	Subtotal PVC/HDPE Pipe Transportation and Disposal Costs	\$8,481	
C.	Pumps		

Ross Uranium Project Surety Update April 16 2015

	CPP	DDW Building
Equipment Removal Onsite Disposal and Loading		
Volume of Pumps (ft ³)	112	6
Volume for Disposal Assuming 10% Void Space (ft ³)	123	7
Transportation and Disposal Unit Cost (\$/ft ³)	\$12.85	\$12.85
Subtotal Pump Transportation and Disposal Costs	\$1,581	\$90
D. Dryer		
Dryer Volume (ft ³)	NA	
Volume for Disposal Assuming Dryer Remains Intact (ft ³)	NA	
Transportation and Disposal Unit Cost (\$/ft ³)	\$12.85	
Total Dryer Transportation and Disposal Costs	NA	
E. RO Units		
Volume of RO Units (ft ³)	1000	
Volume for Disposal Assuming 50% Volume Reduction (ft ³)	1000	
Transportation and Disposal Unit Cost (\$/ft ³)	\$12.85	
Subtotal RO Unit Transportation and Disposal Costs	\$12,851	
Subtotal Equipment Transportation and Disposal Costs per Facility	\$26,910	\$90
Total Equipment Transportation and Disposal Costs	\$27,000	\$90
III Health and Safety Costs		
Radiation Safety Equipment	\$8,000	200
Total Health and Safety Costs	\$8,000	\$200
SUBTOTAL EQUIPMENT REMOVAL AND DISPOSAL COSTS PER FACILITY	\$76,578	\$290
TOTAL EQUIPMENT REMOVAL AND DISPOSAL COSTS	\$76,868	

Ross Uranium Project Surety Update April 16 2015

	CPP 140'x102'x30'	Office 115'x100'x17'	DDW Building 15'x15'x10'	Pot Water Building 15'x15'x10'
Building Demolition and Disposal				
I. Decontamination Costs				
A. Wall Decontamination				
Assumption: Approx. 25% of CPP walls require decontamination				
Area to be Decontaminated (ft ²)	3500	0	600	0
Application Rate (Gallons/ft ²)	1		1	
HCl Acid Wash, including labor (\$/Gallon)	\$0.50		\$0.50	
Subtotal Wall Decontamination Costs	\$1,750	\$0	\$300	\$0
B. Concrete Floor Decontamination				
Assumption: Approx 50% of CPP floor requires decontamination				
Area to be Decontaminated (ft ²)	7200	0	225	0
Application Rate (Gallons/ft ²)	2		2	
HCl Acid Wash, including labor (\$/Gallon)	\$0.50		\$0.50	
Subtotal Concrete Floor Decontamination Costs	\$7,200	\$0	\$225	\$0
C. Deep Well Injection Costs				
Total K gals for Injection	17.9	0	1.05	0
Deep Well Injection Unit Cost (\$/K gals)	\$1.37	\$1.37	\$1.37	\$1.37
Subtotal Deep Well Injection Costs	\$25	\$0	\$1	\$0
Subtotal Decontamination Costs per Building	\$8,975	\$0	\$526	\$0
Total Decontamination Costs	\$9,501	0	0	0
II. Demolition Costs				
A. Building				
Assumptions:				
Limited contamination of CPP as there is no Precip/Dryer				
Volume of Building (ft ³)	428400	195500	2250	2250
Demolition Unit Cost per WDEQ Guideline No.12, App.K (\$/ft ³)	\$0.287	\$0.287	\$0.287	\$0.287
Subtotal Building Demolition Costs	\$122,951	\$56,109	\$646	\$646
B. Concrete Floor				
Area of Concrete Floor (ft ²)	14280	11500	225	225
Demolition Unit Cost per WDEQ Guideline No.12, App.K (\$/ft ²)	\$5.55	\$5.55	\$5.55	\$5.55
Subtotal Concrete Floor Demolition Costs	\$79,254	\$63,825	\$1,249	\$1,249
C. Concrete Footing				
Length of Concrete Footing (ft)	484	430	60	60
Demolition Unit Cost per WDEQ Guide. No.12, App.K (\$/lin. ft)	\$20.46	\$20.46	\$20.46	\$20.46
Subtotal Concrete Footing Demolition Costs	\$9,903	\$8,798	\$1,228	\$1,228
Subtotal Demolition Costs per Building	\$212,108	\$128,732	\$3,123	\$3,123
Total Demolition Costs	\$347,086			
III. Disposal Costs				
A. Building				
Volume of Building Materials-no concrete, 10% of building full volume (yd3)	1587	724	83	83
Weight of Building Materials @ 405 lb/yd3 (ton)	321	147	17	17
1. Morocroft Land Fill				
Assumptions:				
Percentage salvage -no value (60%)	0.4	0.4	0.4	0.4
Weight for Disposal (tons)	129	59	7	7
Disposal Unit Cost (\$/ton)	\$338.00	\$338.00	\$338.00	\$338.00
Subtotal Landfill Disposal Costs	\$43,440	\$19,824	\$2,282	\$2,282
2. NRC-Licensed Facility				
Percentage (%)	0	0	0	0
Volume for Disposal (ft ³)	0	0	0	0
Volume for Disposal Assuming 10% Void Space (ft ³)	0	0	0	0
Transportation and Disposal Unit Cost (\$/ft ³)	\$12.85	\$12.85	\$12.85	\$12.85
Subtotal NRC-Licensed Facility Disposal Costs	\$0	\$0	\$0	\$0
Subtotal Building Disposal Costs	\$43,440	\$19,824	\$2,282	\$2,282
B. Concrete Floor				
Area of Concrete Floor (ft ²)	14280	11500	225	225
Average Thickness of Concrete Floor (ft)	0.5	0.5	0.5	0.5
Volume of Concrete Floor (ft ³)	7140	5750	112.5	112.5
Volume of Concrete Floor (cy)	264	213	4	4
1. On-Site				
Percentage (%)	100	100	100	100
Volume for Disposal (cy)	264	213	4	4
Disposal Unit Cost per WDEQ Guideline No.12, App.K (\$/cy)	\$8.64	\$8.64	\$8.64	\$8.64
Subtotal On-Site Disposal Costs	\$2,285	\$1,840	\$36	\$36
2. NRC-Licensed Facility				
Assumptions:				
Percentage (%)	0	0	0	0
Volume for Disposal (ft ³)	0	0	0	0
Segregation and Loading Unit Cost (\$/ft ³)	\$0.00	\$0.00	\$0.00	\$0.00
Transportation and Disposal Unit Cost (\$/ft ³)	\$12.85	\$12.85	\$12.85	\$12.85
Subtotal NRC-Licensed Facility Disposal Costs	\$0	\$0	\$0	\$0
Subtotal Concrete Floor Disposal Costs	\$2,285	\$1,840	\$36	\$36
C. Concrete Footing				
Length of Concrete Footing (ft)	484	430	60	60
Average Depth of Concrete Footing (ft)	2	2	2	2
Average Width of Concrete Footing (ft)	3	3	3	3
Volume of Concrete Footing (ft ³)	2904	2580	360	360
Volume of Concrete Footing (cy)	108	96	13	13
Disposal Unit Cost per WDEQ Guideline No.12, App.K (\$/cy)	\$8.64	\$8.64	\$8.64	\$8.64
Subtotal Concrete Footing Disposal Costs	\$929	\$826	\$115	\$115
Subtotal Disposal Costs per Building	\$46,654	\$22,490	\$2,433	\$2,433
Total Disposal Costs	\$74,010			
III. Health and Safety Costs				
Radiation Safety Equipment	\$2,000		\$200	
Total Health and Safety Costs	\$2,200			
SUBTOTAL BUILDING DEMOLITION AND DISPOSAL COSTS	\$269,737	\$151,222	\$6,282	\$5,556
TOTAL BUILDING DEMOLITION AND DISPOSAL COSTS	\$432,797			

