

**Table 3**  
**2017 - 2018 Surety Estimate**  
**Ruth Uranium ISR LQD Permit No. 631 / NRC License SUA 1548**  
 **Cameco Resources**

<b>Total Restoration and Reclamation Cost Estimate:</b>	2017	<i>2016 Bond Estimate</i>
I. Equipment Removal and Disposal (I EQUIP Sheet)	\$66,802	\$65,993
II. Building Demolition and Disposal (II BLDGS Sheet)	\$109,308	\$105,820
III. Miscellaneous Reclamation (III MISC REC Sheet)	\$177,673	\$175,213
Subtotal Restoration and Reclamation Cost Estimate	\$353,783	\$347,026
Contractor Profit & Overhead <sup>1</sup> 10%    Calc'd for Master Costs		
Contingency <sup>2</sup> <b>18.4%</b>	<b>\$65,096</b>	\$71,834
TOTAL <sup>3</sup> , rounded up	<b>\$418,900</b>	\$418,900

1 - Per WDEQ/LQD Guideline No. 12, Section 12(b)

2 - Per WDEQ/LQD Guideline No. 12, Section 12(a) and (c-h), Section 13 and NRC License Condition 9.5 (SUA-1548)

3 - Costs reflect both WDEQ & NRC requirements. No salvage value assumed.

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	2017 Estimate
<b>I. EQUIPMENT REMOVAL AND LOADING</b>	<b>Process Building</b>
<b>A. Removal and Loading Costs</b>	
1 Tankage	
Number of Tanks	6
Volume of Tank Construction Material (CF)	405
<u>Tank Removal Cost</u>	\$135.27
Subtotal Tankage Removal and Loading Costs	\$54,784
<b>Total Equipment Removal and Loading Costs</b>	<b>\$54,784</b>
<b>B. Transportation and Disposal Costs (NRC-Licensed Facility)</b>	
1 Tankage	
Volume of Tank Construction Material (CF)	405.0
Volume for Disposal Assuming Void Space (CF)	445.5
<u>Transportation and Disposal Unit Cost (\$/CF)</u>	\$14.52
Subtotal Tankage Transportation and Disposal Costs	\$6,469
Subtotal Equipment Transportation and Disposal Costs per Facility	\$6,469
<b>Total Equipment Transportation and Disposal Costs</b>	<b>\$6,469</b>
<b>C. Health and Safety Costs</b>	
1 Equipment Rental (Alpha, Gamma Surveys and Smear Samples)	
QTY. Weeks	2
Rental Rate	\$250
Subtotal Equipment	\$500
2 Soil Sampling and Monitoring	
Analytical Costs	\$372
Soil Samples and Monitoring	5
Subtotal Sampling	\$1,860
3 Labor (Health Physics Tech)	\$40
Hours	80
Subtotal Labor	\$3,189
Subtotal Health and Safety Costs	\$5,549
<b>TOTAL EQUIPMENT REMOVAL + DISPOSAL</b>	<b>\$66,802</b>

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	2017 Estimate		
	Process Building	Warehouse Building	Generator Bldg.
<b>II. BUILDING DEMOLITION AND DISPOSAL</b>			
<b>A. Decontamination Costs</b>			
1 Wall Decontamination			
Area to be Decontaminated (SF)	5,600	0	0
<a href="#">HCl Acid Wash, including labor (\$/SF)</a>	\$0.92	\$0.92	\$0.92
Subtotal Wall Decontamination Costs	\$5,134	\$0	\$0
2 Concrete Floor Decontamination			
Area to be Decontaminated (SF)	4,000	0	0
<a href="#">HCl Acid Wash, including labor (\$/SF)</a>	\$0.57	\$0.57	\$0.57
Subtotal Concrete Floor Decontamination Costs	\$2,289	\$0	\$0
Subtotal Decontamination Costs per Building	\$7,423	\$0	\$0
<b>Total Decontamination Costs</b>	<b>\$7,423</b>		
<b>B. Demolition Costs</b>			
1 Building			
Height of Building (ft)	20	10	10
Volume of Building (CF) to Demolish	80,000	7,480	990
<a href="#">Demolition Cost</a>	\$0.328	\$0.328	\$0.328
Subtotal Building Demolition Costs	\$26,224	\$2,452	\$325
2 Concrete Floor			
Area of Concrete Floor (SF)	4,000	600	150
<a href="#">Demolition Cost</a>	\$0.86	\$0.86	\$0.86
Subtotal Concrete Floor Demolition Costs	\$3,428	\$514	\$129
3 Concrete Footing			
Length of Concrete Footing (ft)	253	0	0
<a href="#">Demolition Cost</a>	\$17.57	\$17.57	\$17.57
Subtotal Concrete Footing Demolition Costs	\$4,444	\$0	\$0
Subtotal Demolition Costs per Building	\$34,096	\$2,966	\$454
<b>Total Demolition Costs</b>	<b>\$37,515</b>		
<b>C. Disposal Costs</b>			
1 Building			
Volume of Building (CY) to Dispose	978	91	12
Off-Site County Landfill			
Percentage (%)	100	100	100
Total Volume for Disposal - Incl. 33% Factor (CY)	1300	122	16
<a href="#">Disposal Cost, Landfill (CY)</a>	\$42.17	\$42.17	\$42.17
Subtotal County Facility Off-Site Disposal Costs	\$54,835	\$5,127	\$679
2 Concrete Floor			
Area of Concrete Floor (SF)	4,000	600	150
Average Thickness of Concrete Floor (ft)	0.75	0.75	0.75
Volume of Concrete Floor (CF)	3000	450	112.5
Volume of Concrete Floor (CY)	111	17	4
a. On-Site Concrete Disposal			
Percentage (%)	90	100	100
Volume for Disposal (CY)	100	17	4
<a href="#">Concrete Disposal On Site (CY)</a>	\$9.68	\$9.68	\$9.68
Subtotal County Facility Off-Site Disposal Costs	\$968	\$161	\$40