Ross Uranium Project Surety Update April 16 2015

Wellfield Buildings and Equipment Removal and Disposal

MU-1

I. Wellfield Piping

Assumptions:

Number of Header Houses per Wellfield	4
Length of Piping per Header House (ft)	50600
Total Length of Piping (ft)	202400

A. Removal and Loading

Wellfield Piping Removal Unit Cost (\$/ft of pipe)	\$0.44
Subtotal Wellfield Piping Removal and Loading Costs	\$89,056

B. Transport and Disposal Costs (NRC-Licensed Facility)

Average Diameter of Piping (inches)	1.5
Chipped Volume Reduction (ft ³ /ft)	0.0069
Chipped Volume per Wellfield (ft ³)	1396.56
Volume for Disposal Assuming 10% Void Space (ft ³)	1536
Transportation and Disposal Unit Cost (\$/ft ³)	\$12.85

Subtotal Wellfield Piping Transport and Disposal Costs	\$19,739
--	----------

Wellfield Piping Costs per Wellfield	\$108,795
--------------------------------------	-----------

Total Wellfield Piping Costs	\$108,795
-------------------------------------	------------------

II. Well Pumps and Tubing

Assumptions:

Pump and tubing removal costs included under ground water restoration labor costs

100% of production/injection wells contain pumps and/or tubing

A. Pump and Tubing Transportation and Disposal

Number of Production Wells (operating wells only)	124
Number of Injection Wells (operating wells only)	216

1. Pump Volume

Number of Production Wells with Pumps	124
Average Pump Volume (ft ³)	2
Pump Volume per Wellfield (ft ³)	248

2. Tubing Volume

Assumptions:

Average tubing length/wellfield based on average well depth minus 25 ft

Number of Production Wells with Tubing	124
Number of Injection Wells with Tubing	216
Average Tubing Length per Well (ft)	475
Tubing Length per Wellfield (ft)	161500
Diameter of Production Well HDPE Tubing (inches)	1.5
Diameter of Injection Well HDPE Tubing (inches)	1.5
Chipped Volume Reduction (ft ³ /ft)	0.0069
Chipped Volume per Wellfield (ft ³)	1114

Volume of Pump and Tubing (ft ³)	1362
--	------

Volume for Disposal Assuming 10% Void Space (ft ³)	1498
--	------

Transportation and Disposal Unit Cost (\$/ft ³)	\$12.85
---	---------

Subtotal Pump and Tubing Transport and Disposal Costs	\$19,253
---	----------

Pump and Tubing Costs per Wellfield	\$19,253
-------------------------------------	----------

Total Pump and Tubing Costs	\$19,253
------------------------------------	-----------------

III. Buried Trunk Line

From CPP to MU-1 MU-1

Number of pipes	2 each	2
Size of pipes (diameter in inches)	16	6
Size of pipes (diameter in inches)	8	

Ross Uranium Project Surety Update April 16 2015

Wellfield Buildings and Equipment Removal and Disposal	MU-1	
Length of Trunk line Trench (ft)	7000	1500
A. Removal and Loading		
Main Pipeline Removal Unit Cost (\$/ft of trench)	\$3.33	\$3.33
Subtotal Trunk line Removal and Loading Costs	\$23,310	\$4,995
B. Transport and Disposal Costs (NRC-Licensed Facility)		
1. 3" HDPE Trunk line		
Piping Length (ft)		
Chipped Volume Reduction (ft ³ /ft)	0.022	
Chipped Volume (ft ³)	0	
2. 6" HDPE Trunk line		
Piping Length (ft)		3000
Chipped Volume Reduction (ft ³ /ft)	0.078	0.078
Chipped Volume (ft ³)	0	234
3. 8" HDPE Trunk line		
Piping Length (ft)	14000	
Chipped Volume Reduction (ft ³ /ft)	0.141	
Chipped Volume (ft ³)	1974	
4. 12" HDPE Trunk line		
Piping Length (ft)		
Chipped Volume Reduction (ft ³ /ft)	0.293	
Chipped Volume (ft ³)	0	
5. 14" HDPE Trunk line		
Piping Length (ft)		
Chipped Volume Reduction (ft ³ /ft)	0.359	
Chipped Volume (ft ³)	0	
6. 16" HDPE Trunk line		
Piping Length (ft)	14000	
Chipped Volume Reduction (ft ³ /ft)	0.486	
Chipped Volume (ft ³)	6804	0
Total Trunk line Chipped Volume (ft ³)	6804	234
Volume for Disposal Assuming 10% Void Space (ft ³)	7484	257
Transportation and Disposal Unit Cost 11E2 (\$/ft ³)	\$12.85	\$12.85
Subtotal Trunk line Transport and Disposal Costs	\$96,175	\$3,303
Trunk line Decommissioning Costs per Wellfield	\$119,485	\$8,298
Total Trunk Line Decommissioning Costs	\$127,783	
IV. Well Head Covers		
Total Quantity (operating wells)	340	
Average Well Head Cover Volume (ft ³) (2'x2'x3')	12	
A. Removal		
Total Volume (ft ³)	4080	
Demolition Unit Cost per WDEQ Guideline No.12,App.K (\$/ft ³)	\$0.287	
Subtotal Well Head Cover Demolition Costs	\$1,171	
B. Survey and Decontamination		
Assumptions:		
Cost per Well Head Cover		
Subtotal Survey and Decontamination Costs	\$0	
C. Disposal		
Total Volume (cy)	151	
Volume for Disposal Assuming 10% Void Space (cy)	166	
Disposal Unit Cost 11E2 (\$/cy)	\$12.85	
Subtotal 11E2 Disposal Costs	\$2,133	
Well Head Cover Removal and Disposal Costs per Wellfield	\$3,304	

Ross Uranium Project Surety Update April 16 2015

Wellfield Buildings and Equipment Removal and Disposal	MU-1
Total Well Head Cover Removal and Disposal Costs	\$3,304
VI. Header Houses	
Total Quantity (operating)	4
Average Header House Volume (ft ³) (10'x36'x8')	2880
A. Removal	
Total Volume (ft ³)	11520
Demolition Unit Cost per WDEQ Guideline No.12,App.K (\$/ft ³)	\$0.287
Subtotal Building Demolition Costs	\$3,306
B. Survey and Decontamination	
Assumptions:	
Cost per Header House	\$1,000
Subtotal Survey and Decontamination Costs	\$4,000
C. Volume of Building Materials-no concrete,40% of full building volume (yd3)	171
1. Moorcroft Land Fill	
Assumptions:	
Weight for Disposal @405 lb/yd3 (tons)	35
Disposal Unit Cost (\$/ton)	\$338.00
Subtotal Landfill Disposal Costs	\$11,681
Total Header House Removal and Disposal Costs	\$15,987
 TOTAL REMOVAL AND DISPOSAL COSTS PER WELLFIELD	 \$275,122
TOTAL WELLFIELD BUILDINGS AND EQUIPMENT REMOVAL AND DISPOSAL COSTS	\$275,122

Ross Uranium Project Surety Update April 16 2015

Well Abandonment	MU-1	MU-2	Existing Baseline Wells
I. Well Abandonment (Wellfields)			
# of Production Wells (operating and/or installed)	124	31	0
# of Injection Wells (operating and/or installed)	216	54	0
# of Monitoring Wells (operating and/or installed)	118	100	59
# of Restoration Wells (operating and/or installed)	0	0	0
Total Number of Wells	458	185	59
Average Diameter of Casing (inches)	4.5	4.5	5
Average Depth (ft)	500	500	420
Well Abandonment Unit Cost (\$/well)	\$1,250	\$1,250	\$1,050
Subtotal Abandonment Cost per Wellfield	\$572,500	\$231,250	\$61,950
Total Wellfield Abandonment Costs	\$865,700		
II. Waste Disposal Well Abandonment	DDW- 1	DDW-2 (If needed)	
Estimated Well Abandonment Cost per Well	\$115,000	\$115,000	
Subtotal Waste Disposal Well Abandonment Costs per Well	\$115,000	\$115,000	
Total Waste Disposal Well Abandonment Costs	\$230,000		
TOTAL WELL ABANDONMENT COSTS	\$1,095,700		