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	2017 Estimate		
	Process Building	Warehouse Building	Generator Bldg.
<b>II. BUILDING DEMOLITION AND DISPOSAL</b>			
C. 2 b. NRC-Licensed Disposal Facility			
Percentage (%)	10	0	0
Volume for Disposal (CF)	300	0	0
Transportation and Disposal Unit Cost (\$/CF)	\$7.32	\$7.32	\$7.32
Subtotal NRC-Licensed Facility Disposal Costs	\$2,197	\$0	\$0
Subtotal Concrete Floor Disposal Costs	\$3,165	\$161	\$40
3 Concrete Footing			
Length of Concrete Footing (ft)	253	0	0
Average Depth of Concrete Footing (ft)	4	4	4
Average Width of Concrete Footing (ft)	1	1	1
Volume of Concrete Footing (CF)	1012	0	0
Volume of Concrete Footing (CY)	37	0	0
Concrete Disposal On Site (CY)	\$9.68	\$9.68	\$9.68
Subtotal Concrete Footing Disposal Costs	\$363	\$0	\$0
Subtotal Disposal Costs per Building	\$58,363	\$5,288	\$719
<b>Total Disposal Costs</b>	<b>\$64,370</b>		
<b>D. Health and Safety Costs</b>	Included in "I EQUIP"		
SUBTOTAL BUILDING DEMOLITION AND DISPOSAL COSTS	\$99,882	\$8,254	\$1,173
<b>TOTAL BUILDING DEMOLITION AND DISPOSAL COSTS</b>	<b>\$109,308</b>		

**Table 3**  
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 **Cameco Resources**

<b>III. MISCELLANEOUS RECLAMATION</b>	2017 Estimate
<b>A. CPF, Office Area Reclamation</b>	
1 Ripping Overburden with Dozer	
Overburden Surface Area (acres)	2.0
<u>Ripping Cost (per acre)</u>	\$903.39
Subtotal Ripping Overburden Costs	\$1,807
2 Topsoil Application	
Area of surface disturbance (SF)	87120
Average thickness of topsoil (ft)	0.5
Average haul distance (ft)	2000
Surface grade (%)	0%
Volume of Topsoil (CY)	1,613
<u>Moving Materials (0% Grade)</u>	\$1.32
Subtotal Topsoil Application Costs	\$2,126
3 Discing/Seeding	
Surface Area (acres)	2
<u>Discing/Seeding Unit Cost (\$/acre)</u>	\$330
Subtotal Discing/Seeding Costs	\$660
<b>Total CPP, Office, Yard Area Reclamation</b>	<b>\$4,593</b>
<b>B. Access Road Reclamation (includes culverts)</b>	<b>Road No. 1</b>
1 Assumptions	
Surface grade	0%
Length of Road (ft)	5200
Width of Road (ft)	12
Area of road (acres)	1.4

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**Cameco Resources**

<b>III. MISCELLANEOUS RECLAMATION</b>	2017 Estimate
B. 2 Gravel Road Base Removal	
Average haul distance (ft)	5500
Gravel Road Base Width (ft)	12
Gravel Road Base Area (acres)	1.43
Average Road Base Depth (ft)	0.3
Volume of Road Base (CY)	770
<a href="#">Moving Materials (0% Grade)</a>	\$1.02
Subtotal Gravel Road Base Removal Costs	\$784
3 Ripping Overburden with Dozer	
Overburden Surface Area (acres)	1.4
<a href="#">Ripping Cost (per acre)</a>	\$903
Subtotal Ripping Overburden Costs	\$1,294
4 Topsoil Application	
Average haul distance (ft)	400
Topsoil Surface Area (SF)	62,400
Depth of Topsoil (ft)	0.67
Volume of Topsoil (CY)	1548
<a href="#">Moving Materials</a>	\$0.85
Subtotal Topsoil Application Costs	\$1,312
5 Discing/Seeding	
Surface Area (acres)	1.4
<a href="#">Discing/Seeding Unit Cost (\$/acre)</a>	\$330
Subtotal Discing/Seeding Costs	\$473
Multiplier for Projected Additions	1
<b>Total Access Road Reclamation Costs</b>	<b>\$3,863</b>

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III. MISCELLANEOUS RECLAMATION	2017 Estimate	
C. Pond Reclamation	2017 Estimate Pond No. 1	Estimate Pond No. 2
<b>Settling Basin/Storage Ponds Reclamation</b>		
1 Volume of By-product Material		
Area of Pond Bottom (SF)	33,000	27,000
Area with Fill (SF)	2,813	0
Average Fill Thickness (ft)	0.29	0
Volume of Fill (CY)	30	0
Remaining Area with Pond Residue (SF)	19,325	21,947
Average Pond Residue Thickness (in)	1	0.5
Volume of Pond Residue (CY)	60	34
Area of Liner (SF)	50,000	50,000
Thickness of Liner (in)	0.036	0.036
Volume of Liner (CY)	5.6	5.6
Volume of Liner Assuming 25% Void Space (CY)	6.9	6.9
Area of Contaminated Sump and Drain (SF)	0	1
Length of Sump and Drain (ft)	0	240
Volume of Sump and Drain (CY)	0	9
Diameter of Contaminated Soil (ft)	0	10
Contaminated Soil Thickness (in)	0	6
Volume of Contaminated Soil (CY)	0	1
Subtotal Volume By-product Material (CY)	97	51
2 Soil Sampling and Monitoring		
Non-invasive surface gamma survey	\$5,000	--
Physical Soil Samples (Ra226, U-nat, Pb-210, Th-230)	20	20
\$/Sample	\$545	\$545
Physical Soil Sampling and Monitoring Costs	\$10,900	\$10,900
Subtotal Soil Sampling & Monitoring	\$15,900	\$10,900

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<b>III. MISCELLANEOUS RECLAMATION</b>	2017 Estimate	
<b>C. 3 Transportation &amp; Disposal to 11e(2) Facility</b>	Pond #1	Pond #2
Volume of Subsoil for Disposal (CY)	97	51
Transportation and Disposal Unit Cost (\$/CY)	\$392.07	\$392.07
Subtotal Byproduct Material Transportation + Disposal Costs	\$38,022	\$19,922
<b>4 Liner/Subsoil Removal and Disposal</b>		
Thickness of liner (ft)	0.0030	0.0030
Thickness of contaminated subsoil (ft)	0.083	0.042
Width of liner (ft)	--	--
Length of liner (ft)	--	--
Depth of Pond (ft)	15	15
Surface area of pond liner (SF)	50,000	50,000
<b>a. Removal and Loading</b>		
Volume of Liner (CY)	160	83
(Clay) Liner Removal and Loading Unit Cost (\$/CY)	\$4.24	\$4.24
Subtotal Liner Removal and Loading Costs	\$678	\$351
<b>b. Transportation and Disposal</b>		
Volume of Geotextile Liner (CF)	4,317	2,233
Transportation and Disposal Unit Cost (\$/CF)	\$5.80	\$5.80
Subtotal Liner Transportation and Disposal Costs	\$25,057	\$12,964
Subtotal Liner Removal and Disposal Costs	\$25,735	\$13,315
<b>5 Grade and Contour</b>		
Volume of Embankment Material (CY)	9,444	12,778
Average Grade (%)	0	0
Distance (ft)	500	500
Material Moving Unit Cost per WDEQ Guideline No.12, App.E (\$/C	\$0.847	\$0.847
Subtotal Grade and Contour Costs	\$7,999	\$10,823



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<b>III. MISCELLANEOUS RECLAMATION</b>	2017 Estimate	
<b>C. 6 Topsoil Application</b>	Pond #1	Pond #2
Area of surface disturbance (SF)	50,000	50,000
Average thickness of topsoil (ft)	6	6
Average haul distance (ft)	500	500
Surface grade (%)	0%	0%
Volume of Topsoil (CY)	11,111	11,111
Topsoil Unit Cost per WDEQ Guideline No.12, App.C (\$/CY)	\$0.847	\$0.847
Subtotal Topsoil Application Costs	\$9,411	\$9,411
<b>7 Revegetation</b>		
Area of surface disturbance (acres)	1.1	1.1
Revegetation Unit Cost (\$/acre)	\$330	\$330
Subtotal Revegetation Costs	\$379	\$379
Subtotal Pond Reclamation	\$97,446	\$64,750
<b>Total Ponds Reclamation</b>	<b>\$162,196</b>	
<b>D. Miscellaneous Well Abandonment</b>	2016 Estimate	
<b>A. Well Abandonment</b>		
Number of Wells	3	
Average Depth (ft) per well	550	
Abandonment Cost per foot	\$3.30	
Small Site Grading and Seeding (<1000 SF) per site	\$55	
Remove and Dispose Casing (top few feet) per well	\$33	
Monitoring Well Concrete Pedestal Disposal per well	\$110	
<b>Total Miscellaneous Well Abandonment</b>	<b>\$6,039</b>	
<b>E. Fence Removal</b>		
Length of Fencing (ft)	2,880	
Fence Removal Costs	\$0.341	
<b>Total Fence Removal Costs</b>	<b>\$982</b>	
<b>TOTAL MISCELLANEOUS RECLAMATION COSTS</b>	<b>\$177,673</b>	