Ross Uranium Project Surety Update April 16 2015

Wellfield Surface Reclamation		Connecting Road from CPP	MU-1	MU-2
I. Wellfield Pattern Area Reclamation				
Pattern Area (acres)			35.8	20
Disking/Seeding Unit Cost (\$/acre)			\$350	\$350
Subtotal Pattern Area Reclamation Costs per Wellfield			\$12,530	\$7,000
Total Wellfield Pattern Area Reclamation Costs			\$19,530	
II. Wellfield Road Reclamation				
A. Road Reclamation				
Length of Wellfield Roads (1000 ft)	2.8		7.4	2.1
Wellfield Road Reclamation Unit Cost (\$/1000 ft)	\$1,203		\$1,203	\$1,203
Subtotal Road Reclamation Costs per Wellfield	\$3,368		\$8,902	\$2,526
Total Wellfield Road Reclamation Costs	\$14,797			
SUBTOTAL SURFACE RECLAMATION COSTS PER WELLFIELD	\$3,368		\$21,432	\$9,526
TOTAL WELLFIELD SURFACE RECLAMATION COSTS	\$34,327			

Ross Uranium Project Surety Update April 16 2015

Miscellaneous Reclamation

I. CPP/Office Area Reclamation

Assumptions

Concrete used to backfill low areas as Clean Fill

A. Ripping and Hauling Gravel

Assumptions

Average haul distance (ft) 500

Surface grade (%) 0%

Average Thickness of Gravel (ft) 0.33

Surface Area (acres) (minus building floor area) 4.1

Ripping Unit Cost per WDEQ Guideline No.12A1 (\$/acre) \$1.00

Volume of gravel (cy) 2183

Hauling Unit Cost per WDEQ Guideline No.12, App.C (\$/cy) \$1.08

Total Gravel Ripping and Hauling Cost \$2,362

B. Topsoil Application

1. Topsoil Replacement

Assumptions

Average haul distance (ft) 1000

Surface area (acres) 4.82

18 inches of topsoil removed and replaced at borrow area

Volume of topsoil (cy) 11664.4

Topsoil Removal/Replacement Unit Cost per WDEQ GL No. 12 a(\$/cy) \$0.99

Total Topsoil Removal/Replacement Cost \$11,548

C. Disking/Seeding

Assumptions

Surface Area (acres) 4.82

Disking/Seeding Unit Cost (\$/acre) \$350

Total Disking/Seeding Costs \$1,687

Total CPF/Office Area Reclamation

\$15,597

II. Access Road Reclamation

Main Access Road

Water Supply Well Road

DDW Road

A. Assumptions

Surface grade

Length of road (miles) 0.45 0.085 0.246

Average road width (ft) 30 12 24

B. Gravel Percentage salvage -no value (60%)

Assumptions

Average haul distance (ft) 500 500 500

Gravel Road Base Width (ft) 30 12 24

Gravel Road Base Area (acres) 1.6 0.1 0.7

Average Road Base Depth (ft) 0.33 0.33 0.33

Volume of Road Base (cy) 871 66 381

Removal Unit Cost per WDEQ Guideline No.12A (\$/cy) \$0.82 \$0.82 \$0.82

Subtotal Gravel Road Base Removal Costs \$714 \$54 \$312

C. Move Road Fill Material

Assumptions

Estimated volume to move (cy) 30,500

Average haul distance (ft) 750

Removal Unit Cost per WDEQ Guideline No.12A (\$/cy) \$0.90

Subtotal Gravel Road Fill Removal Costs \$27,450

D. Ripping Overburden with Dozer

Overburden Surface Area (acres) 1.6 0.1 0.7

Ripping Unit Cost per WDEQ Guideline No.12, App. I (\$/acre) \$881.07 \$881.07 \$881.07

Subtotal Ripping Overburden Costs \$1,442 \$109 \$631

E. Topsoil Application

Assumptions

Average haul distance (ft) 1250 1500 750

Topsoil Surface Area (ft²) (Road surface width x 1.1) 78408 5924 34290

Depth of Topsoil (ft) 1.5 1.5 1.5

Volume of Topsoil (cy) 4356 329 1905

Topsoil Unit Cost per WDEQ Guideline No.12A (\$/cy) \$1.06 \$1.14 \$0.90

Subtotal Topsoil Application Costs \$4,617 \$375 \$1,715

F. Disking/Seeding

Ross Uranium Project Surety Update April 16 2015

Miscellaneous Reclamation

Assumptions			
Surface Area (acres)	1.6	0.1	0.7
Disking/Seeding Unit Cost (\$/acre)	\$350	\$350	\$350
Subtotal Disking/Seeding Costs	\$573	\$43	\$250
Subtotal Reclamation Costs per Road	\$34,796	\$581	\$2,908
Total Access Road Reclamation Costs	\$38,285		

III. Wastewater Pipeline Reclamation

DDW-1 Pipeline

A. Pipeline Removal and Loading	
Length of HDPE Pipe Trench (ft)	1600
Main Pipeline Removal Unit Cost (\$/ft of trench)	\$3.33
Subtotal Pipeline Removal Costs	\$5,328
B. Pipeline Transportation and Disposal (NRC-Licensed Facility)	
Pipe Diameter (inches)	2
Chipped Volume Reduction (ft ³ /ft)	0.014
Subtotal Volume of Shredded PVC Pipe (ft ³)	24.64
Transportation and Disposal Unit Cost (\$/ft ³)	\$12.85
Subtotal Pipeline Disposal Costs	\$317
C. Disking/Seeding	
Assumptions:	
Width of Pipeline Trench (ft)	2
Area of Pipeline Trench (acres)	0.1
Disking/Seeding Unit Cost (\$/acre)	\$350
Subtotal Disking/Seeding Costs	\$26
Subtotal Reclamation Costs per Pipeline	\$5,671
Total Wastewater Pipeline Reclamation Costs	\$5,671