<b>UNIT COST CALCULATIONS</b>			
<b>2017 - 2018 Surety Estimate</b>			
<b>Cameco Resources</b>			
<b>GROUNDWATER RESTORATION UNIT COSTS</b>			
<b>Wellfield Pumping</b>			
Equipment			
	Wellfield Pump Sizes	5	hp
	Wellfield Pump Flow Rate	25	gpm
	kW to HP Conversion Factor	0.746	
	Cost of Electricity	\$0.0840	kWhr
	Efficiency	80%	
	<b>Wellfield Pumping Cost</b>	<b>\$0.26</b>	<b>per kgal</b>
<b>Satellite Pumping</b>			
Equipment			
	Satellite Pump Sizes	60	hp
	Satellite Pump Flow Rate	75	gpm
	kW to HP Conversion Factor	0.746	
	Cost of Electricity	\$0.0840	kWhr
	Efficiency	90%	
	<b>Satellite Pumping Cost</b>	<b>\$0.93</b>	<b>per kgal</b>
<b>Deep Disposal Well Injection</b>			
Equipment			
	Deep Disposal Well Pump Size	75	hp
	Deep Disposal Well Flow Rate	75	gpm
	kW to HP Conversion Factor	0.746	
	Cost of Electricity	\$0.0840	kWhr
	Efficiency	90%	
Reagent			
	Antiscalant Cost (Scaletrol)	\$0.0000	per lb
	Density of Water	8.34	lbs/gal
	Specific Gravity (Scaletrol)	1.284	
	Antiscalant Cost (Scaletrol)	\$0.00	per gal
	Antiscalant Dose (ScaleTrol)	0.0000048	gal/gal
	<b>Deep Disposal Well Cost</b>	<b>\$1.16</b>	<b>per kgal</b>
	<b>Total Groundwater Sweep Costs</b>	<b>\$2.35</b>	<b>per kgal</b>
<b>Reverse Osmosis</b>			
Equipment			
	System Capacity	250	gpm
	Unit Pump	60	hp
	Injection Pump	60	hp
	Waste Pump	15	hp
	kW to HP Conversion Factor	0.746	
	Cost of Electricity	\$0.0840	kWhr
	Efficiency	90%	

<b>UNIT COST CALCULATIONS</b>			
<b>2017 - 2018 Surety Estimate</b>			
<b>Cameco Resources</b>			
<b>Reagents</b>			
	Tripolyphosphate Usage Rate	0.00000130	lb/gal
	Tripolyphosphate Cost	\$0.0000	per lb
	EDTA Usage Rate	0.00000315	lb/gal
	EDTA Cost	\$0.0000	per lb
	Antiscalant Cost (Hypersperse)	\$0.0000	per lb
	Density of Water	8.34	lbs/gal
	Specific Gravity (Hypersperse)	1.124	
	Antiscalant Cost (Hypersperse)	\$0.0000	per gal
	Antiscalant Dose (Hypersperse)	0.0000036	gal/gal
	Sodium Sulfide Usage Rate	0.00017	lb/gal
	Sodium Sulfide Cost	\$0.0000	per lb
	<b>RO Cost (without Reductant)</b>	<b>\$0.63</b>	<b>per kgal</b>
	<b>RO Cost (with Reductant)</b>	<b>\$0.63</b>	<b>per kgal</b>
<b>MIT Costs for Production Wells</b>			
Equipment			
	Pulling Unit Hours	4	hrs/day
	Pulling Unit Cost	\$0.00	\$/hour
	MIT Unit Hours	8	hrs/day
	MIT Unit Cost	\$0.00	\$/hour
Labor			
	Required Hours	8	hrs/day
	Required Laborers	1.5	per day
	Labor Cost	\$35.26	\$/hour
Productivity		4	wells/day
	<b>MIT Cost for Production Wells</b>	<b>\$105.79</b>	<b>per well</b>
<b>MIT Costs for Injection Wells</b>			
Equipment			
	Pulling Unit Hours	0	hrs/day
	Pulling Unit Cost	\$0.00	\$/hour
	MIT Unit Hours	8	hrs/day
	MIT Unit Cost	\$0.00	\$/hour
Labor			
	Required Hours	8	hrs/day
	Required Laborers	1	per day
	Labor Cost	\$35.26	\$/hour
Productivity		4	wells/day
	<b>MIT Cost for Injection Wells</b>	<b>\$70.53</b>	<b>per well</b>
<b>Booster Pump Operating Cost</b>			
Equipment			
	Wellfield Pump Sizes	40	hp
	Number of Pumps Running (avg.)	2	per year
	Hours Running	24	per day
	kW to HP Conversion Factor	0.746	
	Cost of Electricity	\$0.0840	kWhr
	Efficiency	90%	
	<b>Booster Pump Operating Costs</b>	<b>\$48,794</b>	<b>per year</b>

<b>UNIT COST CALCULATIONS</b>			
<b>2017 - 2018 Surety Estimate</b>			
<b>Cameco Resources</b>			
<b>WELL ABANDONMENT UNIT COSTS</b>			
<b>Removal of Contaminated Soil Around Wells</b>			
Equipment			
	Cat 416 Backhoe Time	0.25	hours
	Cat 416 Backhoe Cost	\$29.89	per hour
Labor			
	Radiation Technician	0.25	hours
	Radiation Technician Cost	\$39.86	per hour
	Operator	0.25	hours
	Operator Cost	\$46.00	per hour
Disposal			
	ByProduct Disposal	0.37	cubic yard
	Disposal Cost (incl. Transport)	\$156.73	per cubic yard
	<b>Removal of Contaminated Soil Cost</b>	<b>\$86.93</b>	<b>per well</b>
<b>DDW Pump Dismantling and Disposal</b>			
Labor			
	Number of Laborers	2	per day
	Number of Pumps Dismantled	0.5	per day
	Hours Per Day	8	hours
	Laborers Cost	\$46.00	
Disposal			
	Volume of DDW Pump	240	ft <sup>3</sup>
	ByProduct Disposal	\$7.32	per ft <sup>3</sup>
	<b>DDW Pump Dismantling and Disposal</b>	<b>\$3,230</b>	<b>per pump</b>
<b>WELLFIELD RECLAMATION COSTS</b>			
<b>Wellfield Piping Removal</b>			
Equipment			
	Trackhoe	1	per day
	Trackhoe Cost	\$76.38	per hour
	Loader	1	per day
	Loader Cost	\$47.18	per hour
	Pickup Truck	1	per day
	Pickup Cost	\$20.67	per hour
	Chipper Cost	\$37.76	per hour
Labor			
	Backhoe Operator	\$46.00	per hour
	Loader Operator	\$46.00	per hour
	Laborer	\$35.26	per hour
	Hours Per Day	8	per day
Productivity		1500	ft/day
	<b>Piping Removal Cost</b>	<b>\$1.65</b>	<b>per foot of pipe</b>
<b>Production Pump Volume</b>			
	Length	66	inches
	Diameter	3.8	inches
	Cubic Inch to Cubic Foot Conversion	0.0006	
	<b>Production Pump Volume</b>	<b>0.43</b>	<b>cubic feet</b>

<b>UNIT COST CALCULATIONS</b>			
<b>2017 - 2018 Surety Estimate</b>			
<b>Cameco Resources</b>			
<b>Trunk Line Removal</b>			
Equipment			
	Trackhoe	1	per day
	Trackhoe Cost	\$76.38	per hour
	Loader	1	per day
	Loader Cost	\$47.18	per hour
	Pickup Truck	1	per day
	Pickup Cost	\$20.67	per hour
	Chipper Cost	\$37.76	per hour
Labor			
	Trackhoe Operator	\$46.00	per hour
	Loader Operator	\$46.00	per hour
	Laborer	\$35.26	per hour
	Hours Per Day	8	per day
Productivity		750	ft/day
	<b>Buried Piping Removal Cost</b>	<b>\$3.30</b>	<b>per foot of pipe</b>
<b>Removal of Well Head Covers</b>			
	Volume of Well Head Cover (ft <sup>3</sup> )	1.86	cubic feet
	<a href="#">Demolition Cost</a>	\$0.328	per cubic ft
	Decontamination		
	Acid Usage	4.1	pounds per wellhead cover
	Hydrochloric Acid	\$0.1627	per lbs
Labor			
	Radiation Tech	\$39.86	per hour
	Operator	\$46.00	per hour
Productivity		10	wellheads per hour
Disposal			
	Void space	10%	
	<a href="#">Transportation and Disposal Cost</a>	\$1.56	per ft3
	<b>Removal of Well Head Cover Cost</b>	<b>\$13.06</b>	<b>per well</b>
<b>Header House Decontamination</b>			
	Decontamination		
	Acid Usage	20	pounds per header house
	Hydrochloric Acid	\$0.1627	per pound
Labor			
	Radiation Tech	\$39.86	per hour
	Number of Operators	2	per day
	Operator	\$46.00	per hour
	Hours Per Day	8	per day
Productivity		1	header house per day
	<b>Header House Decontamination Cost</b>	<b>\$ 779.06</b>	<b>per header house</b>
<b>Header House Heating</b>			
	Heater Power Usage	12.5	kW
	Days Used	180	days per year
	Electricity Cost	\$0.0840	kWhr
	<b>Header House Heating Cost</b>	<b>\$4,536</b>	<b>per year</b>

UNIT COST CALCULATIONS			
2017 - 2018 Surety Estimate			
Cameco Resources			
<b>WELLFIELD AND SATELLITE AND SURFACE RECLAMATION</b>			
<b>Wellfield Road Reclamation</b>			
Gravel Road Base			
	Average Depth	0	feet
	Average Width	0	feet
	<u>Material Moved (0% Grade)</u>	\$1.02	bcy
	Cubic Yard to Cubic Feet Conversion	0.04	
Scarification of Road			
	Scarification Costs	\$55.22	per acre
	Average Width	12	feet
	Acre to Sq. Foot Conversion	2.30E-05	
Grading Cost			
	Topsoil Depth	0.67	feet
	<u>Discing/Seeding Costs</u>	\$330	per acre
	Linear Feet for Unit Cost	1000	feet
	<b>Wellfield Road Reclamation Cost</b>	<b>\$426</b>	<b>per 1000 feet</b>
<b>EQUIPMENT COSTS</b>			
<b>Tank Removal</b>			
Equipment			
	Loader	\$47.18	per hour
	Trackhoe	\$76.38	per hour
	Manlift	\$43.04	per hour
	Pickup	\$20.67	per hour
	Lift Truck	\$51.46	per hour
Labor			
	Number of Operators	4	
	Operator Cost	\$46.00	per hour
	Hours Per Day	8	per day
	Productivity	25	ft <sup>3</sup> /day
	<b>Tank Removal Cost</b>	<b>\$135</b>	<b>per ft<sup>3</sup></b>
<b>Pipe Removal</b>			
Equipment			
	Manlift	\$43.04	per hour
	Pickup	\$20.67	per hour
	Lift Truck	\$51.46	per hour
	Chipper	\$37.76	per hour
Labor			
	Number of Operators	4	
	Operator Cost	\$46.00	per hour
	Hours Per Day	8	per day
	Productivity	300	ft/day
	<b>Pipe Removal Cost (Inside Buildings)</b>	<b>\$8.98</b>	<b>per ft</b>
<b>Pump Removal</b>			
Equipment			
	Pickup Truck	\$20.67	per hour
	Skid Steer	\$24.99	per hour
Labor			
	Number of Operators	2	
	Operator Cost	\$46.00	per hour
	Hours Per Day	8	per day
	Productivity	10	ft <sup>3</sup> /day
	<b>Pump Removal</b>	<b>\$110.12</b>	<b>per ft<sup>3</sup></b>