IV. Pond Reclamation (Pond 1, comprised of 3 cells)

WW Storage Pond 1 (3 cells)

Sediment Pond

A. HDPE Liner Removal and Disposal		
Assumptions:		
HDPE Primary liner for Pond 1 constitutes 11E2 waste		
Thickness of HDPE Primary liner (mil)	60	60
HDPE Secondary liner for Pond 1 and Sediment pond not contaminated		
Thickness of HDPE Secondary liner (mil)	40	
Liner swell factor (50%)	1.5	1.5
Width of Pond (ft)	240	130
Length of Pond (ft)	545	130
Depth of Pond (ft)	15	15
Surface area of pond (ft ²)	130800	16900
Surface area of liner (ft ²)	143616	6600
Volume of HDPE Liner (cy)	0	6
1. Removal and Loading		
Removal and Loading Unit Cost based on engineer's estimate	\$30,000.00	\$1,000.00
Sub Total Liner Removal and Loading Costs	\$31,000	
2. Transportation and Disposal 11E2		
Volume of HDPE Primary Liner (ft ³)	1077	
Transportation and Disposal Unit Cost 11E2 (\$/ft ³)	\$12.85	
Sub Total Liner Transportation and Disposal Costs 11E2	\$13,842	
3. Transportation and Disposal Non Contaminated		
Volume of HDPE Secondary Liner (ft ³)	718	33
Assume loose liner weighs 1500 lbs/yd ³		
Offsite Transport and Disposal Unit Cost (\$/ton)	\$338	\$338
Subtotal Liner Transportation and Disposal Costs	\$6,742	\$310
Total Liner Transportation and Disposal Costs	\$7,052	
B. Removal and disposal pond leak detection system		
Labor/equipment estimate	\$5,000	
Volume of material estimate (ft ³)	500	
Transportation and Disposal Unit Cost 11E2 (\$/ft ³)	\$12.85	
Sub Total Leak Detection Removal and Disposal Costs	\$11,425	

C. Backfill Pond

Ross Uranium Project Surety Update April 16 2015

Miscellaneous Reclamation

Assumptions per cell (3):		
Estimated volume to approx natural grade (yd3)	10080	13600
Average push distance with dozer (ft)	50	
Approx haul for scraper from road fill (ft)		500
Surface grade (%)	0%	0%
Volume of WW Pond backfill for 3 cells (cy)	30,240	
Backfill Unit Cost per WDEQ Guideline No.12., (\$/cy)	\$0.16	\$0.82
Subtotal Backfill Costs	\$4,838	\$11,152
Subtotal Backfill Costs	\$15,990	

D. Topsoil Application		
Assumptions		
Average haul distance (ft)	750	1,000
Topsoil Surface Area (ac)	3.20	0.99
Depth of Topsoil (ft)	1.50	1.50
Volume of Topsoil (cy)	7,744	2,396
Topsoil Unit Cost per WDEQ Guideline No.12, App.C (\$/cy)	\$0.90	\$0.82
Subtotal Topsoil Application Costs	\$6,970	\$1,965
Total Topsoil Application Costs	\$8,934	
E. Soil Sampling and Analysis Costs		
Number of samples	12	
Cost per sample (\$)	\$150	
Subtotal Soil Sampling Costs (\$)	\$1,800	
Total Pond Reclamation Costs	\$90,043	

V. Diversion Berm Earthwork and Reclamation

Assumptions		
Estimated volume to move (cy)	10800	
Average haul distance (ft)	1000	
Removal Unit Cost per WDEQ Guideline No.12A (\$/cy)	\$0.99	
Subtotal Berm Fill Removal Costs	\$10,692	
Topsoil Application		
Assumptions		
Average haul distance (ft)	750	
Topsoil Surface Area (ac)	1.50	
Depth of Topsoil (ft)	1.50	
Volume of Topsoil (cy)	3,630	
Topsoil Unit Cost per WDEQ Guideline No.12, App.C (\$/cy)	\$0.90	
Subtotal Topsoil Application Costs	\$3,267	
TOTAL DIVERSION BERM EARTHWORK AND RECLAMATION	\$13,959	

VI. Containment Barrier Wall (CBW) Reclamation

Assumptions		
Labor/equip to excavate/install finger drains (estimate)	\$7,650	
Gravel for finger drains (estimate)	\$3,000	
Total Containment Barrier Wall (CBW) Reclamation Costs	\$10,650	

VII Main Trunk Line Reclamation

Assumptions		
4300 feet requires seeding (located outside wellfield area) (ft)	4300	
Assume 20 feet wide (ft)	20	
Disking/Seeding Unit Cost (\$/acre)	\$350.00	
Total Trunk Line Reclamation	\$691	

VII Culvert Removal and Disposal

Assumptions		
Number	10	
Removal Unit Cost per WDEQ Guideline No.12., App J (each)	\$137.83	
Transport and on-site disposal cost (estimated for each)	\$100.00	

Ross Uranium Project Surety Update April 16 2015

Miscellaneous Reclamation

Total Culvert Removal and Disposal	\$2,378
---	----------------

IX. Fence Removal and Disposal

Assumptions	
Length 4-Strand Barbwire Fence (MU-1 50 acres)	6000
Unit Cost per WDEQ Guideline No.12., App H (\$/ft)	\$0.32
Length CPP Fence	8500
Unit Cost per WDEQ Guideline No.12., App H (\$/ft)	\$0.32
Total Fence Removal and Disposal Costs	\$4,640