<b>UNIT COST CALCULATIONS</b>			
<b>2017 - 2018 Surety Estimate</b>			
<b>Cameco Resources</b>			
<b>Dryer Removal</b>			
Equipment			
	Pickup Truck	\$20.67	per hour
	Lift Truck	\$51.46	per hour
Labor			
	Number of Operators	4	
	Operator Cost	\$46.00	per hour
	Hours Per Day	8	per day
Productivity		125	ft <sup>3</sup> /day
	<b>Dryer Removal Cost</b>	<b>\$16.39</b>	<b>per ft<sup>3</sup></b>
<b>RO and Degasser Removal</b>			
Equipment			
	Pickup Truck	\$20.67	per hour
	Lift Truck	\$51.46	per hour
Labor			
	Number of Operators	2	
	Operator Cost	\$46.00	per hour
	Hours Per Day	8	per day
Productivity		250	ft <sup>3</sup> /day
	<b>RO and Degasser Removal Cost</b>	<b>\$5.25</b>	<b>per ft<sup>3</sup></b>
<b>BUILDING COSTS</b>			
<b>Acid Wash Walls</b>			
Acid			
	Acid Usage	0.05	per square foot
	Hydrochloric Acid	\$0.1627	per pound
Equipment			
	Manlift	\$43.04	per hour
Labor			
	Laborer	2	people
	Laborer Cost	\$35.26	per hour
Productivity		125	square feet per hour
	<b>Acid Wash Walls Cost</b>	<b>\$0.92</b>	<b>per square foot</b>
<b>Acid Wash Floors</b>			
Acid			
	Acid Usage	0.05	per square foot
	Hydrochloric Acid	\$0.1627	per pound
Labor			
	Laborer	2	people
	Laborer Cost	\$35.26	per hour
Productivity		125	square feet per hour
	<b>Acid Wash Floors Cost</b>	<b>\$0.57</b>	<b>per square foot</b>
<b>Electrical Power</b>			
*Pumping Costs for Operating DDWs, RO, and Wellfield are included in GW Restoration Unit Costs			
<b>Satellite - Typical</b>			
	Miscellaneous Pumps, Fans, Sumps, etc.	22.5	HP
	Lighting	35.0625	kW (per square ft)
	kW to HP Conversion Factor	0.746	
	Electricity Cost	\$0.0840	per kWhr
	Efficiency Factor	90%	
	Operating Hours Per Year	8760	hours
	<b>Satellite 2 Power Cost</b>	<b>\$36,916</b>	<b>per year</b>
<b>DDW - Typical</b>			

<b>UNIT COST CALCULATIONS</b>				
<b>2017 - 2018 Surety Estimate</b>				
<b>Cameco Resources</b>				
	Miscellaneous Pumps, Fans, Sumps, etc.		2	HP
	Lighting		0.49	kW
	Heating		12.5	kW
	kW to HP Conversion Factor		0.746	kW/hp
	Electricity Cost		\$0.0840	per kWhr
	Efficiency Factor		90%	
	Operating Hours Per Year		8760	hours
	<b>DDW Electrical Cost</b>		<b>\$5,948</b>	<b>per year</b>
<b>MISCELLANEOUS RECLAMATION AND RESTORATION COSTS</b>				
<b>Liner and Subsoil Removal Costs</b>				
	Equipment			
	Trackhoe Cost	\$	76.38	per hour
	Loader Cost		\$47.18	per hour
	Labor			
	Operator		46.00	per hour
	Productivity		40	cubic yards/hour
	<b>Total Removal</b>	<b>\$</b>	<b>4.24</b>	<b>per cubic yard</b>
<b>Building Dimensions</b>				
	Buildings On-Site		<b>Process Building</b>	<b>Warehouse Building</b>
	Assume Thickness of building material (ft)		0.75	0.5
	Building Length (ft)		100	34
	Building Width (ft)		40	22
	Building Height (ft)		20	10
	Volume of Building Materials (CY) [FEMA Demolition Est. Formula]		978	91
	Volume for Disposal (assume 33% swell factor) (CY)		1300	122
<b>EVAPORATION POND DECOMMISSIONING</b>			<b>Pond No. 1</b>	<b>Pond No. 2</b>
<b>By-product Material Removal and Loading</b>				
	Volume of By-product Material			
	Area of Pond Bottom (SF)		33,000	27,000
	Area with Fill (SF)		2,813	0
	Average Fill Thickness (ft)		0.29	0
	Volume of Fill (CY)		30	0
	Remaining Area with Pond Residue (SF)		19,325	21,947
	Average Pond Residue Thickness (ft)		0.083	0.042
	Volume of Pond Residue (CY)		60	34
	Area of Liner (SF)		50,000	50,000
	Thickness of Liner (in)		0.036	0.036