X. Monitoring Site Removal and Disposal

Assumptions	
3 Surface Water Sites (estimated at \$2400 each)	\$7,200
7 Air Mon Sites (estimated at \$500 each)	\$3,500
1 Met Station (estimated at \$2500 each)	\$2,500
Total Monitoring Site Removal and Disposal Costs	\$13,200

XI. Radiologic Surveys

Assumptions	
Misc meter/smear surveys buildings/equipment (100 at \$55 each)	\$5,500
Decomm area gamma surveys (est based on baseline survey costs)	\$15,000
Misc soil samples (Ra-226/U)	\$13,000
Total Radiologic Surveys Costs	\$33,500

XII Misc Soil 11E2 Soil Transport/Disposal

Soil from Mod Buildings (assume 50 yd3)	
Soil from spills (assume 25 yds3)	
11E2 soil transport and disposal volume (yd3)	75
11E2 soil transport and disposal cost (\$/ft3)	\$12.85
Total Soil 11E2 Soil Transport/Disposal	\$26,023

TOTAL MISCELLANEOUS RECLAMATION COSTS	\$254,124
--	------------------

Ross Uranium Project Surety Update April 16 2015

GROUNDWATER SWEEP (GWS)

Assumptions:

1. All pumps are 5 hp pumping at 20 gpm
2. Cost of electricity = \$0.06/kwh
- 3 All wastewater brine pumped to DDW for injection at \$1.37/1000 gallons.
with 90% permeate/10% brine split
- 4 Repair and maintenance costs estimated at \$0.10/1000 gallons
- 5 Process sampling and analysis costs estimated at \$0.25/1000 gallons at 200 GPM flow rate
- 6 Labor costs are covered in GW REST

Wellfield Pumping Costs per 1000 Gallons

$$\frac{1000 \text{ gal}}{1} \times \frac{5 \text{ hp}}{20 \text{ gpm}} \times \frac{1 \text{ hr}}{60 \text{ min}} \times \frac{0.746 \text{ kwh}}{\text{hp}} \times \frac{\$ 0.06}{\text{kwh}} \times \frac{1}{0.8} = \$ 0.233125$$

Repair and Maintenance Costs per 1000 Gallons = \$ \$0.10

Process Sampling and Analysis Costs per 1000 Gallons = \$ \$0.25

RO Wastewater Brine to DDW per 1000 Gallons = \$ \$0.14

Note: only 10% of RO Volume Requires DDW Disposal

TOTAL GWS COSTS PER 1000 GALLONS = \$ 0.72

Ross Uranium Project Surety Update April 16 2015

REVERSE OSMOSIS (RO)

Assumptions:

- 1 Cost of electricity = \$0.06/kwh
- 2 90% permeate/10% brine split
- 3 Membrane life of 4 years.
- 4 Includes cost of pumping from wellfield to RO Unit
- 5 The 10% reject is disposed at the DDW at a cost of \$1.37/1000 gallons
- 6 Process sampling and analysis costs estimated at \$0.17/1000 gallons at 700 GPM flow rate
- 7 Labor costs are covered in GW REST

Reverse Osmosis Costs per 1000 Gallons

Electricity	= \$ 0.15
Chemicals	= \$ 0.10
Membrane Replacement	= \$ 0.00
Repair and Maintenance	= \$ 0.10
Pumping from Wellfield	= \$ 0.19
Process Sampling and Analysis	= \$ 0.17

RO Wastewater Brine to DDW per 1000 Gallons = \$ 0.137

Note: only 10% of RO Volume Requires DDW Disposal

TOTAL RO COSTS PER 1000 GALLONS = \$ 0.84

Ross Uranium Project Surety Update April 16 2015

RECIRCULATION (REC)

Assumptions:

1. All pumps are 5 hp pumping at 20 gpm
2. Cost of electricity = \$0.06/kwh
- 4 Repair and maintenance costs estimated at \$0.10/1000 gallons
- 5 Process sampling and analysis costs estimated at \$0.10/1000 gallons
- 6 Labor costs are covered in GW REST

Wellfield Pumping Costs per 1000 Gallons

$$\frac{1000 \text{ gal}}{1} \times \frac{5 \text{ hp}}{20 \text{ gpm}} \times \frac{1 \text{ hr}}{60 \text{ min}} \times \frac{0.746 \text{ kwh}}{\text{hp}} \times \frac{\$ 0.06}{\text{kwh}} \times \frac{1}{0.8} = \$ 0.23313$$

Repair and Maintenance Costs per 1000 Gallons = \$ 0.10

Process Sampling and Analysis Costs per 1000 Gallons = \$ 0.10

TOTAL GWS COSTS PER 1000 GALLONS = \$ 0.43

Ross Uranium Project Surety Update April 16 2015

DEEP WELL INJECTION

Assumptions:

1. Pump 75 hp pumping at 50 gpm
2. Cost of electricity = \$0.06/kwh
- 3 Repair and maintenance costs estimated at \$0.10/1000 gallons
- 4 Labor costs are covered in GW REST

Waste Disposal Pumping Costs per 1000 Gallons

$$\frac{1000 \text{ gal}}{1} \times \frac{75 \text{ hp}}{50 \text{ gpm}} \times \frac{1 \text{ hr}}{60 \text{ min}} \times \frac{0.746 \text{ kwh}}{\text{hp}} \times \frac{\$ 0.06}{\text{kwh}} = \$ 1.12$$

Repair and Maintenance Costs per 1000 Gallons = \$ 0.10

Chemical Costs per 1000 Gallons = \$ 0.15

Scale Inhibitor	= \$	0.10
Corrosion Inhibitor	= \$	0.05

TOTAL DEEP WELL INJECTION COSTS PER 1000 GALLONS = \$ 1.37

Ross Uranium Project Surety Update April 16 2015

WELL ABANDONMENT

	500 ft Well/4.5 Inch Casing (4.36 inch ID)	420 ft Well/5.0 Inch Casing (4.91 inch ID)	
Materials			Comments
Volume of high solids bentonite required (ft3)	51.8	56.7	Calculated
Bentonite Sacks Required per Well	16	18	Based on actual quantities used during exploration drill hole plugging
Bentonite Sack Cost	\$9.17	\$9.17	Based on actual prices during exploration drill hole plugging
Bentonite Cost per Well	\$146.72	\$165.06	Calculated
Cement hole plug	\$5.00	\$5.00	Estimate
Total Materials Cost Per Well	\$151.72	\$170.06	
Equipment Rental			
Hours required per well	2.5	2.5	Based on actual quantities used during exploration drill hole plugging
Backhoe cost per hour	\$85.00	\$85.00	Based on actual prices during exploration drill hole plugging
Cementer cost per hole	\$250.00	\$250.00	Based on actual prices during exploration drill hole plugging
Total Equipment Cost Per Well	\$462.50	\$462.50	
Total Cost to Plug & Abandon Recovery, Injection & Monitor Wells Based on Actual Contractor Costs	\$614.22	\$632.56	
Total Cost to Plug & Abandon Recovery, Injection & Monitor Wells per LQD Guideline Number 12 Appd L @ \$2.50/ft	\$1,250.00	\$1,050.00	

Ross Uranium Project Surety Update April 16 2015

FIVE YEAR MECHANICAL INTEGRITY TESTS (MIT)

Assumptions:

1. Based on actual operating costs
2. Use Pulling Unit for ___ hr/well at cost of \$___/hr.
3. Use MIT Unit for ___ hr/well at cost of \$___/hr.
4. Labor for operation of pulling unit will require ___ workers at \$___/hr
5. Labor for operation of MIT Unit will require ___ worker at \$___/hr

MIT Costs per Well

Equipment:

Pulling Unit	hours	X	\$	per hour	=	\$ 0.00
MIT Unit	hours	X	\$	per hour	=	\$ 0.00

Labor:

Pulling Unit	hours	X	\$	per hour	X	workers	=	\$ \$0.00
MIT Unit	hours	X	\$	per hour			=	\$ 0.00

MIT COST PER WELL = \$ 0

Ross Uranium Project Surety Update April 16 2015

MAIN PIPELINE REMOVAL

Assumptions:

1. Trenching with track hoe at 400 ft/day
2. Pipeline extraction and backfilling with track hoe at 300 ft/day
3. Trackhoe rental: \$1280/week
4. Fuel cost: \$18.00/operating hour
5. Trackhoe operation requires 1 worker at \$25/hour
6. Pipeline extraction requires 2 workers at \$25/hour (in addition to trackhoe operator)
7. Pipelines removed simultaneously
8. Includes removal of manholes
9. Operating schedule: 8 hrs/day, 5 days/week

Main Pipeline Removal Costs per ft of Trench

Equipment

Trackhoe

$$\frac{\$ 1280}{\text{week}} \times \frac{1 \text{ week}}{5 \text{ days}} \times \frac{1 \text{ days}}{300 \text{ ft}} = \$ 0.85$$

Fuel

$$\frac{\$ 18}{\text{hour}} \times \frac{8 \text{ hrs}}{1 \text{ day}} \times \frac{1 \text{ days}}{300 \text{ ft}} = \$ 0.48$$

Labor

Track hoe Operation

$$\frac{\$ 25}{\text{man hr}} \times \frac{8 \text{ man hrs}}{1 \text{ day}} \times \frac{1 \text{ days}}{300 \text{ ft}} = \$ 0.67$$

Pipeline Extraction

$$\frac{\$ 25}{\text{man hr}} \times \frac{16 \text{ man hrs}}{1 \text{ day}} \times \frac{1 \text{ day}}{300 \text{ ft}} = \$ 1.33$$

MAIN PIPELINE REMOVAL COST PER FT OF TRENCH = \$ 3.33

Ross Uranium Project Surety Update April 16 2015

WELLFIELD PIPING REMOVAL

Assumptions:

1. Trenching with backhoe at 2000 ft/day
2. Pipeline extraction and backfilling with backhoe at 2000 ft/day
3. Backhoe rental: \$800/week
4. Fuel cost: \$12.40/operating hour
5. Backhoe operation requires 1 worker at \$25/hour
6. Pipeline extraction requires 1 workers at \$25/hour (in addition to backhoe operator)
7. Operating schedule: 8 hrs/day, 5 days/week

Wellfield Pipe Removal Costs per ft of Pipe

Equipment

Backhoe

$$\frac{\$ 800}{\text{week}} \times \frac{1 \text{ week}}{5 \text{ days}} \times \frac{1 \text{ days}}{1500 \text{ ft}} = \$ 0.11$$

Fuel

$$\frac{\$ 13.00}{\text{hour}} \times \frac{8 \text{ hrs}}{1 \text{ day}} \times \frac{1 \text{ days}}{1500 \text{ ft}} = \$ 0.07$$