**Master Costs- December 2017**  
**Surety Estimate 2017-2018 Update**  
**Ruth Uranium Project - Cameco Resources**

<b>Labor Costs</b>	<b>2013 Rate</b>	<b>Esc Rate (\$)</b>	<b>Net Benefits*</b>	<b>Units</b>	<b>Source</b>		<b>CPI Escalators (CPI-U, U.S. City Average)</b>	
Radiation Safety Officer	\$46.00	\$50.38	\$70.53	hour	2013 MSEC rates plus CPI 2013 to 2017		Denver CPI (2013 Annual) 230.8	
Restoration Manager	\$40.00	\$43.81	\$61.33	hour	2013 MSEC rates plus CPI 2013 to 2017		Denver CIP (HALF 2017) 252.8	
Operator/Laborer	\$26.00	\$28.47	\$39.86	hour	2013 MSEC rates plus CPI 2013 to 2017		<b>2017 Escalator Factor (2013 to 2017) 1.10</b>	
Environmental Tech/HPT	\$30.00	\$32.85	\$46.00	hour	2013 MSEC rates plus CPI 2013 to 2017		Denver CPI (2014 Annual) 237.2	
Maintenance Tech	\$23.00	\$25.19	\$35.26	hour	2013 MSEC rates plus CPI 2013 to 2017		Denver CPI (HALF 2017) 252.8	
<i>*Includes additional 40% net benefits based on InfoMine USA cost data for Surface Metal and Industrial Mineral Mines - Western U.S. (Table 5)</i>								<b>2017 Escalator Factor (2014 to 2017) 1.07</b>
							Denver CPI (2015 Annual) 240.0	
							Denver CPI (HALF 2017) 252.8	
<b>Utility Costs</b>		<b>Rate (\$)</b>	<b>Profit &amp; Overhead</b>	<b>Units</b>	<b>Source</b>			
Electrical Costs		\$0.0840	included	kWhr	Actual Average Costs-2017		<b>2017 Escalator Factor (2015 to 2017) 1.05</b>	
Kilowatt to Horsepower		0.746	included	Kw/HP	N/A		Denver CPI (2016 Annual) 246.6	
Efficiency - Downhole Pumps		80%	included	Percent	N/A		Denver CPI (HALF 2017) 252.8	
Efficiency - Surface Pumps		90%	included	Percent	N/A		<b>2017 Escalator Factor (2015 to 2017) 1.02</b>	
<b>Chemical &amp; Materials Costs</b>	<b>2015 Rate</b>	<b>Esc Rate (\$)</b>	<b>Profit &amp; Overhead</b>	<b>Units</b>	<b>Source</b>			
Hydrochloric Acid	\$0.1627	0.1667	included	pound	Actual Costs-2015 plus CPI 2015 to 2017			
<b>Analytical Costs</b>		<b>Rate (\$)</b>	<b>Profit &amp; Overhead</b>	<b>Units</b>	<b>Source*</b>			
Guideline 8		\$372.00	included	analysis	Actual Costs 2017			
<i>*Energy Laboratories, Inc., Casper, WY quotes, fee schedules and actual costs.</i>								
<b>Equipment Costs</b>	<b>2014 Rate</b>	<b>Rate (\$)</b>	<b>Profit &amp; Overhead*</b>	<b>Units</b>	<b>Source</b>	<b>date</b>		
Bandit 1290XP Trailer Mounted Brush Chipper	\$34.33	\$36.58	\$37.76	hour	Equipment Watch** plus CPI 2014 to 2017			
Bobcat S250 Skid Steer Loader	\$22.72	\$24.21	\$24.99	hour	Equipment Watch** plus CPI 2014 to 2017			
Cat 320C L Trackhoe - 1.25 cu yd bucket	\$69.44	\$74.00	\$76.38	hour	Equipment Watch** plus CPI 2014 to 2017			
Cat 416E Backhoe	\$27.17	\$28.95	\$29.89	hour	Equipment Watch** plus CPI 2014 to 2017			
Cat 924H Loader - 2.4 cu yd bucket	\$42.89	\$45.70	\$47.18	hour	Equipment Watch** plus CPI 2014 to 2017			
GEHL DL-8 Rough Terrain Lift Truck	\$46.78	\$49.85	\$51.46	hour	Equipment Watch** plus CPI 2014 to 2017			
Manlift	\$39.13	\$41.70	\$43.04	hour	Equipment Watch** plus CPI 2014 to 2017			
Pick-up Truck 3/4 ton 4X4	\$18.79	\$20.02	\$20.67	hour	Equipment Watch** plus CPI 2014 to 2017			
<i>*Includes additional 10% Profit &amp; Overhead per WDEQ/LQD Guideline No. 12, Section 12(b)</i>								
<i>**Equipment Watch Rental Rate Blue Book: Volume 1</i>								