Labor

Backhoe Operation

$$\frac{\$ 25}{\text{man hr}} \times \frac{8 \text{ man hrs}}{1 \text{ day}} \times \frac{1 \text{ days}}{1500 \text{ ft}} = \$ 0.13$$

Pipeline Extraction

$$\frac{\$ 25}{\text{man hr}} \times \frac{8 \text{ man hrs}}{1 \text{ day}} \times \frac{1 \text{ day}}{1500 \text{ ft}} = \$ 0.13$$

WELLFIELD PIPE REMOVAL COST PER FT OF PIPE = \$ 0.44

Ross Uranium Project Surety Update April 16 2015

WELLFIELD ROAD RECLAMATION

Assumptions

1. Gravel road base removed at cost of \$111/cy/1000 ft (WDEQ Guideline No. 12, App. C, Level Ground, 500 ft haul)
2. Gravel road base: average depth = 0.3 ft, average width = 12 ft
3. Roads scarified prior to topsoil application at cost of \$68.69/acre (WDEQ Guideline No. 12, Appendix P)
4. Grading of scarified roads prior to topsoil application at cost of \$74.90/acre (WDEQ Guideline No. 12, Appendix G)
5. Topsoil applied at cost of \$1.00/cy/1000 ft (WDEQ Guideline No. 12, App. C, Level Ground, 500 ft haul)
6. Stripped topsoil: average depth = 1.5 ft, average width = 16 ft
7. Disking/seeding cost of \$350/acre is based on LQD recommendation and LQD Guideline 12A.

Gravel Road Base Removal Costs per 1000 ft of Road

$$\frac{1000 \text{ ft}}{1000 \text{ ft}} \times \frac{0.30 \text{ ft}}{0.30 \text{ ft}} \times \frac{12 \text{ ft}}{12 \text{ ft}} \times \frac{1 \text{ cy}}{27 \text{ ft}^3} \times \frac{\$1.00}{\text{cy}} = \$ 133$$

Scarification Costs per 1000 ft of Road

$$\frac{1000 \text{ ft}}{1000 \text{ ft}} \times \frac{16 \text{ ft}}{16 \text{ ft}} \times \frac{1 \text{ acre}}{4.356 \times 10^4 \text{ ft}^2} \times \frac{\$68.69}{\text{acre}} = \$ 25$$

Grading Costs per 1000 ft of Road

$$\frac{1000 \text{ ft}}{1000 \text{ ft}} \times \frac{16 \text{ ft}}{16 \text{ ft}} \times \frac{1 \text{ acre}}{4.356 \times 10^4 \text{ ft}^2} \times \frac{\$74.00}{\text{acre}} = \$ 27$$

Topsoil Application Costs per 1000 ft of Road

$$\frac{1000 \text{ ft}}{1000 \text{ ft}} \times \frac{1.50 \text{ ft}}{1.50 \text{ ft}} \times \frac{16 \text{ ft}}{16 \text{ ft}} \times \frac{1 \text{ cy}}{27 \text{ ft}^3} \times \frac{\$1.00}{\text{cy}} = \$ 889$$

Disking/Seeding Costs per 1000 ft of Road

$$\frac{1000 \text{ ft}}{1000 \text{ ft}} \times \frac{16 \text{ ft}}{16 \text{ ft}} \times \frac{1 \text{ acre}}{4.356 \times 10^4 \text{ ft}^2} \times \frac{\$350}{\text{acre}} = \$ 129$$

TOTAL WELLFIELD ROAD RECLAMATION COSTS PER 1000 FT OF ROAD

= \$ 1,203

Ross Uranium Project Surety Update April 16 2015

NON CONTAMINATED WASTE TRANSPORT AND DISPOSAL AT MOORCROFT LANDFILL

Assumptions:

1. 20 yd³ per load
2. 46 miles to Moorcroft Landfill roundtrip
3. Transportation at \$3.00 per mile
4. Disposal fee at \$200/ ton

Non Contaminated Waste Transport

$$\begin{array}{rcl} \underline{46 \text{ miles}} & \times & \underline{\$3.00} \\ & & 1 \text{ mile} \end{array} \qquad \$138.00 \quad 20 \text{ tons}$$

Non Contaminated Waste Disposal Cost

\$4,000.00 20 tons

Total NON CONTAMINATED WASTE TRANSPORT AND DISPOSAL

\$338.00 per ton

Ross Uranium Project Surety Update April 16 2015

11E2 BY PRODUCT CONTAMINATED WASTE TRANSPORT AND DISPOSAL

Assumptions:

1. 30 yd3 per load
2. 470 miles to Shirley Basin 11E2 disposal facility (round trip)
3. Transportation at \$3.00 per mile
4. Disposal fee at \$300/yd3 (\$11.11/ft3)

11E2 By Product Waste Transport

$$\frac{470 \text{ miles}}{1 \text{ mile}} \times \frac{\$3.00}{1 \text{ mile}} = \$1,410.00 \text{ } 30 \text{ yd3}$$

11E2 By Product Waste Disposal Cost

\$11.11 ft3

Total 11E2 BY PRODUCT CONTAMINATED WASTE TRANSPORT AND DISPOSAL

\$12.85 ft3

Ross Uranium Project Surety Update April 16 2015

Abbreviations/Acronyms

\$	Dollars
\$/Kgal	Dollars per 1000 gallons
avg	average
ft	feet
ft ²	square feet
ft ³	cubic feet
gal	gallon
gpm	gallons per minute
H&S	Health and Safety
H ₂ S	Hydrogen Sulfide
H ₂ SO ₄	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
yd ³	cubic yards
yr	year