**Master Costs- December 2017**  
**Surety Estimate 2017-2018 Update**  
**Ruth Uranium Project - Cameco Resources**

Quoted Costs		Rate (\$)	Profit & Overhead	Units	Source		
<b>WDEQ/LQD Guideline No. 12: Draft October 2015</b>	<b>Appendix</b>	<b>Rate (\$)</b>	<b>Profit &amp; Overhead*</b>	<b>Units</b>	<b>Source</b>		
Moving Materials w. Scraper: 1-Way Distance 500 feet, 0% grade	Appendix C	\$0.770	\$0.847	bcy	Guideline-2/2017		
Moving Materials w. Scraper: 1-Way Distance 1,000 feet, 0% grade	Appendix C	\$0.925	\$1.018	bcy	Guideline-2/2017		
Moving Materials w. Scraper: 1-Way Distance 2,000 feet, 0% grade	Appendix C	\$1.198	\$1.318	bcy	Guideline-2/2017		
Moving Materials w. Dozer: 1-Way Distance 50 feet, 0% grade	Appendix E	\$0.114	\$0.125	lcy	Guideline-2/2017		
Moving Materials w. Dozer: 1-Way Distance 100 feet, 0% grade	Appendix E	\$1.930	\$2.123	lcy	Guideline-2/2017		
Moving Materials w. Dozer: 1-Way Distance 150 feet, 0% grade	Appendix E	\$0.251	\$0.276	lcy	Guideline-2/2017		
Grading Operating Costs	Appendix G	\$54.73	\$60.20	acre	Guideline-2/2017		
Fencing Removal	Appendix H	\$0.31	\$0.34	foot	Guideline-2/2017		
Ripping Operating Costs (Asphalt)	Appendix I	\$629.53	\$692.48	acre	Guideline-2/2017		
Ripping Operating Costs (Overburden)	Appendix I1	\$821.26	\$903.39	acre	Guideline-2/2017		
Building Demolition - Mixture of Types	Appendix K	\$0.298	\$0.328	ft3	Guideline-2/2017		
Building Demo Disposal (Average)	Appendix K	\$10.10	\$11.11	cy	Guideline-2/2017		
Concrete (Floor) Demolition - 6" Thick with Rebar	Appendix K	\$0.78	\$0.86	ft2	Guideline-2/2017		
Concrete (Footing) Demolition - 2' Thick, 3' Wide	Appendix K	\$15.97	\$17.57	linear foot	Guideline-2/2017		
Concrete Disposal On-Site	Appendix K	\$8.80	\$9.68	cy	Guideline-2/2017		
Drill Hole Abandonment: Wet Exploration Holes >25 holes	Appendix L	\$3.00	\$3.30	foot	Guideline-2/2017		
Well Abandonment: Monitor, Production, and Injection Wells	Appendix L	\$2.50	\$2.75	foot	Guideline-2/2017		
Incidental Costs: Small Site Grading and Seeding (<1000 sq. feet)	Appendix L	\$50	\$55	site	Guideline-2/2017		
Incidental Costs: Capping	Appendix L	\$10	\$11	each	Guideline-2/2017		
Incidental Costs: Site Location	Appendix L	\$10	\$11	hole	Guideline-2/2017		
Incidental Costs: Remove Pump, Wiring, and Drop Pipe	Appendix L	\$0.40	\$0.44	foot	Guideline-2/2017		
Incidental Costs: Remove and Dispose Casing (top few feet)	Appendix L	\$30	\$33	well	Guideline-2/2017		
Incidental Costs: Monitoring Well Concrete Pedestal Disposal	Appendix L	\$100	\$110	each	Guideline-2/2017		
Mobilization Fee	Appendix L	\$1,000	\$1,100	Project	Guideline-2/2017		
Scarification Costs	Appendix P	\$50.20	\$55.22	acre	Guideline-2/2017		
Revegetation Costs-Total	Guideline 12A.II.i.	\$300	\$330.00	acre	Guideline 12 A-4/2017		
<i>*Includes additional 10% Profit &amp; Overhead per WDEQ/LQD Guideline No. 12, Section 12(b)</i>							
<b>Construction &amp; Demolition Debris Transportation &amp; Disposal Costs</b>							
Building Volume for Disposal	0.33						
Void Factor (for disposal)	1.1						
	<b>Disposal (\$/ton)</b>	<b>C&amp;D (cy/ton)</b>	<b>Transport (\$/load)</b>	<b>C&amp;D (cy/load)</b>	<b>Total (\$/cy)</b>	<b>Total (\$/ft3)</b>	
C&D Debris (county landfill)	\$62.00	2	\$335.00	30	\$42.17	\$1.56	
<i>*Transportation and disposal costs based on actual costs (2013). Transportation and disposal costs include profit and overhead of service provider. Conversion factors of 2 cy/ton and 0.33 to account for air space in buildings based on FEMA - Debris Estimating Field Guide, FEMA 320, September 2010.</i>							
<b>11e.(2) Byproduct Material Transportation &amp; Disposal</b>							
Load Correction Factor: Soil, sand, etc.	1.1						
Load Correction Factor: Process materials, etc.	0.42						
<b>White Mesa</b>	<b>Disposal (\$/ton)</b>	<b>Disposal (\$/cy)</b>	<b>Volume (cy)</b>	<b>Transport (\$/cy)</b>	<b>Total (\$/cy)</b>	<b>Total (\$/ft3)</b>	
Type I: Soil, sand, gravel, rock, concrete rubble, etc.	\$138.97	\$152.87	13.0	\$247.95	\$400.82	\$14.85	
Type II: Process material, pumps, motors, etc.	\$160.08	\$67.23	24.7	\$130.50	\$197.73	\$7.32	
Type II: Chipped piping	\$160.08	\$67.23	36.4	\$88.55	\$155.78	\$5.77	
<b>Pathfinder</b>							
Type I: Soil, sand, rock, gravel, demolition masonry, concrete rubble	N/A	\$130.00	13.0	\$26.73	\$156.73	\$5.80	
Type II: Other process waste, process equipment, etc.	N/A	\$378.00	24.7	\$14.07	\$392.07	\$14.52	
Type II: Chipped piping	N/A	\$378.00	36.4	\$9.55	\$387.55	\$14.35	
<i>*Transportation and disposal costs based on contract amounts as adjusted annually. Transportation and disposal costs include profit and overhead of service provider and include all unloading and decontamination fees, waste tax, fuel surcharges, etc. Transportation costs assume 1) one truck transports one 13-cy bin of Type I waste, 2) one truck transports one 24.7-cy bin of Type II process waste (including pumps, motors, etc.) and 3) one truck transports one 36.4-cy bin of Type II chipped piping waste.</i>							